August 25, 2020

Jennifer Kaden, Associate Planner
City of Hood River

Subject: Applicant's additional written submission
Project: Adams Creek Cohousing, 1419 SE Sherman Ave, 03N10E35AA Tax Lot 4900

Dear Jennifer,

Please accept this letter and the referenced attachments as new evidence to be submitted into the open record.

1) **Stormwater facilities.** In the staff report and as discussed at the Hearing, the City Planner and City Engineer stated concerns about the level of detail represented in the conceptual stormwater design. Upon further clarification of those concerns by the City Engineer, the applicant acknowledges the feasibility threshold for the northernmost stormwater facility – conceptually shown in the submittal as a swale on the side of a steep slope – was not met. The applicant has revised the north facility location and strategy as follows: It will be moved to the existing driveway area where the slopes are manageable. As is standard for any development, all facilities will be designed to meet the *City of Hood River Engineering Standards*. However, for a conceptual visualization, the north facility can be described as a series of interconnected shallow basins. Stormwater will enter at one end, travel from one basin to the next, and be released to the City stormwater system at a rate equal to or less than the pre-development conditions. Please note that the existing driveway will be replaced with a new asphalt path to maintain the required pedestrian connection to Sherman Avenue. The strategy and calculations represented in the revised exhibits are intended to reflect the "worst case" footprint of an open-air stormwater detention facility.
    a. **Attachment 1a.** Plan exhibit labeled "C1" clarifies the pre-development conditions. Note that there are separate drainage basins labeled *North Basin* and *South Basin*.
    b. **Attachment 1b.** Plan exhibit labeled "C2" clarifies the post-development conditions. This exhibit identifies the general location of the two stormwater facilities – *North* and *South* – and their respective capacities.
    c. **Attachment 1c.** Letter titled "Stormwater Management Plan" that describes the stormwater strategies exhibited in the referenced attachments.
    d. **Attachment 1d & 1e.** Stormwater calculations labeled "Hydrology North" and "Hydrology South."
    e. **Attachment 1f.** The primary audience for exhibits a. through e. is the City Engineer. Plan exhibit labeled "PR A1.2 rev1" graphically illustrates the design intent for the revision to the north facility. This exhibit – along with the narrative in this letter – is intended to describe the stormwater strategy for the Commission and community members who are less familiar with engineering terminology.

2) **Covered parking structure.** For the covered parking structure (carports and garages), the applicant submitted elevations and a section diagram. In the staff report, the Planner identified that the wall facing the property line might not meet the criteria for breaking façade lengths into segments shorter than 100 feet. The applicant takes no objection to the condition of approval to clarify compliance with HRMC 17.16.050.G. In response, the applicant has revised the elevation and submits it as a revision to the record. The wall will be broken into two discrete segments as follows: change in wall height, change in wall cladding material, and change in wall plane. See the revised elevation "PR A1.7 Detail 6 Rev1" – **Attachment 2a**. Additionally, some Hearing participants appeared to be confused by the section diagram – which was intended to illustrate several conditions in one sketch. In the interest of clarity, the applicant has split the section into two drawings to reflect the changing conditions along the property line. See revised sections "PR A1.7 Detail 7 Rev1" - **Attachment 2b.**

3) **Neighborhood outreach.** In addition to the neighborhood meeting requirements of HRMC 17.09.130, the members of Adams Creek Cohousing have actively worked to connect with the neighborhood. Beginning at the time of property purchase, the cohousing community has repeatedly canvassed the neighborhood with informational flyers that gave updates and encouraged any neighbor who wanted to engage in conversation to do so. Adams Creek Cohousing has held regular and repeated public events as well as a publicly accessible website and email to share information about the vision and concept. Some of this outreach is already in the record. To counterbalance contrary claims, the applicant submits a consolidated catalogue of the outreach efforts in **Attachment 3.**

4) **Pedestrian connection to Andy's Way.** The applicant acknowledges the City's request for this connection as well as the participants who stated their approval – or objection – to the path during the Hearing. For consideration during deliberations, the applicant reminds the Commission of two statements of fact:
    a. The connection would be between two private properties. While the applicant could provide the path infrastructure, there is no guarantee that the connection would be made on the opposite side.
    b. There is an approximate 33% existing slope (4 feet over 12 feet) near the property line, plus an additional step up to the asphalt surface of Andy's Way. This difference in elevation would be increased to achieve the goal of lowering the parking surface (to reduce its visual impact). In any configuration, the connection would require steps and retaining walls. A ridable bicycle route is not viable.

    The members of Adams Creek Cohousing are willing to do their part to make the connection a possibility; however, they are worried – as are the members of Katie's Lane HOA – of unintended consequences. The primary concern is liability created by a "public" connection between two private properties. Of additional concern is the possibility for loitering, vandalism, and other activities that do not represent the community's values. The project team would like guidance from the City's attorney as to indemnity offered by the City for similar public use of private property.

5) **Utilities, wetlands, and waterways.** Several statements of opposition included references to "pipes going into a wetland." This narrative is intended to provide clarity around this concern.
   a. There may be confusion about the lines labeled "P-PUE" – this is an easement boundary, not a pipe.
   b. There may be confusion about stormwater lines that appear to touch the creek. These are allowed and necessary discharge outlets. To quote from the staff report, "Adams Creek, which traverses the subject property from south to north, conveys stormwater and is an open channel element of the city's public storm drainage system." Participants may not be aware the creek is part of the City storm drainage system and that many public and private properties already discharge stormwater directly to Adams Creek both above and below this property.
   c. There may be confusion about the difference between wetlands (see drawing labels and legends) and the "waterways" that comprise Adams Creek and the two seeps. The submitted utility drawing ("C9") did show a sewer line ("P-SAN") crossing under the seep between buildings 1 and 3. Though technically this utility does not impact a wetland, the routing has been revised. See previously mentioned new Attachment 1b.

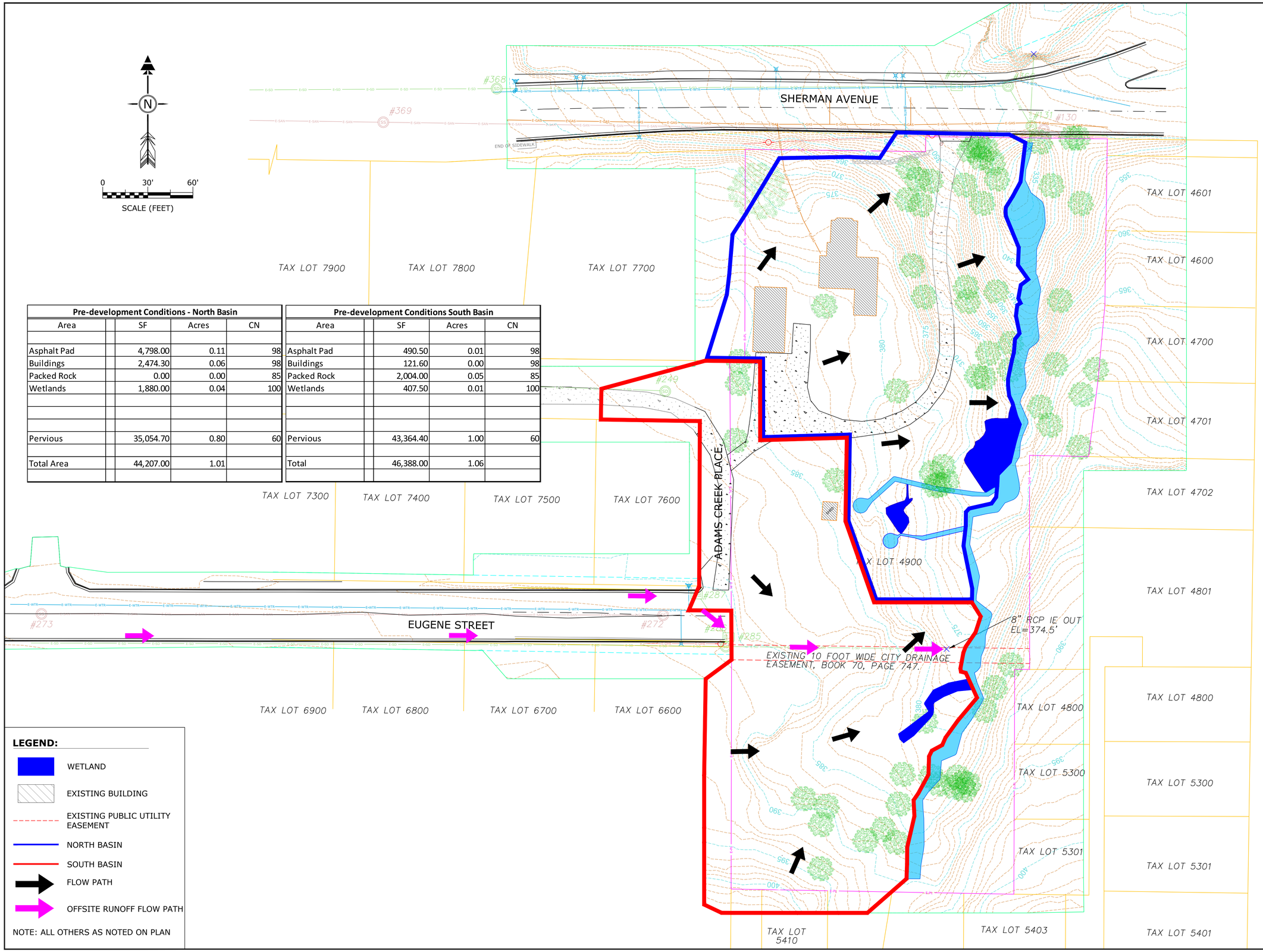
6) **Size of parking area.** In a statement of opposition at the Hearing, a claim was made that the proposed parking is 19,000 square feet in area. The actual area is 12,333 square feet. For clarity, this calculation includes all access drives, surface parking spaces, and covered parking spaces. Furthermore, the recreation building breaks the parking area into two discreet zones – the primary south parking area and the smaller entry area labeled "plaza." To reiterate the previously submitted narrative, the proposed design includes several strategies to diminish the perceived presence of parking: tandem spaces, three types of paving materials, internal landscaping, perimeter landscaping, and two one-story buildings that largely block views into the primary parking area.

7) **Construction Management Plan.** At both the Neighborhood Meeting and Public Hearing, neighbors voiced concerns about potential disruptions created by construction activity. Though not required by Zoning or Building codes, the applicant acknowledges that open communication between the General Contractor, Project Ownership, and Neighbors is important for any well-coordinated construction site. As was noted at the Neighborhood Meeting, the applicant's contractor will provide a "Construction Management Plan" that outlines strategies to minimize disruptions related to deliveries, crew parking, noise, and the like. With the significant amount of public work required, the project team will be coordinating closely with neighbors to provide adequate schedules and notifications. The project team will hold a pre-construction meeting with neighbors and distribute notes and project schedules. The neighbors will be provided with proper contacts for the construction and project management team to keep open channels of communication throughout the construction process.

Thank you for your continued assistance with this project.

Sincerely,

The Adams Creek Cohousing community
Joren Bass, UD+P
Seth Moran & Michael Flowers, MFA
Carlos Garrido, HRK



Pre-development Conditions - North Basin

Area	SF	Acres	CN
Asphalt Pad	4,798.00	0.11	98
Buildings	2,474.30	0.06	98
Packed Rock	0.00	0.00	85
Wetlands	1,880.00	0.04	100
Pervious	35,054.70	0.80	60
Total Area	44,207.00	1.01	

Pre-development Conditions South Basin

Area	SF	Acres	CN
Asphalt Pad	490.50	0.01	98
Buildings	121.60	0.00	98
Packed Rock	2,004.00	0.05	85
Wetlands	407.50	0.01	100
Pervious	43,364.40	1.00	60
Total	46,388.00	1.06	

HRK ENGINEERING & FIELD SERVICES
489 N 8TH STREET - SUITE 201
HOOD RIVER, OREGON 97031
(541) 386-6480

PROJECT 19-042 8/21/2020

REGISTERED PROFESSIONAL ENGINEER 90691 OREGON NOVEMBER 15, 2015 JAMES THOMAS JONES
EXPIRES 06/30/2021

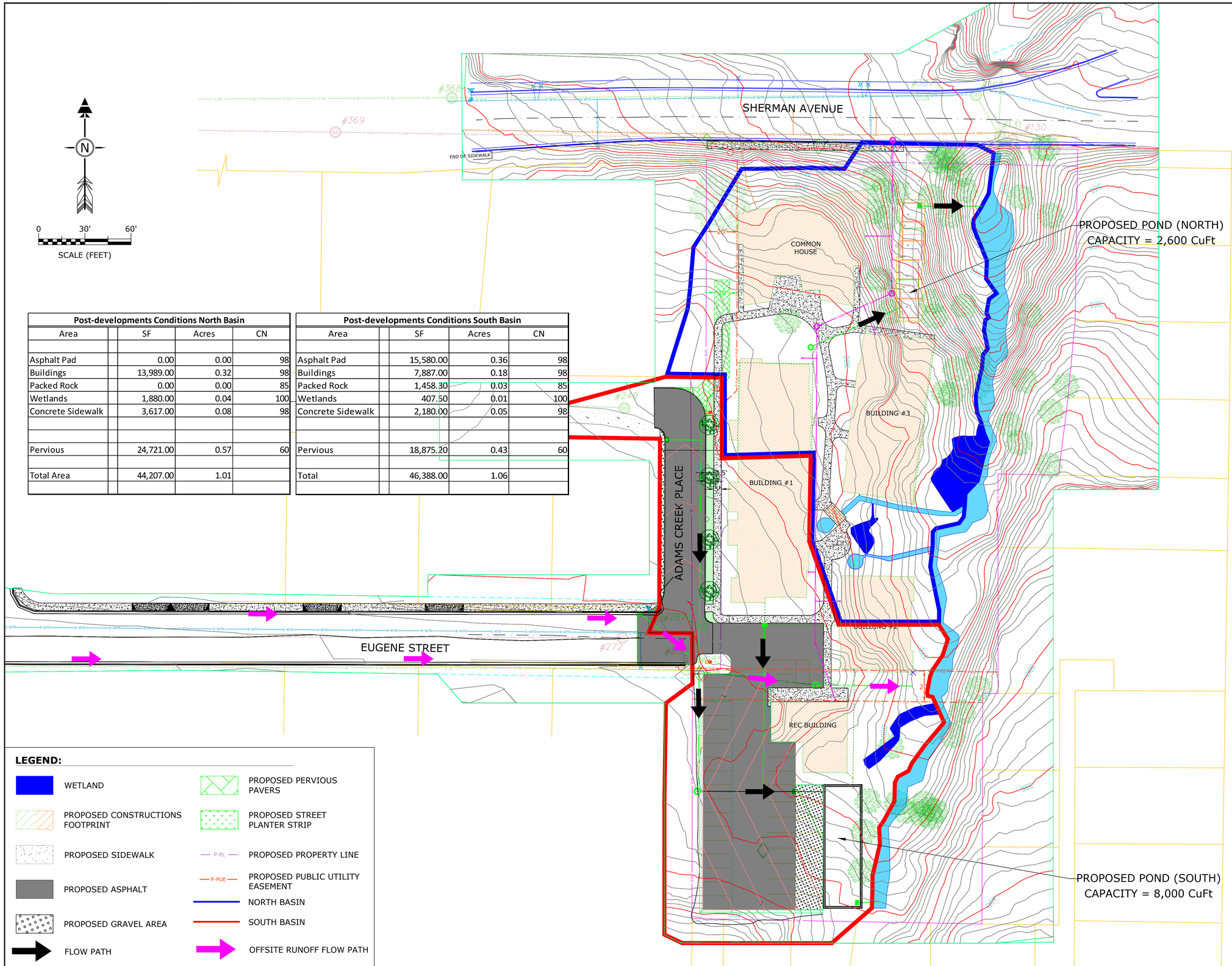
PRELIMINARY

REV	DATE	REVISION DESCRIPTION

ADAMS CREEK COHOUSING
SHERMAN AVE. HOLDINGS, LLC
1419 SHERMAN AVE,
HOOD RIVER, OR 97031

PRE-DEVELOPMENT CONDITIONS

DRAWING NO.
C1
OF 2



Post-developments Conditions North Basin			
Area	SF	Acres	CN
Asphalt Pad	0.00	0.00	98
Buildings	13,989.00	0.32	98
Packed Rock	0.00	0.00	85
Wetlands	1,880.00	0.04	100
Concrete Sidewalk	3,617.00	0.08	98
Pervious	24,721.00	0.57	60
Total Area	44,207.00	1.01	

Post-developments Conditions South Basin			
Area	SF	Acres	CN
Asphalt Pad	15,580.00	0.36	98
Buildings	7,887.00	0.18	98
Packed Rock	1,458.30	0.03	85
Wetlands	407.50	0.01	100
Concrete Sidewalk	2,180.00	0.05	98
Pervious	18,875.20	0.43	60
Total	46,388.00	1.06	

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PRELIMINARY

REV	DATE	REVISION DESCRIPTION

ADAMS CREEK COHOUSING
SHERMAN AVE. HOLDINGS, LLC
1419 SHERMAN AVE,
HOOD RIVER, OR 97031

POST-DEVELOPMENT CONDITIONS

DRAWING NO.
C2
OF 2

HRK ENGINEERING & FIELD SERVICES

489 N. 8TH STREET, SUITE 201
HOOD RIVER, OREGON 97031 ▪ 541.386.6480

August 21, 2020

Joren Bass
Urban Development Partners
116 NE 6th Avenue – Suite 400
Portland, Oregon

Subject: Stormwater Management Plan – Adams Creek Co-Housing

The purpose of this letter report is to demonstrate that the stormwater management system proposed for the development of the Adams Creek (Site) co-housing project is sufficient to mitigate the additional runoff generated as a result of the new building structures, parking lots, and other impervious areas that will be constructed at the Site.

The stormwater runoff for the existing conditions are shown on sheet C1 represented by the black arrows. The topography of the Site is such that stormwater runoff flows in different directions from west to east, corresponding to the changes in elevation of the property. The stormwater runoff discharges into Adams Creek, which flows from south to north along the eastern edge of the Site.

For the stormwater modeling, the Site was divided into two basins, the North and South Basin, which are depicted on sheets C1 and C2 for the pre and post-development conditions. Calculations were performed using AutoCAD Civil 3D Hydroflow software.

The additional stormwater runoff generated from the improvements to the Site will be detained by six ponds cascading for the North Basin and a sedimentation pond for the South Basin The ponds for the North Basin will be located under the existing access driveway to the Site. The sedimentation pond for the management of stormwater runoff from the South Basin will be located on the southern end of the Site and east of the proposed parking lot.

Stormwater runoff from Eugene Street will be directly conveyed to the East edge of the site (for discharge into Adams Creek) by the relocation of the existing 15" Φ pipe 5 feet to the south of its actual location. Stormwater runoff from Adams Creek Place will be routed by a proposed 18" Φ pipe to the sedimentation pond at the South end of the Site. Stormwater runoff from building roofs, sidewalks, and interior roads will be collected and conveyed to the proposed 18" Φ pipe. The stormwater runoff

generated from the South parking lot area will sheet flow into a ditch inlet, and then to the sedimentation pond.

Stormwater runoff from buildings, sidewalks, and other areas located within the North Basin will be routed to a proposed detention system comprised of six ponds using pipes, shallow concentrated ditches, and other types of conveyance systems.

The total combined storage volume combine for the stormwater detention system proposed for the Site is approximately 10,600 ft^3. There is available space within the Site to increase the storage volume of the stormwater detention system if required.

