STORMWATER NARRATIVE

FOR

West Front Street

Lots 5.01 & 7 in Block 239

City of Plainfield

Union County, New Jersey

BY

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May 19, 2022
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PROJECT NO. 21-046

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FOR THE FIRM

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1- INTRODUCTION:

The purpose of this report is to study the hydrological effect of the proposed development (Elite Preparatory Academy).

The analysis consists of estimating the pre-development and post-development site peak runoff, to determine if any storm measures are required to support the project and to demonstrate analysis of Stormwater measures required to maintain the runoff quantity, quality and recharge of existing condition.

2- PROJECT LOCATION AND SITE DESCRIPTION:

The project site consists of approximately 0.57± acres located on West Front Street in the City of Plainfield, Union County, New Jersey known as Lots 5.01 & 7 in Block 239 as shown on the Township Tax Maps.

The property is currently developed with existing slabs and foundations of previously existing buildings. The existing impervious surfaces on site total 11,015 square feet.

The applicant is proposing redevelopment of the site that includes removal of all slabs and foundations and construction of a 3-story mixed use building in that location. The paved parking areas on site are also being reconfigured to accommodate parking for the proposed building. The overall total post-development impervious surface is 19,140 square feet resulting in an increase of impervious coverage on site in the amount of 8,125 square feet.

The project is detailed on the Major Site plans, which have been prepared by Amertech Engineering, Inc.

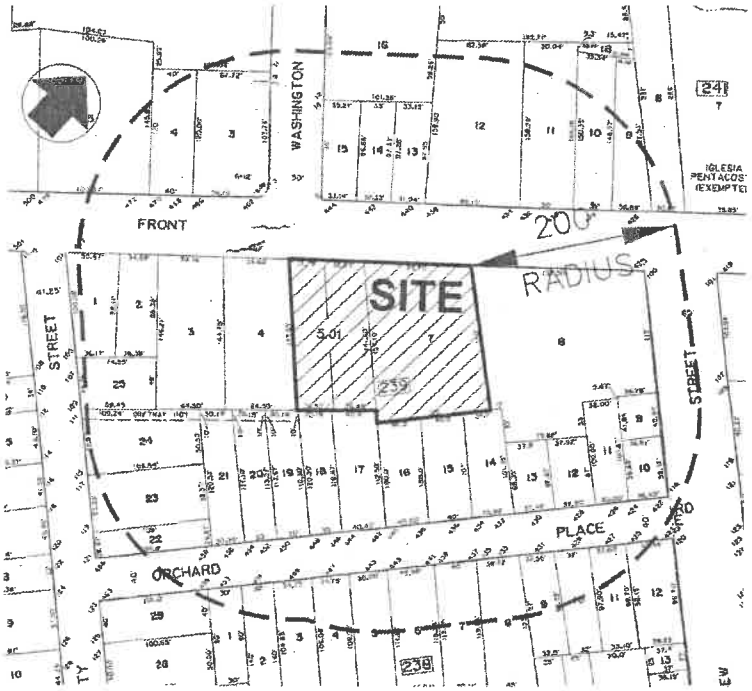


Figure-1
Tax Map

3- EXISTING HYDROLOGY:

The project has a varying topography ranging from flat to moderate to steep slopes. The majority of the property drains to the west and collected via an existing stormwater conveyance system.

According to the Web Soil Survey (see figure-2), the following soil types are exhibited onsite in the area proposed for construction:

Table-1
Soil Type & Group

Soil Symbol	Soil Name	Soil Group
BhpBr	Birdsboro – Urban Land Complex	B
UR	Urban Land	B

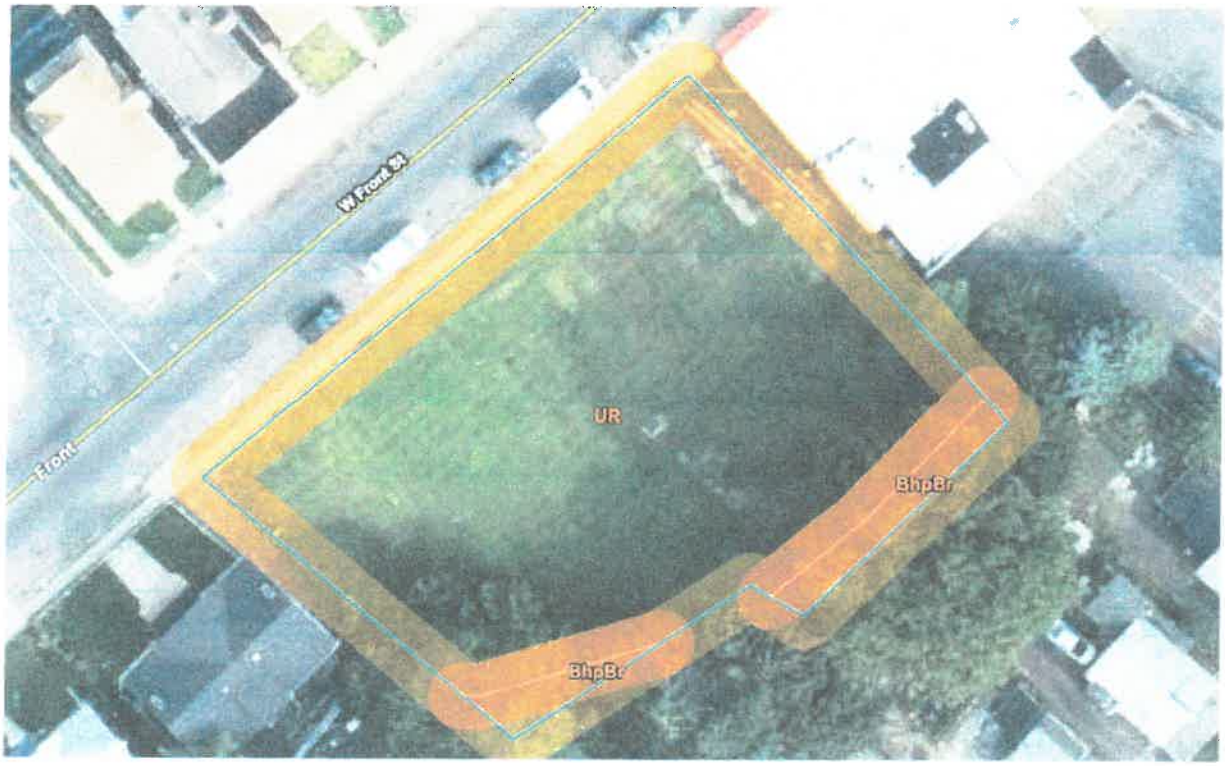


Figure-2
Soil Map

4- DRAINAGE ANALYSIS:

4-1- BASIS FOR DESIGN:

The basis for design of the proposed plan is to develop a stormwater management system that would allow the proposed development (Elite Preparatory Academy), to be constructed neither increasing offsite flooding, nor degrading water quality, thus complying with all relevant township, county, soil conservation district and NJDEP Stormwater Rules and Regulations.

To achieve these requirements the system must incorporate onsite infiltration basins to limit runoff rates to predevelopment conditions and to trap the contaminants associated with runoff from the proposed development.

The methodology outlined in Technical Report No. 55 of the Soil Conservation Service is used to determine the potential drainage impacts of the proposed project and for the design of the proposed detention basin.

4-2- SITE RUNOFF:

The pre-development and post-development site peak runoff shall be calculated utilizing the TR-55 Methodology, to determine the impact of the proposed development, to accommodate the following design criteria:

- Stormwater quality.
- Groundwater recharge.
- Reduction of quantity runoff to the required reduction.

4-2.1 PRE-DEVELOPMENT SITE RUNOFF:

The existing drainage area map is shown on the attached map (Figure-3).

The site runoff generated by the existing sub-areas is estimated by utilizing the TR-55 Methodology. The existing drainage corresponding to the disturbed area, and is characterized as follow:

Sub-Area EDA:

This pre-development drainage area drains toward the West Front Street at the front of the property via sheet flow.

Existing Drainage Area =	0.57 acres (HSG "B")
Land cover =	
Pavement =	0.02 Acres CN= 98 (HSG "B")
Grass =	0.55 Acres CN= 61 (HSG "B")

The following table presents the runoff curve numbers, was extracted from the TR-55 Manual

Table 2-2a Runoff curve numbers for urban areas[1]

Cover description: Cover type and hydrologic condition	Average percent impervious area[2]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Table 2-2c Runoff curve numbers for other agricultural lands[1]

Cover description: Cover type	Hydrologic condition	Curve numbers for hydrologic soil group: A	B	C	D
Pasture, grassland, or range—continuous forage for grazing.[2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element.[3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30[4]	48	65	73
Woods—grass combination (orchard or tree farm).[5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods.[6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30[4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

[1] Average runoff condition, and $I_a = 0.2S$.

[2] *Poor:* <50% ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

[3] *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

[4] Actual curve number is less than 30; use CN = 30 for runoff computations.

[5] CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

[6] *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Time of Concentration (Tc):

Time of Concentration (Tc)= 8.60 minutes (See Appendix-1 for supporting calculations)

The Pre-development Site peak runoff is calculated utilizing and in-house software, based on the TR-55 Methodology.

The following table summarizes the Pre-development site peak runoff for various storm frequencies generated by the pre-development Please refer to Appendix-1 for supporting calculations:

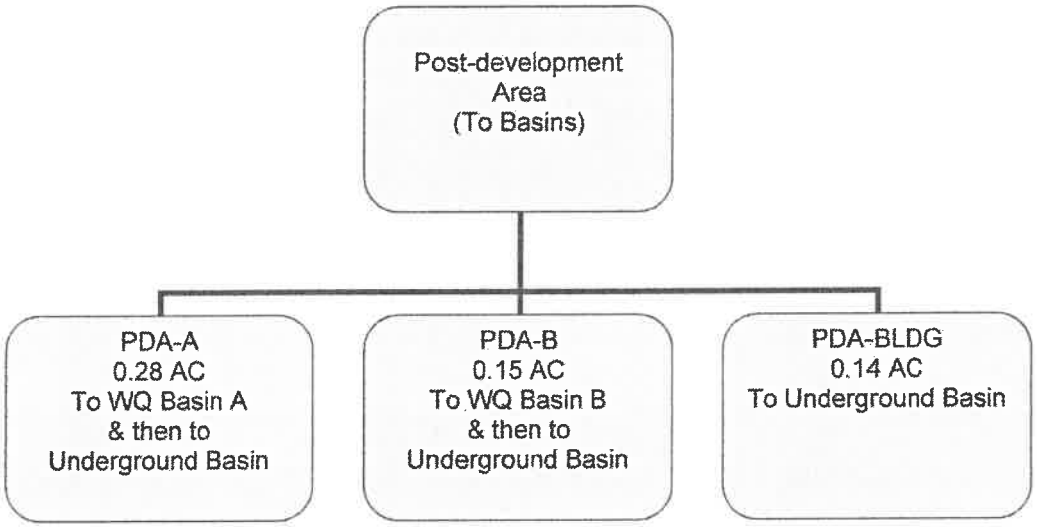
Table-2
Pre-development
Site Peak Runoff (EDA)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.27
10	0.88
100	2.40

4-2.2 POST-DEVELOPMENT SITE RUNOFF:

Post-development drainage area map is shown on Figure-4, and subdivided into sub-areas. Portion of the site peak runoff generated by the proposed development will be conveyed into one of the two proposed infiltration basins (for Water Quality) and then to the Underground detention basin.

Post-Area to Water Quality Basins & Underground Detention Basin:



The Characteristic of each sub-area are summarized in as follow:

Sub-area PDA-A:

Drainage Area= 0.28 acres (HSG "B")
Land cover=
Pavement = 0.17 acres (HSG "B") CN=98
Walk = 0.01 acres (HSG "B") CN=98
Grass = 0.10 acres (HSG "B") CN=61

Time of Concentration (Tc)= 2.1 minutes (See Appendix-2 for calculations)

The total post-development site peak runoff generated by the conveyance system and discharging into the proposed infiltration basin is summarized in the following table:

Table-3
Post-Development
Site Peak Runoff (PDA-A)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.65
10	1.09
100	2.03

Sub-area PDA-B:

Drainage Area = 0.15 acres (HSG "B")
Land cover =
Pavement = 0.12 acres (HSG "B") CN=98
Walk = 0.01 acres (HSG "B") CN=98
Grass = 0.02 acres (HSG "B") CN=61

Time of Concentration (Tc)= 2.0 minutes (Minimum Time of Concentration)

The total post-development site peak runoff generated by the conveyance system and discharging into the proposed infiltration basin is summarized in the following table:

Table-4
Post-Development
Site Peak Runoff (PDA-B)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.44
10	0.70
100	1.20

Sub-area PDA-BLDG:

Drainage Area = 0.14 acres (HSG "B")
Land cover =
Building = 0.14 acres (HSG "B") CN=98

Time of Concentration (Tc)= 2.0 minutes (Minimum Time of Concentration)

The total post-development site peak runoff generated by the conveyance system and discharging into the proposed infiltration basin is summarized in the following table:

Table-5
Post-Development
Site Peak Runoff (PDA-BLDG)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.46
10	0.71
100	1.19

Total Post-development site peak runoff generated from the proposed development is the sum of peak runoff generated by the sub-areas listed above. The following is supporting calculations for the total site peak runoff:

Table-6
Total Post-development Site Peak Runoff
(Before Routing)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	1.55
10	2.50
100	4.42

The following table shows a comparison between pre- and post-development site peak runoff:

Table-7
Peak Runoff Comparison
Total Pre-development vs. Total Post-Development

STORM FREQUENCY	PRE-DEVELOPMENT PEAK RUNOFF (cfs)	POST-DEVELOPMENT PEAK RUNOFF (cfs)	COMMENTS
2	0.27	1.55	Post>Pre
10	0.88	2.50	Post>Pre
100	2.40	4.42	Post>Pre

From the above table we conclude that the proposed development has a minor increase site peak runoff, which warrants the need for a stormwater measures to meet the required reductions.

5- Water Quality:

The proposed Water Quality measures shall be designed to reduce the post-construction load of total suspended solid "TSS" in stormwater runoff generated from the water quality design storm "1.25 inch of rainfall in two hours", by 80% as per the NJDEP Rules and Regulations section N.J.A.C.7: 8-5.5. Infiltration Basin and Detention Basin have a rate of TSS removal rates of 80% & 60%. Per rules and regulations, the ratio of TSS depends on the following parameters:

The runoff generated by the parking lot and driveways (Sub-areas PDA-A & PDA-B) shall be treated prior to final discharge into the proposed underground detention basin.

The basin construction shall utilize the existing soils for infiltration. As per the geotechnical report by Geo-Technology Associates, the testing concluded that percolation rate at the bottom of the test pit is around 240 in/hr and so the design rate we are using for the basins will be 6.0 in/hr to simulate the exfiltration of k4-k5 soils with a safety factor.

Water Quality Basin A (PDA-A):
The runoff generated by the water quality storm is estimated to 628 cu.ft. (See Appendix-X). The water quality volume has been routed through the infiltration Basin, and the required elevation is 91.43. Therefore, any outlet from the infiltration basin shall be at elevation 91.43 or higher. The top of the drainage inlet that proceeds to the underground basin is set at 91.43.

Water Quality Basin B (PDA-B):
The runoff generated by the water quality storm is estimated to 452 cu.ft. (See Appendix-X). The water quality volume has been routed through the infiltration Basin, and the required elevation is 91.63. Therefore, any outlet from the infiltration basin shall be at elevation 91.63 or higher. The top of the drainage inlet that proceeds to the underground basin is set at 91.63.

Dewatering Time:

Estimated dewatering for Basin A is calculated as follow:

Time-Q-peak= 1.30 hours
Draining time= 9.00 hours

Total dewatering time= 9.00 – 1.30 = 7.70 hours, which is less than allowed time of 72 hours (OK)

Estimated dewatering for Basin B is calculated as follow:

Time-Q-peak= 1.30 hours
Draining time= 9.00 hours

Total dewatering time= 9.00 – 1.30 = 7.70 hours, which is less than allowed time of 72 hours (OK)

6- Groundwater Recharge:

The design requirement for Groundwater Recharge is as depicted in Section N.J.A.C. 7:8-5.4 of the NJDEP rules and regulations, which is as follow:

1- Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site.

2- Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the two-year storm infiltrated.

Design criteria listed in item #2 is utilized. From Appendix – 4, we conclude the volume required to be recharged is estimated to be **4,101 cu.ft**.

The 2-year storm water runoff volume collected by the underground detention basin is estimated to be 5,016 cu.ft. with a storage volume of 367 cu.ft. generating an infiltration volume of **4,649 cu.ft.** which is greater than required recharge volume of **4,101 cu.ft**. The 2-year storm volume was routed through the underground detention basin and concluded water elevation **87.82** which is less than 2.5" orifice elevation. The underground detention system is perforated to allow the water to permeate into the ground for groundwater recharge. The design percolation rate is 6.0 in/hr.

Dewatering time is calculated as follow:

Peak Time=	12.33 hours
Drain Time=	30.00 hours

Dewatering time= 30.00 – 12.33 = 17.67 hours < 72 hours (OK)

7- DETENTION BASIN:

A detention basin is required to reduce the post development runoff according to section (N.J.A.C. 5:21-7.5.d). Please refer to Appendix No.4 for pond routing.

The TR-55 Method has been utilized to determine the volume required by the proposed detention basin.

7-1 BASIN VOLUME & OUTLET STRUCTURE:

The proposed detention basin is designed based on following Design Criteria:

- The Post development runoff for the 2-year storm event is less than the predevelopment site runoff by 50%.
- The Post development runoff for the 10-year storm event is less than the predevelopment site runoff by 75%.
- The Post development runoff for the 100-year storm event is less than the predevelopment site runoff by 80%.
- Meet the water quality design criteria as depicted in the NJDEP PMB manual.
- The basin outlet structure is designed to meet the storage and discharge requirements.

Based on the above listed criteria, the following table summarizes the allowable post-development site peak runoff:

Table-8
Allowable Site Peak Runoff

STORM FREQUENCY	PRE-DEVELOPMENT PEAK RUNOFF (cfs)	ALLOWED RUNOFF	COMMENTS
2	0.27	(0.27 X 0.50 = 0.14)	50% Reduction
10	0.88	(0.88 X 0.75 = 0.66)	75% Reduction
100	2.40	(2.40 X 0.80 = 1.92)	80% reduction

7-1.1 PONDS SUMMARY DATA:

The proposed stormwater measures will consist of the following:

1- Infiltration basin to meet the water quality and recharge, as well water quantity.

2- Underground detention basin to meet the water quantity before discharging into an existing stormwater system located at the rear of the property.

1- Infiltration Basin:

1- Type of Basin: *Infiltration Basins (Infiltration)*

2- Name of Creek, stream, or area Into which the basins discharges: *Underground Detention*

3- Post development Watershed Data:

Table-9

Post-Development Watershed Data

DRAINAGE AREA	DRAINAGE AREA (AC)	POST CN#	PERCENT IMPERVIOUS	TIME OF CONCENTRATION
PDA-A	*0.28*	*±85*	*±64.3*	*2.1 minutes*
PDA-B	*0.15*	*±93*	*±86.7*	*2 minutes*
PDA-BLDG	*0.14*	*±98*	*±100.0*	*2 minutes*

Total Post-development site peak runoff contributing to proposed infiltration is summarized in the following:

Table-10
PDA-A Post-Development Peak Runoff
(Runoff to Infiltration Basin A)

FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.65
10	1.09
100	2.03

Table-11
Proposed Infiltration Basin A
Routed Peak Flow

Storm Event	Peak Out Flow	Maximum Water Elevation
2-year	0.59	91.55
10-year	1.01	91.61
100-year	1.92	91.71

Table-12
PDA-B Post-Development Peak Runoff
(Runoff to Infiltration Basin B)

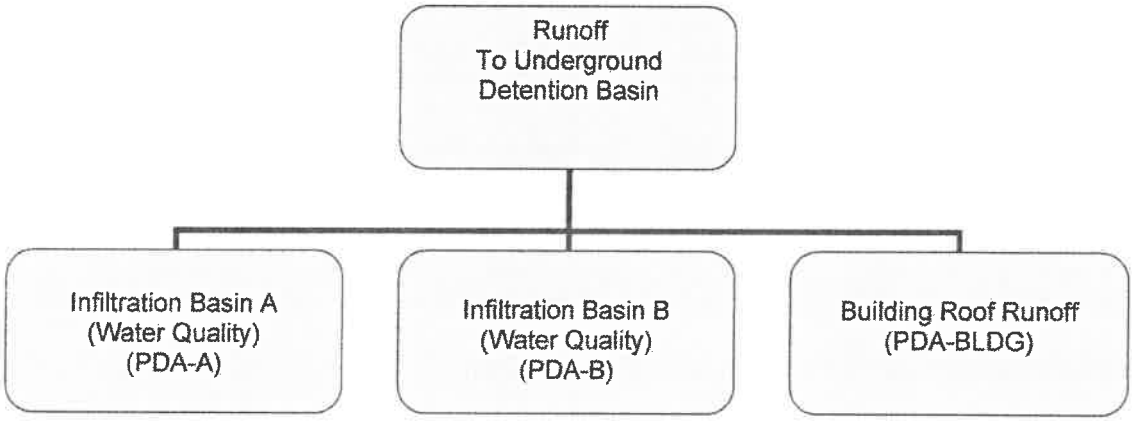
FREQUENCY (YEAR)	PEAK RUNOFF (CFS)
2	0.44
10	0.70
100	1.20

Table-13
Proposed Infiltration Basin B
Routed Peak Flow

Storm Event	Peak Out Flow	Maximum Water Elevation
2-year	0.43	91.73
10-year	0.68	91.76
100-year	1.20	91.83

4- Outlet Structure:

Outlet structure in the proposed infiltration Basin shall be designed to meet the criteria for water quality and recharge. Where the lowest outlet from the Infiltration basin shall be at or higher than volume required to accommodate the water quality and recharge volume. Therefore, the runoff from the water quality and recharge shall be calculated accordingly.



The total runoff contributing to the Underground Detention Basin is summarized in the following table:

Table-14
Peak Runoff to Underground Detention Basin
(PDA-BLDG Direct Runoff and Infiltration Basins Outflow)

STORM FREQUENCY	POST DEVELOPMENT PEAK RUNOFF (cfs)
2	1.47
10	2.39
100	4.31

The above runoff will be routed through the underground detention basin. With the following outlet structure:

Table-15
Outlet Structure
(Underground Detention Basin)

TYPE OF OUTLET	ORIFICE SIZE/ WEIR LENGTH	ELEVATION (USGS INV)	DISCHARGE COEEFICIENT
ORIFICE	*2.5"*	*87.82*	*0.60*
WEIR	*1'*	*89.50*	*3.33*

7-2 POND ROUTING:

From the pond routing computations (Appendix-4), the basins peak outflows and elevations for various storms are as follows:

Table-16
Proposed Underground Detention Basin
Routed Peak Flow

Storm Event	Peak Out Flow	Maximum Water Elevation
2-year	0.13	88.56
10-year	0.18	89.13
100-year	1.31	89.98

8. SEDIMENT AND EROSION CONTROL:

To control and minimize offsite impacts due to soil erosion during construction, a soil erosion and sediment control plan will be prepared for the development in accordance with the latest "Standards for Soil Erosion and Sediment Control in New
Jersey" by the N.J. State Soil Conservation Measures:

- Crushed stone stabilized construction entrances to reduce tracking of sediment onto the existing adjacent roads.
- Silt fence around all limits of disturbance.
- Hay bale inlet protection.
- Riprap apron at all pipe outfalls.
- Temporary seeding and mulching of all disturbed acres, which will remain, exposed for 30 days or more.
- Permanent seeding or sodding within 10 days of the final grading.
- Use of the proposed detention basins as sediment basins during construction

In accordance with the N.J. Soil Erosion and Sediment Control Act, the subdivision maps will be submitted to Freehold Soil Conservation District for review and certification. The district will be notified 72 hours in advance of any land disturbance activities.

9. CONCLUSION:

The storm water management plan for the proposed development is consistent with all regulatory design standards. When the detention facility is in
Place, peak runoff rates after development will be significantly decreased when compared to predevelopment runoff rates. The table below summarizes the pre and post development runoff:

Table-17
Peak Runoff Comparison
Total Pre-development vs. Total Post-Development

STORM FREQUENCY	PRE-DEVELOPMENT PEAK RUNOFF (cfs)	ALLOWABLE SITE RUNOFF (cfs)	POSTDEVELOPMENT PEAK RUNOFF (cfs)	COMMENTS
2	0.27	(0.27 X 0.50=0.14)	0.13	OK
10	0.88	(0.88 X 0.75=0.66)	0.18	OK
100	2.40	(2.40 X 0.80=1.92)	1.31	OK

From the above summary table, we conclude that the proposed stormwater measures are adequate and meet all design criteria for water quantity, quality and recharge.

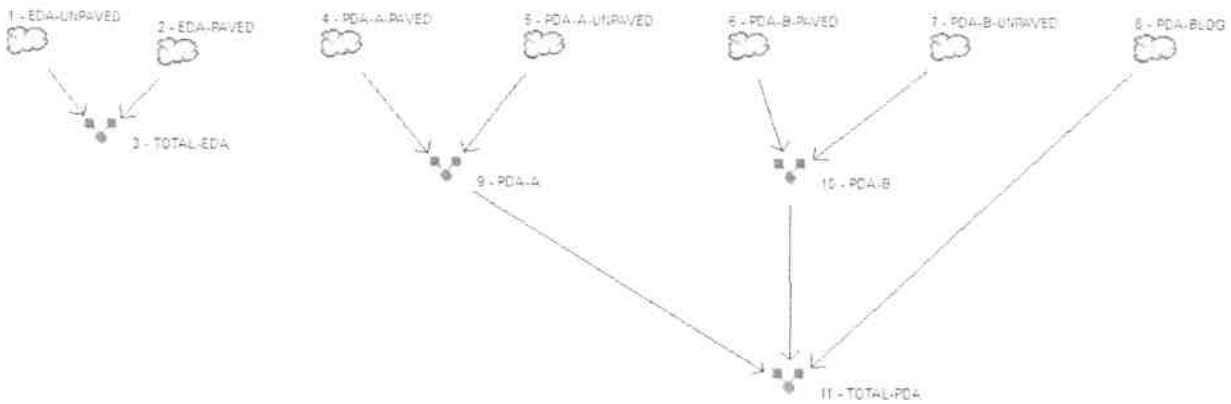
APPENDICES

APPENDIX 1

Pre-Development Site Runoff

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.01



Legend

Hyd.	Origin	Description
1	SCS Runoff	EDA-UNPAVED
2	SCS Runoff	EDA-PAVED
3	Combine	TOTAL-EDA
4	SCS Runoff	PDA-A-PAVED
5	SCS Runoff	PDA-A-UNPAVED
6	SCS Runoff	PDA-B-PAVED
7	SCS Runoff	PDA-B-UNPAVED
8	SCS Runoff	PDA-BLDG
9	Combine	PDA-A
10	Combine	PDA-B
11	Combine	TOTAL-PDA

TR55 Tc Worksheet

Hyd. No. 1

EDA-UNPAVED

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.38		0.00		0.00		
Land slope (%)	= 3.80		0.00		0.00		
Travel Time (min)	**= 7.37**	**+**	**0.00**	**+**	**0.00**	**=**	**7.37**
Shallow Concentrated Flow							
Flow length (ft)	= 142.00		0.00		0.00		
Watercourse slope (%)	= 1.34		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 1.87		0.00		0.00		
Travel Time (min)	**= 1.27**	**+**	**0.00**	**+**	**0.00**	**=**	**1.27**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 8.64 min

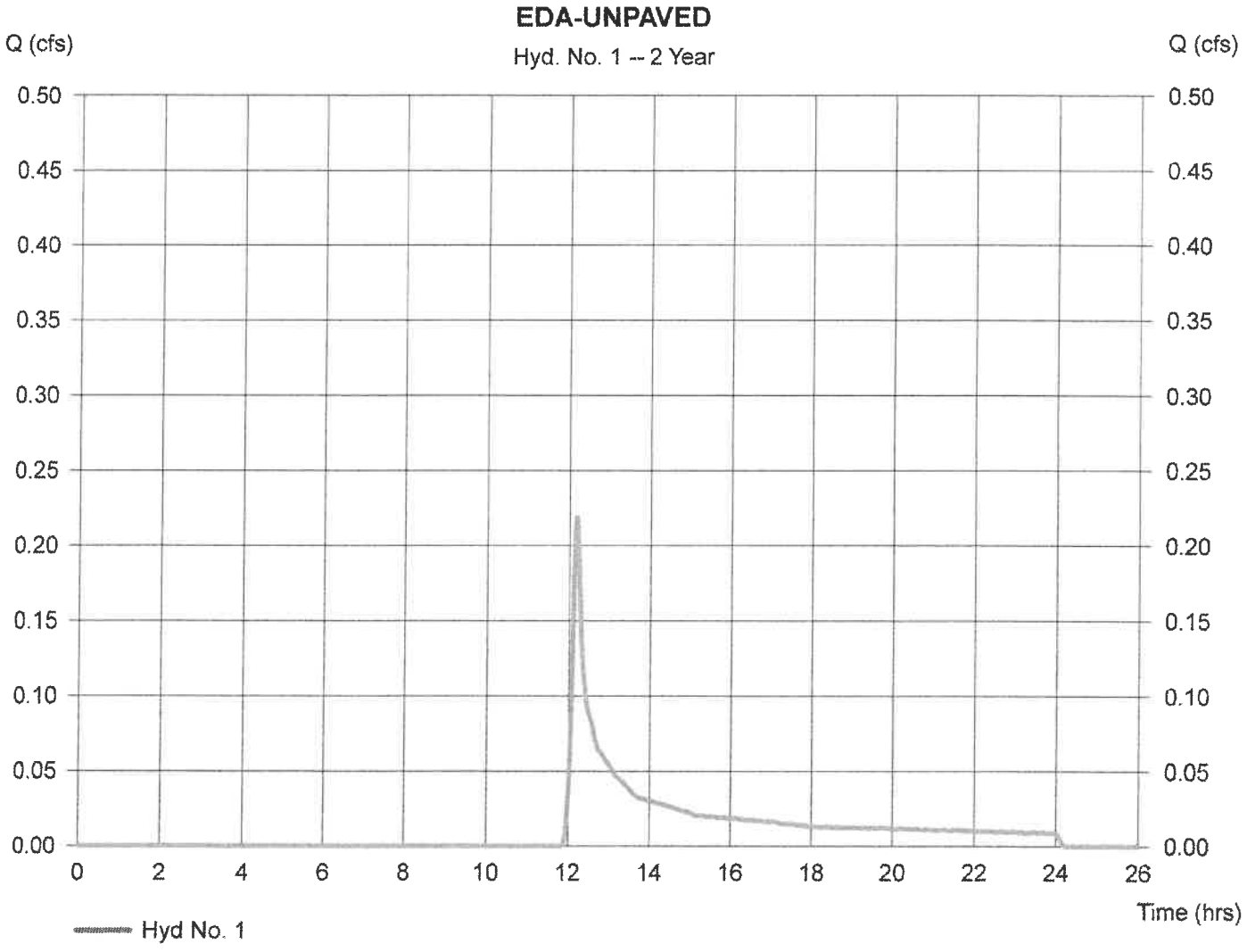
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

EDA-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.219 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,038 cuft
Drainage area	= 0.550 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.64 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



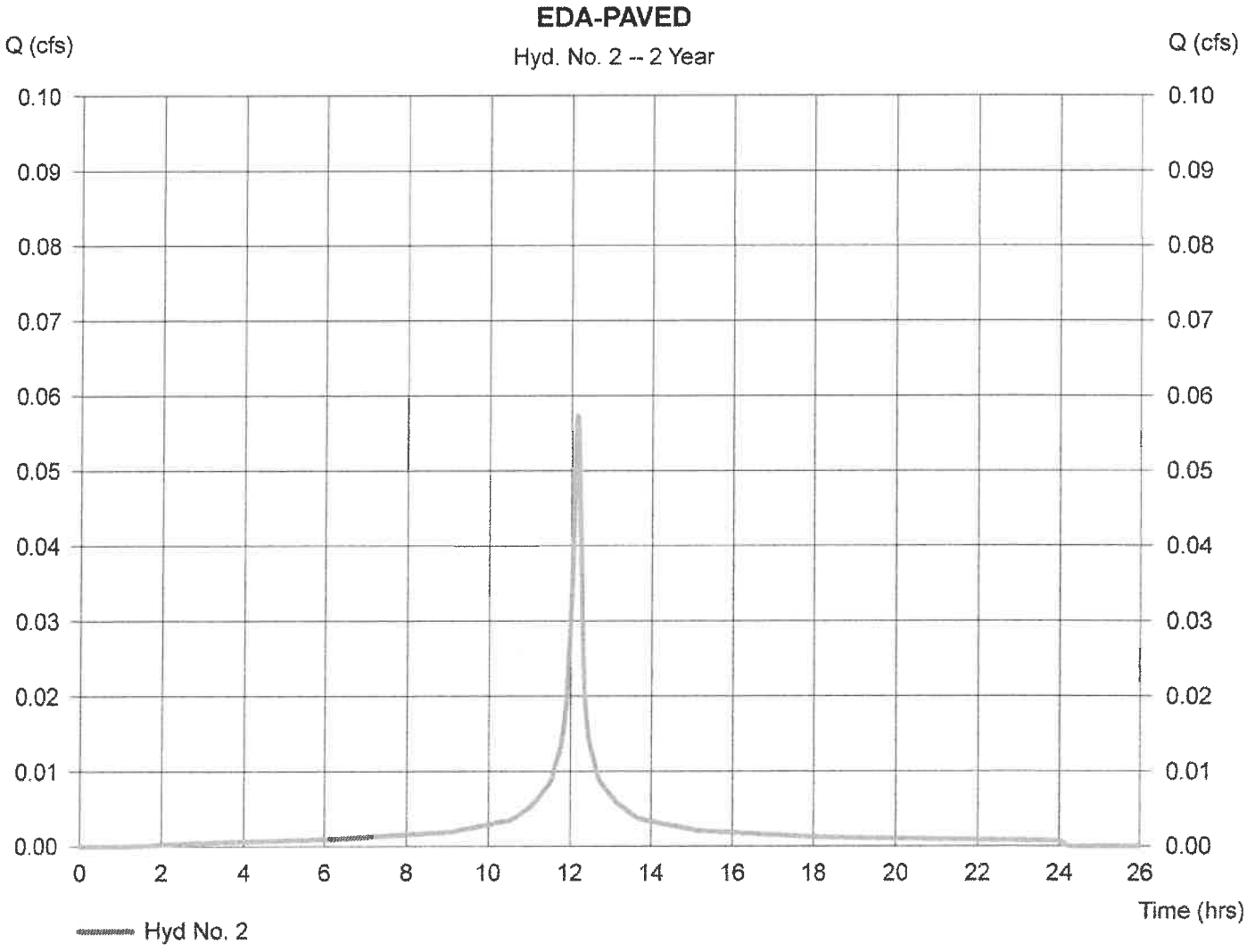
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

EDA-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.057 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 1 min	Hyd. volume	= 228 cuft
Drainage area	= 0.020 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.60 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



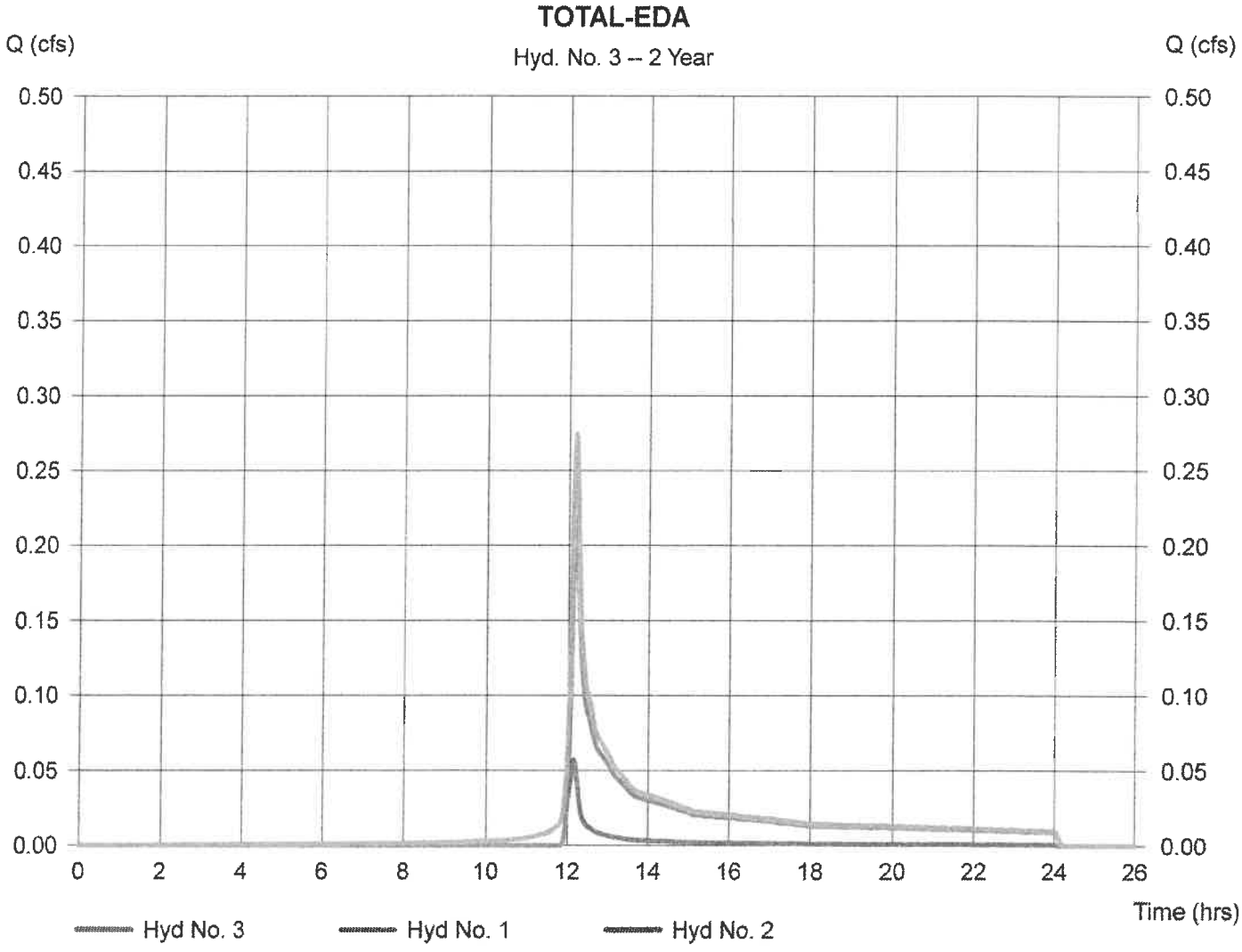
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

TOTAL-EDA

Hydrograph type	= Combine	Peak discharge	= 0.274 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,266 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.570 ac



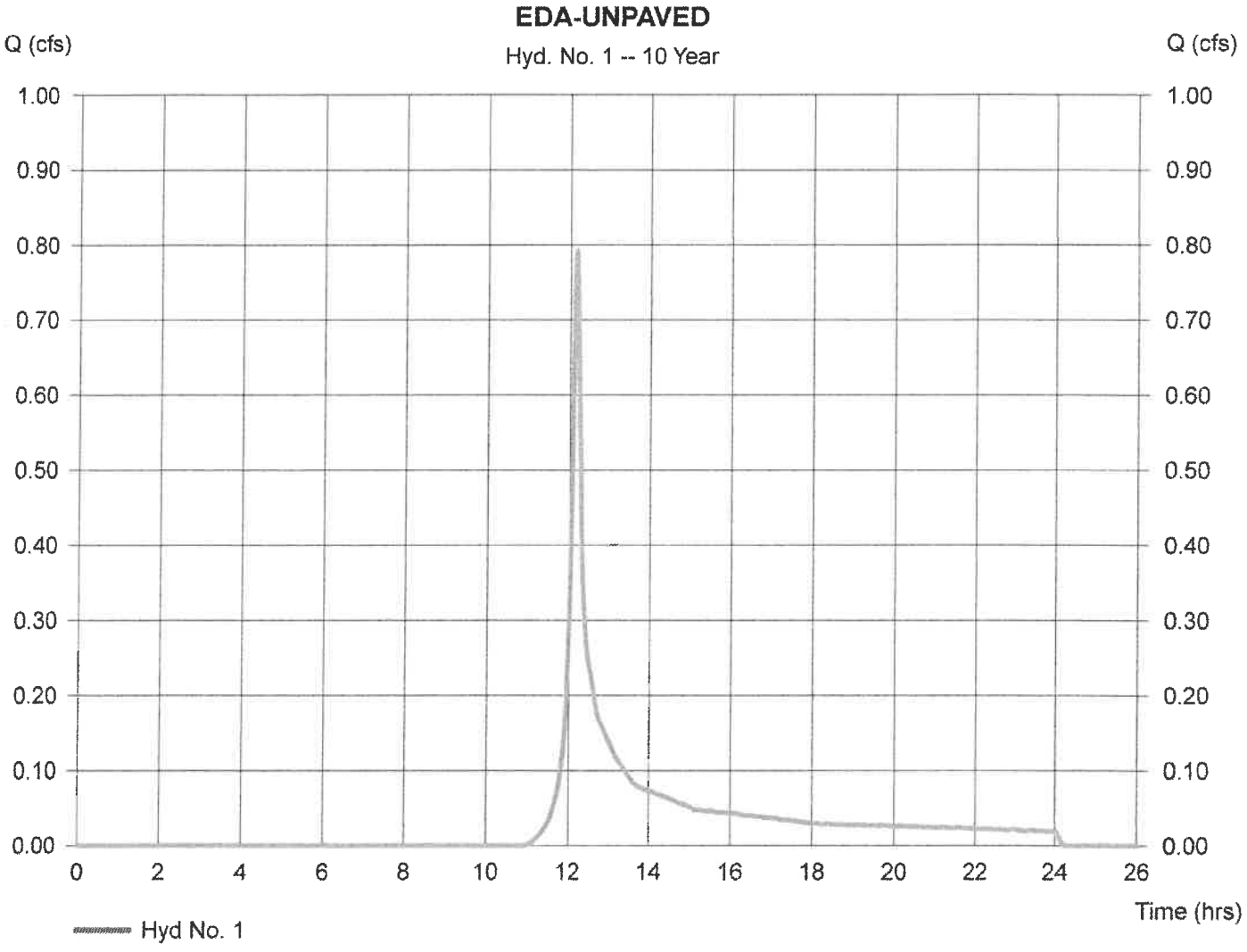
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

EDA-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.793 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 2,927 cuft
Drainage area	= 0.550 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.64 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



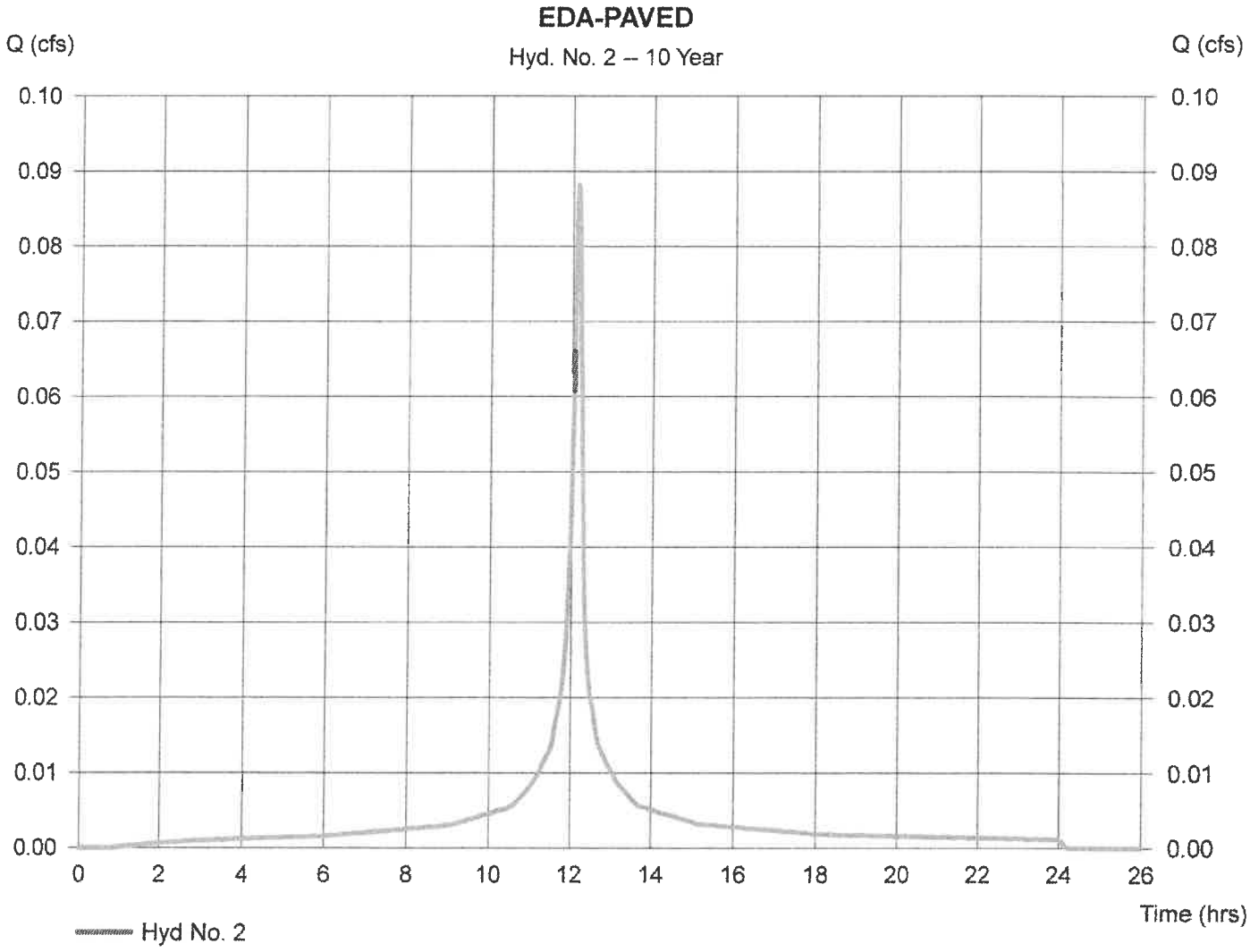
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

EDA-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.088 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 1 min	Hyd. volume	= 357 cuft
Drainage area	= 0.020 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.60 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



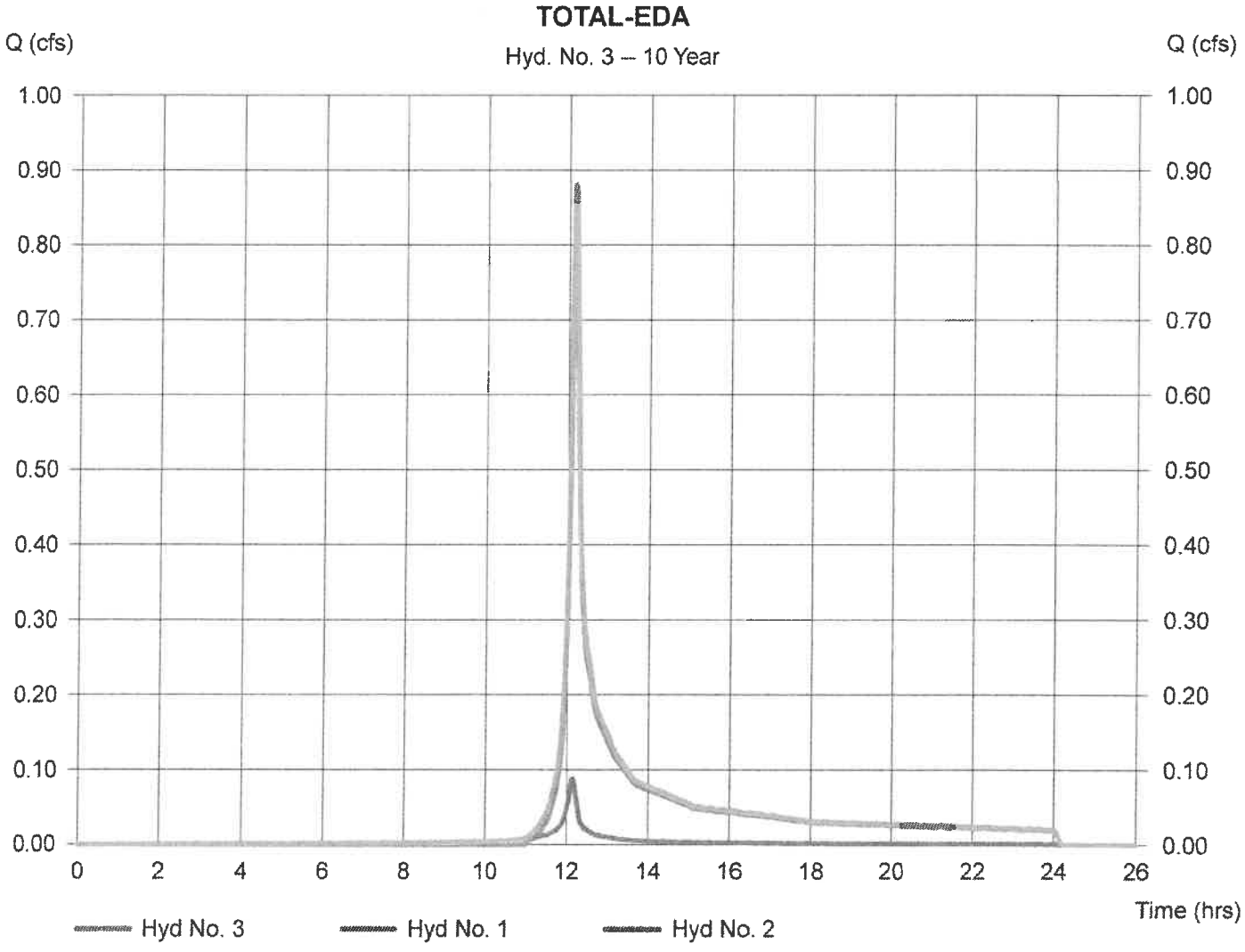
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

TOTAL-EDA

Hydrograph type	= Combine	Peak discharge	= 0.881 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 3,285 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.570 ac



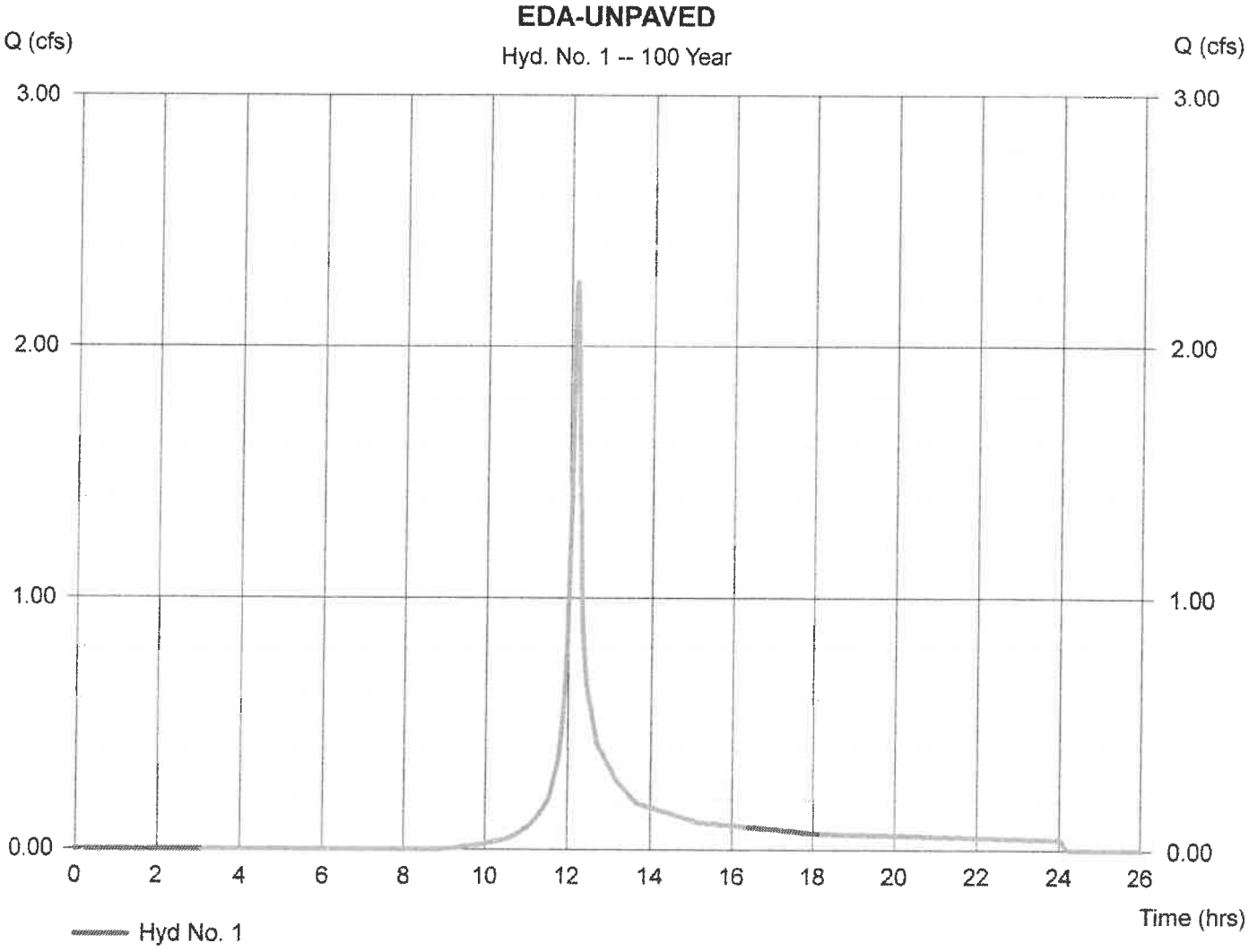
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

