STORMWATER MANAGEMENT REPORT

FOR

Elcon Recycling
Dean Sievers Place
Falls Township
Bucks County, PA

File No. 12-07083

January, 2019

Prepared by:

Gilmore & Associates, Inc.
Engineers ♦ Land Surveyors ♦ Planners ♦ GIS Consultants
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(215) 345-4330

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I. Project Description

The subject site (Tax parcel 13-51-1-5) is located in the Materials Processing and Manufacturing (MPM) zoning district. The site is bound by Phoenix Metals, Arley Wholesale, A&A Machinery, and Univar USA along Dean Sievers Place to the east, Sims Metal Management to the north, and Steel Road South to the west and south, in Falls Township. The attached USGS Quadrangle depicts the site location. The 32.30-acre site is currently undeveloped. The site is generally flat, except for the southern portion where the proposed stormwater basin and office building with parking are located, which slopes toward the existing wetland at approximately one (1) percent. The majority of the site currently sheet flows directly to the existing wetland, and a small portion of the site sheet flows to an existing drainage swale along Dean Sievers Place and then to the wetland. This wetland system eventually discharges to the Delaware River, which is classified as WWF, MF in Chapter 93.

The project proposes a network of interconnected buildings covering approximately 107,100 square feet for the purpose of treating industrial waste. An additional ±50,000 square feet within the limit of disturbance has been reserved for future development. This future development area has been considered in the stormwater design, and is included in the calculations as impervious building area. Drive aisles capable of accommodating a WB-67 truck will be provided throughout the site, as well as a designated truck unloading area and a parking area for 75 vehicles. The truck unloading area is graded to be self-contained and will direct runoff collected in this area to the processing plant as an extra precaution against leaks or spills. The process tank farm in the large central island will also be self-contained and direct runoff to be processed. Runoff from area to be disturbed will be directed to one (1) stormwater basin.

II. Existing Conditions: Topography & Soils

Topographic information was obtained from a field survey performed by Gilmore & Associates, Inc. in March of 2014. Vertical Datum is NAVD88 and was established by Global Positioning System (GPS) with observations referenced to the TopCon TopSurv GPS Base Station Network.

Soils classification information for the project site was obtained from the Soil Survey of Bucks County, Pennsylvania, and is presented in Table 1. Urban Land (UfuB) is the only soil mapped within the area of disturbance.

Table 1: Existing Soils Classification Table

Symbol	Soil Name	Rating	Slope
UfuB	Urban Land		0-8%
Na	Nanticoke-Hatboro Silt Loams	C/D	0-1%
W	Water		

III. Stormwater Management

The proposed stormwater management design for this project incorporates both structural and non-structural BMPs. The non-structural BMPs utilized in the design include minimization of the overall disturbed area to the maximum extent possible and limitation of the proposed impervious coverage to only what is needed for the proposed use. Limiting the impervious coverage and overall disturbed area reduces the composite CN value in the post-development condition and reduces runoff. Also, the existing drainage swale between the proposed development and Dean Sievers Place will be maintained to continue to direct off-site runoff to the existing wetland system. Further, a stormwater basin with an impermeable liner is proposed to treat the stormwater from the disturbed area. This basin will be a variation on a slow release basin. After stormwater enters the basin through one (1) of two (2) endwalls, it will first infiltrate through two (2) feet of amended soils for water quality, then enter the perforated underdrain and slowly discharge through the small hole drilled in the capped underdrain in the outlet control structure. The outlet control structure also has a rectangular orifice and grated top to mitigate peak flows in accordance with the Falls Township Stormwater Management Ordinance (Chapter 187).

PADEP has requested that infiltration not be included in the stormwater management design for this project. As such, an impermeable liner will be installed below the underdrain in the proposed basin to fully contain all runoff from the disturbed area.

The stormwater management design is based on the Soil Conservation Service (SCS) Method for runoff peak flow rates and volumes utilizing the Hydraflow Hydrographs computer software program. The proposed stormwater conveyance system design is based

on the Rational Method utilizing the Hydraflow Storm Sewers computer software program. All inlets, storm sewer pipes, and the proposed stormwater basin have been designed to contain and convey the 100 year storm, exceeding standards set forth in the Falls Township Stormwater Management Ordinance (Chapter 187). All time of concentration values for the stormwater management design have been assumed to be five (5) minutes for calculation purposes. In order to comply with the ACT 167 Plan, the above stormwater management design criteria are based on the Falls Township Stormwater Management Ordinance (Chapter 187) adopted April 5, 2005.

IV. Erosion and Sediment Control

The following measures shall be implemented to minimize erosion and sediment pollution created by site construction:

A. Stabilized Construction Entrance(s) – Temporary construction entrances will provide stable access routes to the site, and will aid in cleaning mud from vehicle tires during ingress and egress to and from the site.

B. Compost Filter Socks – Compost filter socks will be used to filter sediment from small overland (sheet) flow areas and along the toe of slope of soil stockpiles. Rock filter outlets shall be implemented by the Contractor in low points along the compost filter socks where concentrated flow can occur.

C. Inlet Protection – Installation of inlet protection devices shall be utilized to protect the existing inlets and proposed inlets from receiving increased sediment loads due to construction related activities.

D. Temporary Seeding and Mulching – Disturbed areas which will be "unworked" shall immediately receive a temporary seed mixture and mulch as shown on the plan. In addition, soil stockpile areas are to be seeded and mulched with a temporary seed mixture to promote rapid vegetated stabilization.

E. Permanent Seeding and Mulching – Disturbed areas at final grade are to receive a permanent seed mixture and mulch to promote permanent stabilization as shown on the plan.

F. Limited Area of Disturbance – No site clearing or grading is proposed which is not essential to the construction of the project. Significant open space areas of the site will remain undisturbed.

V. Maintenance

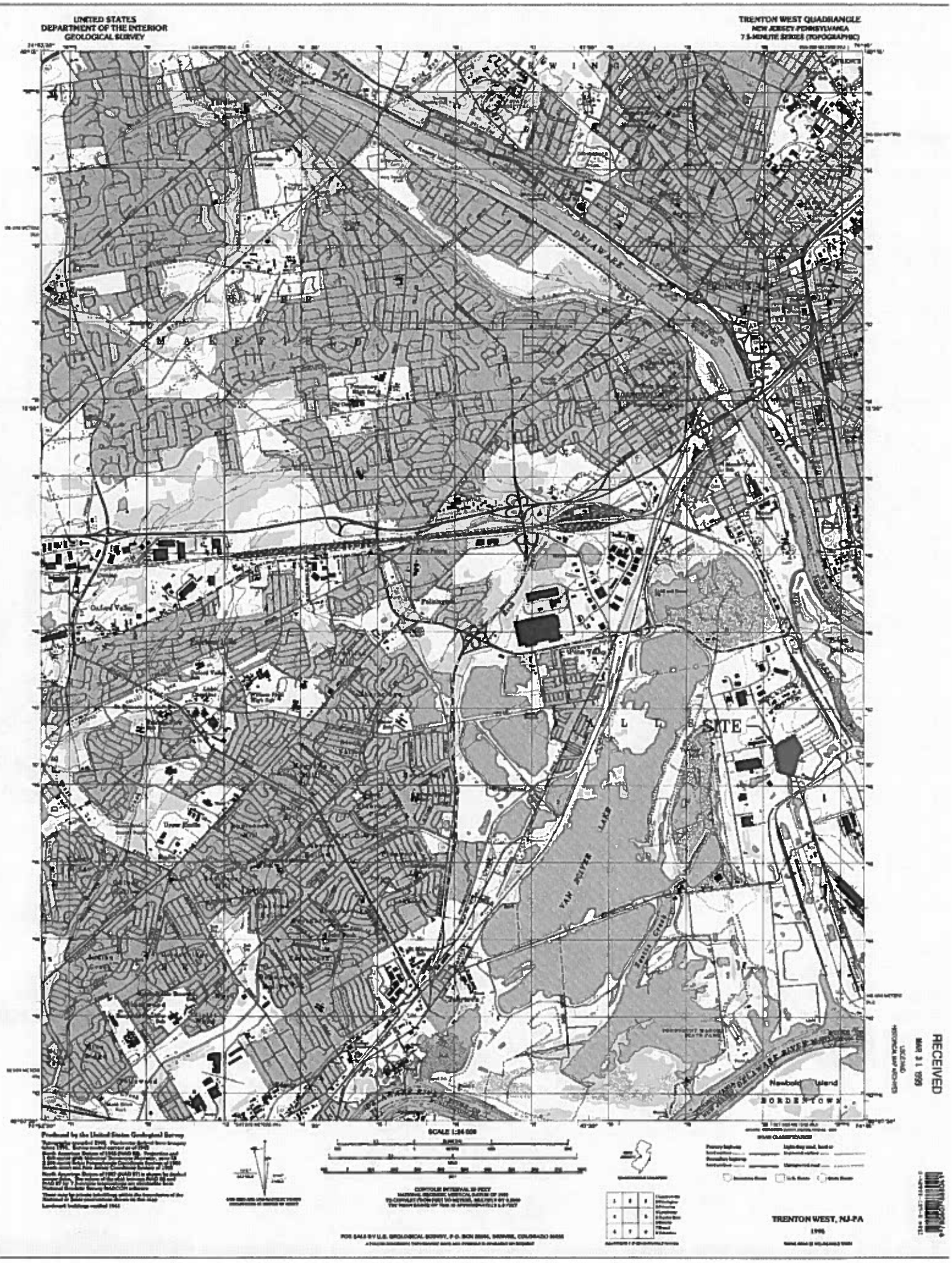
The Owner of the Dean Sievers Place site shall maintain the stormwater management system. Maintenance shall include removal of debris from all inlet locations, as well as removal of any obstructions that may enter the stormwater basin. Falls Township shall also reserve the right to enter the site for the purpose of inspection of these facilities to ensure that the Owner is maintaining the design integrity.

VI. Qualifications:

The design of the stormwater management facilities has been completed by James Hersh, P.E. of Gilmore & Associates, Inc. The firm has completed numerous stormwater management projects in Bucks County since 1973.

APPENDIX

USGS QUADRANGLE


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON WEST QUADRANGLE
NEW JERSEY-PENNSYLVANIA
7.5-MINUTE SERIES (TOPOGRAPHIC)
DELAWARE RIVER
MAKEFIELD
SITE
Newbold Island
BORDENTOWN
SCALE 1:24 000
TRENTON WEST, NJ-PA
1995
RECEIVED

CN CALCULATIONS

Project Name Elcon Recycling
Project Number 12-07083
Condition Pre-Development
Area On-Site Drainage Area A (Drainage Area to POI-A)

Description	CN	SF	A	RCN x A
Impervious	98	0	0.00	0
Gravel (HSG-C)	89	167,020	3.83	341
Brush (HSG-C)	65	97,959	2.25	146
Meadow (HSG-C)	71	315,829	7.25	515
Grass (HSG-C)	74	0	0.00	0
Forest (HSG-C)	70	0	0.00	0
TOTAL		580,808	13.33	1002

RCN 75

Time of Concentration : Use Tc = 5 min

Project Name Elcon Recycling
Project Number 12-07083
Condition Post-Development
Area On-Site Drainage Area A (Drainage Area to Basin)

Description	CN	SF	A	RCN x A
Impervious	98	359,506	8.25	809
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	0	0.00	0
Grass (HSG-C)	74	113,679	2.61	193
Forest (HSG-C)	70	0	0.00	0
TOTAL		473,185	10.86	1002

RCN 92

Time of Concentration : Use Tc = 5 min

Project Name Elcon Recycling
Project Number 12-07083
Condition Post-Development
Area On-Site Drainage Area A (Drainage Area to Bypass Basin)

Description	CN	SF	A	RCN x A
Impervious	98	3,368	0.08	8
Gravel (HSG-C)	89	0	0.00	0
Brush (HSG-C)	65	0	0.00	0
Meadow (HSG-C)	71	0	0.00	0
Grass (HSG-C)	74	104,256	2.39	177
Forest (HSG-C)	70	0	0.00	0
TOTAL		107,624	2.47	185

RCN 75

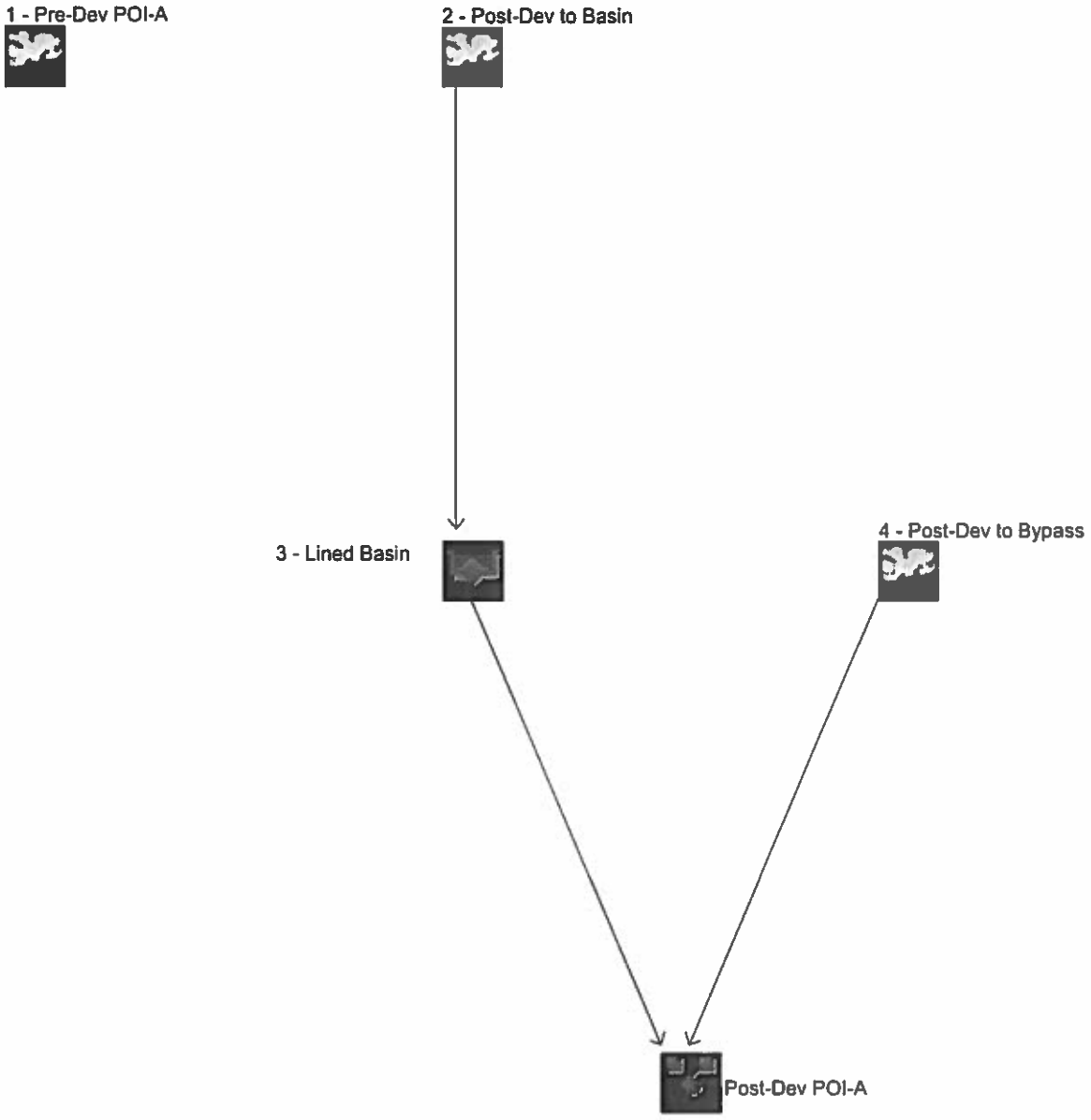
Time of Concentration : Use Tc = 5 min

PRE-DEVELOPMENT AND POST-DEVELOPMENT HYDROGRAPHS

Peak Discharge Rate Summary (cfs)							
	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Pre (Point A)	17.30	26.34	41.07	55.02	69.73	80.97	96.13
Post (Point A)	4.55	7.01	10.47	13.54	18.79	26.40	35.27

Required Rate Reductions (2yr Post = 1yr Pre, 5yr Post = 2yr Pre, 100yr Post = 50% of 100yr Pre)

Watershed Model Schematic



Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.22

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	———	17.30	26.34	———	41.07	55.02	69.73	80.97	96.13	Pre-Dev POI-A
2	SCS Runoff	———	33.28	42.68	———	56.71	69.09	81.40	90.58	102.79	Post-Dev to Basin
3	Reservoir	2	2.096	2.721	———	3.456	6.411	12.90	18.65	22.88	Lined Basin
4	SCS Runoff	———	3.205	4.882	———	7.609	10.19	12.92	15.00	17.81	Post-Dev to Bypass
5	Combine	3, 4	4.546	7.008	———	10.47	13.54	18.79	26.40	35.27	Post-Dev POI-A

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	17.30	2	718	34,948	----	------	------	Pre-Dev POI-A
2	SCS Runoff	33.28	2	716	69,451	----	------	------	Post-Dev to Basin
3	Reservoir	2.096	2	756	61,377	2	14.59	40,451	Lined Basin
4	SCS Runoff	3.205	2	718	6,476	----	------	------	Post-Dev to Bypass
5	Combine	4.546	2	718	67,853	3, 4	------	------	Post-Dev POI-A

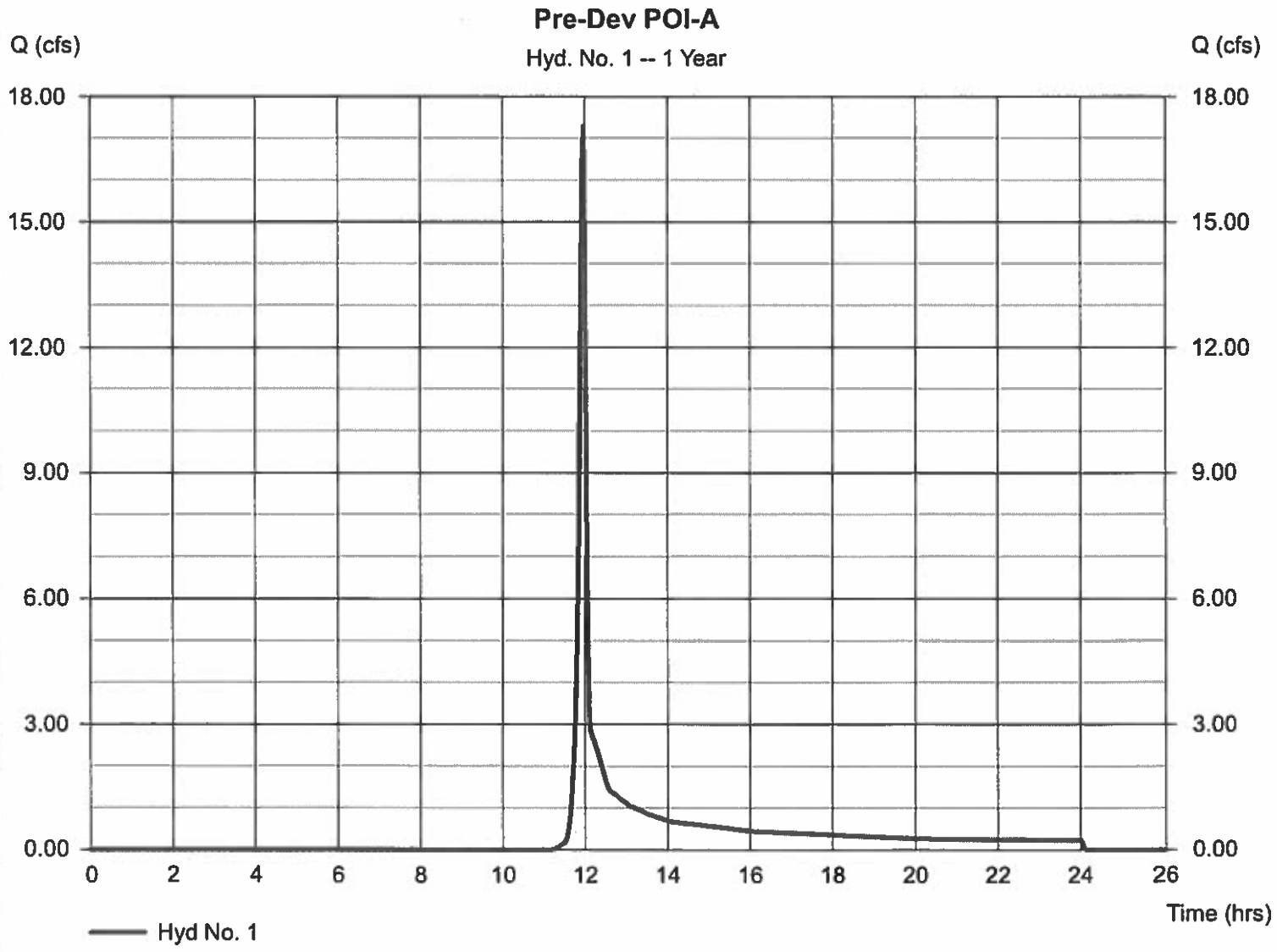
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 17.30 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 34,948 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



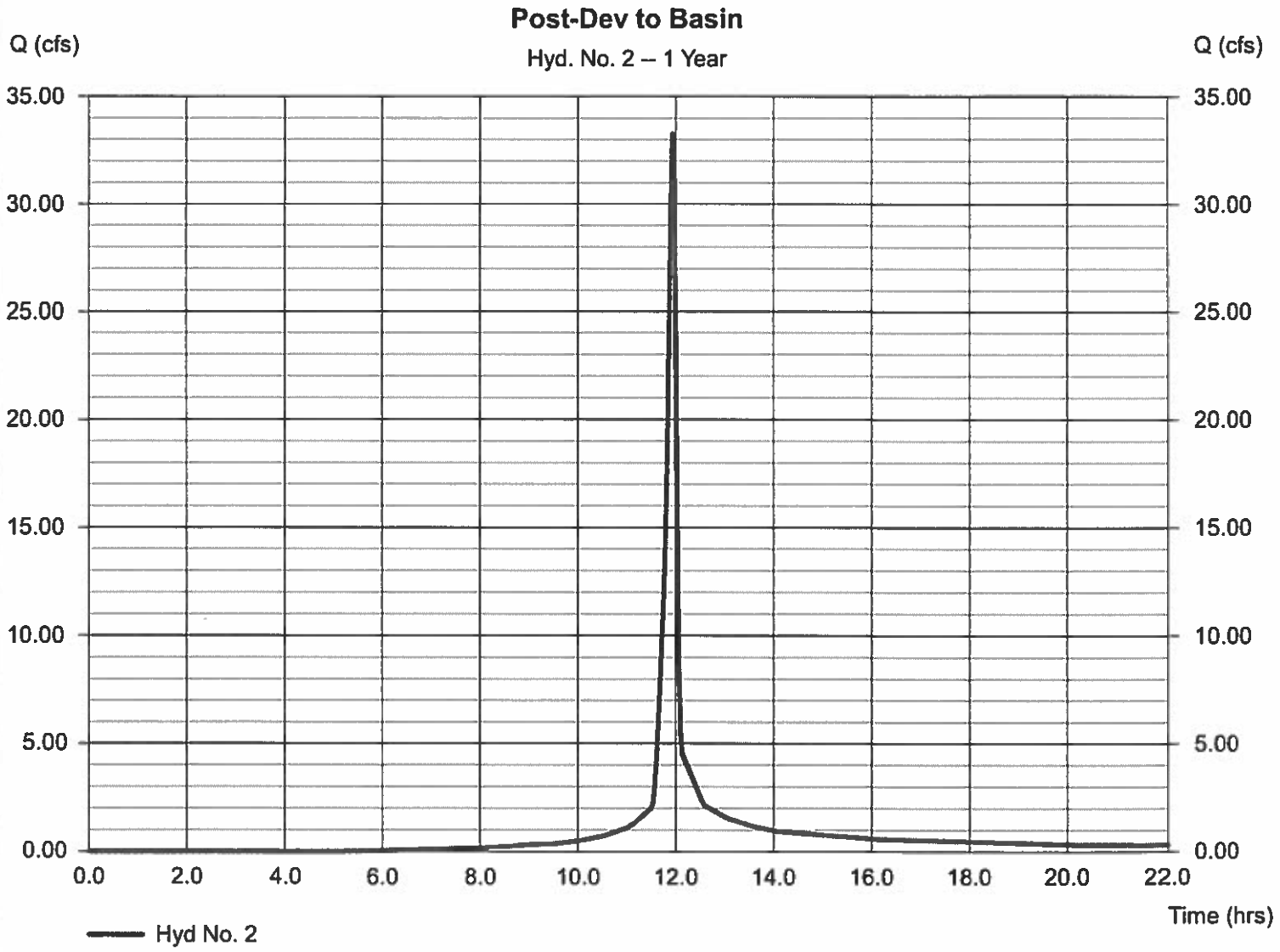
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 33.28 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 69,451 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

