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POST CONSTRUCTION STORMWATER MANAGEMENT REPORT

(PCSM REPORT)

EASTON COMMERCE PARK

FOR EASTON WOOD AVE PROPCO, LLC

CITY OF EASTON, PLAMER TOWNSHIP, AND WILSON BOROUGH

NORTHAMPTON COUNTY

PENNSYLVANIA

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EASTON COMMERCE PARK

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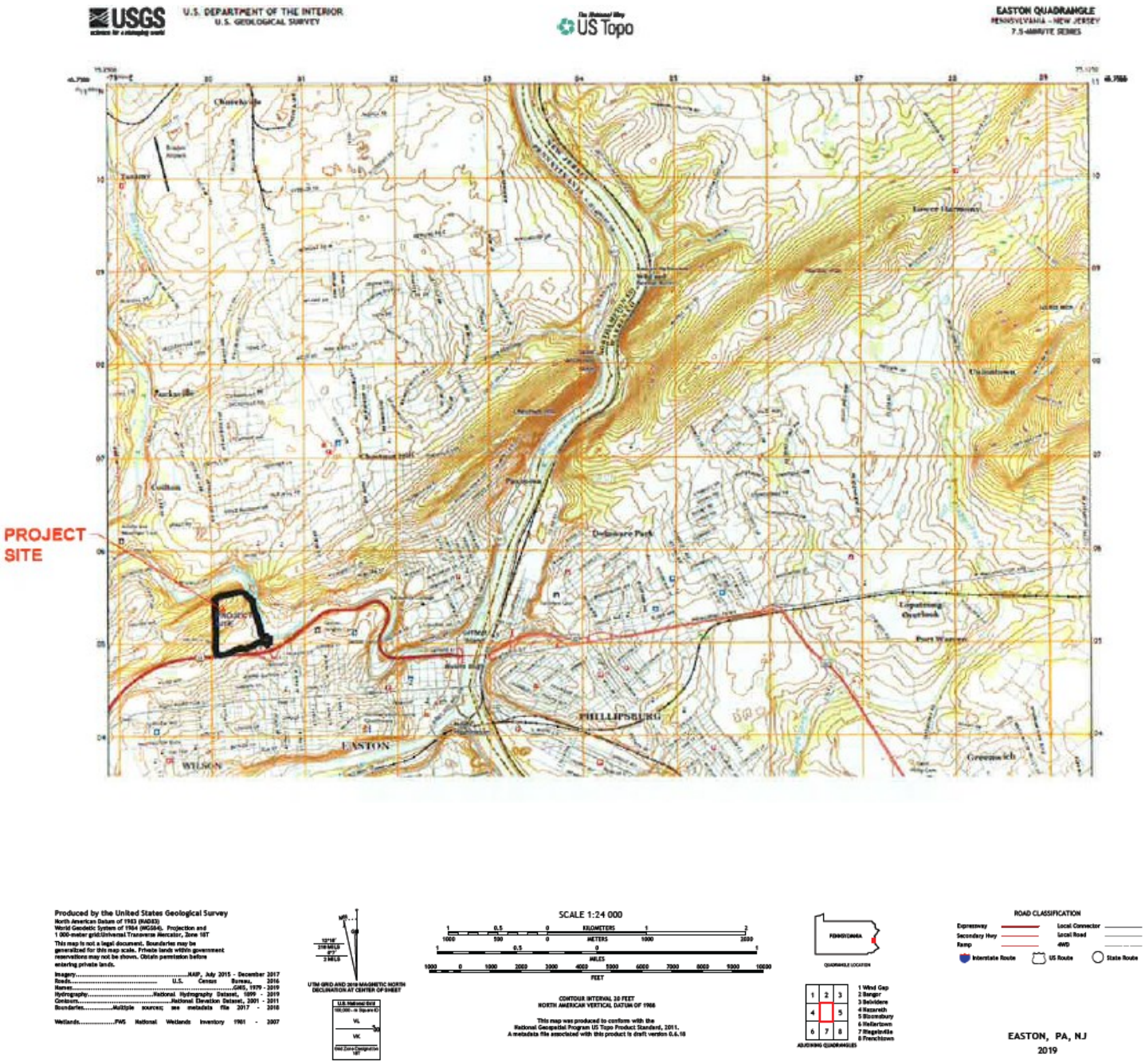
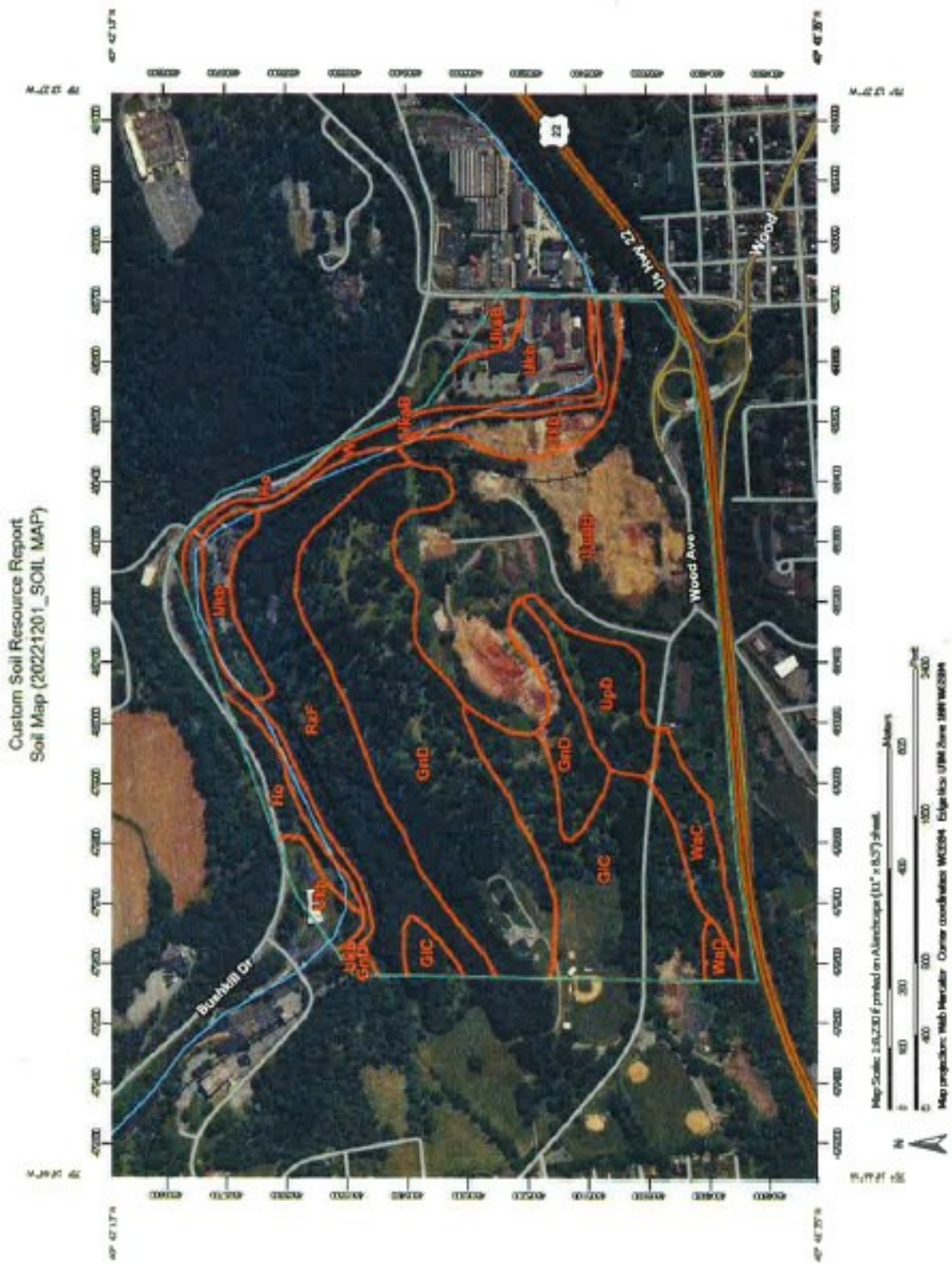
Location Map:



Soil Map:


Custom Soil Resource Report
Soil Map (20221201_SOIL MAP)
US Hwy 23
Wood Ave
Bushhill Dr
Ho
RaF
GnD
GlC
UpD
WaC
WaD
UkB
UmB
MaD

EASTON LOGISTICS CENTER

Project Description:

EASTON WOOD AVE PROPCO, LLC is proposing to construct an industrial building on the existing tract located in City of Easton/Palmer Township/Wilson Borough, Northampton County, Pennsylvania. The existing tract is located in three municipalities of City of Easton, Palmer Township, and Wilson Borough, and is bound by Bushkill Creek and Bushkill Drive at the north, Bushkill Creek on the east, adjacent properties to the West, and Hackett Avenue and Route 22 on the south. The proposed improvements include construction of a warehouse building and supporting office area, access drives off of Hackett Avenue, truck loading areas, parking lots, storm sewer system and stormwater Best Management Practice (BMP) facilities. The improvements propose a total of 85.16 acres of land disturbance that includes 23.11 acres of building.

The site presently consists of developed portions with access driveways and buildings as well as undeveloped portions with meadow, wooded and cultivated cover conditions. The site drains in an eastern direction and discharges from the site via Bushkill Creek. After construction of the proposed improvements, the majority of the storm runoff will be directed into proposed managed release concept (MRC) BMPs. An important reason for choosing MRC BMPs (in addition to limited infiltration and presence of underlying restrictive layers) was contamination of the existing media that would adversely impact groundwater in case infiltration-based BMPs were employed. Roof runoff from the proposed building will be collected by the proposed roof drain system and conveyed directly to the MRC BMPs. Bogia Engineering, Inc. plans show the existing and proposed contours, soils information, the proposed utility and storm sewer systems, drainage areas and construction details. The discharge from the MRC BMPs would be released on the land adjacent to the receiving water course and its tributaries. The main receiving water course is Bushkill Creek that is an impaired stream, categorized as HQ, CWF per chapter 93 classification. An individual NPDES permit would be applied for due to the characteristics of the receiving water course and the size of proposed project.

Site Information Table

Wetlands Present:	0.06 AC
Receiving Water Course:	Bushkill Creek and tributaries
Classification:	HQ, CWF, MF
Historic Land Use:	General freight trucking
Existing Land Use:	General freight trucking
Proposed Land Use:	Trucking and warehouse
Water Supply:	Public
Sewer Service:	Public
Total Site Disturbance:	82.88 acres
NPDES Permit	Individual
Construction Start:	Spring 2025

Storm Drainage & Runoff Criteria:

After construction of the proposed improvements, the storm runoff will be collected through a series of inlets and pipe network and then discharged to the proposed MRC BMPs.

The following is the criteria used for determining the site design and calculations performed:

- Design per City of Easton, Palmer Township, and Wilson Borough Subdivision & Land Development Ordinance and Stormwater Ordinances.
- Design per PADEP MRC design manual and guidelines.
- The project is located in the Bushkill Creek Watershed, Subarea 129 and 130 which is 30/PND release rate district.
- Calculation methodology: SCS TR-55 Method for PADEP MRC design with type C distribution and SCS TR-55 Method for TWP with type II distribution for modeling the designed MRC BMPs to check compliance with local requirements.
    - The hydrographs extension for Autodesk Civil 3D.
- Site runoff evaluated for the 1-, 2-, 5-, 10-, 25-, 50- and 100-year storms. For MRC basin design with the 1.2" storm, it was employed with a distribution similar to NJ water quality storm.
- The MRC BMPS were evaluated using the Storage Indication Method in Hydraflow Hydrographs extension in AutoCAD.
- The emergency spillways were sized to safely pass the peak 100-yr flow from the BMPs with at least 1.0' freeboard between the 100-yr water pool and top of the embankment. Adequate size of outlet pipes was also checked to safely drain the emergency flow. A trapezoidal channel was designed to convey the flow through the berms if needed.
- Based on site topography, 1 Point of Interest (POI) was analyzed for the total project compliance with township and DEP requirements, though sub-basins to that single POI were also analyzed to ensure the existing hydrologic regimes were maintained. The overall site POI is located at the confluence of Bushkill Creek and its tributary on the southeast of the proposed project. The existing drainage areas associated with proposed POIs, which are outflows from proposed BMPs, were estimated proportional to the post-construction drainage areas associated with each BMP. Such estimation made it feasible to compare pre- and post-construction release rates, while the total of existing release rates equals to the modeled existing release rate for the POI identified based on the topography.

Stormwater Recharge and Water Quality:

Storm water recharge and water quality volumes are also provided through the use of the MRC basin, installation of landscape restoration areas, and amended soils meeting all criteria for DEP water quality and recharge, and also meeting or exceeding the township requirements. Please refer to the DEP PCSM Spreadsheet printout attached at the end of Appendix A showing the criteria are met. It should be noted that although the storage volumes are sized to fully capture

recharge and water quality volumes before overflowing from the BMPs, no infiltration in the BMPs is proposed due to the underlying soil contamination in the site. Linings are proposed to prevent infiltration, and underdrain pipes would drain the recharge and water quality volumes on the Bushkill Creek shoreline.

Streambank Erosion Control:

In order to minimize the impact of stormwater runoff on downstream streambank erosion, the MRC BMP design also includes detaining the post-development 2-year, 24-hour design storm to the existing conditions 1-year flow as well 30% of existing 2-year. Additionally, use of the MRC BMP ensures that the 1-yr storm is detained for greater than 24 hours owing to limited discharge rate from the MRC underdrain orifice.

Storm Sewer System:

The proposed storm sewer system was designed using the Hydraflow Storm Sewers 2005 computer model. Hydraflow Storm Sewers utilizes the Rational Method to determine the peak discharge to inlets and then combines the inlet flows to derive the design flows in the storm sewer pipe sections. Proposed roof areas were included in the drainage area of the storm sewer structure receiving a particular roof rainwater conductor. The computer model then computes the hydraulic grade line in the storm sewer system using the Standard Step Method as outlined in FHWA HEC-22 in each pipe section. The calculated hydraulic grade line is then compared to the top of grate elevation of the inlets or junction boxes. This method is more accurate than utilizing the Manning's equation, since it accounts for backwater effects of downstream structures and allows pressure flow in pipes when there is sufficient head in the upstream inlets.

Conclusion:

The following is a comparison of the pre-development and post-development runoff for the entire site Points of Interest:

A) NRSCS METHOD USING TYPE C DISTRIBUTION FOR DEP

PROJECT SUMMARY				
OVERALL PROJECT SITE				
DESIGN STORM	EXISTING (CFS) HYDROGRAPH 7	CRITERIA	ALLOWABLE RATE (CFS)	PROPOSED (CFS) HYDROGRAPH 25
1YR	11.56	N/A	N/A	2.68
2YR	23.14	< EXISITNG 1YR	11.56	4.61
5YR	40.85	N/A	N/A	7.36
10YR	79.06	< EXISITNG 10YR	79.06	17.26
25YR	124.75	N/A	N/A	34.23
50YR	175.27	< EXISITNG 50YR	175.27	59.33
100YR	229.20	< EXISITNG 100YR	229.20	103.82

B) NRSCS METHOD USING TYPE II DISTRIBUTION FOR TOWNSHIP

PROJECT SUMMARY				
OVERALL PROJECT SITE				
DESIGN STORM	EXISTING (CFS) HYDROGRAPH 7	CRITERIA	ALLOWABLE RATE (CFS)	PROPOSED (CFS) HYDROGRAPH 25
1YR	16.07	N/A	N/A	2.67
2YR	31.95	< 30% OF EXISITNG 2YR	9.58	4.86
5YR	55.33	N/A	N/A	8.87
10YR	105.30	N/A	N/A	22.83
25YR	165.60	N/A	N/A	45.31
50YR	232.41	N/A	N/A	90.52
100YR	303.92	N/A	N/A	134.29

The total project will meet the design criteria to reduce the post-development 2yr storm rate to the pre-development 1yr storm rate for the entire project area as well as limiting it to values less than 30% of pre-development release rate. Greater storms were also controlled to rates less than the existing release rates. This meets the township and DEP requirements for all storms.

APPENDIX A

Storm Drainage Calculations

Existing Drainage Area Characteristics

EX-DA-1			Hydrologic Soil Group	CN		
Total Area	23.79	Ac				
Open Space	14.47	Ac				
GnD	5.64	Ac	A	39	Good condition	
RzF	0.69	Ac	B	61	Good condition	
UudB	5.2	Ac	C/D	77	Good condition	Average of C and D
Ukb	3.0	Ac	C/D	77	Good condition	Average of C and D
Woods	9.32	Ac				
GnD	5.64	Ac	A	30		
RzF	2.77	Ac	B	55		
UudB	0.57	Ac	C/D	73.5	Average of C and D	
Ukb	0.33	Ac	C/D	73.5	Average of C and D	

EX-DA-2						
Total Area	11.76	Ac				
Open Space	6.86	Ac				
GnD	2.06	Ac	A	39	Good condition	
UudB	4.80	Ac	C/D	77	Good condition	Average of C and D
Woods	2.97	Ac				
GnD	1.37	Ac	A	30		
UudB	1.60	Ac	C/D	73.5	Average of C and D	
Impervious	1.93	Ac				
UudB	1.93	Ac	C/D	98		

EX-DA-3						
Total Area	28.28	Ac				
Open Space	15.15	Ac				
GnD	2.54	Ac	A	39	Good condition	
UudB	11.61	Ac	C/D	77	Good condition	Average of C and D
GIC	0.63	Ac	B	61	Good condition	
UpD	0.38	Ac	A	39	Good condition	

Woods	11.74	Ac				
GnD	3.81	Ac	A	30		
UudB	3.59	Ac	C/D	73.5	Average of C and D	
GIC	0.94	Ac	B	55		
UpD	3.40	Ac	A	30		
Impervious	1.39	Ac				
UudB	1.39	Ac	C/D	98		

EX-DA-4						
Total Area	8.97	Ac				
Open Space	7.91	Ac				
UudB	7.91	Ac	C/D	77	Good condition	Average of C and D
Woods	0.42	Ac				
UudB	0.42	Ac	C/D	73.5	Average of C and D	
Impervious	0.64	Ac				
UudB	0.64	Ac	C/D	98		

EX-DA-5						
Total Area	8.09	Ac				
Open Space	1.78	Ac				
GnD	0.46	Ac	A	39	Good condition	
UudB	0.18	Ac	C/D	77	Good condition	Average of C and D
GIC	0.69	Ac	B	61	Good condition	
UpD	0.45	Ac	A	39	Good condition	
Woods	5.91	Ac				
GnD	1.84	Ac	A	30		
UudB	1.23	Ac	C/D	73.5	Average of C and D	
GIC	1.04	Ac	B	55		
UpD	1.80	Ac	A	30		
Impervious	0.40	Ac				
UudB	0.40	Ac	C/D	98		

EX-DA-Road Widening						
Total Area	1.98	Ac				
Open Space	0.00	Ac				
GnD	0.00	Ac	A	39	Good condition	
UudB	0.00	Ac	C/D	77	Good condition	Average of C and D
GIC	0.00	Ac	B	61	Good condition	
UpD	0.00	Ac	A	39	Good condition	
Woods	1.00	Ac				
GnD	0.00	Ac	A	30		
UudB	1.00	Ac	C/D	73.5	Average of C and D	
GIC	0.00	Ac	B	55		
UpD	0.00	Ac	A	30		
Impervious	0.98	Ac				
UudB	0.78	Ac	C/D	98		

Existing Drainage Area Characteristics with 20% of Impervious as Meadow in Good Condition

EX-DA-1			Hydrologic Soil Group	CN		
Total Area	23.79	Ac				
Open Space	14.47	Ac				
GnD	5.64	Ac	A	39	Good condition	
RzF	0.69	Ac	B	61	Good condition	
UudB	5.2	Ac	C/D	77	Good condition	Average of C and D
Ukb	3.0	Ac	C/D	77	Good condition	Average of C and D
Woods	9.32	Ac				
GnD	5.64	Ac	A	30		
RzF	2.77	Ac	B	55		
UudB	0.57	Ac	C/D	73.5	Average of C and D	
Ukb	0.33	Ac	C/D	73.5	Average of C and D	

EX-DA-2						
Total Area	11.76	Ac				
Open Space	7.25	Ac				
GnD	2.06	Ac	A	39	Good condition	
UudB	5.19	Ac	C/D	77	Good condition	Average of C and D
Woods	2.97	Ac				
GnD	1.37	Ac	A	30		
UudB	1.60	Ac	C/D	73.5	Average of C and D	
Impervious	1.54	Ac				
UudB	1.54	Ac	C/D	98		

EX-DA-3						
Total Area	28.29	Ac				
Open Space	15.43	Ac				
GnD	2.54	Ac	A	39	Good condition	
UudB	11.89	Ac	C/D	77	Good condition	Average of C and D
GIC	0.63	Ac	B	61	Good condition	
UpD	0.38	Ac	A	39	Good condition	

Woods	11.74	Ac				
GnD	3.81	Ac	A	30		
UudB	3.59	Ac	C/D	73.5	Average of C and D	
GIC	0.94	Ac	B	55		
UpD	3.40	Ac	A	30		
Impervious	1.11	Ac				
UudB	1.11	Ac	C/D	98		

EX-DA-4						
Total Area	8.97	Ac				
Open Space	8.04	Ac				
UudB	8.04	Ac	C/D	77	Good condition	Average of C and D
Woods	0.42	Ac				
UudB	0.42	Ac	C/D	73.5	Average of C and D	
Impervious	0.51	Ac				
UudB	0.51	Ac	C/D	98		

EX-DA-5						
Total Area	8.09	Ac				
Open Space	1.86	Ac				
GnD	0.46	Ac	A	39	Good condition	
UudB	0.26	Ac	C/D	77	Good condition	Average of C and D
GIC	0.69	Ac	B	61	Good condition	
UpD	0.45	Ac	A	39	Good condition	
Woods	5.91	Ac				
GnD	1.84	Ac	A	30		
UudB	1.23	Ac	C/D	73.5	Average of C and D	
GIC	1.04	Ac	B	55		
UpD	1.80	Ac	A	30		
Impervious	0.32	Ac				
UudB	0.32	Ac	C/D	98		

EX-DA-Road Widening						
Total Area	1.98	Ac				
Open Space	0.20	Ac				
GnD	0.00	Ac	A	39	Good condition	
UudB	0.20	Ac	C/D	77	Good condition	Average of C and D
GIC	0.00	Ac	B	61	Good condition	
UpD	0.00	Ac	A	39	Good condition	
Woods	1.00	Ac				
GnD	0.00	Ac	A	30		
UudB	1.00	Ac	C/D	73.5	Average of C and D	
GIC	0.00	Ac	B	55		
UpD	0.00	Ac	A	30		
Impervious	0.78	Ac				
UudB	0.78	Ac	C/D	98		

Proposed Drainage Area Characteristics

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DRAINAGE AREAS AND RUNOFF CURVE NUMBERS

DA	DA TOTAL (ACRES)	GRAVEL AREA (ACRES)	CN	OPEN SPACE GROUP A (ACRES)	CN	OPEN SPACE GROUP D (ACRES)	CN	IMPERVIOUS AREA (ACRES)	CN	WOODS (ACRES)	CN	TOTAL Ac x C	Cw = Ac x C / Ac
DA-BASIN A	2.47	0.00	76	0.20	39	0.45	80	1.83	98	0.00	30	223.08	90.18
DA-A-1	0.79	0.00	76	0.00	39	0.00	80	0.94	98	0.00	30	92.12	116.91
DA-A-2	0.92	0.00	76	0.00	39	0.00	80	1.08	98	0.00	30	105.84	114.69
DA-A-3	0.92	0.00	76	0.00	39	0.00	80	1.08	98	0.00	30	105.84	114.62
DA-A-4	0.92	0.00	76	0.00	39	0.00	80	1.08	98	0.00	30	105.84	114.65
DA-BLDG-28	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-27	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-26	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-25	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-24	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-23	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA-BLDG-22	0.91	0.00	76	0.00	39	0.00	80	0.82	98	0.00	30	80.36	88.45
DA - A	12.39	0.00		0.20		0.45		11.75		0.00		1195.24	96.46

POST-DEV. POI

DRAINAGE AREAS AND RUNOFF CURVE NUMBERS

DA	DA TOTAL (ACRES)	GRAVEL AREA (ACRES)	CN	OPEN SPACE GROUP A (ACRES)	CN	OPEN SPACE GROUP D (ACRES)	CN	IMPERVIOUS AREA (ACRES)	CN	WOODS (ACRES)	CN	TOTAL Ac x C	Cw = Ac x C / Ac
DA-BASIN B	2.68	0.00	91.00	0.00	39.00	0.93	80.00	1.75	98.00	0.00	30.00	245.90	91.75
DA-B-1	0.31	0.00	91.00	0.00	39.00	0.00	80.00	0.31	98.00	0.00	30.00	30.38	98.00
DA-B-2	0.37	0.00	91.00	0.02	39.00	0.00	80.00	0.35	98.00	0.00	30.00	34.89	95.57
DA-B-3	0.06	0.00	91.00	0.02	39.00	0.00	80.00	0.04	98.00	0.00	30.00	4.51	81.89
DA-B-4	0.10	0.00	91.00	0.02	39.00	0.00	80.00	0.08	98.00	0.00	30.00	8.64	85.95
DA-B-5	0.65	0.00	91.00	0.00	39.00	0.00	80.00	0.65	98.00	0.00	30.00	63.70	98.00

DA-B-6	0.74	0.00	91.00	0.03	39.00	0.00	80.00	0.71	98.00	0.00	30.00	70.75	95.60
DA-B-7	0.03	0.00	91.00	0.02	39.00	0.00	80.00	0.01	98.00	0.00	30.00	1.57	62.58
DA-B-8	0.30	0.00	91.00	0.00	39.00	0.00	80.00	0.30	98.00	0.00	30.00	29.40	98.00
DA-B-9	0.41	0.00	91.00	0.00	39.00	0.00	80.00	0.41	98.00	0.00	30.00	40.18	98.00
DA-B-7A	0.38	0.00	91.00	0.00	39.00	0.00	80.00	0.38	98.00	0.00	30.00	37.24	98.00
DA-B-10	0.11	0.00	91.00	0.00	39.00	0.03	80.00	0.08	98.00	0.00	30.00	9.97	93.51
DA-B-11	0.10	0.00	91.00	0.00	39.00	0.00	80.00	0.10	98.00	0.00	30.00	9.80	98.00
DA-B-12	0.33	0.00	91.00	0.00	39.00	0.00	80.00	0.33	98.00	0.00	30.00	32.34	98.00
DA-B-13	0.43	0.00	91.00	0.00	39.00	0.31	80.00	0.12	98.00	0.00	30.00	36.83	85.11
DA-B-14	0.22	0.00	91.00	0.00	39.00	0.10	80.00	0.12	98.00	0.00	30.00	19.78	89.83
DA-B-15	0.13	0.00	91.00	0.00	39.00	0.06	80.00	0.07	98.00	0.00	30.00	11.97	89.89
DA-B-16	0.13	0.00	91.00	0.00	39.00	0.06	80.00	0.07	98.00	0.00	30.00	11.35	89.48
DA-B-17	0.10	0.00	91.00	0.00	39.00	0.05	80.00	0.05	98.00	0.00	30.00	8.58	88.70
DA-B-15A	0.85	0.00	91.00	0.00	39.00	0.08	80.00	0.77	98.00	0.00	30.00	81.51	96.39
DA-B-15B	0.76	0.00	91.00	0.00	39.00	0.00	80.00	0.76	98.00	0.00	30.00	74.48	98.00
DA-B-15C	0.76	0.00	91.00	0.00	39.00	0.00	80.00	0.76	98.00	0.00	30.00	74.48	98.00
DA-BLDG-15	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-16	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-17	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-18	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-19	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-20	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA-BLDG-21	0.82	0.00	91.00	0.00	39.00	0.00	80.00	0.82	98.00	0.00	30.00	80.36	98.00
DA - B	15.67	0.00		0.10		1.61		13.96		0.00		1500.77	95.79

POST-DEV. POI

DRAINAGE AREAS AND RUNOFF CURVE NUMBERS

DA	DA TOTAL (ACRES)	GRAVEL AREA (ACRES)	CN	OPEN SPACE GROUP A (ACRES)	CN	OPEN SPACE GROUP B (ACRES)	CN	OPEN SPACE GROUP D (ACRES)	CN	IMPERVIOUS AREA (ACRES)	CN	WOODS (ACRES)	CN	TOTAL Ac x C	Cw = Ac x C / Ac
DA-BASIN C	7.48	0.00	91.00	0.00	39.00	0.00	61.00	3.85	80.00	3.63	98.00	0.00	77.00	663.67	88.74
DA-C-1	0.25	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.25	98.00	0.00	77.00	24.50	98.00
DA-C-2	0.25	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.25	98.00	0.00	77.00	24.50	98.00

DA-C-3	0.25	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.25	98.00	0.00	77.00	24.50	98.00
DA-C-3A	0.40	0.00	91.00	0.33	39.00	0.00	61.00	0.00	80.00	0.07	98.00	0.00	77.00	20.04	49.49
DA-C-3B	0.13	0.00	91.00	0.06	39.00	0.00	61.00	0.00	80.00	0.07	98.00	0.00	77.00	9.62	71.76
DA-C-4	1.16	0.00	91.00	0.73	39.00	0.00	61.00	0.00	80.00	0.43	98.00	0.00	77.00	70.59	60.88
DA-C-5	0.77	0.00	91.00	0.46	39.00	0.00	61.00	0.00	80.00	0.31	98.00	0.00	77.00	48.27	62.79
DA-C-6	0.49	0.00	91.00	0.18	39.00	0.00	61.00	0.00	80.00	0.31	98.00	0.00	77.00	37.34	76.45
DA-C-7	0.96	0.00	91.00	0.08	39.00	0.56	61.00	0.00	80.00	0.32	98.00	0.00	77.00	68.61	71.43
DA-C-8	0.19	0.00	91.00	0.06	39.00	0.00	61.00	0.00	80.00	0.12	98.00	0.00	77.00	14.69	78.16
DA-C-8A	0.15	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.15	98.00	0.00	77.00	14.70	98.00
DA-C-9	0.24	0.00	91.00	0.02	39.00	0.03	61.00	0.00	80.00	0.19	98.00	0.00	77.00	21.17	87.83
DA-C-10	0.13	0.00	91.00	0.00	39.00	0.01	61.00	0.00	80.00	0.12	98.00	0.00	77.00	12.63	94.00
DA-C-11	0.19	0.00	91.00	0.03	39.00	0.03	61.00	0.00	80.00	0.13	98.00	0.00	77.00	16.19	83.16
DA-C-12	0.42	0.00	91.00	0.05	39.00	0.13	61.00	0.00	80.00	0.24	98.00	0.00	77.00	33.56	79.37
DA-C-12A	0.08	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.08	98.00	0.00	77.00	8.20	98.00
DA-C-12B	0.15	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.15	98.00	0.00	77.00	14.70	98.00
DA-C-13	0.24	0.00	91.00	0.07	39.00	0.06	61.00	0.00	80.00	0.11	98.00	0.00	77.00	16.93	71.67
DA-C-14	0.11	0.00	91.00	0.04	39.00	0.00	61.00	0.00	80.00	0.07	98.00	0.00	77.00	8.37	77.81
DA-C-14A	0.23	0.00	91.00	0.02	39.00	0.00	61.00	0.00	80.00	0.21	98.00	0.00	77.00	21.75	93.46
DA-C-14B	0.26	0.00	91.00	0.05	39.00	0.00	61.00	0.00	80.00	0.21	98.00	0.00	77.00	22.80	87.71
DA-C-15	0.17	0.00	91.00	0.03	39.00	0.01	61.00	0.00	80.00	0.12	98.00	0.00	77.00	14.05	83.95
DA-C-16	0.35	0.00	91.00	0.08	39.00	0.00	61.00	0.00	80.00	0.28	98.00	0.00	77.00	30.09	84.84
DA-C-16A	0.30	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.30	98.00	0.00	77.00	29.66	98.00
DA-C-17	0.16	0.00	91.00	0.02	39.00	0.02	61.00	0.00	80.00	0.12	98.00	0.00	77.00	13.43	85.60
DA-C-18	0.12	0.00	91.00	0.01	39.00	0.01	61.00	0.00	80.00	0.10	98.00	0.00	77.00	10.69	87.44
DA-C-19	0.14	0.00	91.00	0.01	39.00	0.00	61.00	0.00	80.00	0.13	98.00	0.00	77.00	13.04	91.75
DA-C-19A	0.08	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.08	98.00	0.00	77.00	7.97	98.00
DA-C-19B	0.31	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.31	98.00	0.00	77.00	30.15	98.00
DA-C-19C	0.13	0.00	91.00	0.01	39.00	0.00	61.00	0.00	80.00	0.12	98.00	0.00	77.00	12.34	94.67
DA-C-20	0.20	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.20	98.00	0.00	77.00	19.80	98.00
DA-C-20A	0.56	0.00	91.00	0.30	39.00	0.00	61.00	0.00	80.00	0.26	98.00	0.00	77.00	37.05	66.56
DA-BLDG-1	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-2	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-3	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-4	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-5	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00

DA-BLDG-6	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-7	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-8	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-9	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-10	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-11	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-12	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-13	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-BLDG-14	0.82	0.00	91.00	0.00	39.00	0.00	61.00	0.00	80.00	0.82	98.00	0.00	77.00	80.36	98.00
DA-C-21	0.28	0.00	91.00	0.20	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	15.48	56.11
DA-C-22	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-23	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-23A	0.06	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.06	98.00	0.00	30.00	5.91	97.16
DA-C-24	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-24A	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-25	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-25A	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-26	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-26A	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	8.24	98.00
DA-C-27	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-27A	0.50	0.00	91.00	0.00	39.00	0.35	80.00	0.00	80.00	0.15	98.00	0.00	30.00	42.91	85.37
DA-C-28	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-28A	0.18	0.00	91.00	0.00	39.00	0.09	80.00	0.00	80.00	0.09	98.00	0.00	30.00	15.94	89.05
DA-C-29	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.84	98.00
DA-C-29A	0.18	0.00	91.00	0.00	39.00	0.10	80.00	0.00	80.00	0.08	98.00	0.00	30.00	15.97	87.93
DA-C-30	0.07	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.07	98.00	0.00	30.00	7.27	98.00
DA-C-31	0.07	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.07	98.00	0.00	30.00	6.86	98.00
DA-C-31A	0.09	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.09	98.00	0.00	30.00	8.82	98.00
DA-C-32	0.08	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.08	98.00	0.00	30.00	7.73	98.00
DA-C-33	0.10	0.00	91.00	0.00	39.00	0.00	80.00	0.00	80.00	0.10	98.00	0.00	30.00	9.80	98.00
DA - C	31.05	0.00		2.83		1.42		3.85		22.95		0.00		2763.94	89.02

POST-DEV. POI

DRAINAGE AREAS AND RUNOFF CURVE NUMBERS															
DA	DA TOTAL (ACRES)	GRAVEL AREA (ACRES)	CN	OPEN SPACE GROUP A (ACRES)	CN	OPEN SPACE GROUP B (ACRES)	CN	OPEN SPACE GROUP D (ACRES)	CN	IMPERVIOUS AREA (ACRES)	CN	WOODS (ACRES)	CN	TOTAL Ac x C	Cw = Ac x C / Ac
DA-BASIN E	0.84	0.00	91.00	0.00	39.00	0.42	61.00	0.22	80.00	0.20	98.00	0.00	30.00	62.82	74.79
DA-E-1	0.24	0.00	91.00	0.04	39.00	0.06	61.00	0.00	80.00	0.14	98.00	0.00	30.00	18.73	78.74
DA-E-2	0.26	0.00	91.00	0.00	39.00	0.06	61.00	0.00	80.00	0.20	98.00	0.00	30.00	23.26	89.46
DA-E-2A	0.19	0.00	91.00	0.05	39.00	0.00	61.00	0.00	80.00	0.14	98.00	0.00	77.00	15.47	82.30
DA-E-2B	0.22	0.00	91.00	0.04	39.00	0.04	61.00	0.00	80.00	0.14	98.00	0.00	77.00	17.68	80.61
DA-E-3	0.34	0.00	91.00	0.09	39.00	0.05	61.00	0.00	80.00	0.20	98.00	0.00	30.00	26.29	76.56
DA-E-4A	0.62	0.00	91.00	0.00	39.00	0.05	61.00	0.45	80.00	0.12	98.00	0.00	30.00	50.82	81.95
DA-E-4B	0.16	0.00	91.00	0.04	39.00	0.00	61.00	0.00	80.00	0.12	98.00	0.00	30.00	13.28	83.56
DA-E-4C	0.15	0.00	91.00	0.04	39.00	0.00	61.00	0.00	80.00	0.11	98.00	0.00	30.00	12.49	82.42
DA-E-4D	0.19	0.00	91.00	0.07	39.00	0.00	61.00	0.00	80.00	0.12	98.00	0.00	30.00	14.31	77.20
DA-E-4E	0.18	0.00	91.00	0.05	39.00	0.00	61.00	0.00	80.00	0.13	98.00	0.00	30.00	14.69	81.61
DA-E-4	0.15	0.00	91.00	0.00	39.00	0.06	61.00	0.00	80.00	0.08	98.00	0.00	30.00	12.05	81.18
DA-E-5	0.17	0.00	91.00	0.06	39.00	0.02	61.00	0.00	80.00	0.09	98.00	0.00	30.00	12.46	73.36
DA-E-5A	0.32	0.00	91.00	0.00	39.00	0.05	61.00	0.00	80.00	0.27	98.00	0.00	30.00	29.68	91.52
DA-E-6	0.16	0.00	91.00	0.07	39.00	0.00	61.00	0.00	80.00	0.09	98.00	0.00	30.00	11.96	72.85
DA-E-7	0.14	0.00	91.00	0.04	39.00	0.00	61.00	0.00	80.00	0.10	98.00	0.00	30.00	10.91	80.58
DA-E-7A	0.50	0.00	91.00	0.05	39.00	0.02	61.00	0.30	80.00	0.13	98.00	0.00	30.00	39.73	80.03
DA-E-8	0.12	0.00	91.00	0.03	39.00	0.00	61.00	0.00	80.00	0.09	98.00	0.00	30.00	10.41	83.76
DA-E-9	0.15	0.00	91.00	0.06	39.00	0.00	61.00	0.00	80.00	0.09	98.00	0.00	30.00	11.00	75.42
DA-E-9A	0.23	0.00	91.00	0.05	39.00	0.05	61.00	0.00	80.00	0.13	98.00	0.00	30.00	17.65	76.53
DA-E-10	0.20	0.00	91.00	0.04	39.00	0.00	61.00	0.00	80.00	0.16	98.00	0.00	30.00	17.24	86.20
DA-E-11	0.15	0.00	91.00	0.06	39.00	0.00	61.00	0.00	80.00	0.09	98.00	0.00	30.00	11.16	74.41
DA-E-12	1.09	0.00	91.00	0.05	39.00	0.00	61.00	0.94	80.00	0.10	98.00	0.00	30.00	86.91	79.76
DA-E-13	0.22	0.00	91.00	0.06	39.00	0.00	61.00	0.01	80.00	0.15	98.00	0.00	30.00	18.07	81.00
DA-E-14	0.15	0.00	91.00	0.05	39.00	0.00	61.00	0.03	80.00	0.07	98.00	0.00	30.00	11.20	74.73
DA-E-14A	0.13	0.00	91.00	0.05	39.00	0.00	61.00	0.00	80.00	0.08	98.00	0.00	30.00	9.66	75.08
DA-E-15	0.15	0.00	91.00	0.05	39.00	0.00	61.00	0.04	80.00	0.06	98.00	0.00	30.00	11.37	74.08
DA-E-16	0.19	0.00	91.00	0.04	39.00	0.00	61.00	0.09	80.00	0.06	98.00	0.00	30.00	14.98	77.42
DA-E-17	0.19	0.00	91.00	0.02	39.00	0.00	61.00	0.10	80.00	0.06	98.00	0.00	30.00	15.14	80.90
DA-E-17A	0.14	0.00	91.00	0.02	39.00	0.00	61.00	0.00	80.00	0.12	98.00	0.00	30.00	12.52	89.56

DA-E	7.94	0.00		1.22		0.88		2.18		3.65		0.00		633.93	79.85

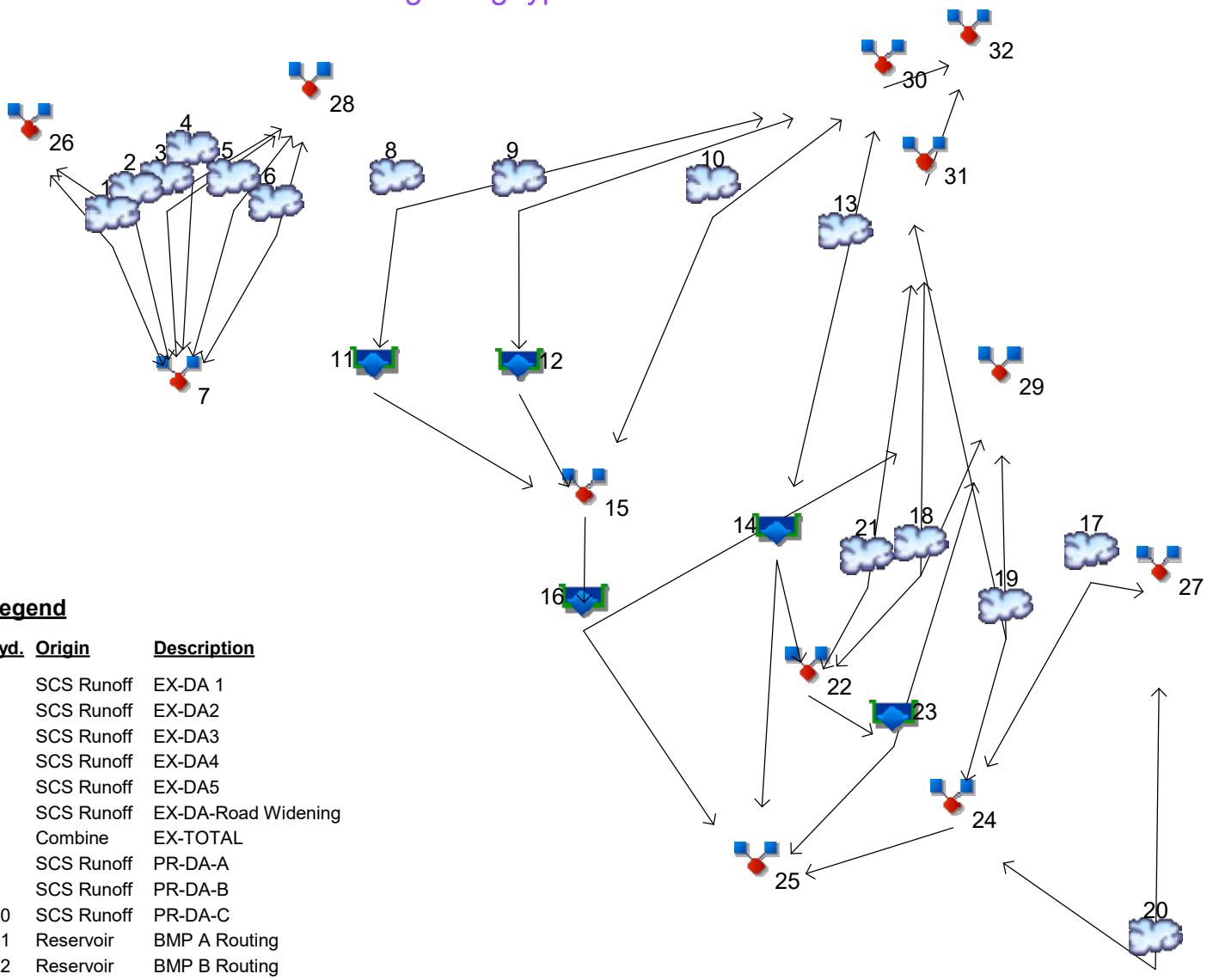
POST-DEV. BYPASS

DRAINAGE AREAS AND RUNOFF CURVE NUMBERS

DA	DA TOTAL (ACRES)	GRAVEL AREA (ACRES) GROUP B	CN	OPEN SPACE GROUP A (ACRES)	CN	OPEN SPACE GROUP B (ACRES)	CN	OPEN SPACE GROUP D (ACRES)	CN	IMPERVIOUS AREA (ACRES)	CN	WOODS (ACRES)	CN	TOTAL Ac x C	Cw = Ac x C / Ac
DA-BP-1	4.95	0.00	85.00	1.83	39.00	1.48	61.00	0.00	80.00	1.64	98.00	0.00	77.00	322.37	65.13
DA-BP-2	5.60	0.00	85.00	4.52	39.00	0.49	61.00	0.53	80.00	0.06	98.00	0.00	77.00	254.32	45.43
DA-BP-3	2.53	0.00	85.00	0.00	39.00	2.53	61.00	0.00	80.00	0.00	98.00	0.00	77.00	154.33	61.00
DA-RG	1.20	0.00	85.00	0.00	39.00	0.69	61.00	0.41	80.00	0.10	98.00	0.00	77.00	84.69	70.58
DA-Road Widening	1.55	0.00	85.00	0.00	39.00	0.00	61.00	0.00	80.00	1.55	98.00	0.00	77.00	151.90	98.00
DA - BP	15.83	0.00		6.35		5.19		0.94		3.35		0.00		967.61	61.13

Watershed Model Schematic

24-hour storm modeling using type C distribution



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX-DA 1
2	SCS Runoff	EX-DA2
3	SCS Runoff	EX-DA3
4	SCS Runoff	EX-DA4
5	SCS Runoff	EX-DA5
6	SCS Runoff	EX-DA-Road Widening
7	Combine	EX-TOTAL
8	SCS Runoff	PR-DA-A
9	SCS Runoff	PR-DA-B
10	SCS Runoff	PR-DA-C
11	Reservoir	BMP A Routing
12	Reservoir	BMP B Routing
13	SCS Runoff	PR-DA-E
14	Reservoir	BMP E Routing
15	Combine	BMP C INFLOW
16	Reservoir	MRC BMP C Routing(DP1)
17	SCS Runoff	PR-BYPASS 1
18	SCS Runoff	PR RG
19	SCS Runoff	PR-BYPASS 2
20	SCS Runoff	PR-BYPASS 3
21	SCS Runoff	PR-Road Widening
22	Combine	BMP E Outflow + PR Road Widening
23	Reservoir	RG Routing (DP2)
24	Combine	PR-BYPASS
25	Combine	PROPOSED ENTIRE SITE (POI)
26	Combine	EX-to- Bushkill
27	Combine	PR-to-Bushkill
28	Combine	EX-to-UNT
29	Combine	PR-to-UNT (DPs 001& 002)
30	Combine	to UNT- No BMP1
31	Combine	to UNT-No BMP 2
32	Combine	to UNT- No BMP

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.143	1.101	-------	3.727	11.86	22.99	35.67	49.54	EX-DA 1
2	SCS Runoff	------	2.547	6.188	-------	10.48	18.30	26.95	36.34	46.14	EX-DA2
3	SCS Runoff	------	1.205	4.645	-------	10.51	23.16	37.99	54.33	71.80	EX-DA3
4	SCS Runoff	------	6.629	10.63	-------	15.03	22.54	30.36	38.35	46.42	EX-DA4
5	SCS Runoff	------	0.009	0.055	-------	0.299	1.502	3.858	7.094	10.89	EX-DA5
6	SCS Runoff	------	2.189	3.220	-------	4.294	6.057	7.843	9.634	11.42	EX-DA-Road Widening
7	Combine	1, 2, 3, 4, 5, 6	11.56	23.14	-------	40.85	79.06	124.75	175.27	229.20	EX-TOTAL
8	SCS Runoff	------	28.94	36.98	-------	44.97	57.66	70.28	82.85	95.40	PR-DA-A
9	SCS Runoff	------	36.57	46.74	-------	56.83	72.86	88.81	104.70	120.55	PR-DA-B
10	SCS Runoff	------	52.50	71.50	-------	90.62	121.17	151.55	181.75	211.78	PR-DA-C
11	Reservoir	8	0.639	0.709	-------	0.774	0.868	0.955	1.036	1.108	BMP A Routing
12	Reservoir	9	1.007	1.127	-------	1.235	1.399	1.543	1.696	2.172	BMP B Routing
13	SCS Runoff	------	8.196	12.70	-------	17.51	25.55	33.82	42.19	50.60	PR-DA-E
14	Reservoir	13	0.194	0.579	-------	0.908	1.274	5.093	13.64	26.51	BMP E Routing
15	Combine	10, 11, 12,	53.92	73.06	-------	92.31	123.05	153.60	183.96	214.14	BMP C INFLOW
16	Reservoir	15	2.232	3.276	-------	4.737	6.970	8.771	10.25	11.57	MRC BMP C Routing(DP1)
17	SCS Runoff	------	0.975	2.623	-------	4.573	8.355	12.60	17.15	21.92	PR-BYPASS 1
18	SCS Runoff	------	0.517	0.983	-------	1.526	2.500	3.553	4.656	5.791	PR RG
19	SCS Runoff	------	0.000	0.017	-------	0.079	0.599	2.267	4.982	8.091	PR-BYPASS 2
20	SCS Runoff	------	0.149	0.670	-------	1.475	3.008	4.803	6.803	8.931	PR-BYPASS 3
21	SCS Runoff	------	3.535	4.450	-------	5.363	6.818	8.270	9.720	11.17	PR-Road Widening
22	Combine	14, 18, 21	4.052	5.458	-------	6.990	10.13	12.96	22.89	42.09	BMP E Outflow + PR Road Widening
23	Reservoir	22	0.283	0.873	-------	2.026	6.027	11.48	22.14	40.33	RG Routing (DP2)
24	Combine	17, 19, 20,	1.024	3.206	-------	5.975	11.31	18.84	27.83	37.59	PR-BYPASS
25	Combine	14, 16, 23, 24	2.677	4.609	-------	7.362	17.26	34.23	59.33	103.82	PROPOSED ENTIRE SITE (POI)
26	Combine	1, 2,	2.547	6.379	-------	13.12	29.36	49.20	71.21	94.85	EX-to- Bushkill
27	Combine	17, 20,	1.024	3.206	-------	5.975	11.14	16.94	23.31	30.08	PR-to-Bushkill
28	Combine	3, 4, 5, 6,	9.024	16.76	-------	27.74	49.70	75.55	104.06	134.35	EX-to-UNT
29	Combine	16, 18, 19, 23,	2.464	3.956	-------	6.049	12.61	22.75	37.62	61.43	PR-to-UNT (DPs 001& 002)
30	Combine	8, 9, 10, 13, 19,	122.72	163.51	-------	204.60	270.59	337.68	405.79	474.19	to UNT- No BMP1
31	Combine	18, 21,	4.032	5.428	-------	6.888	9.318	11.82	14.38	16.96	to UNT-No BMP 2
32	Combine	30, 31	126.50	168.61	-------	211.08	279.37	348.83	419.37	490.22	to UNT- No BMP

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.143	2	852	4,430	------	------	------	EX-DA 1
2	SCS Runoff	2.547	2	734	13,900	------	------	------	EX-DA2
3	SCS Runoff	1.205	2	754	15,109	------	------	------	EX-DA3
4	SCS Runoff	6.629	2	732	24,306	------	------	------	EX-DA4
5	SCS Runoff	0.009	2	1440	144	------	------	------	EX-DA5
6	SCS Runoff	2.189	2	730	7,701	------	------	------	EX-DA-Road Widening
7	Combine	11.56	2	732	65,589	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	28.94	2	726	82,858	------	------	------	PR-DA-A
9	SCS Runoff	36.57	2	726	104,708	------	------	------	PR-DA-B
10	SCS Runoff	52.50	2	728	162,535	------	------	------	PR-DA-C
11	Reservoir	0.639	2	976	70,503	8	290.31	61,538	BMP A Routing
12	Reservoir	1.007	2	902	93,137	9	286.50	74,525	BMP B Routing
13	SCS Runoff	8.196	2	726	22,169	------	------	------	PR-DA-E
14	Reservoir	0.194	2	1082	14,930	13	256.99	16,439	BMP E Routing
15	Combine	53.92	2	728	326,174	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	2.232	2	1442	229,712	15	216.71	171,988	MRC BMP C Routing(DP1)
17	SCS Runoff	0.975	2	728	4,396	------	------	------	PR-BYPASS 1
18	SCS Runoff	0.517	2	730	1,926	------	------	------	PR RG
19	SCS Runoff	0.000	2	n/a	0	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.149	2	738	1,534	------	------	------	PR-BYPASS 3
21	SCS Runoff	3.535	2	728	12,217	------	------	------	PR-Road Widening
22	Combine	4.052	2	728	29,074	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	0.283	2	1066	16,060	22	232.64	13,337	RG Routing (DP2)
24	Combine	1.024	2	728	5,930	17, 19, 20,	------	------	PR-BYPASS
25	Combine	2.677	2	1382	266,633	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	2.547	2	734	18,330	1, 2,	------	------	EX-to- Bushkill
27	Combine	1.024	2	728	5,930	17, 20,	------	------	PR-to-Bushkill
28	Combine	9.024	2	732	47,259	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	2.464	2	1404	247,698	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	122.72	2	726	372,270	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	4.032	2	728	14,143	18, 21,	------	------	to UNT-No BMP 2
32	Combine	126.50	2	726	386,414	30, 31	------	------	to UNT- No BMP

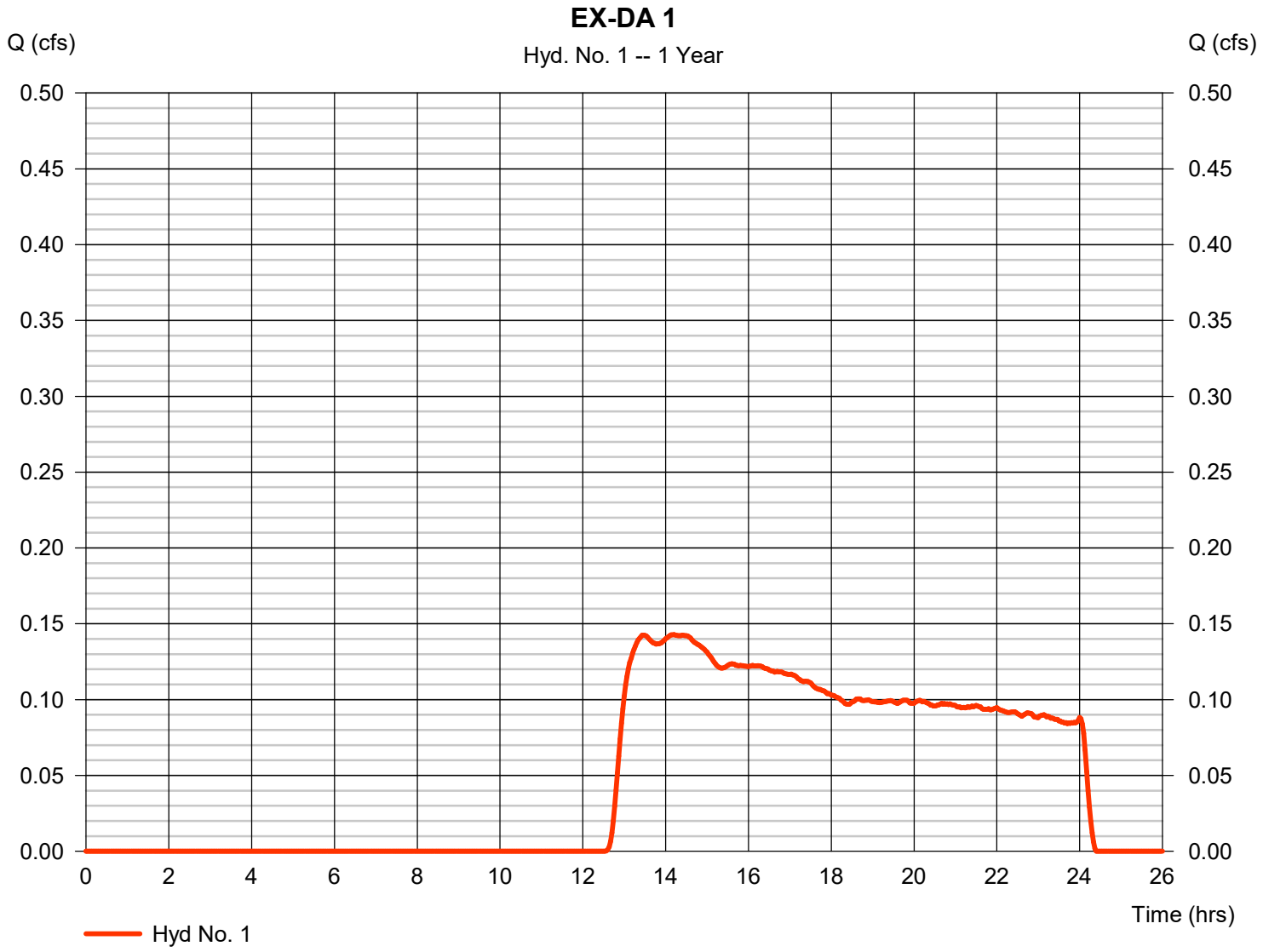
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.143 cfs
Storm frequency	=	1 yrs	Time to peak	=	14.20 hrs
Time interval	=	2 min	Hyd. volume	=	4,430 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO	Storm Frequency	=	1 yrs

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



TR55 Tc Worksheet

Hyd. No. 1

EX-DA 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 2.99		0.00		0.00		
Travel Time (min)	**= 11.92**	**+**	**0.00**	**+**	**0.00**	**=**	**11.92**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		363.00		0.00		
Watercourse slope (%)	= 2.99		2.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		2.55		0.00		
Travel Time (min)	**= 0.90**	**+**	**2.37**	**+**	**0.00**	**=**	**3.27**
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		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

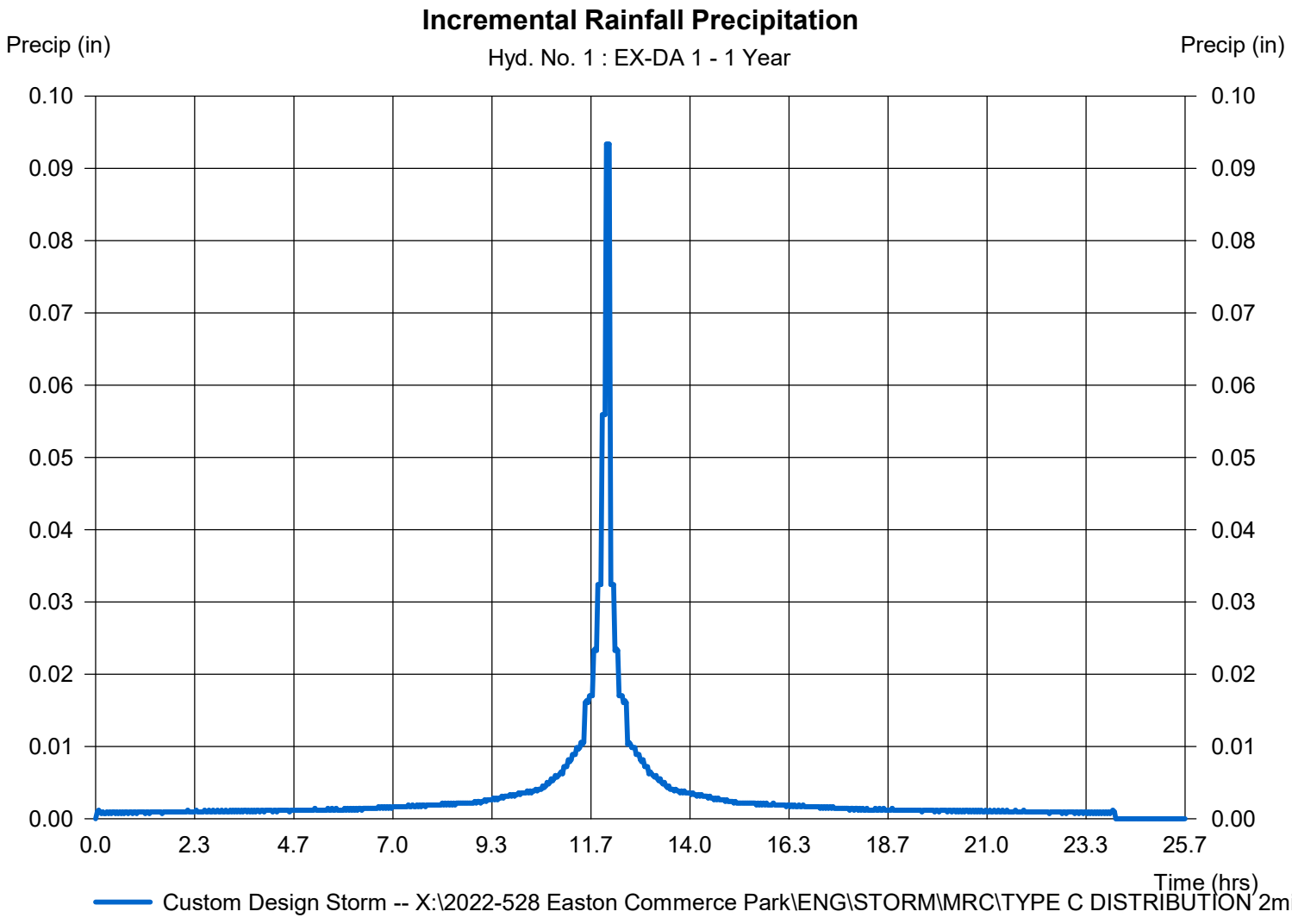
Total Travel Time, Tc ..... 15.20 min

Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



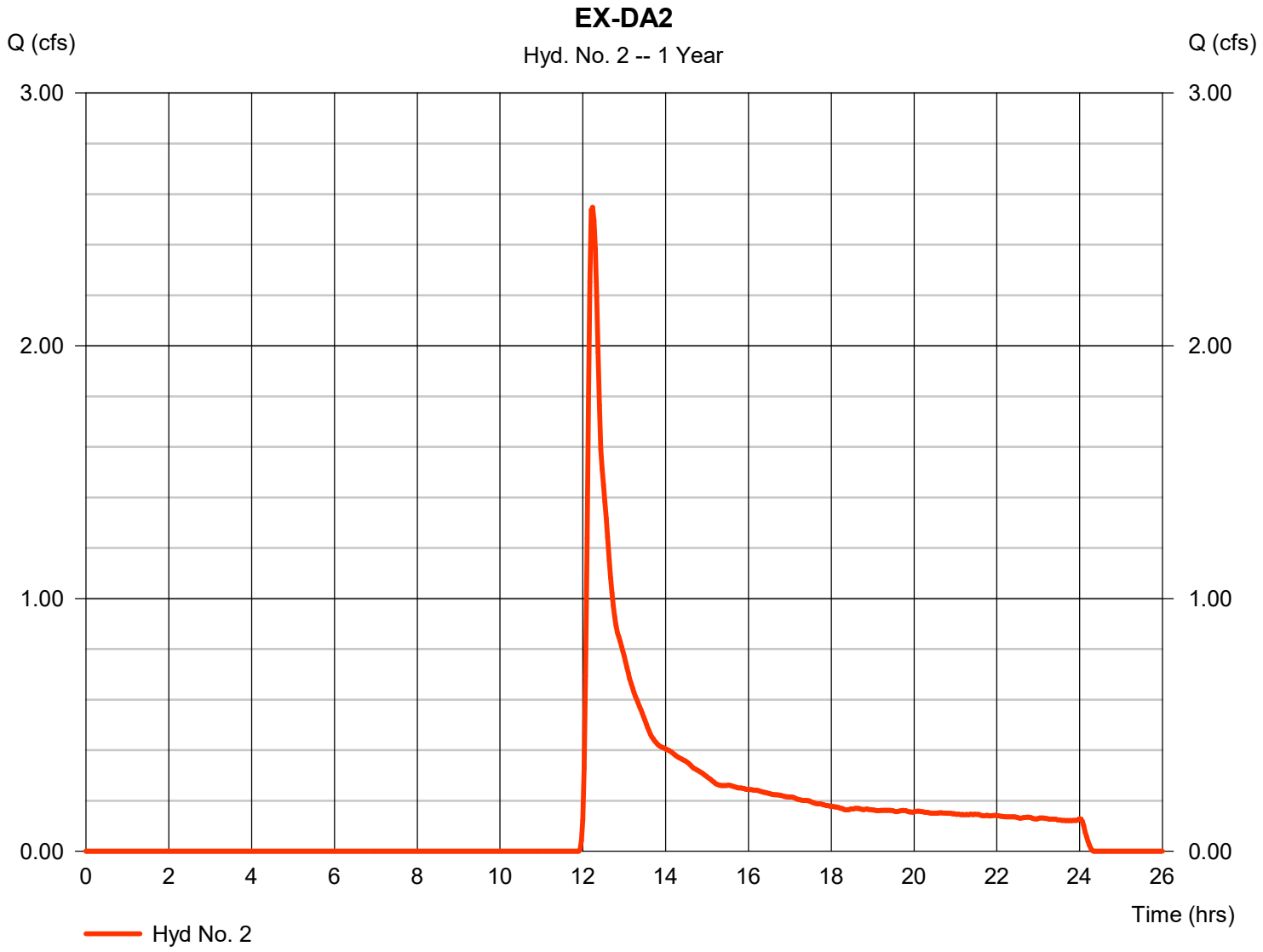
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.547 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	13,900 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



TR55 Tc Worksheet

Hyd. No. 2

EX-DA2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 9.50		0.00		0.00		
Travel Time (min)	**= 8.30**	**+**	**0.00**	**+**	**0.00**	**=**	**8.30**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		200.00		886.00		
Watercourse slope (%)	= 9.50		5.00		7.50		
Surface description	= Unpaved		Unpaved		Unpaved		
Average velocity (ft/s)	=4.97		3.61		4.42		
Travel Time (min)	**= 0.50**	**+**	**0.92**	**+**	**3.34**	**=**	**4.77**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

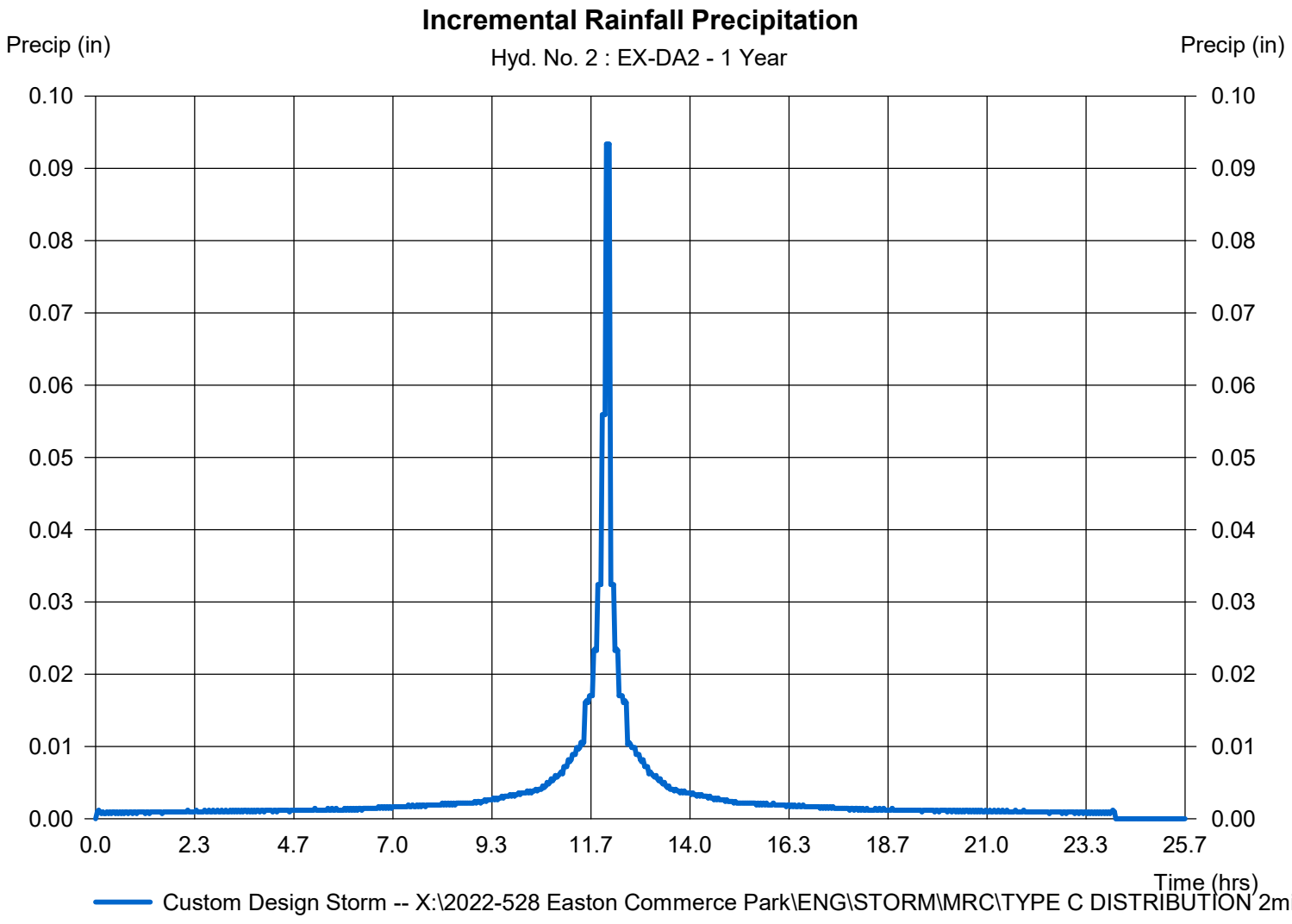
Total Travel Time, Tc ..... 13.10 min

Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



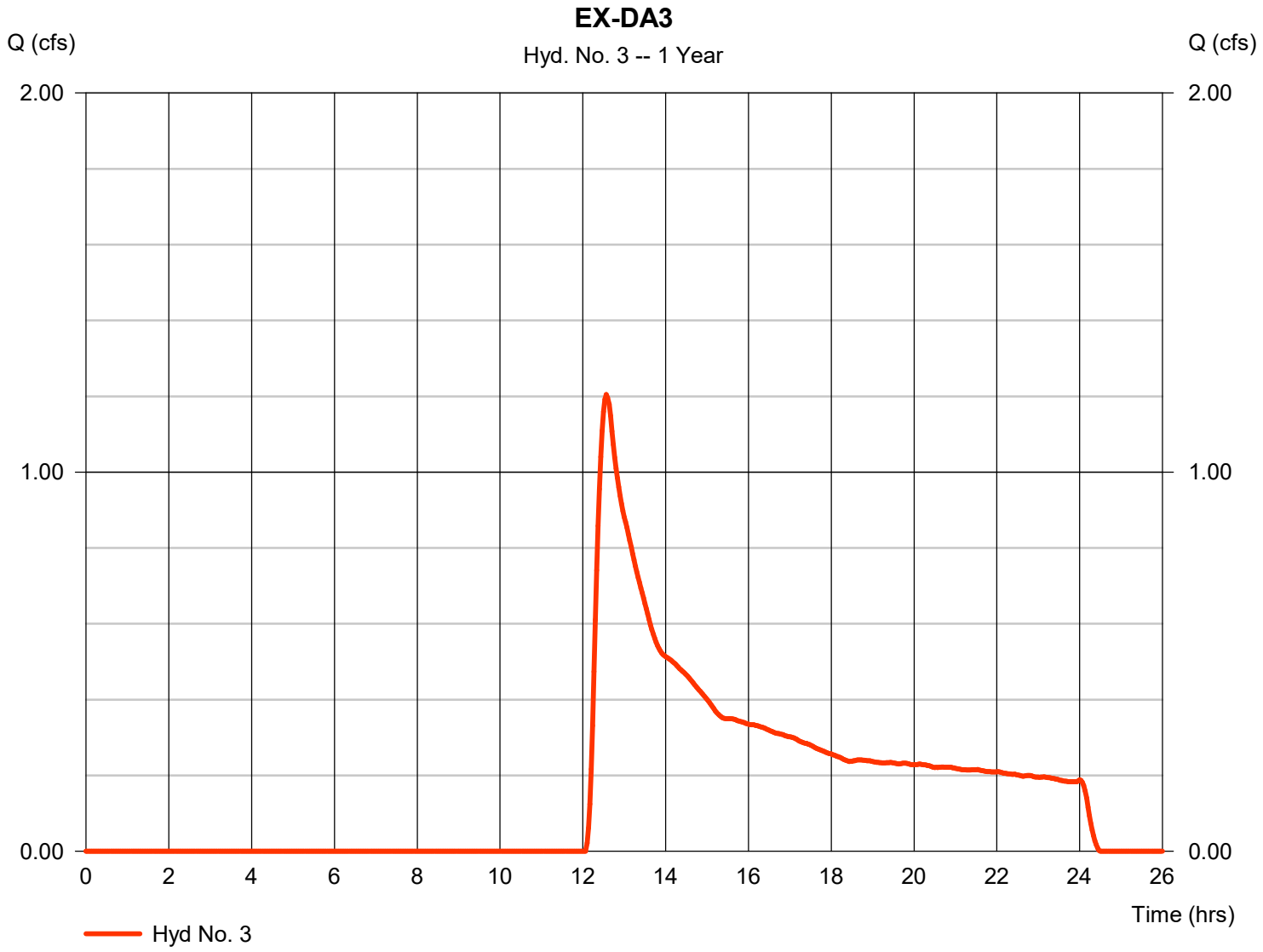
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.205 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.57 hrs
Time interval	=	2 min	Hyd. volume	=	15,109 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



TR55 Tc Worksheet

Hyd. No. 3

EX-DA3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.06		0.00		0.00		
Travel Time (min)	**= 11.81**	**+**	**0.00**	**+**	**0.00**	**=**	**11.81**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		1132.00		0.00		
Watercourse slope (%)	= 3.06		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.82		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**6.25**	**+**	**0.00**	**=**	**7.14**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

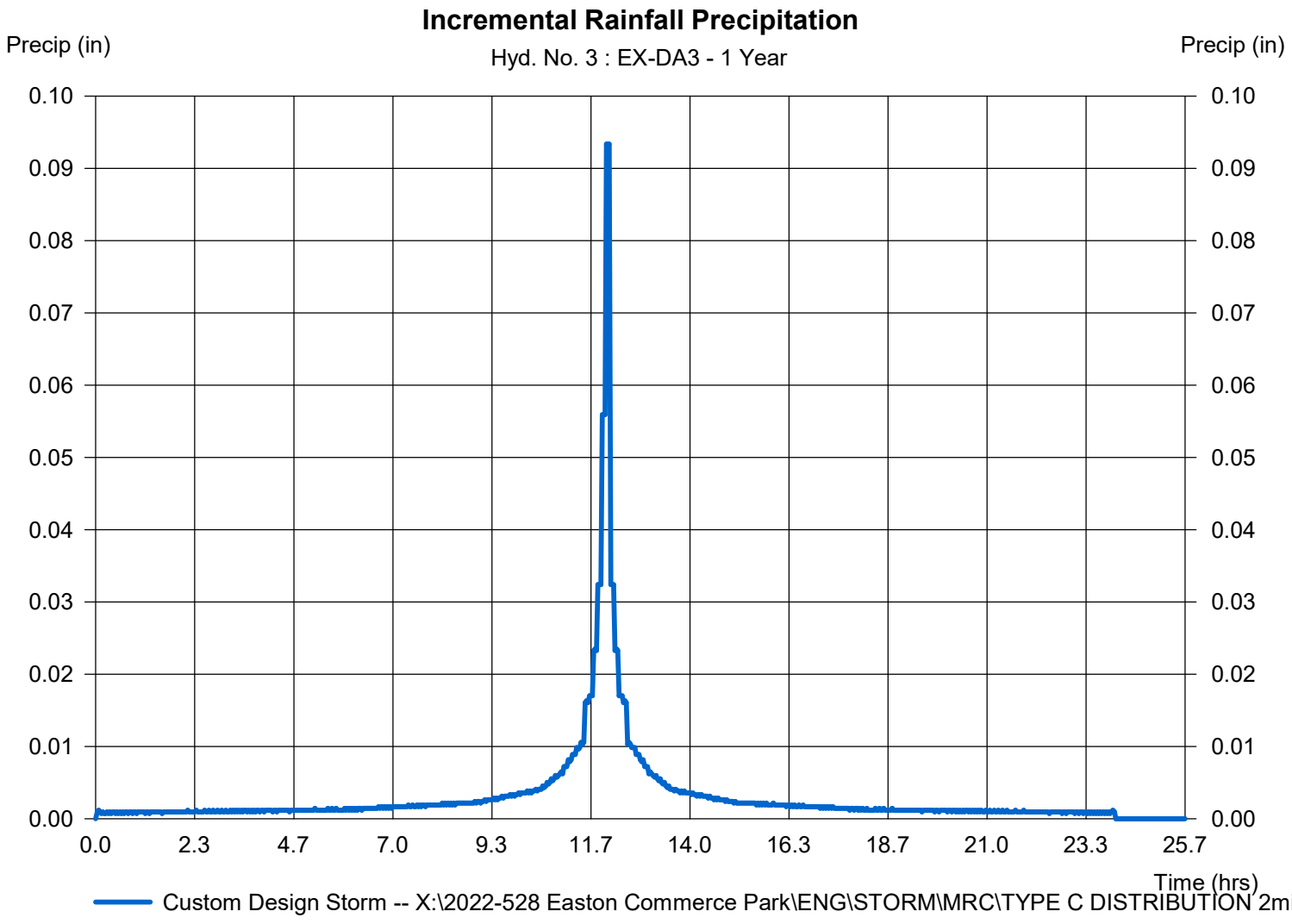
Total Travel Time, Tc ..... 18.90 min

Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



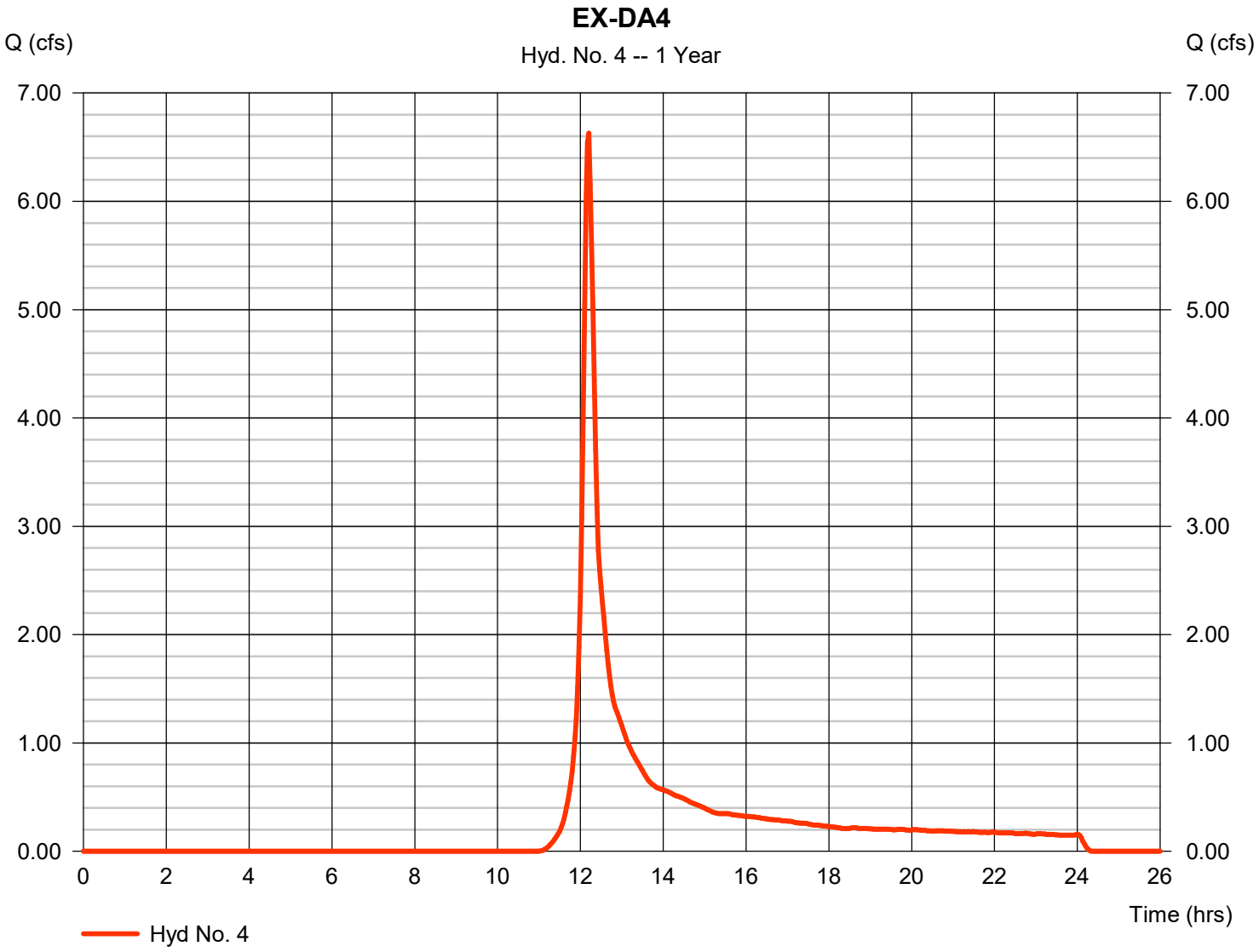
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.629 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	24,306 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



TR55 Tc Worksheet

Hyd. No. 4

EX-DA4

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.130		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 5.00		0.00		0.00		
Travel Time (min)	**= 8.65**	**+**	**0.00**	**+**	**0.00**	**=**	**8.65**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		539.00		0.00		
Watercourse slope (%)	= 5.00		6.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=3.61		4.11		0.00		
Travel Time (min)	**= 0.69**	**+**	**2.18**	**+**	**0.00**	**=**	**2.88**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

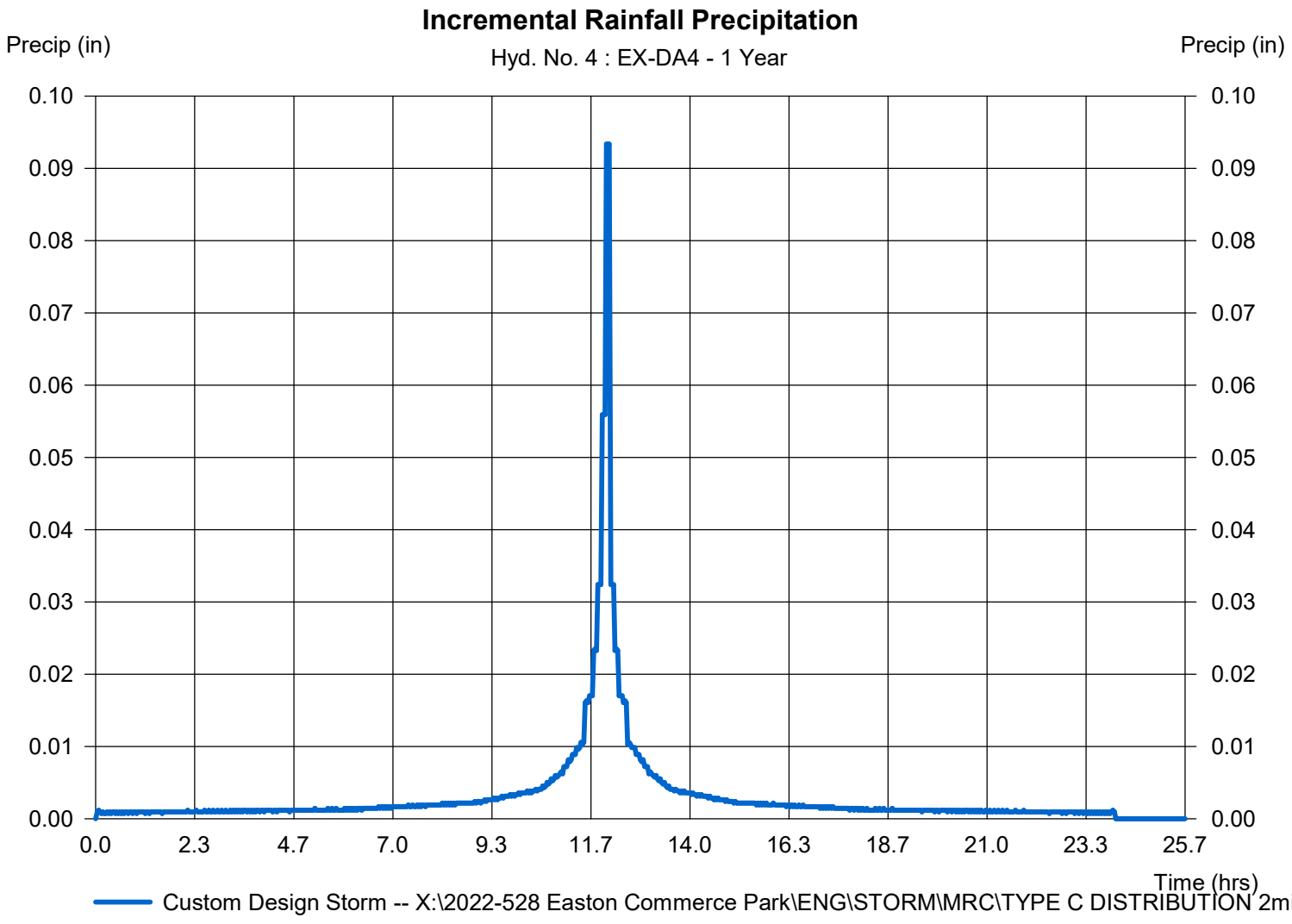
Total Travel Time, Tc ..... 11.50 min

Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



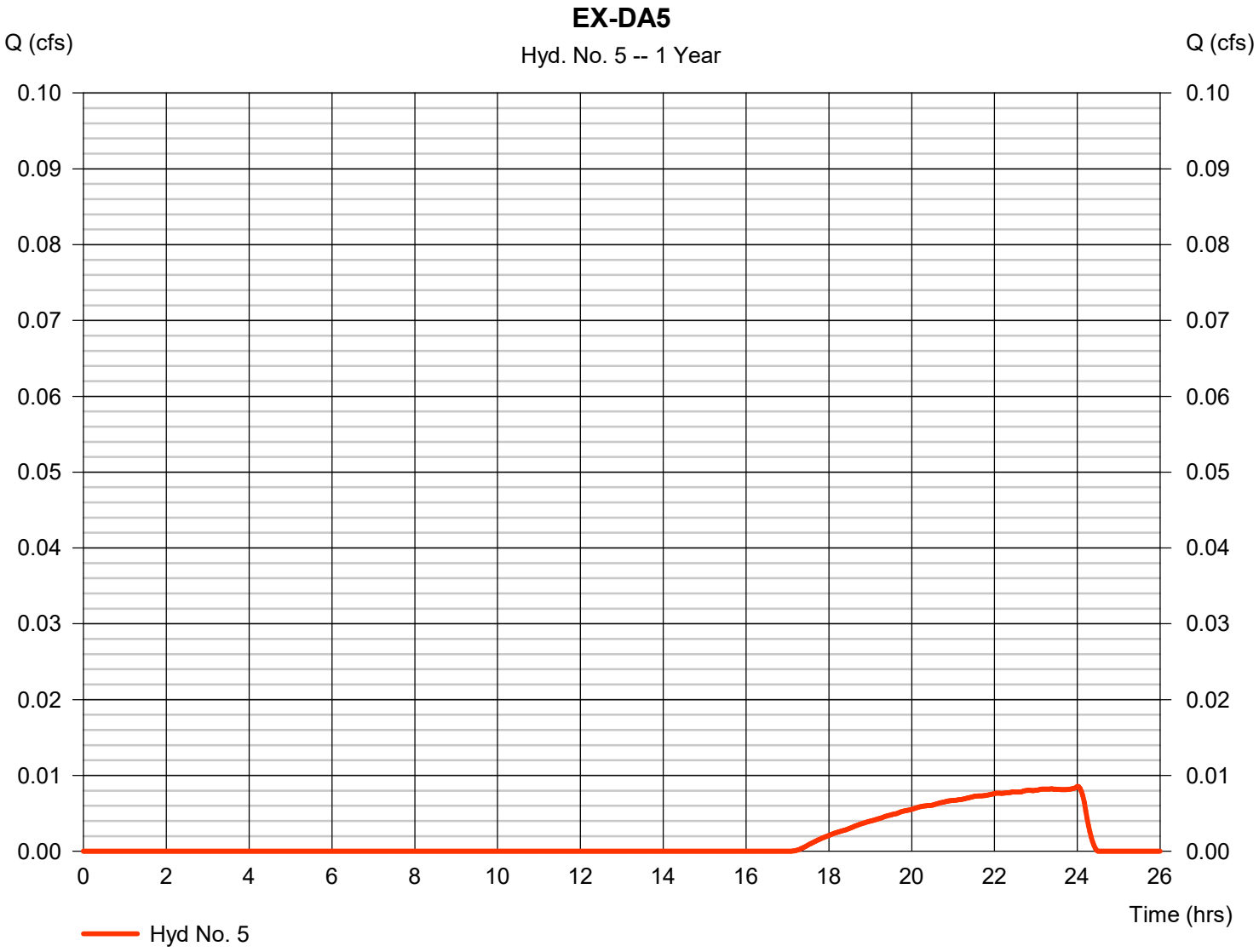
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.009 cfs
Storm frequency	=	1 yrs	Time to peak	=	24.00 hrs
Time interval	=	2 min	Hyd. volume	=	144 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



TR55 Tc Worksheet

Hyd. No. 5

EX-DA5

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 11.90**	**+**	**0.00**	**+**	**0.00**	**=**	**11.90**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		856.00		0.00		
Watercourse slope (%)	= 3.00		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**4.73**	**+**	**0.00**	**=**	**5.62**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

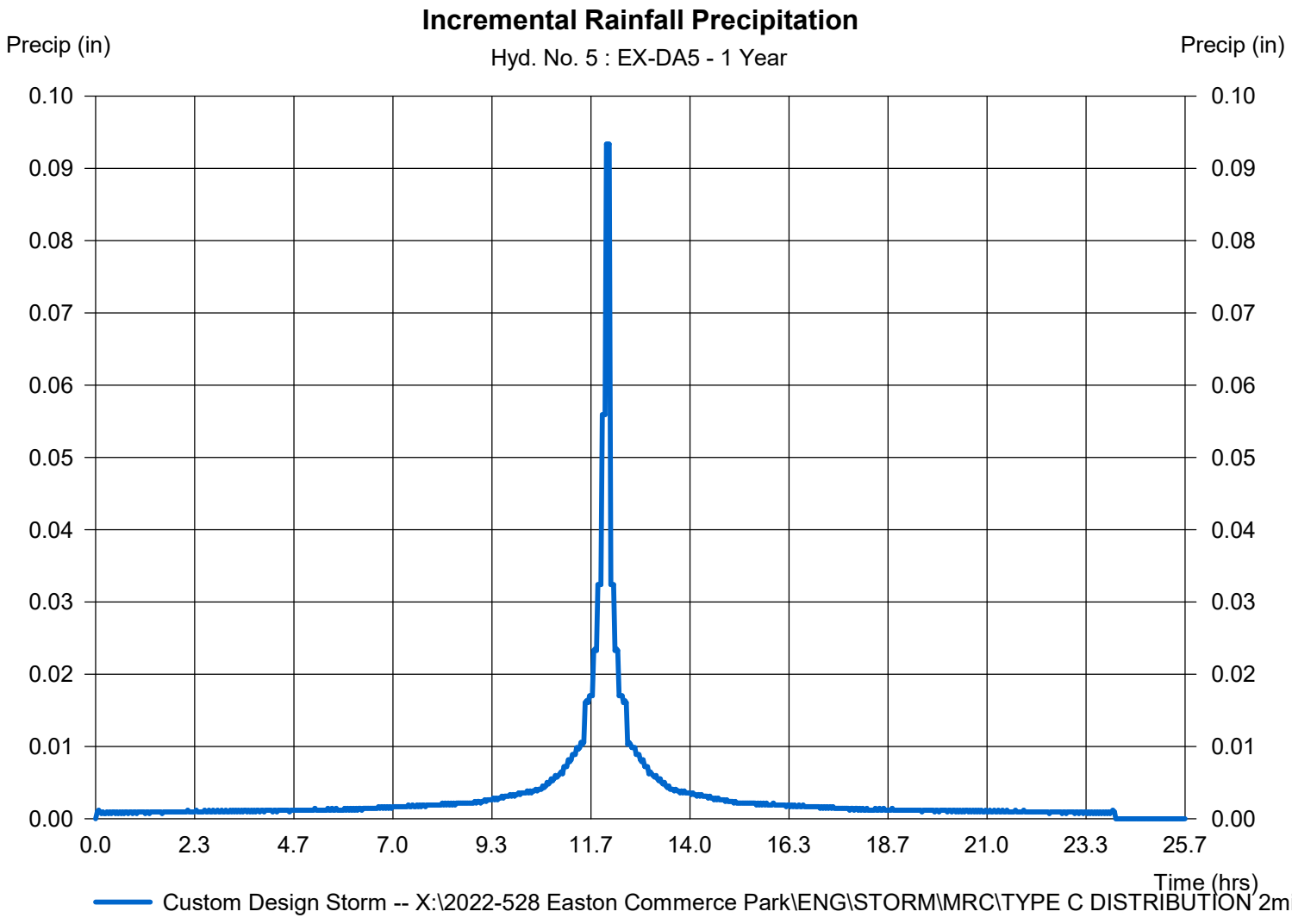
Total Travel Time, Tc ..... 17.50 min

Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



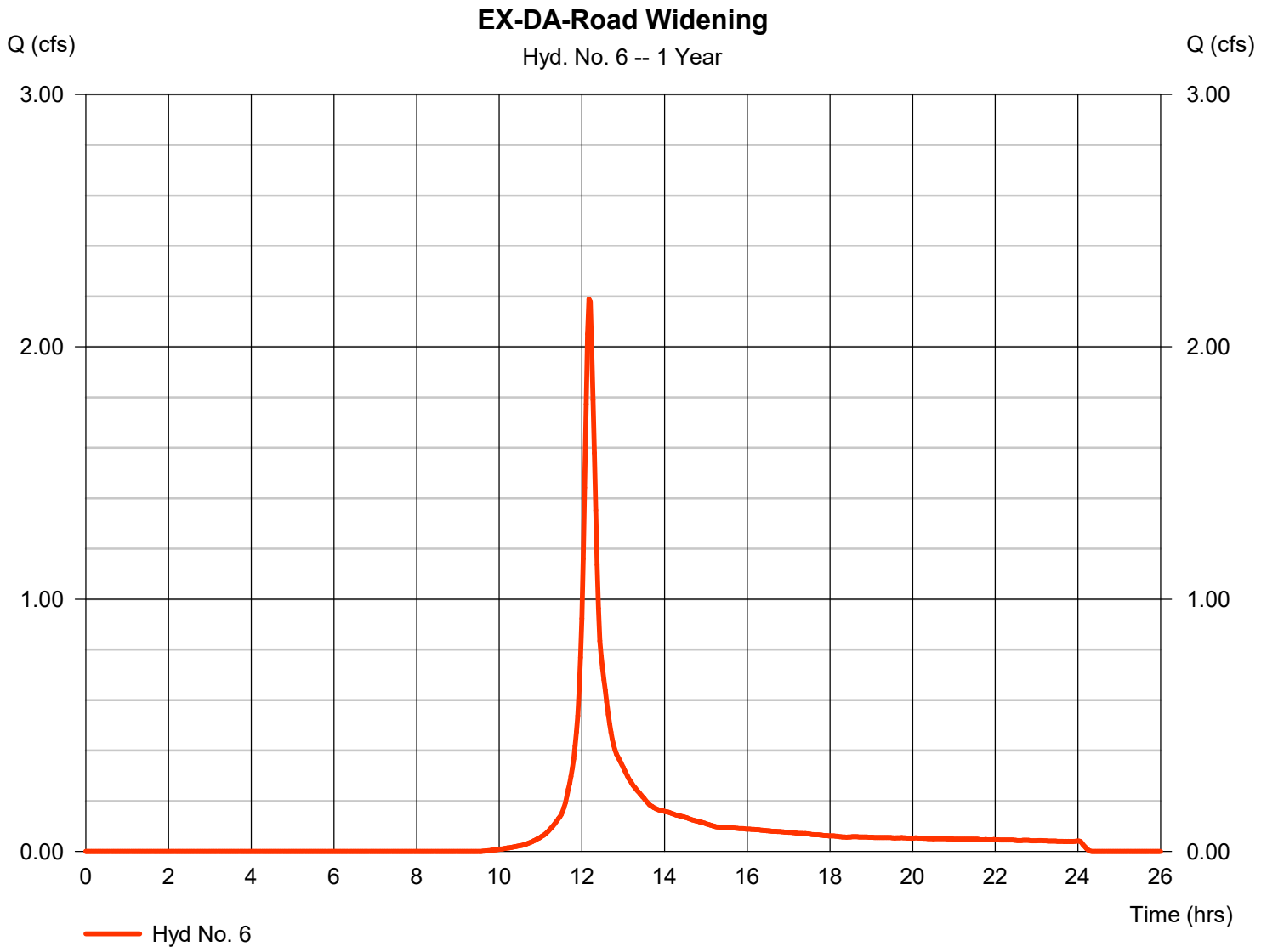
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.189 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	7,701 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980



TR55 Tc Worksheet

Hyd. No. 6

EX-DA-Road Widening

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 679.00		856.00		0.00		
Watercourse slope (%)	= 1.00		3.50		0.00		
Surface description	= Paved		Unpaved		Paved		
Average velocity (ft/s)	=2.03		3.02		0.00		
Travel Time (min)	**= 5.57**	**+**	**4.73**	**+**	**0.00**	**=**	**10.29**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

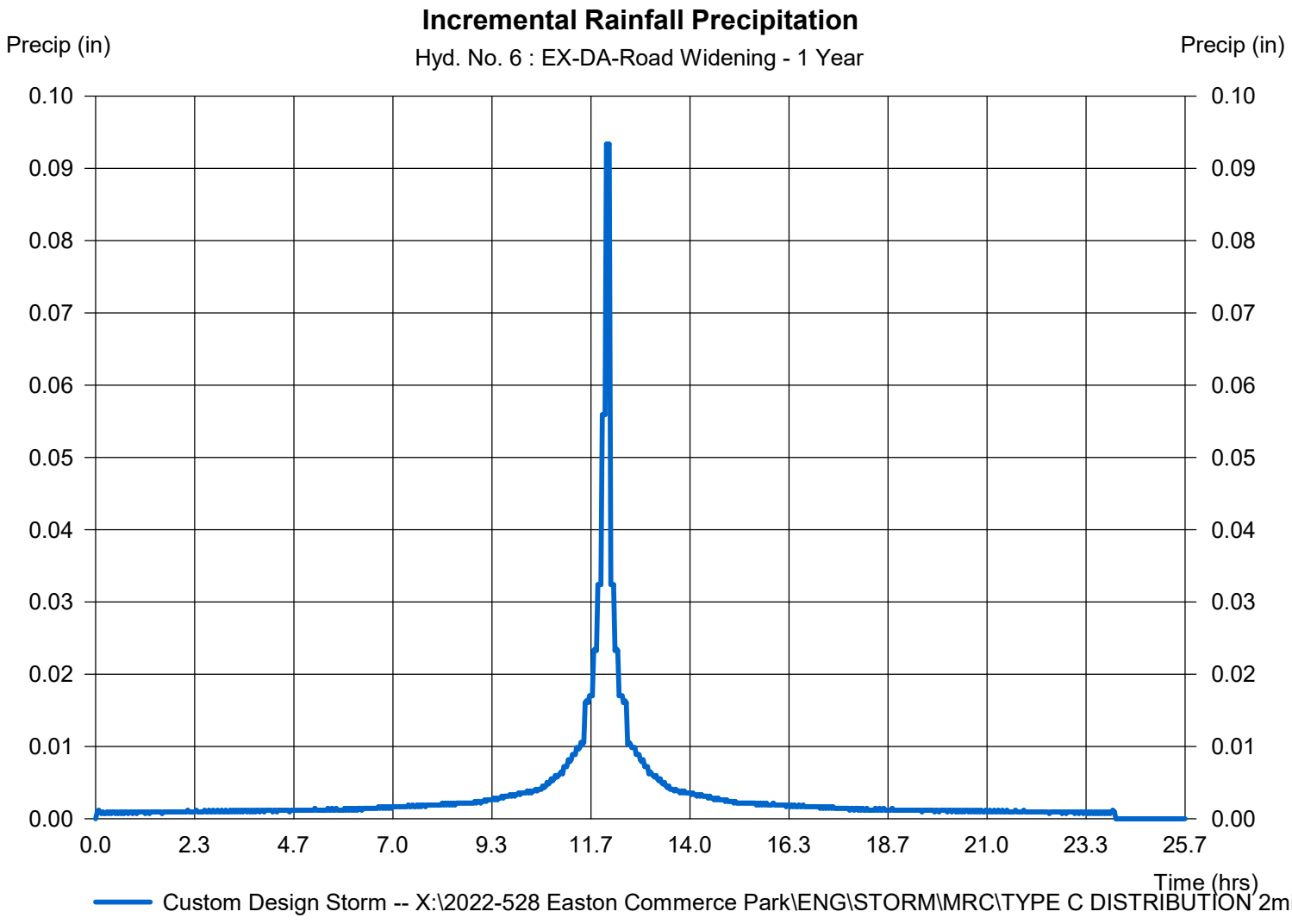
Total Travel Time, Tc ..... 12.60 min

Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

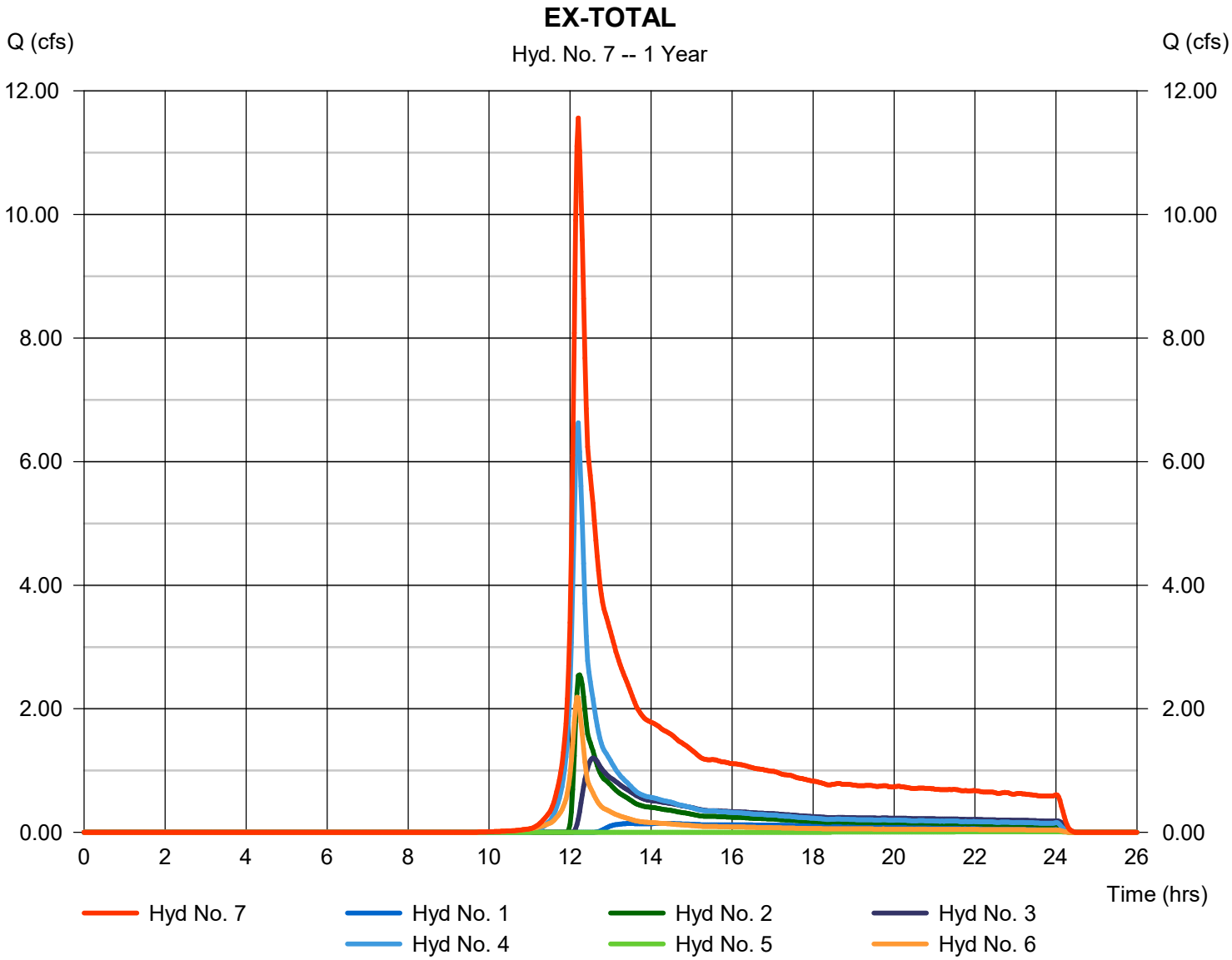


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	= Combine	Peak discharge	= 11.56 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 65,589 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 82.880 ac



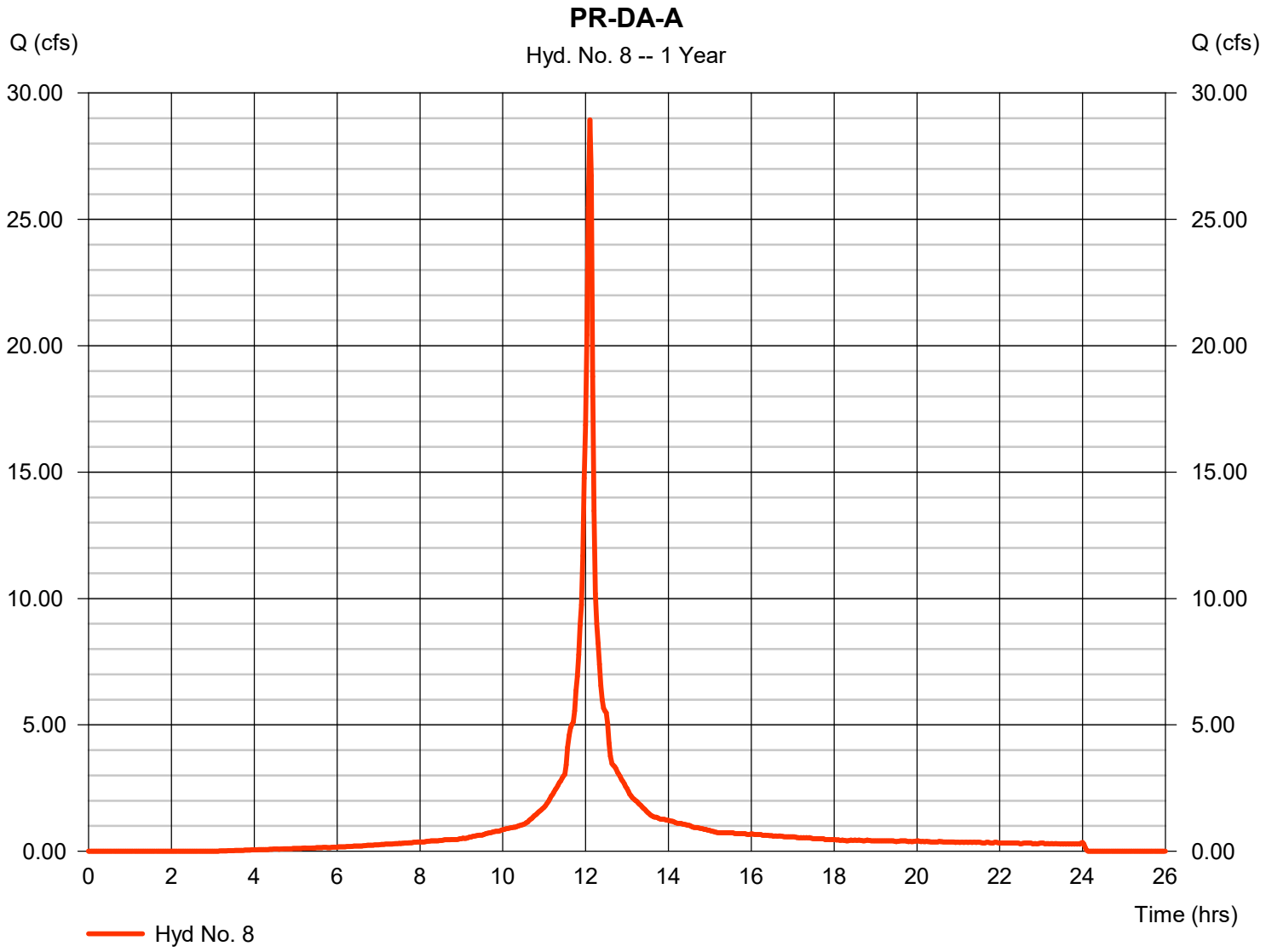
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.94 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	82,858 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR-454	Storm Type	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



TR55 Tc Worksheet

Hyd. No. 8

PR-DA-A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 160.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.31**	**+**	**0.00**	**+**	**0.00**	**=**	**1.31**
Channel Flow							
X sectional flow area (sqft)	= 0.79		1.77		12.56		
Wetted perimeter (ft)	= 3.14		4.71		12.56		
Channel slope (%)	= 4.00		0.50		10.00		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			5.46				
					47.12		
Flow length (ft)	({0})242.0		764.0		76.0		
Travel Time (min)	**= 0.34**	**+**	**2.33**	**+**	**0.03**	**=**	**2.70**

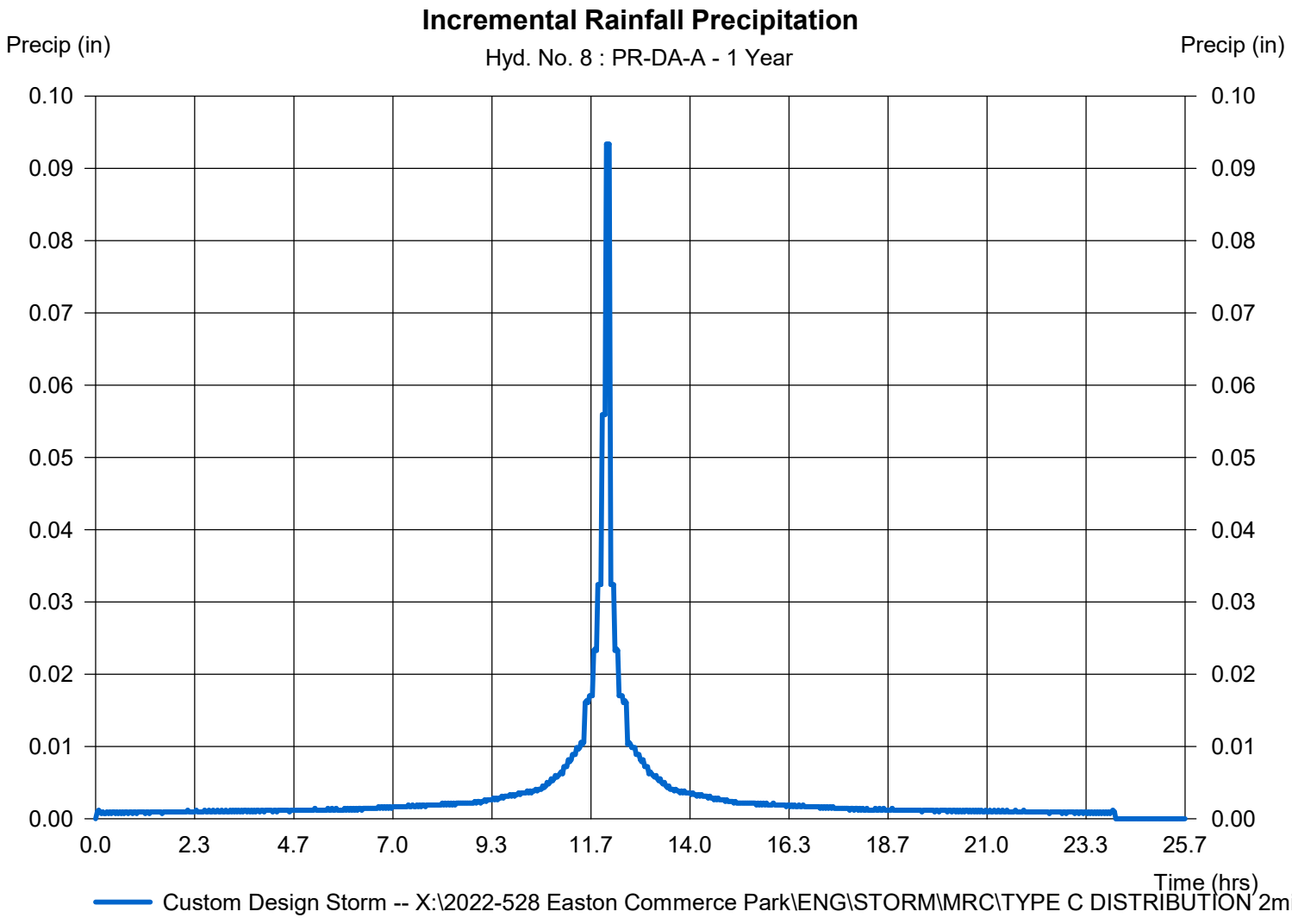
Total Travel Time, Tc ..... 6.30 min

Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



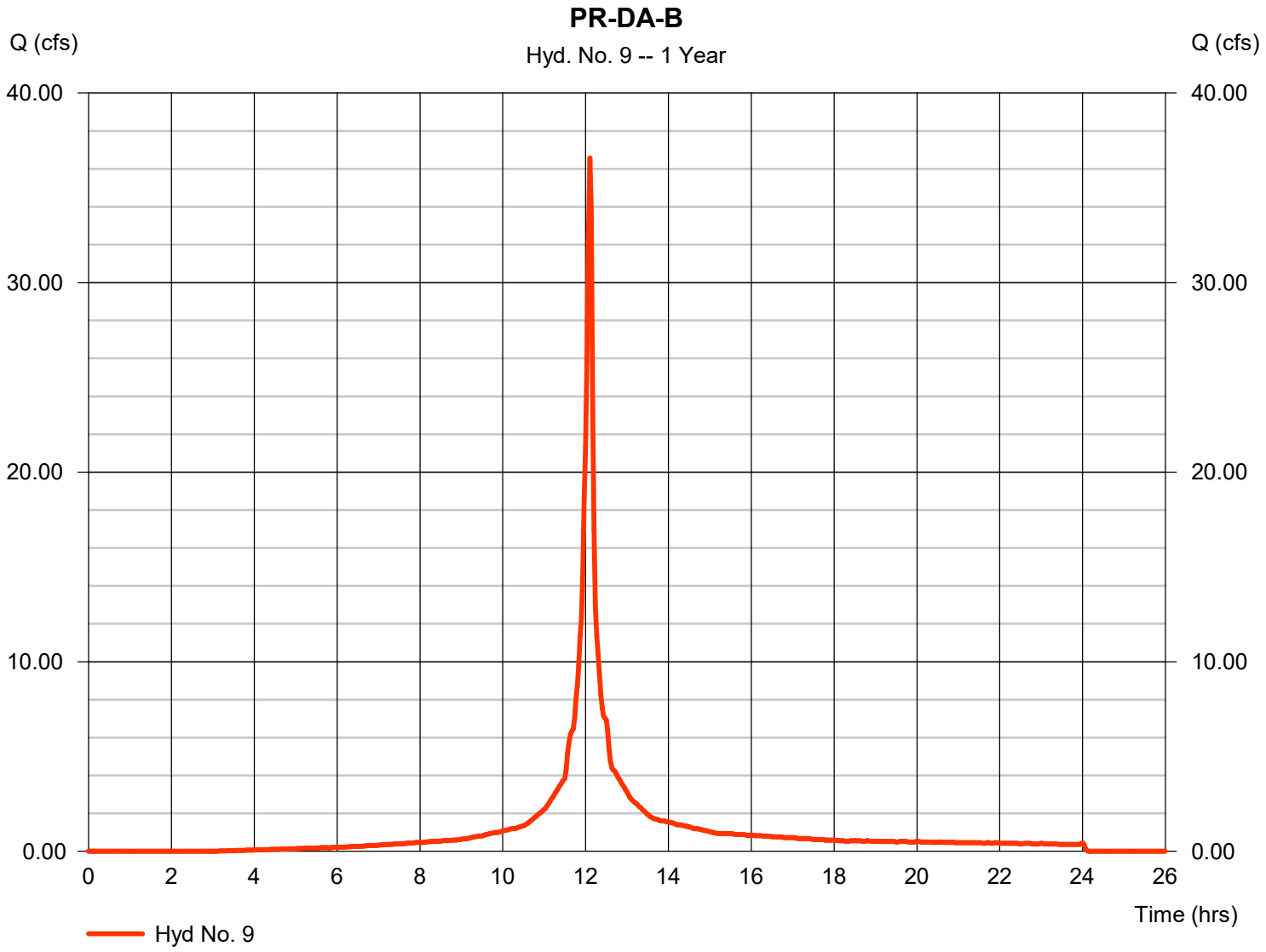
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	36.57 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	104,708 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

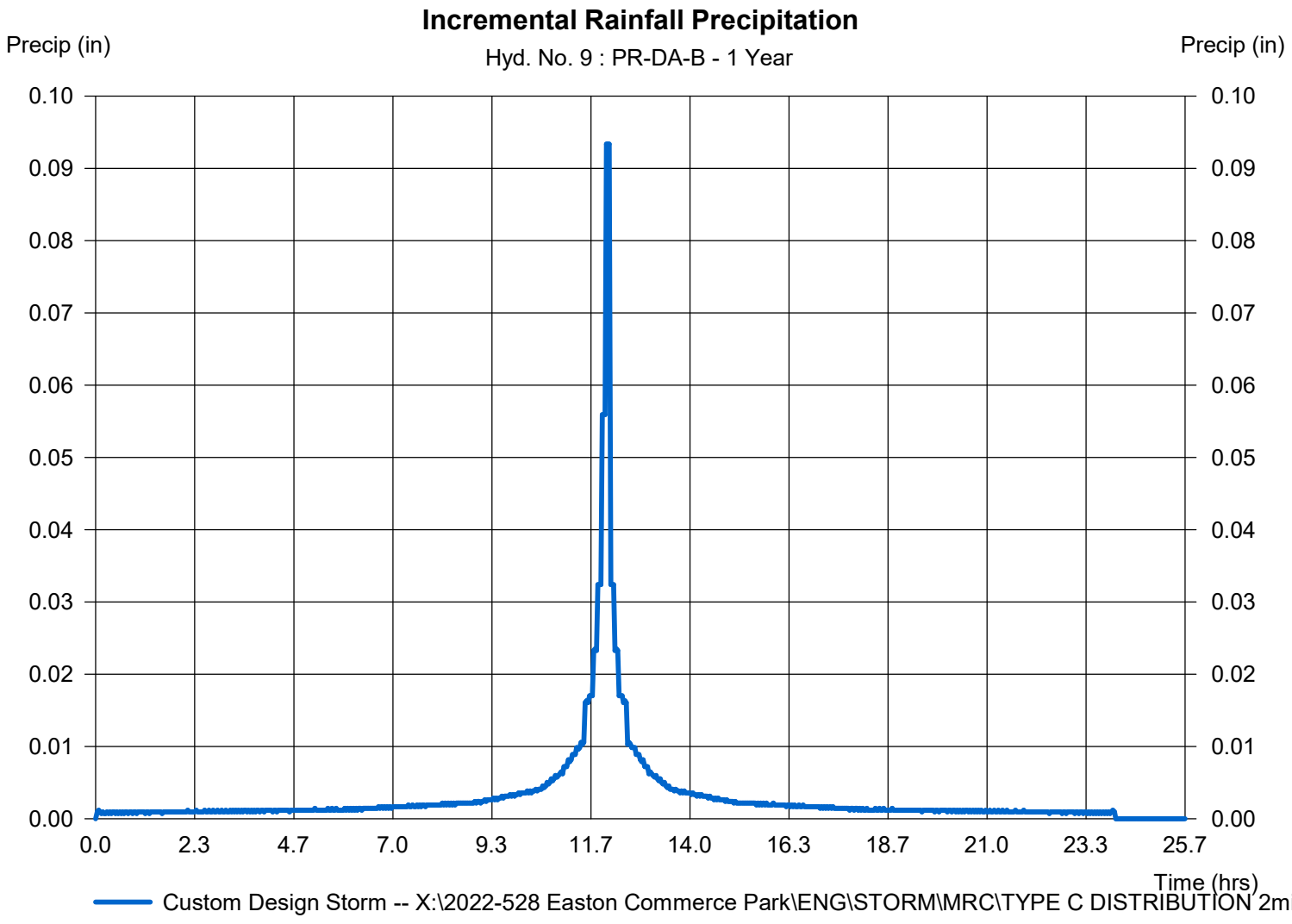


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



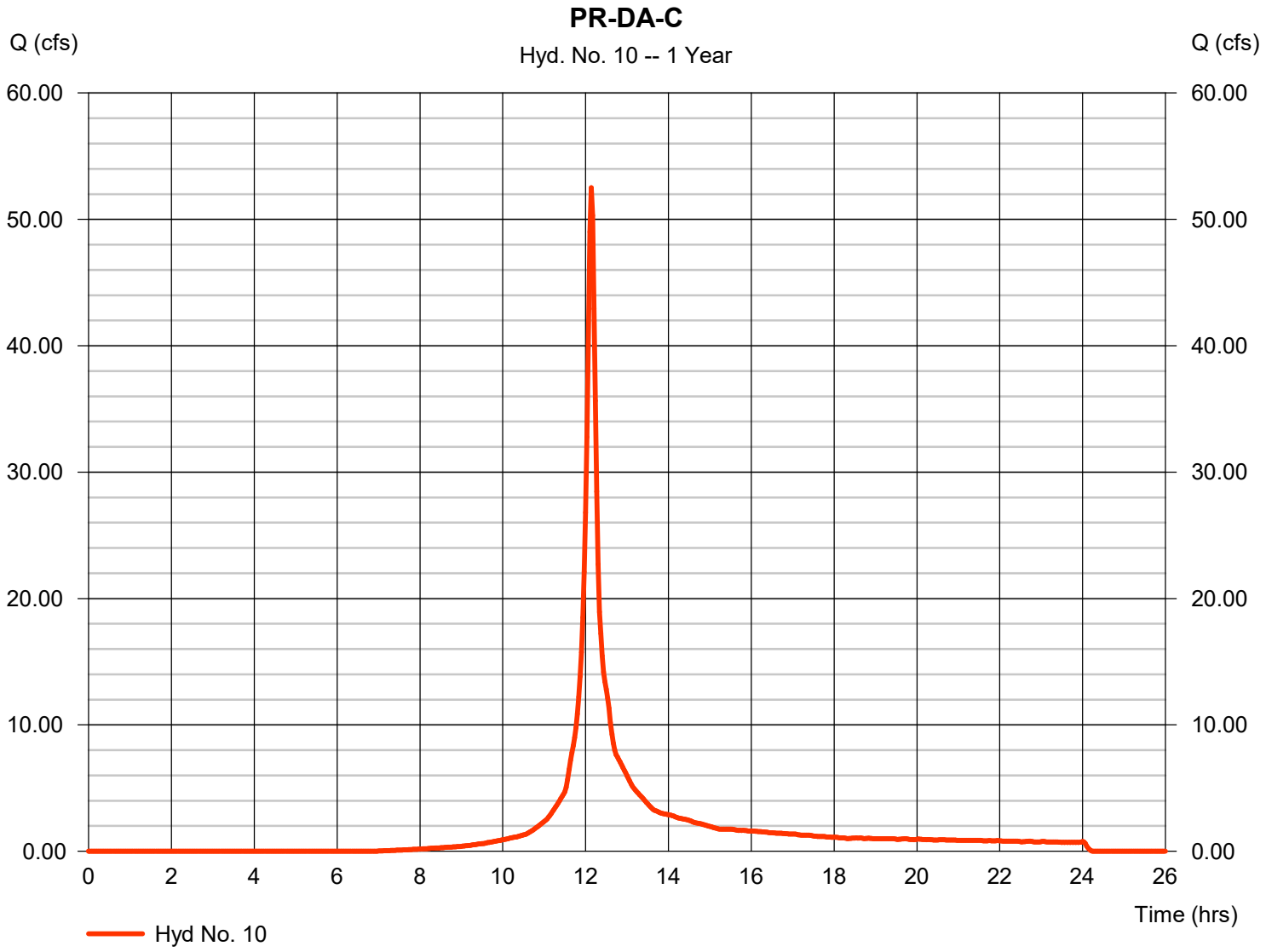
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	52.50 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	162,535 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION.tab		=	24

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



TR55 Tc Worksheet

Hyd. No. 10

PR-DA-C

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 224.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.84**	**+**	**0.00**	**+**	**0.00**	**=**	**1.84**
Channel Flow							
X sectional flow area (sqft)	= 0.79		7.07		12.56		
Wetted perimeter (ft)	= 3.14		9.42		12.56		
Channel slope (%)	= 4.00		0.50		0.50		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			8.69				
					10.54		
Flow length (ft)	({0})173.0		563.0		2588.0		
Travel Time (min)	**= 0.24**	**+**	**1.08**	**+**	**4.09**	**=**	**5.42**

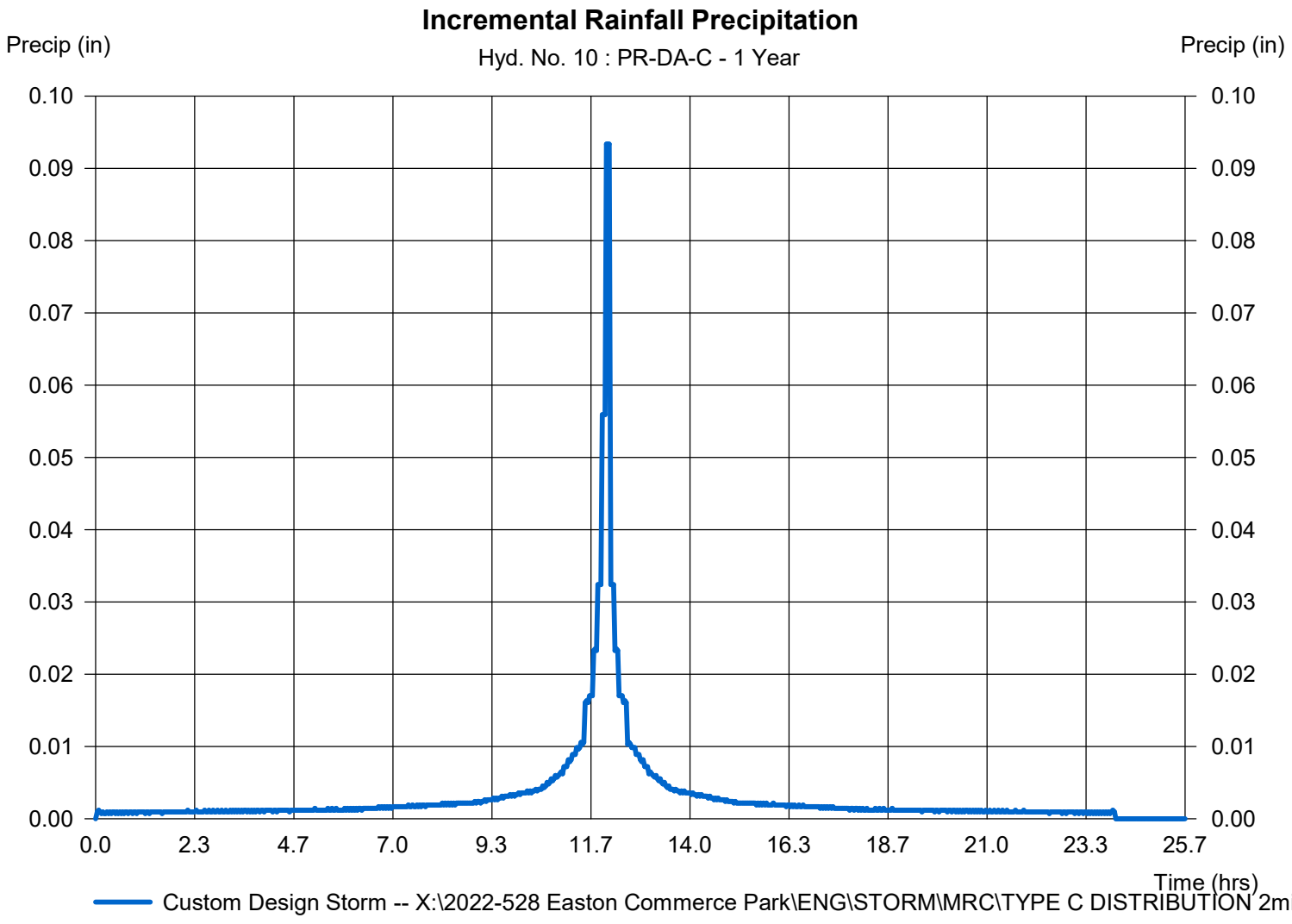
Total Travel Time, Tc ..... 9.50 min

Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



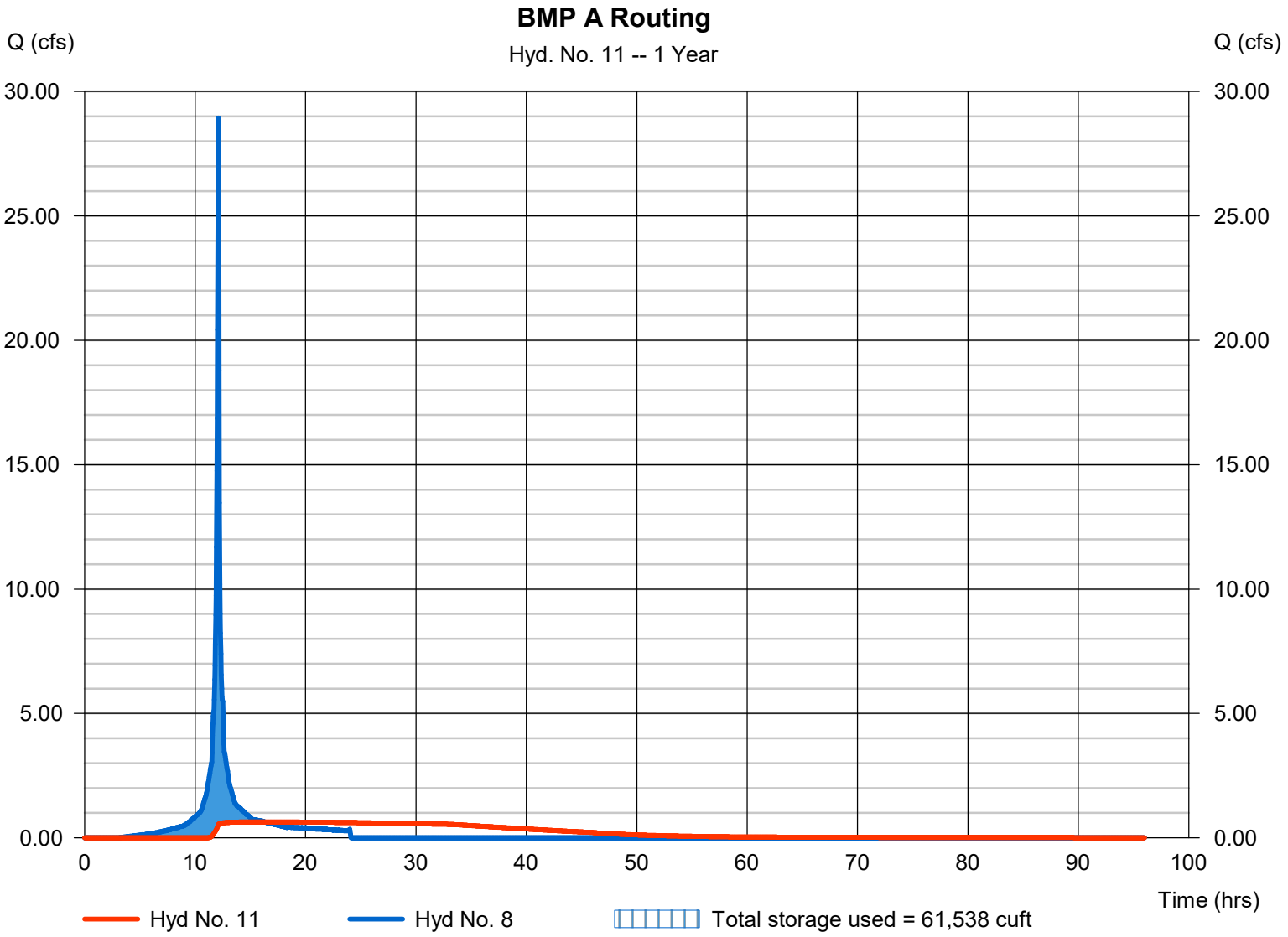
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.639 cfs
Storm frequency	=	1 yrs	Time to peak	=	16.27 hrs
Time interval	=	2 min	Hyd. volume	=	70,503 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.31 ft
Reservoir name	=	BMP A	Max. Storage	=	61,538 cuft

Storage Indication method used.



Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
1.00	289.00	35,950	11,982	11,982
2.00	290.00	13,750	23,975	35,957
2.01	290.01	79,915	423	36,380
4.00	292.00	88,068	167,061	203,441
6.00	294.00	96,468	184,454	387,895
8.00	296.00	105,115	201,501	589,396

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 242.00	0.00	0.00	0.00
Slope (%)	= 30.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	288.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	1,198	288.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	2,396	288.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	3,595	288.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	4,793	288.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	5,991	288.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	7,189	288.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	8,387	288.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	9,586	288.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	10,784	288.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	11,982	289.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	14,380	289.10	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.034
1.20	16,777	289.20	0.12 ic	0.12 ic	0.00	---	0.00	---	---	---	---	---	0.120
1.30	19,175	289.30	0.22 ic	0.22 ic	0.00	---	0.00	---	---	---	---	---	0.221
1.40	21,572	289.40	0.29 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.280
1.50	23,970	289.50	0.35 ic	0.33 ic	0.00	---	0.00	---	---	---	---	---	0.335
1.60	26,367	289.60	0.38 ic	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.383
1.70	28,765	289.70	0.44 ic	0.43 ic	0.00	---	0.00	---	---	---	---	---	0.427
1.80	31,162	289.80	0.48 ic	0.47 ic	0.00	---	0.00	---	---	---	---	---	0.468
1.90	33,560	289.90	0.52 ic	0.51 ic	0.00	---	0.00	---	---	---	---	---	0.506
2.00	35,957	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,000	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,042	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,084	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,127	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.01	36,169	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,211	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,253	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,296	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,338	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,380	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.545
2.21	53,086	290.21	0.64 ic	0.61 ic	0.00	---	0.00	---	---	---	---	---	0.608
2.41	69,792	290.41	0.69 ic	0.67 ic	0.00	---	0.00	---	---	---	---	---	0.669
2.61	86,498	290.61	0.73 ic	0.72 ic	0.00	---	0.00	---	---	---	---	---	0.724
2.81	103,204	290.81	0.78 ic	0.78 ic	0.00	---	0.00	---	---	---	---	---	0.776
3.01	119,911	291.01	0.84 ic	0.82 ic	0.00	---	0.00	---	---	---	---	---	0.824

Continues on next page...

BMP A

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	136,617	291.20	0.89 ic	0.87 ic	0.00	---	0.00	---	---	---	---	---	0.870
3.40	153,323	291.40	0.95 ic	0.91 ic	0.00	---	0.00	---	---	---	---	---	0.913
3.60	170,029	291.60	0.96 ic	0.96 ic	0.00	---	0.00	---	---	---	---	---	0.956
3.80	186,735	291.80	1.01 ic	1.00 ic	0.00	---	0.00	---	---	---	---	---	0.997
4.00	203,441	292.00	1.07 ic	1.03 ic	0.00	---	0.00	---	---	---	---	---	1.035
4.20	221,886	292.20	1.07 ic	1.07 ic	0.00	---	0.00	---	---	---	---	---	1.073
4.40	240,332	292.40	1.13 ic	1.11 ic	0.00	---	0.00	---	---	---	---	---	1.110
4.60	258,777	292.60	1.14 ic	1.14 ic	0.00	---	0.00	---	---	---	---	---	1.144
4.80	277,222	292.80	1.26 ic	1.18 ic	0.05 ic	---	0.00	---	---	---	---	---	1.225
5.00	295,668	293.00	1.56 ic	1.20 ic	0.31 ic	---	0.00	---	---	---	---	---	1.512
5.20	314,113	293.20	1.73 ic	1.23 ic	0.49 ic	---	0.00	---	---	---	---	---	1.717
5.40	332,559	293.40	1.90 ic	1.26 ic	0.61 ic	---	0.00	---	---	---	---	---	1.874
5.60	351,004	293.60	2.01 ic	1.29 ic	0.72 ic	---	0.00	---	---	---	---	---	2.009
5.80	369,449	293.80	2.18 ic	1.32 ic	0.81 ic	---	0.00	---	---	---	---	---	2.130
6.00	387,895	294.00	2.28 ic	1.35 ic	0.89 ic	---	0.00	---	---	---	---	---	2.241
6.20	408,045	294.20	5.91 ic	1.31 ic	0.97 ic	---	3.57	---	---	---	---	---	5.856
6.40	428,195	294.40	12.44 ic	1.24 ic	1.04 ic	---	10.11	---	---	---	---	---	12.39
6.60	448,345	294.60	20.74 ic	1.06 ic	1.11 ic	---	18.57	---	---	---	---	---	20.74
6.80	468,495	294.80	29.98 ic	0.60 ic	0.78 ic	---	28.59	---	---	---	---	---	29.98
7.00	488,645	295.00	32.43 ic	0.41 ic	0.53 ic	---	31.49 s	---	---	---	---	---	32.43
7.20	508,795	295.20	33.65 ic	0.32 ic	0.42 ic	---	32.90 s	---	---	---	---	---	33.65
7.40	528,945	295.40	34.59 ic	0.27 ic	0.35 ic	---	33.97 s	---	---	---	---	---	34.58
7.60	549,095	295.60	35.40 ic	0.23 ic	0.29 ic	---	34.88 s	---	---	---	---	---	35.40
7.80	569,246	295.80	36.14 ic	0.19 ic	0.25 ic	---	35.68 s	---	---	---	---	---	36.13
8.00	589,396	296.00	36.83 ic	0.17 ic	0.22 ic	---	36.43 s	---	---	---	---	---	36.83

...End

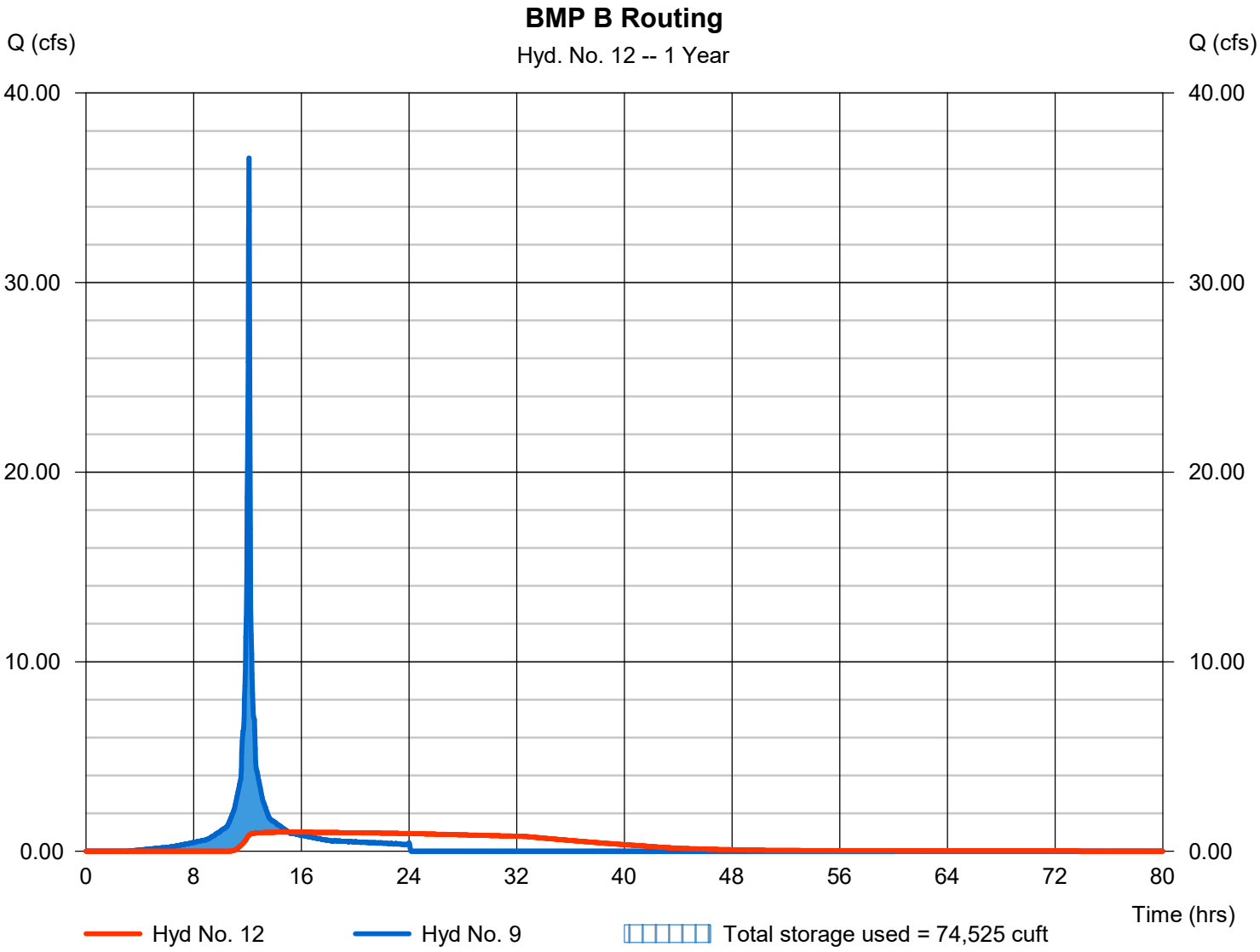
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.007 cfs
Storm frequency	=	1 yrs	Time to peak	=	15.03 hrs
Time interval	=	2 min	Hyd. volume	=	93,137 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.50 ft
Reservoir name	=	BMP B	Max. Storage	=	74,525 cuft

Storage Indication method used.



Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
1.00	285.00	34,350	11,449	11,449
2.00	286.00	13,150	22,915	34,364
2.01	286.01	76,441	404	34,769
4.00	288.00	87,488	162,969	197,738
6.00	290.00	95,788	183,195	380,933
8.00	292.00	104,371	200,078	581,011

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 238.00	0.00	0.00	0.00
Slope (%)	= 29.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	284.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,145	284.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	2,290	284.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	3,435	284.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	4,580	284.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	5,724	284.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	6,869	284.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	8,014	284.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	9,159	284.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	10,304	284.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	11,449	285.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	13,740	285.10	0.04 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.042
1.20	16,032	285.20	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.151
1.30	18,324	285.30	0.29 ic	0.29 ic	0.00	---	0.00	0.00	---	---	---	---	0.290
1.40	20,615	285.40	0.38 ic	0.38 ic	0.00	---	0.00	0.00	---	---	---	---	0.381
1.50	22,907	285.50	0.48 ic	0.46 ic	0.00	---	0.00	0.00	---	---	---	---	0.462
1.60	25,198	285.60	0.56 ic	0.53 ic	0.00	---	0.00	0.00	---	---	---	---	0.535
1.70	27,490	285.70	0.60 ic	0.60 ic	0.00	---	0.00	0.00	---	---	---	---	0.602
1.80	29,781	285.80	0.69 ic	0.66 ic	0.00	---	0.00	0.00	---	---	---	---	0.664
1.90	32,073	285.90	0.73 ic	0.72 ic	0.00	---	0.00	0.00	---	---	---	---	0.723
2.00	34,364	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,405	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,445	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,486	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,526	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.780
2.01	34,566	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,607	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,647	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,688	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,728	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.01	34,769	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.21	51,066	286.21	0.89 ic	0.88 ic	0.00	---	0.00	0.00	---	---	---	---	0.881
2.41	67,363	286.41	1.01 ic	0.97 ic	0.00	---	0.00	0.00	---	---	---	---	0.969
2.61	83,659	286.61	1.07 ic	1.05 ic	0.00	---	0.00	0.00	---	---	---	---	1.055
2.81	99,956	286.81	1.13 ic	1.13 ic	0.00	---	0.00	0.00	---	---	---	---	1.133
3.01	116,253	287.01	1.21 ic	1.21 ic	0.00	---	0.00	0.00	---	---	---	---	1.205

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BMP B

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	132,550	287.20	1.27 ic	1.27 ic	0.00	---	0.00	0.00	---	---	---	---	1.275
3.40	148,847	287.40	1.34 ic	1.34 ic	0.00	---	0.00	0.00	---	---	---	---	1.342
3.60	165,144	287.60	1.41 ic	1.41 ic	0.00	---	0.00	0.00	---	---	---	---	1.407
3.80	181,441	287.80	1.48 ic	1.47 ic	0.00	---	0.00	0.00	---	---	---	---	1.467
4.00	197,738	288.00	1.56 ic	1.52 ic	0.00	---	0.00	0.00	---	---	---	---	1.524
4.20	216,058	288.20	1.58 ic	1.58 ic	0.00	---	0.00	0.00	---	---	---	---	1.581
4.40	234,377	288.40	1.64 ic	1.64 ic	0.00	---	0.00	0.00	---	---	---	---	1.638
4.60	252,697	288.60	1.74 ic	1.69 ic	0.05 ic	---	0.00	0.00	---	---	---	---	1.736
4.80	271,016	288.80	2.08 ic	1.73 ic	0.31 ic	---	0.00	0.00	---	---	---	---	2.039
5.00	289,336	289.00	2.28 ic	1.77 ic	0.49 ic	---	0.00	0.00	---	---	---	---	2.260
5.20	307,655	289.20	2.48 ic	1.82 ic	0.61 ic	---	0.00	0.00	---	---	---	---	2.433
5.40	325,975	289.40	2.59 ic	1.87 ic	0.72 ic	---	0.00	0.00	---	---	---	---	2.586
5.60	344,294	289.60	2.72 ic	1.91 ic	0.81 ic	---	0.00	0.00	---	---	---	---	2.720
5.80	362,614	289.80	2.92 ic	1.95 ic	0.89 ic	---	0.00	0.00	---	---	---	---	2.847
6.00	380,933	290.00	3.03 ic	2.00 ic	0.97 ic	---	0.00	0.00	---	---	---	---	2.966
6.20	400,941	290.20	6.56 ic	1.95 ic	1.04 ic	---	3.57	0.00	---	---	---	---	6.564
6.40	420,949	290.40	13.09 ic	1.85 ic	1.11 ic	---	10.11	0.00	---	---	---	---	13.06
6.60	440,956	290.60	21.30 ic	1.56 ic	1.17 ic	---	18.57	26.57	---	---	---	---	47.87
6.80	460,964	290.80	30.22 ic	0.87 ic	0.76 ic	---	28.59	138.02	---	---	---	---	168.23
7.00	480,972	291.00	32.45 ic	0.61 ic	0.53 ic	---	31.31 s	297.07	---	---	---	---	329.52
7.20	500,980	291.20	33.66 ic	0.48 ic	0.42 ic	---	32.76 s	492.07	---	---	---	---	525.72
7.40	520,987	291.40	34.59 ic	0.40 ic	0.35 ic	---	33.85 s	717.31	---	---	---	---	751.90
7.60	540,995	291.60	35.40 ic	0.34 ic	0.29 ic	---	34.77 s	969.23	---	---	---	---	1004.63
7.80	561,003	291.80	36.14 ic	0.29 ic	0.25 ic	---	35.59 s	1245.23	---	---	---	---	1281.36
8.00	581,011	292.00	36.83 ic	0.26 ic	0.22 ic	---	36.35 s	1543.18	---	---	---	---	1580.01

...End

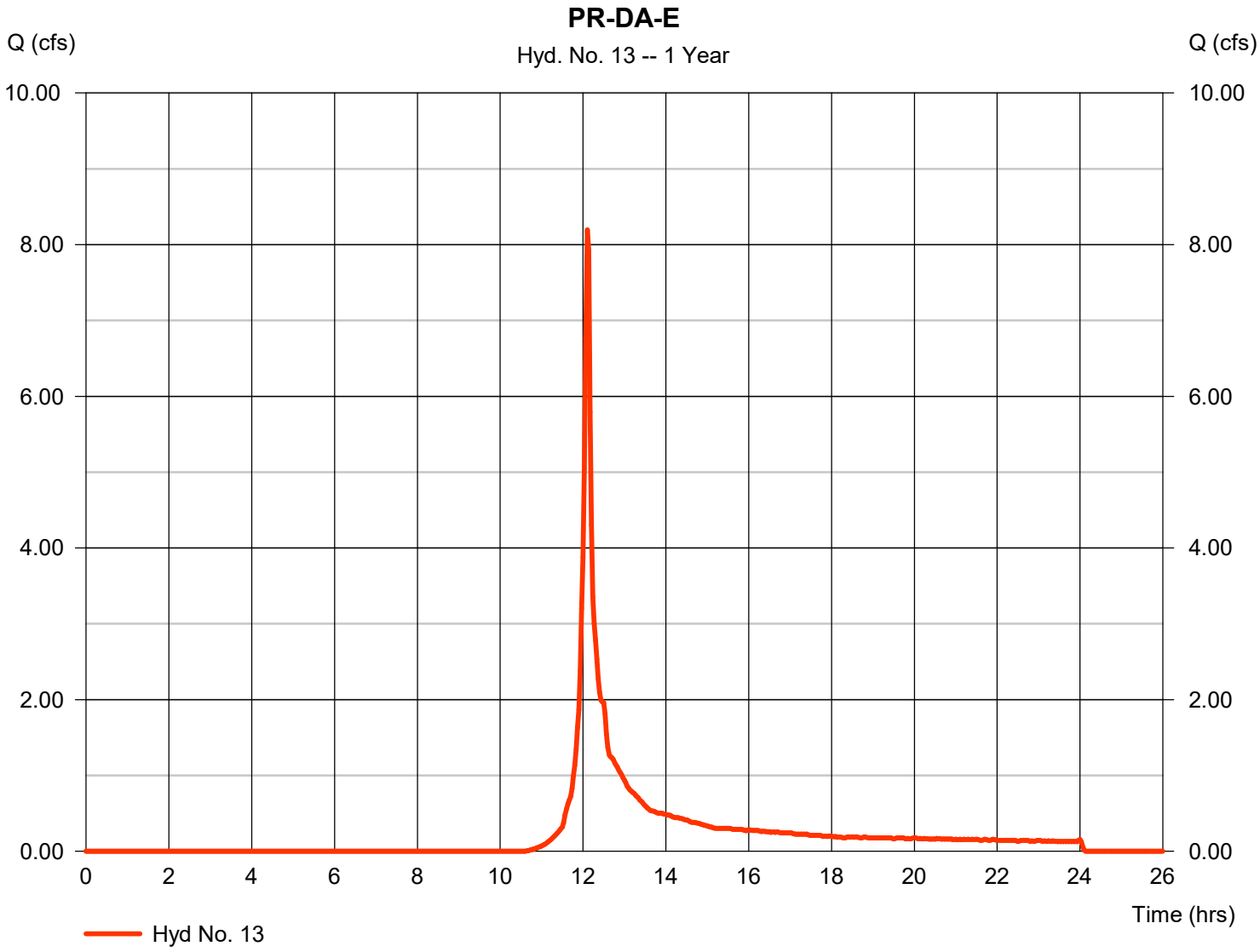
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.196 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	22,169 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\[illegible]		=	24-TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

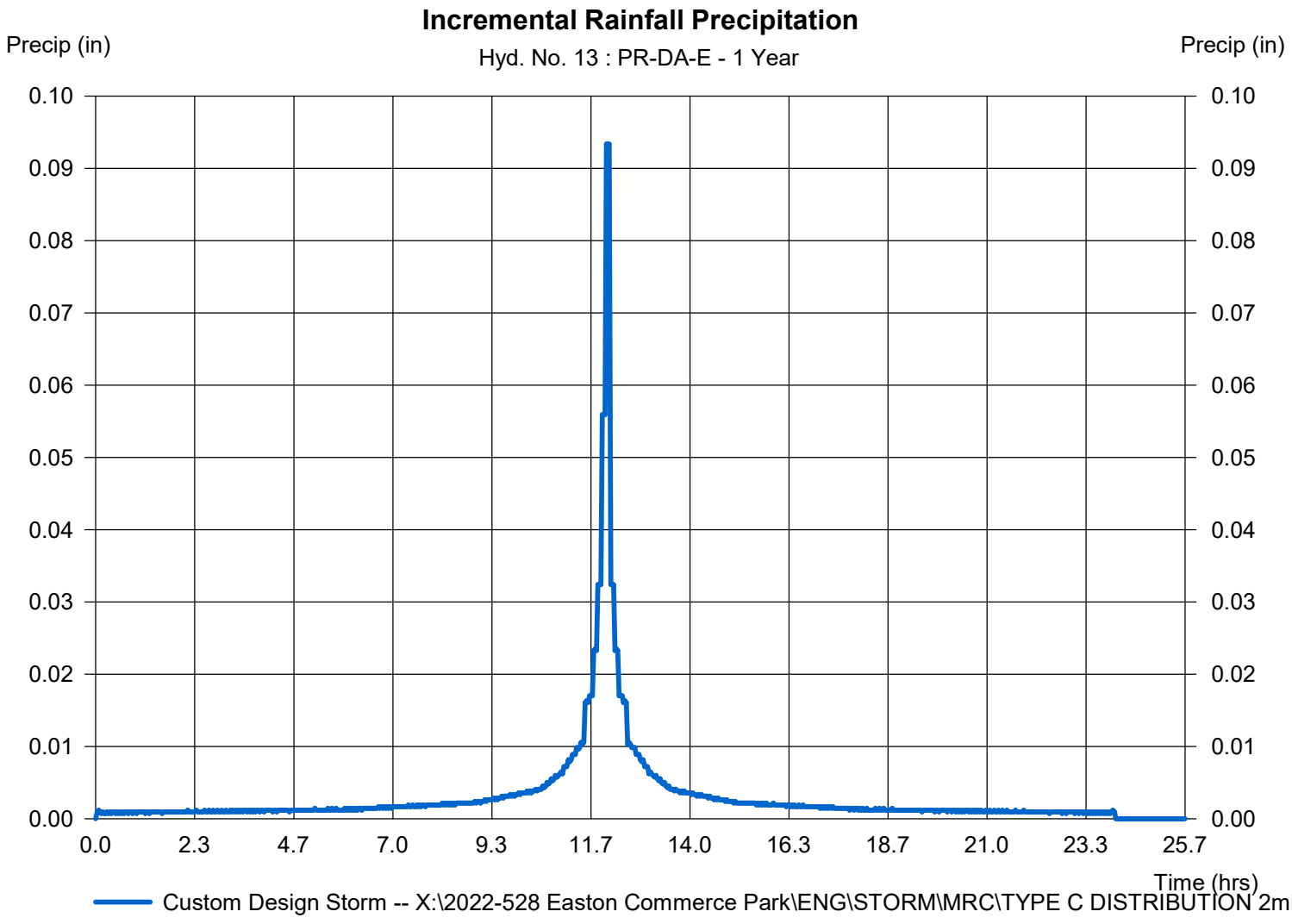


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



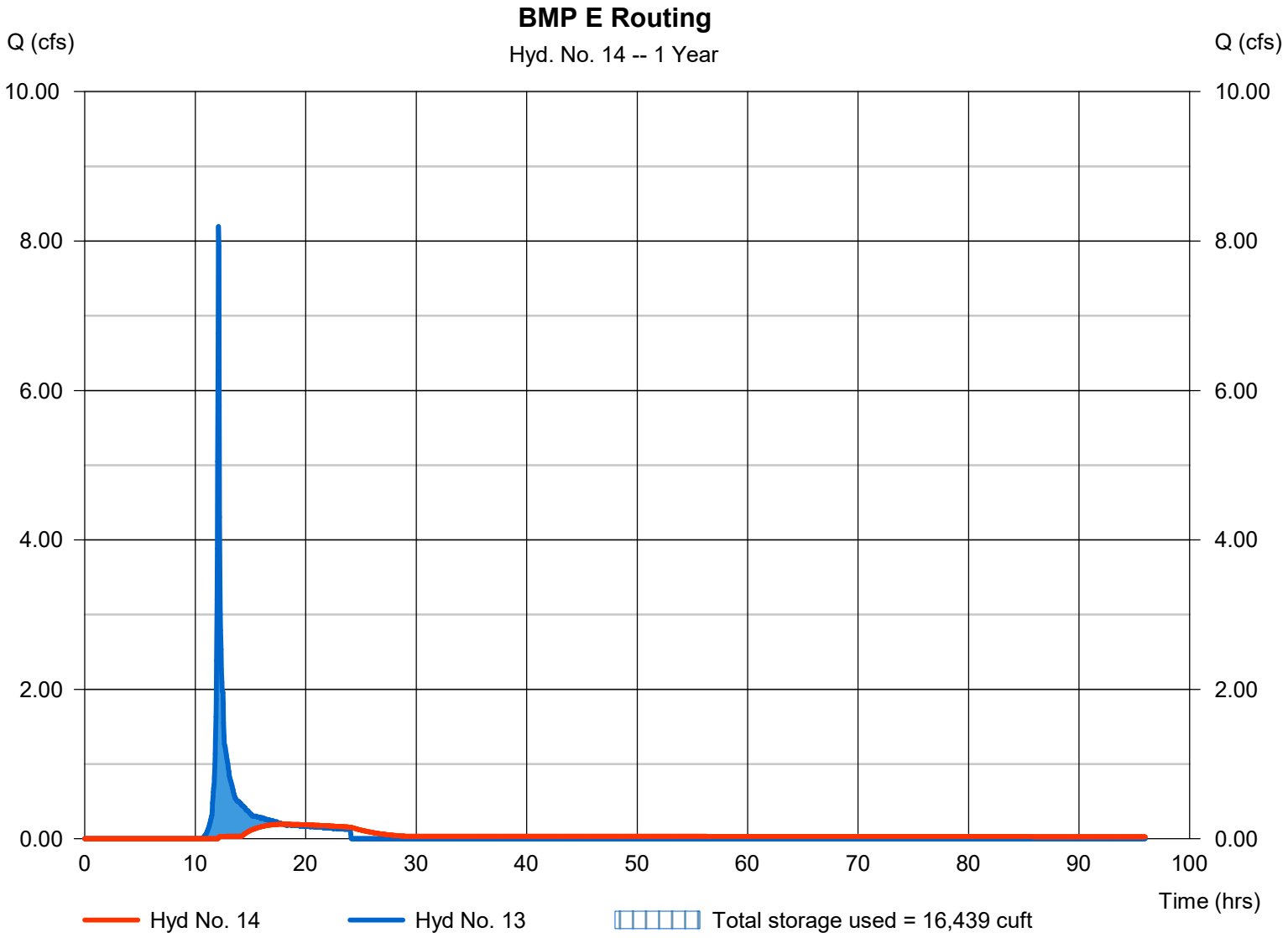
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.194 cfs
Storm frequency	=	1 yrs	Time to peak	=	18.03 hrs
Time interval	=	2 min	Hyd. volume	=	14,930 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	256.99 ft
Reservoir name	=	BMP E	Max. Storage	=	16,439 cuft

Storage Indication method used.



Pond No. 4 - BMP E

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 252.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	252.00	00	0	0
1.00	253.00	3,940	1,313	1,313
2.00	254.00	00	1,315	2,629
3.00	255.00	3,940	1,315	3,944
4.00	256.00	1,510	2,629	6,573
4.01	256.01	8,762	46	6,620
6.00	258.00	11,385	19,987	26,607
8.00	260.00	14,240	25,569	52,176
10.00	262.00	17,331	31,517	83,694

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.00	4.00	0.00
Span (in)	= 24.00	1.00	4.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 255.00	255.00	256.80	0.00
Length (ft)	= 3.18	0.00	0.00	0.00
Slope (%)	= 5.42	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 259.50	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	252.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	131	252.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	263	252.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	394	252.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	525	252.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	657	252.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	788	252.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	919	252.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	1,051	252.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	1,182	252.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	1,313	253.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	1,445	253.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.20	1,576	253.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.30	1,708	253.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.40	1,839	253.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.50	1,971	253.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.60	2,102	253.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.70	2,234	253.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.80	2,365	253.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.90	2,497	253.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.00	2,629	254.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.10	2,760	254.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.20	2,892	254.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.30	3,023	254.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.40	3,155	254.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.50	3,286	254.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.60	3,418	254.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.70	3,549	254.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.80	3,681	254.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.90	3,812	254.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.00	3,944	255.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.10	4,207	255.10	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.006
3.20	4,470	255.20	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.010
3.30	4,733	255.30	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.013

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BMP E

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.40	4,996	255.40	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.016
3.50	5,259	255.50	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.018
3.60	5,521	255.60	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.019
3.70	5,784	255.70	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.021
3.80	6,047	255.80	0.03 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.023
3.90	6,310	255.90	0.03 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.024
4.00	6,573	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,578	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,583	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,587	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.00	6,592	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,596	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,601	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,606	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,610	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,615	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,620	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.21	8,618	256.21	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.028
4.41	10,617	256.41	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.030
4.61	12,616	256.61	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.033
4.81	14,615	256.81	0.04 ic	0.03 ic	0.00 ic	---	0.00	---	---	---	---	---	0.035
5.01	16,613	257.01	0.22 ic	0.04 ic	0.17 ic	---	0.00	---	---	---	---	---	0.210
5.20	18,612	257.20	0.45 ic	0.04 ic	0.41 ic	---	0.00	---	---	---	---	---	0.446
5.40	20,611	257.40	0.60 ic	0.04 ic	0.56 ic	---	0.00	---	---	---	---	---	0.593
5.60	22,610	257.60	0.73 ic	0.04 ic	0.67 ic	---	0.00	---	---	---	---	---	0.709
5.80	24,608	257.80	0.84 ic	0.04 ic	0.77 ic	---	0.00	---	---	---	---	---	0.809
6.00	26,607	258.00	0.90 ic	0.04 ic	0.85 ic	---	0.00	---	---	---	---	---	0.897
6.20	29,164	258.20	1.00 ic	0.04 ic	0.93 ic	---	0.00	---	---	---	---	---	0.977
6.40	31,721	258.40	1.07 ic	0.05 ic	1.01 ic	---	0.00	---	---	---	---	---	1.051
6.60	34,278	258.60	1.13 ic	0.05 ic	1.07 ic	---	0.00	---	---	---	---	---	1.121
6.80	36,835	258.80	1.20 ic	0.05 ic	1.14 ic	---	0.00	---	---	---	---	---	1.186
7.00	39,392	259.00	1.26 ic	0.05 ic	1.20 ic	---	0.00	---	---	---	---	---	1.248
7.20	41,949	259.20	1.34 ic	0.05 ic	1.26 ic	---	0.00	---	---	---	---	---	1.307
7.40	44,505	259.40	1.41 ic	0.05 ic	1.31 ic	---	0.00	---	---	---	---	---	1.363
7.60	47,062	259.60	2.73 oc	0.05 ic	1.36 ic	---	1.27	---	---	---	---	---	2.681
7.80	49,619	259.80	8.05 oc	0.05 ic	1.41 ic	---	6.57	---	---	---	---	---	8.030
8.00	52,176	260.00	15.52 oc	0.04 ic	1.35 ic	---	14.13	---	---	---	---	---	15.52
8.20	55,328	260.20	24.49 ic	0.03 ic	1.06 ic	---	23.40	---	---	---	---	---	24.49
8.40	58,480	260.40	29.96 ic	0.02 ic	0.58 ic	---	29.36 s	---	---	---	---	---	29.96
8.60	61,631	260.60	31.44 ic	0.01 ic	0.44 ic	---	30.98 s	---	---	---	---	---	31.44
8.80	64,783	260.80	32.50 ic	0.01 ic	0.36 ic	---	32.12 s	---	---	---	---	---	32.49
9.00	67,935	261.00	33.38 ic	0.01 ic	0.30 ic	---	33.07 s	---	---	---	---	---	33.38
9.20	71,087	261.20	34.17 ic	0.01 ic	0.26 ic	---	33.90 s	---	---	---	---	---	34.17
9.40	74,238	261.40	34.91 ic	0.01 ic	0.23 ic	---	34.67 s	---	---	---	---	---	34.91
9.60	77,390	261.60	35.61 ic	0.01 ic	0.20 ic	---	35.38 s	---	---	---	---	---	35.59
9.80	80,542	261.80	36.28 ic	0.01 ic	0.18 ic	---	36.09 s	---	---	---	---	---	36.28
10.00	83,694	262.00	36.93 ic	0.01 ic	0.16 ic	---	36.74 s	---	---	---	---	---	36.91

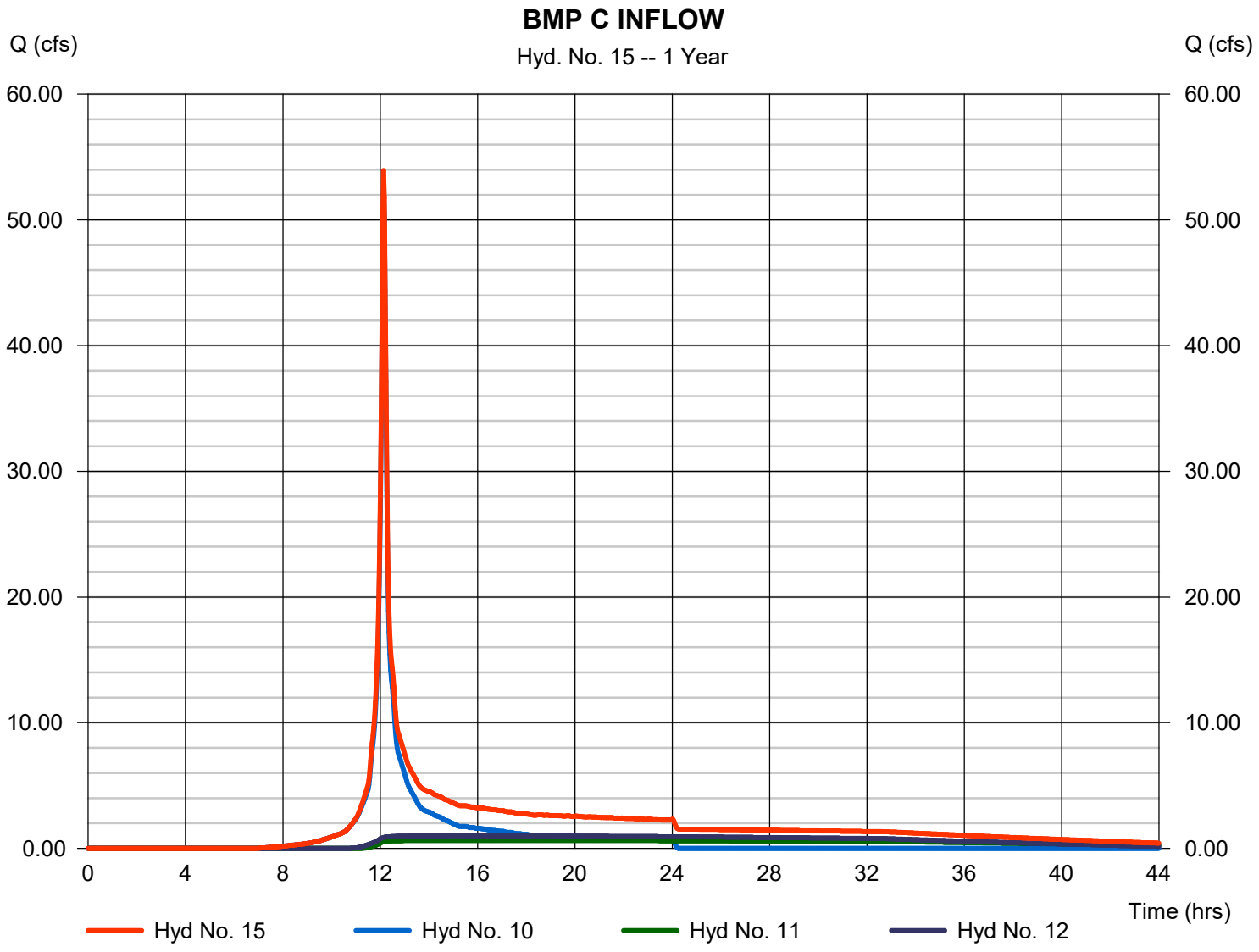
...End

Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	= Combine	Peak discharge	= 53.92 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 326,174 cuft
Inflow hyds.	= 10, 11, 12	Contrib. drain. area	= 31.050 ac



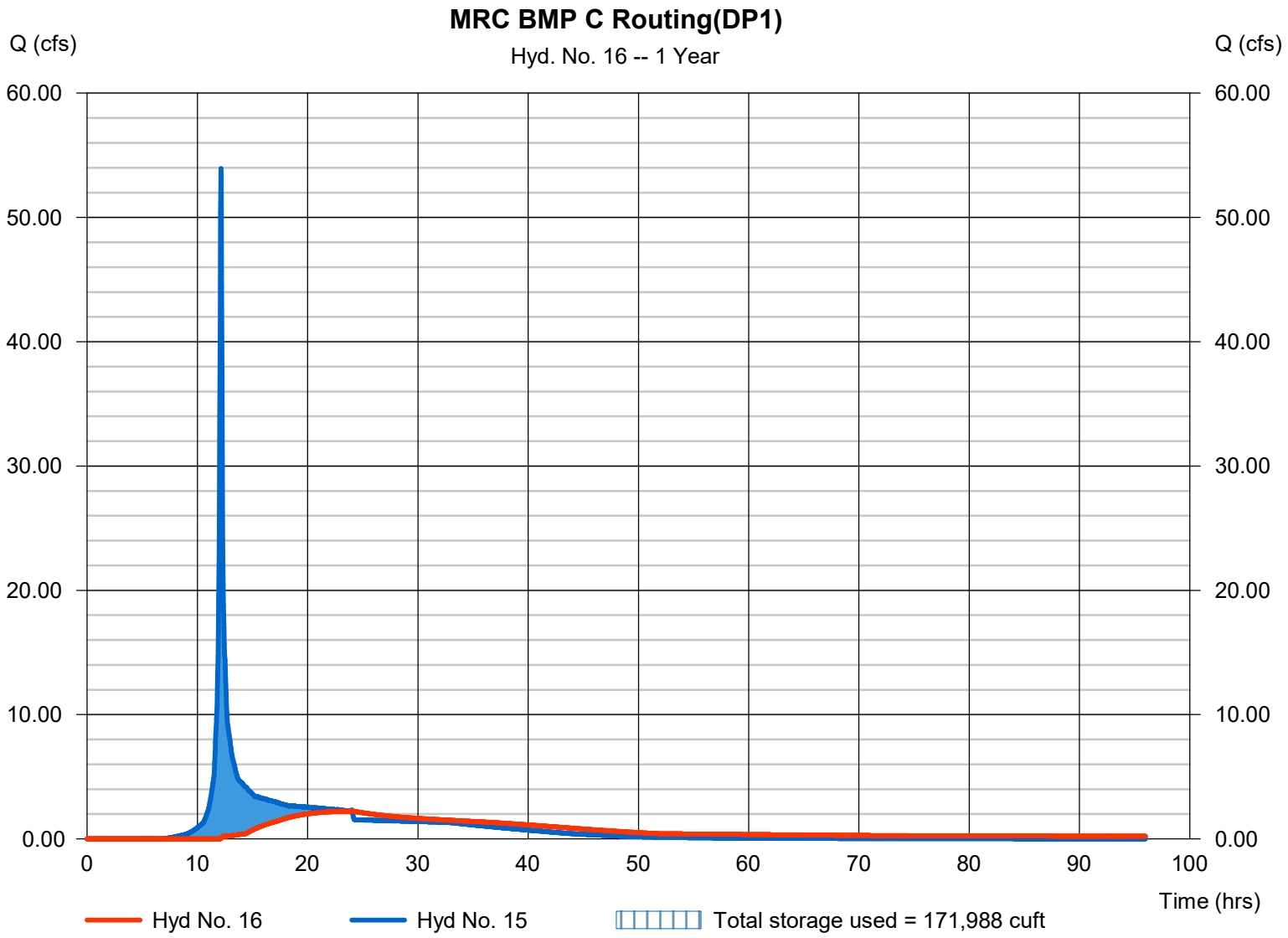
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	2.232 cfs
Storm frequency	=	1 yrs	Time to peak	=	24.03 hrs
Time interval	=	2 min	Hyd. volume	=	229,712 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.71 ft
Reservoir name	=	BMP C	Max. Storage	=	171,988 cuft

Storage Indication method used.



Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
1.00	213.00	52,150	17,382	17,382
2.00	214.00	00	17,389	34,771
3.00	215.00	52,150	17,389	52,160
4.00	216.00	19,935	34,773	86,933
4.01	216.01	115,916	613	87,546
6.00	218.00	126,194	240,803	328,349
8.00	220.00	136,697	262,795	591,143
10.00	222.00	147,725	284,322	875,466
12.00	224.00	158,385	306,018	1,181,483

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	8.00	0.00
Span (in)	= 24.00	1.50	8.00	0.00
No. Barrels	= 1	4	4	0
Invert El. (ft)	= 215.00	215.00	216.30	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	212.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,738	212.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	3,476	212.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	5,214	212.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	6,953	212.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	8,691	212.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	10,429	212.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	12,167	212.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	13,905	212.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	15,643	212.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	17,382	213.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	19,121	213.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	20,859	213.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.30	22,598	213.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.40	24,337	213.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.50	26,076	213.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.60	27,815	213.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.70	29,554	213.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.80	31,293	213.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.90	33,032	213.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.00	34,771	214.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.10	36,510	214.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.20	38,249	214.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.30	39,988	214.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.40	41,726	214.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.50	43,465	214.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.60	45,204	214.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.70	46,943	214.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.80	48,682	214.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.90	50,421	214.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.00	52,160	215.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.10	55,637	215.10	0.04 ic	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.035
3.20	59,115	215.20	0.07 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.073

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BMP C

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.30	62,592	215.30	0.11 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.099
3.40	66,069	215.40	0.12 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.121
3.50	69,546	215.50	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.140
3.60	73,024	215.60	0.16 ic	0.16 ic	0.00	---	0.00	0.00	---	---	---	---	0.158
3.70	76,501	215.70	0.18 ic	0.17 ic	0.00	---	0.00	0.00	---	---	---	---	0.173
3.80	79,978	215.80	0.20 ic	0.19 ic	0.00	---	0.00	0.00	---	---	---	---	0.187
3.90	83,455	215.90	0.20 ic	0.20 ic	0.00	---	0.00	0.00	---	---	---	---	0.201
4.00	86,933	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	86,994	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,055	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,116	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,178	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,239	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,300	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,362	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,423	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,484	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,546	216.01	0.22 ic	0.22 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.21	111,626	216.21	0.24 ic	0.24 ic	0.00	---	0.00	0.00	---	---	---	---	0.238
4.41	135,706	216.41	0.44 ic	0.25 ic	0.17 ic	---	0.00	0.00	---	---	---	---	0.420
4.61	159,786	216.61	1.48 ic	0.25 ic	1.19 ic	---	0.00	0.00	---	---	---	---	1.435
4.81	183,867	216.81	3.03 ic	0.25 ic	2.76 ic	---	0.00	0.00	---	---	---	---	3.008
5.01	207,947	217.01	4.44 ic	0.25 ic	4.10 ic	---	0.00	0.00	---	---	---	---	4.348
5.20	232,027	217.20	5.34 ic	0.26 ic	5.08 ic	---	0.00	0.00	---	---	---	---	5.338
5.40	256,108	217.40	6.22 ic	0.27 ic	5.90 ic	---	0.00	0.00	---	---	---	---	6.169
5.60	280,188	217.60	7.00 ic	0.28 ic	6.62 ic	---	0.00	0.00	---	---	---	---	6.900
5.80	304,268	217.80	7.64 ic	0.30 ic	7.26 ic	---	0.00	0.00	---	---	---	---	7.561
6.00	328,349	218.00	8.28 ic	0.31 ic	7.86 ic	---	0.00	0.00	---	---	---	---	8.168
6.20	354,628	218.20	8.76 ic	0.32 ic	8.41 ic	---	0.00	0.00	---	---	---	---	8.738
6.40	380,907	218.40	9.27 ic	0.34 ic	8.93 ic	---	0.00	0.00	---	---	---	---	9.271
6.60	407,187	218.60	9.84 ic	0.35 ic	9.43 ic	---	0.00	0.00	---	---	---	---	9.775
6.80	433,466	218.80	10.29 ic	0.36 ic	9.89 ic	---	0.00	0.00	---	---	---	---	10.26
7.00	459,746	219.00	10.73 ic	0.37 ic	10.34 ic	---	0.00	0.00	---	---	---	---	10.71
7.20	486,025	219.20	11.16 ic	0.38 ic	10.77 ic	---	0.00	0.00	---	---	---	---	11.15
7.40	512,305	219.40	11.58 ic	0.40 ic	11.18 ic	---	0.00	0.00	---	---	---	---	11.58
7.60	538,584	219.60	11.98 ic	0.41 ic	11.58 ic	---	0.00	0.00	---	---	---	---	11.98
7.80	564,864	219.80	12.32 ic	0.42 ic	11.91 ic	---	0.00	0.00	---	---	---	---	12.32
8.00	591,143	220.00	12.66 ic	0.43 ic	12.22 ic	---	0.00	0.00	---	---	---	---	12.65
8.20	619,576	220.20	15.83 ic	0.42 ic	11.84 ic	---	3.57	0.00	---	---	---	---	15.83
8.40	648,008	220.40	21.04 ic	0.37 ic	10.56 ic	---	10.11	0.00	---	---	---	---	21.04
8.60	676,440	220.60	26.91 ic	0.28 ic	8.05 ic	---	18.57	0.00	---	---	---	---	26.91
8.80	704,872	220.80	31.27 ic	0.17 ic	4.87 ic	---	26.23 s	0.00	---	---	---	---	31.27
9.00	733,305	221.00	32.75 ic	0.13 ic	3.76 ic	---	28.86 s	0.00	---	---	---	---	32.75
9.20	761,737	221.20	33.80 ic	0.11 ic	3.05 ic	---	30.63 s	0.00	---	---	---	---	33.79
9.40	790,169	221.40	34.67 ic	0.09 ic	2.56 ic	---	32.01 s	0.00	---	---	---	---	34.67
9.60	818,601	221.60	35.45 ic	0.08 ic	2.20 ic	---	33.16 s	0.00	---	---	---	---	35.44
9.80	847,034	221.80	36.17 ic	0.07 ic	1.92 ic	---	34.16 s	0.00	---	---	---	---	36.15
10.00	875,466	222.00	36.85 ic	0.06 ic	1.70 ic	---	35.06 s	0.00	---	---	---	---	36.83
10.20	906,067	222.20	37.50 ic	0.05 ic	1.53 ic	---	35.91 s	25.04	---	---	---	---	62.53
10.40	936,669	222.40	38.14 ic	0.05 ic	1.39 ic	---	36.68 s	70.83	---	---	---	---	108.95
10.60	967,271	222.60	38.75 ic	0.04 ic	1.27 ic	---	37.44 s	130.13	---	---	---	---	168.88
10.80	997,873	222.80	39.35 ic	0.04 ic	1.16 ic	---	38.12 s	200.35	---	---	---	---	239.67
11.00	1,028,474	223.00	39.94 ic	0.04 ic	1.08 ic	---	38.79 s	280.00	---	---	---	---	319.90
11.20	1,059,076	223.20	40.52 ic	0.04 ic	1.00 ic	---	39.46 s	368.07	---	---	---	---	408.57
11.40	1,089,678	223.40	41.09 ic	0.03 ic	0.94 ic	---	40.09 s	463.82	---	---	---	---	504.88
11.60	1,120,280	223.60	41.65 ic	0.03 ic	0.88 ic	---	40.73 s	566.68	---	---	---	---	608.33
11.80	1,150,881	223.80	42.20 ic	0.03 ic	0.83 ic	---	41.25 s	676.19	---	---	---	---	718.30
12.00	1,181,483	224.00	42.74 ic	0.03 ic	0.78 ic	---	41.85 s	791.96	---	---	---	---	834.62

...End

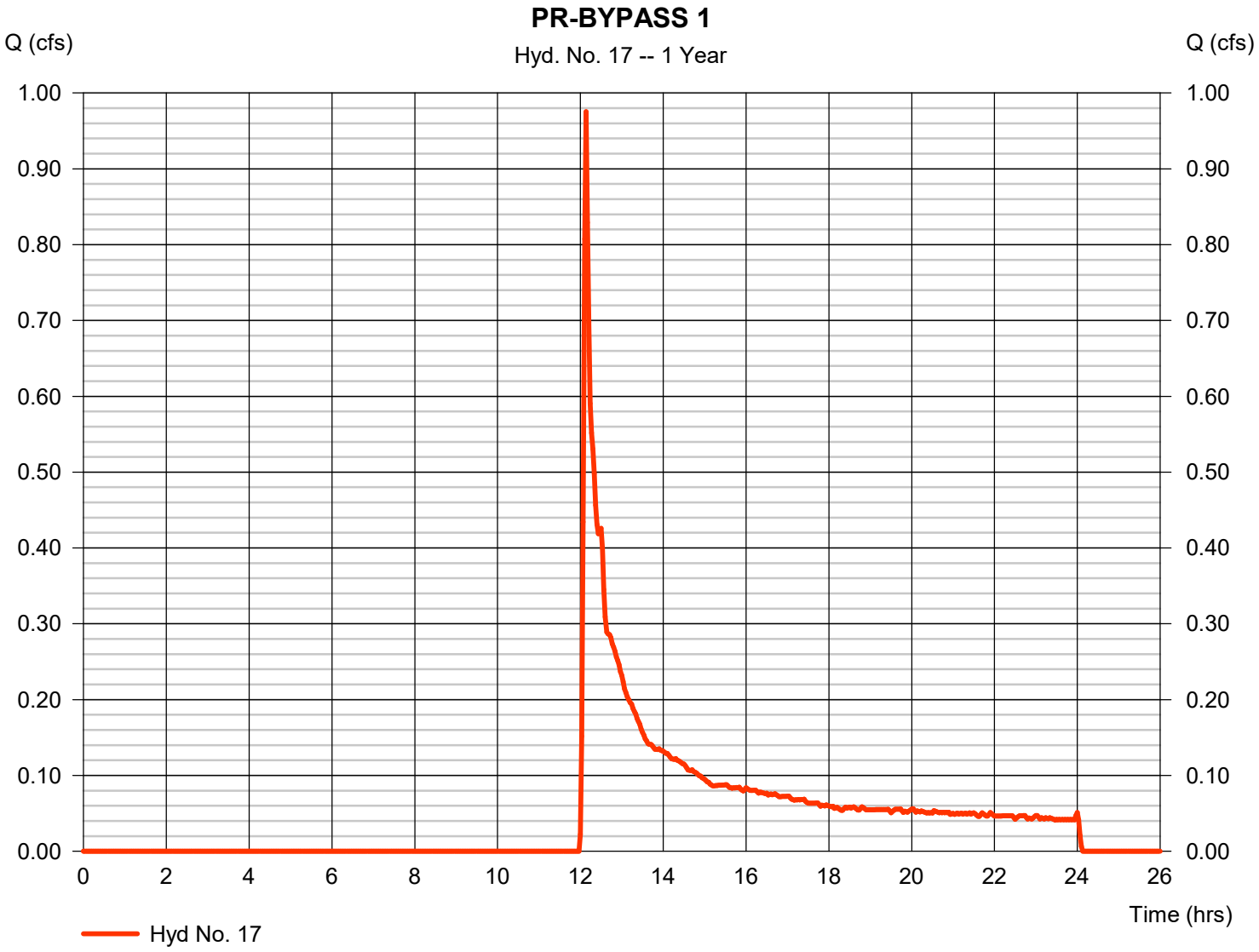
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.975 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	4,396 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



TR55 Tc Worksheet

Hyd. No. 17

PR-BYPASS 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 4.74**	**+**	**0.00**	**+**	**0.00**	**=**	**4.74**
Shallow Concentrated Flow							
Flow length (ft)	= 140.00		153.00		0.00		
Watercourse slope (%)	= 30.00		1.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		2.03		0.00		
Travel Time (min)	**= 0.26**	**+**	**1.25**	**+**	**0.00**	**=**	**1.52**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

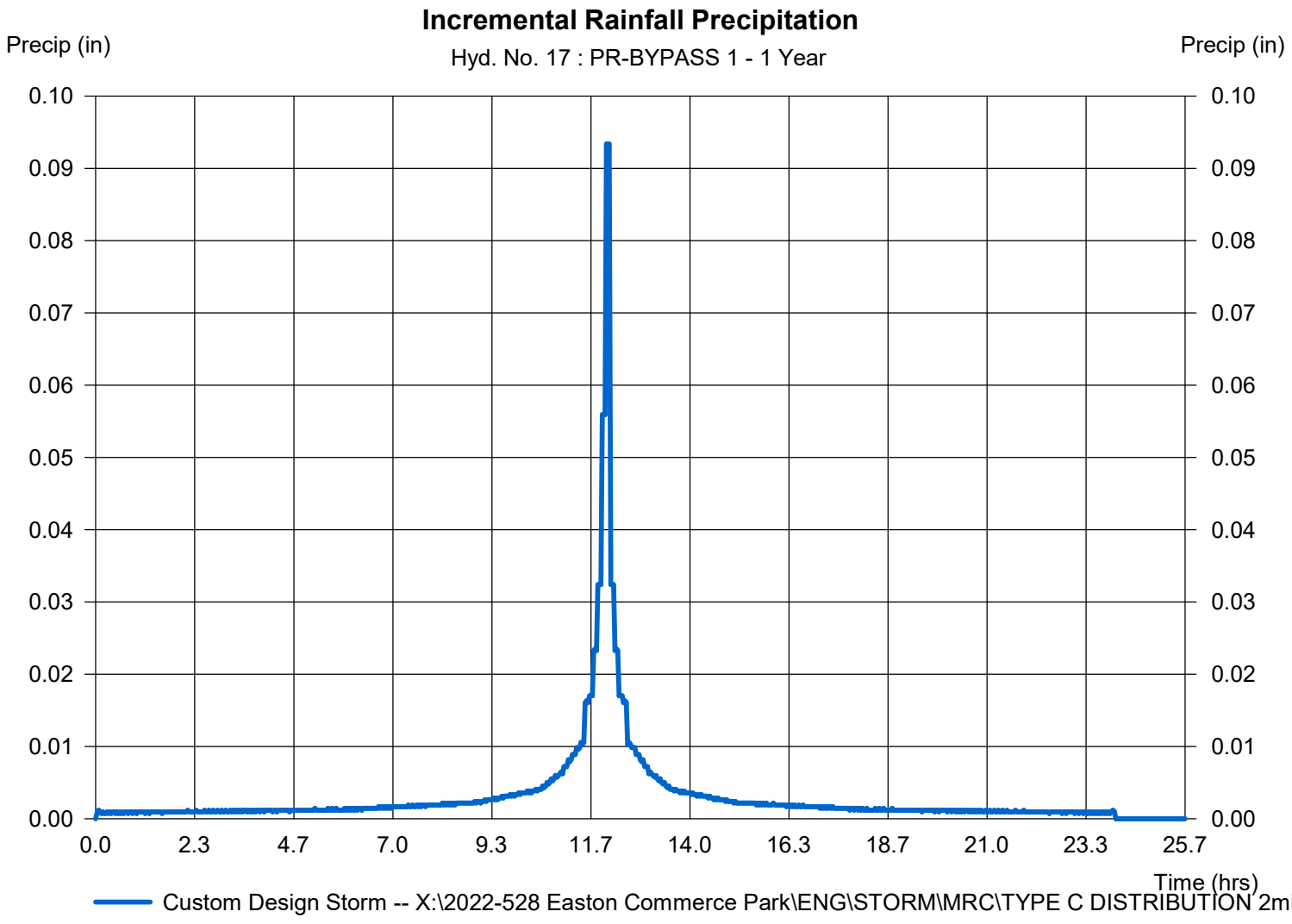
Total Travel Time, Tc ..... 6.30 min

Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



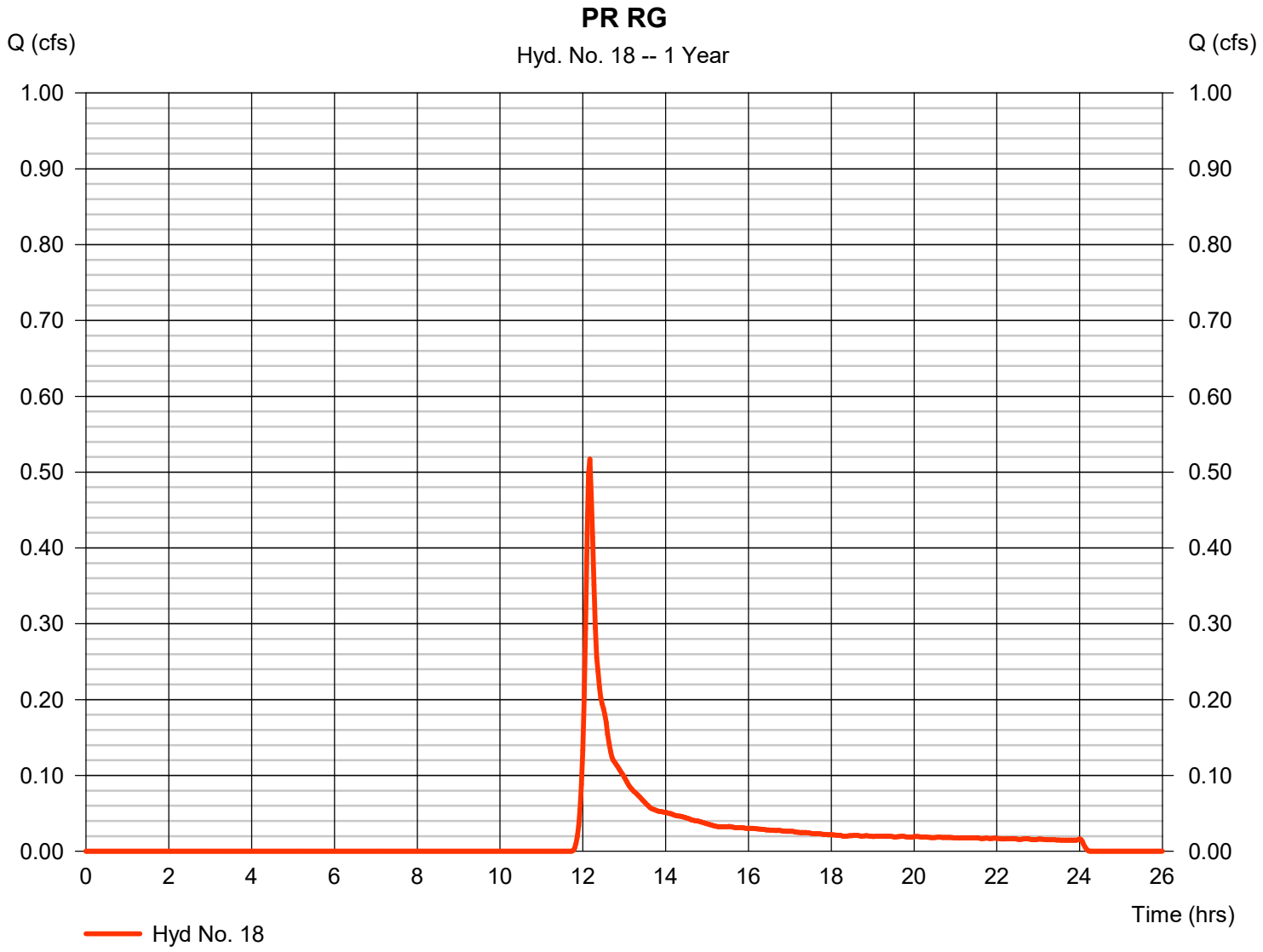
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.517 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	1,926 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm Distribution	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



TR55 Tc Worksheet

Hyd. No. 18

PR RG

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		1007.00		0.00		
Watercourse slope (%)	= 0.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=0.00		2.28		0.00		
Travel Time (min)	**= 0.00**	**+**	**7.36**	**+**	**0.00**	**=**	**7.36**
Channel Flow							
X sectional flow area (sqft)	= 3.14		0.00		0.00		
Wetted perimeter (ft)	= 0.50		0.00		0.00		
Channel slope (%)	= 1.50		0.00		0.00		
Manning's n-value	= 0.010		0.015		0.015		
Velocity (ft/s)	=62.50						
			0.00				
					0.00		
Flow length (ft)	({0})120.0		0.0		0.0		
Travel Time (min)	**= 0.03**	**+**	**0.00**	**+**	**0.00**	**=**	**0.03**

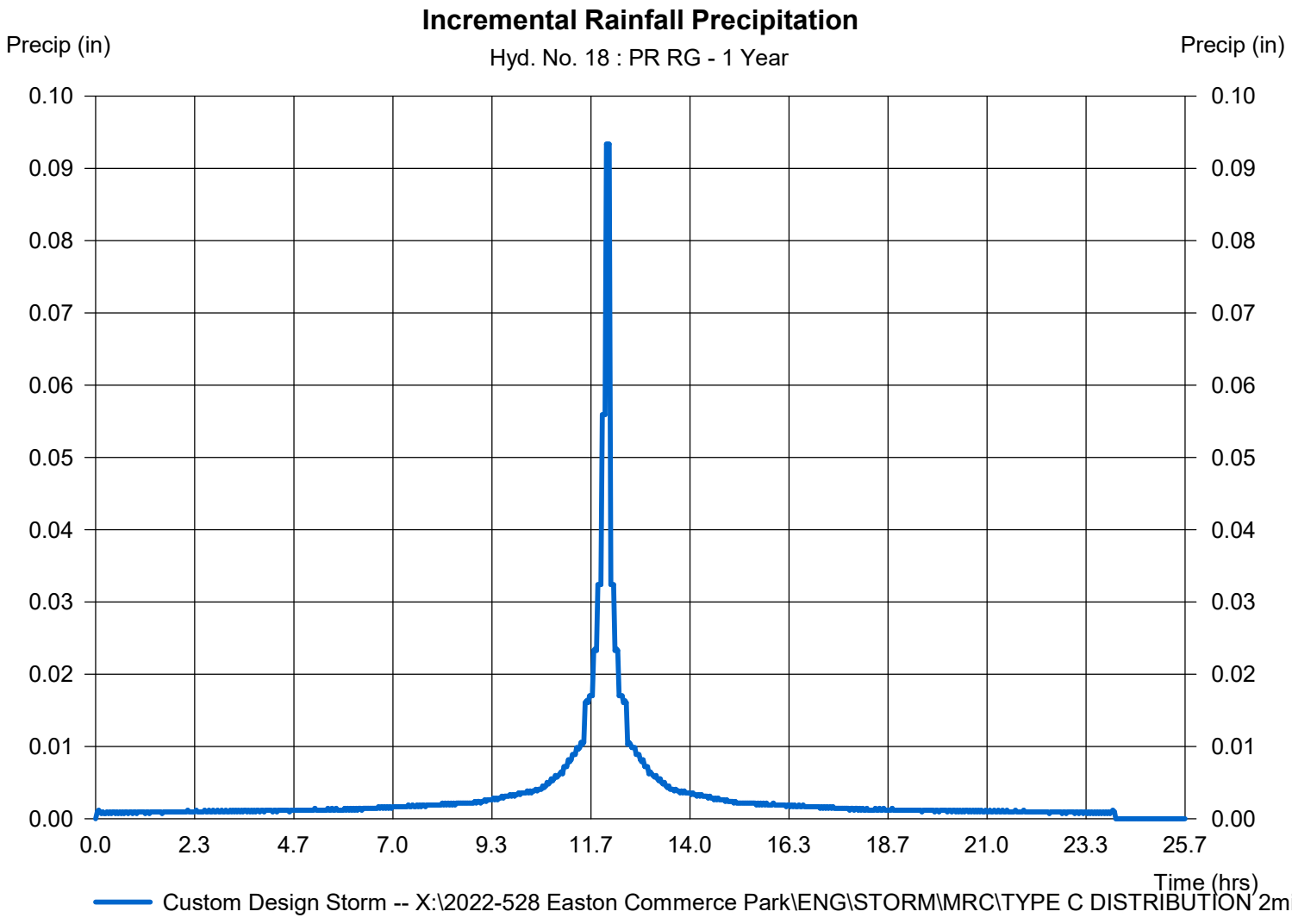
Total Travel Time, Tc ..... 7.40 min

Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



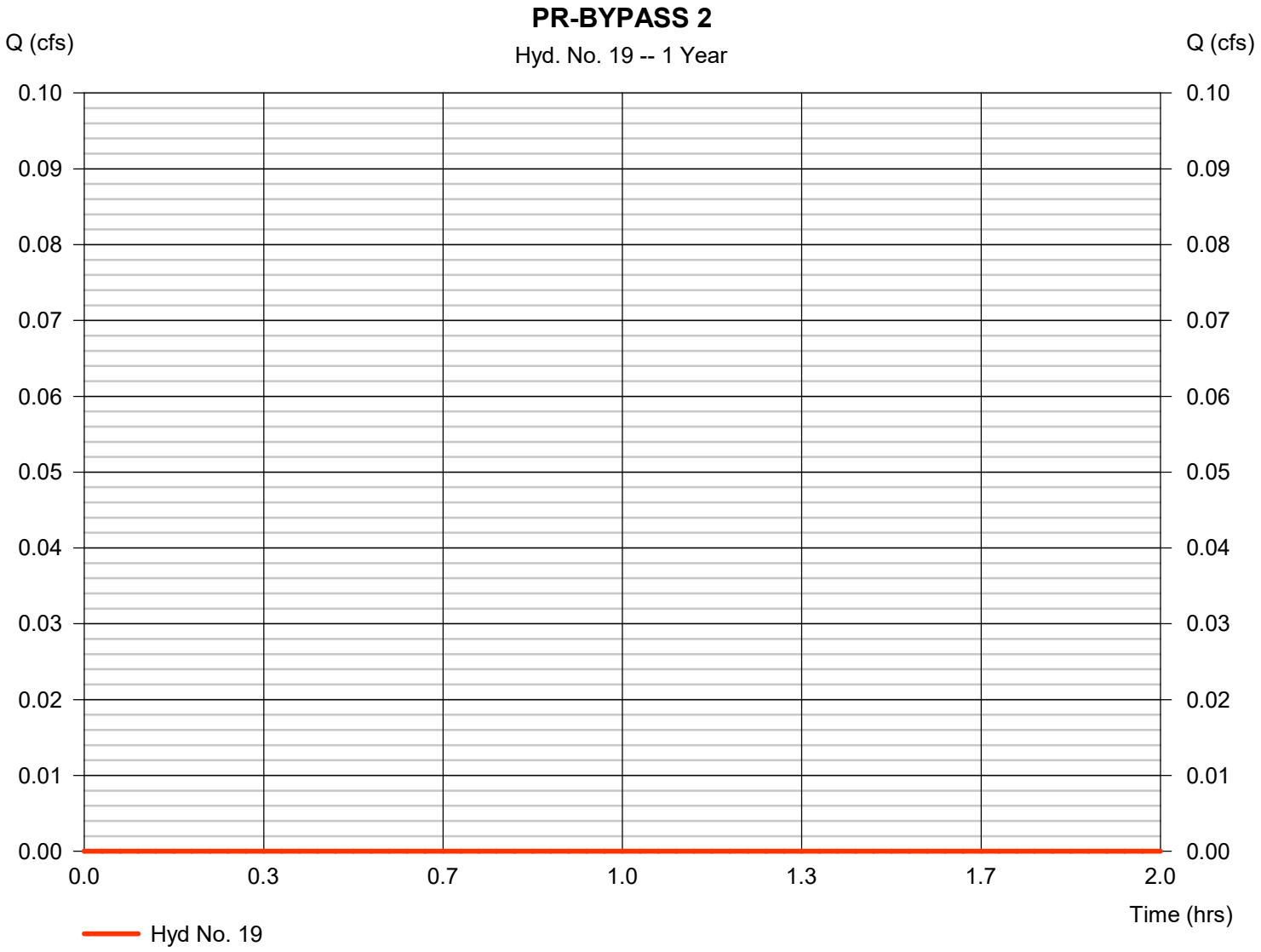
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 5.600 ac	Curve number	= 45*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.50 min
Total precip.	= 2.40 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	SPark\ENG\	= 24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



TR55 Tc Worksheet

Hyd. No. 19

PR-BYPASS 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 1131.00		1007.00		0.00		
Watercourse slope (%)	= 30.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=8.84		2.28		0.00		
Travel Time (min)	**= 2.13**	**+**	**7.36**	**+**	**0.00**	**=**	**9.49**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

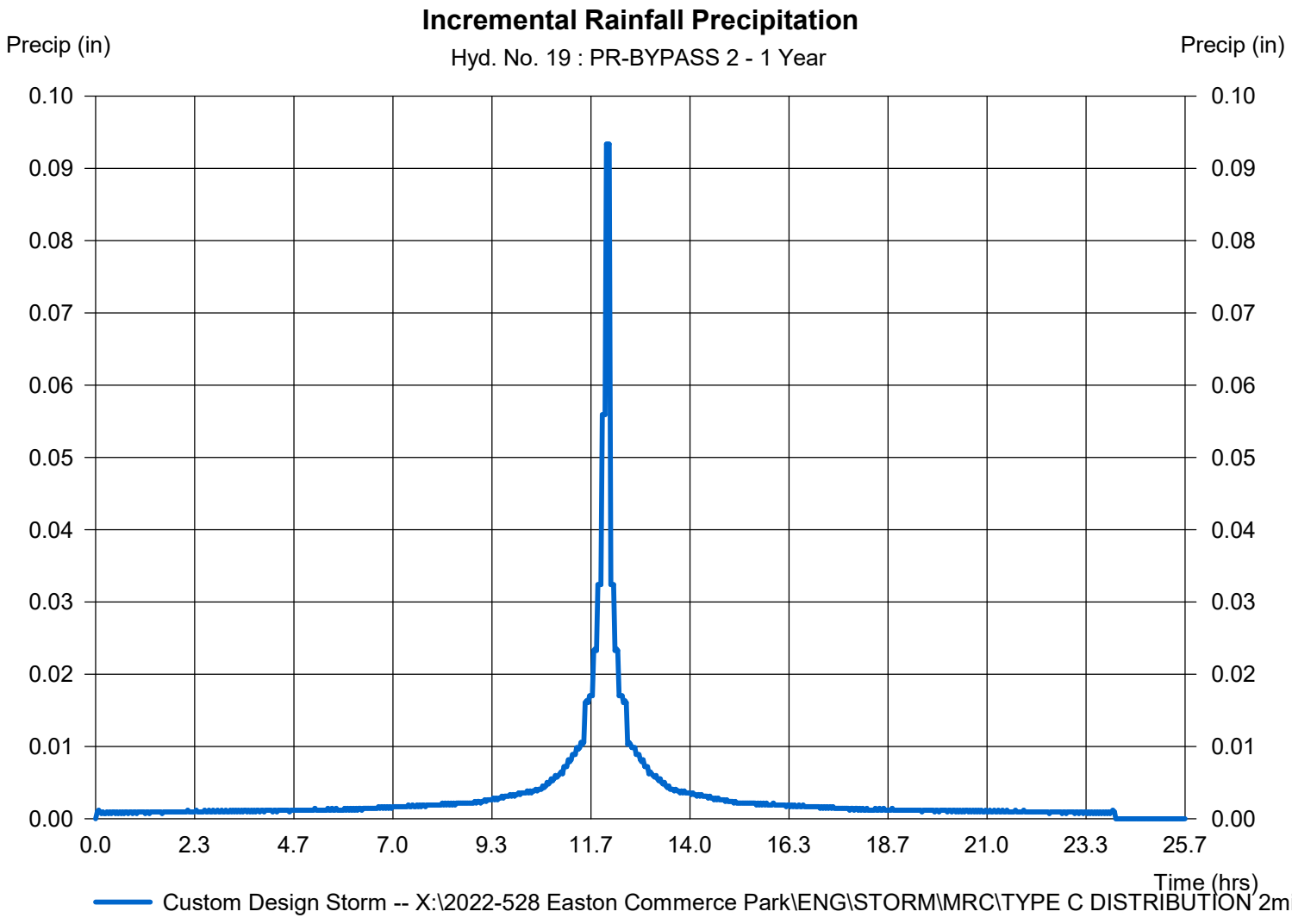
Total Travel Time, Tc ..... 9.50 min

Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



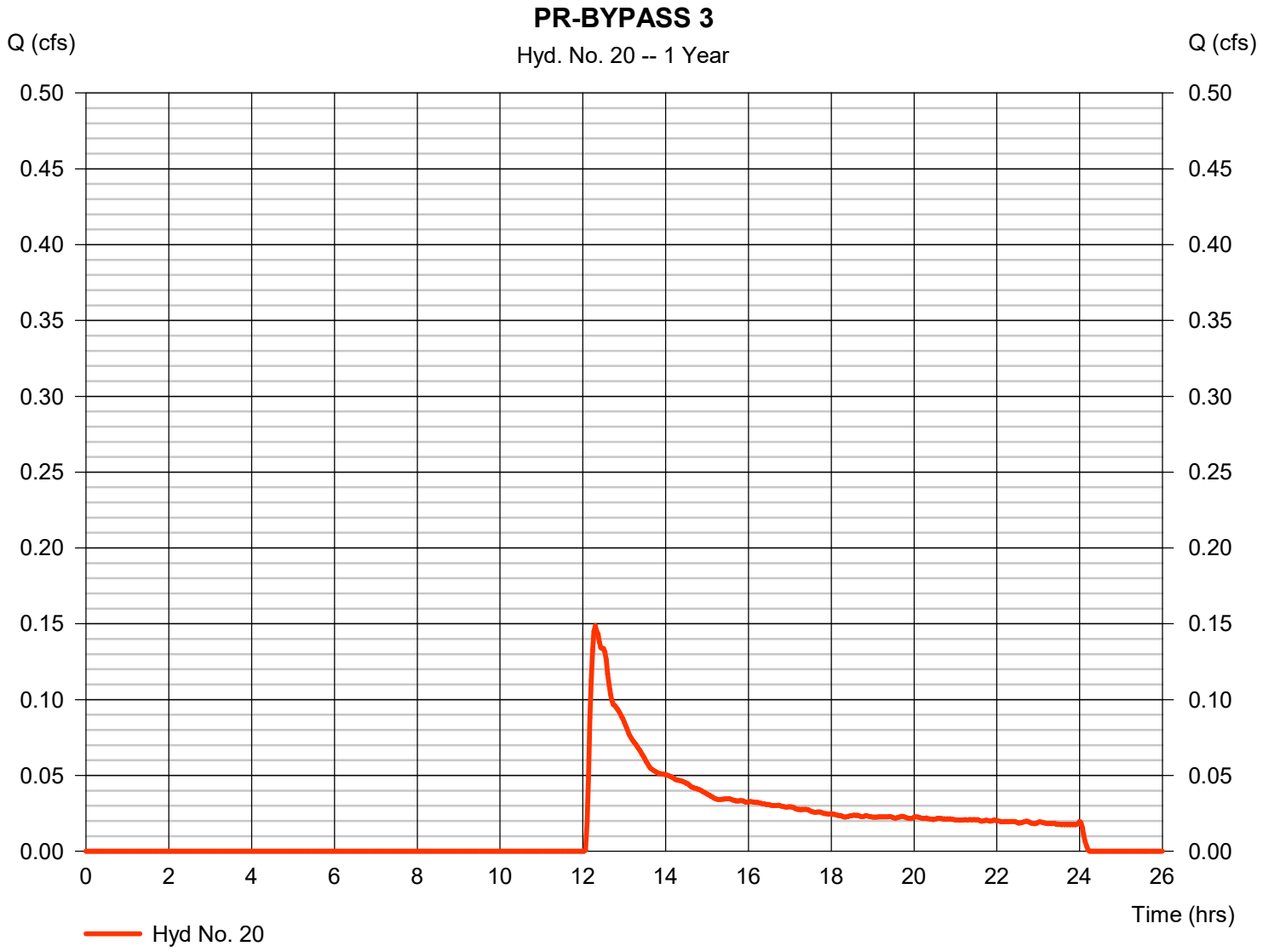
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.149 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	1,534 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530



TR55 Tc Worksheet

Hyd. No. 20

PR-BYPASS 3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 247.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 7.06**	**+**	**0.00**	**+**	**0.00**	**=**	**7.06**
Shallow Concentrated Flow							
Flow length (ft)	= 97.00		0.00		0.00		
Watercourse slope (%)	= 30.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		0.00		0.00		
Travel Time (min)	**= 0.18**	**+**	**0.00**	**+**	**0.00**	**=**	**0.18**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

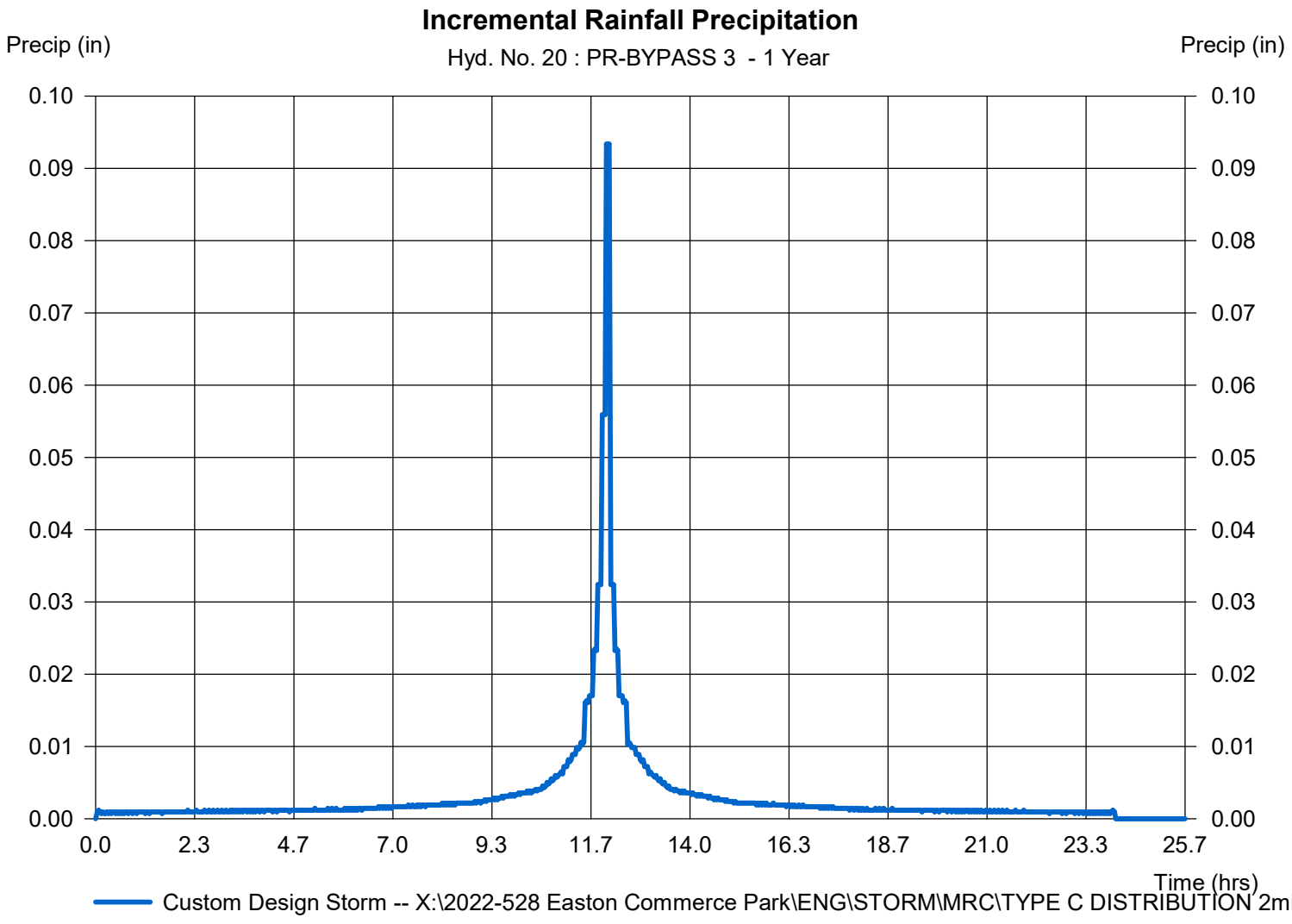
Total Travel Time, Tc ..... 7.20 min

Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

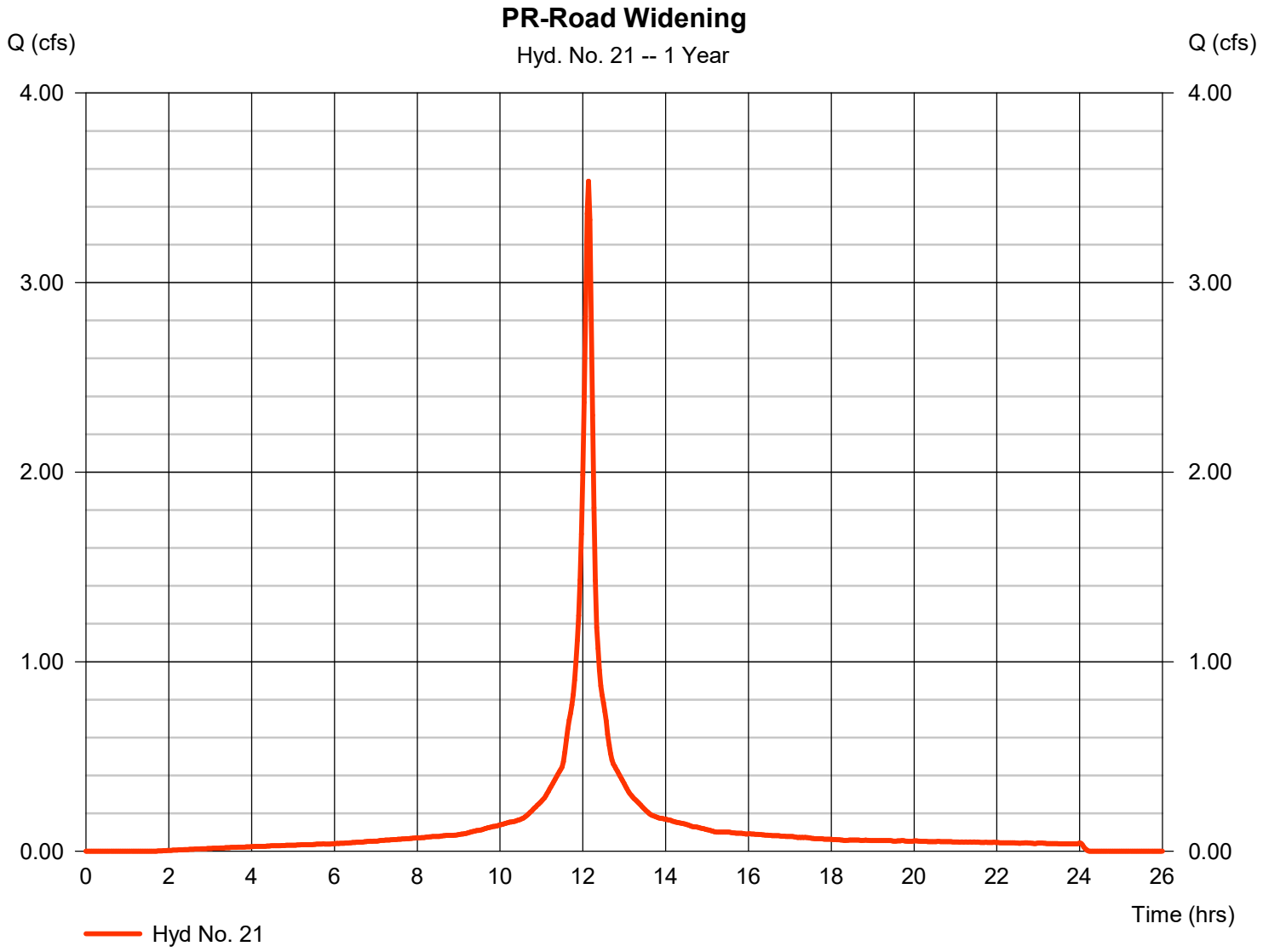


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.535 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	12,217 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	2.40 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24 HR TYPE C DISTRIBUTION.stm			



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 21

PR-Road Widening

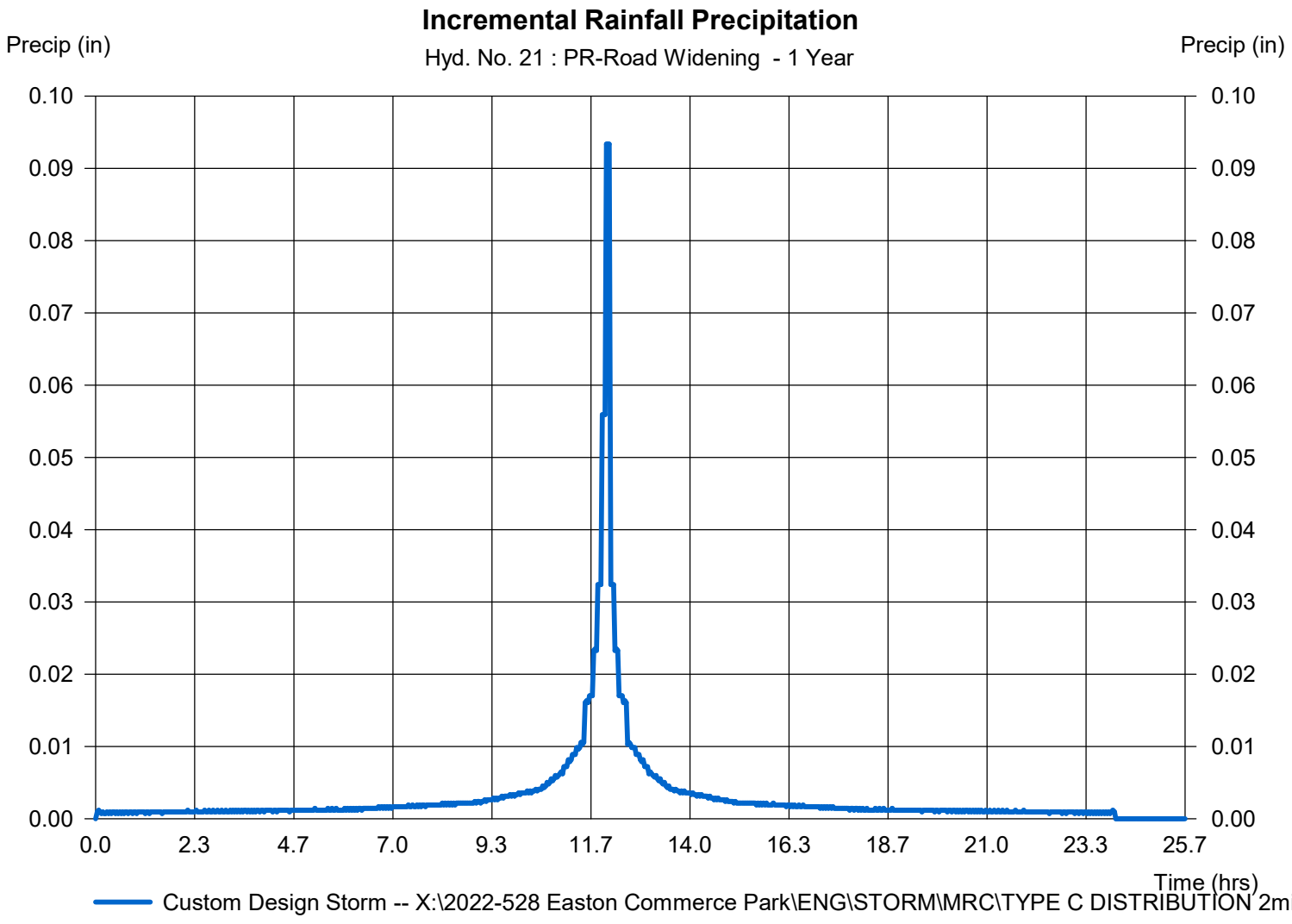
Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 735.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 6.03**	**+**	**0.00**	**+**	**0.00**	**=**	**6.03**
Channel Flow							
X sectional flow area (sqft)	= 1.77		0.00		0.00		
Wetted perimeter (ft)	= 3.54		0.00		0.00		
Channel slope (%)	= 1.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=6.24						
			0.00				
					0.00		
Flow length (ft)	({0})614.0		0.0		0.0		
Travel Time (min)	**= 1.64**	**+**	**0.00**	**+**	**0.00**	**=**	**1.64**
Total Travel Time, Tc							**7.70 min**

Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 1 yrs	Time interval	= 2 min
Total precip.	= 2.4000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

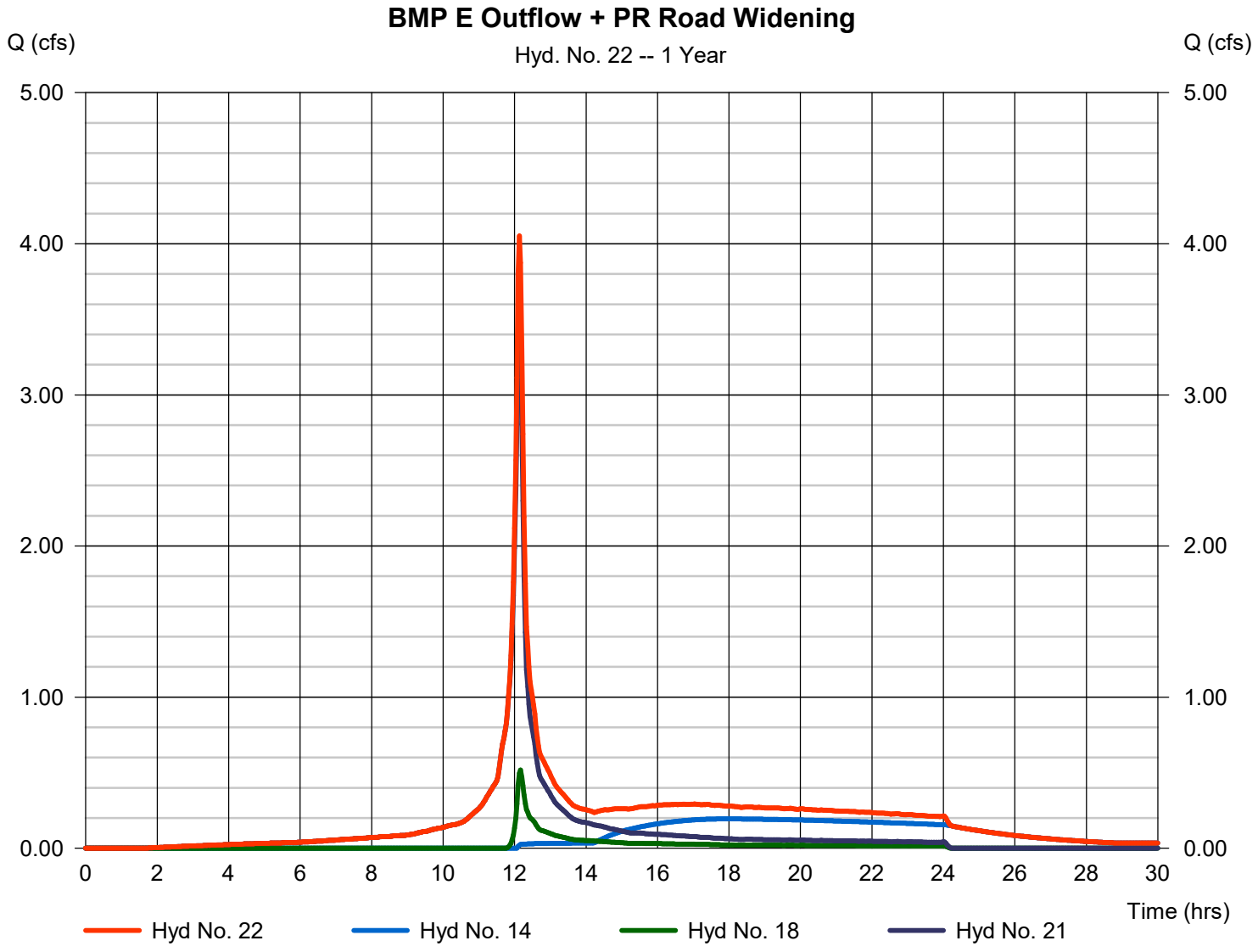


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	= Combine	Peak discharge	= 4.052 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 29,074 cuft
Inflow hyds.	= 14, 18, 21	Contrib. drain. area	= 2.750 ac



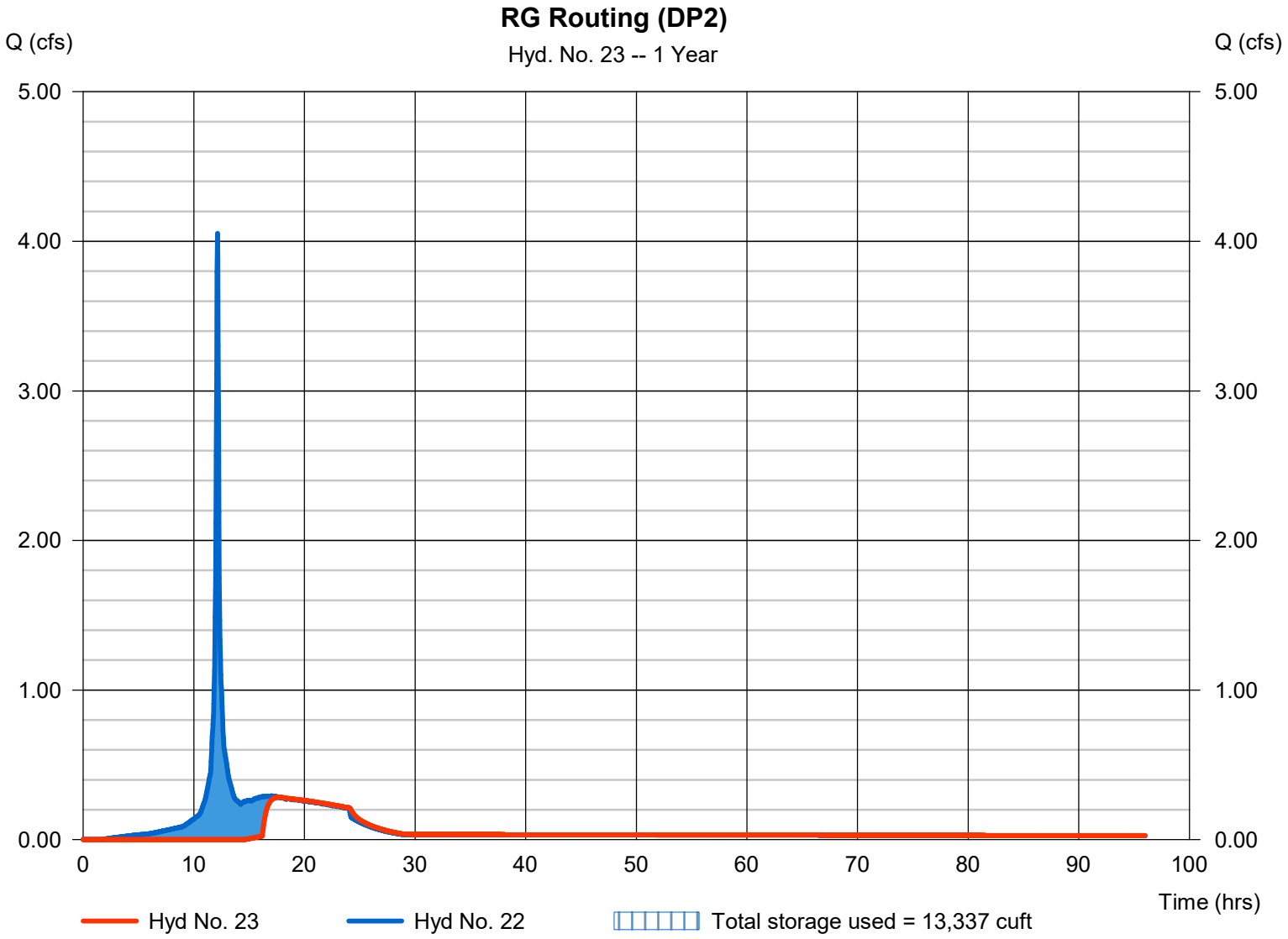
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	0.283 cfs
Storm frequency	=	1 yrs	Time to peak	=	17.77 hrs
Time interval	=	2 min	Hyd. volume	=	16,060 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.64 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	13,337 cuft

Storage Indication method used.