EDA-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 2.254 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 7,850 cuft
Drainage area	= 0.550 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.64 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



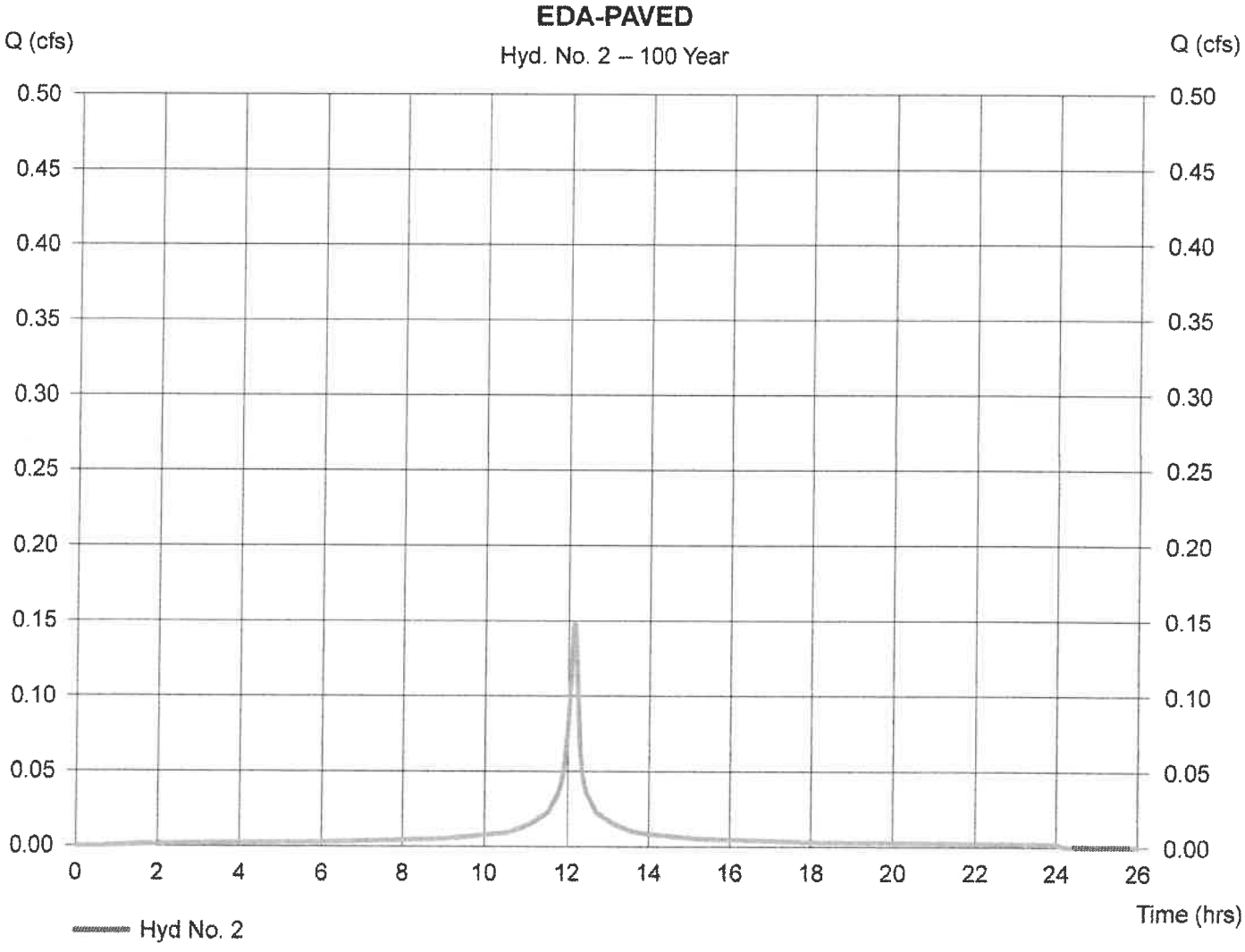
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

EDA-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.148 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 1 min	Hyd. volume	= 609 cuft
Drainage area	= 0.020 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.60 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



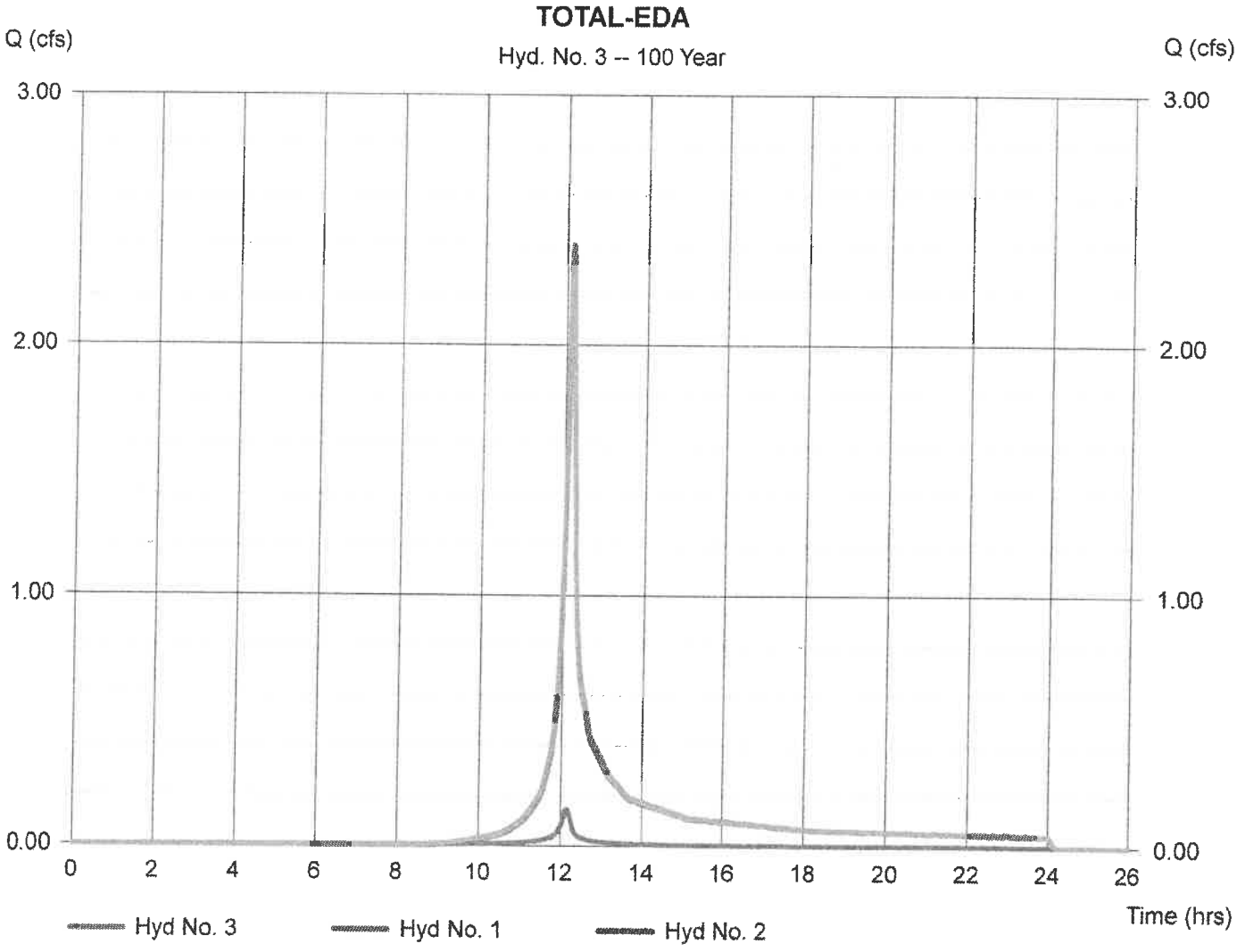
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

TOTAL-EDA

Hydrograph type	= Combine	Peak discharge	= 2.402 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 8,459 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.570 ac

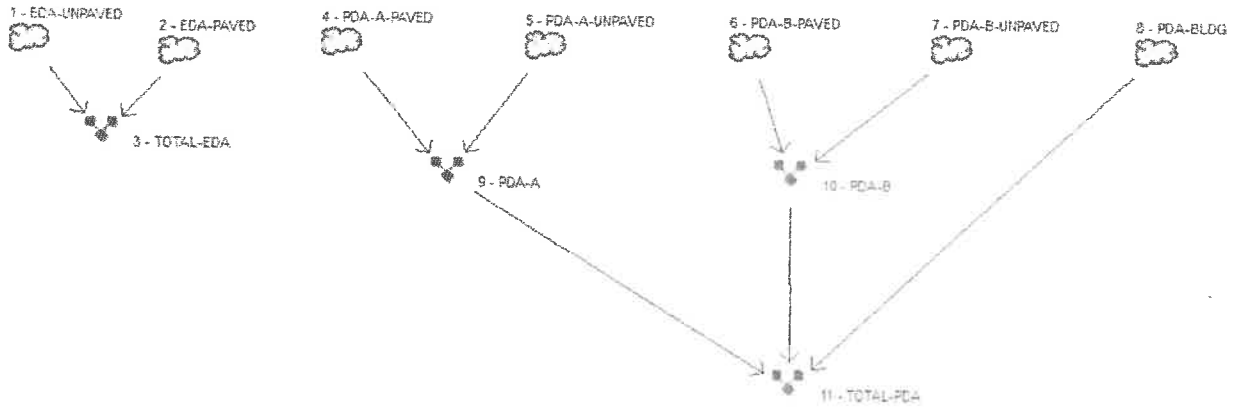


APPENDIX 2

Post-Development Site runoff

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.01



Legend

Hyd.	Origin	Description
1	SCS Runoff	EDA-UNPAVED
2	SCS Runoff	EDA-PAVED
3	Combine	TOTAL-EDA
4	SCS Runoff	PDA-A-PAVED
5	SCS Runoff	PDA-A-UNPAVED
6	SCS Runoff	PDA-B-PAVED
7	SCS Runoff	PDA-B-UNPAVED
8	SCS Runoff	PDA-BLDG
9	Combine	PDA-A
10	Combine	PDA-B
11	Combine	TOTAL-PDA

TR55 Tc Worksheet

Hyd. No. 4

PDA-A-PAVED

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.011	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.38	0.00	0.00	
Land slope (%)	= 3.26	0.00	0.00	
Travel Time (min)	**= 0.97**	**+ 0.00**	**+ 0.00**	**= 0.97**
Shallow Concentrated Flow				
Flow length (ft)	= 72.00	108.00	0.00	
Watercourse slope (%)	= 1.57	2.56	0.00	
Surface description	= Paved	Unpaved	Paved	
Average velocity (ft/s)	= 2.55	2.58	0.00	
Travel Time (min)	**= 0.47**	**+ 0.70**	**+ 0.00**	**= 1.17**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

Total Travel Time, Tc ..... 2.10 min

Hydrograph Report

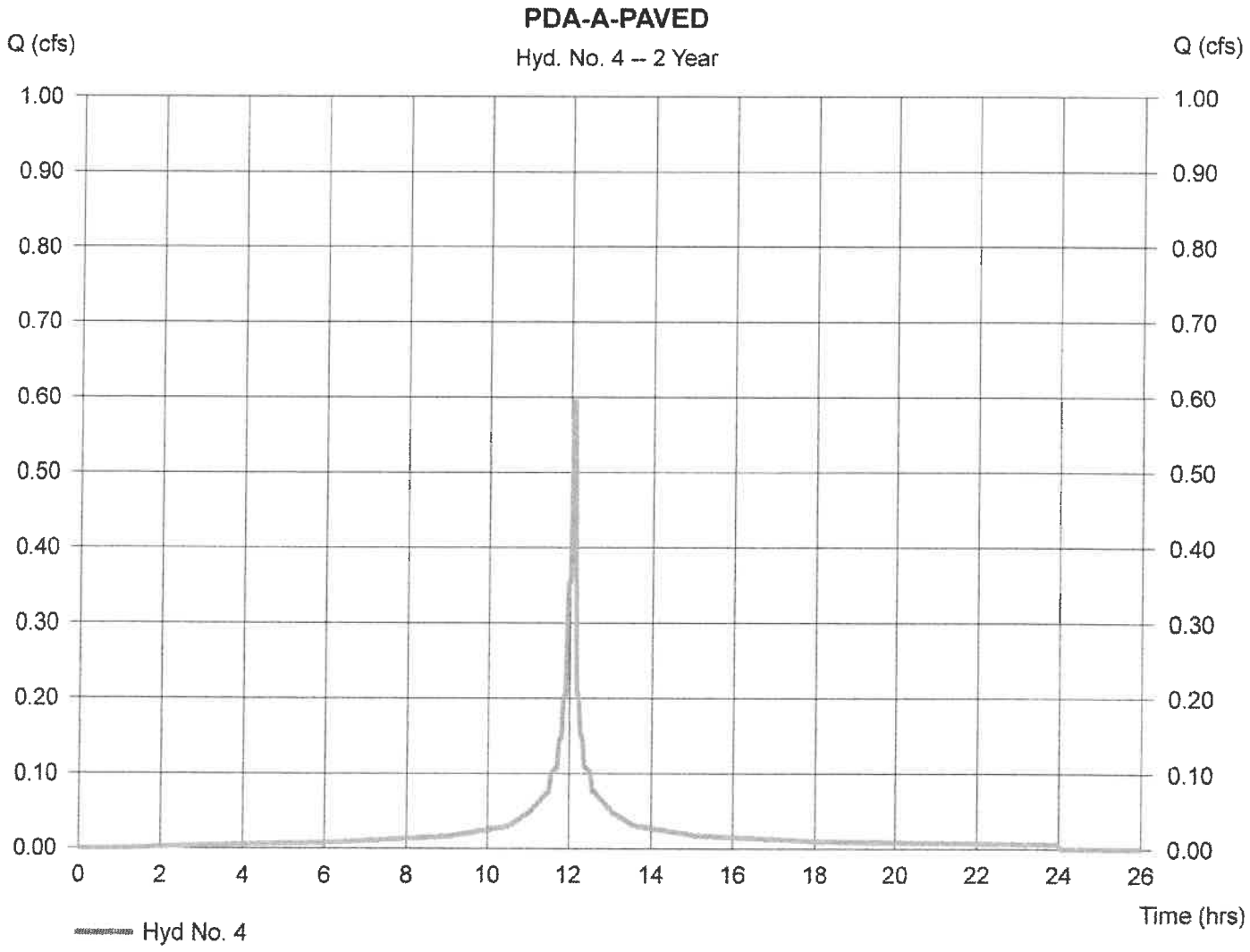
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.594 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,928 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



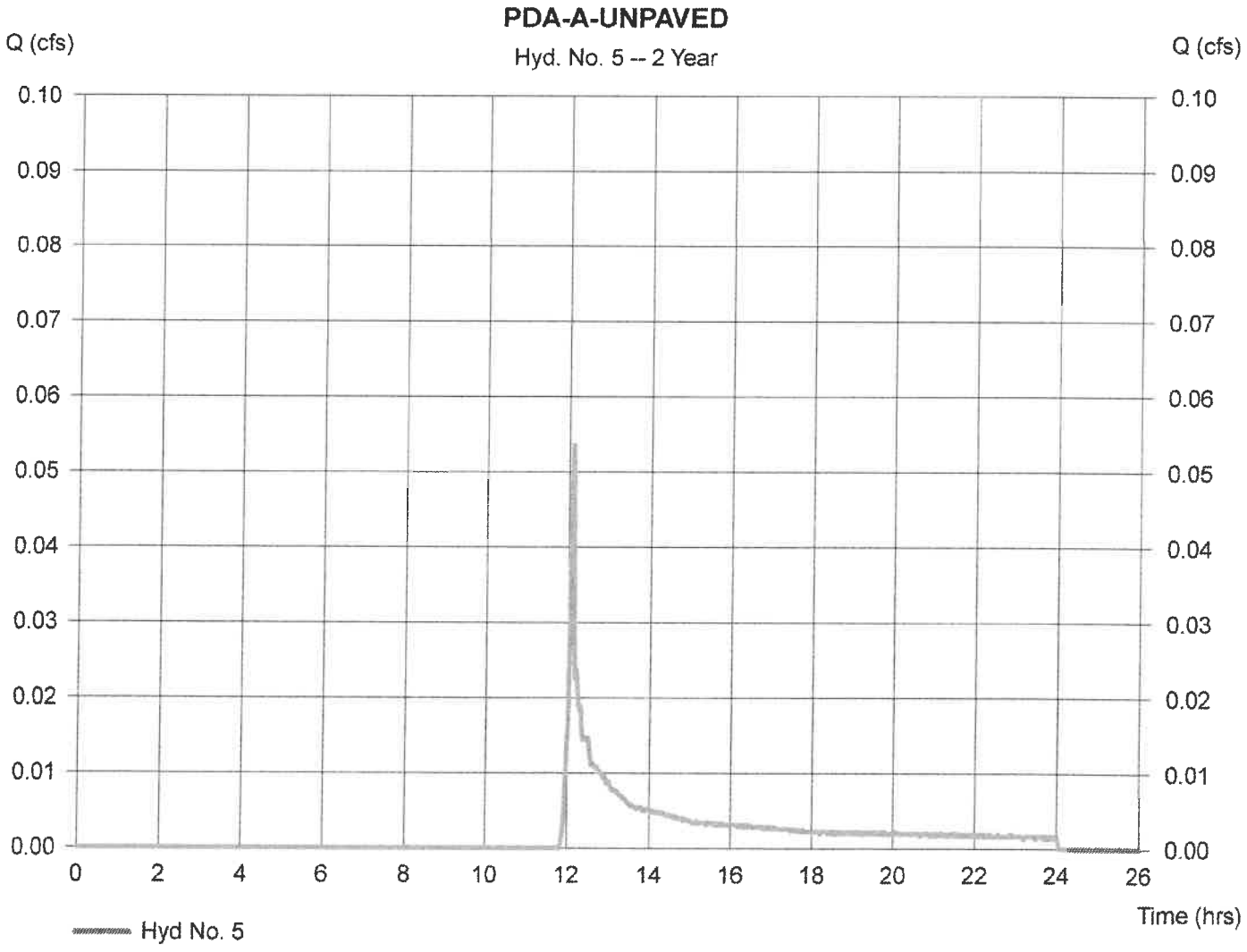
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.054 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 177 cuft
Drainage area	= 0.100 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

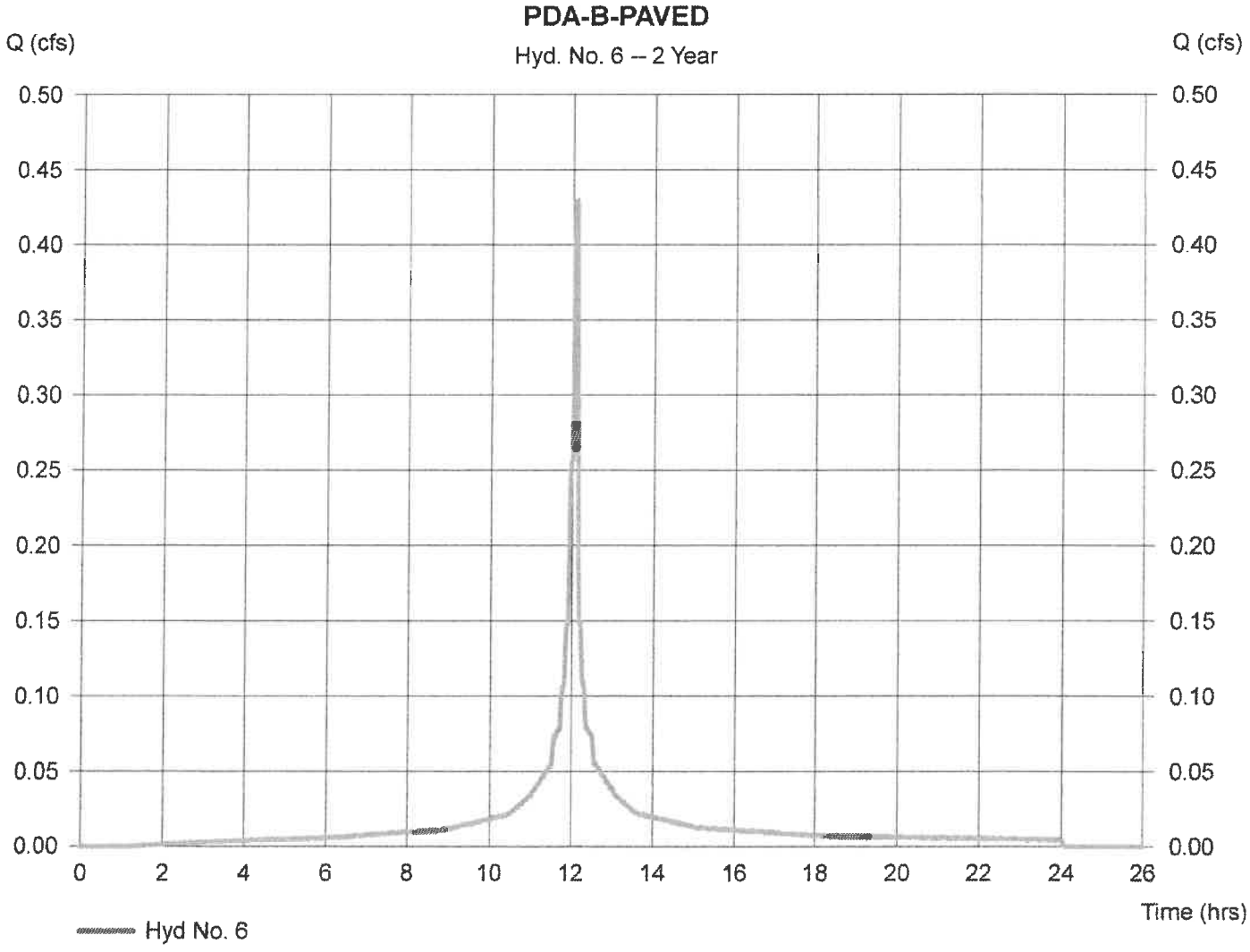
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.429 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,392 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



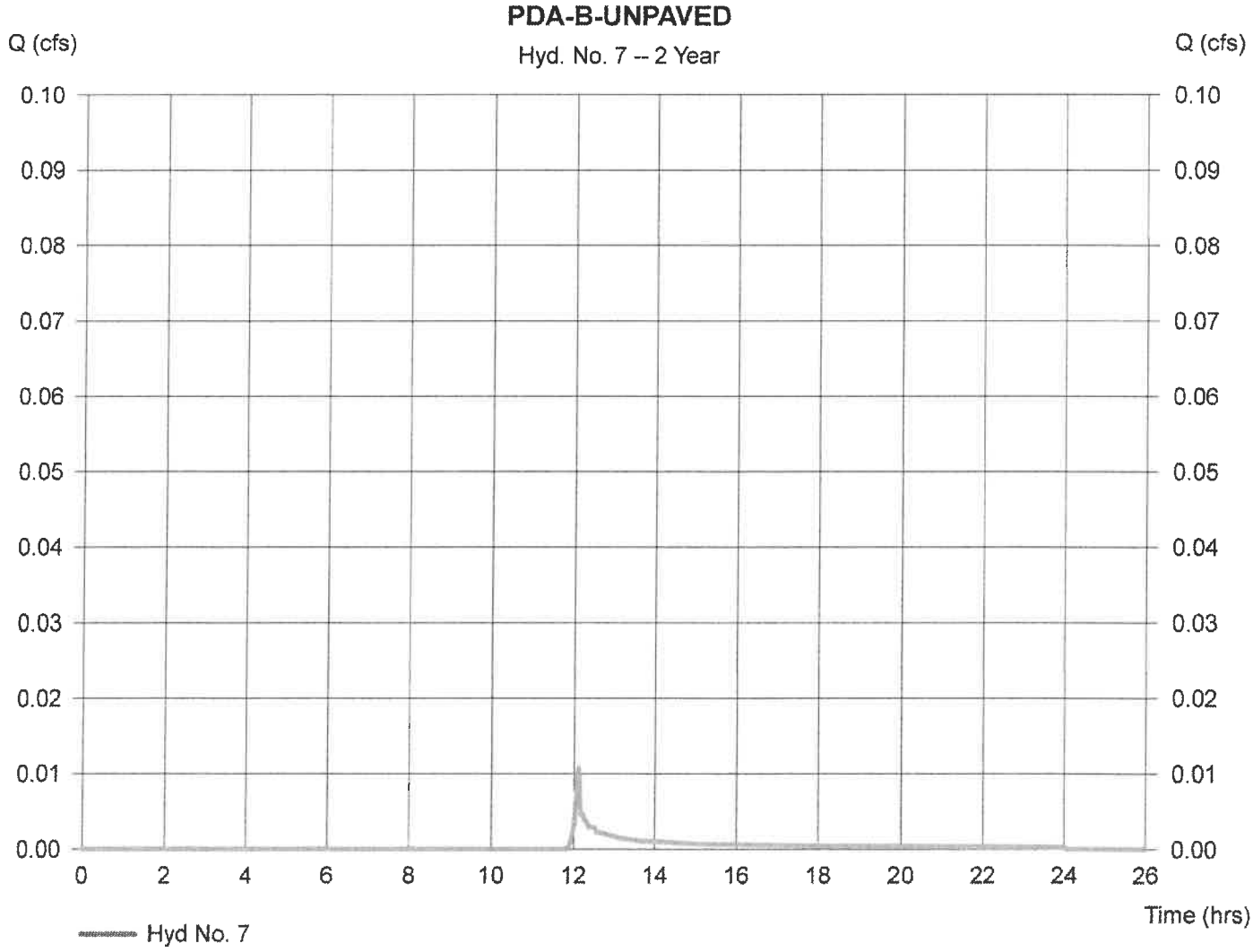
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 7

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.011 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 35 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

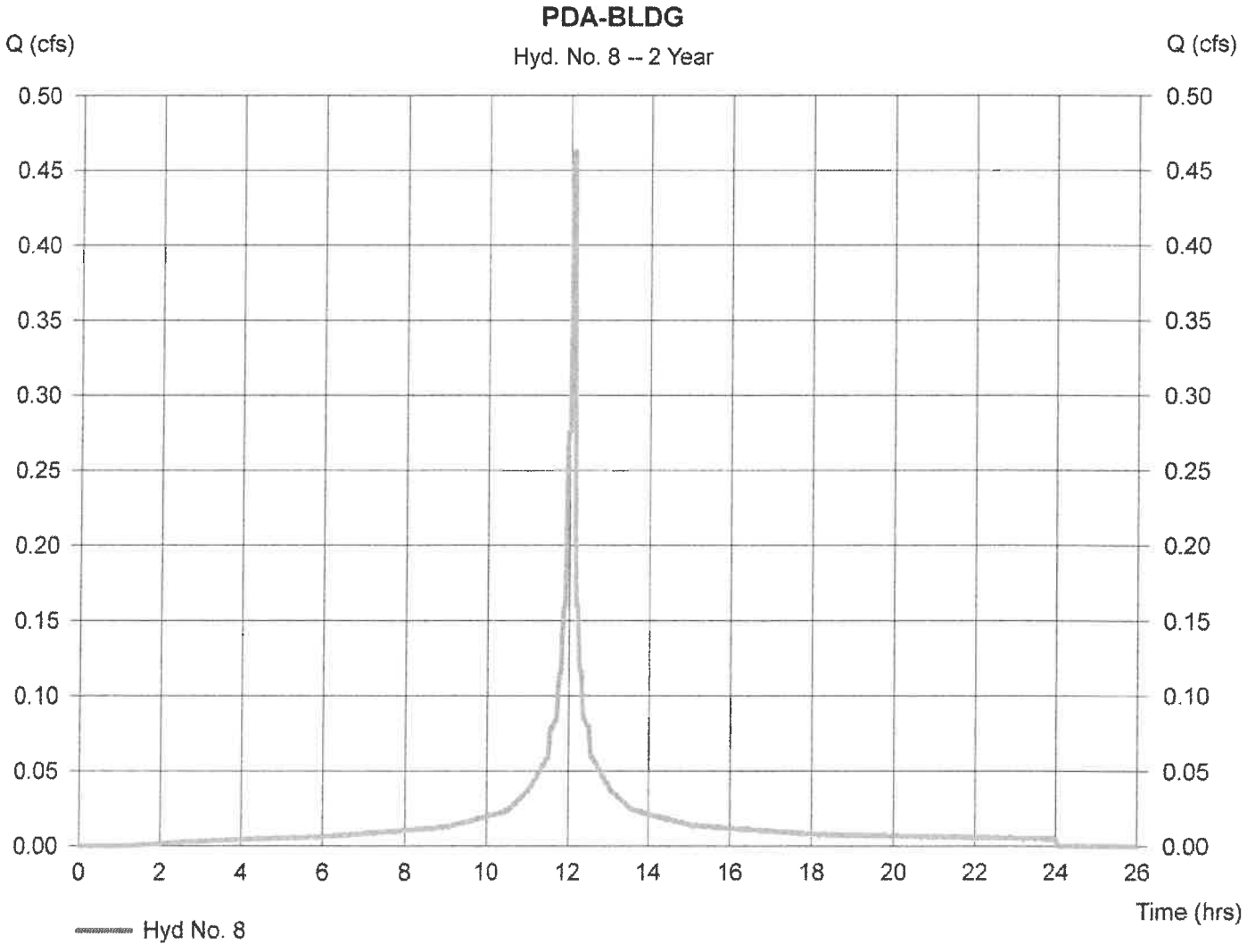
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 0.462 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,499 cuft
Drainage area	= 0.140 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.140



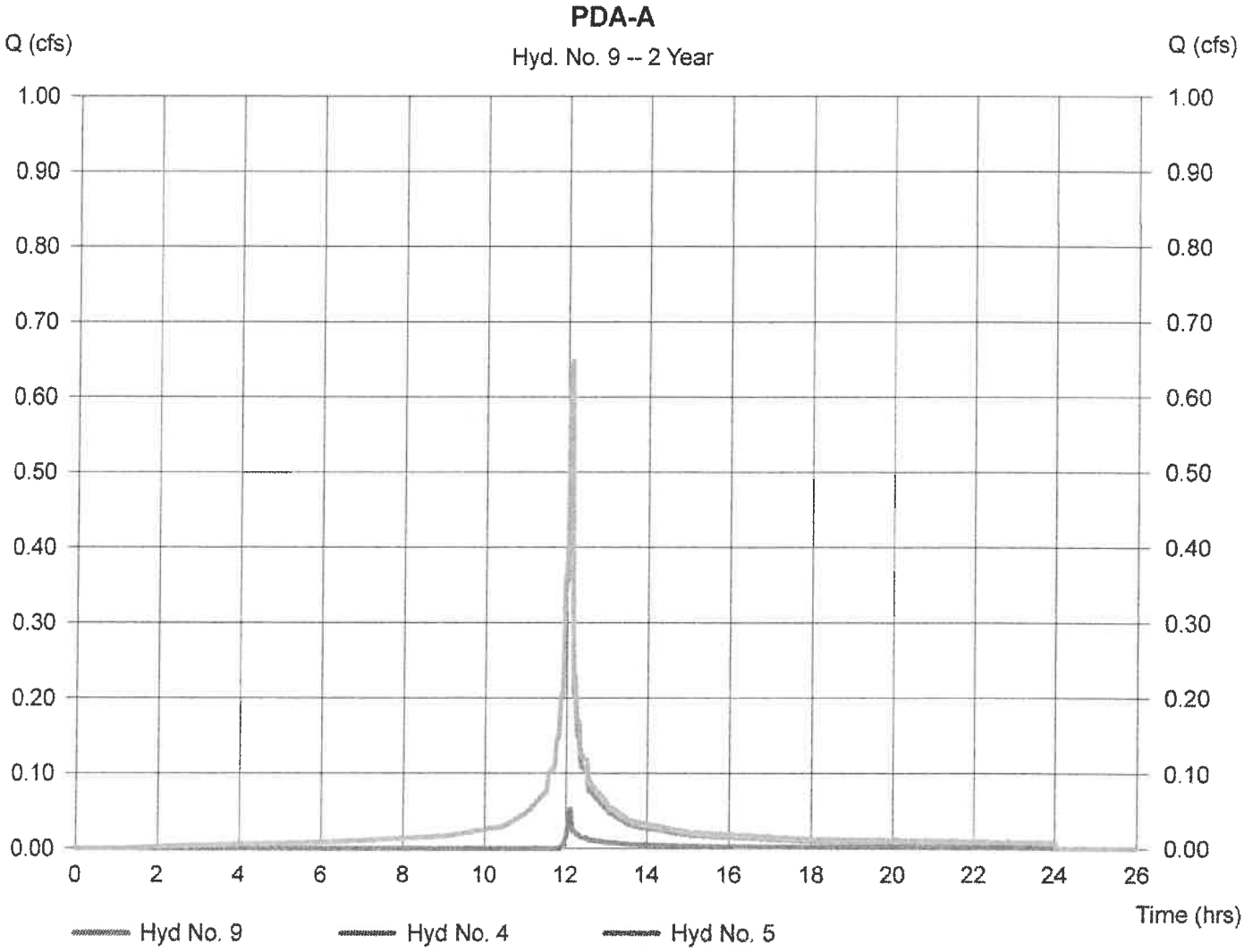
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-A

Hydrograph type	= Combine	Peak discharge	= 0.648 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,105 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.280 ac



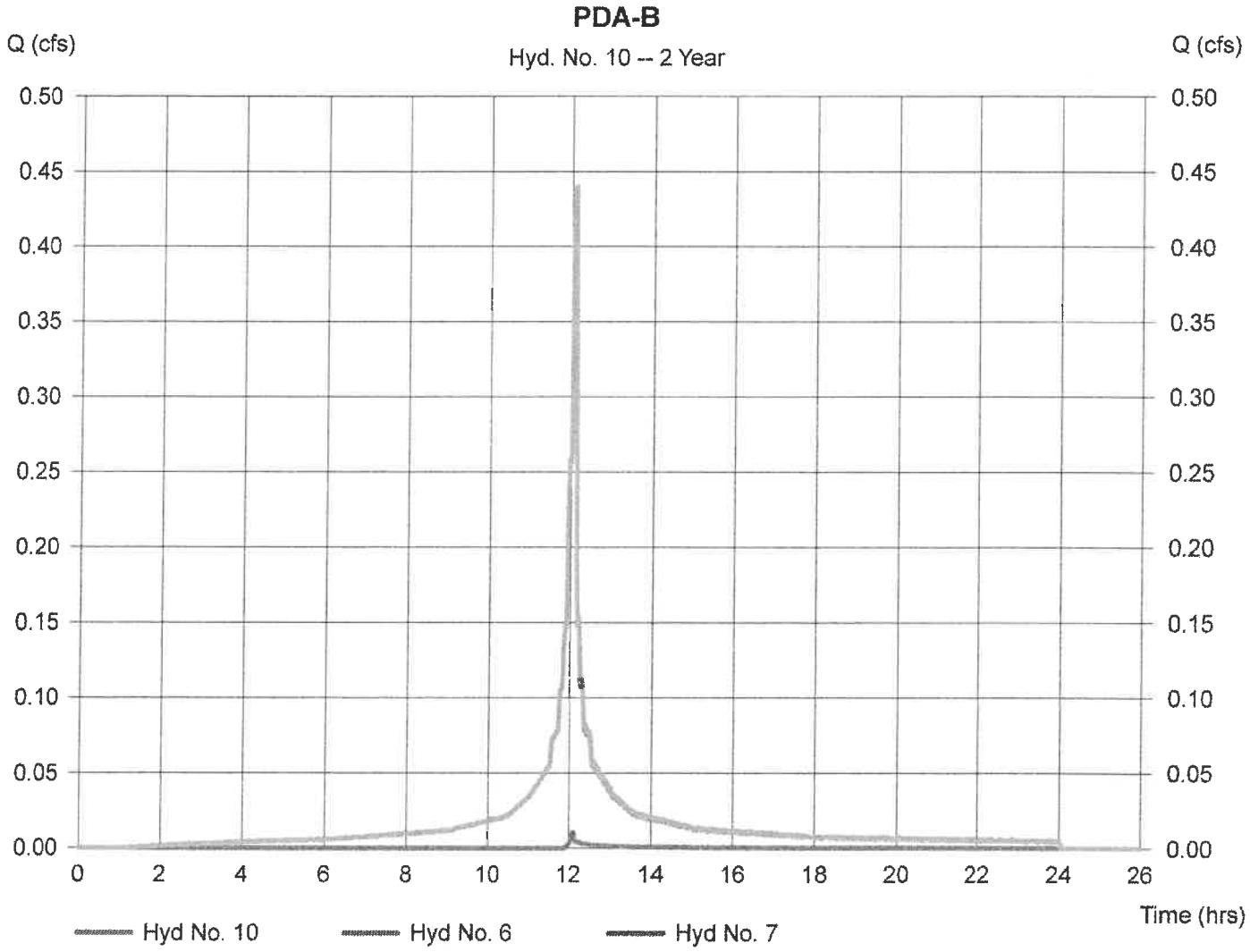
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

PDA-B

Hydrograph type	= Combine	Peak discharge	= 0.440 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,428 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 0.150 ac



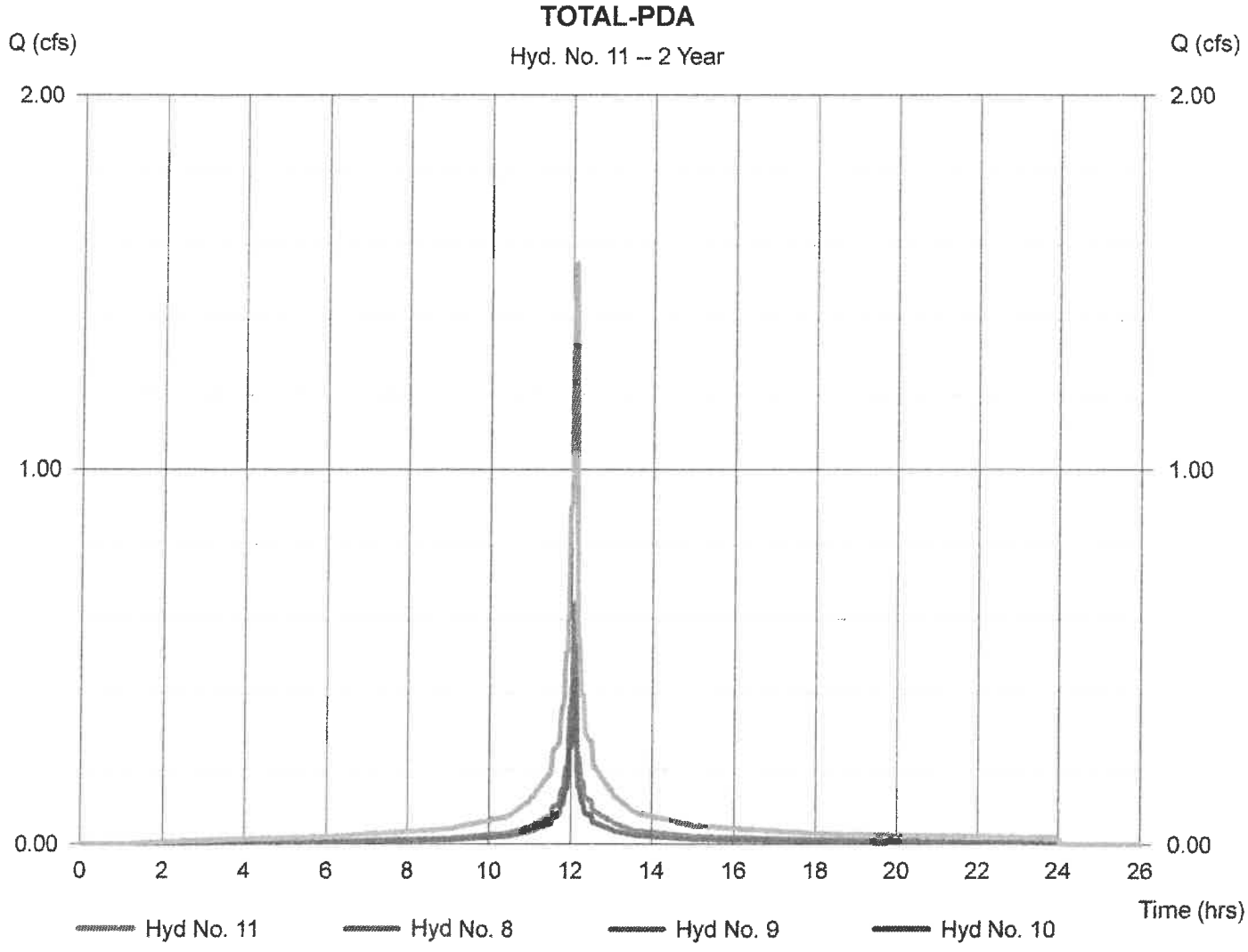
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

TOTAL-PDA

Hydrograph type	= Combine	Peak discharge	= 1.550 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 5,031 cuft
Inflow hyds.	= 8, 9, 10	Contrib. drain. area	= 0.140 ac



Hydrograph Report

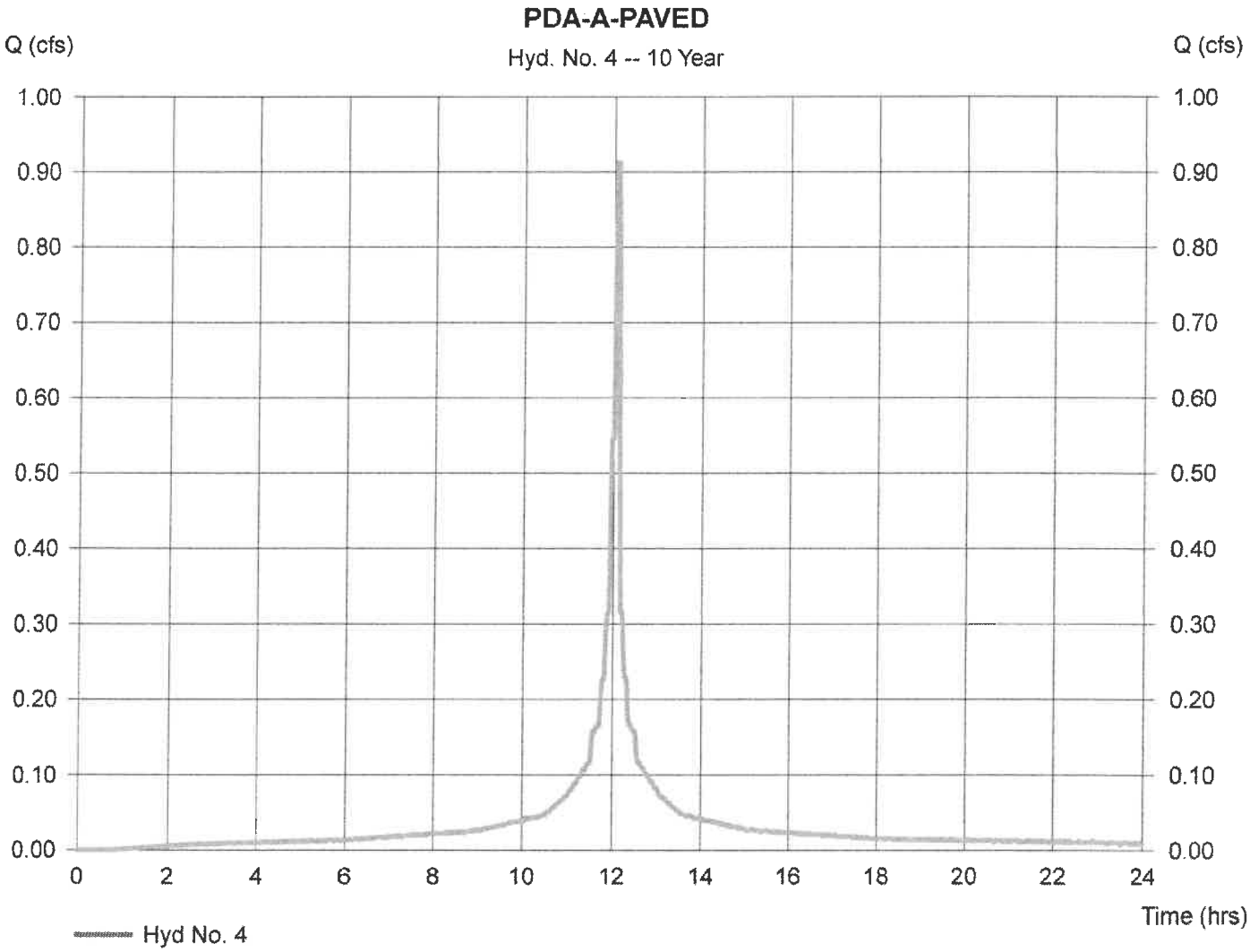
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.912 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,016 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



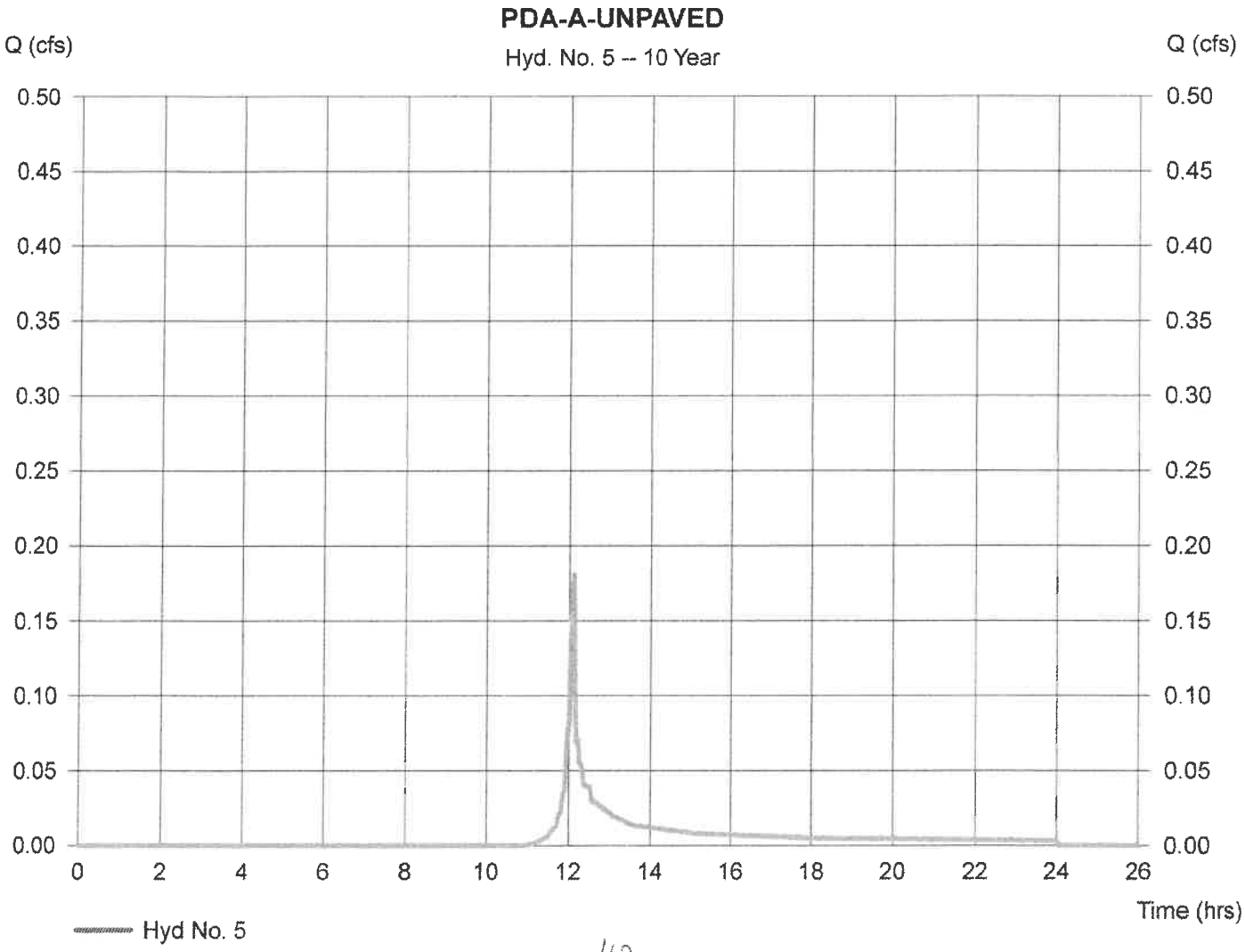
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.181 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 499 cuft
Drainage area	= 0.100 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

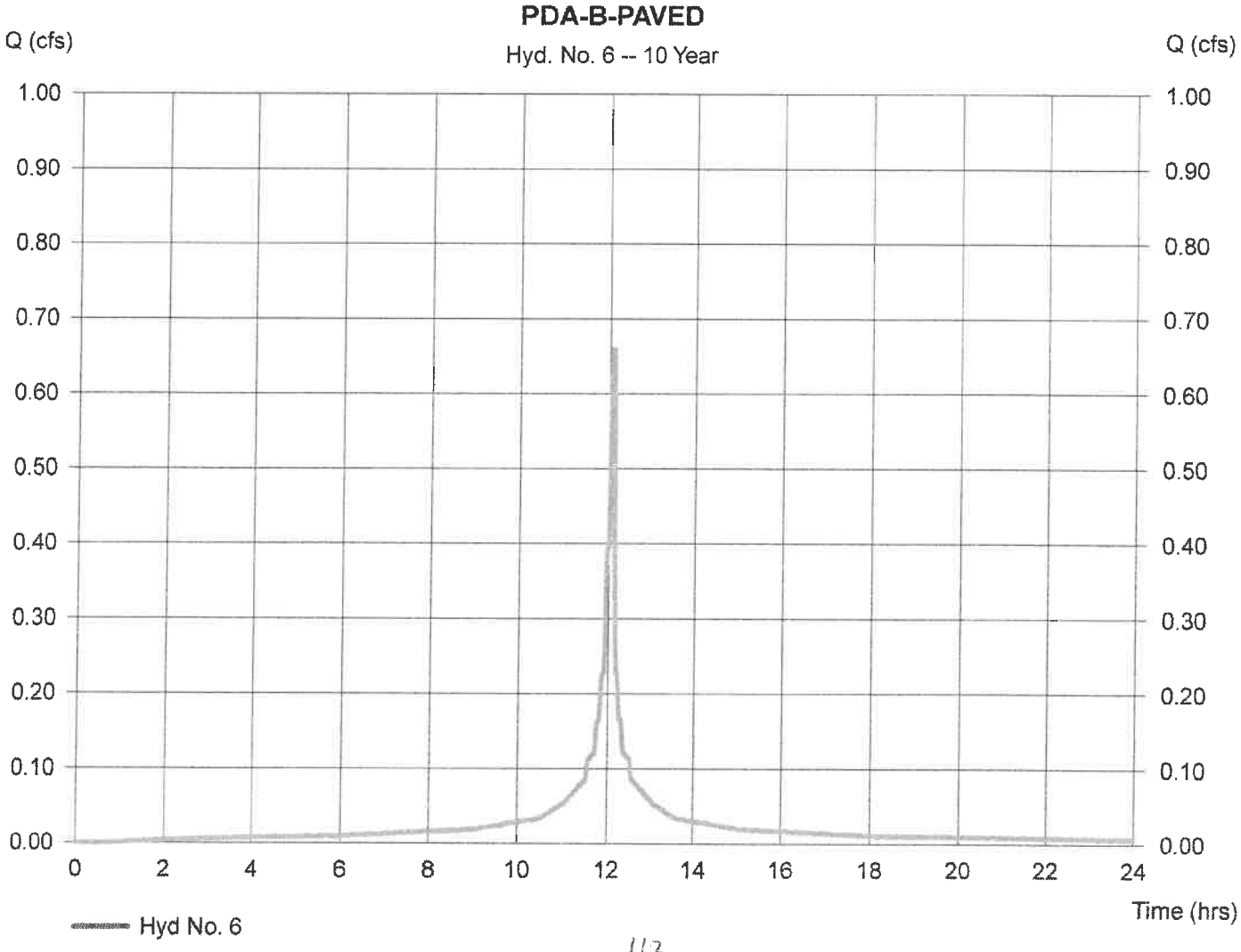
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.659 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,178 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



