PRELIMINARY HYDROLOGY REPORT

NORTH COOPER LAKE

VENTURE HOMES
COBB COUNTY, GEORGIA
CITY OF SMYRNA
LAND LOT 338, 17TH DISTRICT

PREPARED BY:
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Project 15018

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TABLE OF CONTENTS

SECTION 1
DRAINAGE REPORT

Drainage Report
May 14, 2015

LOCATION: N Cooper Lake-Venture Homes
Land Lot 338, 17th District

Purpose and Scope

The purpose of the following study is to evaluate the post-development hydrologic conditions, of the proposed residential development, in order to determine detention requirements for storm water runoff. The proposed development design has taken measures to decrease the peak flows of existing runoff to adjacent landowners by routing the developed on-site runoff to an onsite wet detention pond. Both pre- and post-development conditions were considered.

Existing Conditions

The +-6 acre site, located in Smyrna along North Cooper Lake Road, is currently is developed with a single family residence(s) and out buildings. The site currently contains trees scattered throughout. The site drains to the South, West and East with a ridge line forming 3 distinct basins. The western basin (Basin A) discharges into an existing drainage system. This basin will utilize onsite individual flo-wells or other method to control storm water flows for 2 individual lots. The eastern basin (Basin C) discharges into an existing drainage system along North Cooper Lake Road. This basin will reduce flows to this area and only roadway water will enter the existing system. The southern (Basin B) will discharge from the proposed detention facility to the south offsite and will be piped to an existing drainage system existing within Bennett Woods subdivision.

Drainage Strategy

Basin A will utilize onsite individual flo-wells or other method to control storm water flows for 2 individual lots. Due to the existing topography and the short Tc's the post develop time of concentrations has been limited to no more than the pre-developed calculated Tc's. All Tc's for the development were kept at 5 minutes for all storms.

Basin B will utilize a stormwater management facility consisting of a detention structure to provide water quality and attenuation of the 1, 2, 5, 10, 25, 50, and 100 year storms per the Georgia Stormwater Manual and provide a minimum of 1 foot of freeboard above the 100 year ponding elevation.

Discharge from the storm water facility have been limited to less than 2 cfs for the 1 and 2 year storms, as well as, the system will discharged into a piped channel and tied into existing structures downstream. Therefore, channel protection is not provided.

Basin C will reduce flows to this area and only roadway water will enter the existing system along North Cooper Lake Road, therefore, detention has not been provided for this basin.

No adverse effects on the downstream drainage infrastructure are expect due to development

Summary of Flows

See summary of flows on following page for runoff rates for Basin B and routed outflows from pond. All storms (2-100yr) are below pre-developed flow rates and will be handled by an 18" outfall pipe.

Maintenance Measures

The detention basin outlet control structure, headwalls and side slopes shall be maintained and checked regularly by the responsible party to insure that they are structurally sound and have not been damaged or compromised by erosion or any other factors. Additional measures taken to assist the maintenance shall be taken by periodically checking sediment gathering in the bottom of the basins and removing when 6 inches have accumulated in any area.

SECTION 2
PRE AND POST DEVELOPMENT HYDROGRAPHS

SECTION 3
ROUTED DISCHARGE HYDROGRAPHS

SECTION 4
WATER QUALITY CALCULATIONS

SECTION 5
DRAINAGE MAP

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	35.6000	7.1000	0.7545	--------
2	64.2654	11.8000	0.8472	--------
3	0.0000	0.0000	0.0000	--------
5	65.2361	12.4000	0.7948	--------
10	67.8697	12.8000	0.7709	--------
25	73.1616	13.1000	0.7481	--------
50	81.6503	13.8000	0.7459	--------
100	89.0424	14.2000	0.7417	--------

File name: GSWM-ATLANTA.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	5.43	4.18	3.44	2.95	2.60	2.33	2.12	1.95	1.80	1.68	1.58	1.49
2	5.89	4.72	3.96	3.43	3.03	2.72	2.47	2.27	2.10	1.95	1.83	1.72
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	6.74	5.51	4.70	4.11	3.67	3.32	3.04	2.81	2.61	2.44	2.30	2.17
10	7.37	6.09	5.23	4.60	4.13	3.75	3.44	3.19	2.97	2.79	2.63	2.49
25	8.38	6.98	6.03	5.34	4.80	4.38	4.03	3.75	3.50	3.29	3.11	2.95
50	9.15	7.68	6.66	5.91	5.33	4.87	4.49	4.18	3.91	3.68	3.48	3.30
100	9.95	8.38	7.29	6.48	5.86	5.36	4.95	4.61	4.32	4.06	3.84	3.65

Tc = time in minutes. Values may exceed 60.

Precip. file name: atlanta-gsm.pcp

Storm Distribution								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.36	4.08	0.00	4.80	5.52	6.48	7.20	7.92
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
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	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.02

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	-------	1.007	2.659	-------	4.687	6.960	10.29	12.97	15.78	PRE-DEVELOPED
2	SCS Runoff	-------	12.12	16.68	-------	21.41	26.23	32.71	37.59	42.48	POST-DEVELOPED
3	Reservoir	2	1.513	1.900	-------	2.240	2.544	2.912	3.166	3.407	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	2.659	2	718	6,502	----	------	------	PRE-DEVELOPED
2	SCS Runoff	16.68	2	716	33,716	----	------	------	POST-DEVELOPED
3	Reservoir	1.900	2	740	33,680	2	1025.11	24,077	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	4.687	2	718	10,206	----	------	------	PRE-DEVELOPED
2	SCS Runoff	21.41	2	716	43,491	----	------	------	POST-DEVELOPED
3	Reservoir	2.240	2	742	43,456	2	1025.61	29,047	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	6.960	2	718	14,464	----	------	------	PRE-DEVELOPED
2	SCS Runoff	26.23	2	716	53,600	----	------	------	POST-DEVELOPED
3	Reservoir	2.544	2	744	53,564	2	1026.13	34,195	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	10.29	2	718	20,840	----	------	------	PRE-DEVELOPED
2	SCS Runoff	32.71	2	716	67,450	----	------	------	POST-DEVELOPED
3	Reservoir	2.912	2	746	67,414	2	1026.84	41,295	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	12.97	2	718	26,056	----	------	------	PRE-DEVELOPED
2	SCS Runoff	37.59	2	716	78,044	----	------	------	POST-DEVELOPED
3	Reservoir	3.166	2	746	78,008	2	1027.38	46,778	ROUTED OUTFLOWS

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.02

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	15.78	2	718	31,582	----	------	------	PRE-DEVELOPED
2	SCS Runoff	42.48	2	716	88,771	----	------	------	POST-DEVELOPED
3	Reservoir	3.407	2	748	88,735	2	1027.95	52,385	ROUTED OUTFLOWS

Pond Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Pond No. 1 - N COOPER LAKE-VENTURE HOMES

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1022.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1022.00	3,500	0	0
2.00	1024.00	10,000	12,943	12,943
4.00	1026.00	10,000	19,998	32,941
6.00	1028.00	10,000	19,998	52,939
8.00	1030.00	10,000	19,998	72,937

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	8.00	0.00	0.00
Span (in)	= 18.00	8.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1022.00	1023.50	0.00	0.00
Length (ft)	= 800.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

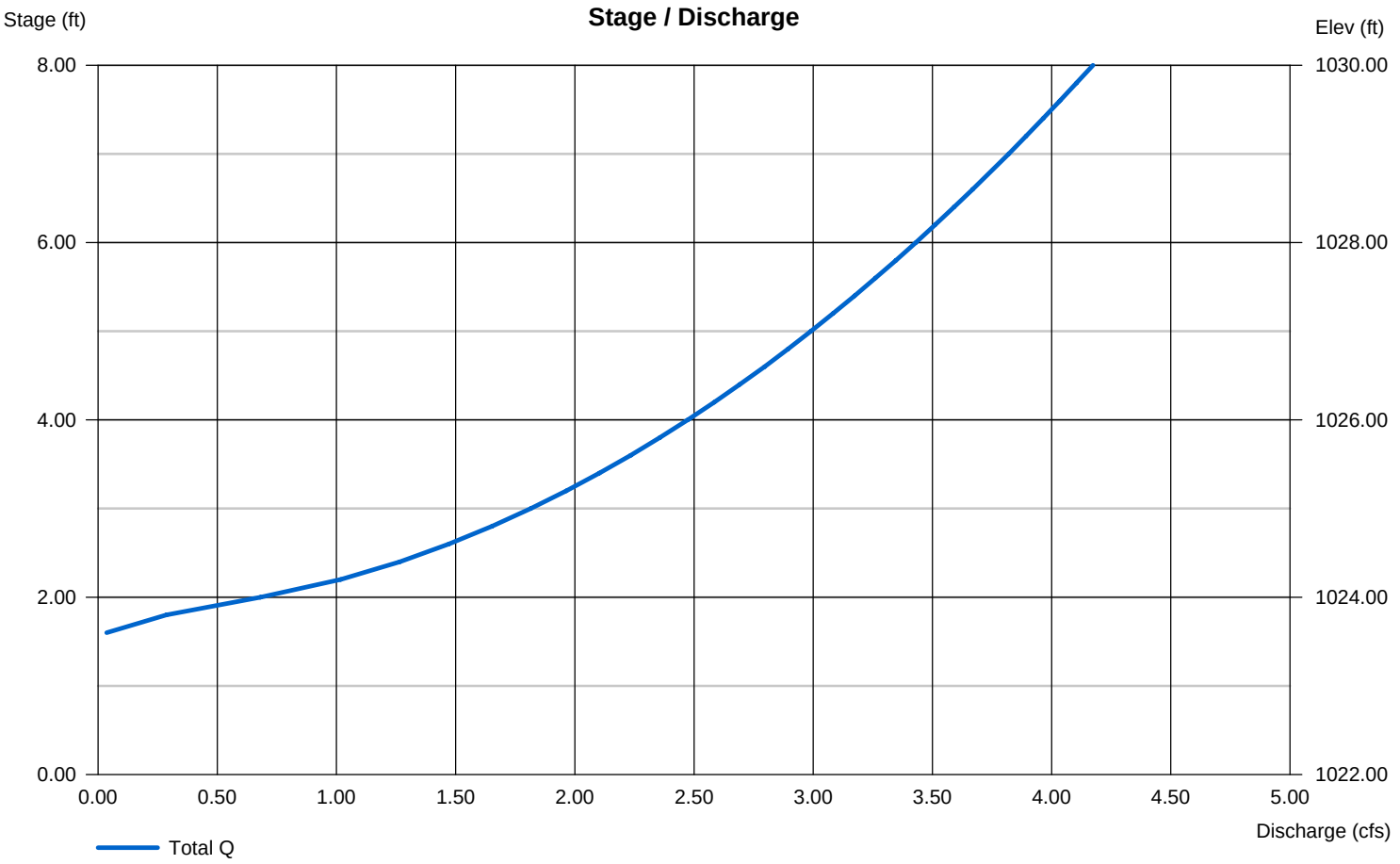
Weir Structures

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

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

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet and outlet control. Weir risers are checked for orifice conditions.



