

DRAINAGE CALCULATIONS, HYDRAULICS & HYDROLOGY REPORT

**PVC DIRECT
2 & 8 ENTERPRISE LANE
OAKDALE, CT**

FEBRUARY 5, 2025

DRAINAGE HYDRAULICS AND HYDROLOGY REPORT

PVC DIRECT SITE PLAN

2 ENTERPRISE LANE

EXISTING CONDITIONS

The site is approximately 0.94 acres in area and is shown on the Existing Conditions Survey (Sheet 1 of the site plans). The site has frontage on Lakewood Drive and Enterprise Lane. There are no wetlands on the site.

PROPOSED DEVELOPMENT

The proposed project is a modification to a previously approved site plan from March of 2023. The modified plan's site layout will mostly remain the same as the previously approved site plan besides for the addition of two access roads to the neighboring site, 8 Enterprise Lane.

EXISTING AND PROPOSED HYDRAULICS

The current site contains just one 0.94 acre drainage area. After development is complete, the site will be divided into two drainage areas.

Drainage Area 1 is 0.77 acres and contains the majority of the site including the parking lot, loading docks, and green areas. Runoff from the sites paved areas will flow into catch basins that lead to the existing drainage system on Lakewood Drive. Before connecting into the existing drainage system, the stormwater coming from the on-site catch basins will be treated by an oil-water separator.

Drainage Area 2 is 0.17 acres and only contains the proposed building. In order to reduce the amount of stormwater leaving the site, the clean runoff from the roof will outlet into an underground infiltration gallery.

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 Rational 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:

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing Drainage Area	1.36 cfs	2.03 cfs	2.45 cfs	2.75 cfs	3.10 cfs
Proposed Drainage Area 1	1.86 cfs	2.76 cfs	3.34 cfs	3.76 cfs	4.23 cfs
Proposed Drainage Area 2	0.00 cfs	0.00 cfs	0.00 cfs	0.00 cfs	0.00 cfs
Proposed	1.86 cfs	2.76 cfs	3.34 cfs	3.76 cfs	4.23 cfs

The drainage calculations show an insignificant increase in peak stormwater leaving the site after the development is completed. The drainage system in Lakewood Drive was designed as part of the subdivision, which created the industrial zoned lots along Lakewood Drive and Enterprise Lane. The drainage system was designed to handle the flows from industrial uses on the lots, and can handle the insignificant increases in stormwater flows from this development. As the site is less than an acre and will not disturb more than an acre of land, a sedimentation trap/ Erosion and Sedimentation Plan is not required as per Section 4.10.5 of the Zoning Regulations and the CT Guidelines for Soil Erosion and Sediment Control.

8 ENTERPRISE LANE

EXISTING CONDITIONS

The site is approximately 0.93 acres in area and is shown on the Existing Conditions Survey (Sheet 1 of the site plans). The site has frontage on Enterprise Lane. There are no wetlands on the site.

PROPOSED DEVELOPMENT

The project proposes a modification to an existing site plan. The site is currently home to a building with a 4,200 SF footprint. There will be no disturbance to the bituminous concrete parking area in the front of the site. The project proposes the addition of a loading dock on the northwest side of the building and an access drive in the rear of the building. Both the loading dock and access drive will be accessed from 2 Enterprise Lane. The existing building will remain on the site but will be modified to better suit the intended use of the building. Besides for the addition of the loading dock and an overhead door in the rear of the building, all of the modifications to the building will take place inside. There is also some proposed grading and clearing in the rear of the site.

EXISTING AND PROPOSED HYDRAULICS

The current site contains two existing drainage areas. Existing Drainage Area 1 is 0.51 Acres and includes both the existing building and the grass and wooded area behind the building. The building has roof leaders that outfall behind the building.

Existing Drainage Area 2 is 0.42 Acres and contains the grass area in the front and the parking area. The runoff from the parking area flows into a catch basin that then flows into Enterprise Lane/Lakewood Drive drainage system.

The proposed site can also be split into two proposed drainage areas. Proposed Drainage Area 1 is 0.53 Acres and includes the existing building, the rear grass and wooded area, and the proposed rear access drive. The runoff from the access drive will

flow into the woods behind the site and will be treated as it flows through the grass and the wooded area.

Proposed Drainage Area 2 is 0.40 Acres and contains the front parking lot, the front grass area, and the proposed loading dock. The proposed loading dock flows into the drainage system for 2 Enterprise Lane and eventually flows into the Enterprise Lane/Lakewood Drive drainage system. The rest of Proposed Drainage Area 1 will continue to flow into the Enterprise Lane/Lakewood Drive drainage system as it currently does.

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 Rational 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:

	2 Year	10 Year	25 Year	50 Year	100 Year
Existing Drainage Area 1	0.49 cfs	0.74 cfs	0.89 cfs	1.00 cfs	1.12 cfs
Proposed Drainage Area 1	0.57 cfs	0.85 cfs	1.03 cfs	1.16 cfs	1.30 cfs
Existing Drainage Area 2	1.03 cfs	1.54 cfs	1.86 cfs	2.09 cfs	2.35 cfs
Proposed Drainage Area 2	1.07 cfs	1.60 cfs	1.93 cfs	2.17 cfs	2.45 cfs

Similar to the previously approved drainage calculations for 2 Enterprise Lane, the drainage calculations show an insignificant increase in peak stormwater leaving the site after the development is completed. The drainage system in Lakewood Drive was designed as part of the subdivision, which created the industrial zoned lots along Lakewood Drive and Enterprise Lane. The drainage system was designed to handle the flows from industrial uses on the lots, and can handle the insignificant increases in stormwater flows from this development. As the site is less than an acre and will not

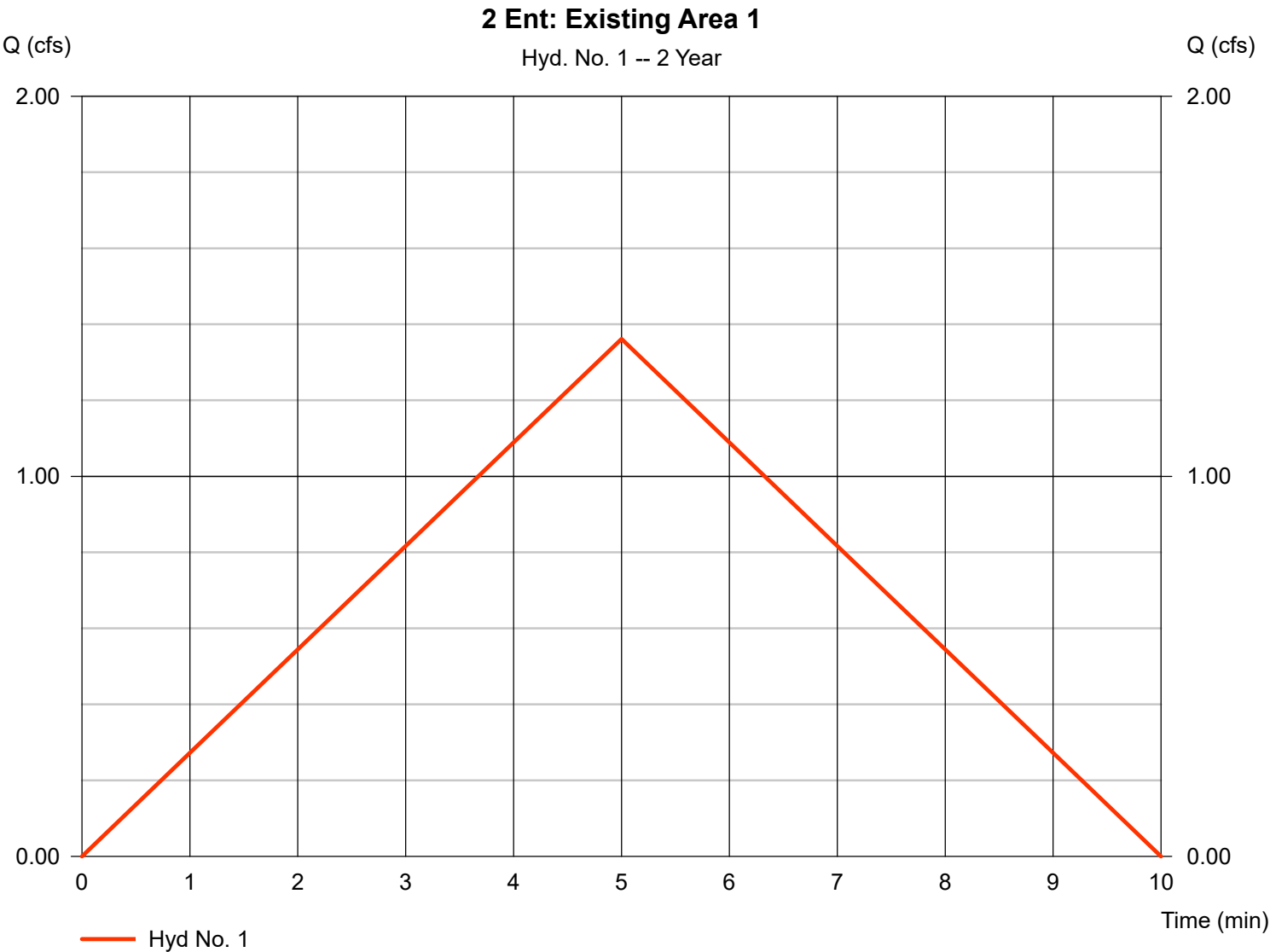
disturb more than an acre of land, a sedimentation trap/ Erosion and Sedimentation Plan is not required as per Section 4.10.5 of the Zoning Regulations and the CT Guidelines for Soil Erosion and Sediment Control.

Hydrograph Report

Hyd. No. 1

2 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 1.361 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 408 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.3
Intensity	= 4.828 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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Wednesday, Feb 5, 2025

Hyd. No. 2

2 Ent: Building 1

Hydrograph type = Rational
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.170 ac
 Intensity = 4.828 in/hr
 IDF Curve = GSD-60 NOAA.IDF

Peak discharge = 0.739 cfs
 Time to peak = 5 min
 Hyd. volume = 222 cuft
 Runoff coeff. = 0.9
 Tc by User = 5.00 min
 Asc/Rec limb fact = 1/1



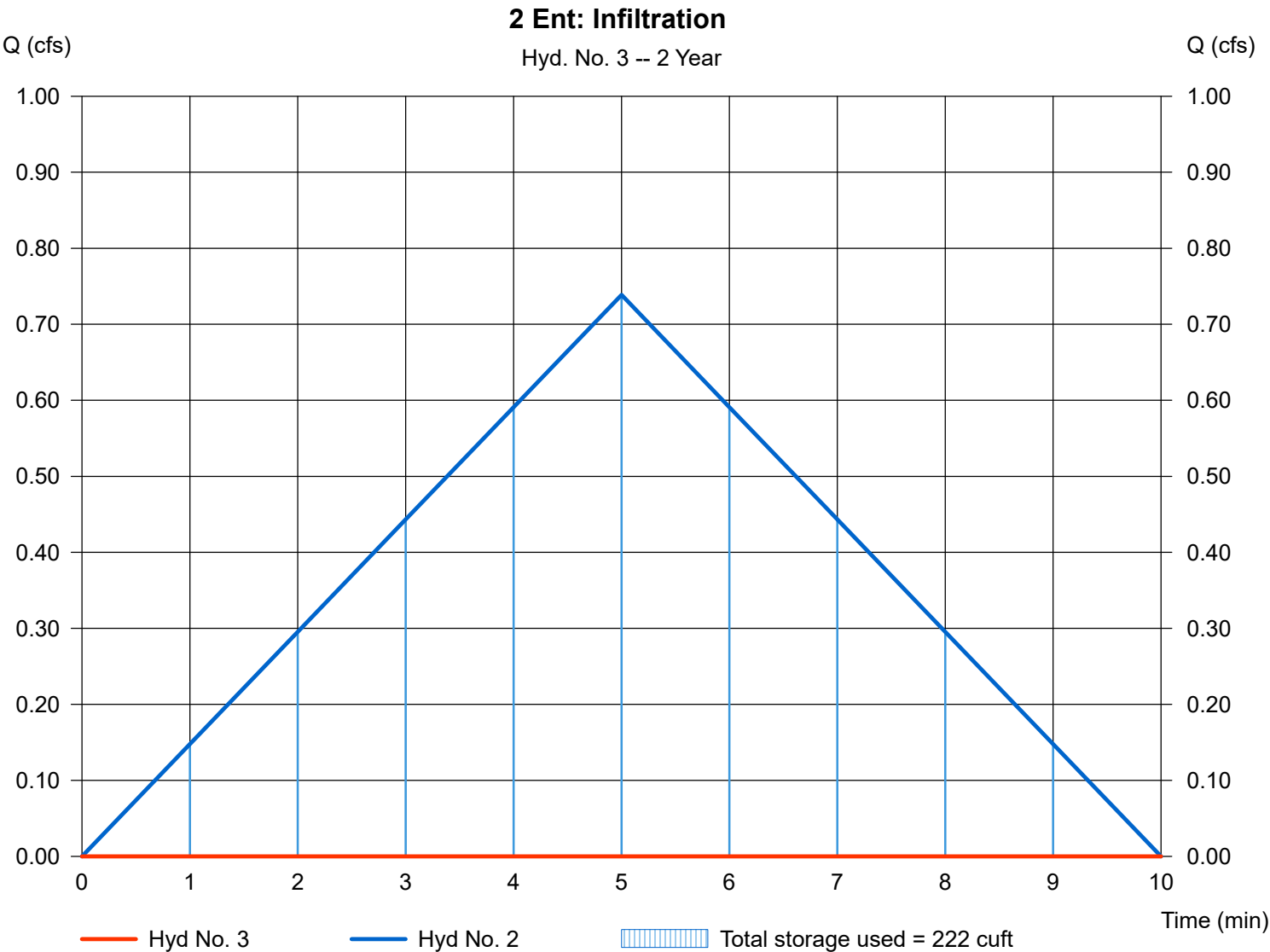
Hydrograph Report

Hyd. No. 3

2 Ent: Infiltration

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 - 2 Ent: Building 1	Max. Elevation	= 251.17 ft
Reservoir name	= Infiltration	Max. Storage	= 222 cuft

Storage Indication method used.



Hydrograph Report

Hyd. No. 4

2 Ent: Proposed Area 1

Hydrograph type	= Rational	Peak discharge	= 1.859 cfs
Storm frequency	= 2 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 558 cuft
Drainage area	= 0.770 ac	Runoff coeff.	= 0.5*
Intensity	= 4.828 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.440 x 0.90) + (0.330 x 0.20)] / 0.770



Hydrograph Report

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Hyd. No. 5

8 Ent: Existing Area 1

Hydrograph type = Rational

Storm frequency = 2 yrs

Time interval = 1 min

Drainage area = 0.510 ac

Intensity = 2.845 in/hr

IDF Curve = GSD-60 NOAA.IDF

Peak discharge = 0.493 cfs

Time to peak = 15 min

Hyd. volume = 444 cuft

Runoff coeff. = 0.34*

Tc by TR55 = 15.00 min

Asc/Rec limb fact = 1/1

* Composite (Area/C) = $[(0.100 \times 0.90) + (0.410 \times 0.20)] / 0.510$ 

Hydrograph Report

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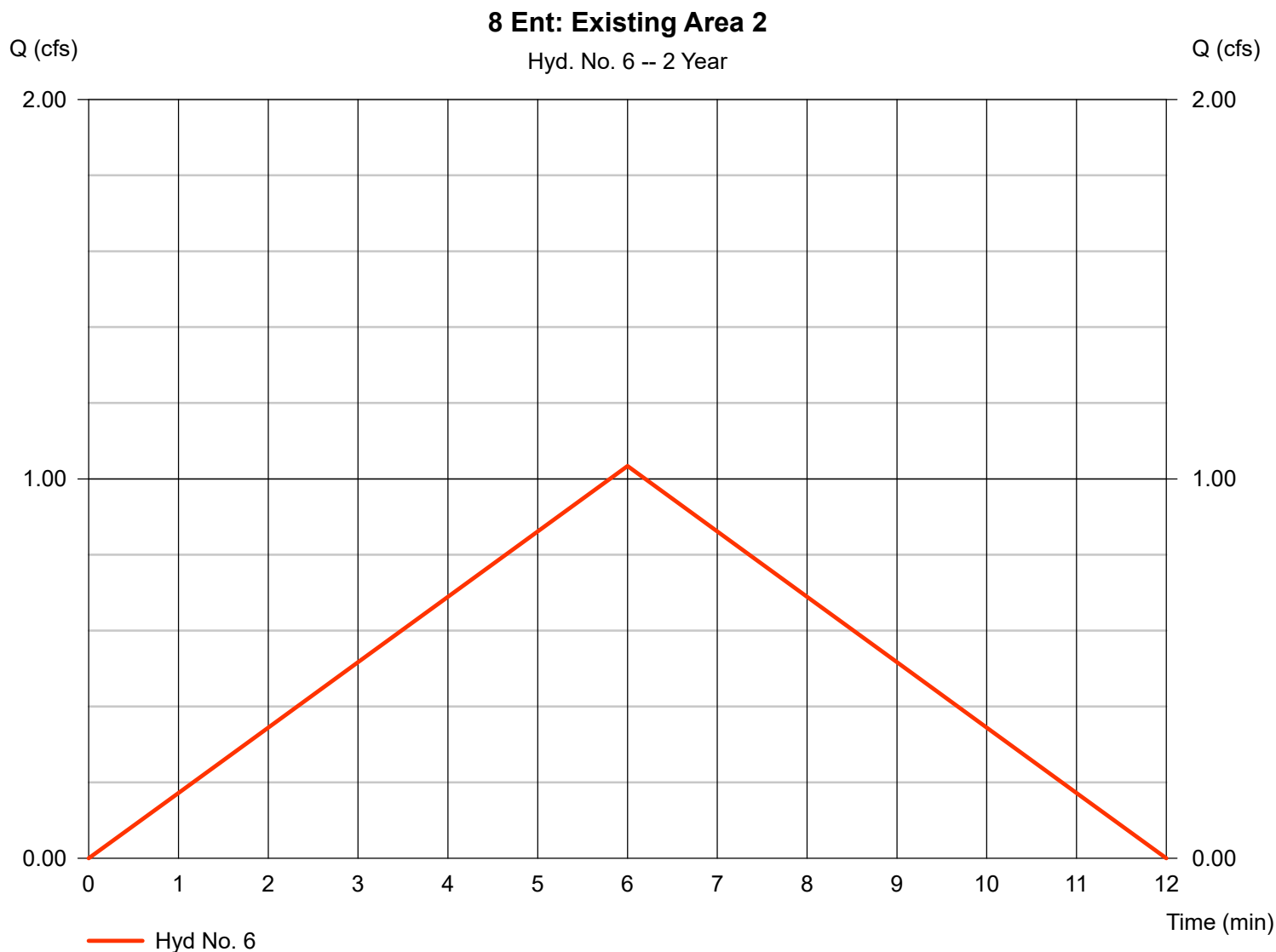
Hyd. No. 6

