

Application Material
Proposed Subdivision
Map 001- Block 007- Lot 00A
Silver Falls Road
Montville, Connecticut

Table of Sections:

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Section 1.
Subdivision Application

Permit # _____ Fees \$ _____

Subdivision/Resubdivision Application

Assessors Map 001/007 Lot 00A Acres _____ Zoning District R80 # Of lots 4
Project address: Silver Falls Road Subdivision Name _____

Resubdivision only:

Name of original Subdivision _____
Date of Commission Approval _____

Property owner name: Daniela Gjergaj
Property owner address: 301 Chesterfield Road, East Lyme, CT 06333

Applicant name: Daniela Gjergaj
Applicant address: 301 Chesterfield Road, East Lyme, CT 06333
Tel # _____ Cell # 808-268-0123
Fax # _____ Email aceshighrvparkct@gmail.com

Engineer name: CLA Engineers, Inc. - Robert DeLuca, PE
Tel # 860-886-1966 Cell # 860-334-4207
Fax # 860-886-9165 Email bdeluca@claengineers.com

Attorney name: William Sweeney, Esq. - TCORS, PC
Tel # 860-447-0335 Cell # 860-823-9394
Fax # 860-442-3469 Email wrsweeney@tcors.com

Regulated wetlands

☒ yes ☐ no

Public water supply watershed

☐ yes ☒ no

Community well system

☐ yes ☒ no

Flood Hazard Area

☒ yes ☐ no

Flood zone 100 yr (AE)

Municipal water

☐ yes ☒ no

Individual well

☒ yes ☐ no

Subsurface sewage disposal

☒ yes ☐ no

Municipal sewer

☐ yes ☒ no

Coastal Management Area

☐ yes ☒ no

Ct General Stormwater

Quality Permit

☐ yes ☒ no

Army Corps of Engineers

☐ yes ☒ no

Water diversion permit

☐ yes ☒ no

Dam permit

☐ yes ☒ no

Subject to a conservation restriction and/or a preservation restriction

☐ yes ☒ no

Office of State Traffic Commission (OSTA) Permit

☐ yes ☒ no

DOT encroachment permit

☐ yes ☒ no

Waiver(s) requested

☐ yes ☒ no

Regulation section(s) _____

Erosion & sediment control bond \$ _____

Performance/Road bond \$ N/A

The subdivision application must be submitted with the following approvals and or documents if applicable:

- ☐ Pending Permit from the Inland Wetlands & Watercourses Commission or subdivision sign off.
- ☐ N/A Approval letter from the Water Pollution Control Authority.
- ☐ N/A Approval letter from the appropriate Water Authority.
- ☐ Pending Approval letter from the Uncas Health District.
- ☒ Bond estimate.
- ☒ Erosion & sediment control narrative.
- ☒ Drainage calculations.
- ☐ State of Ct. Real Estate Conveyance Tax Return – OP236.
- ☐ Transfer of Title Deed.
- ☐ N/A State of Ct. DOT District II approval.
- ☐ N/A Copy of Ct. Department of Health notification if project is within a public water supply watershed.

Applicant signature Daniela Gjengjaj Date 03-27-25
Owner signature Daniela Gjengjaj Date 03-27-25

Section 2.

Inland Wetland Application

Town of Montville Inland Wetlands Application Permit# _____ Check # _____

APPLICANT INSTRUCTIONS: All applicants must complete this application form. The Commission will notify the applicant of any additional information that may be required and will schedule a Public Hearing if necessary. In addition to the information required, the applicant may submit other supporting facts or documents which may assist the Commission in its evaluation of this proposal. **PLEASE SUBMIT FOURTEEN (14) COPIES OF THE APPLICATION AND FOURTEEN (14) COPIES OF ANY OTHER DOCUMENTS AT LEAST FIVE BUSINESS DAYS PRIOR TO THE MEETING.**

I. Applicant Information

Name Daniela Gjergaj
Address 301 Chesterfield Road, East Lyme, CT 06333
Tel # _____ Cell # 808-268-0123
Fax # _____ Email aceshighrvparkct@gmail.com

Interest in Property ☐ Owner ☐ Option Holder ☐ Developer ☐ Harvester ☐ Other
☐ **Attach a Written Consent to the proposed activity from the owner if applicant is not the owner** ☐ Required ☐ Not Required

II. Owner Information

Name Daniela Gjergaj Address 301 Chesterfield Road, East Lyme, CT 06333
Tel # _____ Cell # 808-268-0123
Fax # _____ Email aceshighrvparkct@gmail.com

III. Engineer Information

Contact Robert DeLuca
Firm CLA Engineers, Inc. Address 317 Main Street, Norwich, CT 06360
Tel # 860-886-1966 Cell # 860-334-4207
Fax # 860-886-9165 Email bdeluca@claengineers.com

IV. Attorney Information

Contact William Sweeney, Esq.
Firm TCORS, PC Address 43 Broad St., PO Box 458, New London, CT
Tel # 860-447-0335 Cell # 860-823-9394
Fax # 860-442-3469 Email wrsweeney@tcors.com

V. Property Information

Address of Proposed Activity Silver Falls Road
Assessor's Map and Lot Number 001/007/00A
Land Records /Deed Volume: 691 Page: 1082 Acreage of Property 19.51
Zoning R80

Provide a List of the Names and Mailing Addresses of Adjacent Property Owners (Attach Sheet)

VI. Wetlands and Watercourse Information

Total Acreage of Wetlands on the site 3.47 acres
Wetland Disturbance Area 4,590 sq ft
Upland Review Disturbance Area 32,155 sq ft
Have the Wetlands Been Flagged ☒ Yes ☐ No Year _____
Name of Soil Scientist Robert Russo, CSS
Linear Feet of Watercourse Disturbance 0 ft
Creation of New Wetlands 0 sq ft

VII. Project Description

☒ Subdivision ☐ Review No Regulated Activity ☐ Permit Modification
☒ Regulated Activity ☐ Permitted Use as of Right ☐ Permit Renewal

Activity will involve (Check all that apply)

☒ Alteration ☒ Construction ☐ Pollution ☐ Stormwater Discharge
☒ Deposition of Material 110 cubic yards
☒ Removal of Material 20 cubic yards

See attached checklist of items that are to be included on Plan and supplemental data.

A) Attach a Detailed Plan of the Proposal and indicate Plan Title and Date.

residential resubdivision - Map 001 - Block 007 - Lot 00A

Silver Falls Road

B) Provide Brief Description of the Proposed Project on separate piece of paper. Instructions attached.

C) List Titles and dates of all documentation which will be included and submitted with this application and attach to application. Documents should include, but are not limited to; Project Proposal, Soil Scientist Reports, and Drainage Calculations.

VIII. Other Information

1. Does the application involve an activity in a regulated area that is within 500 ft of another municipality?

☒ Yes ☐ No

- If YES, then a copy of the application and all material is to be submitted to said Town and a copy of the transmittal form is to be provided to the Commission.

2. Is the property located within a Flood Hazard Area? ☒ Yes ☐ No

-If YES, then please provide additional material showing the location of the area.

3. Is the regulated activity within a Public Water Supply Aquifer or Watershed? ☐ Yes ☒ No

- If YES, then a copy of the application and all material is to be submitted to the State Department of Health as well as the appropriate Water Company. See attached instructions for the Notification Process for the State Health Department. A copy of the transmittal forms shall be provided to the Commission.

4. Does the application require approval from Uncas Health District? ☒ Yes ☐ No
- If YES, then a copy of the approval is to be provided to the Commission.
pending
5. Does the application require approval from the Public Works Dept? ☒ Yes ☐ No
pending
- If YES, then a copy of the approval is to be provided to the Commission.
6. Does the application require approval from the Town of Montville WPCA? ☐ Yes ☒ No
- If YES, then a copy of the approval is to be provided to the Commission.

7. Does the application require permits from the following agencies?

	Submission Info	
Army Corps of Engineers	☐ Yes ☒ No	Date _____
Department of Environmental Protection	☐ Yes ☒ No	Date _____
Department of Transportation	☐ Yes ☒ No	Date _____

- If YES, then a copy of the application and all material is to be submitted to said Agency and a copy of the transmittal form is to be provided to the Commission.

8. Does this permit require a State Water Diversion Permit? ☐ Yes ☒ No
9. Does this permit require a State Dam Permit? ☐ Yes ☒ No
10. Is this property subject to a Conservation Restriction and/or a Preservation Restriction?
-If YES, attach a copy of certified notice. ☐ Yes ☒ No
11. If the application is a renewal or modification of an existing permit, is a copy of the original approval included in the documentation package? ☐ Yes ☒ No

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by agents of the Montville Inland Wetlands Commission at reasonable times, both before and after the permit in question has been granted by the Commission.

Name Daniela Guejón Date 03-27-2025
Property Owner if other than Applicant Daniela Guejón Date 03-27-2025

Section 3.

Soil Scientist Report / Narrative

CLA Engineers, Inc.

Civil • Structural • Survey

317 MAIN STREET • NORWICH, CT 06360 • (860) 886-1966 • (860) 886-9165 FAX

April 7, 2025

Town of Montville
Inland Wetlands Commission
Attn: Douglas K. Brush, Chair
Montville Town Hall
310 Norwich-New London Tpke
Uncasville, CT 06382

Re: Town of Montville
Lot 00A
Silver Falls Rd
Montville, CT
CLA #7885

Dear Mr. Brush:

On behalf of the applicant, CLA Engineers has performed a delineation and functional evaluation of the inland wetlands at the referenced site and assessed the site to provide a basis for determining the potential for impacts. The inland wetland boundary was delineated by Robert Russo CSS between June and November 2024. The wetland boundary and proposed development are shown on the plans prepared by CLA Engineers dated December 5, 2024. These data were augmented with additional online information from CTDEEP, USFWS, USGS, and the Town of Montville.

Site Setting

The site is a 19.5-acre parcel located on the eastern side of Silver Falls Rd south of 27 Silver Falls Rd. The parcel abuts the Town of Waterford and is currently undeveloped. The majority of the parcel is forested and there are six (6) unique wetland areas on the property, five of which appear to have some degree of groundwater or surface connectivity. Only one on-site wetland area (defined on plans as Wetland 101) will be disturbed by the proposed development. Therefore, this wetland impact letter and associated function and value analysis focuses only on Wetland 101. The entire project area is within the Latimer Brook subregional drainage basin (2202).

The surrounding neighborhood is zoned residential (R-60) per most recent update of the Town of Montville Zoning Map and consists of low- to medium-density single family residential lots, many of which are developed.

Soils

The upland and wetland soils mapped on the property by NRCS (USGS) are listed in the table below. Additional descriptive details are provided in Appendix A.

Table 1 - Soil Types and Properties at the Silver Falls Rd Site

<u>Soil Series</u>	<u>Parent Material</u>	<u>Drainage Class</u>	<u>Texture/Characteristics</u>
Ridgebury, Leicester, and Whitman (3)*	Coarse-loamy lodgment till	Poorly drained to very poorly drained	Sandy loam
Paxton and Montauk (85)	Coarse-loamy lodgment till	Well drained	Fine sandy loam
Raypol (12)*	Coarse-loamy eolian deposits	Poorly drained	Silt loam
Woodbridge (46-47)	Coarse-loamy lodgment till	Moderately well drained	Fine sandy loam
Haven (703)	Coarse-loamy eolian deposits	Well drained	Silt loam

*Hydric (wetland) soil type

One wetland soil unit mapped on this site consists of Ridgebury, Leicester, and Whitman soils. The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact.

Another wetland soil unit mapped on this site is comprised of Raypol silt loam. The Raypol series consists of very deep, poorly drained soils formed in loamy over sandy and gravelly outwash. They are nearly level to gently sloping soils in shallow drainageways and low-lying positions on terraces and plains.

The upland soil units on this site are Paxton and Montauk fine sandy loams, Woodbridge fine sandy loam, and Haven silt loam. The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. The soils are very deep to bedrock and moderately deep to a densic contact. These soils are on upland hills and moraines. The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. The Haven series consists of very deep, well drained soils formed in loamy over sandy and gravelly outwash. They are nearly level through

moderately sloping soils on outwash plains, valley trains, terraces, and water-sorted moraine deposits.

Wetland Characteristics

Classification

While the National Wetlands Inventory (NWI <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>) does not identify the wetland, CLA determined the onsite wetland to be a 43,300 square foot palustrine forested wetland (PFO1E) and palustrine emergent wetland (PEM1E) based on field investigation and GIS site review. The description of that classification is provided below.

Classification code: PFO1E

System Palustrine (P): The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Class Forested (FO): Characterized by woody vegetation that is 6 m tall or taller.

Subclass Persistent (1): Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.

Water Regime Seasonally Flooded/Saturated (E): Surface water is present for extended periods (generally for more than a month) during the growing season, but is absent by the end of the season in most years. When surface water is absent, the substrate typically remains saturated at or near the surface.

Classification code: PEM1E

System Palustrine (P): The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.

Class Emergent (EM): Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Subclass Persistent (1): Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.

Water Regime Seasonally Flooded/Saturated (E): Surface water is present for extended periods (generally for more than a month) during the growing season, but is absent by the end of the season in most years. When surface water is absent, the substrate typically remains saturated at or near the surface.

Wetland hydrology

The onsite wetland consists largely of a palustrine forested wetland area with likely groundwater connectivity to other wetlands and water bodies, most notably Silver Falls Pond across the street. Since the proposed development is not within 100 feet of any wetland besides Wetland 101, the below functional assessment focuses only on Wetland 101. The wetland is densely vegetated and appears healthy with high organic matter content in the soil. Various strata of vegetation exist within and around the wetland (trees, shrubs, emergent, mosses, etc.), evidencing relatively high plant biodiversity in the wetland. The wetland sits high in the drainage basin and appears to have groundwater connectivity to the other wetlands on site as well as Latimer Brook, a tributary to the Niantic River. The wetland is saturated but does not contain sufficient ponded water to support finfish or shellfish habitat. Additionally, a FEMA-designated floodplain contains much of Wetland 101 and the surrounding upland. The FEMA flood map for this site is included in Appendix B.

Factors important to functional assessment

The following observations are important to the functional assessment and are listed here to provide context to the later discussion of functions and values.

1. Connecticut protected species are known to be present on the site per the June 2024 update of the CTDEEP NDDB.
2. The wetland has two dominant classes (PFO1E and PEM1E).
3. The local zoning is residential (R-60) per the Town GIS, and the surrounding parcels appear to be used for single-family residences.
4. The wetland has melt-out till soils along its edge and lodgement till soils within per available online mapping. Detailed soil mapping from the U.S. Web Soil Survey are included within Appendix A.
5. The wetland is a part of a larger watercourse system (Niantic River system).
6. The wetland appears to be healthy and densely vegetated, and most of its edges are surrounded by at least 100 feet of undeveloped buffer area.

Principal functions

The functional assessment was conducted using the USCAE Highway Methodology (<https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf>). The assessment is included as Appendix C and it revealed that the wetland has the following principal functions:

1. **Groundwater recharge and discharge:** this wetland has a variable water level and lacks a permanent outlet, indicating that it feeds the groundwater system.
2. **Nutrient removal:** the wetland is rich in organic material, which is highly capable of removing excess nutrients from agricultural operations and roads upland and upstream of the wetland.
3. **Wildlife habitat:** overland access from the wetland is possible to six (6) unique classes of wetland as well as upland areas.
4. **Endangered species habitat:** The Connecticut Natural Diversity Data Base (CTNDDB) has identified the wetland area as an area of concern for endangered species.

Proposed Development

As shown on the project plans, the following activities are planned in the wetland for a total of approximately 4,590 square feet of disturbance:

1. Construction and grading of a common driveway across the property from Silver Falls Rd to the four unique housing lots in the subdivision. Contractors will utilize typical excavators, loaders, rollers, and dump trucks for the construction of the driveway.
2. Construction of a 15" culvert beneath the driveway to promote connectivity in the wetland on both sides of the driveway.
3. Construction of a 70' by 45' stormwater quality basin within the upland review area (outside of the wetland) to manage runoff from the driveway area.
4. Implementation of erosion and sedimentation control measures in and around the project area including silt fence, grassed swale, anti-tracking pad, and hay bale barrier.

Table: total wetland impacts from the proposed driveway construction

	Area in square U.S. feet	Area in acres
Permanent area impacted	4590 +/-	0.10 +/-
Temporary area impacted	0	0

Potential for Impacts

The proposed activities outlined above may impact the wetland's principal functions in the following ways:

1. **Groundwater recharge and discharge:** because the stormwater basin is sized to accommodate for the changes in drainage due to the driveway, CLA does not anticipate any changes to the wetland's ability to perform this function.
2. **Nutrient removal:** the proposed driveway could increase the overall nutrient load into the wetland. However, if proper erosion and sedimentation controls are implemented during and after construction as indicated on plans, CLA does not predict significant impacts to this functionality.
3. **Wildlife habitat:** because the area of the driveway is small relative to the wetland and quite narrow, we do not expect this project to impact wildlife habitat via fragmentation or other means. For instance, bats can easily travel across roadways with low or moderate traffic flow where the distance from one tree canopy to the other is less than 20 meters¹. Because the proposed project is a private driveway only 14 feet in width, we do not expect to see any habitat fragmentation or collision risk for bat species.
4. **Endangered species habitat:** see "Wildlife Habitat" above.

Narrative Describing the Activities to Take place on the property.

This section is responsive to the Town of Montville Inland Wetlands Checklist, page 2 Item 3, Narrative.

Alternatives considered

This site is a developable parcel of land that has wetland along the entire road frontage as shown on the project plans. As such, the access driveway was located so as to minimize the total area of wetland disturbance by crossing the wetlands at the narrowest point.

Description of the activity including location and square footage of disturbance.

The overall all project consists of a 4-lot residential subdivision to be accessed from Sliver Spring Rd in Montville. The proposed development includes on site driveways, septic systems, wells, rain gardens and a stormwater treatment basin. The regulated activity includes construction of a residential driveway and a stormwater management basin within the upland review zone. More specifically, there will be a loss of approximately 4590 square feet of forested wetland in two separate locations within the first 400 feet of the intersection with Silver Falls Rd. The construction will include a 15 inch diameter culvert at the first crossing location in order to provide connectivity to the upslope wetland and to protect the driveway. This work will be done in only after meeting with town staff and installation of the proper erosion and sediment control measures. The work will be performed with excavators, bulldozers and dump trucks.

What type of erosion and sediment control will be used?

As shown on the site plan, the following best management practices will be employed:

1. An anti-tracking pad at the construction entrance.
2. A rip rap swale along the edge of the driveway
3. Silt fence along the limits of disturbance
4. De-watering, if needed, as shown on the dewatering detail on the site plans.

If machinery will be used or if work will be done by hand.

Machinery will be used and it will include typical heavy construction machines such as excavators, bulldozers, and dump trucks.

Identify the sub-drainage basin where the proposed activity will occur.

The sub-drainage basin is number 2202.

Summary

CLA has designed the wetland crossing to occur at the narrowest available location thus providing for minimal loss of wetland habitat and function. If proper erosion and sedimentation controls are installed according to the site plans, we do not anticipate the proposed development will have any significant impact on the four principal functions of the onsite forested wetland.

Sincerely,

Robert C Russo

Robert C. Russo

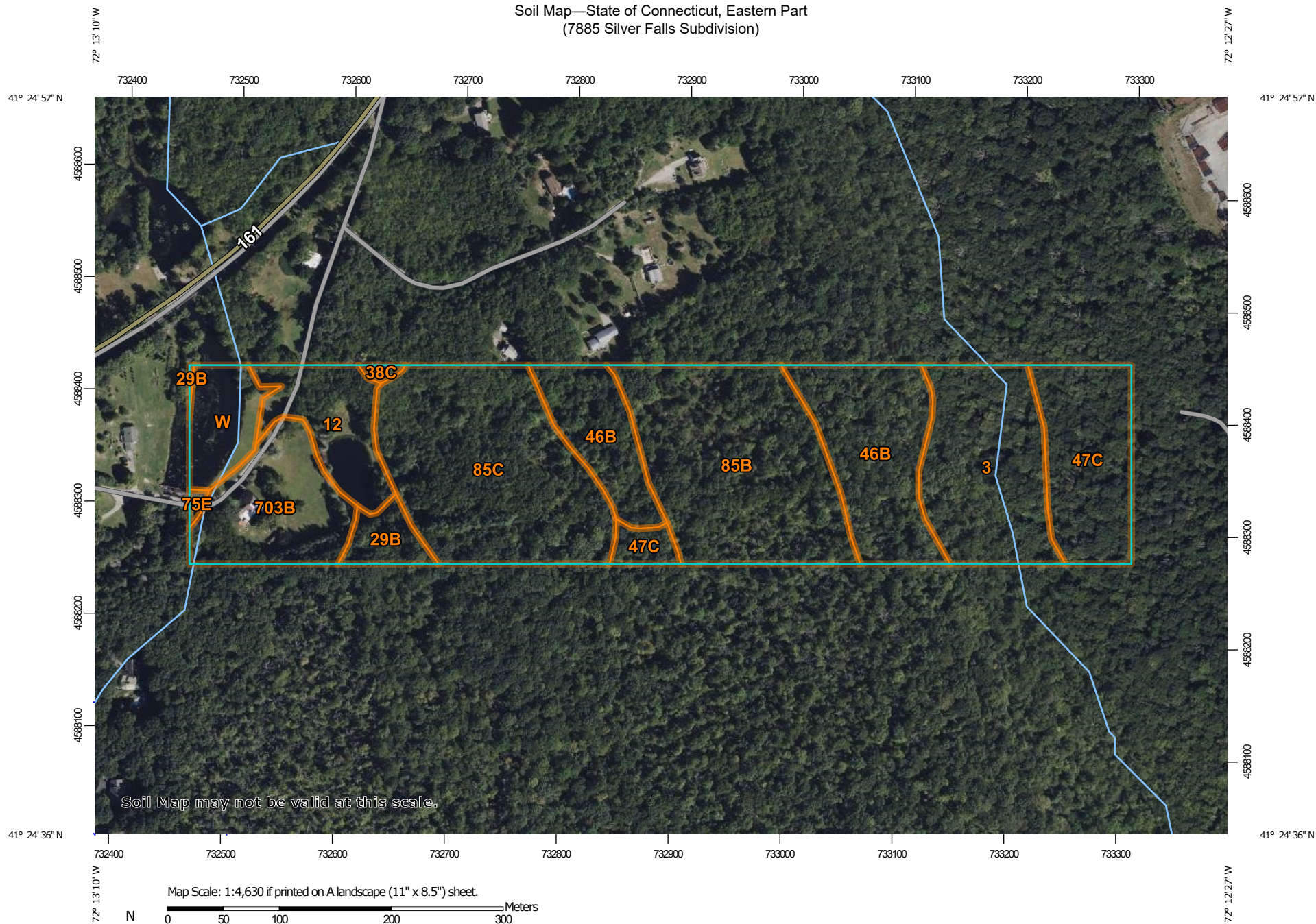
Soil and Wetland Scientist

CLA Engineers, Norwich, CT

Appendix A: Soil Map

Adapted from Web Soil Survey, U.S. Geological Survey, U.S. Department of Agriculture

Soil Map—State of Connecticut, Eastern Part
(7885 Silver Falls Subdivision)



Soil Map may not be valid at this scale.

Map Scale: 1:4,630 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

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



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

12/2/2024
Page 1 of 3

Soil Map—State of Connecticut, Eastern Part
(7885 Silver Falls Subdivision)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Eastern Part

Survey Area Data: Version 2, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

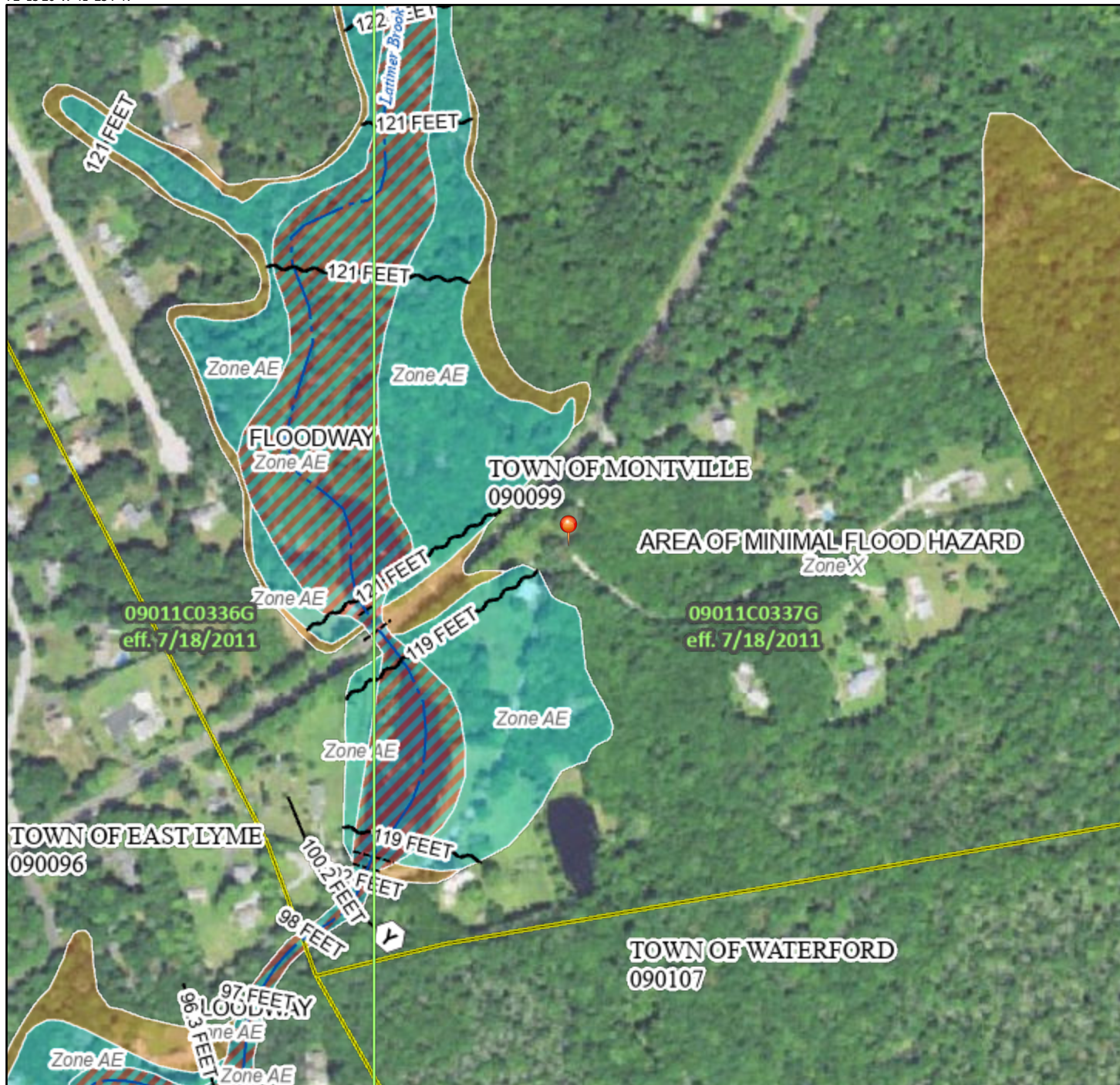
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	4.6	12.4%
12	Raypol silt loam, 0 to 3 percent slopes	2.3	6.1%
29B	Agawam fine sandy loam, 3 to 8 percent slopes	0.8	2.2%
38C	Hinckley loamy sand, 3 to 15 percent slopes	0.1	0.3%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	6.1	16.5%
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	3.8	10.4%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	0.1	0.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	7.1	19.2%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	7.3	19.8%
703B	Haven silt loam, 3 to 8 percent slopes	3.2	8.8%
W	Water	1.5	4.1%
Totals for Area of Interest		36.9	100.0%

Appendix B: FEMA Firmette Map

National Flood Hazard Layer FIRMMette



72°13'20"W 41°25'7"N



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

1:6,000

72°12'42"W 41°24'40"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



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

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/19/2024 at 4:51 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C: Army Corps Wetland Assessment Sheet

Wetland Function-Value Evaluation Form

Wetland I.D. 778S WL 101
 Latitude 41.414 Longitude -72.217
 Prepared by: MKA Date 12/2/24
 Wetland Impact: 3200
 Type Permanent Area 31000 ft²

Evaluation based on:
 Office ☒ Field ☒
 Corps manual wetland delineation completed? Y ☐ N ☒

Total area of wetland 43,300^{sq ft} Is wetland part of a wildlife corridor? yes or a "habitat island"? yes
 Adjacent land use residential, forested Distance to nearest roadway or other development 0' Falls Rd
 Dominant wetland systems present PFOIE, PEM1E Contiguous undeveloped buffer zone present 260%

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? high
 How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	4, 7, 9, 13, 15	✓	Likely GW connection to nearby WLs
Floodflow Alteration	Y	2, 5, 7, 8, 9, 10, 13		High veg density, evidence of perched aquifer
Fish and Shellfish Habitat	N			Hydrology unlikely to support fish
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 7, 8, 11		High organic content in WL soils
Nutrient Removal	Y	3, 4, 5, 6, 7, 8, 9, 12	✓	Likely nutrient input from upland
Production Export	N			Little evidence of production/export
Sediment/Shoreline Stabilization	N			No evidence of erosion
Wildlife Habitat	Y	1, 3, 4, 5, 7, 6, 9, 10, 13	✓	Overland access to 6 unique WL classes
Recreation	Y Y	2, 4, 5, 7, 8, 11, 12		WL is on private property → evidence of hiking/biking
Educational/Scientific Value	Y	1, 2, 3, 4, 5, 9, 10, 13		Private property but visible from street
Uniqueness/Heritage	N			No known historical use/appreciation
Visual Quality/Aesthetics	Y	1, 2, 3, 4, 6, 7, 8, 10, 11		Private property
ES Endangered Species Habitat	Y	2	✓	WL included in CT NDDB
Other	✓	✓	✓	

* Refer to backup list of numbered considerations.

Notes:

Section 4.
DEEP Reporting Form



Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

GIS CODE #: _____
For DEEP Use Only

79 Elm Street • Hartford, CT 06106-5127

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete this form in accordance with the instructions on pages 2 and 3 and mail to:

DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106

Incomplete or incomprehensible forms will be mailed back to the inland wetlands agency.