Sincerely,
HRK Engineering and Field Services, LLC

Carlos A. Garrido
Principal

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UDC 2020 North.gpw

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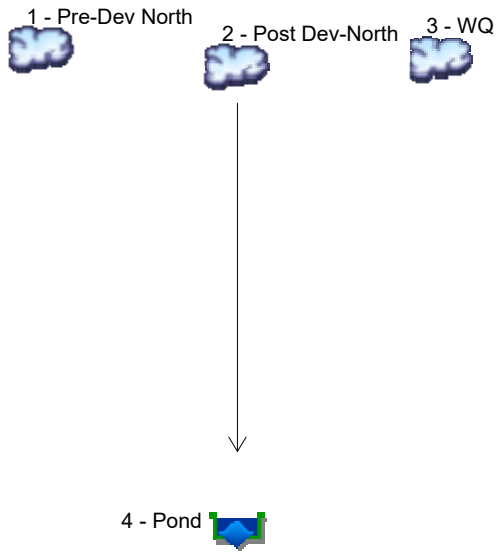
Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020



Legend

Hyd.	Origin	Description
1	SCS Runoff	Pre-Dev North
2	SCS Runoff	Post Dev-North
3	SCS Runoff	WQ
4	Reservoir	Pond

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	0.014	-------	-------	0.111	0.195	-------	0.340	Pre-Dev North
2	SCS Runoff	------	-------	0.058	-------	-------	0.260	0.373	-------	0.556	Post Dev-North
3	SCS Runoff	------	-------	0.035	-------	-------	0.059	0.070	-------	0.086	WQ
4	Reservoir	2	-------	0.008	-------	-------	0.069	0.115	-------	0.258	Pond

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.014	2	1098	668	------	------	------	Pre-Dev North
2	SCS Runoff	0.058	2	480	1,540	------	------	------	Post Dev-North
3	SCS Runoff	0.035	2	472	483	------	------	------	WQ
4	Reservoir	0.008	2	1444	55	2	351.77	1,528	Pond

Hydrograph Report

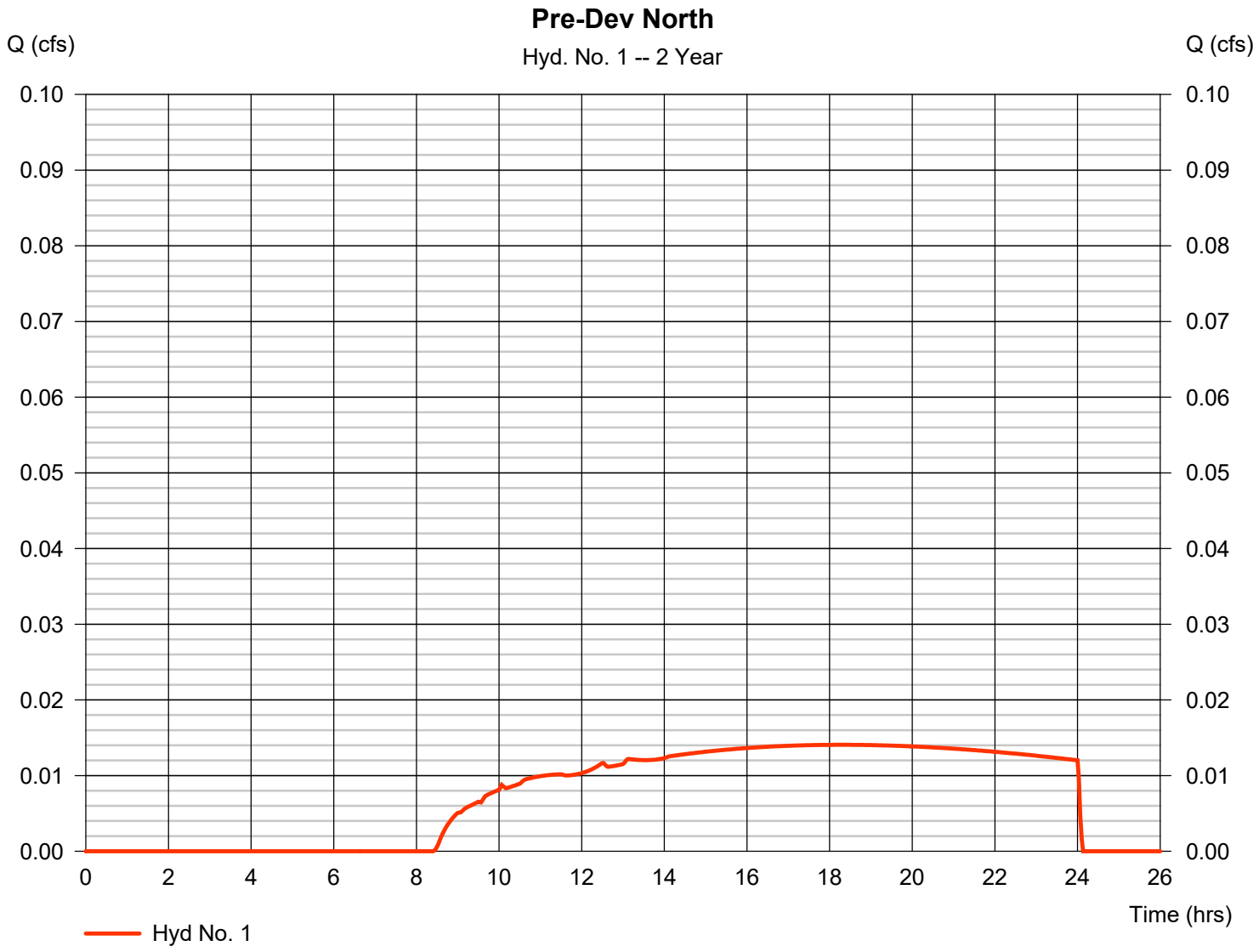
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.014 cfs
Storm frequency	= 2 yrs	Time to peak	= 18.30 hrs
Time interval	= 2 min	Hyd. volume	= 668 cuft
Drainage area	= 1.010 ac	Curve number	= 68*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.040 x 100) + (0.800 x 60)] / 1.010



Hydrograph Report

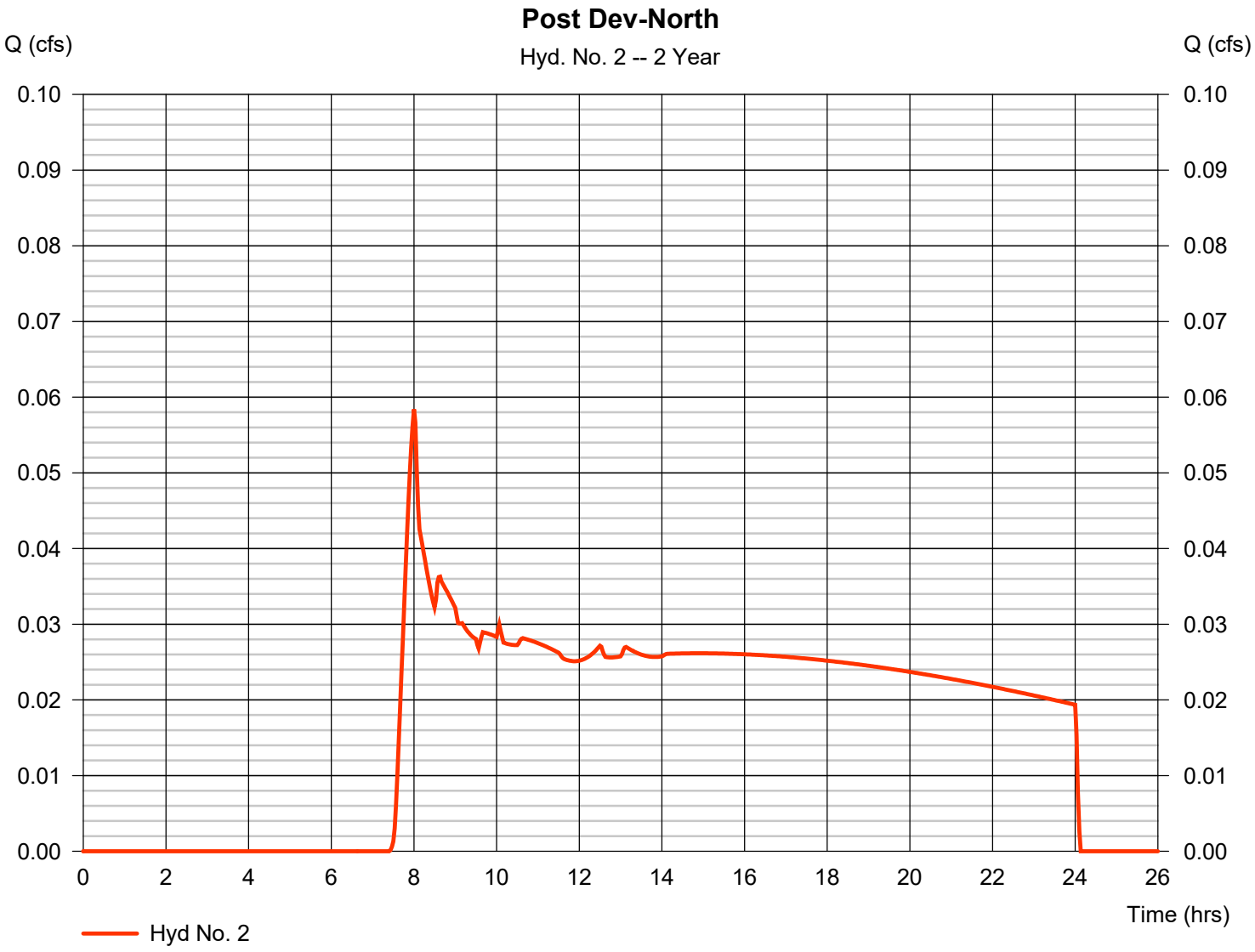
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post Dev-North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.058 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,540 cuft
Drainage area	= 1.010 ac	Curve number	= 77*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.400 x 98) + (0.040 x 100) + (0.570 x 60)] / 1.010



Hydrograph Report

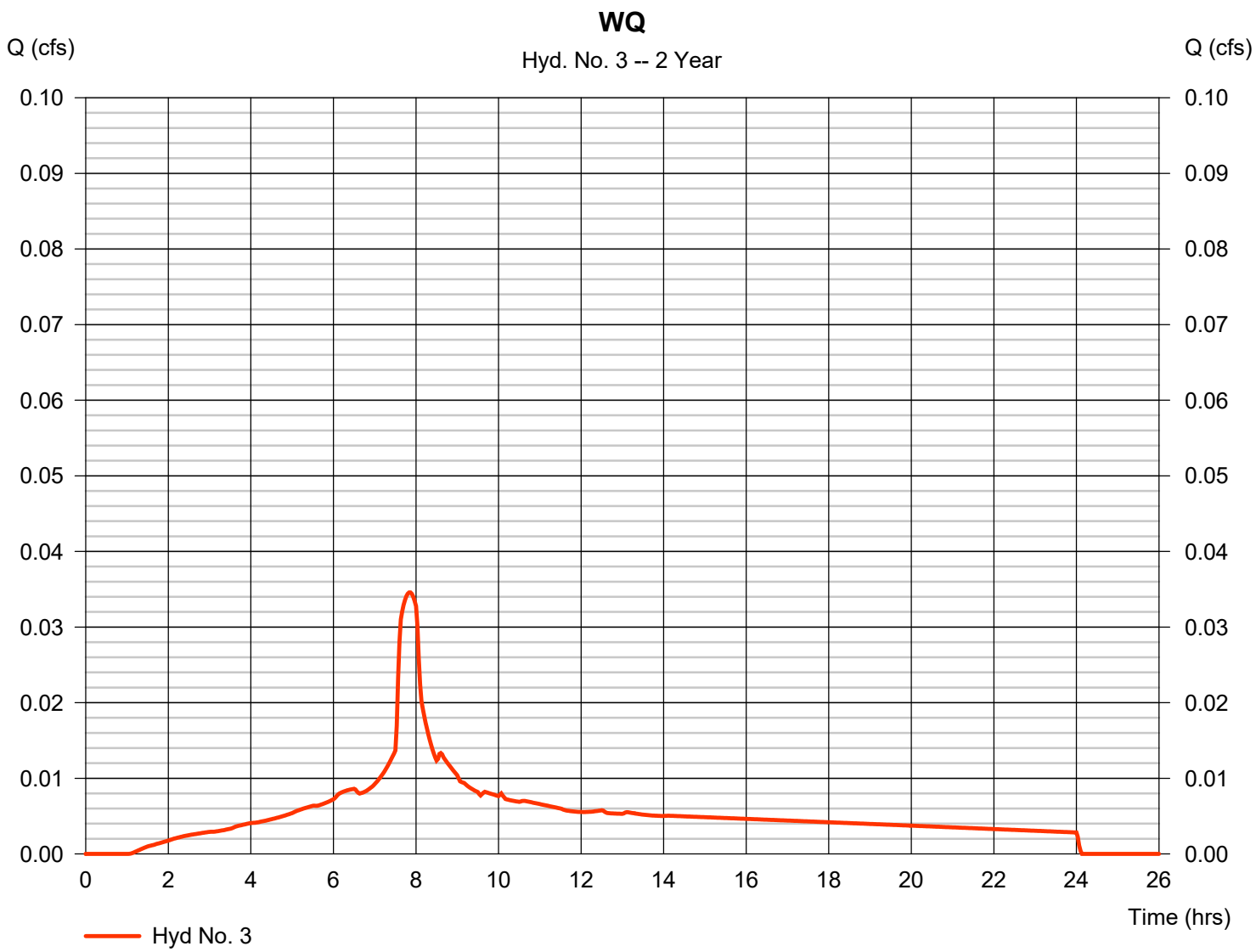
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.035 cfs
Storm frequency	= 2 yrs	Time to peak	= 7.87 hrs
Time interval	= 2 min	Hyd. volume	= 483 cuft
Drainage area	= 0.080 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.080 x 98)] / 0.080



Hydrograph Report

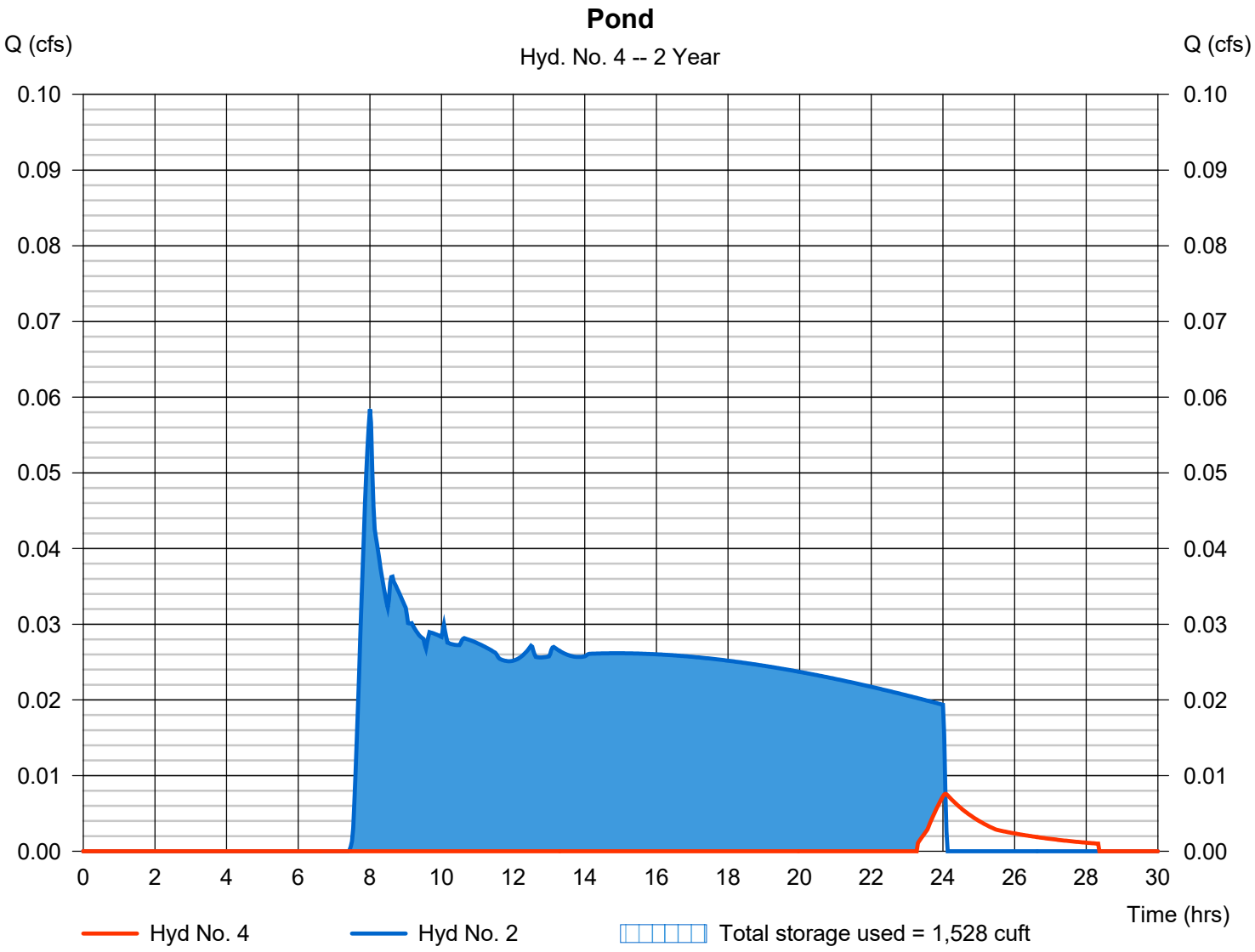
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.008 cfs
Storm frequency	= 2 yrs	Time to peak	= 24.07 hrs
Time interval	= 2 min	Hyd. volume	= 55 cuft
Inflow hyd. No.	= 2 - Post Dev-North	Max. Elevation	= 351.77 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 1,528 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Pond No. 1 - Pond Phase 1

Pond Data

Trapezoid -Bottom L x W = 72.0 x 12.0 ft, Side slope = 0.00:1, Bottom elev. = 350.00 ft, Depth = 3.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	350.00	864	0	0
0.30	350.30	864	259	259
0.60	350.60	864	259	518
0.90	350.90	864	259	778
1.20	351.20	864	259	1,037
1.50	351.50	864	259	1,296
1.80	351.80	864	259	1,555
2.10	352.10	864	259	1,814
2.40	352.40	864	259	2,074
2.70	352.70	864	259	2,333
3.00	353.00	864	259	2,592

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	2.00	Inactive	Inactive
Span (in)	= 18.00	2.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 350.00	351.70	0.00	0.00
Length (ft)	= 25.00	0.00	0.00	0.00
Slope (%)	= 40.00	0.00	0.00	n/a
N-Value	= .010	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

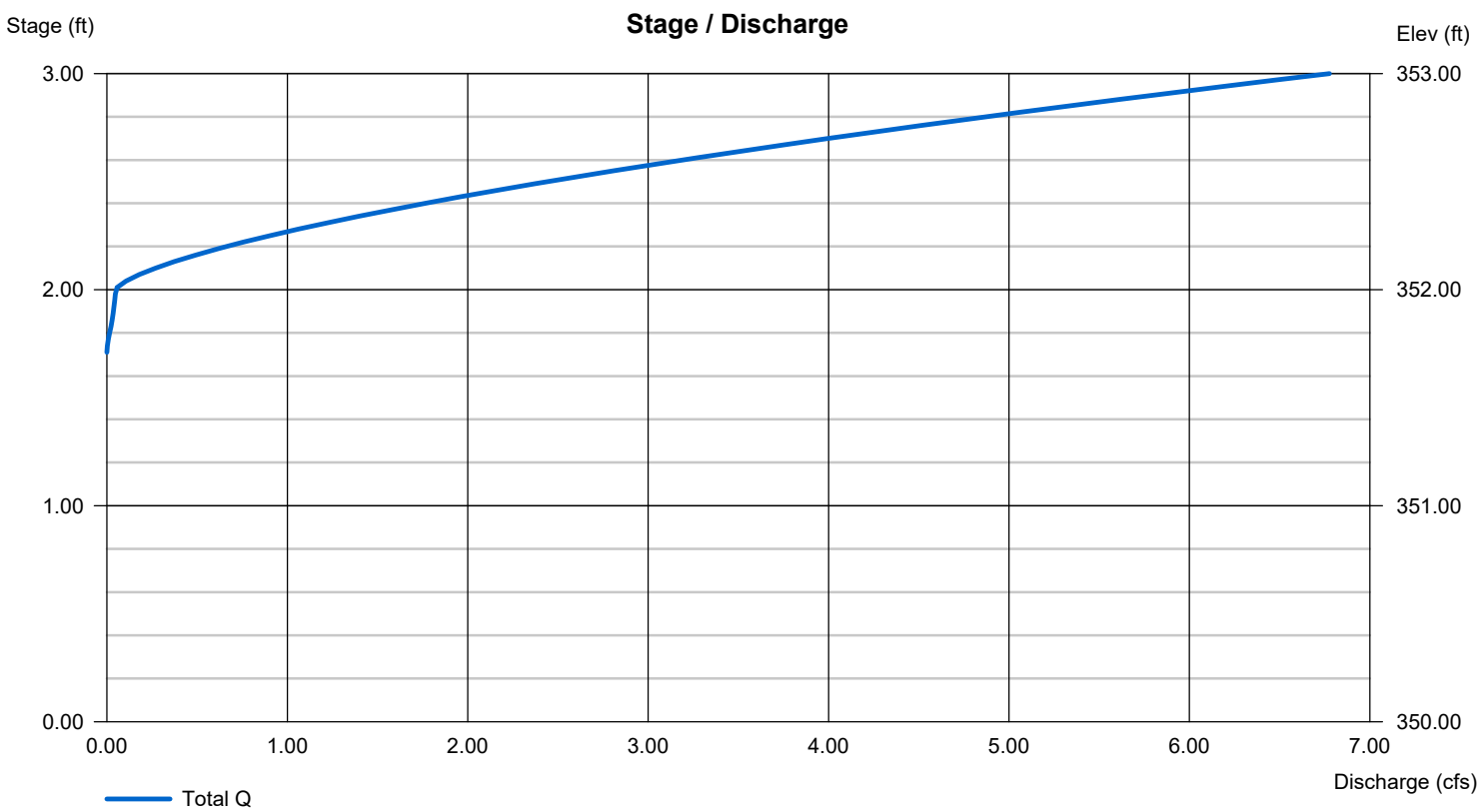
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	0.00	0.00	0.00
Crest El. (ft)	= 352.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

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

TW Elev. (ft) = 0.00

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



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.111	2	480	2,707	------	------	------	Pre-Dev North
2	SCS Runoff	0.260	2	480	4,412	------	------	------	Post Dev-North
3	SCS Runoff	0.059	2	470	835	------	------	------	WQ
4	Reservoir	0.069	2	794	2,927	2	352.02	1,743	Pond

Hydrograph Report

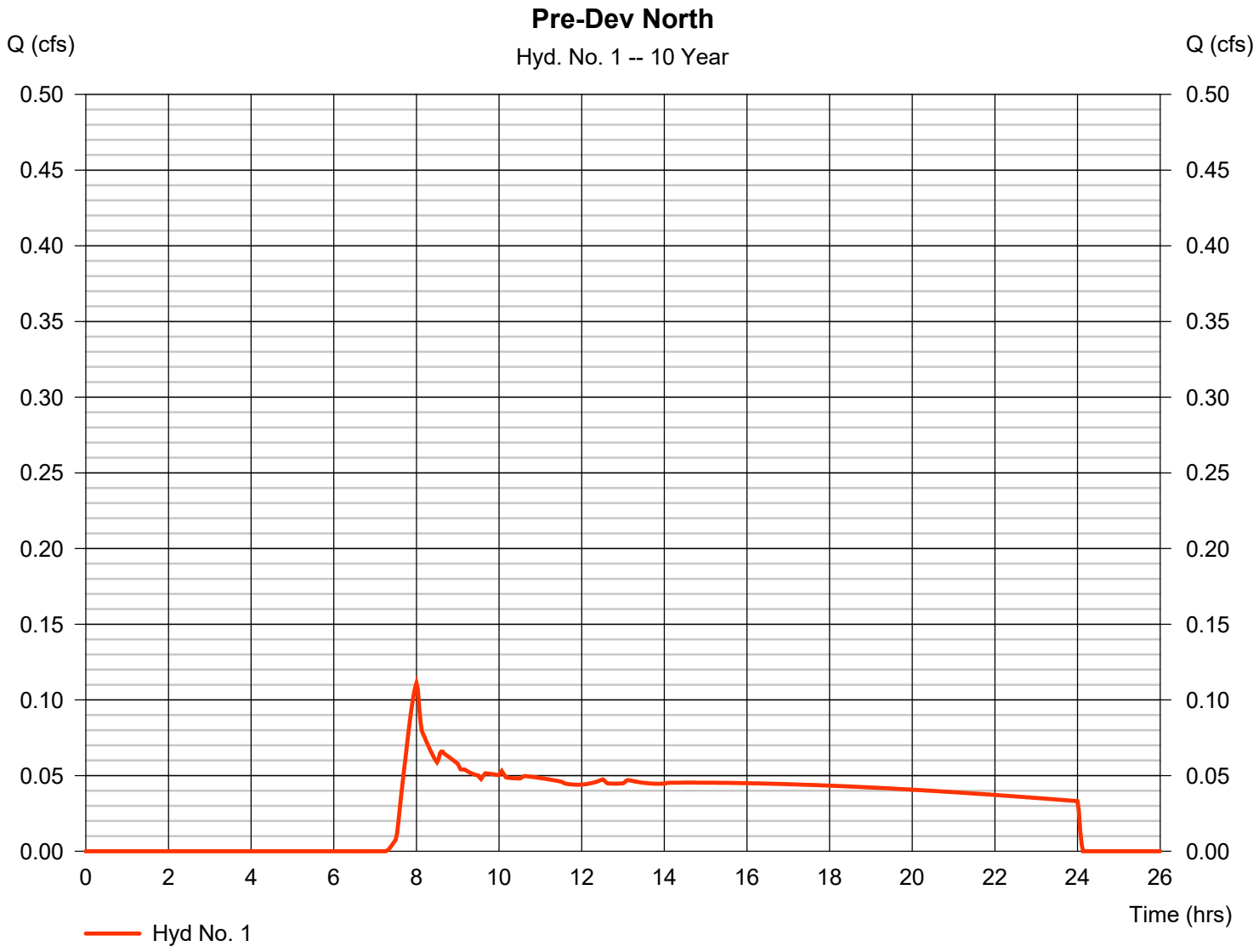
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.111 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 2,707 cuft
Drainage area	= 1.010 ac	Curve number	= 68*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.040 x 100) + (0.800 x 60)] / 1.010



