DRAINAGE STATEMENT

for

TESLA MOTORS, INC.

Block 440, Lot 3.01
969 Route 9
Borough of Sayreville
Middlesex County, New Jersey

Prepared by:

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DEC #1990-99-010

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- Stormwater Management, Groundwater Recharge and Water Quality Analysis, prepared by Dynamic Engineering Consultants, PC, dated November 2016, last revised June 2018 (Attached Separately)
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I. SITE DESCRIPTION

The subject site is located at 969 Route 9 in the Borough of Sayreville, Middlesex County, New Jersey. The site is identified as Block 440, Lot 3.01 on the Borough of Sayreville Tax Map Sheet #118. The subject site is currently developed with an existing Wawa Food Market & Fueling Station. The existing conditions of the site have been verified by the As-Built Survey, prepared by Dynamic Survey, LLC, dated August 31, 2021.

The proposed site improvements consist of redeveloping the existing parking area in the northern portion of the site with eight (8) Tesla charging stations/stalls and the relocation of two (2) air pump parking stalls.

II. DESIGN OVERVIEW

This statement has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the proposed site improvements of the subject site, as well as demonstrate compliance with the applicable stormwater requirements set forth by the Borough of Sayreville Land Use Ordinance and NJAC 7:8.

The proposed site improvements within the limit of disturbance proposes a de-minimus increase in impervious surface coverage, therefore, this Drainage Statement identifies and describes the manner by which the design and performance measures set forth by NJAC 7:8 and the Borough of Sayreville Ordinance are achieved to minimize the adverse impact of stormwater runoff quantity in receiving water bodies and to maintain consistency with the existing drainage patterns and on-site stormwater system.

It is important to note, since the proposed site improvements do not result in more than one (1) acre of land disturbance or ¼ (0.25) acre or more increase of motor vehicle impervious coverage; therefore, the water quantity, quality and groundwater recharge requirements of NJAC 7:8 are not applicable to this project.

III. EXISTING DRAINAGE CONDITIONS

The existing conditions of the tract have been verified by the As-Built Survey, prepared by Dynamic Survey, LLC, dated August 31, 2021.

The stormwater runoff generated in the proposed redevelopment area currently drains in a northerly direction and is collected by the on-site stormwater conveyance system and is tributary to the existing/previously approved basin adjacent to Old Cheesequake Road. The stormwater runoff is ultimately tributary to the existing stormwater conveyance system within Old Cheesequake Road.

IV. PROPOSED DRAINAGE CONDITIONS

The proposed site improvements have been designed in order to maintain the existing drainage patterns. Therefore, the stormwater runoff generated by the proposed disturbance area will continue to drain in a northerly direction for collection by the on-site stormwater conveyance system and tributary to the existing/previously approved basin adjacent to Old Cheesequake Road. The stormwater runoff is ultimately tributary to the existing stormwater conveyance system within Old Cheesequake Road.

V. RUNOFF RATE PERFORMANCE

The following is a comparison of the existing and proposed condition runoff rates to the existing/previously approved Old Cheesequake Road Basin:

Pre and Post Development Runoff Summary

Runoff for Old Cheesequake Road Basin						
Design Storm	**Ex. Disturbed Peak Flow (cfs)**	**Reduction (%)**	**Total Allowable Peak Flow (cfs)**	**Total Previously Approved Peak Flow (cfs)**	**Total Proposed Peak Flow (cfs)**	**Total Peak Flow Increase (cfs)**
2-Yr	**0.425**	**50**	**0.213**	**0.133**	**0.134**	**0.001**
10-Yr	**0.653**	**25**	**0.490**	**0.308**	**0.317**	**0.009**
25-Yr	**0.813**	**-**	**0.813**	**0.443**	**0.449**	**0.006**
100-Yr	**1.134**	**20**	**0.907**	**0.610**	**0.616**	**0.006**

VI. CONCLUSION

The proposed site improvements and de-minimum increase in impervious coverage have been designed with provisions for the safe and efficient control of stormwater runoff in a manner that will not adversely impact the previously approved drainage patterns, stormwater basins, adjacent roadways or adjacent parcels. In addition, the proposed site improvements do not result in more than one (1) acre of land disturbance or ¼ (0.25) acre or more increase of motor vehicle impervious coverage; therefore, the water quantity, quality and groundwater recharge requirements of NJAC 7:8 are not applicable to this project. With that stated, it is evident that the proposed site improvements will not have a negative impact on the existing and previously approved drainage patterns on-site or within the vicinity of the subject parcel.

APPENDIX

STORMWATER MANAGEMENT, GROUNDWATER RECHARGE AND WATER QUALITY ANALYSIS, PREPARED BY DYNAMIC ENGINEERING CONSULTANTS, PC, DATED NOVEMBER 2016, LAST REVISED JUNE 2018 (ATTACHED SEPARATELY)

HYDROGRAPH SUMMARY REPORTS – EXISTING AND PROPOSED CONDITIONS 2YR, 10YR, 25YR & 100YR

Watershed Model Schematic

Legend

Hyd.	Origin	Description
1	SCS Runoff	Ex. Disturbed to Old Cheesequake (Imp)
2	SCS Runoff	Ex. Disturbed to Old Cheesequake (Perv)
3	Combine	Ex. Disturbed to Old Cheesequake Total
5	SCS Runoff	Prop. to Old Cheesequake Basin (Imp)
6	SCS Runoff	Prop. to Old Cheesequake Basin (Perv)
7	Combine	Prop. Total to Old Cheesequake Basin
8	Reservoir	Post Route to Basin

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	0.425	-------	-------	0.653	0.813	-------	1.105	Ex. Disturbed to Old Cheesequake (I
2	SCS Runoff	-------	-------	0.000	-------	-------	0.006	0.039	-------	0.349	Ex. Disturbed to Old Cheesequake (P
3	Combine	1, 2	-------	0.425	-------	-------	0.653	0.813	-------	1.134	Ex. Disturbed to Old Cheesequake To
5	SCS Runoff	-------	-------	3.114	-------	-------	4.791	5.963	-------	8.105	Prop. to Old Cheesequake Basin (Im
6	SCS Runoff	-------	-------	0.001	-------	-------	0.038	0.203	-------	0.826	Prop. to Old Cheesequake Basin (Per
7	Combine	5, 6	-------	3.114	-------	-------	4.791	6.074	-------	8.911	Prop. Total to Old Cheesequake Basi
8	Reservoir	7	-------	0.134	-------	-------	0.317	0.449	-------	0.616	Post Route to Basin

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

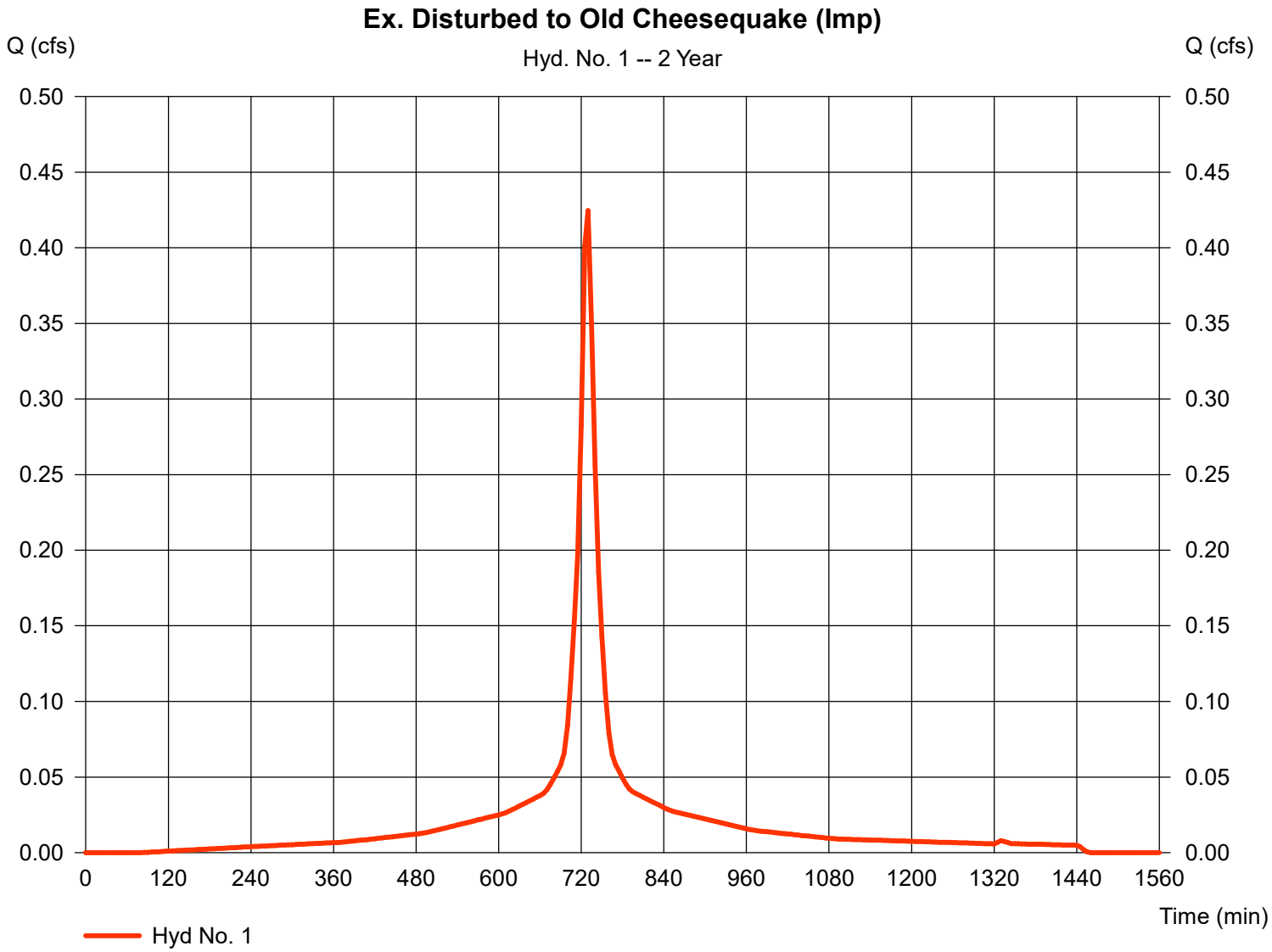
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.425	5	730	1,909	----	------	------	Ex. Disturbed to Old Cheesequake (I
2	SCS Runoff	0.000	5	n/a	0	----	------	------	Ex. Disturbed to Old Cheesequake (P
3	Combine	0.425	5	730	1,909	1, 2	------	------	Ex. Disturbed to Old Cheesequake To
5	SCS Runoff	3.114	5	730	14,002	----	------	------	Prop. to Old Cheesequake Basin (Im
6	SCS Runoff	0.001	5	1330	10	----	------	------	Prop. to Old Cheesequake Basin (Per
7	Combine	3.114	5	730	14,011	5, 6	------	------	Prop. Total to Old Cheesequake Basi
8	Reservoir	0.134	5	935	14,002	7	108.45	8,907	Post Route to Basin

Hydrograph Report

Hyd. No. 1

Ex. Disturbed to Old Cheesequake (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.425 cfs
Storm frequency	=	2 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	1,909 cuft
Drainage area	=	0.180 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.35 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

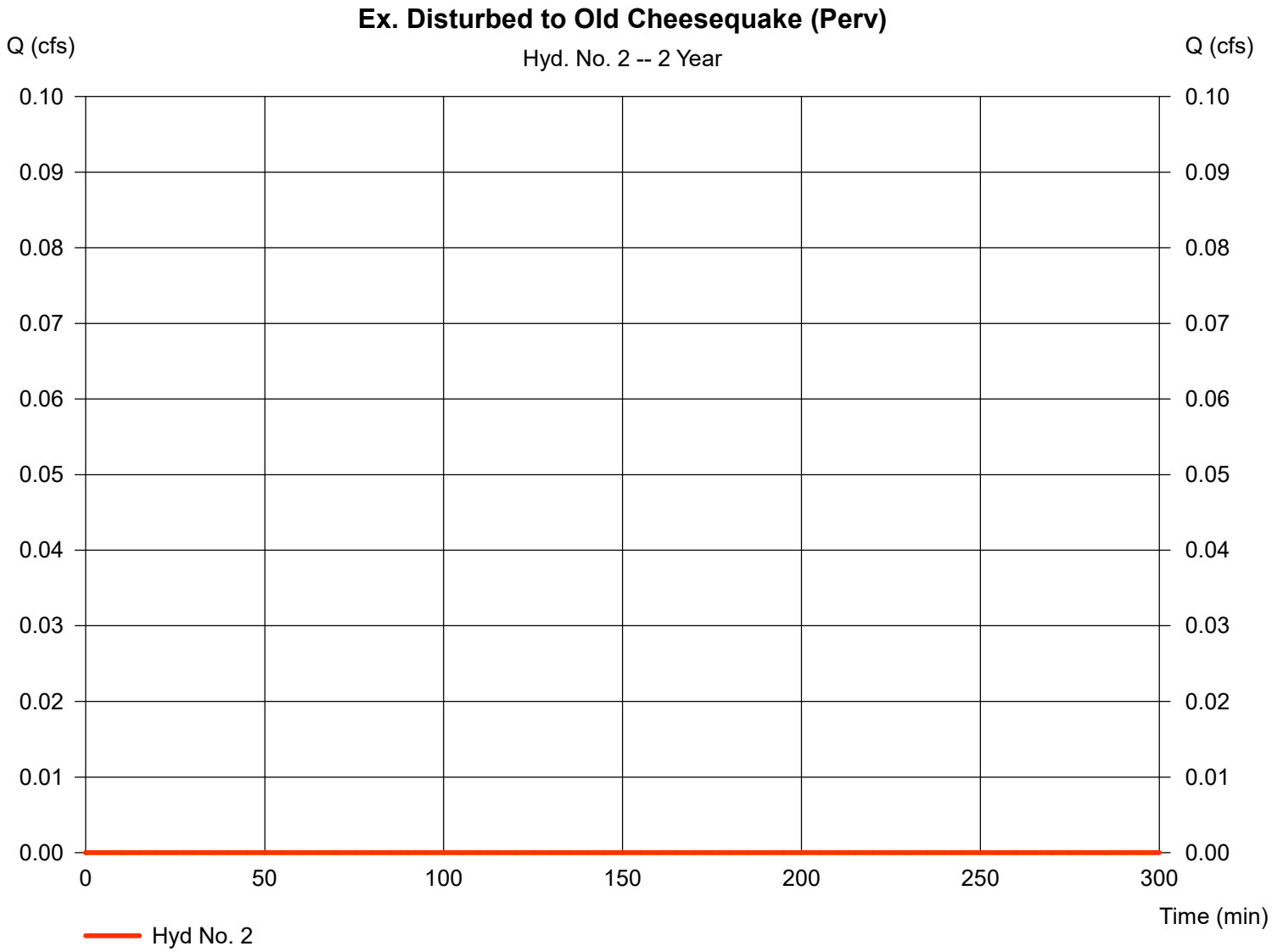


Hydrograph Report

Hyd. No. 2

Ex. Disturbed to Old Cheesequake (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	n/a
Time interval	=	5 min	Hyd. volume	=	0 cuft
Drainage area	=	1.990 ac	Curve number	=	31
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	37.00 min
Total precip.	=	3.35 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