PART I: Must Be Completed By The Inland Wetlands Agency

1. DATE ACTION WAS TAKEN: year: _____ month: _____

2. ACTION TAKEN (see instructions - one code only): _____

3. WAS A PUBLIC HEARING HELD (check one)? yes ☐ no ☐

4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:

(print name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTIVITY IS OCCURRING (print name): Montville

does this project cross municipal boundaries (check one)? yes ☐ no ☒

if yes, list the other town(s) in which the activity is occurring (print name(s)): _____

6. LOCATION (see instructions for information): USGS quad name: Palmertown or number: 30025

subregional drainage basin number: 2202

7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): Daniela Gjergjaj

8. NAME & ADDRESS OF ACTIVITY / PROJECT SITE (print information): Silver Falls Rd, Montville, CT

briefly describe the action/project/activity (check and print information): temporary ☒ permanent ☐ description: construction of a driveway to service four new homes

9. ACTIVITY PURPOSE CODE (see instructions - one code only): B

10. ACTIVITY TYPE CODE(S) (see instructions for codes): 1, 2, 9, 12

11. WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, must provide acres or linear feet):

wetlands: 0.073 acres open water body: 0 acres stream: 0 linear feet

12. UPLAND AREA ALTERED (must provide acres): 1.10 acres

13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): 0 acres

DATE RECEIVED:

PART III: To Be Completed By The DEEP

DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO

FORM CORRECTED / COMPLETED: YES NO

Section 5.
USGS Map



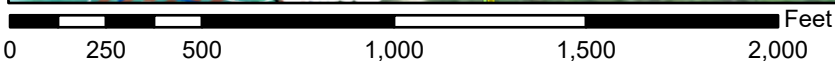
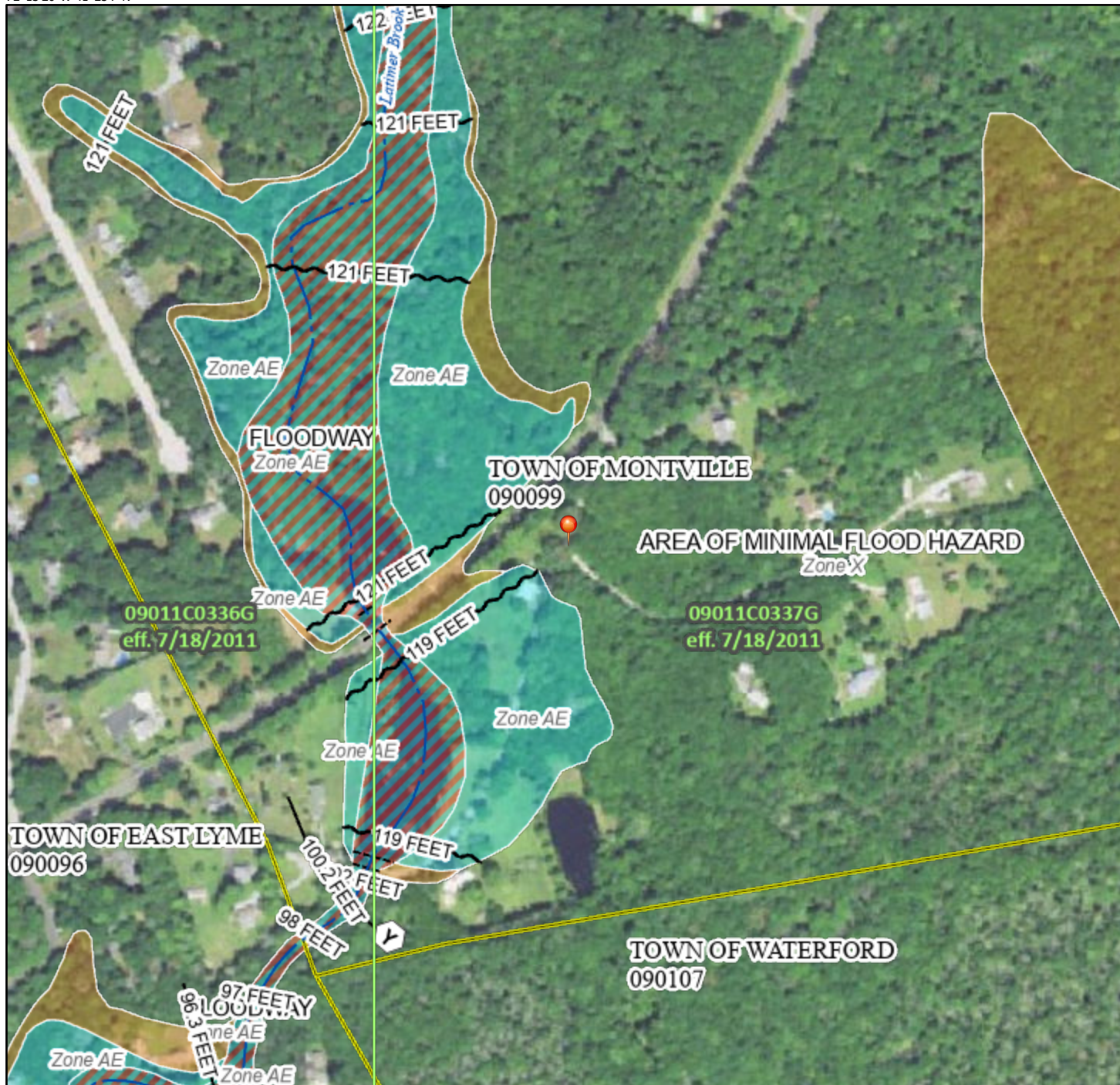
Section 6.

Firmette

National Flood Hazard Layer FIRMMette



72°13'20"W 41°25'7"N



1:6,000

72°12'42"W 41°24'40"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



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

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/19/2024 at 4:51 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Section 7.

List of Adjacent Property Owners

Adjacent Property Owner to Map 001/Block 007/Lot 00A

Owner	Location	Mailing Address	Mailing City	Mailing State	Mailing Zip
PALMER MICHAEL A	45 SILVER FALLS RD	45 SILVER FALLS RD	OAKDALE	CT	063701824
GJERGJAJ DANIELA	SILVER FALLS RD	301 CHESTERFIELD RD	EAST LYME	CT	063331003
MACKAY JEFFREY R & JAMIE R	27 SILVER FALLS RD	27 SILVER FALLS RD	OAKDALE	CT	06370
HARVEY-BLAGDEN ELFRIEDA ELEANOR	15 SILVER FALLS RD	15 SILVER FALLS RD	OAKDALE	CT	063701824
STEARNS BRIAN J	230 BUTLERTOWN RD	230 BUTLERTOWN RD	OAKDALE	CT	06370
SKINNER CARMEN H	11 SILVER FALLS RD	11 SILVER FALLS RD	OAKDALE	CT	06370
MONTVILLE STAGING LLC	252 BUTLERTOWN RD	121 MEMORIAL DR	SPRINGFIELD	MA	01104
FIRLIK JOSEPH	225 BUTLERTOWN ROAD	34 ROGERS HILL ROAD	WATERFORD	CT	06385
GOLDEN TRAILS LLC	83 PEMBER ROAD	301 CHESTERFIELD ROAD	EAST LYME	CT	06333
WATERFORD LAND TRUST INC	55 PEMBER ROAD	PO BOX 926	WATERFORD	CT	06385
CYR VICTORIA & PALMER MICHAEL	18 SILVER FALLS RD	18 SILVER FALLS RD	OAKDALE	CT	063701823
BOSKA MARILYN L/U & BOSKA ROBERT W L/U & PRZYBYL LORI S B L/U & PALMER MICHAEL A	40 SILVER FALLS RD	45 SILVER FALLS RD	OAKDALE	CT	063701824

Section 8.
Drainage Report

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



CLA Engineers, Inc.

Civil • Structural • Survey

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

CLA Engineers, Inc.
Civil • Structural • Survey

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	

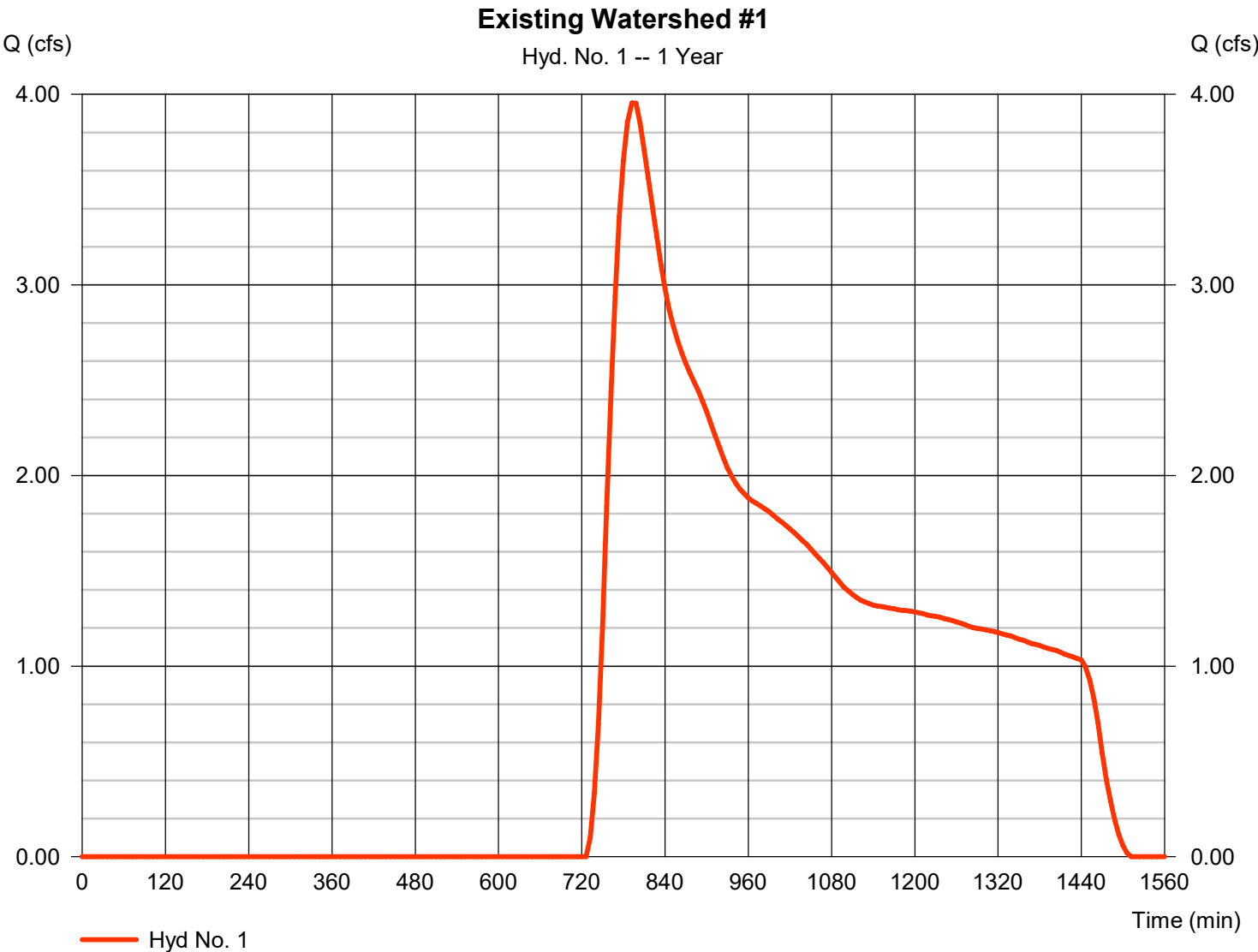
Hydrograph Report

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

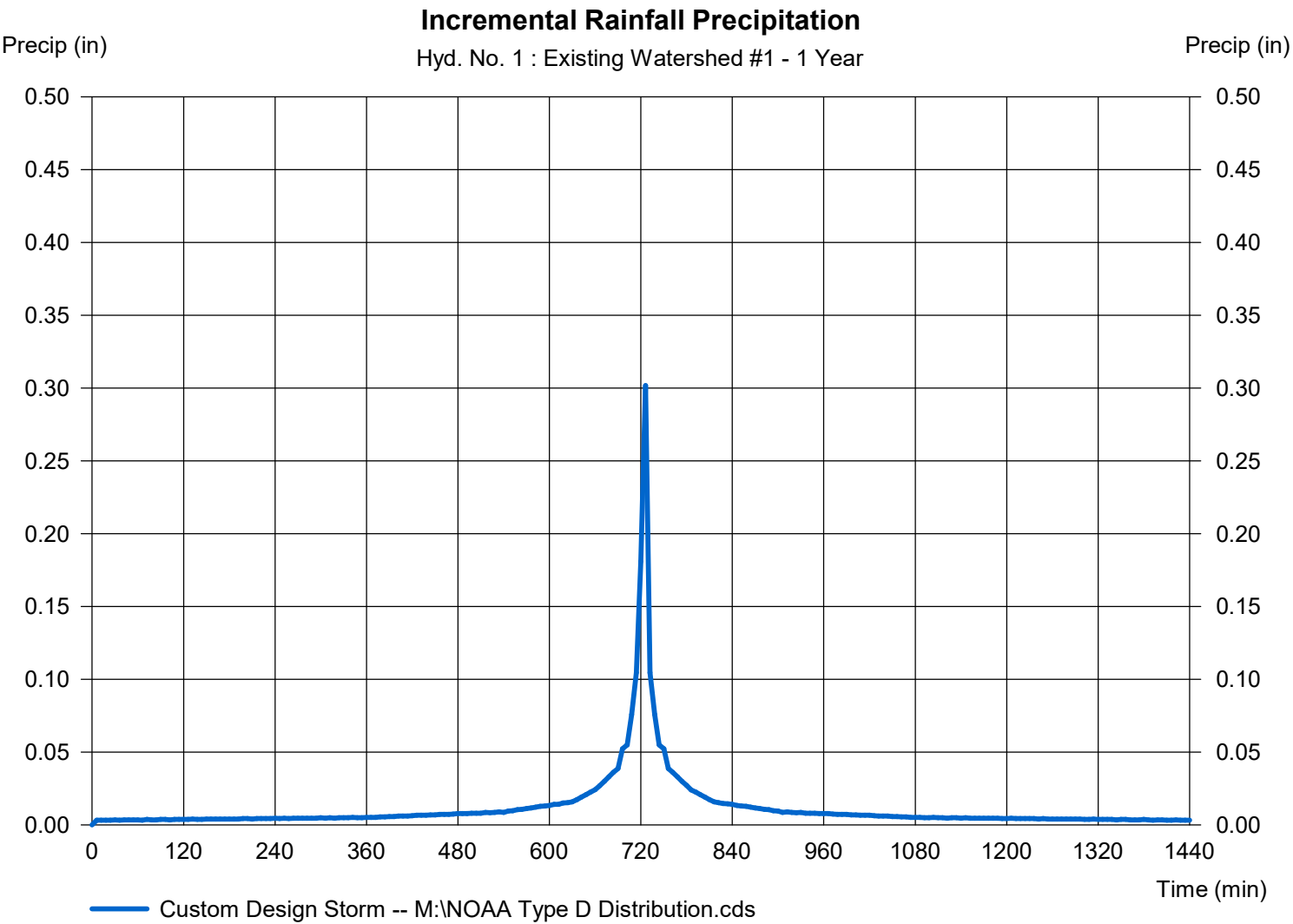
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.800	0.011	0.011				
Flow length (ft)	= 150.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.37	0.00	0.00				
Land slope (%)	= 4.00	0.00	0.00				
Travel Time (min)	= 38.19	+	0.00	+	0.00	=	38.19
Shallow 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		



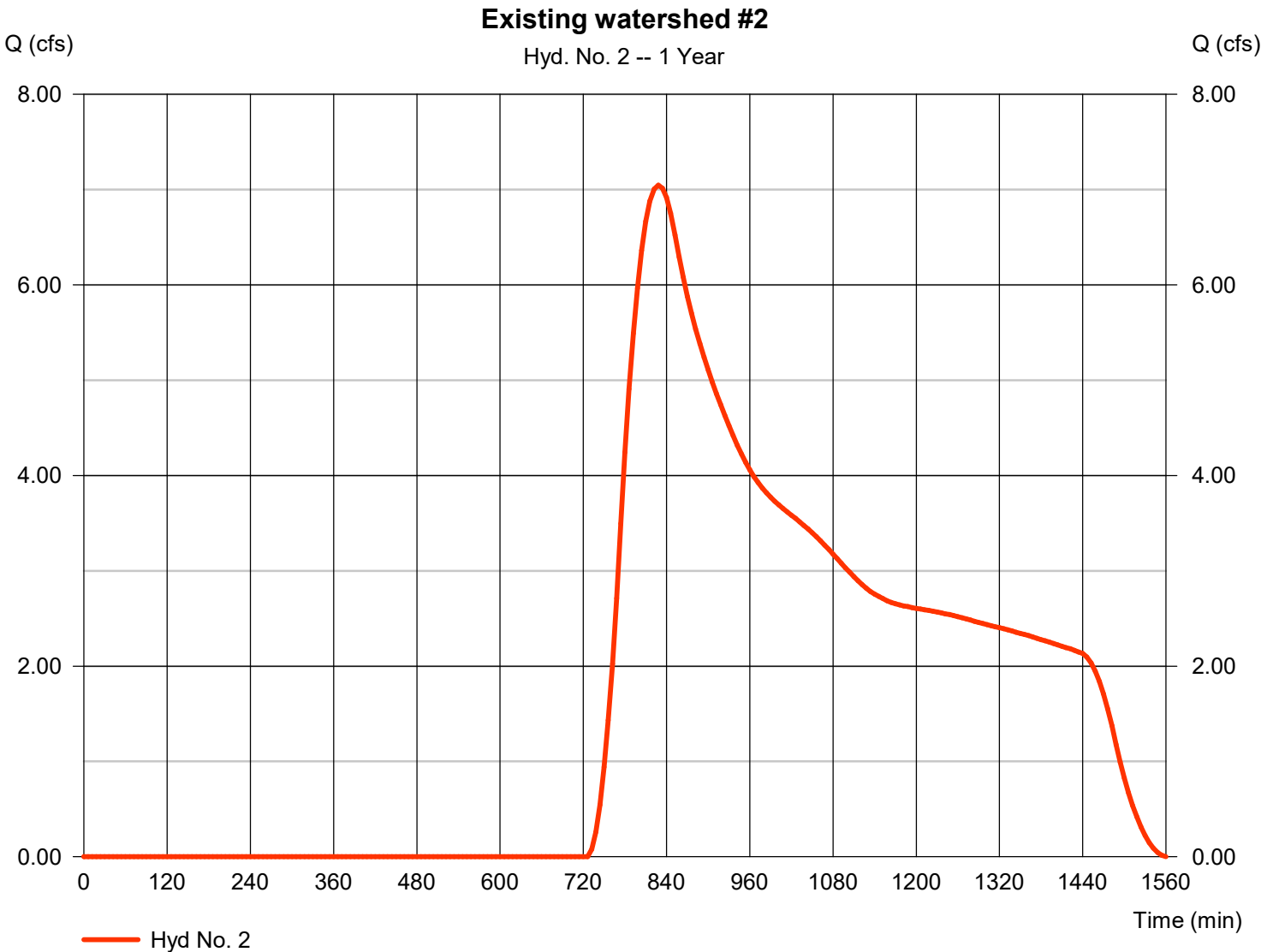
Hydrograph Report

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	= 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

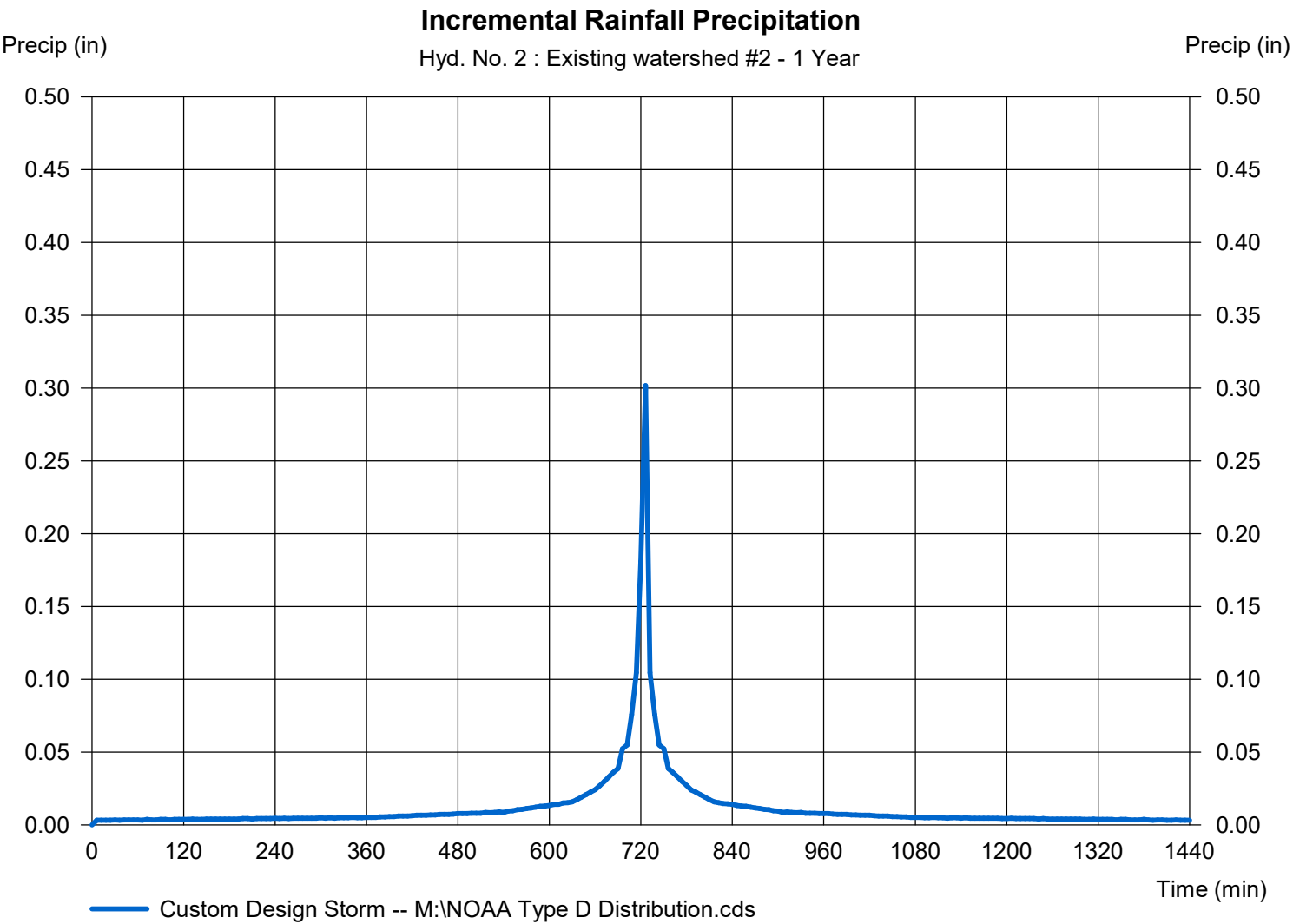
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.800	0.011	0.011				
Flow length (ft)	= 150.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.37	0.00	0.00				
Land slope (%)	= 5.30	0.00	0.00				
Travel Time (min)	= 34.12	+	0.00	+	0.00	=	34.12
Shallow 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		



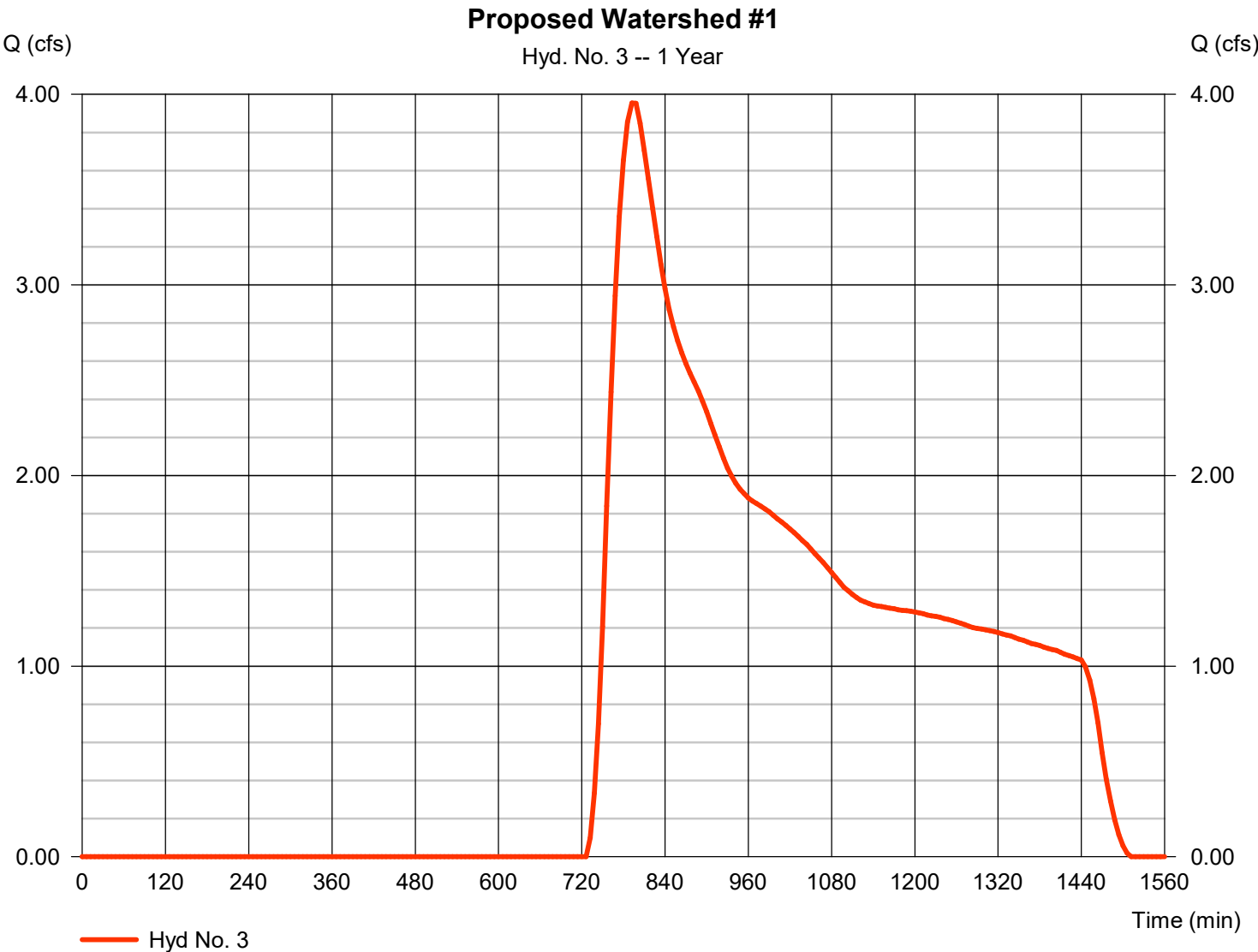
Hydrograph Report

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.xls	Shape factor	= 484

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

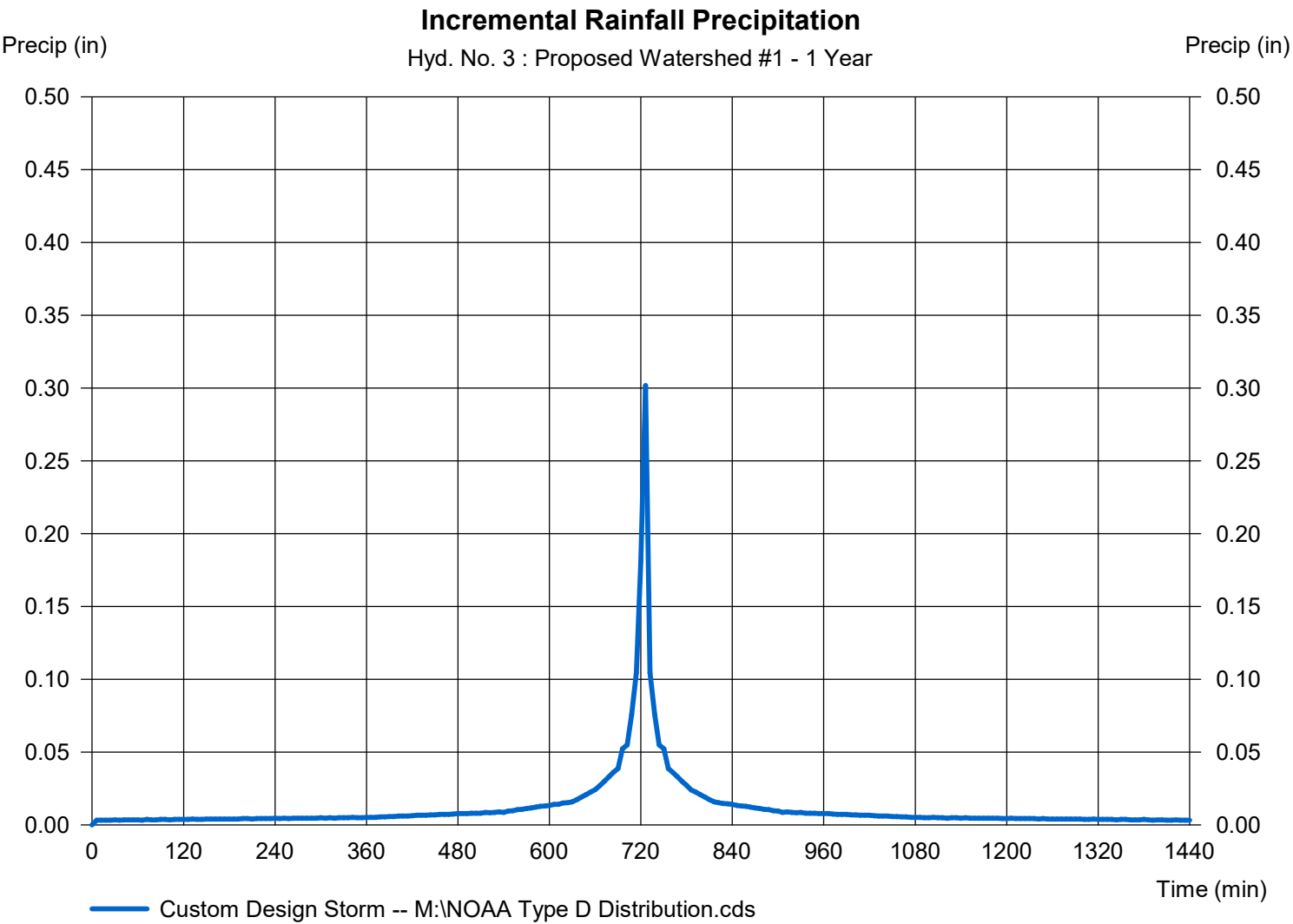


Precipitation Report

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

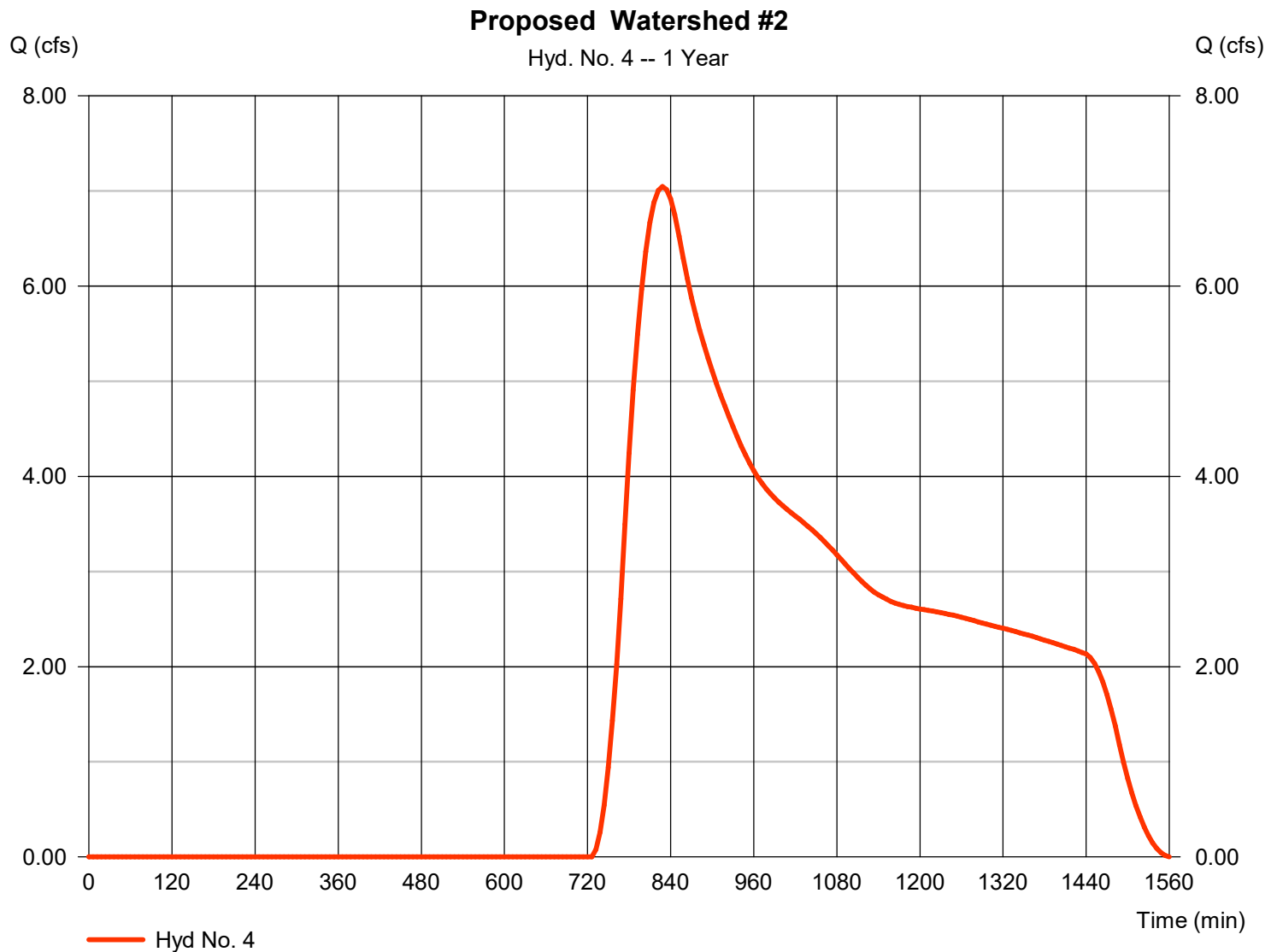
Tuesday, 04 / 8 / 2025

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



TR55 Tc Worksheet

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

Hyd. No. 4

Proposed Watershed #2

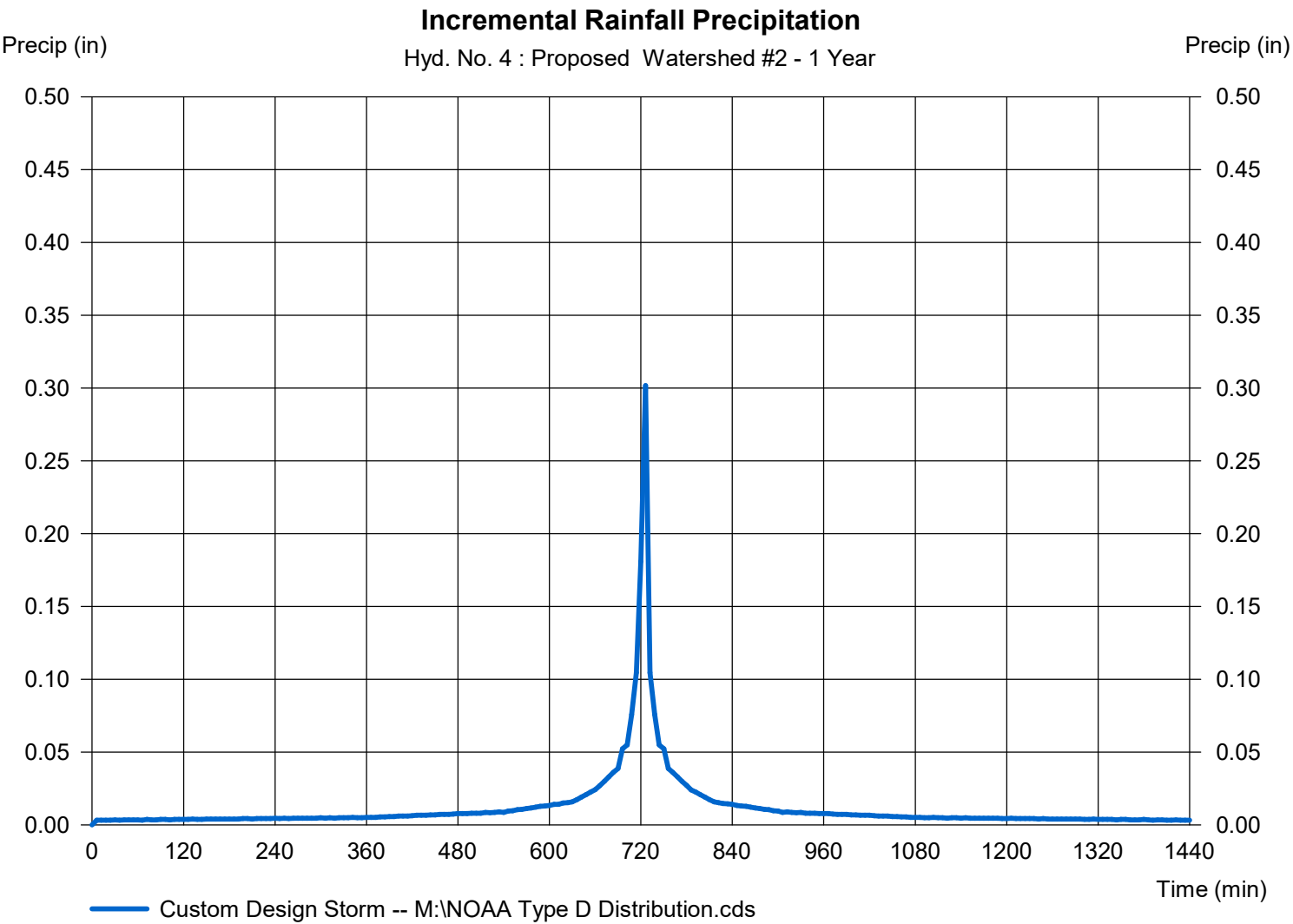
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.000	0.000	0.000				
Flow length (ft)	= 0.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 0.00	0.00	0.00				
Land slope (%)	= 0.00	0.00	0.00				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Shallow Concentrated 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

