

DRAINAGE REPORT

Proposed Subdivision

Silver Falls Road

Montville, Connecticut

Prepared for Daniela Gjergaj

Narrative

The proposed project is a residential subdivision located on Silver Falls Road (Map 001, Block 007, Lot 00A) in Montville Connecticut. The existing property is approximately 19-acres bounded by Silver Falls Road to the west. The location of the site in reference to the USGS Quad Map is attached as Figure 1. Existing conditions mapping is included in the subdivision plans. The existing site is generally comprised of wooded land with grass & brush. The property is divided by a ridgeline forming 2 watersheds on the property; existing ground elevations on the site range from approximately 212 to 118. Stormwater from the site currently flows via sheet flow to the from the ridgeline to the 24" HDPE on the west and to the wetlands to the east.

The proposed development includes a 4-lot residential subdivision. The proposed lots will all front along Silver Falls Road and be served by a common driveway. There is no proposed roadway or public improvements. The proposed site grading has been designed to match the existing drainage patterns as closely as possible. The lot layouts and grading are depicted in the subdivision plans. As a low impact development measure stormwater throughout the site will continue to be managed by sheet flow over and treated by riprap swales and a water quality basin near the wetlands near Silver Falls Road.

The watershed #1 draining to the existing 24" hdpe is approximately 129 acres. The proposed development will disturb approximately 4.4 acres within this watershed. The land use within the work area will change from primarily woods, brush, and grass to residential that includes approximately 2 acres of lawn within the development. Based on the magnitude of the development within the watershed and the difference in land use for the residential development, the impact to the peak stormwater runoff rates will be negligible. In our opinion the proposed development will have no negative impact to the peak flow rates to the existing pond, wetlands, 24" hdpe, and existing beyond the downstream property boundary.

The watershed #2 draining to northeasterly wetlands is approximately 257 acres. The proposed development will disturb approximately 1.0 acre within this watershed. The land use within the work area will change from primarily woods, brush, and grass to residential that includes approximately .5 acres of lawn within the development. Based on the magnitude of the

Drainage Report

Map 001- Block 007- Lot 00A
Silver Falls Road
Proposed Subdivision



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development within the watershed and the difference in land use for the residential development, the impact to the peak stormwater runoff rates will be negligible. In our opinion the proposed development will have no negative impact on the peak flow rates to the existing wetlands or existing land beyond the downstream boundary.

Method:

The site hydraulic analysis was performed using the SCS TR-55 method utilizing the Hydraflow Hydrographs Extension for AutoCAD. Water quality volume and groundwater recharge volume calculations were performed as outlined in the 2024 Connecticut Stormwater Quality Manual (Section 7.4.1 and Section 7.5.1 respectively).

Runoff curve numbers for the existing conditions and post development conditions were compiled from Table 2-2 of TR-55 due to the minimal changes within the watershed the composite curve numbers remained the same for both pre and post construction.

Stormwater Quality

To meet the Connecticut DEEP stormwater discharge water quality requirements low impact development measures have been designed for the site in accordance with the 2024 Connecticut Stormwater Quality Manual to treat the proposed run-off.

Stormwater run-off from each area of development will run to a water quality basin or underground chambers designed to treat water quality volumes as shown on the subdivision plans. Water quality volumes are shown on the detail sheet of the subdivision plans.

CLA Engineers, Inc.



Robert A. DeLuca, P.E.

Drainage Report

Map 001- Block 007- Lot 00A
Silver Falls Road
Proposed Subdivision

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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	3.955	6	792	75,908	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	7.047	6	828	152,683	-----	-----	-----	Existing watershed #2
3	SCS Runoff	3.955	6	792	75,908	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	7.047	6	828	152,683	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 1 Year			Tuesday, 04 / 8 / 2025	

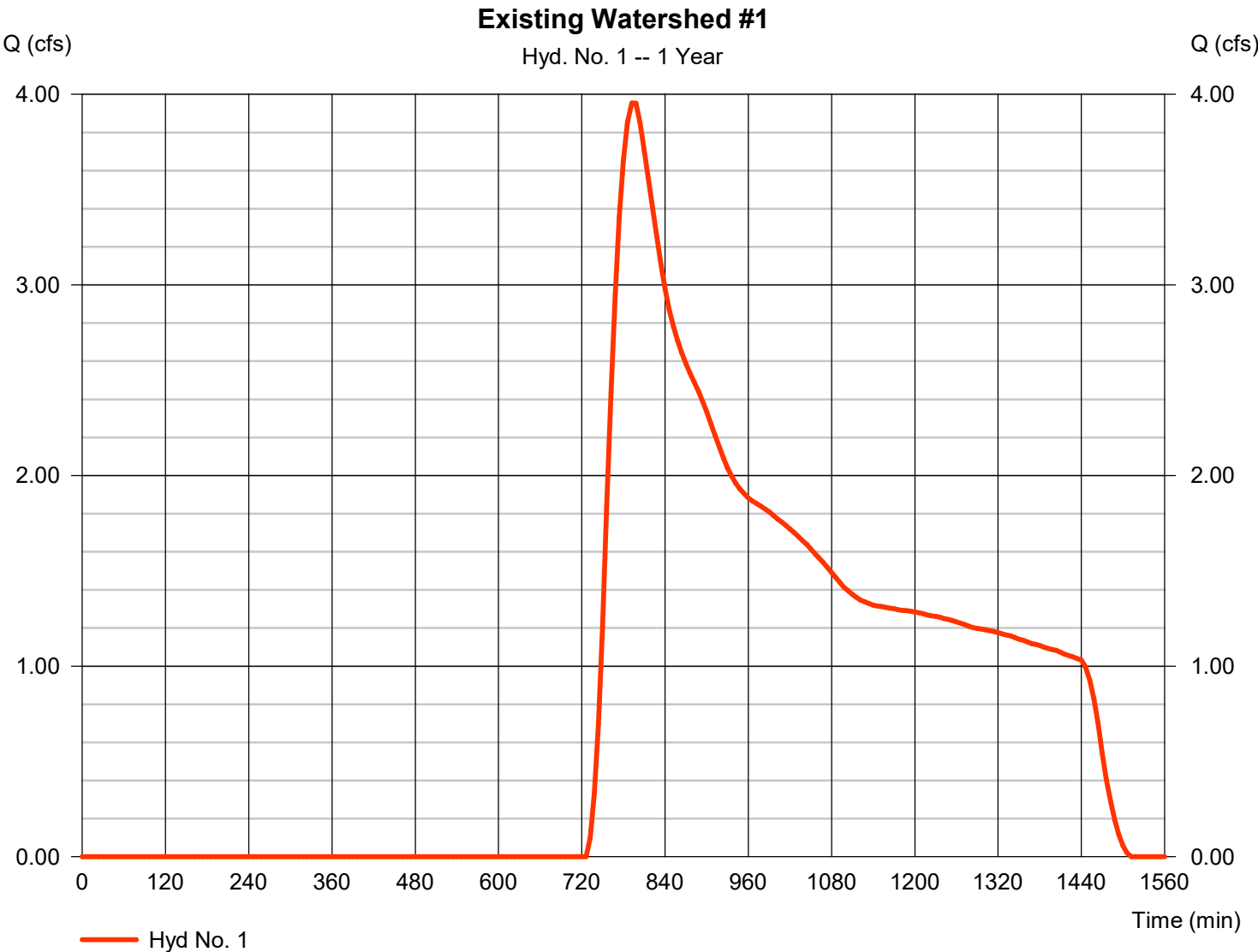
Hydrograph Report

Hyd. No. 1

Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 3.955 cfs
Storm frequency	= 1 yrs	Time to peak	= 792 min
Time interval	= 6 min	Hyd. volume	= 75,908 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 2.89 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.xls	Shape factor	= 484

* Composite (Area/CN) = [(129.000 x 55)] / 129.000



TR55 Tc Worksheet

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

Hyd. No. 1

Existing Watershed #1

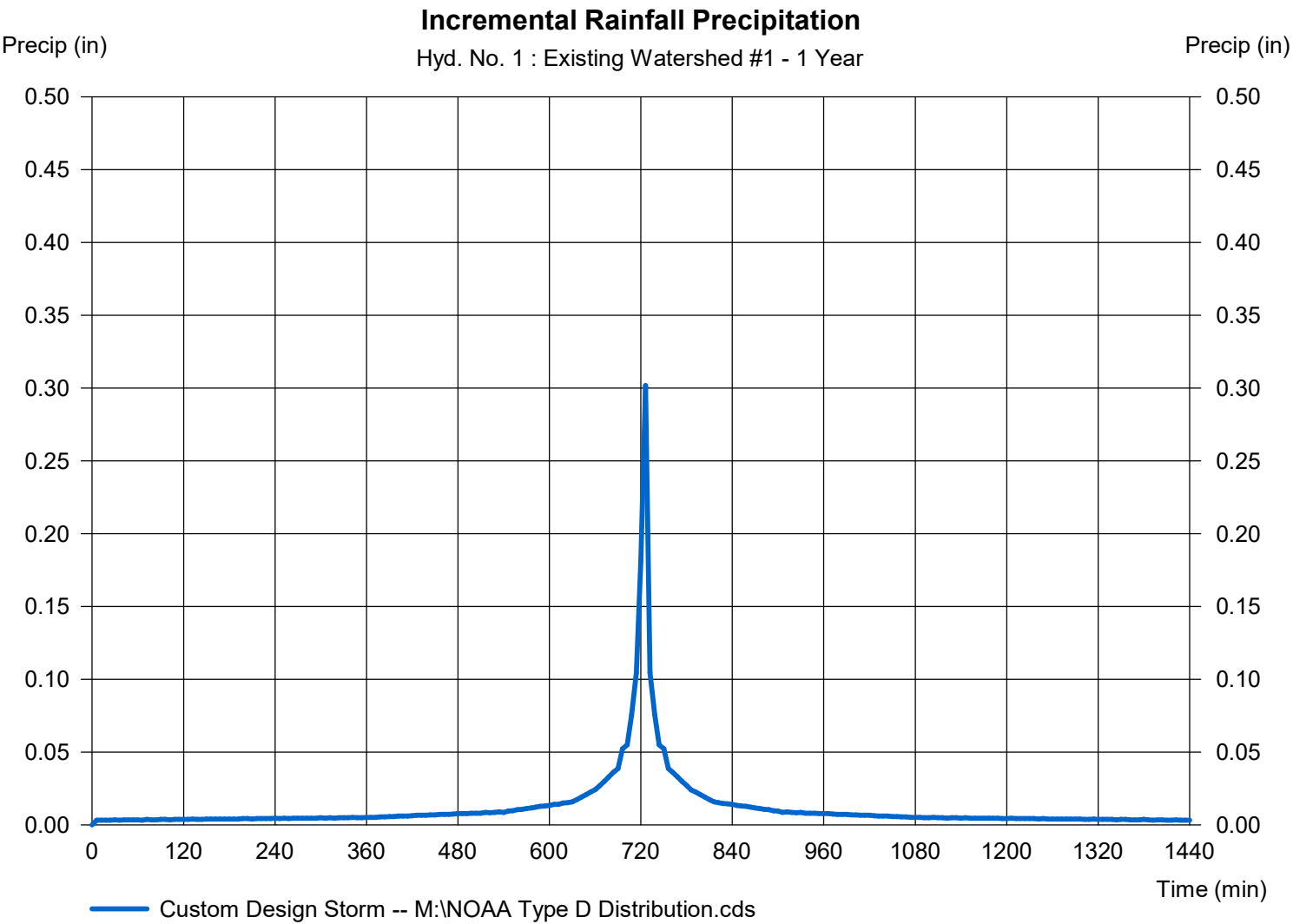
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.800	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.37	0.00	0.00	
Land slope (%)	= 4.00	0.00	0.00	
Travel Time (min)	= 38.19	+	0.00	+
			0.00	= 38.19
Shallow Concentrated Flow				
Flow length (ft)	= 670.00	880.00	0.00	
Watercourse slope (%)	= 4.20	7.00	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	=3.31	4.27	0.00	
Travel Time (min)	= 3.38	+	3.44	+
			0.00	= 6.81
Channel Flow				
X sectional flow area (sqft)	= 16.00	0.00	0.00	
Wetted perimeter (ft)	= 8.00	0.00	0.00	
Channel slope (%)	= 7.40	0.00	0.00	
Manning's n-value	= 0.050	0.015	0.015	
Velocity (ft/s)	=12.90	0.00	0.00	
Flow length (ft)	(0)1430.0	0.0	0.0	
Travel Time (min)	= 1.85	+	0.00	+
			0.00	= 1.85
Total Travel Time, Tc				46.90 min

Precipitation Report

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 1 yrs	Time interval	= 6 min
Total precip.	= 2.8900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		

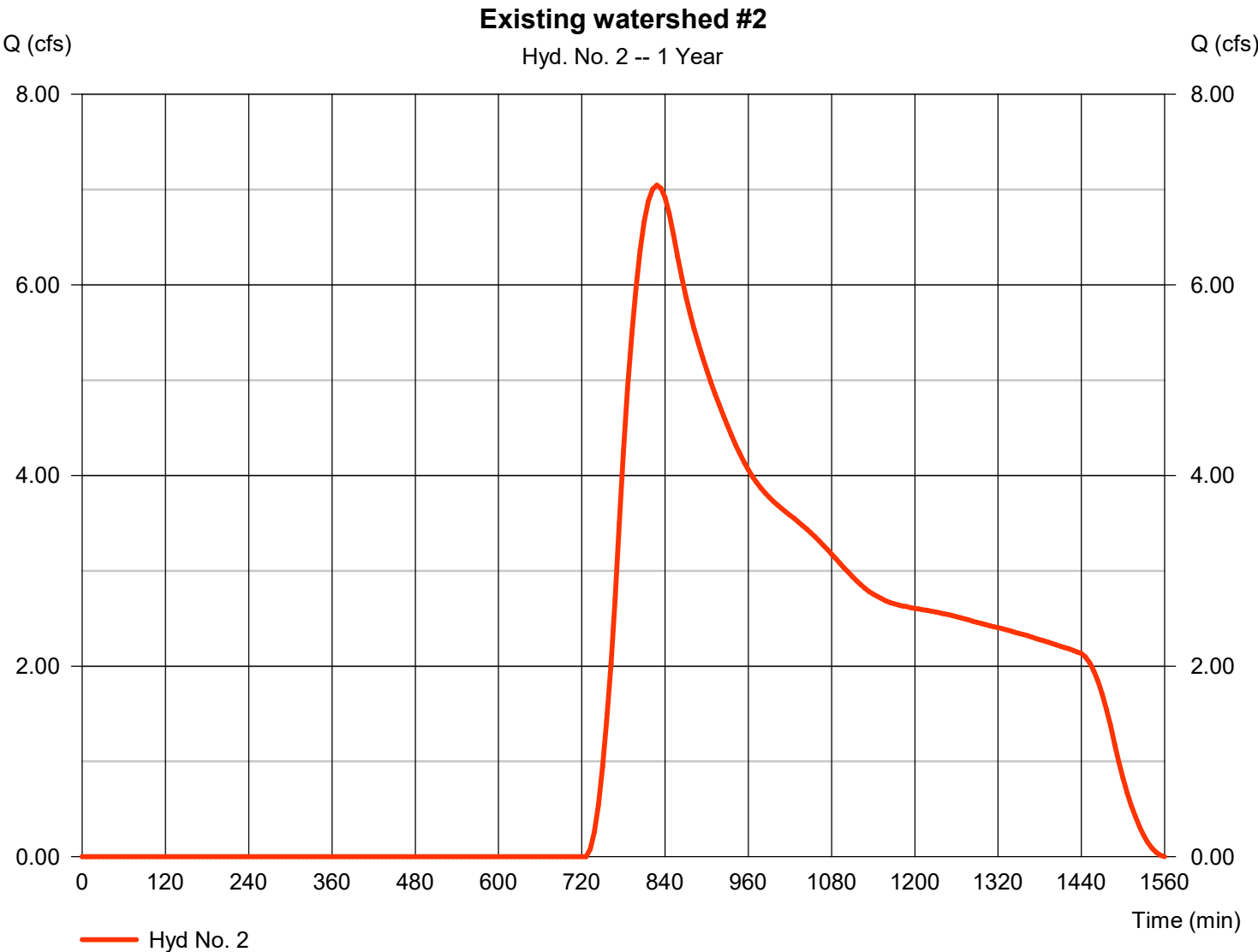


Hydrograph Report

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 7.047 cfs
Storm frequency	= 1 yrs	Time to peak	= 828 min
Time interval	= 6 min	Hyd. volume	= 152,683 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 2.89 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484



TR55 Tc Worksheet

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

Hyd. No. 2

Existing watershed #2

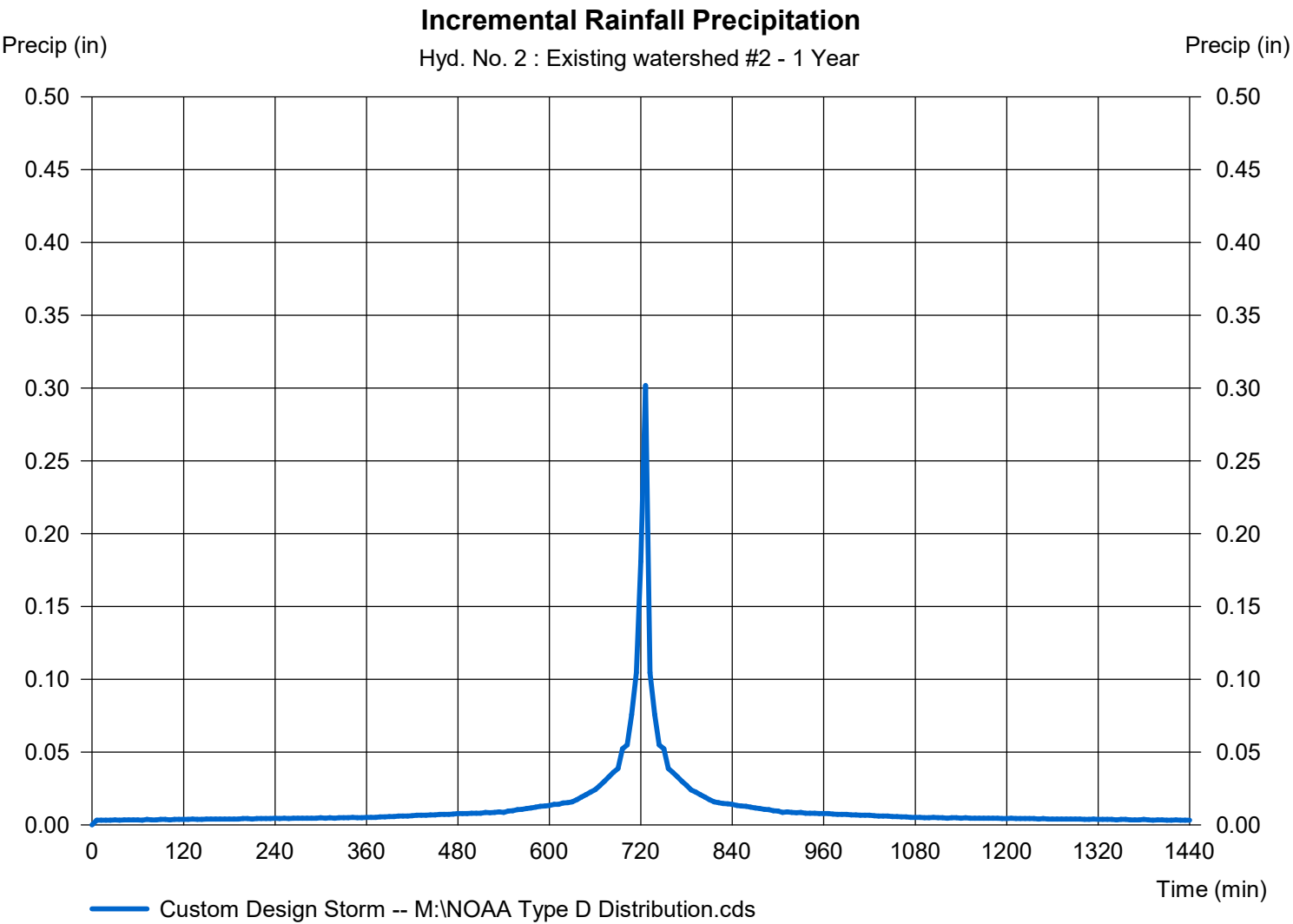
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.800	0.011	0.011				
Flow length (ft)	= 150.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.37	0.00	0.00				
Land slope (%)	= 5.30	0.00	0.00				
Travel Time (min)	= 34.12	+	0.00	+	0.00	=	34.12
Shallow Concentrated Flow							
Flow length (ft)	= 1040.00	1200.00	3250.00				
Watercourse slope (%)	= 4.20	12.70	1.00				
Surface description	= Unpaved	Unpaved	Unpaved				
Average velocity (ft/s)	=3.31	5.75	1.61				
Travel Time (min)	= 5.24	+	3.48	+	33.57	=	42.29
Channel Flow							
X sectional flow area (sqft)	= 0.00	0.00	0.00				
Wetted perimeter (ft)	= 0.00	0.00	0.00				
Channel slope (%)	= 0.00	0.00	0.00				
Manning's n-value	= 0.015	0.015	0.015				
Velocity (ft/s)	=0.00	0.00	0.00				
Flow length (ft)	((0})0.0	0.0	0.0				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Total Travel Time, Tc				76.40 min			

Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 1 yrs	Time interval	= 6 min
Total precip.	= 2.8900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



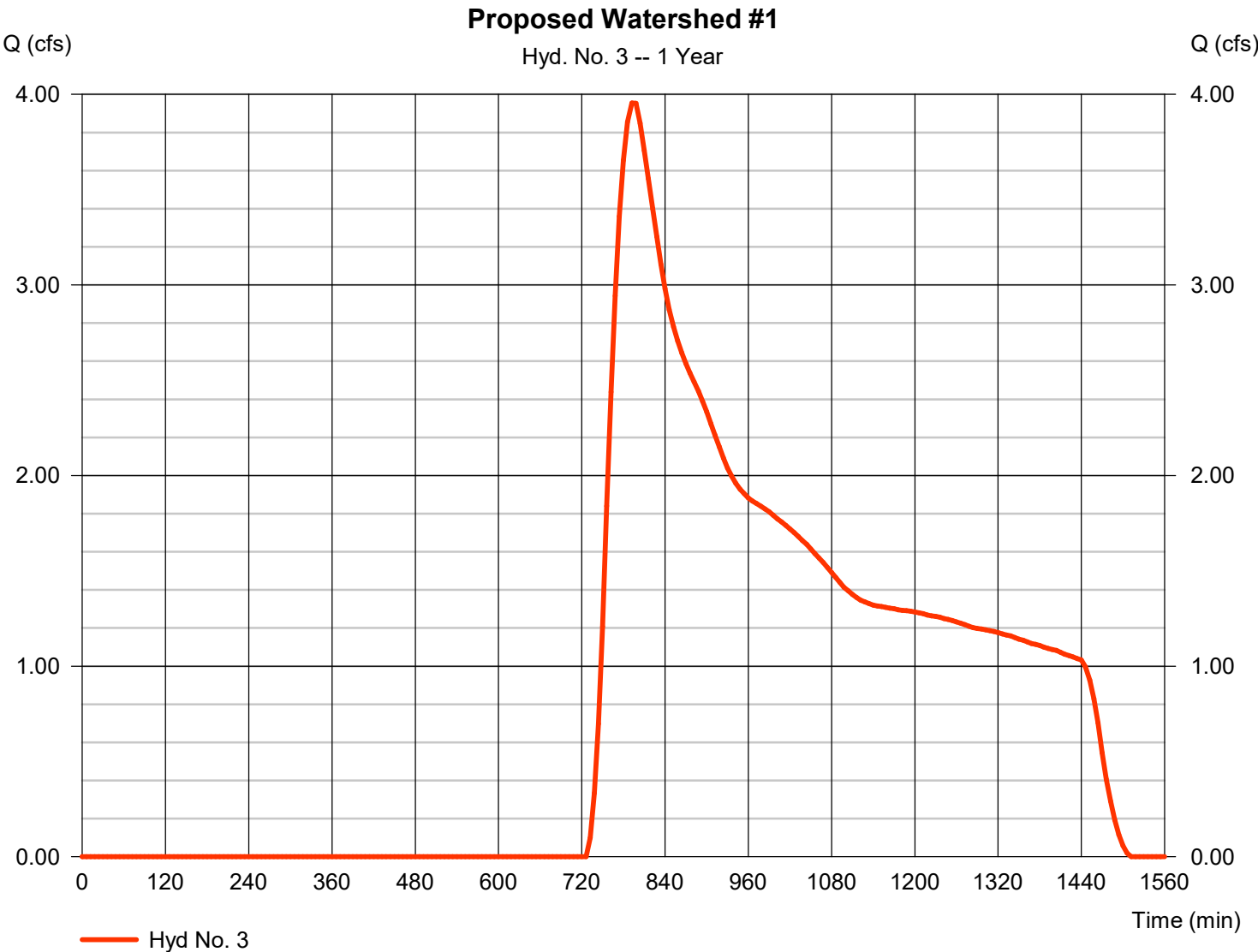
Hydrograph Report

Hyd. No. 3

Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 3.955 cfs
Storm frequency	= 1 yrs	Time to peak	= 792 min
Time interval	= 6 min	Hyd. volume	= 75,908 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 2.89 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

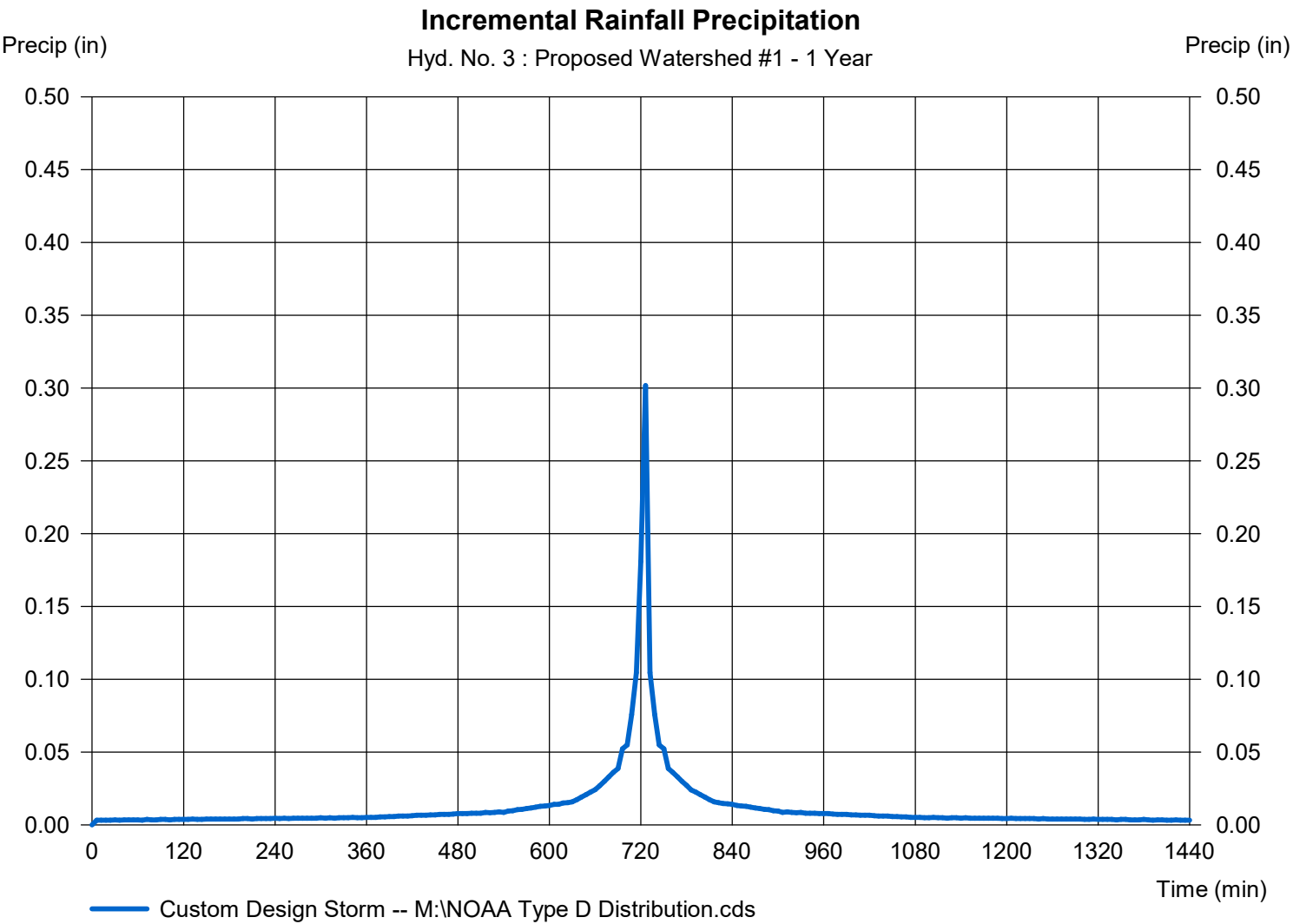


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 1 yrs	Time interval	= 6 min
Total precip.	= 2.8900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