Pond Report

Pond No. 5 - Hacket Rain Garden

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 228.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	228.00	00	0	0
3.70	231.70	5,492	6,773	6,773
4.00	232.00	6,285	1,765	8,538
6.00	234.00	8,690	14,909	23,447

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	4.00	0.00	0.00
Span (in)	= 18.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 228.13	232.50	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 3.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	10.00	0.00	0.00
Crest El. (ft)	= 233.00	232.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

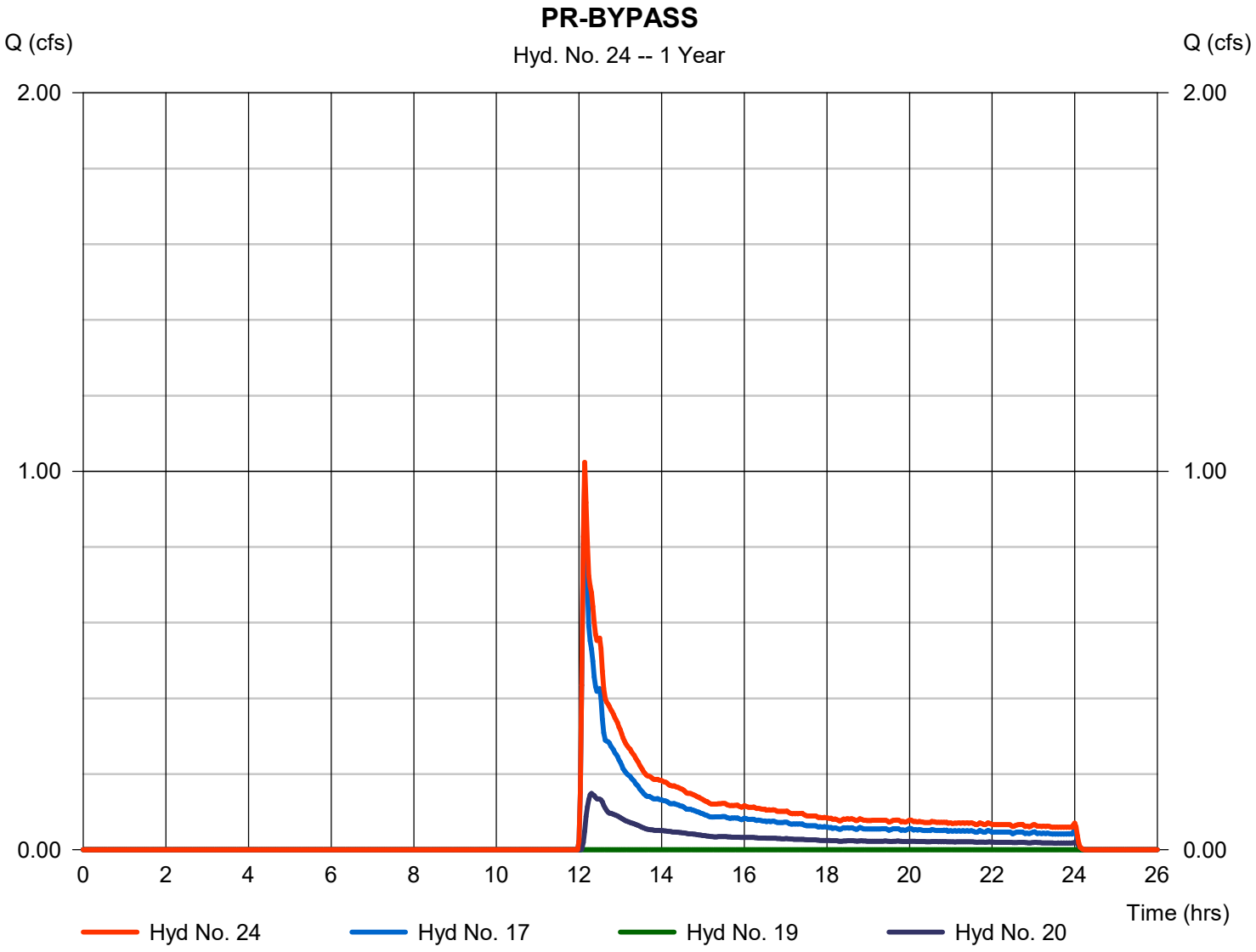
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	228.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.37	677	228.37	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.74	1,355	228.74	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.11	2,032	229.11	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.48	2,709	229.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.85	3,386	229.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.22	4,064	230.22	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.59	4,741	230.59	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.96	5,418	230.96	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.33	6,096	231.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	6,773	231.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.73	6,949	231.73	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.76	7,126	231.76	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.79	7,302	231.79	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.82	7,479	231.82	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.85	7,655	231.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.88	7,832	231.88	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.91	8,008	231.91	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.94	8,185	231.94	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.97	8,361	231.97	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	8,538	232.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	10,029	232.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.40	11,520	232.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.60	13,010	232.60	0.02 ic	0.02 ic	---	---	0.00	0.00	---	---	---	---	0.024
4.80	14,501	232.80	0.16 ic	0.15 ic	---	---	0.00	1.05	---	---	---	---	1.208
5.00	15,992	233.00	0.25 ic	0.24 ic	---	---	0.00	5.47	---	---	---	---	5.714
5.20	17,483	233.20	3.88 ic	0.31 ic	---	---	3.57	11.77	---	---	---	---	15.65
5.40	18,974	233.40	10.47 ic	0.36 ic	---	---	10.11	19.50	---	---	---	---	29.97
5.60	20,465	233.60	17.64 ic	0.27 ic	---	---	17.36 s	28.43	---	---	---	---	46.07
5.80	21,956	233.80	18.52 ic	0.18 ic	---	---	18.34 s	38.42	---	---	---	---	56.94
6.00	23,447	234.00	19.07 ic	0.13 ic	---	---	18.93 s	49.36	---	---	---	---	68.42

Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 1.024 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 5,930 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

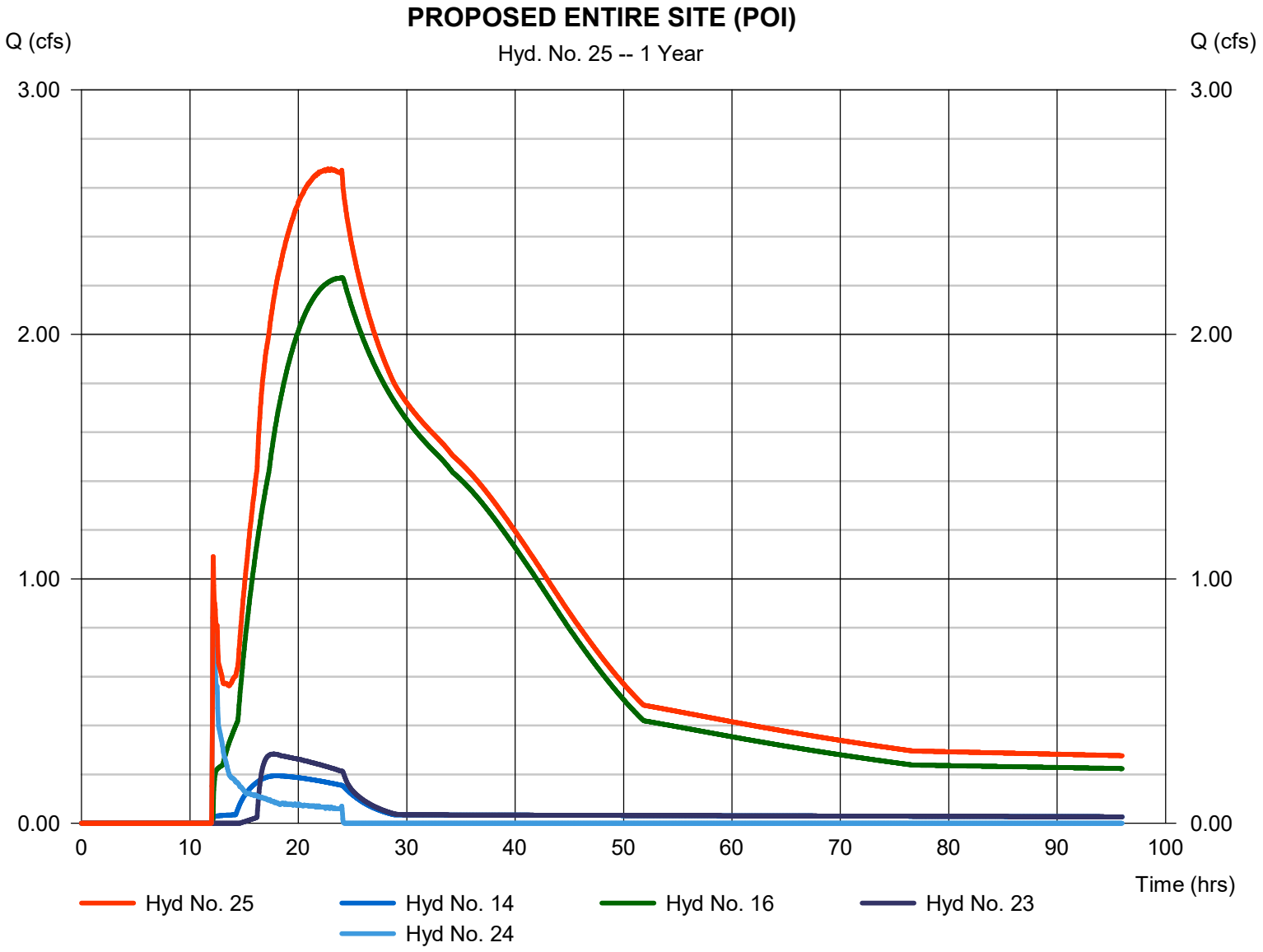


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	2.677 cfs
Storm frequency	=	1 yrs	Time to peak	=	23.03 hrs
Time interval	=	2 min	Hyd. volume	=	266,633 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

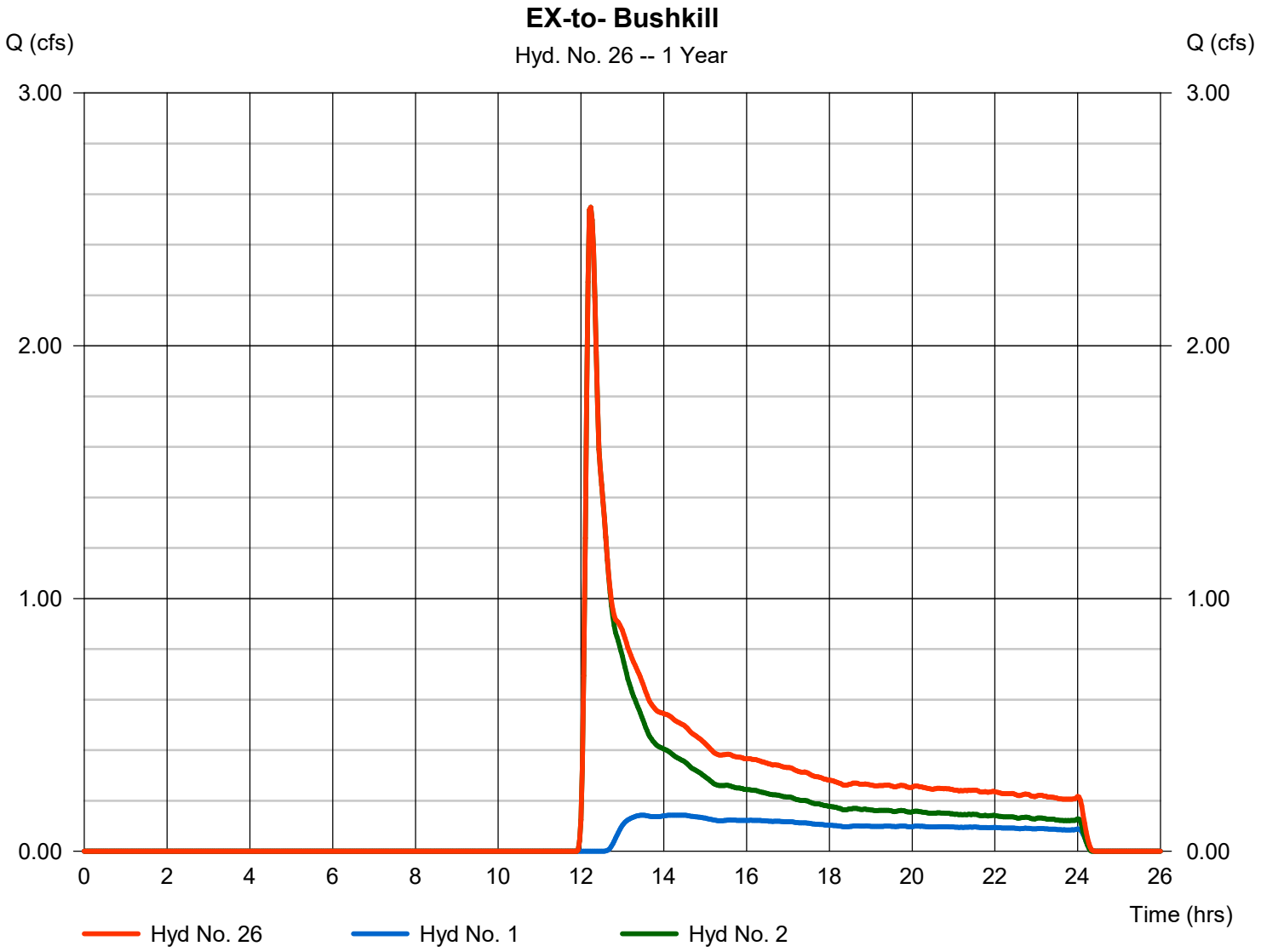


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 2.547 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 18,330 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

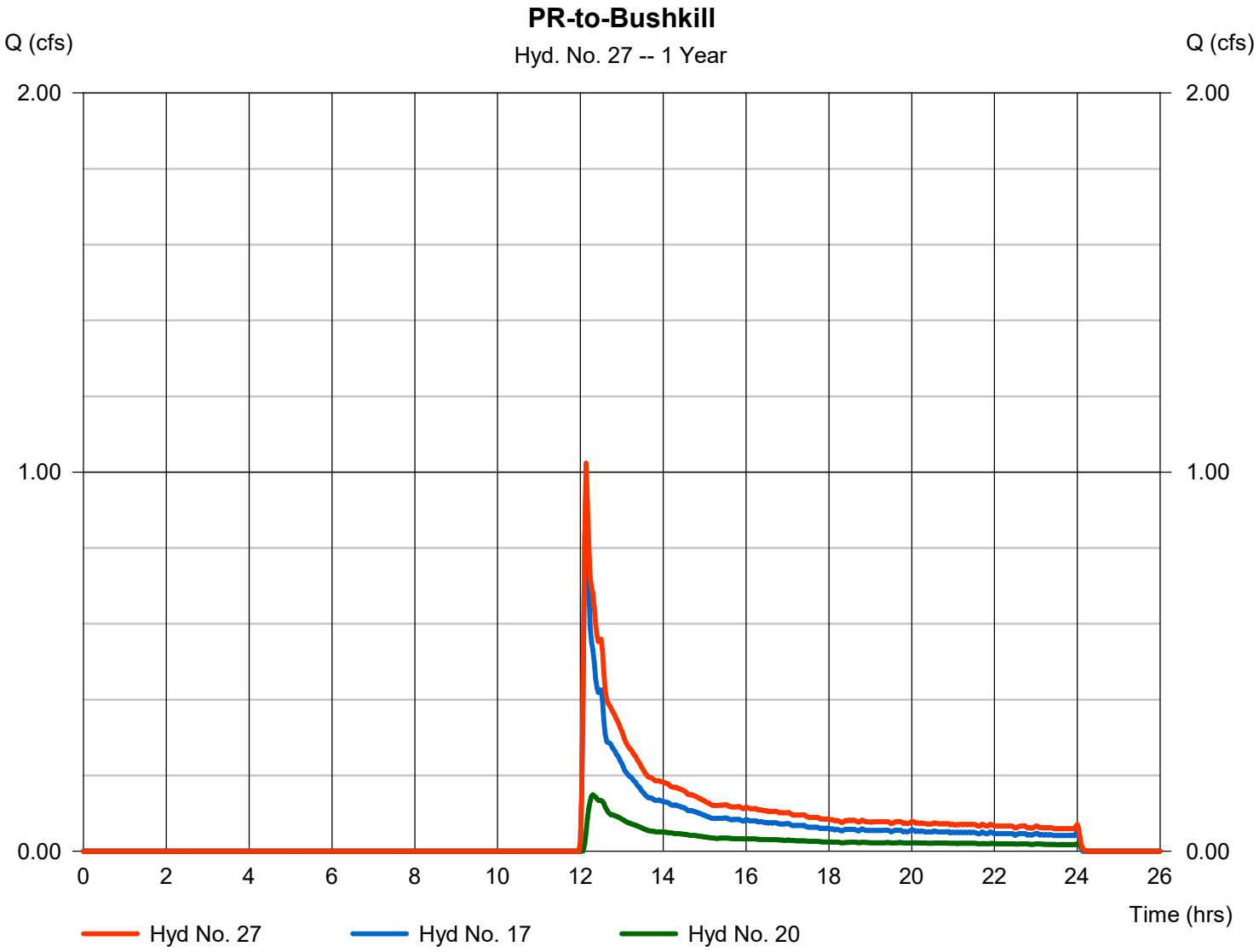


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 1.024 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 5,930 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

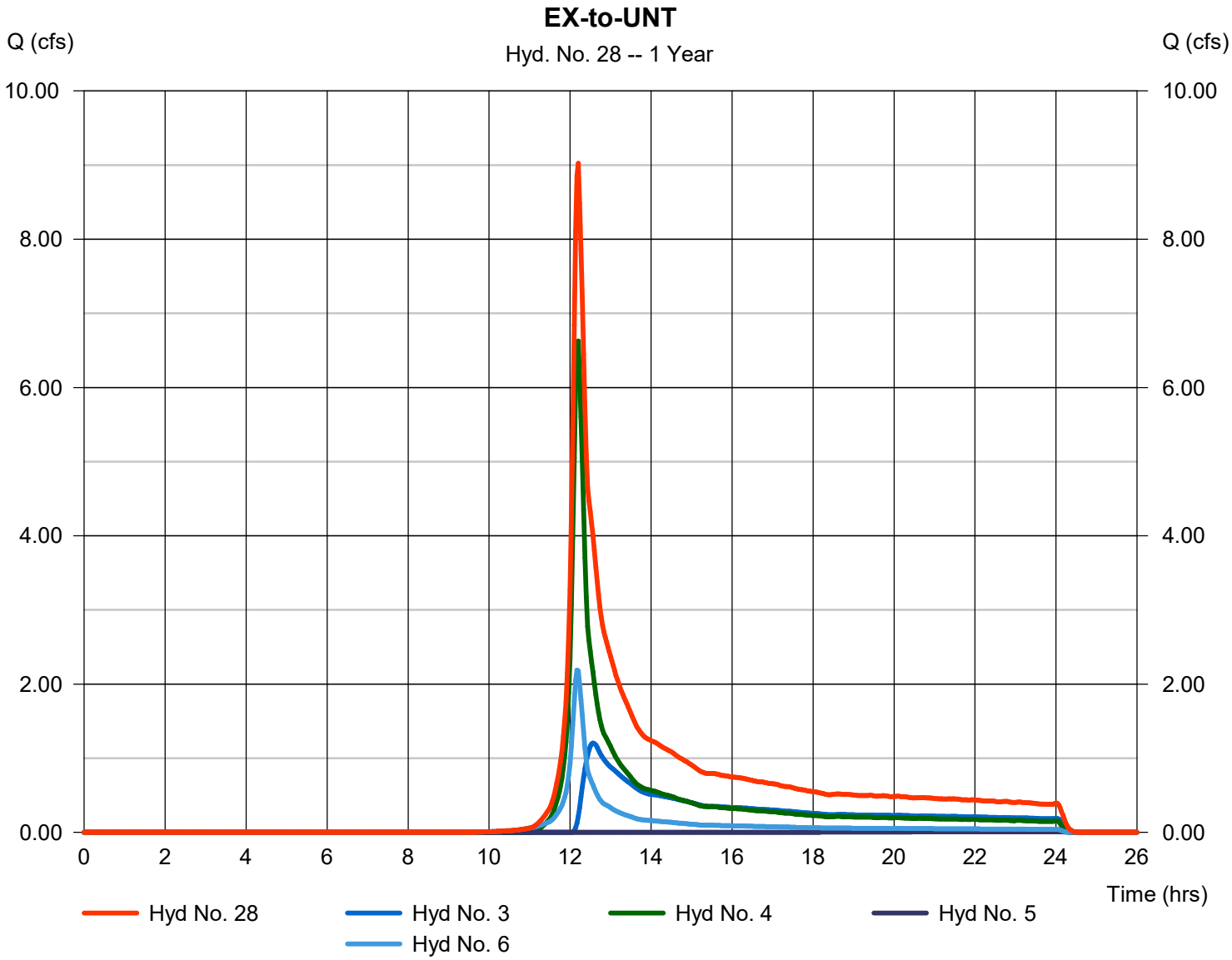


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 9.024 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 47,259 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

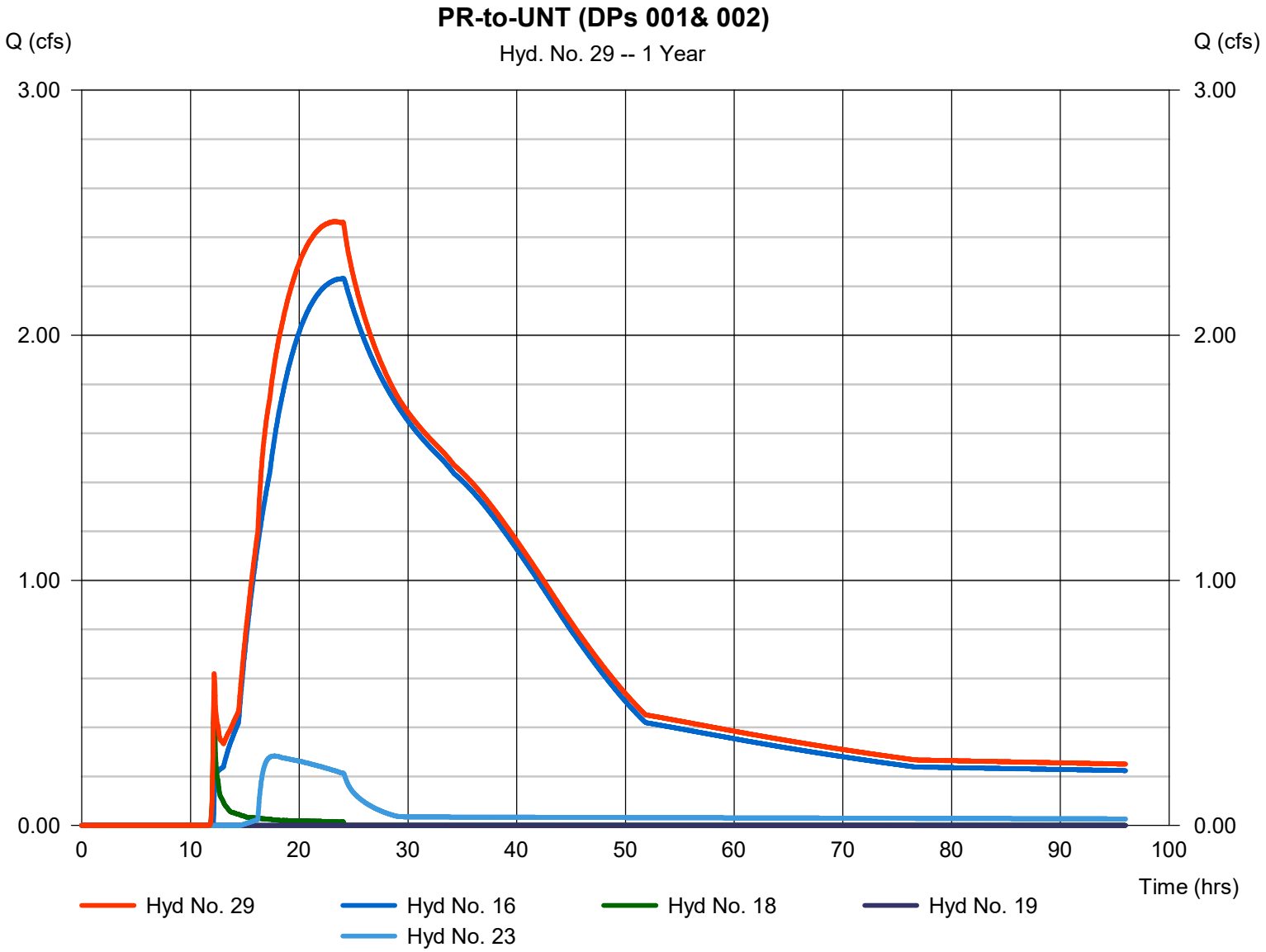


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 2.464 cfs
Storm frequency	= 1 yrs	Time to peak	= 23.40 hrs
Time interval	= 2 min	Hyd. volume	= 247,698 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

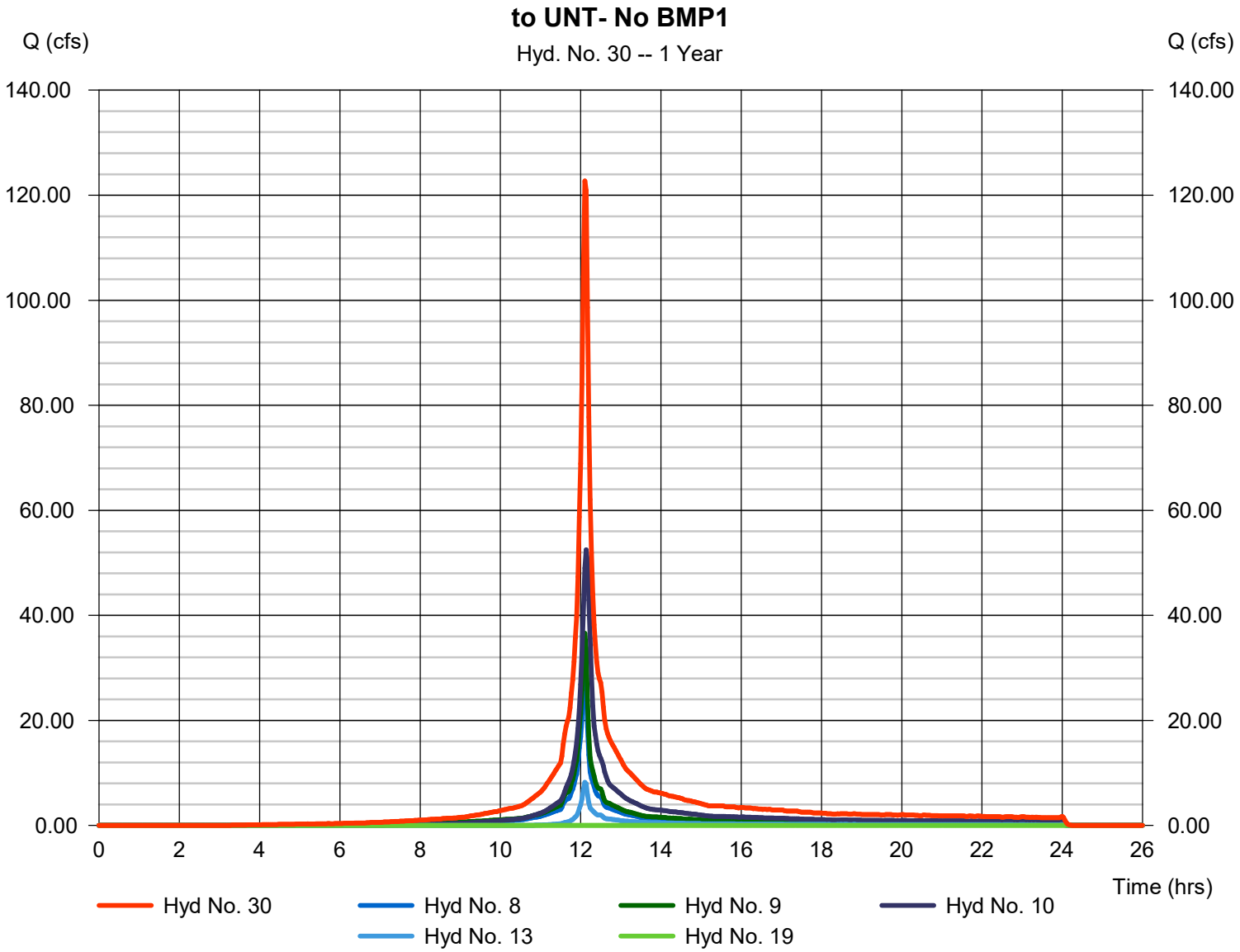


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 122.72 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 372,270 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

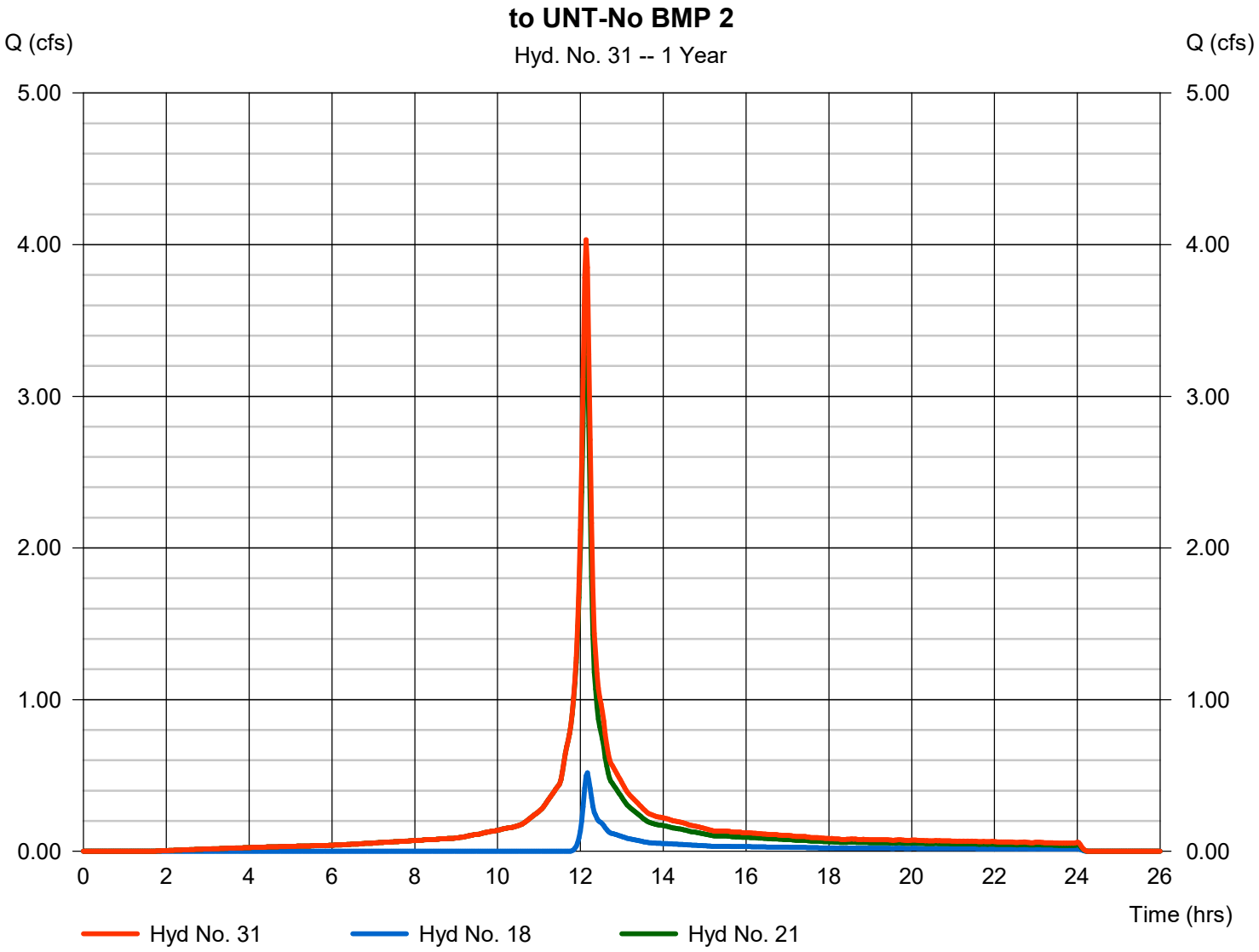


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 4.032 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 14,143 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

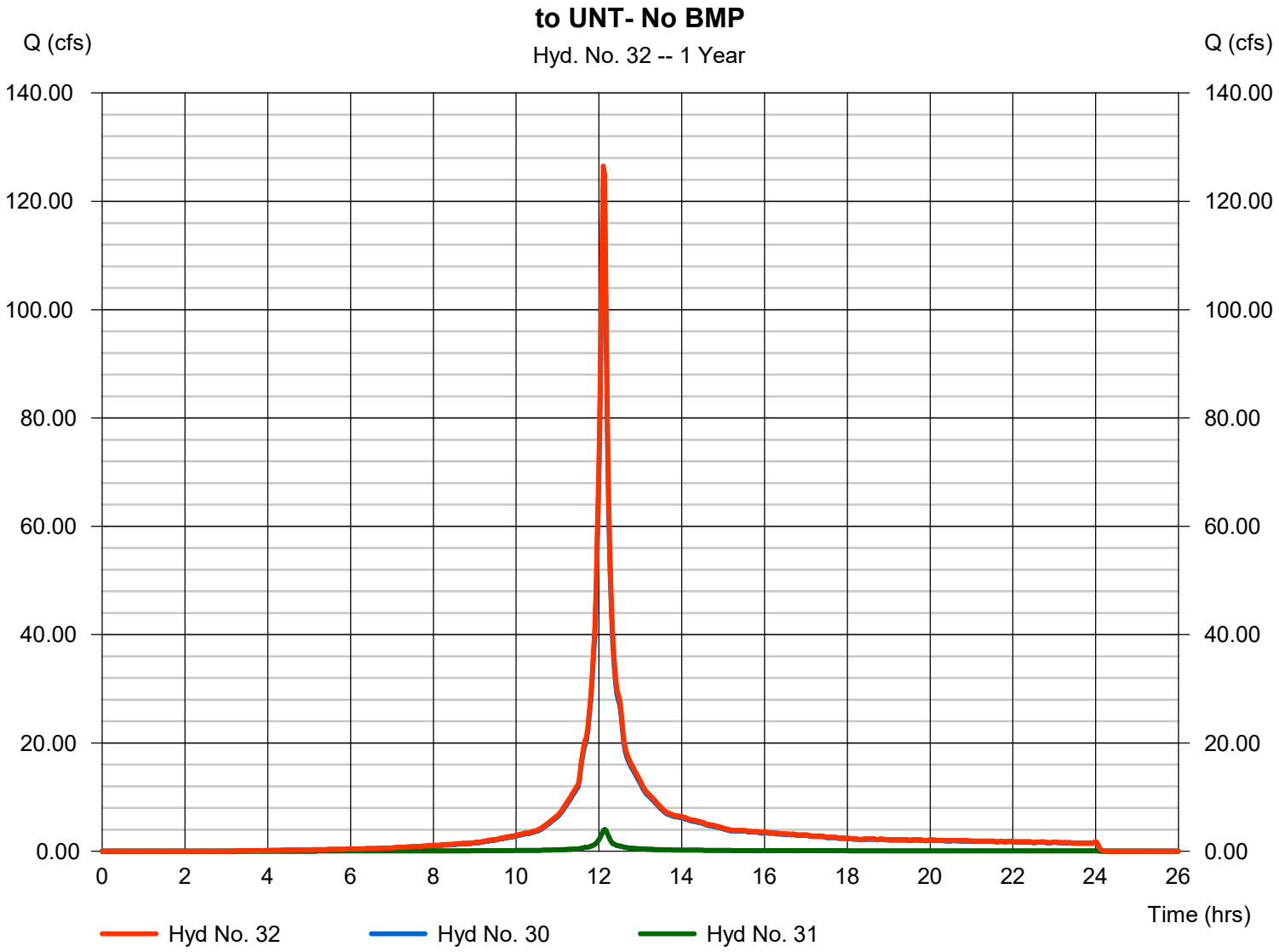


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	= Combine	Peak discharge	= 126.50 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 386,414 cuft
Inflow hyds.	= 30, 31	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.101	2	752	14,399	------	------	------	EX-DA 1
2	SCS Runoff	6.188	2	732	25,752	------	------	------	EX-DA2
3	SCS Runoff	4.645	2	742	34,220	------	------	------	EX-DA3
4	SCS Runoff	10.63	2	732	37,905	------	------	------	EX-DA4
5	SCS Runoff	0.055	2	872	1,748	------	------	------	EX-DA5
6	SCS Runoff	3.220	2	730	11,239	------	------	------	EX-DA-Road Widening
7	Combine	23.14	2	732	125,263	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	36.98	2	726	107,695	------	------	------	PR-DA-A
9	SCS Runoff	46.74	2	726	136,095	------	------	------	PR-DA-B
10	SCS Runoff	71.50	2	728	223,634	------	------	------	PR-DA-C
11	Reservoir	0.709	2	1024	95,122	8	290.55	81,885	BMP A Routing
12	Reservoir	1.127	2	936	124,453	9	286.79	98,677	BMP B Routing
13	SCS Runoff	12.70	2	726	33,776	------	------	------	PR-DA-E
14	Reservoir	0.579	2	872	26,434	13	257.38	20,414	BMP E Routing
15	Combine	73.06	2	728	443,209	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	3.276	2	1074	340,449	15	216.85	188,688	MRC BMP C Routing(DP1)
17	SCS Runoff	2.623	2	728	8,525	------	------	------	PR-BYPASS 1
18	SCS Runoff	0.983	2	730	3,312	------	------	------	PR RG
19	SCS Runoff	0.017	2	1440	491	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.670	2	730	3,353	------	------	------	PR-BYPASS 3
21	SCS Runoff	4.450	2	728	15,576	------	------	------	PR-Road Widening
22	Combine	5.458	2	728	45,322	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	0.873	2	826	32,309	22	232.74	14,080	RG Routing (DP2)
24	Combine	3.206	2	728	12,369	17, 19, 20,	------	------	PR-BYPASS
25	Combine	4.609	2	974	411,559	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	6.379	2	732	40,151	1, 2,	------	------	EX-to- Bushkill
27	Combine	3.206	2	728	11,878	17, 20,	------	------	PR-to-Bushkill
28	Combine	16.76	2	732	85,111	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	3.956	2	1022	376,561	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	163.51	2	726	501,690	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	5.428	2	728	18,888	18, 21,	------	------	to UNT-No BMP 2
32	Combine	168.61	2	726	520,578	30, 31	------	------	to UNT- No BMP

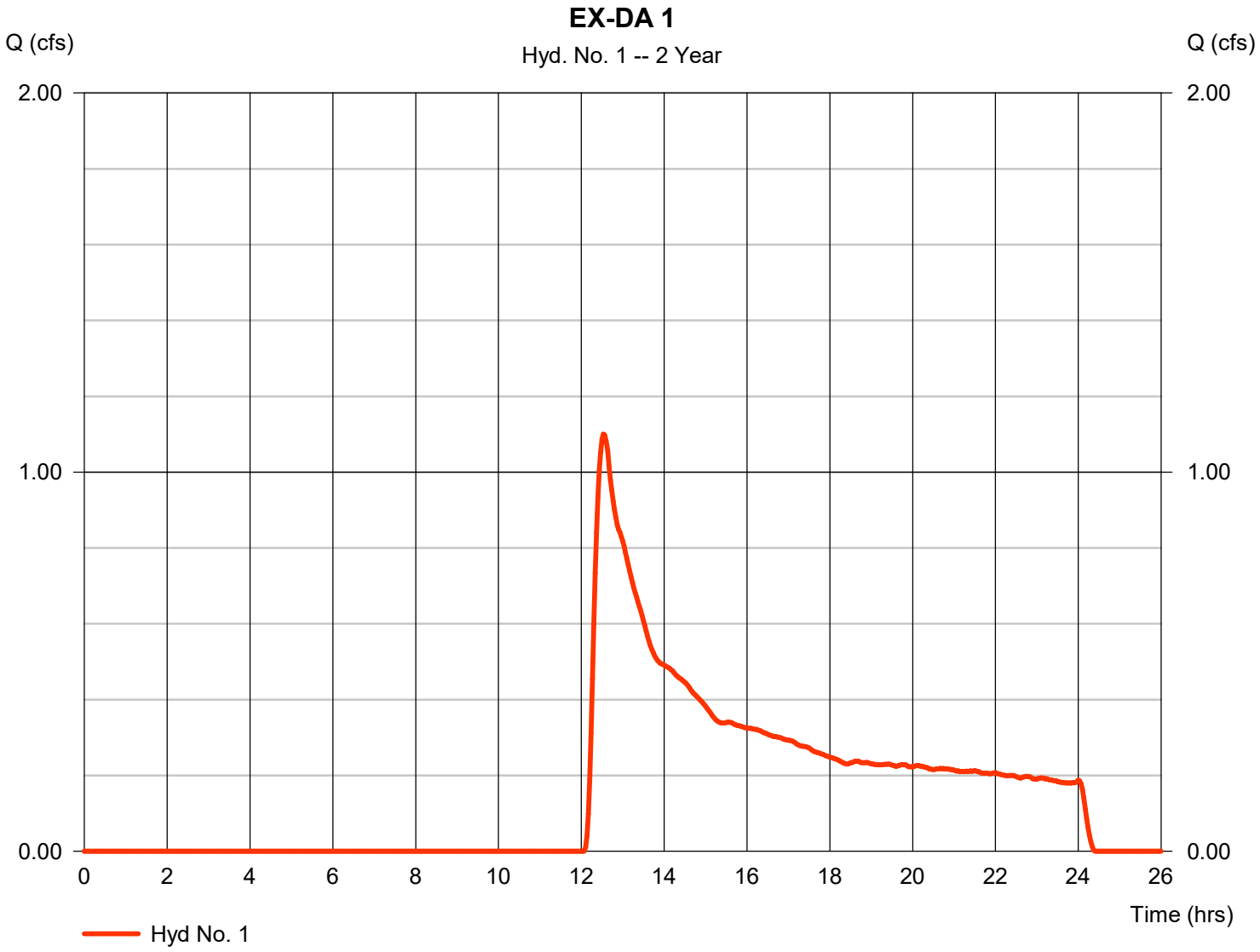
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.101 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.53 hrs
Time interval	=	2 min	Hyd. volume	=	14,399 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

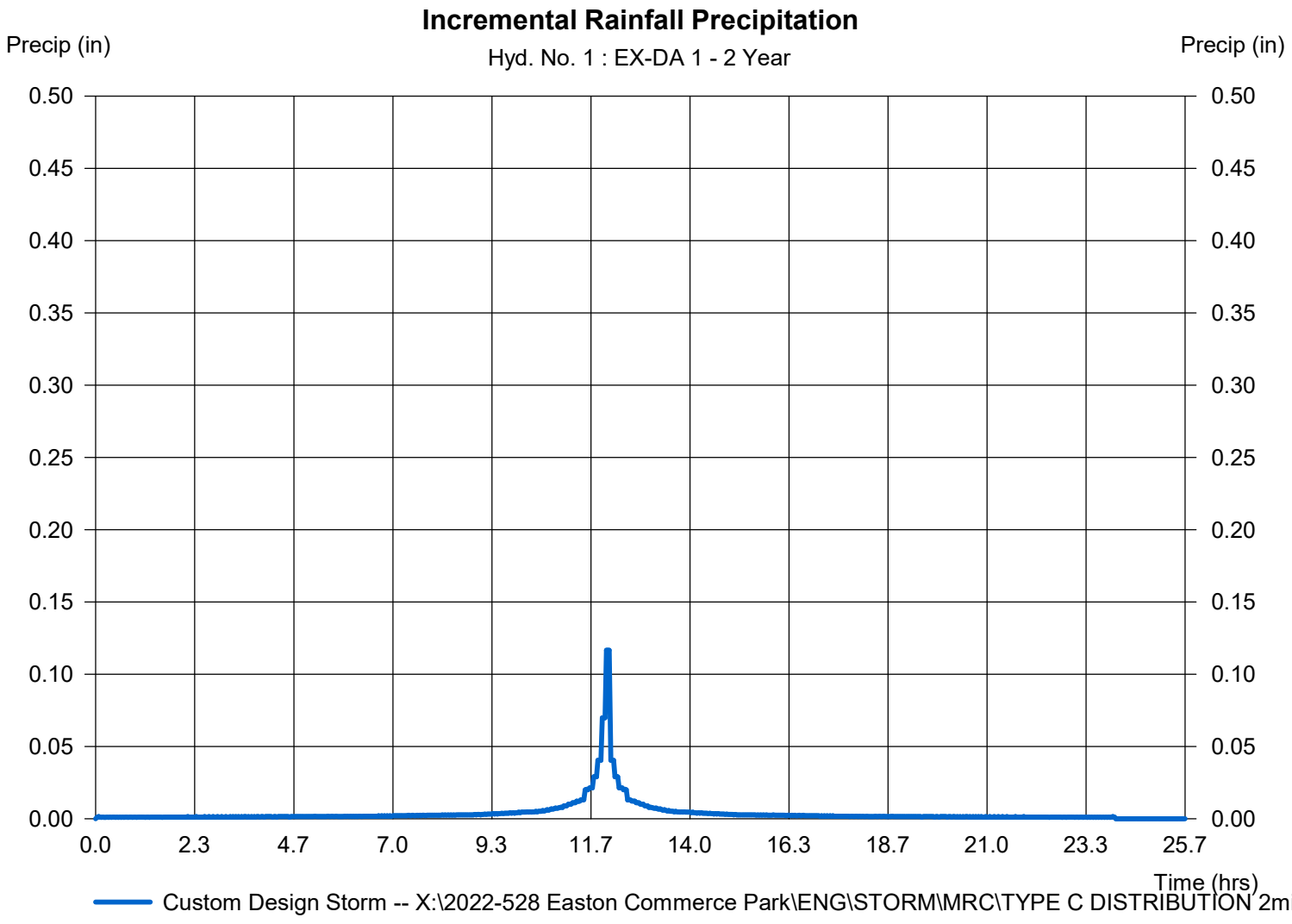


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



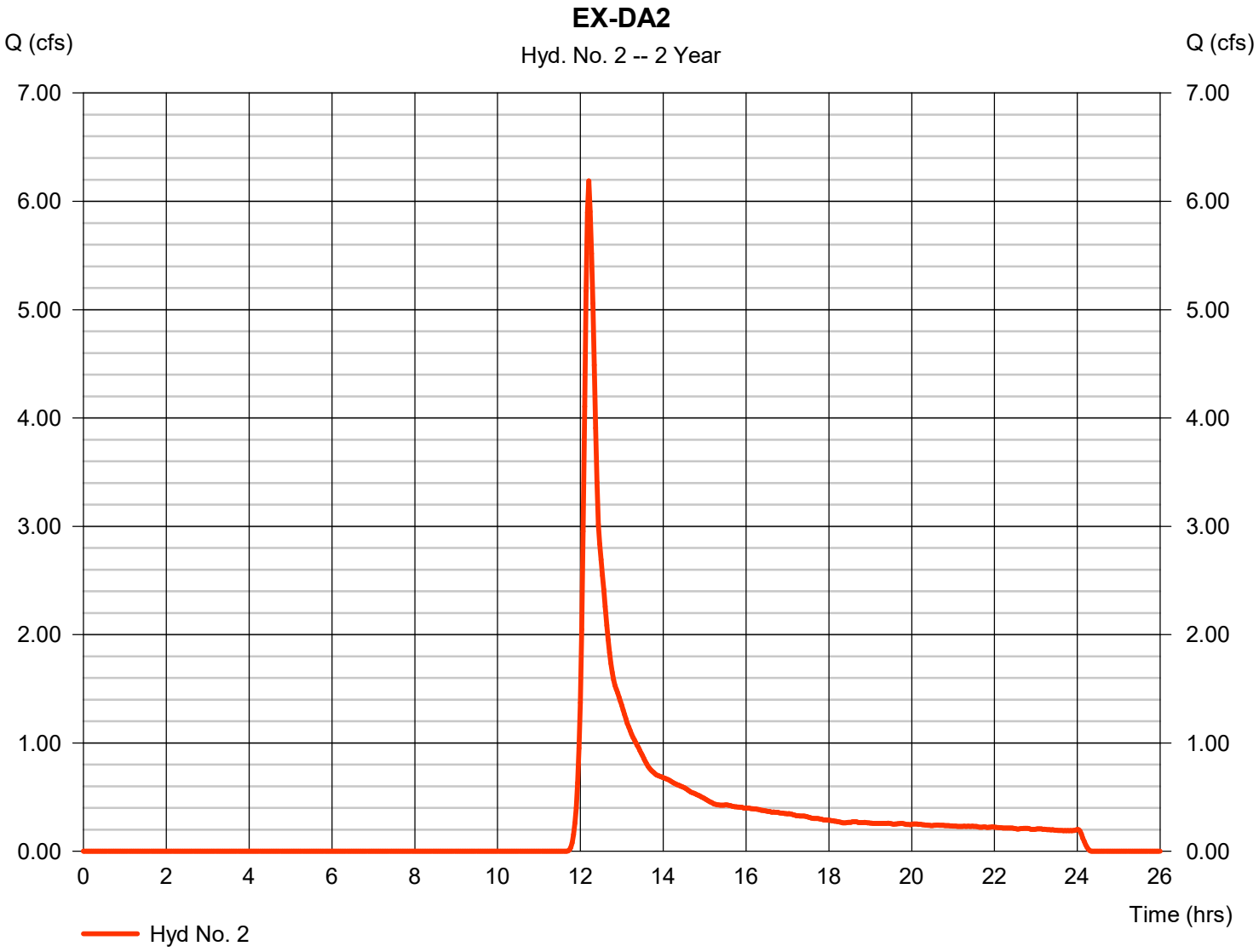
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.188 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	25,752 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

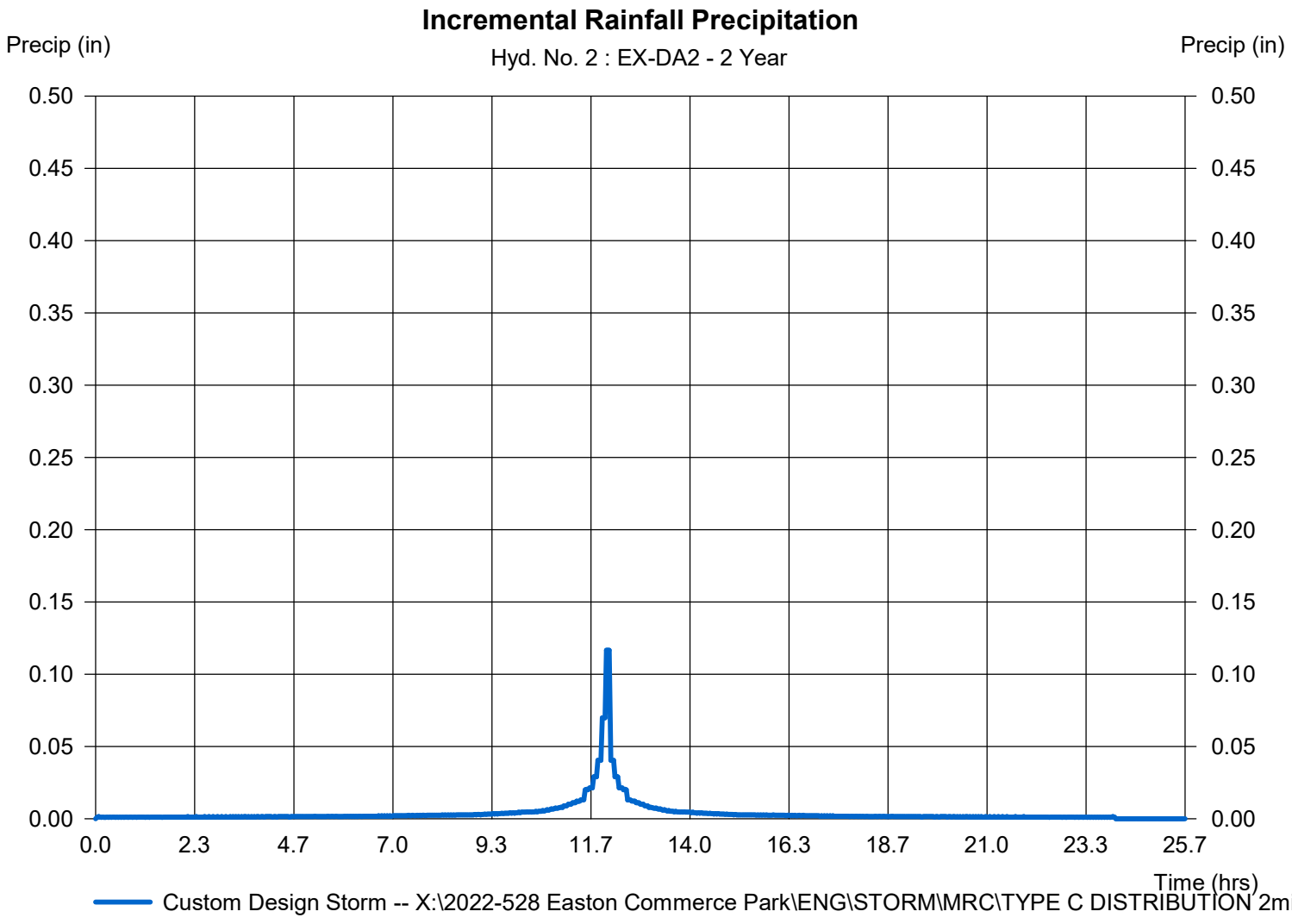


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



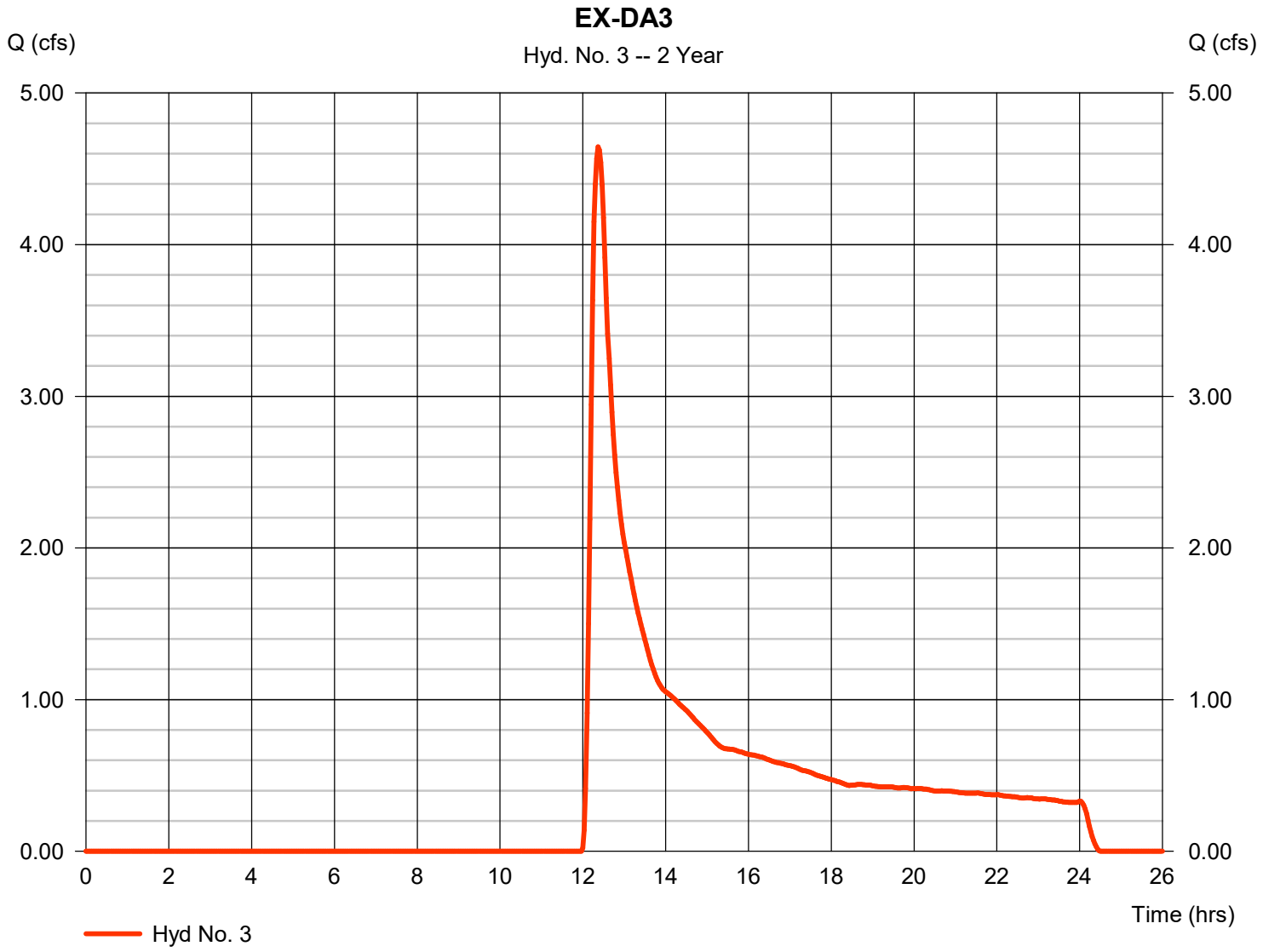
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.645 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.37 hrs
Time interval	=	2 min	Hyd. volume	=	34,220 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

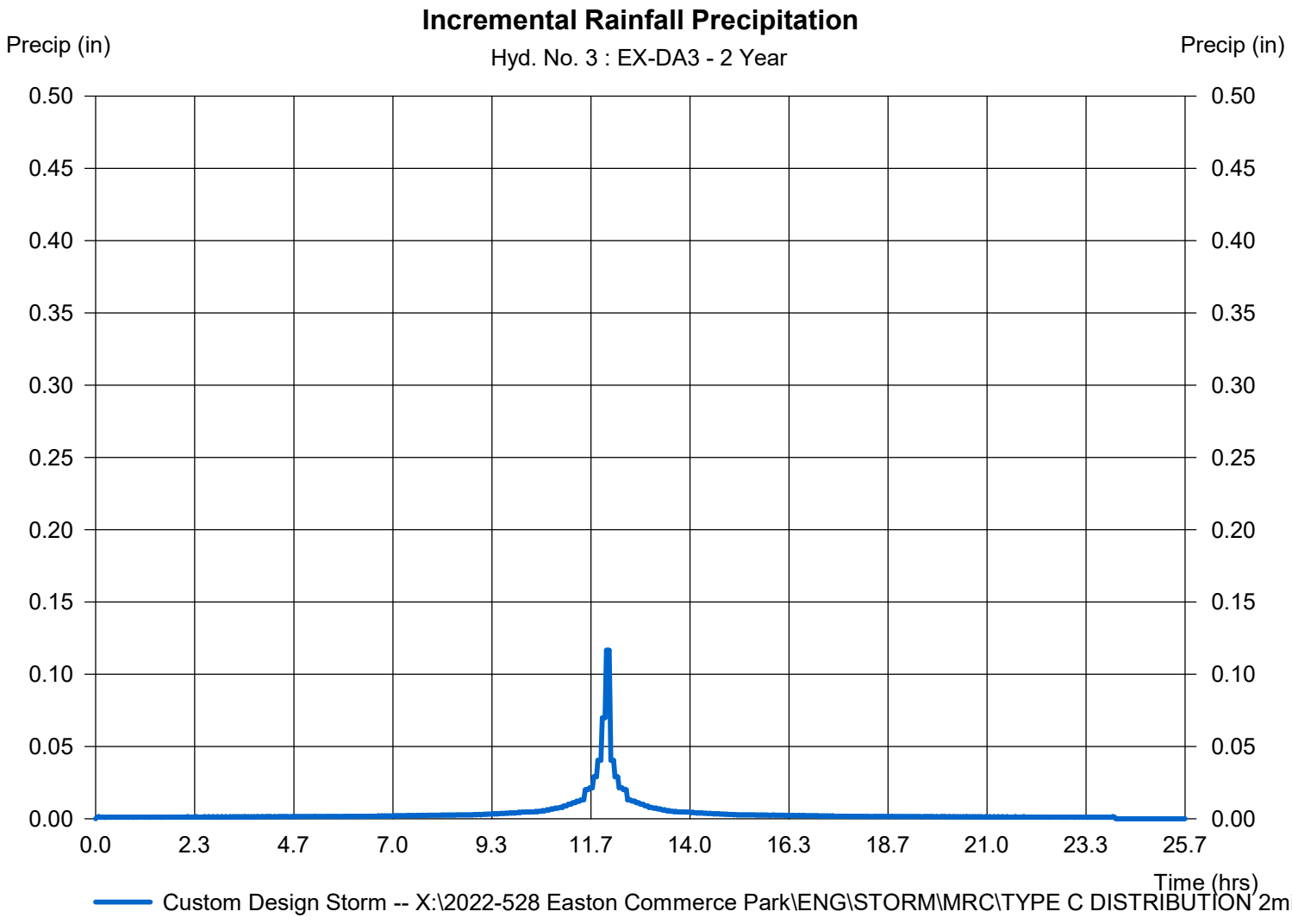


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



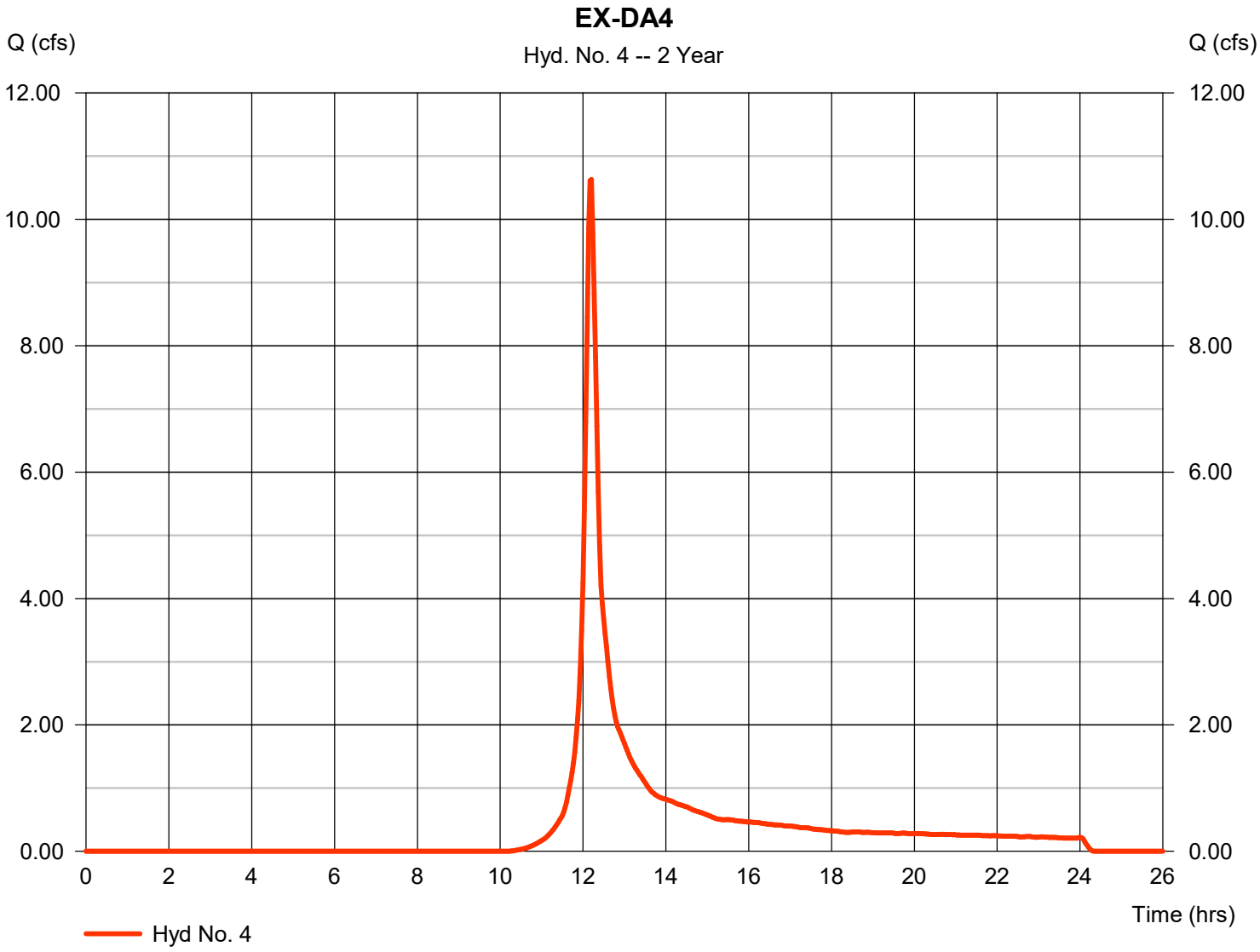
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.63 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	37,905 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

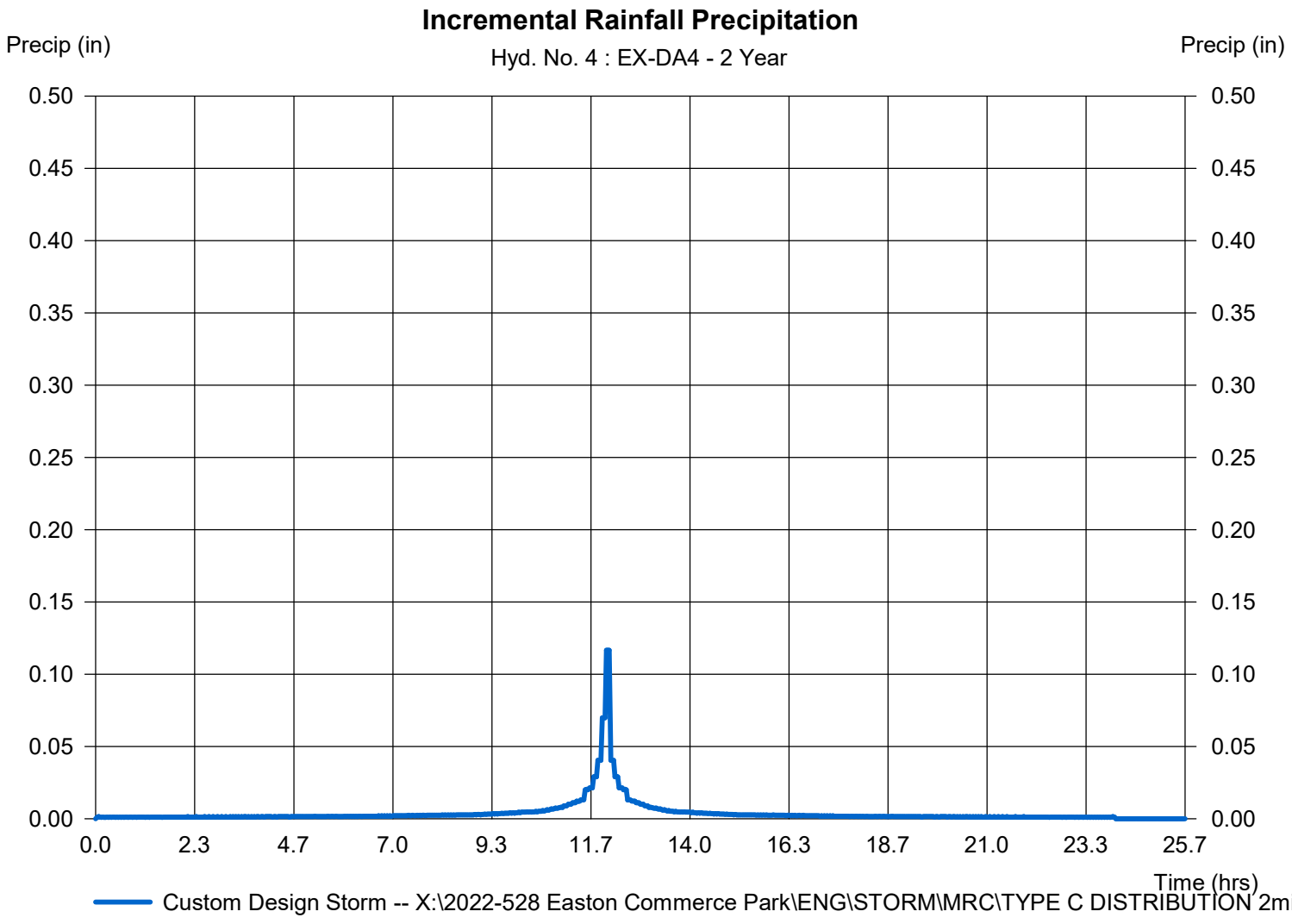


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



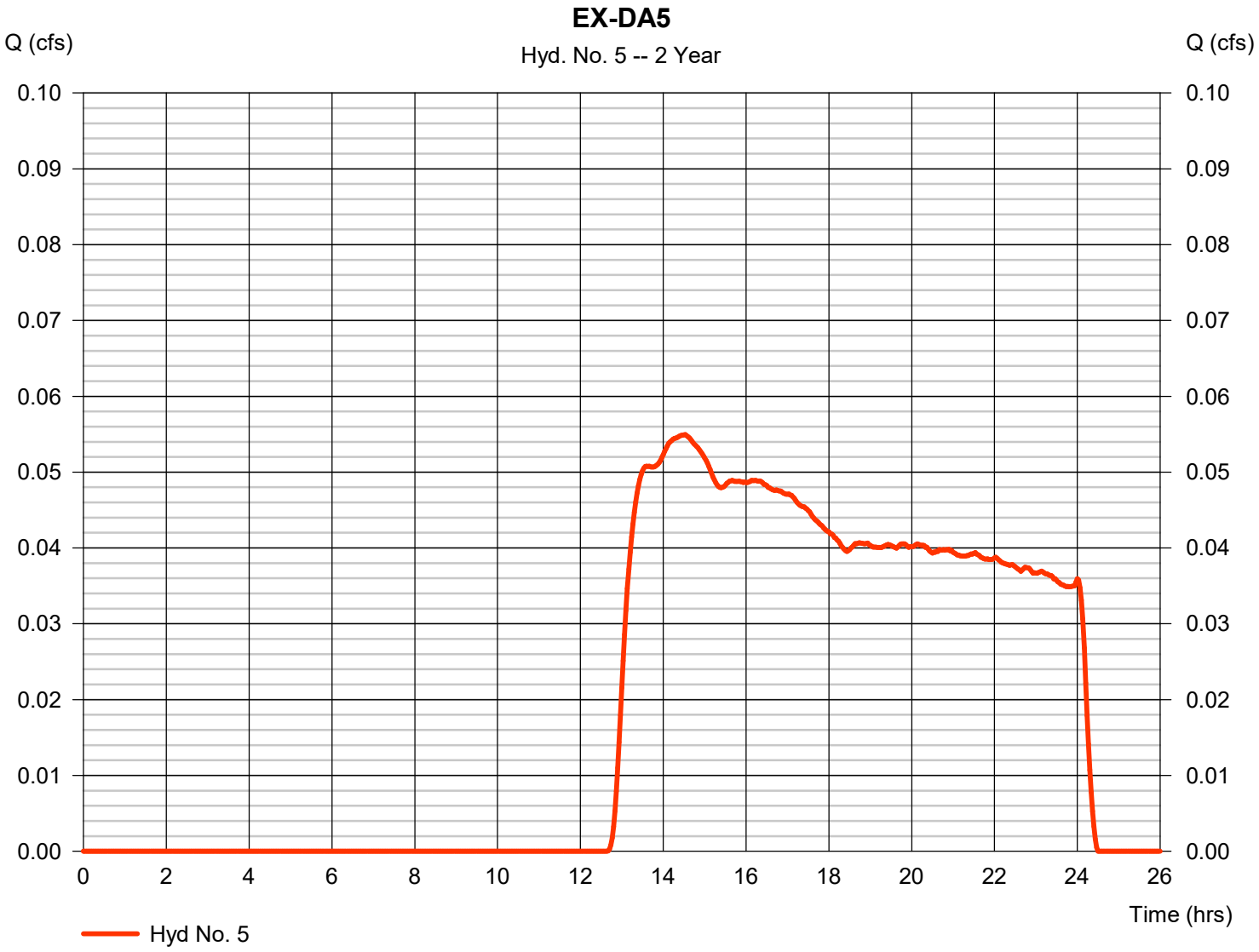
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.055 cfs
Storm frequency	=	2 yrs	Time to peak	=	14.53 hrs
Time interval	=	2 min	Hyd. volume	=	1,748 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

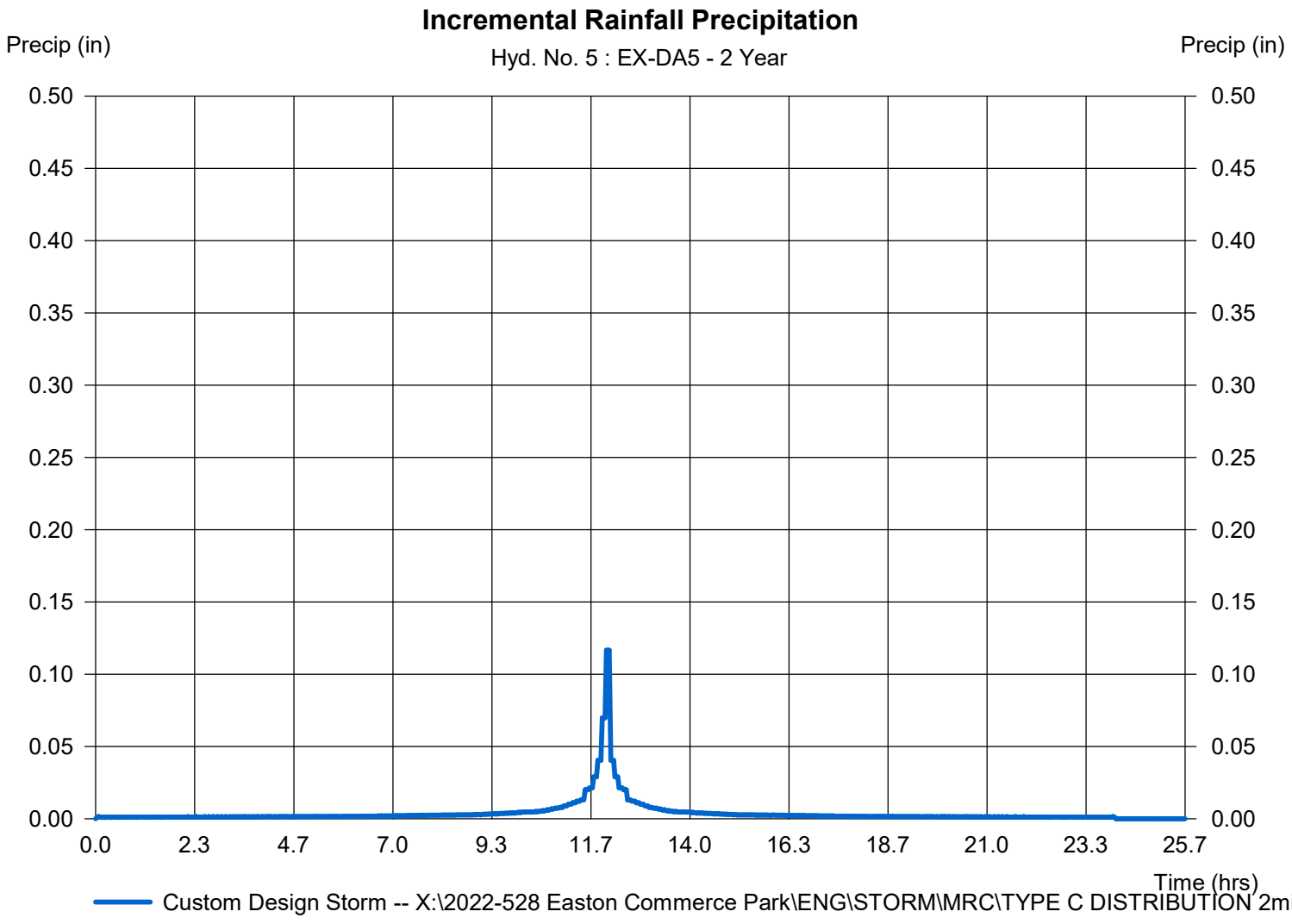


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



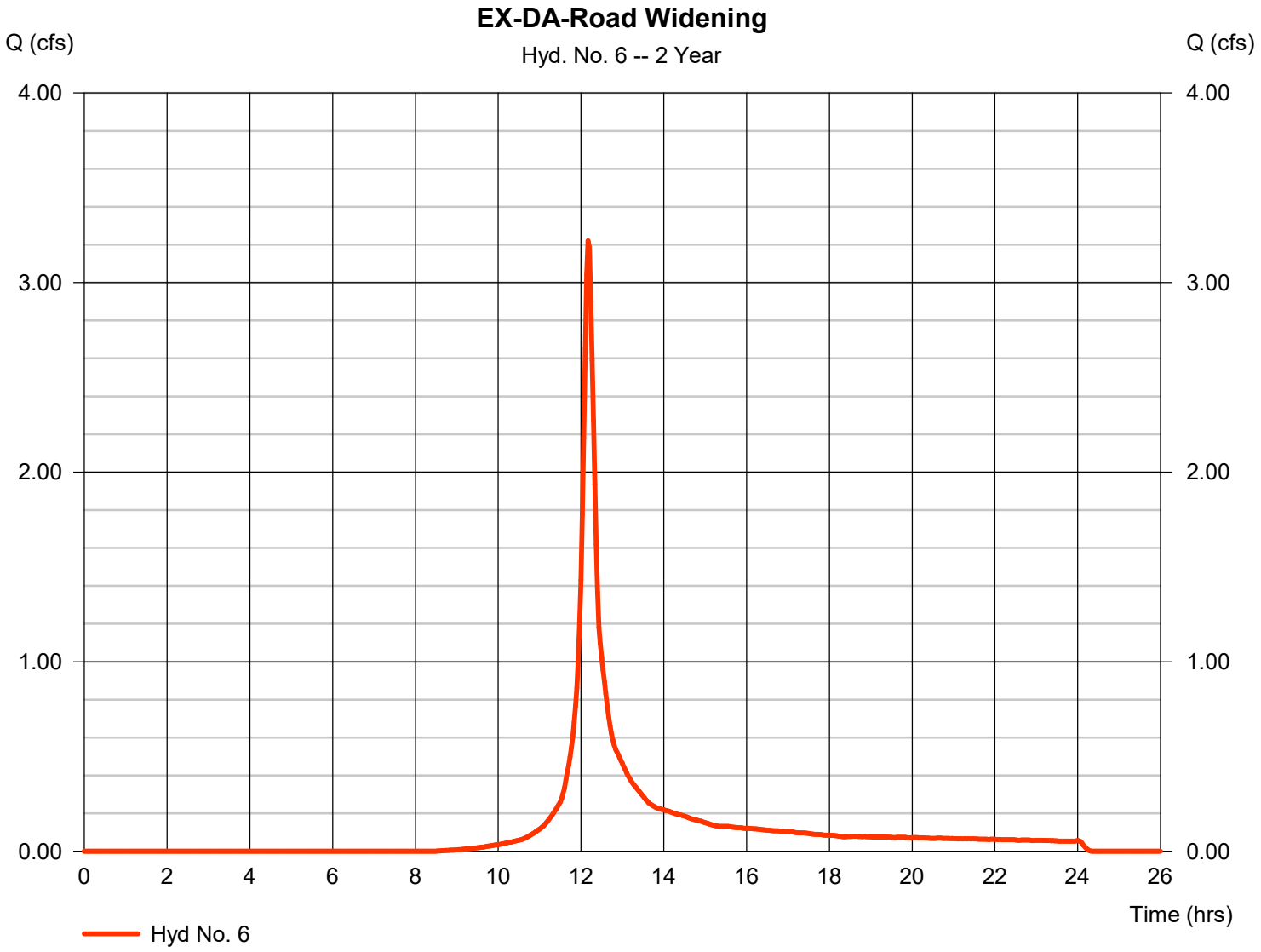
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.220 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	11,239 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

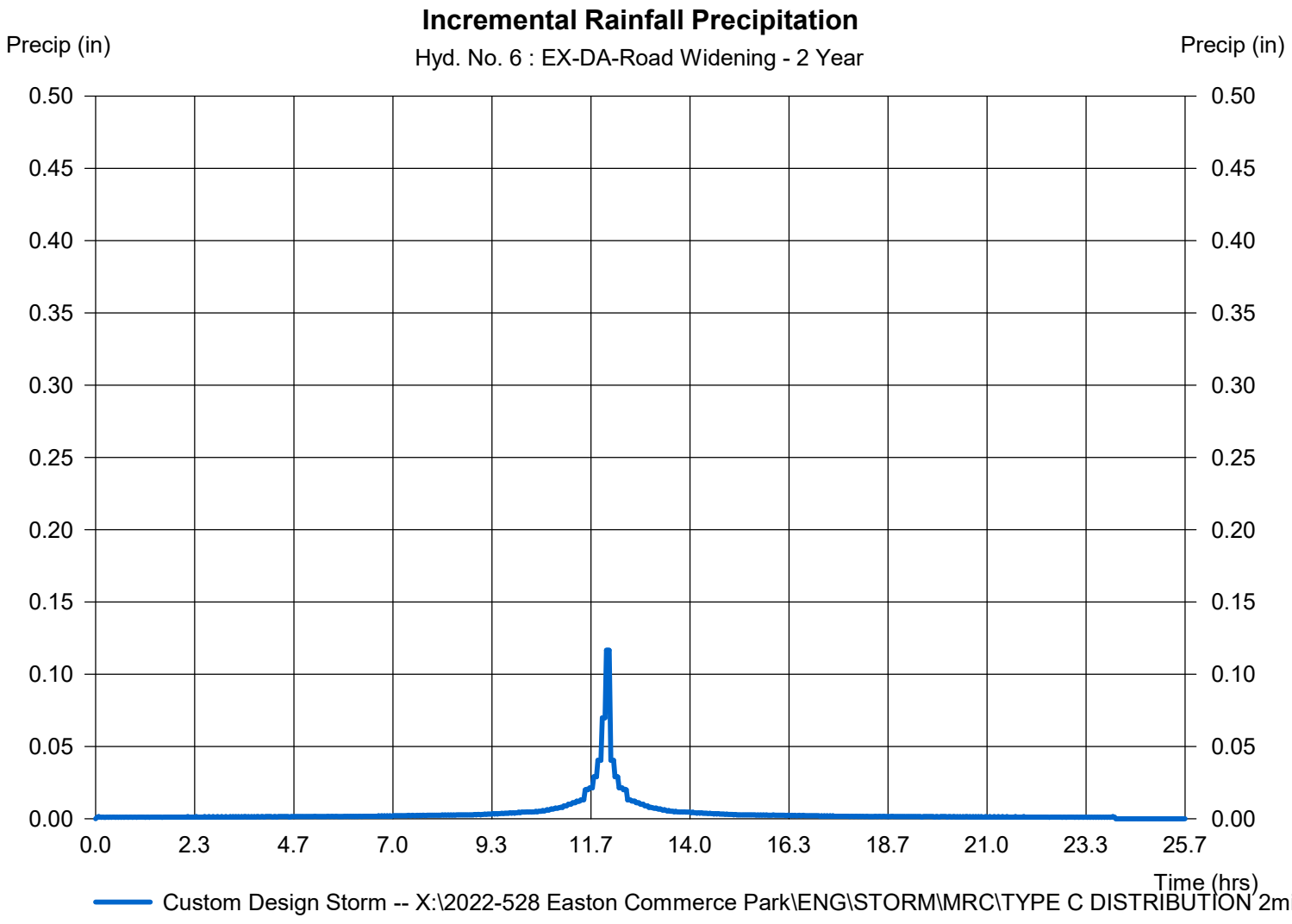


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

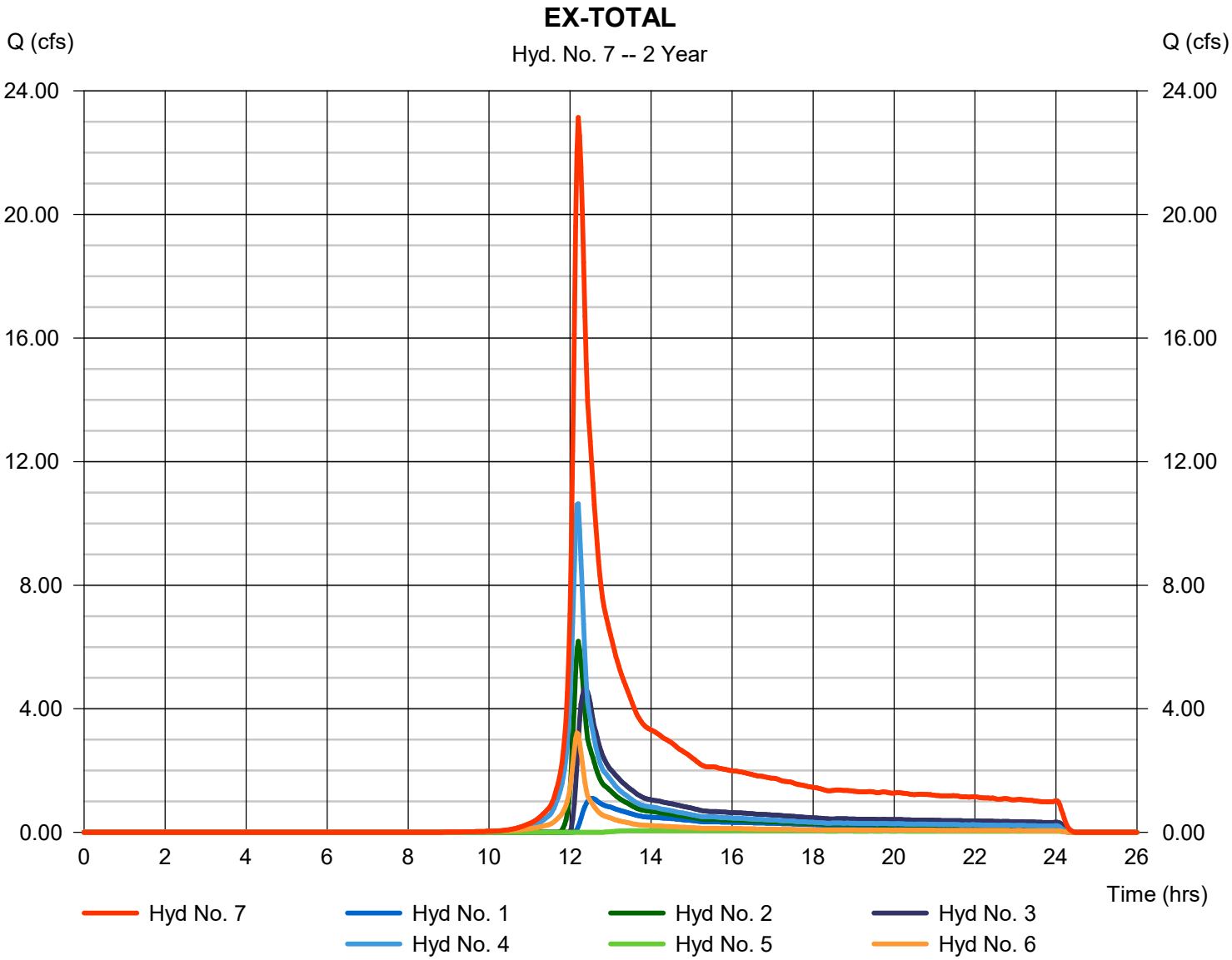


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	= Combine	Peak discharge	= 23.14 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 125,263 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 82.880 ac



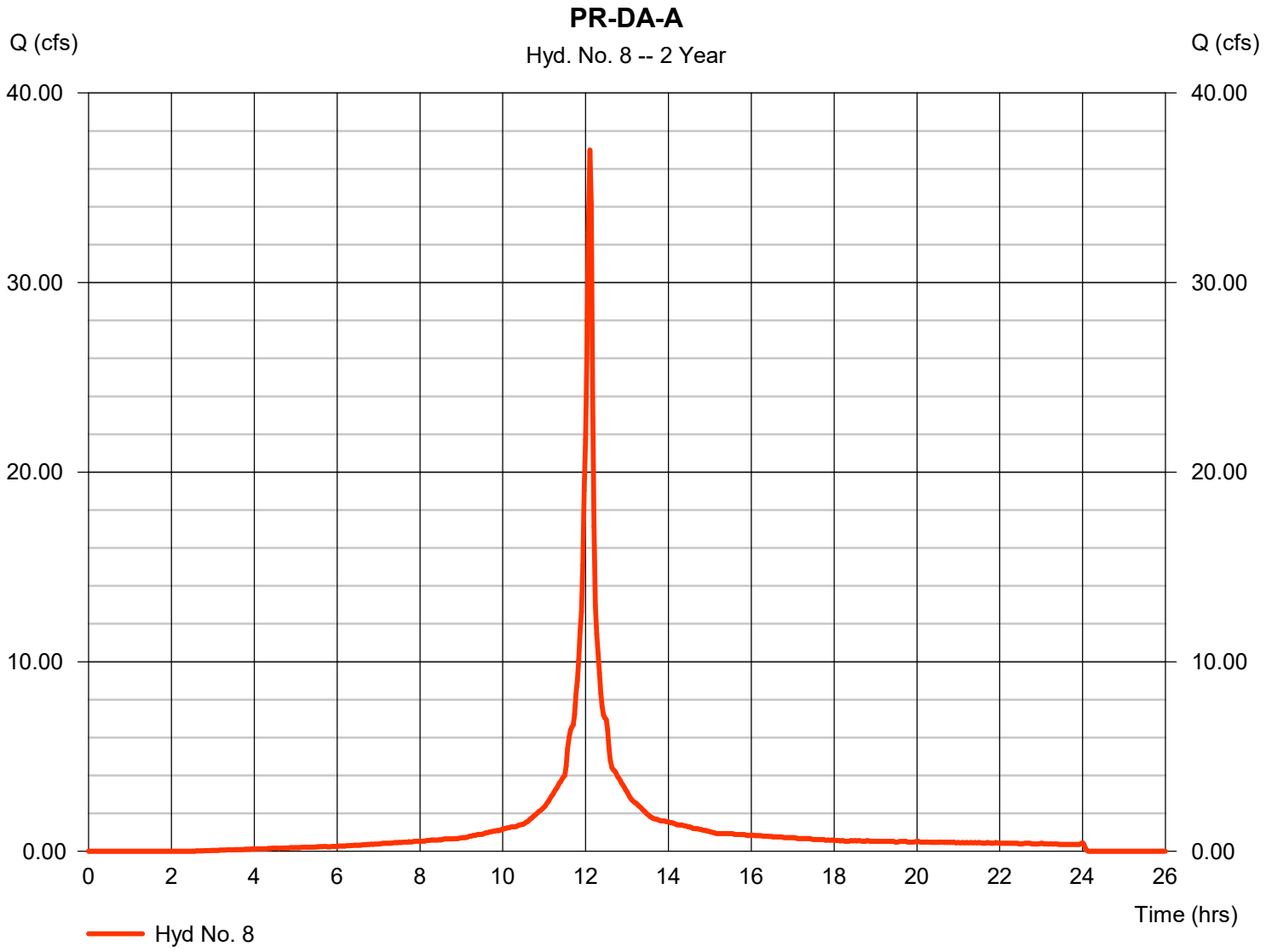
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	36.98 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	107,695 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24 HR TYPE C DISTRIBUTION			

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

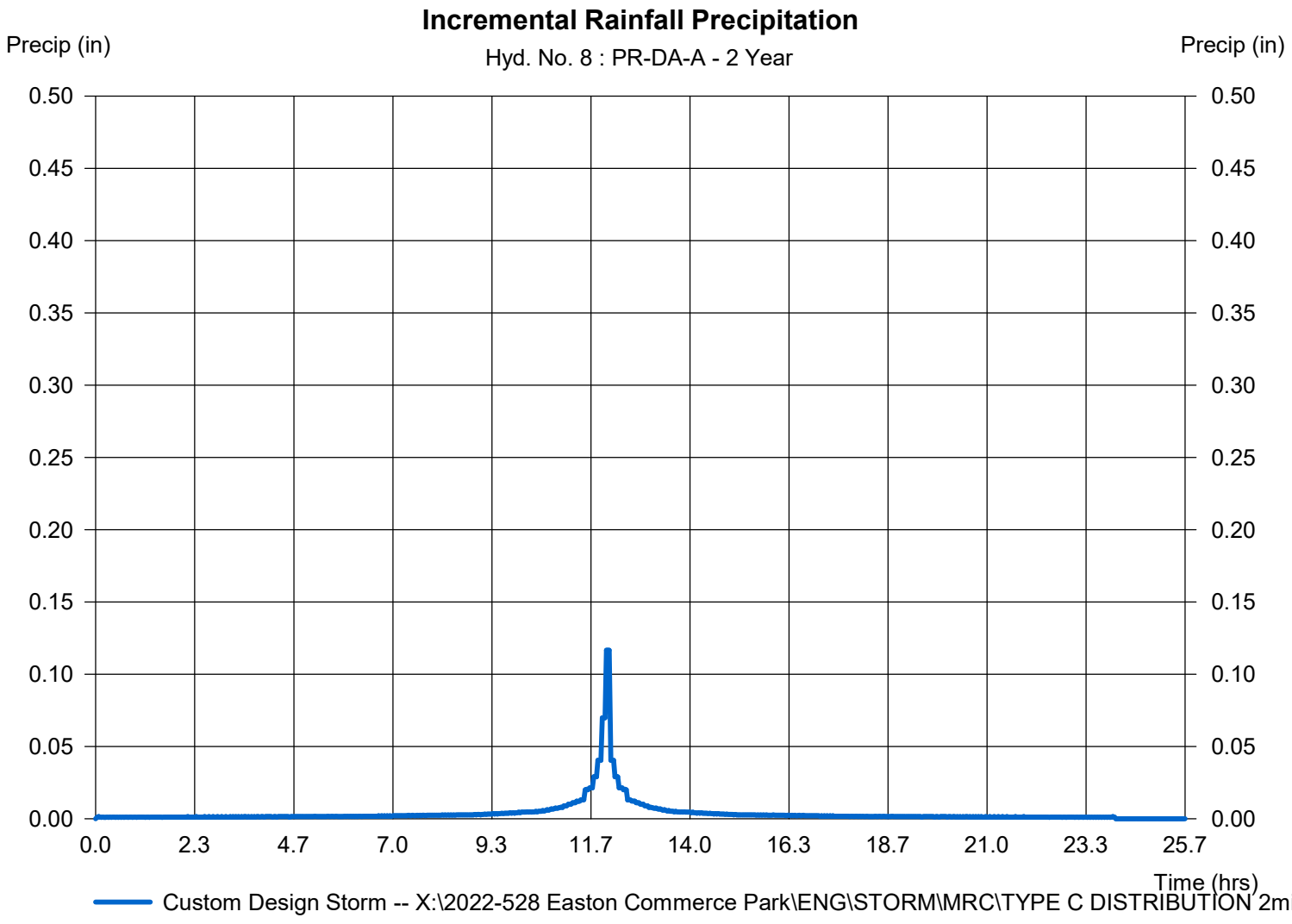


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



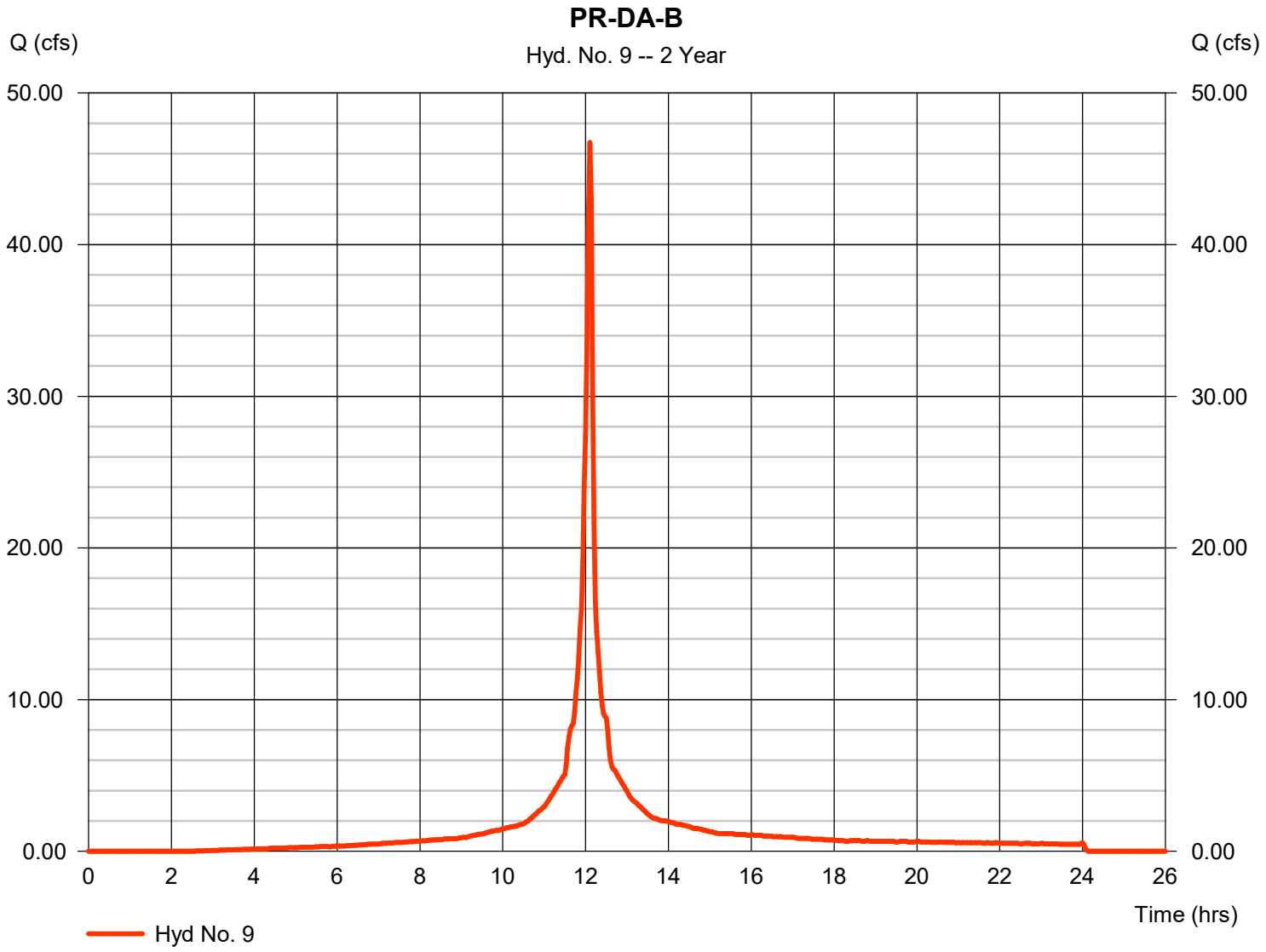
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	46.74 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	136,095 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

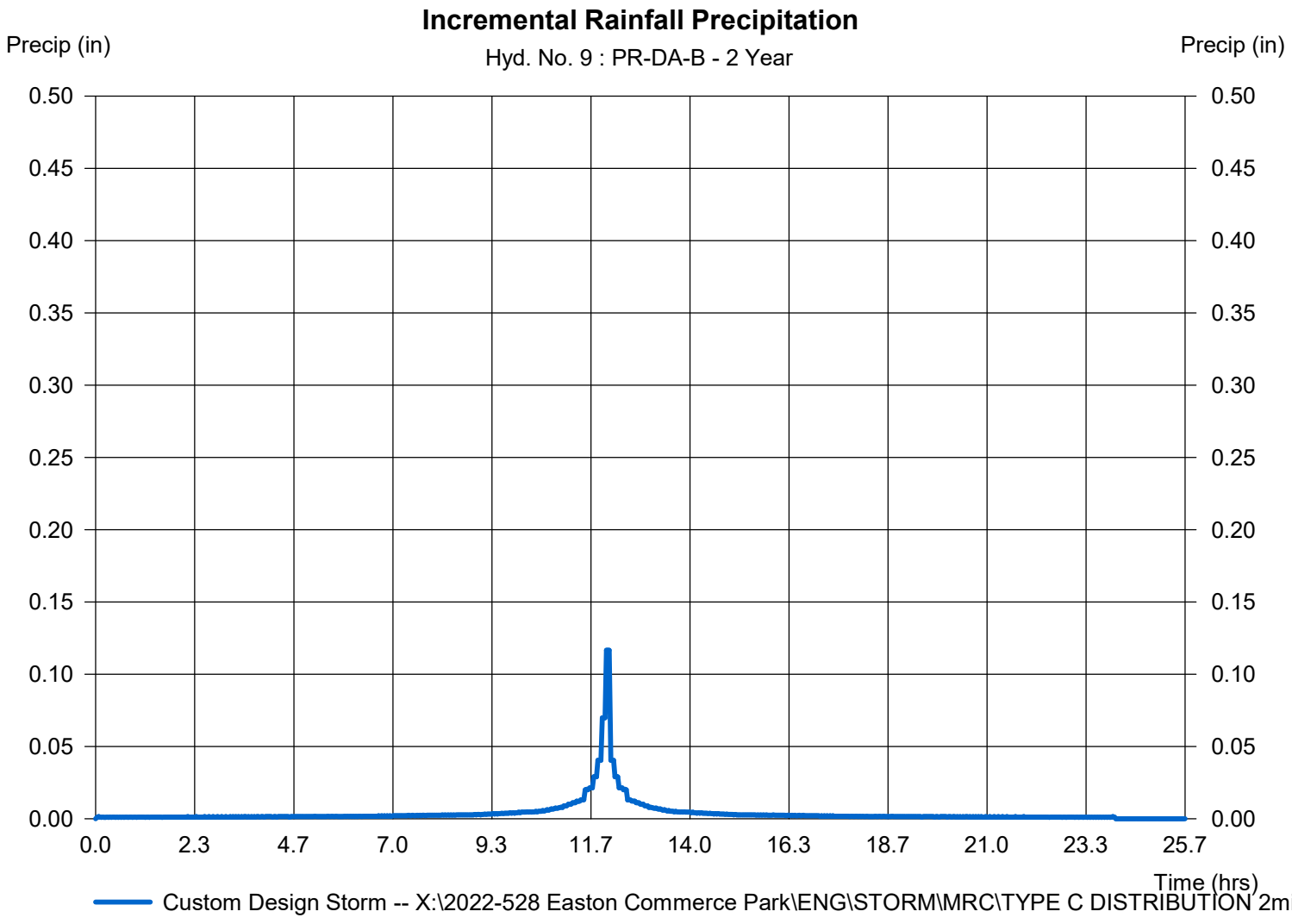


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



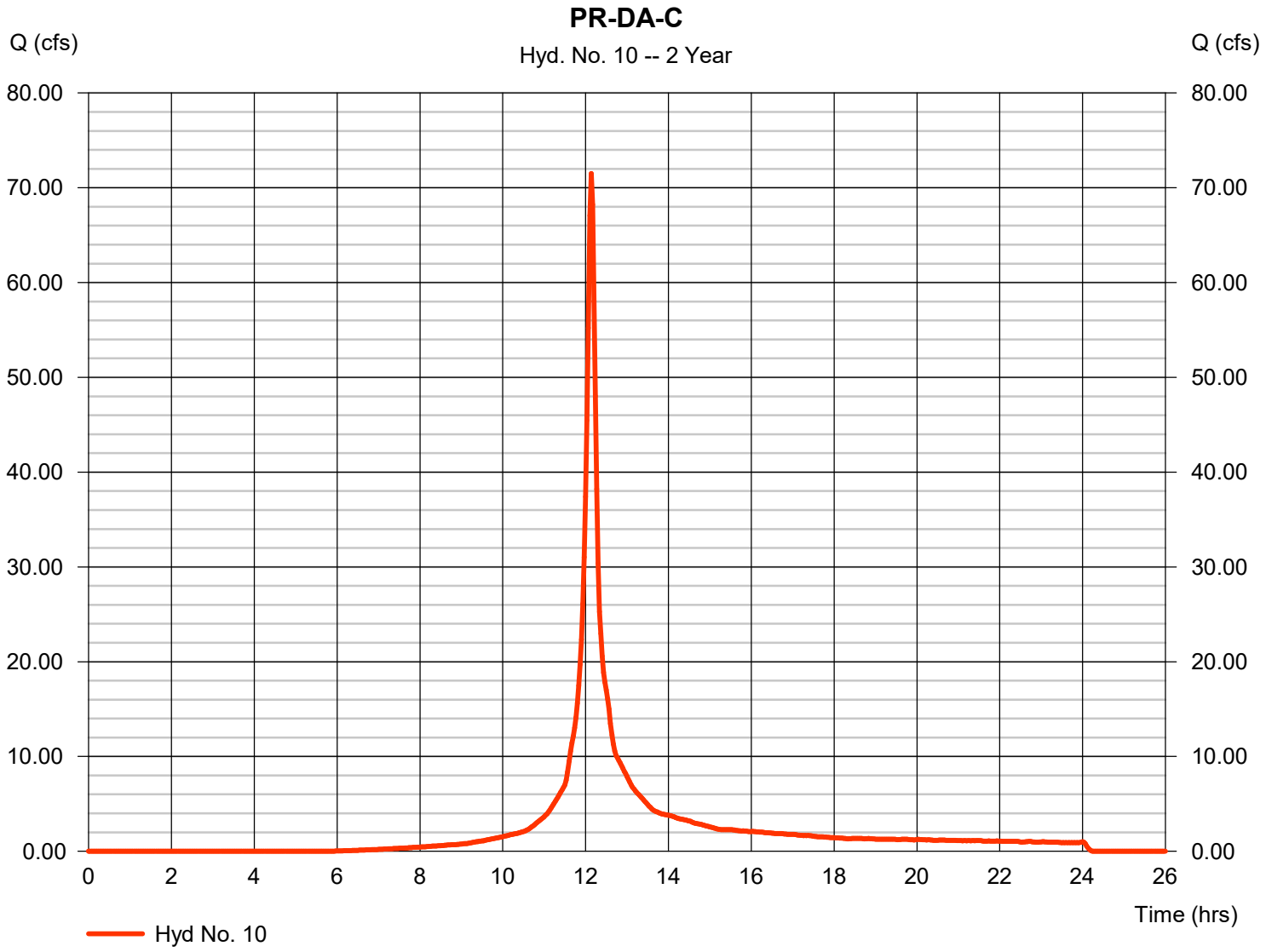
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	71.50 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	223,634 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

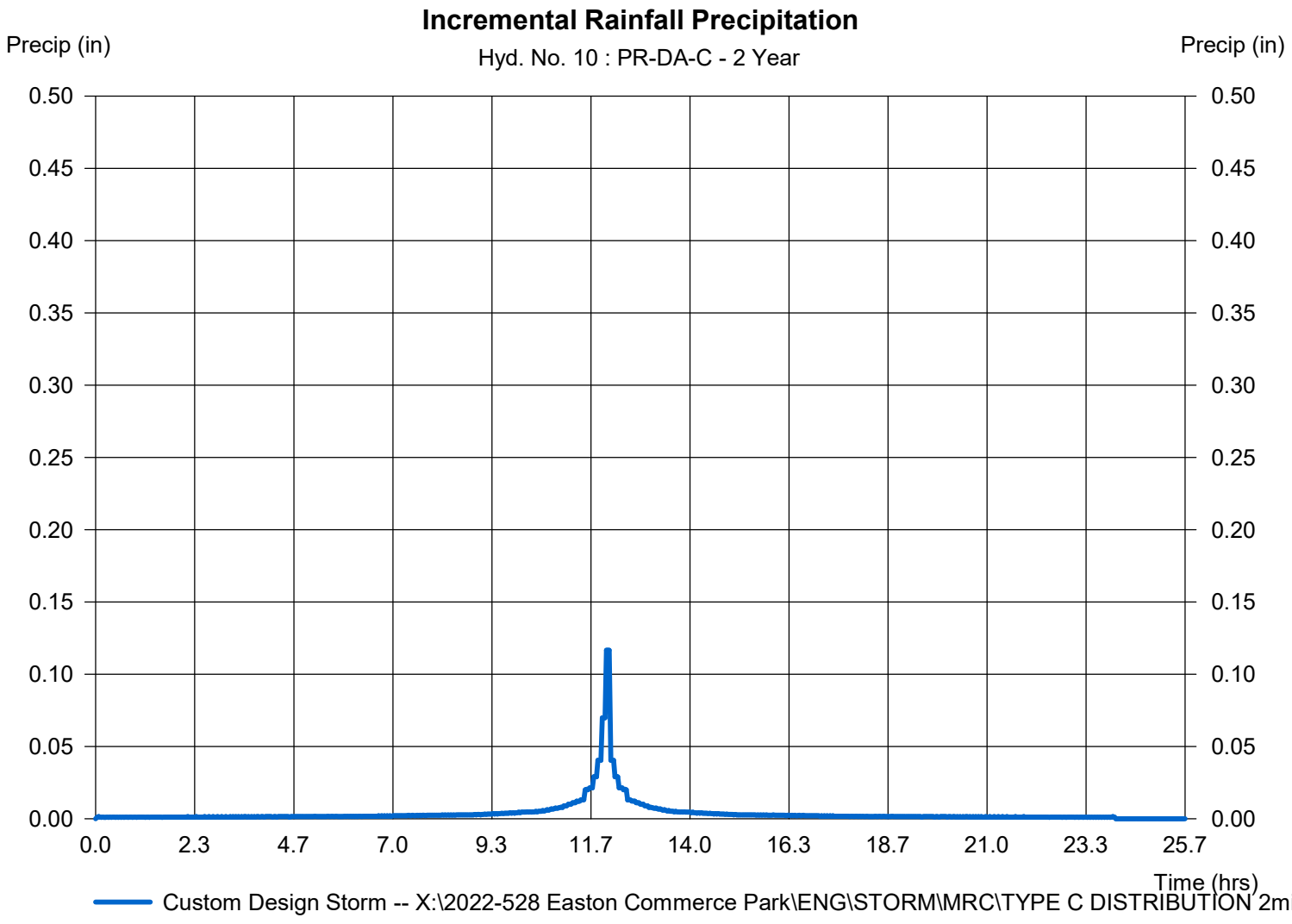


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



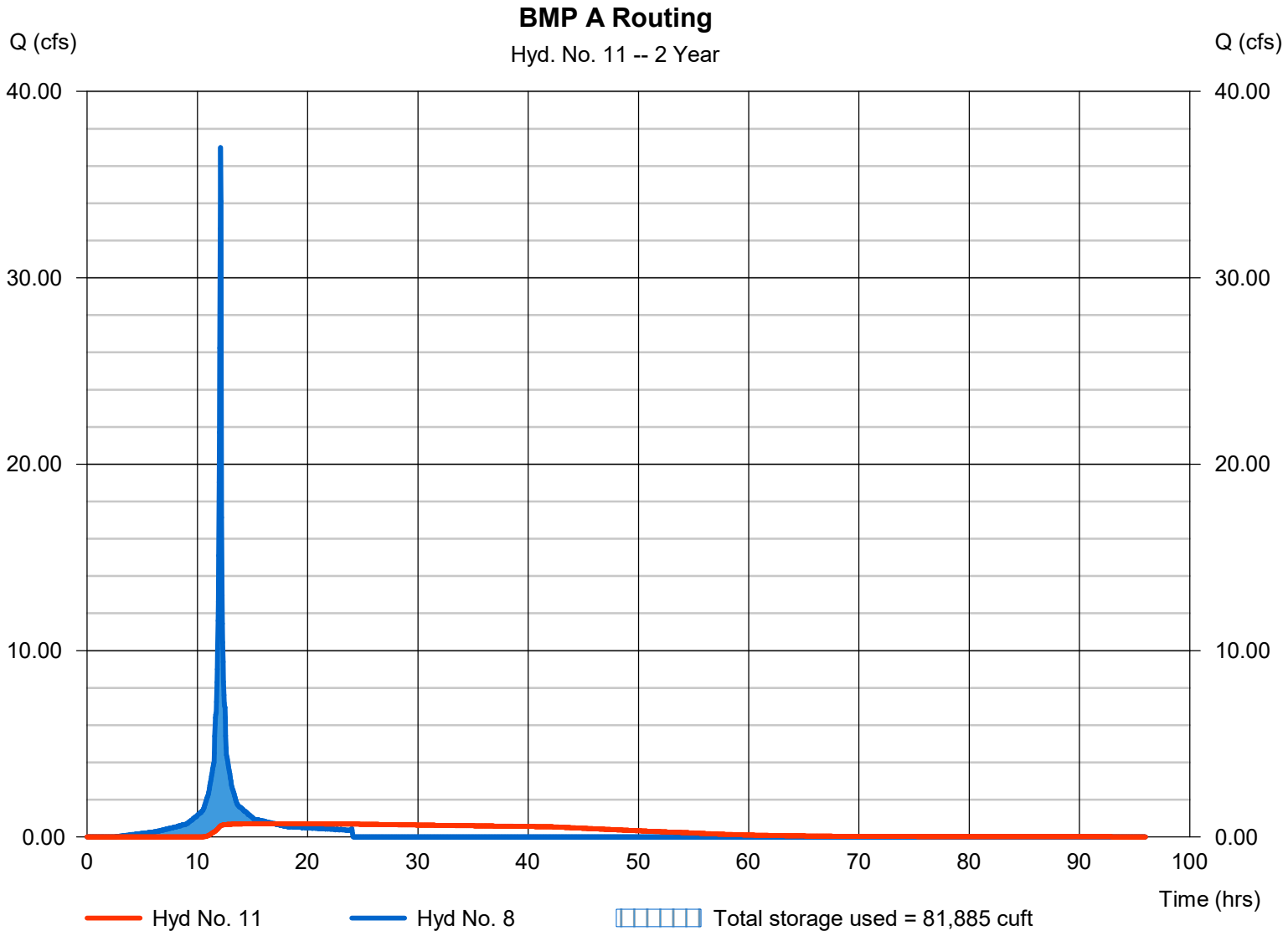
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.709 cfs
Storm frequency	=	2 yrs	Time to peak	=	17.07 hrs
Time interval	=	2 min	Hyd. volume	=	95,122 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.55 ft
Reservoir name	=	BMP A	Max. Storage	=	81,885 cuft

Storage Indication method used.



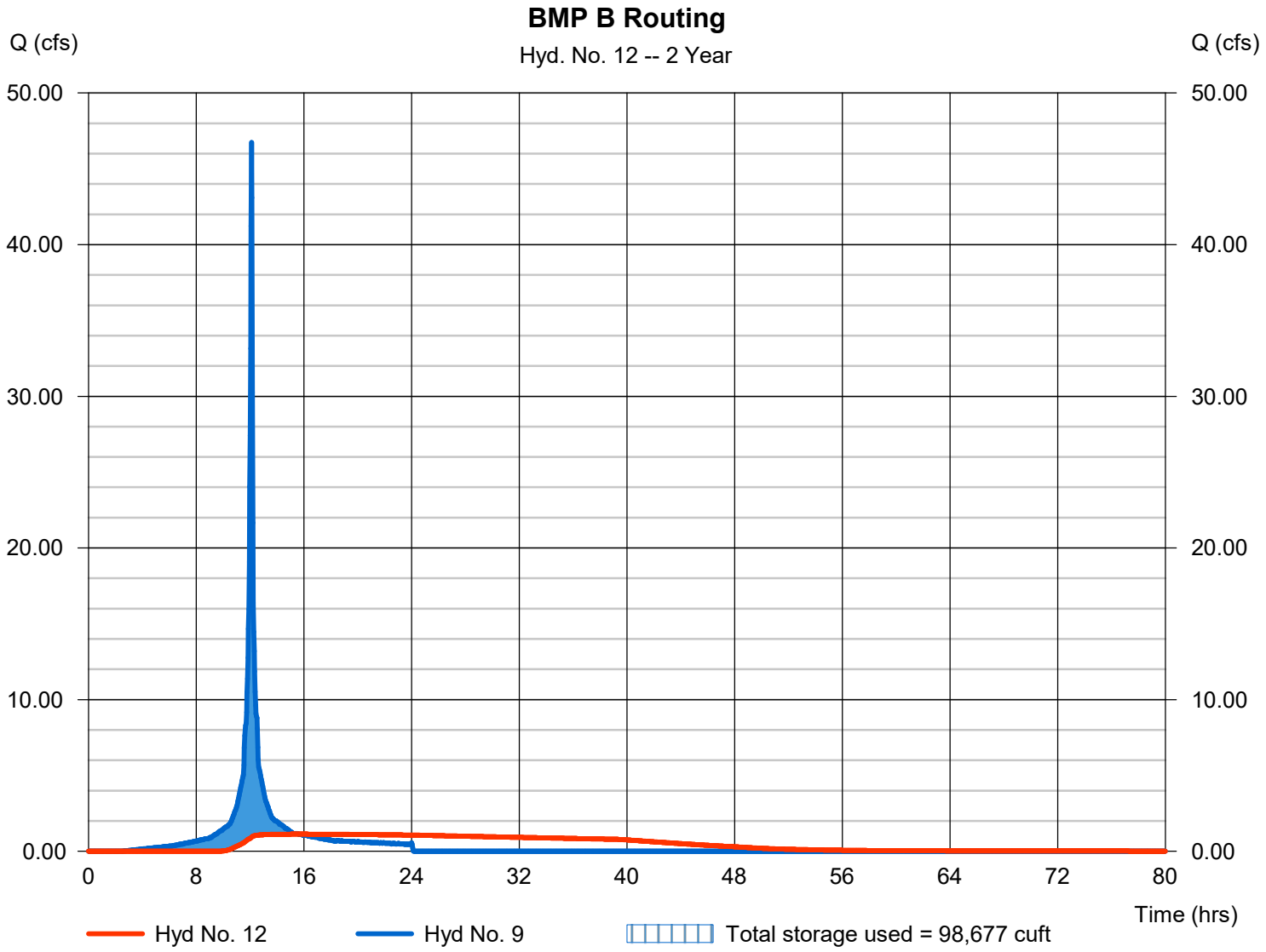
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.127 cfs
Storm frequency	=	2 yrs	Time to peak	=	15.60 hrs
Time interval	=	2 min	Hyd. volume	=	124,453 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.79 ft
Reservoir name	=	BMP B	Max. Storage	=	98,677 cuft

Storage Indication method used.



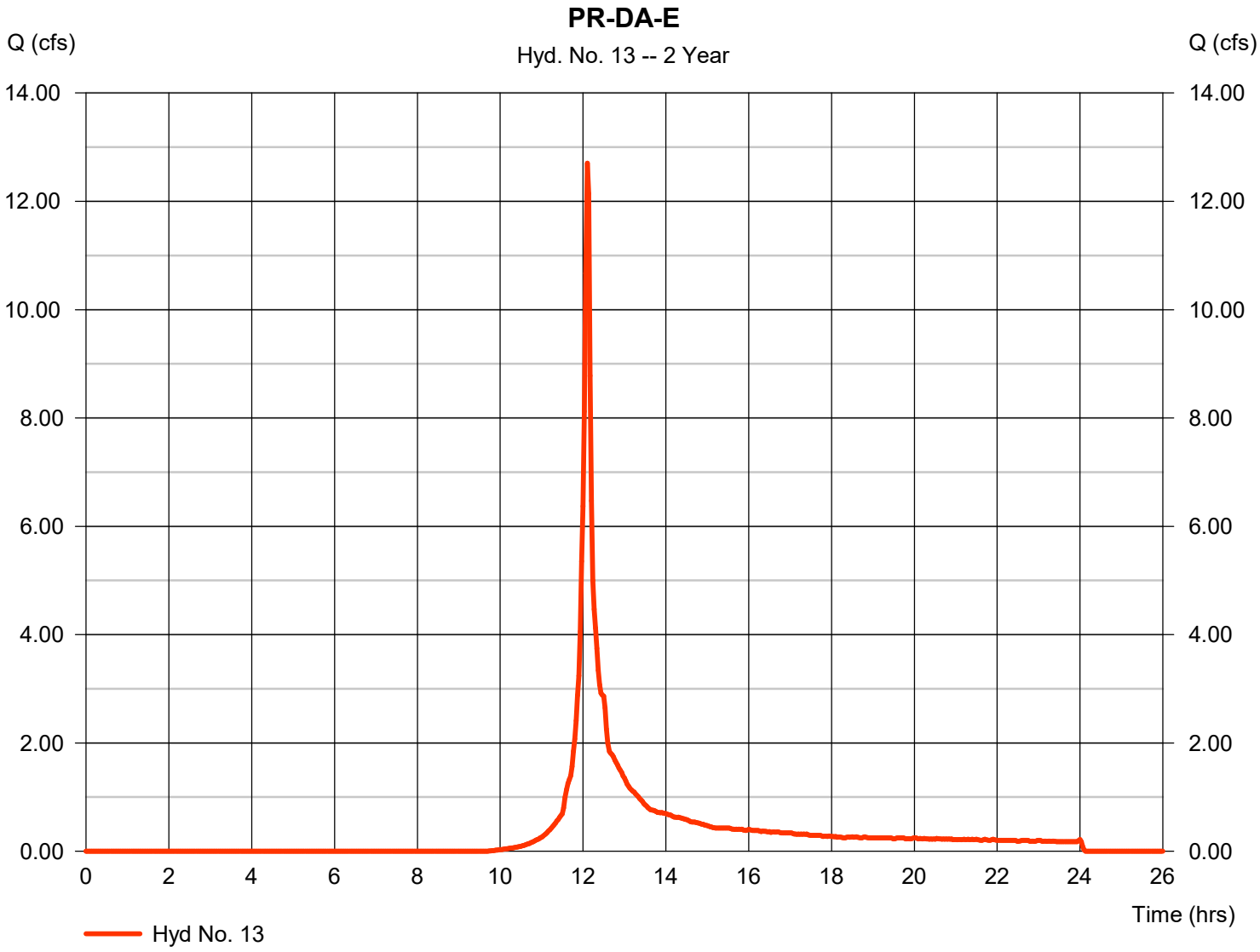
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.70 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	33,776 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24			

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

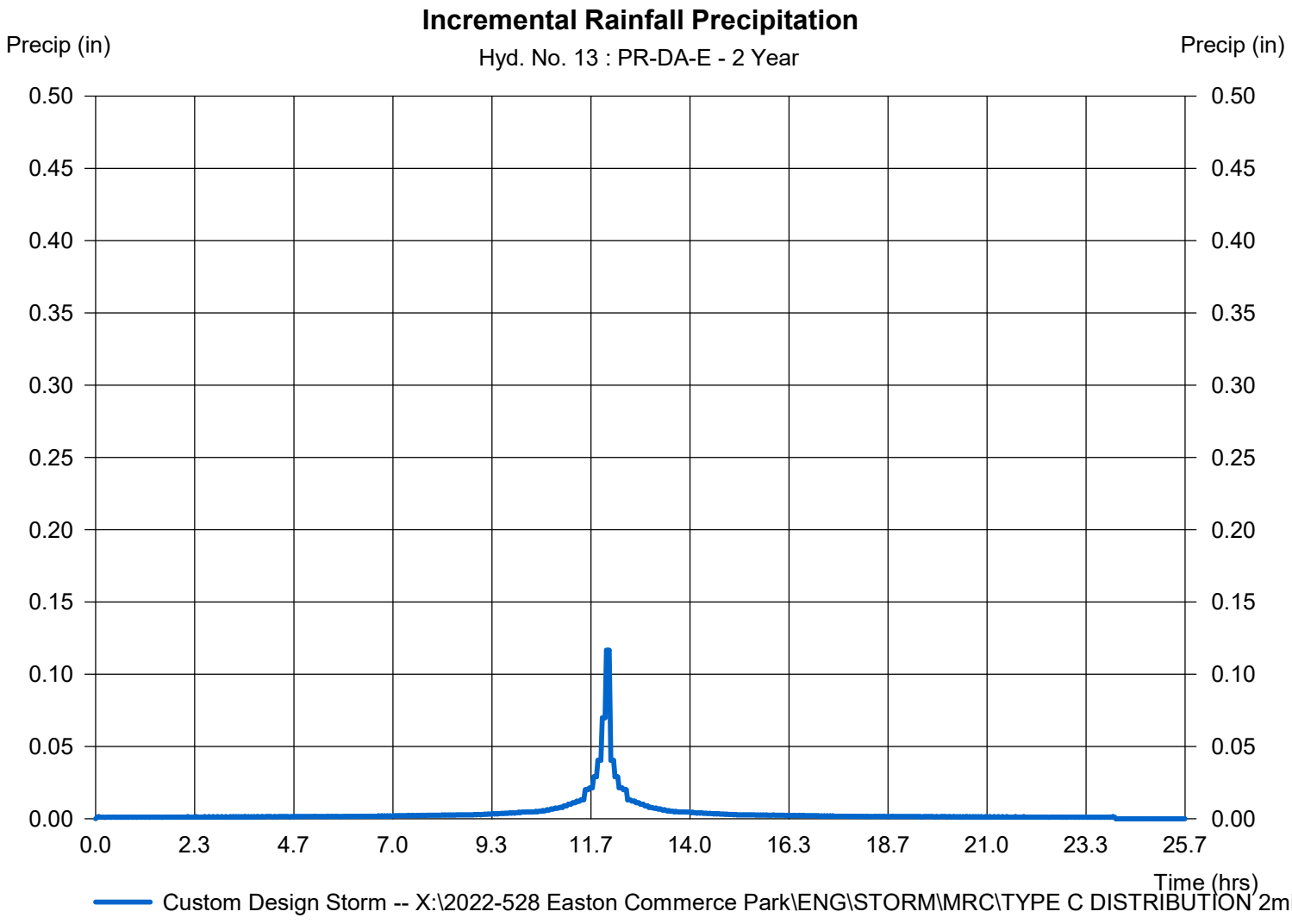


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



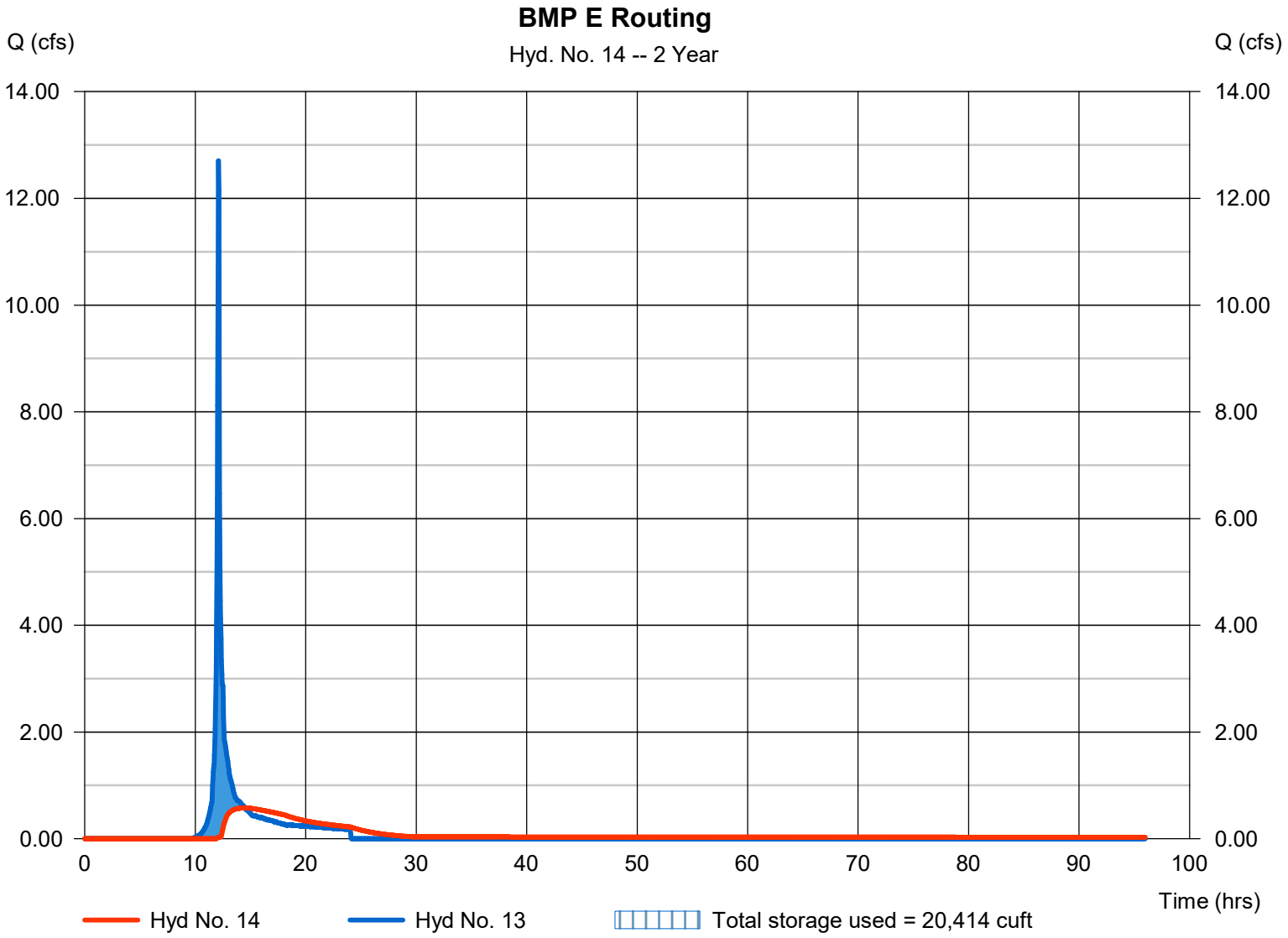
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.579 cfs
Storm frequency	=	2 yrs	Time to peak	=	14.53 hrs
Time interval	=	2 min	Hyd. volume	=	26,434 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	257.38 ft
Reservoir name	=	BMP E	Max. Storage	=	20,414 cuft

Storage Indication method used.

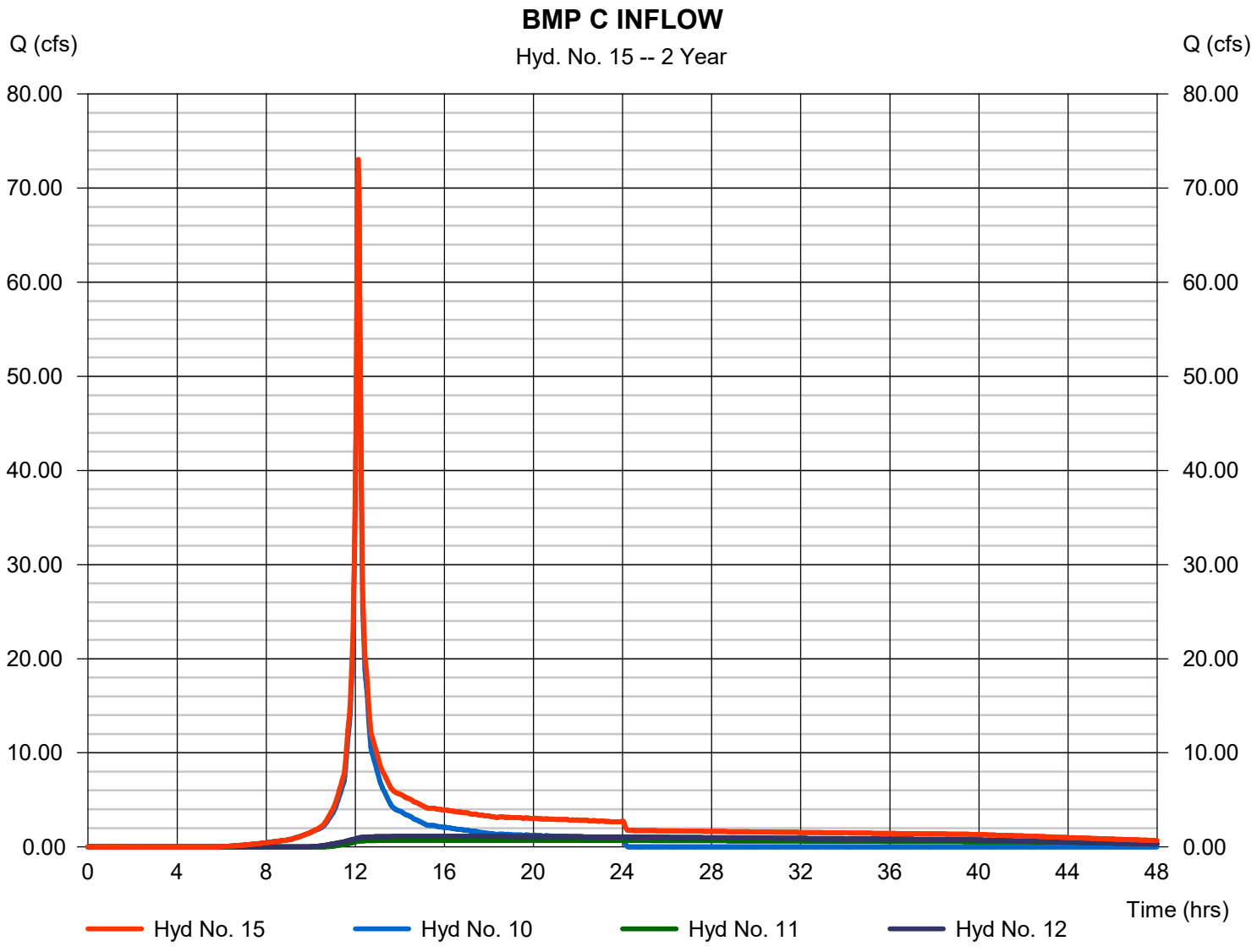


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	73.06 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	443,209 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



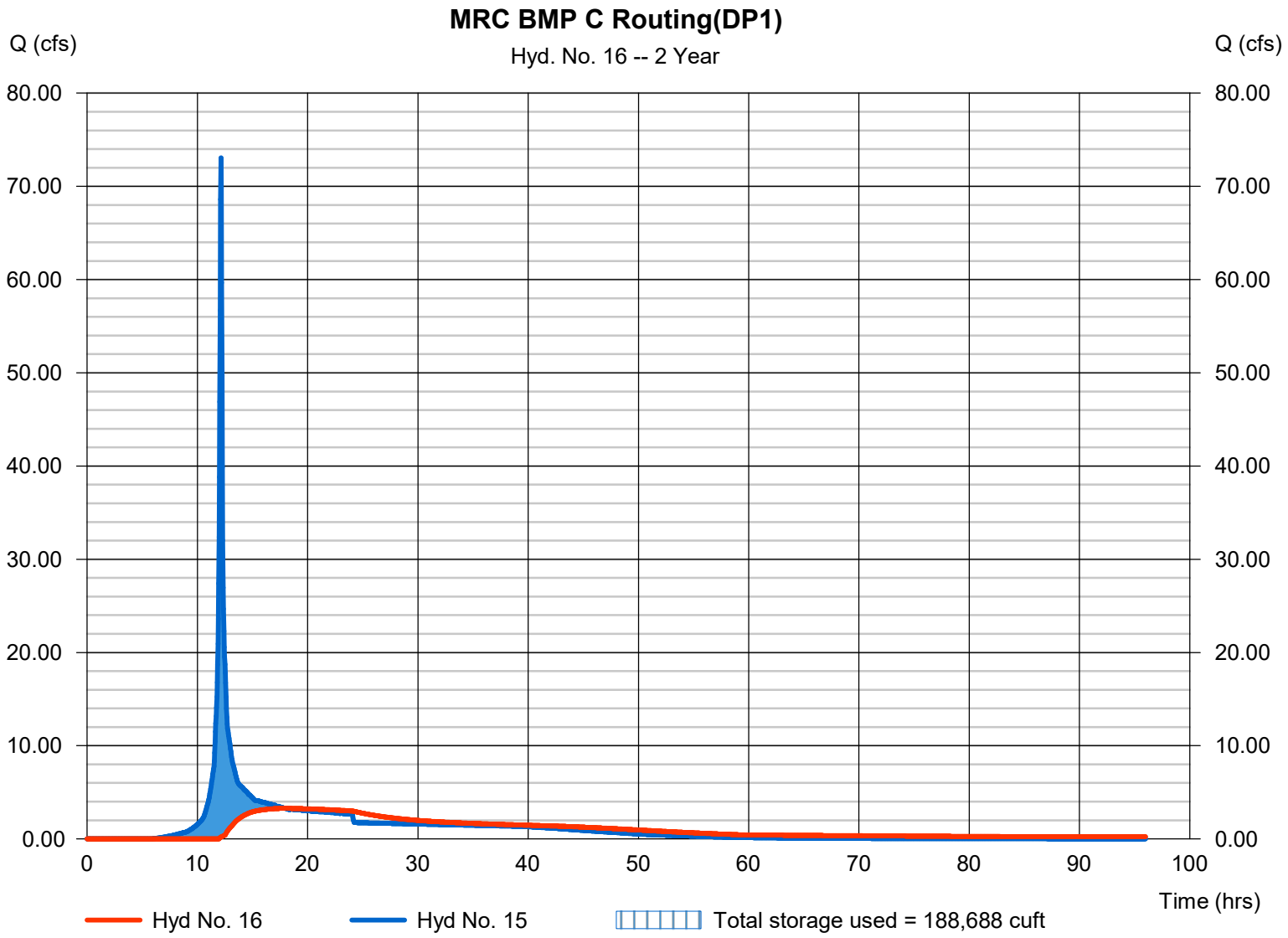
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	3.276 cfs
Storm frequency	=	2 yrs	Time to peak	=	17.90 hrs
Time interval	=	2 min	Hyd. volume	=	340,449 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.85 ft
Reservoir name	=	BMP C	Max. Storage	=	188,688 cuft

Storage Indication method used.



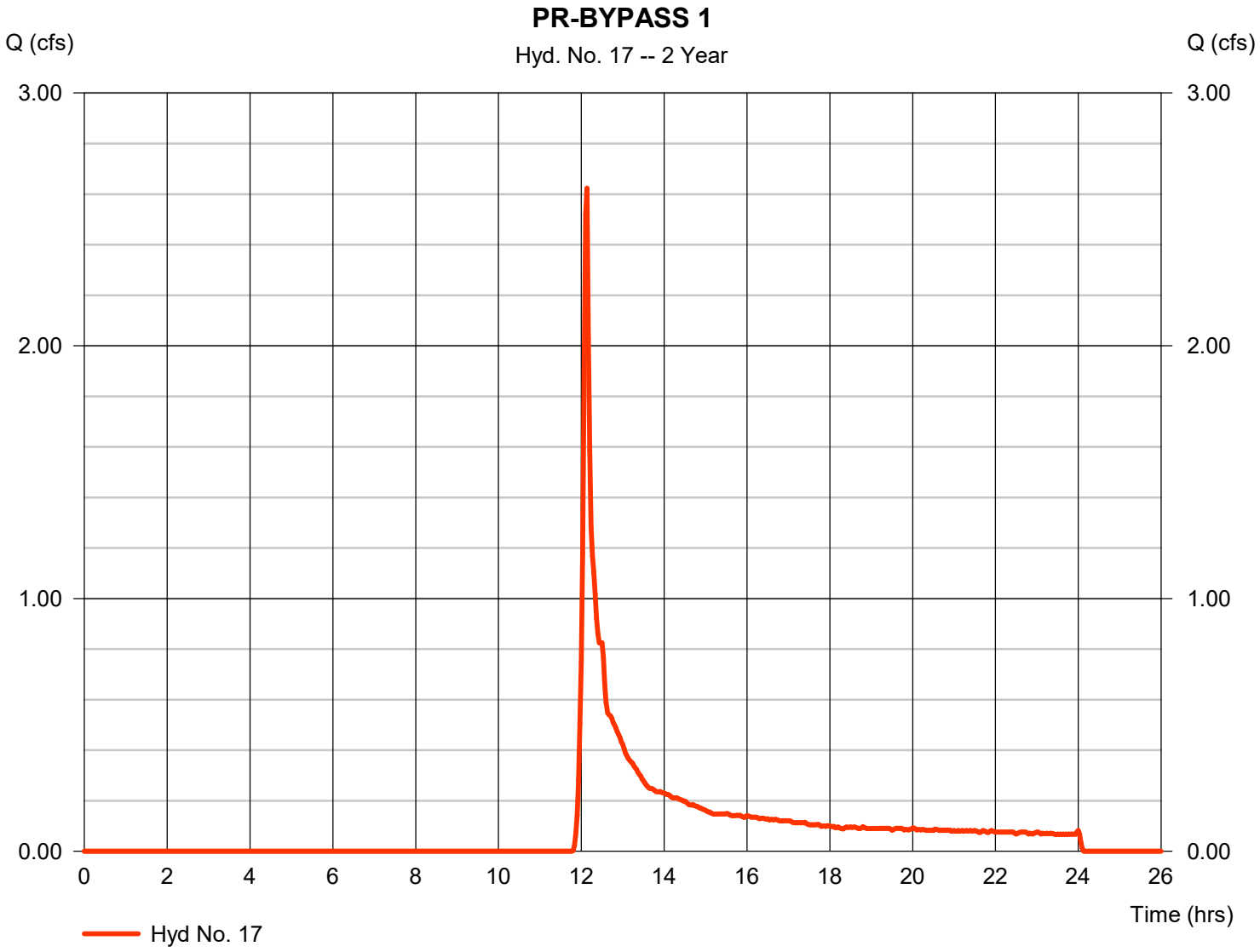
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.623 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	8,525 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

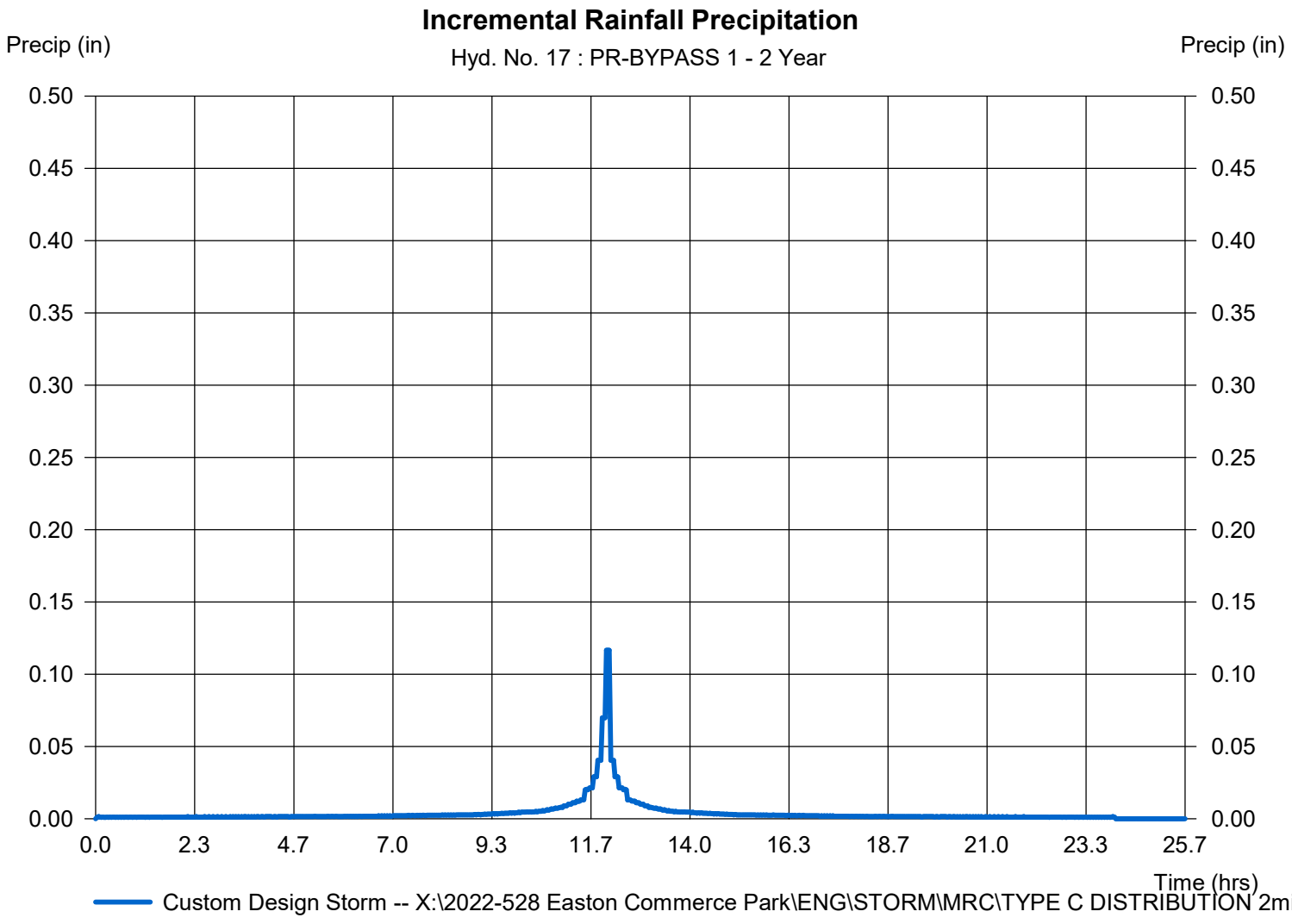


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



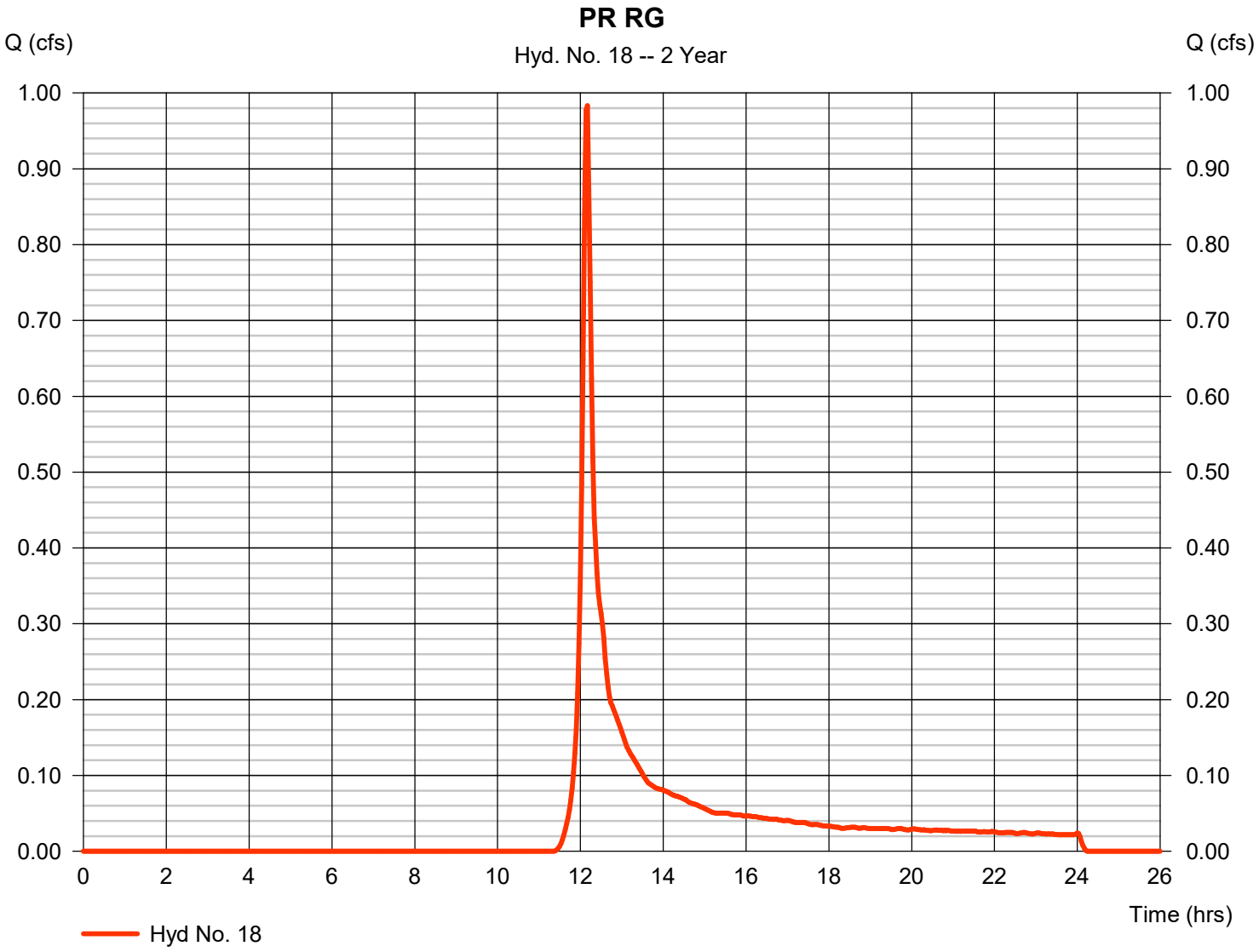
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.983 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	3,312 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

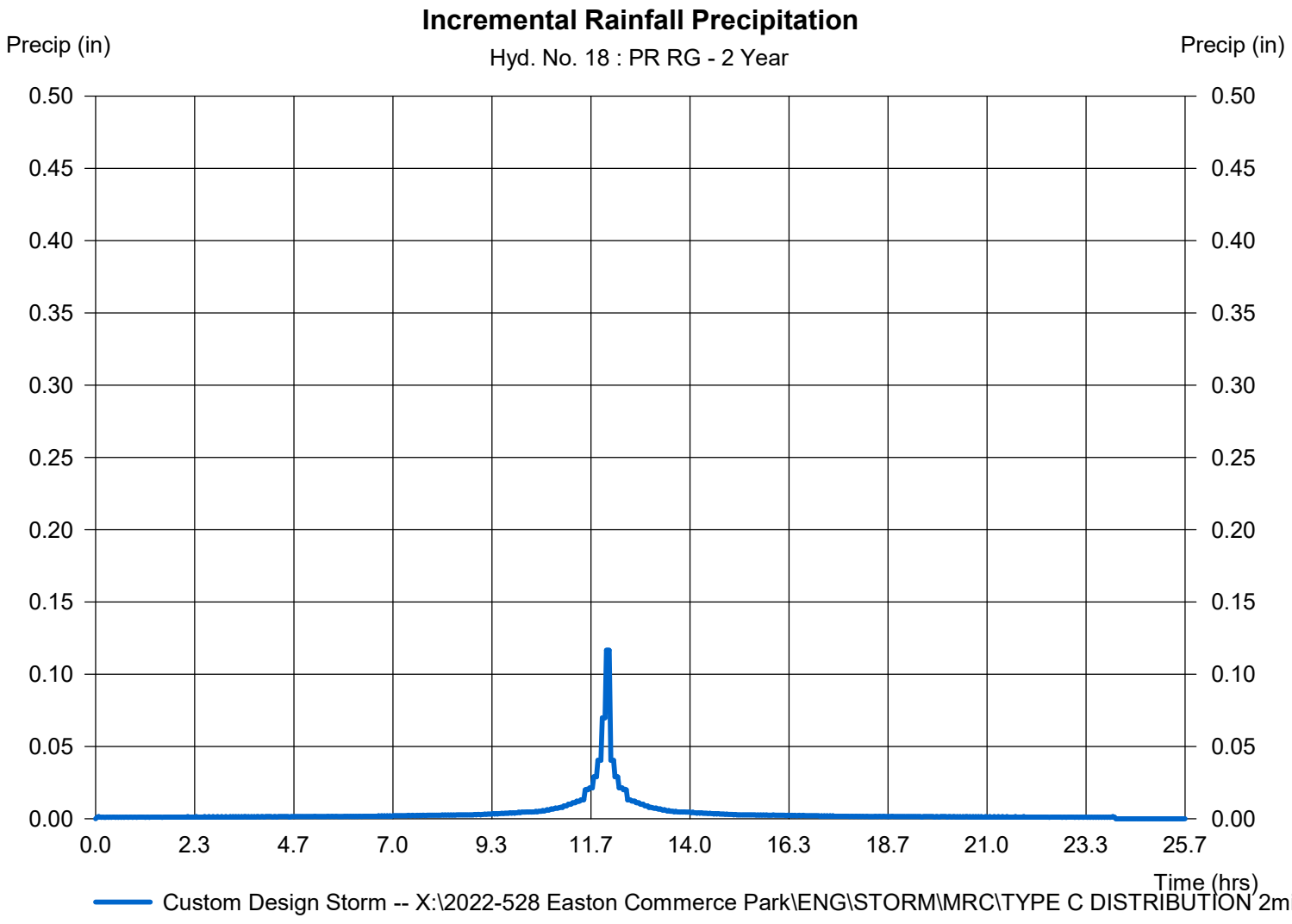


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



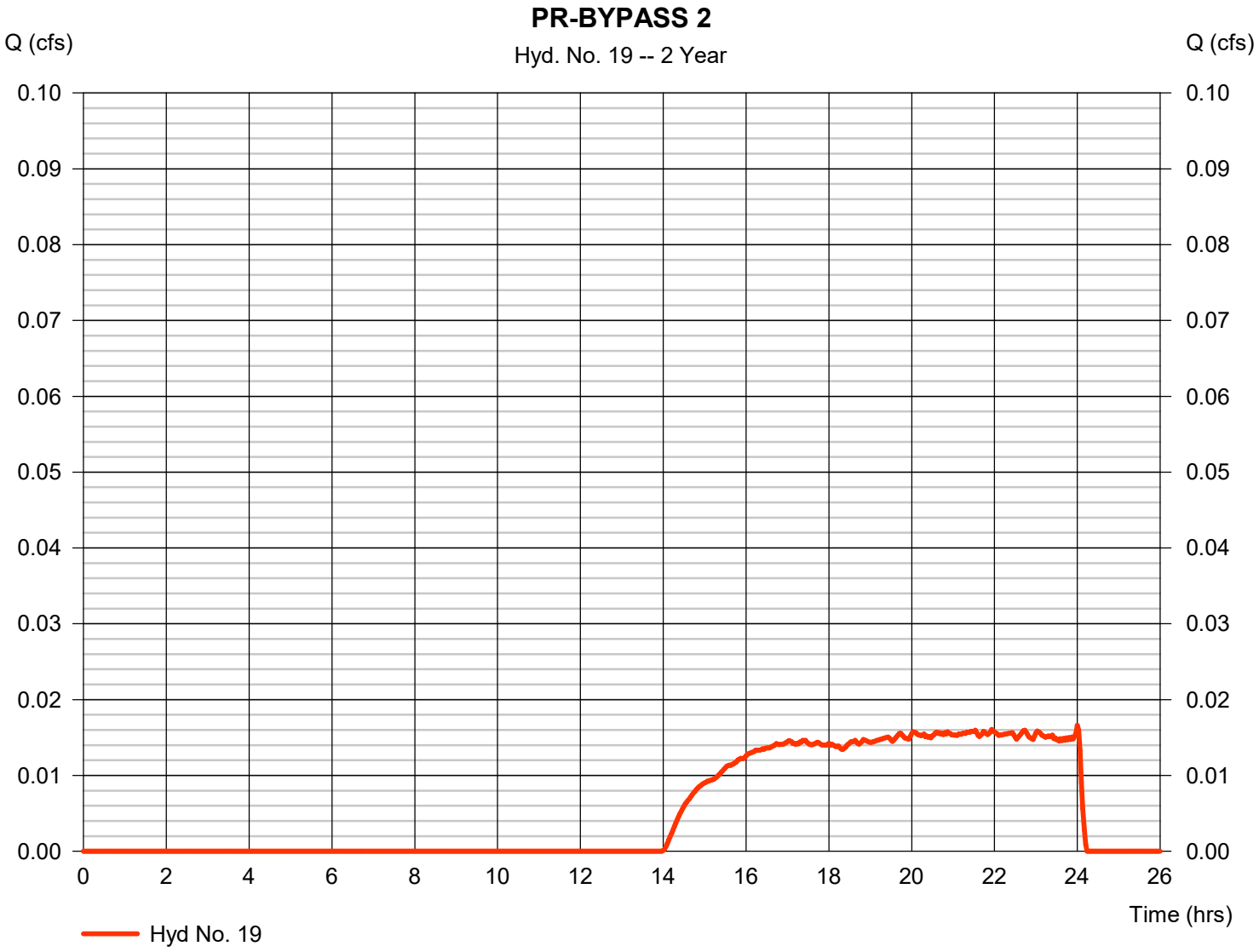
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.017 cfs
Storm frequency	=	2 yrs	Time to peak	=	24.00 hrs
Time interval	=	2 min	Hyd. volume	=	491 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

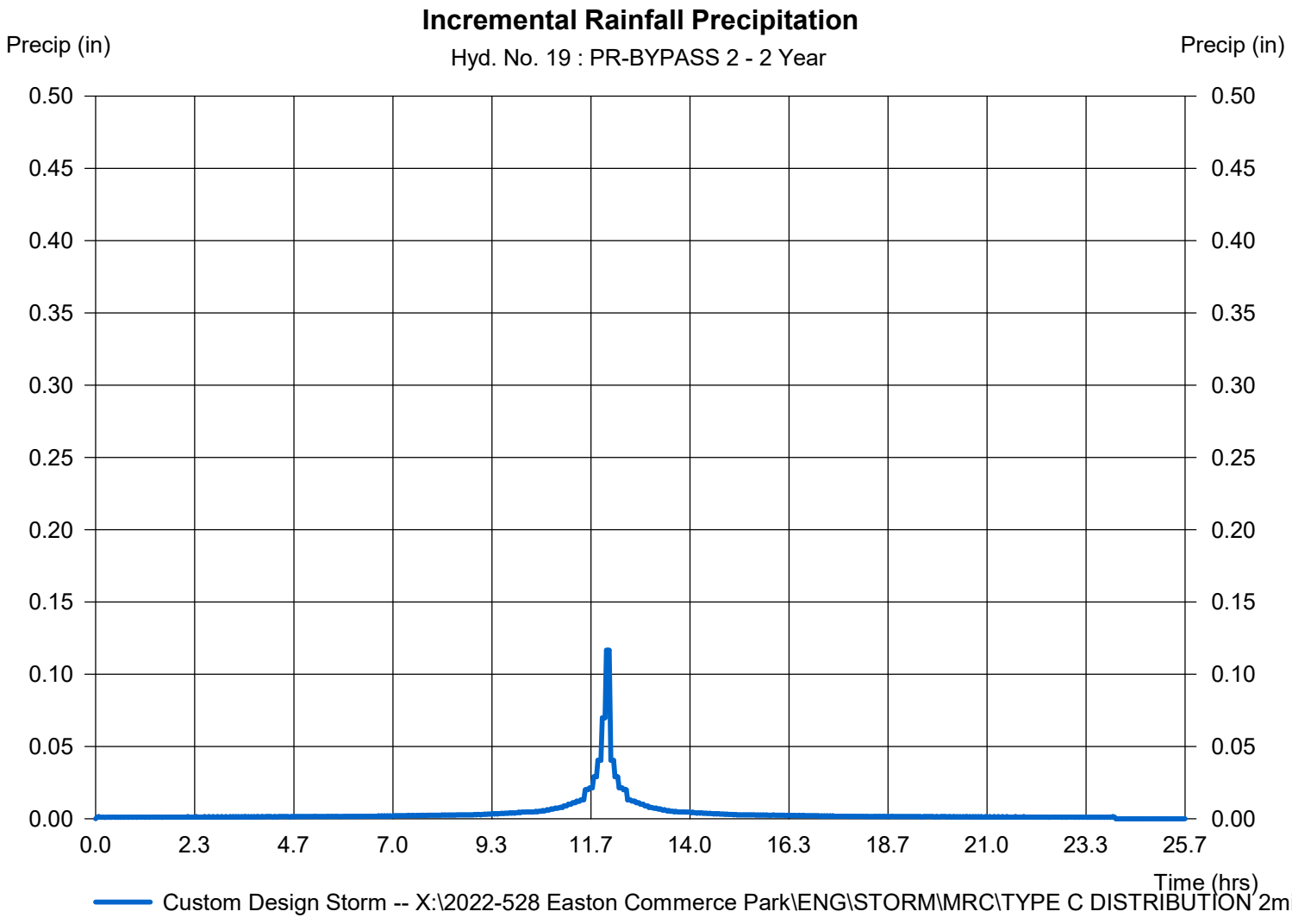


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



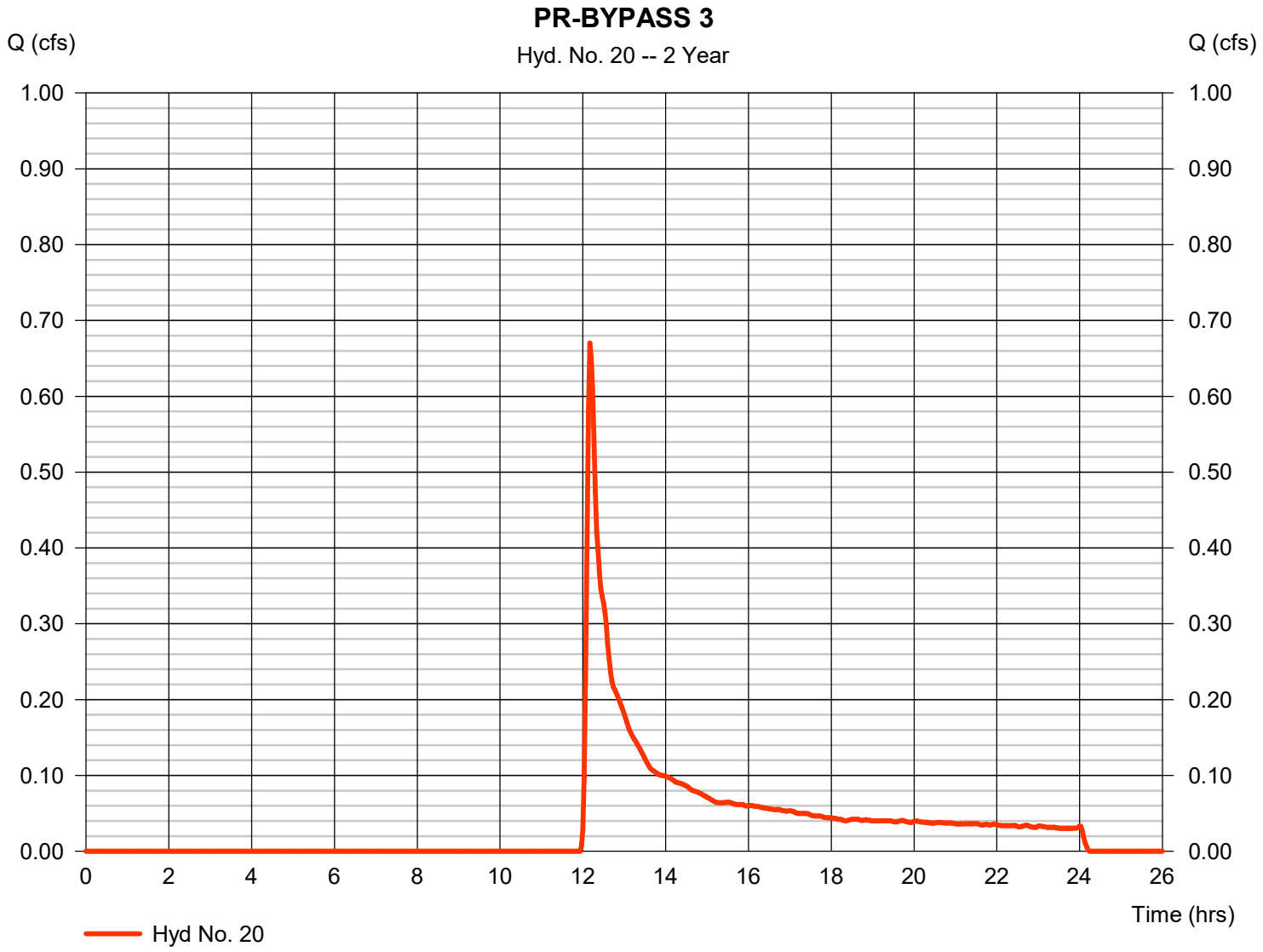
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.670 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	3,353 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

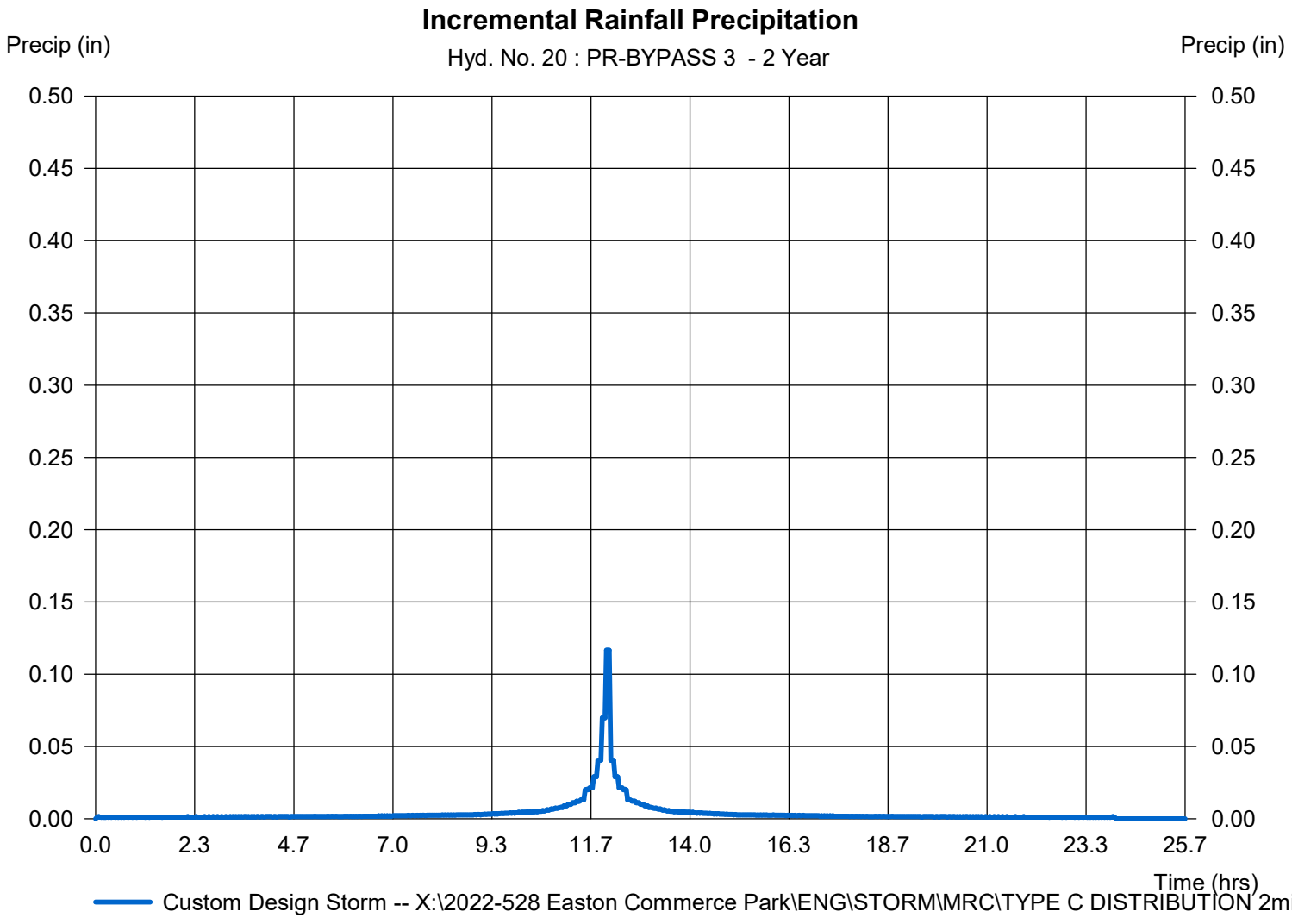


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

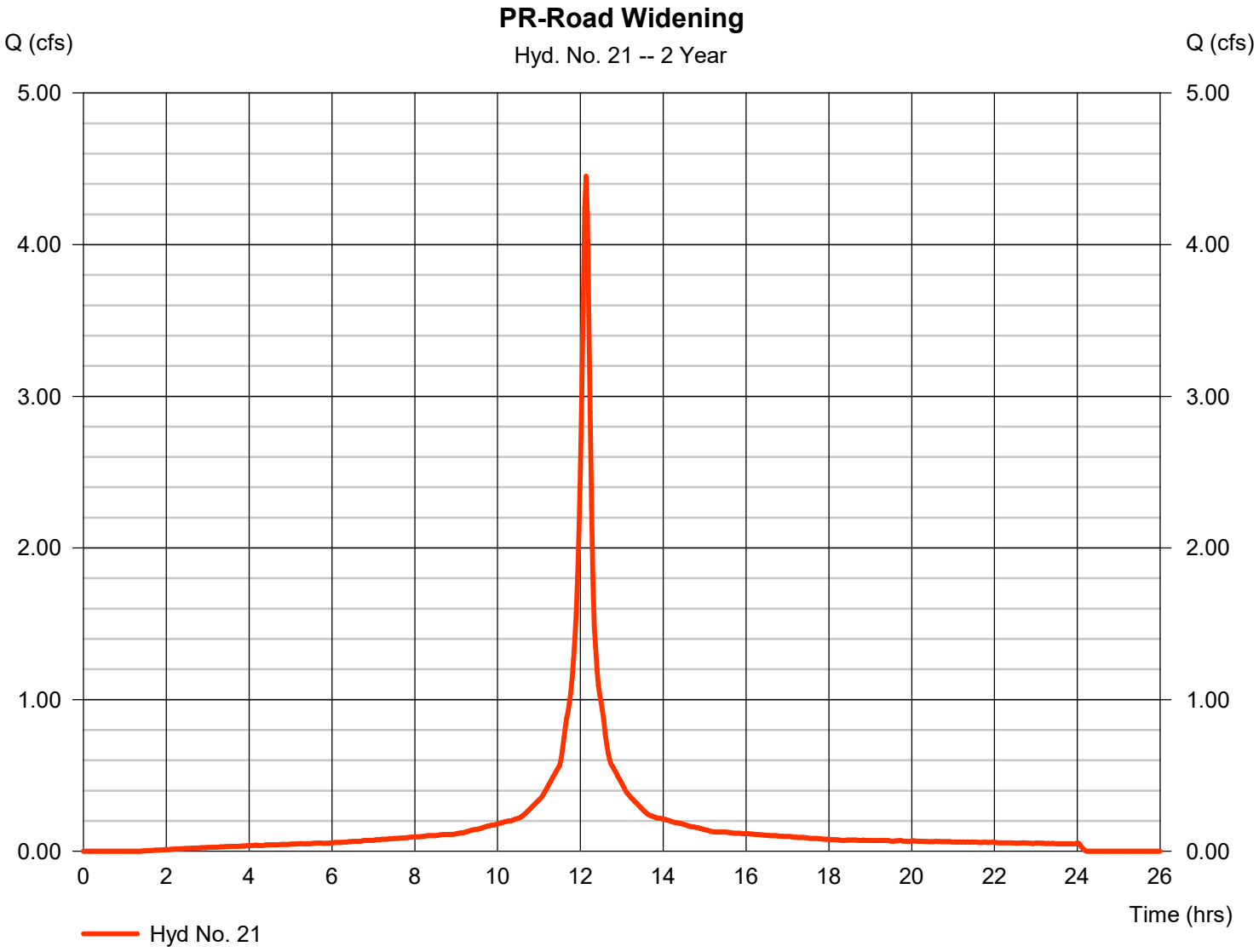


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.450 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	15,576 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.00 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24-TYPE C DISTRIBUTIO

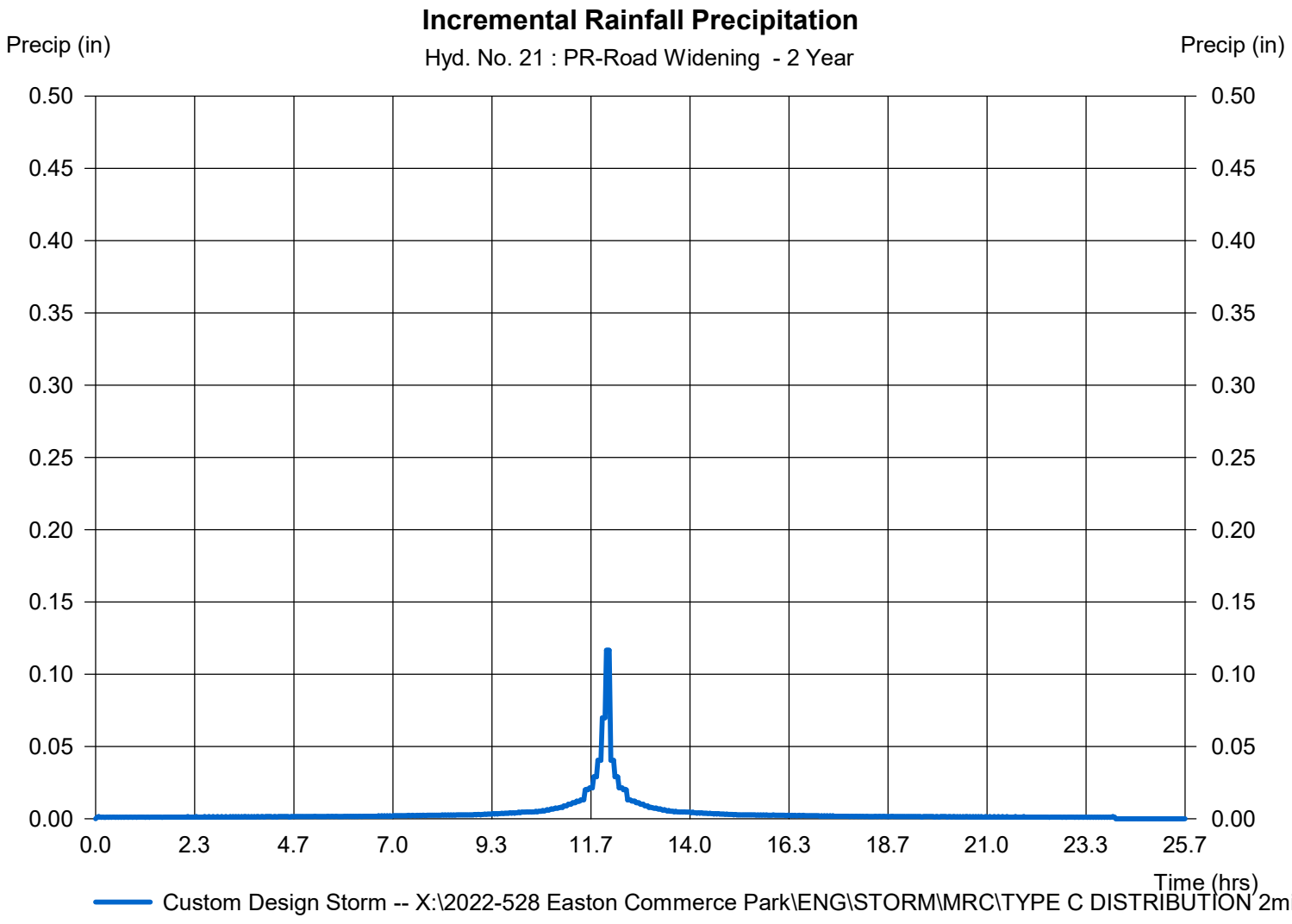


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 2 yrs	Time interval	= 2 min
Total precip.	= 3.0000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

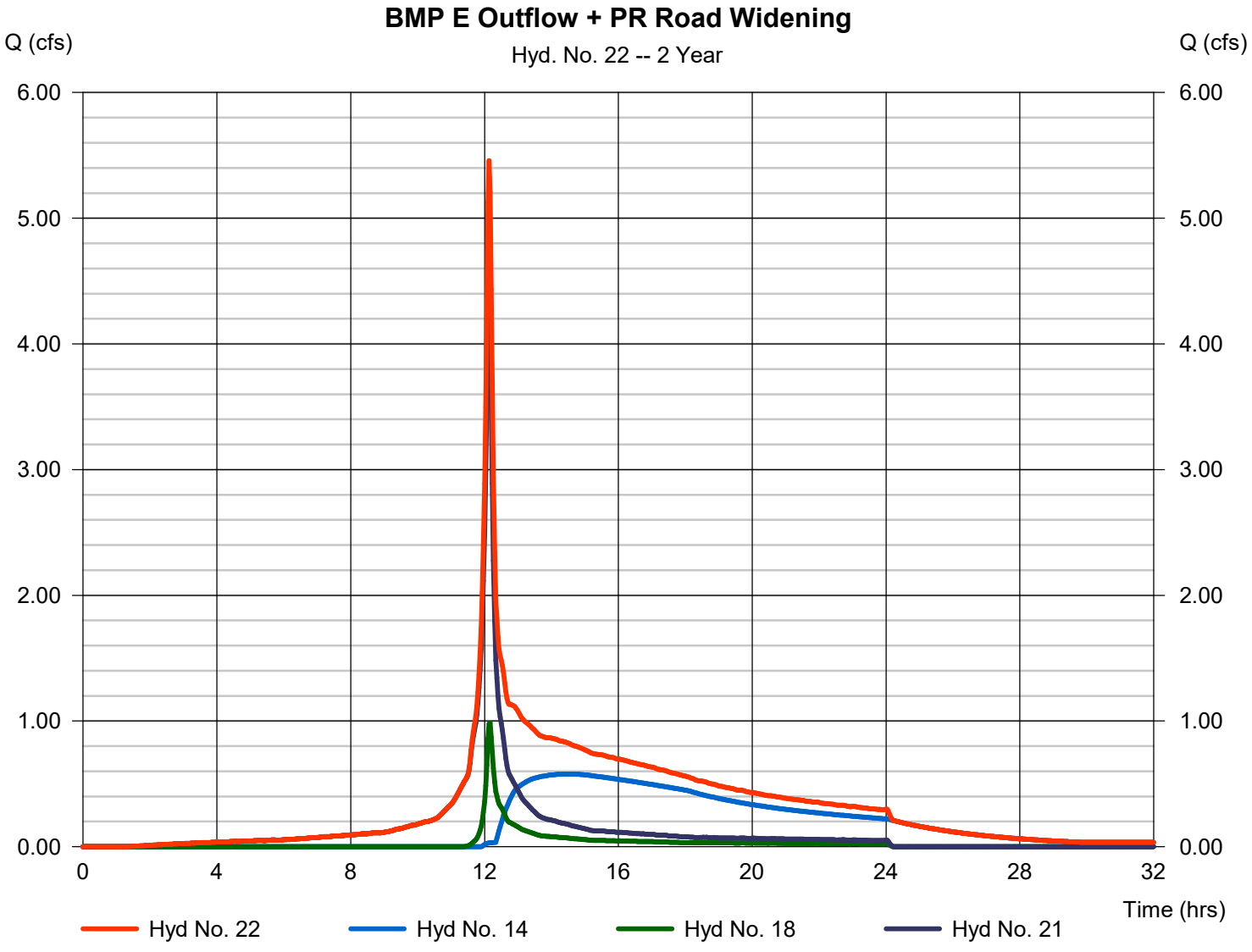


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	= Combine	Peak discharge	= 5.458 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 45,322 cuft
Inflow hyds.	= 14, 18, 21	Contrib. drain. area	= 2.750 ac



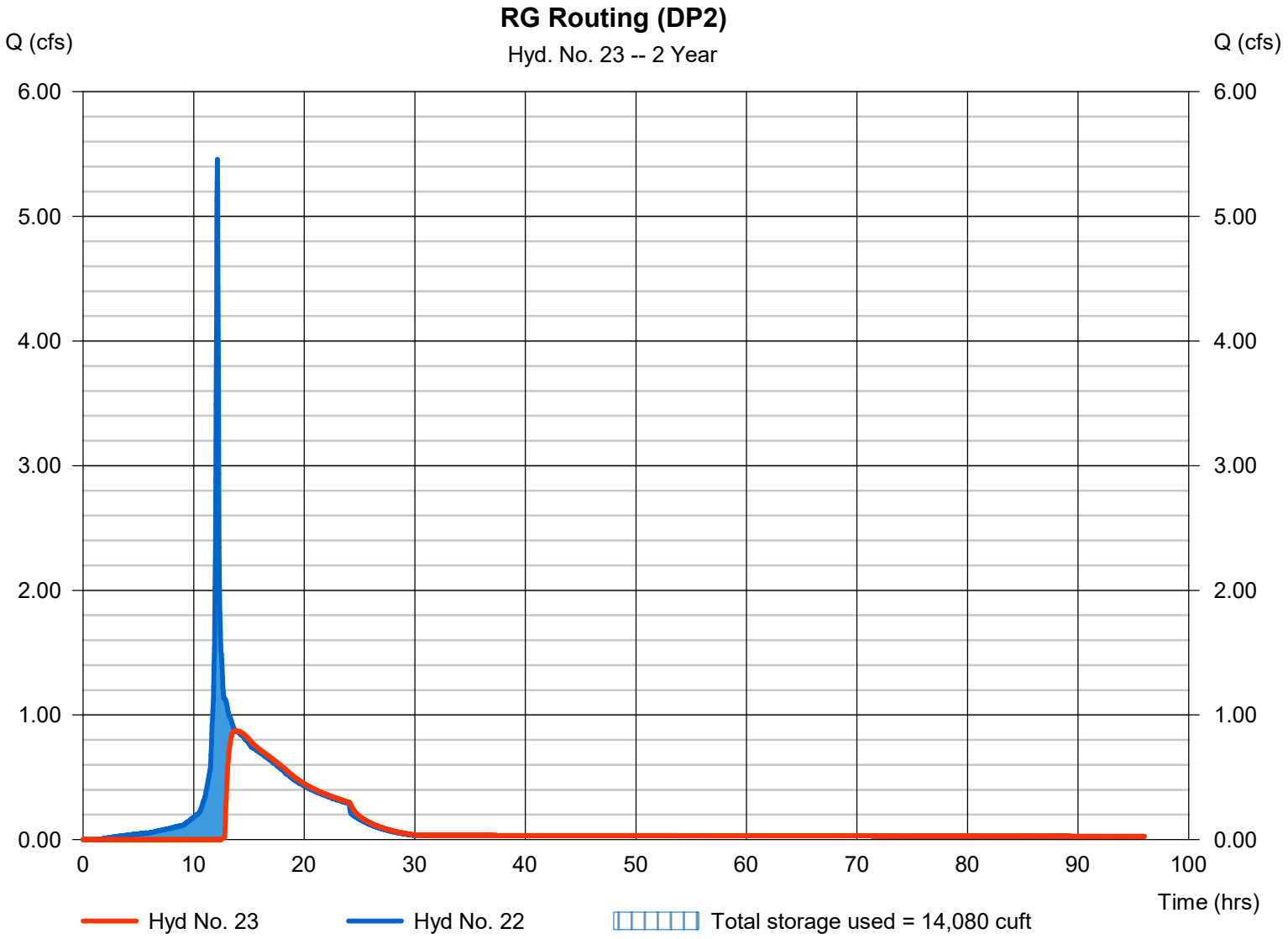
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	0.873 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.77 hrs
Time interval	=	2 min	Hyd. volume	=	32,309 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.74 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,080 cuft

Storage Indication method used.

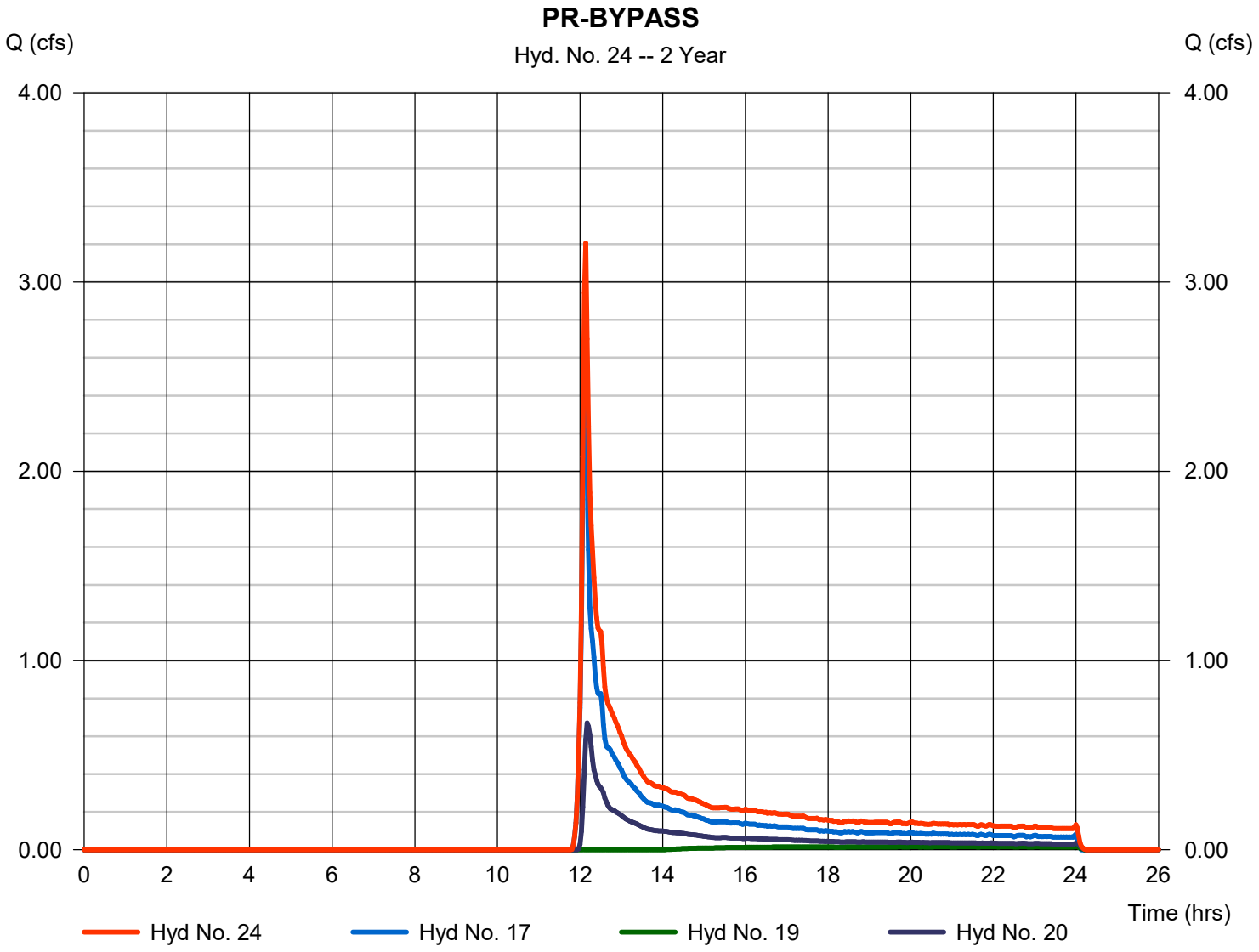


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	3.206 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	12,369 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

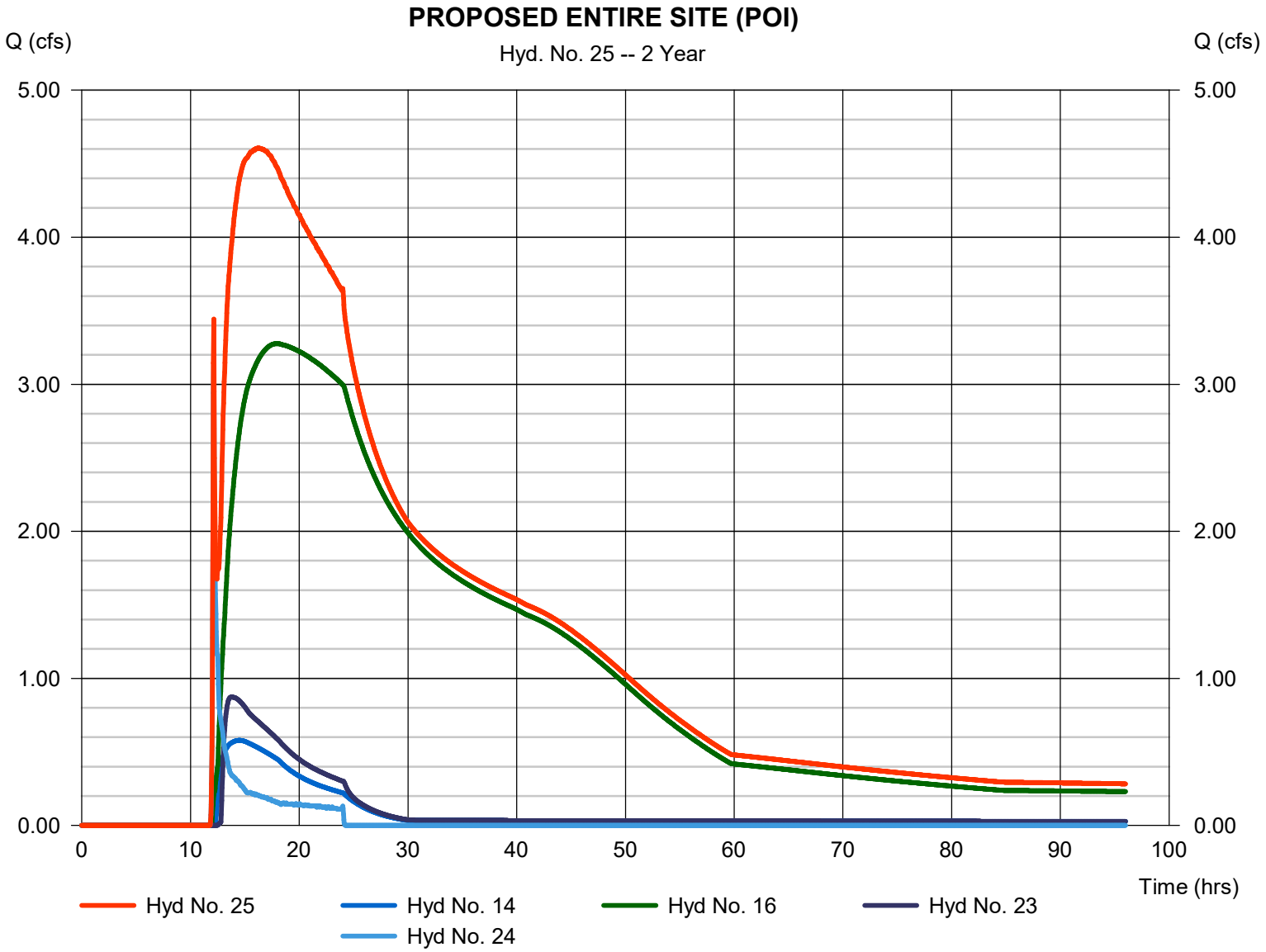


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 4.609 cfs
Storm frequency	= 2 yrs	Time to peak	= 16.23 hrs
Time interval	= 2 min	Hyd. volume	= 411,559 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

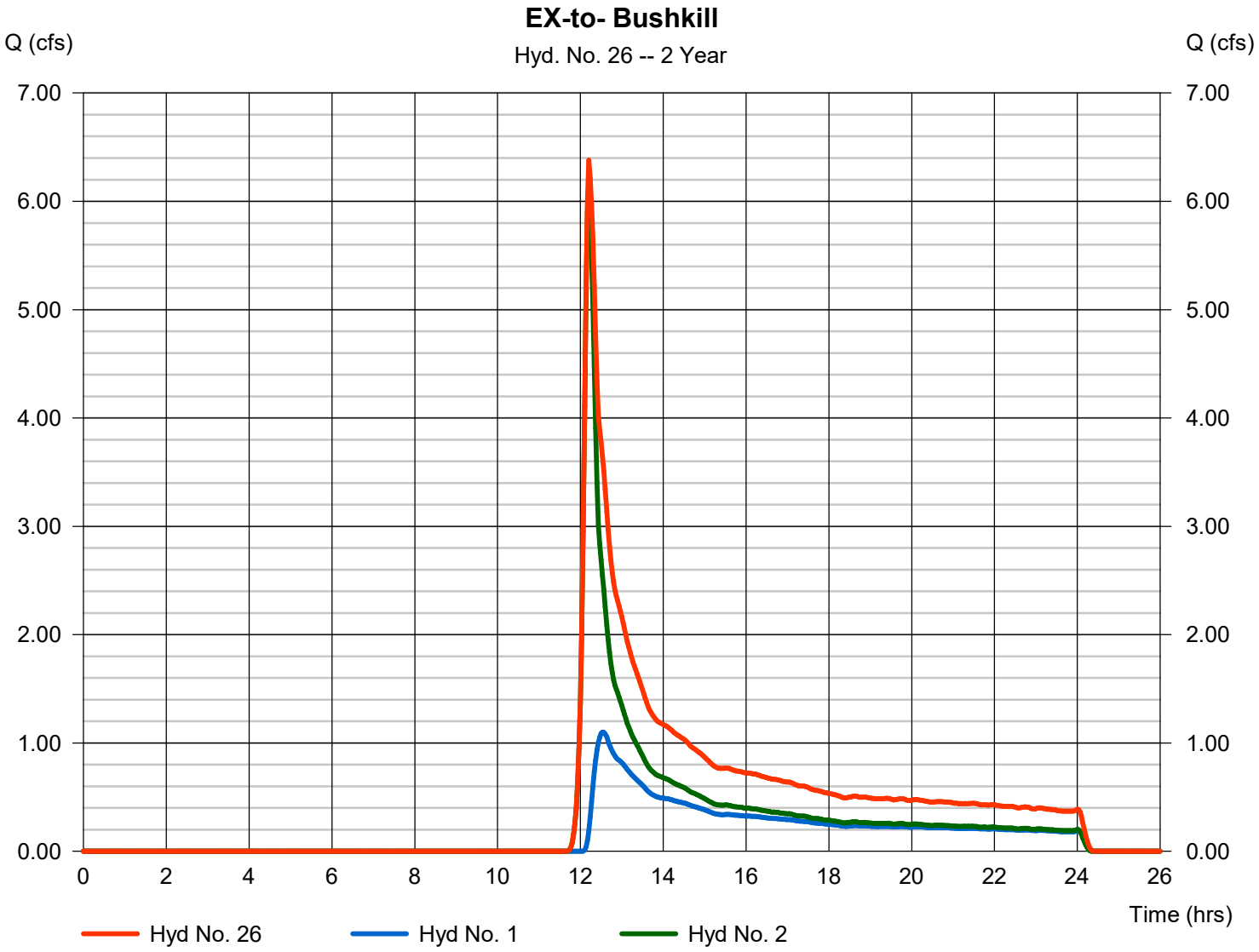


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 6.379 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 40,151 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

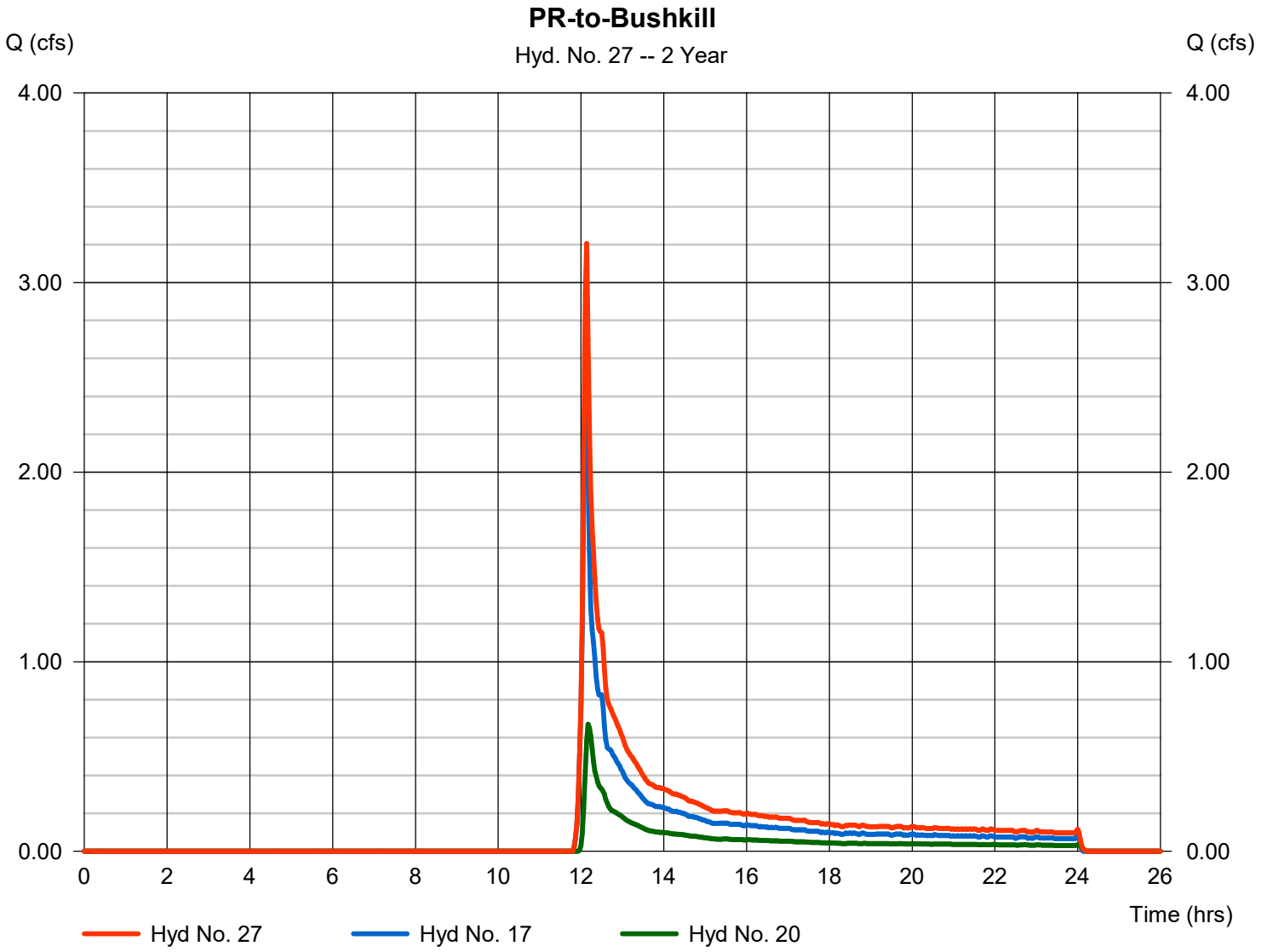


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	3.206 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	11,878 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

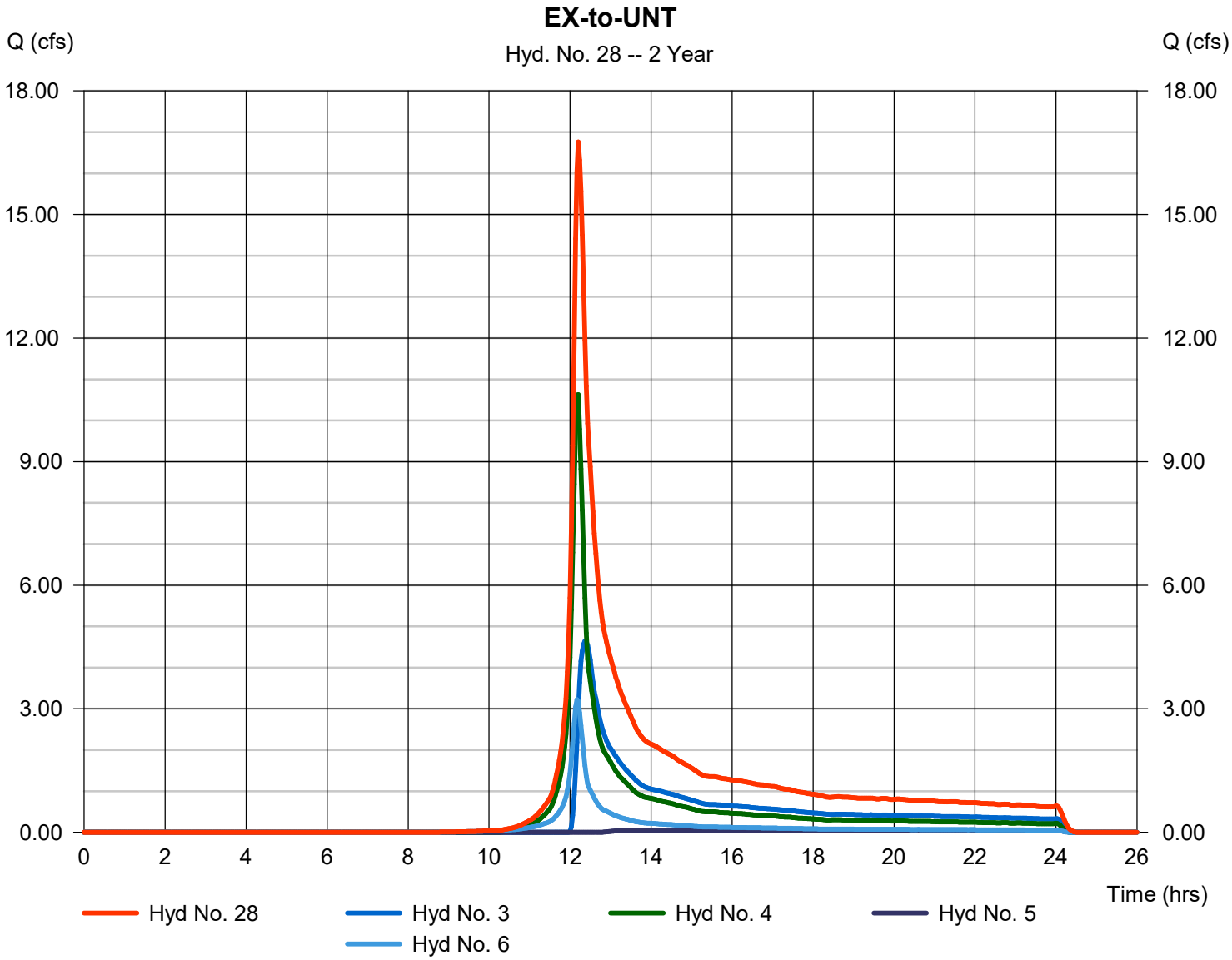


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 16.76 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 85,111 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

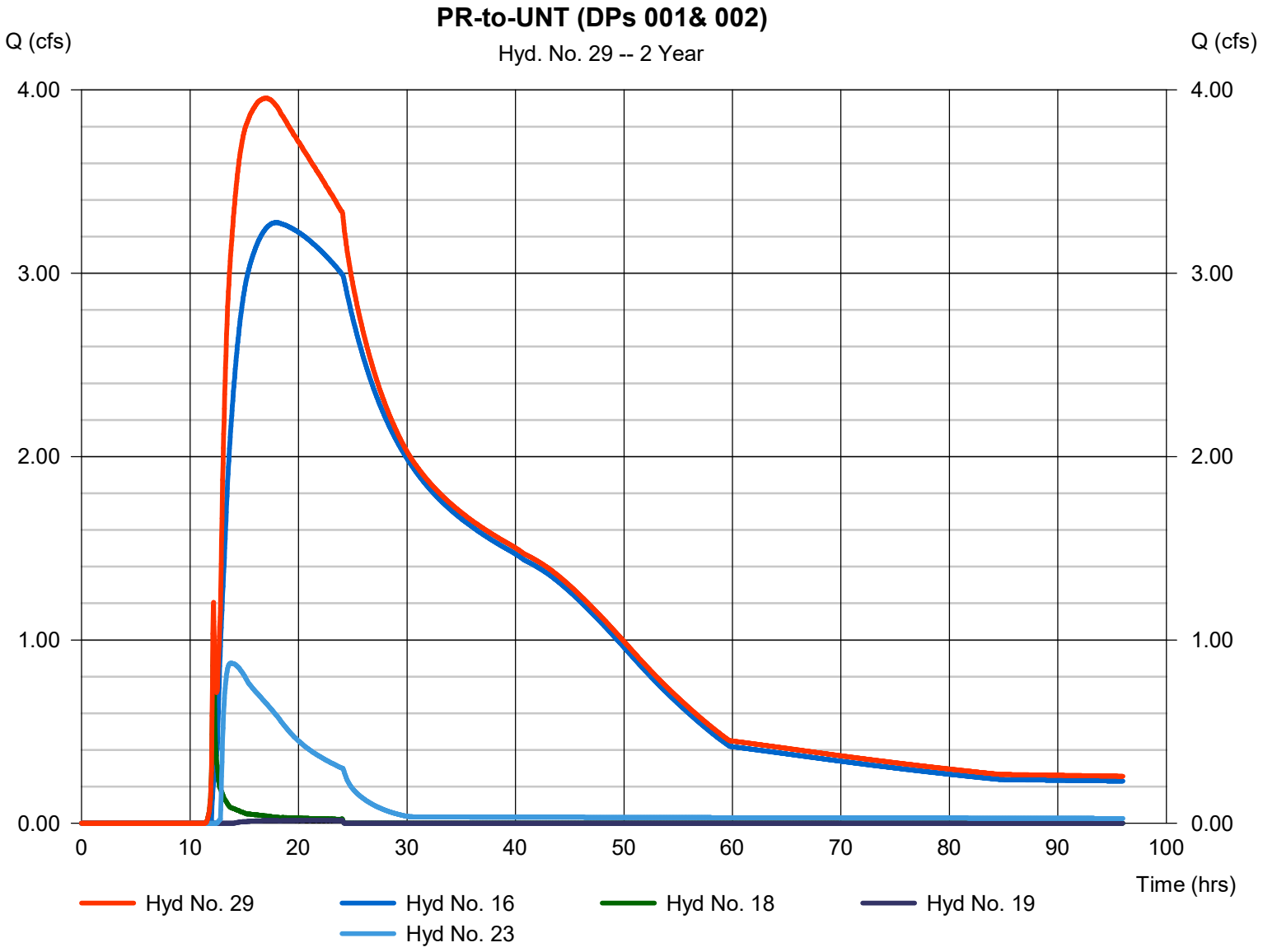


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 3.956 cfs
Storm frequency	= 2 yrs	Time to peak	= 17.03 hrs
Time interval	= 2 min	Hyd. volume	= 376,561 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

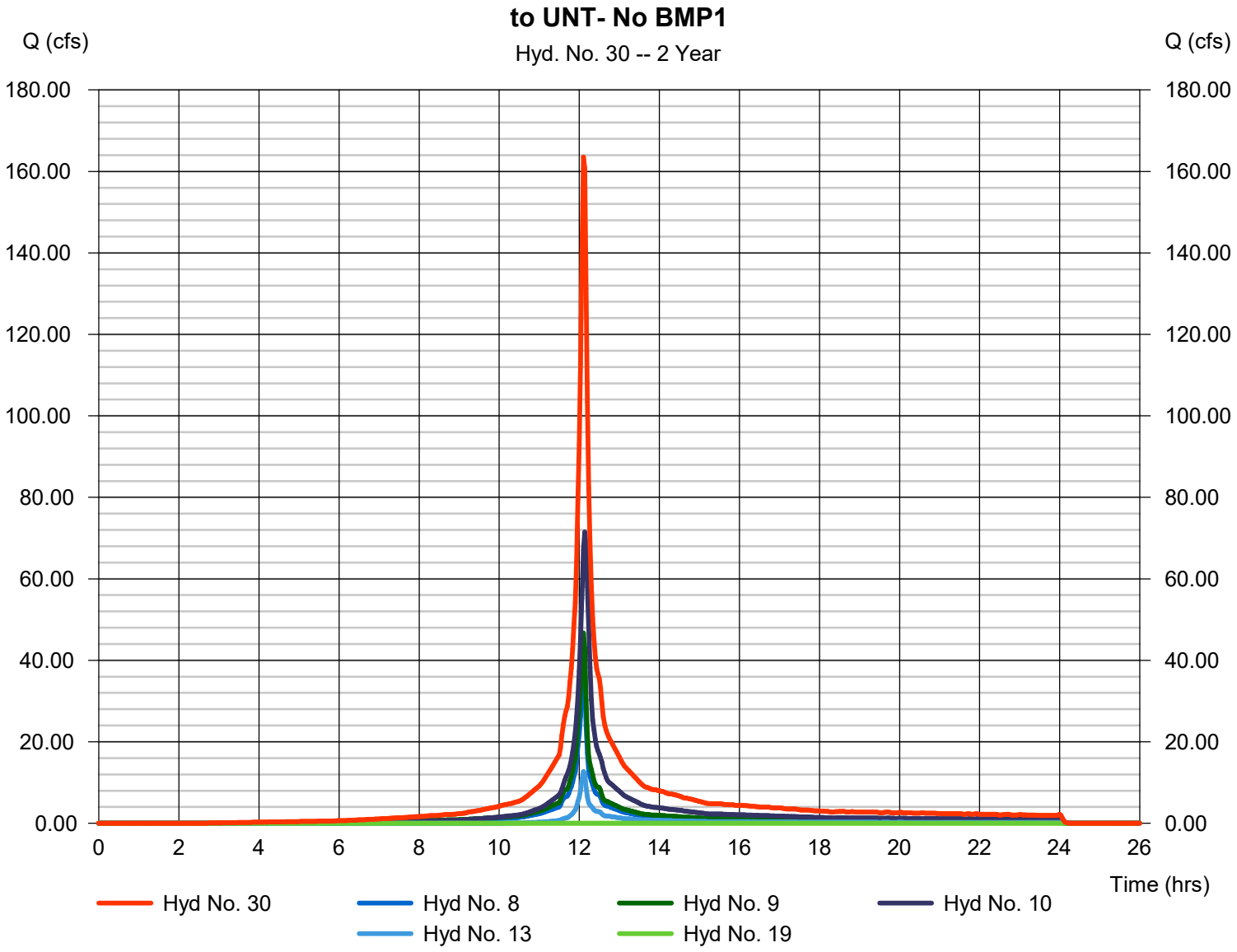


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 163.51 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 501,690 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

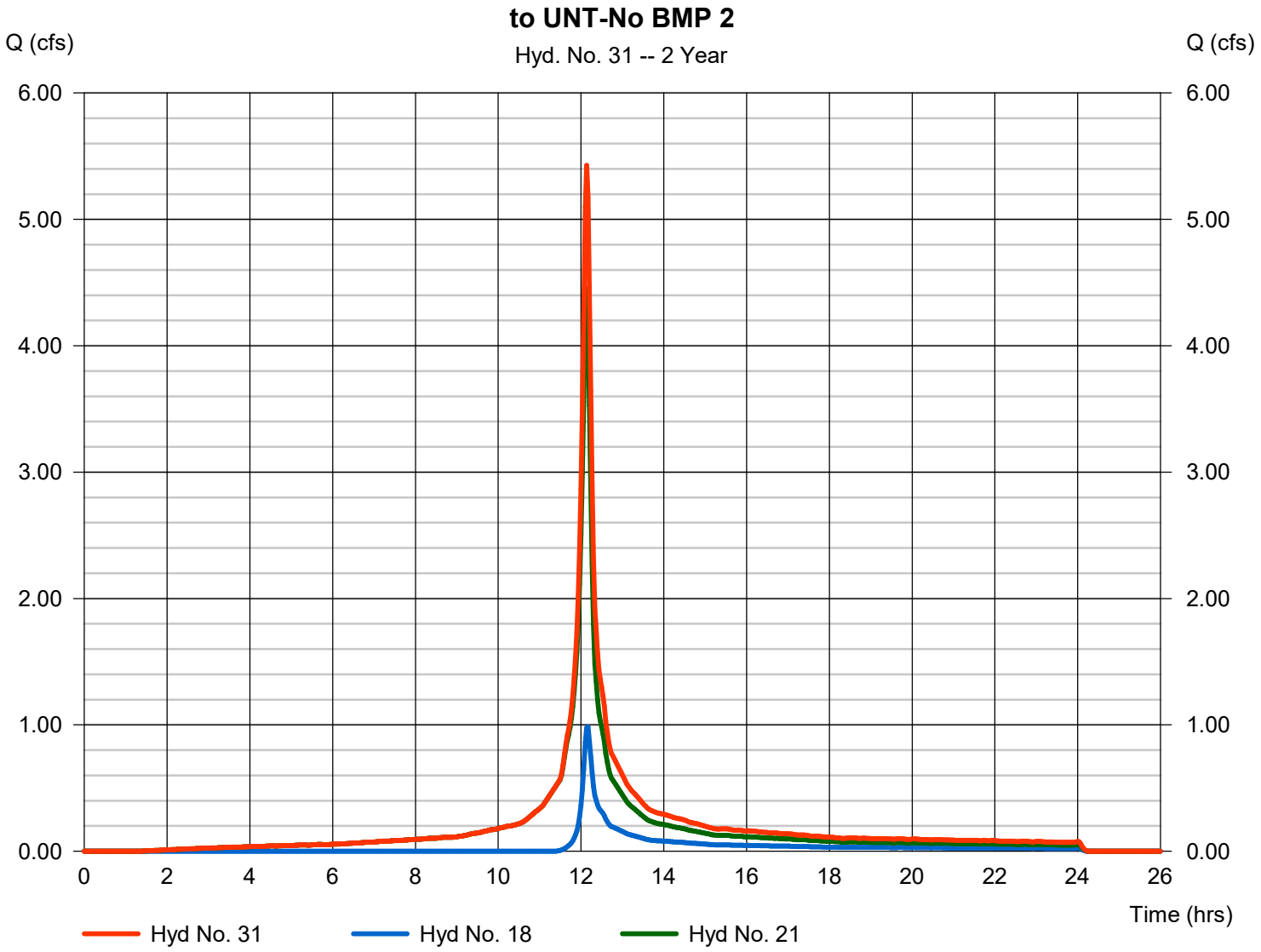


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 5.428 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 18,888 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

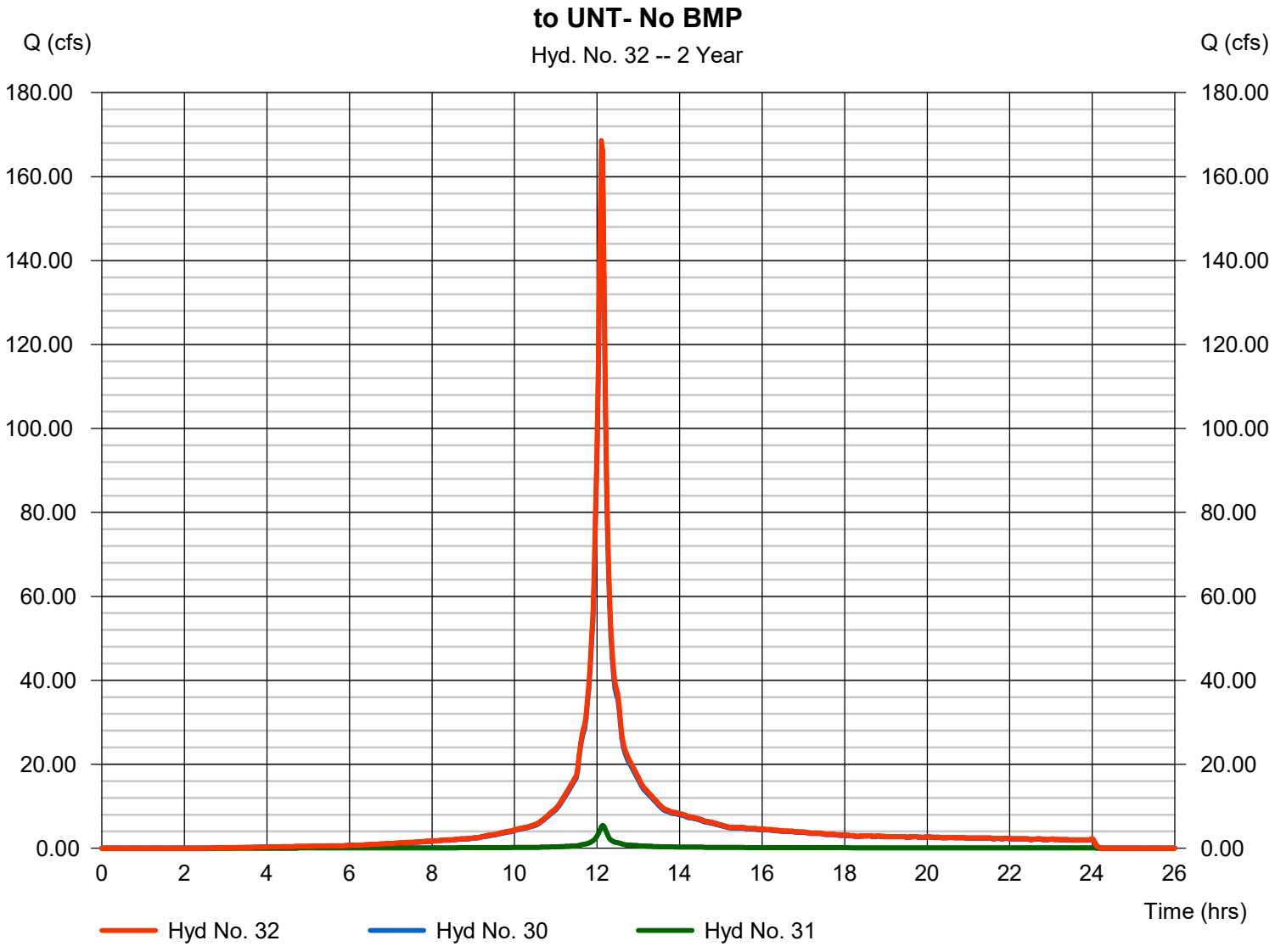


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	=	Combine	Peak discharge	=	168.61 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	520,578 cuft
Inflow hyds.	=	30, 31	Contrib. drain. area	=	0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	3.727	2	740	29,070	------	------	------	EX-DA 1
2	SCS Runoff	10.48	2	732	39,922	------	------	------	EX-DA2
3	SCS Runoff	10.51	2	738	59,058	------	------	------	EX-DA3
4	SCS Runoff	15.03	2	730	52,845	------	------	------	EX-DA4
5	SCS Runoff	0.299	2	760	4,918	------	------	------	EX-DA5
6	SCS Runoff	4.294	2	730	14,990	------	------	------	EX-DA-Road Widening
7	Combine	40.85	2	732	200,802	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	44.97	2	726	132,679	------	------	------	PR-DA-A
9	SCS Runoff	56.83	2	726	167,667	------	------	------	PR-DA-B
10	SCS Runoff	90.62	2	728	286,478	------	------	------	PR-DA-C
11	Reservoir	0.774	2	1048	119,800	8	290.80	102,485	BMP A Routing
12	Reservoir	1.235	2	976	155,927	9	287.09	123,244	BMP B Routing
13	SCS Runoff	17.51	2	726	46,370	------	------	------	PR-DA-E
14	Reservoir	0.908	2	838	38,936	13	258.03	26,979	BMP E Routing
15	Combine	92.31	2	728	562,206	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	4.737	2	936	453,611	15	217.08	217,427	MRC BMP C Routing(DP1)
17	SCS Runoff	4.573	2	728	13,561	------	------	------	PR-BYPASS 1
18	SCS Runoff	1.526	2	728	4,913	------	------	------	PR RG
19	SCS Runoff	0.079	2	784	2,029	------	------	------	PR-BYPASS 2
20	SCS Runoff	1.475	2	730	5,679	------	------	------	PR-BYPASS 3
21	SCS Runoff	5.363	2	728	18,940	------	------	------	PR-Road Widening
22	Combine	6.990	2	728	62,789	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	2.026	2	756	49,775	22	232.84	14,772	RG Routing (DP2)
24	Combine	5.975	2	728	21,268	17, 19, 20,	------	------	PR-BYPASS
25	Combine	7.362	2	800	563,591	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	13.12	2	732	68,992	1, 2,	------	------	EX-to- Bushkill
27	Combine	5.975	2	728	19,239	17, 20,	------	------	PR-to-Bushkill
28	Combine	27.74	2	732	131,810	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	6.049	2	888	510,328	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	204.60	2	726	635,223	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	6.888	2	728	23,853	18, 21,	------	------	to UNT-No BMP 2
32	Combine	211.08	2	726	659,076	30, 31	------	------	to UNT- No BMP

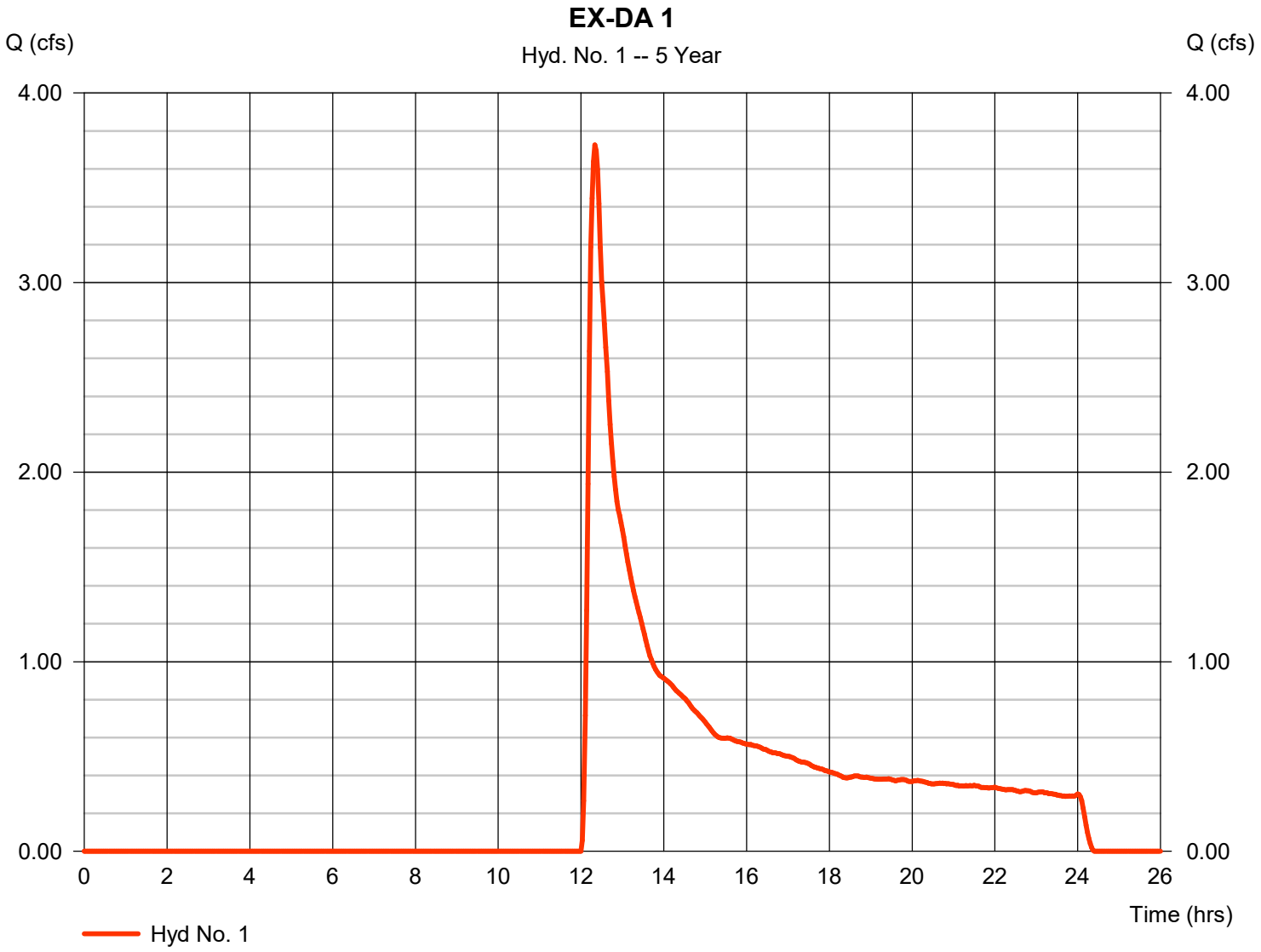
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.727 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	29,070 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

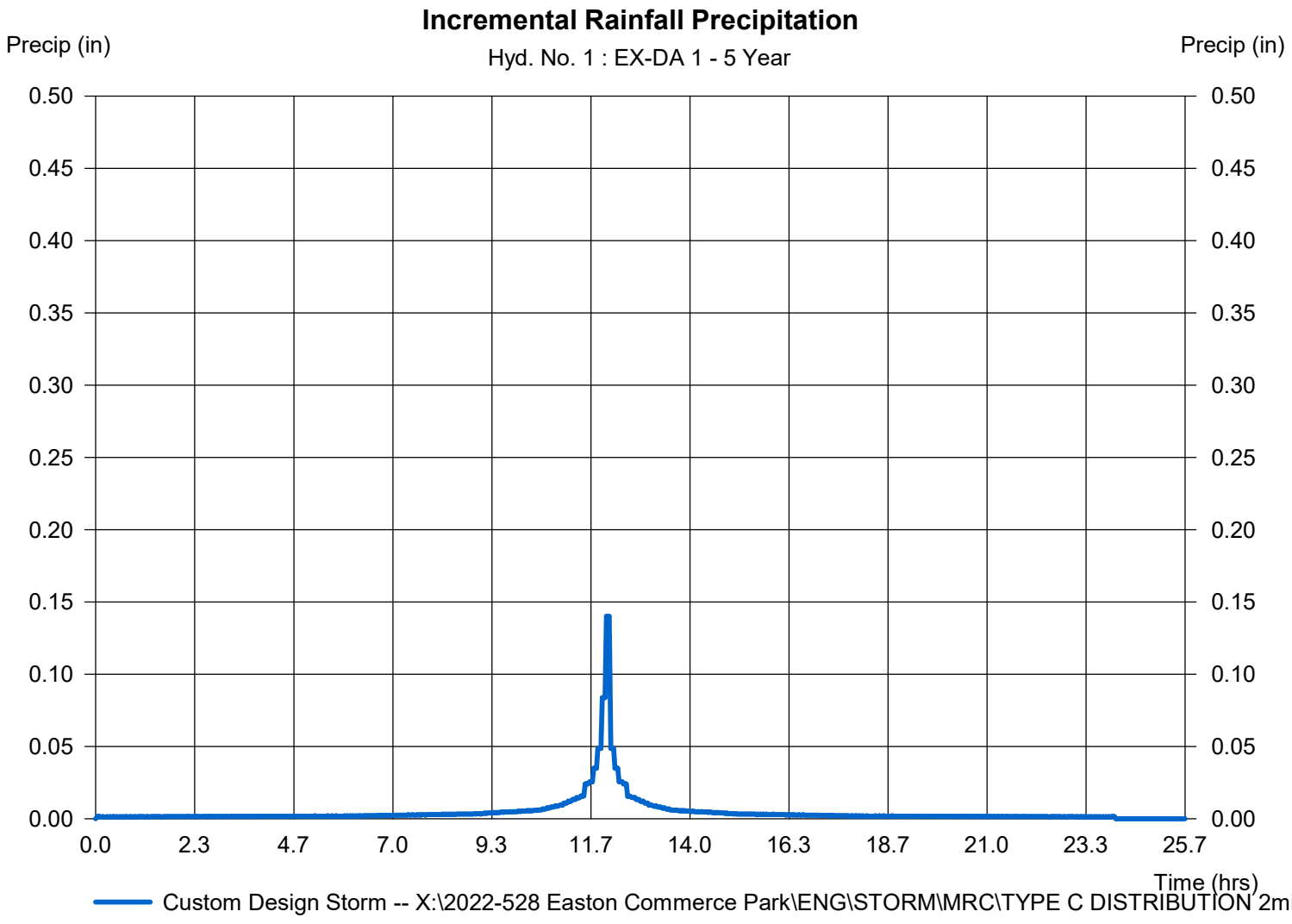


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



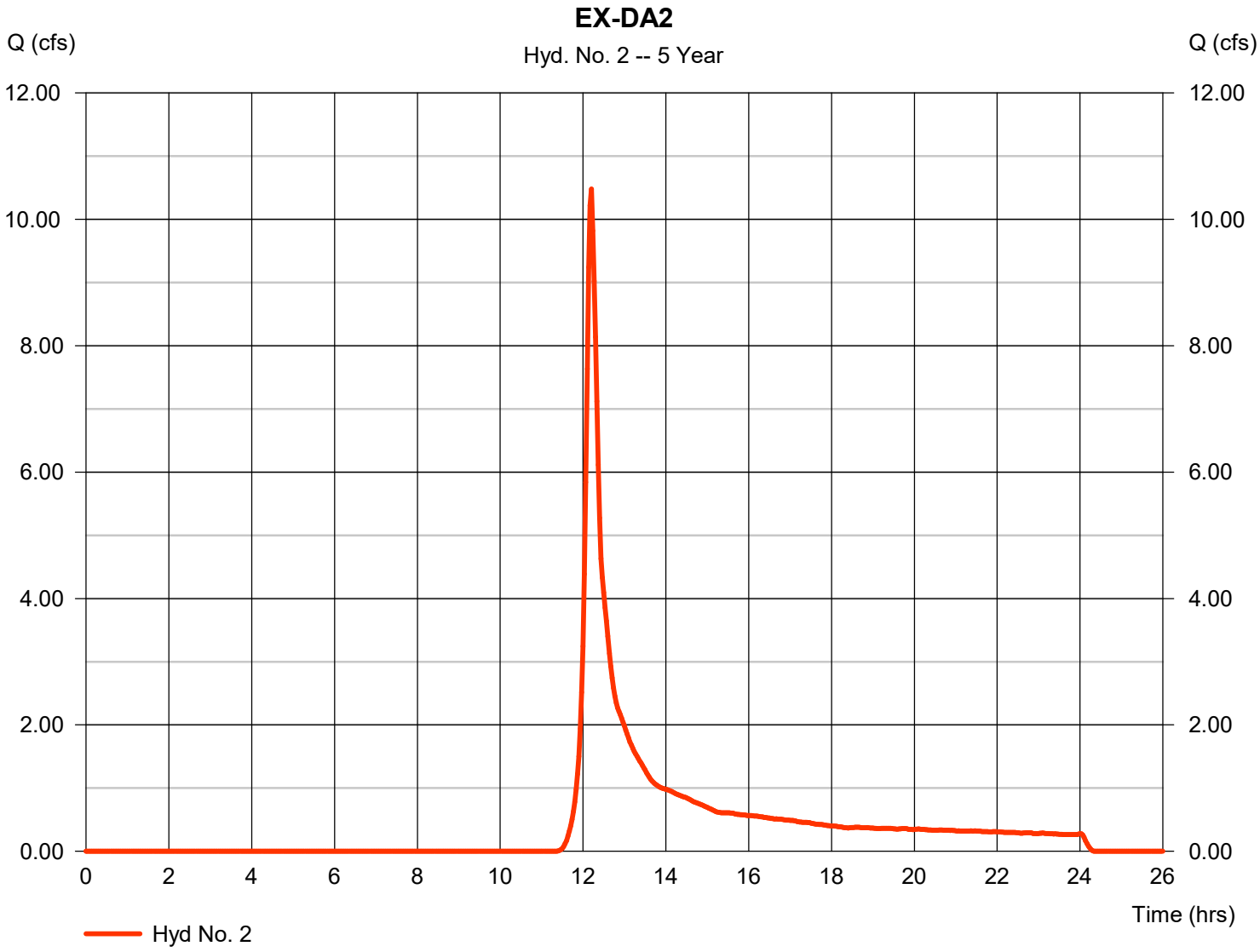
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.48 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	39,922 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

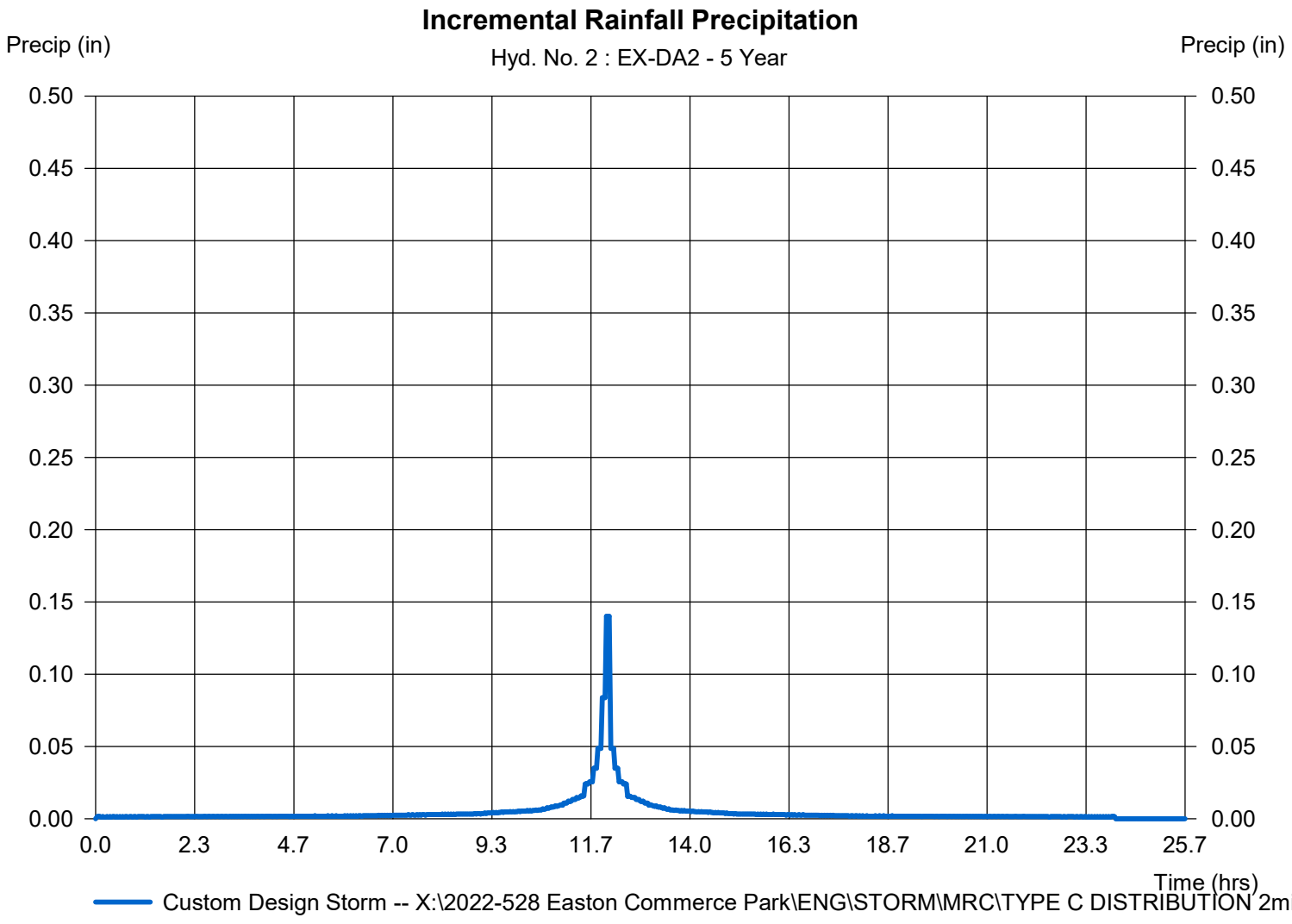


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



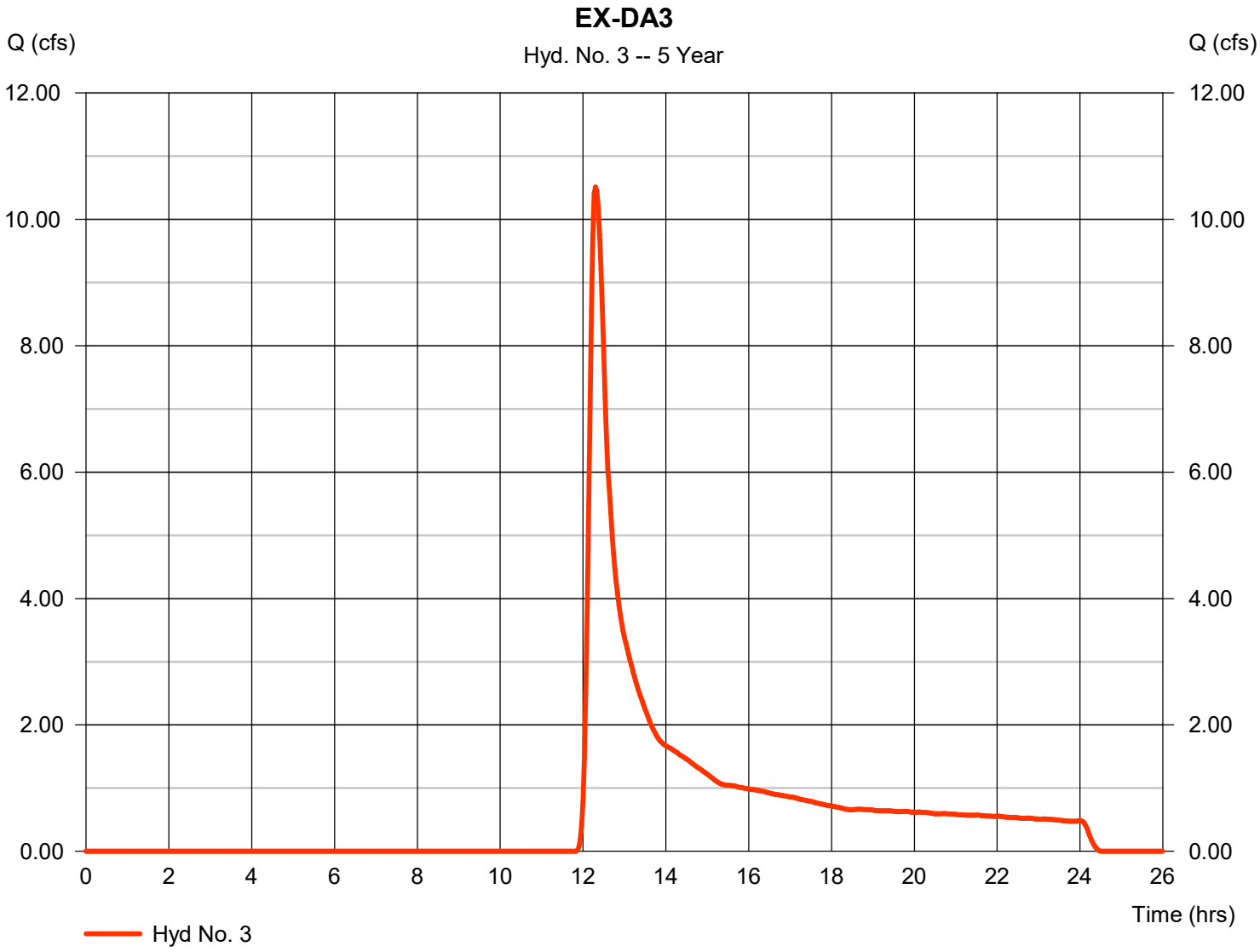
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.51 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	59,058 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

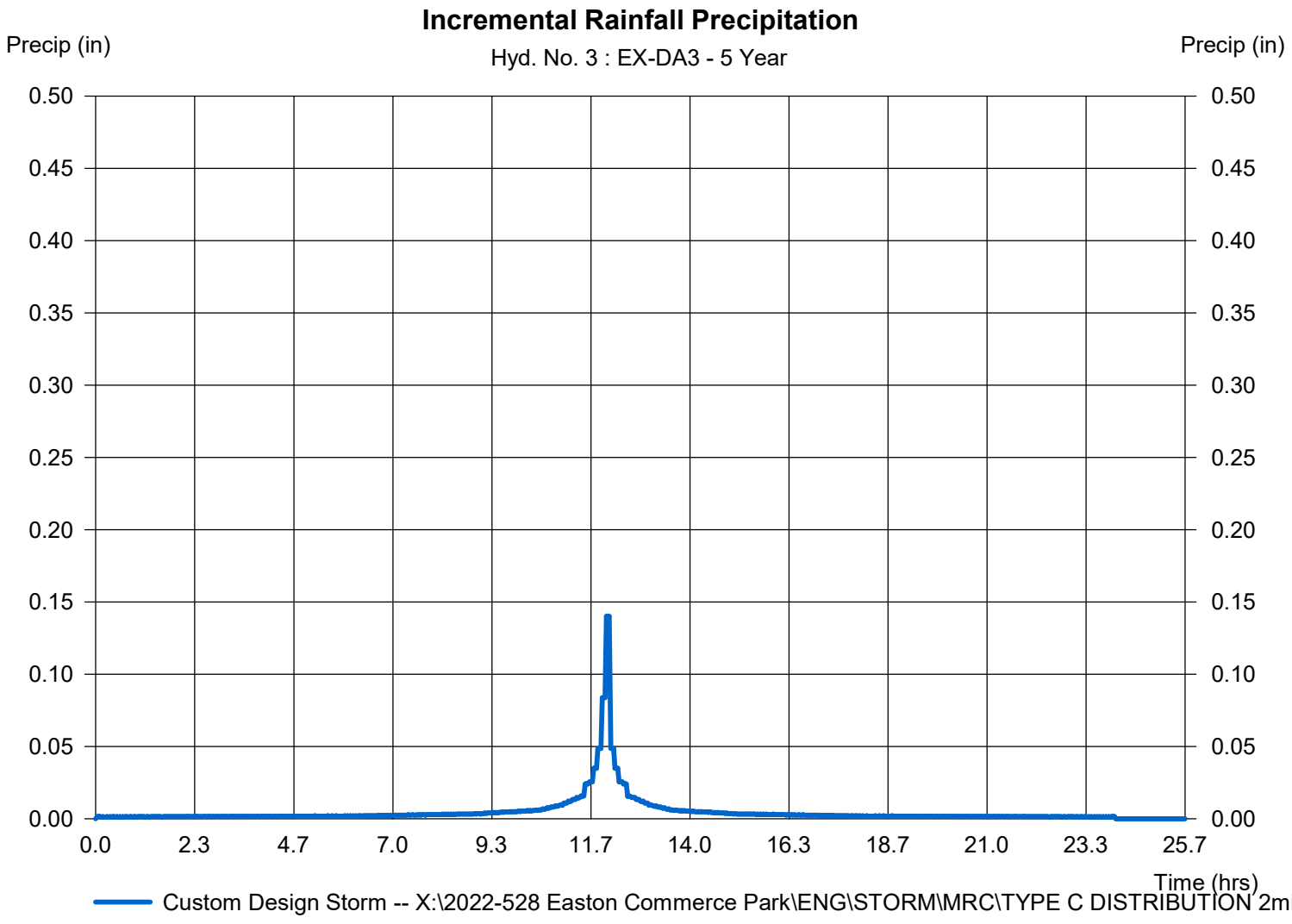


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



Hydrograph Report

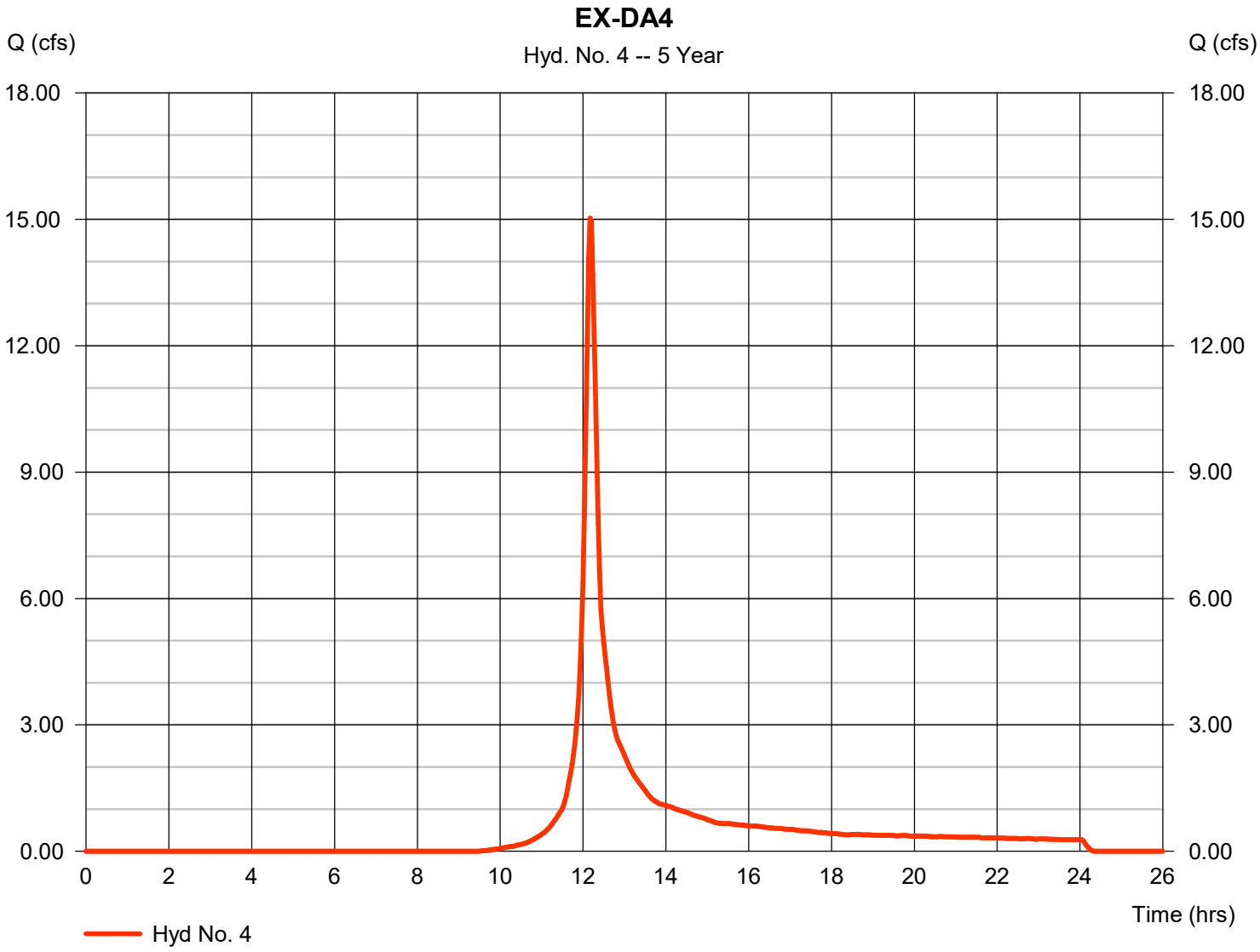
Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.03 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	52,845 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	24

TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

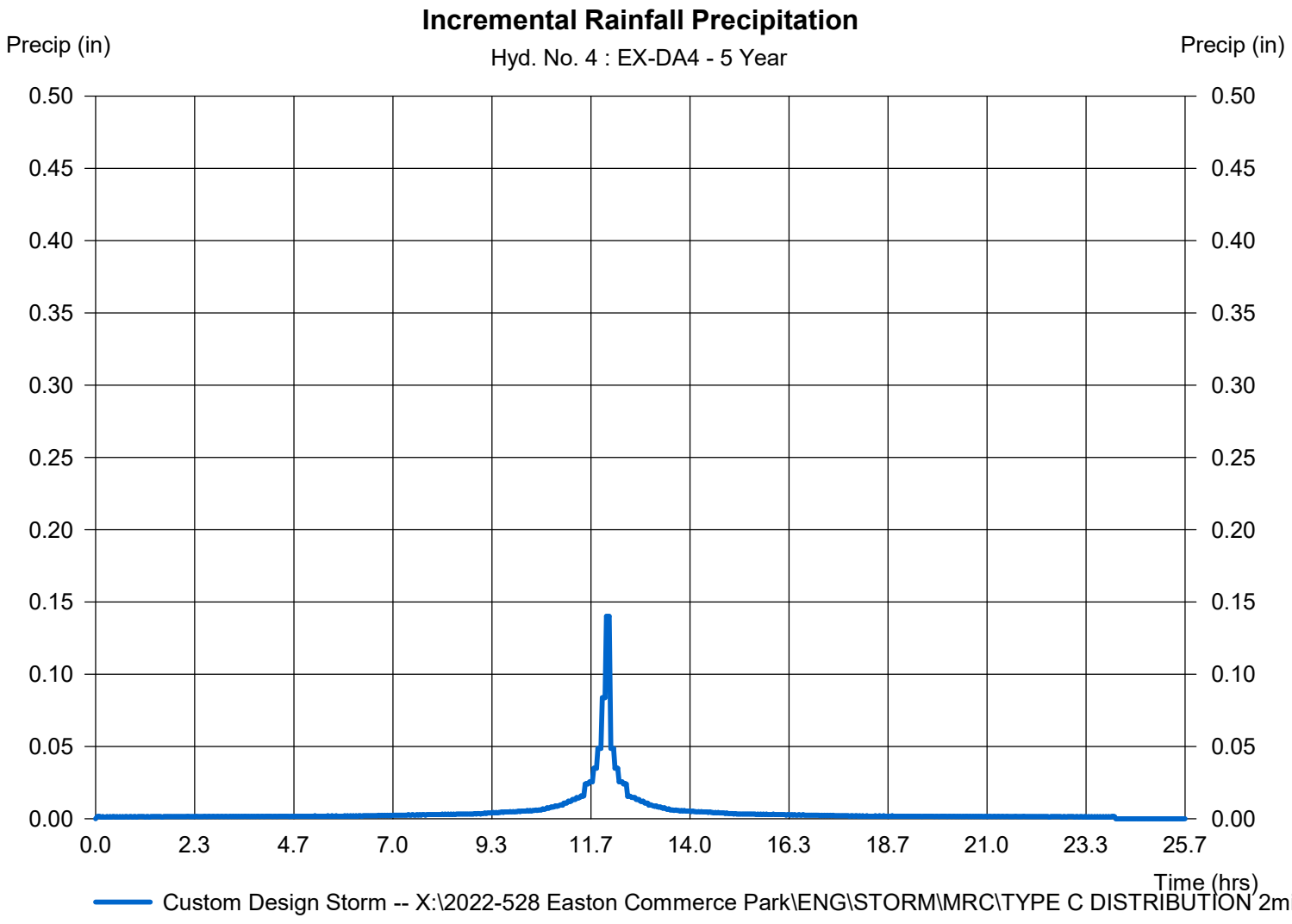


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



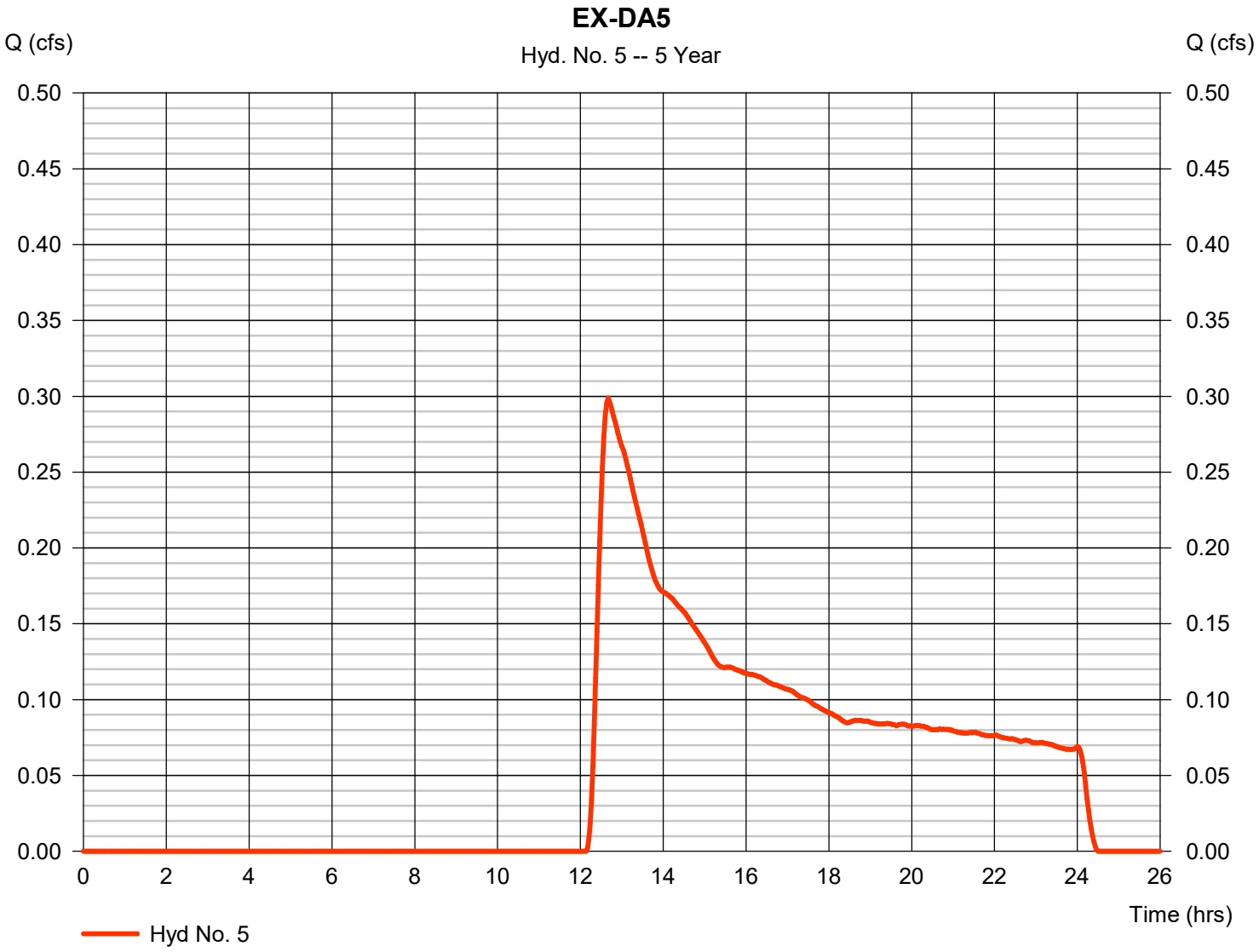
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.299 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.67 hrs
Time interval	=	2 min	Hyd. volume	=	4,918 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

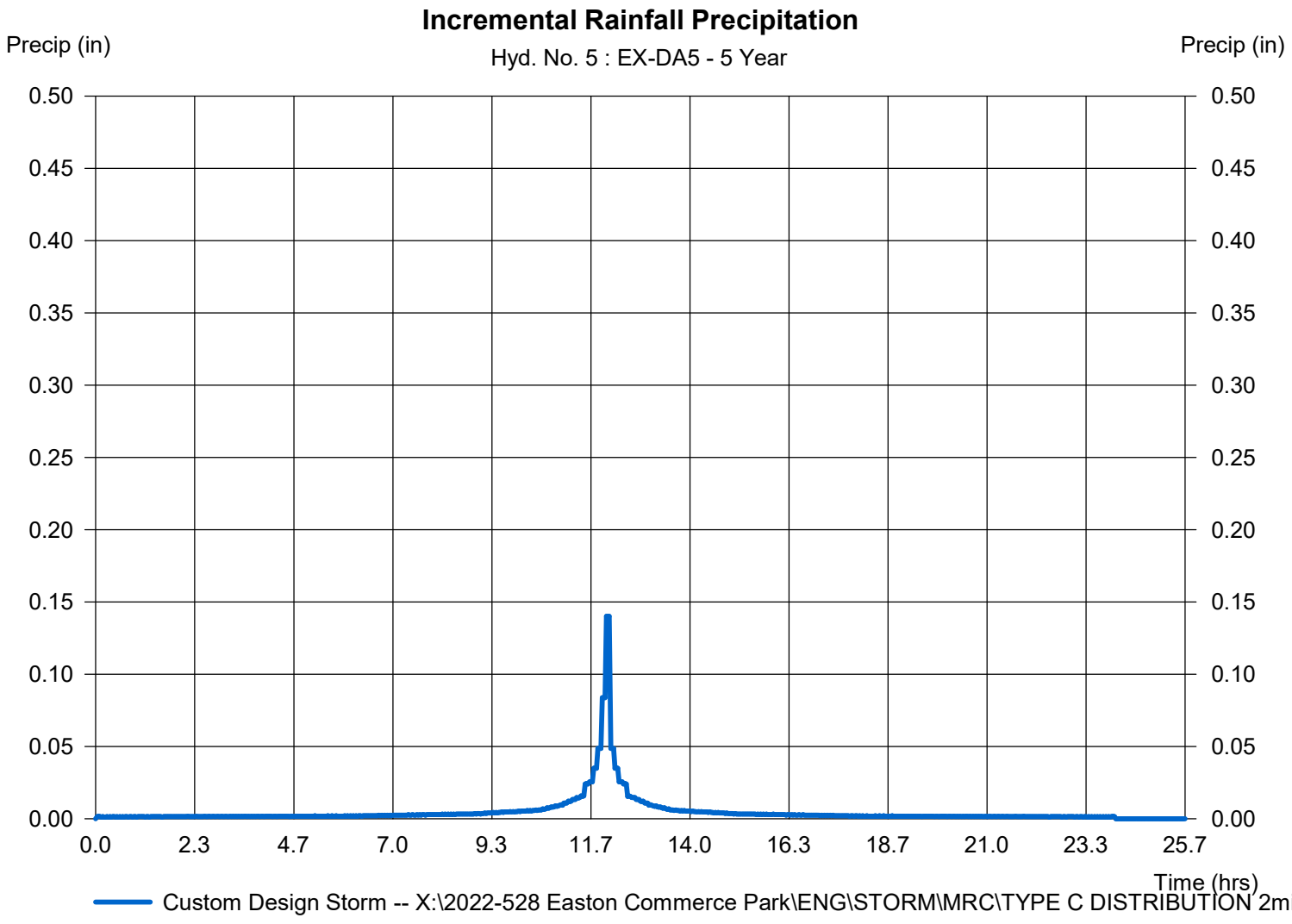


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



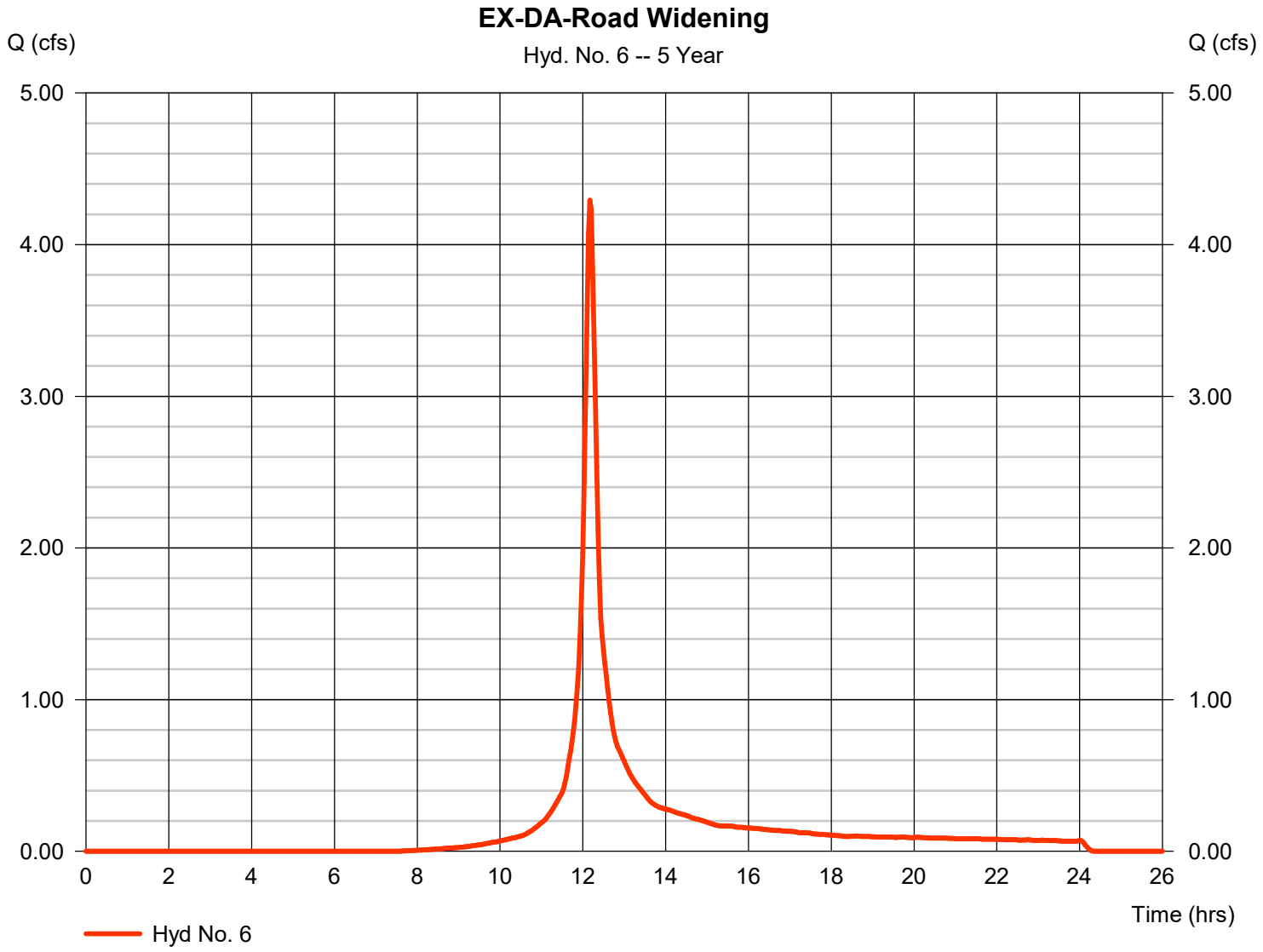
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.294 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	14,990 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

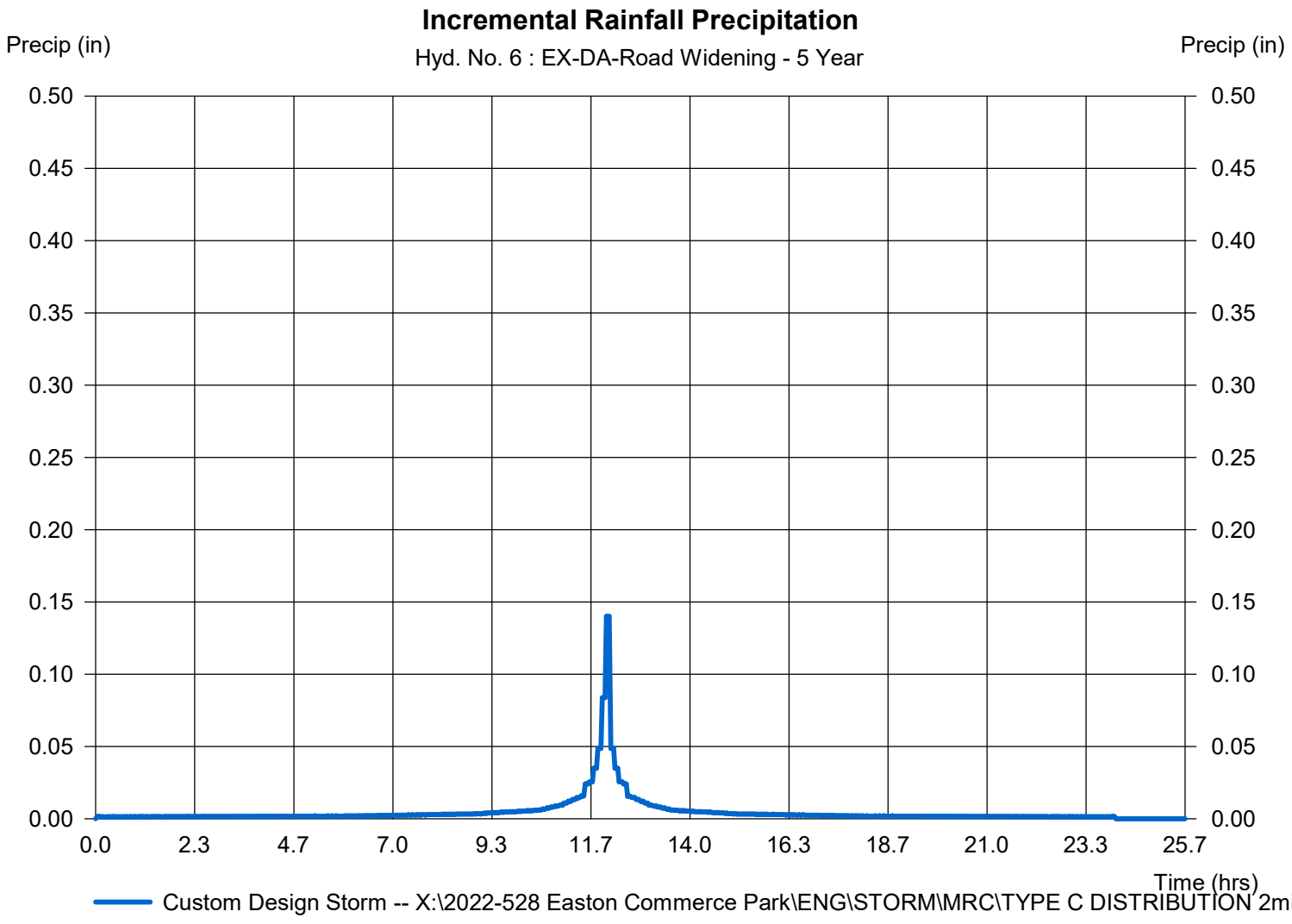


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

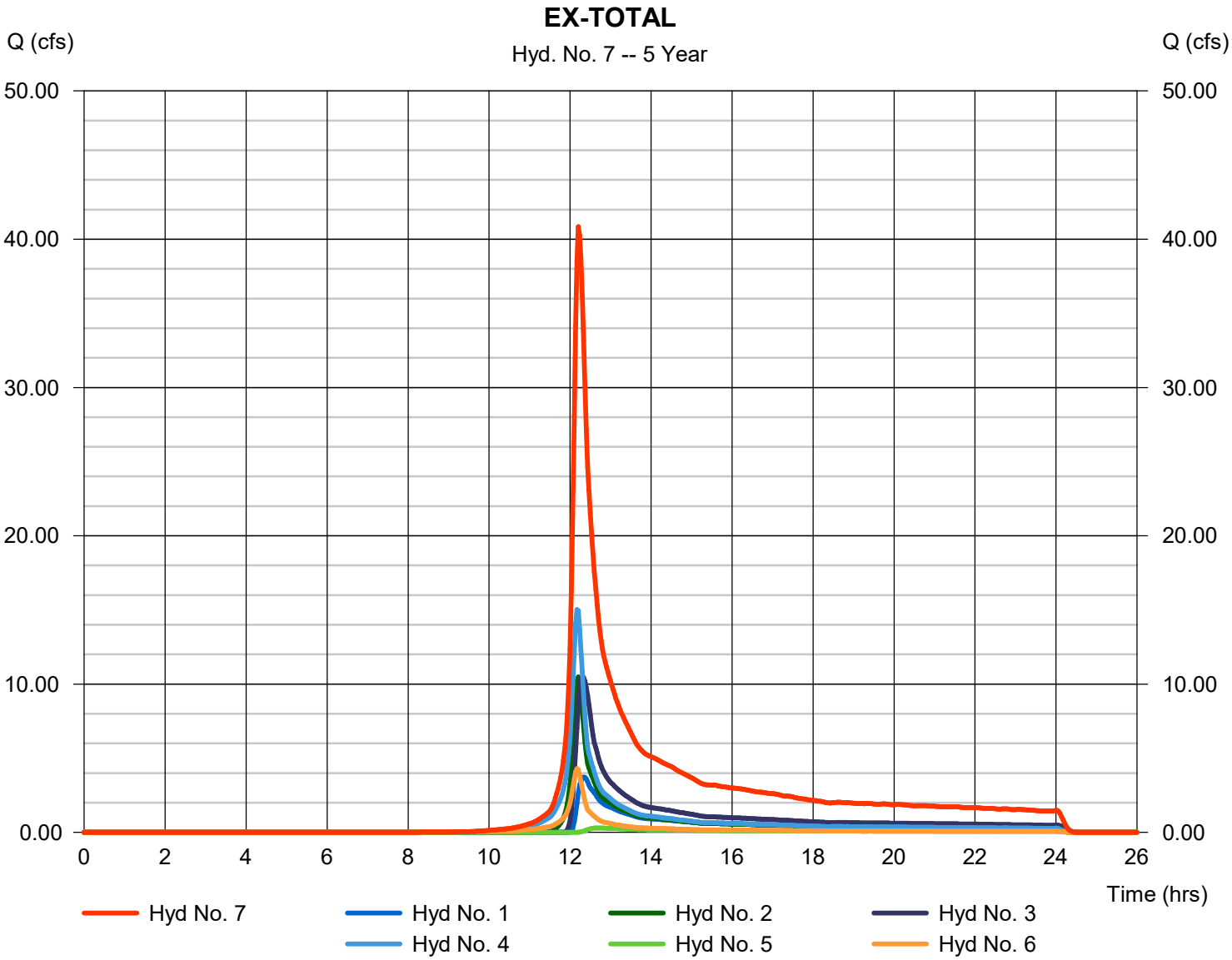


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	= Combine	Peak discharge	= 40.85 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 200,802 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 82.880 ac



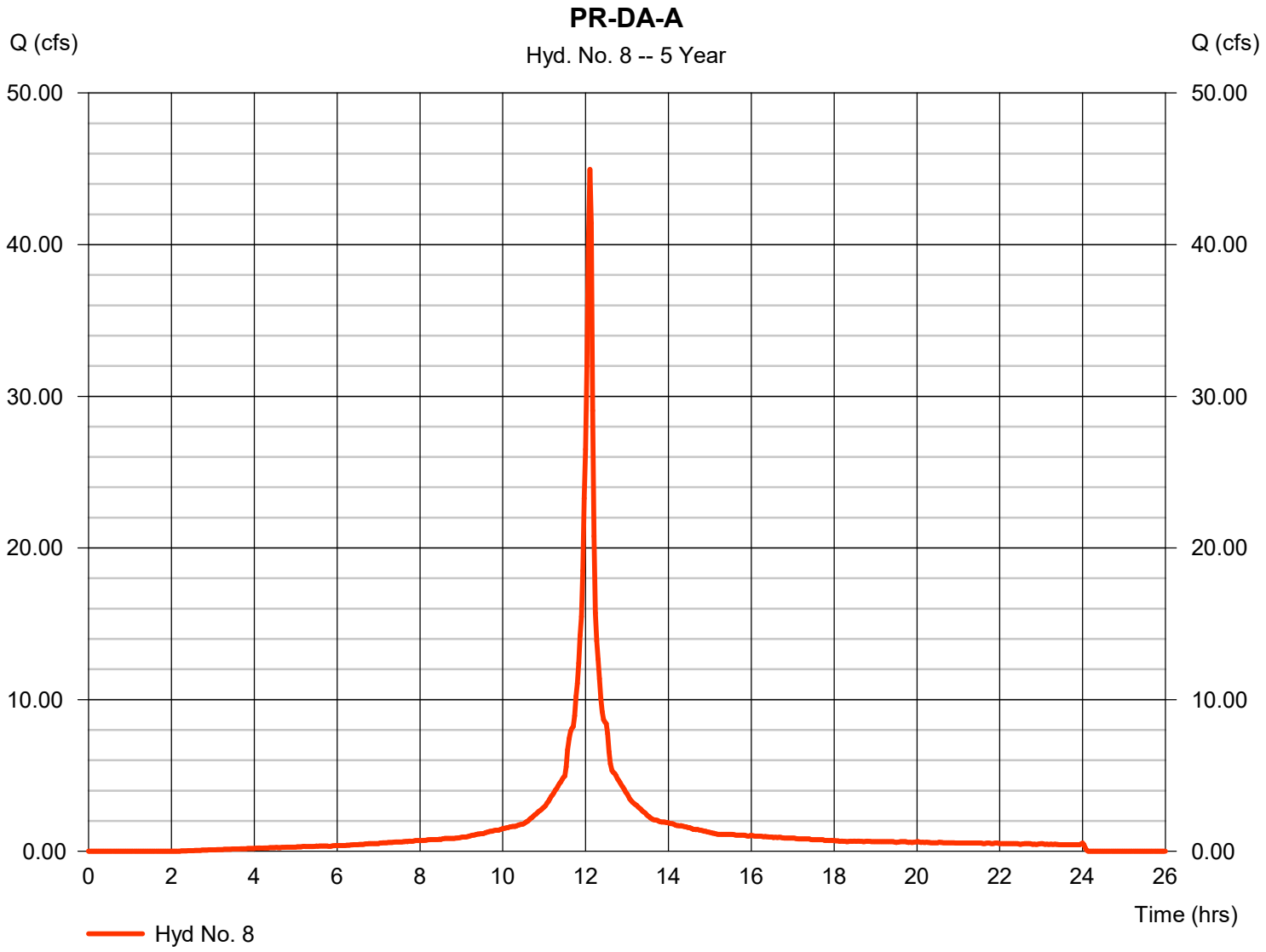
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	44.97 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	132,679 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	484 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

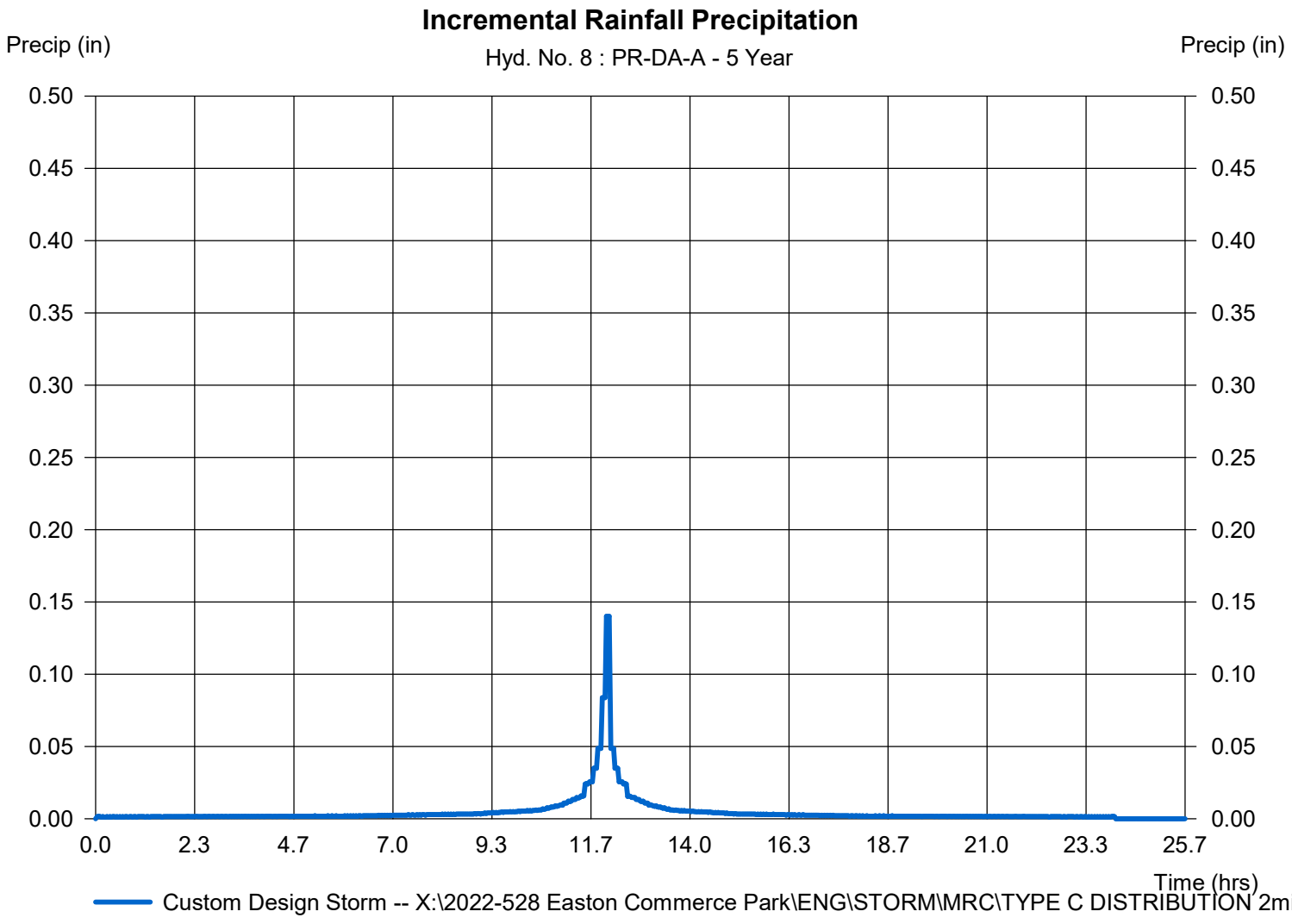


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



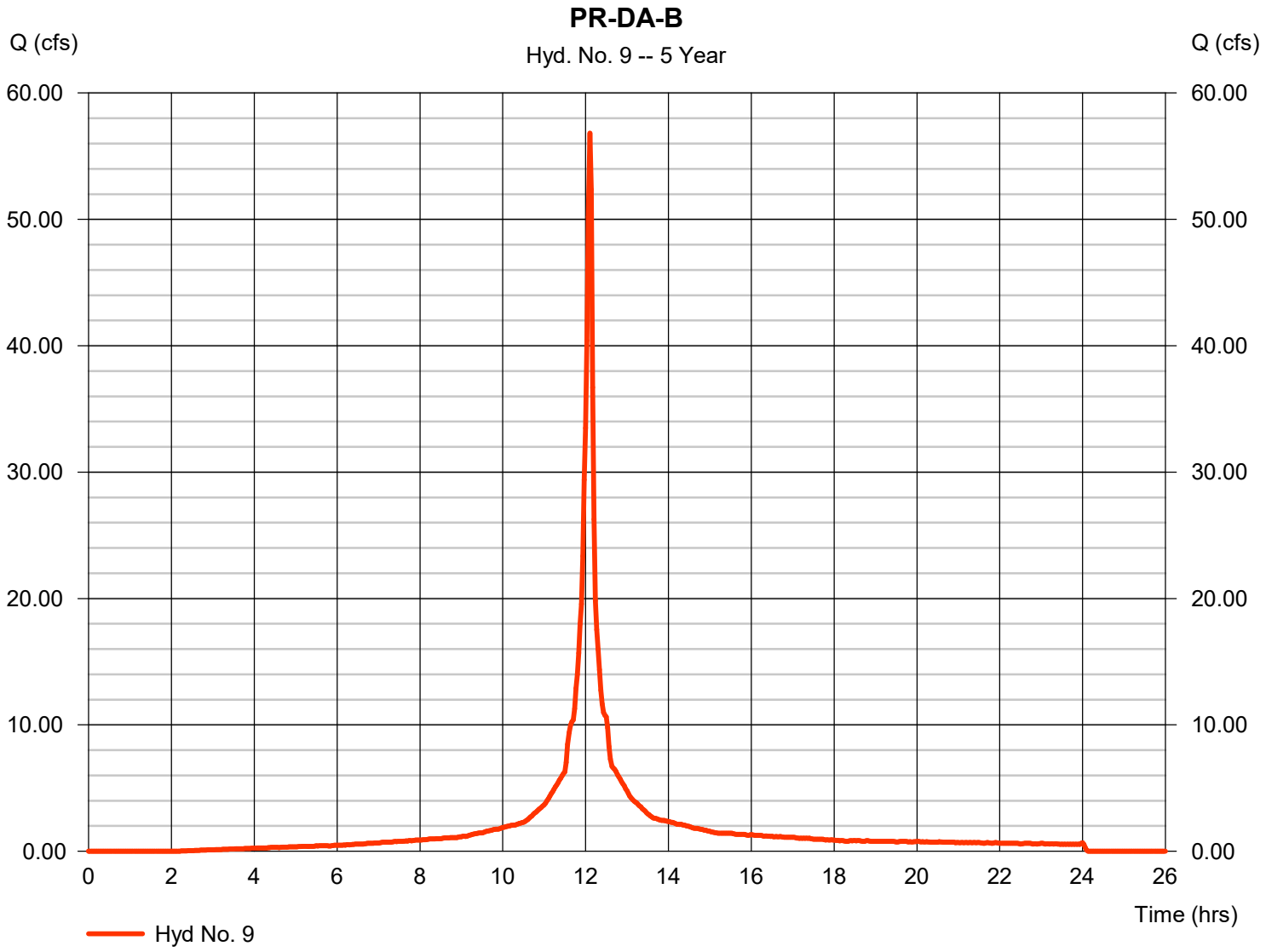
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	56.83 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	167,667 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

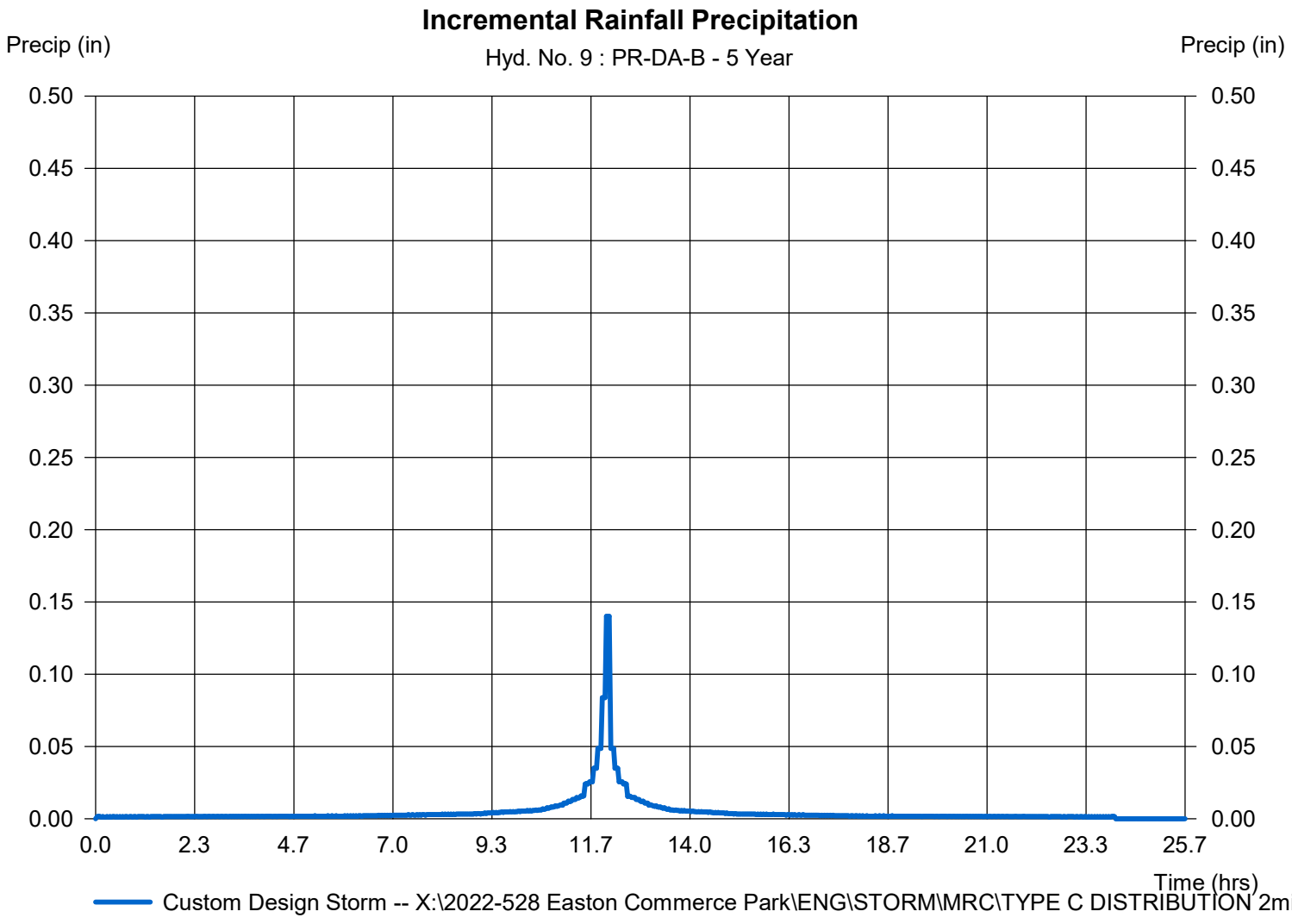


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



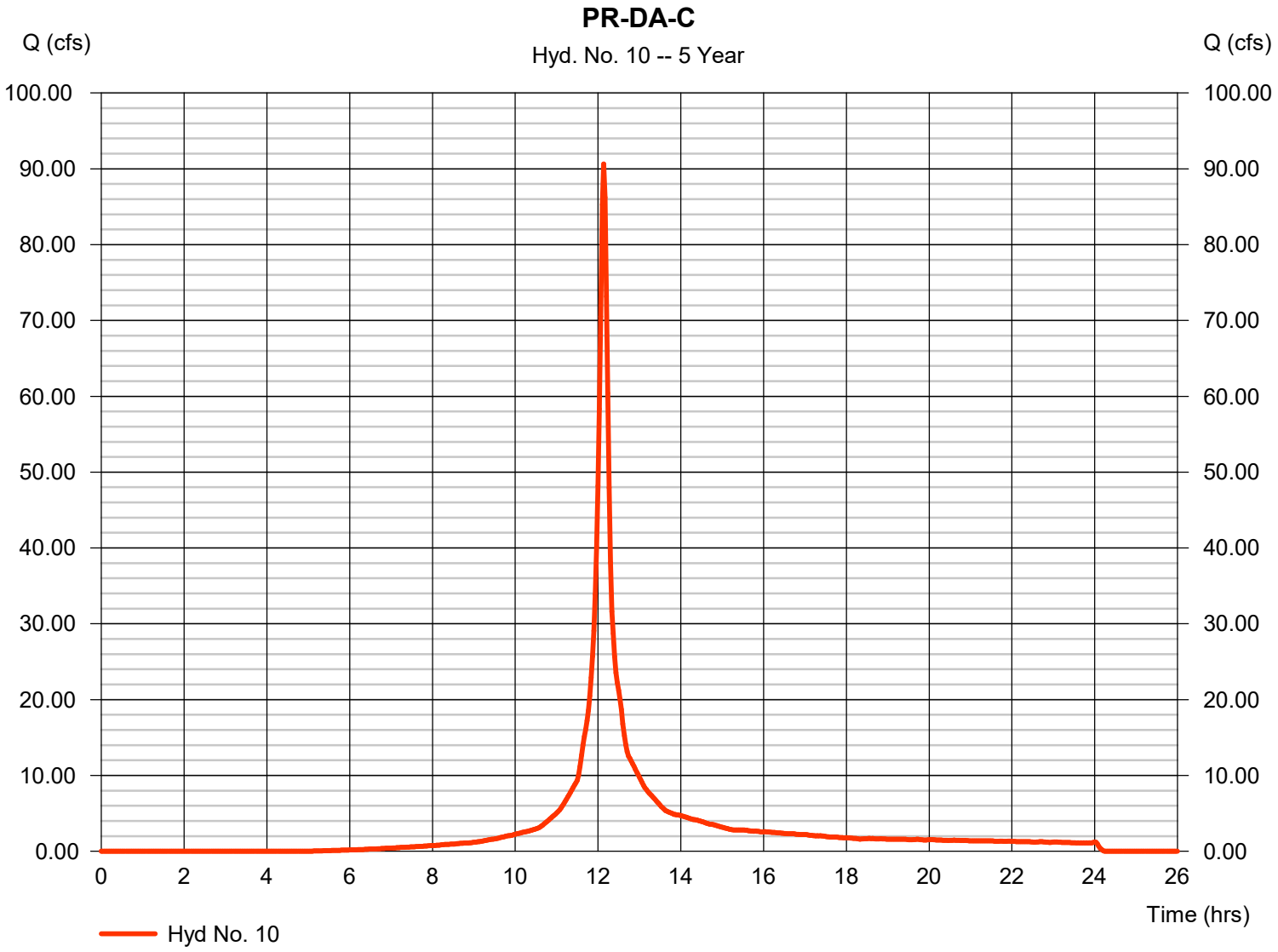
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	90.62 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	286,478 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

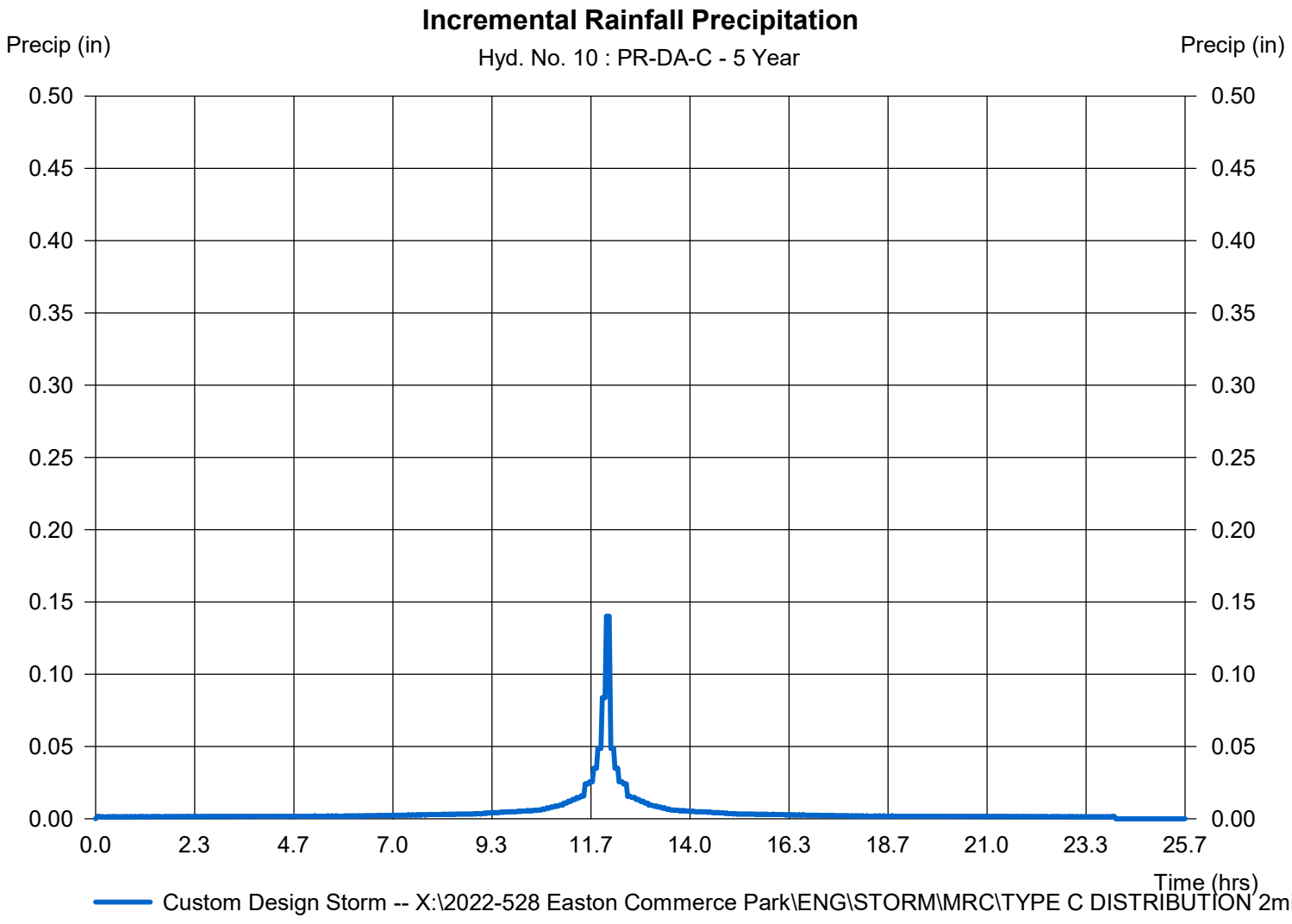


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



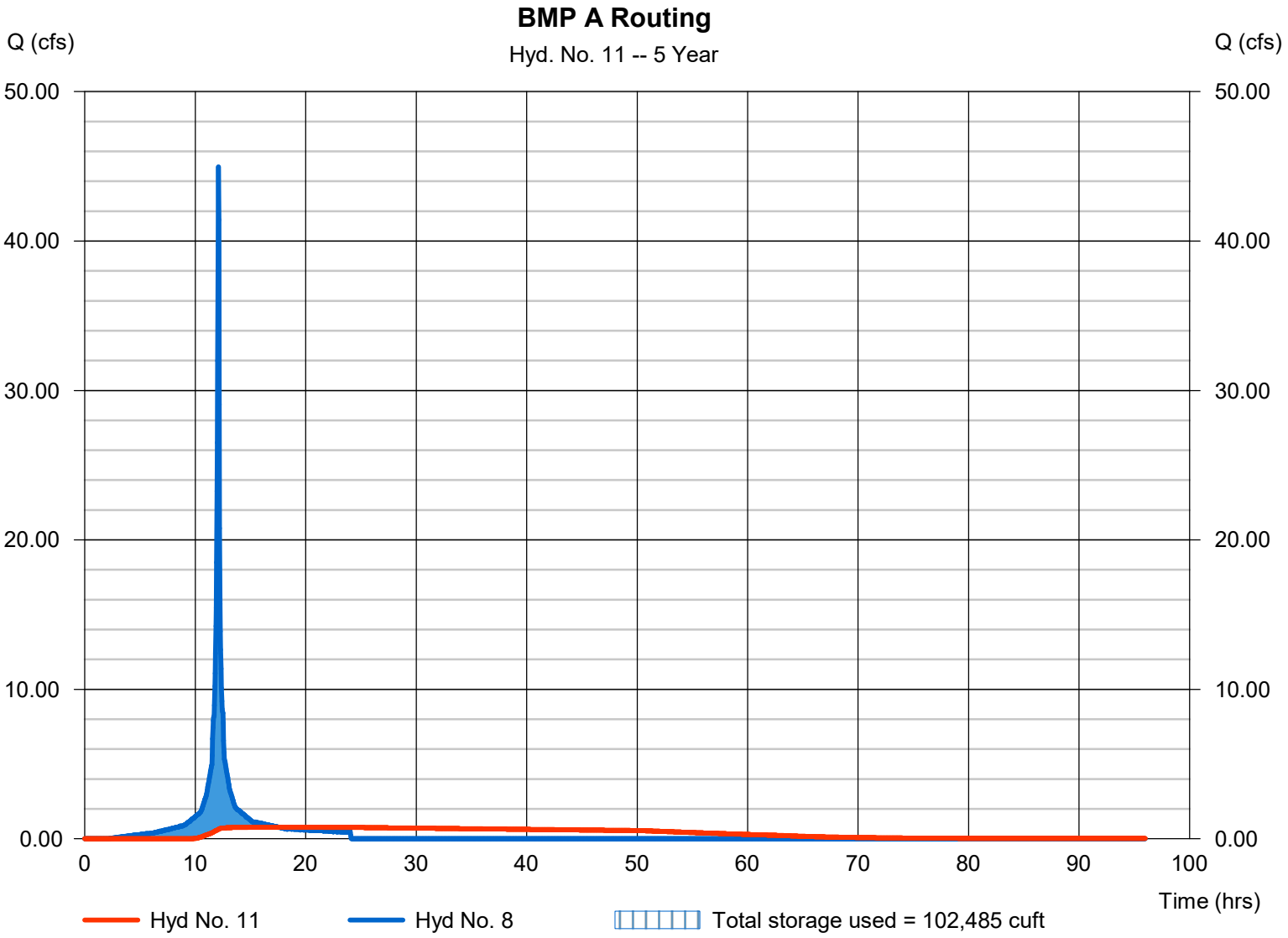
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.774 cfs
Storm frequency	=	5 yrs	Time to peak	=	17.47 hrs
Time interval	=	2 min	Hyd. volume	=	119,800 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.80 ft
Reservoir name	=	BMP A	Max. Storage	=	102,485 cuft

Storage Indication method used.



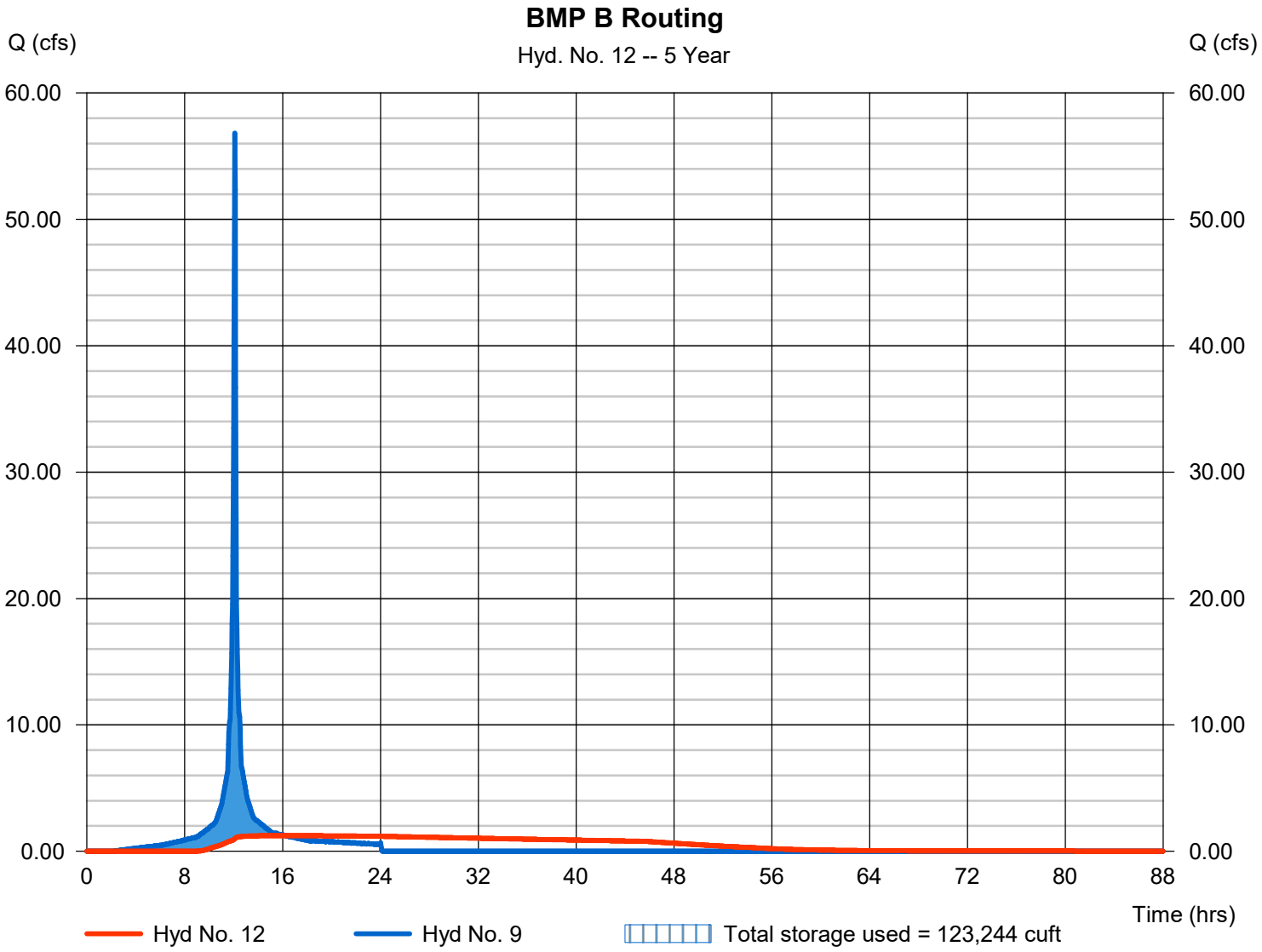
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.235 cfs
Storm frequency	=	5 yrs	Time to peak	=	16.27 hrs
Time interval	=	2 min	Hyd. volume	=	155,927 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.09 ft
Reservoir name	=	BMP B	Max. Storage	=	123,244 cuft

Storage Indication method used.



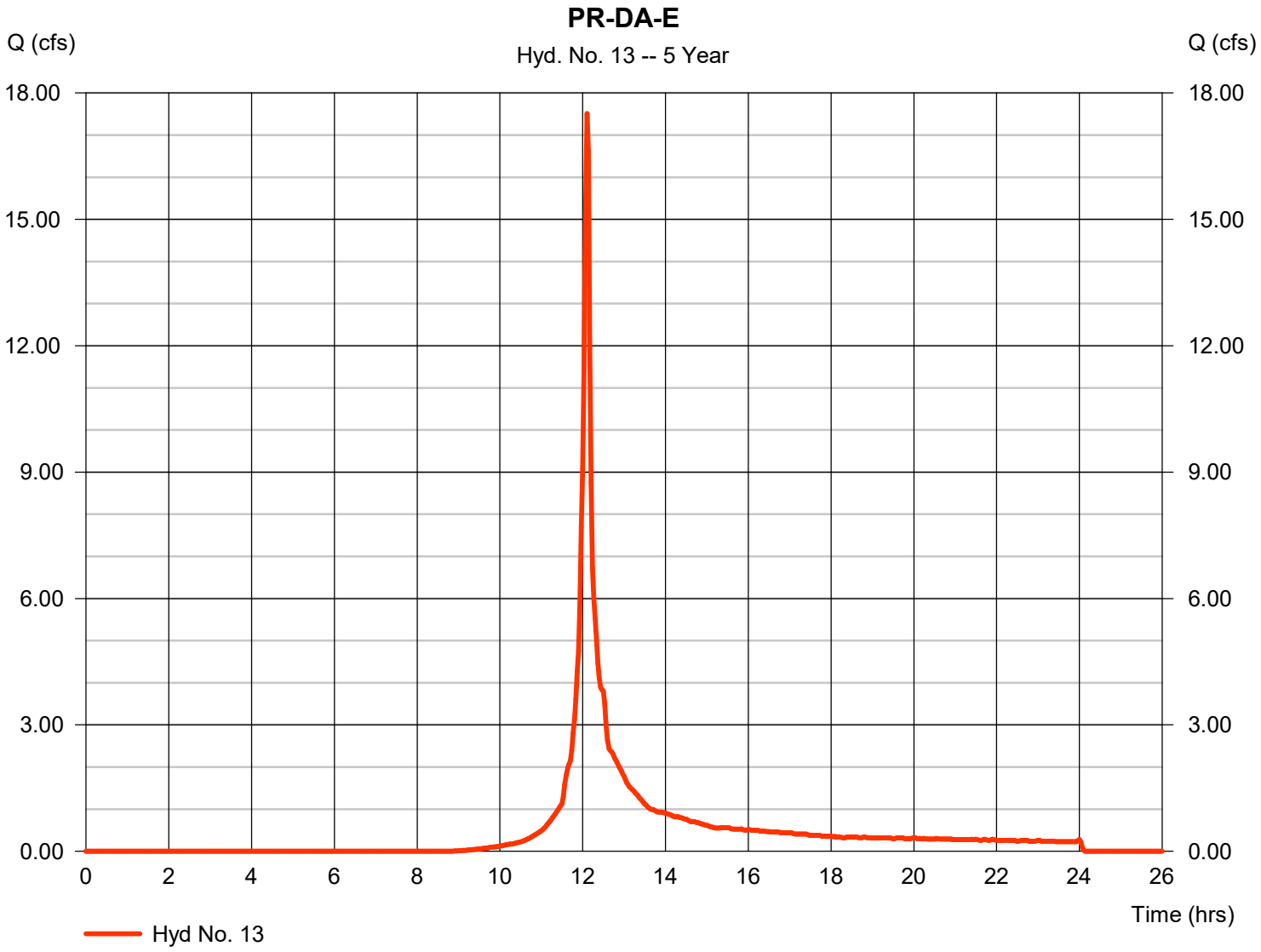
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.51 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	46,370 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24 HR TYPE C DISTRIBUTION.cpt			

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

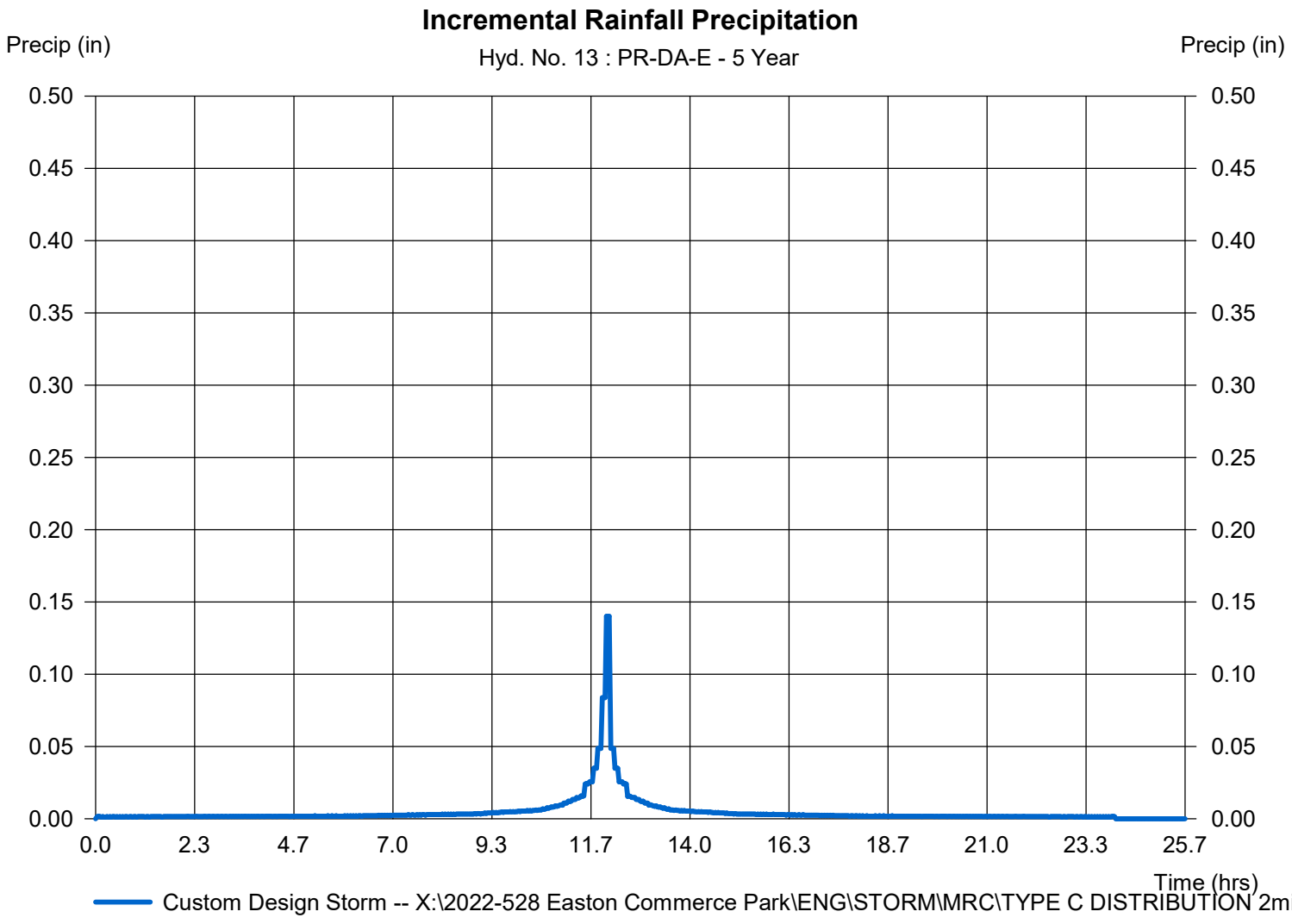


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



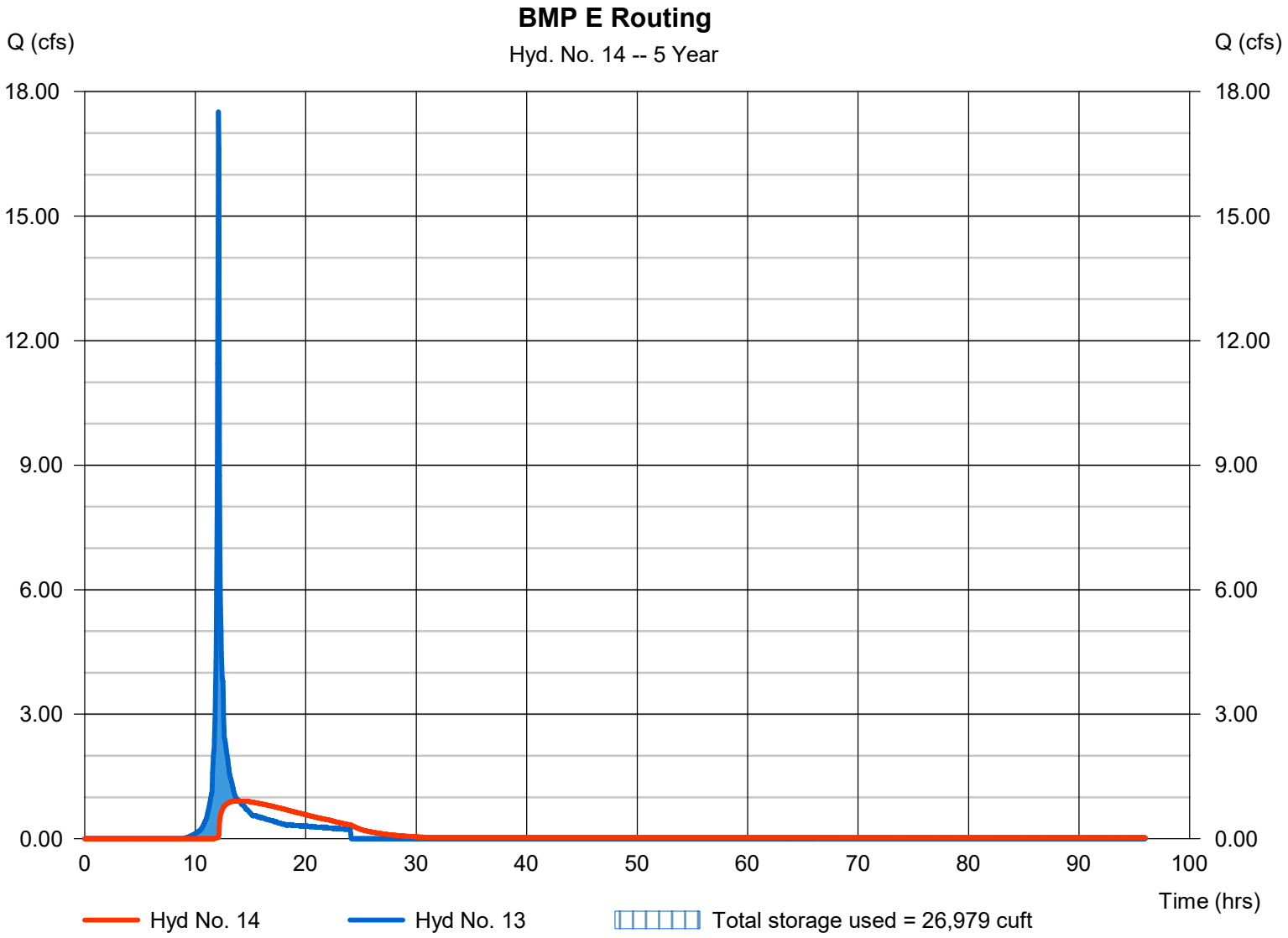
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.908 cfs
Storm frequency	=	5 yrs	Time to peak	=	13.97 hrs
Time interval	=	2 min	Hyd. volume	=	38,936 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	258.03 ft
Reservoir name	=	BMP E	Max. Storage	=	26,979 cuft

Storage Indication method used.

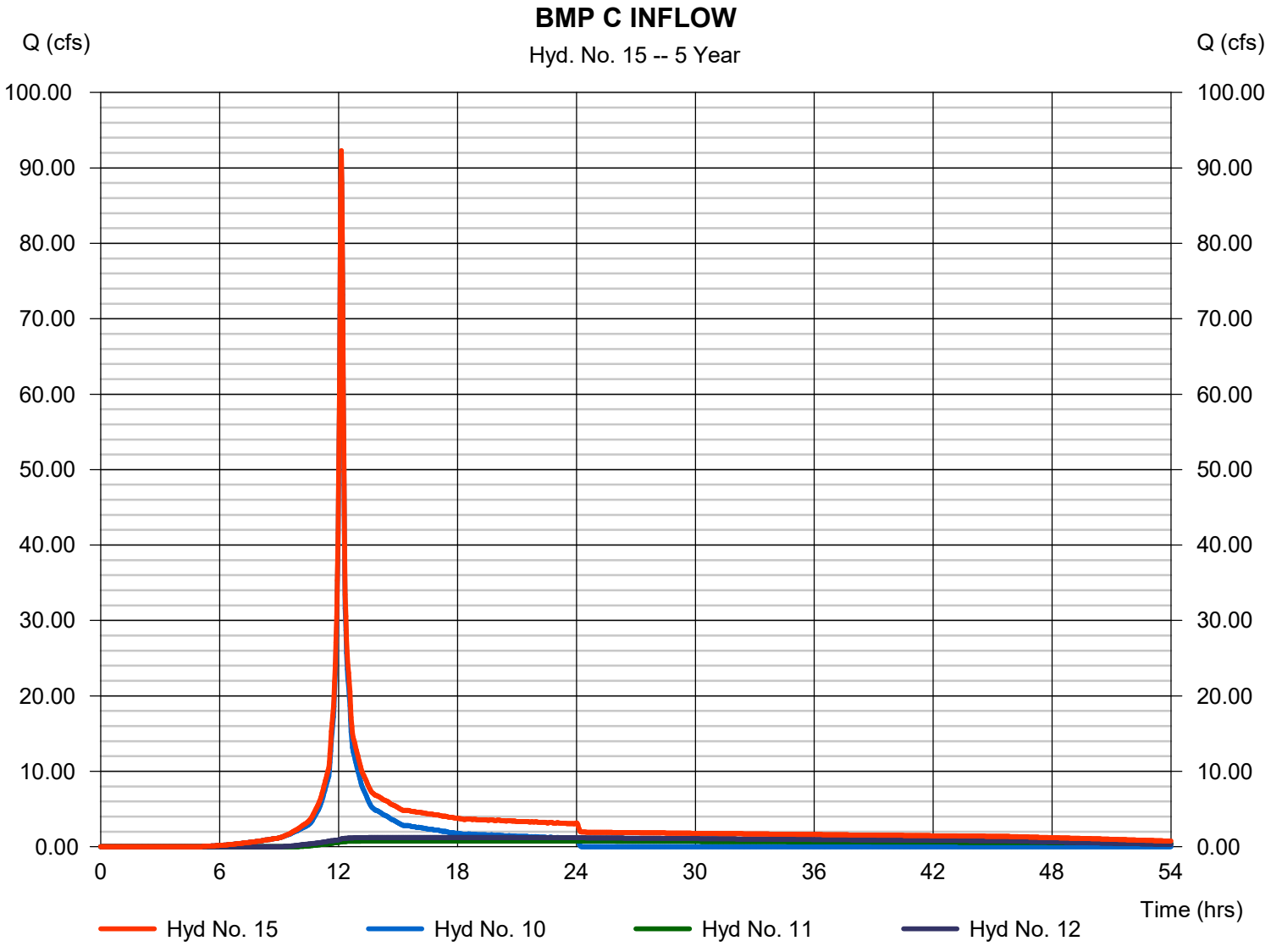


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	92.31 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	562,206 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



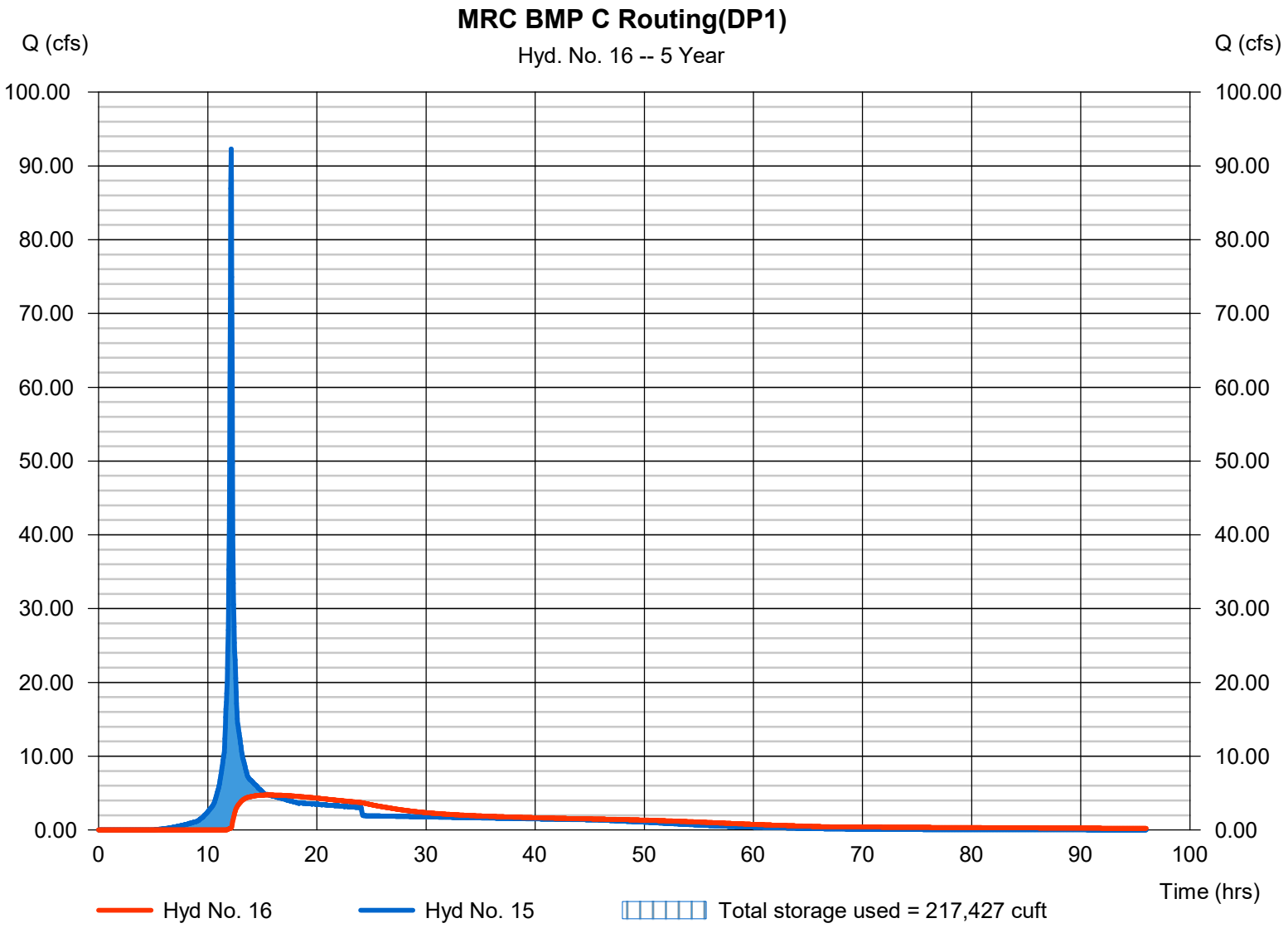
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	4.737 cfs
Storm frequency	=	5 yrs	Time to peak	=	15.60 hrs
Time interval	=	2 min	Hyd. volume	=	453,611 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.08 ft
Reservoir name	=	BMP C	Max. Storage	=	217,427 cuft

Storage Indication method used.



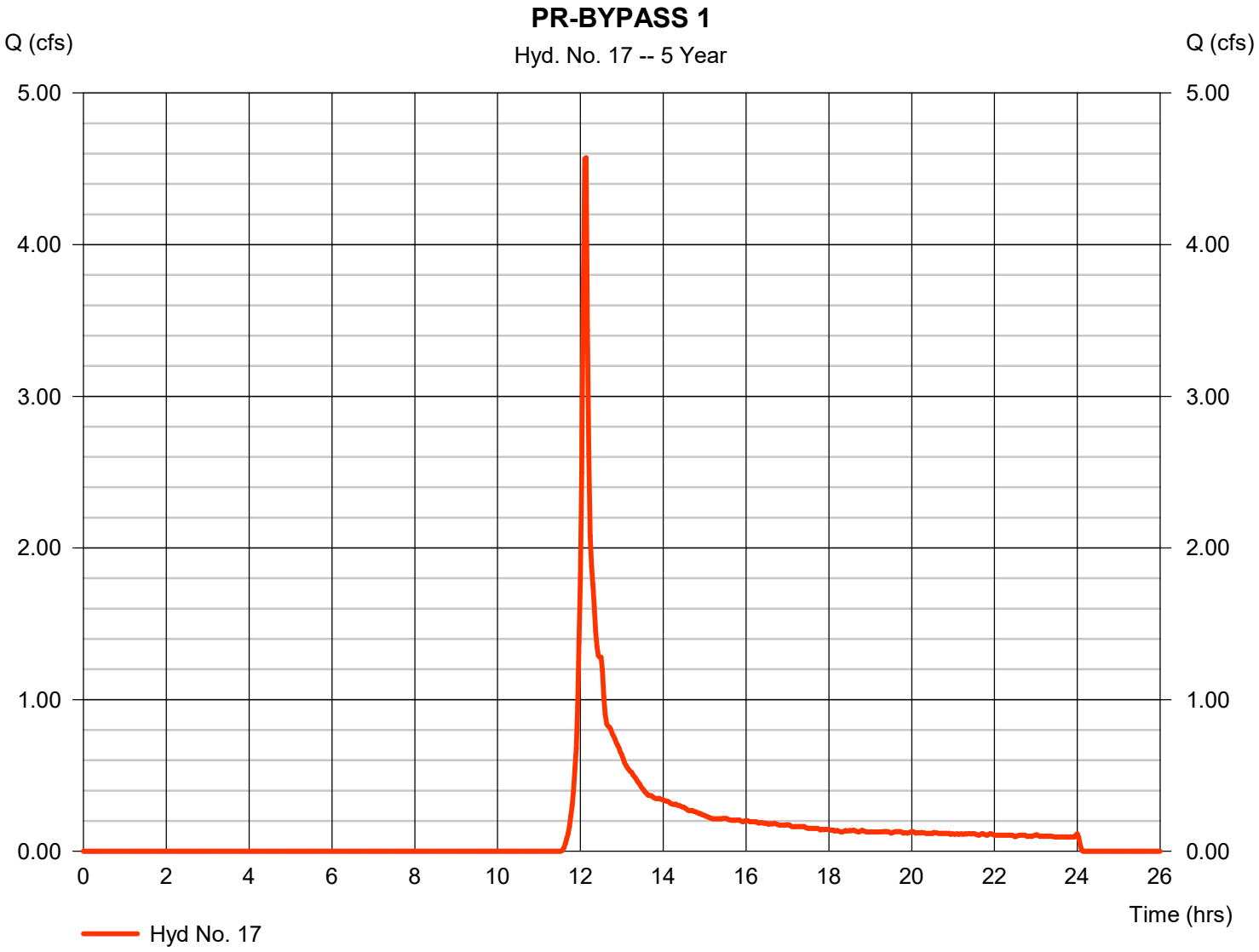
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.573 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	13,561 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

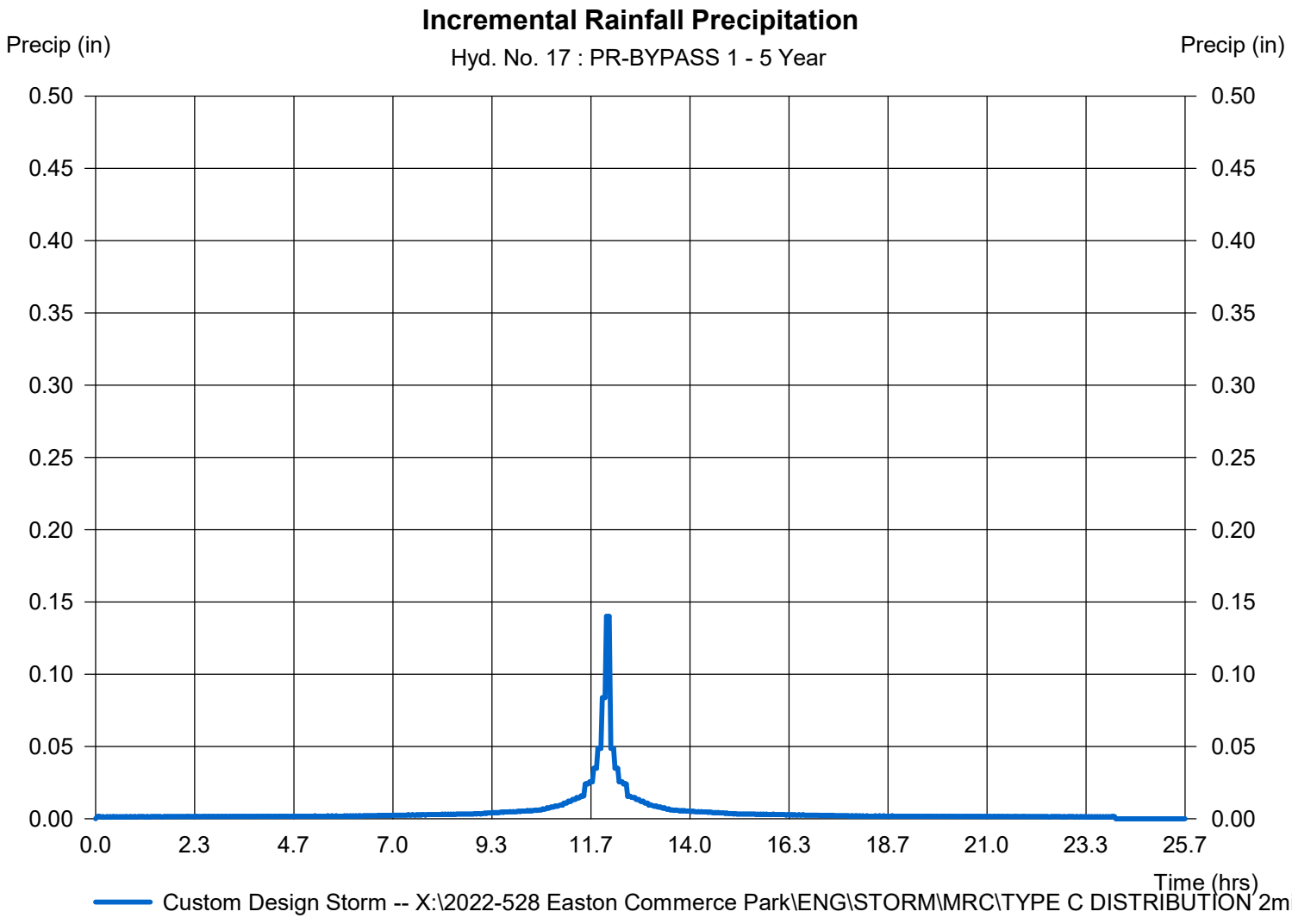


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



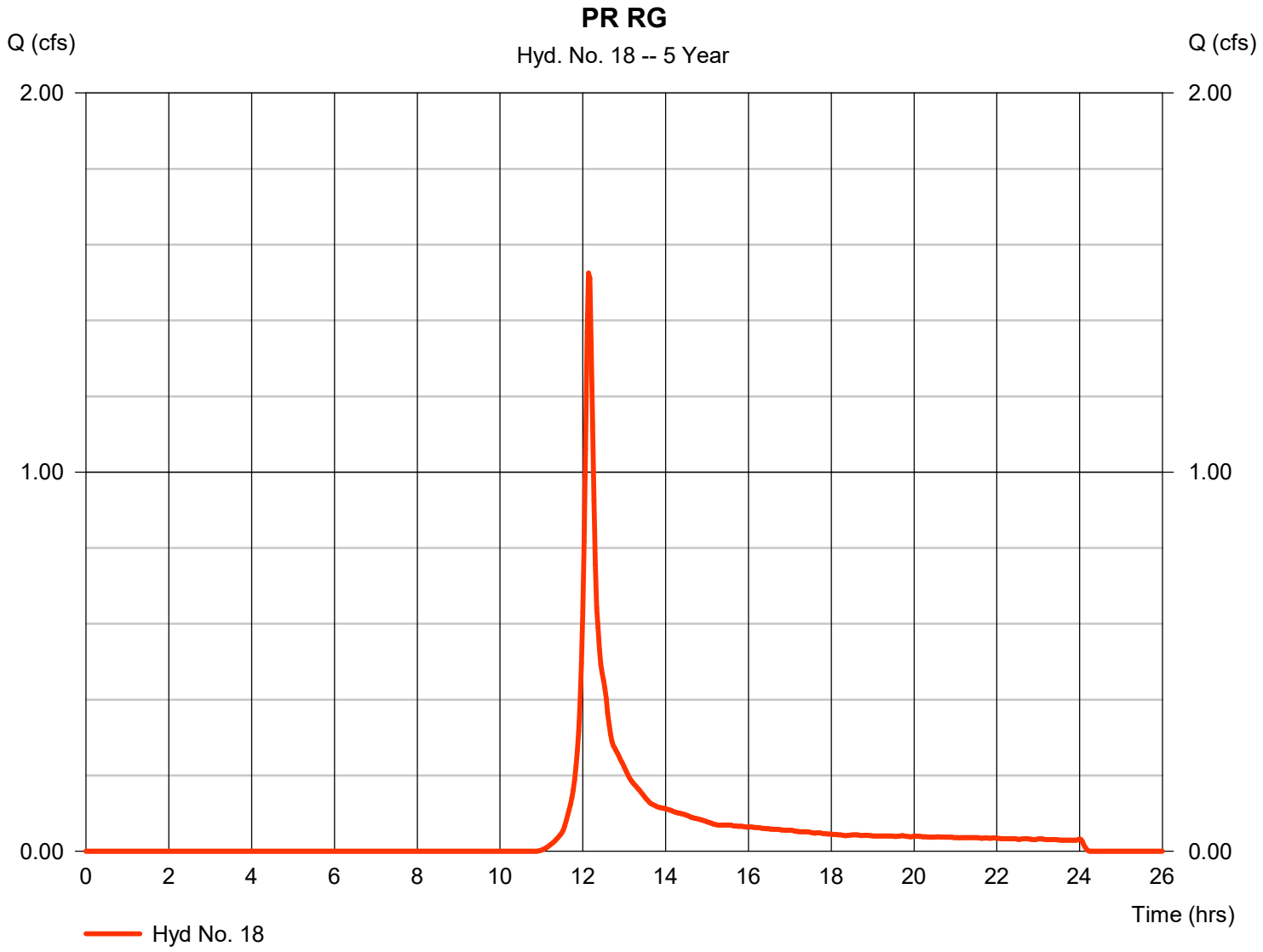
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.526 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	4,913 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

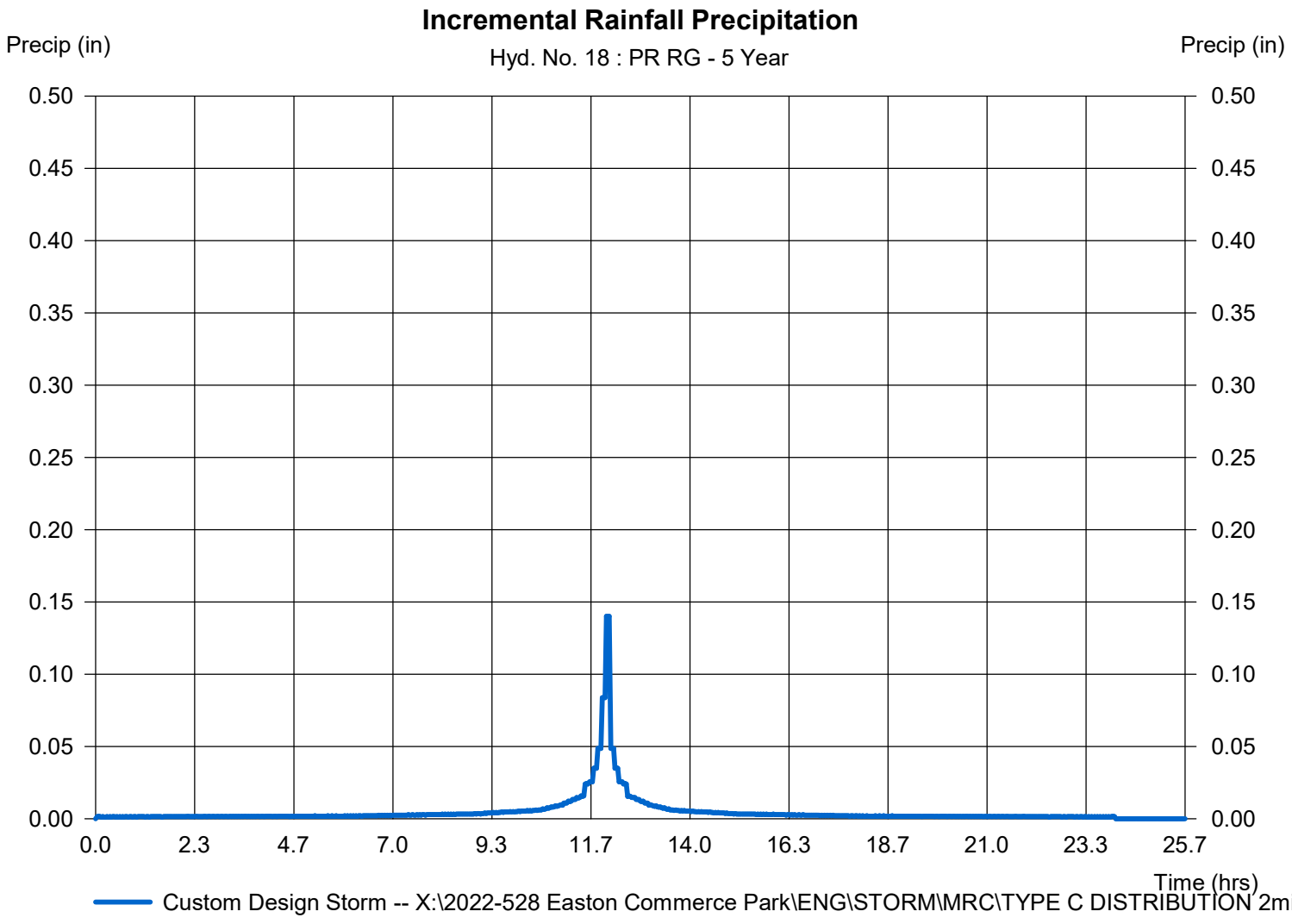


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



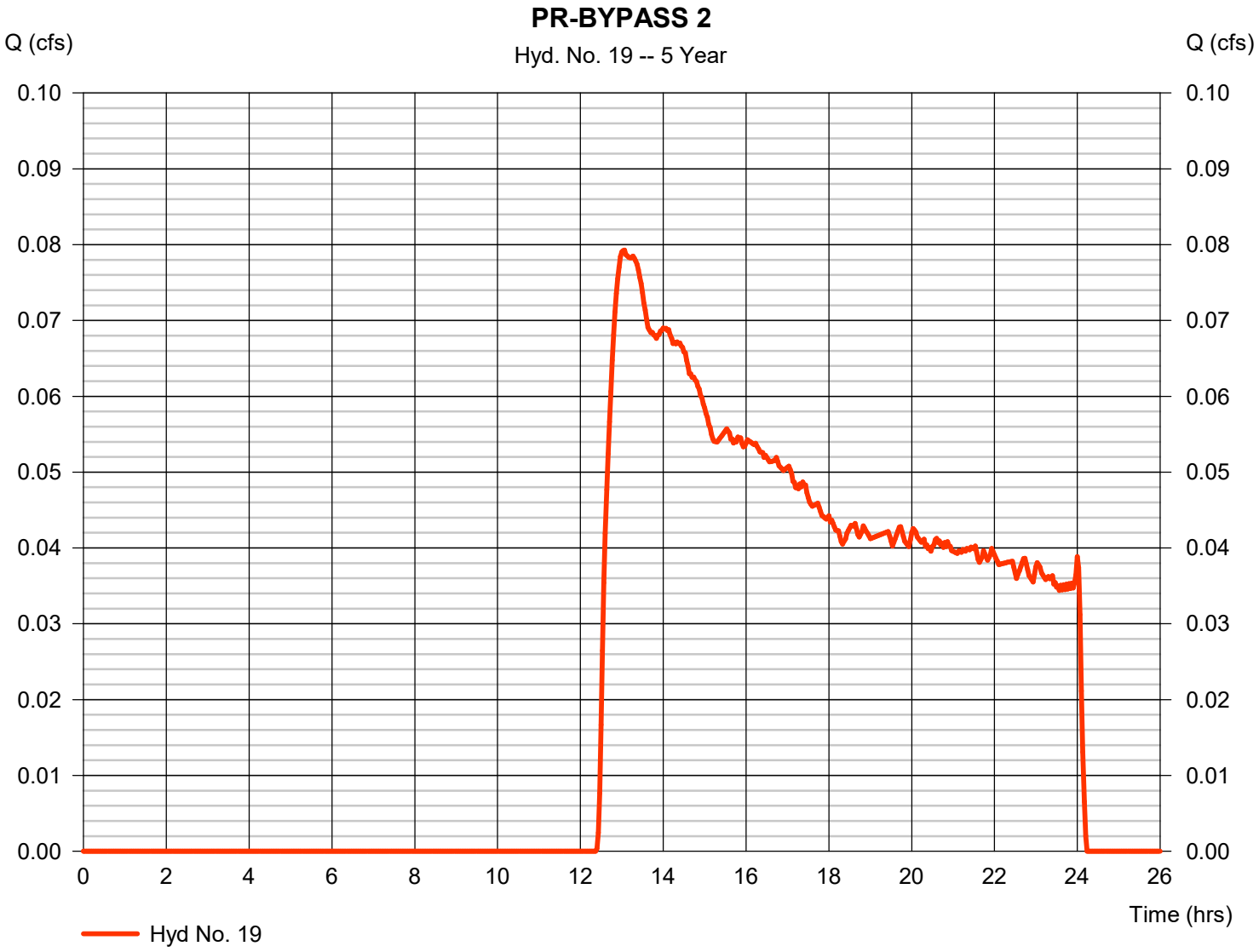
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.079 cfs
Storm frequency	=	5 yrs	Time to peak	=	13.07 hrs
Time interval	=	2 min	Hyd. volume	=	2,029 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

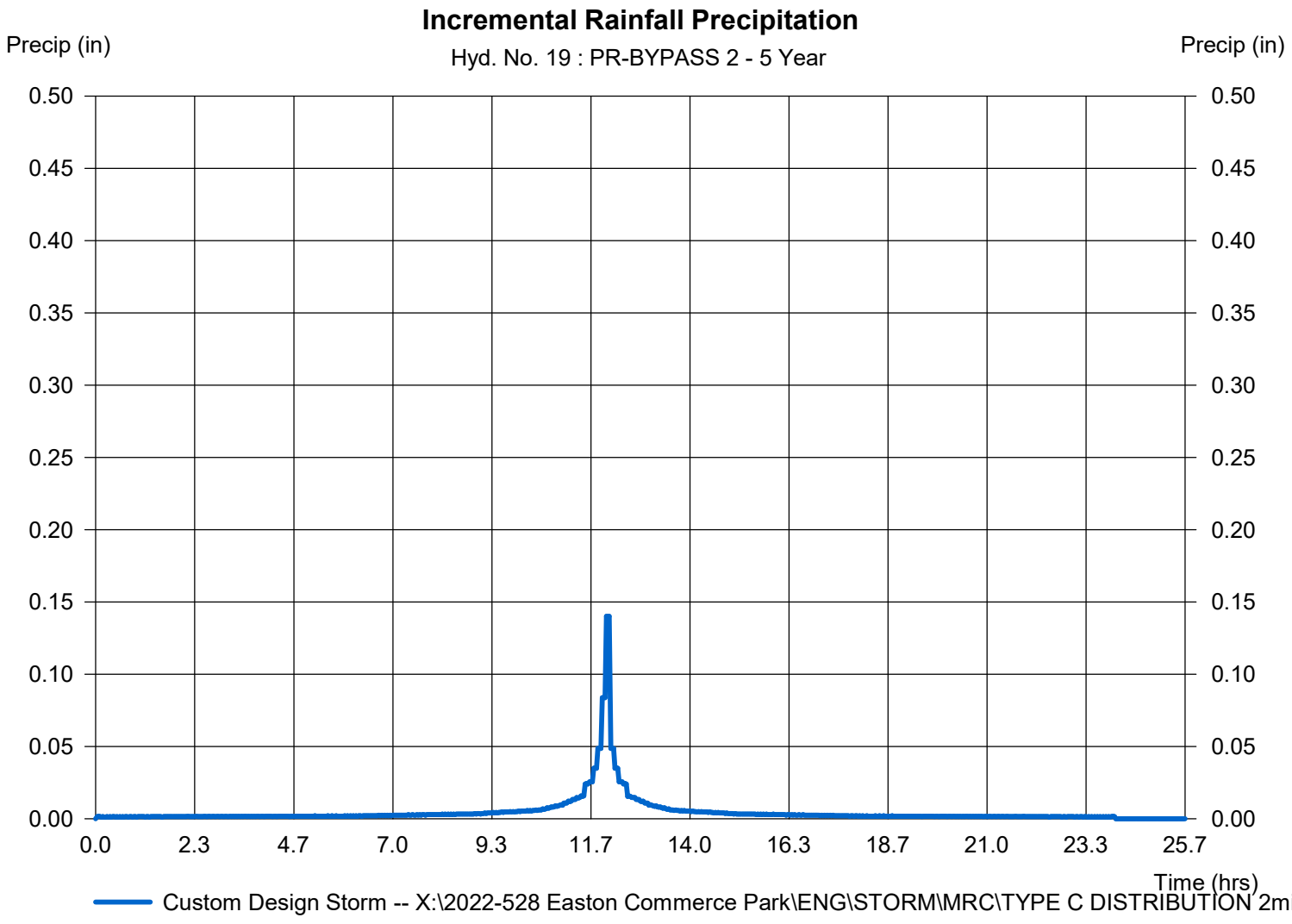


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



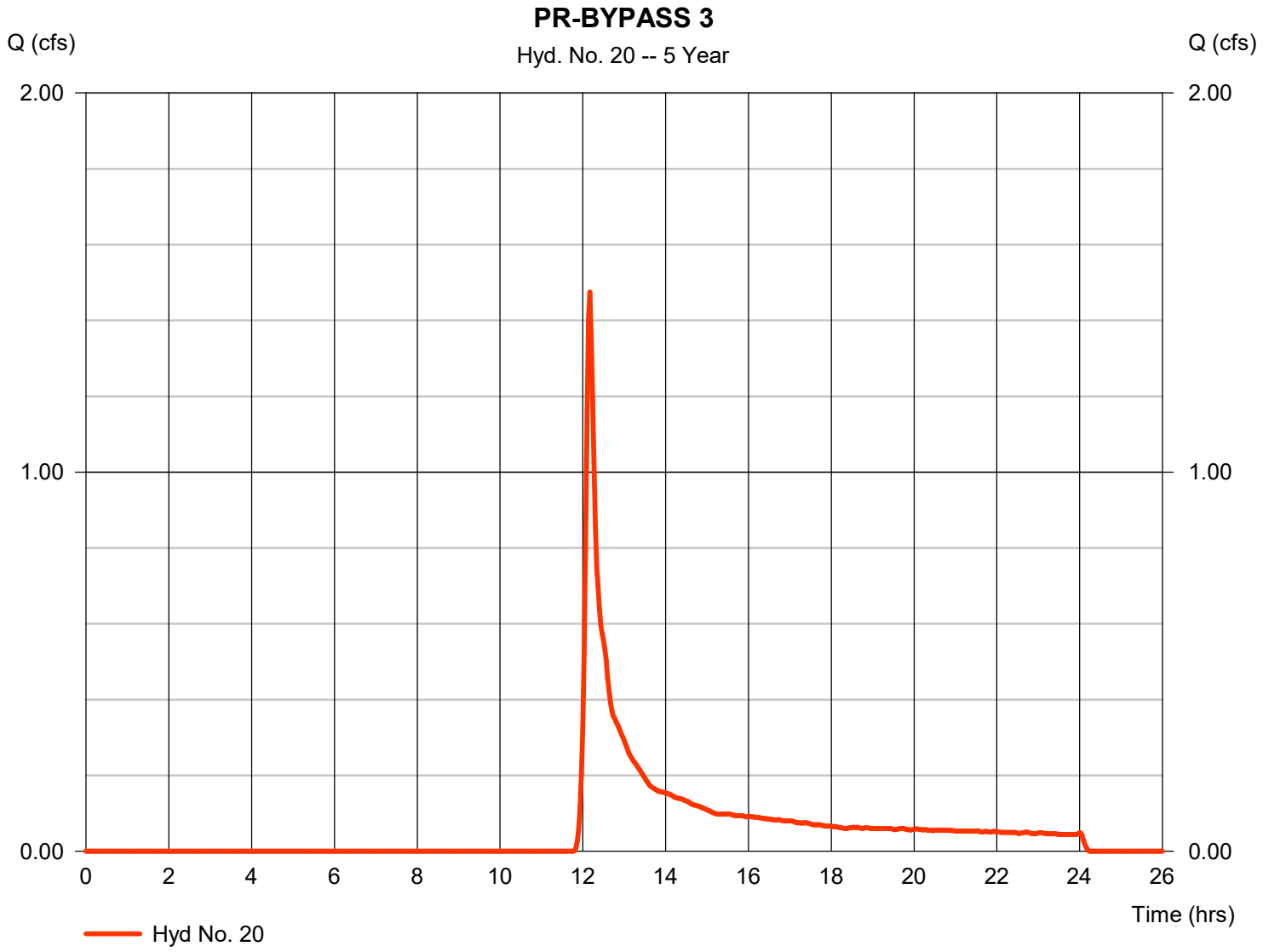
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.475 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	5,679 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

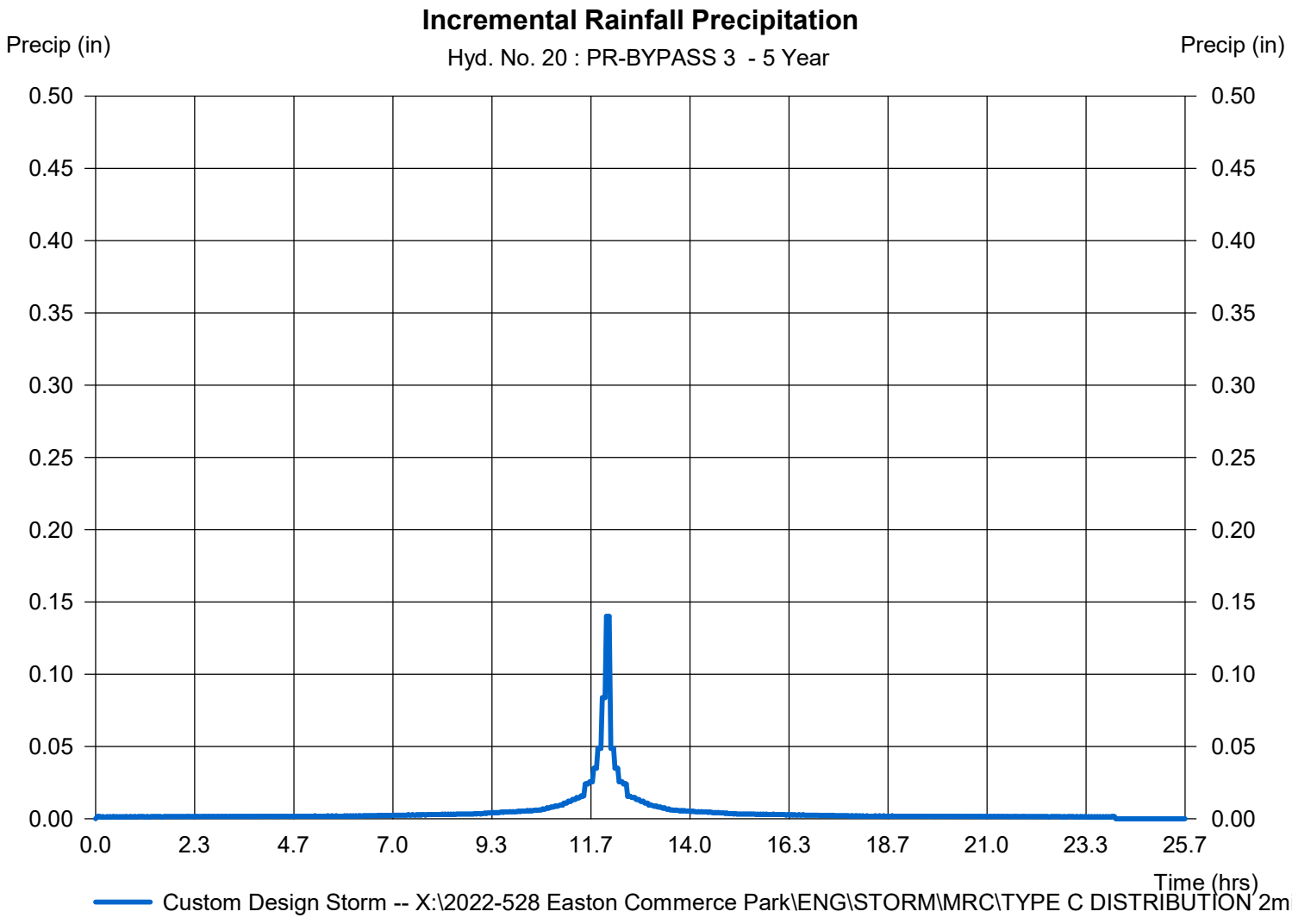


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

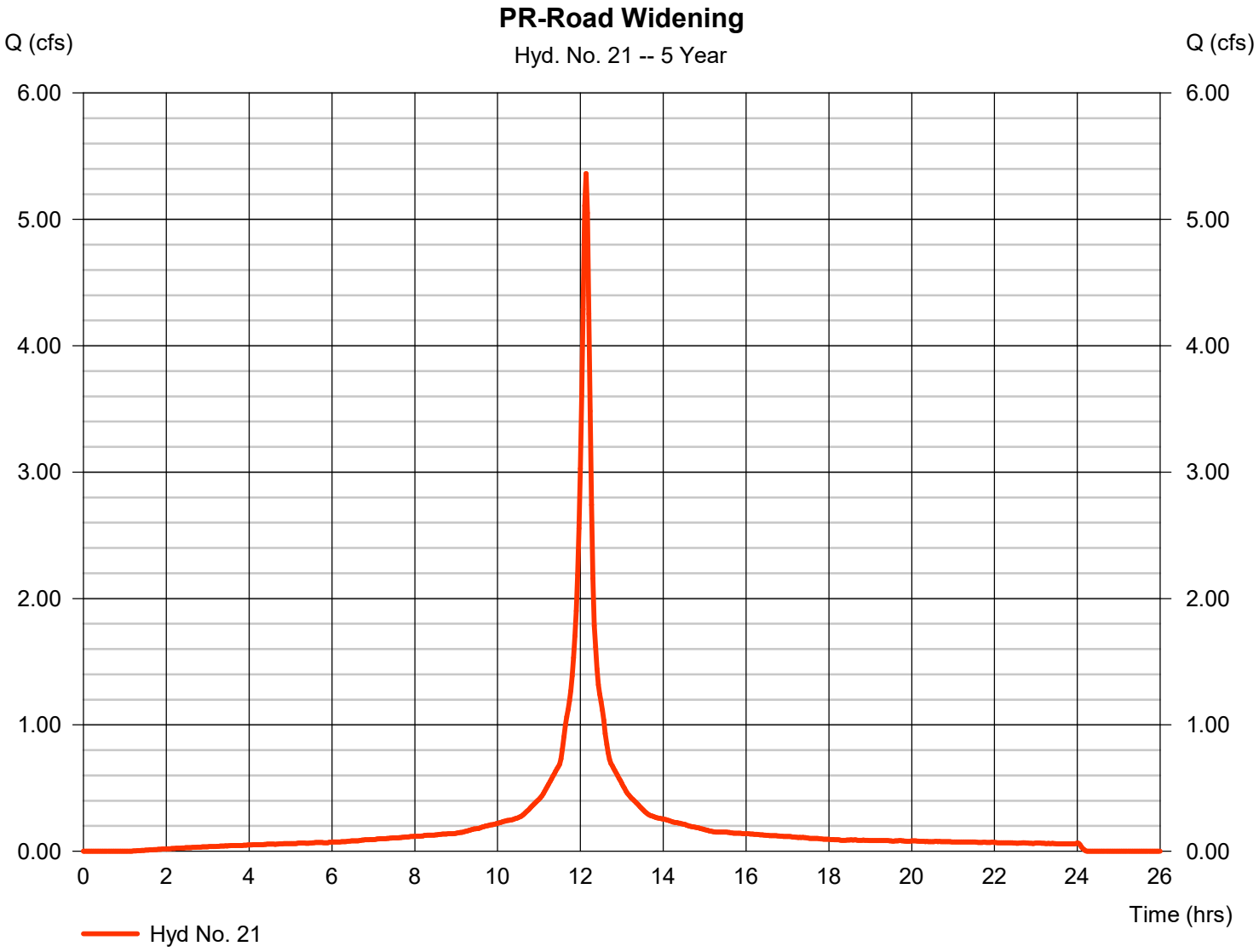


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.363 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	18,940 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.60 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

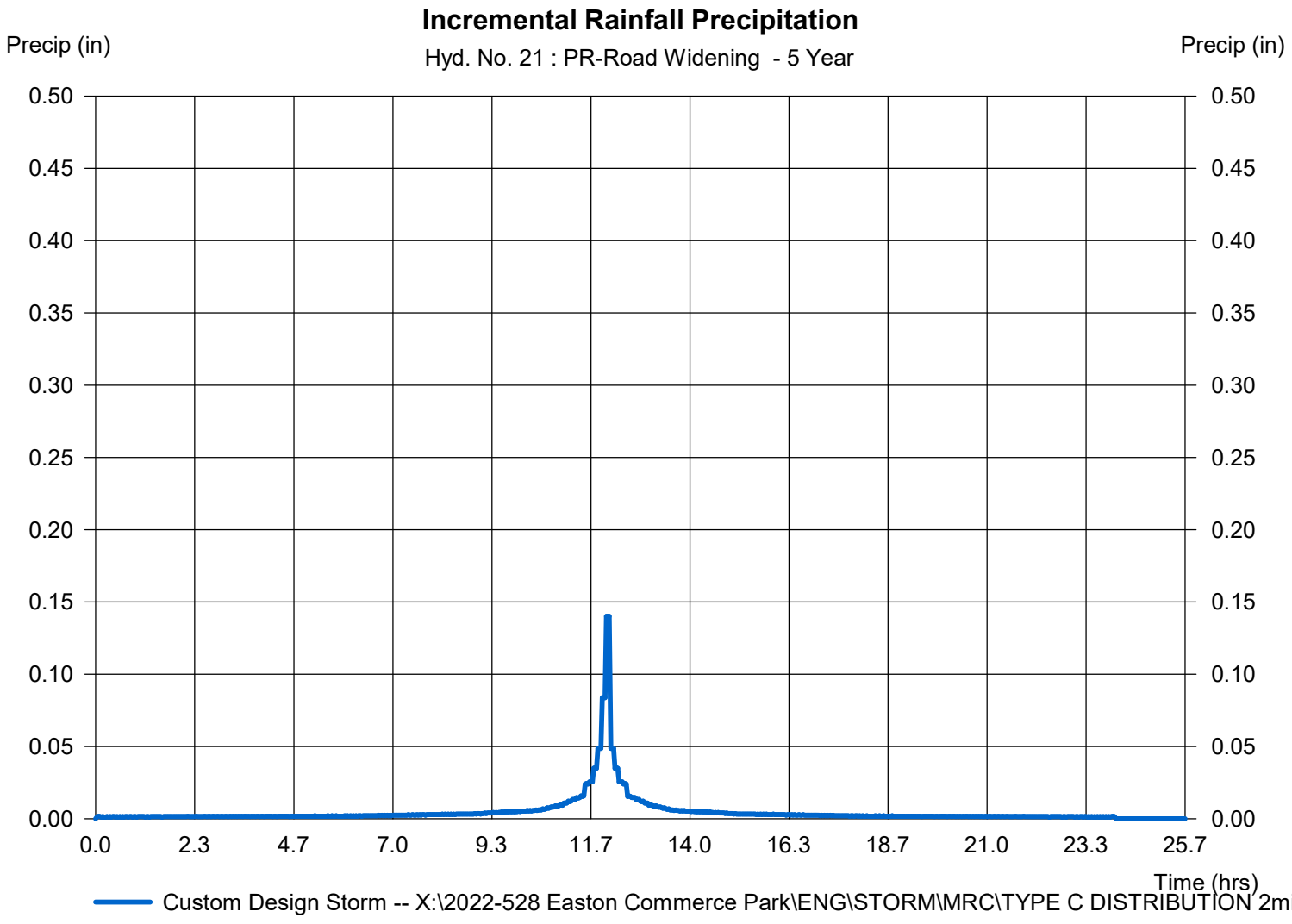


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 5 yrs	Time interval	= 2 min
Total precip.	= 3.6000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

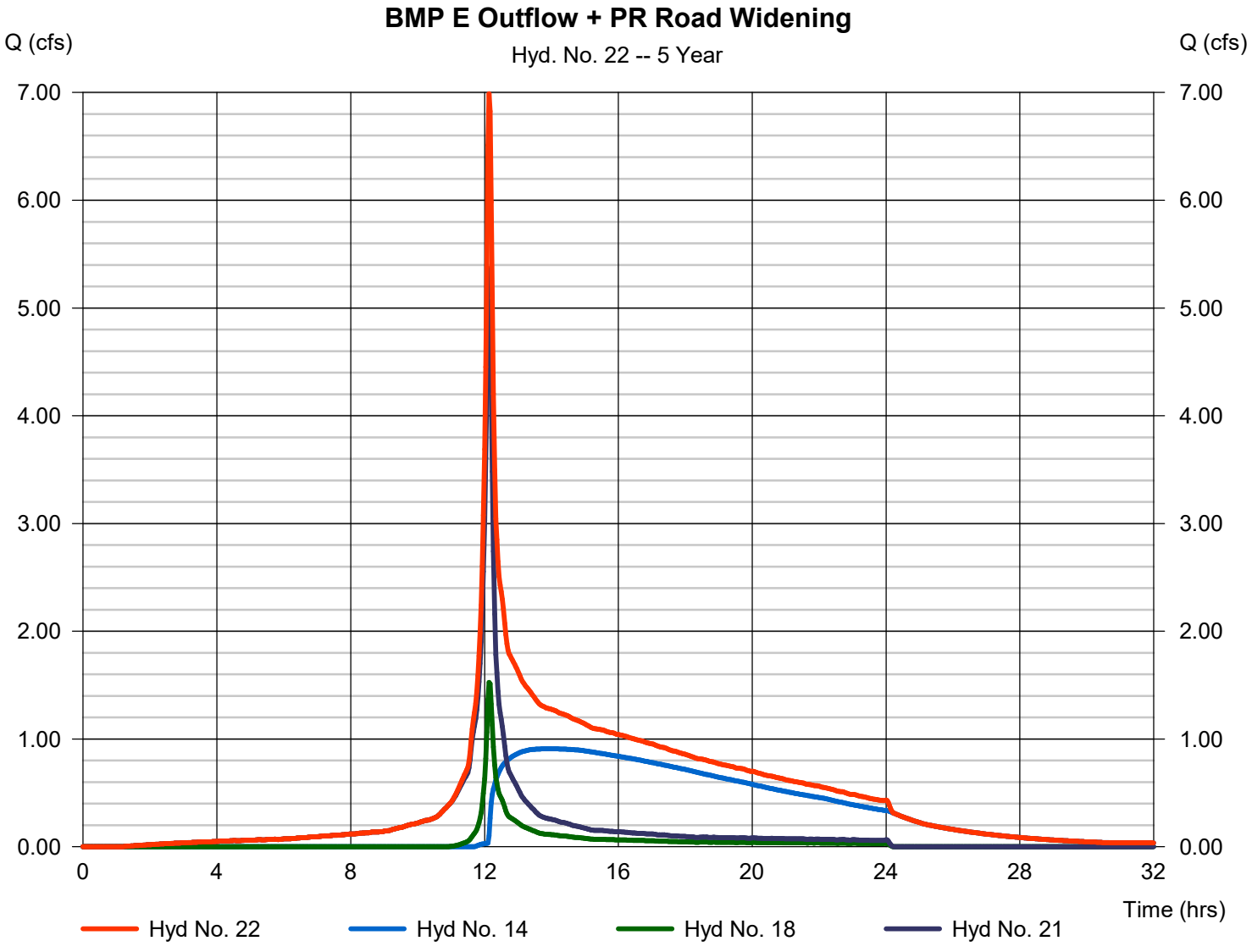


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	= Combine	Peak discharge	= 6.990 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 62,789 cuft
Inflow hyds.	= 14, 18, 21	Contrib. drain. area	= 2.750 ac



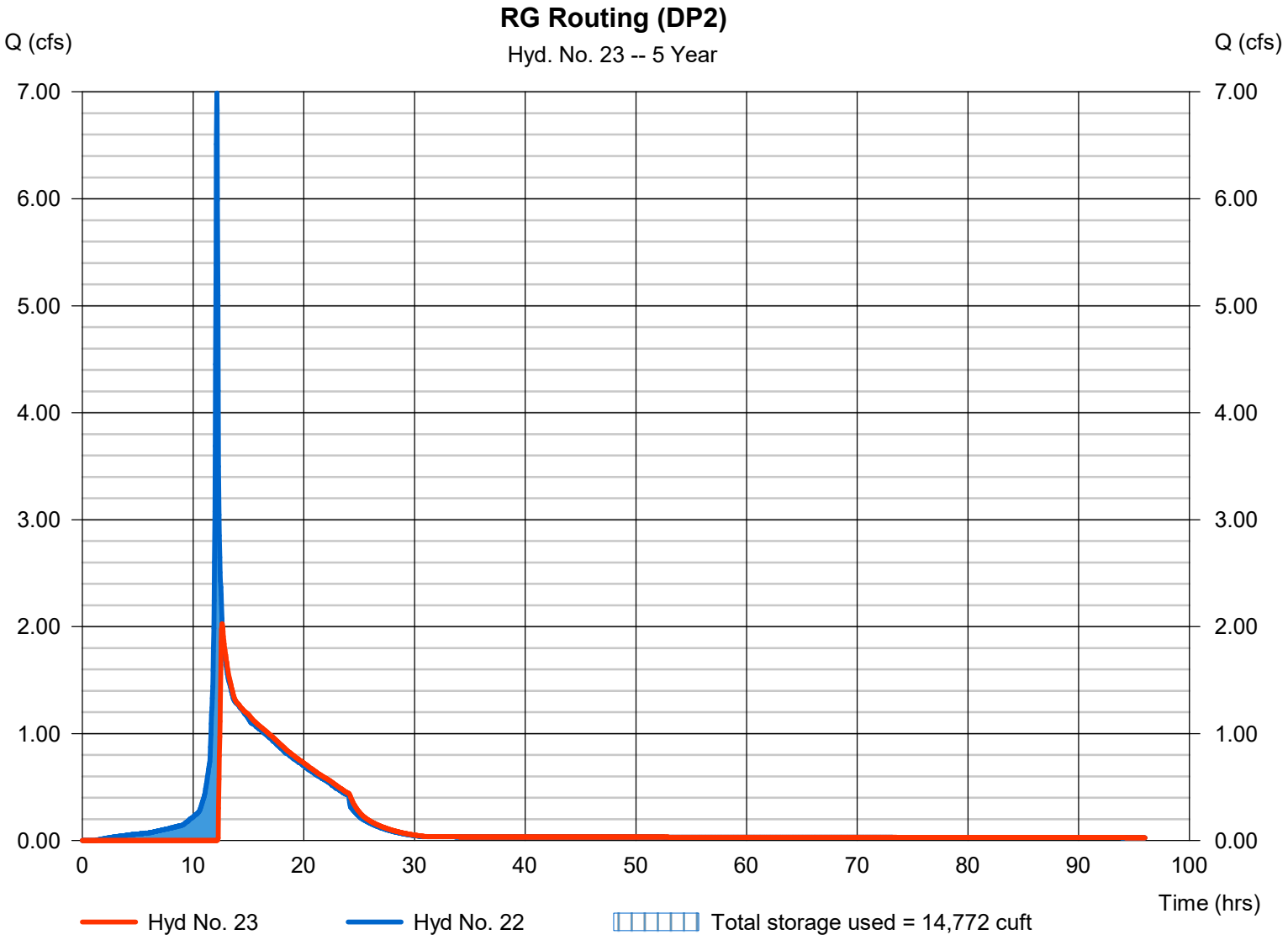
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	2.026 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.60 hrs
Time interval	=	2 min	Hyd. volume	=	49,775 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.84 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,772 cuft

Storage Indication method used.

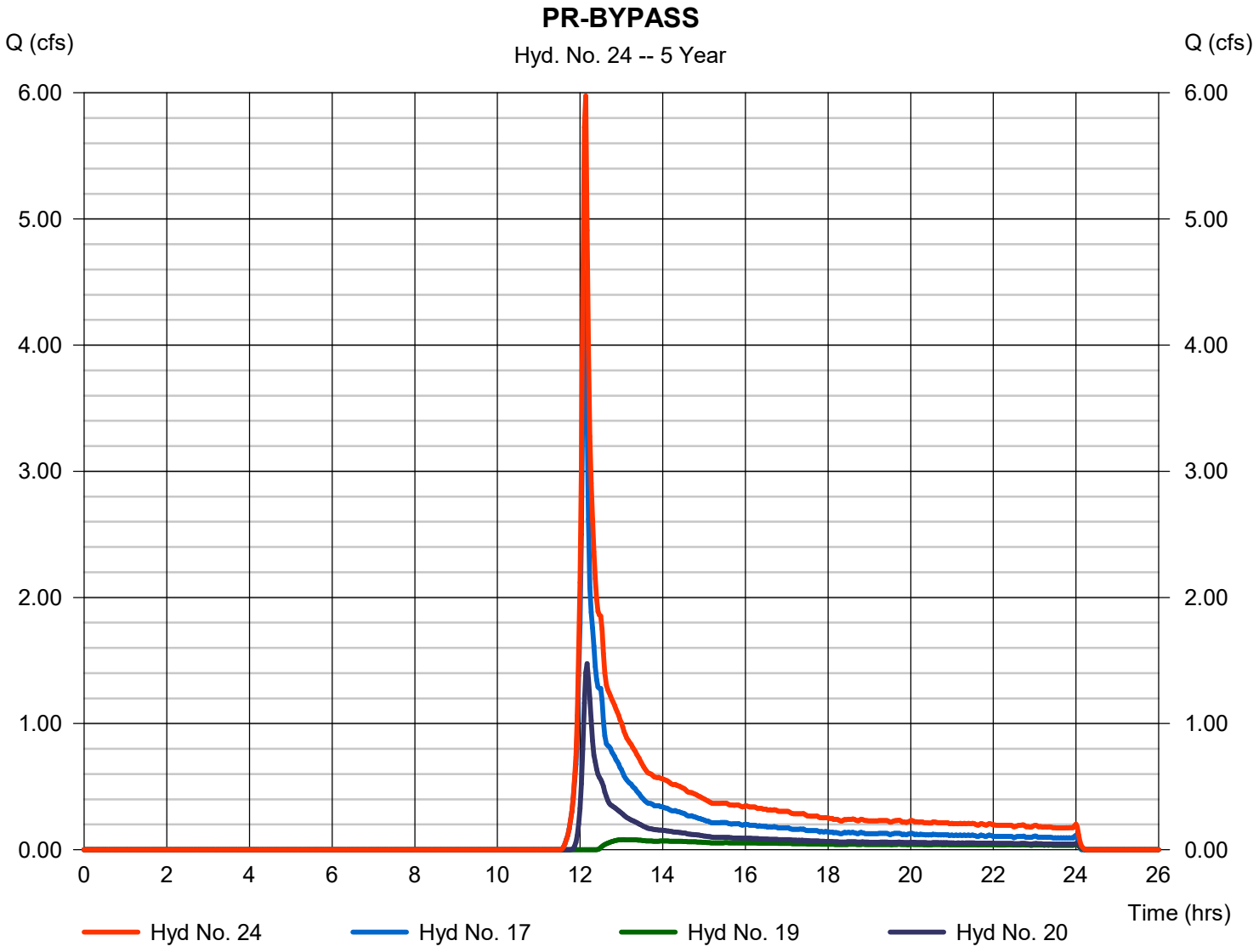


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 5.975 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 21,268 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

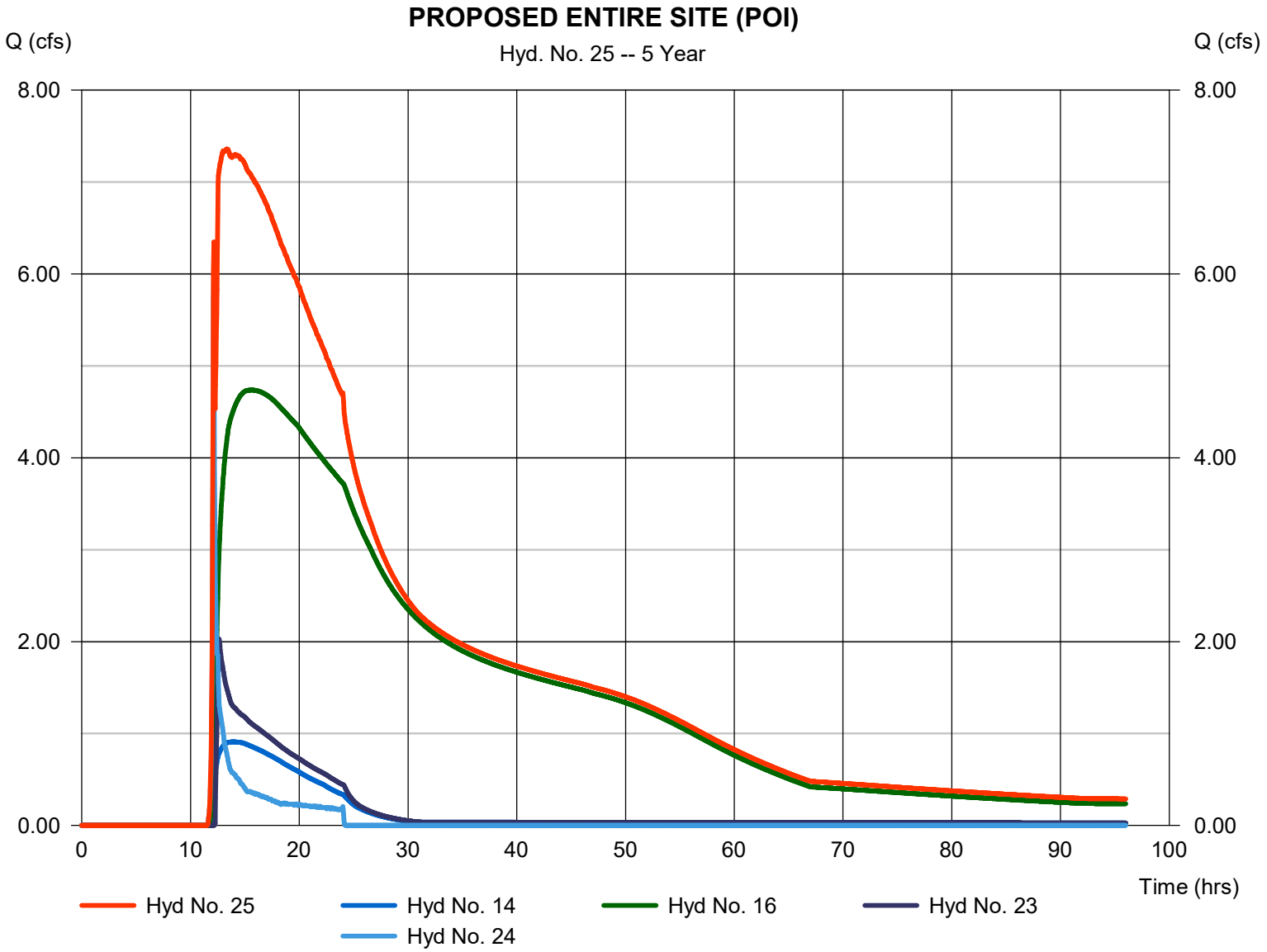


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 7.362 cfs
Storm frequency	= 5 yrs	Time to peak	= 13.33 hrs
Time interval	= 2 min	Hyd. volume	= 563,591 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

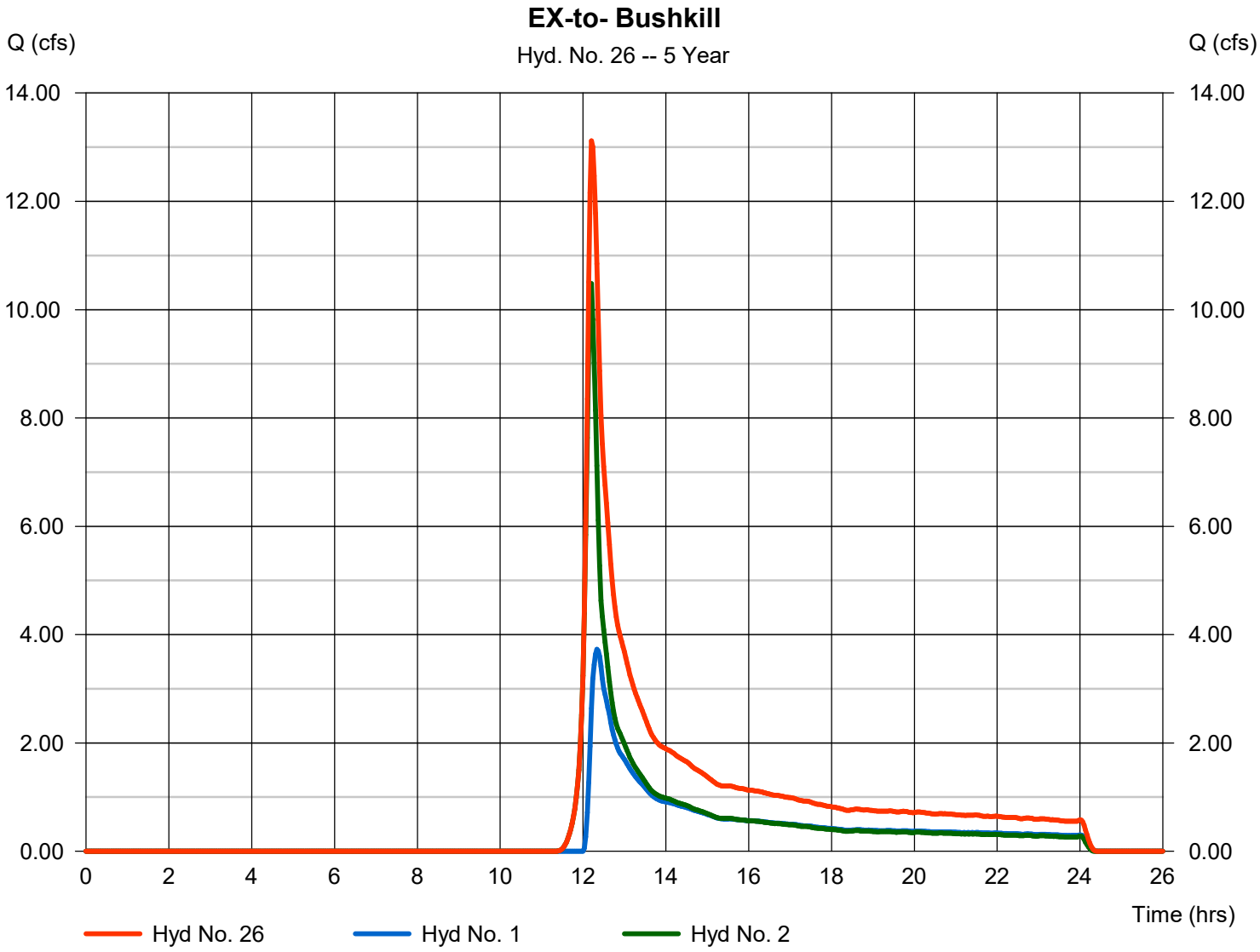


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 13.12 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 68,992 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

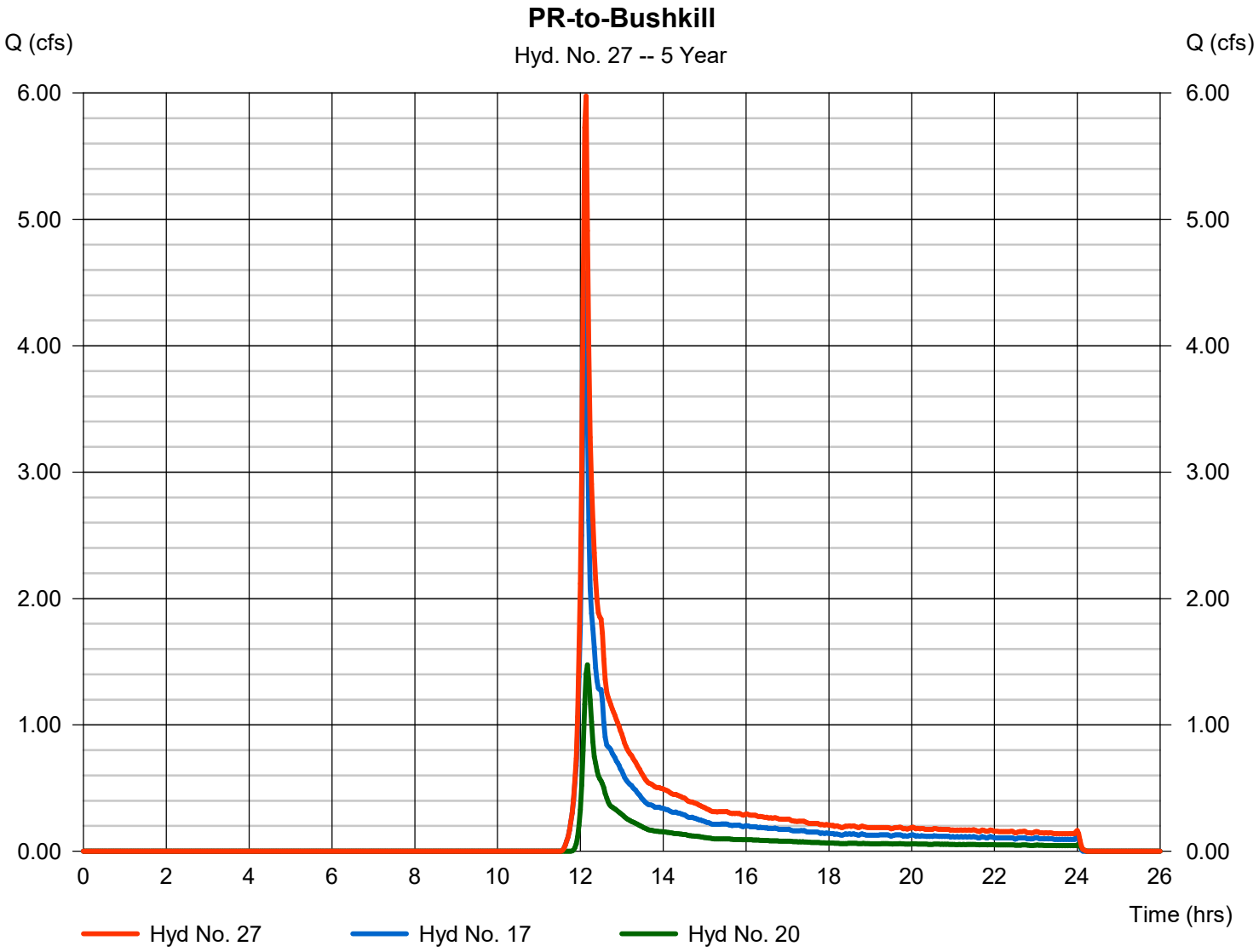


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 5.975 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 19,239 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

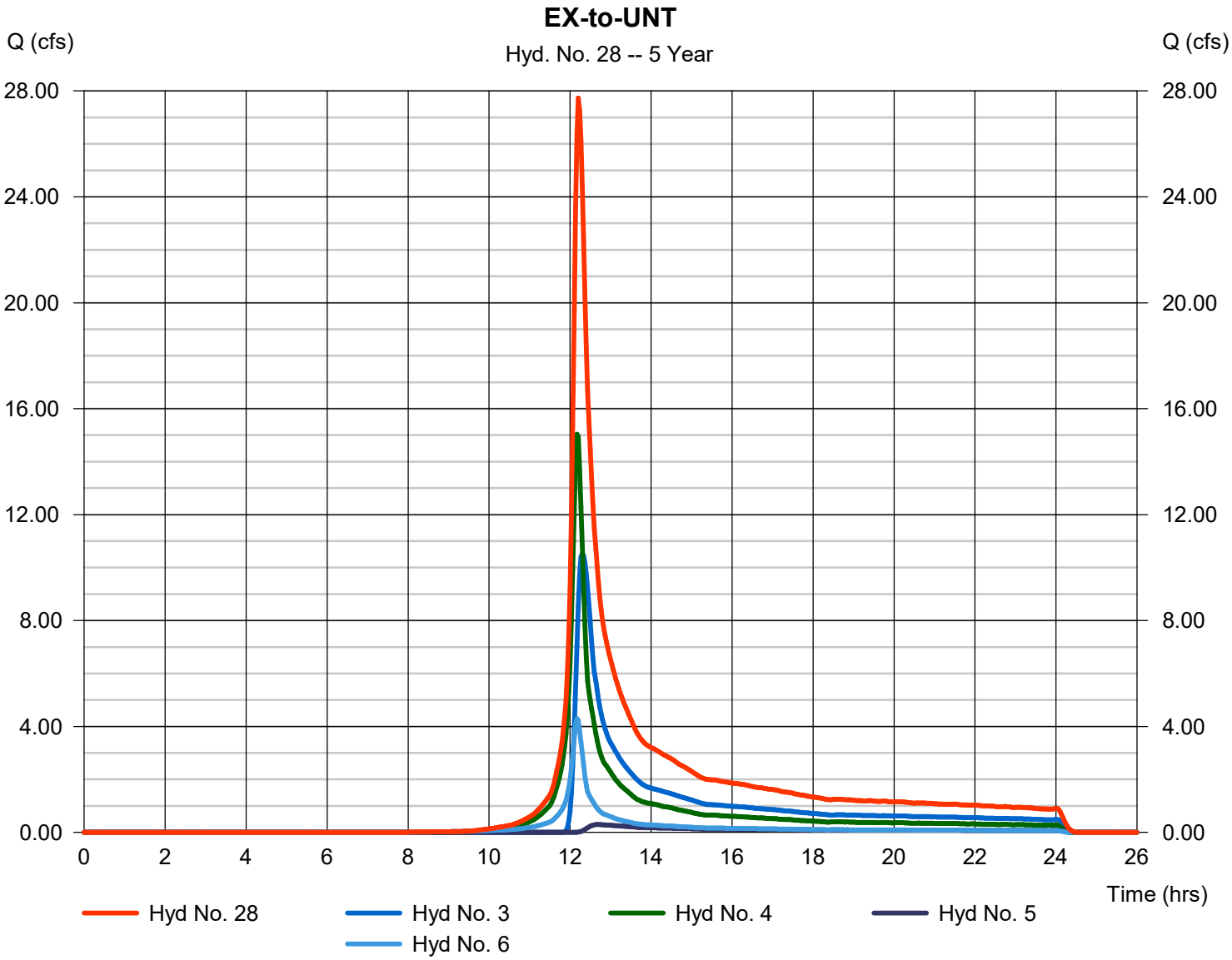


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 27.74 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 131,810 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

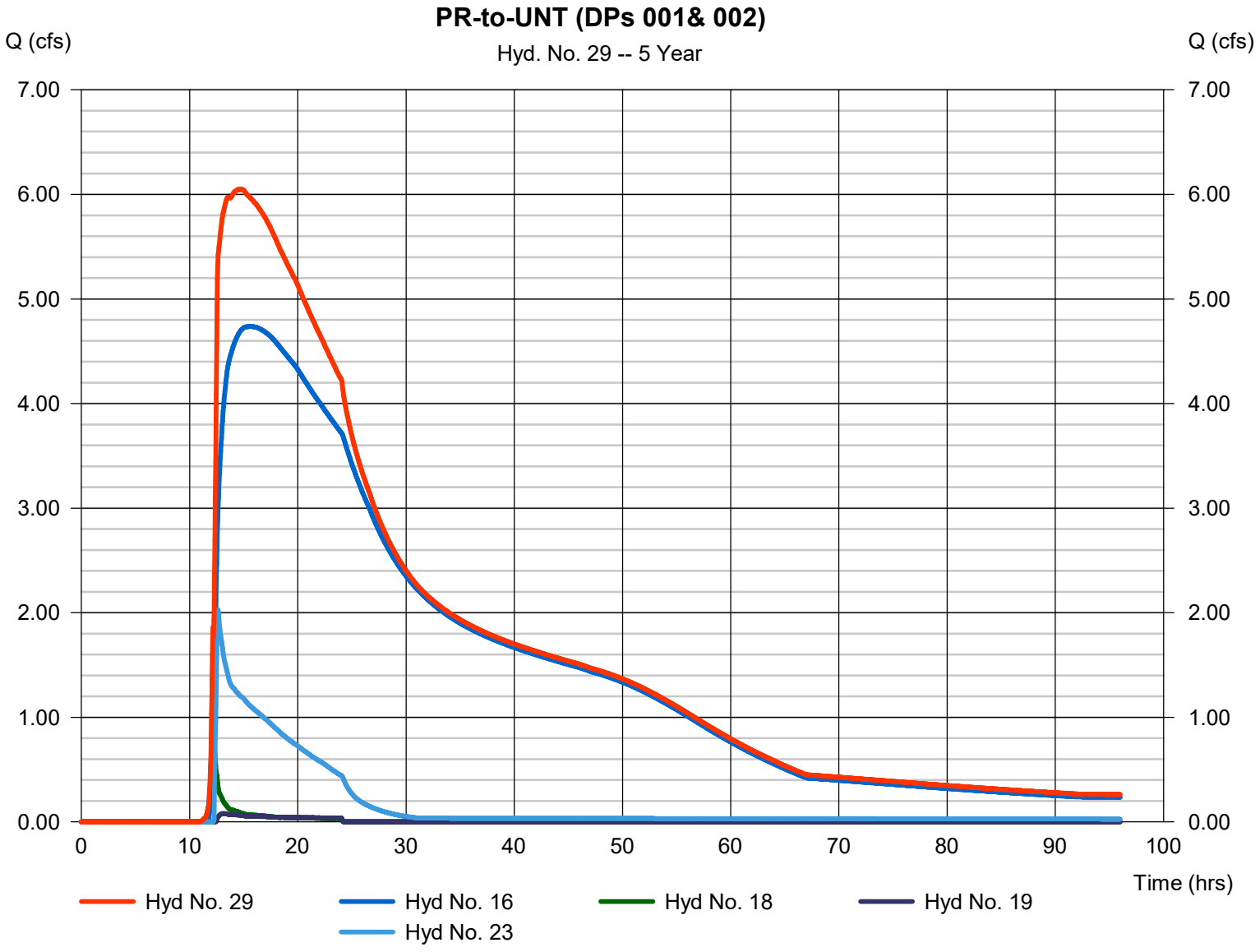


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 6.049 cfs
Storm frequency	= 5 yrs	Time to peak	= 14.80 hrs
Time interval	= 2 min	Hyd. volume	= 510,328 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

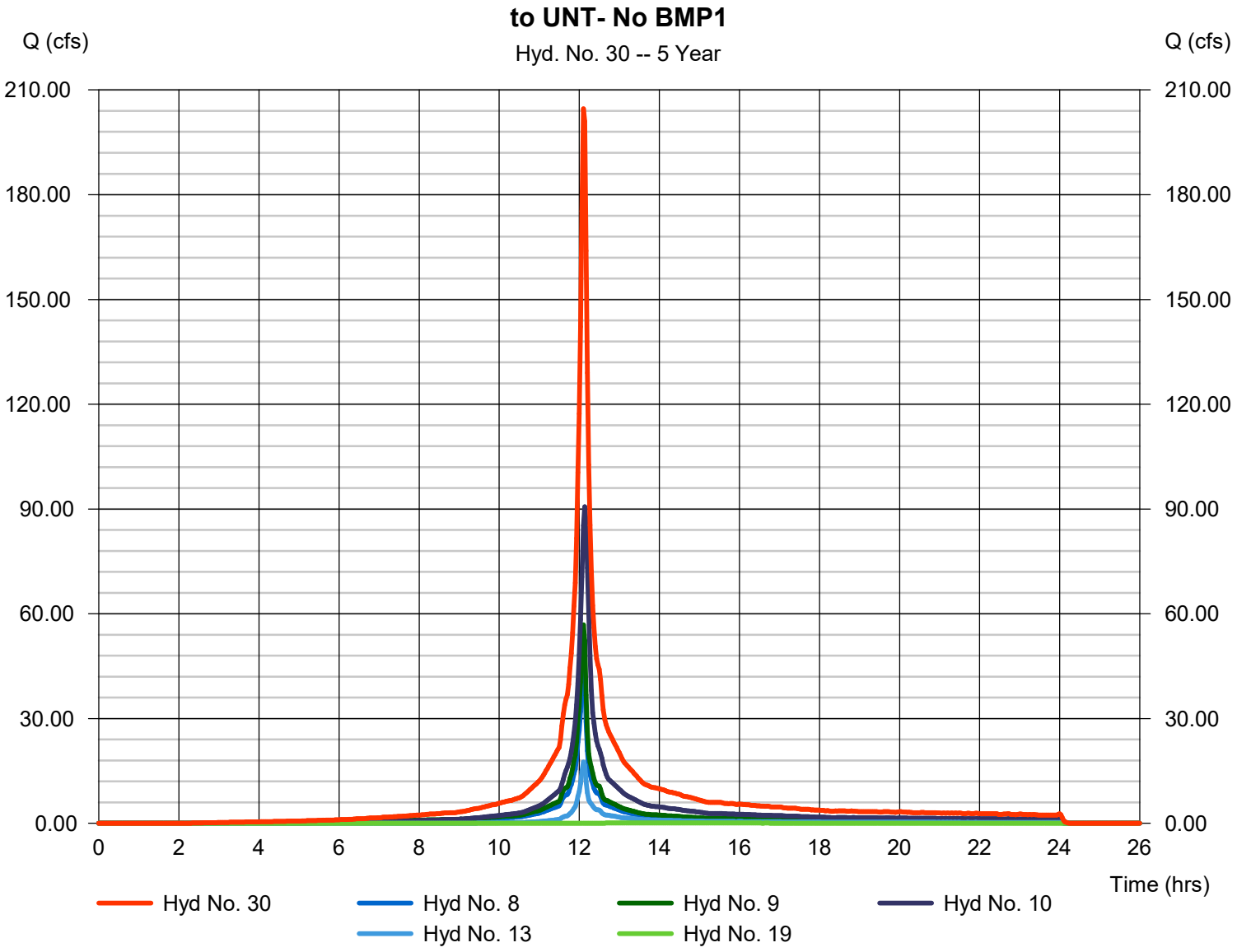


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 204.60 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 635,223 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

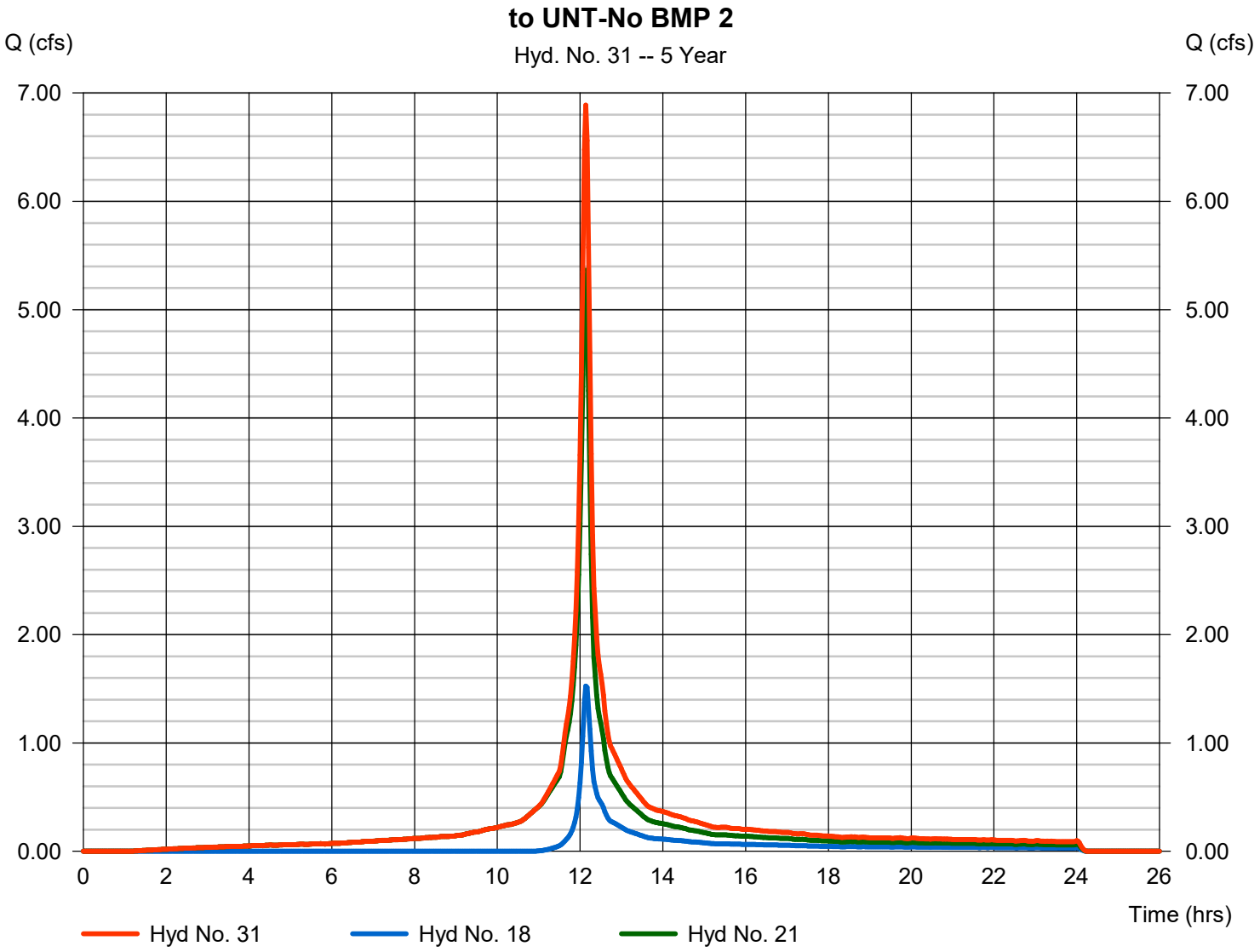


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 6.888 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 23,853 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

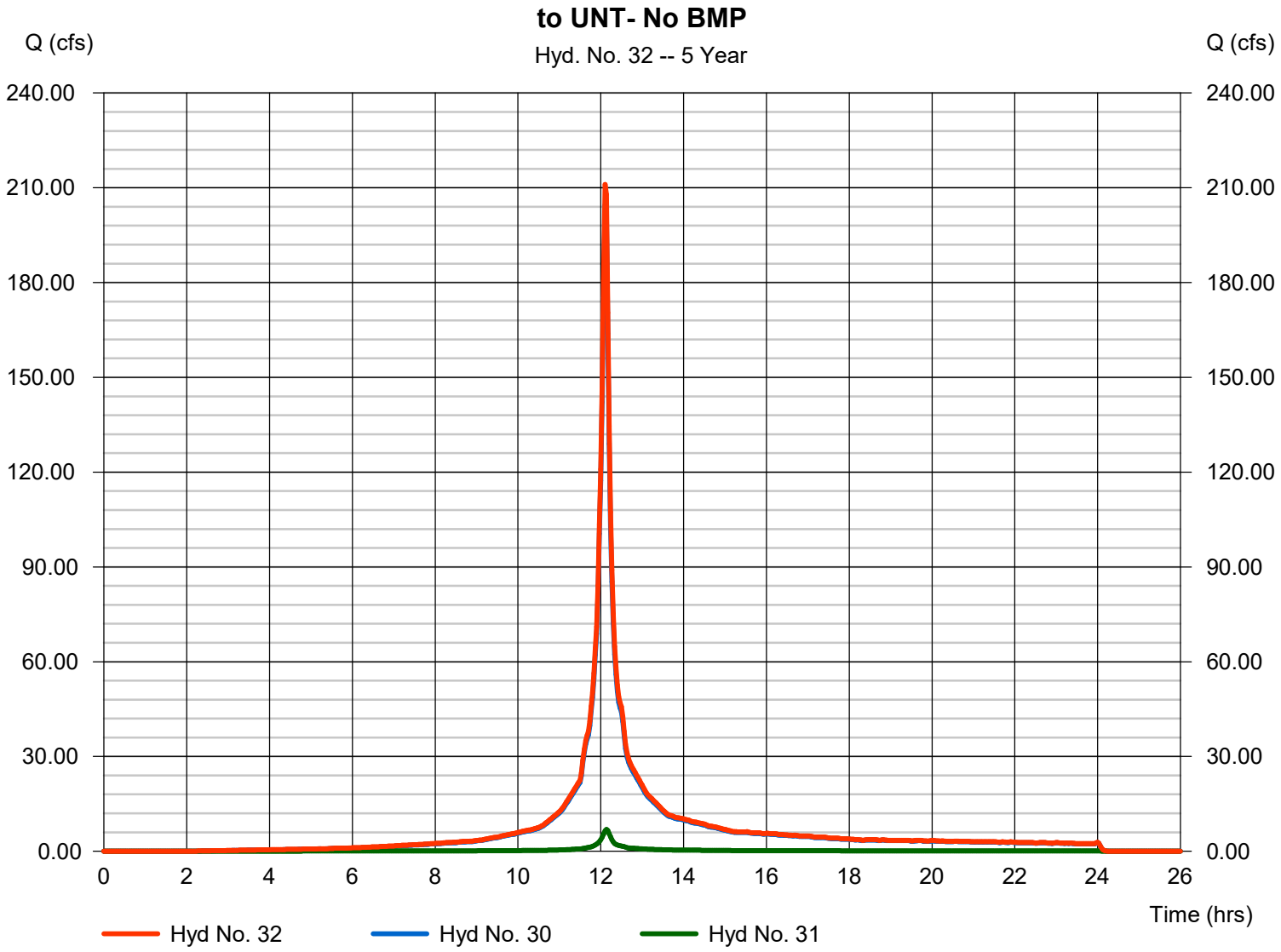


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	=	Combine	Peak discharge	=	211.08 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	659,076 cuft
Inflow hyds.	=	30, 31	Contrib. drain. area	=	0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	11.86	2	734	60,383	------	------	------	EX-DA 1
2	SCS Runoff	18.30	2	732	66,188	------	------	------	EX-DA2
3	SCS Runoff	23.16	2	736	108,069	------	------	------	EX-DA3
4	SCS Runoff	22.54	2	730	78,657	------	------	------	EX-DA4
5	SCS Runoff	1.502	2	746	12,718	------	------	------	EX-DA5
6	SCS Runoff	6.057	2	730	21,277	------	------	------	EX-DA-Road Widening
7	Combine	79.06	2	732	347,292	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	57.66	2	726	172,824	------	------	------	PR-DA-A
9	SCS Runoff	72.86	2	726	218,399	------	------	------	PR-DA-B
10	SCS Runoff	121.17	2	728	389,220	------	------	------	PR-DA-C
11	Reservoir	0.868	2	1086	159,200	8	291.19	135,820	BMP A Routing
12	Reservoir	1.399	2	1022	206,424	9	287.58	163,174	BMP B Routing
13	SCS Runoff	25.55	2	726	67,896	------	------	------	PR-DA-E
14	Reservoir	1.274	2	836	60,224	13	259.09	40,527	BMP E Routing
15	Combine	123.05	2	728	754,843	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	6.970	2	880	637,301	15	217.62	282,734	MRC BMP C Routing(DP1)
17	SCS Runoff	8.355	2	726	23,046	------	------	------	PR-BYPASS 1
18	SCS Runoff	2.500	2	728	7,797	------	------	------	PR RG
19	SCS Runoff	0.599	2	738	6,334	------	------	------	PR-BYPASS 2
20	SCS Runoff	3.008	2	730	10,221	------	------	------	PR-BYPASS 3
21	SCS Runoff	6.818	2	728	24,329	------	------	------	PR-Road Widening
22	Combine	10.13	2	728	92,349	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	6.027	2	736	79,335	22	233.01	16,039	RG Routing (DP2)
24	Combine	11.31	2	728	39,601	17, 19, 20,	------	------	PR-BYPASS
25	Combine	17.26	2	736	816,461	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	29.36	2	732	126,571	1, 2,	------	------	EX-to- Bushkill
27	Combine	11.14	2	728	33,267	17, 20,	------	------	PR-to-Bushkill
28	Combine	49.70	2	732	220,721	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	12.61	2	736	730,766	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	270.59	2	726	854,674	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	9.318	2	728	32,125	18, 21,	------	------	to UNT-No BMP 2
32	Combine	279.37	2	726	886,799	30, 31	------	------	to UNT- No BMP

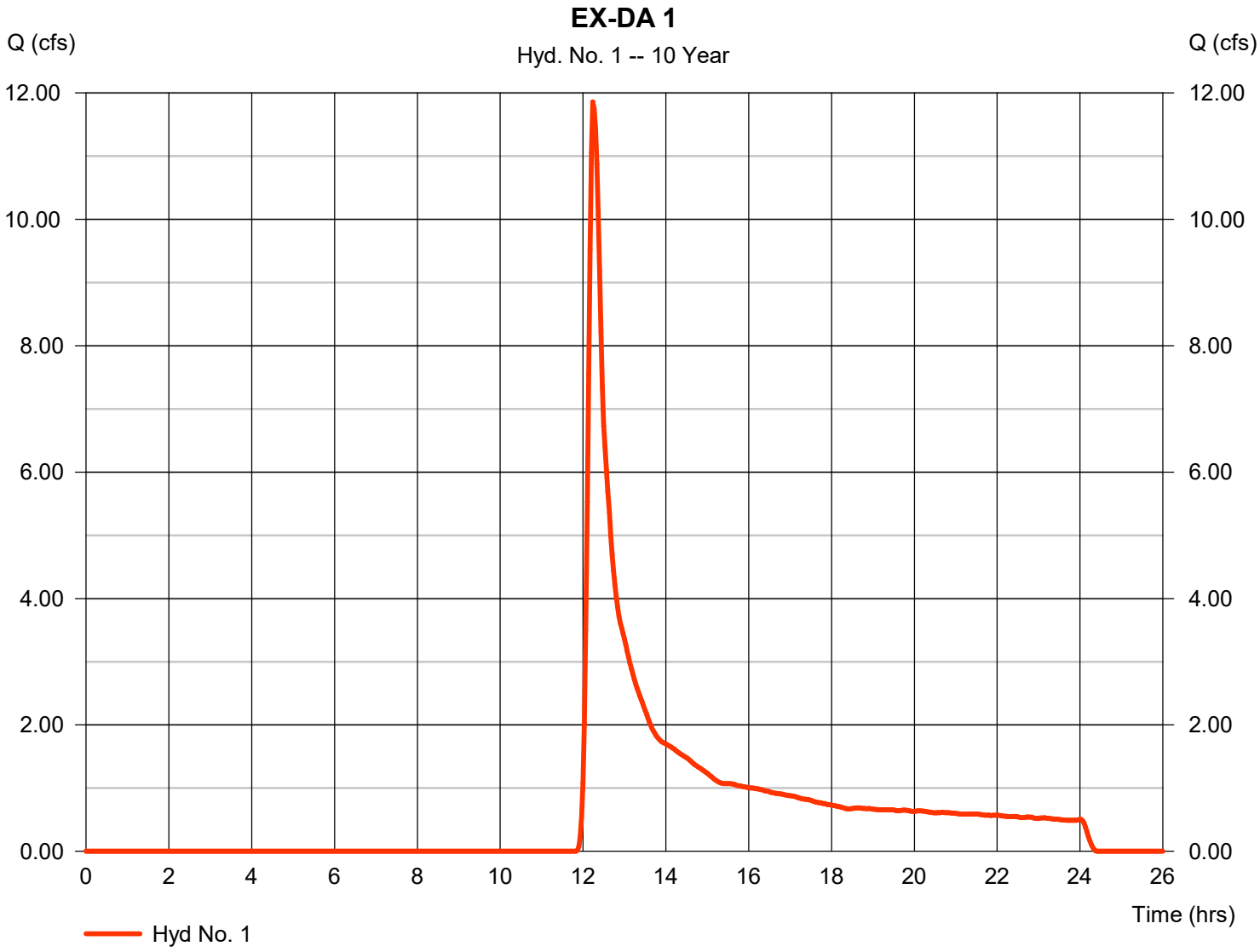
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.86 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	60,383 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	SCS Storm Table	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

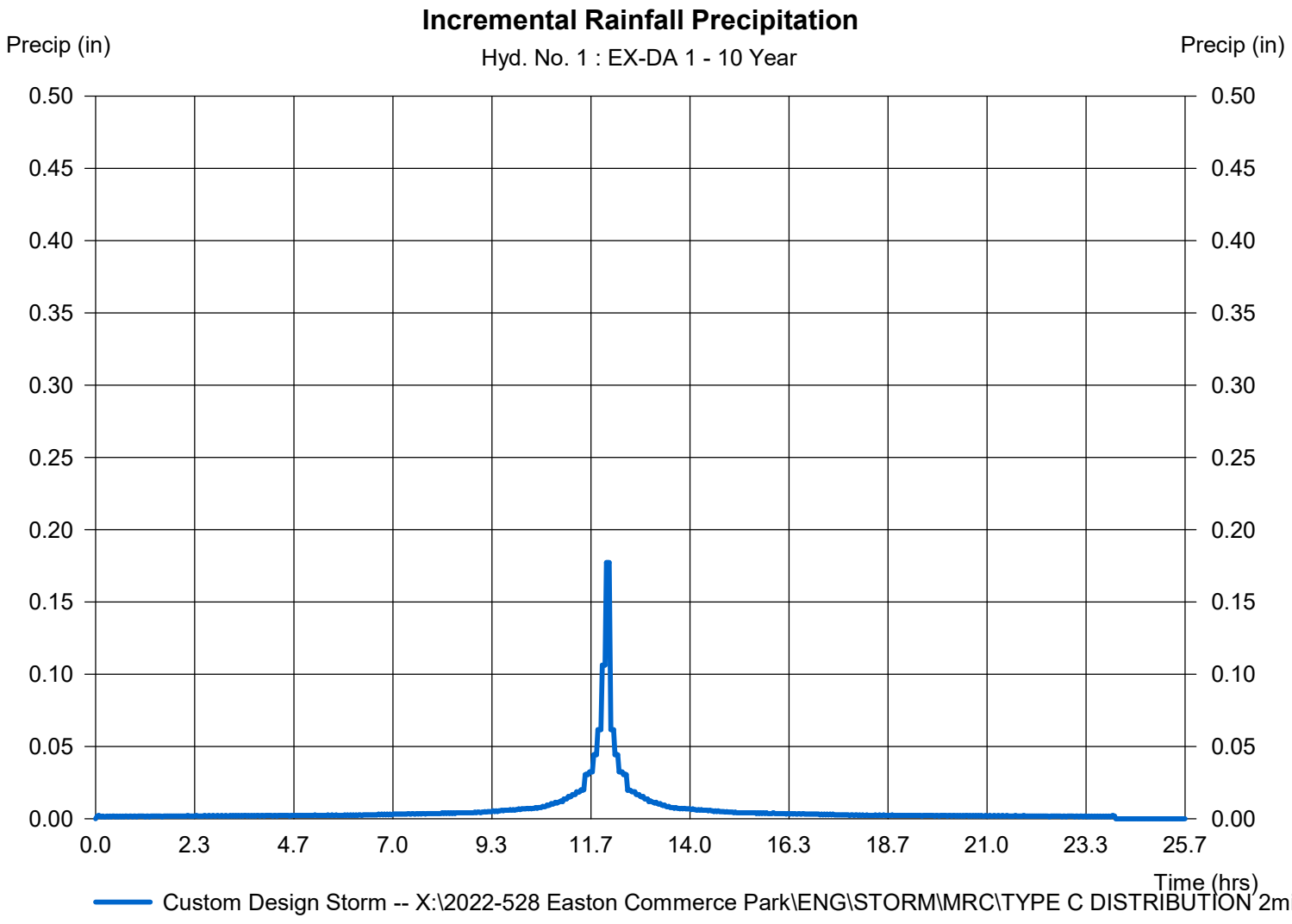


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



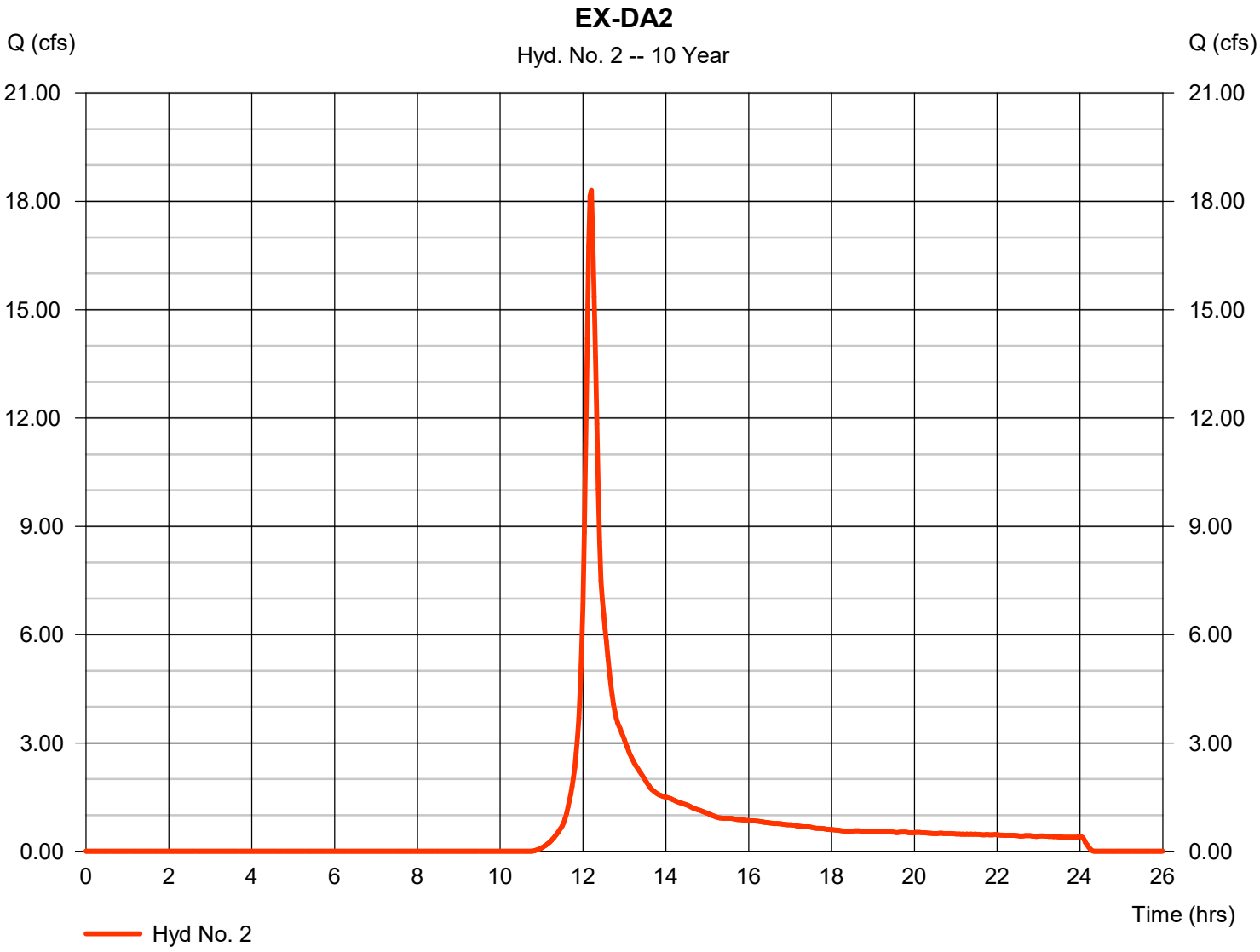
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.30 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	66,188 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

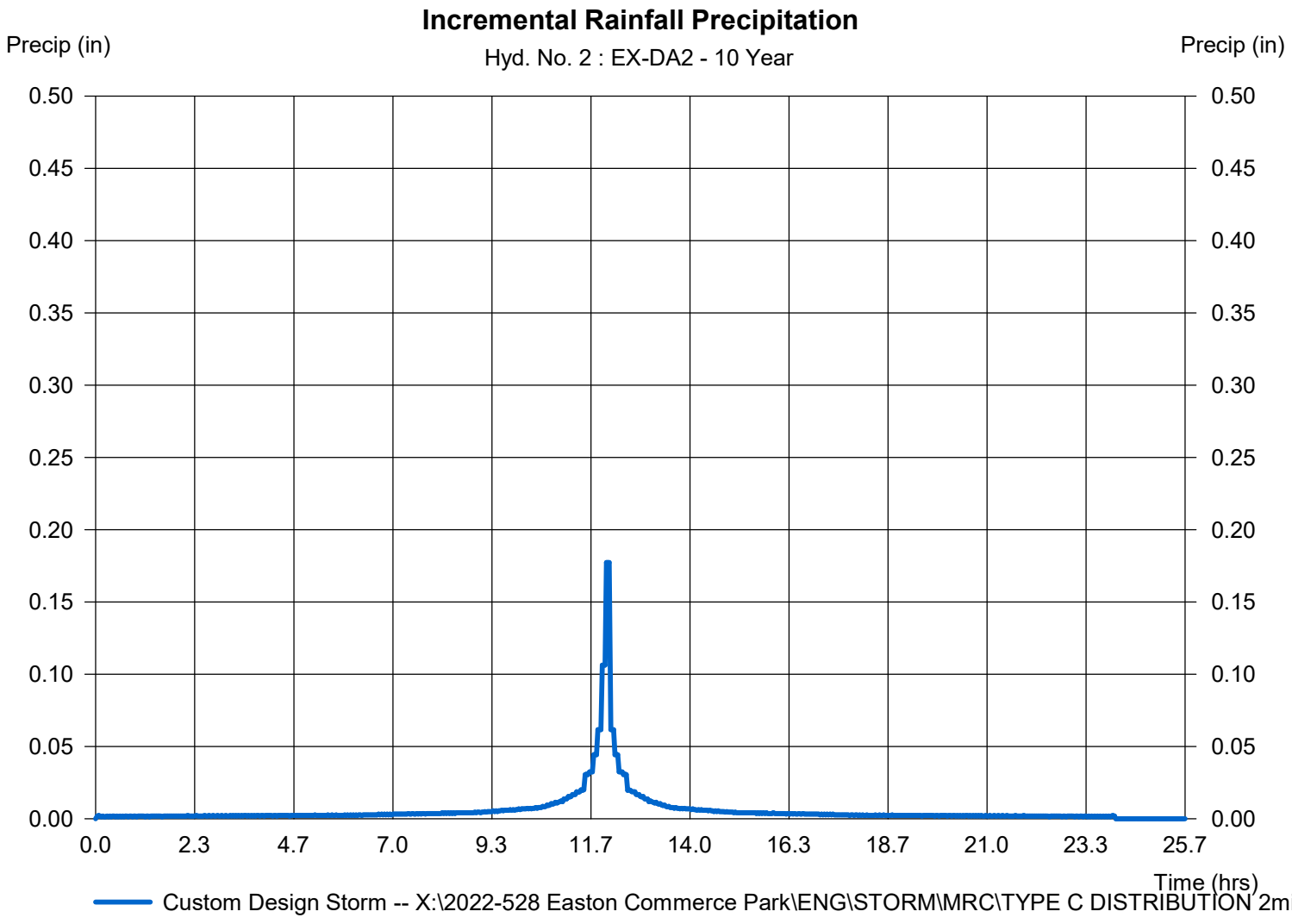


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



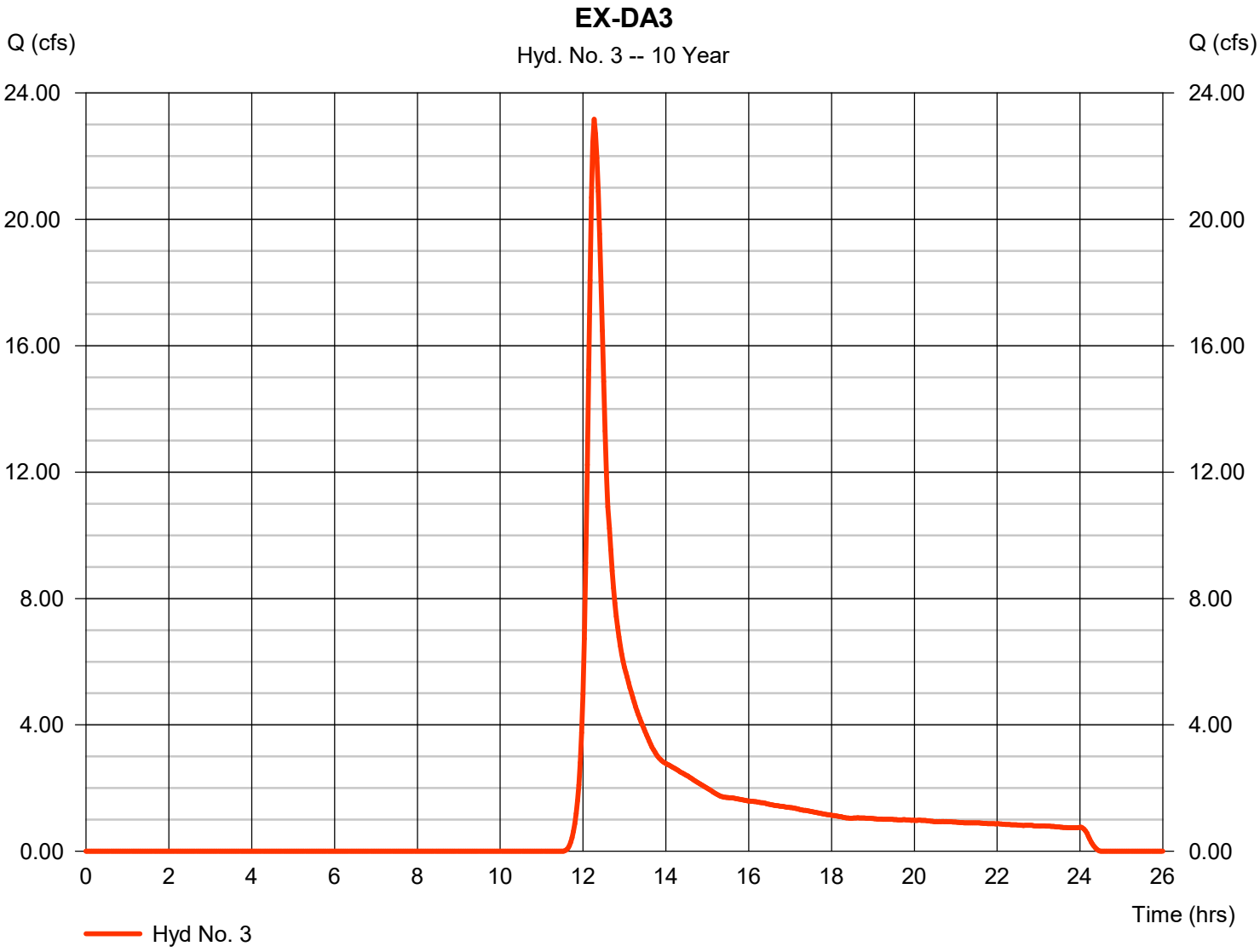
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.16 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	108,069 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

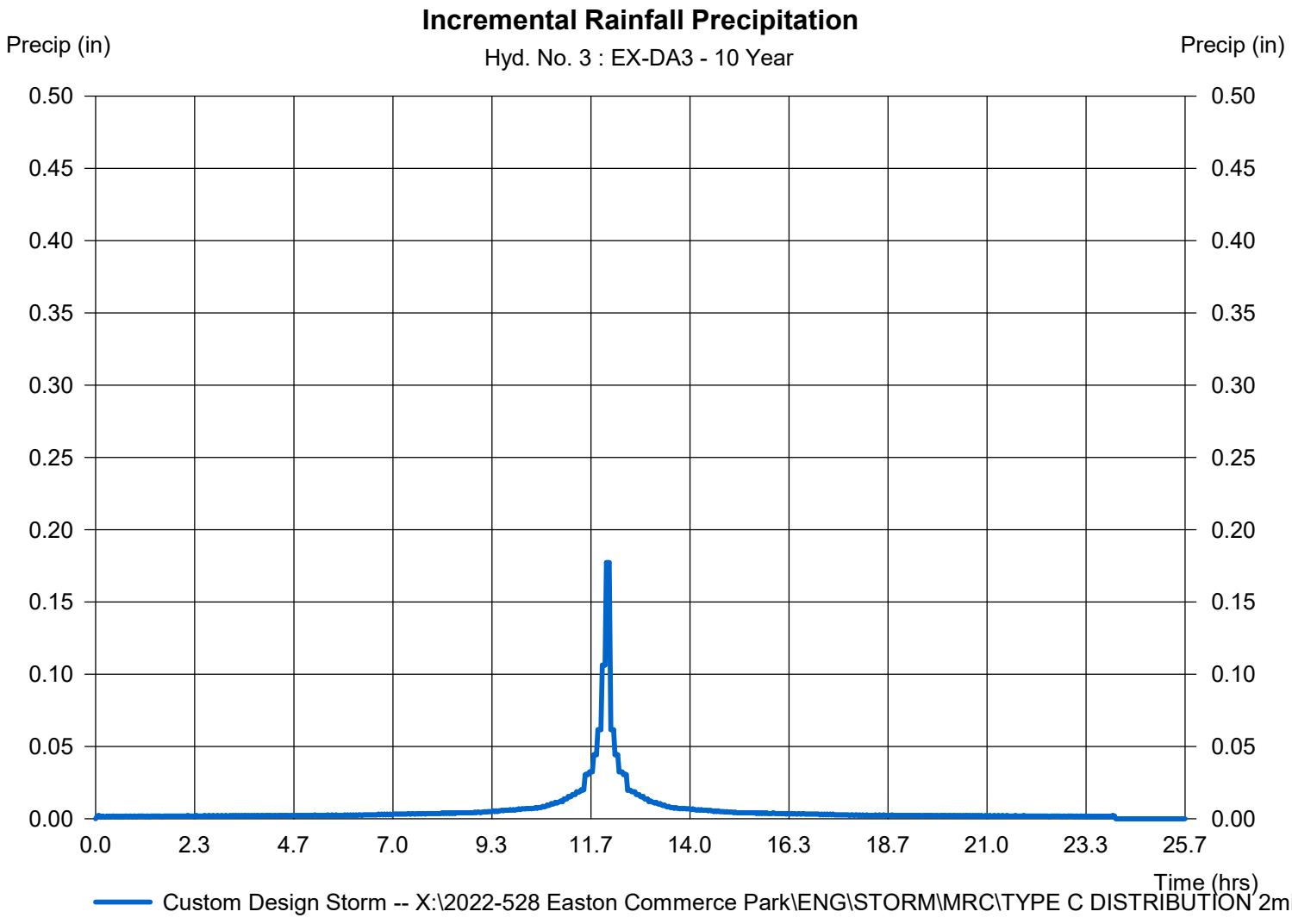


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



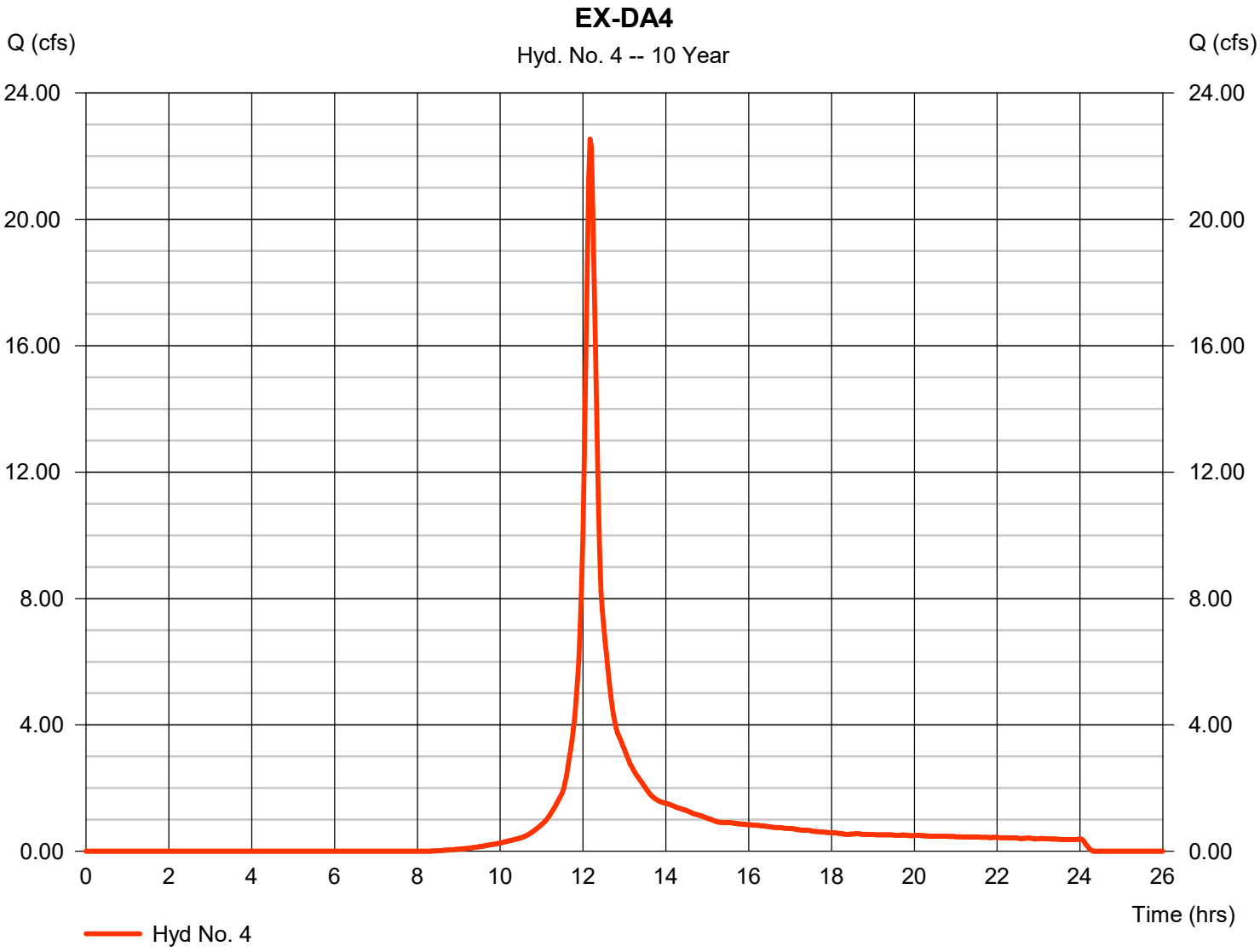
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.54 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	78,657 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

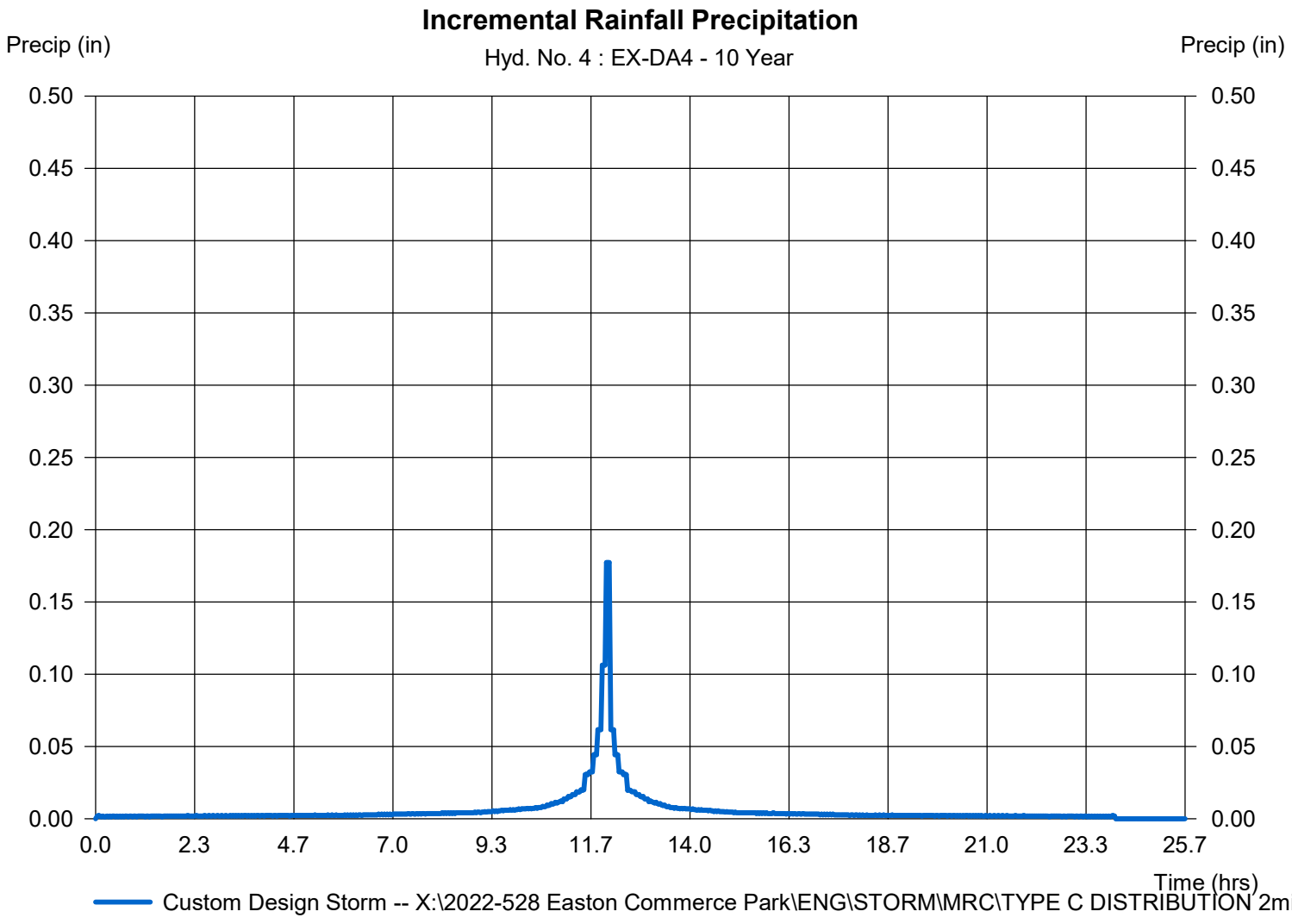


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



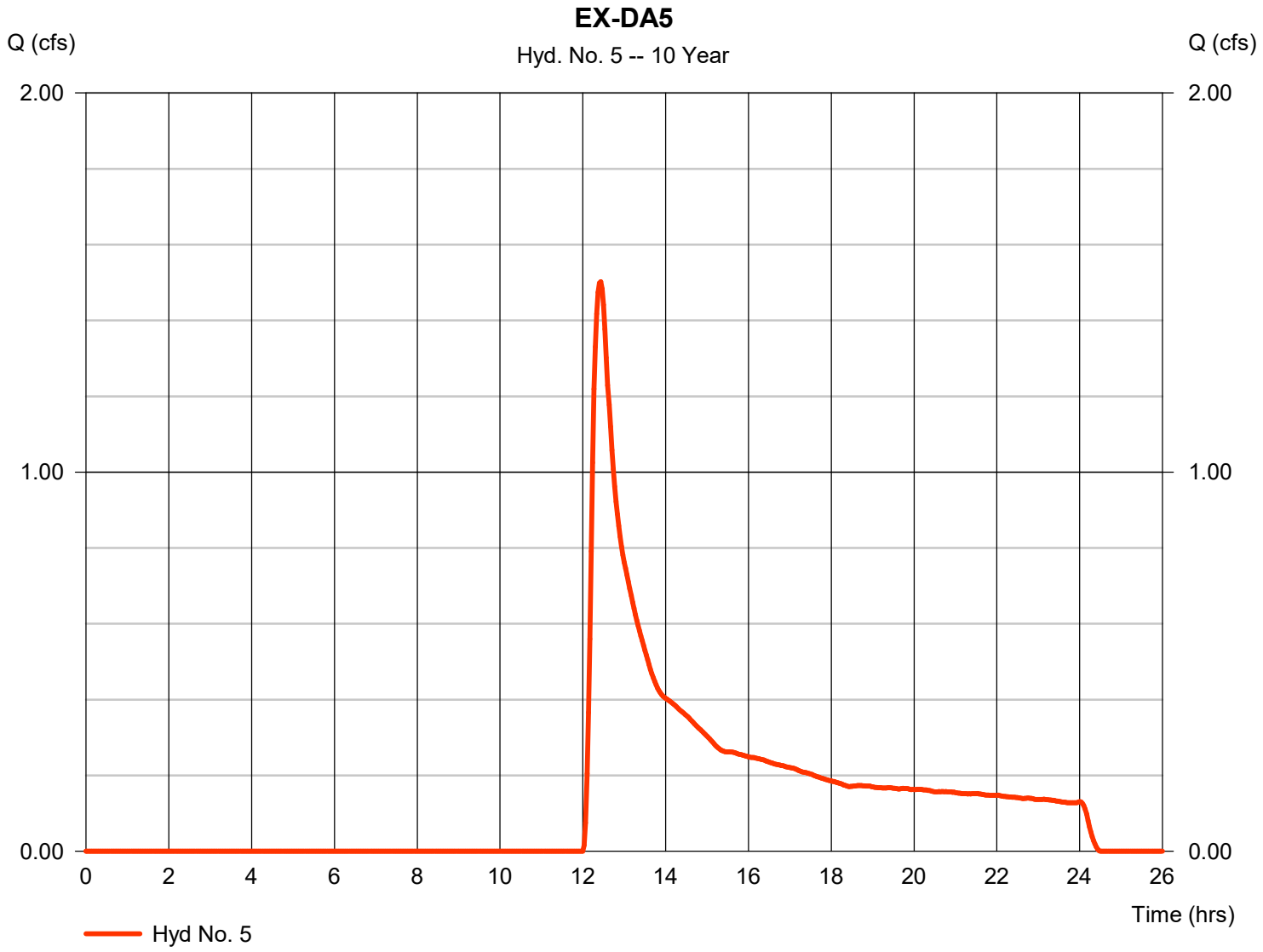
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.502 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.43 hrs
Time interval	=	2 min	Hyd. volume	=	12,718 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	SPark\ENG\	=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

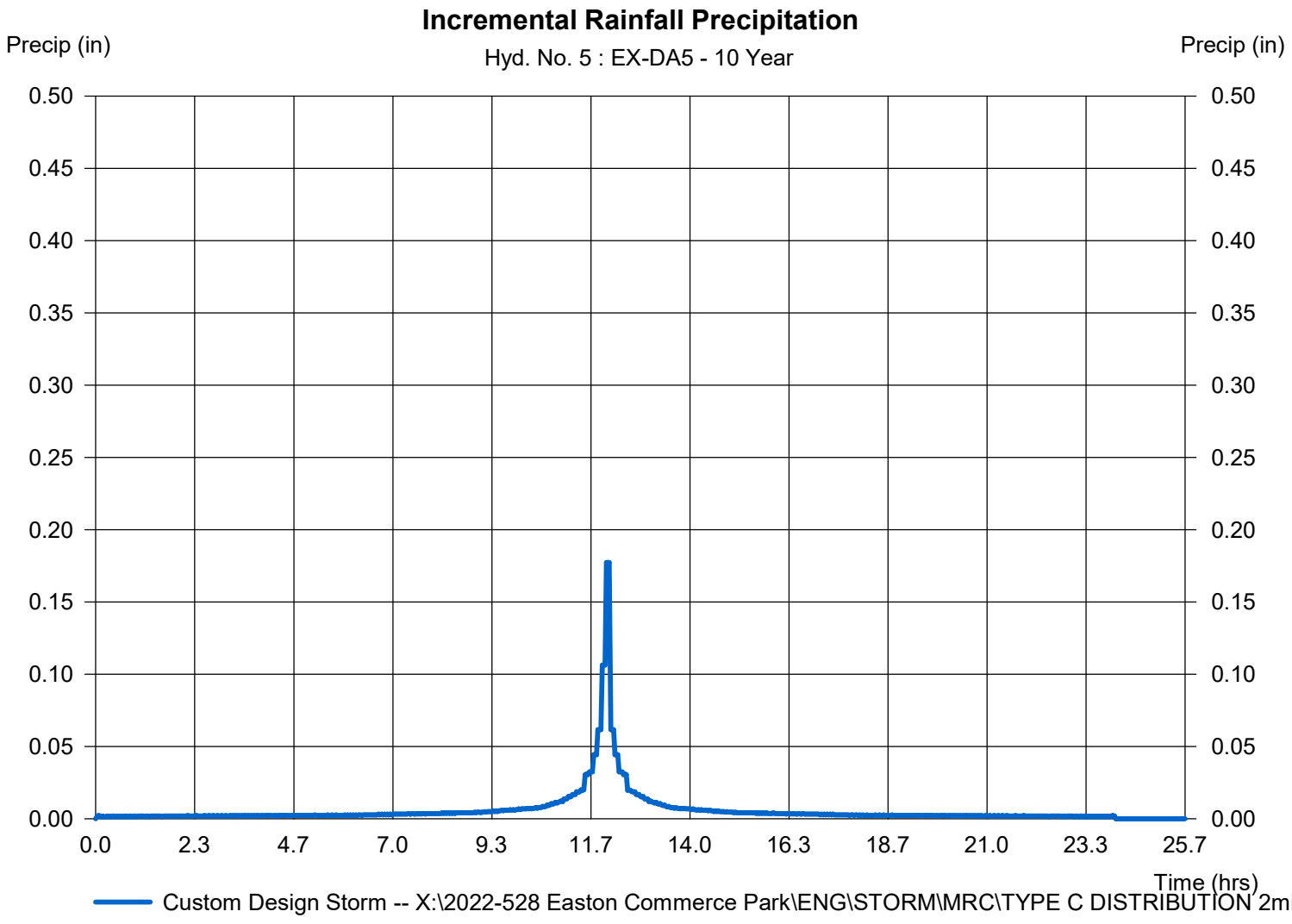


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



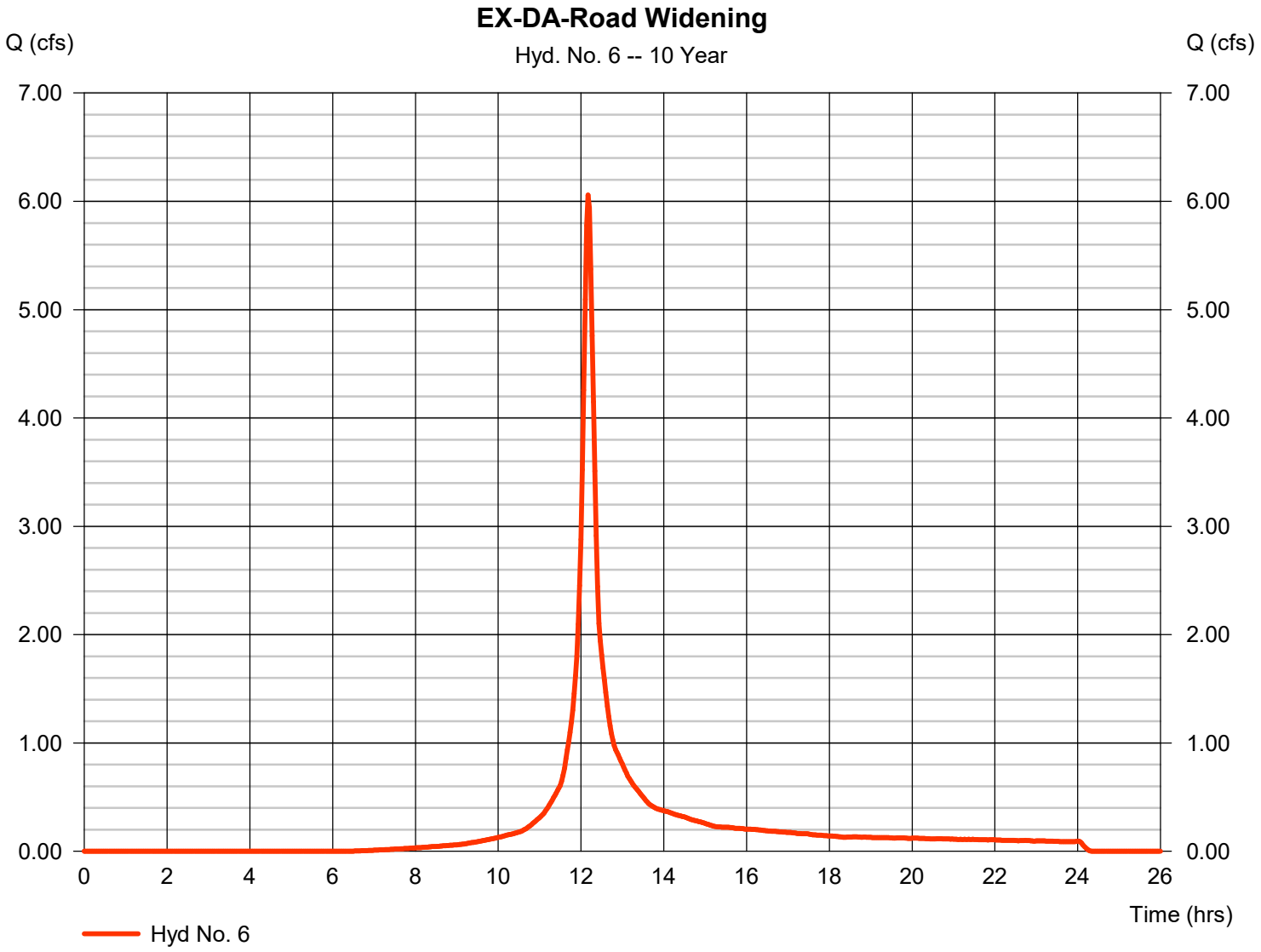
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.057 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	21,277 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

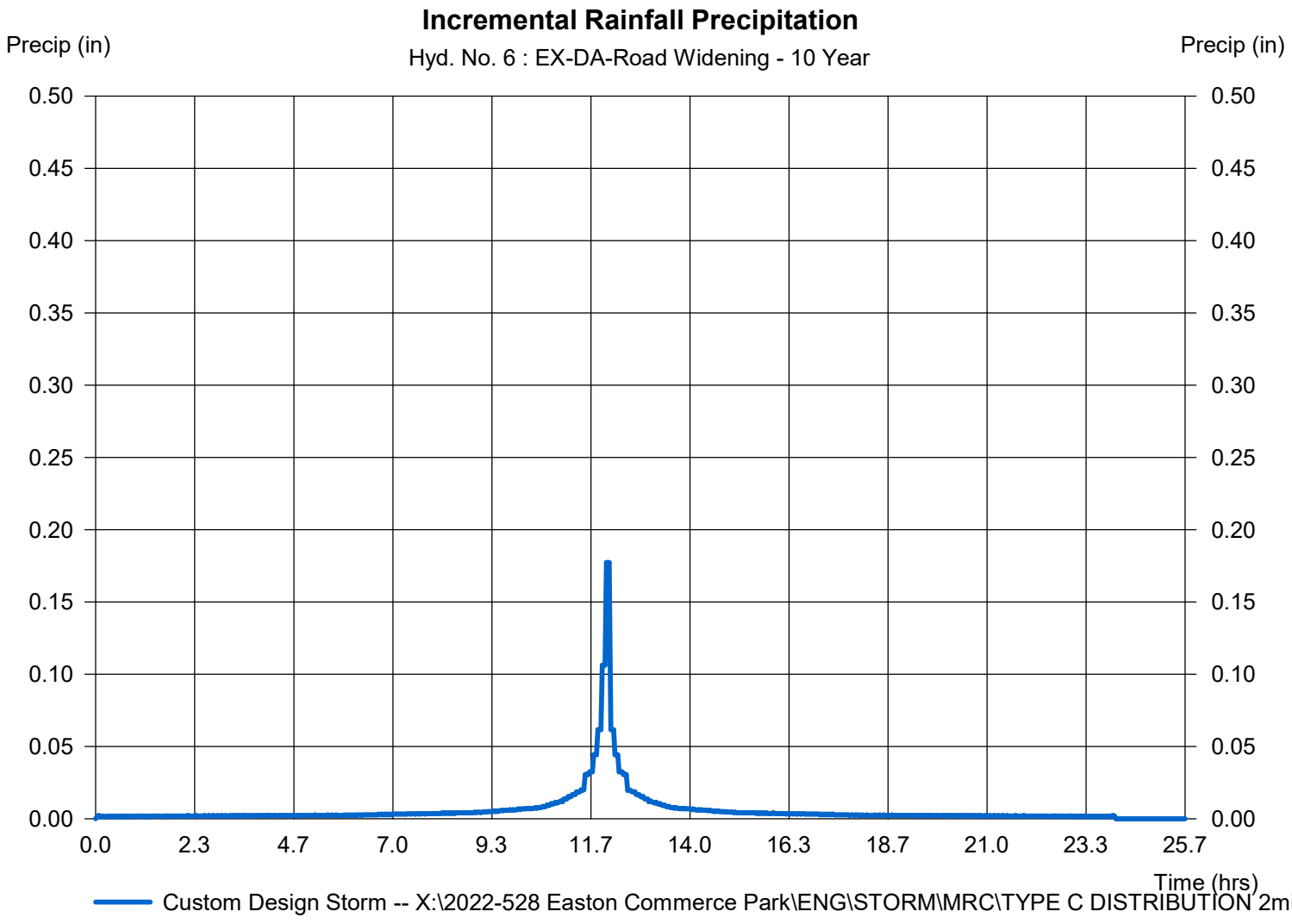


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

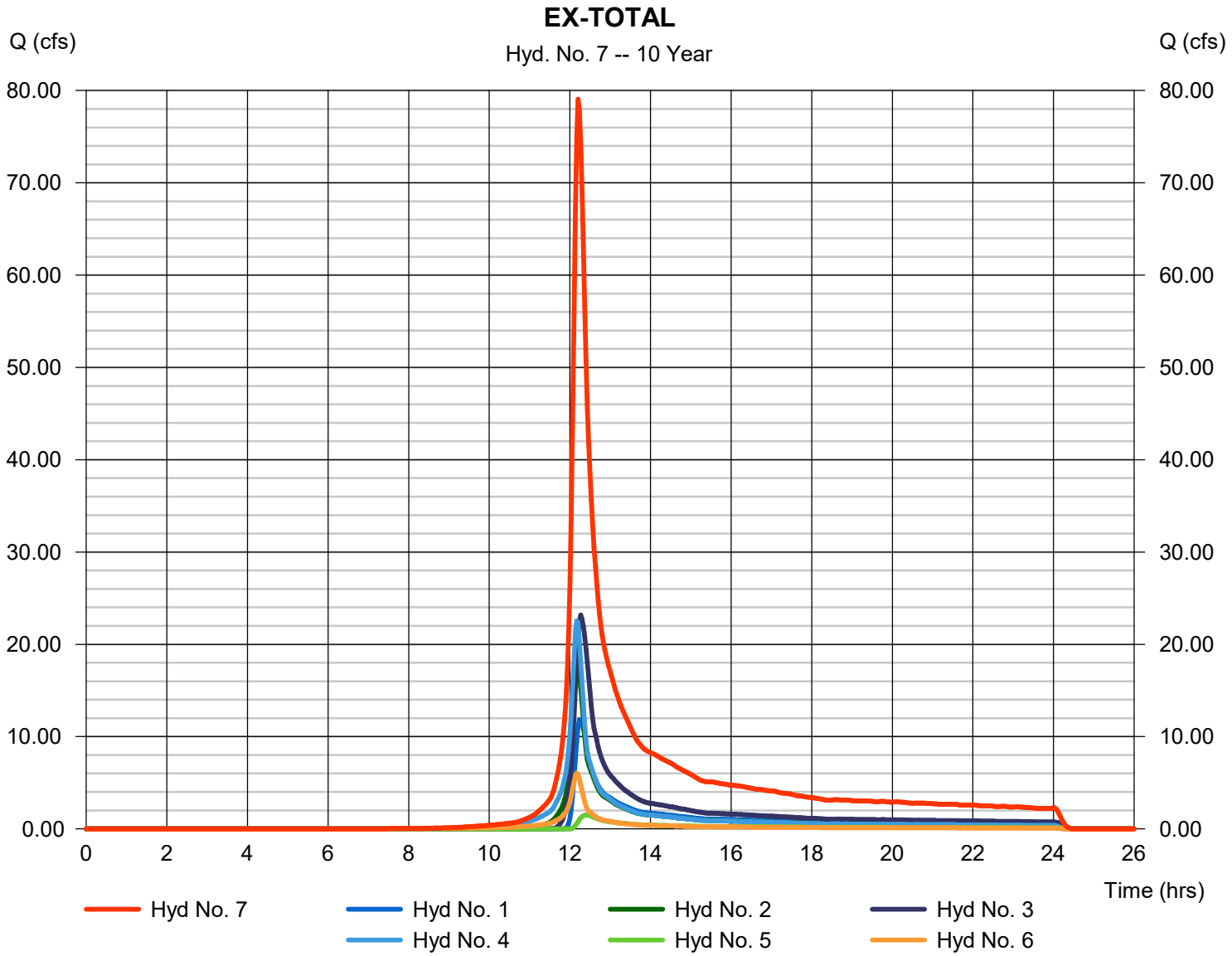


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	= Combine	Peak discharge	= 79.06 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 347,292 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 82.880 ac



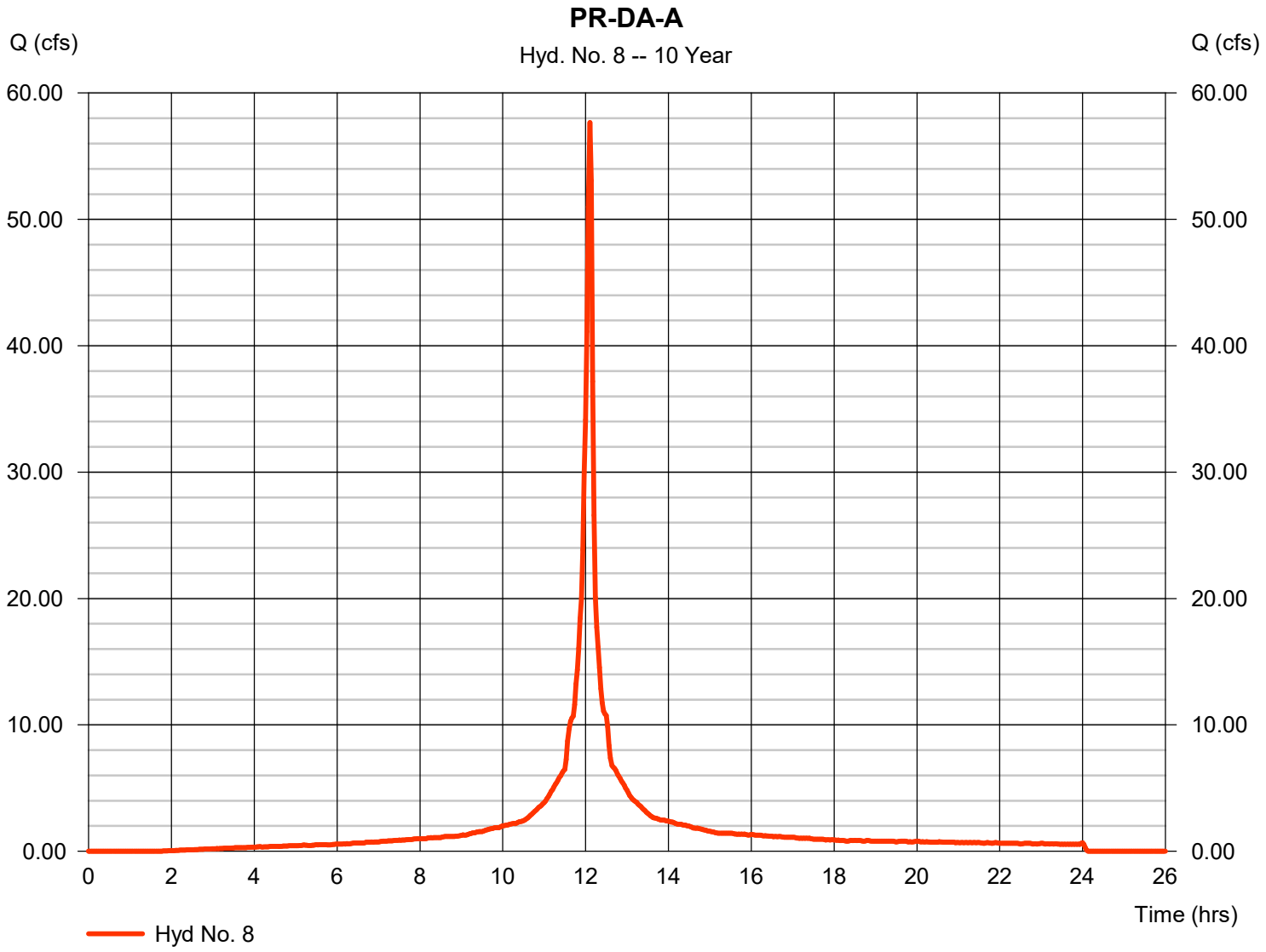
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	57.66 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	172,824 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

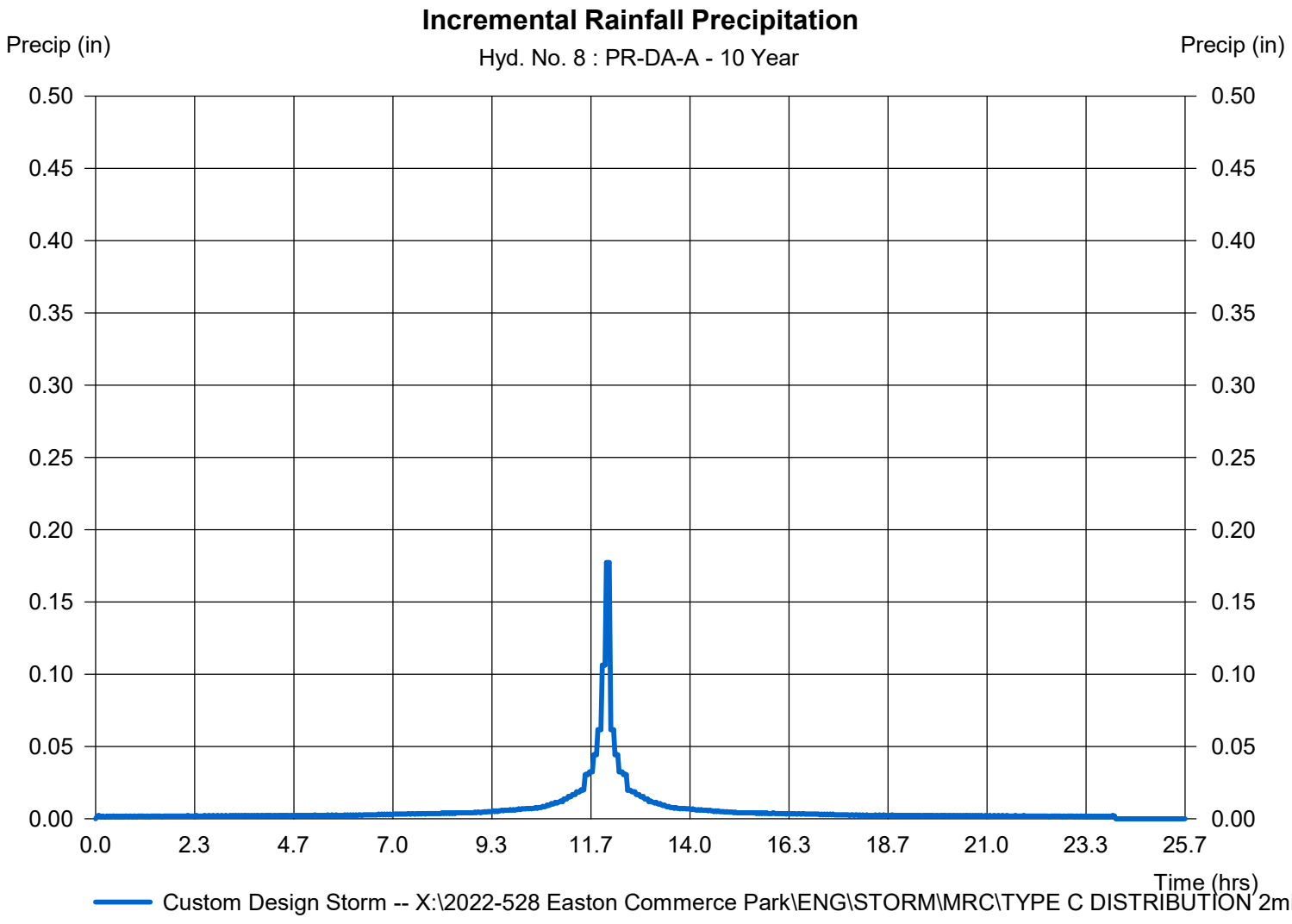


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



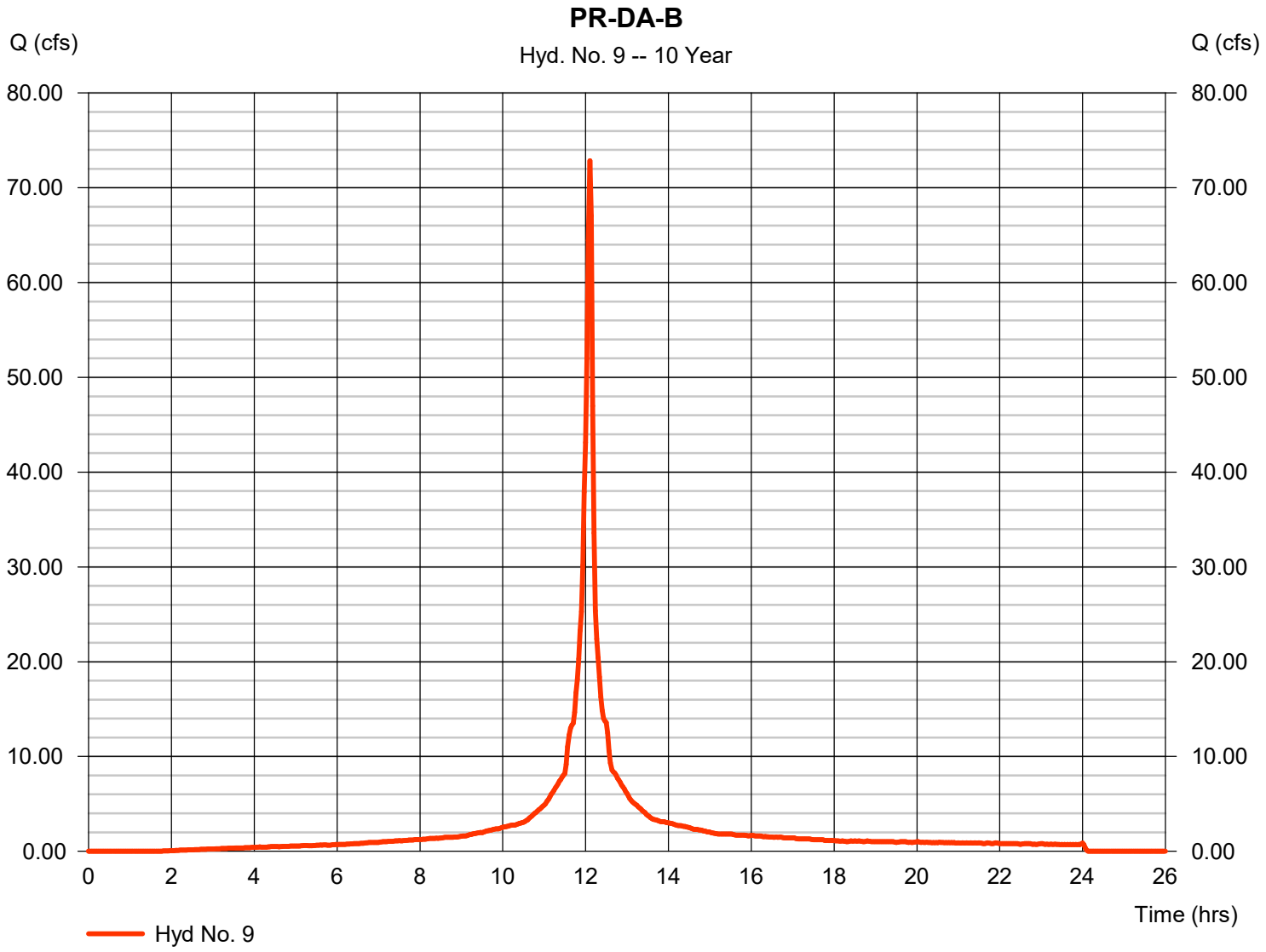
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	72.86 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	218,399 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

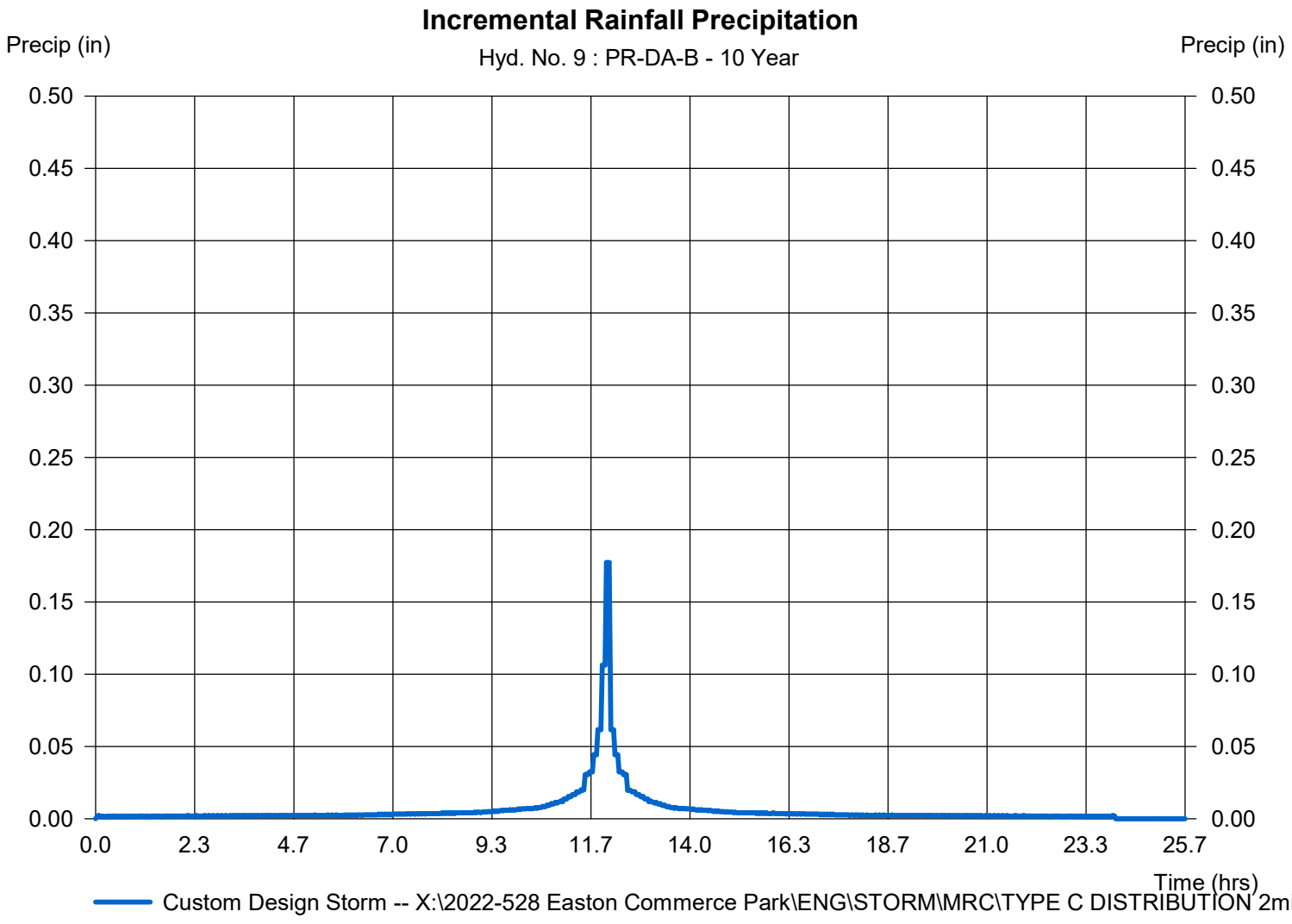


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



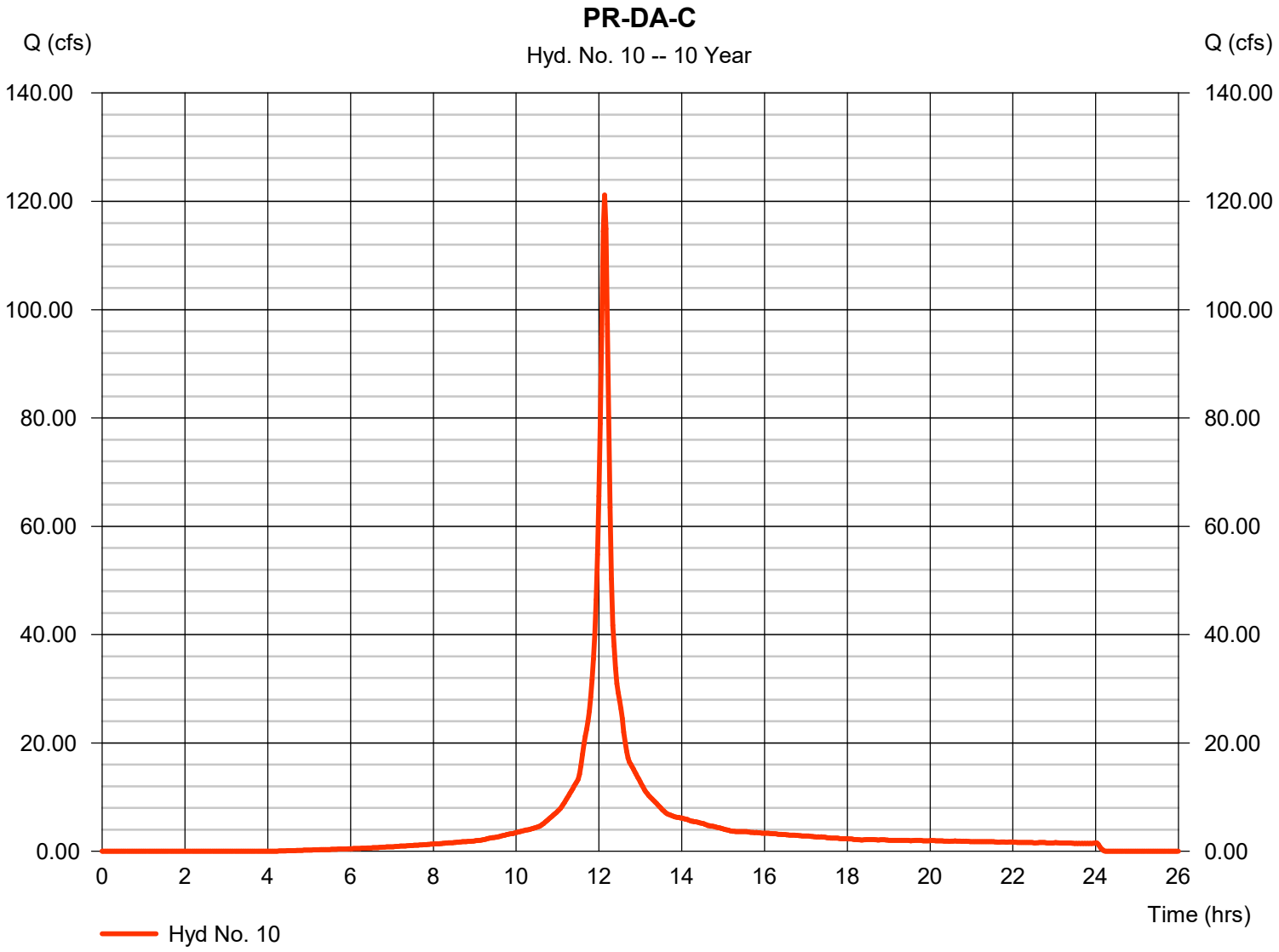
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	121.17 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	389,220 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24 SR...		=	...TYPE C DISTRIBUTION

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

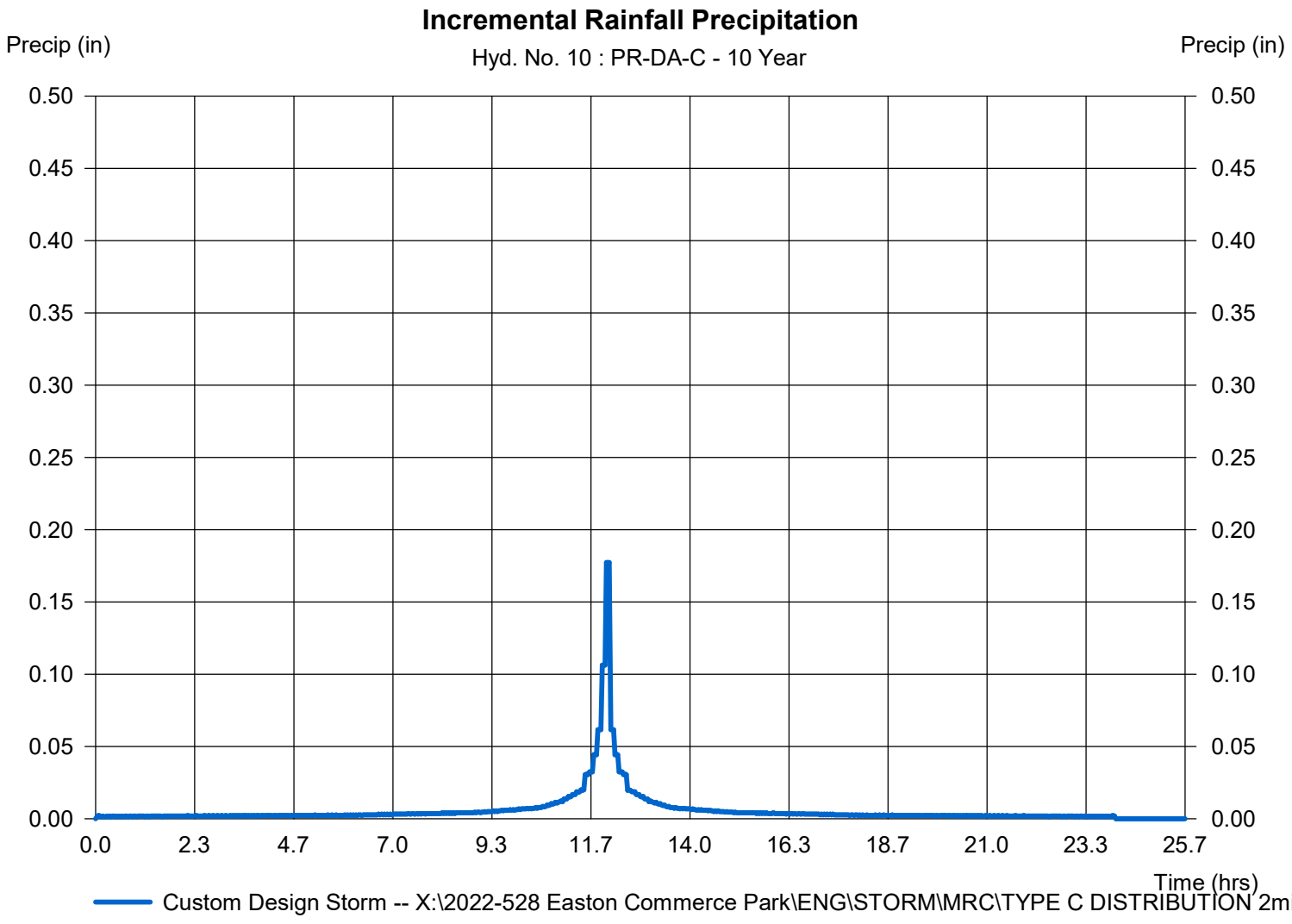


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



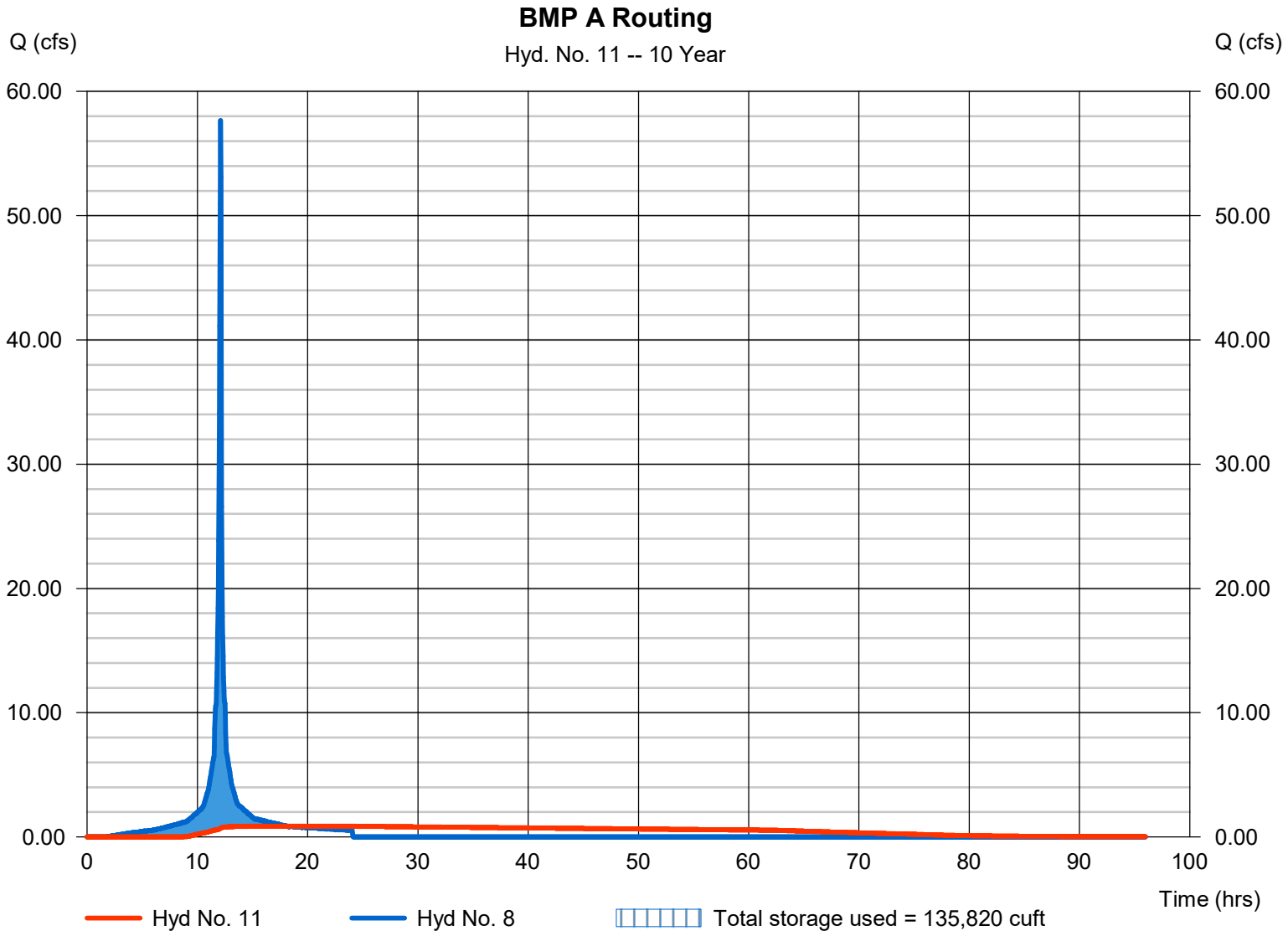
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.868 cfs
Storm frequency	=	10 yrs	Time to peak	=	18.10 hrs
Time interval	=	2 min	Hyd. volume	=	159,200 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.19 ft
Reservoir name	=	BMP A	Max. Storage	=	135,820 cuft

Storage Indication method used.



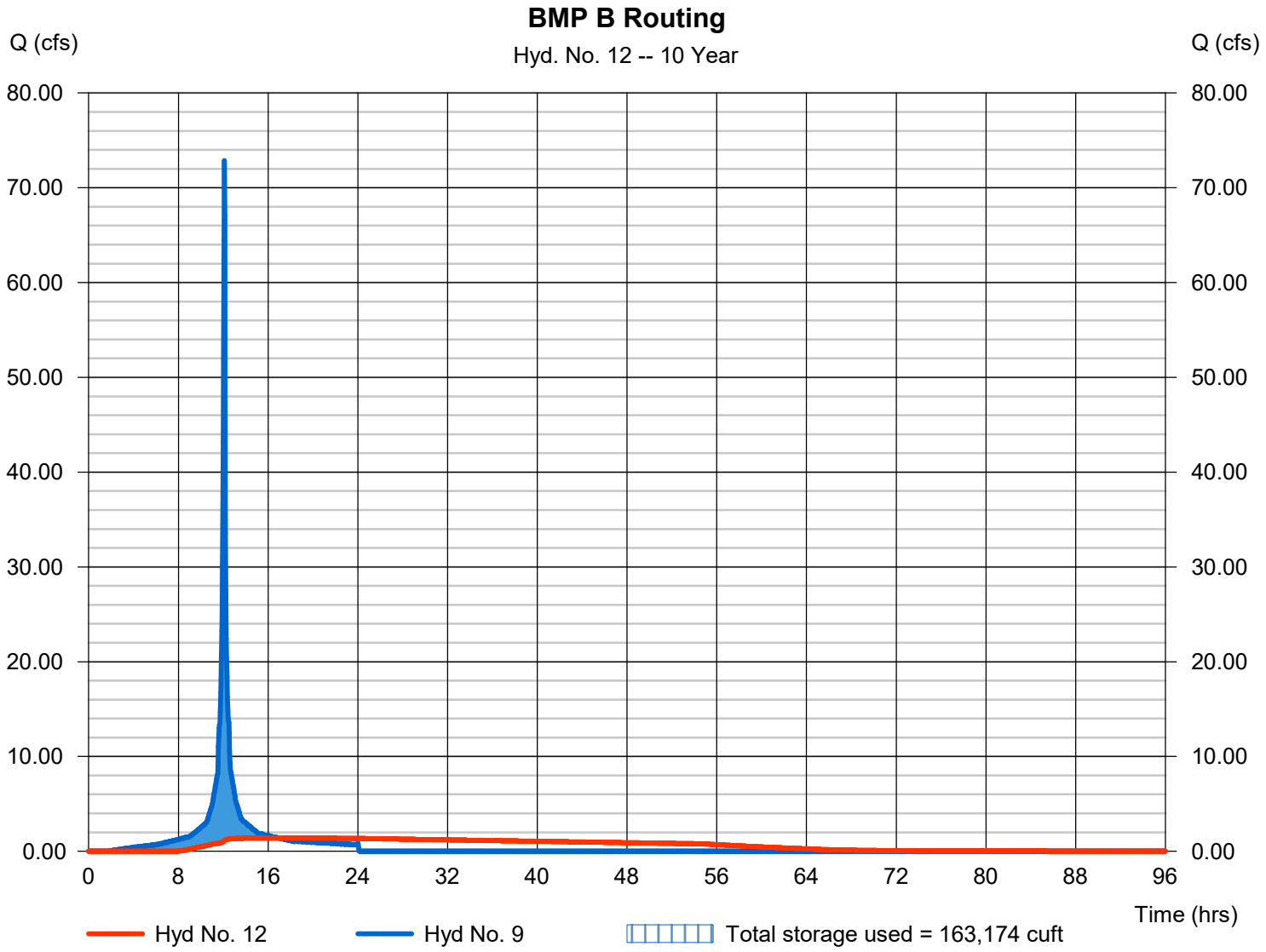
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.399 cfs
Storm frequency	=	10 yrs	Time to peak	=	17.03 hrs
Time interval	=	2 min	Hyd. volume	=	206,424 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.58 ft
Reservoir name	=	BMP B	Max. Storage	=	163,174 cuft

Storage Indication method used.



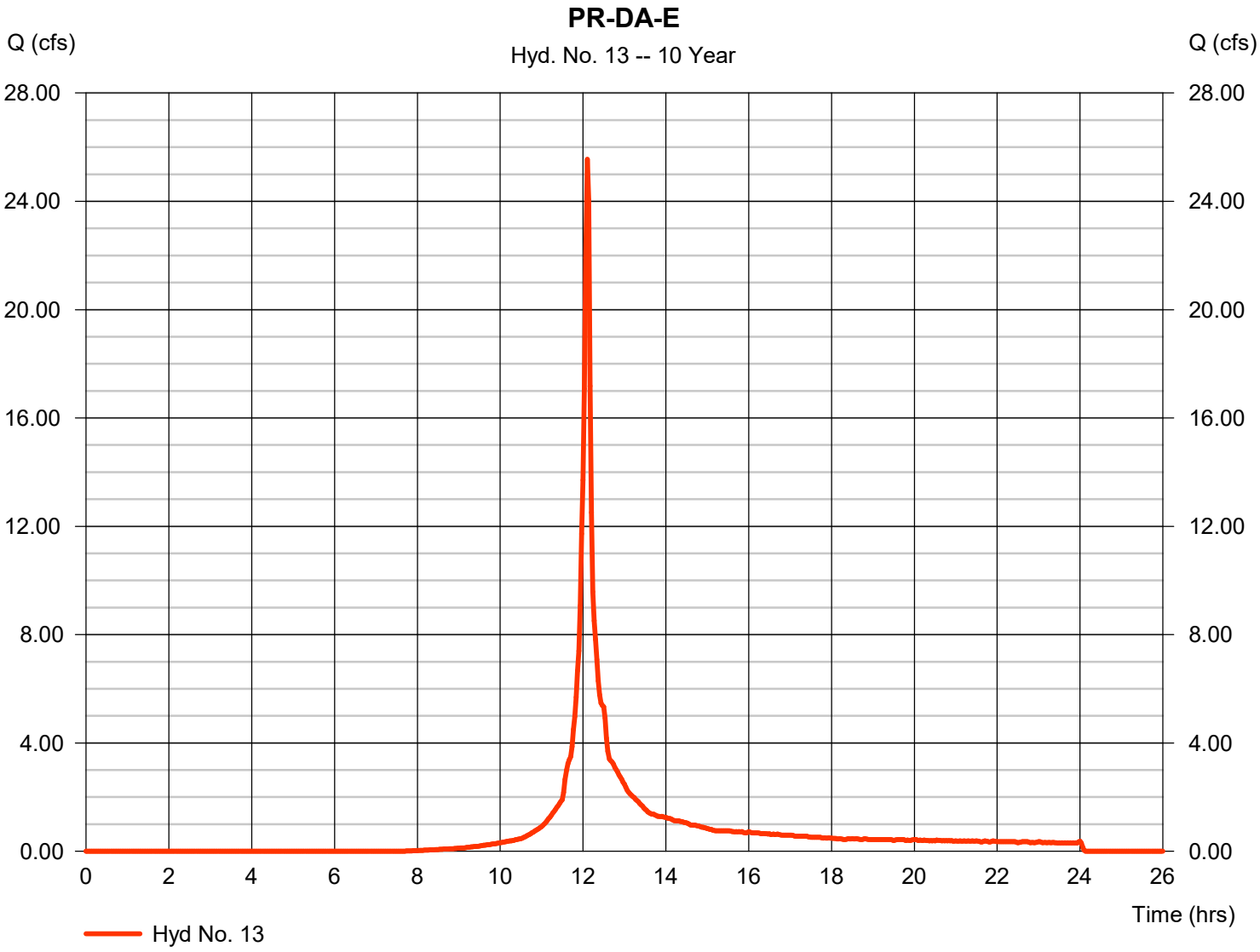
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	25.55 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	67,896 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO	Storm Frtcor	=	454

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

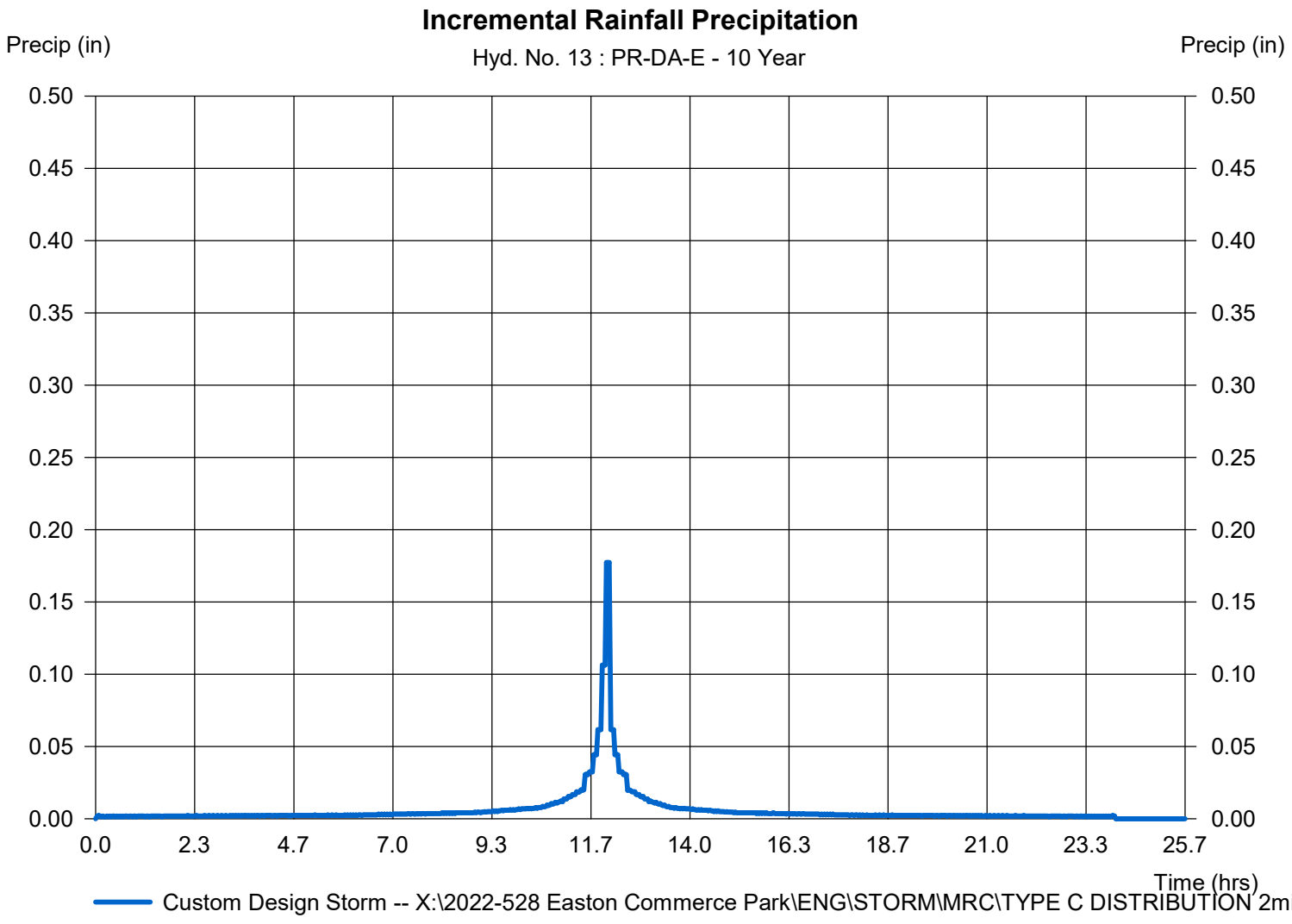


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



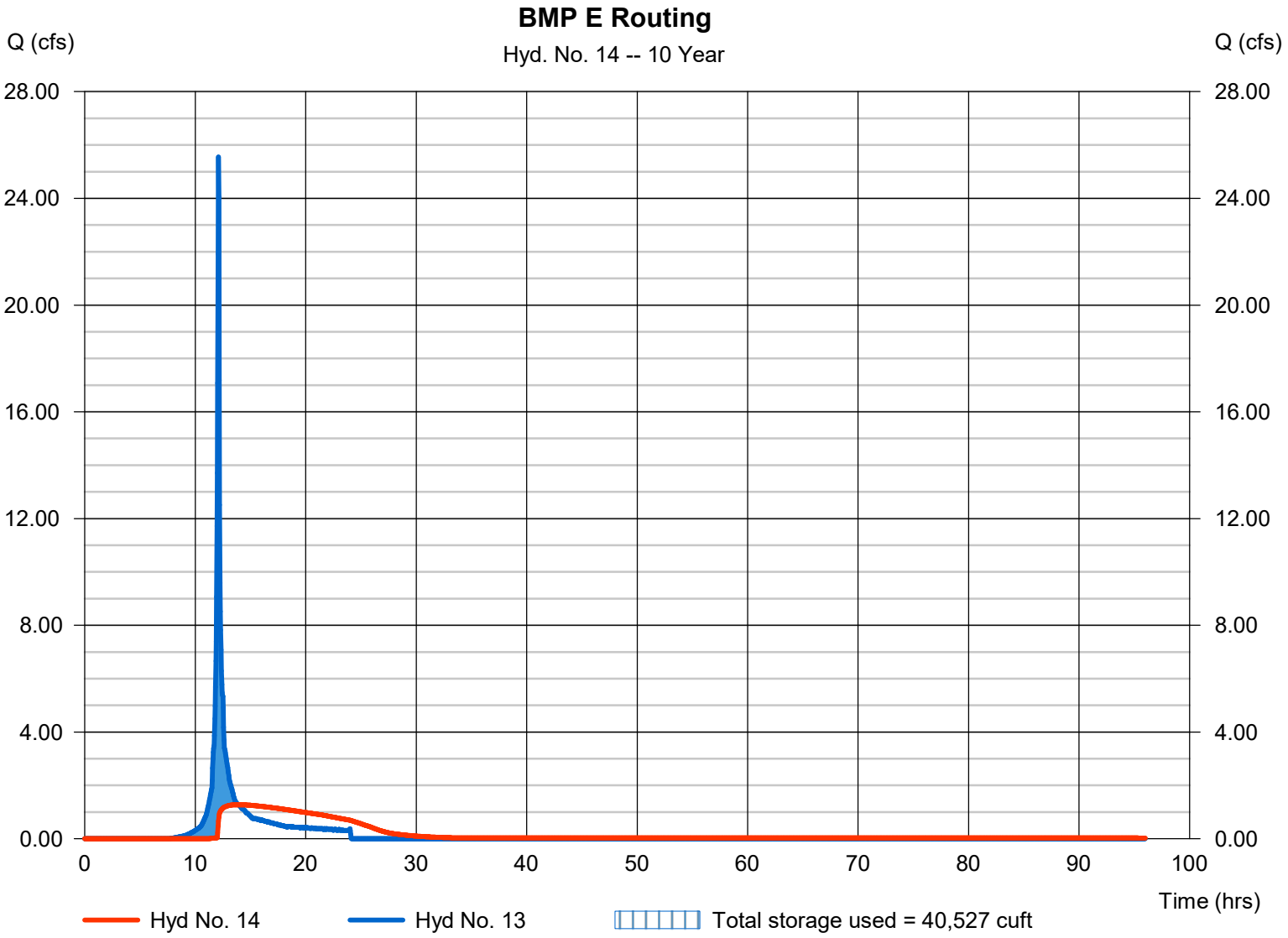
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.274 cfs
Storm frequency	=	10 yrs	Time to peak	=	13.93 hrs
Time interval	=	2 min	Hyd. volume	=	60,224 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.09 ft
Reservoir name	=	BMP E	Max. Storage	=	40,527 cuft

Storage Indication method used.