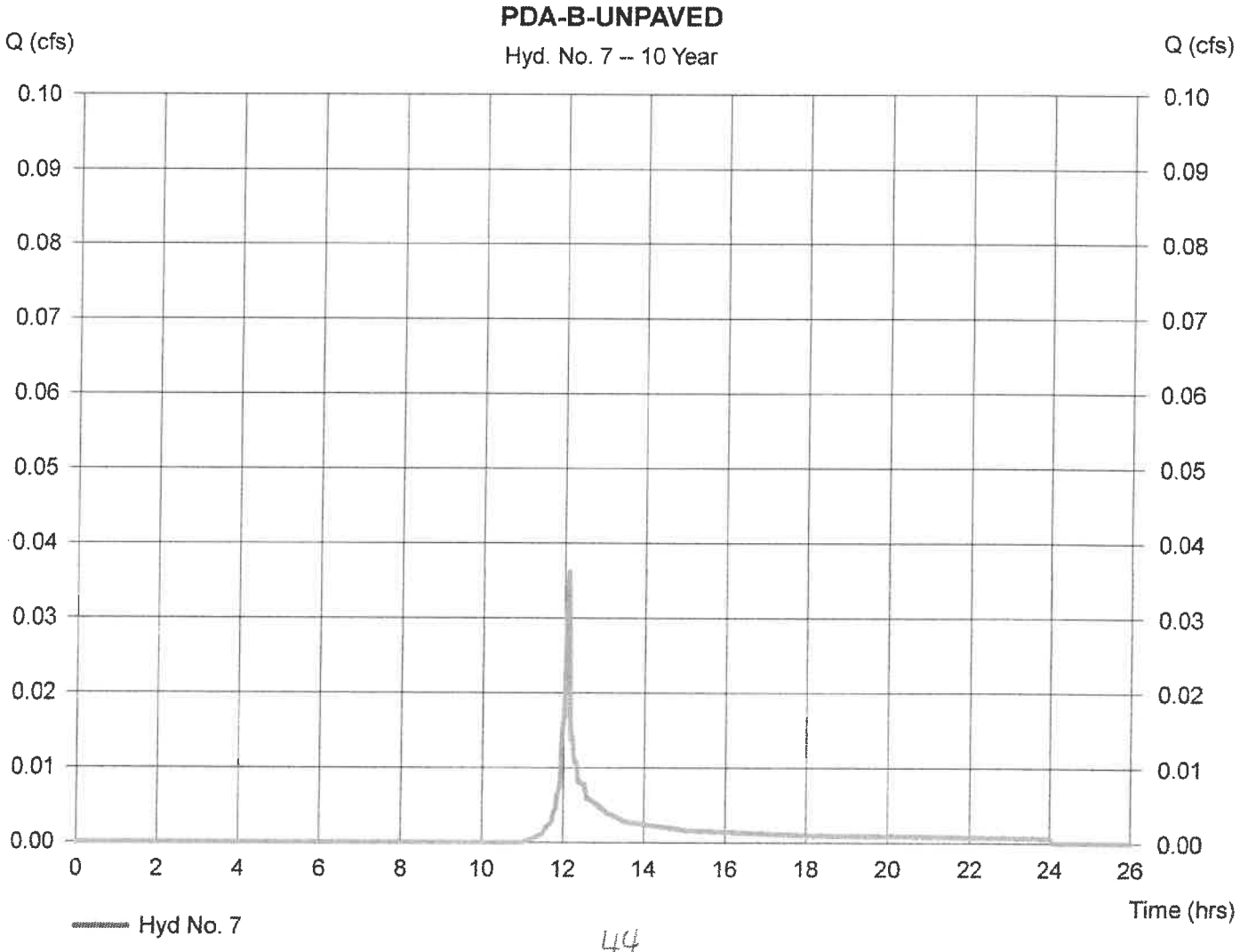
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 7

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.036 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 100 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

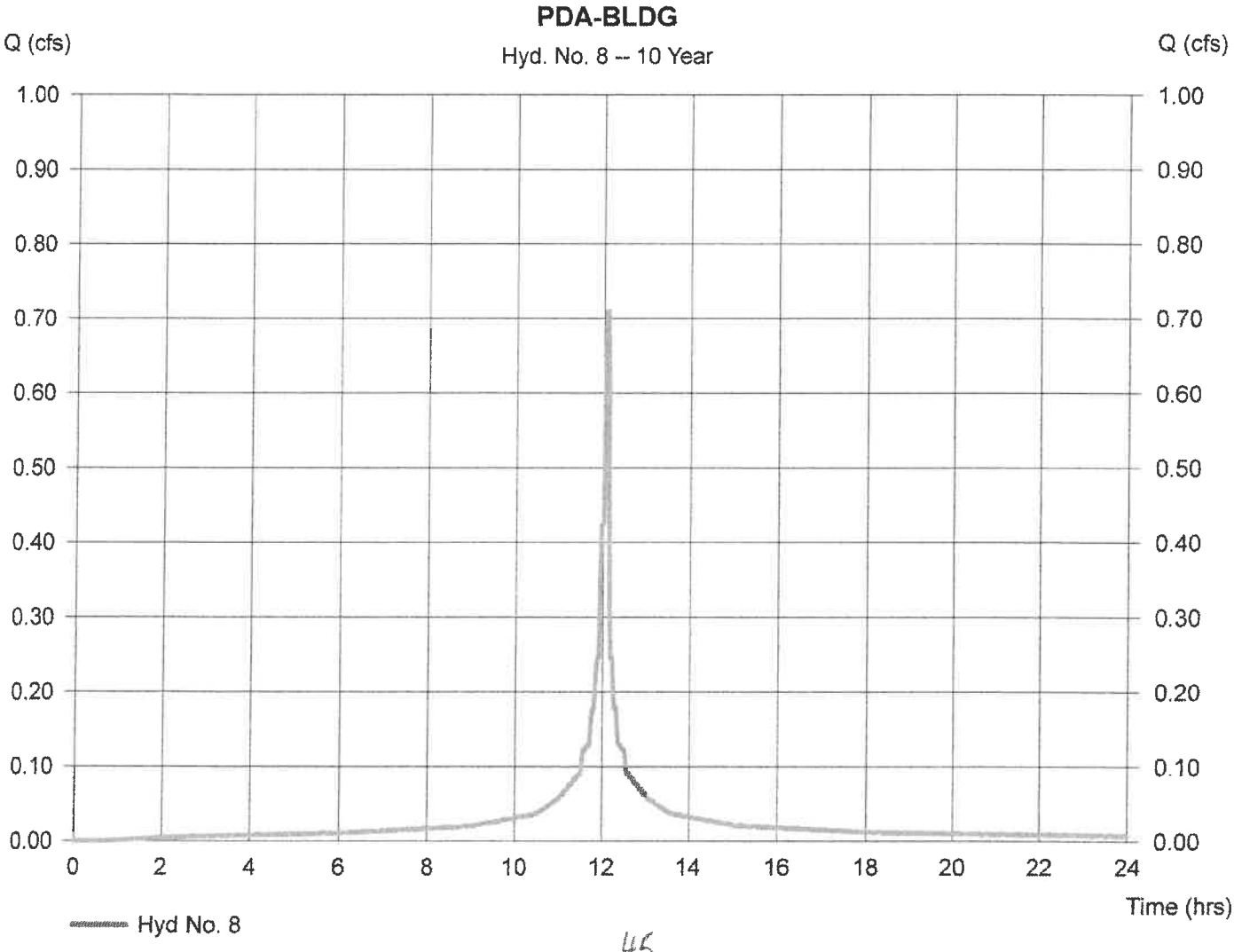
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 0.710 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,345 cuft
Drainage area	= 0.140 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.140



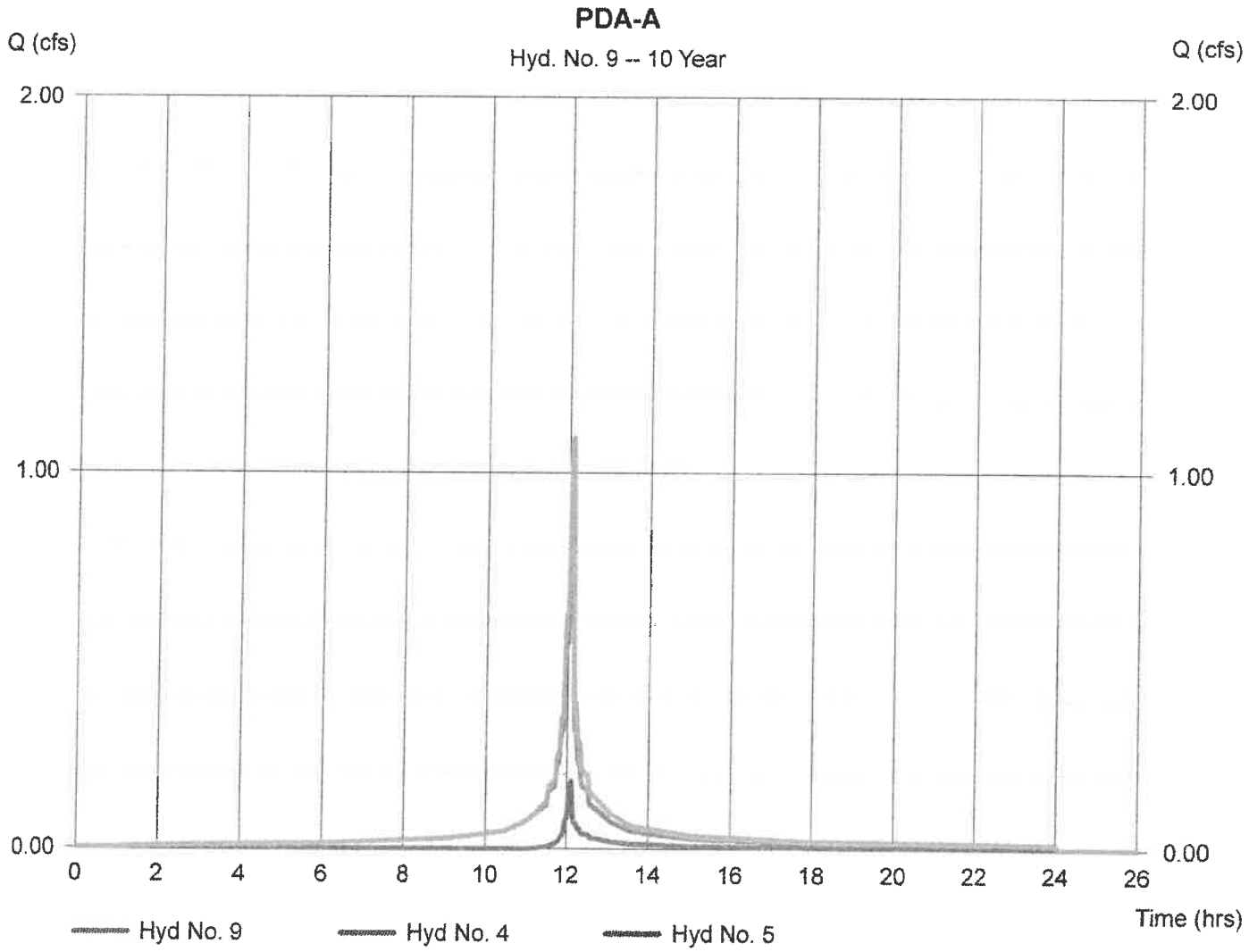
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-A

Hydrograph type	= Combine	Peak discharge	= 1.093 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,515 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.280 ac



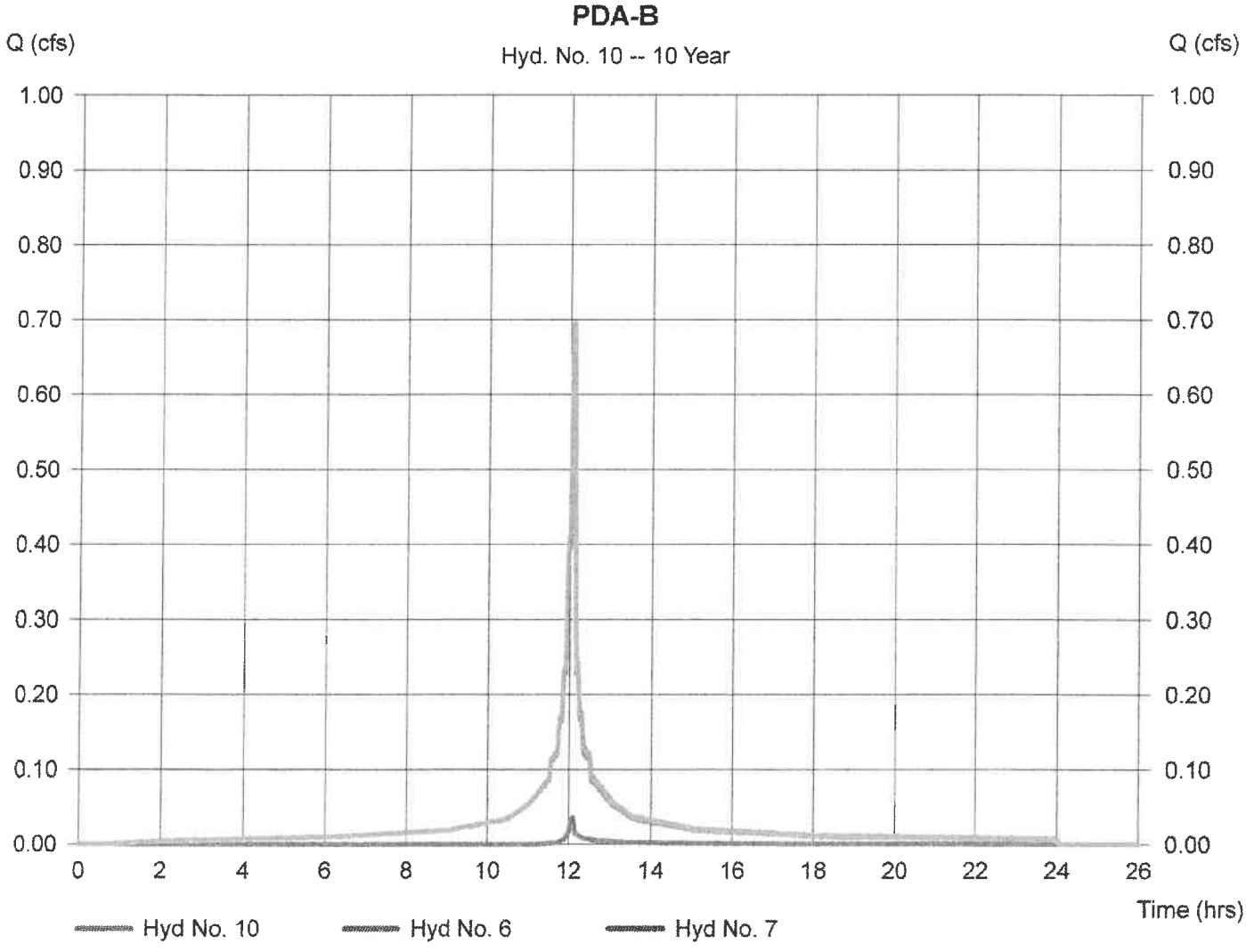
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

PDA-B

Hydrograph type	= Combine	Peak discharge	= 0.695 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,278 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 0.150 ac



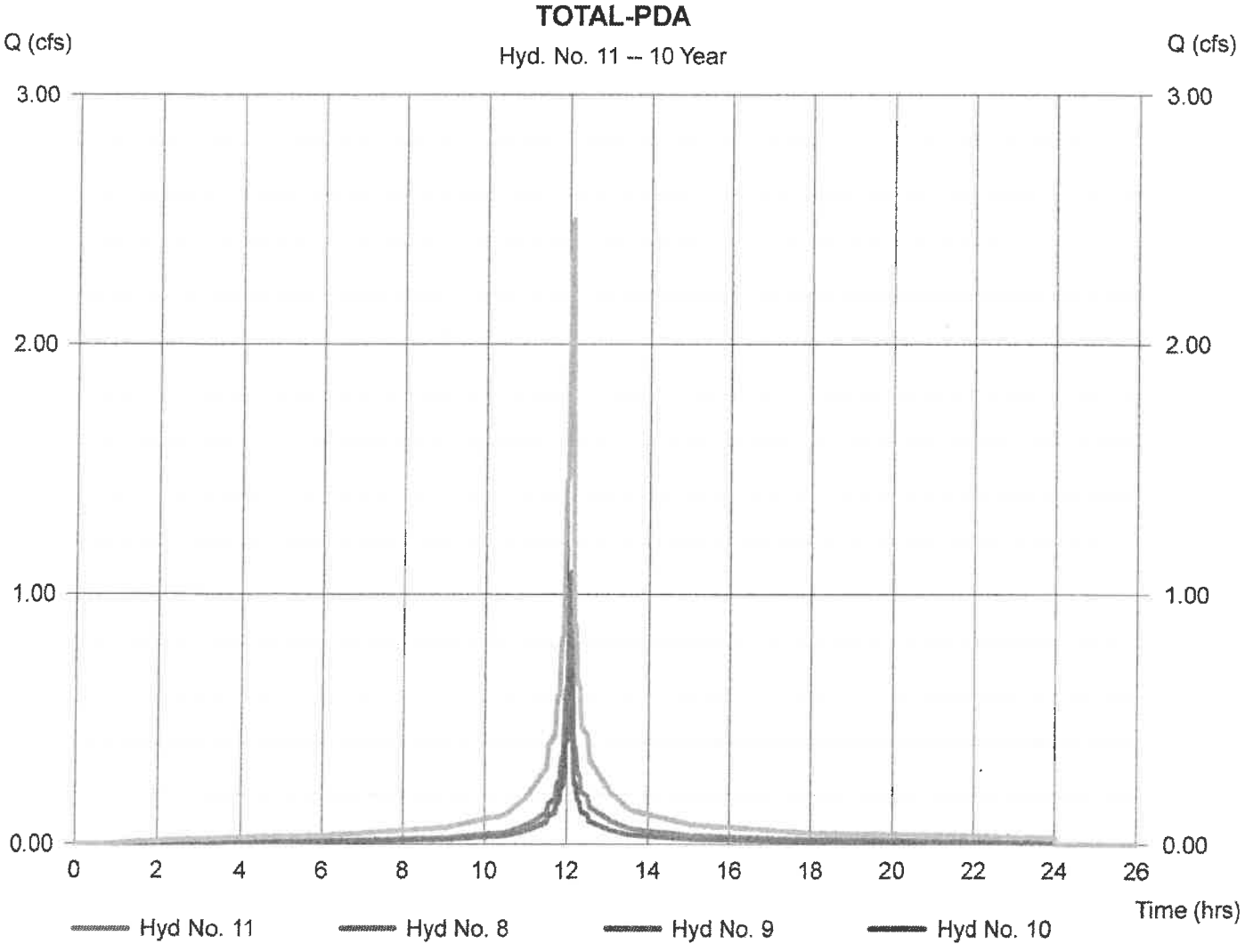
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

TOTAL-PDA

Hydrograph type	= Combine	Peak discharge	= 2.498 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 8,138 cuft
Inflow hyds.	= 8, 9, 10	Contrib. drain. area	= 0.140 ac



Hydrograph Report

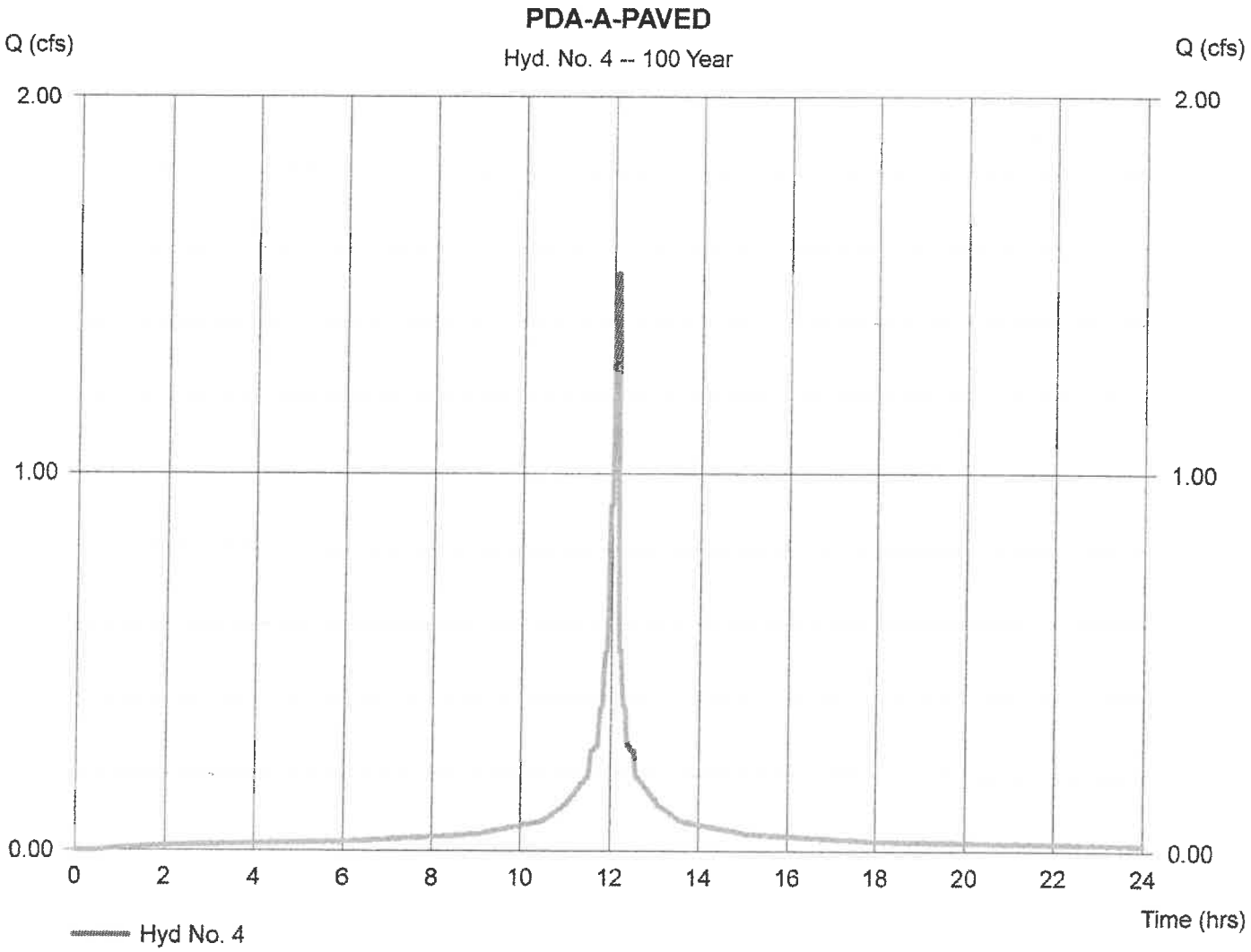
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 1.530 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 5,139 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



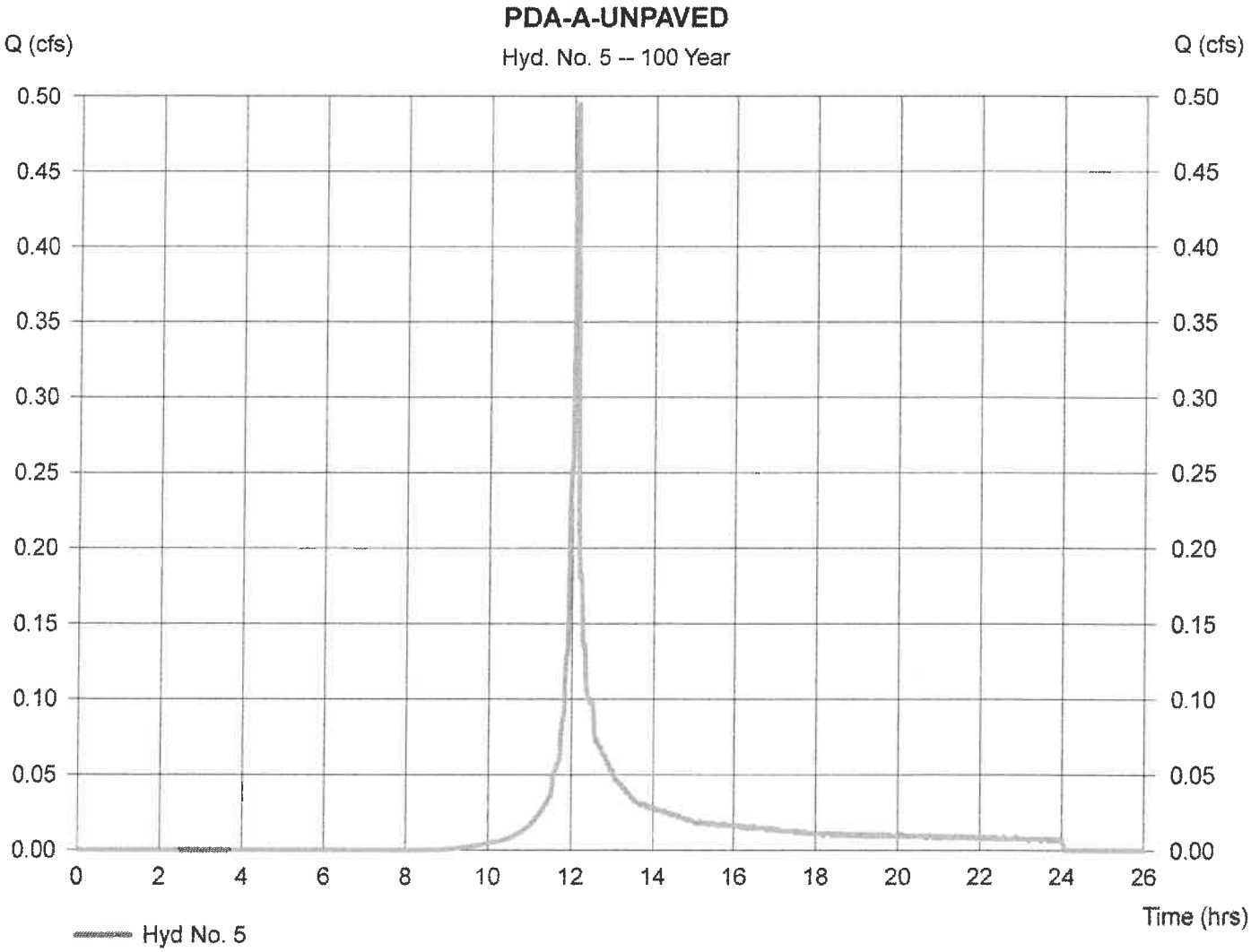
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.494 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,338 cuft
Drainage area	= 0.100 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

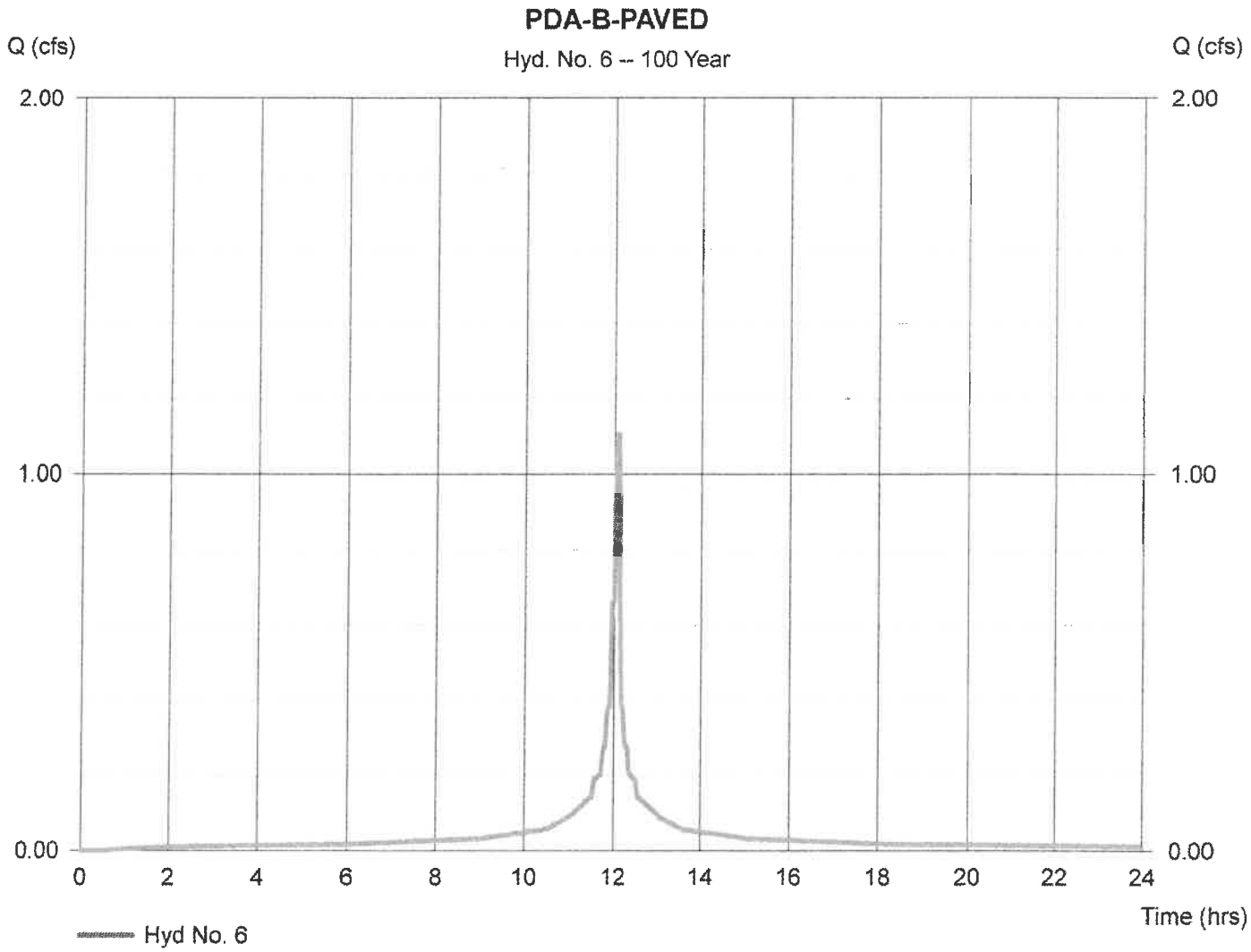
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 1.105 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,712 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



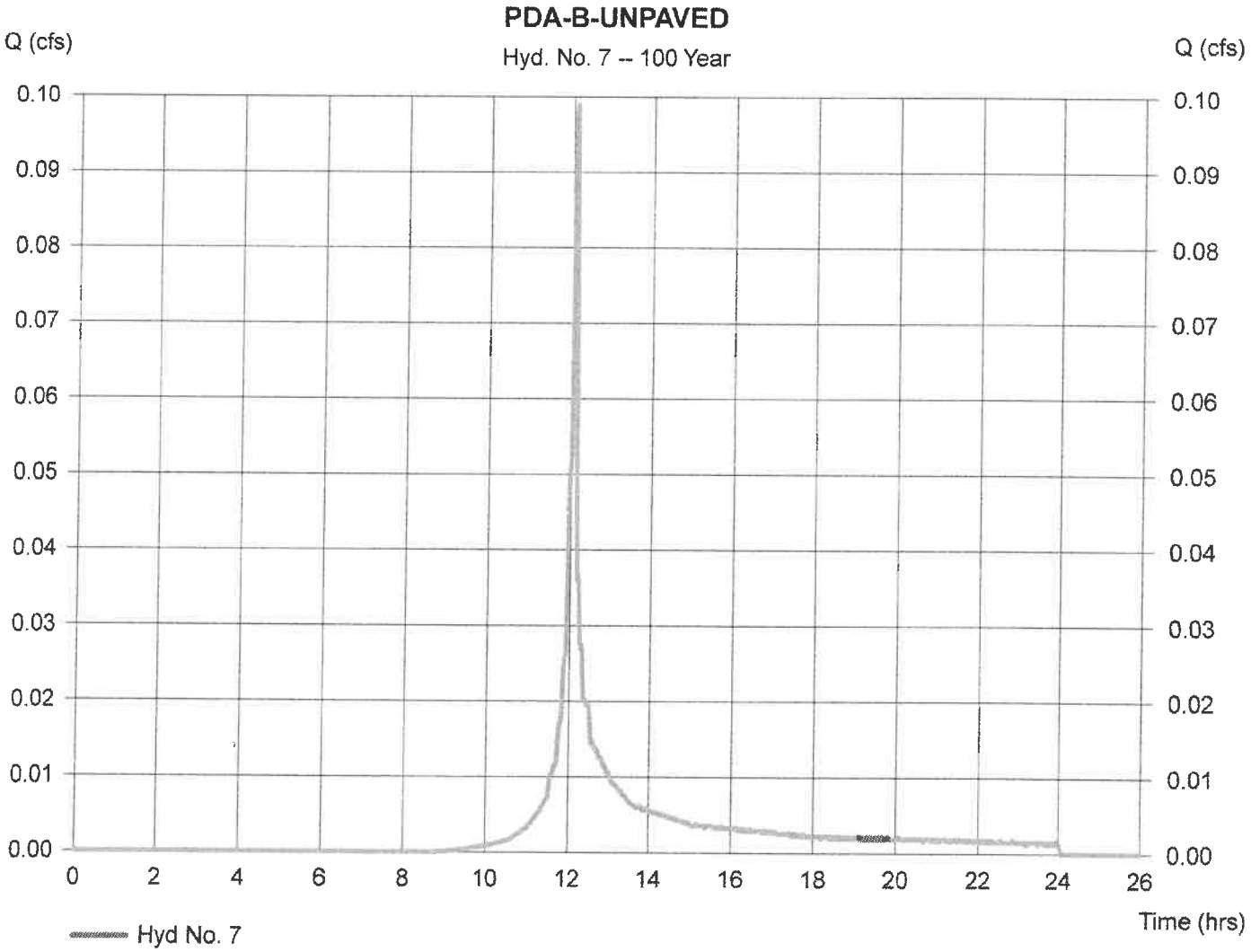
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 7

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.099 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 268 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

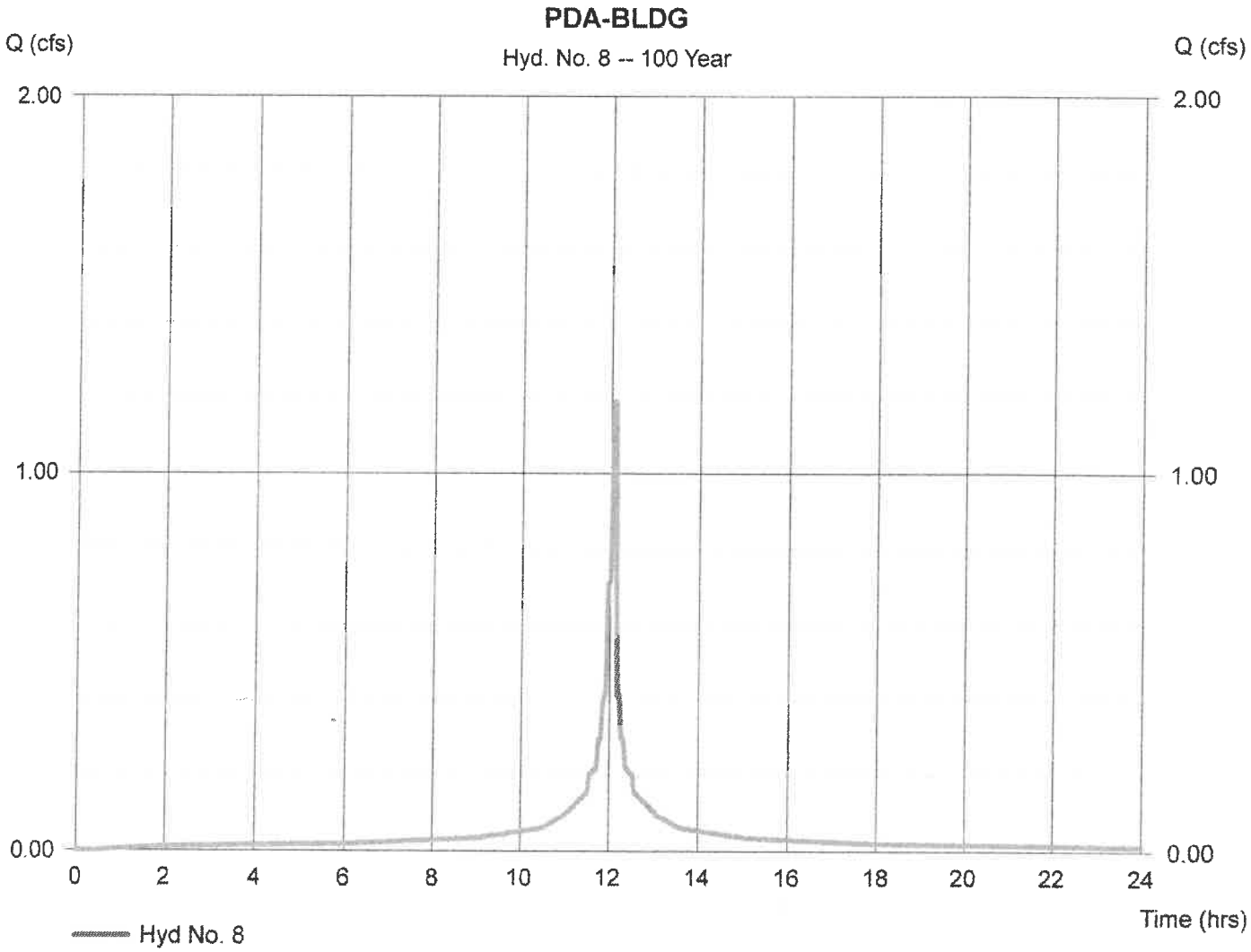
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 1.190 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,997 cuft
Drainage area	= 0.140 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.140



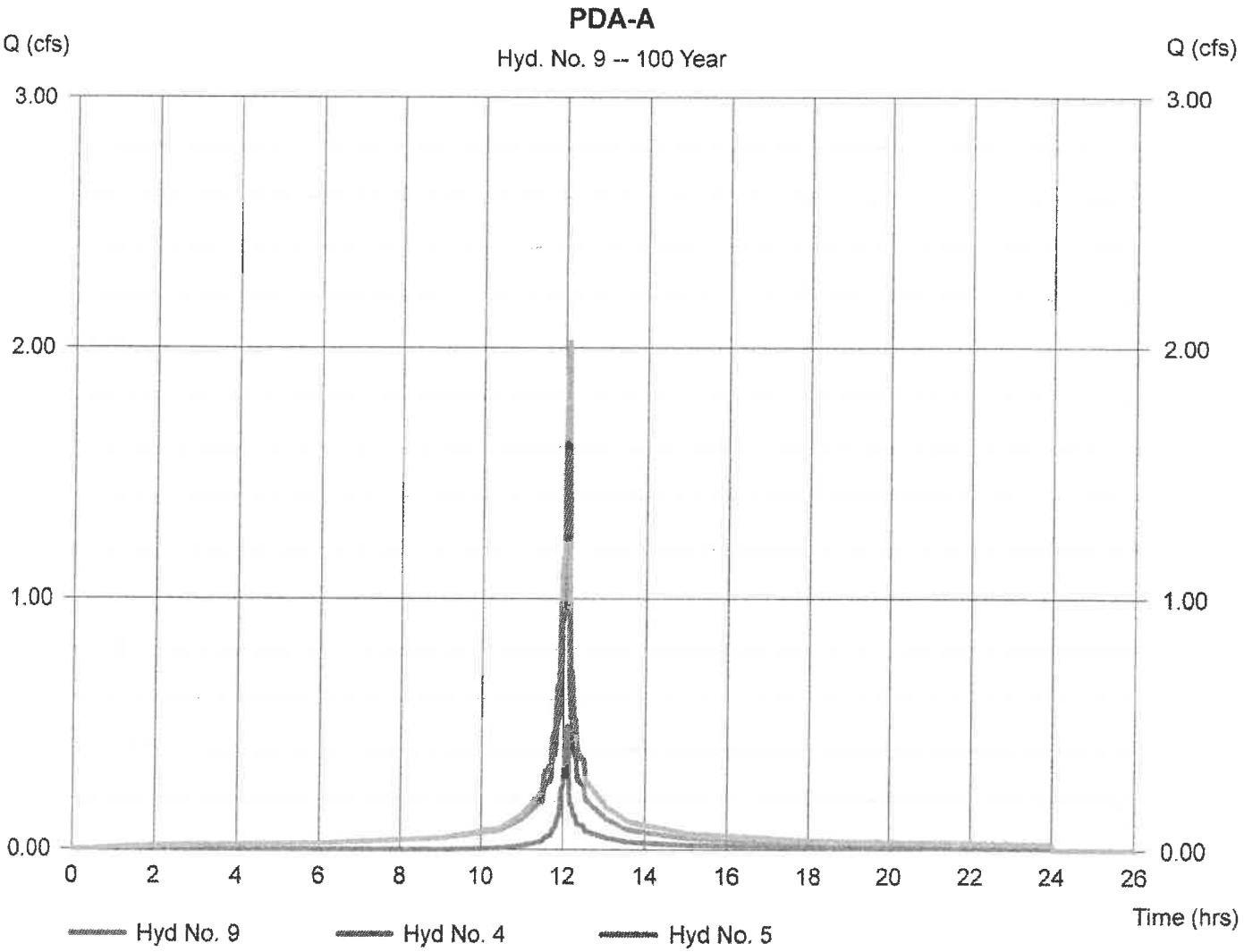
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-A

Hydrograph type	= Combine	Peak discharge	= 2.025 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 6,477 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.280 ac



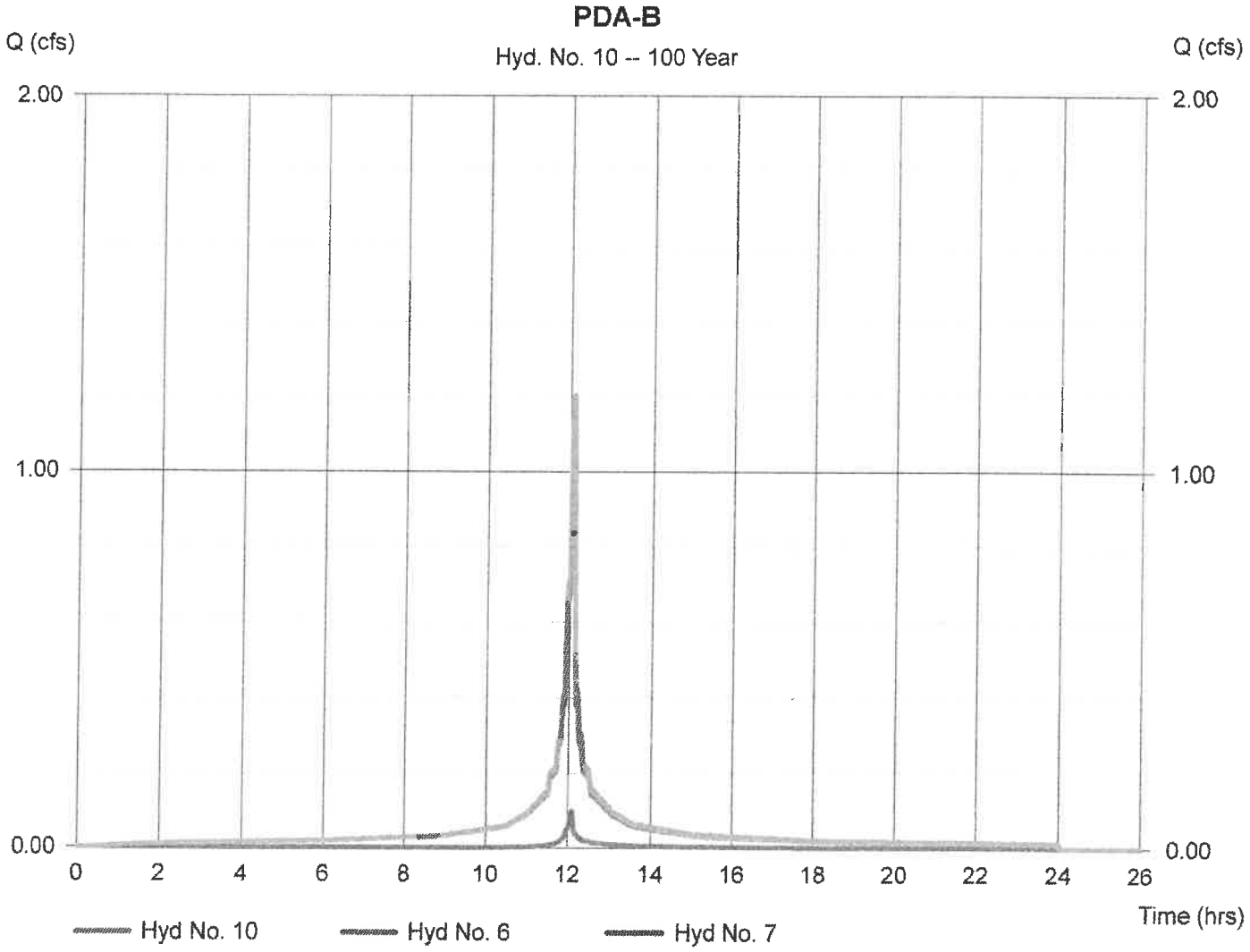
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

PDA-B

Hydrograph type	= Combine	Peak discharge	= 1.204 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,979 cuft
Inflow hyds.	= 6, 7	Contrib. drain. area	= 0.150 ac



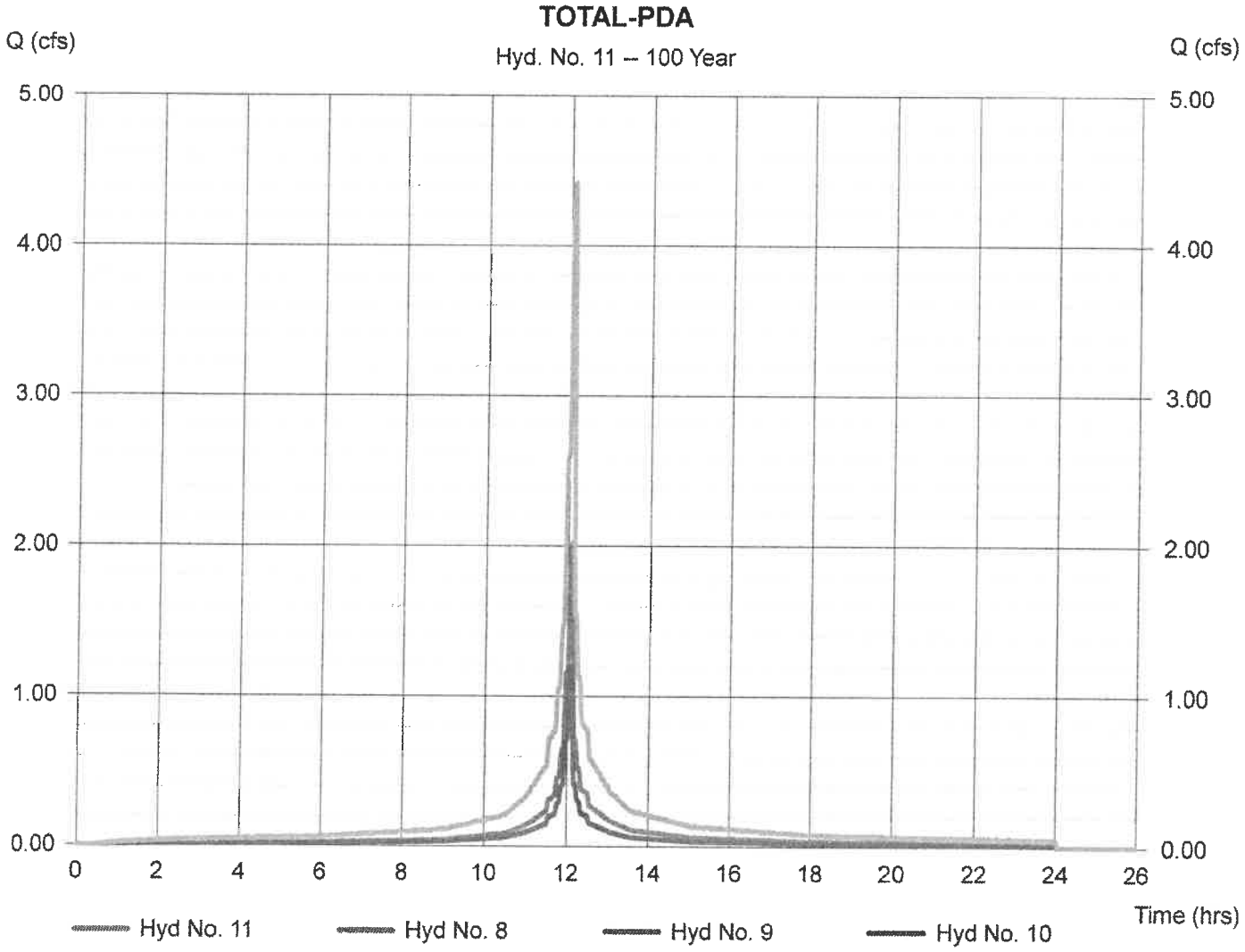
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

TOTAL-PDA

Hydrograph type	= Combine	Peak discharge	= 4.419 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 14,454 cuft
Inflow hyds.	= 8, 9, 10	Contrib. drain. area	= 0.140 ac

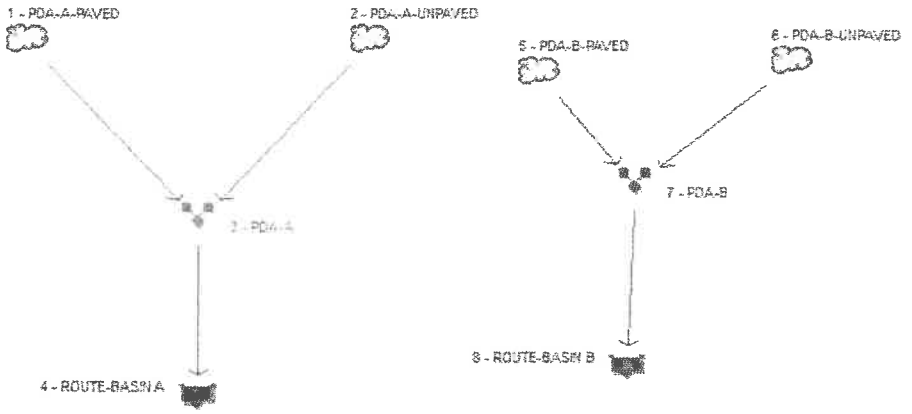


APPENDIX 3

Water Quality

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.01



Legend

Hyd.	Origin	Description
1	SCS Runoff	PDA-A-PAVED
2	SCS Runoff	PDA-A-UNPAVED
3	Combine	PDA-A
4	Reservoir	ROUTE-BASIN A
5	SCS Runoff	PDA-B-PAVED
6	SCS Runoff	PDA-B-UNPAVED
7	Combine	PDA-B
8	Reservoir	ROUTE-BASIN B

Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 1 - BASIN A

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	803	0	0
1.00	92.00	1,246	1,016	1,016

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 90.00	0.00	0.00	0.00
Length (ft)	= 20.00	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	No	No	No

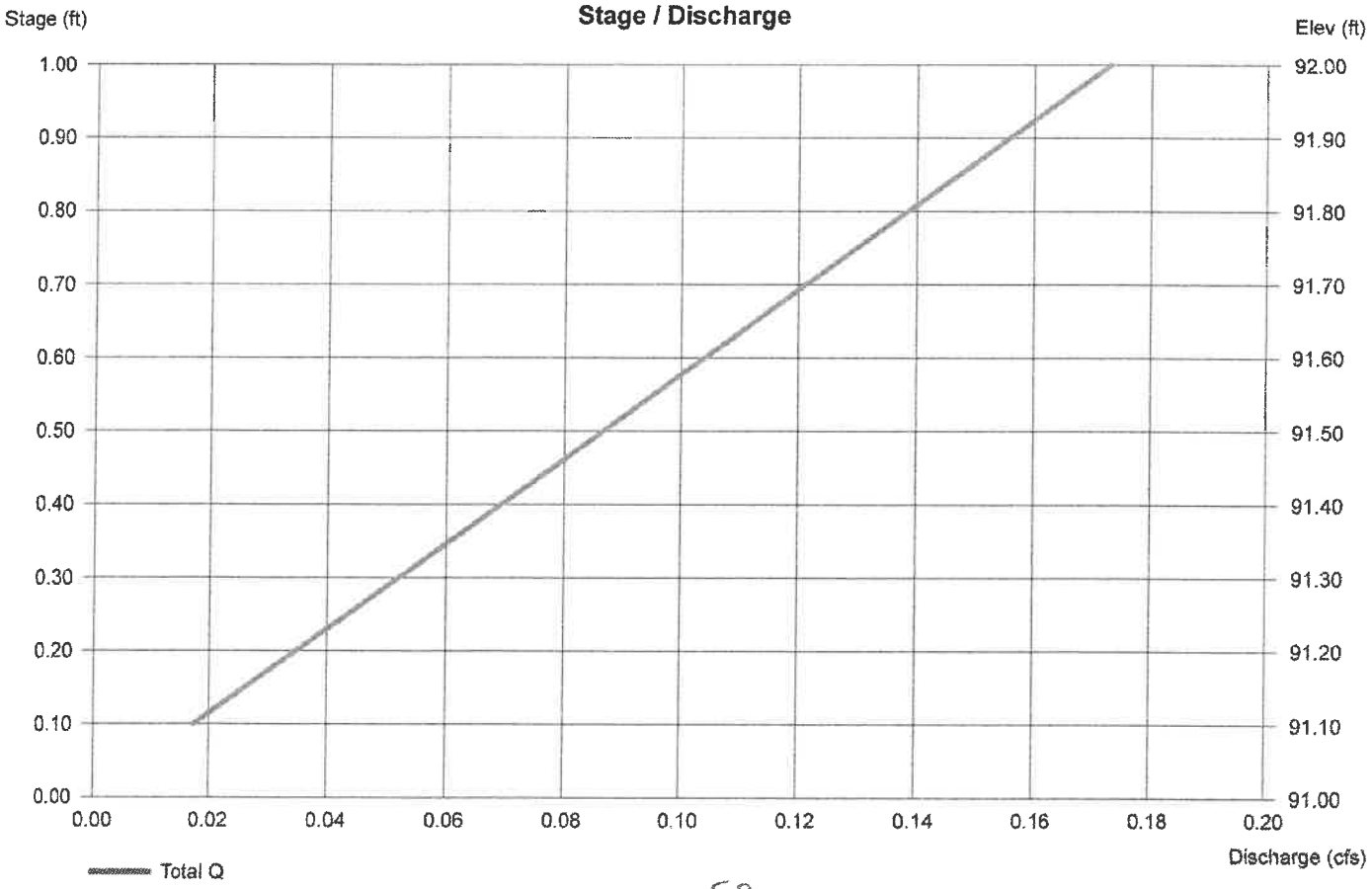
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 91.15	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 6.000 (by Contour)