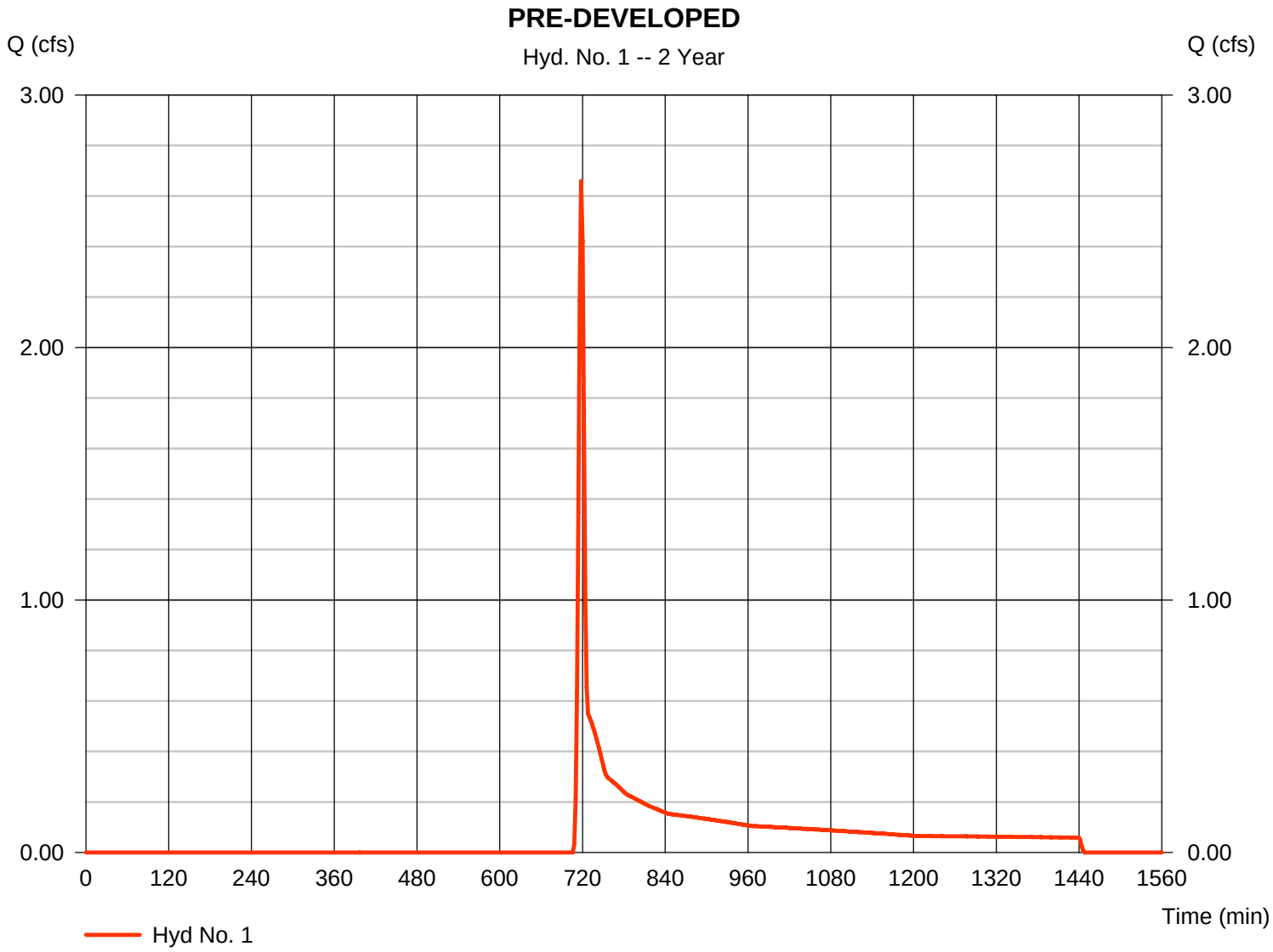
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.659 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	6,502 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



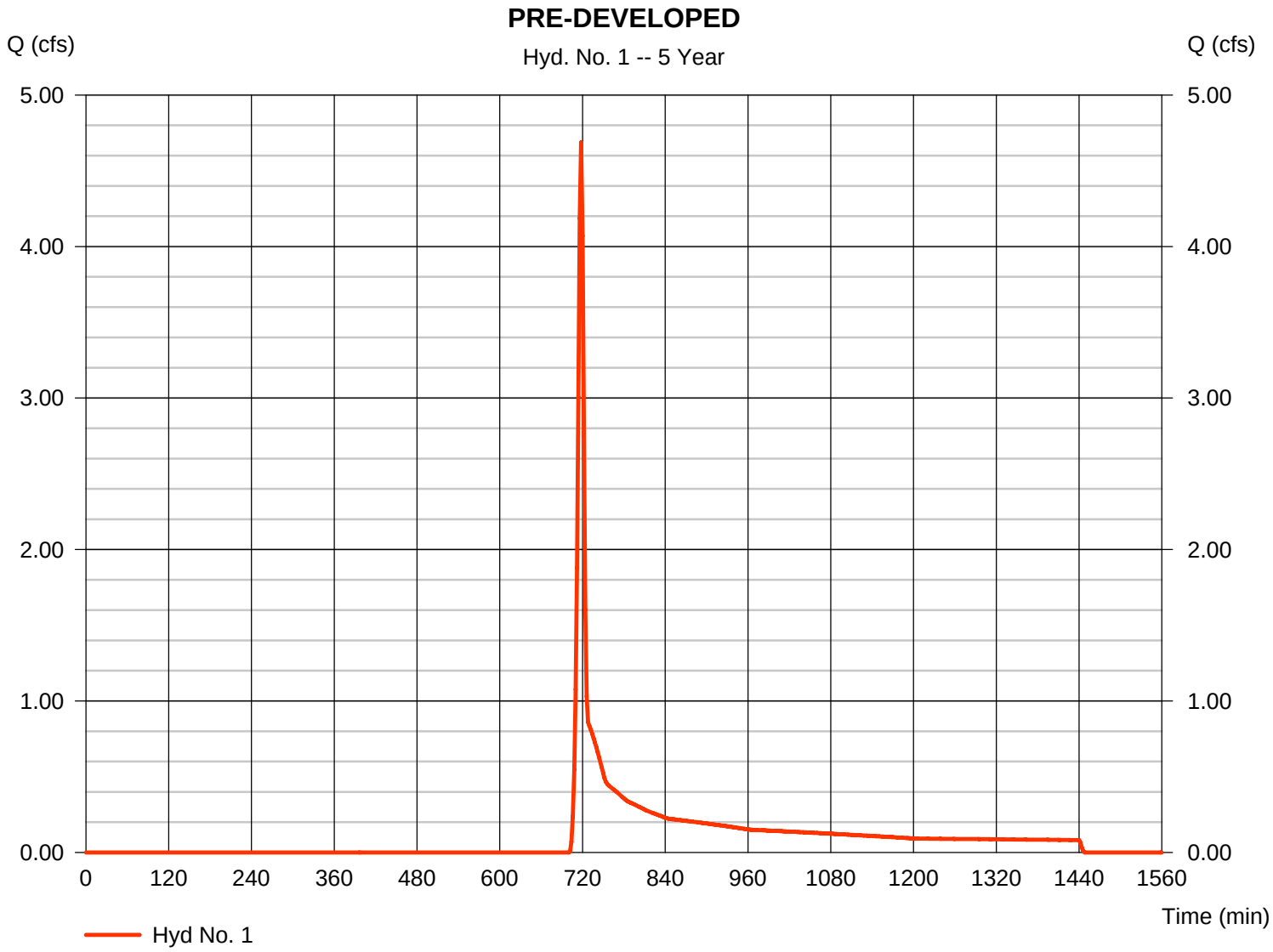
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.687 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	10,206 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



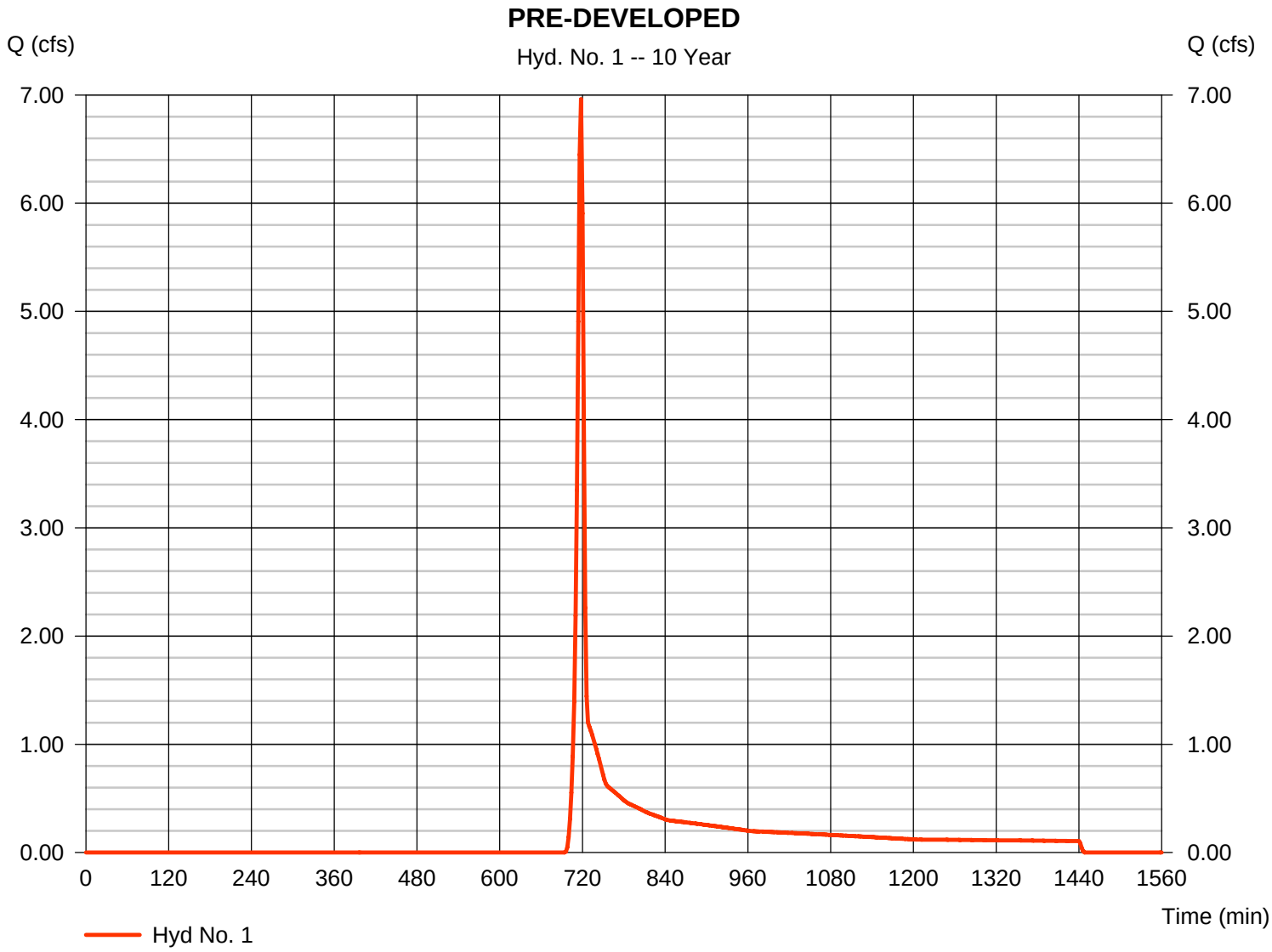
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.960 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	14,464 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