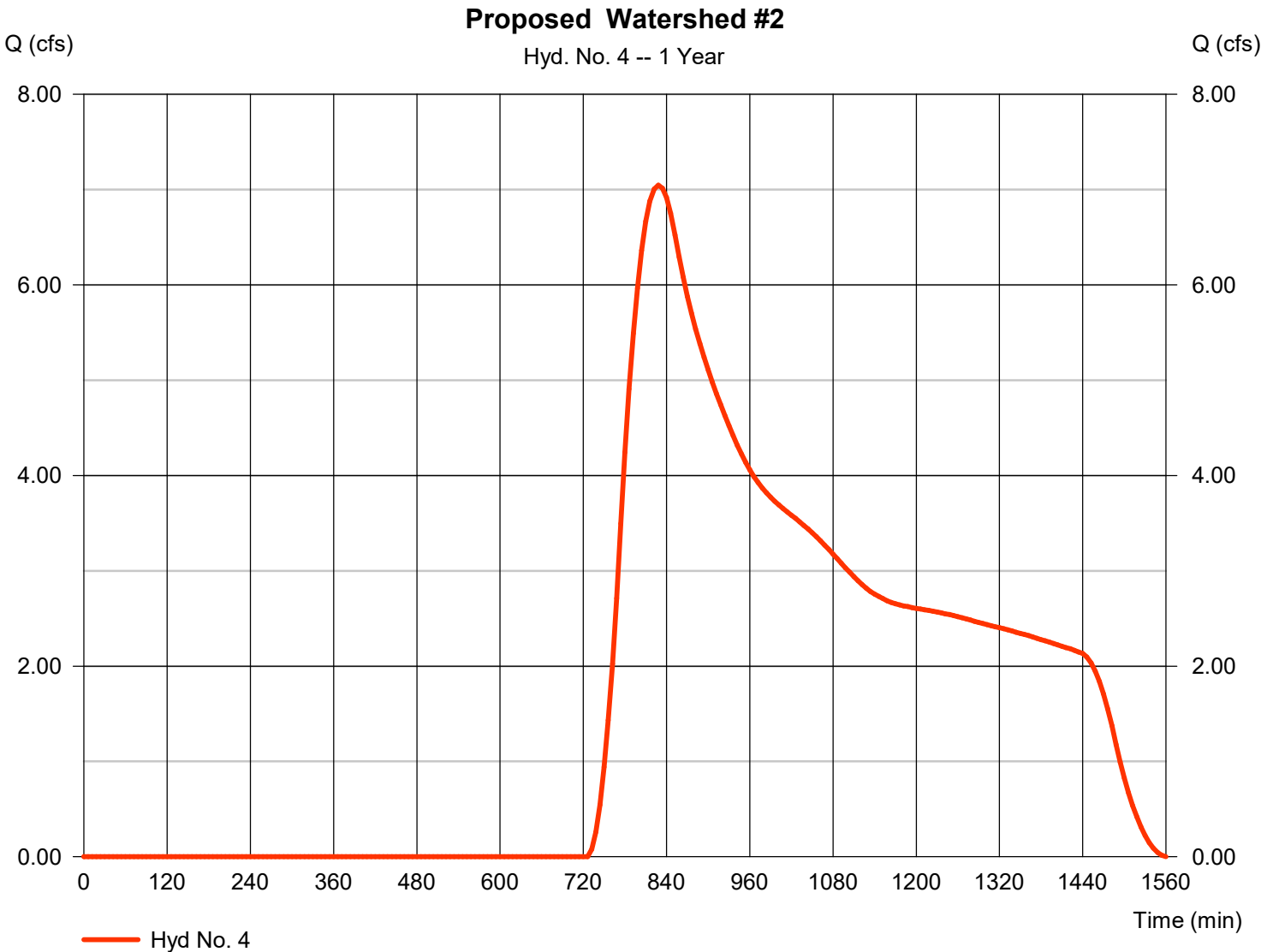
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.047 cfs
Storm frequency	=	1 yrs	Time to peak	=	828 min
Time interval	=	6 min	Hyd. volume	=	152,683 cuft
Drainage area	=	257.000 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	76.40 min
Total precip.	=	2.89 in	Distribution	=	Custom
Storm duration	=	M:\NOAA Type D Distribution.01	Shape factor	=	484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000



TR55 Tc Worksheet

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

Hyd. No. 4

Proposed Watershed #2

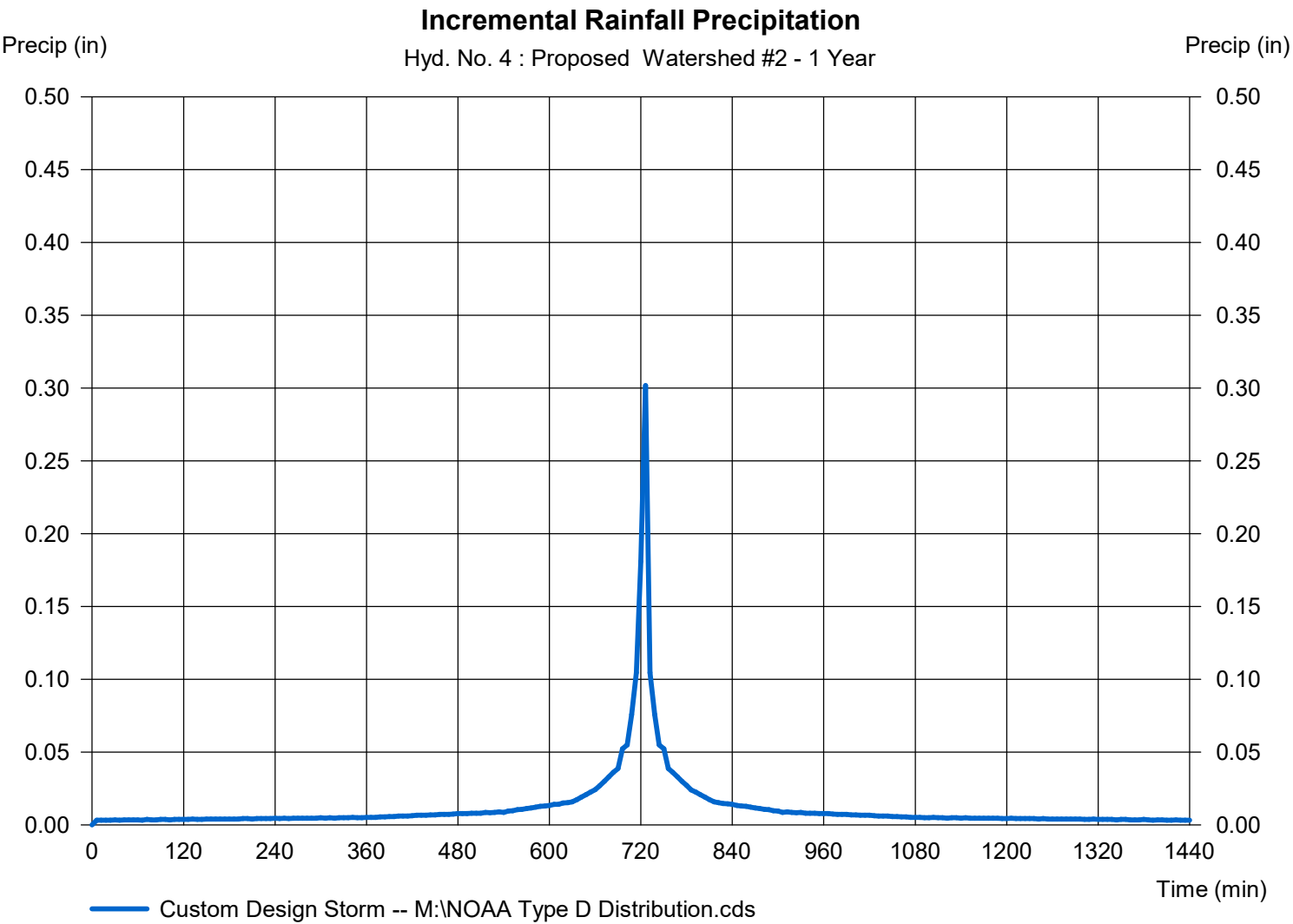
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.000	0.000	0.000				
Flow length (ft)	= 0.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 0.00	0.00	0.00				
Land slope (%)	= 0.00	0.00	0.00				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Shallow Concentrated Flow							
Flow length (ft)	= 0.00	0.00	0.00				
Watercourse slope (%)	= 0.00	0.00	0.00				
Surface description	=						
Average velocity (ft/s)	=0.00	0.00	0.00				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Channel Flow							
X sectional flow area (sqft)	= 0.00	0.00	0.00				
Wetted perimeter (ft)	= 0.00	0.00	0.00				
Channel slope (%)	= 0.00	0.00	0.00				
Manning's n-value	= 0.000	0.000	0.000				
Velocity (ft/s)	=0.00	0.00	0.00				
Flow length (ft)	(0)0.0	0.0	0.0				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Total Travel Time, Tc				76.40 min			

Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 1 yrs	Time interval	= 6 min
Total precip.	= 2.8900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	10.87	6	774	150,229	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	18.07	6	804	302,172	-----	-----	-----	Existing watershed #2
3	SCS Runoff	10.87	6	774	150,229	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	18.07	6	804	302,172	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 2 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

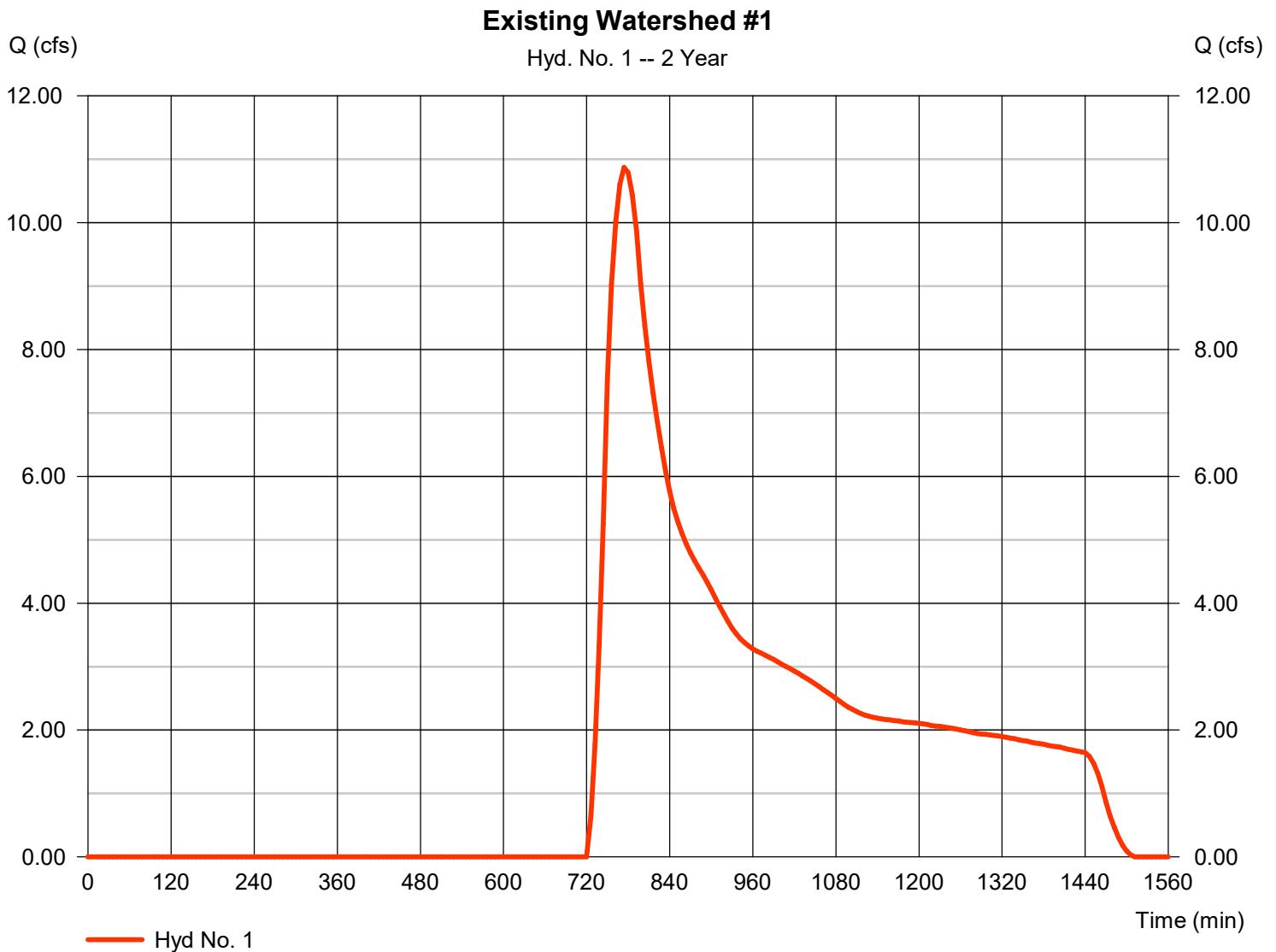
Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 10.87 cfs
Storm frequency	= 2 yrs	Time to peak	= 774 min
Time interval	= 6 min	Hyd. volume	= 150,229 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 3.45 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = $[(129.000 \times 55)] / 129.000$



Precipitation Report

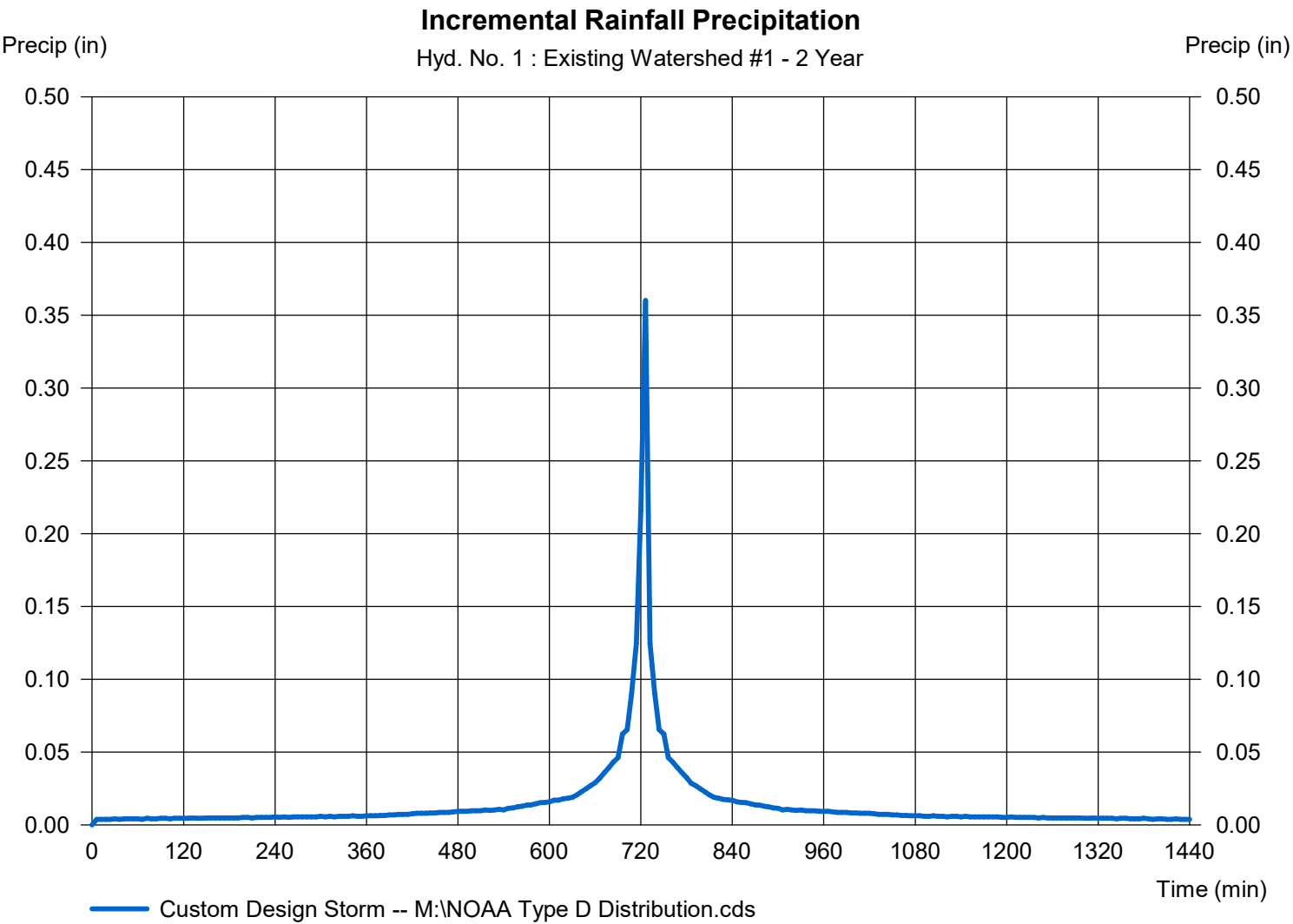
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 2 yrs	Time interval	= 6 min
Total precip.	= 3.4500 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		

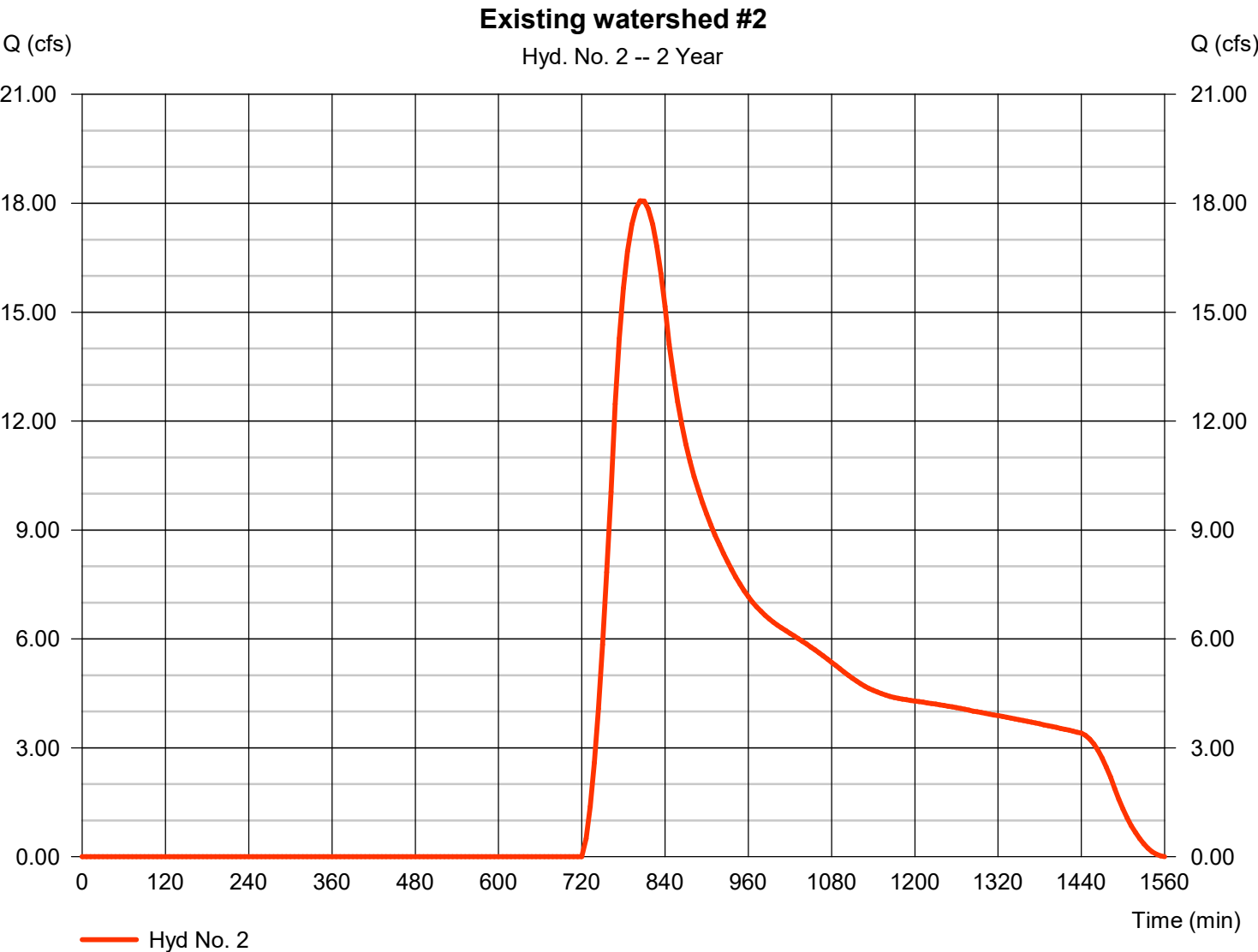


Hydrograph Report

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 18.07 cfs
Storm frequency	= 2 yrs	Time to peak	= 804 min
Time interval	= 6 min	Hyd. volume	= 302,172 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 3.45 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

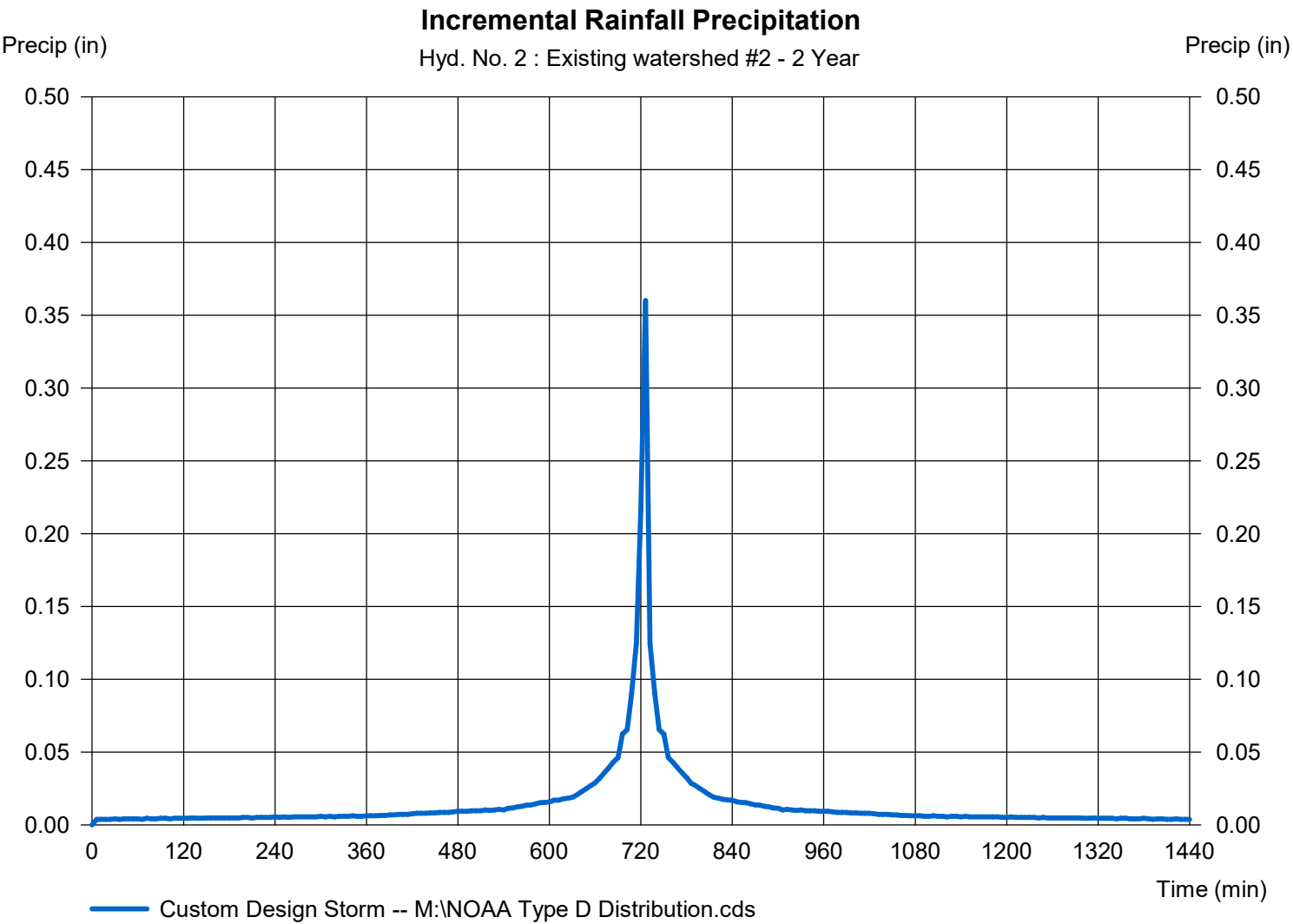


Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 2 yrs	Time interval	= 6 min
Total precip.	= 3.4500 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



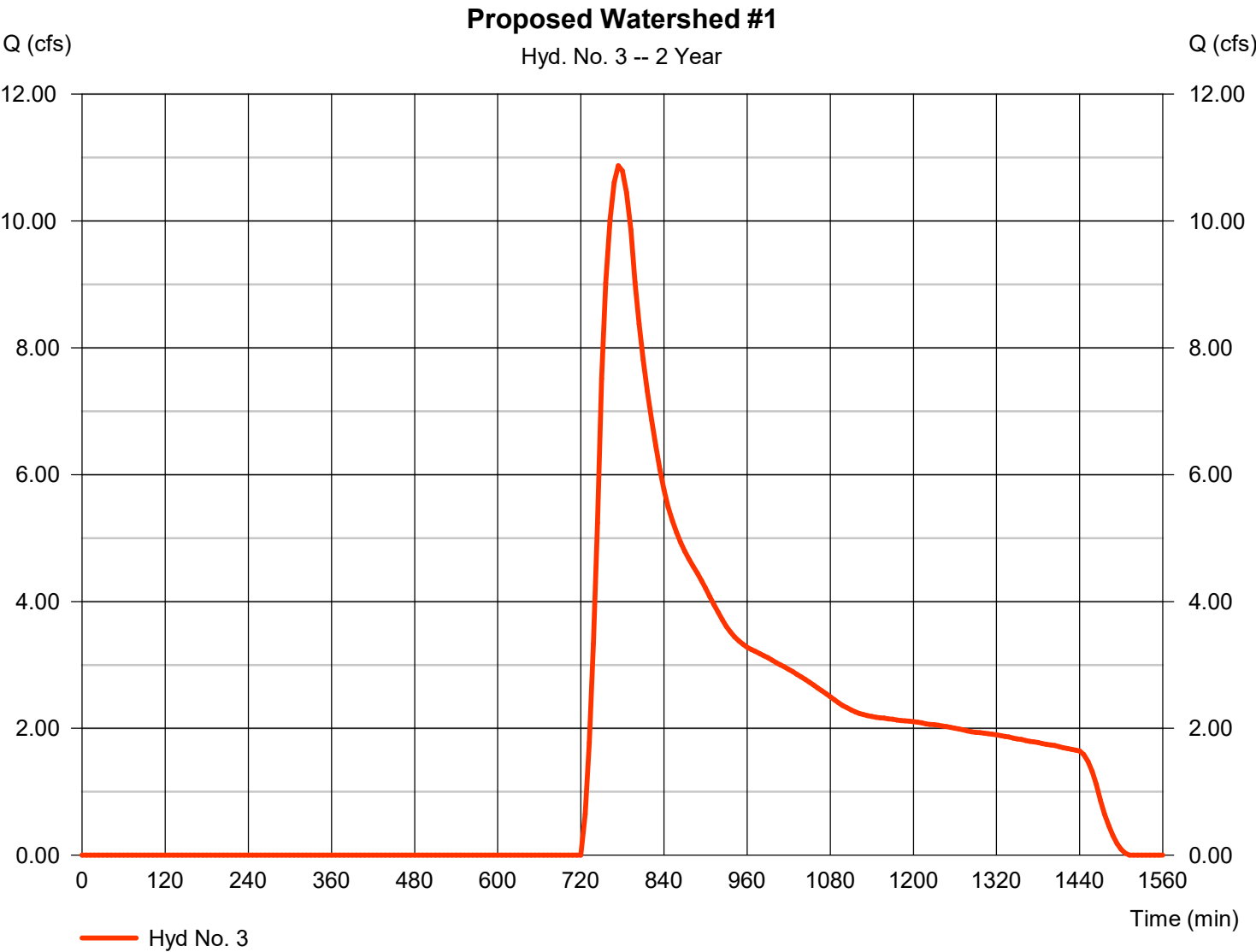
Hydrograph Report

Hyd. No. 3

Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 10.87 cfs
Storm frequency	= 2 yrs	Time to peak	= 774 min
Time interval	= 6 min	Hyd. volume	= 150,229 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 3.45 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

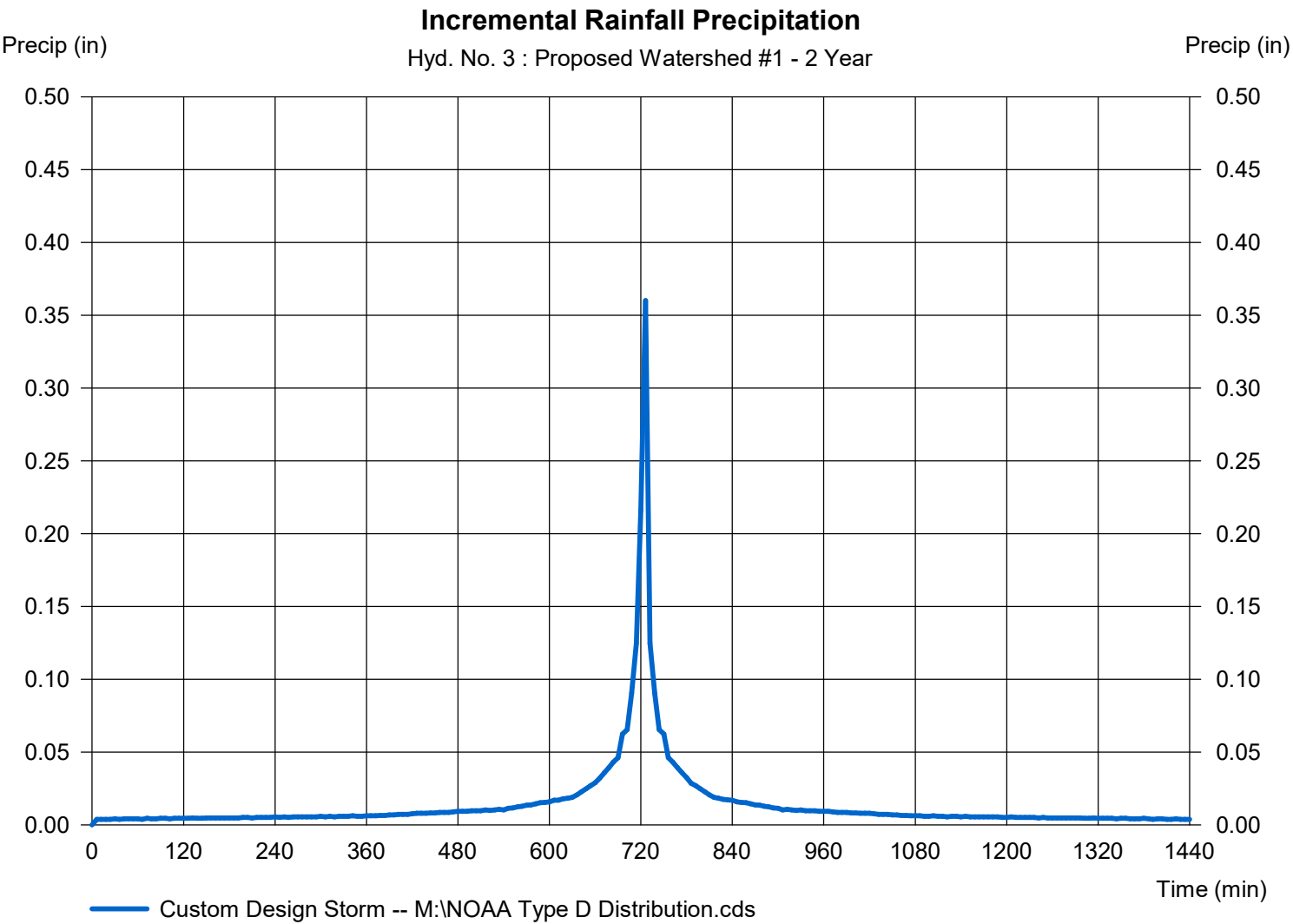


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 2 yrs	Time interval	= 6 min
Total precip.	= 3.4500 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