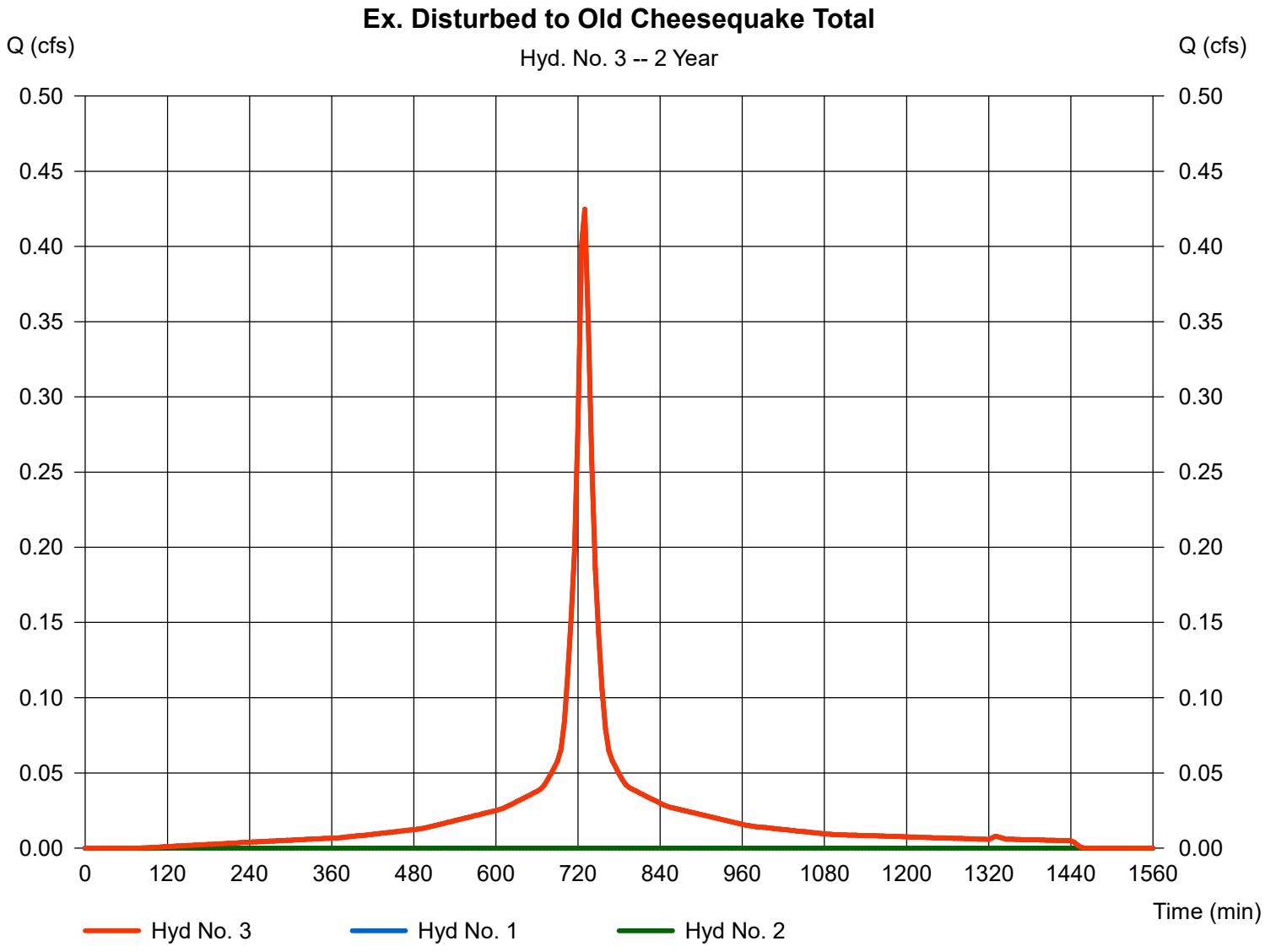


Hydrograph Report

Hyd. No. 3

Ex. Disturbed to Old Cheesequake Total

Hydrograph type	= Combine	Peak discharge	= 0.425 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 1,909 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.170 ac

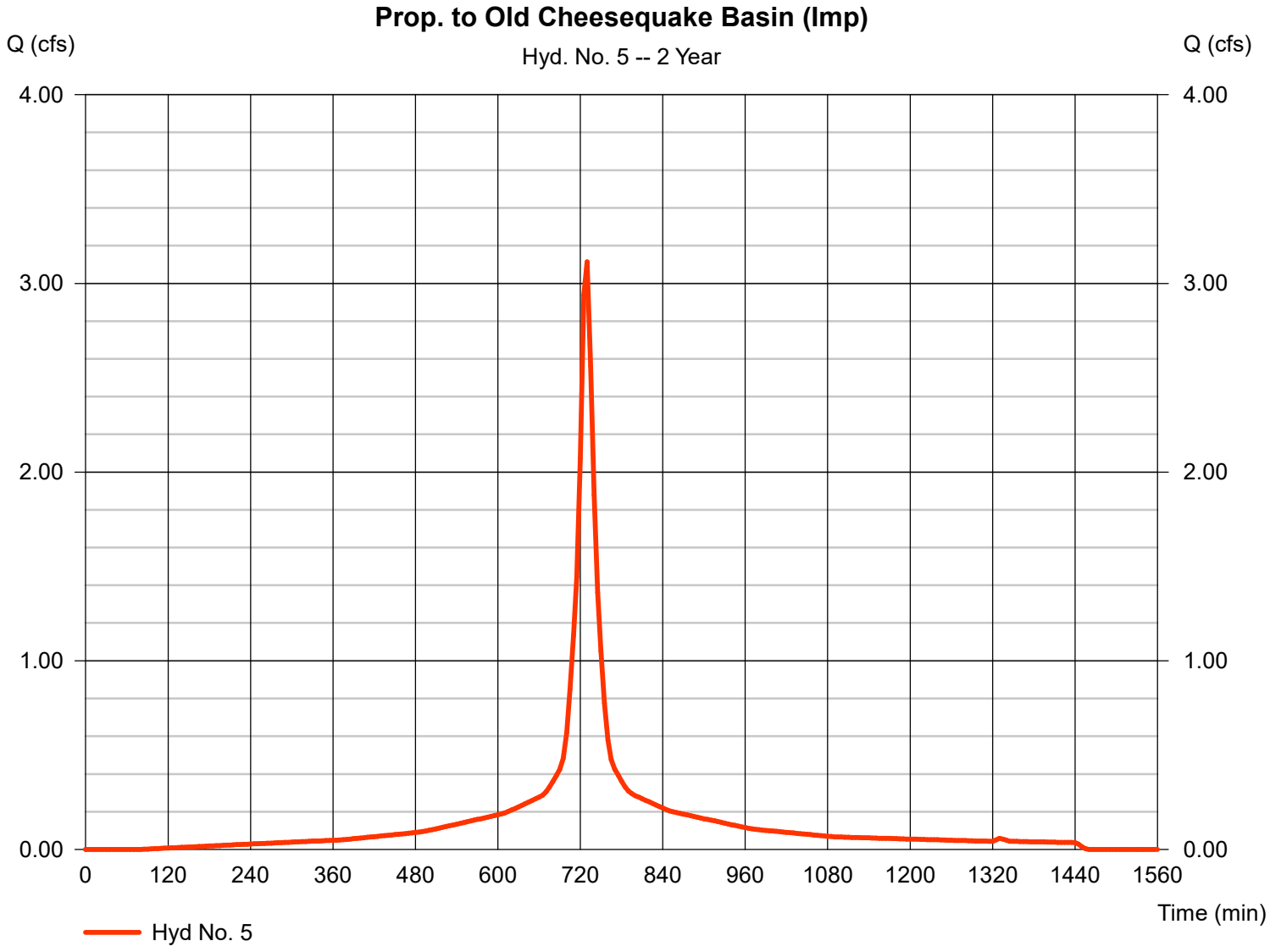


Hydrograph Report

Hyd. No. 5

Prop. to Old Cheesequake Basin (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.114 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 14,002 cuft
Drainage area	= 1.320 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.35 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

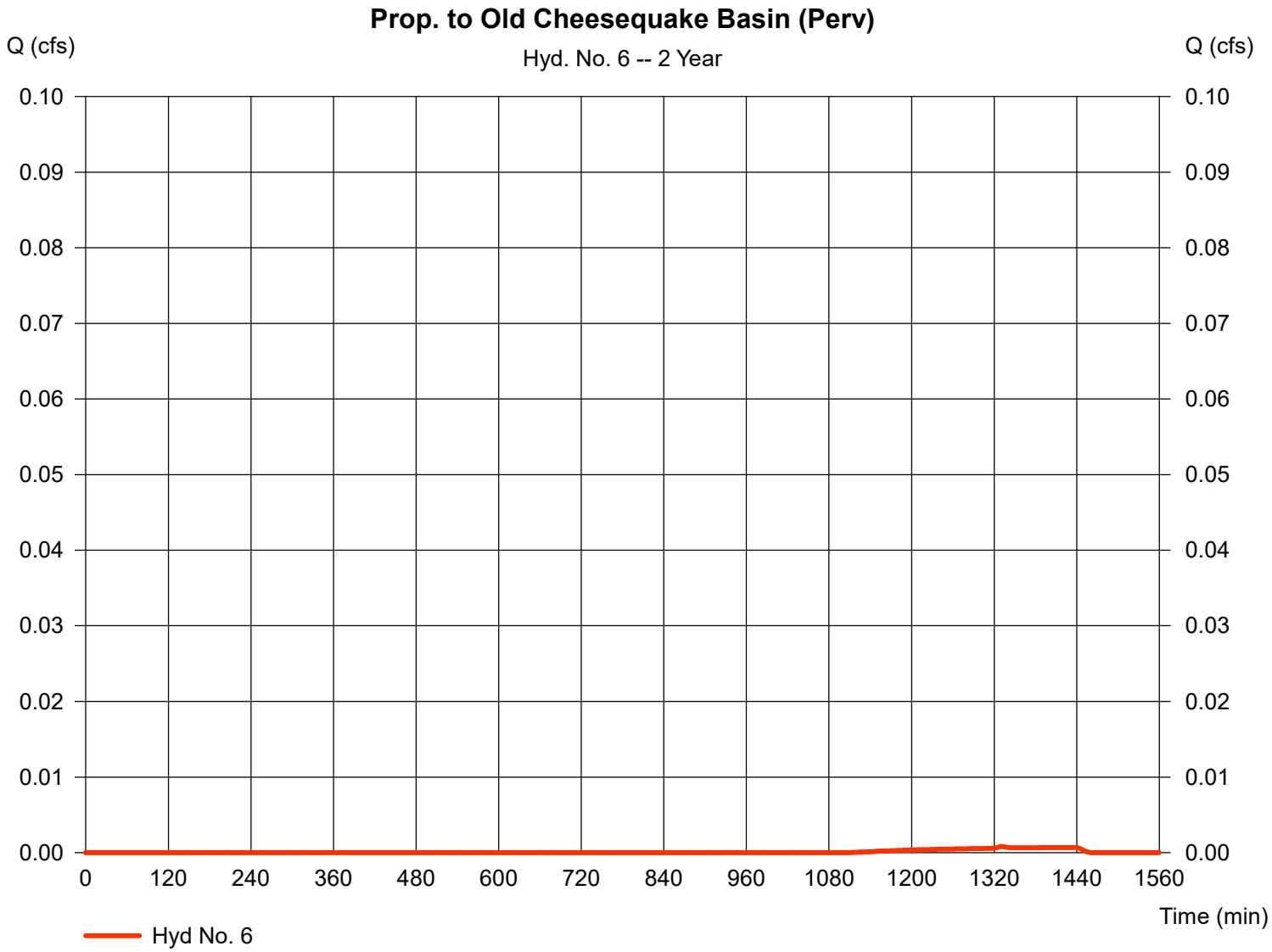


Hydrograph Report

Hyd. No. 6

Prop. to Old Cheesequake Basin (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.001 cfs
Storm frequency	=	2 yrs	Time to peak	=	1330 min
Time interval	=	5 min	Hyd. volume	=	10 cuft
Drainage area	=	0.920 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.35 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

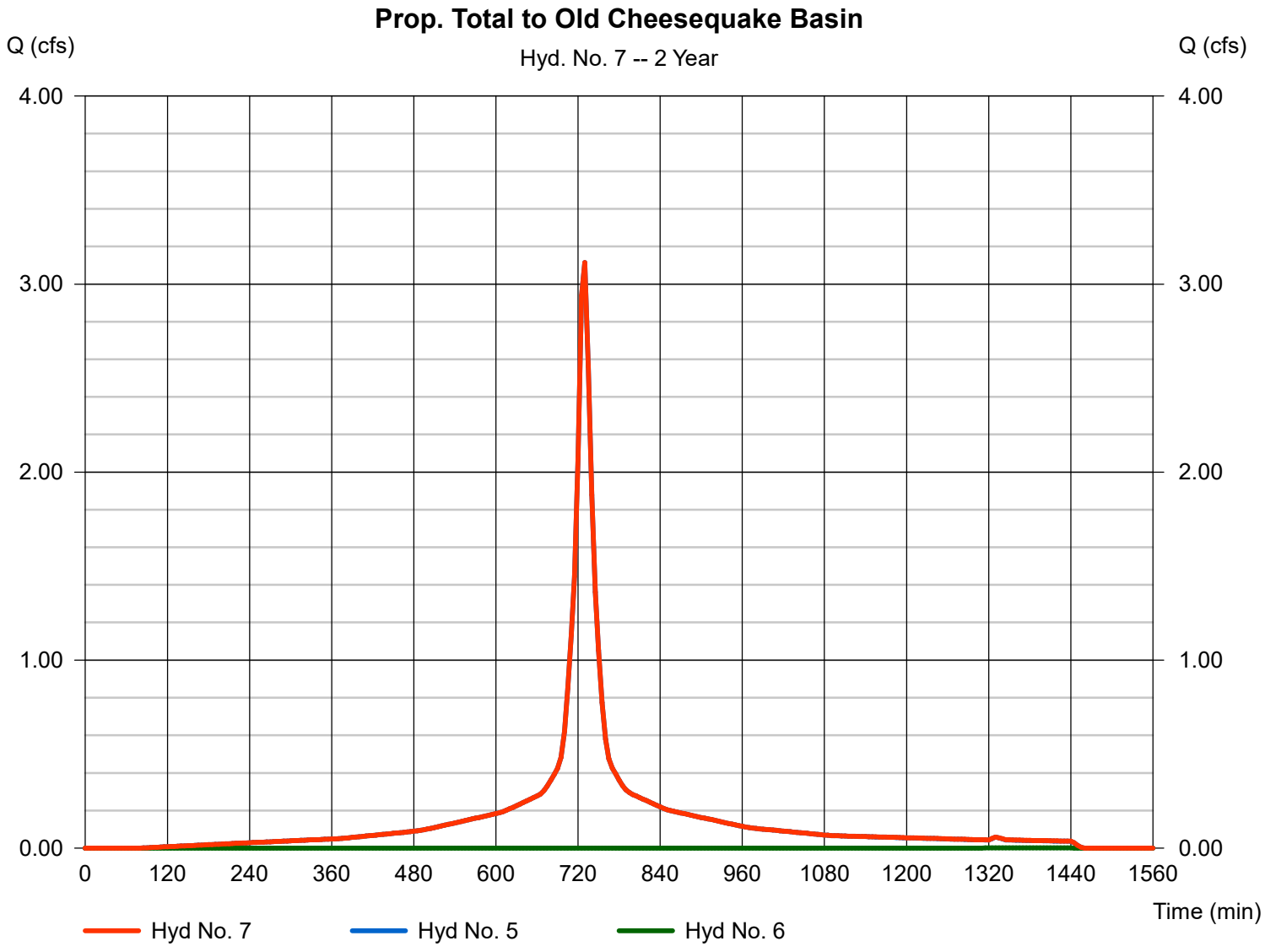


Hydrograph Report

Hyd. No. 7

Prop. Total to Old Cheesequake Basin

Hydrograph type	= Combine	Peak discharge	= 3.114 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 14,011 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 2.240 ac



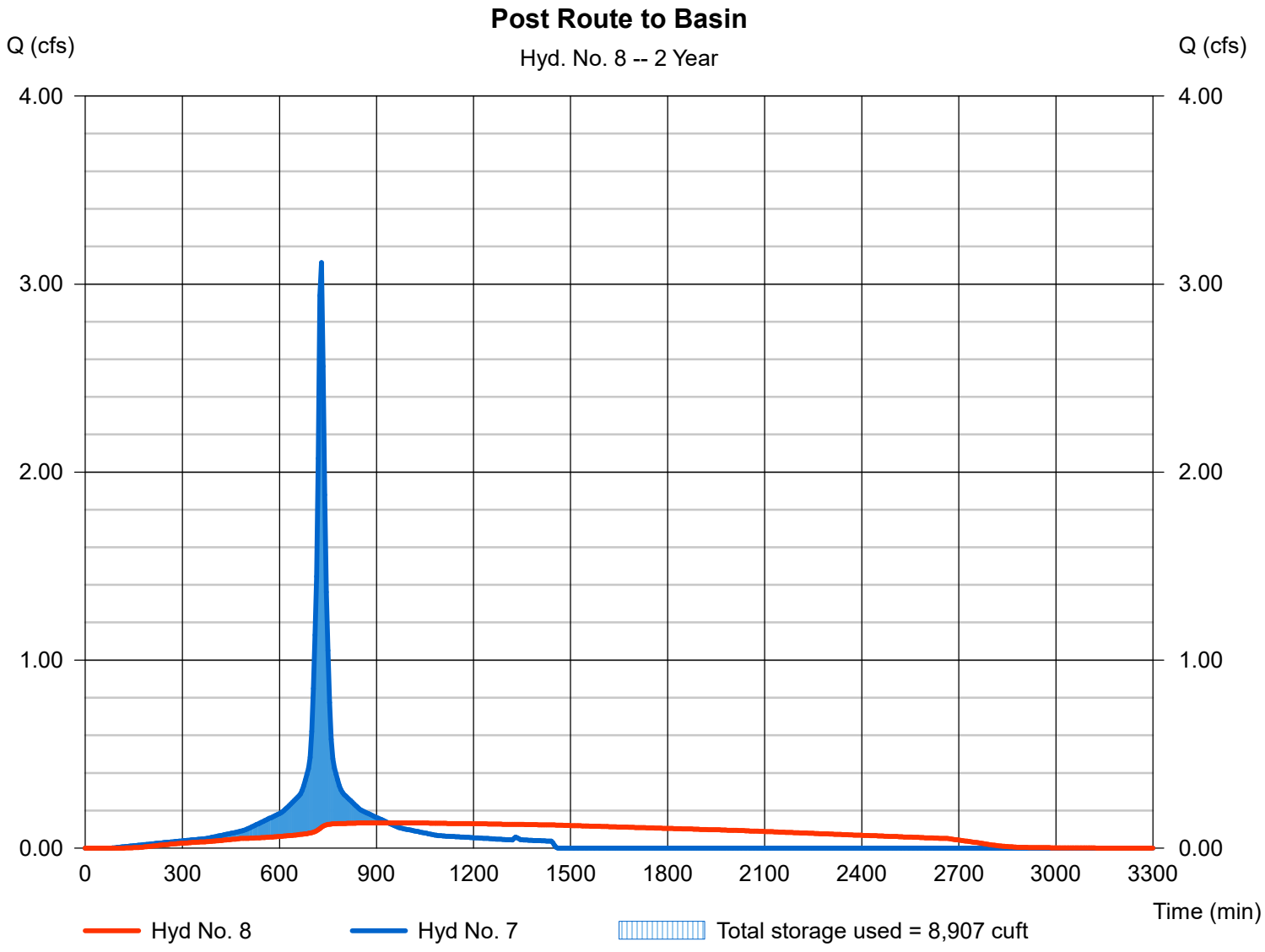
Hydrograph Report

Hyd. No. 8

Post Route to Basin

Hydrograph type	=	Reservoir	Peak discharge	=	0.134 cfs
Storm frequency	=	2 yrs	Time to peak	=	935 min
Time interval	=	5 min	Hyd. volume	=	14,002 cuft
Inflow hyd. No.	=	7 - Prop. Total to Old Cheesequake Basin	Max. Elevation	=	108.45 ft
Reservoir name	=	Detention Basin	Max. Storage	=	8,907 cuft

Storage Indication method used.