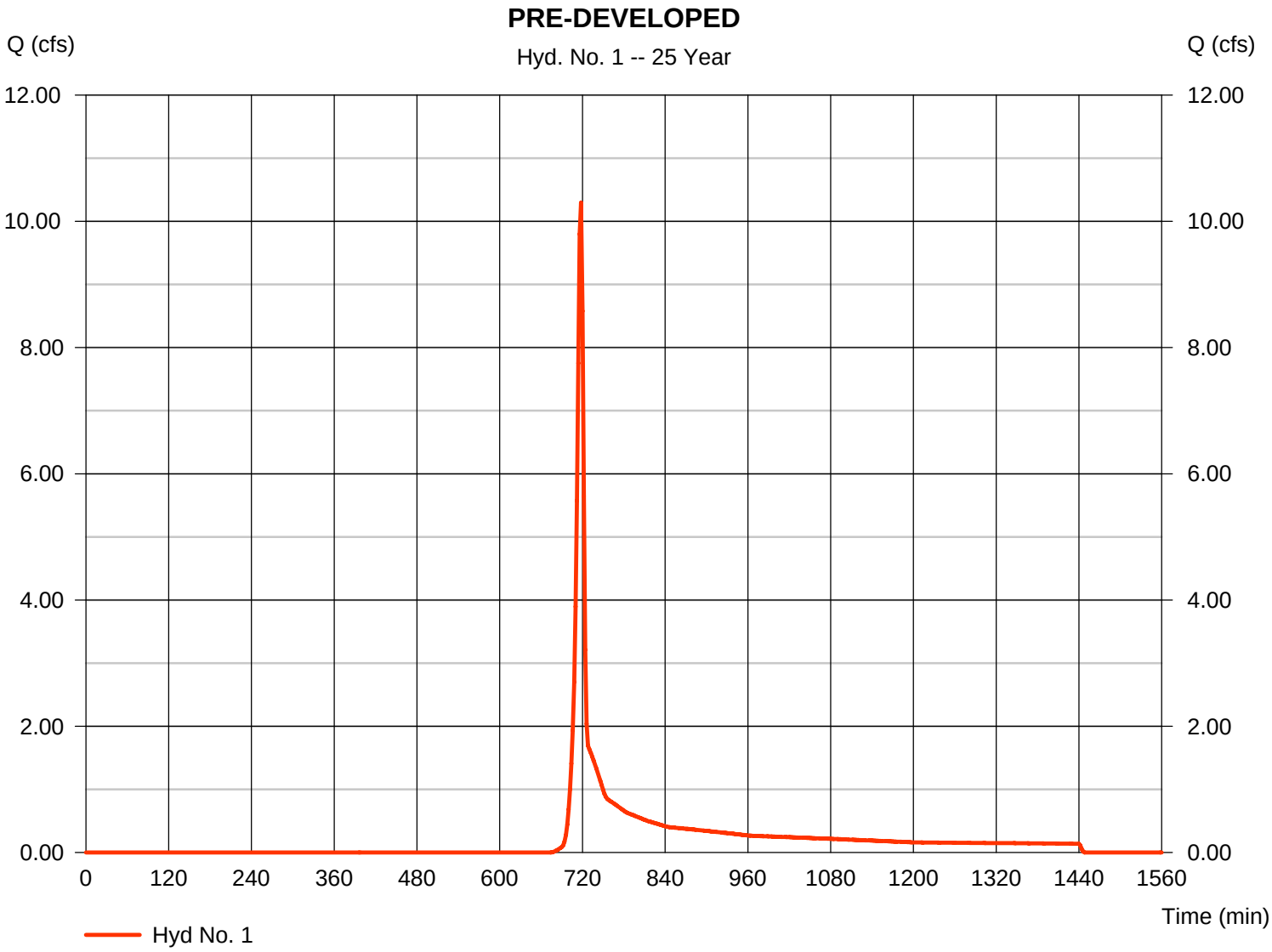
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.29 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	20,840 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



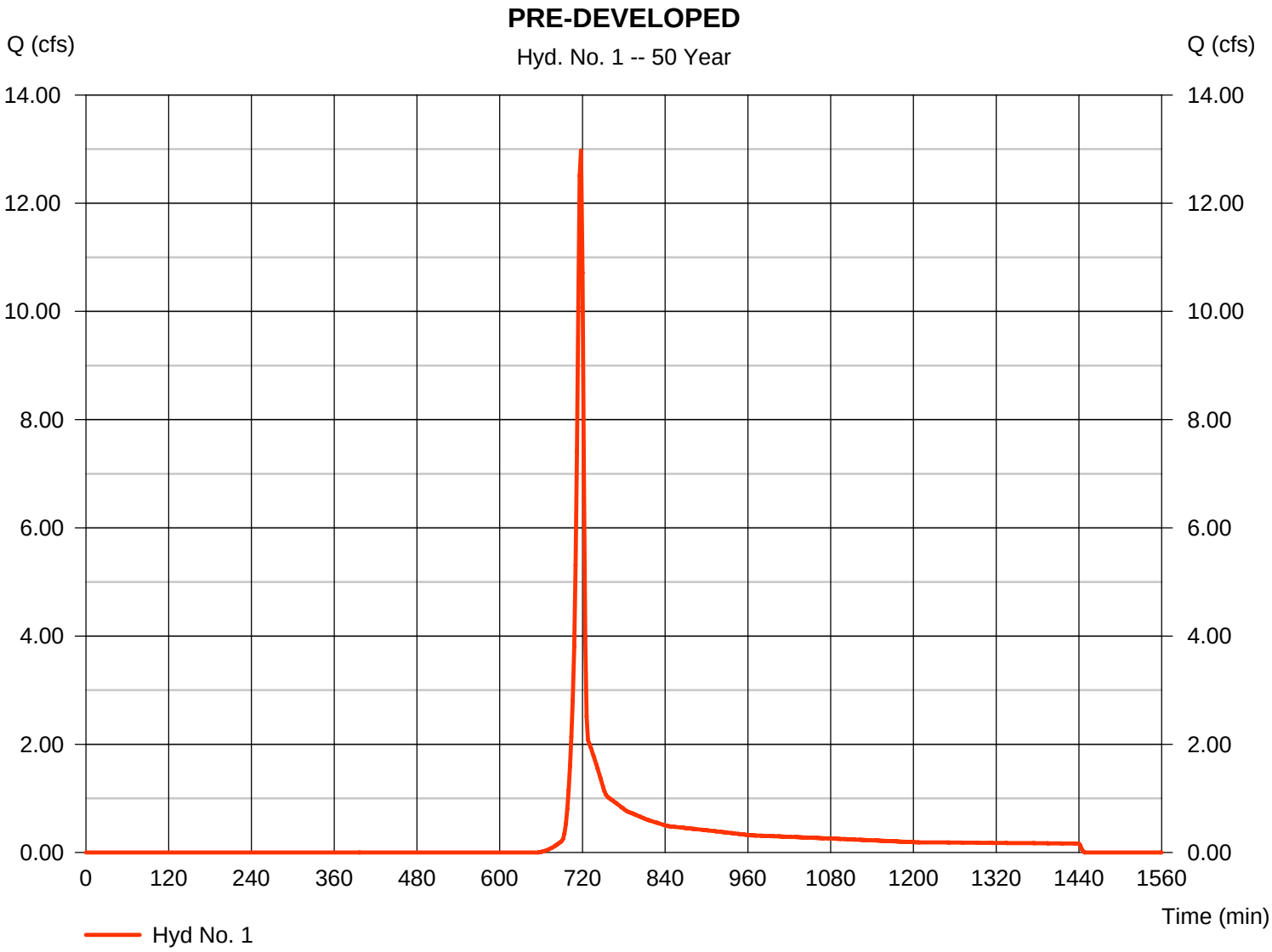
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.97 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	26,056 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



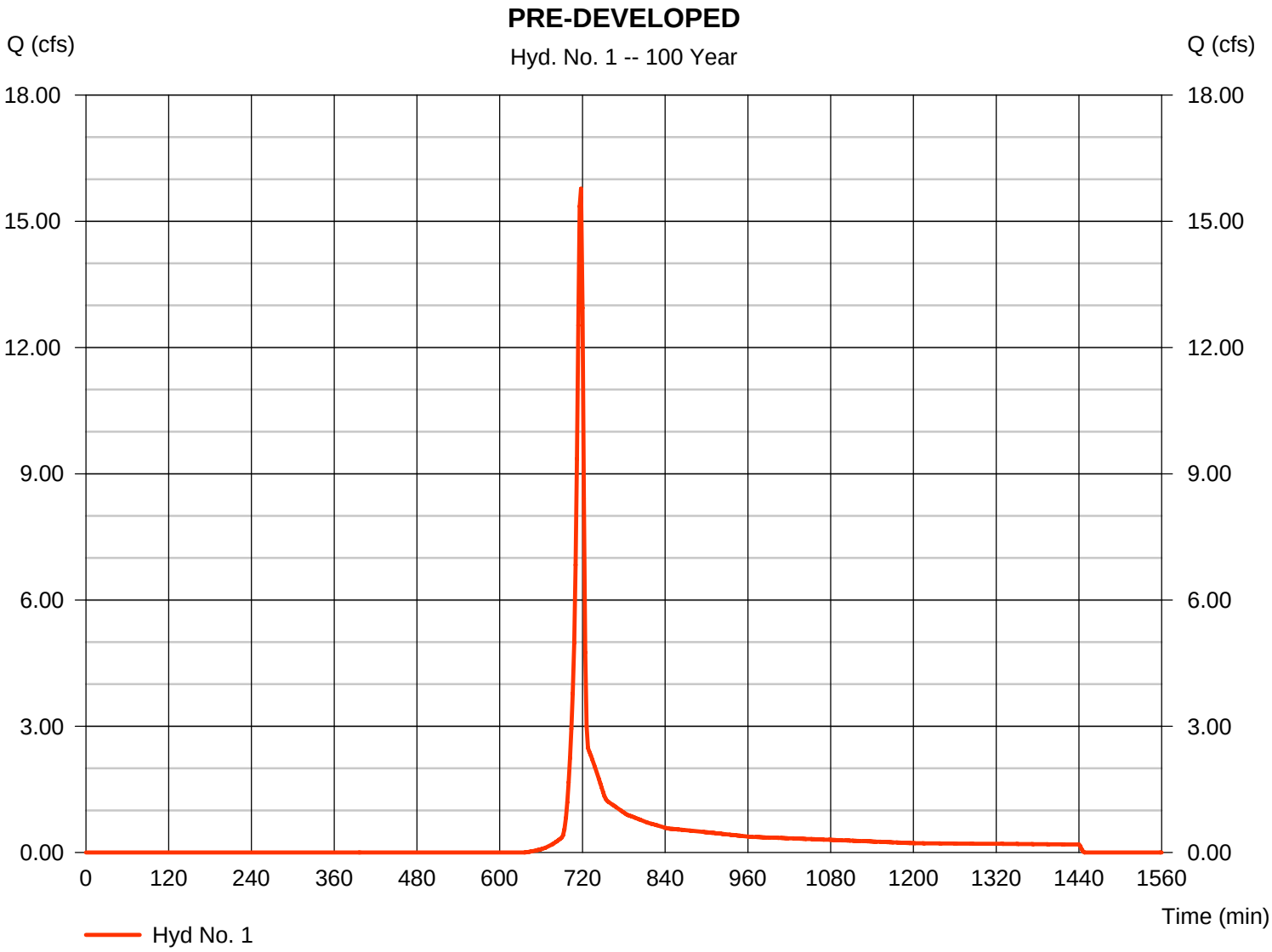
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 1

PRE-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.78 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	31,582 cuft
Drainage area	=	3.400 ac	Curve number	=	55
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