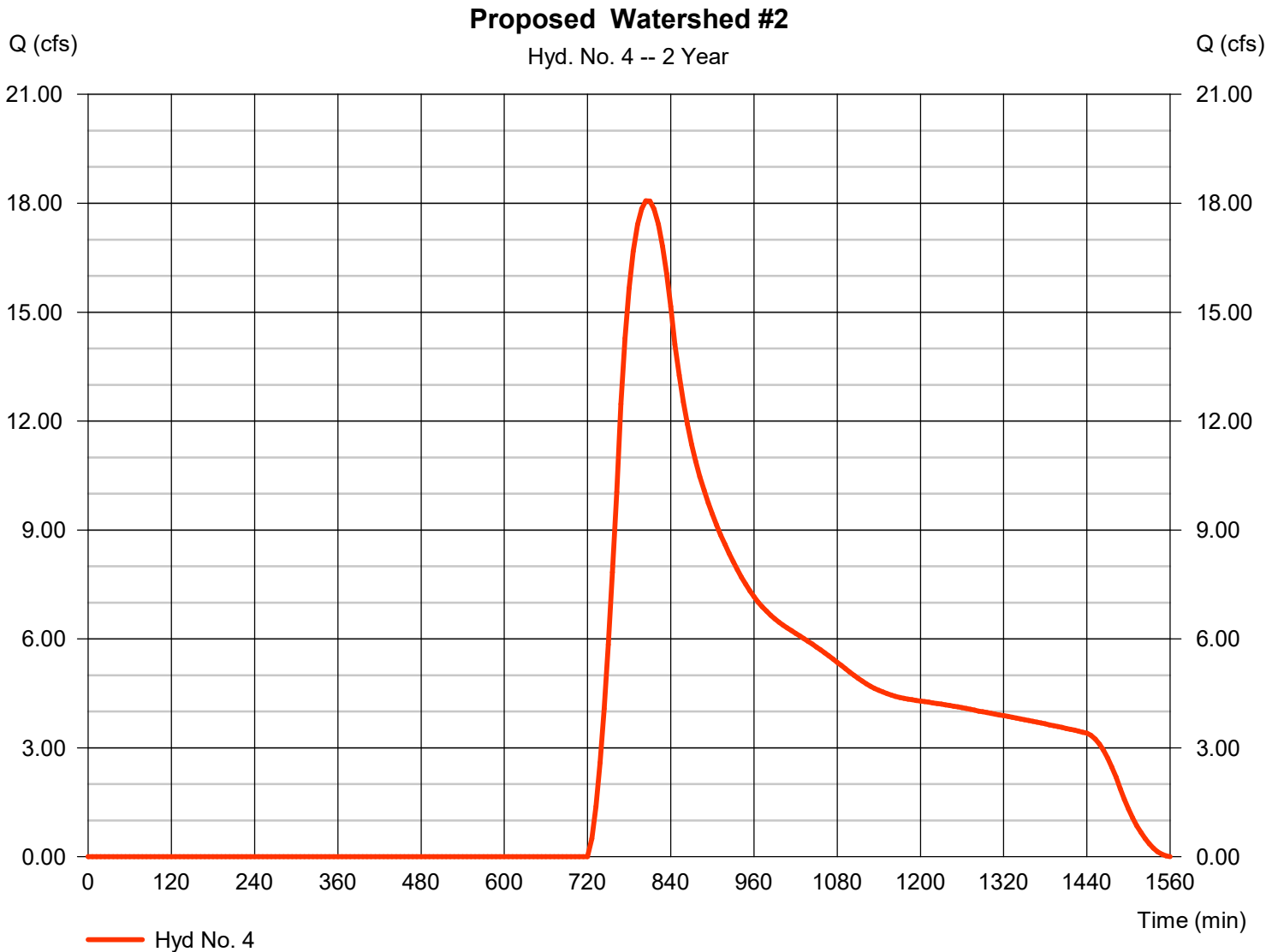
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 18.07 cfs
Storm frequency	= 2 yrs	Time to peak	= 804 min
Time interval	= 6 min	Hyd. volume	= 302,172 cuft
Drainage area	= 257.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 3.45 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = $[(0.850 \times 61) + (1.000 \times 98) + (255.150 \times 55)] / 257.000$

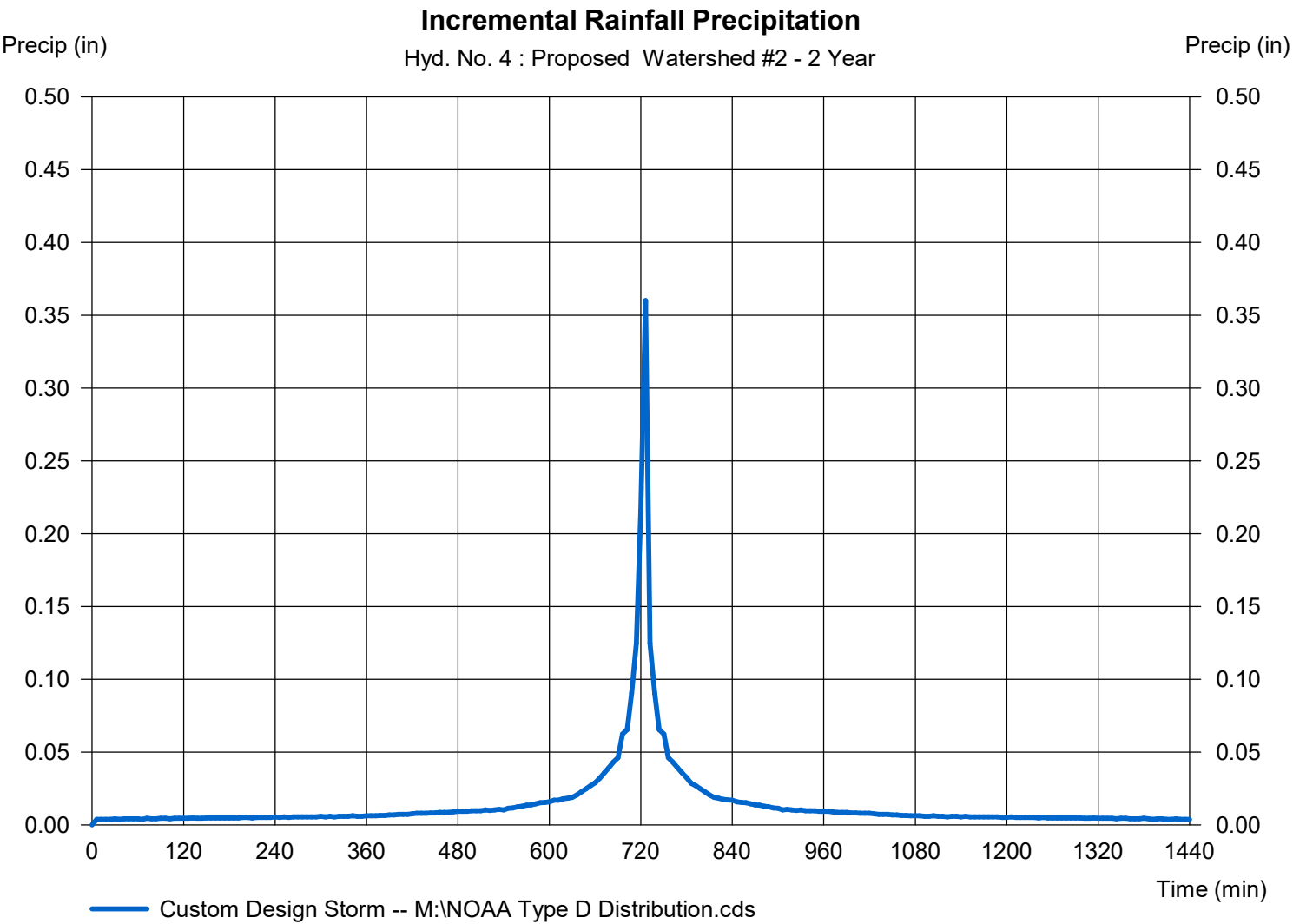


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 2 yrs	Time interval	= 6 min
Total precip.	= 3.4500 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	30.69	6	762	312,529	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	47.71	6	792	628,622	-----	-----	-----	Existing watershed #2
3	SCS Runoff	30.69	6	762	312,529	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	47.71	6	792	628,622	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 5 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

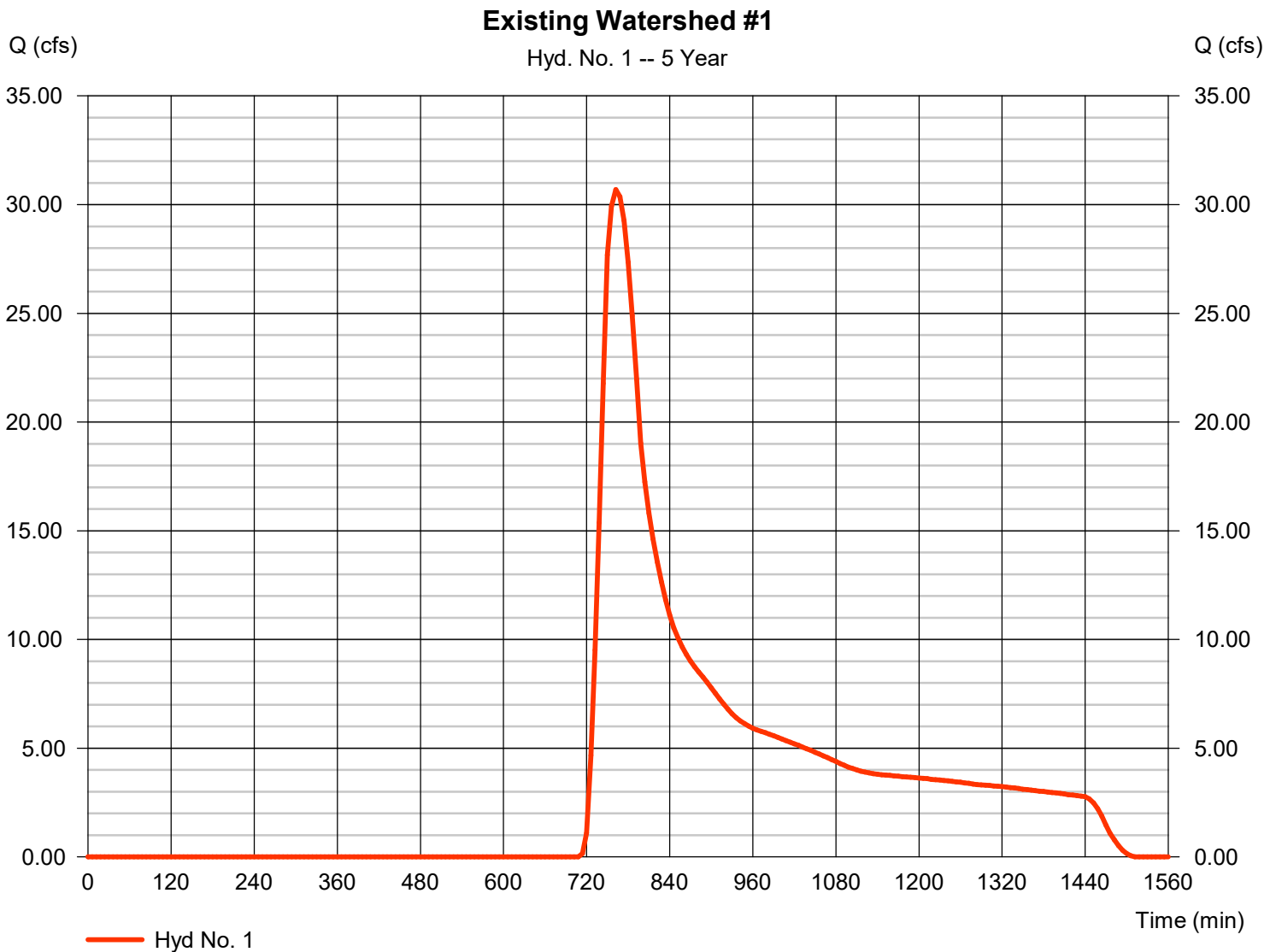
Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 30.69 cfs
Storm frequency	= 5 yrs	Time to peak	= 762 min
Time interval	= 6 min	Hyd. volume	= 312,529 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 4.37 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = $[(129.000 \times 55)] / 129.000$

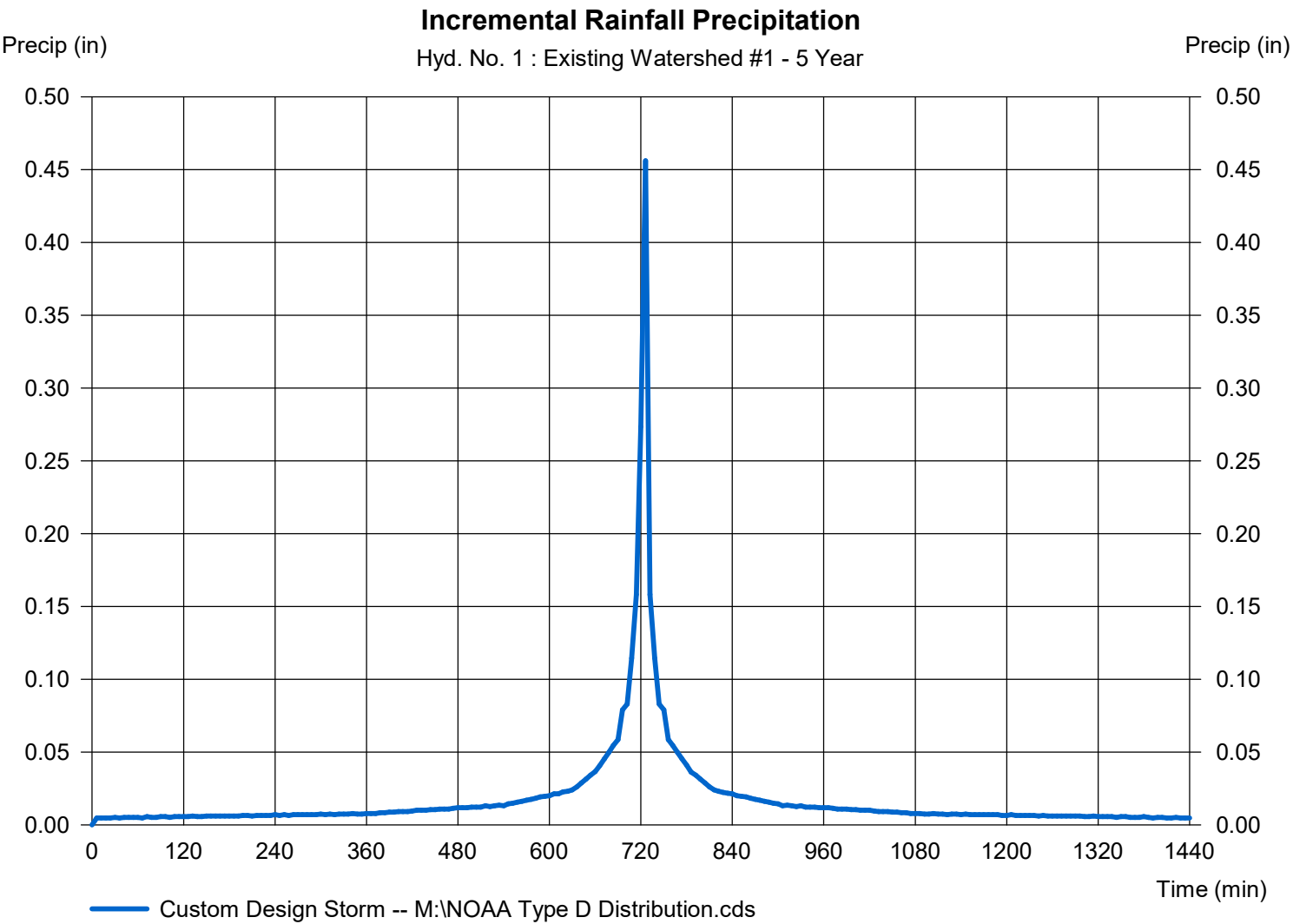


Precipitation Report

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 5 yrs	Time interval	= 6 min
Total precip.	= 4.3700 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		

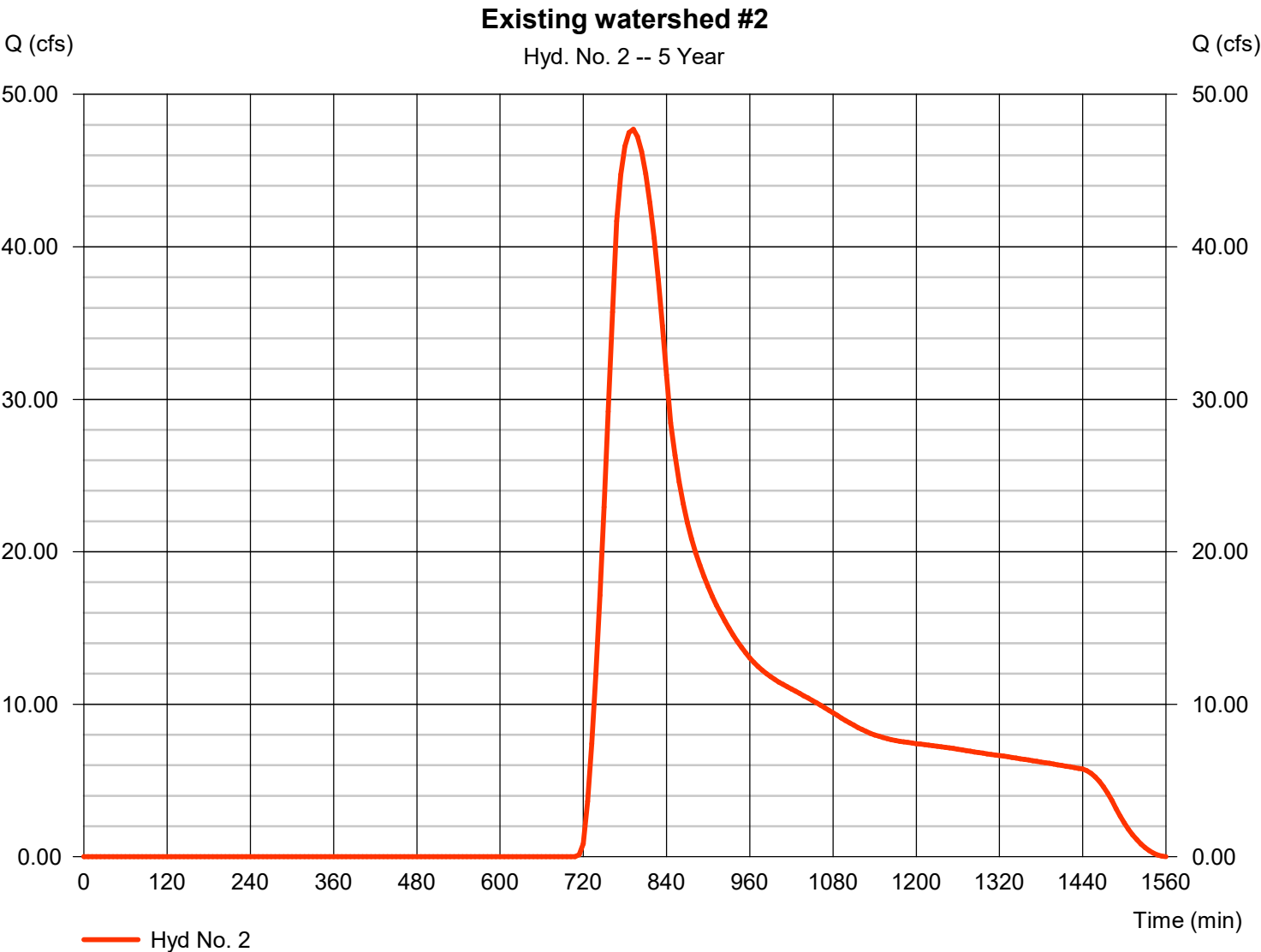


Hydrograph Report

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 47.71 cfs
Storm frequency	= 5 yrs	Time to peak	= 792 min
Time interval	= 6 min	Hyd. volume	= 628,622 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 4.37 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

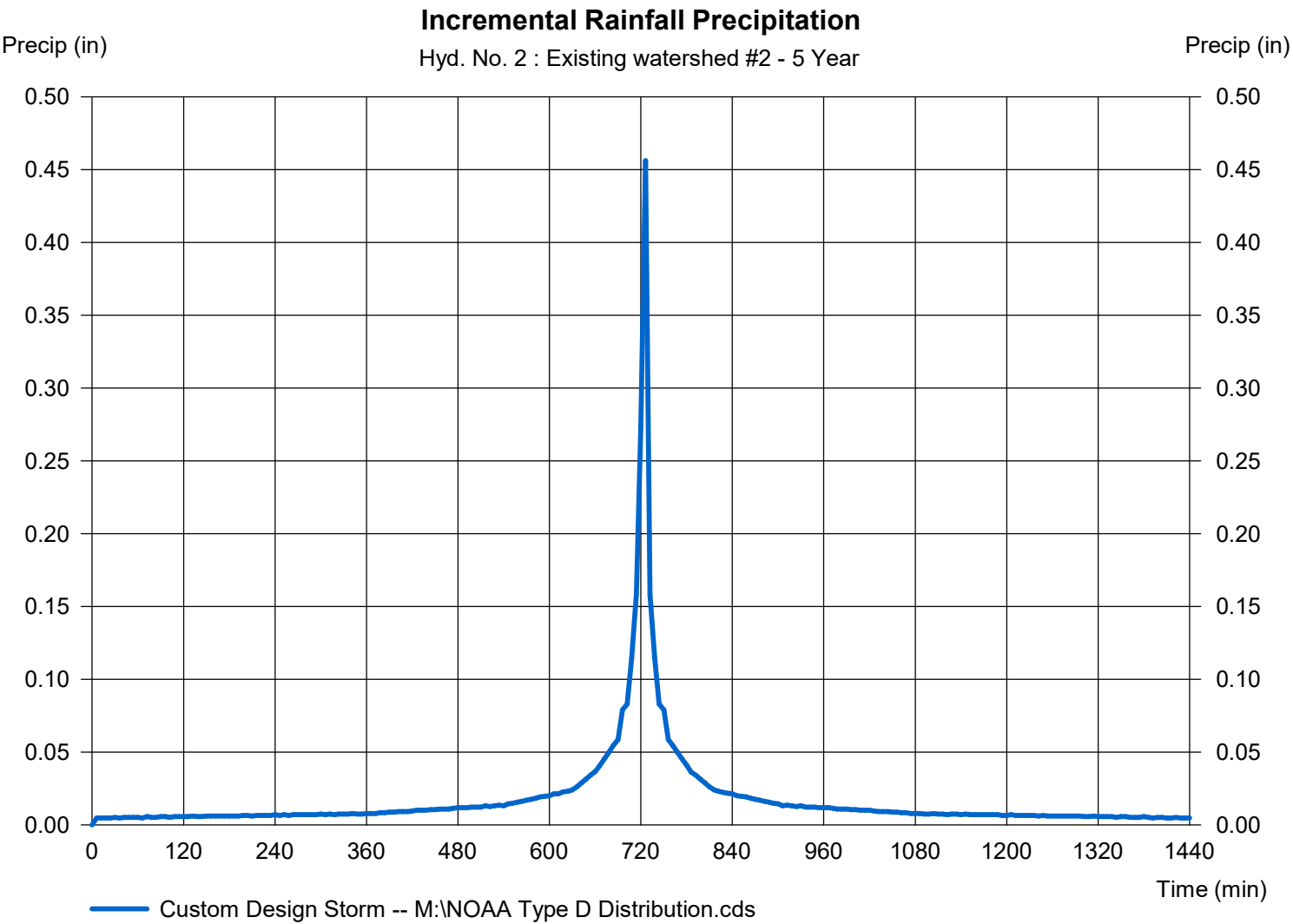


Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 5 yrs	Time interval	= 6 min
Total precip.	= 4.3700 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

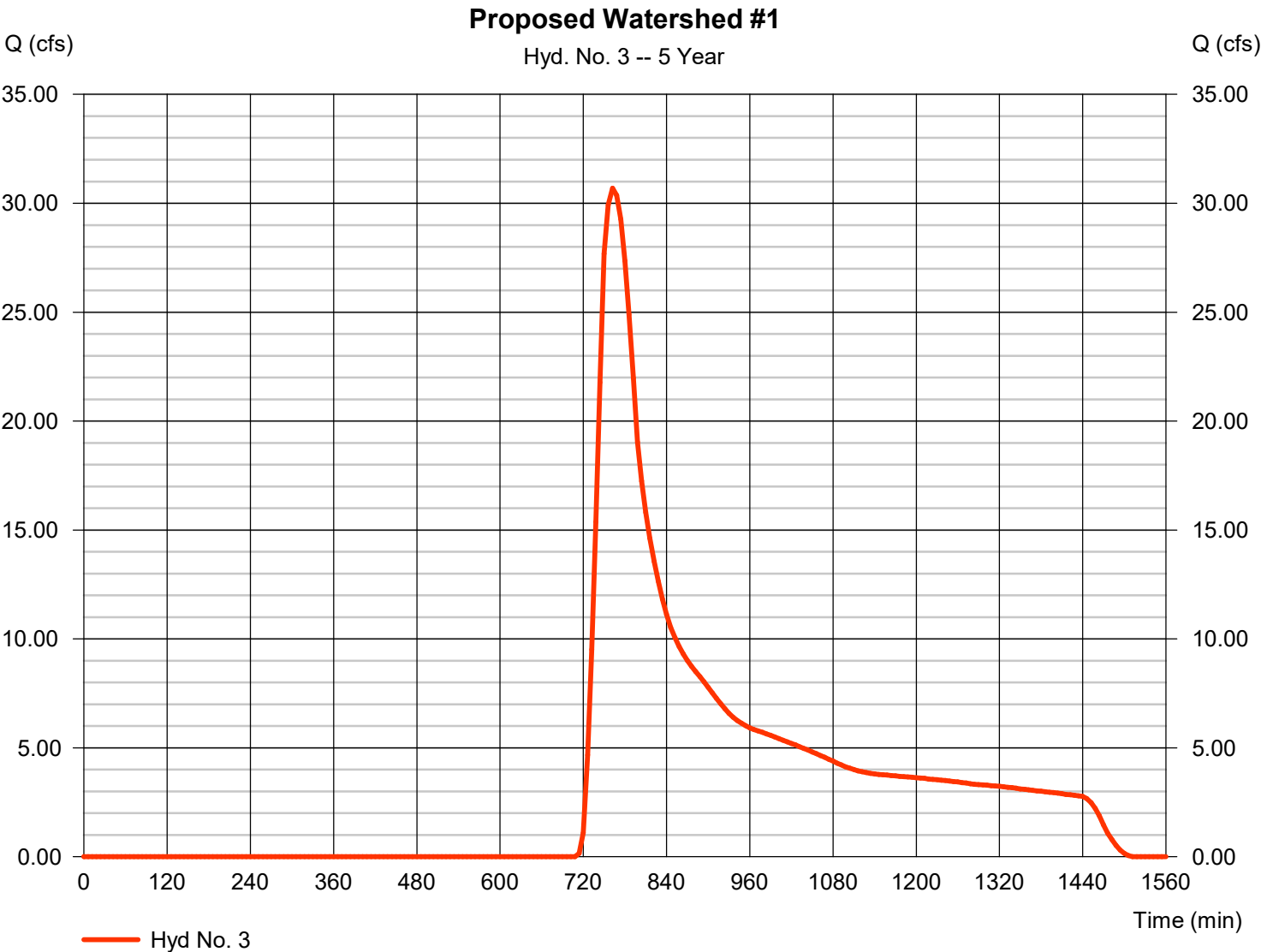
Tuesday, 04 / 8 / 2025

Hyd. No. 3

Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 30.69 cfs
Storm frequency	= 5 yrs	Time to peak	= 762 min
Time interval	= 6 min	Hyd. volume	= 312,529 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 4.37 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

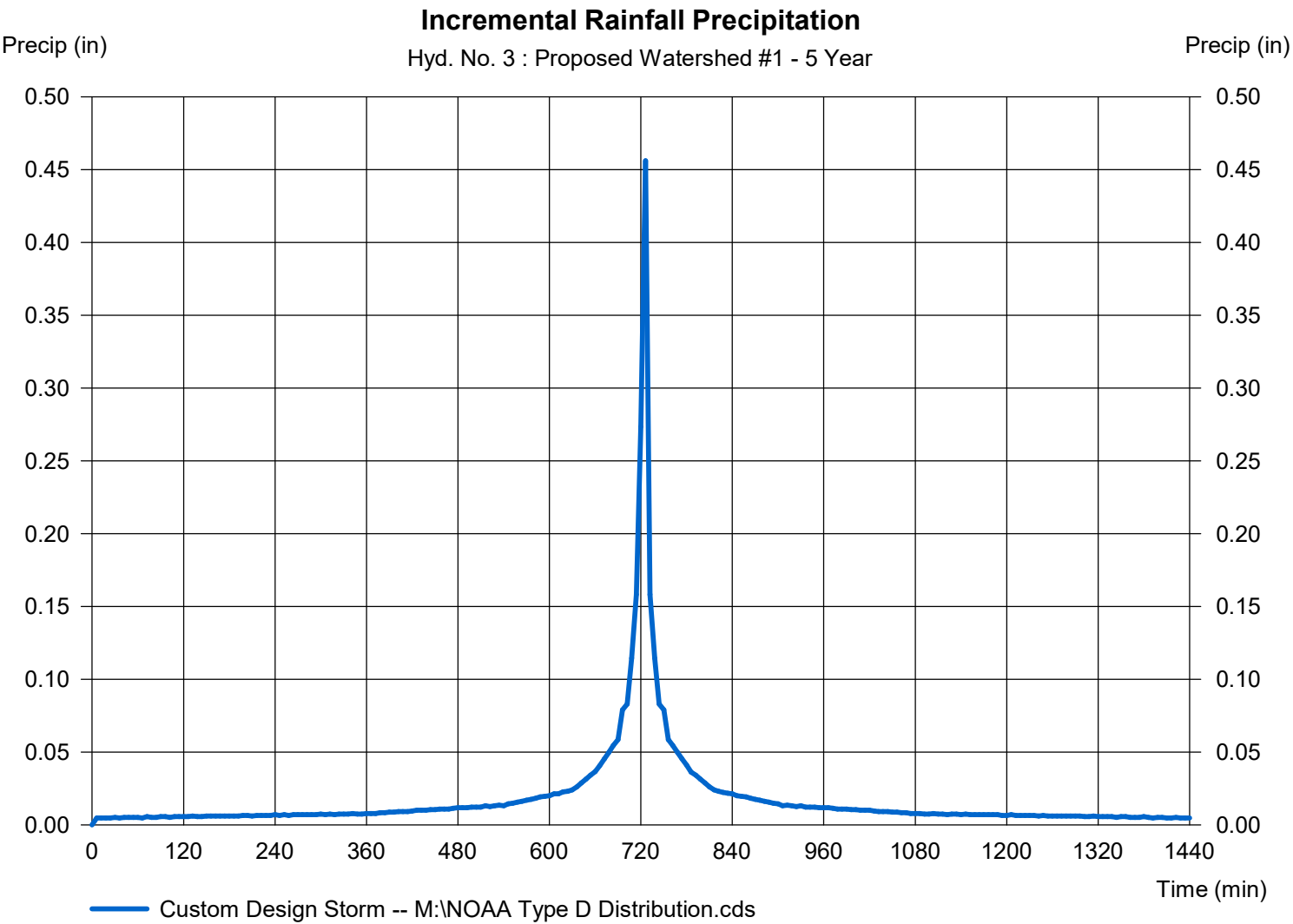


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 5 yrs	Time interval	= 6 min
Total precip.	= 4.3700 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