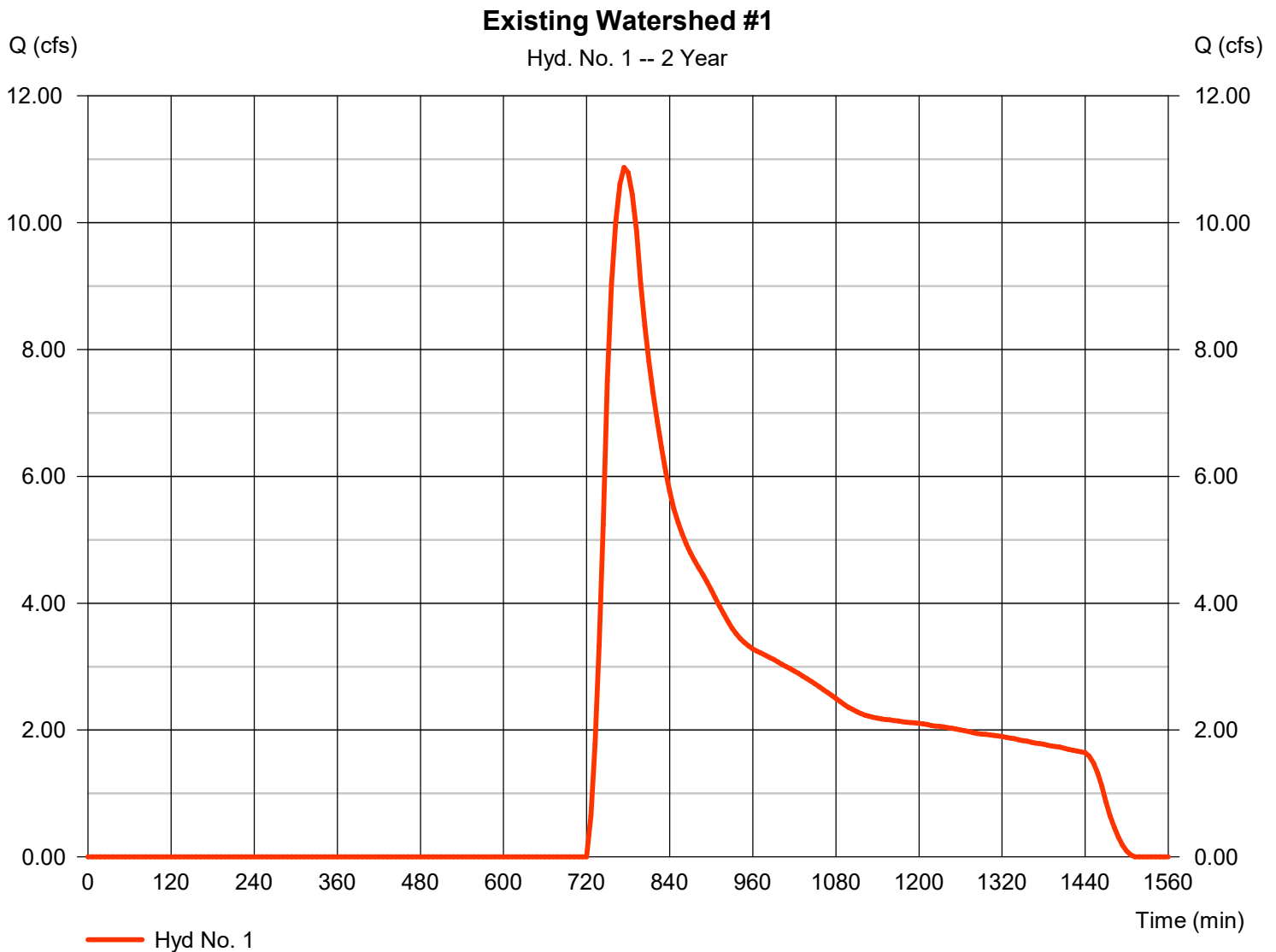
Tuesday, 04 / 8 / 2025

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 x 55)] / 129.000

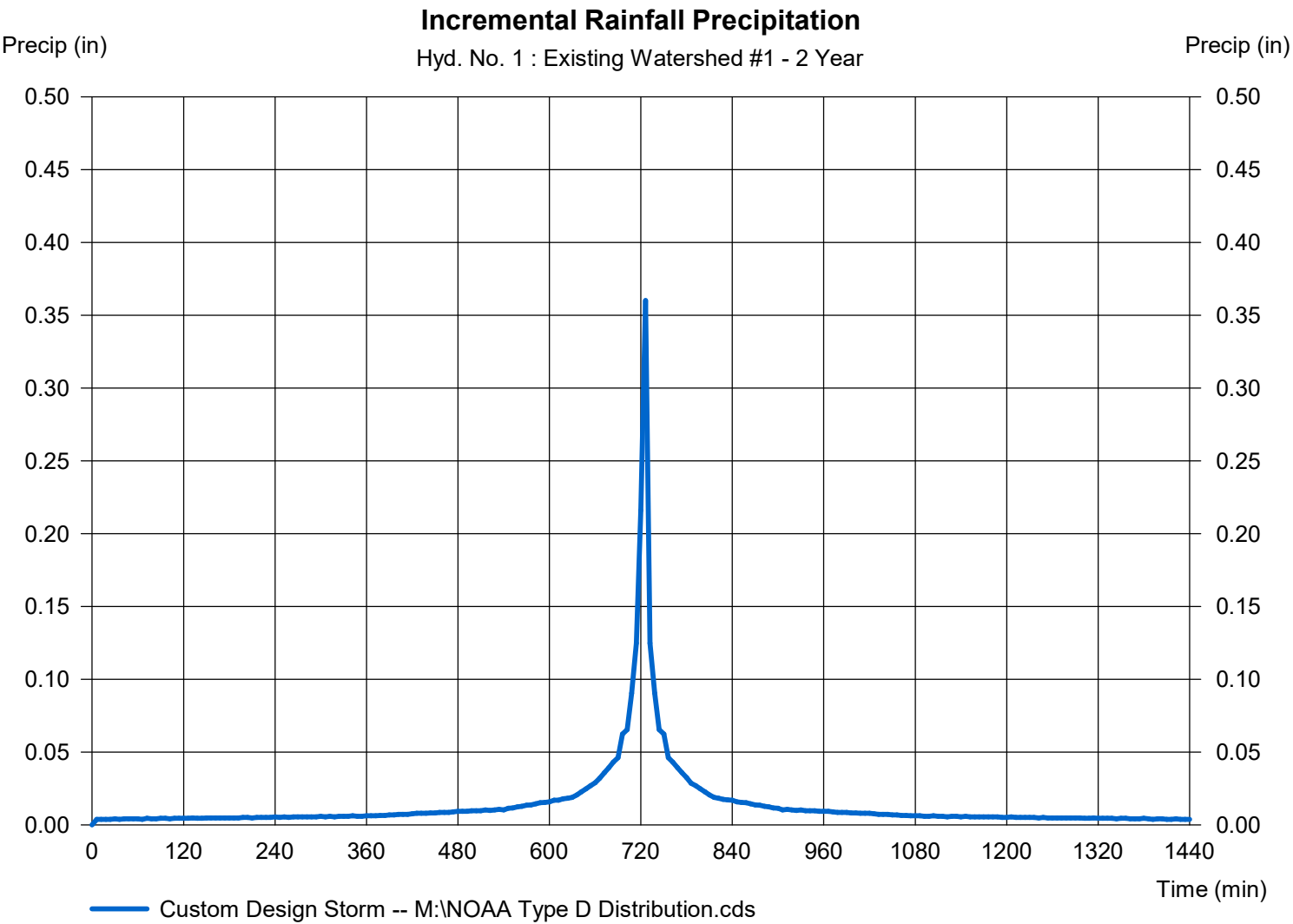


Precipitation Report

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		

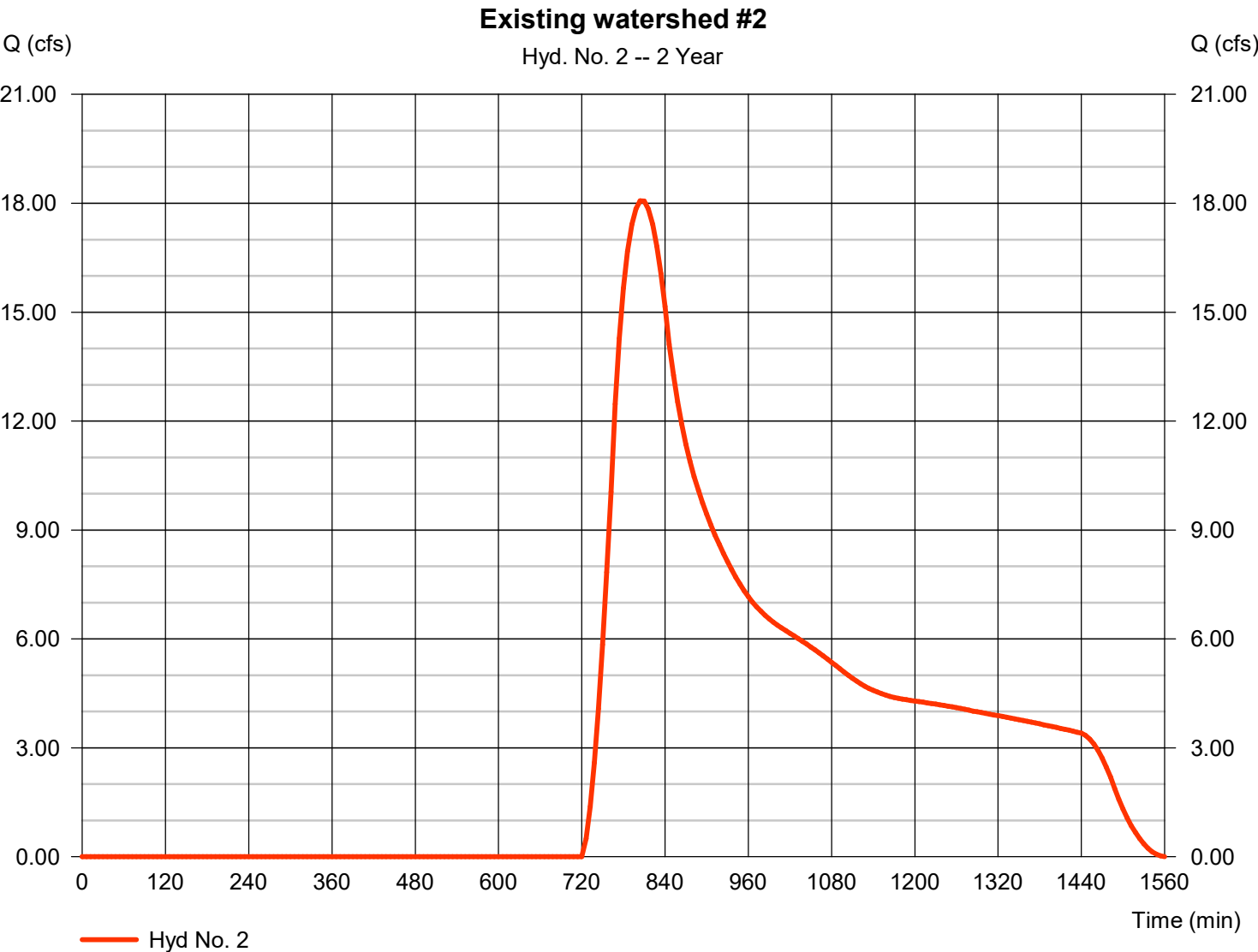


Hydrograph Report

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

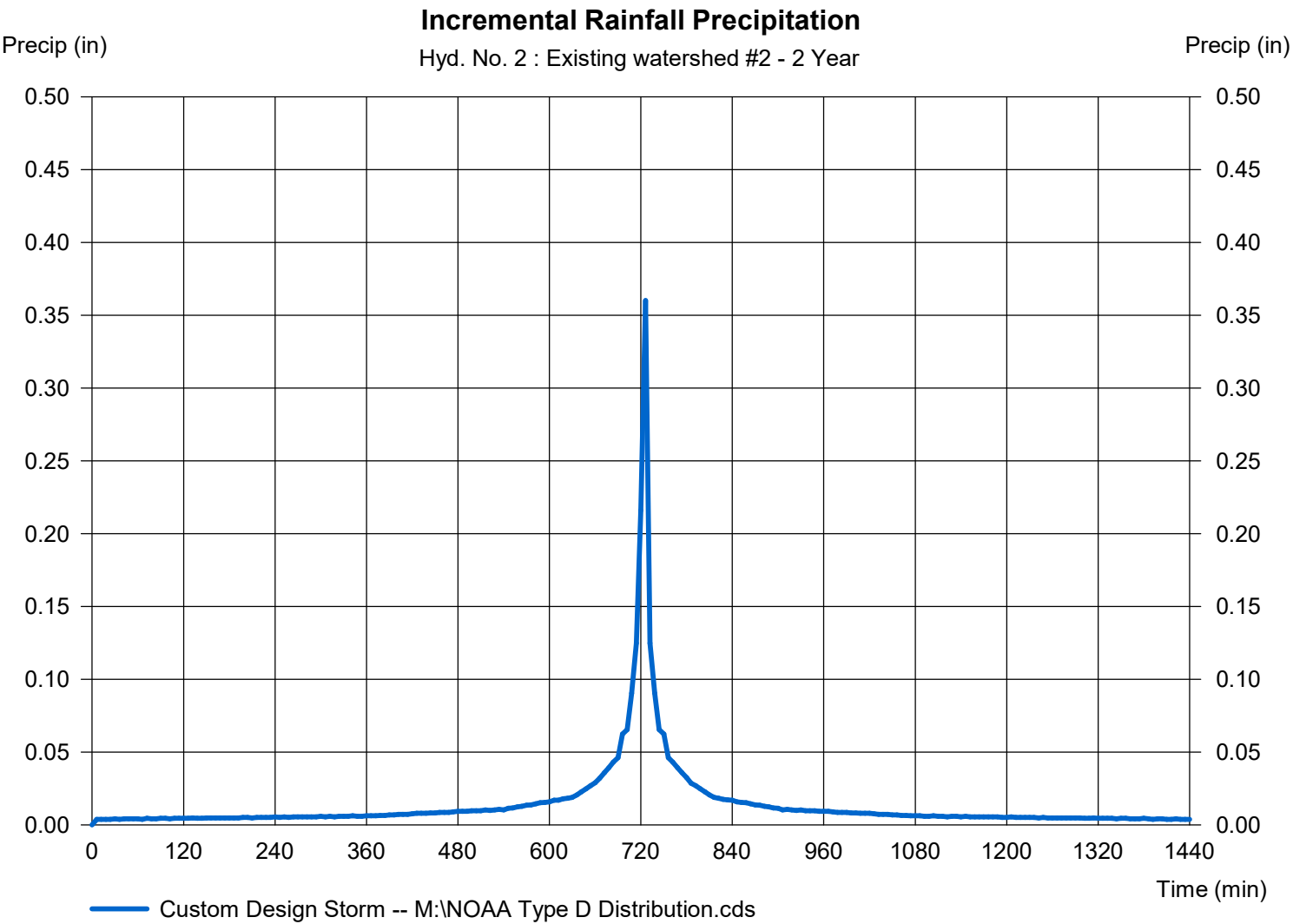


Precipitation Report

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		



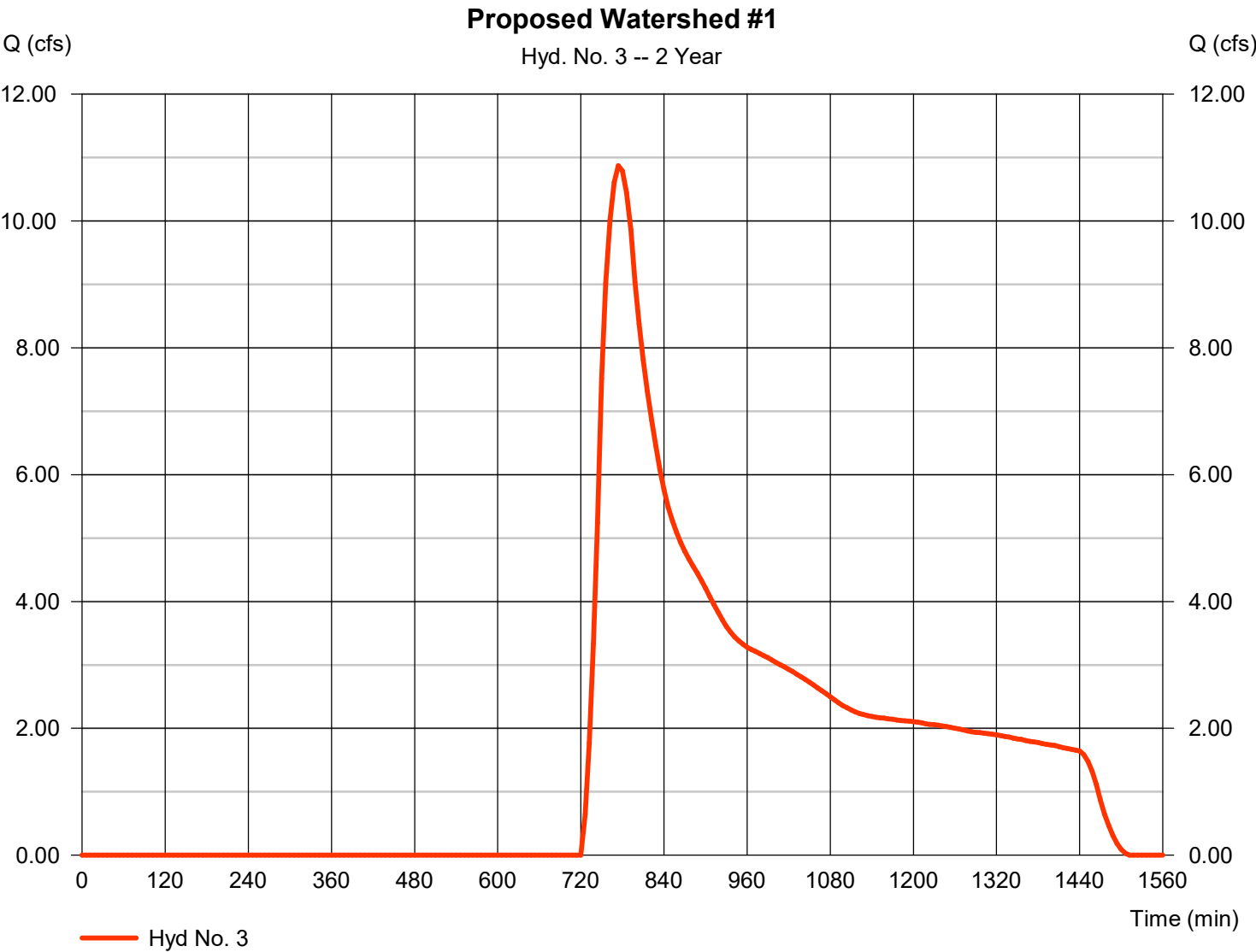
Hydrograph Report

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

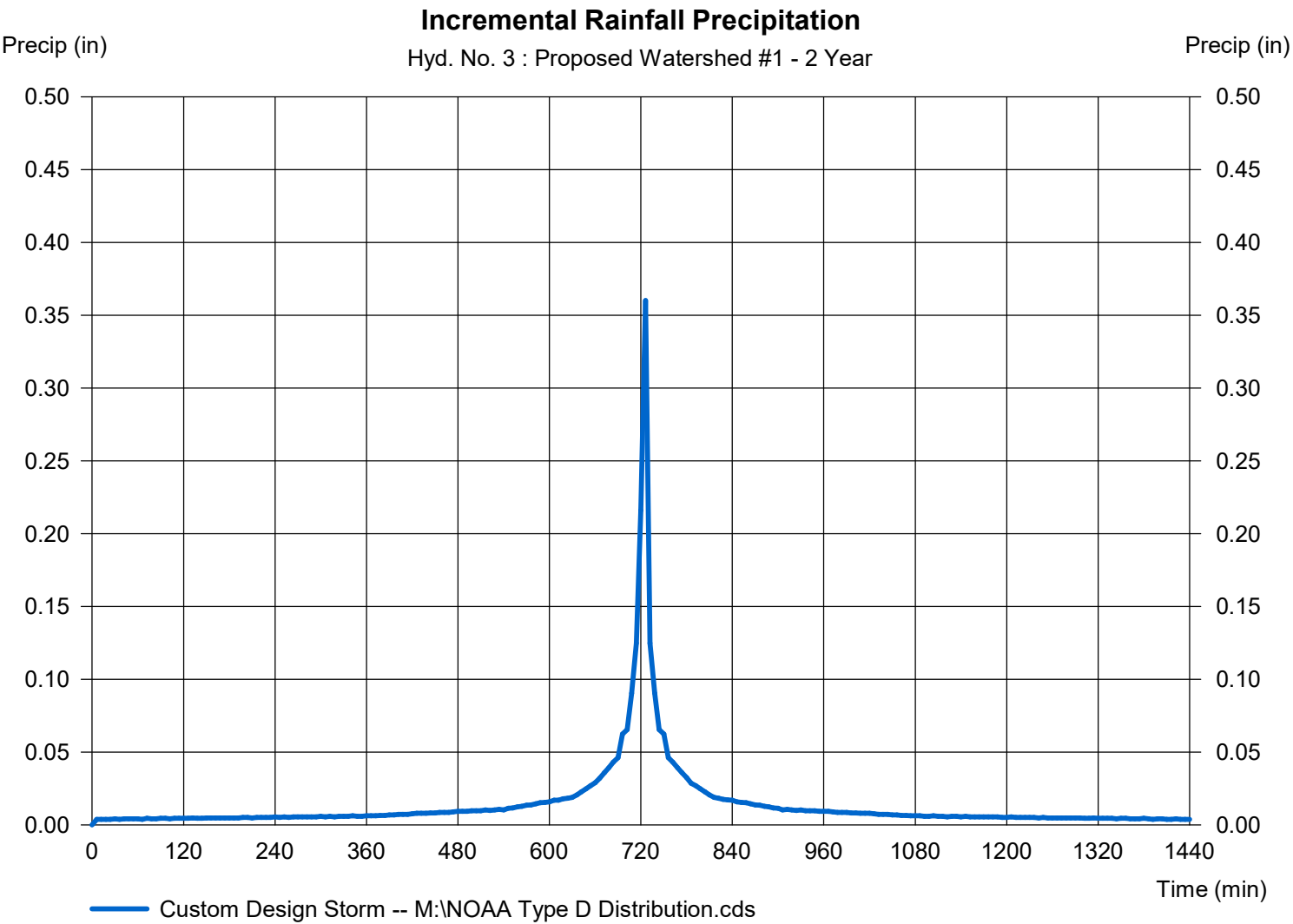


Precipitation Report

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		



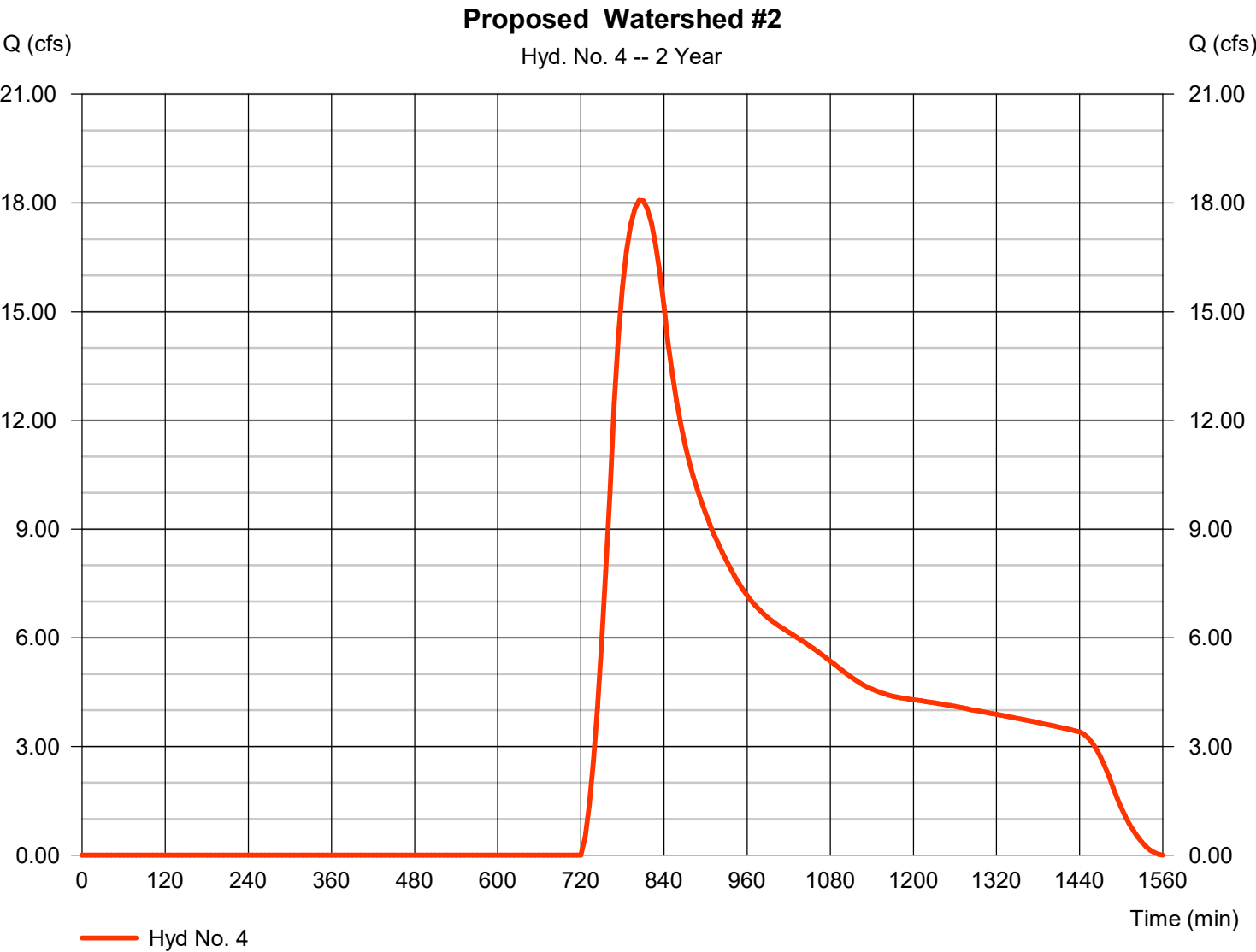
Hydrograph Report

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 x 61) + (1.000 x 98) + (255.150 x 55)] / 257.000