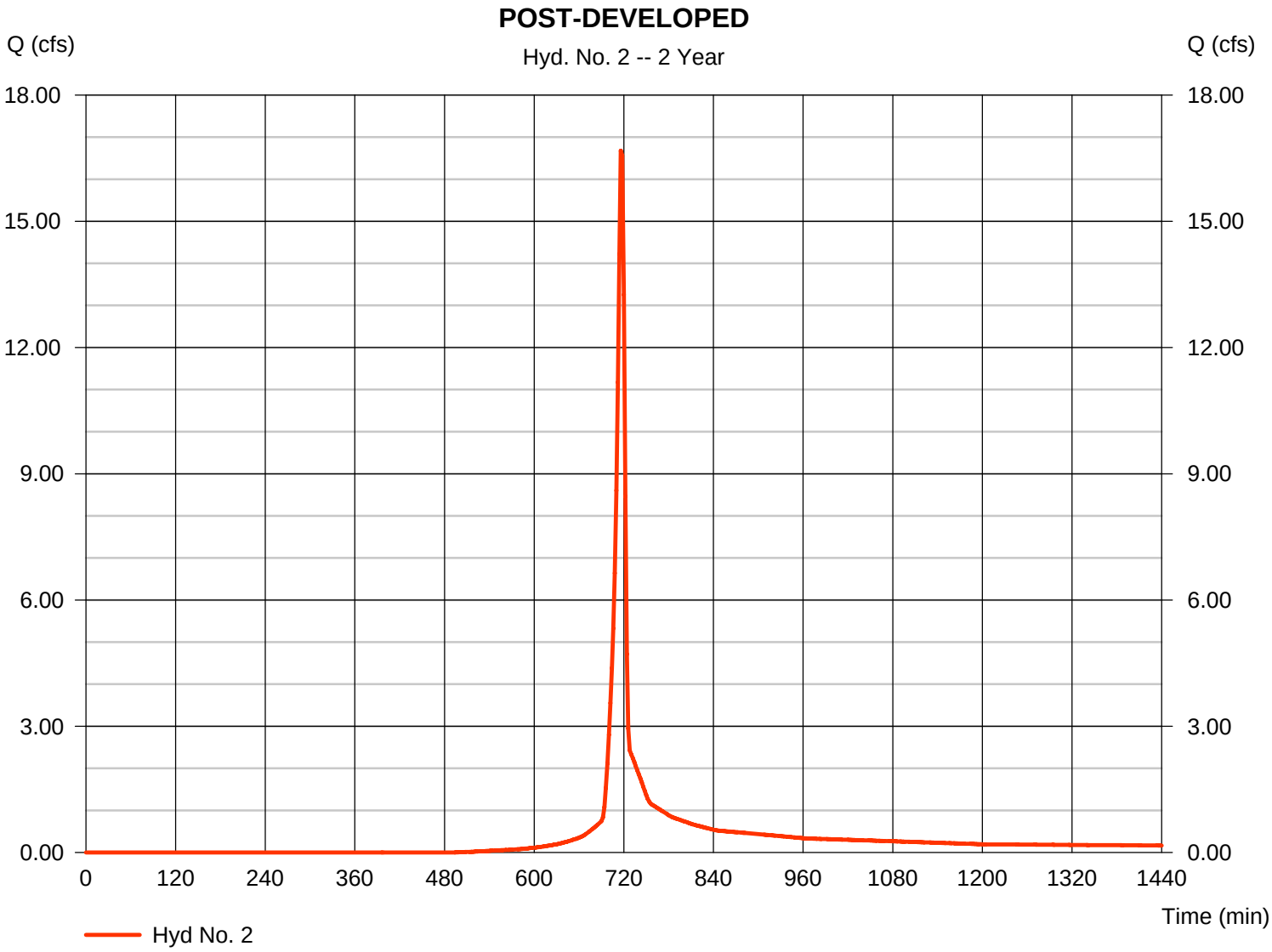
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.68 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	33,716 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



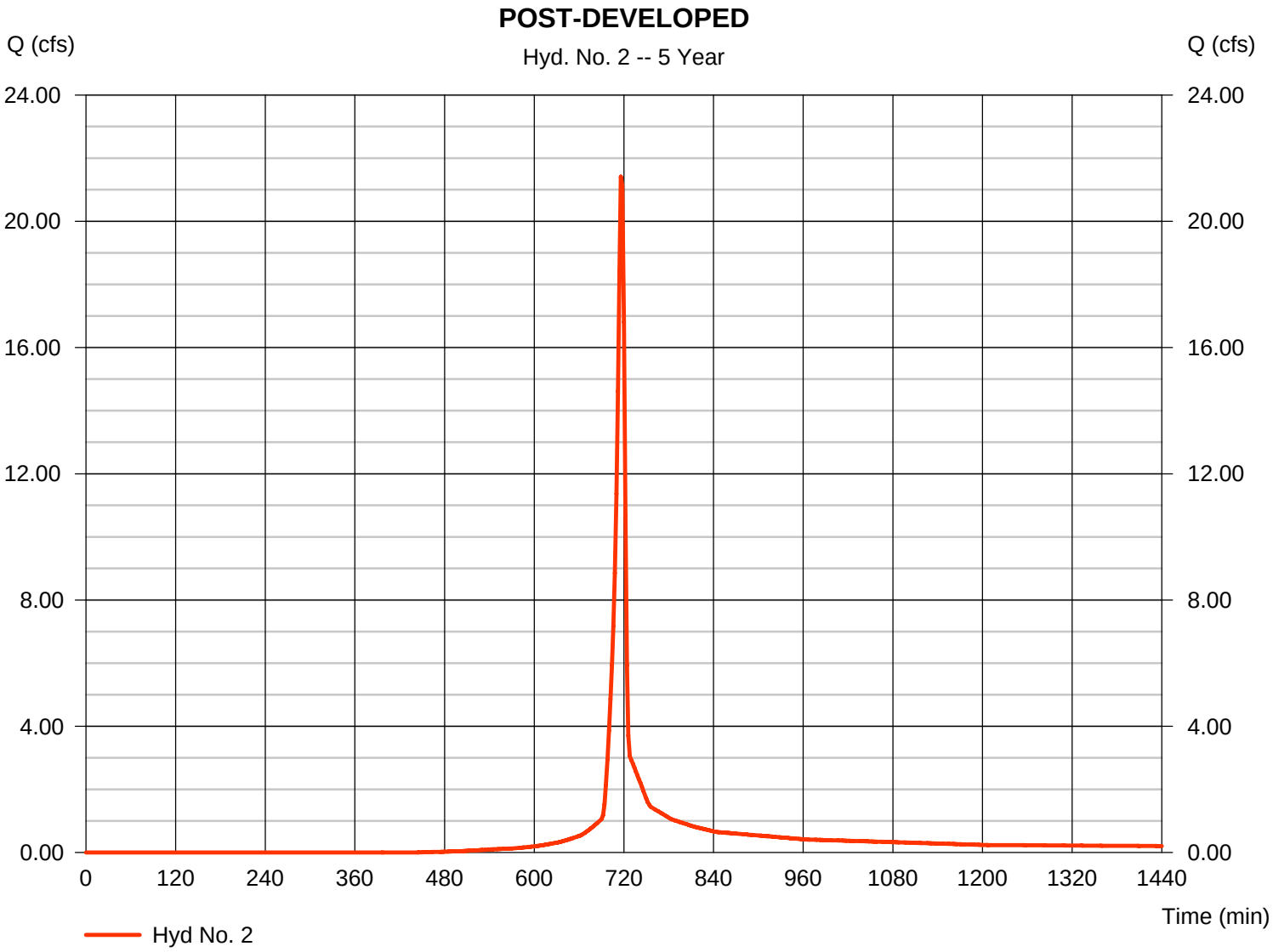
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	21.41 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	43,491 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



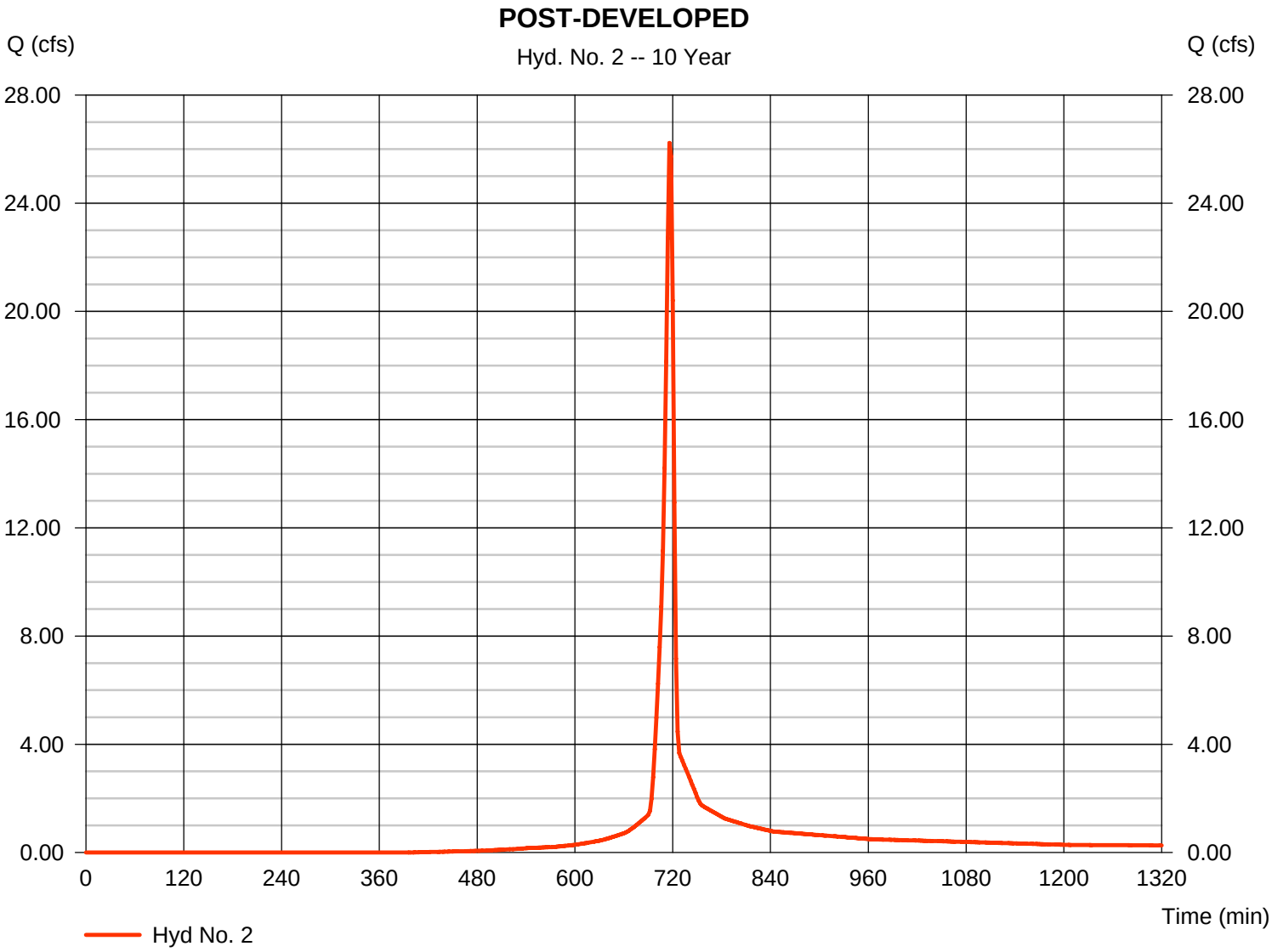
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.23 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	53,600 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