TW Elev. (ft) = 0.00

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



Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 2 - BASIN B

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	422	0	0
1.00	92.00	589	503	503

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 8.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 88.97	0.00	0.00	0.00
Length (ft)	= 72.00	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	No	No	No

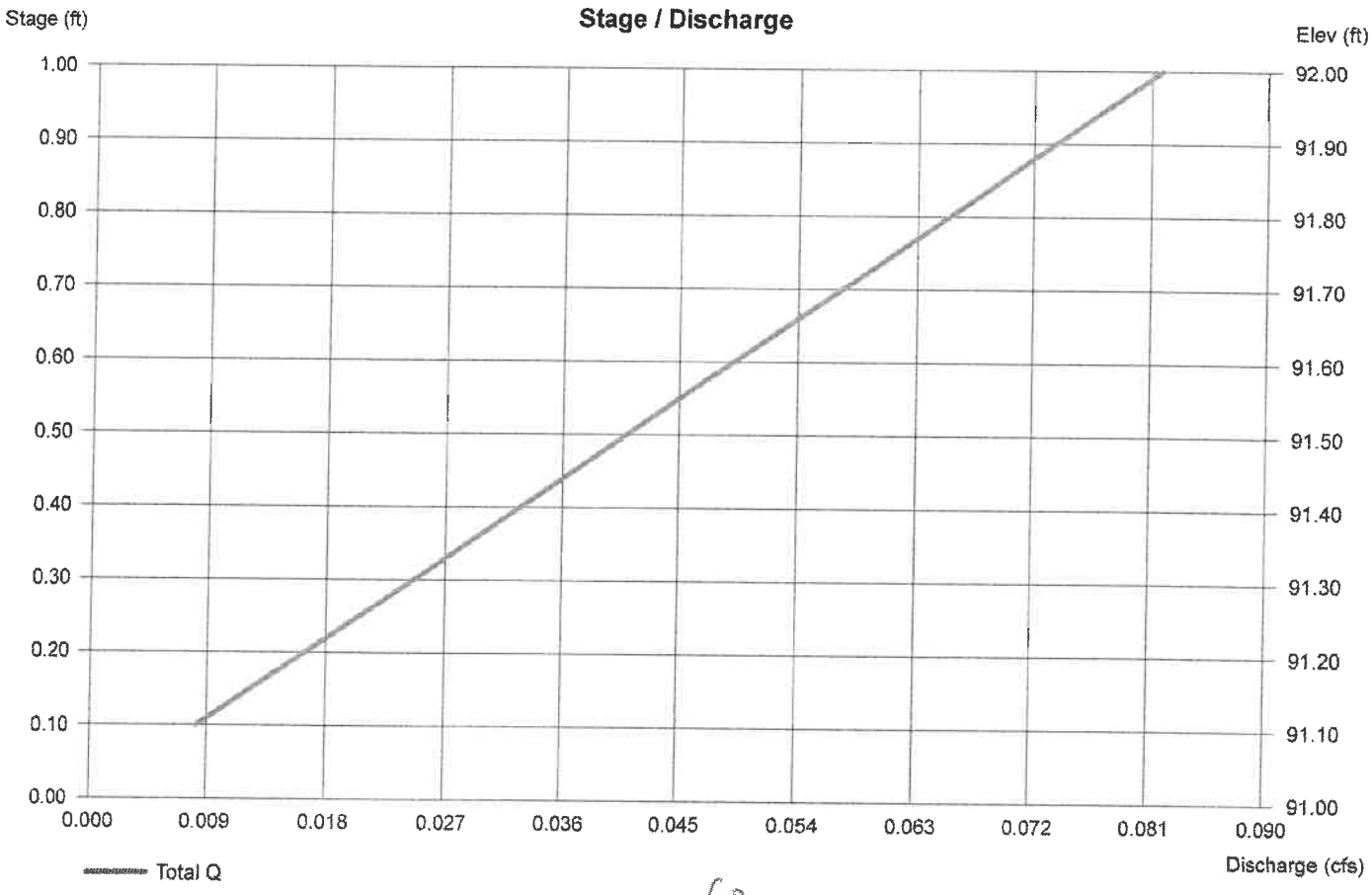
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 91.46	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 6.000 (by Contour)

TW Elev. (ft) = 0.00

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



60

Hydrograph Report

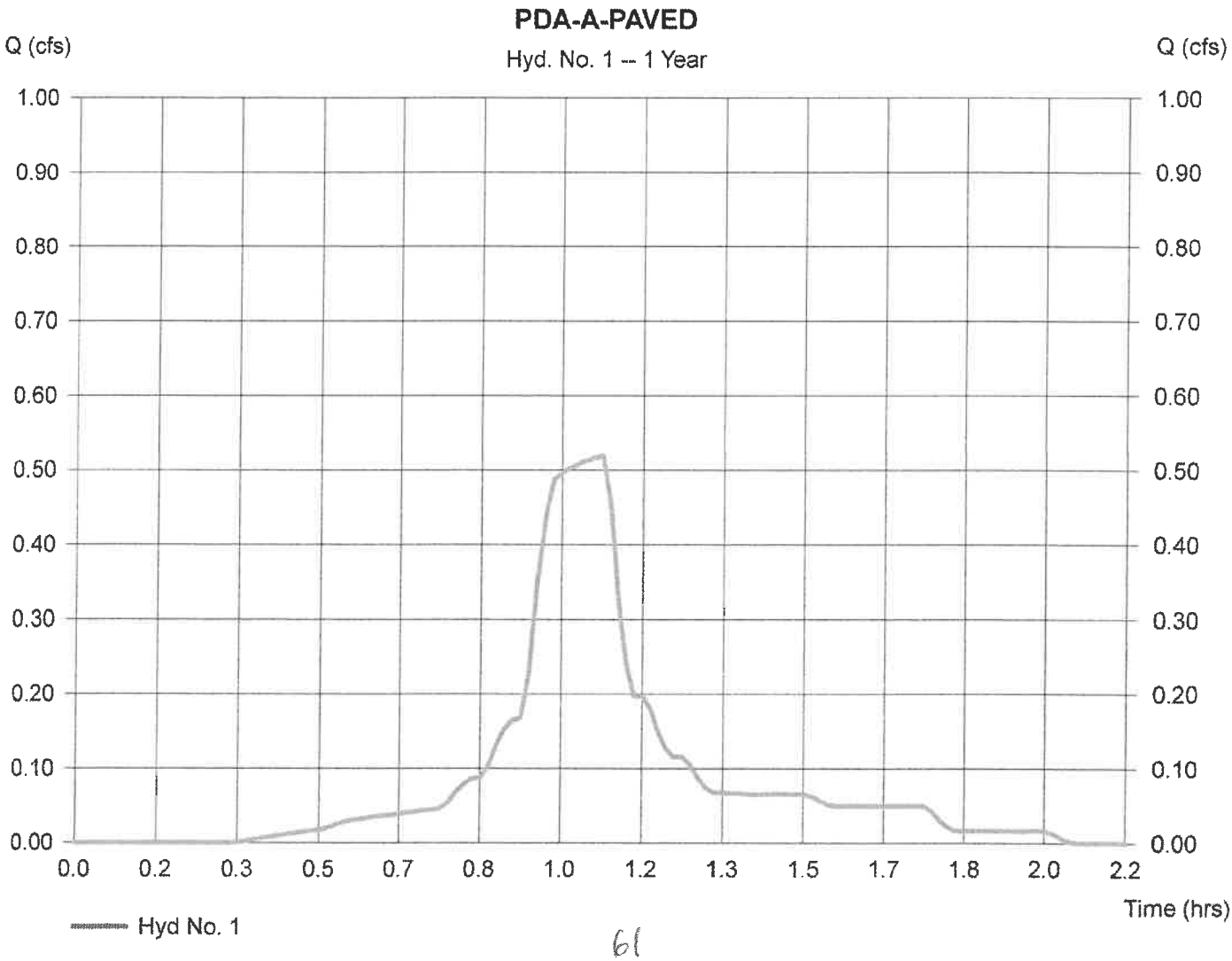
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.520 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.08 hrs
Time interval	= 1 min	Hyd. volume	= 634 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



Hydrograph Report

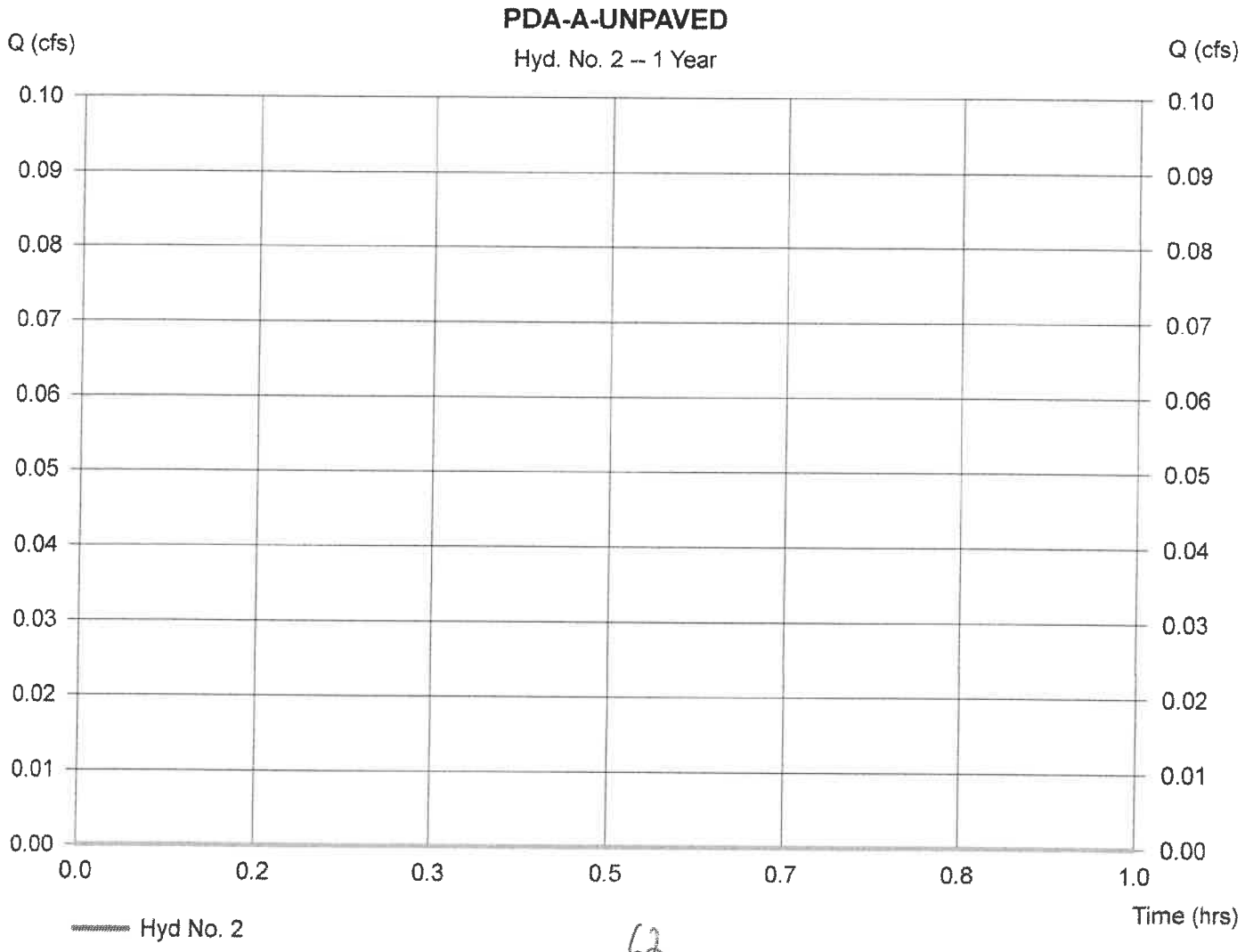
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Drainage area	= 0.100 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 61)] / 0.100



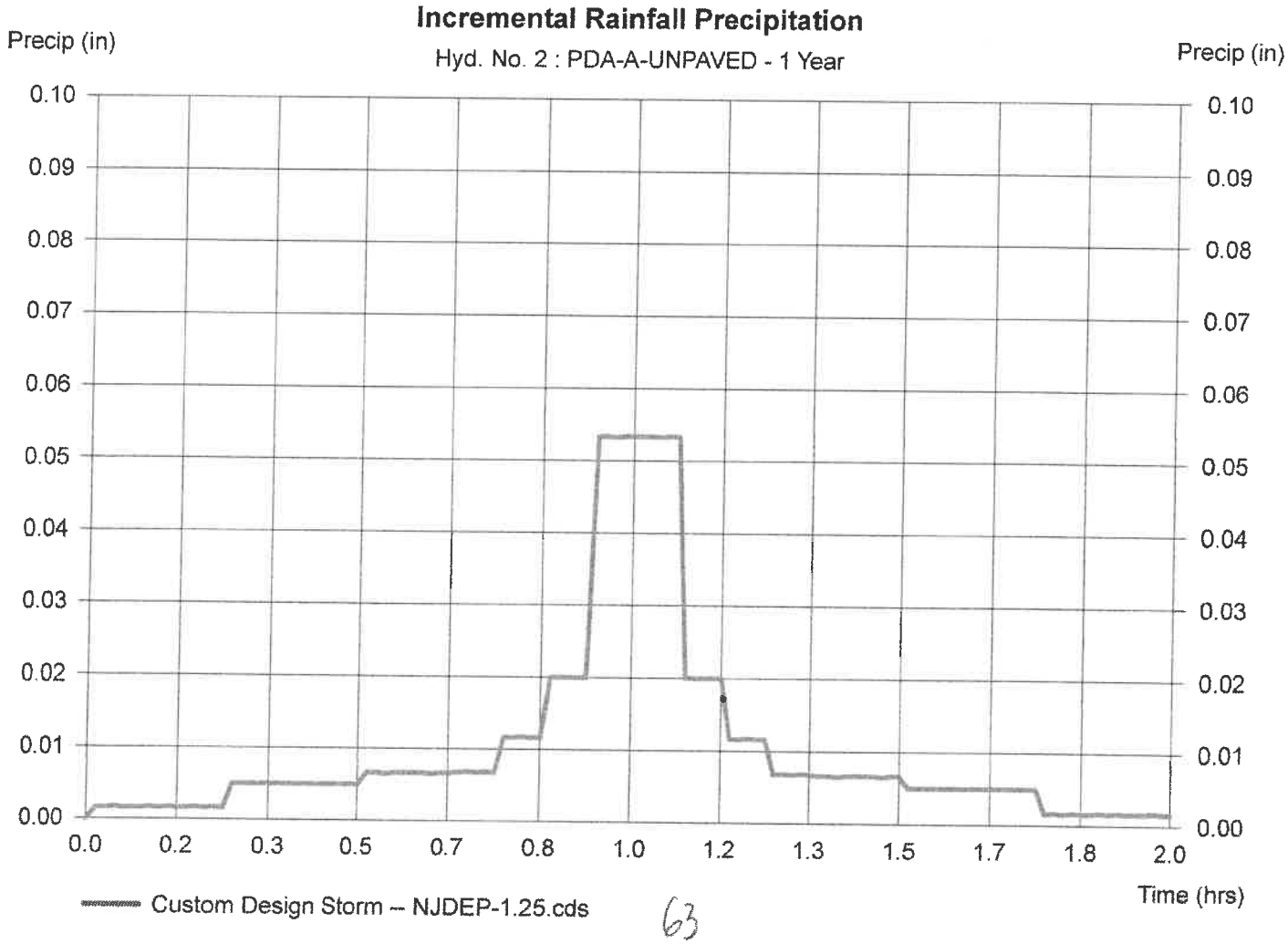
Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Storm Frequency	= 1 yrs	Time interval	= 1 min
Total precip.	= 1.2500 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds		



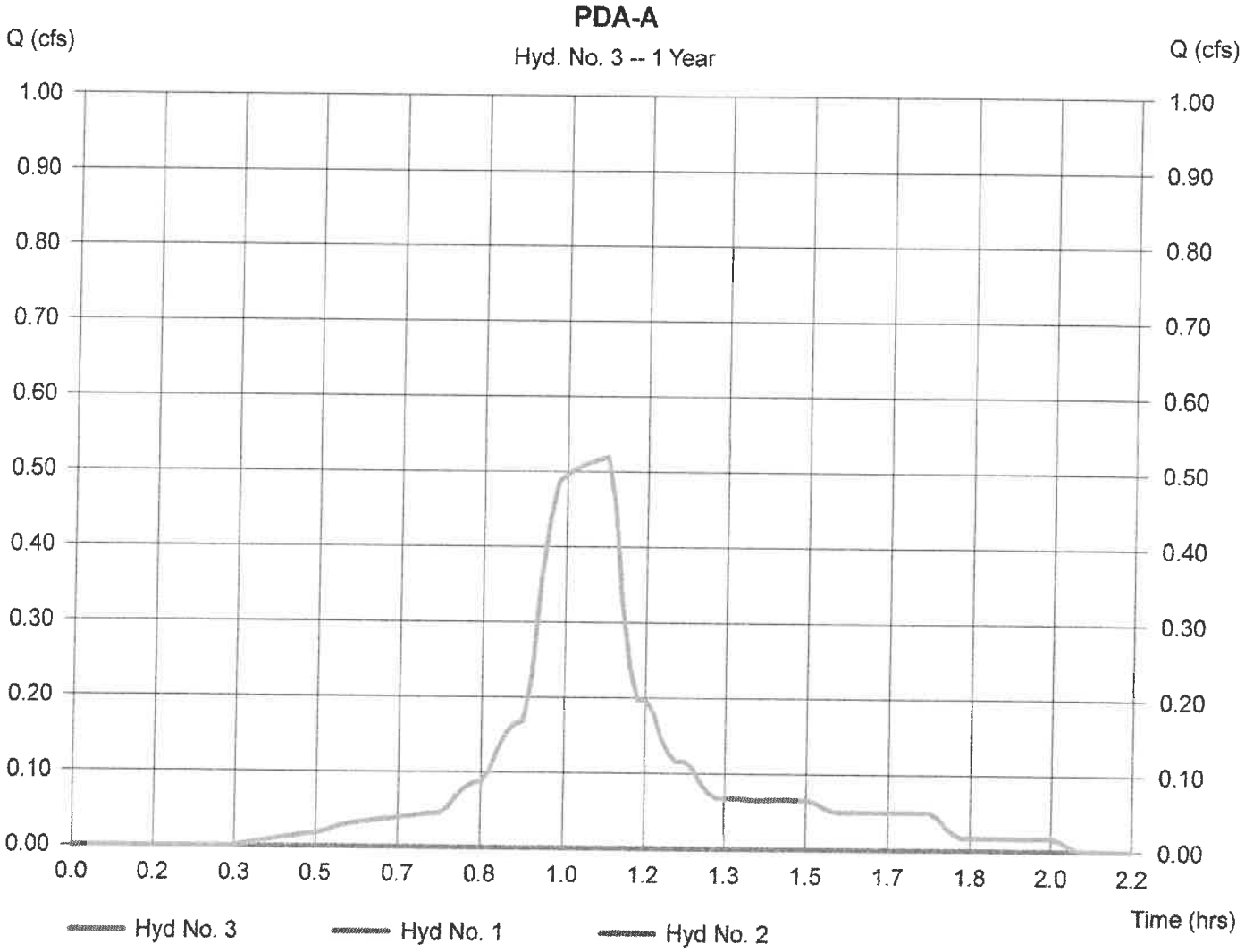
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

PDA-A

Hydrograph type	= Combine	Peak discharge	= 0.520 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.08 hrs
Time interval	= 1 min	Hyd. volume	= 634 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.280 ac



Hydrograph Report

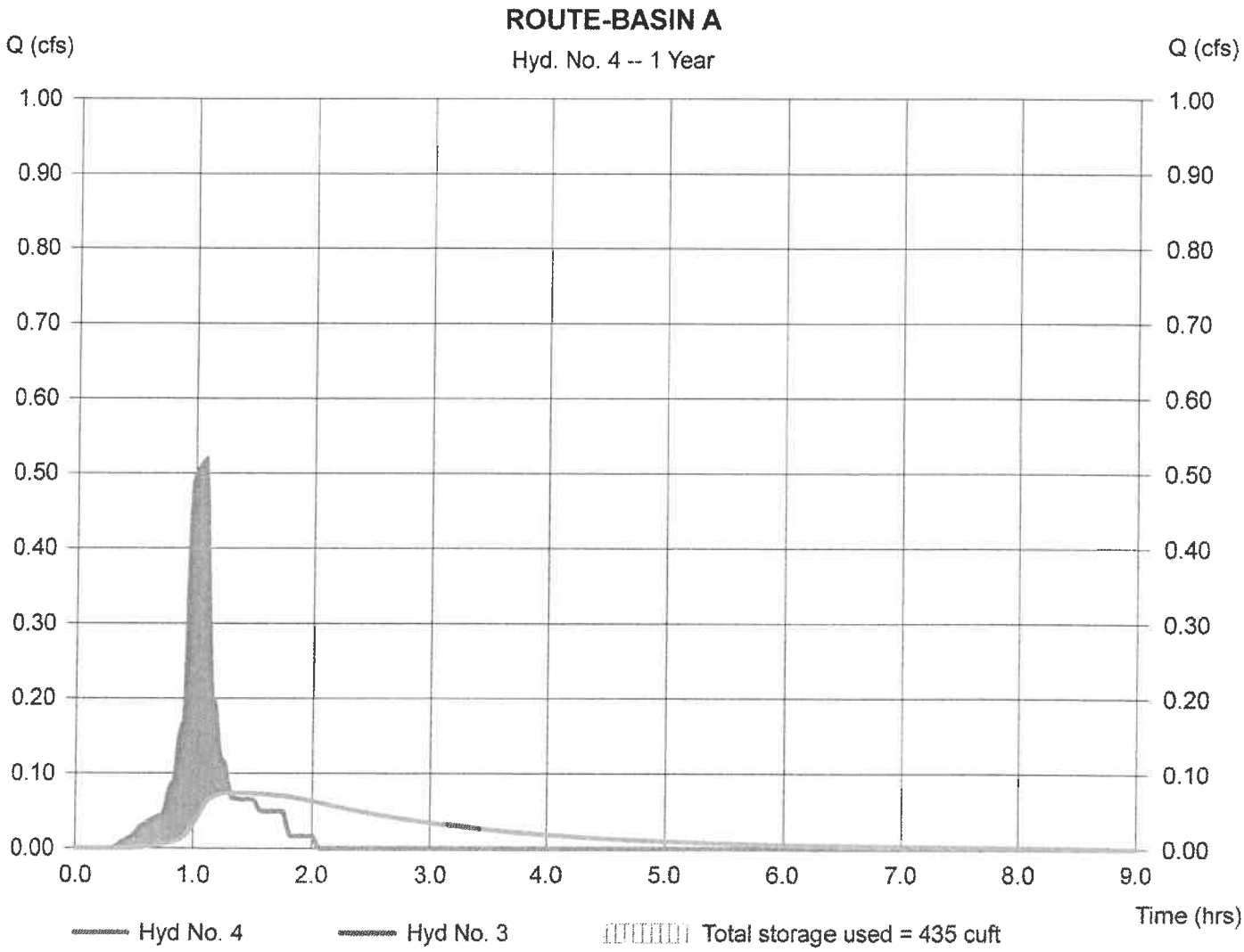
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

ROUTE-BASIN A

Hydrograph type	= Reservoir	Peak discharge	= 0.074 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.30 hrs
Time interval	= 1 min	Hyd. volume	= 628 cuft
Inflow hyd. No.	= 3 - PDA-A	Max. Elevation	= 91.43 ft
Reservoir name	= BASIN A	Max. Storage	= 435 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

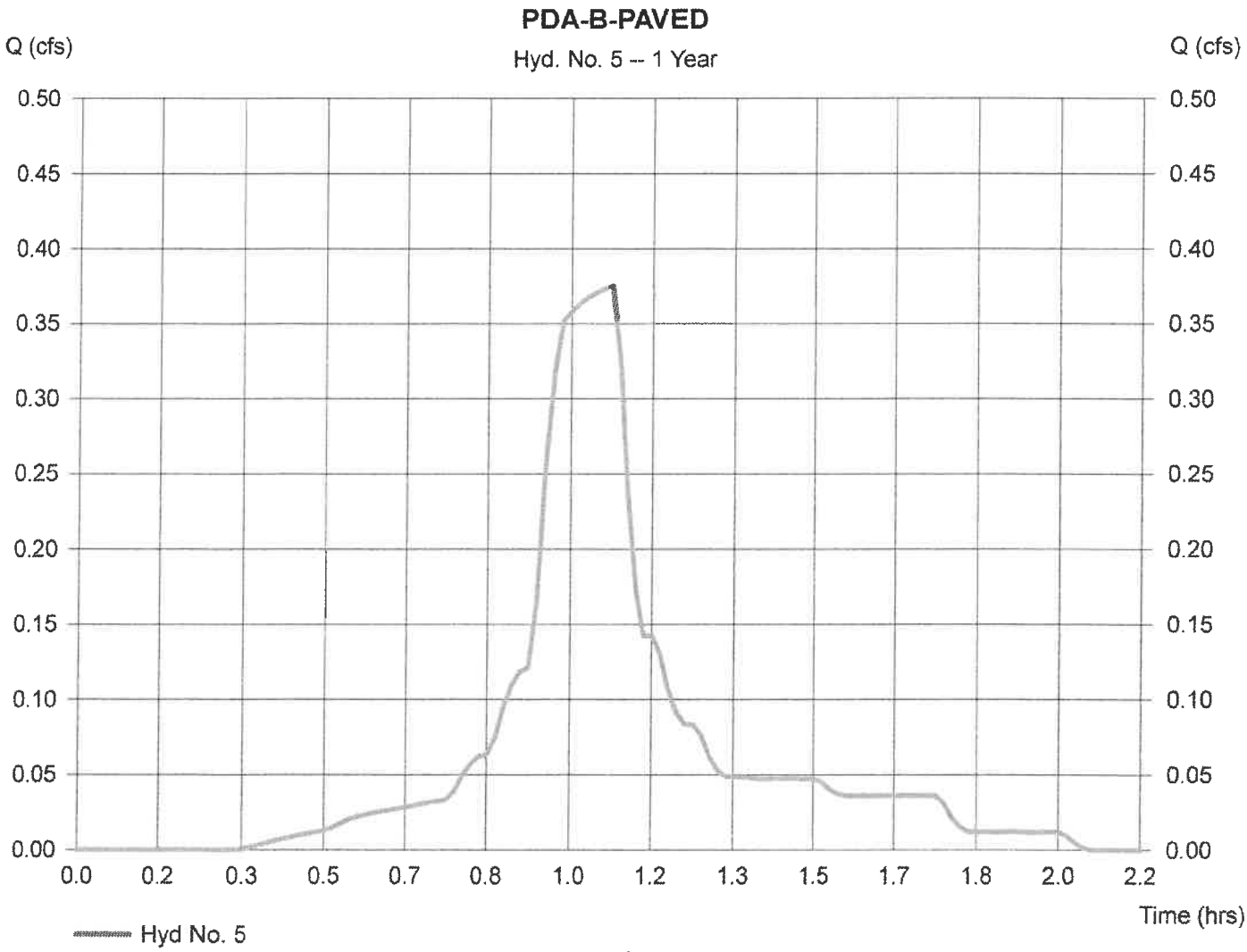
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.375 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.08 hrs
Time interval	= 1 min	Hyd. volume	= 458 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



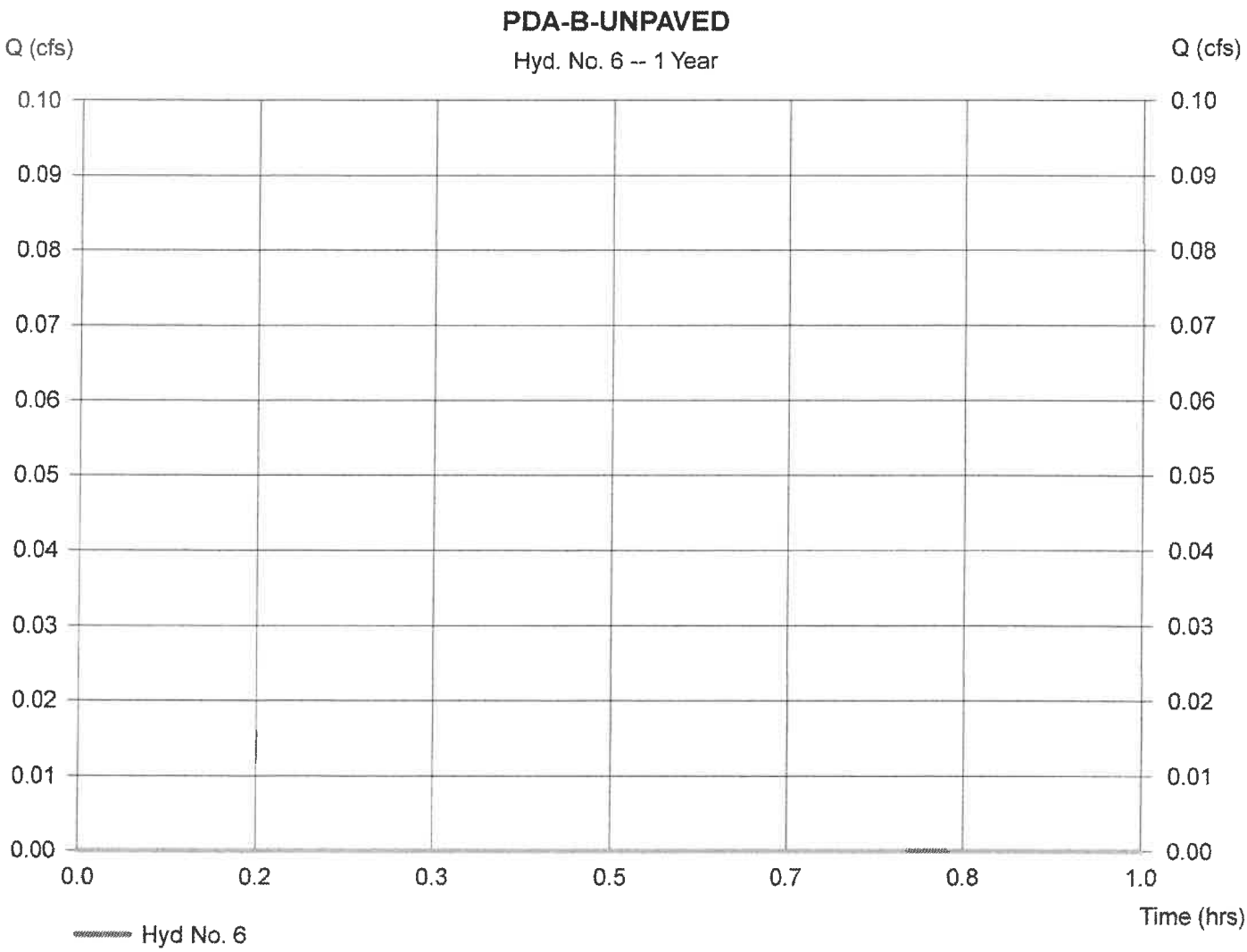
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 1.25 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds	Shape factor	= 484



Hydrograph Report

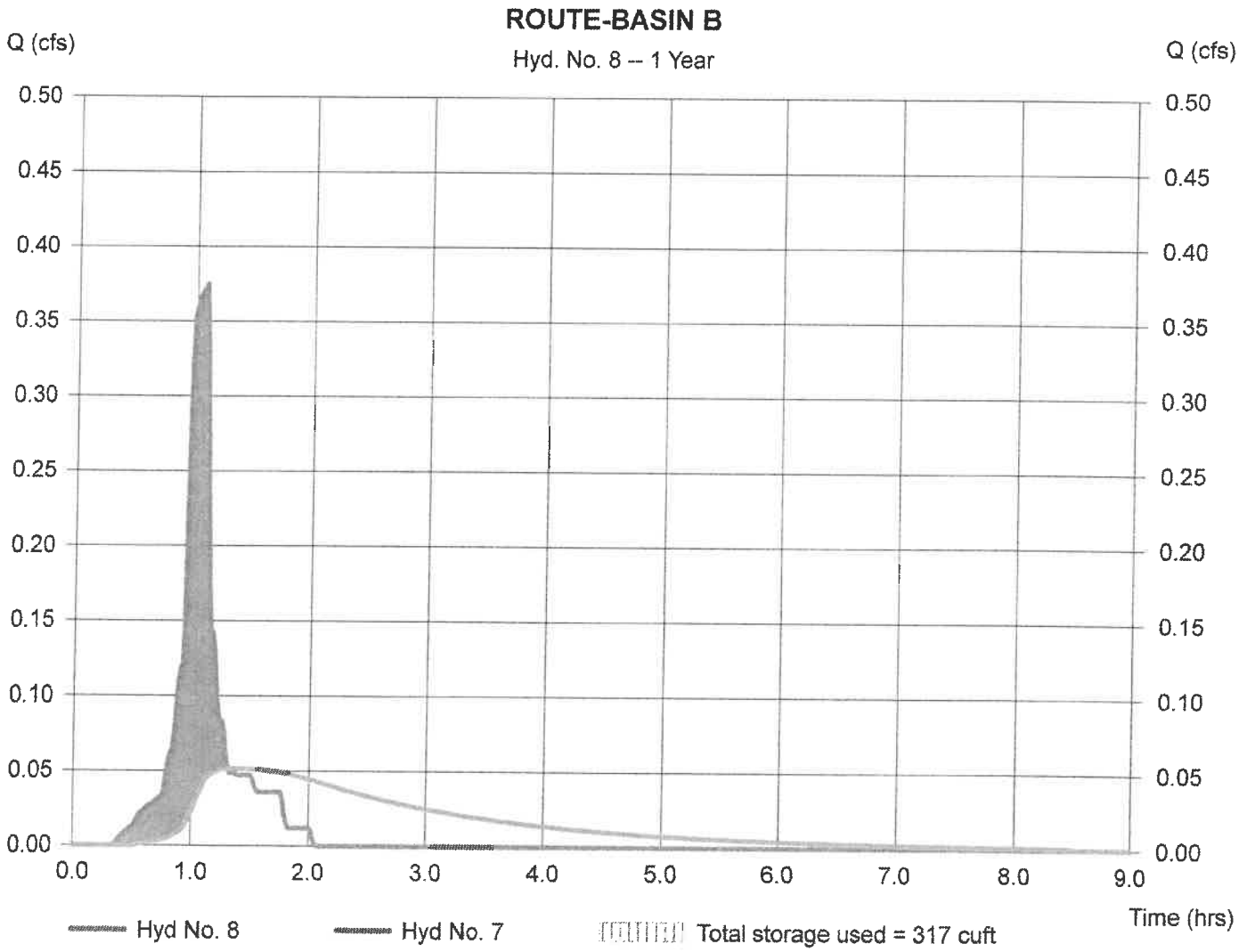
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

ROUTE-BASIN B

Hydrograph type	= Reservoir	Peak discharge	= 0.052 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.30 hrs
Time interval	= 1 min	Hyd. volume	= 452 cuft
Inflow hyd. No.	= 7 - PDA-B	Max. Elevation	= 91.63 ft
Reservoir name	= BASIN B	Max. Storage	= 317 cuft

Storage Indication method used. Outflow includes exfiltration.



APPENDIX 4

Groundwater Recharge

Appendix - 4
GROUNDWATER RECHARGE CALCULATIONS
BASED ON 2-YEAR STORM VOLUME

PRE-DEVELOPMENT (PERVIOUS)

LAND SEGMENT	AREA(A) AC	LAND COVER	SOIL TYPE	CN	AXCN
1	0.55	GRASS	B	61	33.55
2					0
3					0
4					0
5					0
6					0
7					0
8					0
9					0
10					0
11					0
12					0
13					0
14					0
TOTAL	0.55				33.55

CN= 61.00 61.00

2-Years Rainfall in inches (P)
P= 3.38

S=[(1000/CN)-10]= 6.39

Runoff in inches (Q)= [(P-0.2S)^2/(P+0.8S)] 0.52

Runoff Volume (V)=((Q/12)x(A)x435 1,038 CFT

POST-DEVELOPMENT (PERVIOUS)

LAND SEGMENT	AREA(A) AC	LAND COVER	SOIL TYPE	CN	AXCN
1	0.12	GRASS	B	61	7.32
2					0
3					0
4					0
5					0
6					0
7					0
8					0
9					0
10					0
11					0
12					0
13					0
14					0
TOTAL	0.12				7.32

CN= 61.00 61.00

2-Years Rainfall in inches (P)
P= 3.38

S=[(1000/CN)-10]= 6.39

Runoff in inches (Q)= [(P-0.2S)^2/(P+0.8S)] 0.52

Runoff Volume (V)=((Q/12)x(A)x43560)= 226 CFT

Volume of BMP Structural Required (PERVIOUS)= (811) CFT

PRE-DEVELOPMENT (IMPERVIOUS)

LAND SEGMENT	AREA(A) AC	LAND COVER	SOIL TYPE	CN	AXCN
1	0.02	BUILDING	B	98	1.96
2					0
3					0
4					0
5					0
6					0
7					0
8					0
9					0
10					0
11					0
12					0
13					0
14					0
TOTAL	0.02				1.96

CN= 98.00 98.00

2-Years Rainfall in inches (P)

P= 3.38

S=[(1000/CN)-10]= 0.20

Runoff in inches (Q)= [(P-0.2S)^2/(P+0.8S)] 3.15

Runoff Volume (V)=((Q/12)x(A)x43560)= 228 CFT

POST-DEVELOPMENT (IMPERVIOUS)

LAND SEGMENT	AREA(A) AC	LAND COVER	SOIL TYPE	CN	AXCN
1	0.14	BUILDING	B	98	13.72
2	0.29	PAVEMENT	B	98	28.42
3	0.02	WALK	B	98	1.96
4					0
5					0
6					0
7					0
8					0
9					0
10					0
11					0
12					0
13					0
14					0
TOTAL	0.45				44.1

CN= 98.00 98.00

2-Years Rainfall in inches (P)

P= 3.38

S=[(1000/CN)-10]= 0.20

Runoff in inches (Q)= [(P-0.2S)^2/(P+0.8S)] 3.15

Runoff Volume (V)=((Q/12)x(A)x43560)= 5,140 CFT

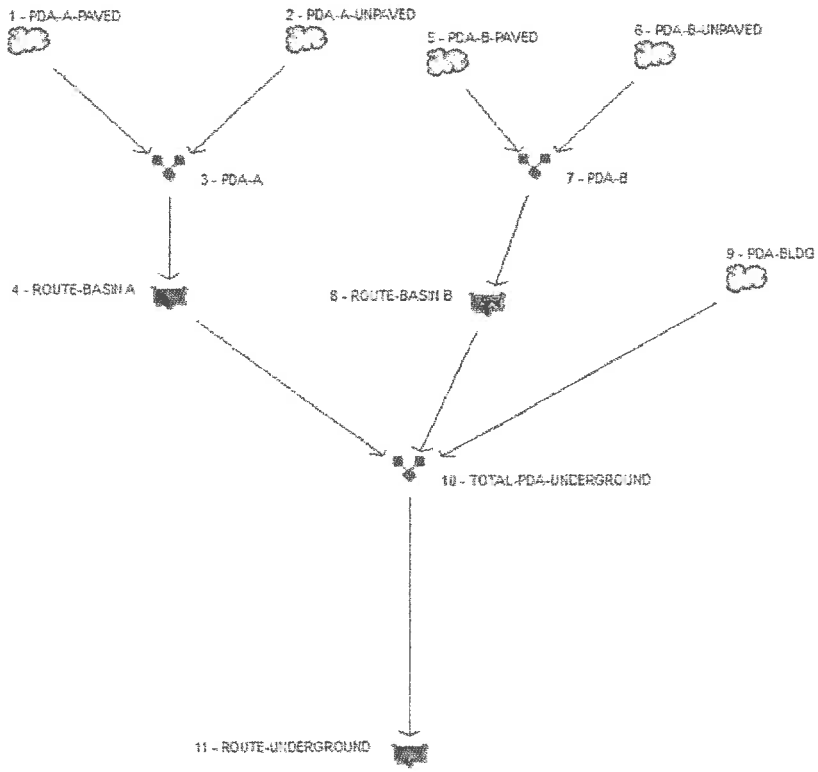
Volume of BMP Structural Required (IMPERVIOUS)= 4,911.93 CFT

Total Volume of BMP Structural Required = 4,100.58 CFT

BMP STRTUCTURE IS REQUIRED TO ACHIEVE RECHARGE REQUIREMENTS.

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.01



Legend

Hyd.	Origin	Description
1	SCS Runoff	PDA-A-PAVED
2	SCS Runoff	PDA-A-UNPAVED
3	Combine	PDA-A
4	Reservoir	ROUTE-BASIN A
5	SCS Runoff	PDA-B-PAVED
6	SCS Runoff	PDA-B-UNPAVED
7	Combine	PDA-B
8	Reservoir	ROUTE-BASIN B
9	SCS Runoff	PDA-BLDG
10	Combine	TOTAL-PDA-UNDERGROUND
11	Reservoir	ROUTE-UNDERGROUND

Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 1 - BASIN A

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	966	0	0
1.00	92.00	966	966	966

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 90.00	0.00	0.00	0.00
Length (ft)	= 20.00	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	No	No	No

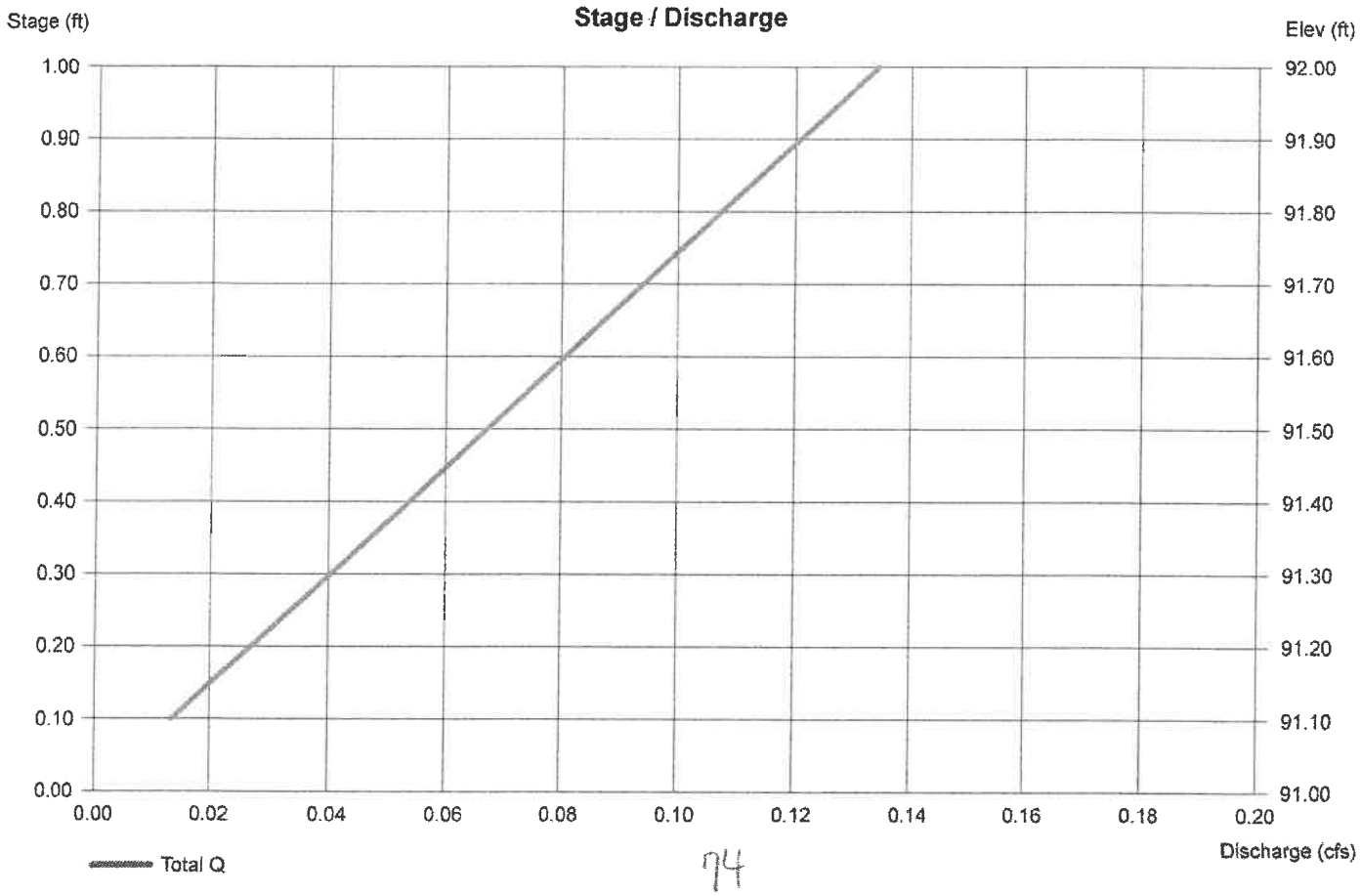
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 91.15	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 6.000 (by Contour)

TW Elev. (ft) = 0.00

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



Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 2 - BASIN B

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	422	0	0
1.00	92.00	589	503	503

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	0.00	0.00	0.00
Span (in)	= 8.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 88.97	0.00	0.00	0.00
Length (ft)	= 72.00	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	No	No	No

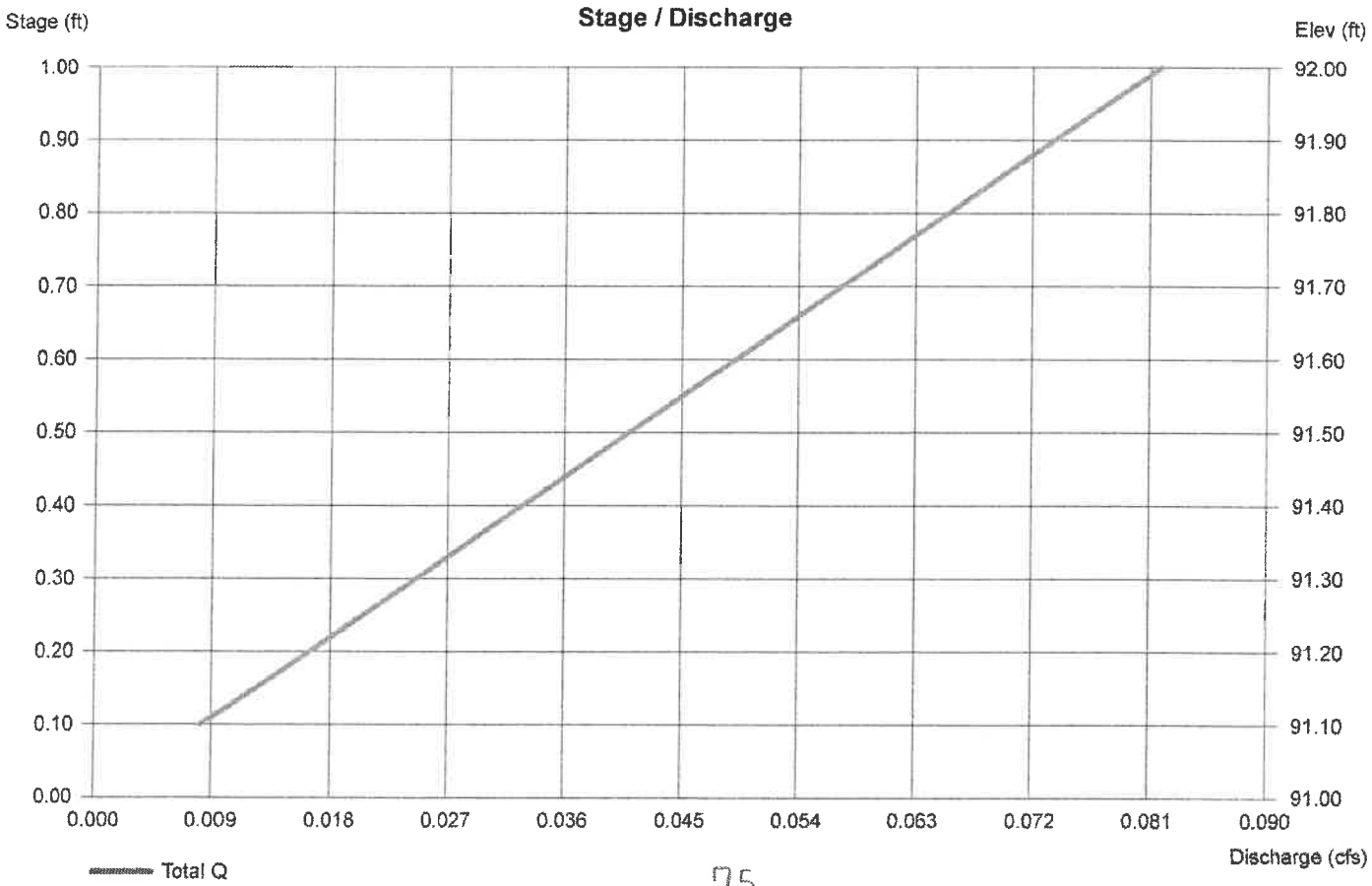
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 91.46	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 6.000 (by Contour)

TW Elev. (ft) = 0.00

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



Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 5 - UNDERGROUND PIPES

Pond Data

UG Chambers - Invert elev. = 87.50 ft, Rise x Span = 2.00 x 2.00 ft, Barrel Len = 94.00 ft, No. Barrels = 9, Slope = 0.10%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	87.50	n/a	0	0
0.21	87.71	n/a	103	103
0.42	87.92	n/a	239	342
0.63	88.13	n/a	301	642
0.84	88.34	n/a	336	978
1.05	88.55	n/a	352	1,329
1.26	88.76	n/a	352	1,681
1.47	88.97	n/a	335	2,016
1.68	89.18	n/a	301	2,317
1.88	89.38	n/a	238	2,556
2.09	89.59	n/a	103	2,658

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	0.00	0.00
Span (in)	= 18.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 89.25	89.25	0.00	0.00
Length (ft)	= 14.00	0.00	0.00	0.00
Slope (%)	= 0.10	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

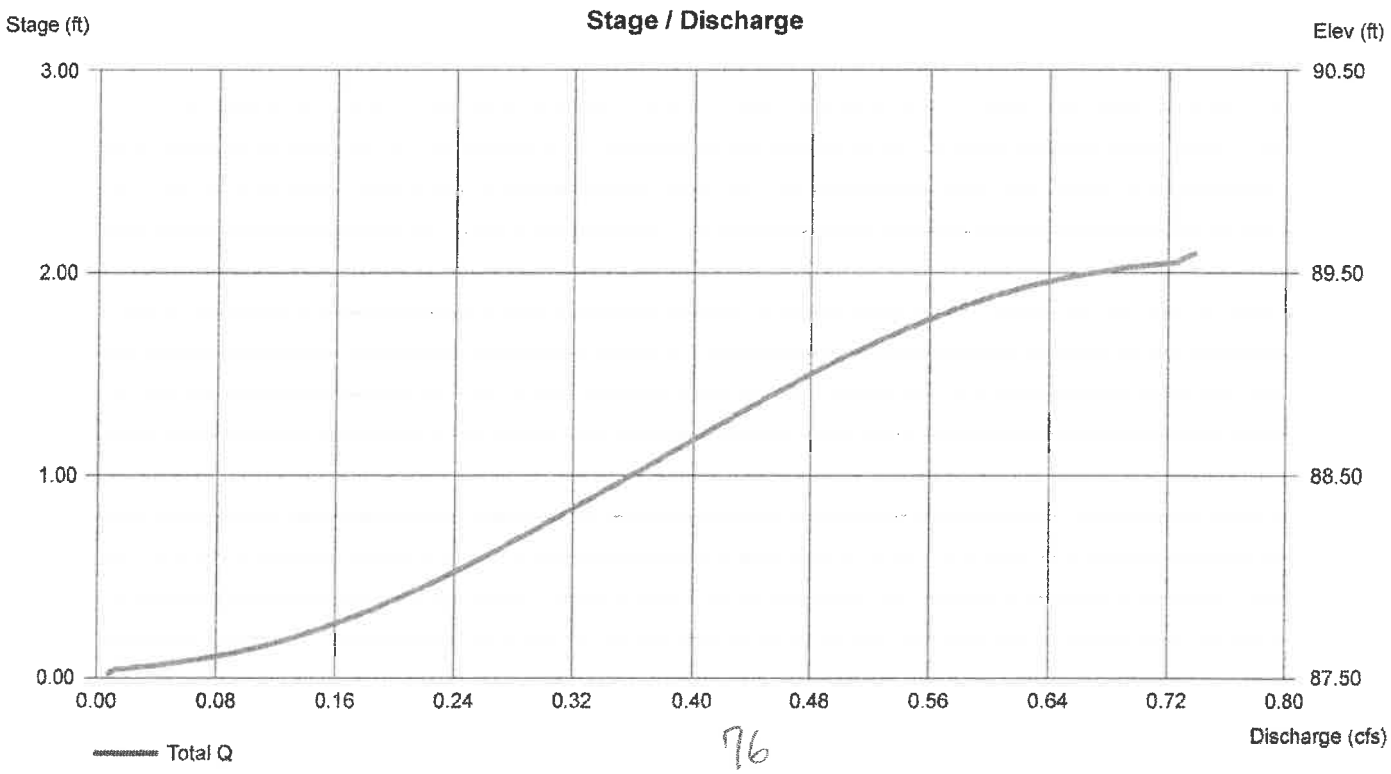
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 90.25	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 6.000 (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