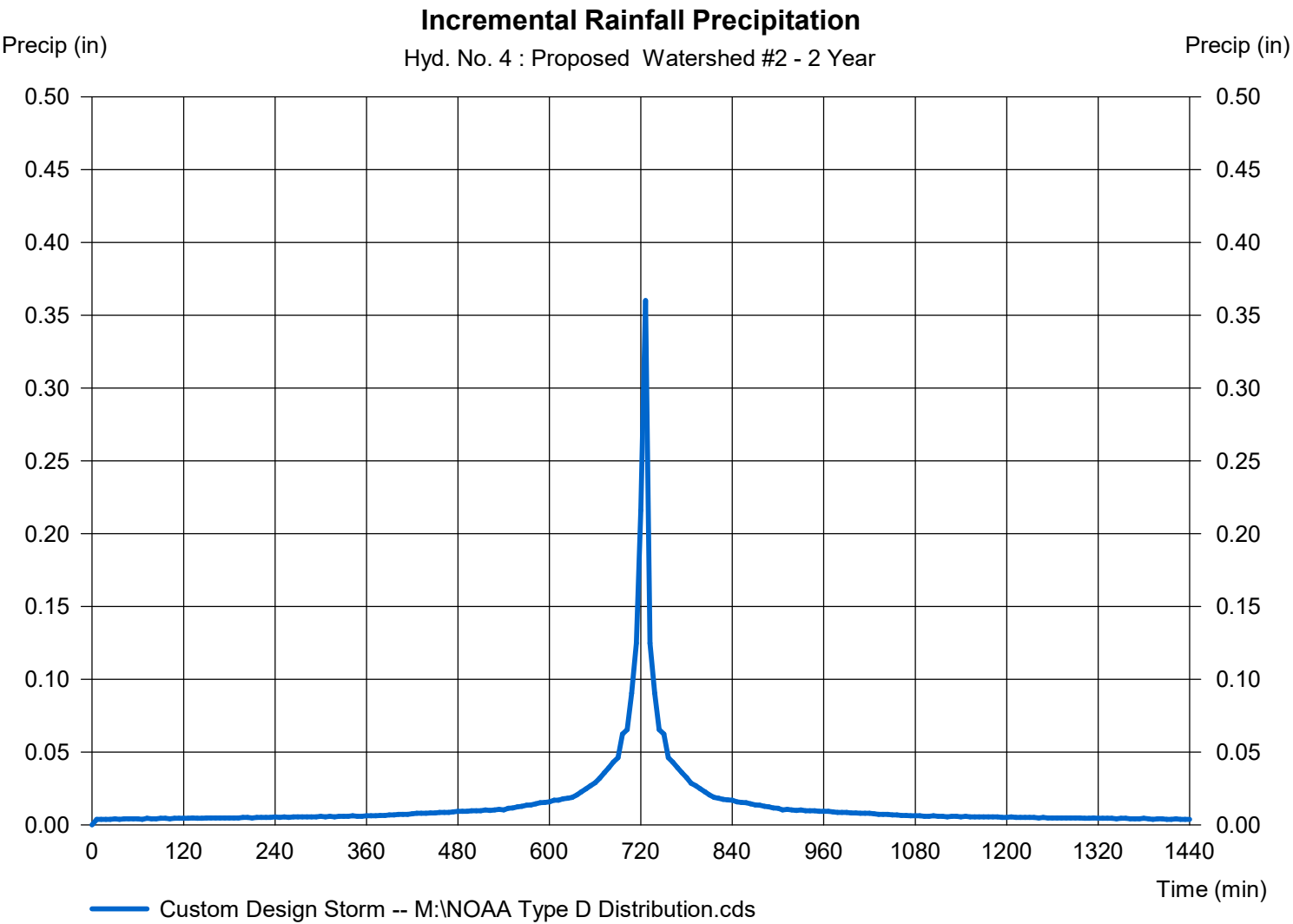


Precipitation Report

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

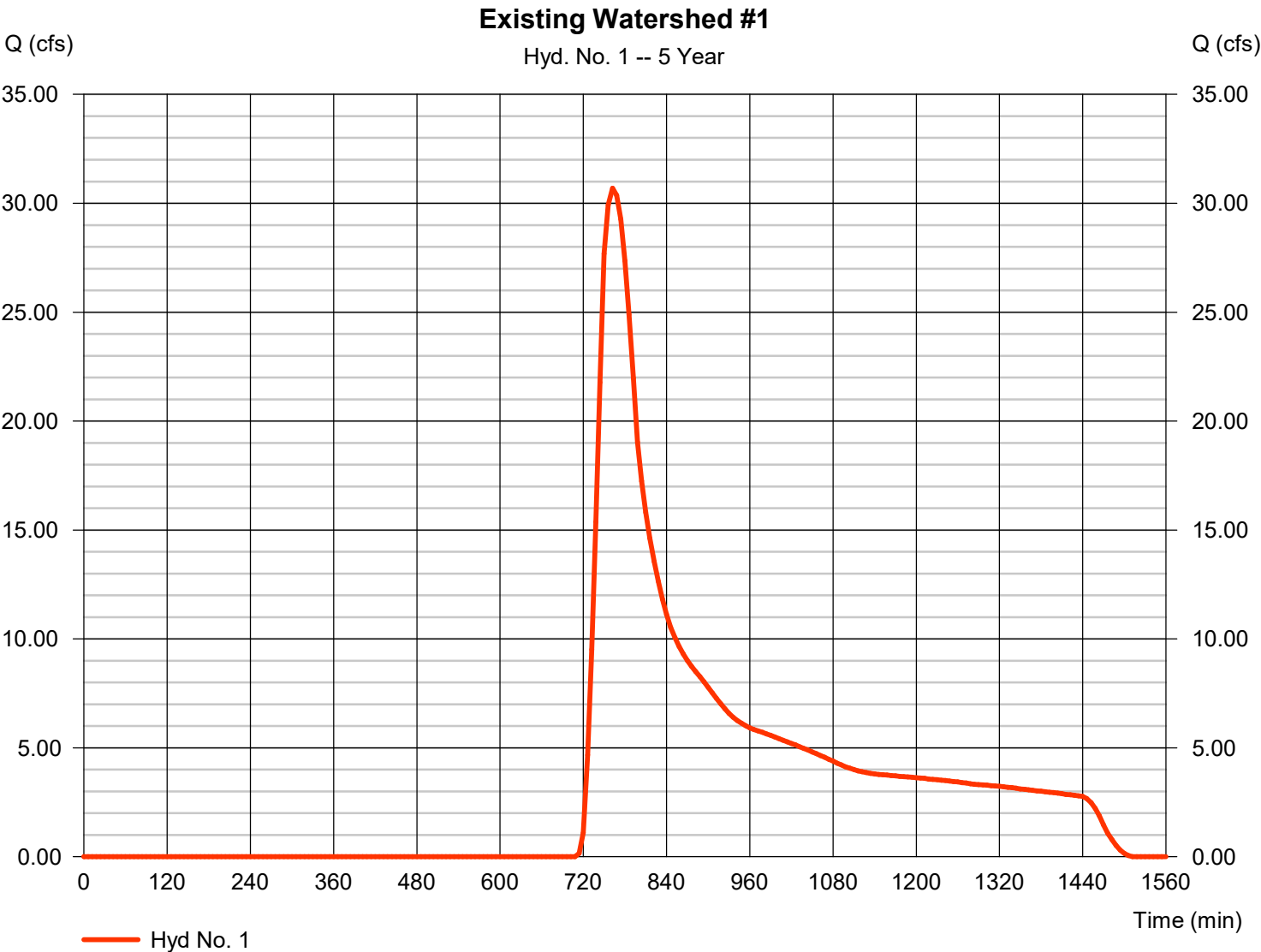
Tuesday, 04 / 8 / 2025

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 x 55)] / 129.000

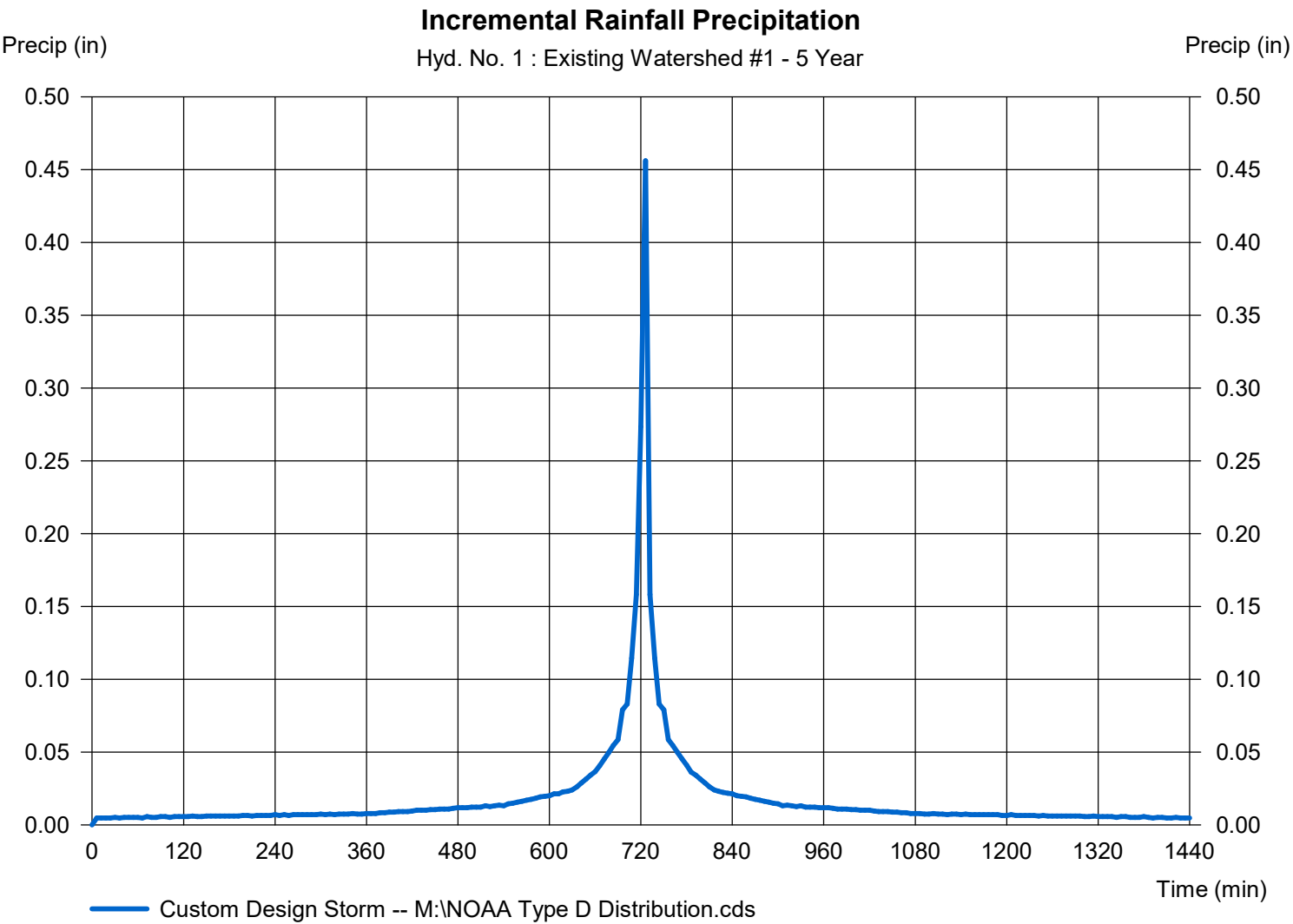


Precipitation Report

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		

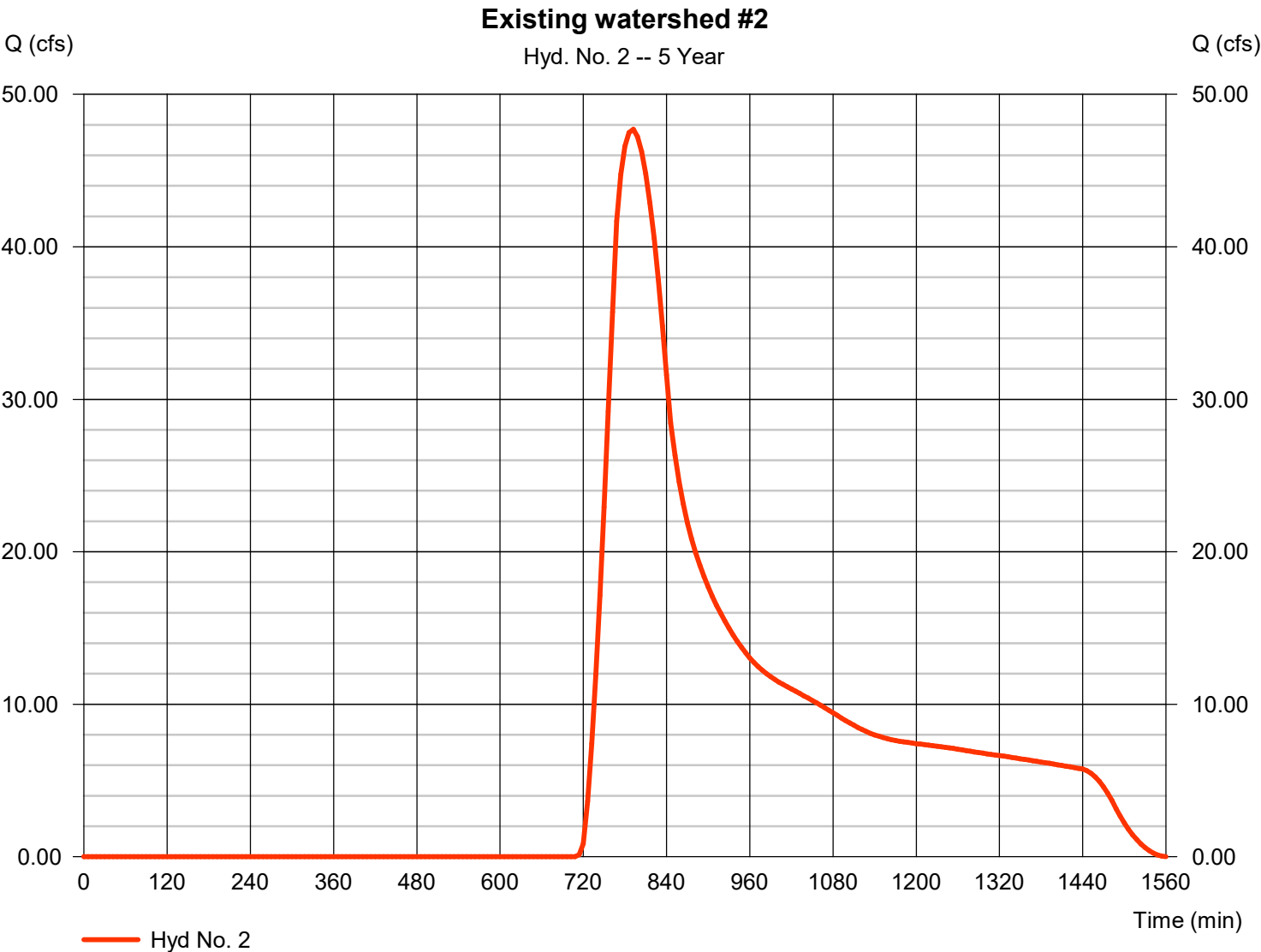


Hydrograph Report

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

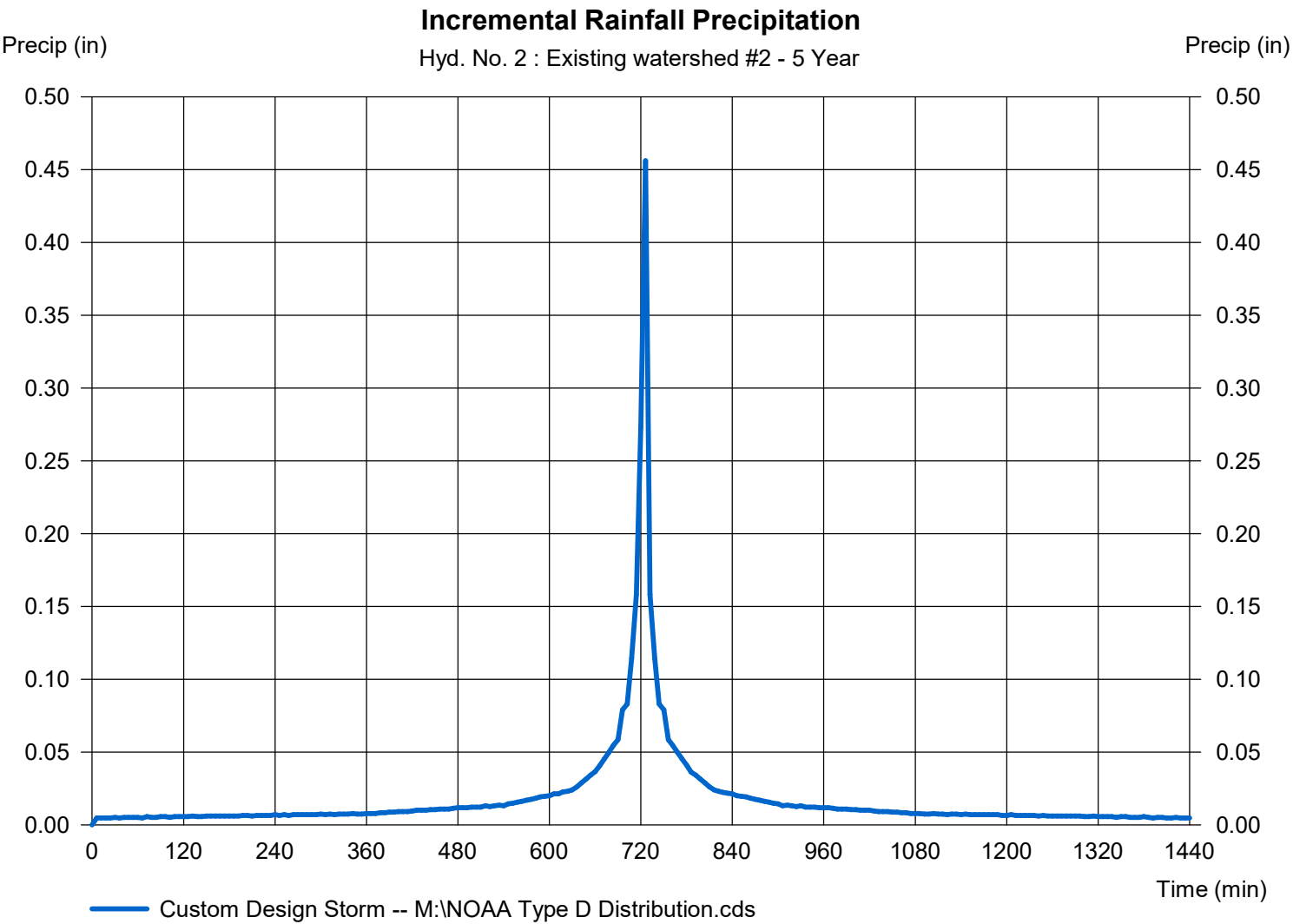


Precipitation Report

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

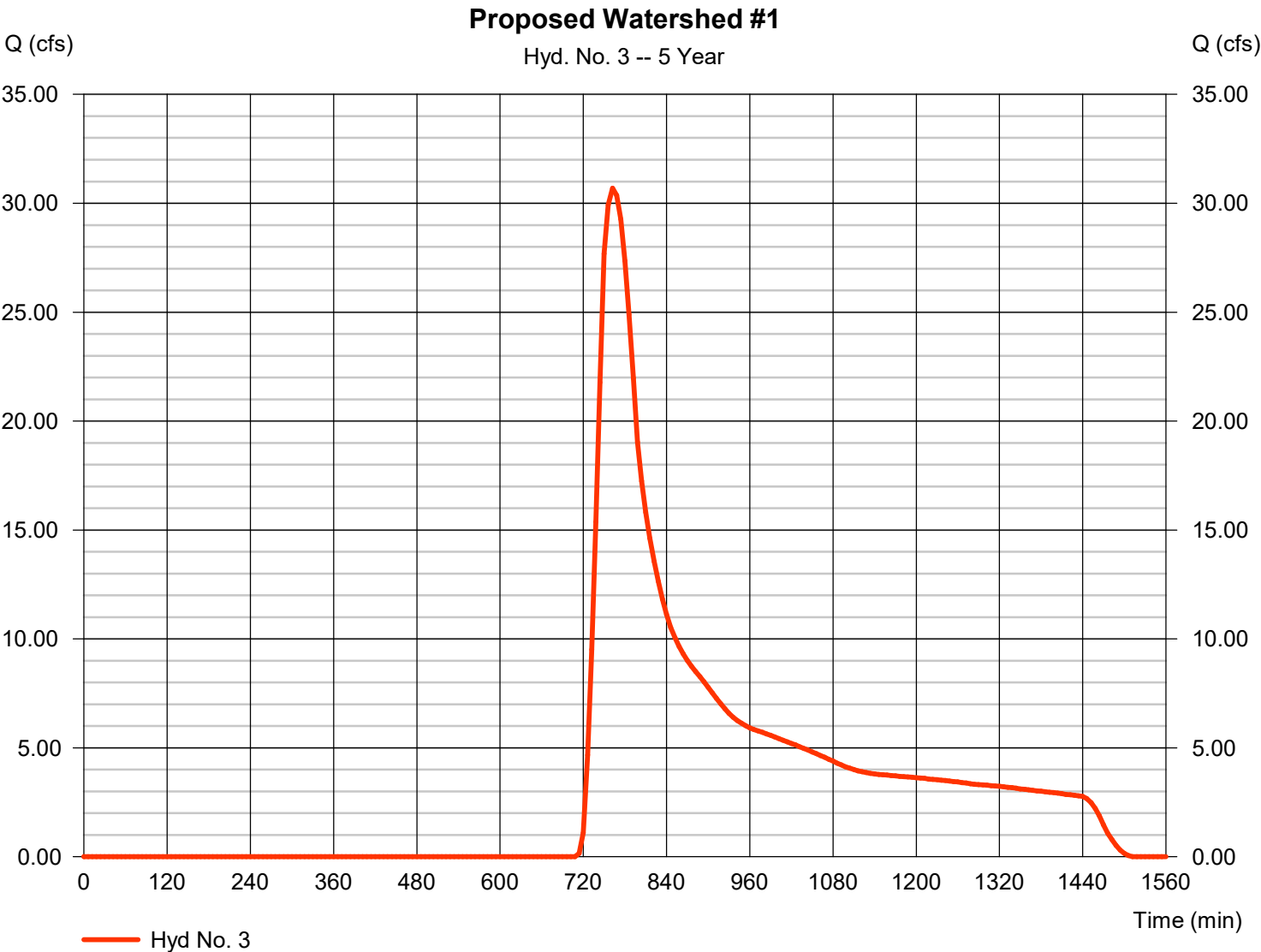
Tuesday, 04 / 8 / 2025

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

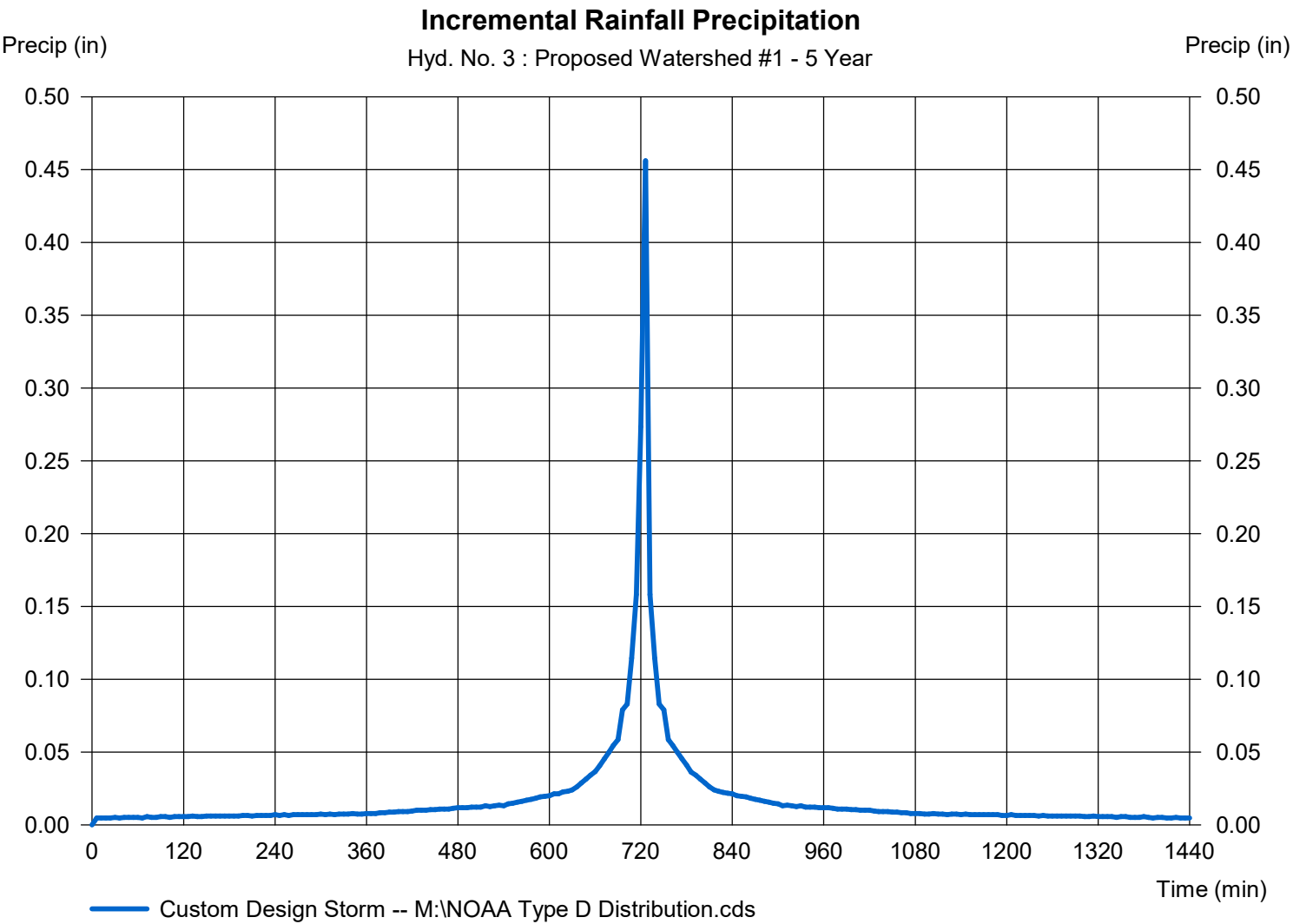


Precipitation Report

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

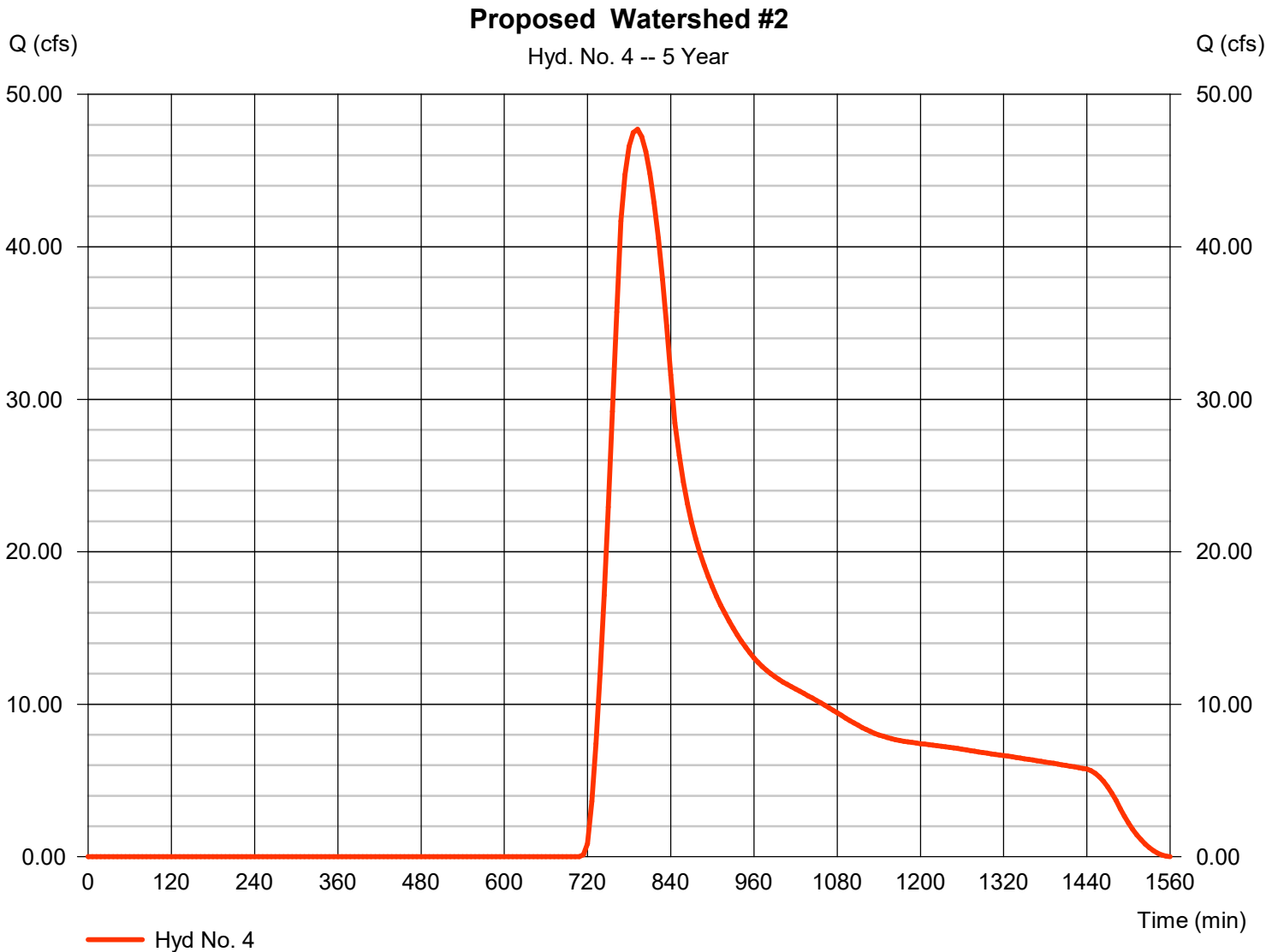
Tuesday, 04 / 8 / 2025

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