Pond No. 2 - Detention Basin

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 105.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	105.50	00	0	0
0.50	106.00	2,235	372	372
1.50	107.00	3,415	2,804	3,176
2.50	108.00	4,085	3,745	6,921
3.50	109.00	4,795	4,435	11,356
4.50	110.00	5,495	5,141	16,496
5.50	111.00	6,285	5,885	22,381
6.50	112.00	7,080	6,678	29,059
7.40	112.90	8,050	6,803	35,862

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	1.75	3.25	0.00
Span (in)	= 15.00	1.75	3.25	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 105.50	105.50	109.00	0.00
Length (ft)	= 75.00	0.50	0.50	0.00
Slope (%)	= 0.50	0.50	0.50	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 22.00	20.00	0.00	0.00
Crest El. (ft)	= 111.50	111.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	Rect	---	---
Multi-Stage	= No	Yes	No	No

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

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	105.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.00
0.05	37	105.55	0.00 ic	0.00 ic	0.00	---	0.00	0.00	---	---	---	---	0.00
0.10	74	105.60	0.01 ic	0.01 ic	0.00	---	0.00	0.00	---	---	---	---	0.01
0.15	112	105.65	0.02 ic	0.02 ic	0.00	---	0.00	0.00	---	---	---	---	0.02
0.20	149	105.70	0.03 ic	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.03
0.25	186	105.75	0.03 ic	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.03
0.30	223	105.80	0.04 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.04
0.35	261	105.85	0.04 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.04
0.40	298	105.90	0.05 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.04
0.45	335	105.95	0.05 ic	0.05 ic	0.00	---	0.00	0.00	---	---	---	---	0.05
0.50	372	106.00	0.05 ic	0.05 ic	0.00	---	0.00	0.00	---	---	---	---	0.05
0.60	653	106.10	0.06 ic	0.06 ic	0.00	---	0.00	0.00	---	---	---	---	0.06
0.70	933	106.20	0.06 ic	0.06 ic	0.00	---	0.00	0.00	---	---	---	---	0.06
0.80	1,214	106.30	0.07 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.07
0.90	1,494	106.40	0.08 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.07
1.00	1,774	106.50	0.08 ic	0.08 ic	0.00	---	0.00	0.00	---	---	---	---	0.08
1.10	2,055	106.60	0.08 ic	0.08 ic	0.00	---	0.00	0.00	---	---	---	---	0.08
1.20	2,335	106.70	0.08 ic	0.08 ic	0.00	---	0.00	0.00	---	---	---	---	0.08
1.30	2,616	106.80	0.09 ic	0.09 ic	0.00	---	0.00	0.00	---	---	---	---	0.09
1.40	2,896	106.90	0.09 ic	0.09 ic	0.00	---	0.00	0.00	---	---	---	---	0.09
1.50	3,176	107.00	0.10 ic	0.09 ic	0.00	---	0.00	0.00	---	---	---	---	0.09
1.60	3,551	107.10	0.10 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.10
1.70	3,925	107.20	0.10 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.10
1.80	4,300	107.30	0.11 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.10
1.90	4,674	107.40	0.11 ic	0.11 ic	0.00	---	0.00	0.00	---	---	---	---	0.11
2.00	5,049	107.50	0.11 ic	0.11 ic	0.00	---	0.00	0.00	---	---	---	---	0.11
2.10	5,423	107.60	0.12 ic	0.11 ic	0.00	---	0.00	0.00	---	---	---	---	0.11
2.20	5,798	107.70	0.12 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.12
2.30	6,172	107.80	0.12 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.12
2.40	6,547	107.90	0.13 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.12
2.50	6,921	108.00	0.13 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.12
2.60	7,365	108.10	0.13 ic	0.13 ic	0.00	---	0.00	0.00	---	---	---	---	0.13
2.70	7,808	108.20	0.13 ic	0.13 ic	0.00	---	0.00	0.00	---	---	---	---	0.13
2.80	8,251	108.30	0.14 ic	0.13 ic	0.00	---	0.00	0.00	---	---	---	---	0.13
2.90	8,695	108.40	0.14 ic	0.13 ic	0.00	---	0.00	0.00	---	---	---	---	0.13

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Detention Basin

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.00	9,138	108.50	0.14 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.14
3.10	9,582	108.60	0.14 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.14
3.20	10,025	108.70	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.14
3.30	10,469	108.80	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.14
3.40	10,912	108.90	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.14
3.50	11,356	109.00	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.15
3.60	11,870	109.10	0.17 ic	0.15 ic	0.02 ic	---	0.00	0.00	---	---	---	---	0.17
3.70	12,384	109.20	0.23 ic	0.15 ic	0.07 ic	---	0.00	0.00	---	---	---	---	0.22
3.80	12,898	109.30	0.27 ic	0.15 ic	0.11 ic	---	0.00	0.00	---	---	---	---	0.26
3.90	13,412	109.40	0.30 ic	0.15 ic	0.14 ic	---	0.00	0.00	---	---	---	---	0.30
4.00	13,926	109.50	0.33 ic	0.16 ic	0.17 ic	---	0.00	0.00	---	---	---	---	0.32
4.10	14,440	109.60	0.35 ic	0.16 ic	0.19 ic	---	0.00	0.00	---	---	---	---	0.35
4.20	14,954	109.70	0.37 ic	0.16 ic	0.21 ic	---	0.00	0.00	---	---	---	---	0.37
4.30	15,468	109.80	0.39 ic	0.16 ic	0.23 ic	---	0.00	0.00	---	---	---	---	0.39
4.40	15,982	109.90	0.41 ic	0.16 ic	0.24 ic	---	0.00	0.00	---	---	---	---	0.41
4.50	16,496	110.00	0.43 ic	0.16 ic	0.26 ic	---	0.00	0.00	---	---	---	---	0.42
4.60	17,085	110.10	0.44 ic	0.17 ic	0.27 ic	---	0.00	0.00	---	---	---	---	0.44
4.70	17,673	110.20	0.46 ic	0.17 ic	0.29 ic	---	0.00	0.00	---	---	---	---	0.45
4.80	18,262	110.30	0.48 ic	0.17 ic	0.30 ic	---	0.00	0.00	---	---	---	---	0.47
4.90	18,850	110.40	0.48 ic	0.17 ic	0.31 ic	---	0.00	0.00	---	---	---	---	0.48
5.00	19,439	110.50	0.51 ic	0.17 ic	0.32 ic	---	0.00	0.00	---	---	---	---	0.50
5.10	20,027	110.60	0.51 ic	0.18 ic	0.34 ic	---	0.00	0.00	---	---	---	---	0.51
5.20	20,616	110.70	0.53 ic	0.18 ic	0.35 ic	---	0.00	0.00	---	---	---	---	0.52
5.30	21,204	110.80	0.54 ic	0.18 ic	0.36 ic	---	0.00	0.00	---	---	---	---	0.54
5.40	21,793	110.90	0.56 ic	0.18 ic	0.37 ic	---	0.00	0.00	---	---	---	---	0.55
5.50	22,381	111.00	0.56 ic	0.18 ic	0.38 ic	---	0.00	0.00	---	---	---	---	0.56
5.60	23,049	111.10	0.59 ic	0.18 ic	0.39 ic	---	0.00	0.00	---	---	---	---	0.57
5.70	23,717	111.20	0.59 ic	0.19 ic	0.40 ic	---	0.00	0.00	---	---	---	---	0.58
5.80	24,385	111.30	0.61 ic	0.19 ic	0.41 ic	---	0.00	0.00	---	---	---	---	0.60
5.90	25,053	111.40	0.61 ic	0.19 ic	0.42 ic	---	0.00	0.00	---	---	---	---	0.61
6.00	25,720	111.50	0.62 ic	0.19 ic	0.43 ic	---	0.00	0.00	---	---	---	---	0.62
6.10	26,388	111.60	2.75 oc	0.18 ic	0.44 ic	---	2.32	2.11	---	---	---	---	5.04
6.20	27,056	111.70	6.56 oc	0.16 ic	0.44 ic	---	6.55	5.96	---	---	---	---	13.11
6.30	27,724	111.80	11.33 oc	0.09 ic	0.30 ic	---	12.04	10.94	---	---	---	---	23.37
6.40	28,391	111.90	12.72 oc	0.03 ic	0.10 ic	---	18.53	12.59 s	---	---	---	---	31.26
6.50	29,059	112.00	12.92 oc	0.02 ic	0.07 ic	---	25.90	12.82 s	---	---	---	---	38.82
6.59	29,740	112.09	13.05 oc	0.02 ic	0.06 ic	---	33.20	12.97 s	---	---	---	---	46.25
6.68	30,420	112.18	13.17 oc	0.01 ic	0.05 ic	---	41.08	13.10 s	---	---	---	---	54.24
6.77	31,100	112.27	13.28 oc	0.01 ic	0.04 ic	---	49.50	13.21 s	---	---	---	---	62.77
6.86	31,781	112.36	13.39 oc	0.01 ic	0.03 ic	---	58.43	13.32 s	---	---	---	---	71.79
6.95	32,461	112.45	13.50 oc	0.01 ic	0.03 ic	---	67.83	13.44 s	---	---	---	---	81.32
7.04	33,141	112.54	13.60 oc	0.01 ic	0.03 ic	---	77.70	13.56 s	---	---	---	---	91.30
7.13	33,821	112.63	13.70 oc	0.01 ic	0.02 ic	---	88.00	13.67 s	---	---	---	---	101.70
7.22	34,502	112.72	13.80 oc	0.01 ic	0.02 ic	---	98.72	13.70 s	---	---	---	---	112.45
7.31	35,182	112.81	13.90 oc	0.01 ic	0.02 ic	---	109.84	13.86 s	---	---	---	---	123.73
7.40	35,862	112.90	14.00 oc	0.01 ic	0.02 ic	---	121.36	13.87 s	---	---	---	---	135.25

...End

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

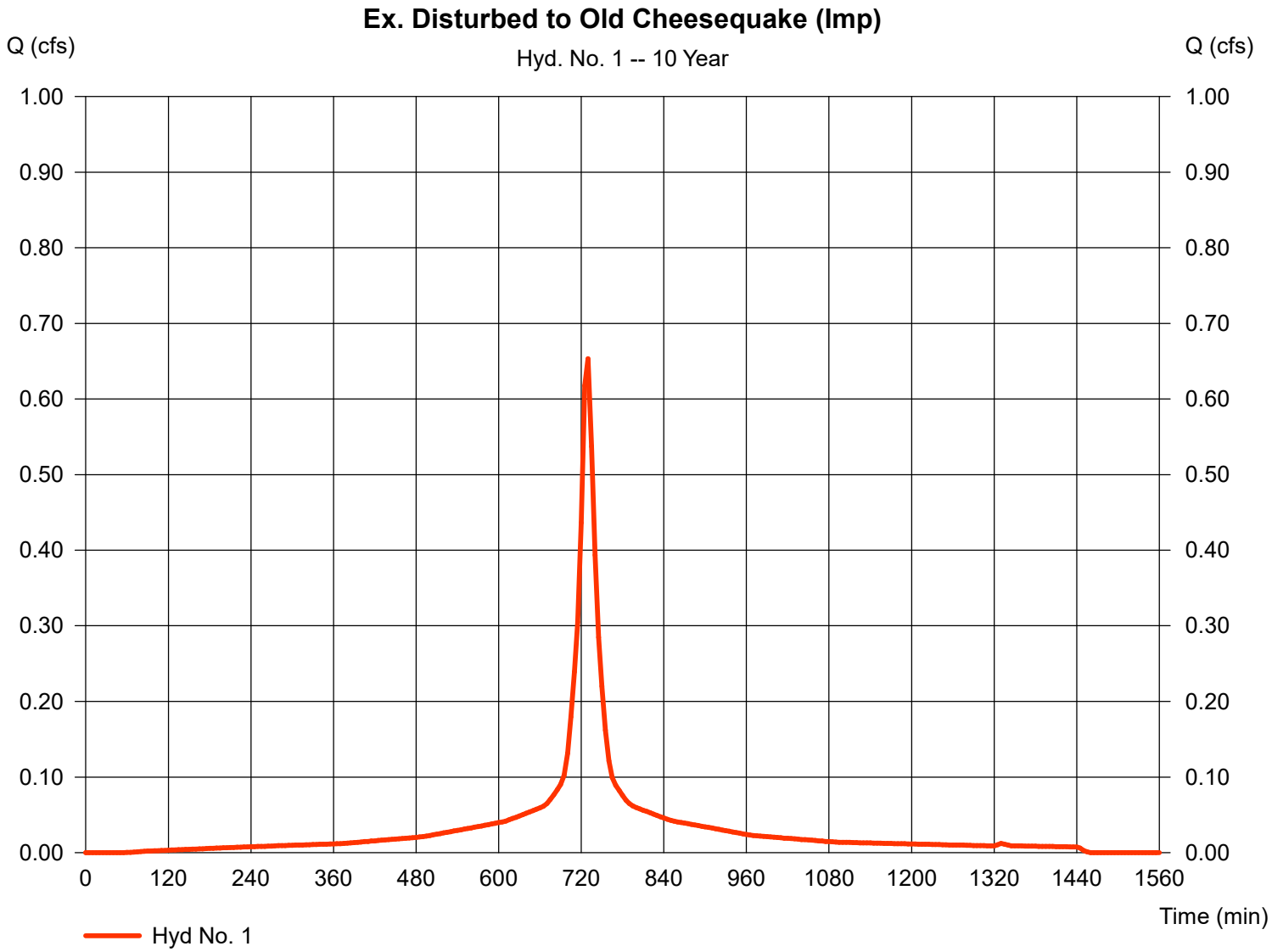
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.653	5	730	2,991	----	------	------	Ex. Disturbed to Old Cheesequake (I
2	SCS Runoff	0.006	5	1345	137	----	------	------	Ex. Disturbed to Old Cheesequake (P
3	Combine	0.653	5	730	3,128	1, 2	------	------	Ex. Disturbed to Old Cheesequake To
5	SCS Runoff	4.791	5	730	21,935	----	------	------	Prop. to Old Cheesequake Basin (Im
6	SCS Runoff	0.038	5	750	704	----	------	------	Prop. to Old Cheesequake Basin (Per
7	Combine	4.791	5	730	22,639	5, 6	------	------	Prop. Total to Old Cheesequake Basi
8	Reservoir	0.317	5	865	22,629	7	109.48	13,804	Post Route to Basin

Hydrograph Report

Hyd. No. 1

Ex. Disturbed to Old Cheesequake (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.653 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	2,991 cuft
Drainage area	=	0.180 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