8 Ent: Existing Area 2

Hydrograph type = Rational
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.420 ac
 Intensity = 4.476 in/hr
 IDF Curve = GSD-60 NOAA.IDF

Peak discharge = 1.034 cfs
 Time to peak = 6 min
 Hyd. volume = 372 cuft
 Runoff coeff. = 0.55*
 Tc by User = 6.00 min
 Asc/Rec limb fact = 1/1

* Composite (Area/C) = $[(0.210 \times 0.90) + (0.210 \times 0.20)] / 0.420$



Hydrograph Report

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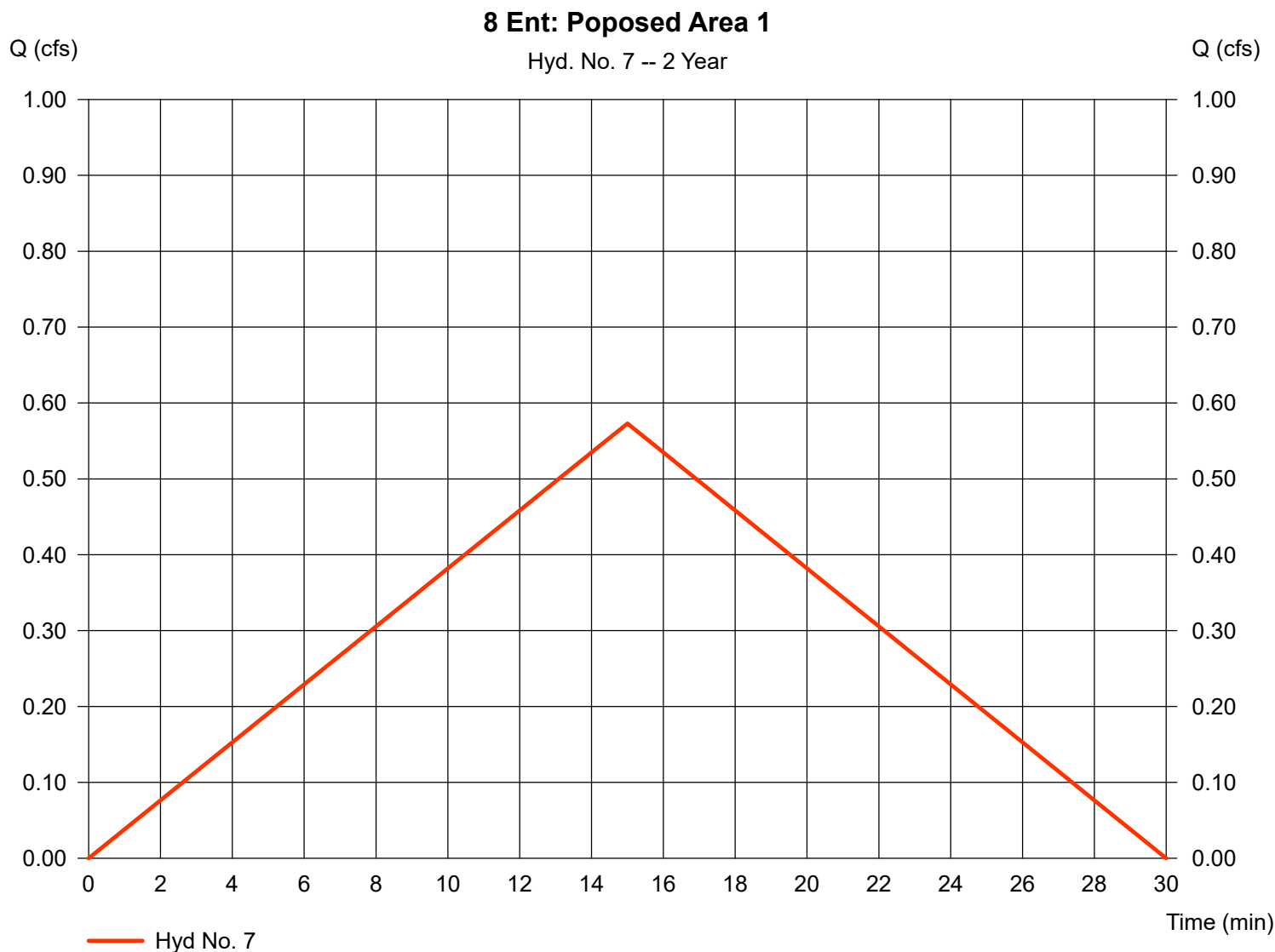
Hyd. No. 7

8 Ent: Poposed Area 1

Hydrograph type = Rational
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.530 ac
 Intensity = 2.845 in/hr
 IDF Curve = GSD-60 NOAA.IDF

Peak discharge = 0.573 cfs
 Time to peak = 15 min
 Hyd. volume = 516 cuft
 Runoff coeff. = 0.38*
 Tc by User = 15.00 min
 Asc/Rec limb fact = 1/1

* Composite (Area/C) = $[(0.140 \times 0.90) + (0.390 \times 0.20)] / 0.530$



Hydrograph Report

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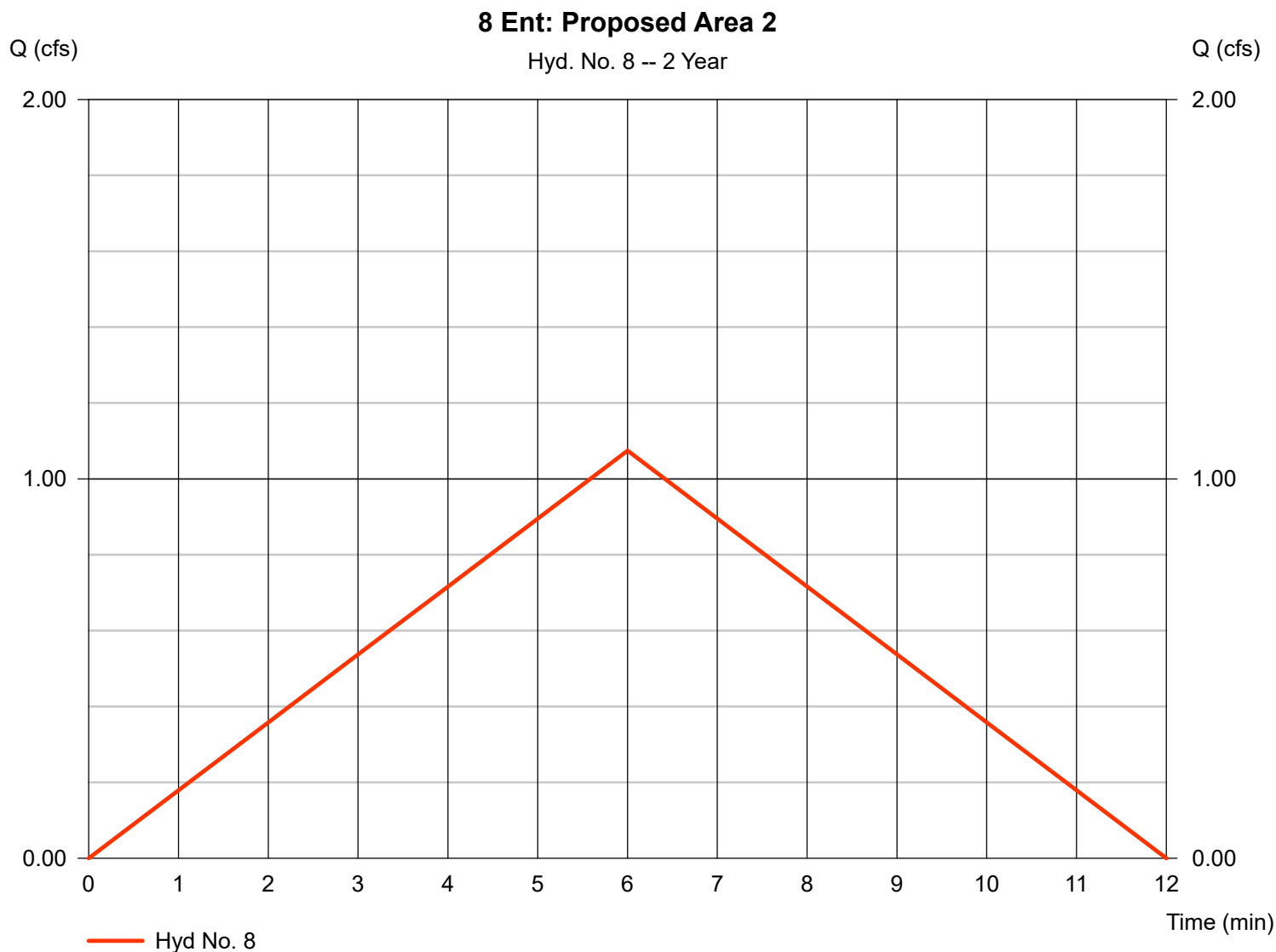
Hyd. No. 8

8 Ent: Proposed Area 2

Hydrograph type = Rational
 Storm frequency = 2 yrs
 Time interval = 1 min
 Drainage area = 0.400 ac
 Intensity = 4.476 in/hr
 IDF Curve = GSD-60 NOAA.IDF

Peak discharge = 1.074 cfs
 Time to peak = 6 min
 Hyd. volume = 387 cuft
 Runoff coeff. = 0.6*
 Tc by User = 6.00 min
 Asc/Rec limb fact = 1/1

* Composite (Area/C) = $[(0.230 \times 0.90) + (0.170 \times 0.20)] / 0.400$

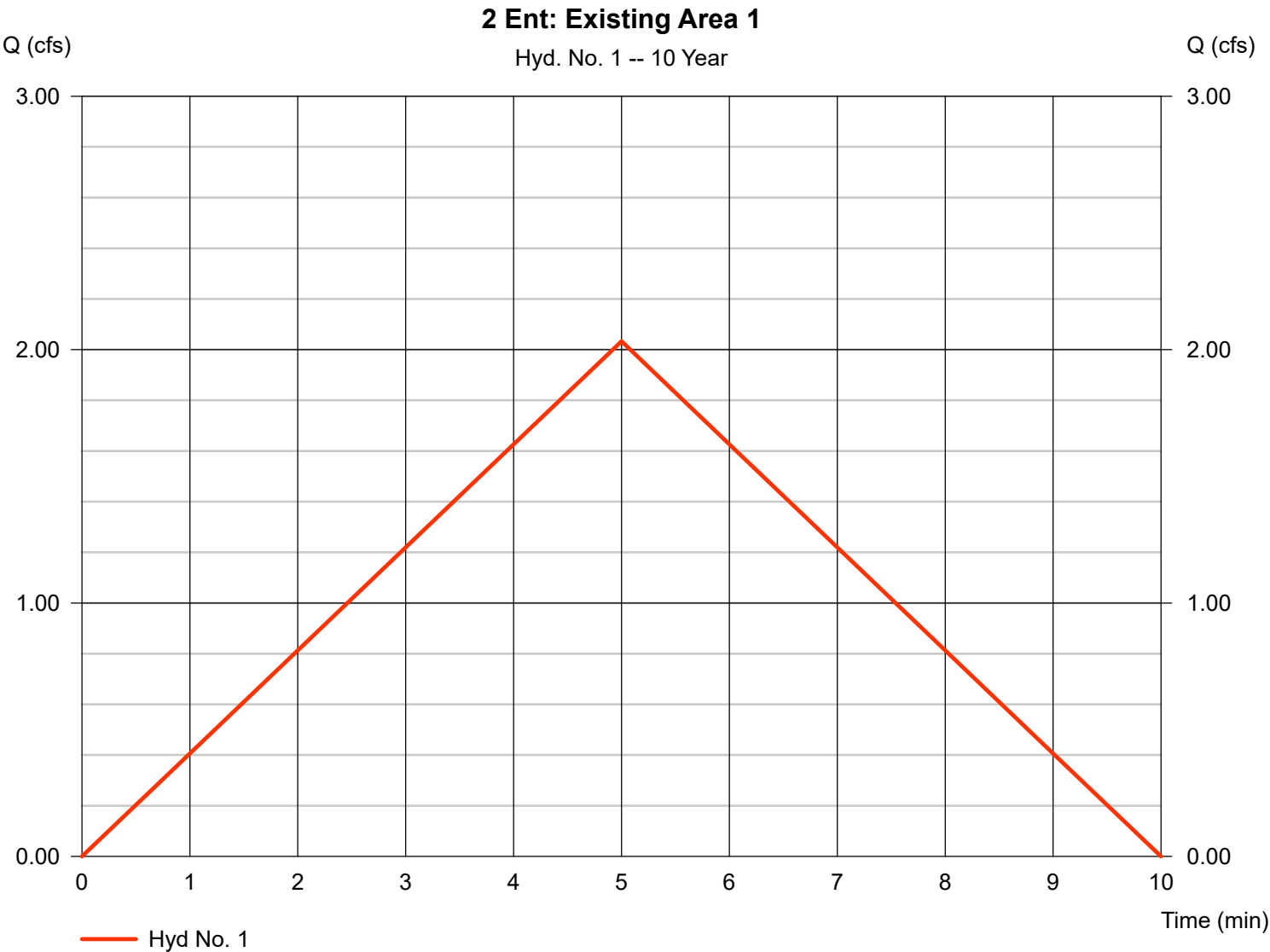


Hydrograph Report

Hyd. No. 1

2 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 2.033 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 610 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.3
Intensity	= 7.208 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 2

2 Ent: Building 1

Hydrograph type	= Rational	Peak discharge	= 1.103 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 331 cuft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.9
Intensity	= 7.208 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



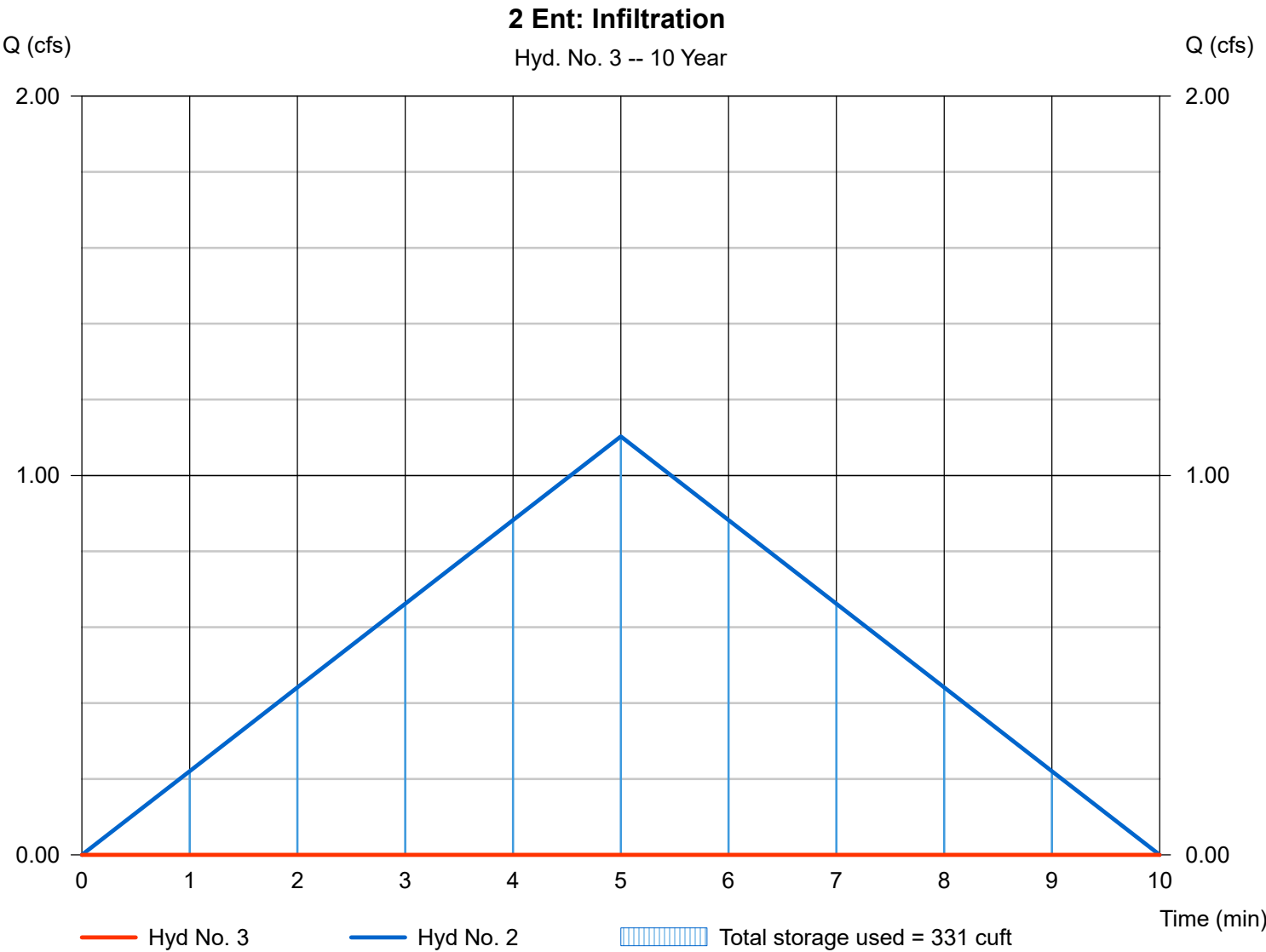
Hydrograph Report

Hyd. No. 3

2 Ent: Infiltration

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 - 2 Ent: Building 1	Max. Elevation	= 252.31 ft
Reservoir name	= Infiltration	Max. Storage	= 331 cuft

Storage Indication method used.