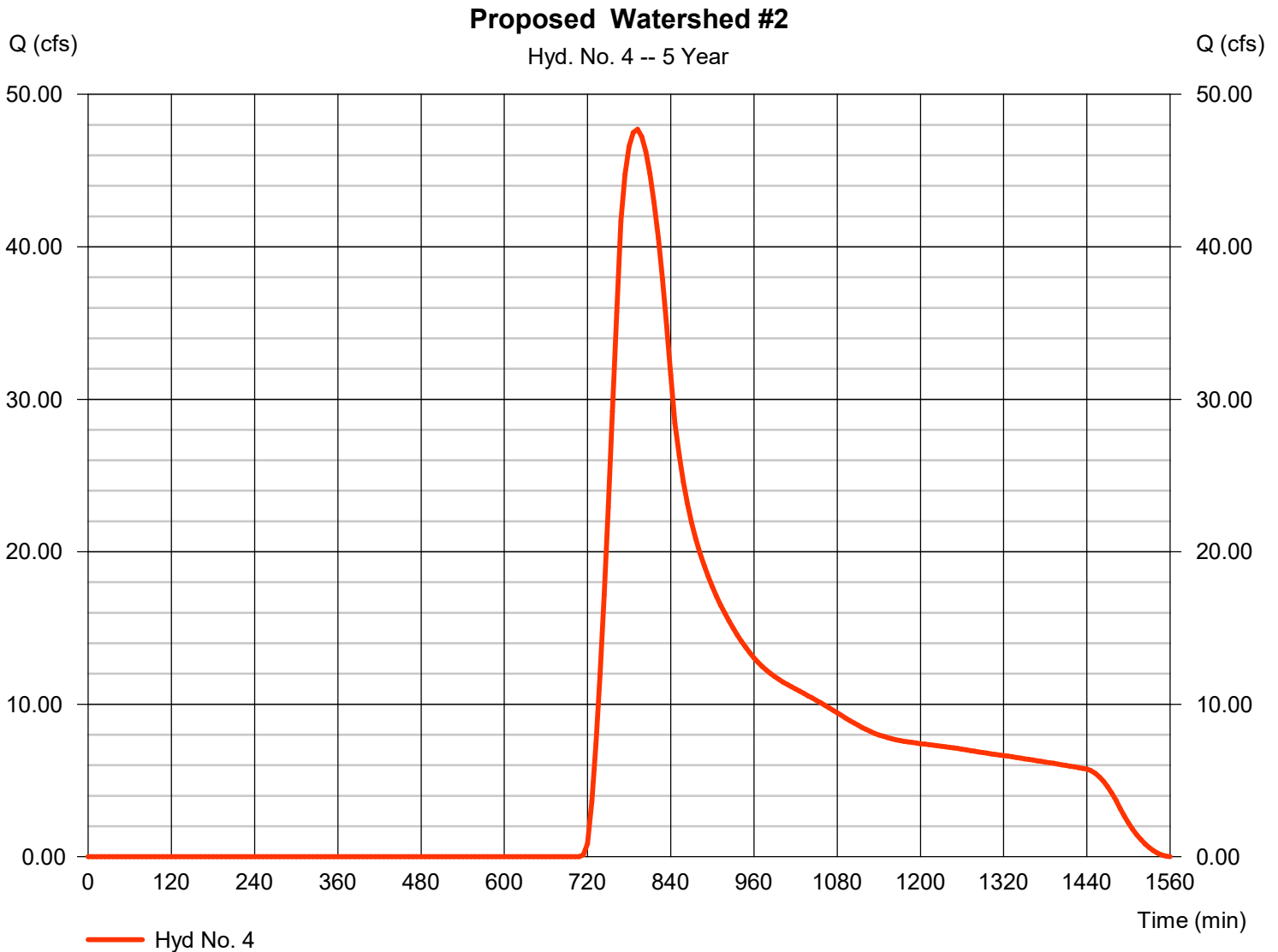
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 47.71 cfs
Storm frequency	= 5 yrs	Time to peak	= 792 min
Time interval	= 6 min	Hyd. volume	= 628,622 cuft
Drainage area	= 257.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 4.37 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

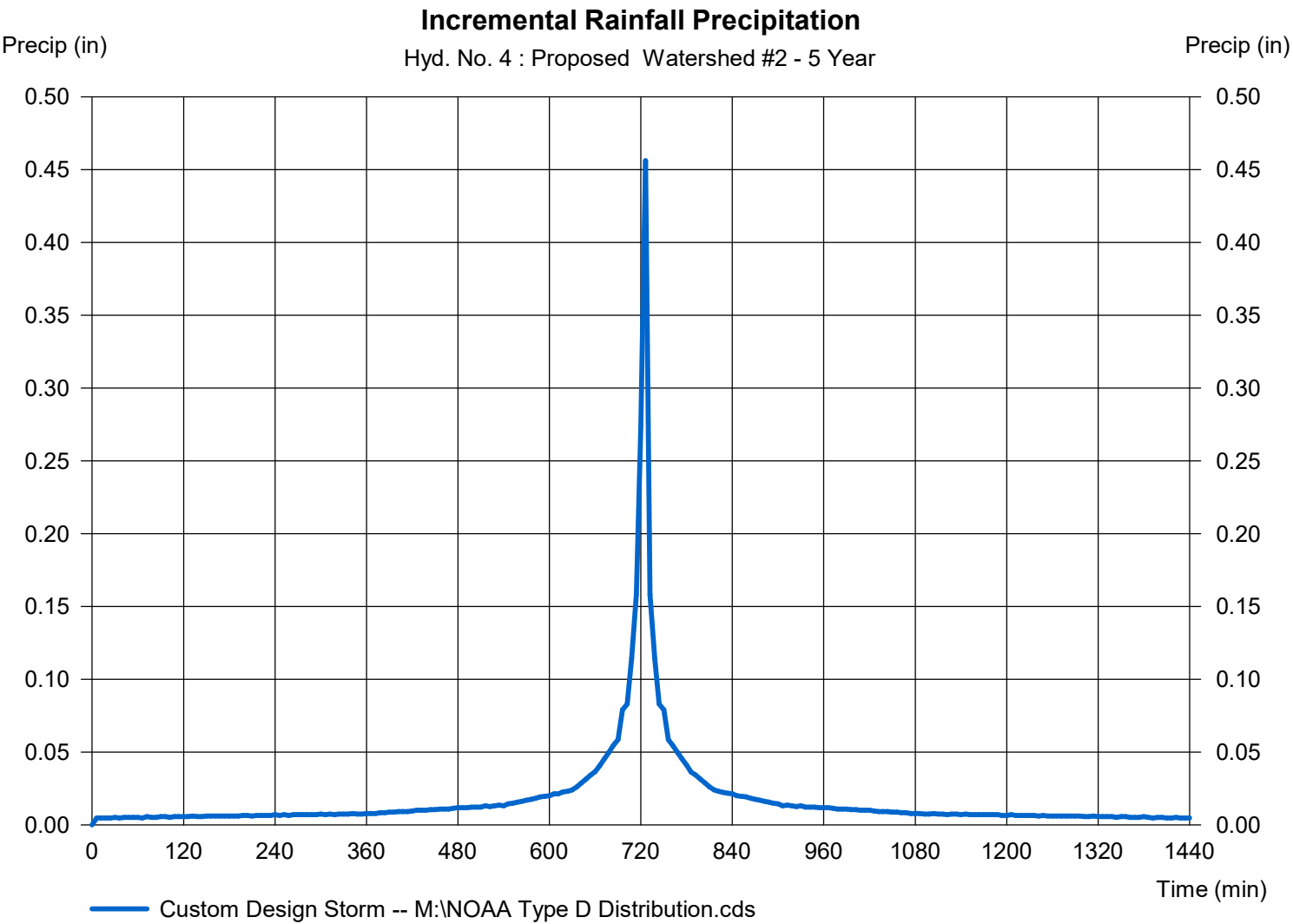


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 5 yrs	Time interval	= 6 min
Total precip.	= 4.3700 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	53.72	6	756	479,613	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	81.68	6	786	964,695	-----	-----	-----	Existing watershed #2
3	SCS Runoff	53.72	6	756	479,613	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	81.68	6	786	964,695	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 10 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

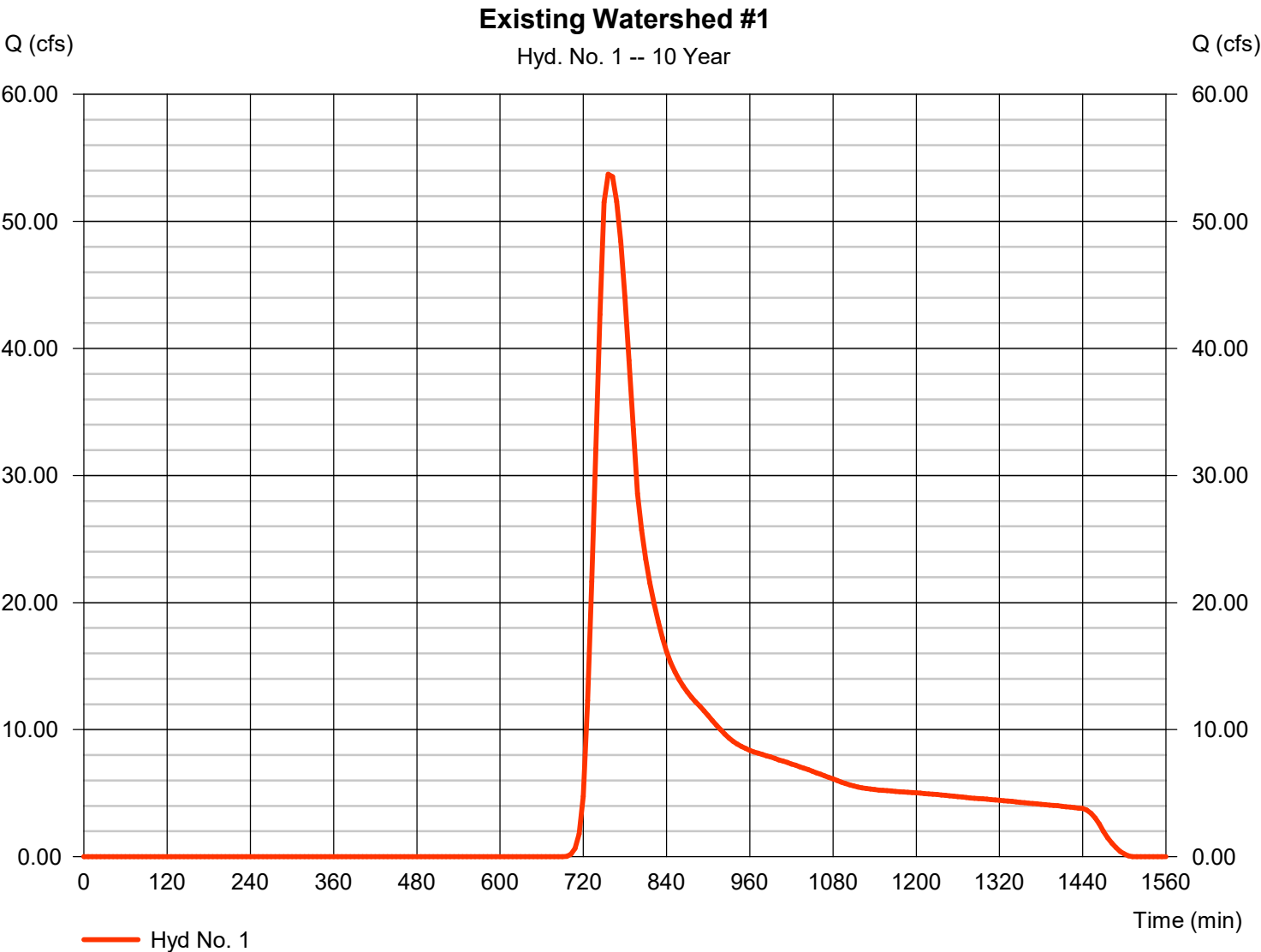
Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	53.72 cfs
Storm frequency	=	10 yrs	Time to peak	=	756 min
Time interval	=	6 min	Hyd. volume	=	479,613 cuft
Drainage area	=	129.000 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	46.90 min
Total precip.	=	5.14 in	Distribution	=	Custom
Storm duration	=	M:\NOAA Type D Distribution.01	Shape factor	=	484

* Composite (Area/CN) = [(129.000 x 55)] / 129.000

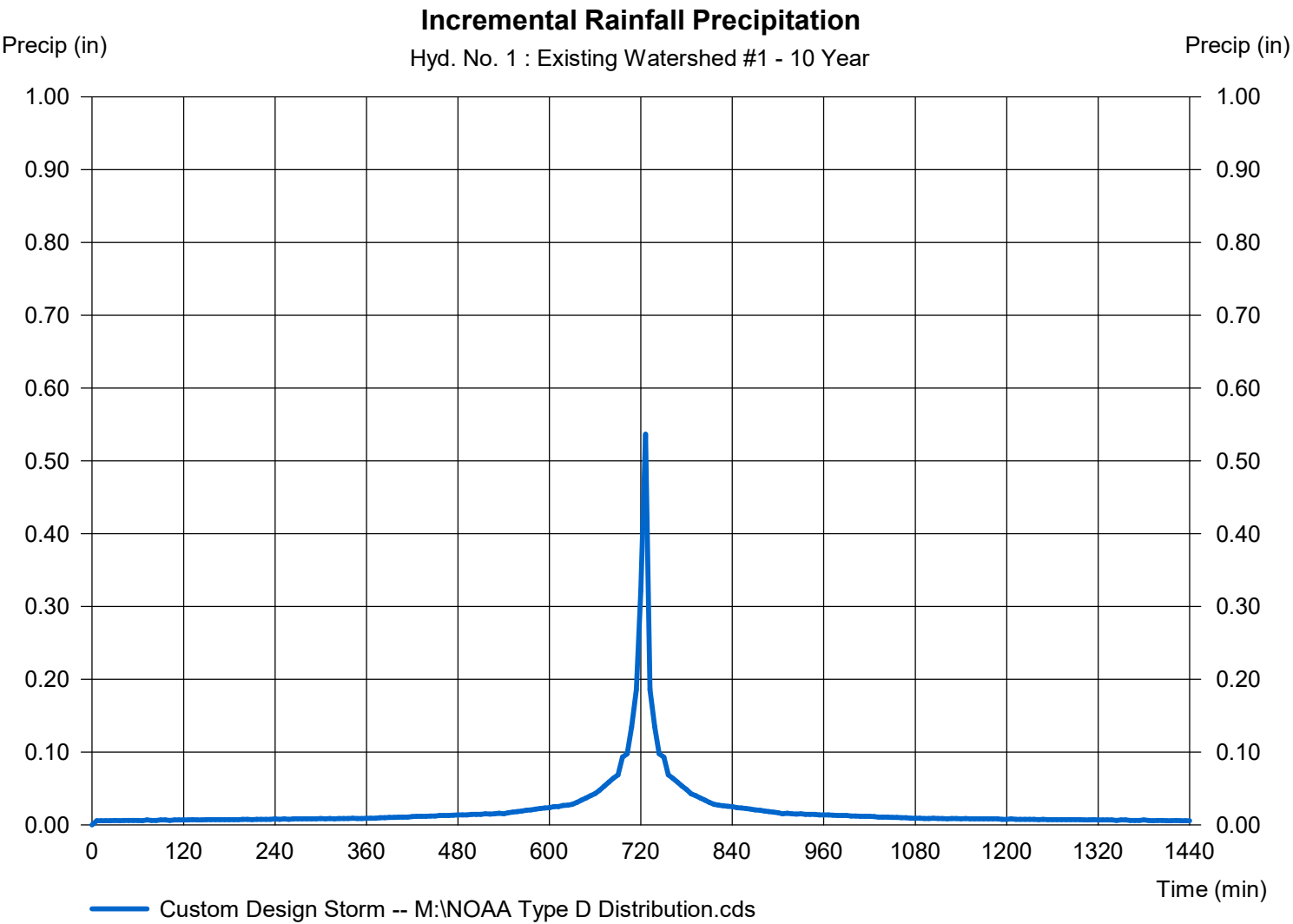


Precipitation Report

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 10 yrs	Time interval	= 6 min
Total precip.	= 5.1400 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		

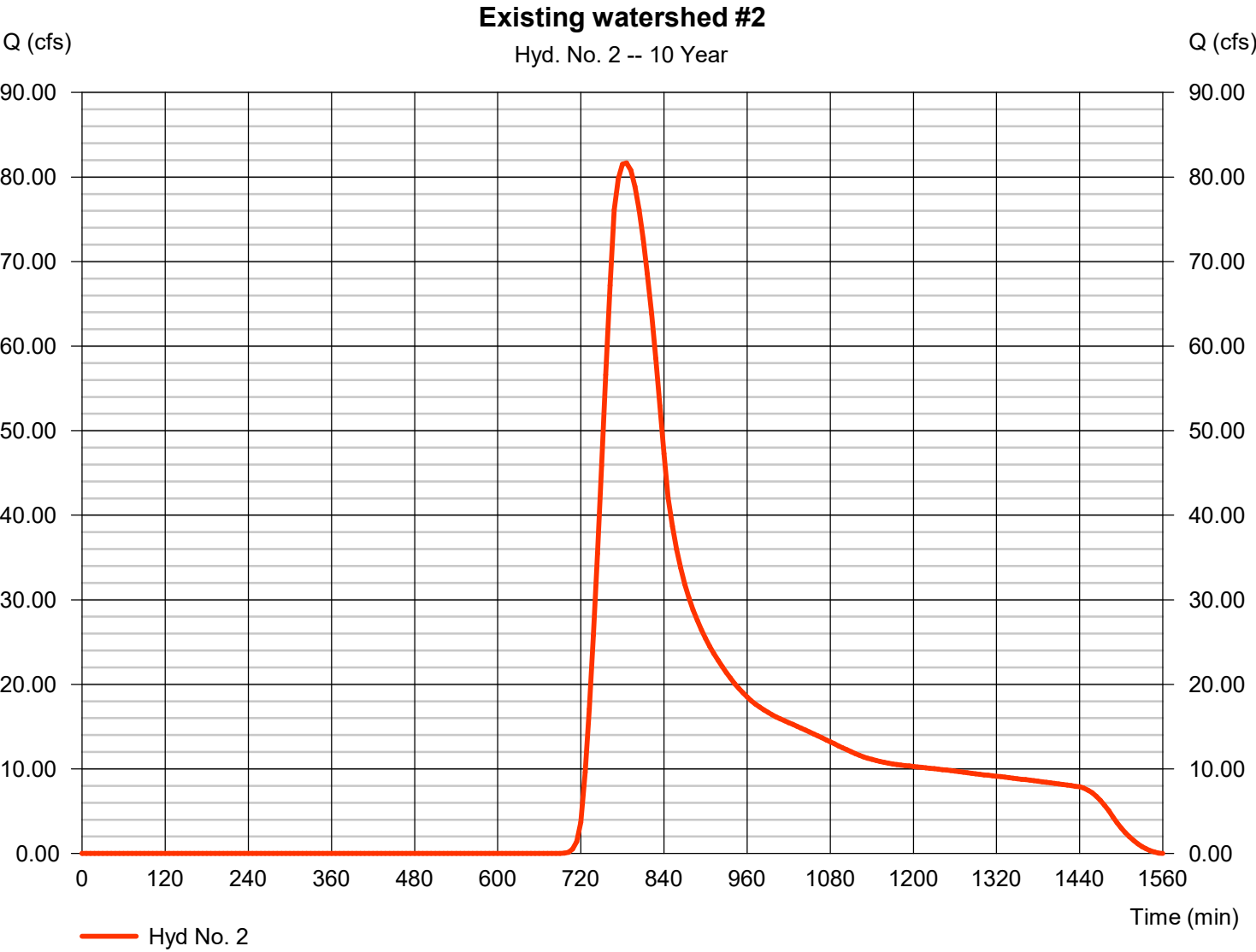


Hydrograph Report

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 81.68 cfs
Storm frequency	= 10 yrs	Time to peak	= 786 min
Time interval	= 6 min	Hyd. volume	= 964,695 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 5.14 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.xls	Shape factor	= 484

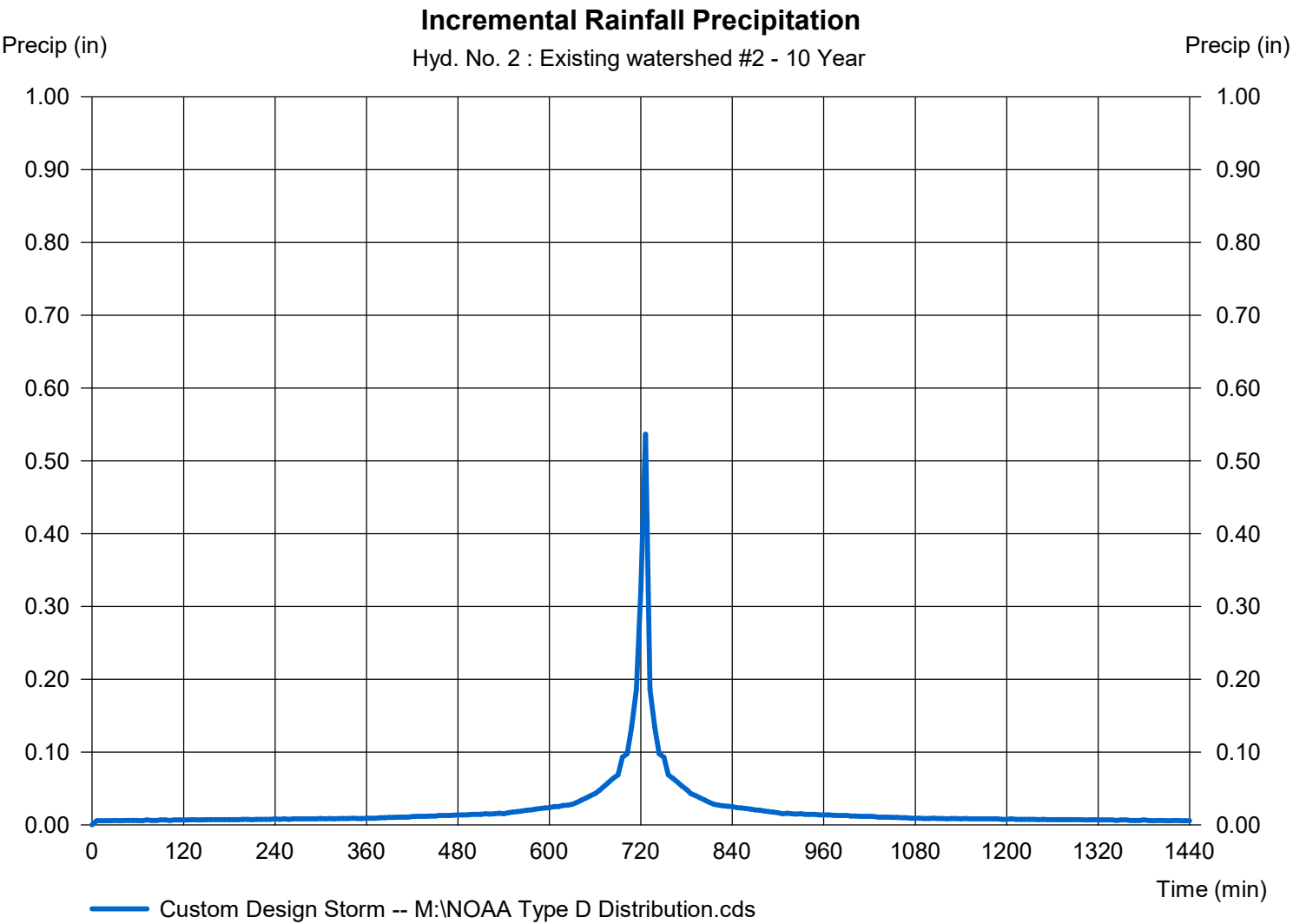


Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 10 yrs	Time interval	= 6 min
Total precip.	= 5.1400 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



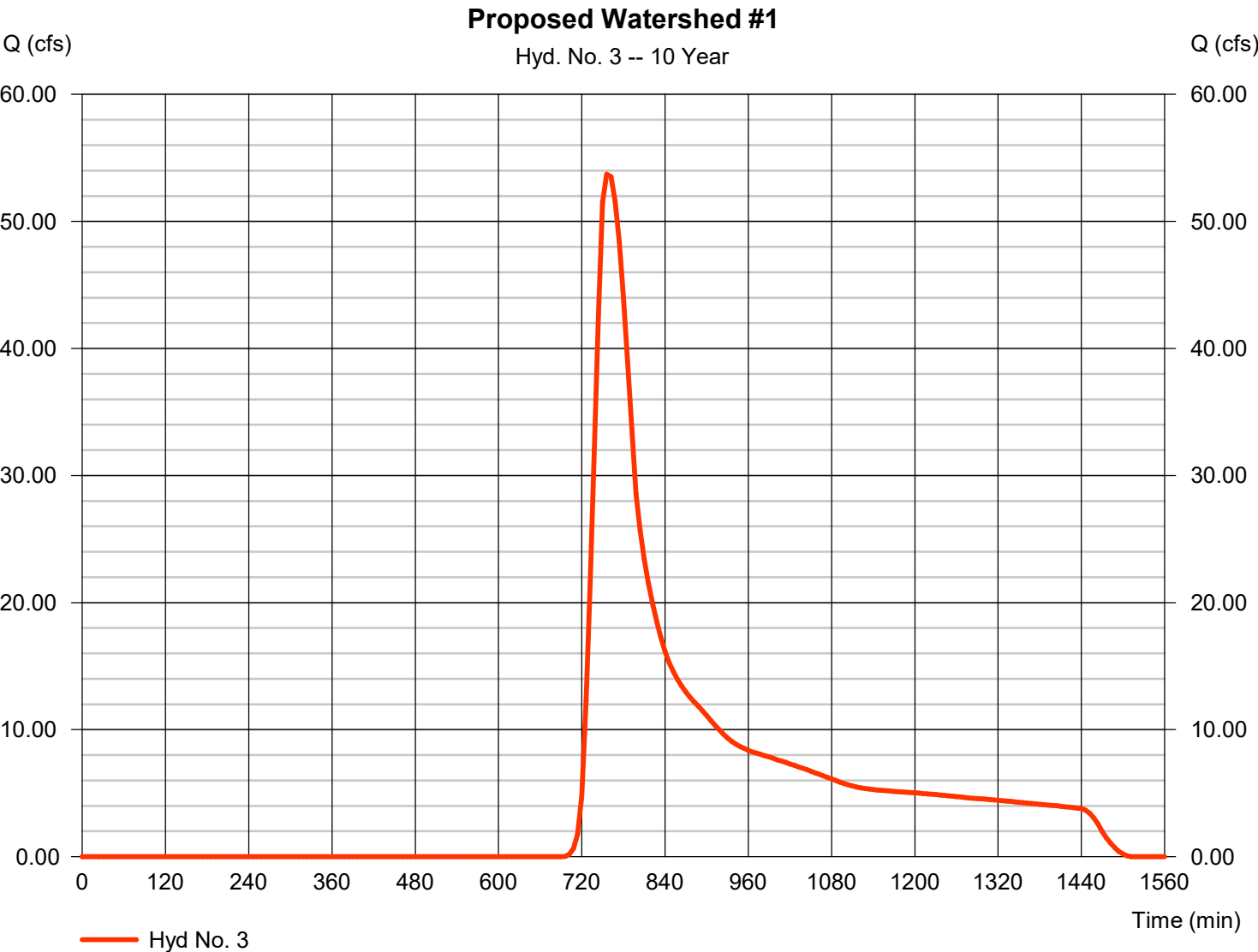
Hydrograph Report

Hyd. No. 3

Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 53.72 cfs
Storm frequency	= 10 yrs	Time to peak	= 756 min
Time interval	= 6 min	Hyd. volume	= 479,613 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 5.14 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