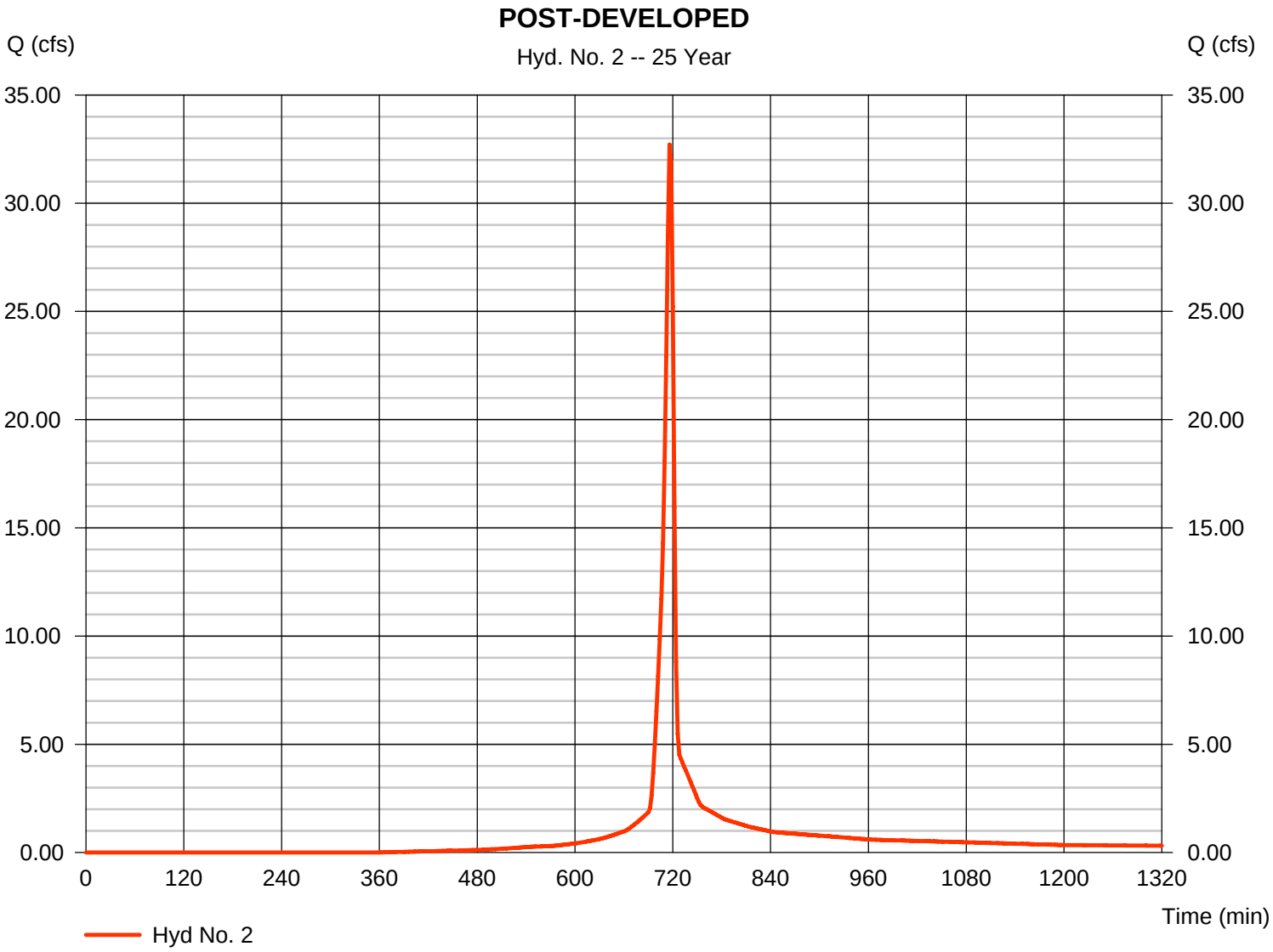
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	32.71 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	67,450 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



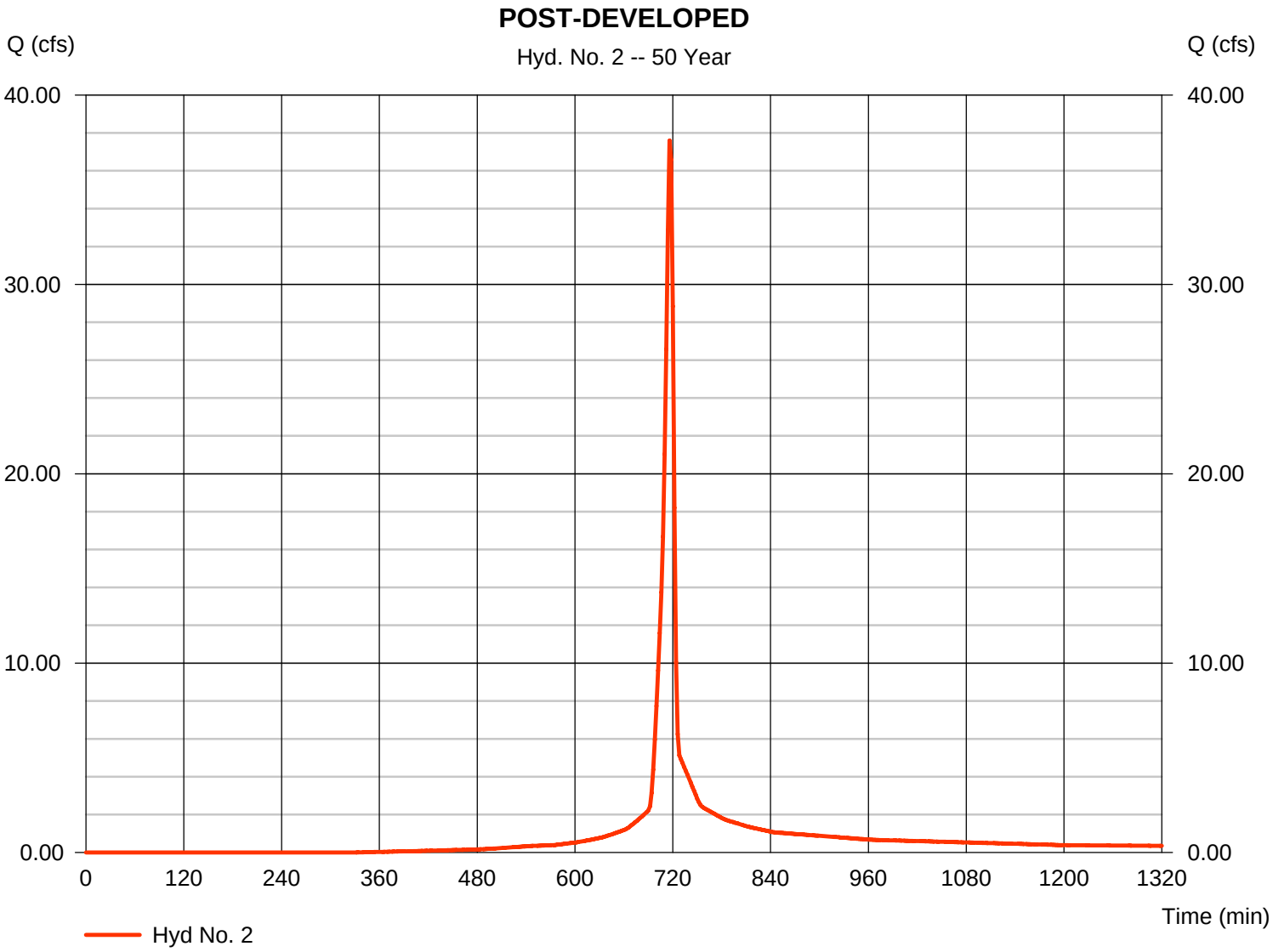
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.59 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	78,044 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



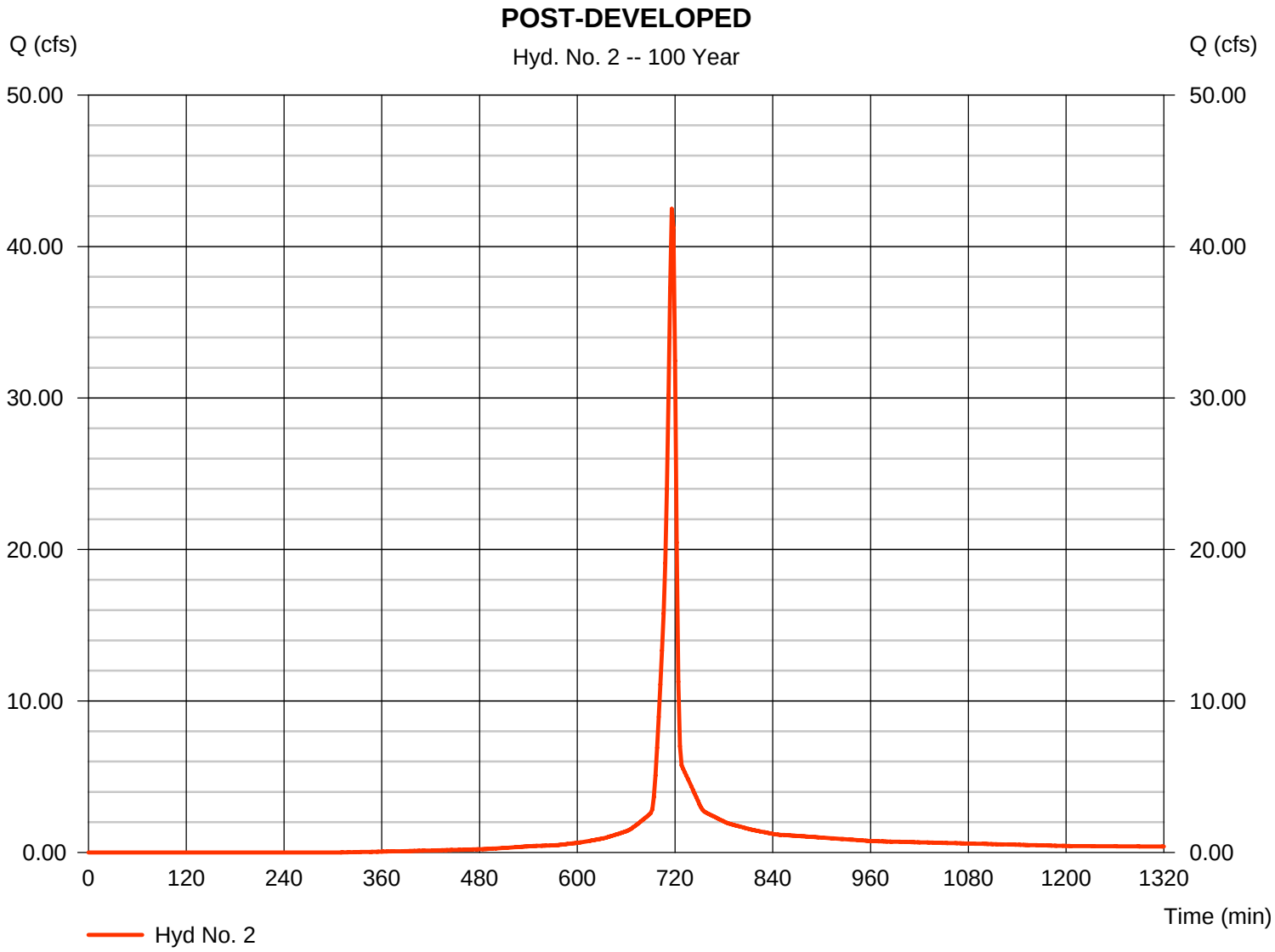
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 2

POST-DEVELOPED

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.48 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	88,771 cuft
Drainage area	=	4.700 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Pond Report

Pond No. 1 - N COOPER LAKE-VENTURE HOMES

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1022.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1022.00	3,500	0	0
2.00	1024.00	10,000	12,943	12,943
4.00	1026.00	10,000	19,998	32,941
6.00	1028.00	10,000	19,998	52,939
8.00	1030.00	10,000	19,998	72,937

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	8.00	0.00	0.00
Span (in)	= 18.00	8.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1022.00	1023.50	0.00	0.00
Length (ft)	= 800.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

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

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

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet and outlet control. Weir risers are checked for orifice conditions.