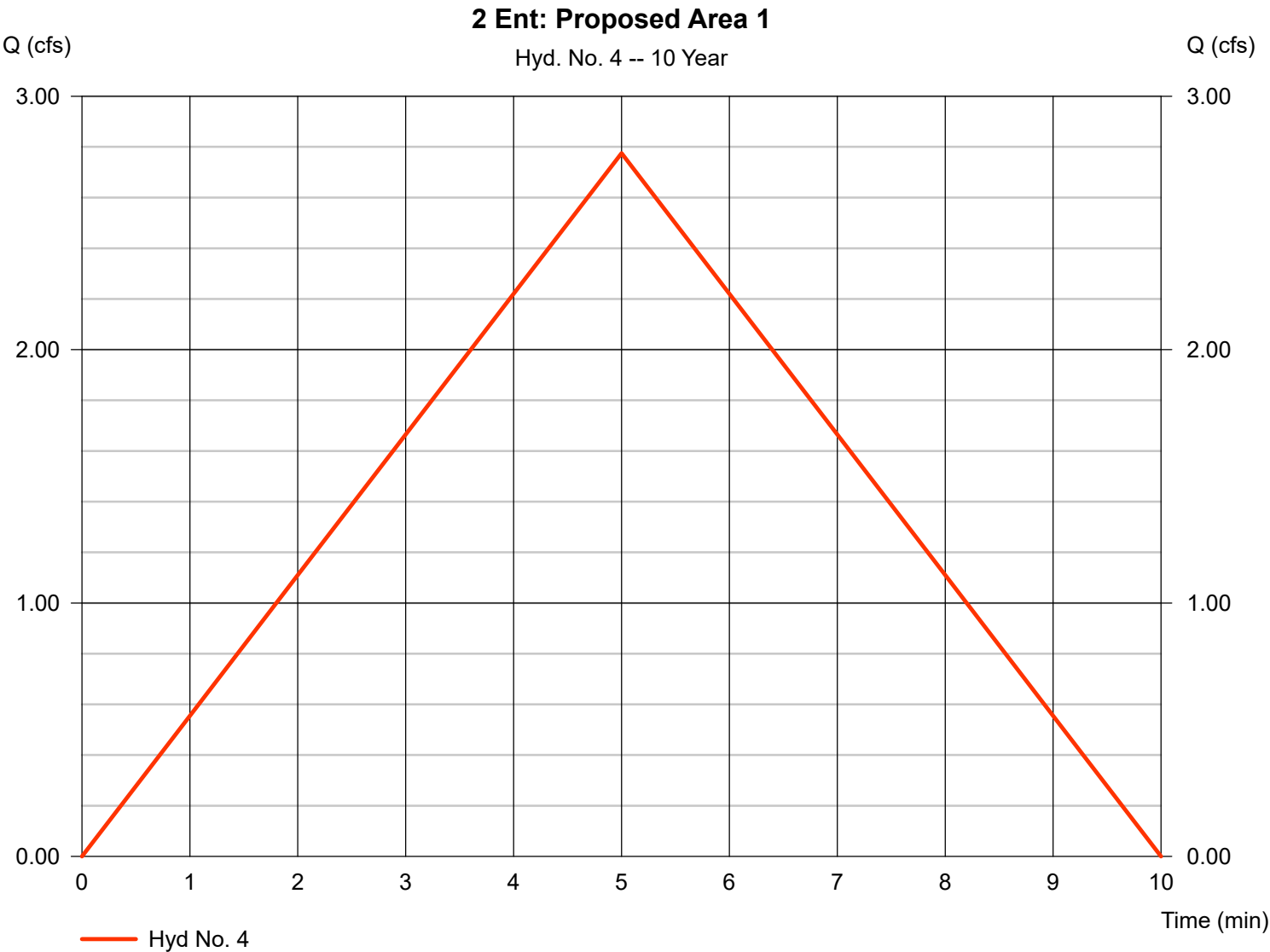
Hydrograph Report

Hyd. No. 4

2 Ent: Proposed Area 1

Hydrograph type	= Rational	Peak discharge	= 2.775 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 833 cuft
Drainage area	= 0.770 ac	Runoff coeff.	= 0.5*
Intensity	= 7.208 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.440 x 0.90) + (0.330 x 0.20)] / 0.770



Hydrograph Report

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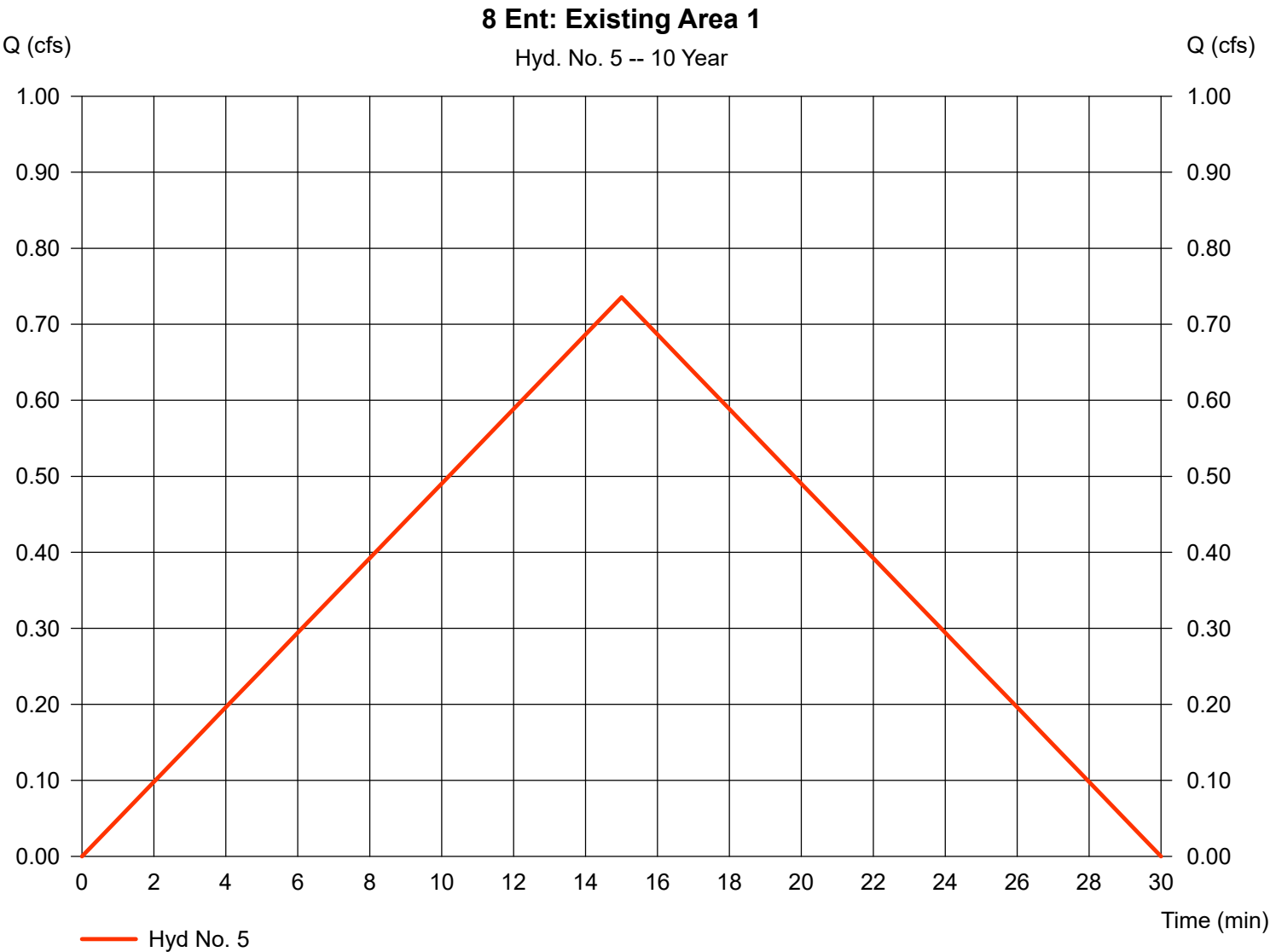
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Hyd. No. 5

8 Ent: Existing Area 1

Hydrograph type	=	Rational	Peak discharge	=	0.736 cfs
Storm frequency	=	10 yrs	Time to peak	=	15 min
Time interval	=	1 min	Hyd. volume	=	662 cuft
Drainage area	=	0.510 ac	Runoff coeff.	=	0.34*
Intensity	=	4.242 in/hr	Tc by TR55	=	15.00 min
IDF Curve	=	GSD-60 NOAA.IDF	Asc/Rec limb fact	=	1/1

* Composite (Area/C) = [(0.100 x 0.90) + (0.410 x 0.20)] / 0.510



Hydrograph Report

Hyd. No. 6

8 Ent: Existing Area 2

Hydrograph type	= Rational	Peak discharge	= 1.544 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 556 cuft
Drainage area	= 0.420 ac	Runoff coeff.	= 0.55*
Intensity	= 6.682 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.210 x 0.90) + (0.210 x 0.20)] / 0.420



Hydrograph Report

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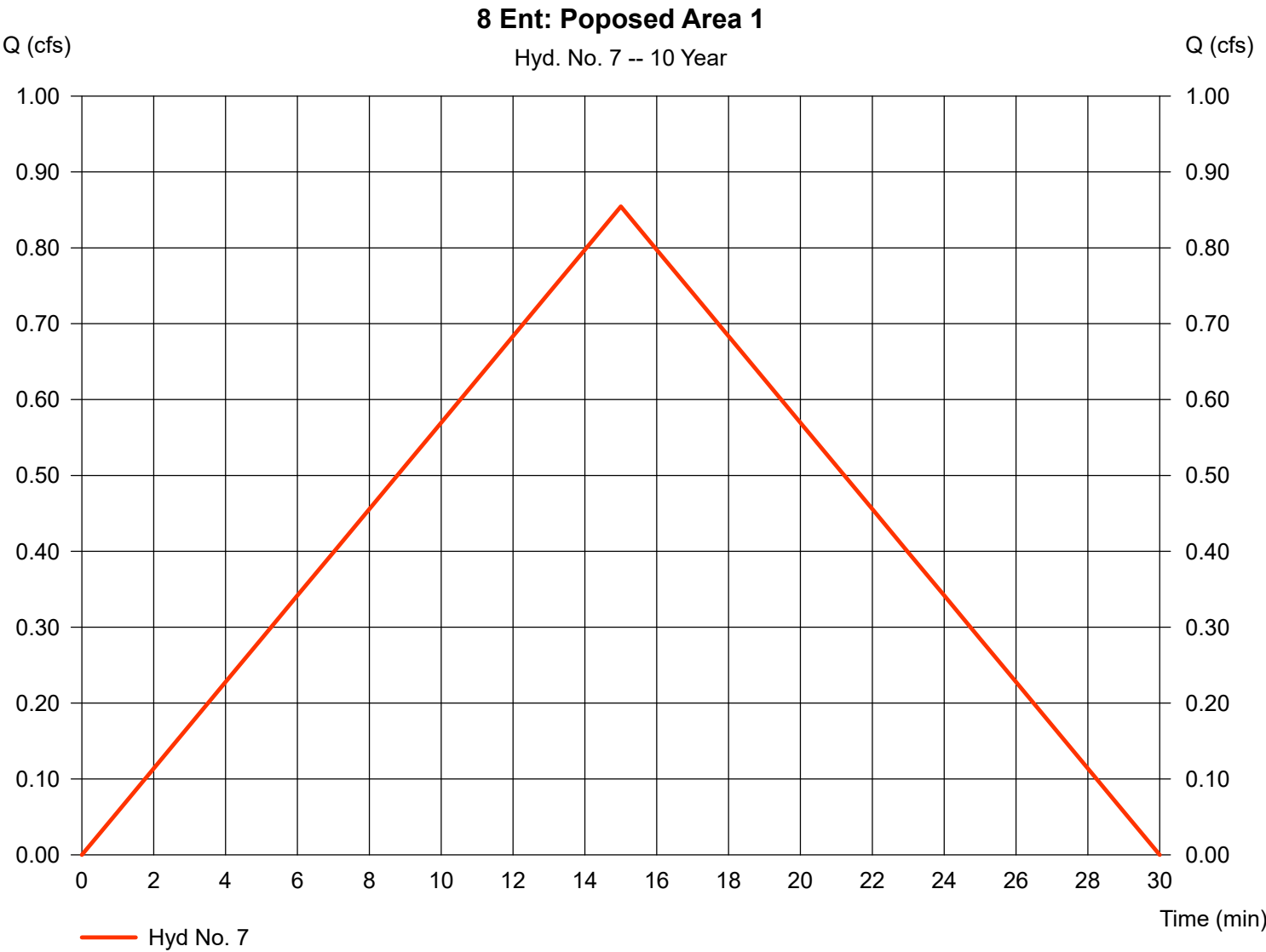
Wednesday, Feb 5, 2025

Hyd. No. 7

8 Ent: Poposed Area 1

Hydrograph type	= Rational	Peak discharge	= 0.854 cfs
Storm frequency	= 10 yrs	Time to peak	= 15 min
Time interval	= 1 min	Hyd. volume	= 769 cuft
Drainage area	= 0.530 ac	Runoff coeff.	= 0.38*
Intensity	= 4.242 in/hr	Tc by User	= 15.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.140 x 0.90) + (0.390 x 0.20)] / 0.530



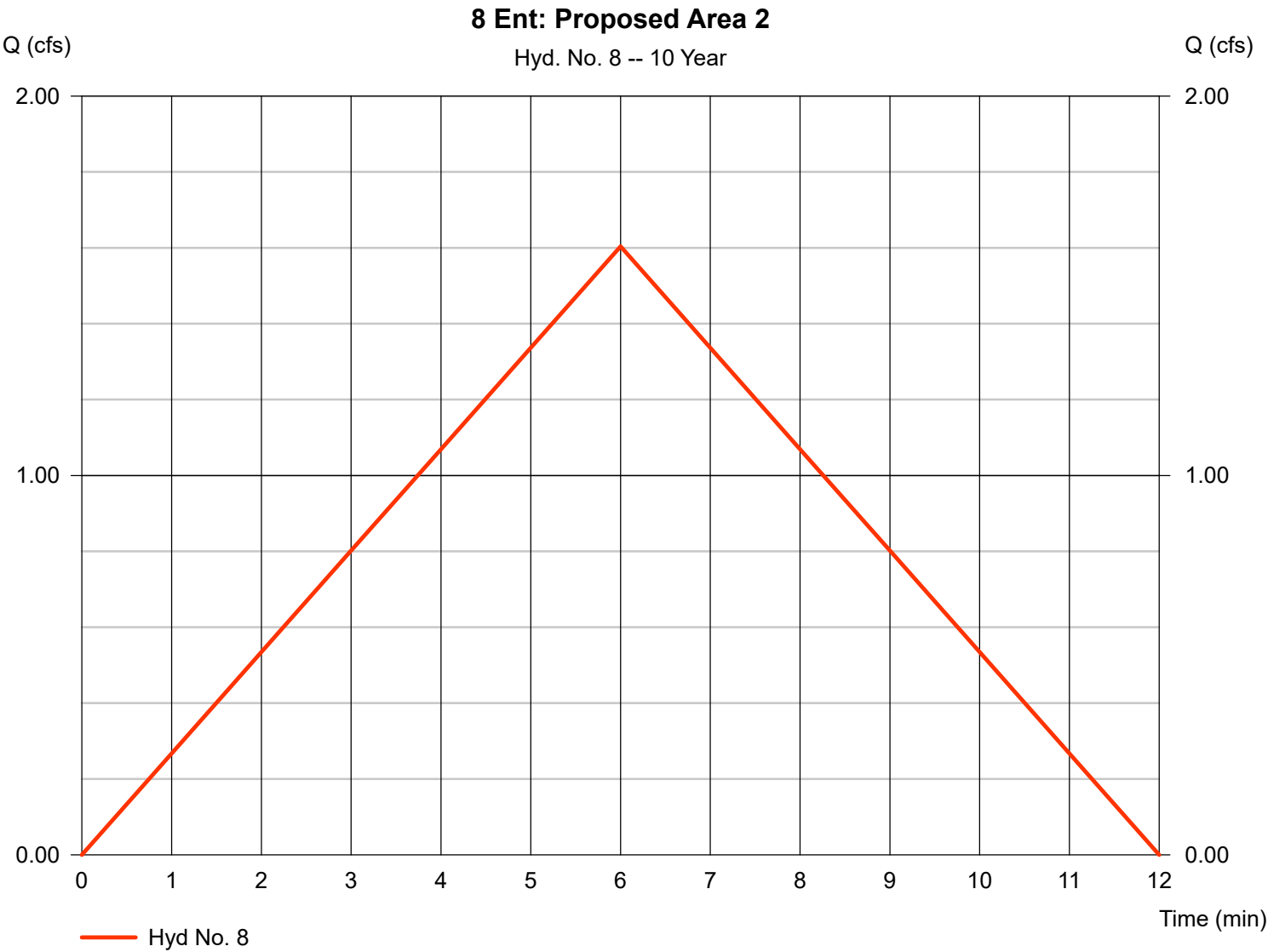
Hydrograph Report

Hyd. No. 8

8 Ent: Proposed Area 2

Hydrograph type	= Rational	Peak discharge	= 1.604 cfs
Storm frequency	= 10 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 577 cuft
Drainage area	= 0.400 ac	Runoff coeff.	= 0.6*
Intensity	= 6.682 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.230 x 0.90) + (0.170 x 0.20)] / 0.400