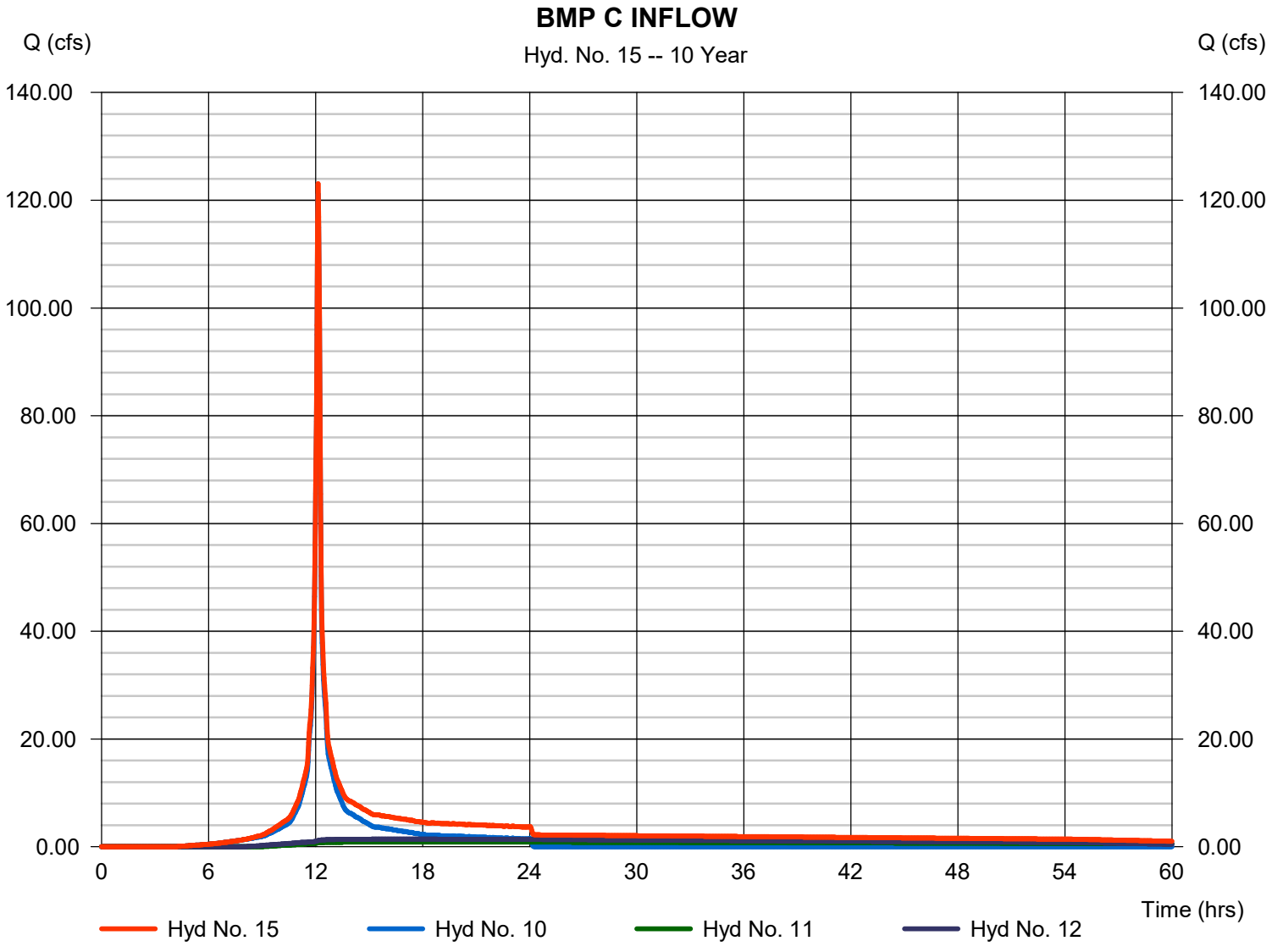


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	123.05 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	754,843 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



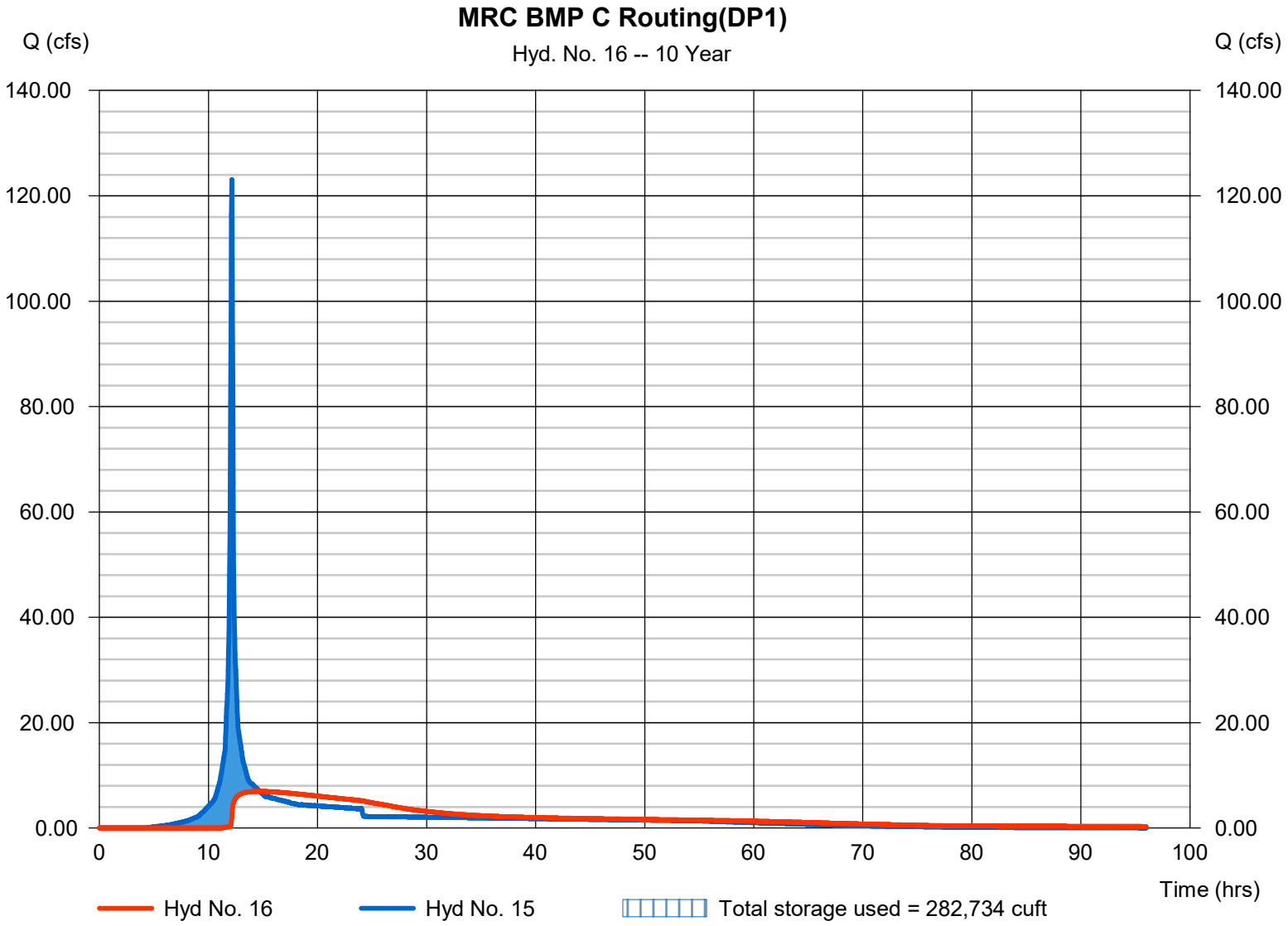
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	= Reservoir	Peak discharge	= 6.970 cfs
Storm frequency	= 10 yrs	Time to peak	= 14.67 hrs
Time interval	= 2 min	Hyd. volume	= 637,301 cuft
Inflow hyd. No.	= 15 - BMP C INFLOW	Max. Elevation	= 217.62 ft
Reservoir name	= BMP C	Max. Storage	= 282,734 cuft

Storage Indication method used.



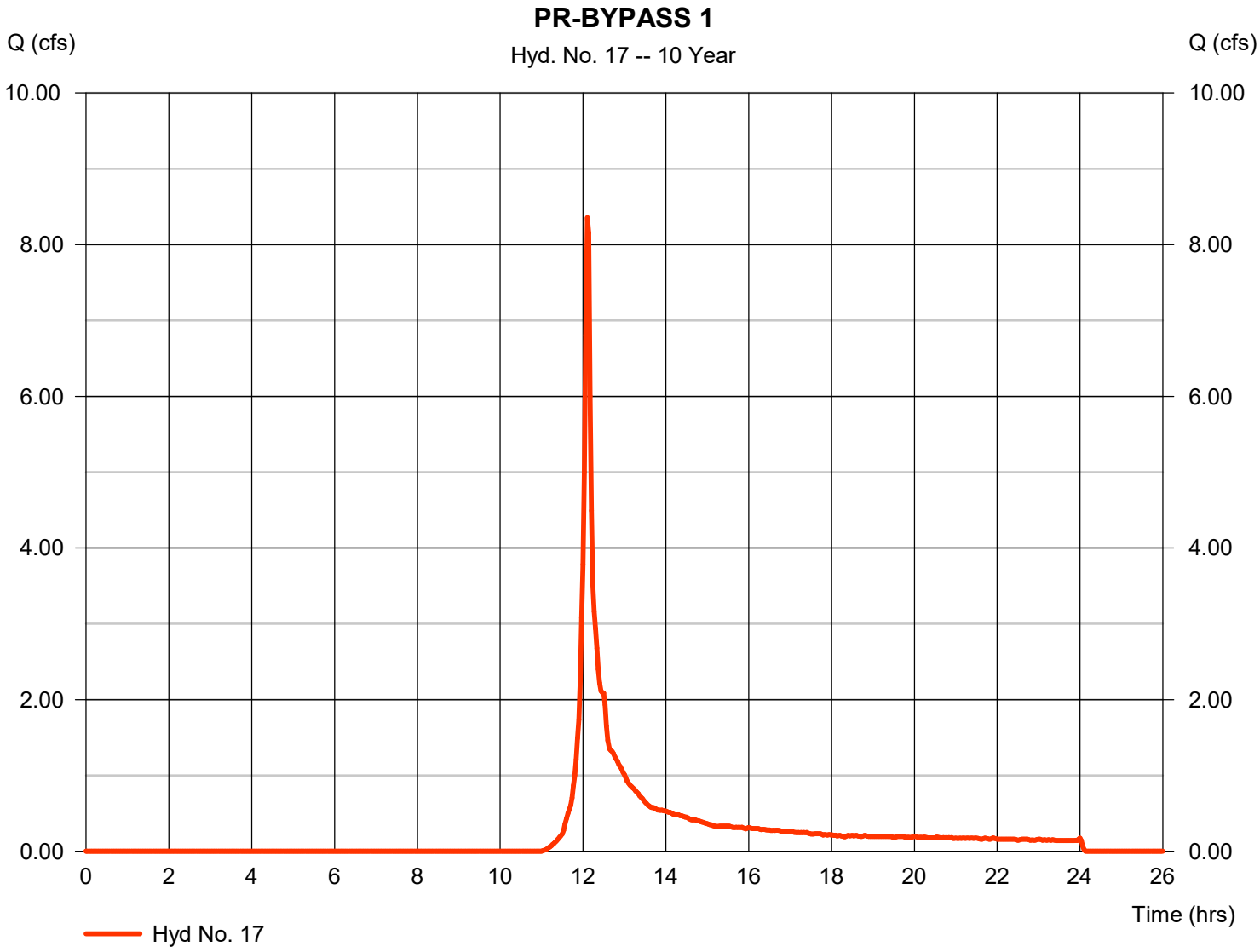
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.355 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	23,046 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

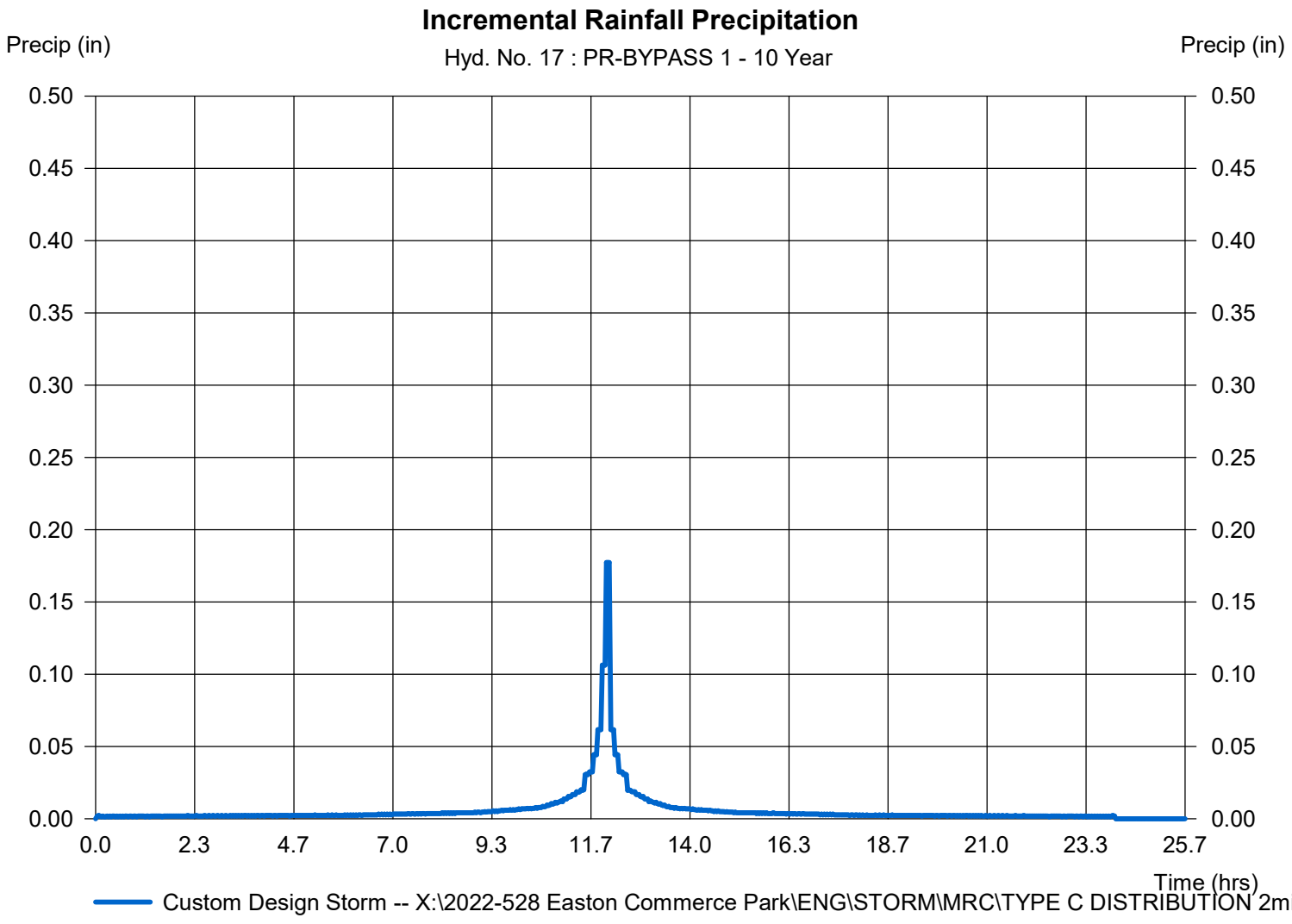


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



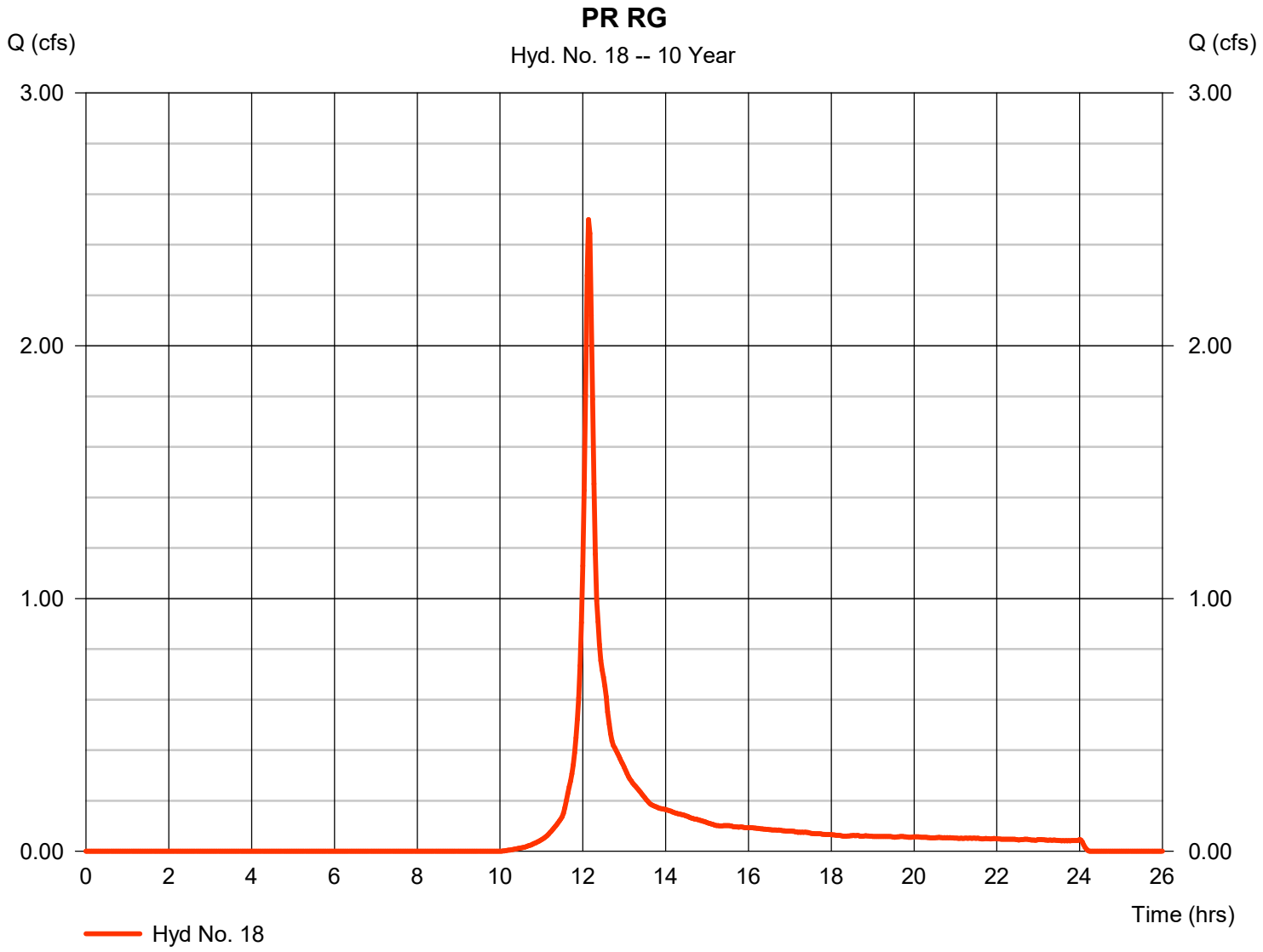
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.500 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	7,797 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

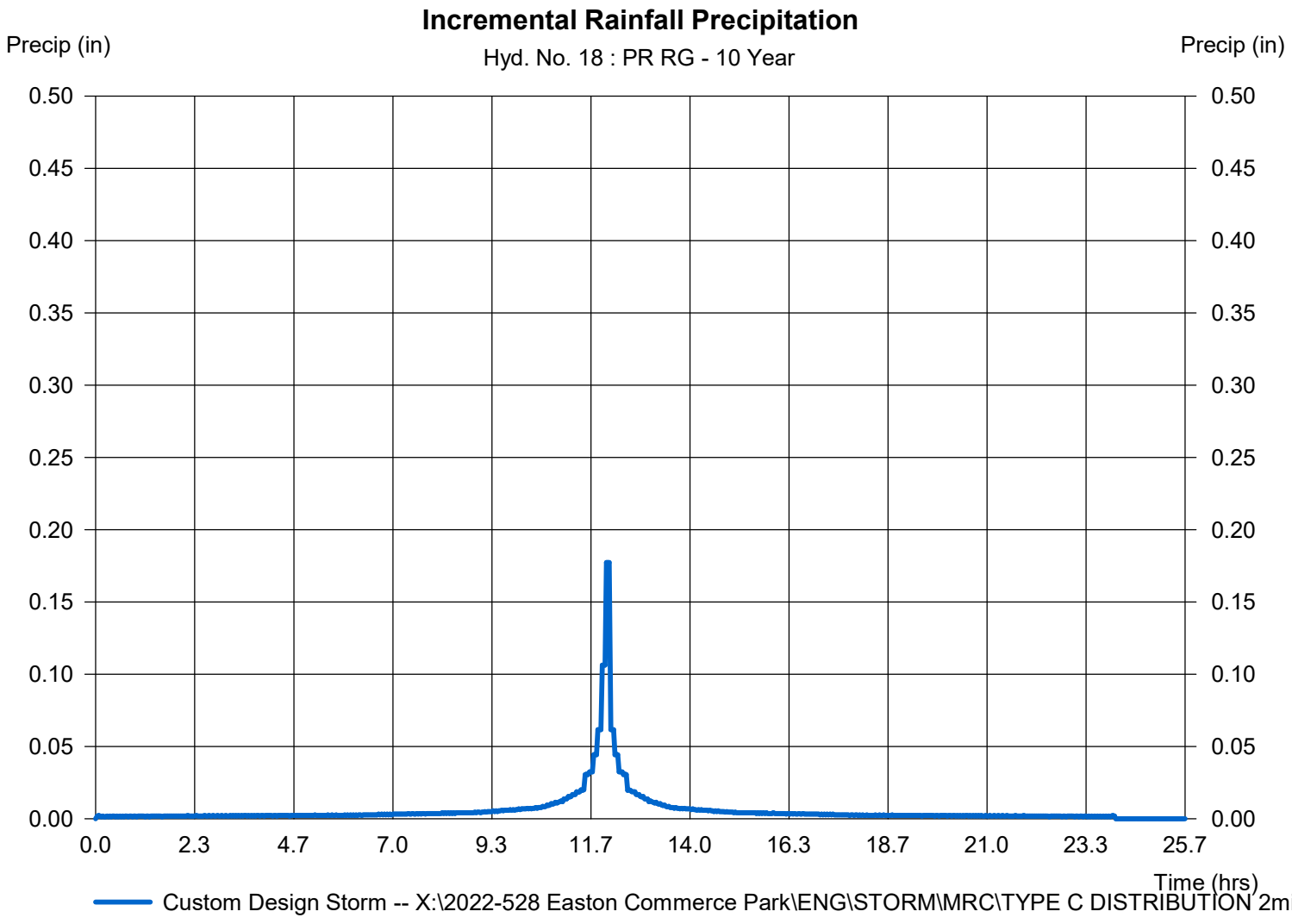


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



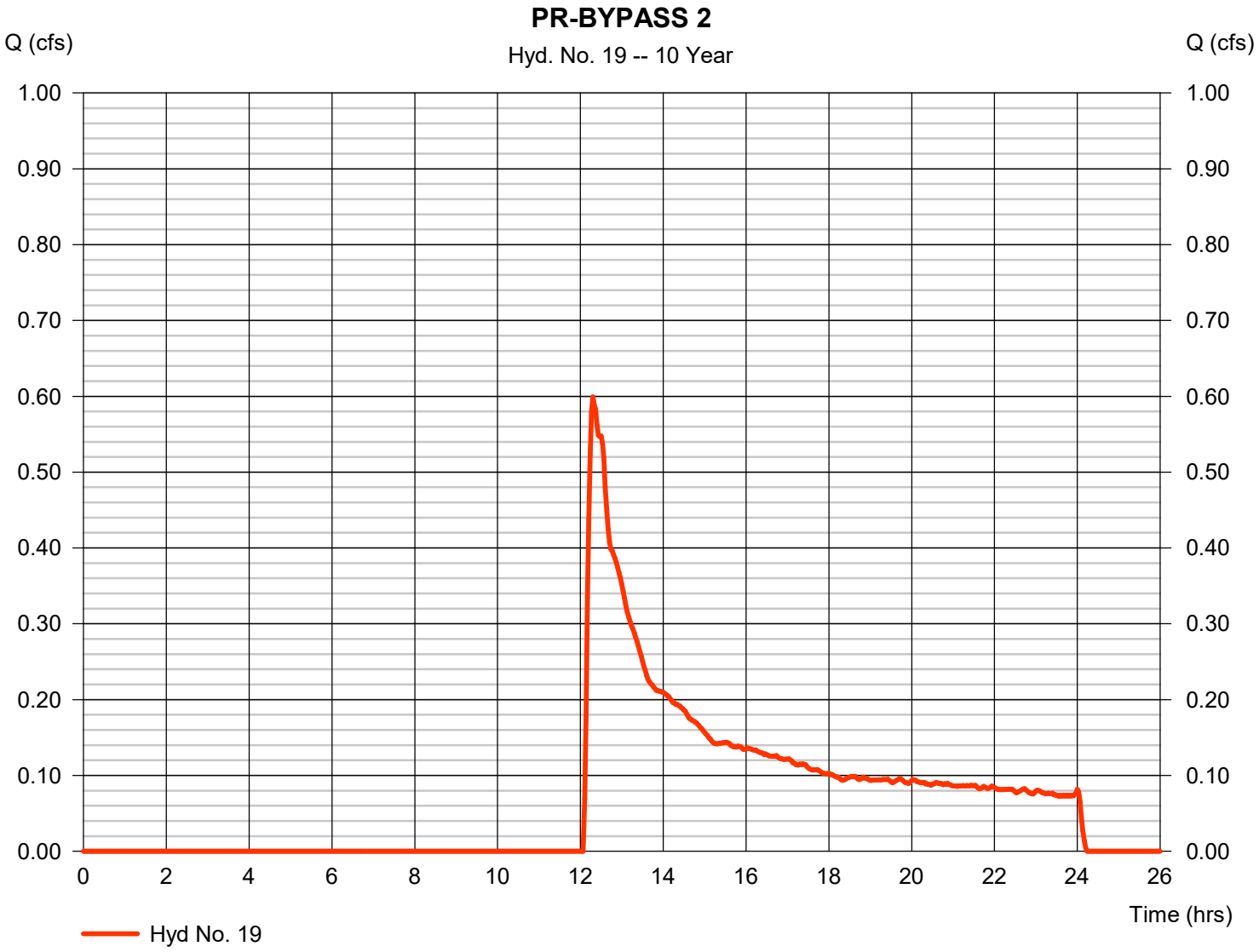
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.599 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	6,334 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION.cas		=	24

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

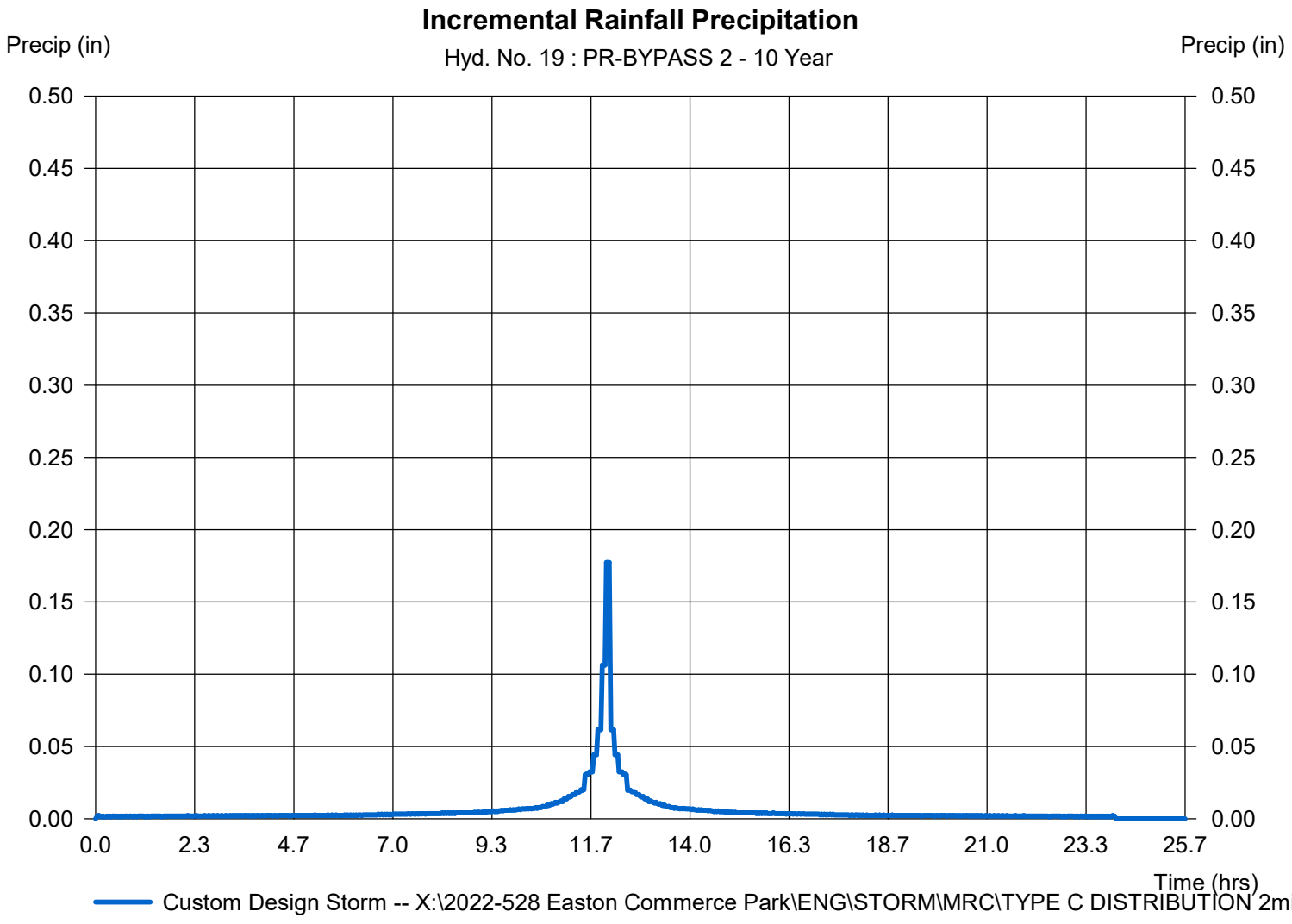


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



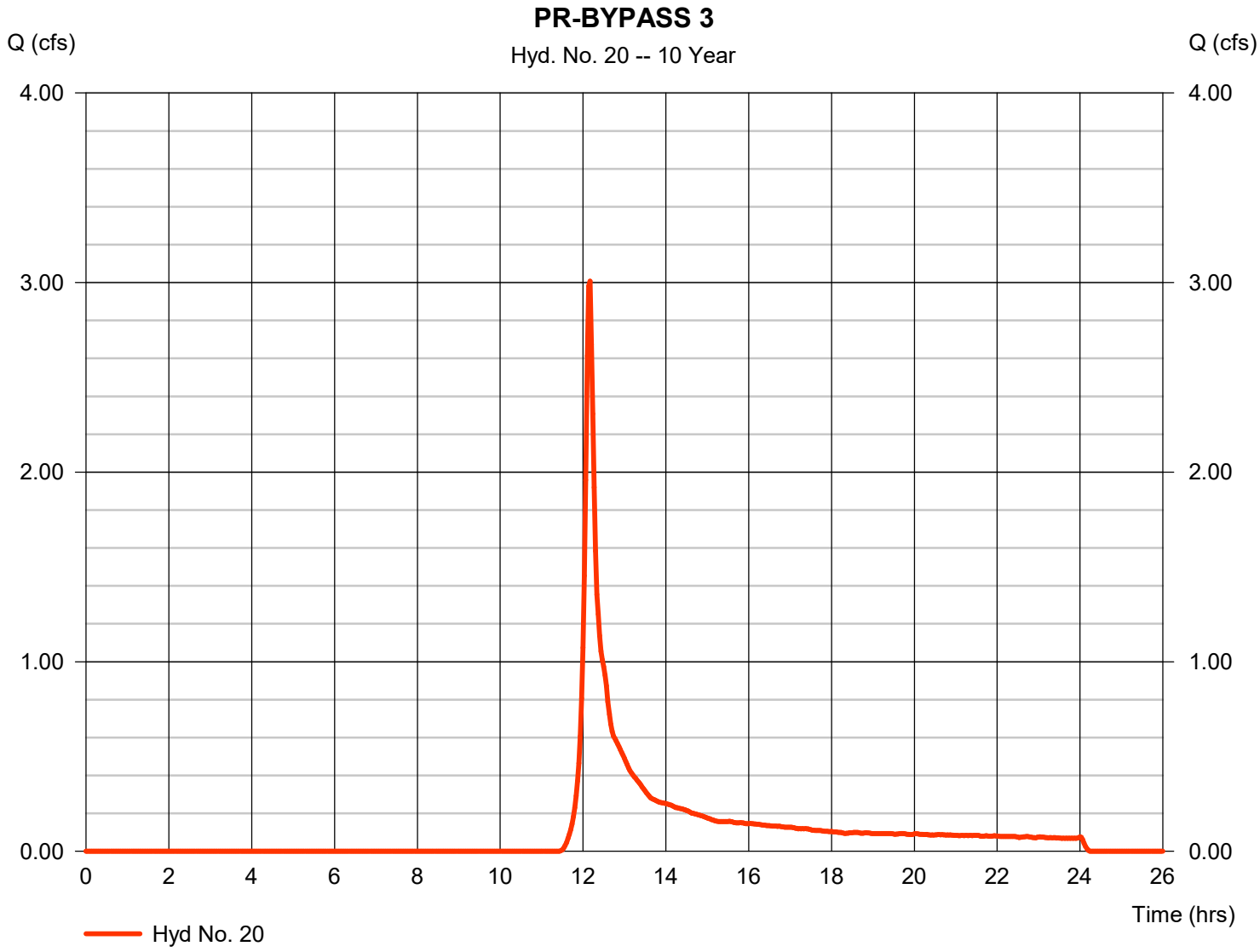
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.008 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	10,221 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

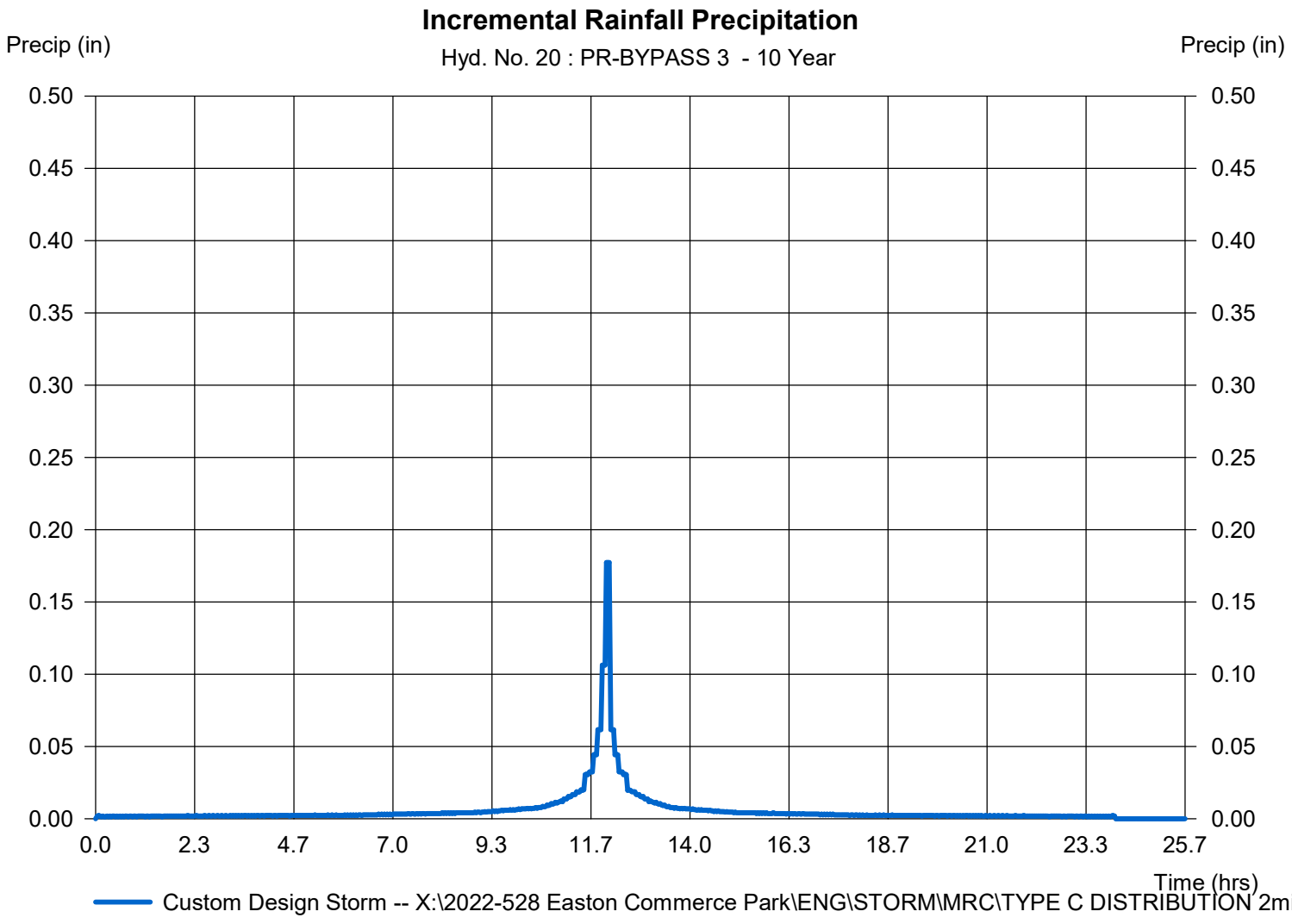


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

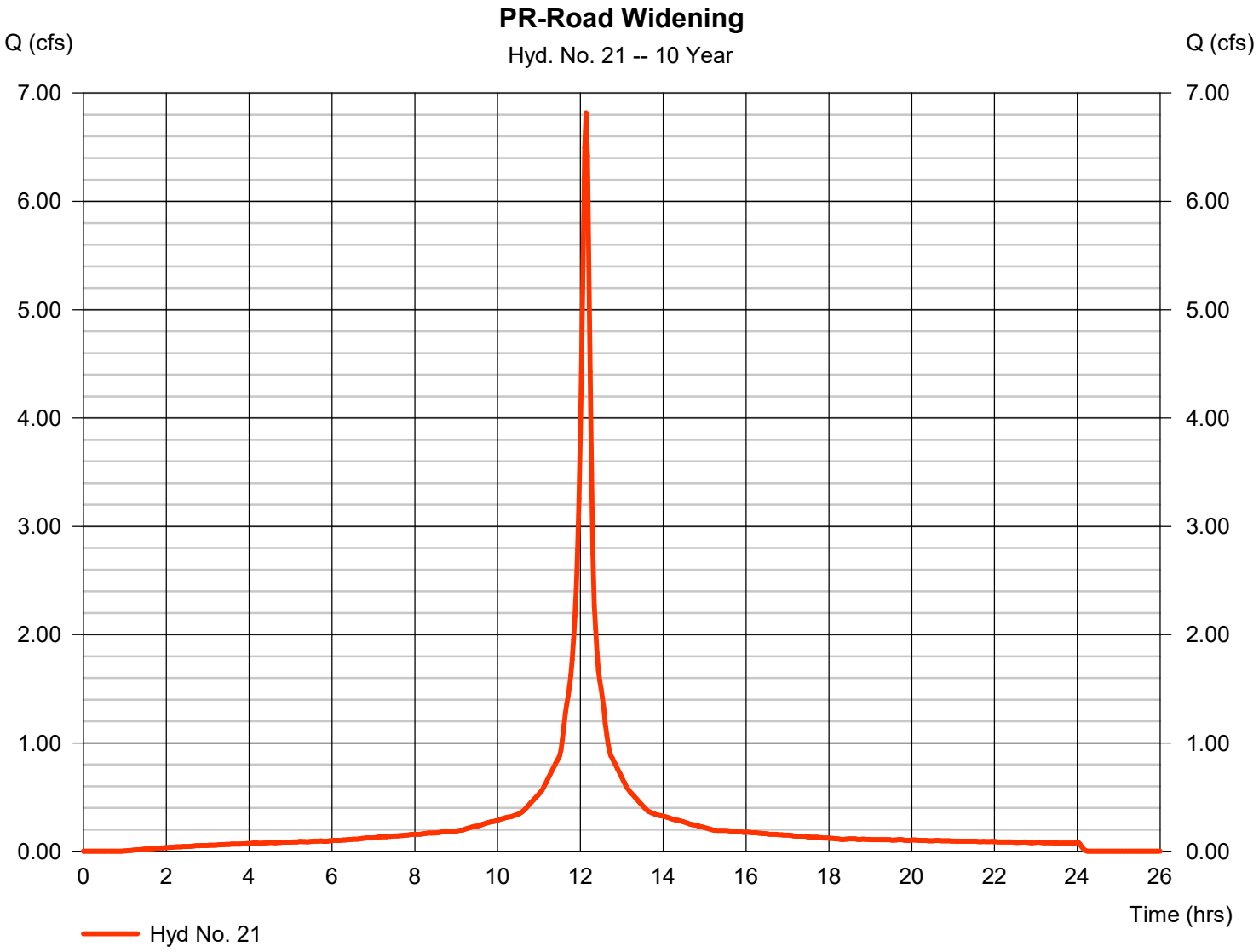


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.818 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	24,329 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	4.56 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24 SR Factor\TYPE C DISTRIBUTIO			

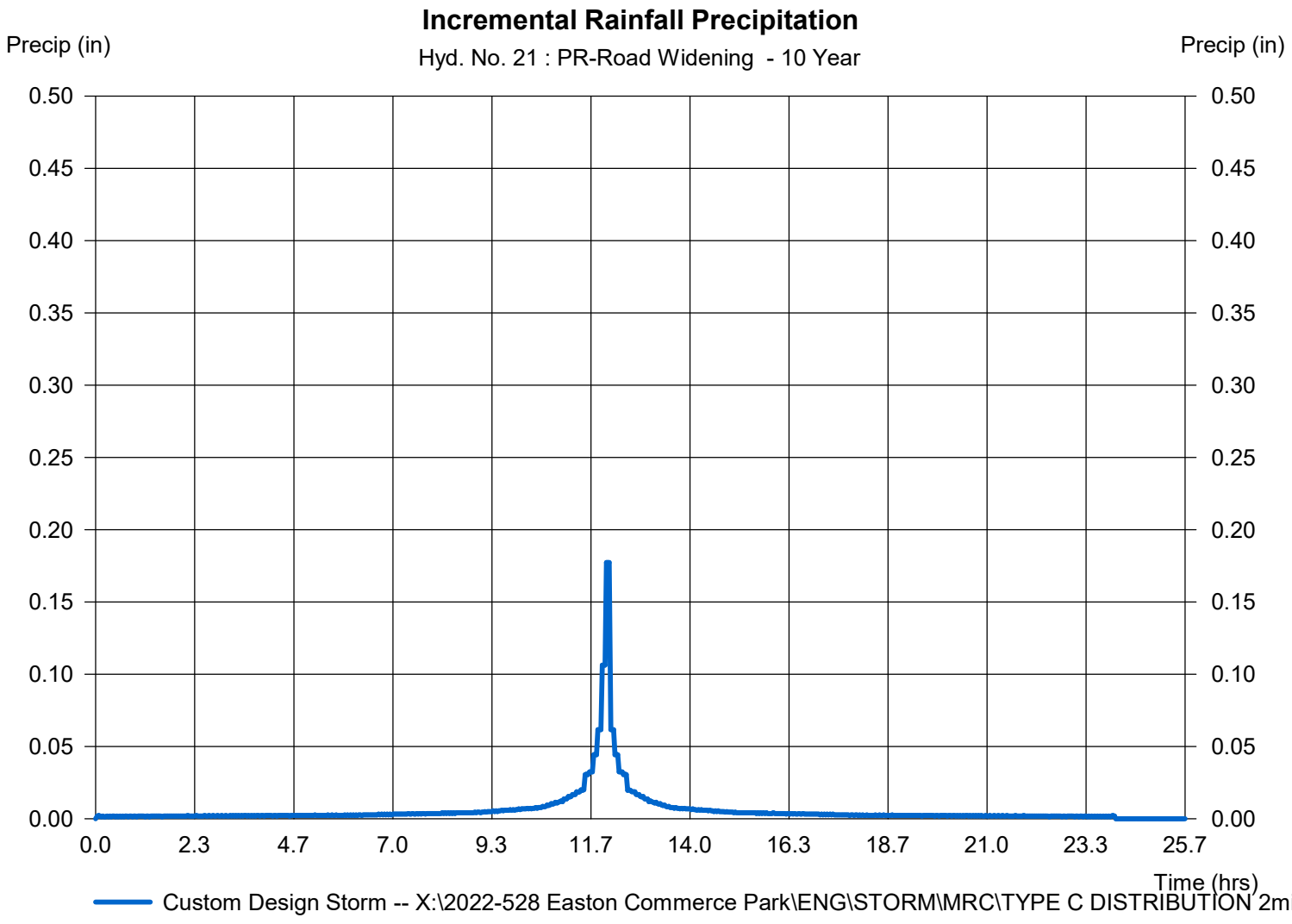


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 10 yrs	Time interval	= 2 min
Total precip.	= 4.5600 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

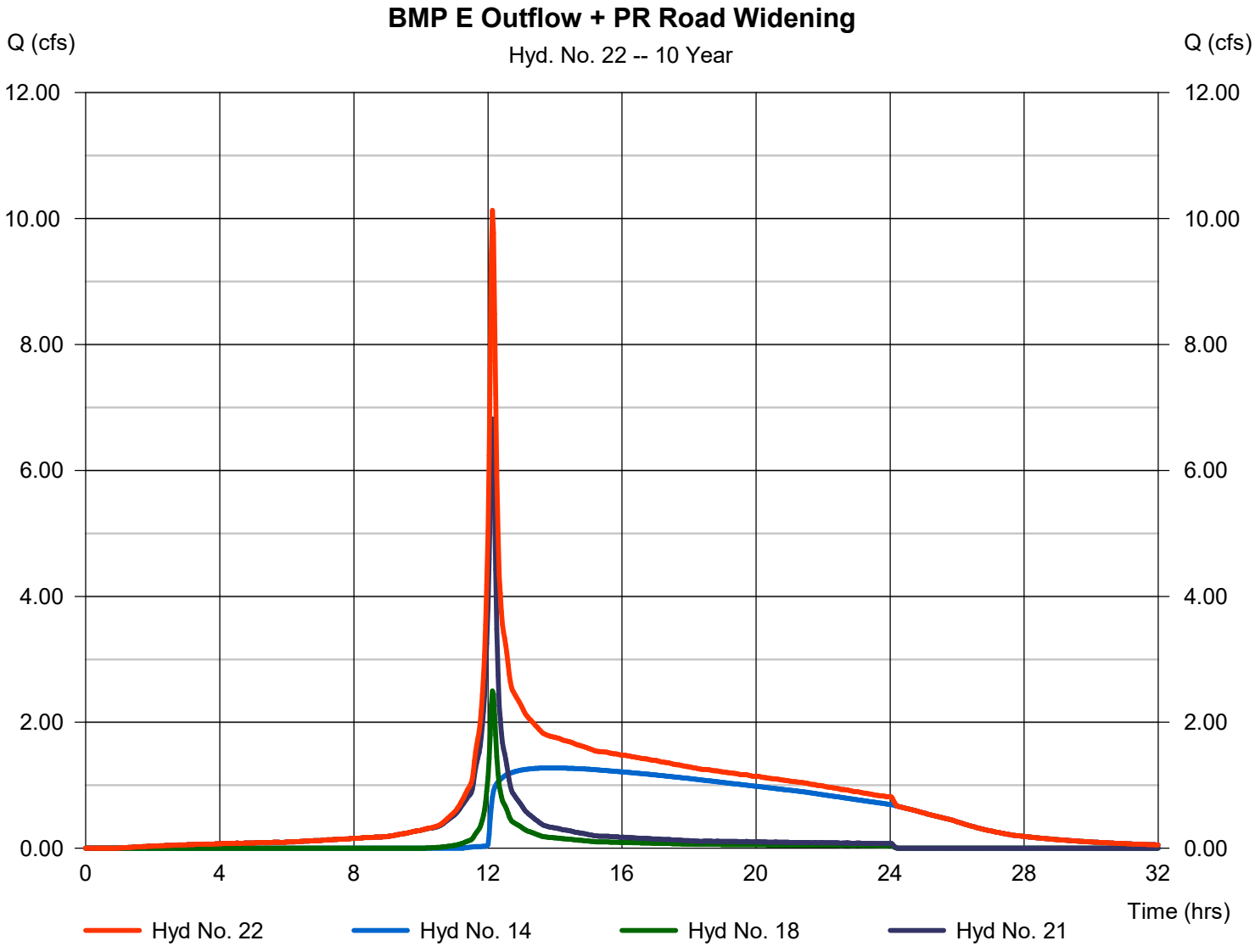


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	10.13 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	92,349 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



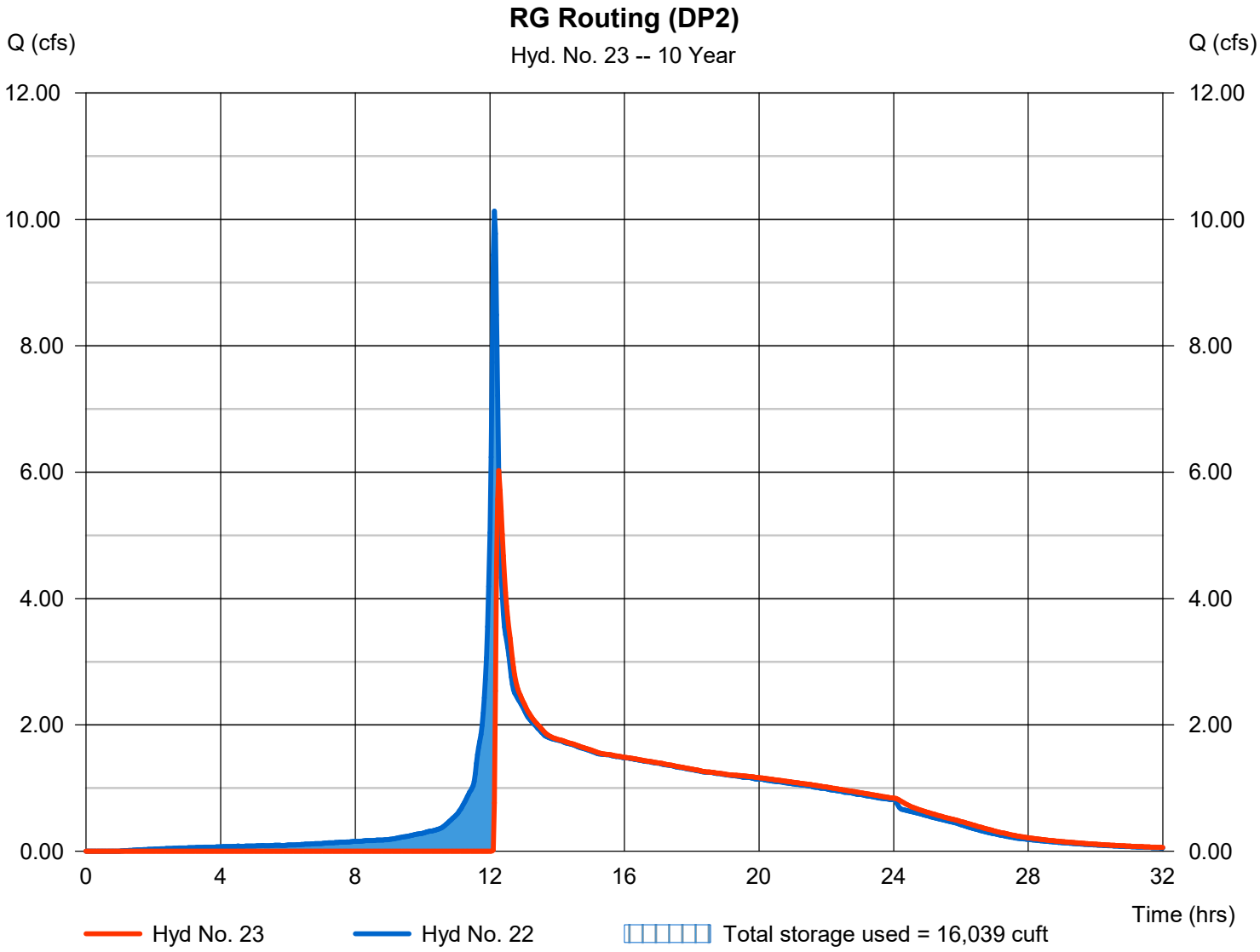
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	6.027 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	79,335 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.01 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	16,039 cuft

Storage Indication method used.

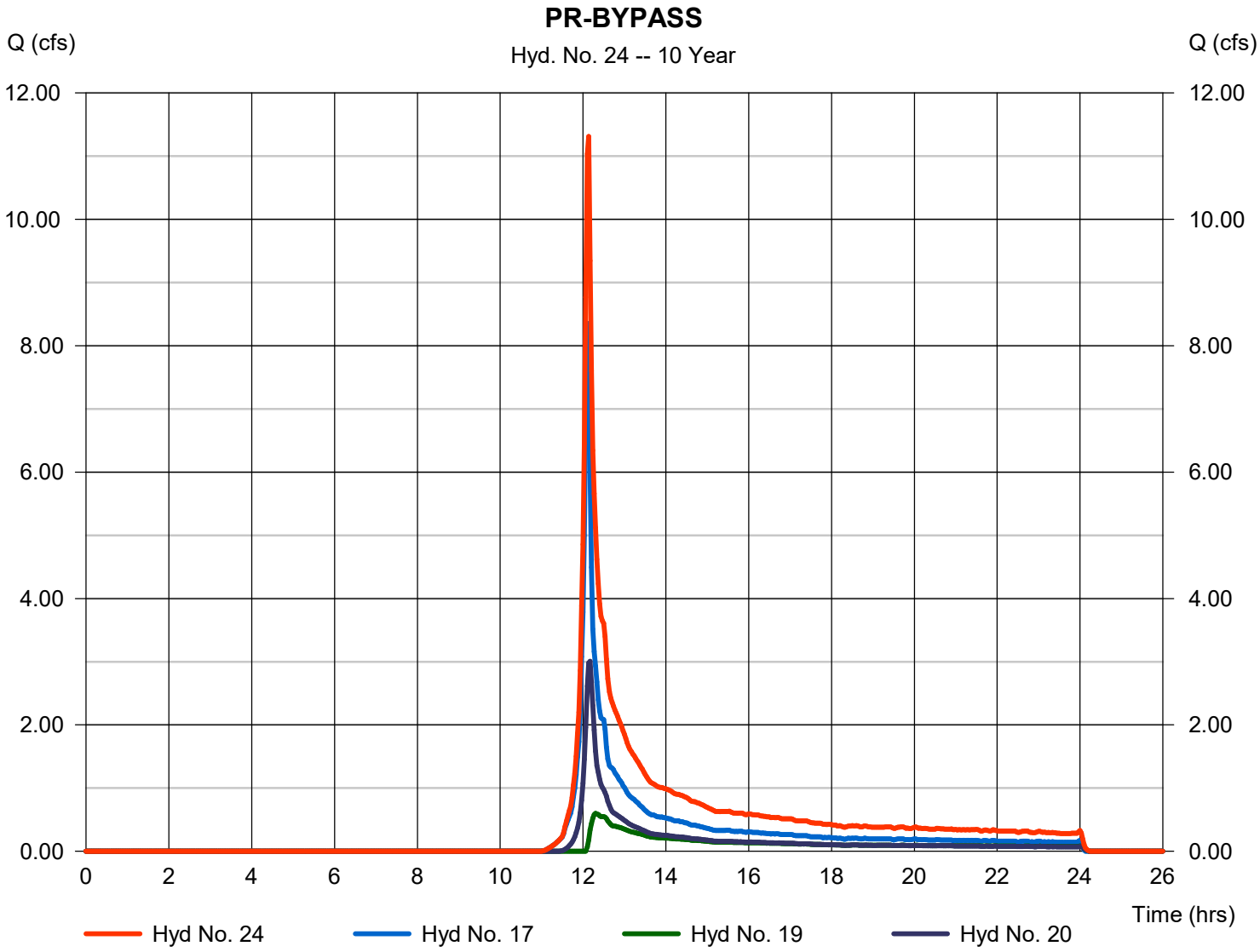


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	11.31 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	39,601 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

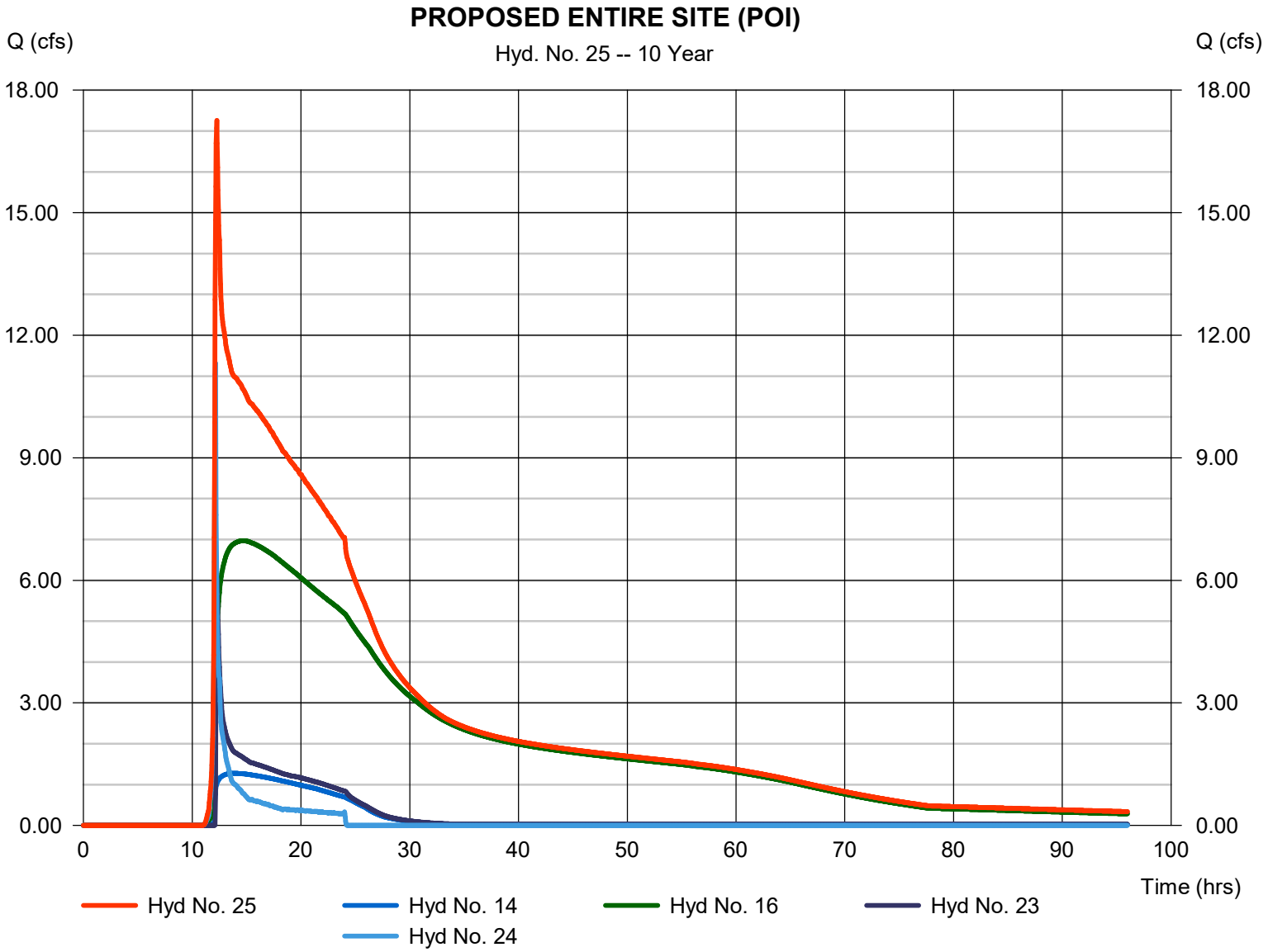


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 17.26 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 816,461 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

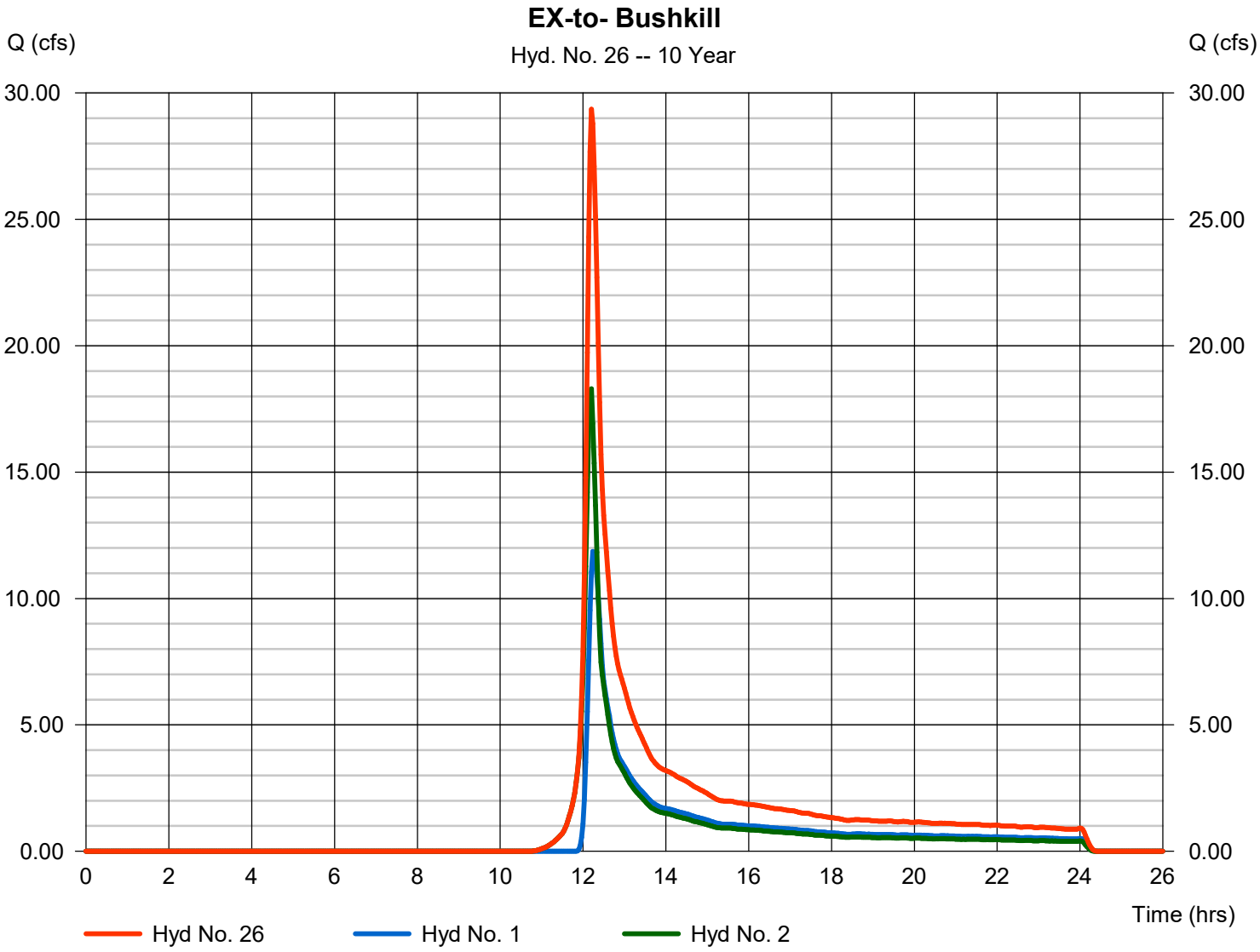


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 29.36 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 126,571 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

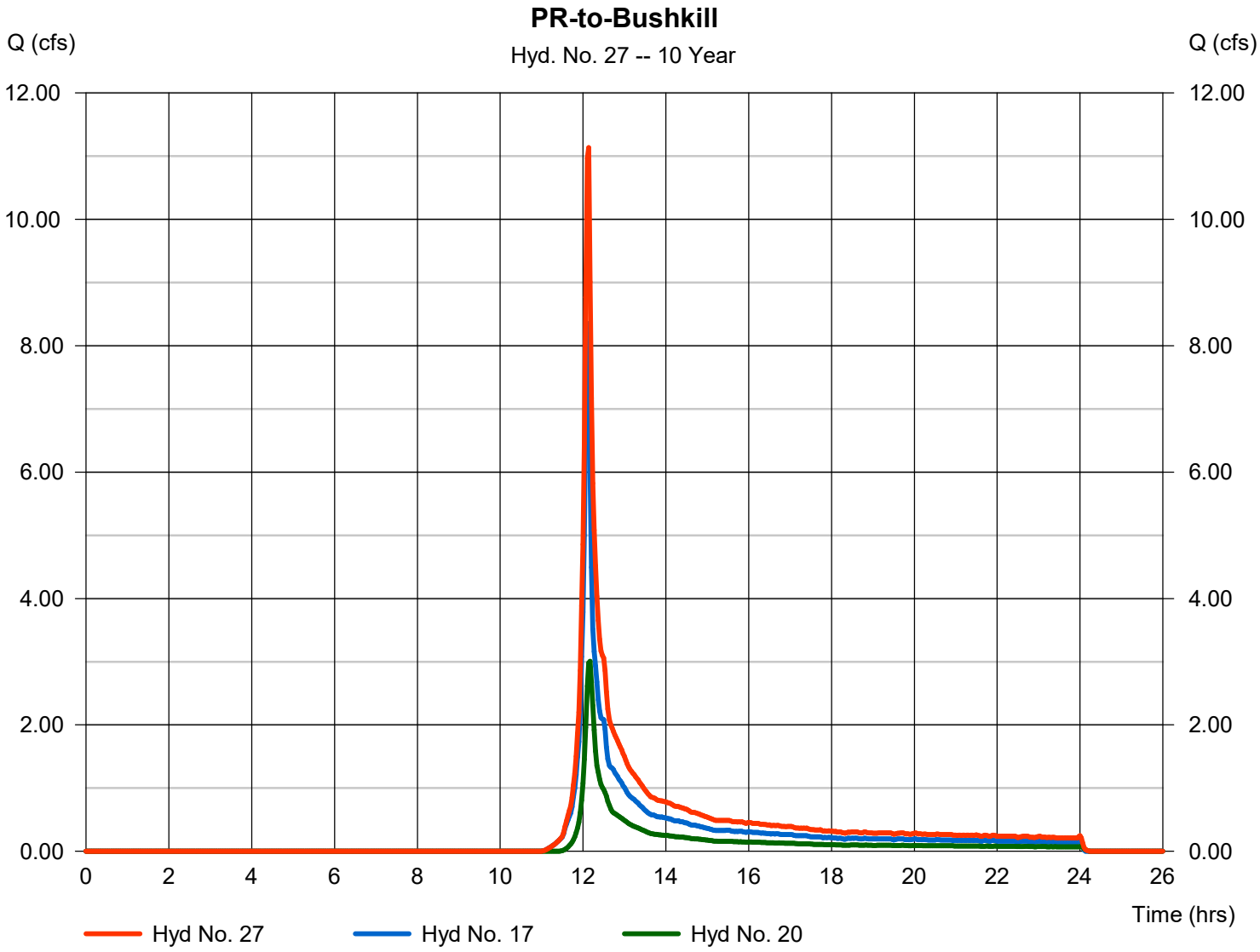


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	11.14 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	33,267 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

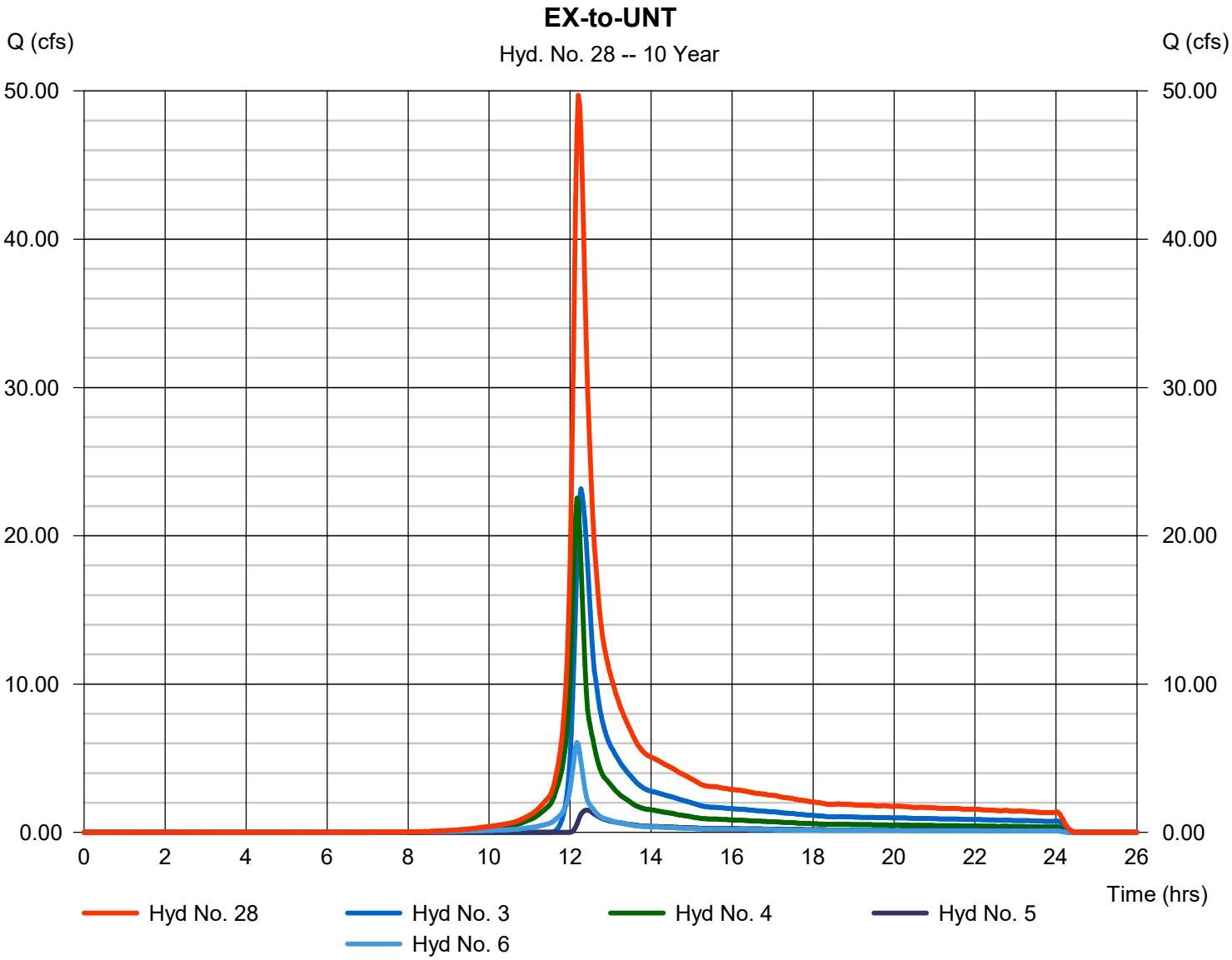


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 49.70 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 220,721 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

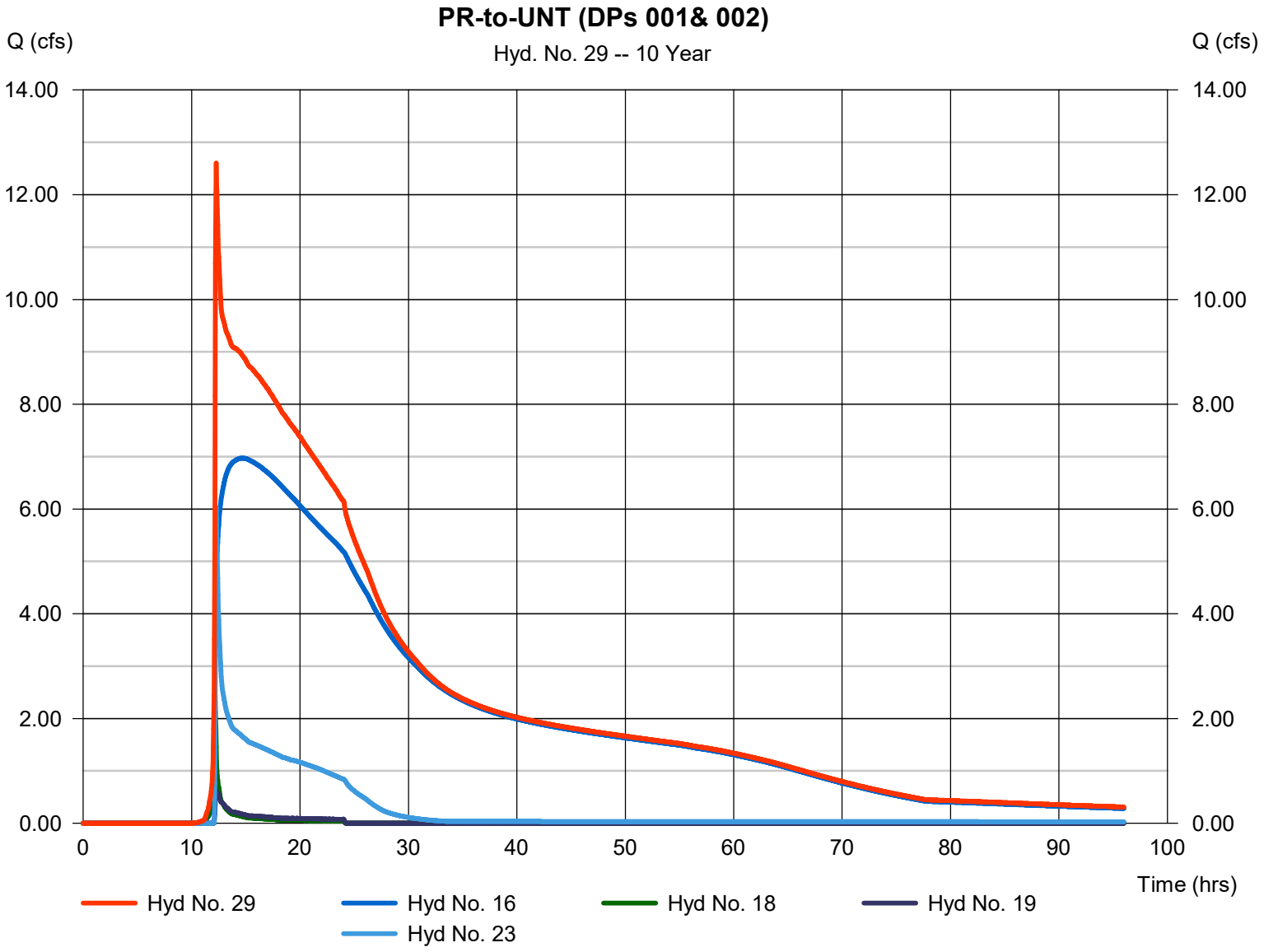


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 12.61 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 730,766 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

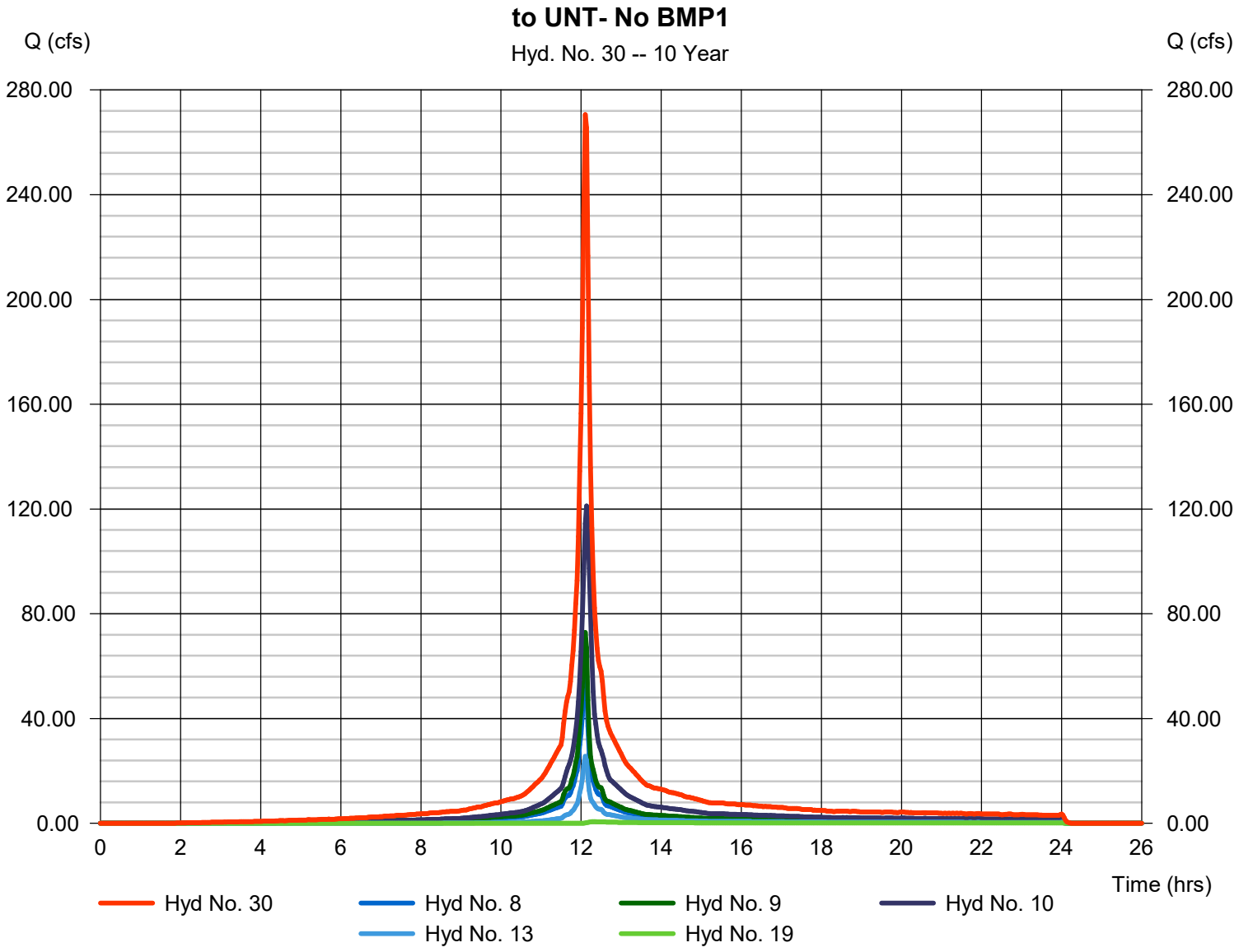


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 270.59 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 854,674 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

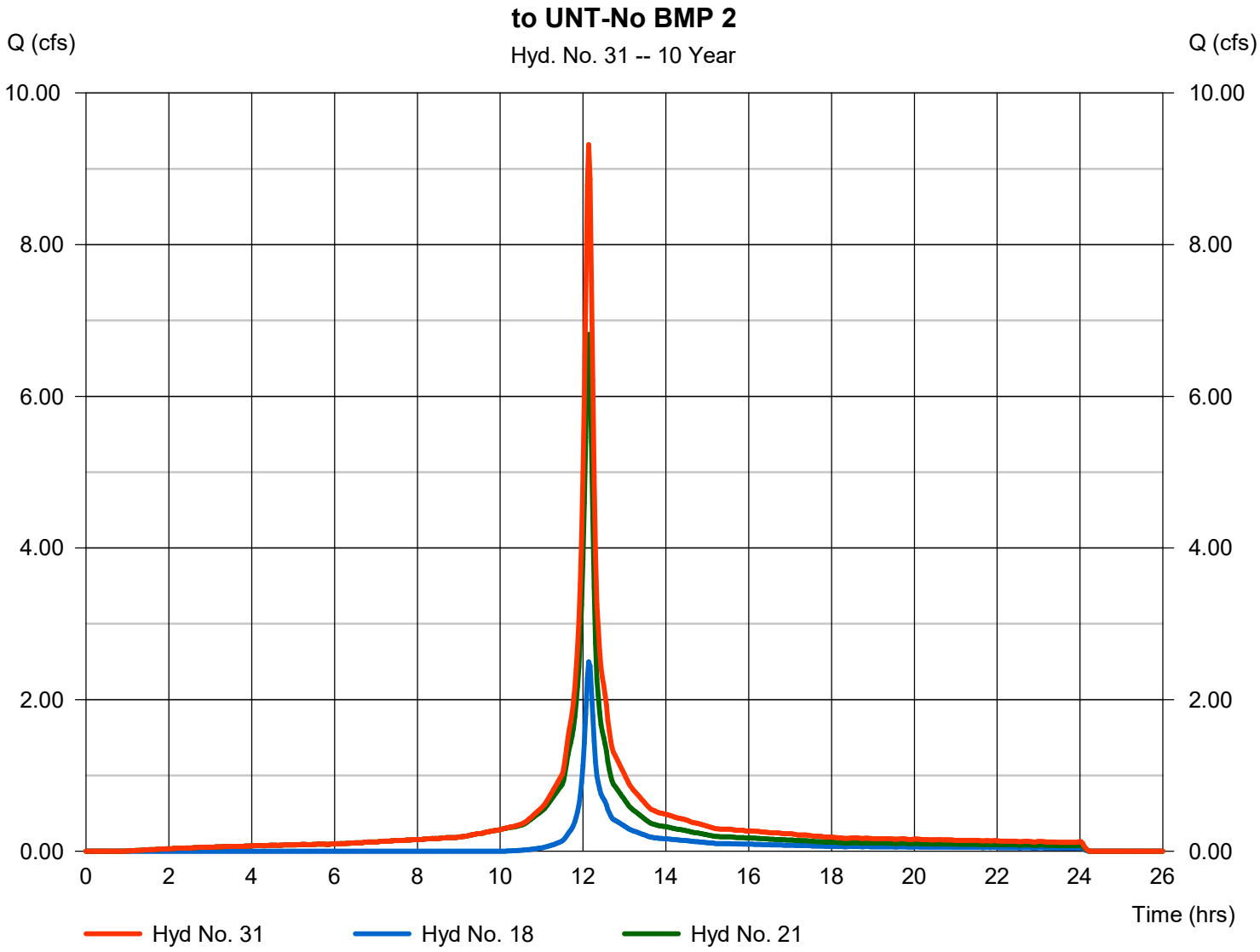


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 9.318 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 32,125 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

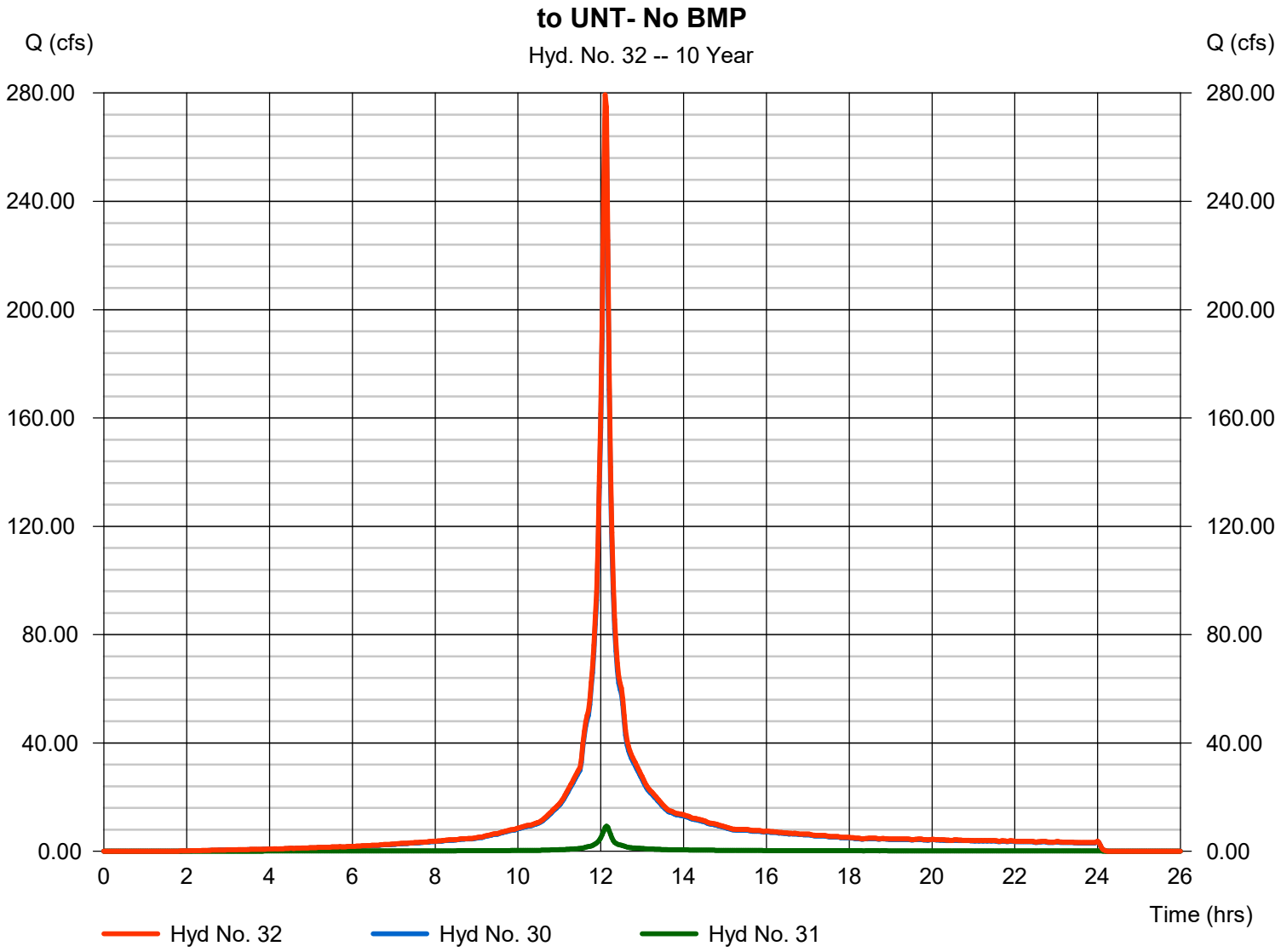


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	= Combine	Peak discharge	= 279.37 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 886,799 cuft
Inflow hyds.	= 30, 31	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	22.99	2	734	99,416	------	------	------	EX-DA 1
2	SCS Runoff	26.95	2	730	95,700	------	------	------	EX-DA2
3	SCS Runoff	37.99	2	736	165,848	------	------	------	EX-DA3
4	SCS Runoff	30.36	2	730	106,054	------	------	------	EX-DA4
5	SCS Runoff	3.858	2	740	23,277	------	------	------	EX-DA5
6	SCS Runoff	7.843	2	730	27,790	------	------	------	EX-DA-Road Widening
7	Combine	124.75	2	732	518,086	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	70.28	2	726	213,089	------	------	------	PR-DA-A
9	SCS Runoff	88.81	2	726	269,283	------	------	------	PR-DA-B
10	SCS Runoff	151.55	2	728	493,597	------	------	------	PR-DA-C
11	Reservoir	0.955	2	1166	198,198	8	291.60	169,671	BMP A Routing
12	Reservoir	1.543	2	1046	256,932	9	288.07	203,900	BMP B Routing
13	SCS Runoff	33.82	2	726	90,550	------	------	------	PR-DA-E
14	Reservoir	5.093	2	754	82,737	13	259.69	48,215	BMP E Routing
15	Combine	153.60	2	728	948,727	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	8.771	2	870	821,259	15	218.21	356,278	MRC BMP C Routing(DP1)
17	SCS Runoff	12.60	2	726	33,838	------	------	------	PR-BYPASS 1
18	SCS Runoff	3.553	2	728	10,964	------	------	------	PR RG
19	SCS Runoff	2.267	2	730	12,564	------	------	------	PR-BYPASS 2
20	SCS Runoff	4.803	2	728	15,535	------	------	------	PR-BYPASS 3
21	SCS Runoff	8.270	2	728	29,722	------	------	------	PR-Road Widening
22	Combine	12.96	2	728	123,423	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	11.48	2	732	110,408	22	233.12	16,857	RG Routing (DP2)
24	Combine	18.84	2	728	61,936	17, 19, 20,	------	------	PR-BYPASS
25	Combine	34.23	2	728	1,076,341	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	49.20	2	732	195,116	1, 2,	------	------	EX-to- Bushkill
27	Combine	16.94	2	728	49,372	17, 20,	------	------	PR-to-Bushkill
28	Combine	75.55	2	732	322,970	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	22.75	2	732	955,195	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	337.68	2	726	1,079,083	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	11.82	2	728	40,686	18, 21,	------	------	to UNT-No BMP 2
32	Combine	348.83	2	726	1,119,770	30, 31	------	------	to UNT- No BMP

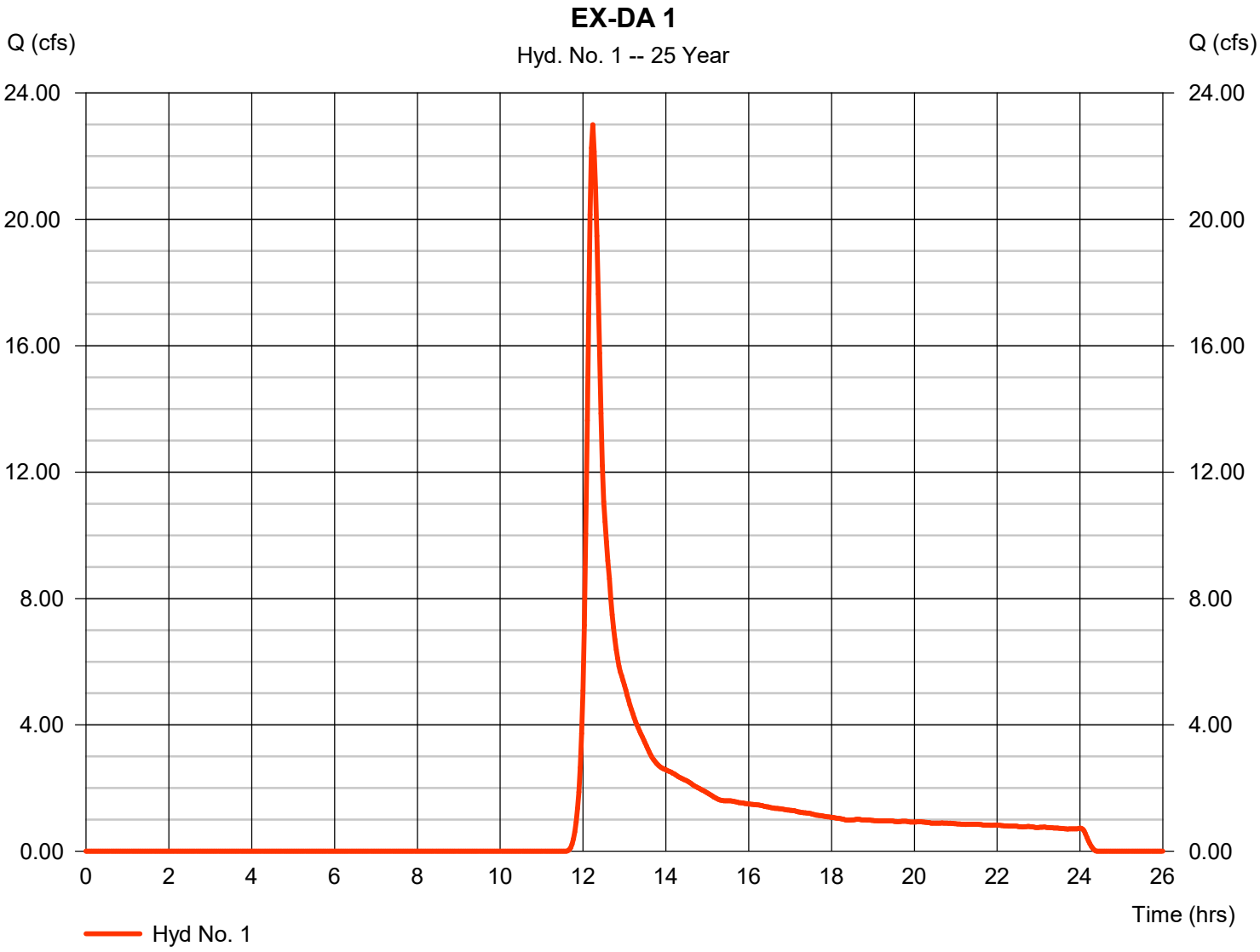
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.99 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	99,416 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

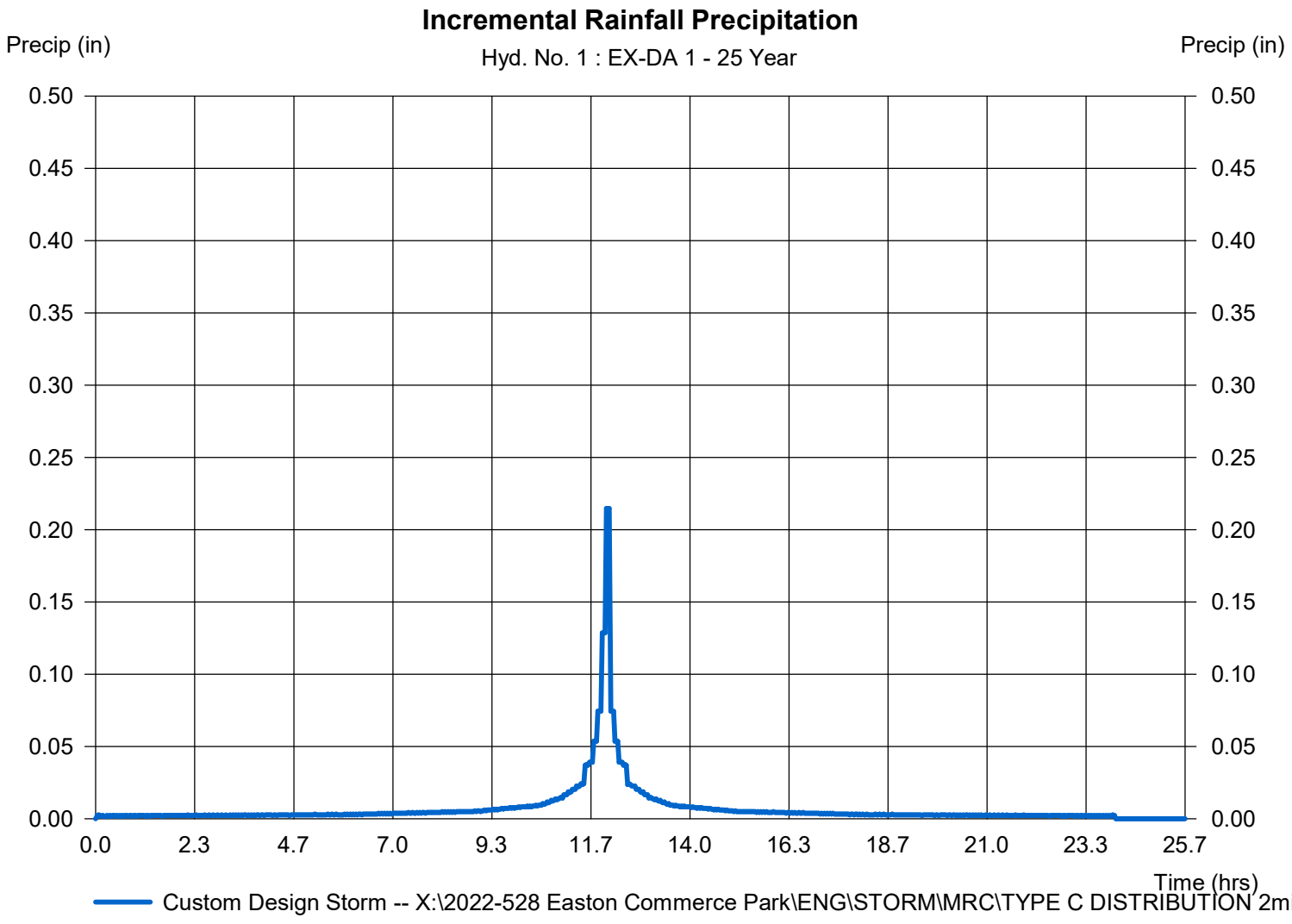


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



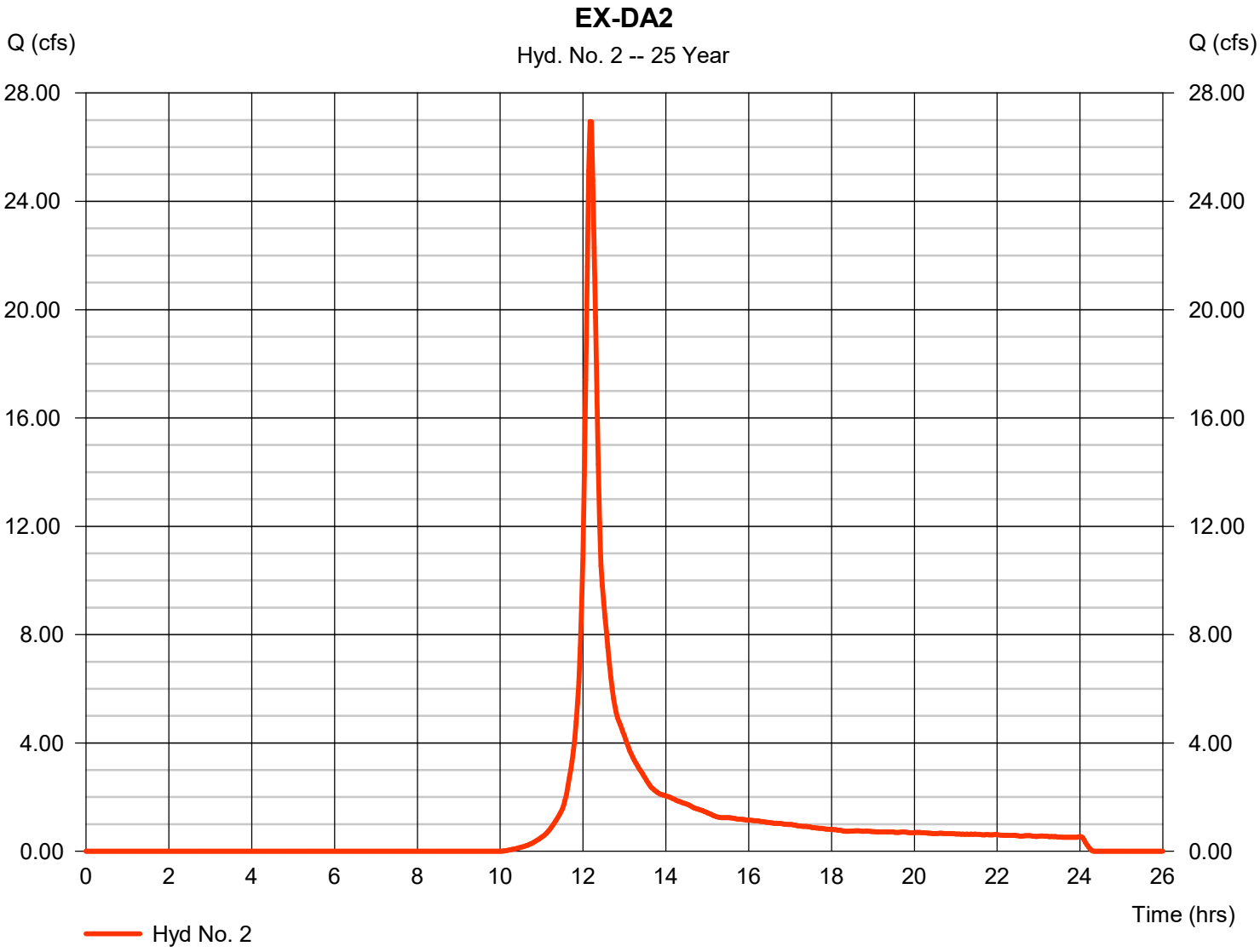
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.95 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	95,700 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

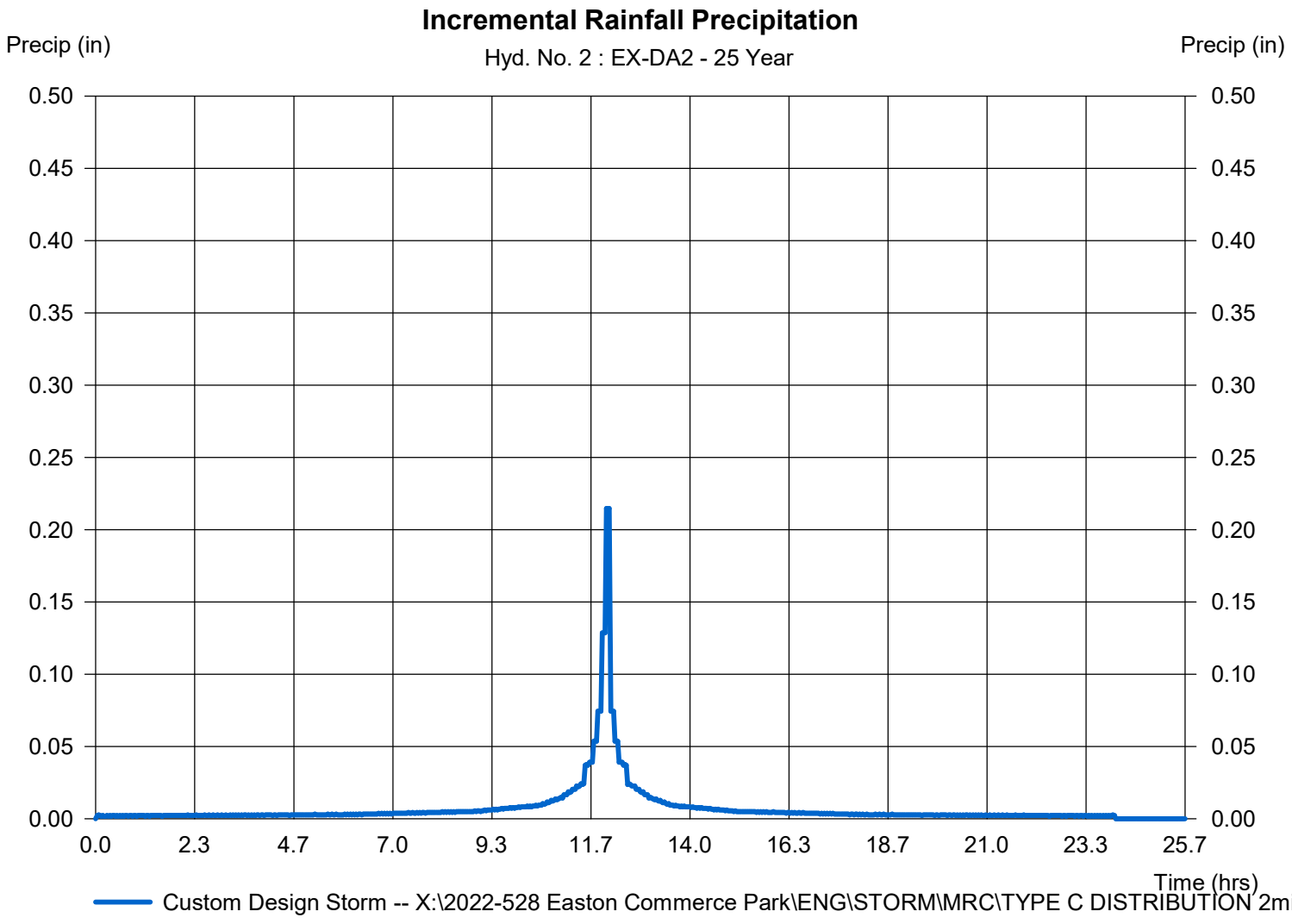


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



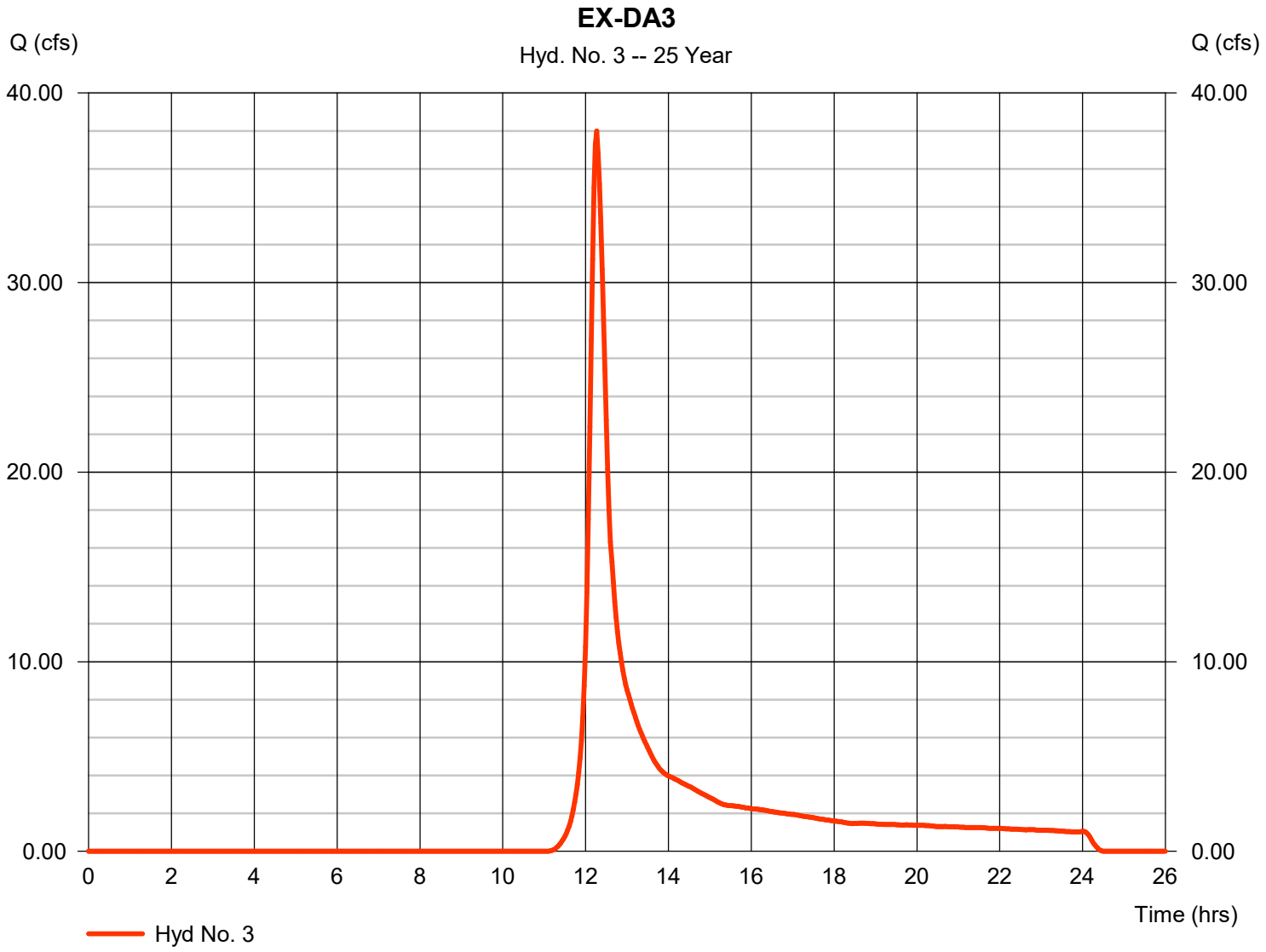
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.99 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	165,848 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

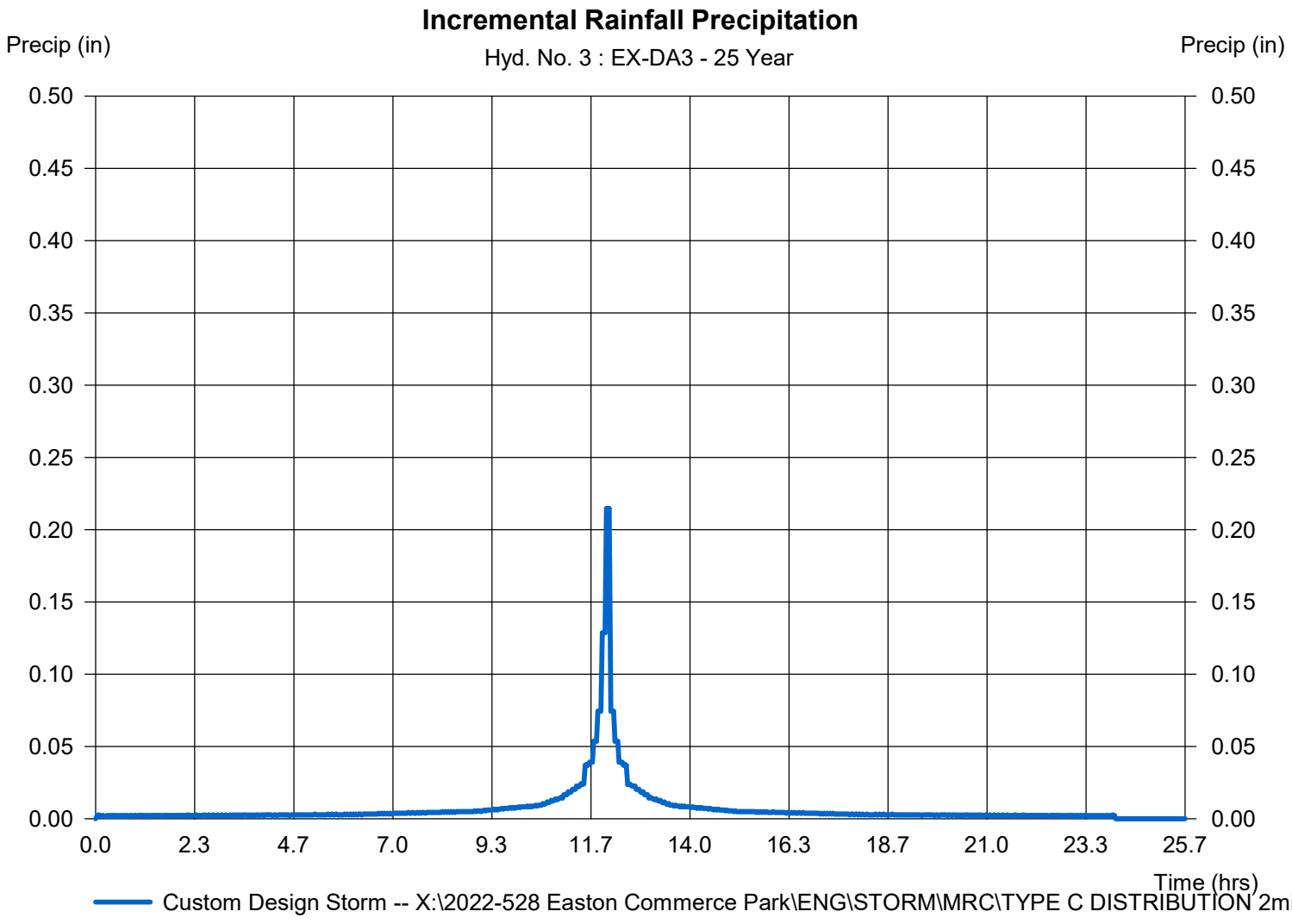


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



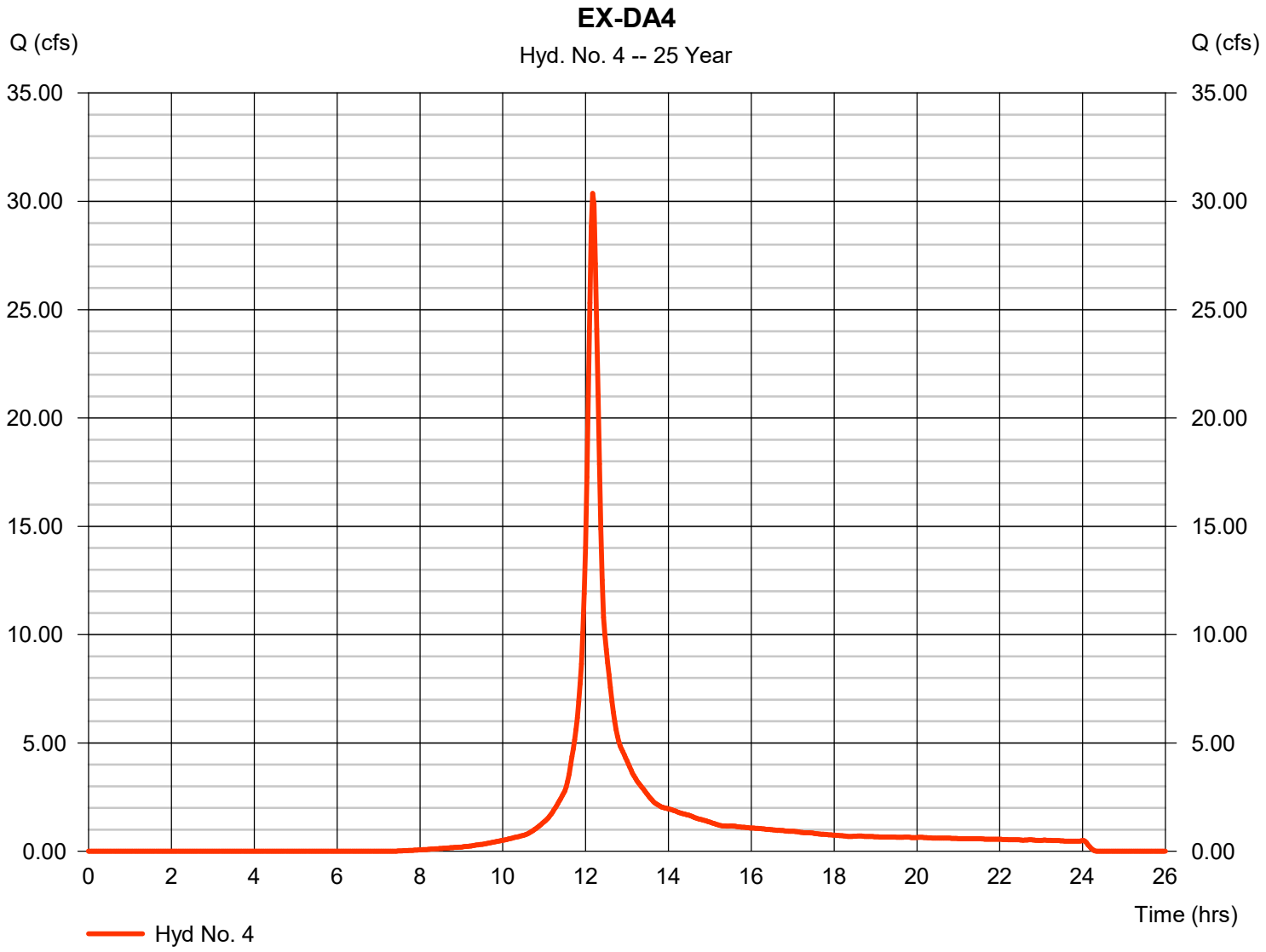
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.36 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	106,054 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

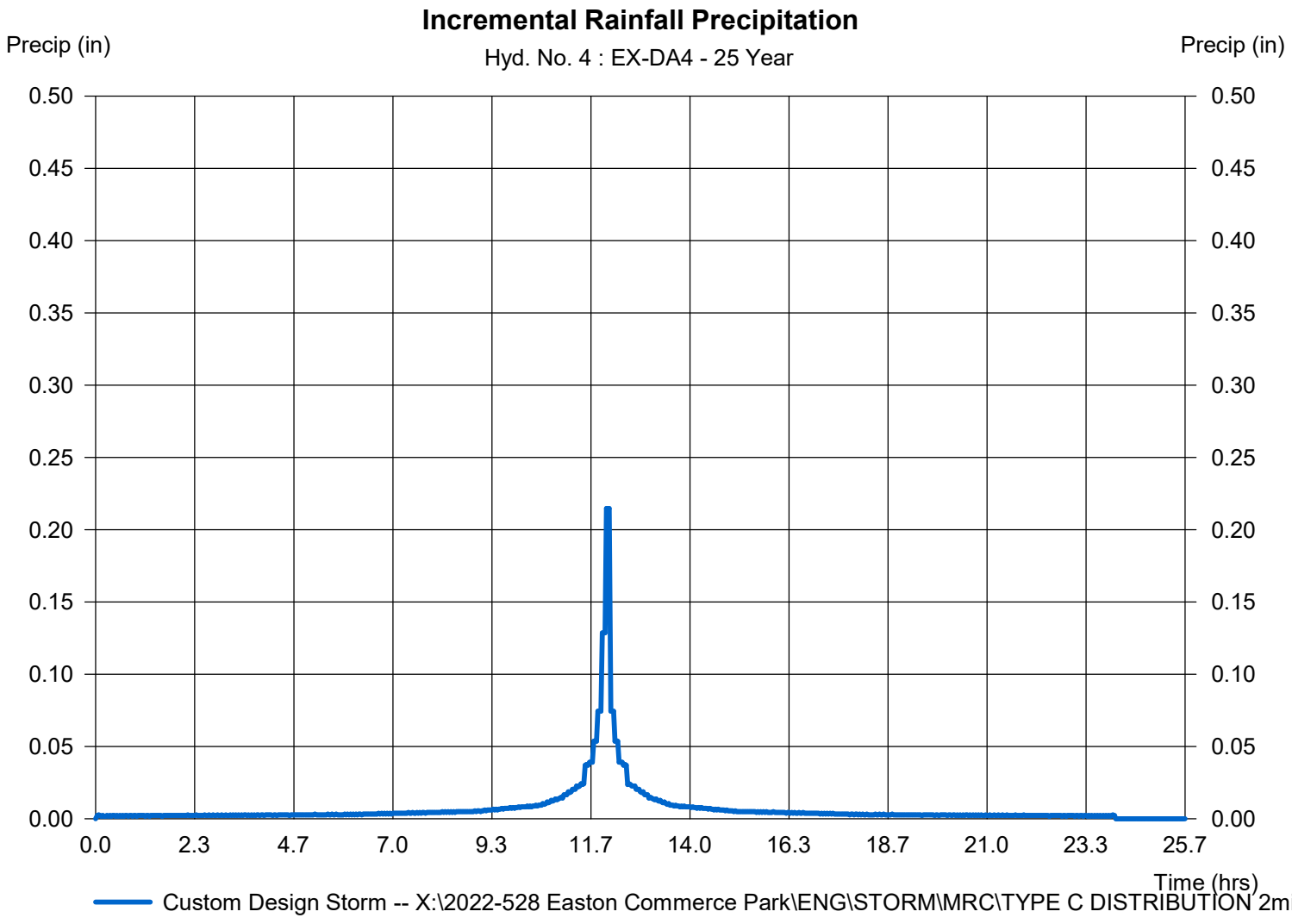


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



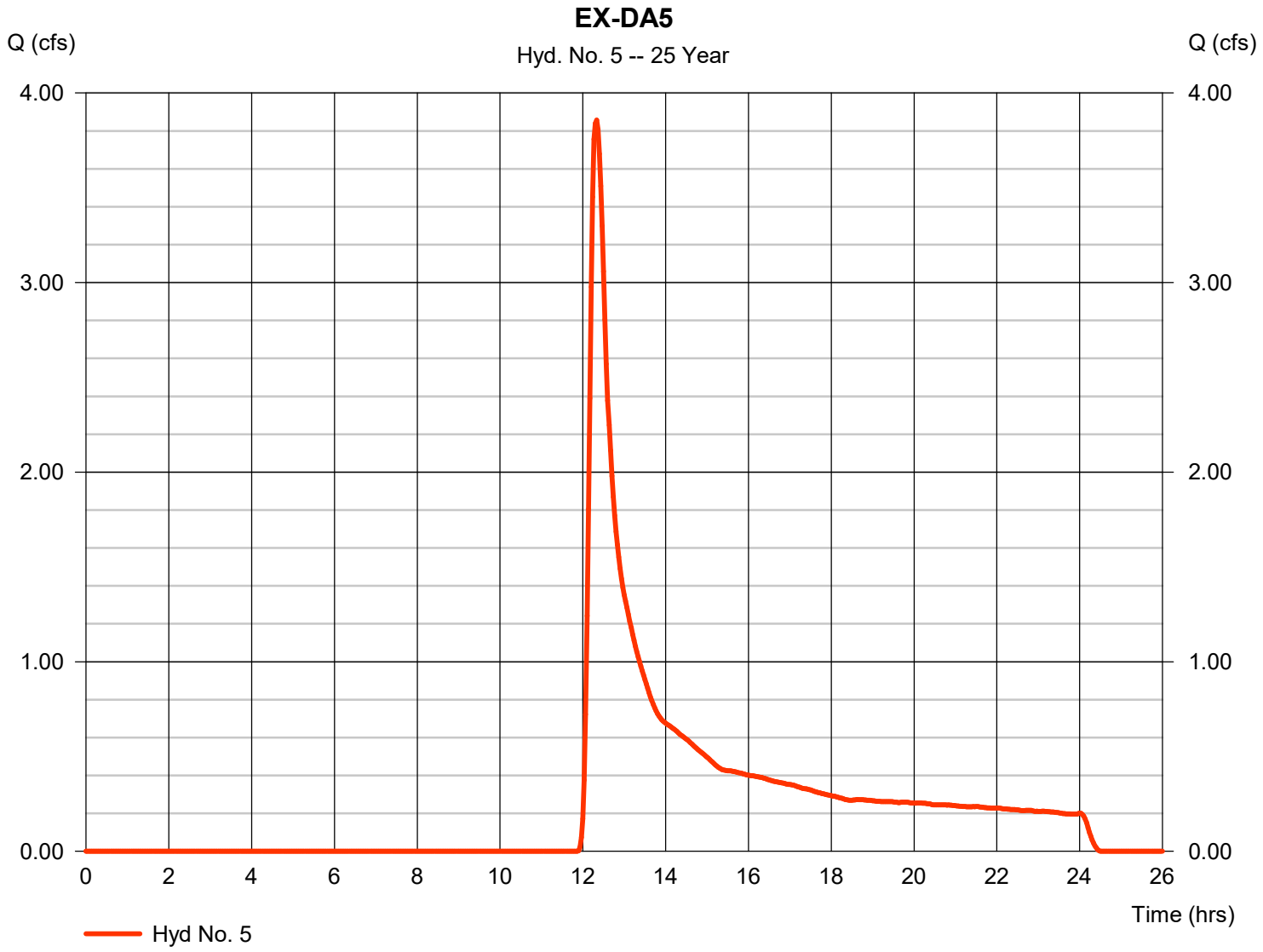
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.858 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	23,277 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24 TYPE C DISTRIBUTION.hcm			

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

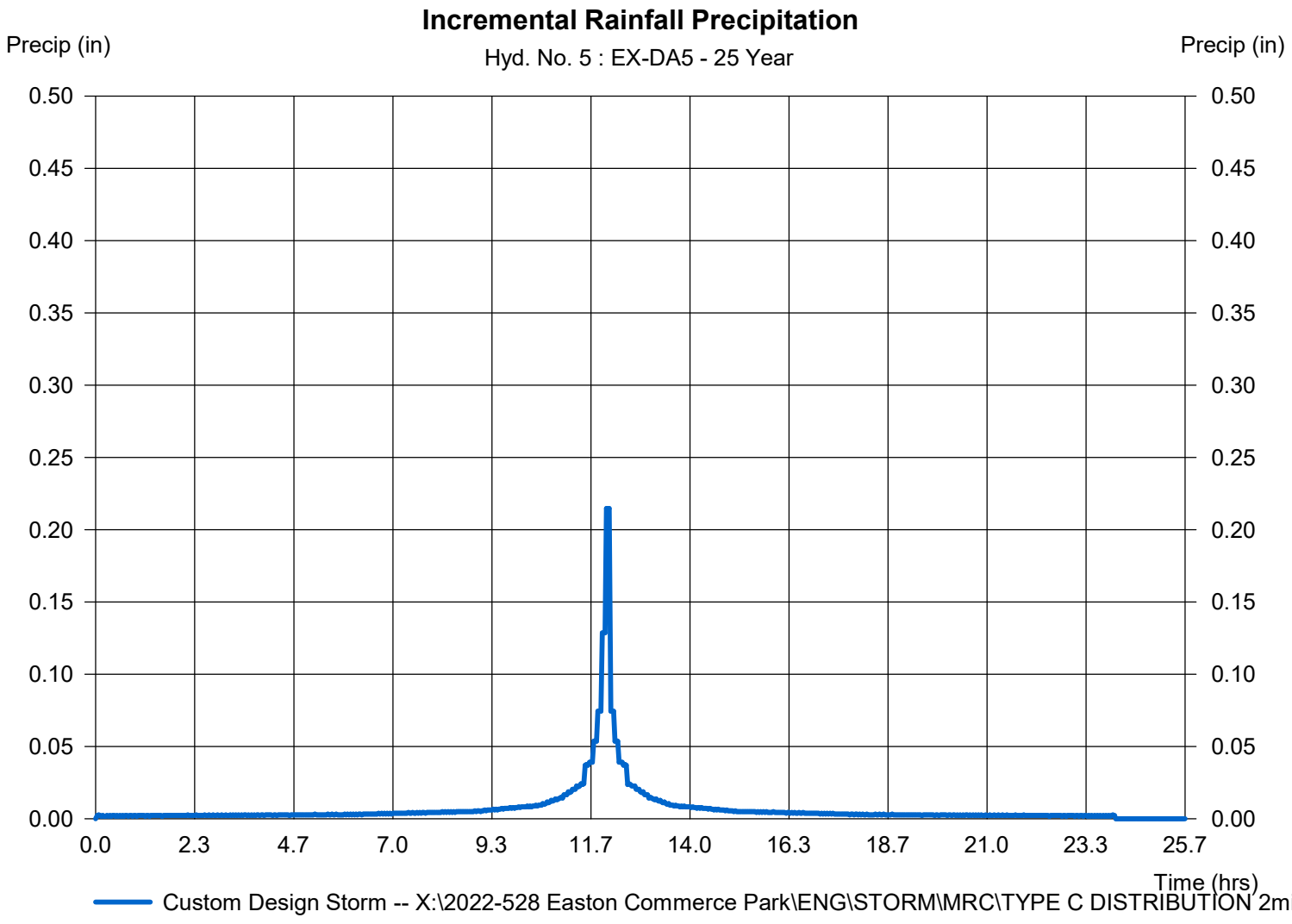


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



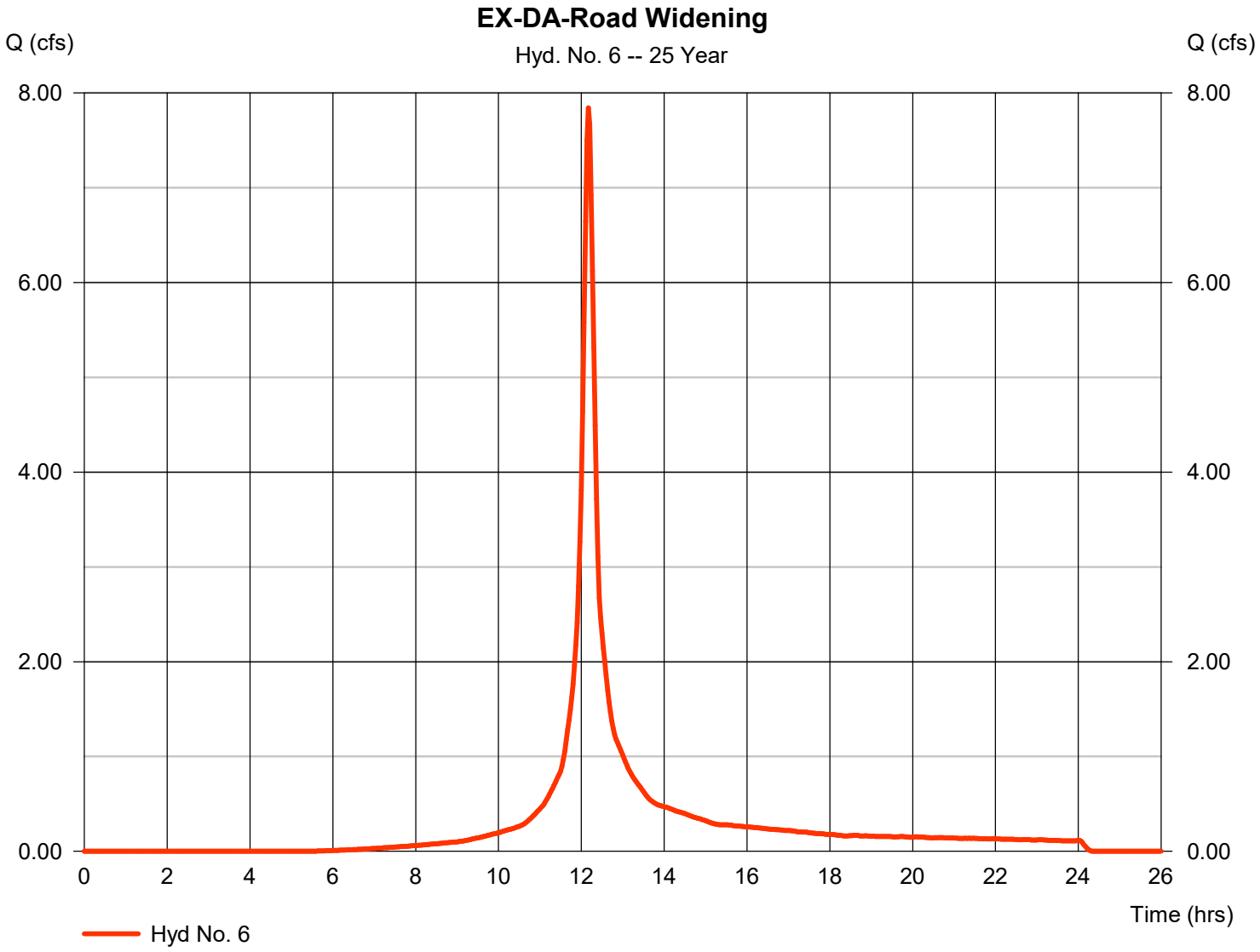
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.843 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	27,790 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

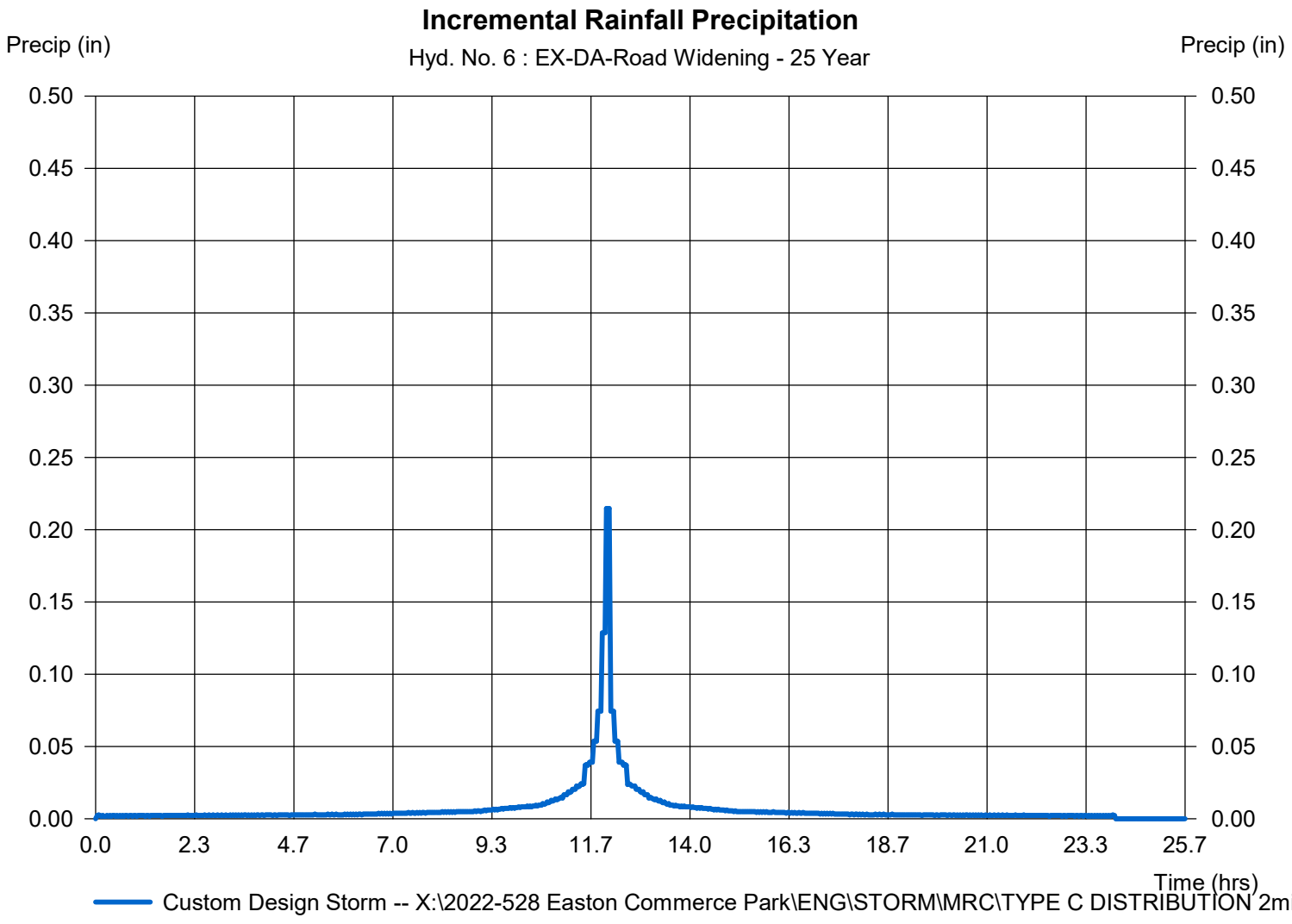


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

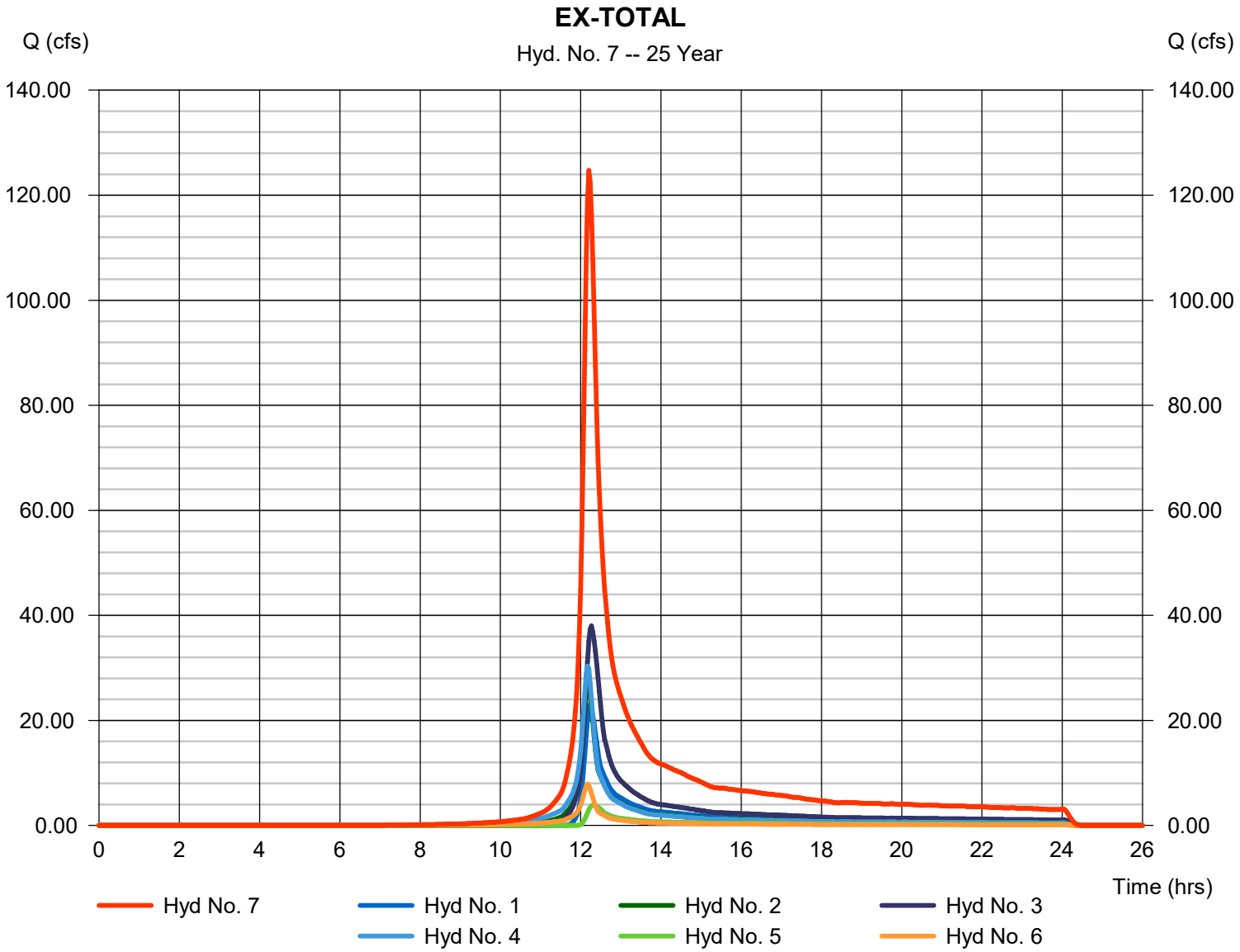


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	124.75 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	518,086 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



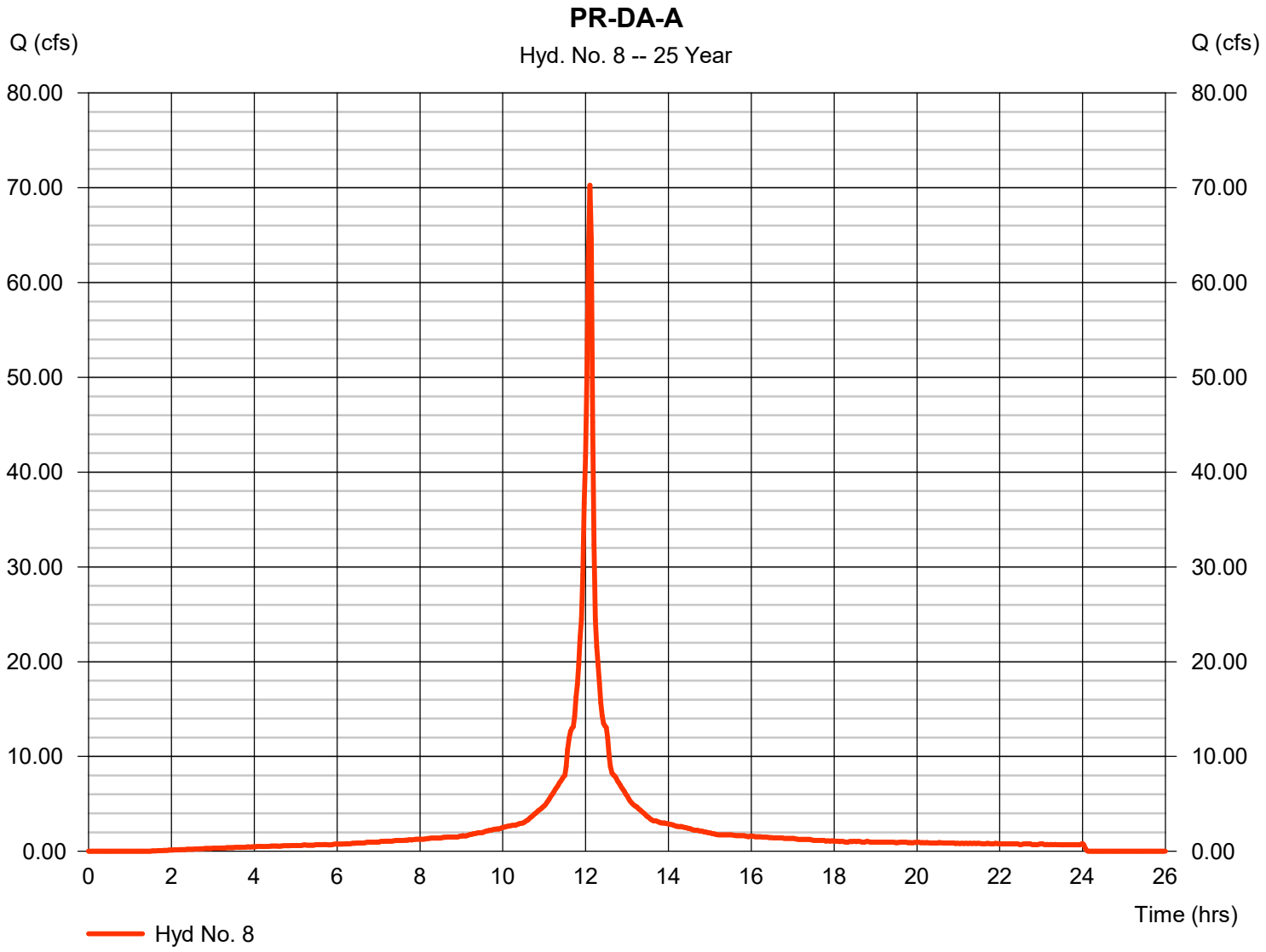
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	70.28 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	213,089 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION.cst			

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

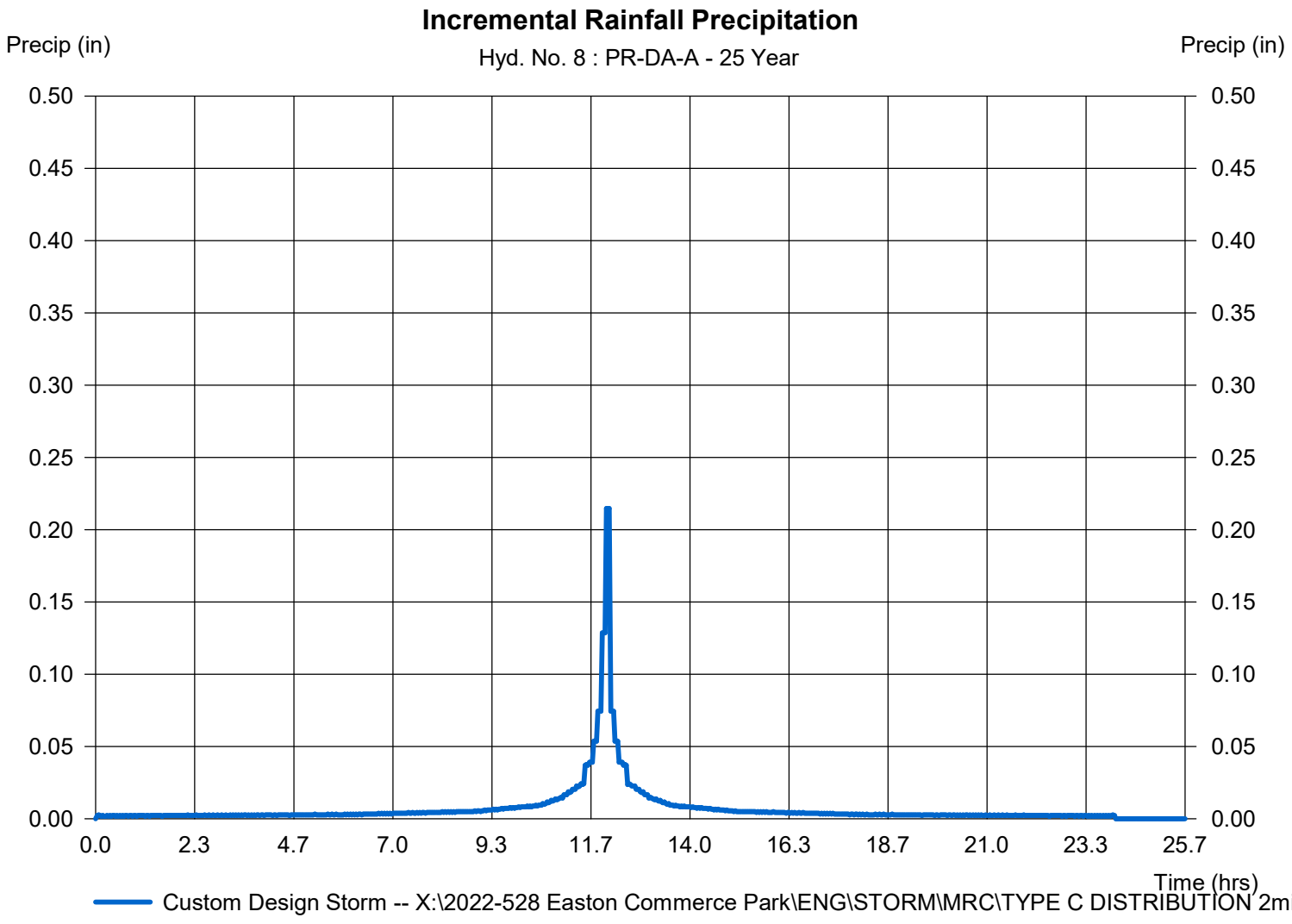


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



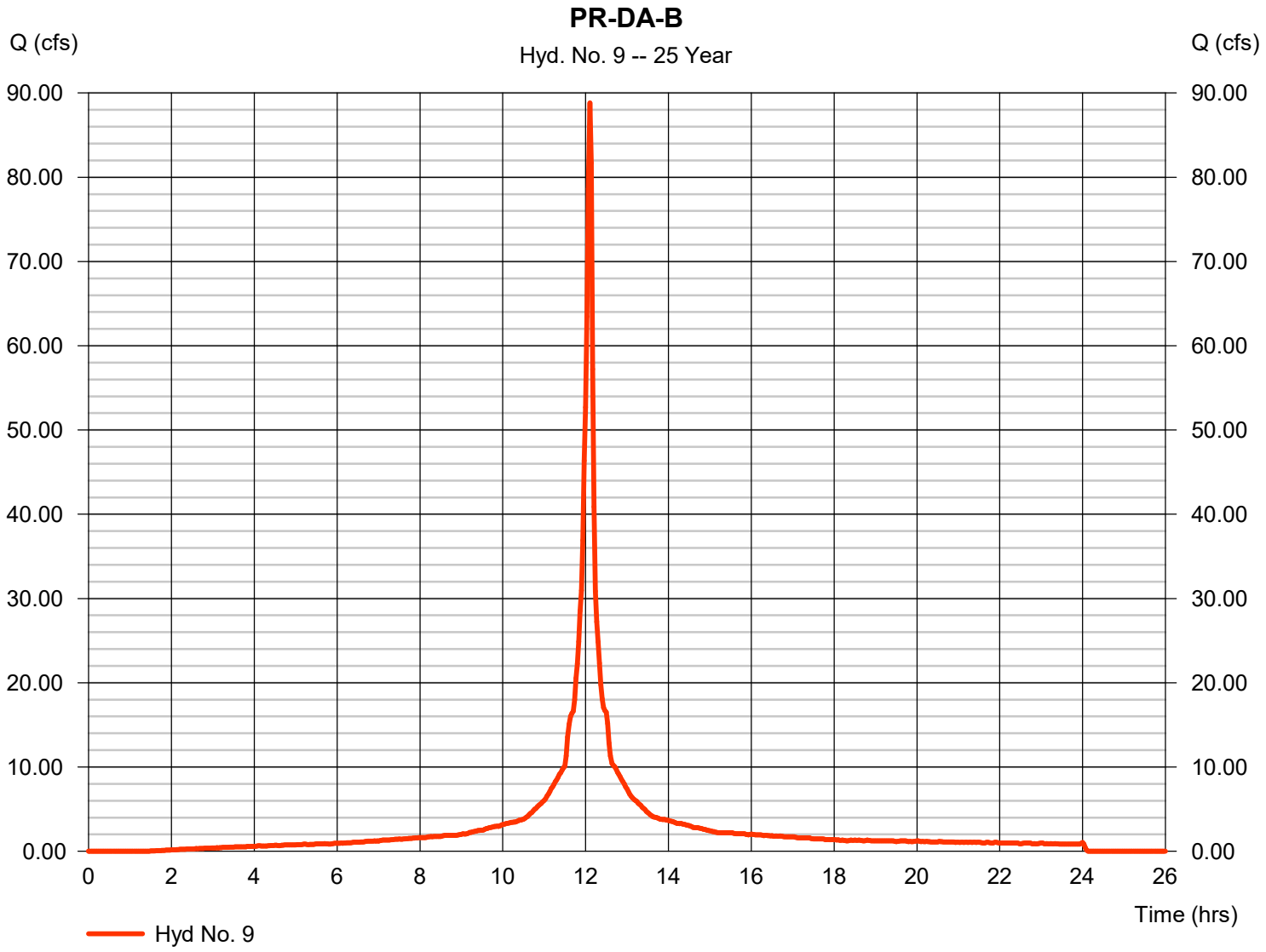
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	88.81 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	269,283 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION.cas			

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

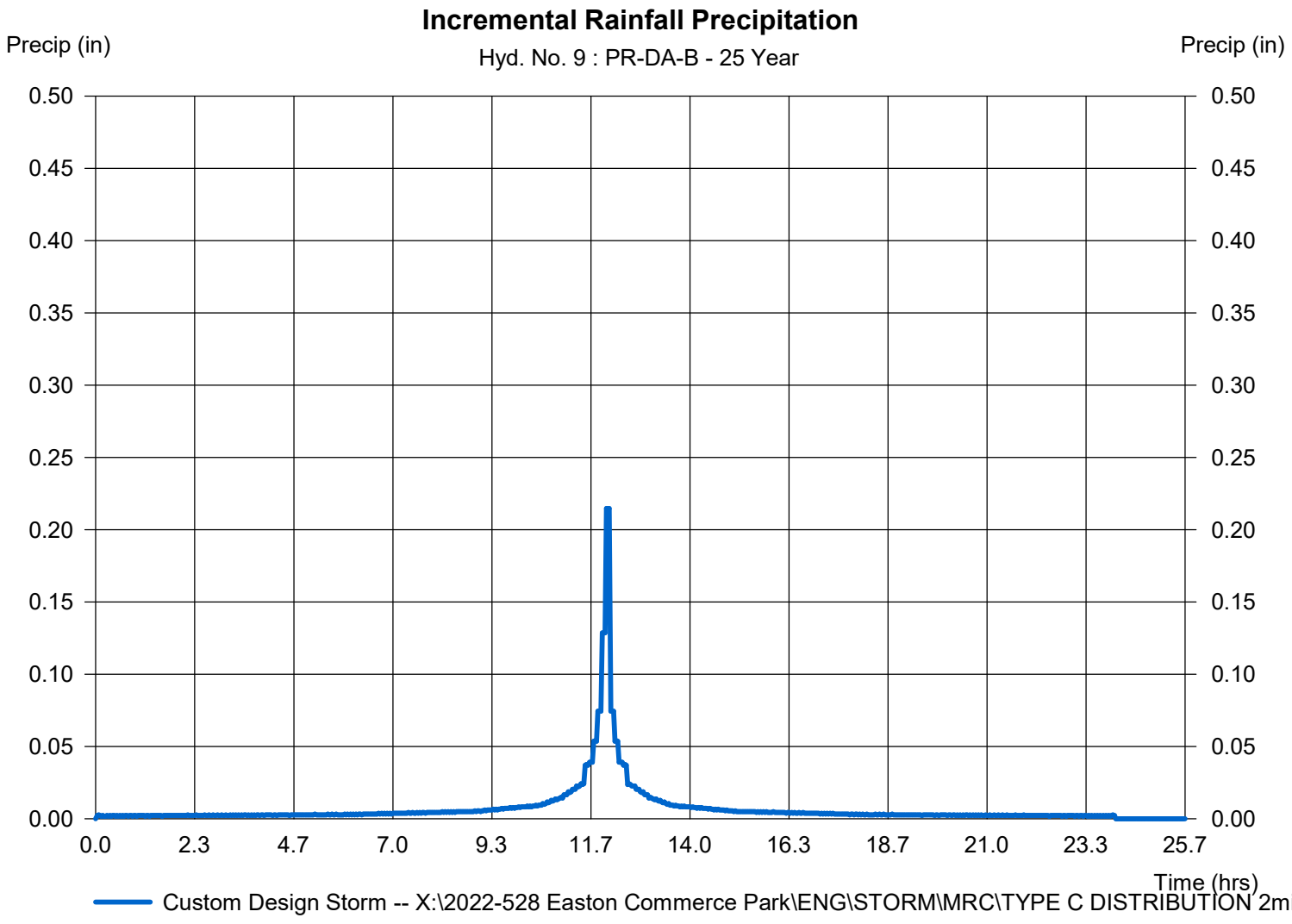


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



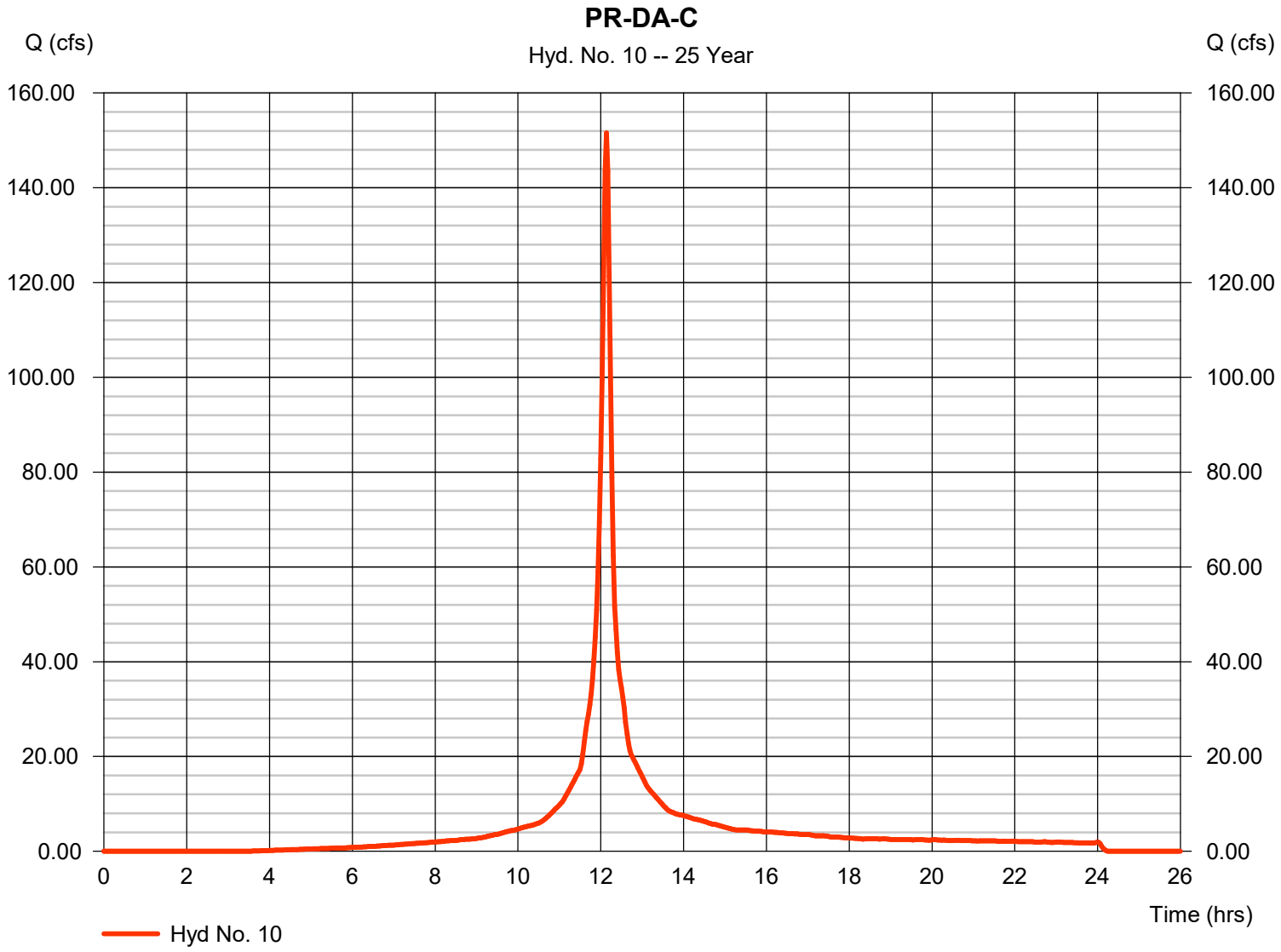
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	151.55 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	493,597 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

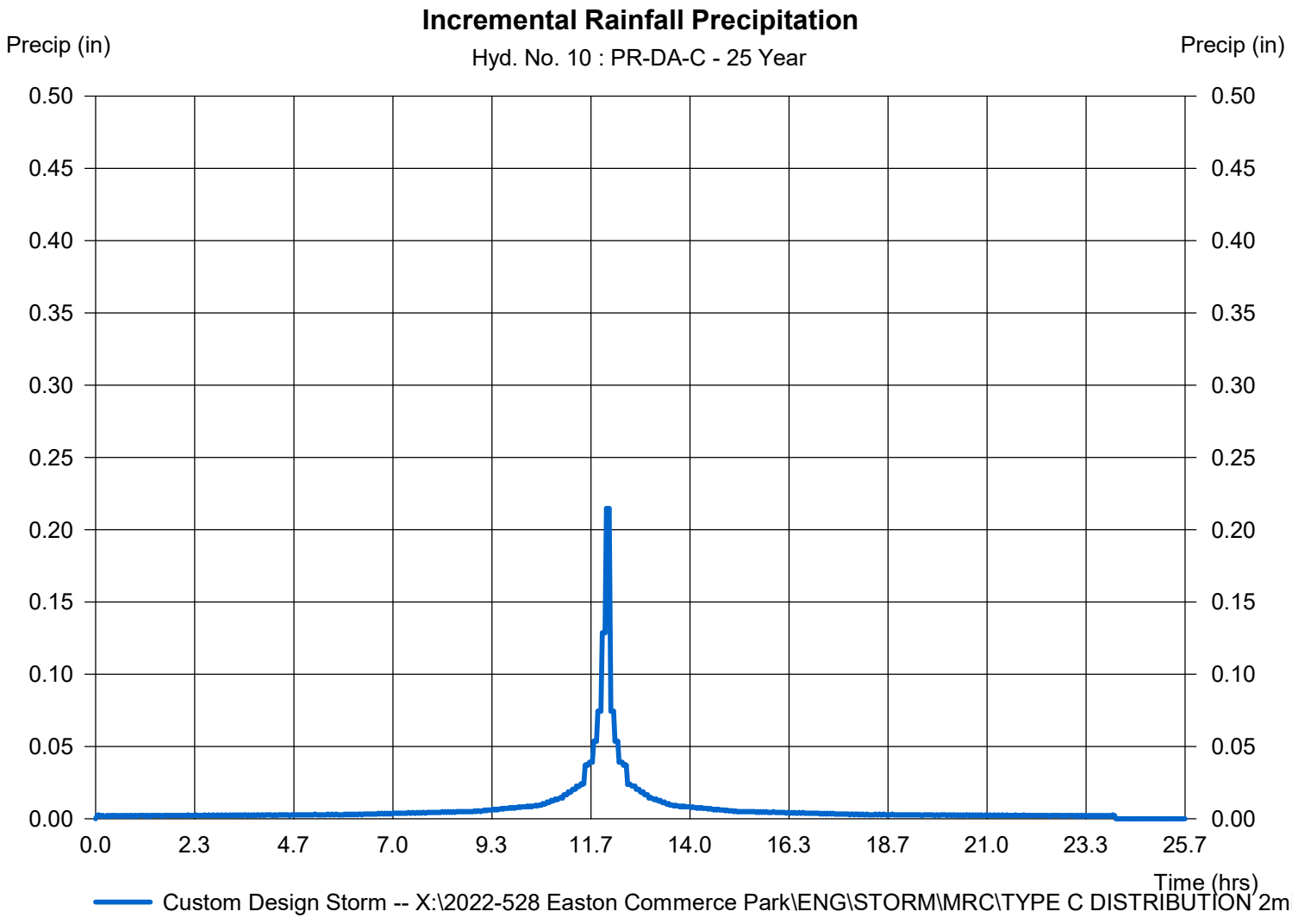


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



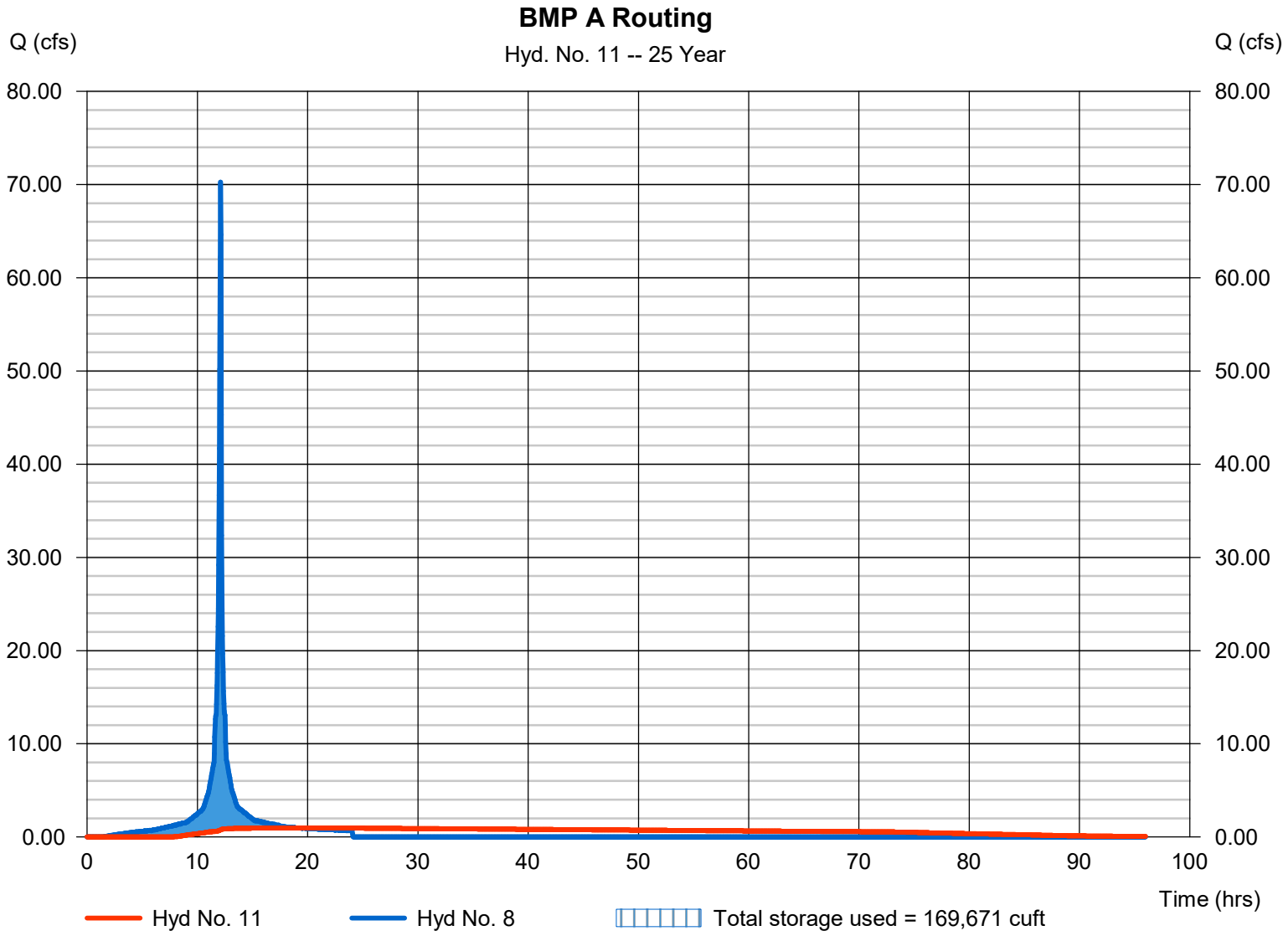
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.955 cfs
Storm frequency	=	25 yrs	Time to peak	=	19.43 hrs
Time interval	=	2 min	Hyd. volume	=	198,198 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.60 ft
Reservoir name	=	BMP A	Max. Storage	=	169,671 cuft

Storage Indication method used.



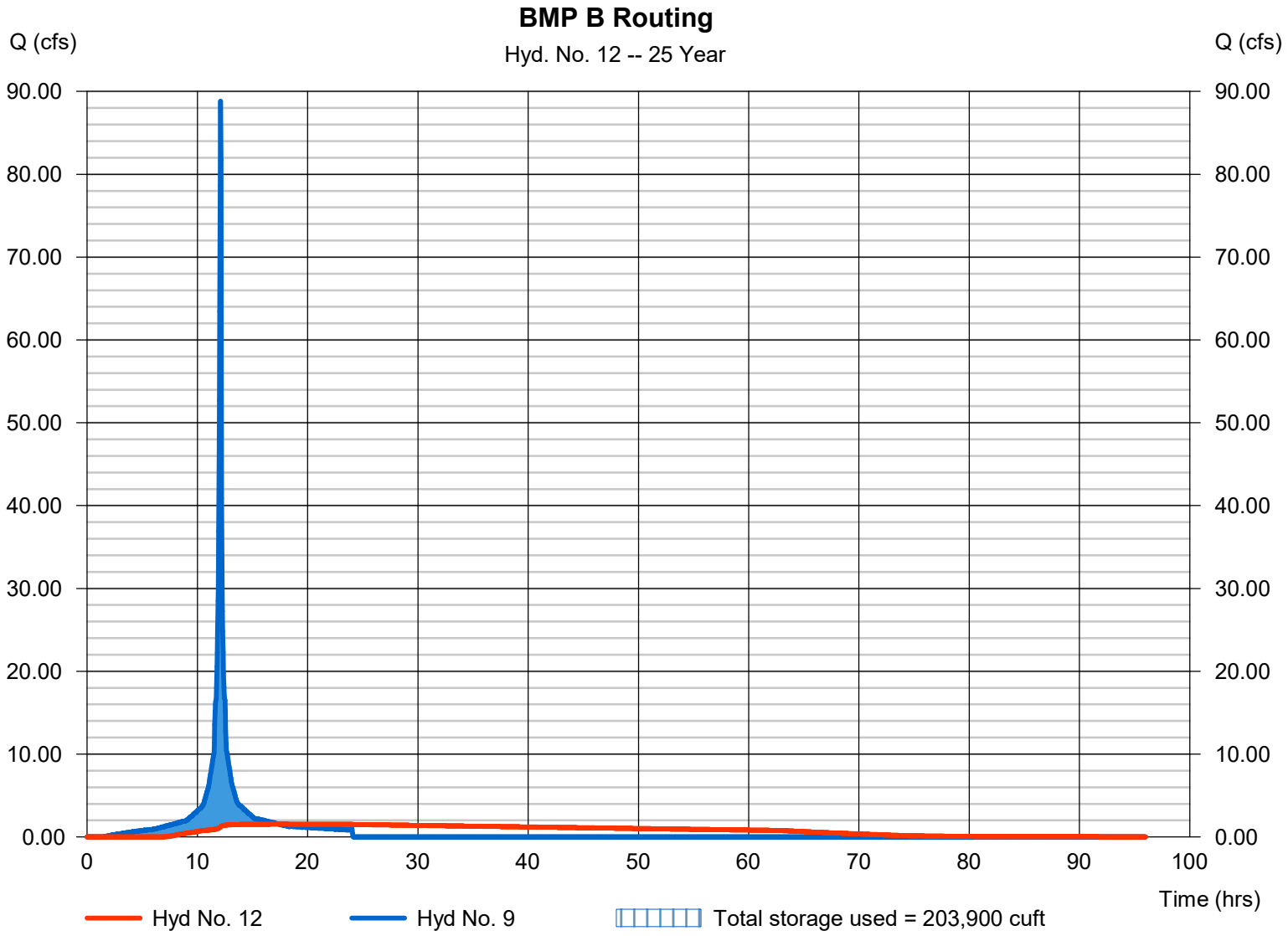
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.543 cfs
Storm frequency	=	25 yrs	Time to peak	=	17.43 hrs
Time interval	=	2 min	Hyd. volume	=	256,932 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.07 ft
Reservoir name	=	BMP B	Max. Storage	=	203,900 cuft

Storage Indication method used.



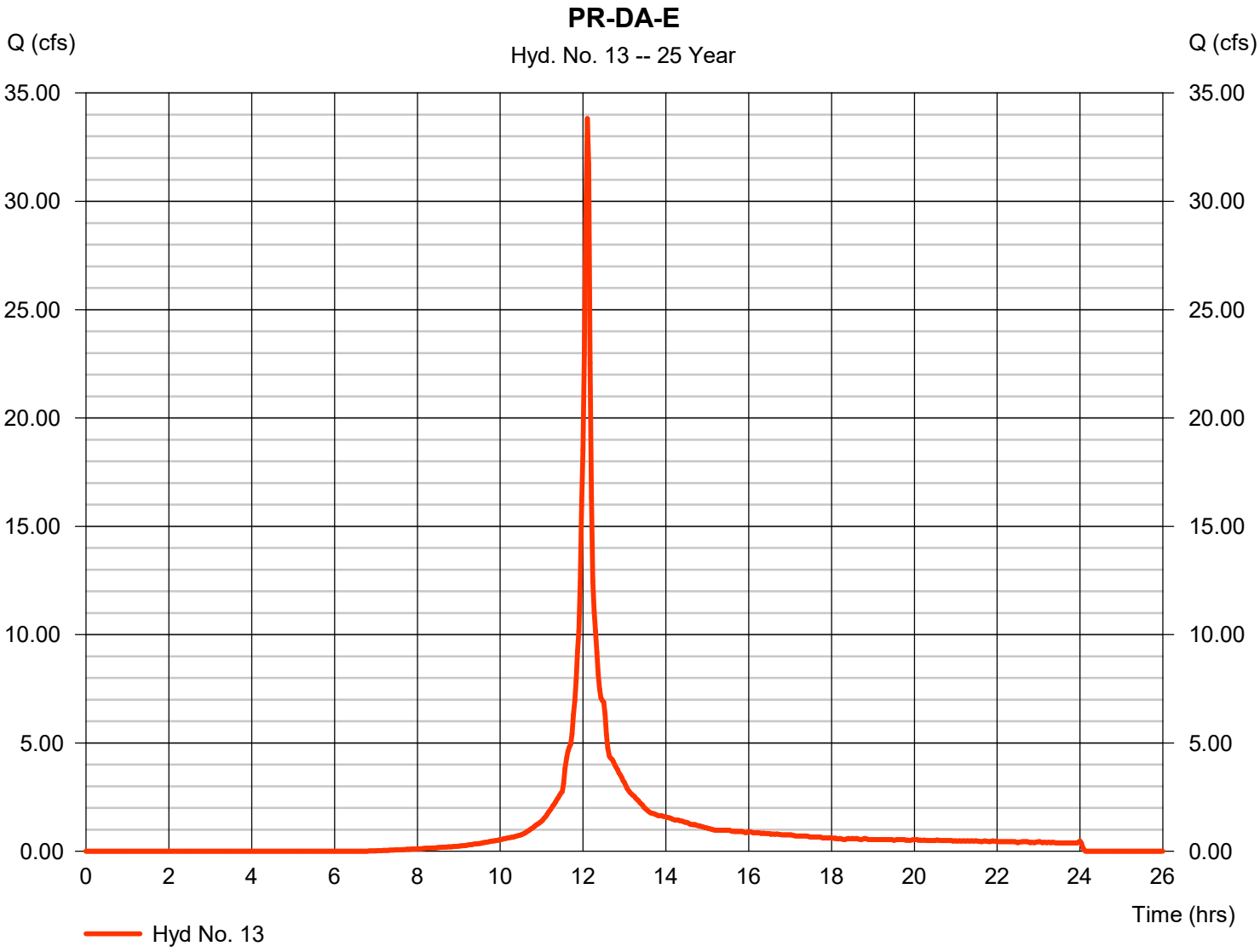
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.82 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	90,550 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

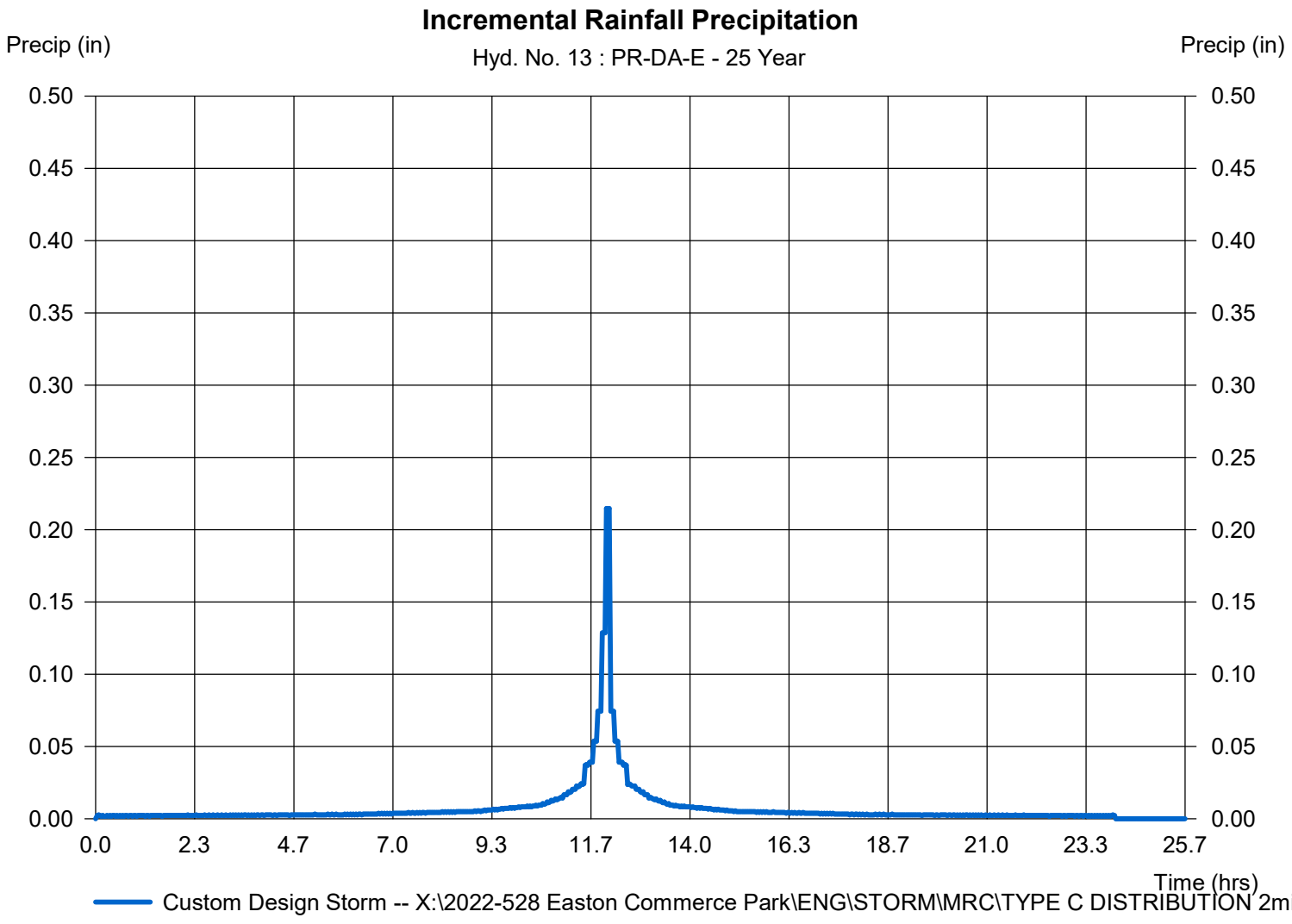


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



Hydrograph Report

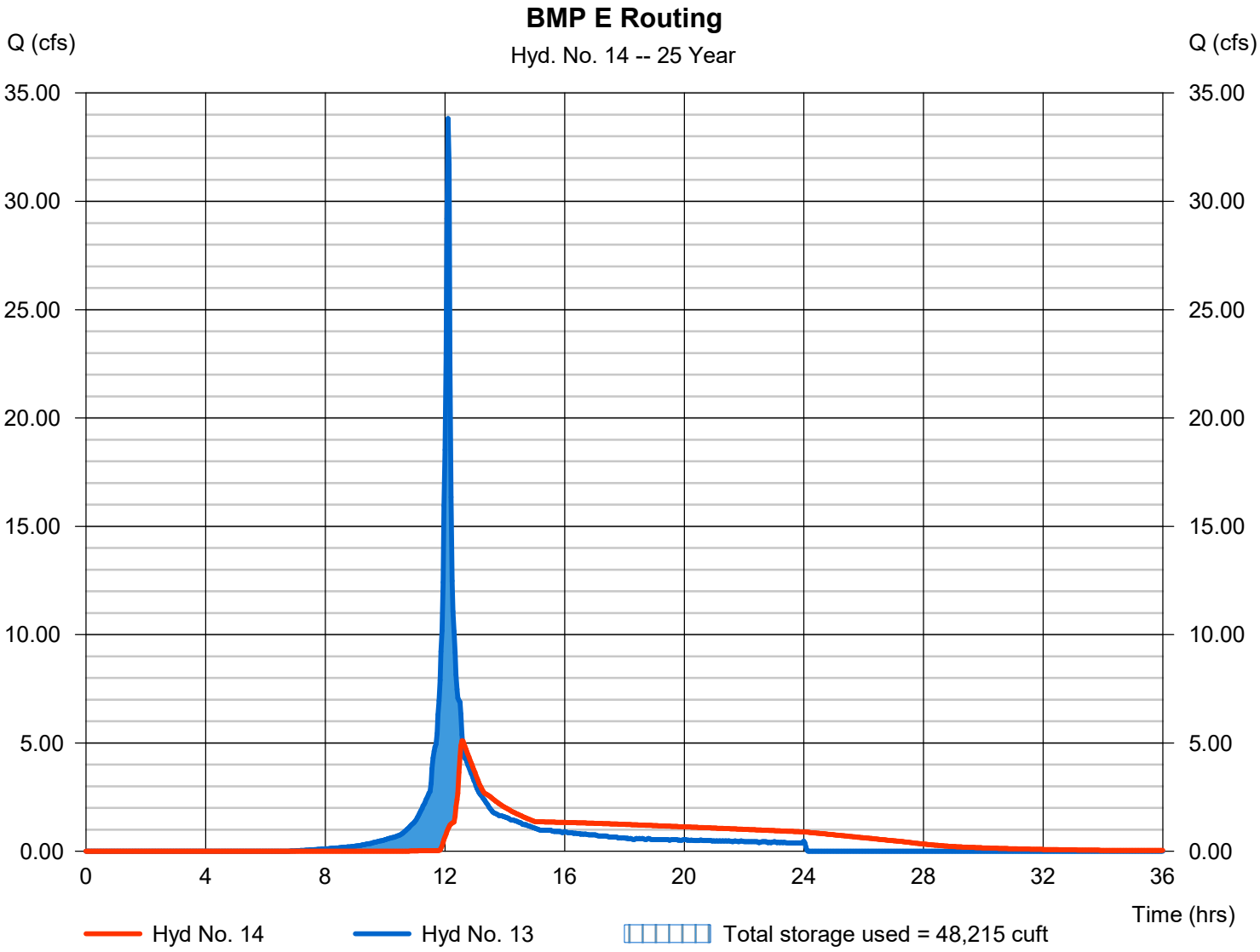
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	5.093 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.57 hrs
Time interval	=	2 min	Hyd. volume	=	82,737 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.69 ft
Reservoir name	=	BMP E	Max. Storage	=	48,215 cuft

Storage Indication method used.

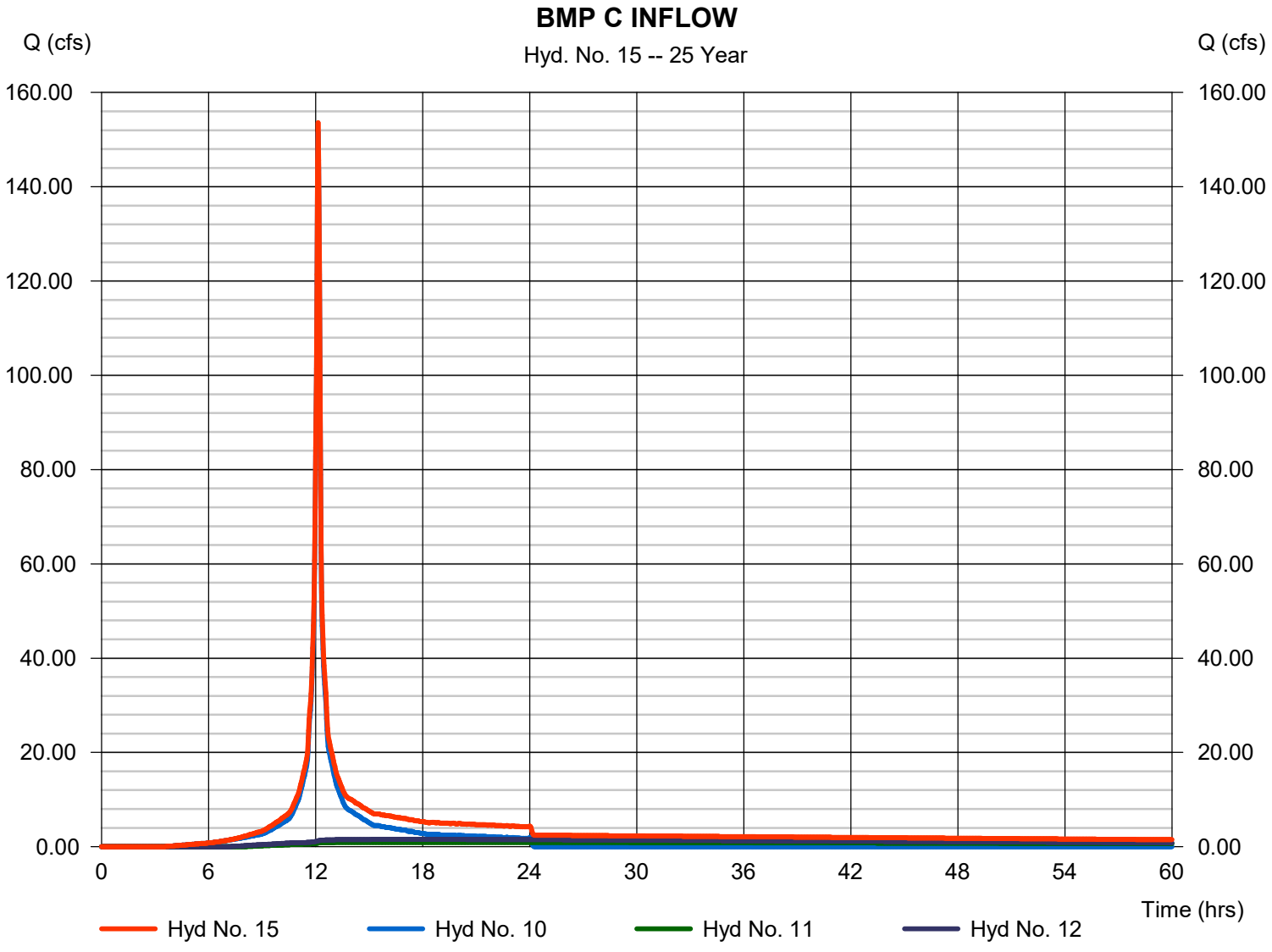


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	= Combine	Peak discharge	= 153.60 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 948,727 cuft
Inflow hyds.	= 10, 11, 12	Contrib. drain. area	= 31.050 ac



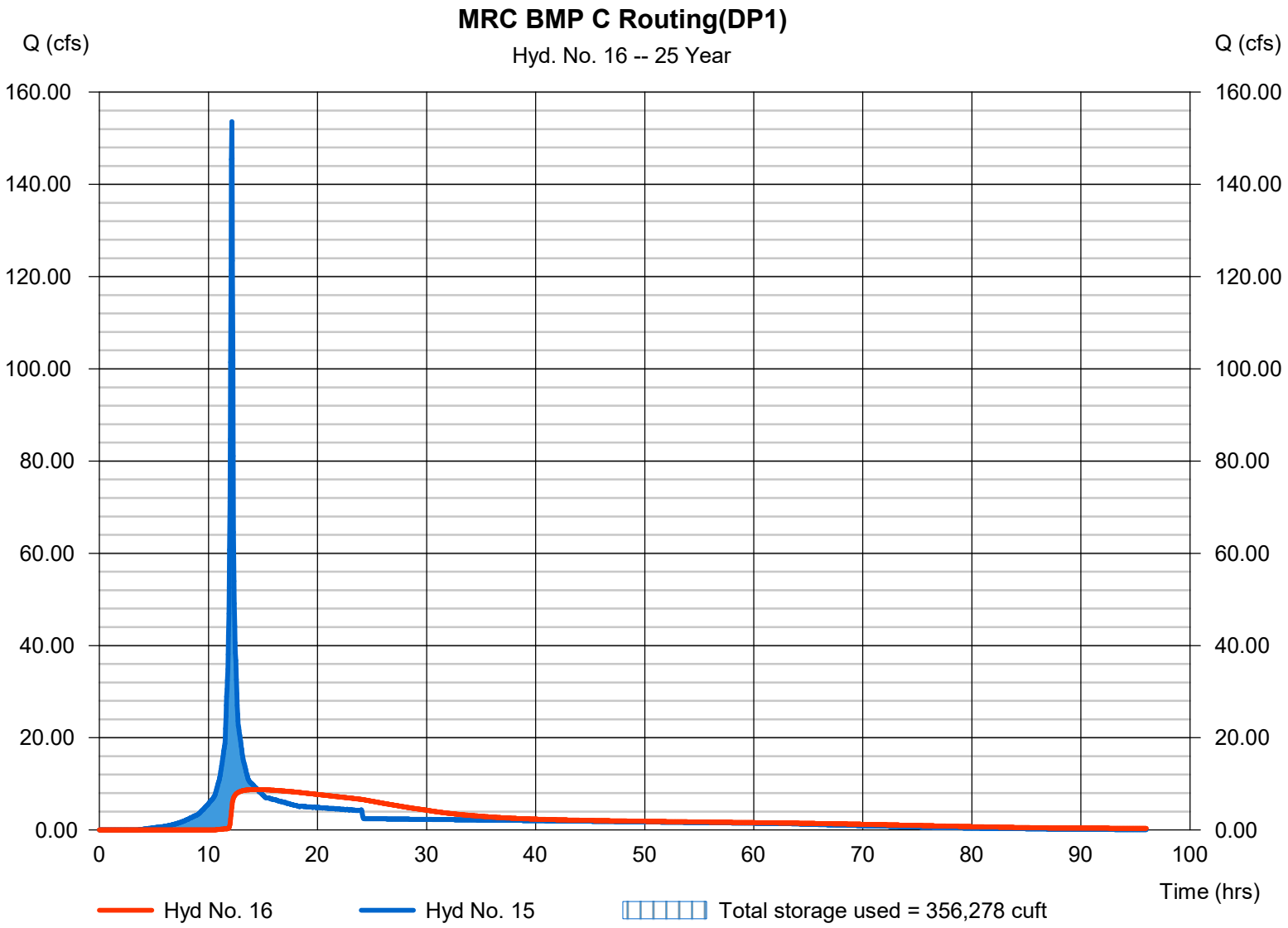
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	8.771 cfs
Storm frequency	=	25 yrs	Time to peak	=	14.50 hrs
Time interval	=	2 min	Hyd. volume	=	821,259 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	218.21 ft
Reservoir name	=	BMP C	Max. Storage	=	356,278 cuft

Storage Indication method used.



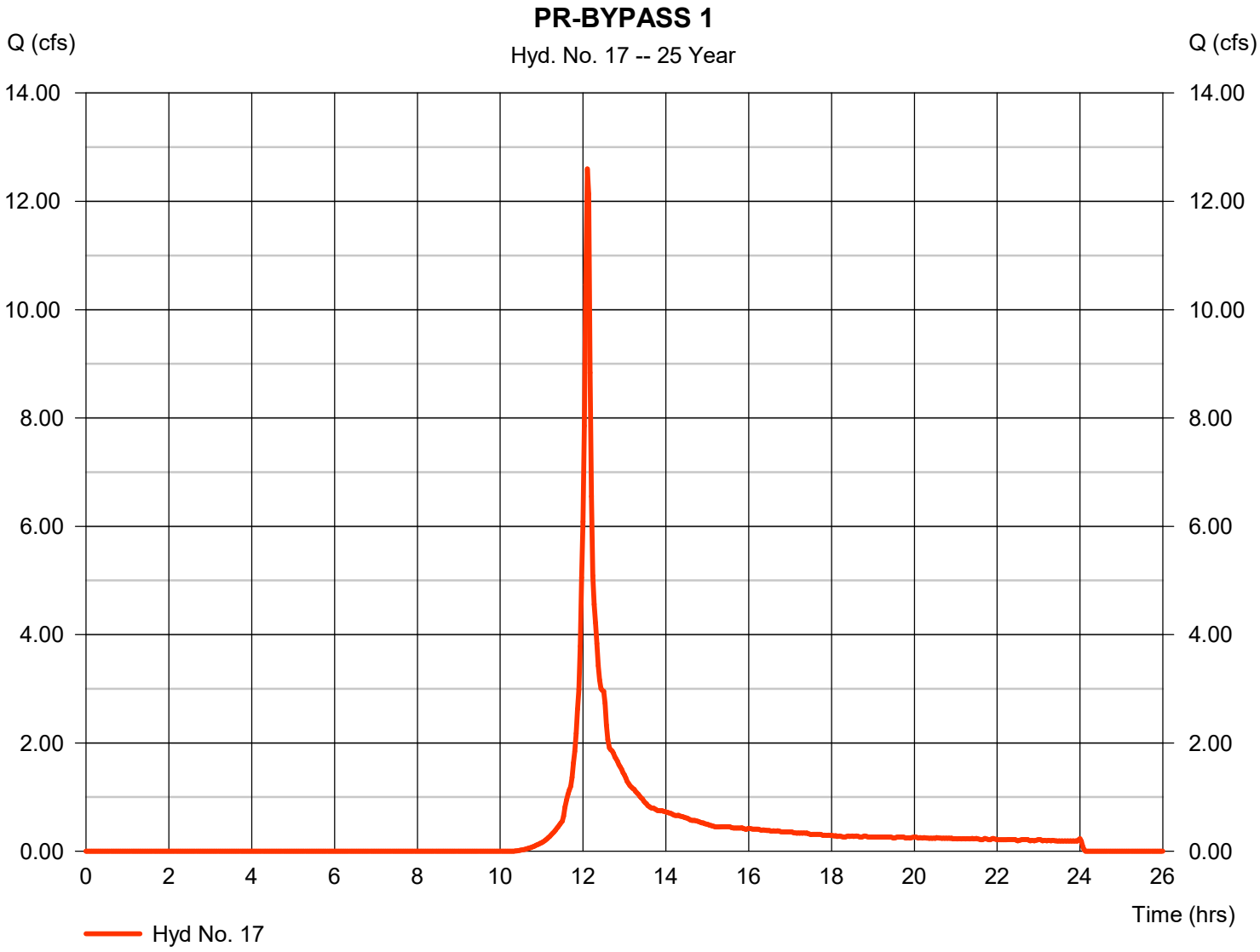
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.60 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	33,838 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO	Storm duration	=	24

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

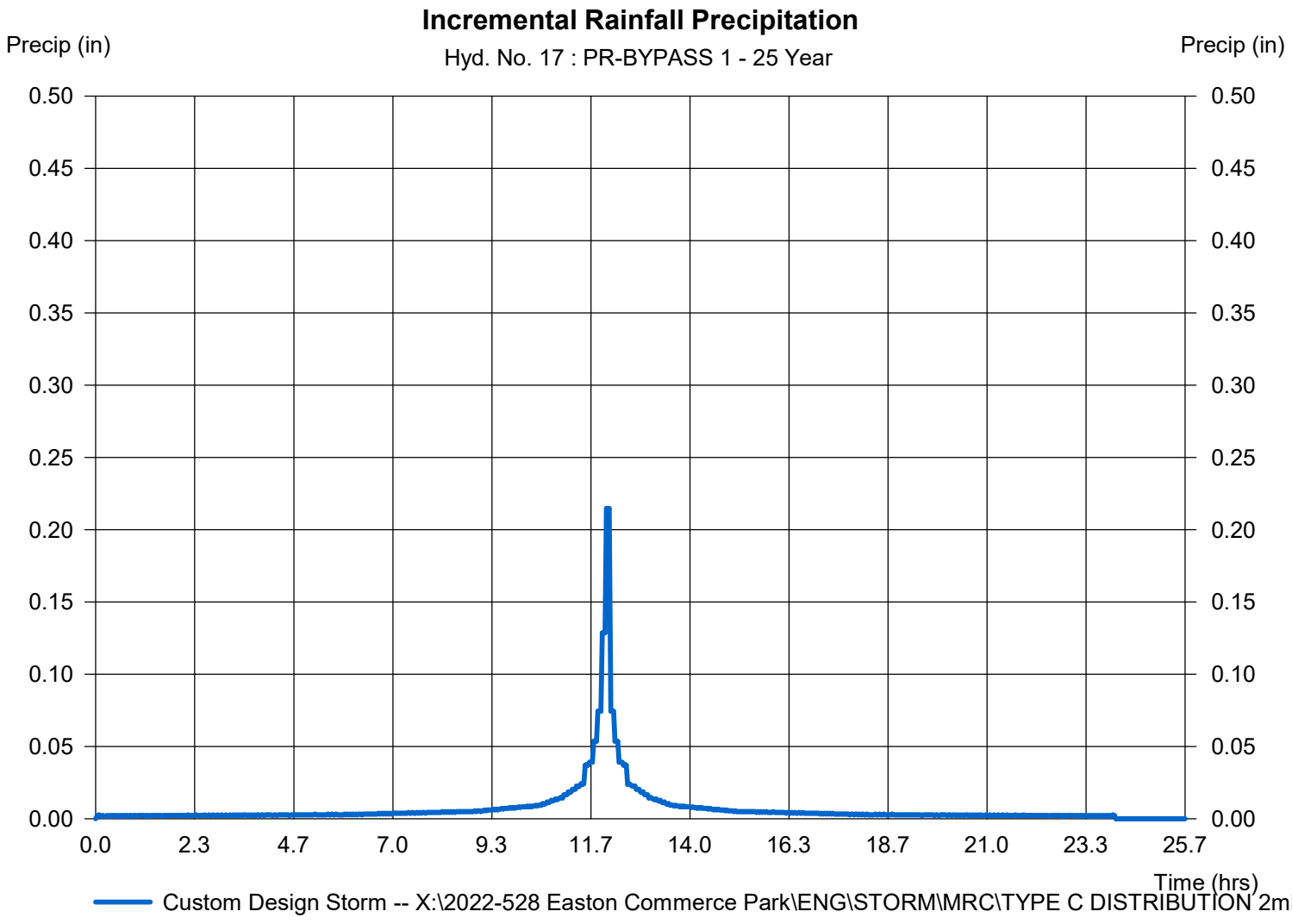


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



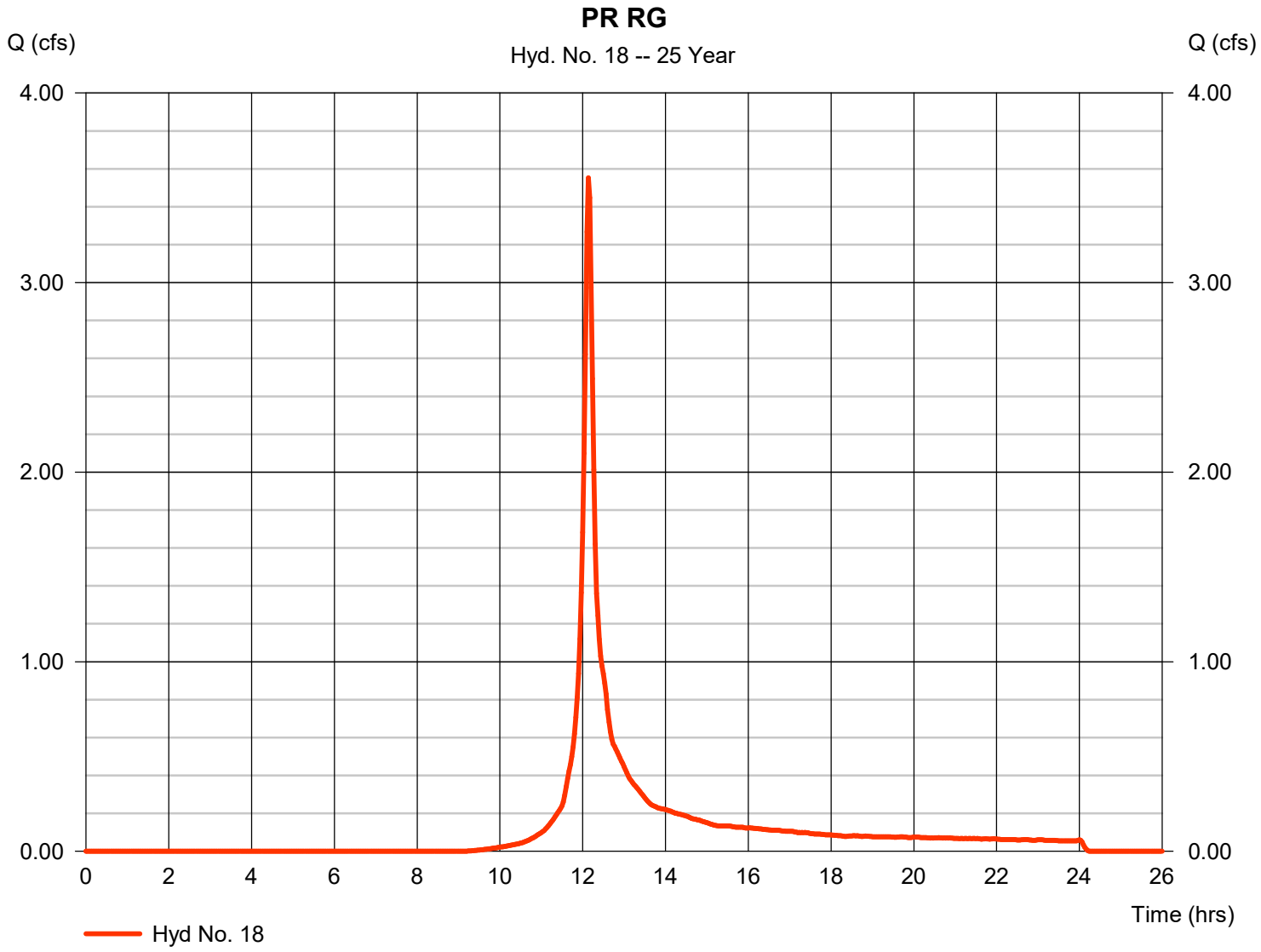
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.553 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	10,964 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24 HR TYPE C DISTRIBUTION			

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

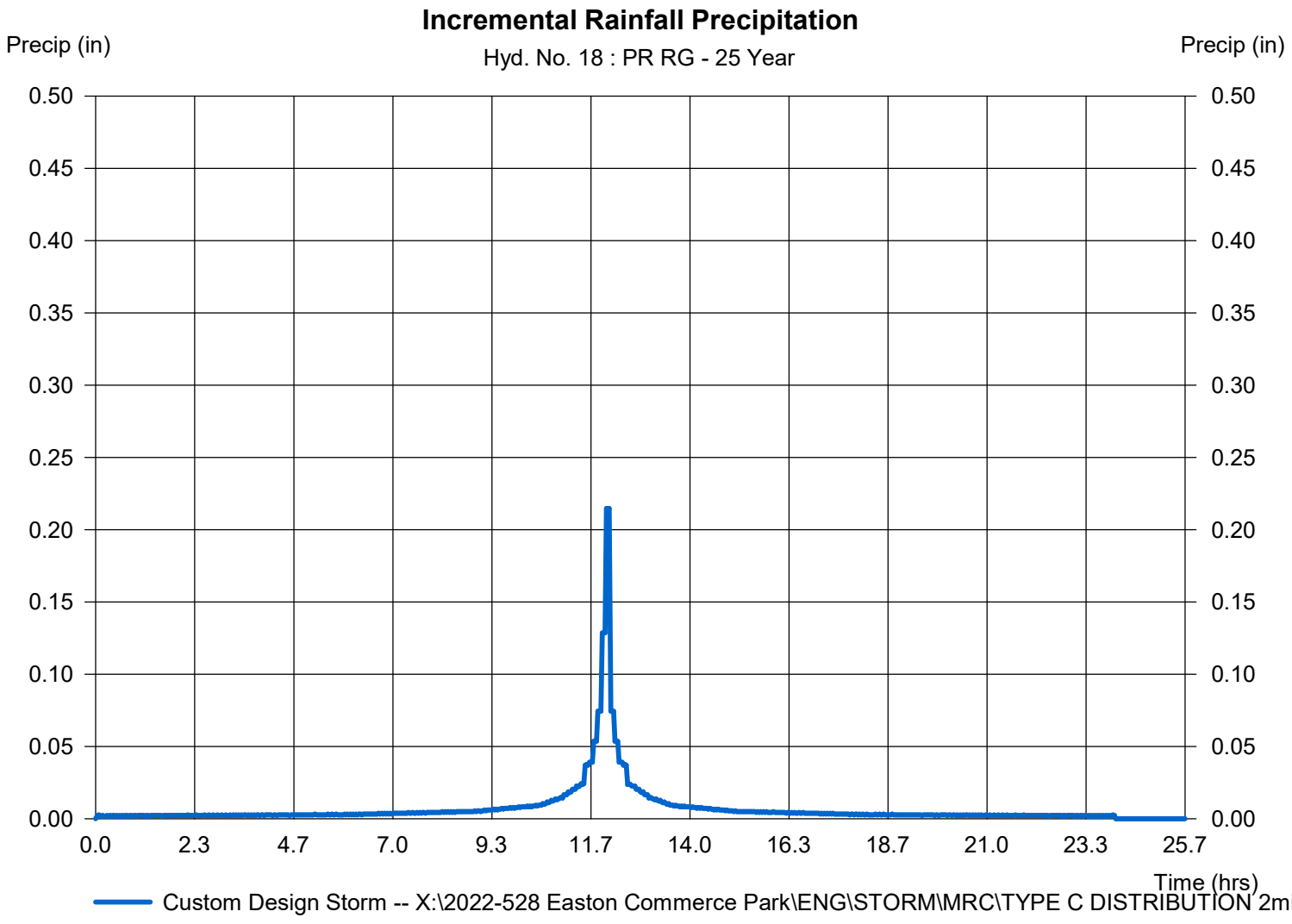


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



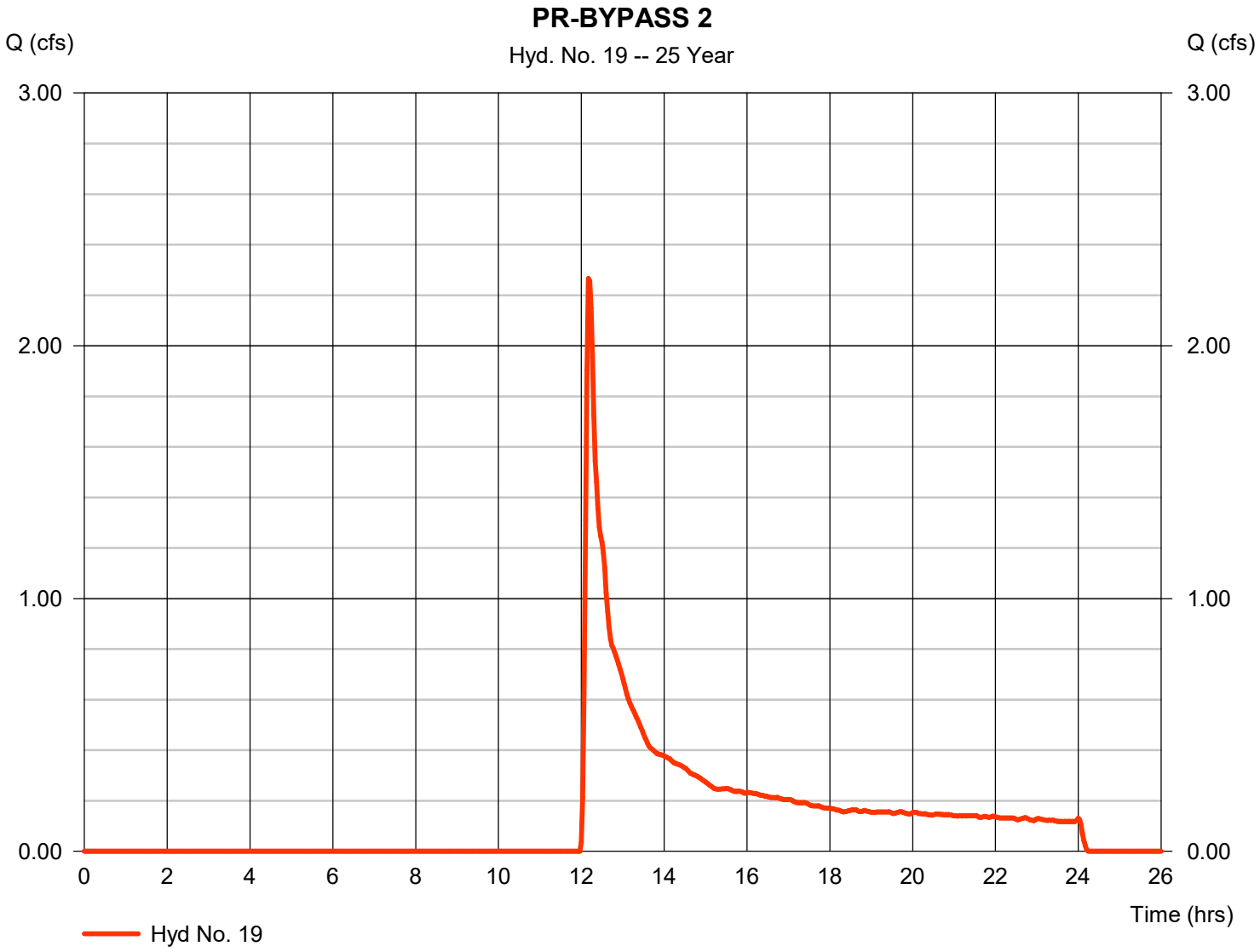
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.267 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	12,564 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	SPark\ENG\STORM\MRC24	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

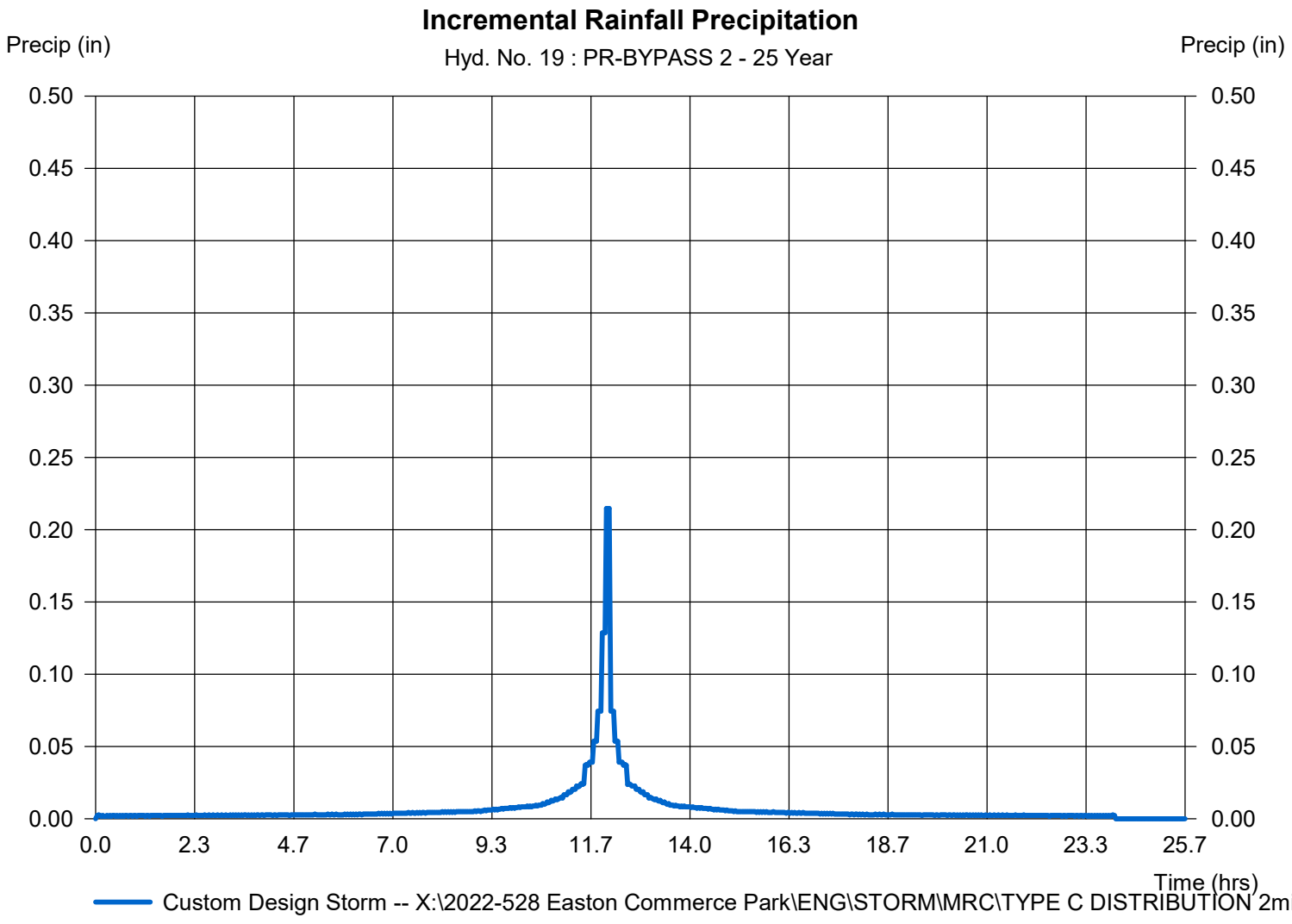


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



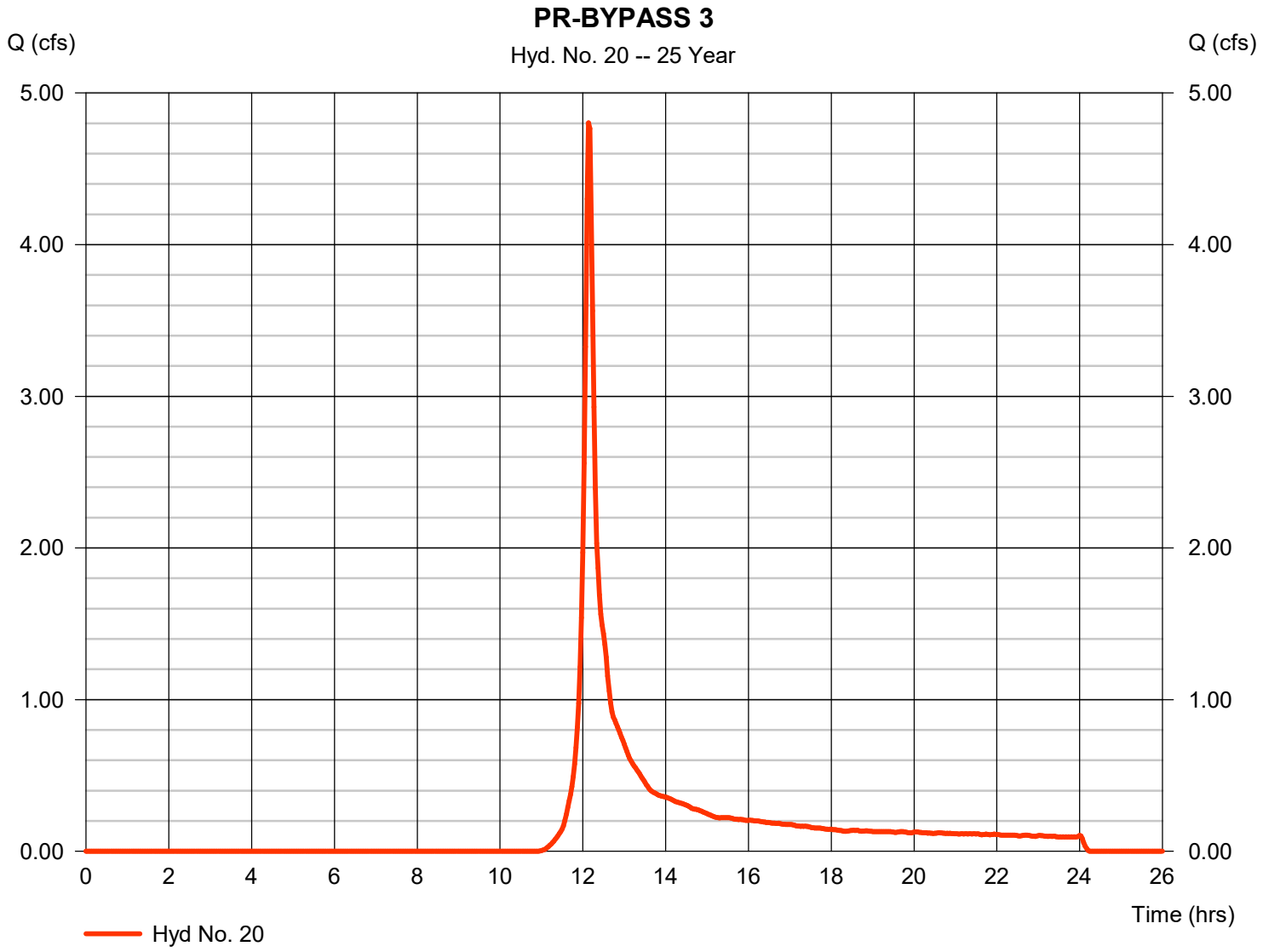
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.803 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	15,535 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

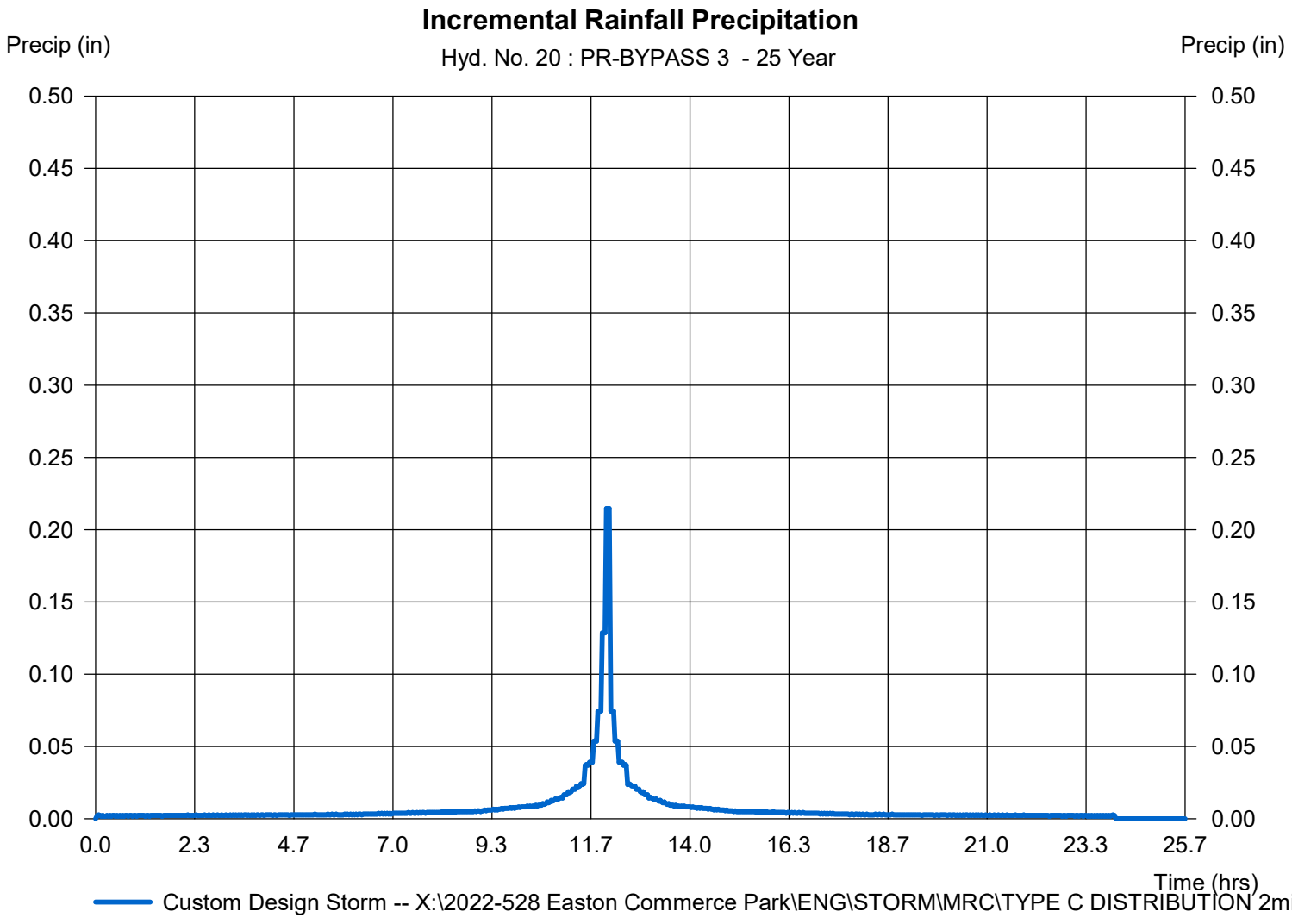


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

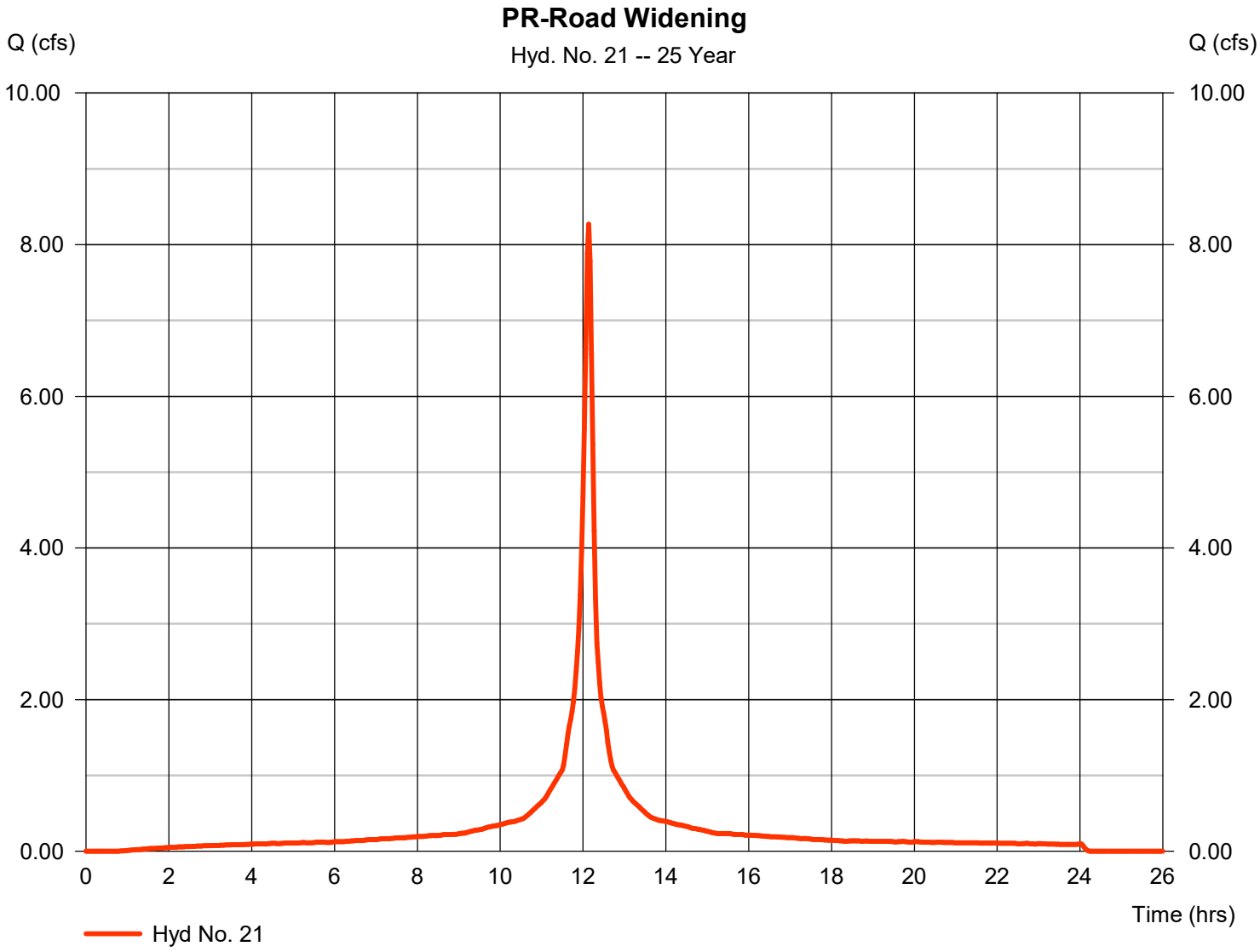


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.270 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	29,722 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	5.52 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24 HR TYPE C DISTRIBUTION.stm			

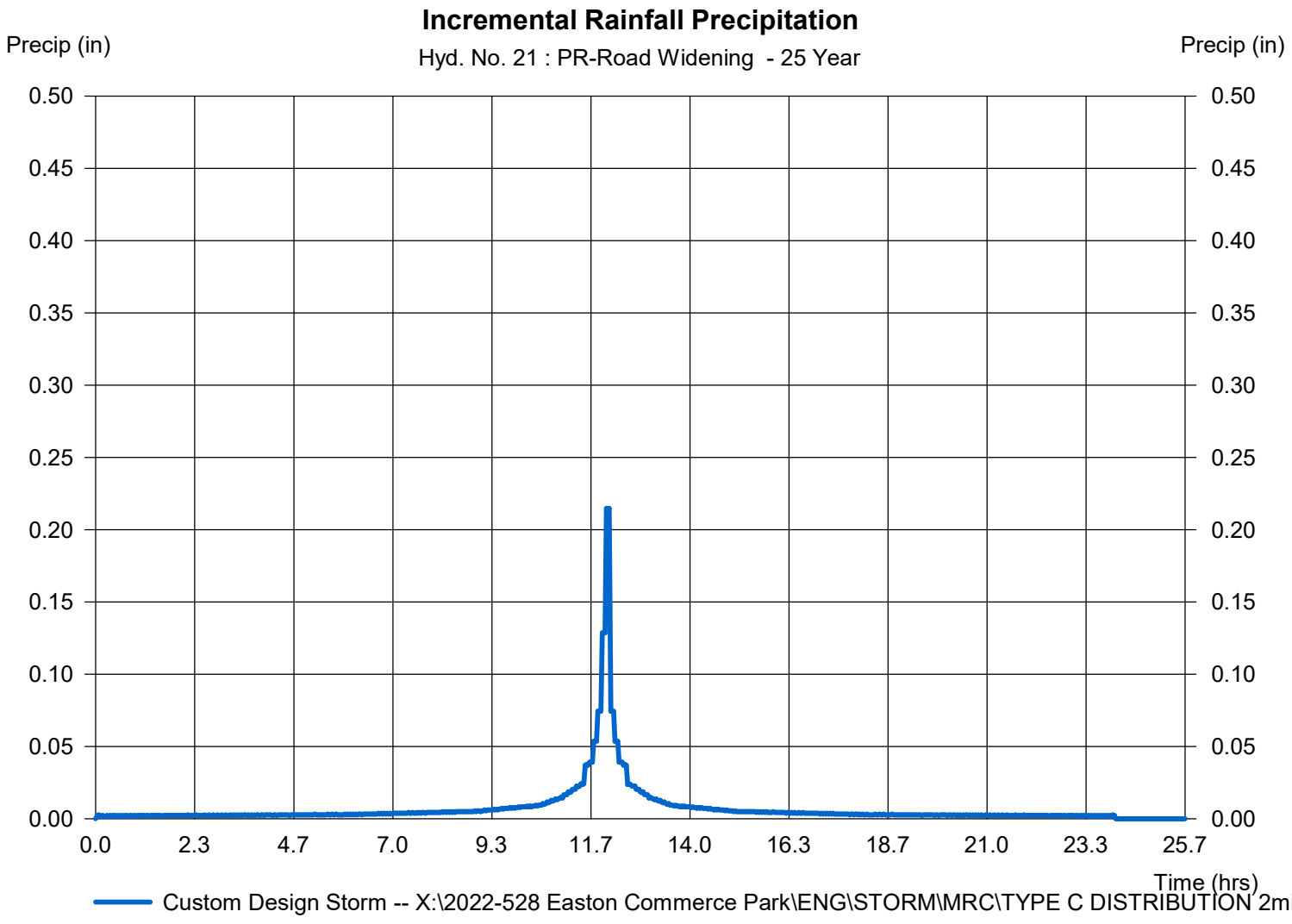


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 25 yrs	Time interval	= 2 min
Total precip.	= 5.5200 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

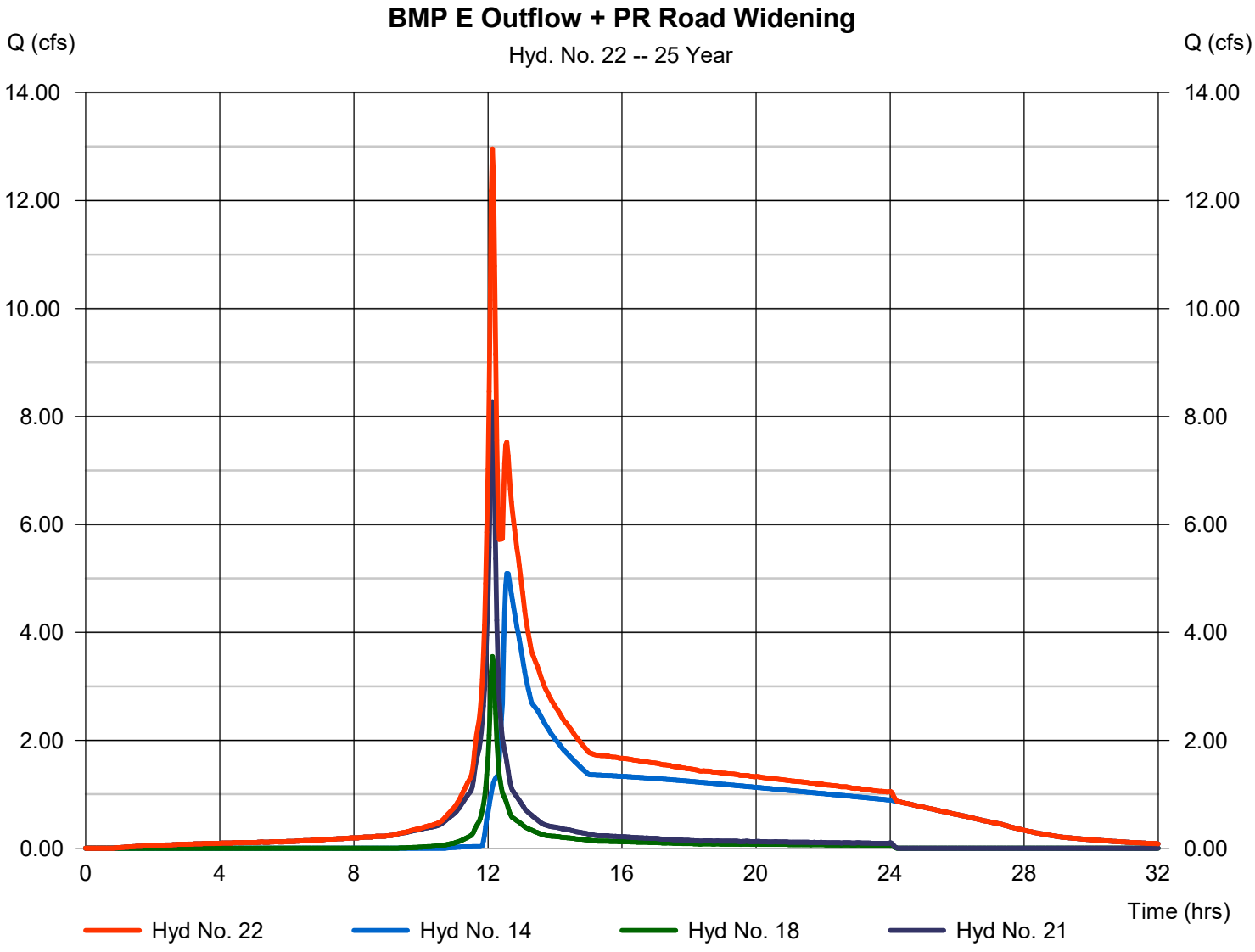


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	12.96 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	123,423 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



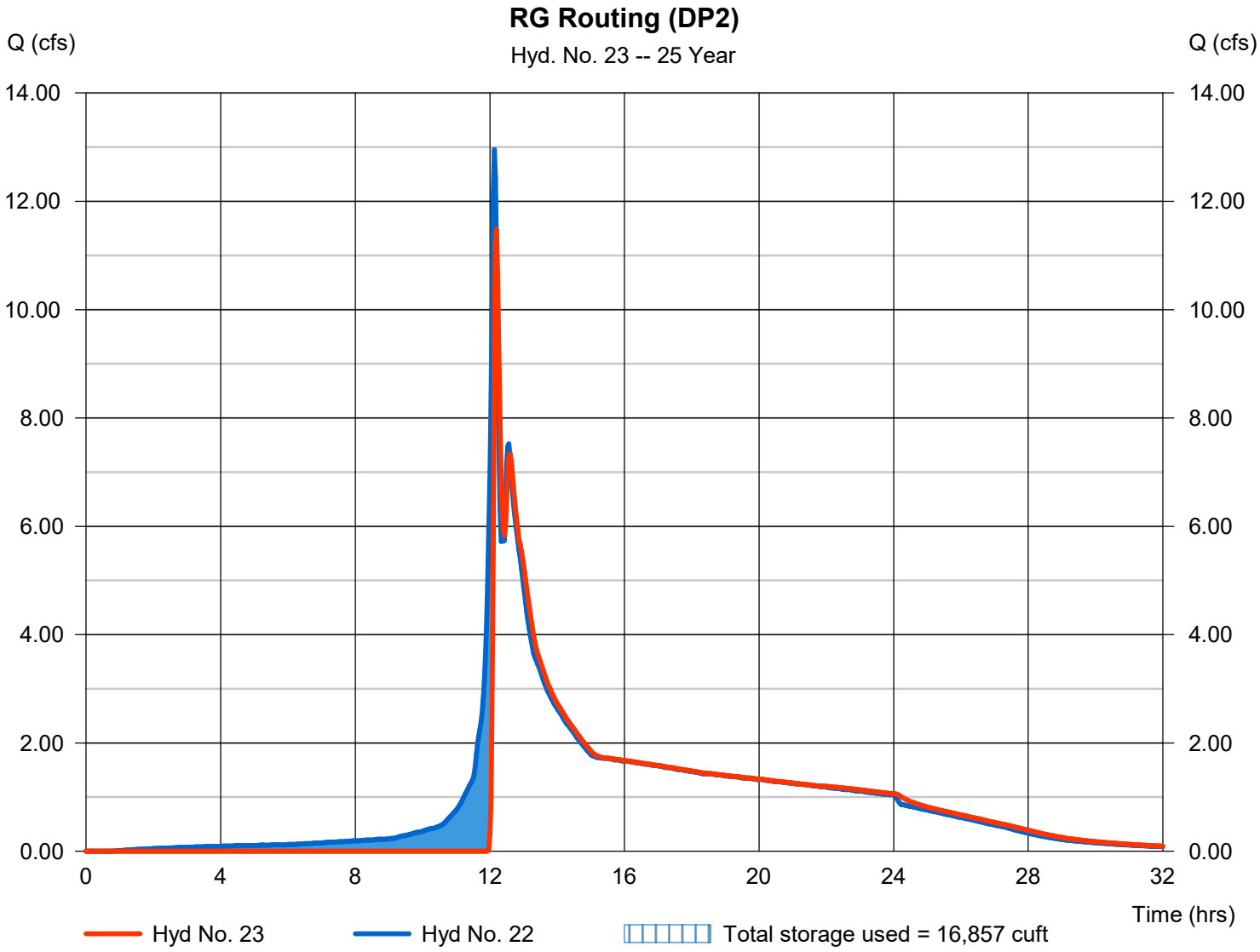
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	11.48 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	110,408 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.12 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	16,857 cuft

Storage Indication method used.