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	1022.00	0.00	0.00	---	---	---	---	---	---	---	---	0.00
2.00	12,943	1024.00	0.69	0.68	---	---	---	---	---	---	---	---	0.68
4.00	32,941	1026.00	2.51	2.47	---	---	---	---	---	---	---	---	2.47
6.00	52,939	1028.00	3.43	3.43	---	---	---	---	---	---	---	---	3.43
8.00	72,937	1030.00	4.19	4.17	---	---	---	---	---	---	---	---	4.17

Hydrograph Report

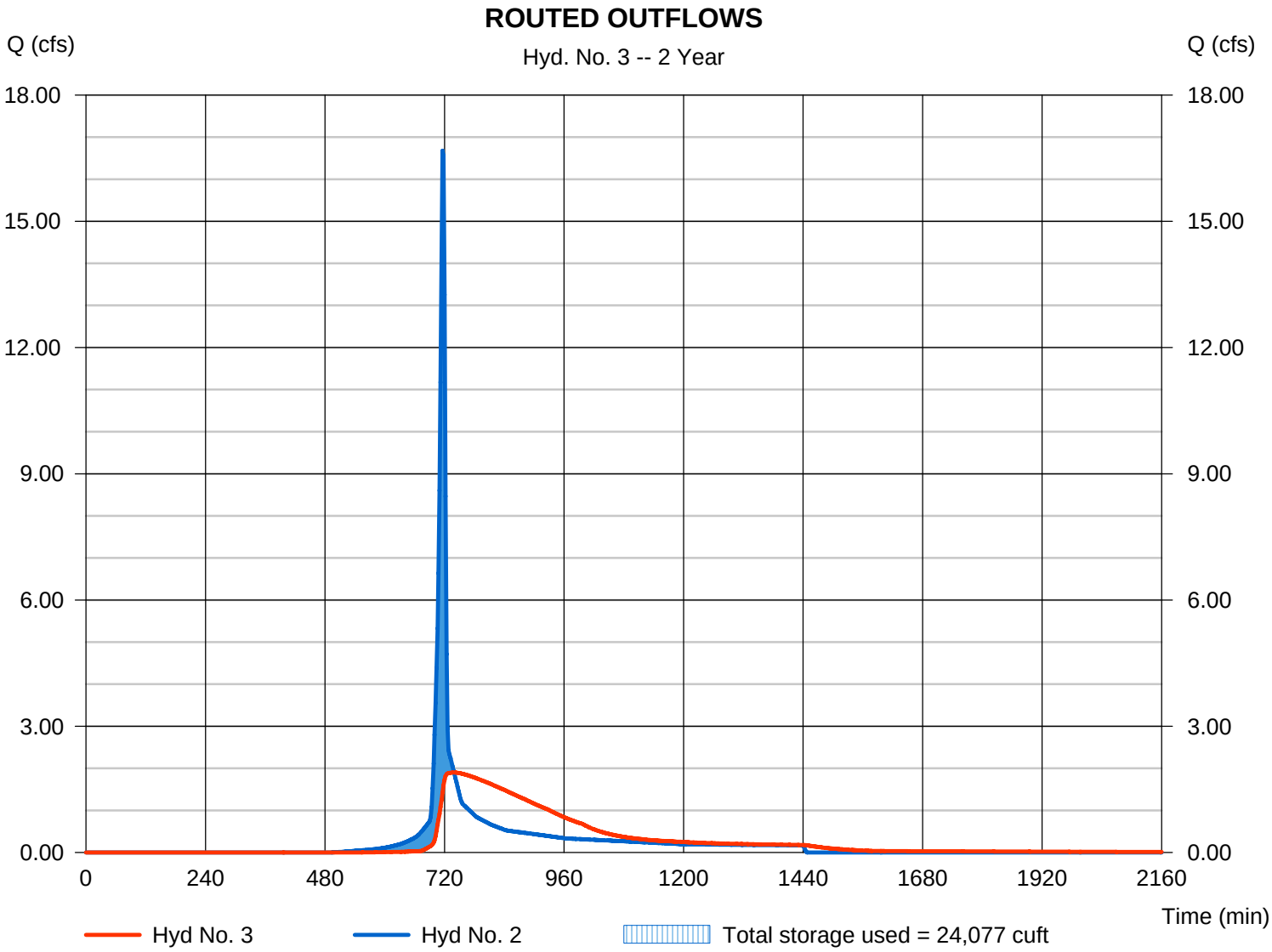
Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	1.900 cfs
Storm frequency	=	2 yrs	Time to peak	=	740 min
Time interval	=	2 min	Hyd. volume	=	33,680 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1025.11 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	24,077 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Hydrograph Report

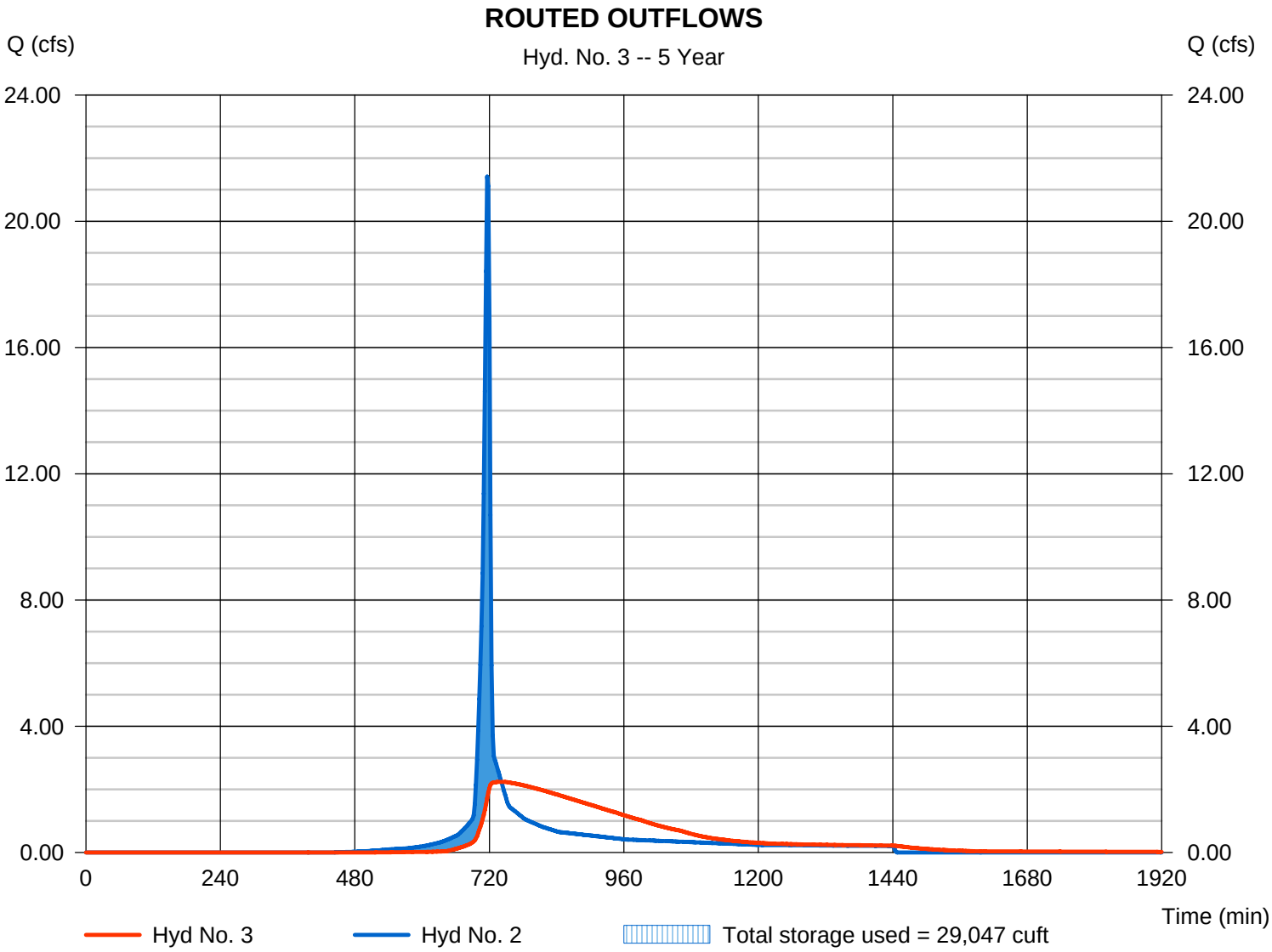
Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	2.240 cfs
Storm frequency	=	5 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	43,456 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1025.61 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	29,047 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Hydrograph Report

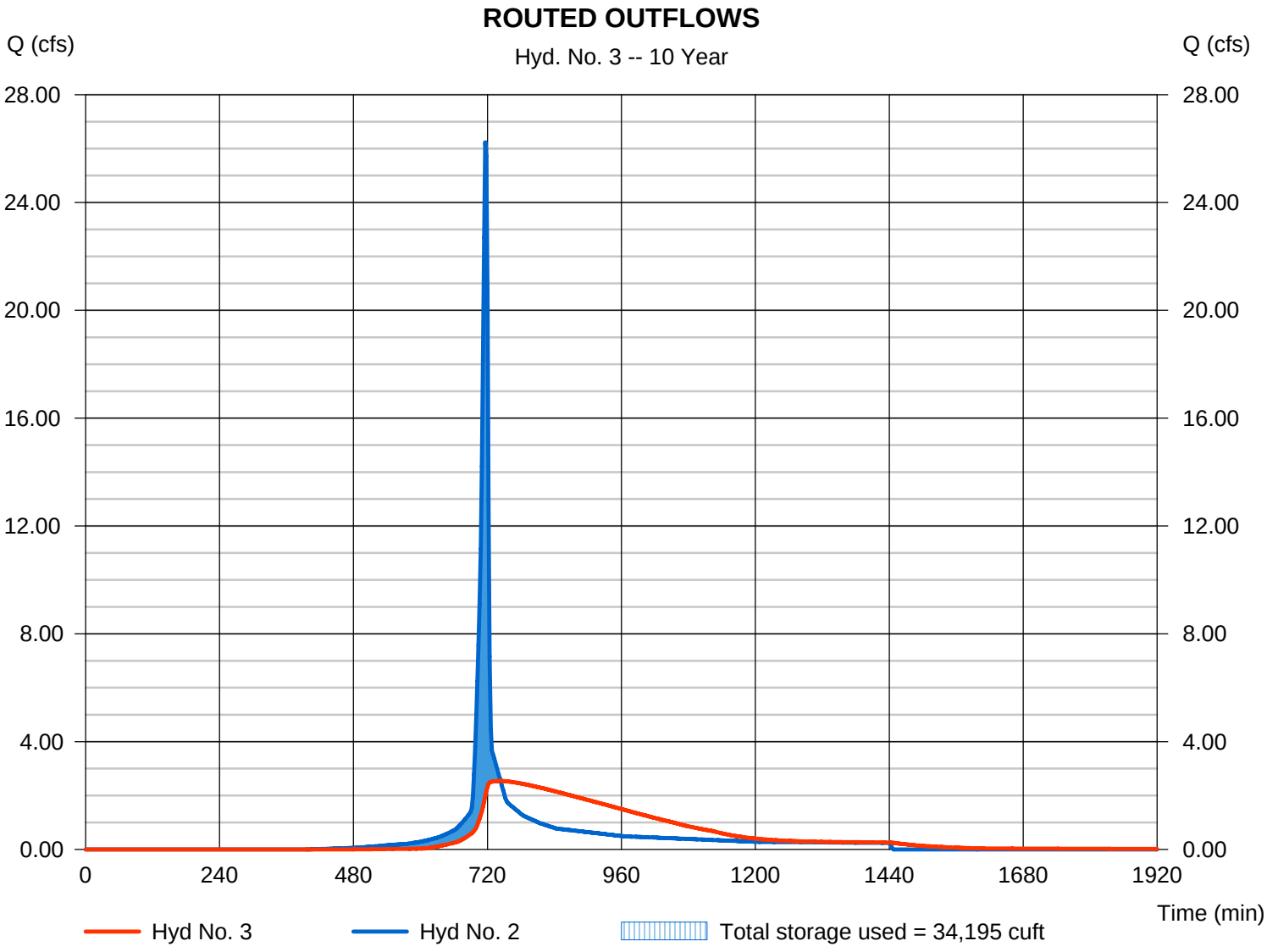
Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	2.544 cfs
Storm frequency	=	10 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	53,564 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1026.13 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	34,195 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Hydrograph Report