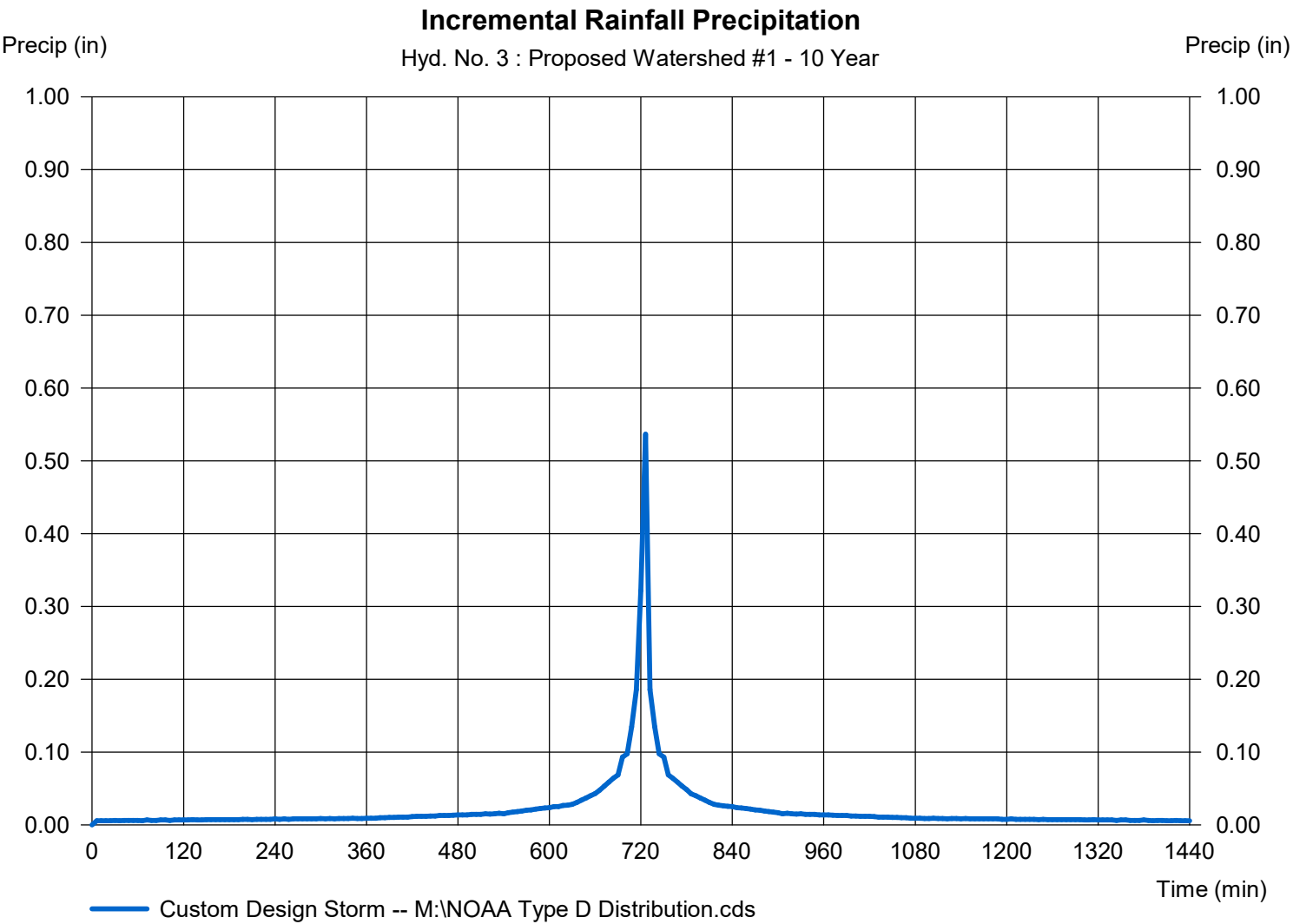


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 10 yrs	Time interval	= 6 min
Total precip.	= 5.1400 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

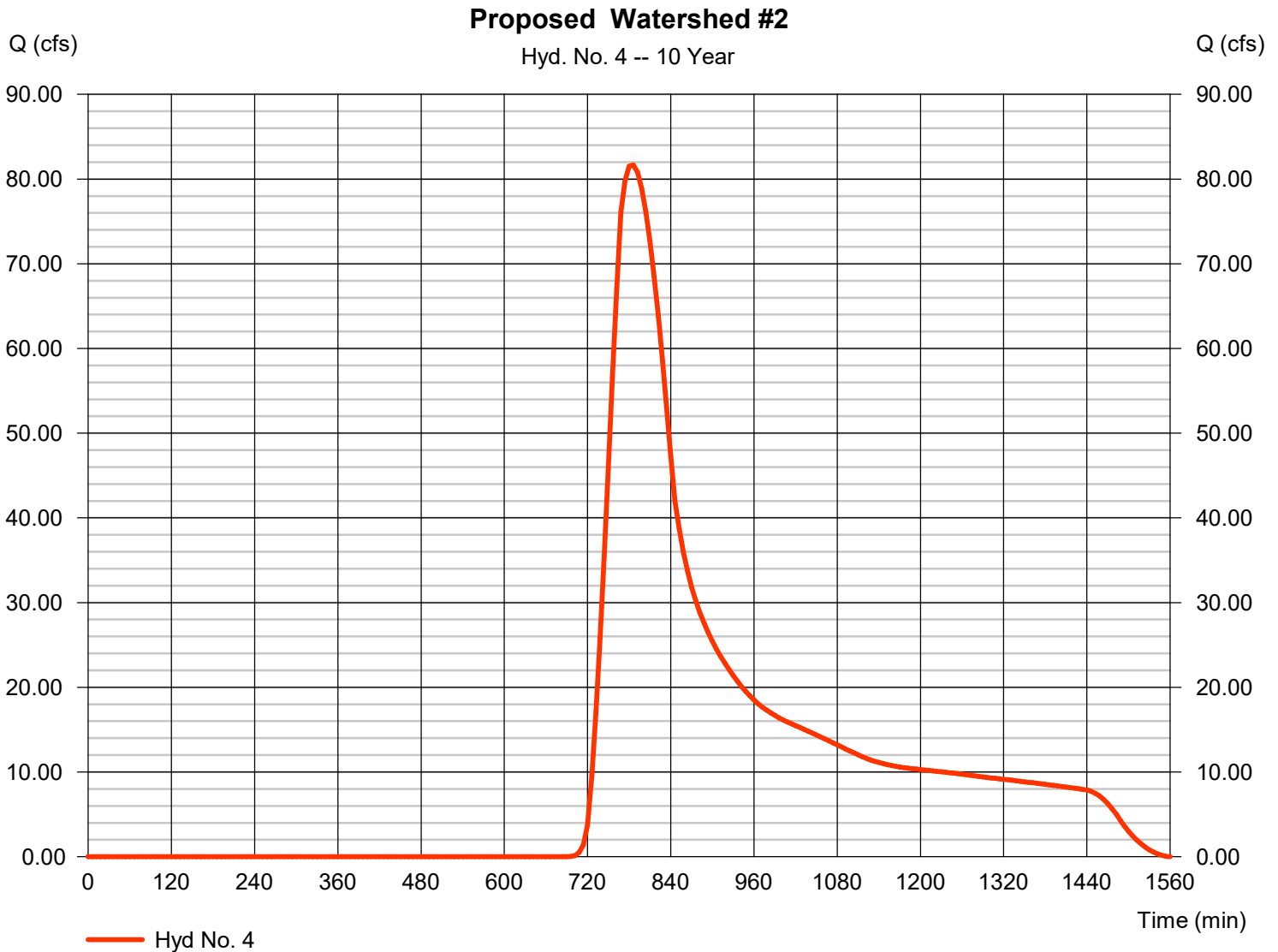
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 81.68 cfs
Storm frequency	= 10 yrs	Time to peak	= 786 min
Time interval	= 6 min	Hyd. volume	= 964,695 cuft
Drainage area	= 257.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 5.14 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

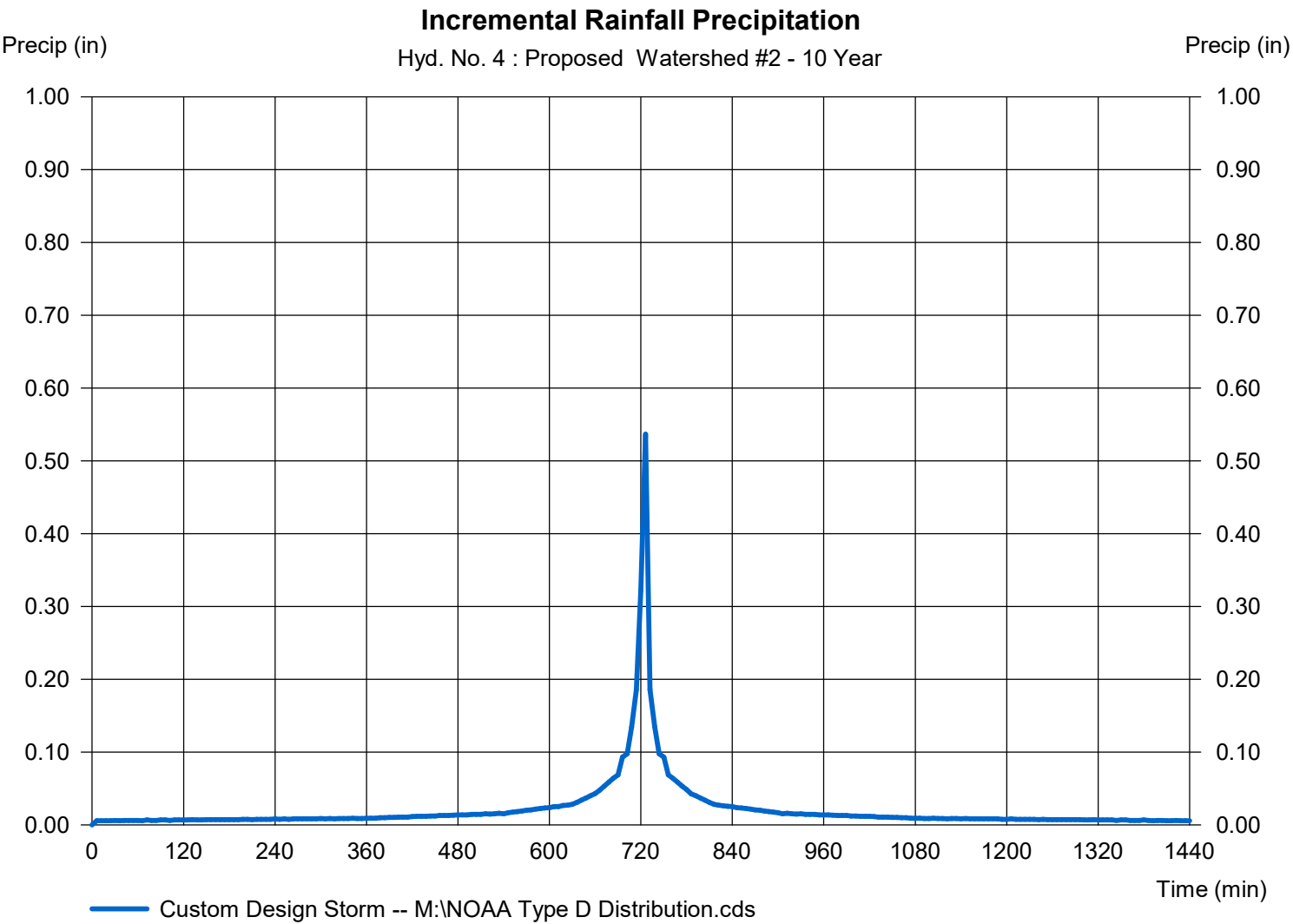


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 10 yrs	Time interval	= 6 min
Total precip.	= 5.1400 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	91.80	6	756	743,326	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	138.27	6	780	1,495,130	-----	-----	-----	Existing watershed #2
3	SCS Runoff	91.80	6	756	743,326	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	138.27	6	780	1,495,130	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 25 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

Tuesday, 04 / 8 / 2025

Hyd. No. 1

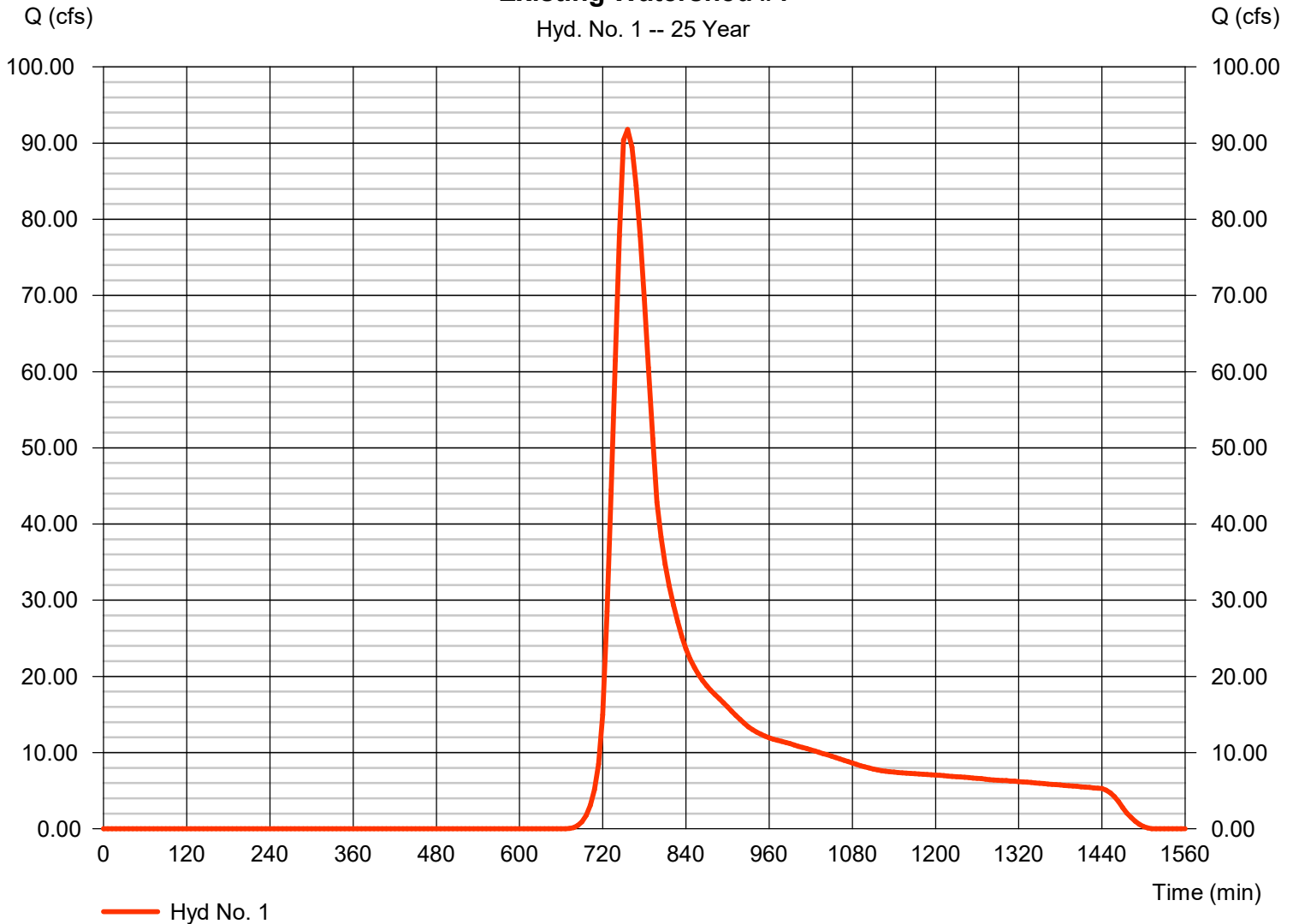
Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 91.80 cfs
Storm frequency	= 25 yrs	Time to peak	= 756 min
Time interval	= 6 min	Hyd. volume	= 743,326 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 6.19 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(129.000 x 55)] / 129.000

Existing Watershed #1

Hyd. No. 1 -- 25 Year

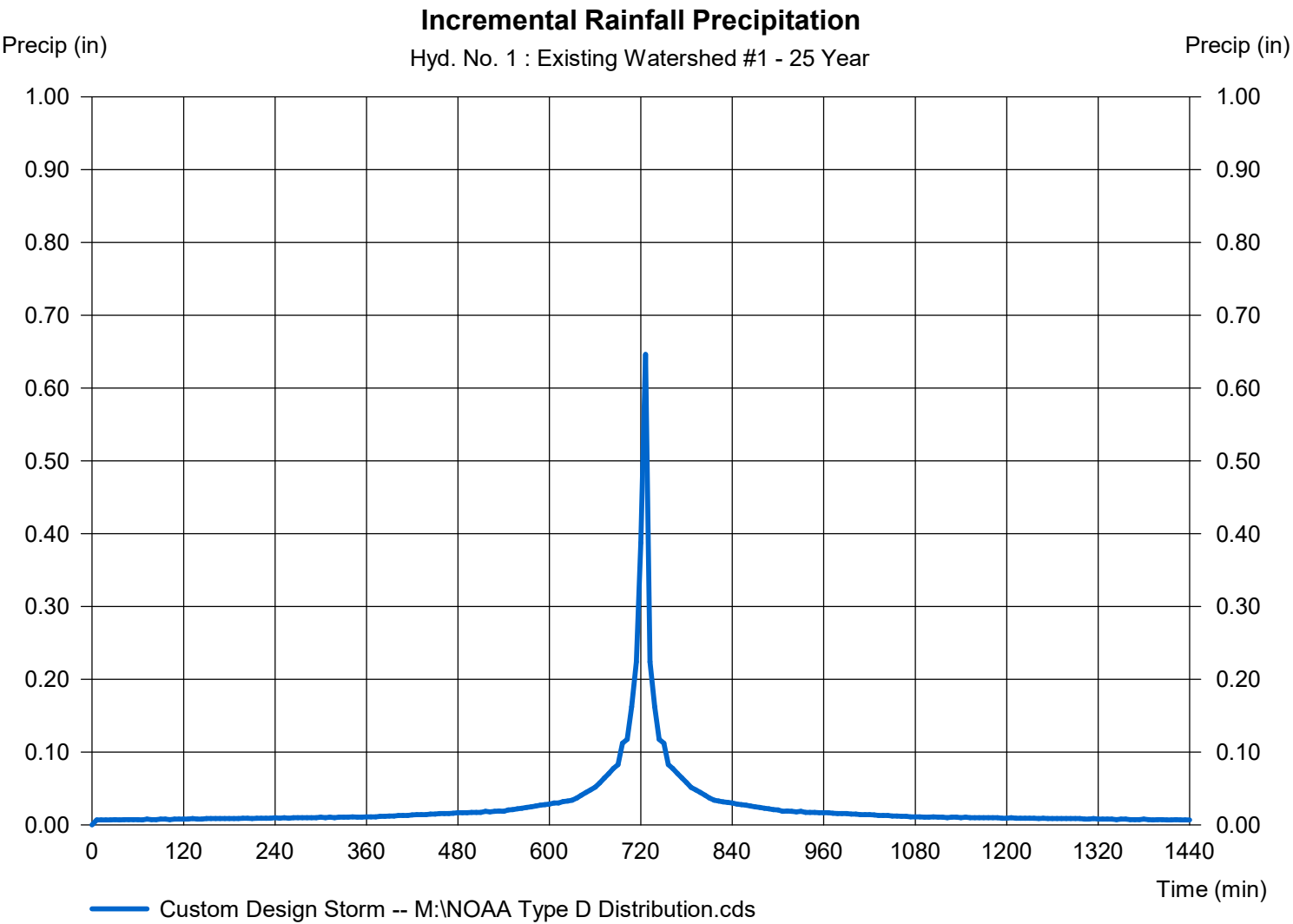


Precipitation Report

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 25 yrs	Time interval	= 6 min
Total precip.	= 6.1900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

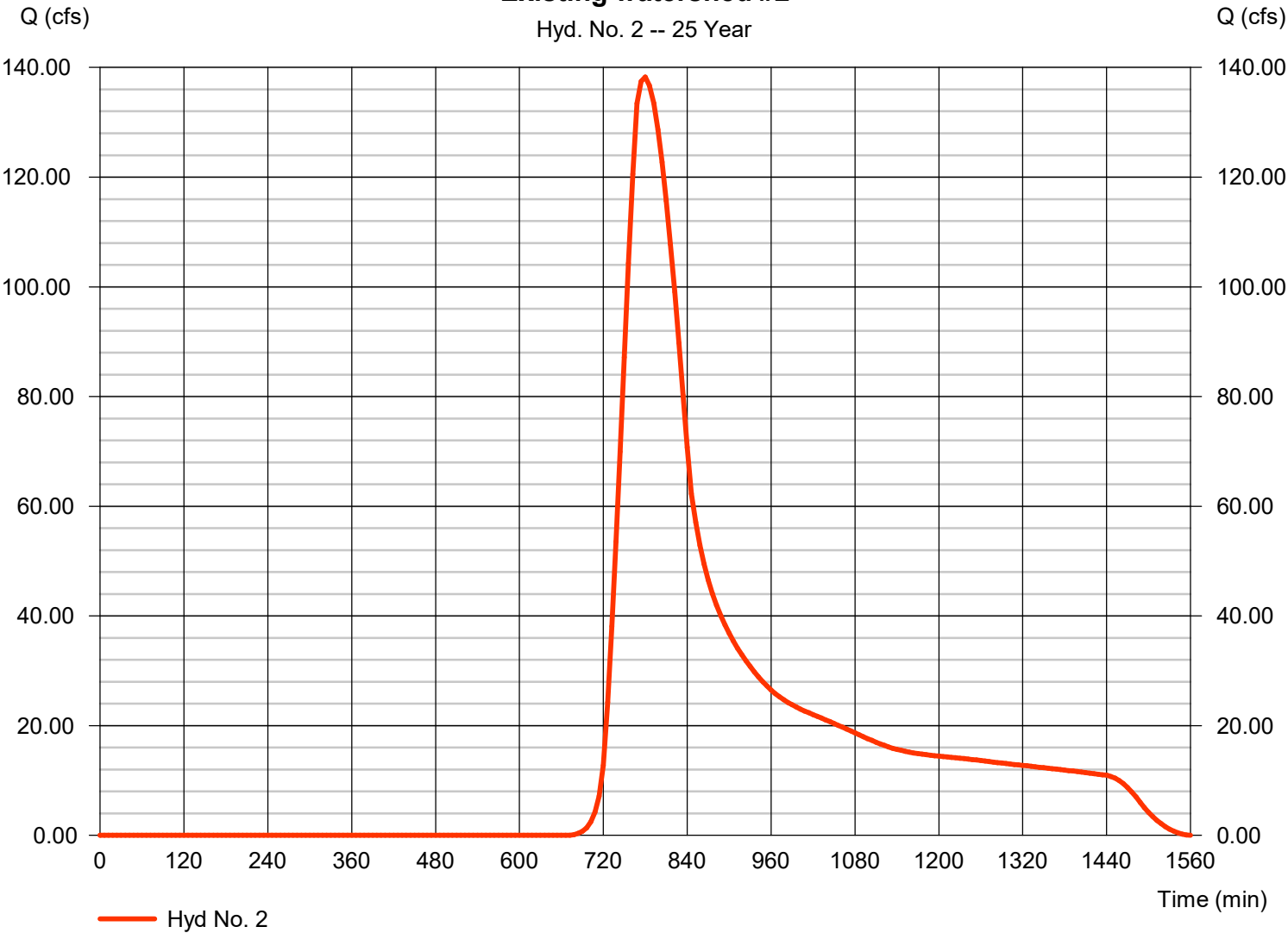
Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 138.27 cfs
Storm frequency	= 25 yrs	Time to peak	= 780 min
Time interval	= 6 min	Hyd. volume	= 1,495,130 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 6.19 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

Existing watershed #2

Hyd. No. 2 -- 25 Year

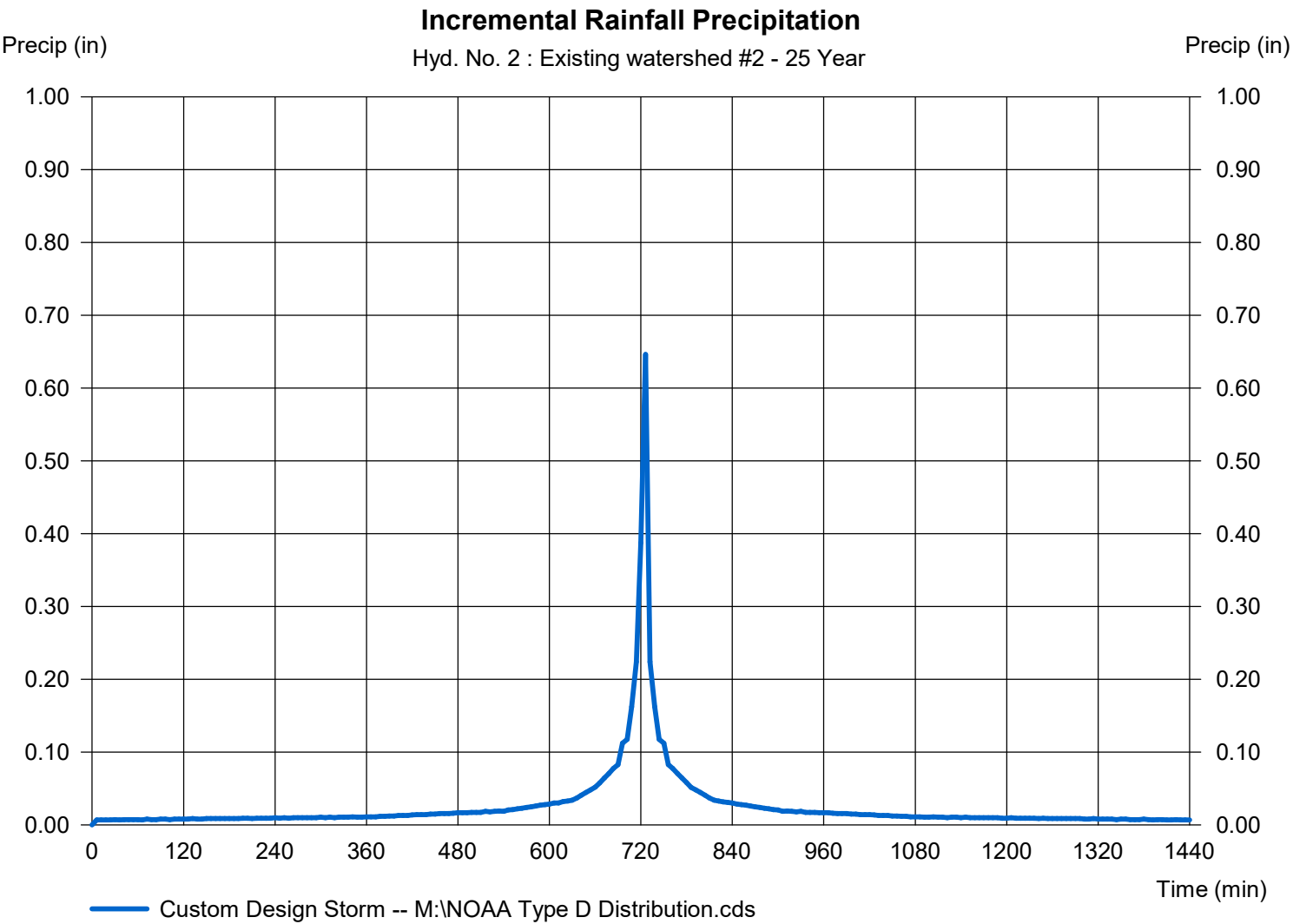


Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 25 yrs	Time interval	= 6 min
Total precip.	= 6.1900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

Hyd. No. 3

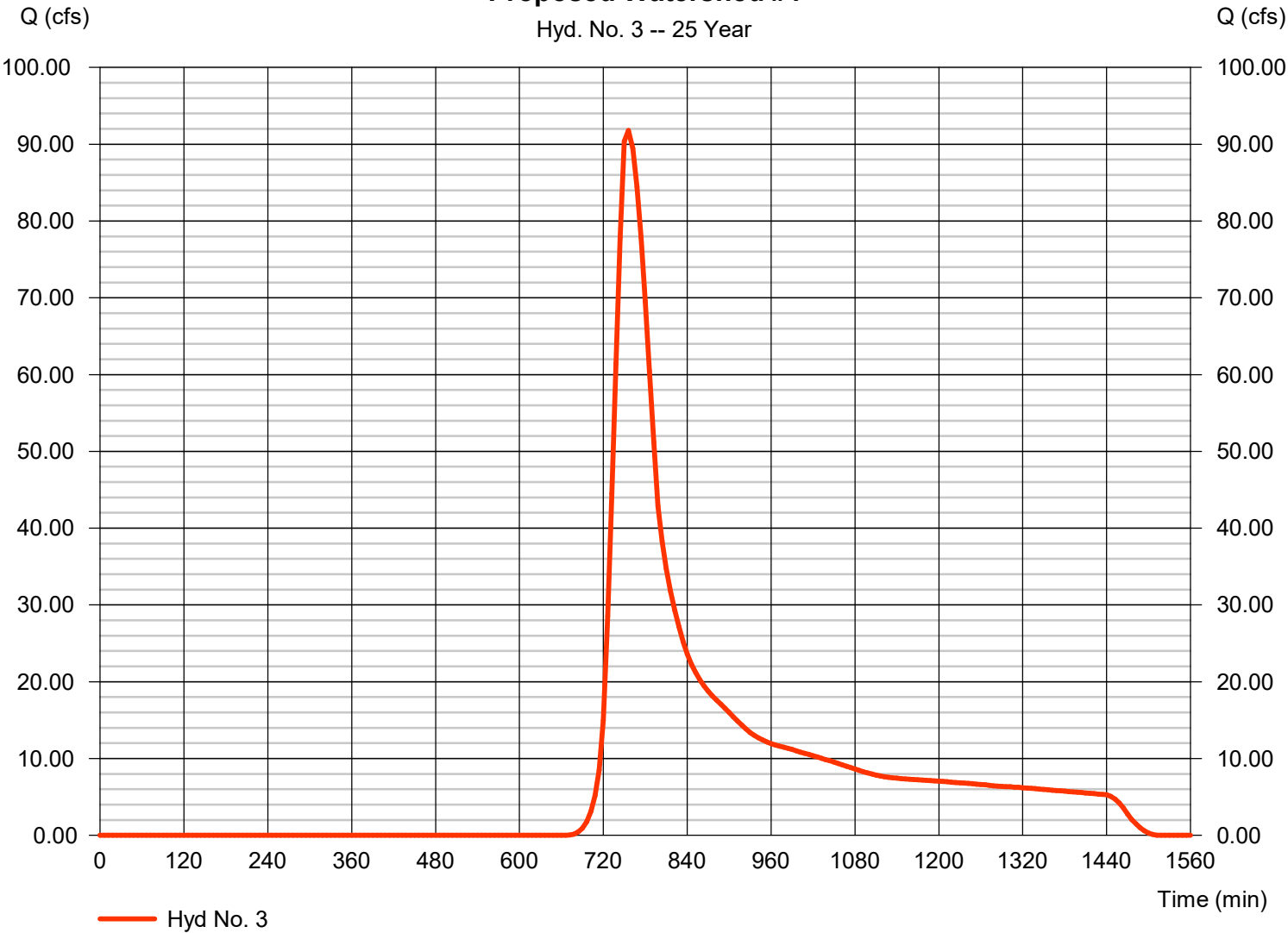
Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 91.80 cfs
Storm frequency	= 25 yrs	Time to peak	= 756 min
Time interval	= 6 min	Hyd. volume	= 743,326 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 6.19 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