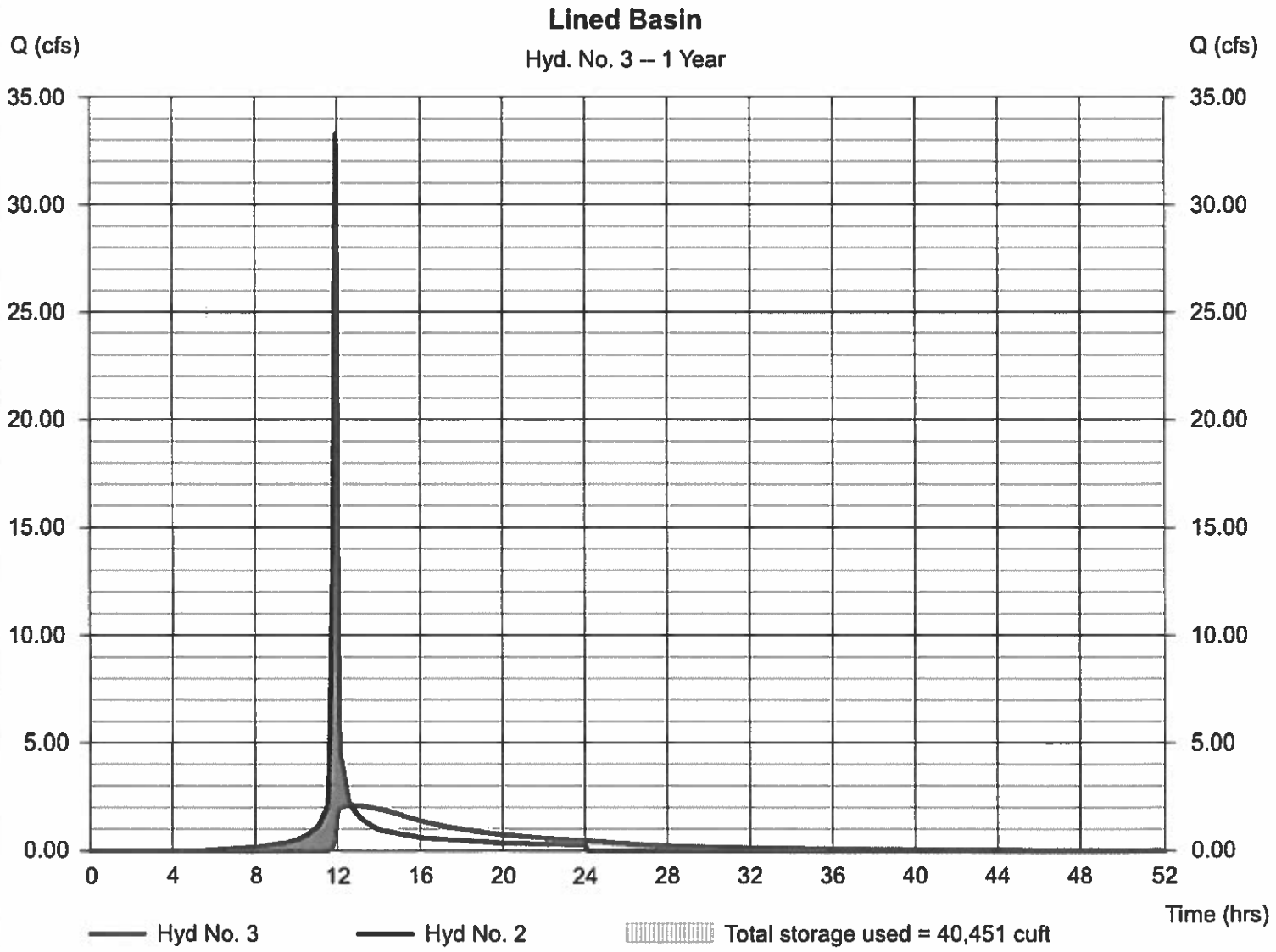
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 2.096 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.60 hrs
Time interval	= 2 min	Hyd. volume	= 61,377 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 14.59 ft
Reservoir name	= Lined Basin	Max. Storage	= 40,451 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Pond No. 1 - Lined Basin

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 13.85 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	13.85	53,404	0	0
0.15	14.00	53,807	8,040	8,040
1.15	15.00	56,522	55,153	63,193
2.15	16.00	59,295	57,897	121,091
3.15	17.00	62,123	60,697	181,788
4.15	18.00	65,009	63,554	245,342

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	6.00	0.00	0.00
Span (in)	= 24.00	18.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 11.45	14.00	0.00	0.00
Length (ft)	= 183.00	0.00	0.00	0.00
Slope (%)	= 0.50	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)	= 12.00	20.00	0.00	0.00
Crest El. (ft)	= 15.25	16.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Rect	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

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	13.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.15	8,040	14.00	14.92 oc	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.15	63,193	15.00	14.92 oc	3.13 ic	---	---	0.00	0.00	---	---	---	---	3.127
2.15	121,091	16.00	23.05 oc	2.06 ic	---	---	20.98 s	0.00	---	---	---	---	23.05
3.15	181,788	17.00	27.35 oc	0.77 ic	---	---	26.55 s	52.00	---	---	---	---	79.32
4.15	245,342	18.00	30.36 oc	0.47 ic	---	---	29.83 s	147.08	---	---	---	---	177.38

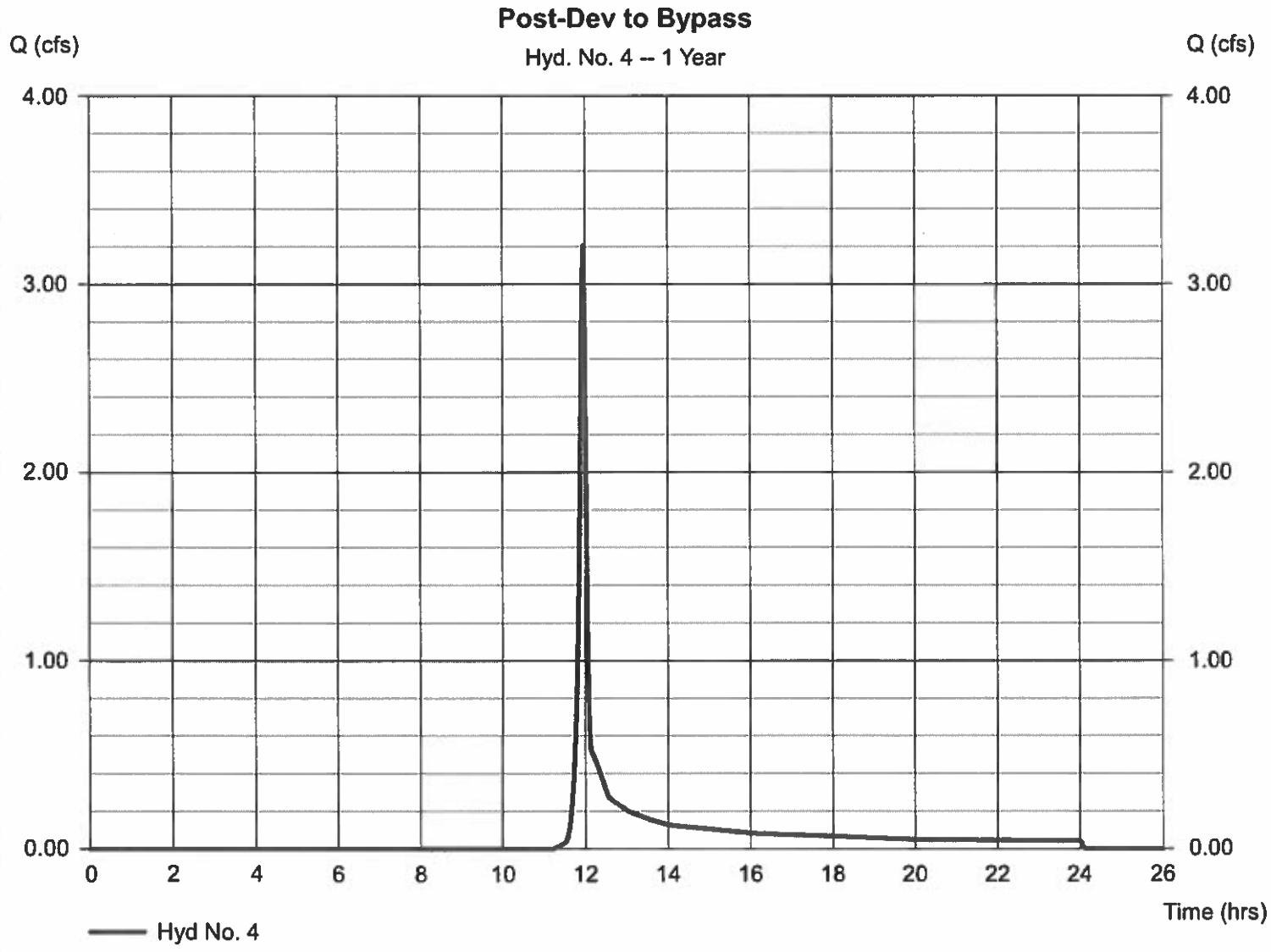
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 3.205 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 6,476 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.70 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



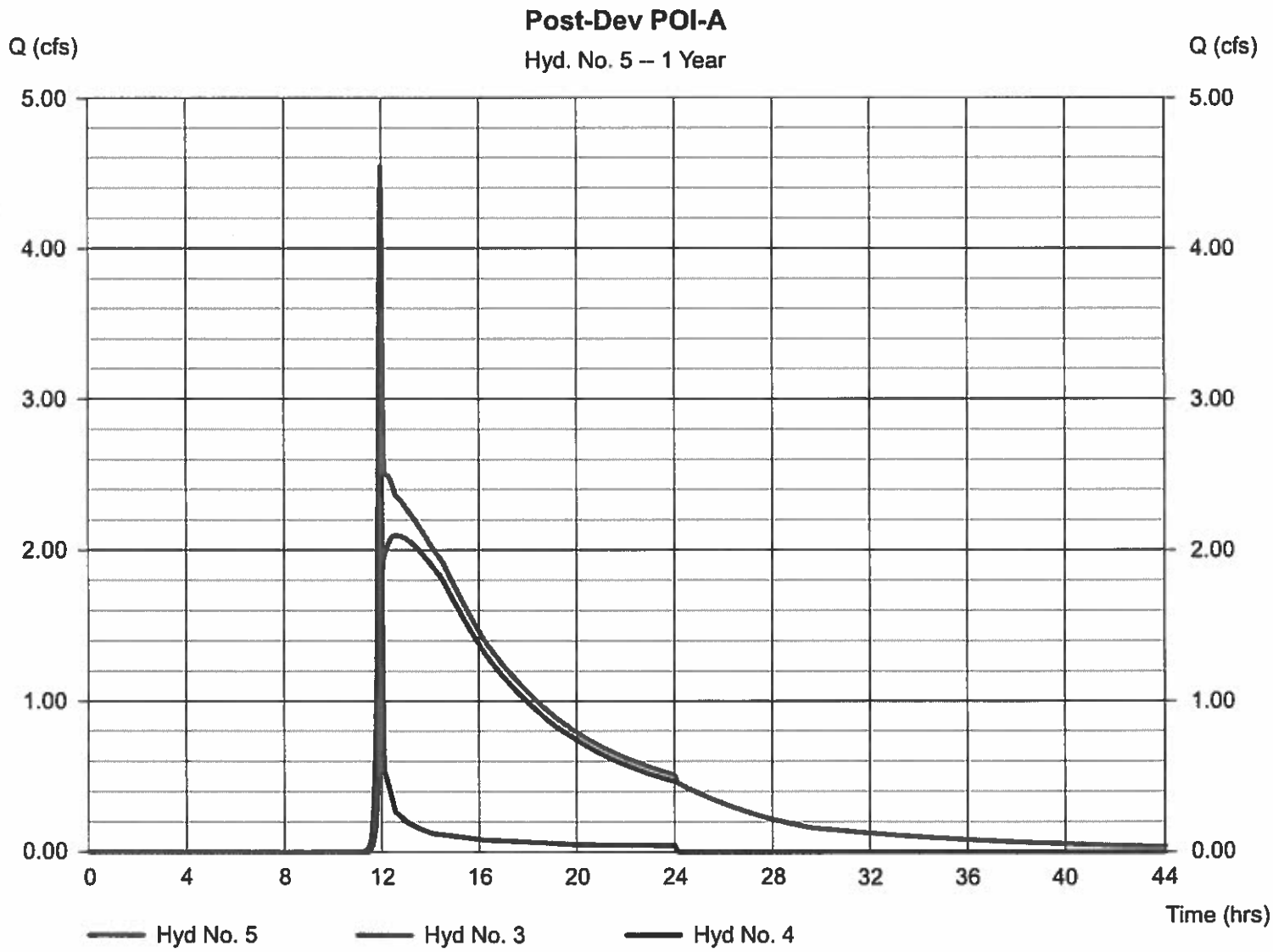
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 4.546 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 67,853 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	26.34	2	718	52,722	----	------	------	Pre-Dev POI-A
2	SCS Runoff	42.68	2	716	90,390	----	------	------	Post-Dev to Basin
3	Reservoir	2.721	2	754	82,316	2	14.82	53,182	Lined Basin
4	SCS Runoff	4.882	2	718	9,769	----	------	------	Post-Dev to Bypass
5	Combine	7.008	2	718	92,085	3, 4	------	------	Post-Dev POI-A

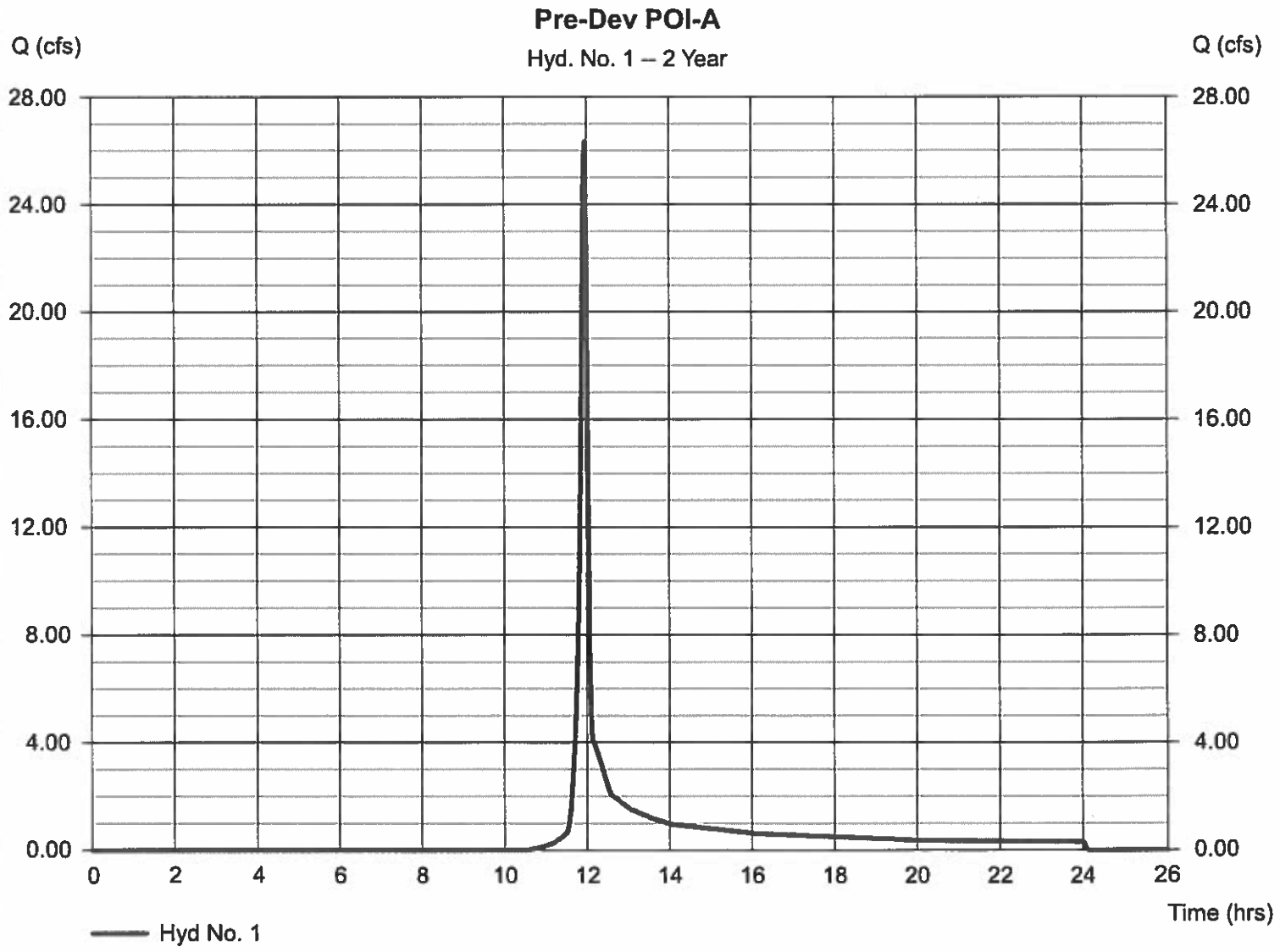
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 26.34 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 52,722 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



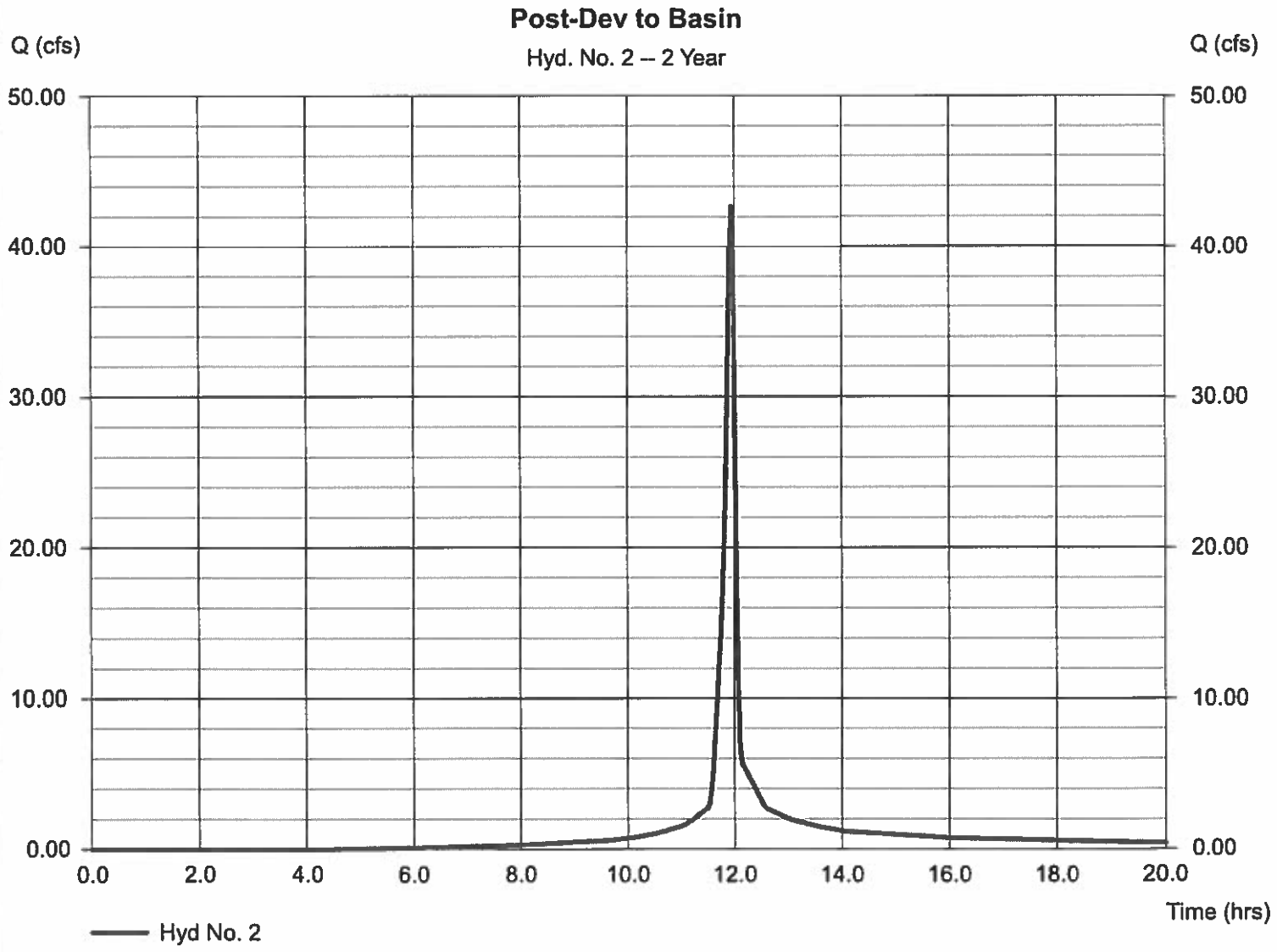
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 42.68 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 90,390 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