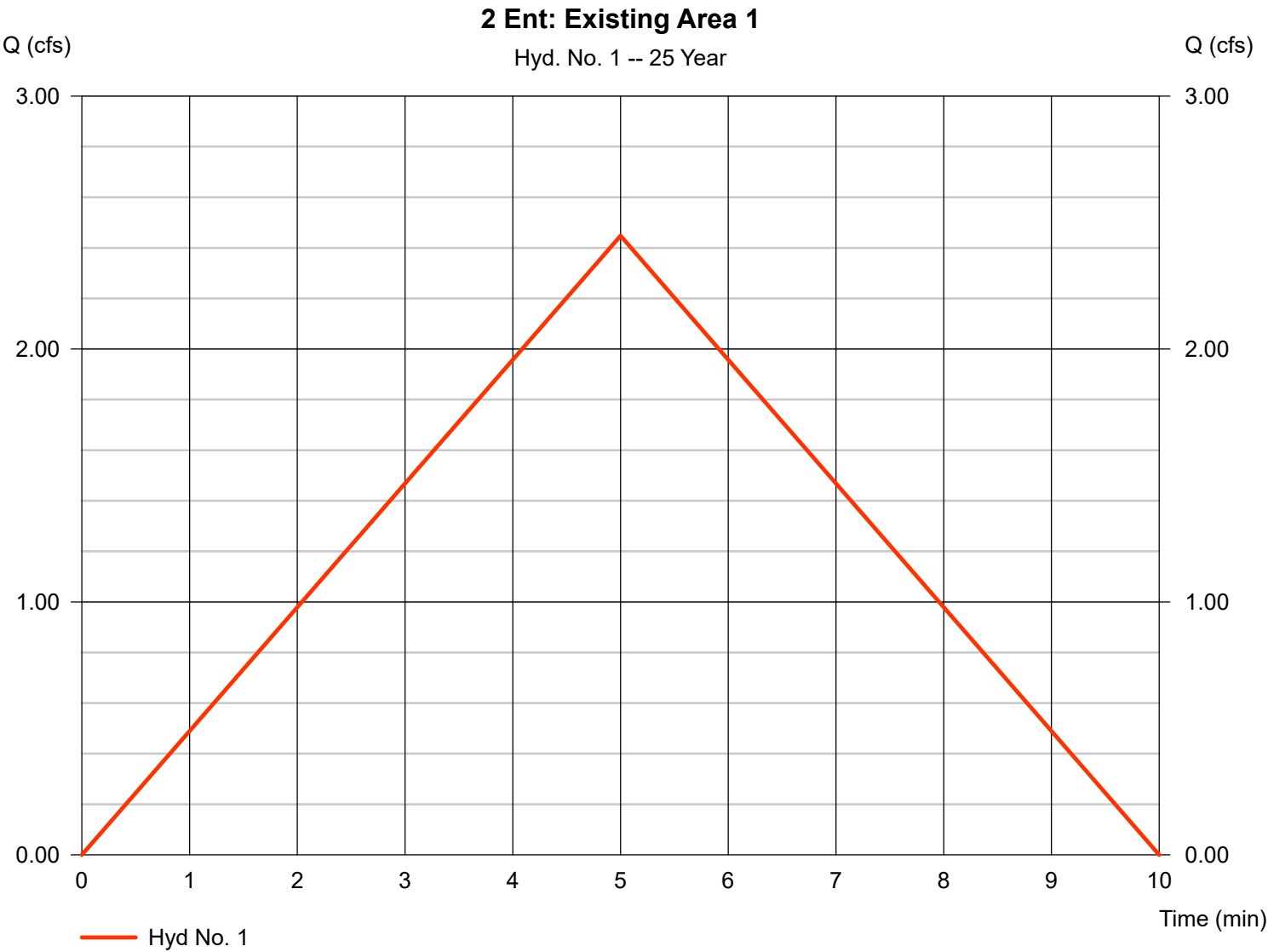


Hydrograph Report

Hyd. No. 1

2 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 2.447 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 734 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.3
Intensity	= 8.678 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 2

2 Ent: Building 1

Hydrograph type	= Rational	Peak discharge	= 1.328 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 398 cuft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.9
Intensity	= 8.678 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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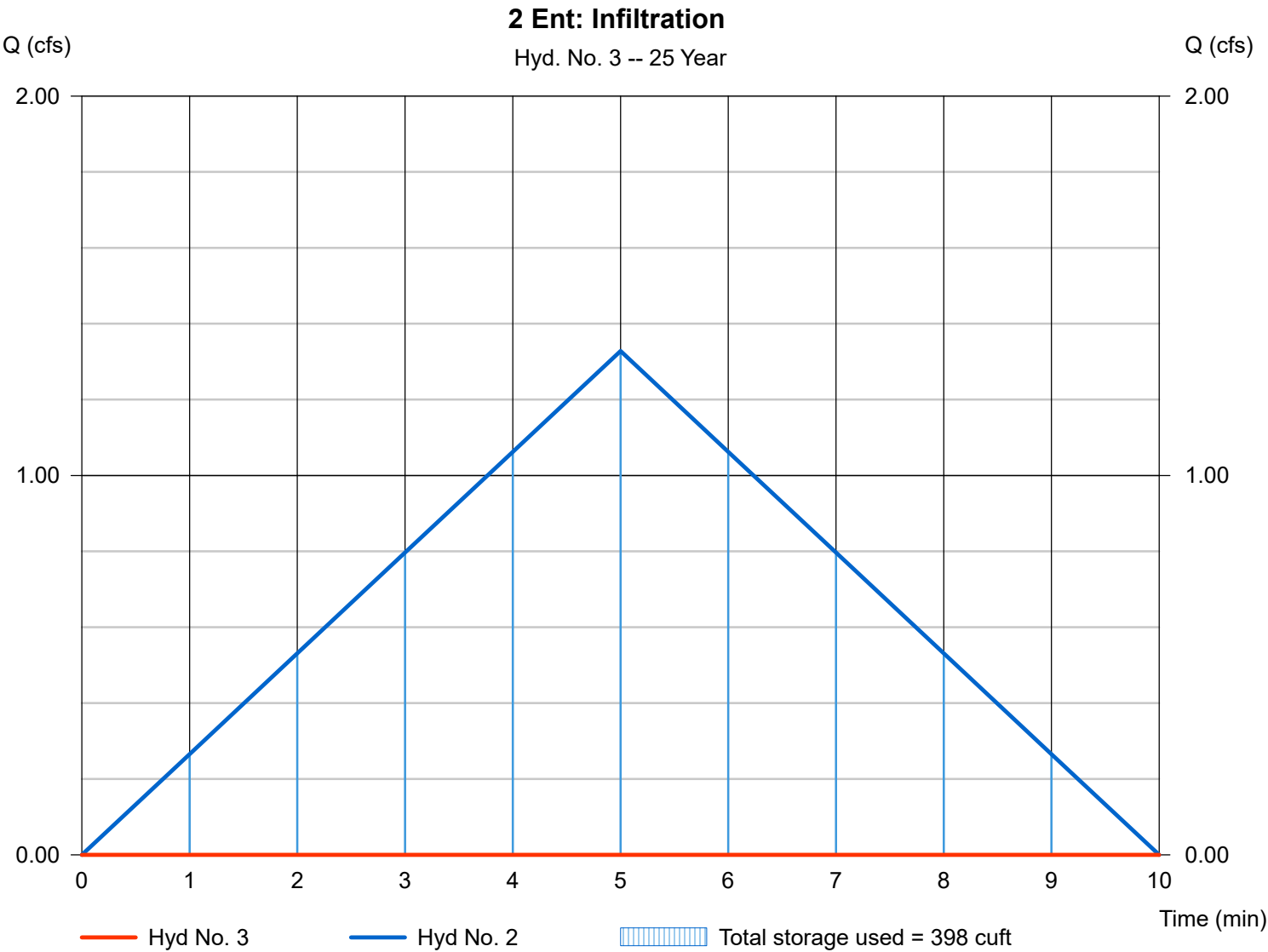
Wednesday, Feb 5, 2025

Hyd. No. 3

2 Ent: Infiltration

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 - 2 Ent: Building 1	Max. Elevation	= 252.98 ft
Reservoir name	= Infiltration	Max. Storage	= 398 cuft

Storage Indication method used.



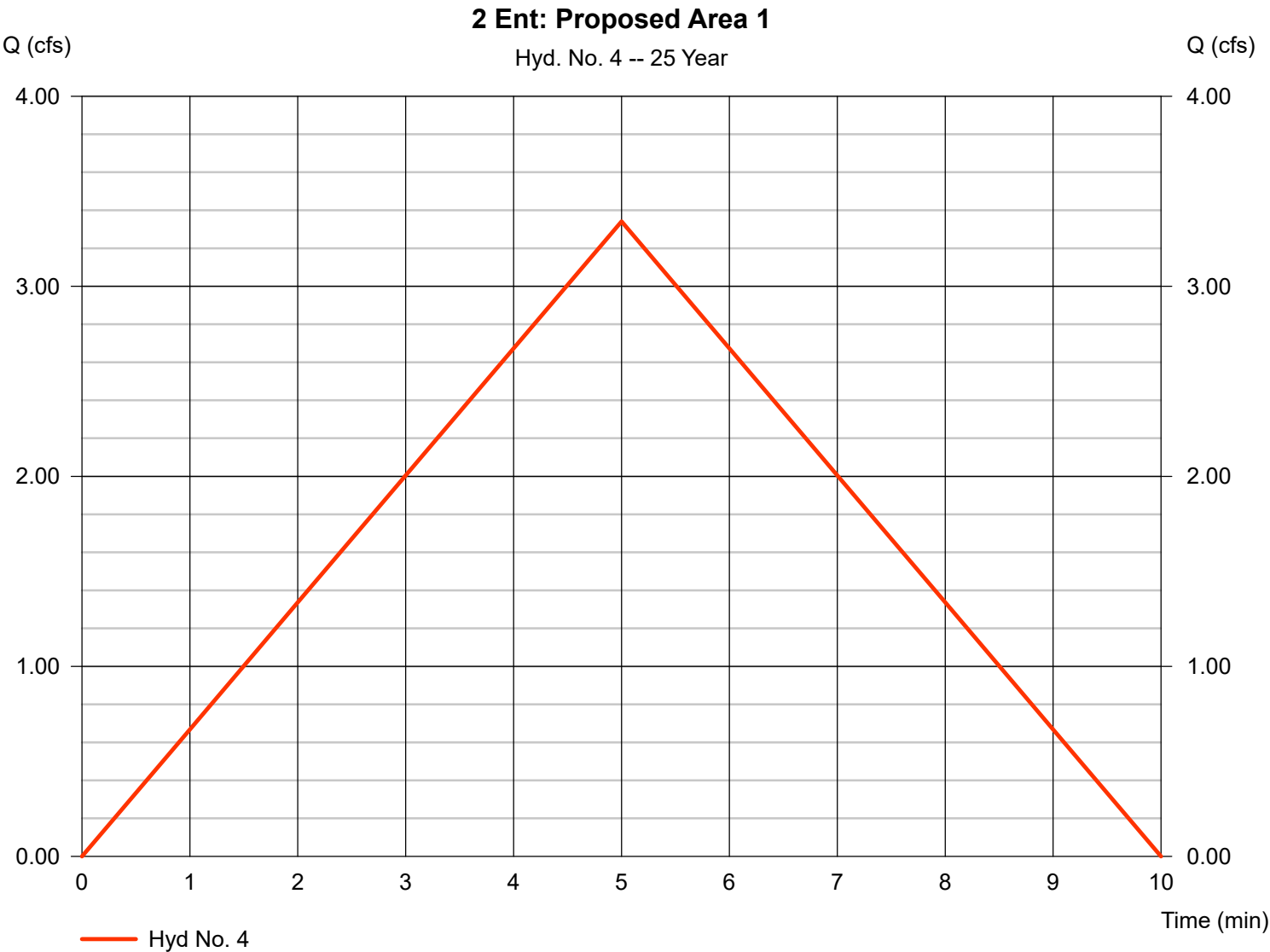
Hydrograph Report

Hyd. No. 4

2 Ent: Proposed Area 1

Hydrograph type	= Rational	Peak discharge	= 3.341 cfs
Storm frequency	= 25 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,002 cuft
Drainage area	= 0.770 ac	Runoff coeff.	= 0.5*
Intensity	= 8.678 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.440 x 0.90) + (0.330 x 0.20)] / 0.770



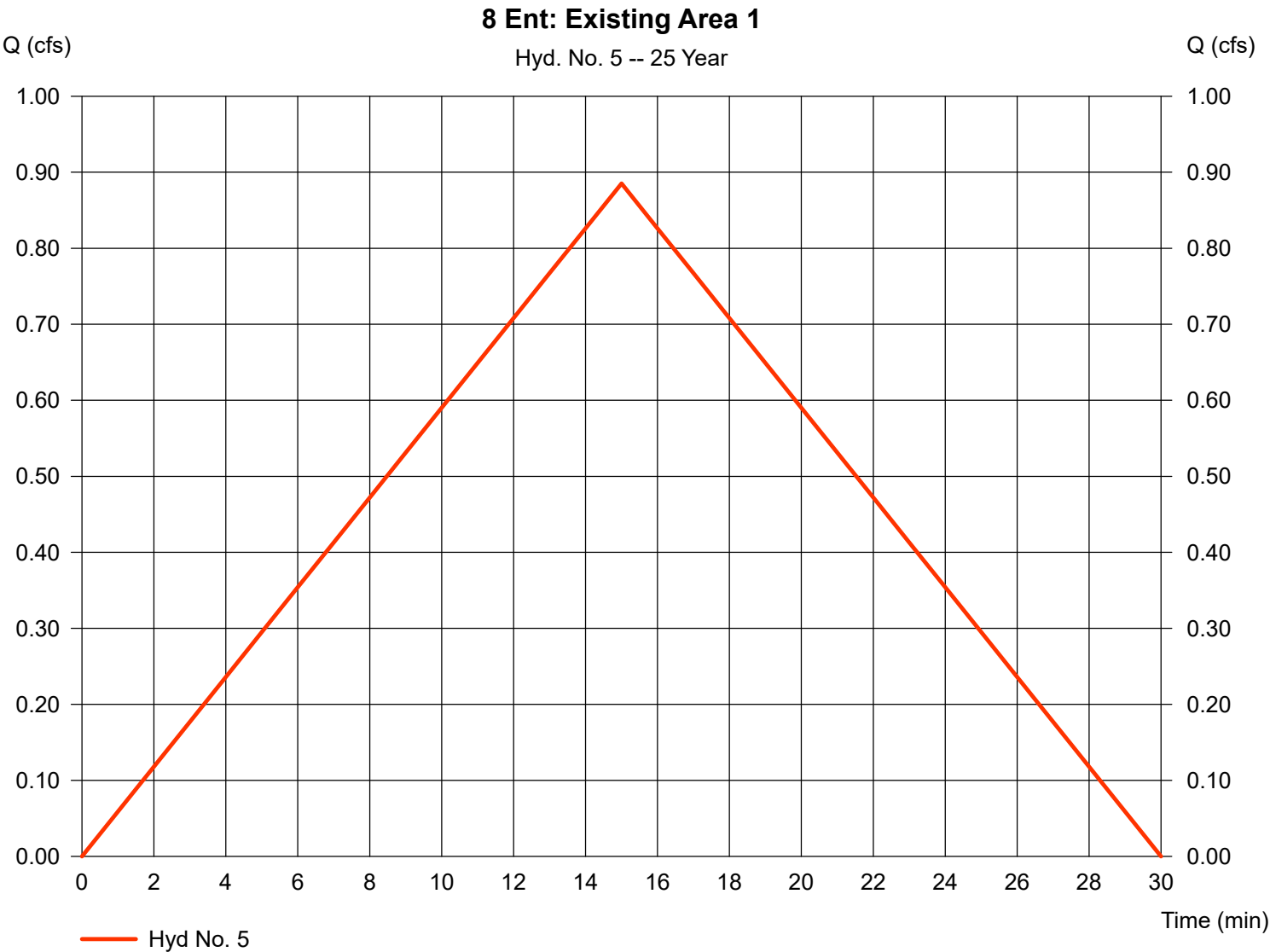
Hydrograph Report

Hyd. No. 5

8 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 0.885 cfs
Storm frequency	= 25 yrs	Time to peak	= 15 min
Time interval	= 1 min	Hyd. volume	= 797 cuft
Drainage area	= 0.510 ac	Runoff coeff.	= 0.34*
Intensity	= 5.105 in/hr	Tc by TR55	= 15.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.100 x 0.90) + (0.410 x 0.20)] / 0.510