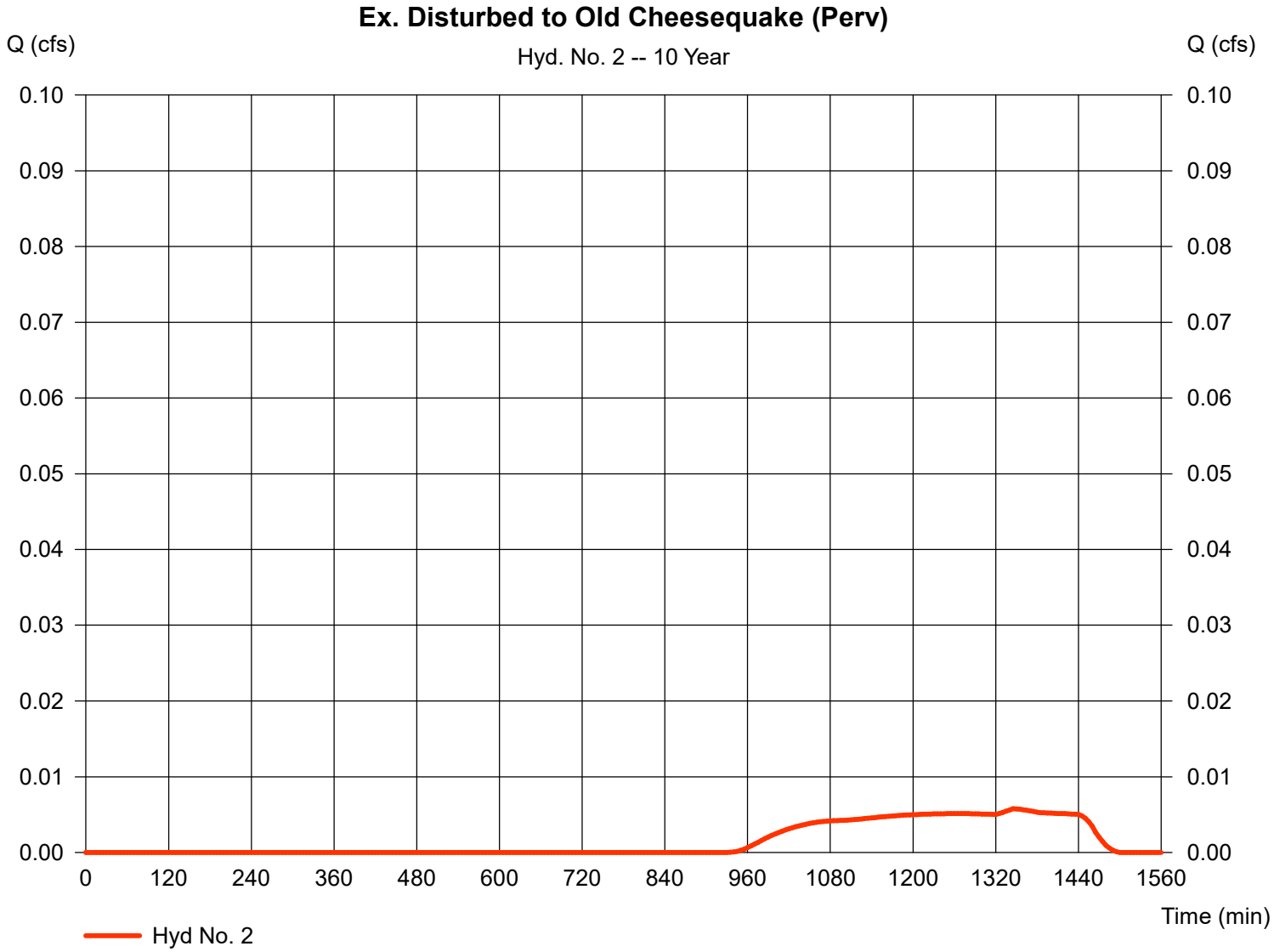


Hydrograph Report

Hyd. No. 2

Ex. Disturbed to Old Cheesequake (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.006 cfs
Storm frequency	=	10 yrs	Time to peak	=	1345 min
Time interval	=	5 min	Hyd. volume	=	137 cuft
Drainage area	=	1.990 ac	Curve number	=	31
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	37.00 min
Total precip.	=	5.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

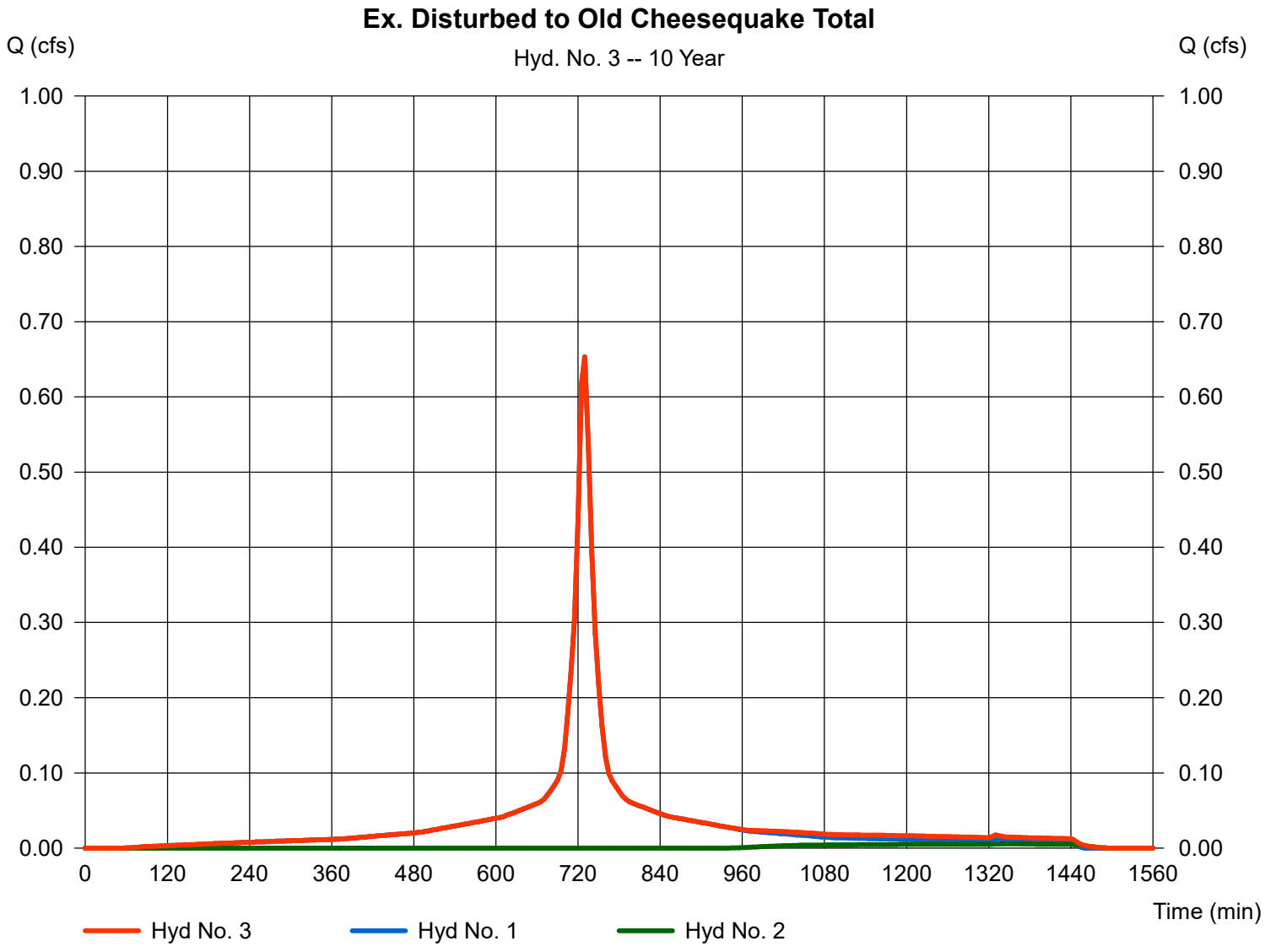


Hydrograph Report

Hyd. No. 3

Ex. Disturbed to Old Cheesequake Total

Hydrograph type	= Combine	Peak discharge	= 0.653 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 3,128 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.170 ac

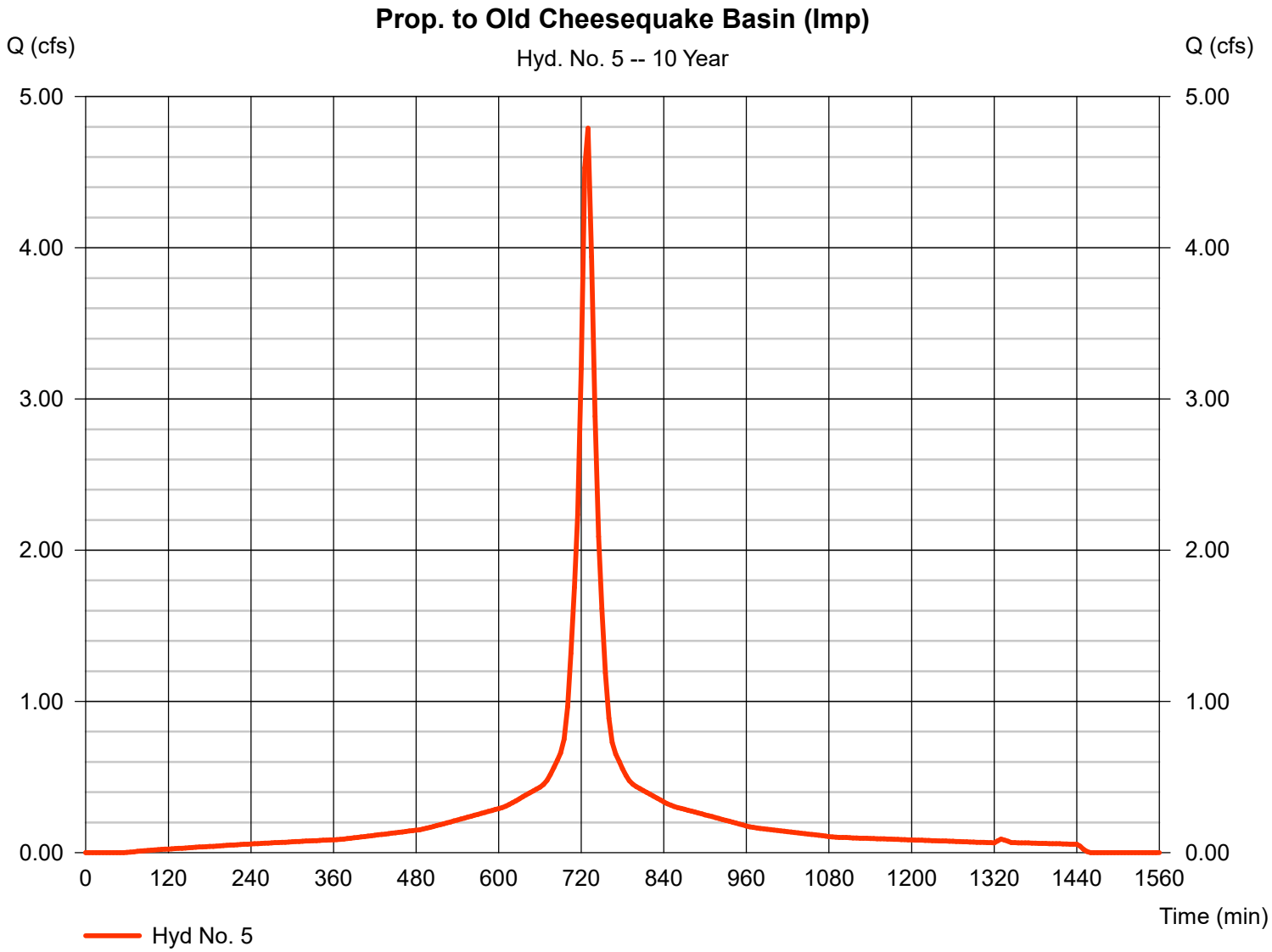


Hydrograph Report

Hyd. No. 5

Prop. to Old Cheesequake Basin (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.791 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	21,935 cuft
Drainage area	=	1.320 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

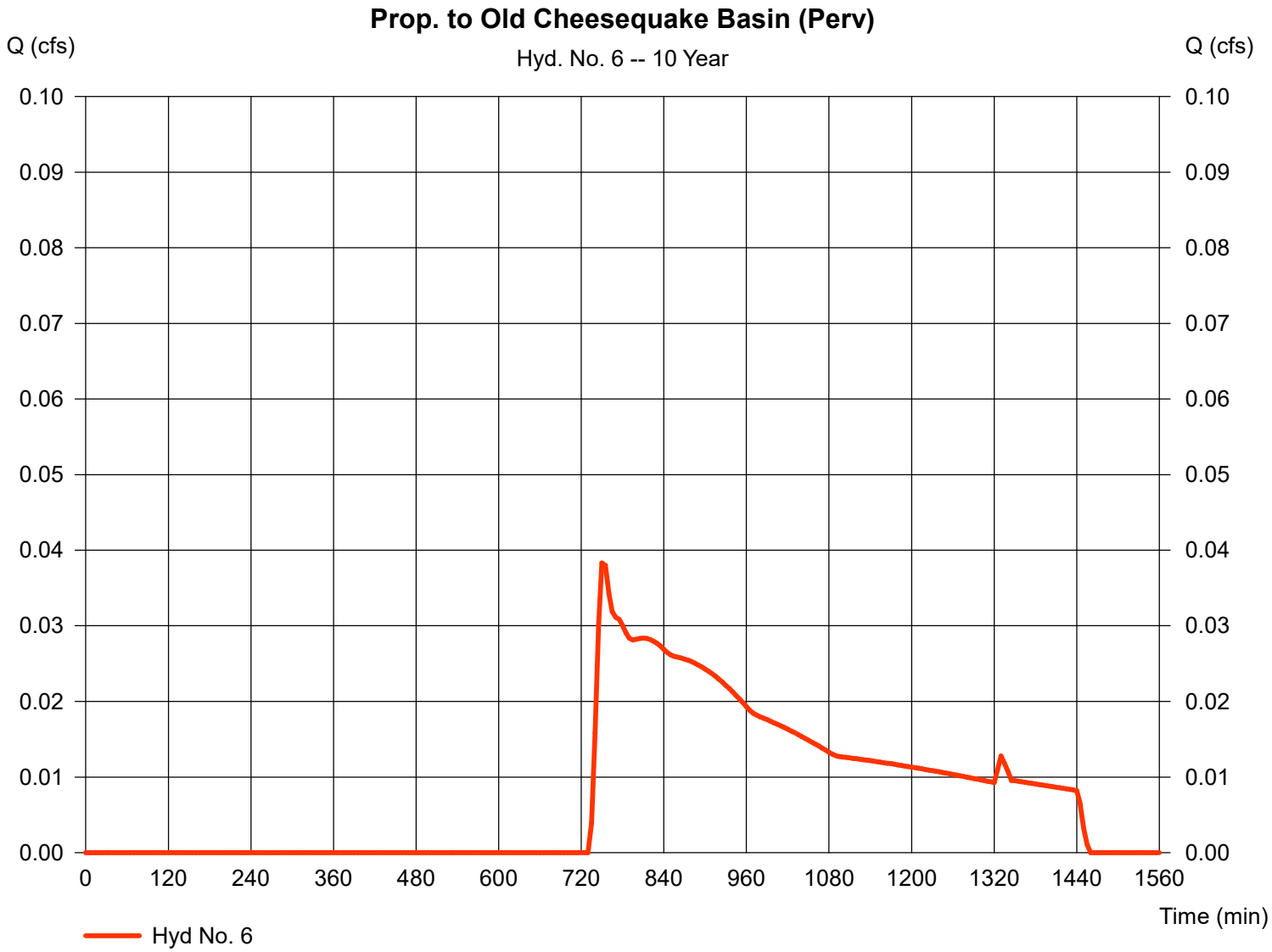


Hydrograph Report

Hyd. No. 6

Prop. to Old Cheesequake Basin (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.038 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	5 min	Hyd. volume	=	704 cuft
Drainage area	=	0.920 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.12 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