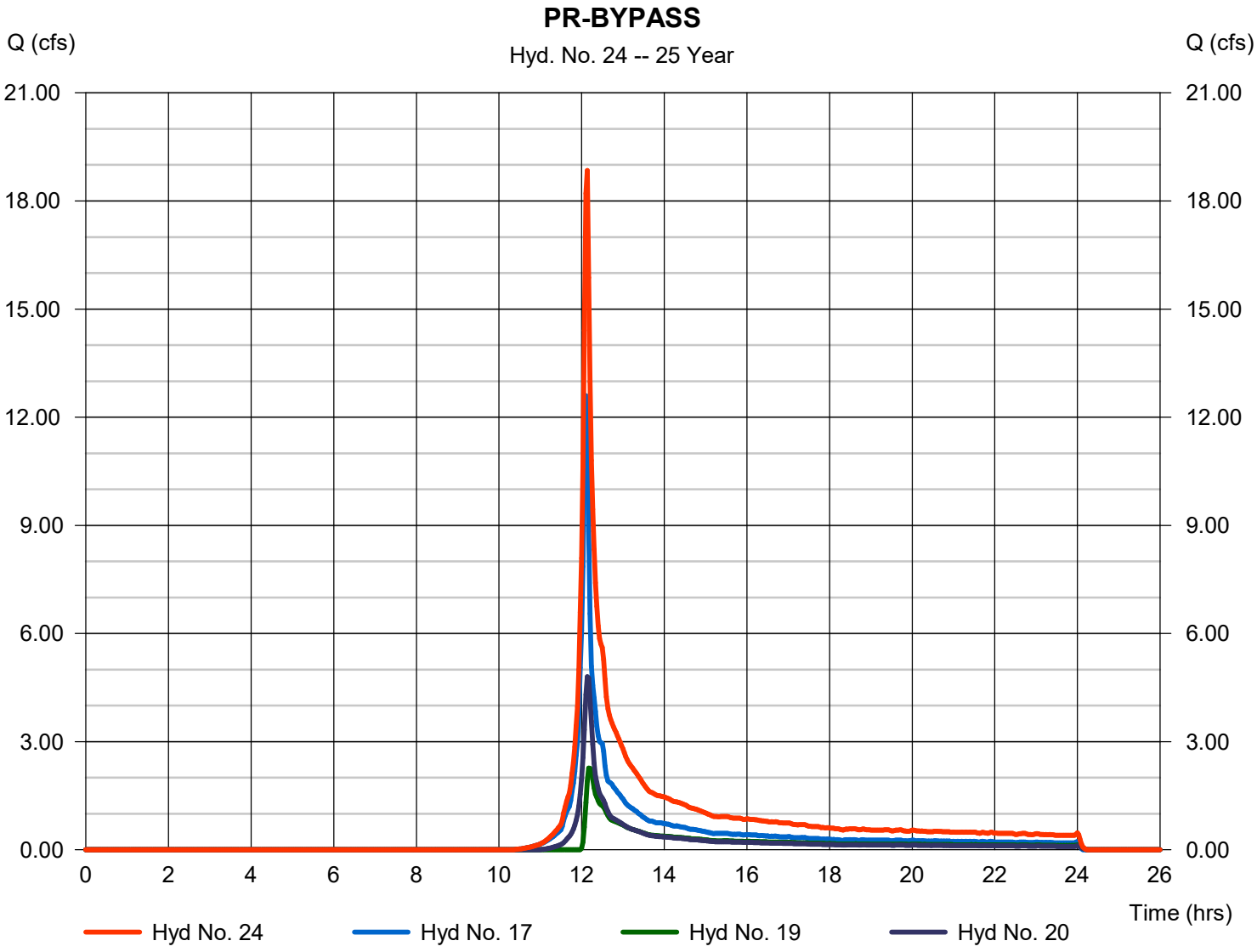


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	18.84 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	61,936 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

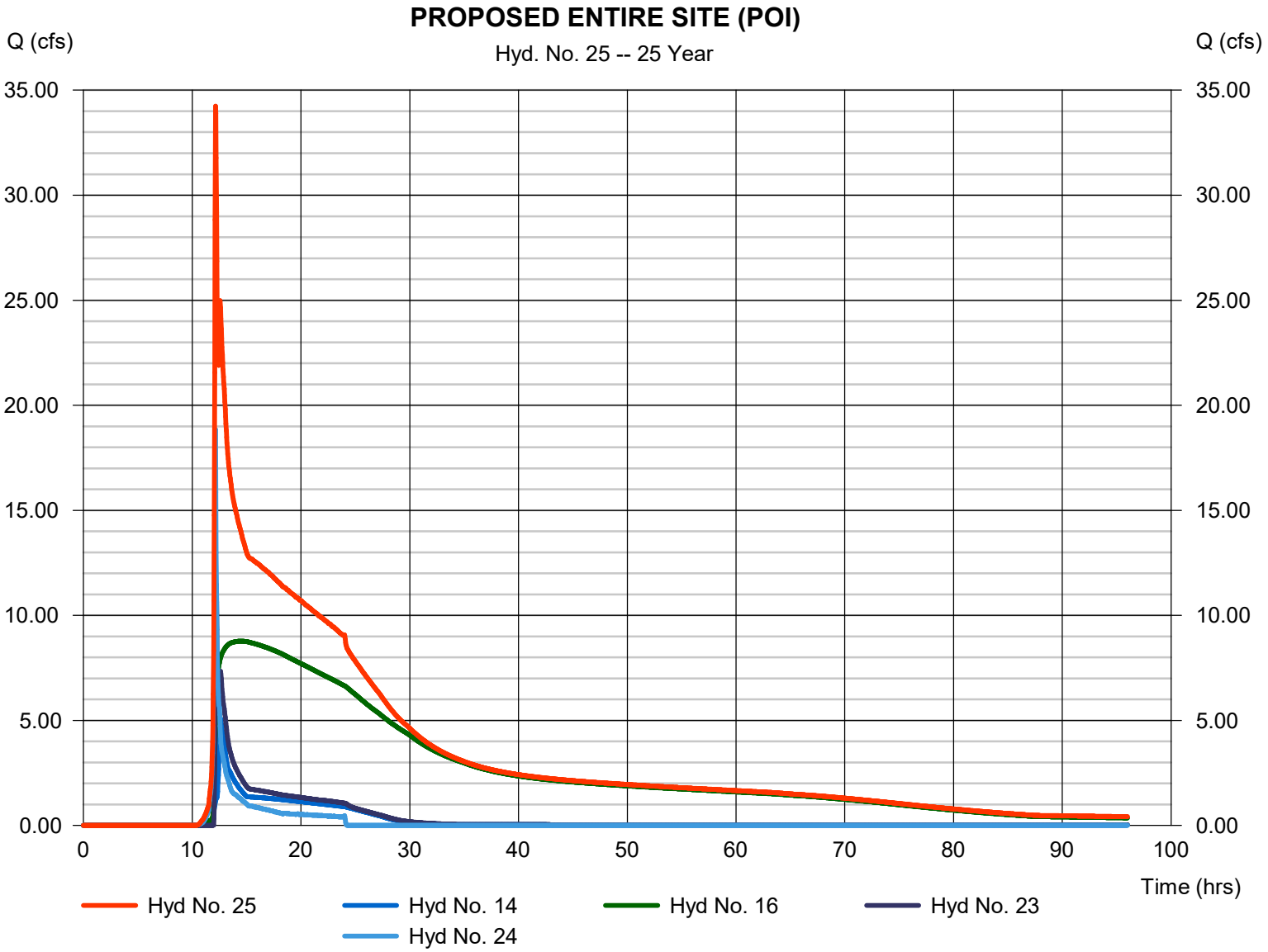


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	34.23 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	1,076,341 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

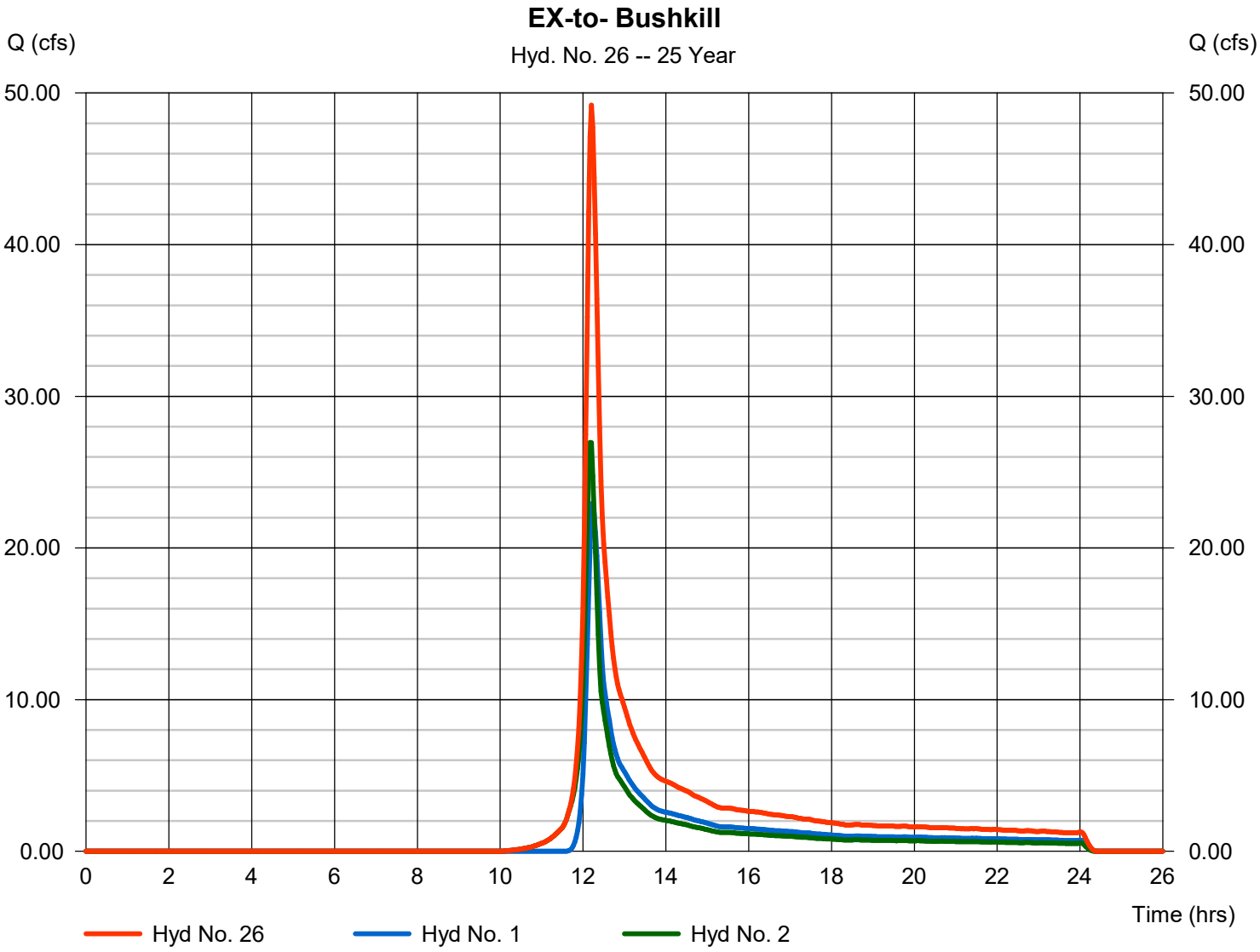


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 49.20 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 195,116 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

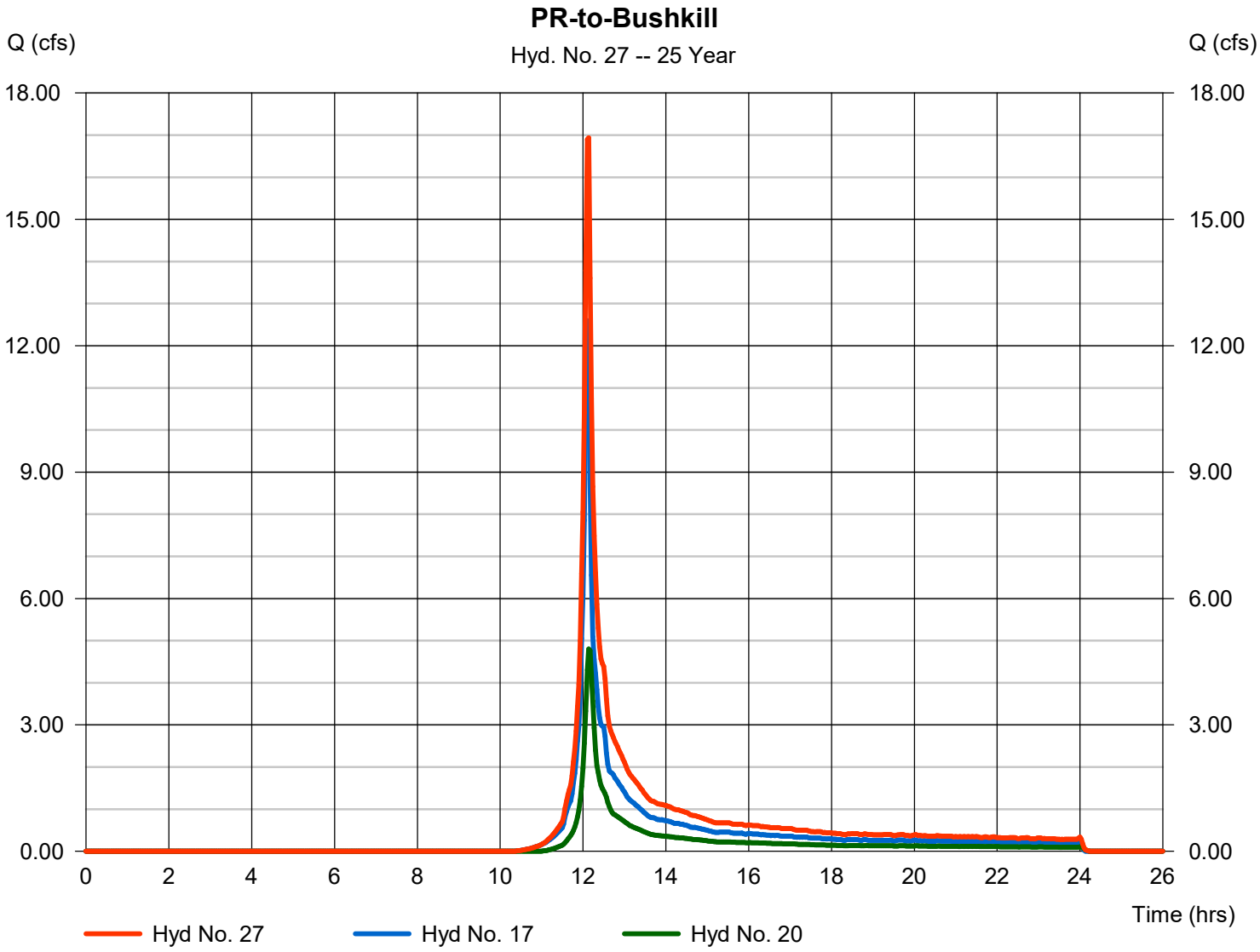


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	16.94 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	49,372 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

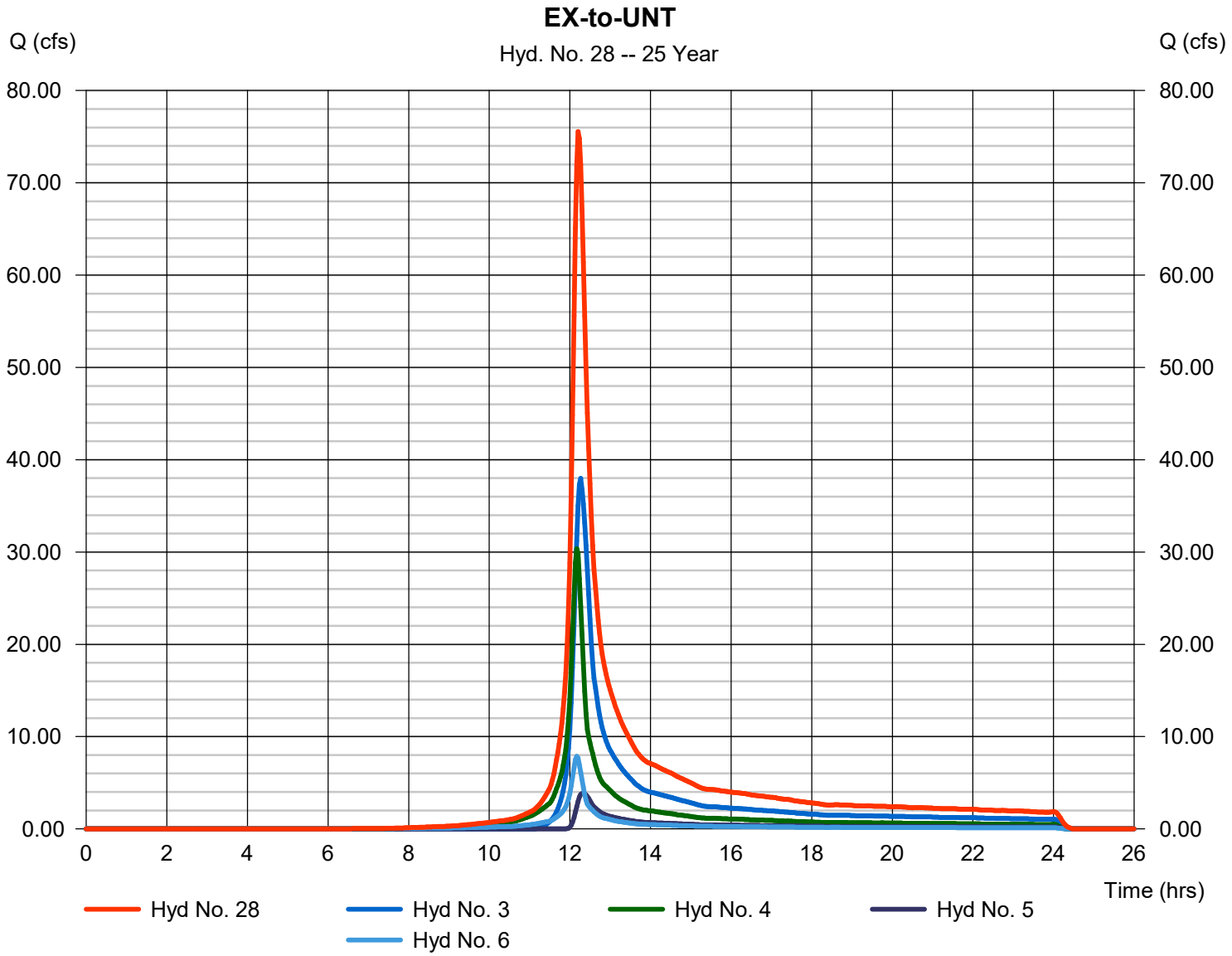


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	=	Combine	Peak discharge	=	75.55 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	322,970 cuft
Inflow hyds.	=	3, 4, 5, 6	Contrib. drain. area	=	47.330 ac

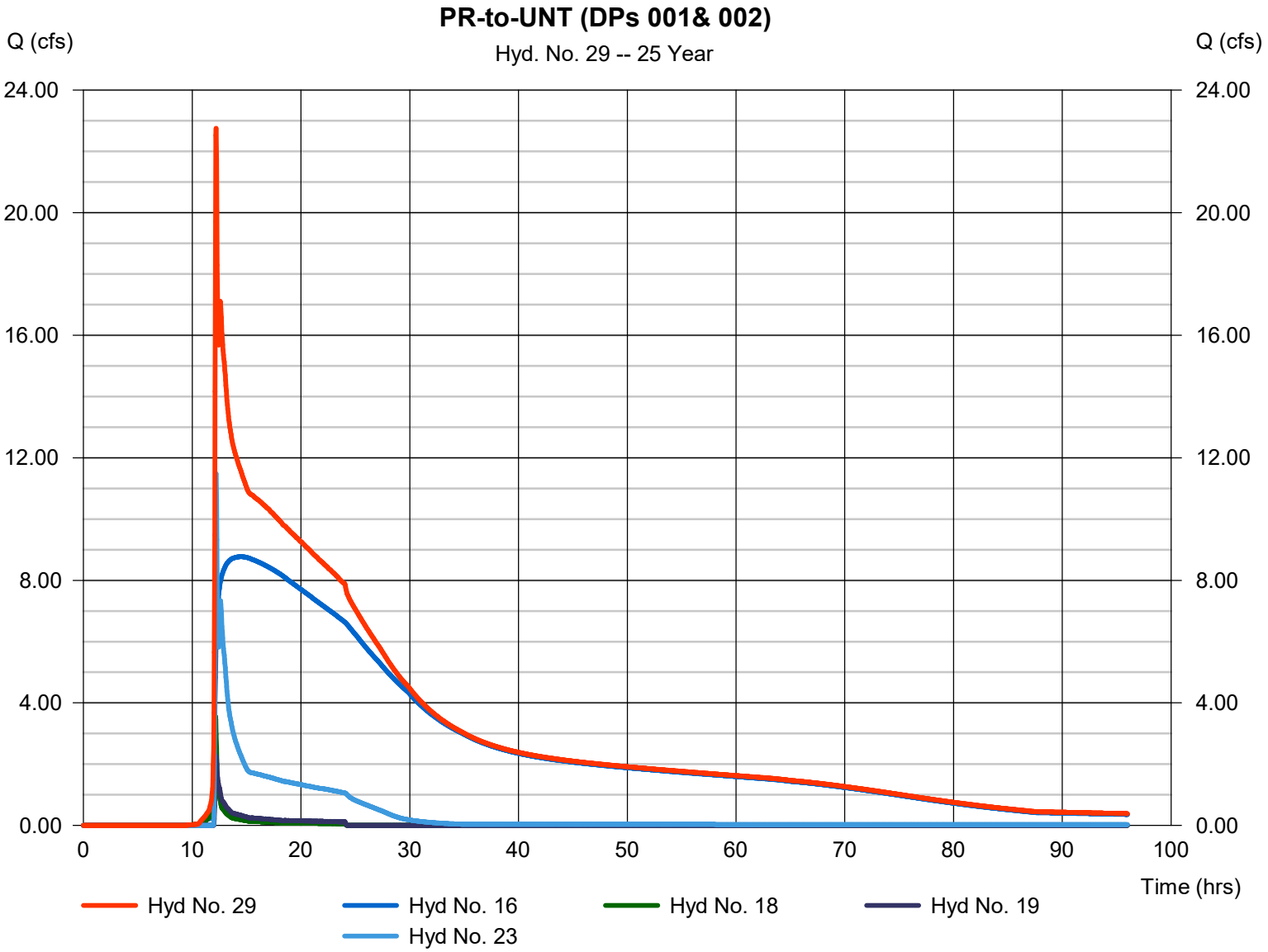


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 22.75 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 955,195 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

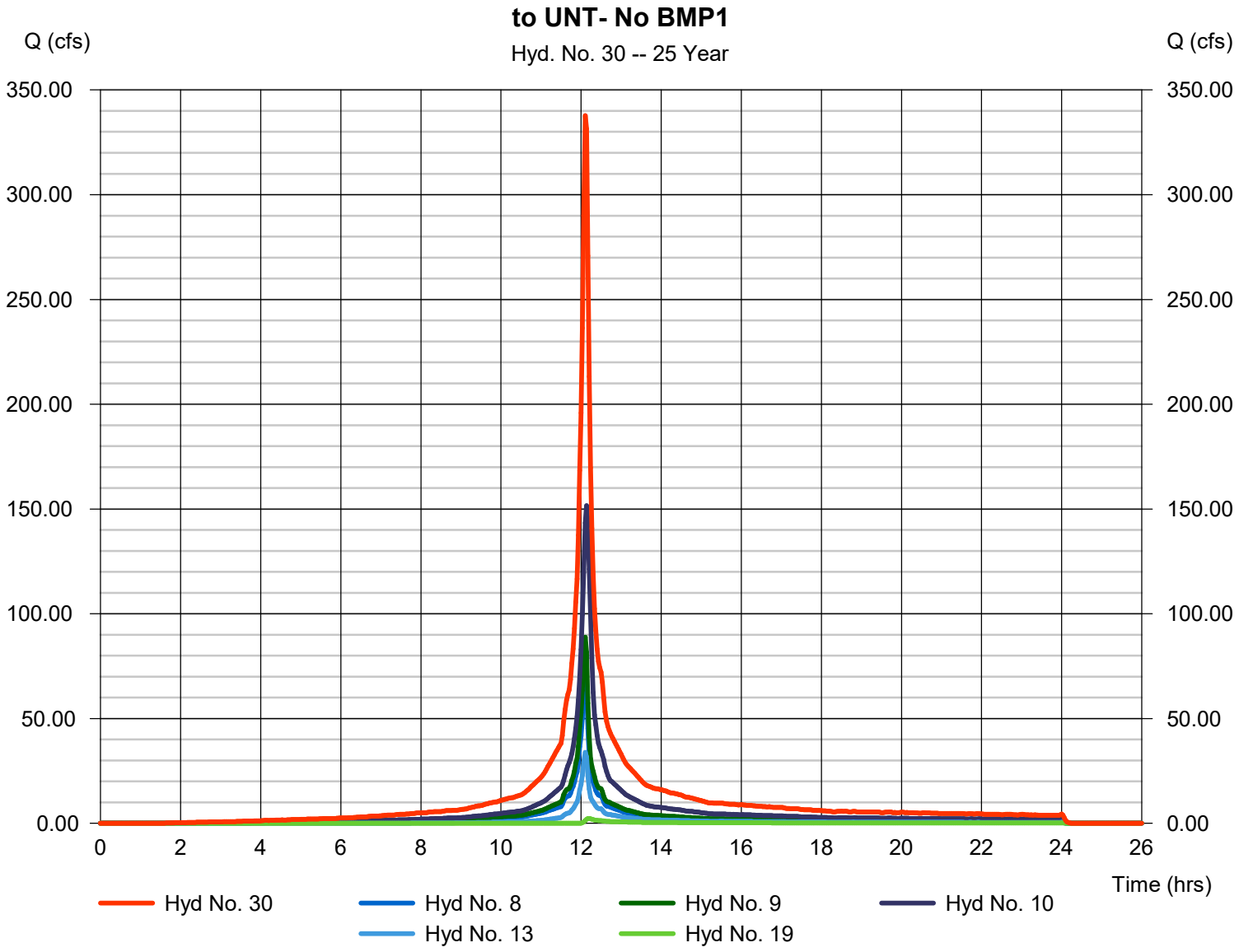


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	=	Combine	Peak discharge	=	337.68 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	1,079,083 cuft
Inflow hyds.	=	8, 9, 10, 13, 19	Contrib. drain. area	=	72.660 ac

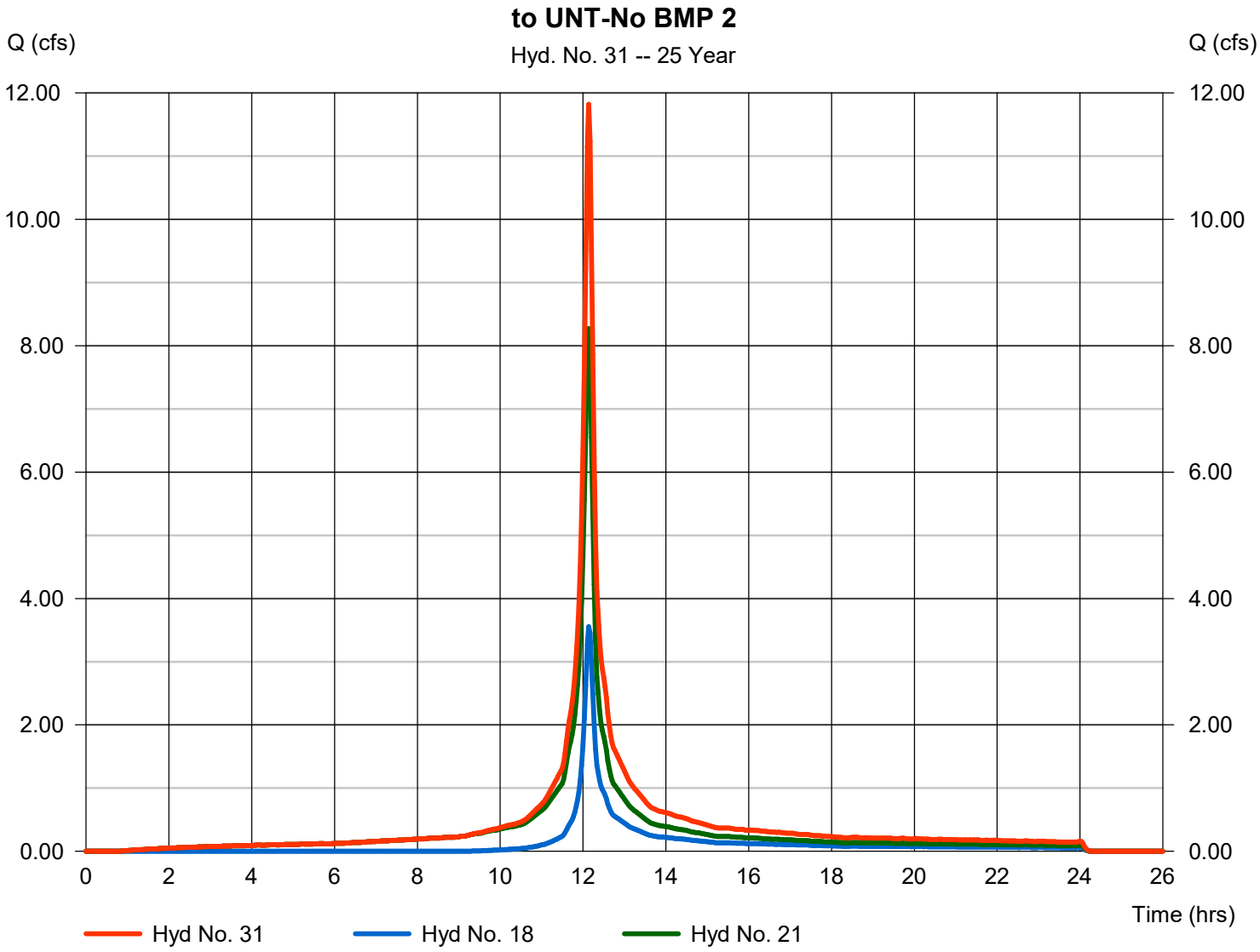


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 11.82 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 40,686 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

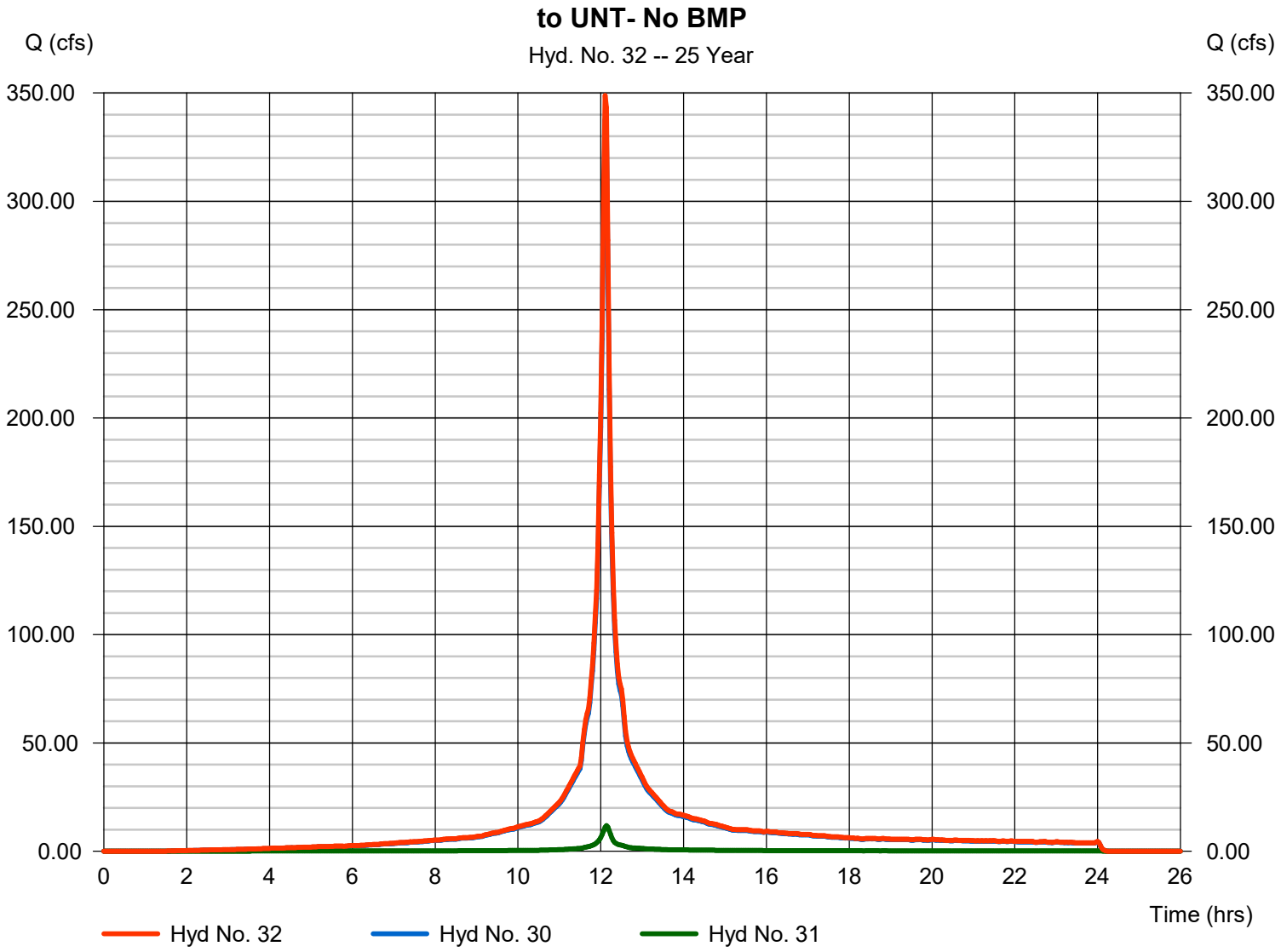


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	= Combine	Peak discharge	= 348.83 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 1,119,770 cuft
Inflow hyds.	= 30, 31	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	35.67	2	734	144,479	------	------	------	EX-DA 1
2	SCS Runoff	36.34	2	730	127,562	------	------	------	EX-DA2
3	SCS Runoff	54.33	2	736	230,260	------	------	------	EX-DA3
4	SCS Runoff	38.35	2	730	134,515	------	------	------	EX-DA4
5	SCS Runoff	7.094	2	736	36,071	------	------	------	EX-DA5
6	SCS Runoff	9.634	2	730	34,448	------	------	------	EX-DA-Road Widening
7	Combine	175.27	2	732	707,335	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	82.85	2	726	253,424	------	------	------	PR-DA-A
9	SCS Runoff	104.70	2	726	320,254	------	------	------	PR-DA-B
10	SCS Runoff	181.75	2	728	598,972	------	------	------	PR-DA-C
11	Reservoir	1.036	2	1218	234,661	8	292.01	204,179	BMP A Routing
12	Reservoir	1.696	2	1064	307,326	9	288.52	245,182	BMP B Routing
13	SCS Runoff	42.19	2	726	113,948	------	------	------	PR-DA-E
14	Reservoir	13.64	2	736	106,058	13	259.95	51,533	BMP E Routing
15	Combine	183.96	2	728	1,140,957	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	10.25	2	868	1,004,664	15	218.80	432,968	MRC BMP C Routing(DP1)
17	SCS Runoff	17.15	2	726	45,587	------	------	------	PR-BYPASS 1
18	SCS Runoff	4.656	2	728	14,332	------	------	------	PR RG
19	SCS Runoff	4.982	2	730	20,362	------	------	------	PR-BYPASS 2
20	SCS Runoff	6.803	2	728	21,428	------	------	------	PR-BYPASS 3
21	SCS Runoff	9.720	2	728	35,117	------	------	------	PR-Road Widening
22	Combine	22.89	2	732	155,507	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	22.14	2	734	142,492	22	233.29	18,158	RG Routing (DP2)
24	Combine	27.83	2	728	87,378	17, 19, 20,	------	------	PR-BYPASS
25	Combine	59.33	2	734	1,340,591	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	71.21	2	732	272,041	1, 2,	------	------	EX-to- Bushkill
27	Combine	23.31	2	726	67,015	17, 20,	------	------	PR-to-Bushkill
28	Combine	104.06	2	732	435,294	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	37.62	2	734	1,181,850	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	405.79	2	726	1,306,961	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	14.38	2	728	49,449	18, 21,	------	------	to UNT-No BMP 2
32	Combine	419.37	2	726	1,356,408	30, 31	------	------	to UNT- No BMP

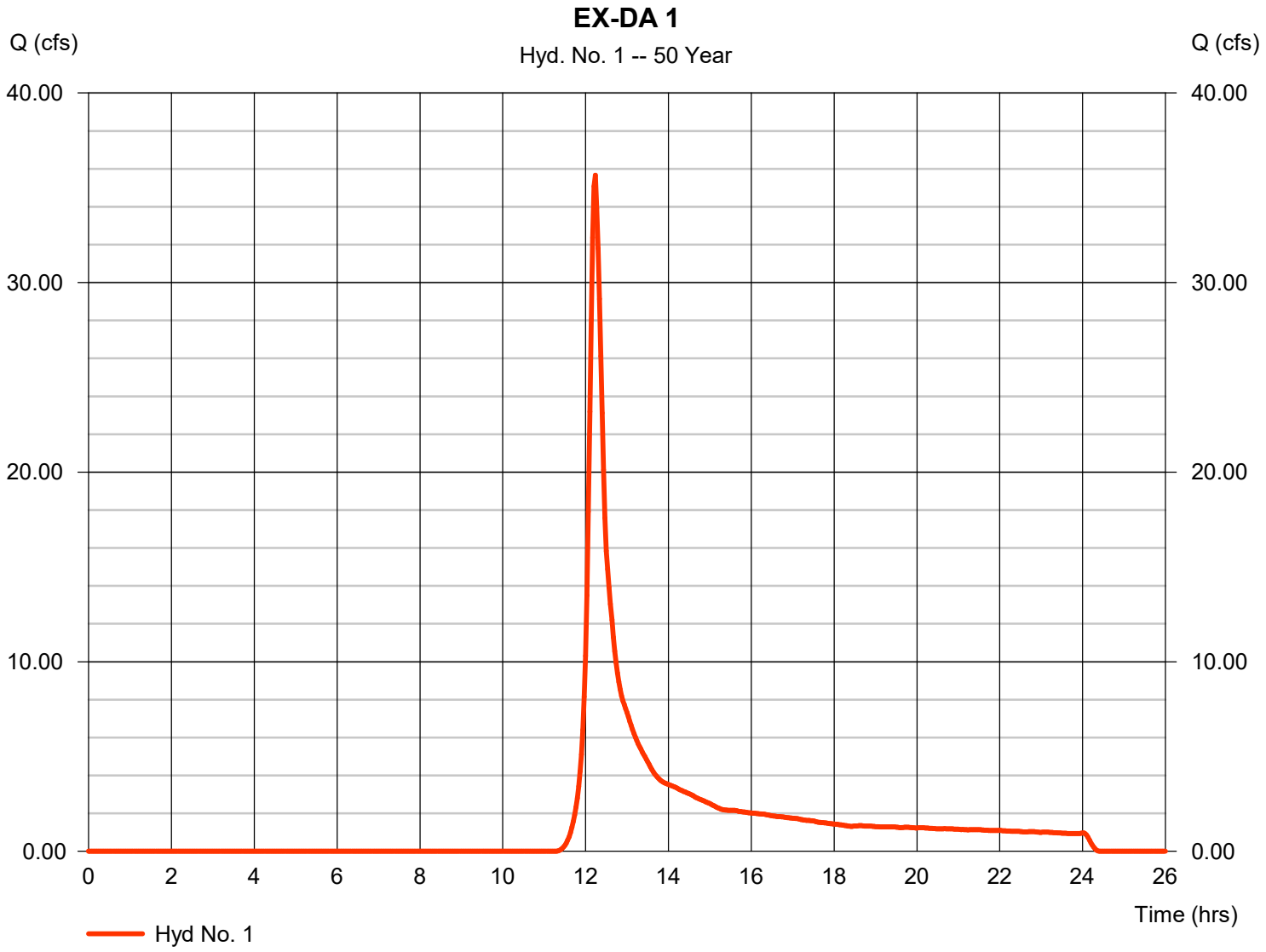
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	35.67 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	144,479 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

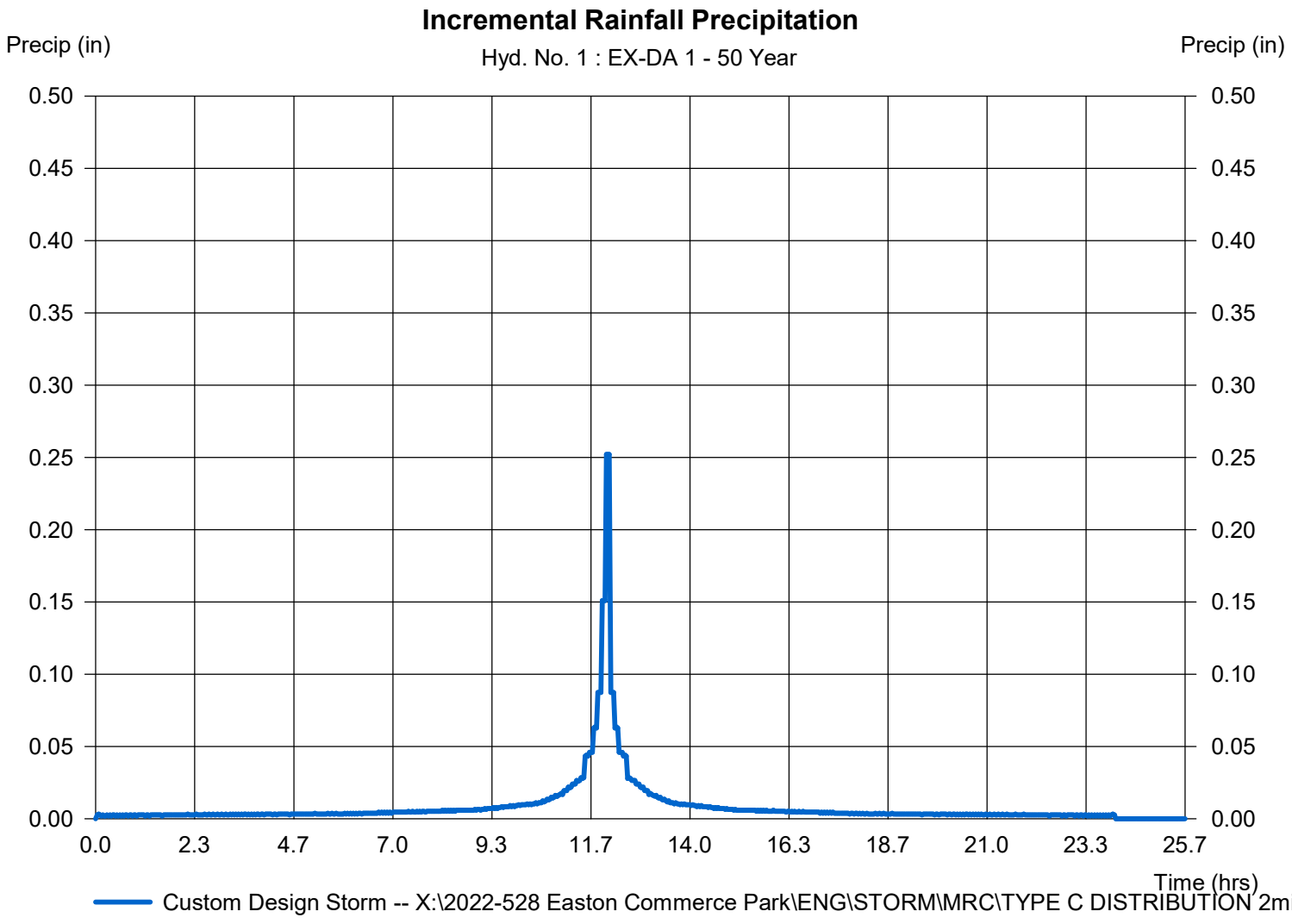


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



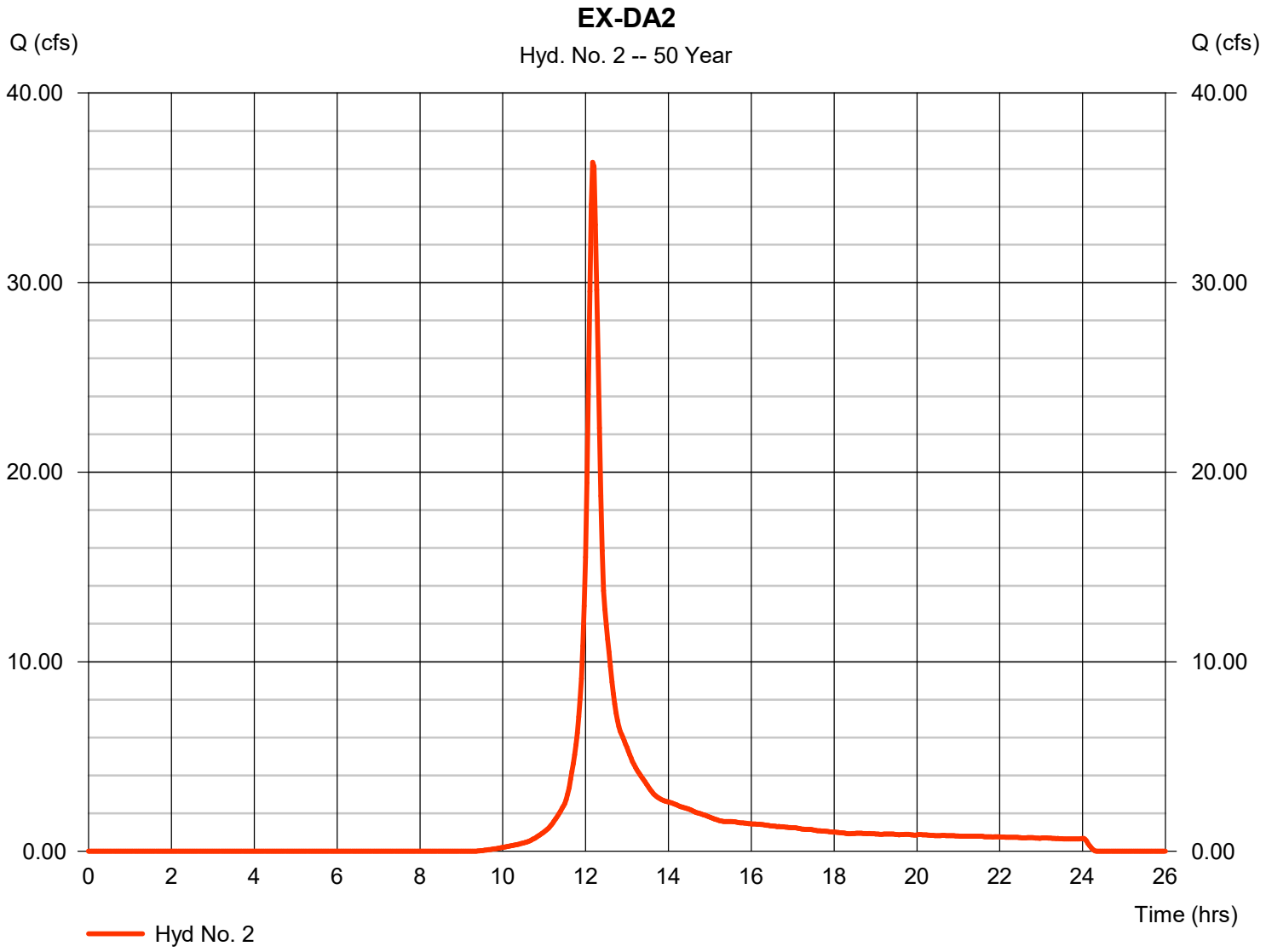
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	36.34 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	127,562 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	48 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

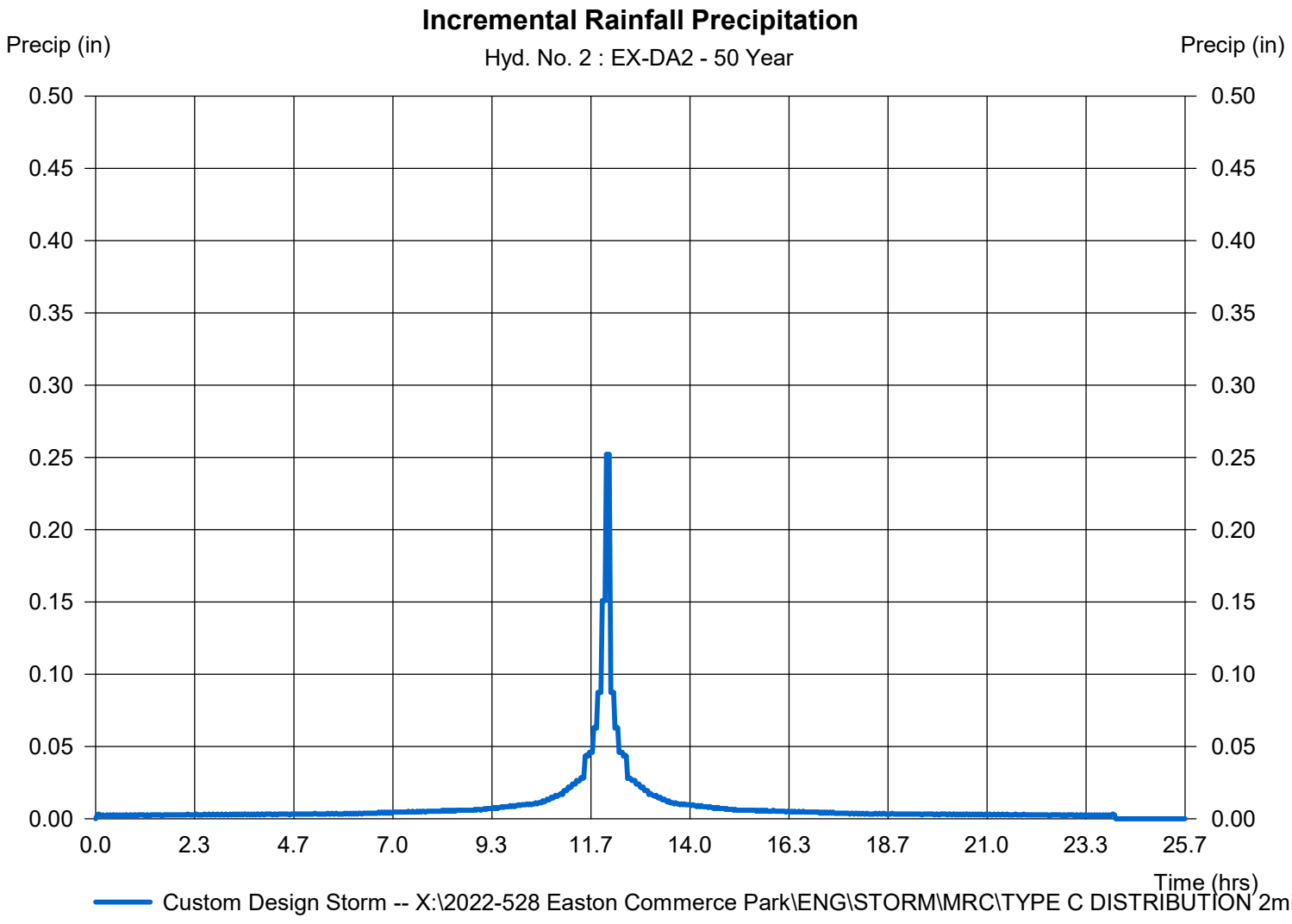


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



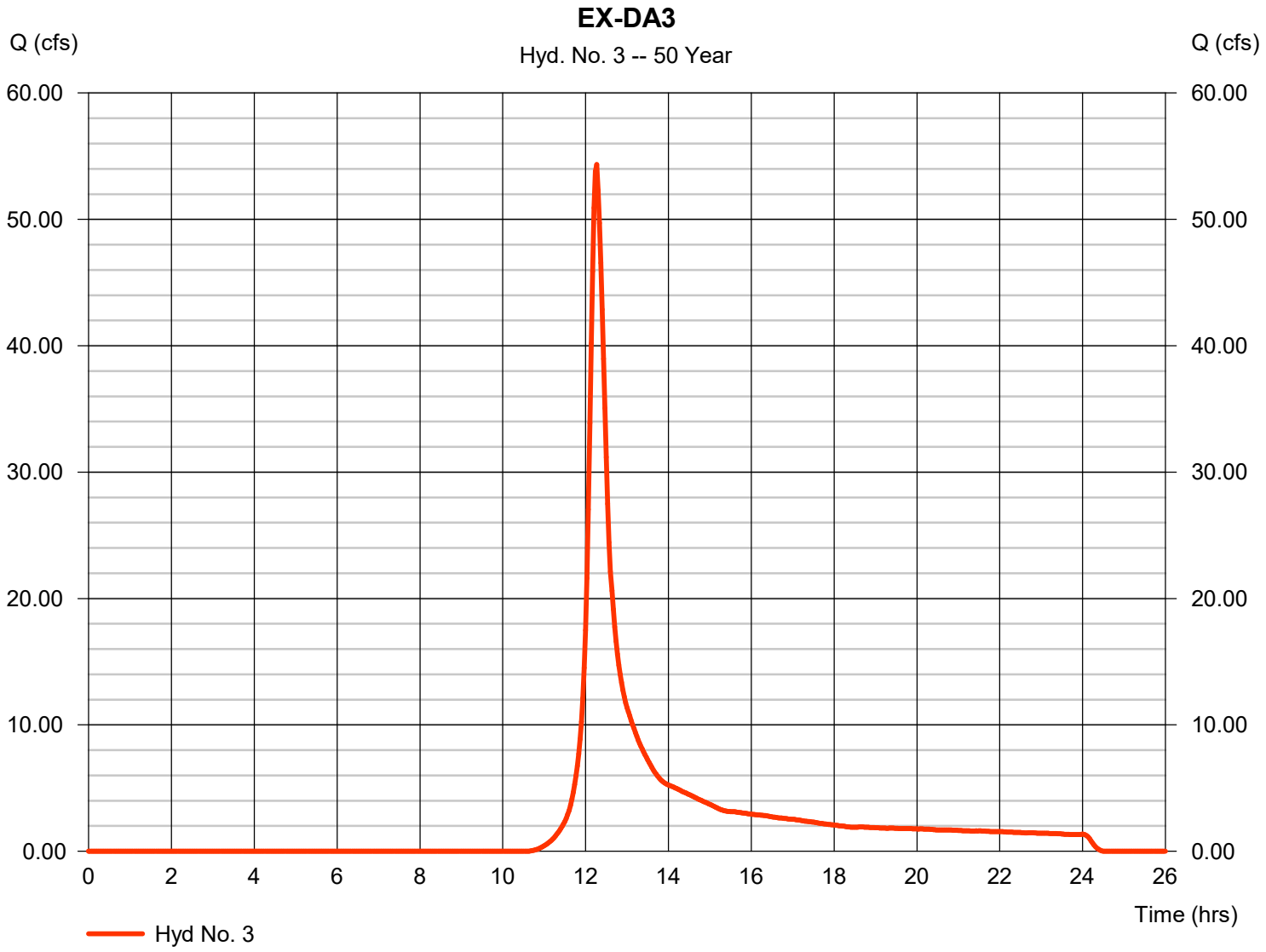
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	54.33 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	230,260 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	Storm Frequency	=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

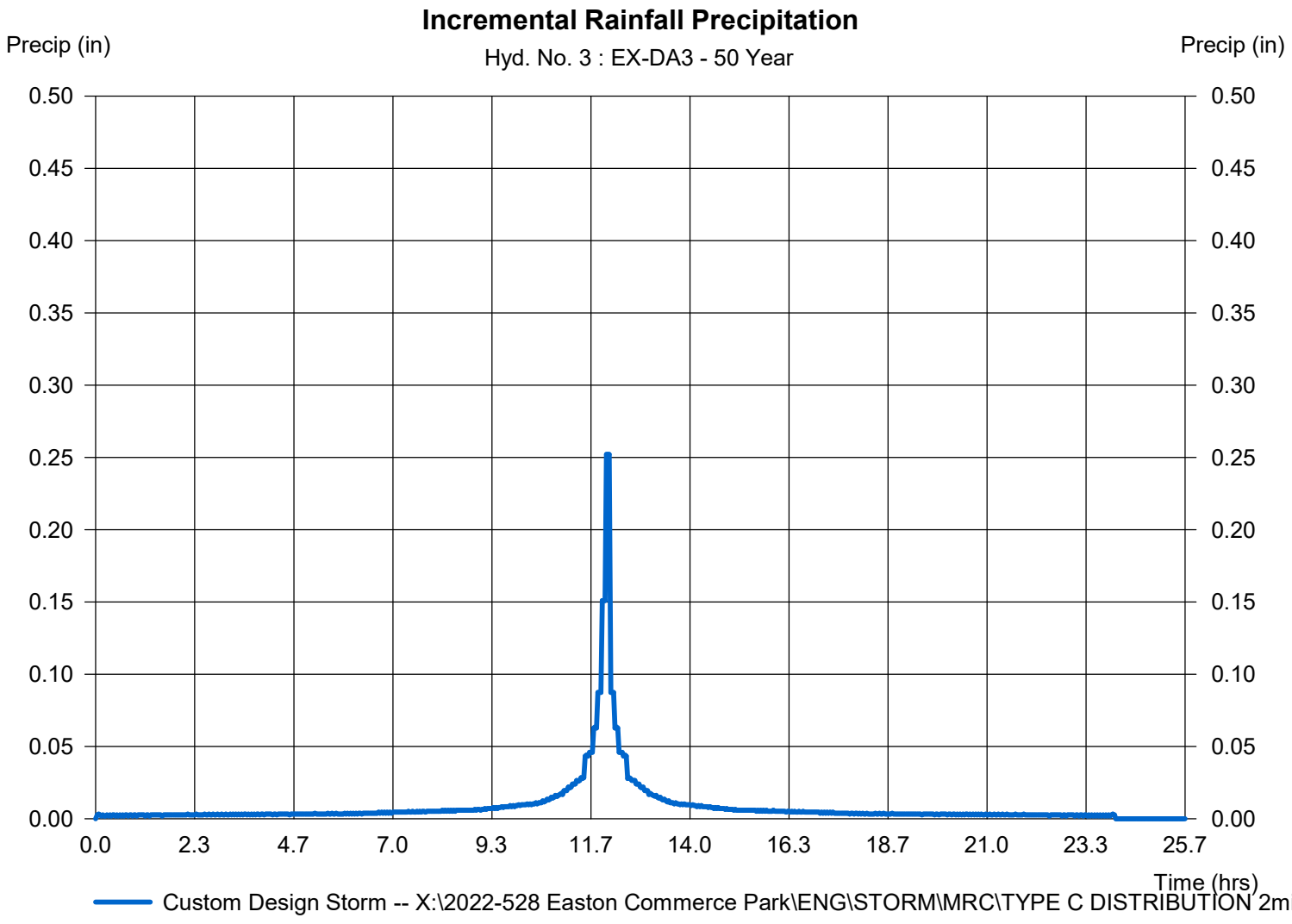


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



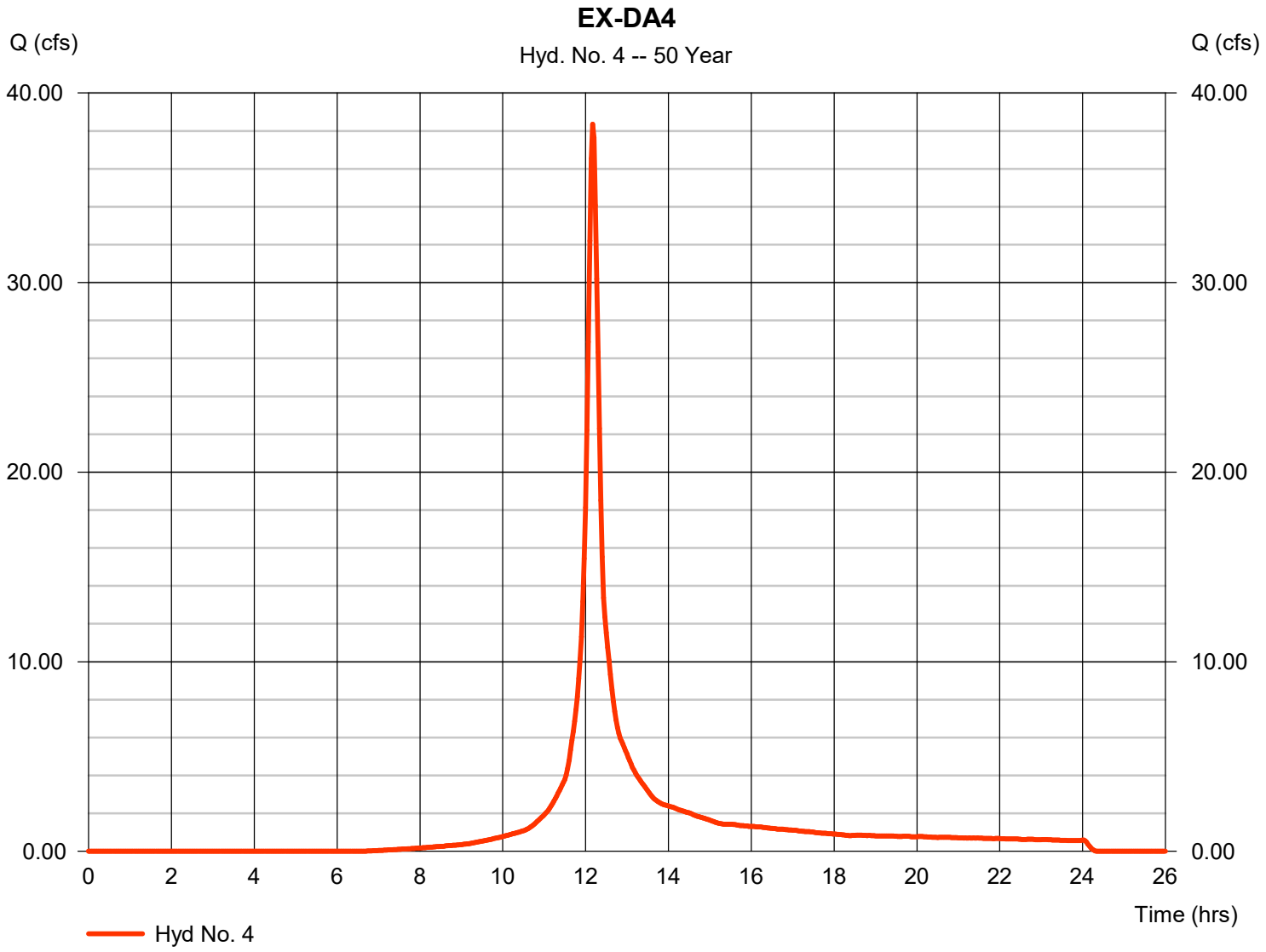
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	38.35 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	134,515 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

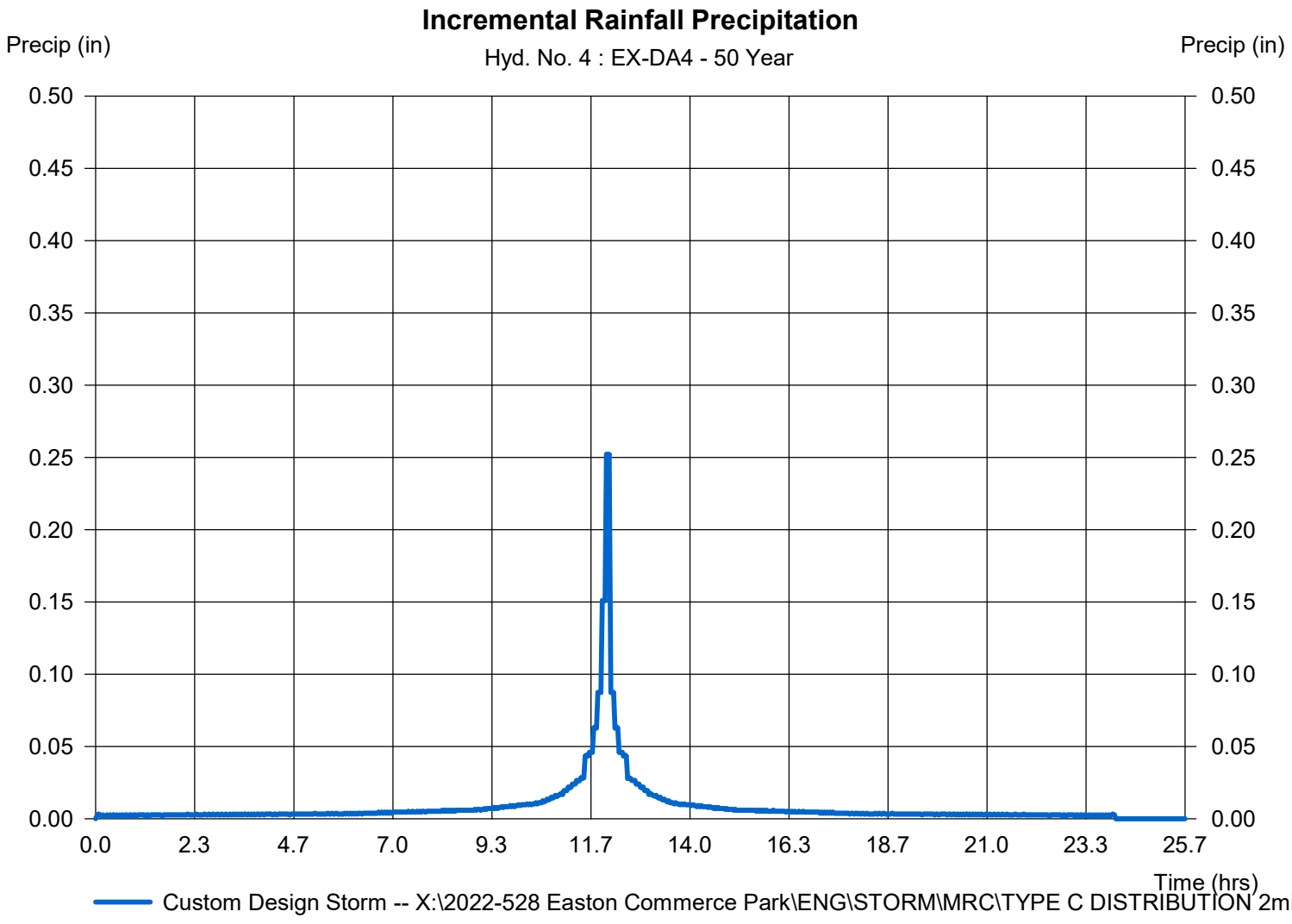


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



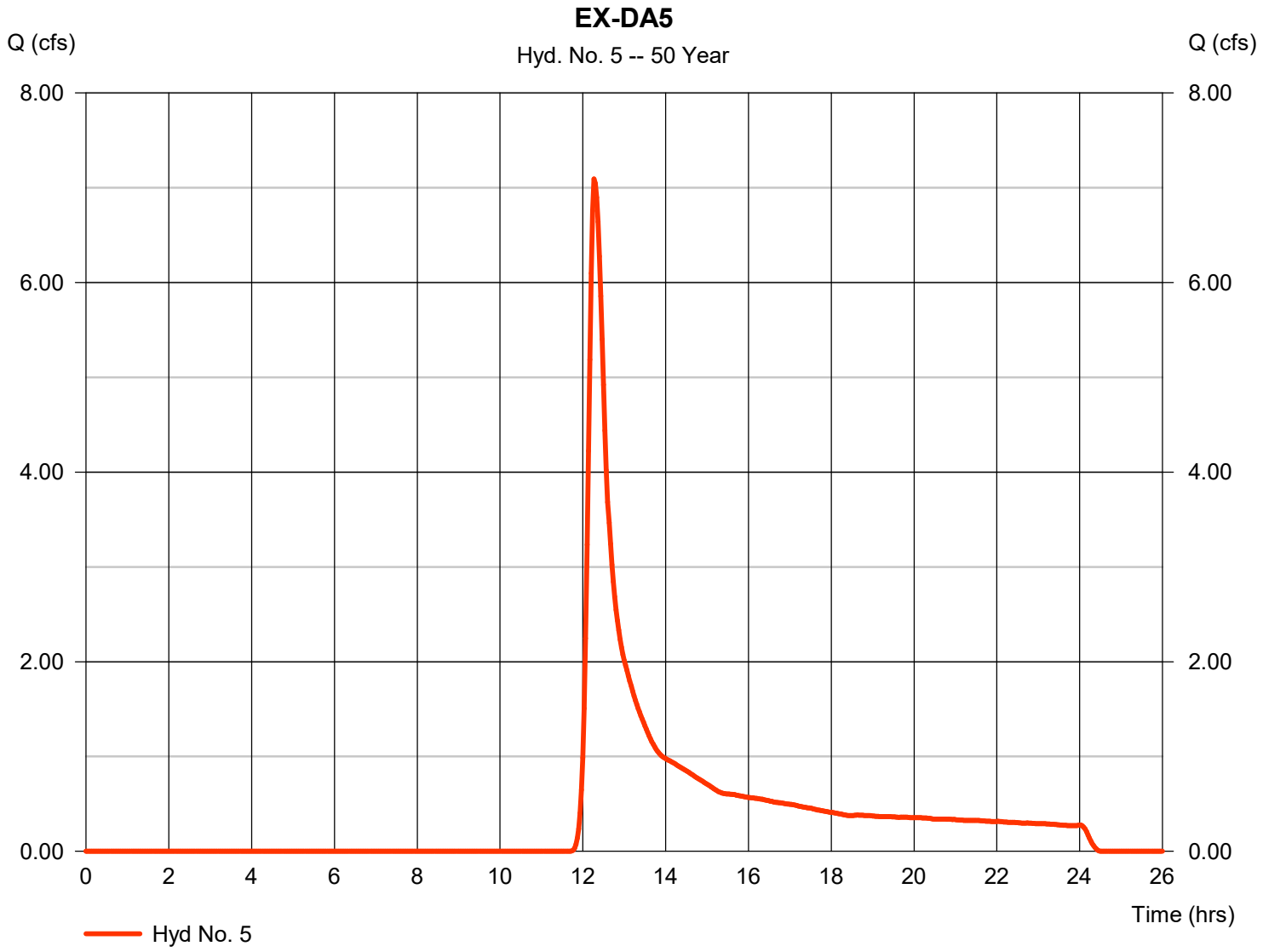
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.094 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	36,071 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	SPark\ENG\STORM\MRC24	=	24-TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

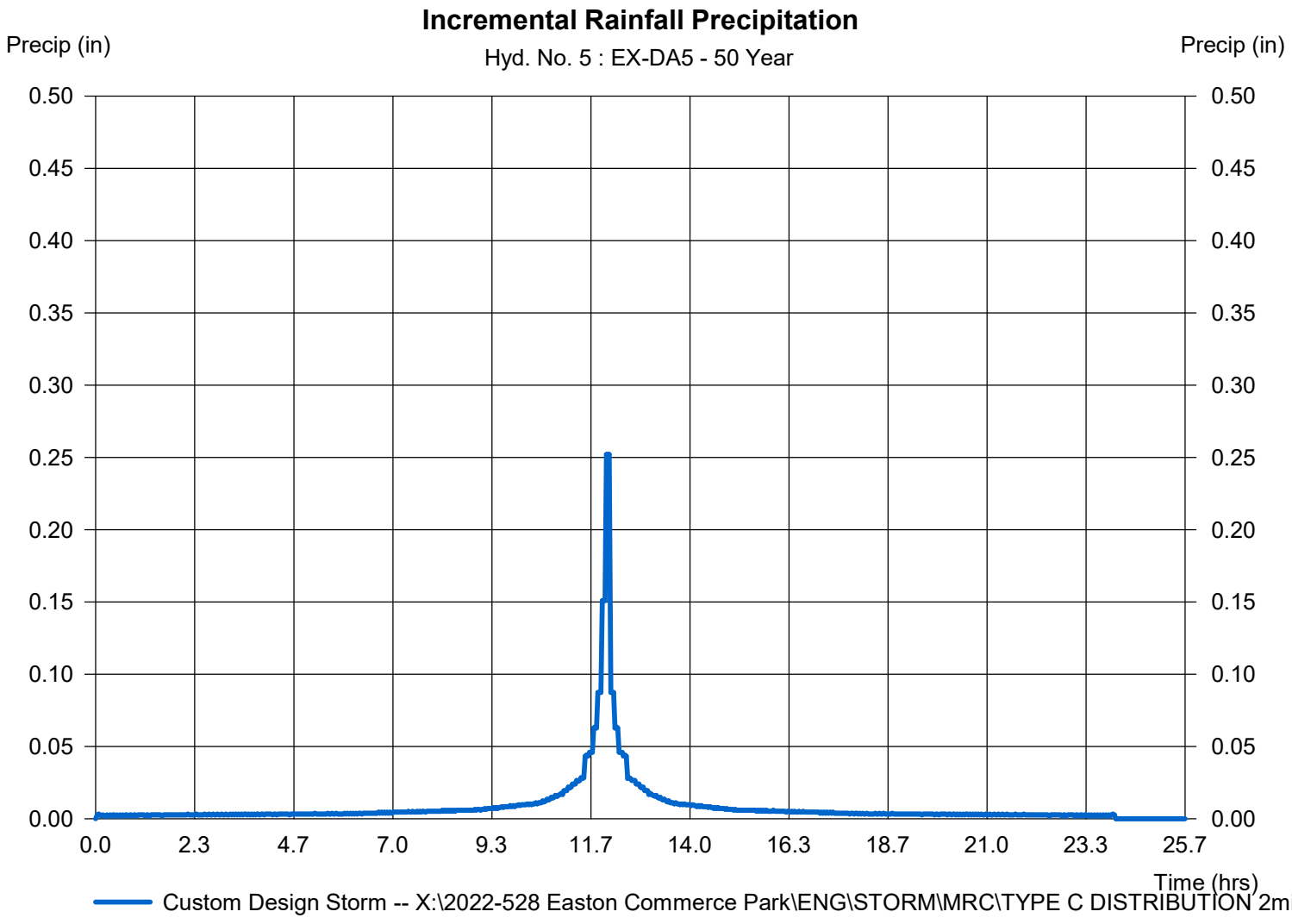


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



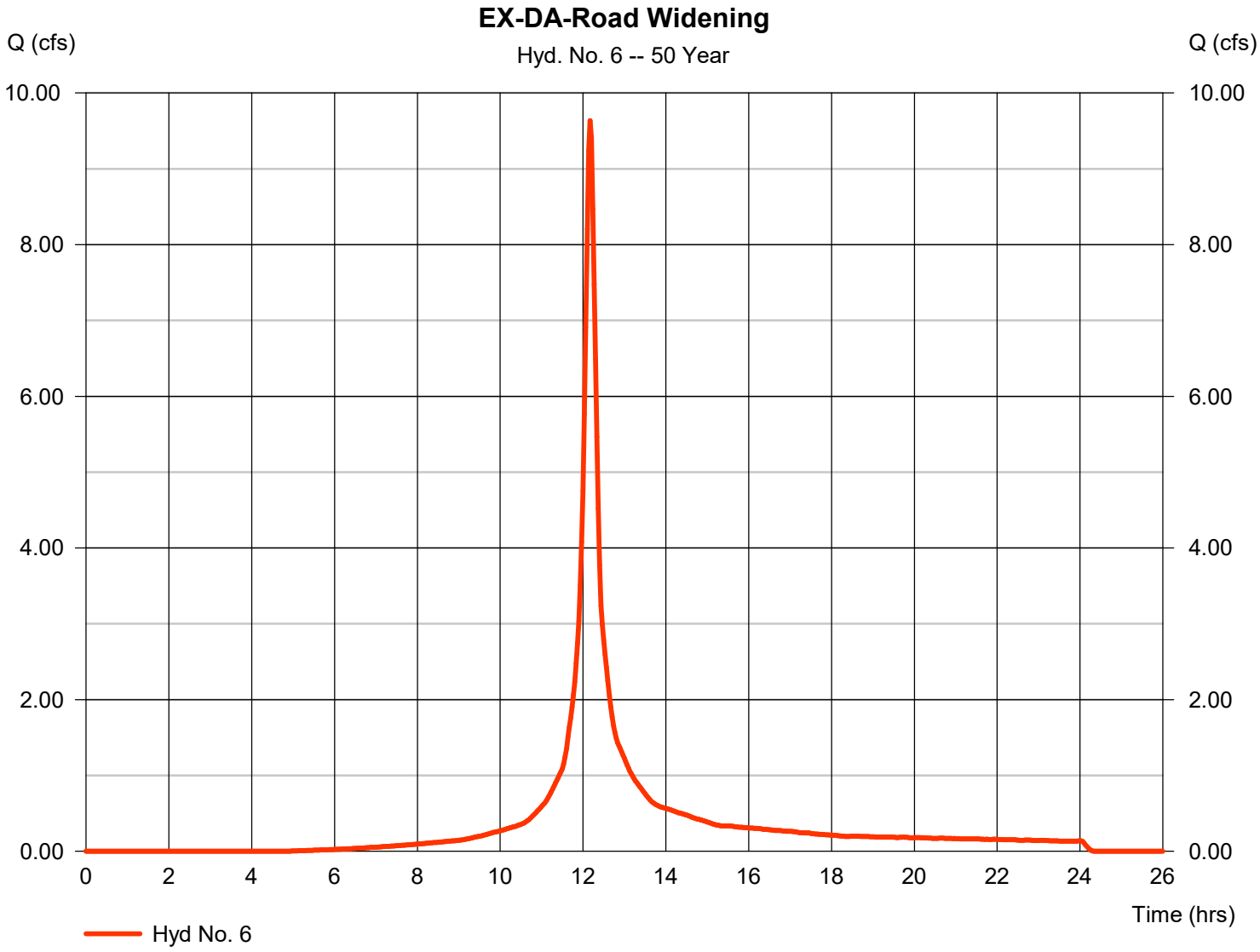
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.634 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	34,448 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		=	454

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

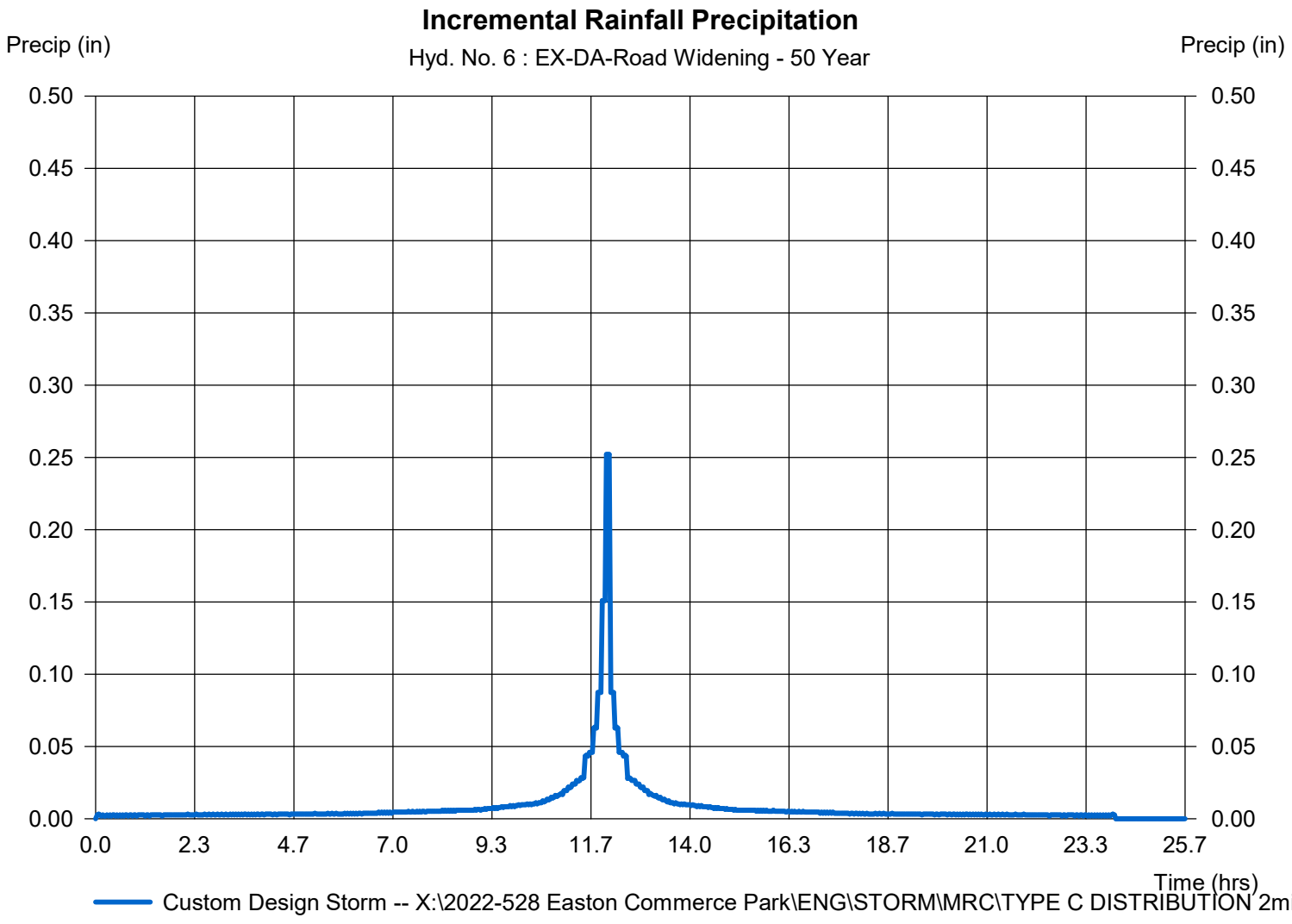


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

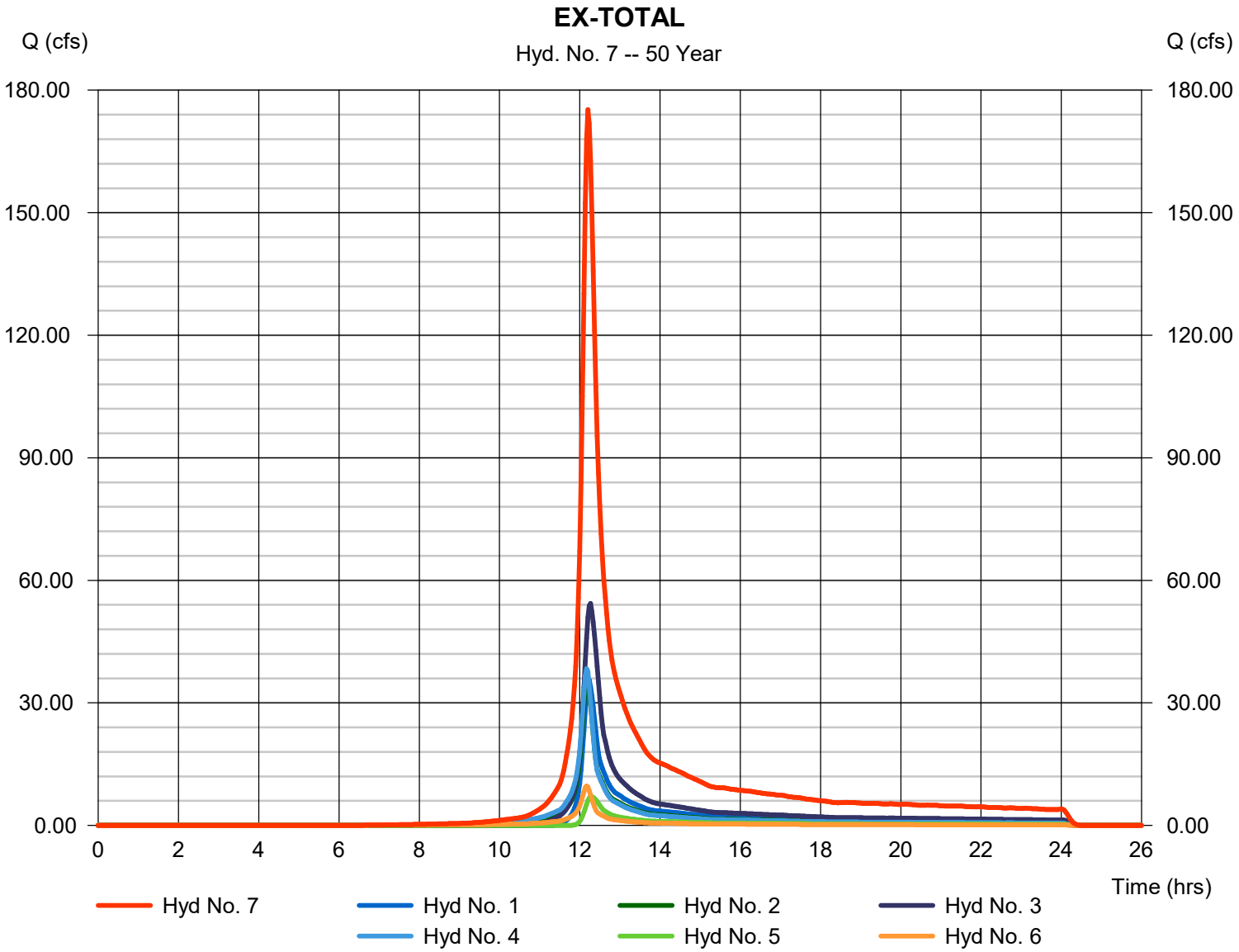


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	175.27 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	707,335 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



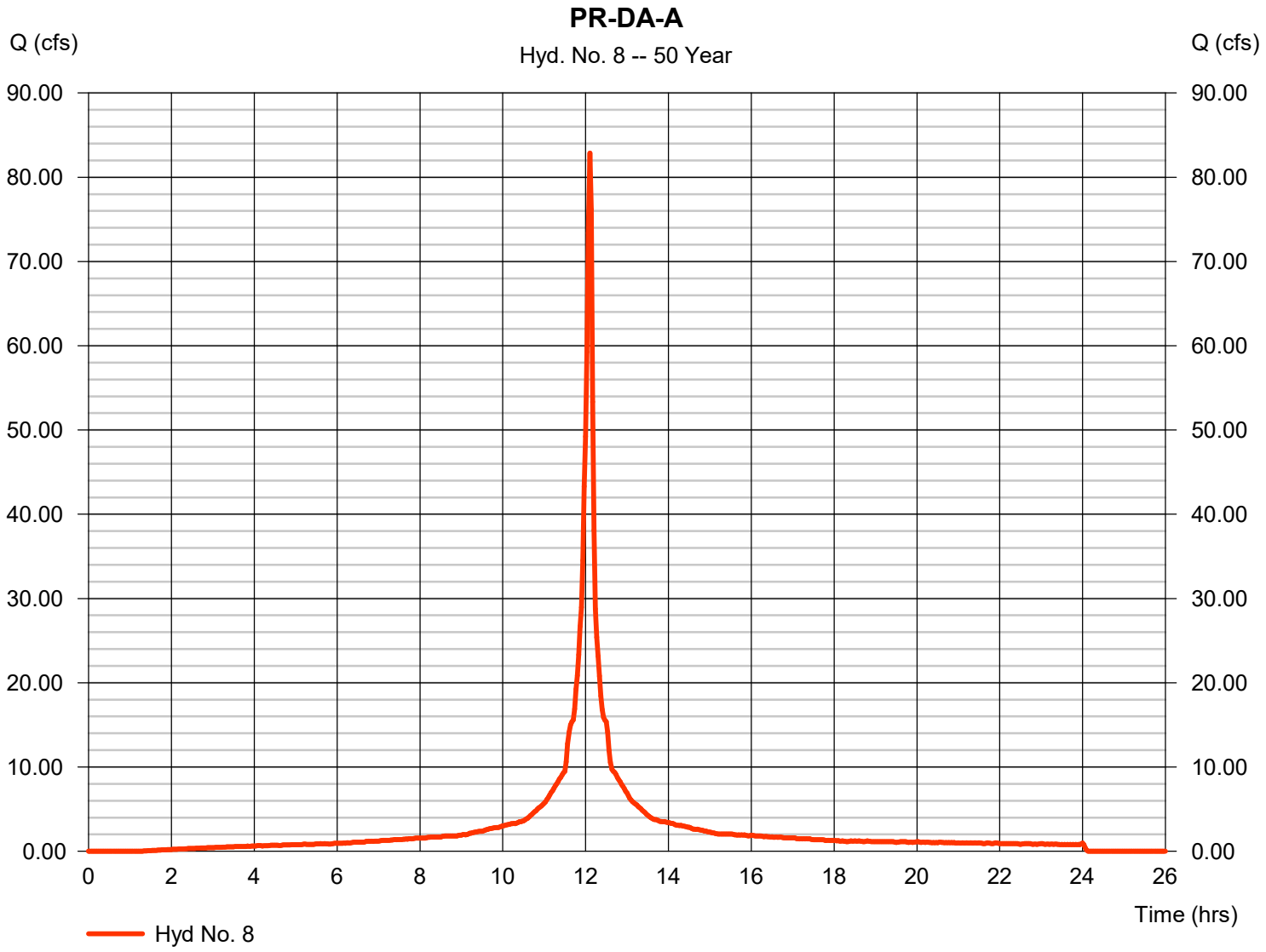
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	82.85 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	253,424 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION		=	454

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

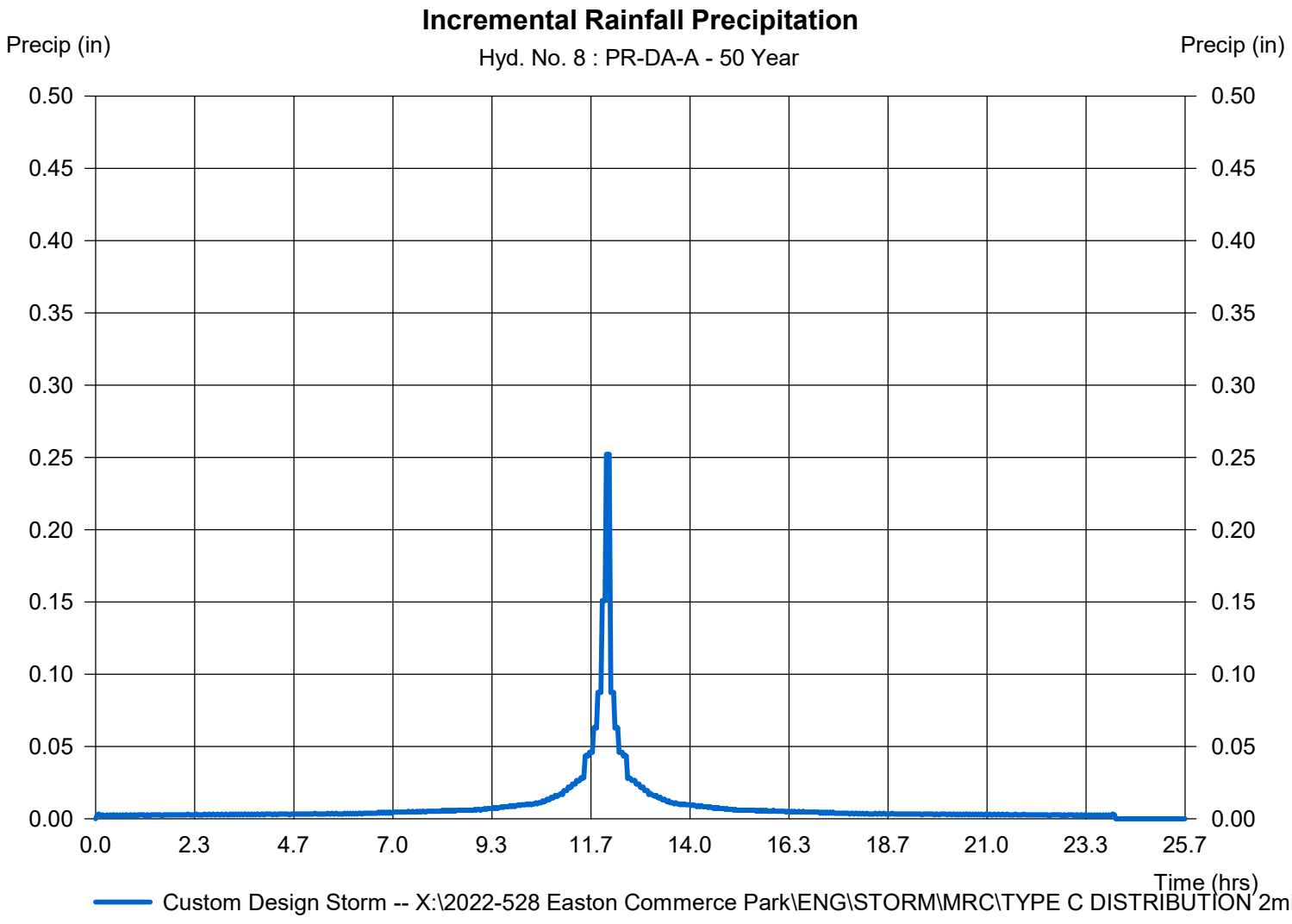


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



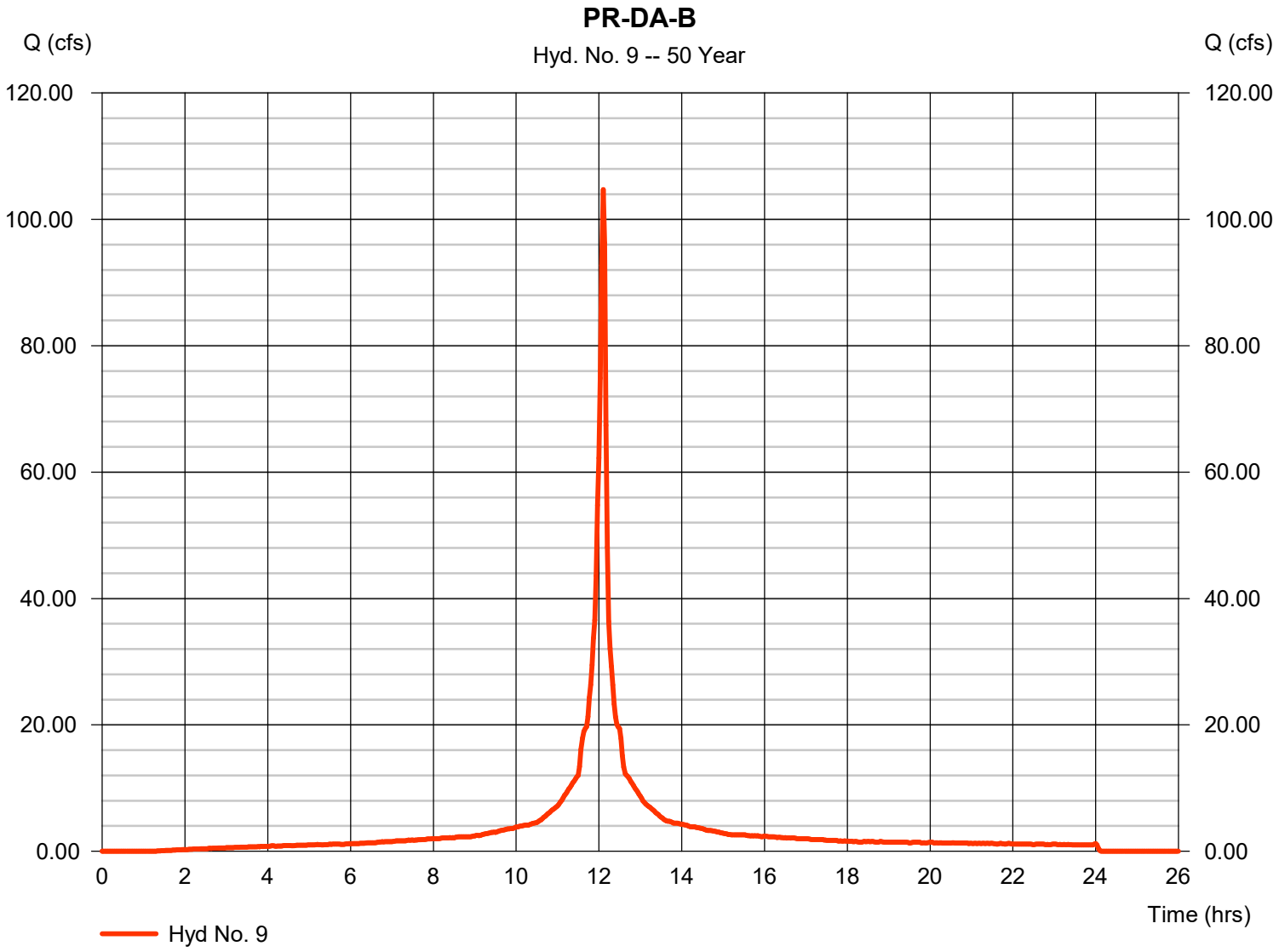
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	104.70 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	320,254 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		=	24

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

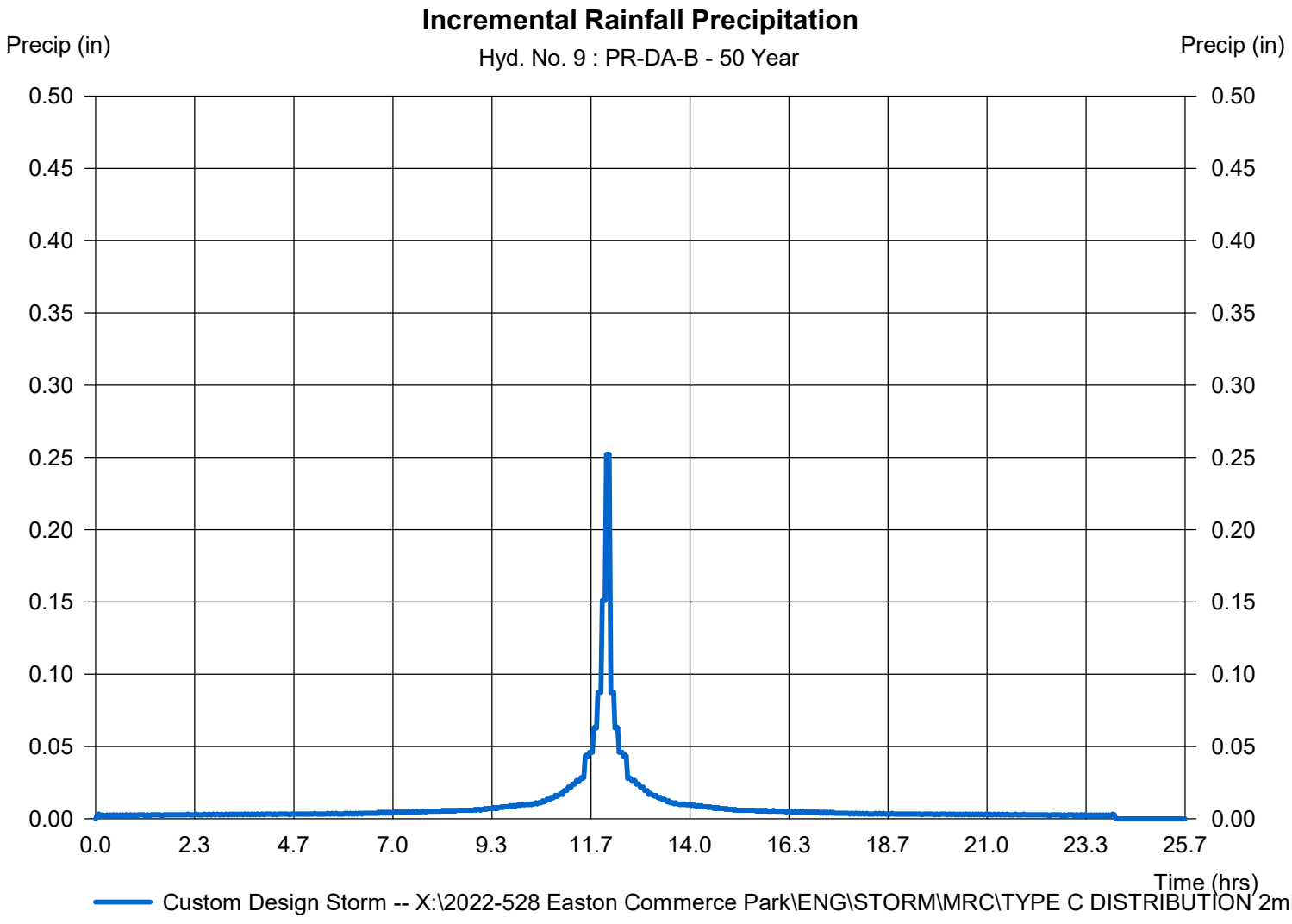


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



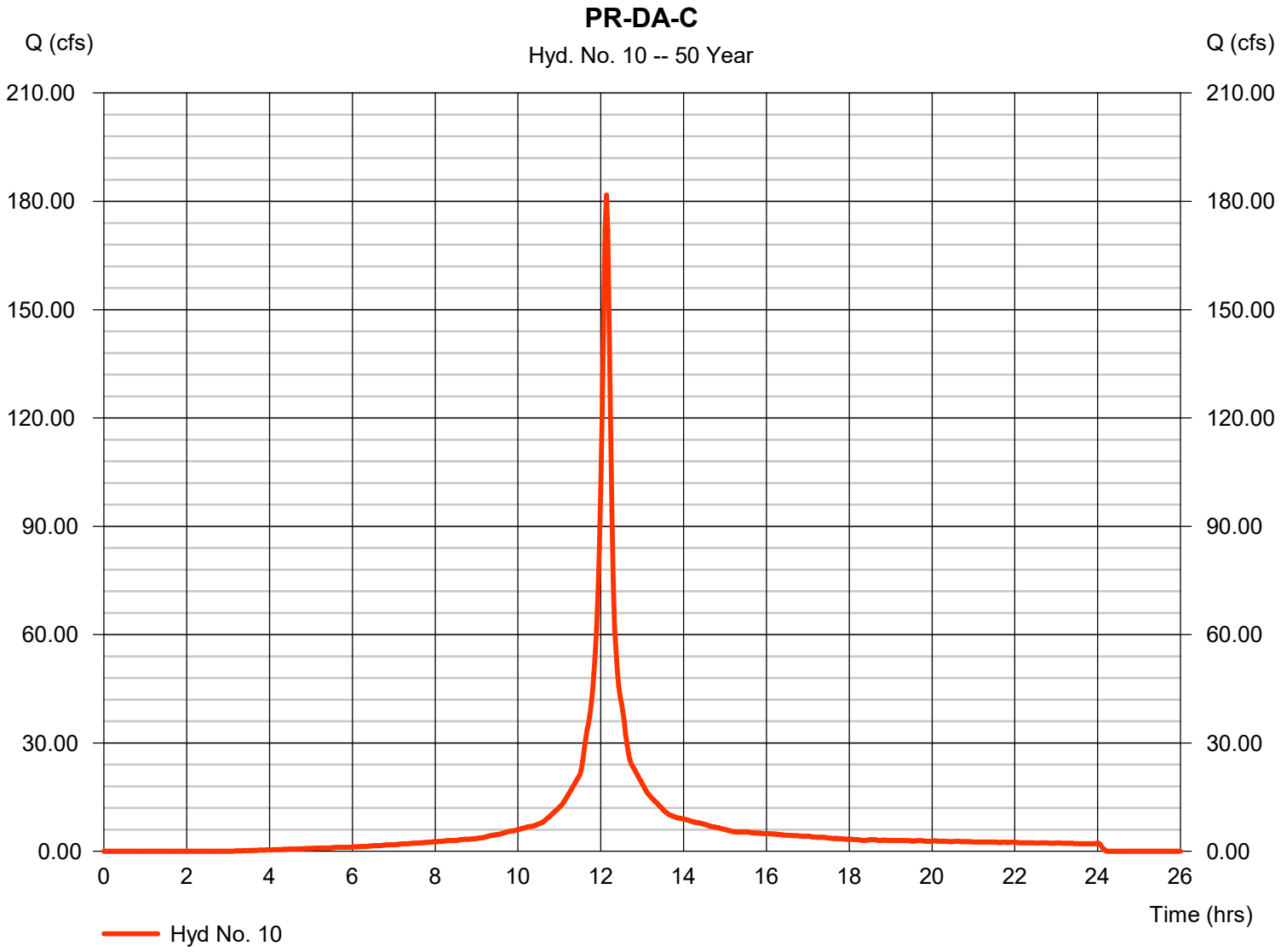
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	181.75 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	598,972 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC 24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

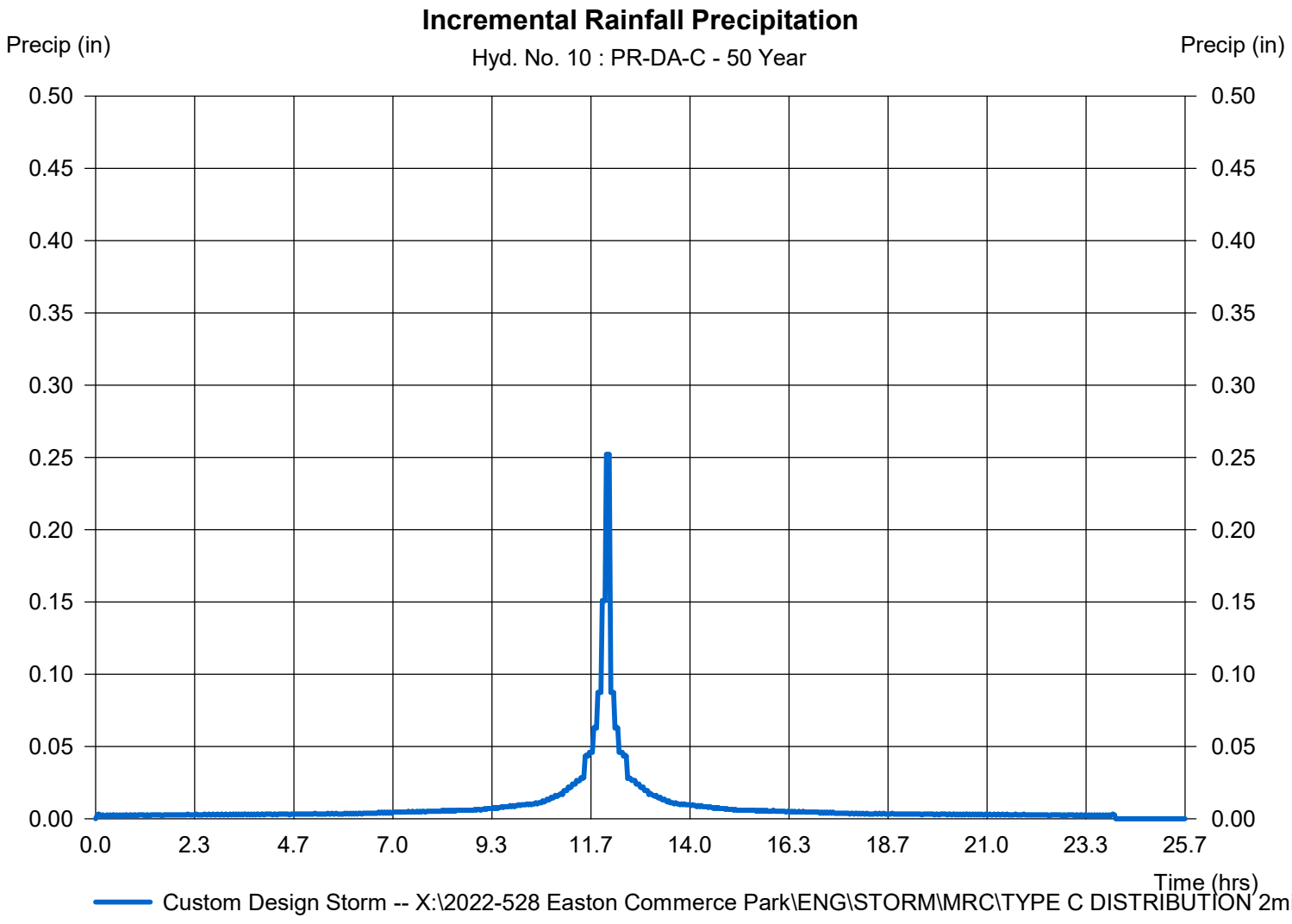


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



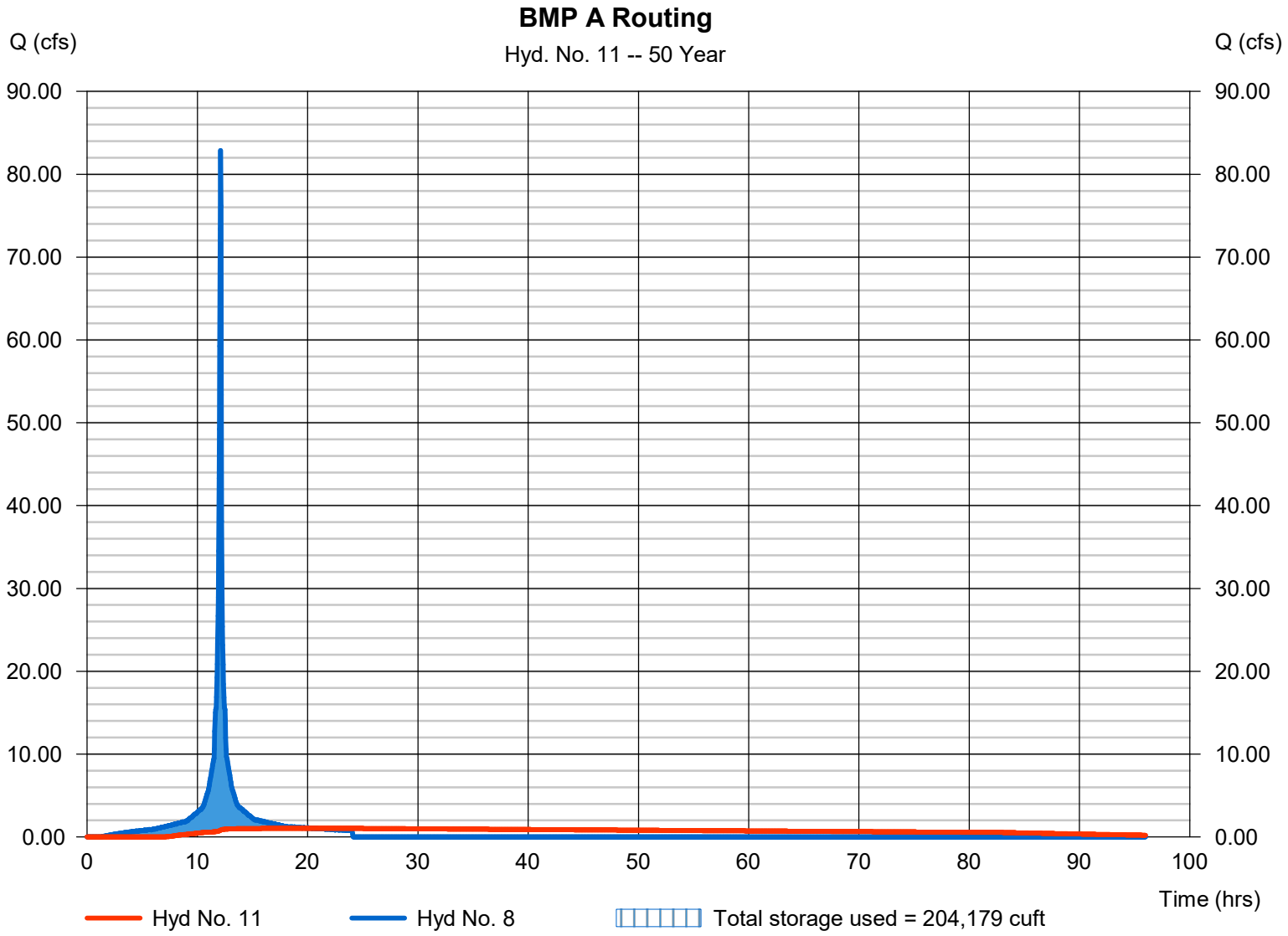
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.036 cfs
Storm frequency	=	50 yrs	Time to peak	=	20.30 hrs
Time interval	=	2 min	Hyd. volume	=	234,661 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.01 ft
Reservoir name	=	BMP A	Max. Storage	=	204,179 cuft

Storage Indication method used.



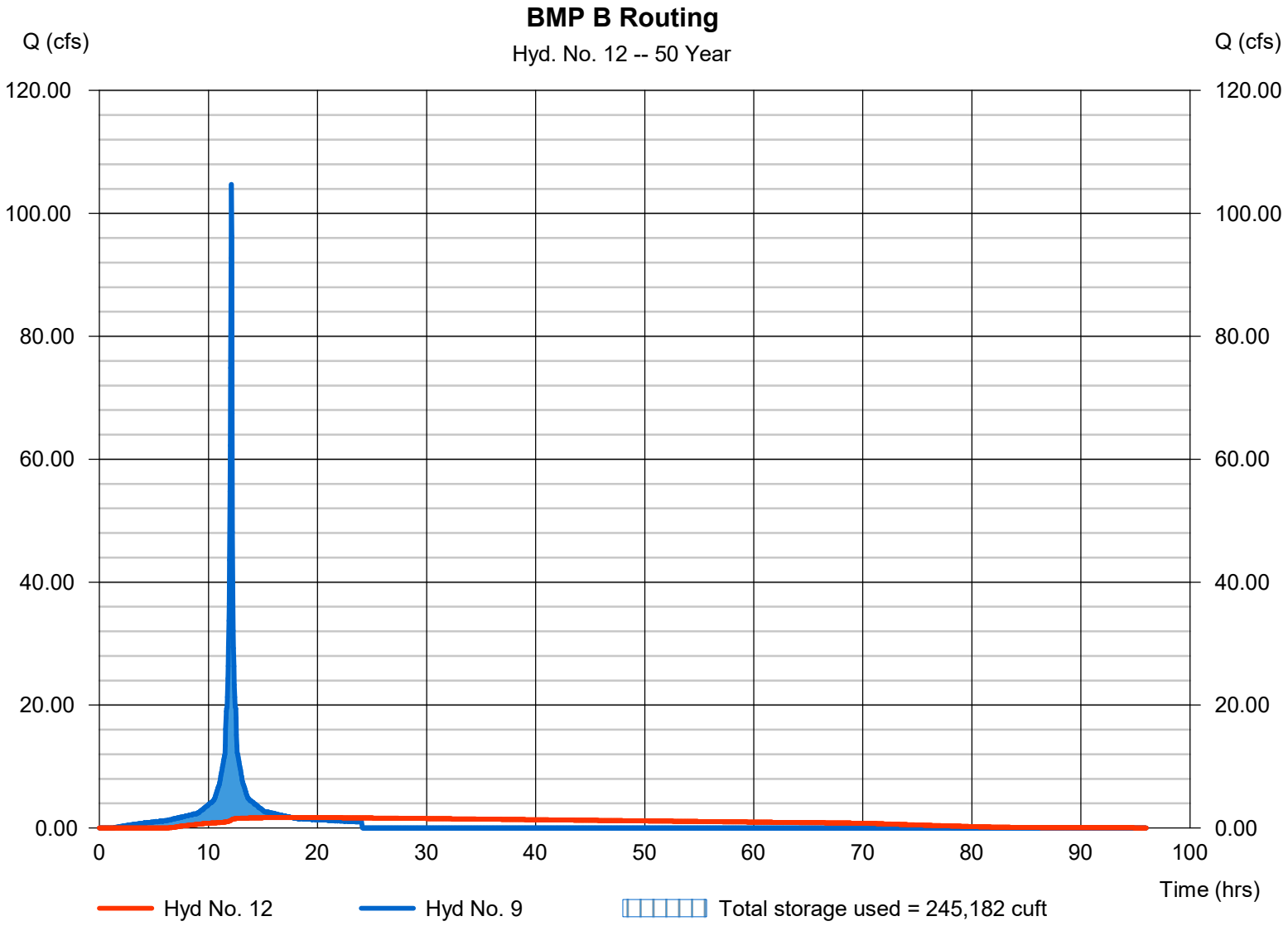
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.696 cfs
Storm frequency	=	50 yrs	Time to peak	=	17.73 hrs
Time interval	=	2 min	Hyd. volume	=	307,326 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.52 ft
Reservoir name	=	BMP B	Max. Storage	=	245,182 cuft

Storage Indication method used.



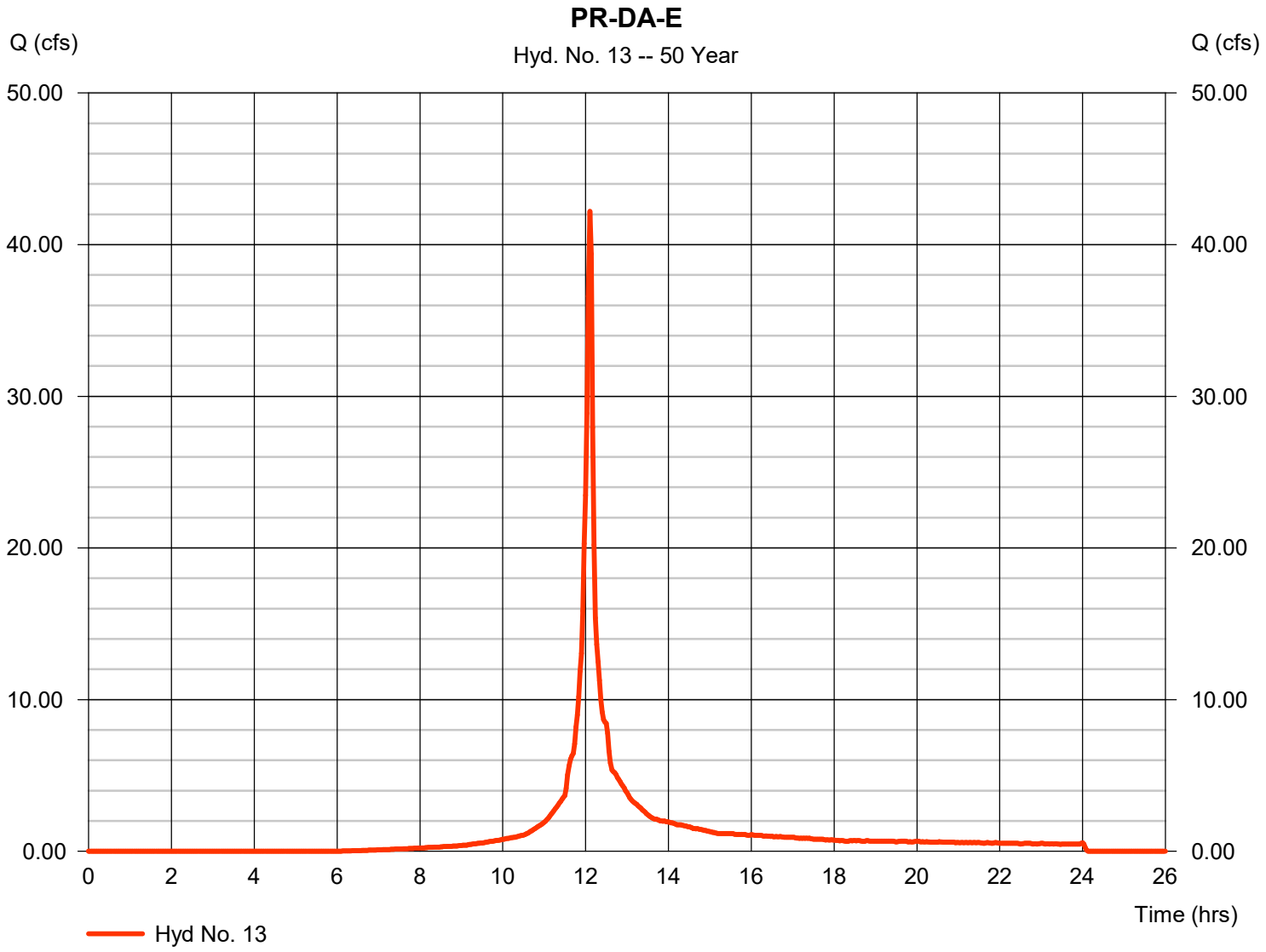
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.19 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	113,948 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

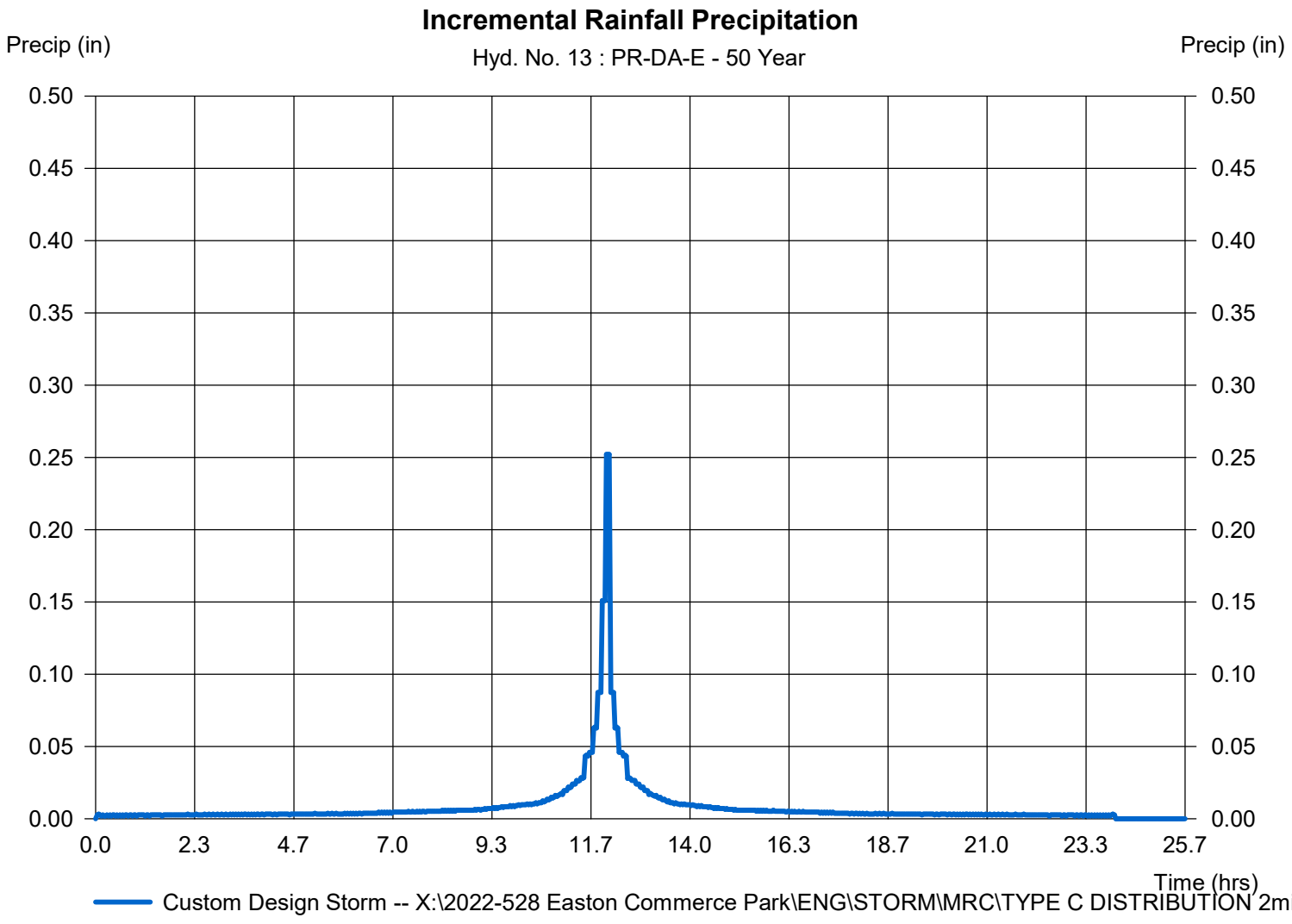


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



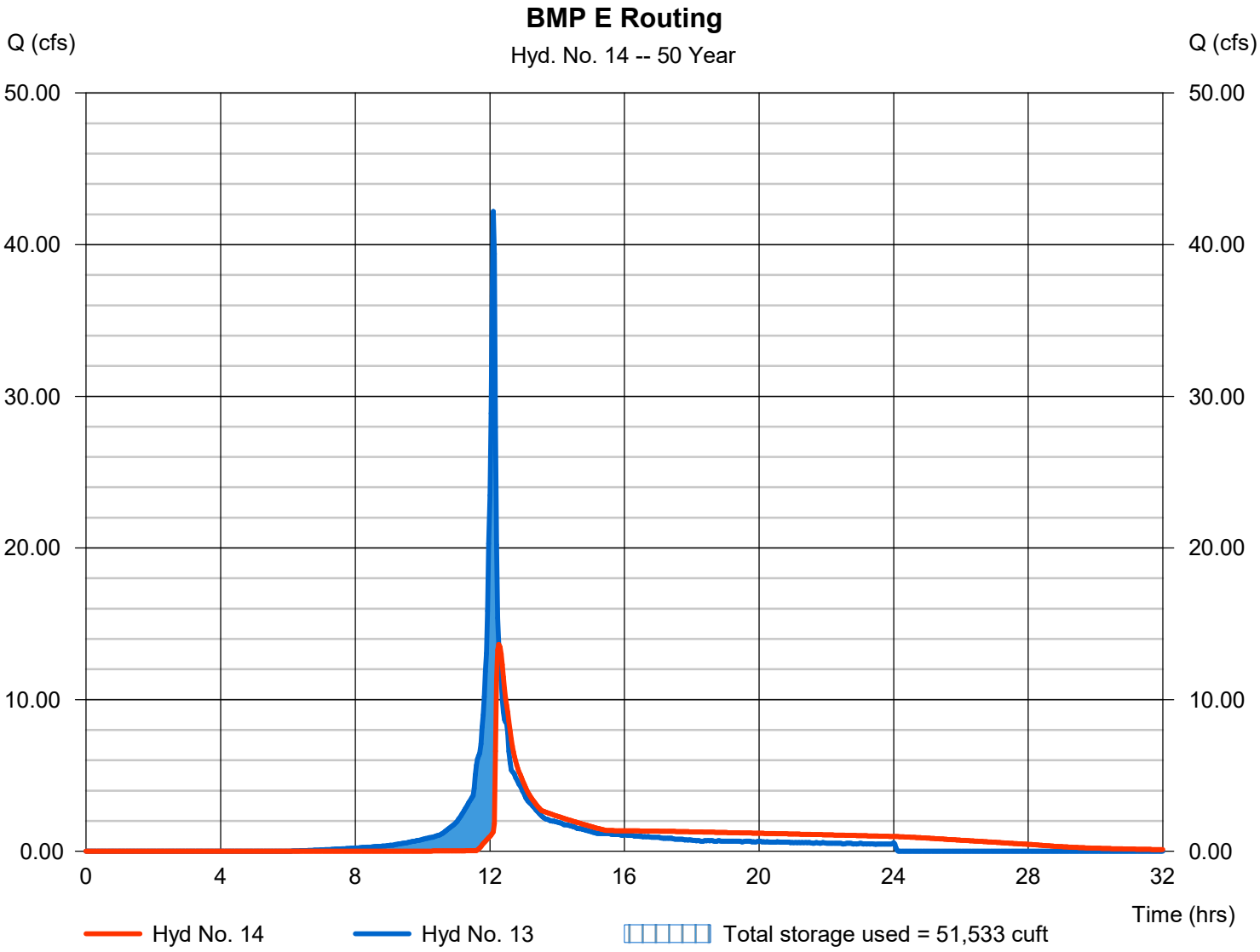
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	13.64 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	106,058 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.95 ft
Reservoir name	=	BMP E	Max. Storage	=	51,533 cuft

Storage Indication method used.

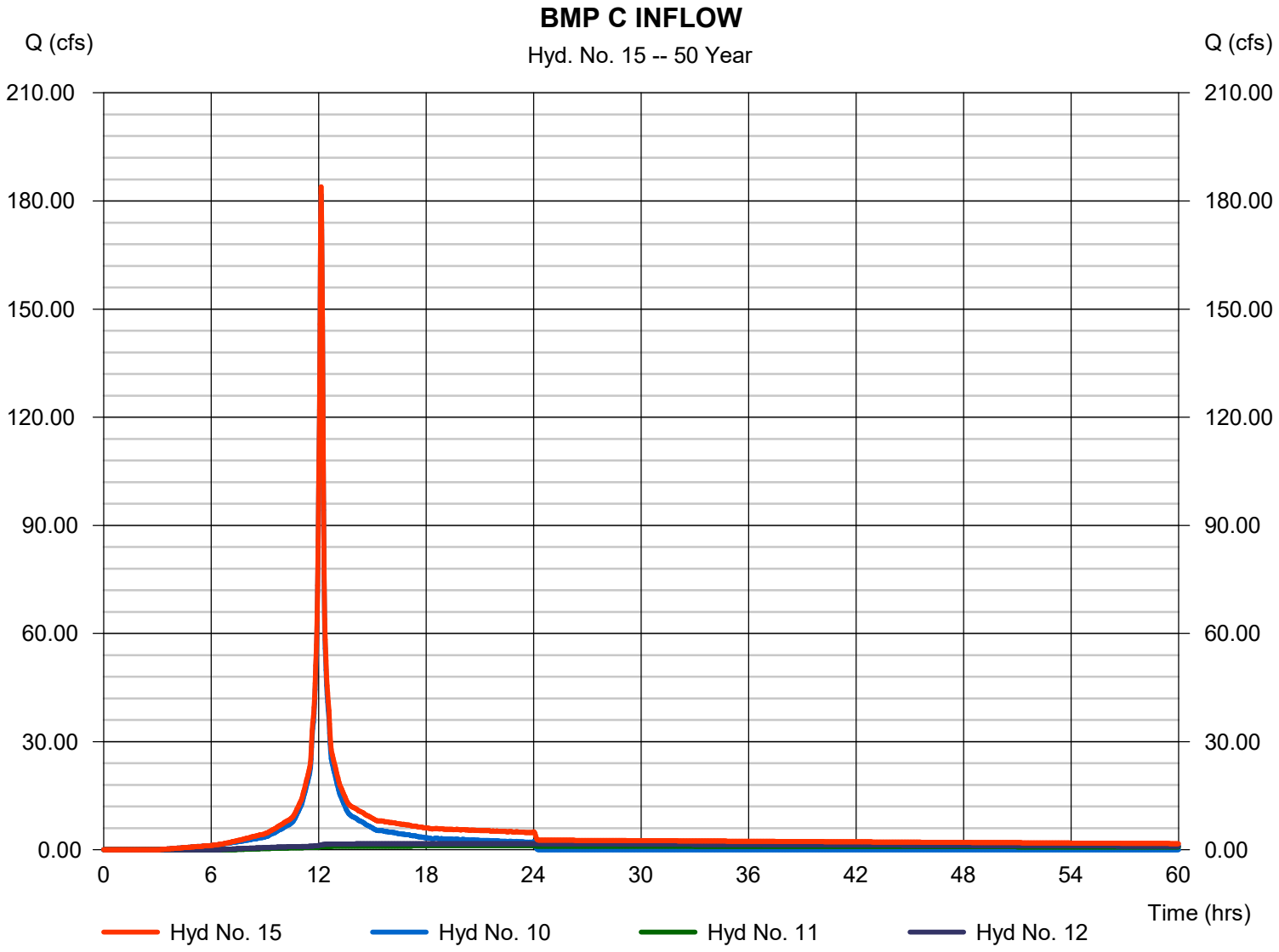


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	183.96 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	1,140,957 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



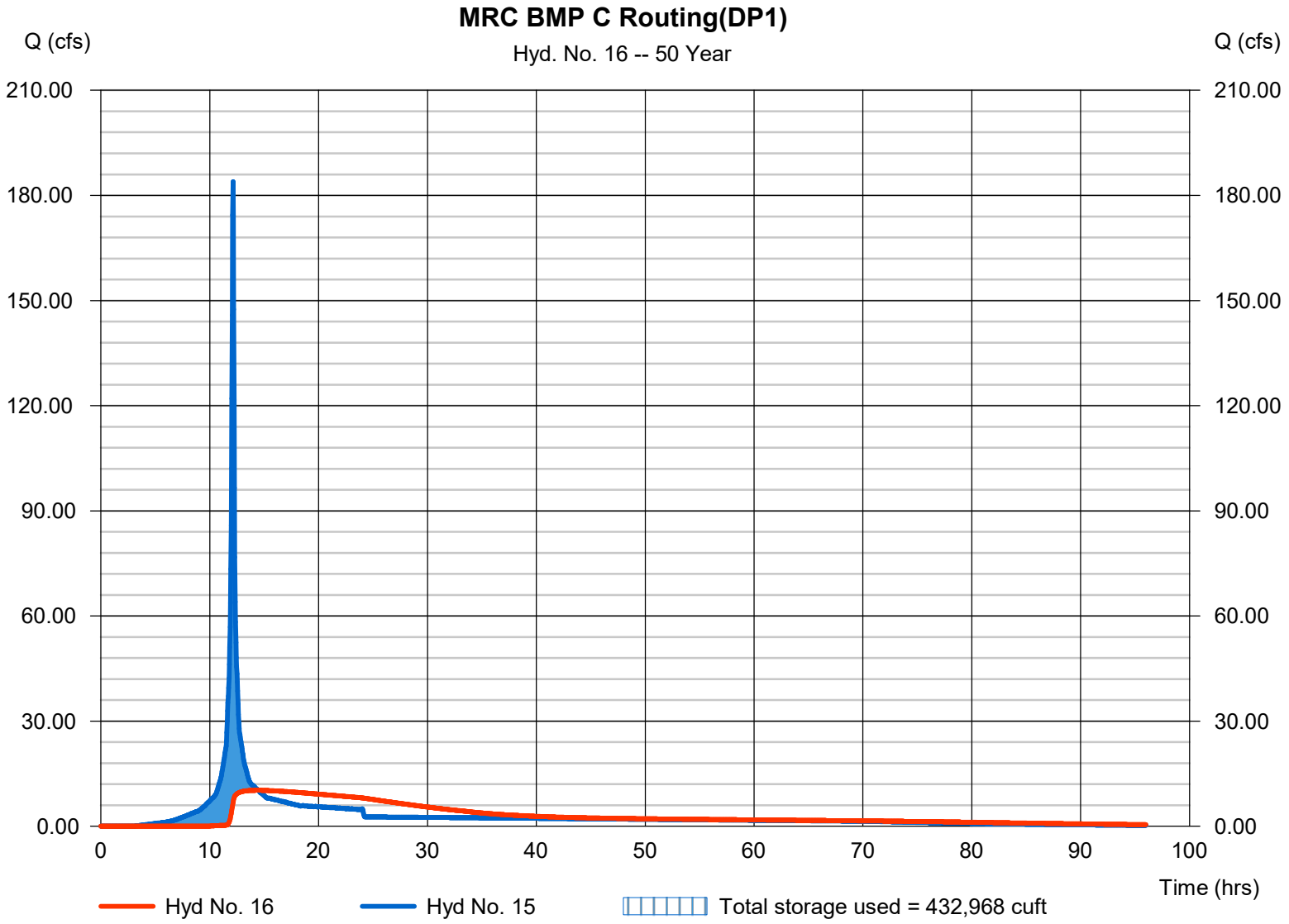
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	10.25 cfs
Storm frequency	=	50 yrs	Time to peak	=	14.47 hrs
Time interval	=	2 min	Hyd. volume	=	1,004,664 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	218.80 ft
Reservoir name	=	BMP C	Max. Storage	=	432,968 cuft

Storage Indication method used.



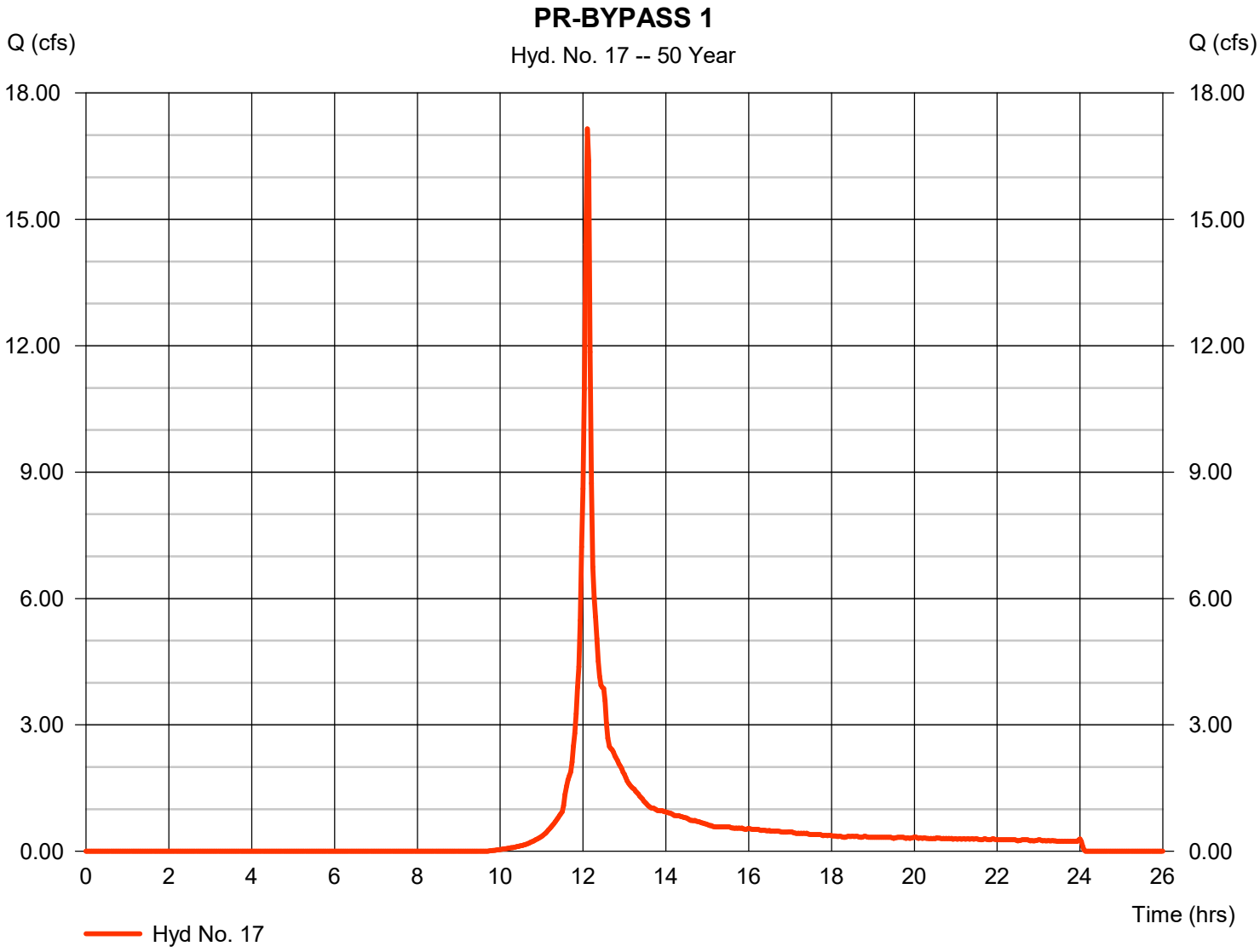
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.15 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	45,587 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

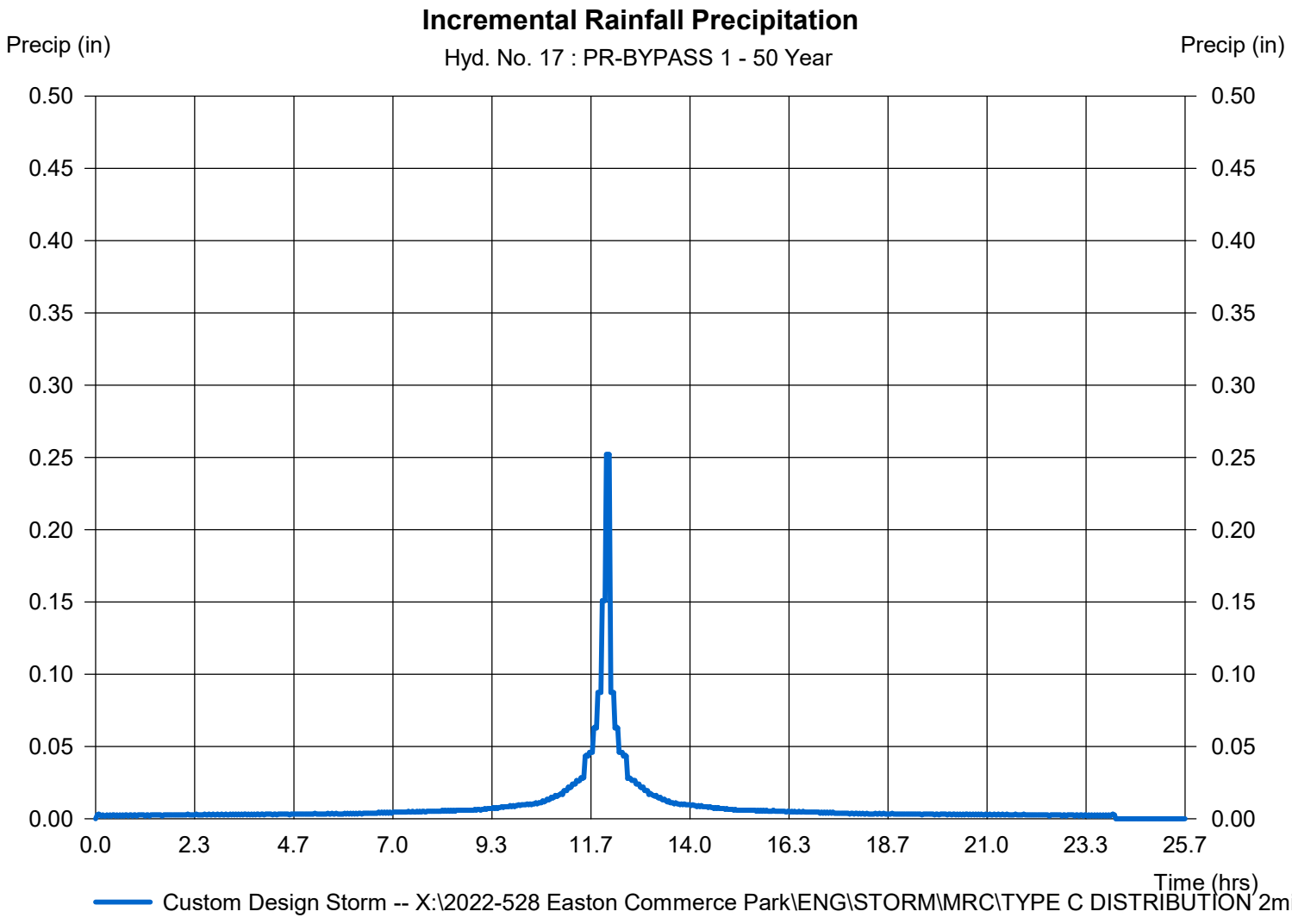


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



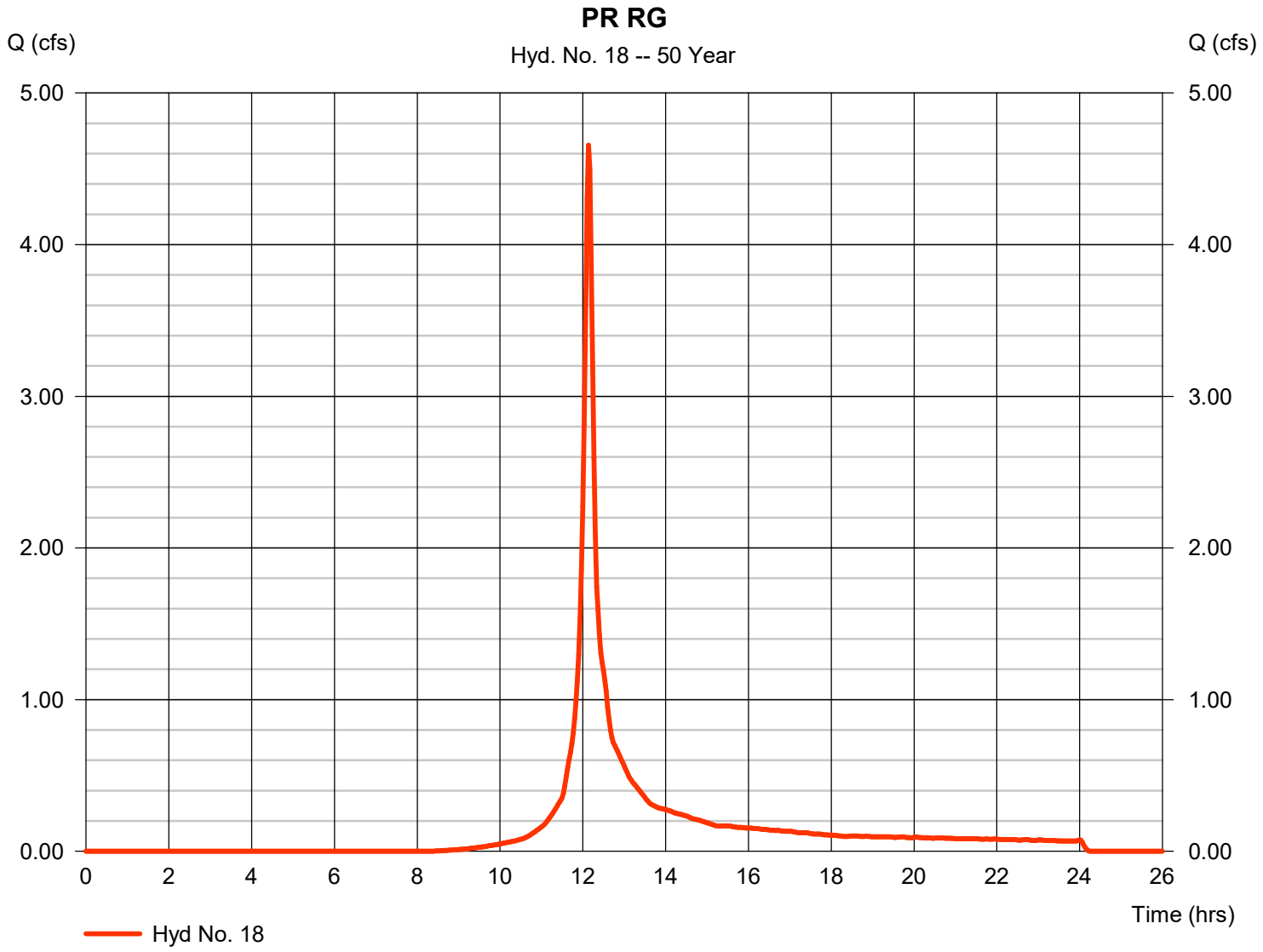
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.656 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	14,332 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24	Storm frequency	=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

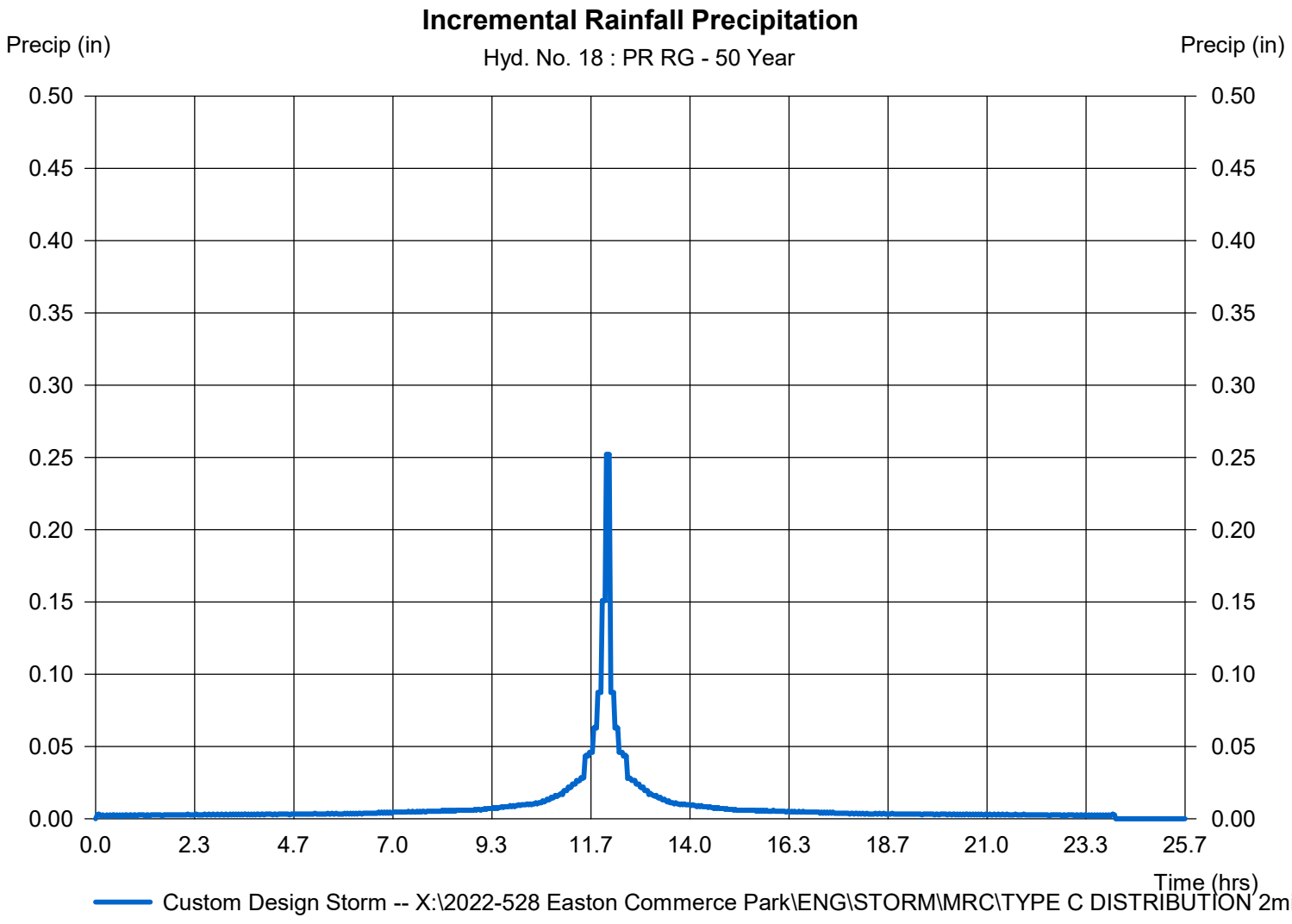


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



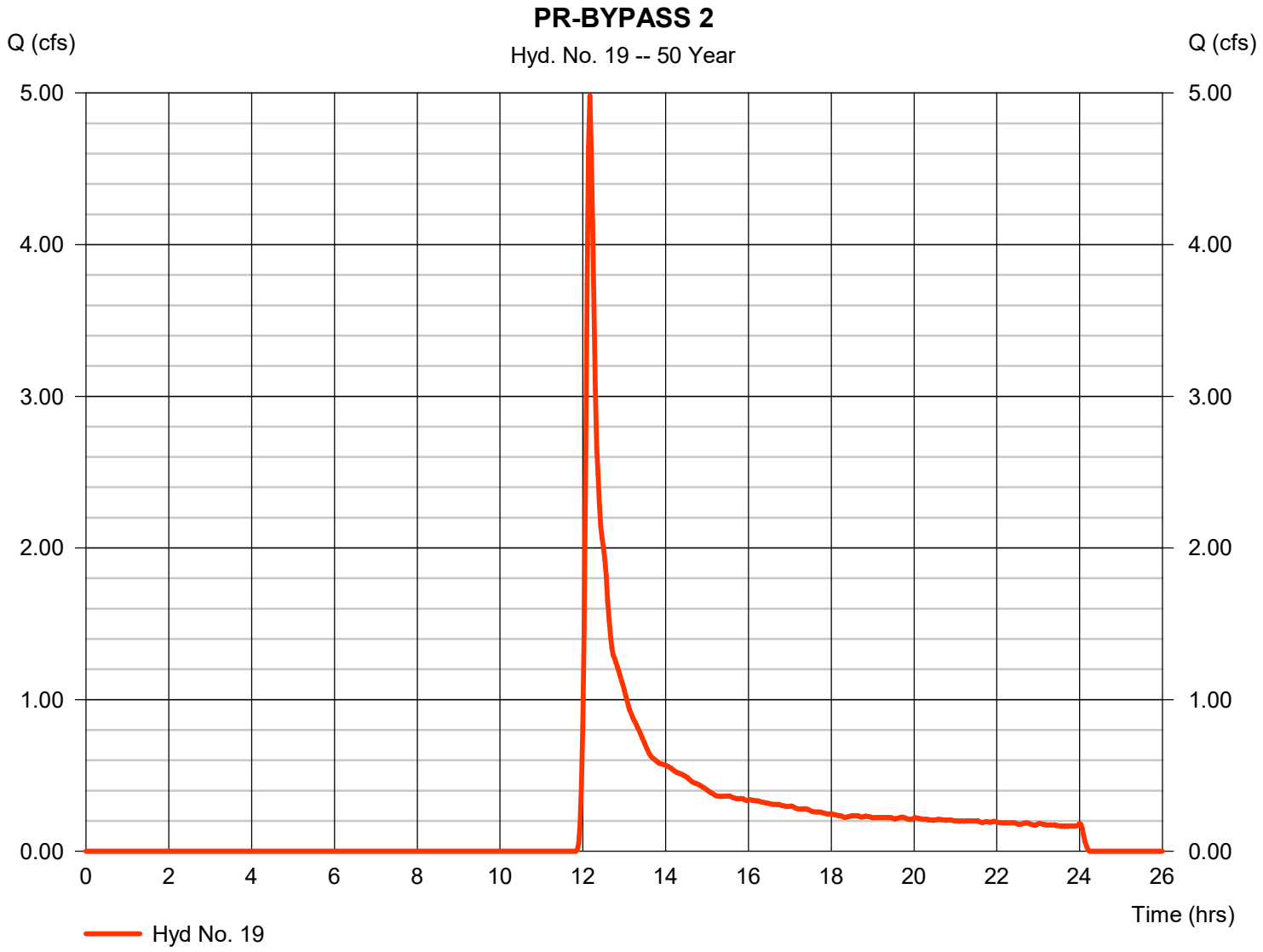
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.982 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	20,362 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

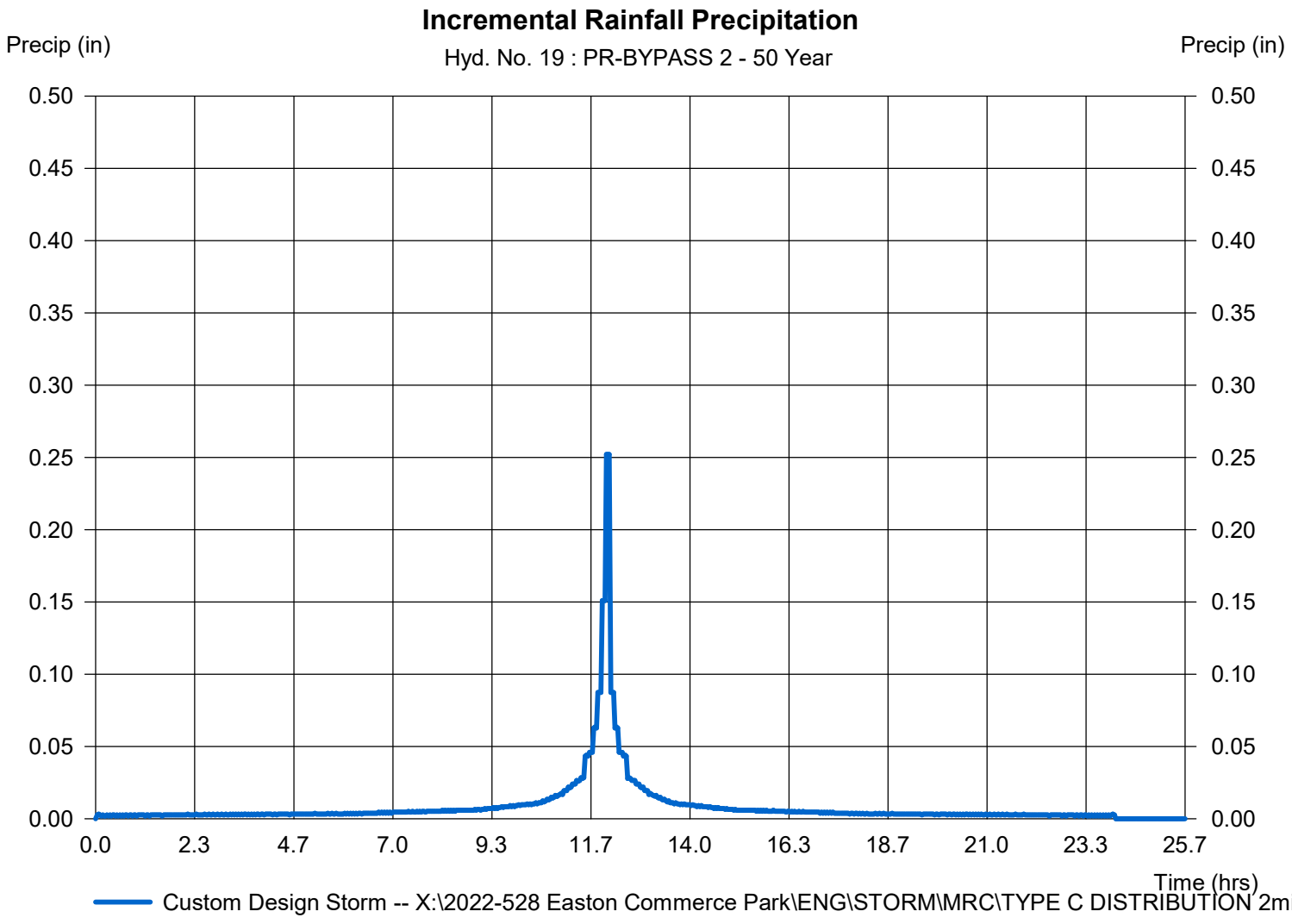


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



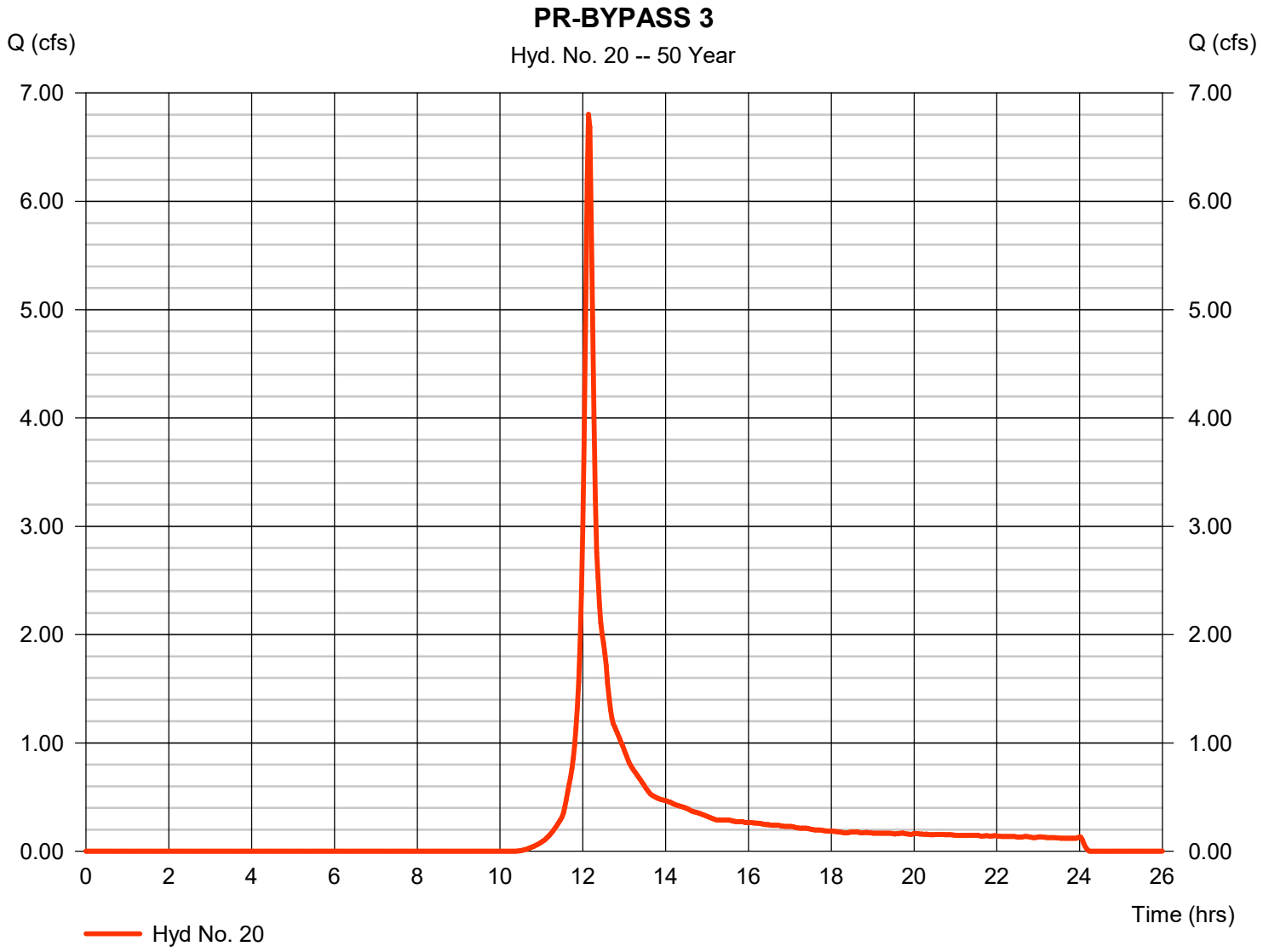
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.803 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	21,428 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO	Storm Factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

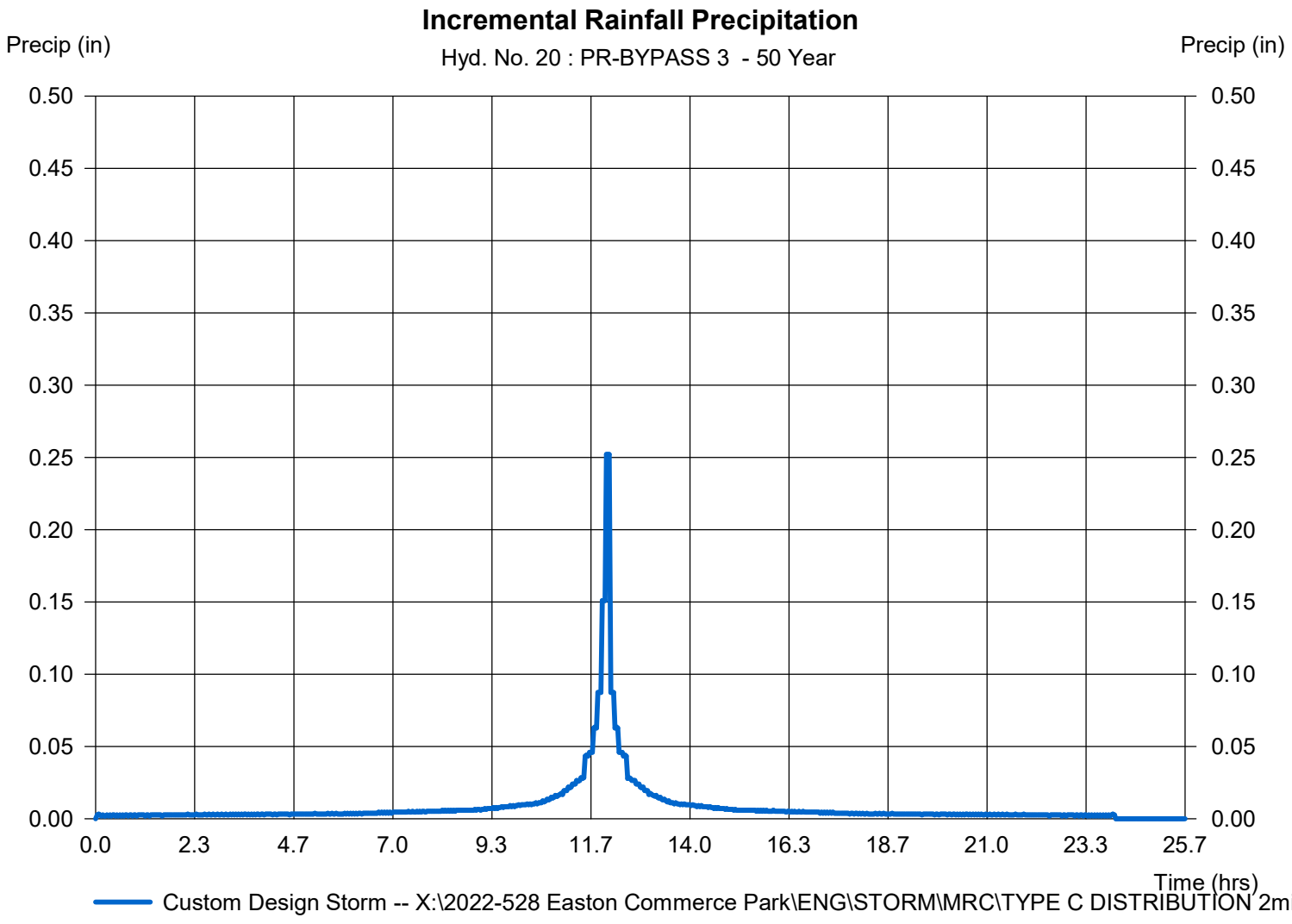


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

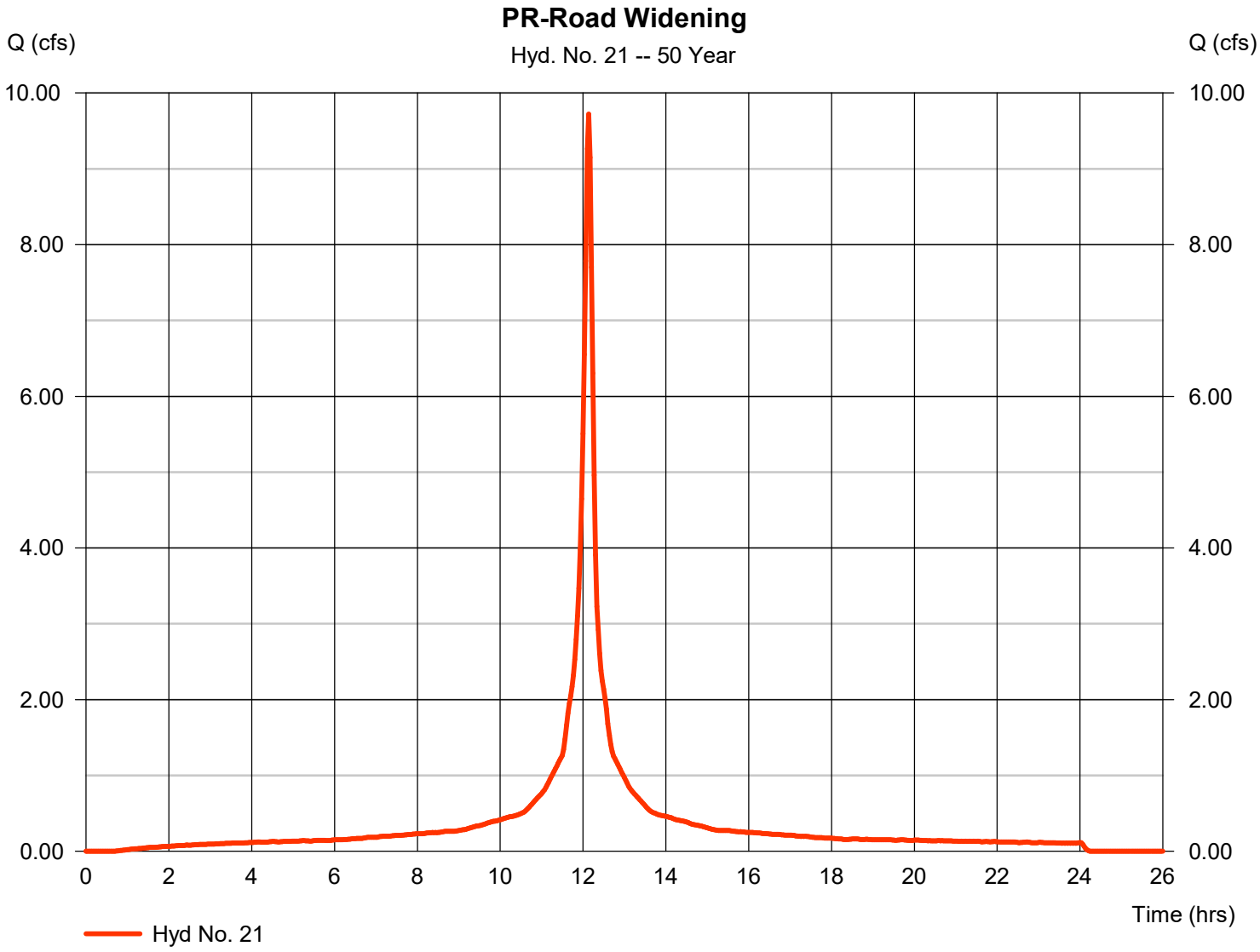


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.720 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	35,117 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	6.48 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

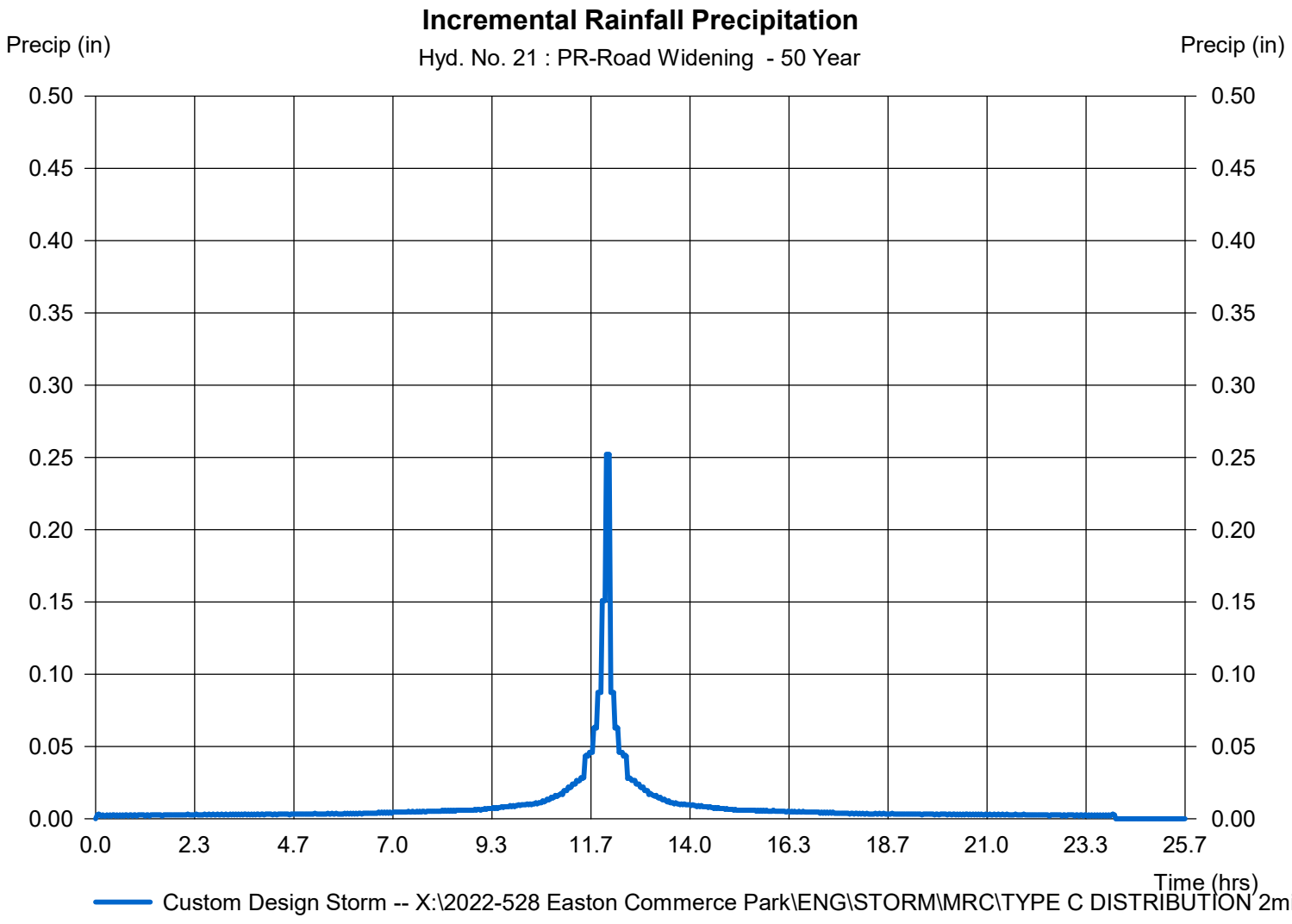


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 50 yrs	Time interval	= 2 min
Total precip.	= 6.4800 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

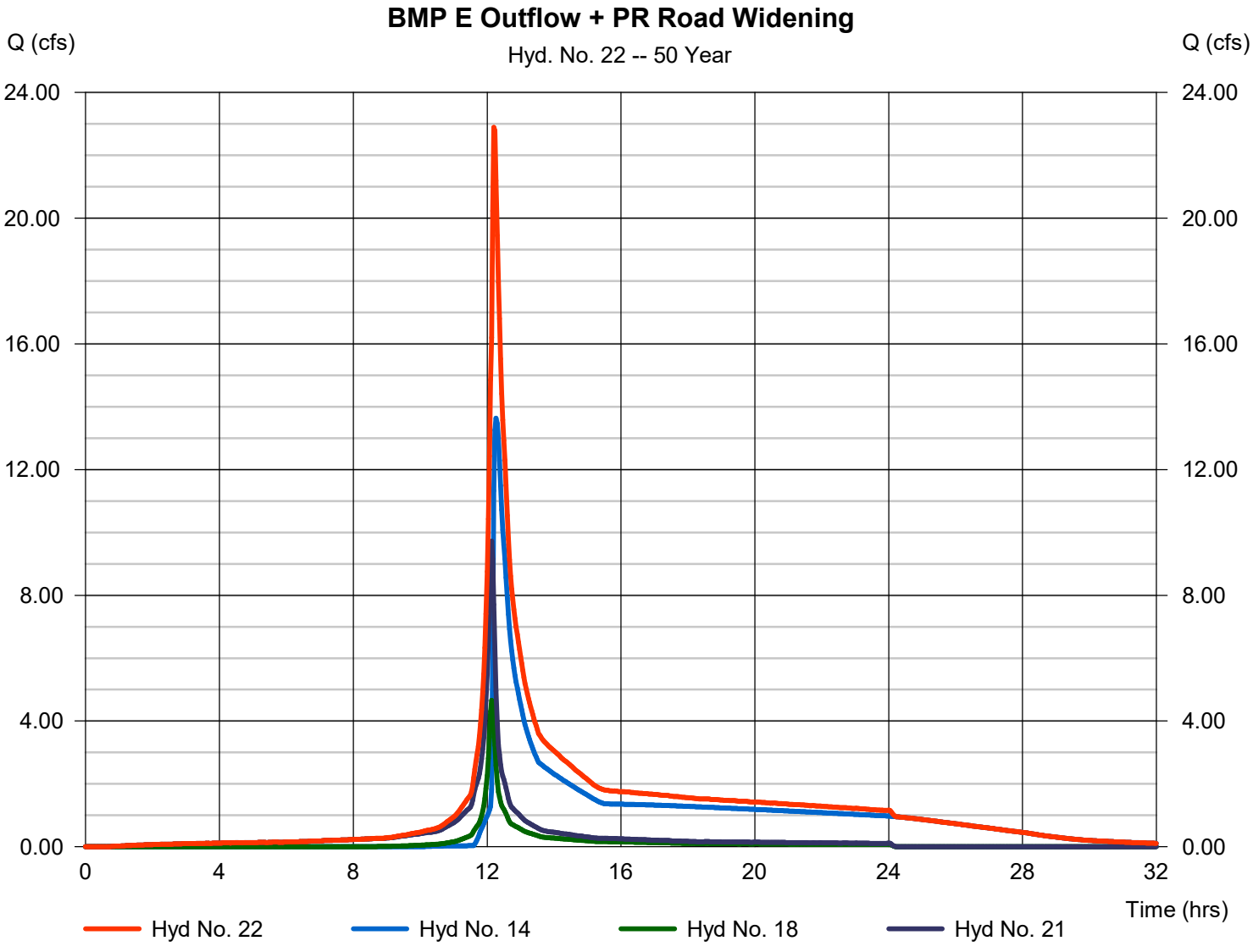


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	22.89 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	155,507 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



Hydrograph Report

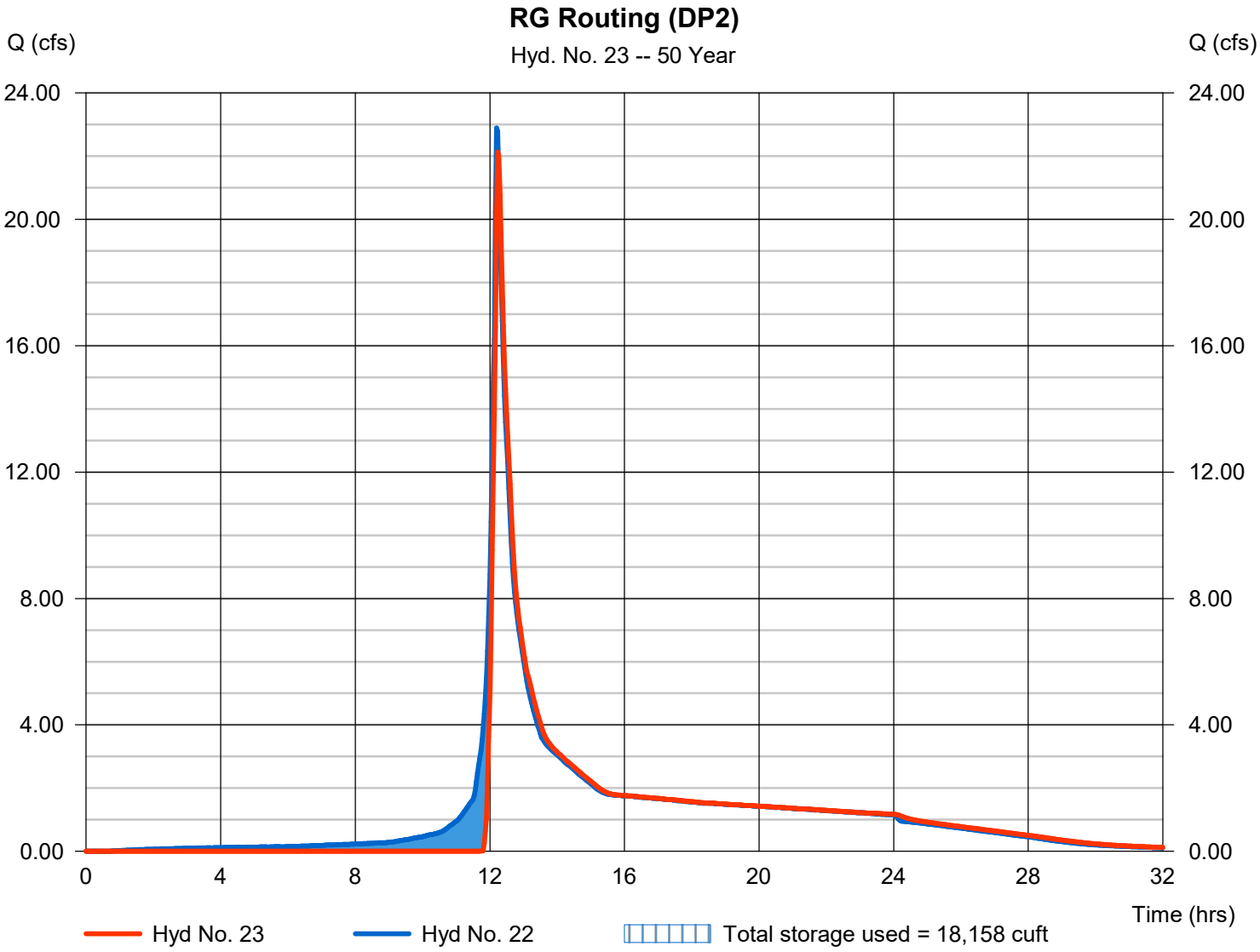
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	22.14 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	142,492 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.29 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	18,158 cuft

Storage Indication method used.

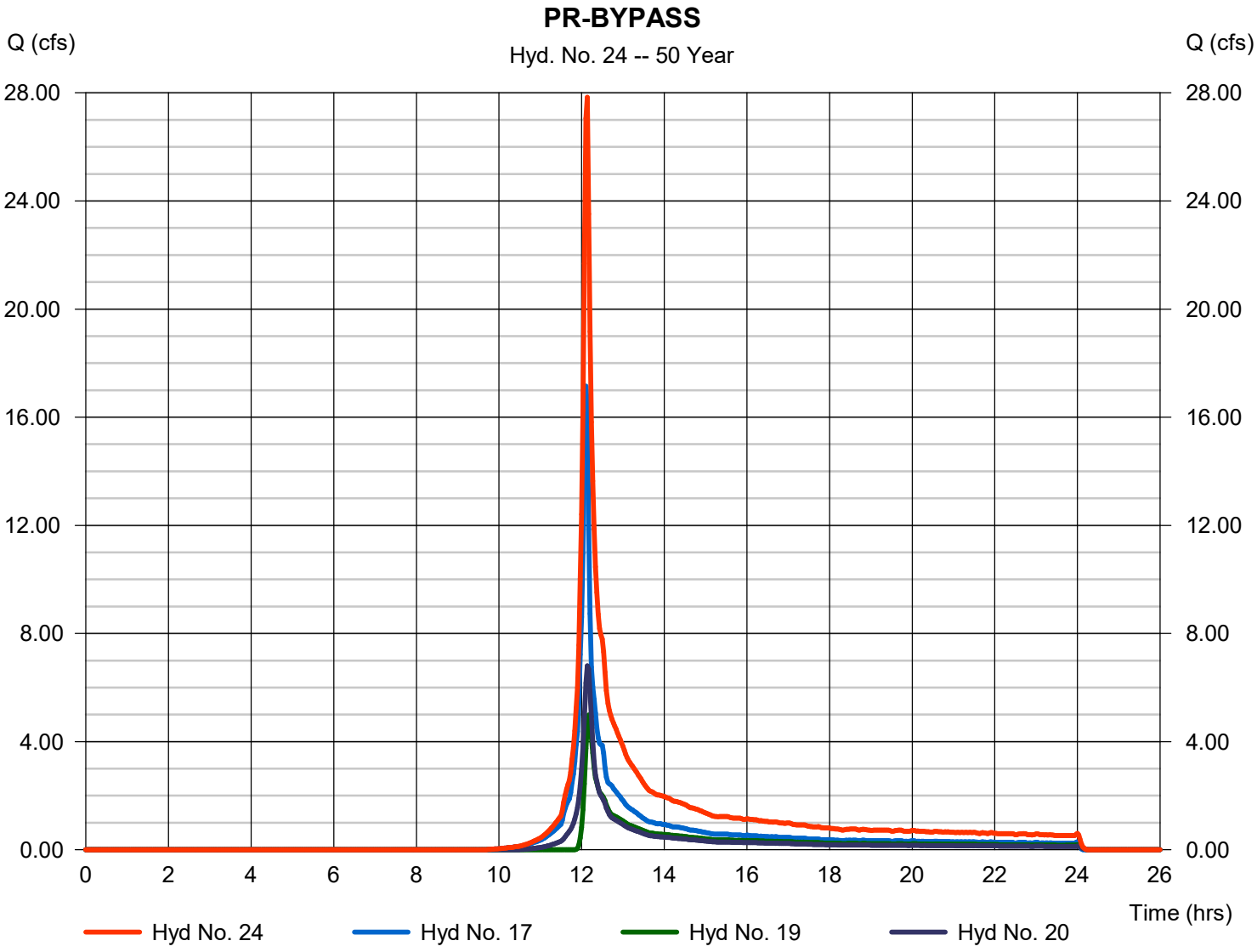


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	27.83 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	87,378 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

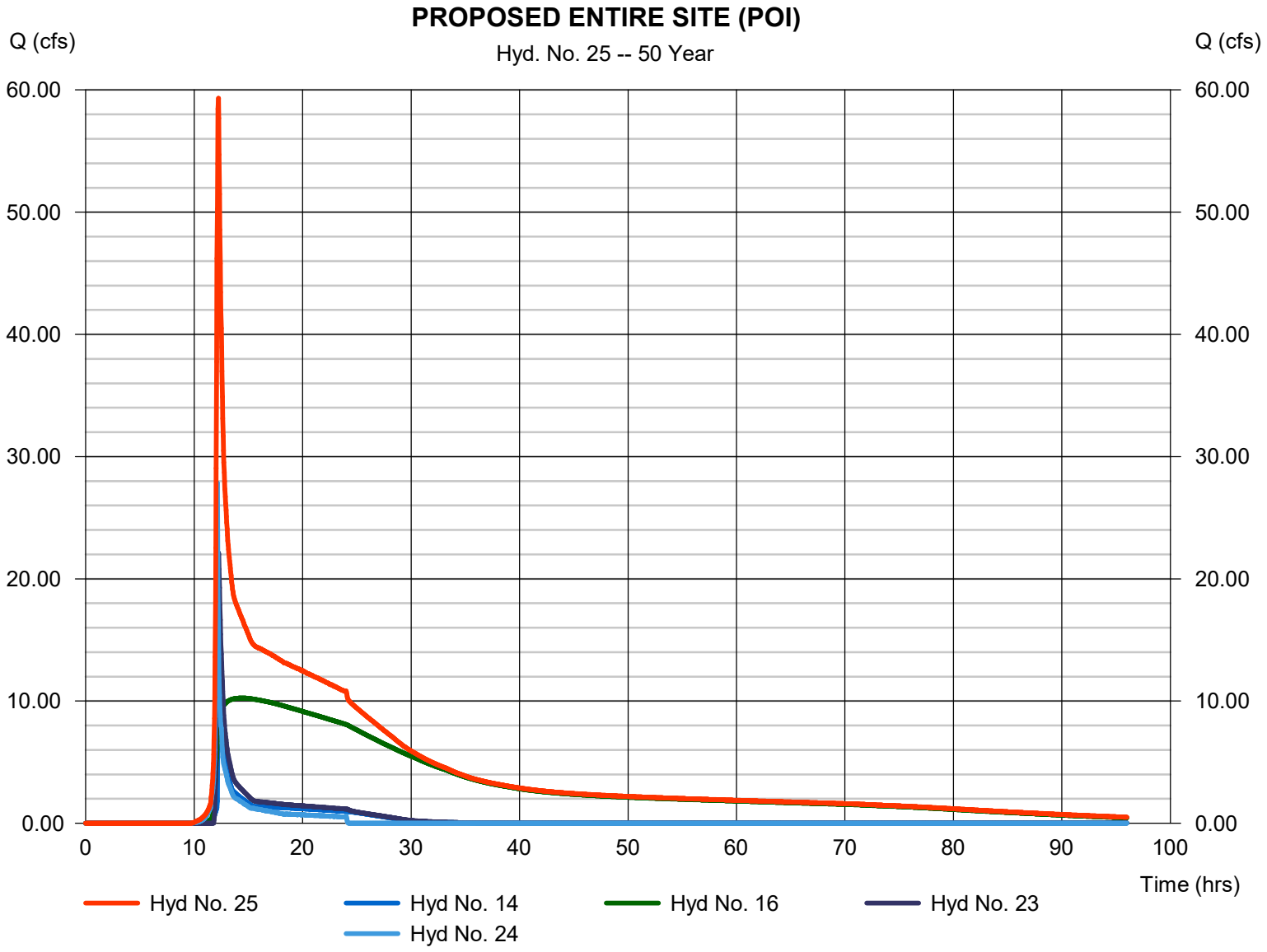


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 59.33 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 1,340,591 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

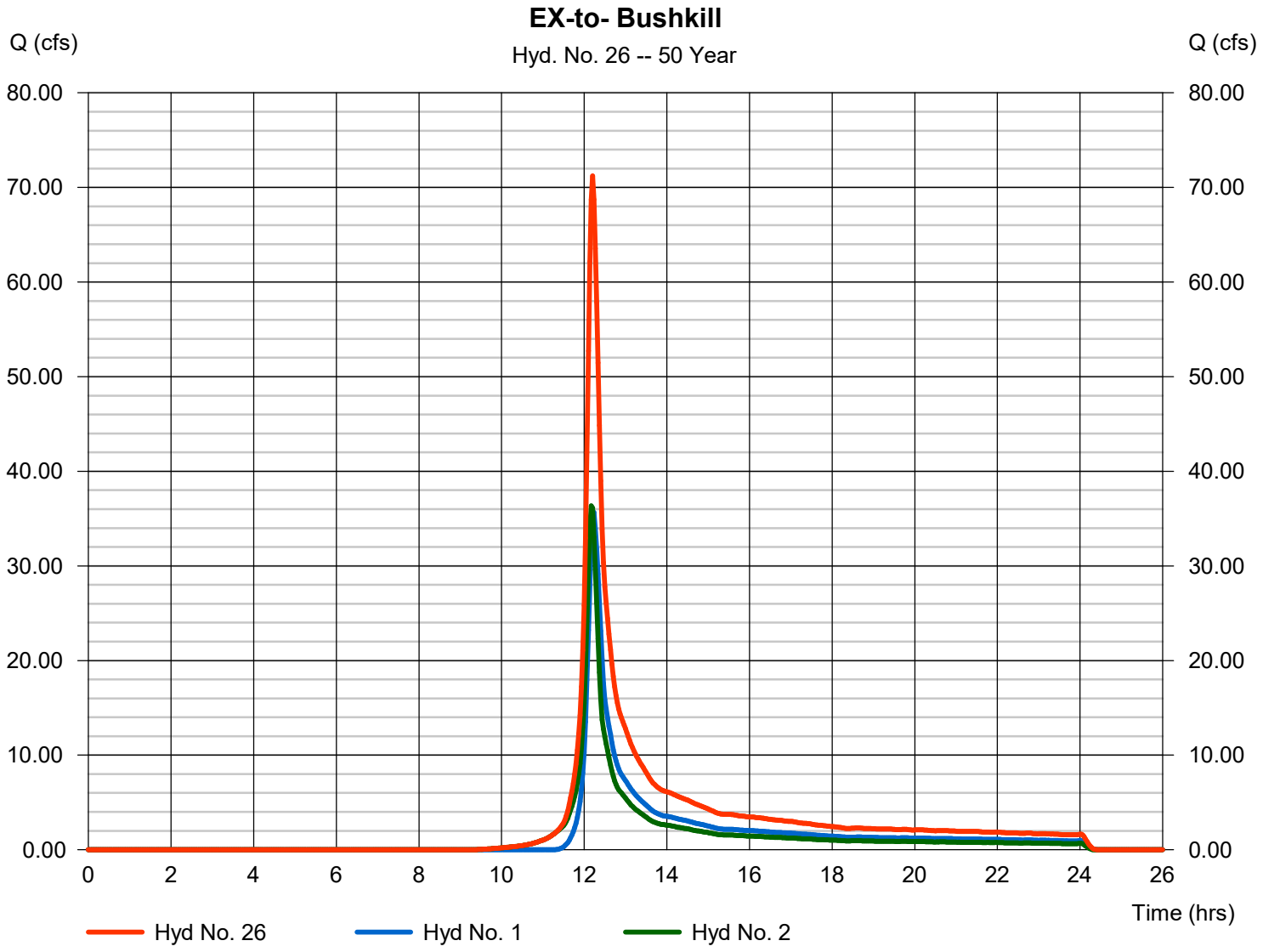


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 71.21 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 272,041 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

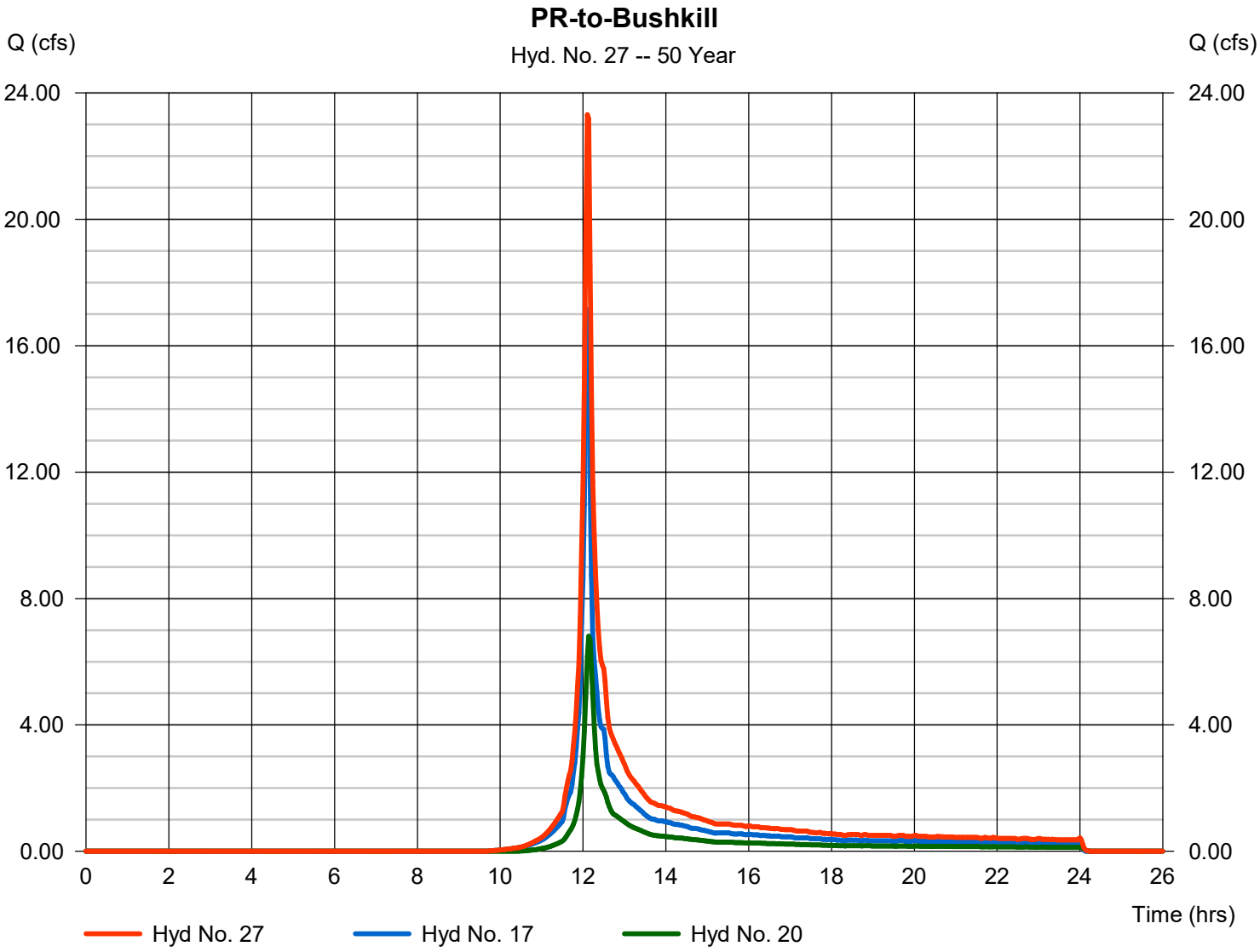


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 23.31 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 67,015 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

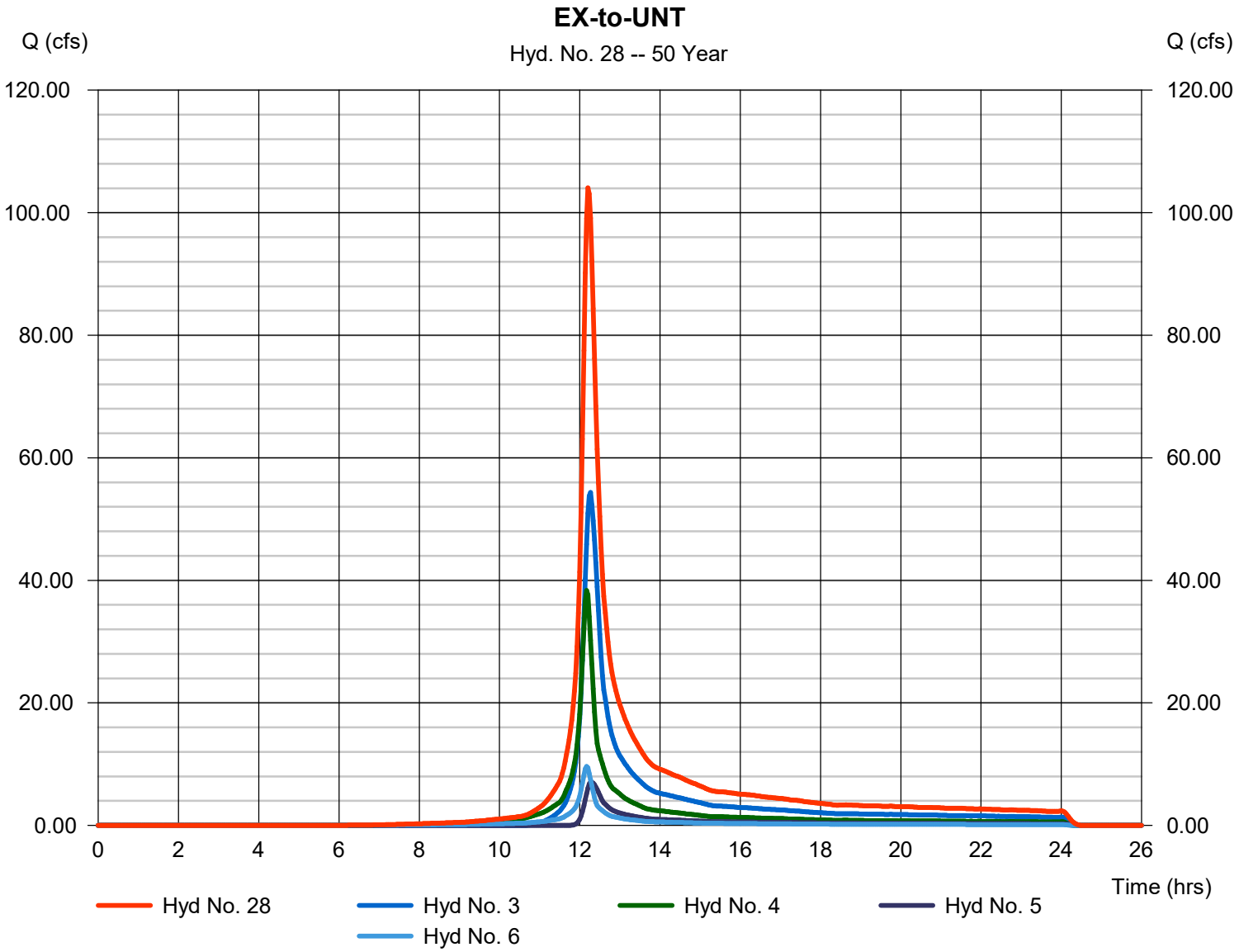


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 104.06 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 435,294 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

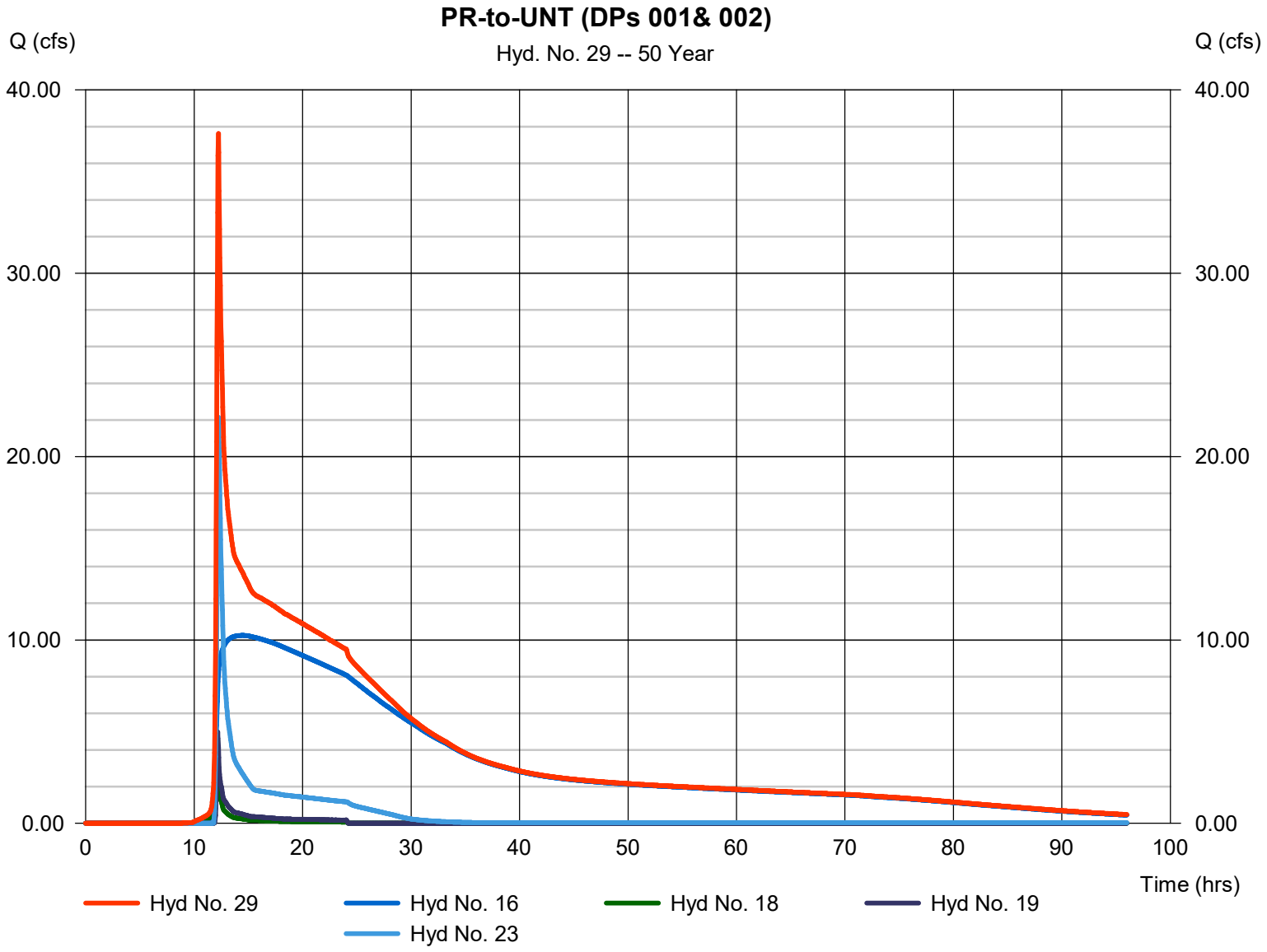


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 37.62 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 1,181,850 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

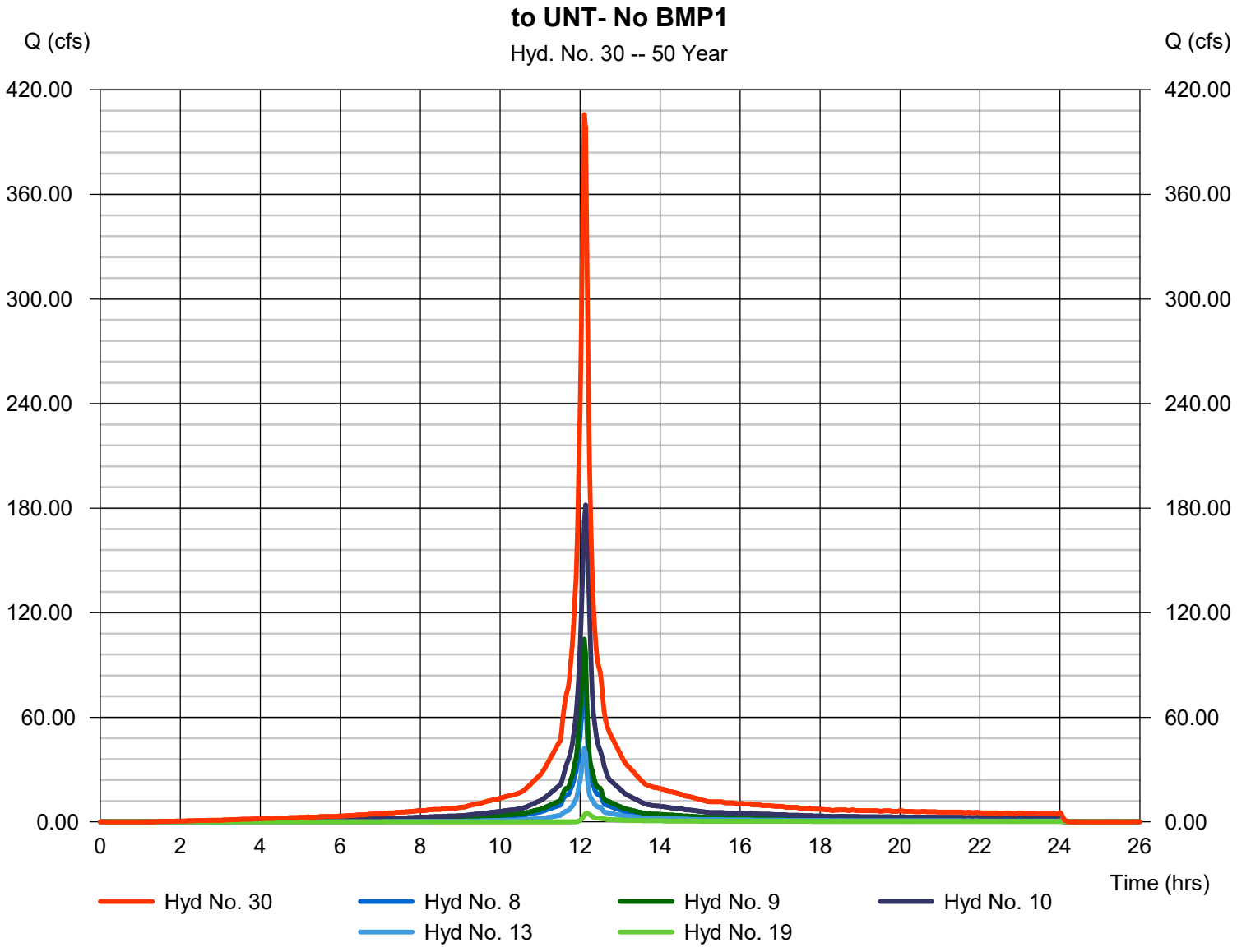


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 405.79 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 1,306,961 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

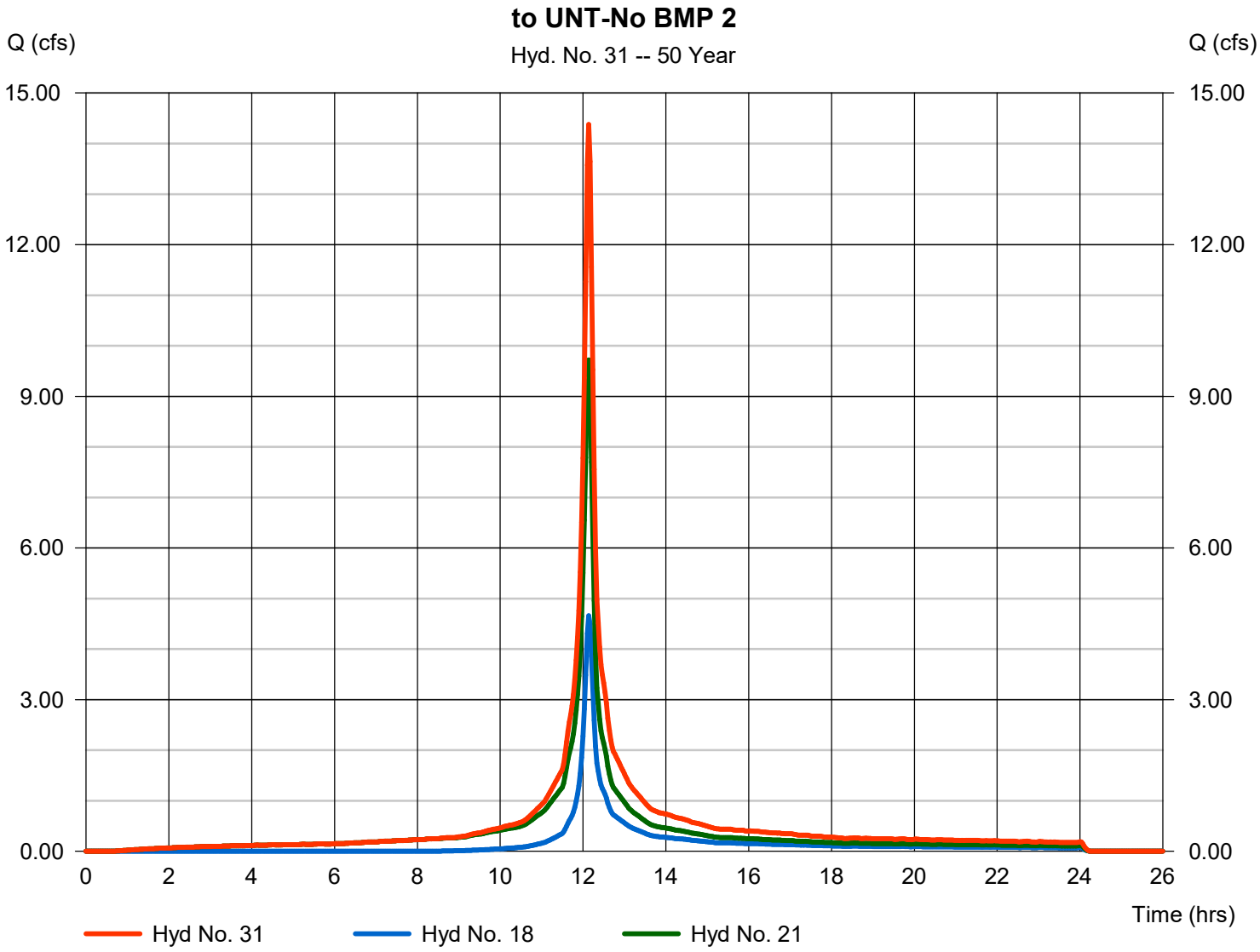


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 14.38 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 49,449 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

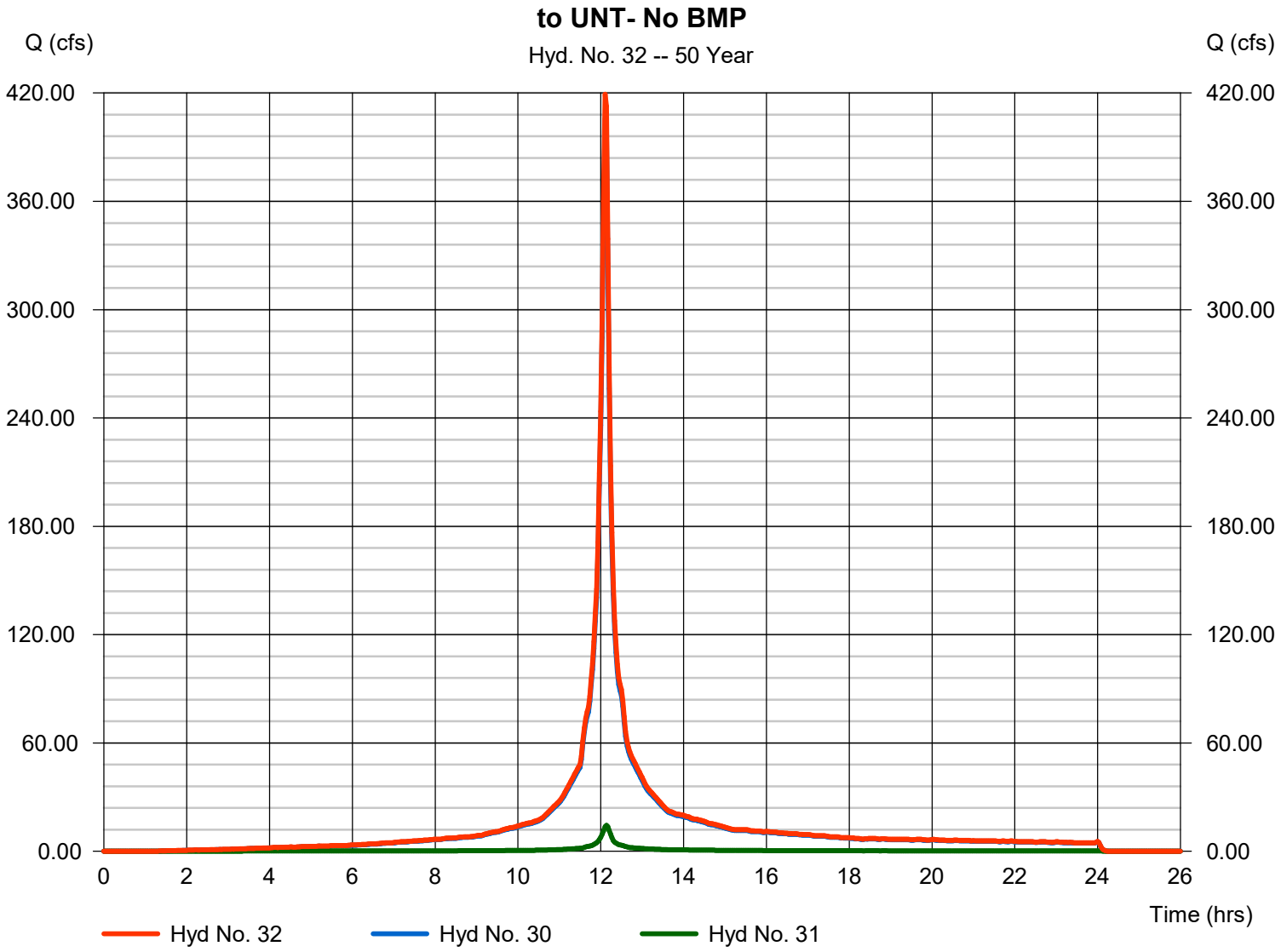


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	= Combine	Peak discharge	= 419.37 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 1,356,408 cuft
Inflow hyds.	= 30, 31	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	49.54	2	734	194,360	------	------	------	EX-DA 1
2	SCS Runoff	46.14	2	730	161,178	------	------	------	EX-DA2
3	SCS Runoff	71.80	2	736	299,808	------	------	------	EX-DA3
4	SCS Runoff	46.42	2	730	163,723	------	------	------	EX-DA4
5	SCS Runoff	10.89	2	736	50,701	------	------	------	EX-DA5
6	SCS Runoff	11.42	2	730	41,204	------	------	------	EX-DA-Road Widening
7	Combine	229.20	2	732	910,975	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	95.40	2	726	293,802	------	------	------	PR-DA-A
9	SCS Runoff	120.55	2	726	371,280	------	------	------	PR-DA-B
10	SCS Runoff	211.78	2	728	704,998	------	------	------	PR-DA-C
11	Reservoir	1.108	2	1292	264,355	8	292.39	239,412	BMP A Routing
12	Reservoir	2.172	2	1026	357,778	9	288.92	282,013	BMP B Routing
13	SCS Runoff	50.60	2	726	137,862	------	------	------	PR-DA-E
14	Reservoir	26.51	2	732	129,906	13	260.27	56,493	BMP E Routing
15	Combine	214.14	2	728	1,327,131	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	11.57	2	874	1,184,707	15	219.40	511,823	MRC BMP C Routing(DP1)
17	SCS Runoff	21.92	2	726	58,058	------	------	------	PR-BYPASS 1
18	SCS Runoff	5.791	2	728	17,845	------	------	------	PR RG
19	SCS Runoff	8.091	2	730	29,463	------	------	------	PR-BYPASS 2
20	SCS Runoff	8.931	2	728	27,769	------	------	------	PR-BYPASS 3
21	SCS Runoff	11.17	2	728	40,514	------	------	------	PR-Road Widening
22	Combine	42.09	2	730	188,265	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	40.33	2	732	175,250	22	233.53	19,933	RG Routing (DP2)
24	Combine	37.59	2	728	115,291	17, 19, 20,	------	------	PR-BYPASS
25	Combine	103.82	2	730	1,605,151	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	94.85	2	732	355,538	1, 2,	------	------	EX-to- Bushkill
27	Combine	30.08	2	726	85,828	17, 20,	------	------	PR-to-Bushkill
28	Combine	134.35	2	732	555,437	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	61.43	2	732	1,407,267	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)
30	Combine	474.19	2	726	1,537,405	8, 9, 10, 13, 19,	------	------	to UNT- No BMP1
31	Combine	16.96	2	728	58,359	18, 21,	------	------	to UNT-No BMP 2
32	Combine	490.22	2	726	1,595,765	30, 31	------	------	to UNT- No BMP

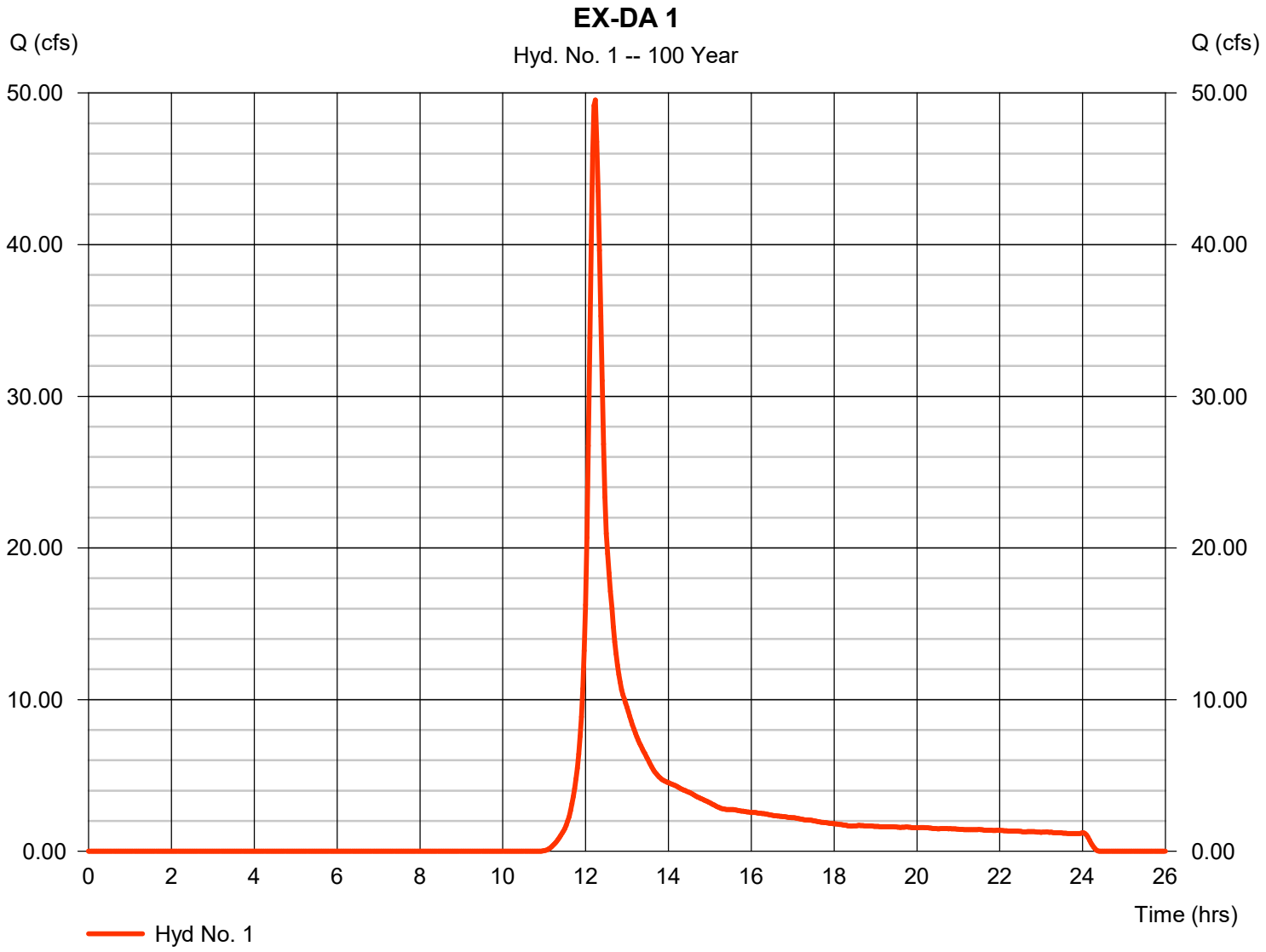
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	49.54 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	194,360 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790

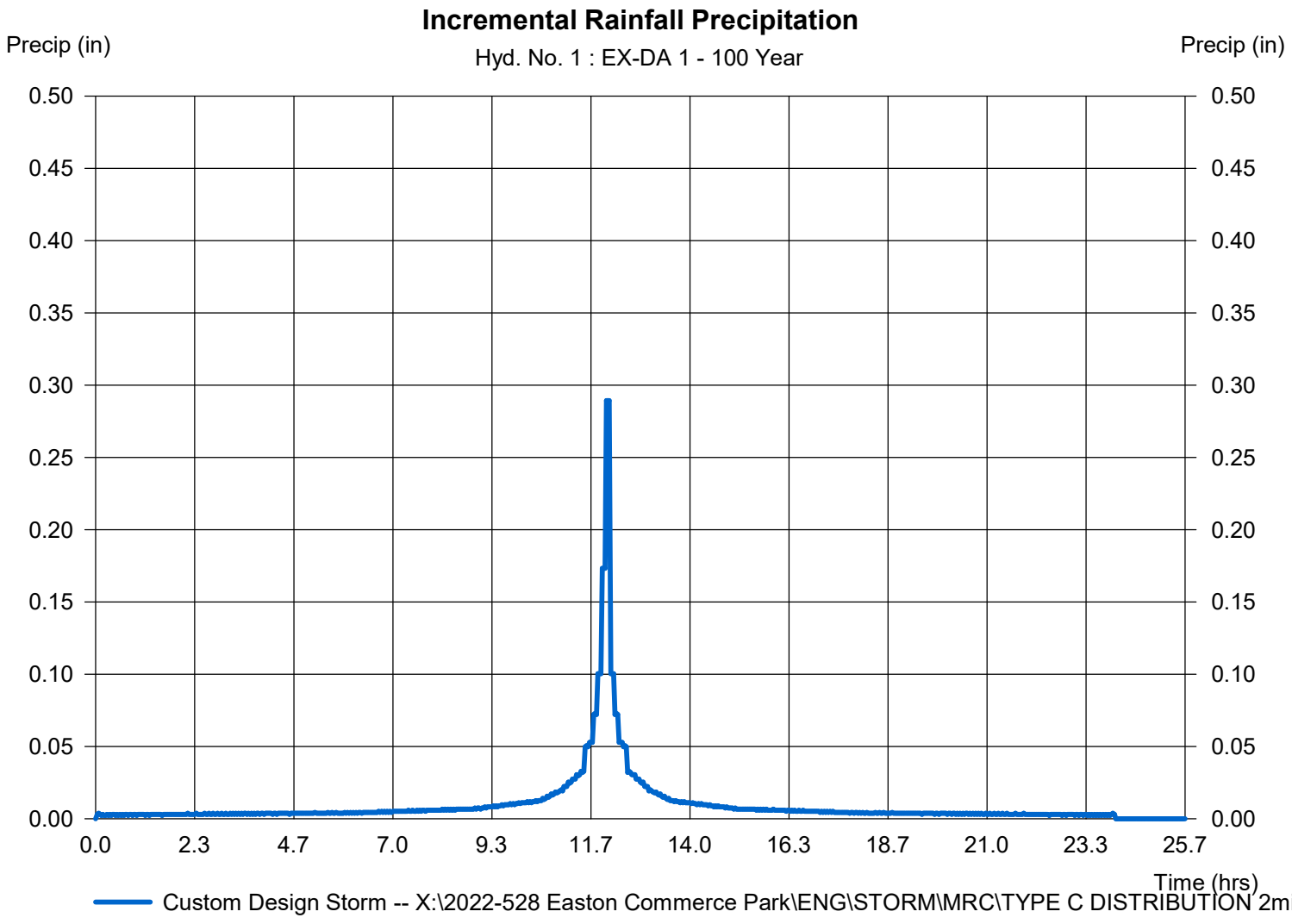


Precipitation Report

Hyd. No. 1

EX-DA 1

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



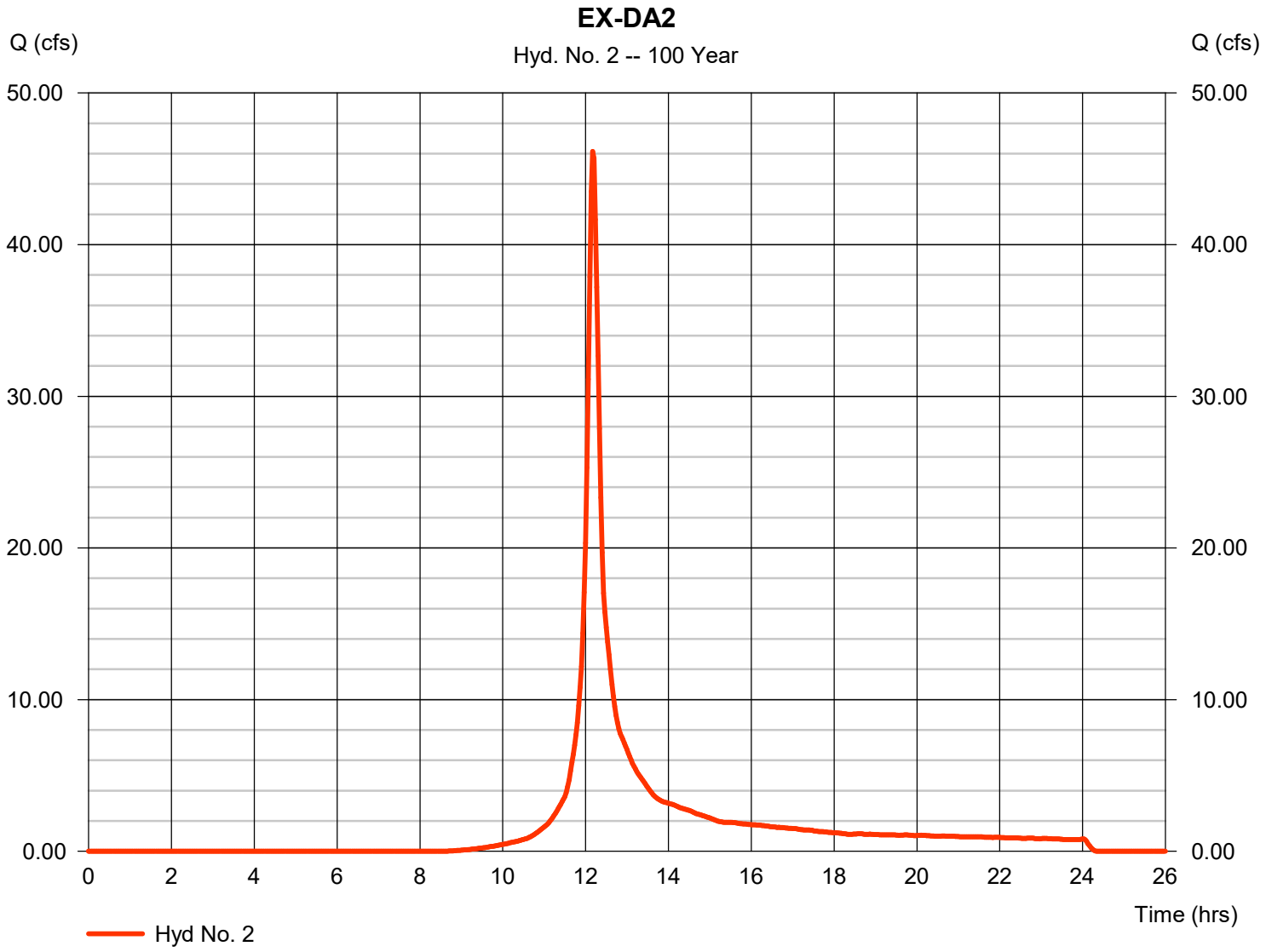
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	46.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	161,178 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760

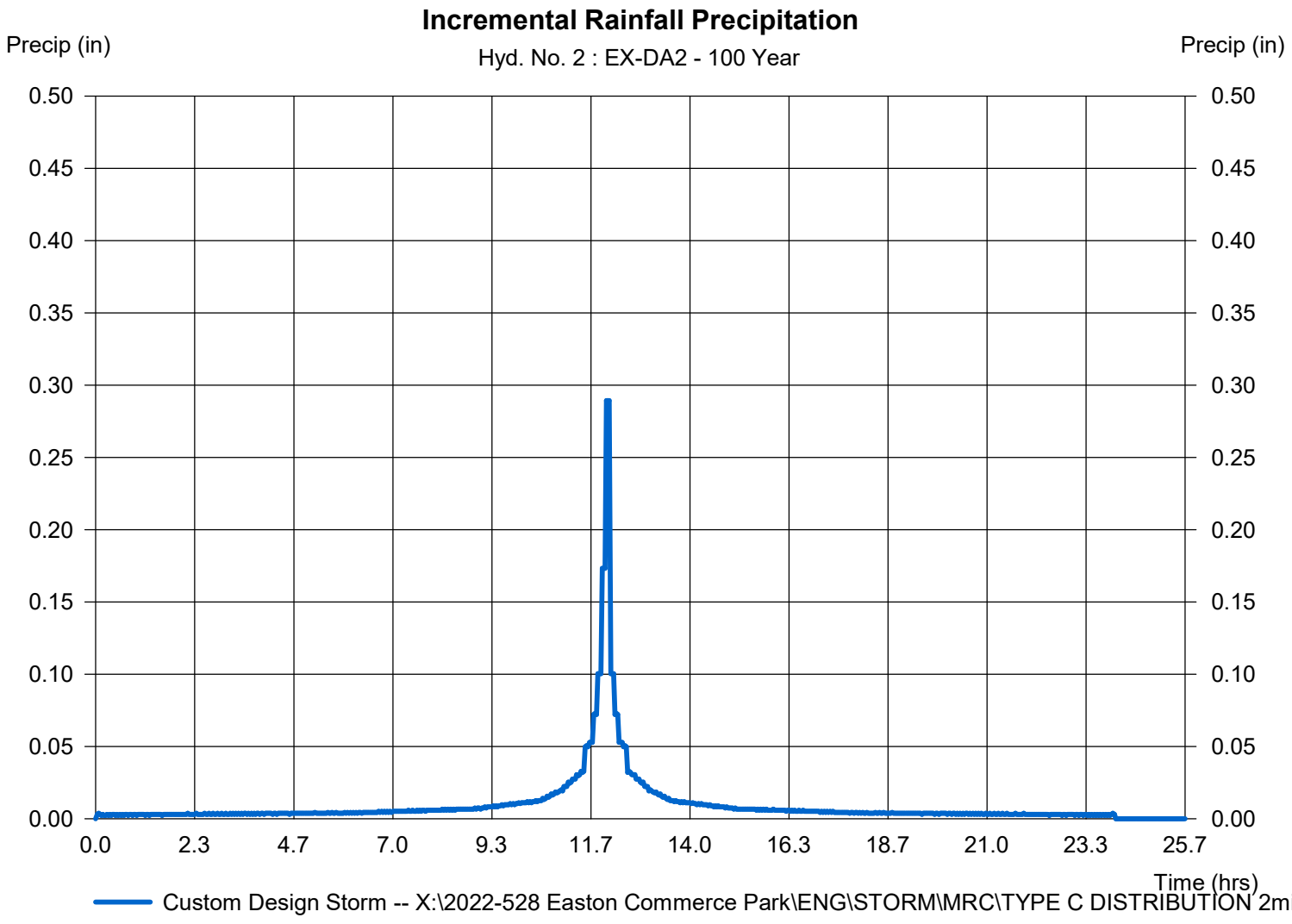


Precipitation Report

Hyd. No. 2

EX-DA2

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



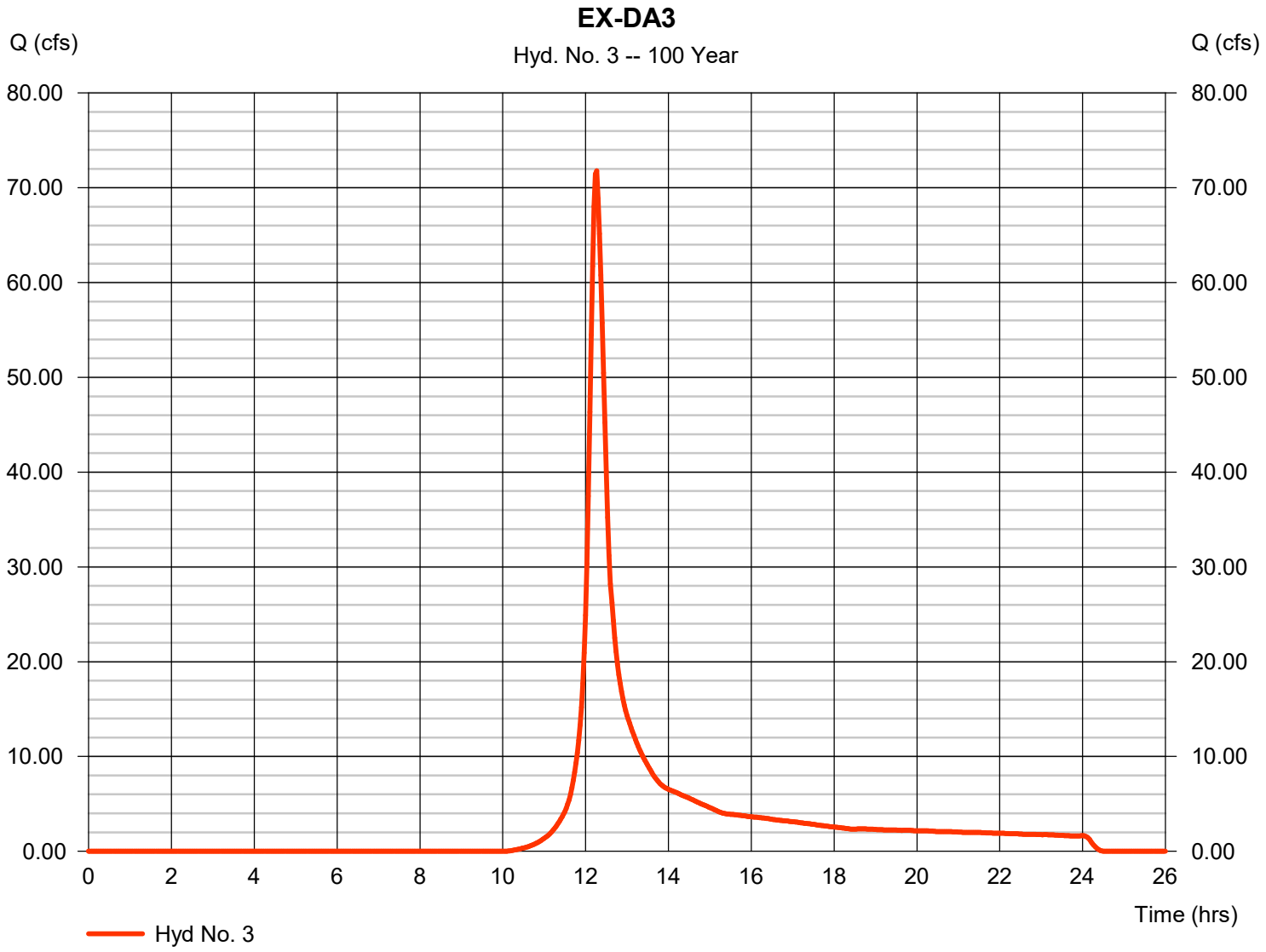
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	71.80 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	299,808 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290

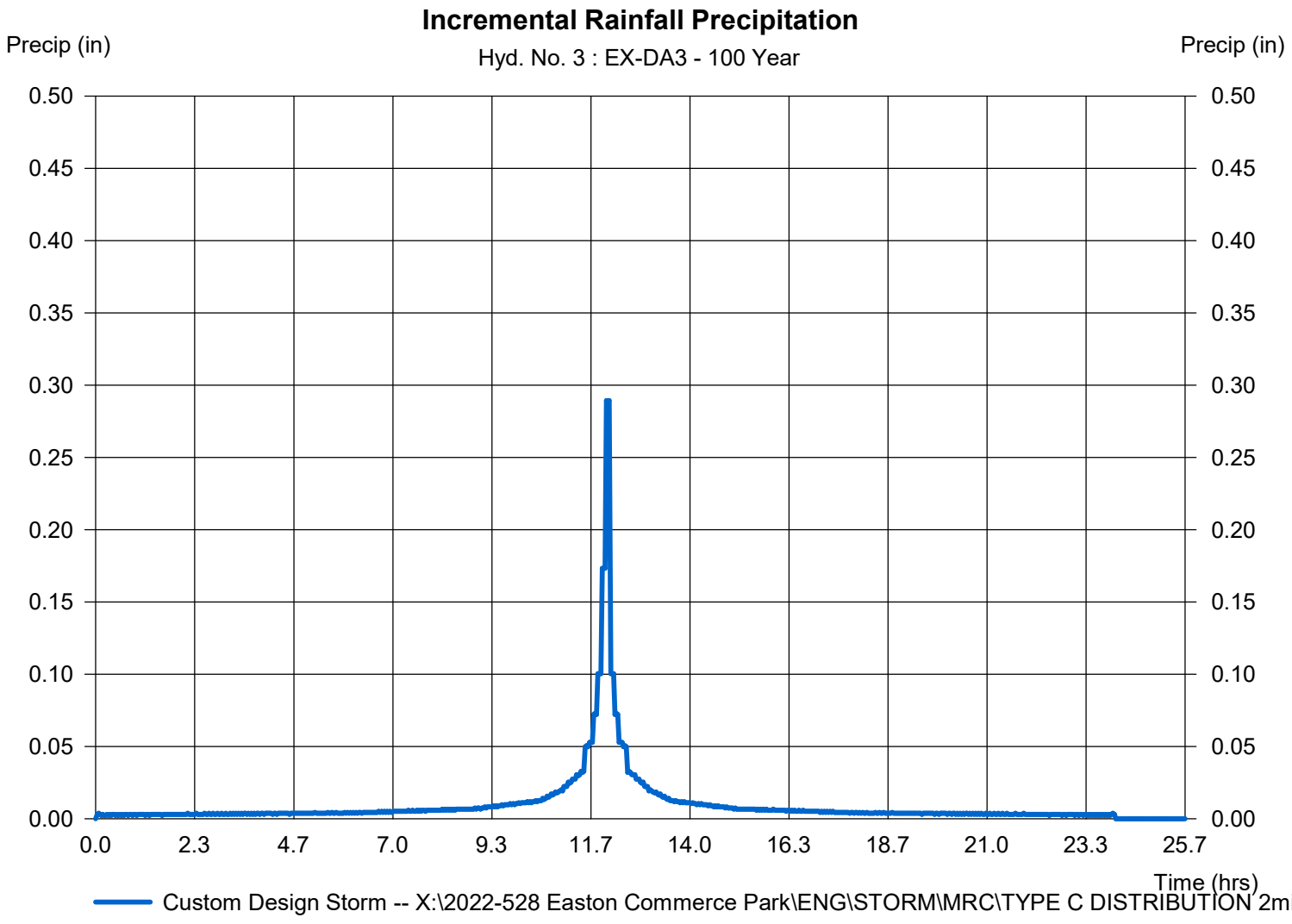


Precipitation Report

Hyd. No. 3

EX-DA3

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



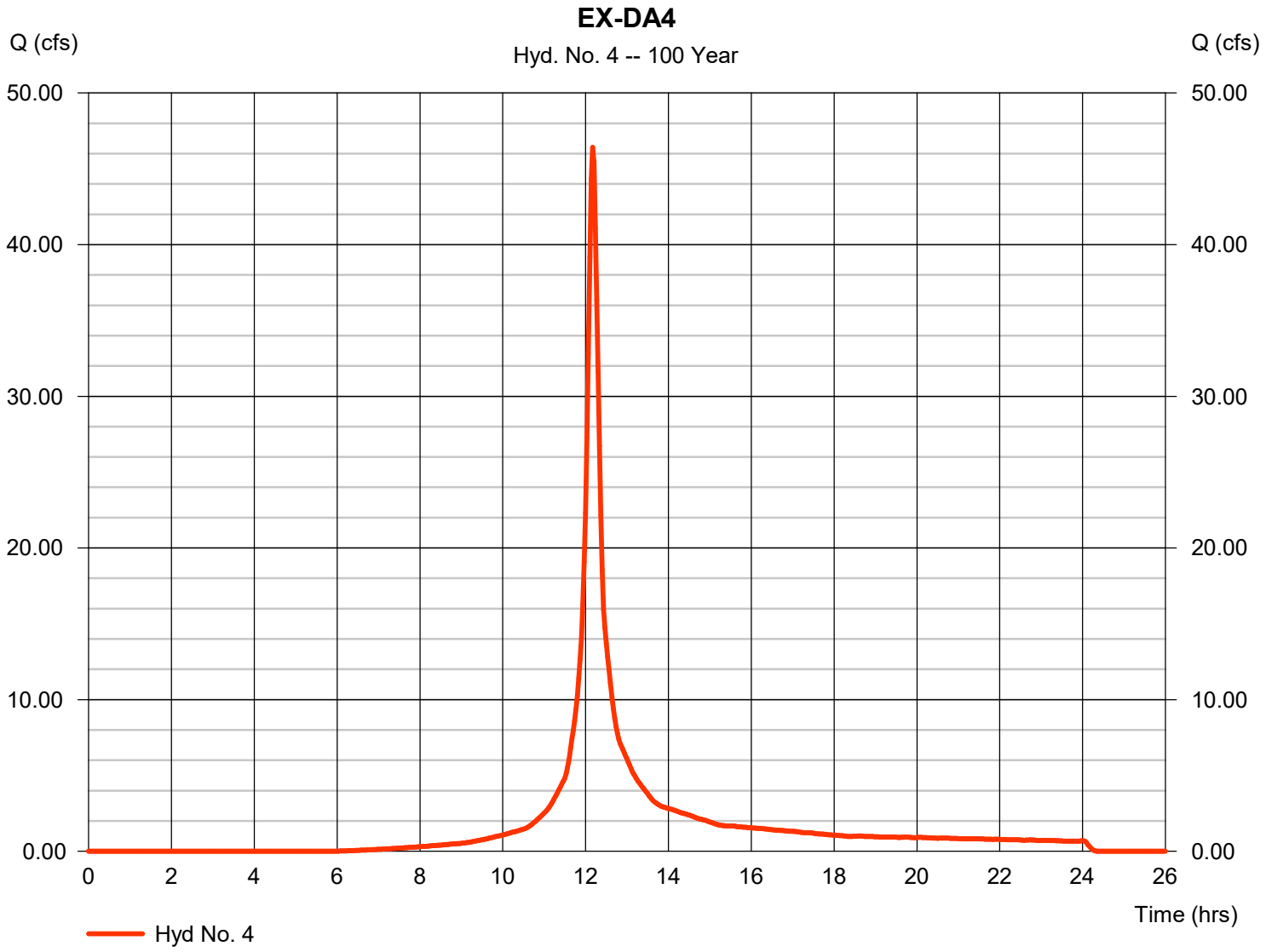
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	46.42 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	163,723 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970