Hydrograph Report

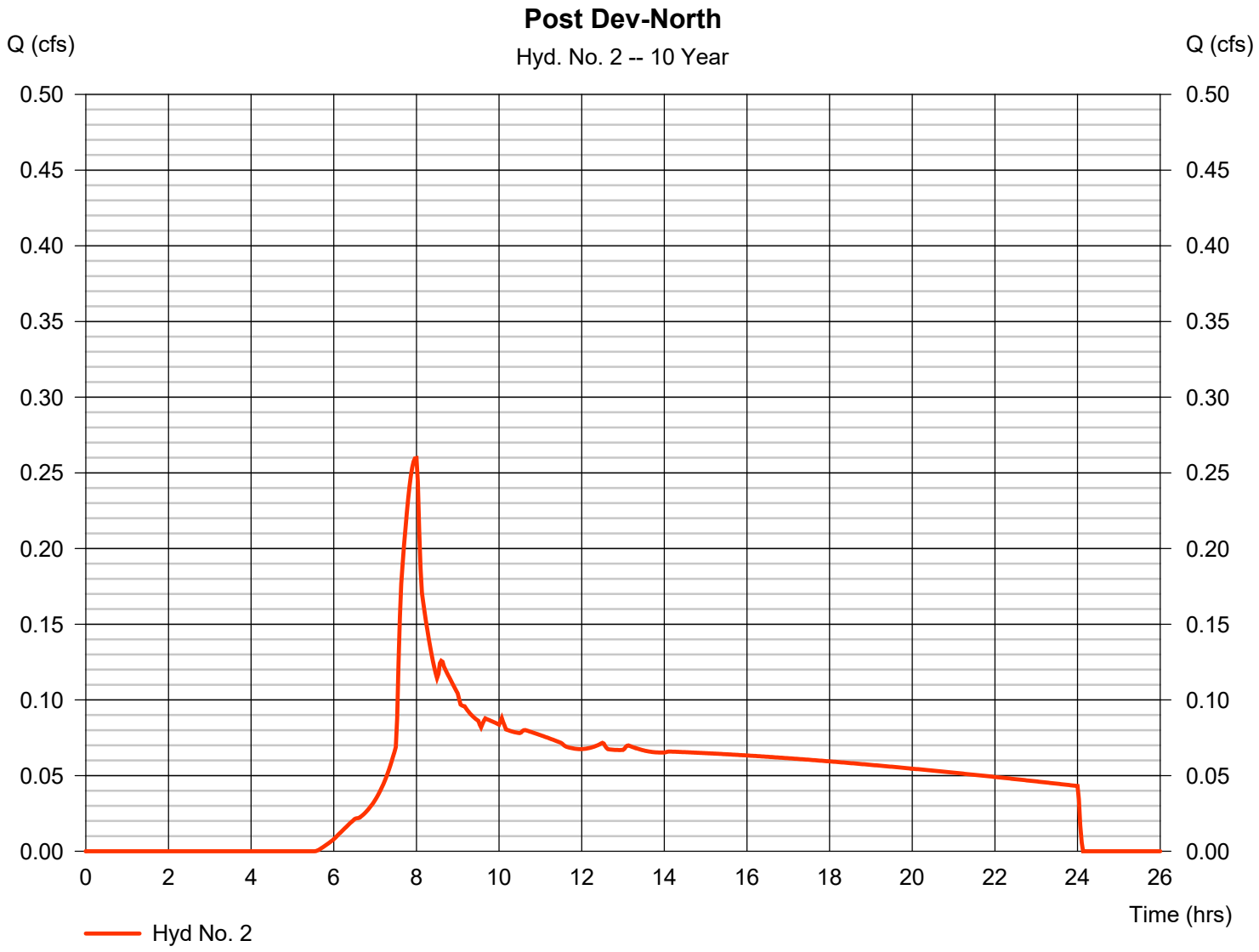
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post Dev-North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.260 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 4,412 cuft
Drainage area	= 1.010 ac	Curve number	= 77*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.400 x 98) + (0.040 x 100) + (0.570 x 60)] / 1.010



Hydrograph Report

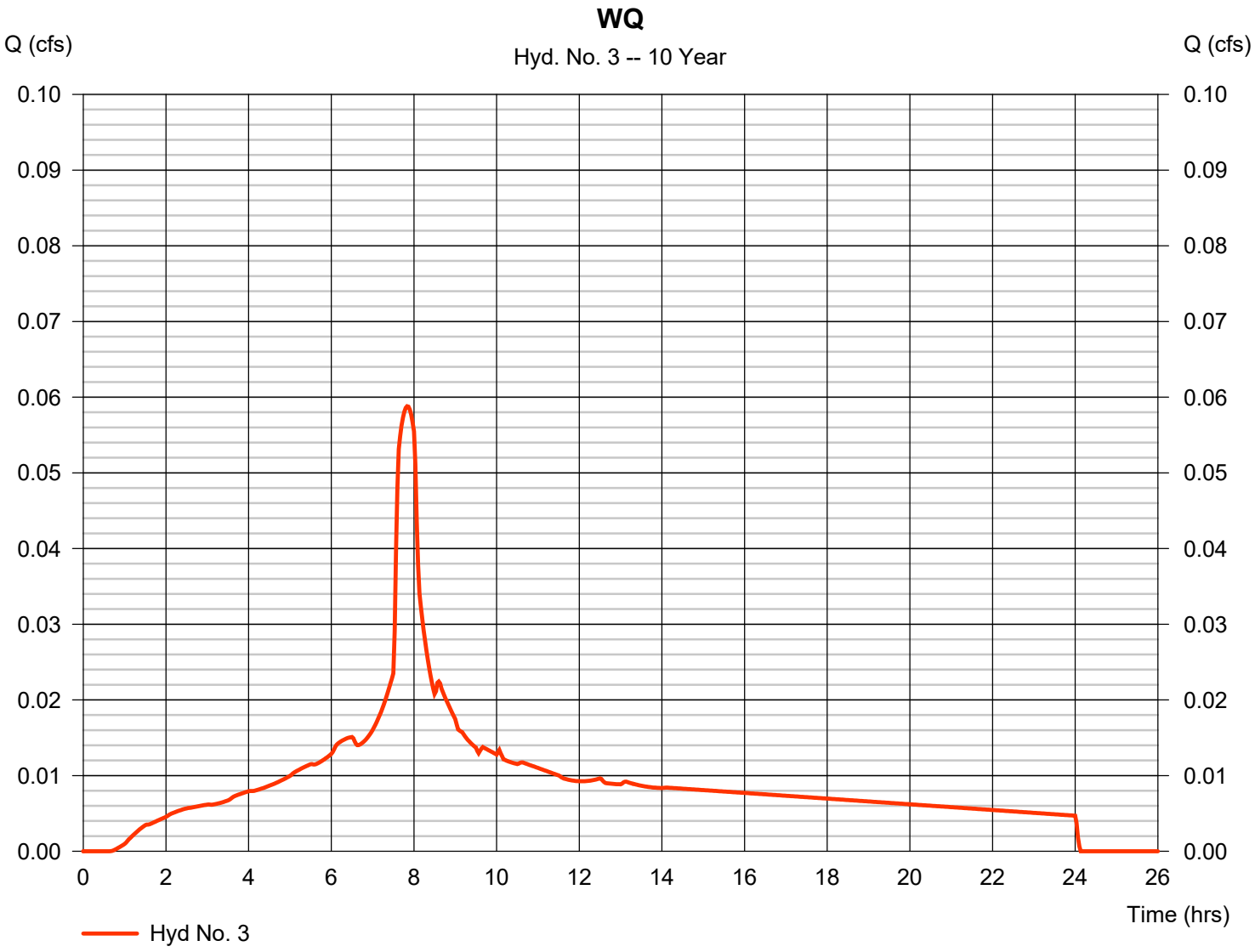
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.059 cfs
Storm frequency	= 10 yrs	Time to peak	= 7.83 hrs
Time interval	= 2 min	Hyd. volume	= 835 cuft
Drainage area	= 0.080 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.080 x 98)] / 0.080



Hydrograph Report

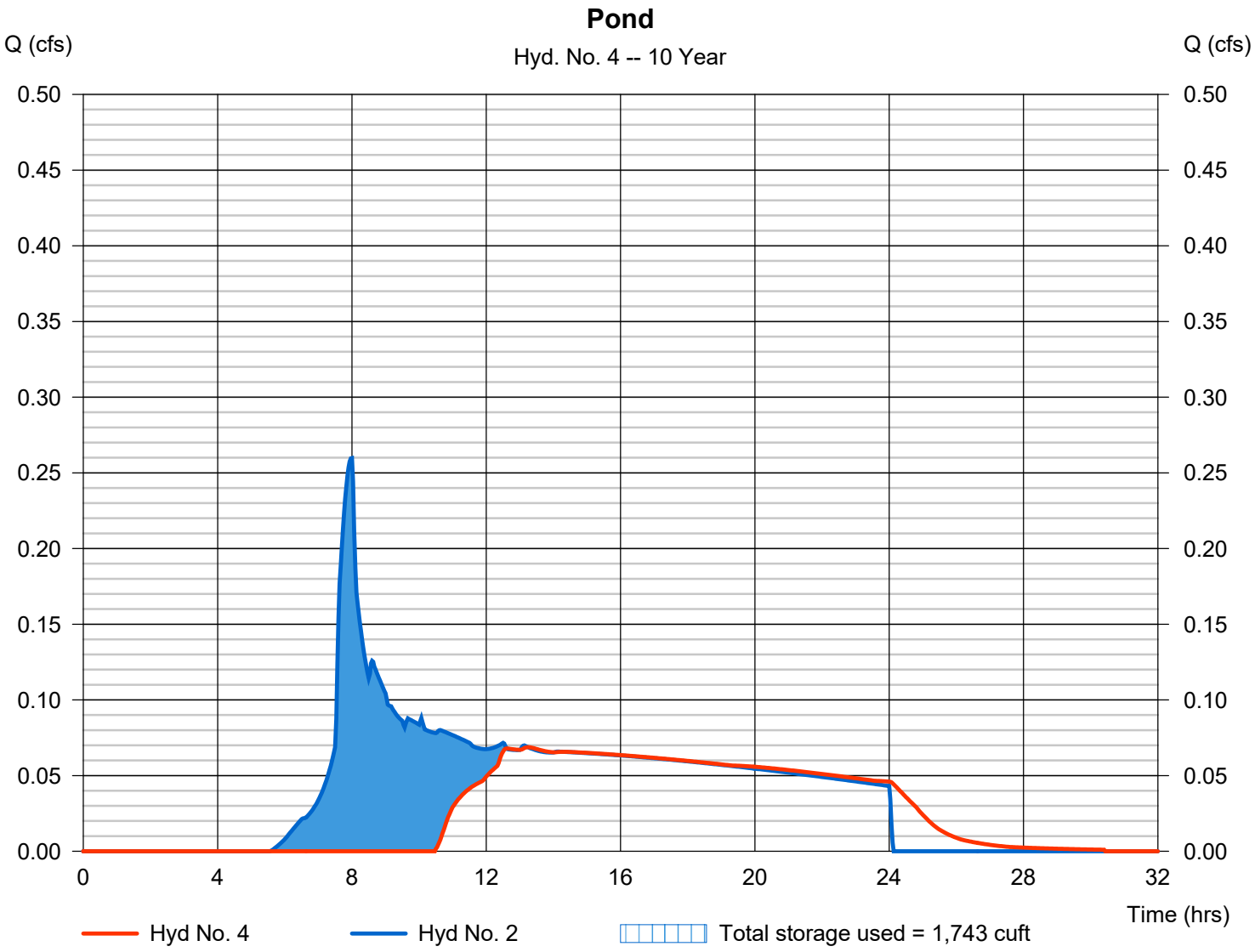
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.069 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.23 hrs
Time interval	= 2 min	Hyd. volume	= 2,927 cuft
Inflow hyd. No.	= 2 - Post Dev-North	Max. Elevation	= 352.02 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 1,743 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.195	2	480	3,926	------	------	------	Pre-Dev North
2	SCS Runoff	0.373	2	478	5,961	------	------	------	Post Dev-North
3	SCS Runoff	0.070	2	470	998	------	------	------	WQ
4	Reservoir	0.115	2	606	4,475	2	352.04	1,765	Pond

Hydrograph Report

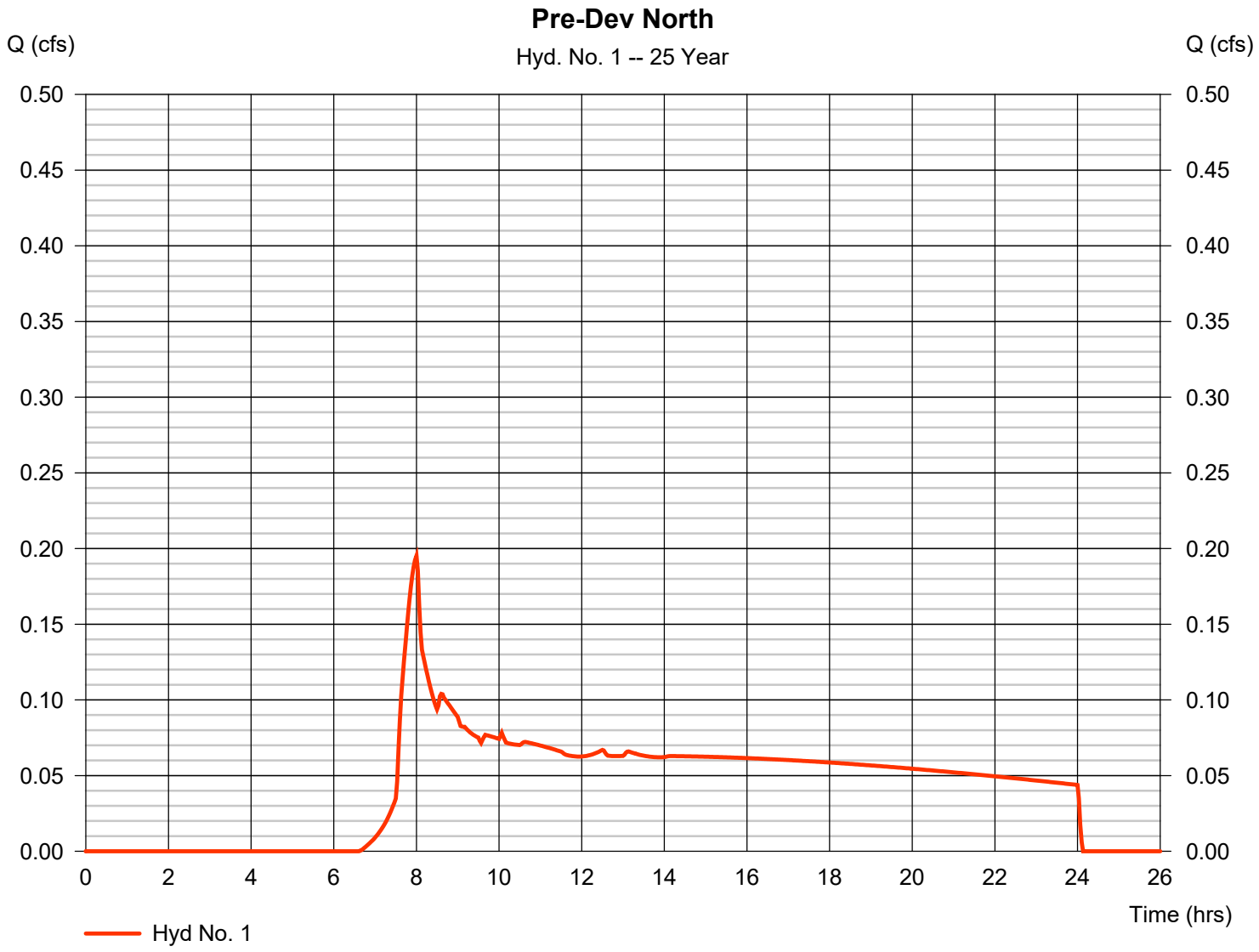
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.195 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 3,926 cuft
Drainage area	= 1.010 ac	Curve number	= 68*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.040 x 100) + (0.800 x 60)] / 1.010



Hydrograph Report

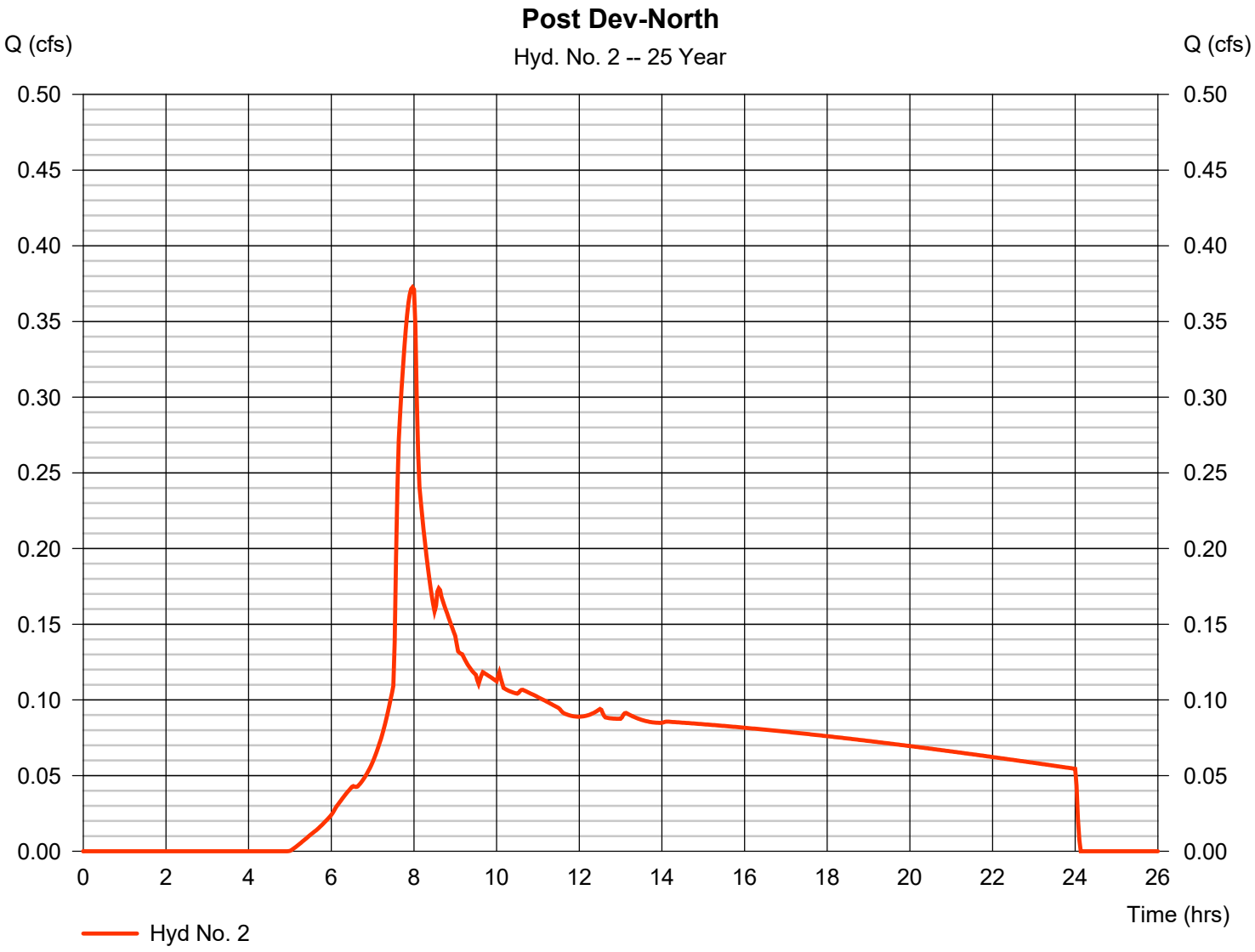
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post Dev-North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.373 cfs
Storm frequency	= 25 yrs	Time to peak	= 7.97 hrs
Time interval	= 2 min	Hyd. volume	= 5,961 cuft
Drainage area	= 1.010 ac	Curve number	= 77*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.400 x 98) + (0.040 x 100) + (0.570 x 60)] / 1.010