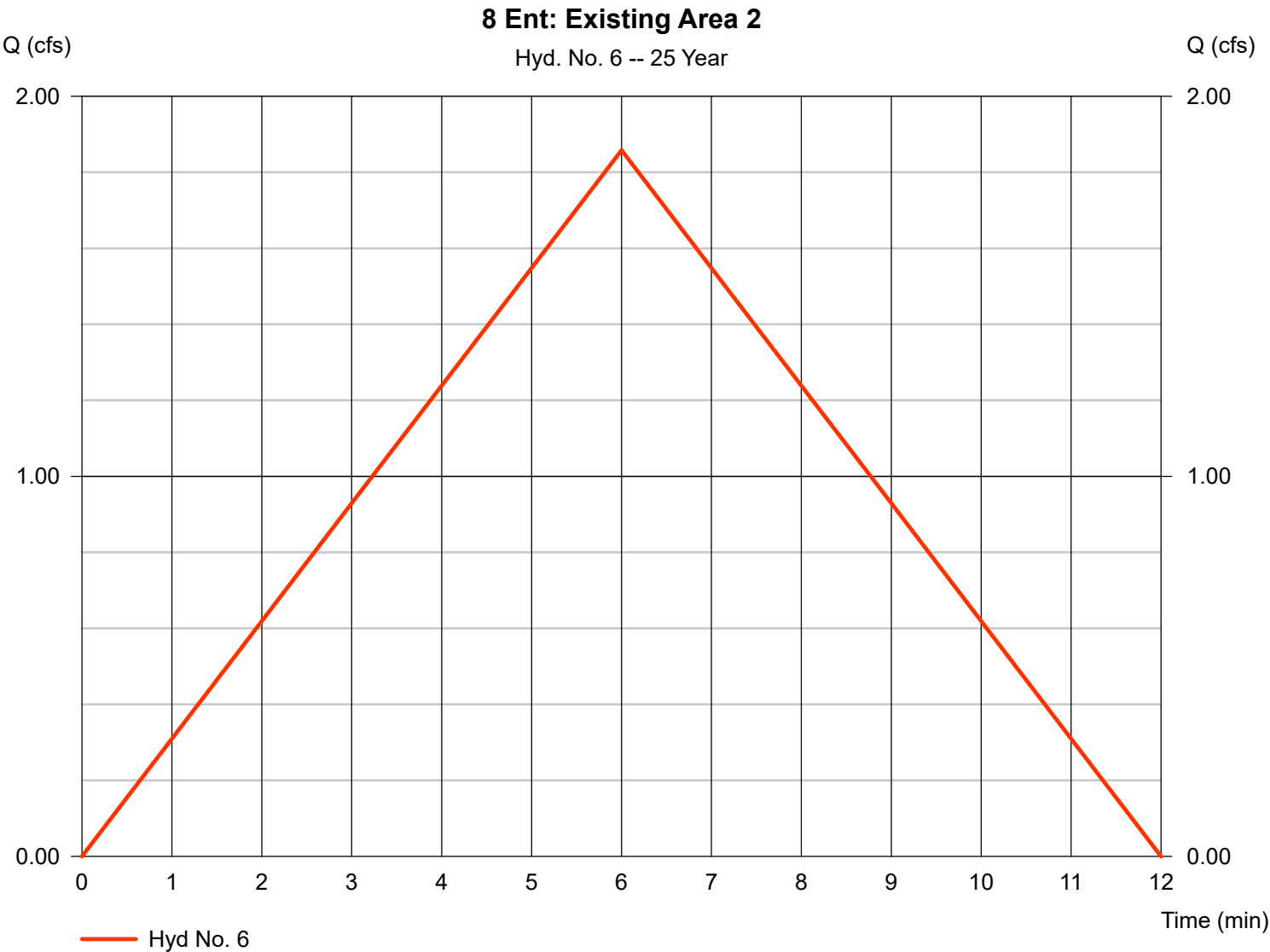
Hydrograph Report

Hyd. No. 6

8 Ent: Existing Area 2

Hydrograph type	= Rational	Peak discharge	= 1.858 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 669 cuft
Drainage area	= 0.420 ac	Runoff coeff.	= 0.55*
Intensity	= 8.042 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.210 x 0.90) + (0.210 x 0.20)] / 0.420



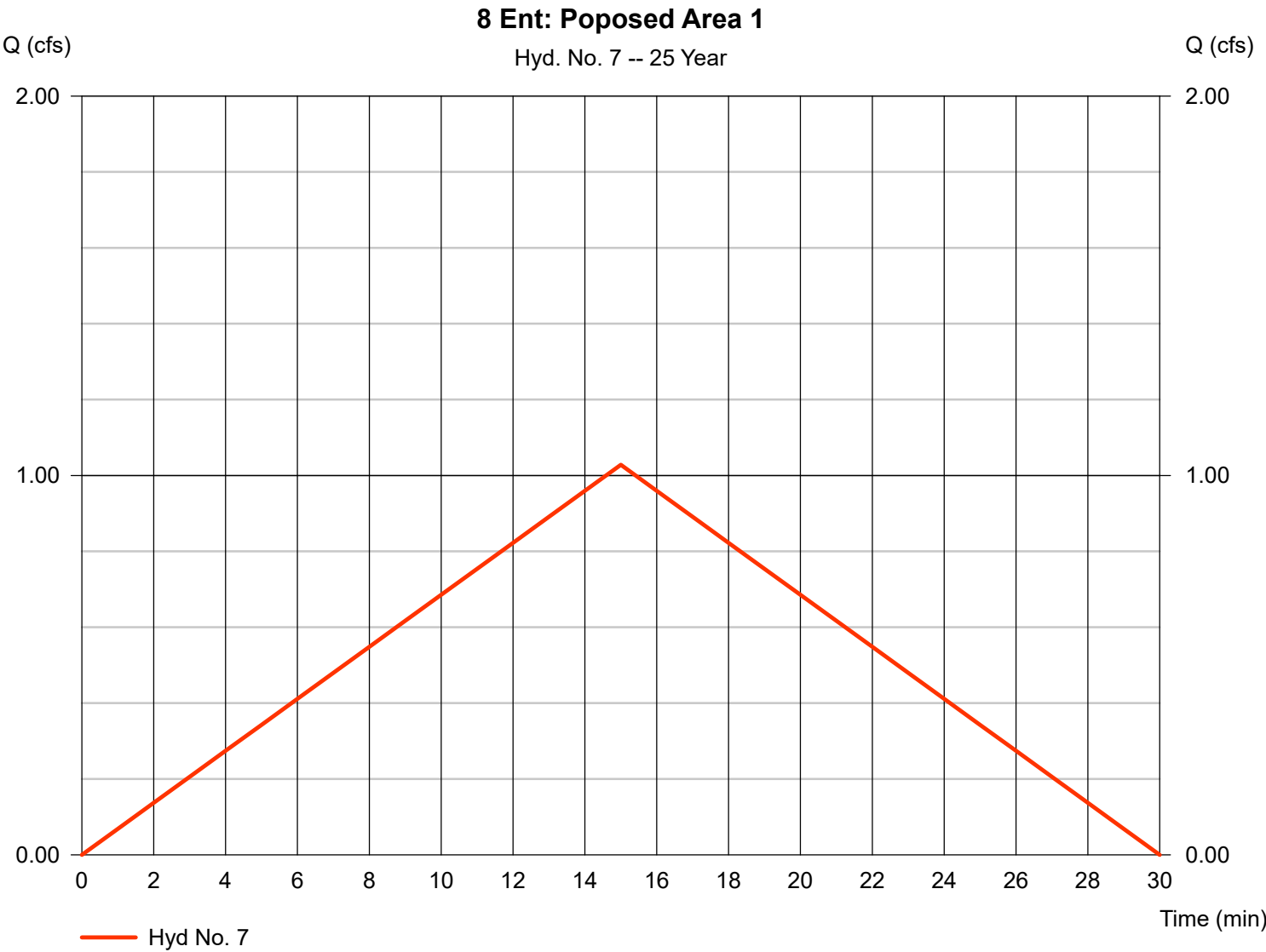
Hydrograph Report

Hyd. No. 7

8 Ent: Poposed Area 1

Hydrograph type	= Rational	Peak discharge	= 1.028 cfs
Storm frequency	= 25 yrs	Time to peak	= 15 min
Time interval	= 1 min	Hyd. volume	= 925 cuft
Drainage area	= 0.530 ac	Runoff coeff.	= 0.38*
Intensity	= 5.105 in/hr	Tc by User	= 15.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.140 x 0.90) + (0.390 x 0.20)] / 0.530



Hydrograph Report

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Hyd. No. 8

8 Ent: Proposed Area 2

Hydrograph type	= Rational	Peak discharge	= 1.930 cfs
Storm frequency	= 25 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 695 cuft
Drainage area	= 0.400 ac	Runoff coeff.	= 0.6*
Intensity	= 8.042 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.230 x 0.90) + (0.170 x 0.20)] / 0.400

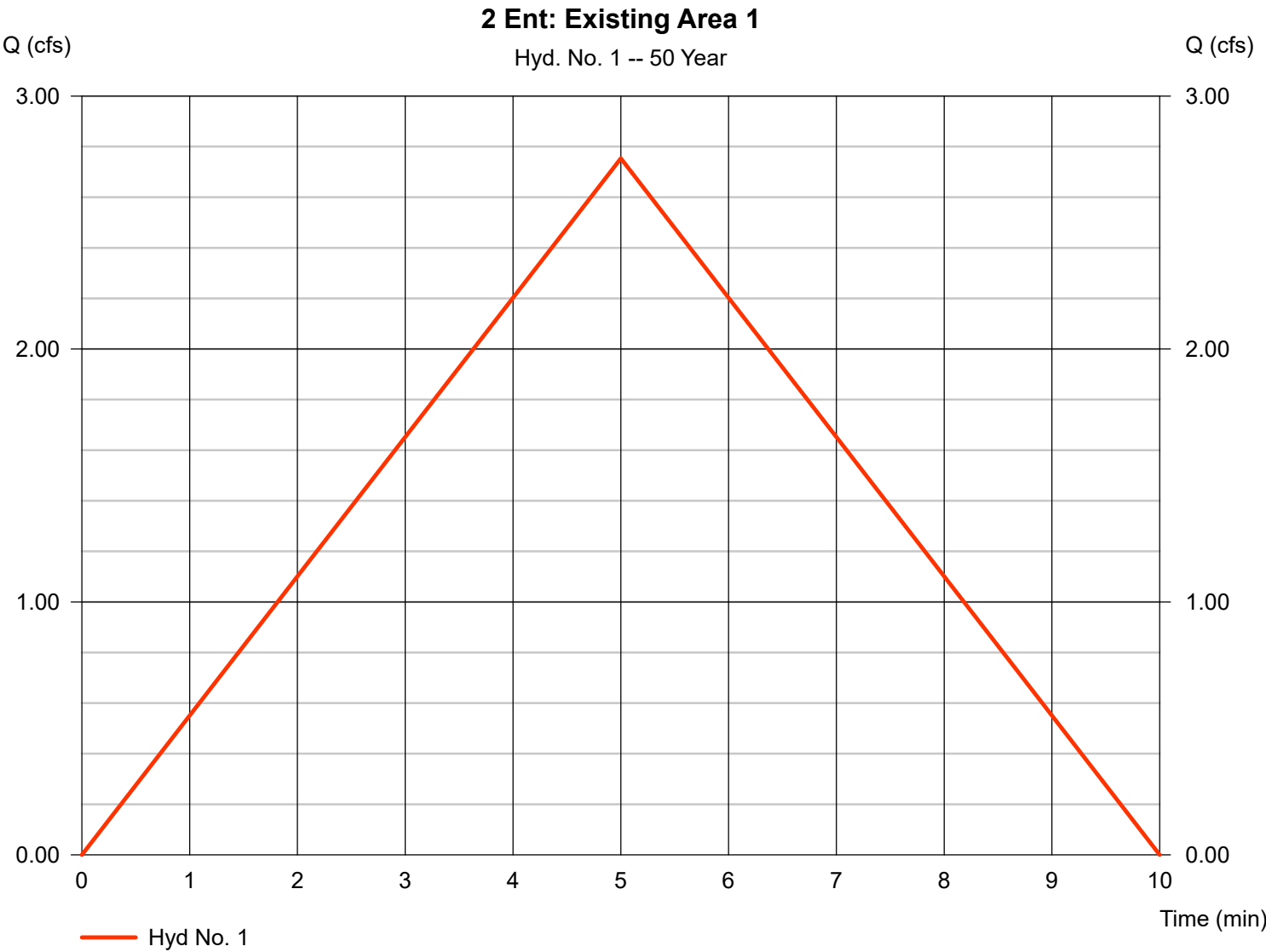


Hydrograph Report

Hyd. No. 1

2 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 2.754 cfs
Storm frequency	= 50 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 826 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.3
Intensity	= 9.765 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 2

2 Ent: Building 1

Hydrograph type	= Rational	Peak discharge	= 1.494 cfs
Storm frequency	= 50 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 448 cuft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.9
Intensity	= 9.765 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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

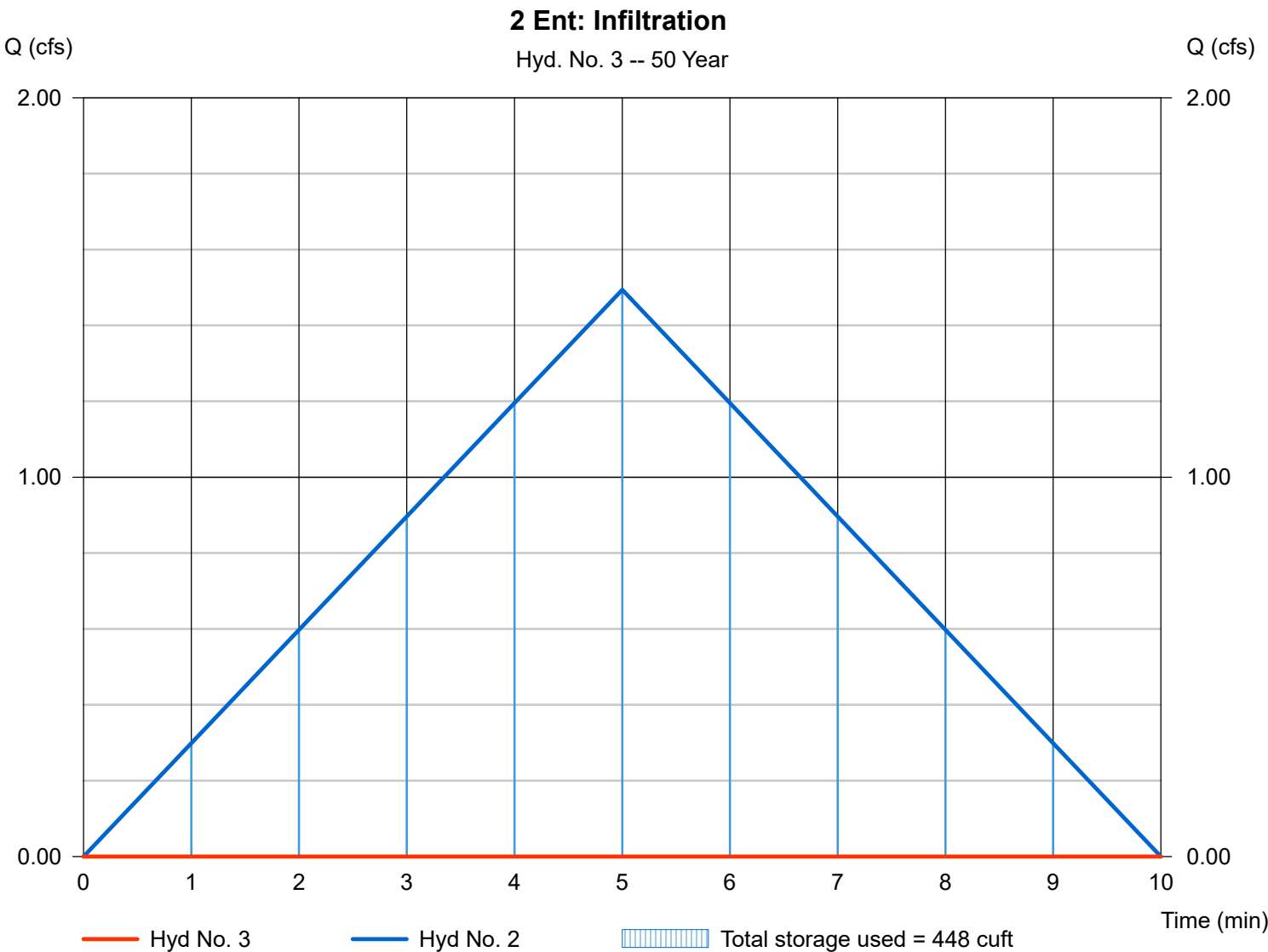
Wednesday, Feb 5, 2025

Hyd. No. 3

2 Ent: Infiltration

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 - 2 Ent: Building 1	Max. Elevation	= 253.48 ft
Reservoir name	= Infiltration	Max. Storage	= 448 cuft

Storage Indication method used.