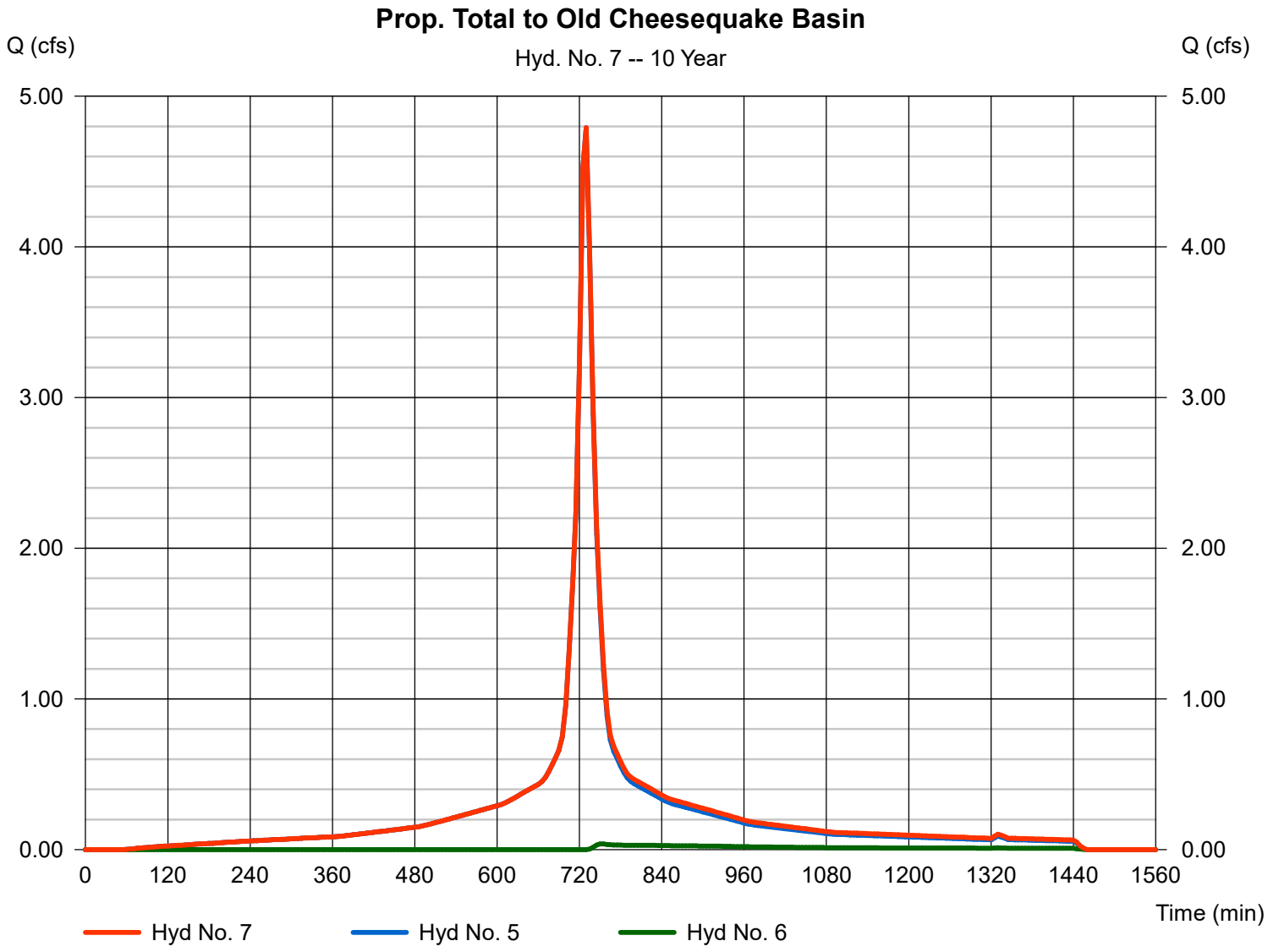


Hydrograph Report

Hyd. No. 7

Prop. Total to Old Cheesequake Basin

Hydrograph type	= Combine	Peak discharge	= 4.791 cfs
Storm frequency	= 10 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 22,639 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 2.240 ac



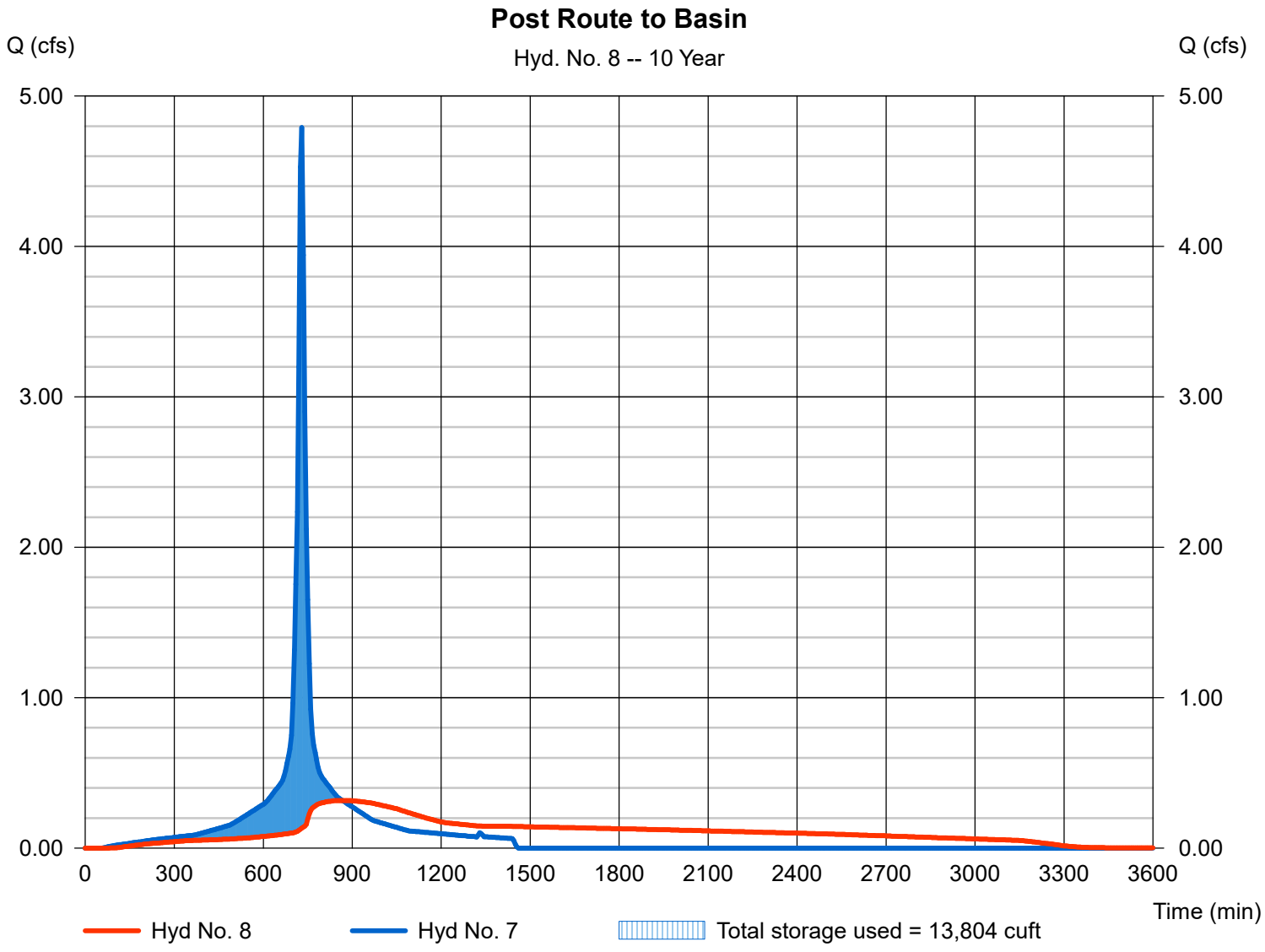
Hydrograph Report

Hyd. No. 8

Post Route to Basin

Hydrograph type	=	Reservoir	Peak discharge	=	0.317 cfs
Storm frequency	=	10 yrs	Time to peak	=	865 min
Time interval	=	5 min	Hyd. volume	=	22,629 cuft
Inflow hyd. No.	=	7 - Prop. Total to Old Cheesequake Basin	Max. Elevation	=	109.48 ft
Reservoir name	=	Detention Basin	Max. Storage	=	13,804 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

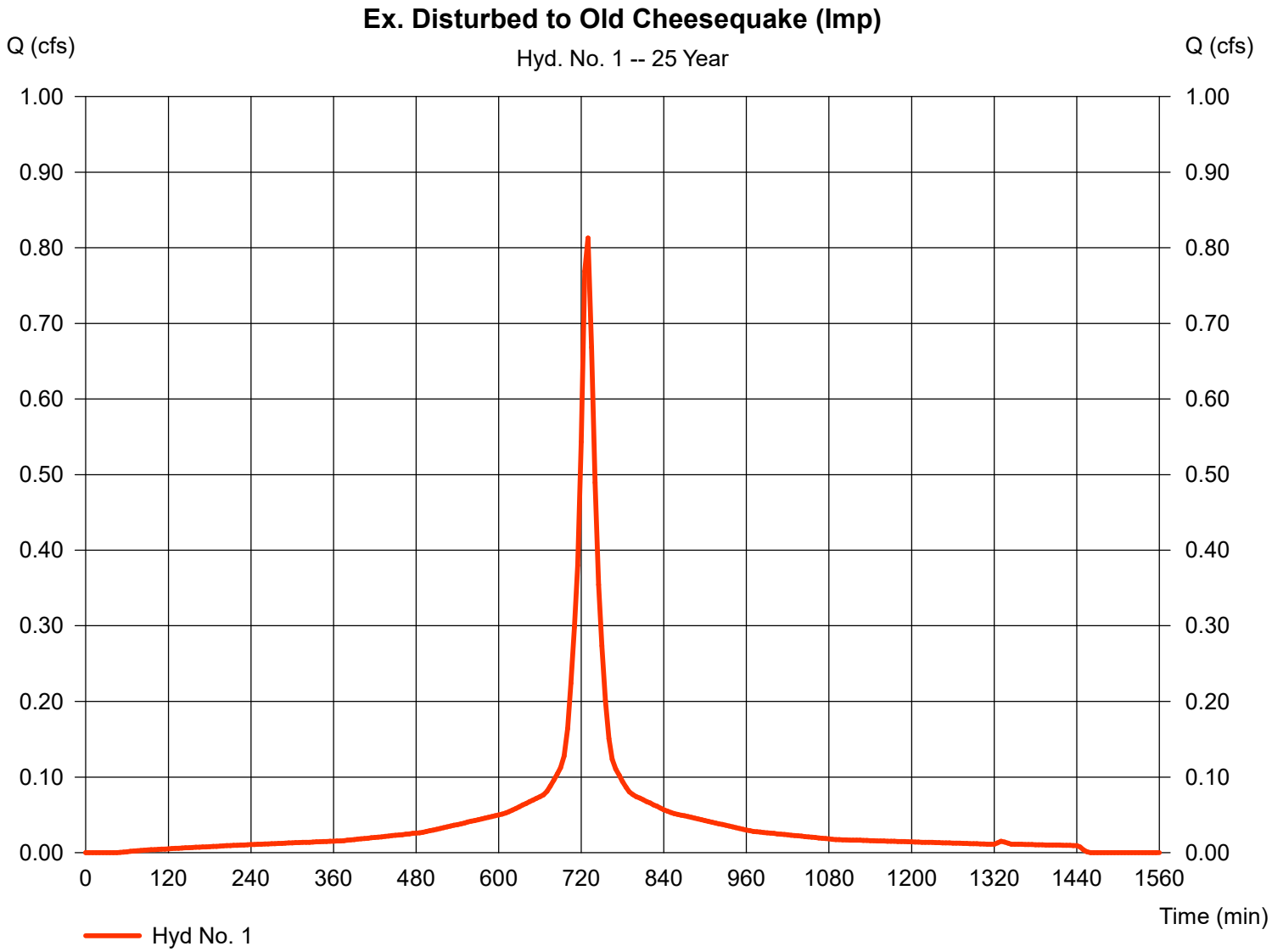
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.813	5	730	3,750	----	------	------	Ex. Disturbed to Old Cheesequake (I
2	SCS Runoff	0.039	5	905	1,061	----	------	------	Ex. Disturbed to Old Cheesequake (P
3	Combine	0.813	5	730	4,811	1, 2	------	------	Ex. Disturbed to Old Cheesequake To
5	SCS Runoff	5.963	5	730	27,498	----	------	------	Prop. to Old Cheesequake Basin (Im
6	SCS Runoff	0.203	5	740	1,732	----	------	------	Prop. to Old Cheesequake Basin (Per
7	Combine	6.074	5	730	29,231	5, 6	------	------	Prop. Total to Old Cheesequake Basi
8	Reservoir	0.449	5	850	29,221	7	110.16	17,463	Post Route to Basin

Hydrograph Report

Hyd. No. 1

Ex. Disturbed to Old Cheesequake (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.813 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	3,750 cuft
Drainage area	=	0.180 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

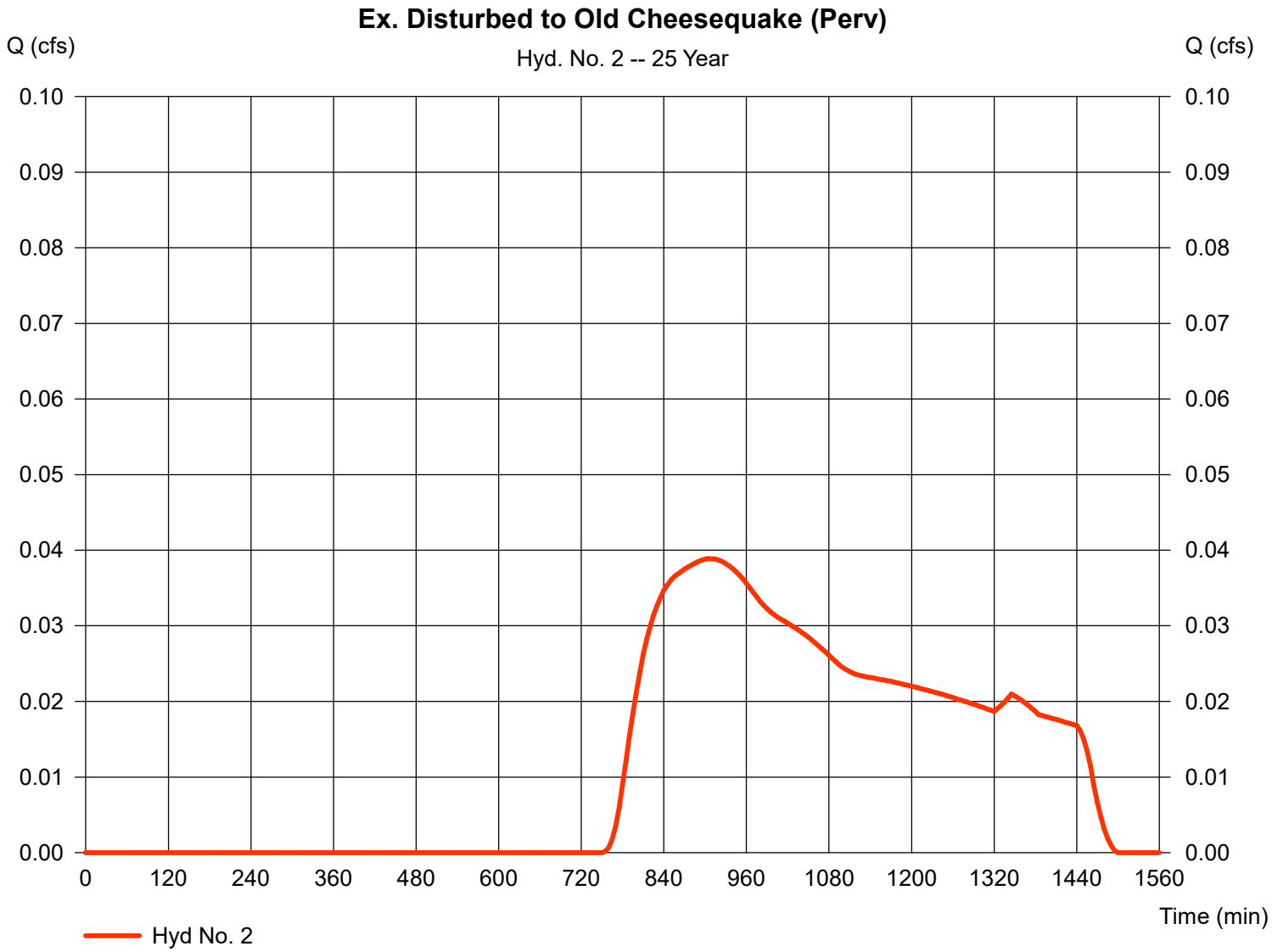


Hydrograph Report

Hyd. No. 2

Ex. Disturbed to Old Cheesequake (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.039 cfs
Storm frequency	=	25 yrs	Time to peak	=	905 min
Time interval	=	5 min	Hyd. volume	=	1,061 cuft
Drainage area	=	1.990 ac	Curve number	=	31
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	37.00 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