Hydrograph Report

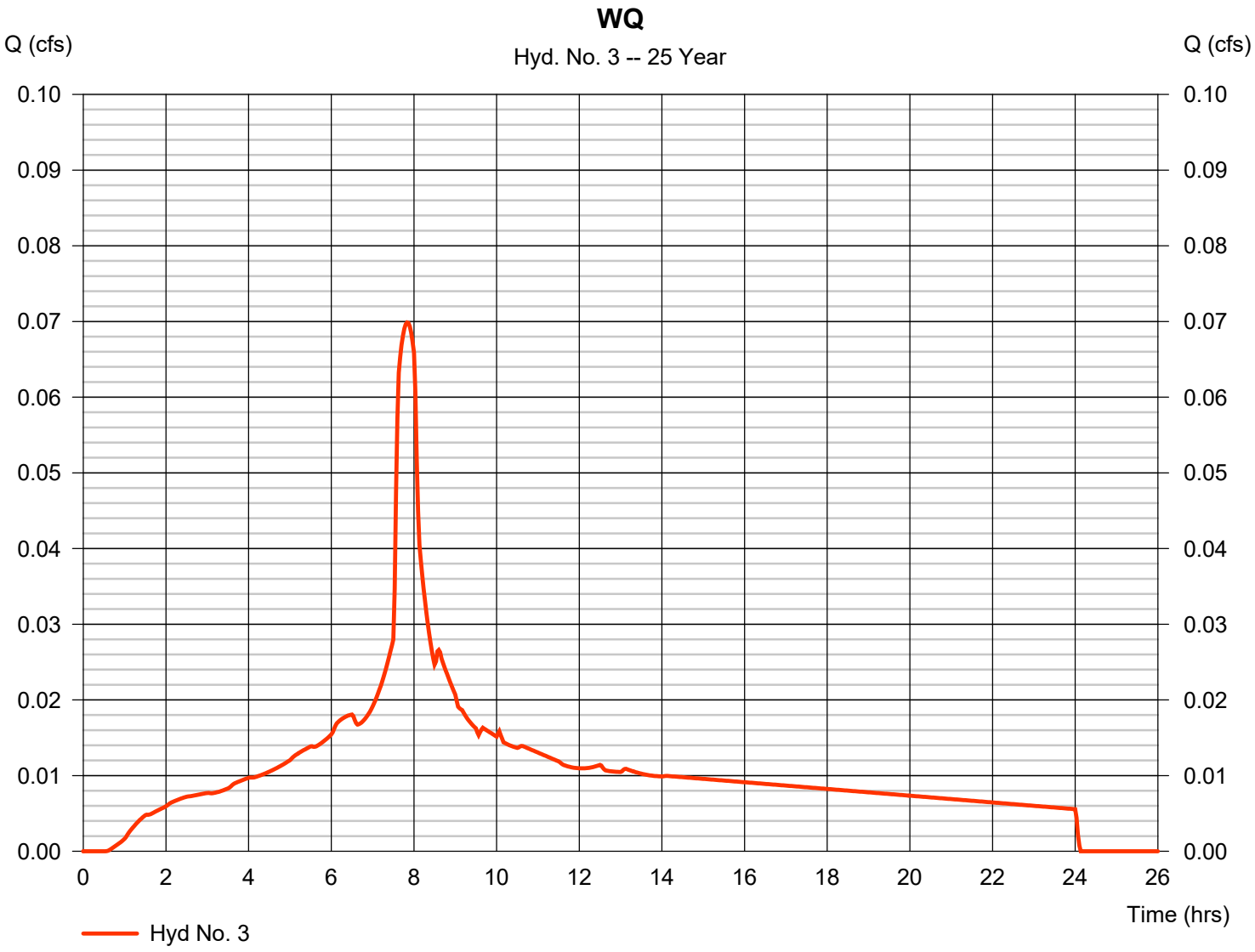
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

WQ

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.070 cfs
Storm frequency	=	25 yrs	Time to peak	=	7.83 hrs
Time interval	=	2 min	Hyd. volume	=	998 cuft
Drainage area	=	0.080 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.90 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98)] / 0.080



Hydrograph Report

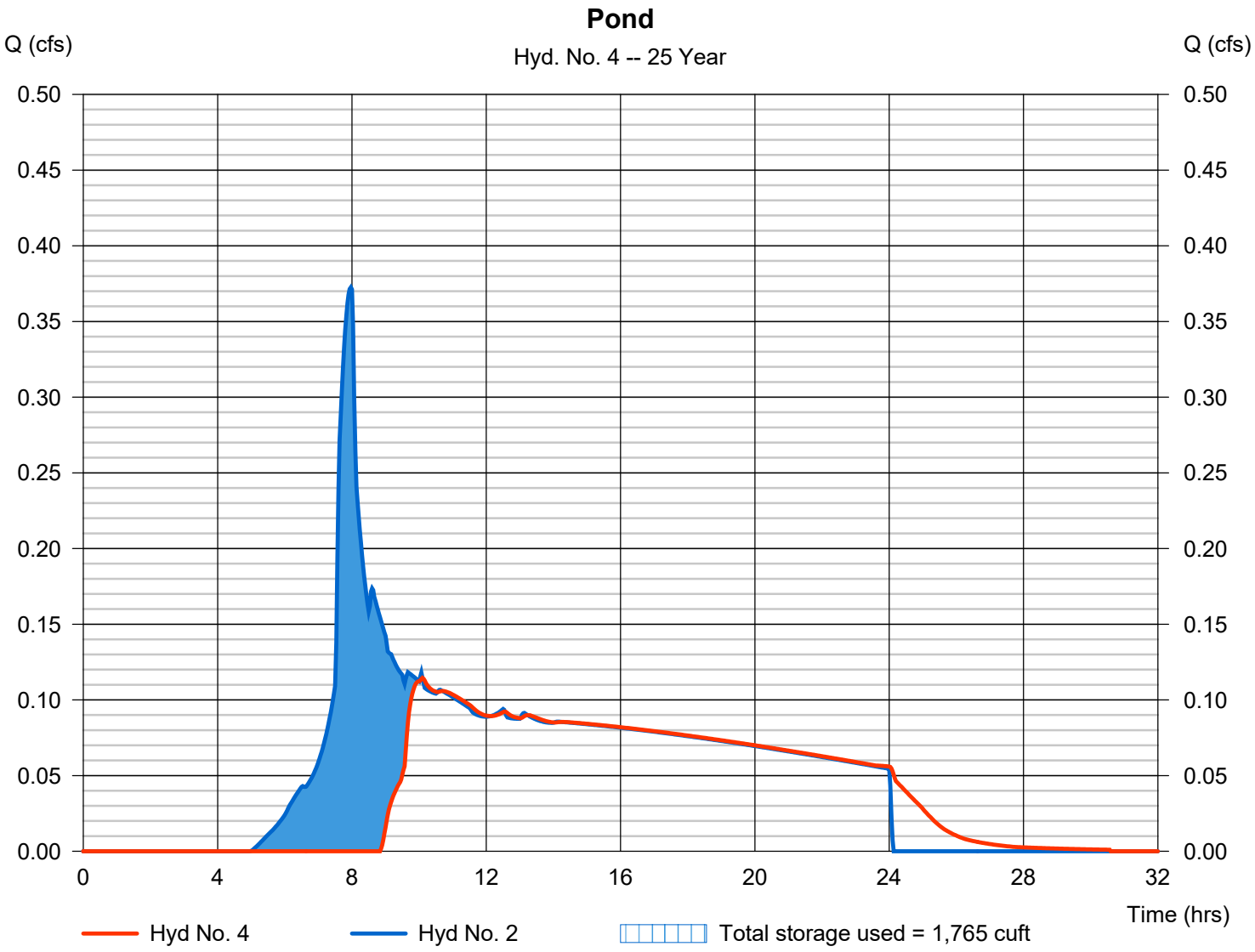
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.115 cfs
Storm frequency	= 25 yrs	Time to peak	= 10.10 hrs
Time interval	= 2 min	Hyd. volume	= 4,475 cuft
Inflow hyd. No.	= 2 - Post Dev-North	Max. Elevation	= 352.04 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 1,765 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.340	2	480	5,976	------	------	------	Pre-Dev North
2	SCS Runoff	0.556	2	476	8,444	------	------	------	Post Dev-North
3	SCS Runoff	0.086	2	470	1,242	------	------	------	WQ
4	Reservoir	0.258	2	502	6,958	2	352.10	1,811	Pond

Hydrograph Report

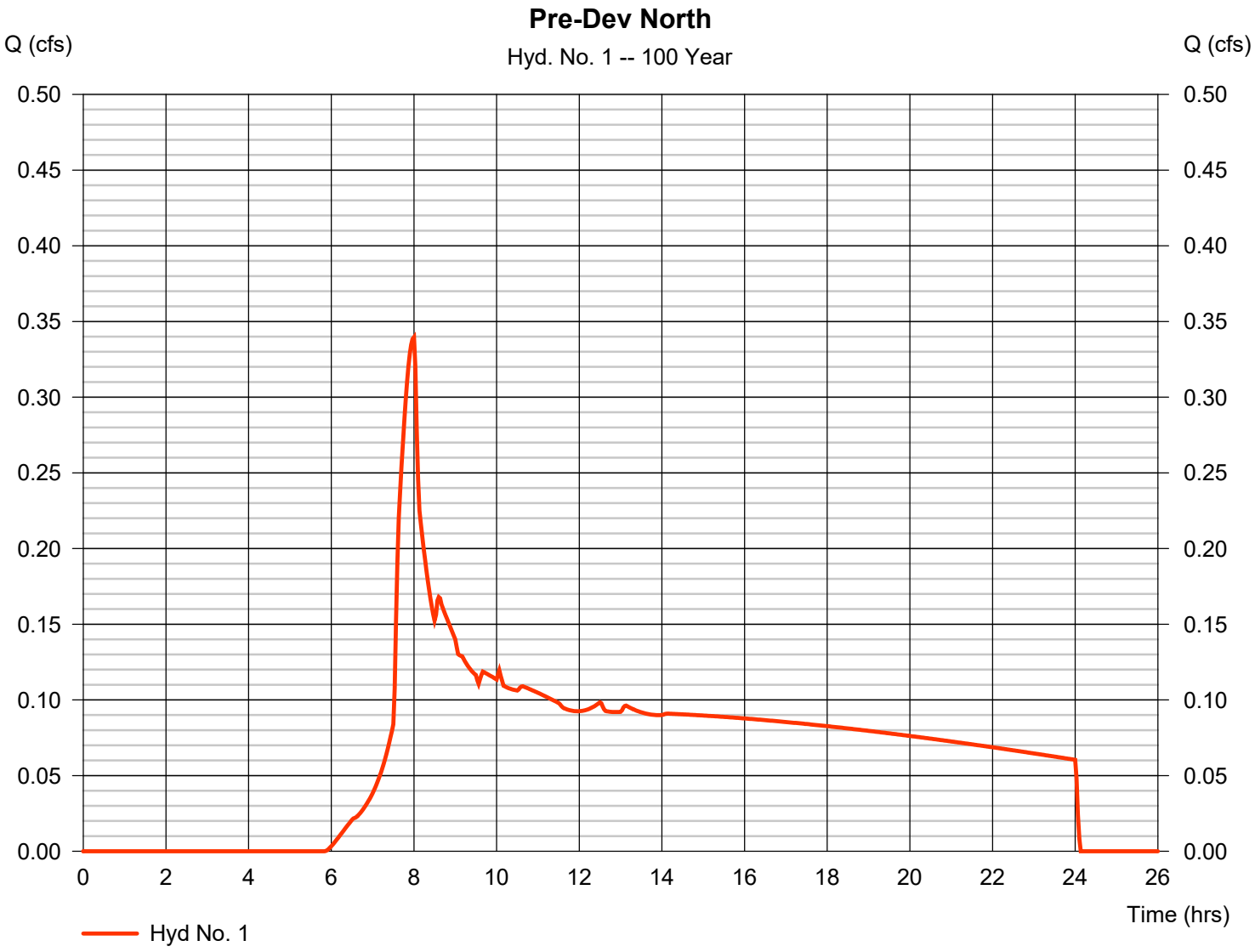
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.340 cfs
Storm frequency	= 100 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 5,976 cuft
Drainage area	= 1.010 ac	Curve number	= 68*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.040 x 100) + (0.800 x 60)] / 1.010



Hydrograph Report

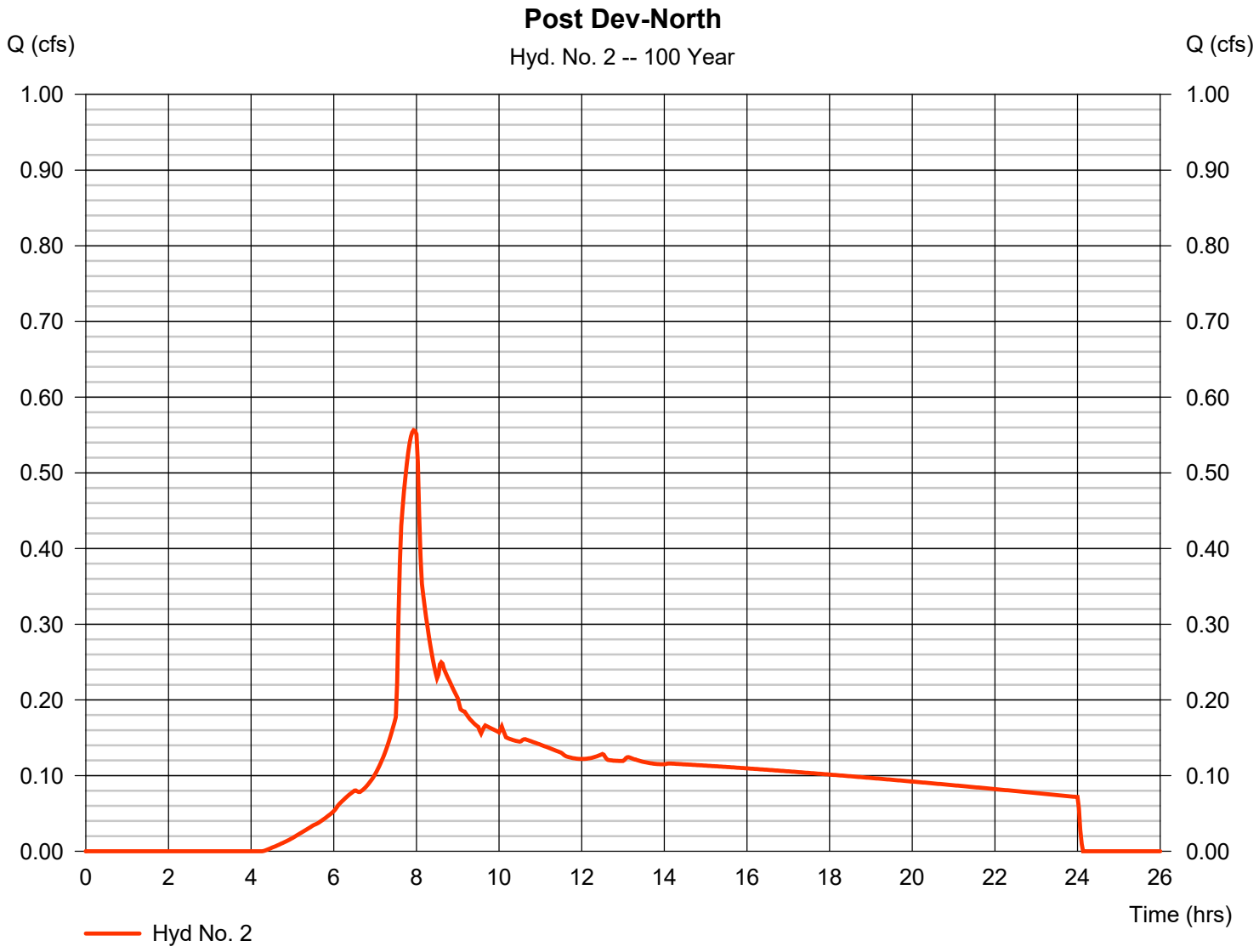
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post Dev-North

Hydrograph type	= SCS Runoff	Peak discharge	= 0.556 cfs
Storm frequency	= 100 yrs	Time to peak	= 7.93 hrs
Time interval	= 2 min	Hyd. volume	= 8,444 cuft
Drainage area	= 1.010 ac	Curve number	= 77*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.400 x 98) + (0.040 x 100) + (0.570 x 60)] / 1.010



Hydrograph Report

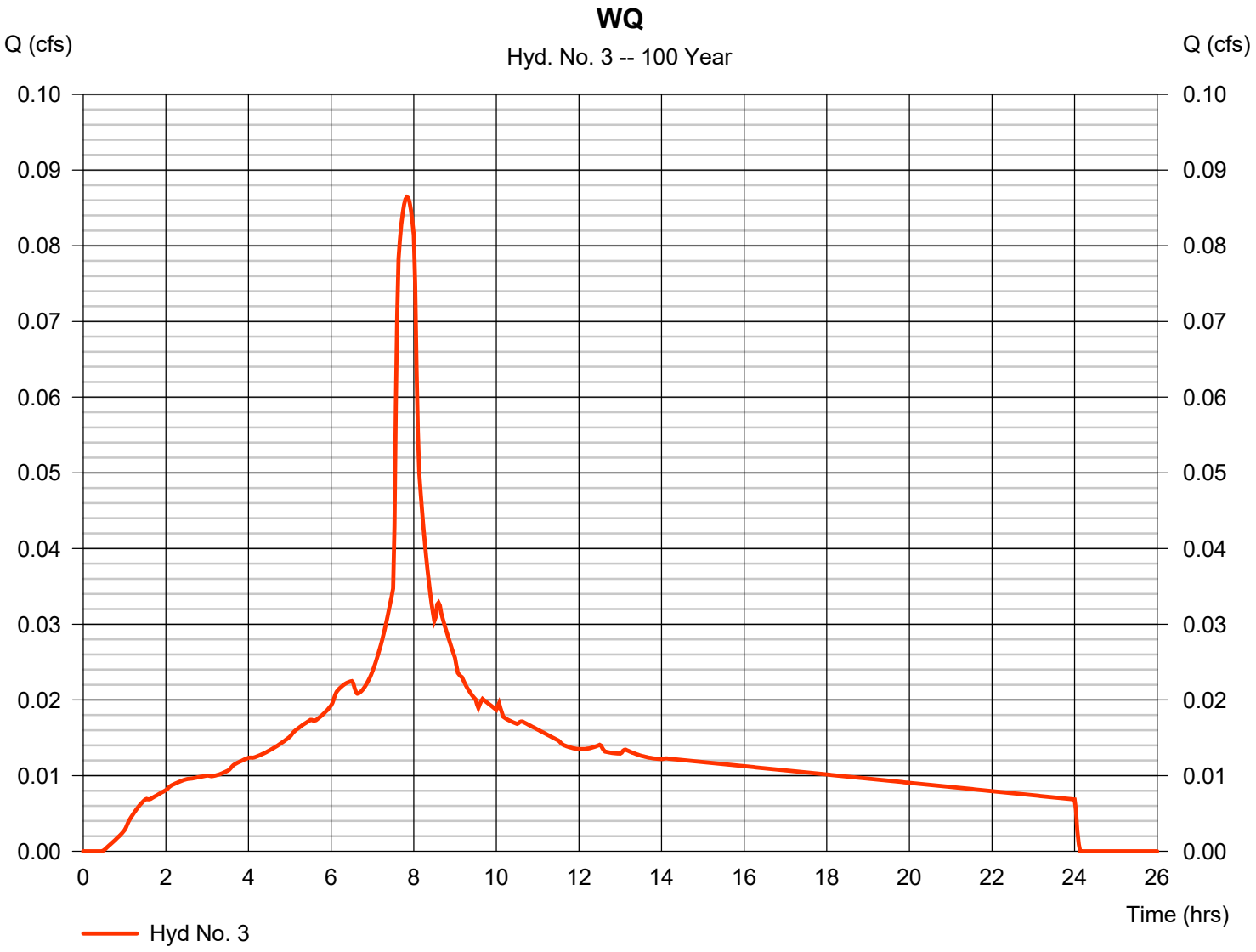
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.086 cfs
Storm frequency	= 100 yrs	Time to peak	= 7.83 hrs
Time interval	= 2 min	Hyd. volume	= 1,242 cuft
Drainage area	= 0.080 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.080 x 98)] / 0.080



Hydrograph Report

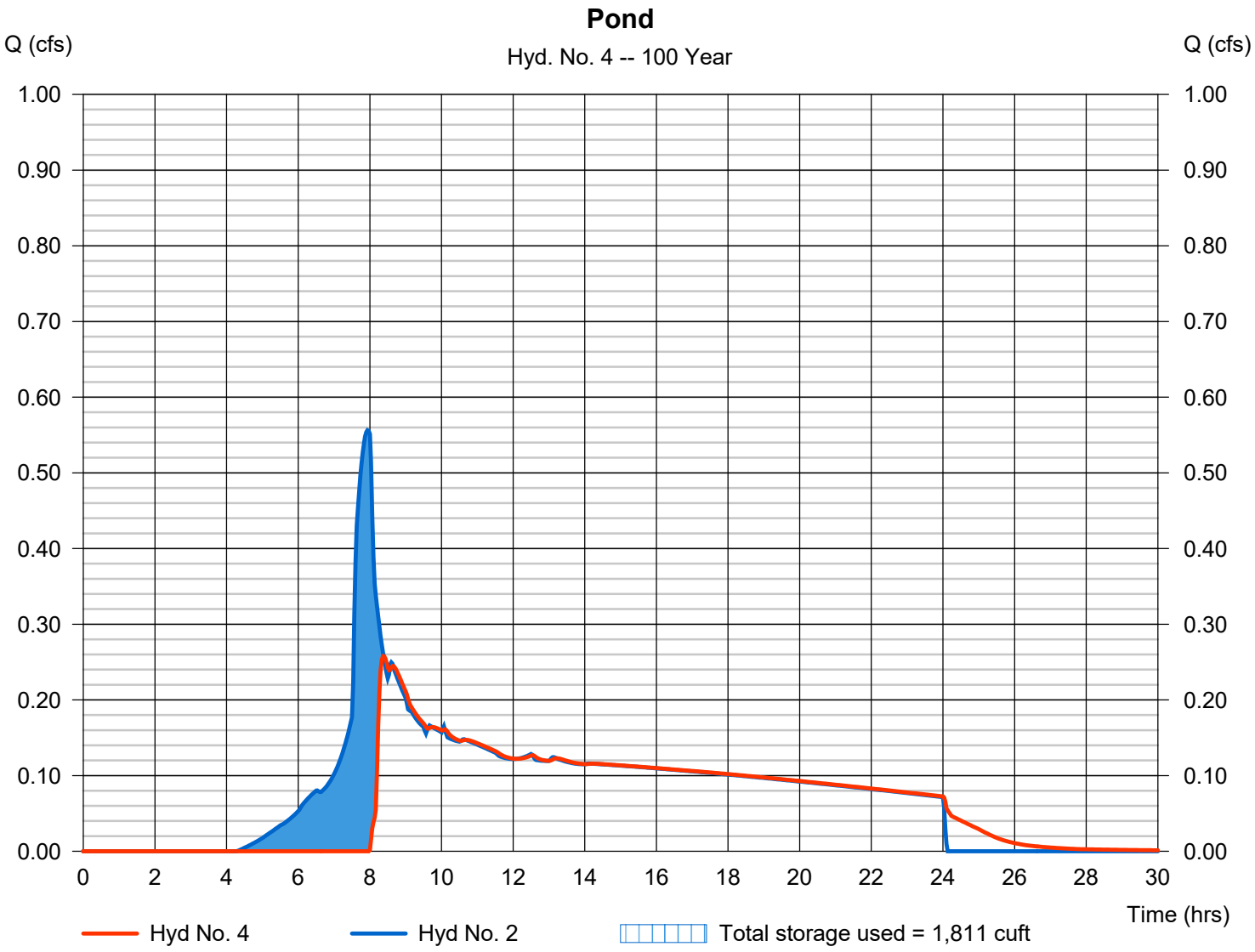
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.258 cfs
Storm frequency	= 100 yrs	Time to peak	= 8.37 hrs
Time interval	= 2 min	Hyd. volume	= 6,958 cuft
Inflow hyd. No.	= 2 - Post Dev-North	Max. Elevation	= 352.10 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 1,811 cuft

Storage Indication method used.