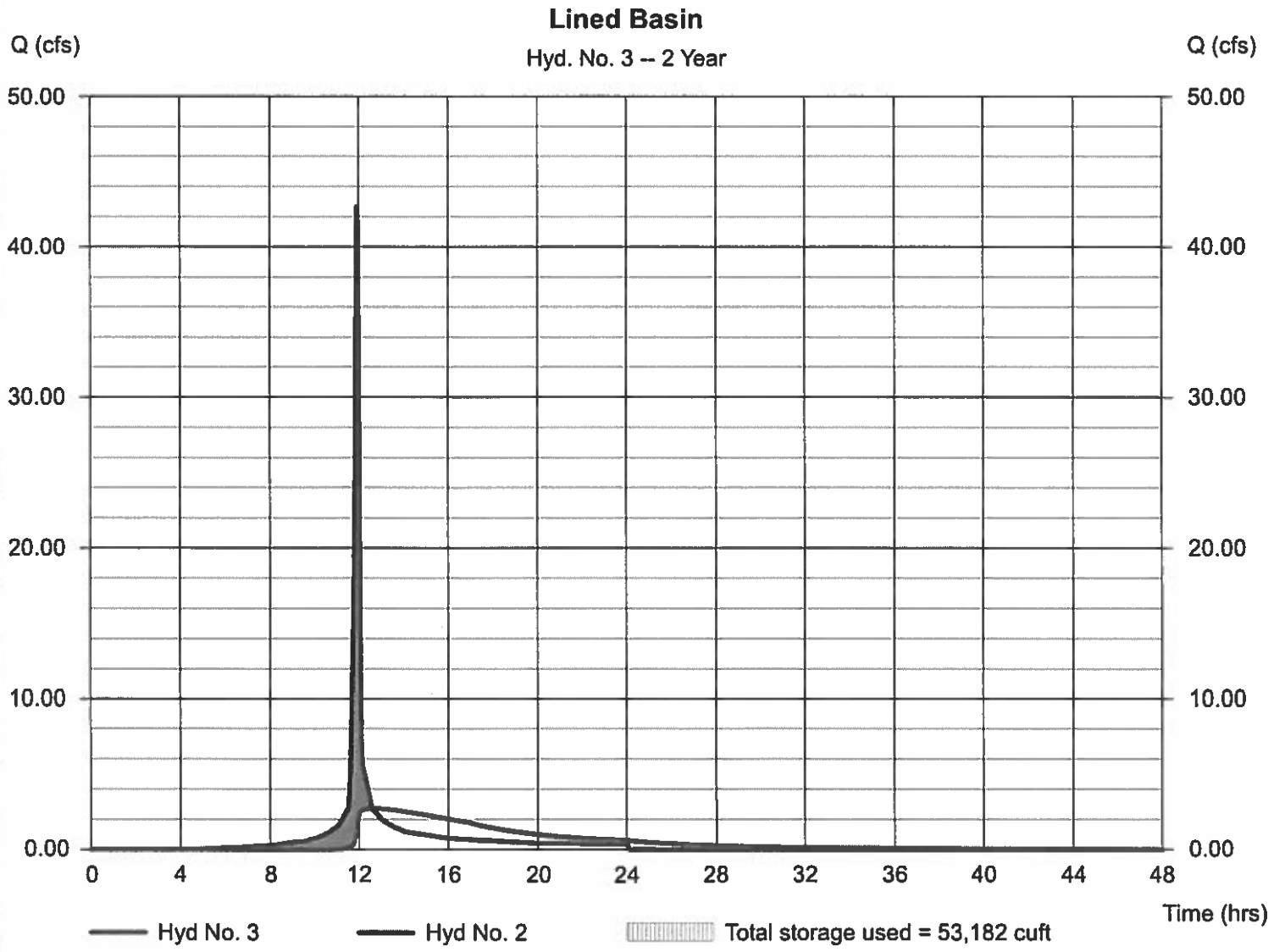
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 2.721 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.57 hrs
Time interval	= 2 min	Hyd. volume	= 82,316 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 14.82 ft
Reservoir name	= Lined Basin	Max. Storage	= 53,182 cuft

Storage Indication method used.



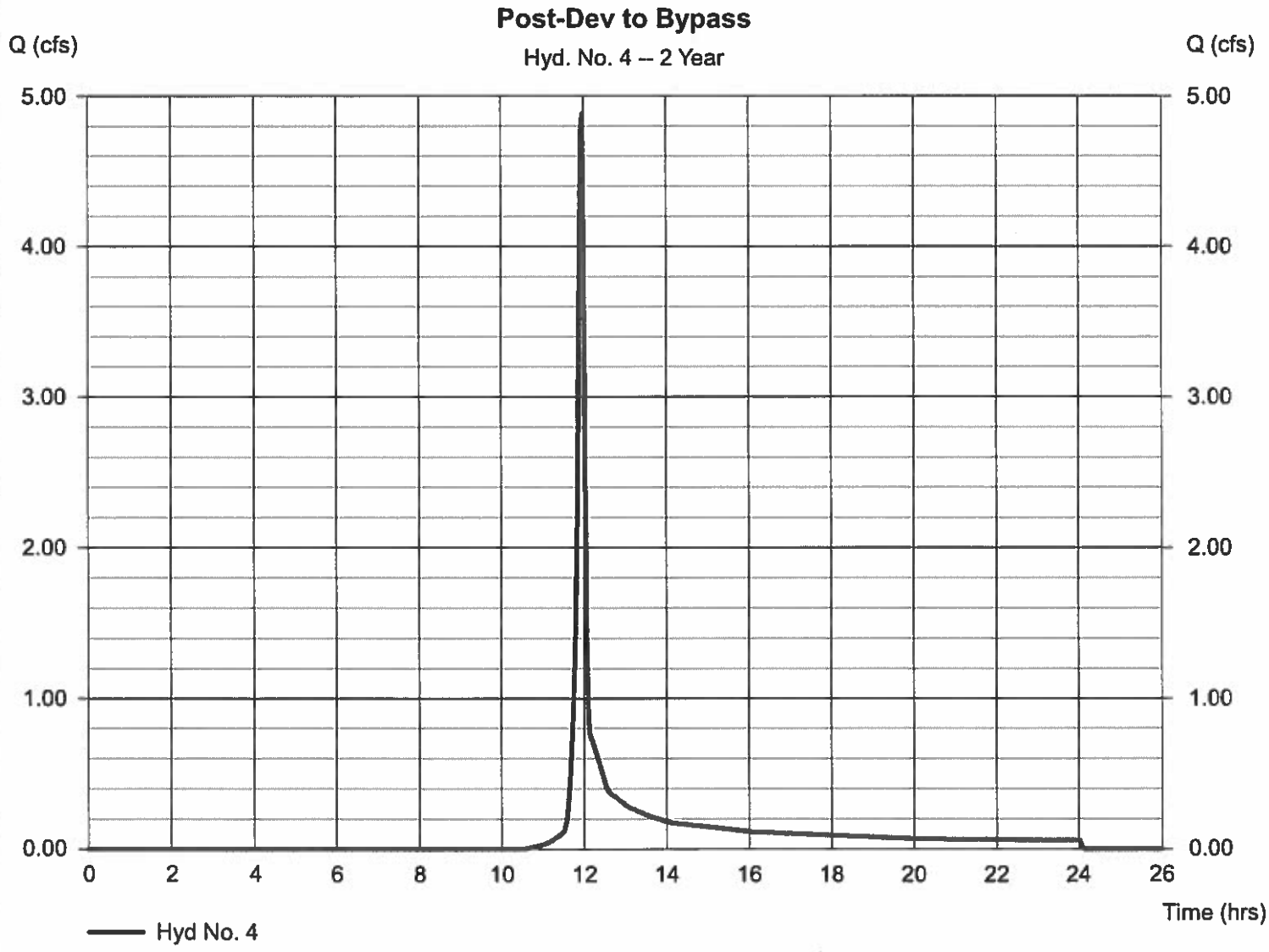
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 4.882 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 9,769 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.30 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



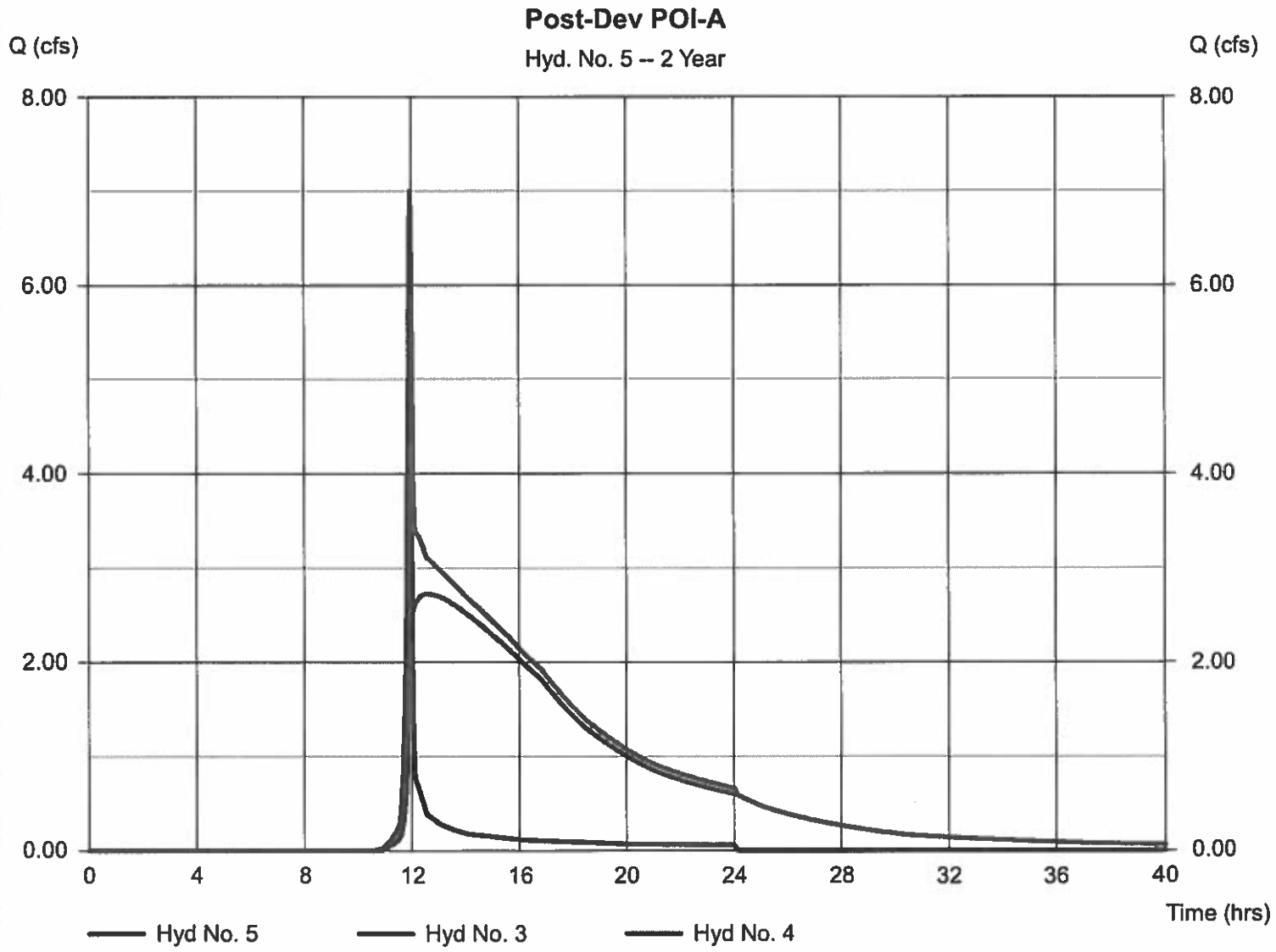
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 7.008 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 92,085 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	41.07	2	718	82,477	----	------	------	Pre-Dev POI-A
2	SCS Runoff	56.71	2	716	122,367	----	------	------	Post-Dev to Basin
3	Reservoir	3.456	2	756	114,293	2	15.17	72,833	Lined Basin
4	SCS Runoff	7.609	2	718	15,283	----	------	------	Post-Dev to Bypass
5	Combine	10.47	2	718	129,575	3, 4	------	------	Post-Dev POI-A

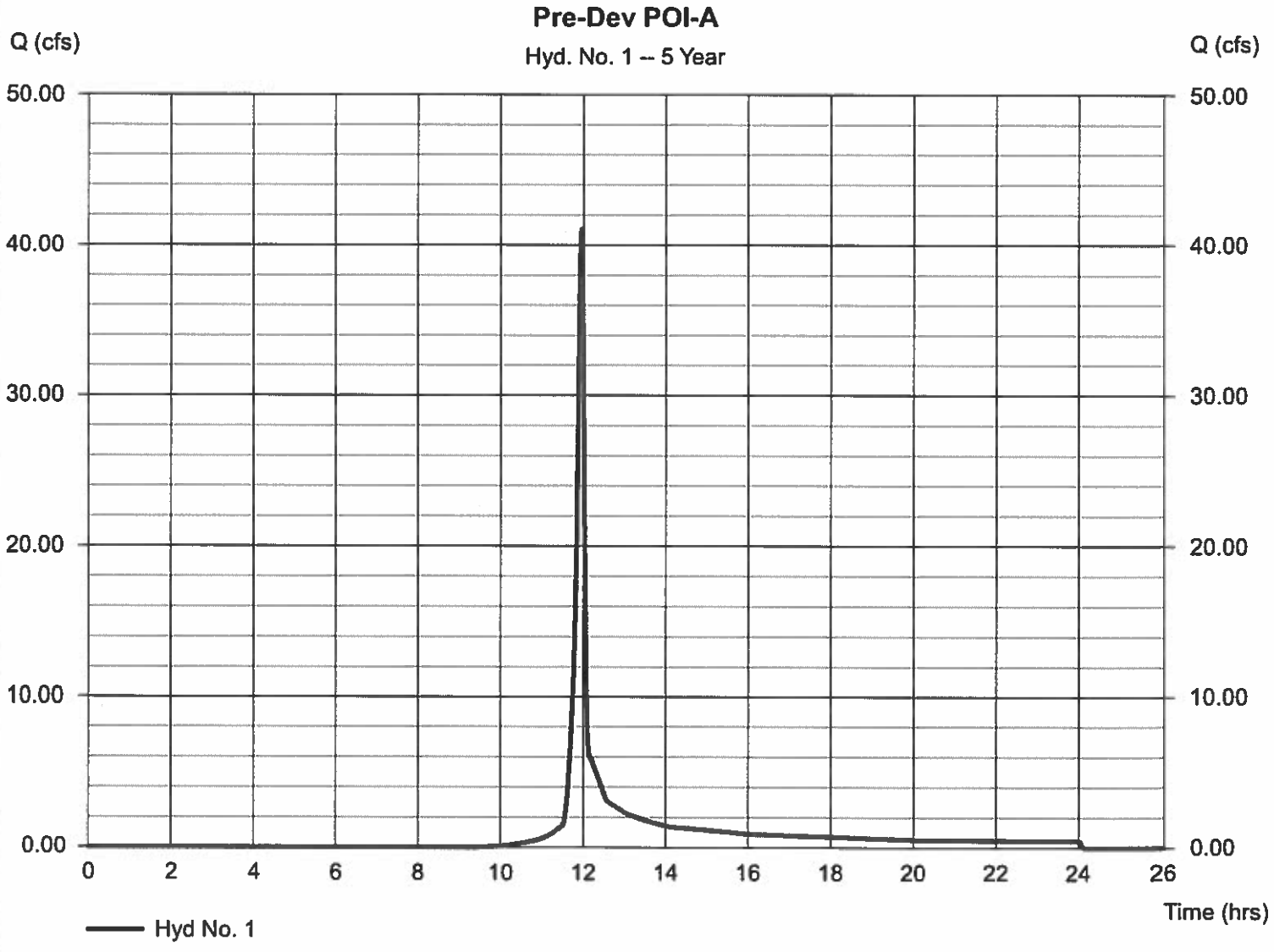
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 41.07 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 82,477 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



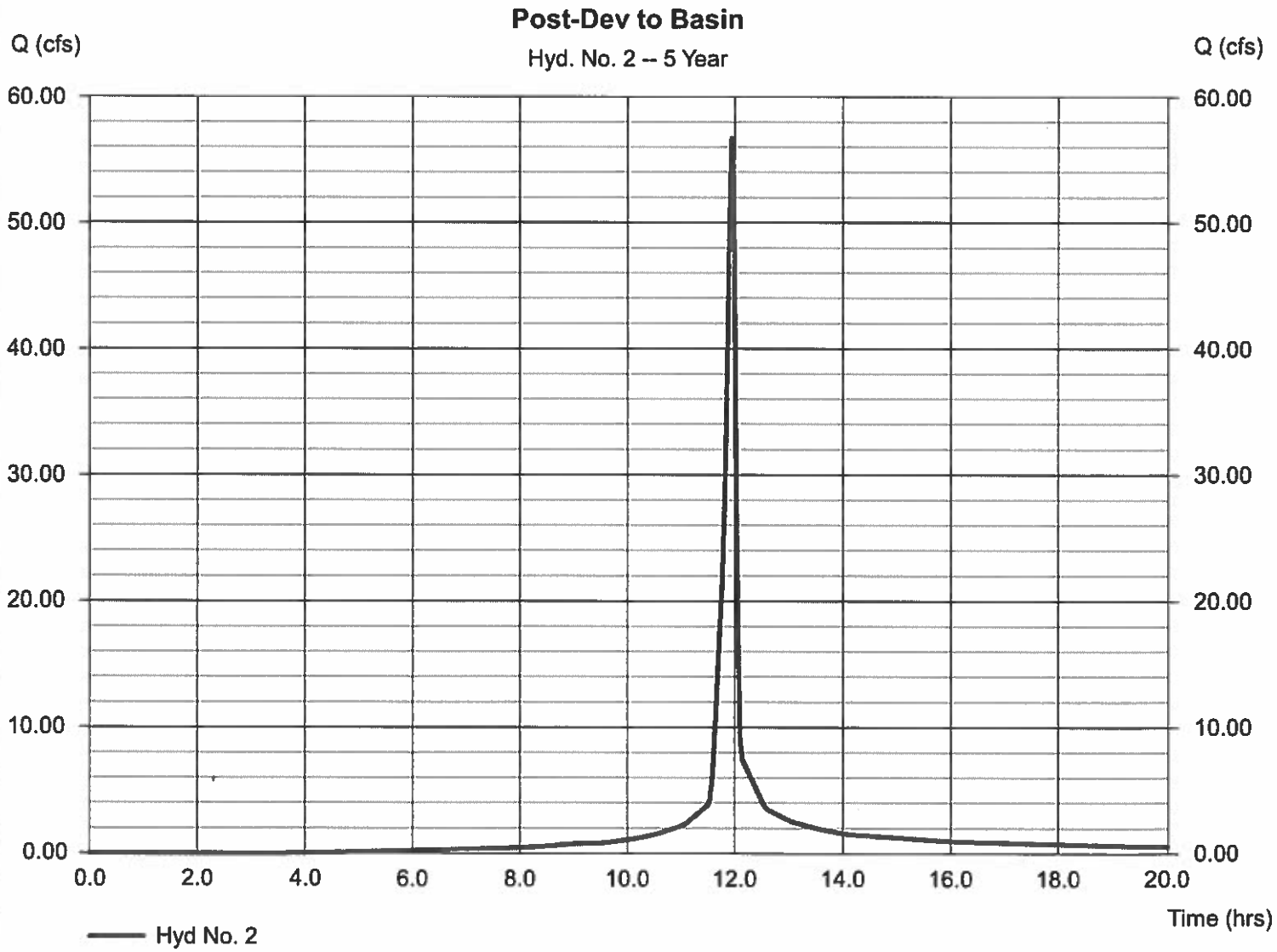
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 56.71 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 122,367 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

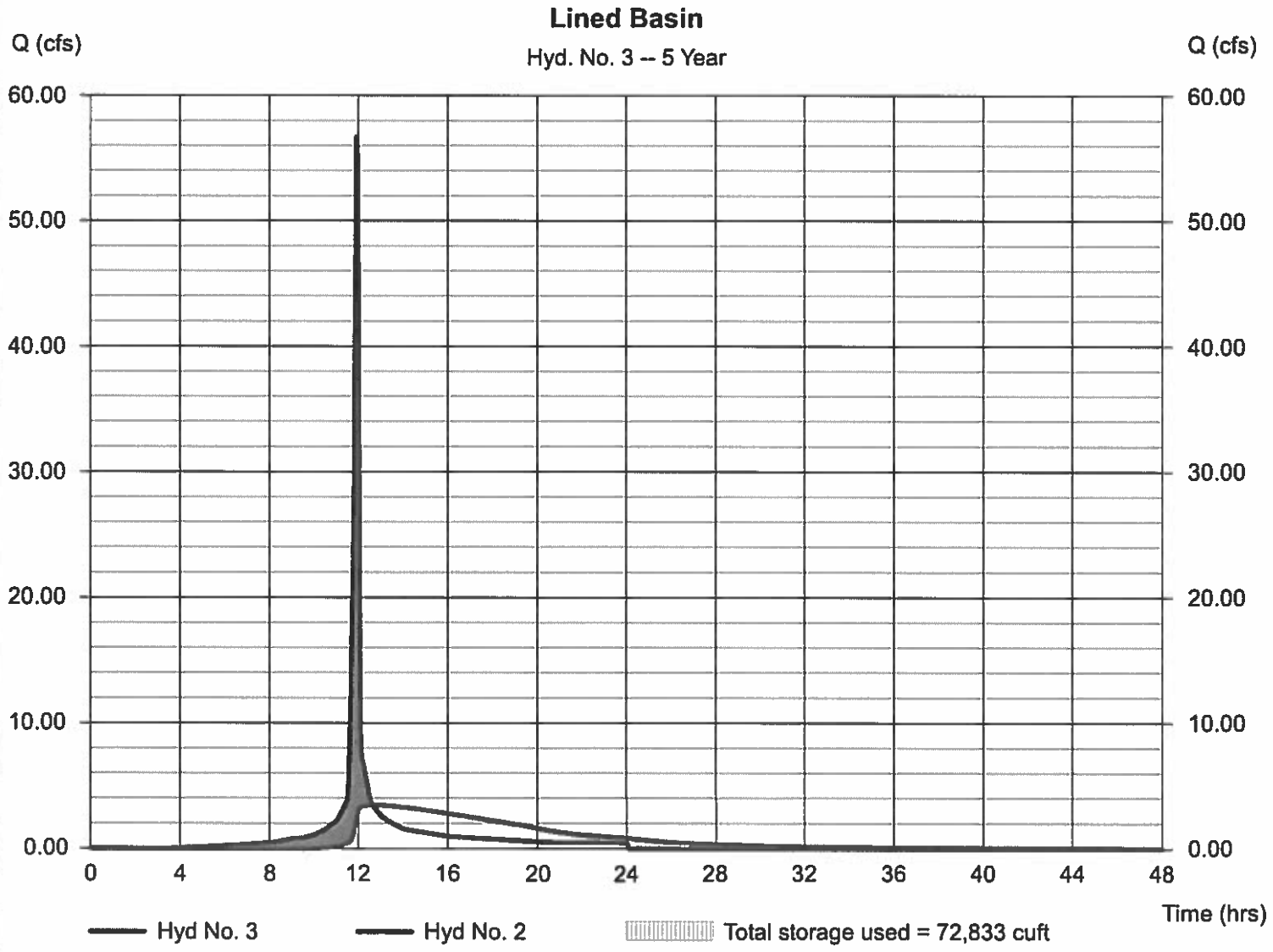
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 3.456 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.60 hrs
Time interval	= 2 min	Hyd. volume	= 114,293 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 15.17 ft
Reservoir name	= Lined Basin	Max. Storage	= 72,833 cuft

Storage Indication method used.