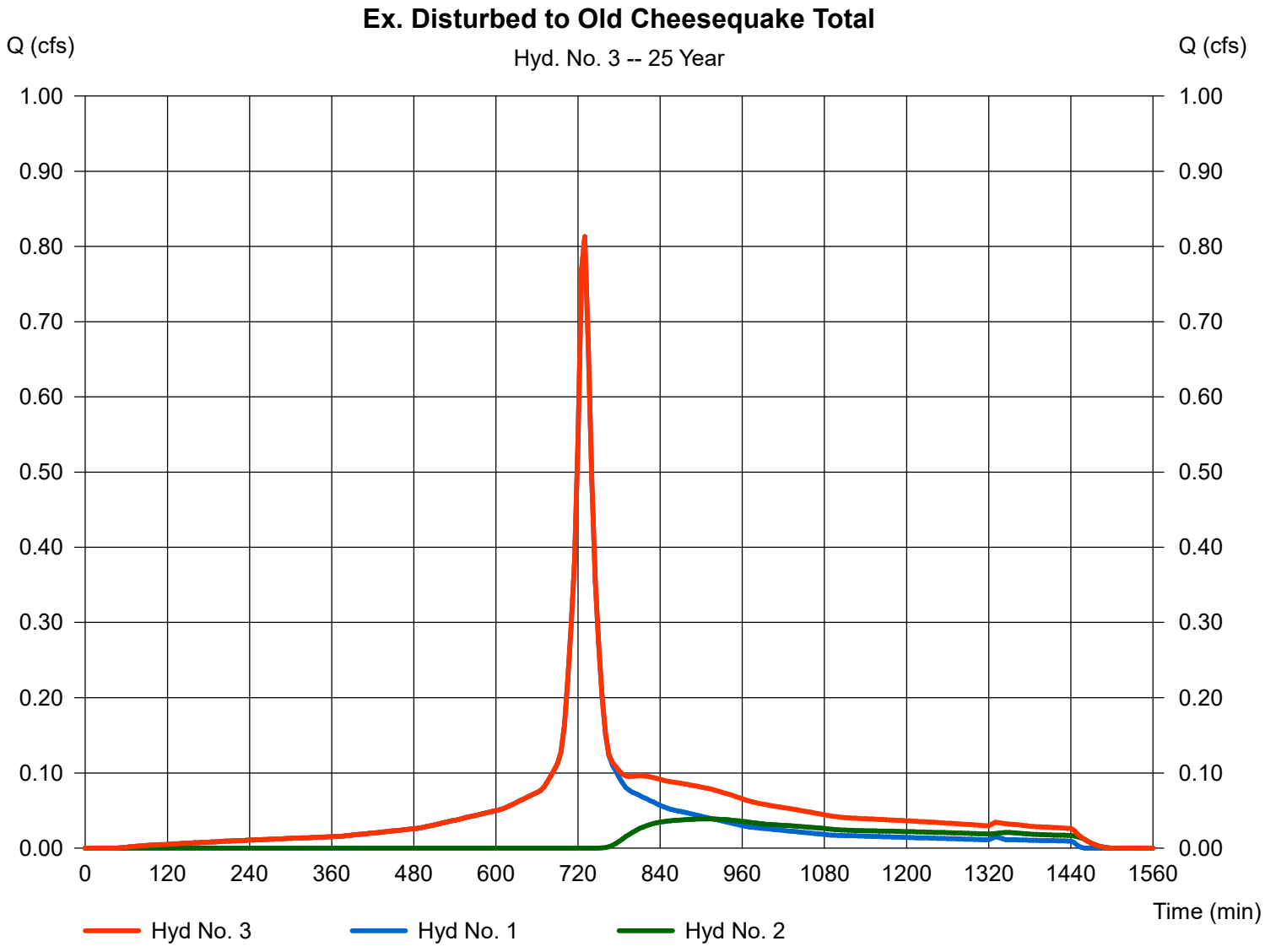


Hydrograph Report

Hyd. No. 3

Ex. Disturbed to Old Cheesequake Total

Hydrograph type	= Combine	Peak discharge	= 0.813 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 4,811 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.170 ac

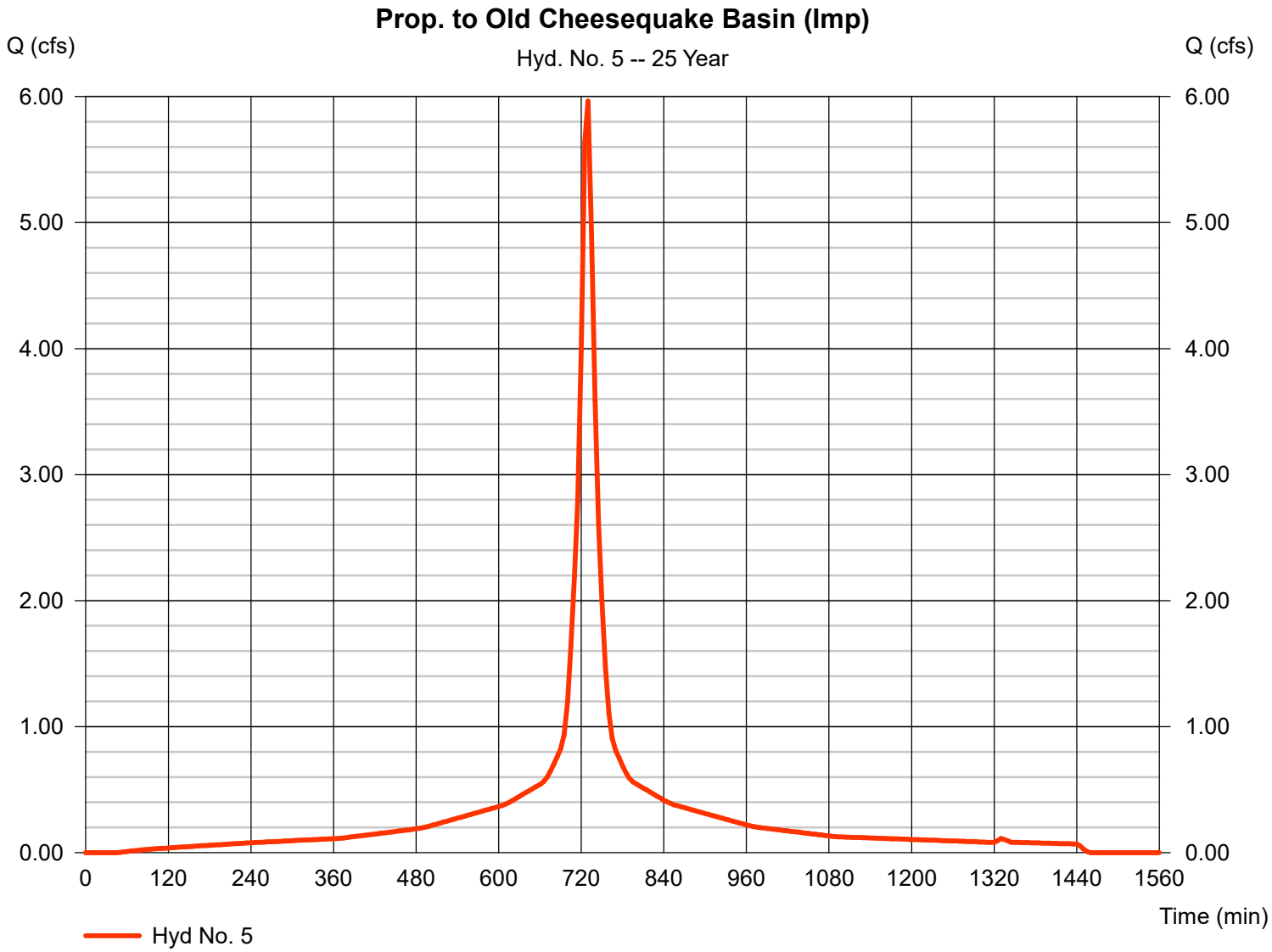


Hydrograph Report

Hyd. No. 5

Prop. to Old Cheesequake Basin (Imp)

Hydrograph type	= SCS Runoff	Peak discharge	= 5.963 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 27,498 cuft
Drainage area	= 1.320 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.00 min
Total precip.	= 6.36 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

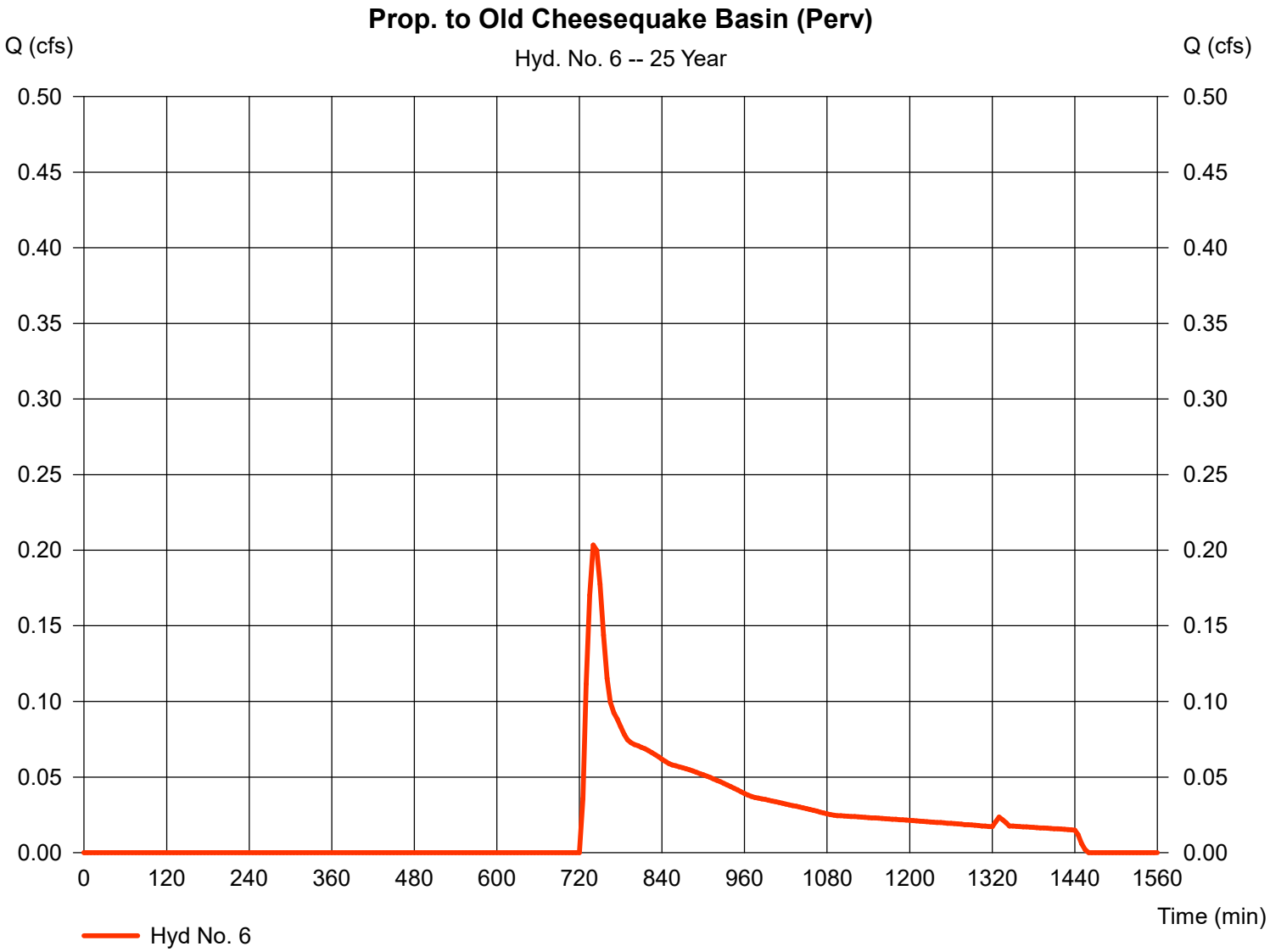


Hydrograph Report

Hyd. No. 6

Prop. to Old Cheesequake Basin (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.203 cfs
Storm frequency	=	25 yrs	Time to peak	=	740 min
Time interval	=	5 min	Hyd. volume	=	1,732 cuft
Drainage area	=	0.920 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.36 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

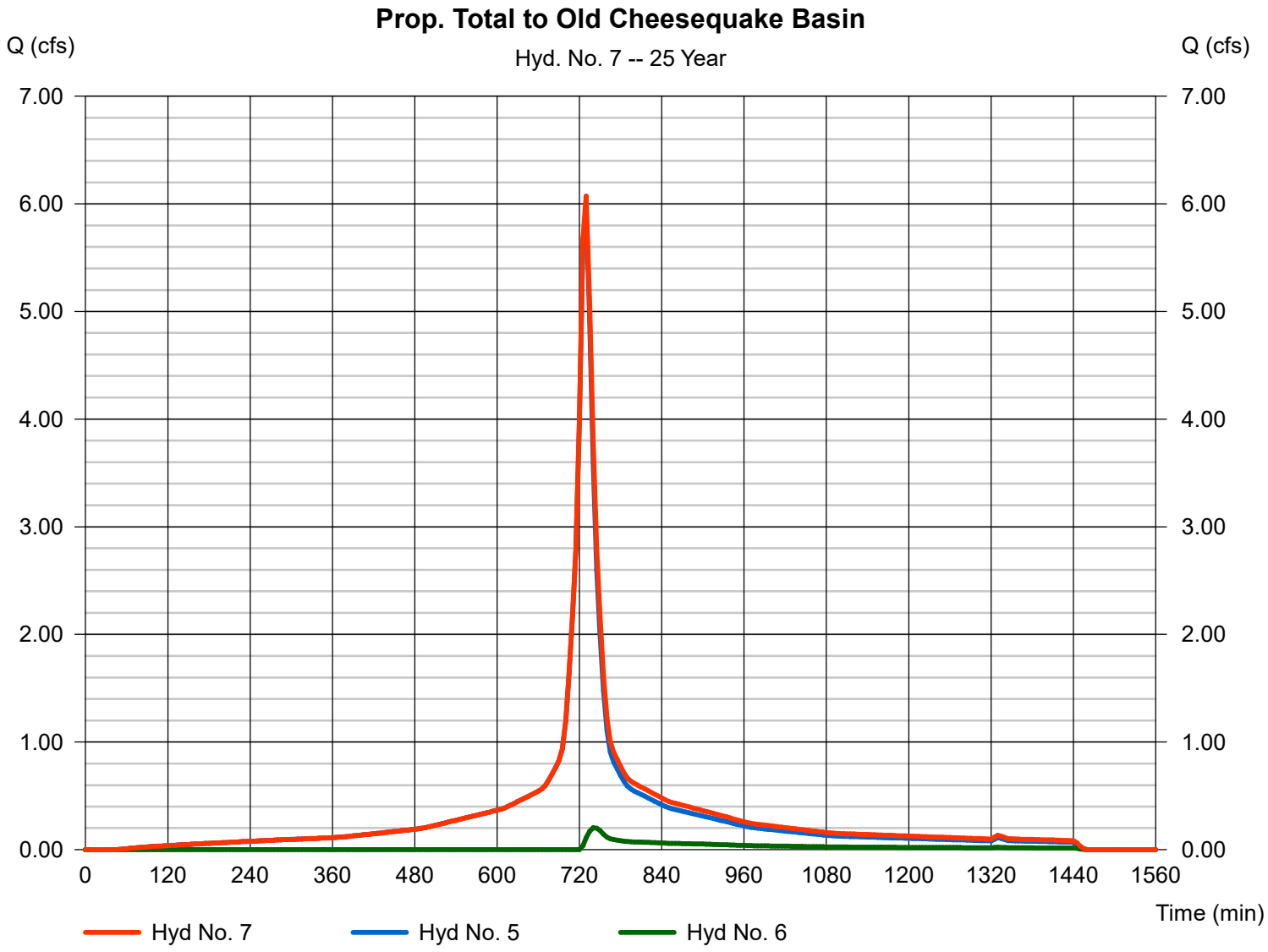


Hydrograph Report

Hyd. No. 7

Prop. Total to Old Cheesequake Basin

Hydrograph type	= Combine	Peak discharge	= 6.074 cfs
Storm frequency	= 25 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 29,231 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 2.240 ac