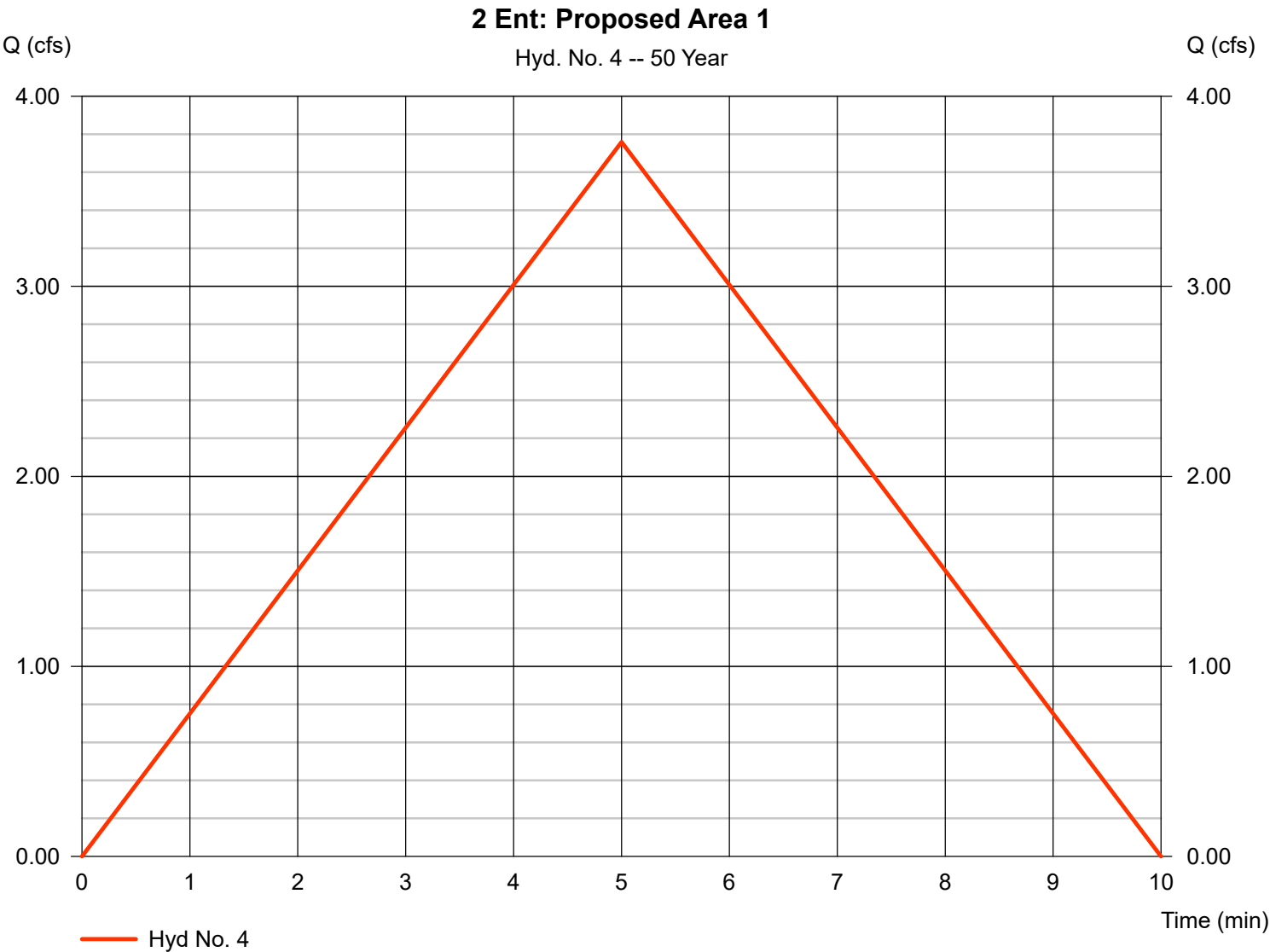
Hydrograph Report

Hyd. No. 4

2 Ent: Proposed Area 1

Hydrograph type	= Rational	Peak discharge	= 3.759 cfs
Storm frequency	= 50 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,128 cuft
Drainage area	= 0.770 ac	Runoff coeff.	= 0.5*
Intensity	= 9.765 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.440 x 0.90) + (0.330 x 0.20)] / 0.770



Hydrograph Report

Hyd. No. 5

8 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 1.000 cfs
Storm frequency	= 50 yrs	Time to peak	= 15 min
Time interval	= 1 min	Hyd. volume	= 900 cuft
Drainage area	= 0.510 ac	Runoff coeff.	= 0.34*
Intensity	= 5.766 in/hr	Tc by TR55	= 15.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.100 x 0.90) + (0.410 x 0.20)] / 0.510



Hydrograph Report

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

Wednesday, Feb 5, 2025

Hyd. No. 6

8 Ent: Existing Area 2

Hydrograph type	= Rational	Peak discharge	= 2.092 cfs
Storm frequency	= 50 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 753 cuft
Drainage area	= 0.420 ac	Runoff coeff.	= 0.55*
Intensity	= 9.058 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.210 x 0.90) + (0.210 x 0.20)] / 0.420



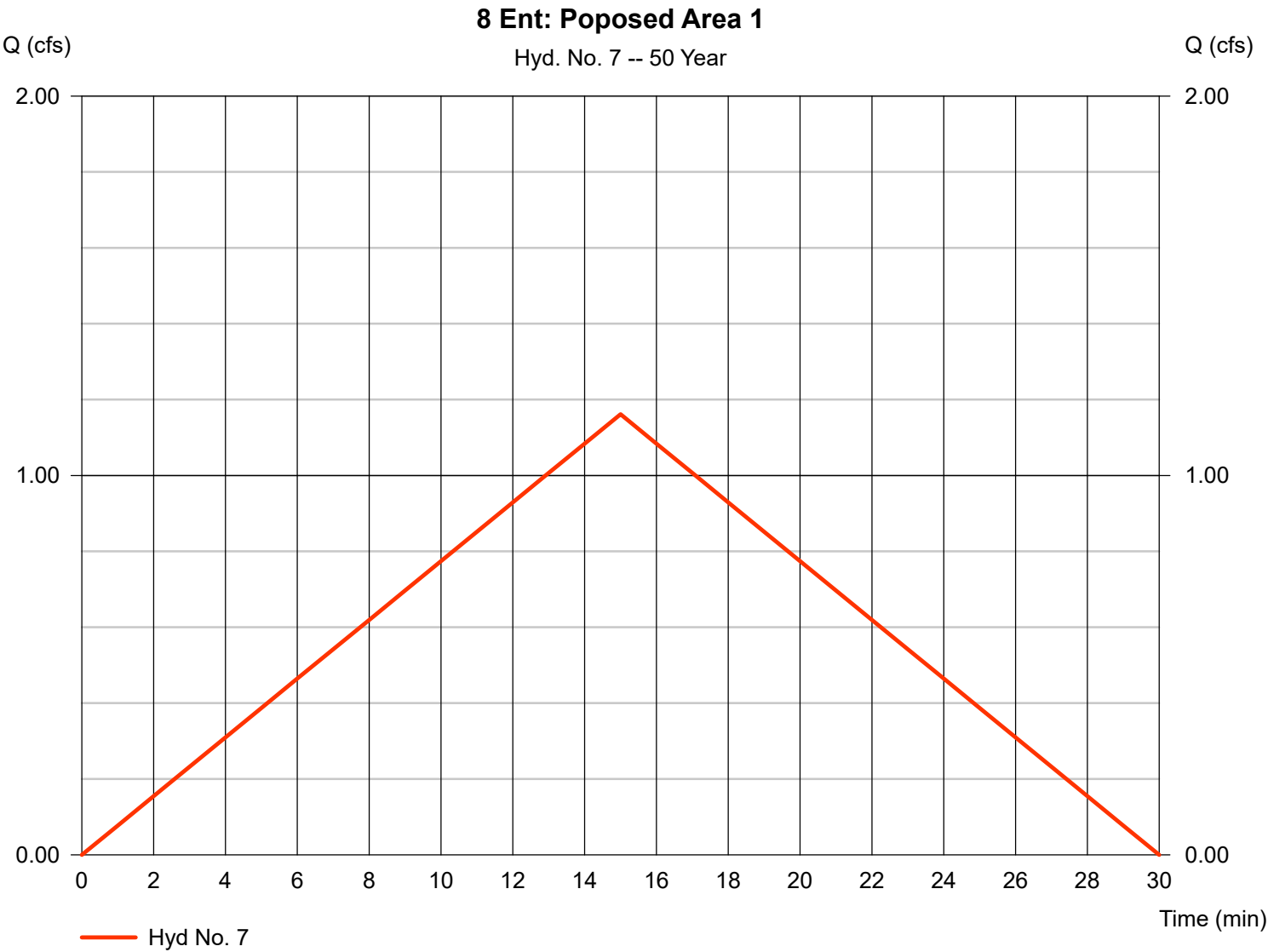
Hydrograph Report

Hyd. No. 7

8 Ent: Poposed Area 1

Hydrograph type	=	Rational	Peak discharge	=	1.161 cfs
Storm frequency	=	50 yrs	Time to peak	=	15 min
Time interval	=	1 min	Hyd. volume	=	1,045 cuft
Drainage area	=	0.530 ac	Runoff coeff.	=	0.38*
Intensity	=	5.766 in/hr	Tc by User	=	15.00 min
IDF Curve	=	GSD-60 NOAA.IDF	Asc/Rec limb fact	=	1/1

* Composite (Area/C) = [(0.140 x 0.90) + (0.390 x 0.20)] / 0.530



Hydrograph Report

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

Wednesday, Feb 5, 2025

Hyd. No. 8

8 Ent: Proposed Area 2

Hydrograph type	=	Rational	Peak discharge	=	2.174 cfs
Storm frequency	=	50 yrs	Time to peak	=	6 min
Time interval	=	1 min	Hyd. volume	=	783 cuft
Drainage area	=	0.400 ac	Runoff coeff.	=	0.6*
Intensity	=	9.058 in/hr	Tc by User	=	6.00 min
IDF Curve	=	GSD-60 NOAA.IDF	Asc/Rec limb fact	=	1/1

* Composite (Area/C) = [(0.230 x 0.90) + (0.170 x 0.20)] / 0.400

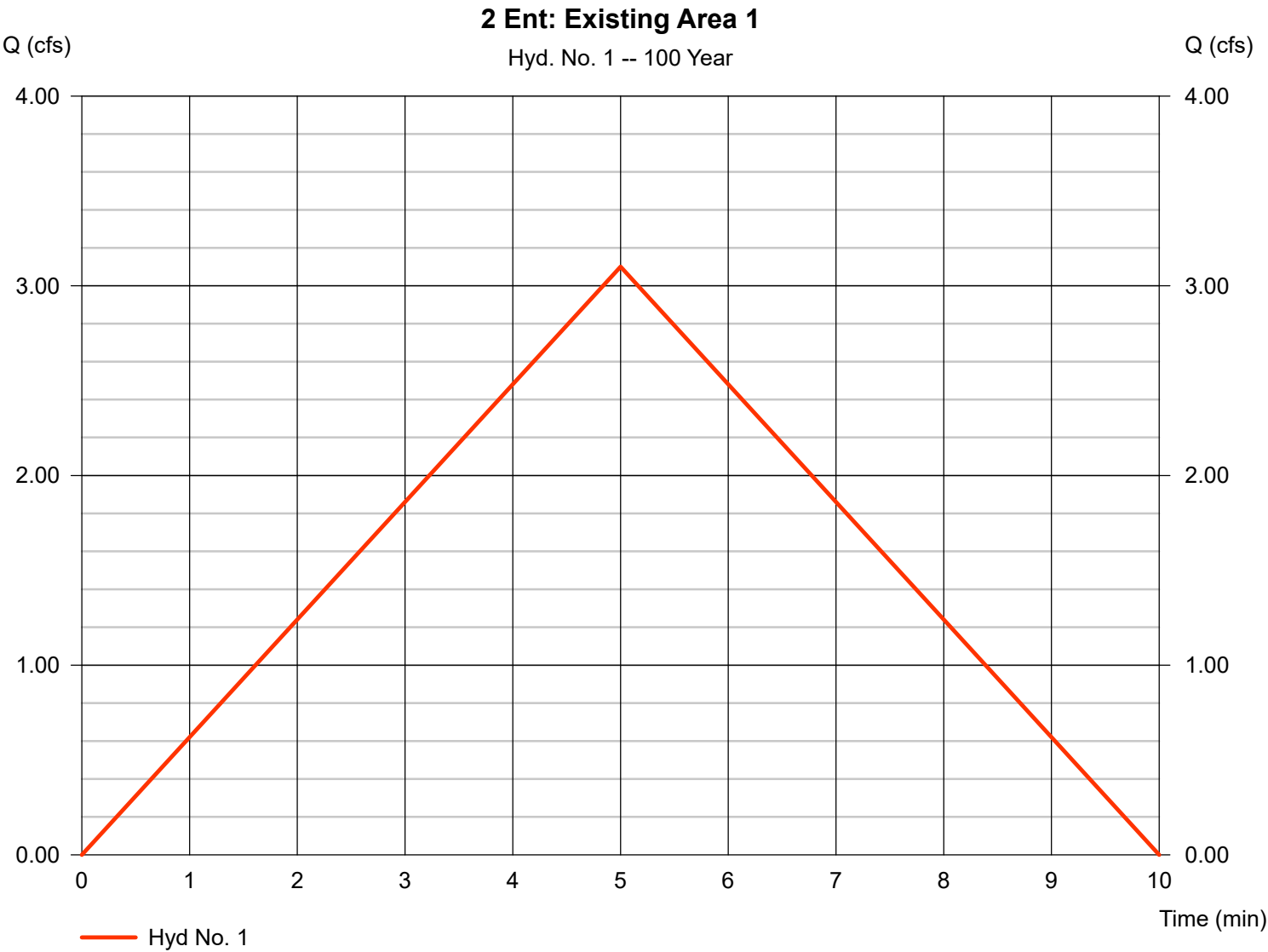


Hydrograph Report

Hyd. No. 1

2 Ent: Existing Area 1

Hydrograph type	= Rational	Peak discharge	= 3.101 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 930 cuft
Drainage area	= 0.940 ac	Runoff coeff.	= 0.3
Intensity	= 10.995 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 2

2 Ent: Building 1

Hydrograph type	= Rational	Peak discharge	= 1.682 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 505 cuft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.9
Intensity	= 10.995 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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

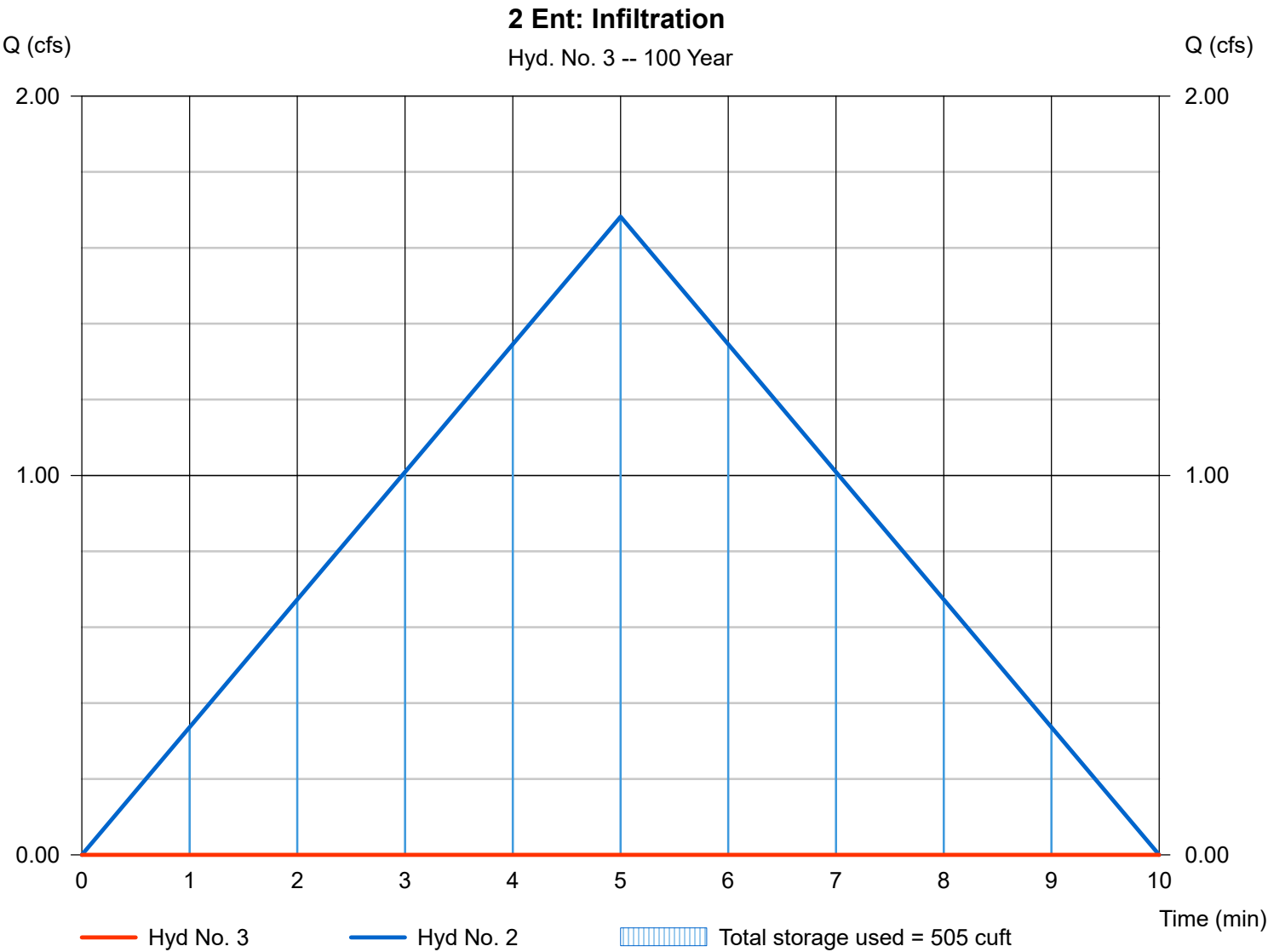
Wednesday, Feb 5, 2025

Hyd. No. 3

2 Ent: Infiltration

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 - 2 Ent: Building 1	Max. Elevation	= 254.05 ft
Reservoir name	= Infiltration	Max. Storage	= 505 cuft

Storage Indication method used.