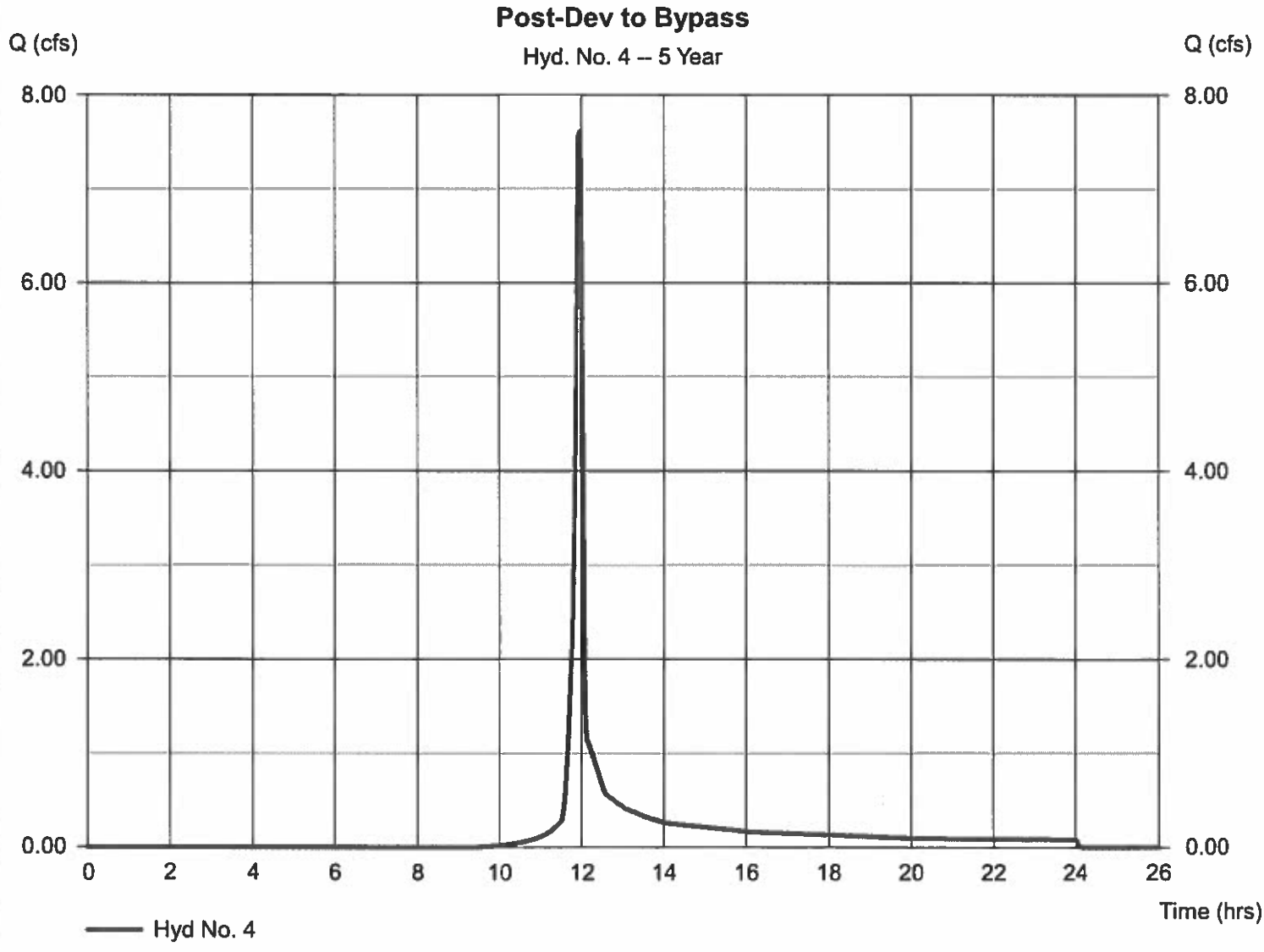
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 7.609 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 15,283 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



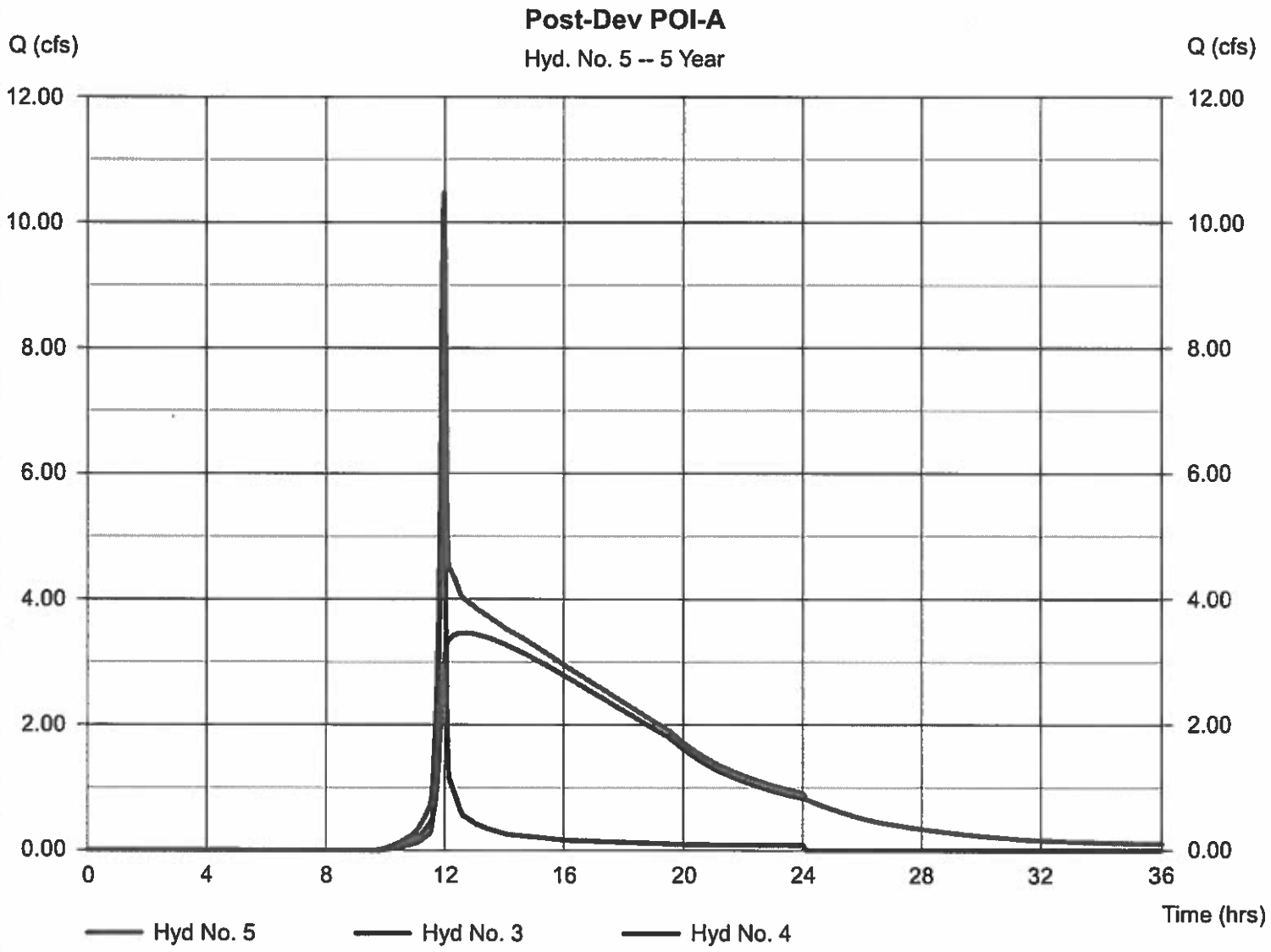
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 10.47 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 129,575 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	55.02	2	716	111,108	---	------	------	Pre-Dev POI-A
2	SCS Runoff	69.09	2	716	151,131	---	------	------	Post-Dev to Basin
3	Reservoir	6.411	2	742	143,057	2	15.41	86,795	Lined Basin
4	SCS Runoff	10.19	2	716	20,588	---	------	------	Post-Dev to Bypass
5	Combine	13.54	2	718	163,645	3, 4	------	------	Post-Dev POI-A

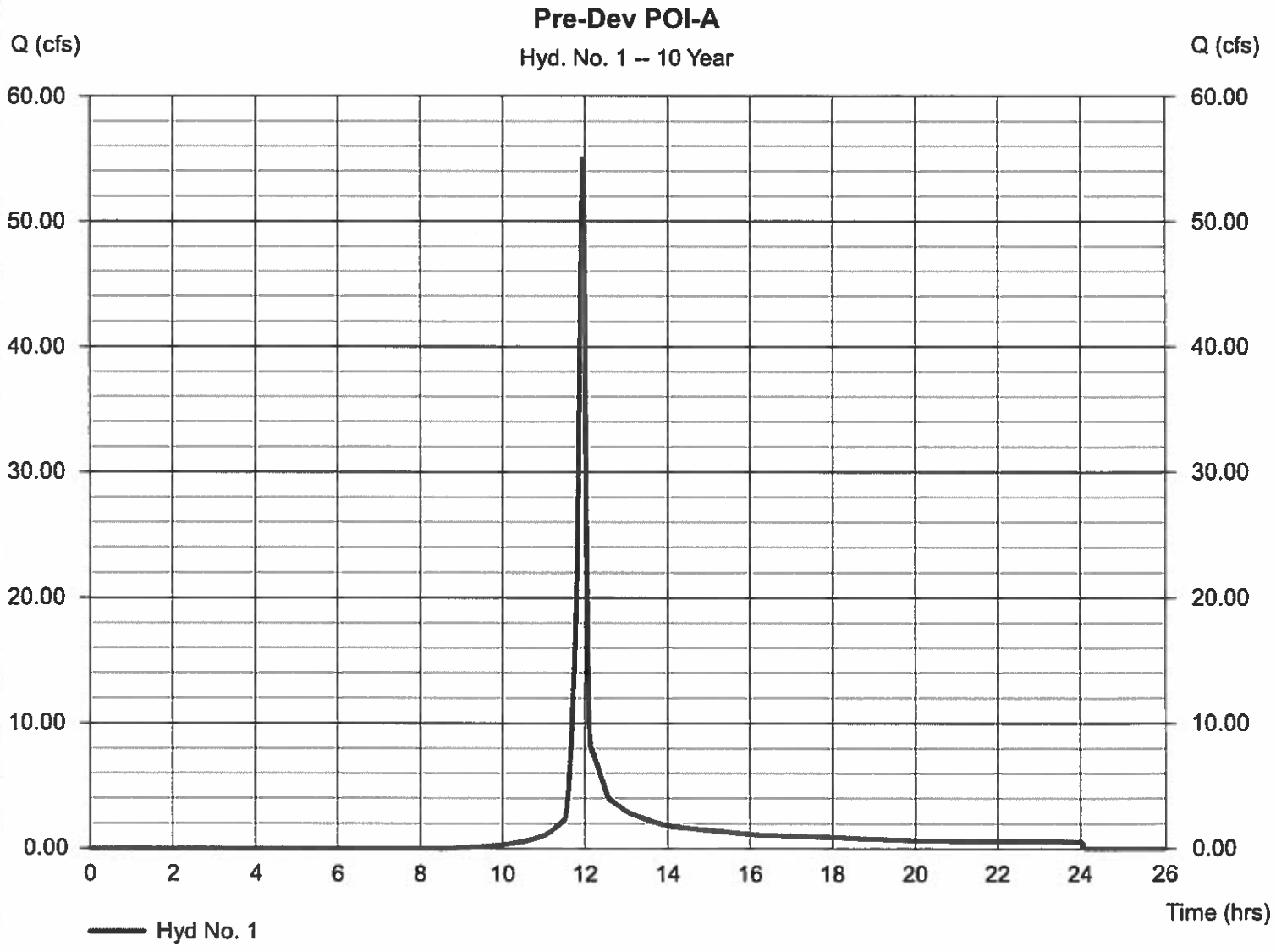
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 55.02 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 111,108 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



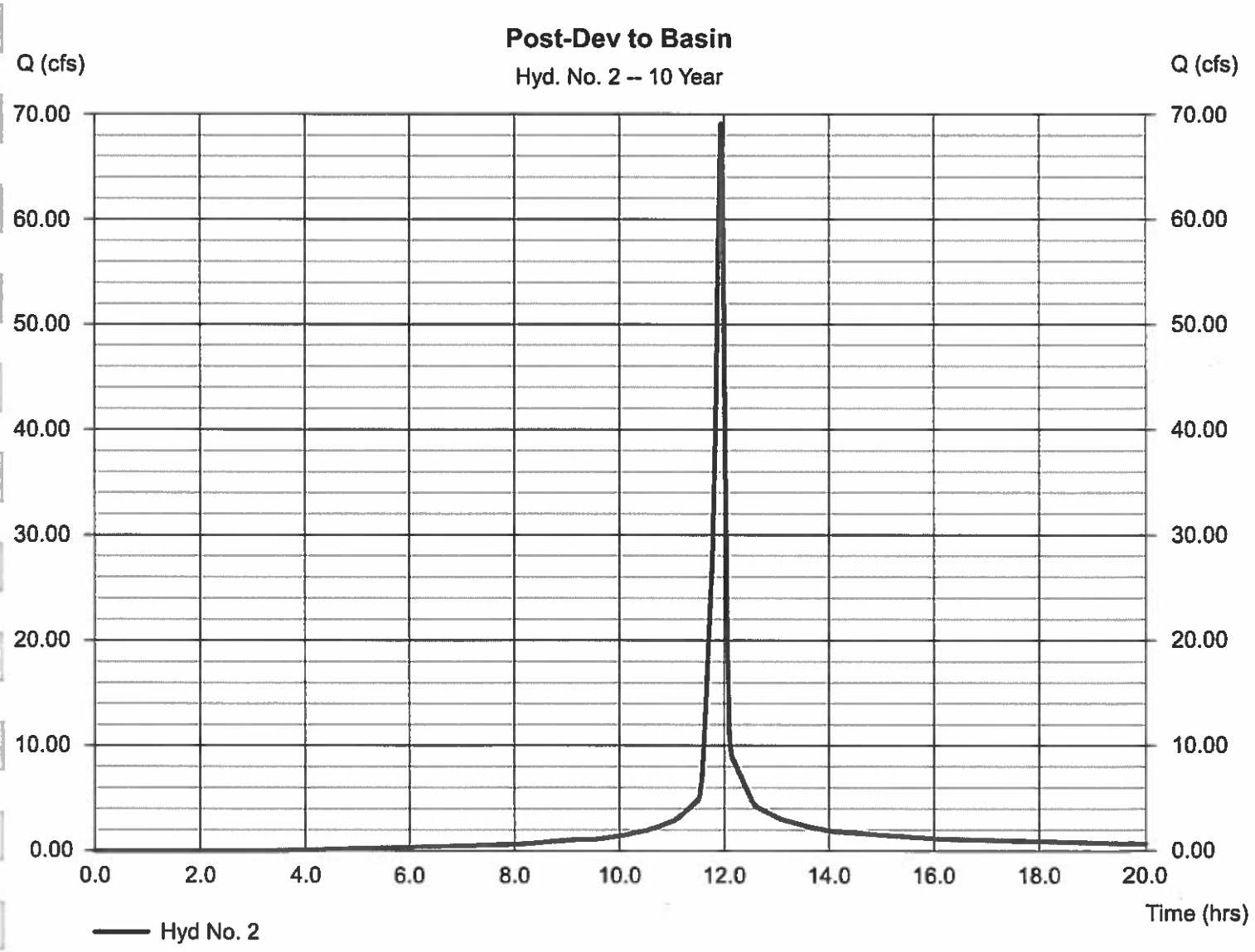
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 69.09 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 151,131 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

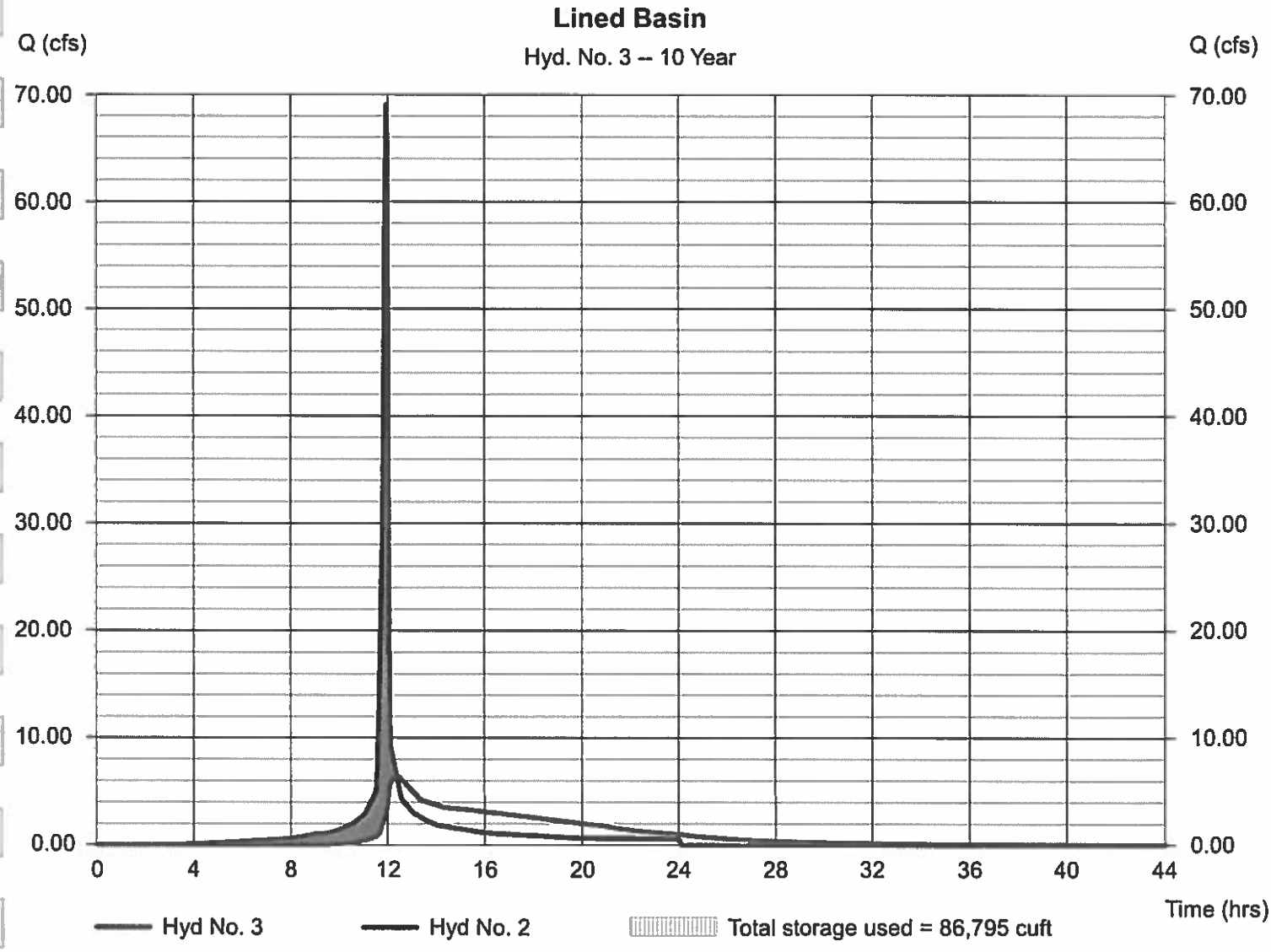
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 6.411 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 143,057 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 15.41 ft
Reservoir name	= Lined Basin	Max. Storage	= 86,795 cuft

Storage Indication method used.