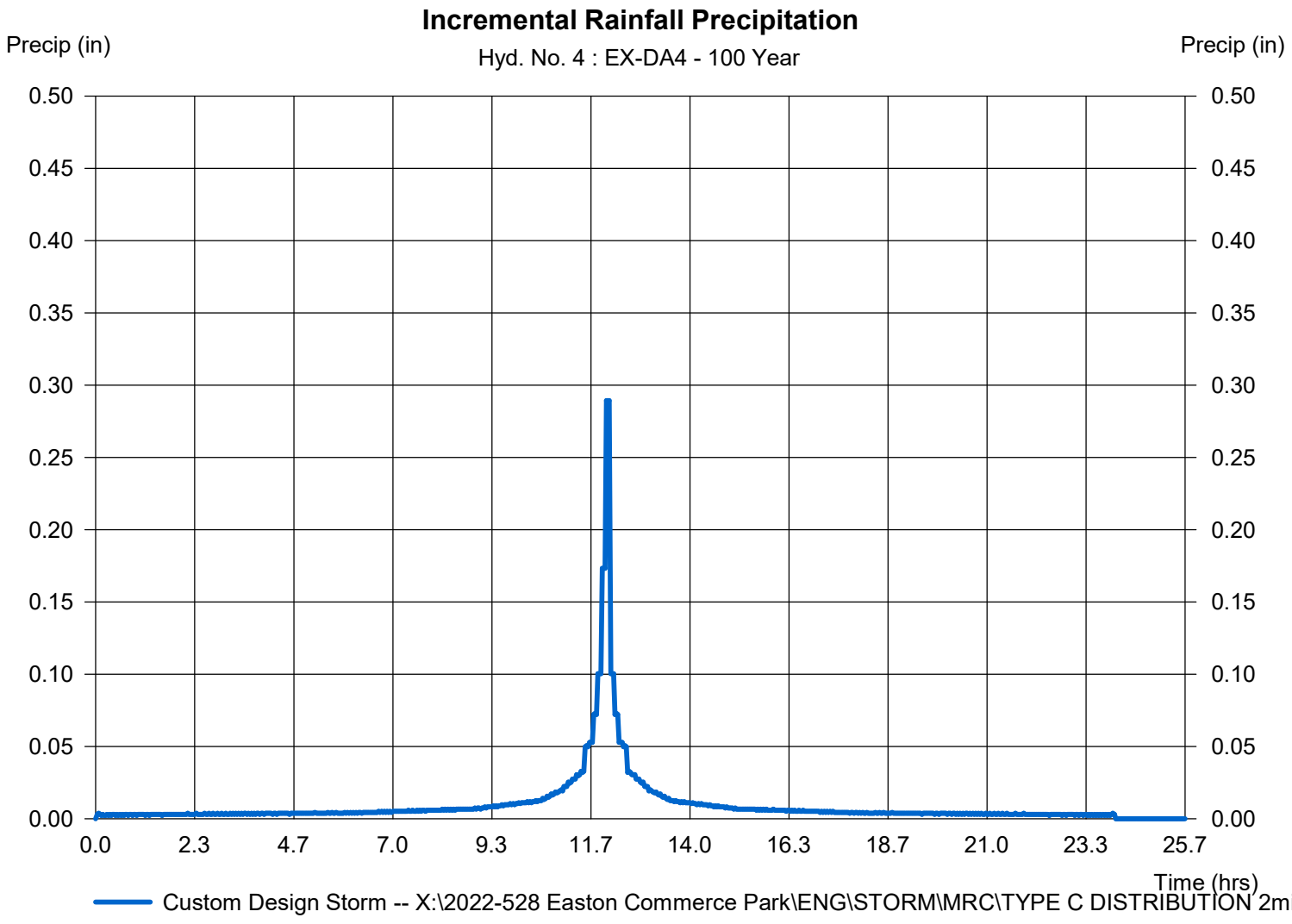


Precipitation Report

Hyd. No. 4

EX-DA4

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



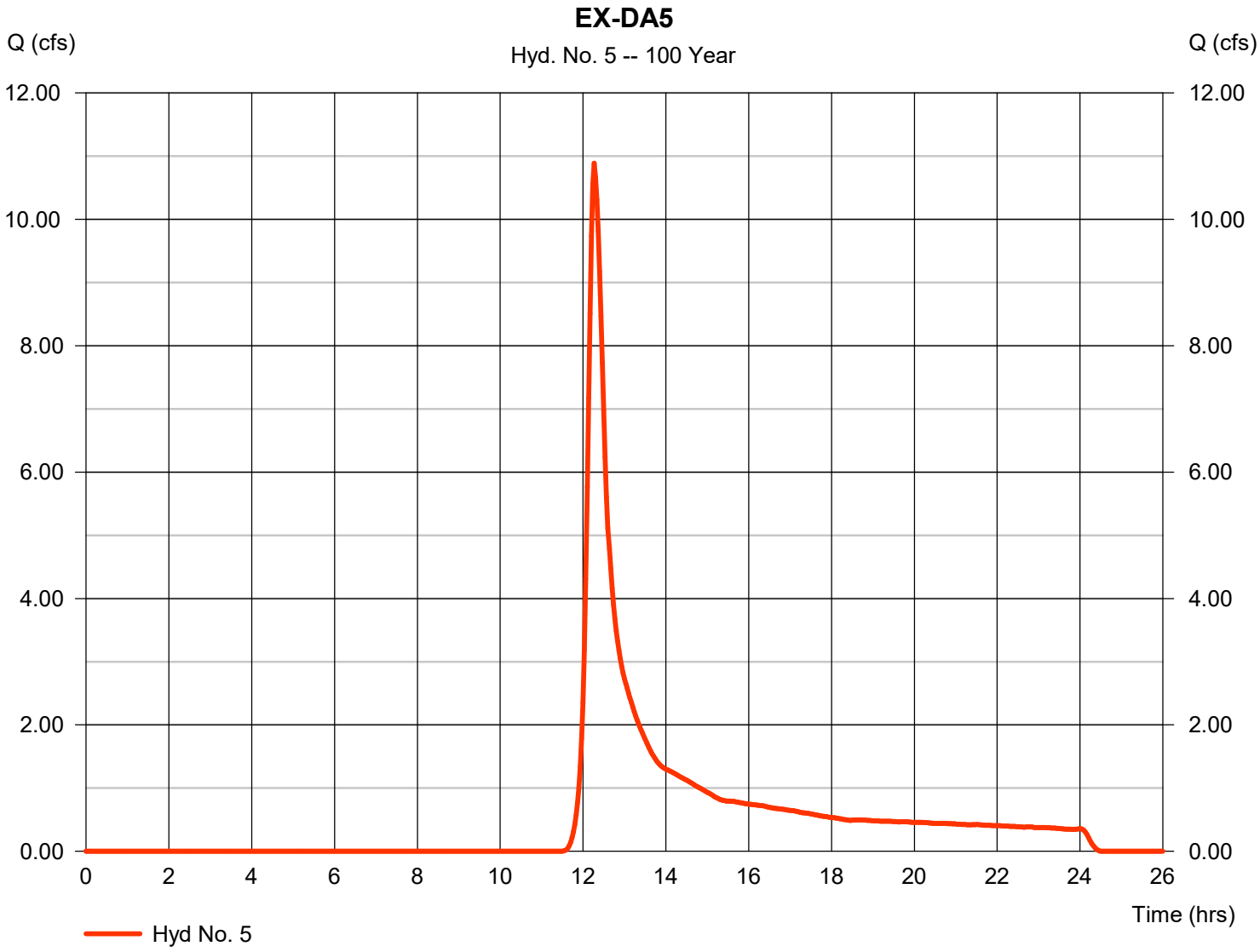
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.89 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	50,701 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090

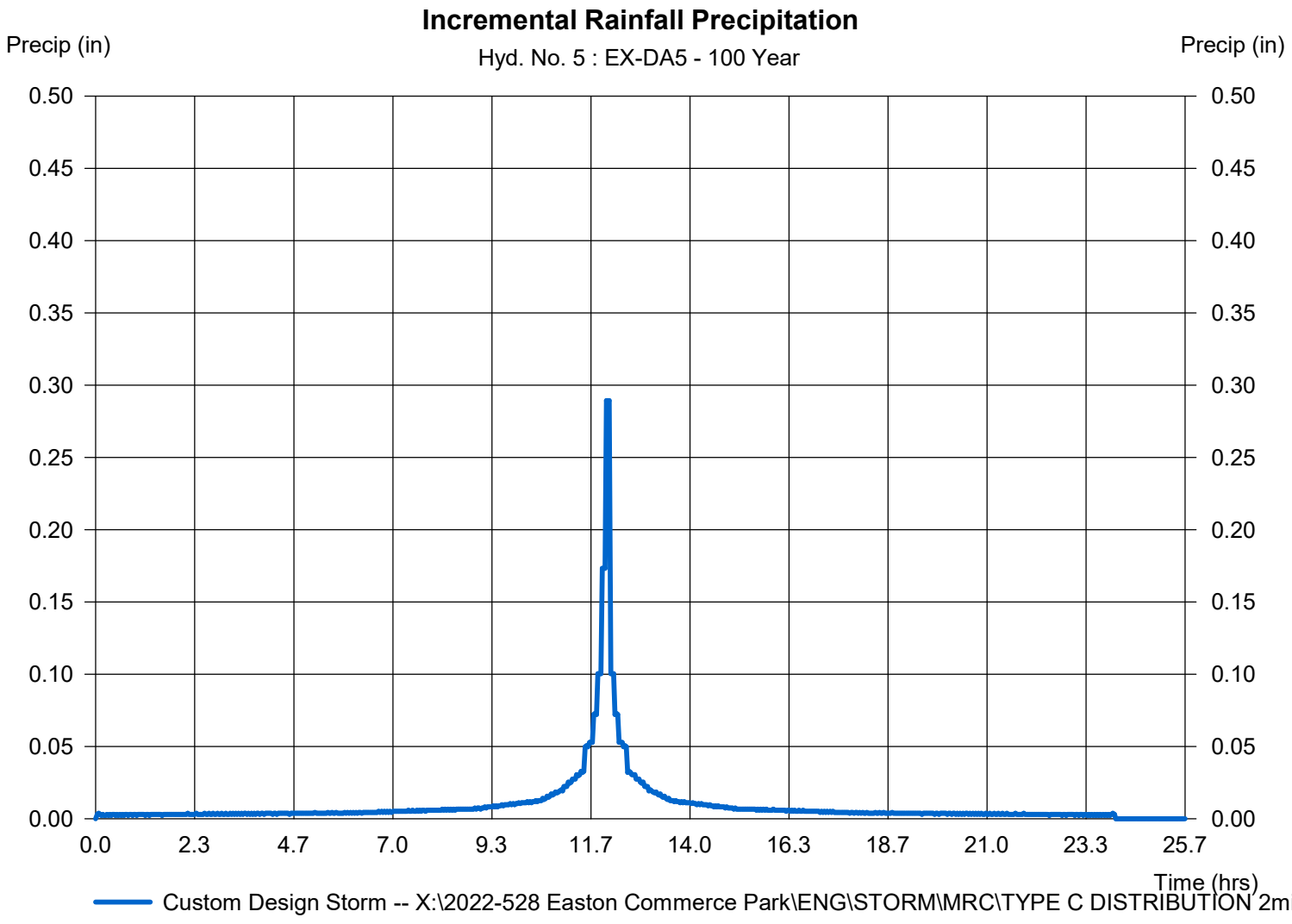


Precipitation Report

Hyd. No. 5

EX-DA5

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



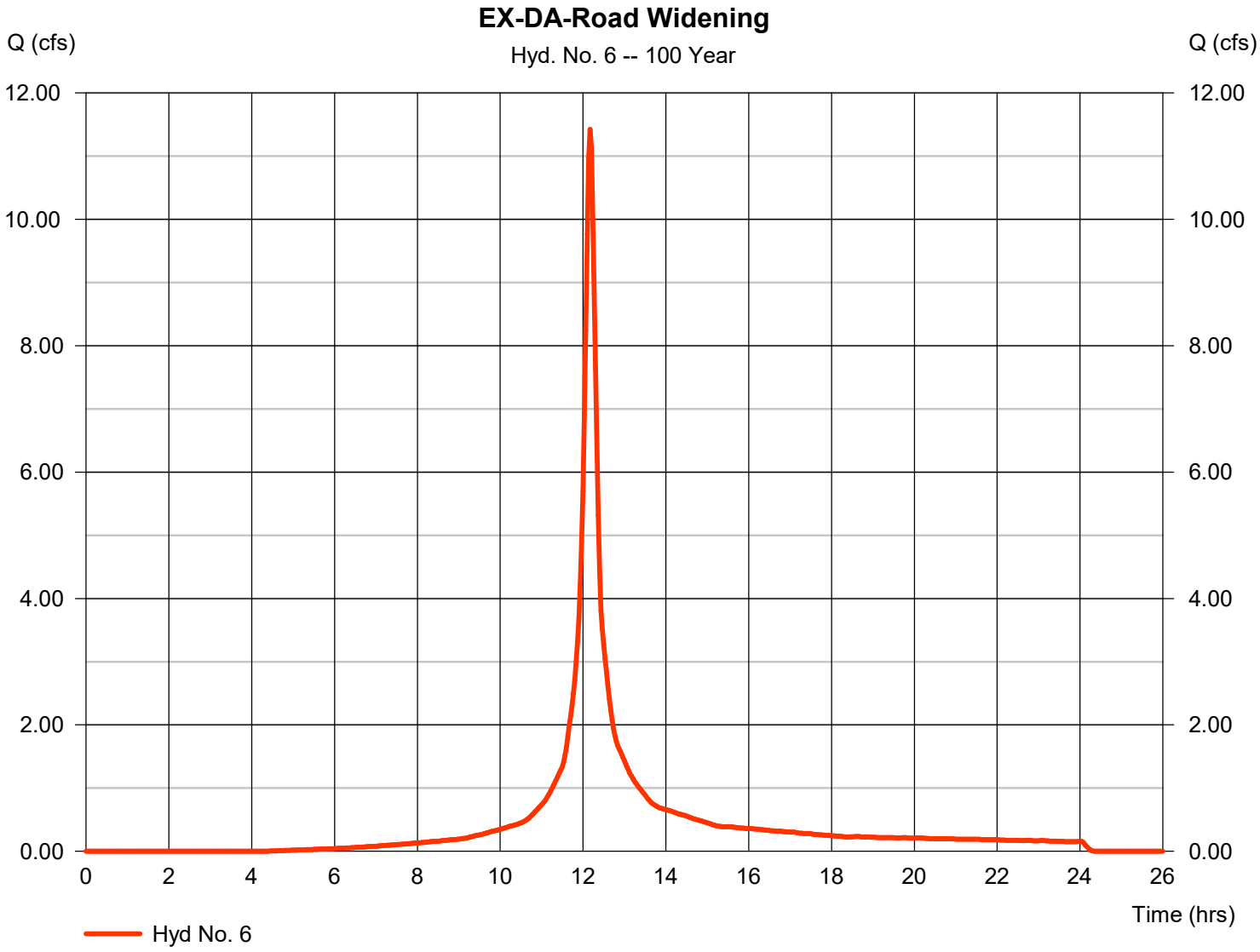
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.42 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	41,204 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

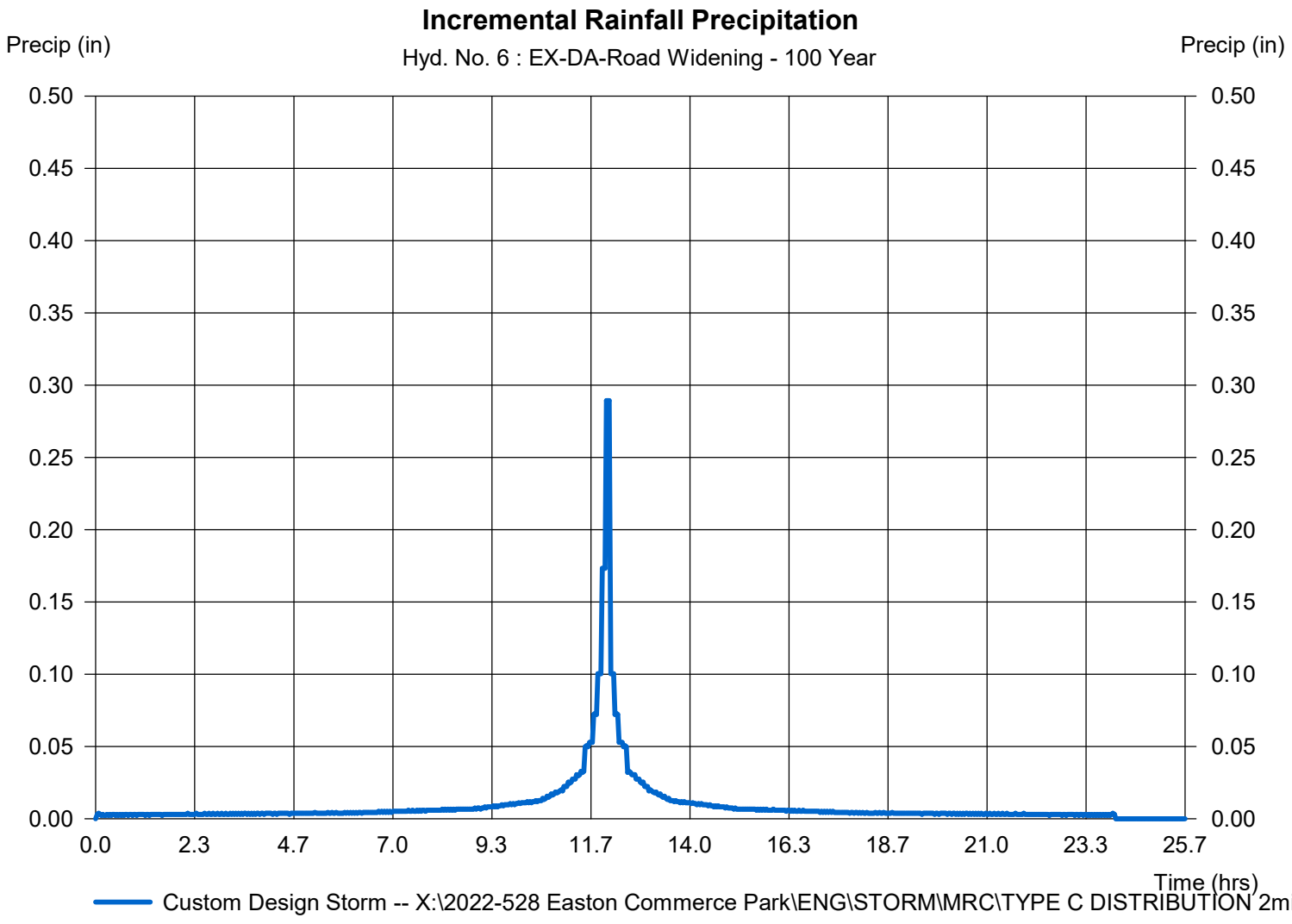


Precipitation Report

Hyd. No. 6

EX-DA-Road Widening

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

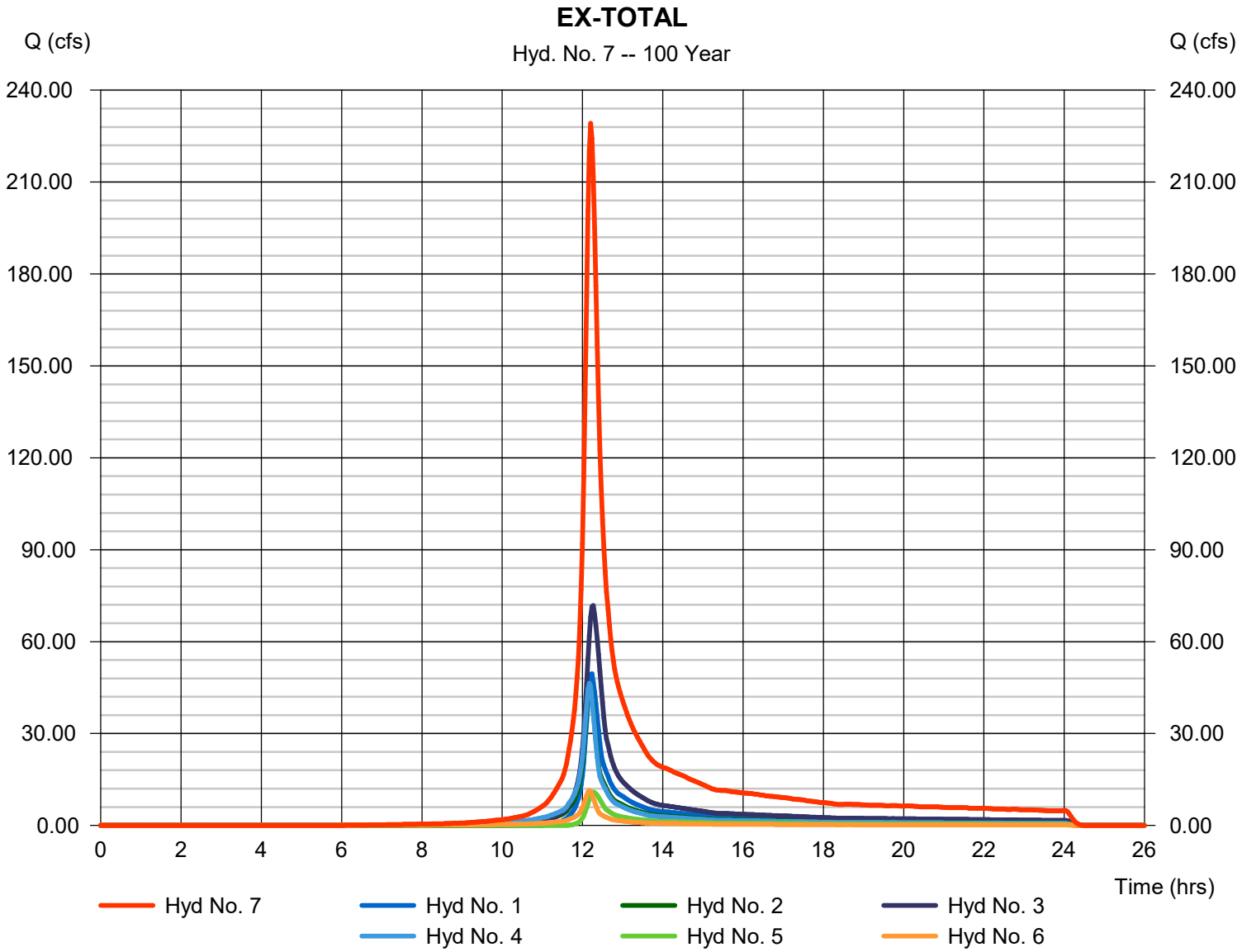


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	229.20 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	910,975 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



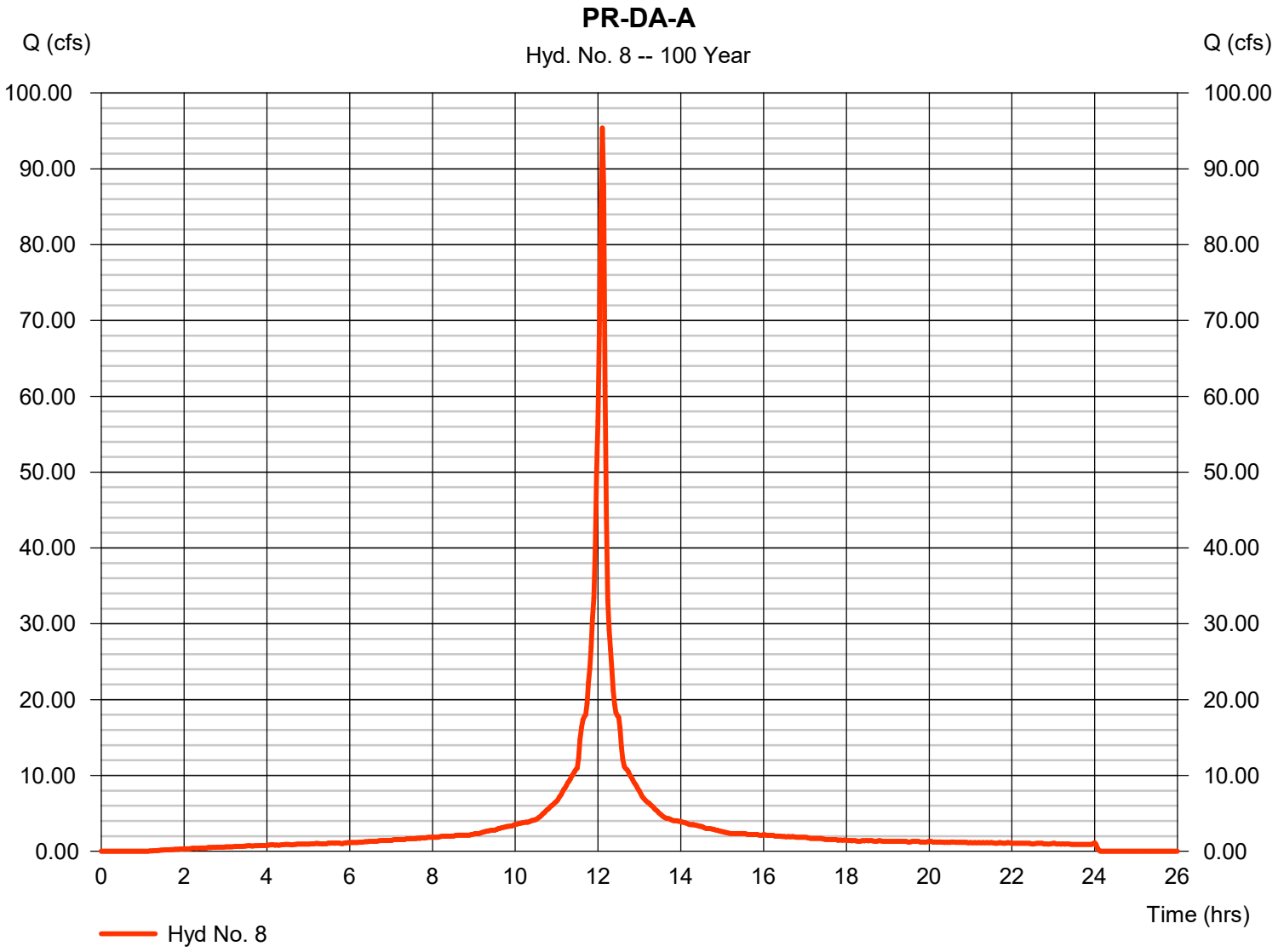
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	95.40 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	293,802 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400

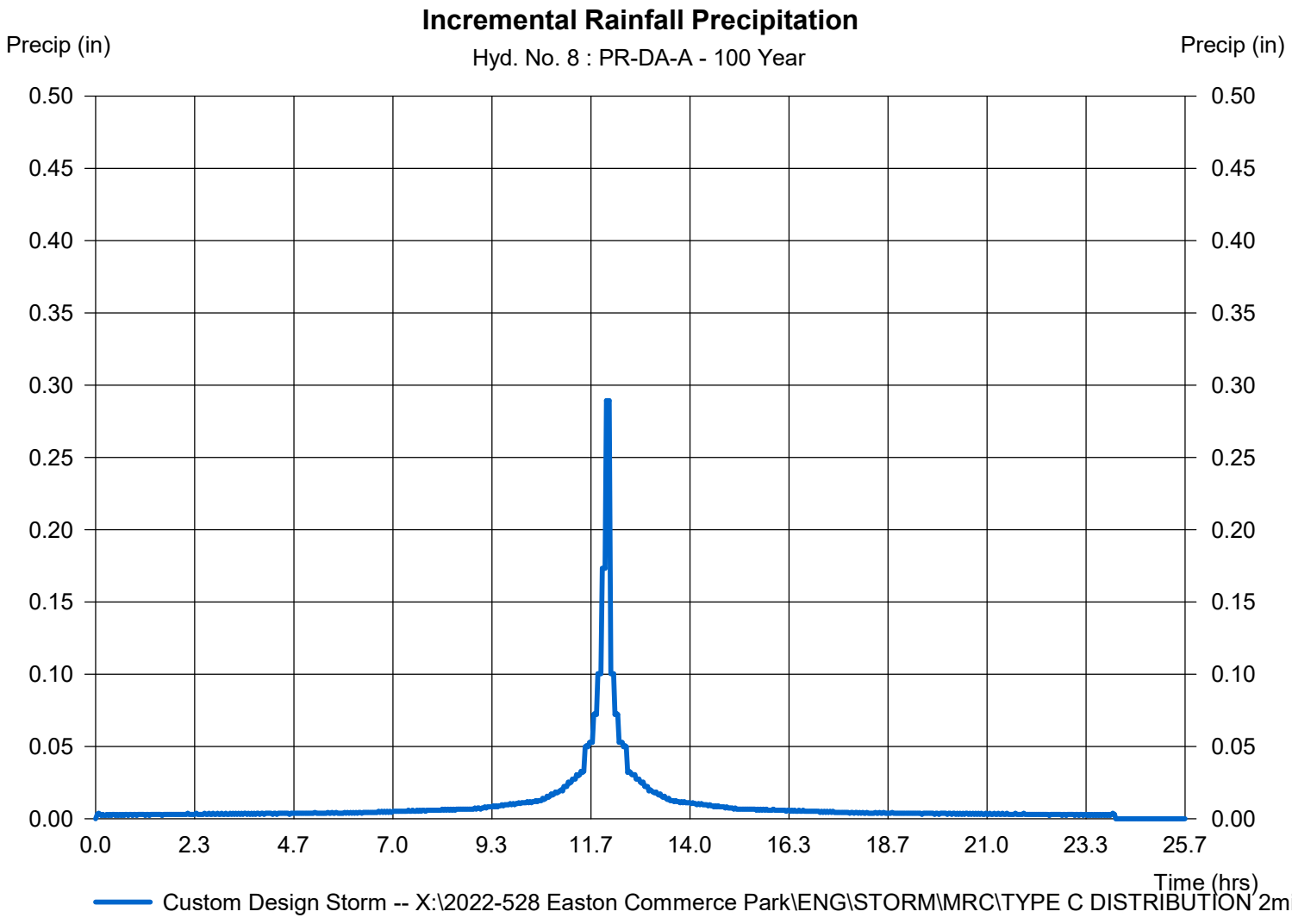


Precipitation Report

Hyd. No. 8

PR-DA-A

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



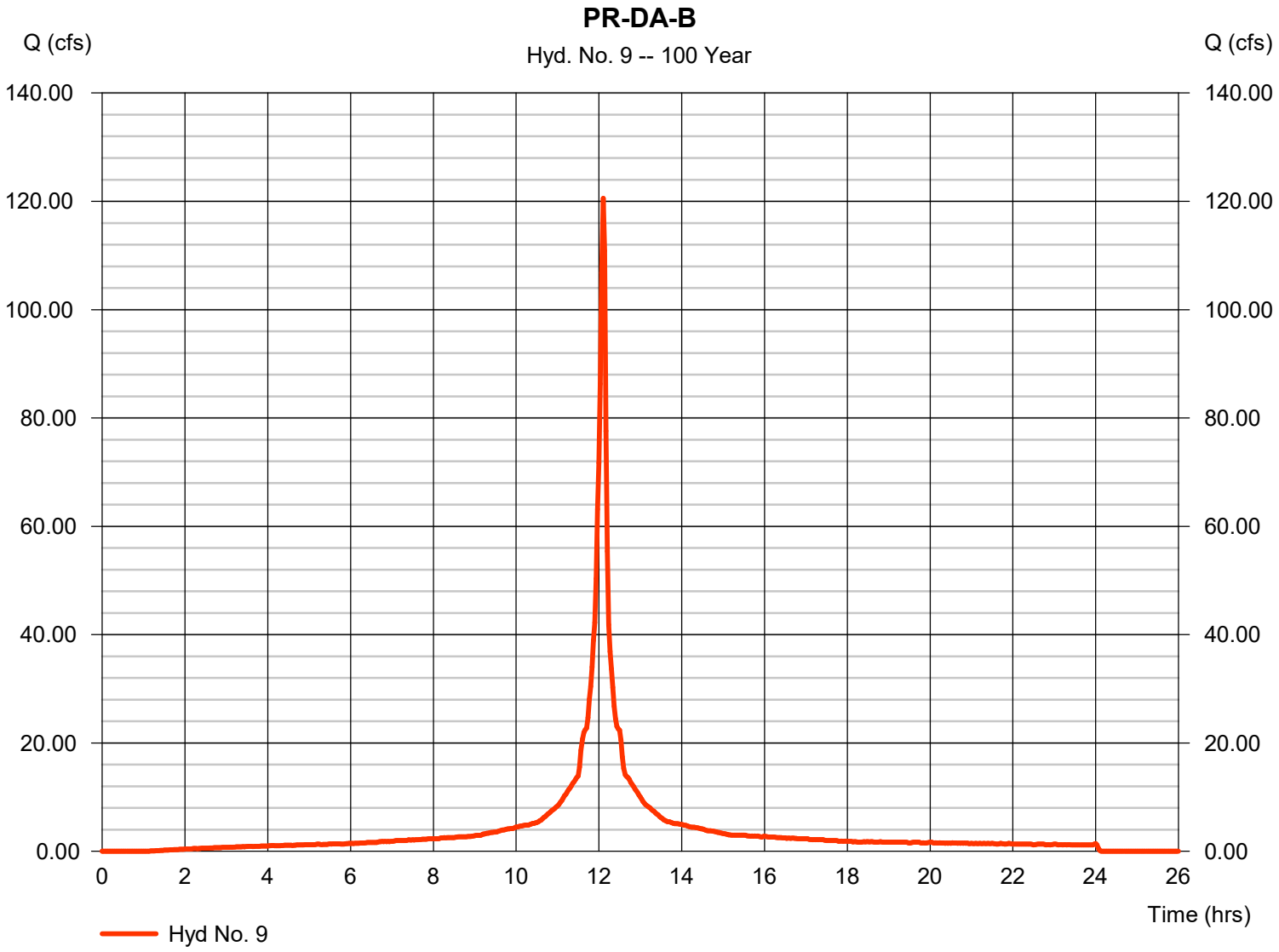
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	120.55 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	371,280 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670

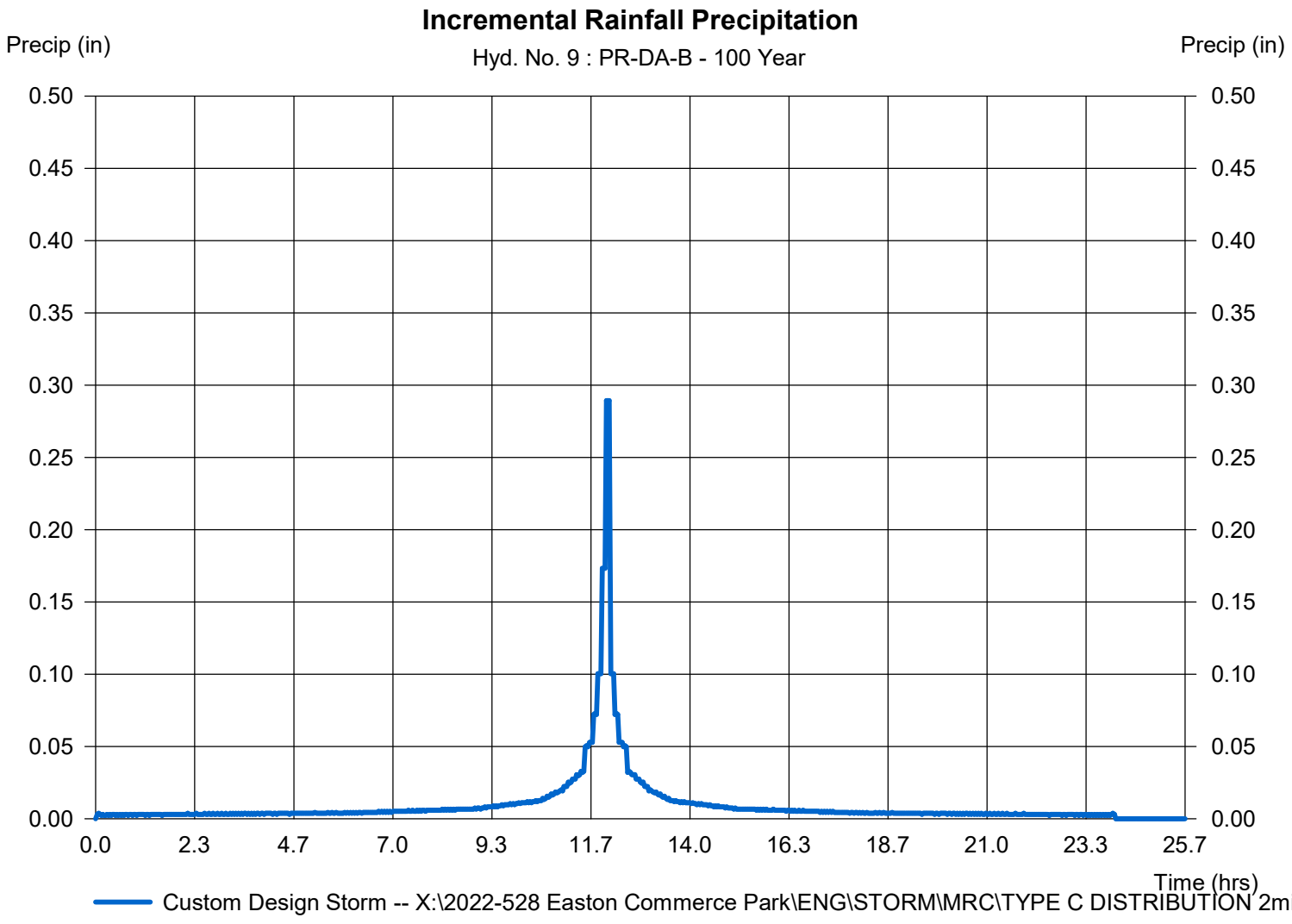


Precipitation Report

Hyd. No. 9

PR-DA-B

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



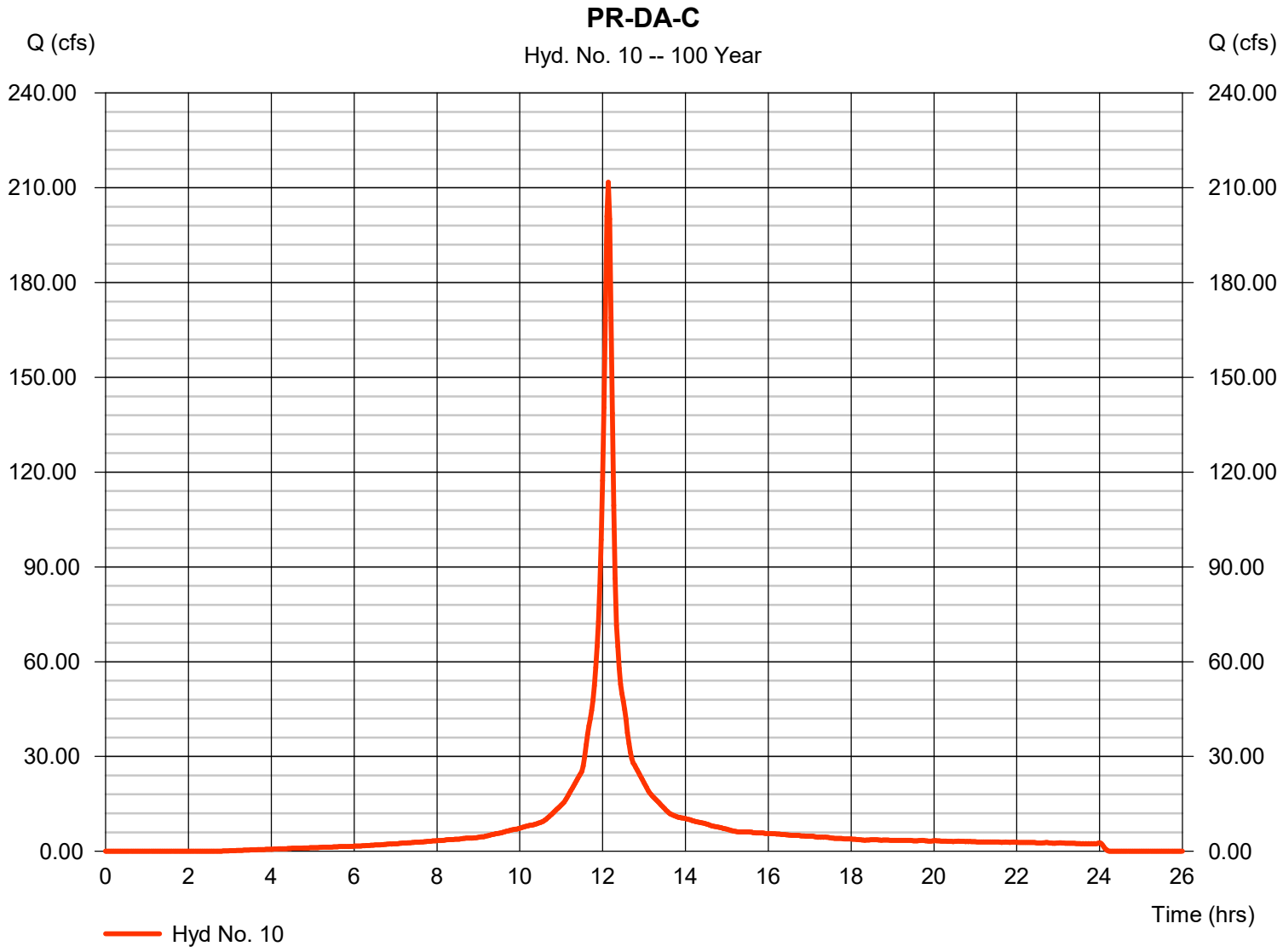
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	211.78 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	704,998 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050

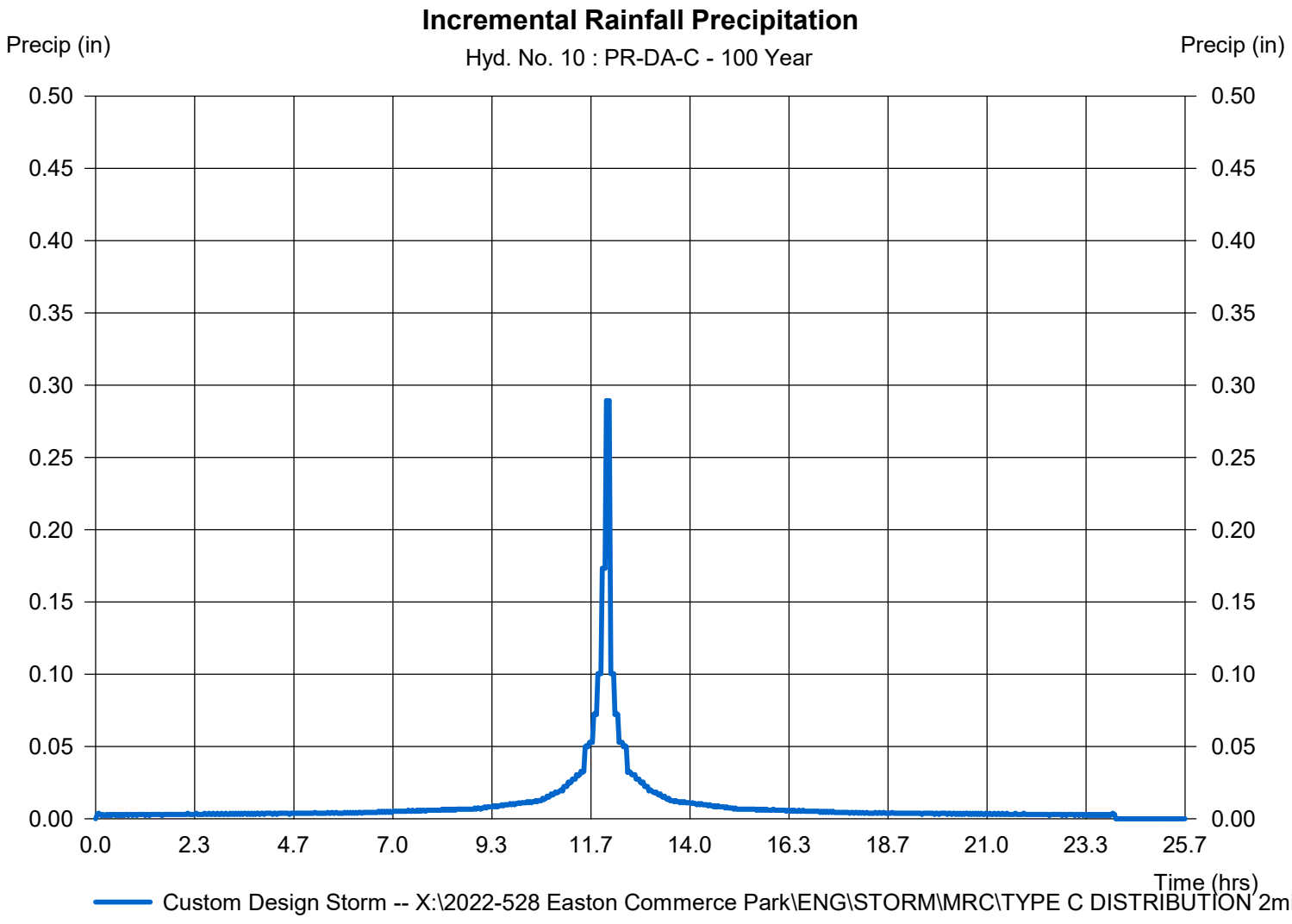


Precipitation Report

Hyd. No. 10

PR-DA-C

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



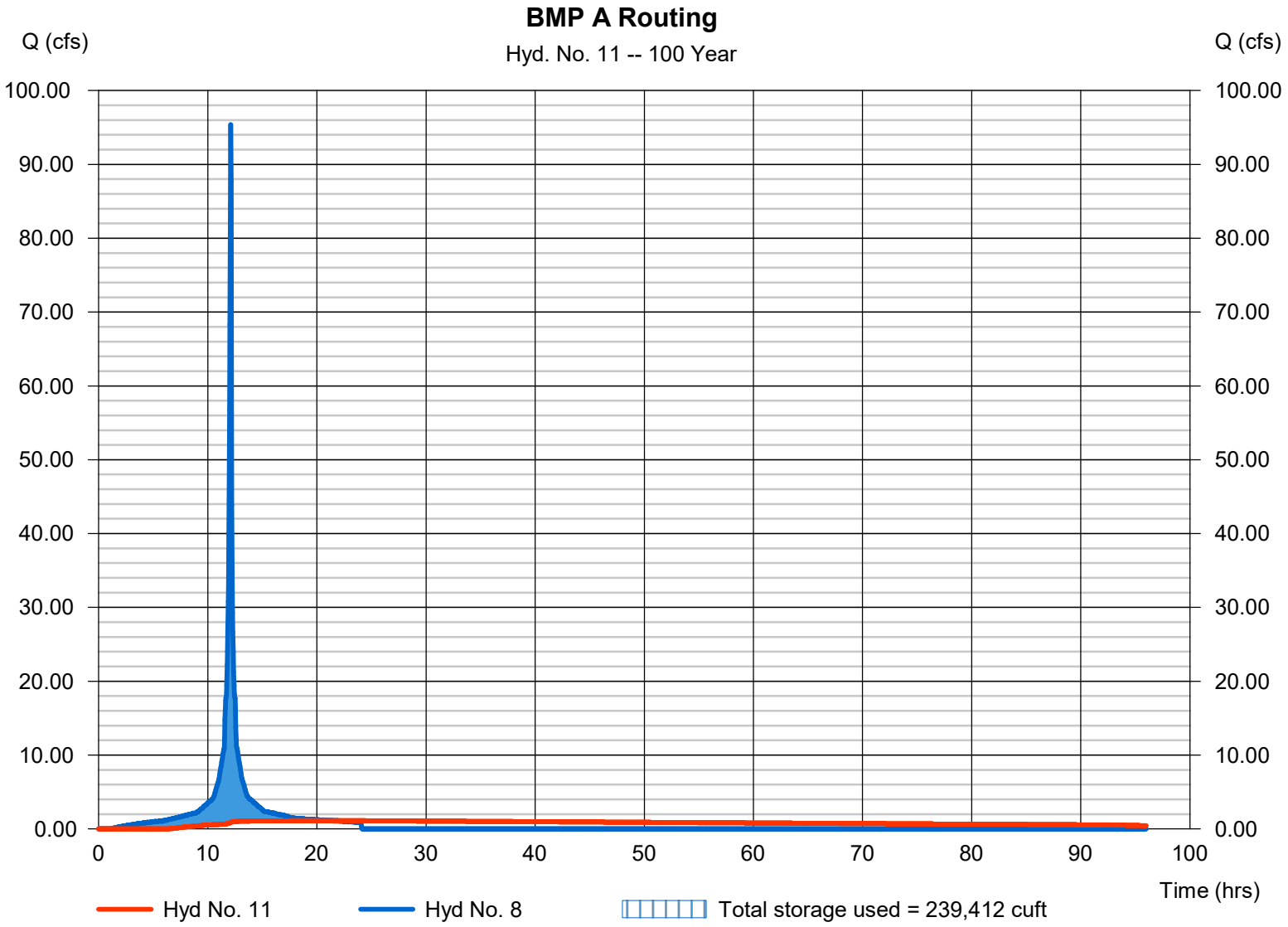
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.108 cfs
Storm frequency	=	100 yrs	Time to peak	=	21.53 hrs
Time interval	=	2 min	Hyd. volume	=	264,355 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.39 ft
Reservoir name	=	BMP A	Max. Storage	=	239,412 cuft

Storage Indication method used.



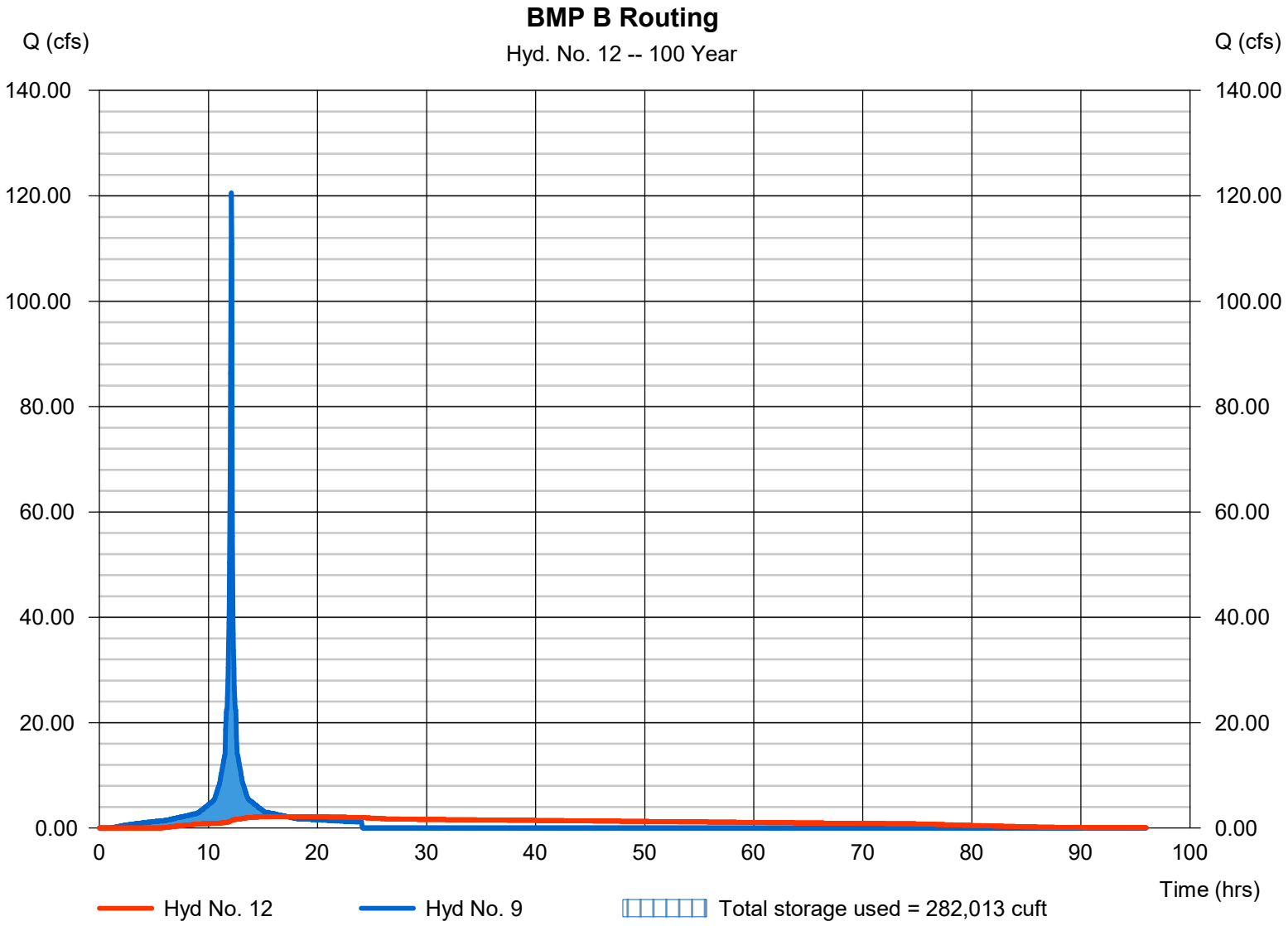
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	2.172 cfs
Storm frequency	=	100 yrs	Time to peak	=	17.10 hrs
Time interval	=	2 min	Hyd. volume	=	357,778 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.92 ft
Reservoir name	=	BMP B	Max. Storage	=	282,013 cuft

Storage Indication method used.



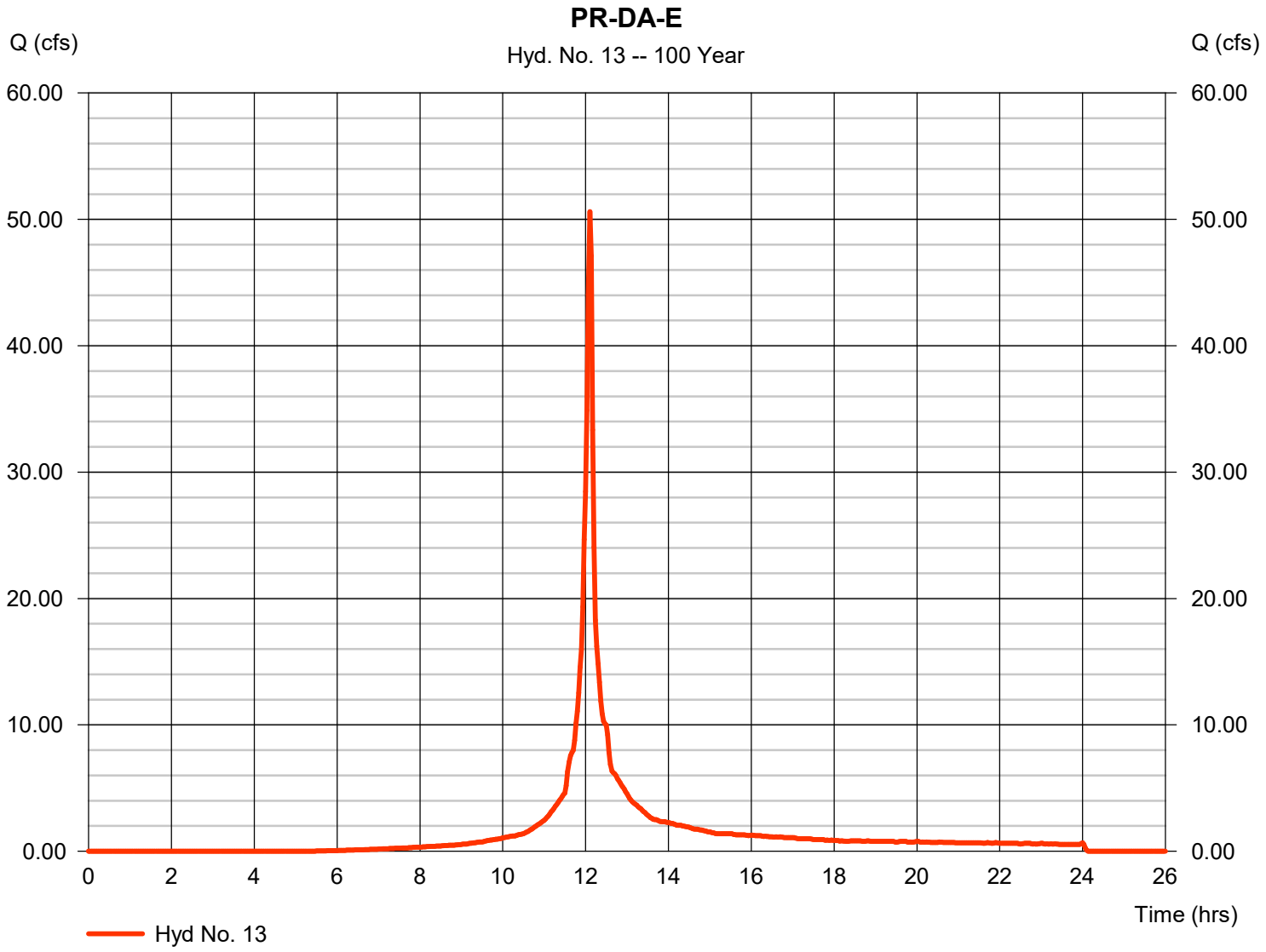
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	50.60 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	137,862 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTION.tab		=	24

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940

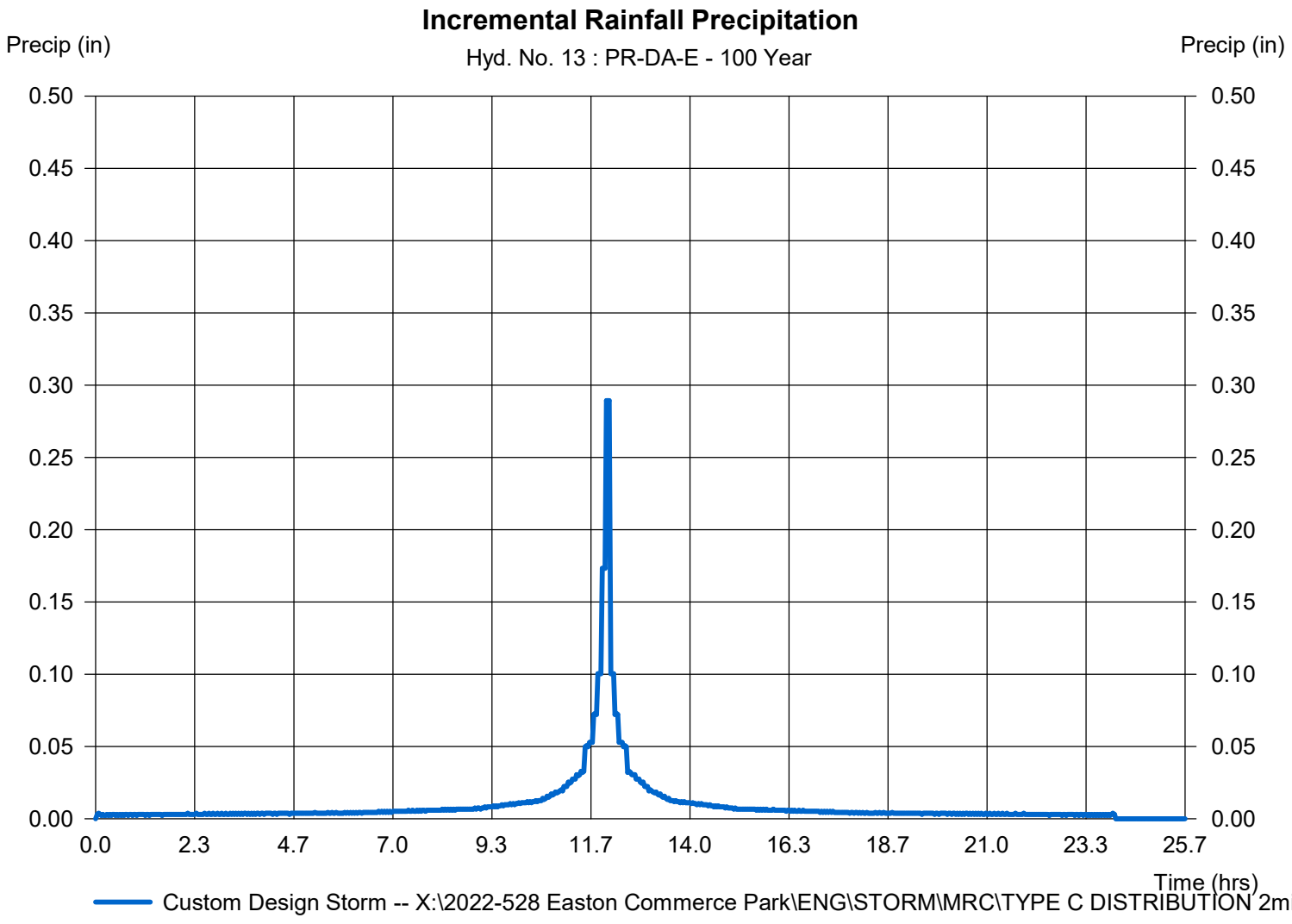


Precipitation Report

Hyd. No. 13

PR-DA-E

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



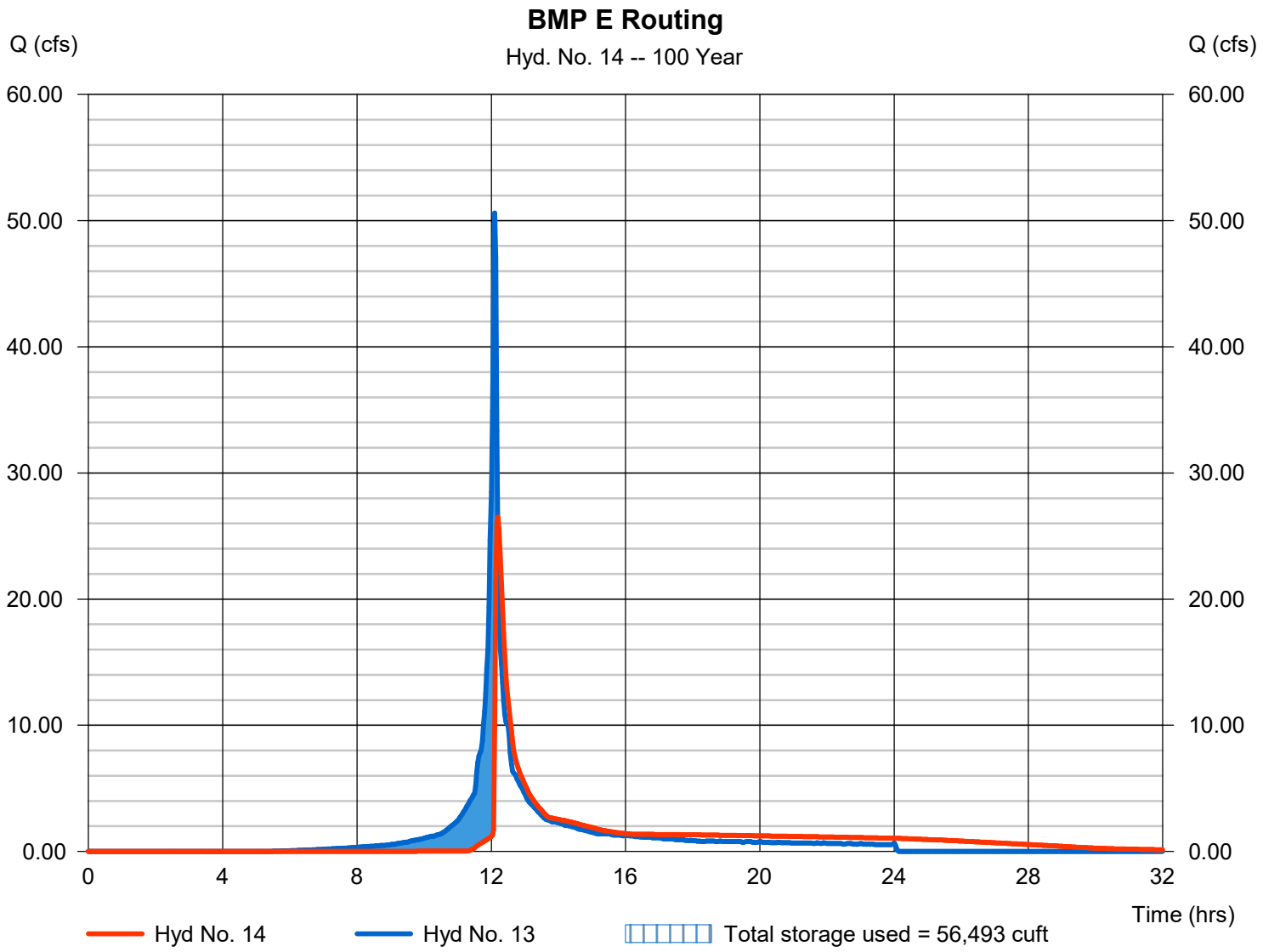
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	26.51 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	129,906 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	260.27 ft
Reservoir name	=	BMP E	Max. Storage	=	56,493 cuft

Storage Indication method used.

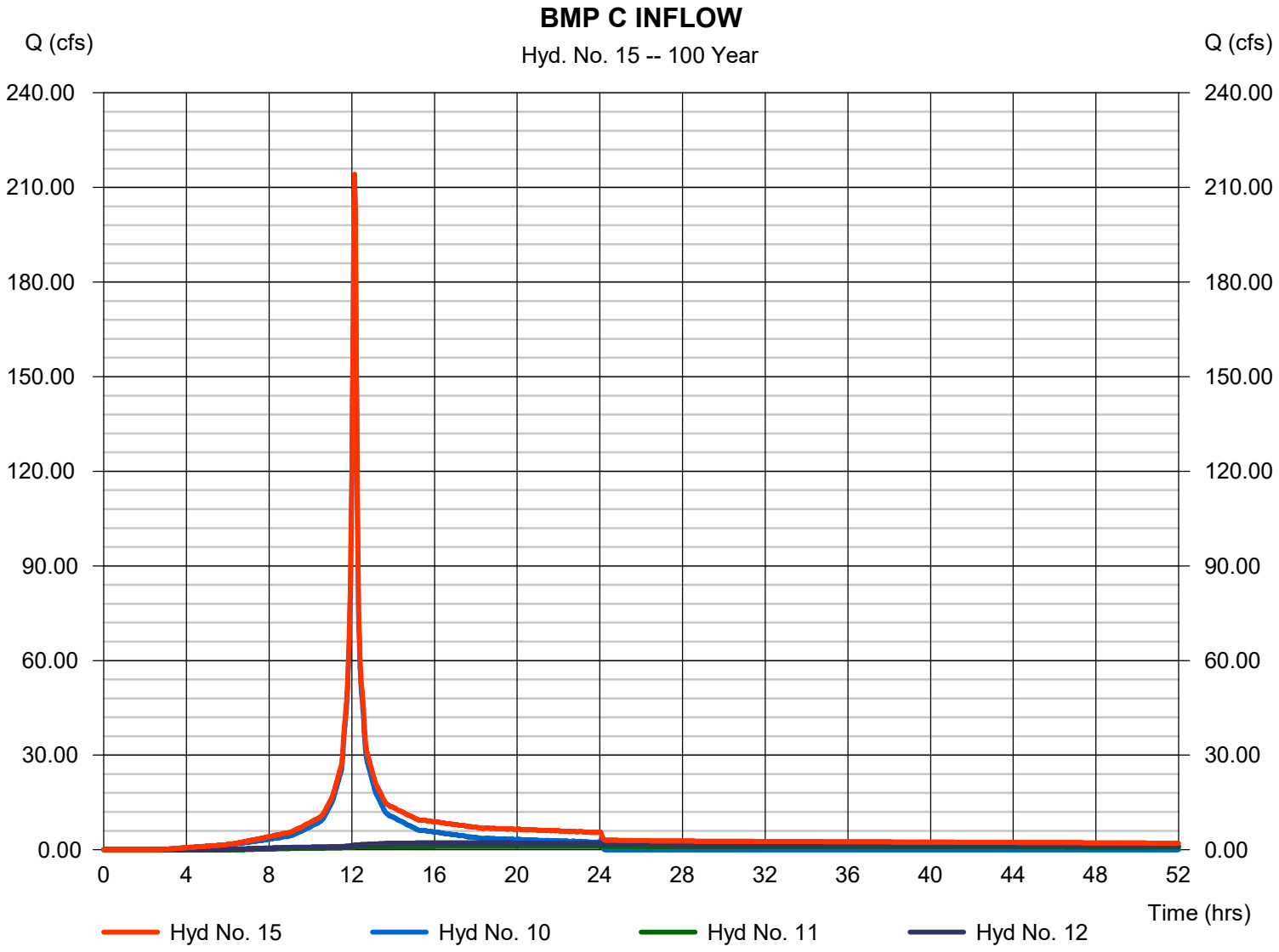


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	214.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	1,327,131 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



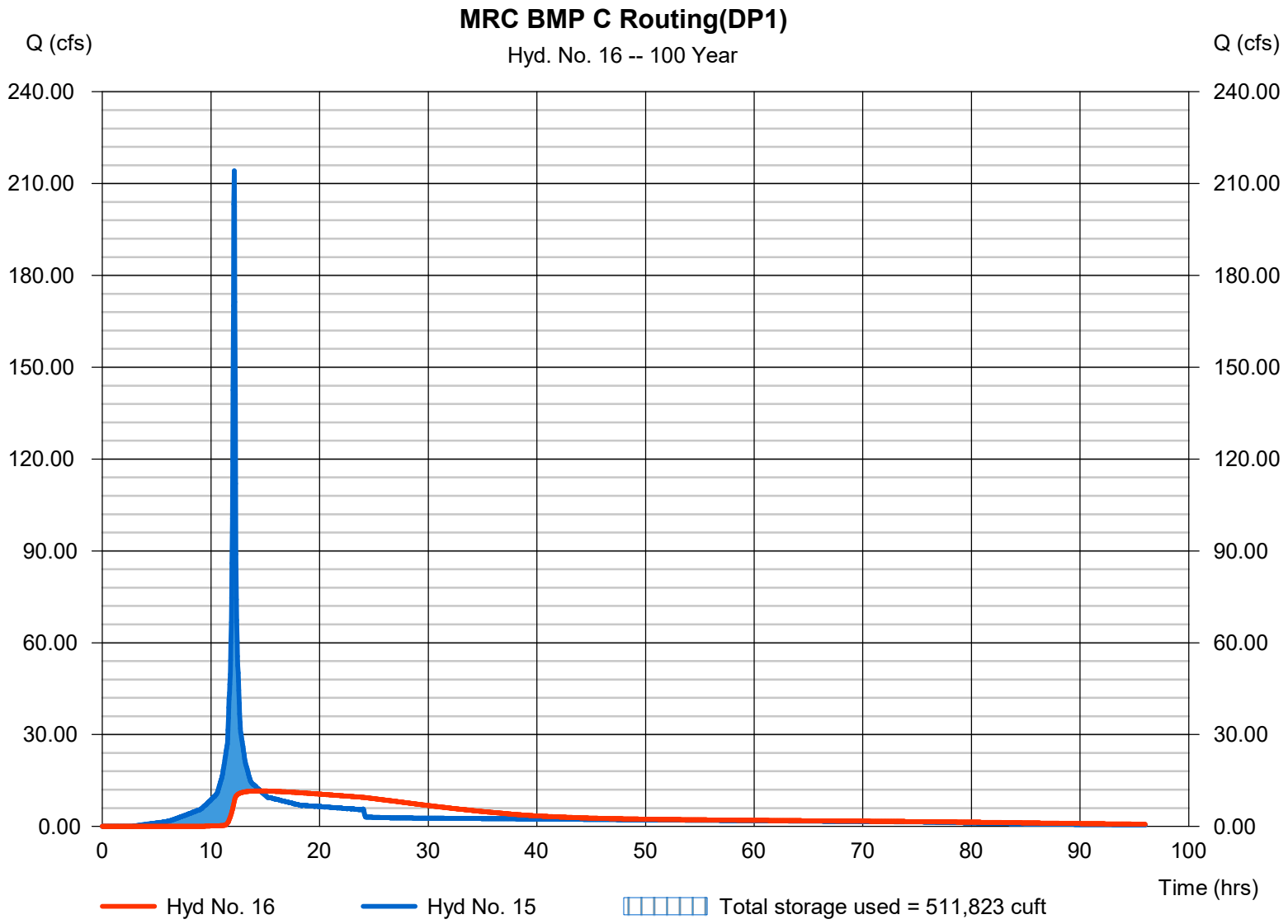
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	11.57 cfs
Storm frequency	=	100 yrs	Time to peak	=	14.57 hrs
Time interval	=	2 min	Hyd. volume	=	1,184,707 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	219.40 ft
Reservoir name	=	BMP C	Max. Storage	=	511,823 cuft

Storage Indication method used.



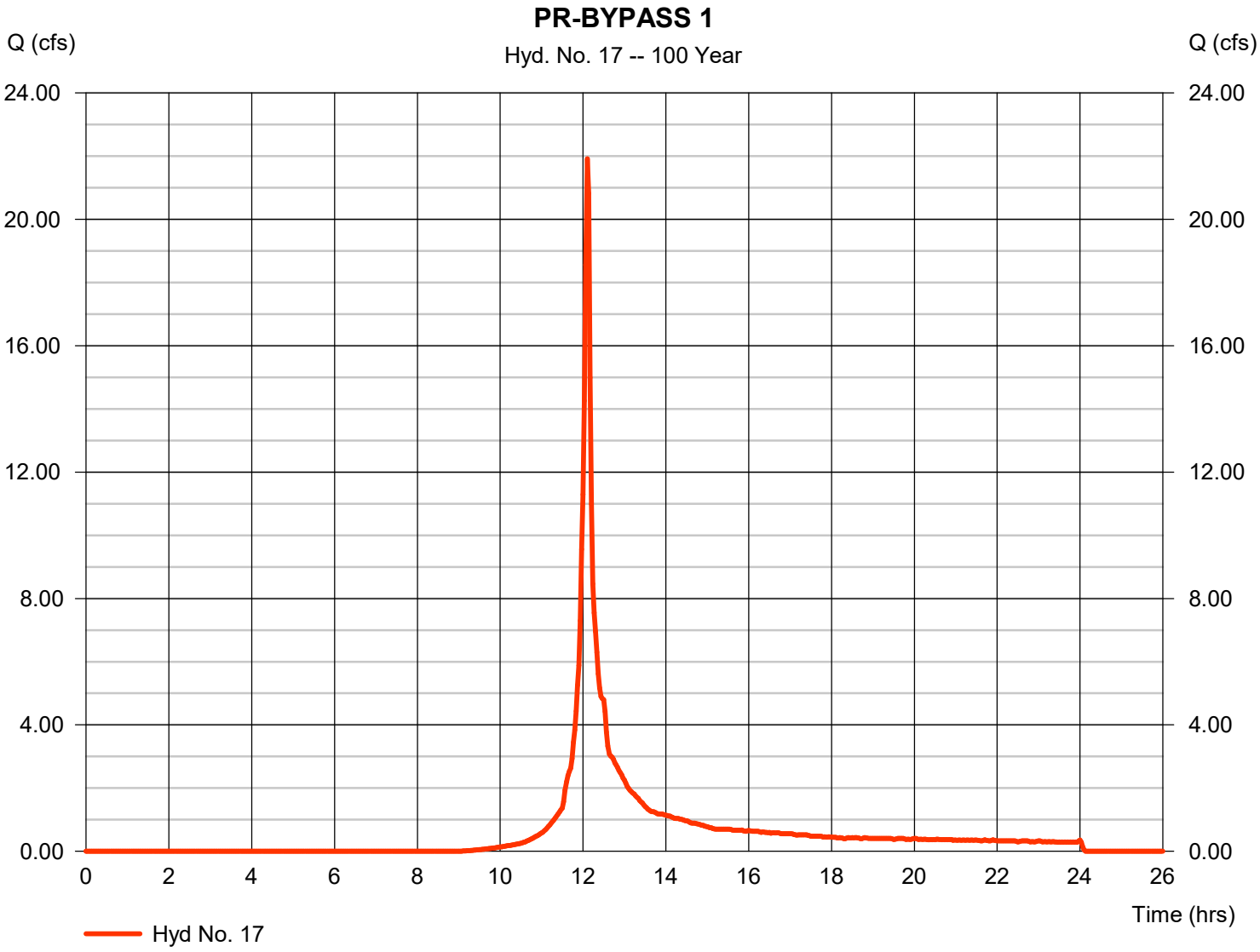
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	21.92 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	58,058 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24 TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950

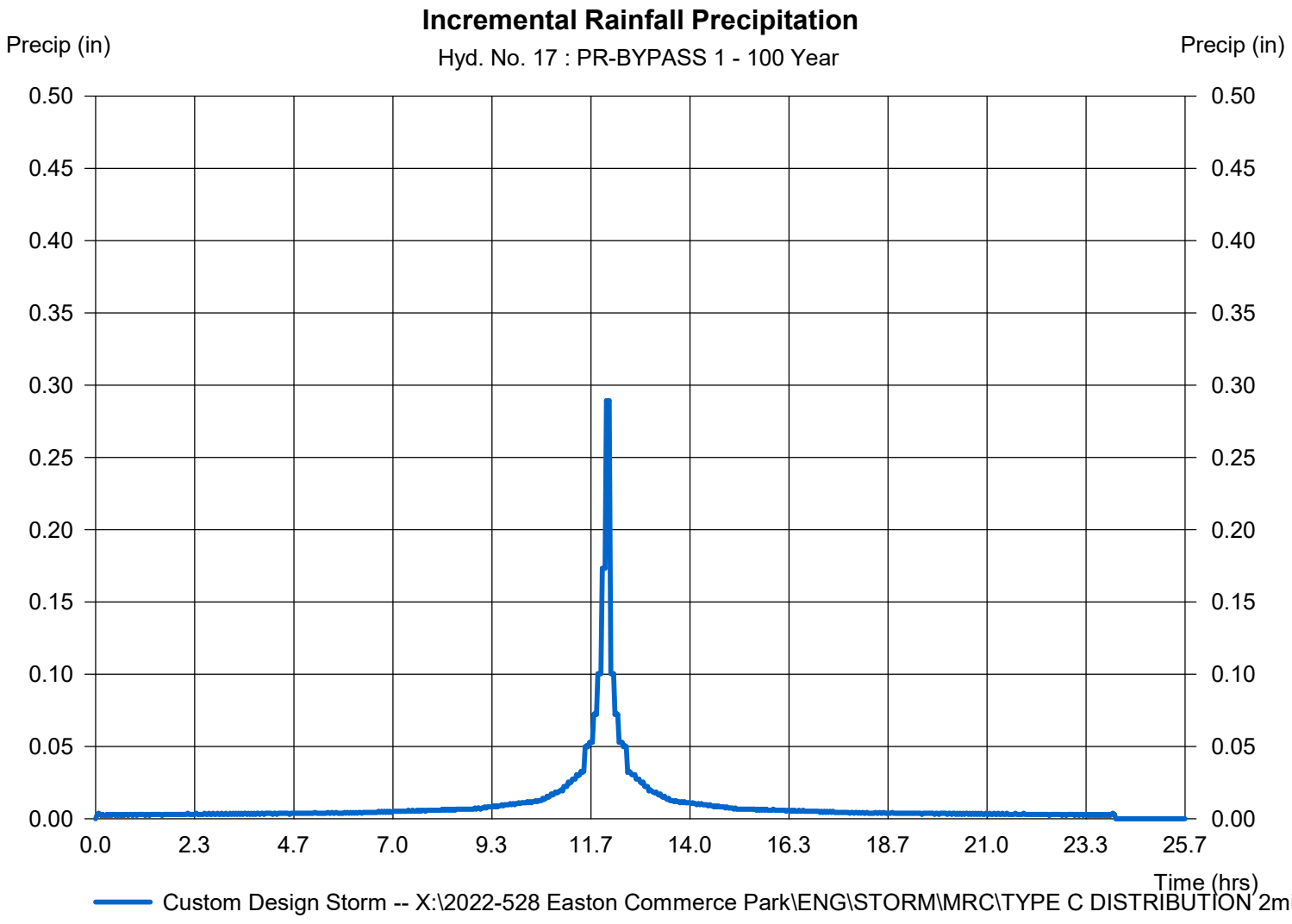


Precipitation Report

Hyd. No. 17

PR-BYPASS 1

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



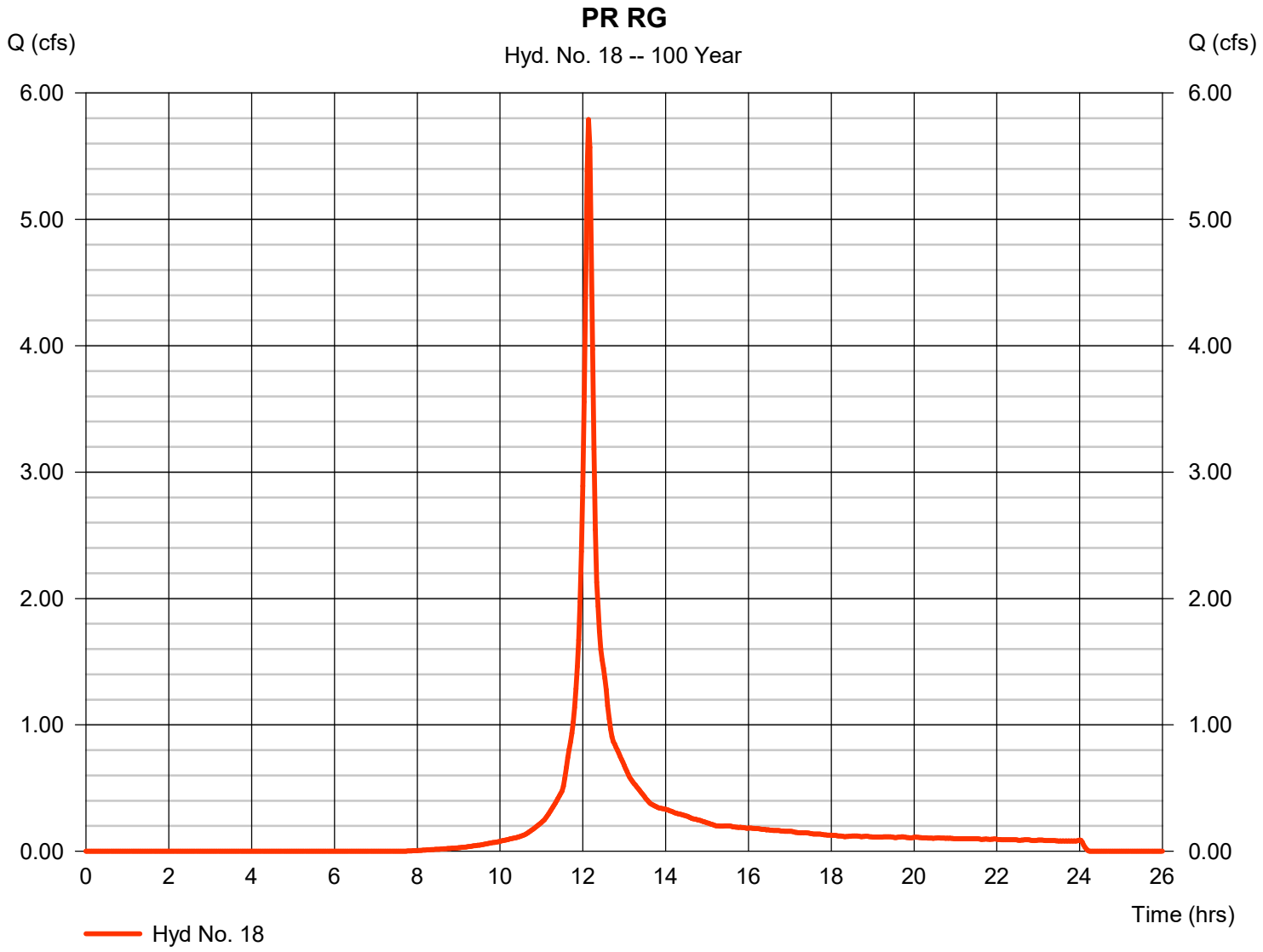
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.791 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	17,845 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO			

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200

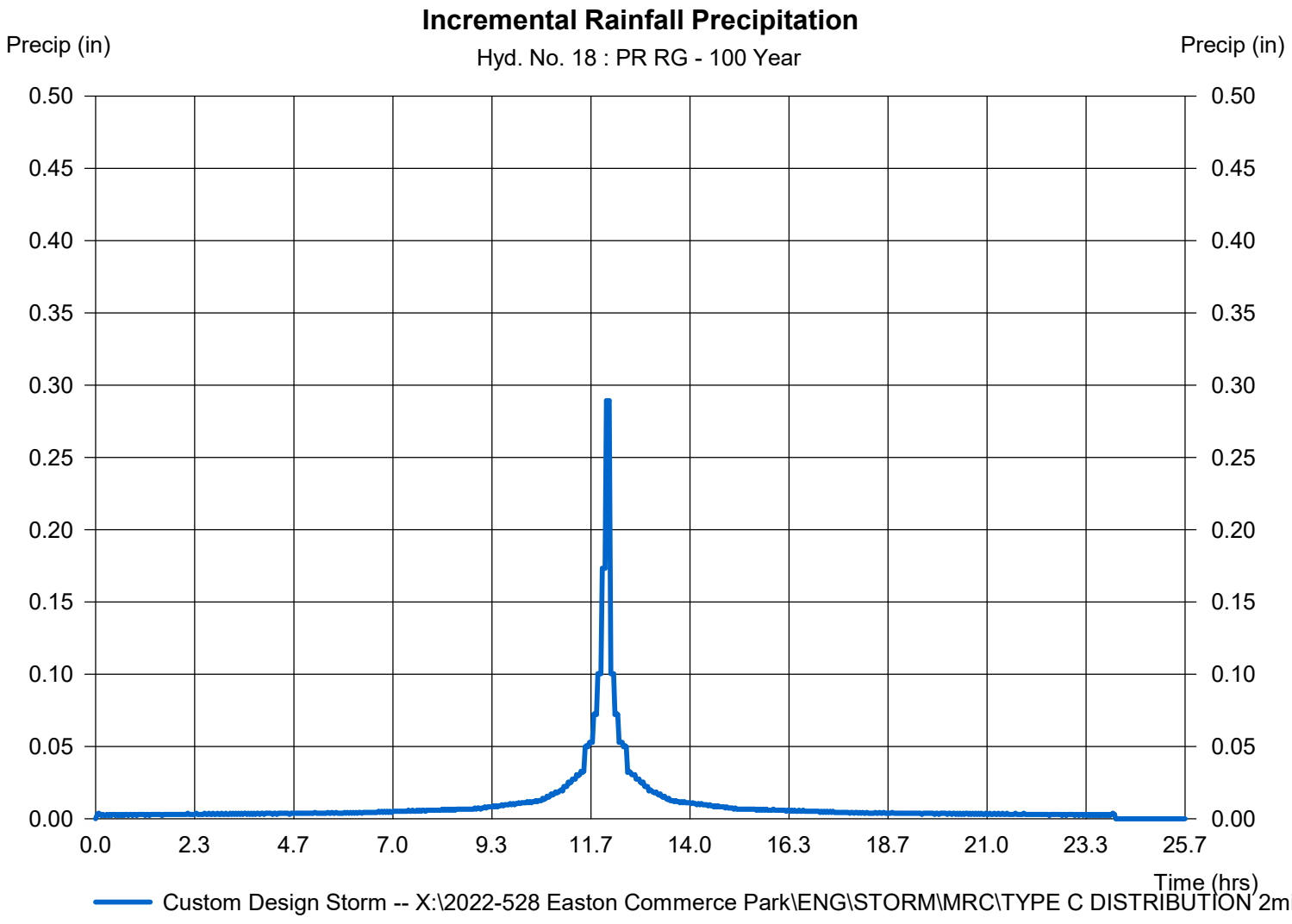


Precipitation Report

Hyd. No. 18

PR RG

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



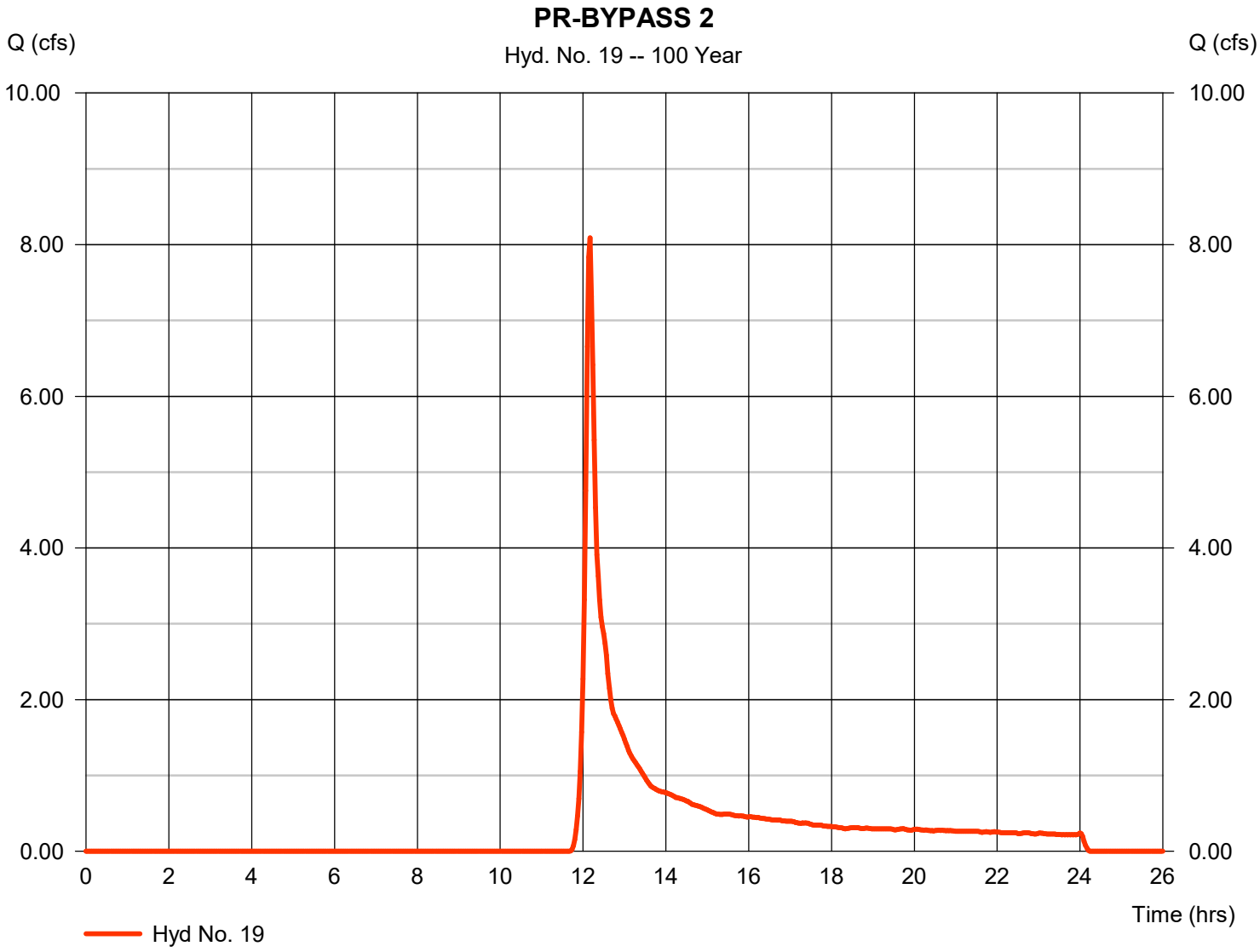
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.091 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	29,463 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC24		=	24 TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600

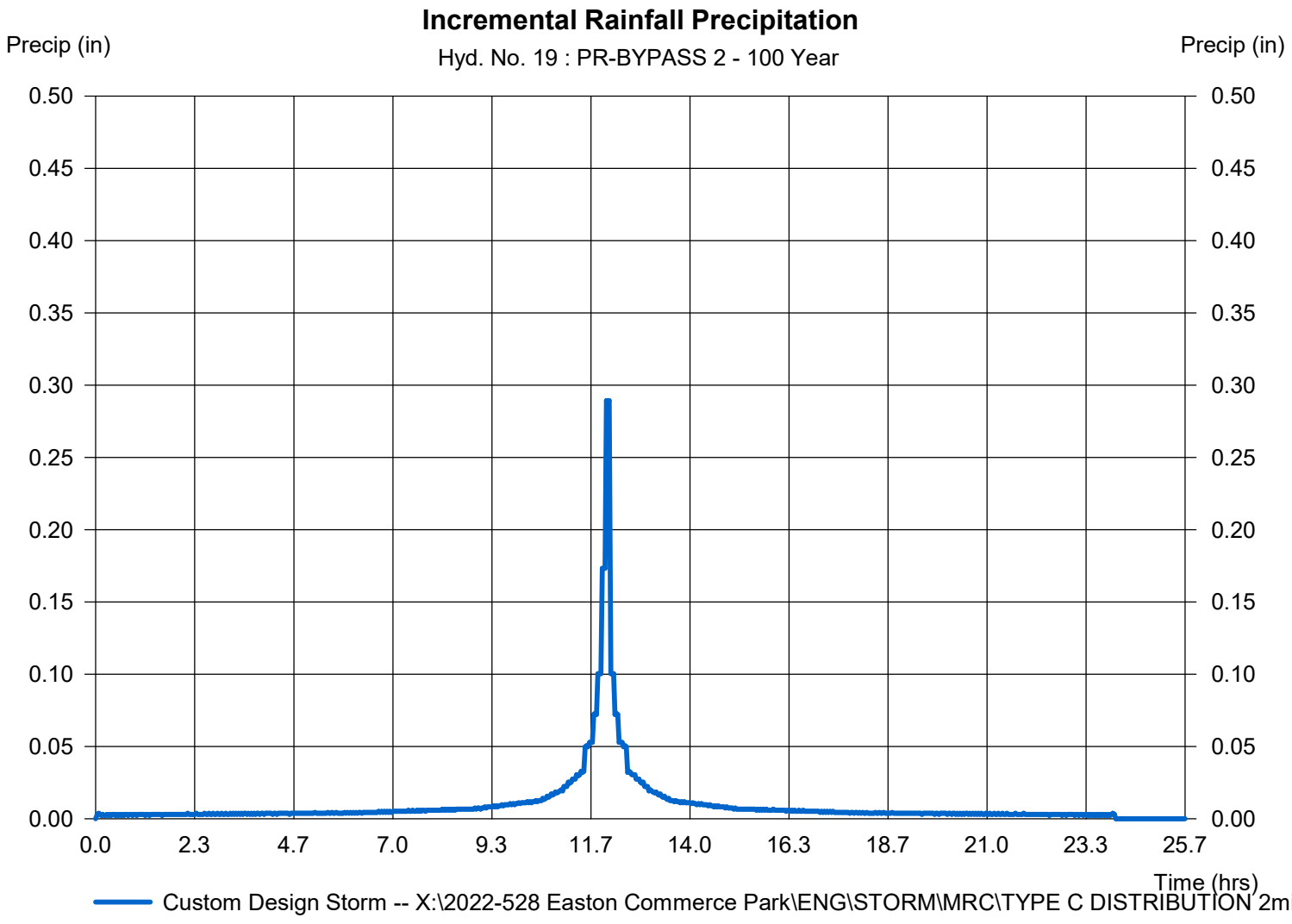


Precipitation Report

Hyd. No. 19

PR-BYPASS 2

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		



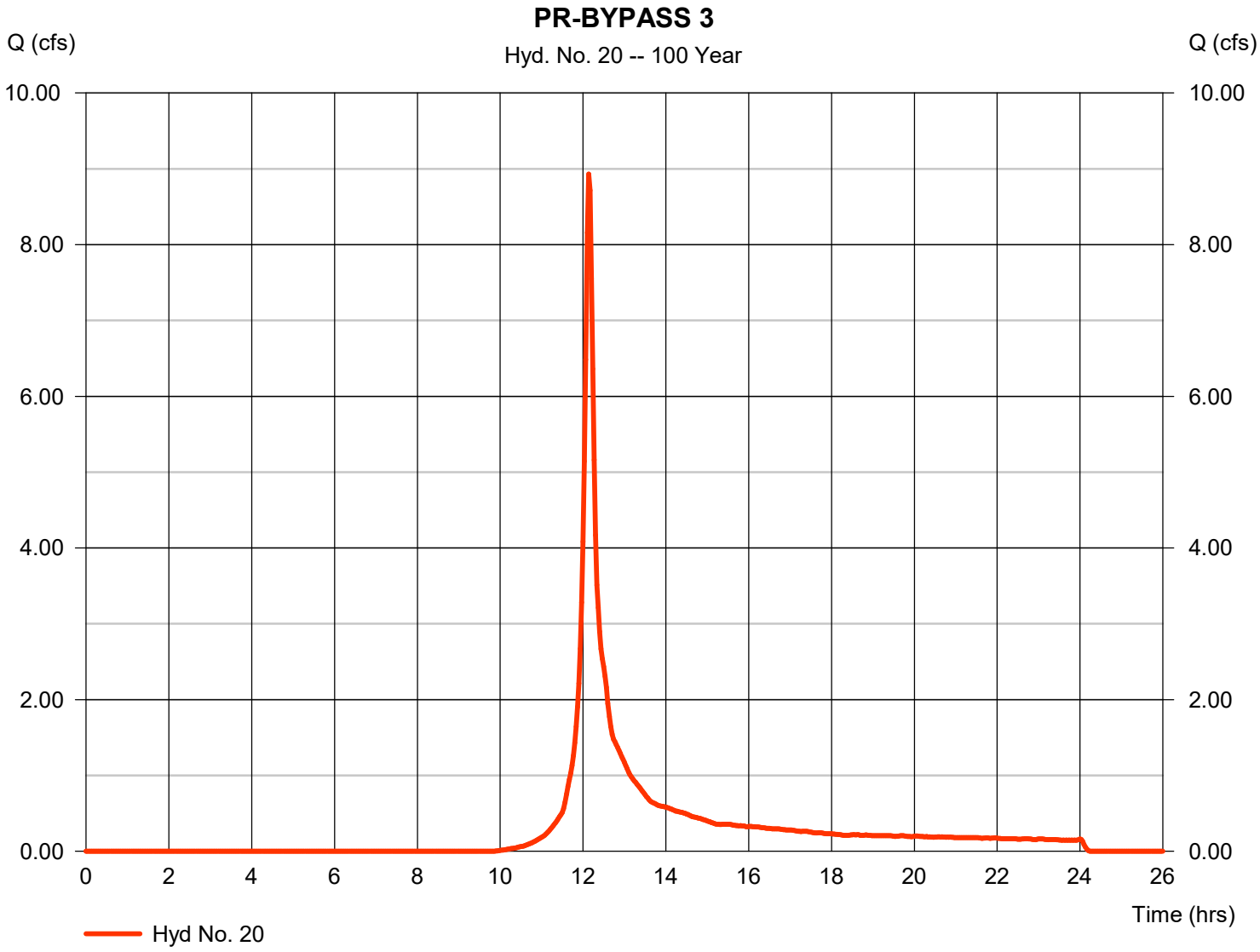
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.931 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	27,769 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24		=	TYPE C DISTRIBUTIO

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

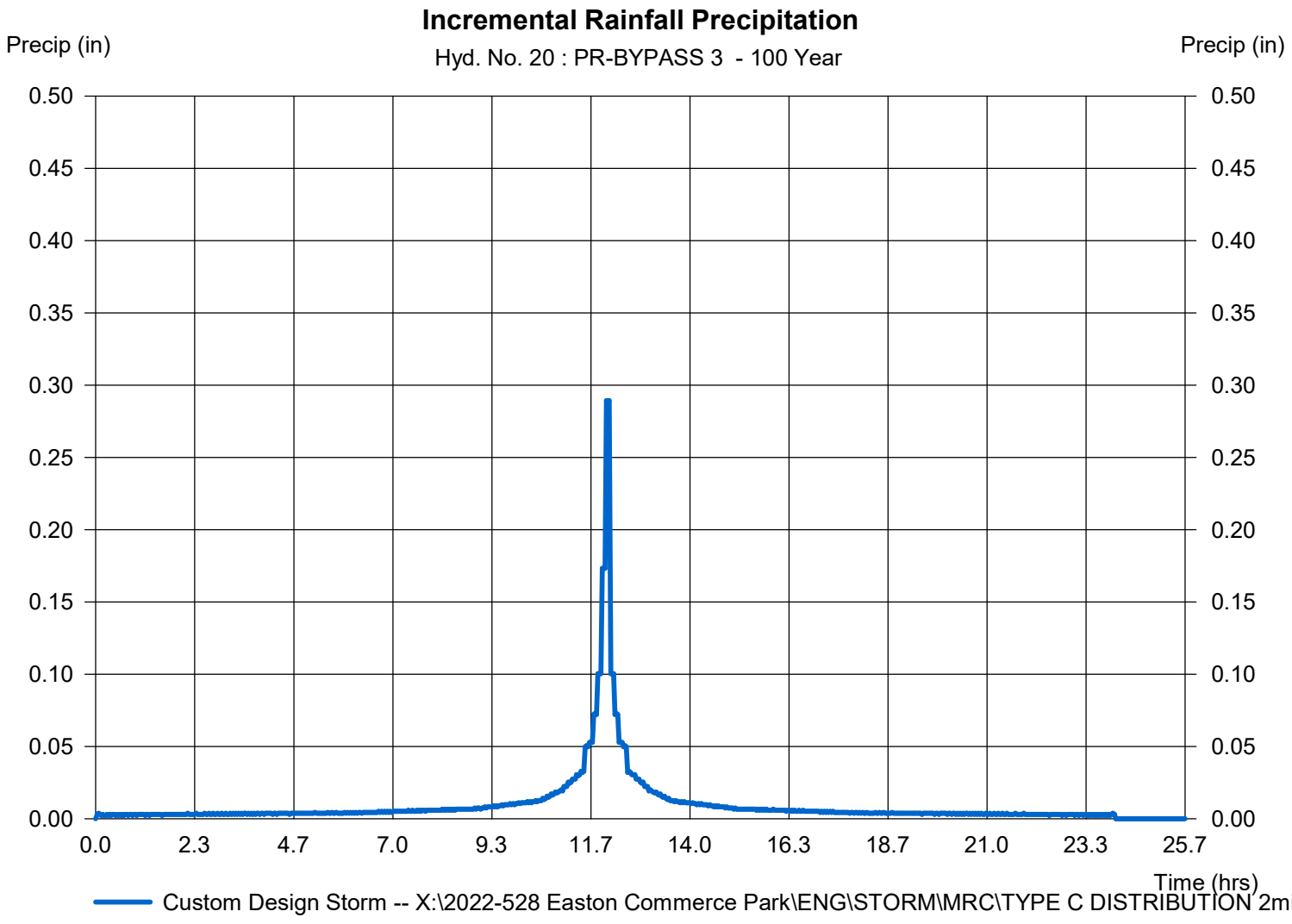


Precipitation Report

Hyd. No. 20

PR-BYPASS 3

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

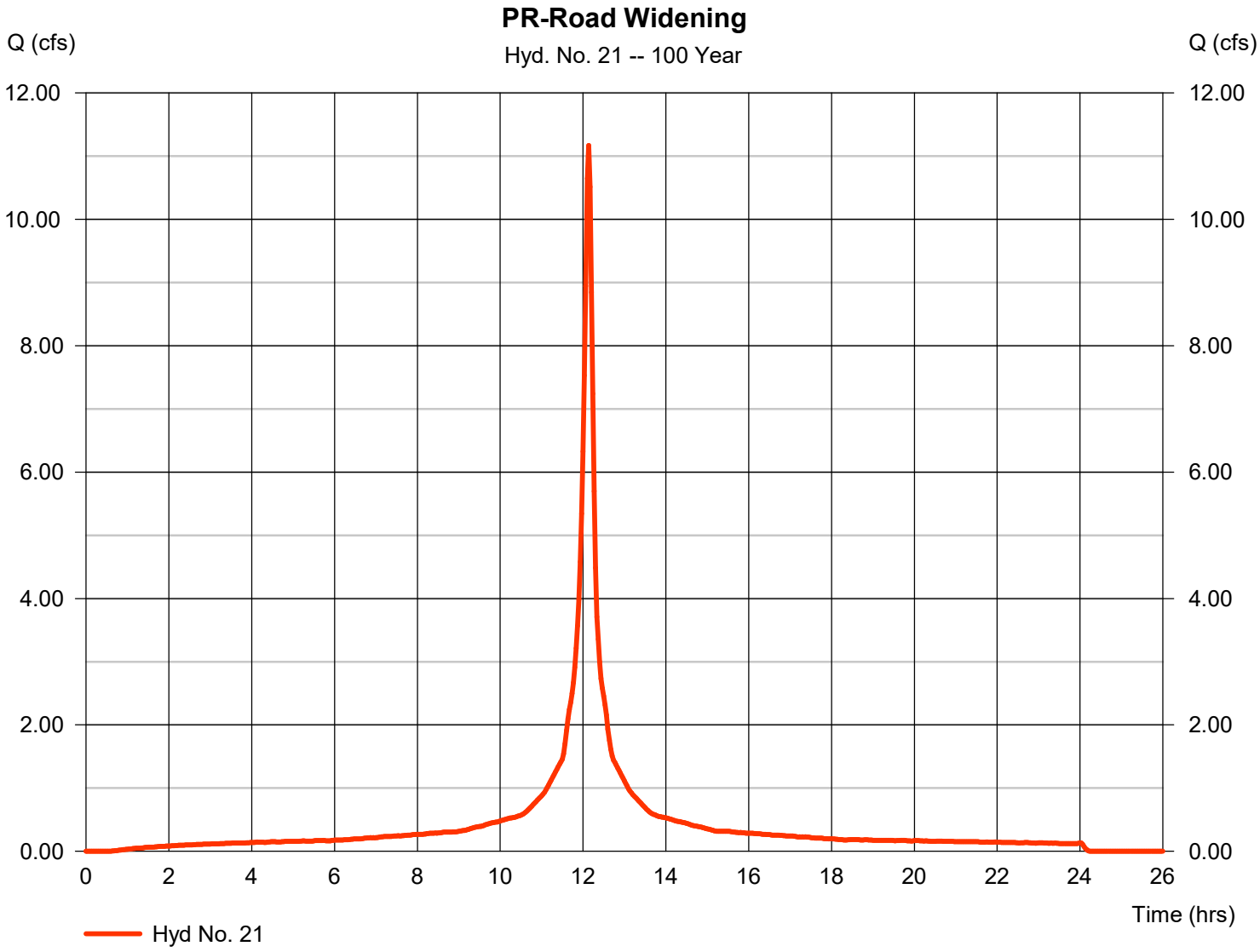


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.17 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	40,514 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	7.44 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\24	Storm frequency	=	TYPE C DISTRIBUTIO

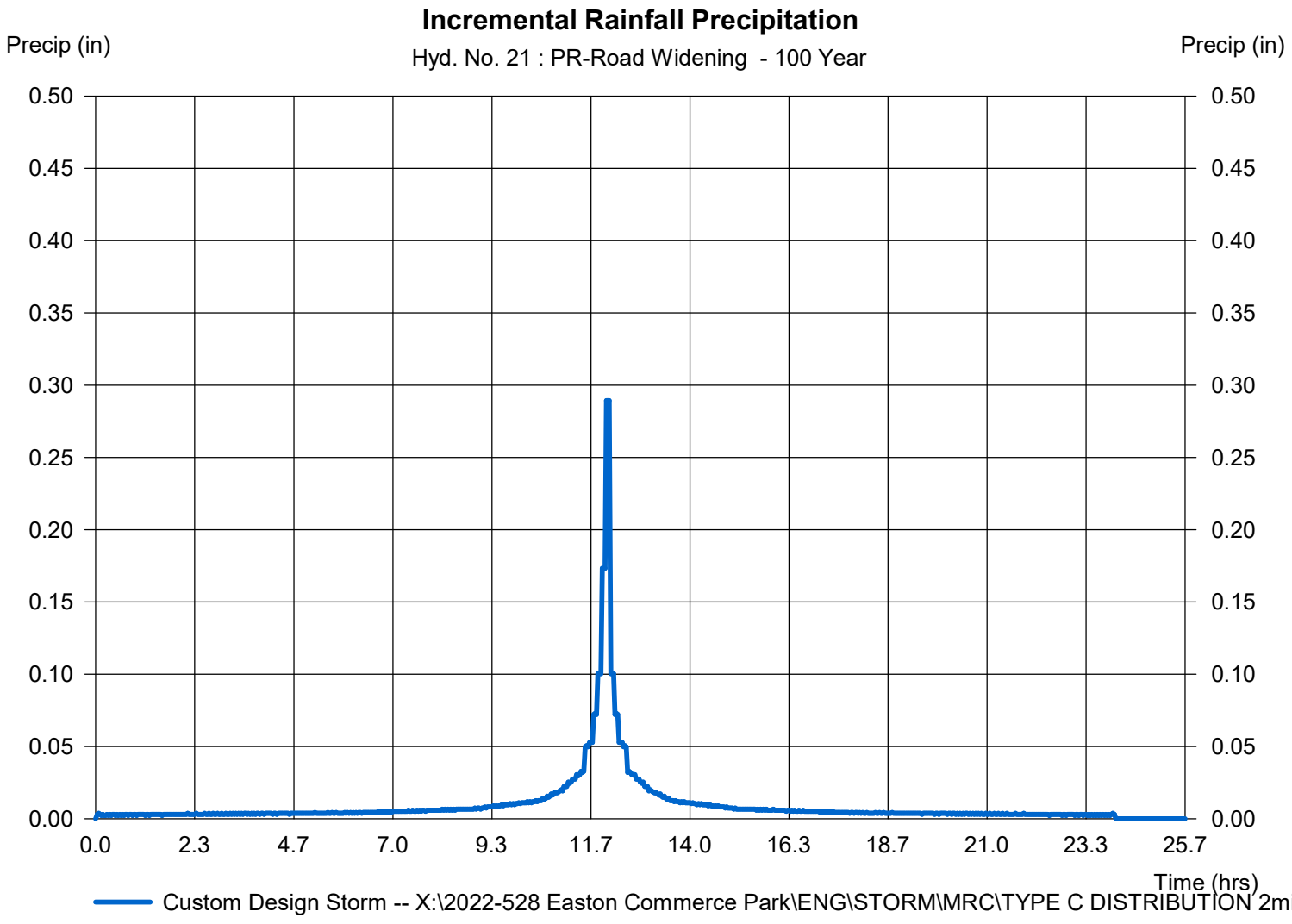


Precipitation Report

Hyd. No. 21

PR-Road Widening

Storm Frequency	= 100 yrs	Time interval	= 2 min
Total precip.	= 7.4400 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\TYPE C DISTRIBUTIO		

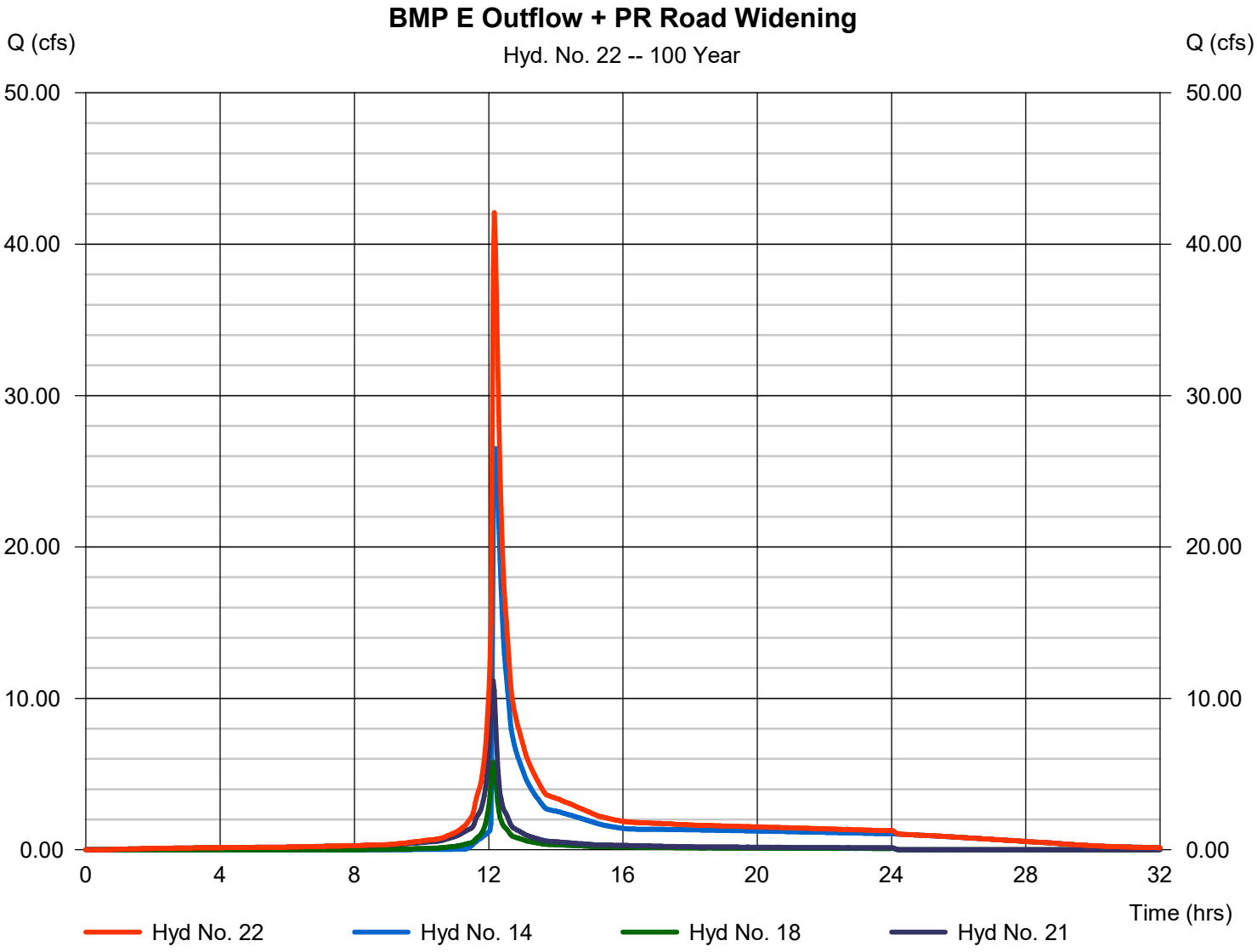


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	42.09 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	188,265 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



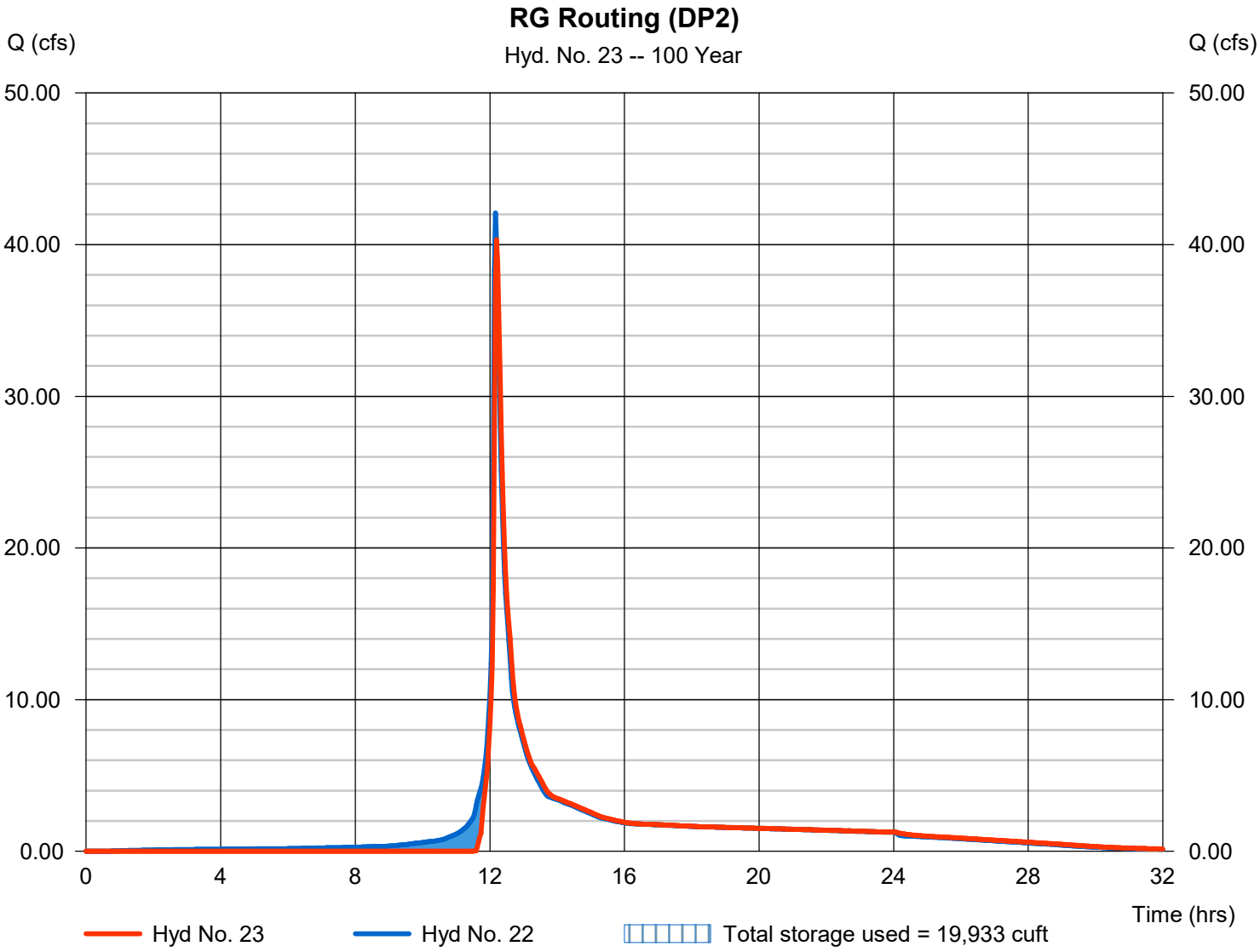
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	40.33 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	175,250 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.53 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	19,933 cuft

Storage Indication method used.

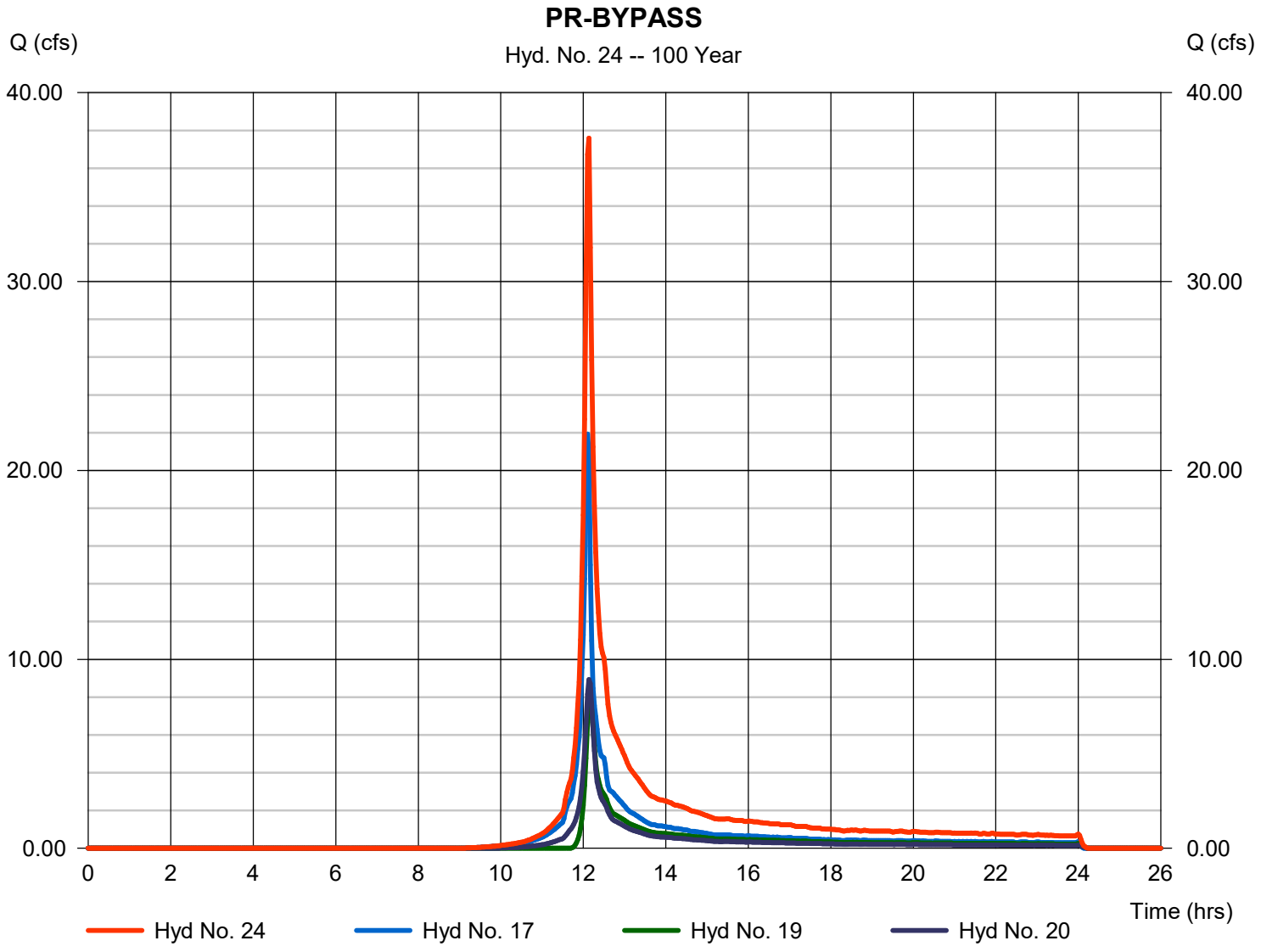


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	37.59 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	115,291 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

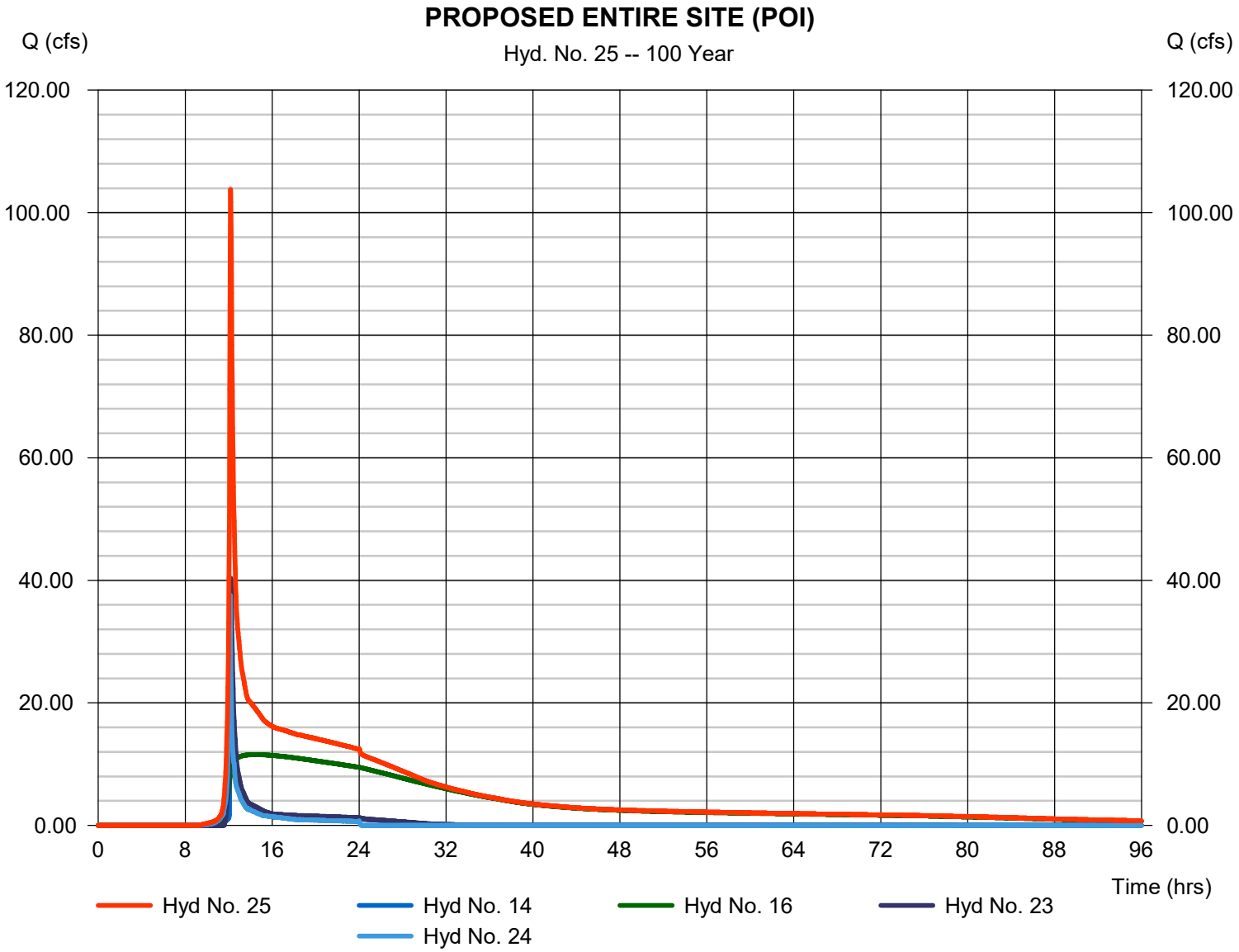


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	103.82 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	1,605,151 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

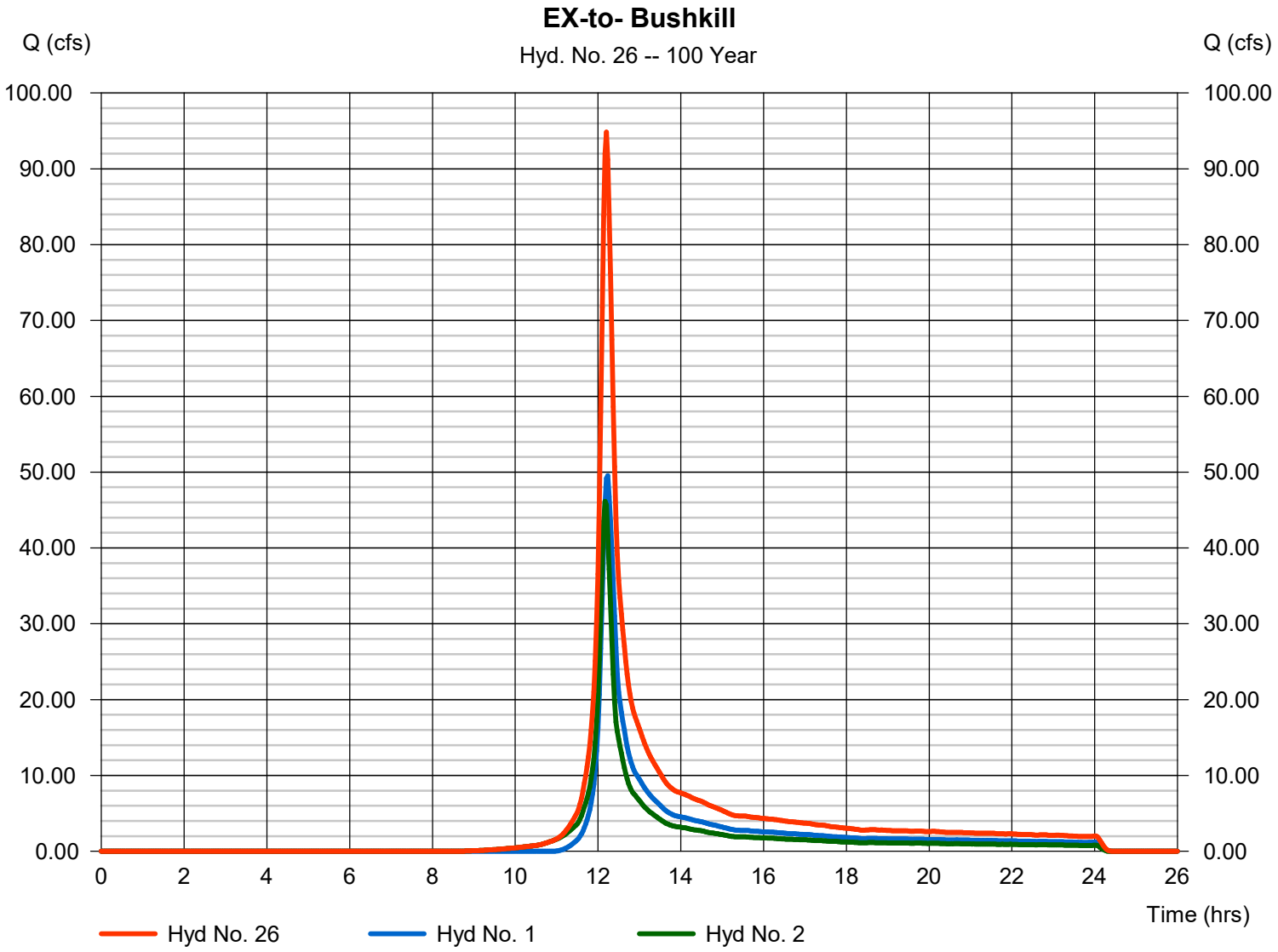


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 94.85 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 355,538 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

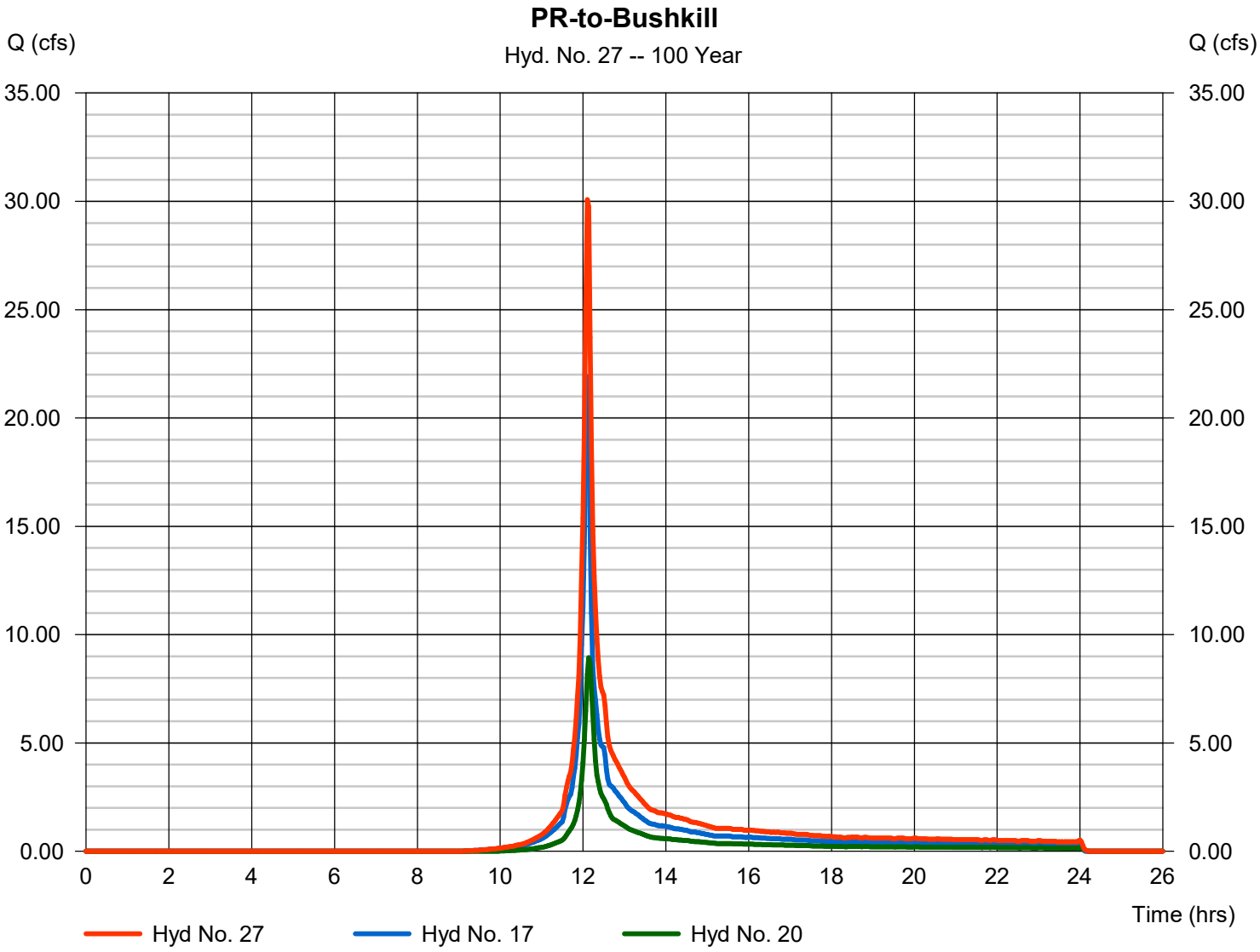


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	30.08 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	85,828 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

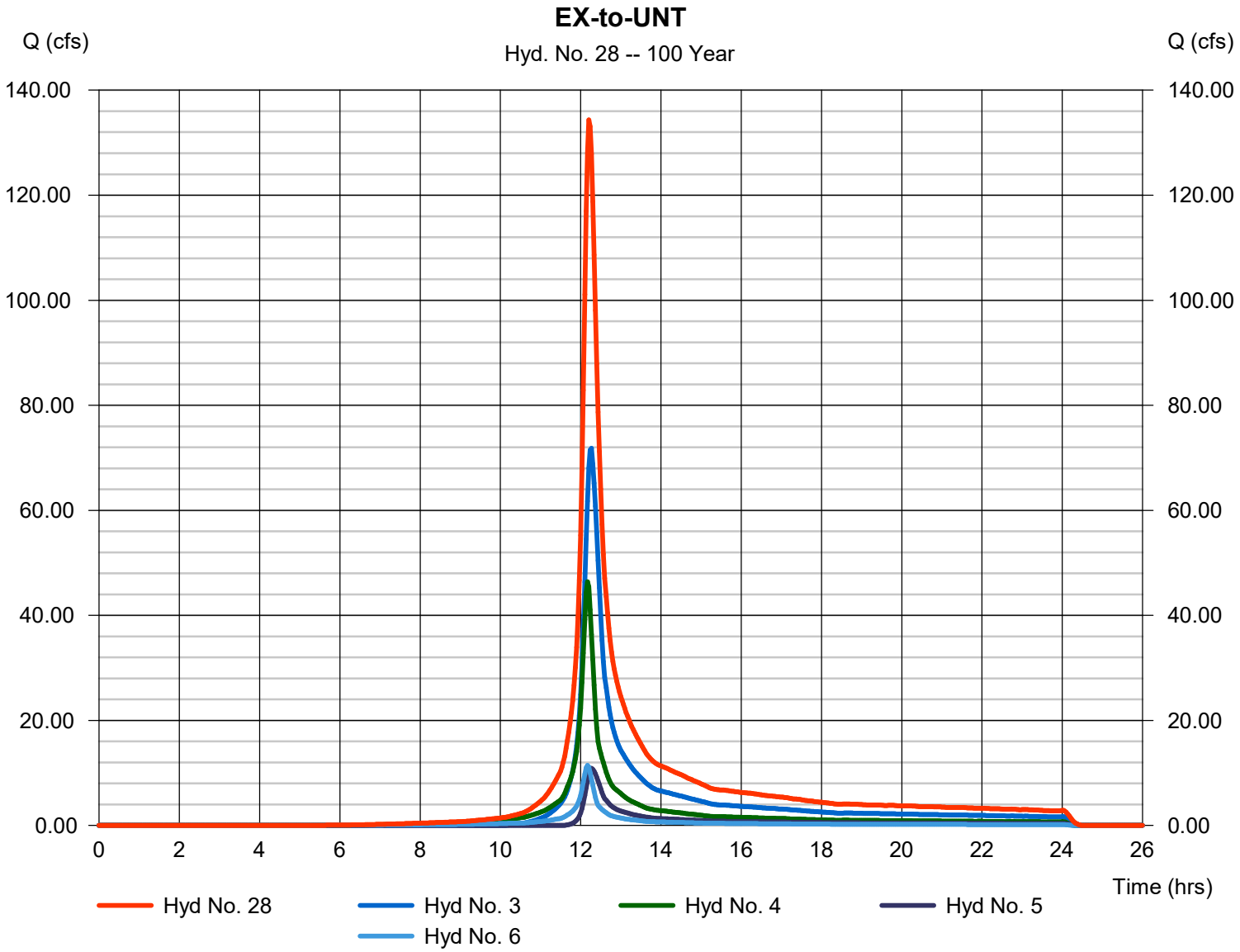


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 134.35 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 555,437 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

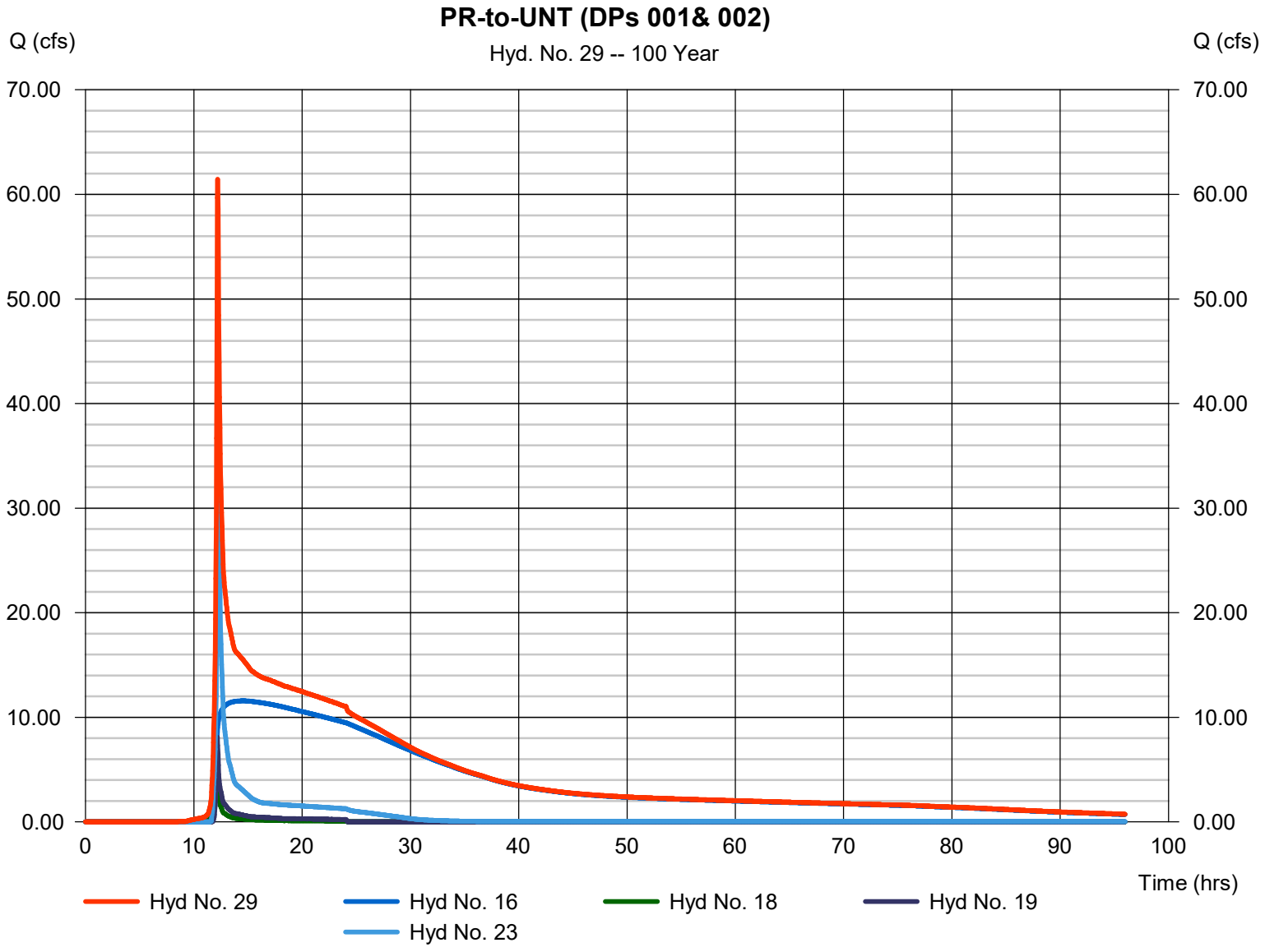


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 61.43 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 1,407,267 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac

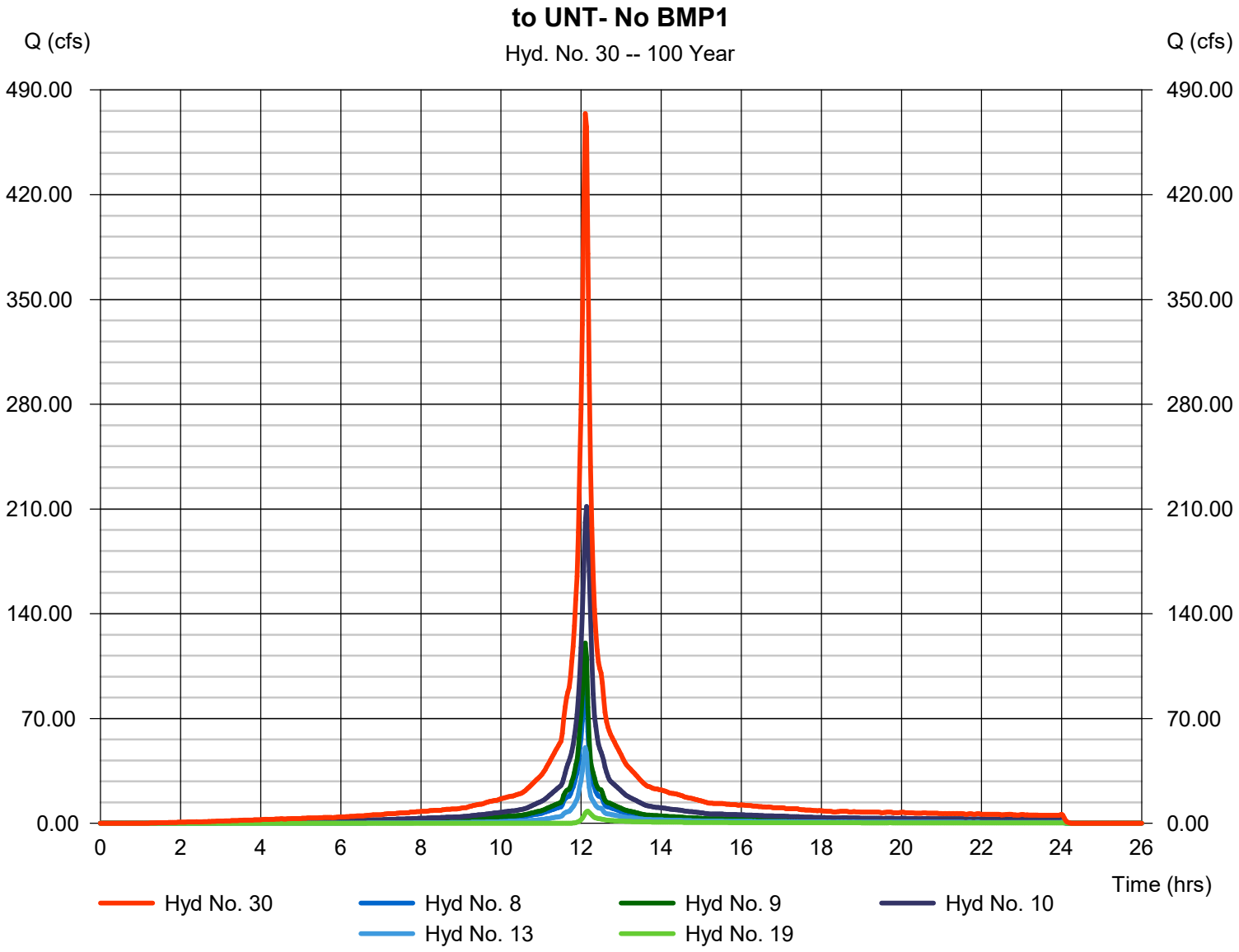


Hydrograph Report

Hyd. No. 30

to UNT- No BMP1

Hydrograph type	= Combine	Peak discharge	= 474.19 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 1,537,405 cuft
Inflow hyds.	= 8, 9, 10, 13, 19	Contrib. drain. area	= 72.660 ac

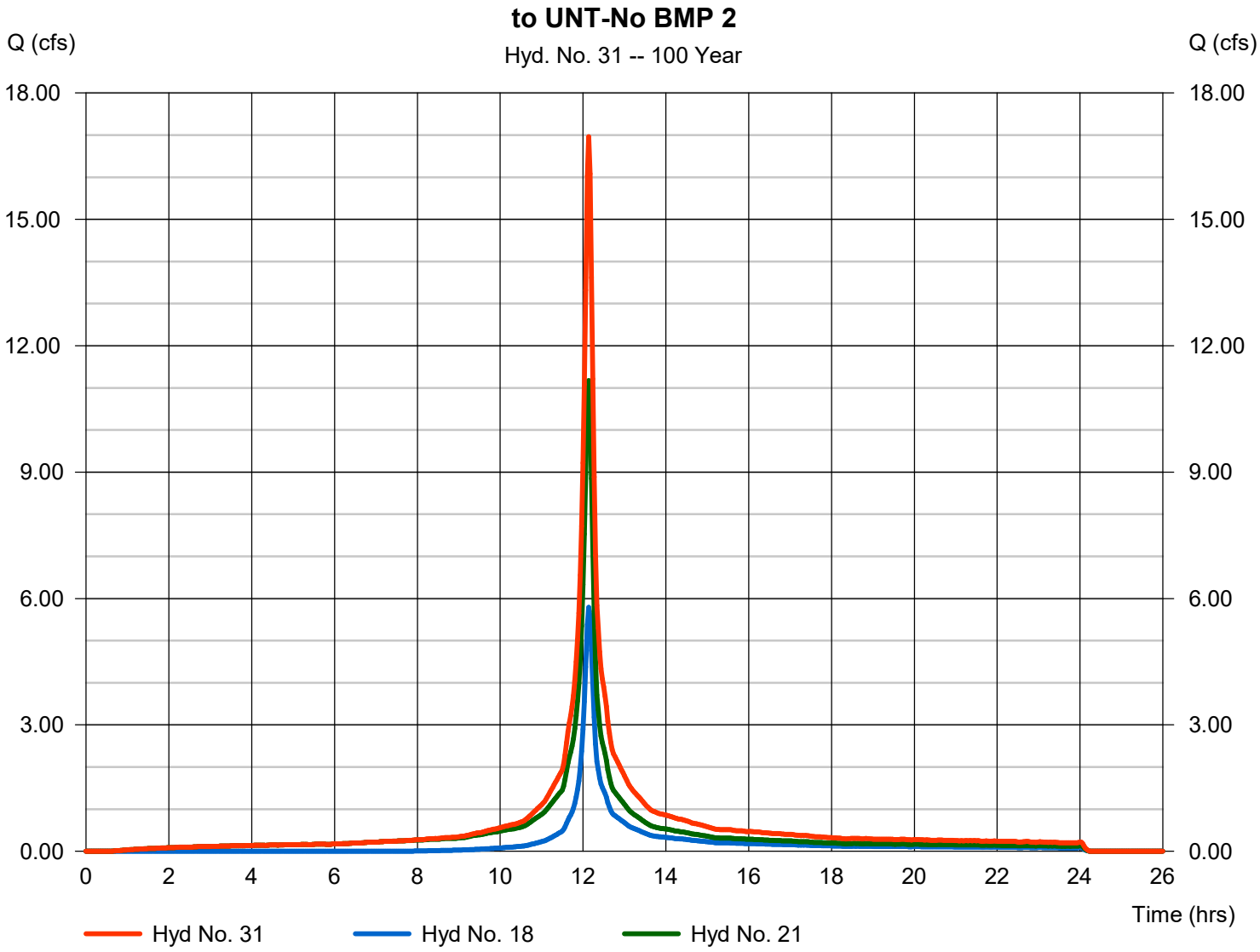


Hydrograph Report

Hyd. No. 31

to UNT-No BMP 2

Hydrograph type	= Combine	Peak discharge	= 16.96 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 58,359 cuft
Inflow hyds.	= 18, 21	Contrib. drain. area	= 2.750 ac

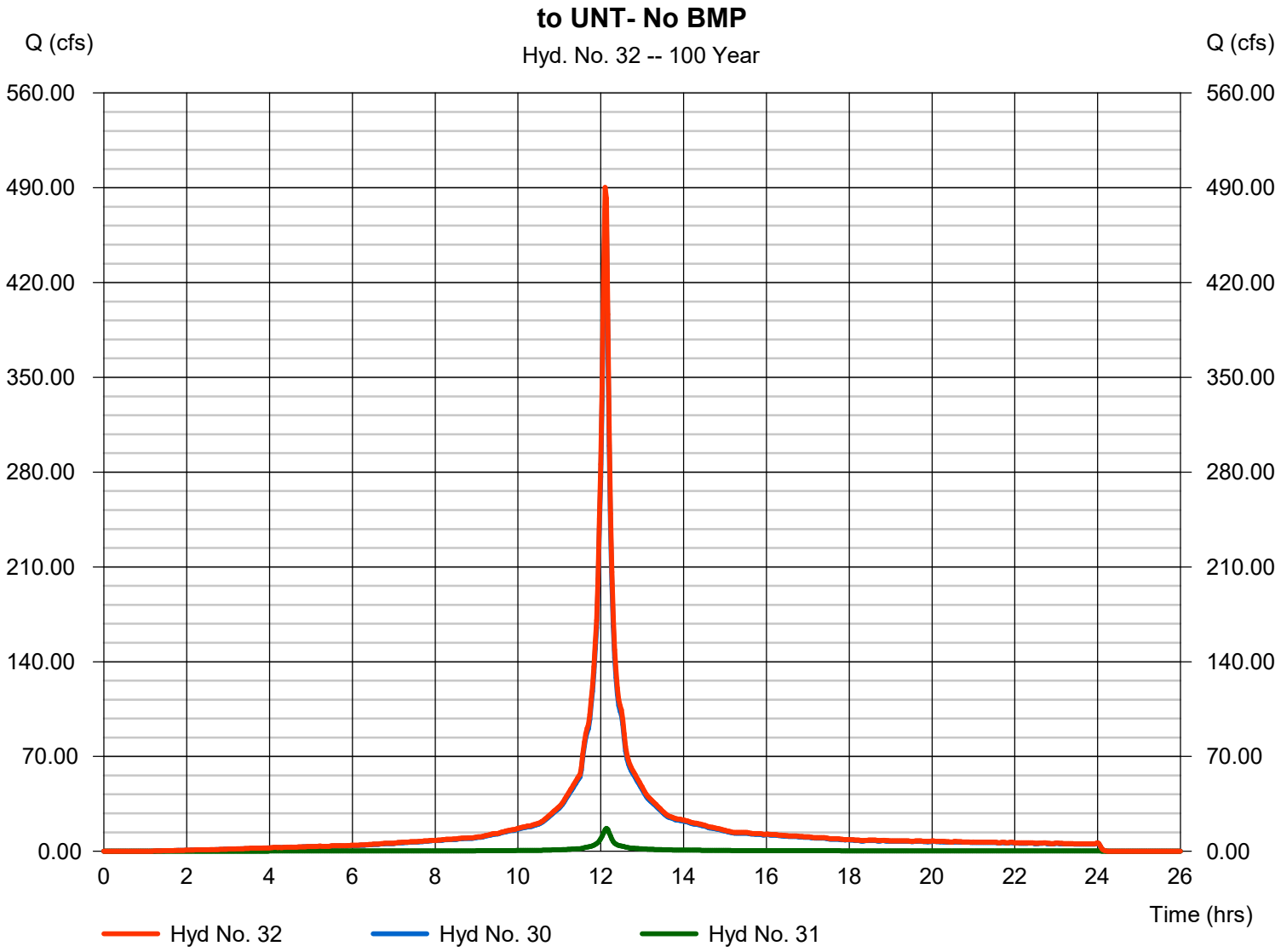


Hydrograph Report

Hyd. No. 32

to UNT- No BMP

Hydrograph type	=	Combine	Peak discharge	=	490.22 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	1,595,765 cuft
Inflow hyds.	=	30, 31	Contrib. drain. area	=	0.000 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44

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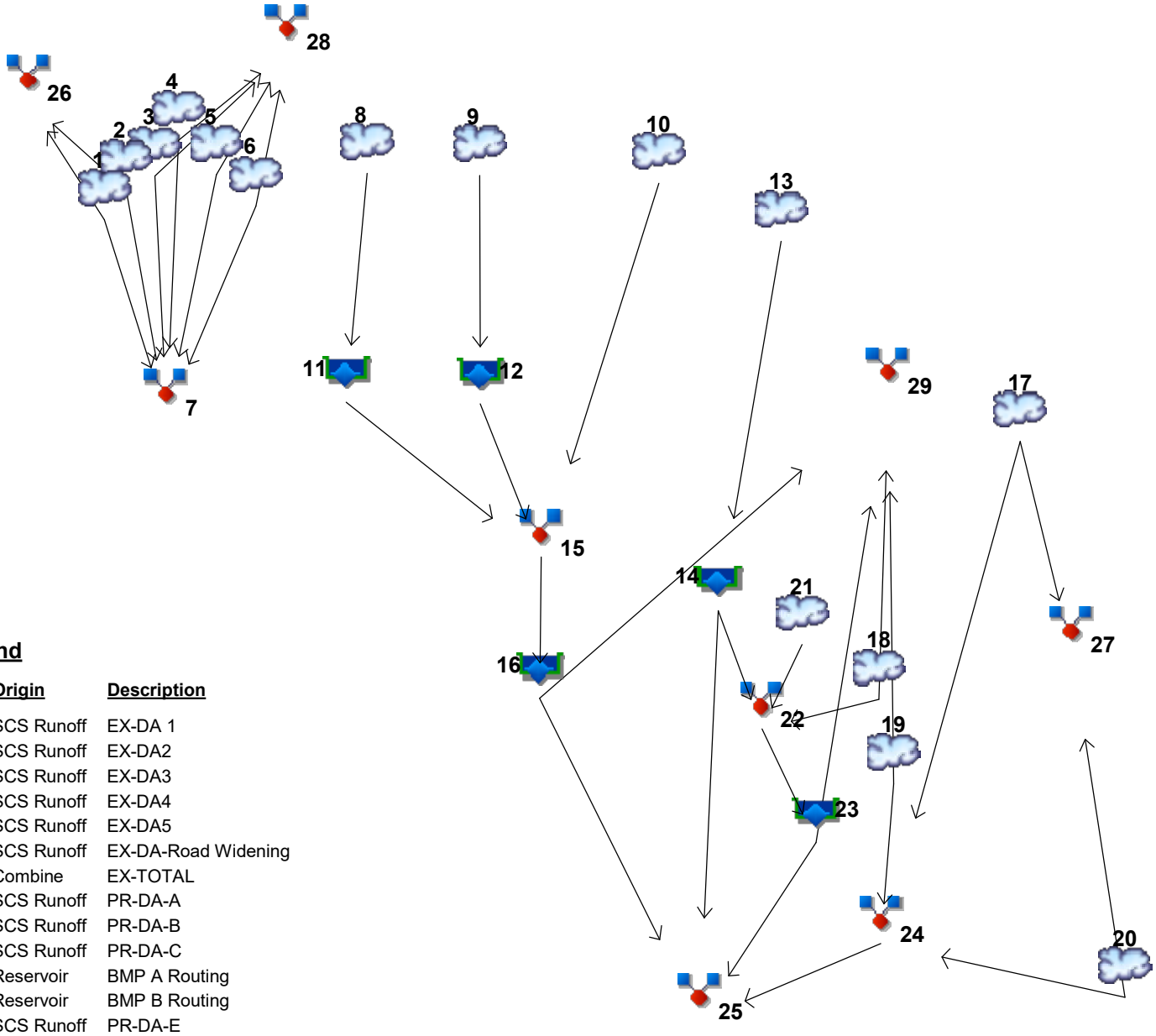
Watershed Model Schematic

24-hour strom modeling using type II distribution



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX-DA 1
2	SCS Runoff	EX-DA2
3	SCS Runoff	EX-DA3
4	SCS Runoff	EX-DA4
5	SCS Runoff	EX-DA5
6	SCS Runoff	EX-DA-Road Widening
7	Combine	EX-TOTAL
8	SCS Runoff	PR-DA-A
9	SCS Runoff	PR-DA-B
10	SCS Runoff	PR-DA-C
11	Reservoir	BMP A Routing
12	Reservoir	BMP B Routing
13	SCS Runoff	PR-DA-E
14	Reservoir	BMP E Routing
15	Combine	BMP C INFLOW
16	Reservoir	MRC BMP C Routing(DP1)
17	SCS Runoff	PR-BYPASS 1
18	SCS Runoff	PR RG
19	SCS Runoff	PR-BYPASS 2
20	SCS Runoff	PR-BYPASS 3
21	SCS Runoff	PR-Road Widening
22	Combine	BMP E Outflow + PR Road Widening
23	Reservoir	RG Routing (DP2)
24	Combine	PR-BYPASS
25	Combine	PROPOSED ENTIRE SITE (POI)
26	Combine	EX-to- Bushkill
27	Combine	PR-to-Bushkill
28	Combine	EX-to-UNT
29	Combine	PR-to-UNT (DPs 001& 002)

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.129	1.184	-------	5.145	16.00	30.73	47.55	65.95	EX-DA 1
2	SCS Runoff	------	3.627	8.484	-------	14.28	24.81	36.44	48.90	62.09	EX-DA2
3	SCS Runoff	------	1.271	6.047	-------	13.66	30.08	49.39	70.69	93.46	EX-DA3
4	SCS Runoff	------	9.002	14.39	-------	20.23	30.33	40.87	51.62	62.50	EX-DA4
5	SCS Runoff	------	0.009	0.051	-------	0.282	1.919	5.040	9.211	14.14	EX-DA5
6	SCS Runoff	------	2.945	4.333	-------	5.779	8.154	10.56	12.98	15.39	EX-DA-Road Widening
7	Combine	1, 2, 3, 4, 5, 6	16.07	31.95	-------	55.33	105.30	165.60	232.41	303.92	EX-TOTAL
8	SCS Runoff	------	37.88	48.40	-------	58.85	75.45	91.97	108.42	124.84	PR-DA-A
9	SCS Runoff	------	47.87	61.17	-------	74.37	95.35	116.22	137.01	157.76	PR-DA-B
10	SCS Runoff	------	70.60	96.15	-------	121.84	162.91	203.76	244.36	284.74	PR-DA-C
11	Reservoir	8	0.638	0.709	-------	0.774	0.868	0.955	1.037	1.107	BMP A Routing
12	Reservoir	9	1.006	1.126	-------	1.234	1.397	1.542	1.694	2.162	BMP B Routing
13	SCS Runoff	------	11.08	16.85	-------	22.97	33.49	44.31	55.27	66.27	PR-DA-E
14	Reservoir	13	0.196	0.552	-------	0.895	1.264	4.967	21.54	31.35	BMP E Routing
15	Combine	10, 11, 12,	72.05	97.72	-------	123.55	164.81	205.84	246.61	287.14	BMP C INFLOW
16	Reservoir	15	2.233	3.262	-------	4.648	6.862	8.692	10.19	11.52	MRC BMP C Routing(DP1)
17	SCS Runoff	------	1.516	3.812	-------	6.515	11.45	16.92	22.74	28.81	PR-BYPASS 1
18	SCS Runoff	------	0.739	1.385	-------	2.116	3.404	4.786	6.265	7.790	PR RG
19	SCS Runoff	------	0.000	0.016	-------	0.066	0.941	3.522	7.200	11.53	PR-BYPASS 2
20	SCS Runoff	------	0.237	0.999	-------	2.116	4.244	6.676	9.325	12.13	PR-BYPASS 3
21	SCS Runoff	------	4.753	5.984	-------	7.211	9.169	11.12	13.07	15.02	PR-Road Widening
22	Combine	14, 18, 21	5.450	7.336	-------	9.508	13.41	17.09	37.58	52.91	BMP E Outflow + PR Road Widening
23	Reservoir	22	0.286	0.835	-------	1.910	8.753	15.10	35.22	50.12	RG Routing (DP2)
24	Combine	17, 19, 20,	1.671	4.628	-------	8.420	15.91	26.13	38.24	51.46	PR-BYPASS
25	Combine	14, 16, 23, 24	2.668	4.863	-------	8.867	22.83	45.31	90.52	134.29	PROPOSED ENTIRE SITE (POI)
26	Combine	1, 2,	3.627	9.106	-------	18.35	39.60	65.97	95.39	126.98	EX-to- Bushkill
27	Combine	17, 20,	1.671	4.628	-------	8.420	15.48	23.40	31.91	40.84	PR-to-Bushkill
28	Combine	3, 4, 5, 6,	12.48	22.84	-------	36.98	65.70	99.62	137.03	176.94	EX-to-UNT
29	Combine	16, 18, 19, 23,	2.464	3.897	-------	5.896	16.76	29.24	54.28	76.86	PR-to-UNT (DPs 001& 002)

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.129	2	896	4,430	------	------	------	EX-DA 1
2	SCS Runoff	3.627	2	724	13,895	------	------	------	EX-DA2
3	SCS Runoff	1.271	2	736	15,096	------	------	------	EX-DA3
4	SCS Runoff	9.002	2	722	24,306	------	------	------	EX-DA4
5	SCS Runoff	0.009	2	1440	144	------	------	------	EX-DA5
6	SCS Runoff	2.945	2	720	7,701	------	------	------	EX-DA-Road Widening
7	Combine	16.07	2	722	65,571	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	37.88	2	716	82,858	------	------	------	PR-DA-A
9	SCS Runoff	47.87	2	716	104,708	------	------	------	PR-DA-B
10	SCS Runoff	70.60	2	718	162,535	------	------	------	PR-DA-C
11	Reservoir	0.638	2	960	70,504	8	290.31	61,330	BMP A Routing
12	Reservoir	1.006	2	910	93,138	9	286.49	74,303	BMP B Routing
13	SCS Runoff	11.08	2	718	22,169	------	------	------	PR-DA-E
14	Reservoir	0.196	2	1114	14,931	13	256.99	16,463	BMP E Routing
15	Combine	72.05	2	718	326,176	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	2.233	2	1442	229,759	15	216.71	171,998	MRC BMP C Routing(DP1)
17	SCS Runoff	1.516	2	718	4,390	------	------	------	PR-BYPASS 1
18	SCS Runoff	0.739	2	720	1,926	------	------	------	PR RG
19	SCS Runoff	0.000	2	n/a	0	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.237	2	722	1,534	------	------	------	PR-BYPASS 3
21	SCS Runoff	4.753	2	718	12,217	------	------	------	PR-Road Widening
22	Combine	5.450	2	718	29,074	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	0.286	2	1082	16,060	22	232.64	13,341	RG Routing (DP2)
24	Combine	1.671	2	720	5,924	17, 19, 20,	------	------	PR-BYPASS
25	Combine	2.668	2	1416	266,675	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	3.627	2	724	18,325	1, 2,	------	------	EX-to- Bushkill
27	Combine	1.671	2	720	5,924	17, 20,	------	------	PR-to-Bushkill
28	Combine	12.48	2	722	47,246	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	2.464	2	1440	247,746	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

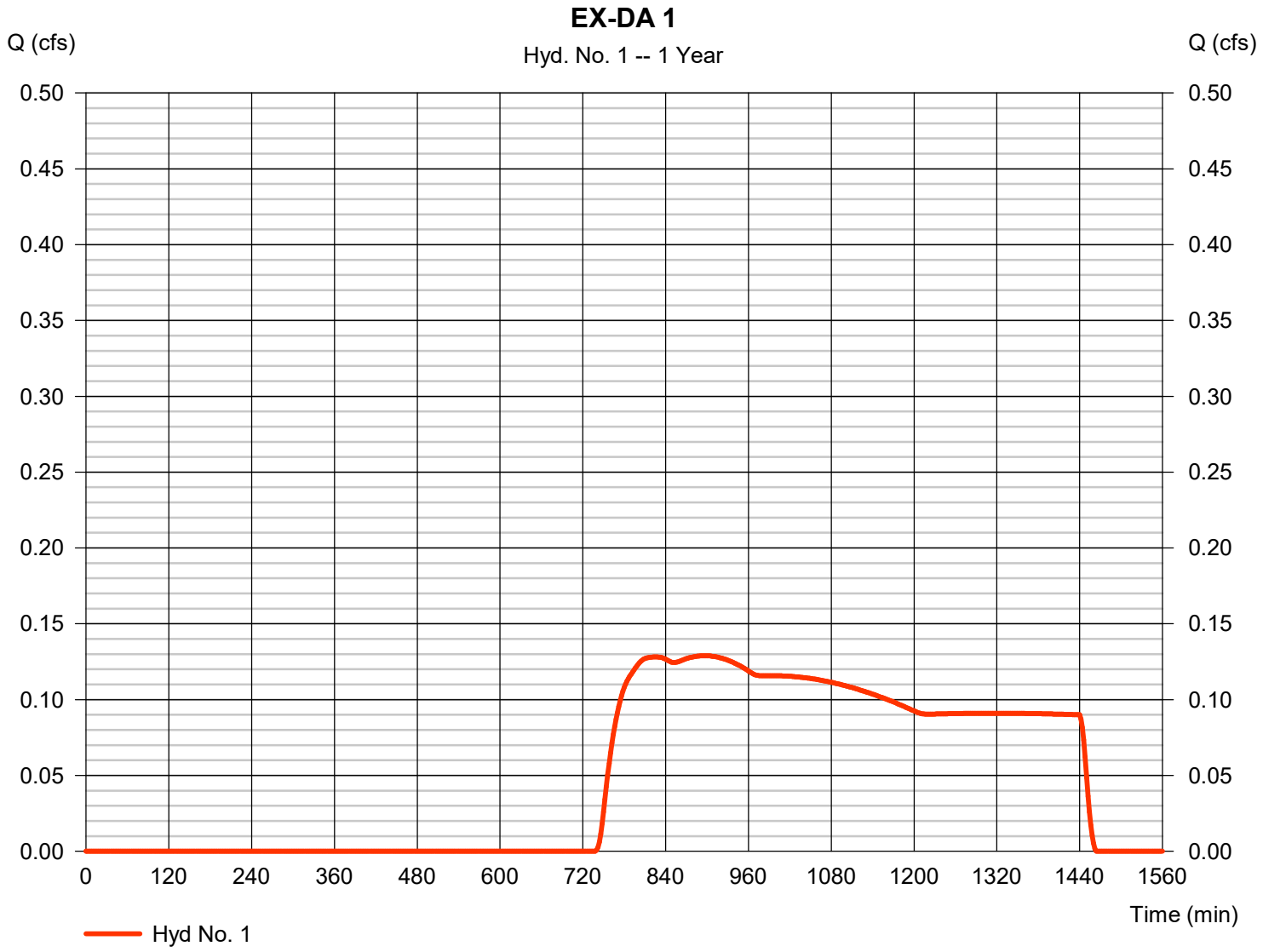
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.129 cfs
Storm frequency	=	1 yrs	Time to peak	=	896 min
Time interval	=	2 min	Hyd. volume	=	4,430 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



TR55 Tc Worksheet

Hyd. No. 1

EX-DA 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 2.99		0.00		0.00		
Travel Time (min)	**= 11.92**	**+**	**0.00**	**+**	**0.00**	**=**	**11.92**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		363.00		0.00		
Watercourse slope (%)	= 2.99		2.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		2.55		0.00		
Travel Time (min)	**= 0.90**	**+**	**2.37**	**+**	**0.00**	**=**	**3.27**
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		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 15.20 min

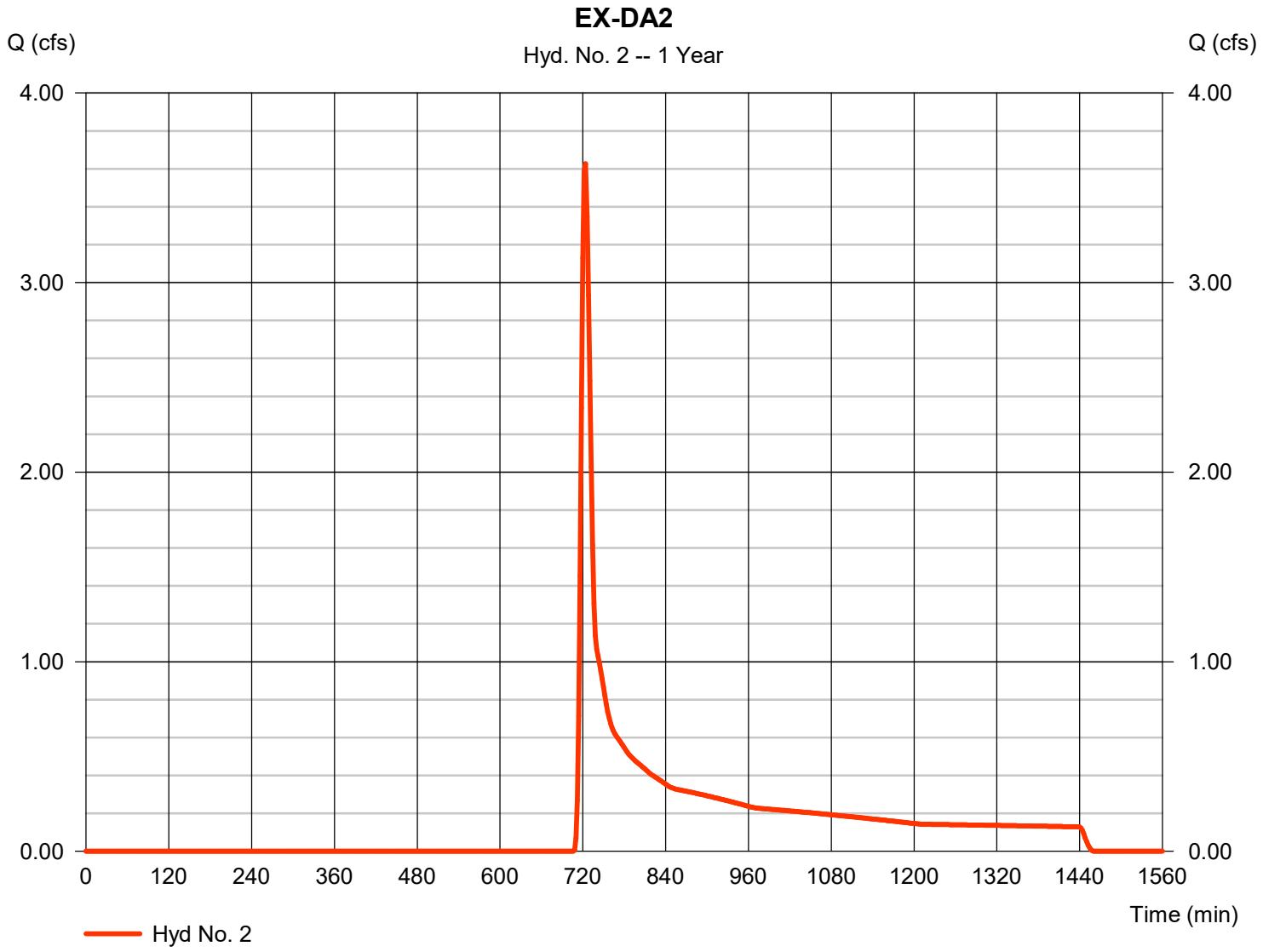
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.627 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	13,895 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



TR55 Tc Worksheet

Hyd. No. 2

EX-DA2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 9.50		0.00		0.00		
Travel Time (min)	**= 8.30**	**+**	**0.00**	**+**	**0.00**	**=**	**8.30**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		200.00		886.00		
Watercourse slope (%)	= 9.50		5.00		7.50		
Surface description	= Unpaved		Unpaved		Unpaved		
Average velocity (ft/s)	=4.97		3.61		4.42		
Travel Time (min)	**= 0.50**	**+**	**0.92**	**+**	**3.34**	**=**	**4.77**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 13.10 min

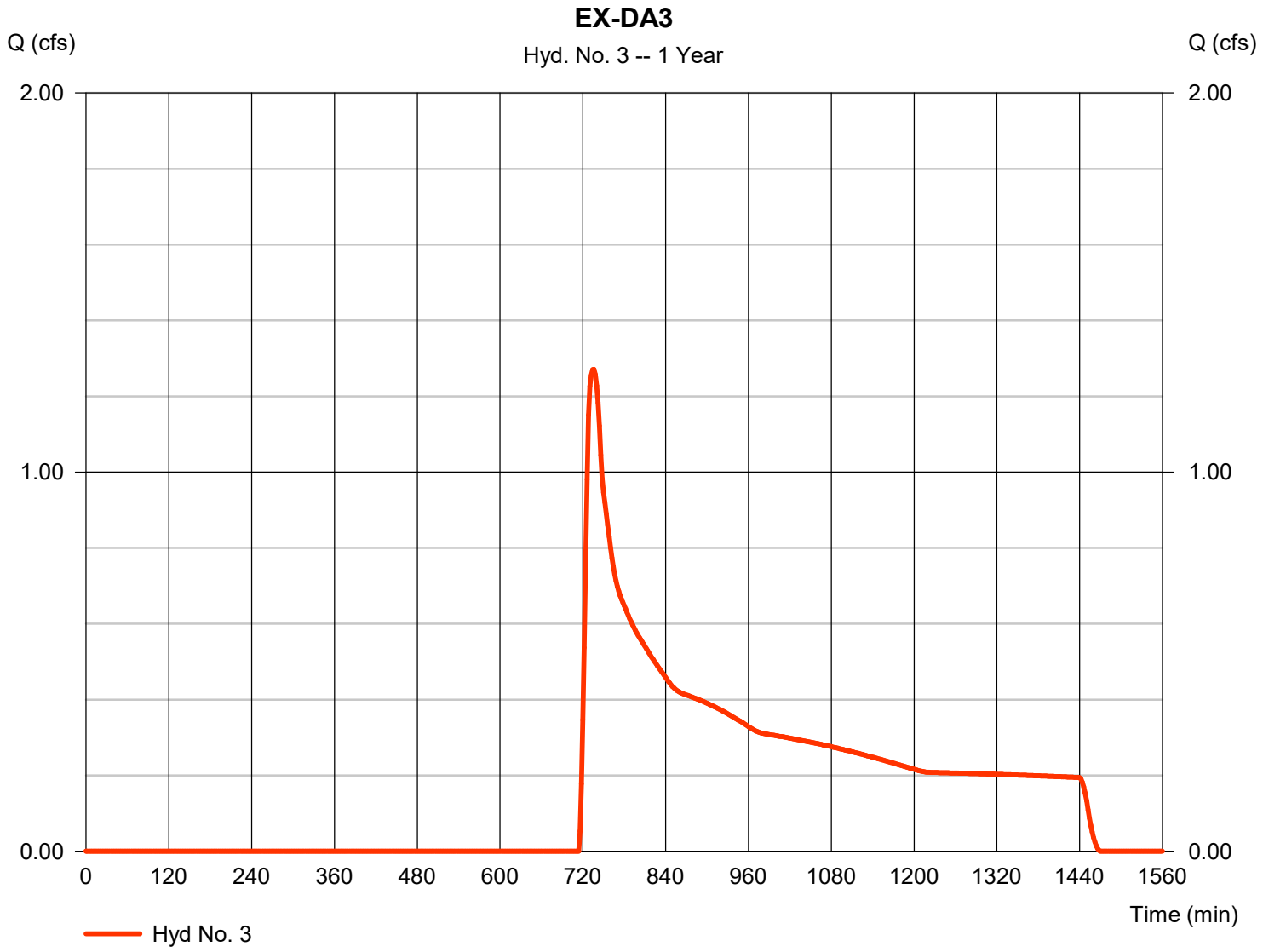
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.271 cfs
Storm frequency	=	1 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	15,096 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



TR55 Tc Worksheet

Hyd. No. 3

EX-DA3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.06		0.00		0.00		
Travel Time (min)	**= 11.81**	**+**	**0.00**	**+**	**0.00**	**=**	**11.81**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		1132.00		0.00		
Watercourse slope (%)	= 3.06		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.82		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**6.25**	**+**	**0.00**	**=**	**7.14**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 18.90 min

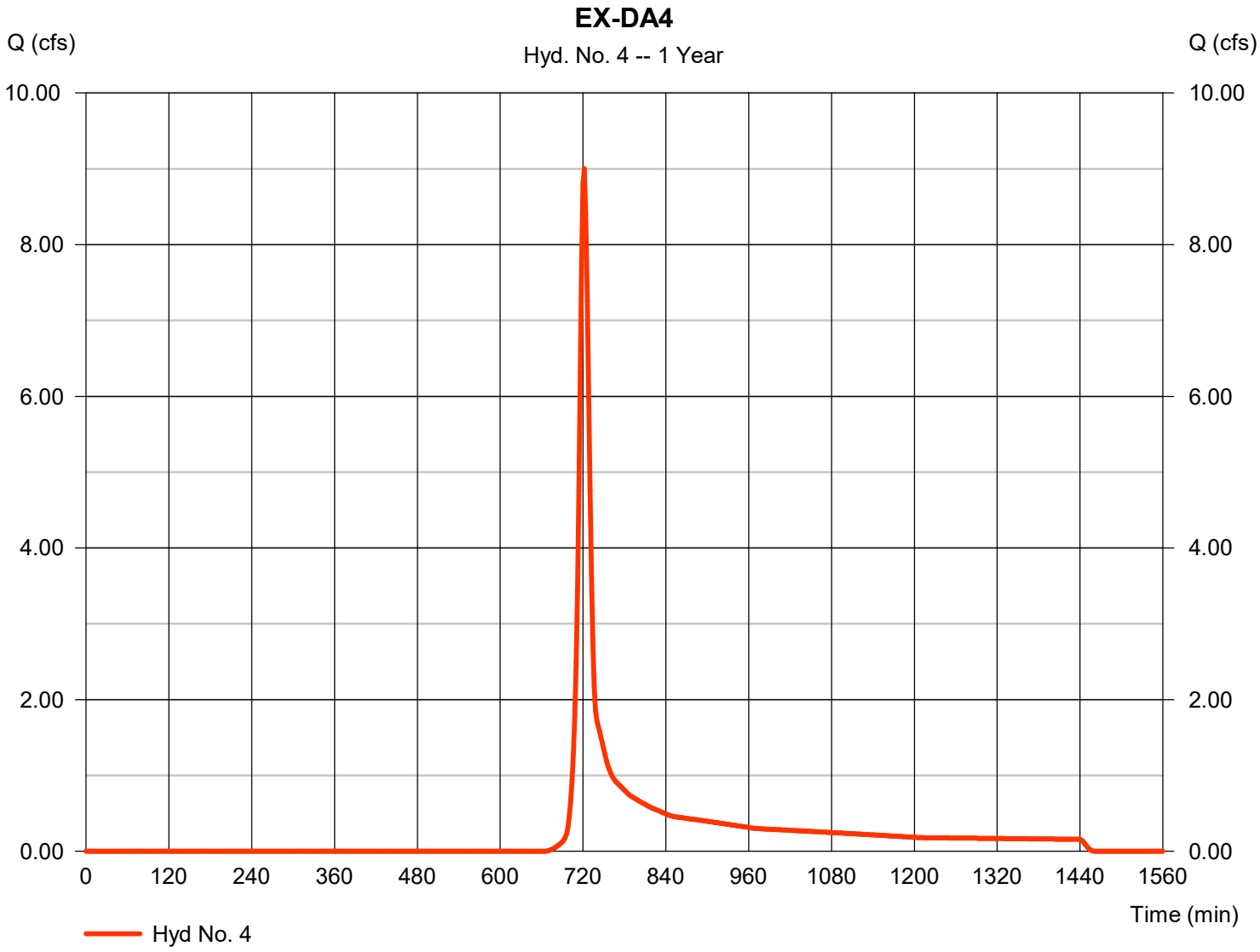
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.002 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	24,306 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



TR55 Tc Worksheet

Hyd. No. 4

EX-DA4

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.130		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 5.00		0.00		0.00		
Travel Time (min)	**= 8.65**	**+**	**0.00**	**+**	**0.00**	**=**	**8.65**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		539.00		0.00		
Watercourse slope (%)	= 5.00		6.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=3.61		4.11		0.00		
Travel Time (min)	**= 0.69**	**+**	**2.18**	**+**	**0.00**	**=**	**2.88**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 11.50 min

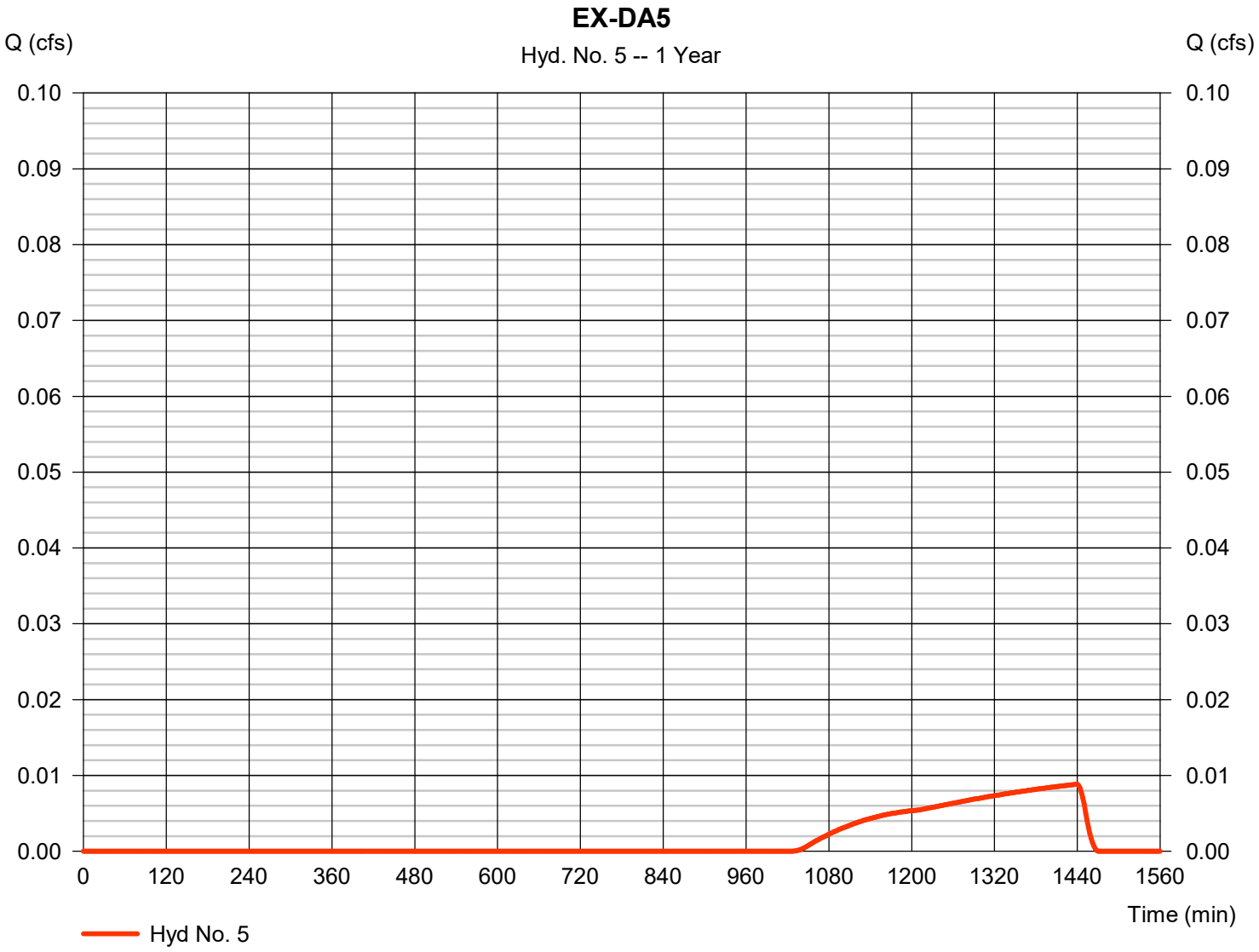
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.009 cfs
Storm frequency	=	1 yrs	Time to peak	=	1440 min
Time interval	=	2 min	Hyd. volume	=	144 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



TR55 Tc Worksheet

Hyd. No. 5

EX-DA5

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 11.90**	**+**	**0.00**	**+**	**0.00**	**=**	**11.90**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		856.00		0.00		
Watercourse slope (%)	= 3.00		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**4.73**	**+**	**0.00**	**=**	**5.62**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 17.50 min

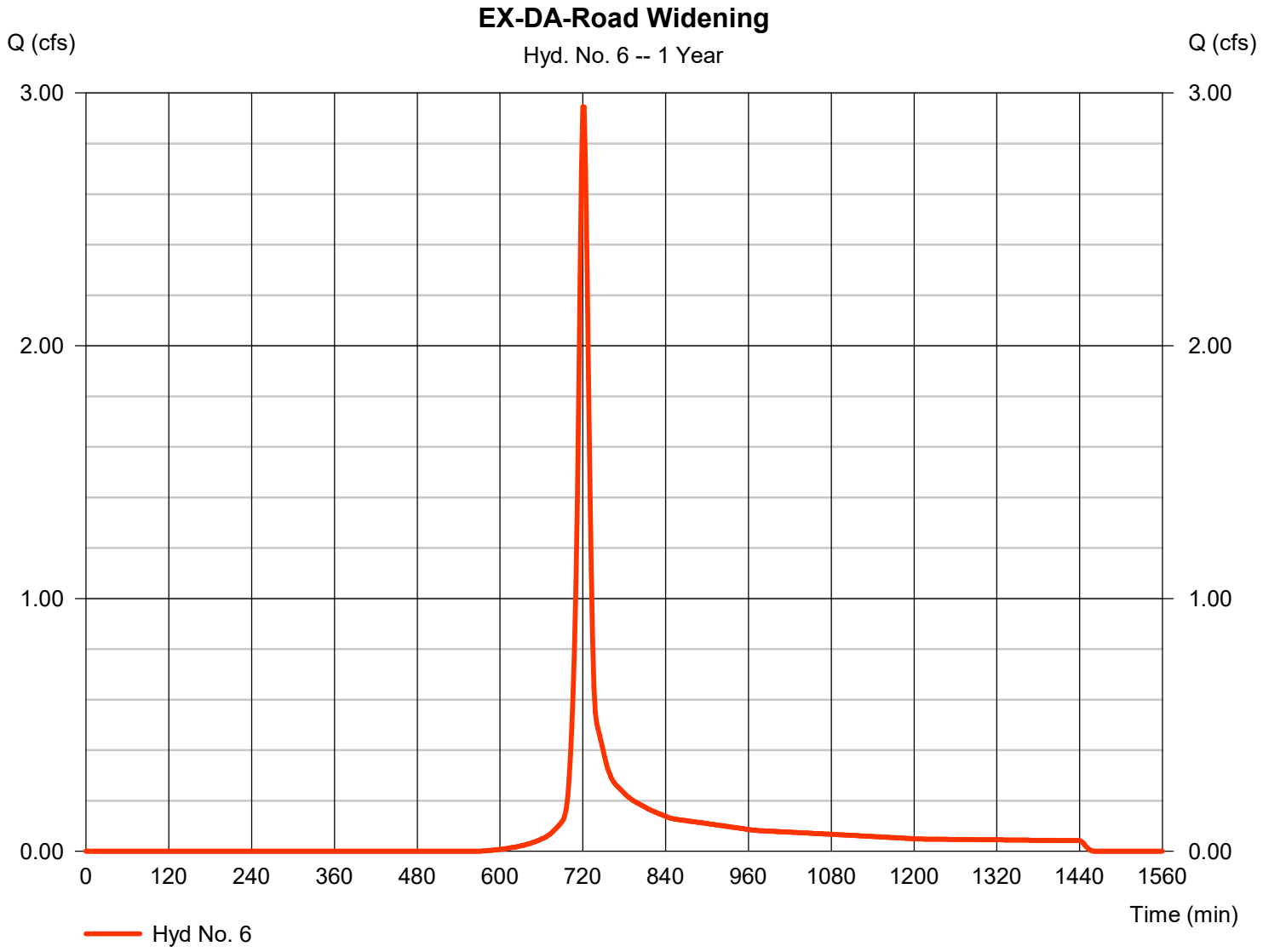
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.945 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	7,701 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980



TR55 Tc Worksheet

Hyd. No. 6

EX-DA-Road Widening

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 679.00		856.00		0.00		
Watercourse slope (%)	= 1.00		3.50		0.00		
Surface description	= Paved		Unpaved		Paved		
Average velocity (ft/s)	=2.03		3.02		0.00		
Travel Time (min)	**= 5.57**	**+**	**4.73**	**+**	**0.00**	**=**	**10.29**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

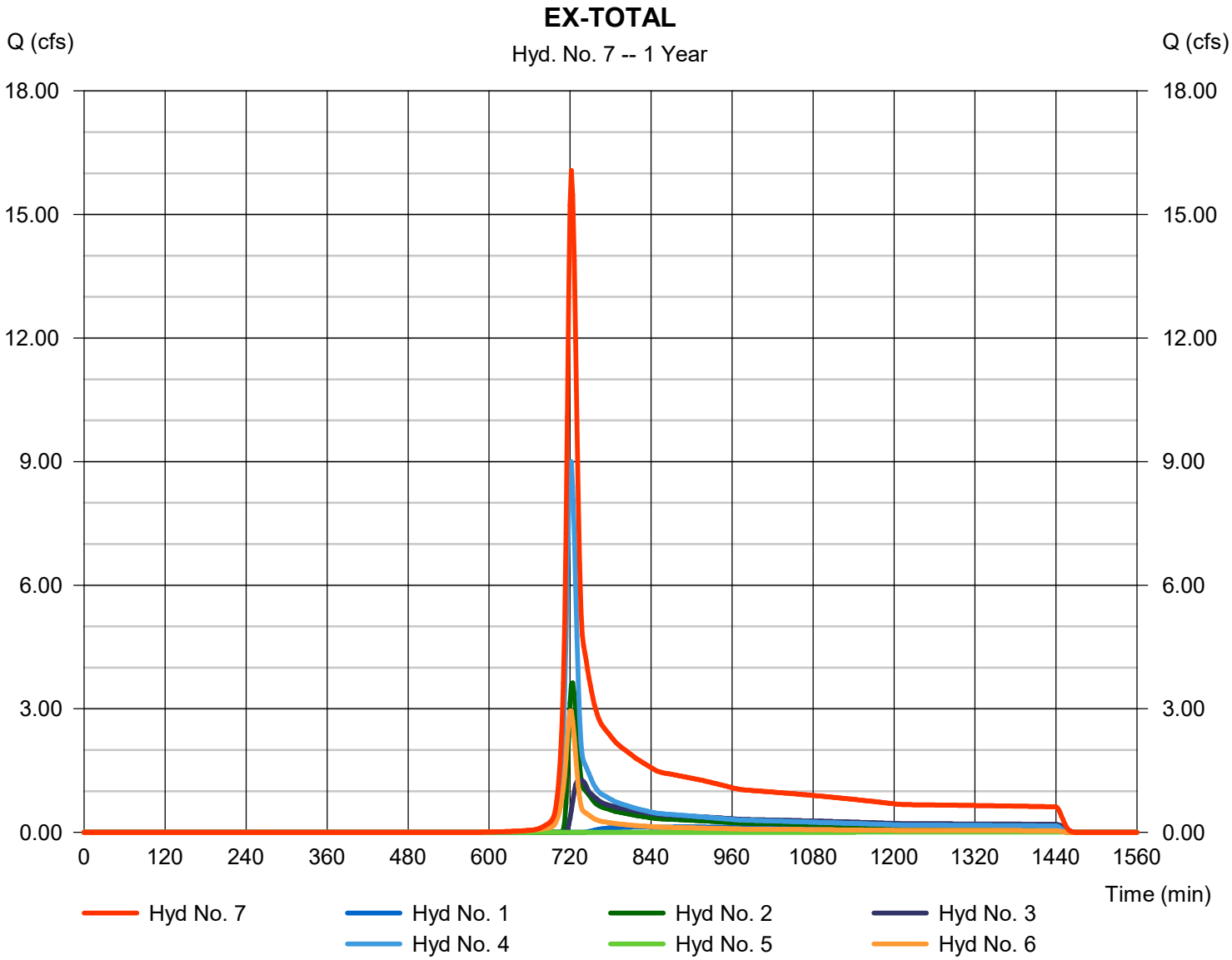
Total Travel Time, Tc ..... 12.60 min

Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	16.07 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	65,571 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



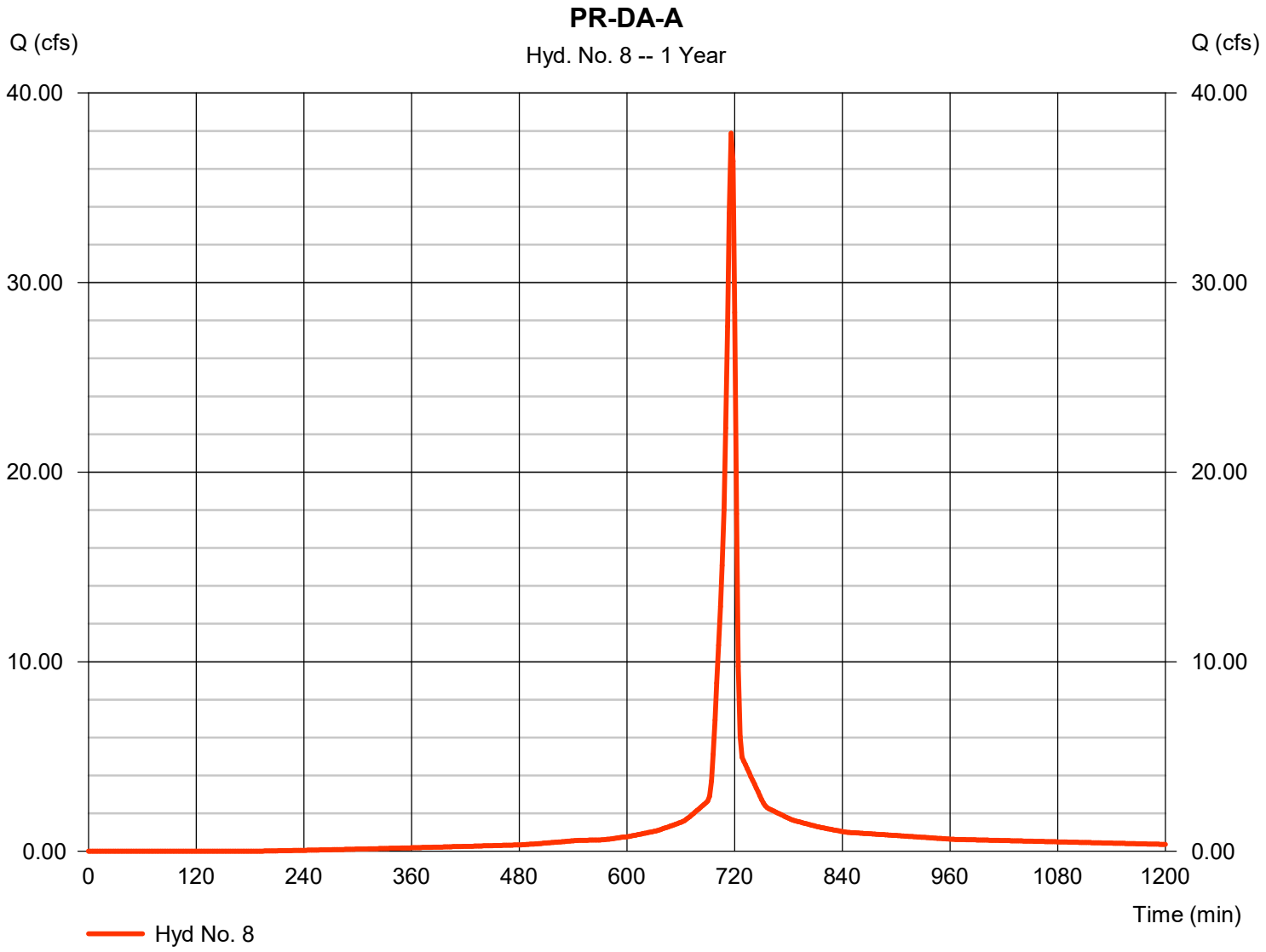
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.88 cfs
Storm frequency	=	1 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	82,858 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



TR55 Tc Worksheet

Hyd. No. 8

PR-DA-A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 160.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.31**	**+**	**0.00**	**+**	**0.00**	**=**	**1.31**
Channel Flow							
X sectional flow area (sqft)	= 0.79		1.77		12.56		
Wetted perimeter (ft)	= 3.14		4.71		12.56		
Channel slope (%)	= 4.00		0.50		10.00		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			5.46				
					47.12		
Flow length (ft)	({0})242.0		764.0		76.0		
Travel Time (min)	**= 0.34**	**+**	**2.33**	**+**	**0.03**	**=**	**2.70**

Total Travel Time, Tc ..... 6.30 min

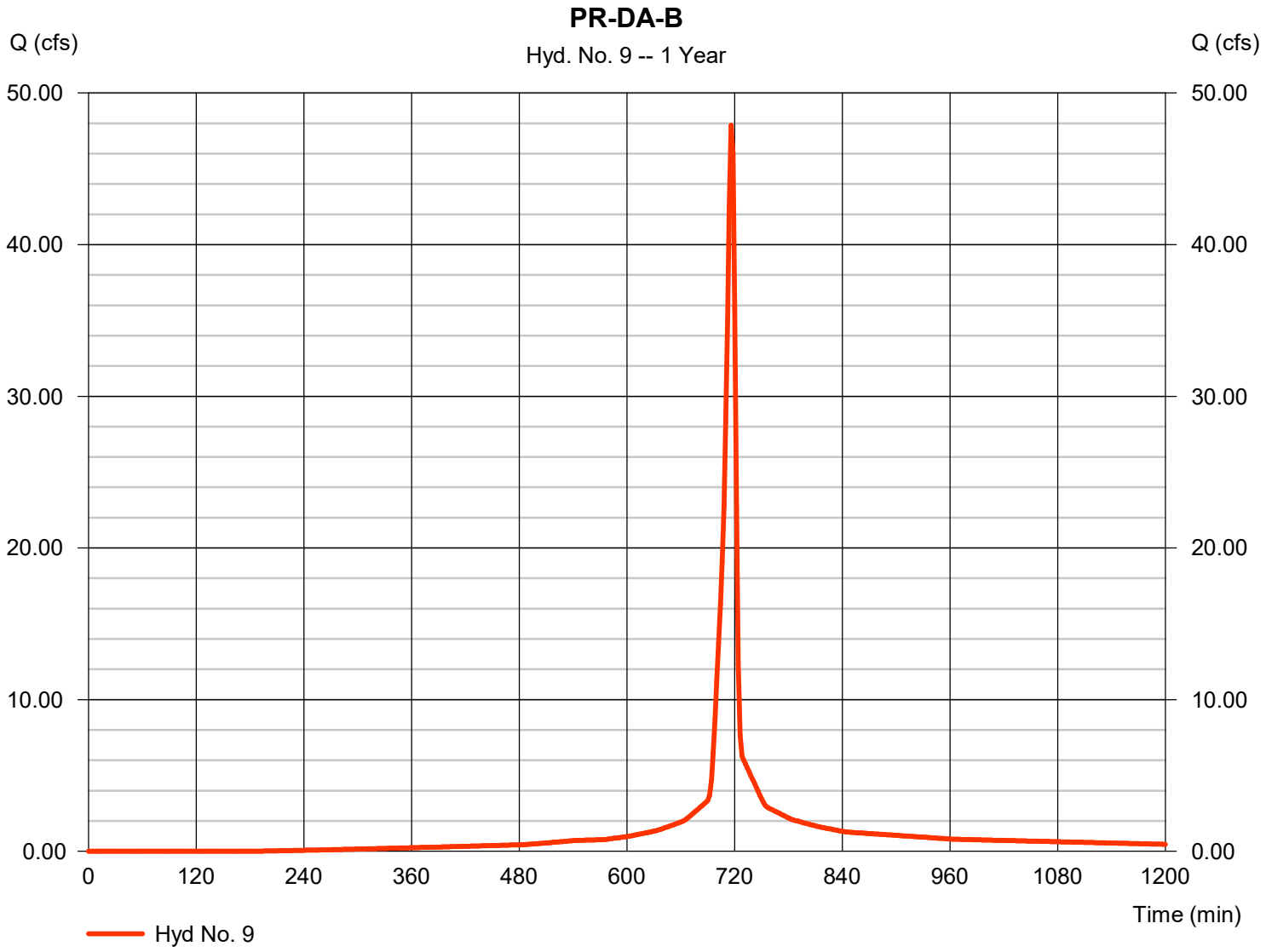
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.87 cfs
Storm frequency	=	1 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	104,708 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



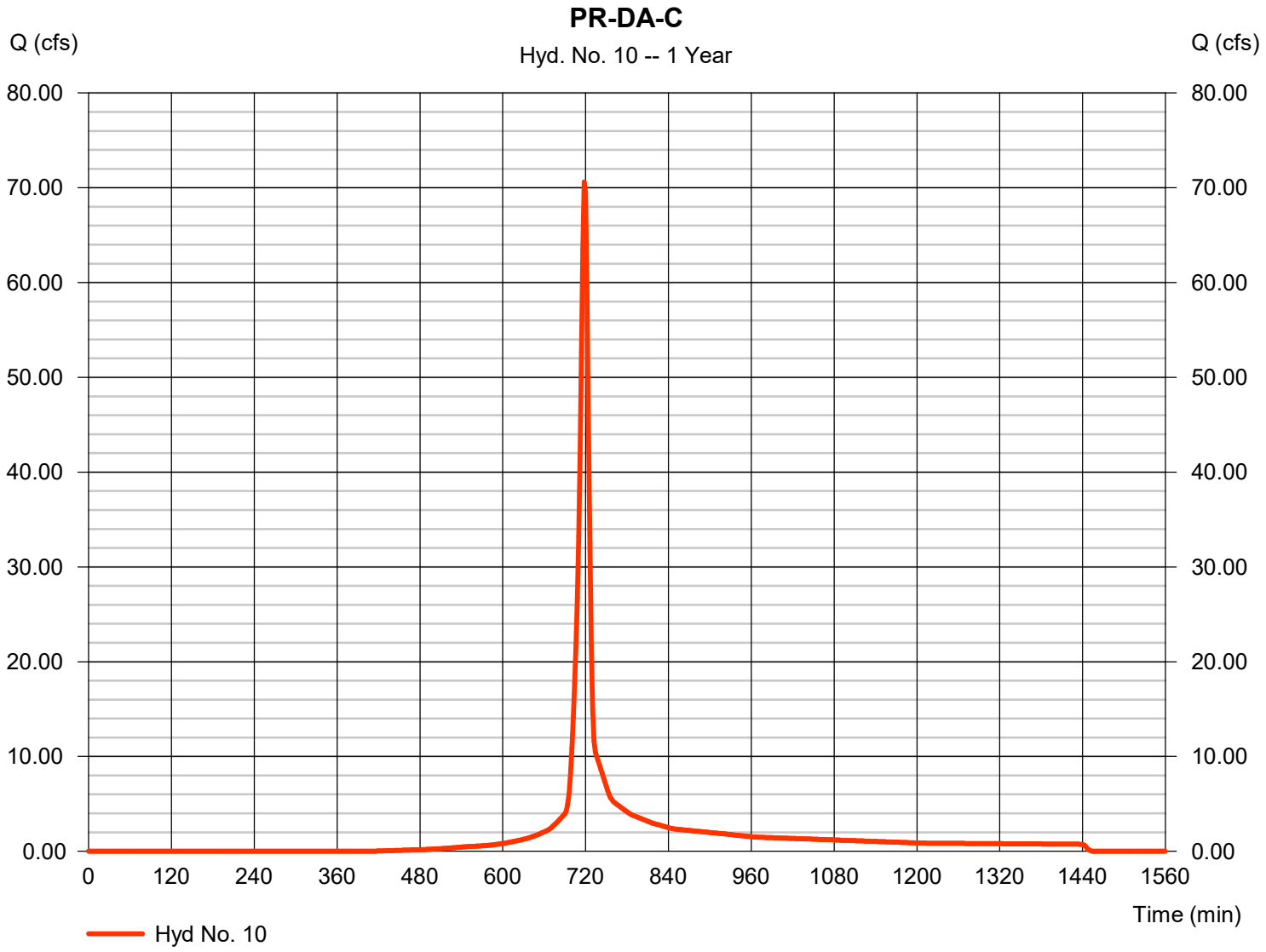
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	70.60 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	162,535 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



TR55 Tc Worksheet

Hyd. No. 10

PR-DA-C

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 224.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.84**	**+**	**0.00**	**+**	**0.00**	**=**	**1.84**
Channel Flow							
X sectional flow area (sqft)	= 0.79		7.07		12.56		
Wetted perimeter (ft)	= 3.14		9.42		12.56		
Channel slope (%)	= 4.00		0.50		0.50		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			8.69				
					10.54		
Flow length (ft)	({0})173.0		563.0		2588.0		
Travel Time (min)	**= 0.24**	**+**	**1.08**	**+**	**4.09**	**=**	**5.42**

Total Travel Time, Tc ..... 9.50 min

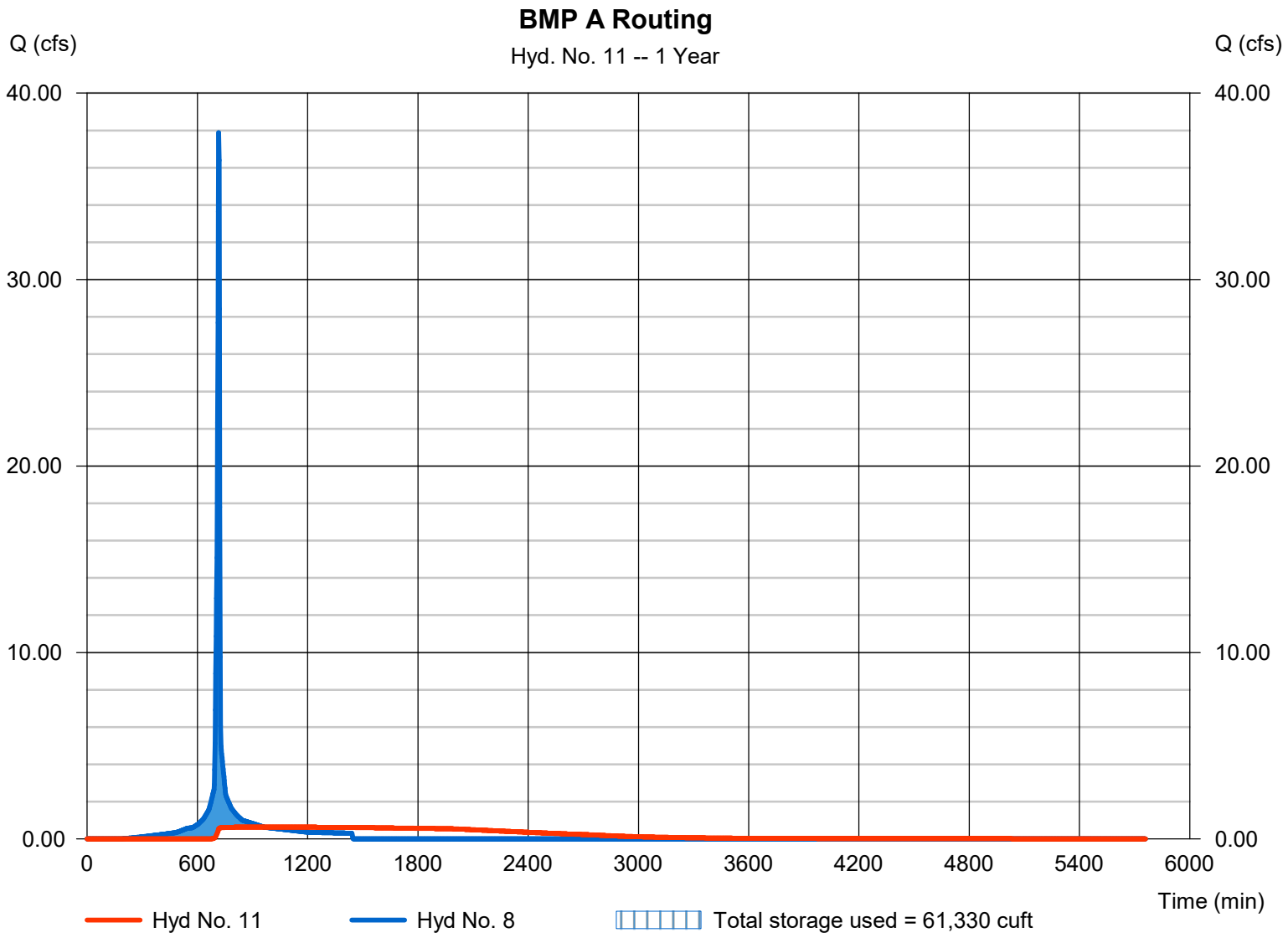
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.638 cfs
Storm frequency	=	1 yrs	Time to peak	=	960 min
Time interval	=	2 min	Hyd. volume	=	70,504 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.31 ft
Reservoir name	=	BMP A	Max. Storage	=	61,330 cuft

Storage Indication method used.



Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
1.00	289.00	35,950	11,982	11,982
2.00	290.00	13,750	23,975	35,957
2.01	290.01	79,915	423	36,380
4.00	292.00	88,068	167,061	203,441
6.00	294.00	96,468	184,454	387,895
8.00	296.00	105,115	201,501	589,396

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 242.00	0.00	0.00	0.00
Slope (%)	= 30.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	288.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	1,198	288.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	2,396	288.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	3,595	288.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	4,793	288.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	5,991	288.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	7,189	288.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	8,387	288.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	9,586	288.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	10,784	288.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	11,982	289.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	14,380	289.10	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.034
1.20	16,777	289.20	0.12 ic	0.12 ic	0.00	---	0.00	---	---	---	---	---	0.120
1.30	19,175	289.30	0.22 ic	0.22 ic	0.00	---	0.00	---	---	---	---	---	0.221
1.40	21,572	289.40	0.29 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.280
1.50	23,970	289.50	0.35 ic	0.33 ic	0.00	---	0.00	---	---	---	---	---	0.335
1.60	26,367	289.60	0.38 ic	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.383
1.70	28,765	289.70	0.44 ic	0.43 ic	0.00	---	0.00	---	---	---	---	---	0.427
1.80	31,162	289.80	0.48 ic	0.47 ic	0.00	---	0.00	---	---	---	---	---	0.468
1.90	33,560	289.90	0.52 ic	0.51 ic	0.00	---	0.00	---	---	---	---	---	0.506
2.00	35,957	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,000	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,042	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,084	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,127	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.01	36,169	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,211	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,253	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,296	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,338	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,380	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.545
2.21	53,086	290.21	0.64 ic	0.61 ic	0.00	---	0.00	---	---	---	---	---	0.608
2.41	69,792	290.41	0.69 ic	0.67 ic	0.00	---	0.00	---	---	---	---	---	0.669
2.61	86,498	290.61	0.73 ic	0.72 ic	0.00	---	0.00	---	---	---	---	---	0.724
2.81	103,204	290.81	0.78 ic	0.78 ic	0.00	---	0.00	---	---	---	---	---	0.776
3.01	119,911	291.01	0.84 ic	0.82 ic	0.00	---	0.00	---	---	---	---	---	0.824

Continues on next page...

BMP A

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	136,617	291.20	0.89 ic	0.87 ic	0.00	---	0.00	---	---	---	---	---	0.870
3.40	153,323	291.40	0.95 ic	0.91 ic	0.00	---	0.00	---	---	---	---	---	0.913
3.60	170,029	291.60	0.96 ic	0.96 ic	0.00	---	0.00	---	---	---	---	---	0.956
3.80	186,735	291.80	1.01 ic	1.00 ic	0.00	---	0.00	---	---	---	---	---	0.997
4.00	203,441	292.00	1.07 ic	1.03 ic	0.00	---	0.00	---	---	---	---	---	1.035
4.20	221,886	292.20	1.07 ic	1.07 ic	0.00	---	0.00	---	---	---	---	---	1.073
4.40	240,332	292.40	1.13 ic	1.11 ic	0.00	---	0.00	---	---	---	---	---	1.110
4.60	258,777	292.60	1.14 ic	1.14 ic	0.00	---	0.00	---	---	---	---	---	1.144
4.80	277,222	292.80	1.26 ic	1.18 ic	0.05 ic	---	0.00	---	---	---	---	---	1.225
5.00	295,668	293.00	1.56 ic	1.20 ic	0.31 ic	---	0.00	---	---	---	---	---	1.512
5.20	314,113	293.20	1.73 ic	1.23 ic	0.49 ic	---	0.00	---	---	---	---	---	1.717
5.40	332,559	293.40	1.90 ic	1.26 ic	0.61 ic	---	0.00	---	---	---	---	---	1.874
5.60	351,004	293.60	2.01 ic	1.29 ic	0.72 ic	---	0.00	---	---	---	---	---	2.009
5.80	369,449	293.80	2.18 ic	1.32 ic	0.81 ic	---	0.00	---	---	---	---	---	2.130
6.00	387,895	294.00	2.28 ic	1.35 ic	0.89 ic	---	0.00	---	---	---	---	---	2.241
6.20	408,045	294.20	5.91 ic	1.31 ic	0.97 ic	---	3.57	---	---	---	---	---	5.856
6.40	428,195	294.40	12.44 ic	1.24 ic	1.04 ic	---	10.11	---	---	---	---	---	12.39
6.60	448,345	294.60	20.74 ic	1.06 ic	1.11 ic	---	18.57	---	---	---	---	---	20.74
6.80	468,495	294.80	29.98 ic	0.60 ic	0.78 ic	---	28.59	---	---	---	---	---	29.98
7.00	488,645	295.00	32.43 ic	0.41 ic	0.53 ic	---	31.49 s	---	---	---	---	---	32.43
7.20	508,795	295.20	33.65 ic	0.32 ic	0.42 ic	---	32.90 s	---	---	---	---	---	33.65
7.40	528,945	295.40	34.59 ic	0.27 ic	0.35 ic	---	33.97 s	---	---	---	---	---	34.58
7.60	549,095	295.60	35.40 ic	0.23 ic	0.29 ic	---	34.88 s	---	---	---	---	---	35.40
7.80	569,246	295.80	36.14 ic	0.19 ic	0.25 ic	---	35.68 s	---	---	---	---	---	36.13
8.00	589,396	296.00	36.83 ic	0.17 ic	0.22 ic	---	36.43 s	---	---	---	---	---	36.83

...End

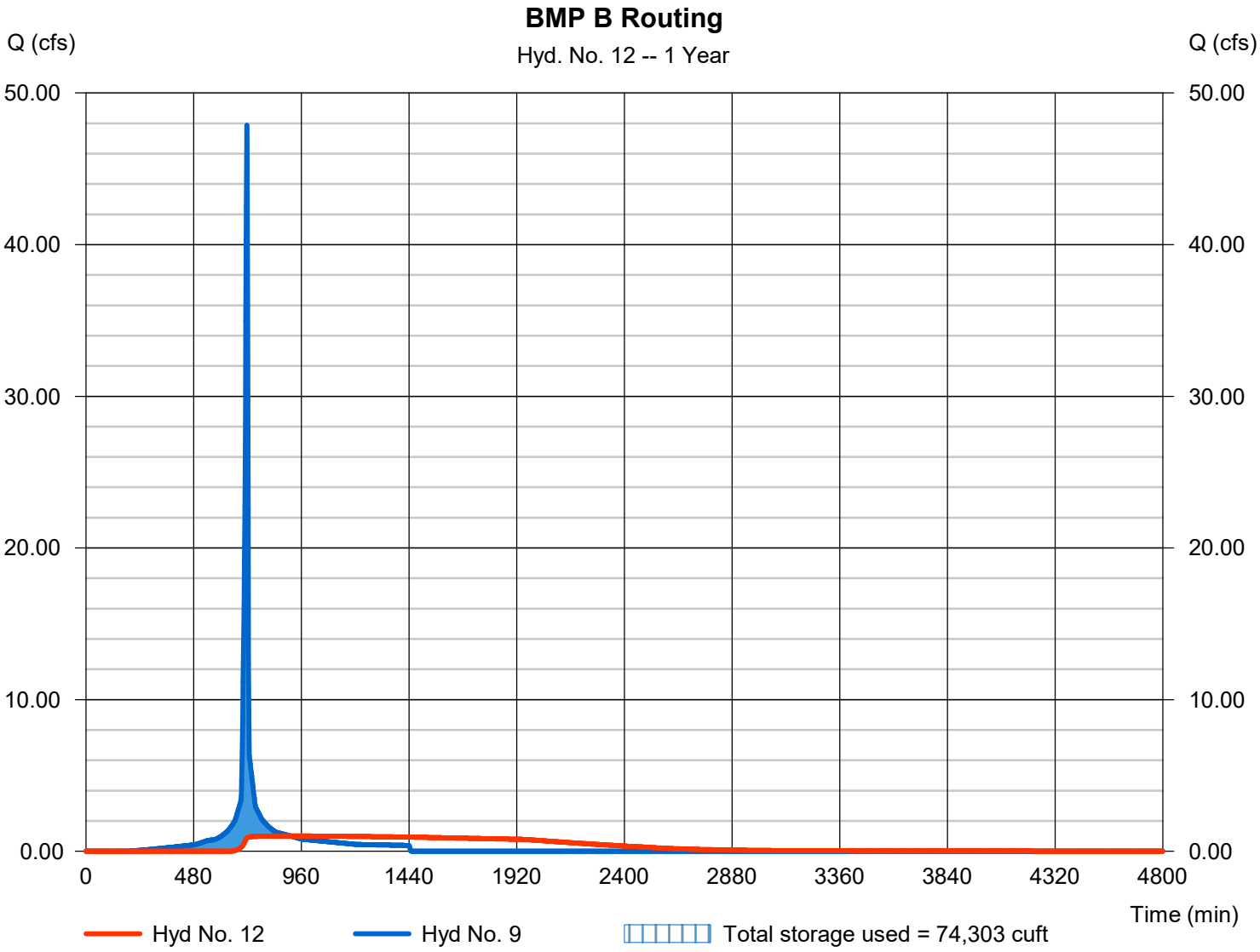
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.006 cfs
Storm frequency	=	1 yrs	Time to peak	=	910 min
Time interval	=	2 min	Hyd. volume	=	93,138 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.49 ft
Reservoir name	=	BMP B	Max. Storage	=	74,303 cuft

Storage Indication method used.



Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
1.00	285.00	34,350	11,449	11,449
2.00	286.00	13,150	22,915	34,364
2.01	286.01	76,441	404	34,769
4.00	288.00	87,488	162,969	197,738
6.00	290.00	95,788	183,195	380,933
8.00	292.00	104,371	200,078	581,011

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 238.00	0.00	0.00	0.00
Slope (%)	= 29.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	284.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,145	284.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	2,290	284.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	3,435	284.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	4,580	284.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	5,724	284.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	6,869	284.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	8,014	284.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	9,159	284.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	10,304	284.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	11,449	285.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	13,740	285.10	0.04 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.042
1.20	16,032	285.20	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.151
1.30	18,324	285.30	0.29 ic	0.29 ic	0.00	---	0.00	0.00	---	---	---	---	0.290
1.40	20,615	285.40	0.38 ic	0.38 ic	0.00	---	0.00	0.00	---	---	---	---	0.381
1.50	22,907	285.50	0.48 ic	0.46 ic	0.00	---	0.00	0.00	---	---	---	---	0.462
1.60	25,198	285.60	0.56 ic	0.53 ic	0.00	---	0.00	0.00	---	---	---	---	0.535
1.70	27,490	285.70	0.60 ic	0.60 ic	0.00	---	0.00	0.00	---	---	---	---	0.602
1.80	29,781	285.80	0.69 ic	0.66 ic	0.00	---	0.00	0.00	---	---	---	---	0.664
1.90	32,073	285.90	0.73 ic	0.72 ic	0.00	---	0.00	0.00	---	---	---	---	0.723
2.00	34,364	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,405	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,445	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,486	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,526	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.780
2.01	34,566	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,607	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,647	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,688	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,728	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.01	34,769	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.21	51,066	286.21	0.89 ic	0.88 ic	0.00	---	0.00	0.00	---	---	---	---	0.881
2.41	67,363	286.41	1.01 ic	0.97 ic	0.00	---	0.00	0.00	---	---	---	---	0.969
2.61	83,659	286.61	1.07 ic	1.05 ic	0.00	---	0.00	0.00	---	---	---	---	1.055
2.81	99,956	286.81	1.13 ic	1.13 ic	0.00	---	0.00	0.00	---	---	---	---	1.133
3.01	116,253	287.01	1.21 ic	1.21 ic	0.00	---	0.00	0.00	---	---	---	---	1.205

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BMP B

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	132,550	287.20	1.27 ic	1.27 ic	0.00	---	0.00	0.00	---	---	---	---	1.275
3.40	148,847	287.40	1.34 ic	1.34 ic	0.00	---	0.00	0.00	---	---	---	---	1.342
3.60	165,144	287.60	1.41 ic	1.41 ic	0.00	---	0.00	0.00	---	---	---	---	1.407
3.80	181,441	287.80	1.48 ic	1.47 ic	0.00	---	0.00	0.00	---	---	---	---	1.467
4.00	197,738	288.00	1.56 ic	1.52 ic	0.00	---	0.00	0.00	---	---	---	---	1.524
4.20	216,058	288.20	1.58 ic	1.58 ic	0.00	---	0.00	0.00	---	---	---	---	1.581
4.40	234,377	288.40	1.64 ic	1.64 ic	0.00	---	0.00	0.00	---	---	---	---	1.638
4.60	252,697	288.60	1.74 ic	1.69 ic	0.05 ic	---	0.00	0.00	---	---	---	---	1.736
4.80	271,016	288.80	2.08 ic	1.73 ic	0.31 ic	---	0.00	0.00	---	---	---	---	2.039
5.00	289,336	289.00	2.28 ic	1.77 ic	0.49 ic	---	0.00	0.00	---	---	---	---	2.260
5.20	307,655	289.20	2.48 ic	1.82 ic	0.61 ic	---	0.00	0.00	---	---	---	---	2.433
5.40	325,975	289.40	2.59 ic	1.87 ic	0.72 ic	---	0.00	0.00	---	---	---	---	2.586
5.60	344,294	289.60	2.72 ic	1.91 ic	0.81 ic	---	0.00	0.00	---	---	---	---	2.720
5.80	362,614	289.80	2.92 ic	1.95 ic	0.89 ic	---	0.00	0.00	---	---	---	---	2.847
6.00	380,933	290.00	3.03 ic	2.00 ic	0.97 ic	---	0.00	0.00	---	---	---	---	2.966
6.20	400,941	290.20	6.56 ic	1.95 ic	1.04 ic	---	3.57	0.00	---	---	---	---	6.564
6.40	420,949	290.40	13.09 ic	1.85 ic	1.11 ic	---	10.11	0.00	---	---	---	---	13.06
6.60	440,956	290.60	21.30 ic	1.56 ic	1.17 ic	---	18.57	26.57	---	---	---	---	47.87
6.80	460,964	290.80	30.22 ic	0.87 ic	0.76 ic	---	28.59	138.02	---	---	---	---	168.23
7.00	480,972	291.00	32.45 ic	0.61 ic	0.53 ic	---	31.31 s	297.07	---	---	---	---	329.52
7.20	500,980	291.20	33.66 ic	0.48 ic	0.42 ic	---	32.76 s	492.07	---	---	---	---	525.72
7.40	520,987	291.40	34.59 ic	0.40 ic	0.35 ic	---	33.85 s	717.31	---	---	---	---	751.90
7.60	540,995	291.60	35.40 ic	0.34 ic	0.29 ic	---	34.77 s	969.23	---	---	---	---	1004.63
7.80	561,003	291.80	36.14 ic	0.29 ic	0.25 ic	---	35.59 s	1245.23	---	---	---	---	1281.36
8.00	581,011	292.00	36.83 ic	0.26 ic	0.22 ic	---	36.35 s	1543.18	---	---	---	---	1580.01

...End

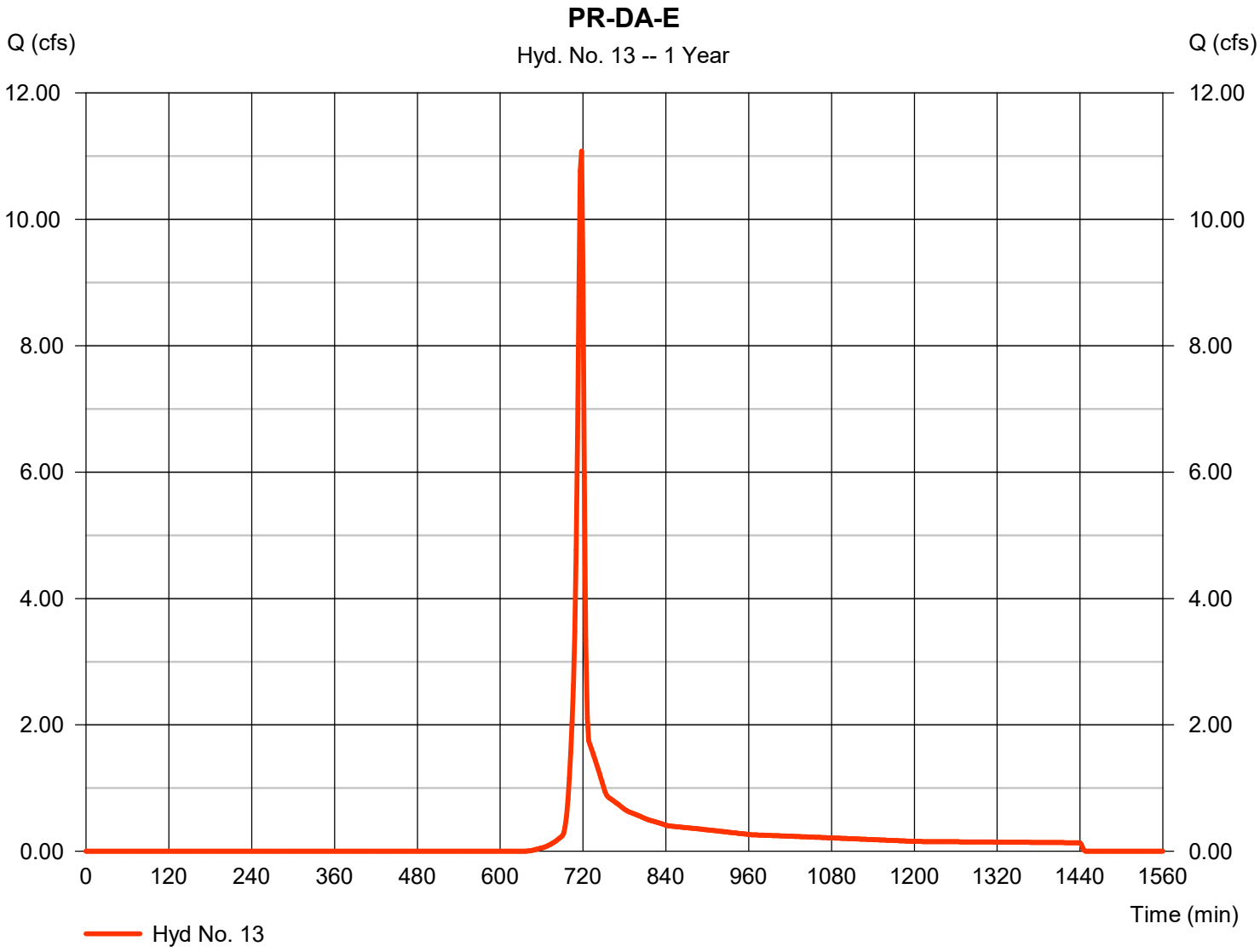
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.08 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	22,169 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



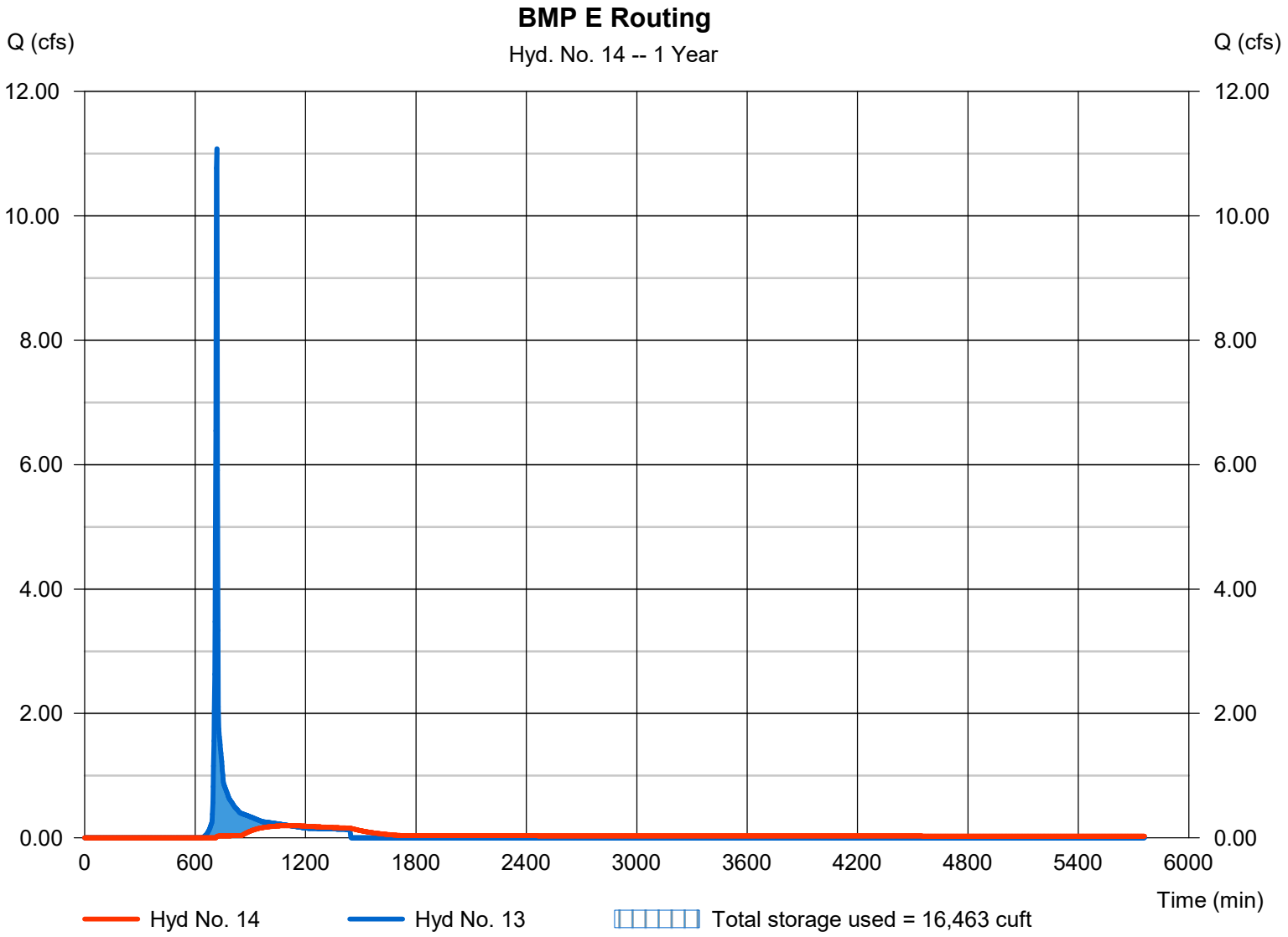
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.196 cfs
Storm frequency	=	1 yrs	Time to peak	=	1114 min
Time interval	=	2 min	Hyd. volume	=	14,931 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	256.99 ft
Reservoir name	=	BMP E	Max. Storage	=	16,463 cuft

Storage Indication method used.