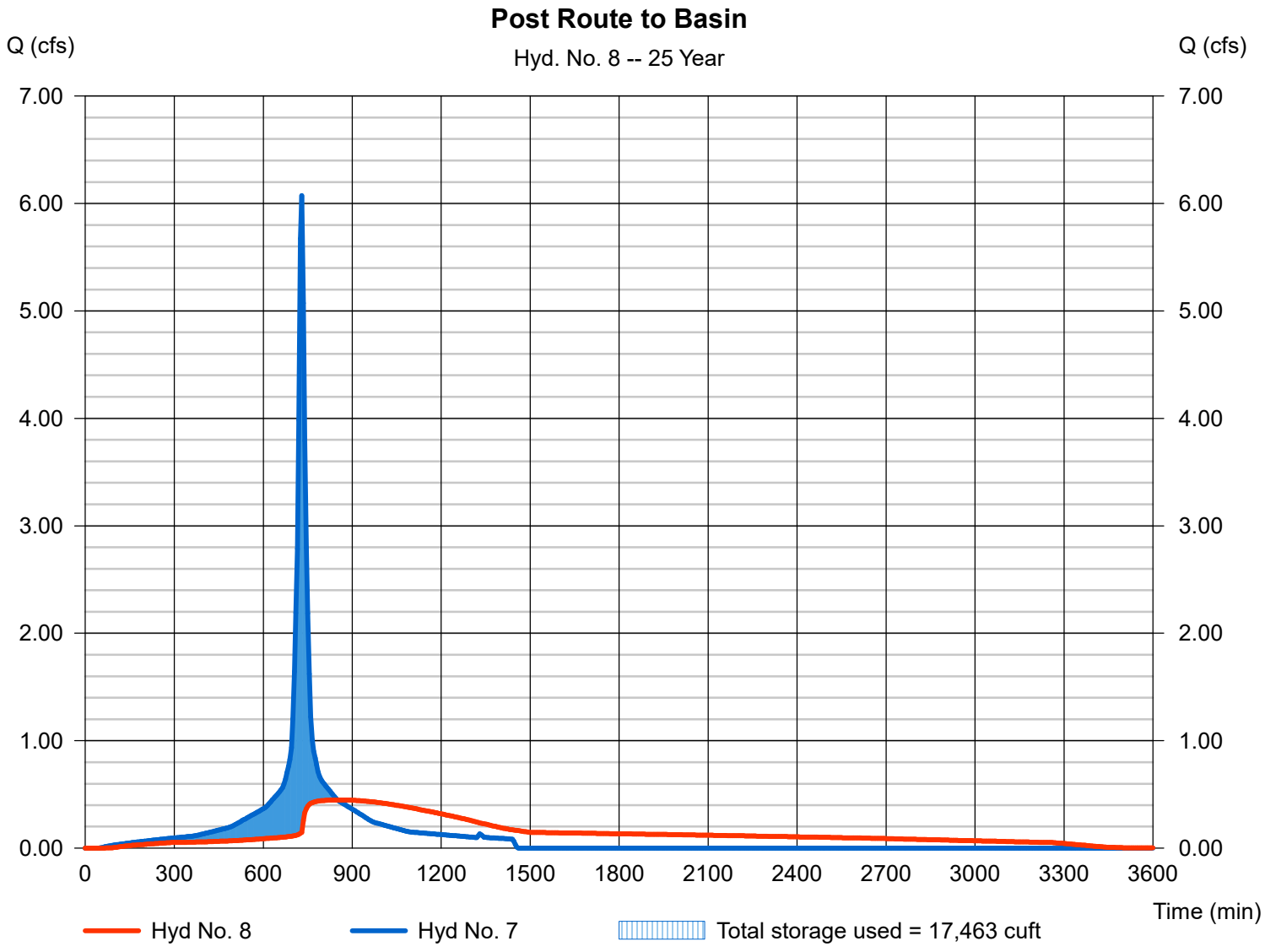
Hydrograph Report

Hyd. No. 8

Post Route to Basin

Hydrograph type	=	Reservoir	Peak discharge	=	0.449 cfs
Storm frequency	=	25 yrs	Time to peak	=	850 min
Time interval	=	5 min	Hyd. volume	=	29,221 cuft
Inflow hyd. No.	=	7 - Prop. Total to Old Cheesequake Basin	Max. Elevation	=	110.16 ft
Reservoir name	=	Detention Basin	Max. Storage	=	17,463 cuft

Storage Indication method used.



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

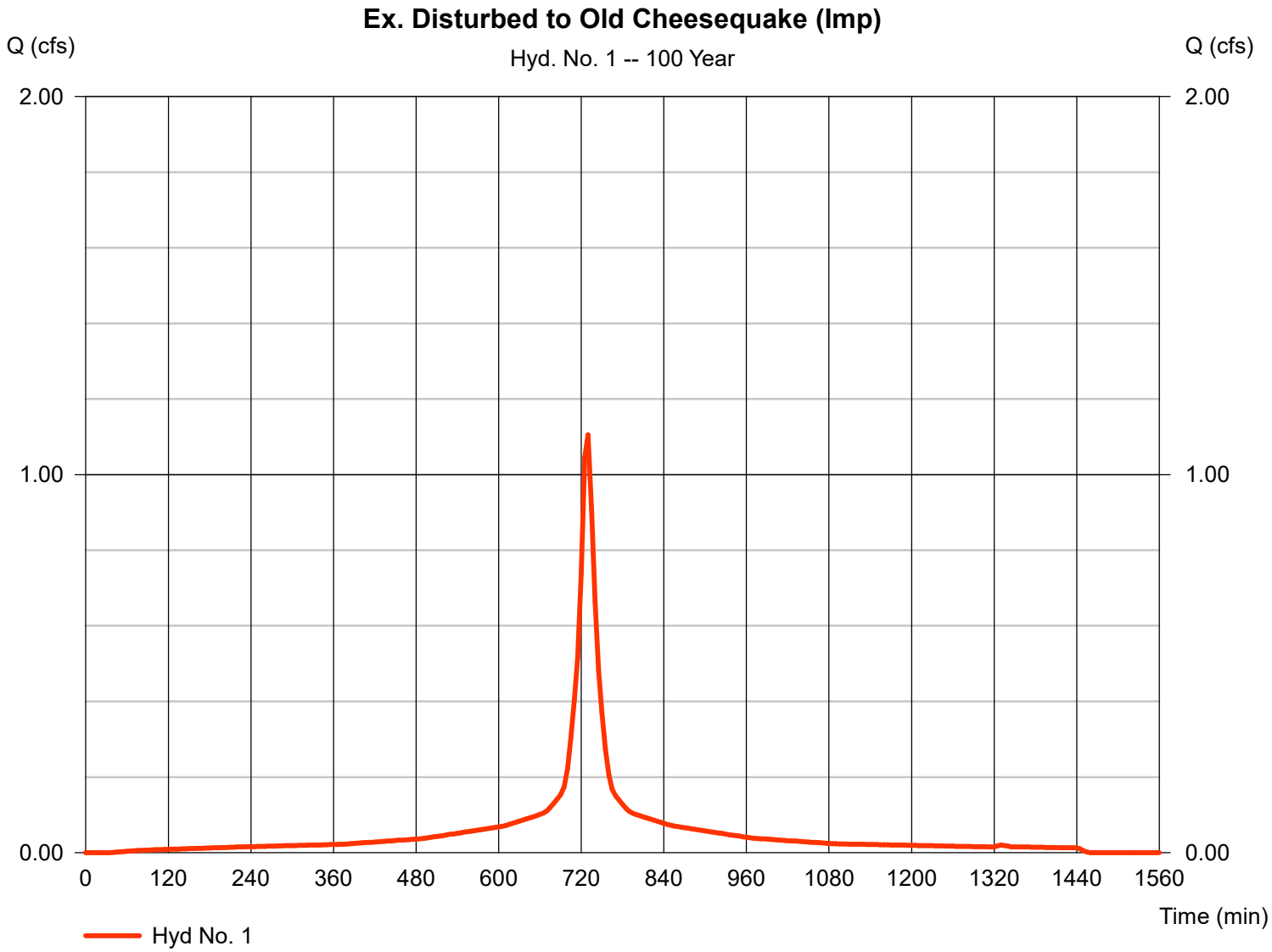
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	1.105	5	730	5,139	----	------	------	Ex. Disturbed to Old Cheesequake (I
2	SCS Runoff	0.349	5	765	4,645	----	------	------	Ex. Disturbed to Old Cheesequake (P
3	Combine	1.134	5	730	9,785	1, 2	------	------	Ex. Disturbed to Old Cheesequake To
5	SCS Runoff	8.105	5	730	37,688	----	------	------	Prop. to Old Cheesequake Basin (Im
6	SCS Runoff	0.826	5	735	4,482	----	------	------	Prop. to Old Cheesequake Basin (Per
7	Combine	8.911	5	730	42,170	5, 6	------	------	Prop. Total to Old Cheesequake Basi
8	Reservoir	0.616	5	865	42,160	7	111.49	25,621	Post Route to Basin

Hydrograph Report

Hyd. No. 1

Ex. Disturbed to Old Cheesequake (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.105 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	5,139 cuft
Drainage area	=	0.180 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.63 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

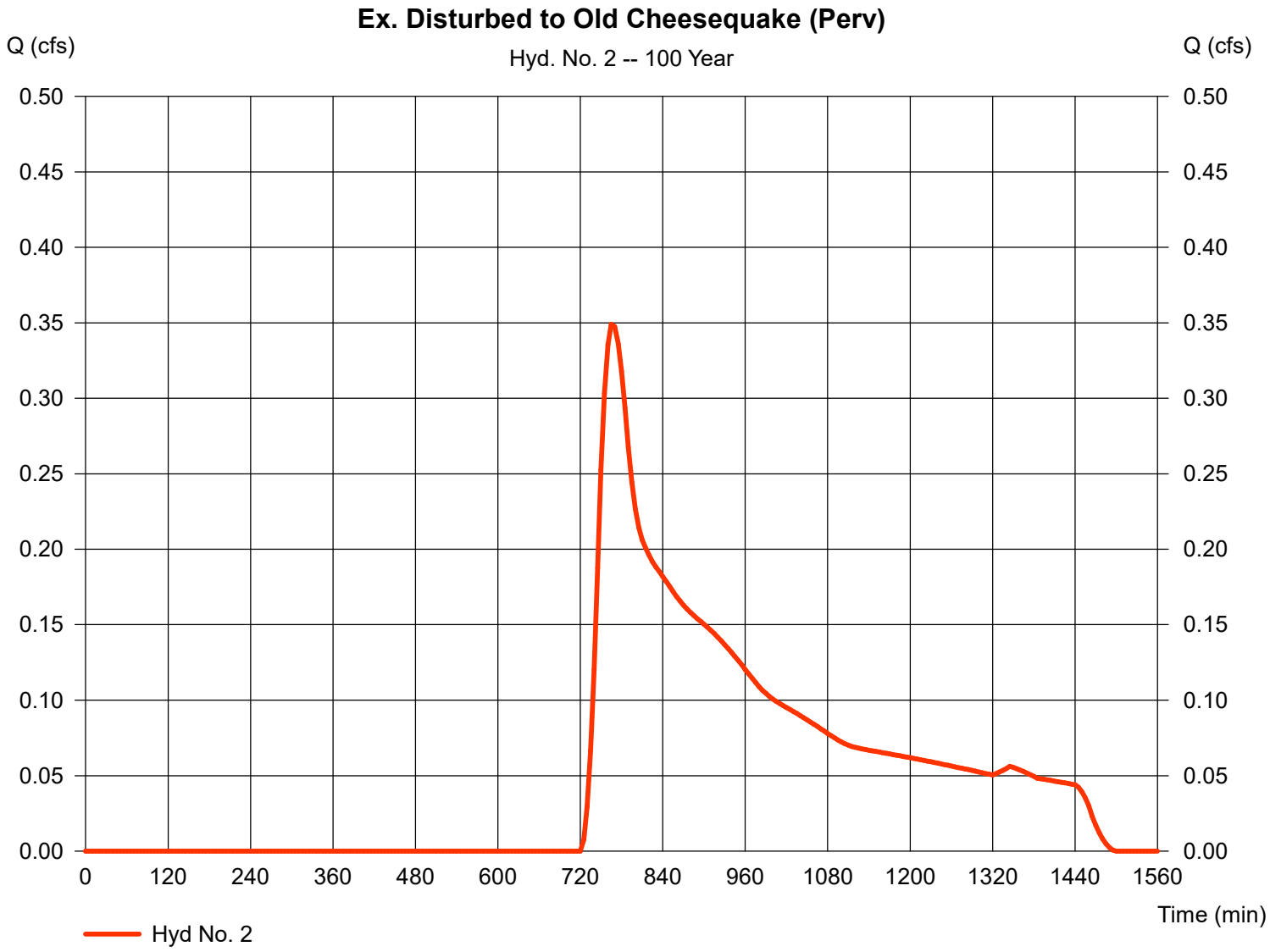


Hydrograph Report

Hyd. No. 2

Ex. Disturbed to Old Cheesequake (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.349 cfs
Storm frequency	=	100 yrs	Time to peak	=	765 min
Time interval	=	5 min	Hyd. volume	=	4,645 cuft
Drainage area	=	1.990 ac	Curve number	=	31
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	37.00 min
Total precip.	=	8.63 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

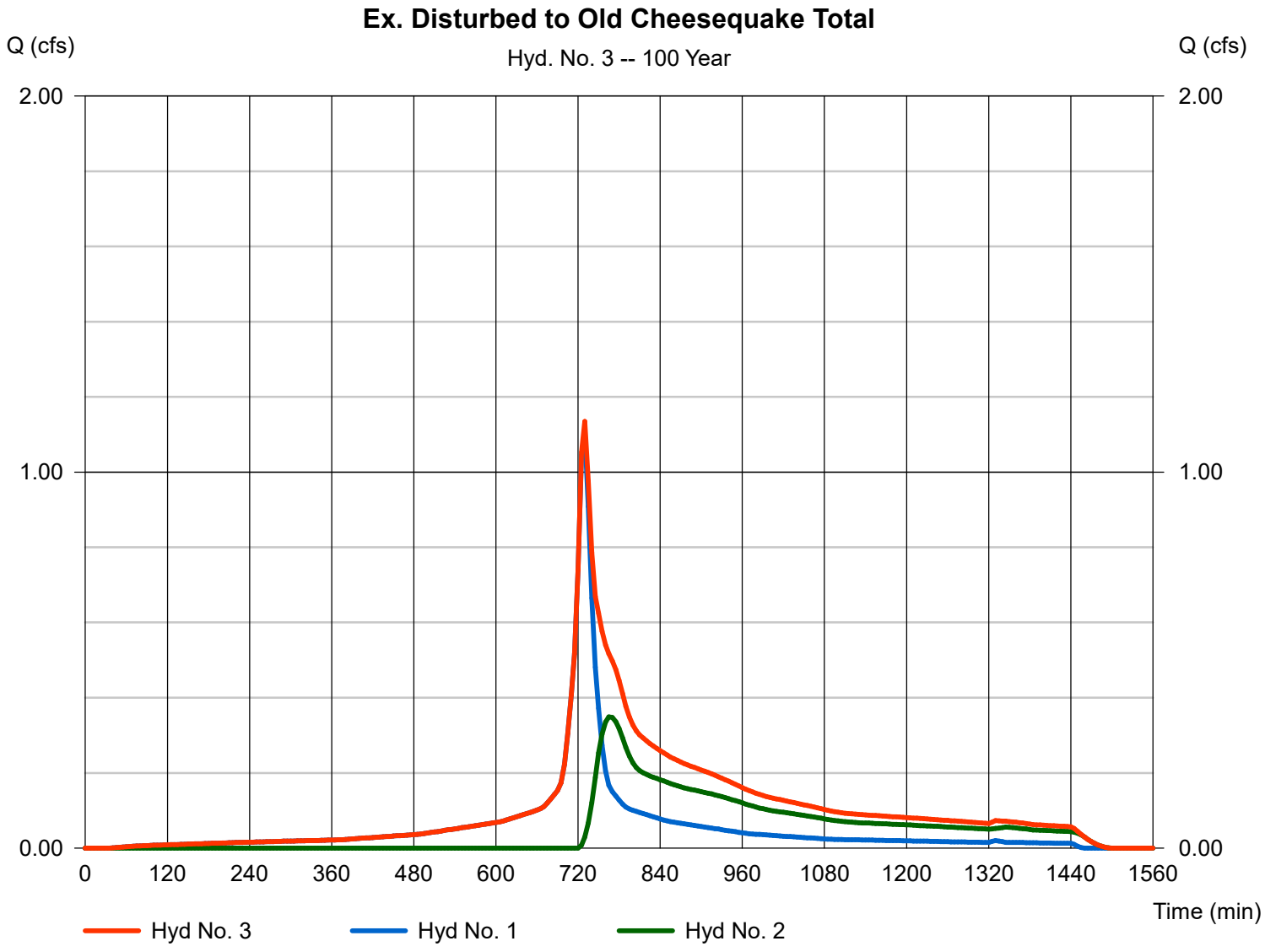


Hydrograph Report

Hyd. No. 3

Ex. Disturbed to Old Cheesequake Total

Hydrograph type	= Combine	Peak discharge	= 1.134 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 9,785 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 2.170 ac