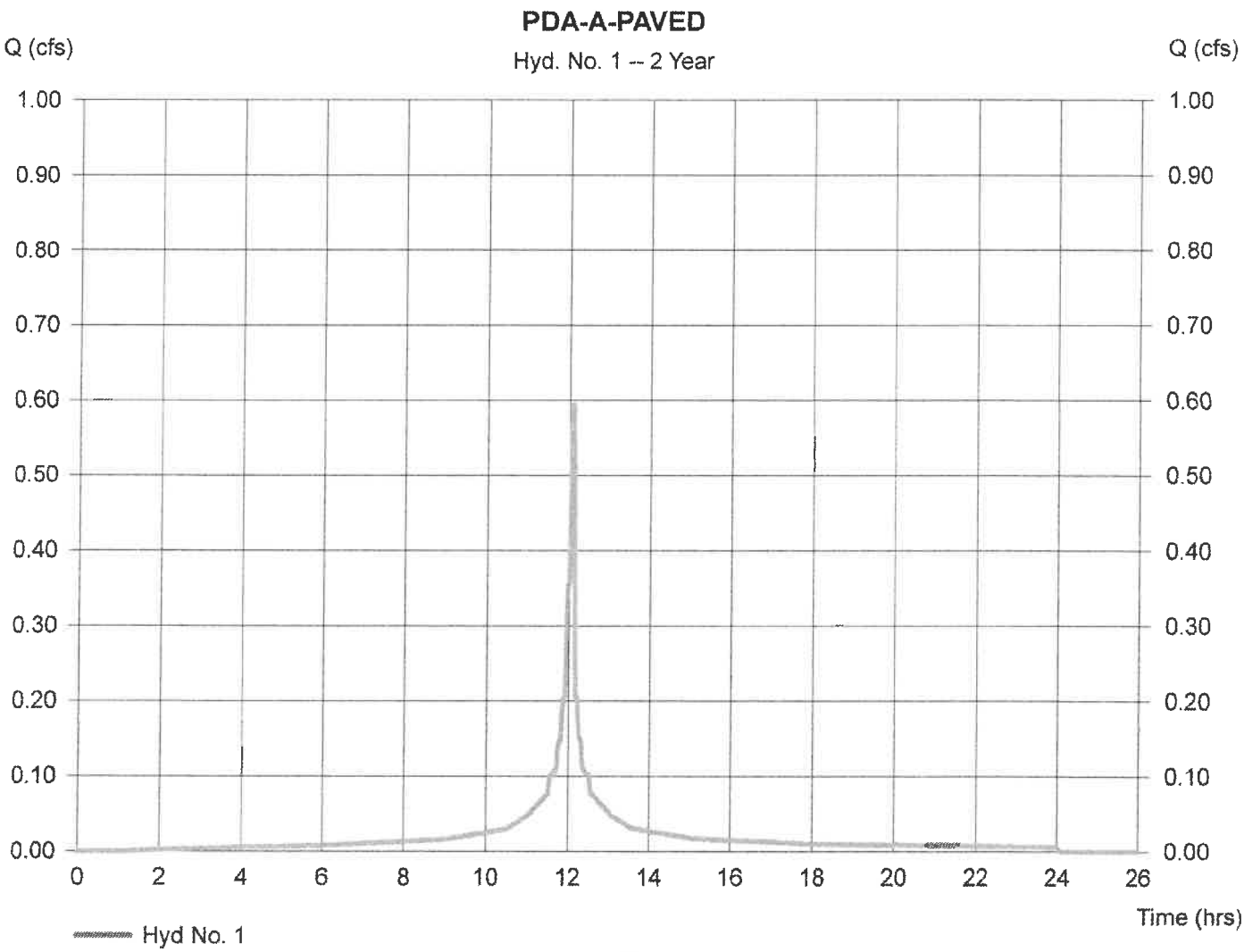
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.594 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,928 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



Hydrograph Report

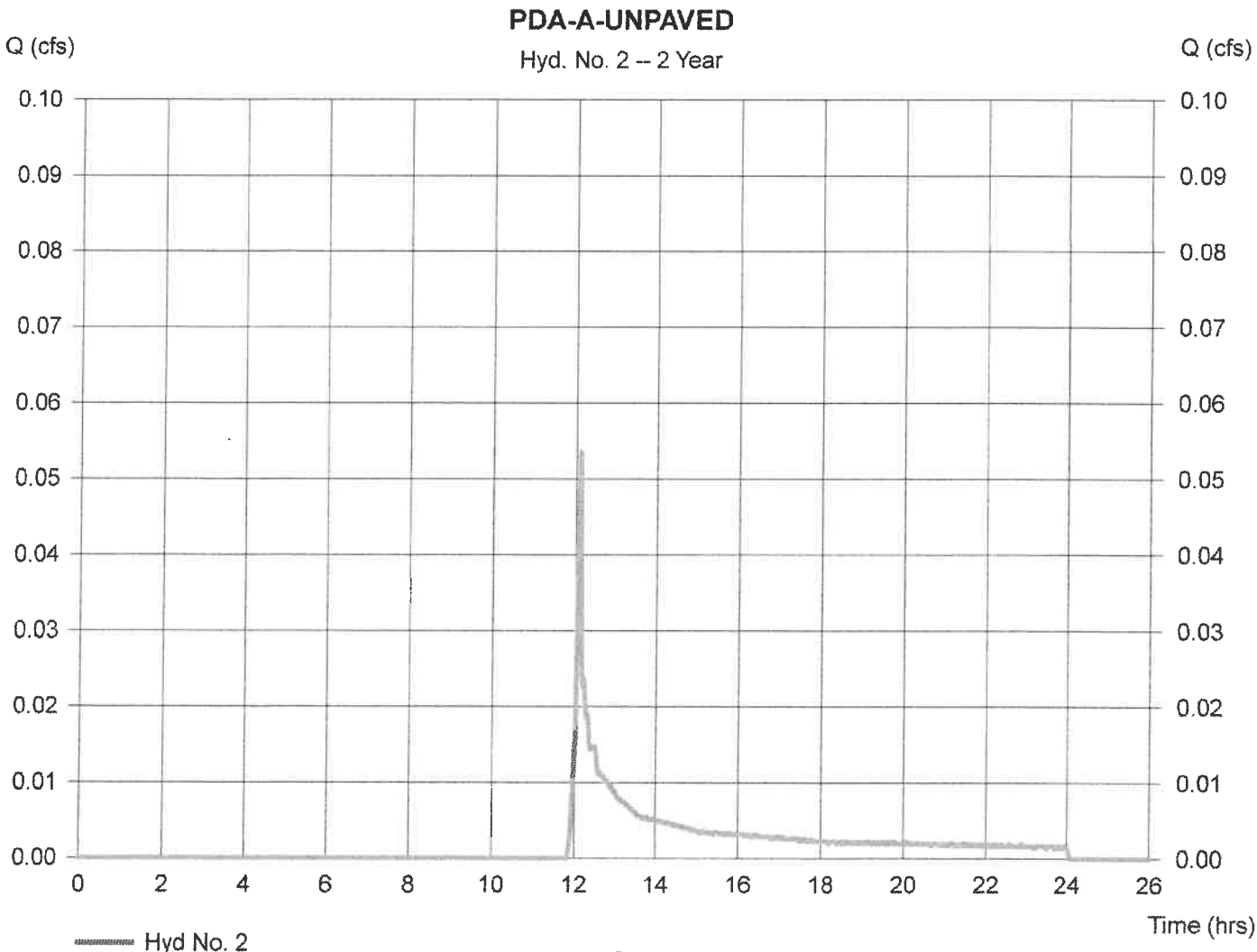
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.054 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 177 cuft
Drainage area	= 0.100 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 61)] / 0.100



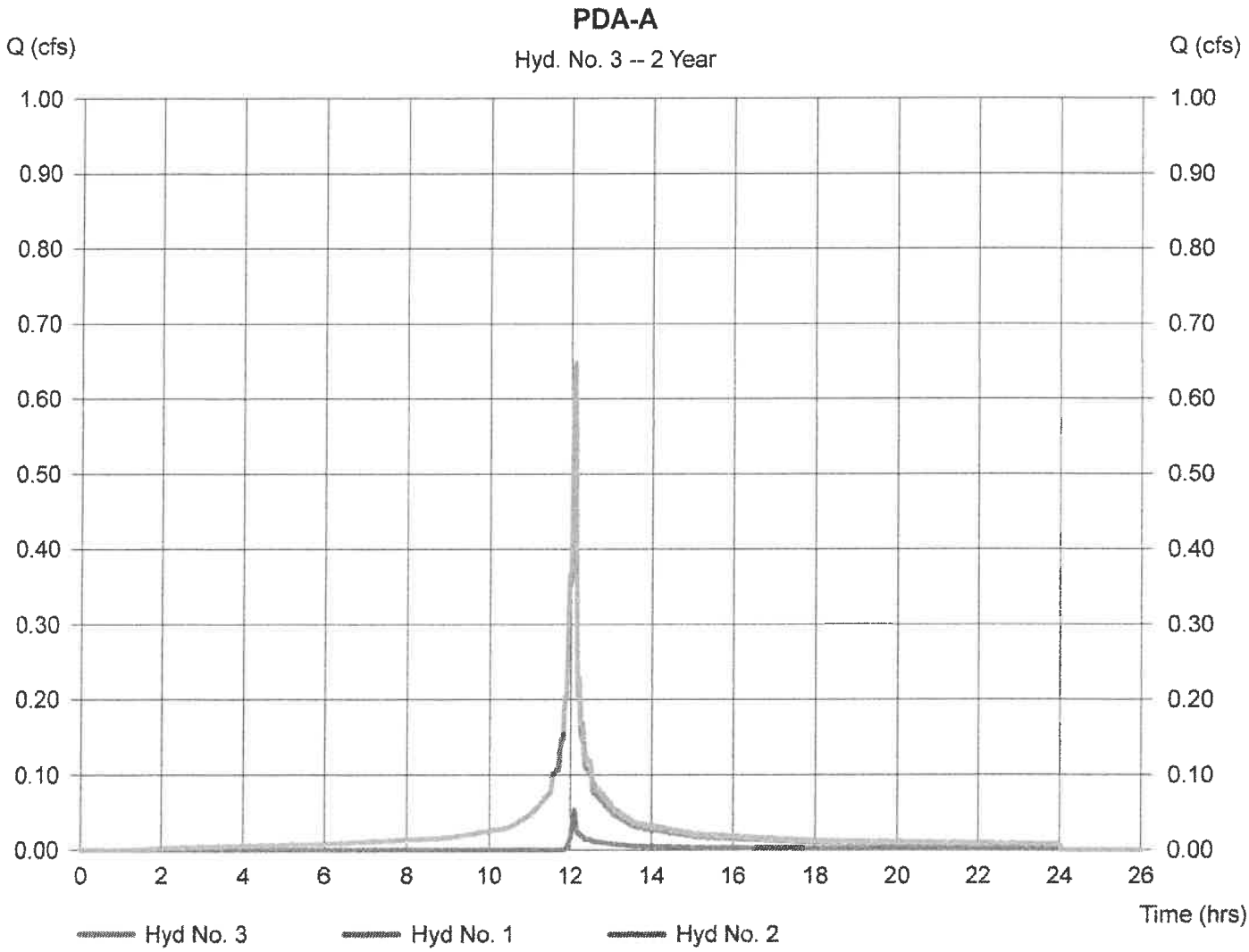
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

PDA-A

Hydrograph type	= Combine	Peak discharge	= 0.648 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,105 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.280 ac



Hydrograph Report

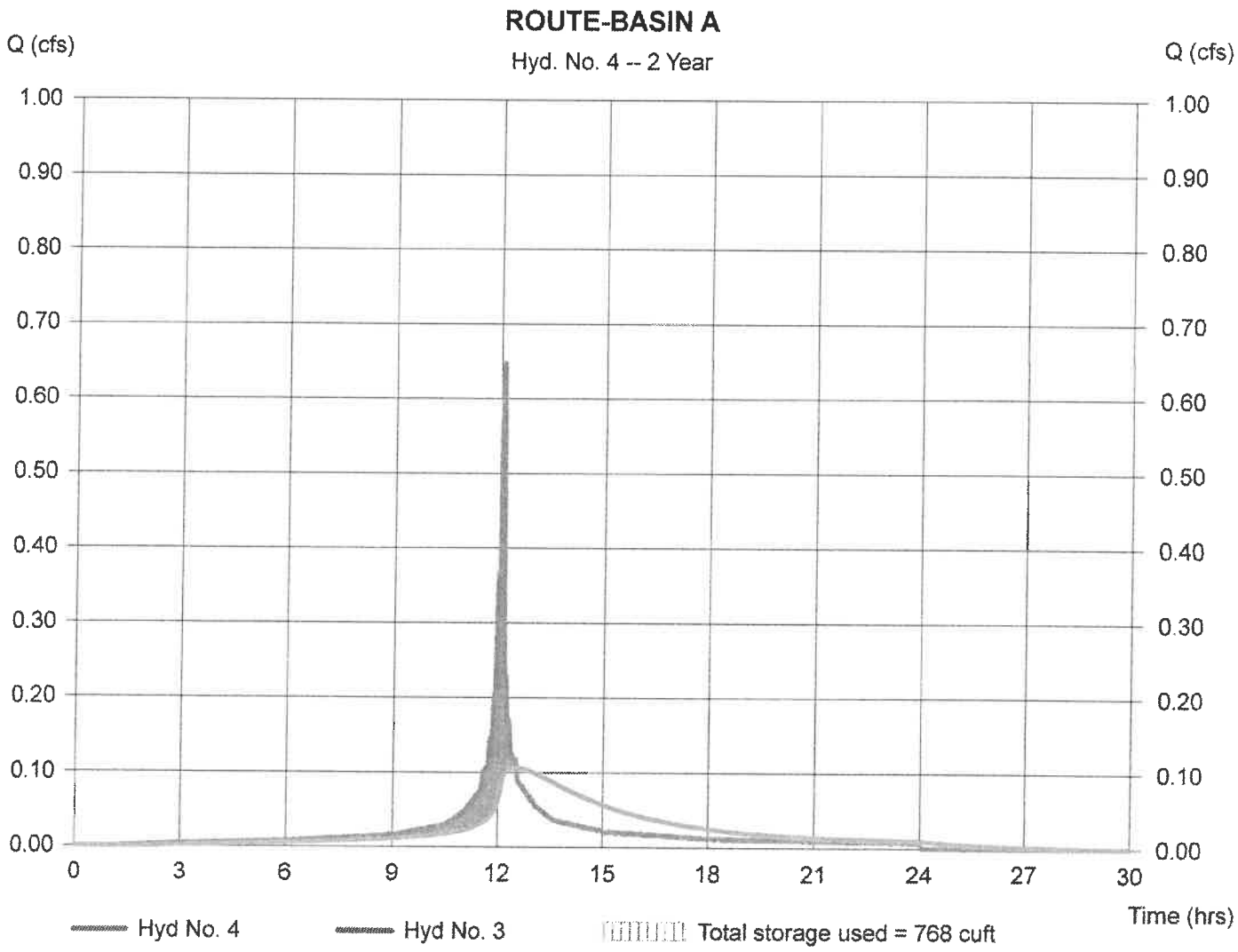
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

ROUTE-BASIN A

Hydrograph type	= Reservoir	Peak discharge	= 0.107 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.52 hrs
Time interval	= 1 min	Hyd. volume	= 2,097 cuft
Inflow hyd. No.	= 3 - PDA-A	Max. Elevation	= 91.80 ft
Reservoir name	= BASIN A	Max. Storage	= 768 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

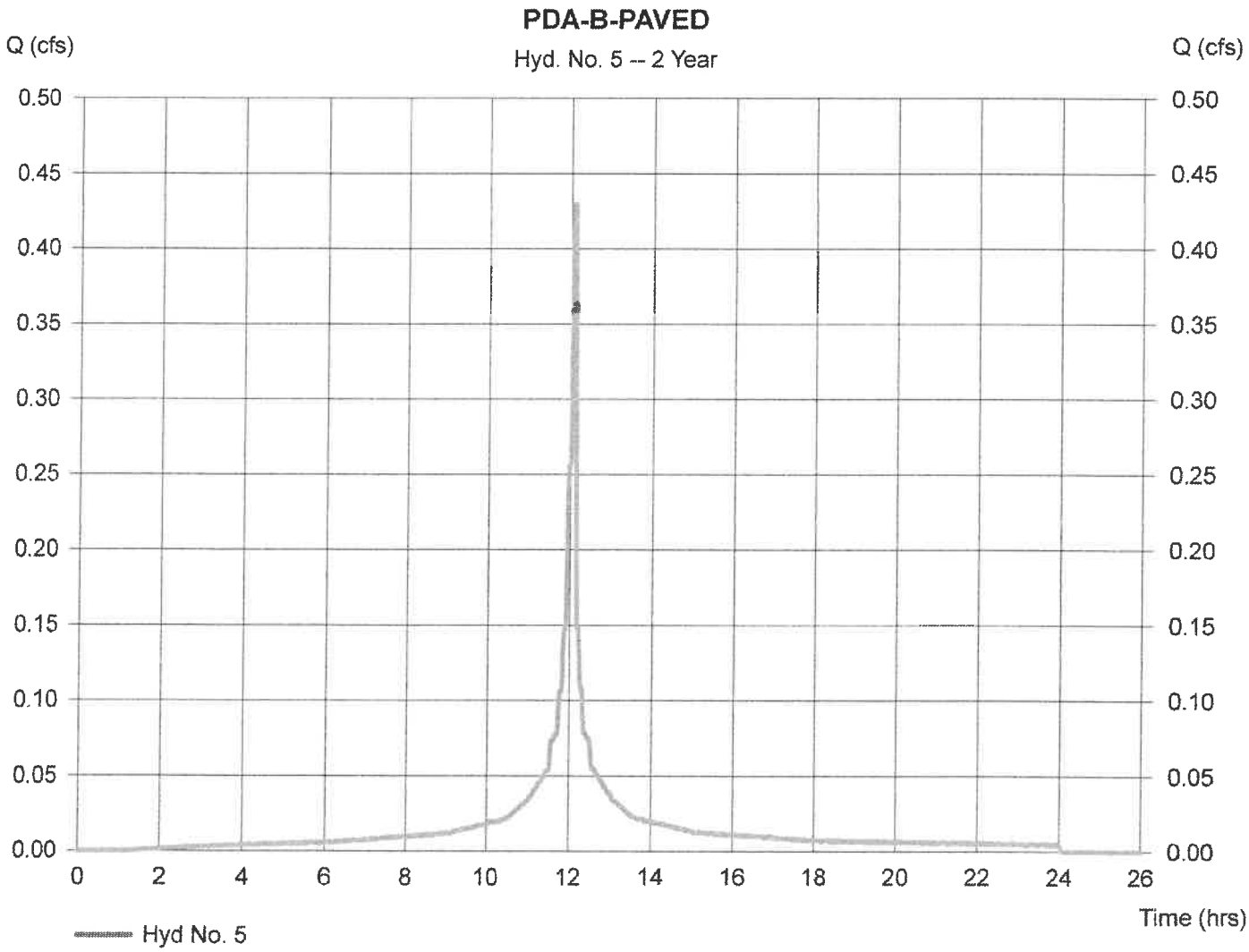
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.429 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,392 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



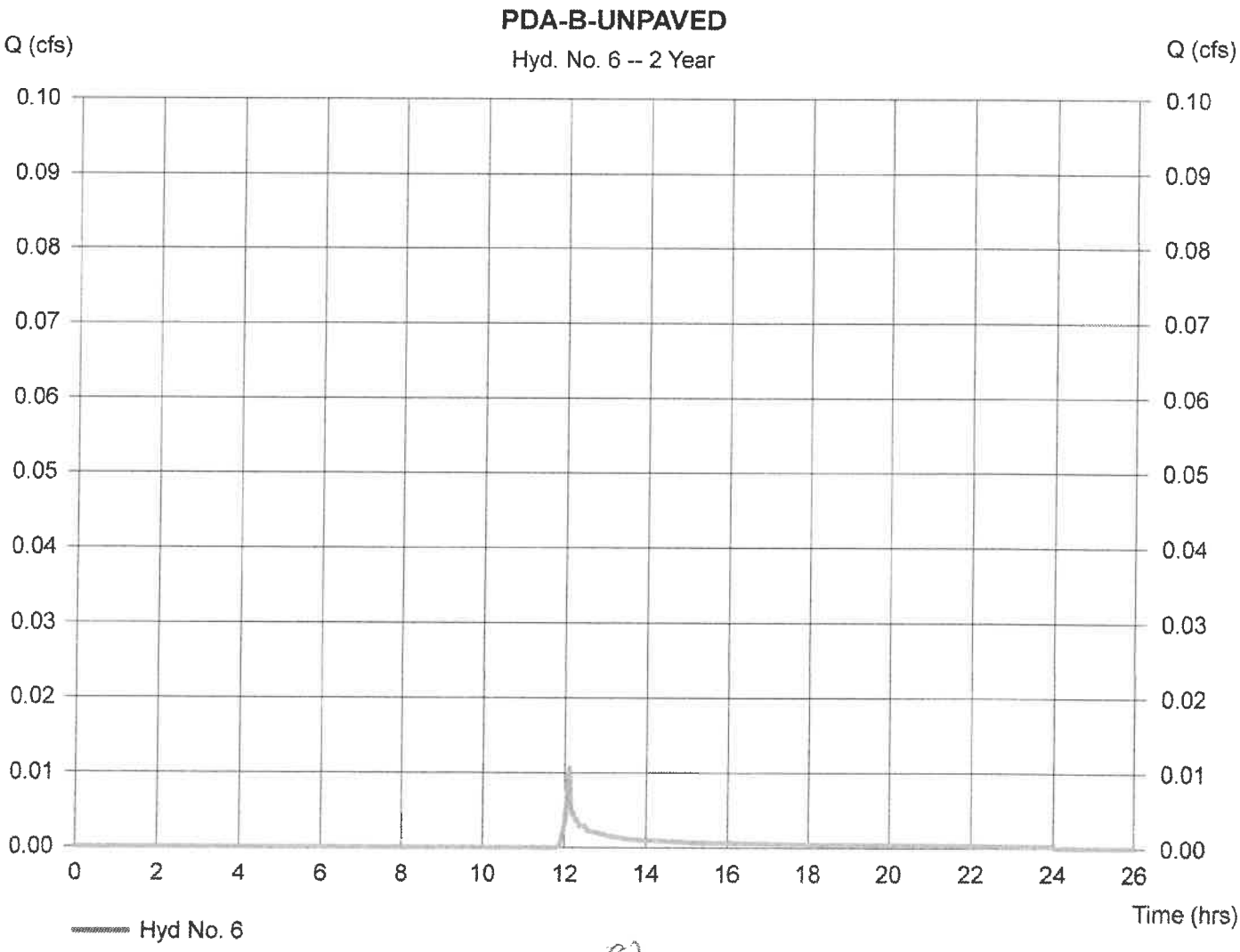
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.011 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 35 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



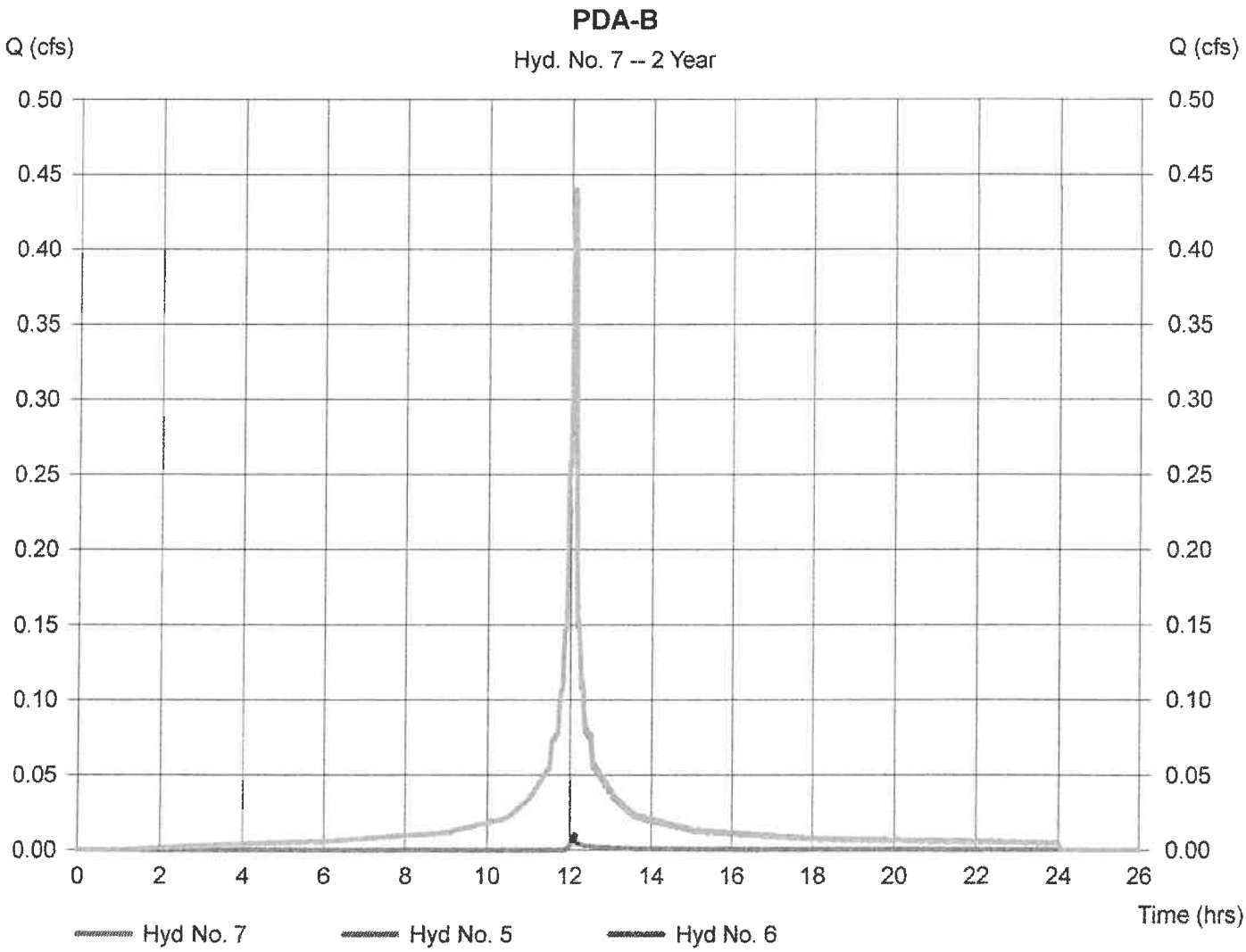
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 7

PDA-B

Hydrograph type	= Combine	Peak discharge	= 0.440 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,428 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.150 ac



Hydrograph Report

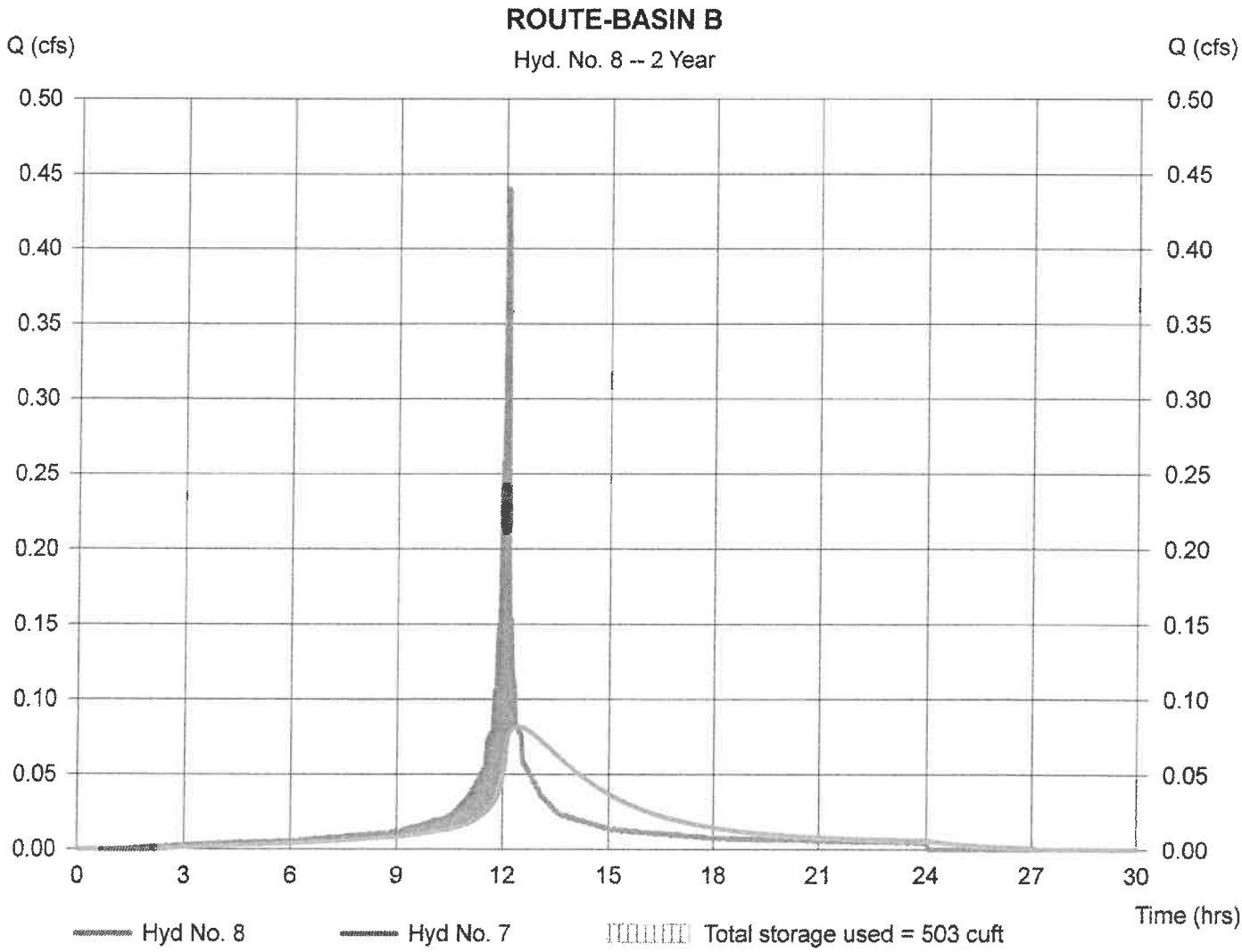
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

ROUTE-BASIN B

Hydrograph type	= Reservoir	Peak discharge	= 0.082 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.37 hrs
Time interval	= 1 min	Hyd. volume	= 1,421 cuft
Inflow hyd. No.	= 7 - PDA-B	Max. Elevation	= 92.00 ft
Reservoir name	= BASIN B	Max. Storage	= 503 cuft

Storage Indication method used. Outflow includes exfiltration.



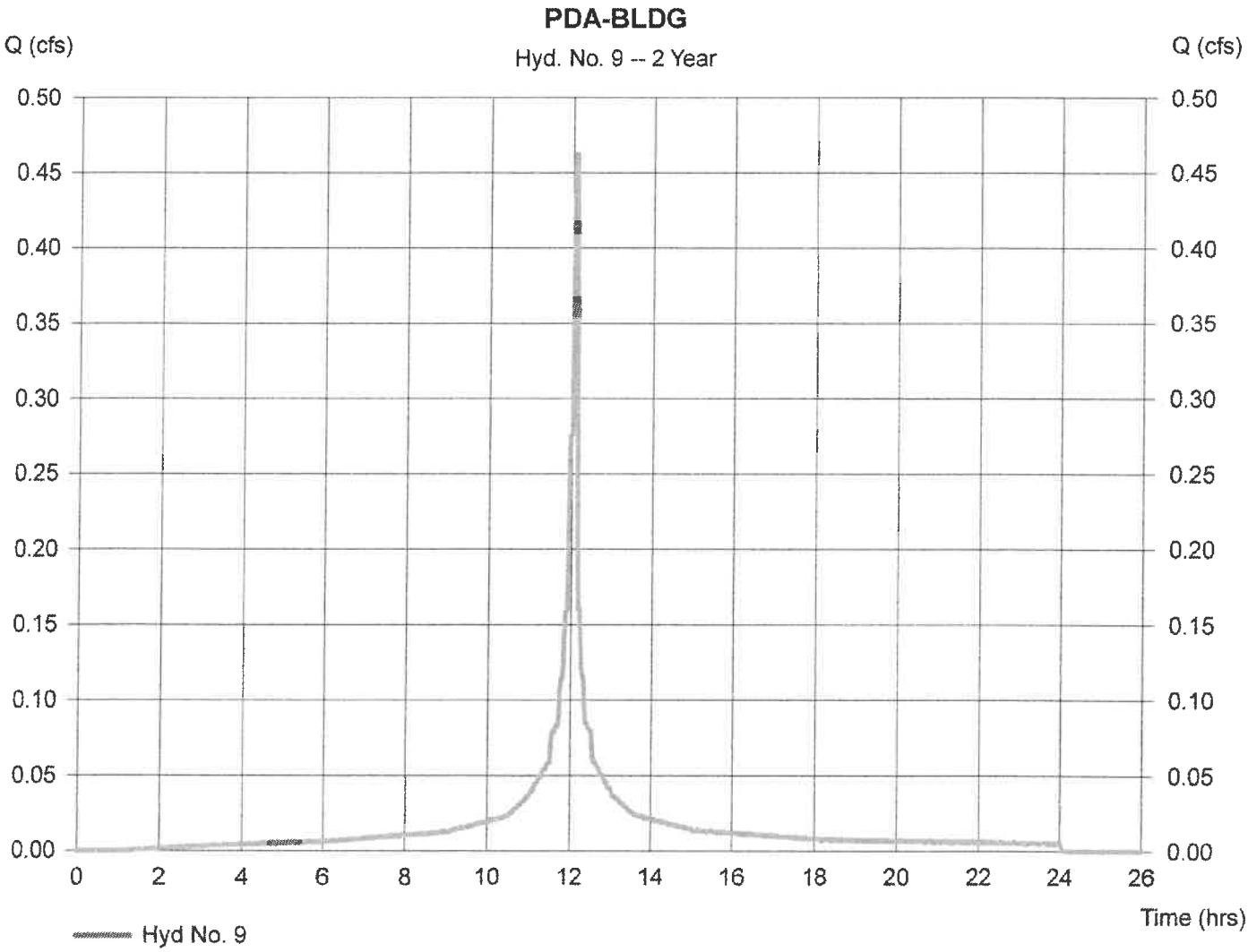
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 0.462 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,499 cuft
Drainage area	= 0.140 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



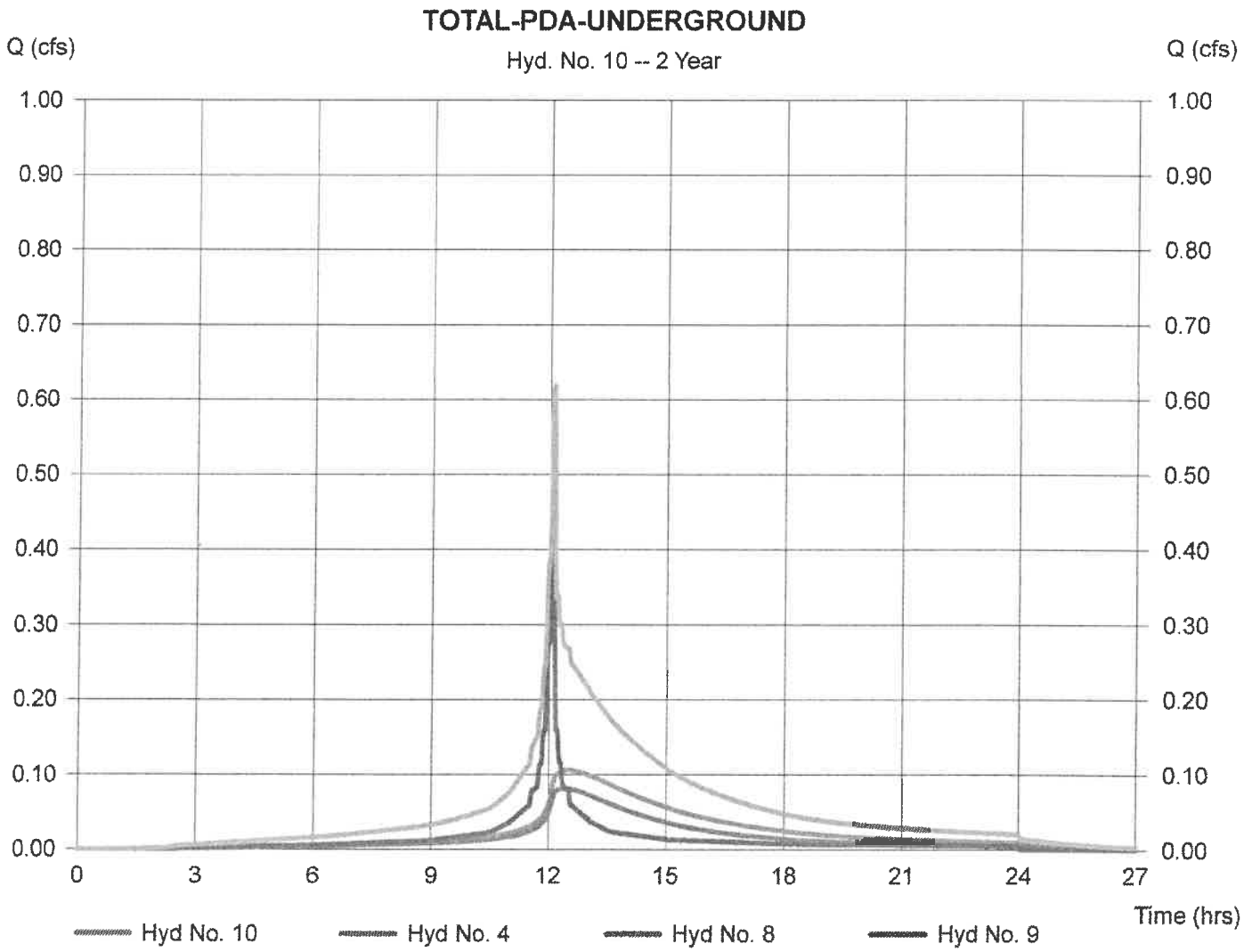
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

TOTAL-PDA-UNDERGROUND

Hydrograph type	= Combine	Peak discharge	= 0.618 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 5,018 cuft
Inflow hyds.	= 4, 8, 9	Contrib. drain. area	= 0.140 ac



Hydrograph Report

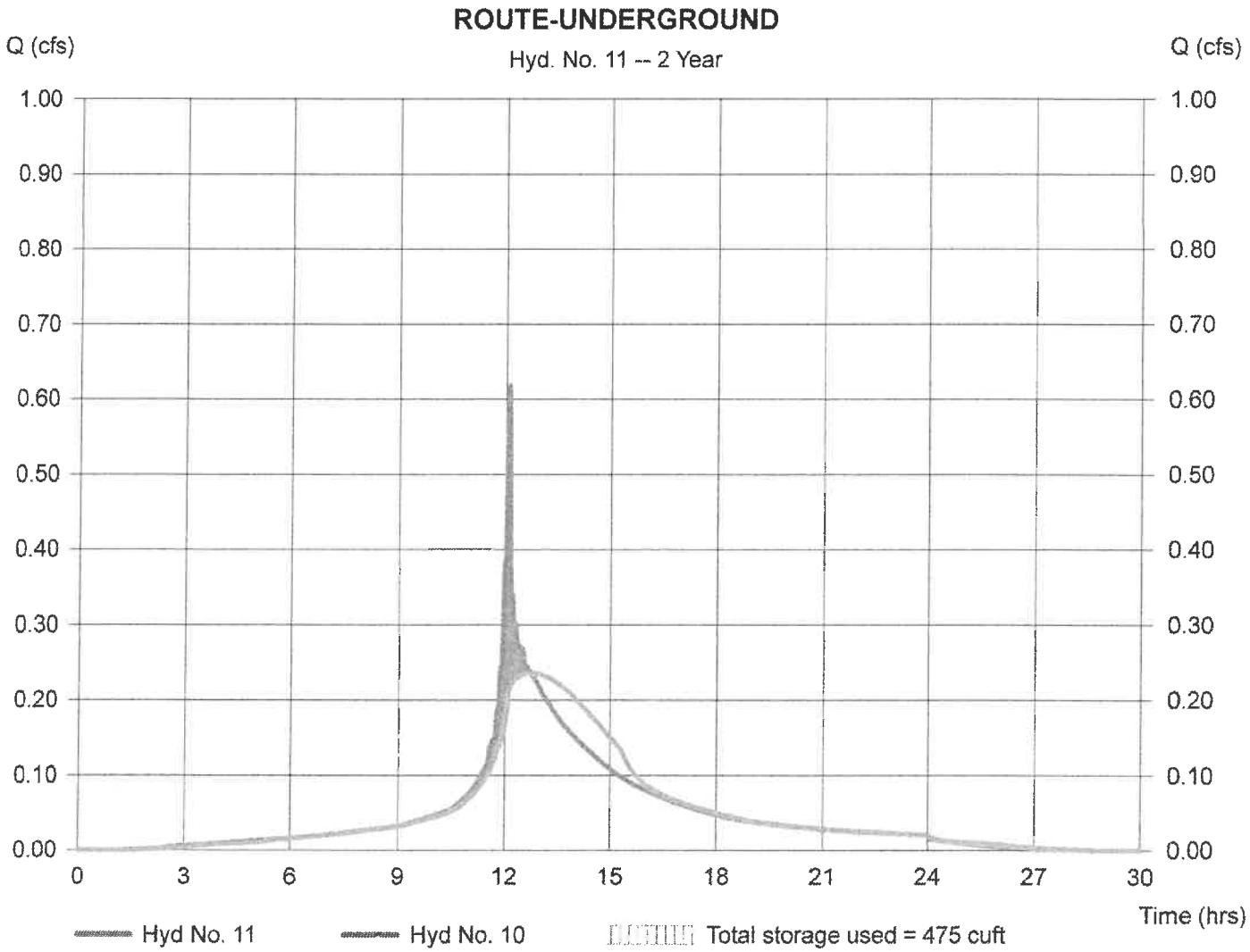
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

ROUTE-UNDERGROUND

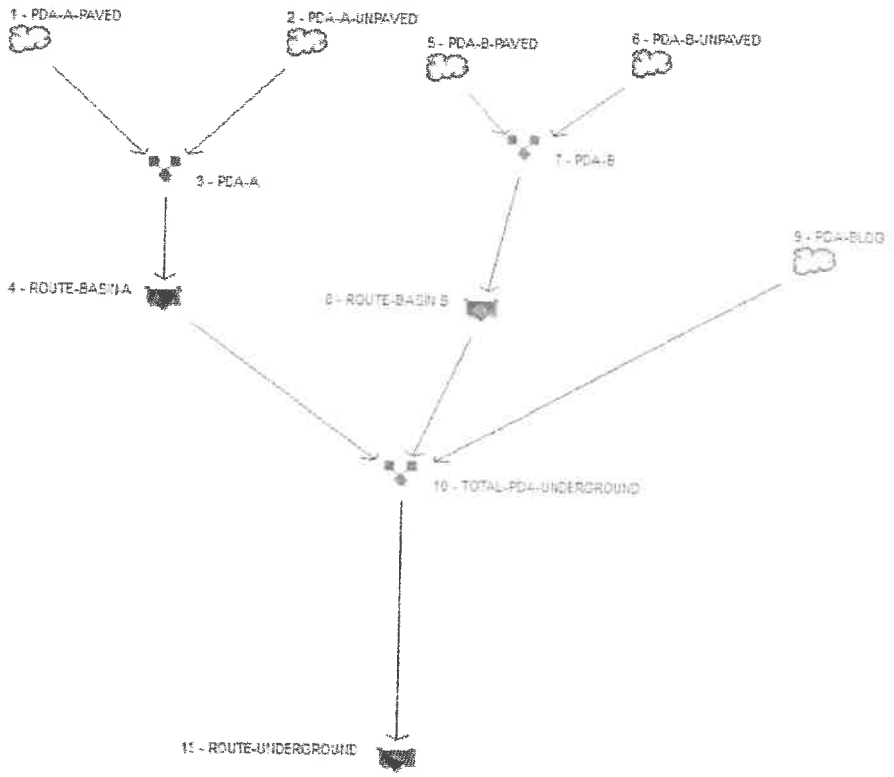
Hydrograph type	= Reservoir	Peak discharge	= 0.236 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.73 hrs
Time interval	= 1 min	Hyd. volume	= 5,017 cuft
Inflow hyd. No.	= 10 - TOTAL-PDA-UNDERGROUND	Max. Elevation	= 88.01 ft
Reservoir name	= UNDERGROUND PIPES	Max. Storage	= 475 cuft

Storage Indication method used. Outflow includes exfiltration.