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	0.0000	0.0000	0.0000	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	0.0000	0.0000	0.0000	--------
25	50.2326	15.9000	0.9870	--------
50	0.0000	0.0000	0.0000	--------
100	0.0000	0.0000	0.0000	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	2.50	2.02	1.70	1.47	1.29	1.15	1.04	0.95	0.87	0.80	0.75	0.70
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

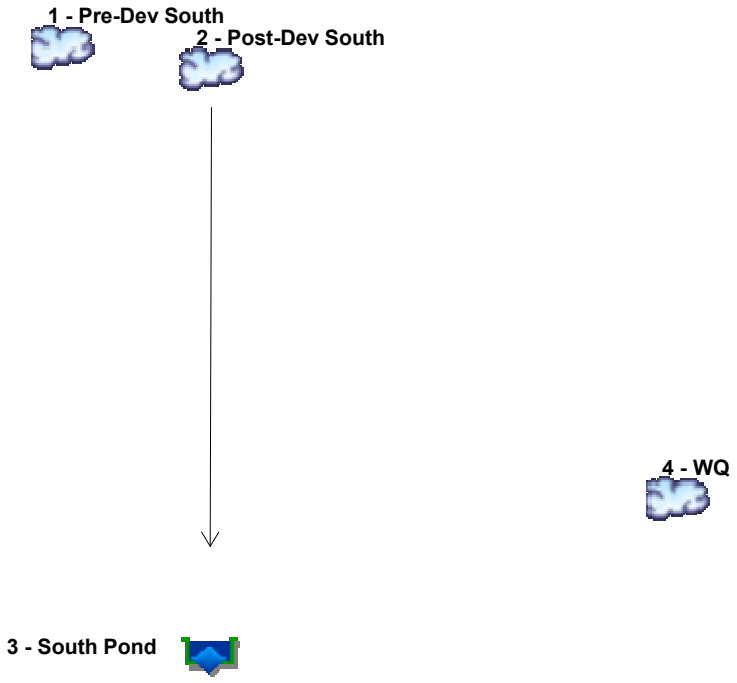
Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	1.00	2.00	0.00	0.00	3.30	3.90	4.20	4.80
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020



Legend

Hyd.	Origin	Description
1	SCS Runoff	Pre-Dev South
2	SCS Runoff	Post-Dev South
3	Reservoir	South Pond
4	SCS Runoff	WQ

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	0.009	-------	-------	0.035	0.101	-------	0.226	Pre-Dev South
2	SCS Runoff	------	-------	0.125	-------	-------	0.379	0.513	-------	0.725	Post-Dev South
3	Reservoir	2	-------	0.000	-------	-------	0.029	0.071	-------	0.130	South Pond
4	SCS Runoff	------	-------	0.190	-------	-------	0.323	0.384	-------	0.475	WQ

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.009	2	1252	316	------	------	------	Pre-Dev South
2	SCS Runoff	0.125	2	480	2,340	------	------	------	Post-Dev South
3	Reservoir	0.000	2	n/a	0	2	381.17	2,340	South Pond
4	SCS Runoff	0.190	2	472	2,657	------	------	------	WQ

Hydrograph Report

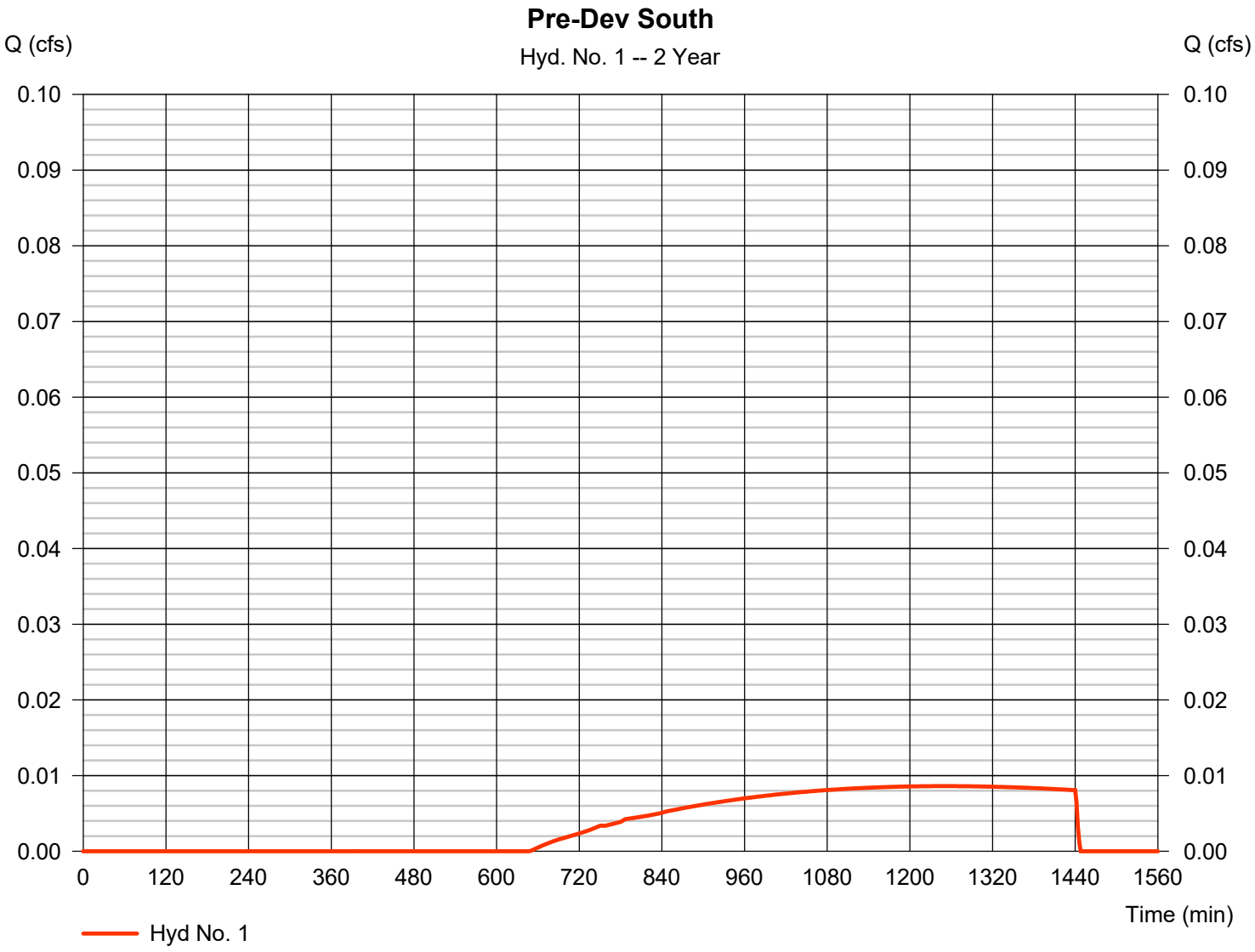
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.009 cfs
Storm frequency	= 2 yrs	Time to peak	= 1252 min
Time interval	= 2 min	Hyd. volume	= 316 cuft
Drainage area	= 1.070 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.010 x 98) + (0.050 x 85) + (0.010 x 100) + (1.000 x 60)] / 1.070



Hydrograph Report

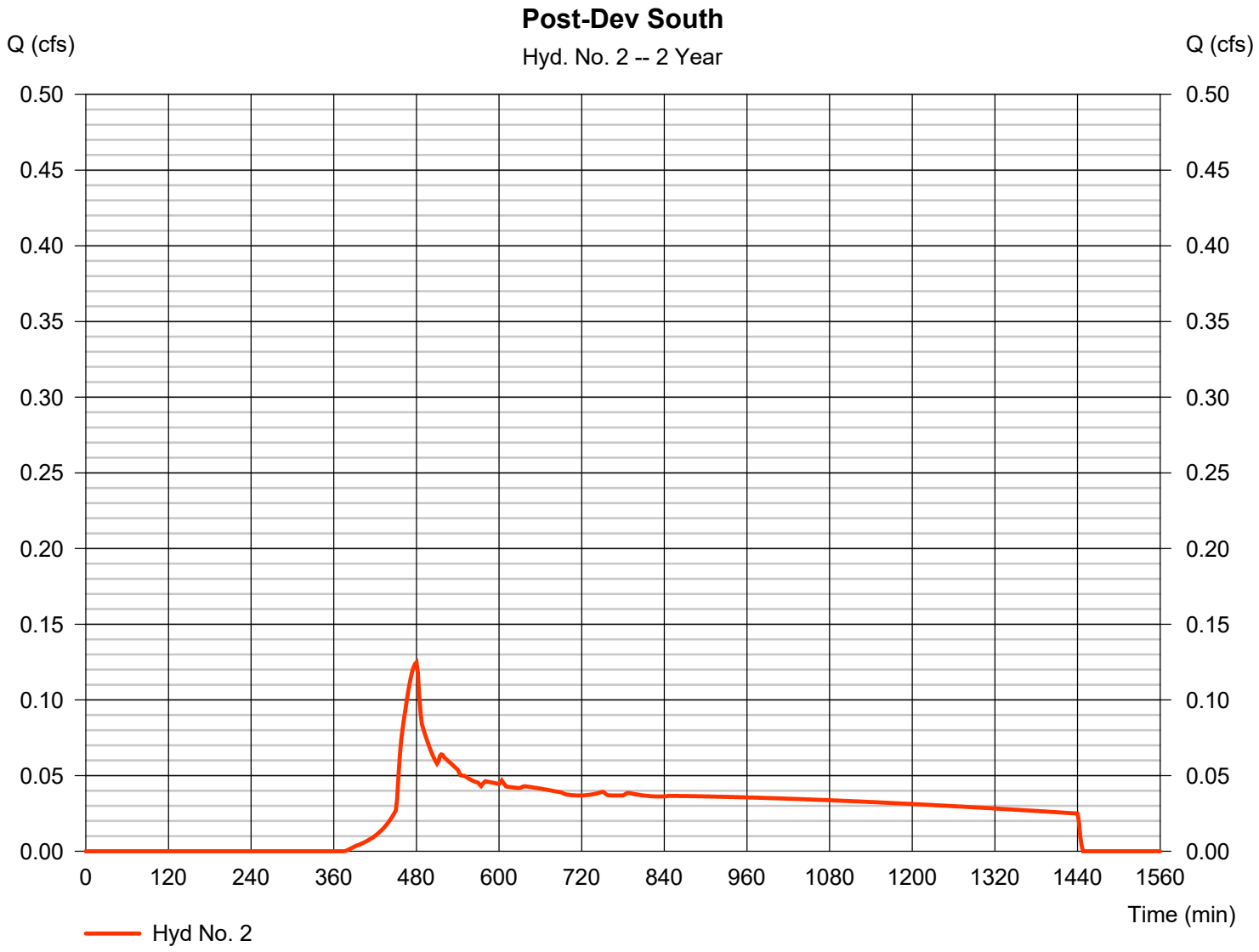
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.125 cfs
Storm frequency	= 2 yrs	Time to peak	= 480 min
Time interval	= 2 min	Hyd. volume	= 2,340 cuft
Drainage area	= 1.060 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.590 x 98) + (0.030 x 85) + (0.010 x 100) + (0.430 x 60)] / 1.060



Hydrograph Report

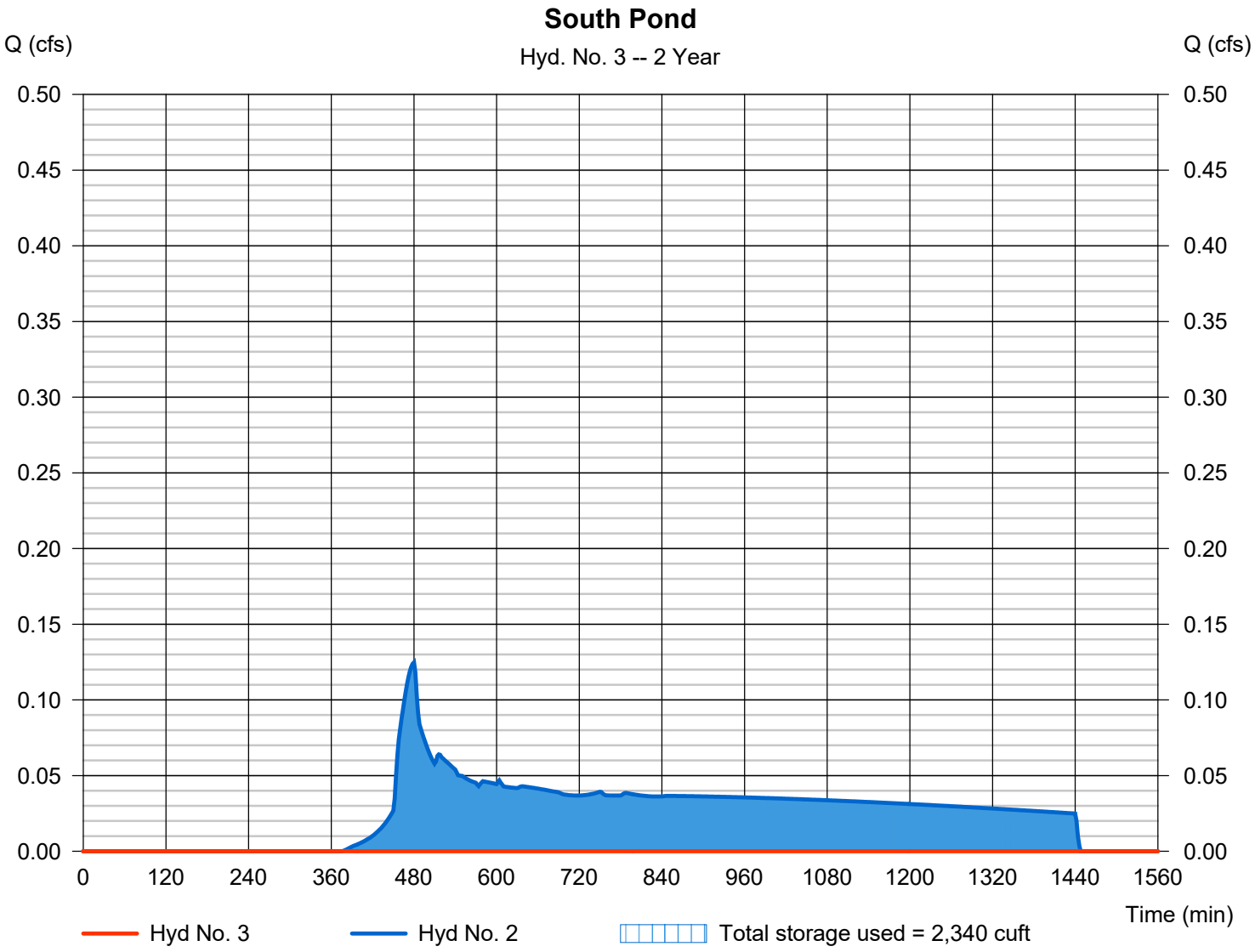
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

South Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 2 - Post-Dev South	Max. Elevation	= 381.17 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 2,340 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Pond No. 1 - Pond Phase 1

Pond Data

Trapezoid -Bottom L x W = 80.0 x 25.0 ft, Side slope = 0.00:1, Bottom elev. = 380.00 ft, Depth = 4.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	380.00	2,000	0	0
0.40	380.40	2,000	800	800
0.80	380.80	2,000	800	1,600
1.20	381.20	2,000	800	2,400
1.60	381.60	2,000	800	3,200
2.00	382.00	2,000	800	4,000
2.40	382.40	2,000	800	4,800
2.80	382.80	2,000	800	5,600
3.20	383.20	2,000	800	6,400
3.60	383.60	2,000	800	7,200
4.00	384.00	2,000	800	8,000

Culvert / Orifice Structures

		[A]	[B]	[C]	[PrfRsr]
Rise (in)	=	18.00	2.00	Inactive	Inactive
Span (in)	=	18.00	2.00	0.00	0.00
No. Barrels	=	1	1	0	0
Invert El. (ft)	=	380.00	382.70	0.00	0.00
Length (ft)	=	25.00	0.00	0.00	0.00
Slope (%)	=	40.00	0.00	0.00	n/a
N-Value	=	.010	.013	.013	n/a
Orifice Coeff.	=	0.60	0.60	0.60	0.60
Multi-Stage	=	n/a	Yes	No	No

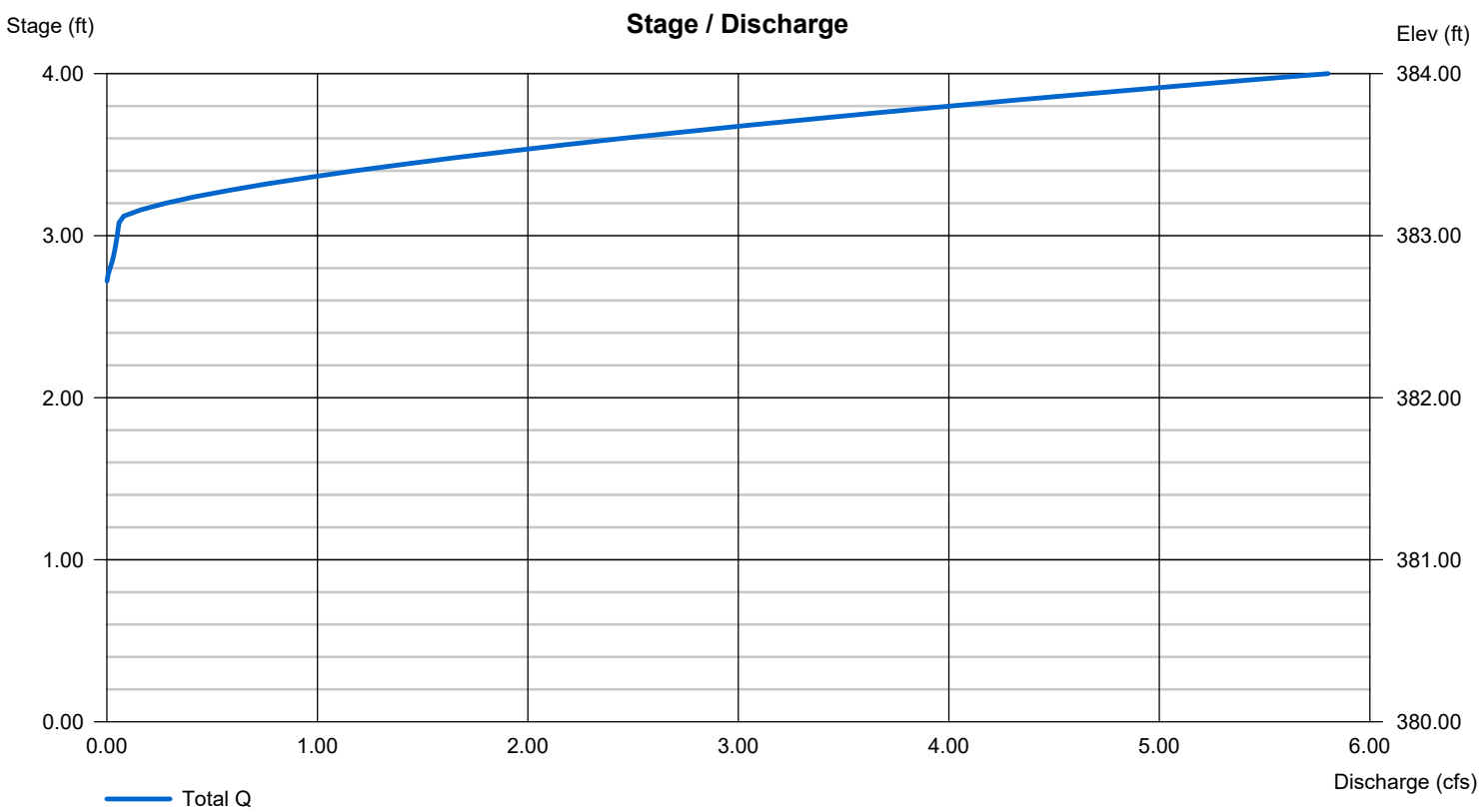
Weir Structures

		[A]	[B]	[C]	[D]
Crest Len (ft)	=	2.00	0.00	0.00	0.00
Crest El. (ft)	=	383.10	0.00	0.00	0.00
Weir Coeff.	=	3.33	3.33	3.33	3.33
Weir Type	=	Rect	---	---	---
Multi-Stage	=	Yes	No	No	No