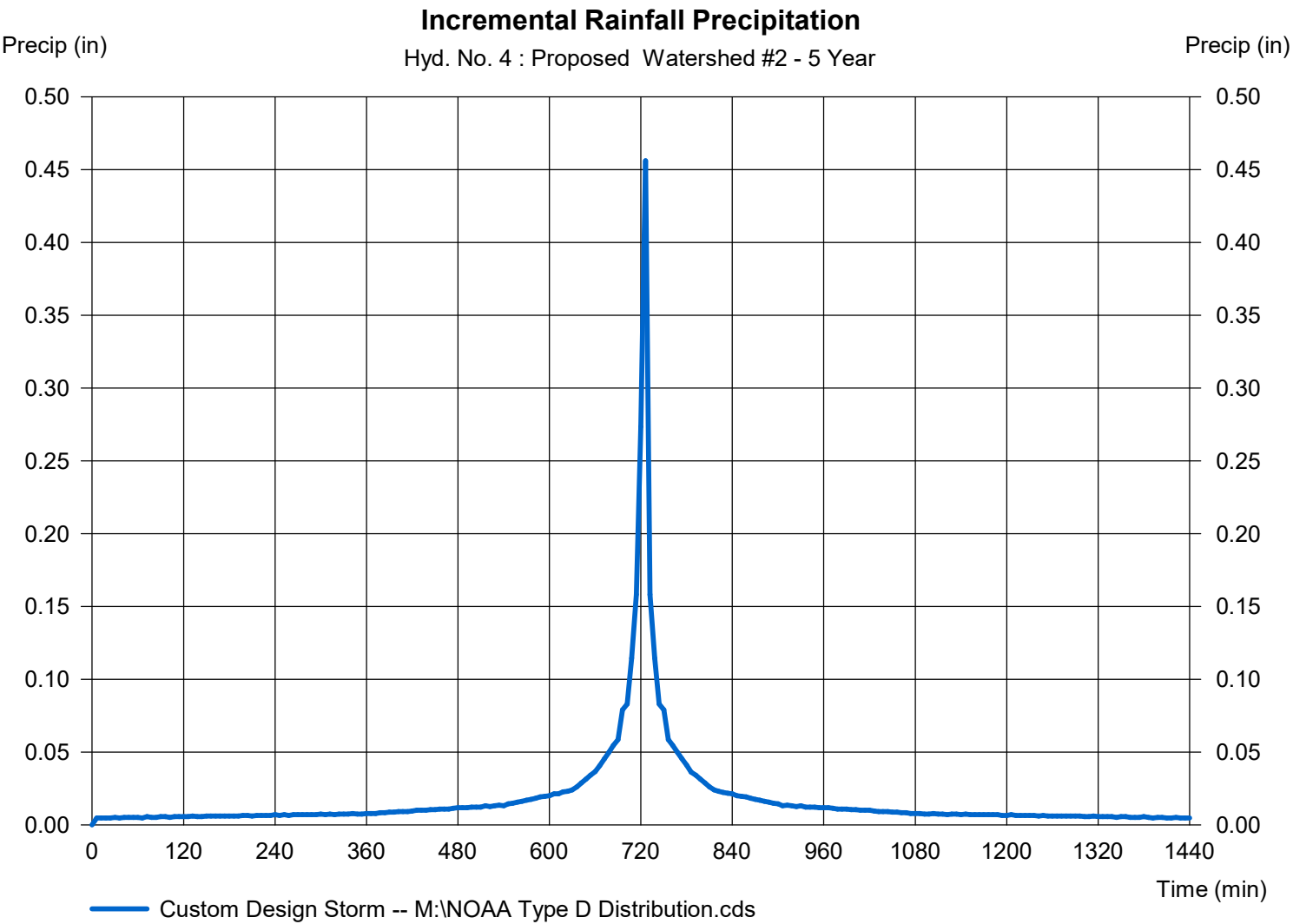


Precipitation Report

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

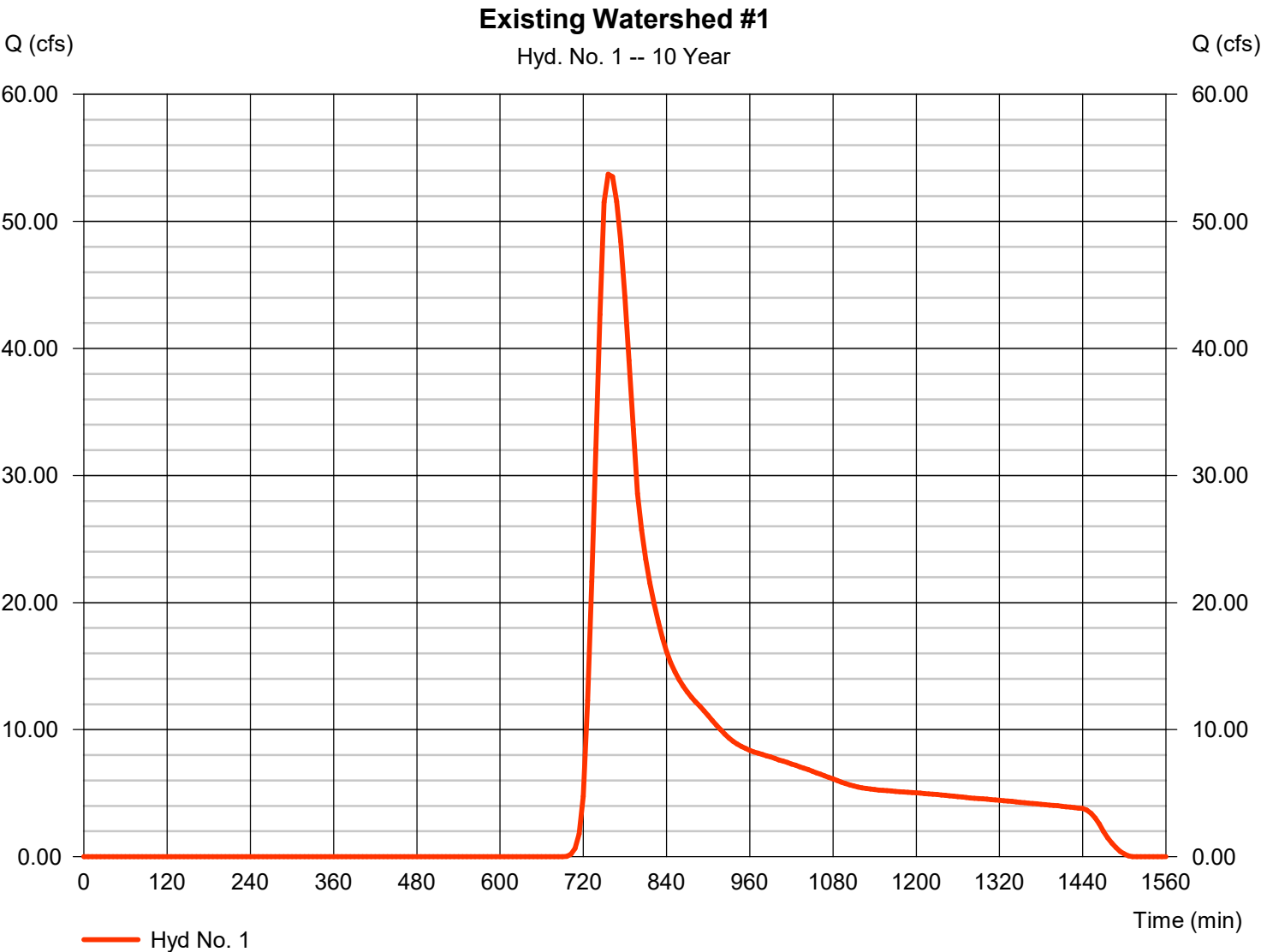
Tuesday, 04 / 8 / 2025

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

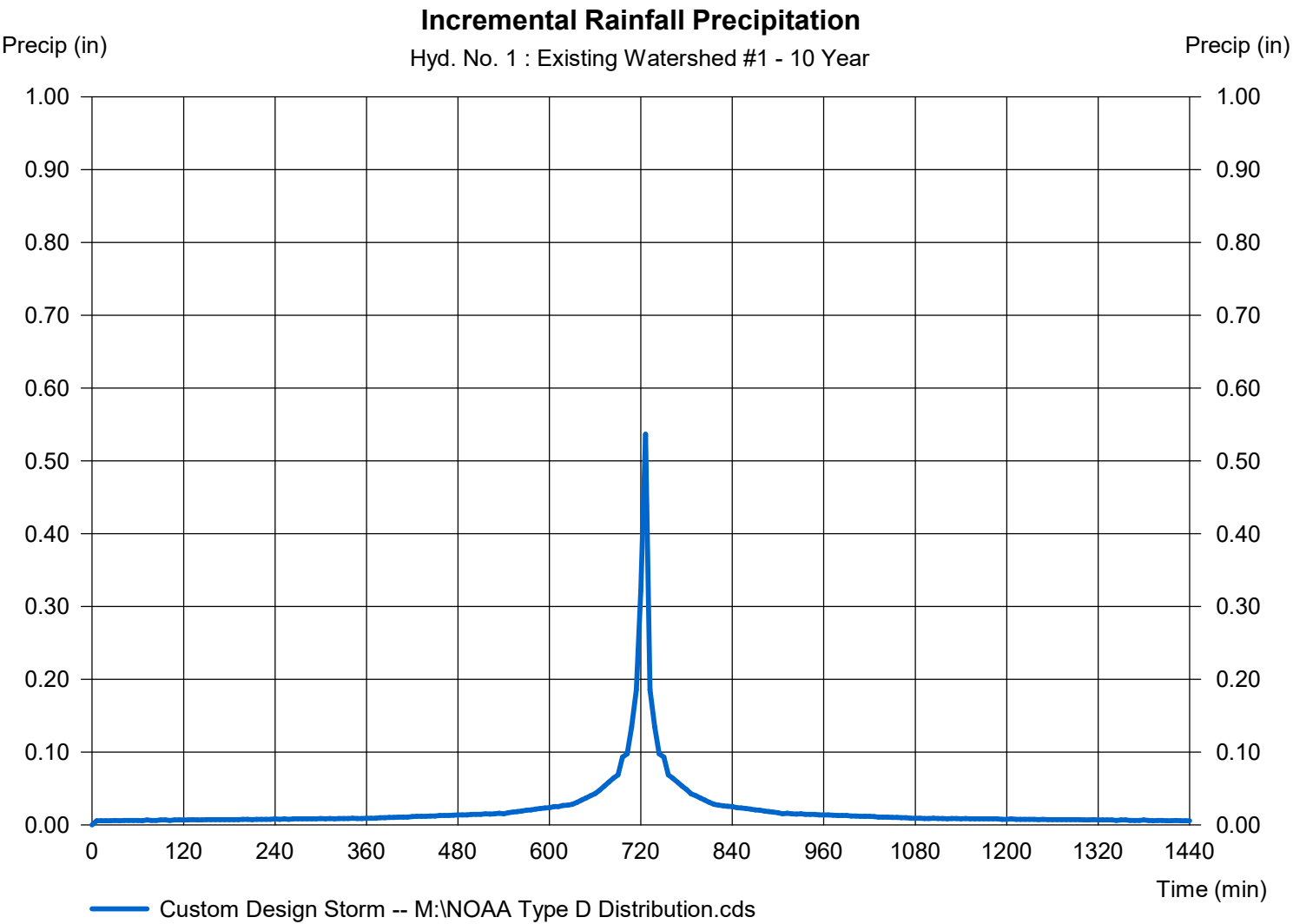


Precipitation Report

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

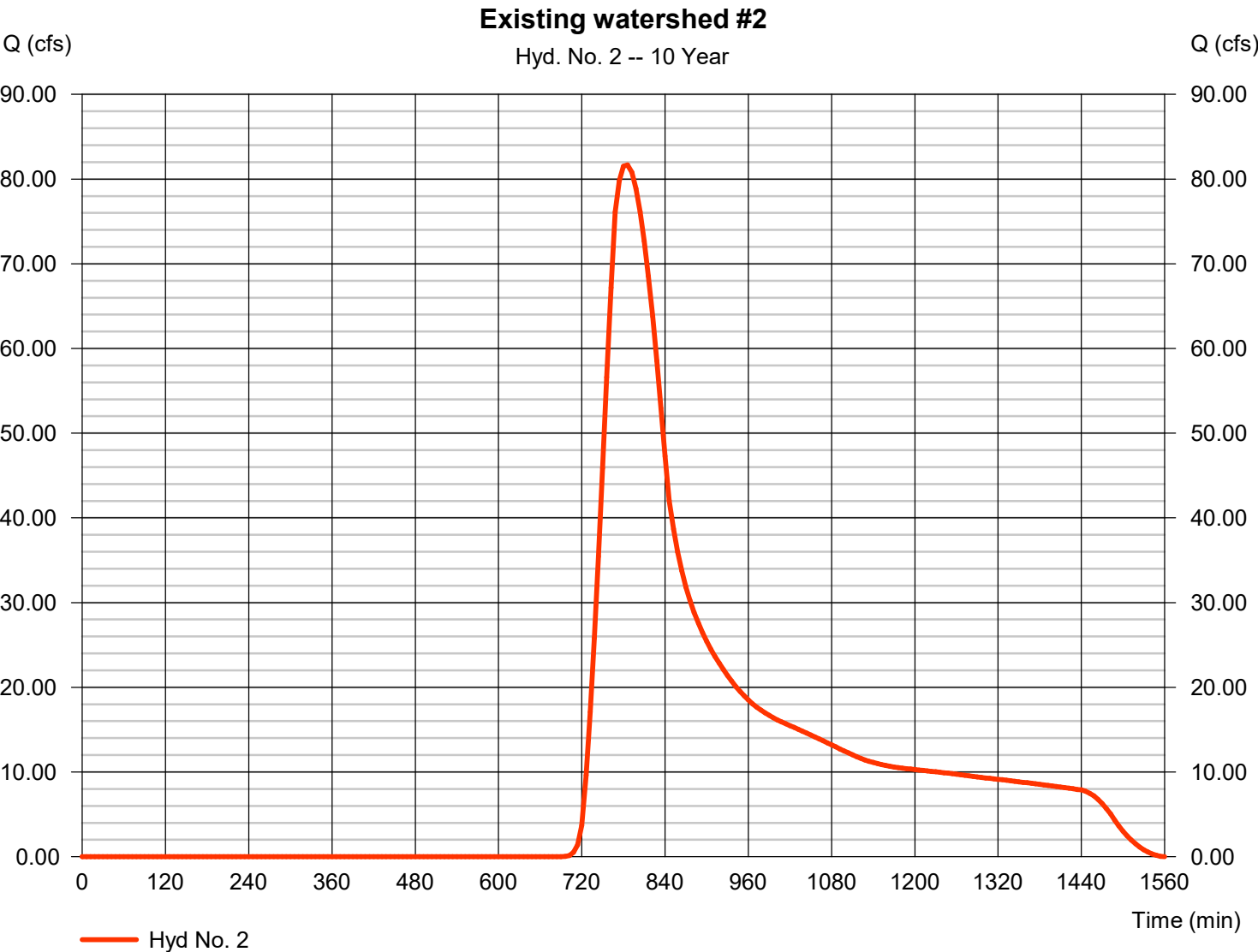
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 04 / 8 / 2025

Hyd. No. 2

Existing watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 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

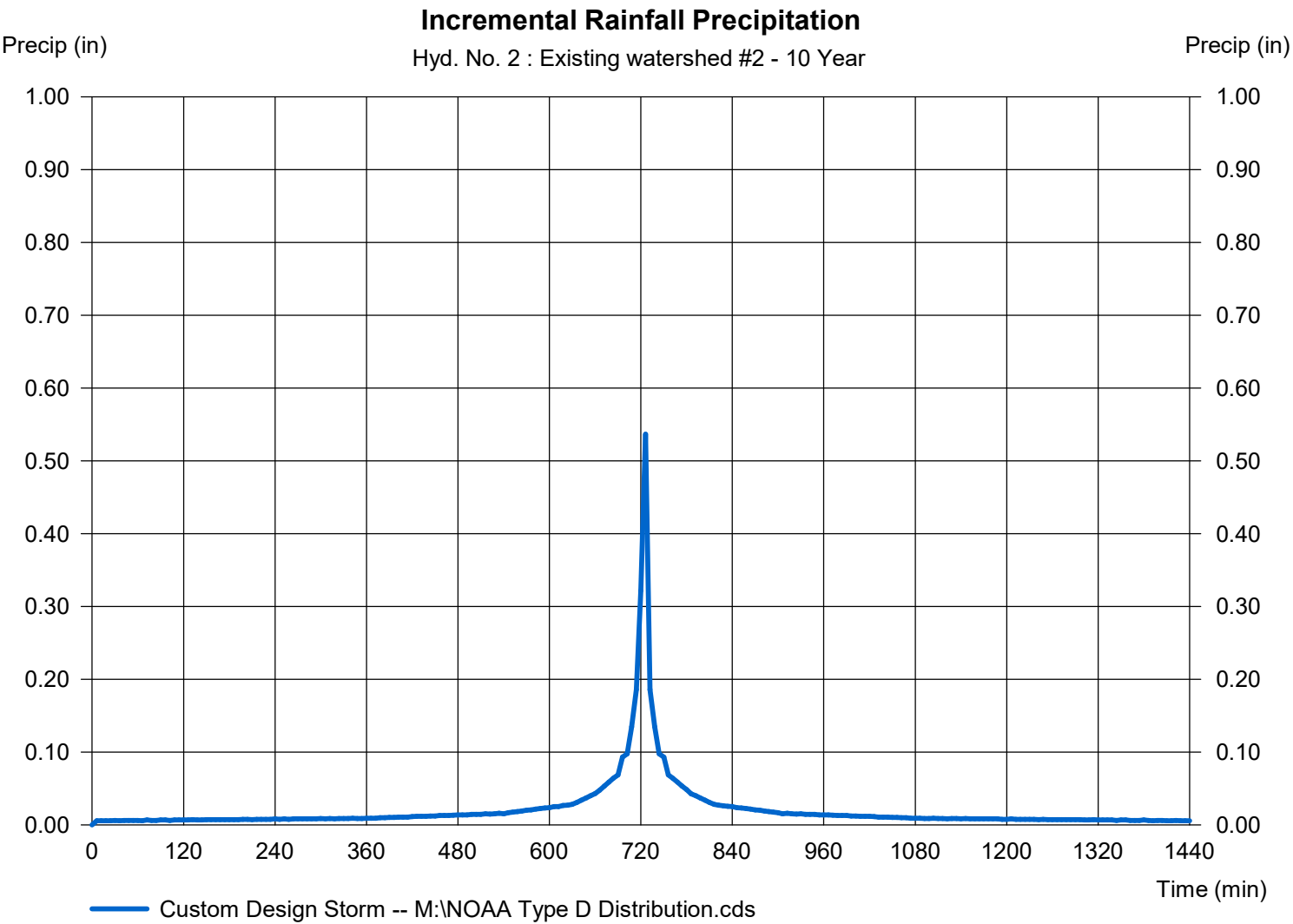


Precipitation Report

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

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

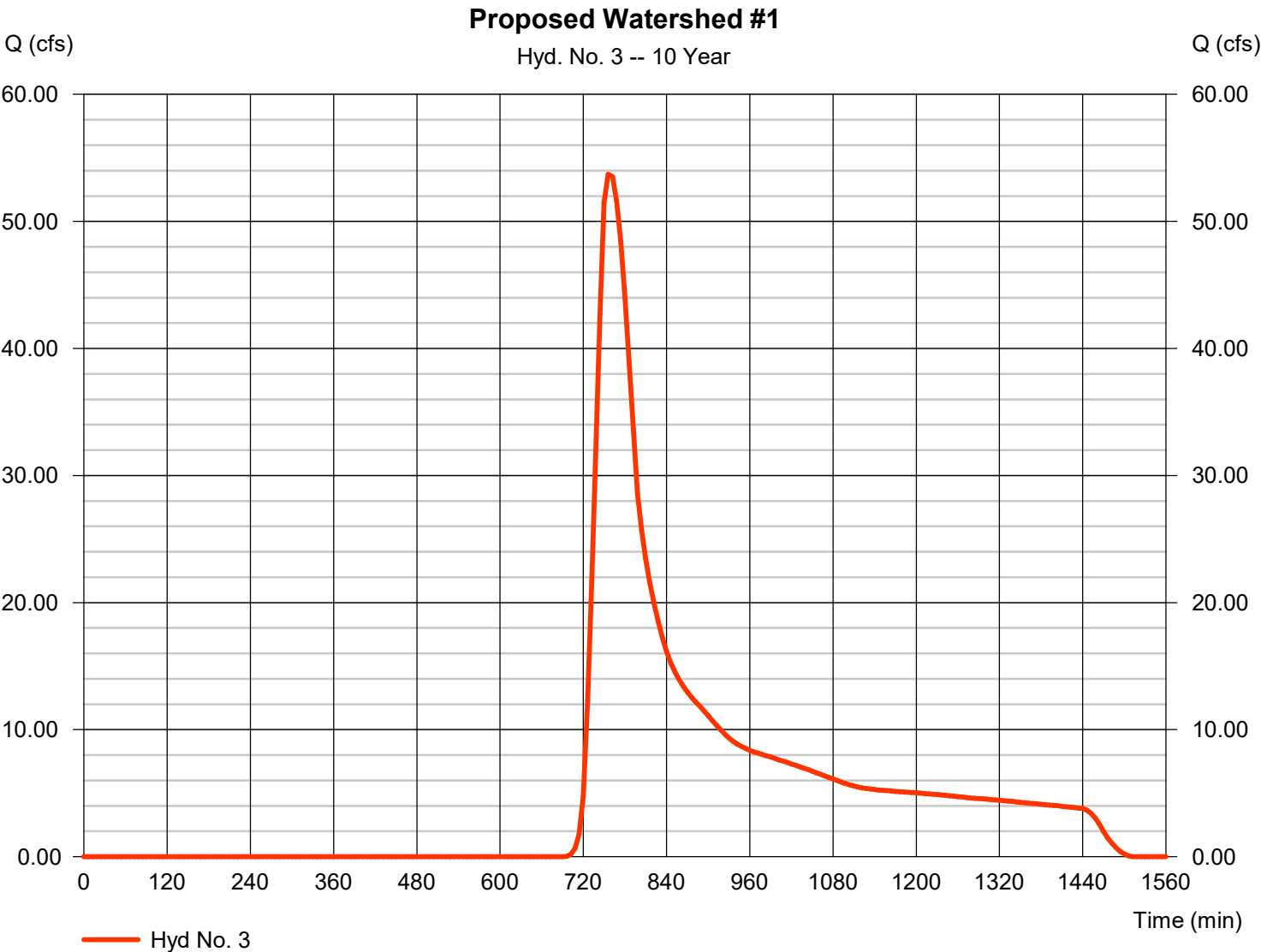
Tuesday, 04 / 8 / 2025

Hyd. No. 3

Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 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