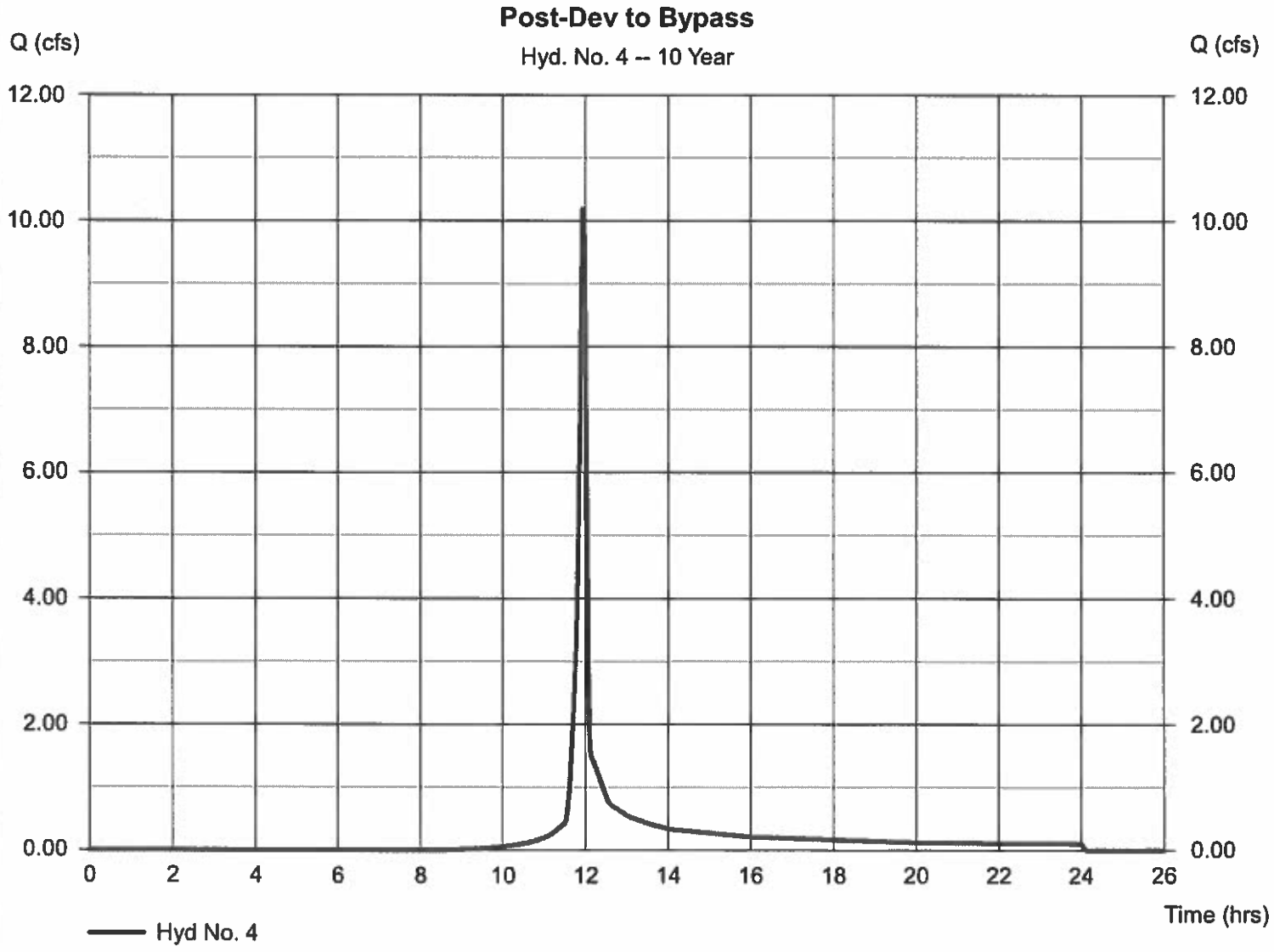
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 10.19 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 20,588 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



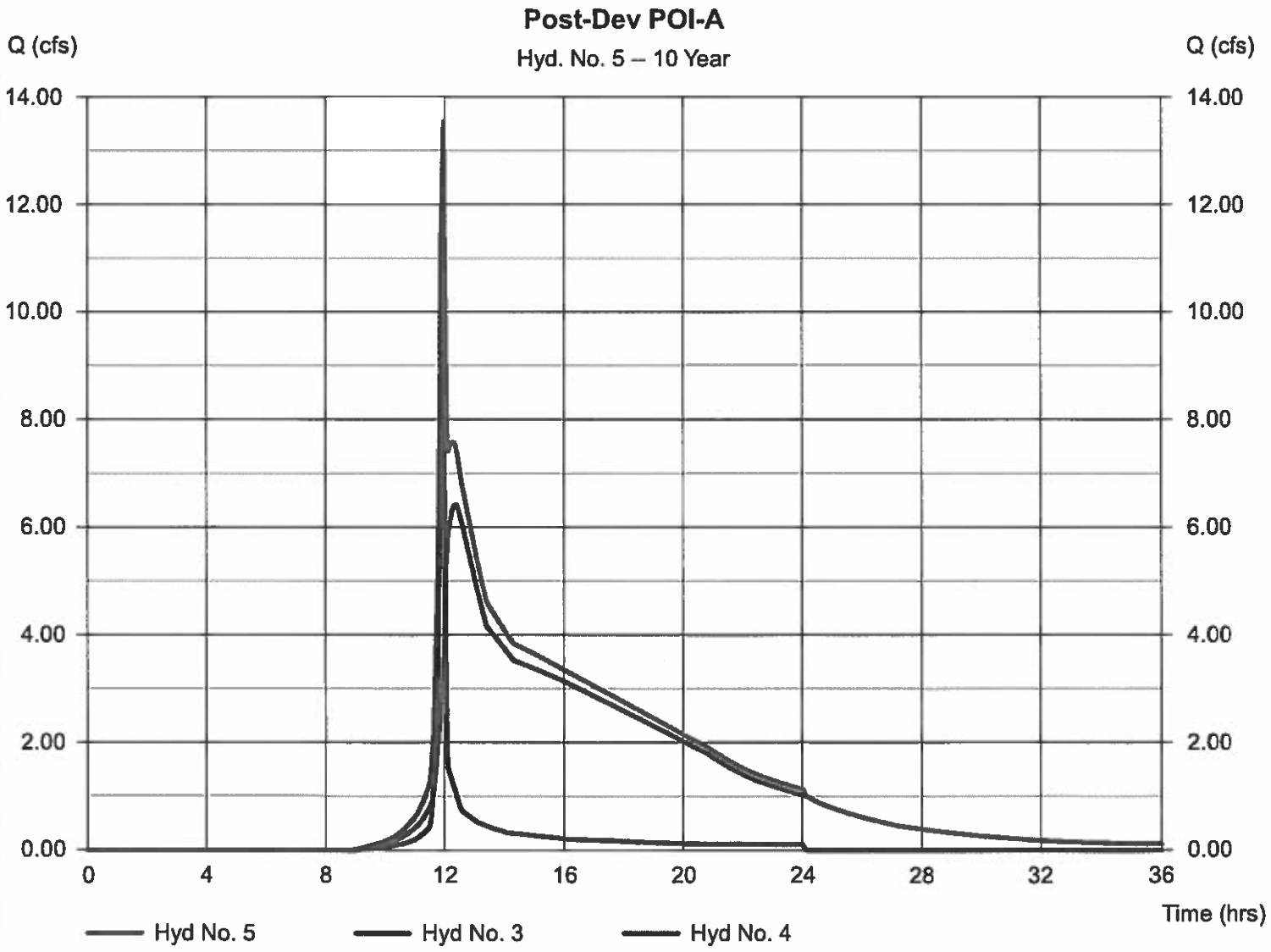
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 13.54 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 163,645 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	69.73	2	716	141,187	---	------	------	Pre-Dev POI-A
2	SCS Runoff	81.40	2	716	180,093	---	------	------	Post-Dev to Basin
3	Reservoir	12.90	2	726	172,019	2	15.61	98,568	Lined Basin
4	SCS Runoff	12.92	2	716	26,161	---	------	------	Post-Dev to Bypass
5	Combine	18.79	2	720	198,181	3, 4	------	------	Post-Dev POI-A

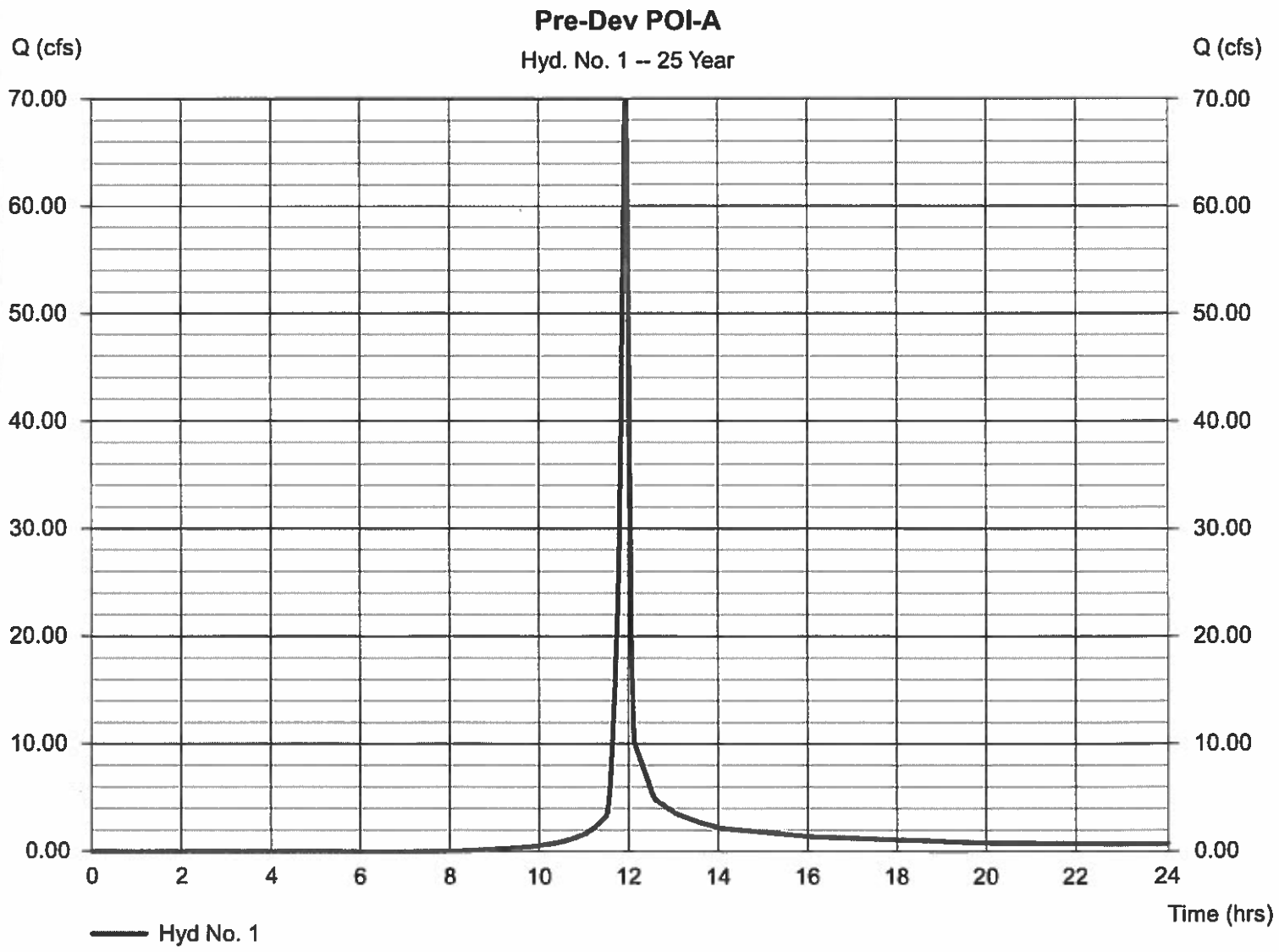
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 69.73 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 141,187 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



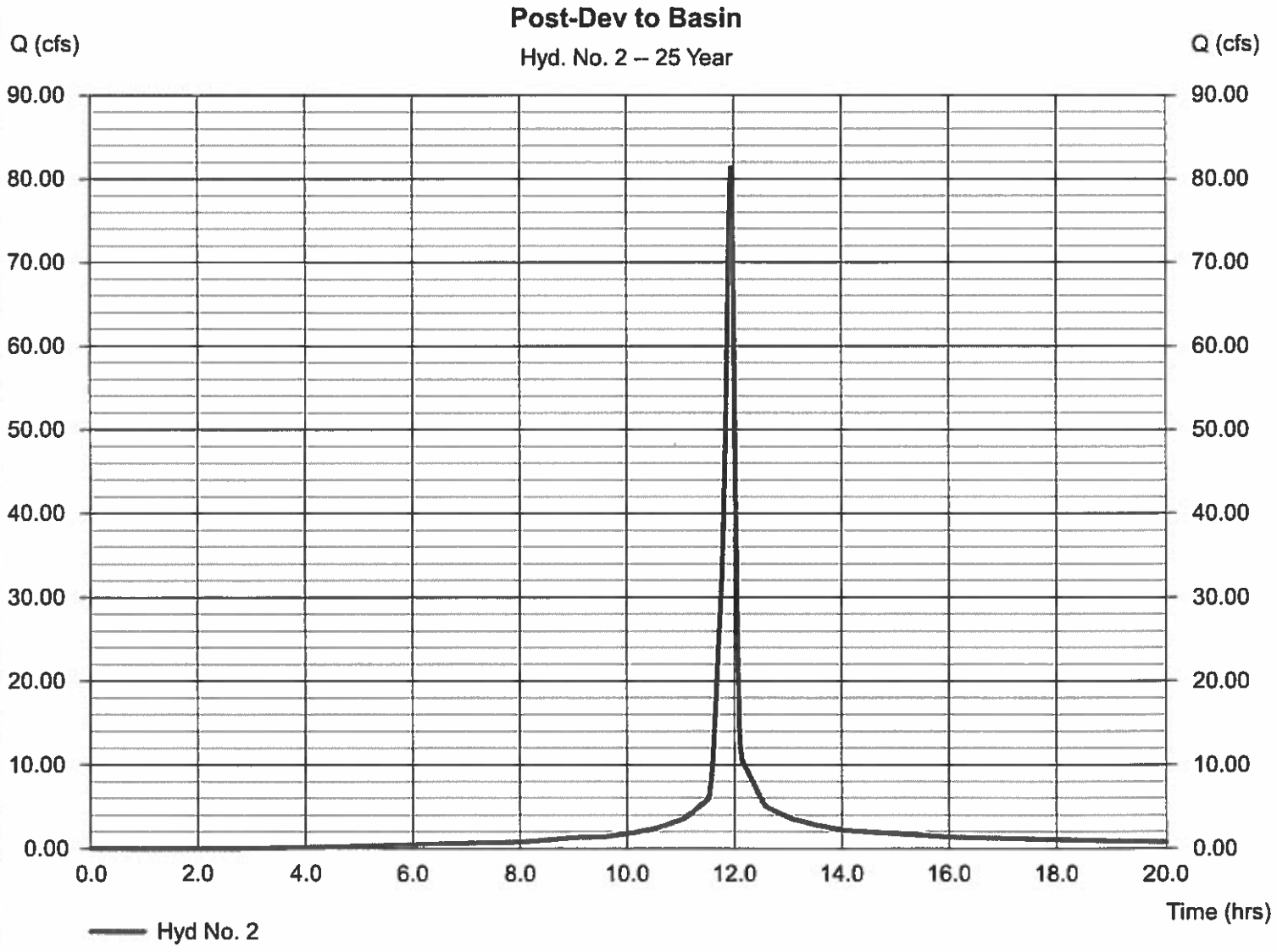
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 81.40 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 180,093 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

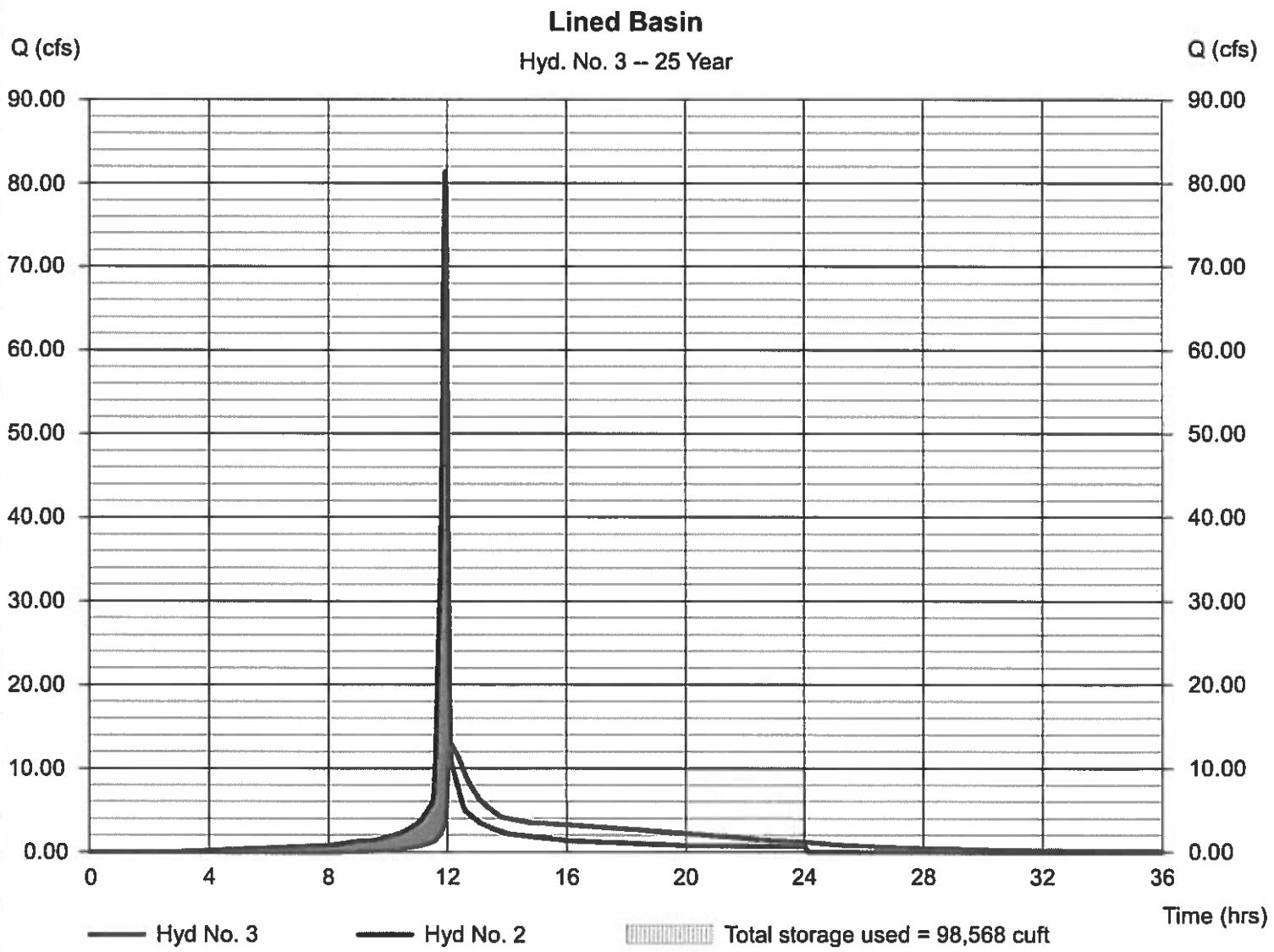
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 12.90 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 172,019 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 15.61 ft
Reservoir name	= Lined Basin	Max. Storage	= 98,568 cuft

Storage Indication method used.



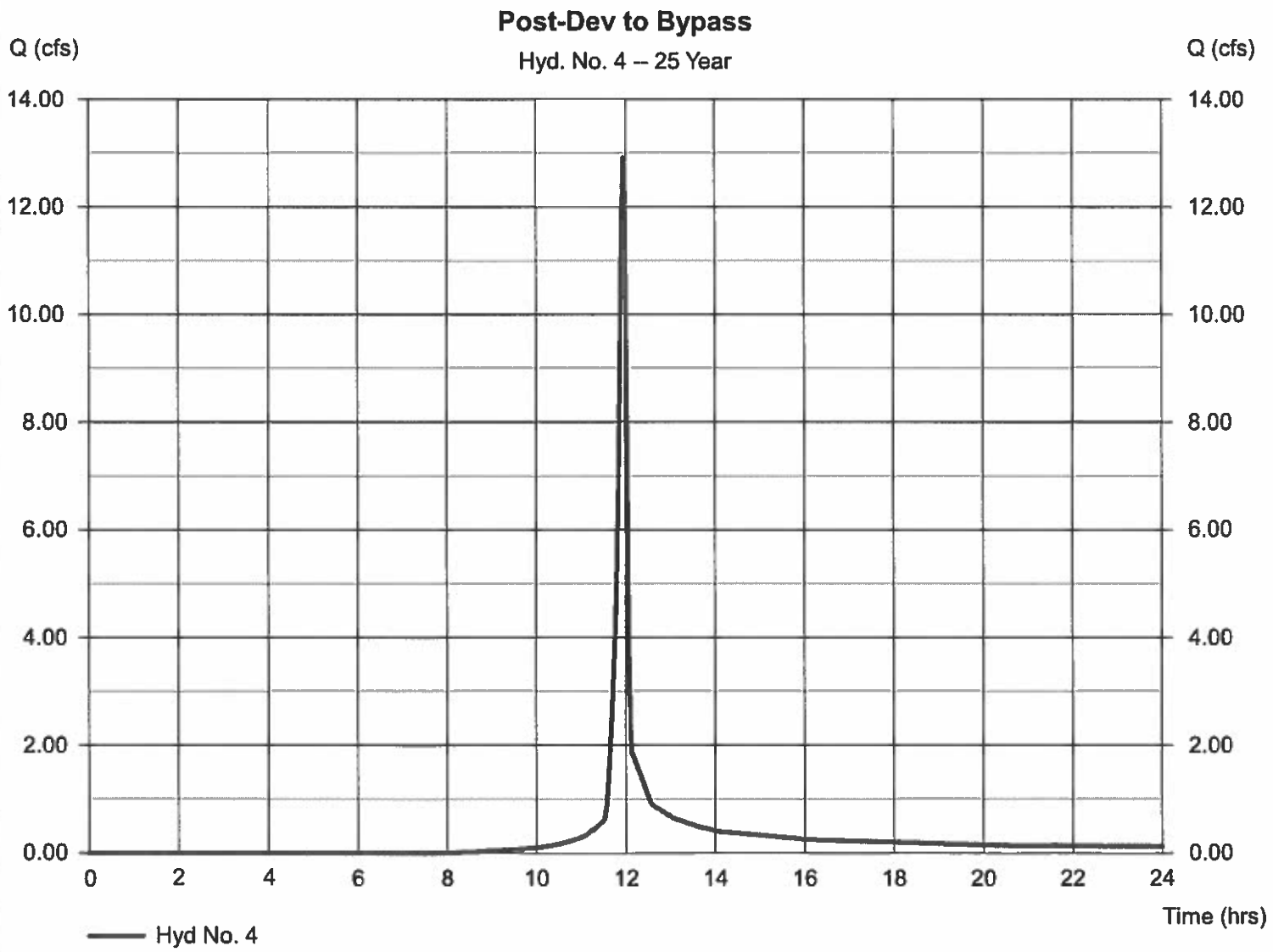
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 12.92 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 26,161 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



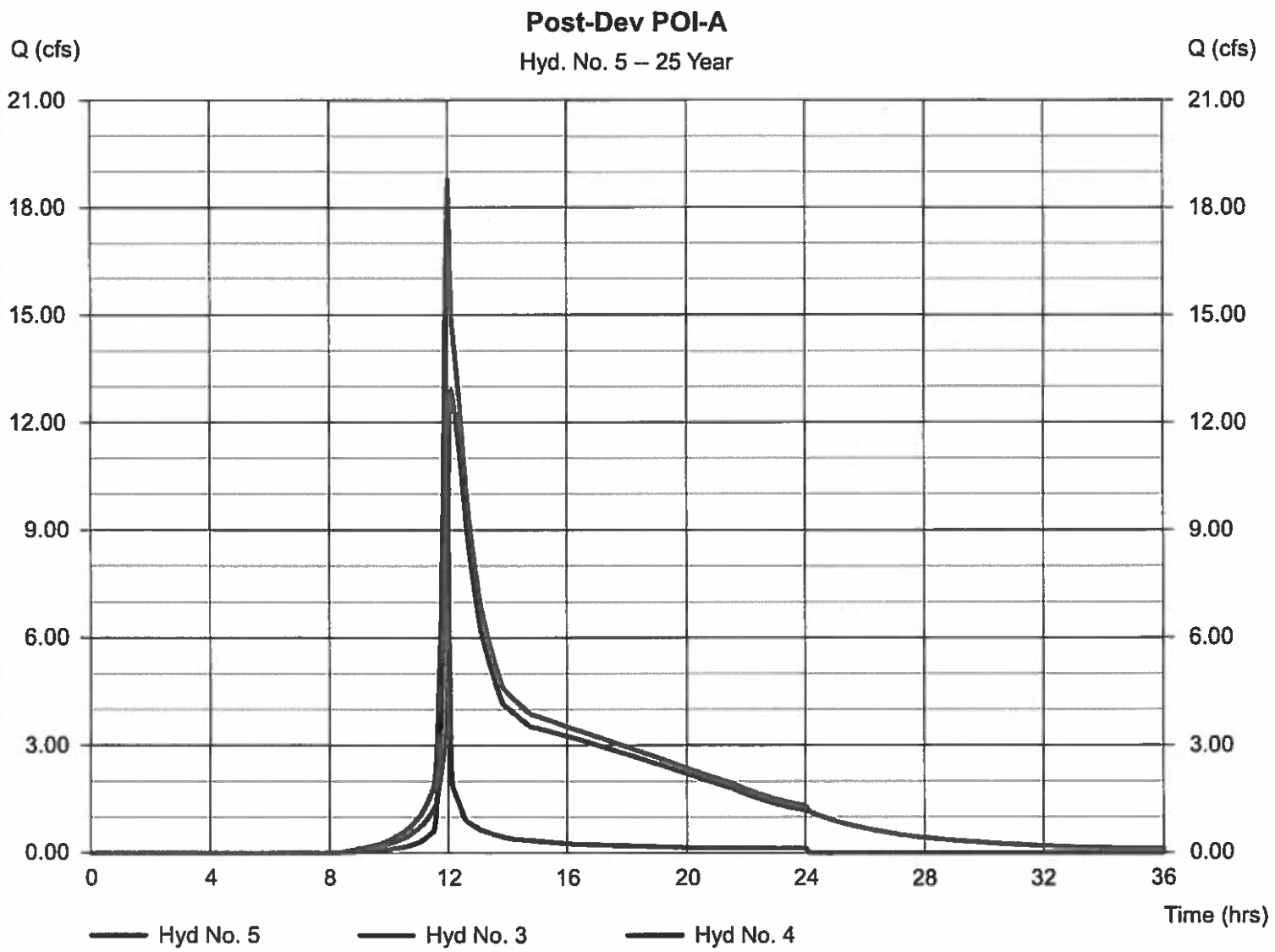
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 18.79 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 198,181 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	80.97	2	716	164,466	----	----	----	Pre-Dev POI-A
2	SCS Runoff	90.58	2	716	201,905	----	----	----	Post-Dev to Basin
3	Reservoir	18.65	2	726	193,830	2	15.77	107,535	Lined Basin
4	SCS Runoff	15.00	2	716	30,475	----	----	----	Post-Dev to Bypass
5	Combine	26.40	2	720	224,305	3, 4	----	----	Post-Dev POI-A