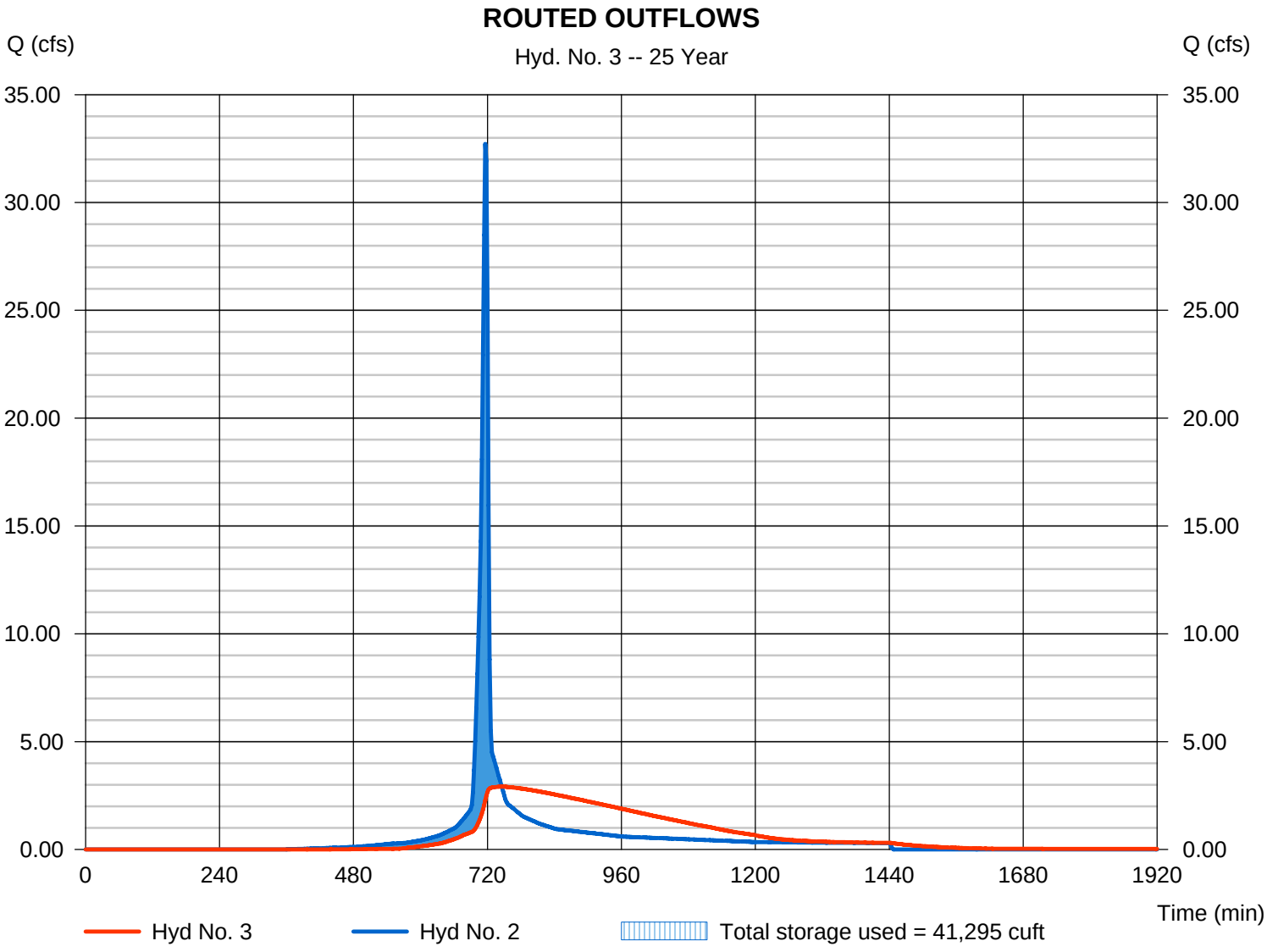
Hydraflow Hydrographs by Intelisolve v9.02 — Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	2.912 cfs
Storm frequency	=	25 yrs	Time to peak	=	746 min
Time interval	=	2 min	Hyd. volume	=	67,414 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1026.84 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	41,295 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Hydrograph Report

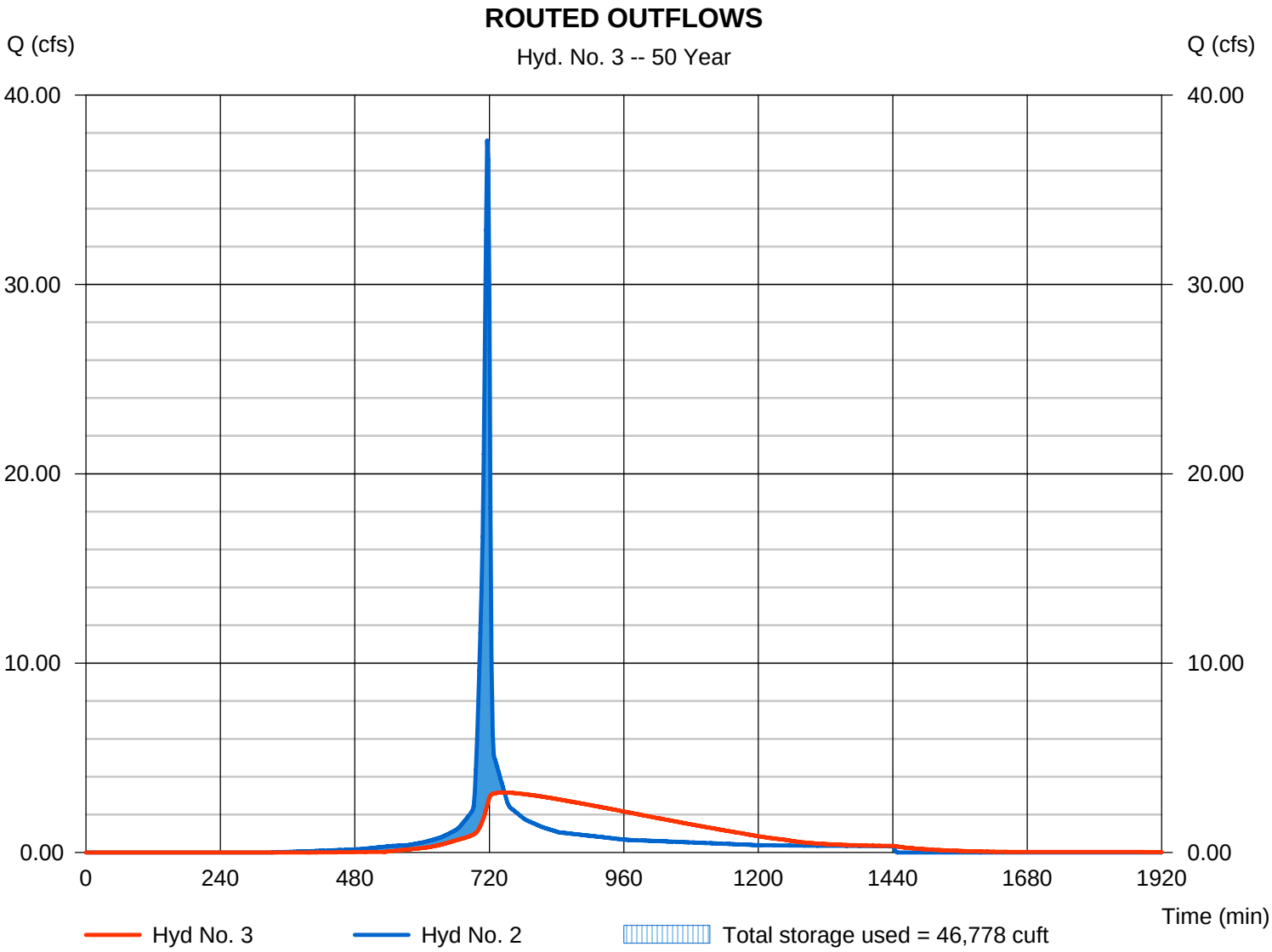
Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	3.166 cfs
Storm frequency	=	50 yrs	Time to peak	=	746 min
Time interval	=	2 min	Hyd. volume	=	78,008 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1027.38 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	46,778 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Hydrograph Report