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

TW Elev. (ft) = 0.00

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



Hydrograph Report

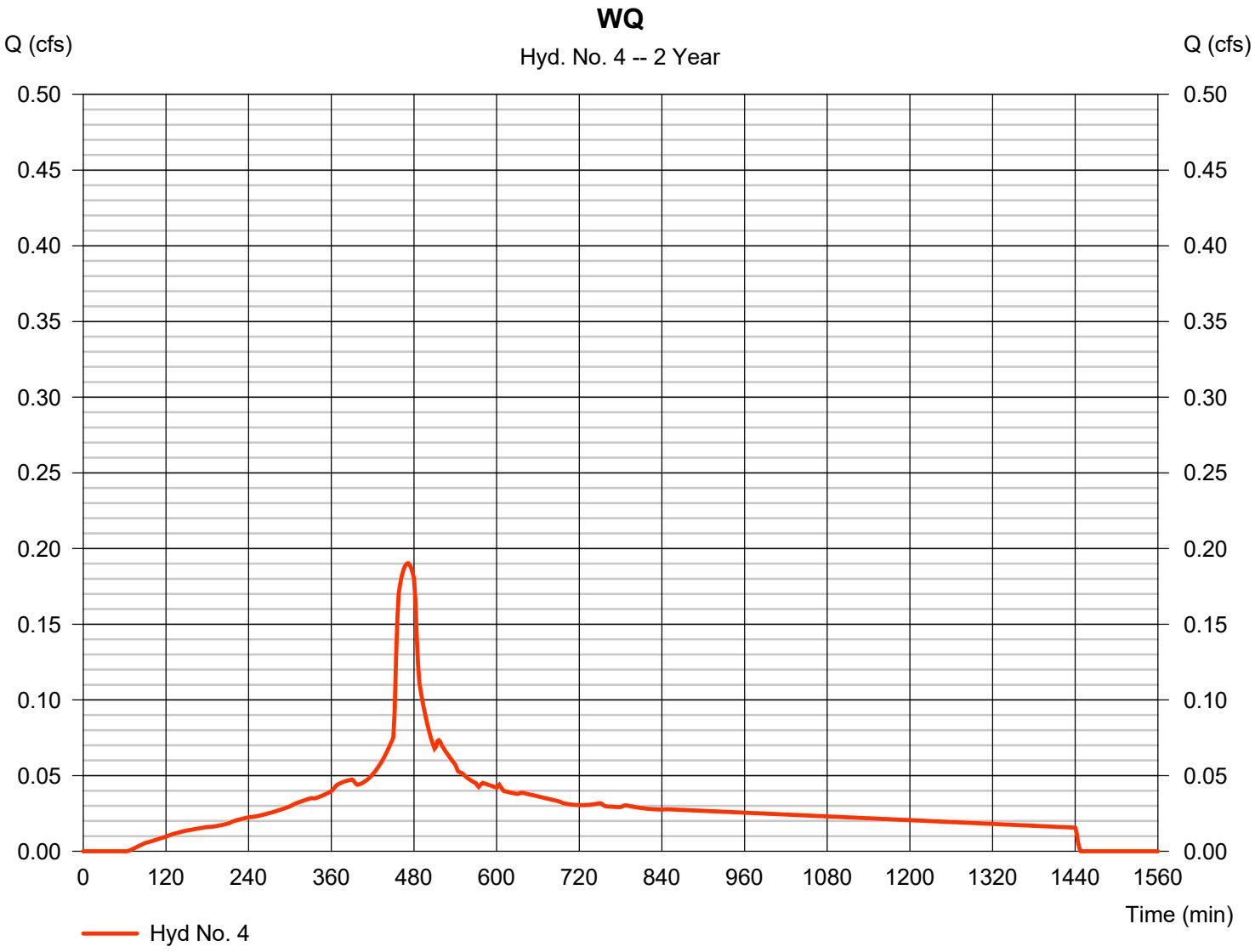
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.190 cfs
Storm frequency	= 2 yrs	Time to peak	= 472 min
Time interval	= 2 min	Hyd. volume	= 2,657 cuft
Drainage area	= 0.440 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.440 x 98)] / 0.440



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.035	2	982	1,910	------	------	------	Pre-Dev South
2	SCS Runoff	0.379	2	476	5,840	------	------	------	Post-Dev South
3	Reservoir	0.029	2	1444	396	2	382.86	5,719	South Pond
4	SCS Runoff	0.323	2	470	4,593	------	------	------	WQ

Hydrograph Report

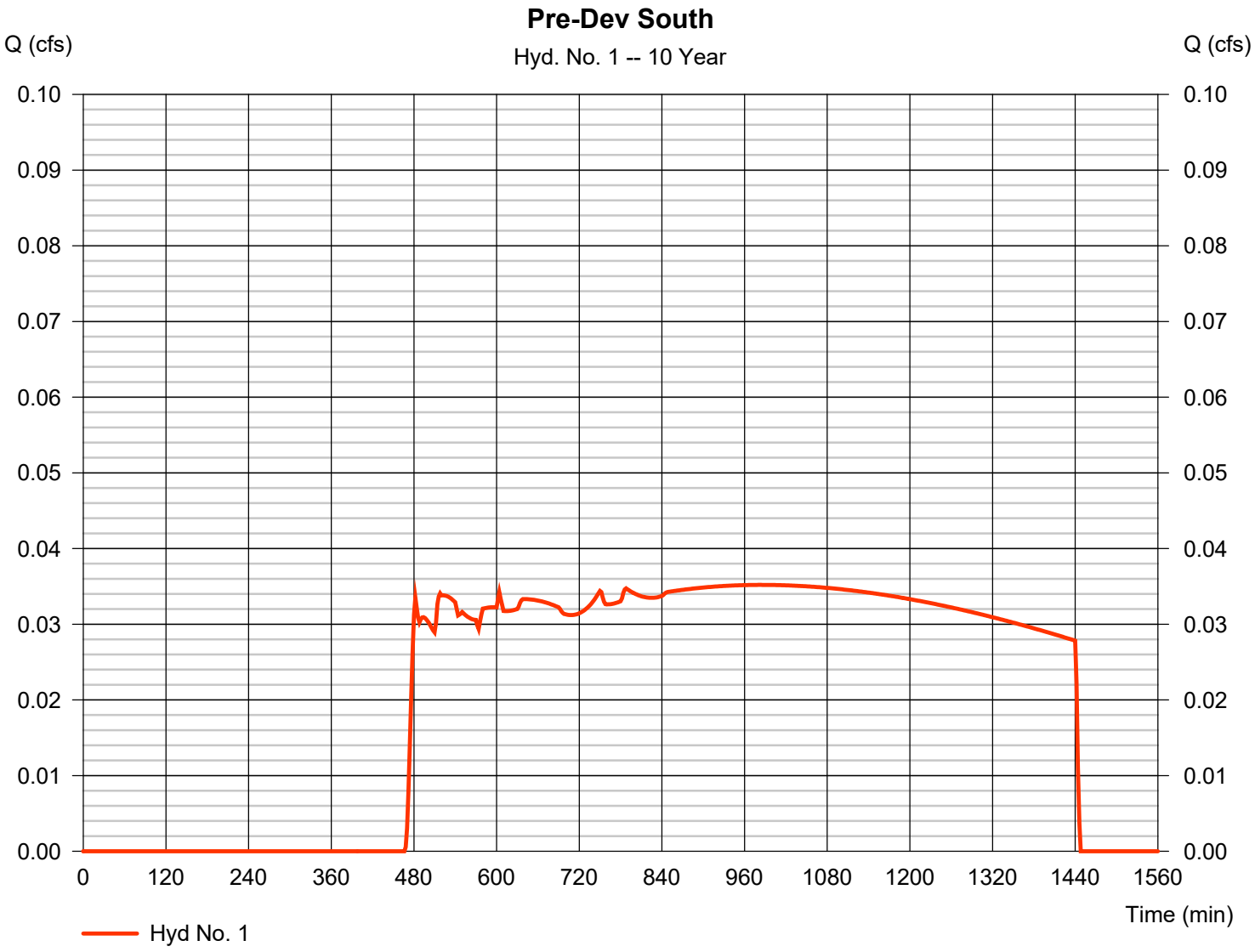
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.035 cfs
Storm frequency	= 10 yrs	Time to peak	= 982 min
Time interval	= 2 min	Hyd. volume	= 1,910 cuft
Drainage area	= 1.070 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.010 x 98) + (0.050 x 85) + (0.010 x 100) + (1.000 x 60)] / 1.070



Hydrograph Report

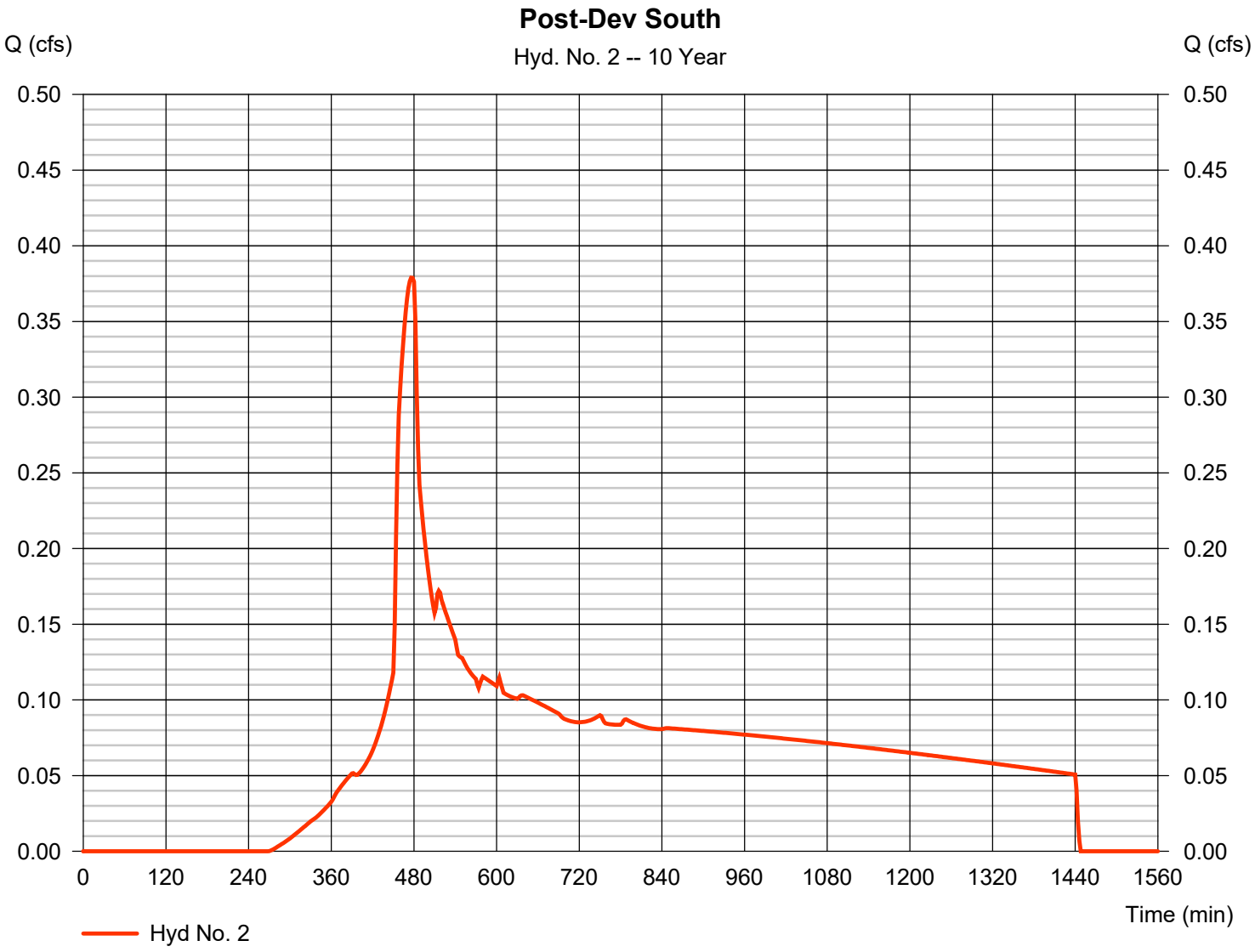
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.379 cfs
Storm frequency	= 10 yrs	Time to peak	= 476 min
Time interval	= 2 min	Hyd. volume	= 5,840 cuft
Drainage area	= 1.060 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.590 x 98) + (0.030 x 85) + (0.010 x 100) + (0.430 x 60)] / 1.060



Hydrograph Report

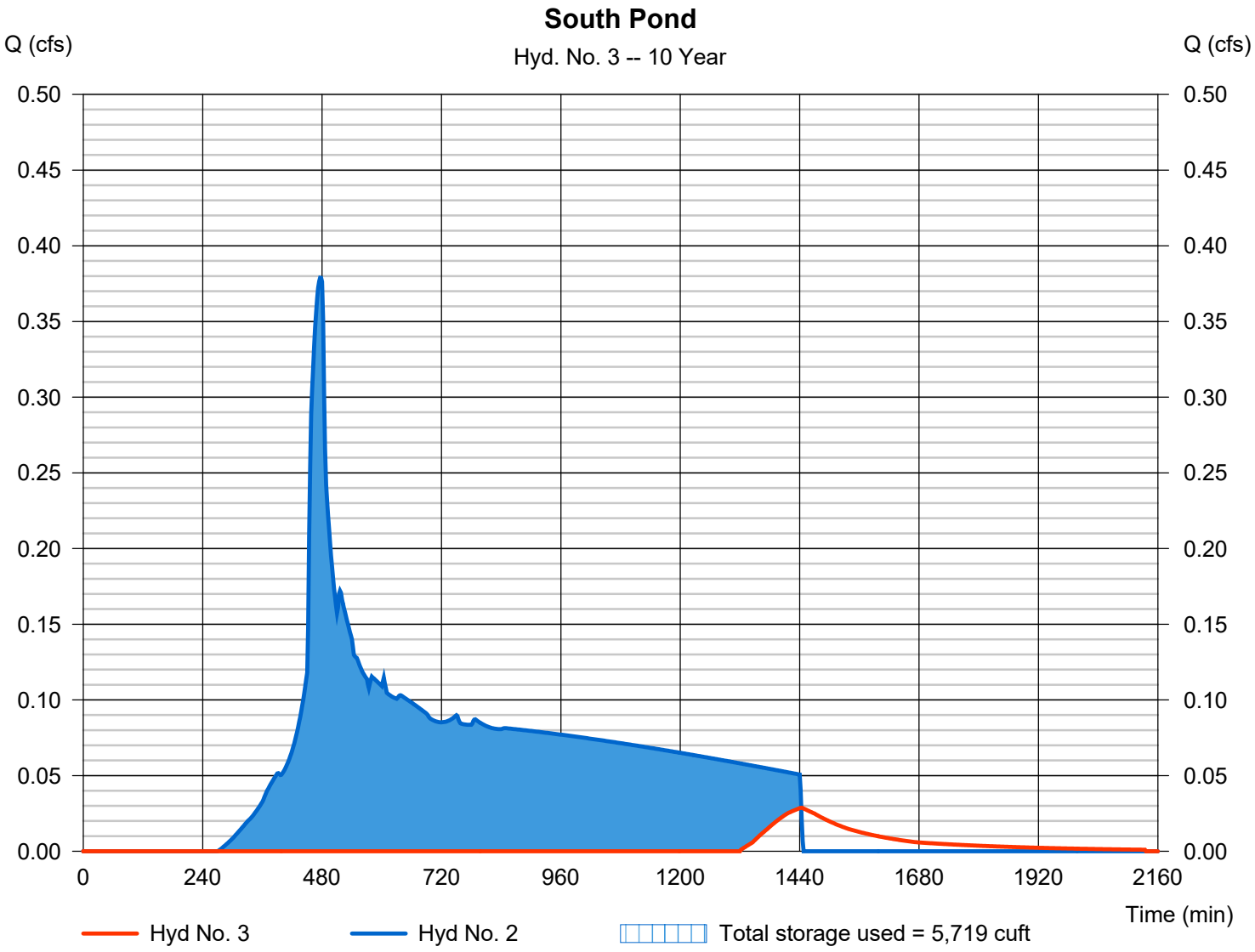
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

South Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.029 cfs
Storm frequency	= 10 yrs	Time to peak	= 1444 min
Time interval	= 2 min	Hyd. volume	= 396 cuft
Inflow hyd. No.	= 2 - Post-Dev South	Max. Elevation	= 382.86 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 5,719 cuft

Storage Indication method used.



Hydrograph Report

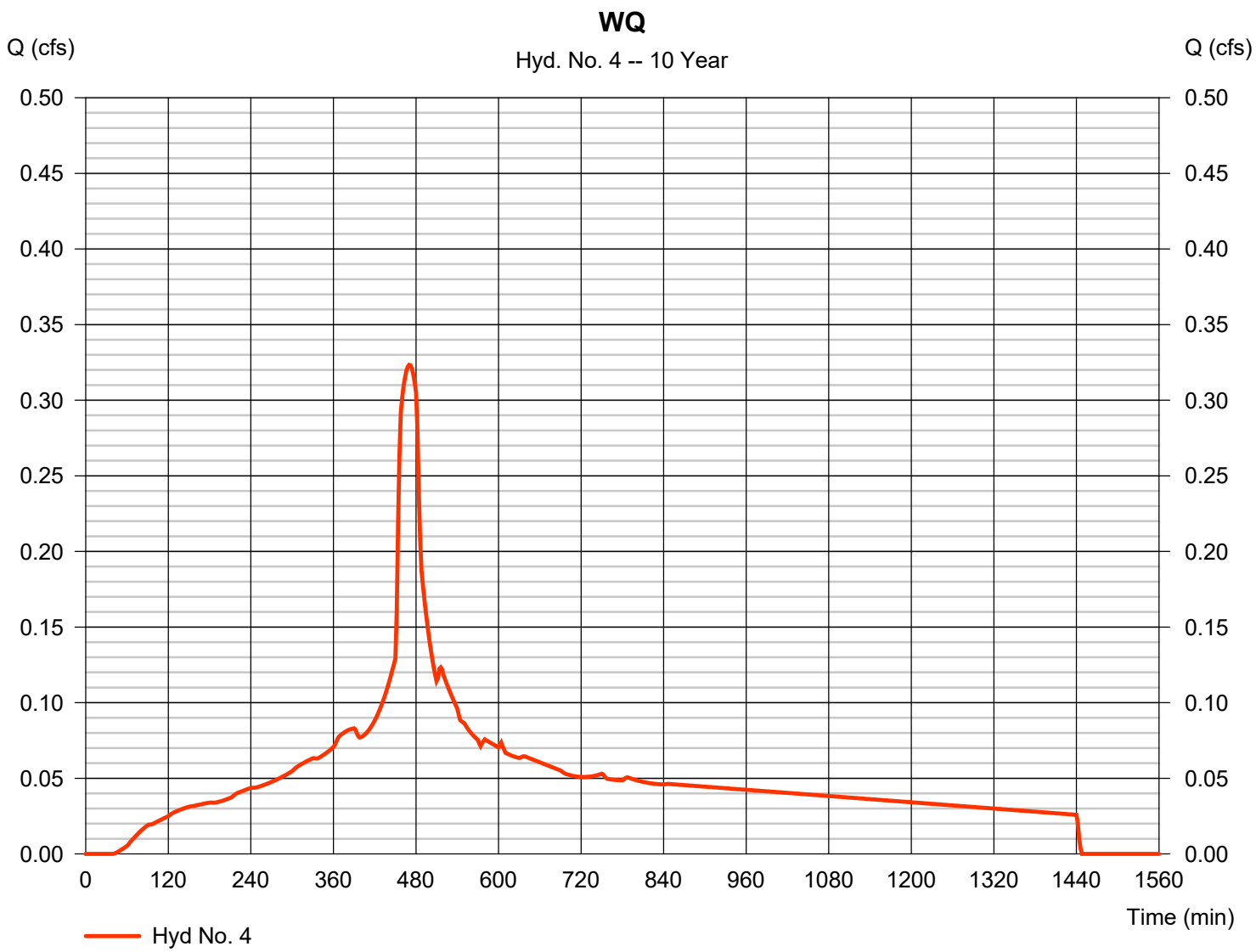
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.323 cfs
Storm frequency	= 10 yrs	Time to peak	= 470 min
Time interval	= 2 min	Hyd. volume	= 4,593 cuft
Drainage area	= 0.440 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.440 x 98)] / 0.440



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.101	2	480	2,958	------	------	------	Pre-Dev South
2	SCS Runoff	0.513	2	476	7,639	------	------	------	Post-Dev South
3	Reservoir	0.071	2	1338	2,196	2	383.10	6,208	South Pond
4	SCS Runoff	0.384	2	470	5,488	------	------	------	WQ

Hydrograph Report

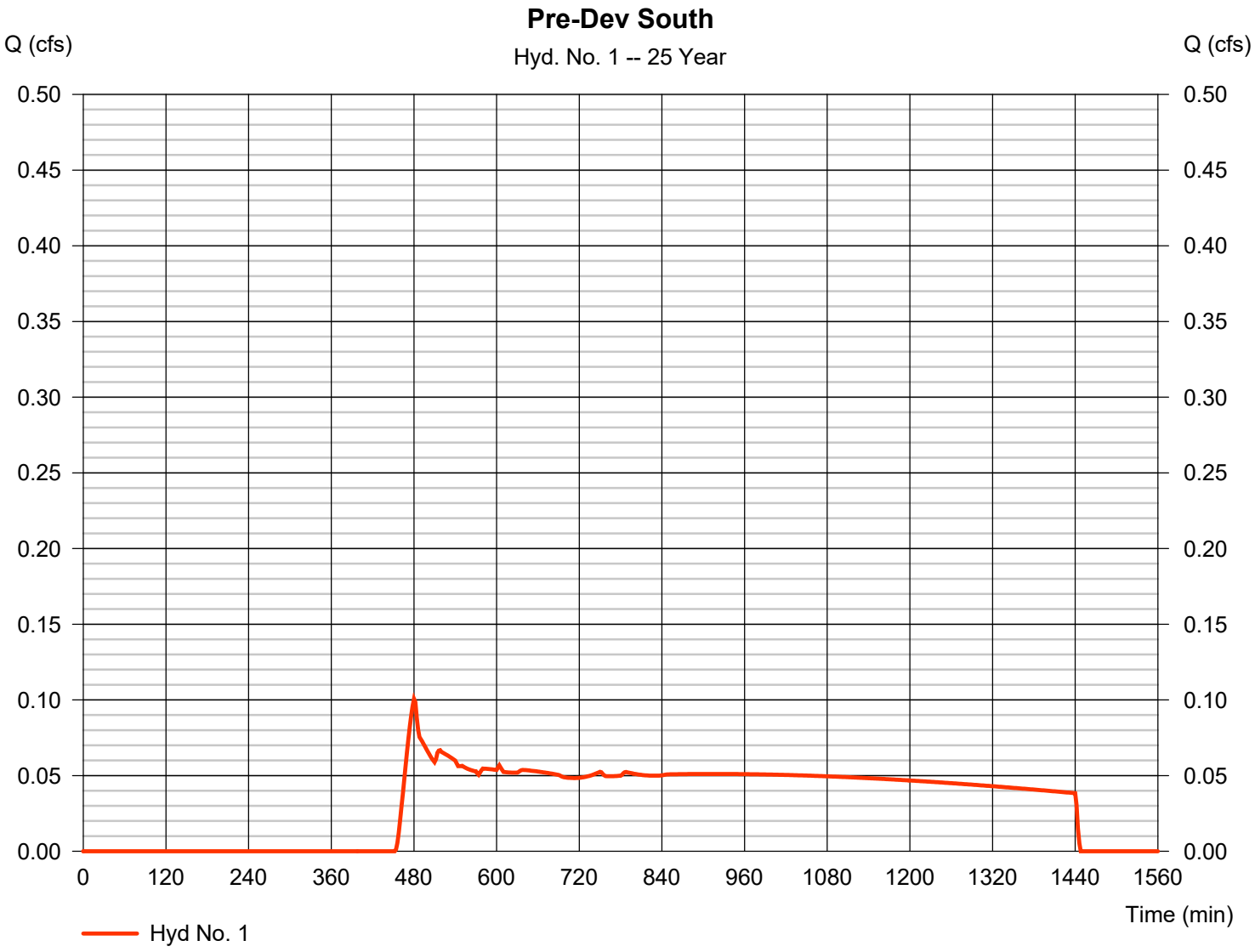
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.101 cfs
Storm frequency	= 25 yrs	Time to peak	= 480 min
Time interval	= 2 min	Hyd. volume	= 2,958 cuft
Drainage area	= 1.070 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.010 x 98) + (0.050 x 85) + (0.010 x 100) + (1.000 x 60)] / 1.070