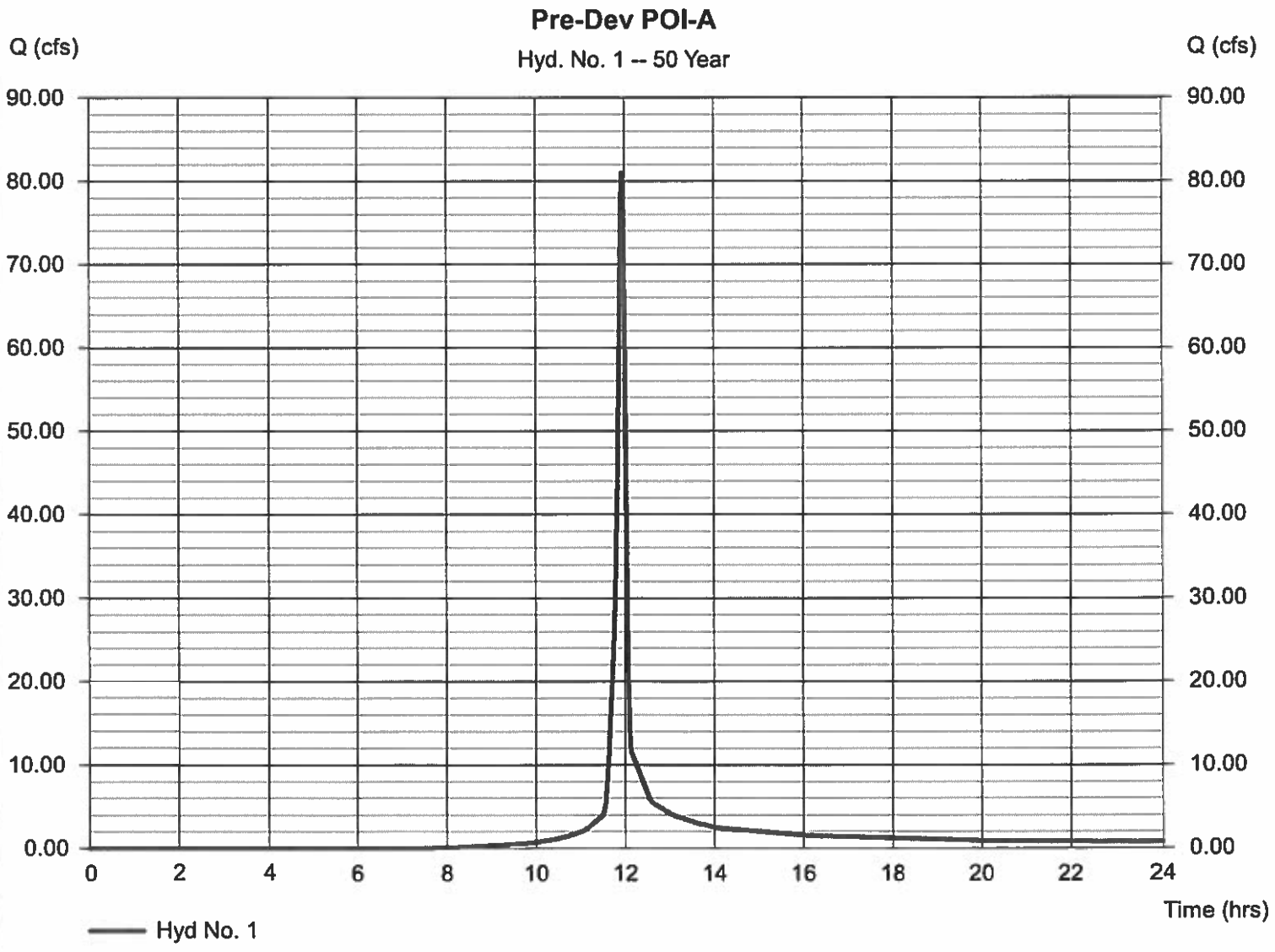
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 80.97 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 164,466 cuft
Drainage area	= 13.330 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



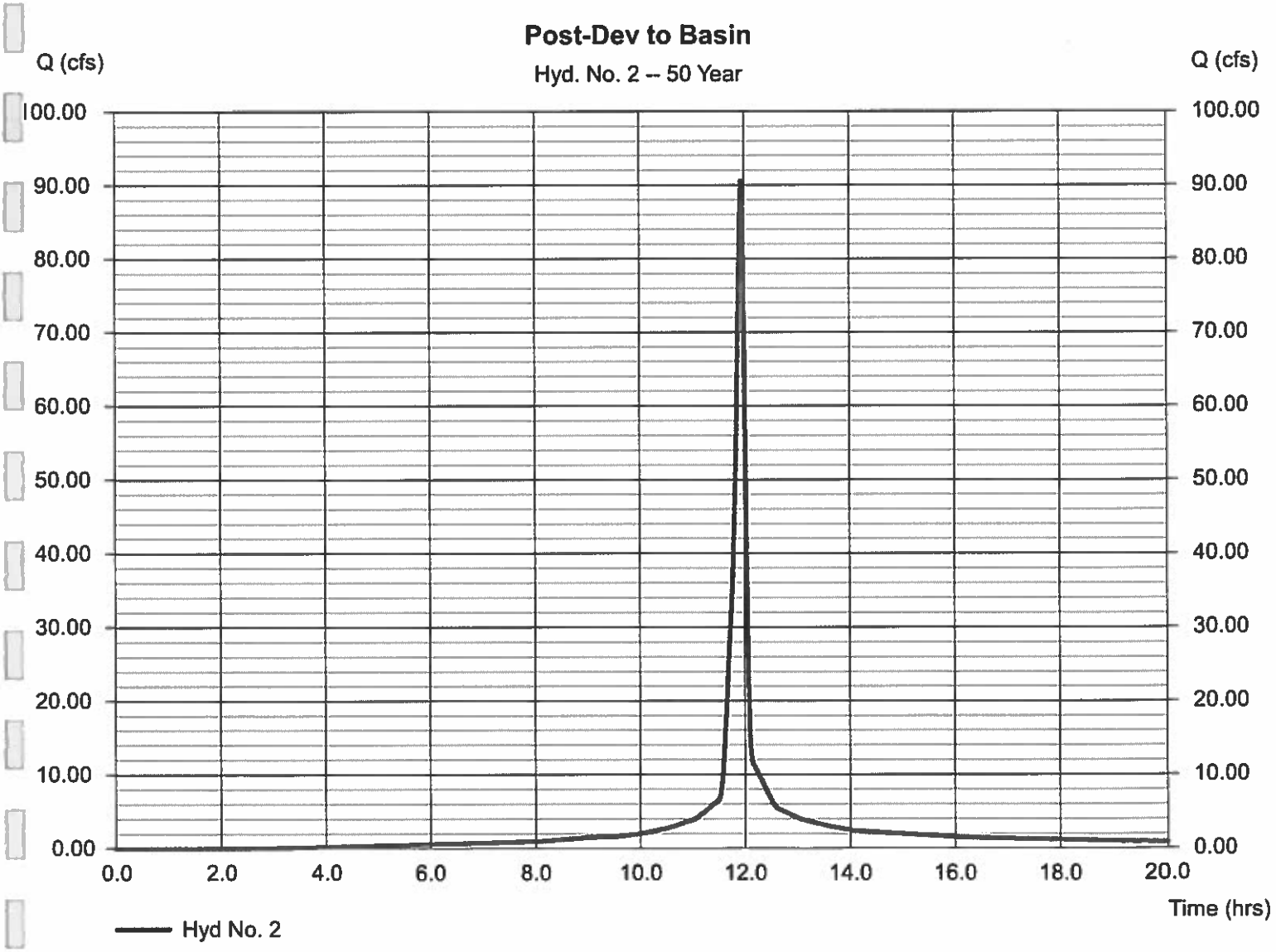
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 90.58 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 201,905 cuft
Drainage area	= 10.860 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

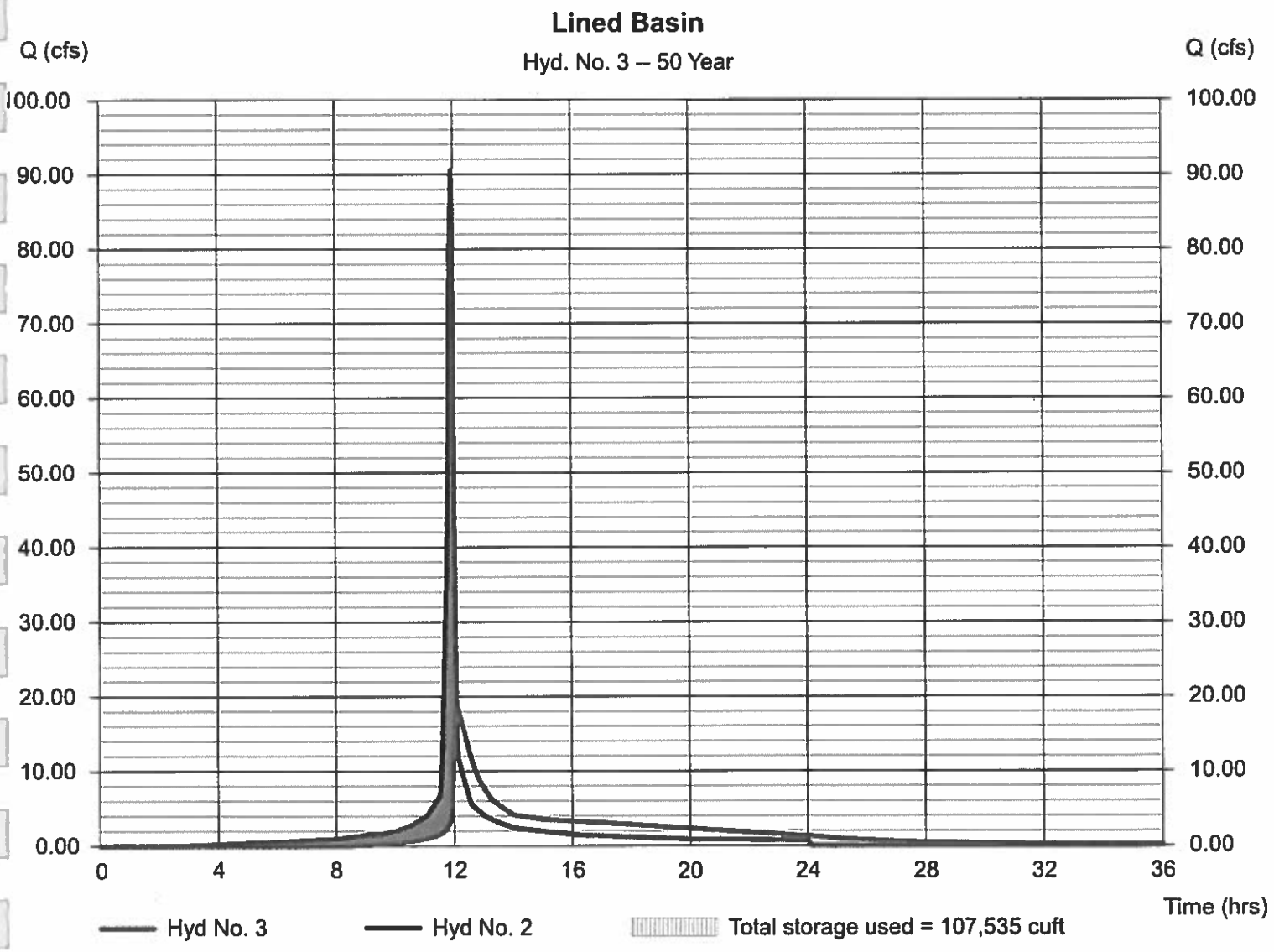
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 18.65 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 193,830 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 15.77 ft
Reservoir name	= Lined Basin	Max. Storage	= 107,535 cuft

Storage Indication method used.



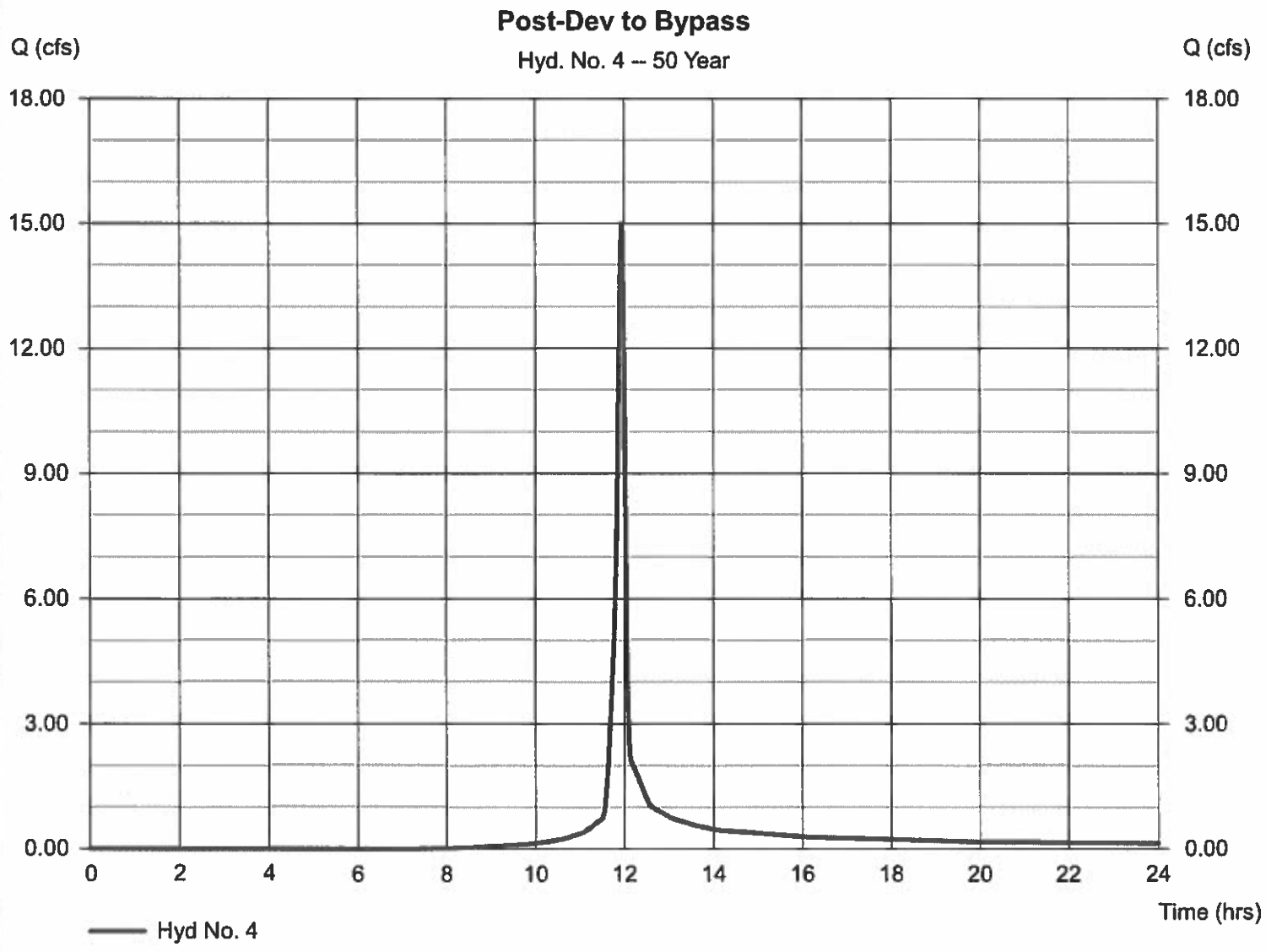
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 15.00 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 30,475 cuft
Drainage area	= 2.470 ac	Curve number	= 75
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



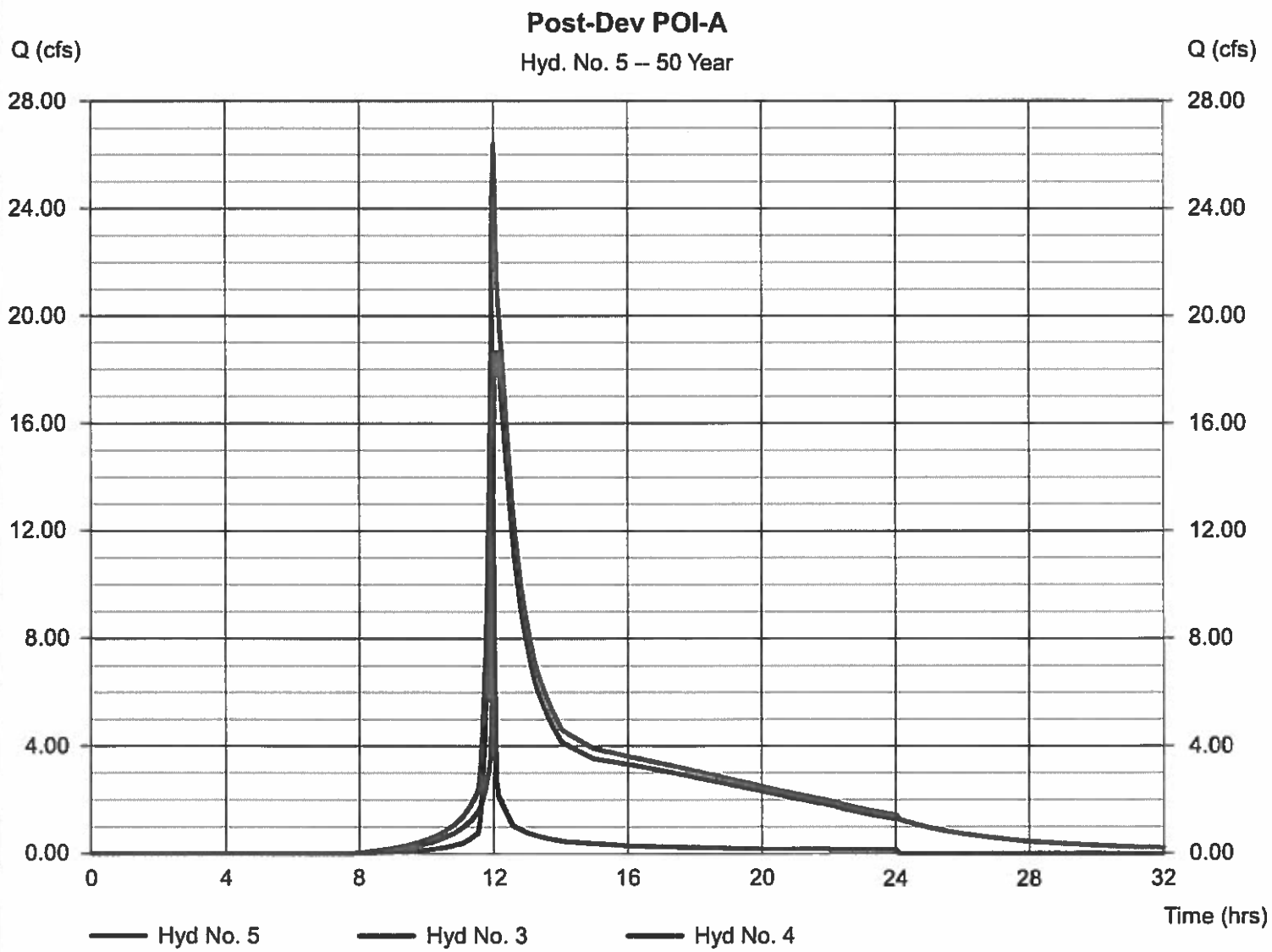
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 26.40 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 224,305 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.22

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	96.13	2	716	196,249	----	------	------	Pre-Dev POI-A
2	SCS Runoff	102.79	2	716	231,072	----	------	------	Post-Dev to Basin
3	Reservoir	22.88	2	724	222,997	2	15.98	120,003	Lined Basin
4	SCS Runoff	17.81	2	716	36,364	----	------	------	Post-Dev to Bypass
5	Combine	35.27	2	720	259,361	3, 4	------	------	Post-Dev POI-A