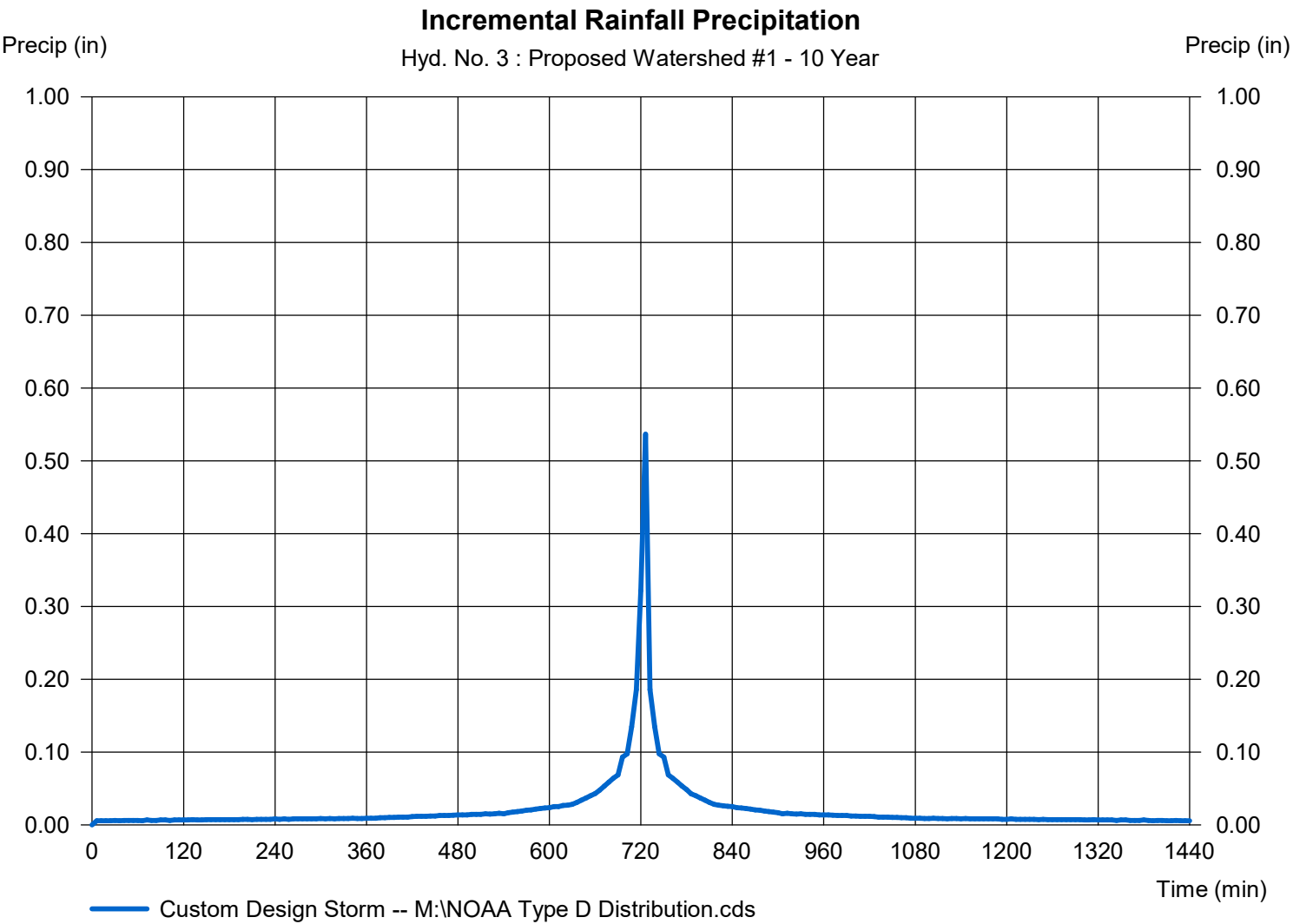


Precipitation Report

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

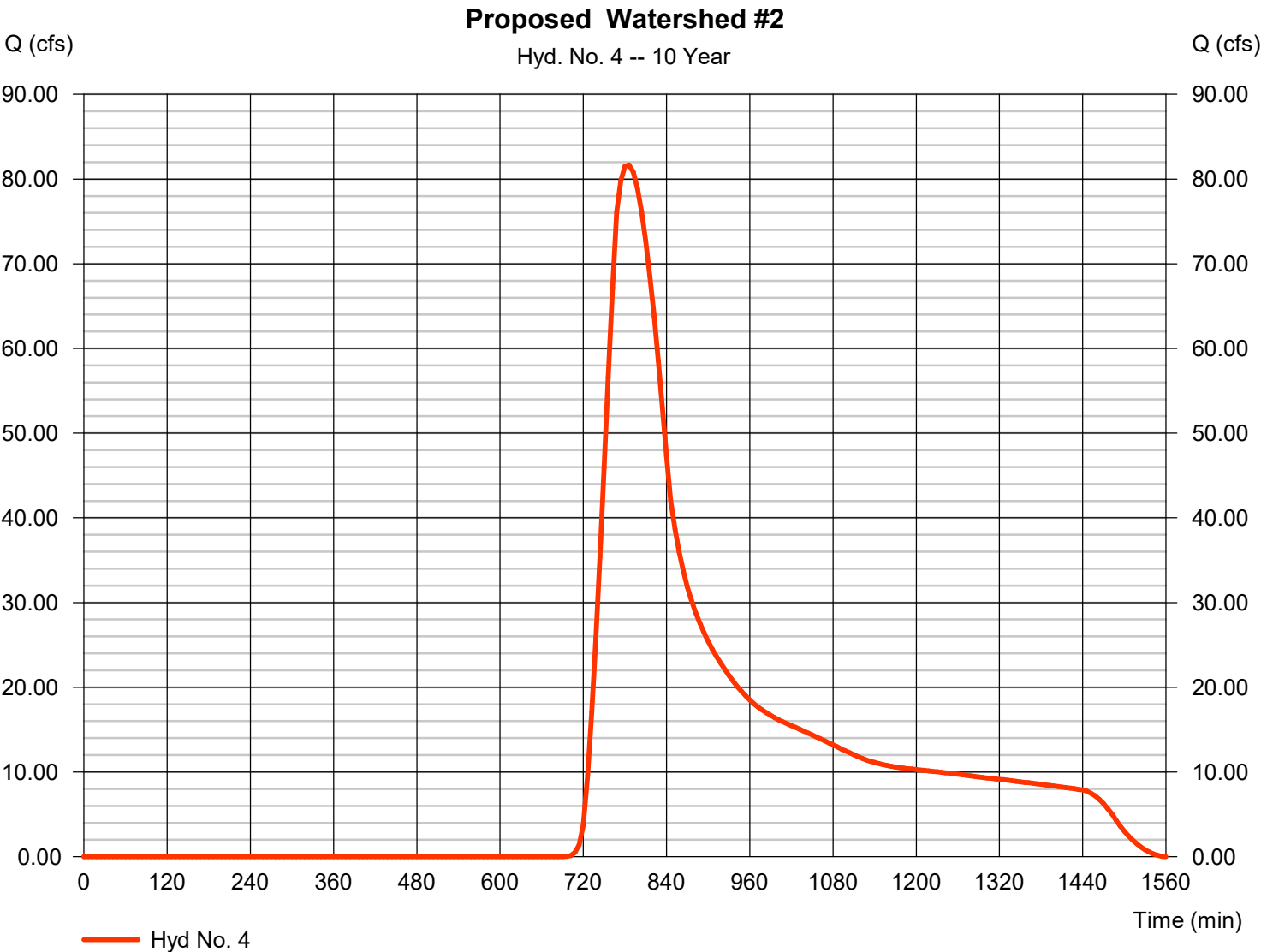
Tuesday, 04 / 8 / 2025

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

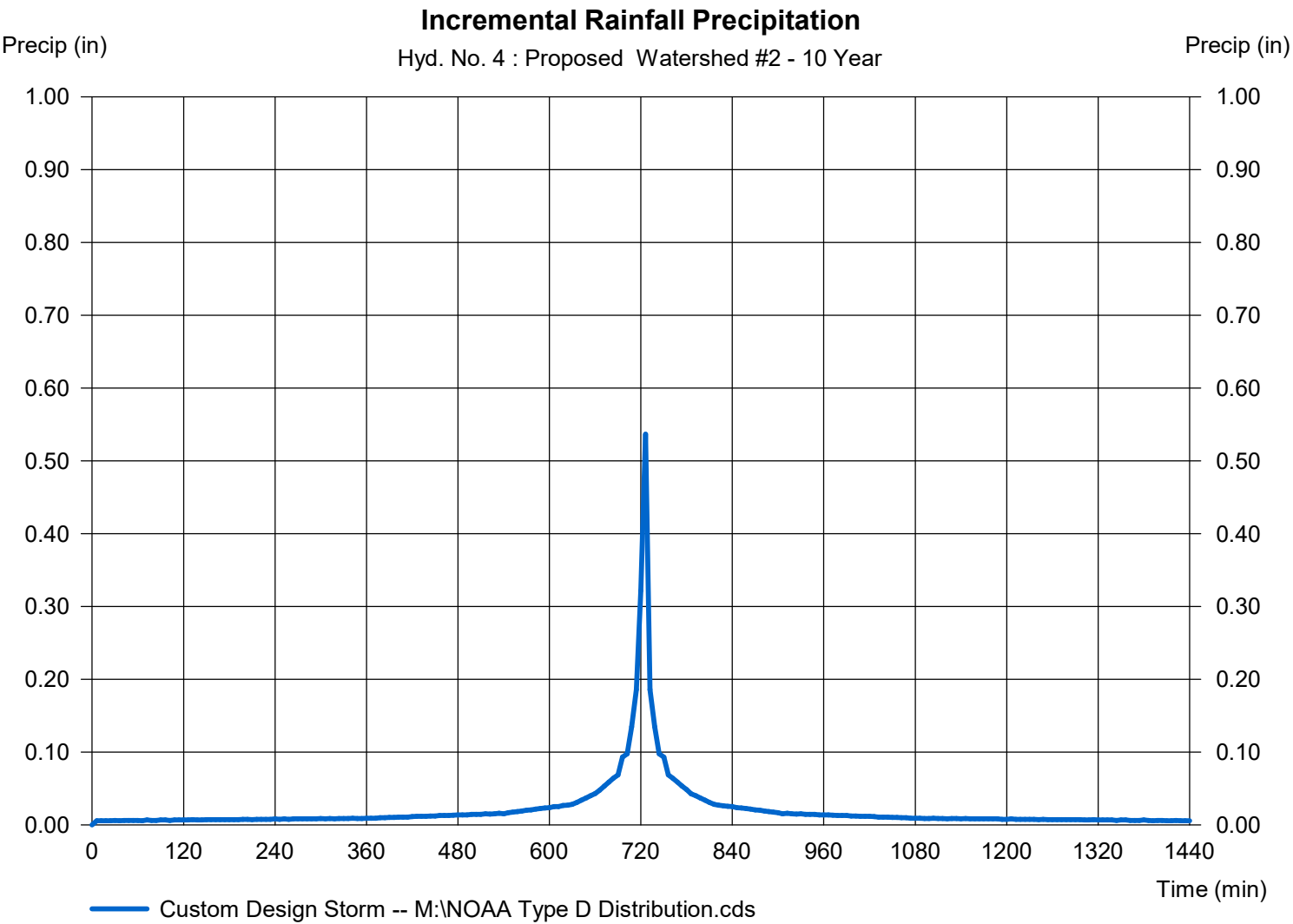


Precipitation Report

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

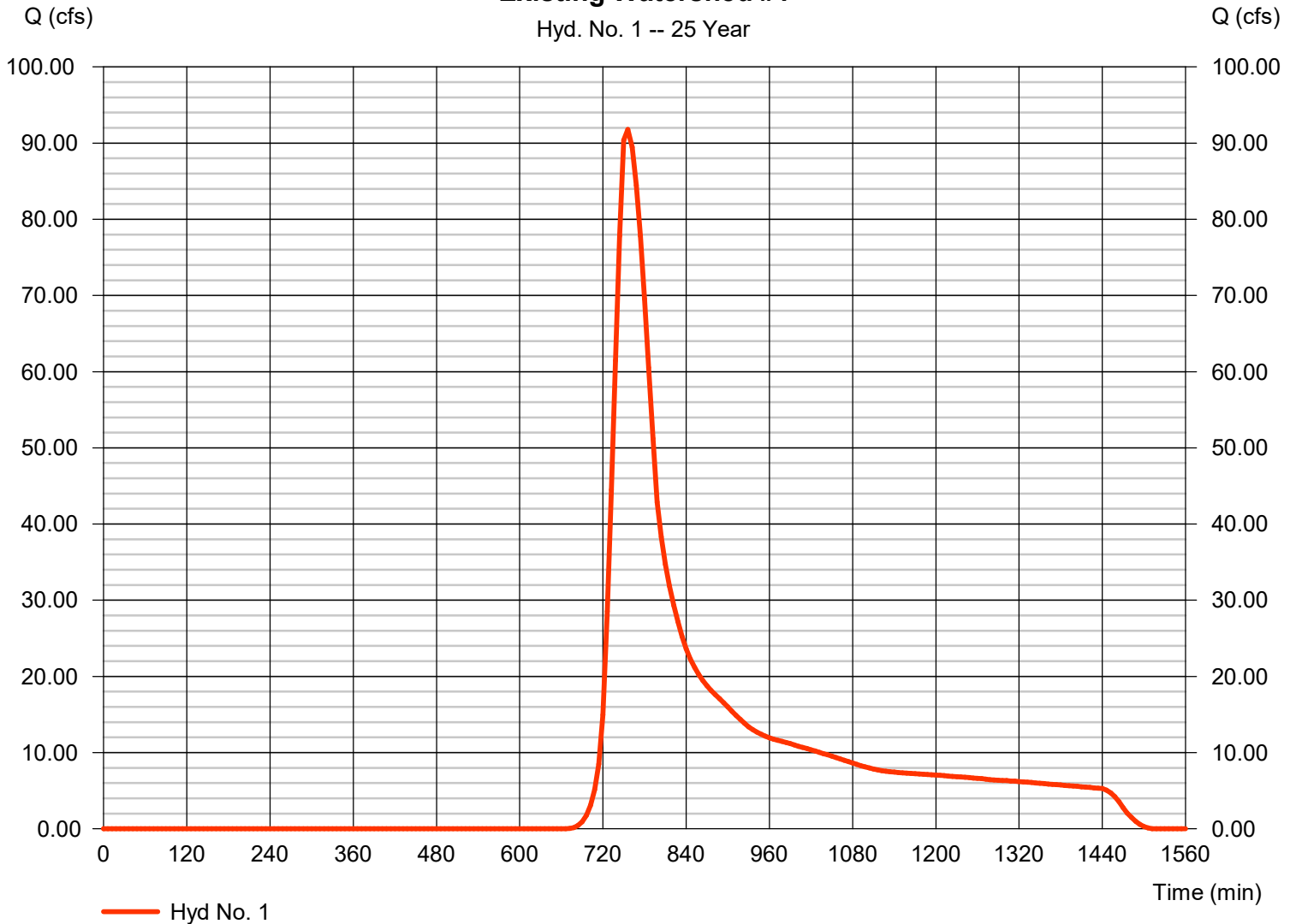
Existing Watershed #1

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.61s	Shape factor	= 484

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

Existing Watershed #1

Hyd. No. 1 -- 25 Year

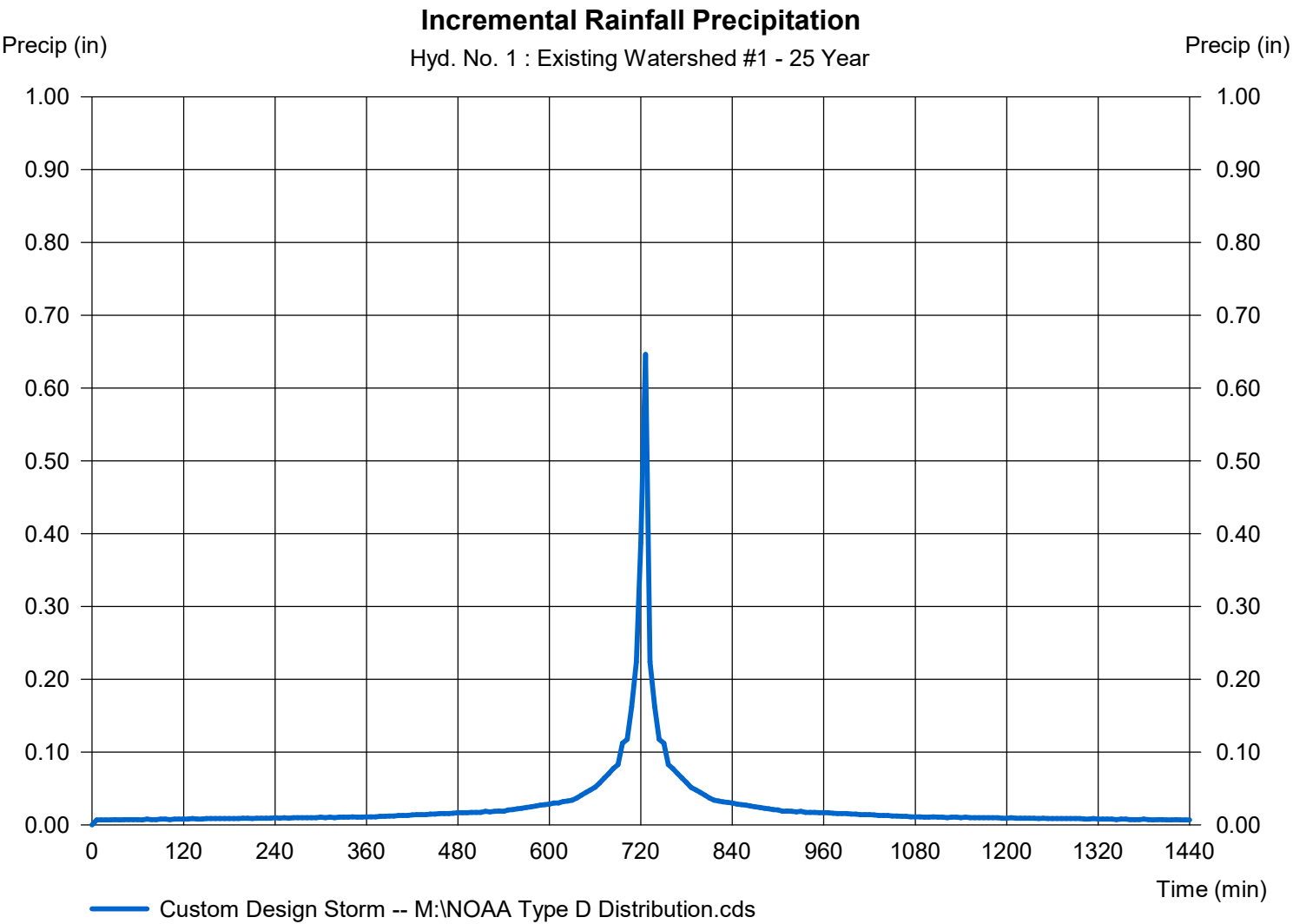


Precipitation Report

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

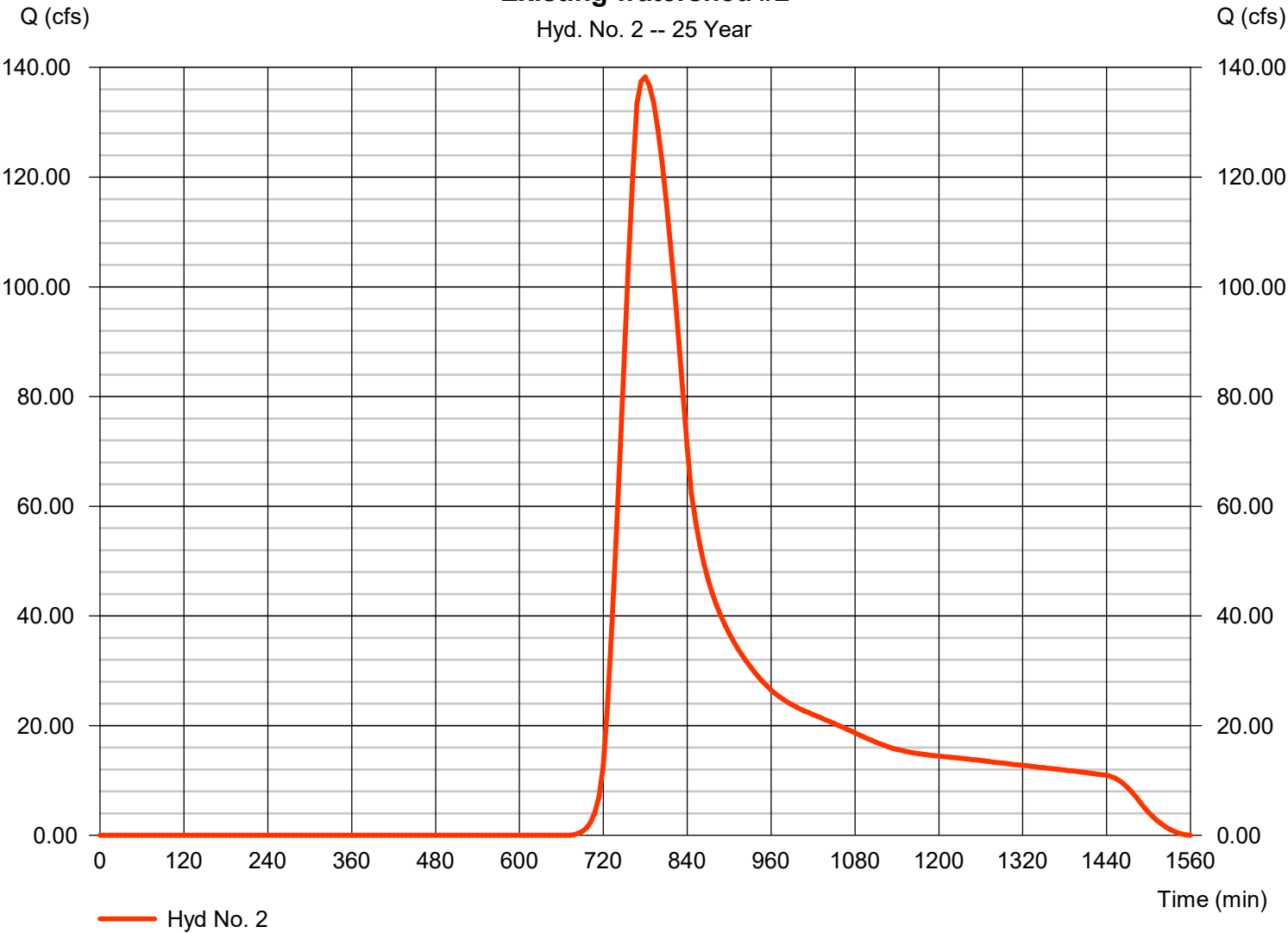
Hyd. No. 2

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

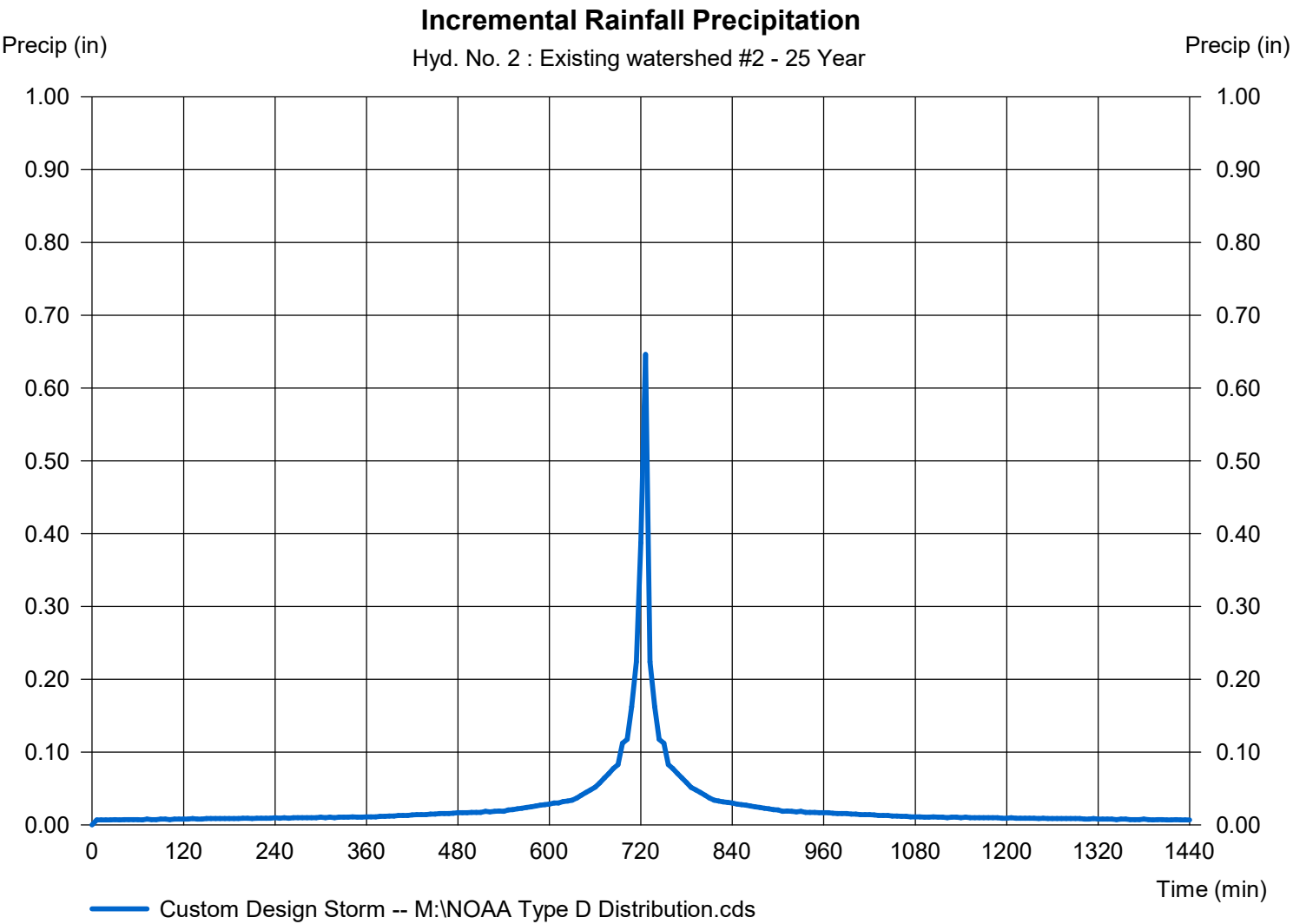


Precipitation Report

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

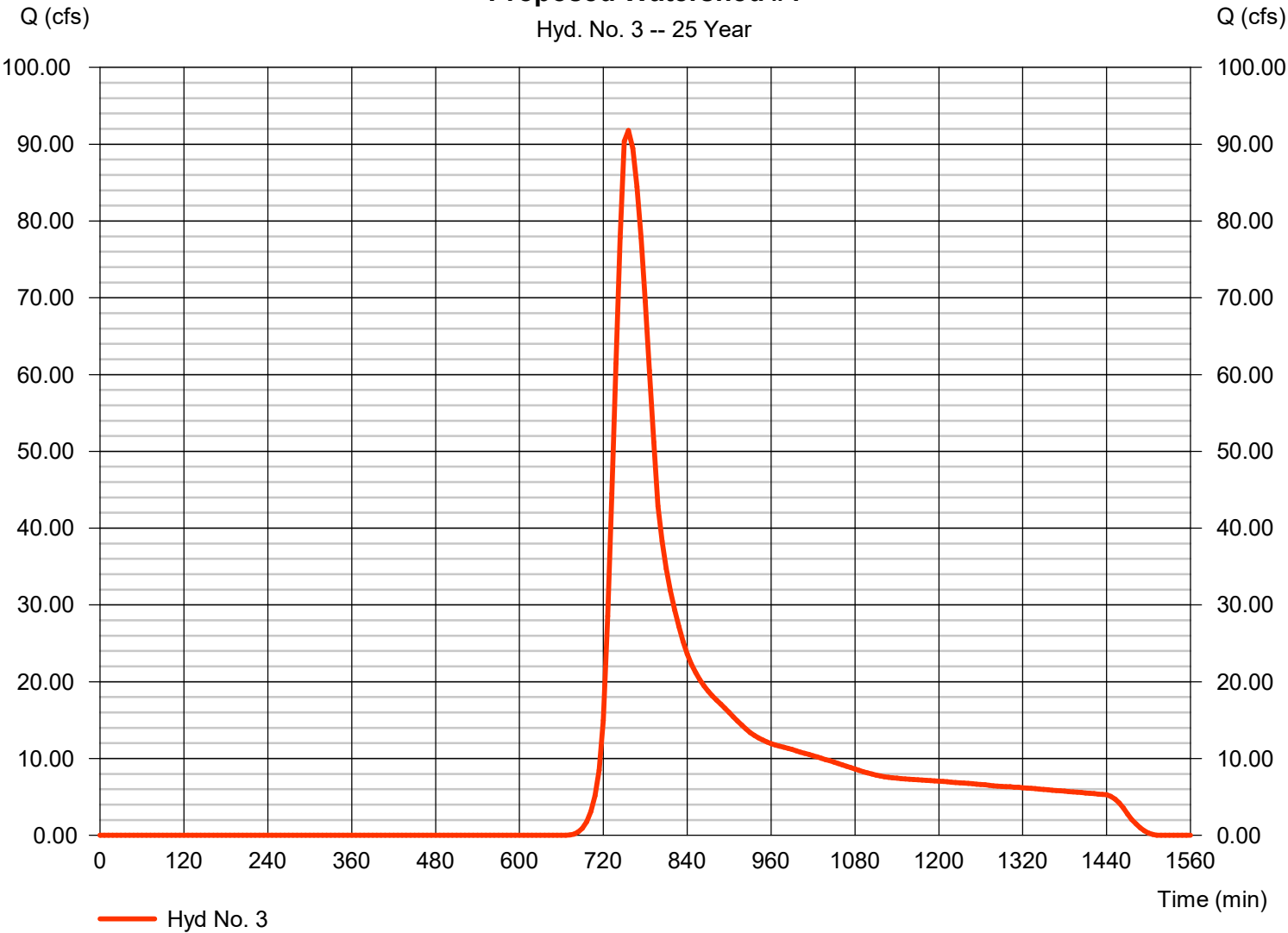
Proposed Watershed #1

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

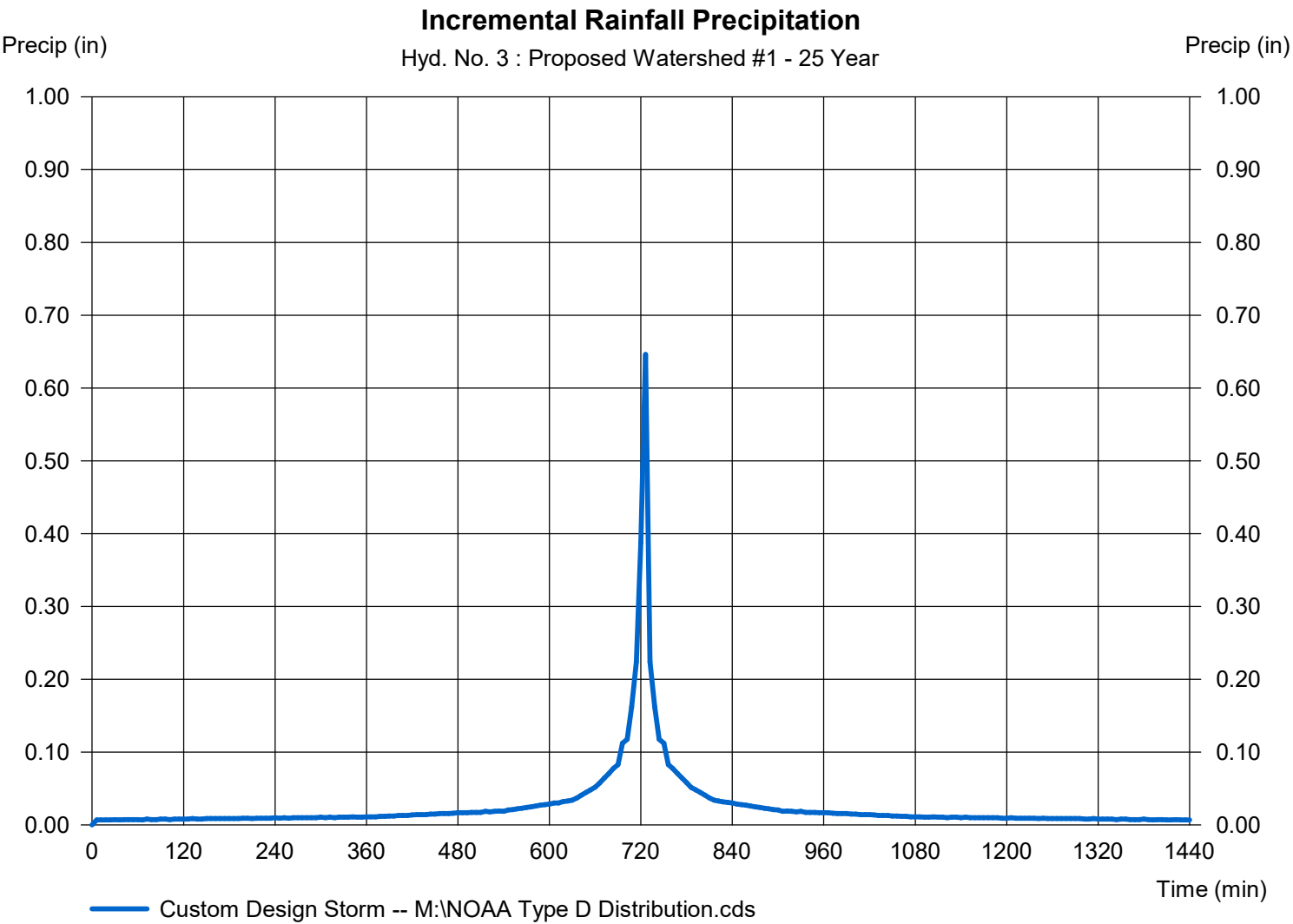


Precipitation Report

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

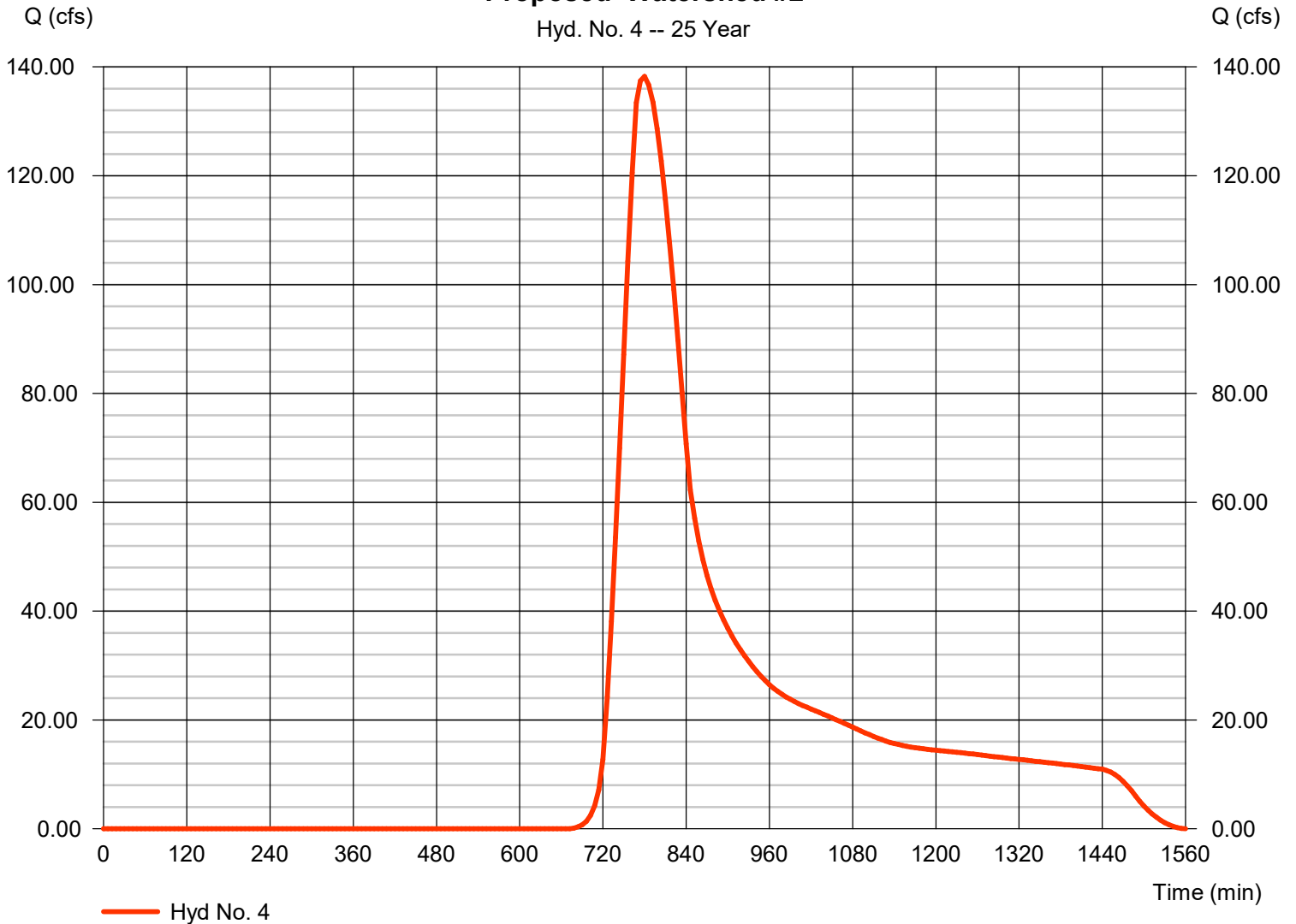
Proposed Watershed #2

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