Hydrograph Report

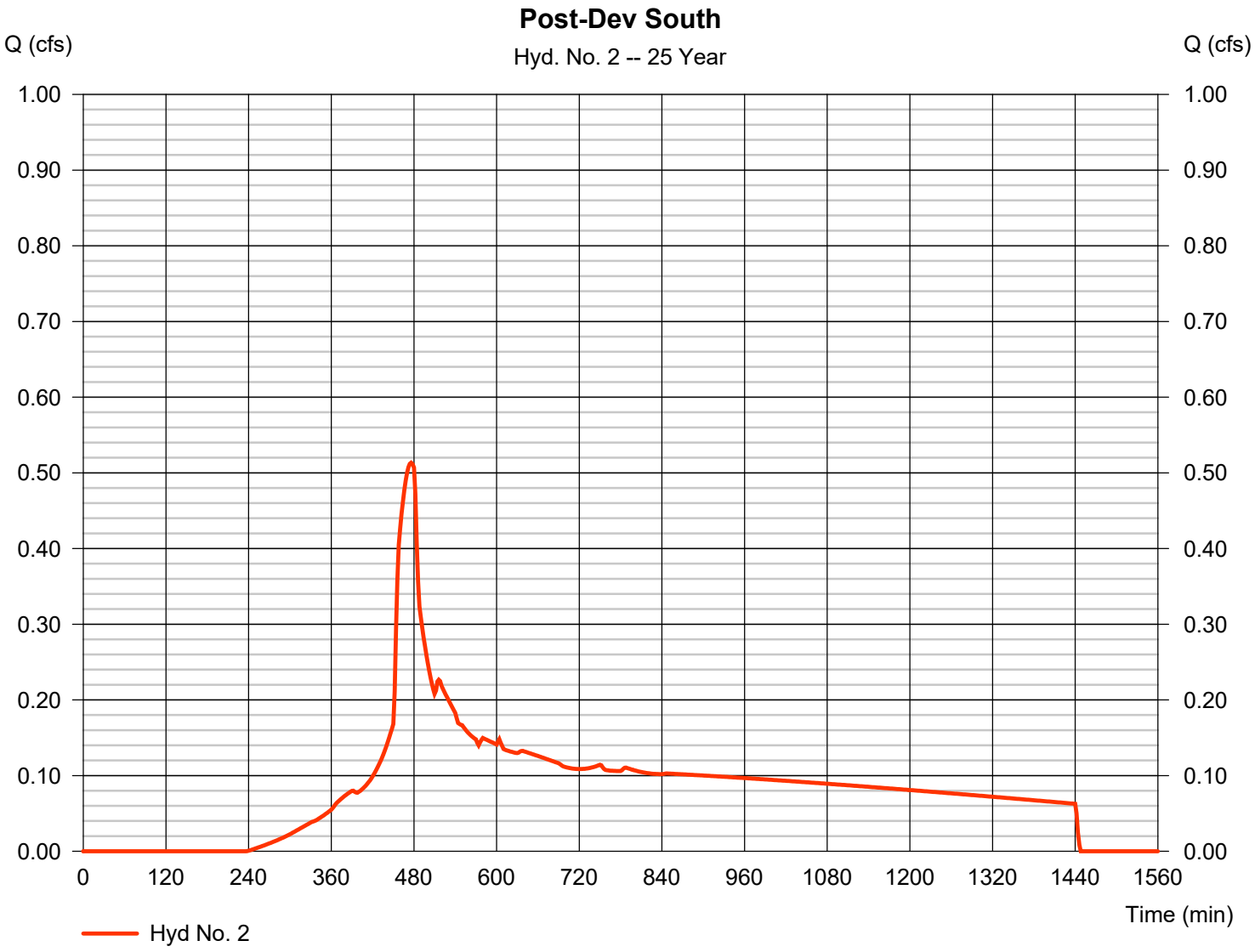
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.513 cfs
Storm frequency	= 25 yrs	Time to peak	= 476 min
Time interval	= 2 min	Hyd. volume	= 7,639 cuft
Drainage area	= 1.060 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.590 x 98) + (0.030 x 85) + (0.010 x 100) + (0.430 x 60)] / 1.060



Hydrograph Report

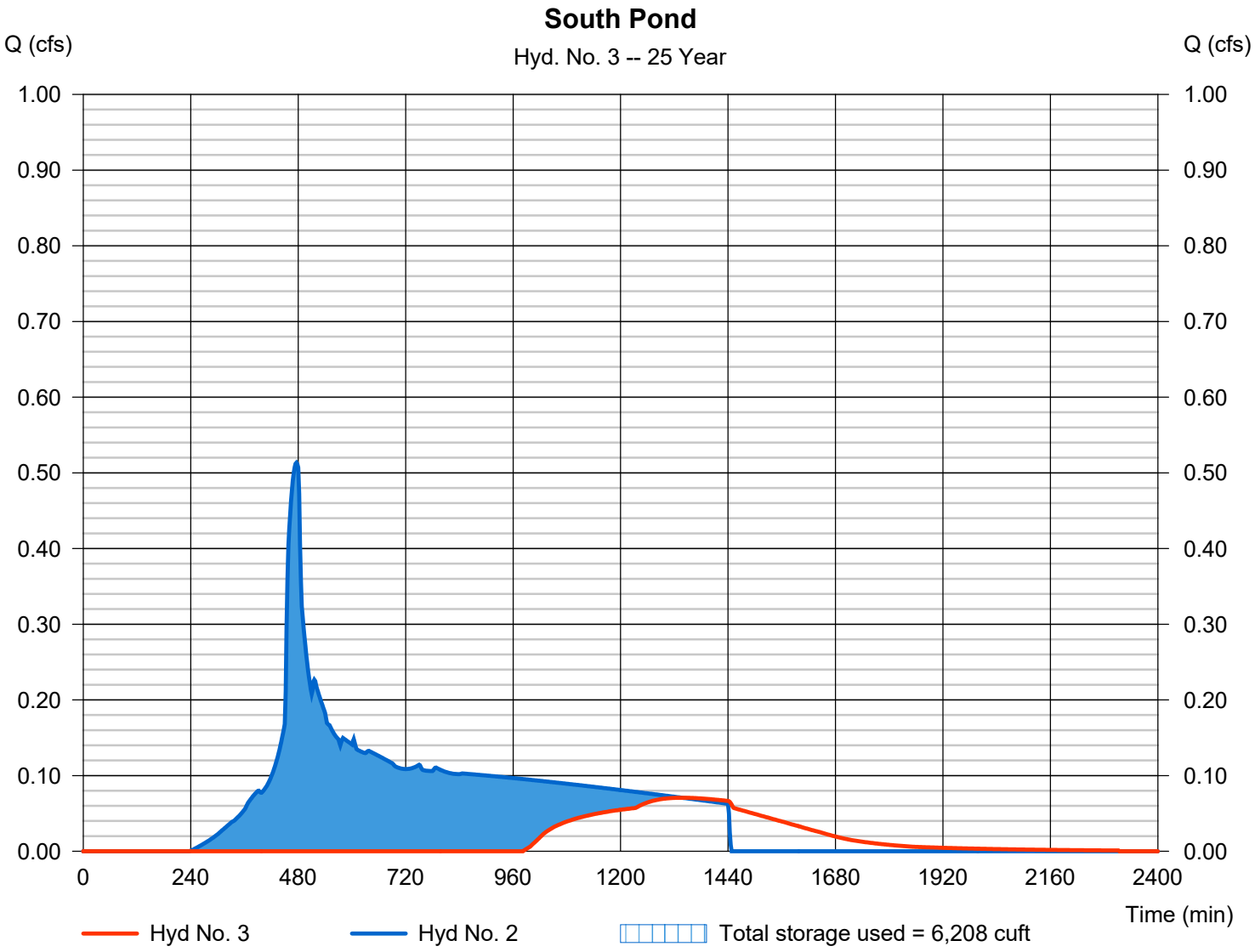
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

South Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.071 cfs
Storm frequency	= 25 yrs	Time to peak	= 1338 min
Time interval	= 2 min	Hyd. volume	= 2,196 cuft
Inflow hyd. No.	= 2 - Post-Dev South	Max. Elevation	= 383.10 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 6,208 cuft

Storage Indication method used.



Hydrograph Report

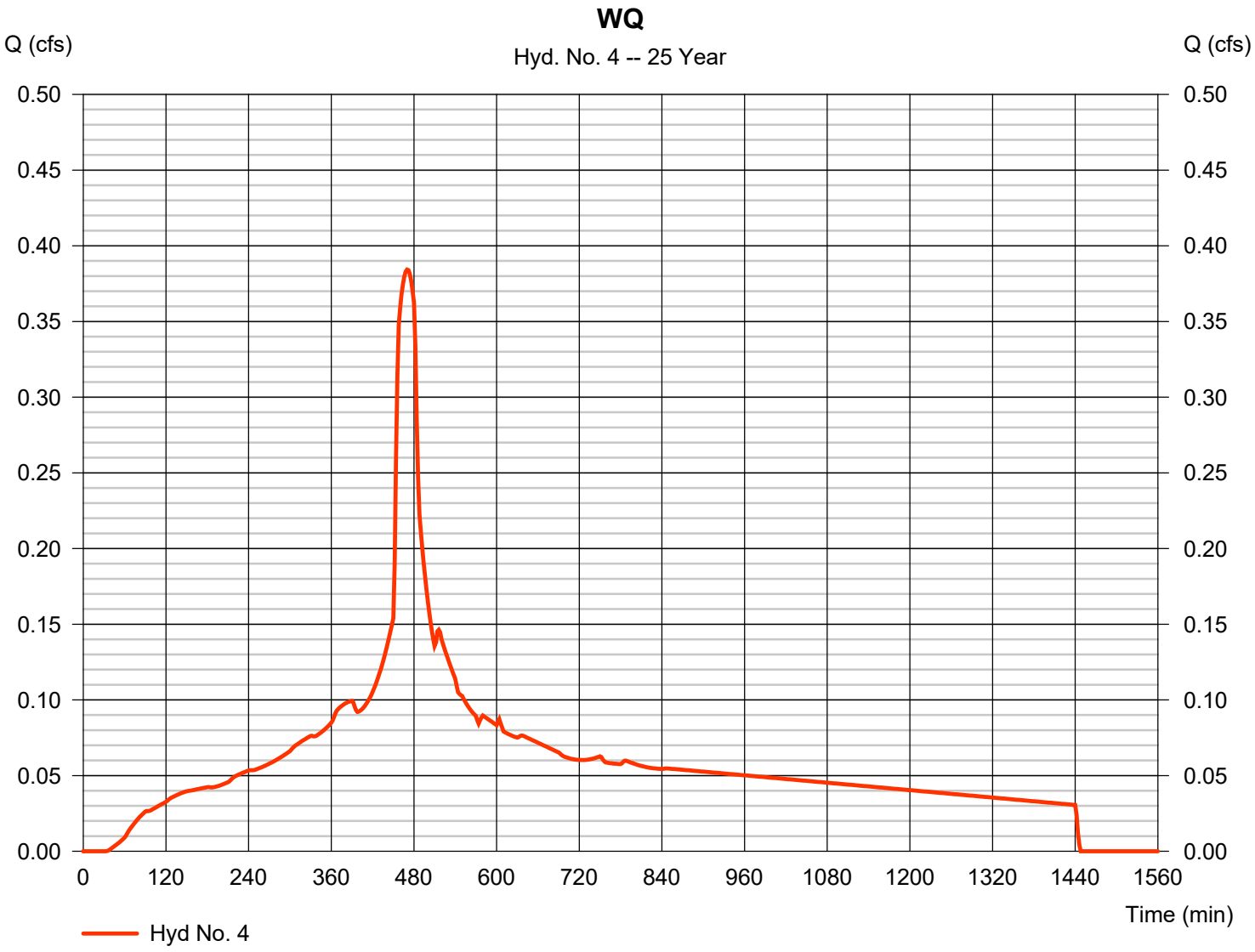
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

WQ

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.384 cfs
Storm frequency	=	25 yrs	Time to peak	=	470 min
Time interval	=	2 min	Hyd. volume	=	5,488 cuft
Drainage area	=	0.440 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.90 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.440 x 98)] / 0.440



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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	0.226	2	480	4,794	------	------	------	Pre-Dev South
2	SCS Runoff	0.725	2	474	10,464	------	------	------	Post-Dev South
3	Reservoir	0.130	2	910	5,020	2	383.14	6,289	South Pond
4	SCS Runoff	0.475	2	470	6,833	------	------	------	WQ

Hydrograph Report

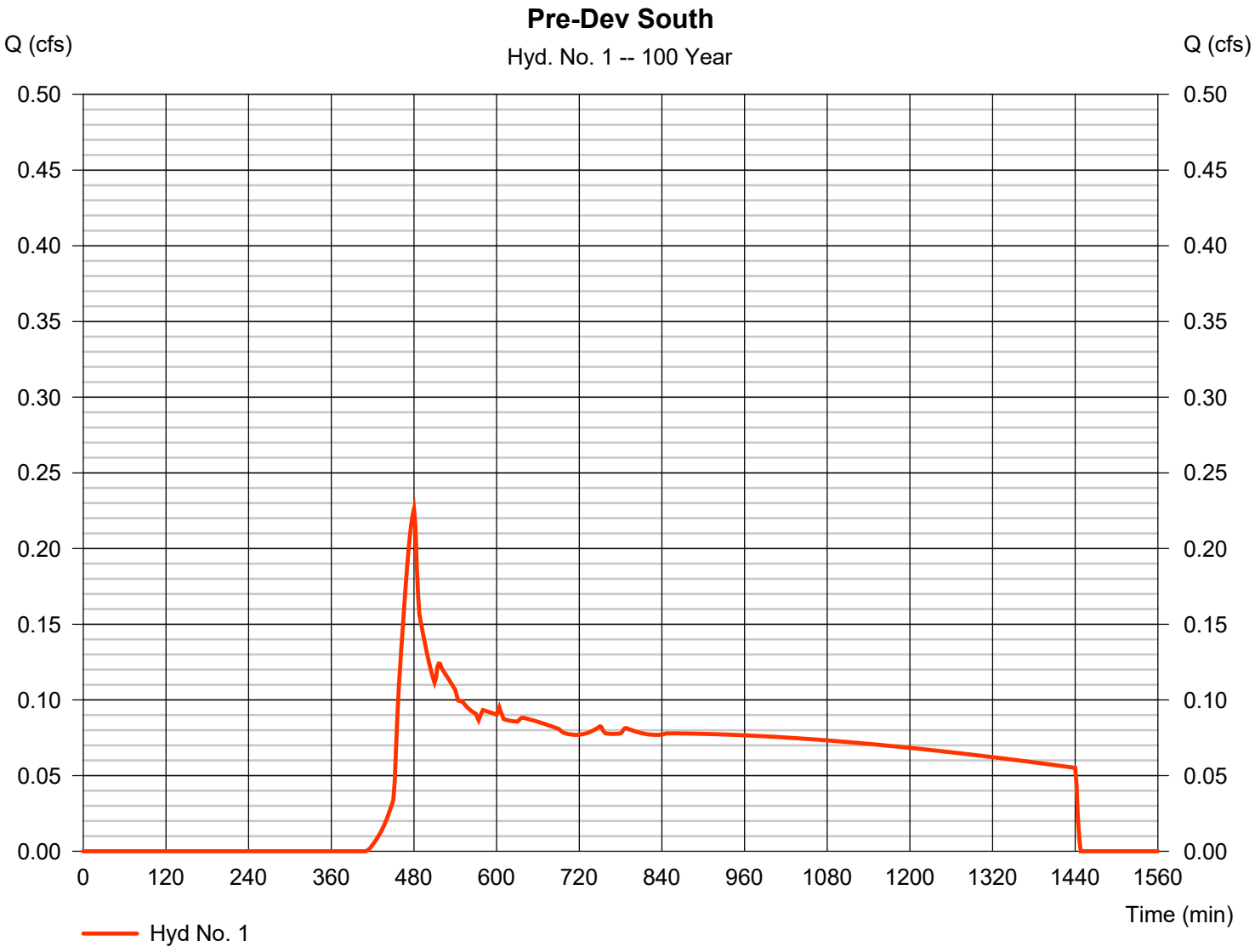
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 1

Pre-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.226 cfs
Storm frequency	= 100 yrs	Time to peak	= 480 min
Time interval	= 2 min	Hyd. volume	= 4,794 cuft
Drainage area	= 1.070 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.010 x 98) + (0.050 x 85) + (0.010 x 100) + (1.000 x 60)] / 1.070



Hydrograph Report

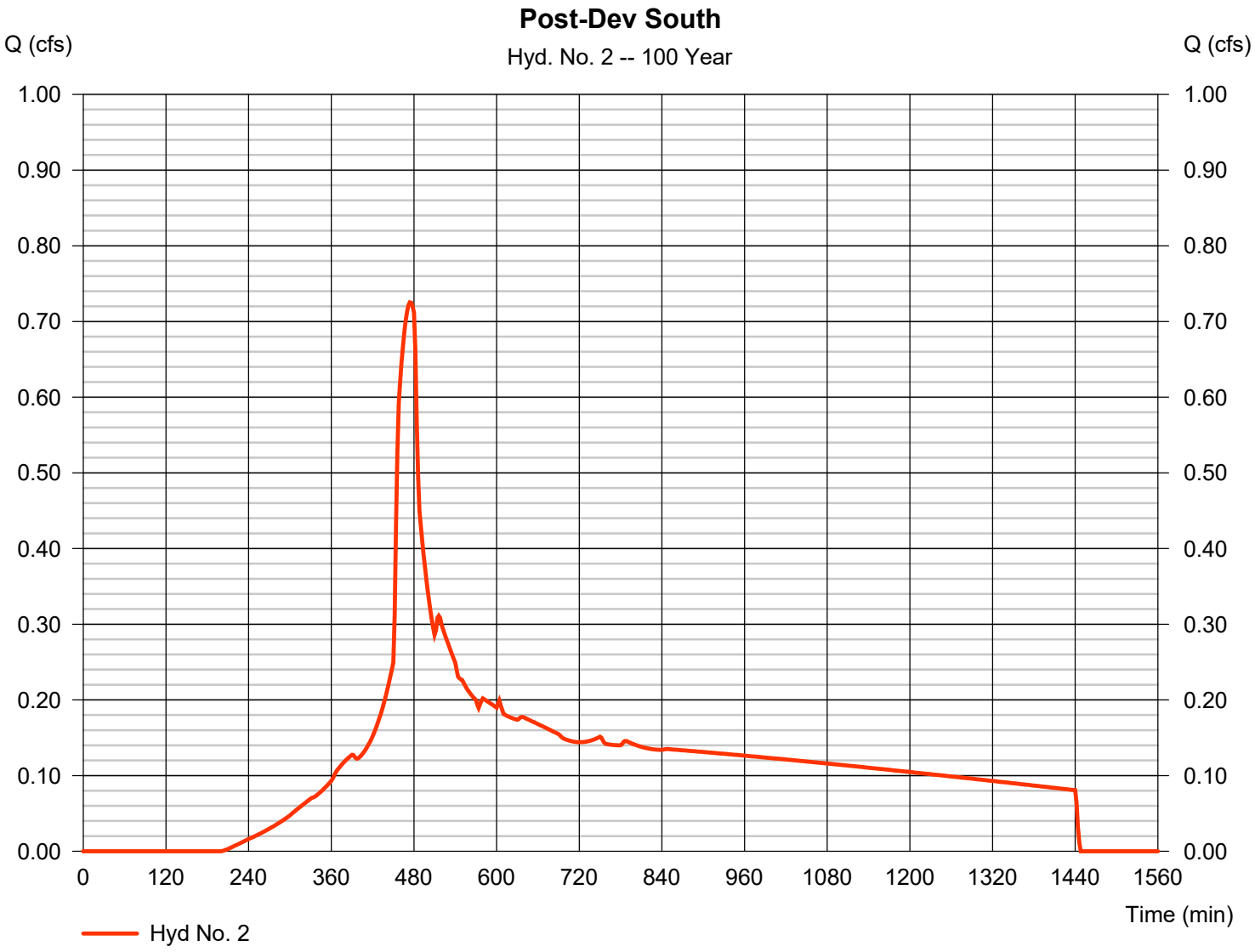
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 2

Post-Dev South

Hydrograph type	= SCS Runoff	Peak discharge	= 0.725 cfs
Storm frequency	= 100 yrs	Time to peak	= 474 min
Time interval	= 2 min	Hyd. volume	= 10,464 cuft
Drainage area	= 1.060 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.590 x 98) + (0.030 x 85) + (0.010 x 100) + (0.430 x 60)] / 1.060