APPENDIX 5
Pond Routing

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	PDA-A-PAVED
2	SCS Runoff	PDA-A-UNPAVED
3	Combine	PDA-A
4	Reservoir	ROUTE-BASIN A
5	SCS Runoff	PDA-B-PAVED
6	SCS Runoff	PDA-B-UNPAVED
7	Combine	PDA-B
8	Reservoir	ROUTE-BASIN B
9	SCS Runoff	PDA-BLDG
10	Combine	TOTAL-PDA-UNDERGROUND
11	Reservoir	ROUTE-UNDERGROUND

Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 1 - BASIN A

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	803	0	0
1.00	92.00	1,246	1,016	1,016
2.00	93.00	1,246	1,246	2,262

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 88.00	0.00	0.00	0.00
Length (ft)	= 10.00	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	No	No	No

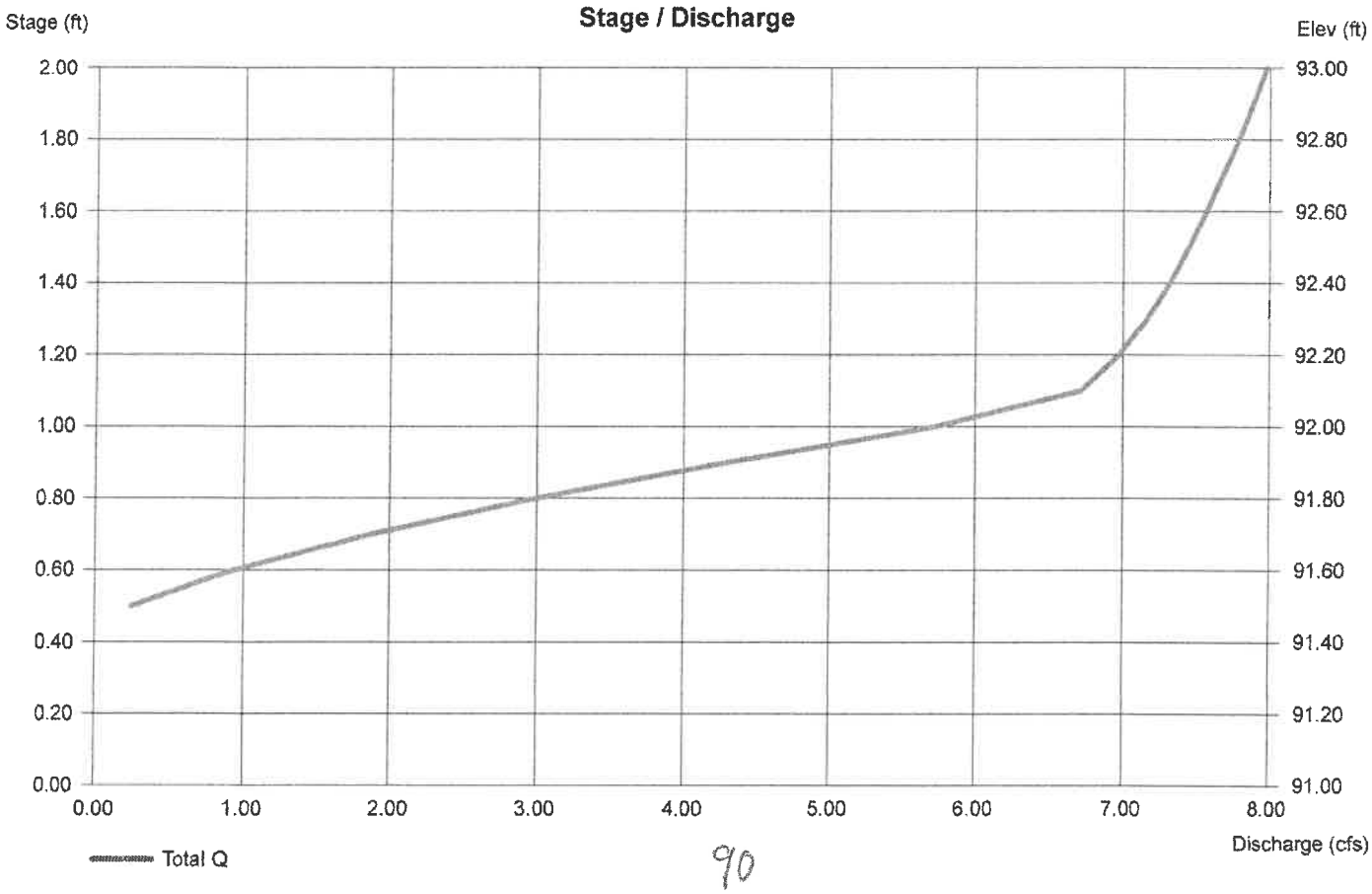
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 91.43	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
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 and outlet control. Weir risers are checked for orifice conditions.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 2 - BASIN B

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 91.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	91.00	422	0	0
1.00	92.00	589	503	503
2.00	93.00	589	589	1,092

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 87.97	0.00	0.00	0.00
Length (ft)	= 37.00	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	No	No	No

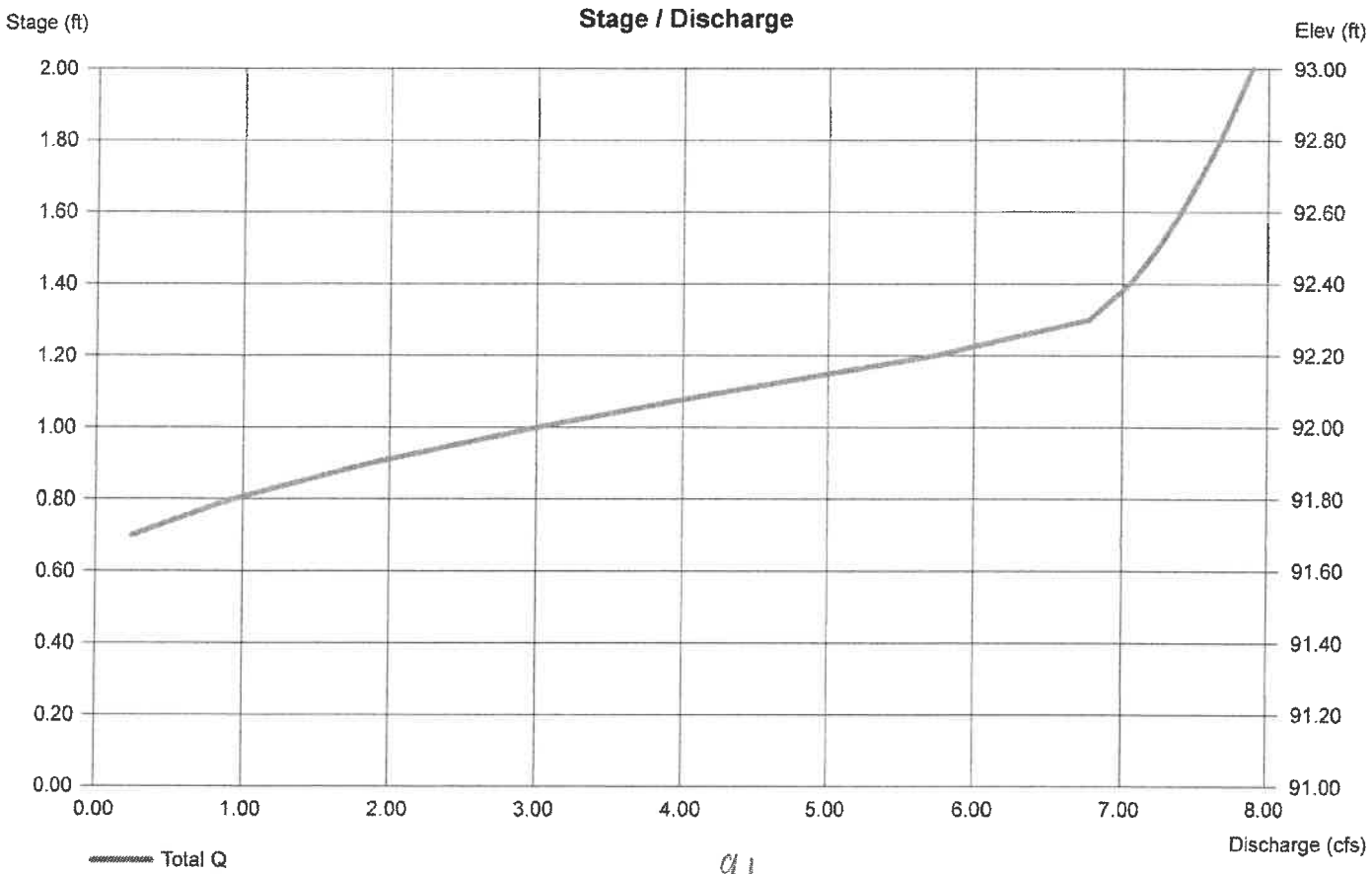
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 91.63	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
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 and outlet control. Weir risers are checked for orifice conditions.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Pond No. 4 - UNDERGROUND PIPES

Pond Data

UG Chambers - Invert elev. = 87.50 ft, Rise x Span = 2.50 x 2.50 ft, Barrel Len = 94.00 ft, No. Barrels = 13, Slope = 0.10%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	87.50	n/a	0	0
0.26	87.76	n/a	247	247
0.52	88.02	n/a	540	787
0.78	88.28	n/a	675	1,463
1.04	88.54	n/a	752	2,214
1.30	88.80	n/a	786	3,001
1.56	89.06	n/a	787	3,787
1.82	89.32	n/a	751	4,539
2.08	89.58	n/a	675	5,213
2.33	89.83	n/a	540	5,753
2.59	90.09	n/a	247	6,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	2.50	0.00	0.00
Span (in)	= 12.00	2.50	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 87.50	87.82	0.00	0.00
Length (ft)	= 102.00	0.00	0.00	0.00
Slope (%)	= 0.40	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

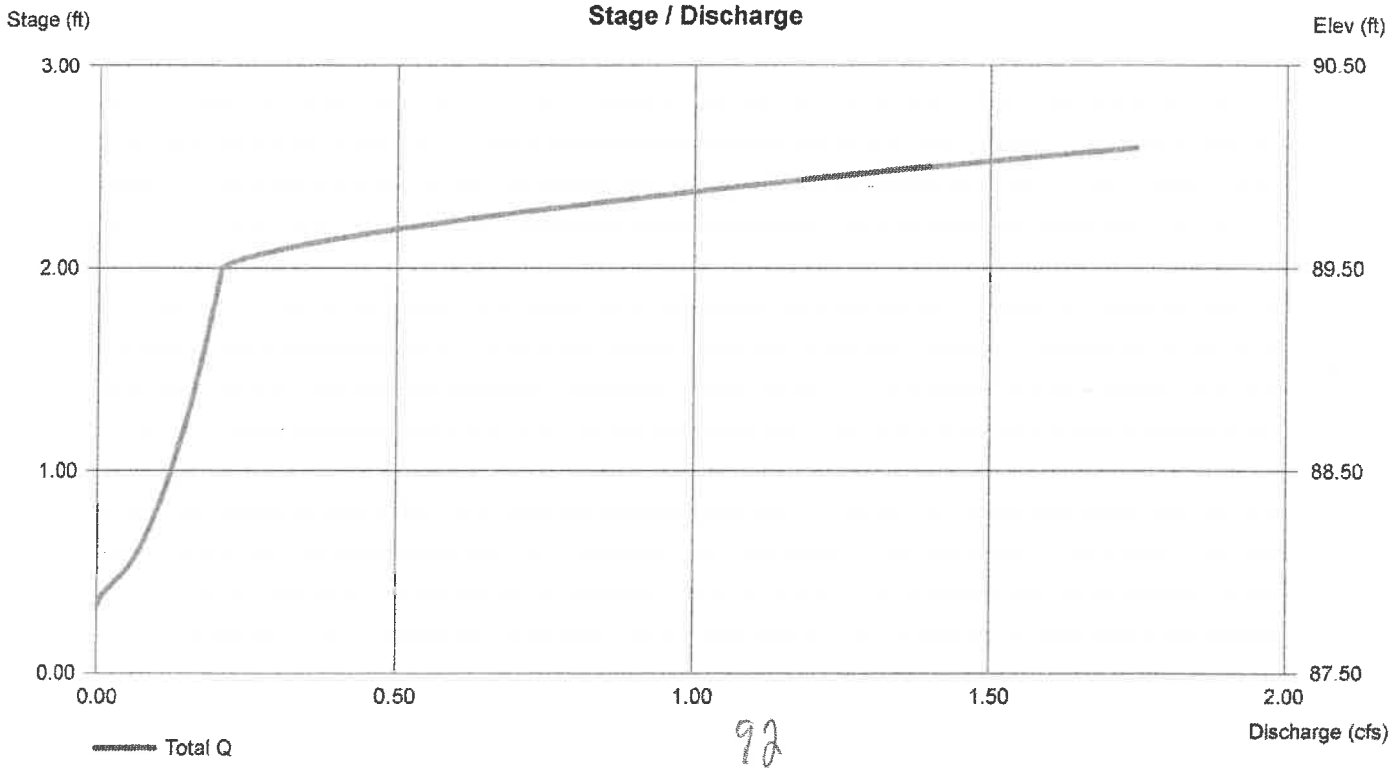
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 1.00	0.00	0.00	0.00
Crest El. (ft)	= 89.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	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

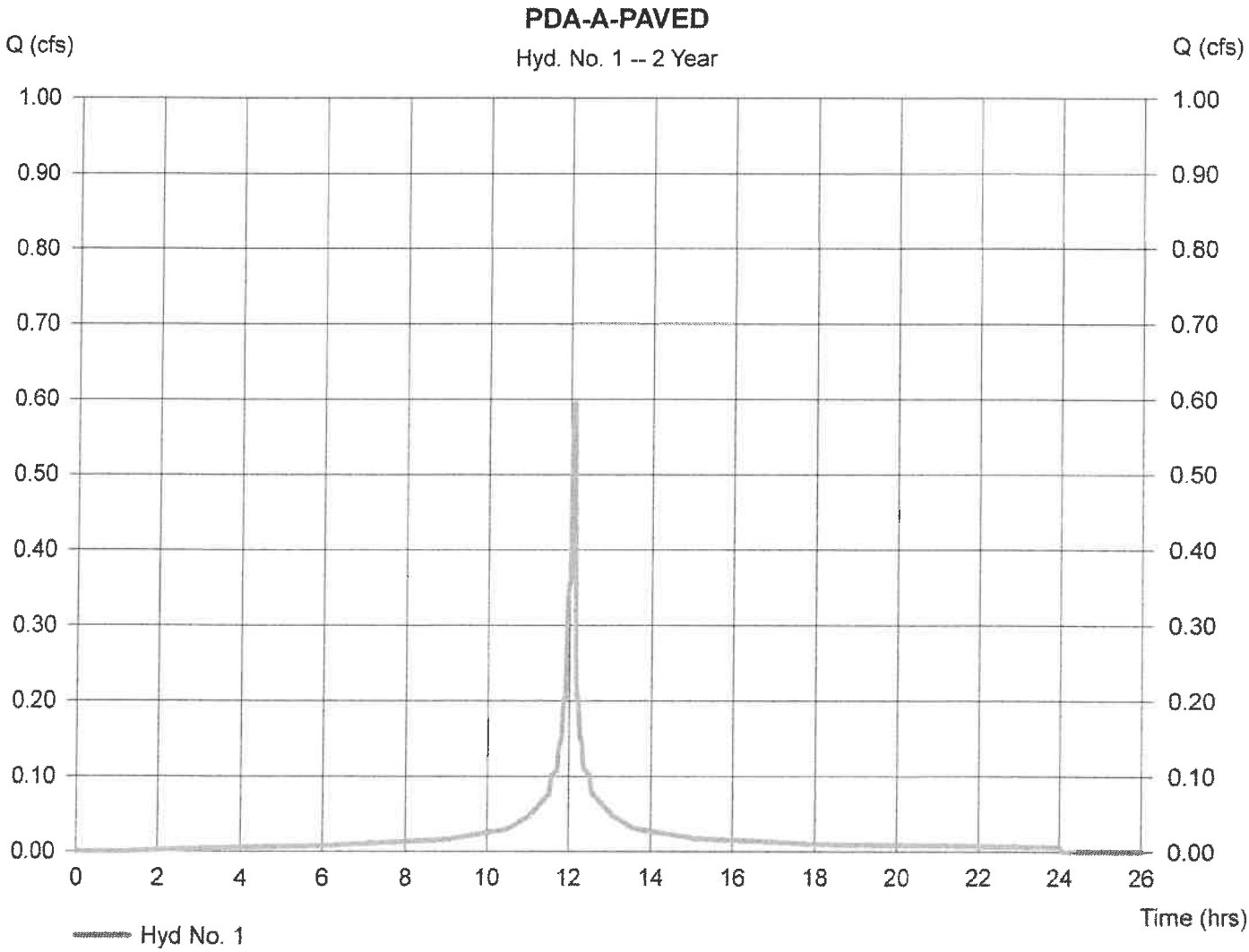
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.594 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,928 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



Hydrograph Report

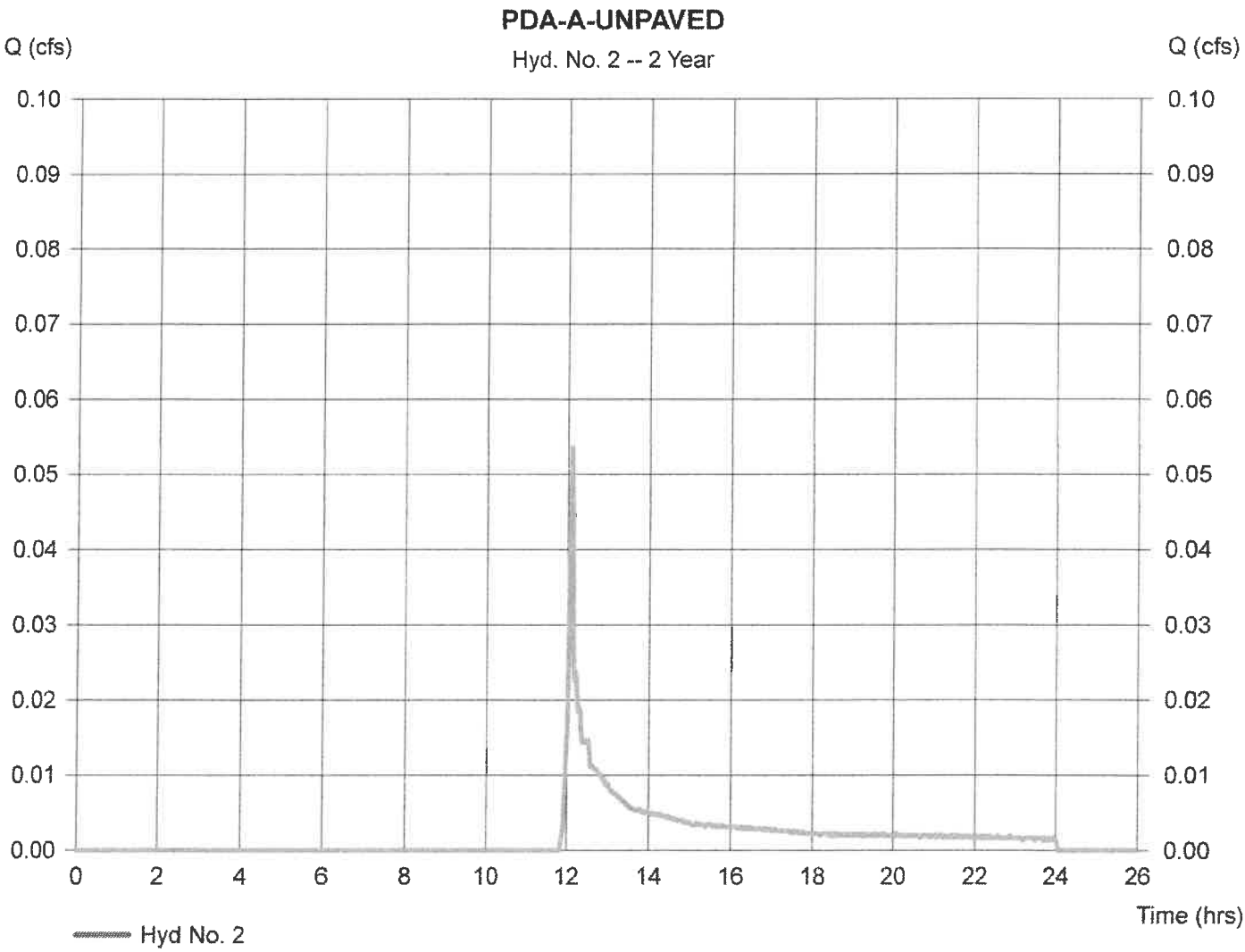
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.054 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 177 cuft
Drainage area	= 0.100 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 61)] / 0.100



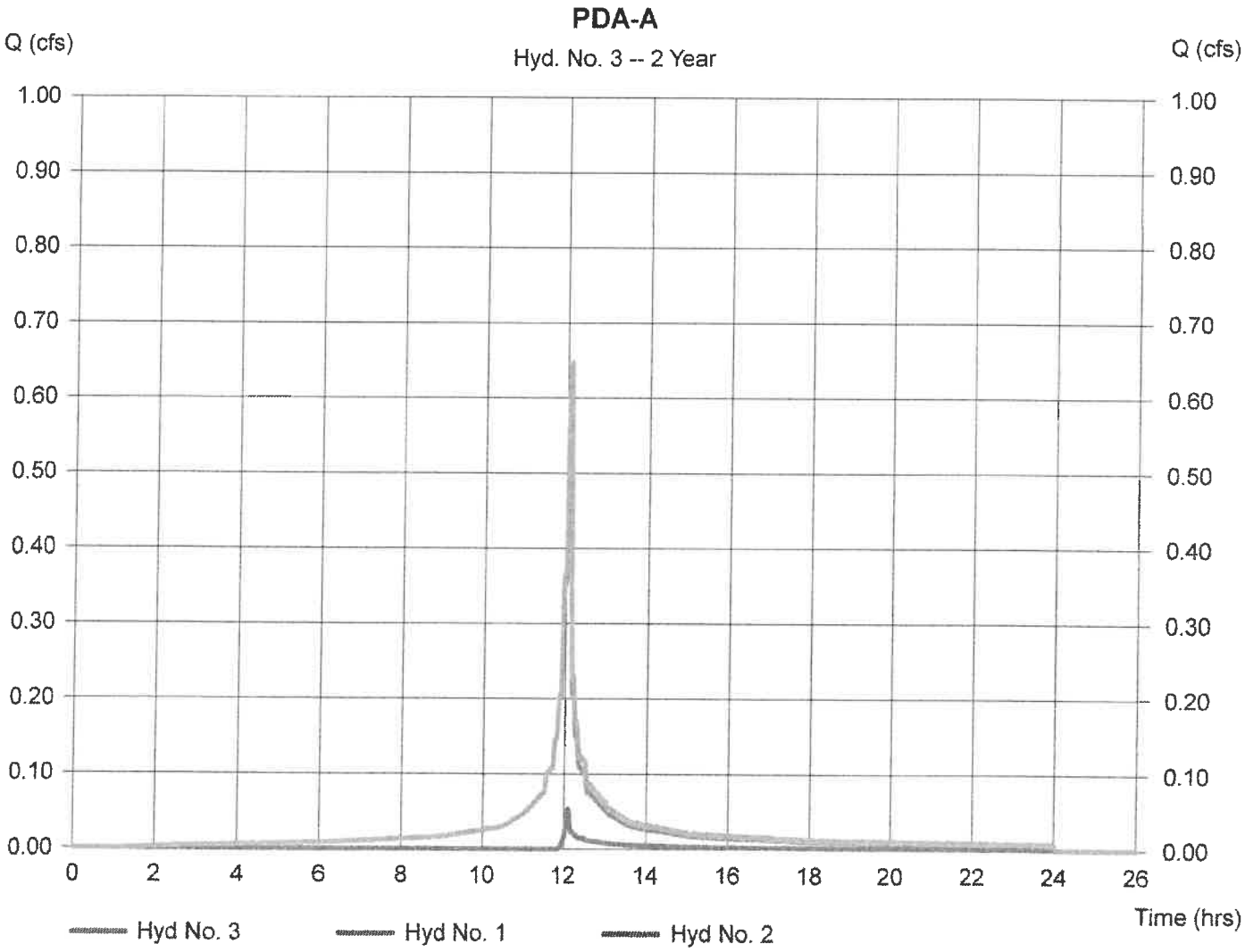
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

PDA-A

Hydrograph type	= Combine	Peak discharge	= 0.648 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,105 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.280 ac



Hydrograph Report

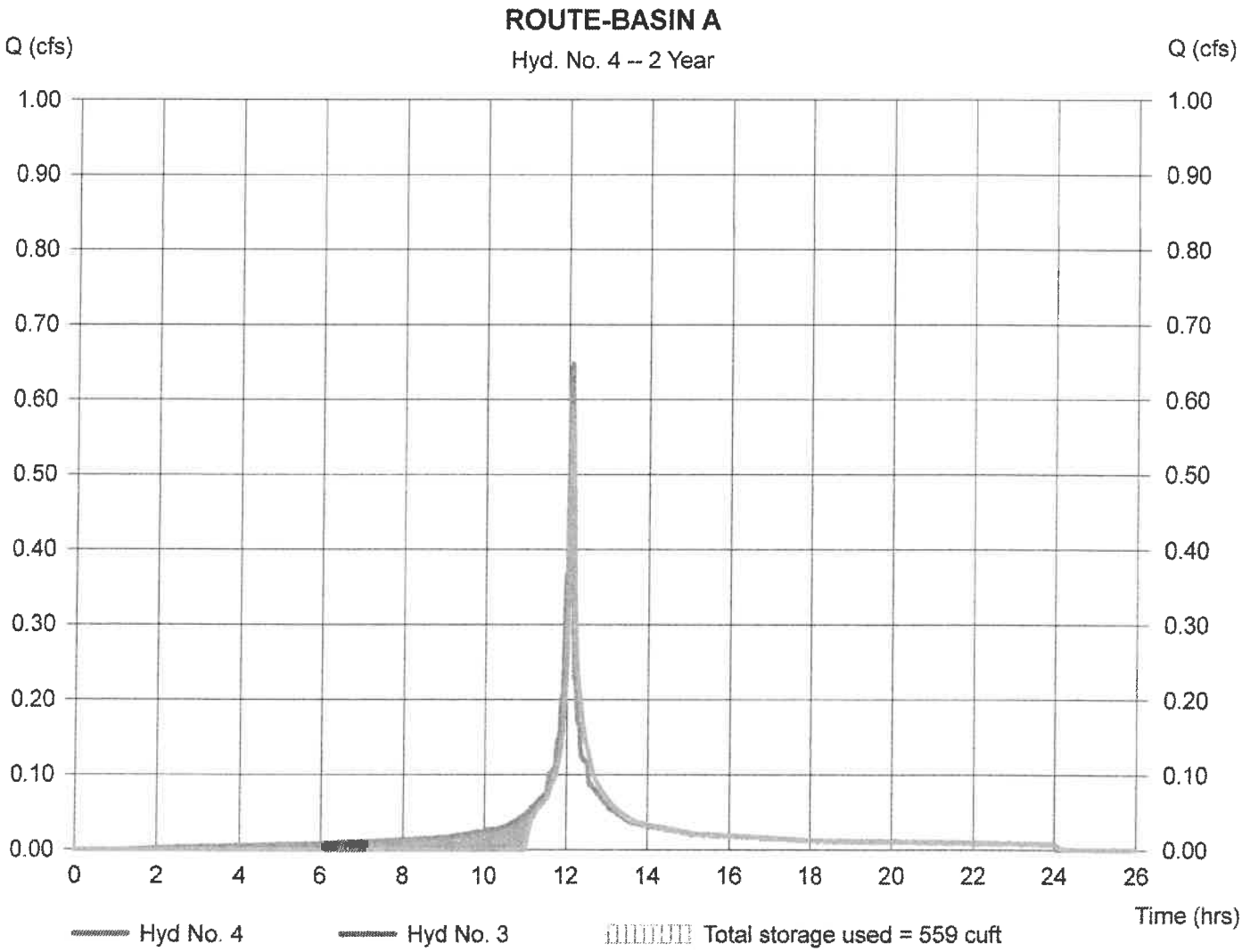
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

ROUTE-BASIN A

Hydrograph type	= Reservoir	Peak discharge	= 0.589 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 1,698 cuft
Inflow hyd. No.	= 3 - PDA-A	Max. Elevation	= 91.55 ft
Reservoir name	= BASIN A	Max. Storage	= 559 cuft

Storage Indication method used.



Hydrograph Report

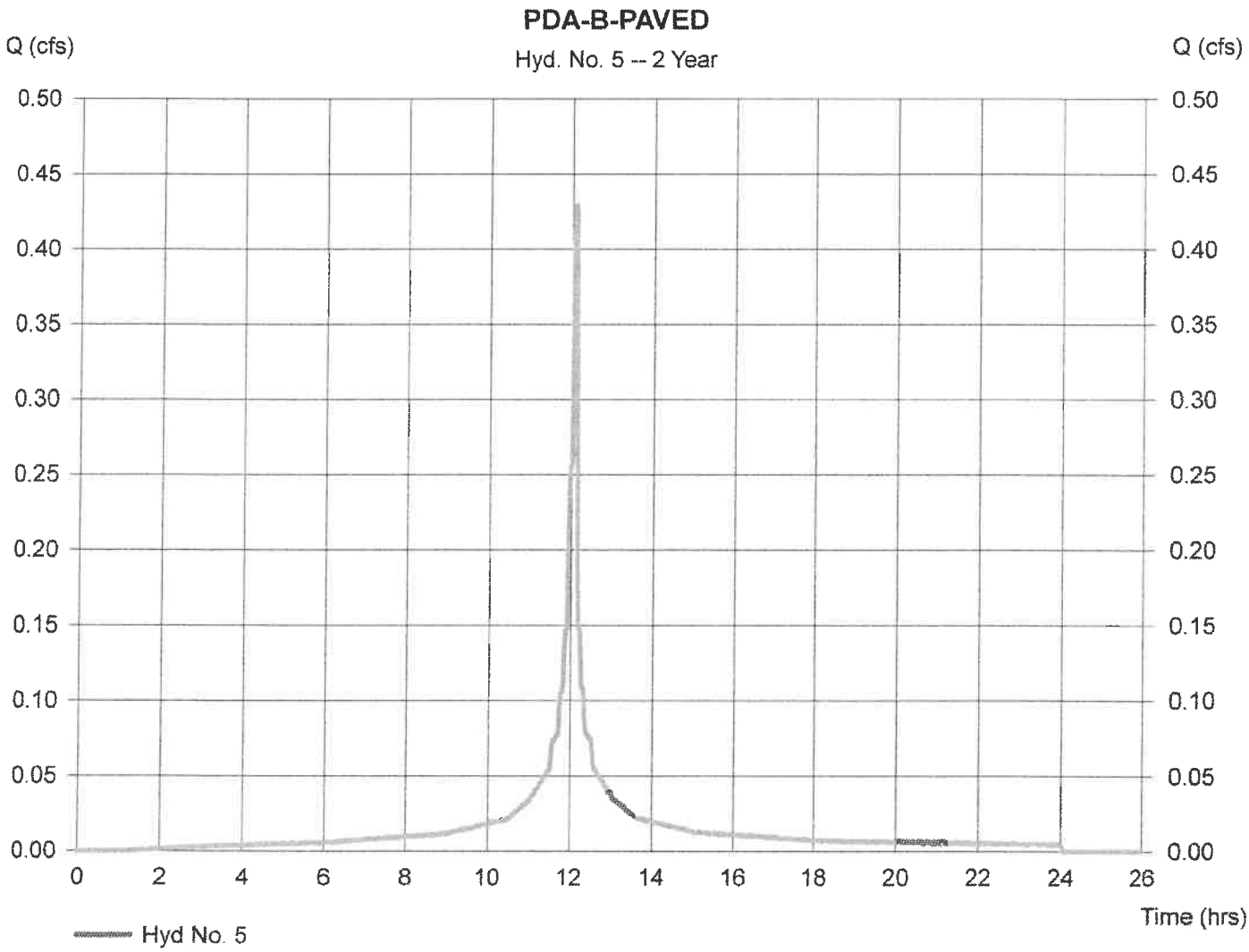
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.429 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,392 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



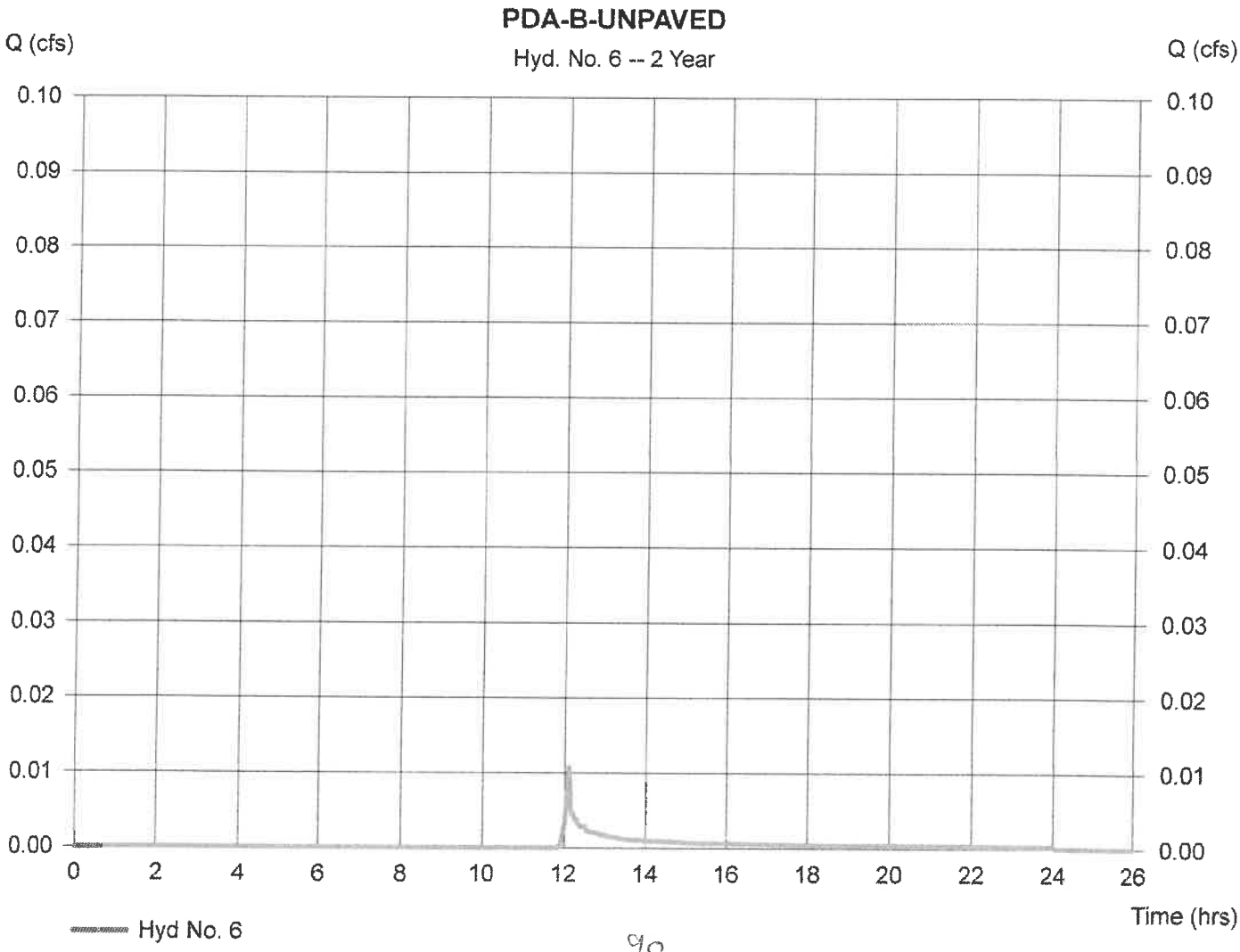
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.011 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 35 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



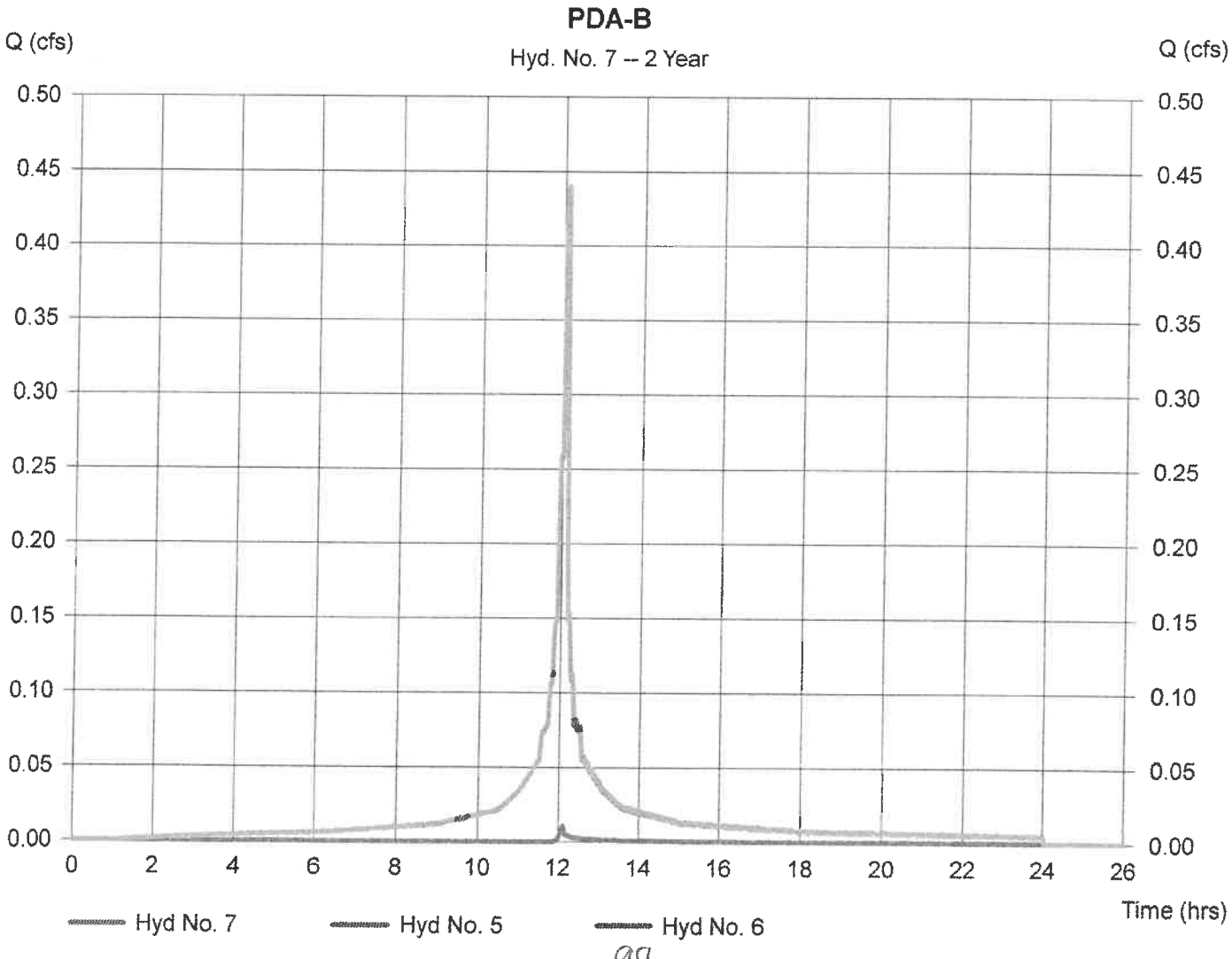
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 7

PDA-B

Hydrograph type	= Combine	Peak discharge	= 0.440 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,428 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.150 ac



Hydrograph Report

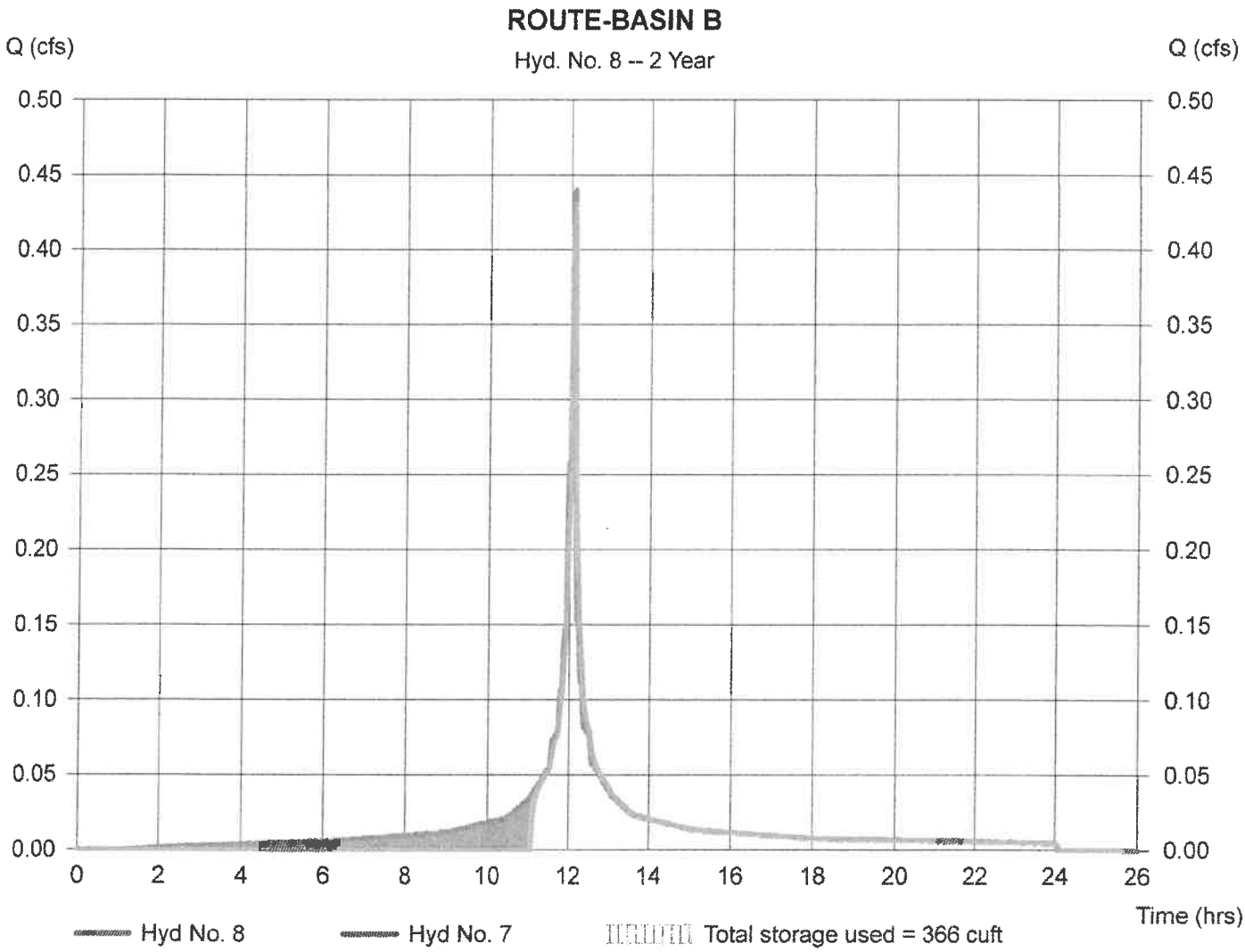
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

ROUTE-BASIN B

Hydrograph type	= Reservoir	Peak discharge	= 0.430 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,125 cuft
Inflow hyd. No.	= 7 - PDA-B	Max. Elevation	= 91.73 ft
Reservoir name	= BASIN B	Max. Storage	= 366 cuft

Storage Indication method used.



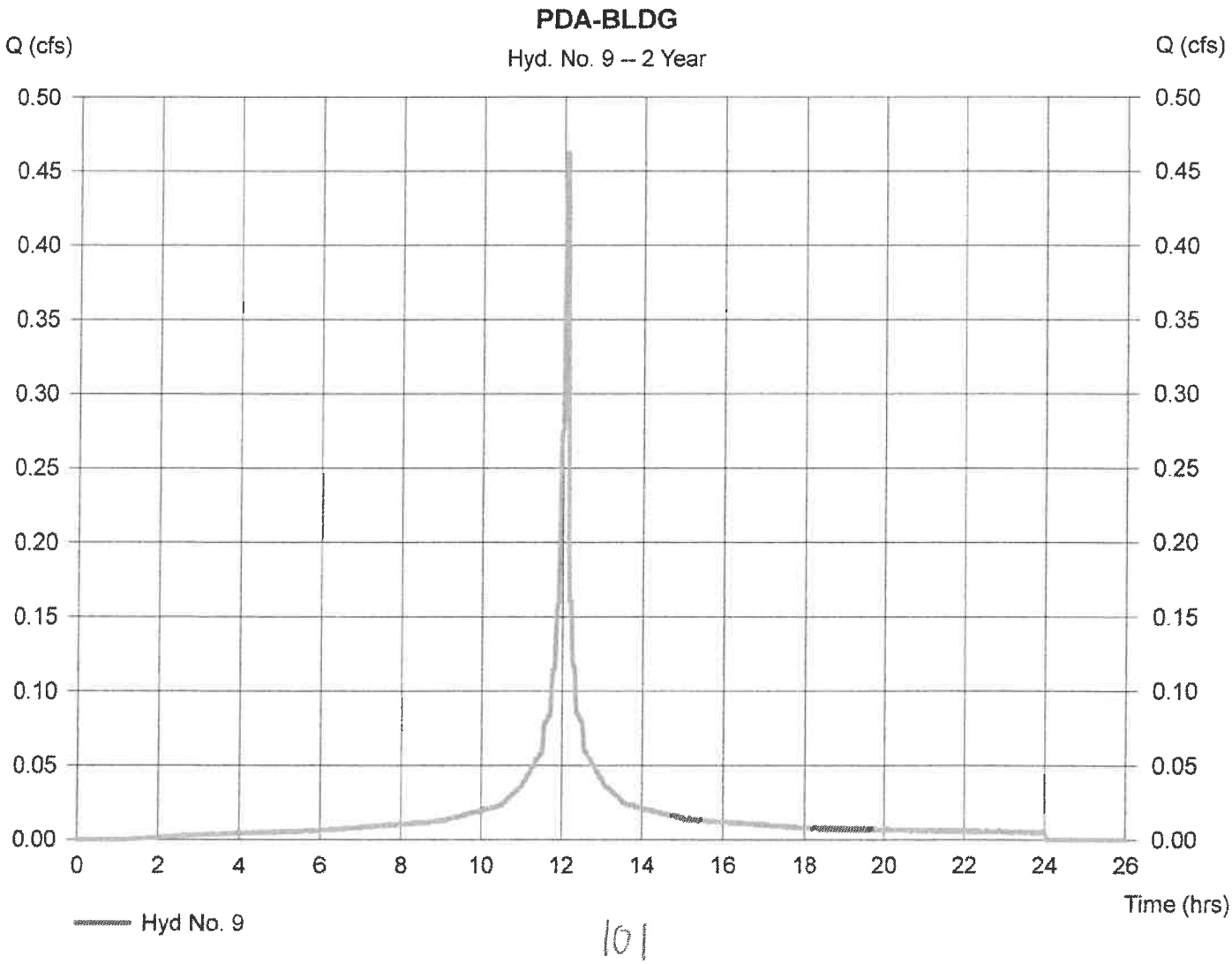
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 0.462 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,499 cuft
Drainage area	= 0.140 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 3.38 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



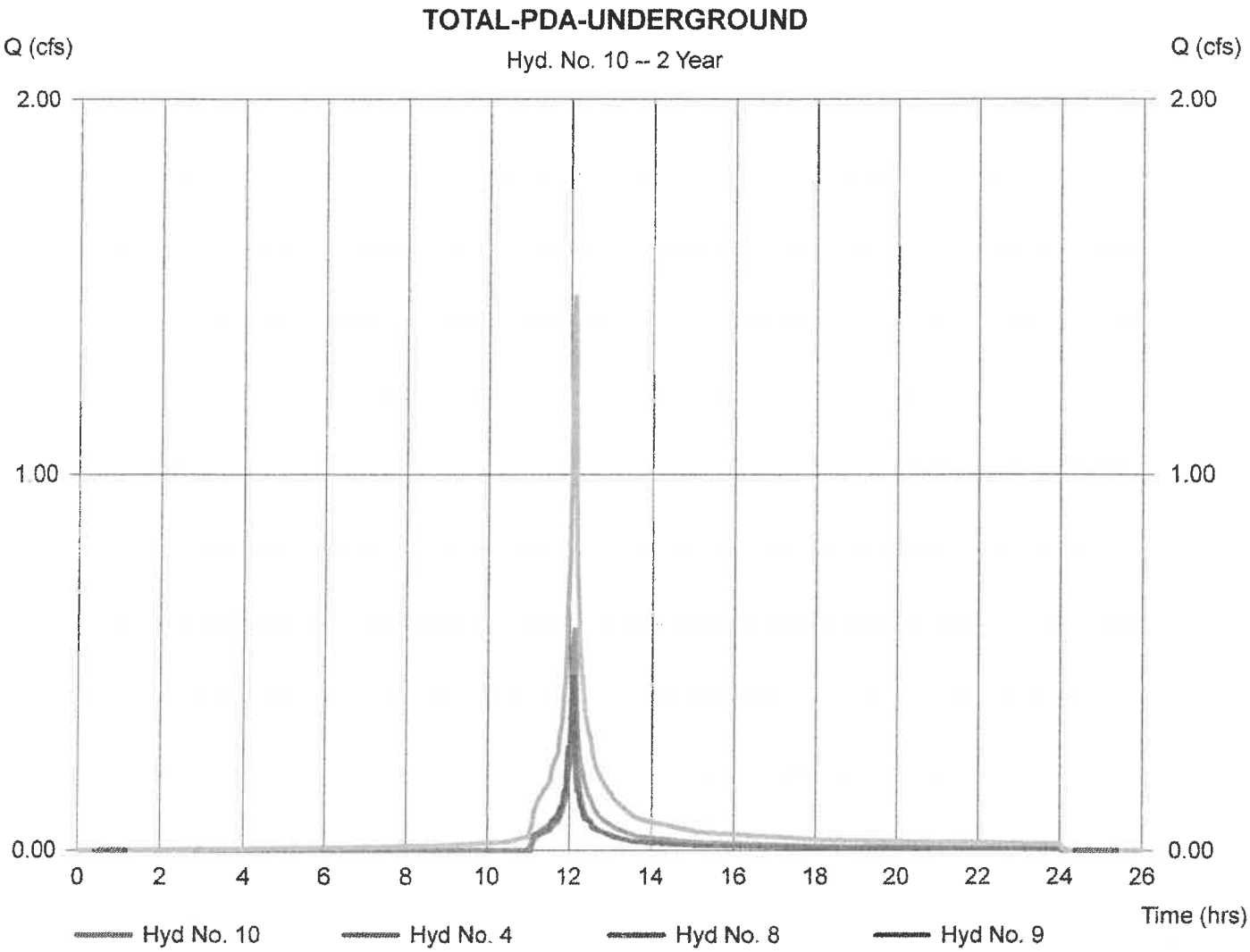
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

TOTAL-PDA-UNDERGROUND

Hydrograph type	= Combine	Peak discharge	= 1.472 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 4,322 cuft
Inflow hyds.	= 4, 8, 9	Contrib. drain. area	= 0.140 ac



Hydrograph Report

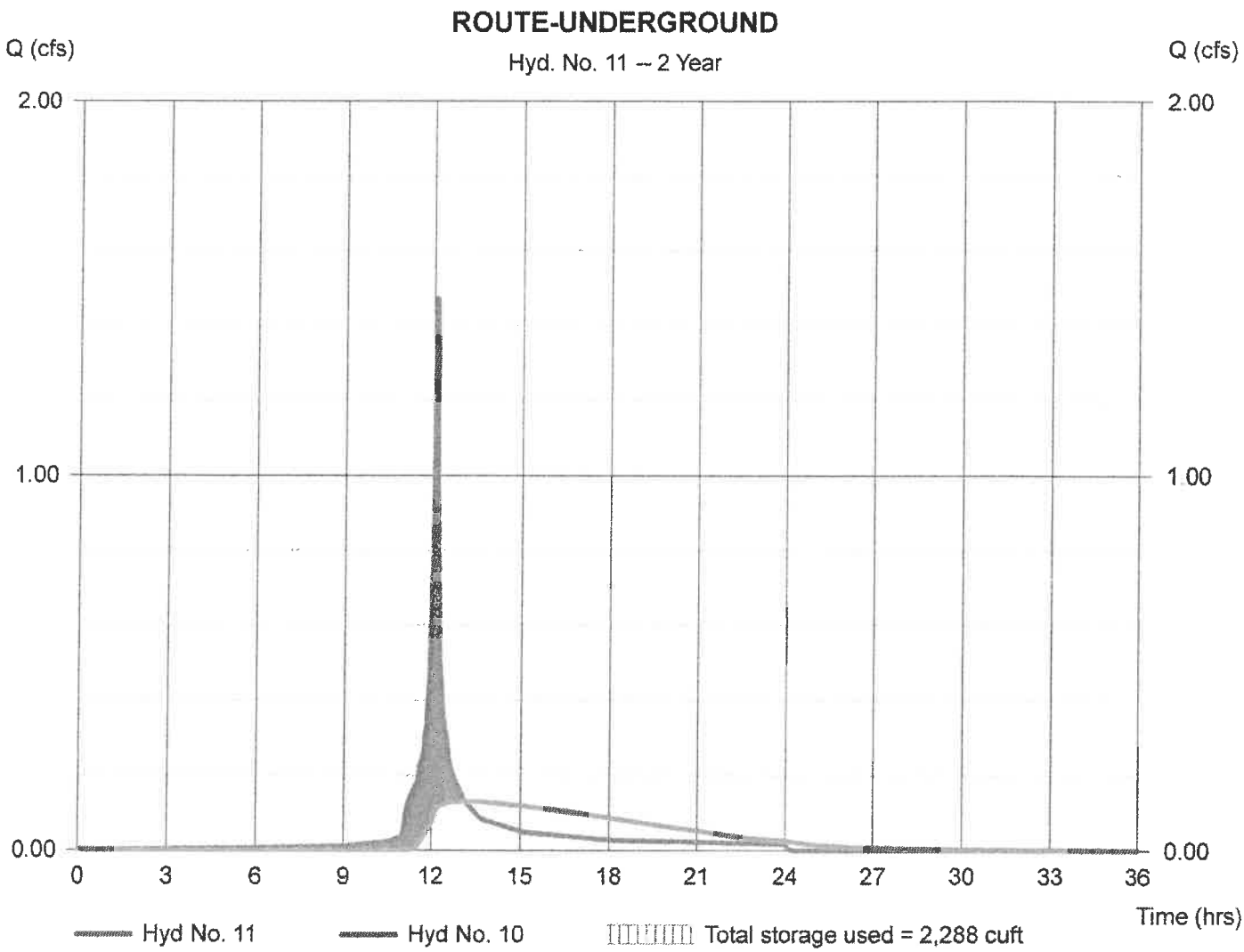
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

ROUTE-UNDERGROUND

Hydrograph type	= Reservoir	Peak discharge	= 0.131 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.15 hrs
Time interval	= 1 min	Hyd. volume	= 3,907 cuft
Inflow hyd. No.	= 10 - TOTAL-PDA-UNDERGROUND	Max. Elevation	= 88.56 ft
Reservoir name	= UNDERGROUND PIPES	Max. Storage	= 2,288 cuft

Storage Indication method used.