Proposed Watershed #2

Hyd. No. 4 -- 25 Year

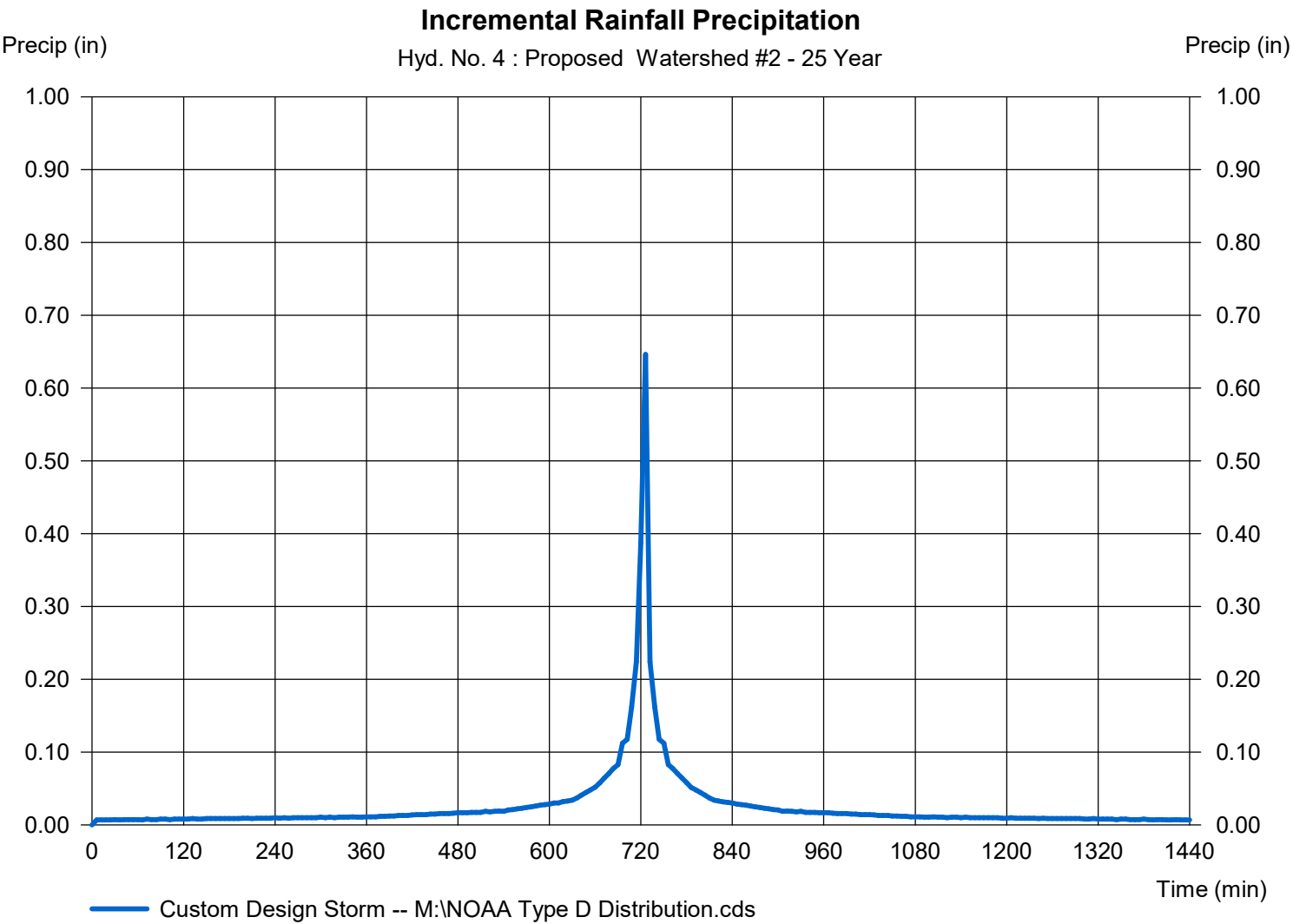


Precipitation Report

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

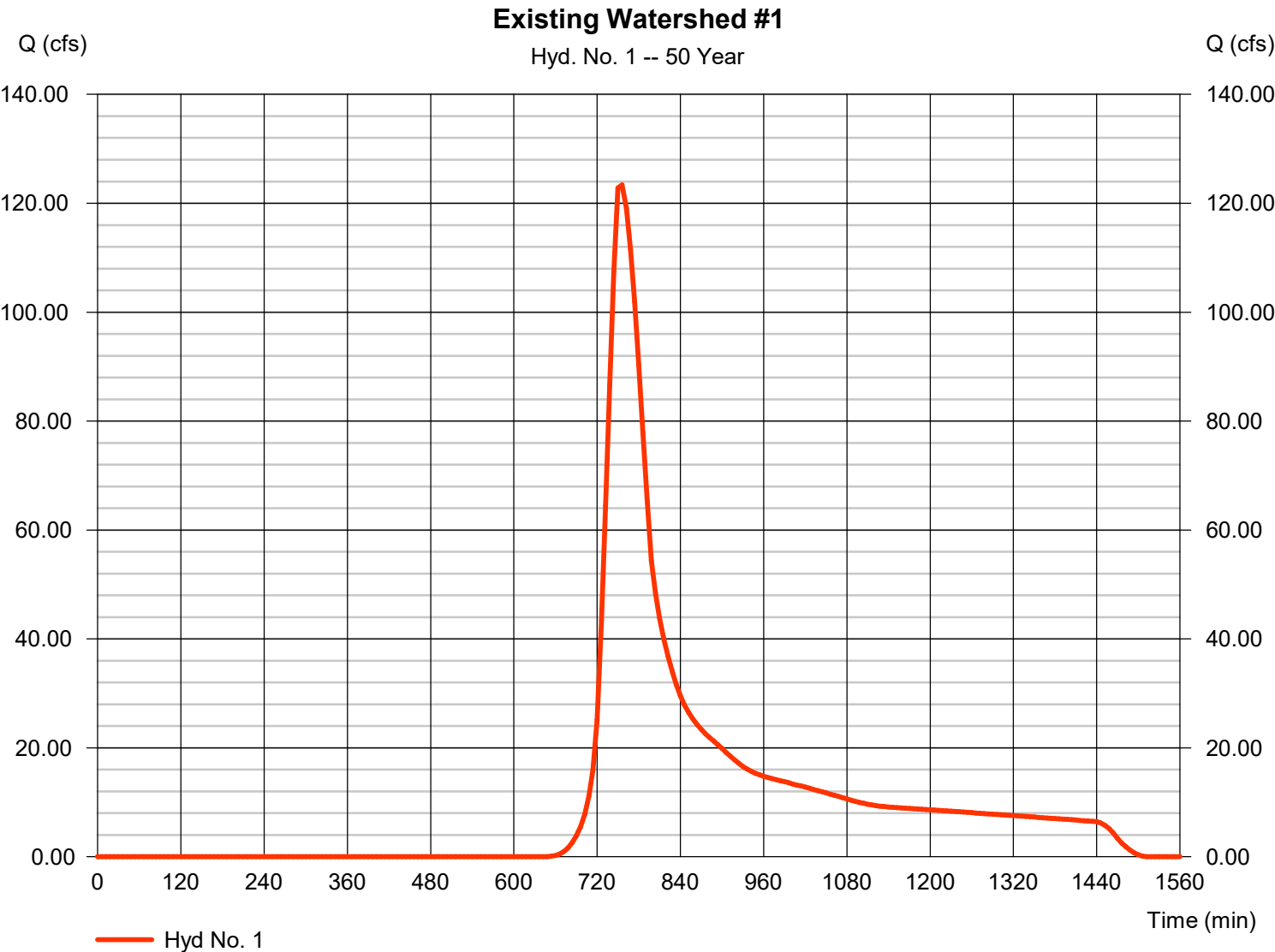
Tuesday, 04 / 8 / 2025

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

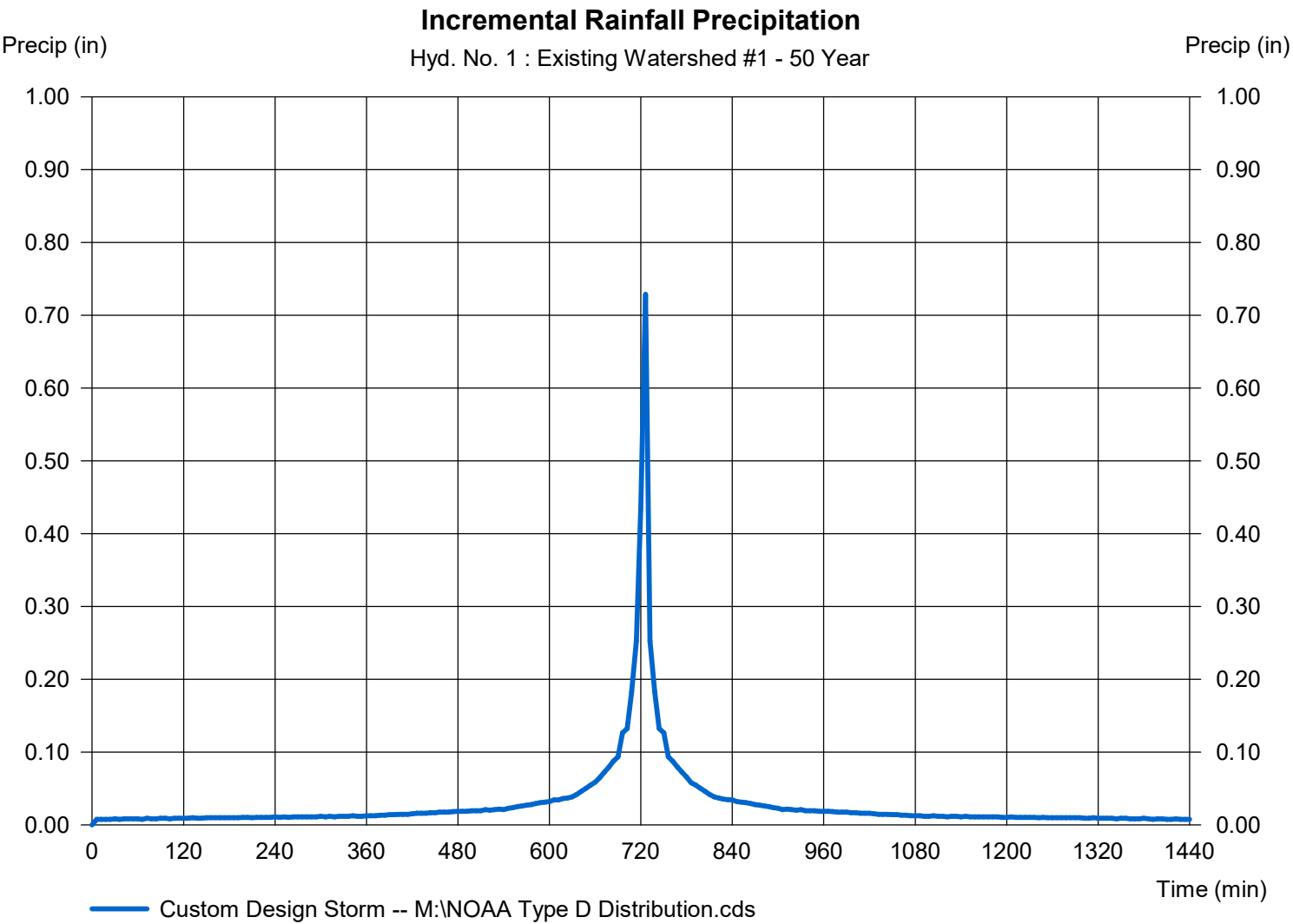


Precipitation Report

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

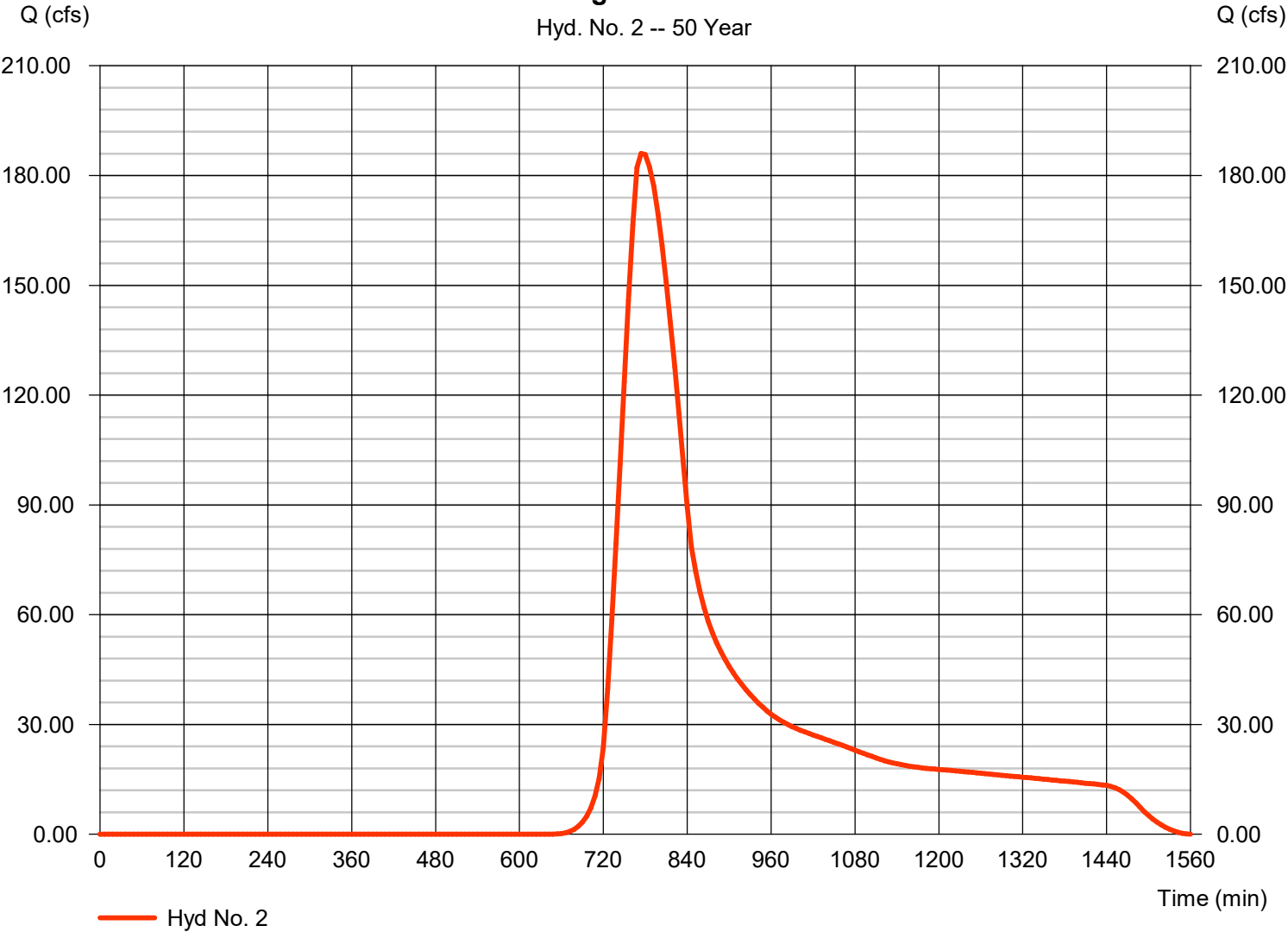
Hyd. No. 2

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

Existing watershed #2

Hyd. No. 2 -- 50 Year

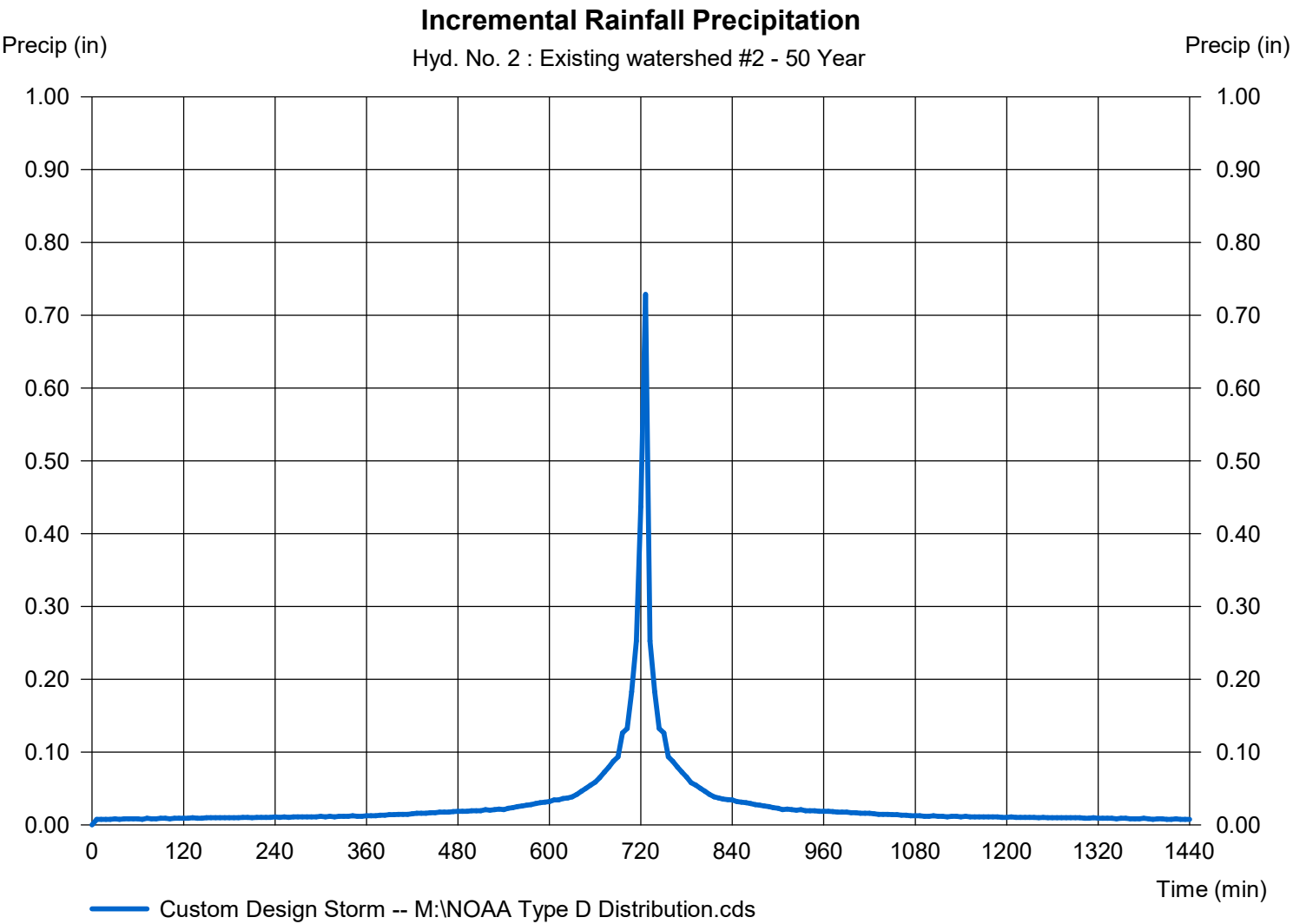


Precipitation Report

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

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

Tuesday, 04 / 8 / 2025

Hyd. No. 3

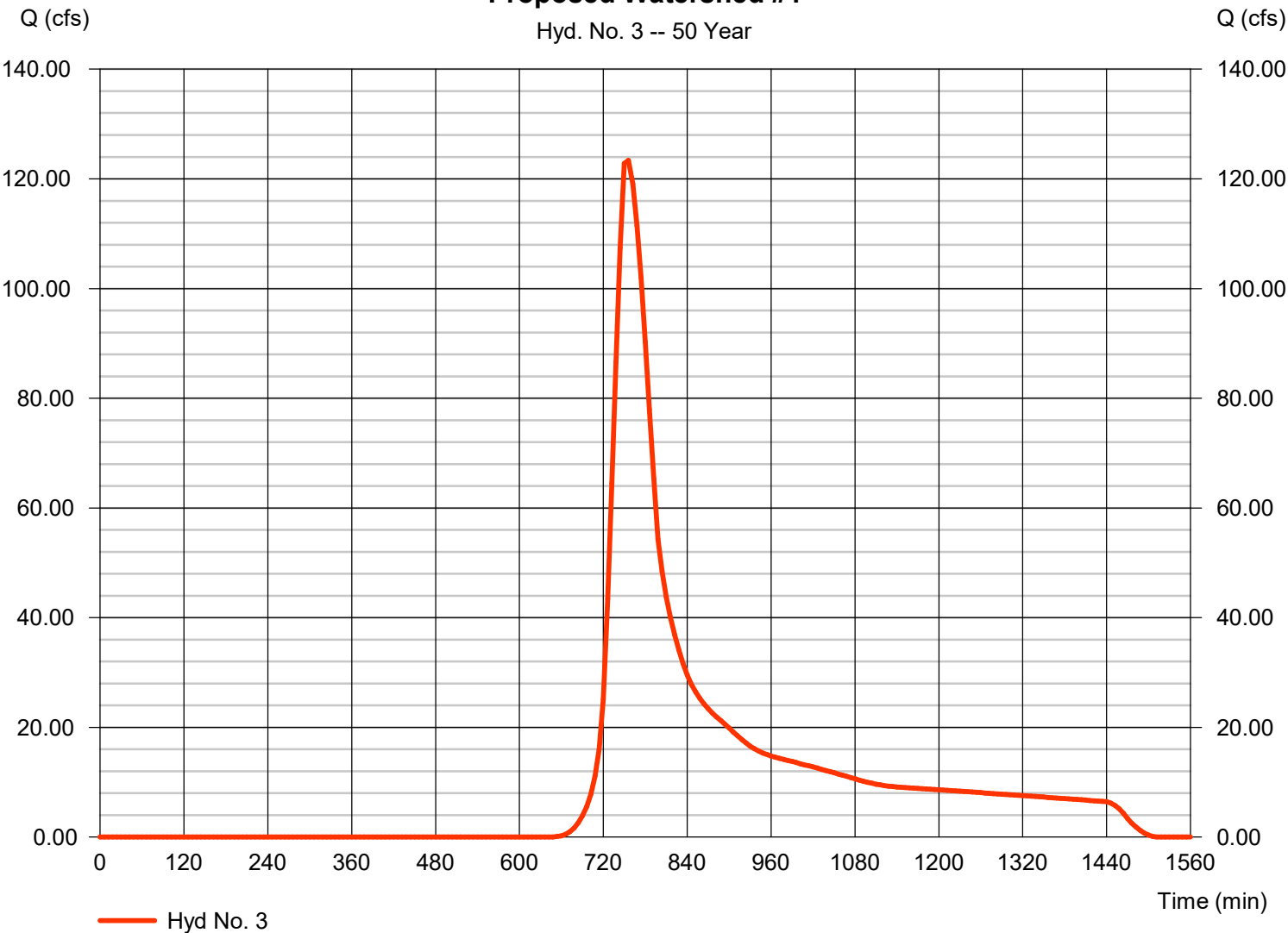
Proposed Watershed #1

Hydrograph type	= SCS Runoff	Peak discharge	= 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

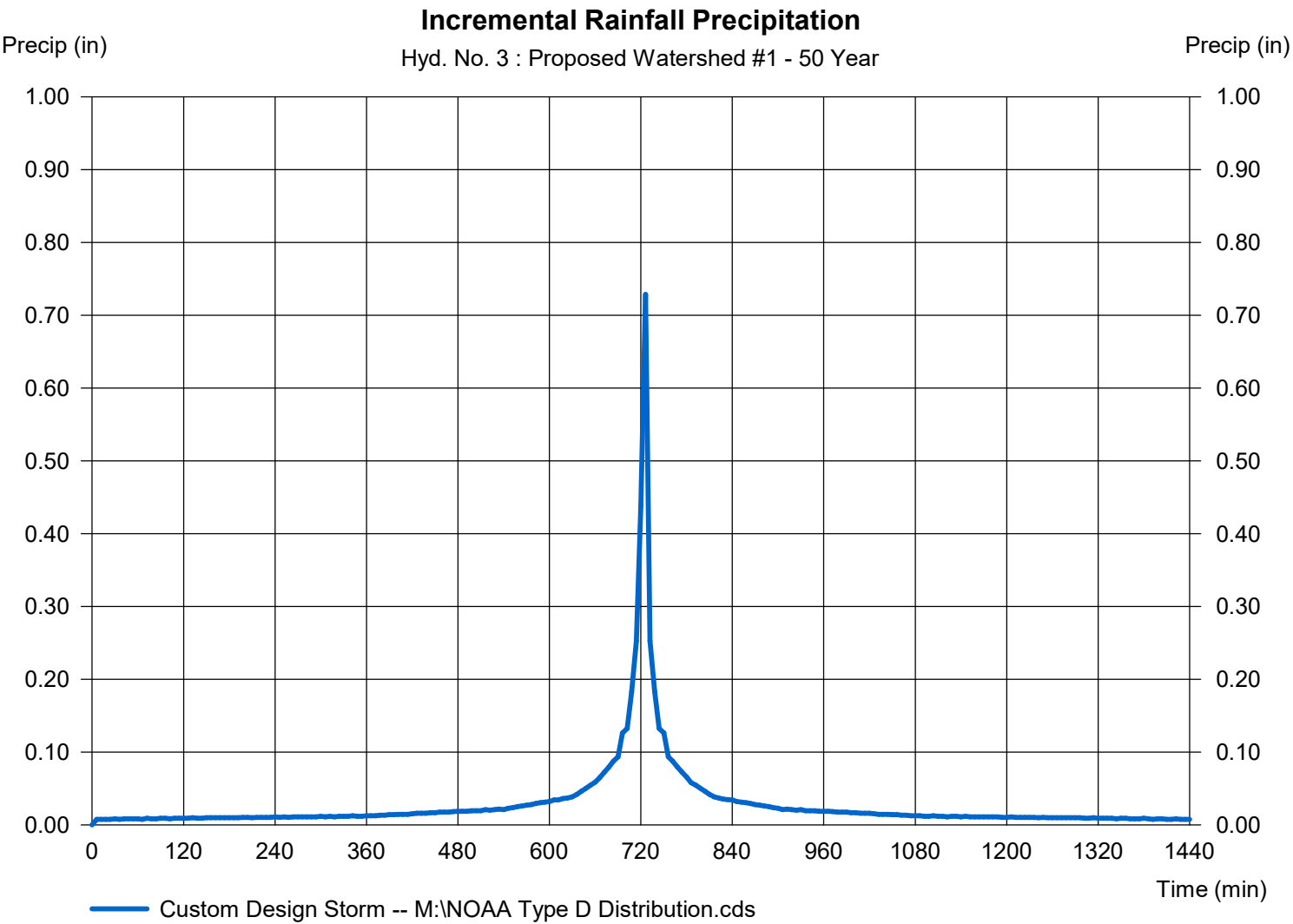


Precipitation Report

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

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

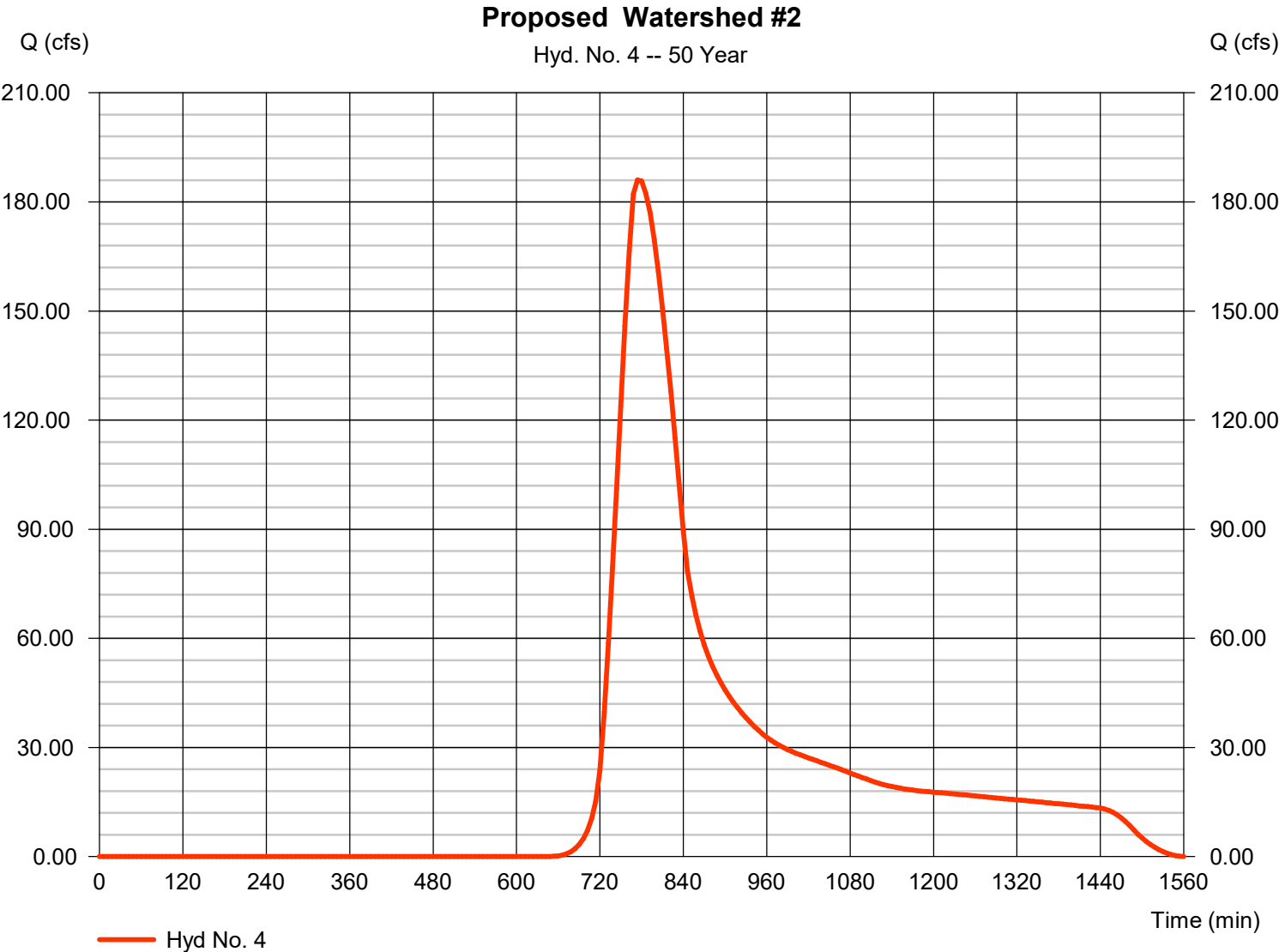
Tuesday, 04 / 8 / 2025

Hyd. No. 4

Proposed Watershed #2

Hydrograph type	= SCS Runoff	Peak discharge	= 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