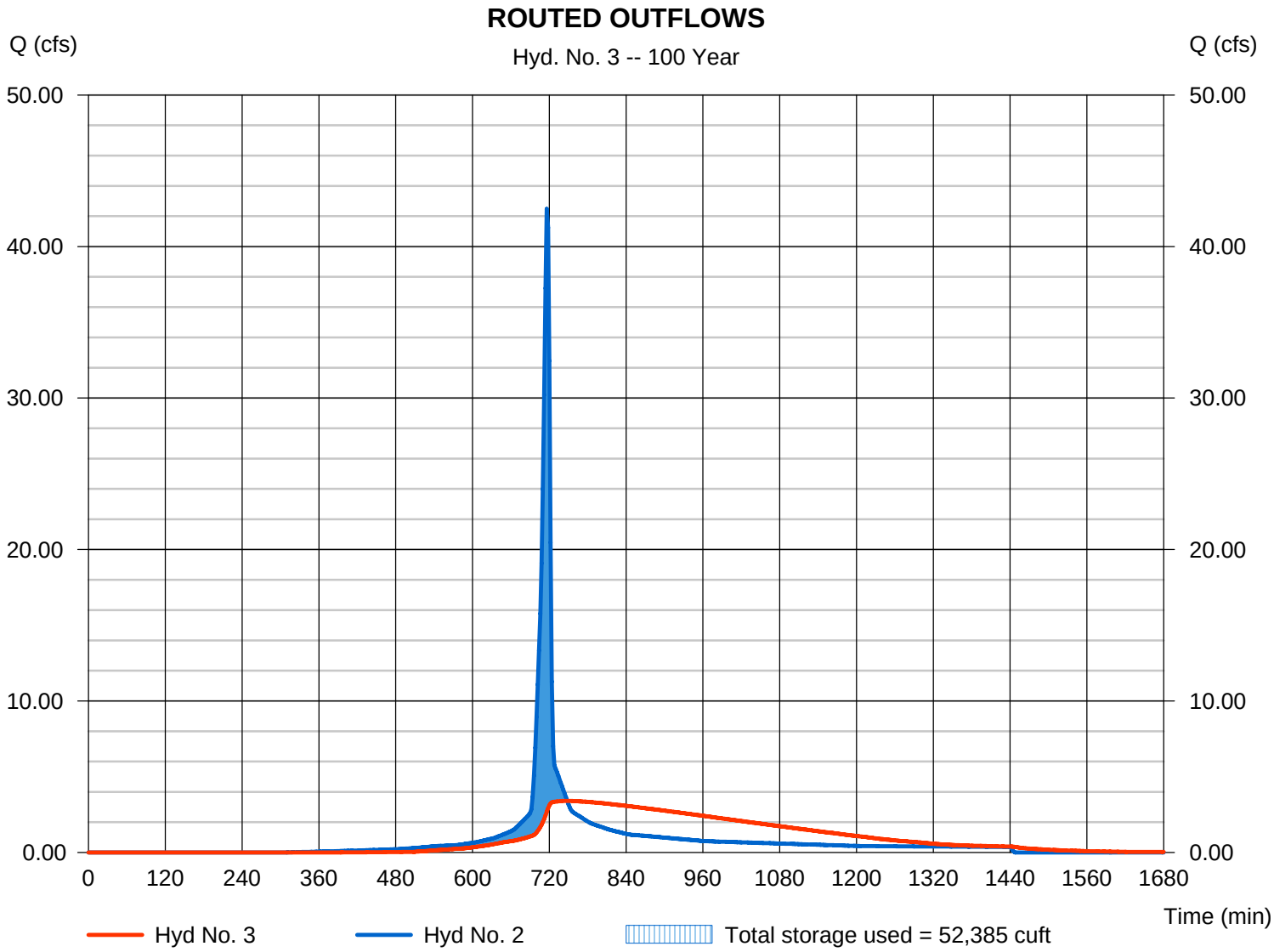
Hydraflow Hydrographs by Intelisolve v9.02 Thursday, May 14, 2015

Hyd. No. 3

ROUTED OUTFLOWS

Hydrograph type	=	Reservoir	Peak discharge	=	3.407 cfs
Storm frequency	=	100 yrs	Time to peak	=	748 min
Time interval	=	2 min	Hyd. volume	=	88,735 cuft
Inflow hyd. No.	=	2 - POST-DEVELOPED	Max. Elevation	=	1027.95 ft
Reservoir name	=	N COOPER LAKE-VENTURE HOMES	Max. Storage	=	52,385 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.40 ft.



Water Quality Design

TSS AREAS	TSS Impervious Area =	1.88	Acres
	Disturbed Pervious =	2.82	Acres
	Undisturbed Pervious =	0.00	Acres
	Stream Buffer Areas =	0.00	Acres
Total On-Site Pond Drainage Area =		4.70	Acres
Total On-Site Percent Impervious =		40.0%	
Required WQ Volume =		8,394	Cu. Ft.

Pond Stage/Storge interpolation of WQ 'H' Vol = (Cu Ft.) Elev = (Ft.)

LOCATION MAP
N.T.S.

ZONING NOTES:

EXISTING ZONING:	R-20 SINGLE FAMILY RES.
PROPOSED ZONING:	RAD
TOTAL ACREAGE:	6.15 ± ACRES
TOTAL OPEN SPACE:	1.07 ± ACRES
NUMBER OF PROPOSED UNITS:	16 UNITS
DENSITY CALCULATION:	16 UNITS / 6.15 TOTAL ACRES = 2.60 UNITS PER ACRE

LOT REQUIREMENTS:

- MINIMUM LOT SIZE	9,019 SF
- MINIMUM LOT WIDTH	55' AT THE BUILDING SETBACK LINE
- MINIMUM FRONT SETBACK	30'
- MAJOR SIDE SETBACK	20' FROM INTERIOR STREETS
- MINIMUM SIDE SETBACK	10' BETWEEN STRUCTURES
- MAJOR REAR YARD SETBACK	30' FROM EXTERIOR PROPERTY LINE
- MINIMUM REAR YARD SETBACK	30'
- MINIMUM HOUSE SIZE	1,800 SF
- MAXIMUM BUILDING HEIGHT	35'
- MAXIMUM COVERAGE	45%

UTILITY NOTES:

- WATER PROVIDED BY CITY OF SMYRNA
- SEWER PROVIDED BY CITY OF SMYRNA

STREET NOTES:

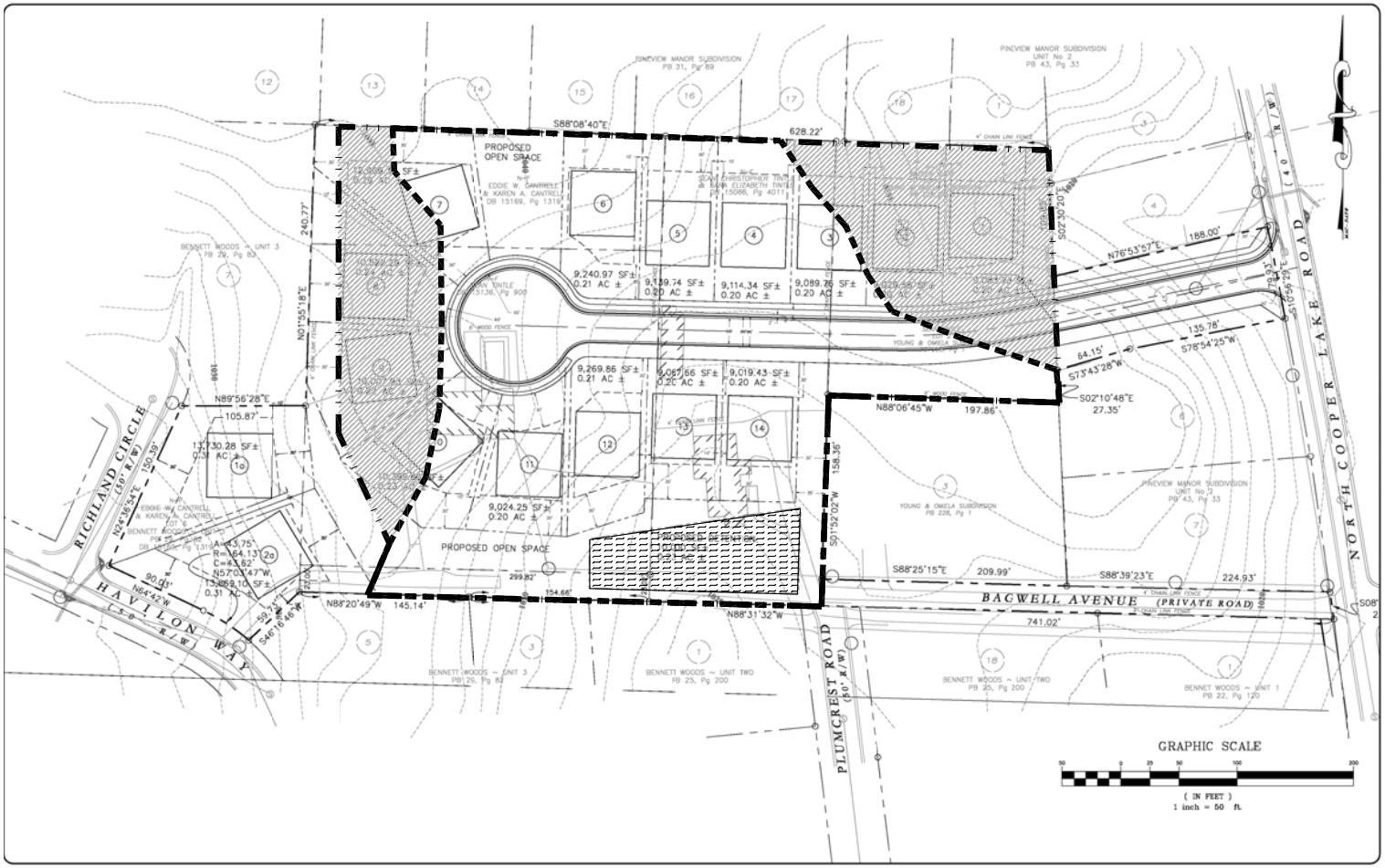
- ALL STREETS ARE 24' BOC TO BOC WITH A SIDEWALK ON ONE SIDE OF THE ROAD.
- ALL STREETS ARE PUBLIC WITH 50' RIGHT OF WAY
- CUL DE SAC RADIUS IS 40' TO BOC .

GENERAL NOTES:

1) PROPERTY BOUNDARY SURVEY PROVIDED BY GUNNIN LAND SURVEYING, LLC. ALL TOPOGRAPHIC INFORMATION REPRESENTED ON THIS SITE PLAN WAS ACQUIRED FROM THE COBB COUNTY GIS. A TOPOGRAPHIC SURVEY WILL BE NECESSARY FOR FURTHER DESIGN WORK.
2) THIS PROPERTY IS NOT LOCATED IN A FEDERAL FLOOD AREA AS INDICATED BY F.I.R.M. OFFICAL FLOOD HAZARD MAPS COMMUNITY PANEL NO. 13067C0206H COBB COUNTY GEORGIA DATED MARCH 4, 2013.
3) THERE ARE NO CEMETERIES ON THIS SITE.
4) THERE ARE NO WELANDS OR STEAMS ON THIS SITE.

PARKING NOTES:

- 2 SPACES PER UNIT REQUIRED. EACH UNIT HAS A MIN. 18' WIDE DRIVEWAY AND TWO CAR GARAGE.



LOT AREA TABLE:

LOT NUMBER	LOT AREA IN SQUARE FEET
1	9,083.73
2	9,029.58
3	9,089.76
4	9,114.34
5	9,139.74
6	9,240.97
7	12,909.30
8	10,007.93
9	10,522.29
10	10,399.80
11	9,024.25
12	9,269.86
13	9,067.66
14	9,019.43
1a	13,730.28
2a	13,869.10

PRE-POND BASIN
AREA: ±3.4 ACRES
Cn=55

POST-POND BASIN
AREA: ±4.7 ACRES
Cn=80

WQ VOLUME
40%: ±4.7 ACRES
8,394 CF

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PHONE: (678) 540-2563

GEORGIA REGISTERED No. LA001383 LANDSCAPE ARCHITECT LESTER R. HEAVNER, III

SITE PLAN FOR:
VENTURE HOMES
N. COOPER LAKE ROAD TRACT
L.L. 336 17TH DISTRICT, 2ND SECTION
CITY OF SMYRNA
COBB COUNTY GEORGIA

SITE PLAN

No.	REVISION	DATE:
1	REVISED PER MEETING WITH SEAN RANDALL TO SHOW 10' BETWEEN STRUCTURES	3/25/2015
2	REVISED PER SEAN RANDALL COMMENTS AND ADJUST TO BOUNDARY SURVEY	5/3/2015

DRAWING SCALE:	1" = 50'
DESIGNED BY:	LRH
DRAWN BY:	LRH
CHECKED BY:	LRH
DATE:	03/18/2015
SHEET	1 of 1