Proposed Watershed #1

Hyd. No. 3 -- 25 Year

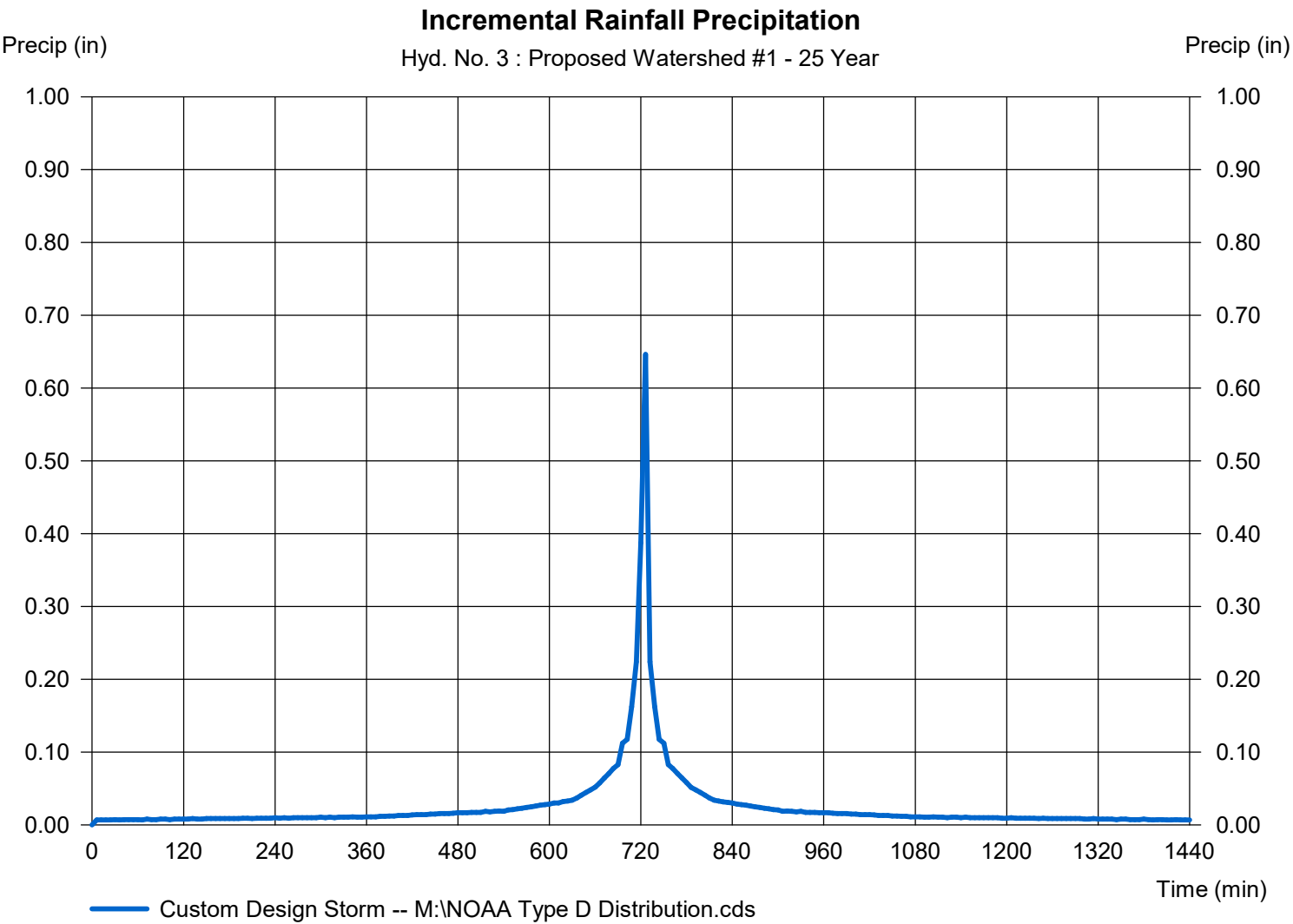


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 25 yrs	Time interval	= 6 min
Total precip.	= 6.1900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

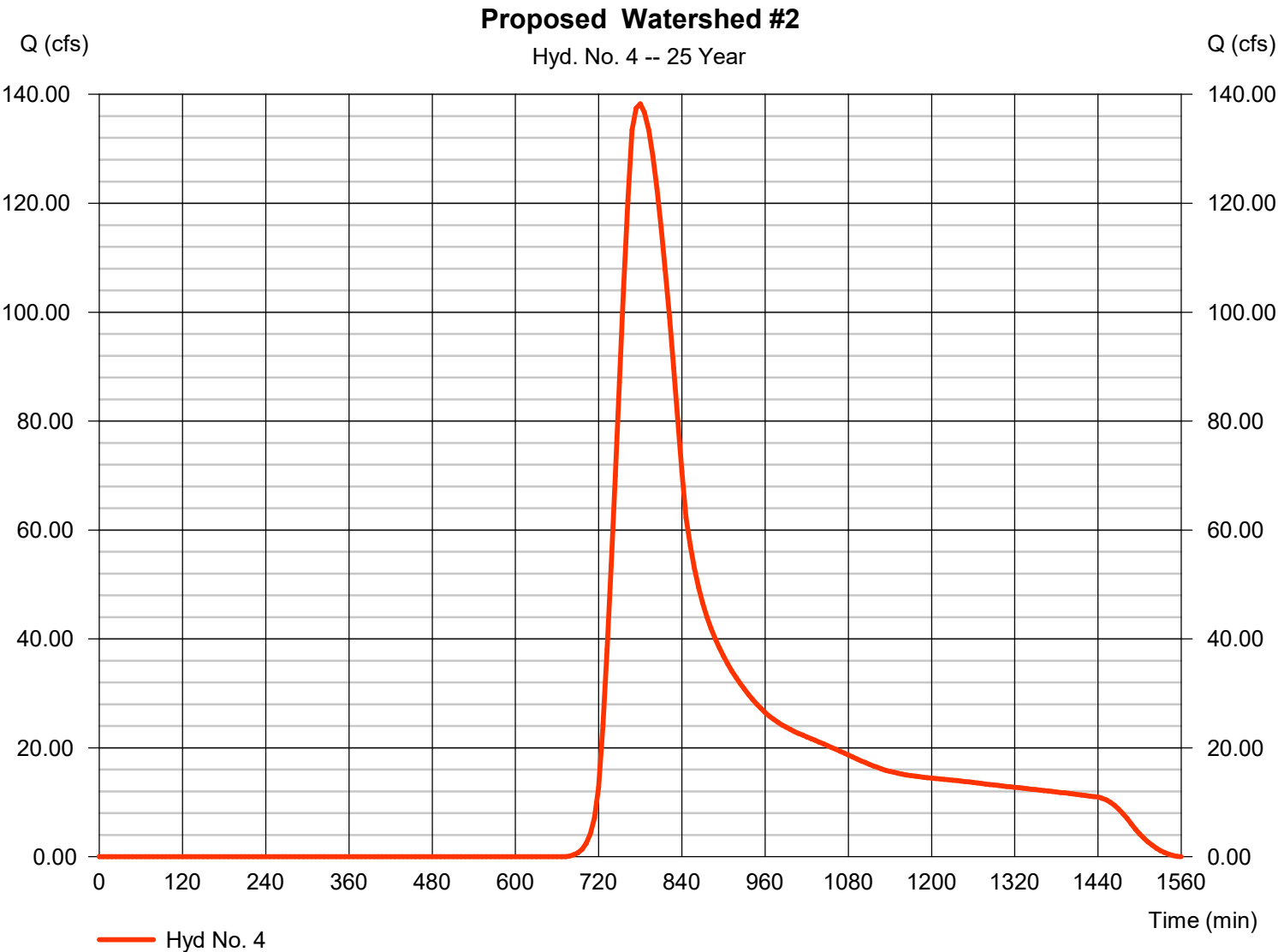
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 138.27 cfs
Storm frequency	= 25 yrs	Time to peak	= 780 min
Time interval	= 6 min	Hyd. volume	= 1,495,130 cuft
Drainage area	= 257.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 6.19 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

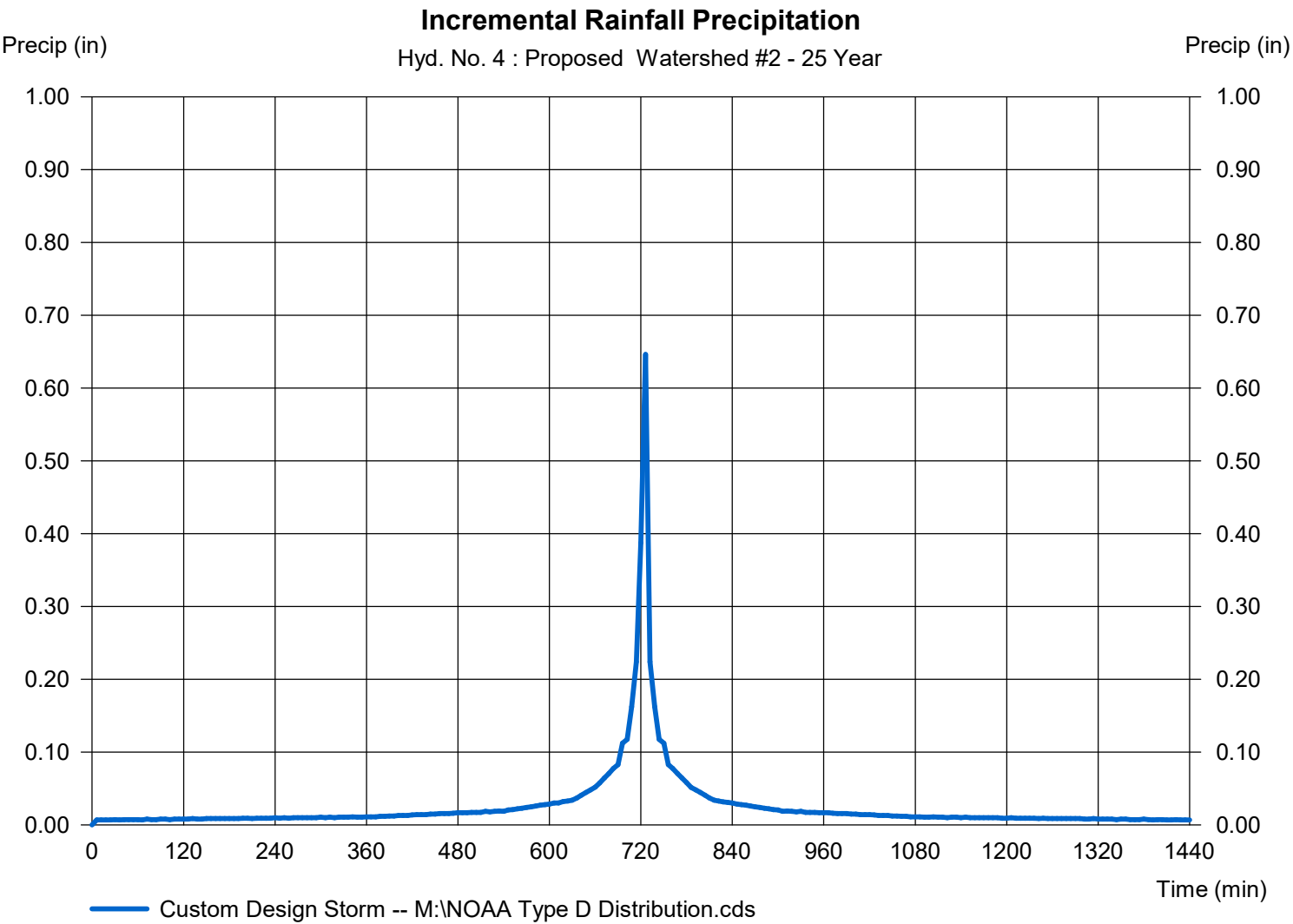


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 25 yrs	Time interval	= 6 min
Total precip.	= 6.1900 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	123.39	6	756	963,867	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	186.07	6	774	1,938,727	-----	-----	-----	Existing watershed #2
3	SCS Runoff	123.39	6	756	963,867	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	186.07	6	774	1,938,727	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 50 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

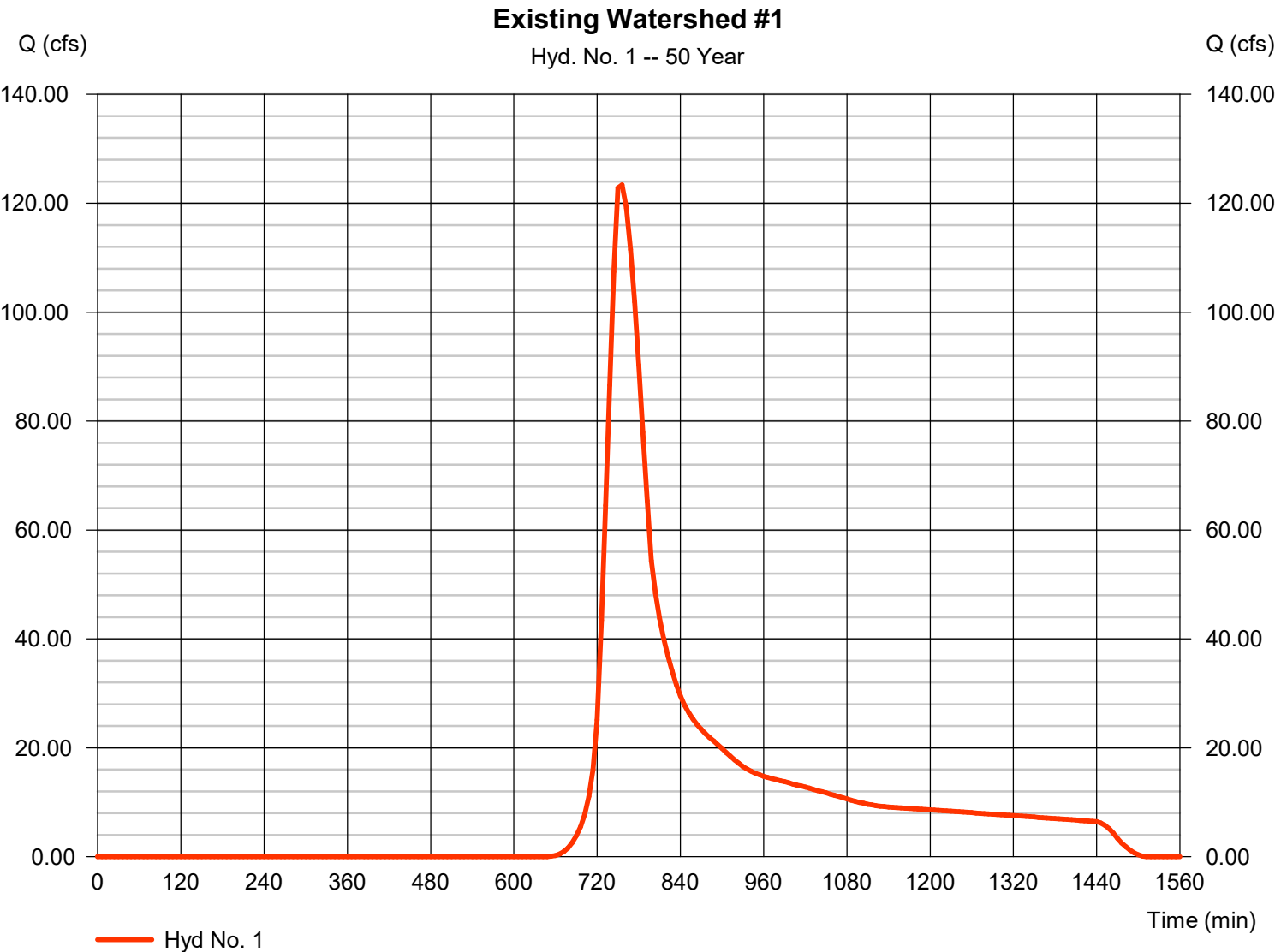
Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 123.39 cfs
Storm frequency	= 50 yrs	Time to peak	= 756 min
Time interval	= 6 min	Hyd. volume	= 963,867 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 6.98 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(129.000 x 55)] / 129.000



Precipitation Report

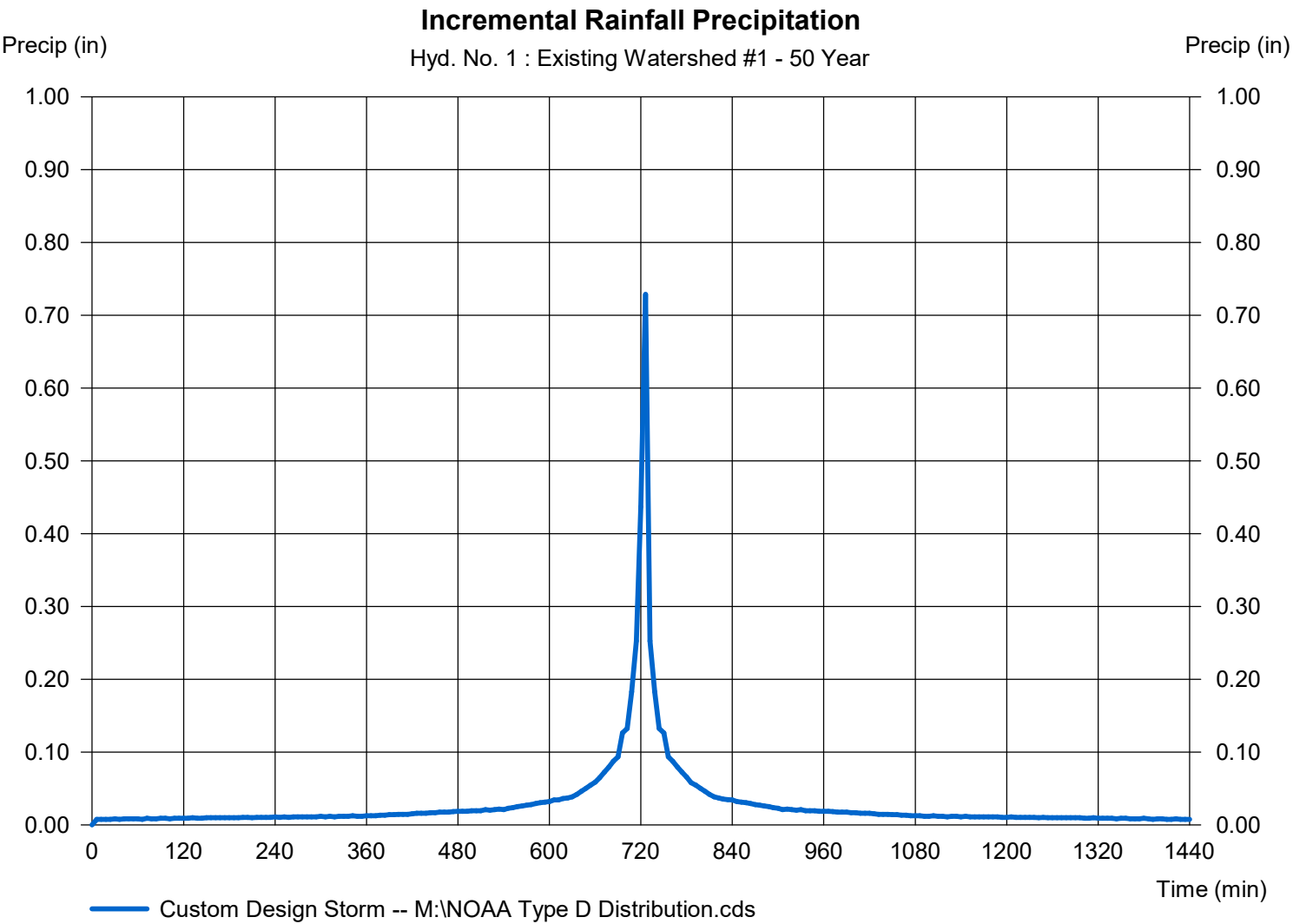
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 50 yrs	Time interval	= 6 min
Total precip.	= 6.9800 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

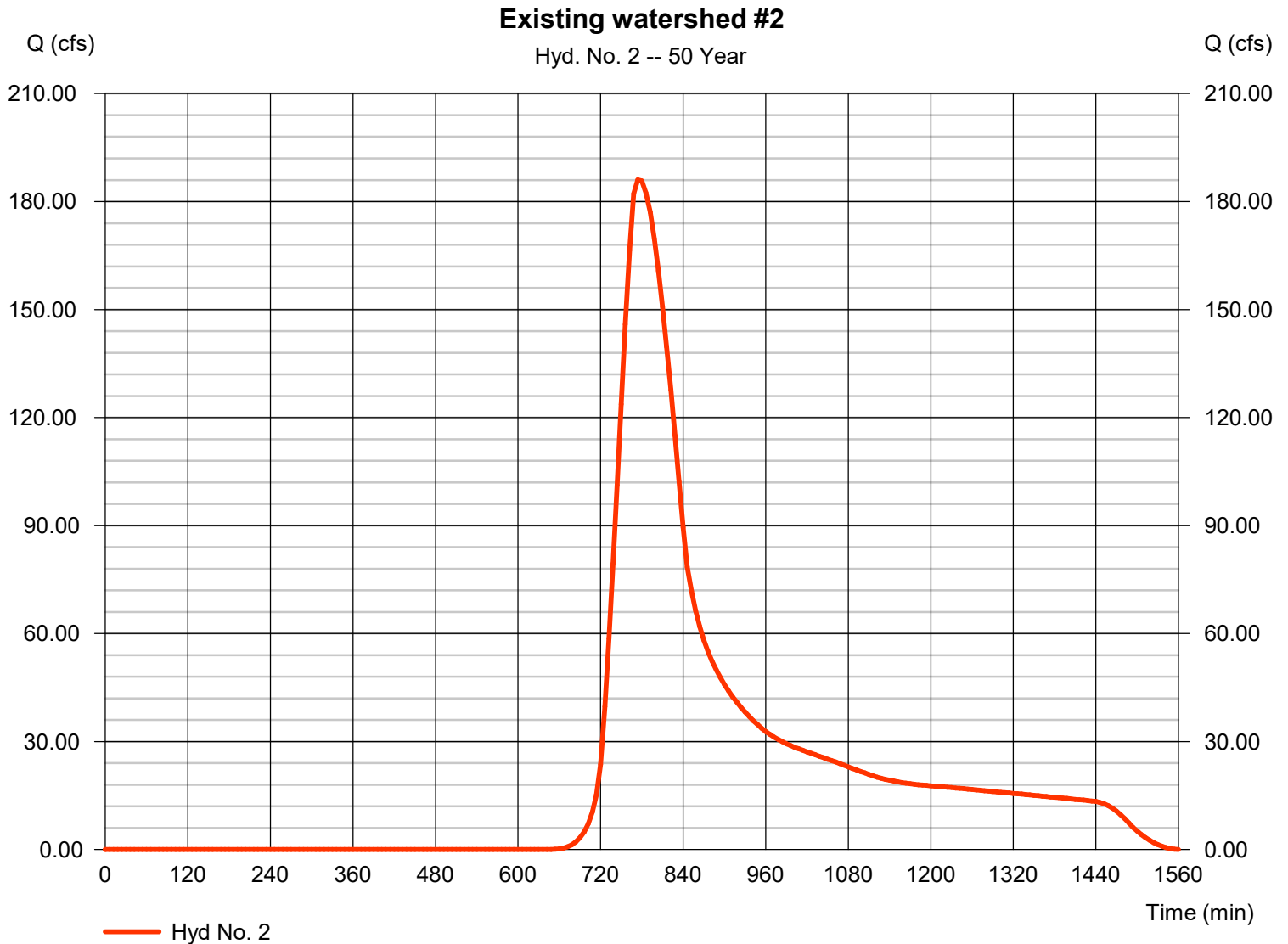
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 186.07 cfs
Storm frequency	= 50 yrs	Time to peak	= 774 min
Time interval	= 6 min	Hyd. volume	= 1,938,727 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 6.98 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484



Precipitation Report

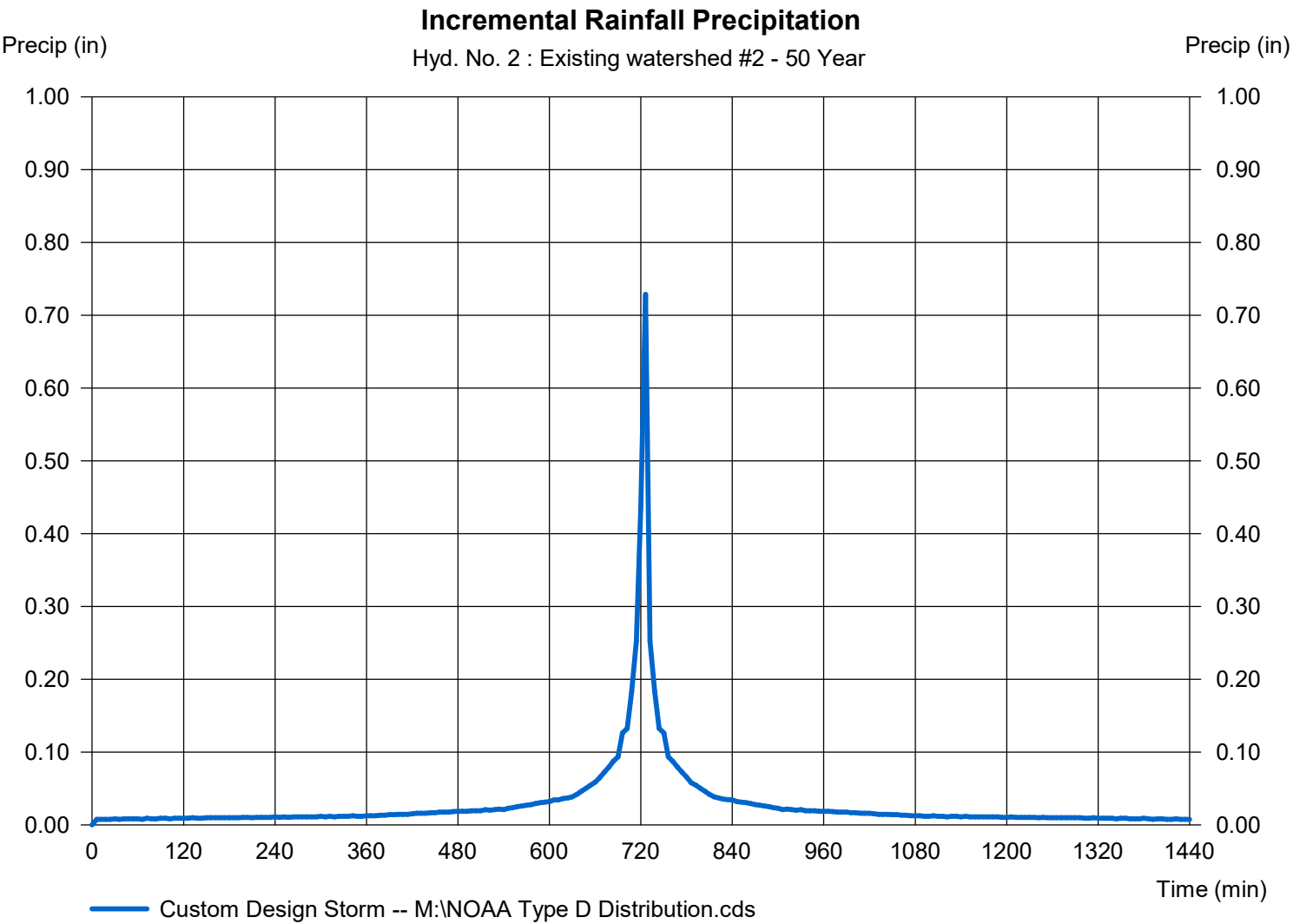
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 50 yrs	Time interval	= 6 min
Total precip.	= 6.9800 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

Hyd. No. 3

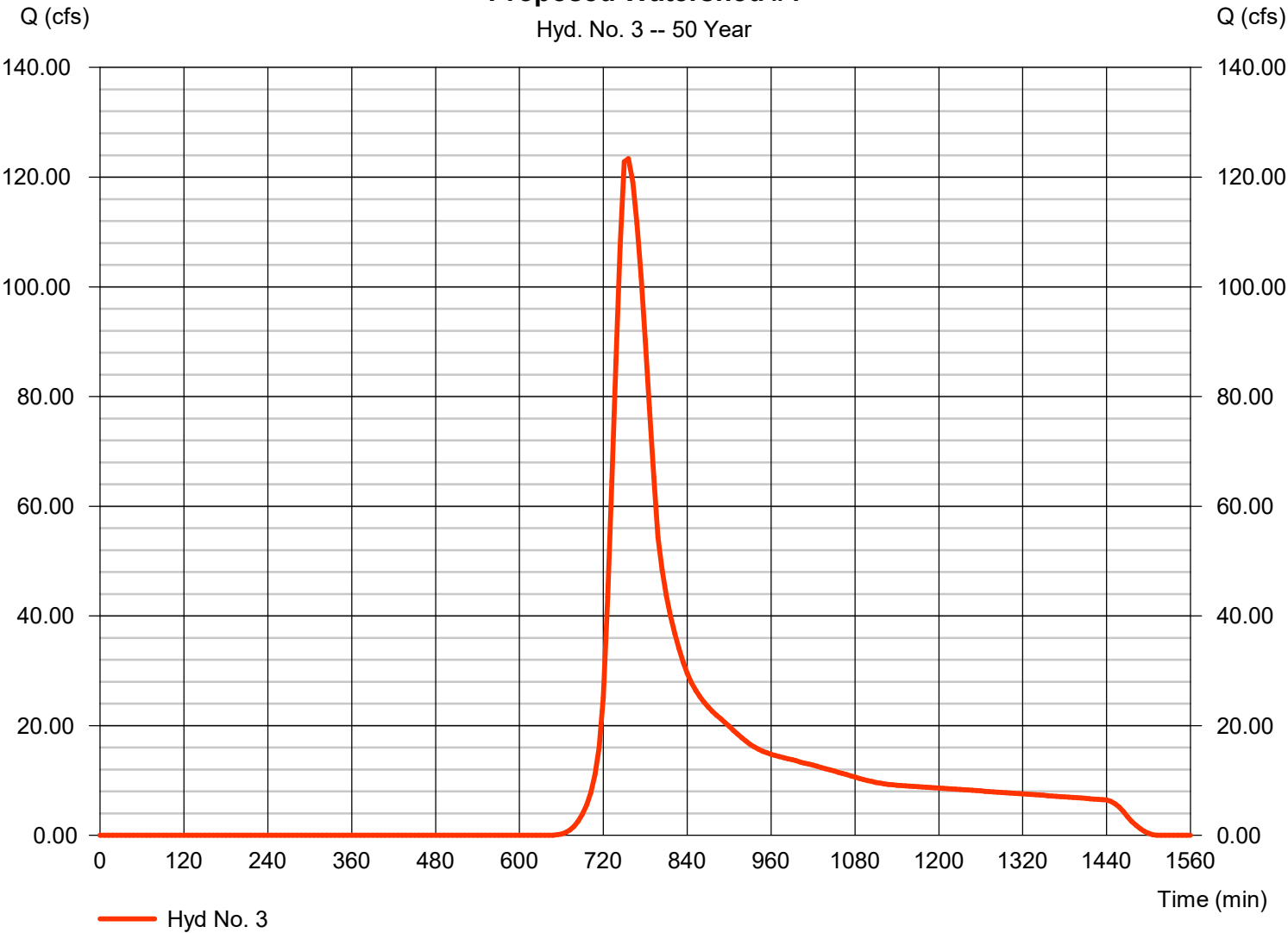
Proposed Watershed #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	123.39 cfs
Storm frequency	=	50 yrs	Time to peak	=	756 min
Time interval	=	6 min	Hyd. volume	=	963,867 cuft
Drainage area	=	129.000 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	46.90 min
Total precip.	=	6.98 in	Distribution	=	Custom
Storm duration	=	M:\NOAA Type D Distribution.01	Shape factor	=	484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