Pond No. 4 - BMP E

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 252.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	252.00	00	0	0
1.00	253.00	3,940	1,313	1,313
2.00	254.00	00	1,315	2,629
3.00	255.00	3,940	1,315	3,944
4.00	256.00	1,510	2,629	6,573
4.01	256.01	8,762	46	6,620
6.00	258.00	11,385	19,987	26,607
8.00	260.00	14,240	25,569	52,176
10.00	262.00	17,331	31,517	83,694

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.00	4.00	0.00
Span (in)	= 24.00	1.00	4.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 255.00	255.00	256.80	0.00
Length (ft)	= 3.18	0.00	0.00	0.00
Slope (%)	= 5.42	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 259.50	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	252.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	131	252.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	263	252.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	394	252.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	525	252.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	657	252.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	788	252.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	919	252.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	1,051	252.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	1,182	252.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	1,313	253.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	1,445	253.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.20	1,576	253.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.30	1,708	253.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.40	1,839	253.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.50	1,971	253.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.60	2,102	253.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.70	2,234	253.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.80	2,365	253.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.90	2,497	253.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.00	2,629	254.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.10	2,760	254.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.20	2,892	254.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.30	3,023	254.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.40	3,155	254.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.50	3,286	254.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.60	3,418	254.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.70	3,549	254.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.80	3,681	254.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.90	3,812	254.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.00	3,944	255.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.10	4,207	255.10	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.006
3.20	4,470	255.20	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.010
3.30	4,733	255.30	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.013

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BMP E

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.40	4,996	255.40	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.016
3.50	5,259	255.50	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.018
3.60	5,521	255.60	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.019
3.70	5,784	255.70	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.021
3.80	6,047	255.80	0.03 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.023
3.90	6,310	255.90	0.03 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.024
4.00	6,573	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,578	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,583	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	6,587	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.00	6,592	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,596	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,601	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,606	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,610	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,615	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	6,620	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.21	8,618	256.21	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.028
4.41	10,617	256.41	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.030
4.61	12,616	256.61	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.033
4.81	14,615	256.81	0.04 ic	0.03 ic	0.00 ic	---	0.00	---	---	---	---	---	0.035
5.01	16,613	257.01	0.22 ic	0.04 ic	0.17 ic	---	0.00	---	---	---	---	---	0.210
5.20	18,612	257.20	0.45 ic	0.04 ic	0.41 ic	---	0.00	---	---	---	---	---	0.446
5.40	20,611	257.40	0.60 ic	0.04 ic	0.56 ic	---	0.00	---	---	---	---	---	0.593
5.60	22,610	257.60	0.73 ic	0.04 ic	0.67 ic	---	0.00	---	---	---	---	---	0.709
5.80	24,608	257.80	0.84 ic	0.04 ic	0.77 ic	---	0.00	---	---	---	---	---	0.809
6.00	26,607	258.00	0.90 ic	0.04 ic	0.85 ic	---	0.00	---	---	---	---	---	0.897
6.20	29,164	258.20	1.00 ic	0.04 ic	0.93 ic	---	0.00	---	---	---	---	---	0.977
6.40	31,721	258.40	1.07 ic	0.05 ic	1.01 ic	---	0.00	---	---	---	---	---	1.051
6.60	34,278	258.60	1.13 ic	0.05 ic	1.07 ic	---	0.00	---	---	---	---	---	1.121
6.80	36,835	258.80	1.20 ic	0.05 ic	1.14 ic	---	0.00	---	---	---	---	---	1.186
7.00	39,392	259.00	1.26 ic	0.05 ic	1.20 ic	---	0.00	---	---	---	---	---	1.248
7.20	41,949	259.20	1.34 ic	0.05 ic	1.26 ic	---	0.00	---	---	---	---	---	1.307
7.40	44,505	259.40	1.41 ic	0.05 ic	1.31 ic	---	0.00	---	---	---	---	---	1.363
7.60	47,062	259.60	2.73 oc	0.05 ic	1.36 ic	---	1.27	---	---	---	---	---	2.681
7.80	49,619	259.80	8.05 oc	0.05 ic	1.41 ic	---	6.57	---	---	---	---	---	8.030
8.00	52,176	260.00	15.52 oc	0.04 ic	1.35 ic	---	14.13	---	---	---	---	---	15.52
8.20	55,328	260.20	24.49 ic	0.03 ic	1.06 ic	---	23.40	---	---	---	---	---	24.49
8.40	58,480	260.40	29.96 ic	0.02 ic	0.58 ic	---	29.36 s	---	---	---	---	---	29.96
8.60	61,631	260.60	31.44 ic	0.01 ic	0.44 ic	---	30.98 s	---	---	---	---	---	31.44
8.80	64,783	260.80	32.50 ic	0.01 ic	0.36 ic	---	32.12 s	---	---	---	---	---	32.49
9.00	67,935	261.00	33.38 ic	0.01 ic	0.30 ic	---	33.07 s	---	---	---	---	---	33.38
9.20	71,087	261.20	34.17 ic	0.01 ic	0.26 ic	---	33.90 s	---	---	---	---	---	34.17
9.40	74,238	261.40	34.91 ic	0.01 ic	0.23 ic	---	34.67 s	---	---	---	---	---	34.91
9.60	77,390	261.60	35.61 ic	0.01 ic	0.20 ic	---	35.38 s	---	---	---	---	---	35.59
9.80	80,542	261.80	36.28 ic	0.01 ic	0.18 ic	---	36.09 s	---	---	---	---	---	36.28
10.00	83,694	262.00	36.93 ic	0.01 ic	0.16 ic	---	36.74 s	---	---	---	---	---	36.91

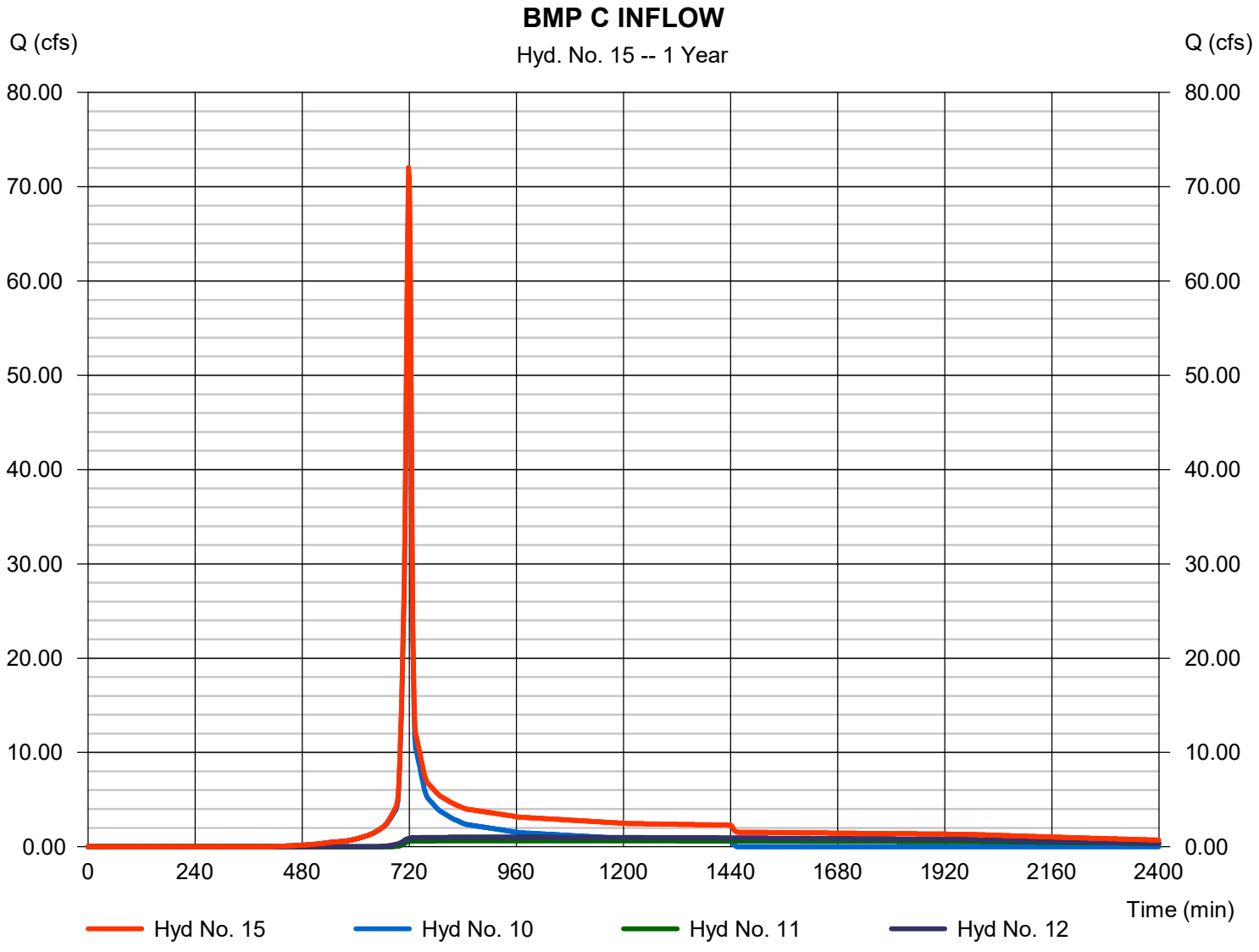
...End

Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	72.05 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	326,176 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



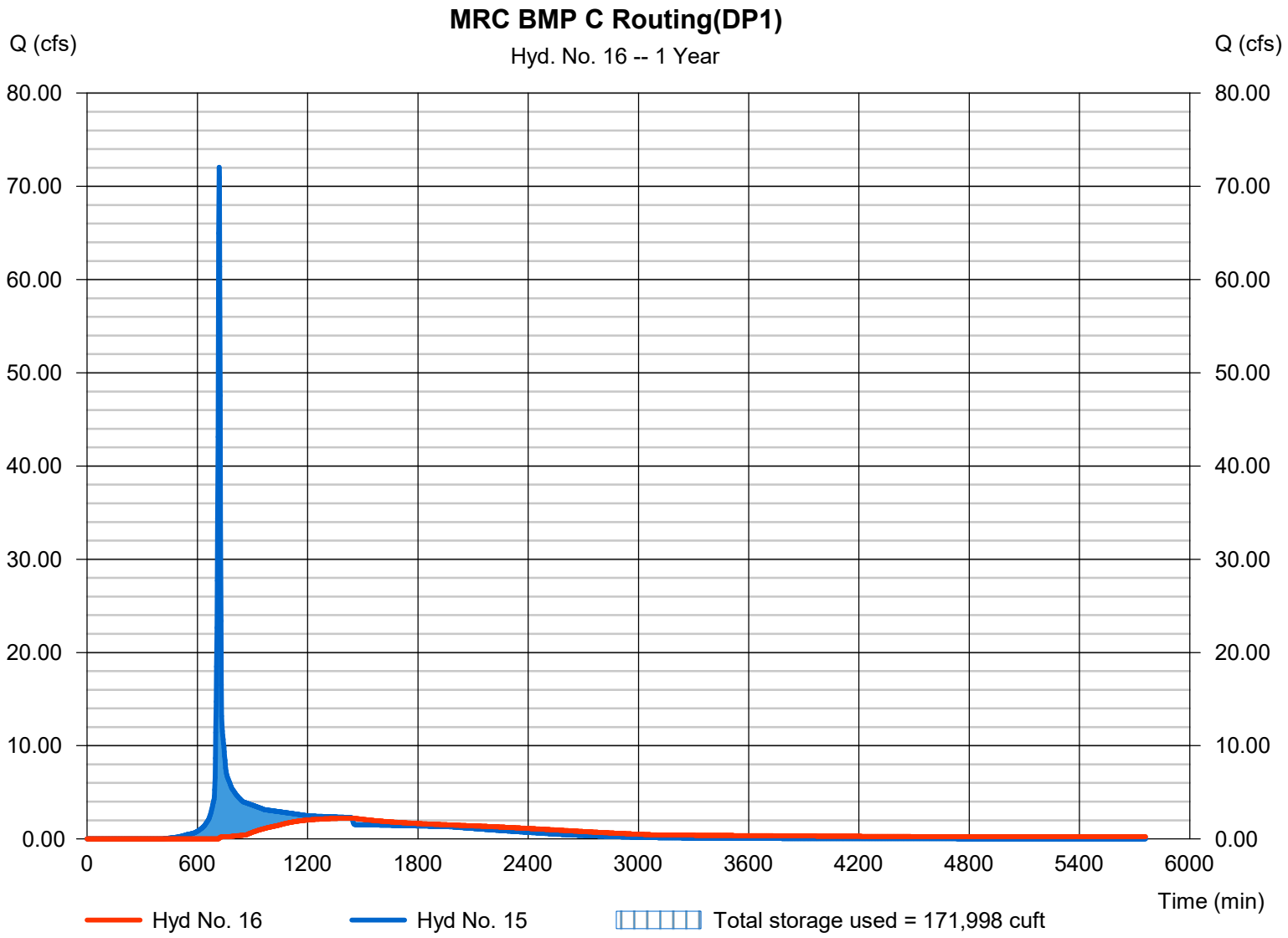
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	2.233 cfs
Storm frequency	=	1 yrs	Time to peak	=	1442 min
Time interval	=	2 min	Hyd. volume	=	229,759 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.71 ft
Reservoir name	=	BMP C	Max. Storage	=	171,998 cuft

Storage Indication method used.



Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
1.00	213.00	52,150	17,382	17,382
2.00	214.00	00	17,389	34,771
3.00	215.00	52,150	17,389	52,160
4.00	216.00	19,935	34,773	86,933
4.01	216.01	115,916	613	87,546
6.00	218.00	126,194	240,803	328,349
8.00	220.00	136,697	262,795	591,143
10.00	222.00	147,725	284,322	875,466
12.00	224.00	158,385	306,018	1,181,483

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	8.00	0.00
Span (in)	= 24.00	1.50	8.00	0.00
No. Barrels	= 1	4	4	0
Invert El. (ft)	= 215.00	215.00	216.30	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	212.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,738	212.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	3,476	212.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	5,214	212.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	6,953	212.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	8,691	212.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	10,429	212.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	12,167	212.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	13,905	212.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	15,643	212.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	17,382	213.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	19,121	213.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	20,859	213.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.30	22,598	213.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.40	24,337	213.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.50	26,076	213.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.60	27,815	213.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.70	29,554	213.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.80	31,293	213.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.90	33,032	213.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.00	34,771	214.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.10	36,510	214.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.20	38,249	214.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.30	39,988	214.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.40	41,726	214.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.50	43,465	214.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.60	45,204	214.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.70	46,943	214.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.80	48,682	214.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.90	50,421	214.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.00	52,160	215.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.10	55,637	215.10	0.04 ic	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.035
3.20	59,115	215.20	0.07 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.073

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BMP C

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.30	62,592	215.30	0.11 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.099
3.40	66,069	215.40	0.12 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.121
3.50	69,546	215.50	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.140
3.60	73,024	215.60	0.16 ic	0.16 ic	0.00	---	0.00	0.00	---	---	---	---	0.158
3.70	76,501	215.70	0.18 ic	0.17 ic	0.00	---	0.00	0.00	---	---	---	---	0.173
3.80	79,978	215.80	0.20 ic	0.19 ic	0.00	---	0.00	0.00	---	---	---	---	0.187
3.90	83,455	215.90	0.20 ic	0.20 ic	0.00	---	0.00	0.00	---	---	---	---	0.201
4.00	86,933	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	86,994	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,055	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,116	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,178	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,239	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,300	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,362	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,423	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,484	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,546	216.01	0.22 ic	0.22 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.21	111,626	216.21	0.24 ic	0.24 ic	0.00	---	0.00	0.00	---	---	---	---	0.238
4.41	135,706	216.41	0.44 ic	0.25 ic	0.17 ic	---	0.00	0.00	---	---	---	---	0.420
4.61	159,786	216.61	1.48 ic	0.25 ic	1.19 ic	---	0.00	0.00	---	---	---	---	1.435
4.81	183,867	216.81	3.03 ic	0.25 ic	2.76 ic	---	0.00	0.00	---	---	---	---	3.008
5.01	207,947	217.01	4.44 ic	0.25 ic	4.10 ic	---	0.00	0.00	---	---	---	---	4.348
5.20	232,027	217.20	5.34 ic	0.26 ic	5.08 ic	---	0.00	0.00	---	---	---	---	5.338
5.40	256,108	217.40	6.22 ic	0.27 ic	5.90 ic	---	0.00	0.00	---	---	---	---	6.169
5.60	280,188	217.60	7.00 ic	0.28 ic	6.62 ic	---	0.00	0.00	---	---	---	---	6.900
5.80	304,268	217.80	7.64 ic	0.30 ic	7.26 ic	---	0.00	0.00	---	---	---	---	7.561
6.00	328,349	218.00	8.28 ic	0.31 ic	7.86 ic	---	0.00	0.00	---	---	---	---	8.168
6.20	354,628	218.20	8.76 ic	0.32 ic	8.41 ic	---	0.00	0.00	---	---	---	---	8.738
6.40	380,907	218.40	9.27 ic	0.34 ic	8.93 ic	---	0.00	0.00	---	---	---	---	9.271
6.60	407,187	218.60	9.84 ic	0.35 ic	9.43 ic	---	0.00	0.00	---	---	---	---	9.775
6.80	433,466	218.80	10.29 ic	0.36 ic	9.89 ic	---	0.00	0.00	---	---	---	---	10.26
7.00	459,746	219.00	10.73 ic	0.37 ic	10.34 ic	---	0.00	0.00	---	---	---	---	10.71
7.20	486,025	219.20	11.16 ic	0.38 ic	10.77 ic	---	0.00	0.00	---	---	---	---	11.15
7.40	512,305	219.40	11.58 ic	0.40 ic	11.18 ic	---	0.00	0.00	---	---	---	---	11.58
7.60	538,584	219.60	11.98 ic	0.41 ic	11.58 ic	---	0.00	0.00	---	---	---	---	11.98
7.80	564,864	219.80	12.32 ic	0.42 ic	11.91 ic	---	0.00	0.00	---	---	---	---	12.32
8.00	591,143	220.00	12.66 ic	0.43 ic	12.22 ic	---	0.00	0.00	---	---	---	---	12.65
8.20	619,576	220.20	15.83 ic	0.42 ic	11.84 ic	---	3.57	0.00	---	---	---	---	15.83
8.40	648,008	220.40	21.04 ic	0.37 ic	10.56 ic	---	10.11	0.00	---	---	---	---	21.04
8.60	676,440	220.60	26.91 ic	0.28 ic	8.05 ic	---	18.57	0.00	---	---	---	---	26.91
8.80	704,872	220.80	31.27 ic	0.17 ic	4.87 ic	---	26.23 s	0.00	---	---	---	---	31.27
9.00	733,305	221.00	32.75 ic	0.13 ic	3.76 ic	---	28.86 s	0.00	---	---	---	---	32.75
9.20	761,737	221.20	33.80 ic	0.11 ic	3.05 ic	---	30.63 s	0.00	---	---	---	---	33.79
9.40	790,169	221.40	34.67 ic	0.09 ic	2.56 ic	---	32.01 s	0.00	---	---	---	---	34.67
9.60	818,601	221.60	35.45 ic	0.08 ic	2.20 ic	---	33.16 s	0.00	---	---	---	---	35.44
9.80	847,034	221.80	36.17 ic	0.07 ic	1.92 ic	---	34.16 s	0.00	---	---	---	---	36.15
10.00	875,466	222.00	36.85 ic	0.06 ic	1.70 ic	---	35.06 s	0.00	---	---	---	---	36.83
10.20	906,067	222.20	37.50 ic	0.05 ic	1.53 ic	---	35.91 s	25.04	---	---	---	---	62.53
10.40	936,669	222.40	38.14 ic	0.05 ic	1.39 ic	---	36.68 s	70.83	---	---	---	---	108.95
10.60	967,271	222.60	38.75 ic	0.04 ic	1.27 ic	---	37.44 s	130.13	---	---	---	---	168.88
10.80	997,873	222.80	39.35 ic	0.04 ic	1.16 ic	---	38.12 s	200.35	---	---	---	---	239.67
11.00	1,028,474	223.00	39.94 ic	0.04 ic	1.08 ic	---	38.79 s	280.00	---	---	---	---	319.90
11.20	1,059,076	223.20	40.52 ic	0.04 ic	1.00 ic	---	39.46 s	368.07	---	---	---	---	408.57
11.40	1,089,678	223.40	41.09 ic	0.03 ic	0.94 ic	---	40.09 s	463.82	---	---	---	---	504.88
11.60	1,120,280	223.60	41.65 ic	0.03 ic	0.88 ic	---	40.73 s	566.68	---	---	---	---	608.33
11.80	1,150,881	223.80	42.20 ic	0.03 ic	0.83 ic	---	41.25 s	676.19	---	---	---	---	718.30
12.00	1,181,483	224.00	42.74 ic	0.03 ic	0.78 ic	---	41.85 s	791.96	---	---	---	---	834.62

...End

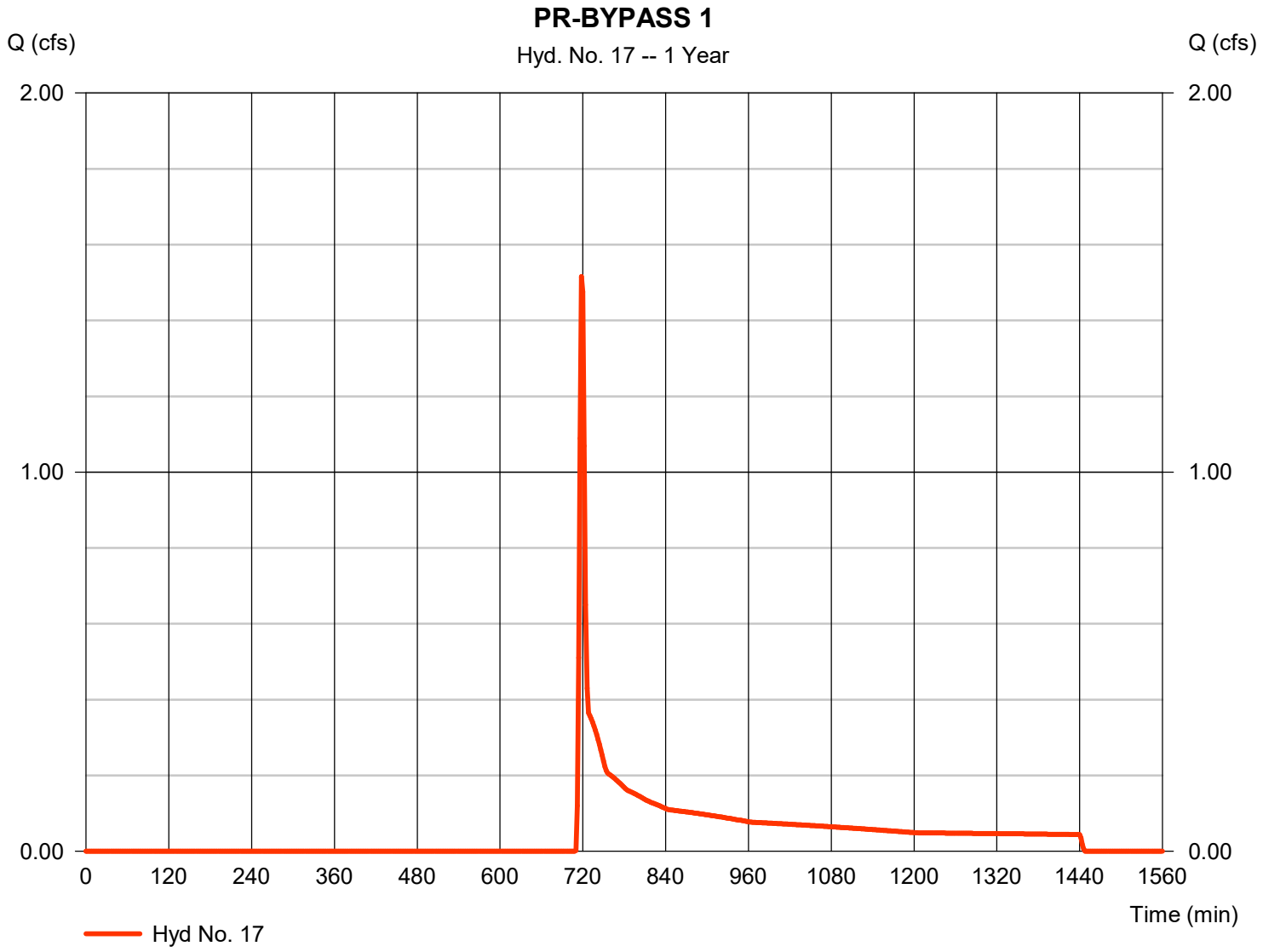
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.516 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	4,390 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



TR55 Tc Worksheet

Hyd. No. 17

PR-BYPASS 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 4.74**	**+**	**0.00**	**+**	**0.00**	**=**	**4.74**
Shallow Concentrated Flow							
Flow length (ft)	= 140.00		153.00		0.00		
Watercourse slope (%)	= 30.00		1.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		2.03		0.00		
Travel Time (min)	**= 0.26**	**+**	**1.25**	**+**	**0.00**	**=**	**1.52**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 6.30 min

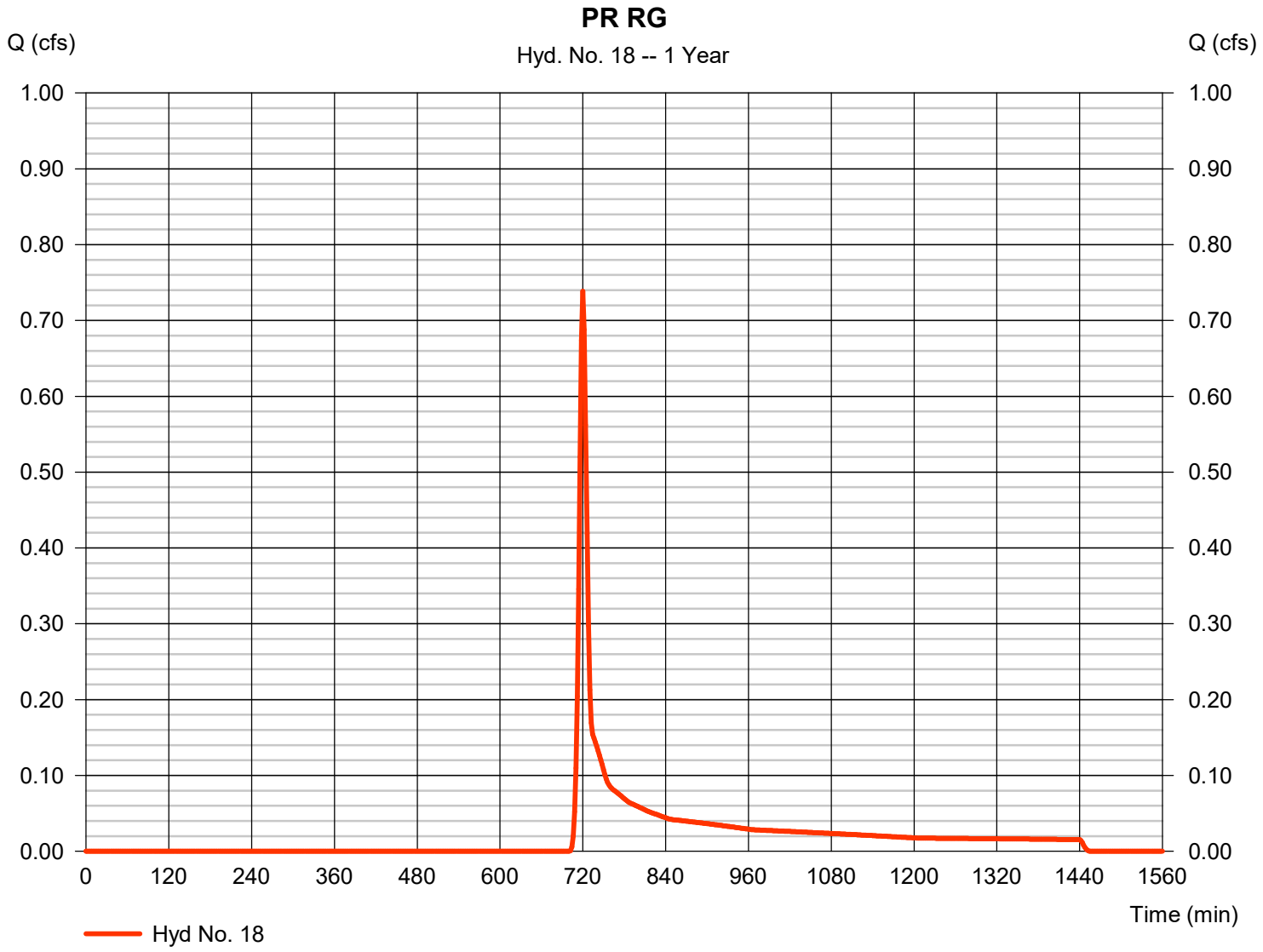
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.739 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	1,926 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



TR55 Tc Worksheet

Hyd. No. 18

PR RG

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		1007.00		0.00		
Watercourse slope (%)	= 0.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=0.00		2.28		0.00		
Travel Time (min)	**= 0.00**	**+**	**7.36**	**+**	**0.00**	**=**	**7.36**
Channel Flow							
X sectional flow area (sqft)	= 3.14		0.00		0.00		
Wetted perimeter (ft)	= 0.50		0.00		0.00		
Channel slope (%)	= 1.50		0.00		0.00		
Manning's n-value	= 0.010		0.015		0.015		
Velocity (ft/s)	=62.50						
			0.00				
					0.00		
Flow length (ft)	({0})120.0		0.0		0.0		
Travel Time (min)	**= 0.03**	**+**	**0.00**	**+**	**0.00**	**=**	**0.03**

Total Travel Time, Tc ..... 7.40 min

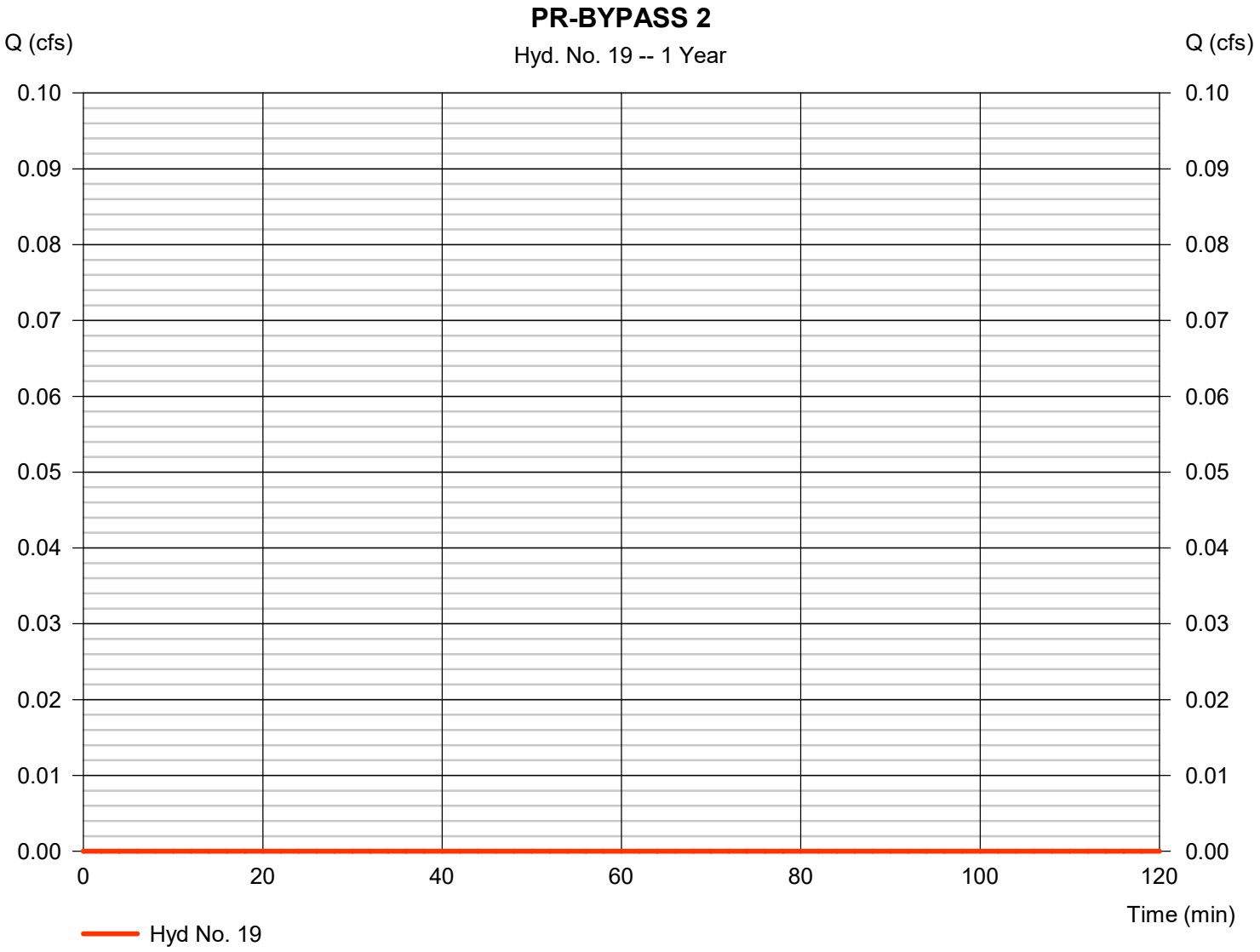
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 5.600 ac	Curve number	= 45*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.50 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



TR55 Tc Worksheet

Hyd. No. 19

PR-BYPASS 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 1131.00		1007.00		0.00		
Watercourse slope (%)	= 30.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=8.84		2.28		0.00		
Travel Time (min)	**= 2.13**	**+**	**7.36**	**+**	**0.00**	**=**	**9.49**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 9.50 min

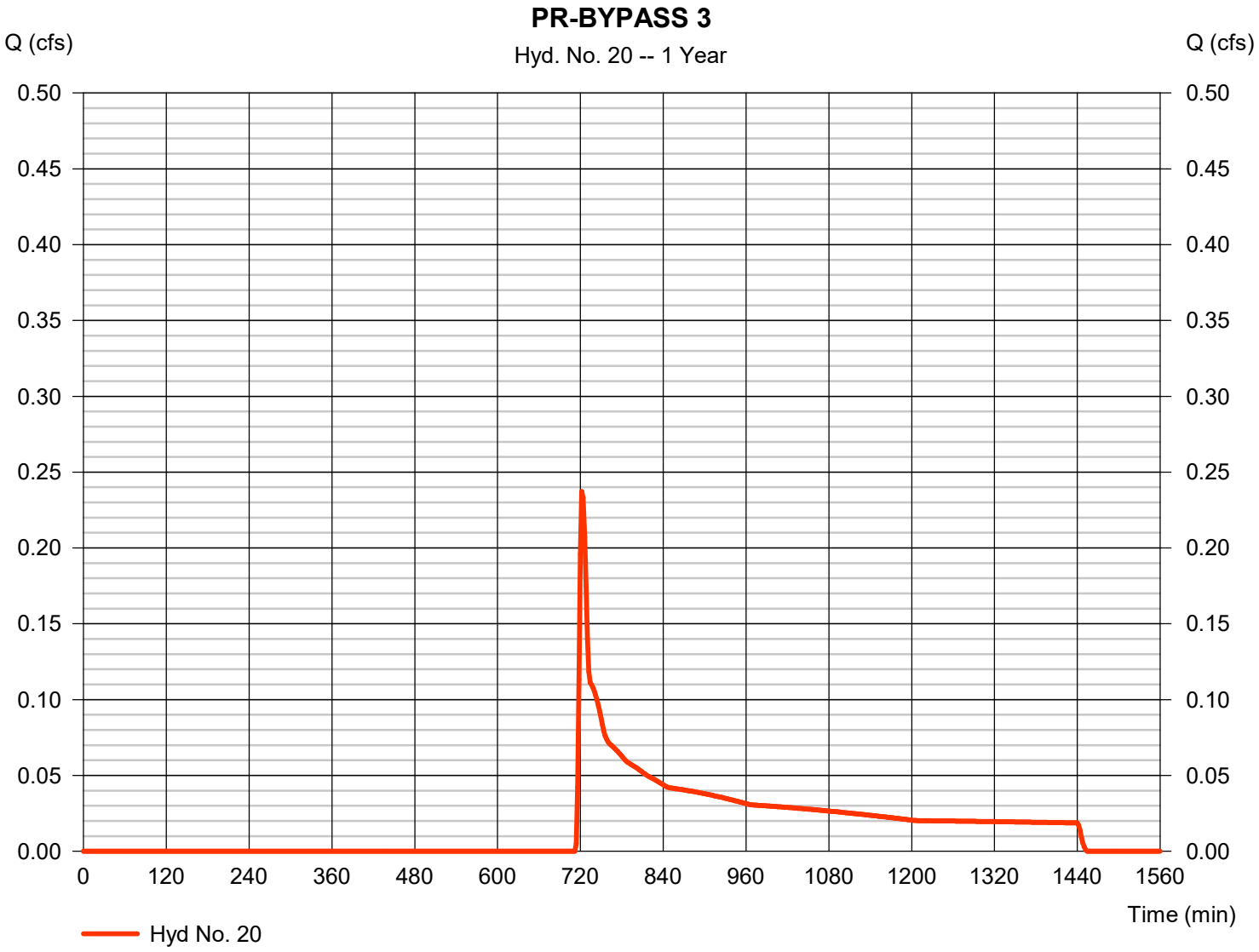
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.237 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	1,534 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530



TR55 Tc Worksheet

Hyd. No. 20

PR-BYPASS 3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 247.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 7.06**	**+**	**0.00**	**+**	**0.00**	**=**	**7.06**
Shallow Concentrated Flow							
Flow length (ft)	= 97.00		0.00		0.00		
Watercourse slope (%)	= 30.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		0.00		0.00		
Travel Time (min)	**= 0.18**	**+**	**0.00**	**+**	**0.00**	**=**	**0.18**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

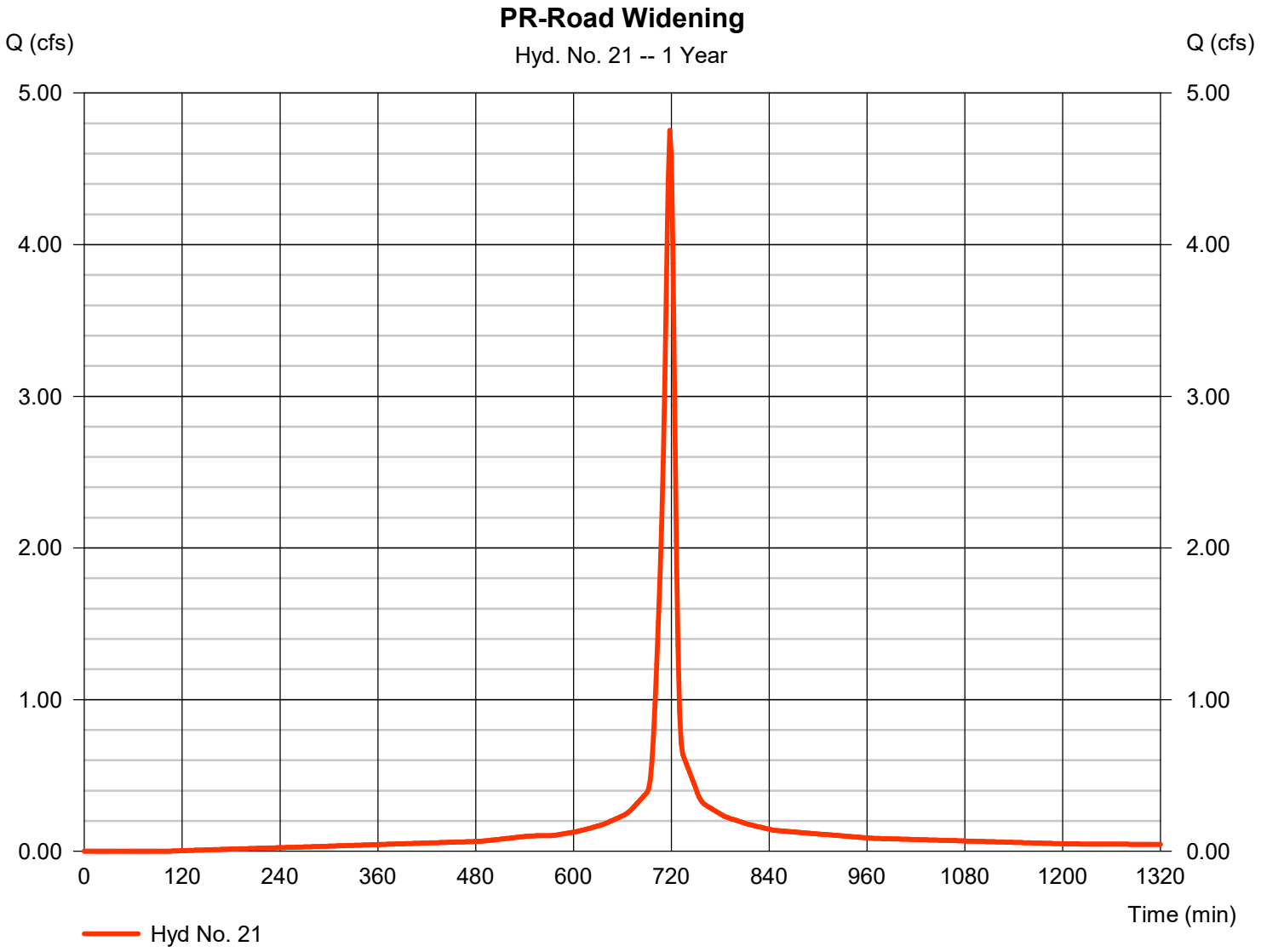
Total Travel Time, Tc ..... 7.20 min

Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.753 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	12,217 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 21

PR-Road Widening

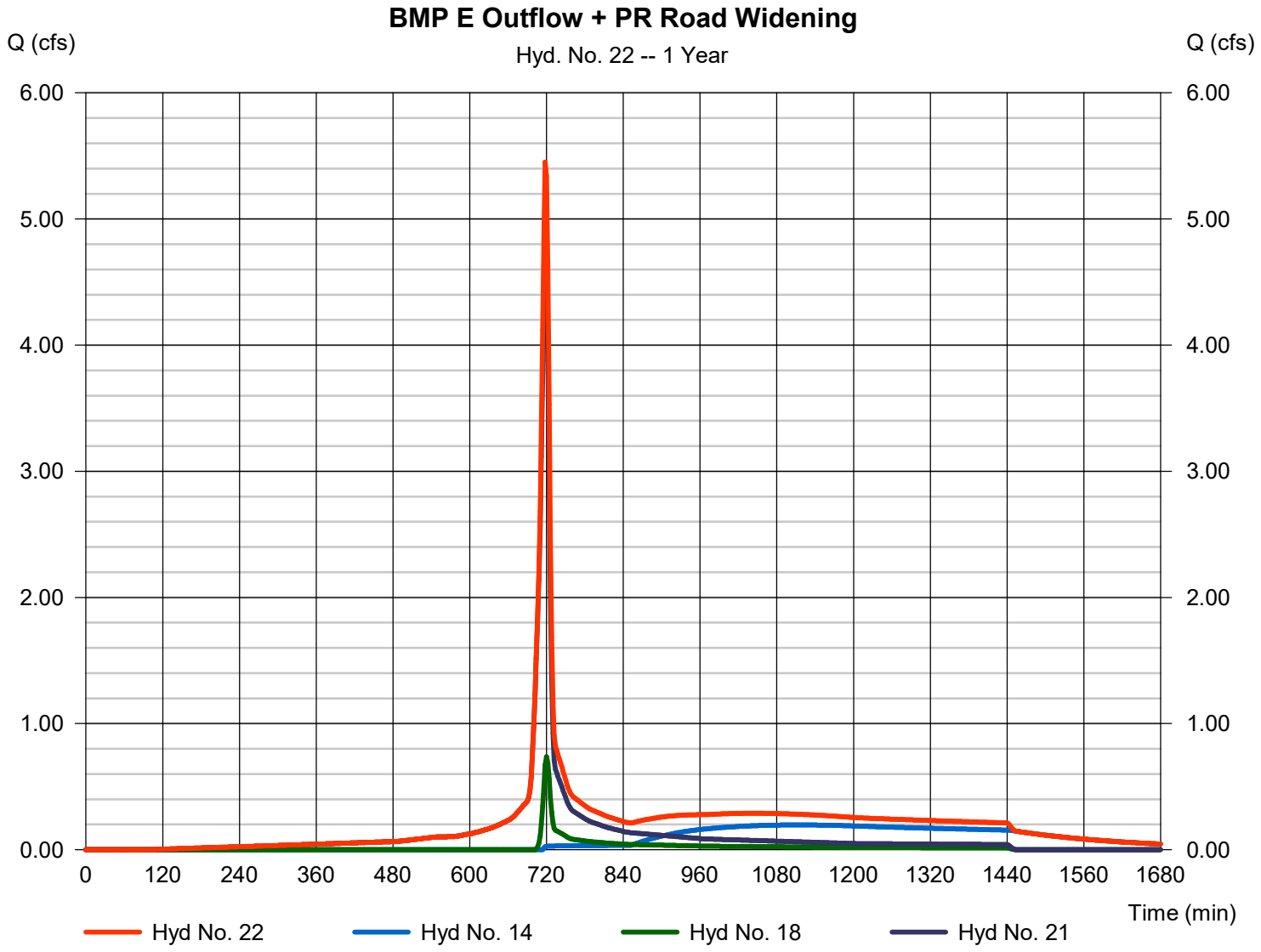
Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 735.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 6.03**	**+**	**0.00**	**+**	**0.00**	**=**	**6.03**
Channel Flow							
X sectional flow area (sqft)	= 1.77		0.00		0.00		
Wetted perimeter (ft)	= 3.54		0.00		0.00		
Channel slope (%)	= 1.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=6.24						
			0.00				
					0.00		
Flow length (ft)	({0})614.0		0.0		0.0		
Travel Time (min)	**= 1.64**	**+**	**0.00**	**+**	**0.00**	**=**	**1.64**
Total Travel Time, Tc							**7.70 min**

Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	5.450 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	29,074 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



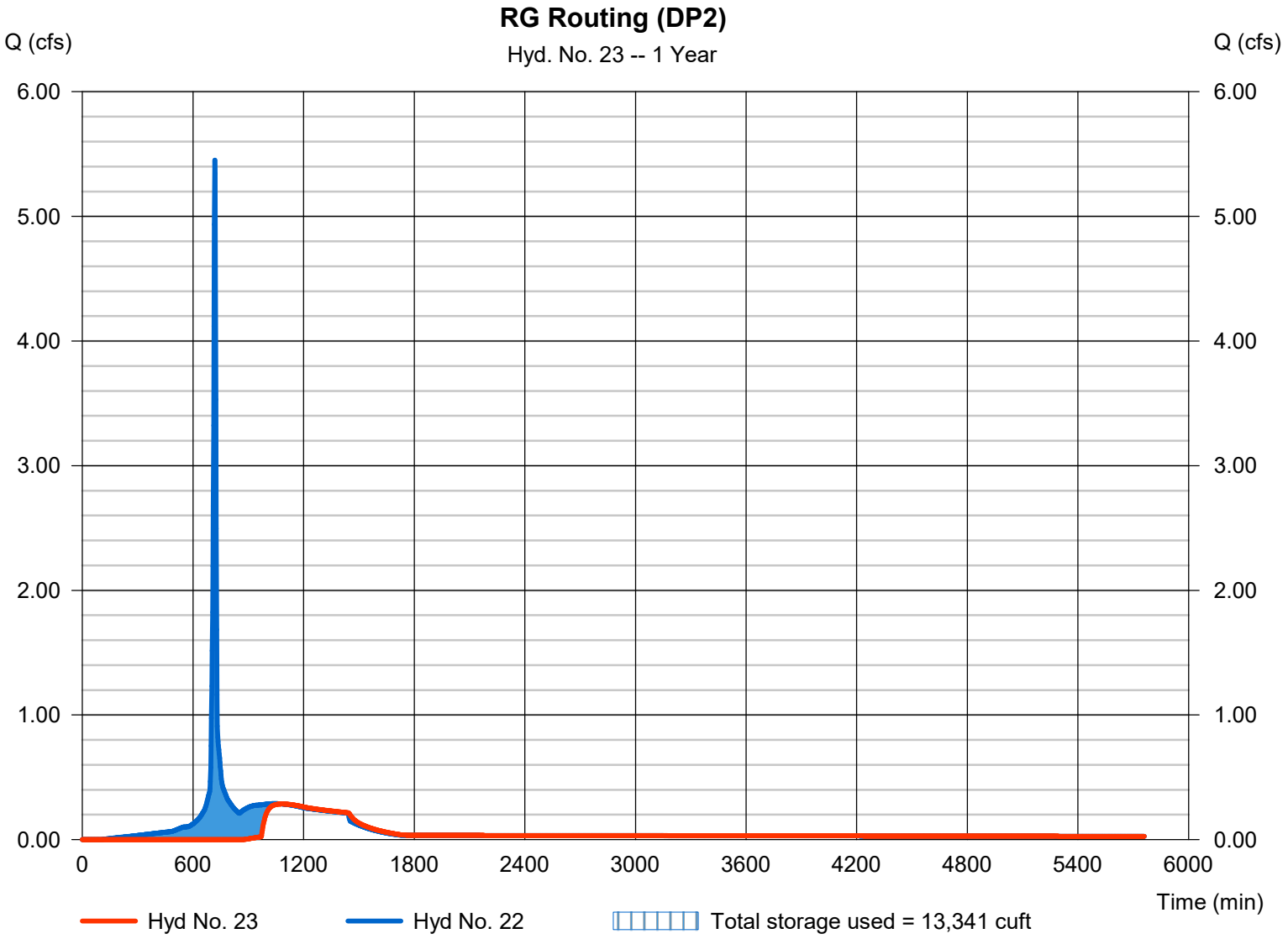
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	0.286 cfs
Storm frequency	=	1 yrs	Time to peak	=	1082 min
Time interval	=	2 min	Hyd. volume	=	16,060 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.64 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	13,341 cuft

Storage Indication method used.



Pond Report

Pond No. 5 - Hacket Rain Garden

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 228.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	228.00	00	0	0
3.70	231.70	5,492	6,773	6,773
4.00	232.00	6,285	1,765	8,538
6.00	234.00	8,690	14,909	23,447

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	4.00	0.00	0.00
Span (in)	= 18.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 228.13	232.50	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 3.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	10.00	0.00	0.00
Crest El. (ft)	= 233.00	232.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

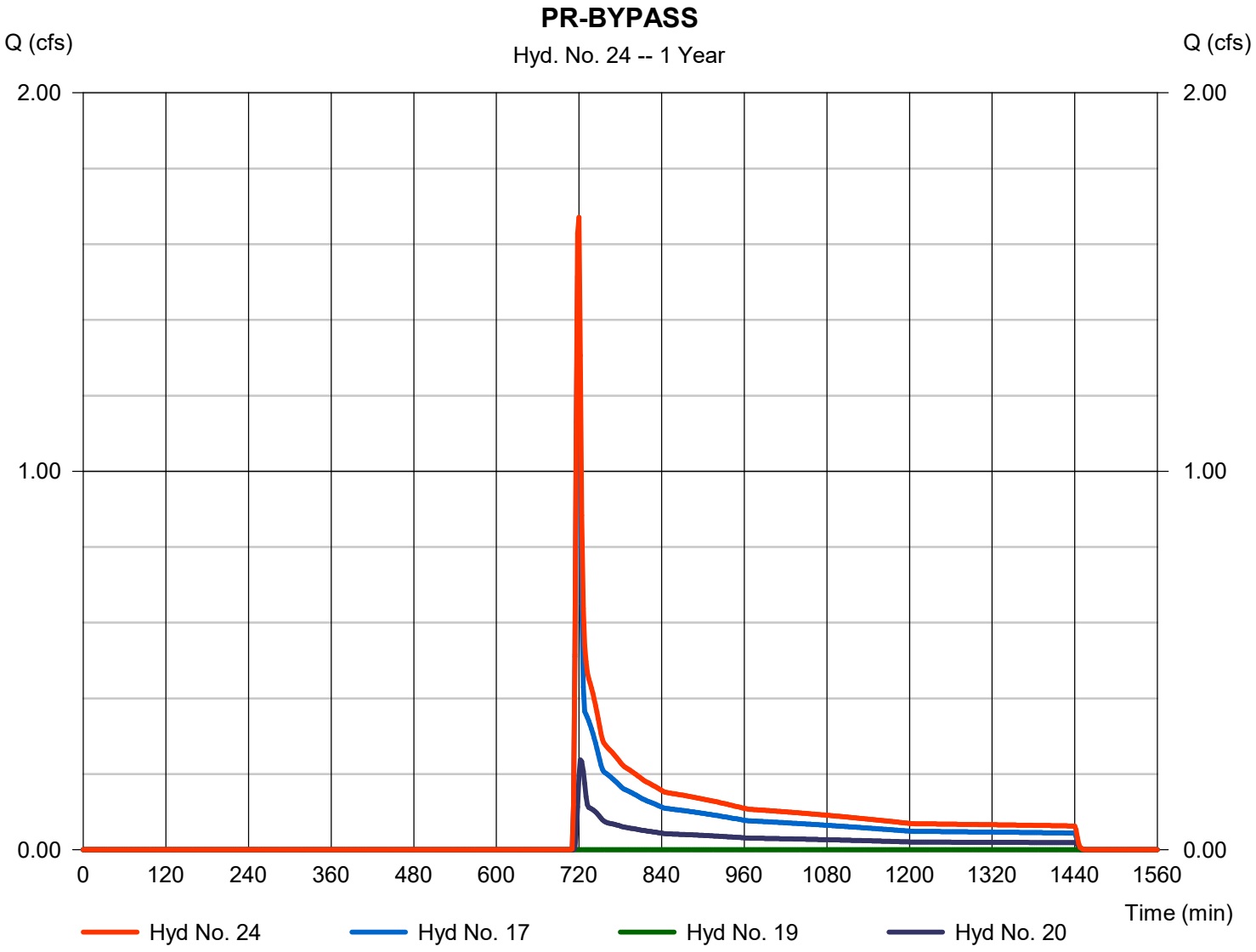
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	228.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.37	677	228.37	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.74	1,355	228.74	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.11	2,032	229.11	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.48	2,709	229.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.85	3,386	229.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.22	4,064	230.22	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.59	4,741	230.59	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.96	5,418	230.96	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.33	6,096	231.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	6,773	231.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.73	6,949	231.73	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.76	7,126	231.76	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.79	7,302	231.79	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.82	7,479	231.82	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.85	7,655	231.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.88	7,832	231.88	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.91	8,008	231.91	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.94	8,185	231.94	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.97	8,361	231.97	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	8,538	232.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	10,029	232.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.40	11,520	232.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.60	13,010	232.60	0.02 ic	0.02 ic	---	---	0.00	0.00	---	---	---	---	0.024
4.80	14,501	232.80	0.16 ic	0.15 ic	---	---	0.00	1.05	---	---	---	---	1.208
5.00	15,992	233.00	0.25 ic	0.24 ic	---	---	0.00	5.47	---	---	---	---	5.714
5.20	17,483	233.20	3.88 ic	0.31 ic	---	---	3.57	11.77	---	---	---	---	15.65
5.40	18,974	233.40	10.47 ic	0.36 ic	---	---	10.11	19.50	---	---	---	---	29.97
5.60	20,465	233.60	17.64 ic	0.27 ic	---	---	17.36 s	28.43	---	---	---	---	46.07
5.80	21,956	233.80	18.52 ic	0.18 ic	---	---	18.35 s	38.42	---	---	---	---	56.94
6.00	23,447	234.00	19.07 ic	0.13 ic	---	---	18.93 s	49.36	---	---	---	---	68.42

Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	1.671 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	5,924 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

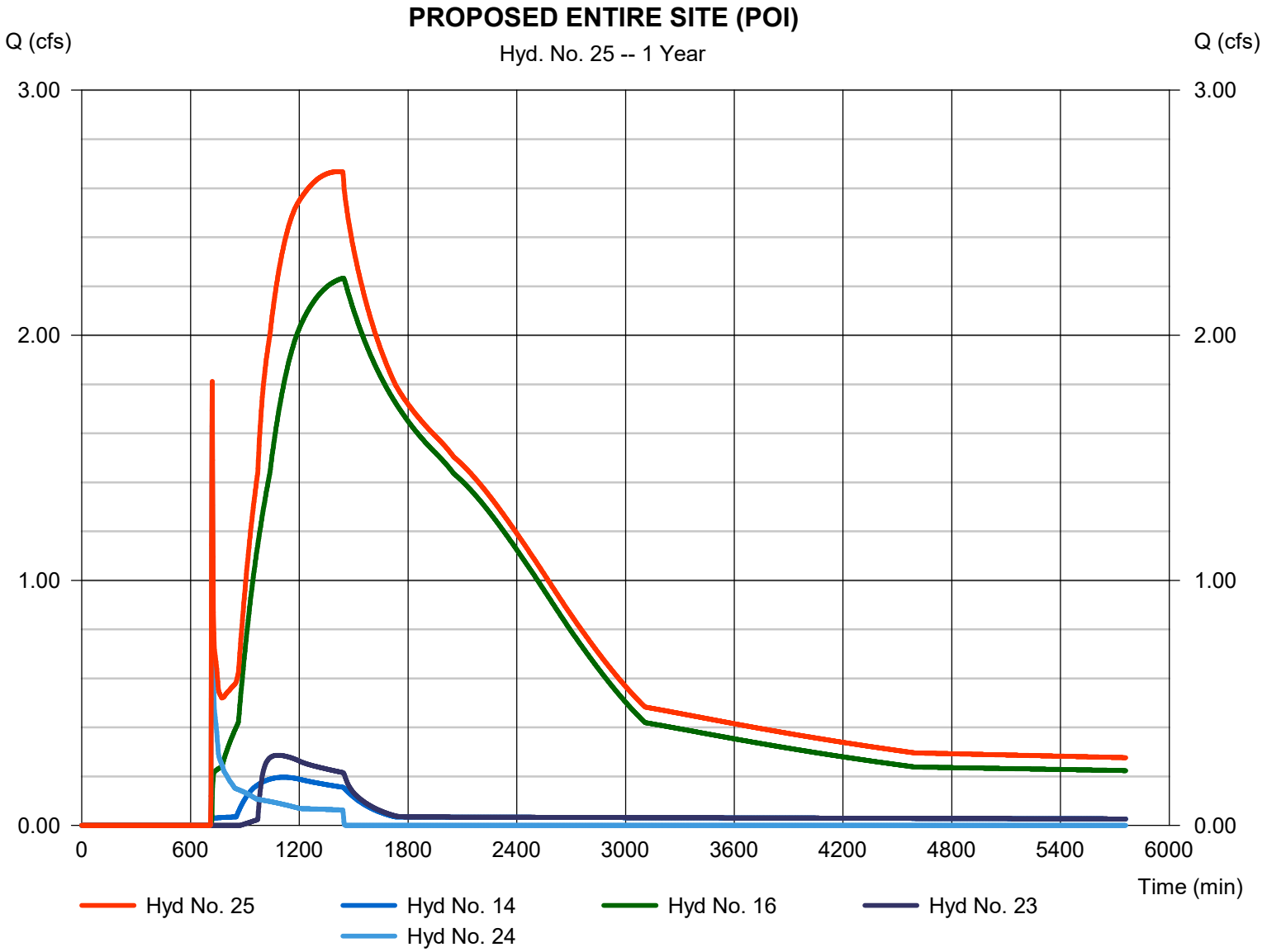


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 2.668 cfs
Storm frequency	= 1 yrs	Time to peak	= 1416 min
Time interval	= 2 min	Hyd. volume	= 266,675 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

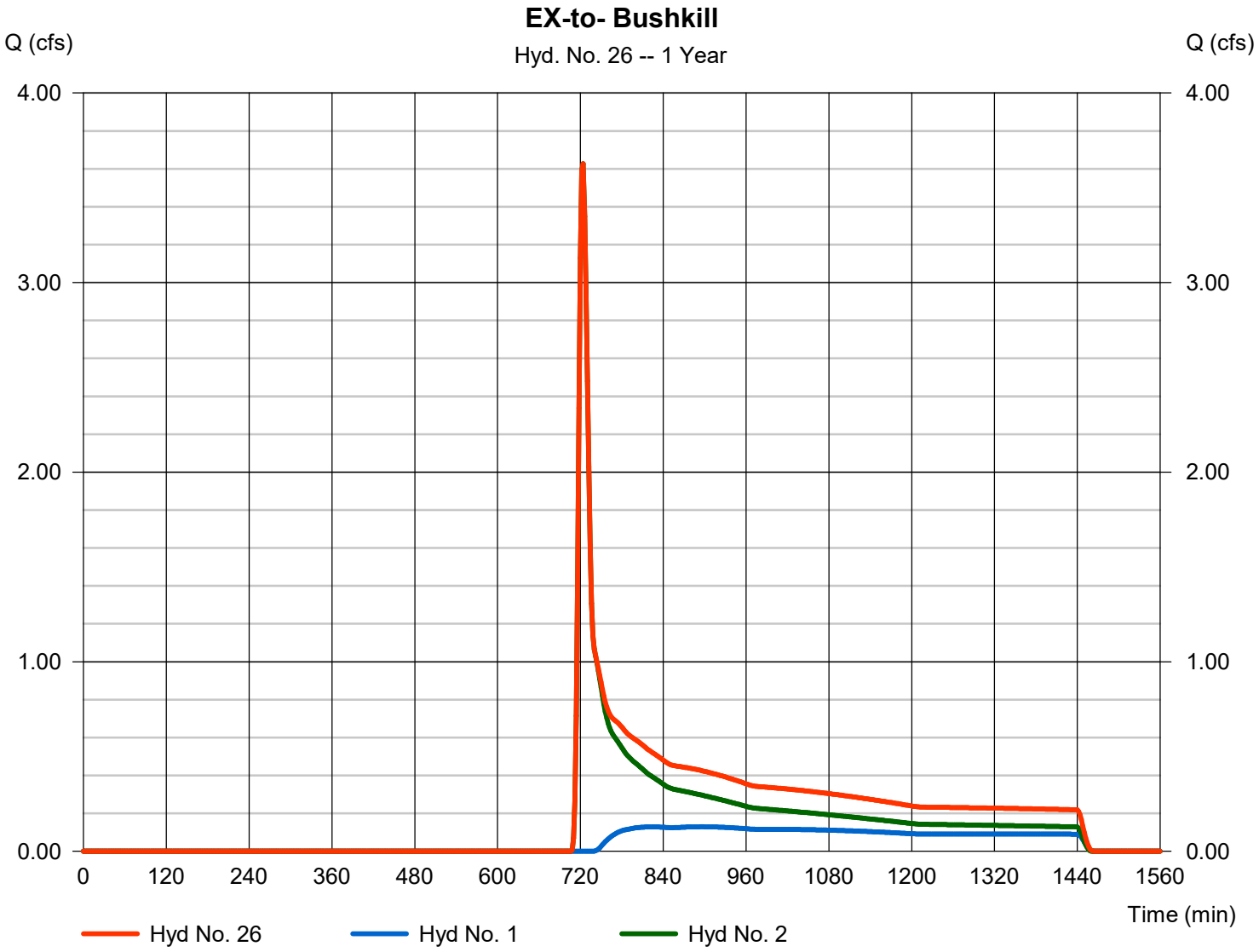


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 3.627 cfs
Storm frequency	= 1 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 18,325 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

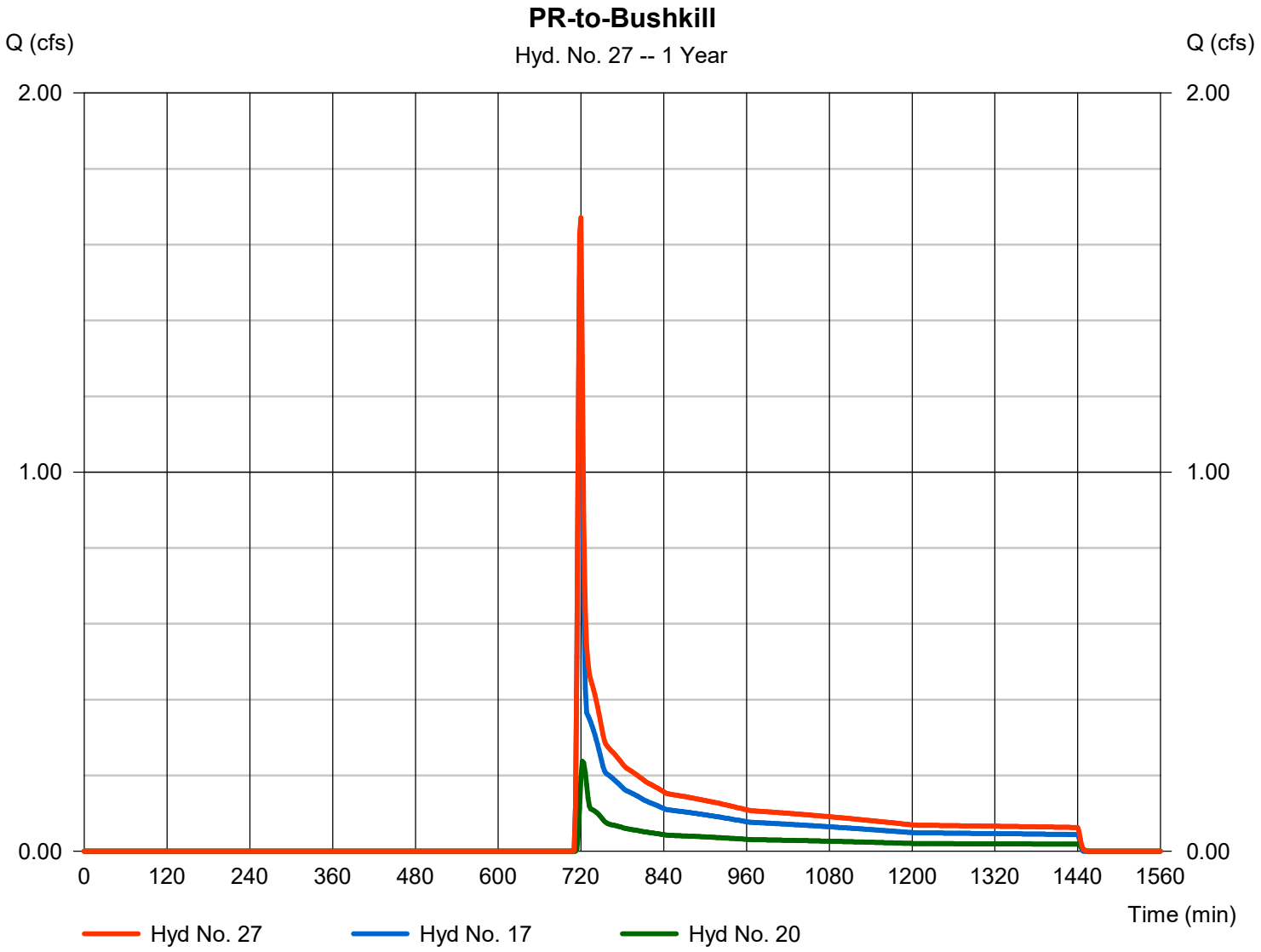


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	1.671 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	5,924 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

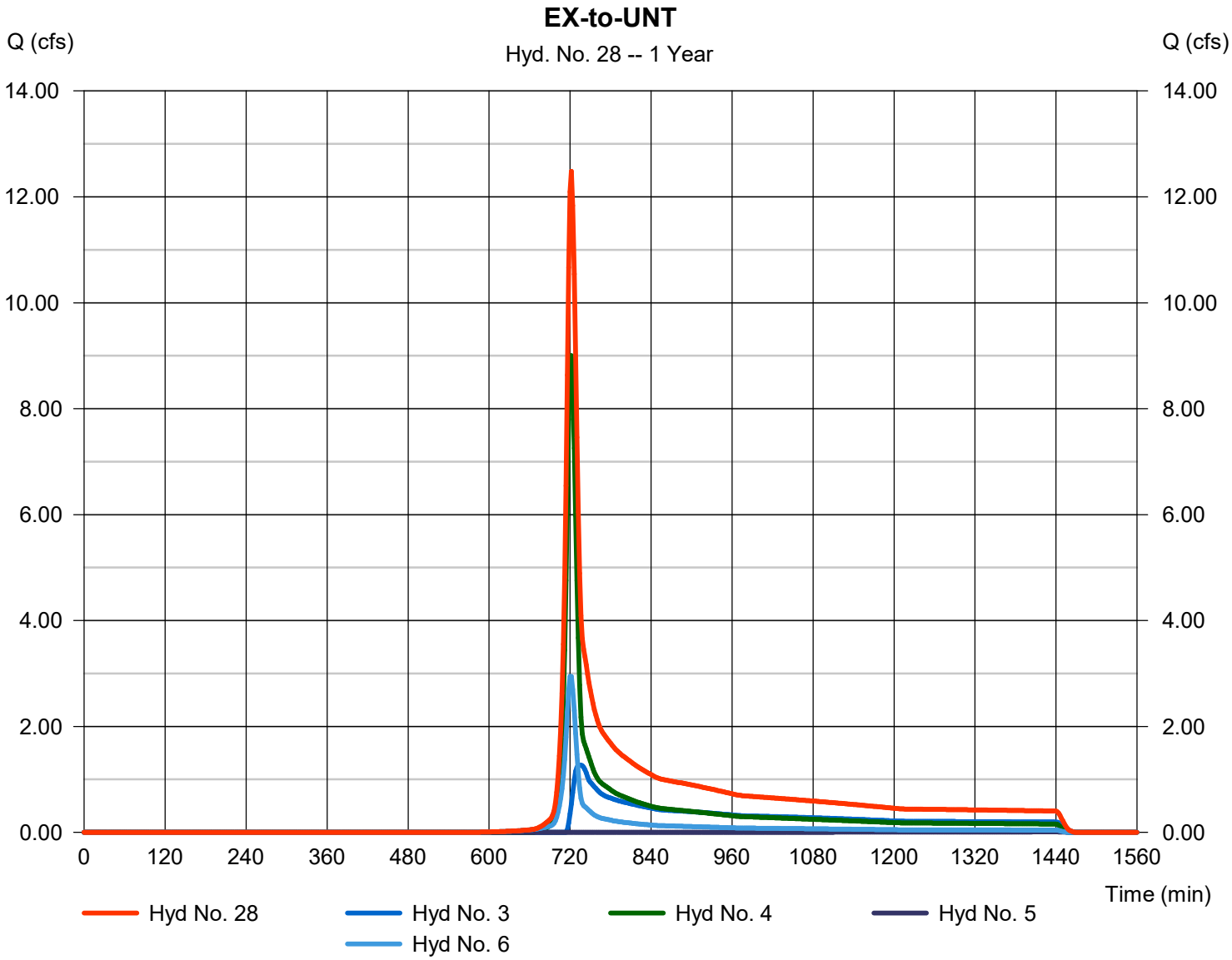


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 12.48 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 47,246 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

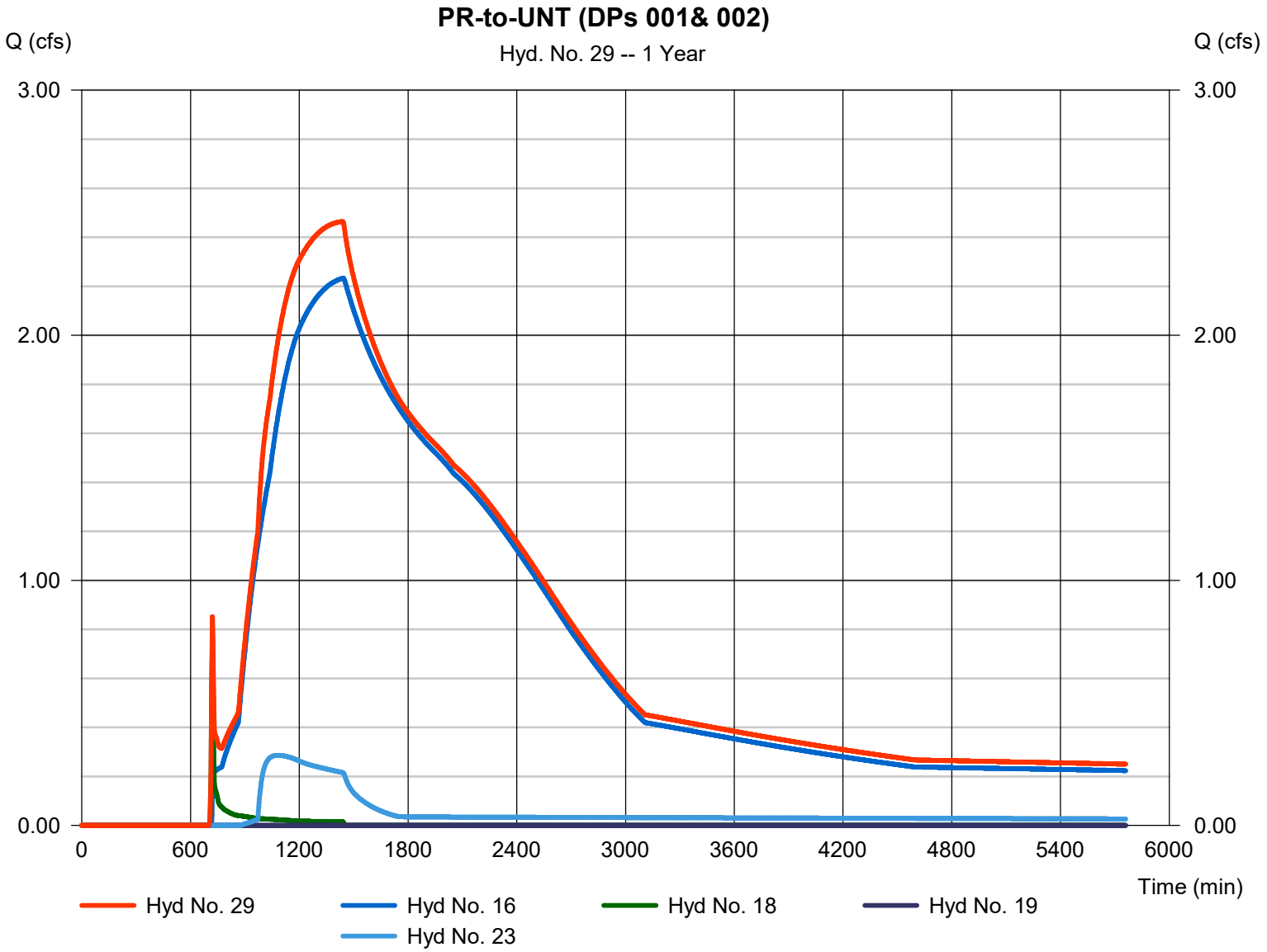


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 2.464 cfs
Storm frequency	= 1 yrs	Time to peak	= 1440 min
Time interval	= 2 min	Hyd. volume	= 247,746 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.184	2	732	14,416	------	------	------	EX-DA 1
2	SCS Runoff	8.484	2	722	25,748	------	------	------	EX-DA2
3	SCS Runoff	6.047	2	728	34,205	------	------	------	EX-DA3
4	SCS Runoff	14.39	2	722	37,905	------	------	------	EX-DA4
5	SCS Runoff	0.051	2	908	1,748	------	------	------	EX-DA5
6	SCS Runoff	4.333	2	720	11,239	------	------	------	EX-DA-Road Widening
7	Combine	31.95	2	722	125,260	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	48.40	2	716	107,695	------	------	------	PR-DA-A
9	SCS Runoff	61.17	2	716	136,095	------	------	------	PR-DA-B
10	SCS Runoff	96.15	2	718	223,634	------	------	------	PR-DA-C
11	Reservoir	0.709	2	1022	95,123	8	290.55	81,704	BMP A Routing
12	Reservoir	1.126	2	940	124,454	9	286.79	98,571	BMP B Routing
13	SCS Runoff	16.85	2	718	33,776	------	------	------	PR-DA-E
14	Reservoir	0.552	2	856	26,436	13	257.35	20,057	BMP E Routing
15	Combine	97.72	2	718	443,211	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	3.262	2	1114	340,474	15	216.84	188,425	MRC BMP C Routing(DP1)
17	SCS Runoff	3.812	2	718	8,524	------	------	------	PR-BYPASS 1
18	SCS Runoff	1.385	2	720	3,312	------	------	------	PR RG
19	SCS Runoff	0.016	2	1440	491	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.999	2	722	3,353	------	------	------	PR-BYPASS 3
21	SCS Runoff	5.984	2	718	15,576	------	------	------	PR-Road Widening
22	Combine	7.336	2	718	45,324	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	0.835	2	822	32,310	22	232.74	14,032	RG Routing (DP2)
24	Combine	4.628	2	718	12,368	17, 19, 20,	------	------	PR-BYPASS
25	Combine	4.863	2	718	411,587	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	9.106	2	722	40,163	1, 2,	------	------	EX-to- Bushkill
27	Combine	4.628	2	718	11,877	17, 20,	------	------	PR-to-Bushkill
28	Combine	22.84	2	722	85,096	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	3.897	2	1042	376,587	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

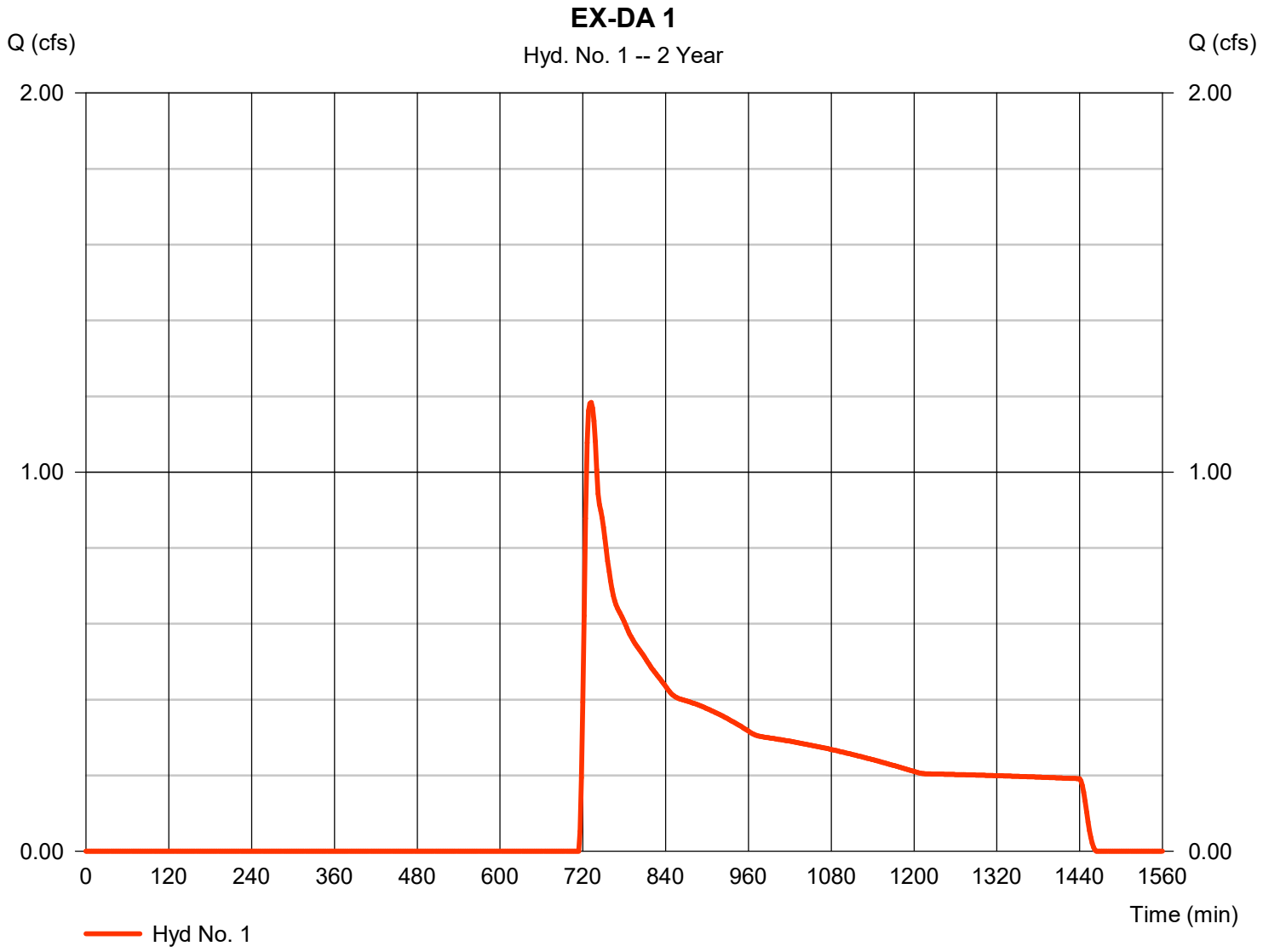
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.184 cfs
Storm frequency	=	2 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	14,416 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



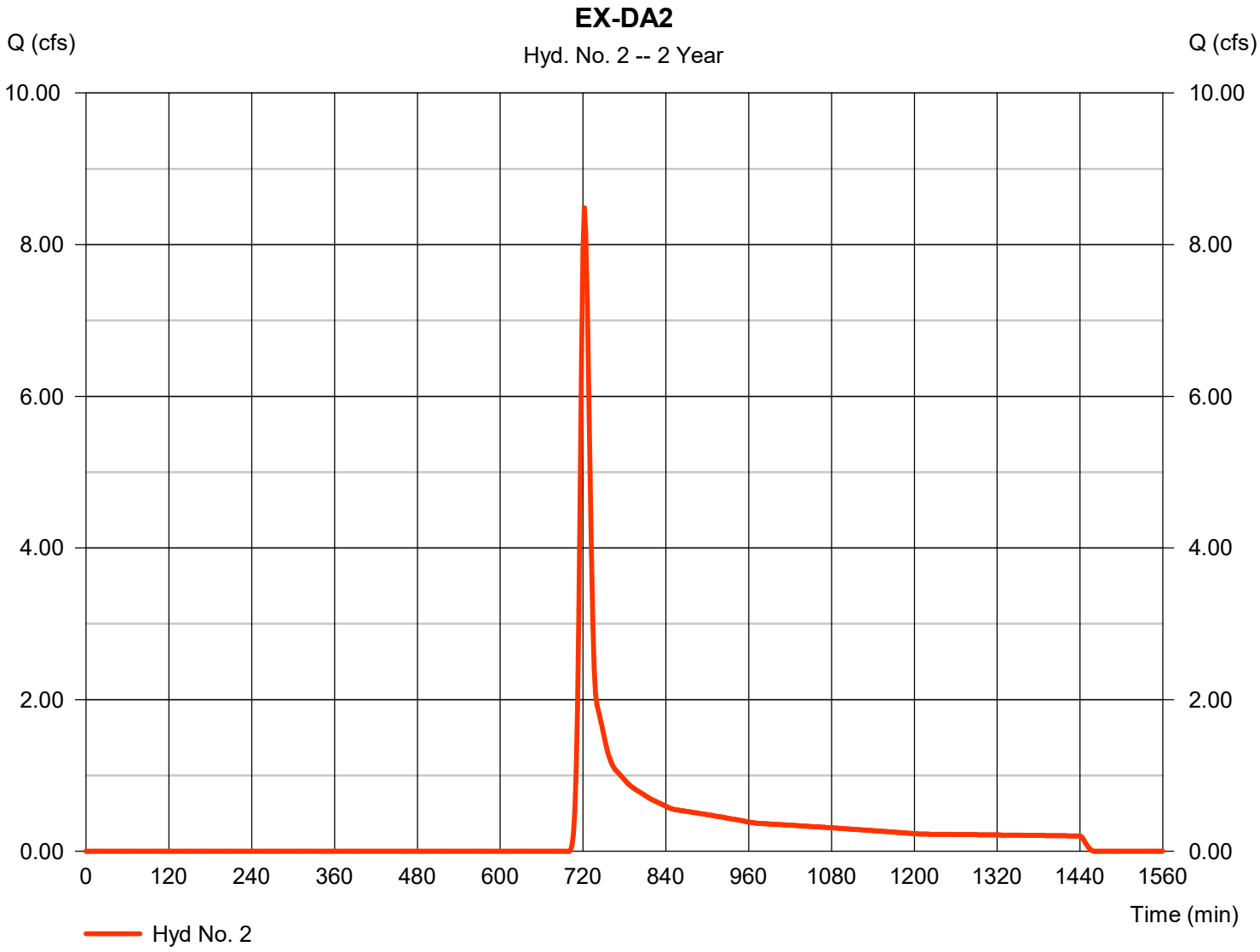
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.484 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	25,748 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



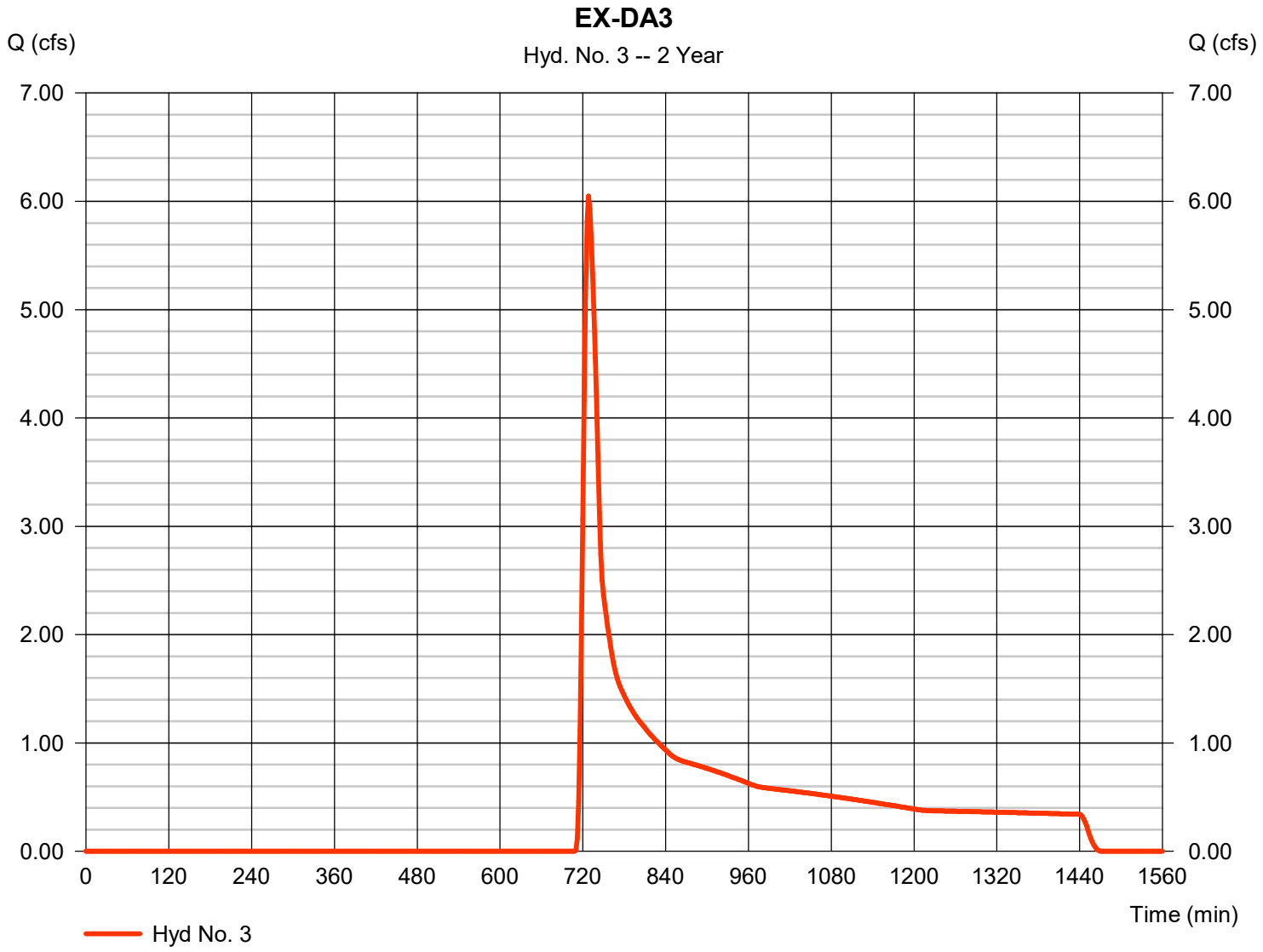
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.047 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	34,205 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



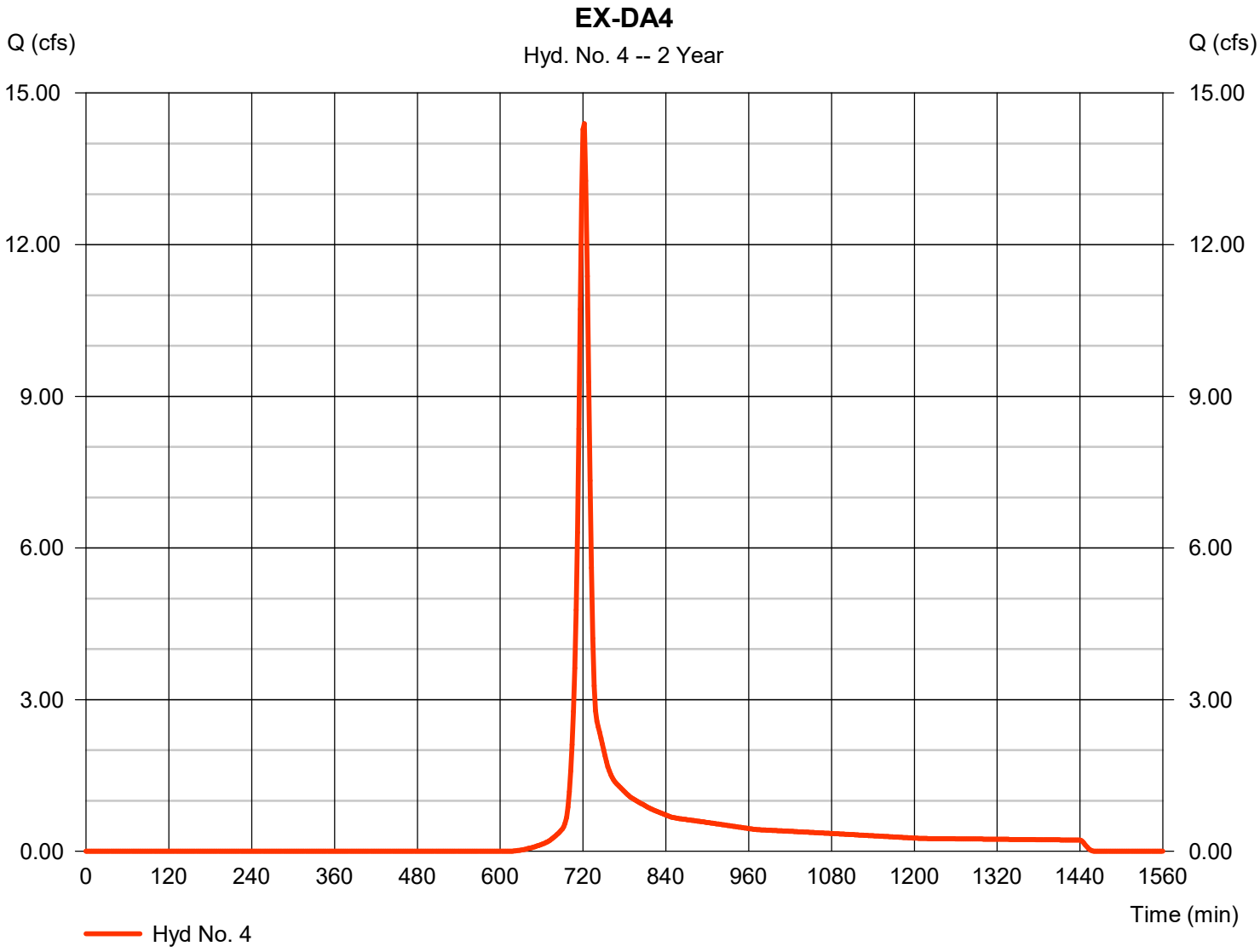
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.39 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	37,905 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



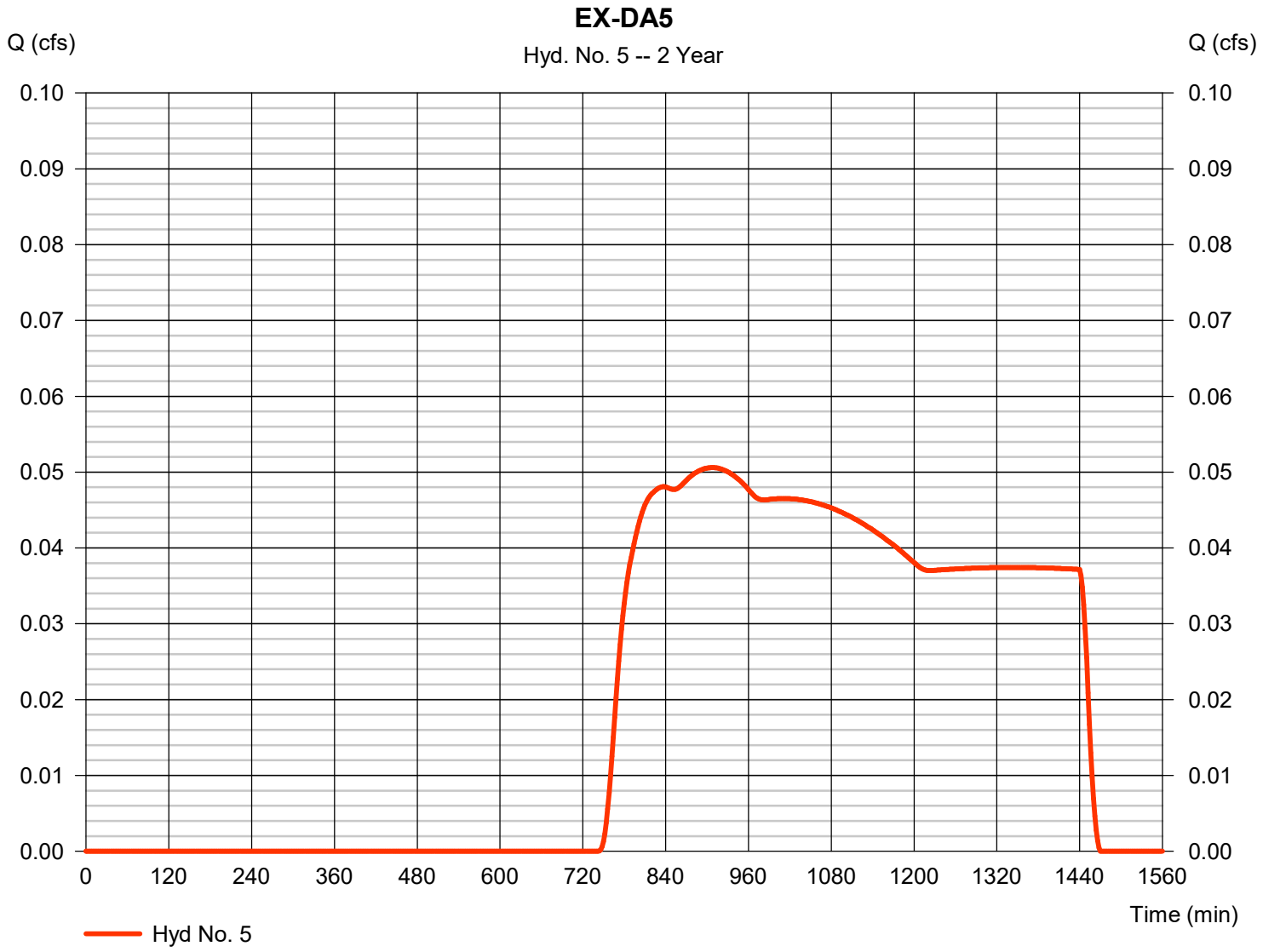
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.051 cfs
Storm frequency	=	2 yrs	Time to peak	=	908 min
Time interval	=	2 min	Hyd. volume	=	1,748 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



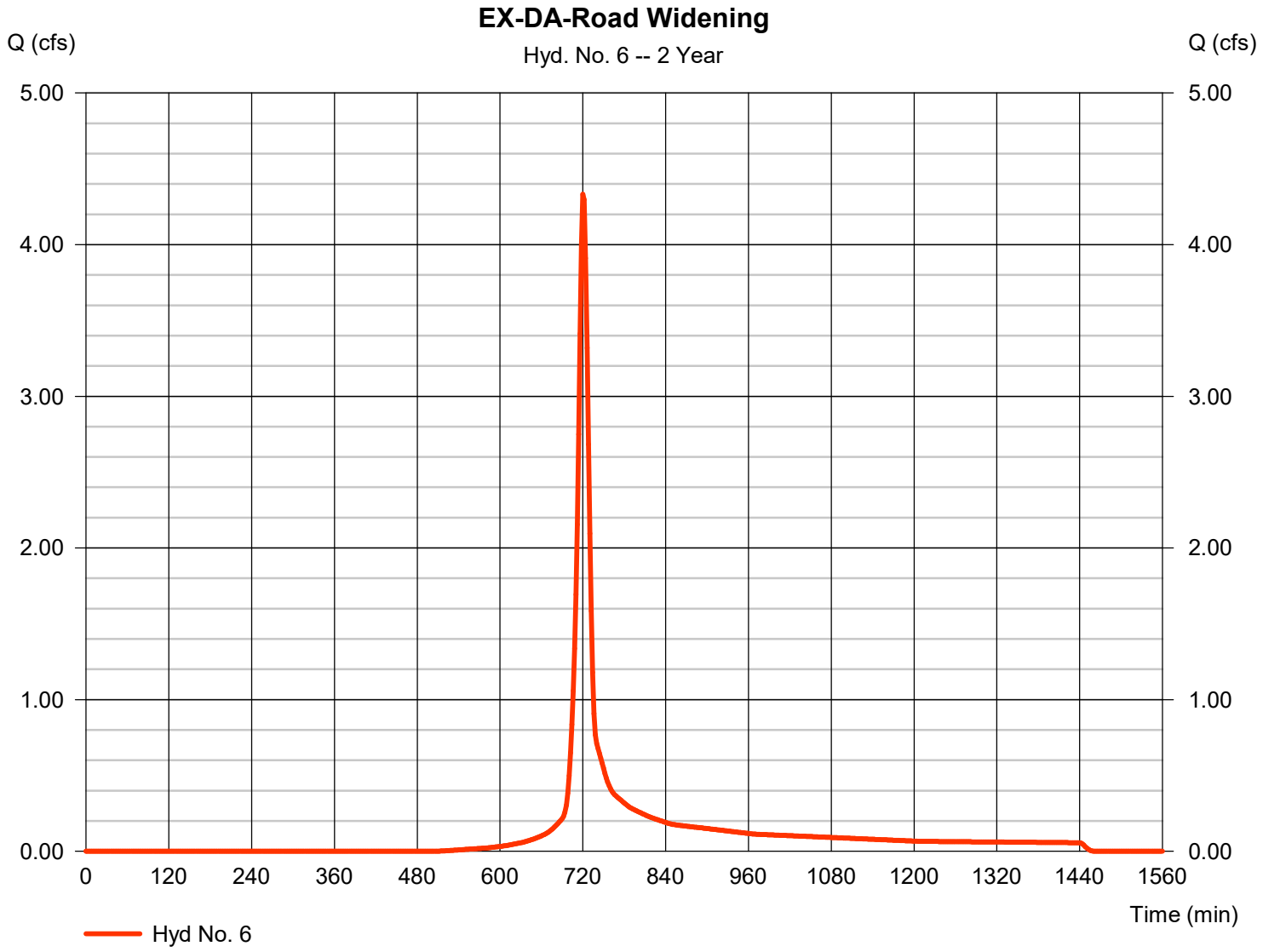
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.333 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	11,239 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

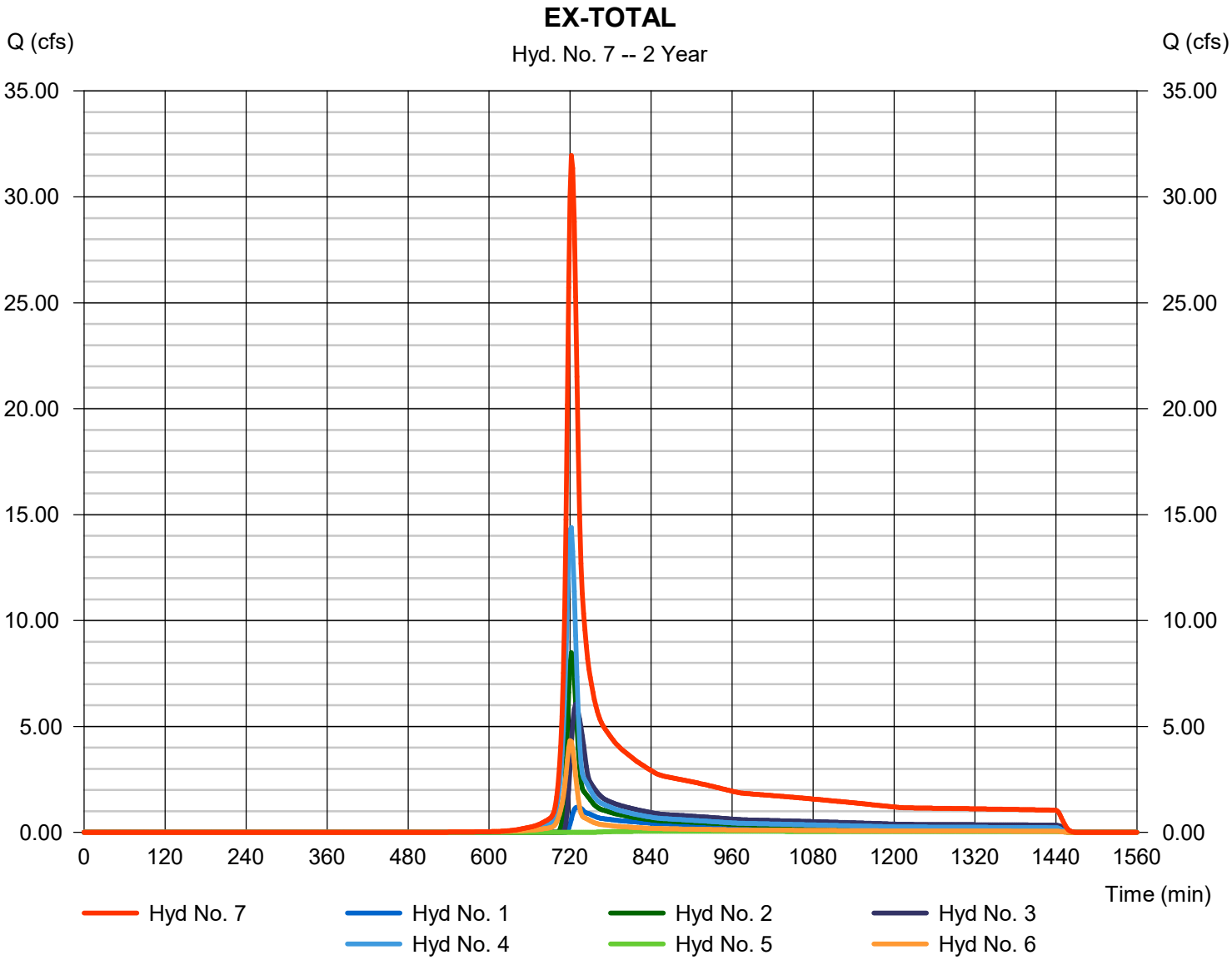


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	31.95 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	125,260 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



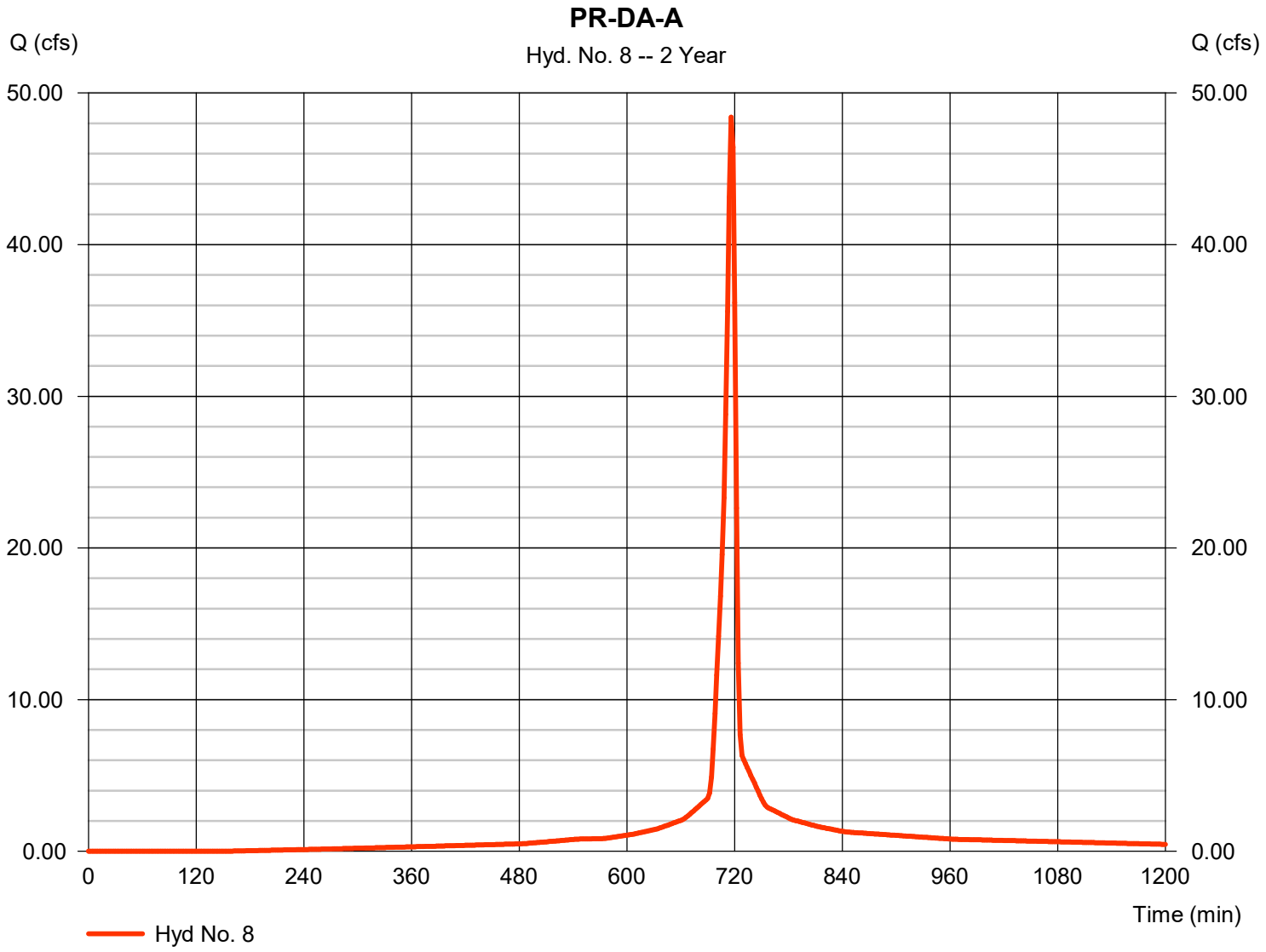
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.40 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	107,695 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



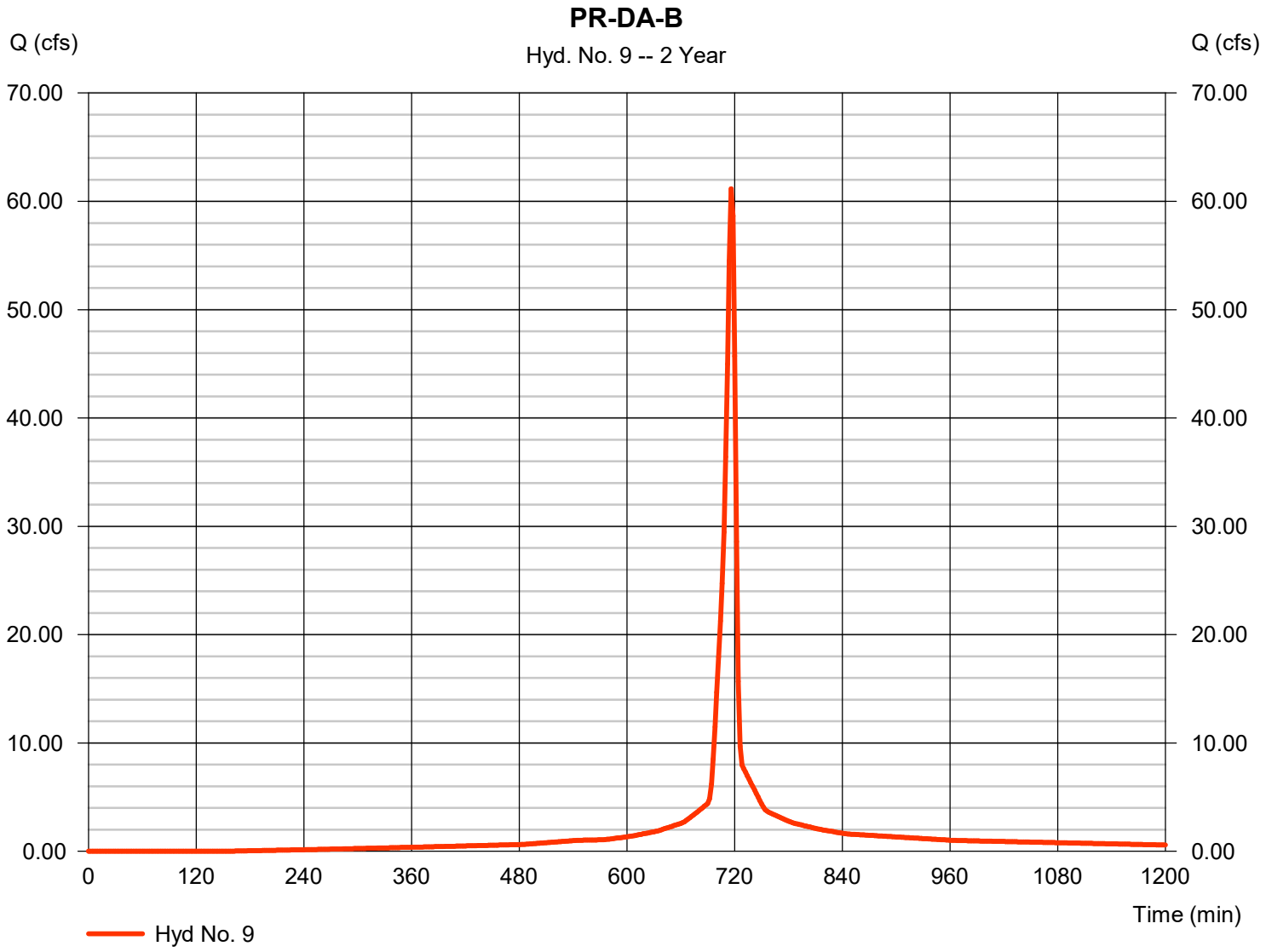
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	61.17 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	136,095 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



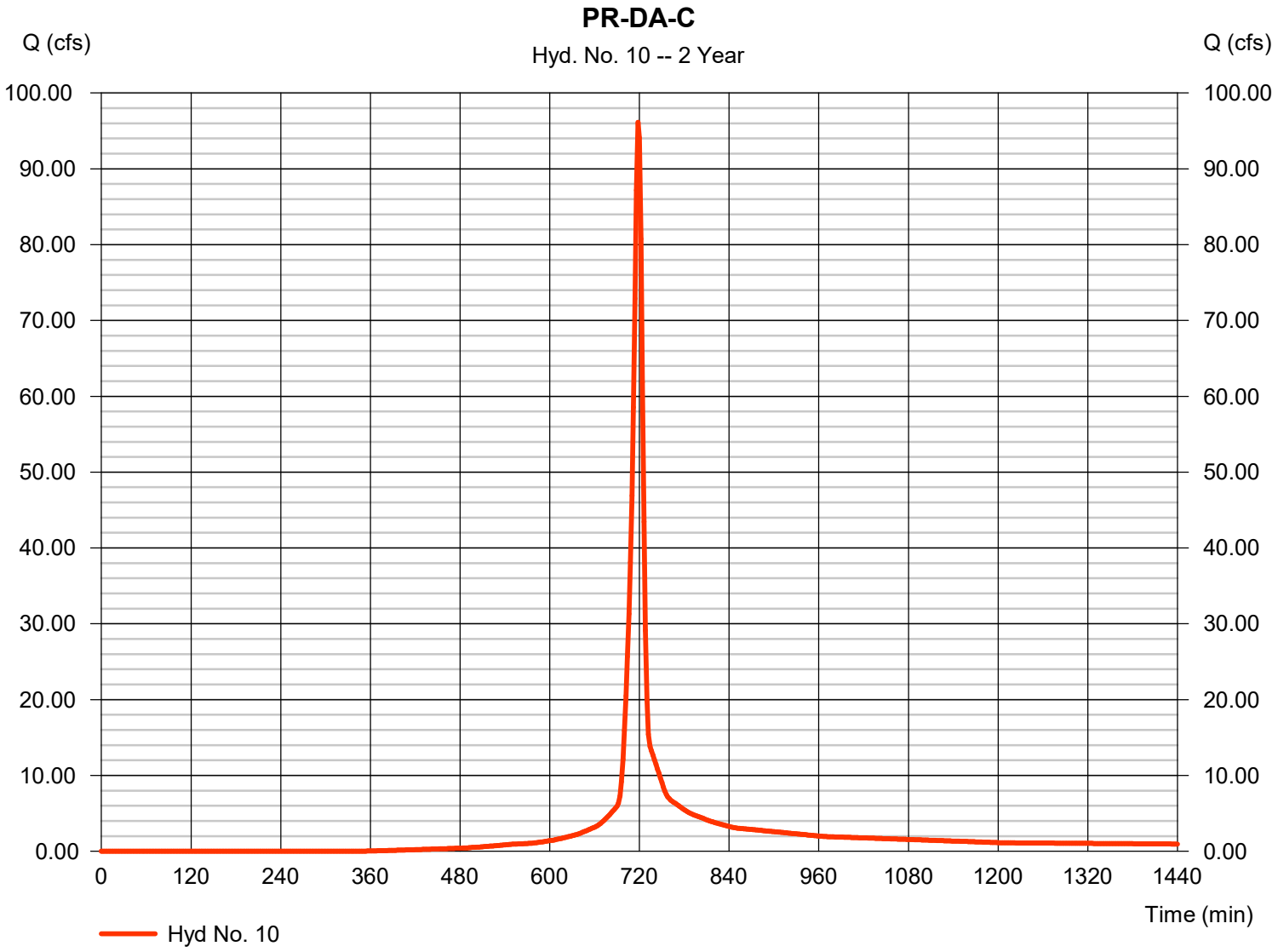
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	96.15 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	223,634 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



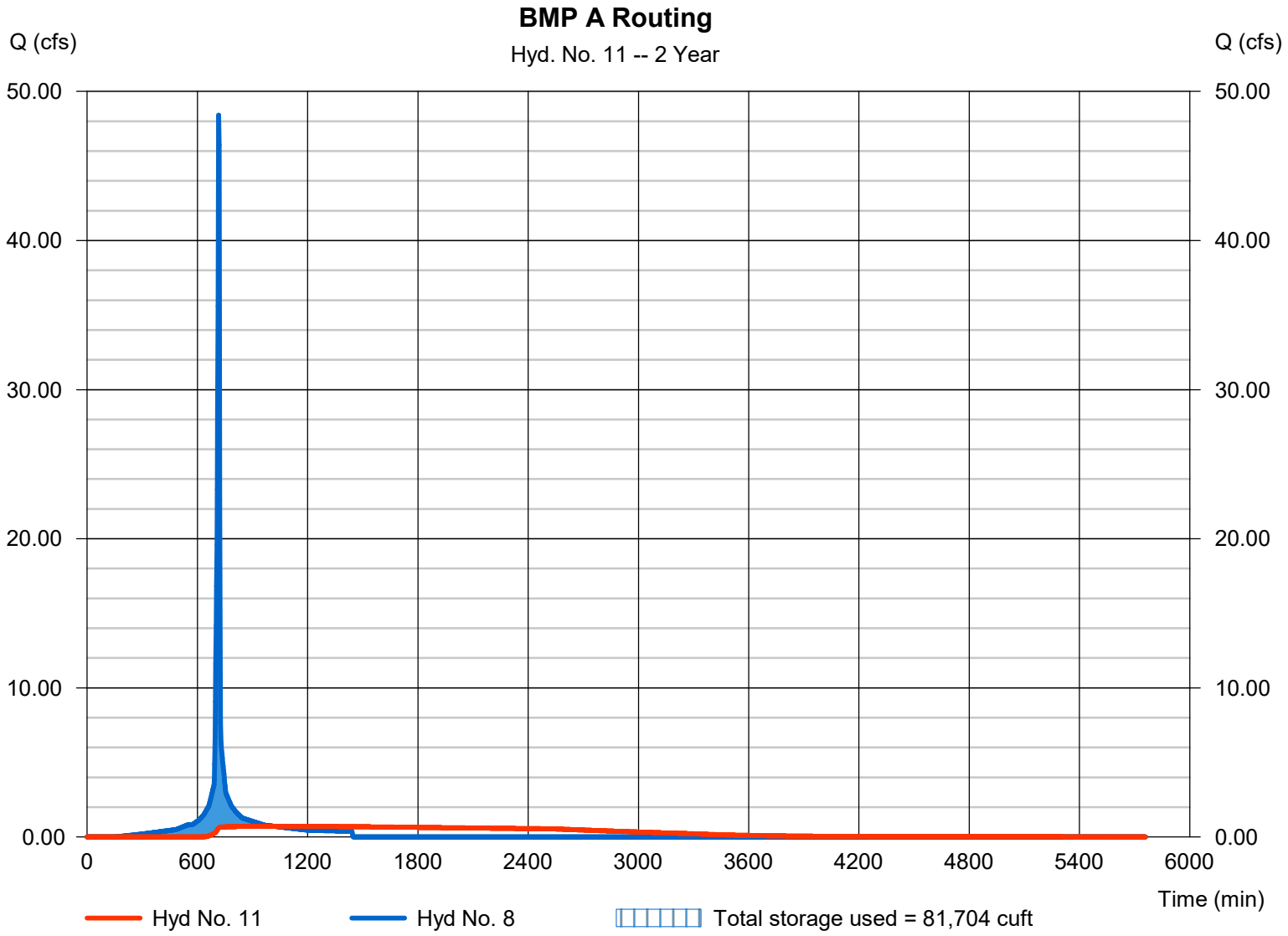
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.709 cfs
Storm frequency	=	2 yrs	Time to peak	=	1022 min
Time interval	=	2 min	Hyd. volume	=	95,123 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.55 ft
Reservoir name	=	BMP A	Max. Storage	=	81,704 cuft

Storage Indication method used.



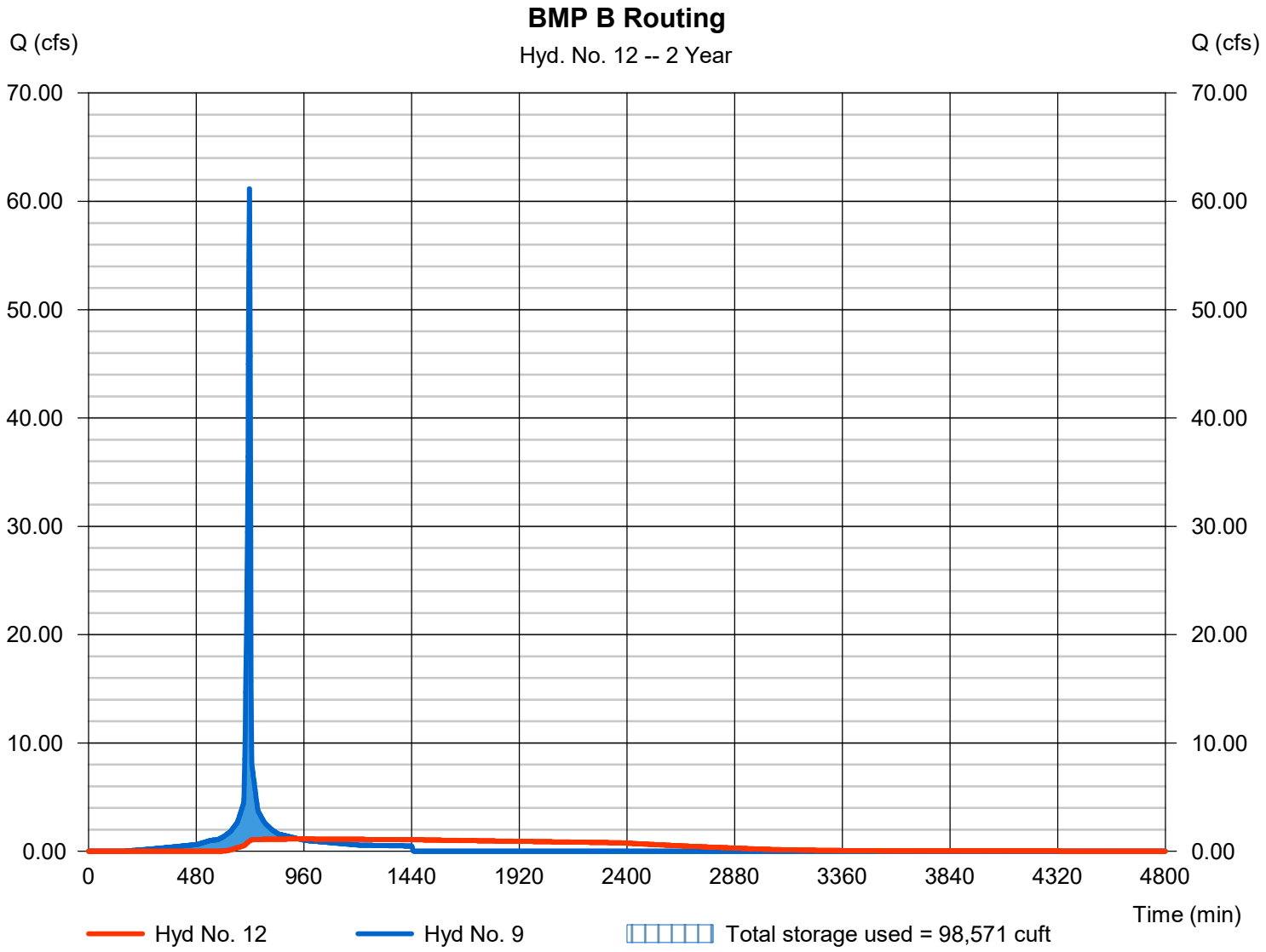
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.126 cfs
Storm frequency	=	2 yrs	Time to peak	=	940 min
Time interval	=	2 min	Hyd. volume	=	124,454 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.79 ft
Reservoir name	=	BMP B	Max. Storage	=	98,571 cuft

Storage Indication method used.



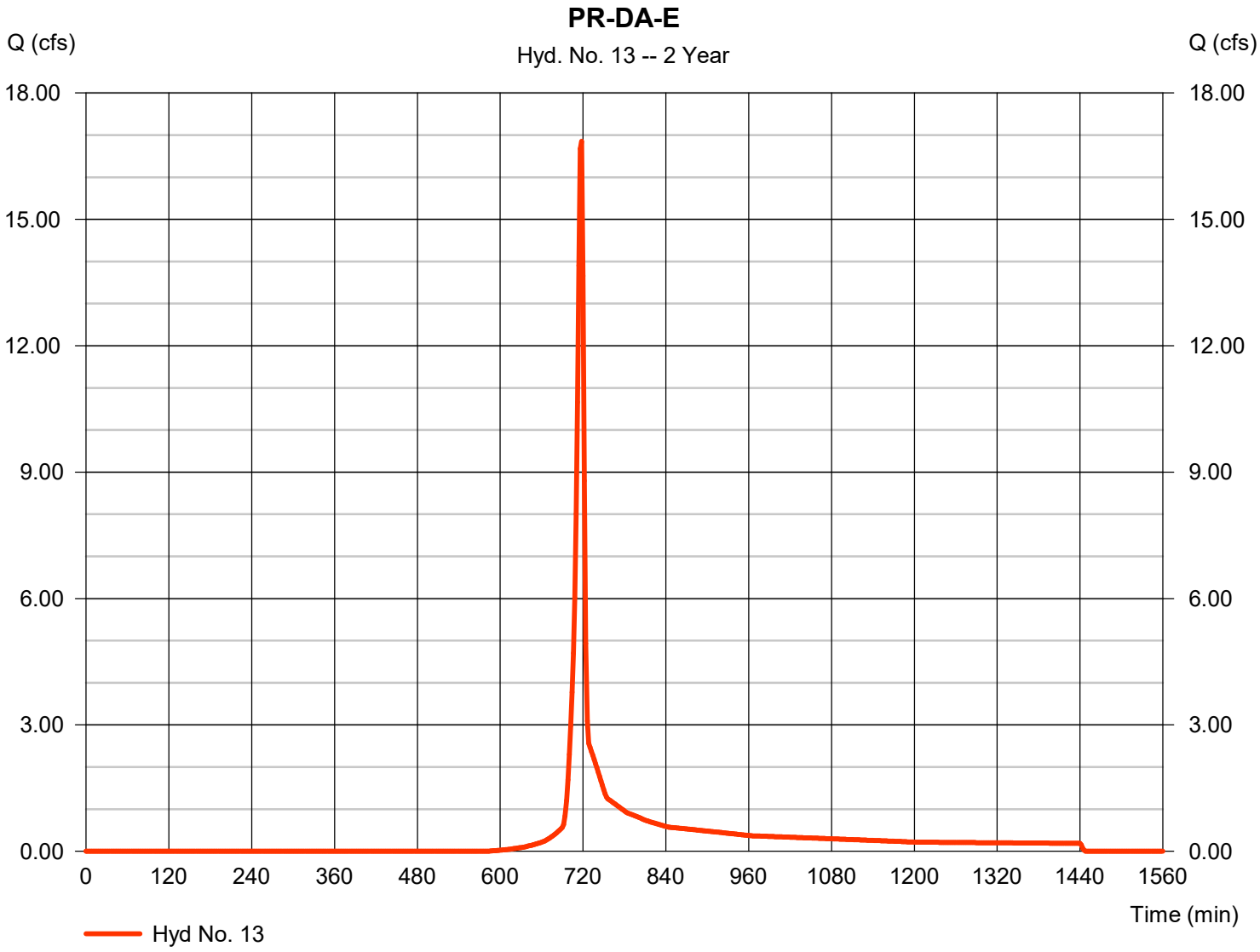
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.85 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	33,776 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



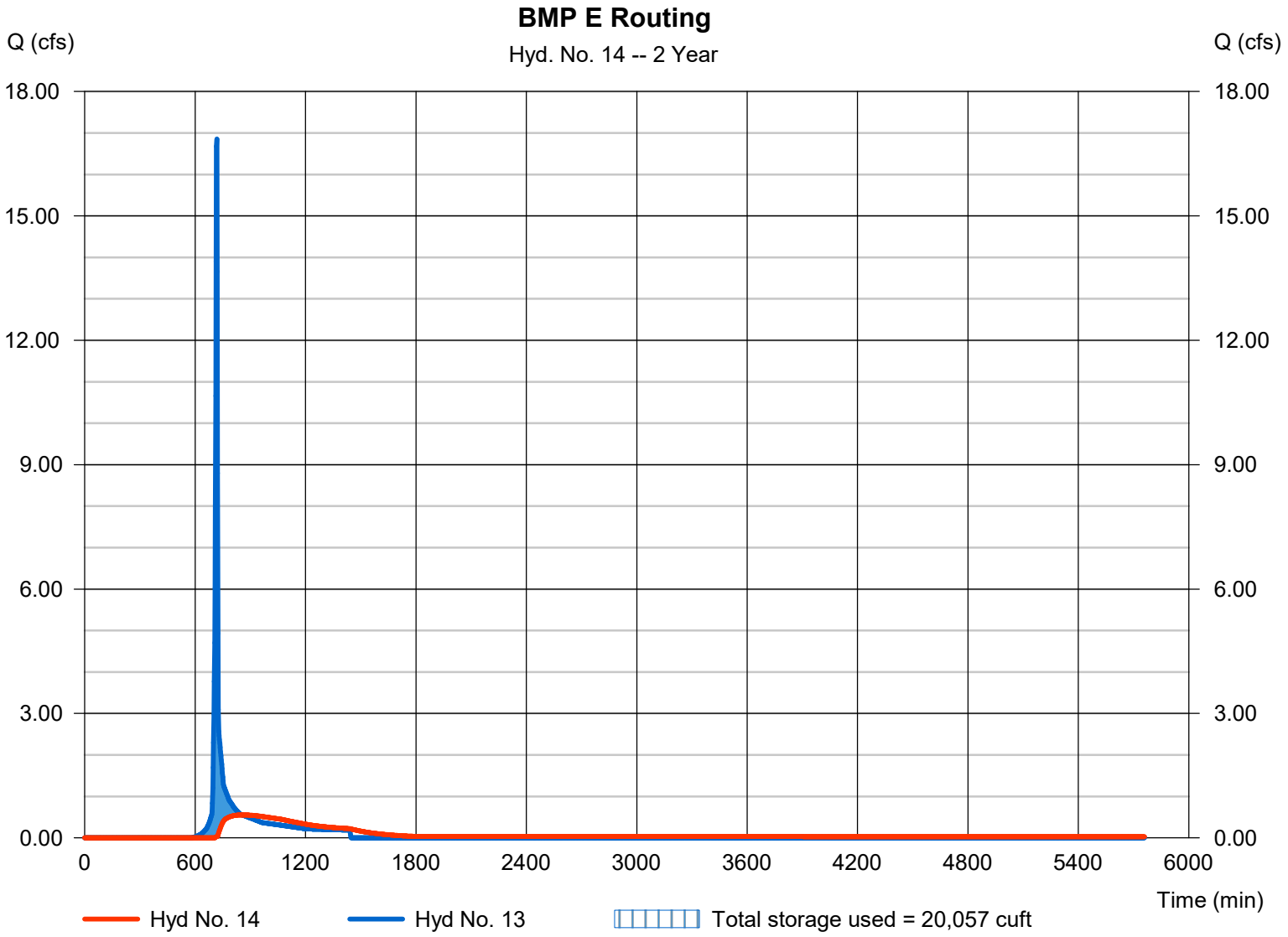
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.552 cfs
Storm frequency	=	2 yrs	Time to peak	=	856 min
Time interval	=	2 min	Hyd. volume	=	26,436 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	257.35 ft
Reservoir name	=	BMP E	Max. Storage	=	20,057 cuft

Storage Indication method used.

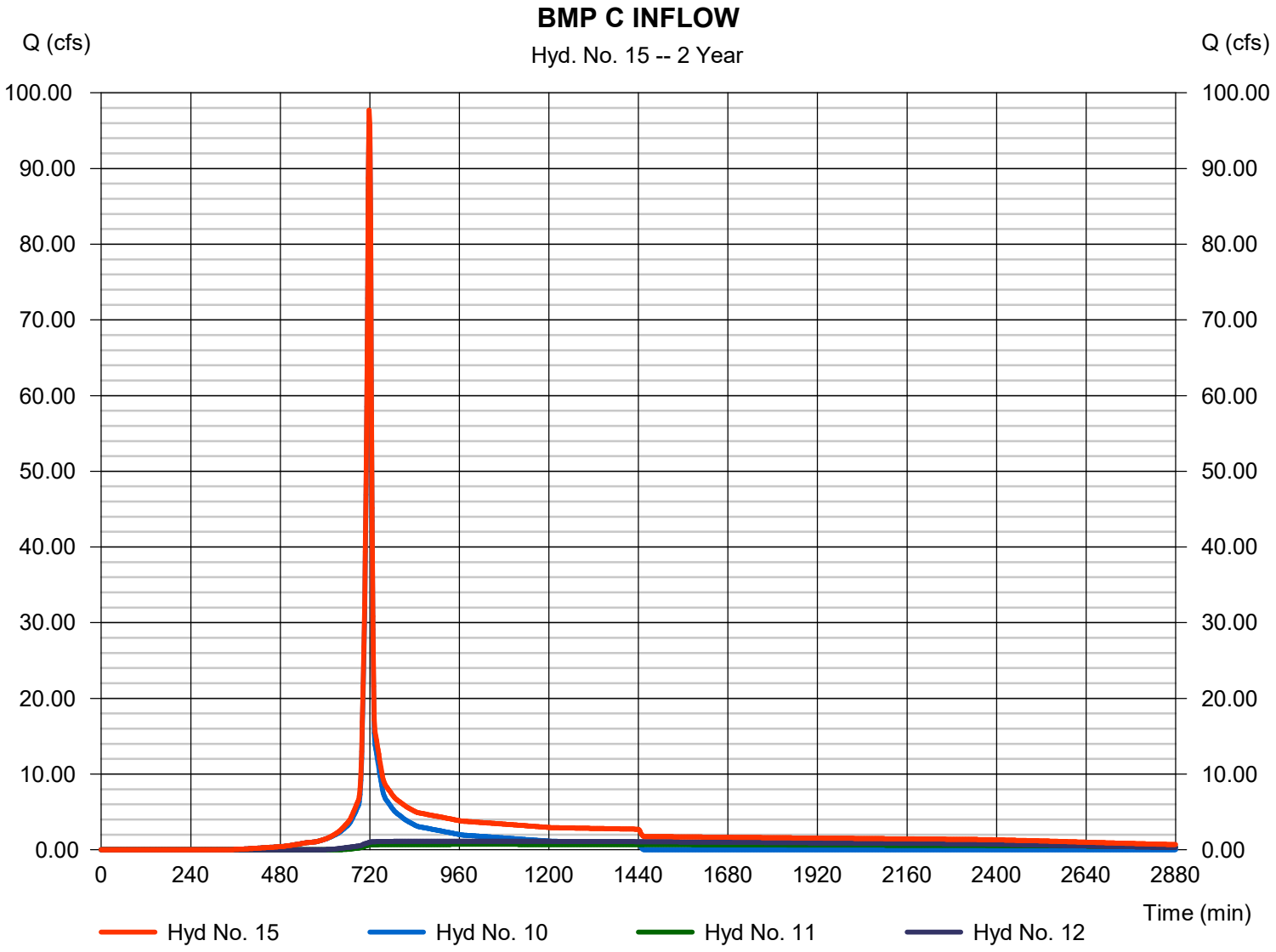


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	97.72 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	443,211 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



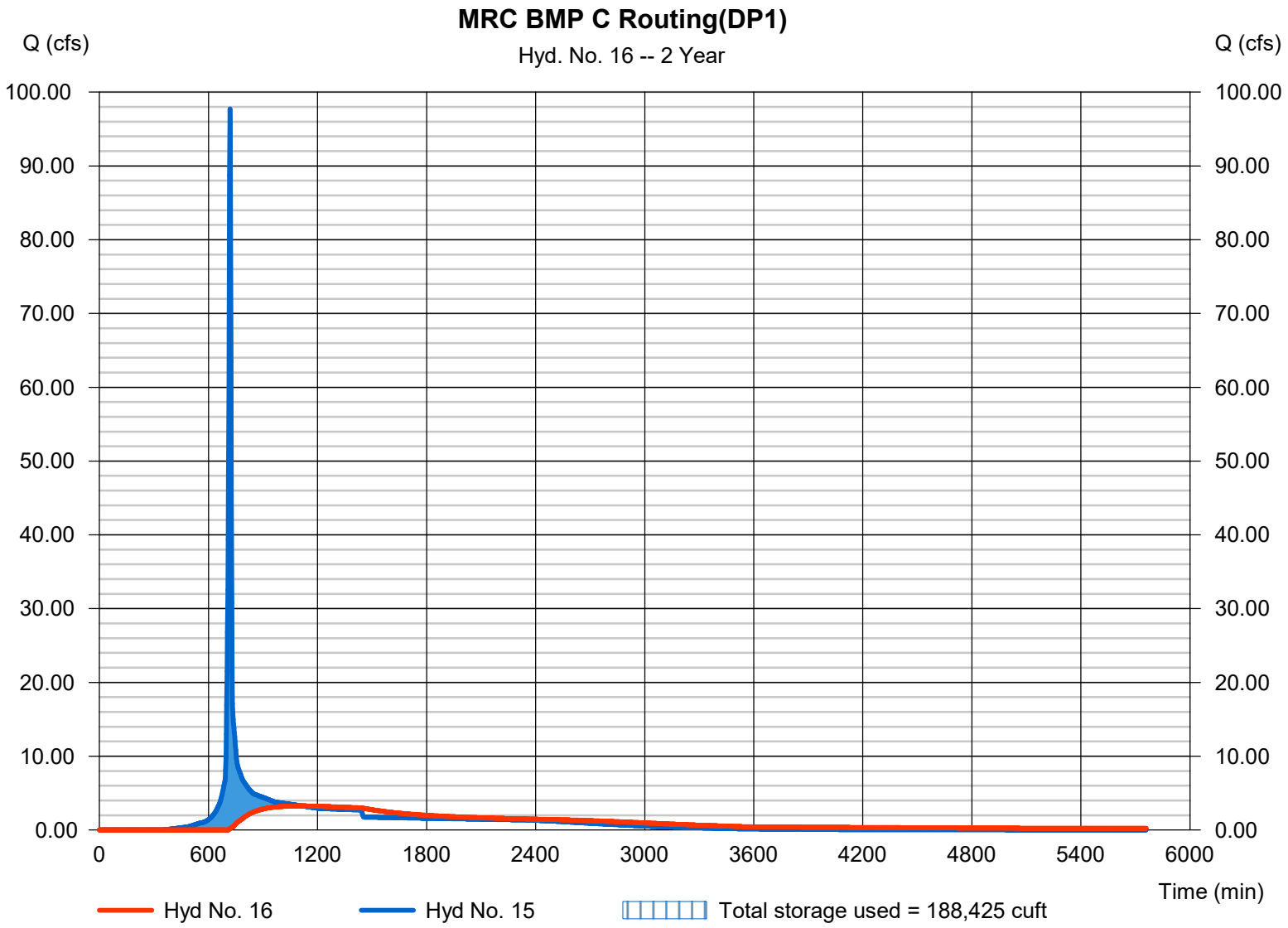
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	3.262 cfs
Storm frequency	=	2 yrs	Time to peak	=	1114 min
Time interval	=	2 min	Hyd. volume	=	340,474 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.84 ft
Reservoir name	=	BMP C	Max. Storage	=	188,425 cuft

Storage Indication method used.



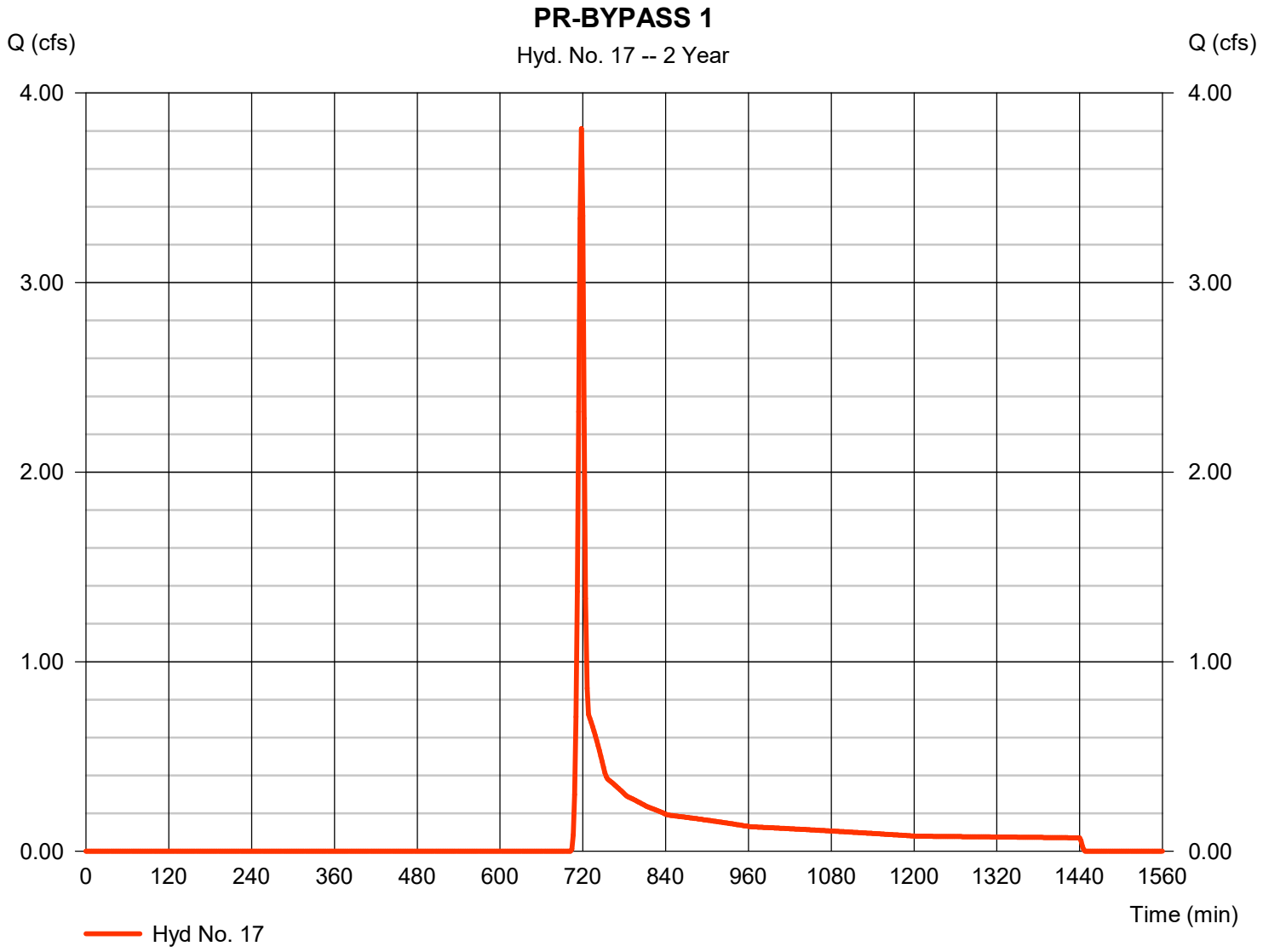
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.812 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	8,524 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



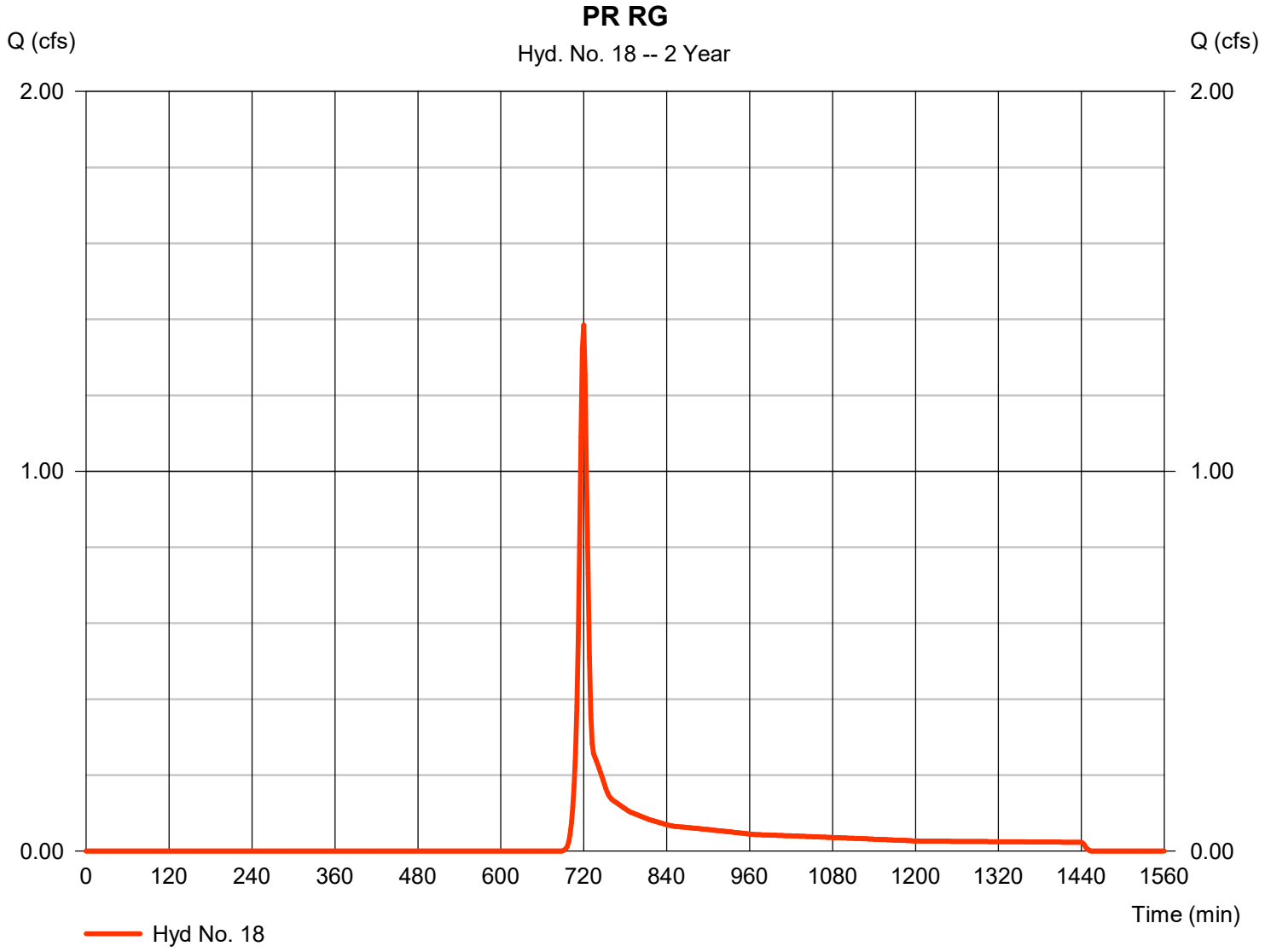
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.385 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	3,312 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



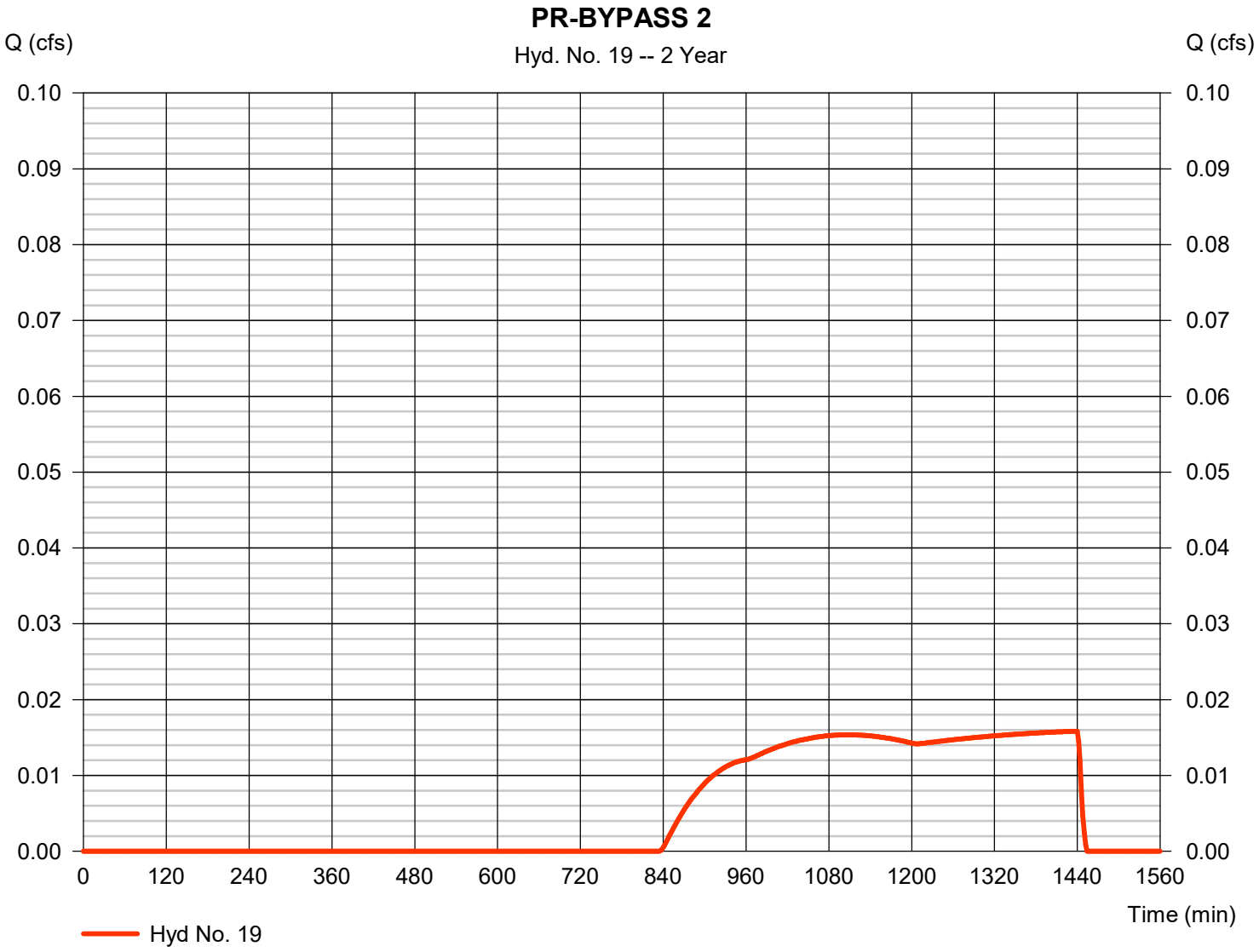
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.016 cfs
Storm frequency	= 2 yrs	Time to peak	= 1440 min
Time interval	= 2 min	Hyd. volume	= 491 cuft
Drainage area	= 5.600 ac	Curve number	= 45*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.50 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



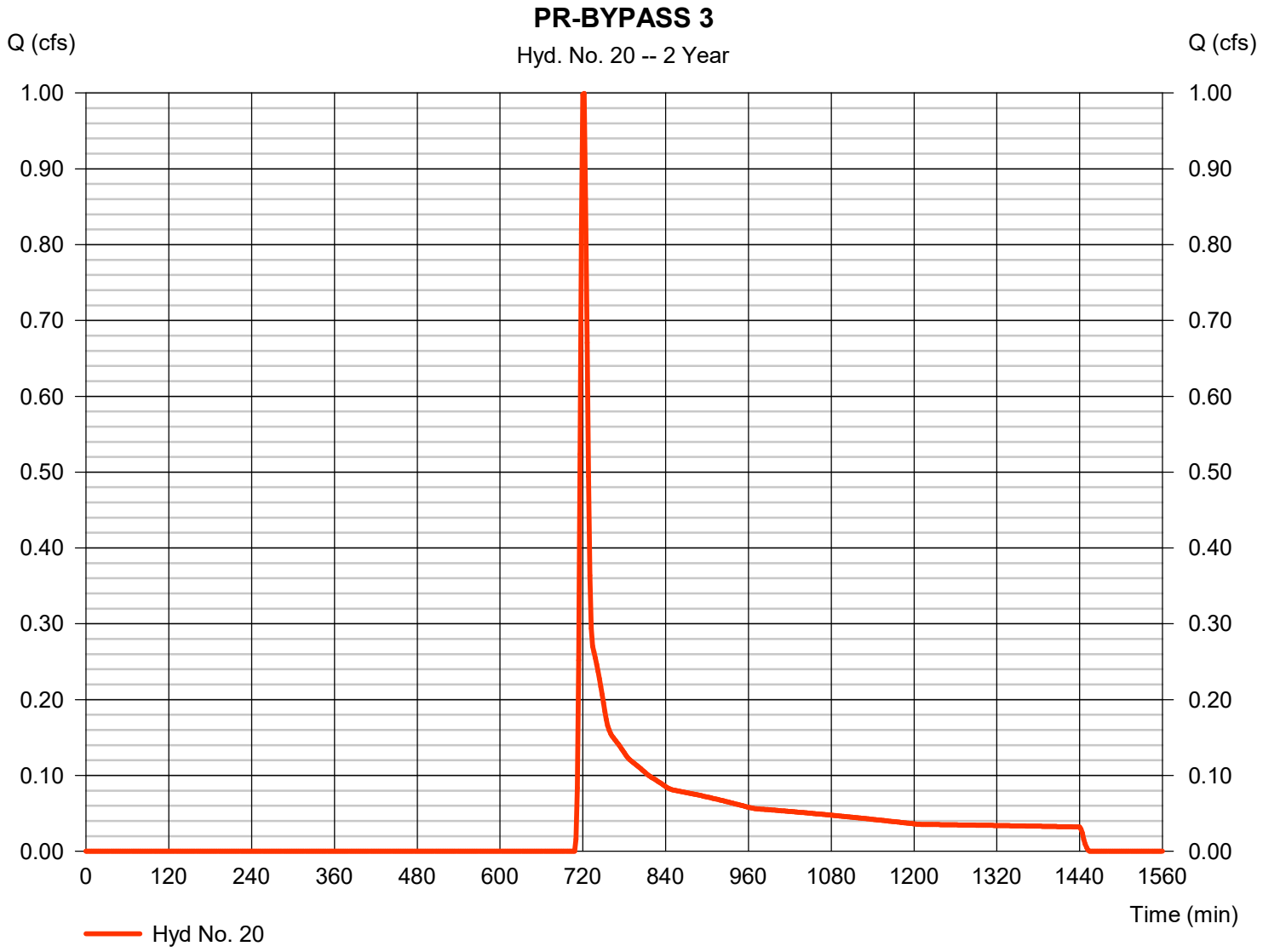
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.999 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	3,353 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

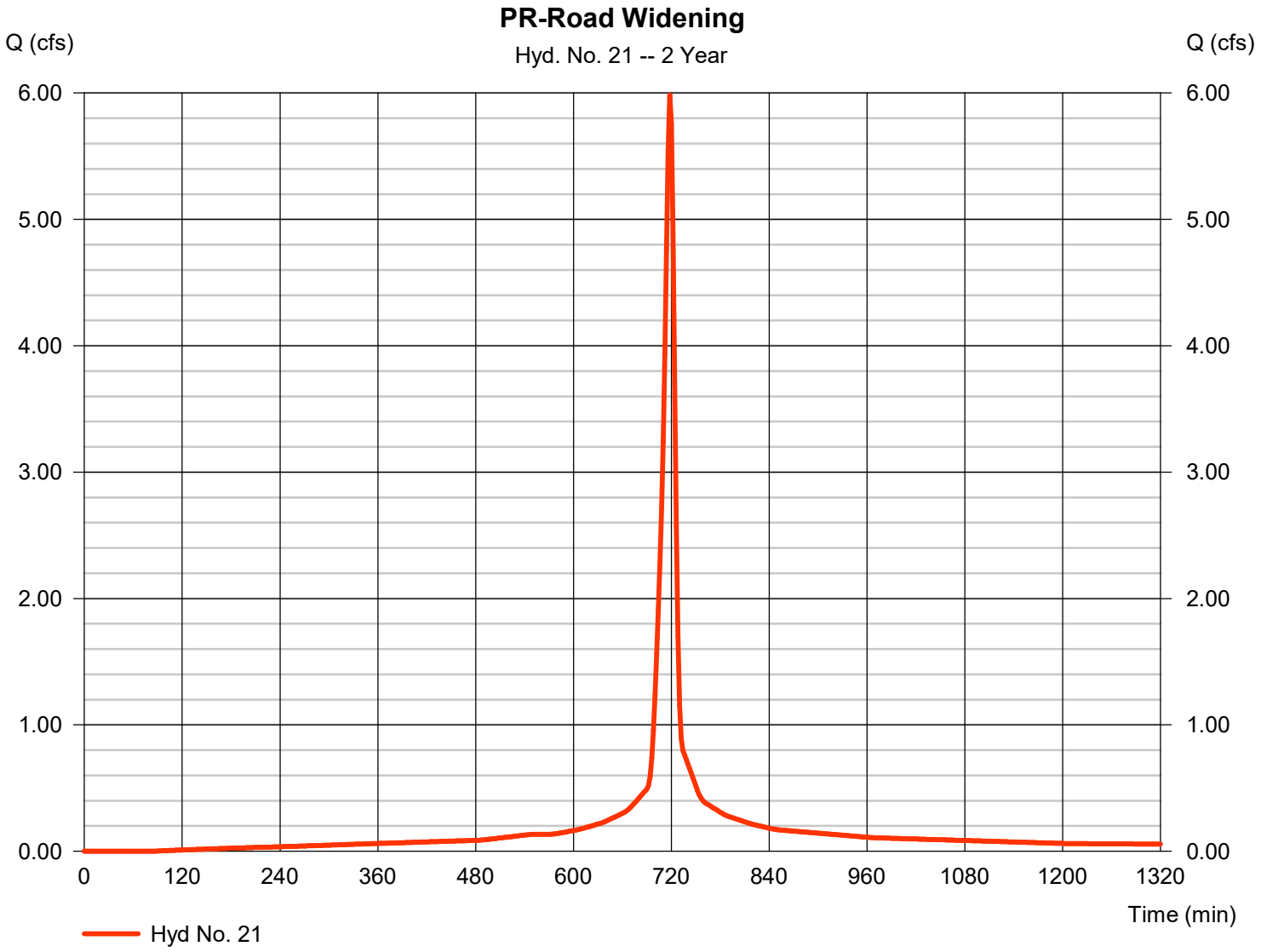


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.984 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	15,576 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

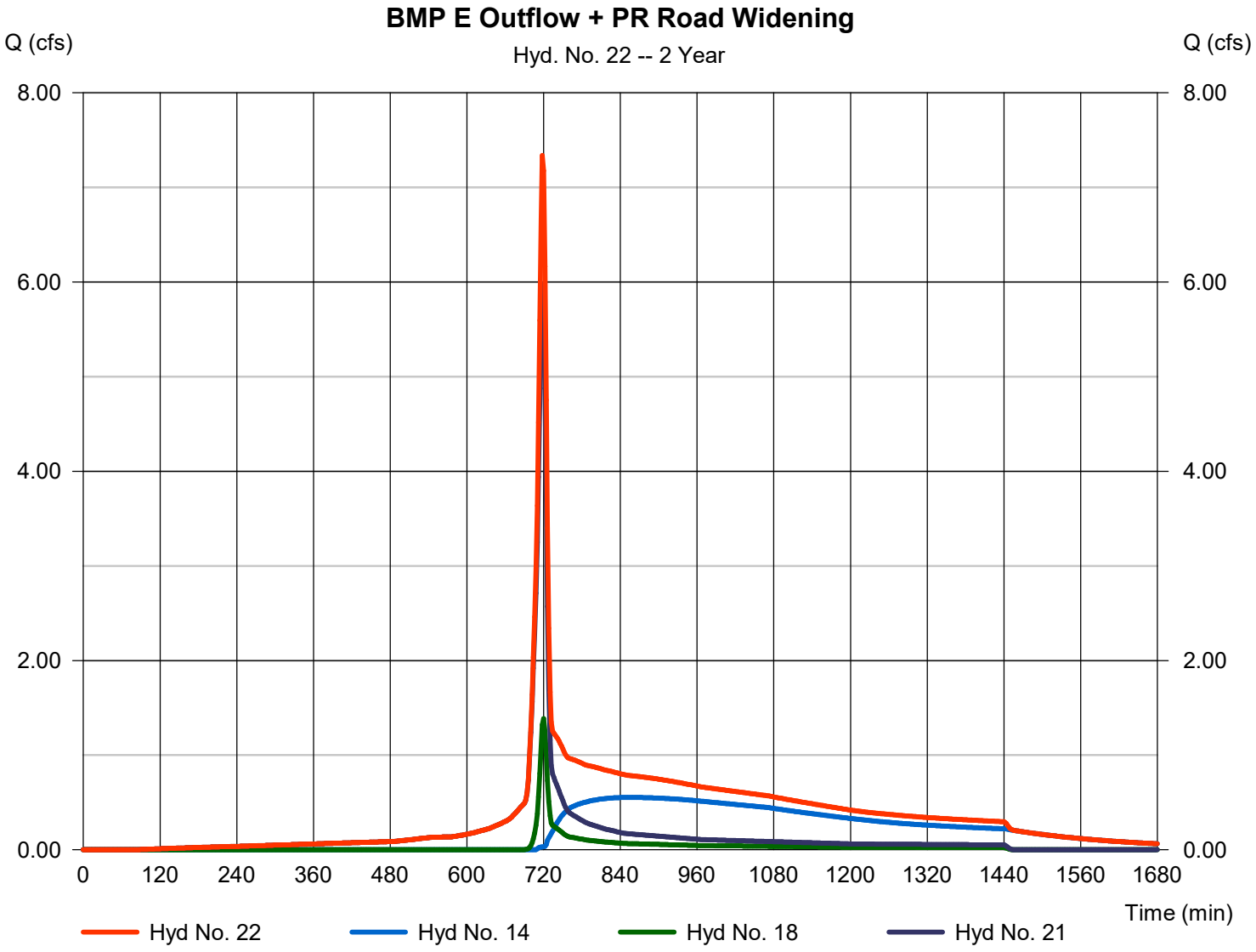


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	7.336 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	45,324 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



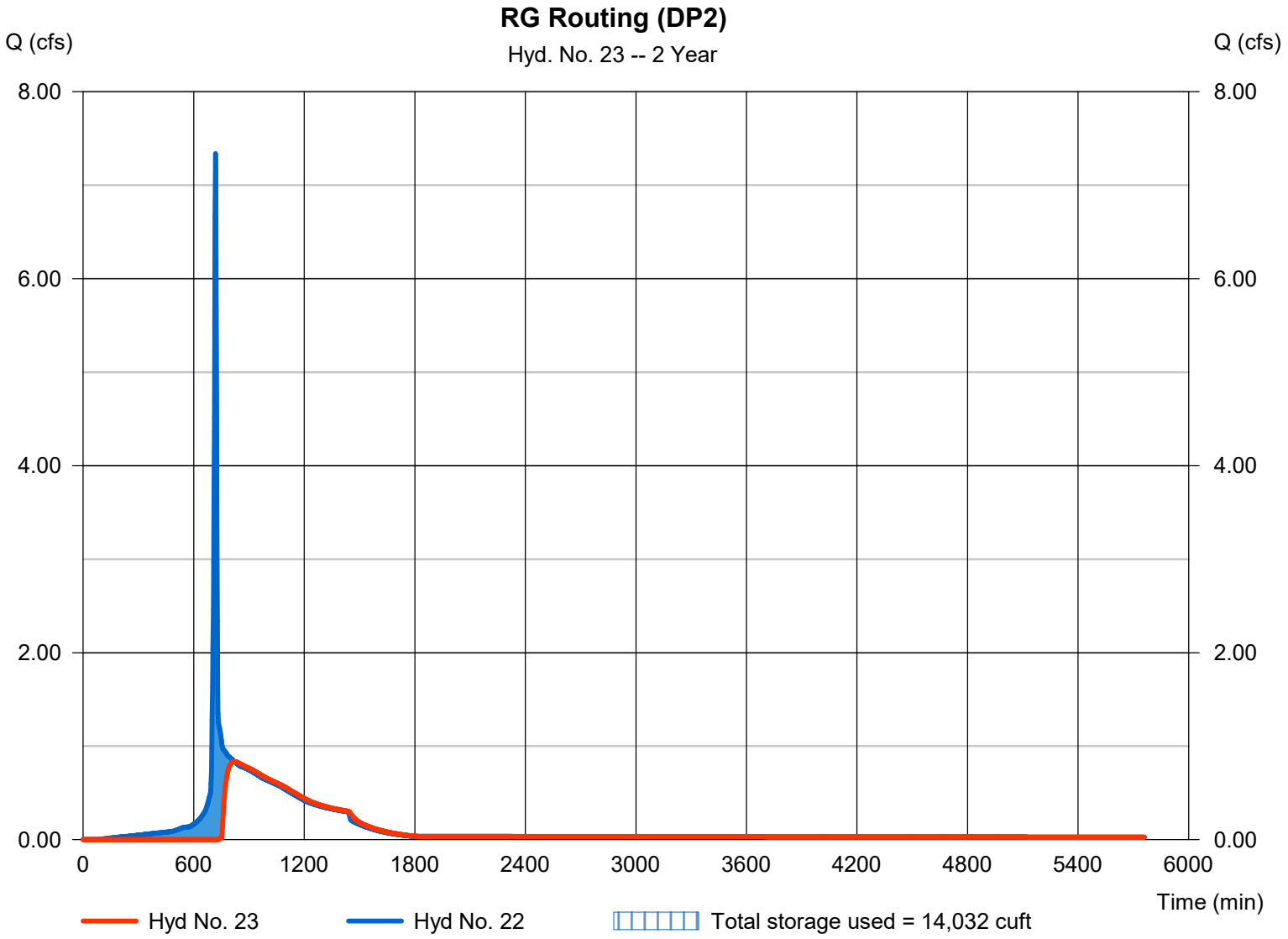
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	0.835 cfs
Storm frequency	=	2 yrs	Time to peak	=	822 min
Time interval	=	2 min	Hyd. volume	=	32,310 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.74 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,032 cuft

Storage Indication method used.

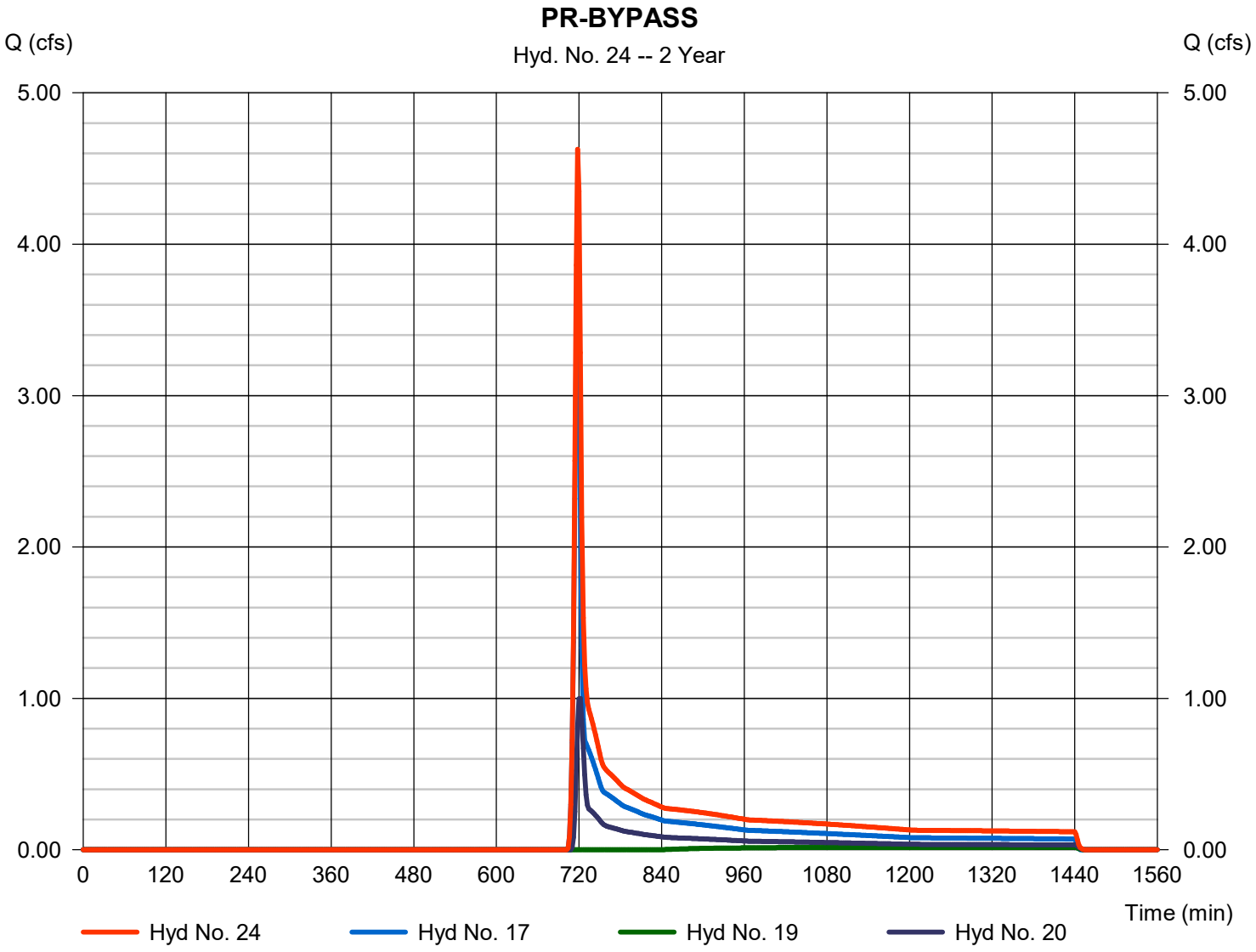


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	4.628 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	12,368 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

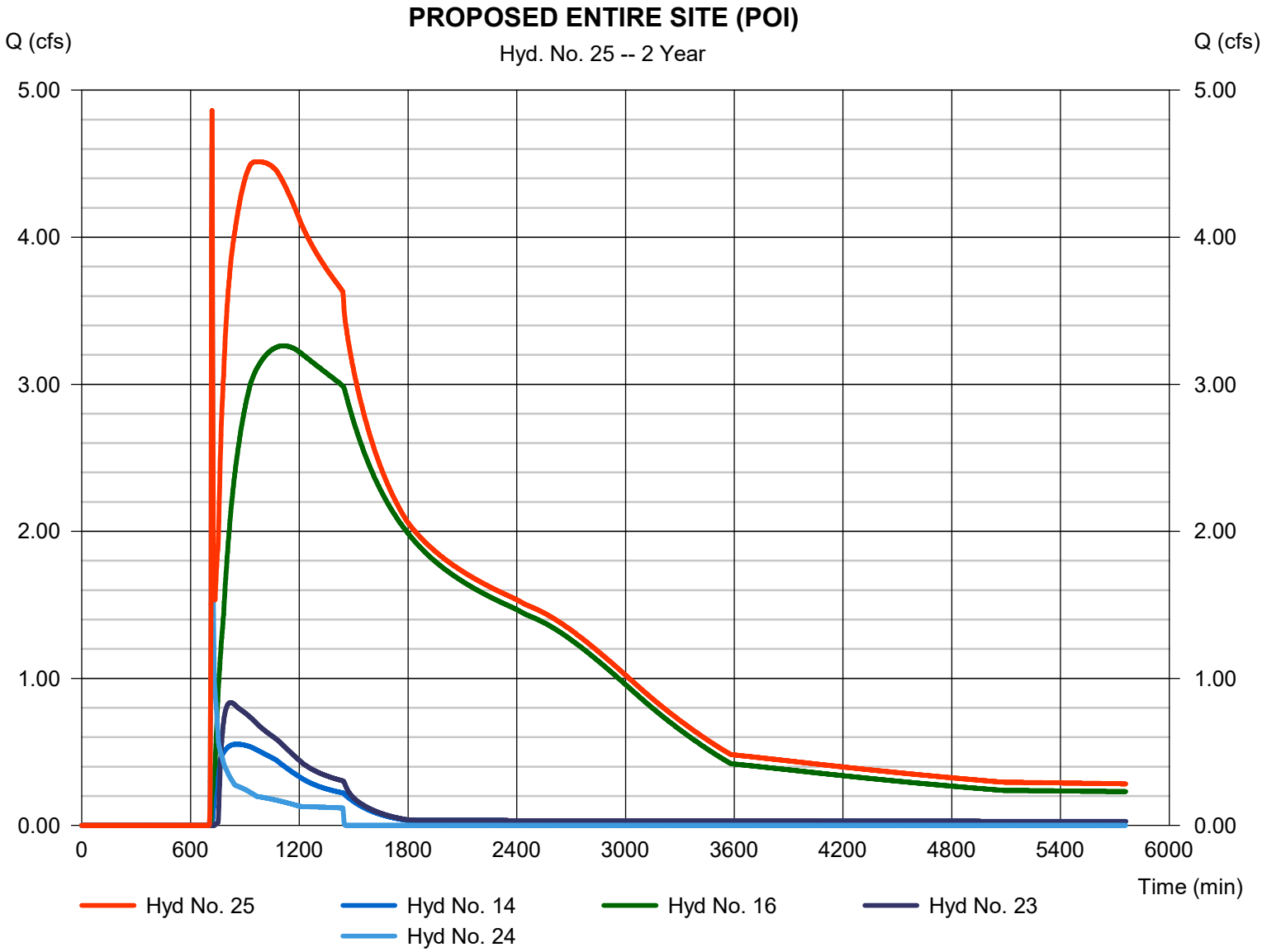


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 4.863 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 411,587 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

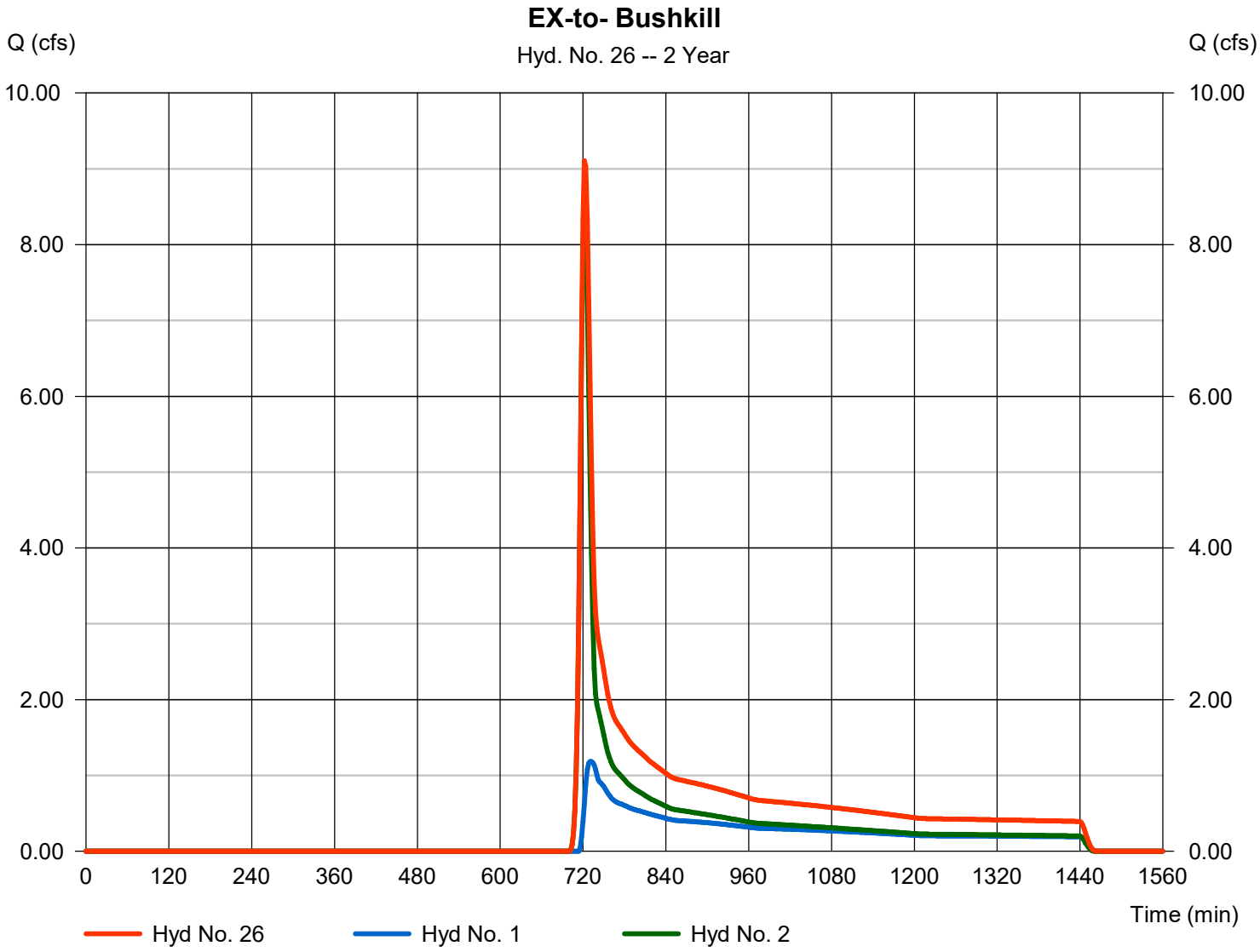


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 9.106 cfs
Storm frequency	= 2 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 40,163 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

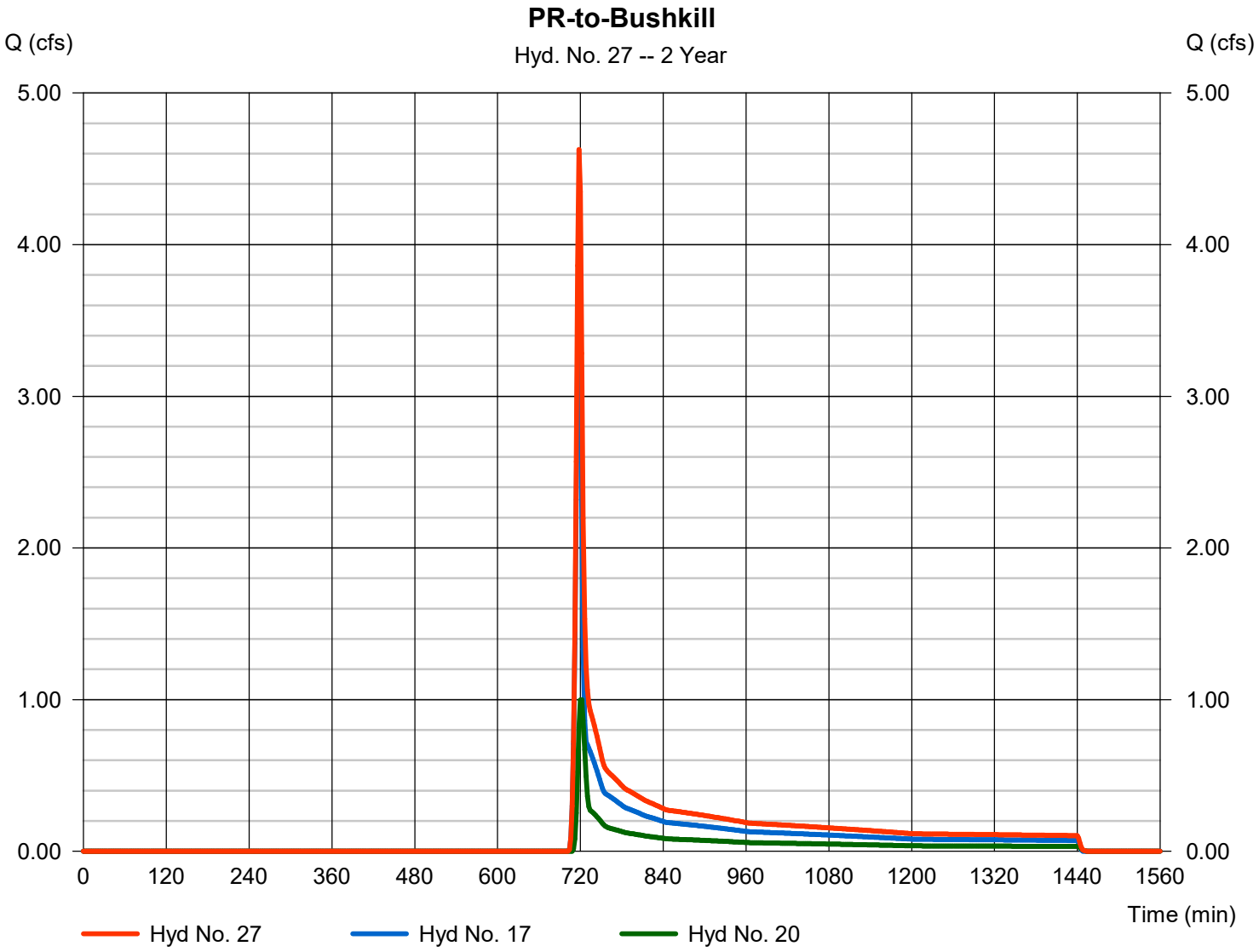


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 4.628 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 11,877 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

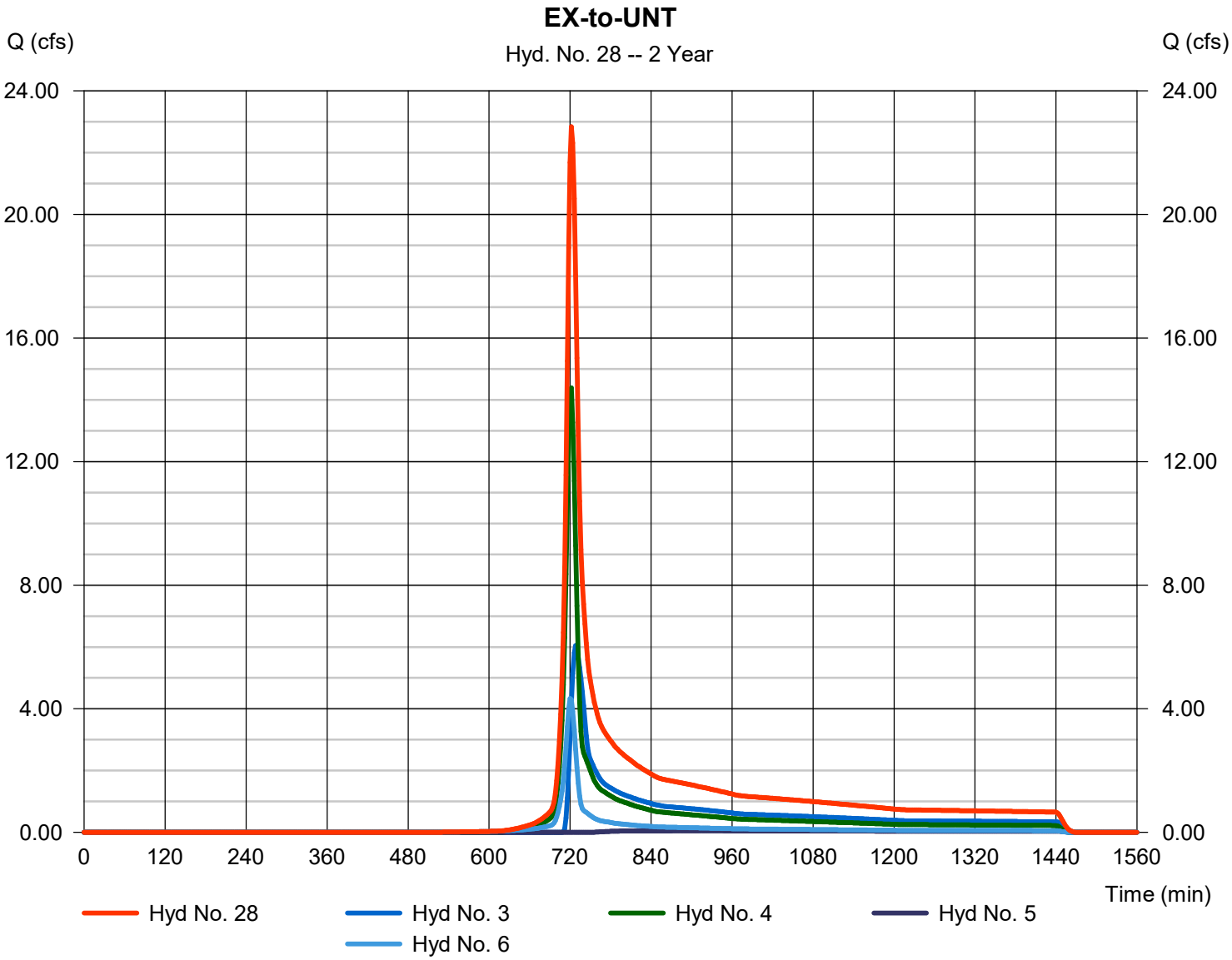


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	=	Combine	Peak discharge	=	22.84 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	85,096 cuft
Inflow hyds.	=	3, 4, 5, 6	Contrib. drain. area	=	47.330 ac

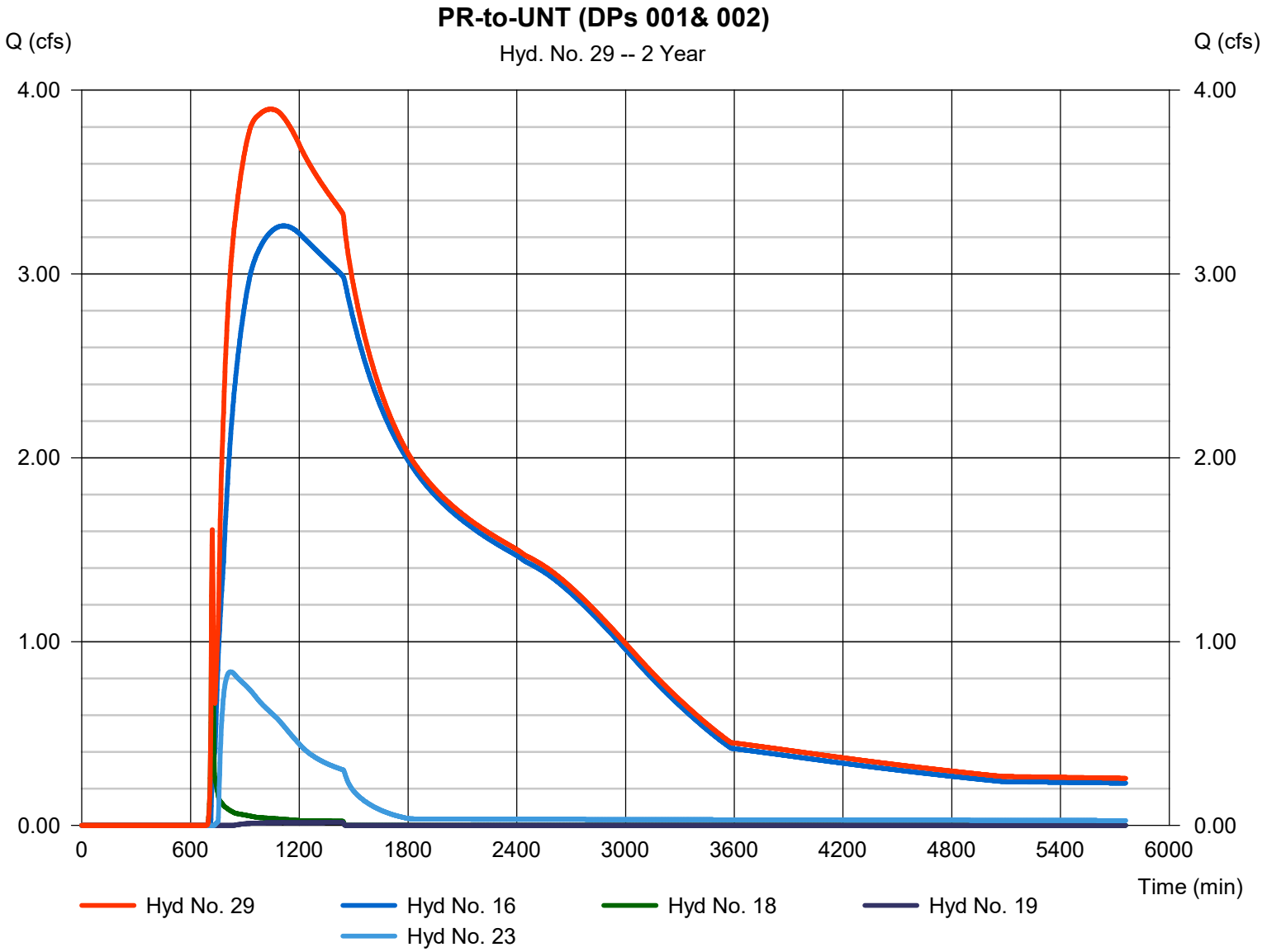


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 3.897 cfs
Storm frequency	= 2 yrs	Time to peak	= 1042 min
Time interval	= 2 min	Hyd. volume	= 376,587 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.145	2	726	29,069	------	------	------	EX-DA 1
2	SCS Runoff	14.28	2	722	39,921	------	------	------	EX-DA2
3	SCS Runoff	13.66	2	728	59,056	------	------	------	EX-DA3
4	SCS Runoff	20.23	2	720	52,845	------	------	------	EX-DA4
5	SCS Runoff	0.282	2	744	4,911	------	------	------	EX-DA5
6	SCS Runoff	5.779	2	720	14,990	------	------	------	EX-DA-Road Widening
7	Combine	55.33	2	722	200,793	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	58.85	2	716	132,679	------	------	------	PR-DA-A
9	SCS Runoff	74.37	2	716	167,667	------	------	------	PR-DA-B
10	SCS Runoff	121.84	2	718	286,478	------	------	------	PR-DA-C
11	Reservoir	0.774	2	1070	119,802	8	290.80	102,366	BMP A Routing
12	Reservoir	1.234	2	960	155,928	9	287.09	123,052	BMP B Routing
13	SCS Runoff	22.97	2	716	46,370	------	------	------	PR-DA-E
14	Reservoir	0.895	2	820	38,940	13	258.00	26,576	BMP E Routing
15	Combine	123.55	2	718	562,207	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	4.648	2	946	453,632	15	217.07	215,254	MRC BMP C Routing(DP1)
17	SCS Runoff	6.515	2	718	13,561	------	------	------	PR-BYPASS 1
18	SCS Runoff	2.116	2	720	4,913	------	------	------	PR RG
19	SCS Runoff	0.066	2	798	2,029	------	------	------	PR-BYPASS 2
20	SCS Runoff	2.116	2	720	5,679	------	------	------	PR-BYPASS 3
21	SCS Runoff	7.211	2	718	18,940	------	------	------	PR-Road Widening
22	Combine	9.508	2	720	62,793	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	1.910	2	742	49,779	22	232.83	14,734	RG Routing (DP2)
24	Combine	8.420	2	718	21,268	17, 19, 20,	------	------	PR-BYPASS
25	Combine	8.867	2	718	563,621	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	18.35	2	722	68,991	1, 2,	------	------	EX-to- Bushkill
27	Combine	8.420	2	718	19,239	17, 20,	------	------	PR-to-Bushkill
28	Combine	36.98	2	722	131,802	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	5.896	2	892	510,353	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

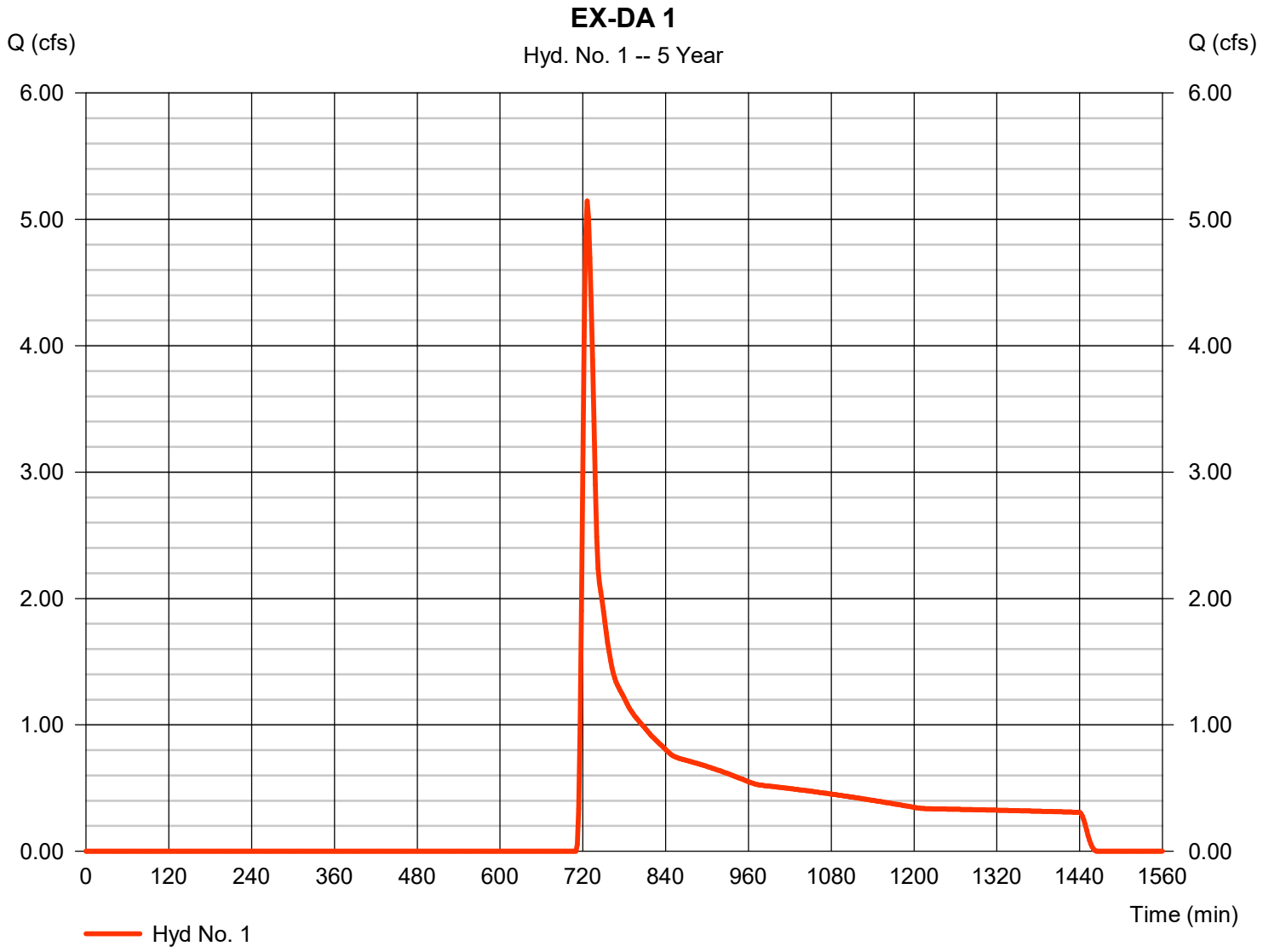
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.145 cfs
Storm frequency	=	5 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	29,069 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



Hydrograph Report

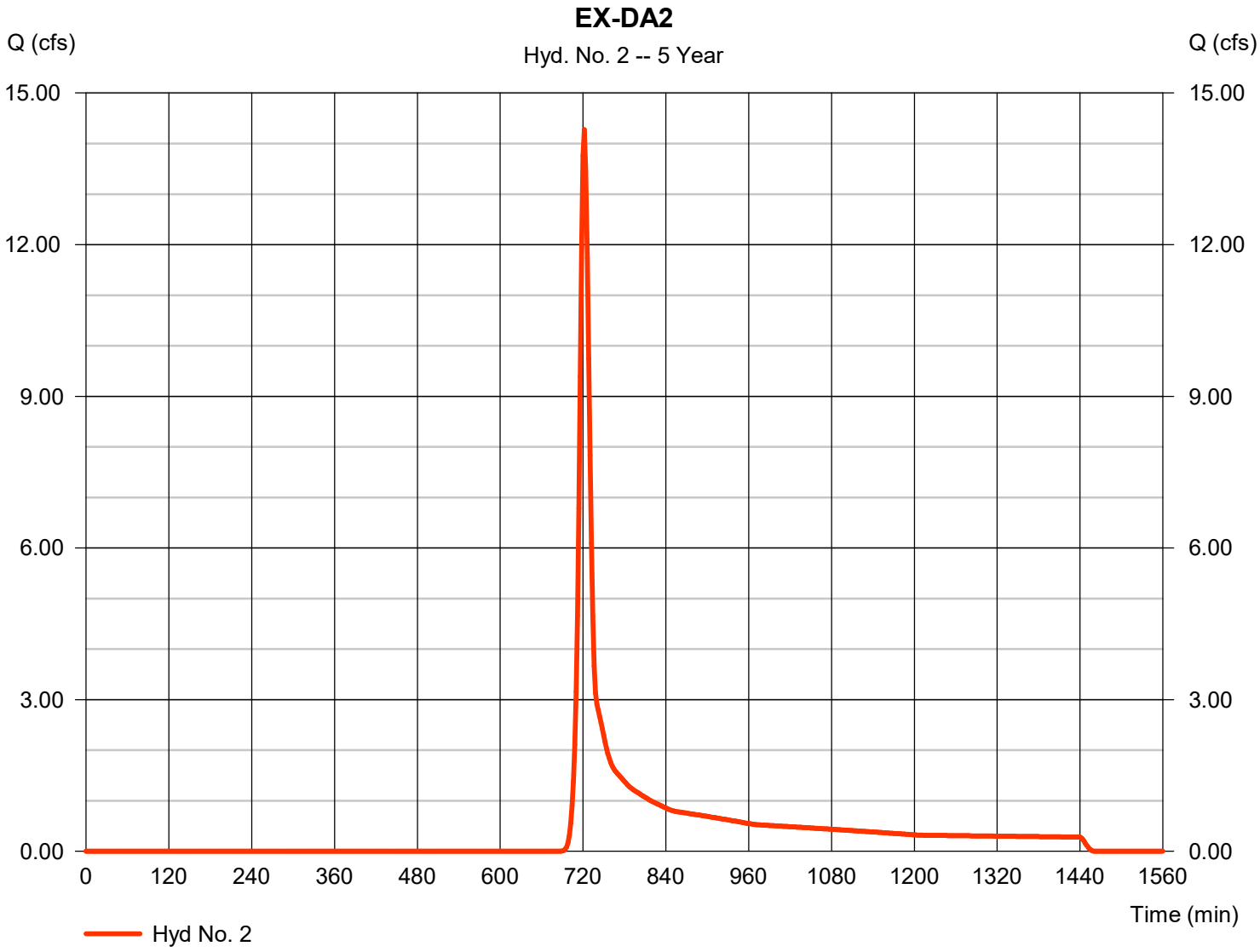
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.28 cfs
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	39,921 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



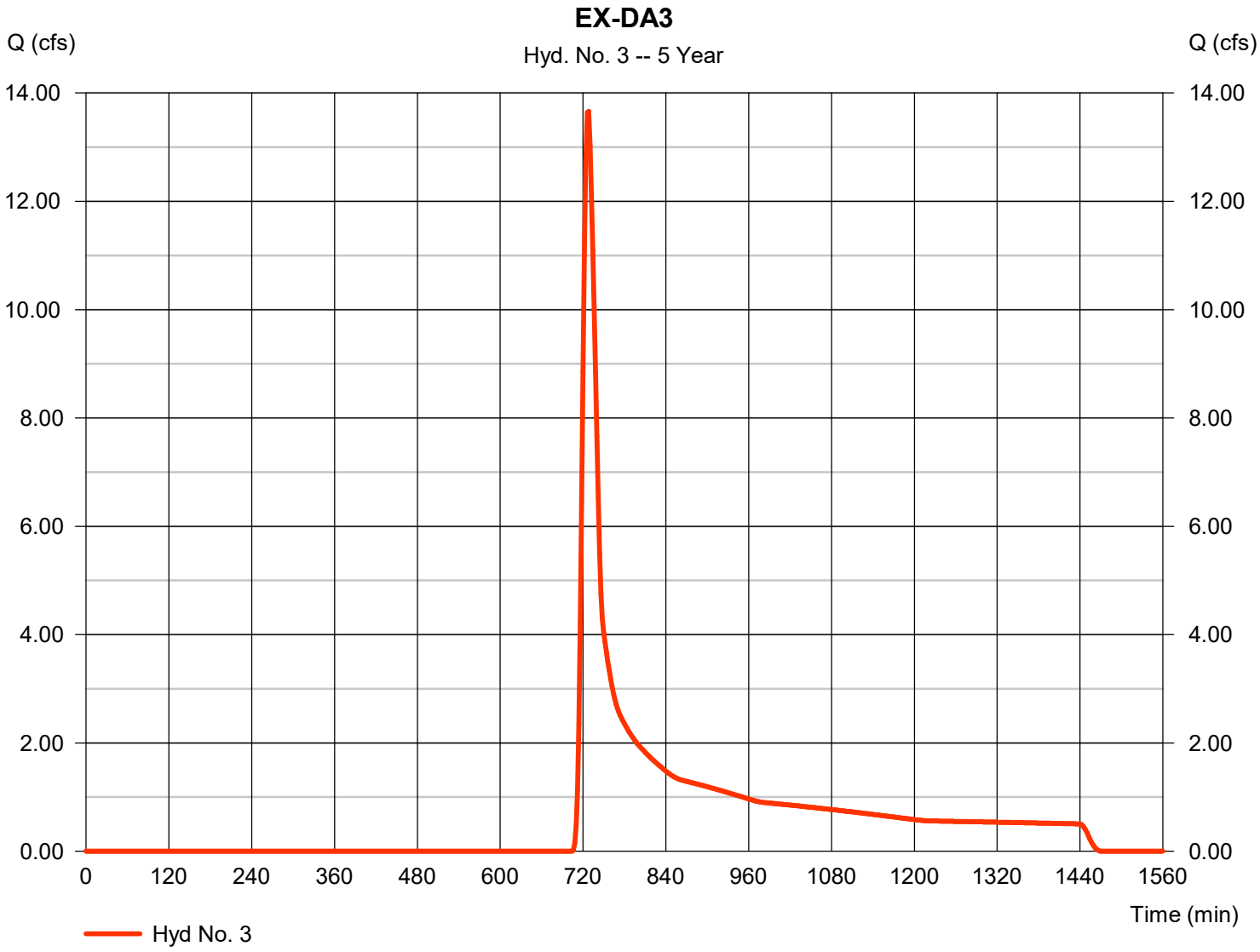
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.66 cfs
Storm frequency	=	5 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	59,056 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



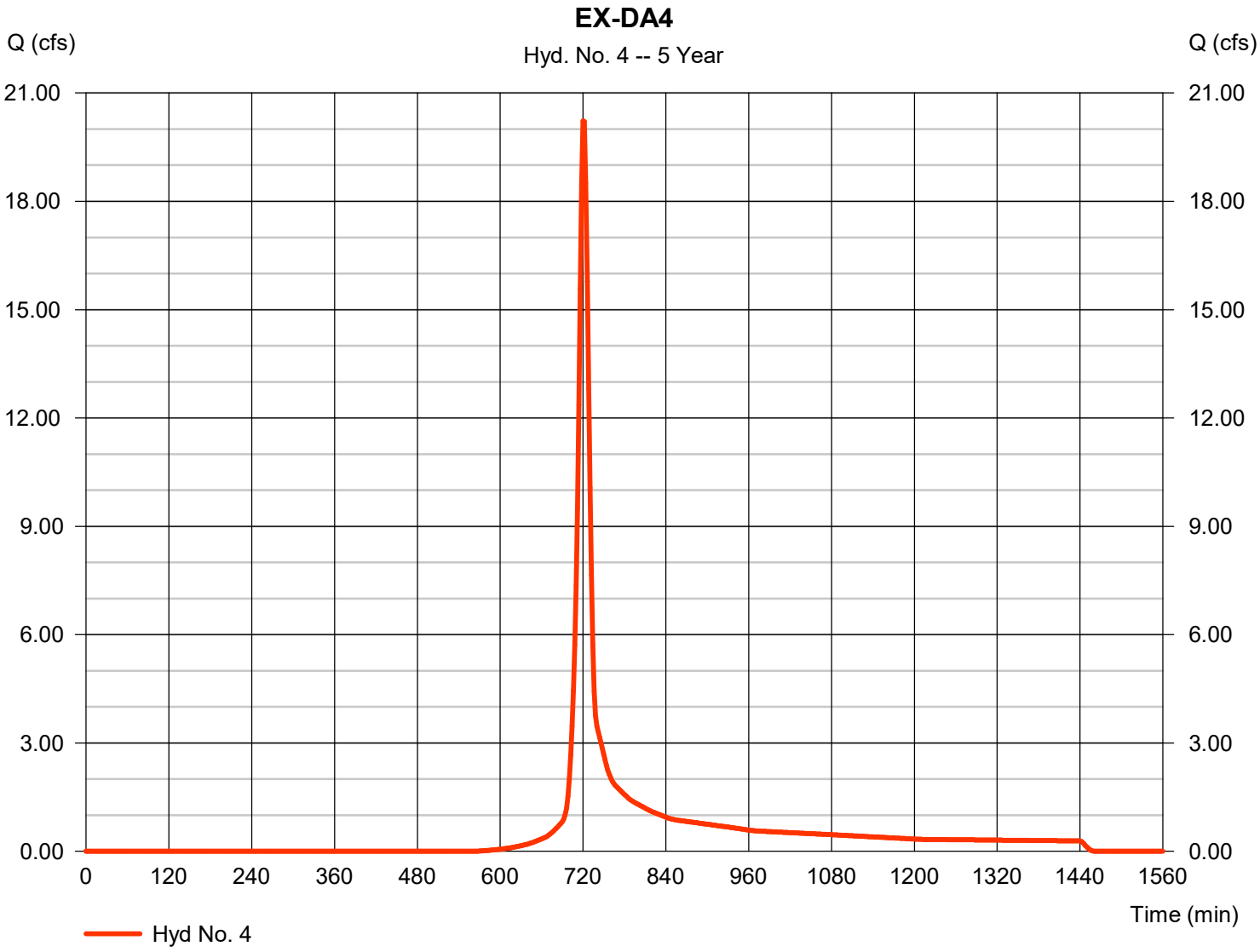
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.23 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	52,845 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



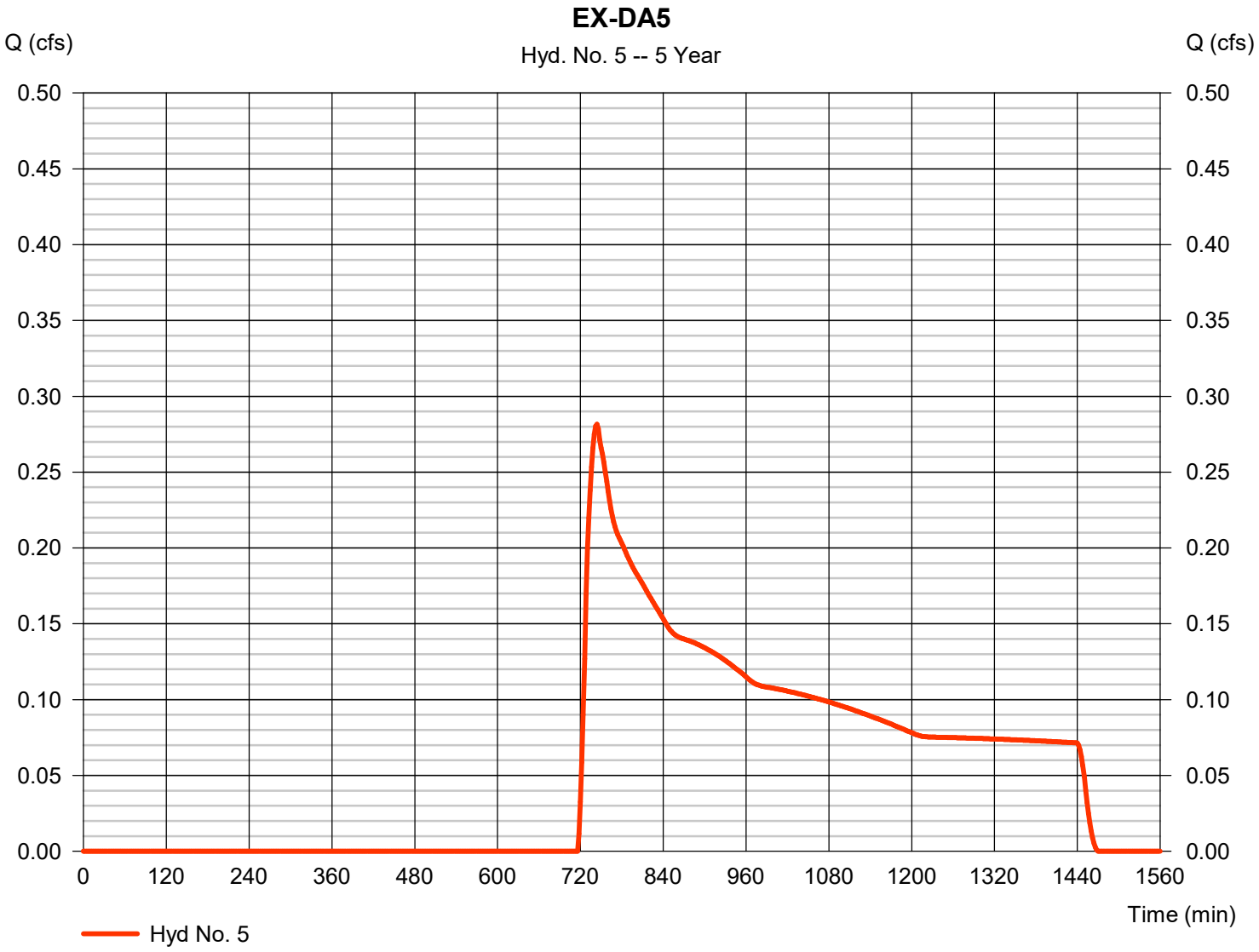
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.282 cfs
Storm frequency	=	5 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	4,911 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



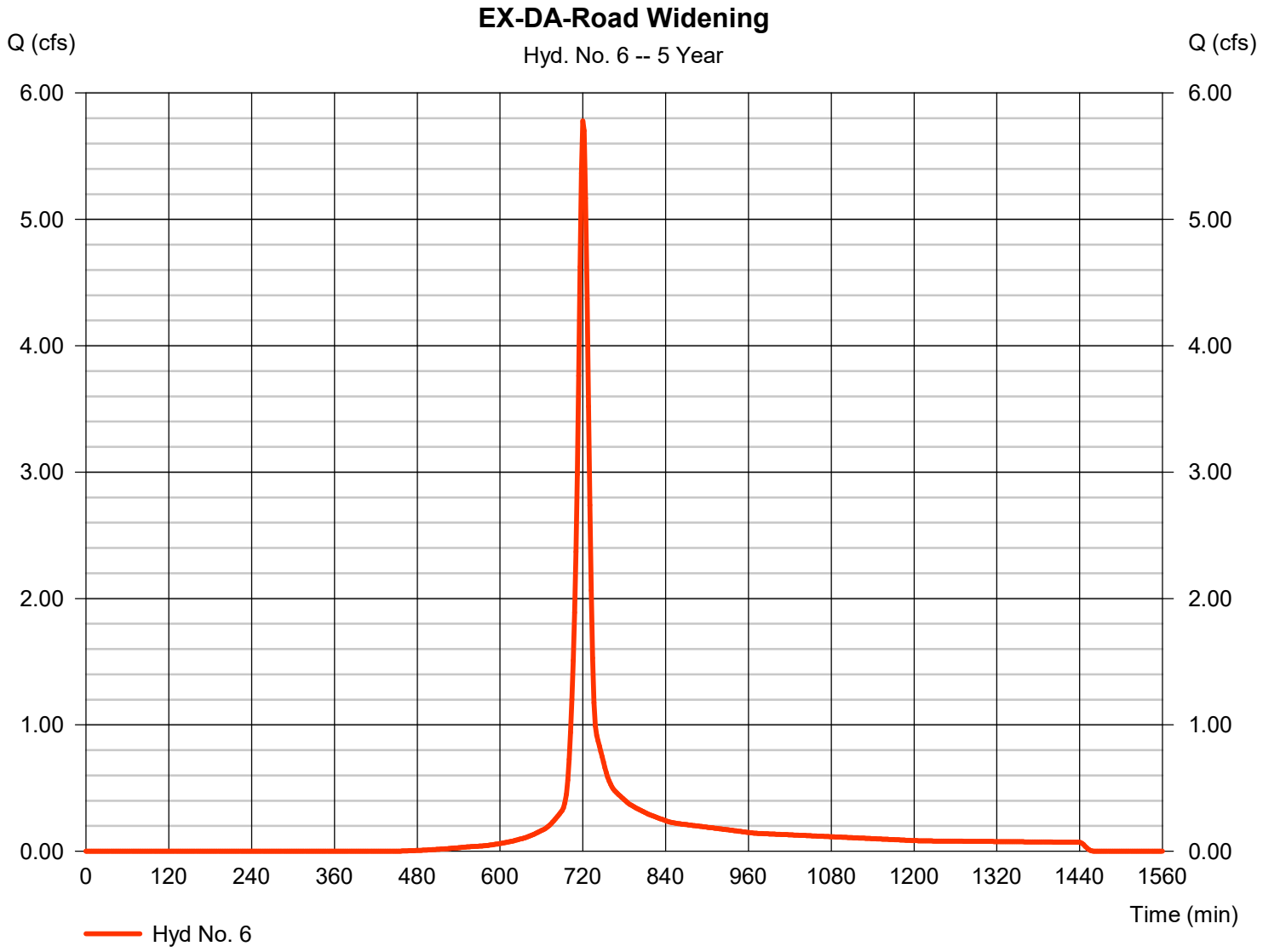
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.779 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	14,990 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

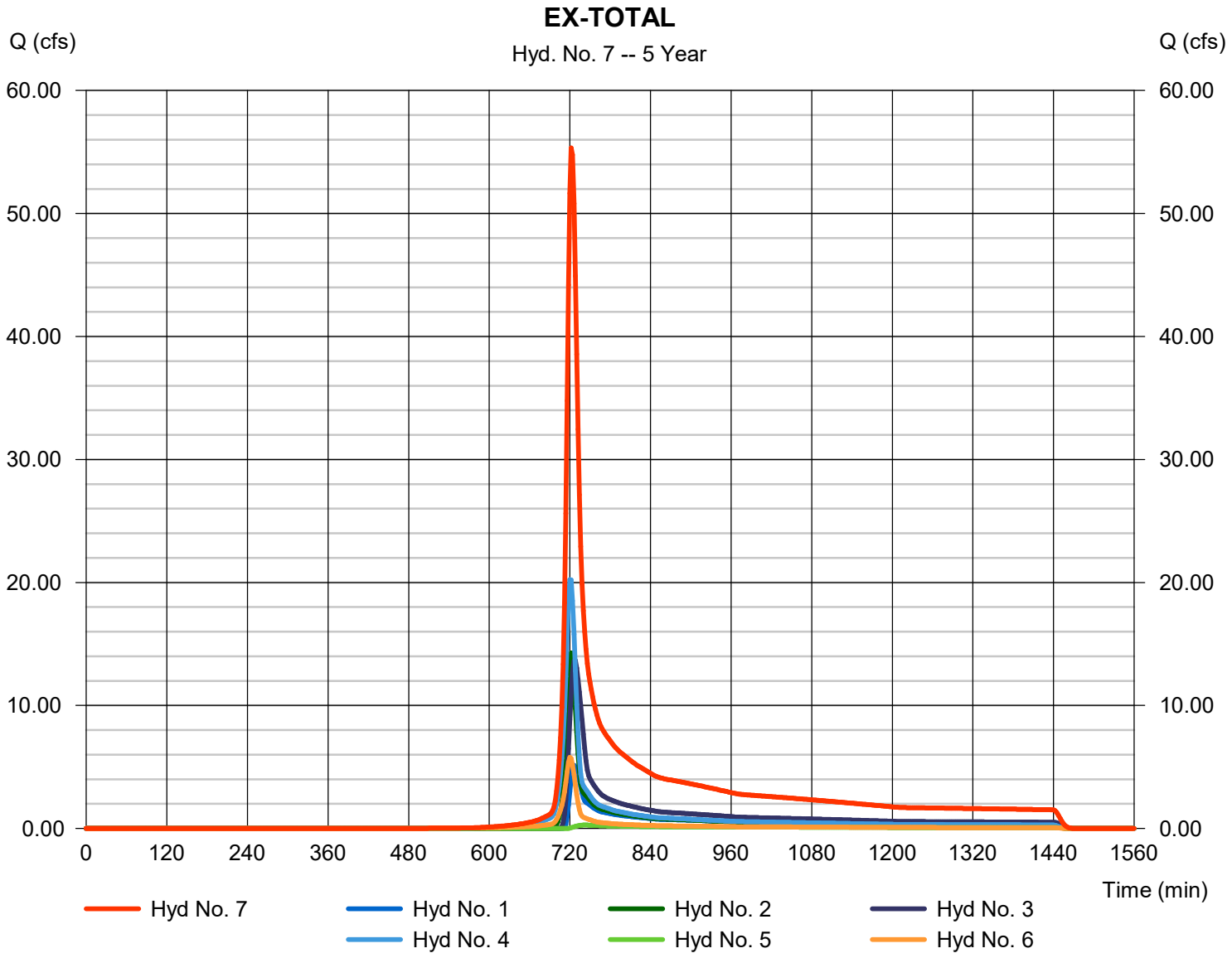


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	55.33 cfs
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	200,793 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



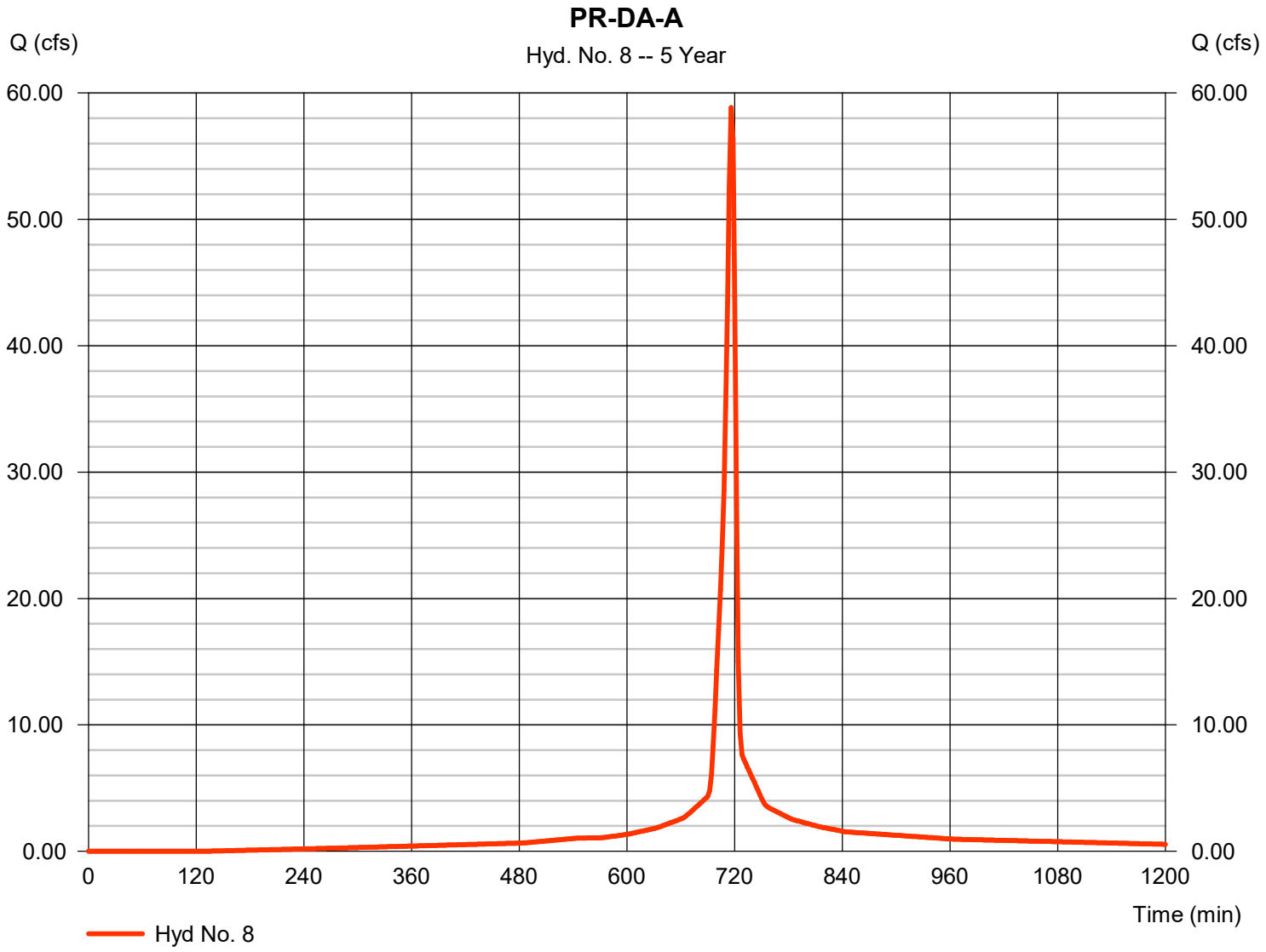
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	58.85 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	132,679 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



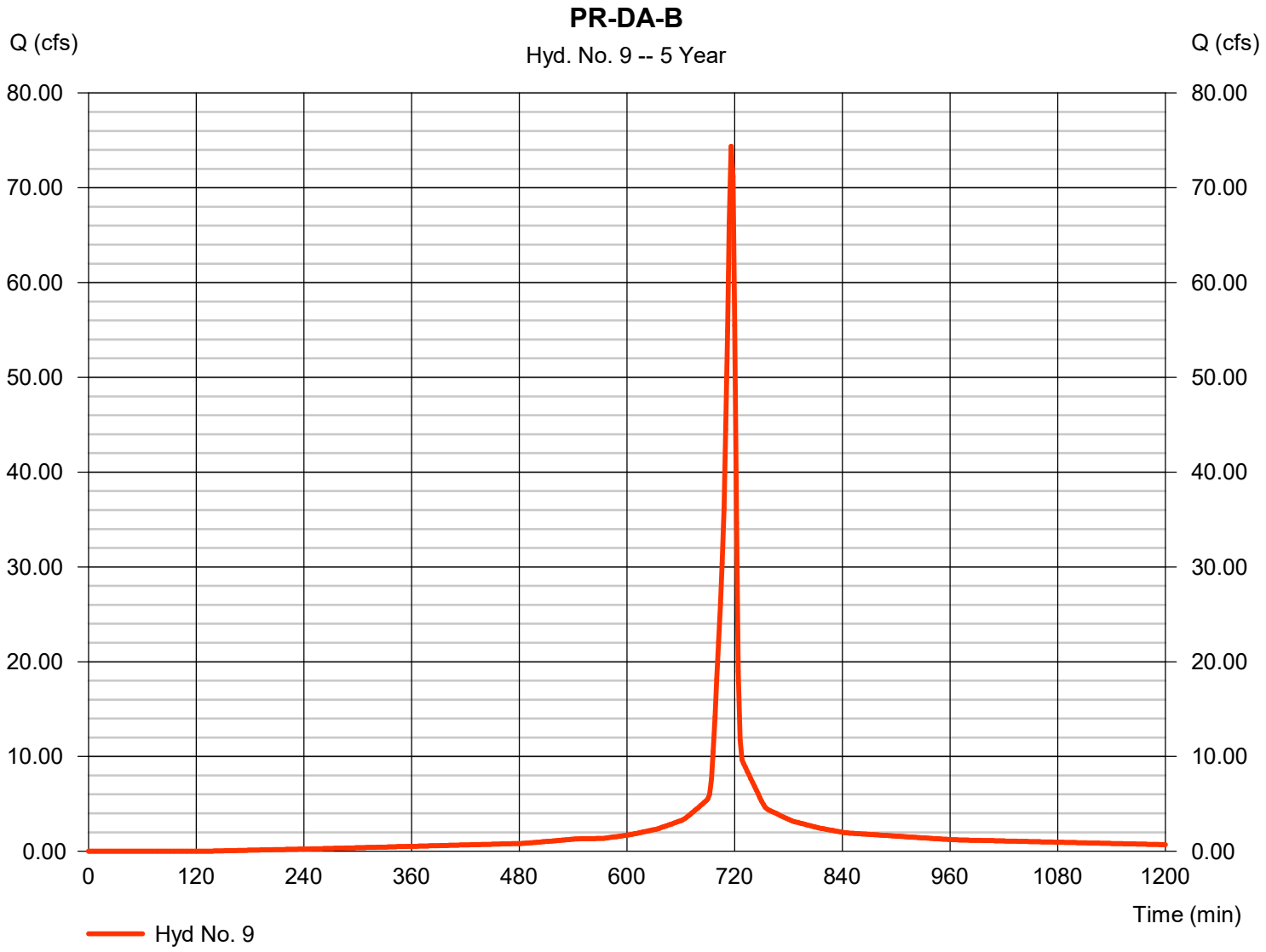
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	74.37 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	167,667 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



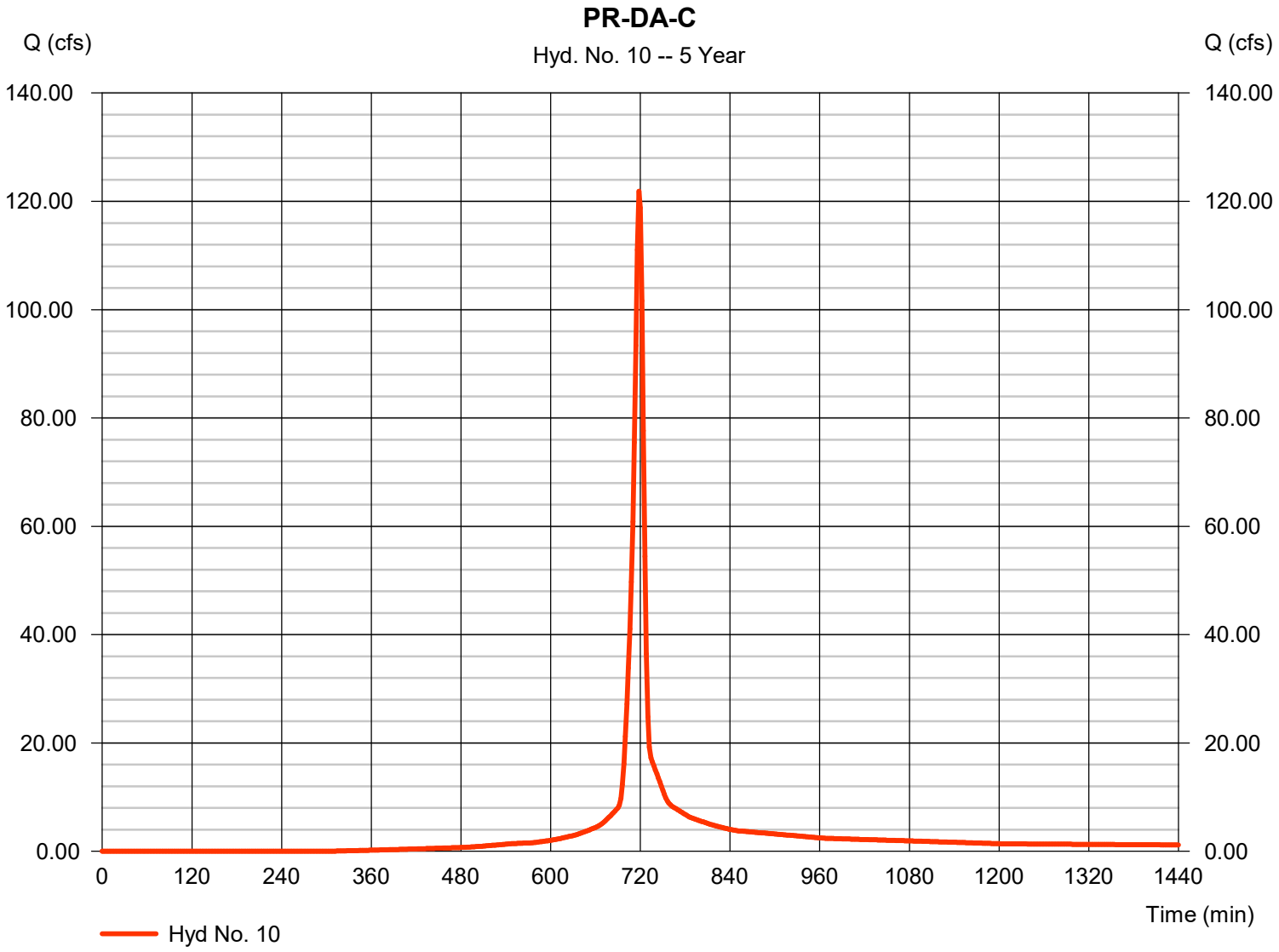
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	121.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	286,478 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



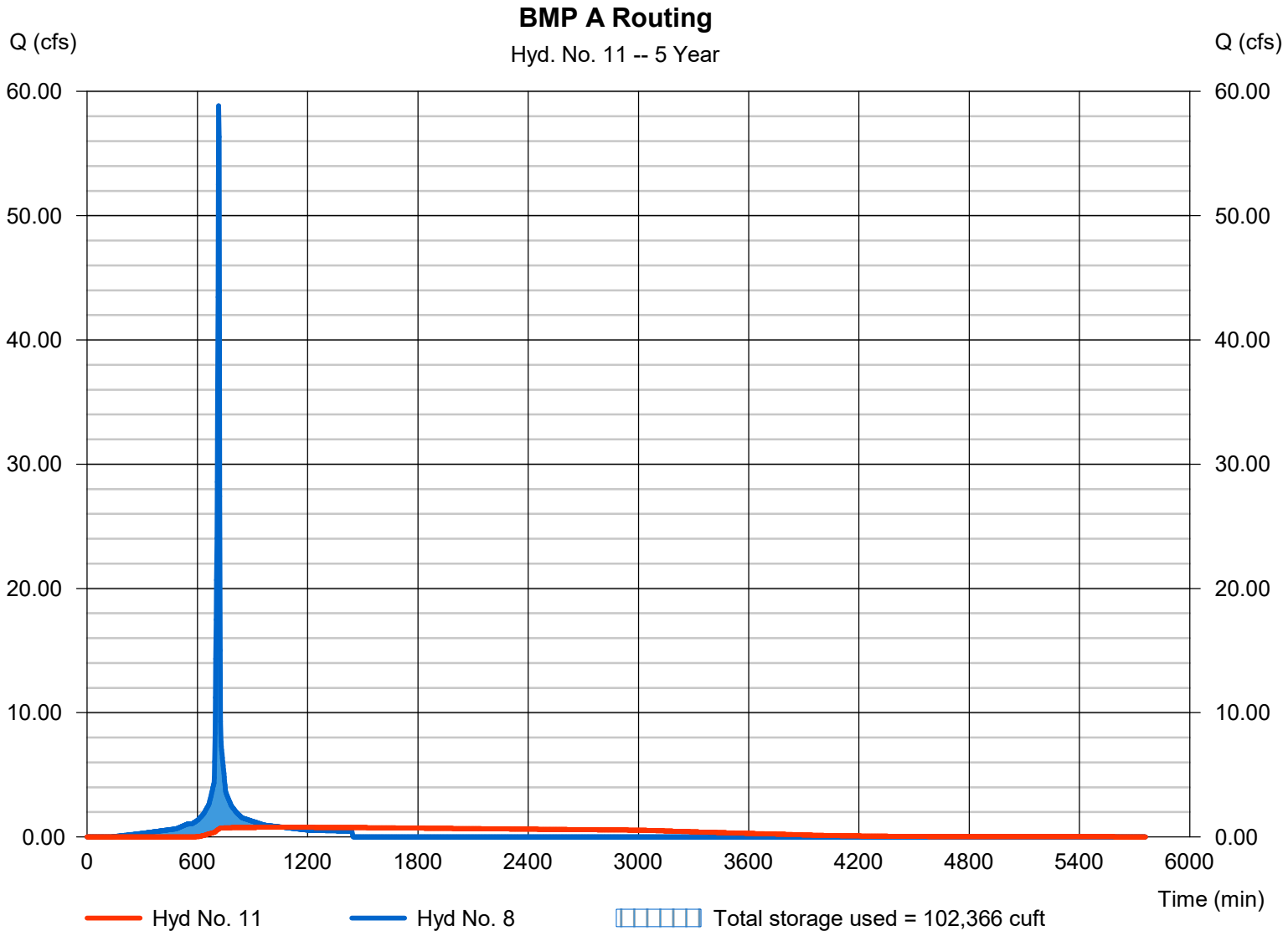
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.774 cfs
Storm frequency	=	5 yrs	Time to peak	=	1070 min
Time interval	=	2 min	Hyd. volume	=	119,802 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.80 ft
Reservoir name	=	BMP A	Max. Storage	=	102,366 cuft

Storage Indication method used.



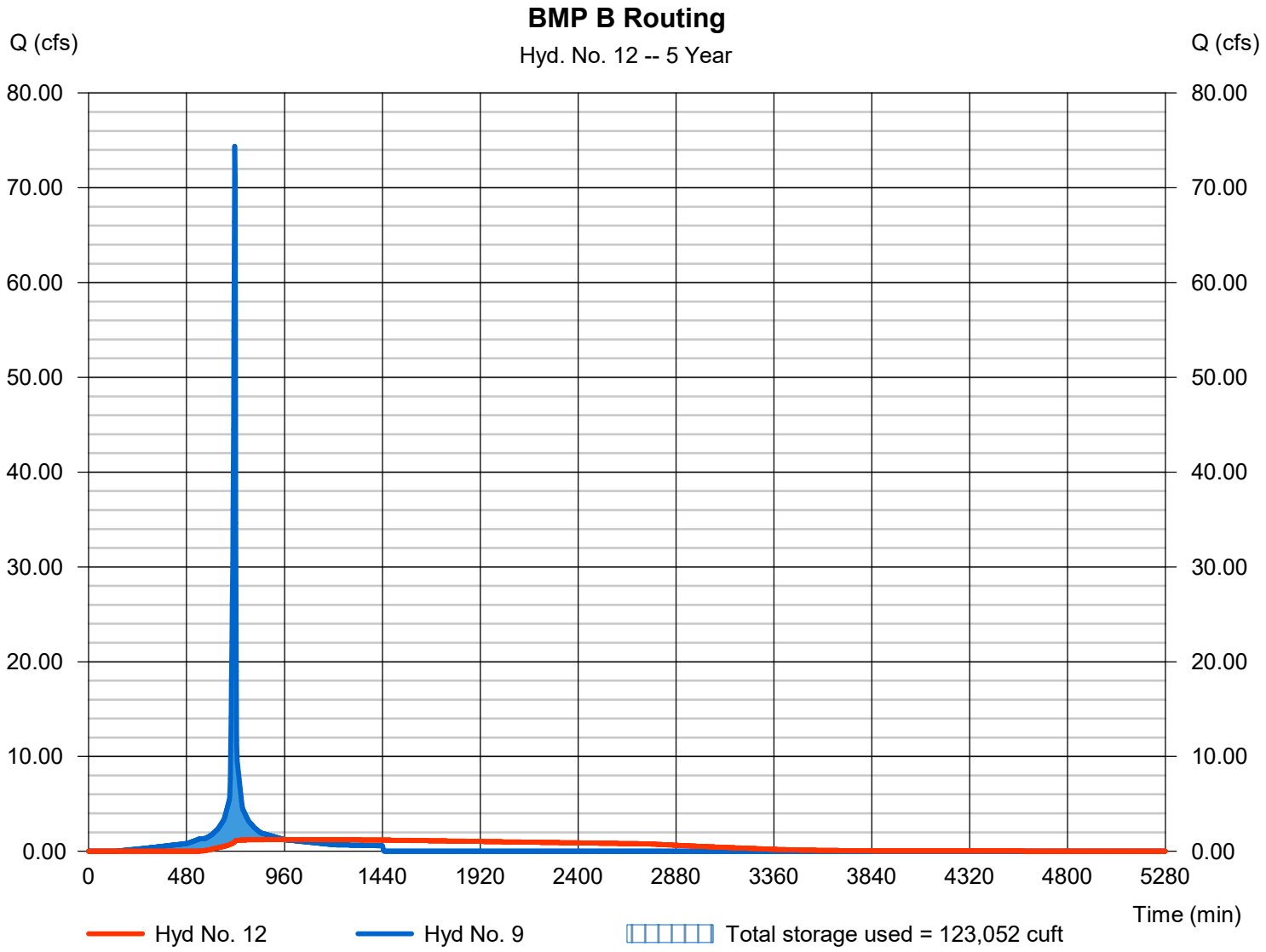
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.234 cfs
Storm frequency	=	5 yrs	Time to peak	=	960 min
Time interval	=	2 min	Hyd. volume	=	155,928 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.09 ft
Reservoir name	=	BMP B	Max. Storage	=	123,052 cuft

Storage Indication method used.



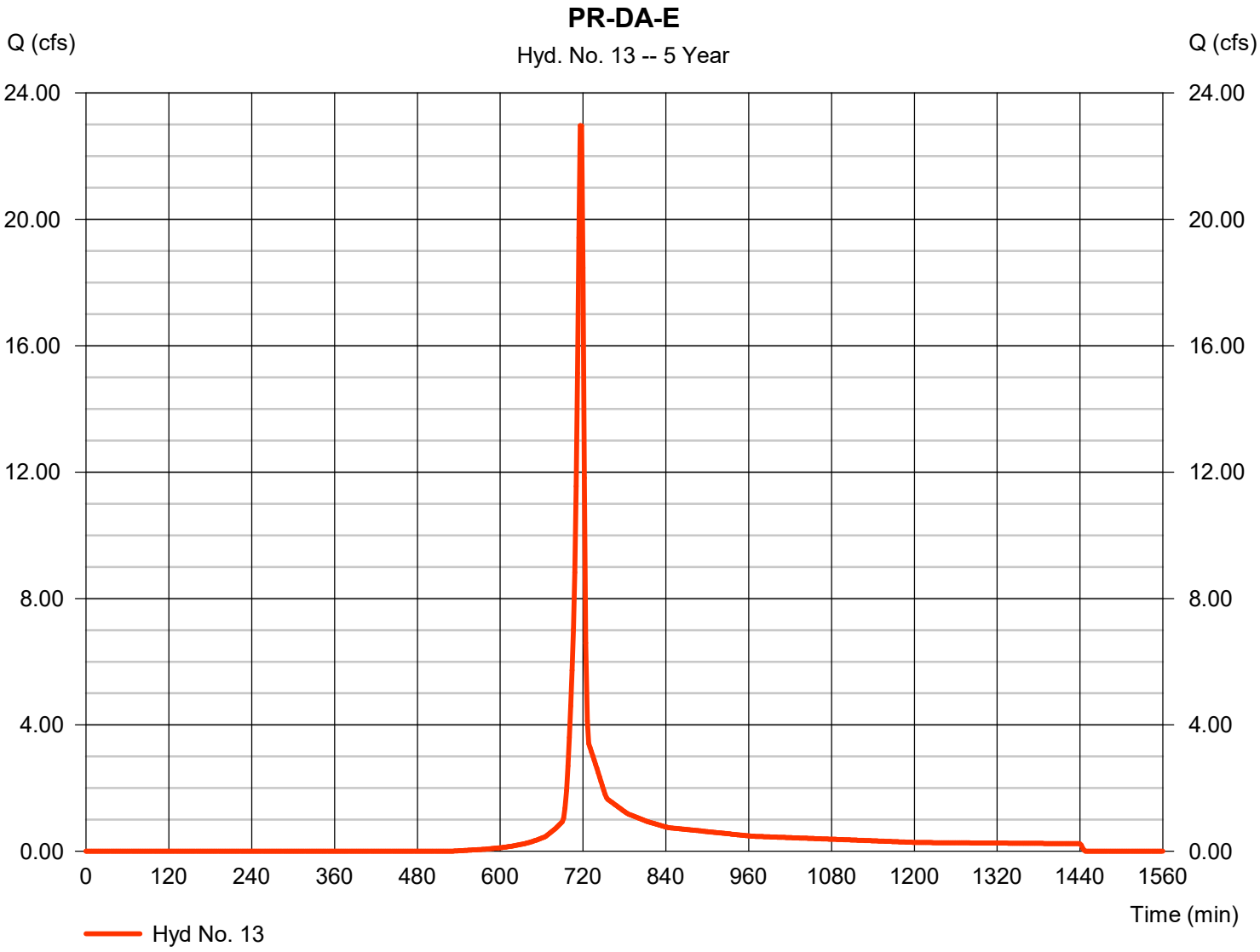
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.97 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	46,370 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



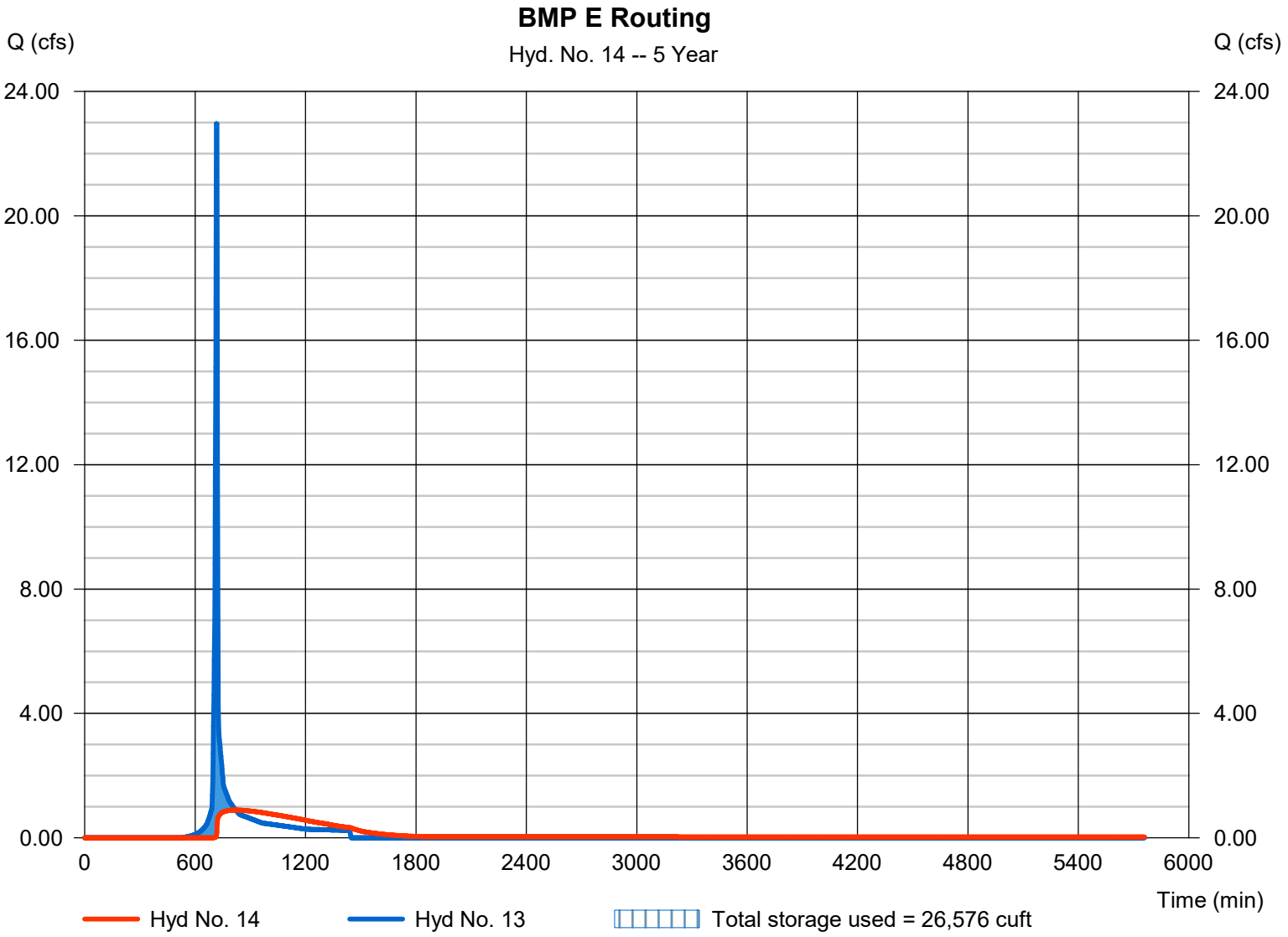
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.895 cfs
Storm frequency	=	5 yrs	Time to peak	=	820 min
Time interval	=	2 min	Hyd. volume	=	38,940 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	258.00 ft
Reservoir name	=	BMP E	Max. Storage	=	26,576 cuft

Storage Indication method used.