Hydrograph Report

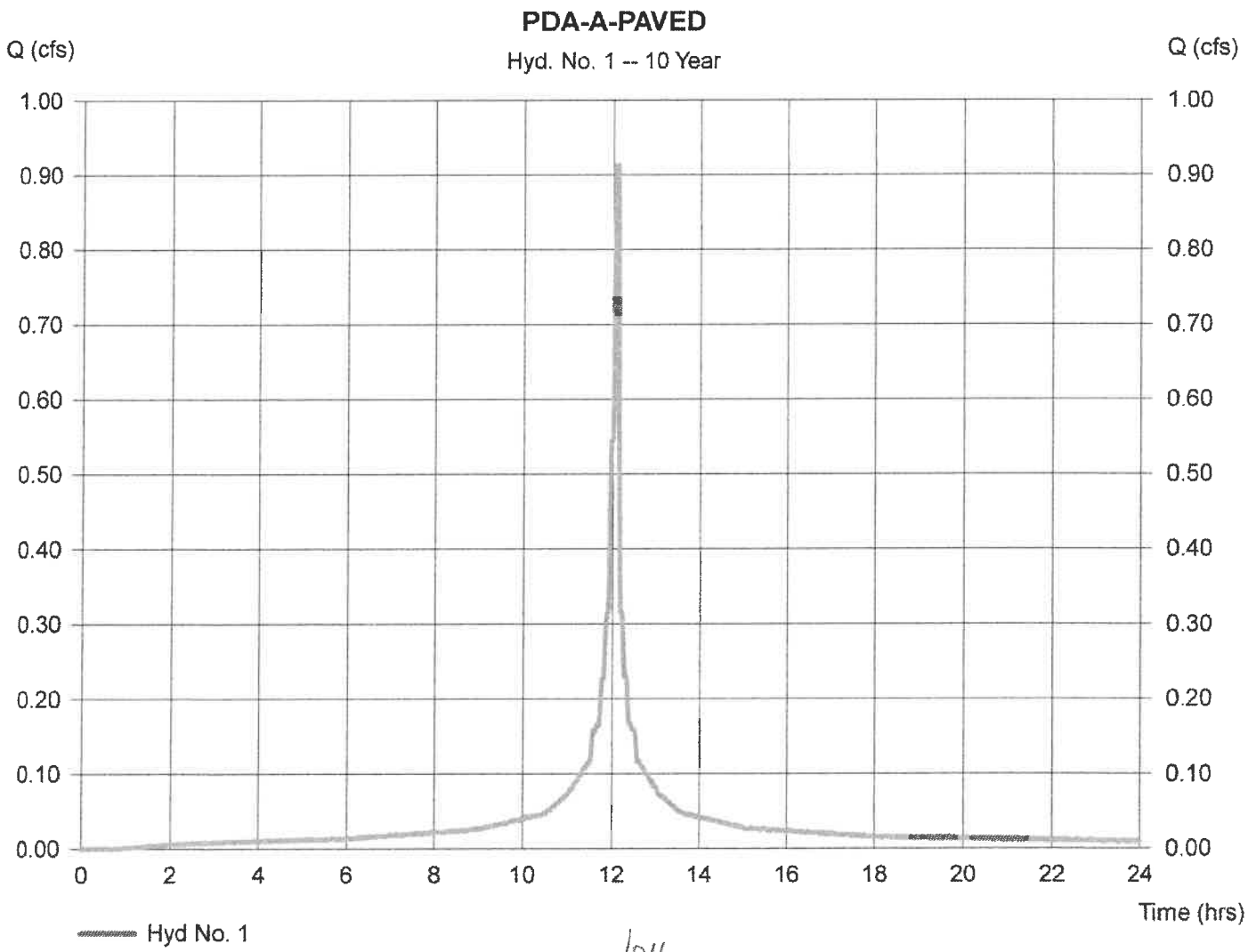
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.912 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,016 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



Hydrograph Report

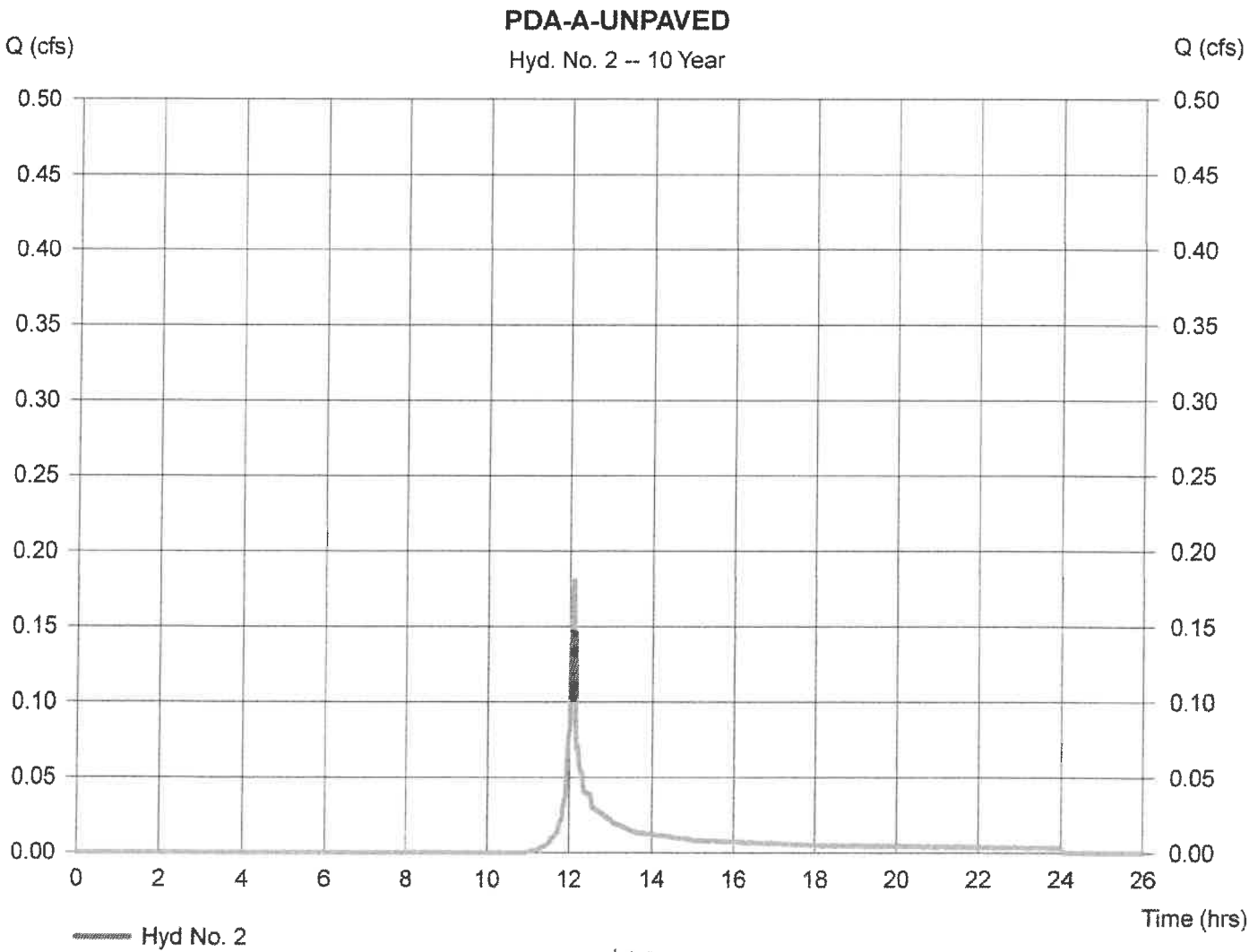
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.181 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 499 cuft
Drainage area	= 0.100 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 61)] / 0.100



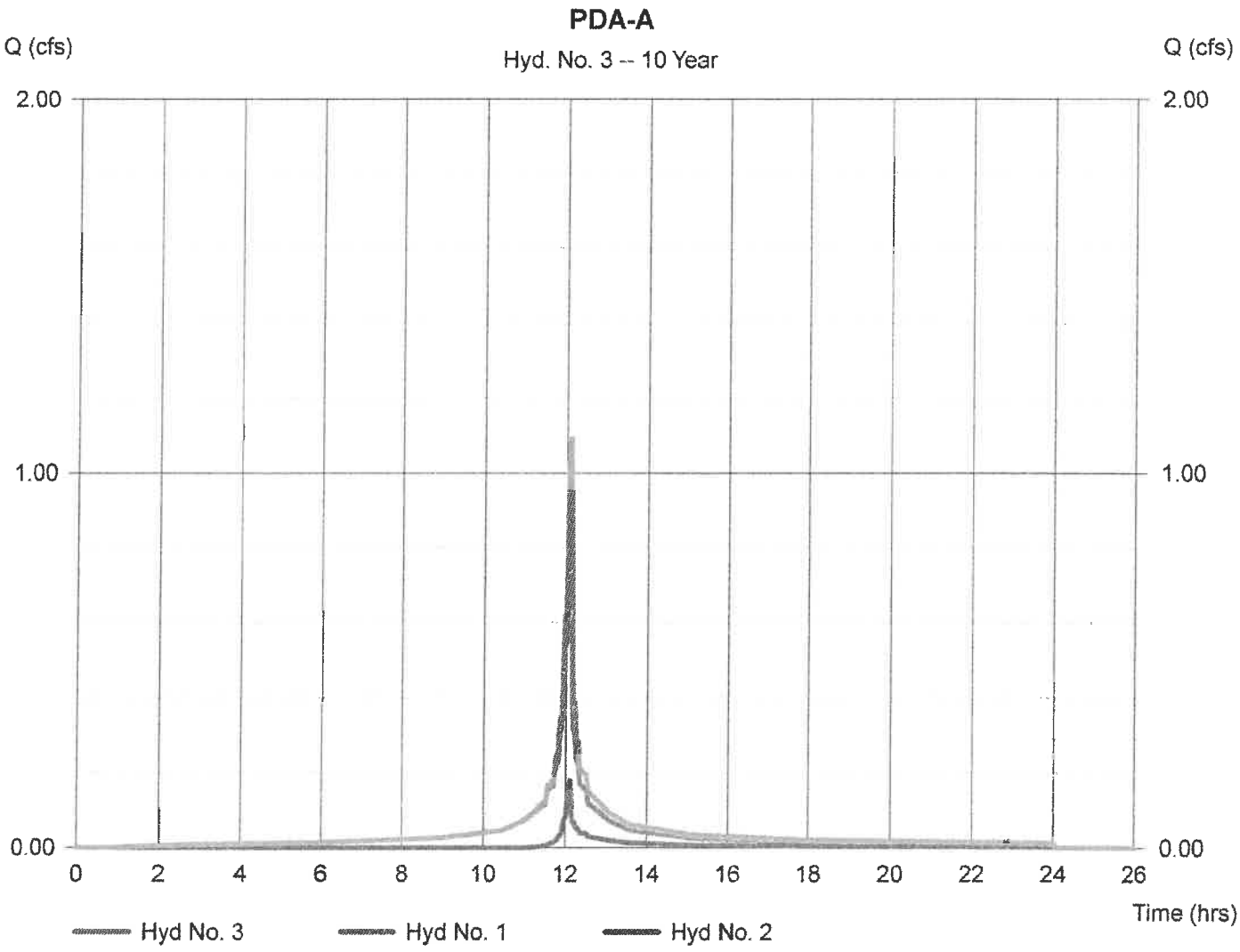
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

PDA-A

Hydrograph type	= Combine	Peak discharge	= 1.093 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,515 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.280 ac



Hydrograph Report

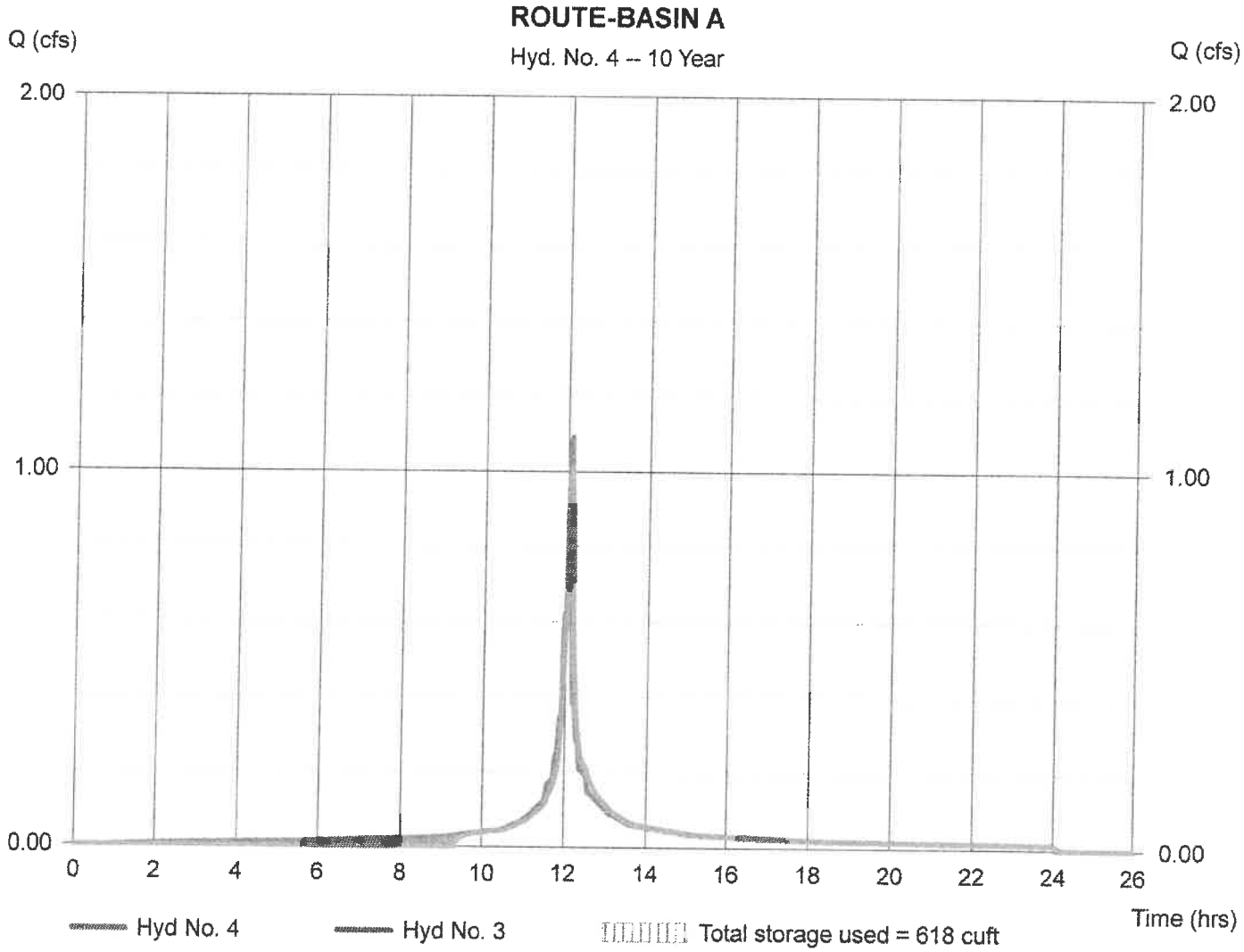
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

ROUTE-BASIN A

Hydrograph type	= Reservoir	Peak discharge	= 1.012 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 3,108 cuft
Inflow hyd. No.	= 3 - PDA-A	Max. Elevation	= 91.61 ft
Reservoir name	= BASIN A	Max. Storage	= 618 cuft

Storage Indication method used.



Hydrograph Report

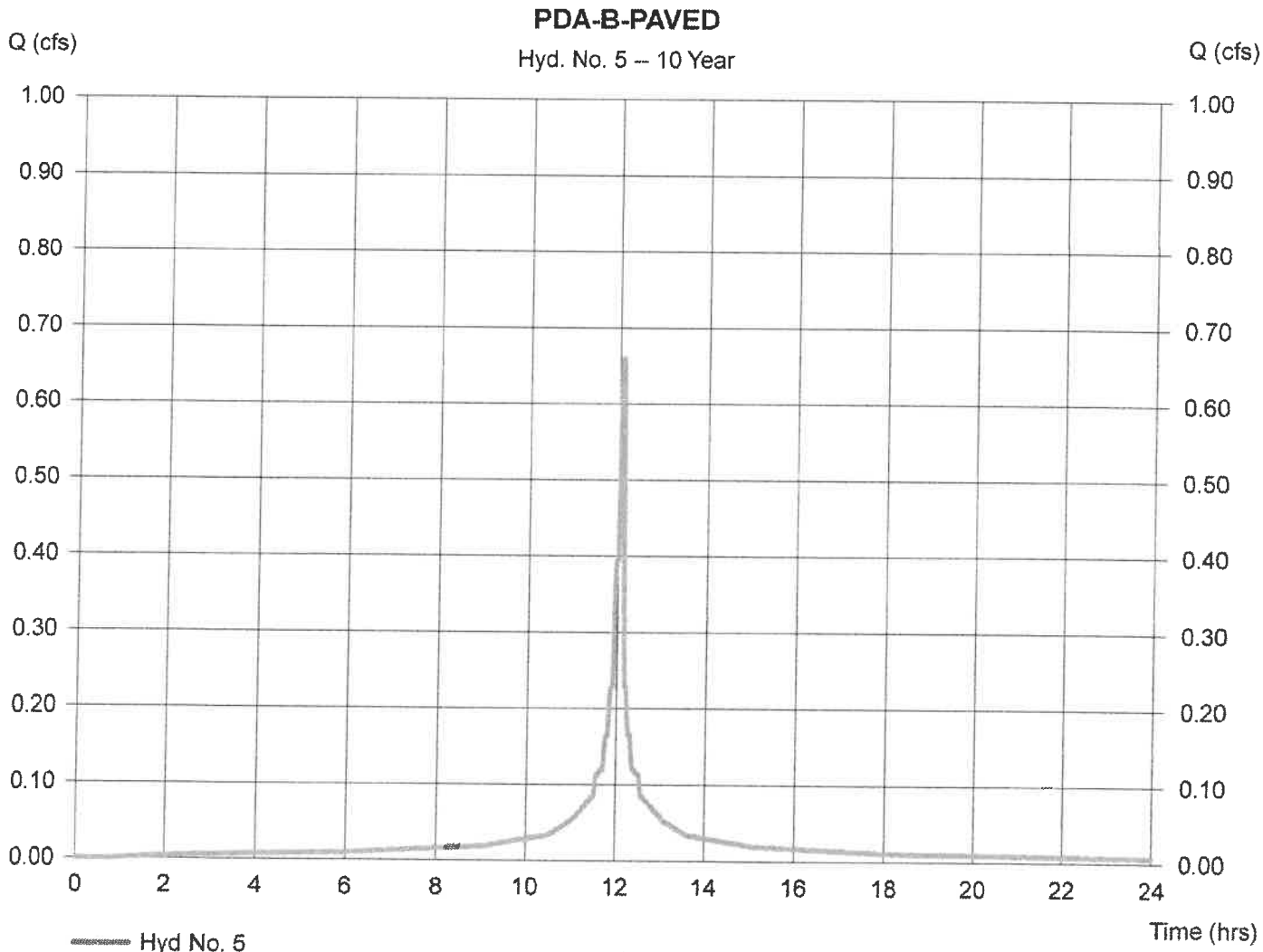
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 5

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.659 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,178 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



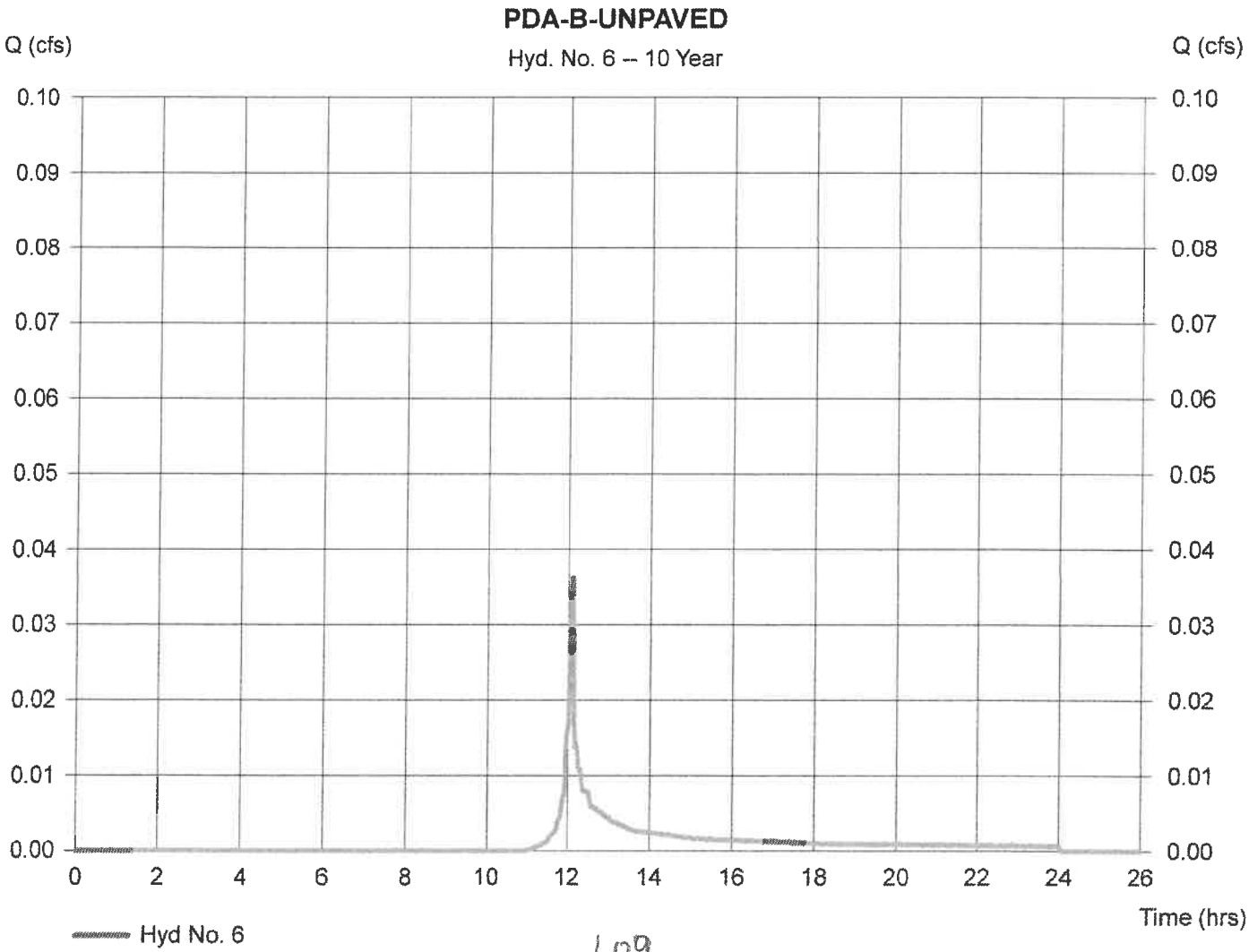
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.036 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 100 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

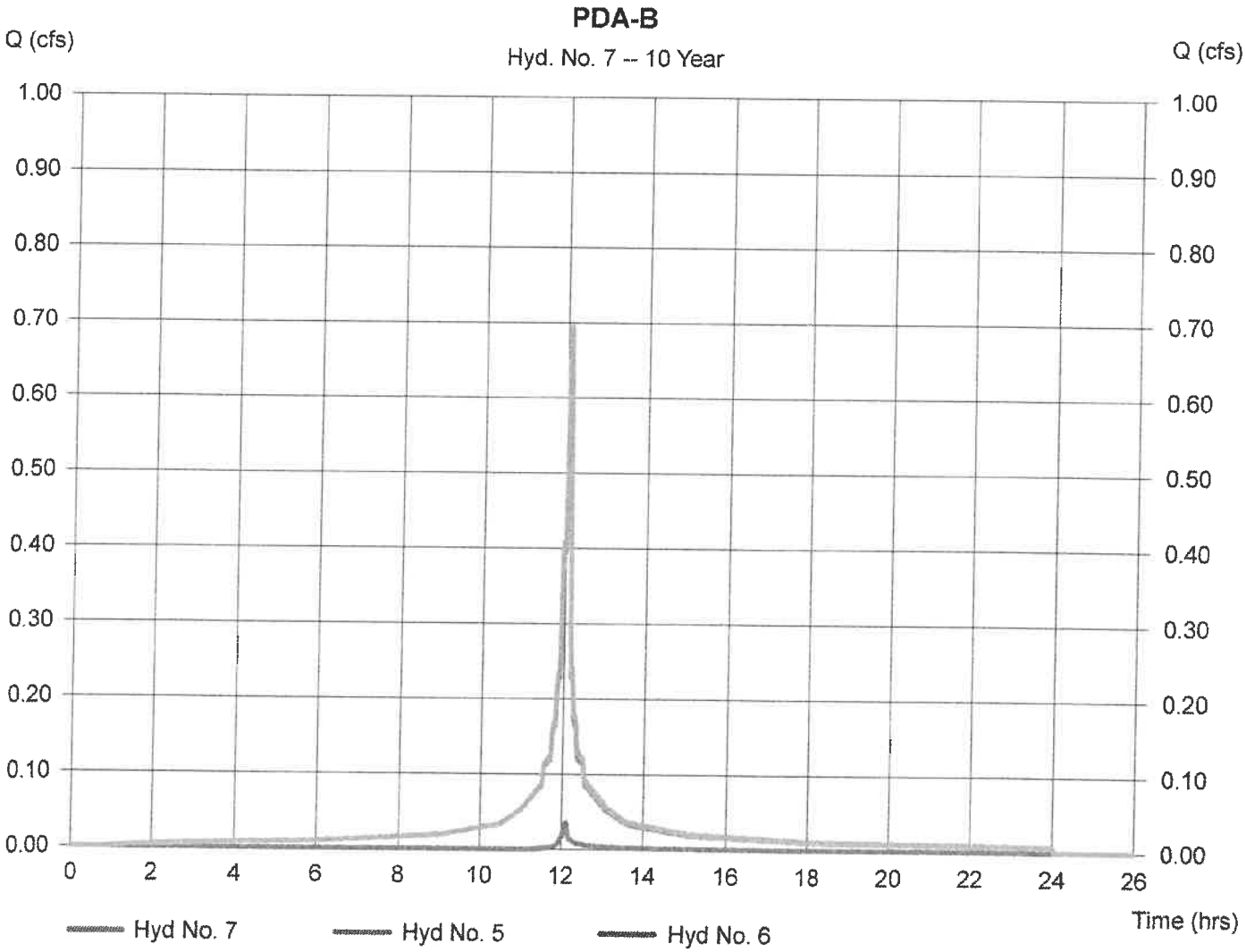
Hydraflow Hydrographs by Intelisolve v9.01

Monday, Sep 26, 2022

Hyd. No. 7

PDA-B

Hydrograph type	= Combine	Peak discharge	= 0.695 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,278 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.150 ac



Hydrograph Report

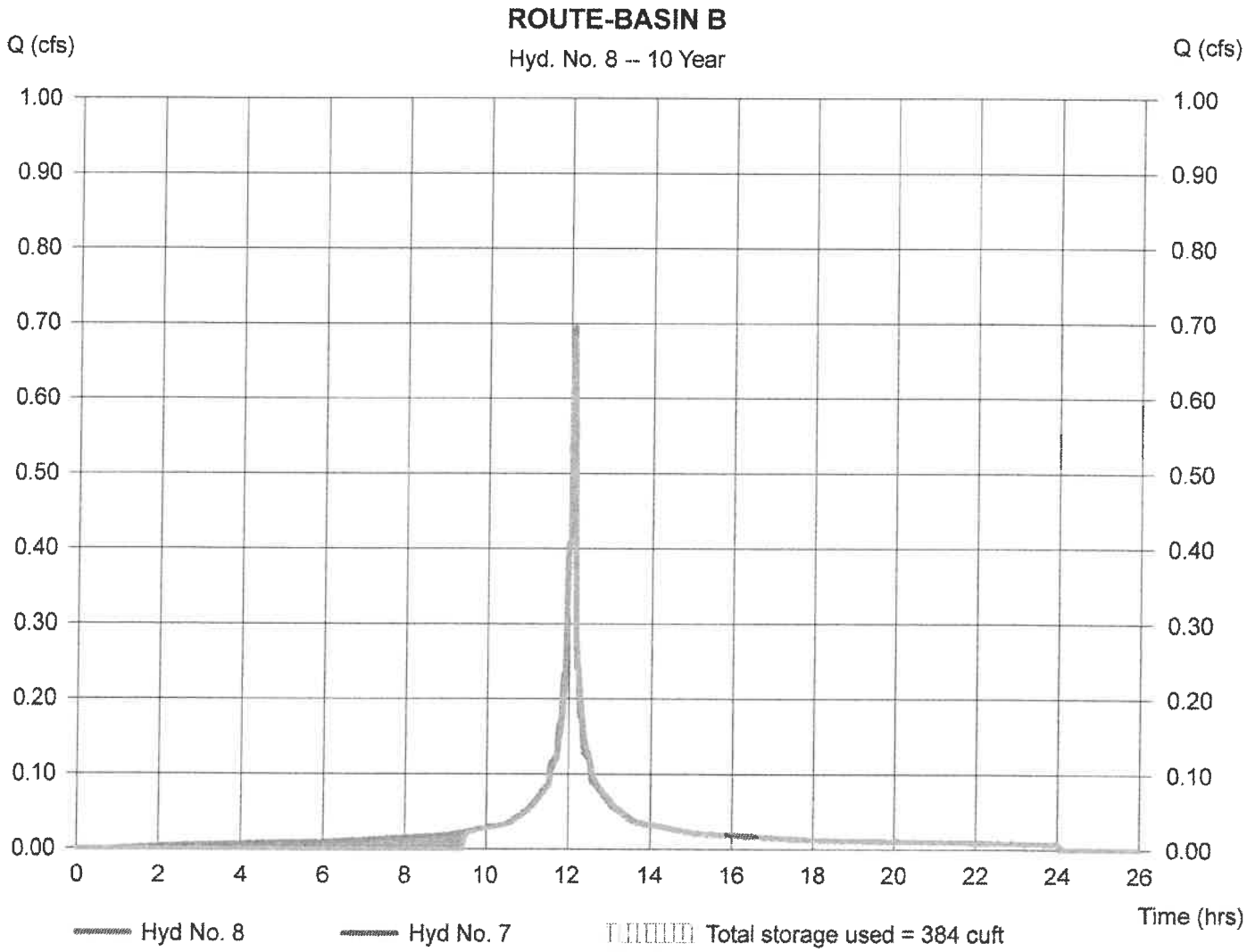
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

ROUTE-BASIN B

Hydrograph type	= Reservoir	Peak discharge	= 0.682 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,976 cuft
Inflow hyd. No.	= 7 - PDA-B	Max. Elevation	= 91.76 ft
Reservoir name	= BASIN B	Max. Storage	= 384 cuft

Storage Indication method used.



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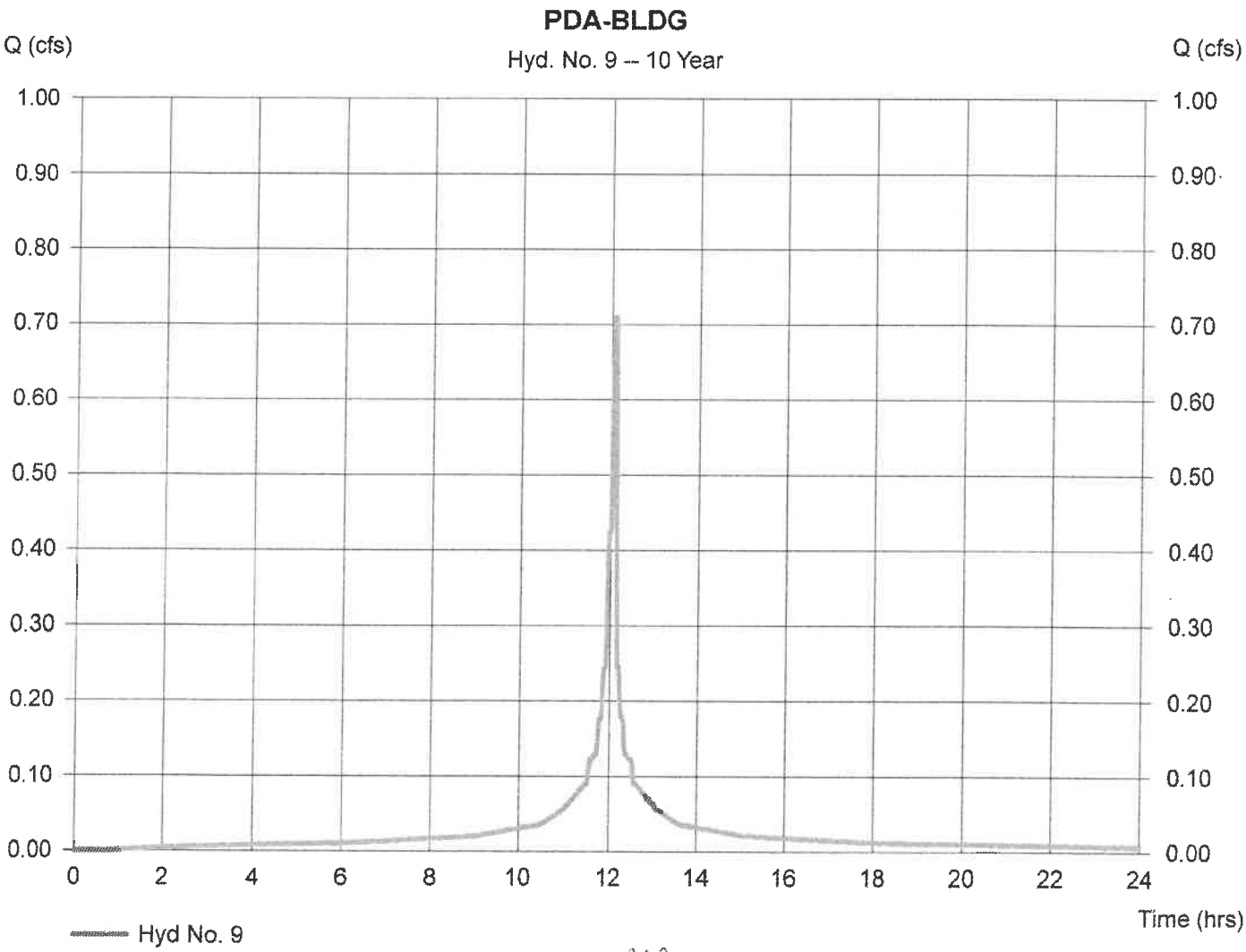
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 0.710 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 2,345 cuft
Drainage area	= 0.140 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 5.16 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



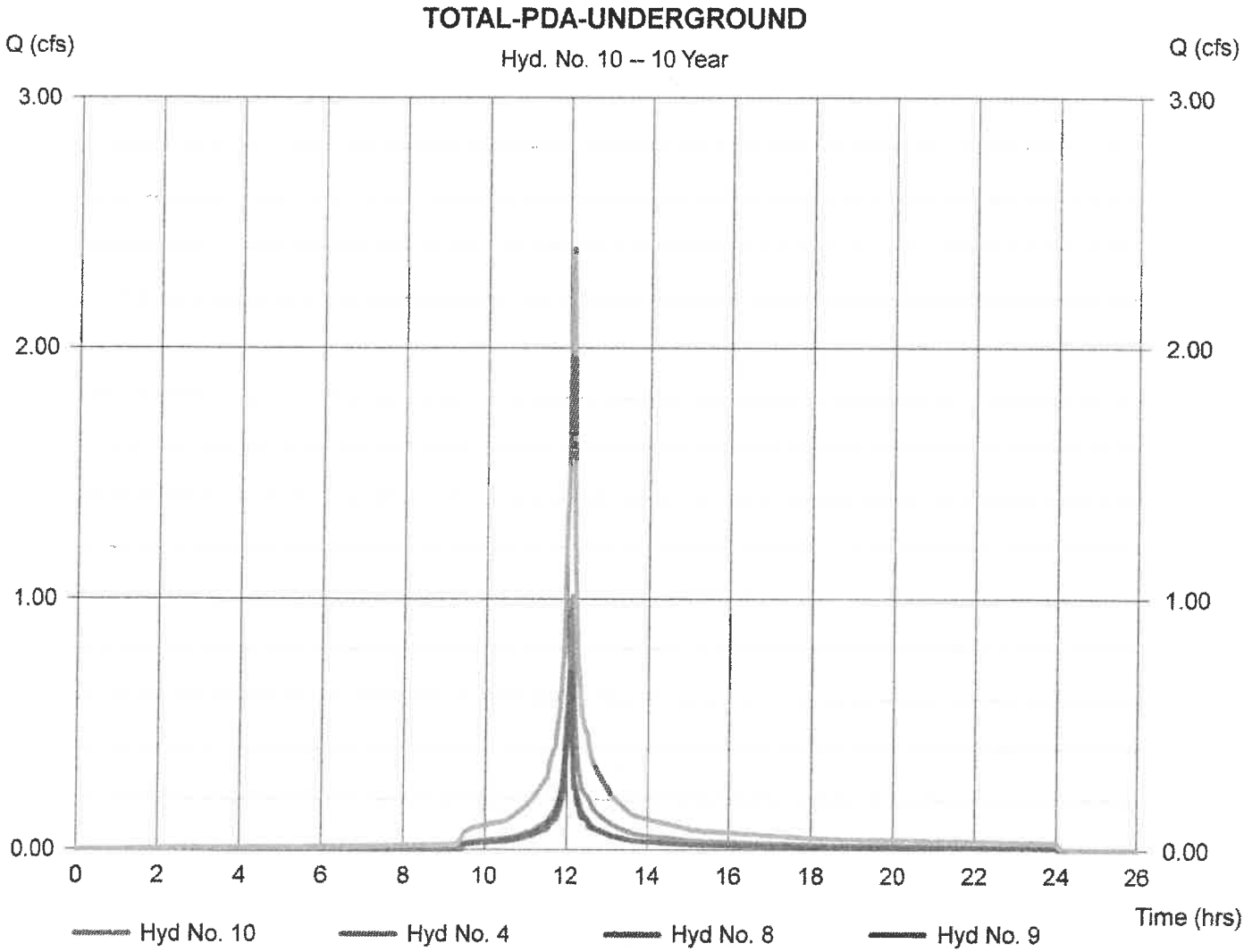
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 10

TOTAL-PDA-UNDERGROUND

Hydrograph type	= Combine	Peak discharge	= 2.393 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 7,429 cuft
Inflow hyds.	= 4, 8, 9	Contrib. drain. area	= 0.140 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01

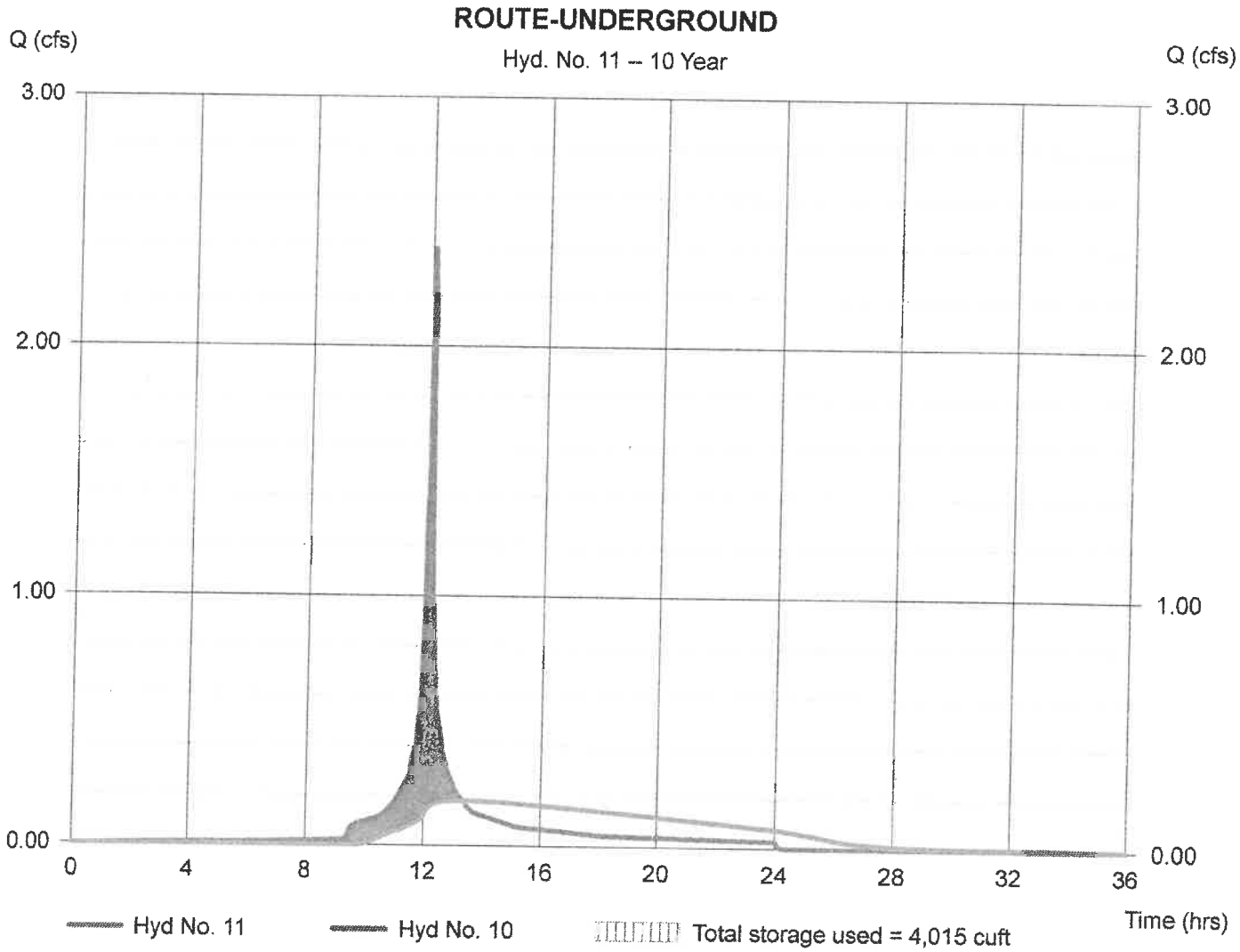
Monday, Sep 26, 2022

Hyd. No. 11

ROUTE-UNDERGROUND

Hydrograph type	= Reservoir	Peak discharge	= 0.181 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.33 hrs
Time interval	= 1 min	Hyd. volume	= 7,013 cuft
Inflow hyd. No.	= 10 - TOTAL-PDA-UNDERGROUND	Max. Elevation	= 89.13 ft
Reservoir name	= UNDERGROUND PIPES	Max. Storage	= 4,015 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01

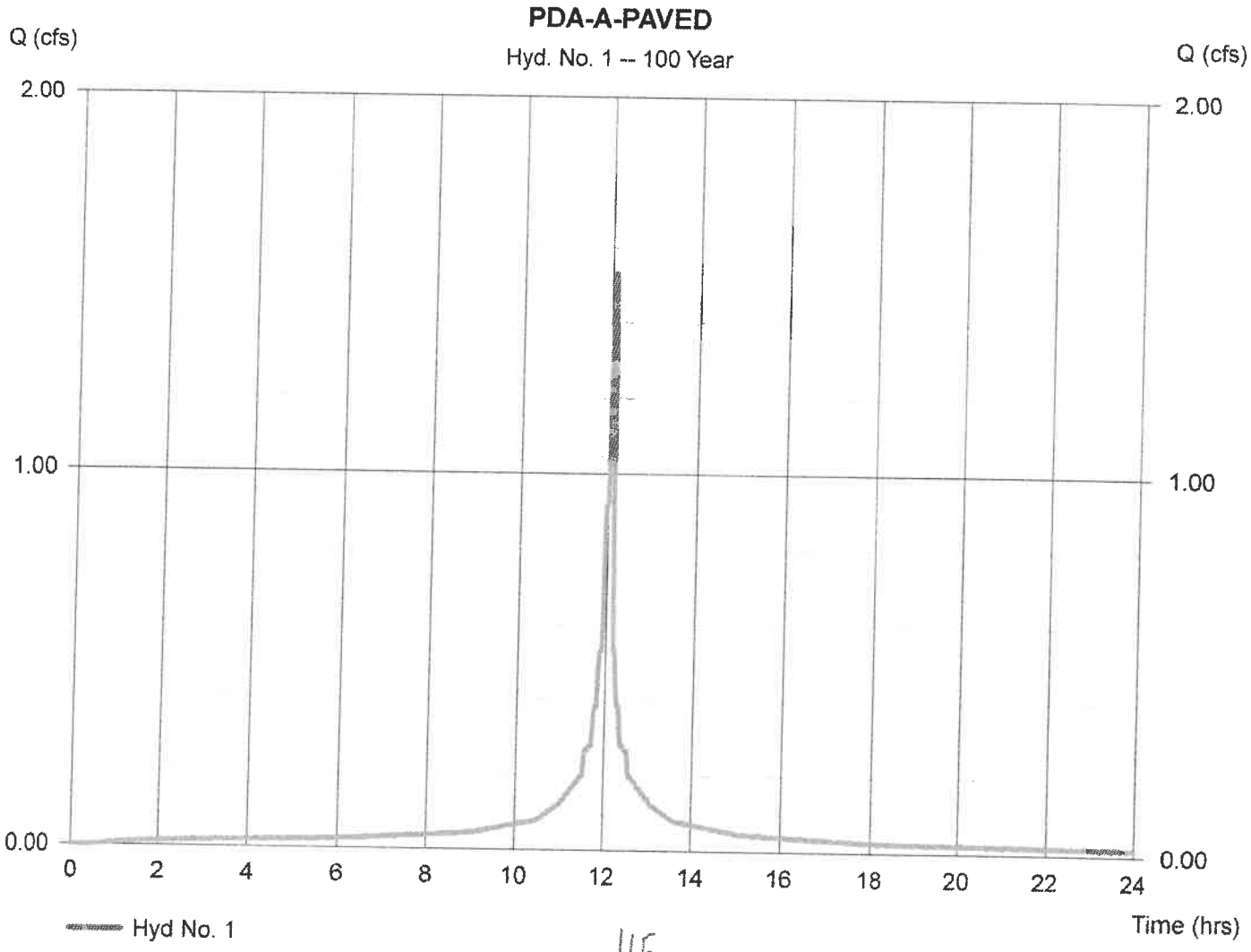
Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 1.530 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 5,139 cuft
Drainage area	= 0.180 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.170 x 98) + (0.010 x 98)] / 0.180



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01

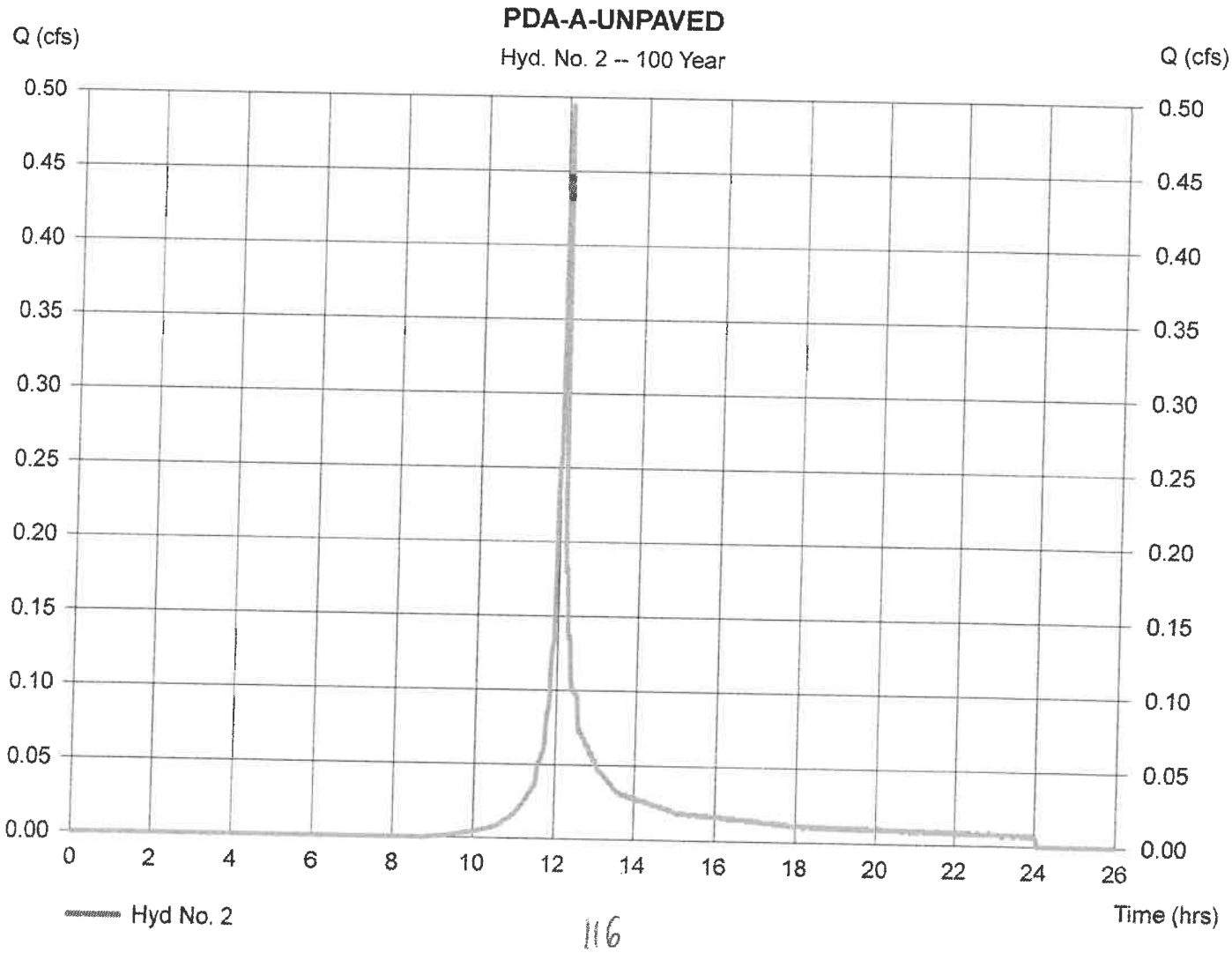
Monday, Sep 26, 2022

Hyd. No. 2

PDA-A-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.494 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 1,338 cuft
Drainage area	= 0.100 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 61)] / 0.100



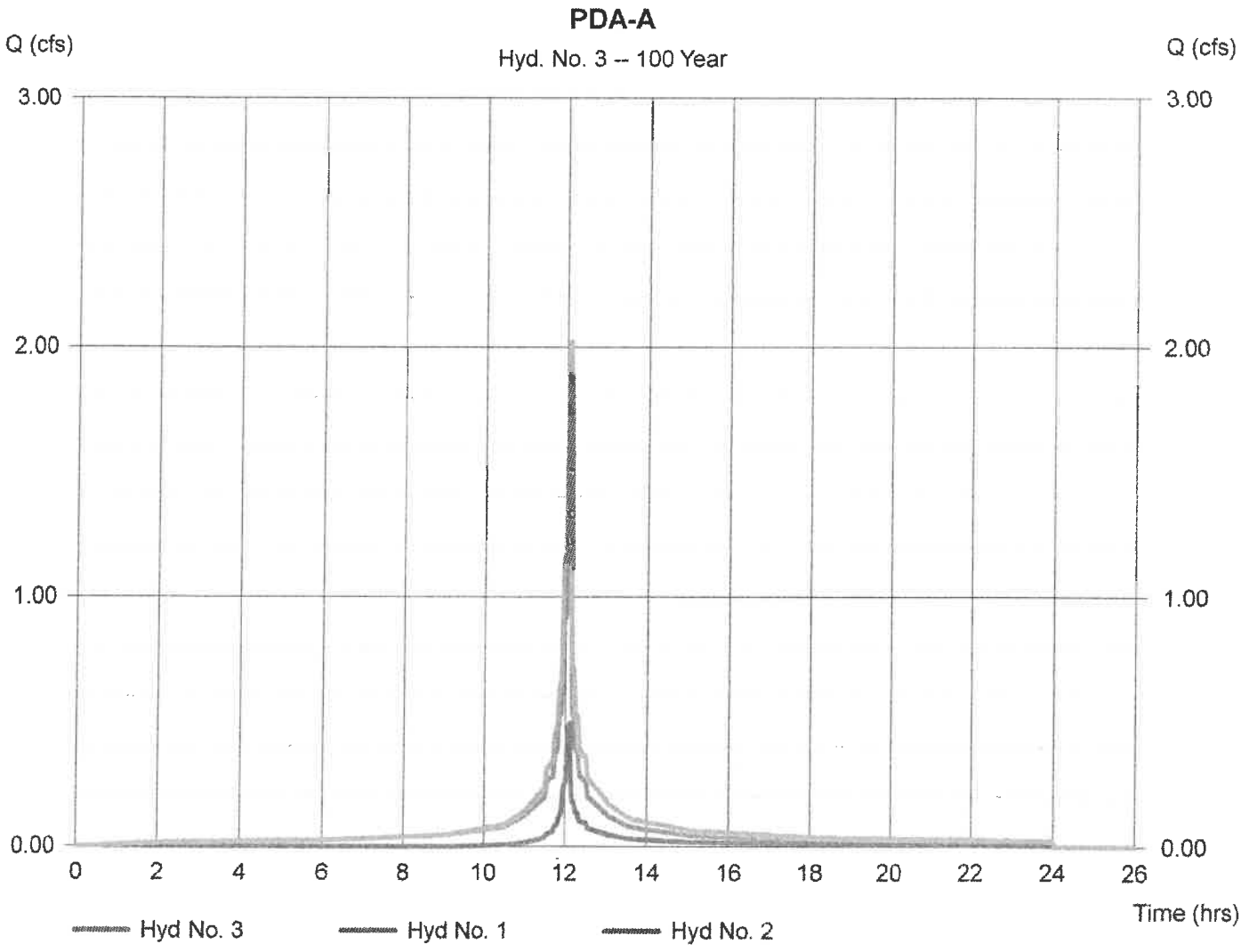
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 3

PDA-A

Hydrograph type	= Combine	Peak discharge	= 2.025 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 6,477 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.280 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01

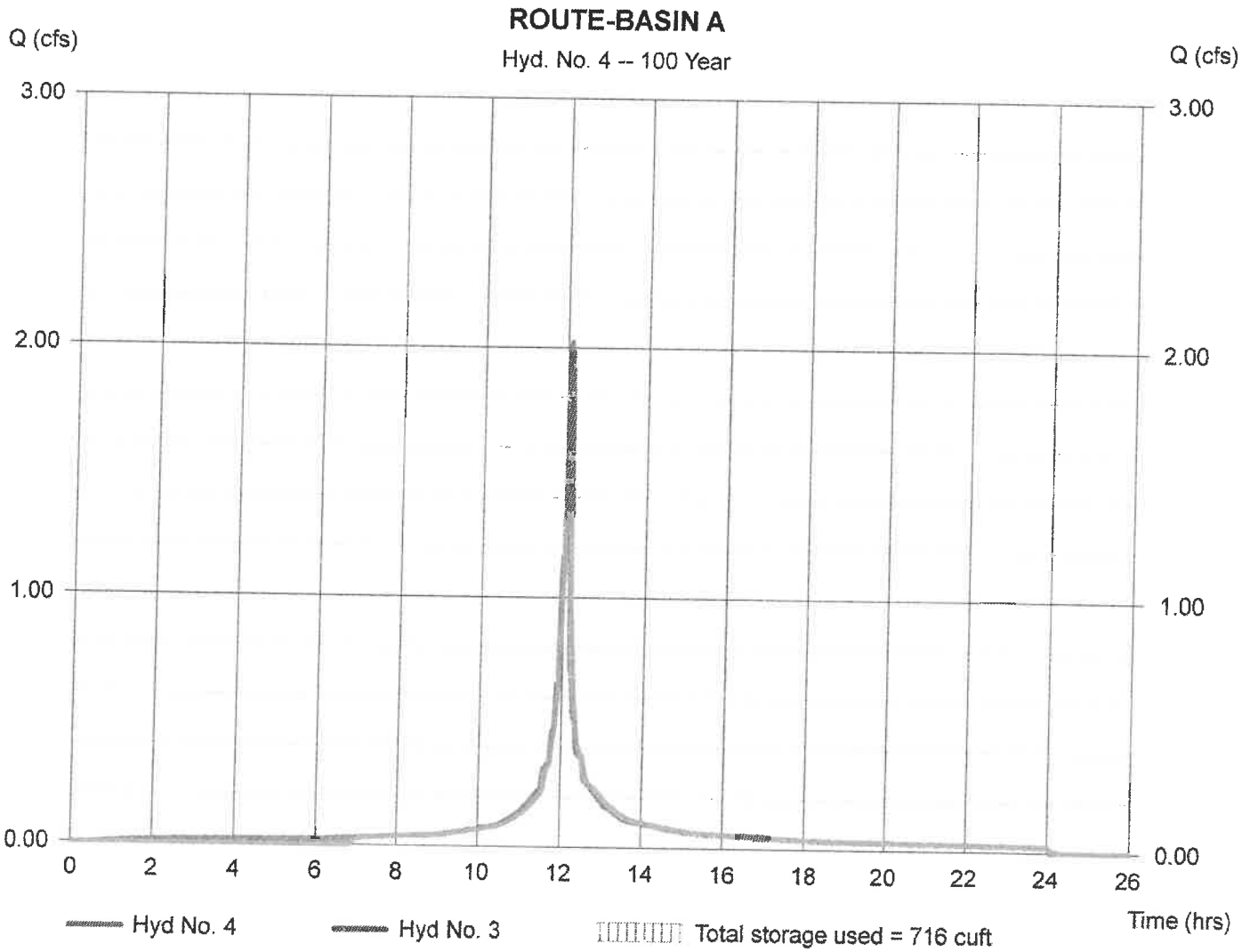
Monday, Sep 26, 2022

Hyd. No. 4

ROUTE-BASIN A

Hydrograph type	= Reservoir	Peak discharge	= 1.920 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 6,070 cuft
Inflow hyd. No.	= 3 - PDA-A	Max. Elevation	= 91.71 ft
Reservoir name	= BASIN A	Max. Storage	= 716 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01