Proposed Watershed #1

Hyd. No. 3 -- 50 Year

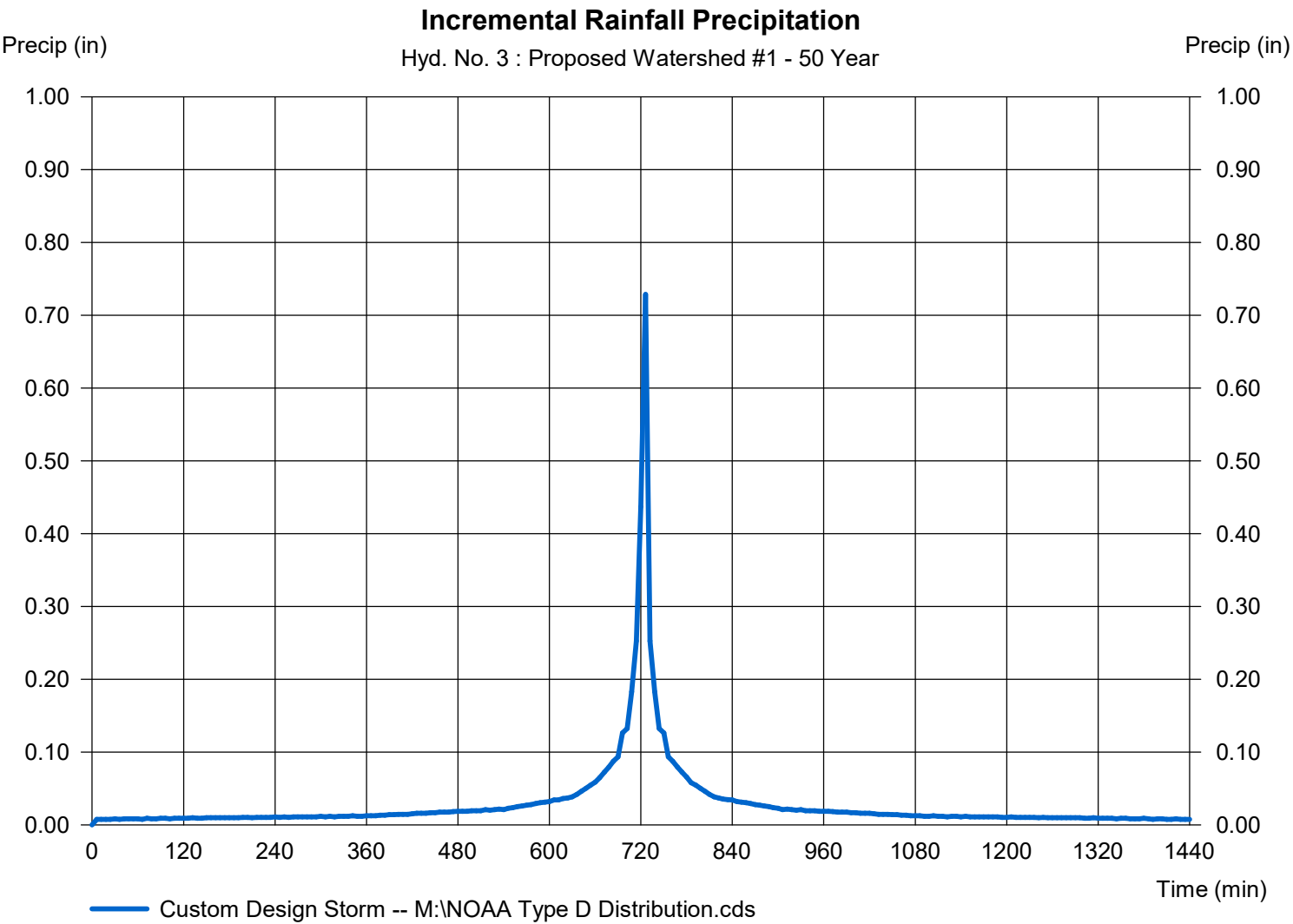


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 50 yrs	Time interval	= 6 min
Total precip.	= 6.9800 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



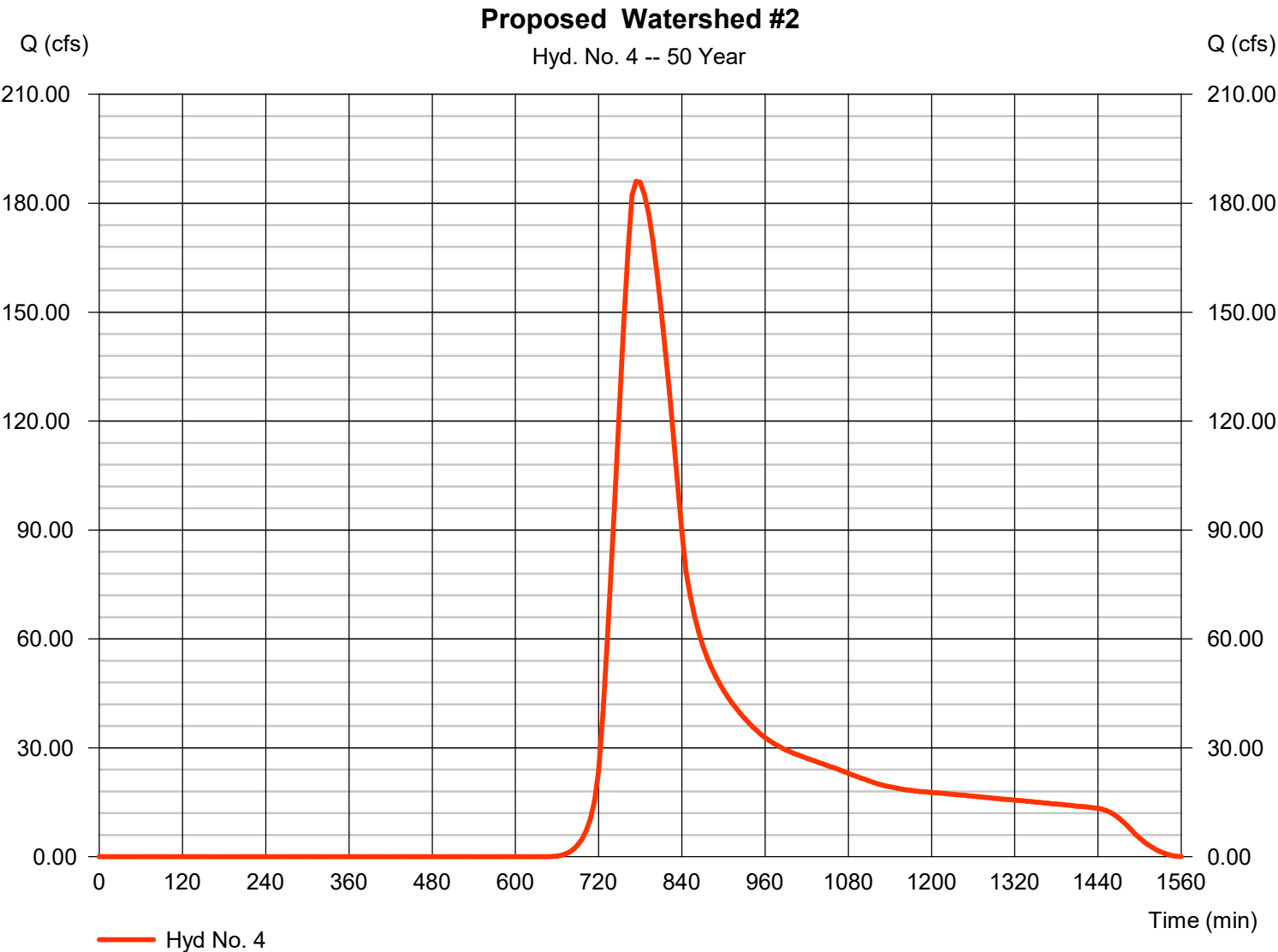
Hydrograph Report

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 186.07 cfs
Storm frequency	= 50 yrs	Time to peak	= 774 min
Time interval	= 6 min	Hyd. volume	= 1,938,727 cuft
Drainage area	= 257.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 6.98 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

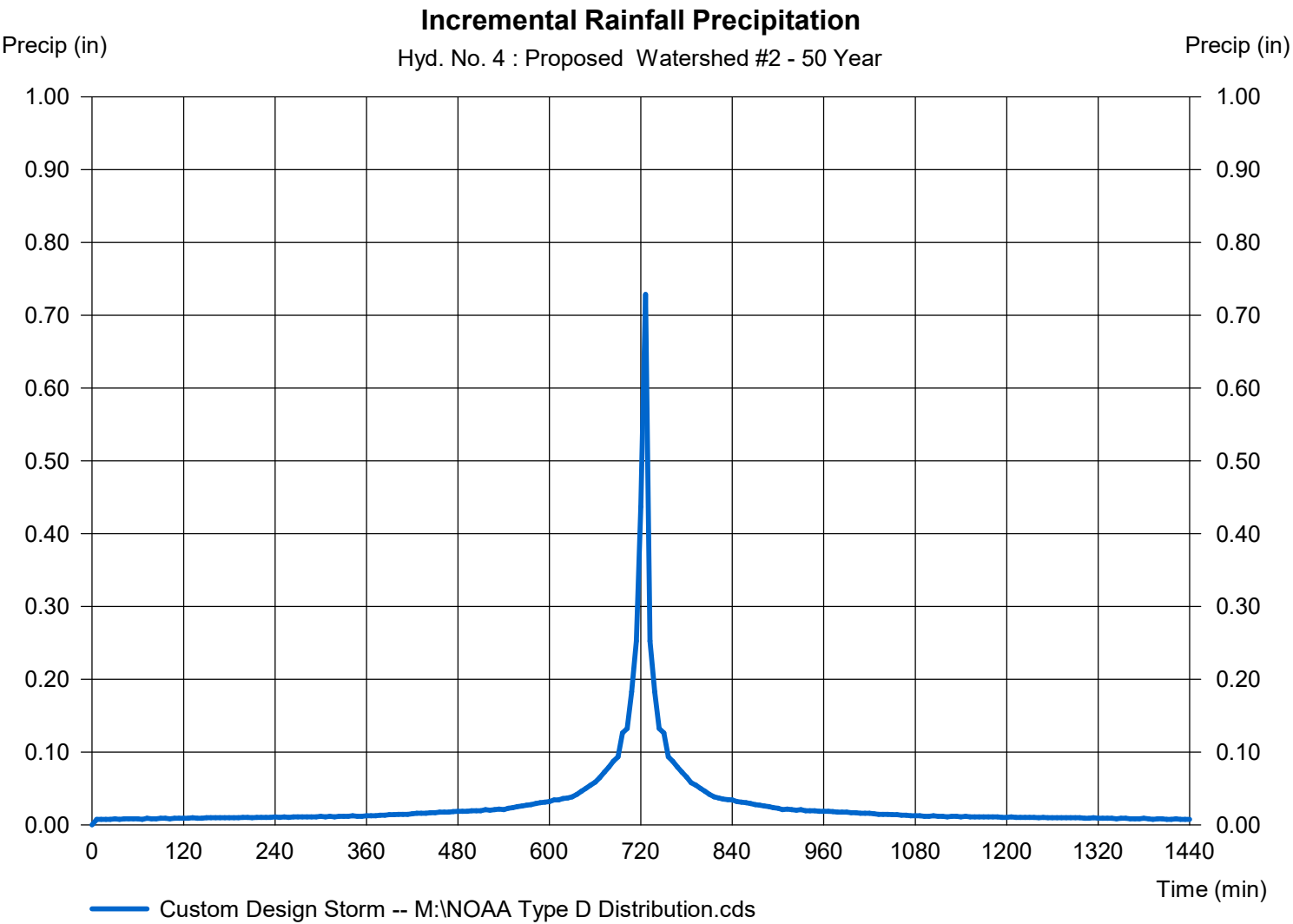


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 50 yrs	Time interval	= 6 min
Total precip.	= 6.9800 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



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	159.71	6	750	1,215,255	-----	-----	-----	Existing Watershed #1
2	SCS Runoff	241.25	6	774	2,444,370	-----	-----	-----	Existing watershed #2
3	SCS Runoff	159.71	6	750	1,215,255	-----	-----	-----	Proposed Watershed #1
4	SCS Runoff	241.25	6	774	2,444,370	-----	-----	-----	Proposed Watershed #2
7885 Hydrographs.gpw					Return Period: 100 Year			Tuesday, 04 / 8 / 2025	

Hydrograph Report

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

Tuesday, 04 / 8 / 2025

Hyd. No. 1

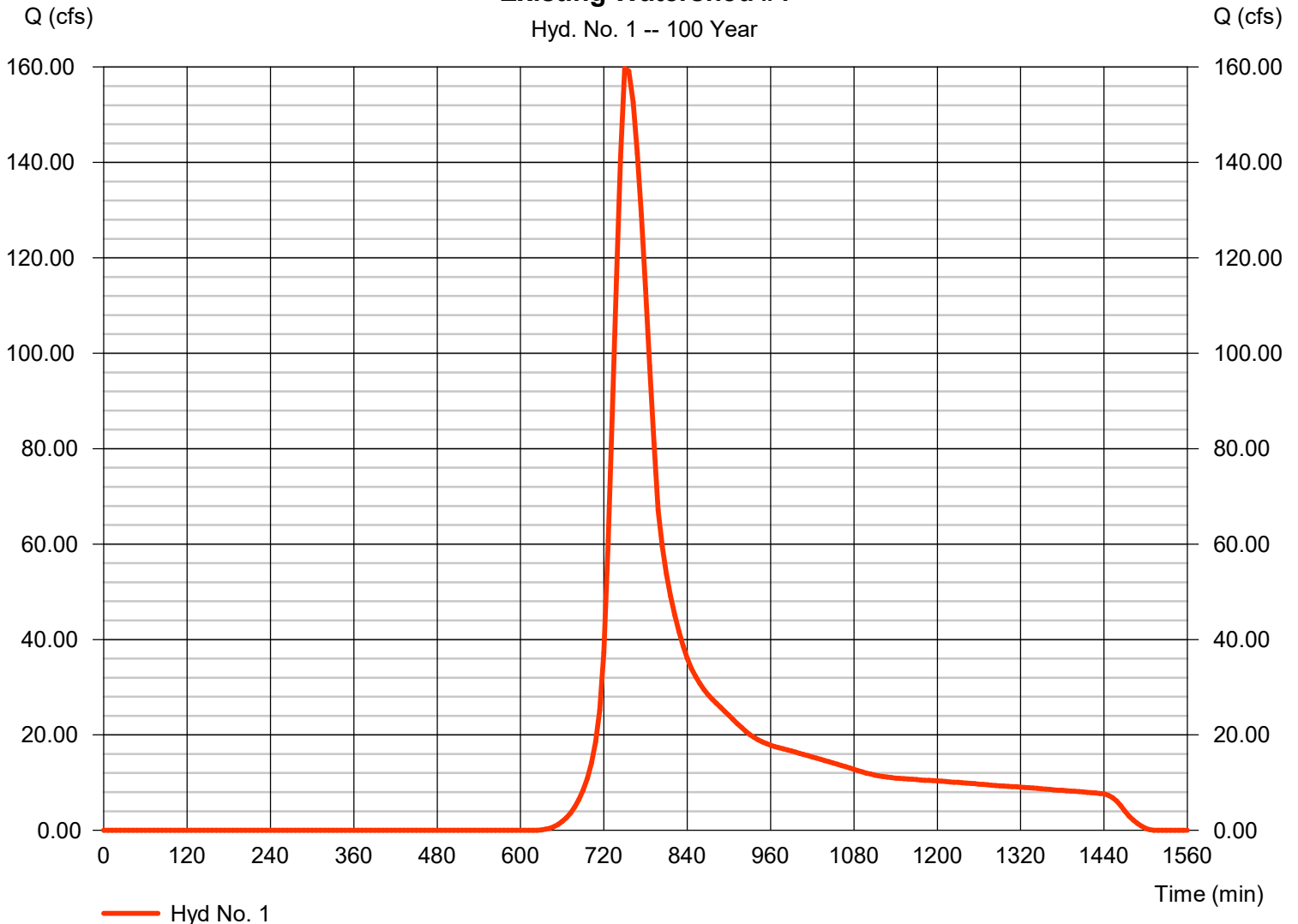
Existing Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 159.71 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 6 min	Hyd. volume	= 1,215,255 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 46.90 min
Total precip.	= 7.82 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

* Composite (Area/CN) = [(129.000 x 55)] / 129.000

Existing Watershed #1

Hyd. No. 1 -- 100 Year

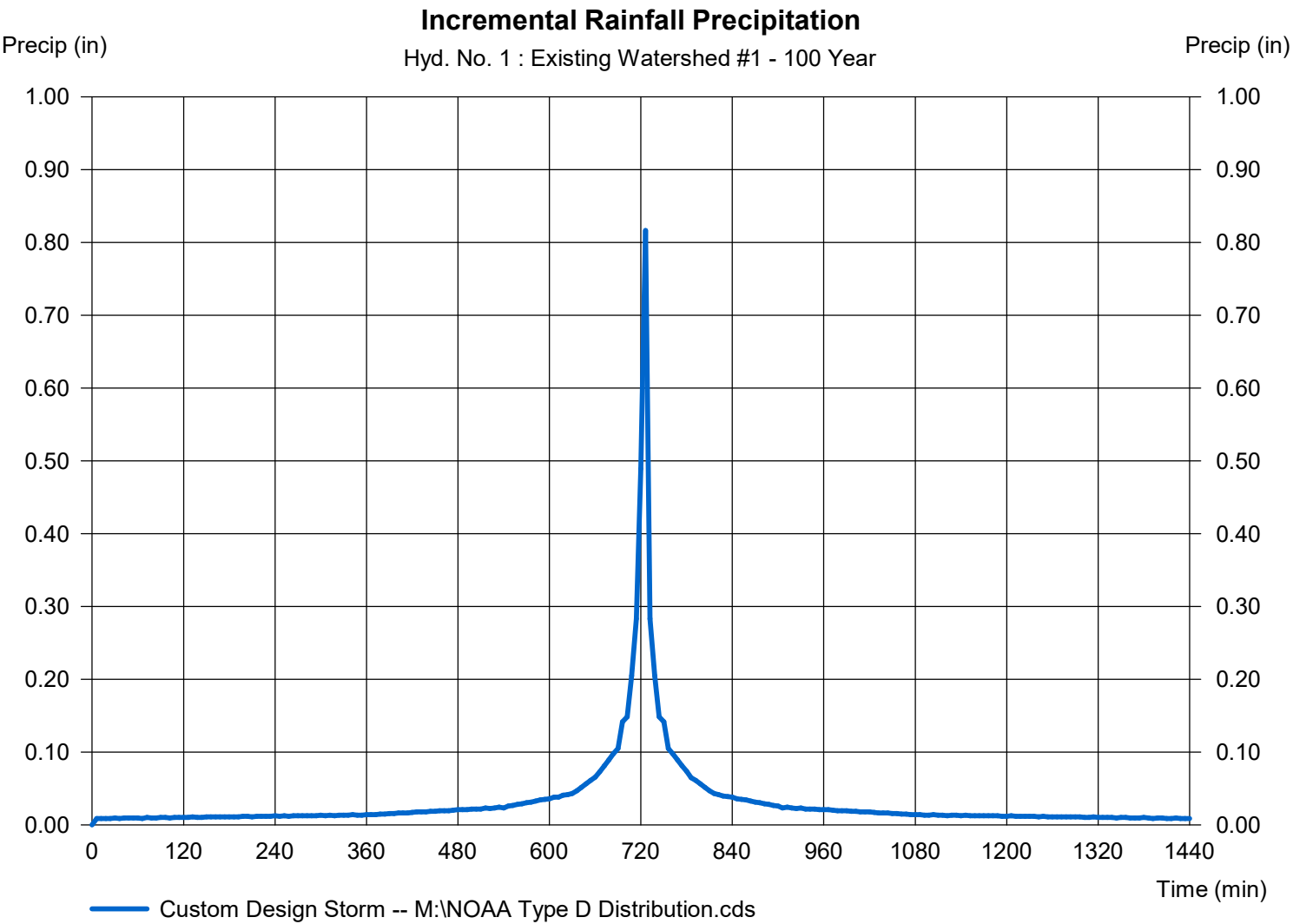


Precipitation Report

Hyd. No. 1

Existing Watershed #1

Storm Frequency	= 100 yrs	Time interval	= 6 min
Total precip.	= 7.8200 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

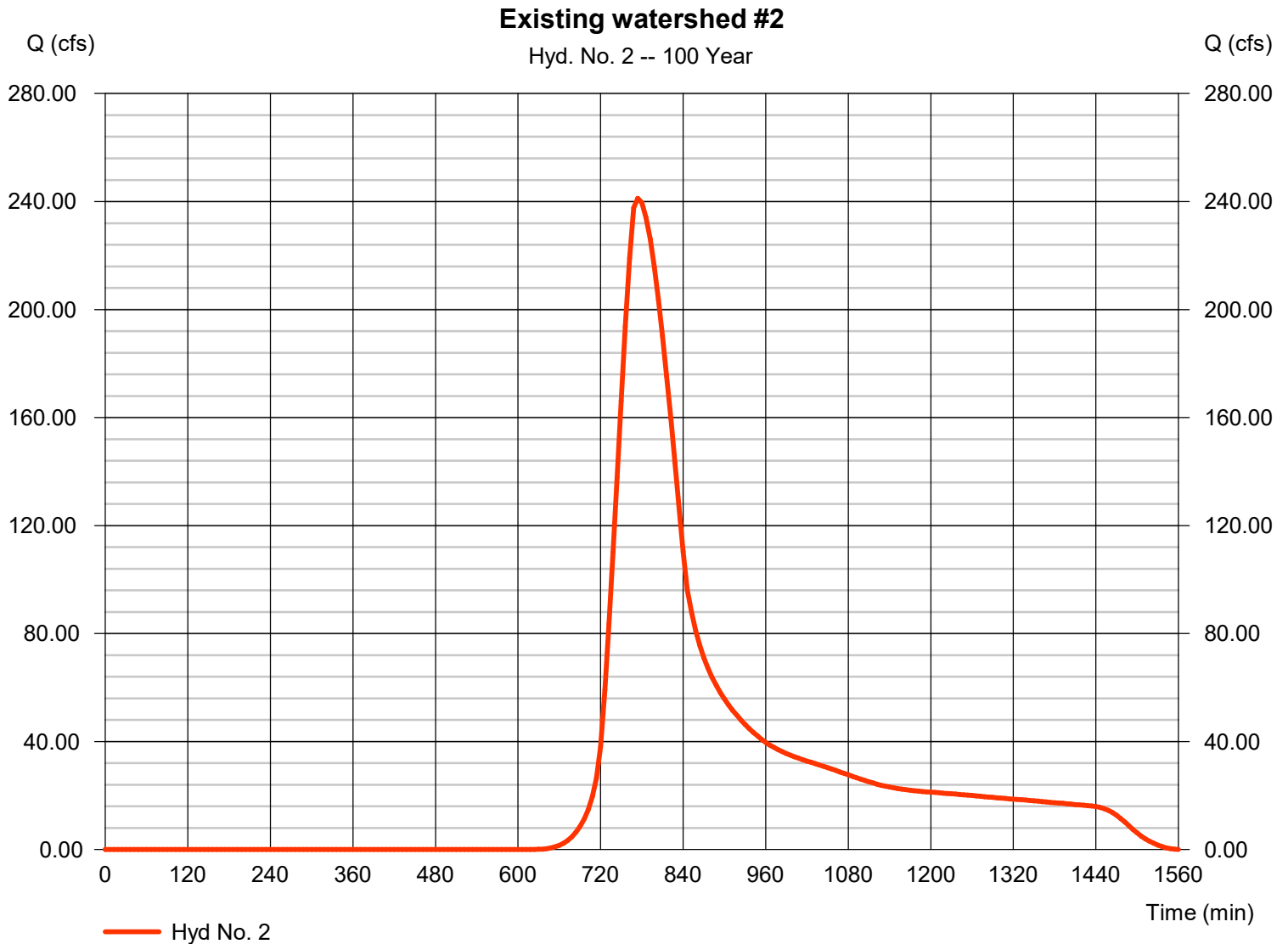
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 241.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 774 min
Time interval	= 6 min	Hyd. volume	= 2,444,370 cuft
Drainage area	= 257.000 ac	Curve number	= 55
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 76.40 min
Total precip.	= 7.82 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.01	Shape factor	= 484

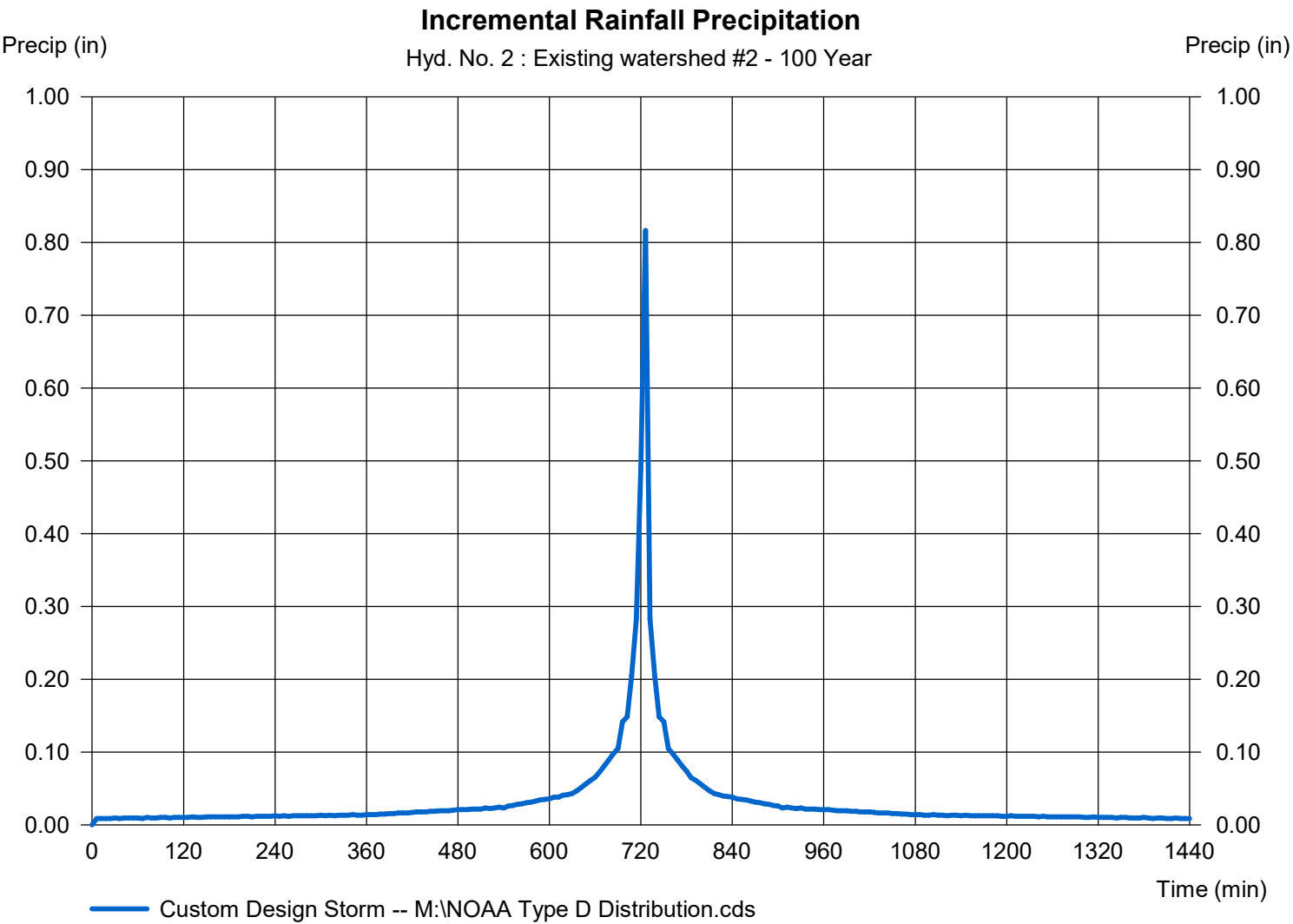


Precipitation Report

Hyd. No. 2

Existing watershed #2

Storm Frequency	= 100 yrs	Time interval	= 6 min
Total precip.	= 7.8200 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