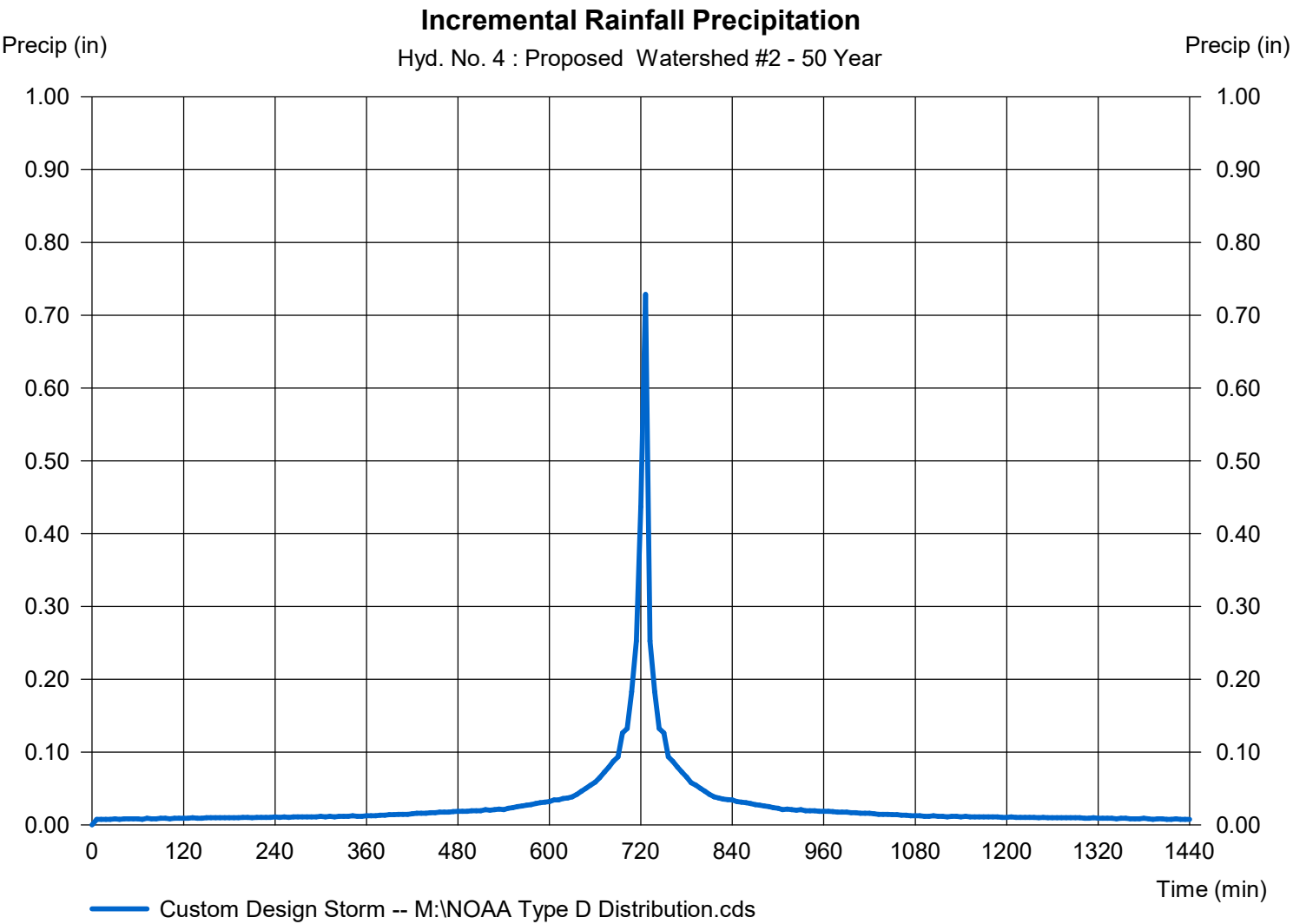


Precipitation Report

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

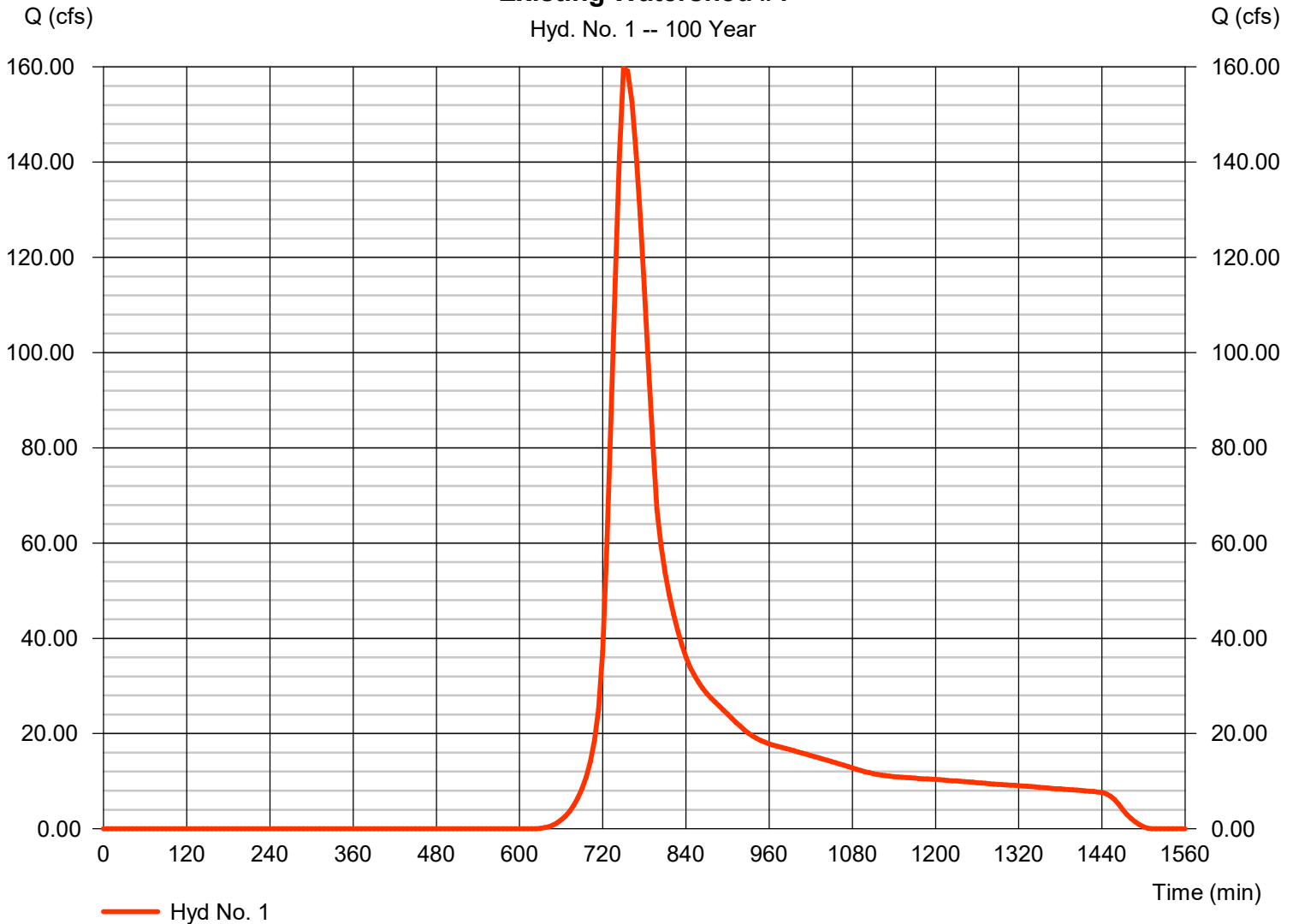
Existing Watershed #1

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

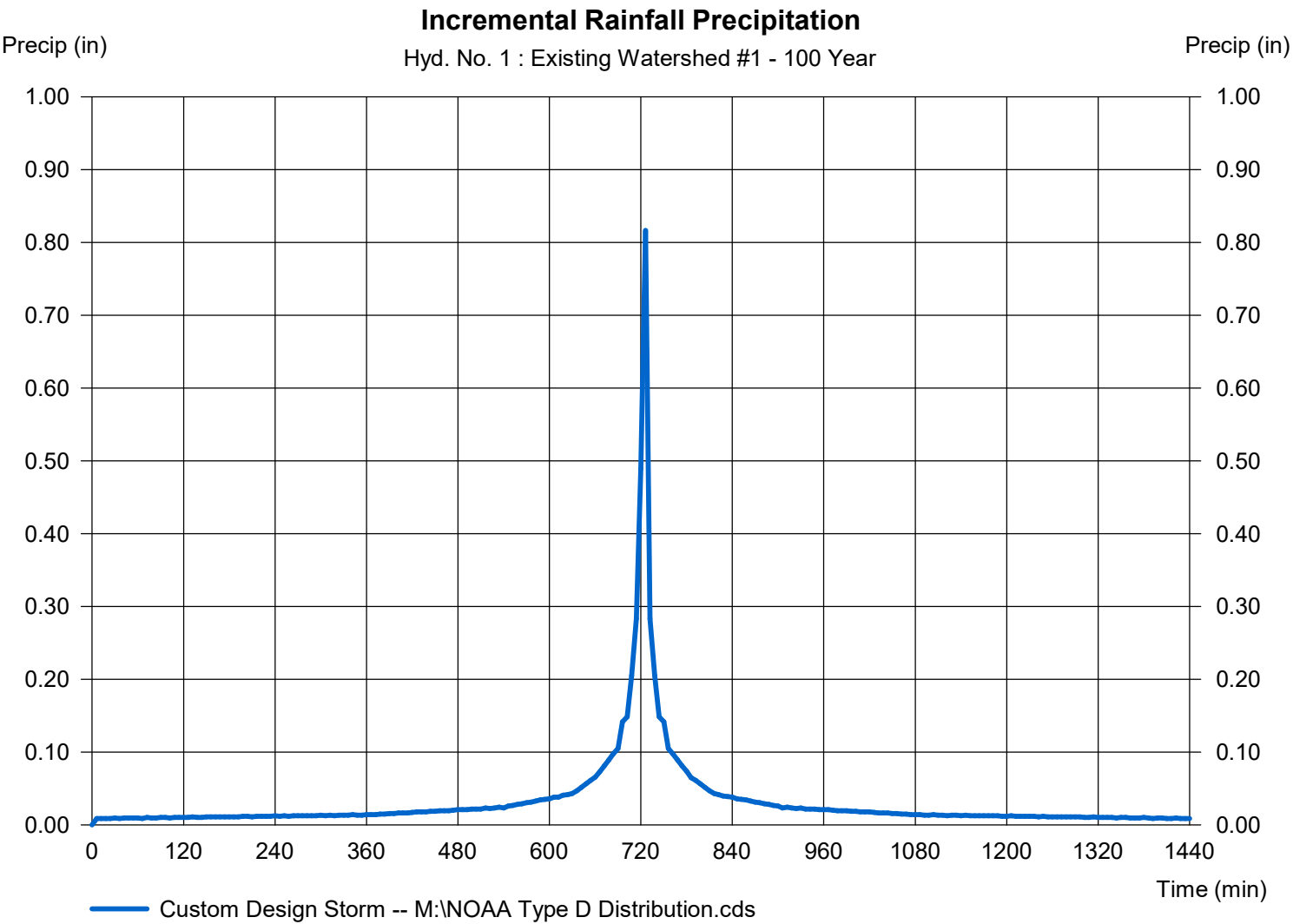


Precipitation Report

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

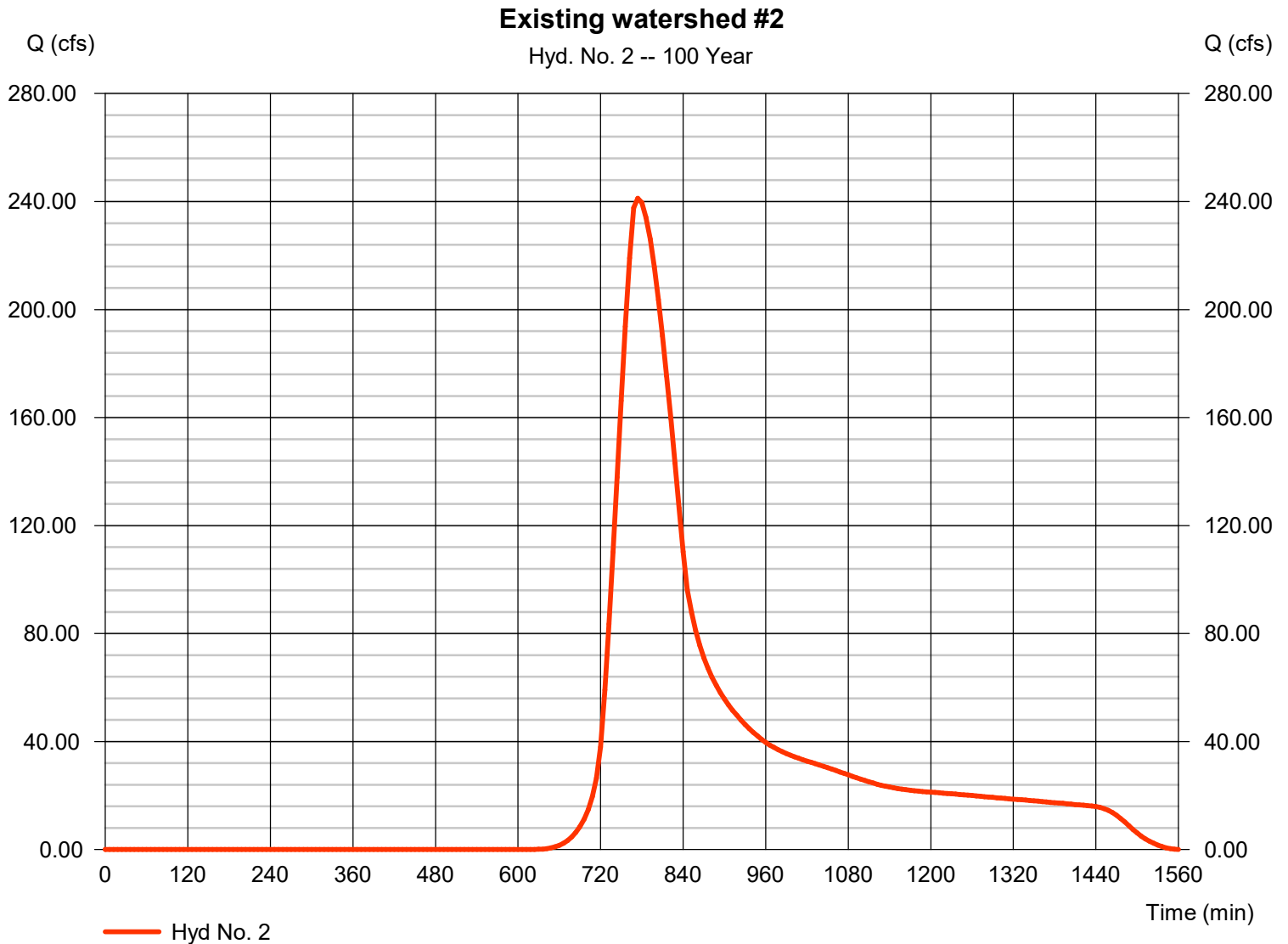
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

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

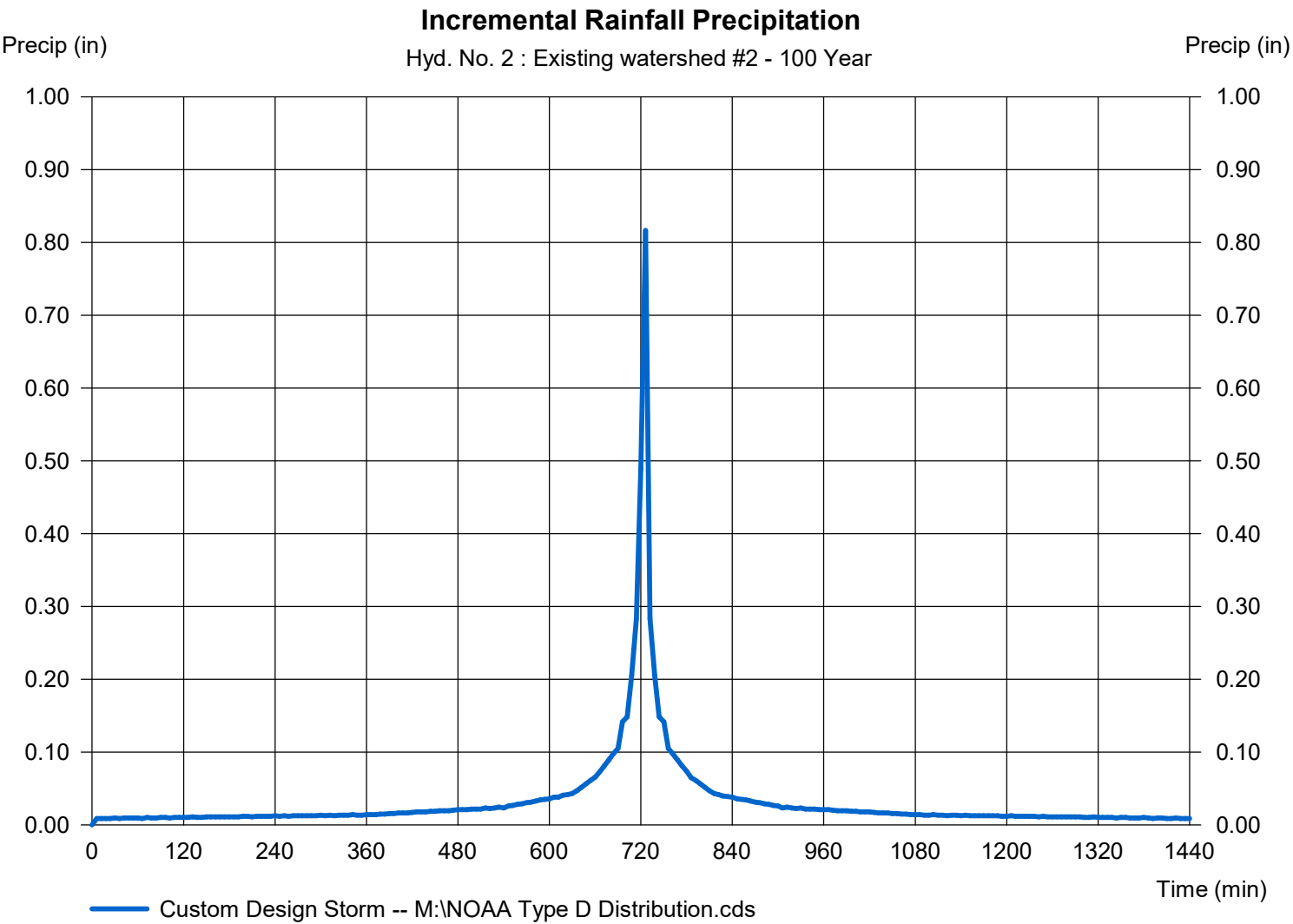


Precipitation Report

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

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

Tuesday, 04 / 8 / 2025

Hyd. No. 3

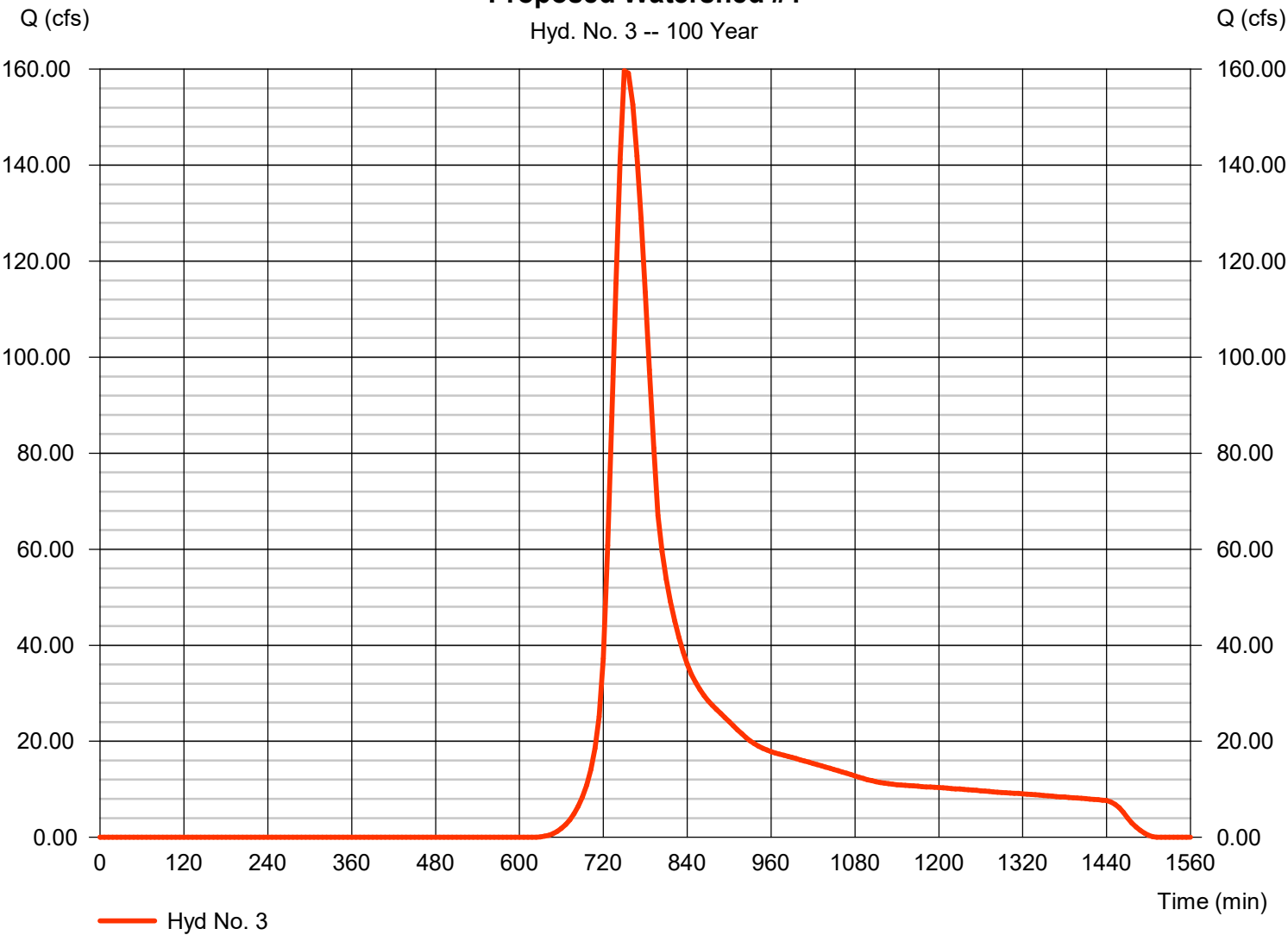
Proposed Watershed #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	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.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 -- 100 Year

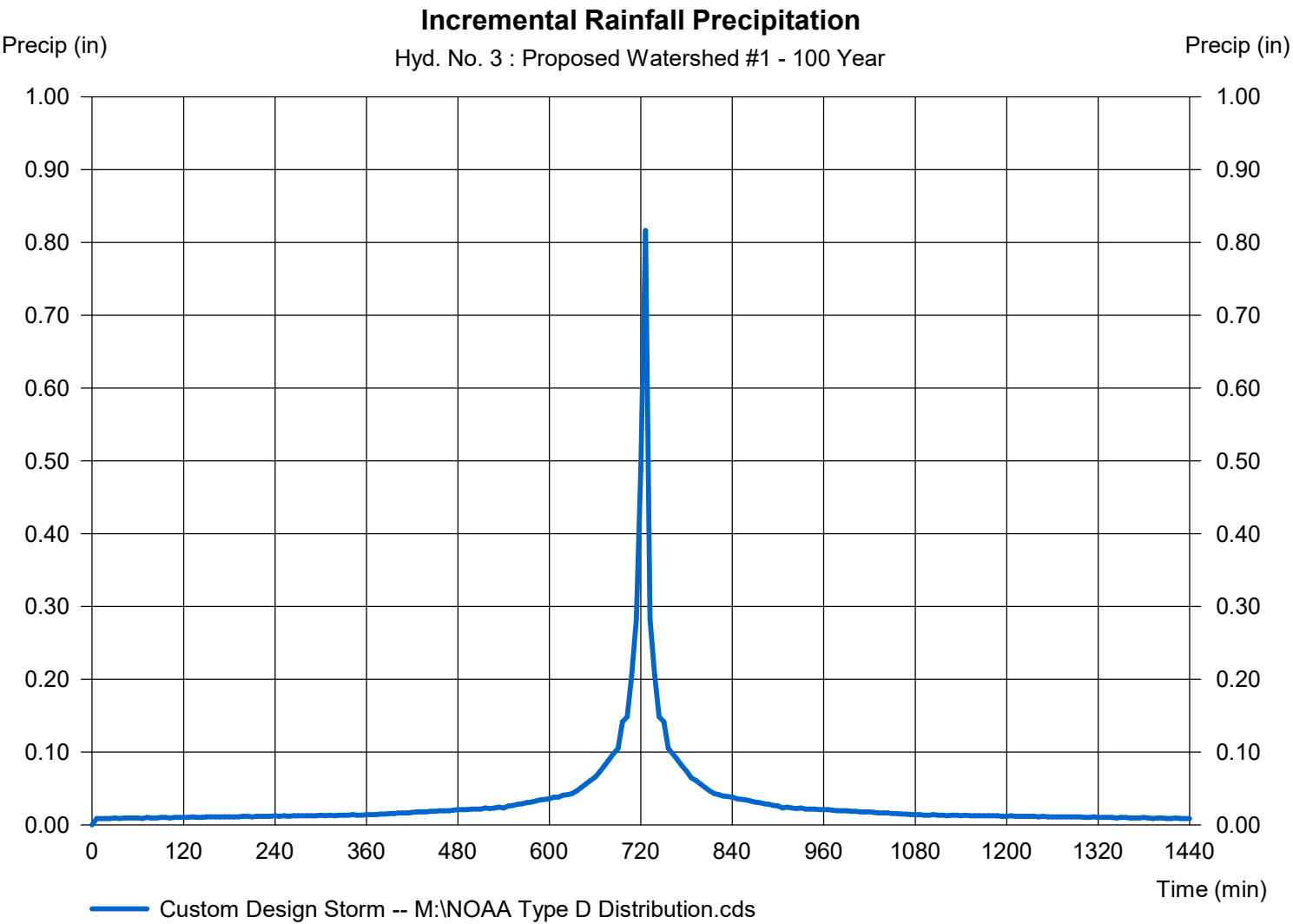


Precipitation Report

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		



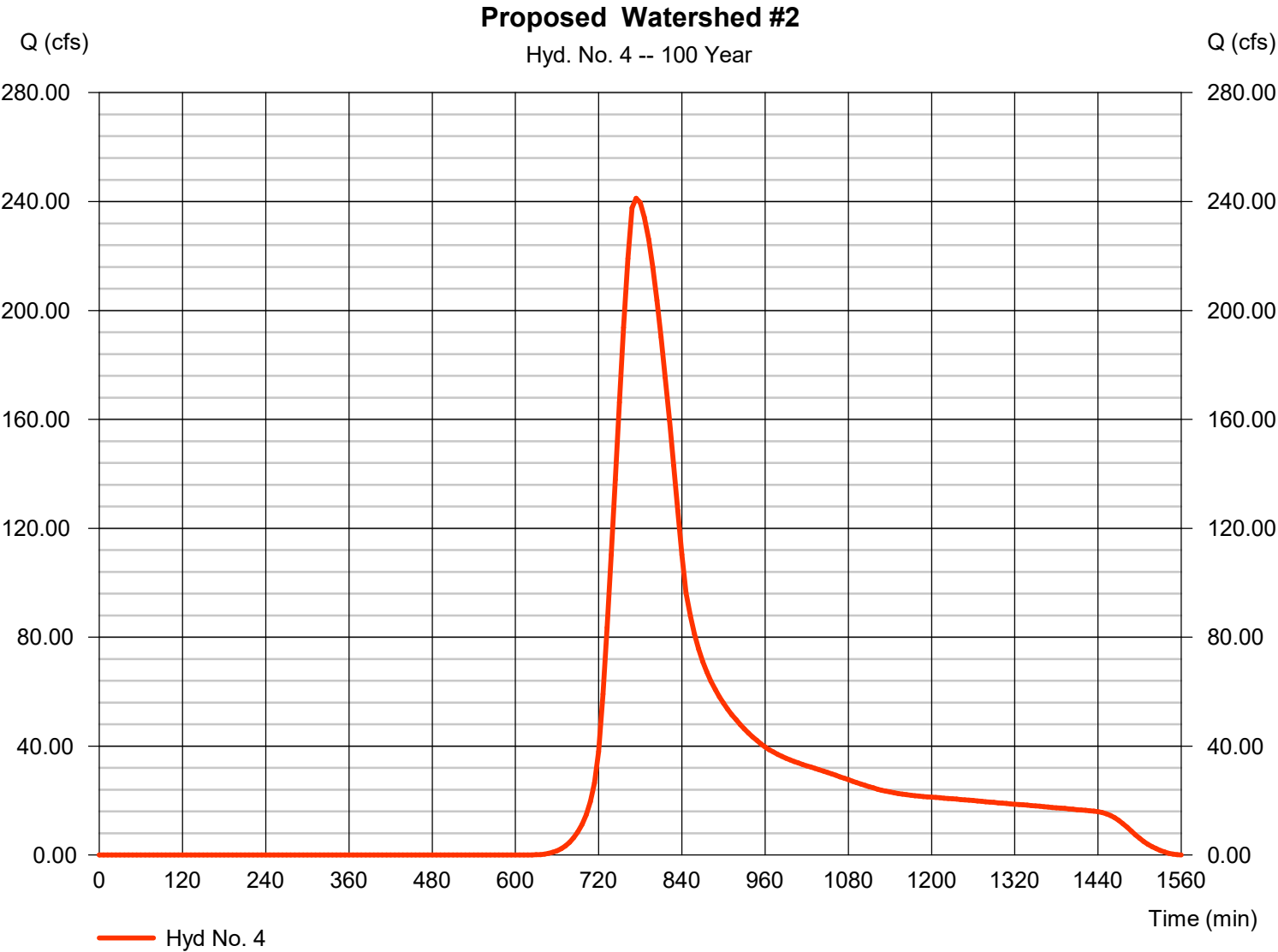
Hydrograph Report

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

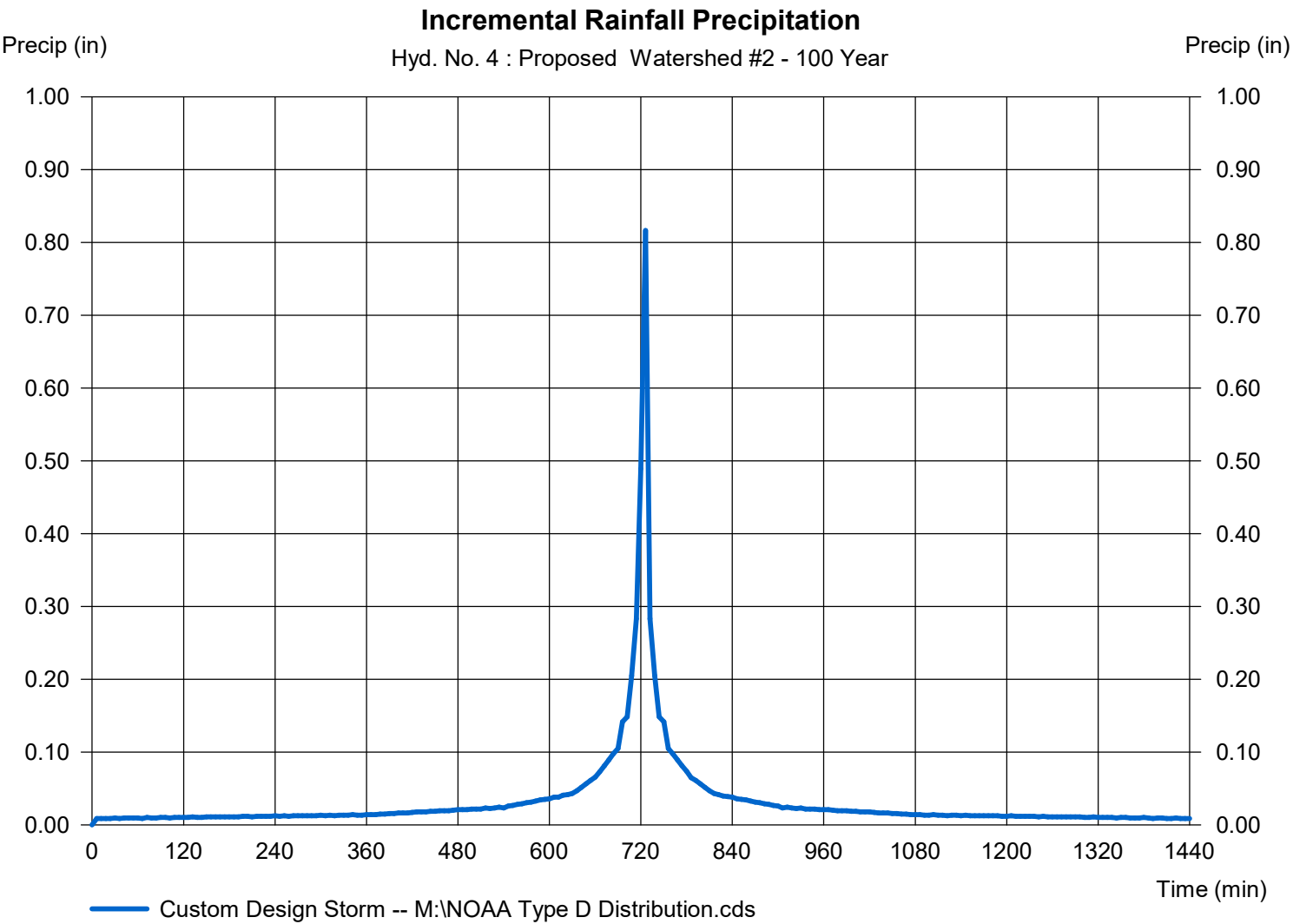


Precipitation Report

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

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

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.

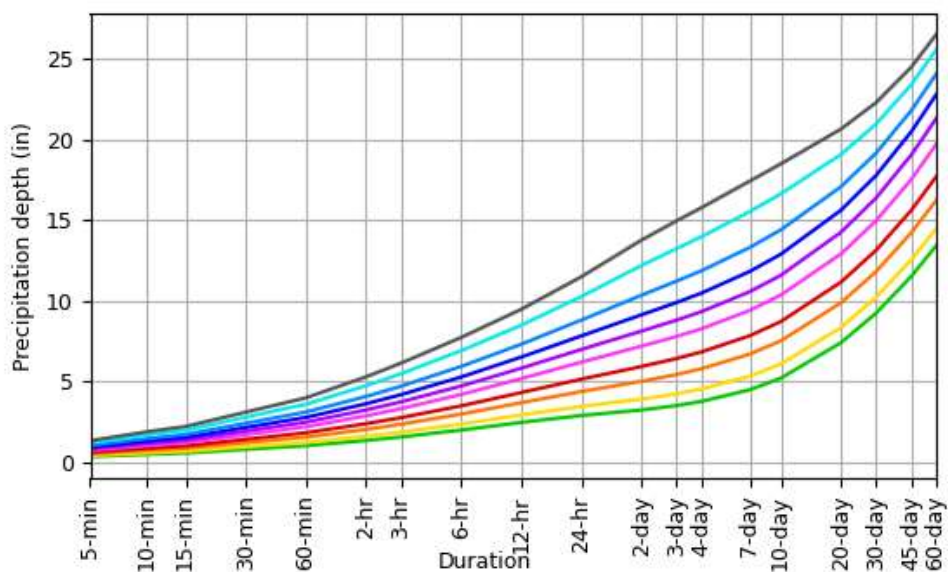
Please refer to NOAA Atlas 14 document for more information.

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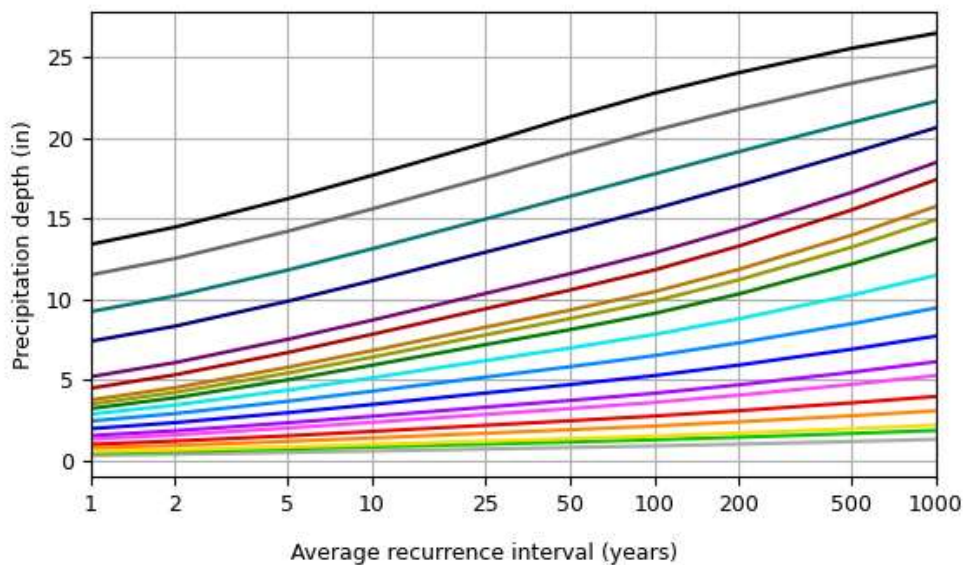
PF graphical

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

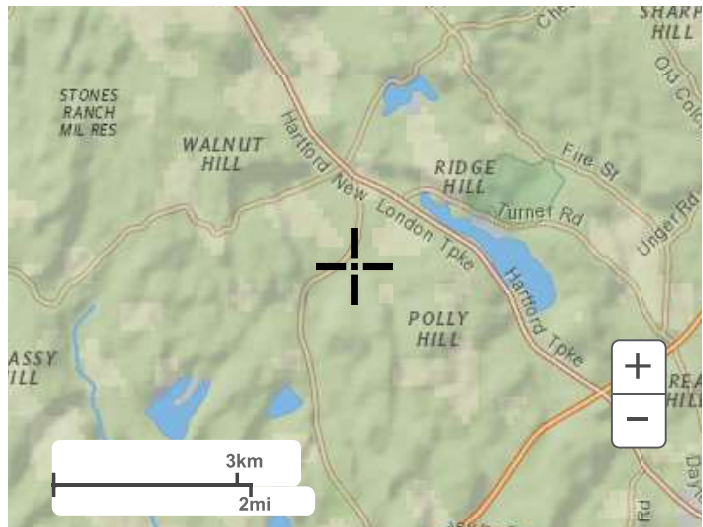


Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

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Maps & aerials

Small scale terrain



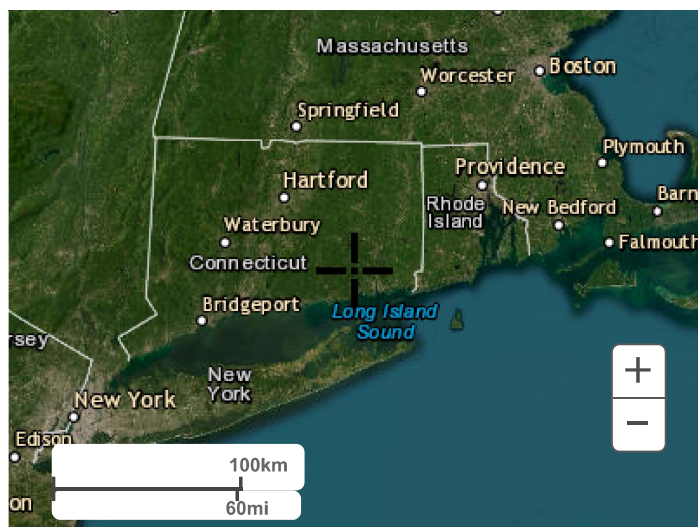
Large scale terrain



Large scale map



Large scale aerial



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