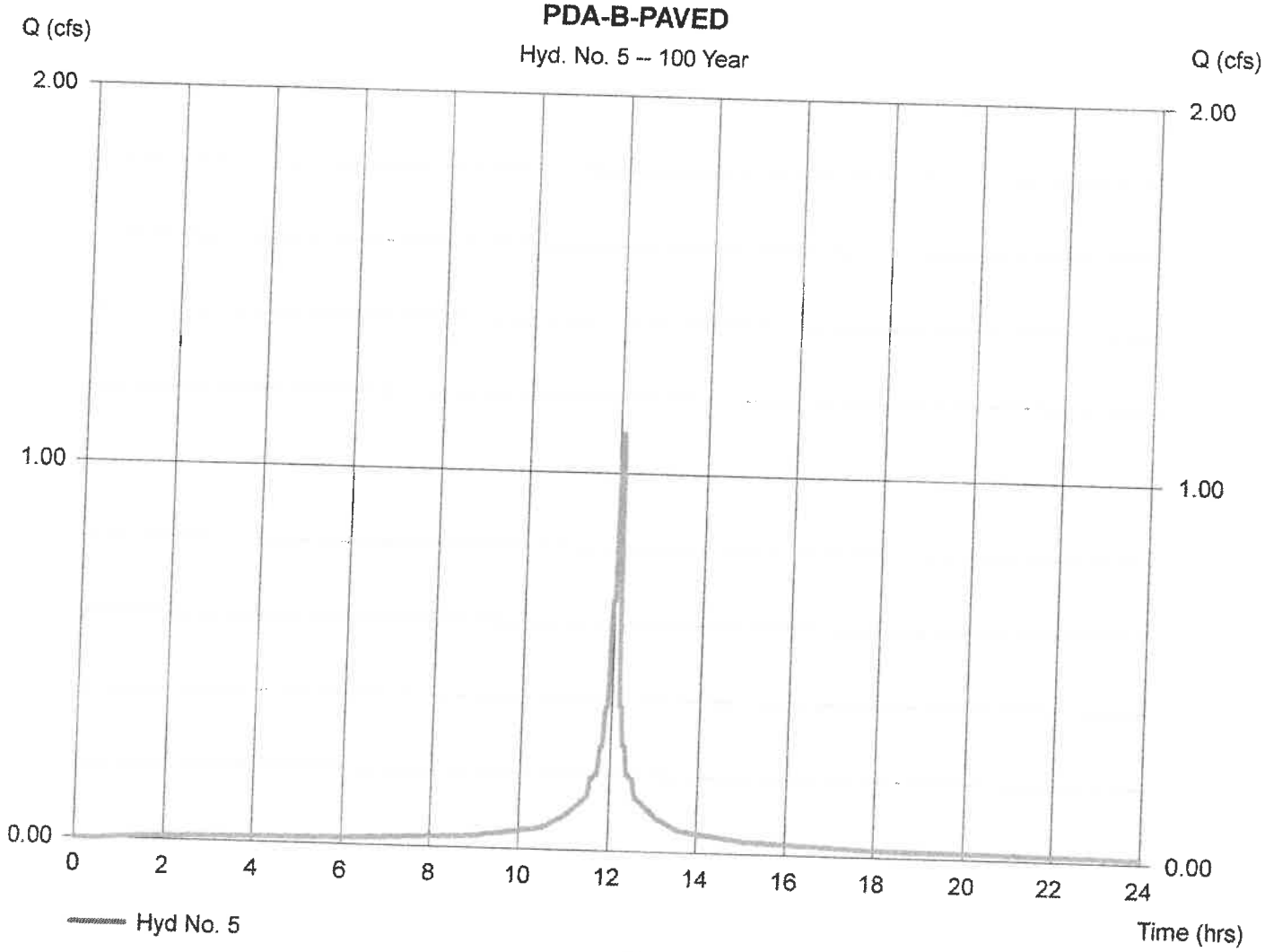
Monday, Sep 26, 2022

Hyd. No. 5

PDA-B-PAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 1.105 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,712 cuft
Drainage area	= 0.130 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484

* Composite (Area/CN) = [(0.120 x 98) + (0.010 x 98)] / 0.130



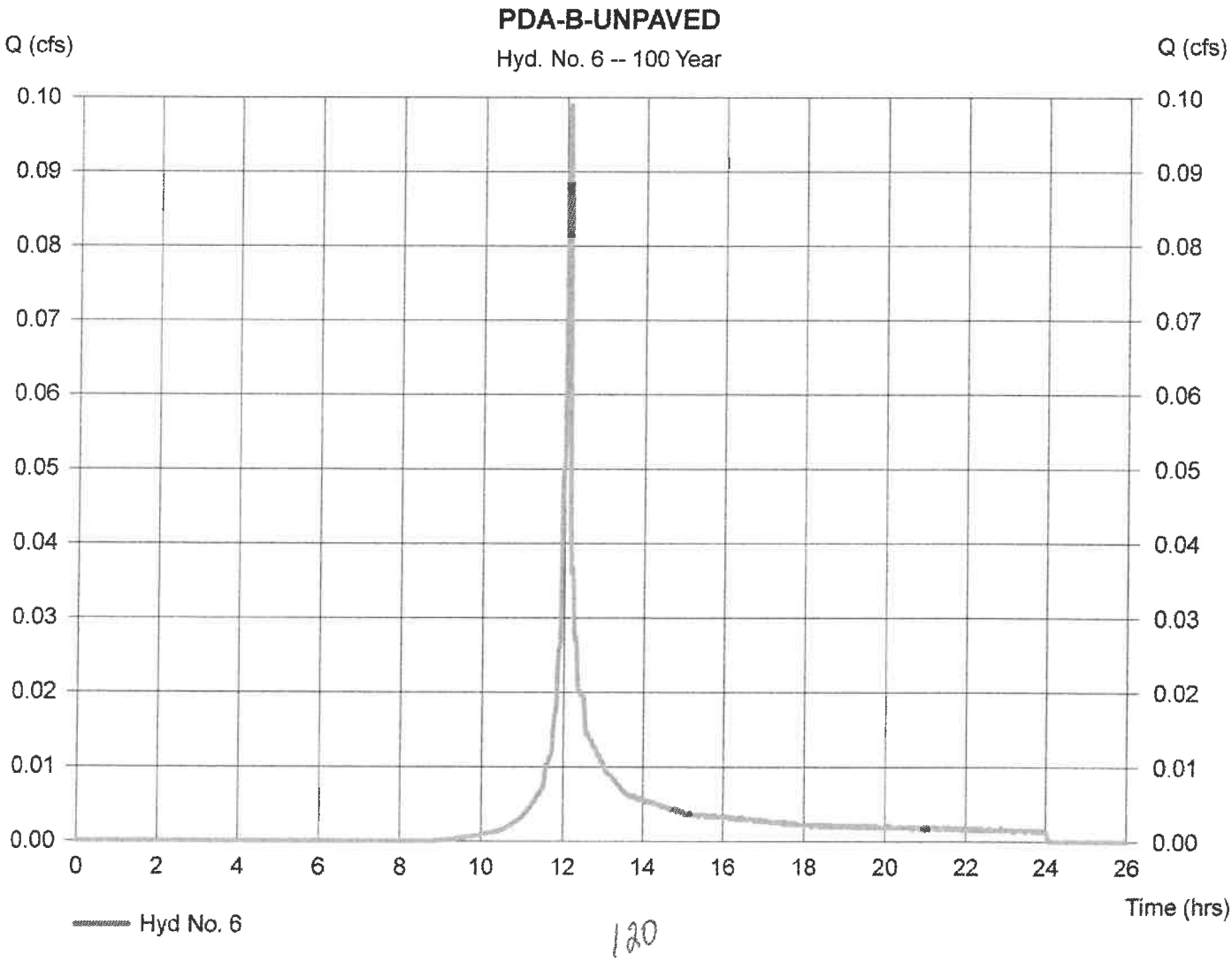
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 6

PDA-B-UNPAVED

Hydrograph type	= SCS Runoff	Peak discharge	= 0.099 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 268 cuft
Drainage area	= 0.020 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

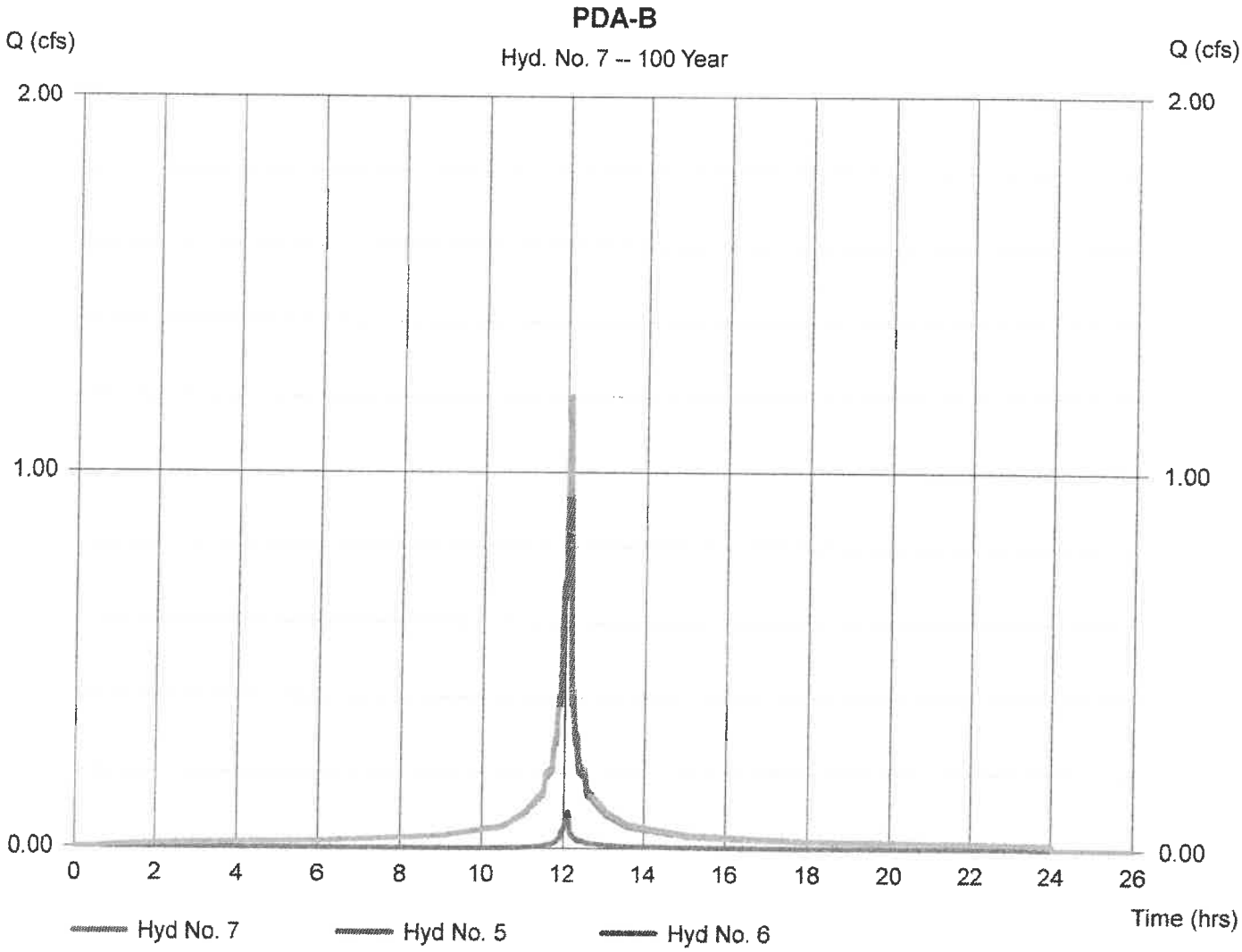
Hydraflow Hydrographs by Intelisolve v9.01

Monday, Sep 26, 2022

Hyd. No. 7

PDA-B

Hydrograph type	= Combine	Peak discharge	= 1.204 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,979 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 0.150 ac



Hydrograph Report

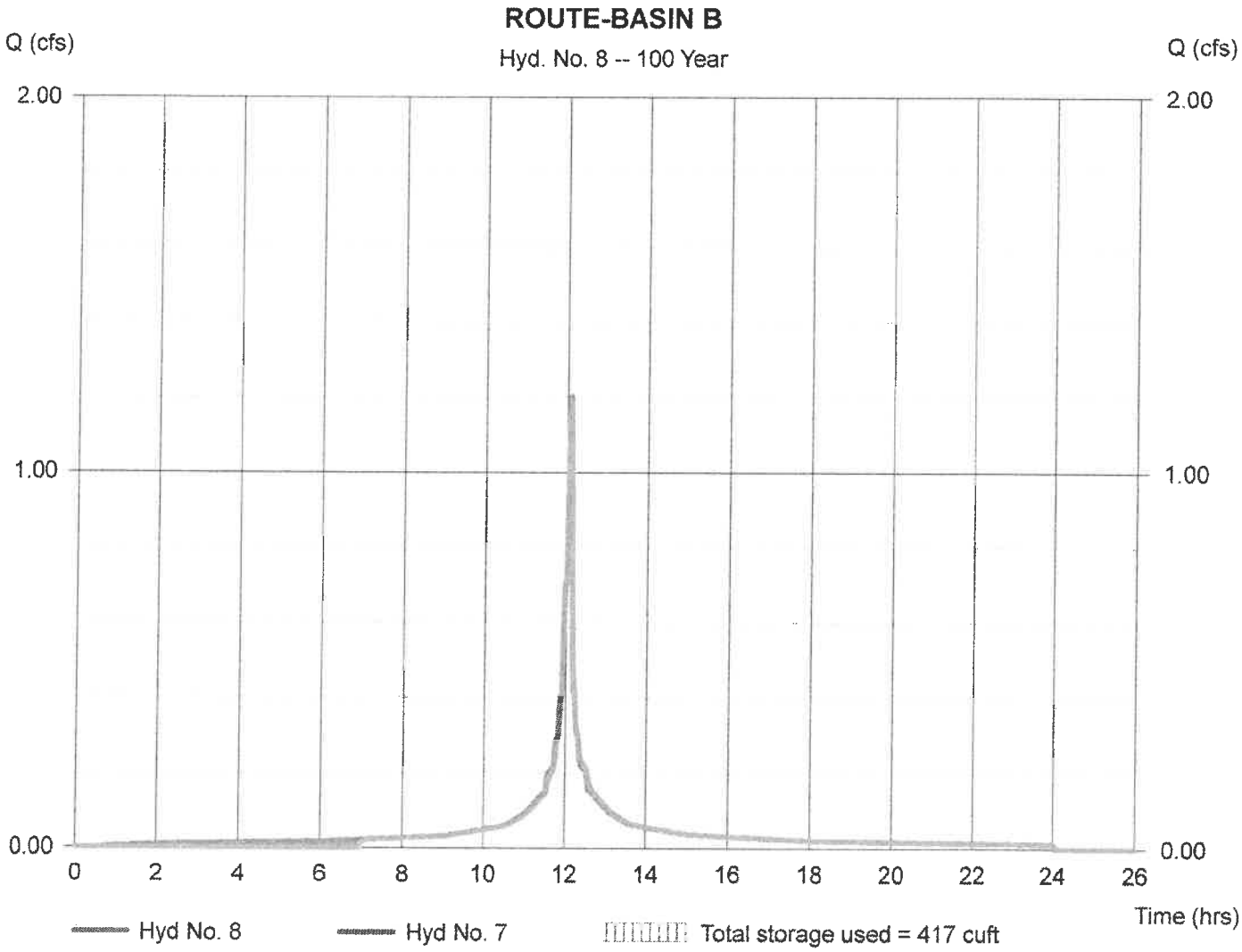
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 8

ROUTE-BASIN B

Hydrograph type	= Reservoir	Peak discharge	= 1.195 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,677 cuft
Inflow hyd. No.	= 7 - PDA-B	Max. Elevation	= 91.83 ft
Reservoir name	= BASIN B	Max. Storage	= 417 cuft

Storage Indication method used.



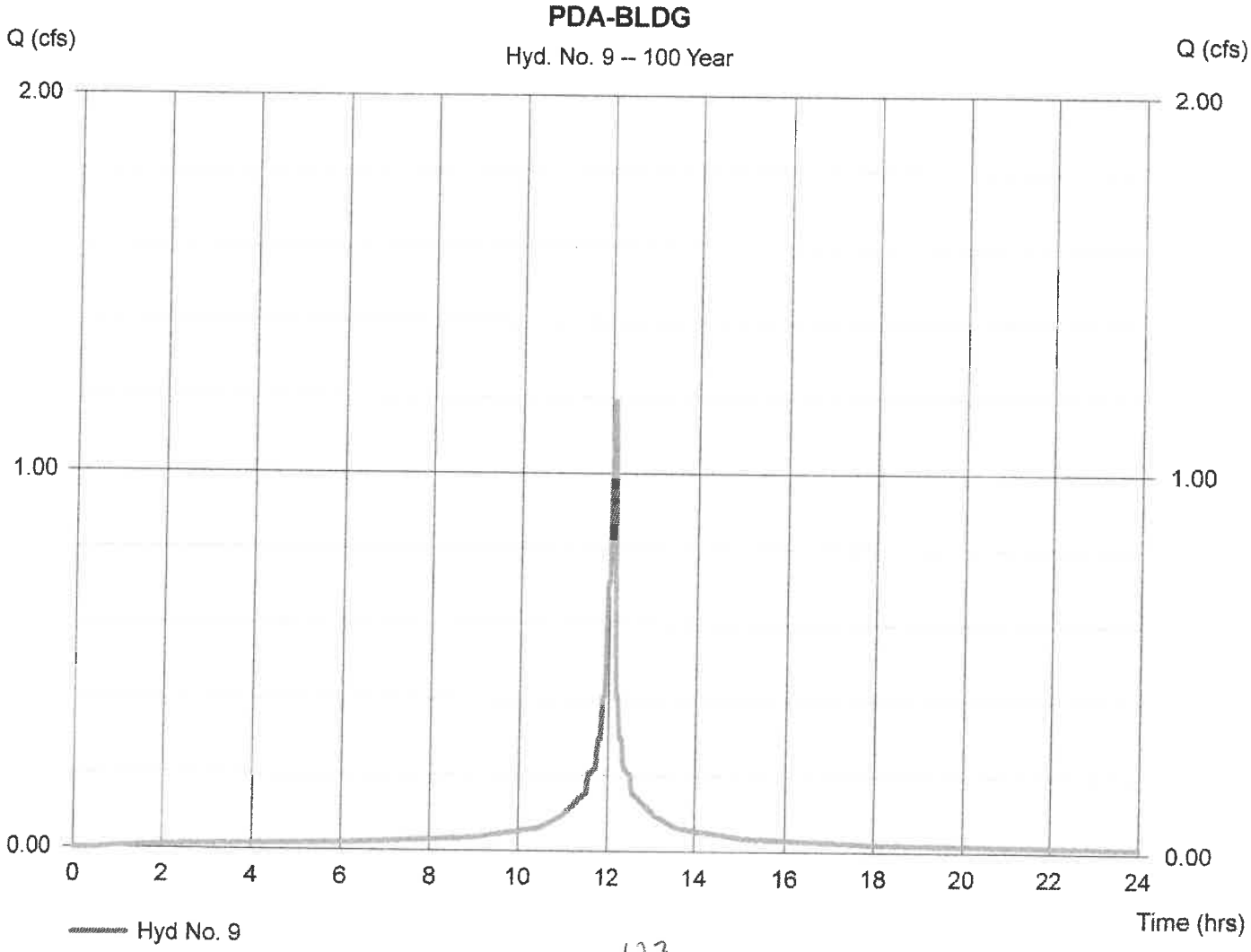
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 9

PDA-BLDG

Hydrograph type	= SCS Runoff	Peak discharge	= 1.190 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 3,997 cuft
Drainage area	= 0.140 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 2.00 min
Total precip.	= 8.63 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS	Shape factor	= 484



Hydrograph Report

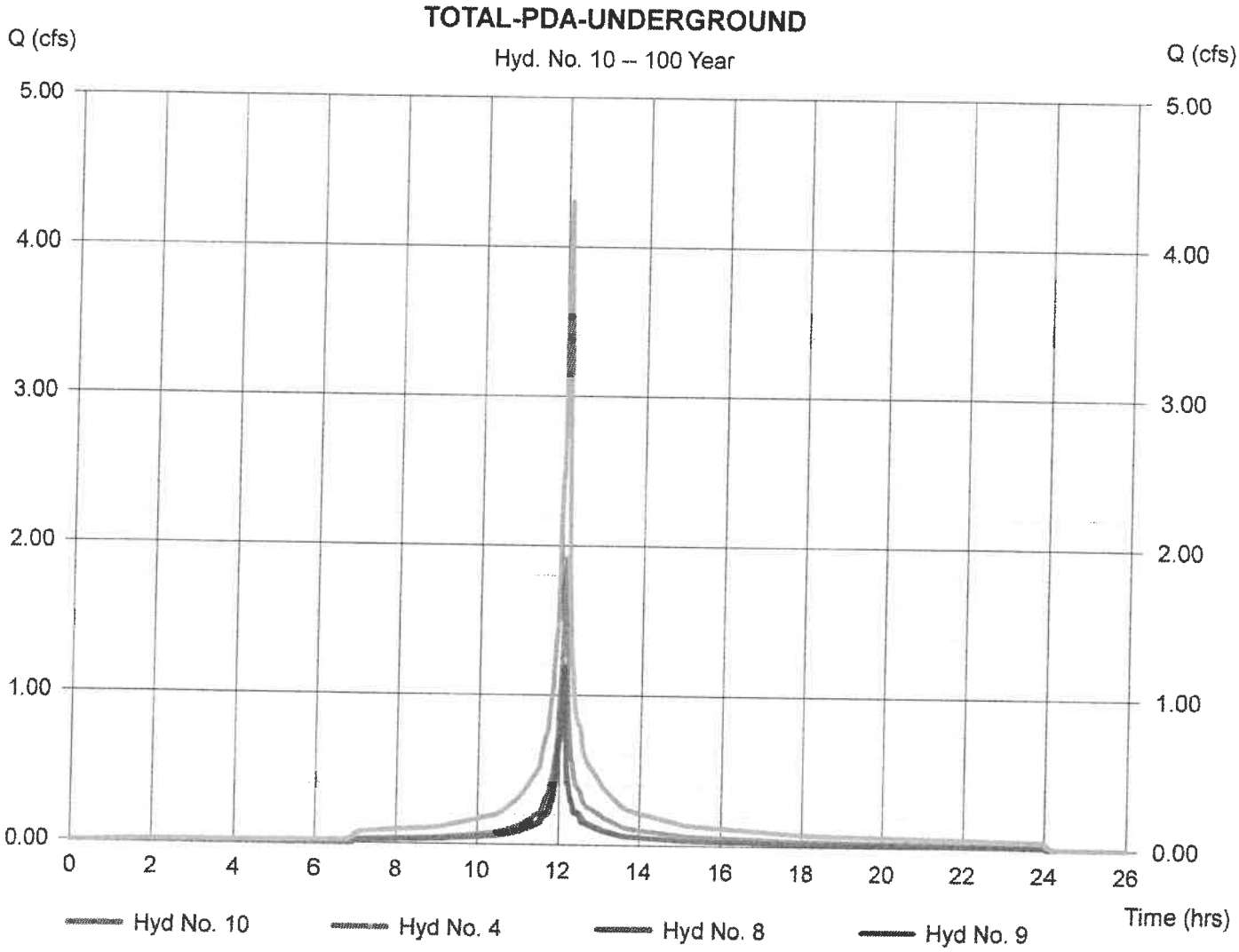
Hydraflow Hydrographs by Intelisolve v9.01

Monday, Sep 26, 2022

Hyd. No. 10

TOTAL-PDA-UNDERGROUND

Hydrograph type	= Combine	Peak discharge	= 4.305 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 13,745 cuft
Inflow hyds.	= 4, 8, 9	Contrib. drain. area	= 0.140 ac



Hydrograph Report

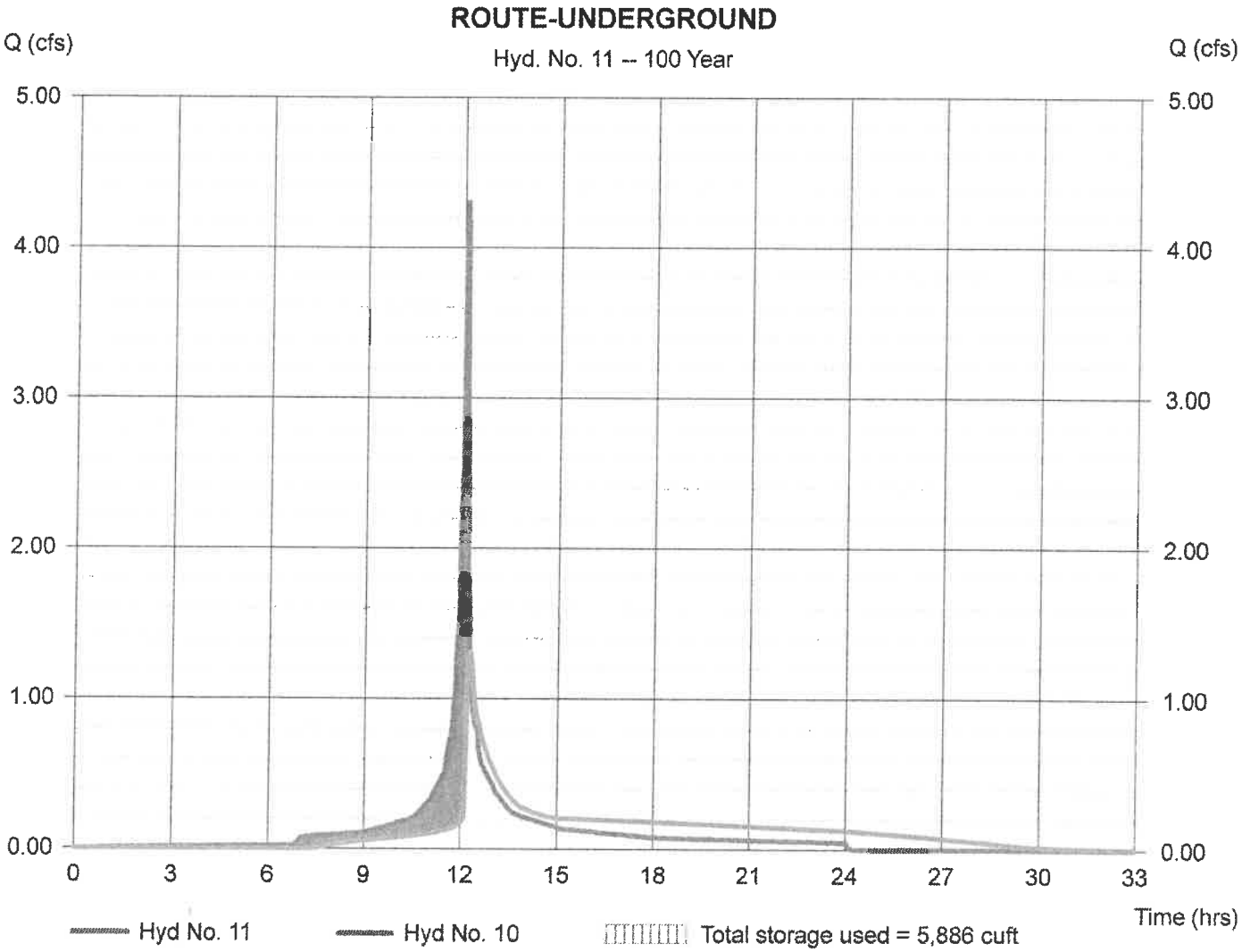
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 11

ROUTE-UNDERGROUND

Hydrograph type	= Reservoir	Peak discharge	= 1.313 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 1 min	Hyd. volume	= 13,329 cuft
Inflow hyd. No.	= 10 - TOTAL-PDA-UNDERGROUND	Max. Elevation	= 89.98 ft
Reservoir name	= UNDERGROUND PIPES	Max. Storage	= 5,886 cuft

Storage Indication method used.



APPENDIX 6

NJDEP-1.25.cds and NRCS NOAA_D CUSTOM DISTRIBUTION

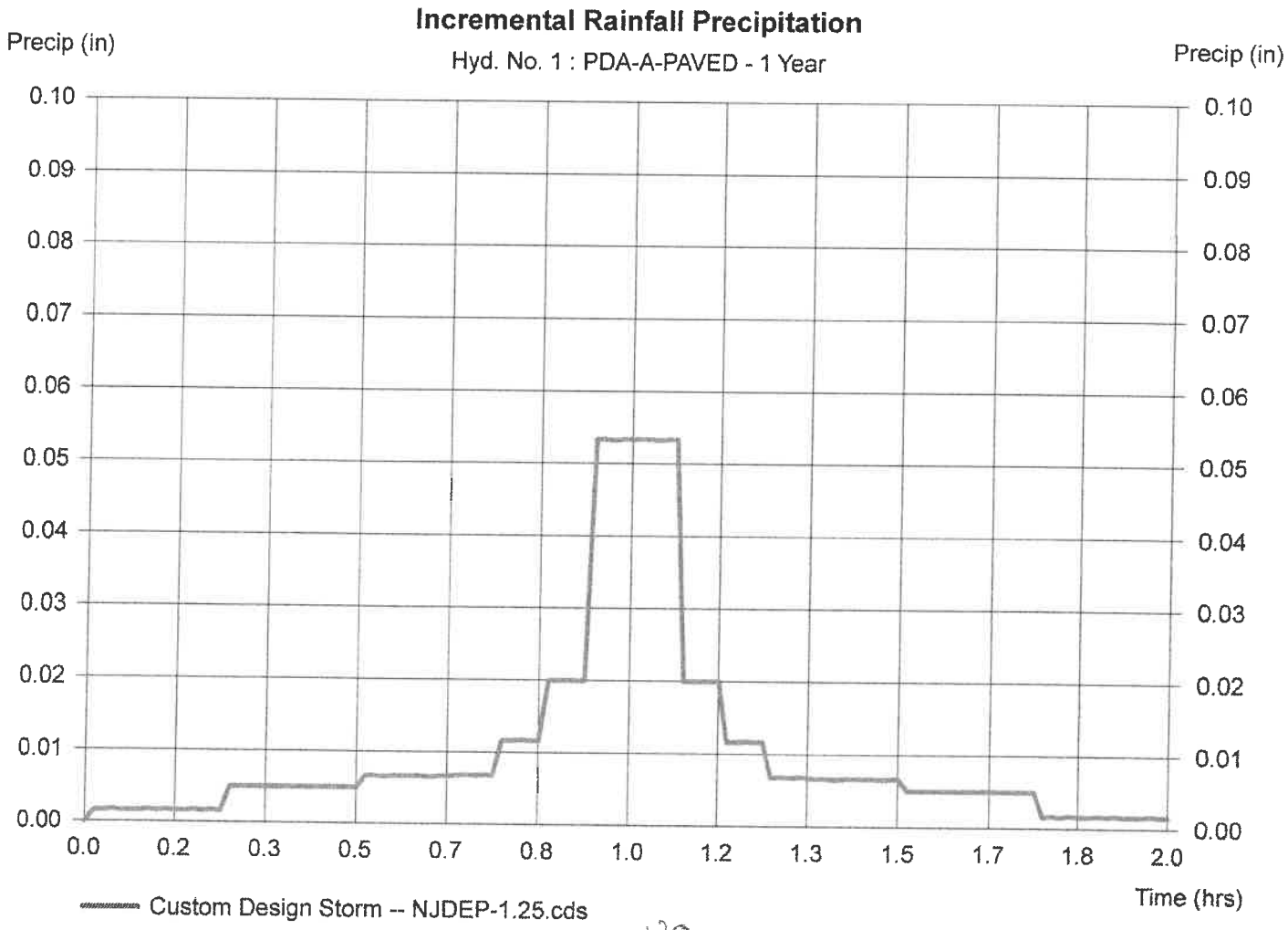
Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 1

PDA-A-PAVED

Storm Frequency	= 1 yrs	Time interval	= 1 min
Total precip.	= 1.2500 in	Distribution	= Custom
Storm duration	= NJDEP-1.25.cds		



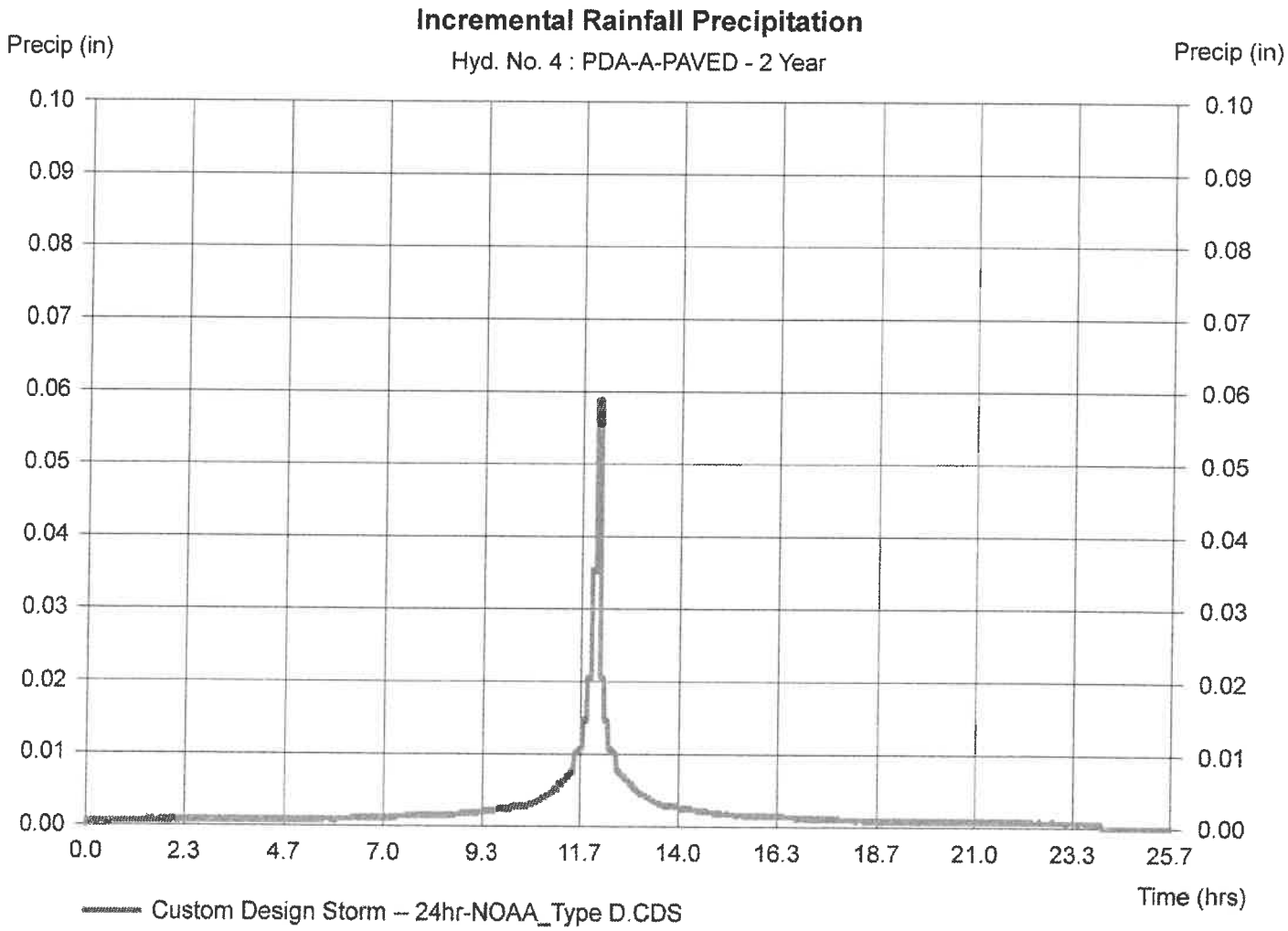
Precipitation Report

Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Storm Frequency	= 2 yrs	Time interval	= 1 min
Total precip.	= 3.3800 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS		



Precipitation Report

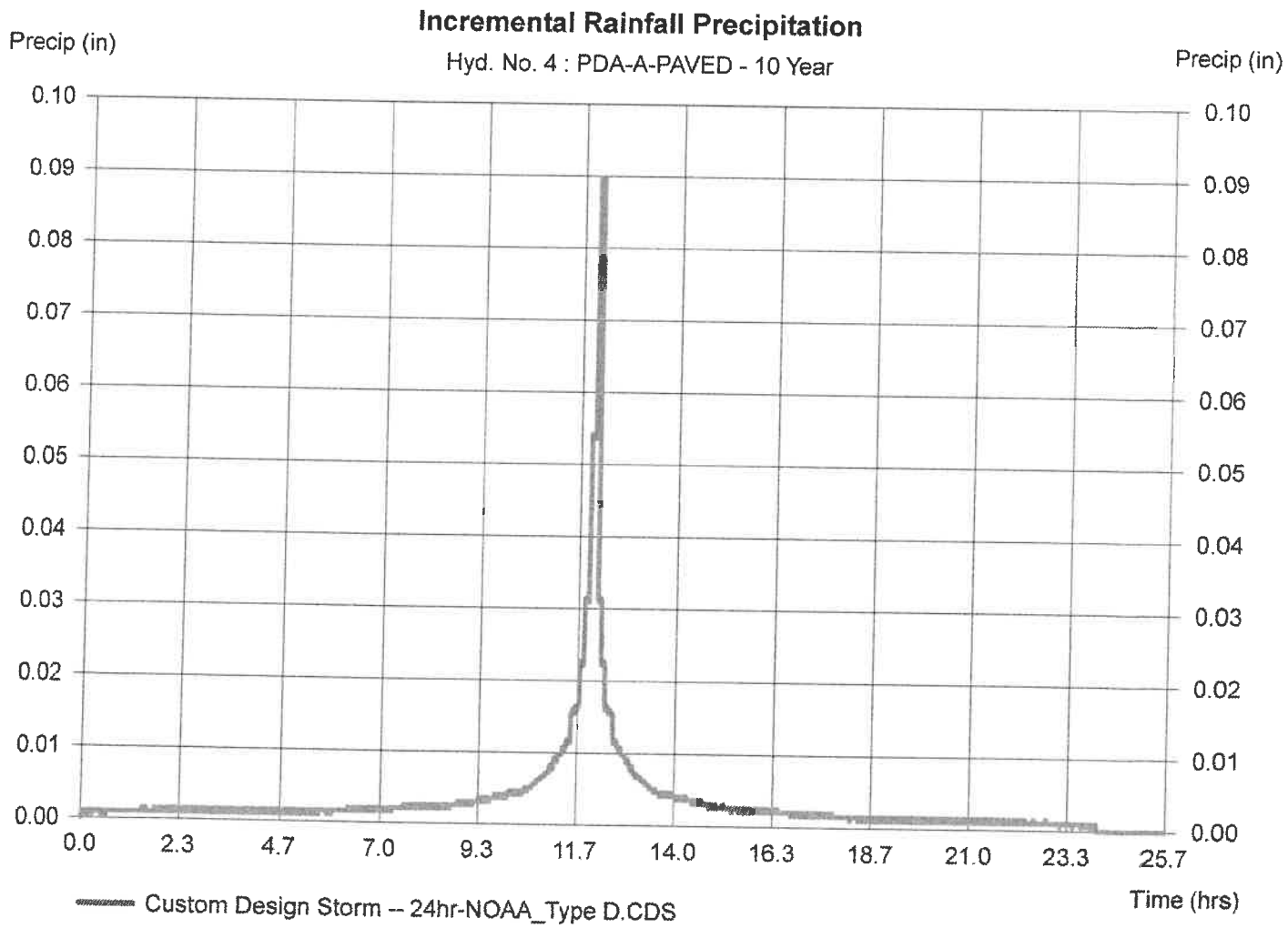
Hydraflow Hydrographs by Intelisolve v9.01

Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Storm Frequency	= 10 yrs	Time interval	= 1 min
Total precip.	= 5.1600 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS		



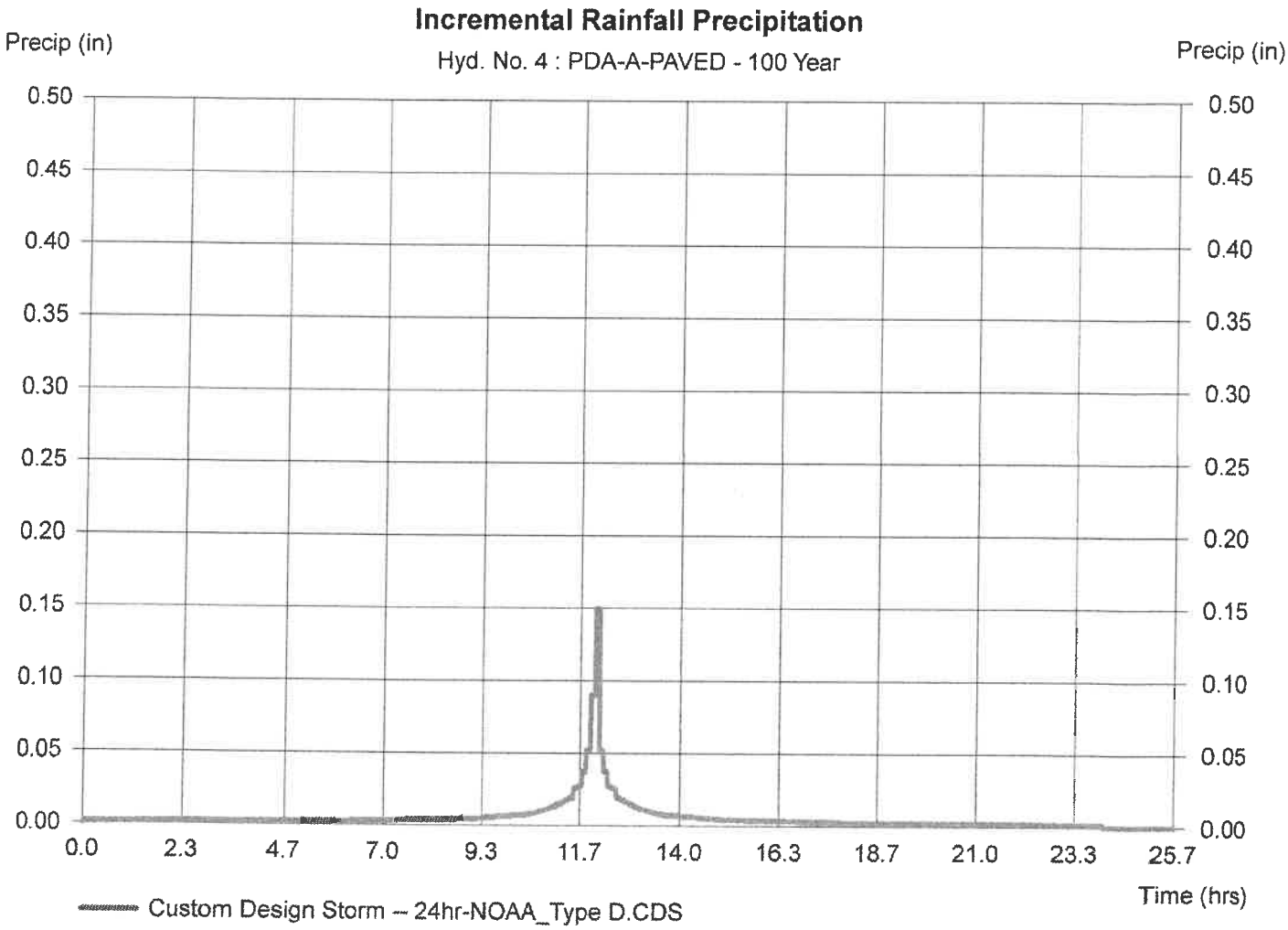
Precipitation Report

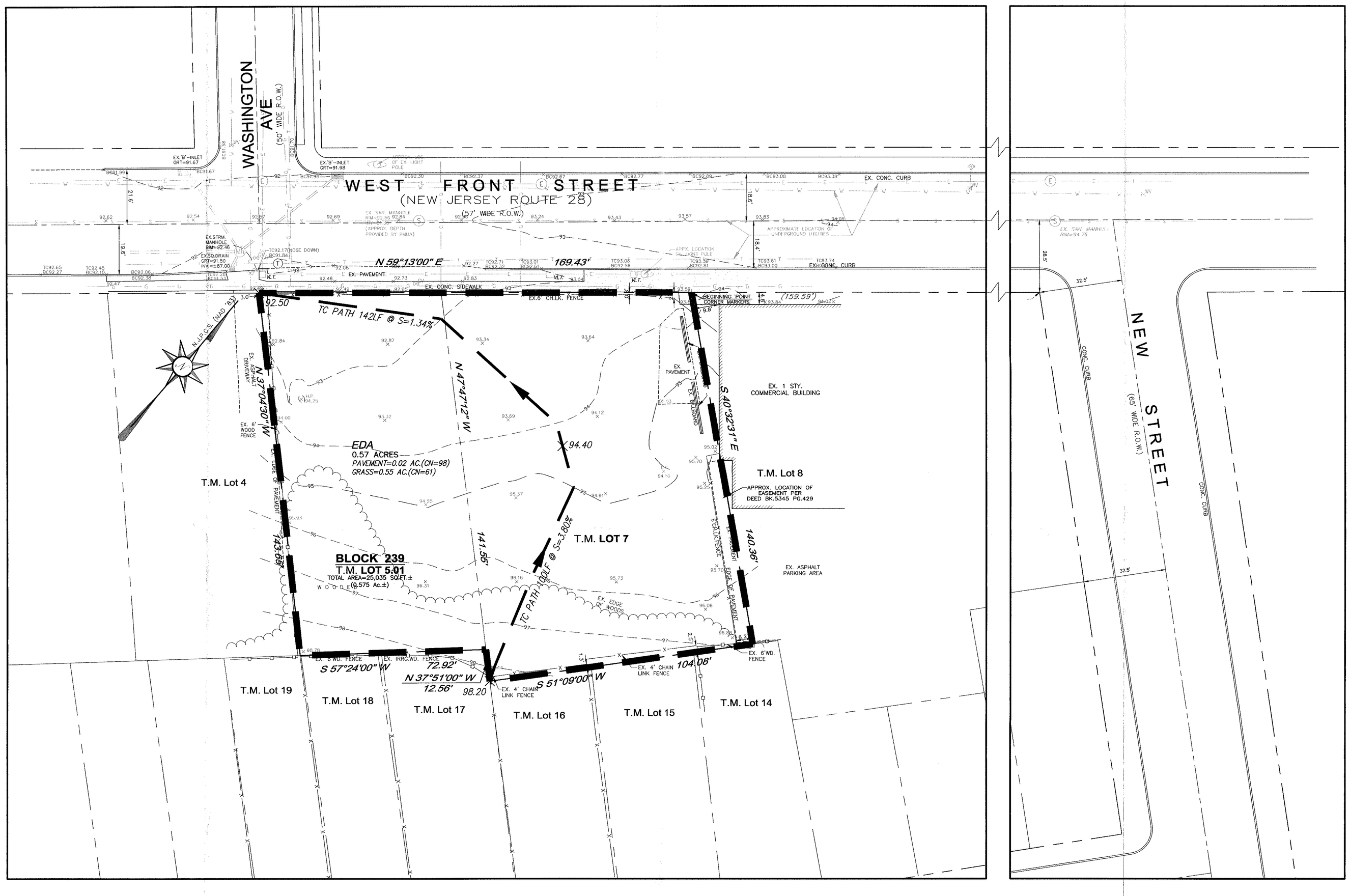
Hydraflow Hydrographs by Intelisolve v9.01 — Monday, Sep 26, 2022

Hyd. No. 4

PDA-A-PAVED

Storm Frequency	= 100 yrs	Time interval	= 1 min
Total precip.	= 8.6300 in	Distribution	= Custom
Storm duration	= 24hr-NOAA_Type D.CDS		





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OCT 12 2022
PLANNING DIVISION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NO.	REVISION	DATE	Dr/Ck

CAD#: 21-046 EDA	DESIGN BY: SA	DATE: 9/26/2022
PB#: PB-NUM	DRAWN BY: KP	SCALE: 1"=20'
BOOK#: -	Checked by: SA	FILE NO.: 21-046

AMERTECH ENGINEERING, INC.
ENGINEERS, SURVEYORS AND PLANNERS
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E-MAIL: mail@AMERTECHENGINEERING.com
CERTIFICATE OF AUTHORIZATION NO. 24GA28008400
SHARIF H. ALY
New Jersey Professional Engineer Lic. No. 34669

MAJOR SITE PLAN
TAX MAP LOTS 5.01 & 7 BLOCK 239
CITY OF PLAINFIELD
UNION COUNTY, NEW JERSEY
TAX MAP SHEET No. 160

PRE - DEVELOPMENT
DRAINAGE AREA PLAN (FIGURE-3)

JOB #: 21-046

1/2

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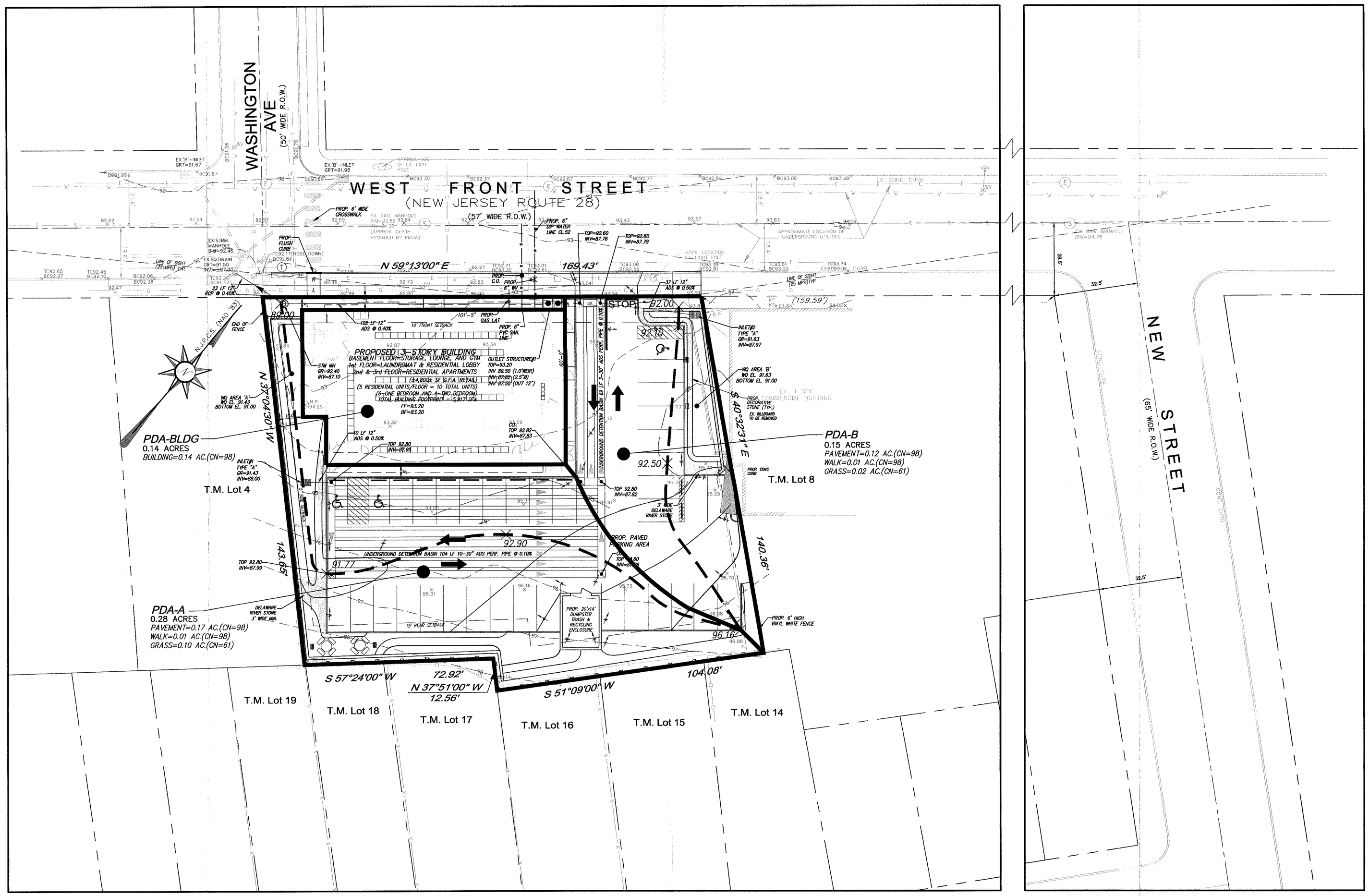

GRAPHIC SCALE

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(IN FEET)
1 inch = 20 ft.

NO.	REVISION	DATE	Dr/Ck

CAD#:	DESIGN BY:	DATE:
21-046 PDA	SA	9/28/2022
PB#:	DRAWN BY:	SCALE:
PB-NUM	KP	1"=20'
BOOK#:	Checked by:	FILE NO.:
-	SA	21-046

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MAJOR SITE PLAN
TAX MAP LOTS 5.01 & 7 BLOCK 239
CITY OF PLAINFIELD
UNION COUNTY, NEW JERSEY
TAX MAP SHEET No. 160

POST - DEVELOPMENT DRAINAGE AREA PLAN (FIGURE-4)

JOB #: 21-046

2 / 2

P:\2021 Projects\21-046 Gas Vs Plainfield (West Front Street, Plainfield)\Engineering\Dwfs\21-046-sPost Development Area.dwg, 1:1