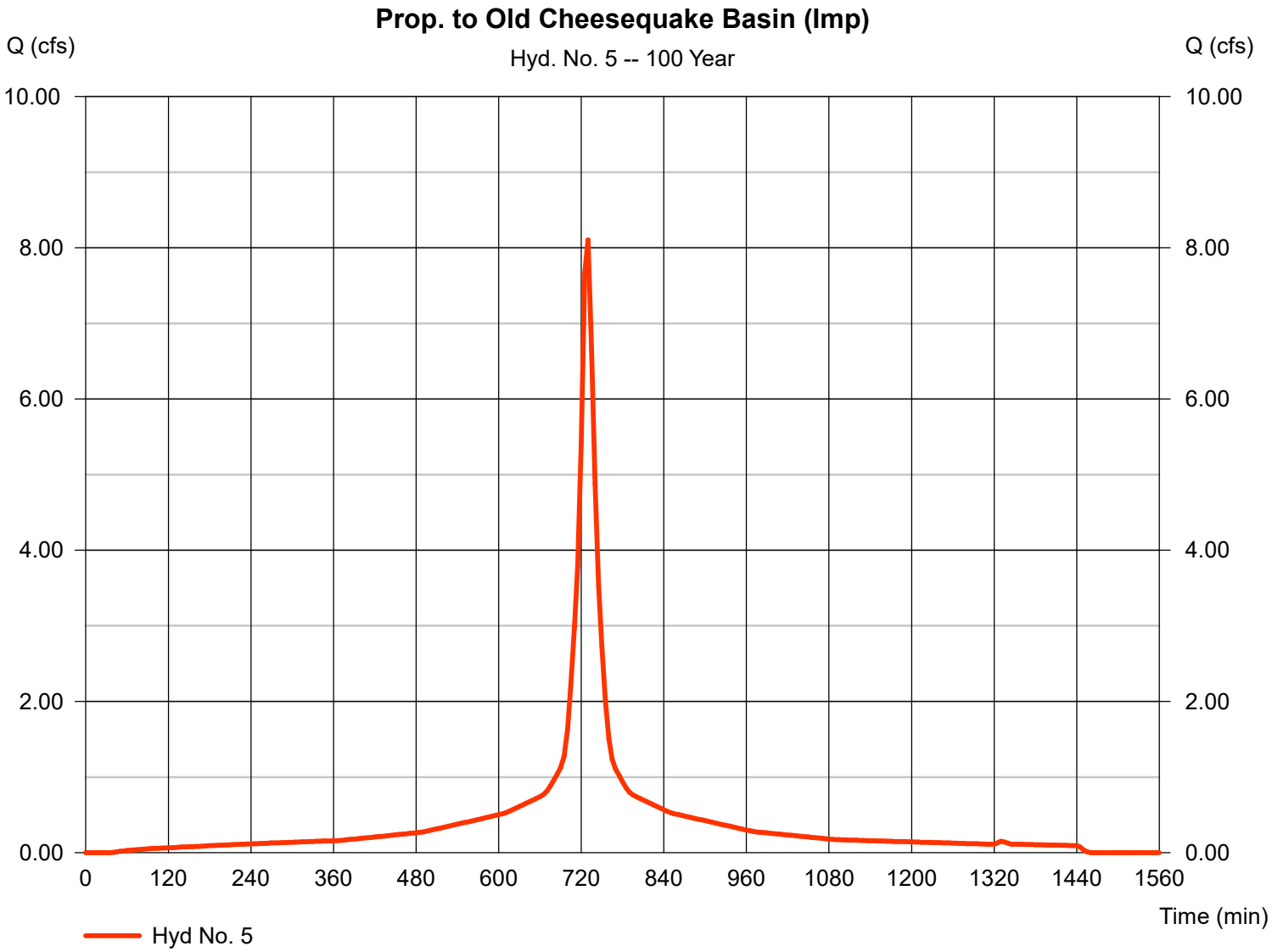


Hydrograph Report

Hyd. No. 5

Prop. to Old Cheesequake Basin (Imp)

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.105 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	5 min	Hyd. volume	=	37,688 cuft
Drainage area	=	1.320 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.63 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

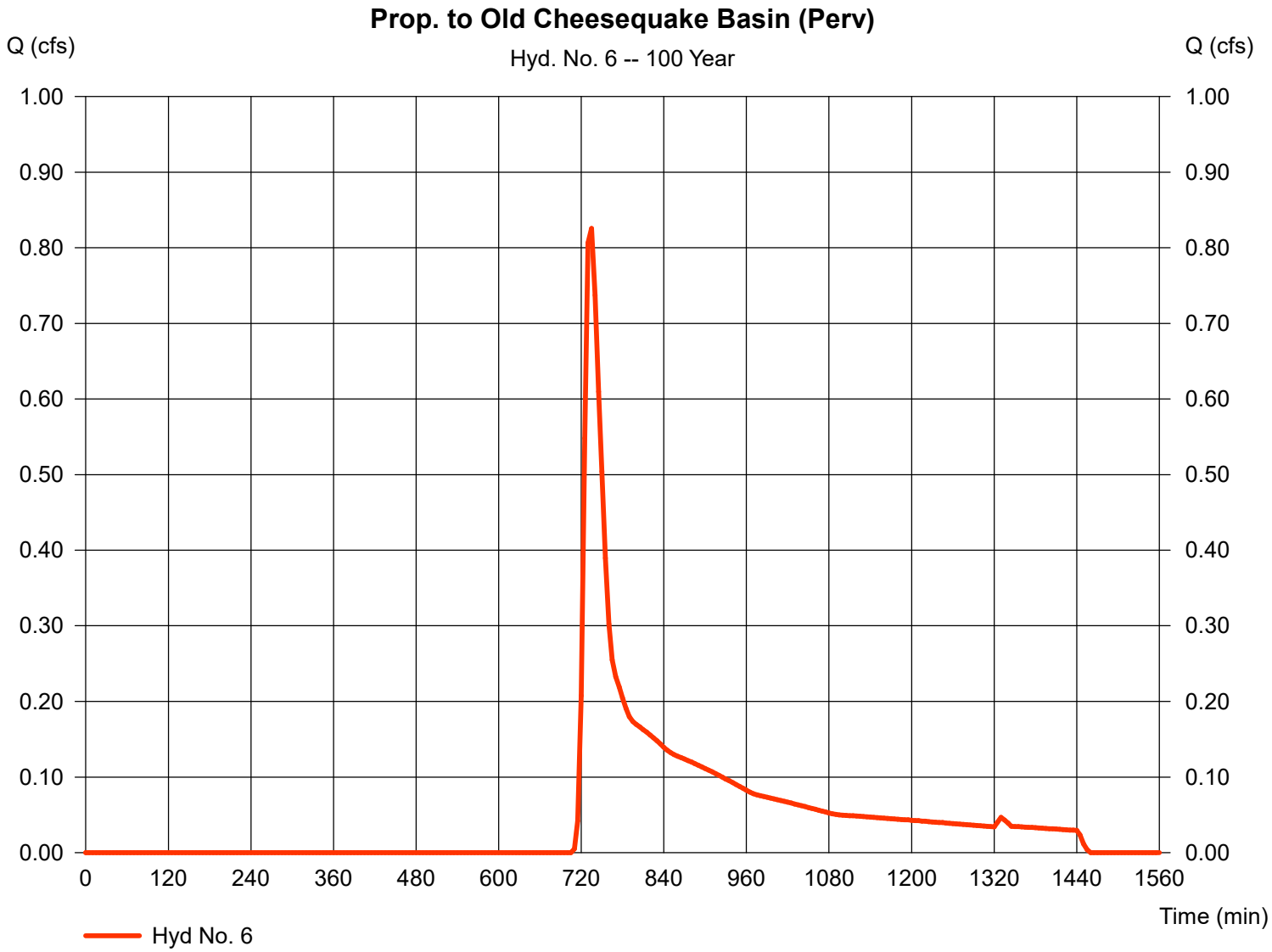


Hydrograph Report

Hyd. No. 6

Prop. to Old Cheesequake Basin (Perv)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.826 cfs
Storm frequency	=	100 yrs	Time to peak	=	735 min
Time interval	=	5 min	Hyd. volume	=	4,482 cuft
Drainage area	=	0.920 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.00 min
Total precip.	=	8.63 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

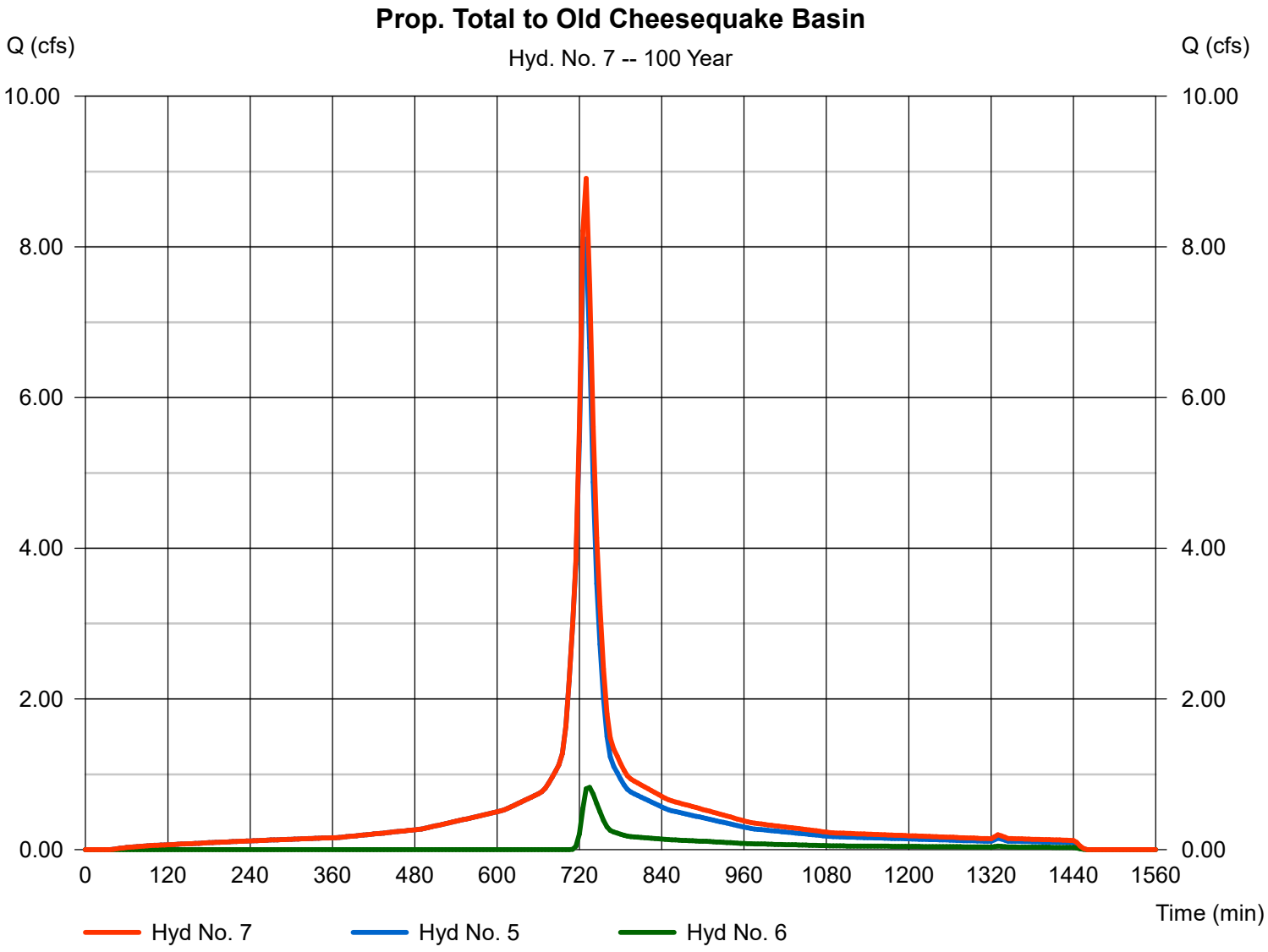


Hydrograph Report

Hyd. No. 7

Prop. Total to Old Cheesequake Basin

Hydrograph type	= Combine	Peak discharge	= 8.911 cfs
Storm frequency	= 100 yrs	Time to peak	= 730 min
Time interval	= 5 min	Hyd. volume	= 42,170 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 2.240 ac



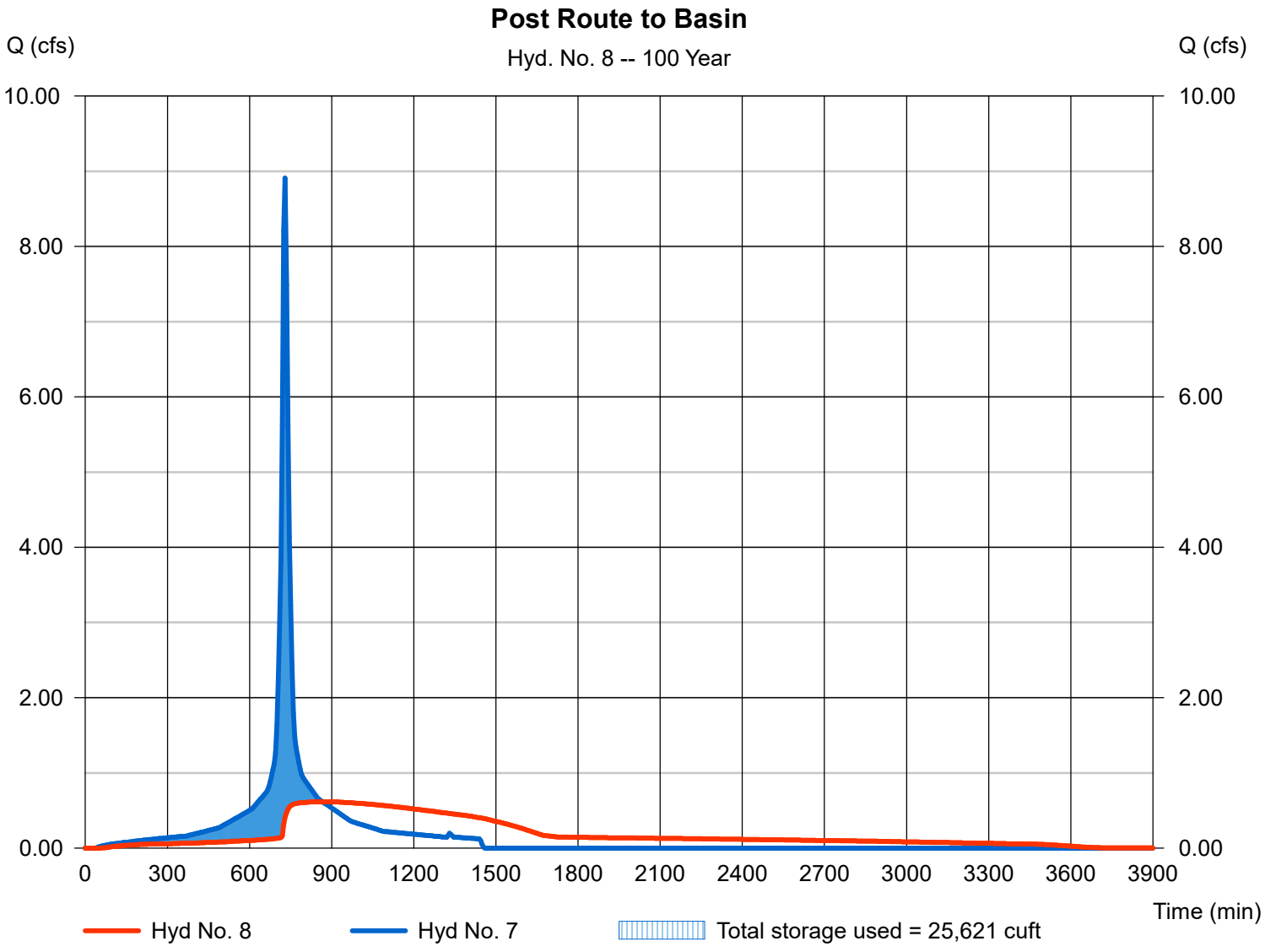
Hydrograph Report

Hyd. No. 8

Post Route to Basin

Hydrograph type	=	Reservoir	Peak discharge	=	0.616 cfs
Storm frequency	=	100 yrs	Time to peak	=	865 min
Time interval	=	5 min	Hyd. volume	=	42,160 cuft
Inflow hyd. No.	=	7 - Prop. Total to Old Cheesequake Basin	Max. Elevation	=	111.49 ft
Reservoir name	=	Detention Basin	Max. Storage	=	25,621 cuft

Storage Indication method used.



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	39.0824	9.5000	0.8528	--------
2	45.6943	10.7000	0.8185	--------
3	0.0000	0.0000	0.0000	--------
5	99.7061	14.8000	0.9304	--------
10	249.7597	21.8001	1.0961	--------
25	115.7547	14.9000	0.8980	--------
50	7.3699	0.1000	0.2544	--------
100	403.8513	25.1001	1.1108	--------

File name: TRENTON.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.00	3.10	2.55	2.18	1.91	1.70	1.54	1.40	1.29	1.20	1.12	1.05
2	4.80	3.83	3.21	2.77	2.45	2.20	2.00	1.84	1.70	1.59	1.49	1.40
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	6.20	5.03	4.24	3.67	3.24	2.90	2.63	2.40	2.22	2.06	1.92	1.80
10	6.80	5.63	4.80	4.17	3.69	3.30	2.98	2.72	2.50	2.31	2.14	2.00
25	7.89	6.45	5.47	4.76	4.23	3.80	3.46	3.17	2.93	2.73	2.55	2.40
50	4.87	4.09	3.69	3.44	3.25	3.10	2.98	2.88	2.80	2.72	2.66	2.60
100	9.20	7.76	6.69	5.87	5.22	4.70	4.27	3.91	3.60	3.33	3.10	2.90

Tc = time in minutes. Values may exceed 60.

Precip. file name: Middlesex County NRCS.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	0.00	3.35	0.00	0.00	5.12	6.36	0.00	8.63
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	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hydraflow Table of Contents

Hydraflow Hydrographs by Intelisolve v9.1 Wednesday, Mar 2, 2022