Hyd. No. 3

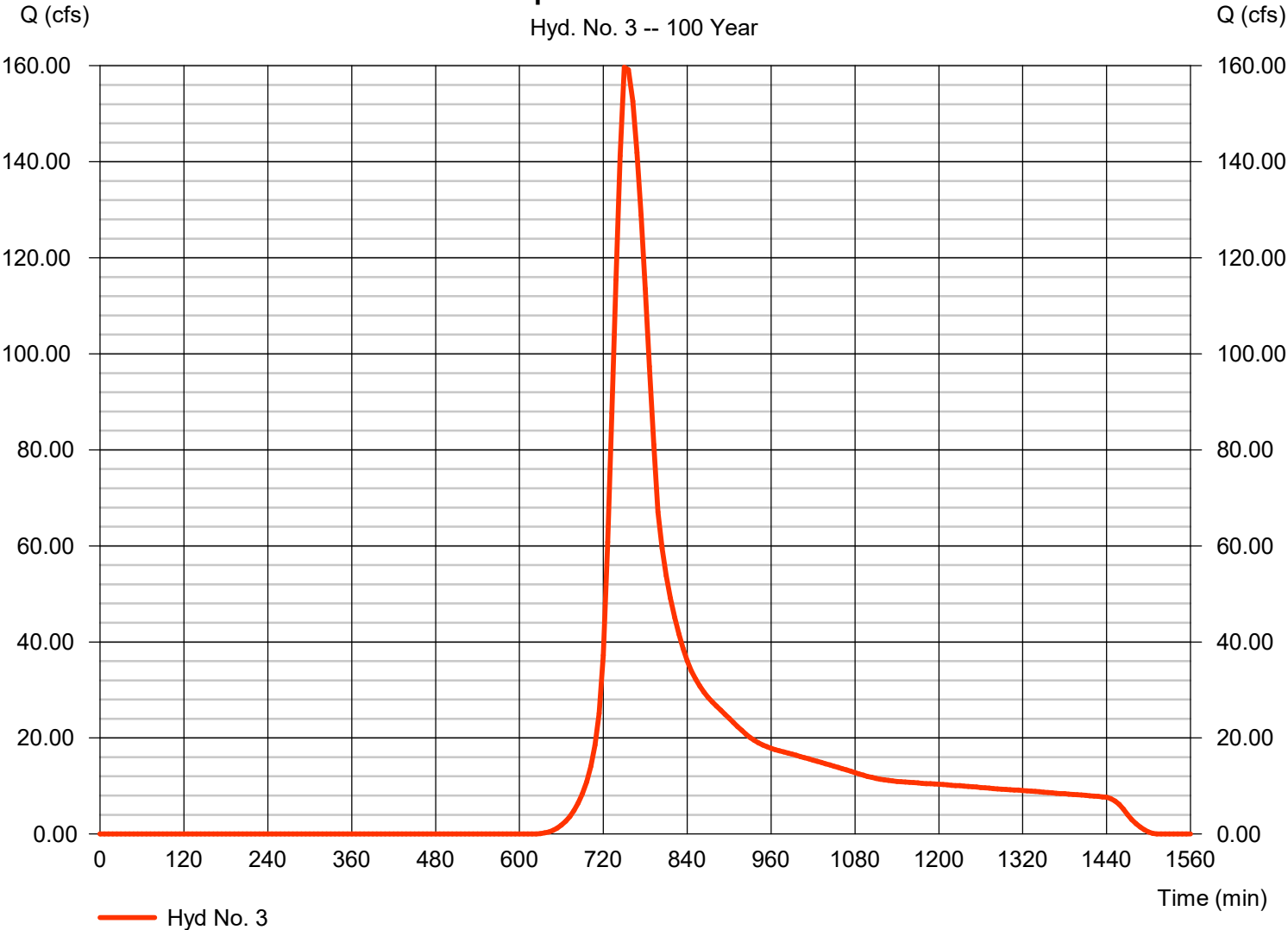
Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 159.71 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 6 min	Hyd. volume	= 1,215,255 cuft
Drainage area	= 129.000 ac	Curve number	= 55*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 46.90 min
Total precip.	= 7.82 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.xls	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (3.400 x 61) + (124.600 x 55)] / 129.000

Proposed Watershed #1

Hyd. No. 3 -- 100 Year

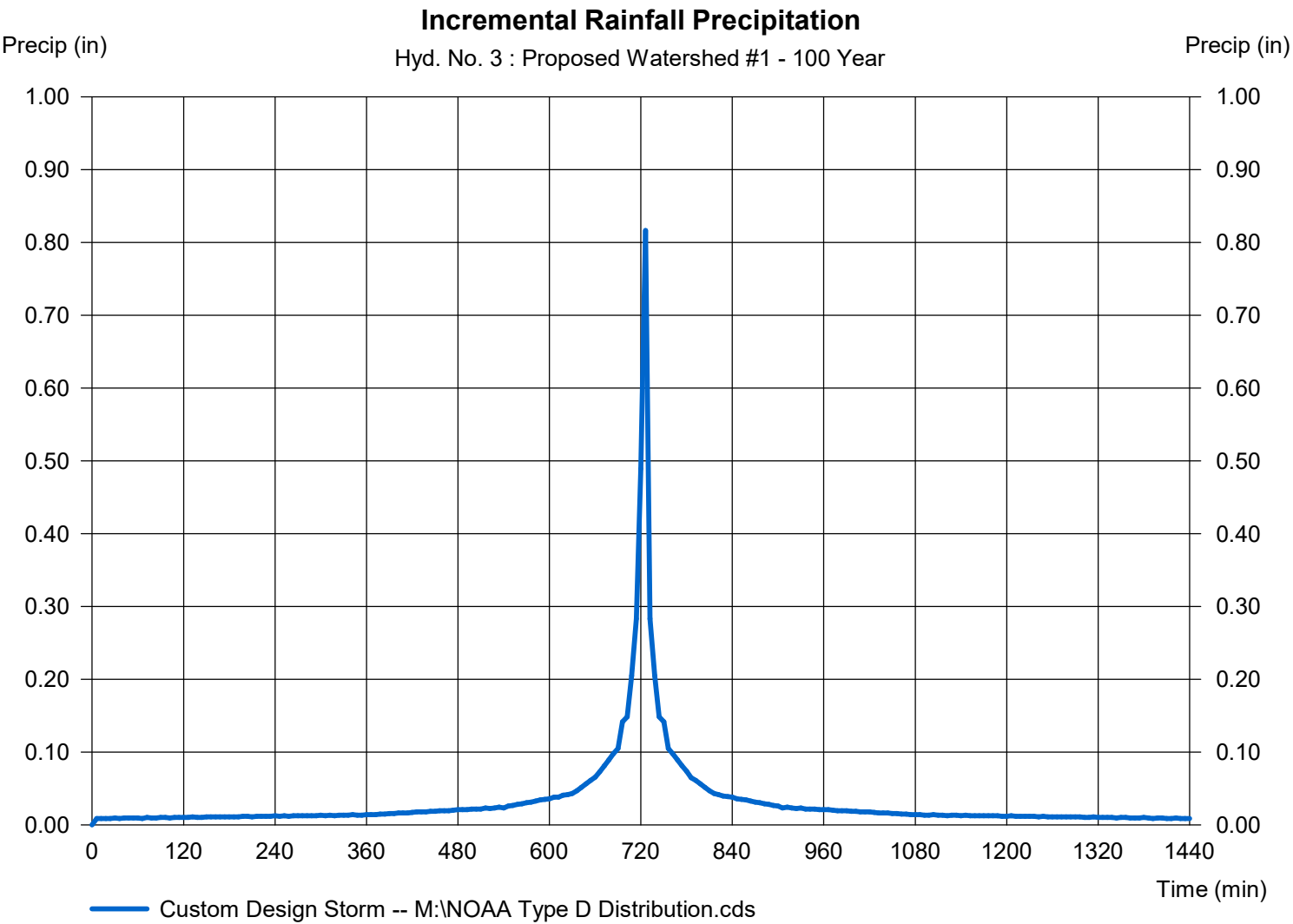


Precipitation Report

Hyd. No. 3

Proposed Watershed #1

Storm Frequency	= 100 yrs	Time interval	= 6 min
Total precip.	= 7.8200 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydrograph Report

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

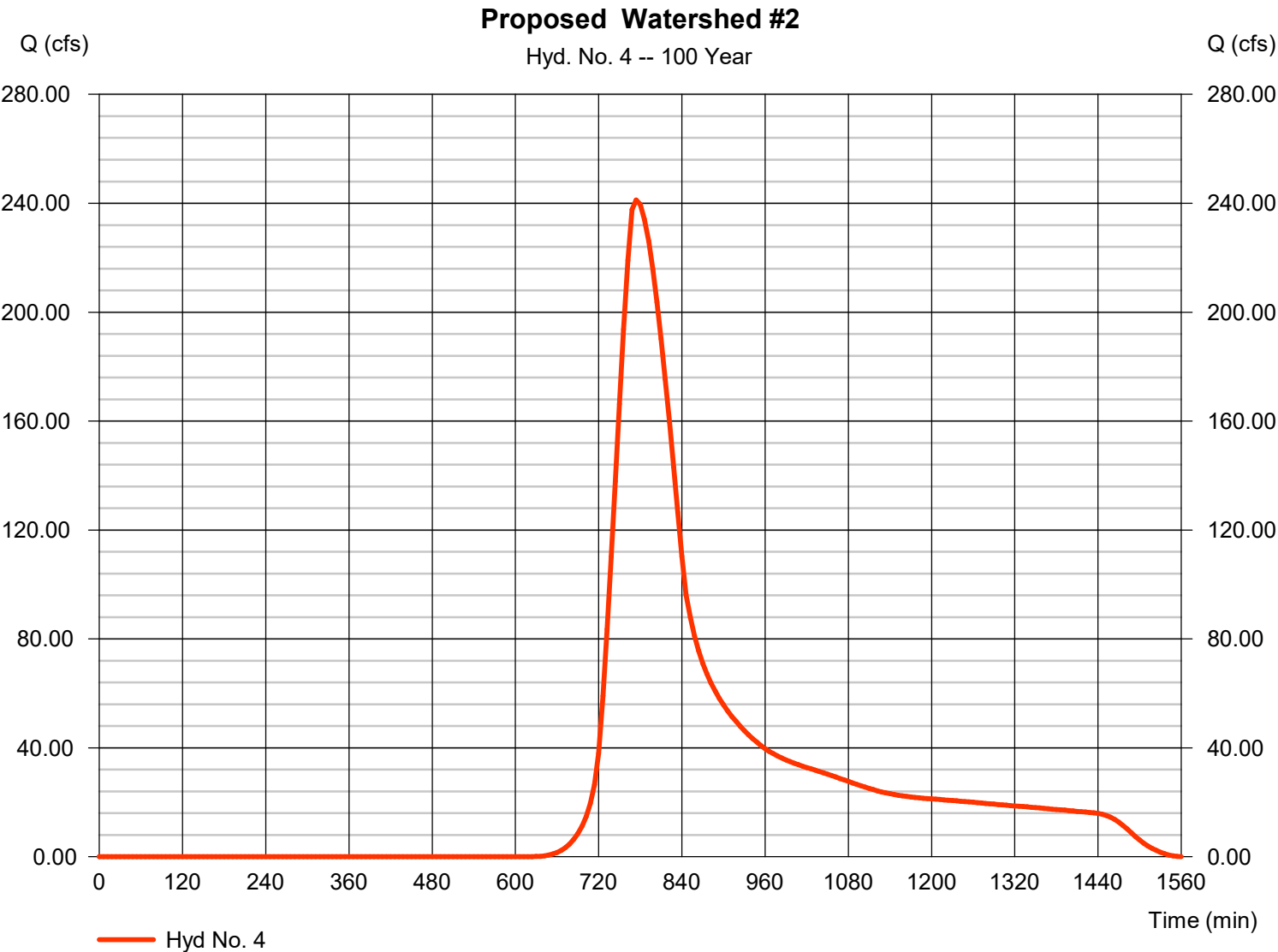
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	241.25 cfs
Storm frequency	=	100 yrs	Time to peak	=	774 min
Time interval	=	6 min	Hyd. volume	=	2,444,370 cuft
Drainage area	=	257.000 ac	Curve number	=	55*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	76.40 min
Total precip.	=	7.82 in	Distribution	=	Custom
Storm duration	=	M:\NOAA Type D Distribution.01	Shape factor	=	484

* Composite (Area/CN) = [(0.850 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

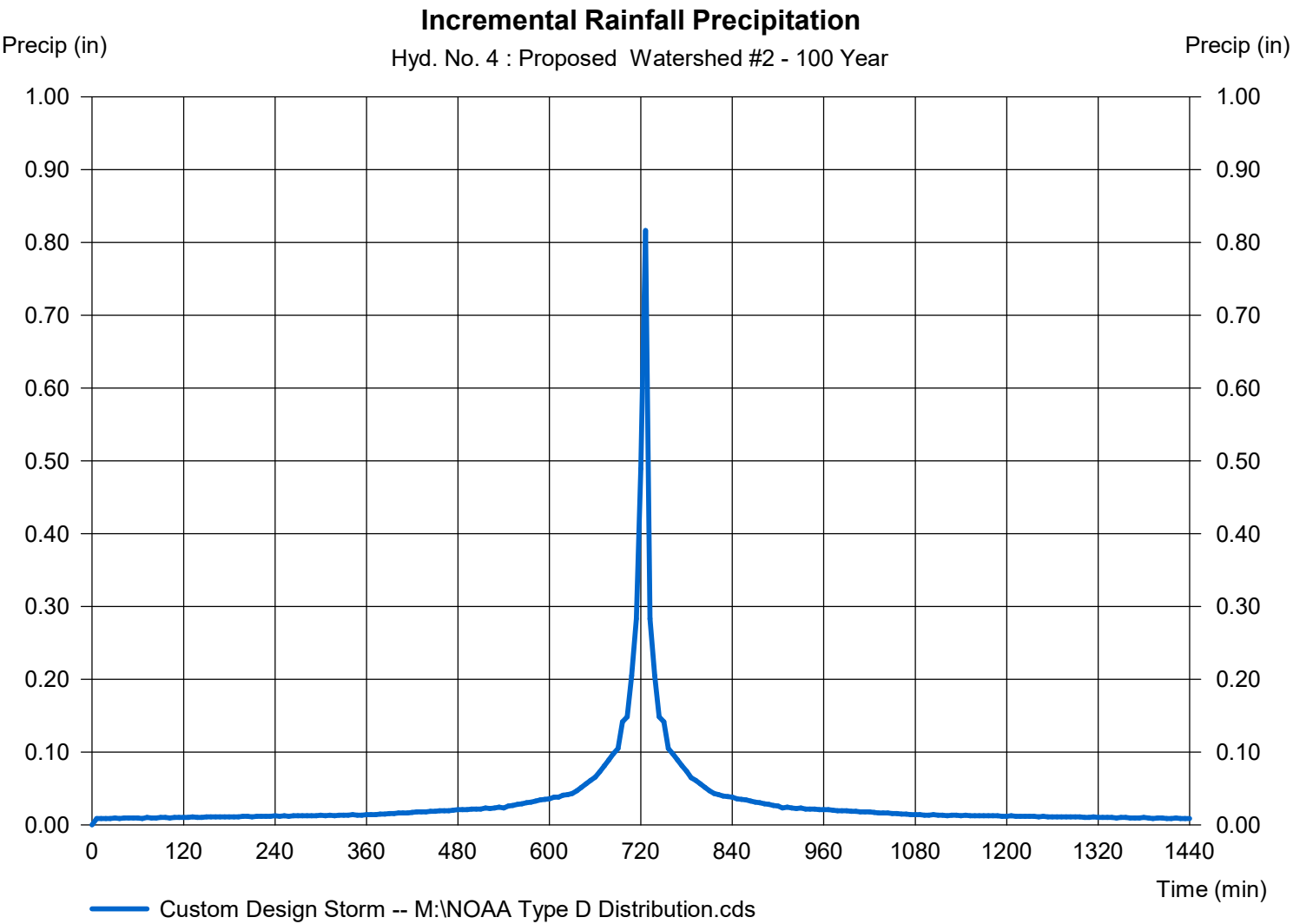


Precipitation Report

Hyd. No. 4

Proposed Watershed #2

Storm Frequency	= 100 yrs	Time interval	= 6 min
Total precip.	= 7.8200 in	Distribution	= Custom
Storm duration	= M:\NOAA Type D Distribution.cds		



Hydraflow Rainfall Report

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

Tuesday, 04 / 8 / 2025

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	18.1733	3.5000	0.7010	-----
2	22.7904	3.9000	0.7142	-----
3	0.0000	0.0000	0.0000	-----
5	26.8118	3.1000	0.7005	-----
10	32.8535	3.8000	0.7098	-----
25	38.4672	3.6000	0.7049	-----
50	43.8334	3.7000	0.7074	-----
100	48.6510	3.7000	0.7060	-----

File name: Brooklyn 2024.IDF

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.05	2.93	2.35	1.99	1.74	1.55	1.41	1.29	1.20	1.12	1.05	0.99
2	4.78	3.48	2.79	2.36	2.06	1.84	1.67	1.53	1.42	1.32	1.24	1.17
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	6.19	4.42	3.53	2.97	2.59	2.31	2.09	1.92	1.78	1.66	1.56	1.47
10	7.02	5.10	4.09	3.46	3.02	2.70	2.45	2.25	2.08	1.94	1.82	1.72
25	8.44	6.11	4.90	4.14	3.62	3.23	2.93	2.69	2.49	2.32	2.18	2.06
50	9.49	6.88	5.52	4.67	4.08	3.64	3.30	3.03	2.81	2.62	2.46	2.32
100	10.56	7.67	6.15	5.21	4.55	4.06	3.68	3.38	3.13	2.92	2.74	2.59

T_c = time in minutes. Values may exceed 60.

Precip. file name: M:\7000\7300\7386 Reynolds St. Improvements\Studies-Calculations\Danielson storms.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	2.89	3.45	0.00	4.37	4.15	6.19	6.98	7.82
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	2.89	3.45	0.00	4.37	5.14	6.19	6.98	7.82

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NOAA Atlas 14, Volume 10, Version 3
Location name: Oakdale, Connecticut, USA*
Latitude: 41.4143°, Longitude: -72.215°
Elevation: 163 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

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PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.338 (0.263-0.422)	0.404 (0.314-0.505)	0.512 (0.397-0.642)	0.603 (0.464-0.759)	0.727 (0.543-0.952)	0.820 (0.600-1.09)	0.919 (0.653-1.26)	1.03 (0.694-1.44)	1.19 (0.773-1.72)	1.33 (0.840-1.94)
10-min	0.478 (0.372-0.597)	0.573 (0.445-0.716)	0.727 (0.563-0.911)	0.855 (0.658-1.08)	1.03 (0.769-1.35)	1.16 (0.850-1.55)	1.30 (0.926-1.79)	1.46 (0.983-2.04)	1.69 (1.09-2.43)	1.88 (1.19-2.76)
15-min	0.563 (0.438-0.703)	0.674 (0.523-0.842)	0.855 (0.662-1.07)	1.00 (0.774-1.27)	1.21 (0.905-1.59)	1.37 (1.00-1.82)	1.53 (1.09-2.11)	1.72 (1.16-2.40)	1.99 (1.29-2.86)	2.21 (1.40-3.24)
30-min	0.791 (0.615-0.988)	0.947 (0.735-1.18)	1.20 (0.930-1.51)	1.41 (1.09-1.78)	1.70 (1.27-2.23)	1.92 (1.40-2.56)	2.15 (1.53-2.96)	2.41 (1.62-3.37)	2.79 (1.81-4.02)	3.10 (1.96-4.54)
60-min	1.02 (0.793-1.27)	1.22 (0.948-1.52)	1.55 (1.20-1.94)	1.82 (1.40-2.29)	2.19 (1.64-2.87)	2.48 (1.81-3.30)	2.77 (1.97-3.81)	3.10 (2.09-4.34)	3.59 (2.32-5.17)	3.98 (2.52-5.84)
2-hr	1.34 (1.05-1.66)	1.60 (1.25-1.99)	2.03 (1.58-2.52)	2.38 (1.85-2.98)	2.87 (2.16-3.73)	3.23 (2.38-4.28)	3.62 (2.59-4.95)	4.06 (2.75-5.63)	4.73 (3.08-6.74)	5.28 (3.36-7.66)
3-hr	1.56 (1.23-1.92)	1.86 (1.46-2.30)	2.35 (1.84-2.91)	2.76 (2.15-3.43)	3.32 (2.51-4.30)	3.74 (2.76-4.93)	4.18 (3.01-5.70)	4.70 (3.19-6.49)	5.48 (3.58-7.78)	6.14 (3.91-8.85)
6-hr	1.98 (1.58-2.44)	2.36 (1.87-2.90)	2.98 (2.35-3.67)	3.49 (2.74-4.31)	4.19 (3.19-5.38)	4.71 (3.51-6.17)	5.27 (3.82-7.13)	5.93 (4.04-8.10)	6.90 (4.52-9.70)	7.72 (4.94-11.0)
12-hr	2.46 (1.97-3.00)	2.92 (2.34-3.57)	3.68 (2.93-4.50)	4.31 (3.41-5.30)	5.18 (3.96-6.59)	5.82 (4.37-7.55)	6.51 (4.74-8.71)	7.31 (5.01-9.89)	8.48 (5.58-11.8)	9.47 (6.07-13.4)
24-hr	2.89 (2.33-3.50)	3.45 (2.78-4.18)	4.37 (3.51-5.31)	5.14 (4.10-6.27)	6.19 (4.78-7.84)	6.98 (5.27-8.99)	7.82 (5.73-10.4)	8.80 (6.06-11.8)	10.3 (6.78-14.1)	11.5 (7.40-16.1)
2-day	3.23 (2.63-3.88)	3.90 (3.17-4.70)	5.01 (4.05-6.04)	5.92 (4.76-7.17)	7.18 (5.59-9.03)	8.12 (6.18-10.4)	9.12 (6.76-12.1)	10.3 (7.15-13.7)	12.2 (8.08-16.6)	13.8 (8.89-19.0)
3-day	3.50 (2.86-4.20)	4.23 (3.46-5.08)	5.43 (4.41-6.52)	6.42 (5.19-7.74)	7.78 (6.08-9.75)	8.80 (6.73-11.2)	9.89 (7.35-13.0)	11.2 (7.78-14.8)	13.2 (8.79-17.9)	14.9 (9.69-20.5)
4-day	3.76 (3.08-4.49)	4.53 (3.71-5.41)	5.78 (4.72-6.93)	6.83 (5.53-8.21)	8.26 (6.47-10.3)	9.32 (7.15-11.8)	10.5 (7.80-13.7)	11.9 (8.24-15.6)	14.0 (9.30-18.8)	15.8 (10.2-21.6)
7-day	4.49 (3.70-5.33)	5.33 (4.39-6.33)	6.70 (5.50-7.98)	7.84 (6.39-9.37)	9.40 (7.41-11.6)	10.6 (8.14-13.3)	11.8 (8.83-15.3)	13.3 (9.29-17.4)	15.5 (10.4-20.8)	17.4 (11.3-23.6)
10-day	5.20 (4.31-6.15)	6.08 (5.03-7.20)	7.52 (6.20-8.92)	8.71 (7.14-10.4)	10.4 (8.18-12.7)	11.6 (8.94-14.5)	12.9 (9.62-16.6)	14.4 (10.1-18.7)	16.6 (11.1-22.1)	18.5 (12.1-24.9)
20-day	7.40 (6.19-8.69)	8.34 (6.96-9.80)	9.88 (8.21-11.6)	11.2 (9.21-13.2)	12.9 (10.3-15.7)	14.2 (11.0-17.5)	15.6 (11.6-19.7)	17.1 (12.0-21.9)	19.1 (12.9-25.1)	20.6 (13.5-27.5)
30-day	9.24 (7.76-10.8)	10.2 (8.57-12.0)	11.8 (9.87-13.9)	13.1 (10.9-15.5)	15.0 (11.9-18.0)	16.4 (12.7-20.0)	17.8 (13.2-22.1)	19.2 (13.6-24.4)	20.9 (14.2-27.4)	22.3 (14.6-29.5)
45-day	11.5 (9.72-13.4)	12.5 (10.6-14.6)	14.2 (11.9-16.6)	15.6 (13.0-18.3)	17.5 (14.0-20.9)	19.0 (14.8-23.0)	20.5 (15.2-25.2)	21.8 (15.5-27.6)	23.4 (15.9-30.3)	24.5 (16.1-32.2)
60-day	13.4 (11.4-15.6)	14.5 (12.2-16.8)	16.2 (13.7-18.9)	17.7 (14.8-20.7)	19.7 (15.8-23.4)	21.3 (16.6-25.6)	22.8 (16.9-27.8)	24.0 (17.2-30.3)	25.5 (17.4-33.0)	26.5 (17.5-34.7)

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.

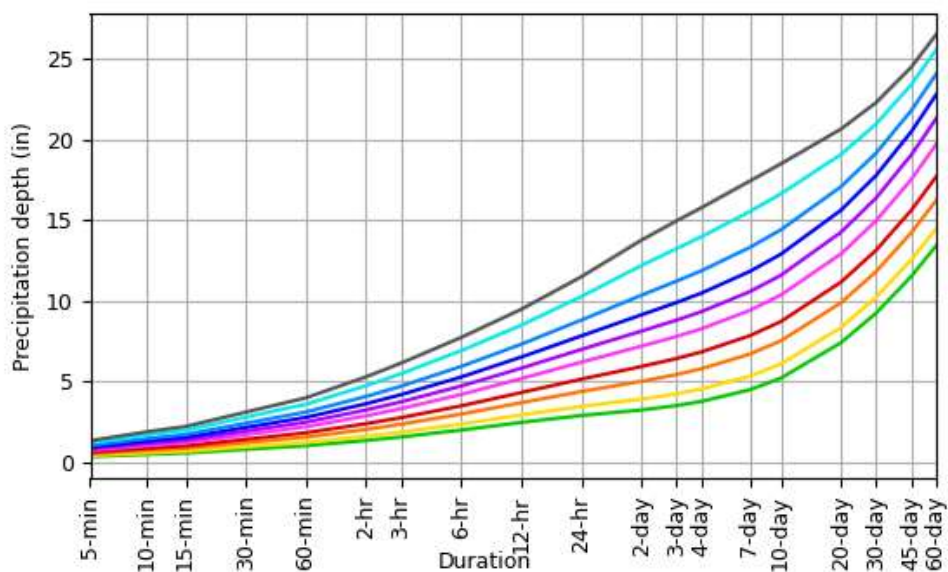
Please refer to NOAA Atlas 14 document for more information.

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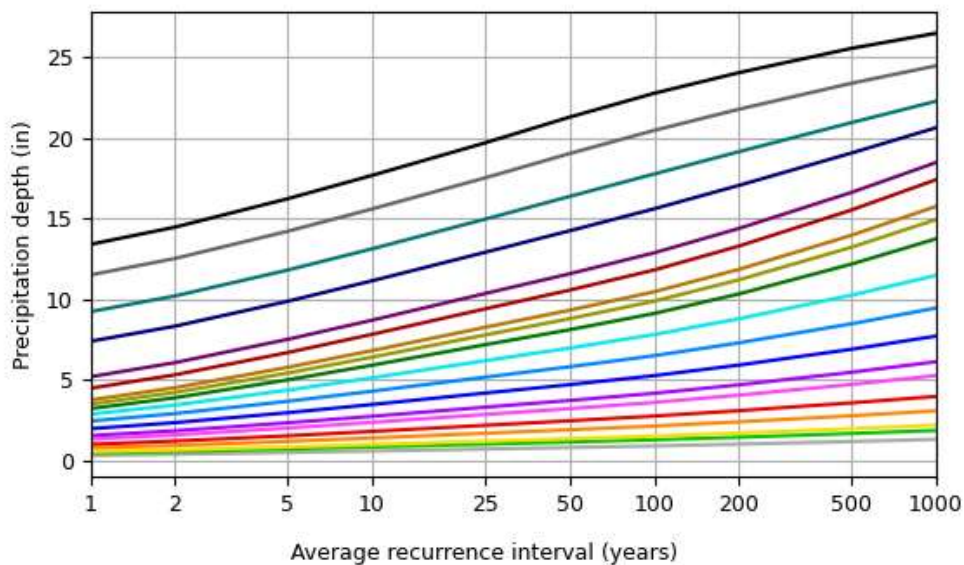
PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 41.4143°, Longitude: -72.2150°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000

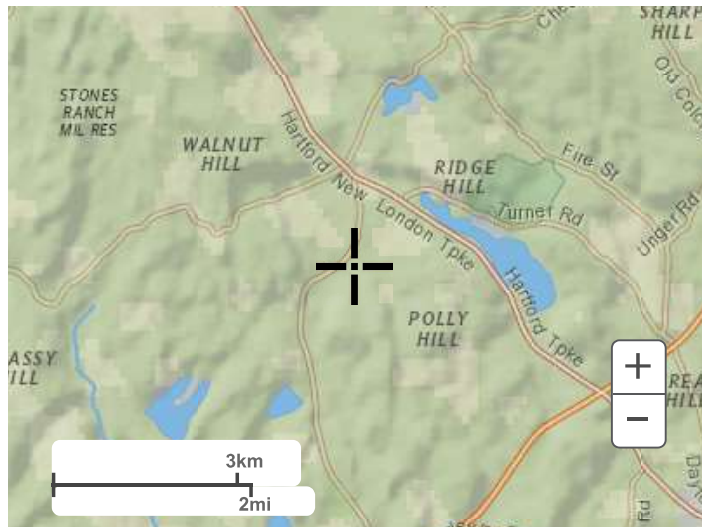


Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

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Maps & aerials

Small scale terrain



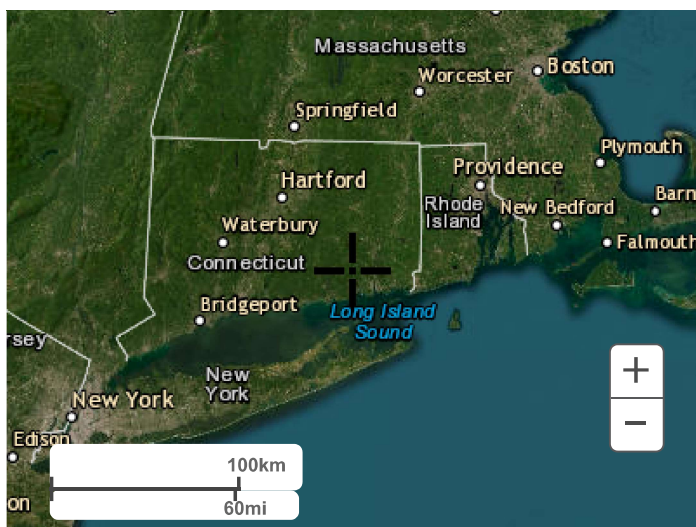
Large scale terrain



Large scale map



Large scale aerial



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