Hydrograph Report

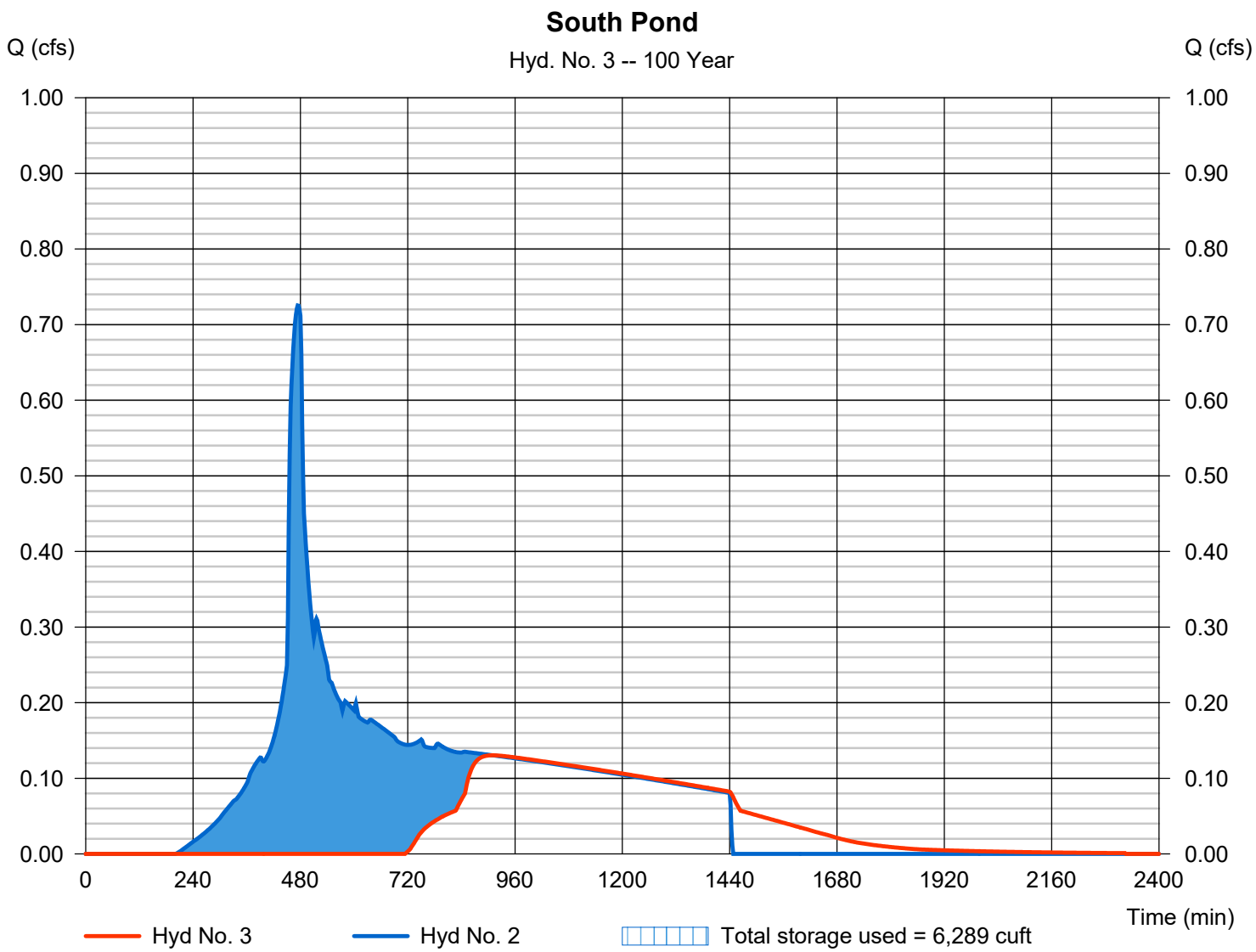
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 3

South Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.130 cfs
Storm frequency	= 100 yrs	Time to peak	= 910 min
Time interval	= 2 min	Hyd. volume	= 5,020 cuft
Inflow hyd. No.	= 2 - Post-Dev South	Max. Elevation	= 383.14 ft
Reservoir name	= Pond Phase 1	Max. Storage	= 6,289 cuft

Storage Indication method used.



Hydrograph Report

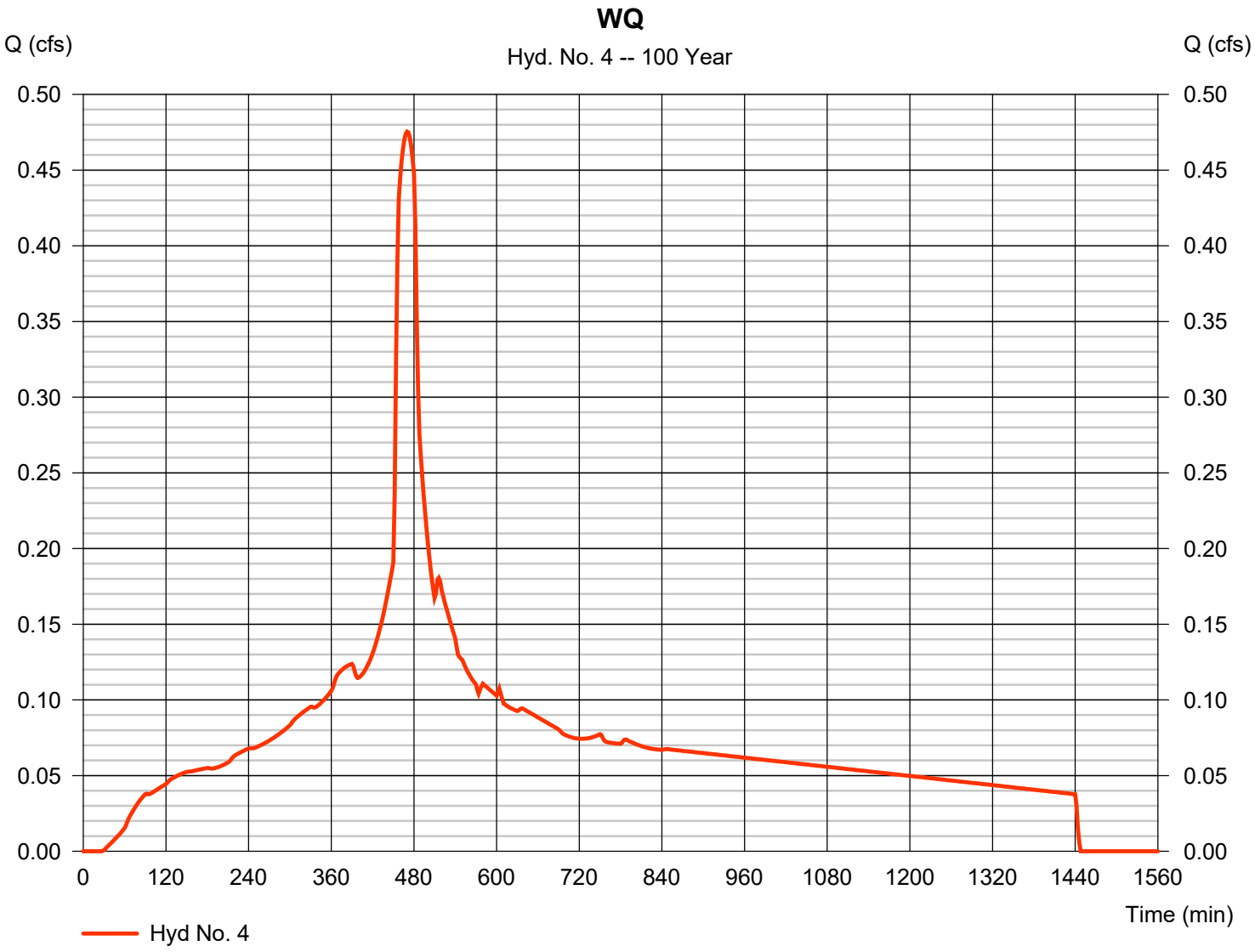
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Friday, 08 / 21 / 2020

Hyd. No. 4

WQ

Hydrograph type	= SCS Runoff	Peak discharge	= 0.475 cfs
Storm frequency	= 100 yrs	Time to peak	= 470 min
Time interval	= 2 min	Hyd. volume	= 6,833 cuft
Drainage area	= 0.440 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.440 x 98)] / 0.440



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	0.0000	0.0000	0.0000	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	0.0000	0.0000	0.0000	--------
25	50.2326	15.9000	0.9870	--------
50	0.0000	0.0000	0.0000	--------
100	0.0000	0.0000	0.0000	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	2.50	2.02	1.70	1.47	1.29	1.15	1.04	0.95	0.87	0.80	0.75	0.70
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	1.00	2.00	0.00	0.00	3.30	3.90	4.20	4.80
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UDC 2020 South.gpw

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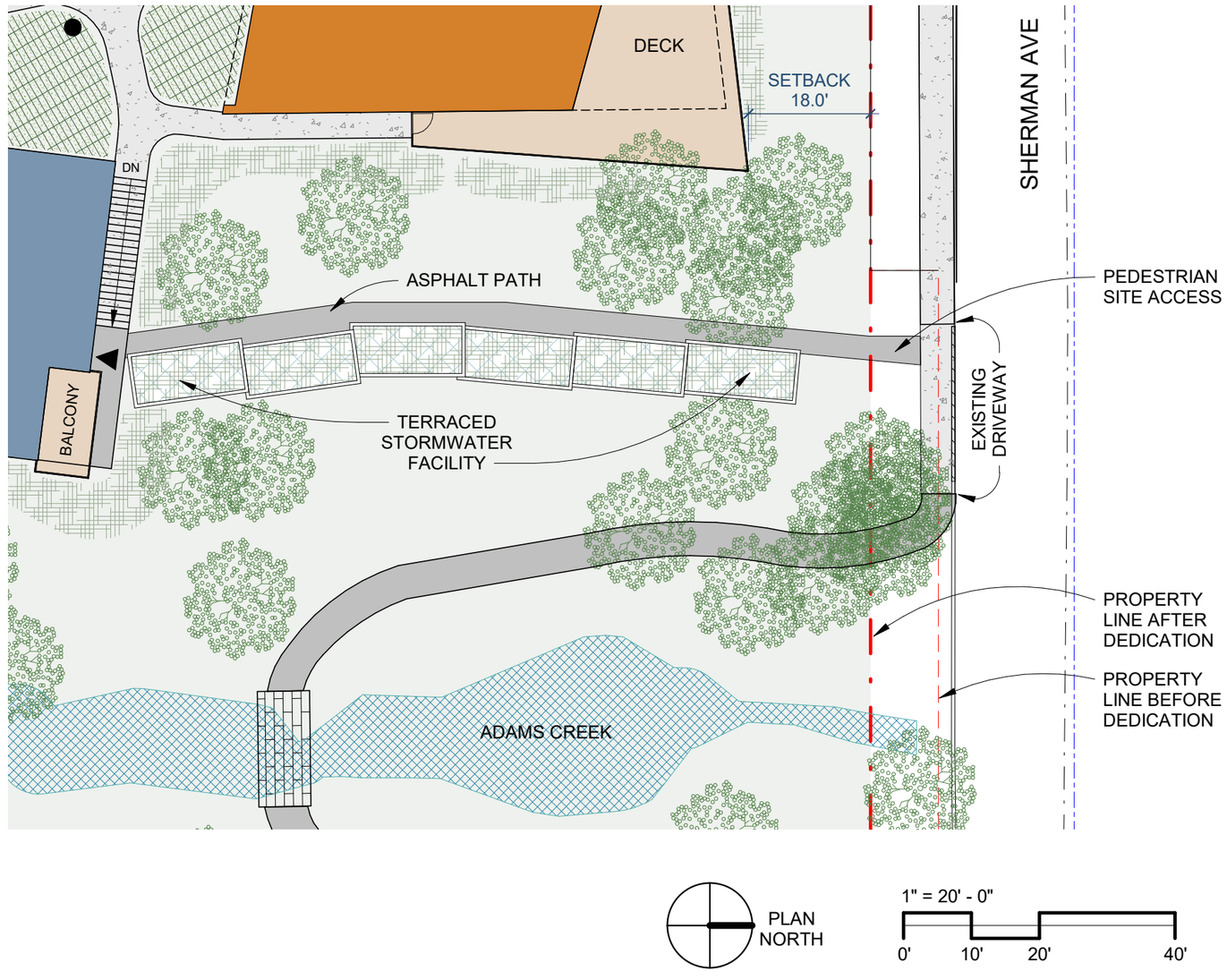
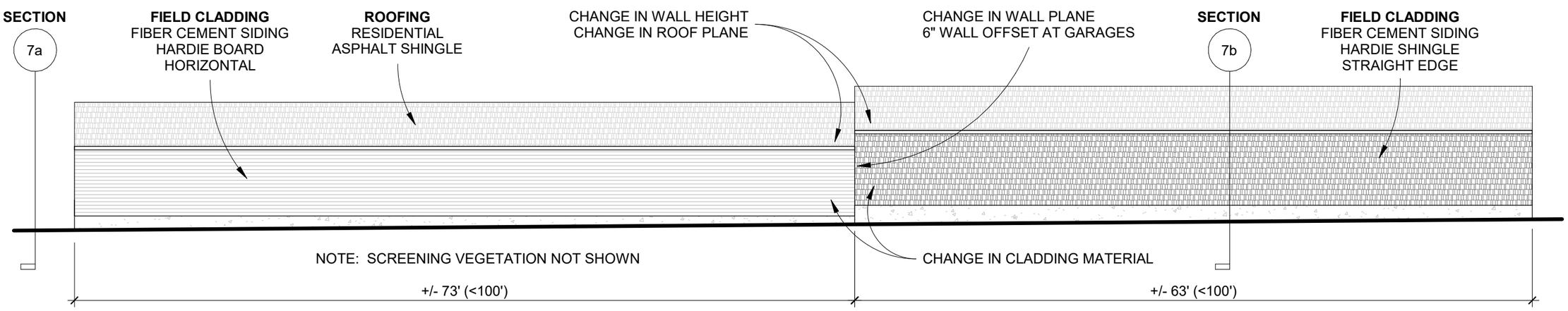


REVISED PRELIMINARY NORTH STORMWATER FACILITY
SITE PLAN REVIEW | 08/25/20
ADAMS CREEK COHOUSING

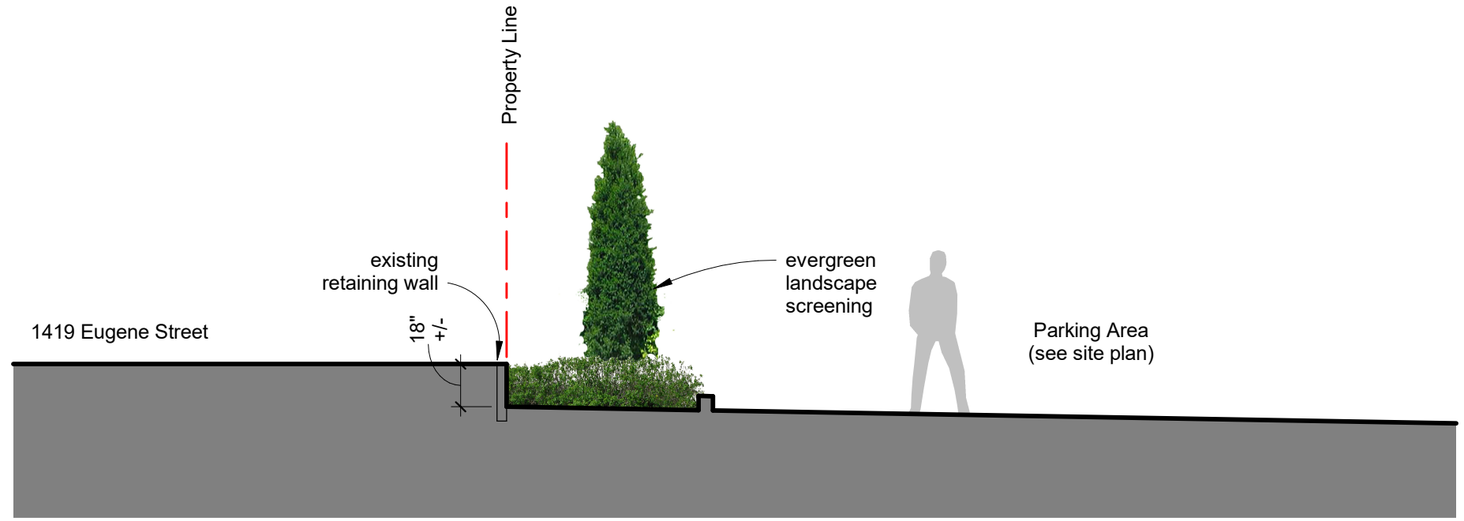


6 COVERED PARKING - WEST ELEVATION

1" = 10'-0"

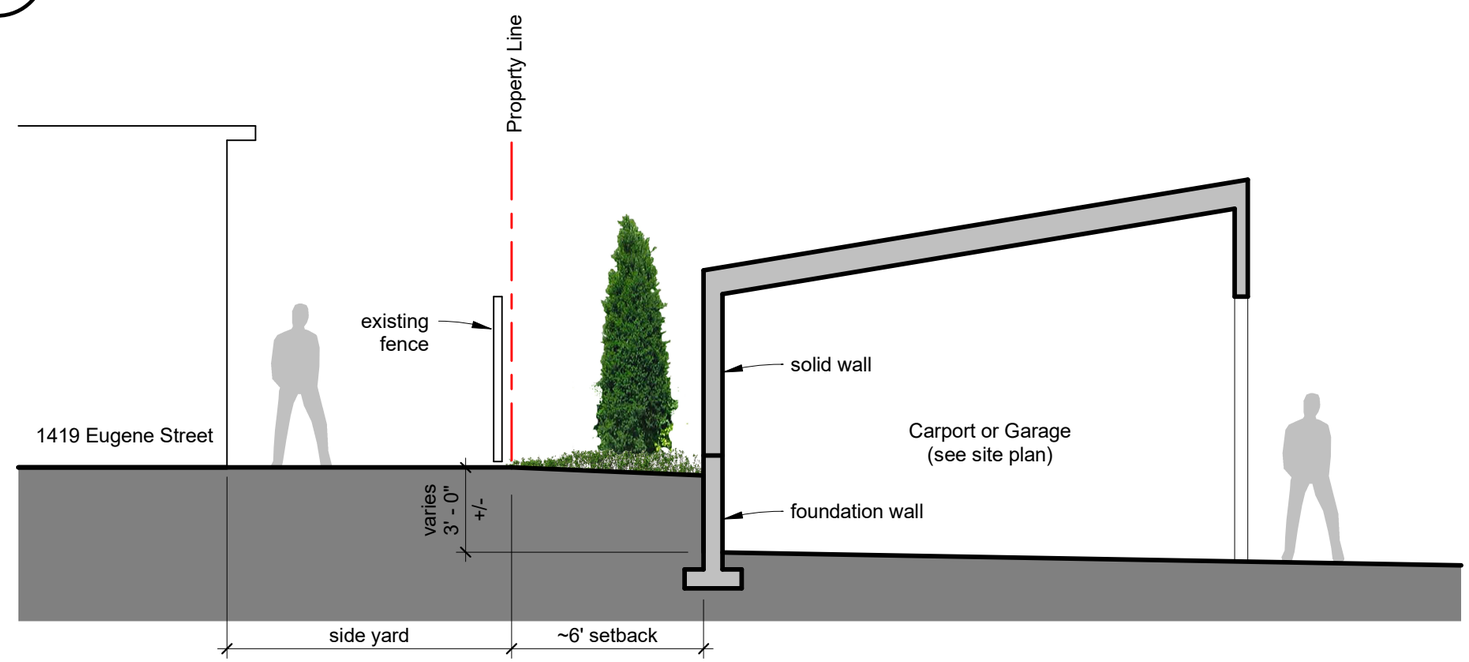
THIS DRAWING IS A REVISION TO DEMONSTRATE COMPLIANCE WITH HRMC 17.16.050.G

SEE SUBMITTED DRAWING SHEET PR A1.7 FOR ADDITIONAL INFORMATION



7a SECTION AT PARKING AREA

3/16" = 1'-0"



7b SECTION AT COVERED PARKING

3/16" = 1'-0"

PROPOSED SETBACK AT COVERED PARKING
SITE PLAN REVIEW | 08/25/20
ADAMS CREEK COHOUSING

Adams Creek Cohousing Outreach Record

1. August 2018 – Property purchased.

2. September 2019 – Hand delivered letters of introduction to all residents of Eugene, Sherman (to 17th), Katie's Lane/Andy's way development, and houses on 13th from Sherman to the Medical office building. Communicated with many residents. Letter provided contact information for the cohousing community.

3. Fall 2019 – Adams Creek Cohousing website was created and linked from previous Gorge Cohousing website. Adams Creek Cohousing website has information on how to make contact for more information. Signs on the site were posted to spread information about the project.

4. January 2019 – Delivered update letter about hiring an architect and beginning design workshops as a forming cohousing community. In letter, invited neighbors to upcoming open house and provided contact information.

5. January 20, 2019 – Open house. Several neighbors came and were introduced to the concept plan.

6. April 2019 – Update to neighbors about decision to remove house and other details. Letter provided contact information.

7. June 2019 – Met with Mr. and Mrs. Kitt to update them on proposed design and particularly public works improvements being requested by city engineering staff between their property and the development.

8. August 2019 – Update to neighbors and mentioned that there will be an official neighborhood meeting in the future per the city planning approval process. Letter provided contact information.

9. January 2020 – Received official notification list from city staff and mailed notification letters per required process and timeline.

10. January 2020 – Received requests for invites from neighbors outside of the official notification boundary. Voluntary additional invites were sent to folks outside of the required radius.

11. January 2020 – Held Neighborhood meeting.

12. February 2020 – In person neighborhood canvassing. Talked with many folks in person and left flyers with contact information.

13. March 2020 – Continued in person neighborhood canvassing.

14. March 2020 – Had a meeting with Mr. Kitt to discuss the project design and specific concerns he and other neighbors had related to the site plan and proposed public works. Mr. Kitt suggested we work directly with a few of the most vocal neighbors who were serving as unofficial representatives for the neighborhood.

Post-COVID

15. Mid-May 2020 – Sent letter to Dan Bell via email offering to meet with him and any other neighbors to discuss the project, answer questions, etc.

16. May 26 2020 – Social distancing meeting with Dan Bell, AJ Kitt, and Romeo Robichaud.

17. May/June 2020 – Second social distancing meeting with Dan, Chet, Melody Robichaud, and Celia.

18. July 25, 2020 – Delivered invites to gatherings at property in 2 weeks with COVID restriction plan for staggered gatherings.

19. August 4,2020 – Open invite staggered gatherings on property. No neighbors came.