Hydrograph Report

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

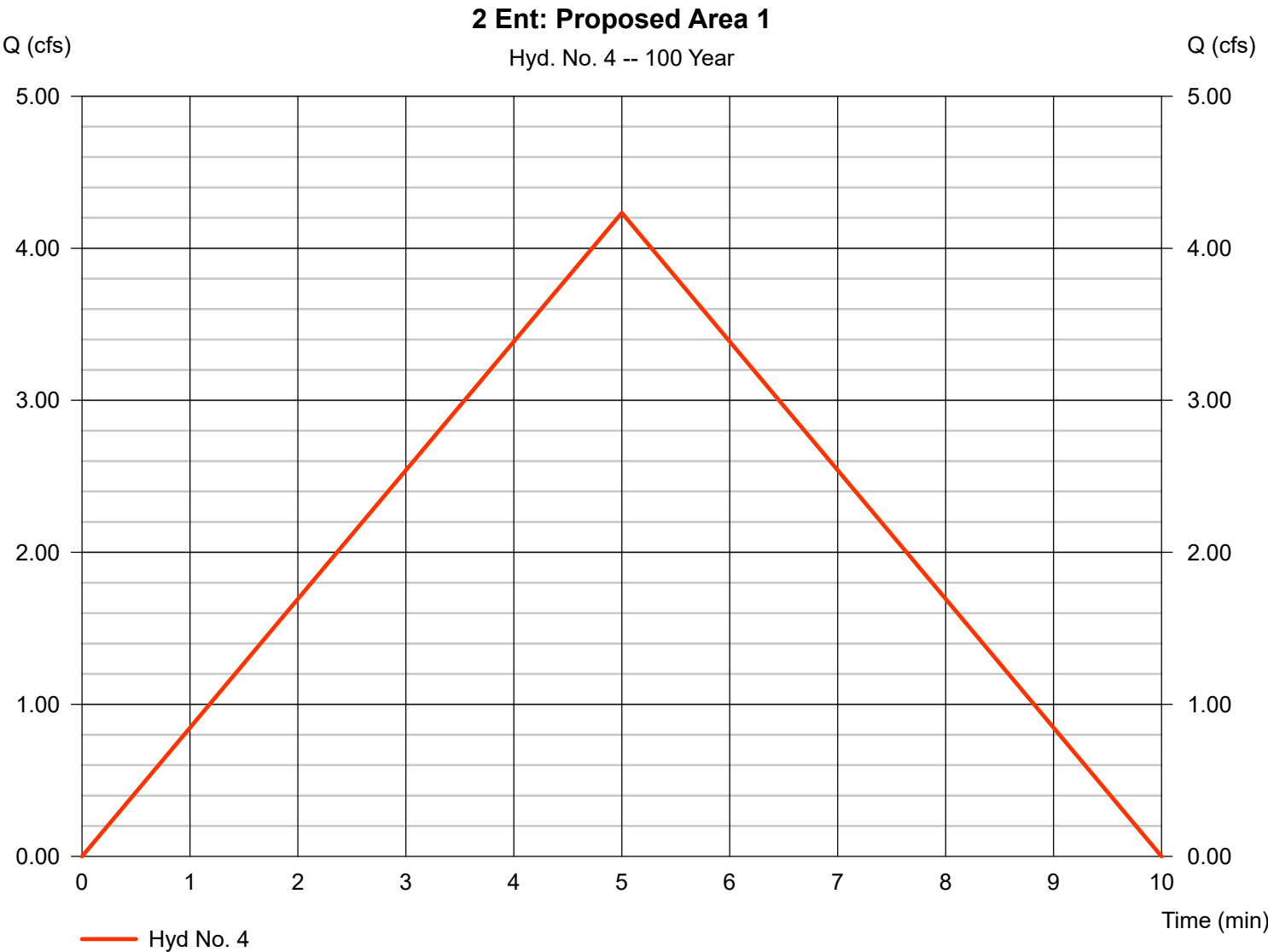
Wednesday, Feb 5, 2025

Hyd. No. 4

2 Ent: Proposed Area 1

Hydrograph type	= Rational	Peak discharge	= 4.233 cfs
Storm frequency	= 100 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 1,270 cuft
Drainage area	= 0.770 ac	Runoff coeff.	= 0.5*
Intensity	= 10.995 in/hr	Tc by User	= 5.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.440 x 0.90) + (0.330 x 0.20)] / 0.770



Hydrograph Report

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

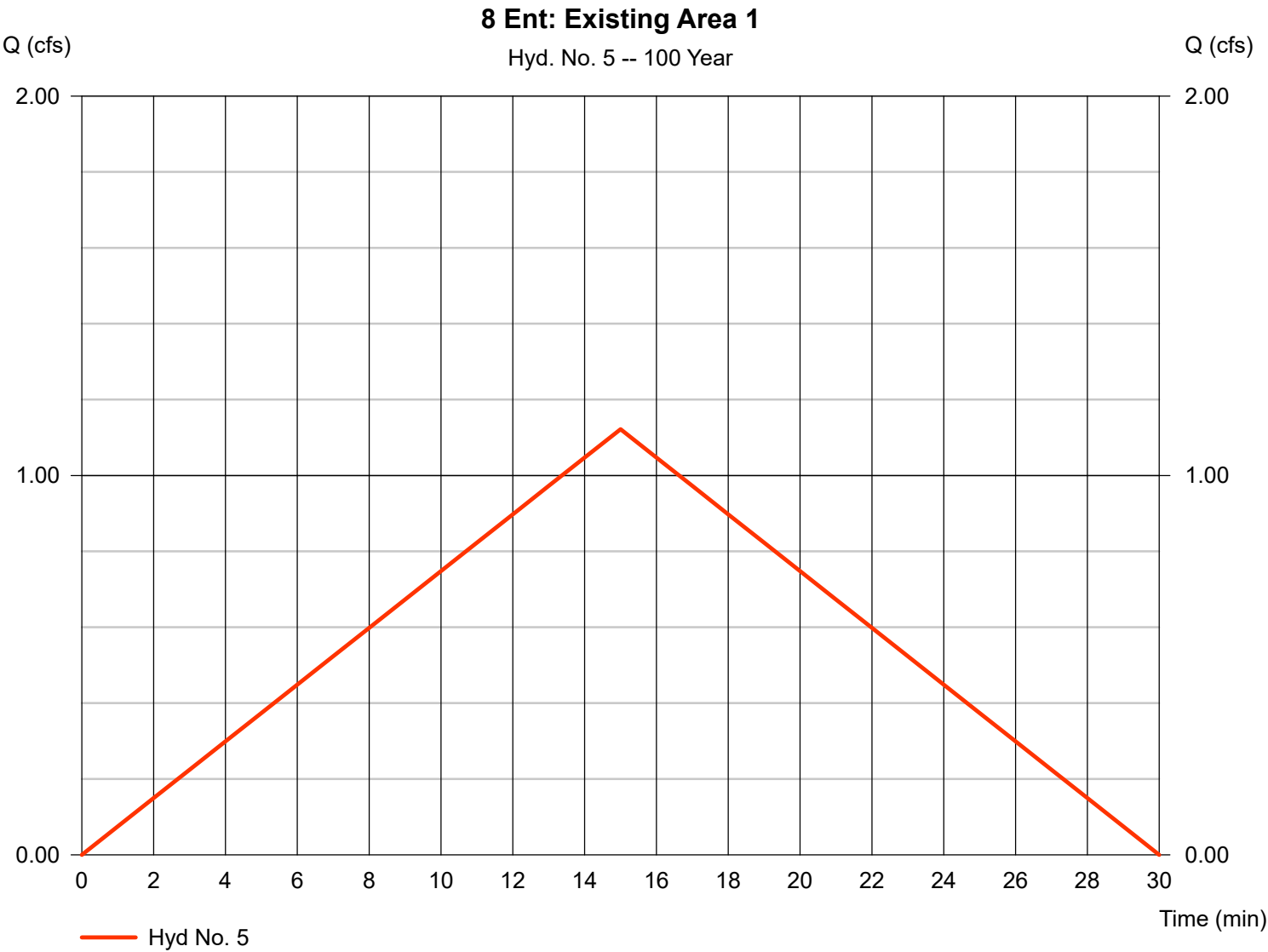
Wednesday, Feb 5, 2025

Hyd. No. 5

8 Ent: Existing Area 1

Hydrograph type	=	Rational	Peak discharge	=	1.122 cfs
Storm frequency	=	100 yrs	Time to peak	=	15 min
Time interval	=	1 min	Hyd. volume	=	1,010 cuft
Drainage area	=	0.510 ac	Runoff coeff.	=	0.34*
Intensity	=	6.471 in/hr	Tc by TR55	=	15.00 min
IDF Curve	=	GSD-60 NOAA.IDF	Asc/Rec limb fact	=	1/1

* Composite (Area/C) = [(0.100 x 0.90) + (0.410 x 0.20)] / 0.510



Hydrograph Report

Hyd. No. 6

8 Ent: Existing Area 2

Hydrograph type	= Rational	Peak discharge	= 2.355 cfs
Storm frequency	= 100 yrs	Time to peak	= 6 min
Time interval	= 1 min	Hyd. volume	= 848 cuft
Drainage area	= 0.420 ac	Runoff coeff.	= 0.55*
Intensity	= 10.194 in/hr	Tc by User	= 6.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.210 x 0.90) + (0.210 x 0.20)] / 0.420



Hydrograph Report

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

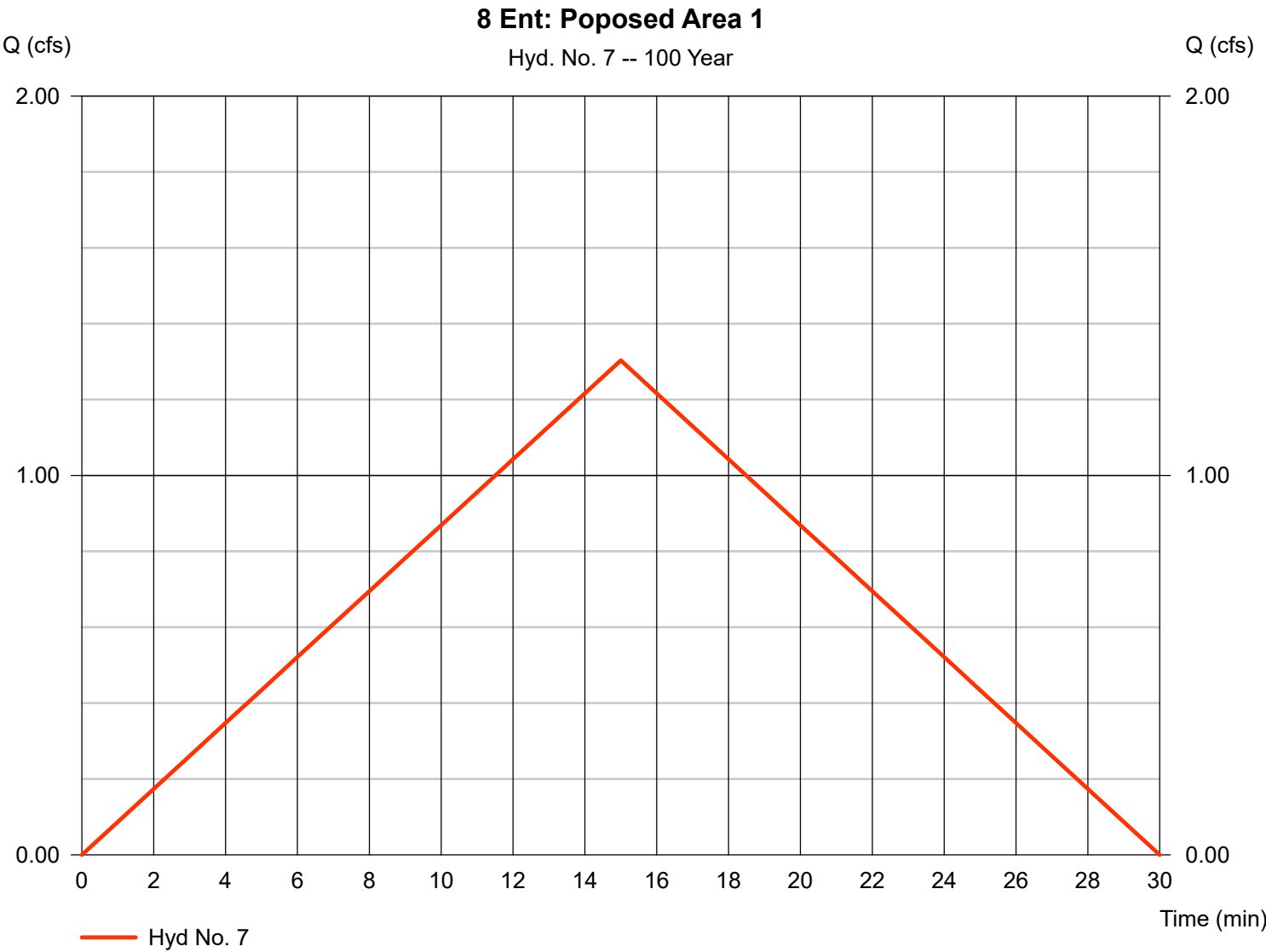
Wednesday, Feb 5, 2025

Hyd. No. 7

8 Ent: Poposed Area 1

Hydrograph type	= Rational	Peak discharge	= 1.303 cfs
Storm frequency	= 100 yrs	Time to peak	= 15 min
Time interval	= 1 min	Hyd. volume	= 1,173 cuft
Drainage area	= 0.530 ac	Runoff coeff.	= 0.38*
Intensity	= 6.471 in/hr	Tc by User	= 15.00 min
IDF Curve	= GSD-60 NOAA.IDF	Asc/Rec limb fact	= 1/1