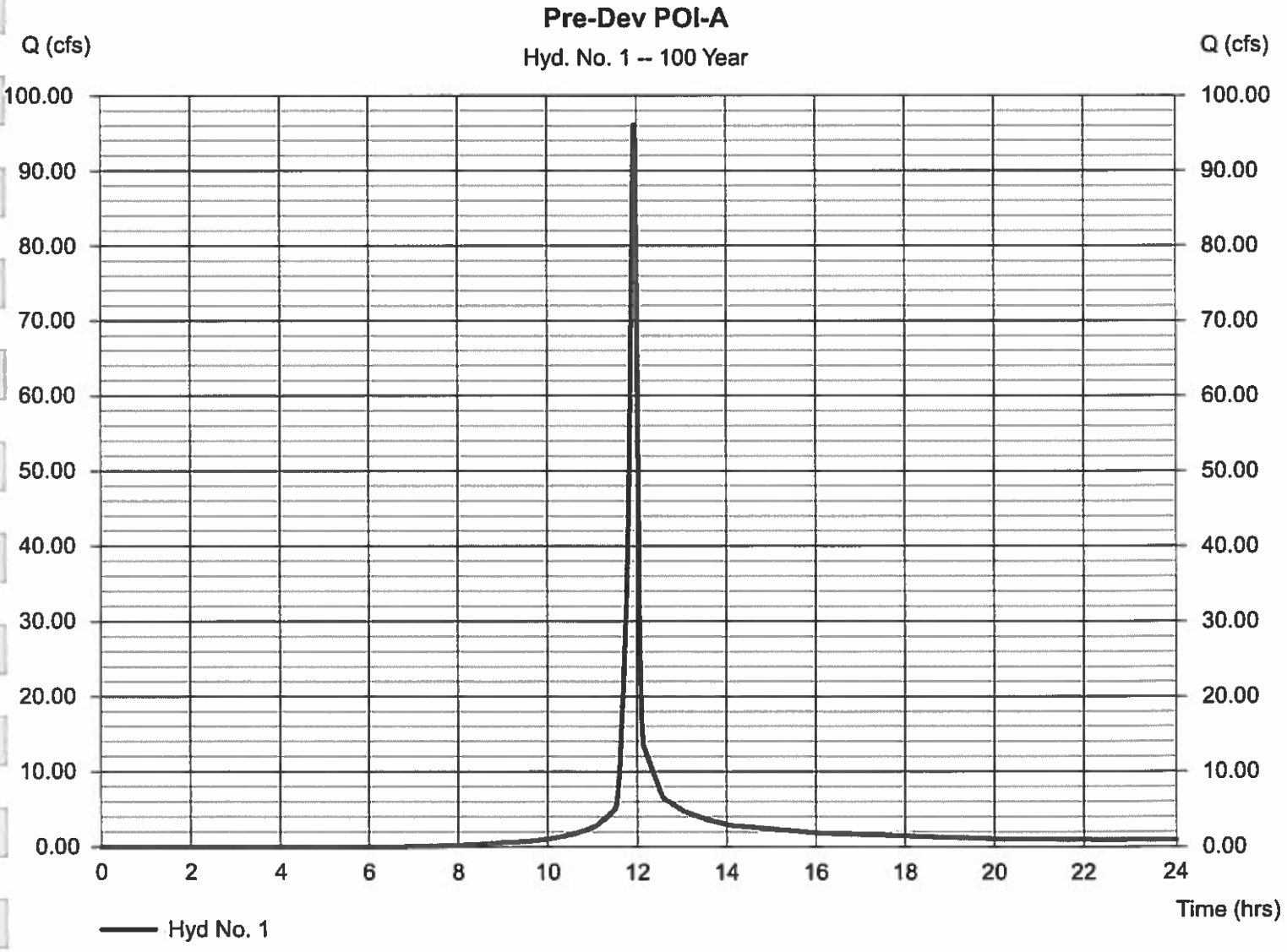
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 1

Pre-Dev POI-A

Hydrograph type	= SCS Runoff	Peak discharge	= 96.13 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 196,249 cuft
Drainage area	= 13.330 ac	Curve number	= 75
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



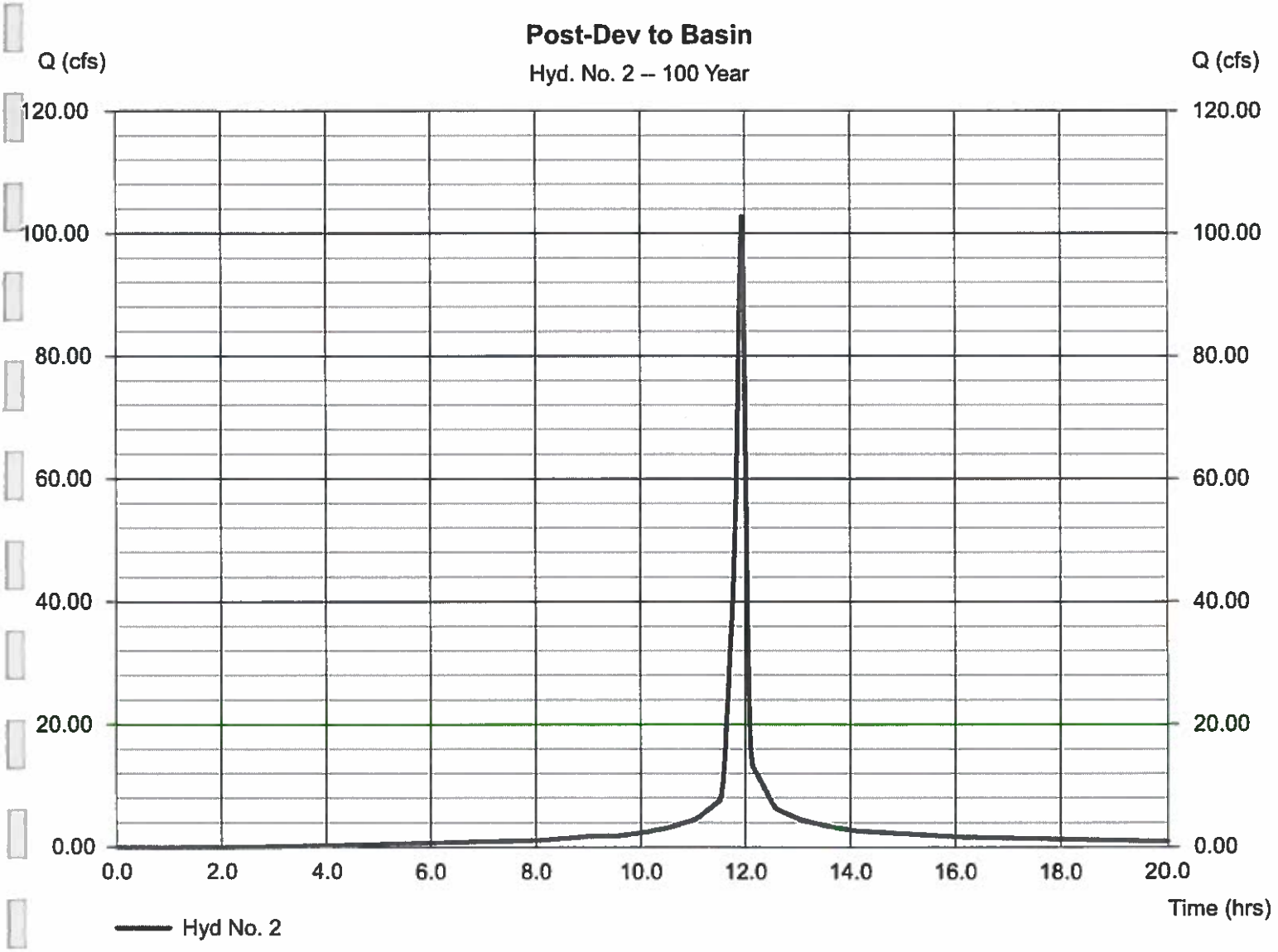
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 2

Post-Dev to Basin

Hydrograph type	= SCS Runoff	Peak discharge	= 102.79 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 231,072 cuft
Drainage area	= 10.860 ac	Curve number	= 92
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

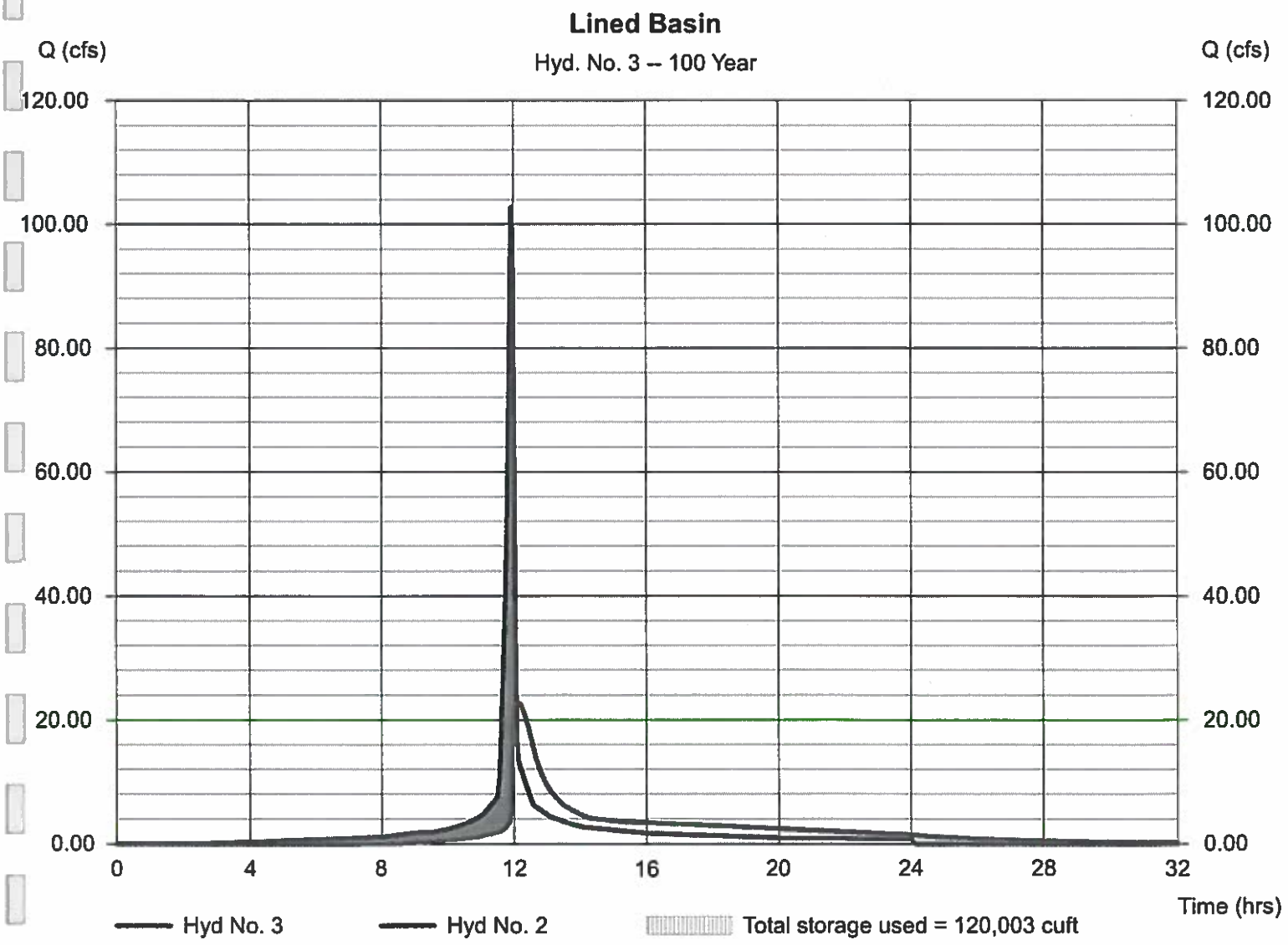
Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 3

Lined Basin

Hydrograph type	= Reservoir	Peak discharge	= 22.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 222,997 cuft
Inflow hyd. No.	= 2 - Post-Dev to Basin	Max. Elevation	= 15.98 ft
Reservoir name	= Lined Basin	Max. Storage	= 120,003 cuft

Storage Indication method used.



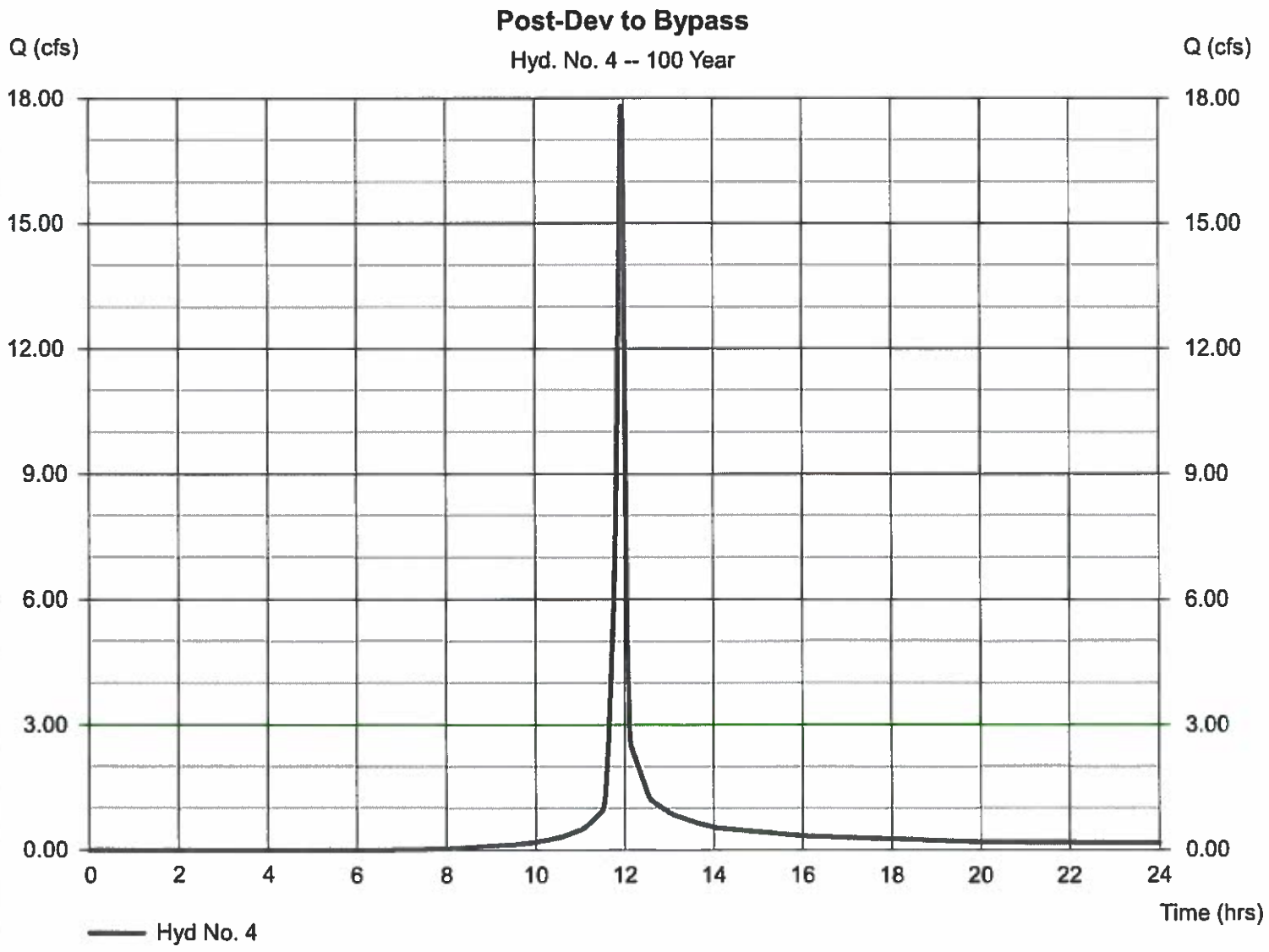
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 4

Post-Dev to Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 17.81 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 36,364 cuft
Drainage area	= 2.470 ac	Curve number	= 75
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



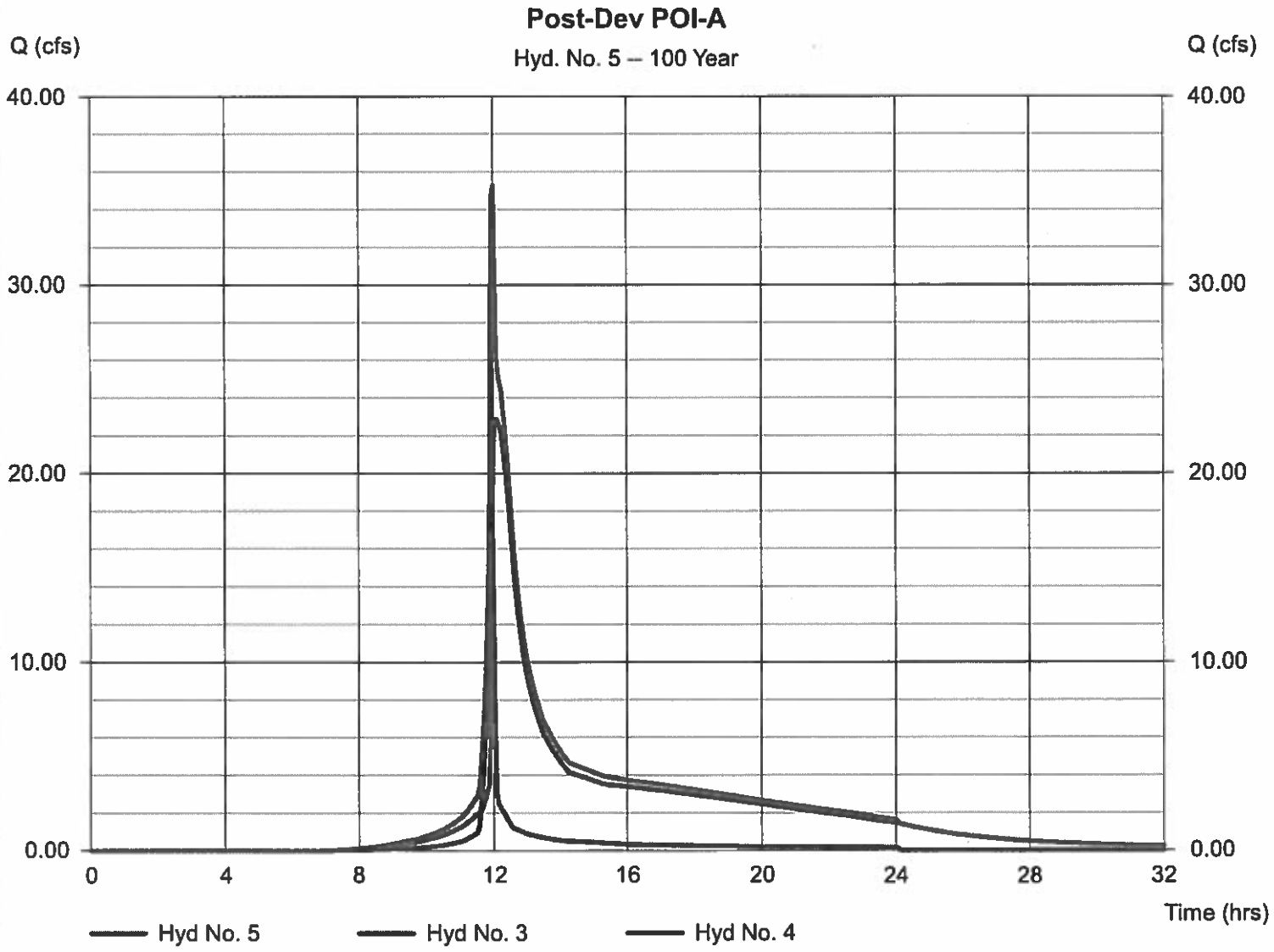
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Tuesday, Jan 22, 2019

Hyd. No. 5

Post-Dev POI-A

Hydrograph type	= Combine	Peak discharge	= 35.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 259,361 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.470 ac



STORM SEWER DESIGN

Project Name Elcon Recycling
Project Number 12-07083
Condition Post-Development

Inlet Calculations

INL-1				
Description	C	SF	A	C x A
Impervious	0.95	8,856	0.20	0.19
Grass	0.35	3,714	0.09	0.03
Forest	0.25	0	0.00	0.00
TOTAL		12,570	0.29	0.22
			RC	0.77

INL-2				
Description	C	SF	A	C x A
Impervious	0.95	21,390	0.49	0.47
Grass	0.35	0	0.00	0.00
Forest	0.25	0	0.00	0.00
TOTAL		21,390	0.49	0.47
			RC	0.95

INL-3				
Description	C	SF	A	C x A
Impervious	0.95	31,349	0.72	0.68
Grass	0.35	5,739	0.13	0.05
Forest	0.25	0	0.00	0.00
TOTAL		37,088	0.85	0.73
			RC	0.86

INL-4				
Description	C	SF	A	C x A
Impervious	0.95	9,013	0.21	0.20
Grass	0.35	3,036	0.07	0.02
Forest	0.25	0	0.00	0.00
TOTAL		12,049	0.28	0.22
			RC	0.80

INL-5				
Description	C	SF	A	C x A
Impervious	0.95	43,555	1.00	0.95
Grass	0.35	9,767	0.22	0.08
Forest	0.25	0	0.00	0.00
TOTAL		53,322	1.22	1.03
			RC	0.84

INL-6				
Description	C	SF	A	C x A
Impervious	0.95	26,039	0.60	0.57
Grass	0.35	4,789	0.11	0.04
Forest	0.25	0	0.00	0.00
TOTAL		30,828	0.71	0.61
			RC	0.86

INL-7				
Description	C	SF	A	C x A
Impervious	0.95	35,357	0.81	0.77
Grass	0.35	2,111	0.05	0.02
Forest	0.25	0	0.00	0.00
TOTAL		37,468	0.86	0.79
			RC	0.92

INL-8				
Description	C	SF	A	C x A
Impervious	0.95	9,554	0.22	0.21
Grass	0.35	3,104	0.07	0.02
Forest	0.25	0	0.00	0.00
TOTAL		12,658	0.29	0.23
			RC	0.80

INL-9				
Description	C	SF	A	C x A
Impervious	0.95	14,937	0.34	0.33
Grass	0.35	1,355	0.03	0.01
Forest	0.25	0	0.00	0.00
TOTAL		16,292	0.37	0.34
			RC	0.90

INL-10				
Description	C	SF	A	C x A
Impervious	0.95	14,697	0.34	0.32
Grass	0.35	189	0.00	0.00
Forest	0.25	0	0.00	0.00
TOTAL		14,886	0.34	0.32
			RC	0.94

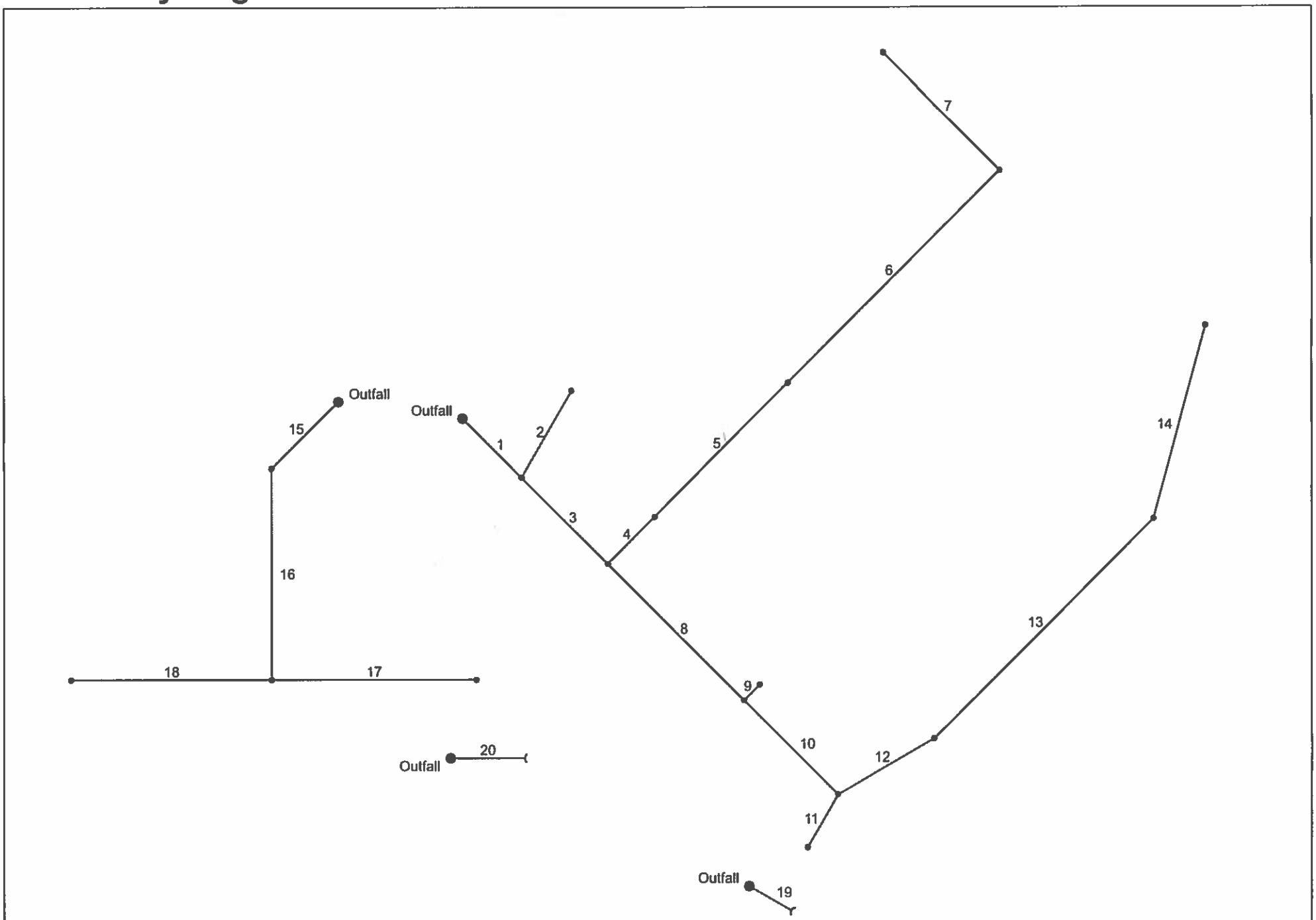
TD-1				
Description	C	SF	A	C x A
Impervious	0.95	1,457	0.03	0.03
Grass	0.35	494	0.01	0.00
Forest	0.25	0	0.00	0.00
TOTAL		1,951	0.04	0.04
			RC	0.80

TD-2				
Description	C	SF	A	C x A
Impervious	0.95	12,136	0.28	0.26
Grass	0.35	3,816	0.09	0.03
Forest	0.25	0	0.00	0.00
TOTAL		15,952	0.37	0.30
			RC	0.81

HW-1				
Description	C	SF	A	C x A
Impervious	0.95	0	0.00	0.00
Grass	0.35	1,349	0.03	0.01
Forest	0.25	0	0.00	0.00
TOTAL		1,349	0.03	0.01
			RC	0.35

HW-2				
Description	C	SF	A	C x A
Impervious	0.95	0	0.00	0.00
Grass	0.35	27,765	0.64	0.22
Forest	0.25	0	0.00	0.00
TOTAL		27,765	0.64	0.22
			RC	0.35

Elcon Recycling



Project File: Elcon Recycling.stm	Number of lines: 20	Date: 01-24-2019

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	STMH-1 to EW-1	29.75	36	Cir	75	13.85	14.25	0.533	15.72	15.99	n/a	17.10 i	End	Manhole
2	INL-1 to STMH-1	1.83	15	Cir	90	19.05	19.50	0.500	19.60	20.05	n/a	20.27 i	1	Grate
3	STMH-2 to STMH-1	28.57	36	Cir	110	14.40	14.95	0.500	17.10	17.20	0.39	17.59	1	Manhole
4	STMH-3 to STMH-2	10.45	36	Cir	60	15.10	15.40	0.500	17.94	17.94	0.01	17.95	3	Manhole
5	INL-2 to STMH-3	10.71	24	Cir	170	15.55	16.40	0.500	17.95	18.30	0.09	18.39	4	Combination
6	INL-3 to INL-2	7.43	18	Cir	270	16.55	17.90	0.500	18.39*	19.74*	0.41	20.15	5	Combination
7	INL-4 to INL-3	1.84	15	Cir	148	18.05	18.80	0.507	20.39*	20.51*	0.03	20.55	6	Combination
8	STMH-4 to STMH-3	19.08	30	Cir	174	15.55	16.45	0.517	17.75	18.01	n/a	18.64 i	3	Manhole
9	INL-5 to STMH-4	8.40	21	Cir	20	17.70	17.80	0.500	18.83	18.93	n/a	19.42 i	8	Grate
10	STMH-5 to STMH-4	11.98	24	Cir	120	16.60	17.20	0.500	18.64	18.92	0.26	19.18	8	Manhole
11	TD-1 to STMH-5	0.26	15	Cir	55	17.70	18.00	0.545	19.45*	19.45*	0.00	19.45	10	Grate
12	INL-6 to STMH-5	12.09	24	Cir	100	17.35	17.85	0.500	19.22	19.42	n/a	19.48 i	10	Combination
13	INL-7 to INL-6	7.89	21	Cir	280	18.00	19.40	0.500	19.48	20.43	n/a	21.08 i	12	Combination
14	INL-8 to INL-7	1.90	15	Cir	180	19.55	20.45	0.500	21.08	21.25	0.08	21.33	13	Combination
15	STMH-6 to EW-2	7.21	21	Cir	85	13.85	14.30	0.529	14.88	15.29	n/a	15.87 i	End	Manhole
16	INL-9 to STMH-6	7.44	21	Cir	190	14.45	15.40	0.500	15.87	16.40	n/a	17.00 i	15	Combination
17	TD-2 to INL-9	2.46	15	Cir	184	15.55	16.50	0.516	17.00	17.30	0.14	17.44	16	Grate
18	INL-10 to INL-9	2.62	15	Cir	180	15.55	16.45	0.500	17.00	17.31	0.13	17.44	16	Combination
19	HW-1 to EW-4	0.09	15	Cir	44	17.18	17.40	0.500	17.30	17.52	n/a	17.54 i	End	OpenHeadwall
20	HW-2 to EW-5	1.84	24	Cir	67	14.40	14.75	0.522	14.88	15.23	n/a	15.40 i	End	OpenHeadwall

Elcon Recycling	Number of lines: 20	Run Date: 01-24-2019

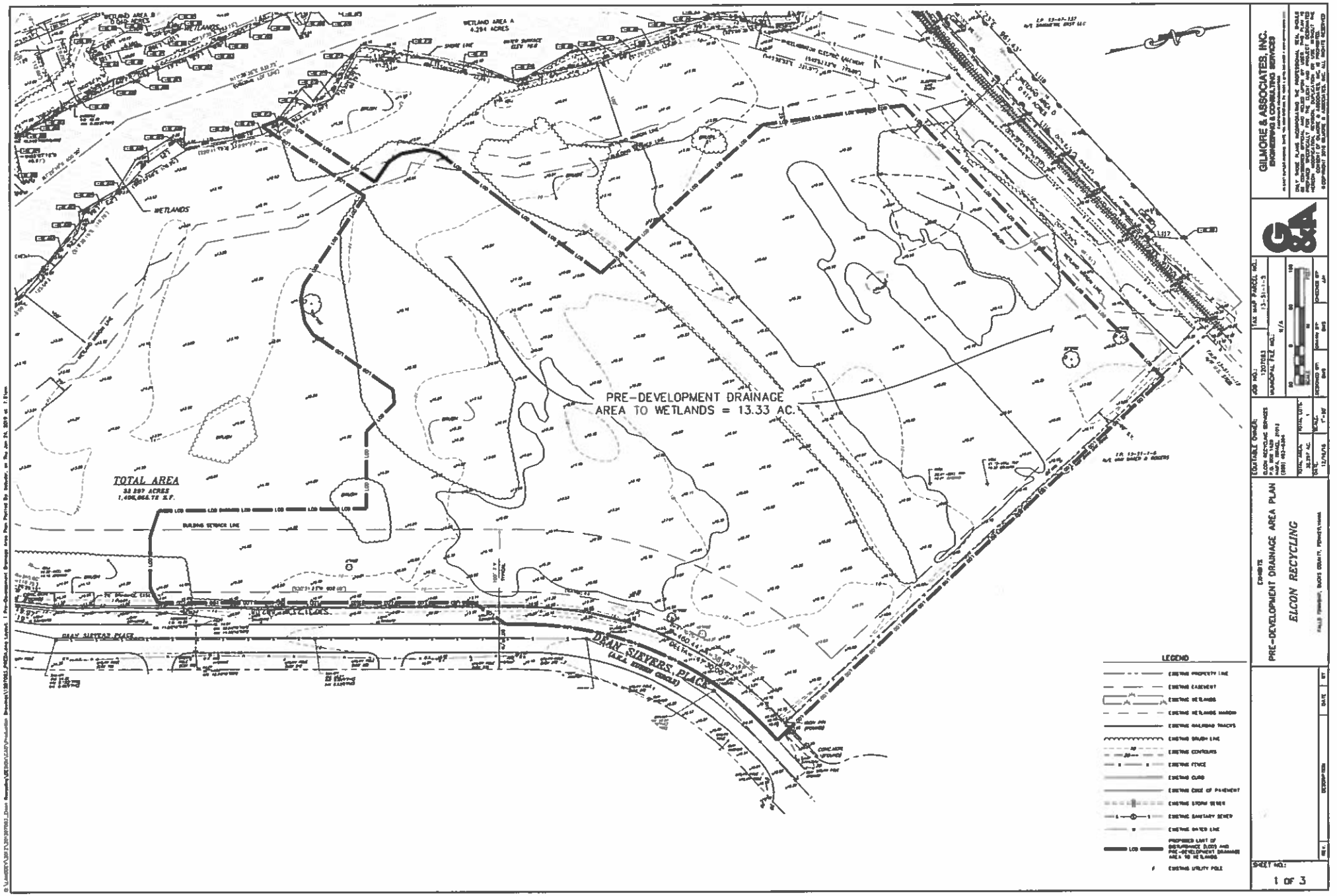
NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; i - Inlet control.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	75	0.00	5.03	0.00	0.00	4.33	0.0	11.0	6.9	29.75	48.71	6.71	36	0.53	13.85	14.25	15.72	15.99	18.00	23.80	STMH-1 to EW-1
2	1	90	0.29	0.29	0.77	0.22	0.22	5.0	5.0	8.2	1.83	4.57	3.51	15	0.50	19.05	19.50	19.60	20.05	23.80	22.40	INL-1 to STMH-1
3	1	110	0.00	4.74	0.00	0.00	4.11	0.0	10.5	6.9	28.57	47.16	4.64	36	0.50	14.40	14.95	17.10	17.20	23.80	23.15	STMH-2 to STMH
4	3	60	0.00	1.62	0.00	0.00	1.42	0.0	8.5	7.4	10.45	47.16	1.57	36	0.50	15.10	15.40	17.94	17.94	23.15	23.00	STMH-3 to STMH
5	4	170	0.49	1.62	0.95	0.47	1.42	5.0	7.7	7.5	10.71	15.99	3.44	24	0.50	15.55	16.40	17.95	18.30	23.00	20.70	INL-2 to STMH-3
6	5	270	0.85	1.13	0.86	0.73	0.96	5.0	6.6	7.8	7.43	7.43	4.21	18	0.50	16.55	17.90	18.39	19.74	20.70	21.05	INL-3 to INL-2
7	6	148	0.28	0.28	0.80	0.22	0.22	5.0	5.0	8.2	1.84	4.60	1.50	15	0.51	18.05	18.80	20.39	20.51	21.05	21.80	INL-4 to INL-3
8	3	174	0.00	3.12	0.00	0.00	2.69	0.0	9.8	7.1	19.08	29.50	5.04	30	0.52	15.55	16.45	17.75	18.01	23.15	21.10	STMH-4 to STMH
9	8	20	1.22	1.22	0.84	1.02	1.02	5.0	5.0	8.2	8.40	11.20	5.11	21	0.50	17.70	17.80	18.83	18.93	21.10	20.65	INL-5 to STMH-4
10	8	120	0.00	1.90	0.00	0.00	1.67	0.0	9.3	7.2	11.98	15.99	3.99	24	0.50	16.60	17.20	18.64	18.92	21.10	22.65	STMH-5 to STMH
11	10	55	0.04	0.04	0.80	0.03	0.03	5.0	5.0	8.2	0.26	4.77	0.21	15	0.55	17.70	18.00	19.45	19.45	22.65	21.00	TD-1 to STMH-5
12	10	100	0.71	1.86	0.86	0.61	1.63	5.0	8.3	7.4	12.09	15.99	4.26	24	0.50	17.35	17.85	19.22	19.42	22.65	21.50	INL-6 to STMH-5
13	12	280	0.86	1.15	0.92	0.79	1.02	5.0	6.9	7.7	7.89	11.20	4.50	21	0.50	18.00	19.40	19.48	20.43	21.50	22.40	INL-7 to INL-6
14	13	180	0.29	0.29	0.80	0.23	0.23	5.0	5.0	8.2	1.90	4.57	1.92	15	0.50	19.55	20.45	21.08	21.25	22.40	23.30	INL-8 to INL-7
15	End	85	0.00	1.08	0.00	0.00	0.95	0.0	7.5	7.6	7.21	11.53	5.02	21	0.53	13.85	14.30	14.88	15.29	18.00	24.00	STMH-6 to EW-2
16	15	190	0.37	1.08	0.90	0.33	0.95	5.0	6.5	7.8	7.44	11.20	4.39	21	0.50	14.45	15.40	15.87	16.40	24.00	19.00	INL-9 to STMH-6
17	16	184	0.37	0.37	0.81	0.30	0.30	5.0	5.0	8.2	2.46	4.64	2.48	15	0.52	15.55	16.50	17.00	17.30	19.00	19.50	TD-2 to INL-9
18	16	180	0.34	0.34	0.94	0.32	0.32	5.0	5.0	8.2	2.62	4.57	2.53	15	0.50	15.55	16.45	17.00	17.31	19.00	19.30	INL-10 to INL-9
19	End	44	0.03	0.03	0.35	0.01	0.01	5.0	5.0	8.2	0.09	4.57	1.44	15	0.50	17.18	17.40	17.30	17.52	18.00	19.00	HW-1 to EW-4
20	End	67	0.64	0.64	0.35	0.22	0.22	5.0	5.0	8.2	1.84	16.35	3.17	24	0.52	14.40	14.75	14.88	15.23	17.00	17.00	HW-2 to EW-5

Elcon Recycling | Number of lines: 20 | Run Date: 01-24-2019

NOTES: Intensity = 300.36 / (Inlet time + 27.00) ^ 1.04; Return period = 100 Yrs. ; c = cir e = ellip b = box



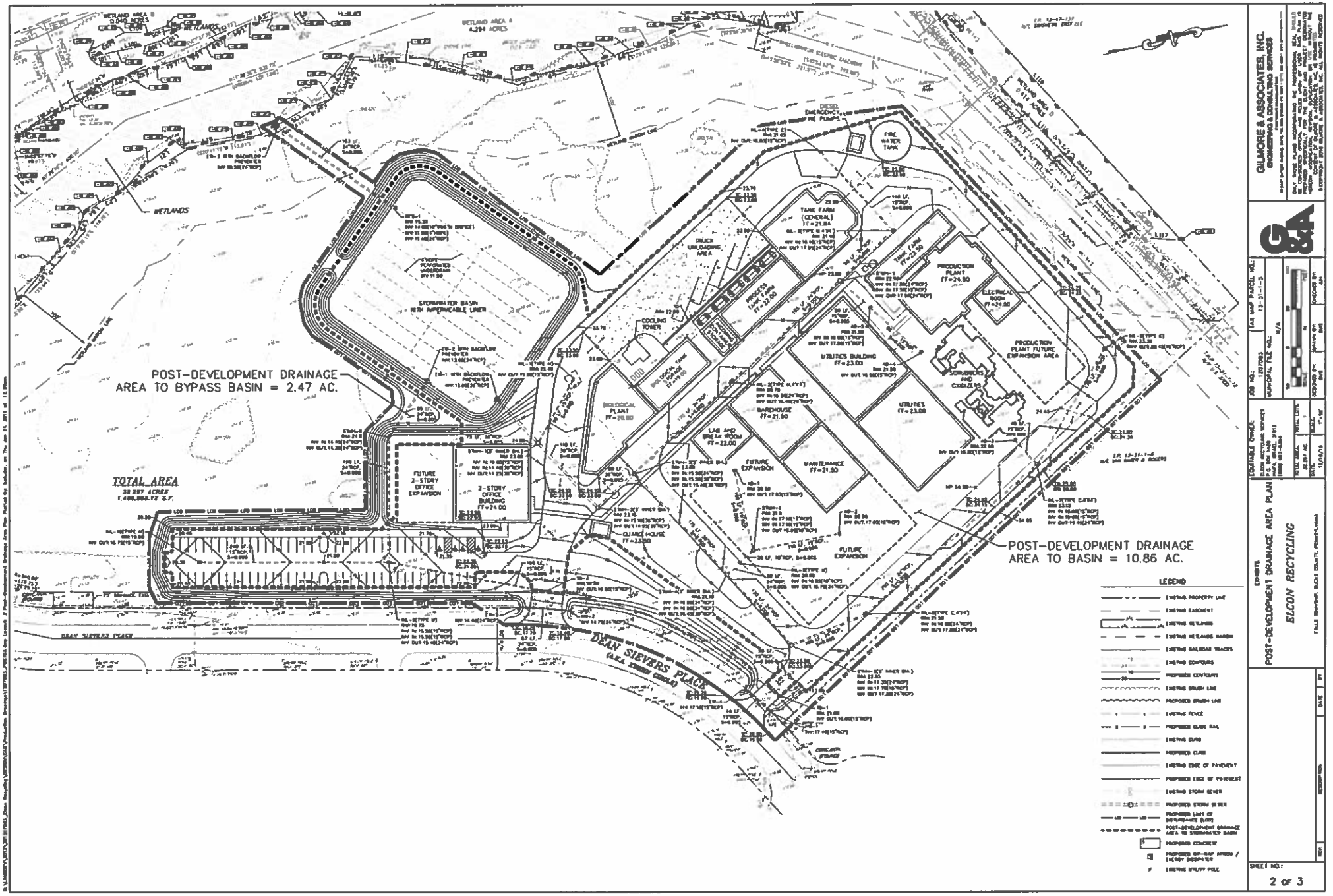
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

DEVELOPMENT DRAINAGE AREA PLAN

ELCON RECYCLING

PRE-DEVELOPMENT

SHEET NO.: 1 OF 3



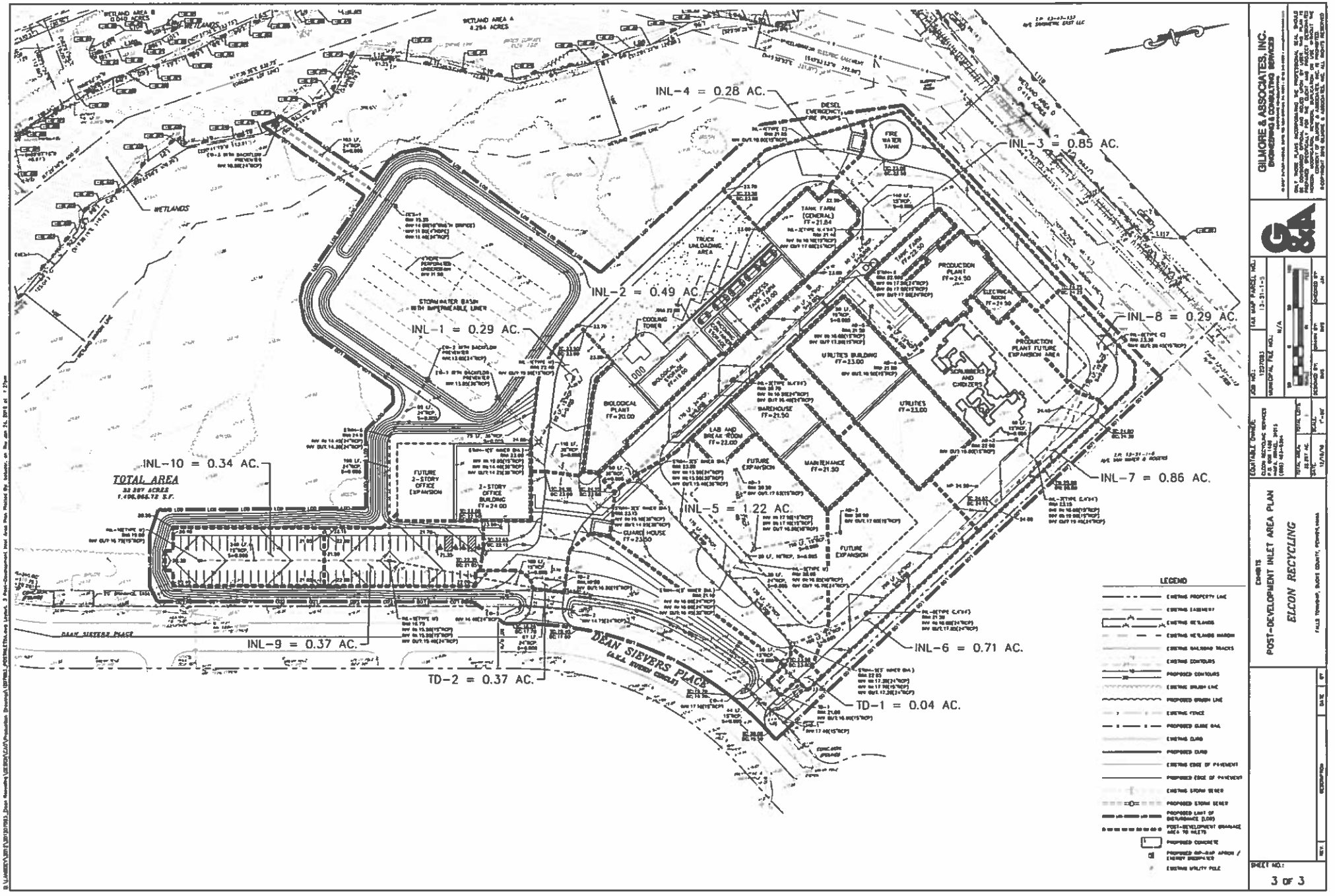
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

POST-DEVELOPMENT DRAINAGE AREA PLAN

ELCON RECYCLING

FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

SHEET NO.: 2 OF 3


INL-1 = 0.29 AC.
INL-2 = 0.49 AC.
INL-3 = 0.85 AC.
INL-4 = 0.28 AC.
INL-5 = 1.22 AC.
INL-6 = 0.71 AC.
INL-7 = 0.86 AC.
INL-8 = 0.29 AC.
INL-9 = 0.37 AC.
INL-10 = 0.34 AC.
TD-1 = 0.04 AC.
TD-2 = 0.37 AC.
TOTAL AREA
33.397 ACRES
1,455,066.72 S.F.
DEAN SIEVERS PLACE
WETLANDS
LEGEND
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
POST-DEVELOPMENT INLET AREA PLAN
ELCON RECYCLING
FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA
EXHIBIT B
SHEET NO.:
3 OF 3