* Composite (Area/C) = [(0.140 x 0.90) + (0.390 x 0.20)] / 0.530



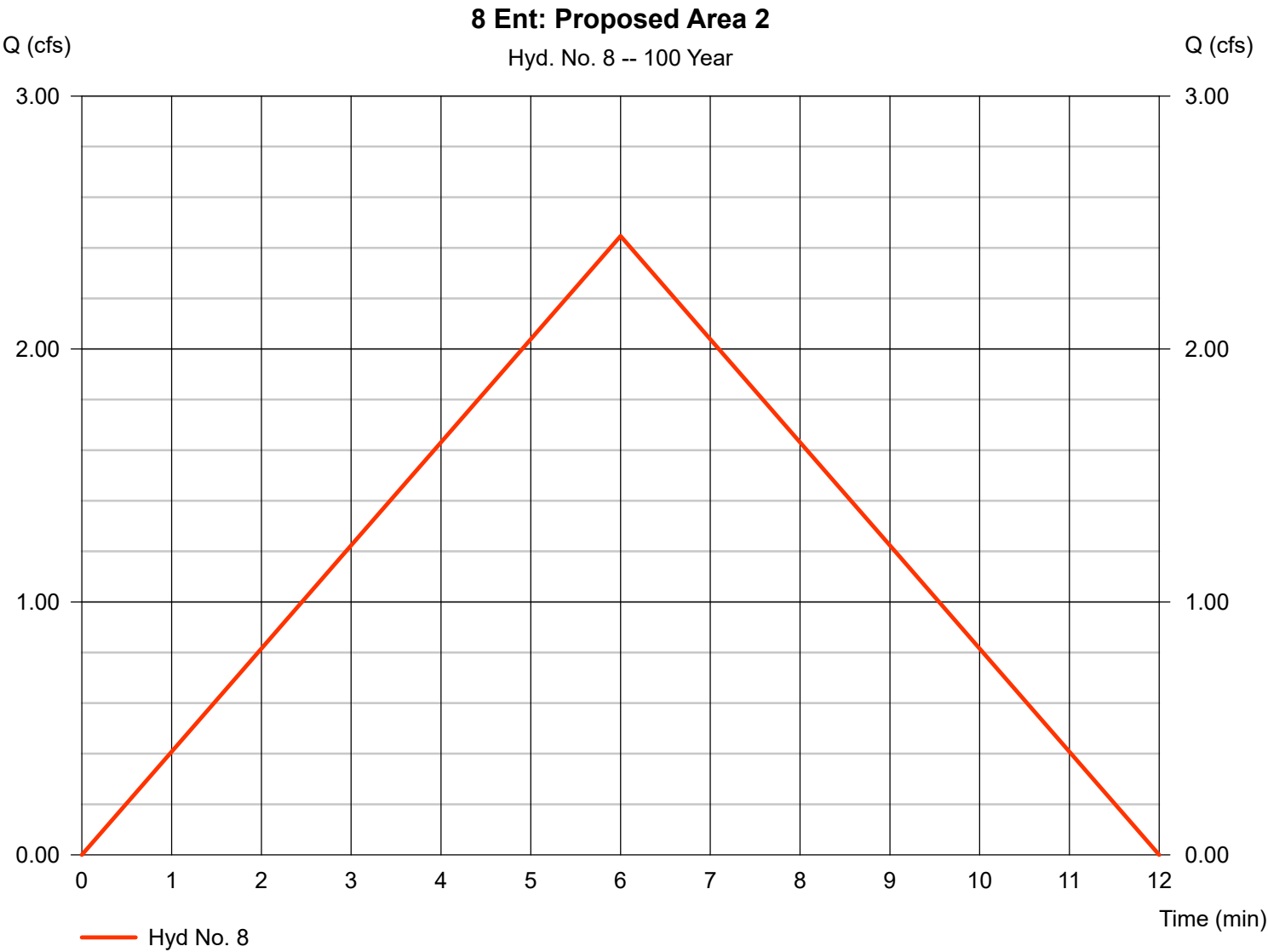
Hydrograph Report

Hyd. No. 8

8 Ent: Proposed Area 2

Hydrograph type	=	Rational	Peak discharge	=	2.447 cfs
Storm frequency	=	100 yrs	Time to peak	=	6 min
Time interval	=	1 min	Hyd. volume	=	881 cuft
Drainage area	=	0.400 ac	Runoff coeff.	=	0.6*
Intensity	=	10.194 in/hr	Tc by User	=	6.00 min
IDF Curve	=	GSD-60 NOAA.IDF	Asc/Rec limb fact	=	1/1

* Composite (Area/C) = [(0.230 x 0.90) + (0.170 x 0.20)] / 0.400



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 #1	Combination	254.65	Rect	4.00	3.00	12	Cir	243.65	12	Cir	243.65
2	CB Type CL #2	Grate	255.80	Rect	4.00	3.00	12	Cir	245.00	12 12	Cir Cir	245.00 245.00
3	CB Type C #4	Combination	253.55	Rect	4.00	3.00	12	Cir	246.70			
4	CB Type CL #3	Grate	253.45	Rect	4.00	3.00	12	Cir	245.55			
Project File: GSD 66 Catch Basins v2.stm							Number of Structures: 4			Run Date: 02-05-2025		

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	2.22	12	Cir	46.702	243.20	243.65	0.964	243.83	244.28	0.33	244.28	End	Combination
2	12 HDPE	1.75	12	Cir	123.000	243.65	245.00	1.098	244.28	245.56	n/a	245.56 j	1	Grate
3	12 HDPE	1.77	12	Cir	167.000	245.00	246.70	1.018	245.56	247.26	0.23	247.26	2	Combination
4	12 HDPE	0.16	12	Cir	52.000	245.00	245.55	1.058	245.56	245.72	n/a	245.72 j	2	Grate

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID							
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up								
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)								
1	End	46.702	0.10	0.41	0.85	0.09	0.35	5.0	10.1	6.3	2.22	3.50	4.25	12	0.96	243.20	243.65	243.83	244.28	246.76	254.65	12 HDPE							
2	1	123.000	0.05	0.31	0.90	0.05	0.27	5.0	9.3	6.6	1.75	3.73	3.60	12	1.10	243.65	245.00	244.28	245.56	254.65	255.80	12 HDPE							
3	2	167.000	0.24	0.24	0.85	0.20	0.20	5.0	5.0	8.7	1.77	3.59	3.89	12	1.02	245.00	246.70	245.56	247.26	255.80	253.55	12 HDPE							
4	2	52.000	0.02	0.02	0.90	0.02	0.02	5.0	5.0	8.7	0.16	3.66	1.07	12	1.06	245.00	245.55	245.56	245.72	255.80	253.45	12 HDPE							



NOAA Atlas 14, Volume 10, Version 3
Location name: Oakdale, Connecticut, USA*
Latitude: 41.4202°, Longitude: -72.2009°
Elevation: 257 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

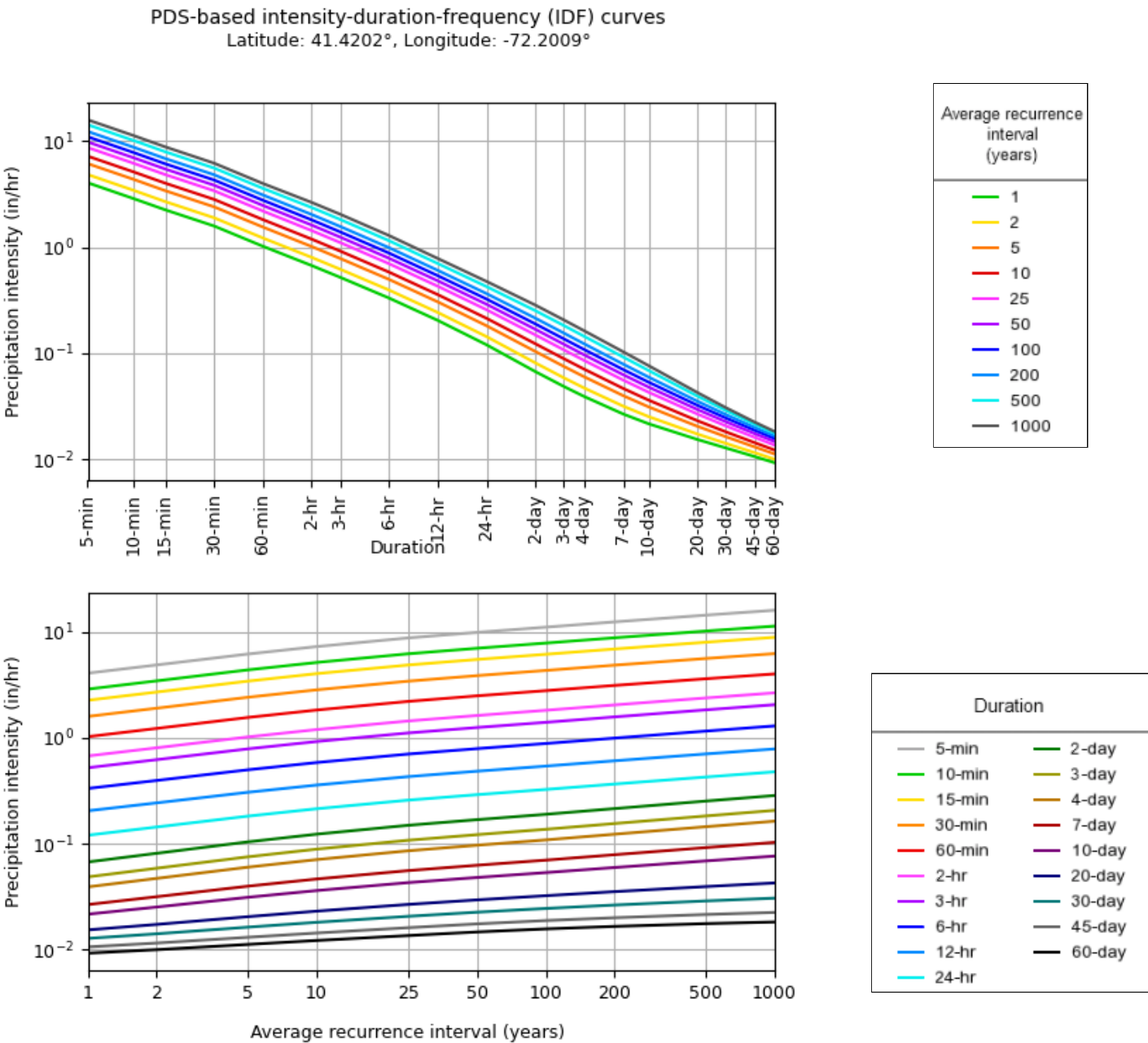
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.06 (3.16-5.05)	4.85 (3.77-6.05)	6.14 (4.76-7.69)	7.22 (5.57-9.08)	8.71 (6.52-11.4)	9.83 (7.20-13.1)	11.0 (7.84-15.1)	12.3 (8.30-17.2)	14.3 (9.26-20.6)	15.9 (10.1-23.3)
10-min	2.87 (2.24-3.58)	3.43 (2.67-4.28)	4.36 (3.38-5.45)	5.12 (3.95-6.44)	6.17 (4.61-8.06)	6.96 (5.09-9.26)	7.79 (5.55-10.7)	8.74 (5.89-12.2)	10.1 (6.56-14.6)	11.3 (7.13-16.5)
15-min	2.25 (1.75-2.80)	2.69 (2.10-3.36)	3.41 (2.65-4.27)	4.02 (3.10-5.04)	4.84 (3.62-6.32)	5.46 (4.00-7.26)	6.11 (4.35-8.41)	6.86 (4.62-9.58)	7.94 (5.14-11.4)	8.83 (5.59-12.9)
30-min	1.59 (1.23-1.98)	1.90 (1.48-2.37)	2.40 (1.86-3.01)	2.83 (2.18-3.55)	3.41 (2.55-4.45)	3.84 (2.81-5.11)	4.30 (3.06-5.91)	4.83 (3.25-6.74)	5.58 (3.62-8.03)	6.20 (3.92-9.07)
60-min	1.02 (0.796-1.27)	1.22 (0.951-1.53)	1.55 (1.20-1.94)	1.82 (1.40-2.29)	2.20 (1.64-2.87)	2.48 (1.82-3.30)	2.78 (1.97-3.81)	3.11 (2.09-4.34)	3.59 (2.33-5.17)	3.99 (2.53-5.84)
2-hr	0.672 (0.528-0.832)	0.803 (0.629-0.995)	1.02 (0.794-1.26)	1.19 (0.927-1.49)	1.44 (1.08-1.86)	1.62 (1.19-2.14)	1.81 (1.30-2.48)	2.04 (1.38-2.82)	2.37 (1.54-3.37)	2.65 (1.68-3.83)
3-hr	0.520 (0.410-0.642)	0.620 (0.488-0.766)	0.784 (0.615-0.971)	0.920 (0.718-1.14)	1.11 (0.837-1.43)	1.25 (0.924-1.64)	1.40 (1.01-1.90)	1.57 (1.06-2.16)	1.83 (1.19-2.59)	2.05 (1.30-2.95)
6-hr	0.332 (0.264-0.407)	0.395 (0.313-0.484)	0.498 (0.394-0.612)	0.583 (0.458-0.720)	0.700 (0.533-0.898)	0.788 (0.588-1.03)	0.881 (0.639-1.19)	0.991 (0.675-1.35)	1.15 (0.755-1.62)	1.29 (0.825-1.84)
12-hr	0.204 (0.163-0.249)	0.242 (0.194-0.295)	0.305 (0.243-0.373)	0.357 (0.283-0.438)	0.429 (0.329-0.545)	0.482 (0.362-0.624)	0.539 (0.393-0.721)	0.605 (0.415-0.818)	0.702 (0.462-0.975)	0.784 (0.503-1.10)
24-hr	0.120 (0.097-0.145)	0.143 (0.116-0.174)	0.182 (0.146-0.220)	0.213 (0.170-0.260)	0.257 (0.199-0.325)	0.290 (0.219-0.372)	0.325 (0.238-0.431)	0.365 (0.251-0.489)	0.426 (0.281-0.585)	0.476 (0.307-0.665)
2-day	0.067 (0.054-0.080)	0.081 (0.066-0.097)	0.104 (0.084-0.125)	0.123 (0.099-0.148)	0.149 (0.116-0.187)	0.168 (0.128-0.215)	0.189 (0.140-0.250)	0.214 (0.148-0.284)	0.252 (0.167-0.343)	0.285 (0.184-0.393)
3-day	0.048 (0.039-0.058)	0.058 (0.048-0.070)	0.075 (0.061-0.090)	0.089 (0.072-0.107)	0.107 (0.084-0.134)	0.121 (0.093-0.155)	0.137 (0.101-0.180)	0.155 (0.107-0.204)	0.182 (0.121-0.247)	0.206 (0.133-0.283)
4-day	0.039 (0.032-0.046)	0.047 (0.038-0.056)	0.060 (0.049-0.071)	0.071 (0.057-0.085)	0.085 (0.067-0.106)	0.096 (0.074-0.122)	0.108 (0.081-0.142)	0.123 (0.085-0.161)	0.144 (0.096-0.194)	0.163 (0.106-0.223)
7-day	0.026 (0.022-0.031)	0.031 (0.026-0.037)	0.039 (0.032-0.047)	0.046 (0.038-0.055)	0.055 (0.044-0.068)	0.062 (0.048-0.078)	0.070 (0.052-0.090)	0.078 (0.055-0.102)	0.092 (0.061-0.122)	0.103 (0.067-0.139)
10-day	0.021 (0.018-0.025)	0.025 (0.021-0.029)	0.031 (0.025-0.037)	0.036 (0.029-0.043)	0.043 (0.034-0.052)	0.048 (0.037-0.060)	0.053 (0.040-0.068)	0.059 (0.041-0.077)	0.068 (0.046-0.091)	0.076 (0.050-0.103)
20-day	0.015 (0.012-0.018)	0.017 (0.014-0.020)	0.020 (0.017-0.024)	0.023 (0.019-0.027)	0.026 (0.021-0.032)	0.029 (0.022-0.036)	0.032 (0.024-0.040)	0.035 (0.025-0.045)	0.039 (0.026-0.051)	0.042 (0.028-0.056)
30-day	0.012 (0.010-0.014)	0.014 (0.011-0.016)	0.016 (0.013-0.019)	0.018 (0.015-0.021)	0.020 (0.016-0.024)	0.022 (0.017-0.027)	0.024 (0.018-0.030)	0.026 (0.018-0.033)	0.028 (0.019-0.037)	0.030 (0.020-0.040)
45-day	0.010 (0.009-0.012)	0.011 (0.009-0.013)	0.013 (0.011-0.015)	0.014 (0.012-0.016)	0.016 (0.012-0.019)	0.017 (0.013-0.021)	0.018 (0.014-0.023)	0.020 (0.014-0.025)	0.021 (0.014-0.027)	0.022 (0.014-0.029)
60-day	0.009 (0.007-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.014)	0.013 (0.010-0.016)	0.014 (0.011-0.017)	0.015 (0.011-0.019)	0.016 (0.011-0.020)	0.017 (0.012-0.022)	0.018 (0.012-0.023)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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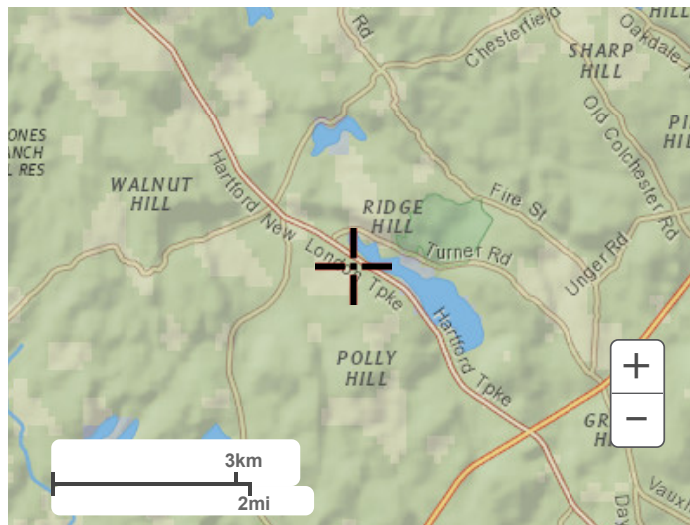
PF graphical



[Back to Top](#)

Maps & aerials

Small scale terrain



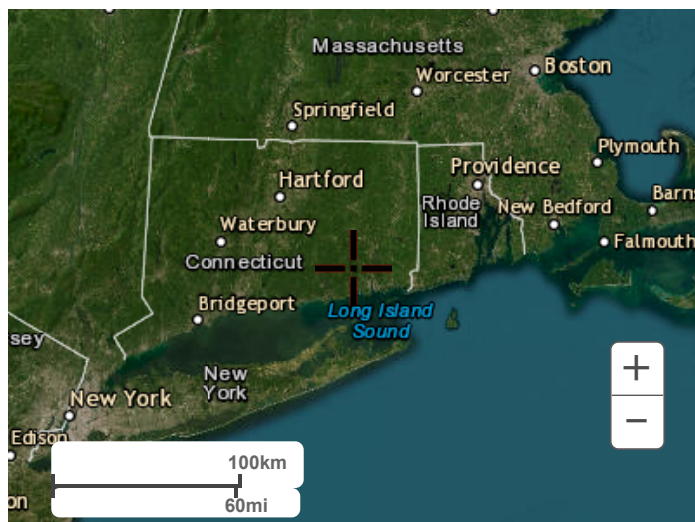
Large scale terrain



Large scale map



Large scale aerial



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