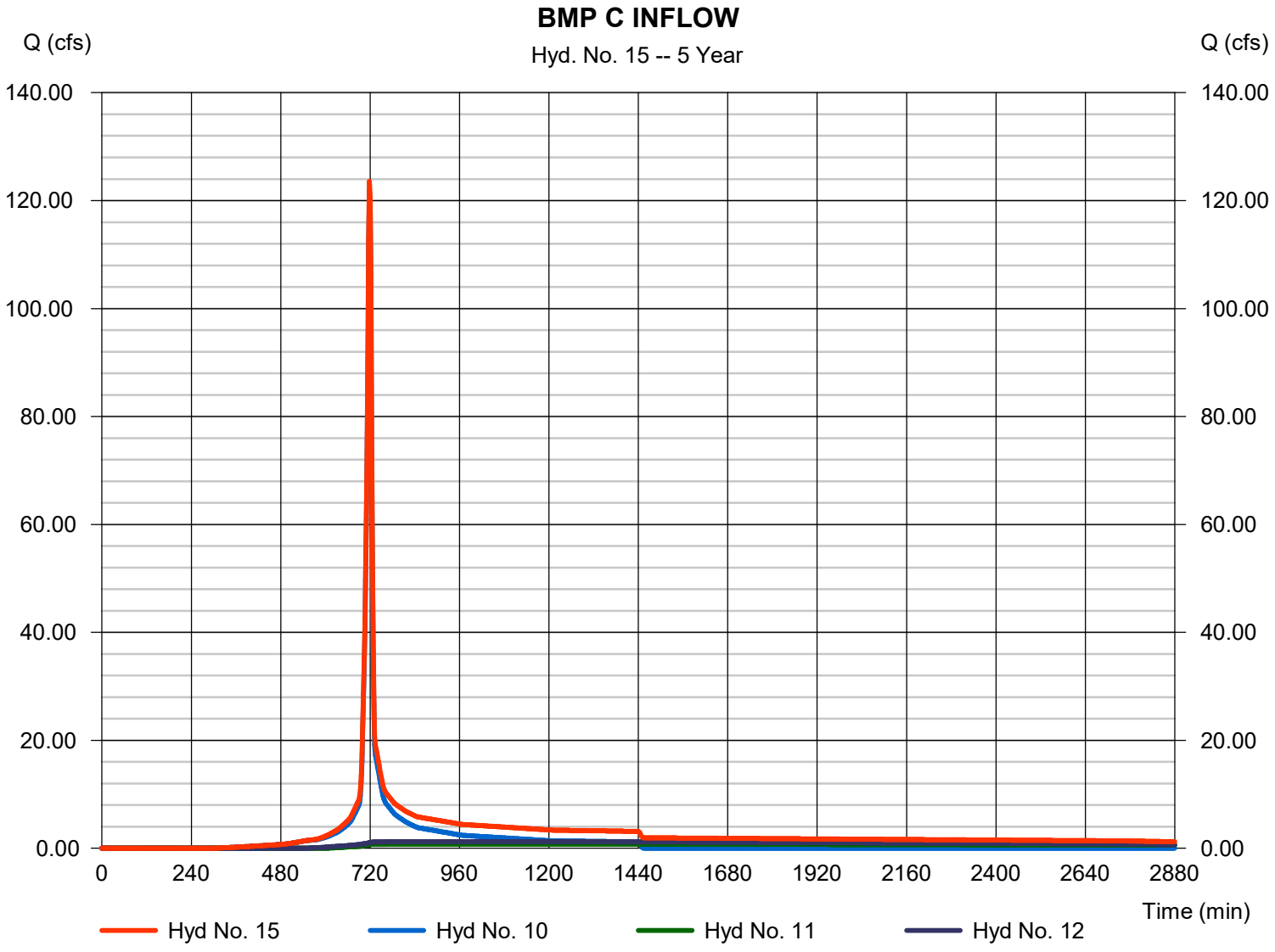


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	123.55 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	562,207 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



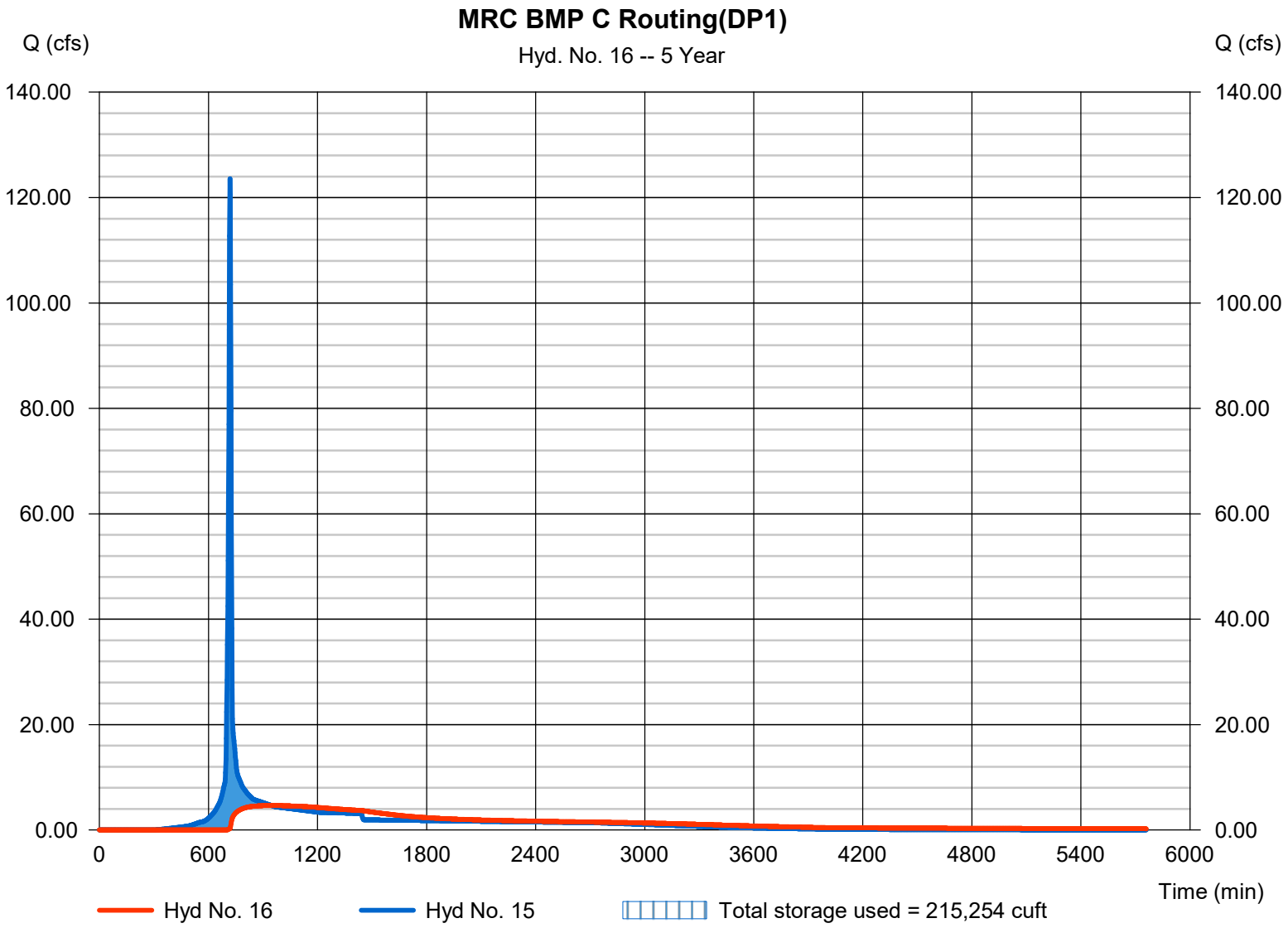
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	4.648 cfs
Storm frequency	=	5 yrs	Time to peak	=	946 min
Time interval	=	2 min	Hyd. volume	=	453,632 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.07 ft
Reservoir name	=	BMP C	Max. Storage	=	215,254 cuft

Storage Indication method used.



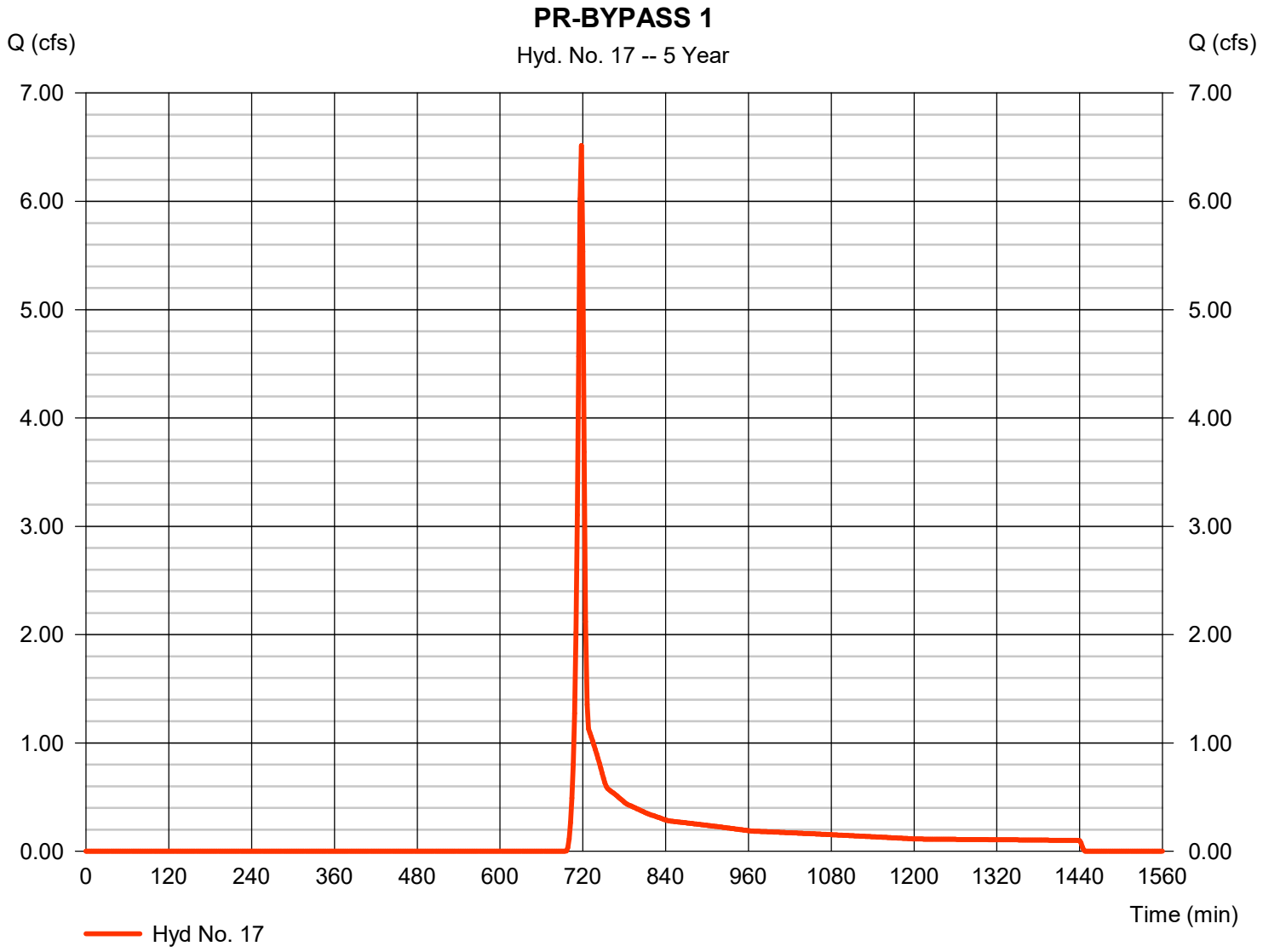
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.515 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	13,561 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



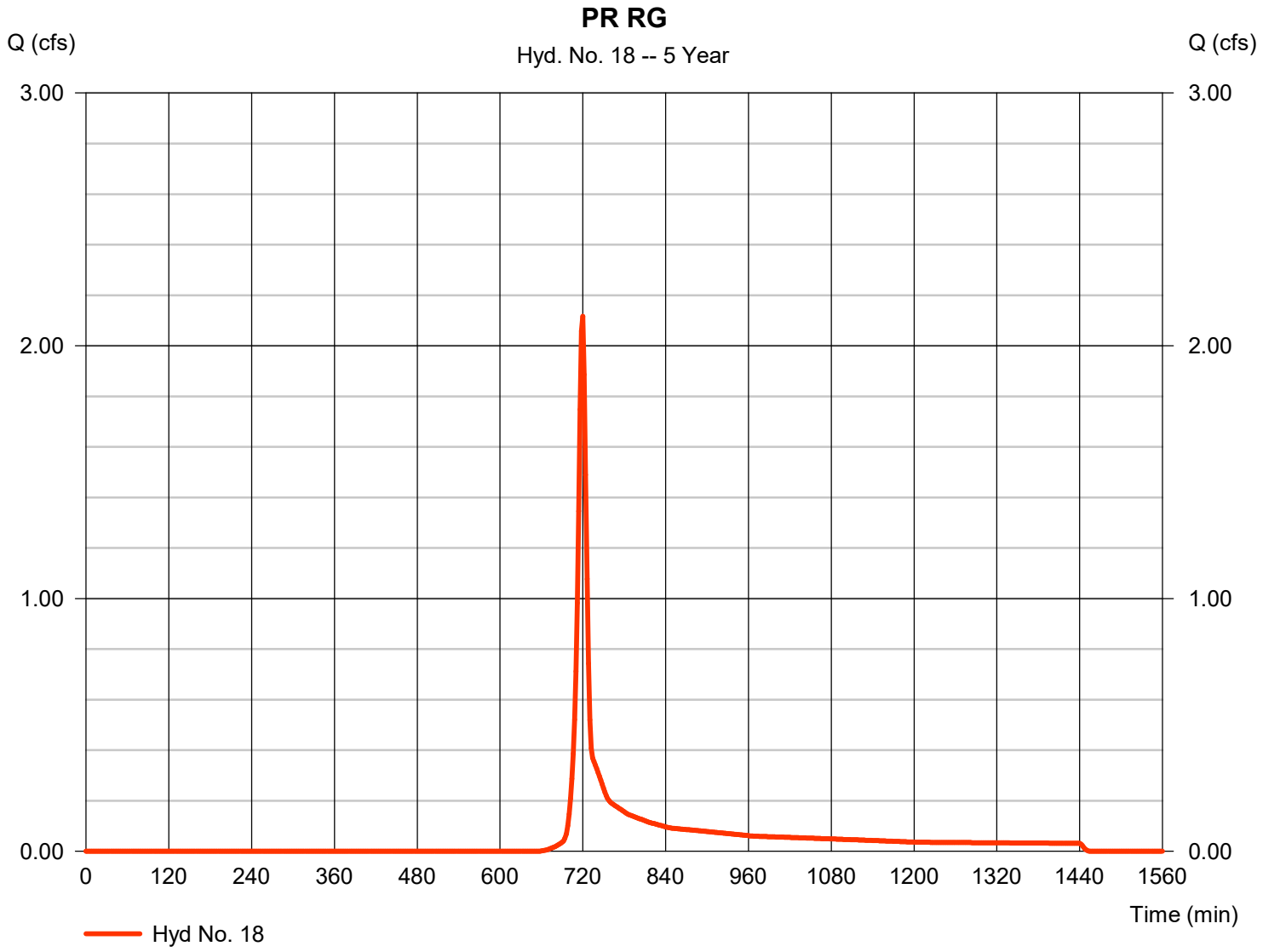
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.116 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	4,913 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



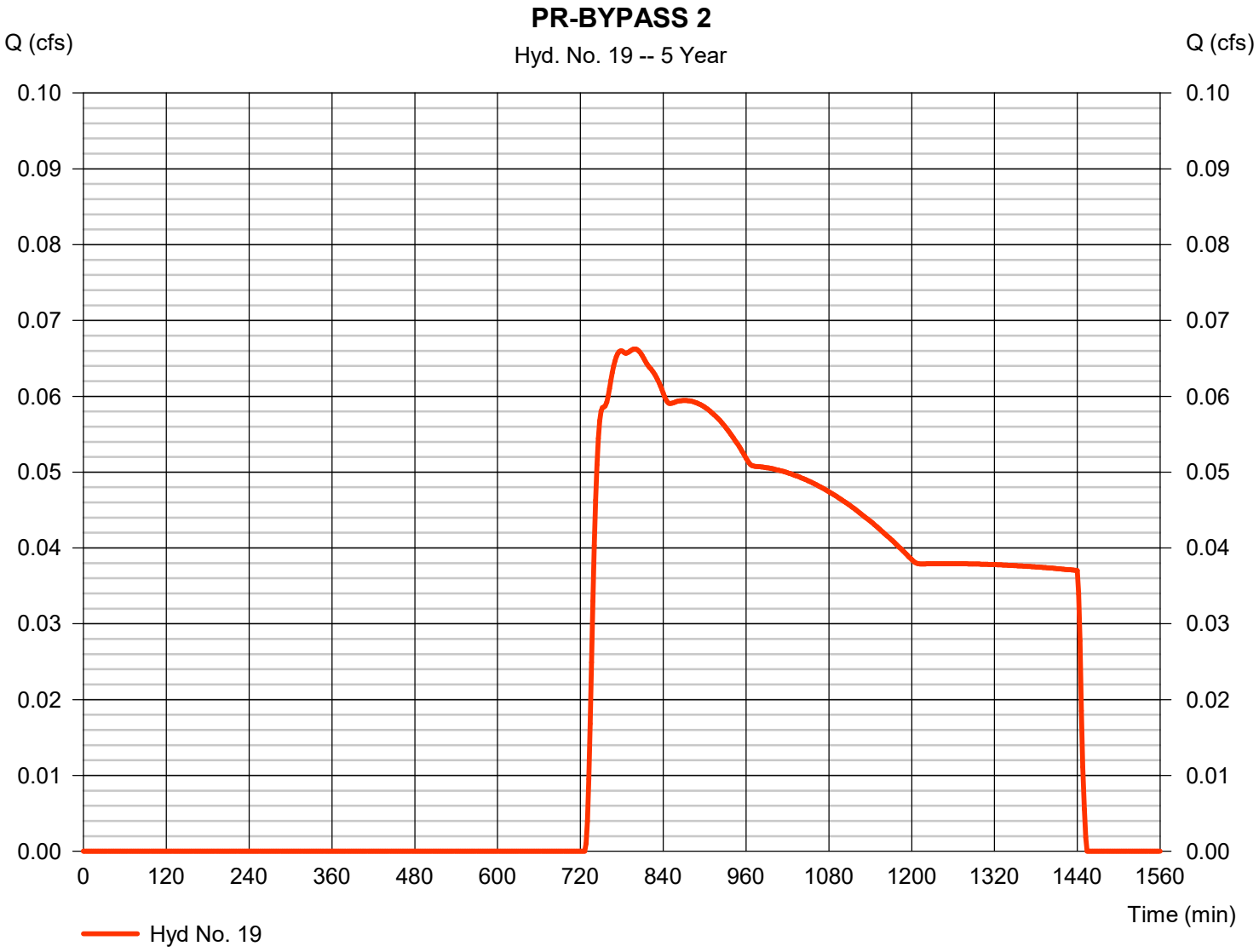
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.066 cfs
Storm frequency	=	5 yrs	Time to peak	=	798 min
Time interval	=	2 min	Hyd. volume	=	2,029 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



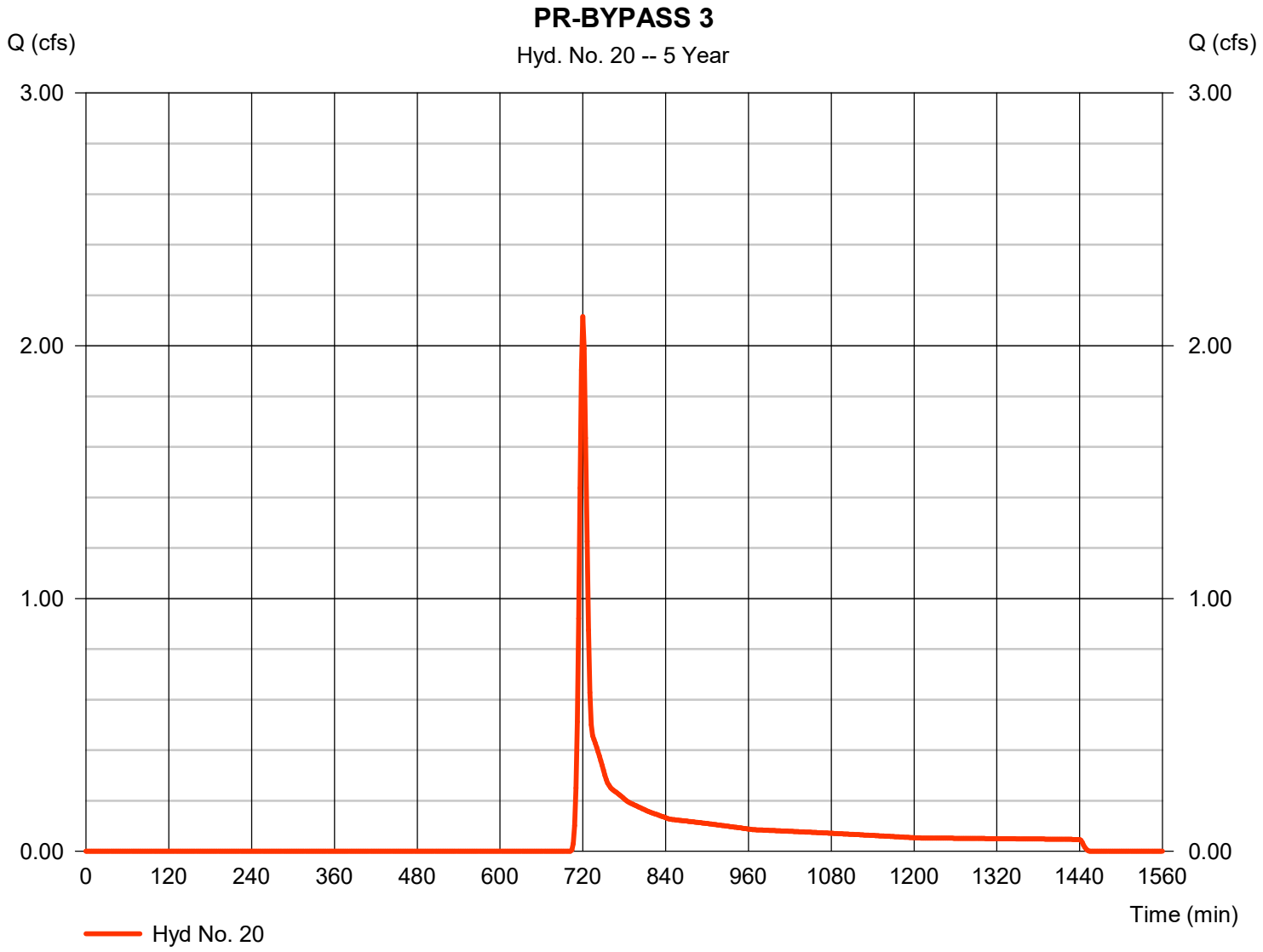
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.116 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	5,679 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

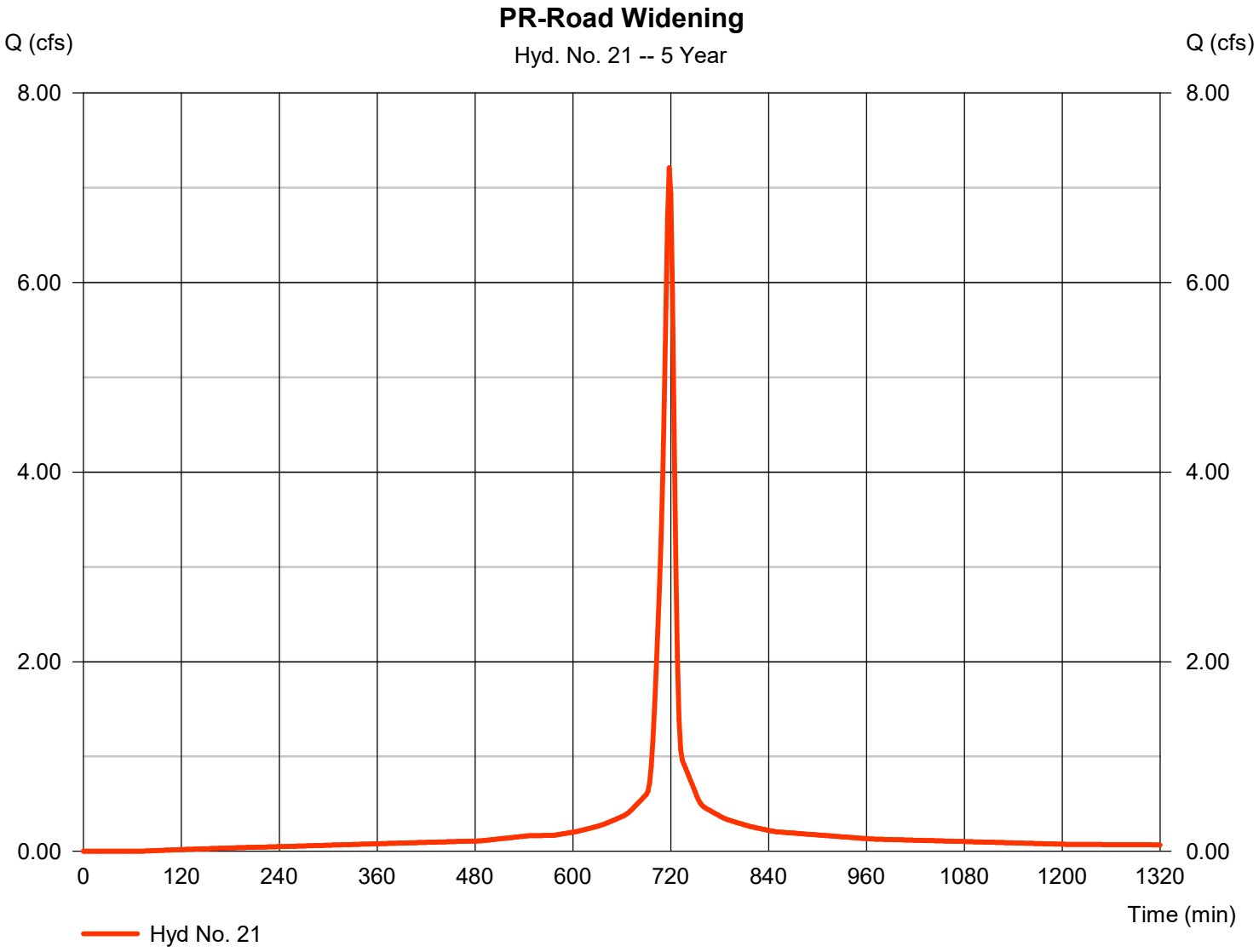


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.211 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	18,940 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

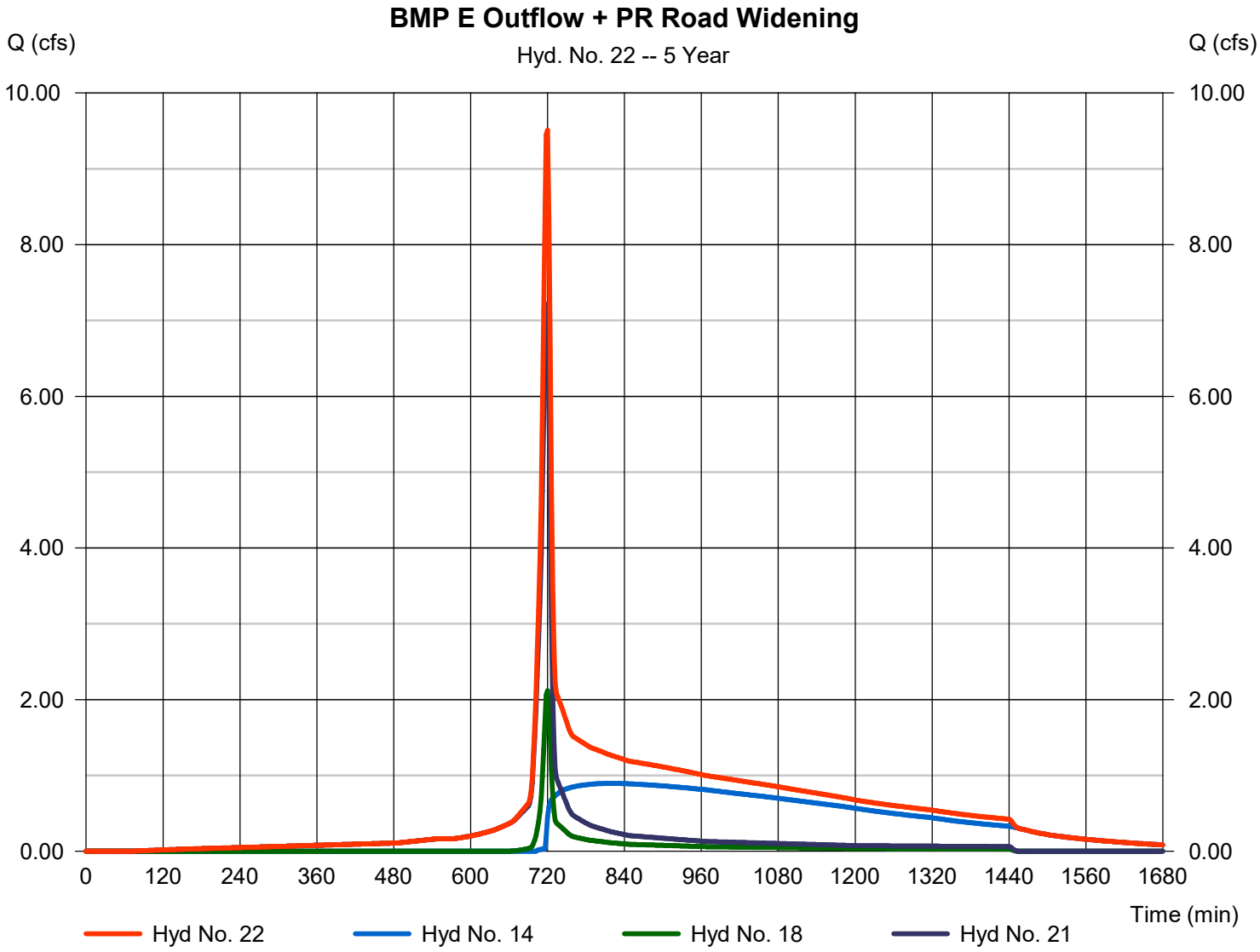


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	9.508 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	62,793 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



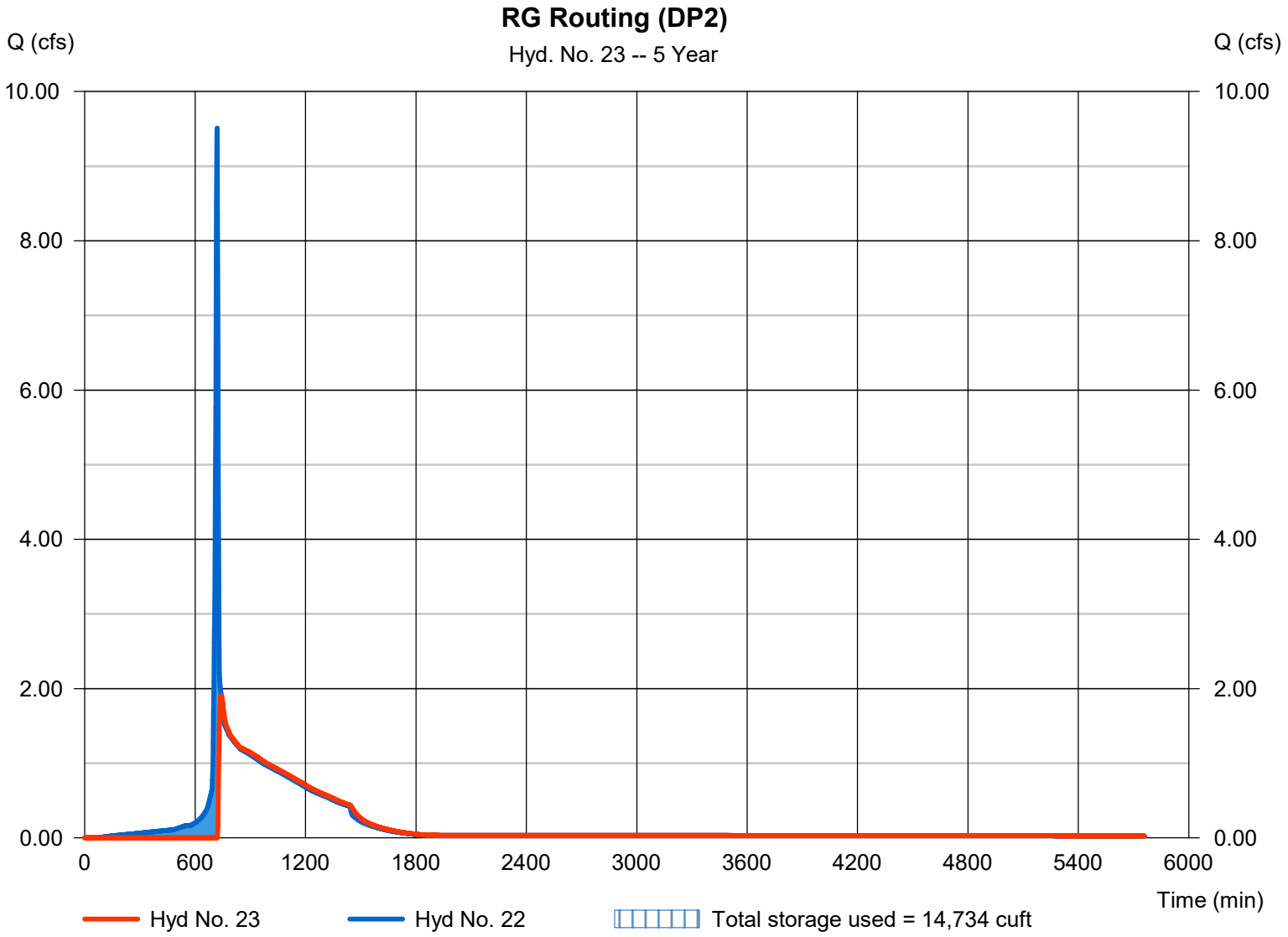
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	1.910 cfs
Storm frequency	=	5 yrs	Time to peak	=	742 min
Time interval	=	2 min	Hyd. volume	=	49,779 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.83 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,734 cuft

Storage Indication method used.

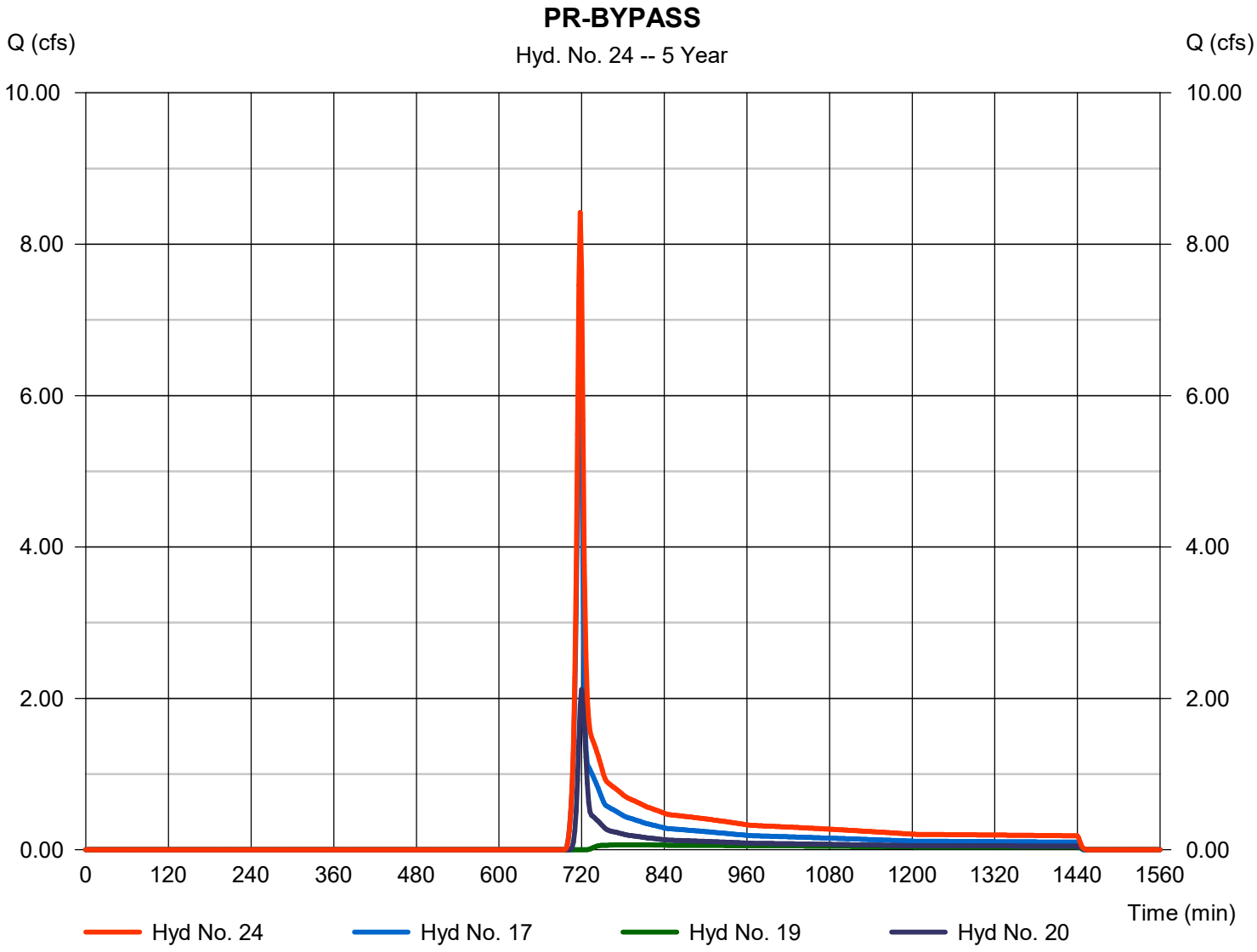


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 8.420 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 21,268 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

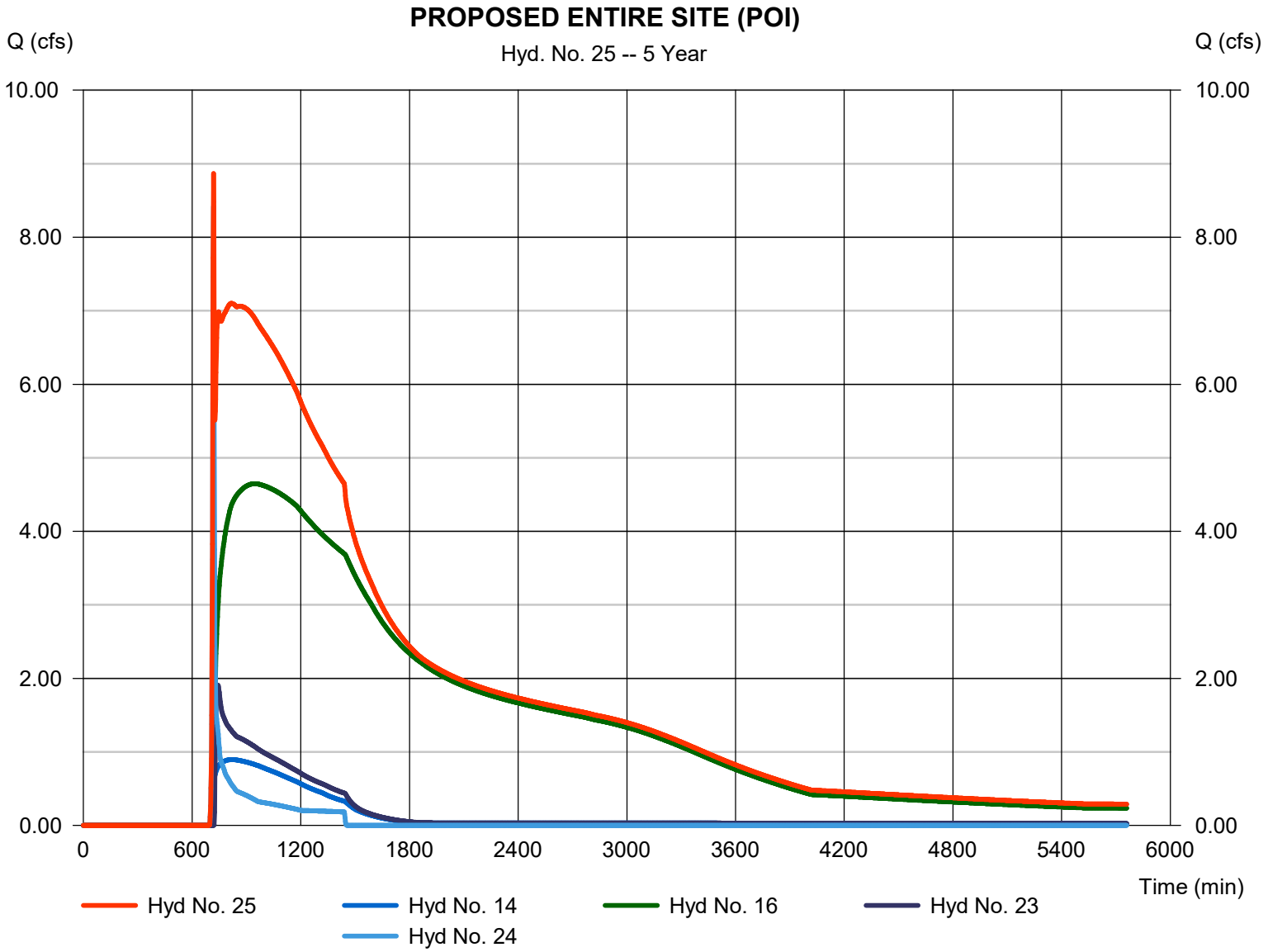


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	8.867 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	563,621 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

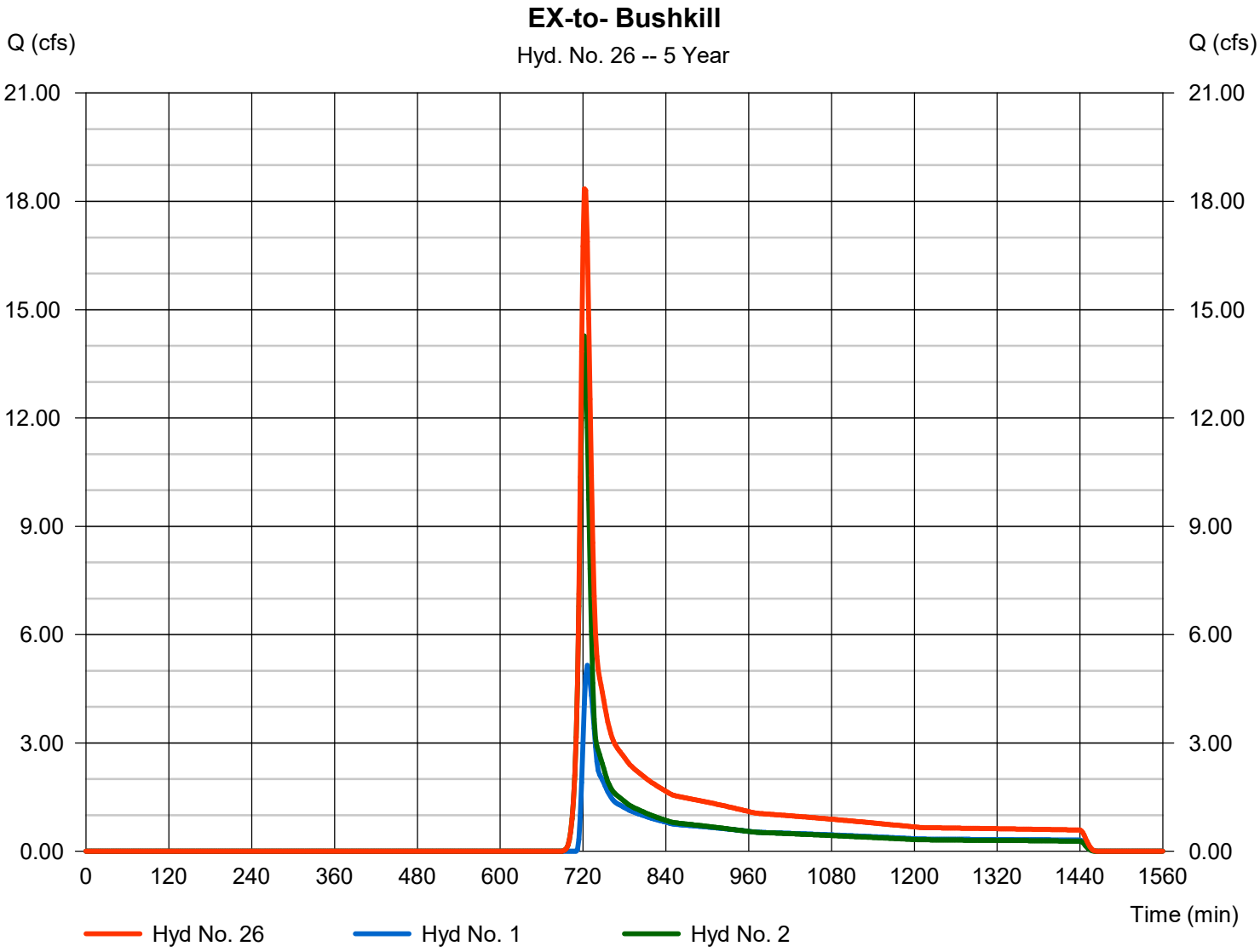


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 18.35 cfs
Storm frequency	= 5 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 68,991 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

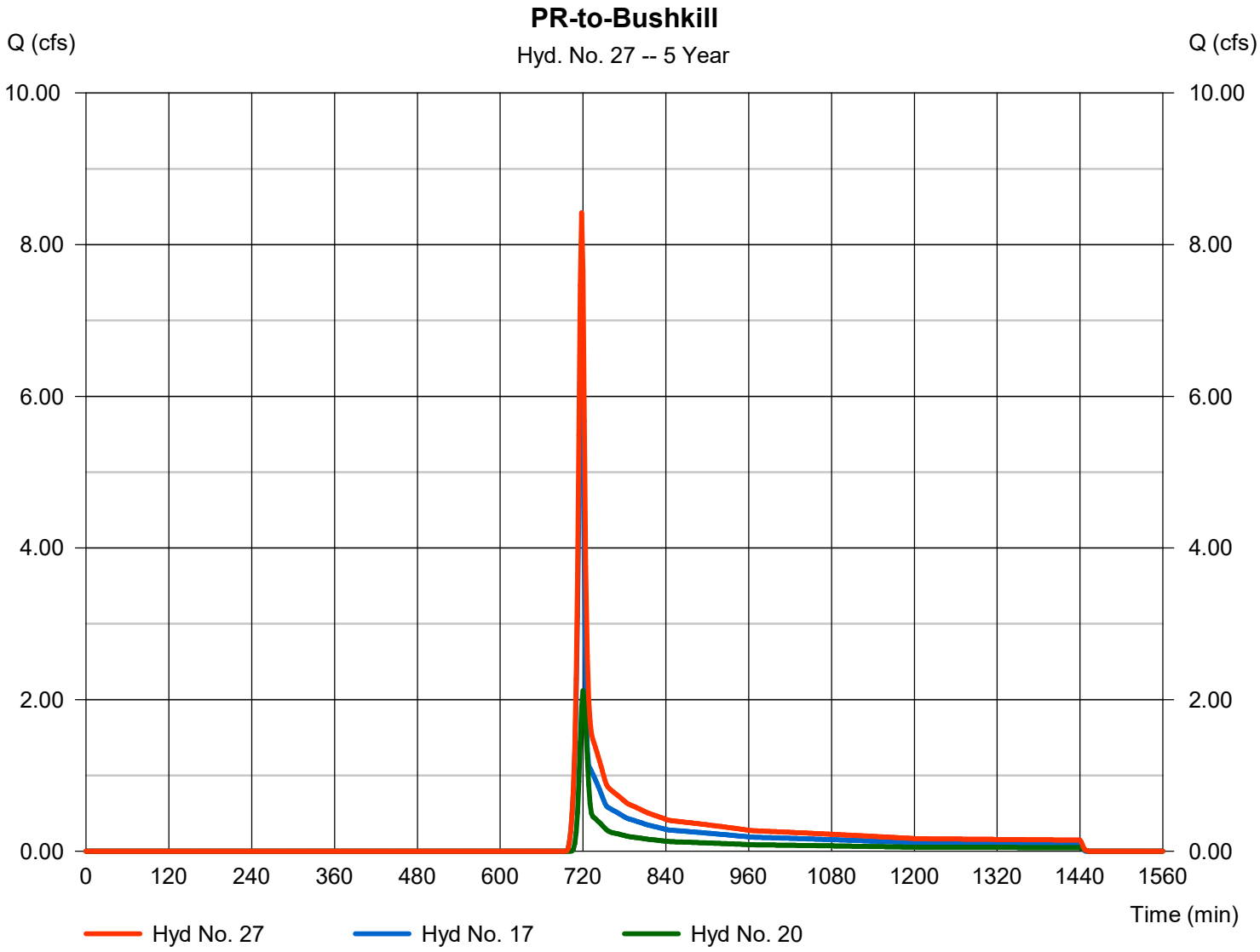


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 8.420 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 19,239 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

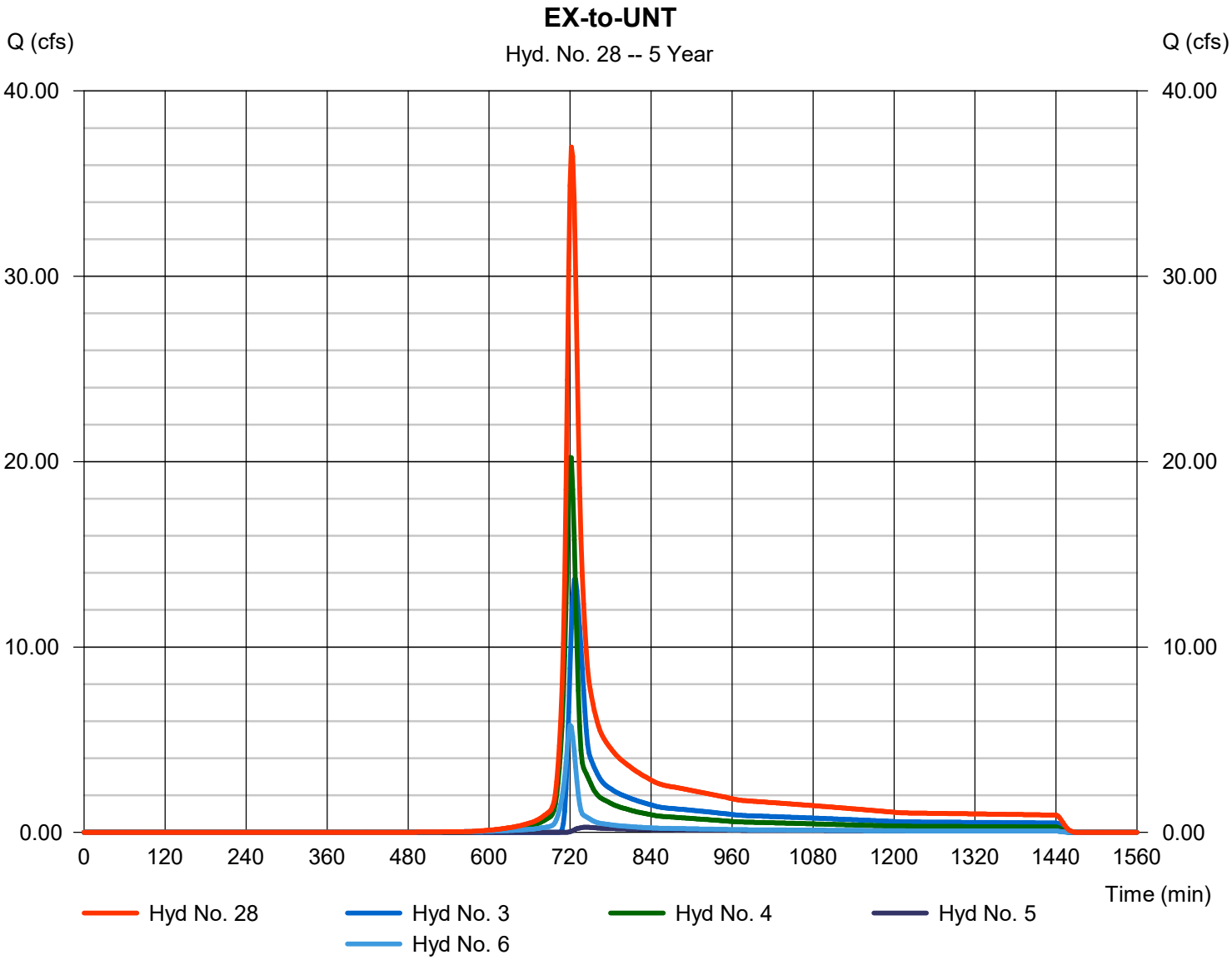


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 36.98 cfs
Storm frequency	= 5 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 131,802 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

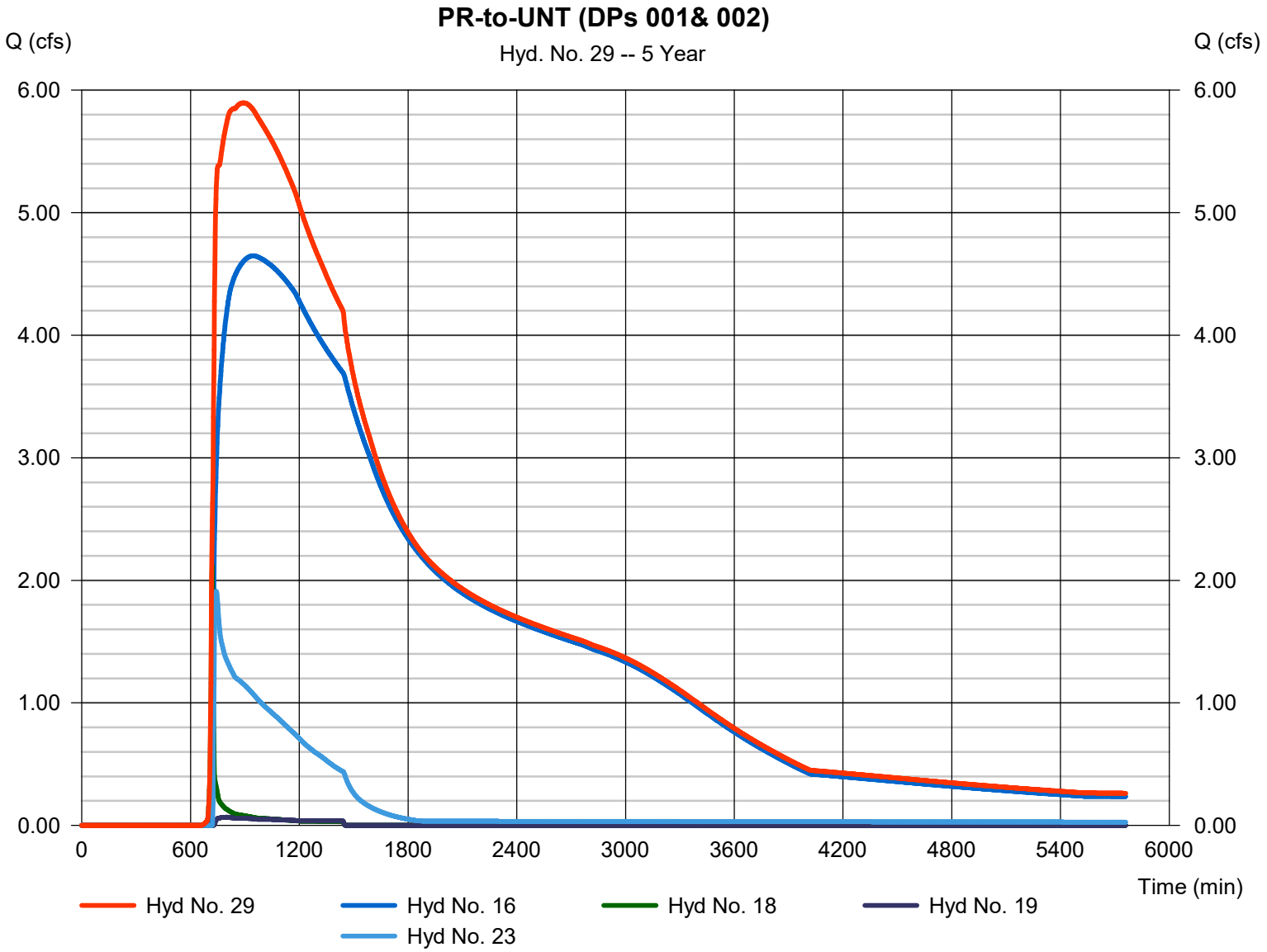


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 5.896 cfs
Storm frequency	= 5 yrs	Time to peak	= 892 min
Time interval	= 2 min	Hyd. volume	= 510,353 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	16.00	2	724	60,390	------	------	------	EX-DA 1
2	SCS Runoff	24.81	2	722	66,188	------	------	------	EX-DA2
3	SCS Runoff	30.08	2	726	108,065	------	------	------	EX-DA3
4	SCS Runoff	30.33	2	720	78,657	------	------	------	EX-DA4
5	SCS Runoff	1.919	2	728	12,716	------	------	------	EX-DA5
6	SCS Runoff	8.154	2	720	21,277	------	------	------	EX-DA-Road Widening
7	Combine	105.30	2	722	347,292	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	75.45	2	716	172,824	------	------	------	PR-DA-A
9	SCS Runoff	95.35	2	716	218,399	------	------	------	PR-DA-B
10	SCS Runoff	162.91	2	718	389,220	------	------	------	PR-DA-C
11	Reservoir	0.868	2	1122	159,203	8	291.19	135,859	BMP A Routing
12	Reservoir	1.397	2	1014	206,424	9	287.57	162,762	BMP B Routing
13	SCS Runoff	33.49	2	716	67,896	------	------	------	PR-DA-E
14	Reservoir	1.264	2	816	60,234	13	259.06	40,118	BMP E Routing
15	Combine	164.81	2	718	754,846	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	6.862	2	870	637,339	15	217.59	278,922	MRC BMP C Routing(DP1)
17	SCS Runoff	11.45	2	718	23,046	------	------	------	PR-BYPASS 1
18	SCS Runoff	3.404	2	720	7,797	------	------	------	PR RG
19	SCS Runoff	0.941	2	722	6,330	------	------	------	PR-BYPASS 2
20	SCS Runoff	4.244	2	720	10,221	------	------	------	PR-BYPASS 3
21	SCS Runoff	9.169	2	718	24,329	------	------	------	PR-Road Widening
22	Combine	13.41	2	718	92,359	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	8.753	2	724	79,345	22	233.06	16,448	RG Routing (DP2)
24	Combine	15.91	2	718	39,596	17, 19, 20,	------	------	PR-BYPASS
25	Combine	22.83	2	722	816,513	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	39.60	2	722	126,577	1, 2,	------	------	EX-to- Bushkill
27	Combine	15.48	2	718	33,267	17, 20,	------	------	PR-to-Bushkill
28	Combine	65.70	2	722	220,715	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	16.76	2	724	730,810	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

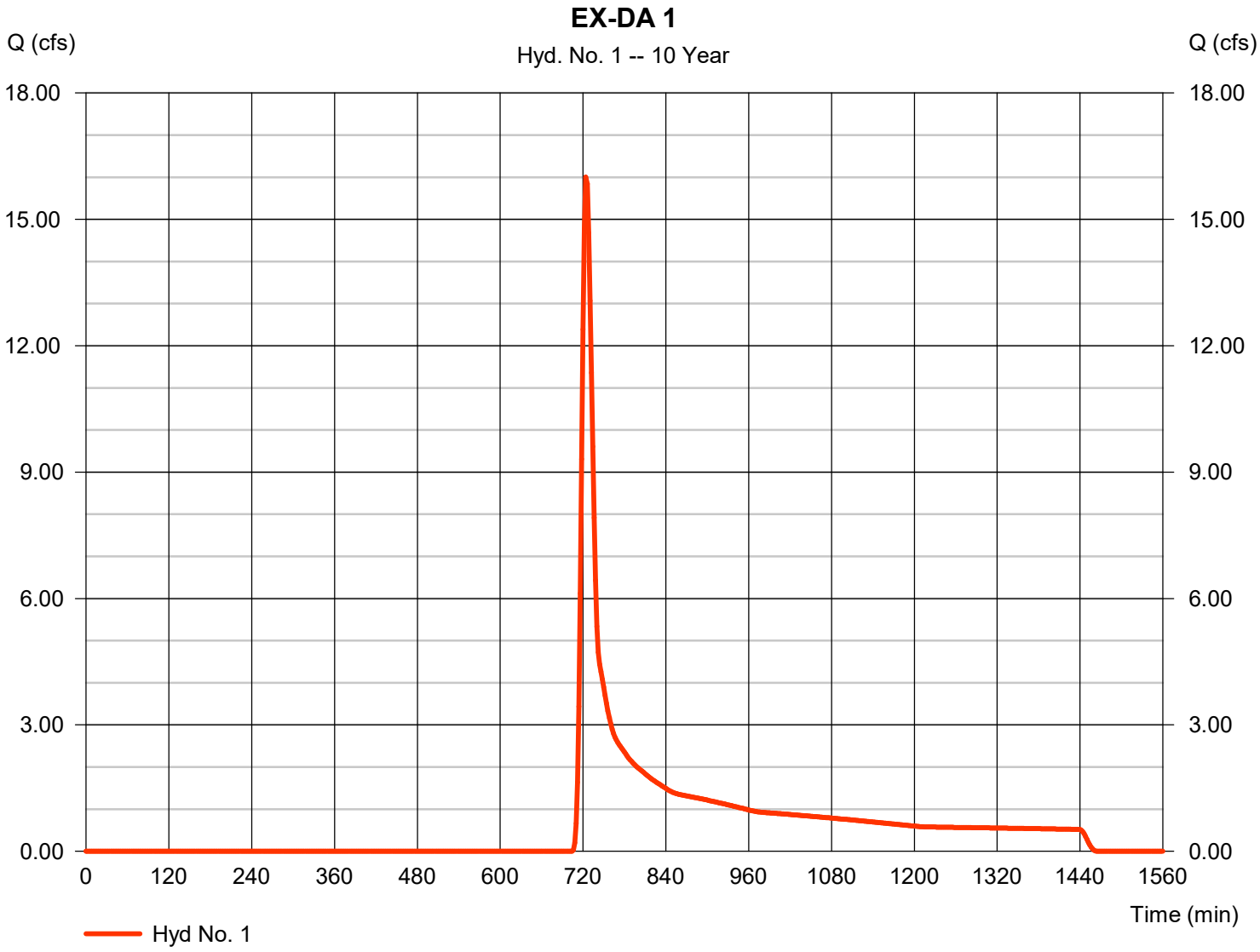
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.00 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	60,390 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



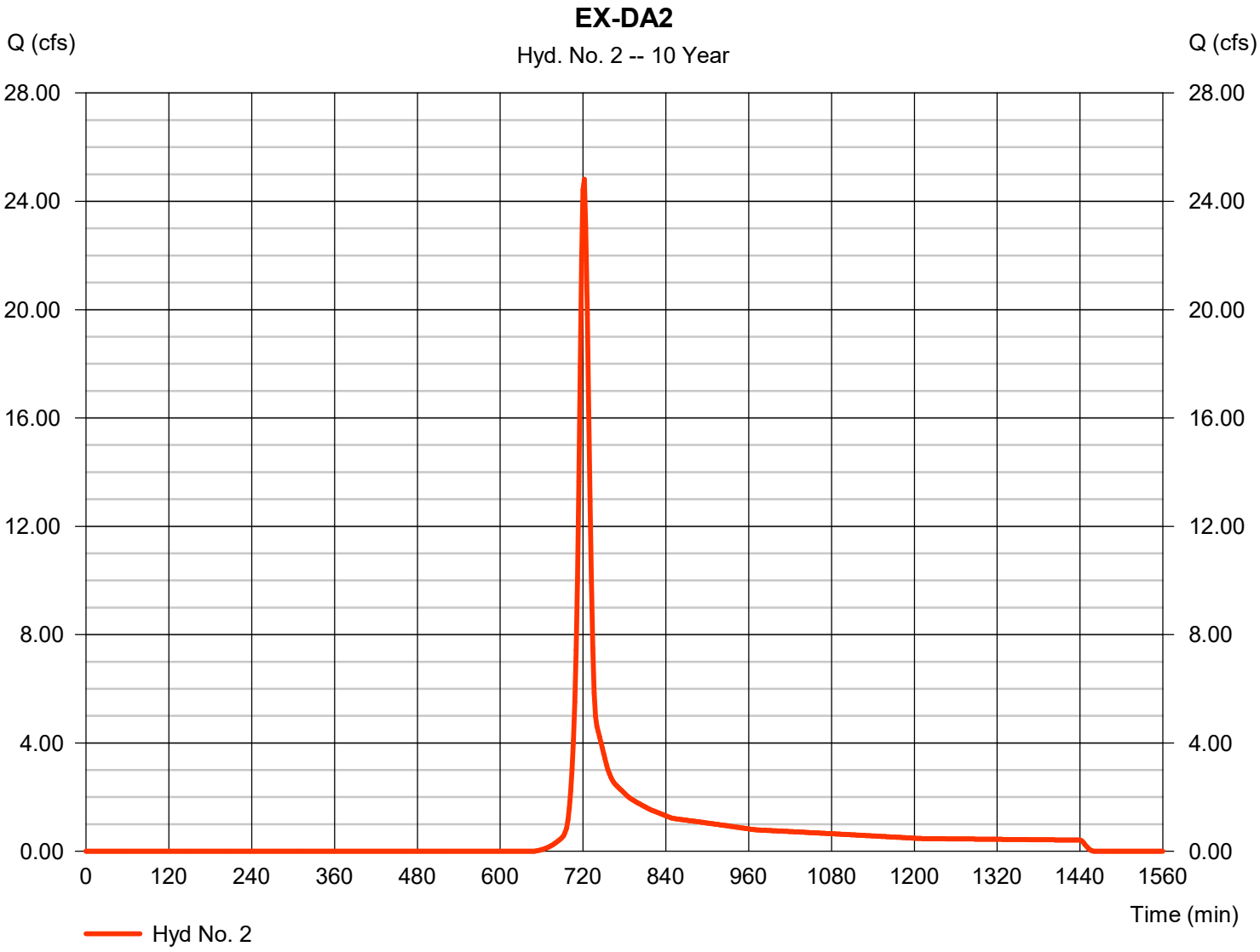
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.81 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	66,188 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



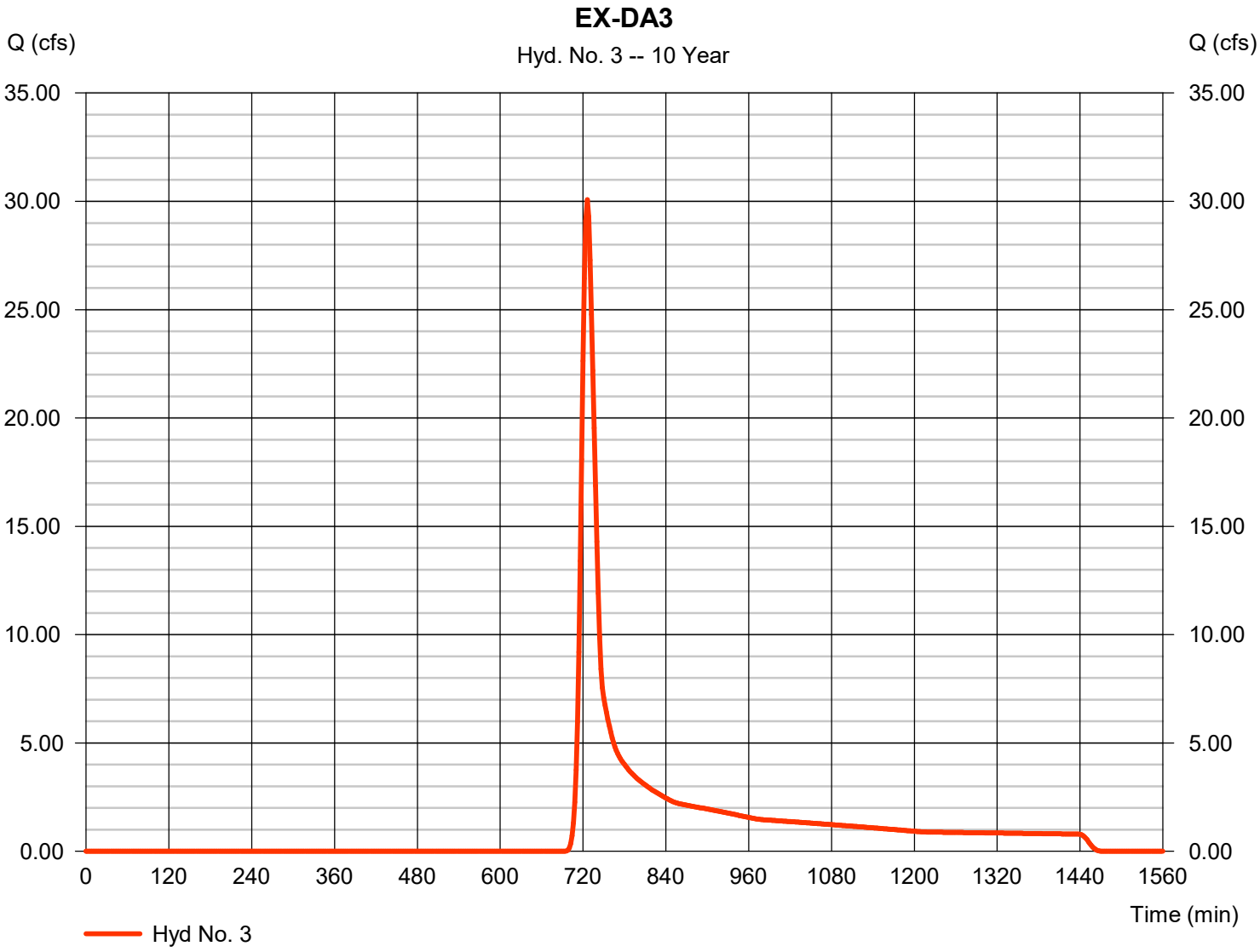
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.08 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	108,065 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



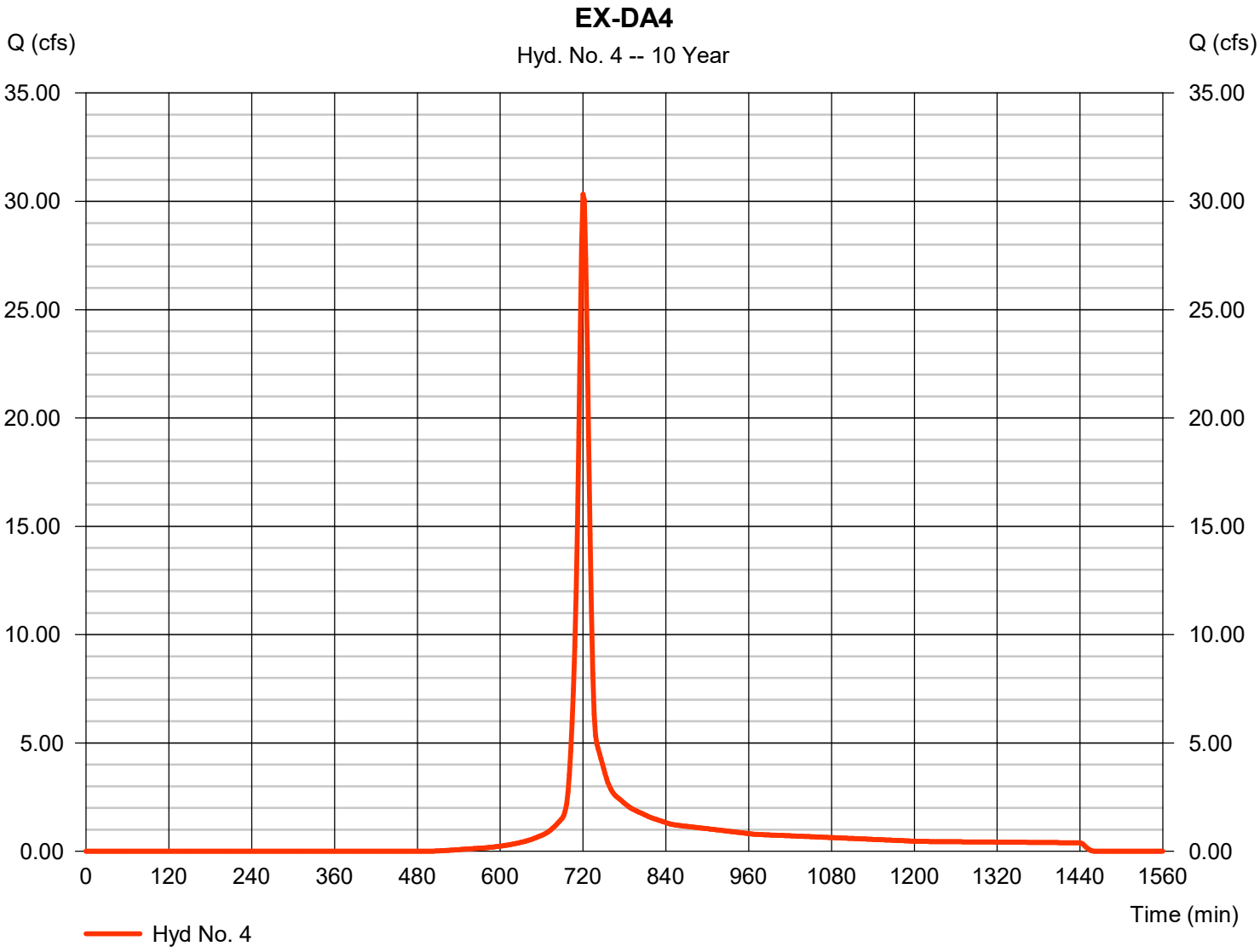
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.33 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	78,657 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



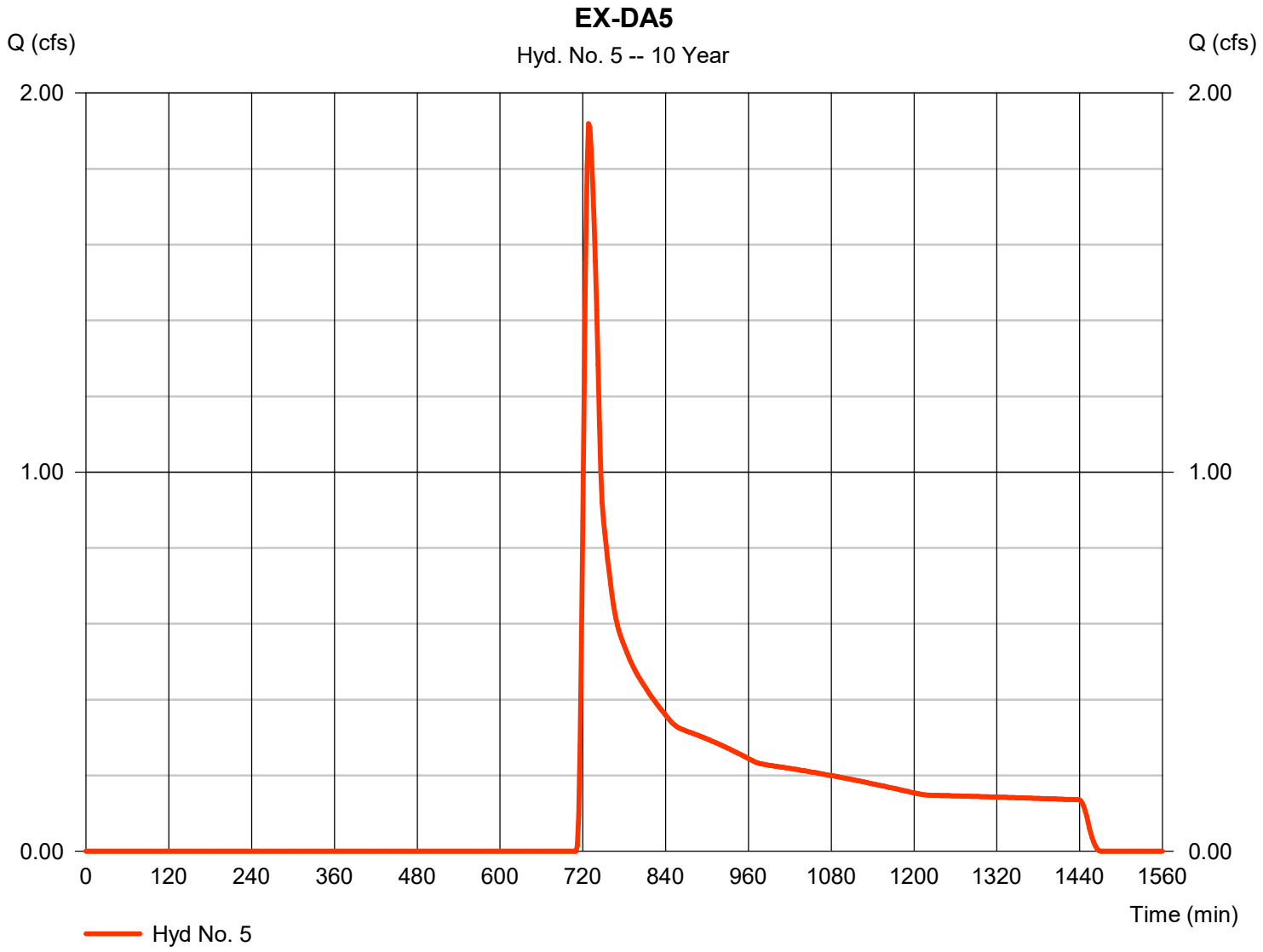
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.919 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	12,716 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



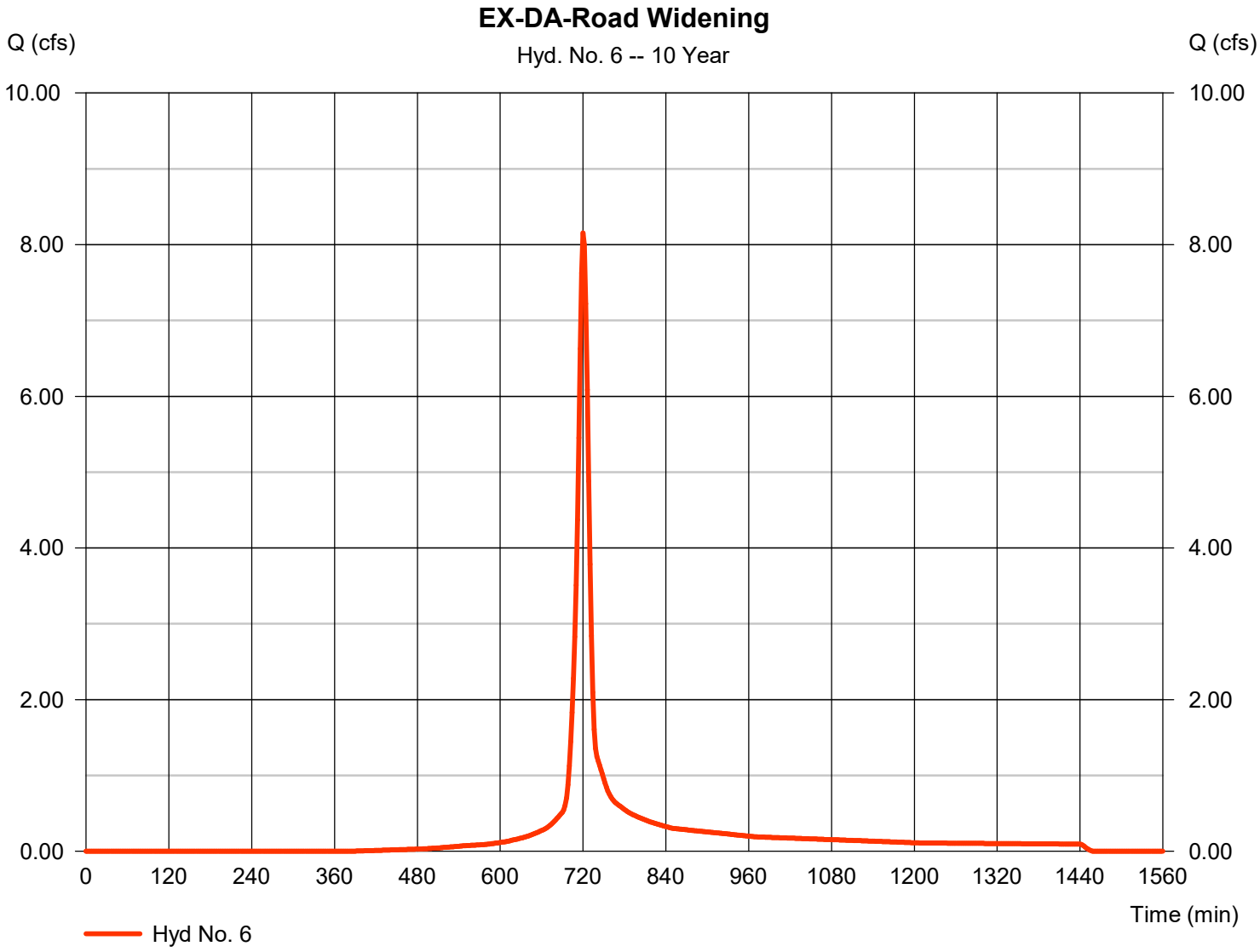
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.154 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	21,277 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

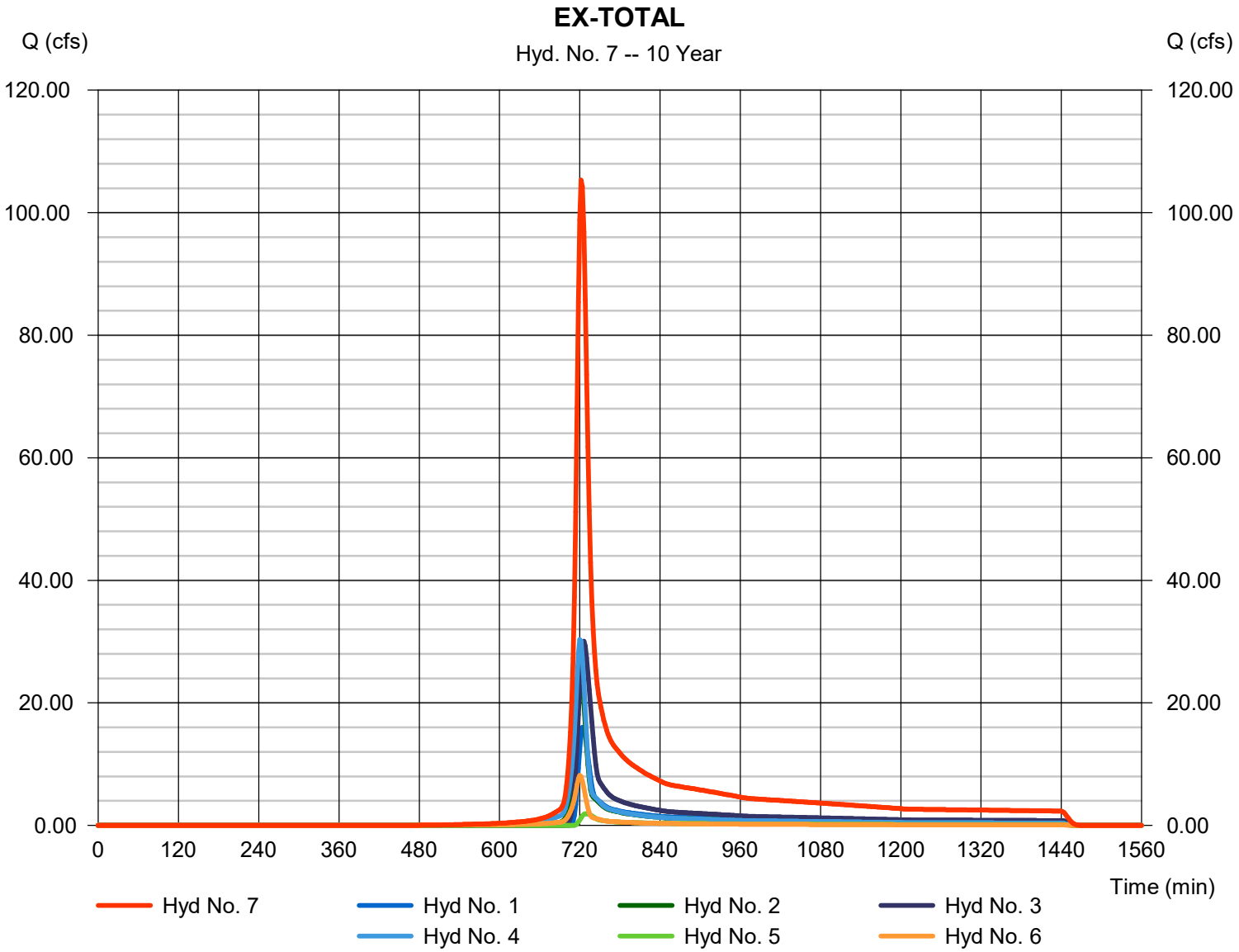


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	105.30 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	347,292 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



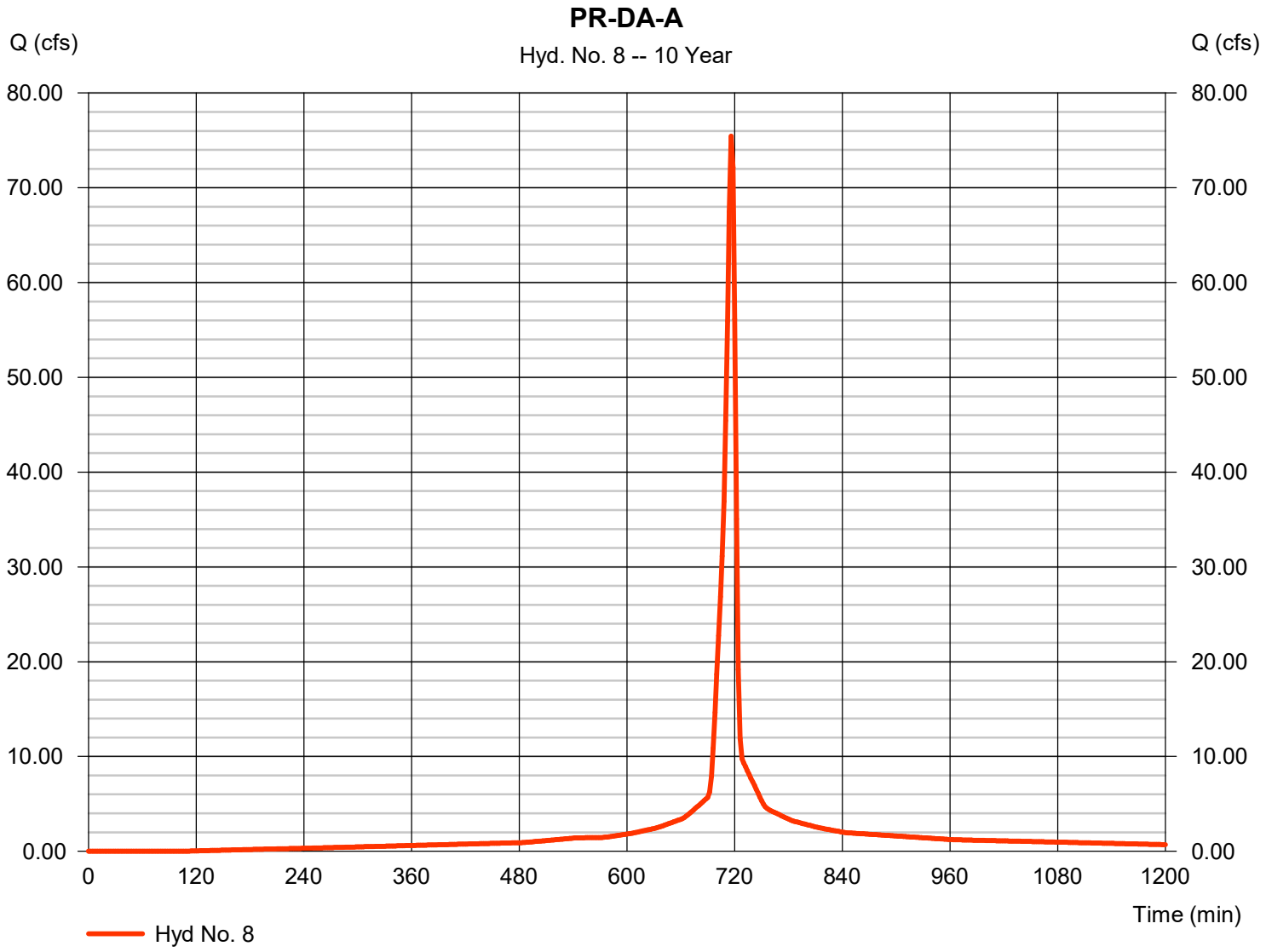
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	75.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	172,824 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



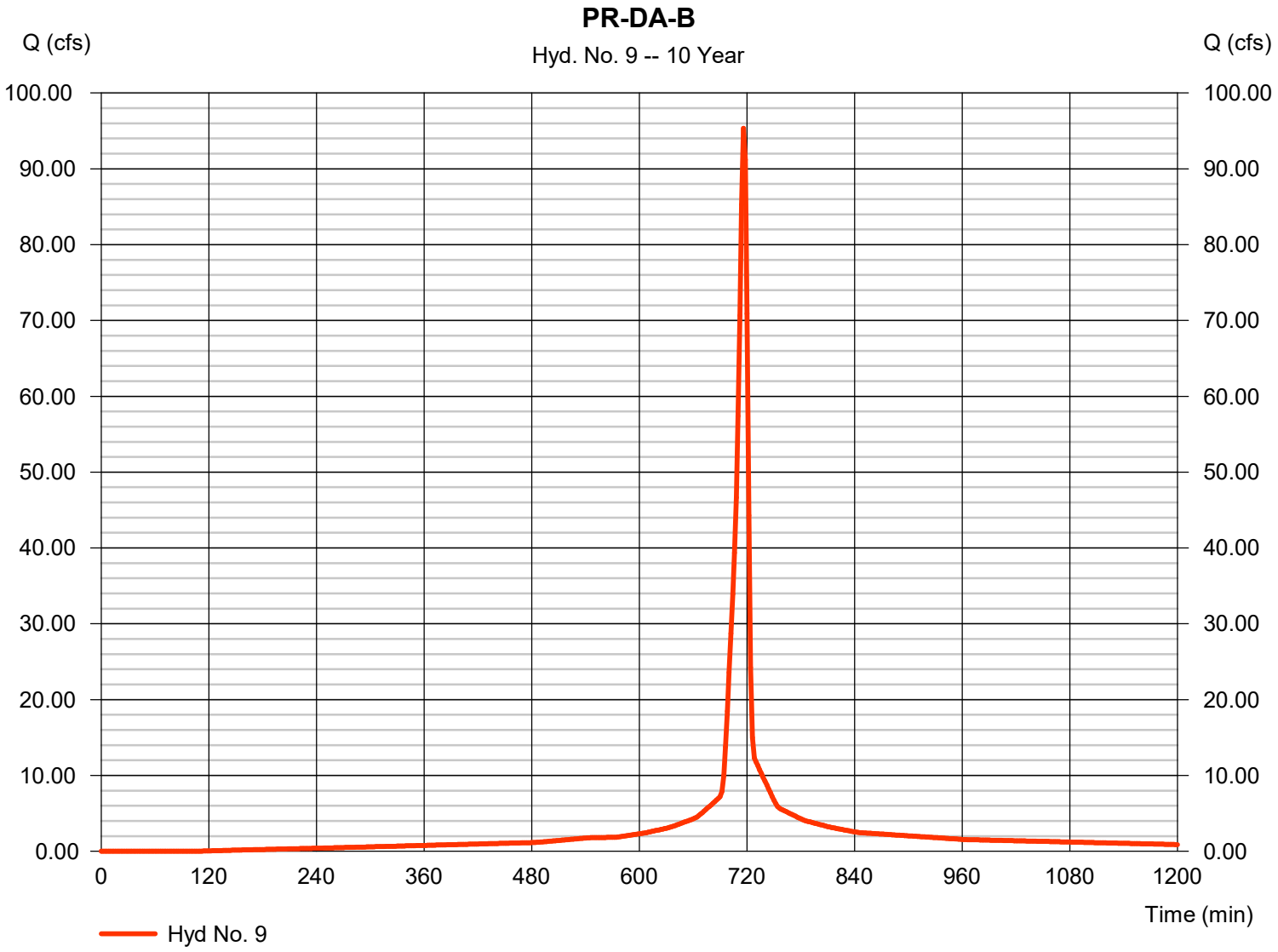
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	95.35 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	218,399 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



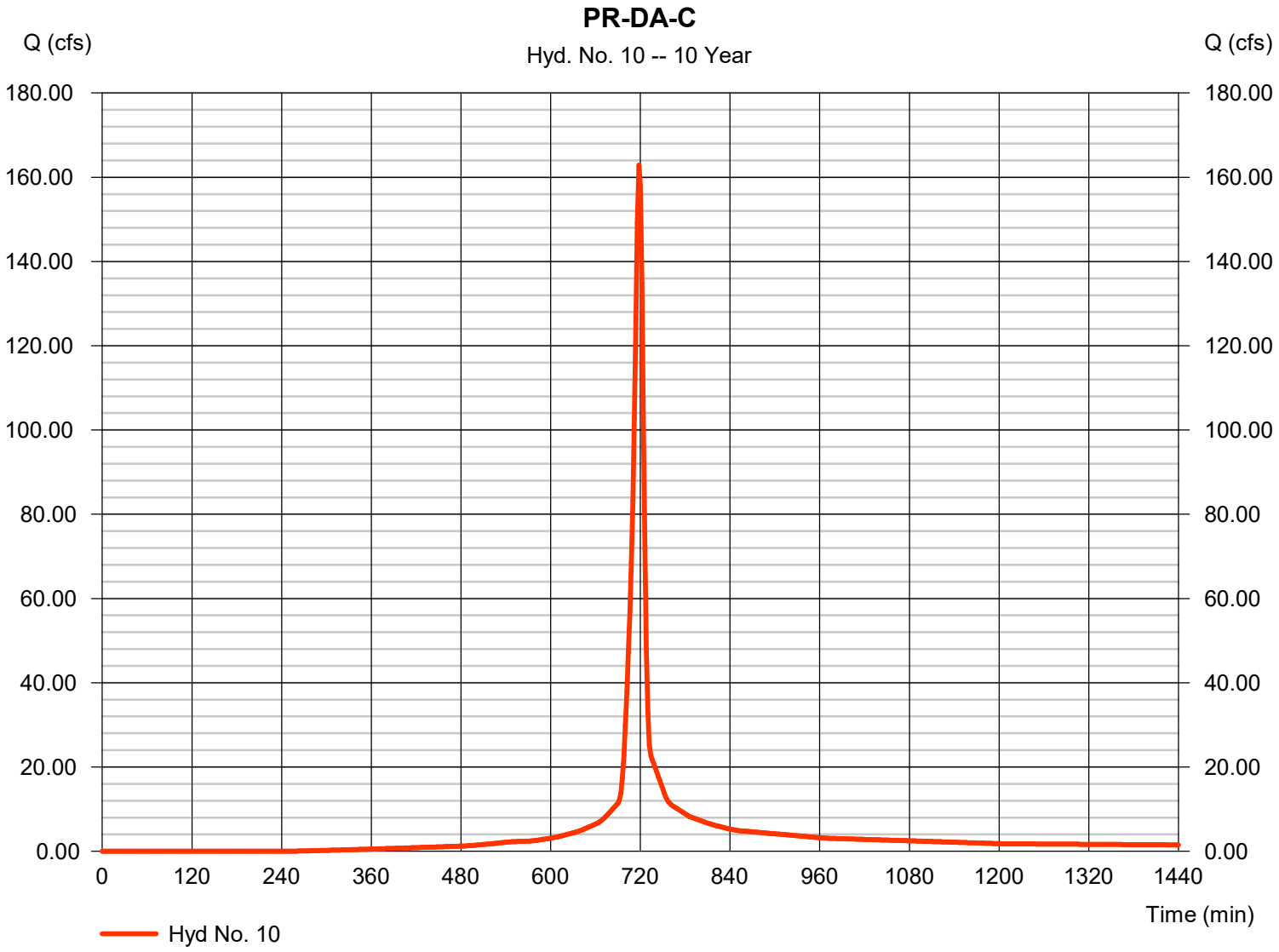
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	162.91 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	389,220 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



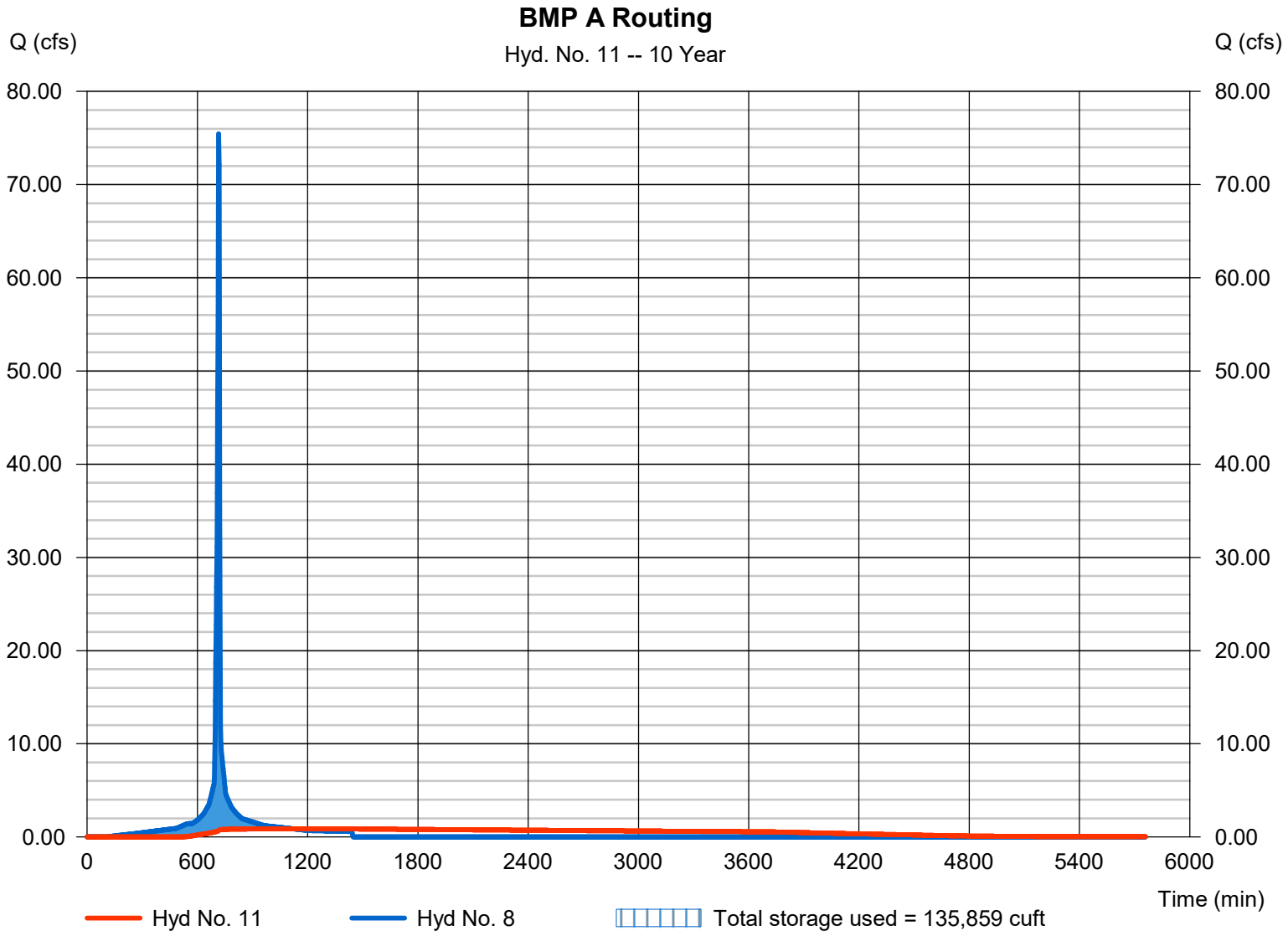
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.868 cfs
Storm frequency	=	10 yrs	Time to peak	=	1122 min
Time interval	=	2 min	Hyd. volume	=	159,203 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.19 ft
Reservoir name	=	BMP A	Max. Storage	=	135,859 cuft

Storage Indication method used.



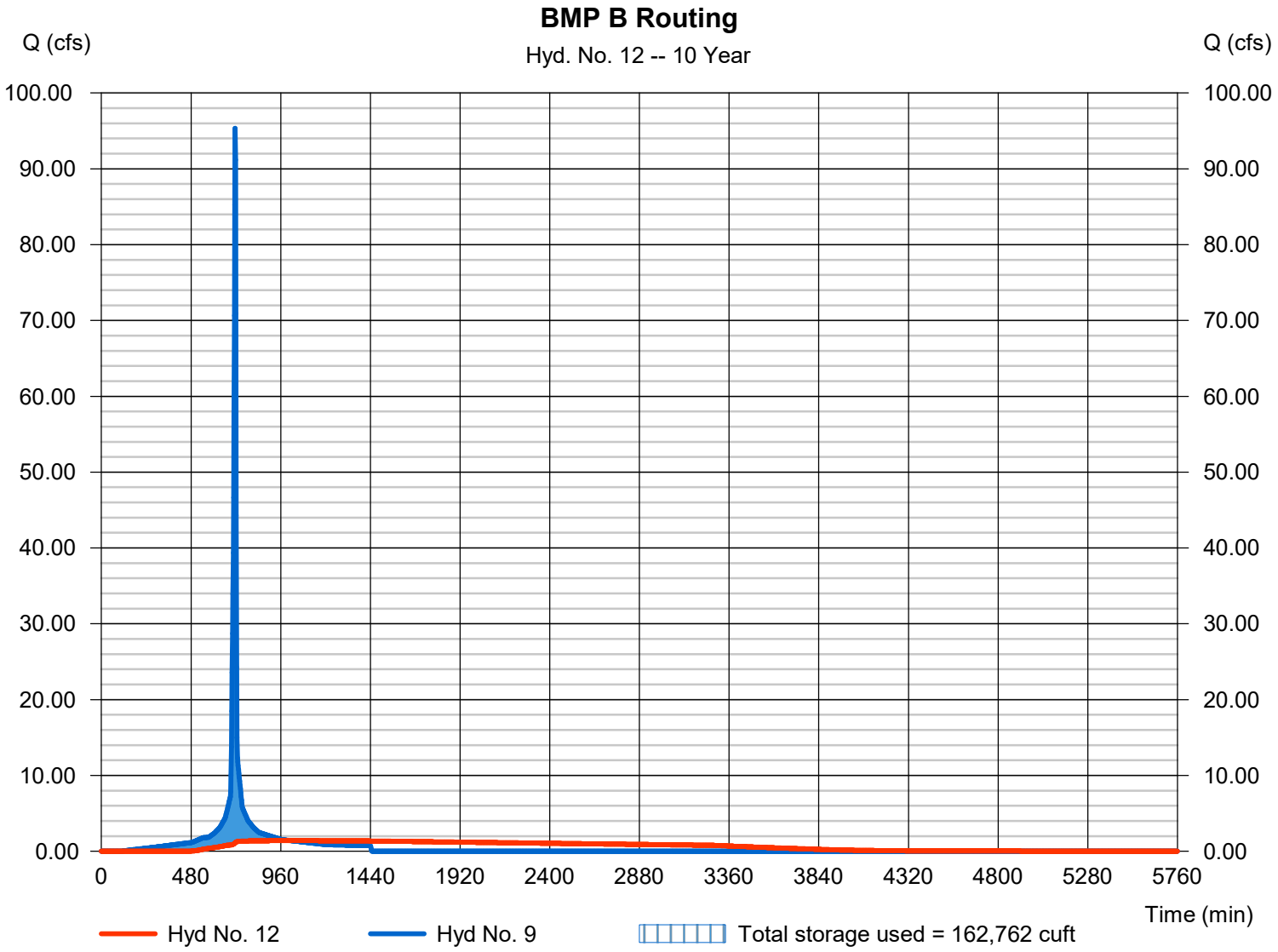
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.397 cfs
Storm frequency	=	10 yrs	Time to peak	=	1014 min
Time interval	=	2 min	Hyd. volume	=	206,424 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.57 ft
Reservoir name	=	BMP B	Max. Storage	=	162,762 cuft

Storage Indication method used.



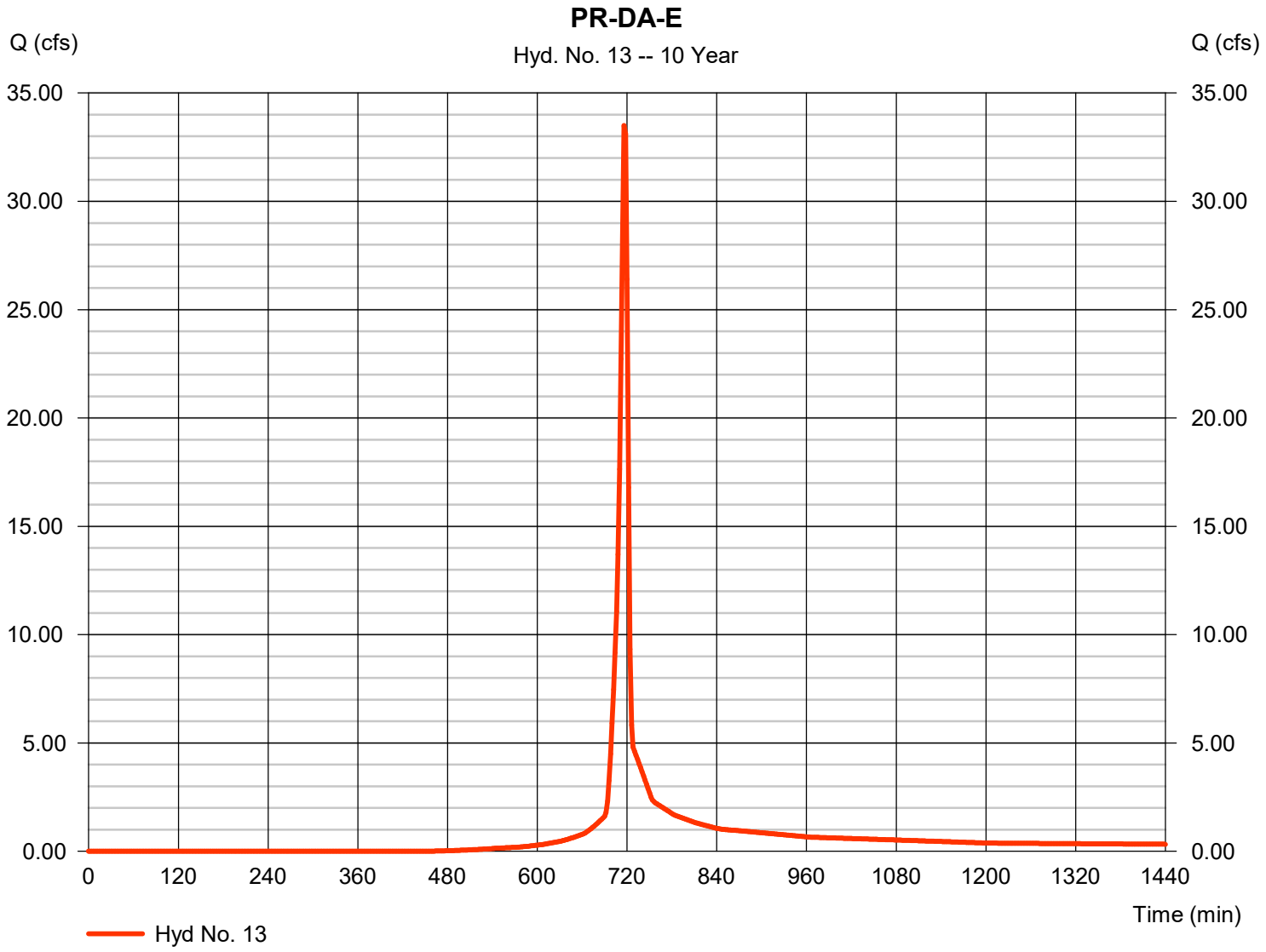
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	67,896 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



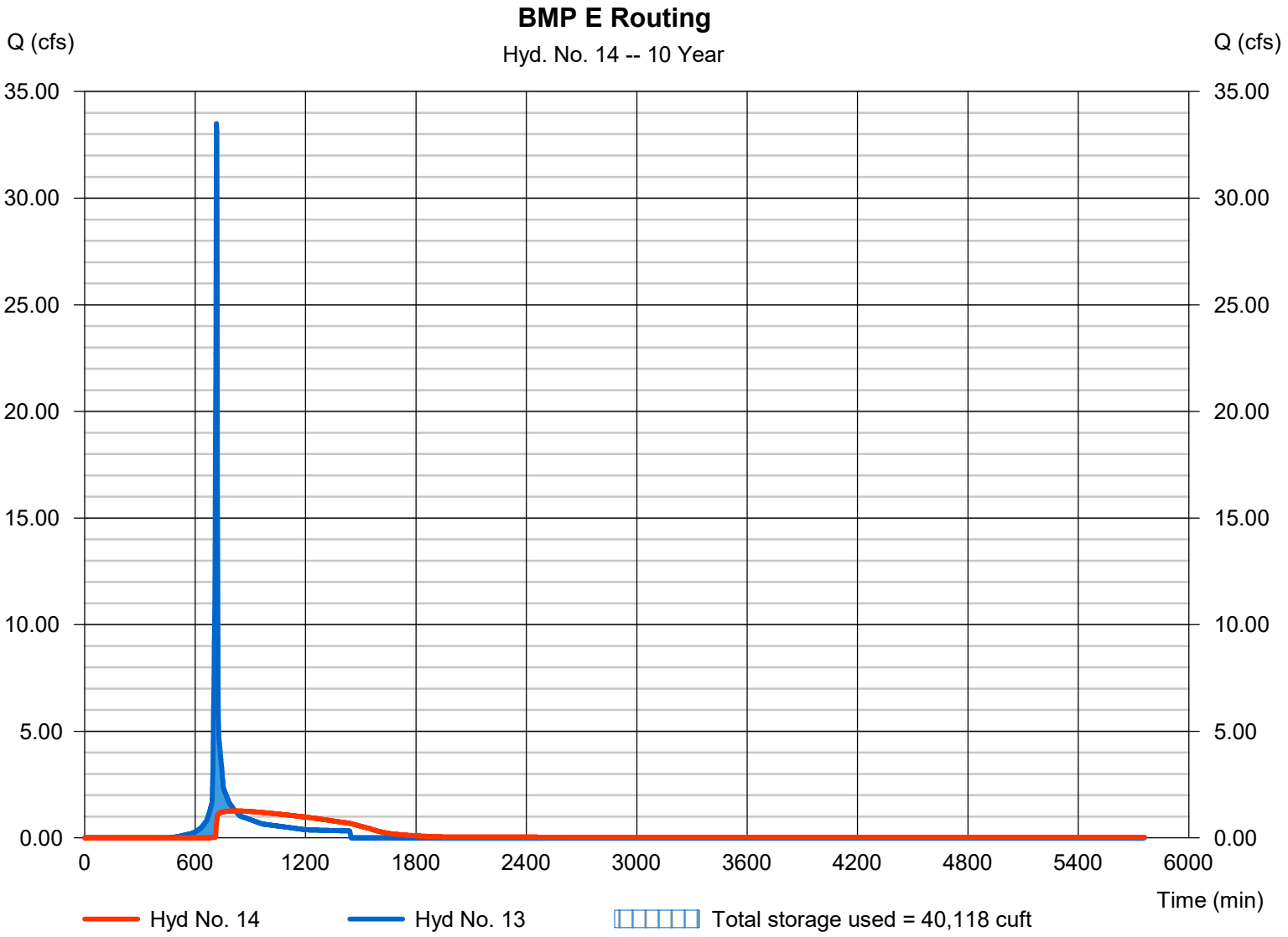
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.264 cfs
Storm frequency	=	10 yrs	Time to peak	=	816 min
Time interval	=	2 min	Hyd. volume	=	60,234 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.06 ft
Reservoir name	=	BMP E	Max. Storage	=	40,118 cuft

Storage Indication method used.

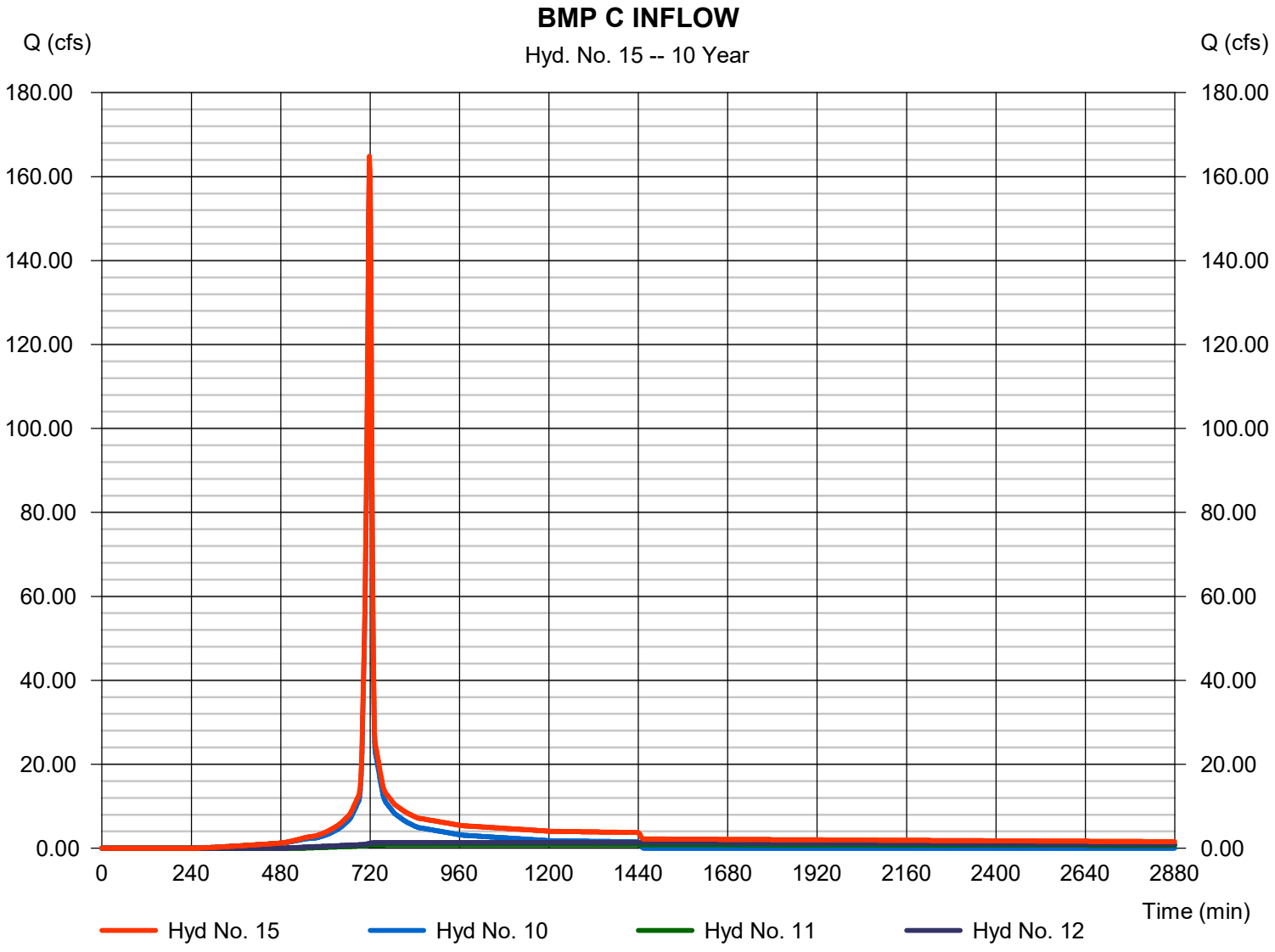


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	164.81 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	754,846 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



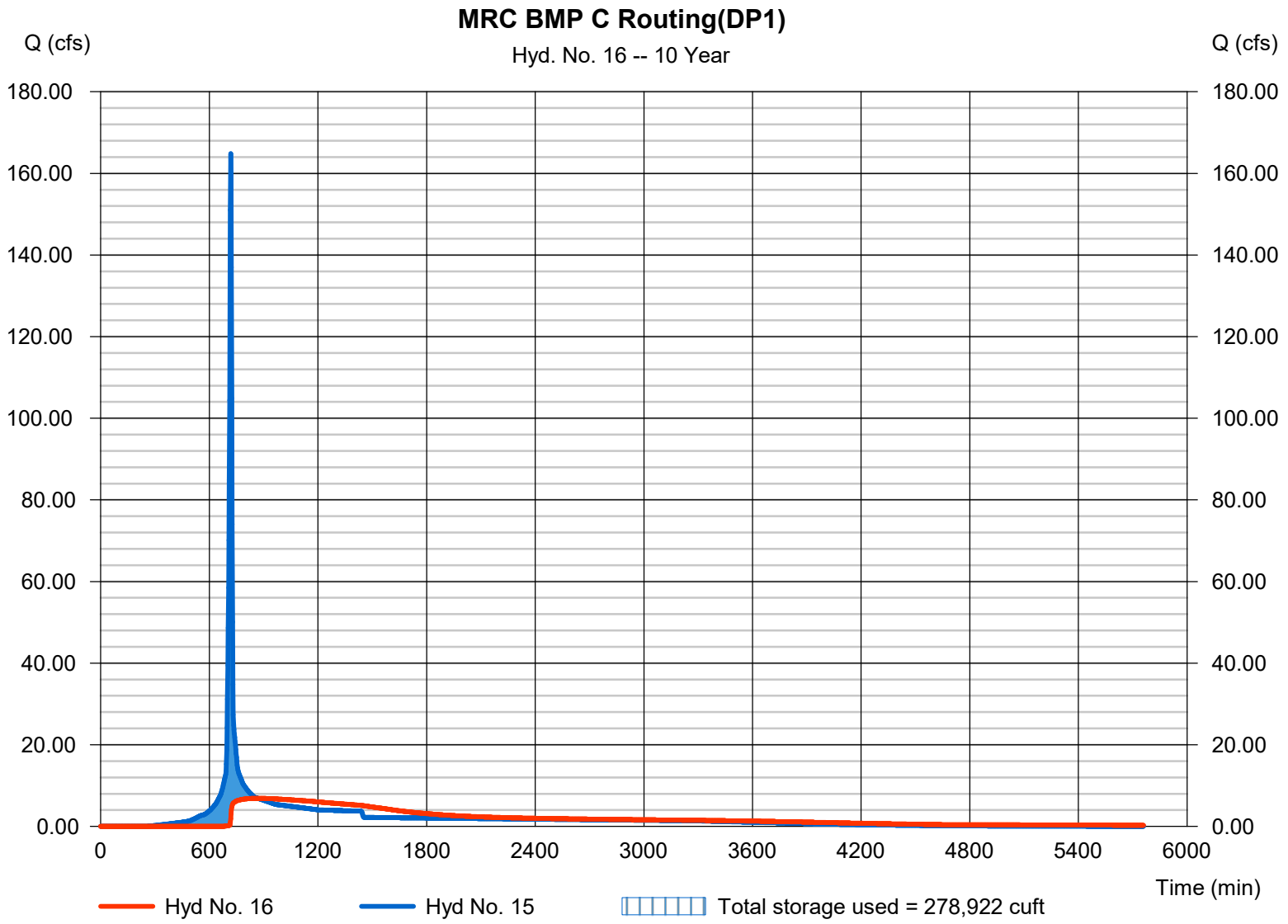
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	6.862 cfs
Storm frequency	=	10 yrs	Time to peak	=	870 min
Time interval	=	2 min	Hyd. volume	=	637,339 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.59 ft
Reservoir name	=	BMP C	Max. Storage	=	278,922 cuft

Storage Indication method used.



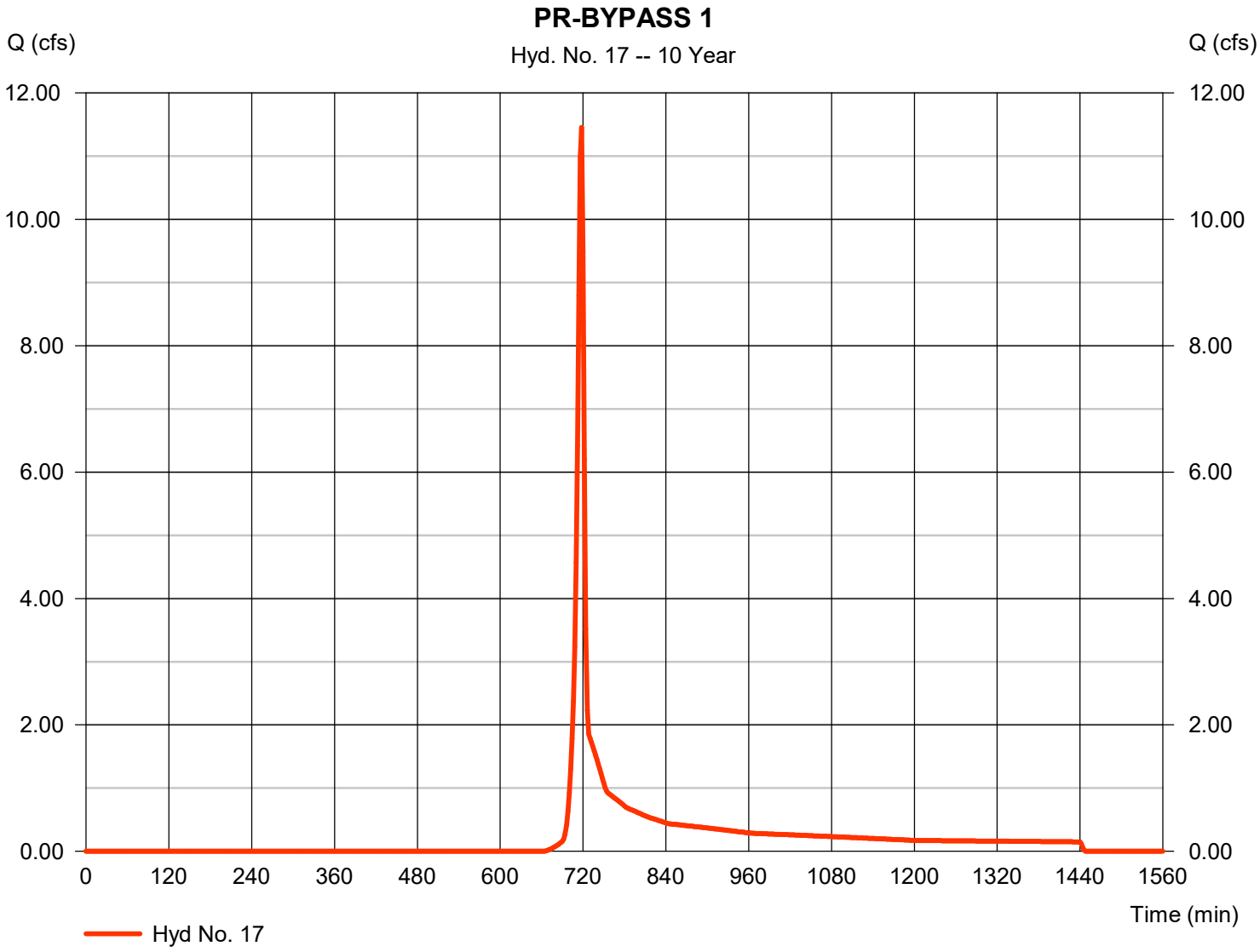
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	23,046 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



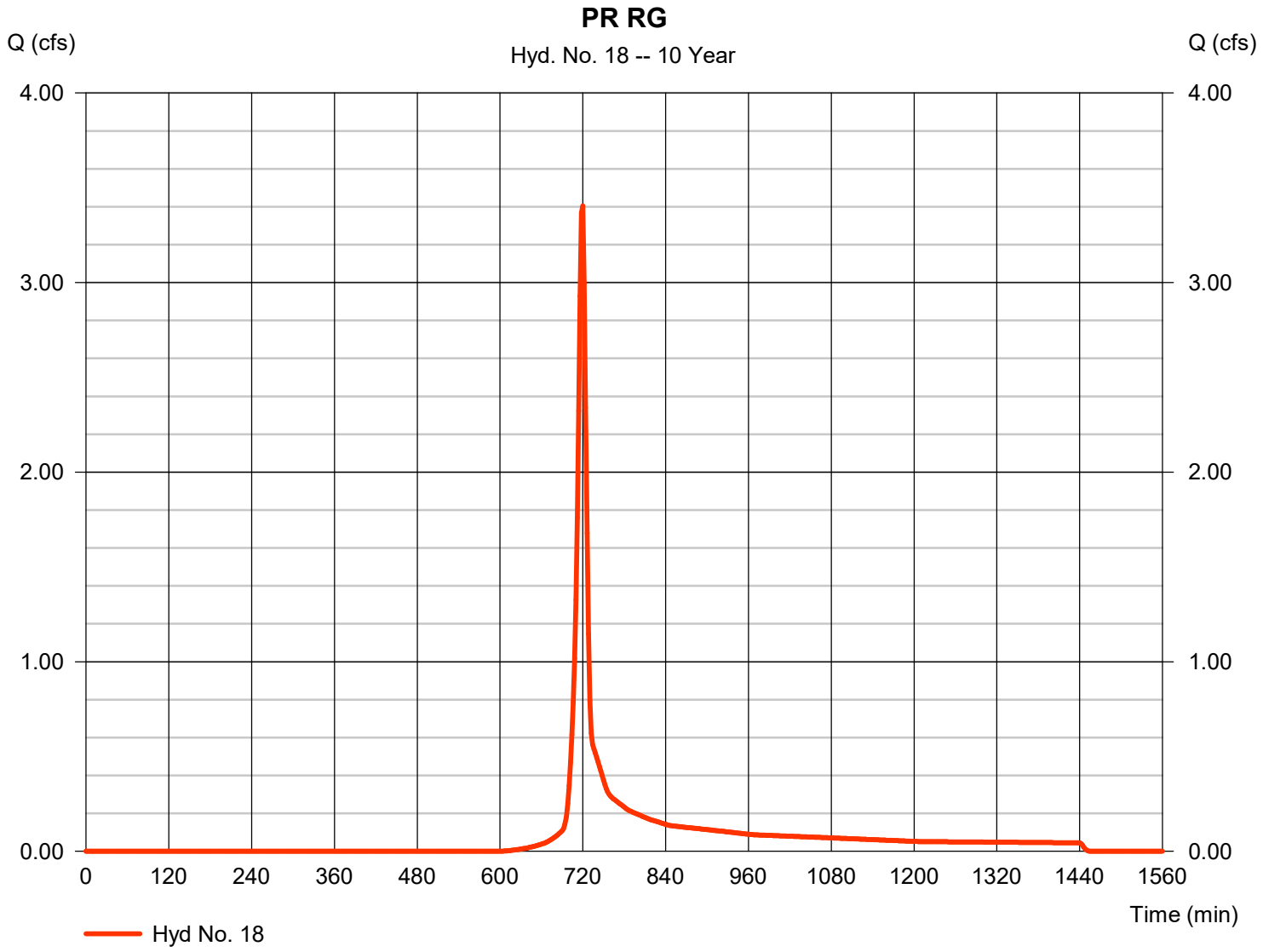
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.404 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	7,797 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



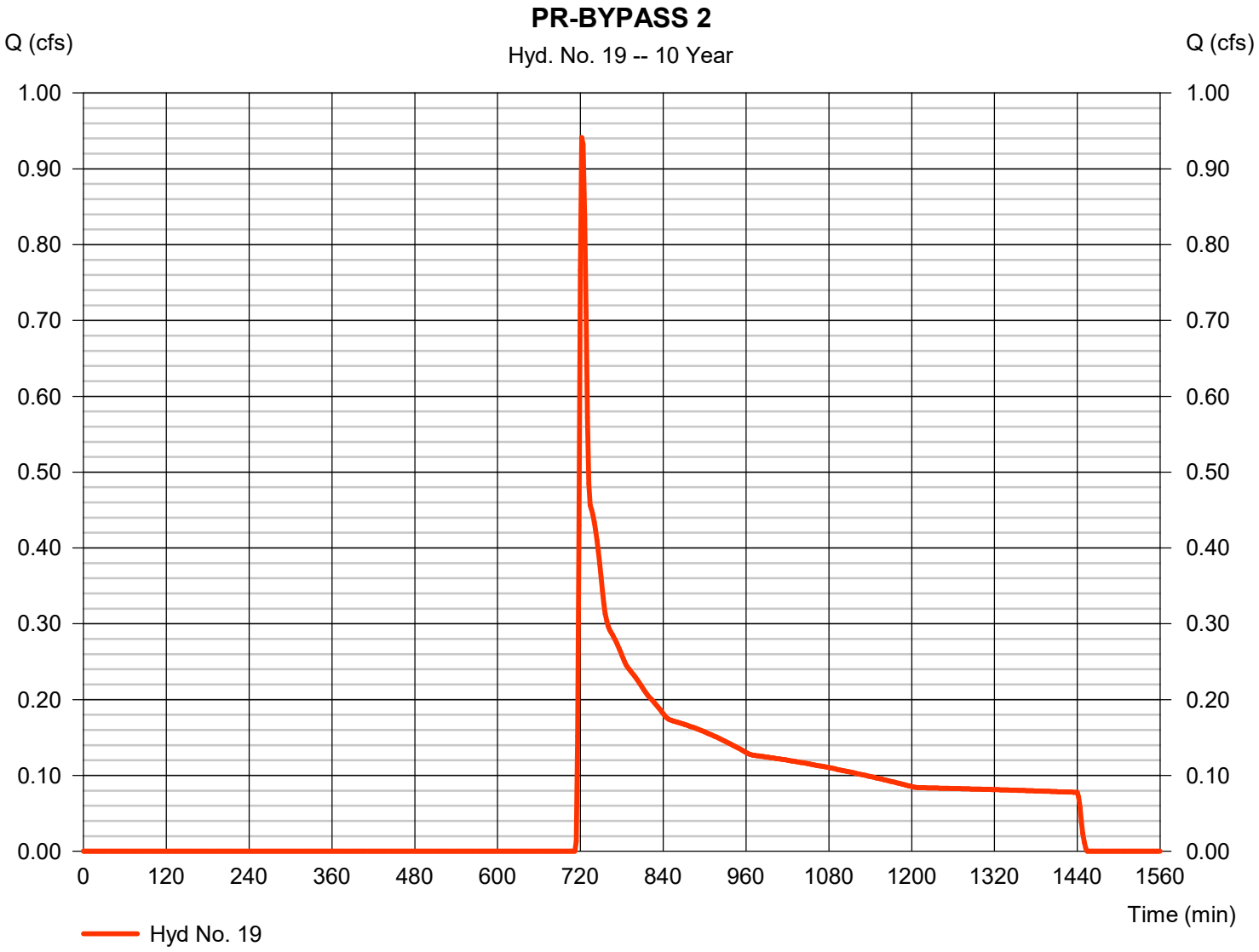
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.941 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	6,330 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



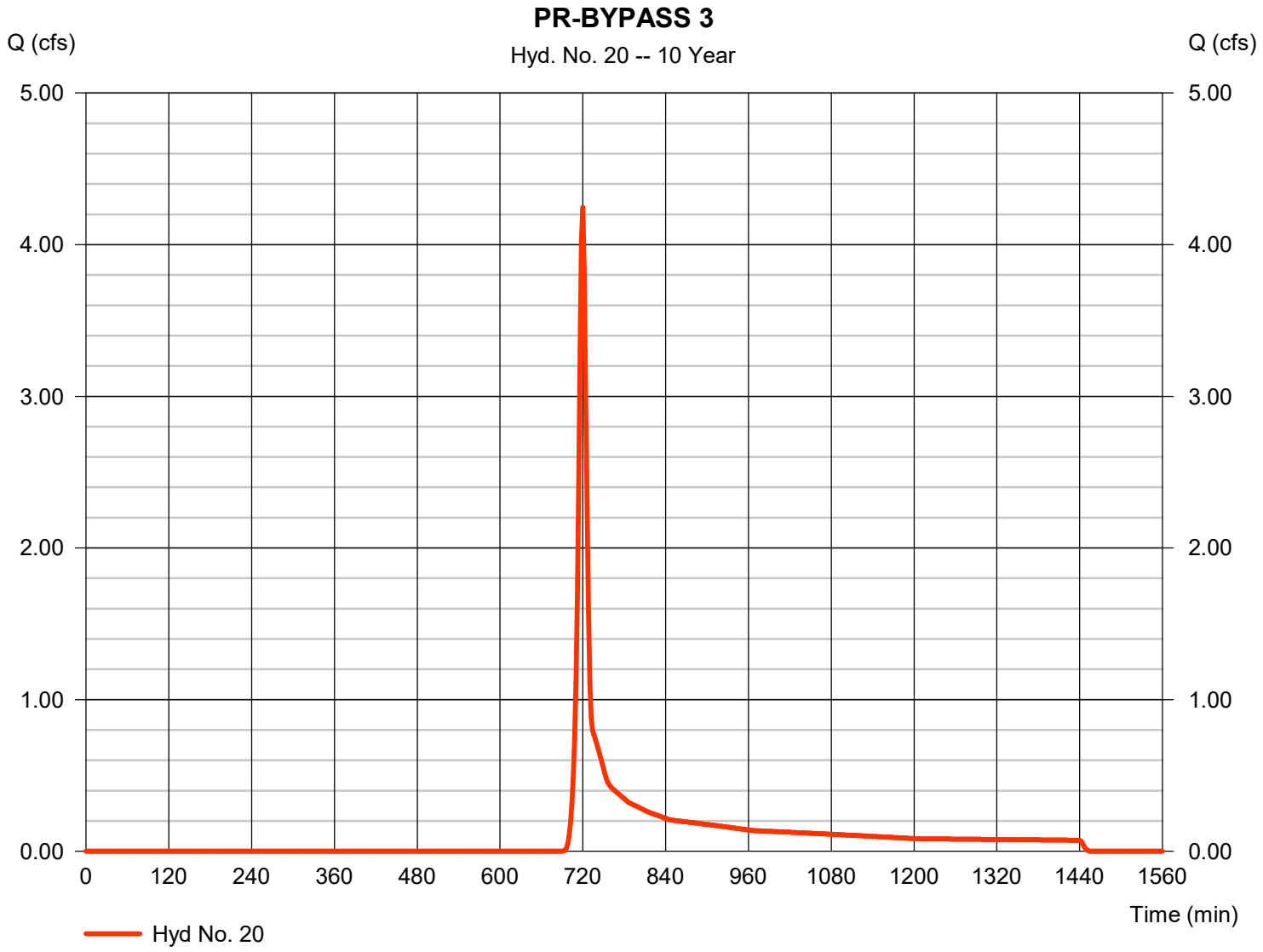
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.244 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	10,221 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

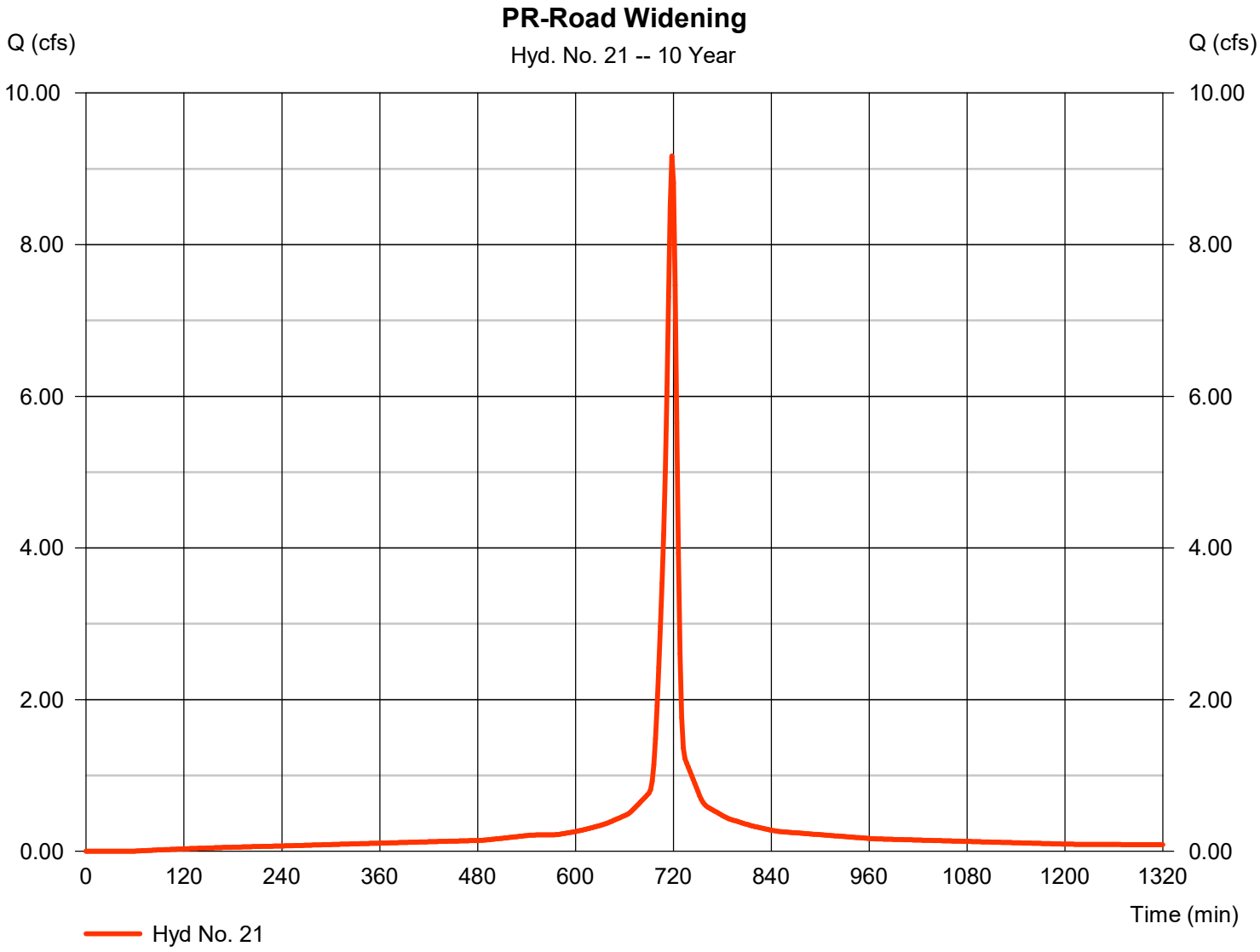


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.169 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	24,329 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

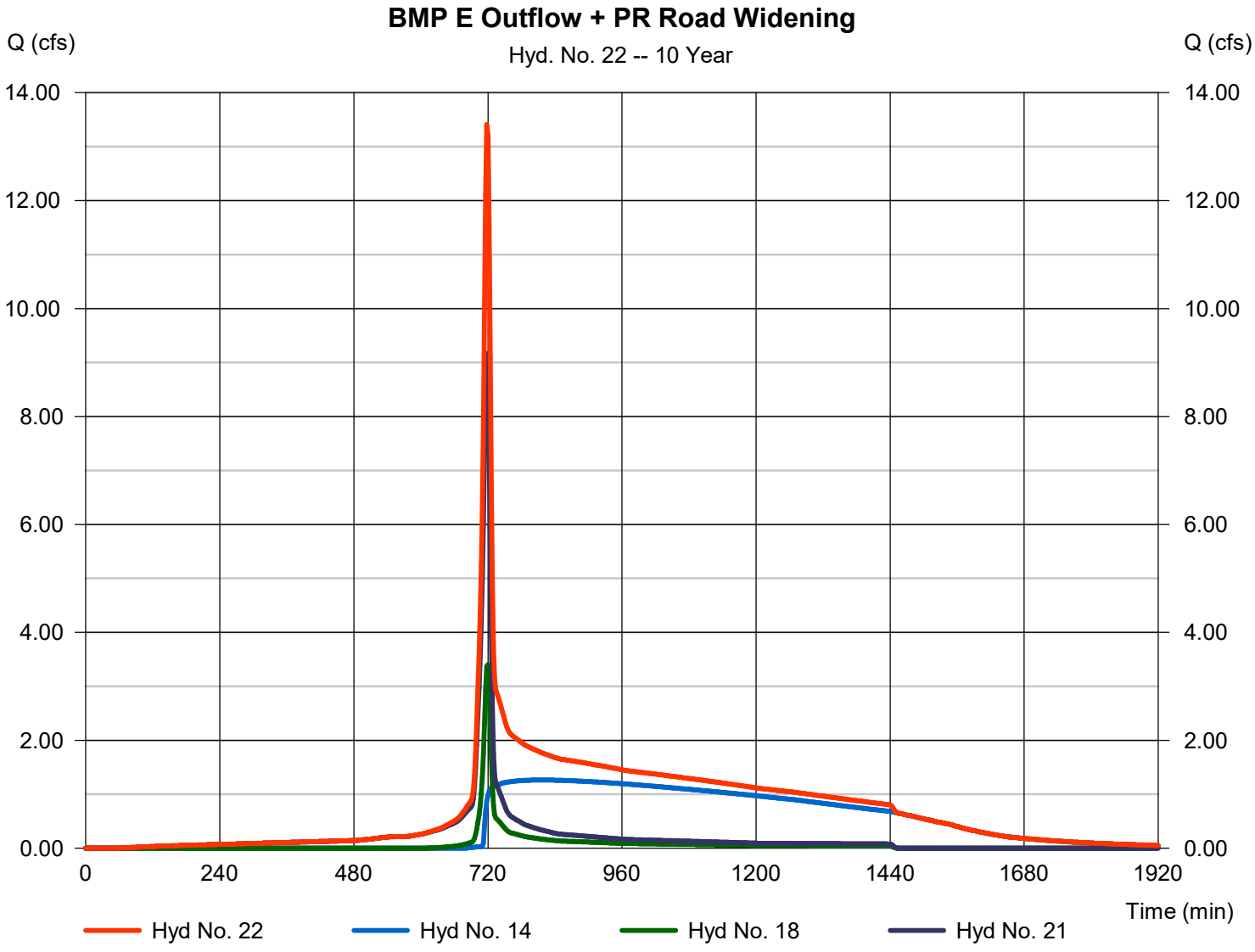


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	13.41 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	92,359 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



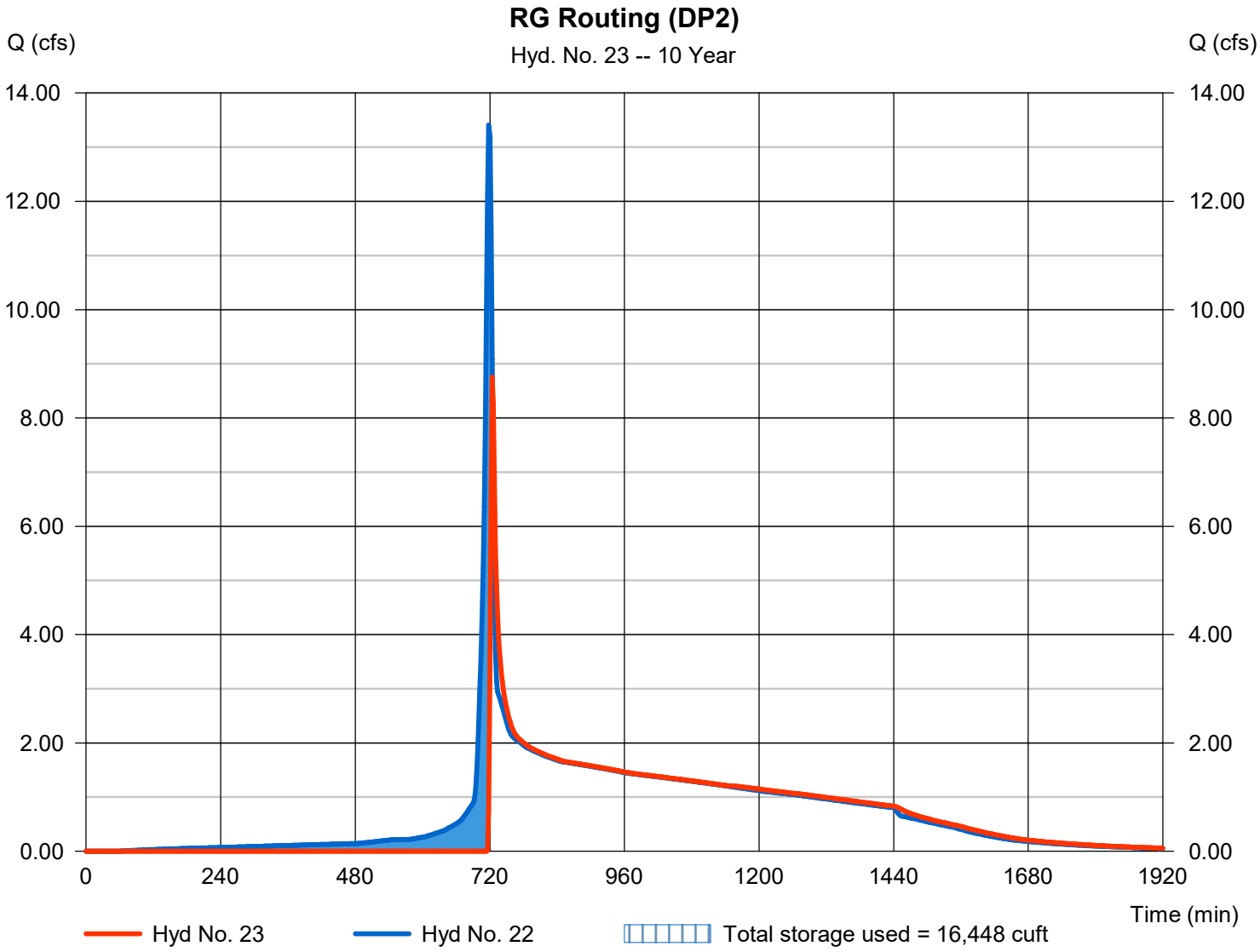
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	8.753 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	79,345 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.06 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	16,448 cuft

Storage Indication method used.

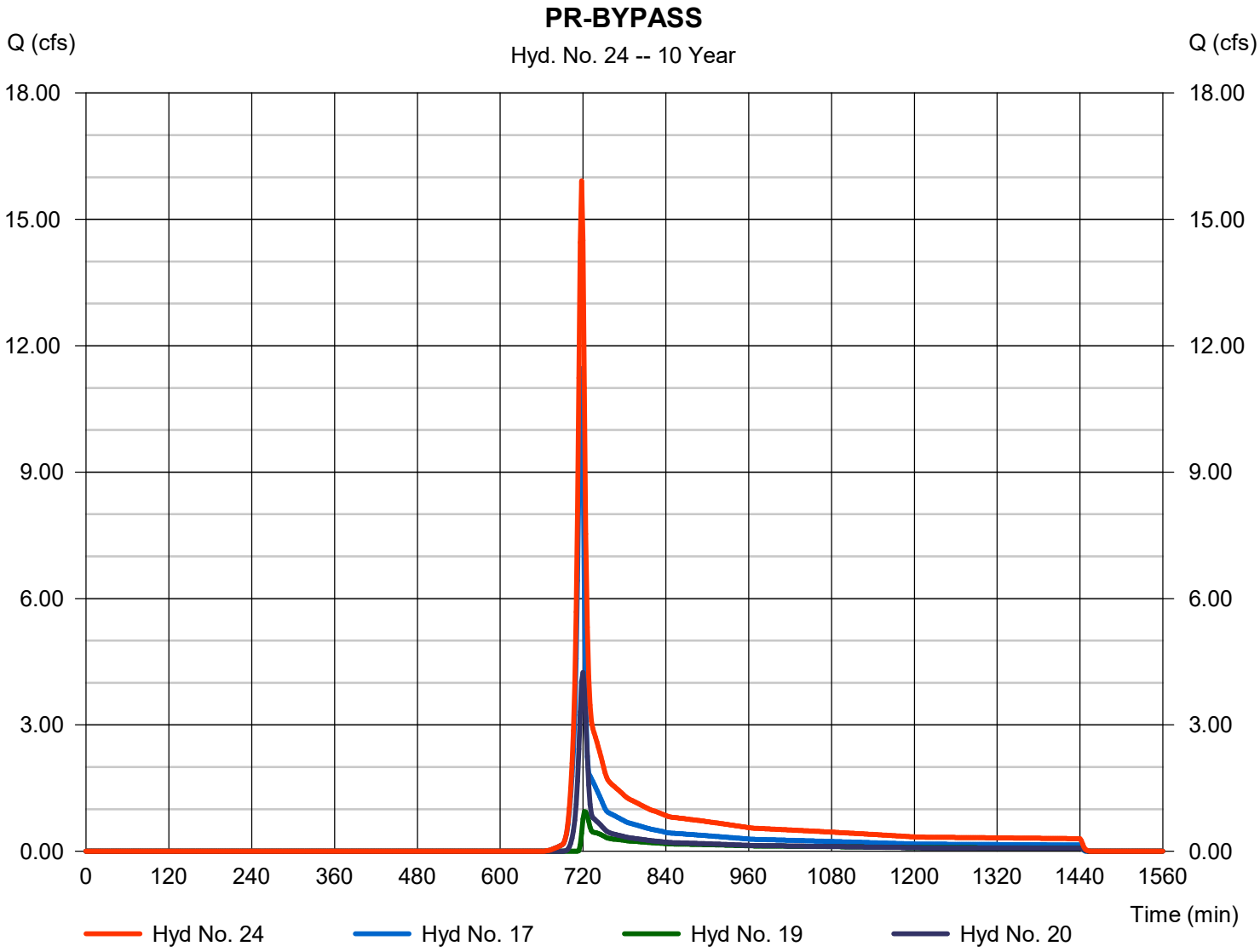


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 15.91 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 39,596 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

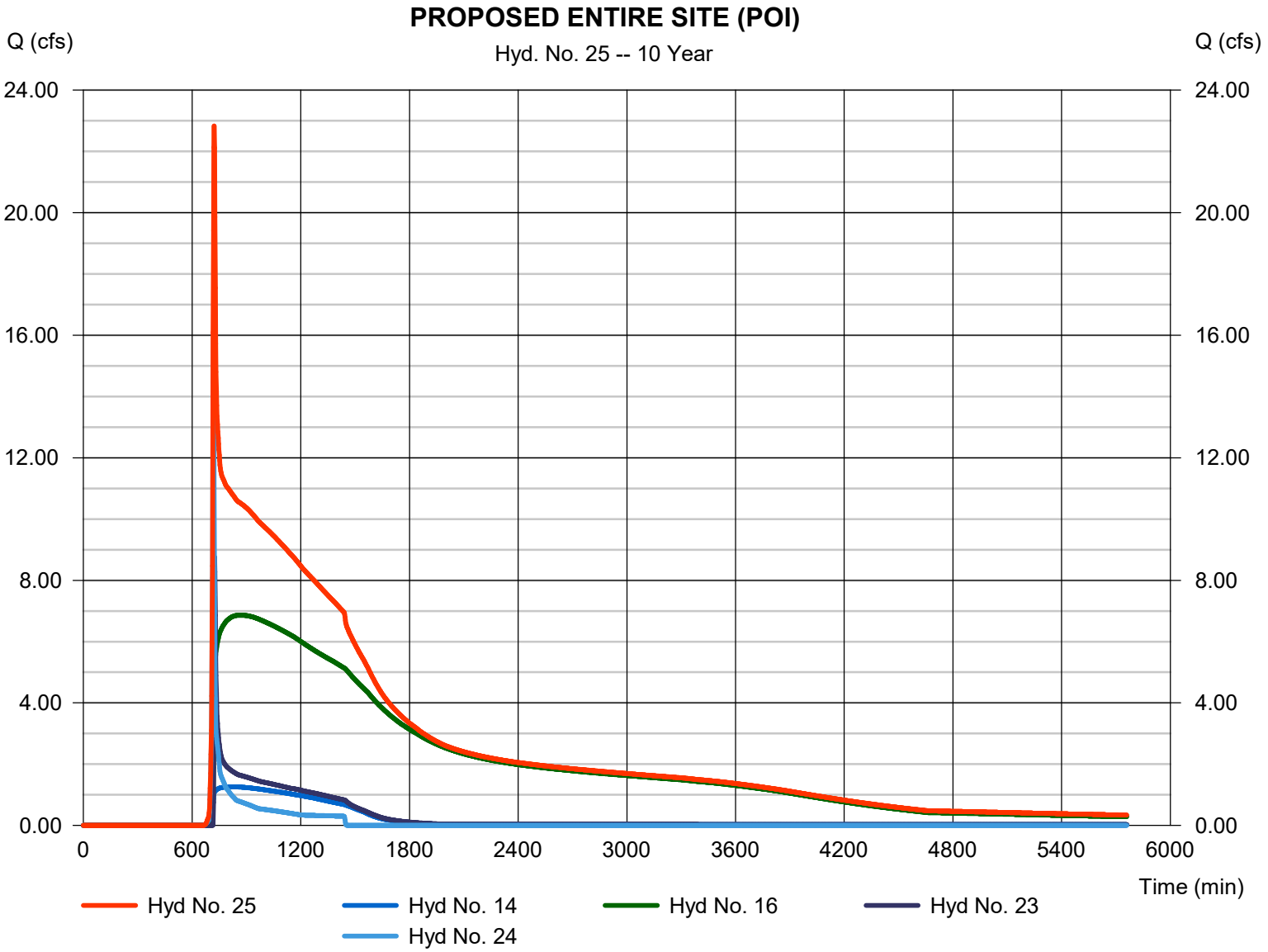


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 22.83 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 816,513 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

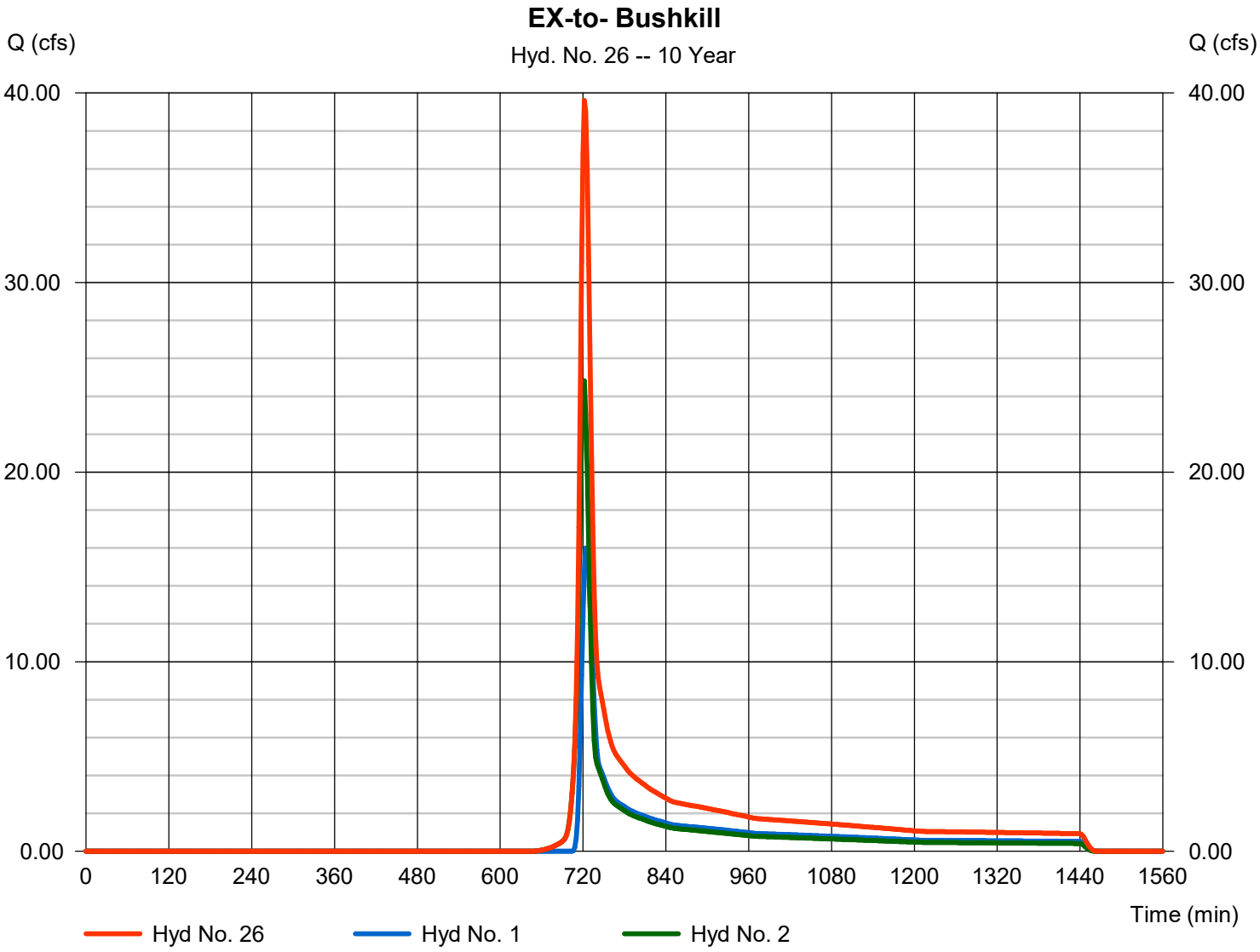


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 39.60 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 126,577 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

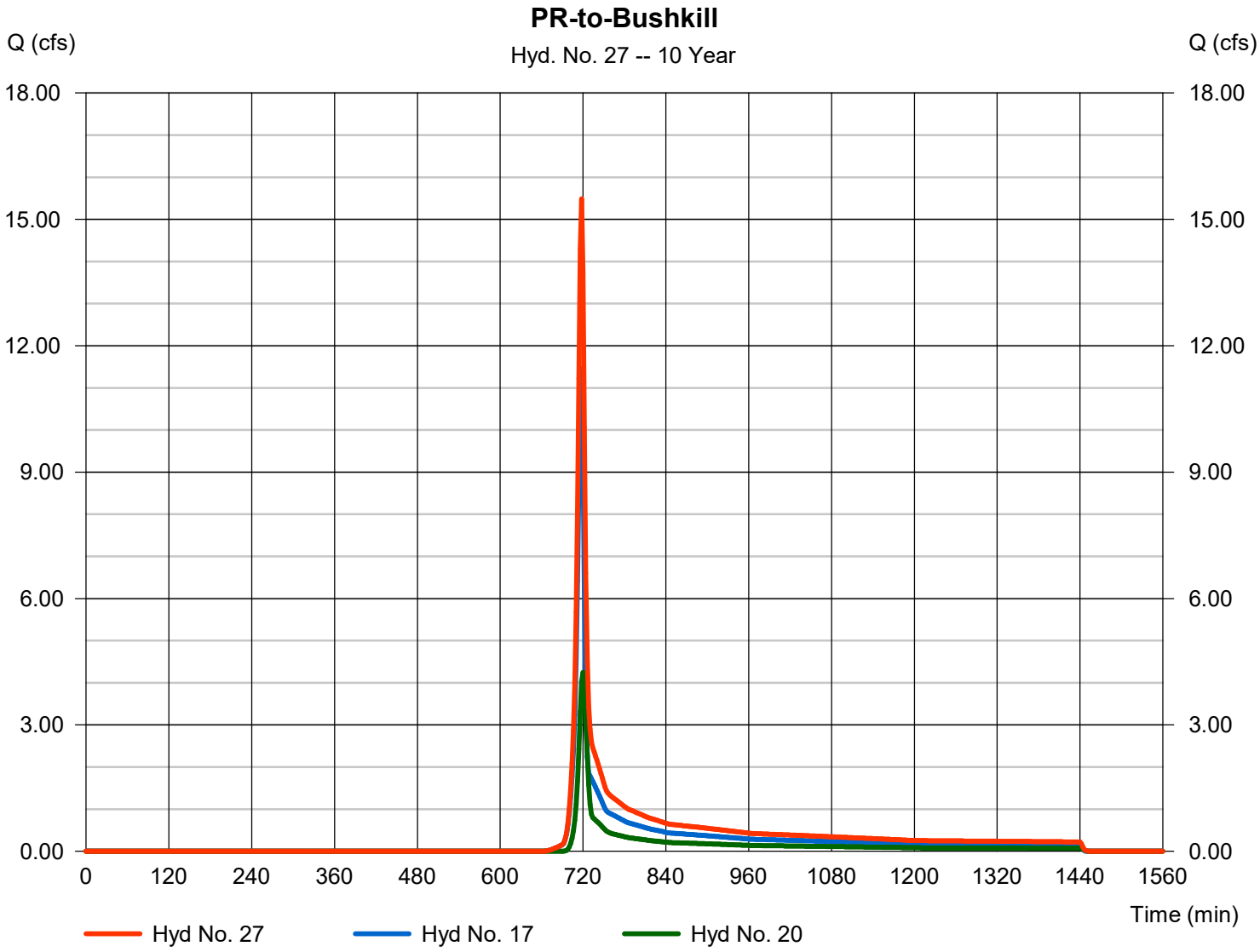


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	15.48 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	33,267 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

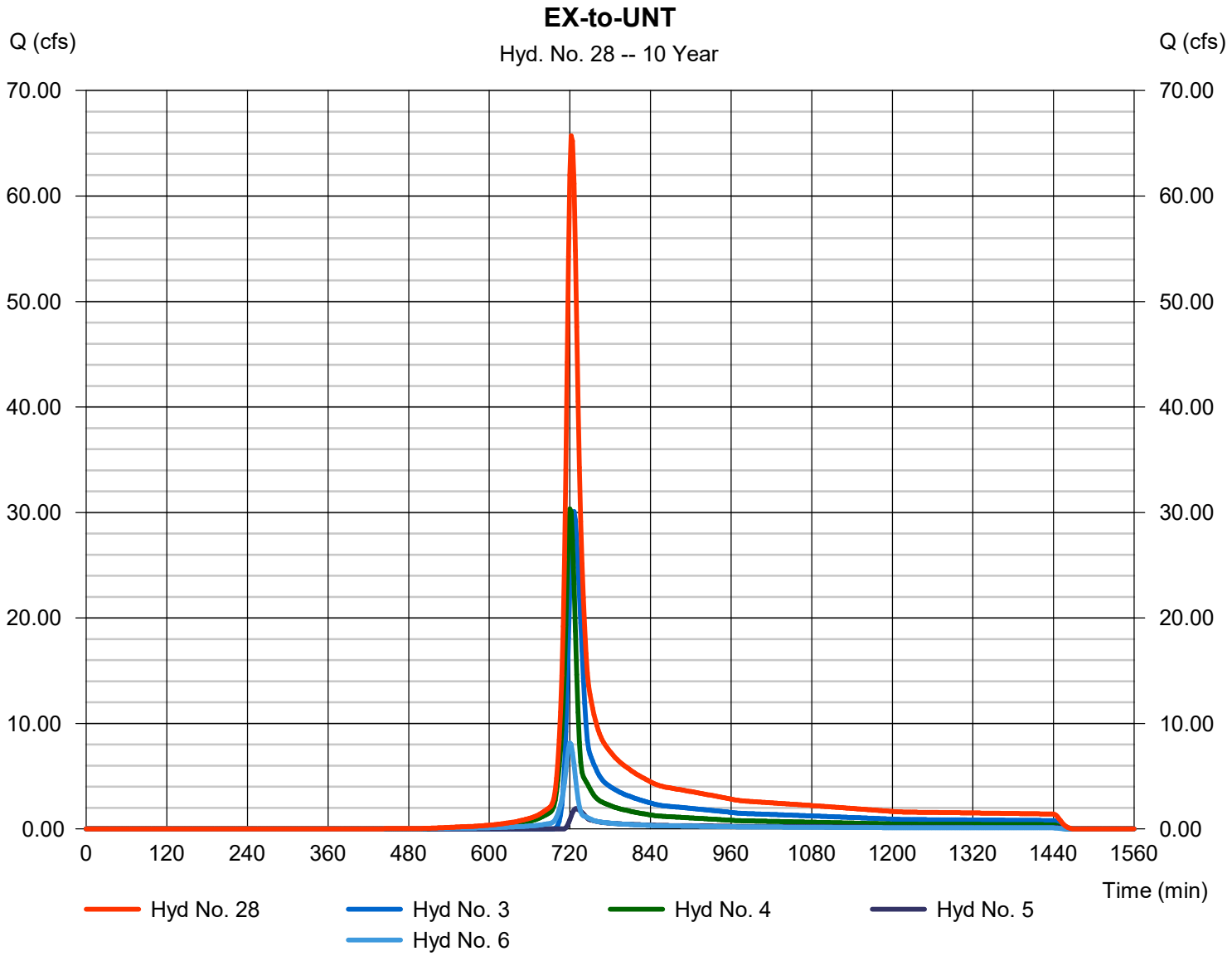


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 65.70 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 220,715 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

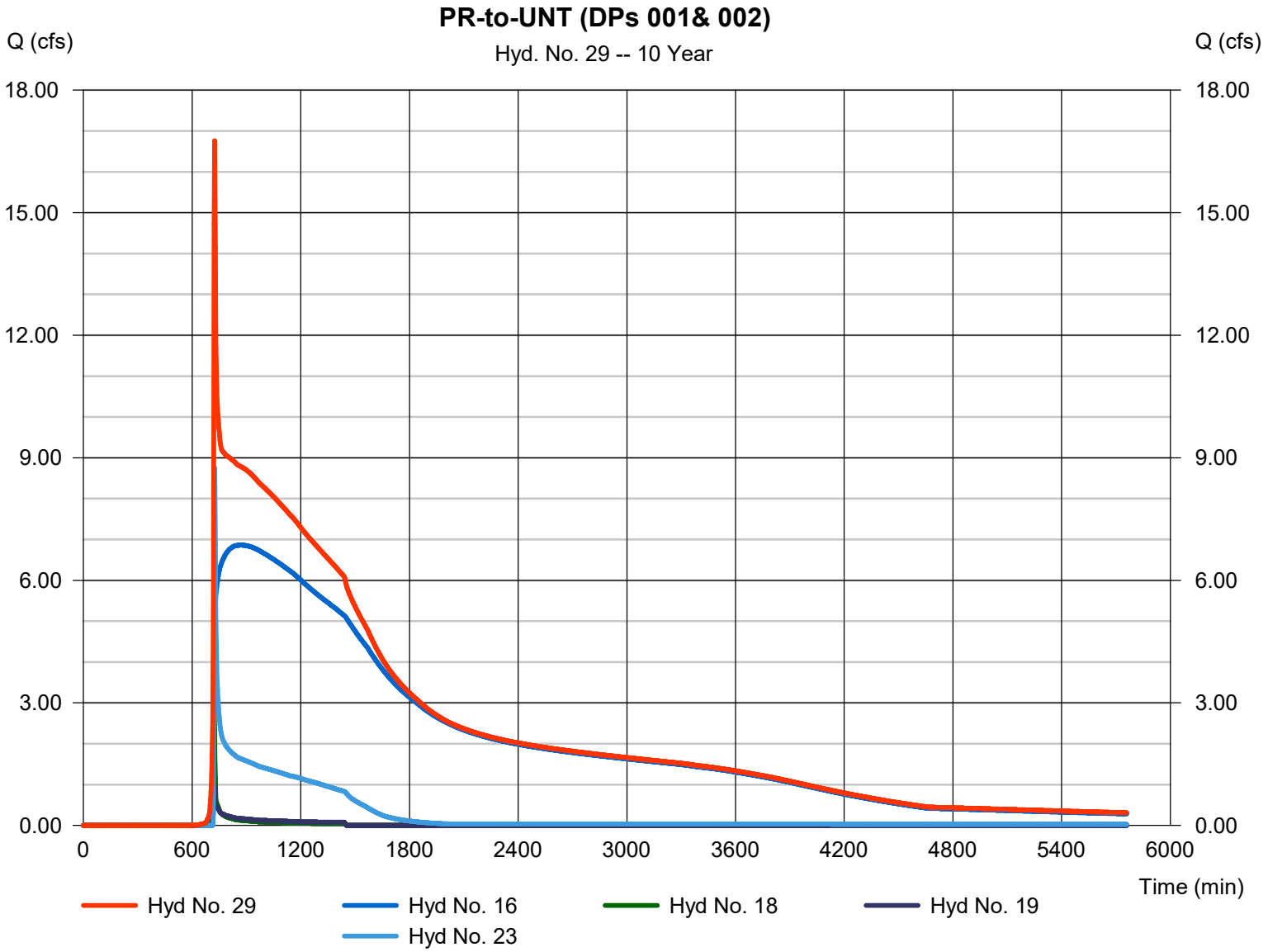


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 16.76 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 730,810 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	30.73	2	724	99,415	------	------	------	EX-DA 1
2	SCS Runoff	36.44	2	722	95,700	------	------	------	EX-DA2
3	SCS Runoff	49.39	2	726	165,849	------	------	------	EX-DA3
4	SCS Runoff	40.87	2	720	106,054	------	------	------	EX-DA4
5	SCS Runoff	5.040	2	728	23,273	------	------	------	EX-DA5
6	SCS Runoff	10.56	2	720	27,790	------	------	------	EX-DA-Road Widening
7	Combine	165.60	2	722	518,082	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	91.97	2	716	213,089	------	------	------	PR-DA-A
9	SCS Runoff	116.22	2	716	269,283	------	------	------	PR-DA-B
10	SCS Runoff	203.76	2	718	493,598	------	------	------	PR-DA-C
11	Reservoir	0.955	2	1160	198,207	8	291.60	169,836	BMP A Routing
12	Reservoir	1.542	2	1060	256,935	9	288.06	203,436	BMP B Routing
13	SCS Runoff	44.31	2	716	90,550	------	------	------	PR-DA-E
14	Reservoir	4.967	2	738	82,739	13	259.69	48,155	BMP E Routing
15	Combine	205.84	2	718	948,739	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	8.692	2	844	821,320	15	218.18	352,533	MRC BMP C Routing(DP1)
17	SCS Runoff	16.92	2	718	33,838	------	------	------	PR-BYPASS 1
18	SCS Runoff	4.786	2	720	10,964	------	------	------	PR RG
19	SCS Runoff	3.522	2	722	12,562	------	------	------	PR-BYPASS 2
20	SCS Runoff	6.676	2	720	15,535	------	------	------	PR-BYPASS 3
21	SCS Runoff	11.12	2	718	29,722	------	------	------	PR-Road Widening
22	Combine	17.09	2	718	123,425	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	15.10	2	722	110,411	22	233.19	17,401	RG Routing (DP2)
24	Combine	26.13	2	718	61,934	17, 19, 20,	------	------	PR-BYPASS
25	Combine	45.31	2	720	1,076,403	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	65.97	2	722	195,116	1, 2,	------	------	EX-to- Bushkill
27	Combine	23.40	2	718	49,372	17, 20,	------	------	PR-to-Bushkill
28	Combine	99.62	2	722	322,966	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	29.24	2	722	955,258	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

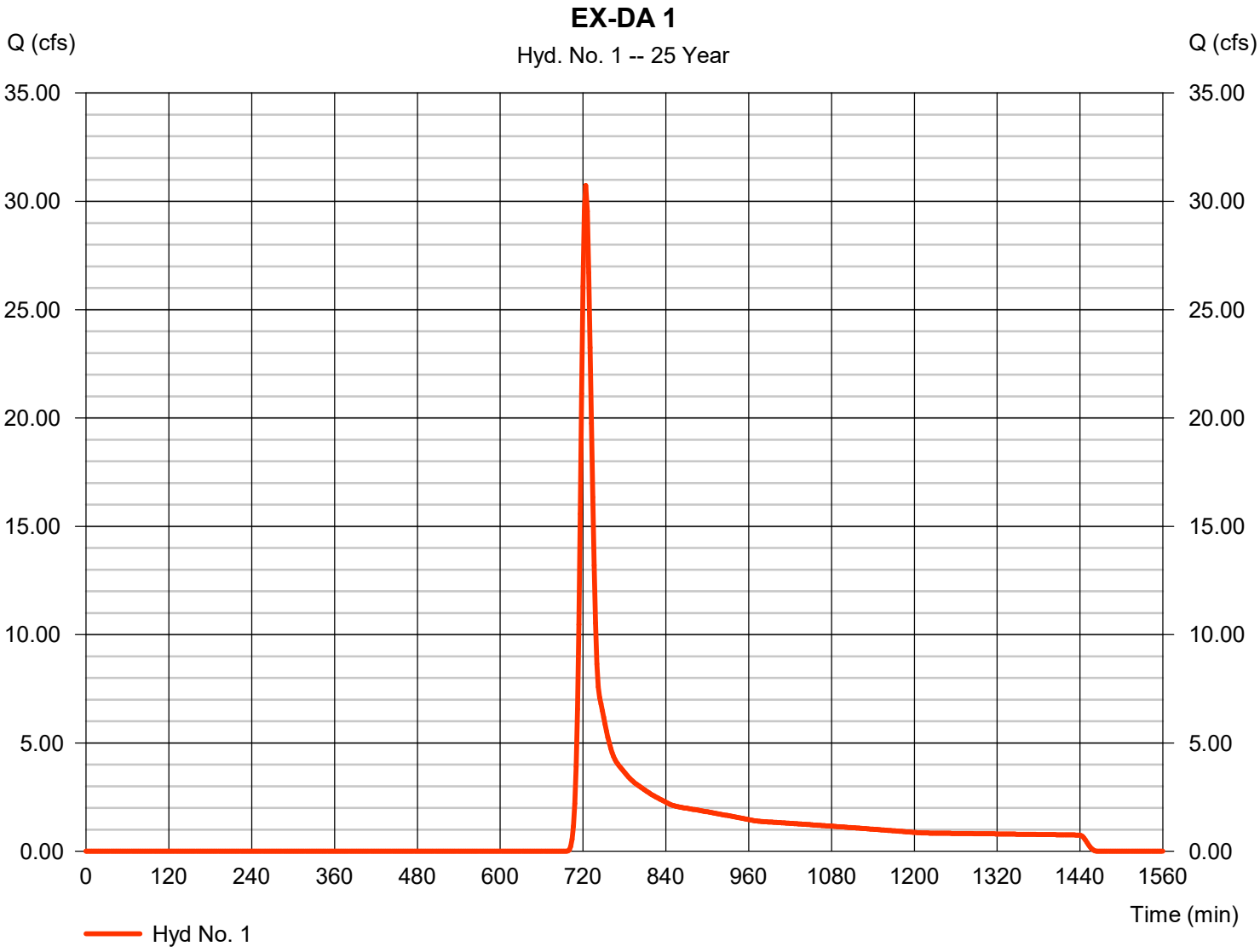
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.73 cfs
Storm frequency	=	25 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	99,415 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



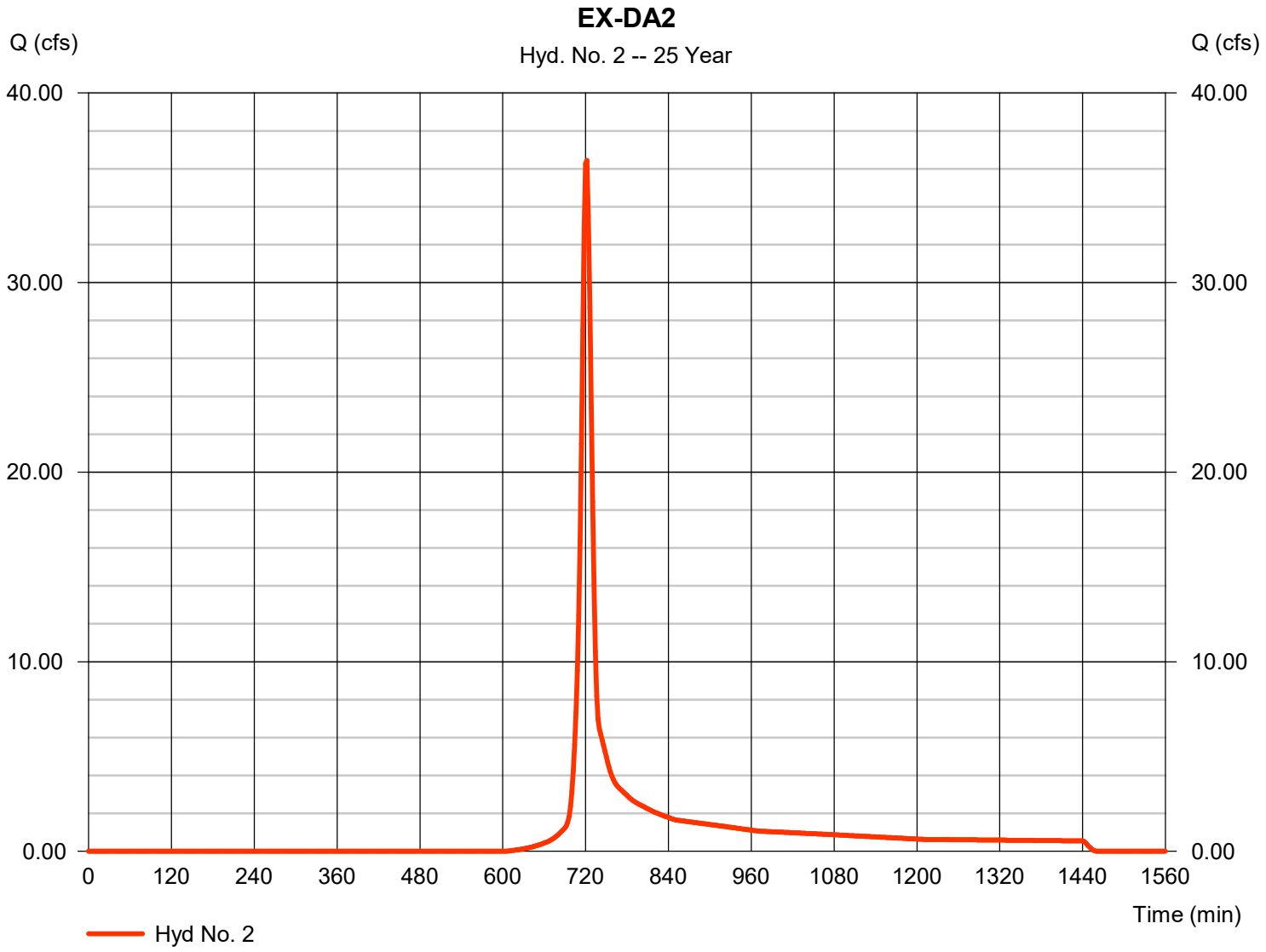
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	36.44 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	95,700 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



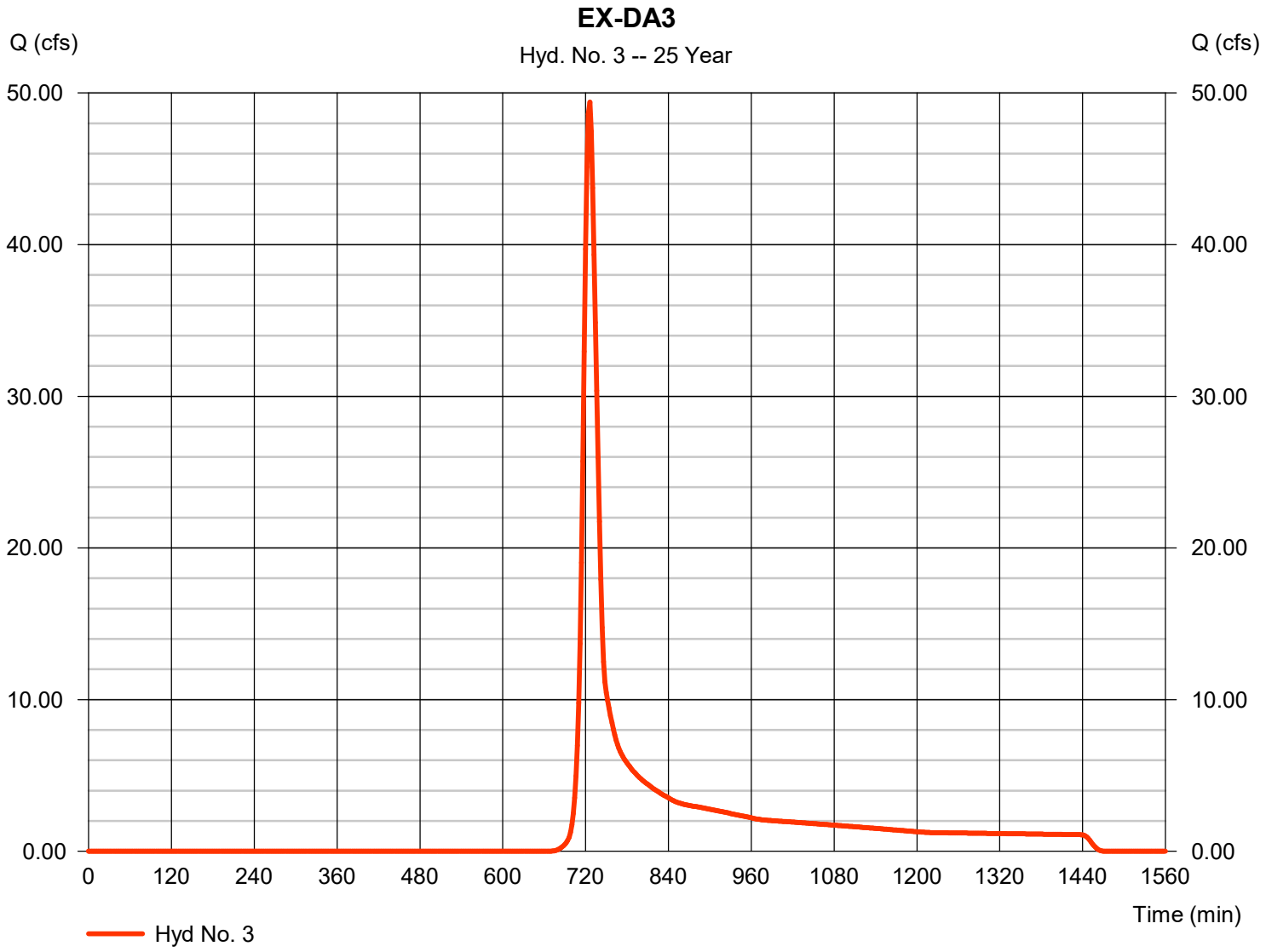
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	49.39 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	165,849 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



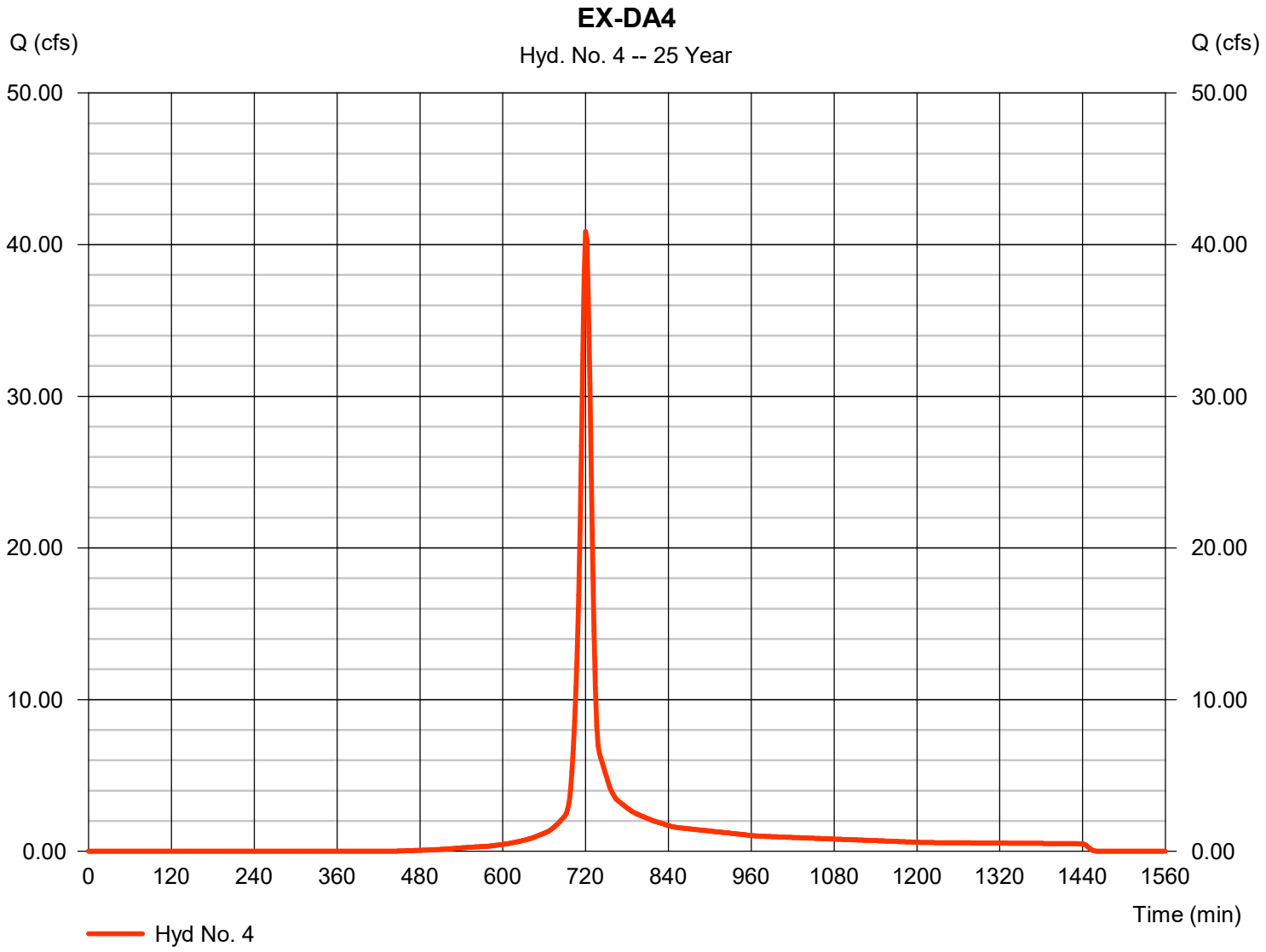
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	40.87 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	106,054 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



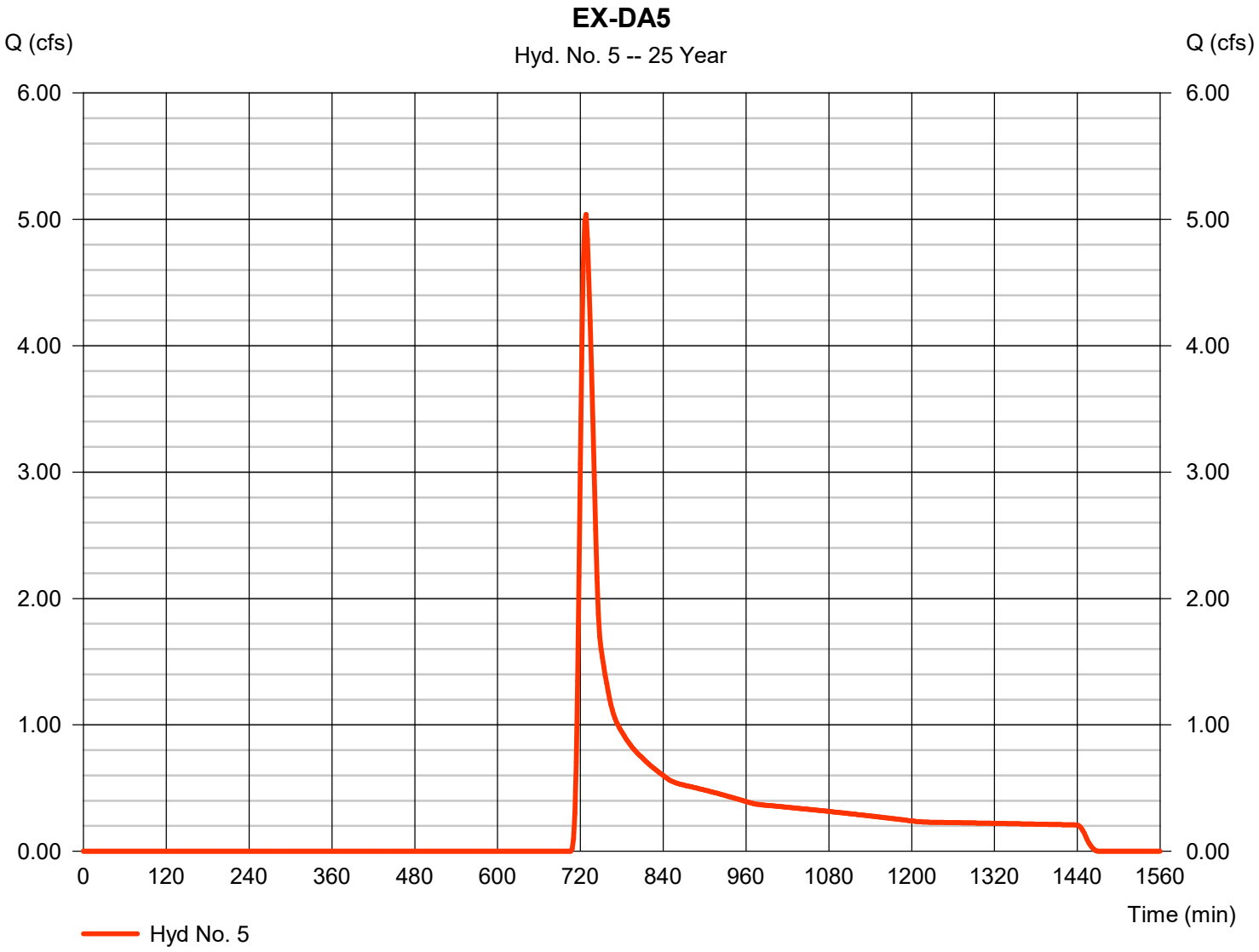
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.040 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	23,273 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



Hydrograph Report

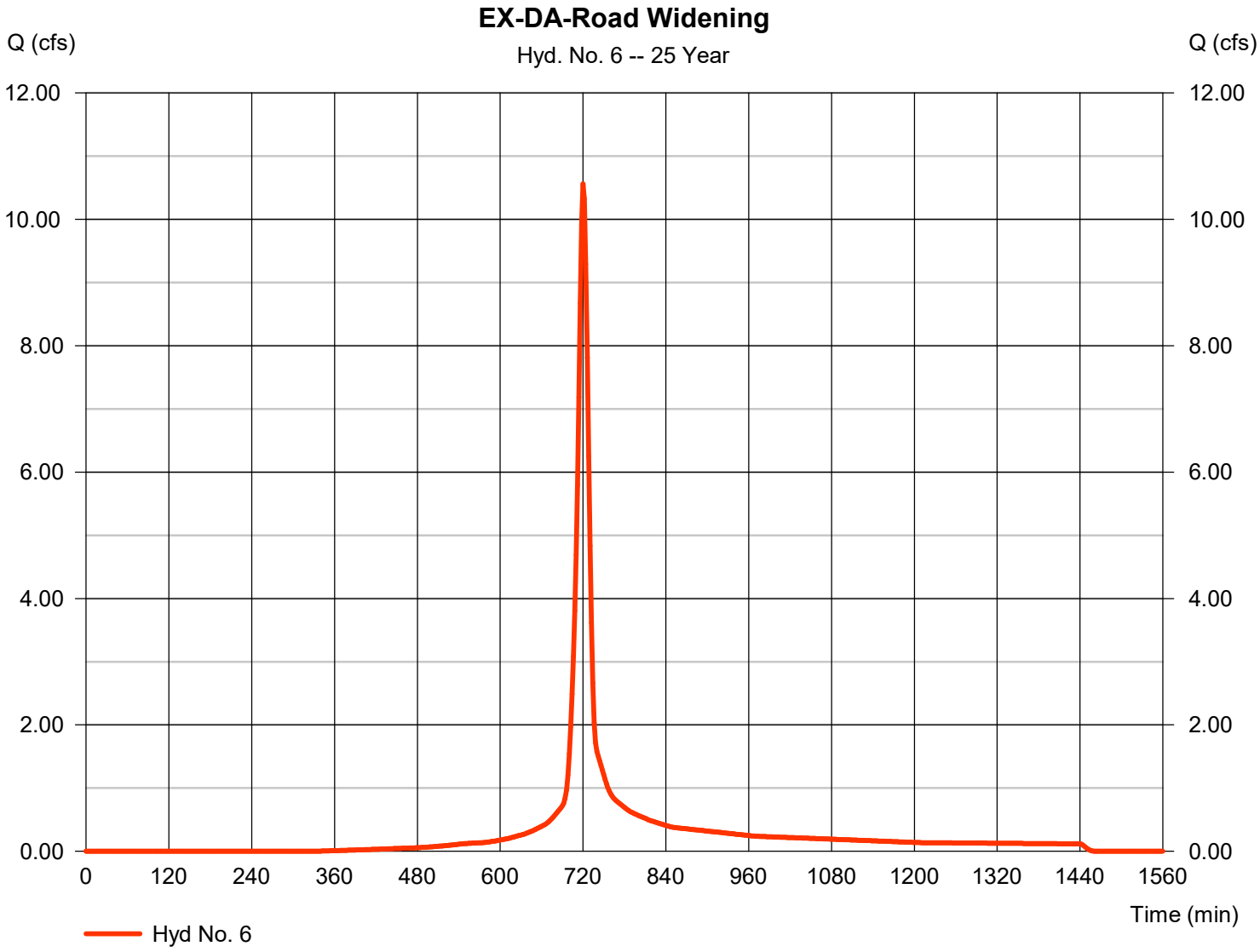
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.56 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	27,790 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

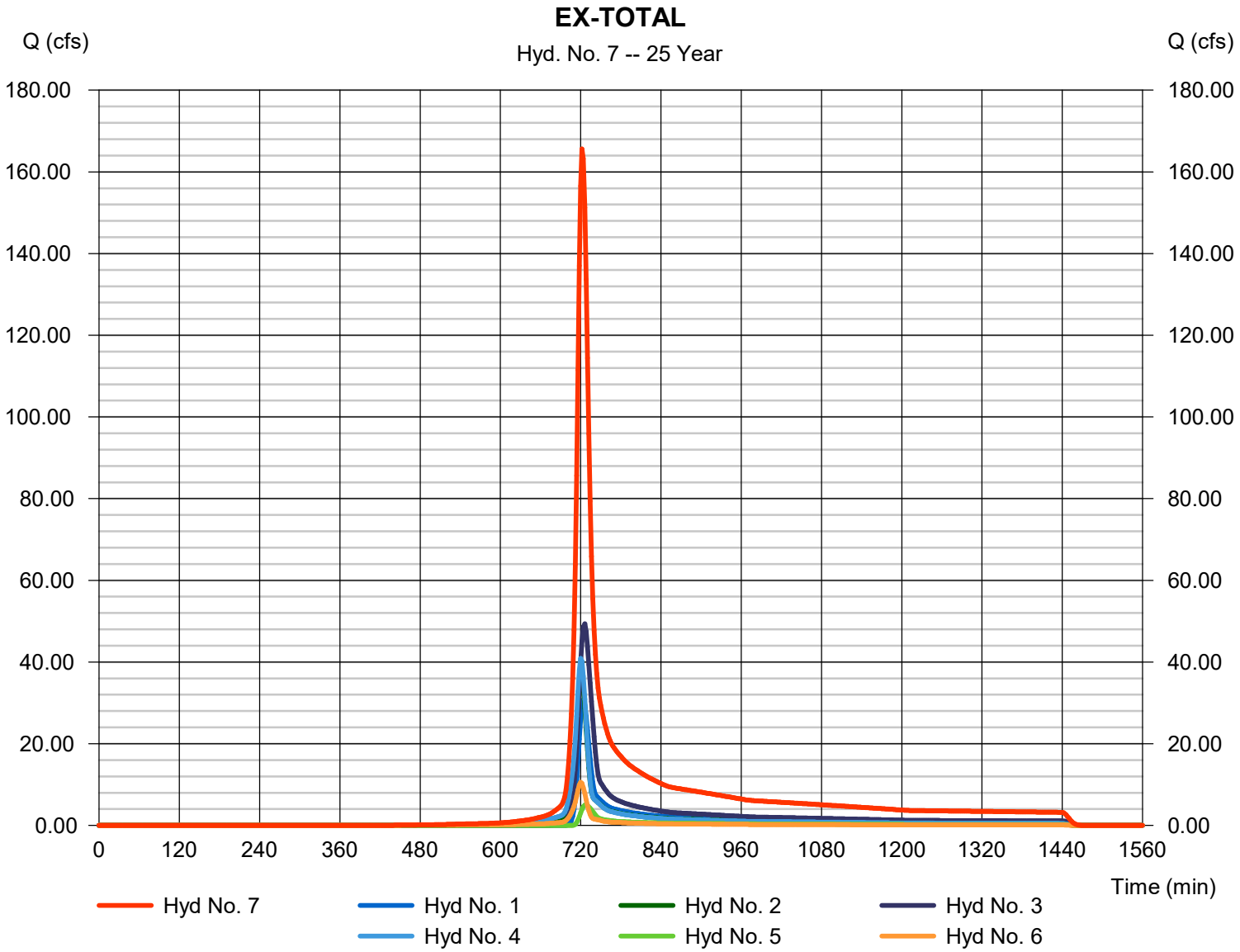


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	165.60 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	518,082 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



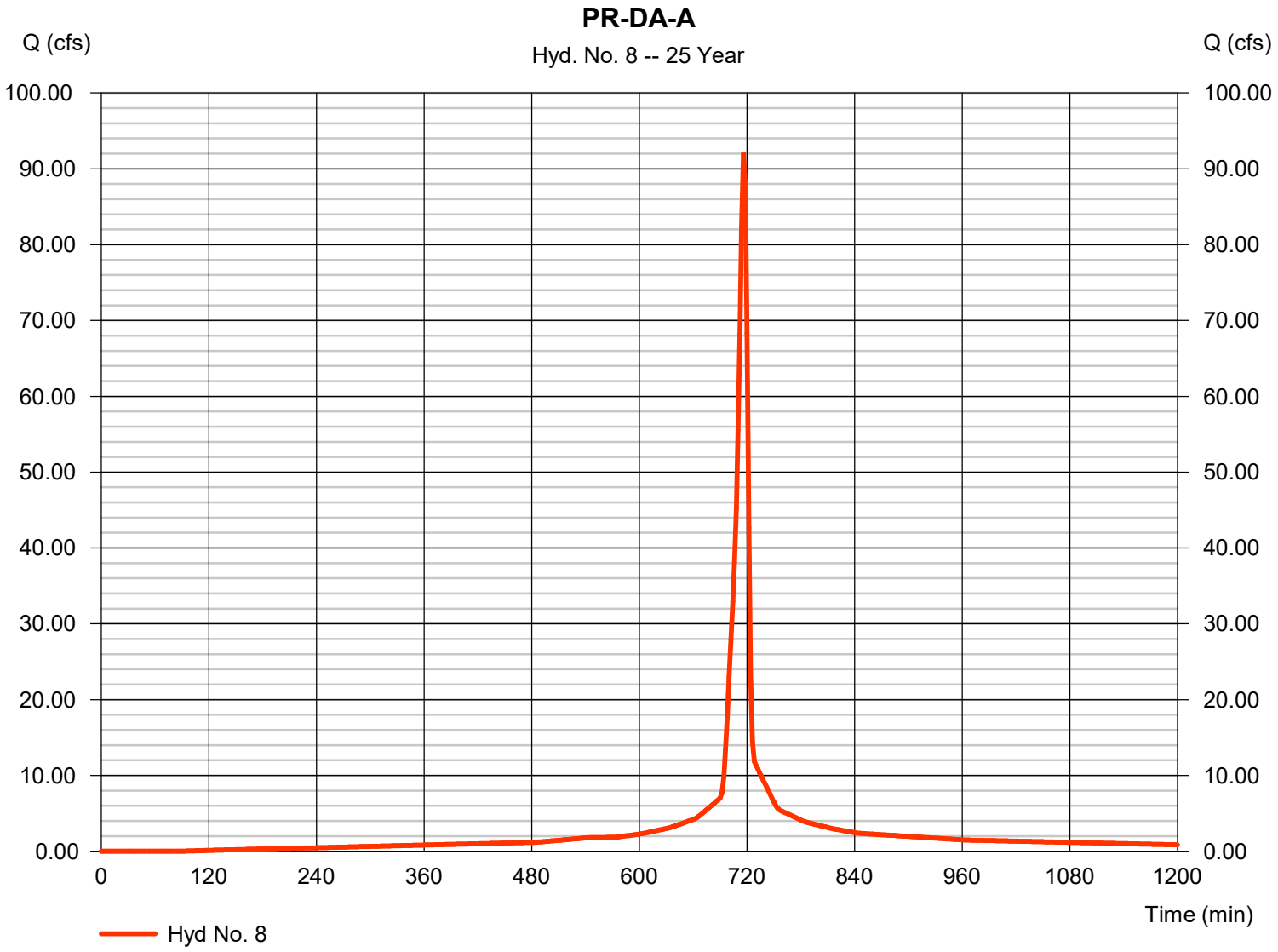
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	91.97 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	213,089 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



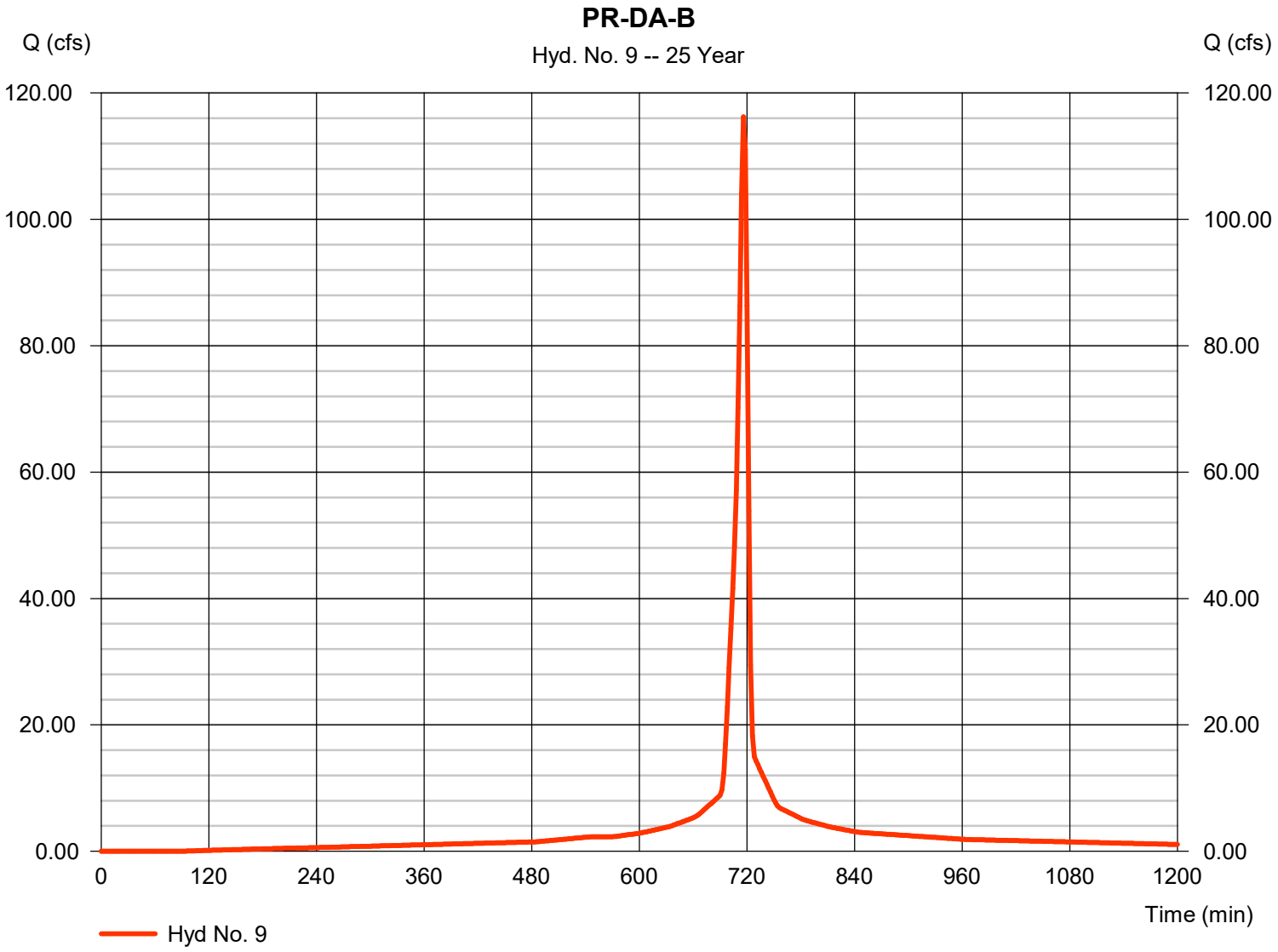
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	116.22 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	269,283 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



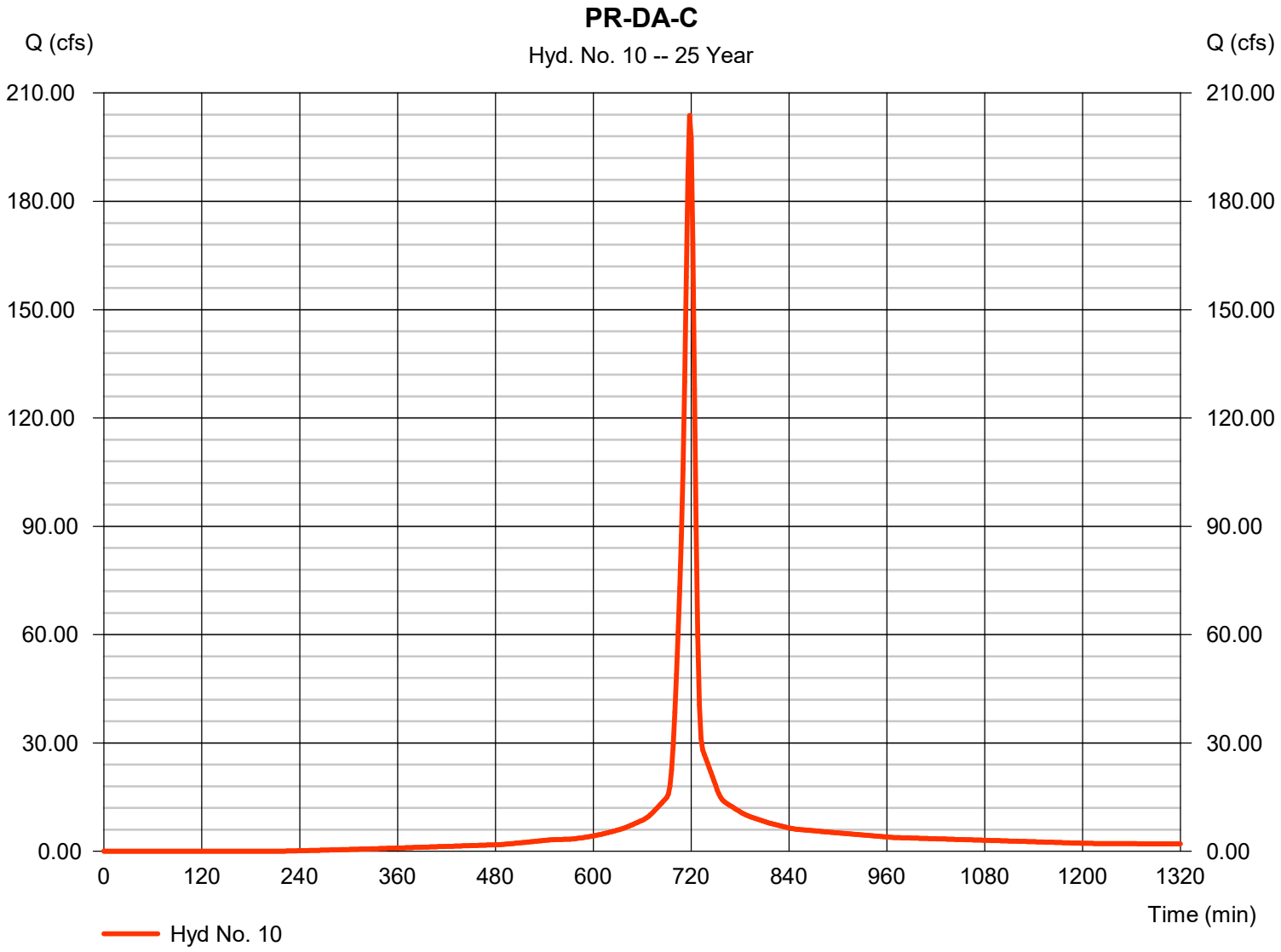
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	203.76 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	493,598 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



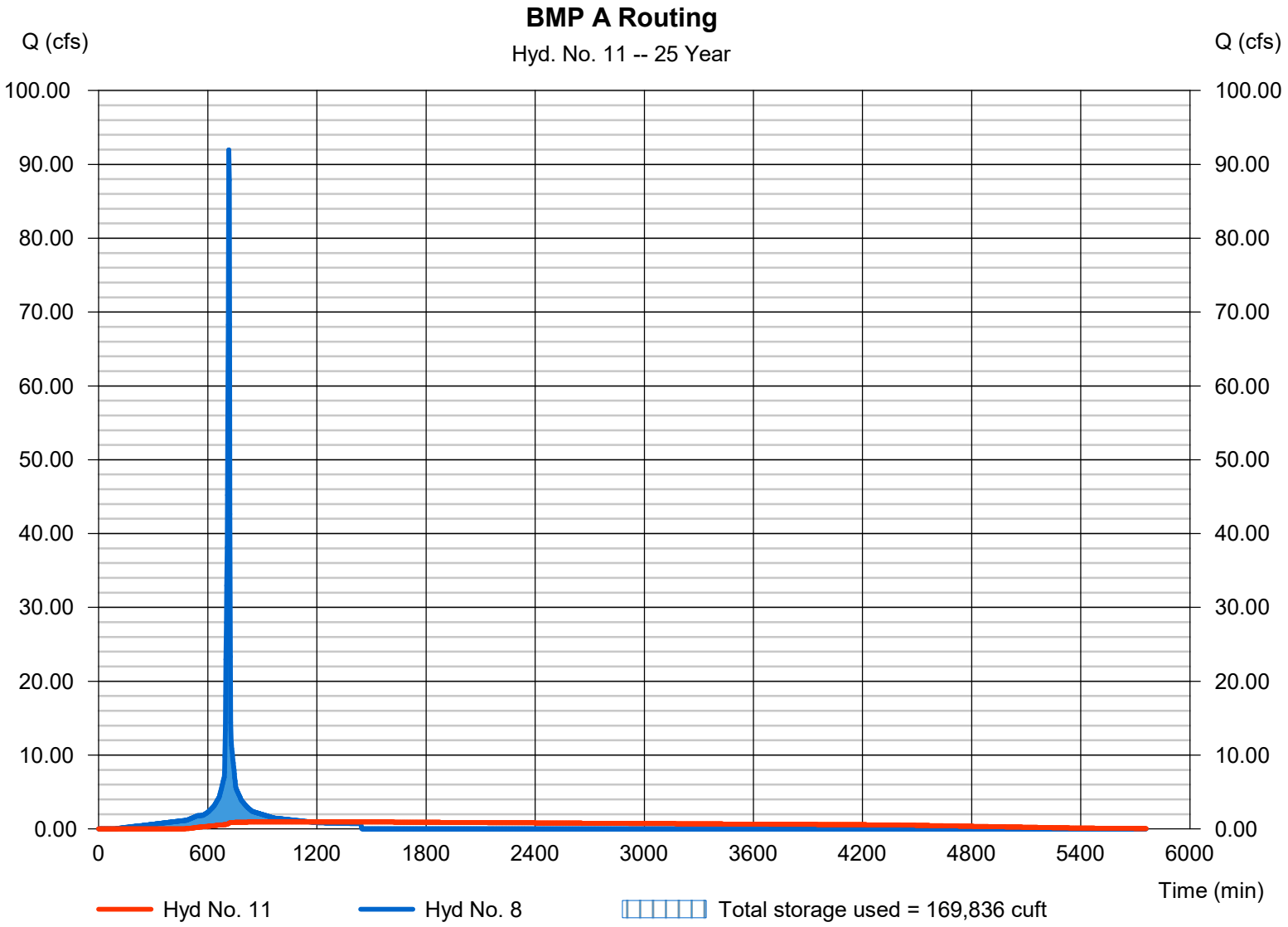
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.955 cfs
Storm frequency	=	25 yrs	Time to peak	=	1160 min
Time interval	=	2 min	Hyd. volume	=	198,207 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.60 ft
Reservoir name	=	BMP A	Max. Storage	=	169,836 cuft

Storage Indication method used.



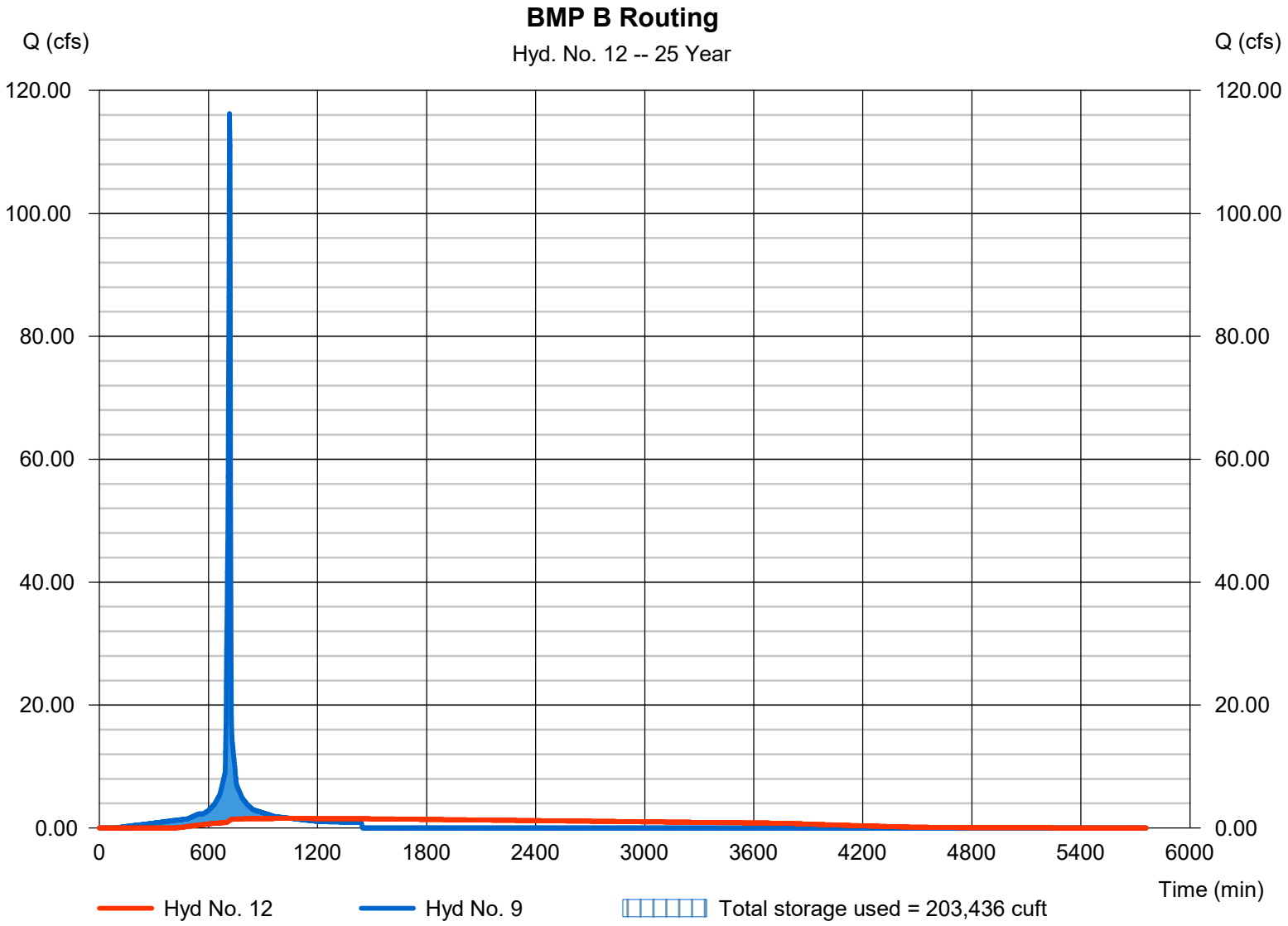
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.542 cfs
Storm frequency	=	25 yrs	Time to peak	=	1060 min
Time interval	=	2 min	Hyd. volume	=	256,935 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.06 ft
Reservoir name	=	BMP B	Max. Storage	=	203,436 cuft

Storage Indication method used.



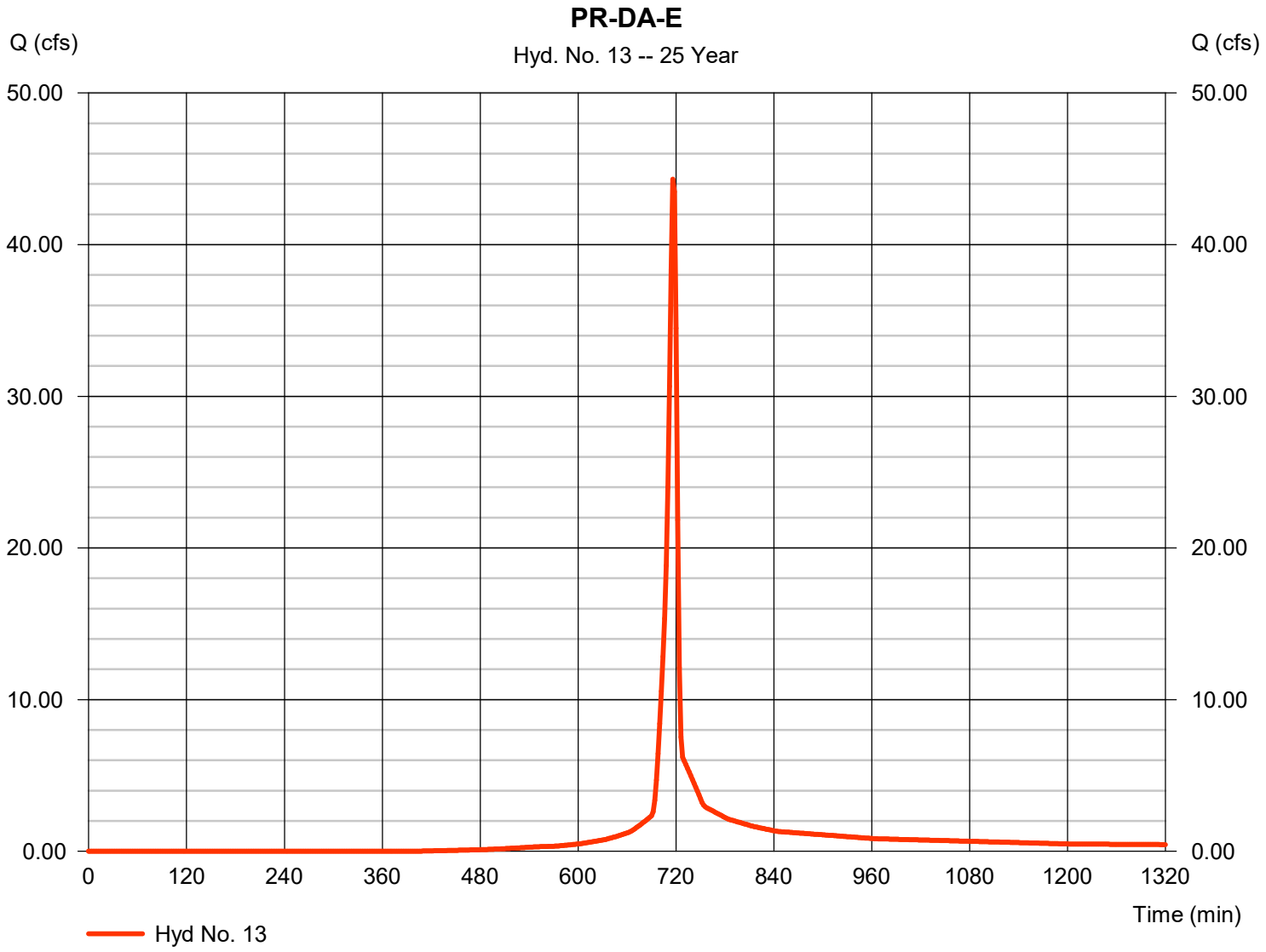
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	44.31 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	90,550 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



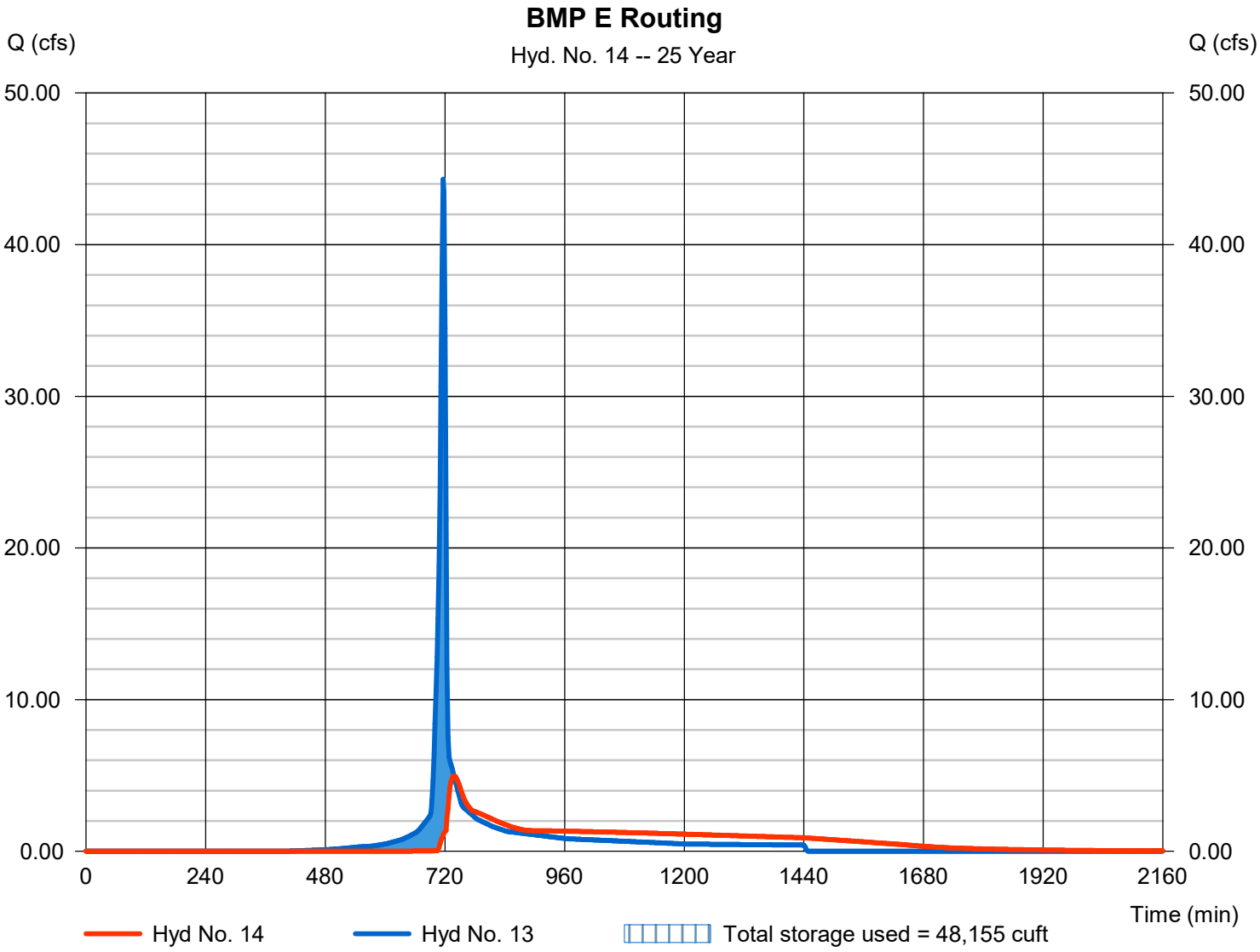
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	4.967 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	82,739 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.69 ft
Reservoir name	=	BMP E	Max. Storage	=	48,155 cuft

Storage Indication method used.

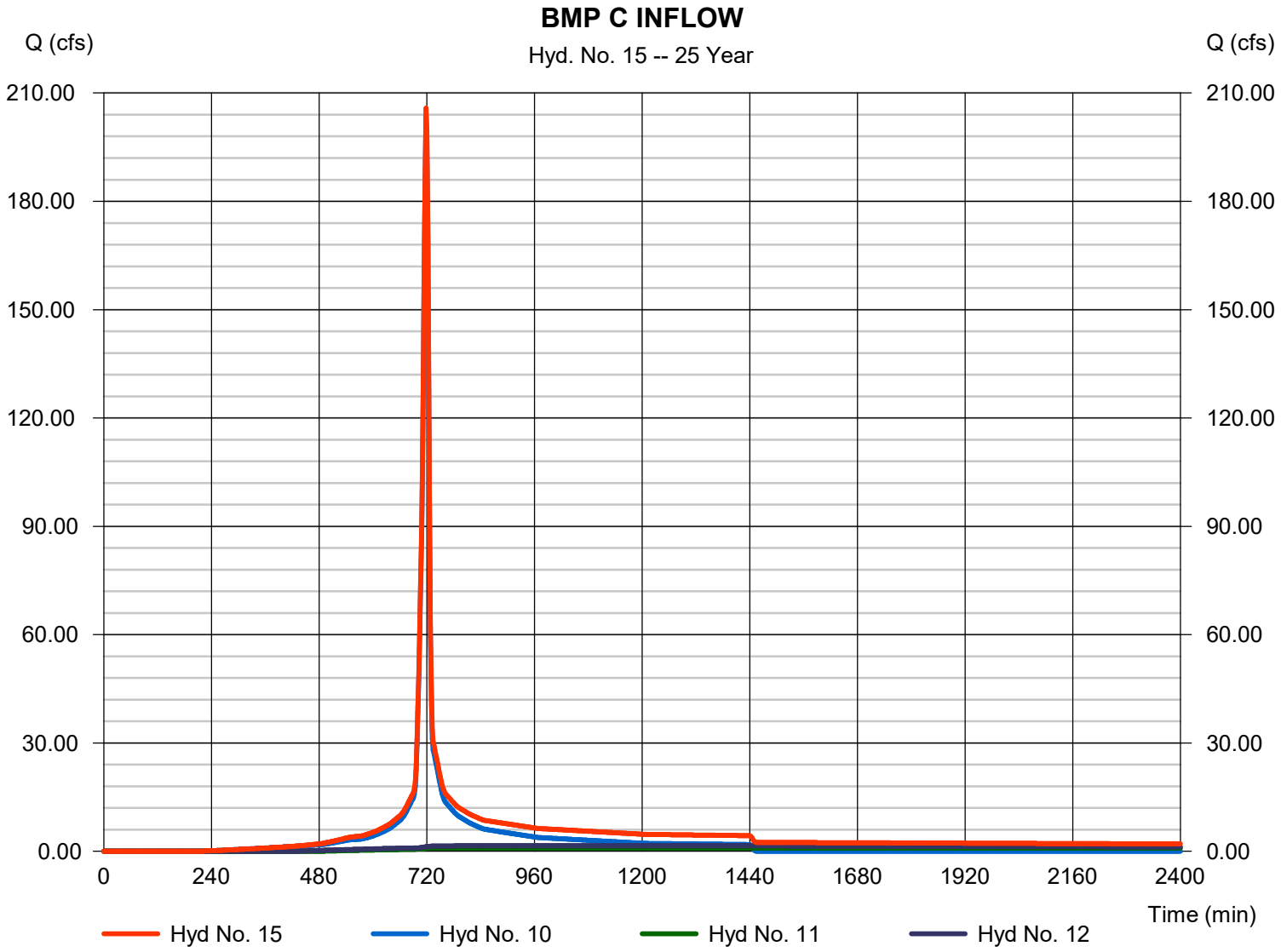


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	205.84 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	948,739 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



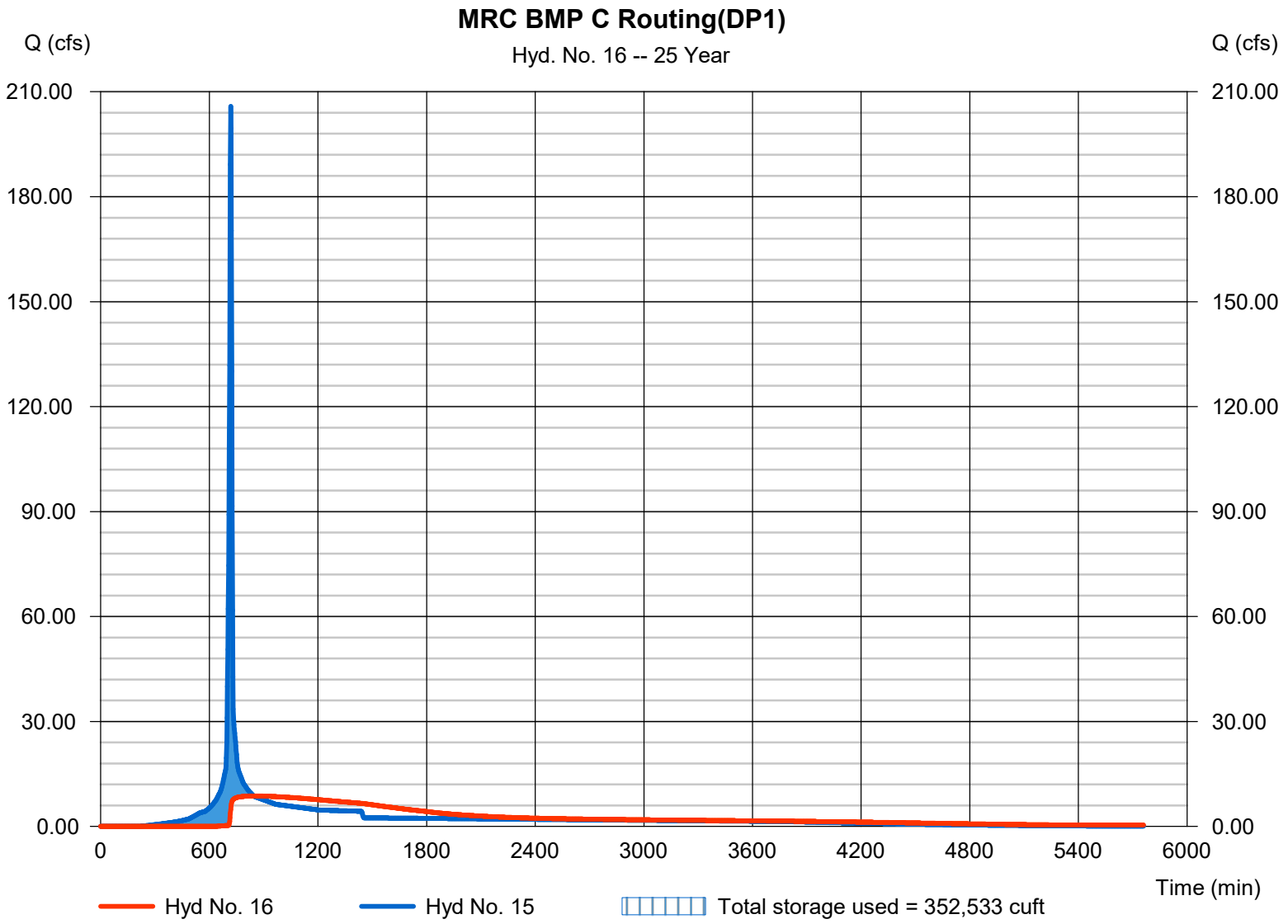
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	8.692 cfs
Storm frequency	=	25 yrs	Time to peak	=	844 min
Time interval	=	2 min	Hyd. volume	=	821,320 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	218.18 ft
Reservoir name	=	BMP C	Max. Storage	=	352,533 cuft

Storage Indication method used.



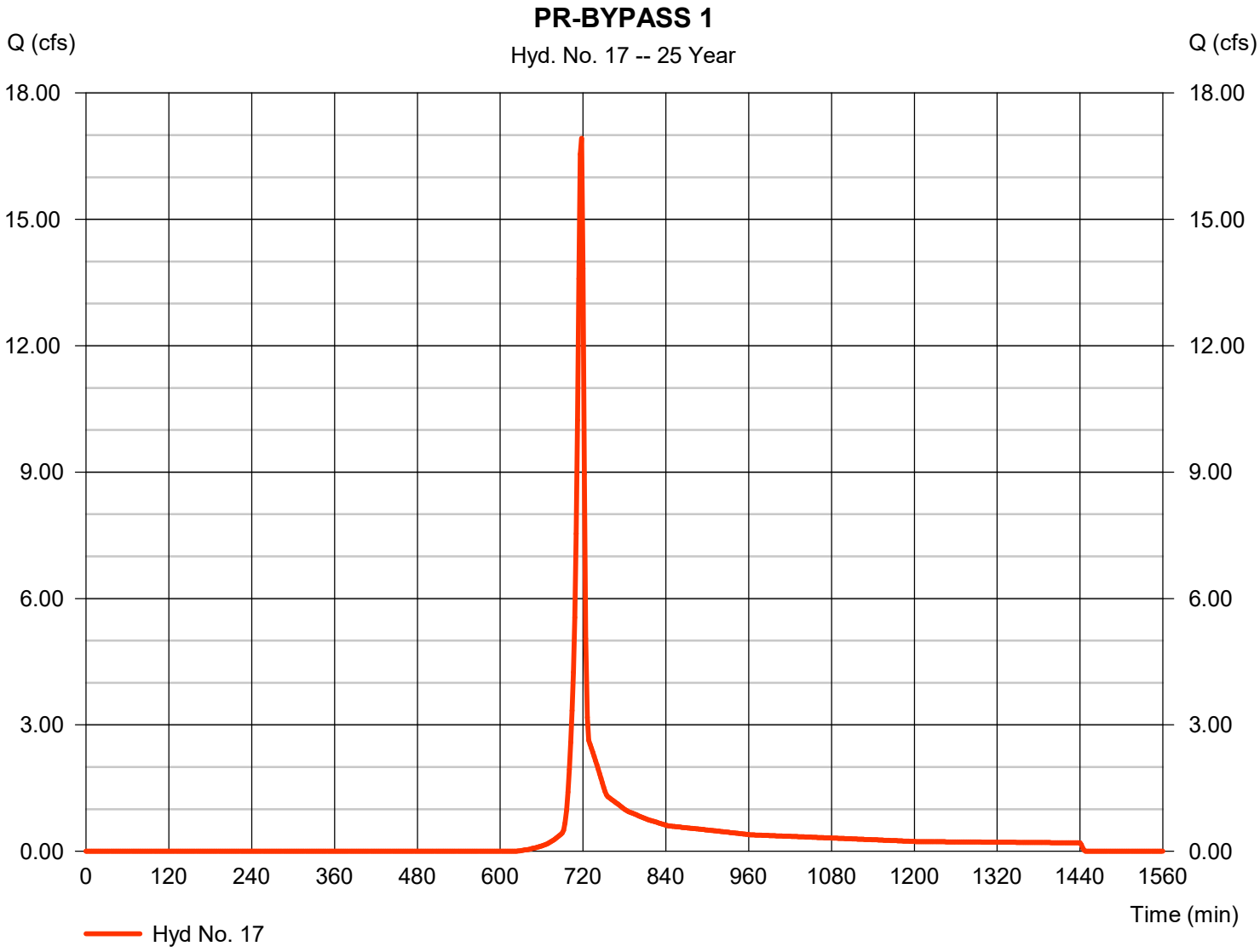
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.92 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	33,838 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



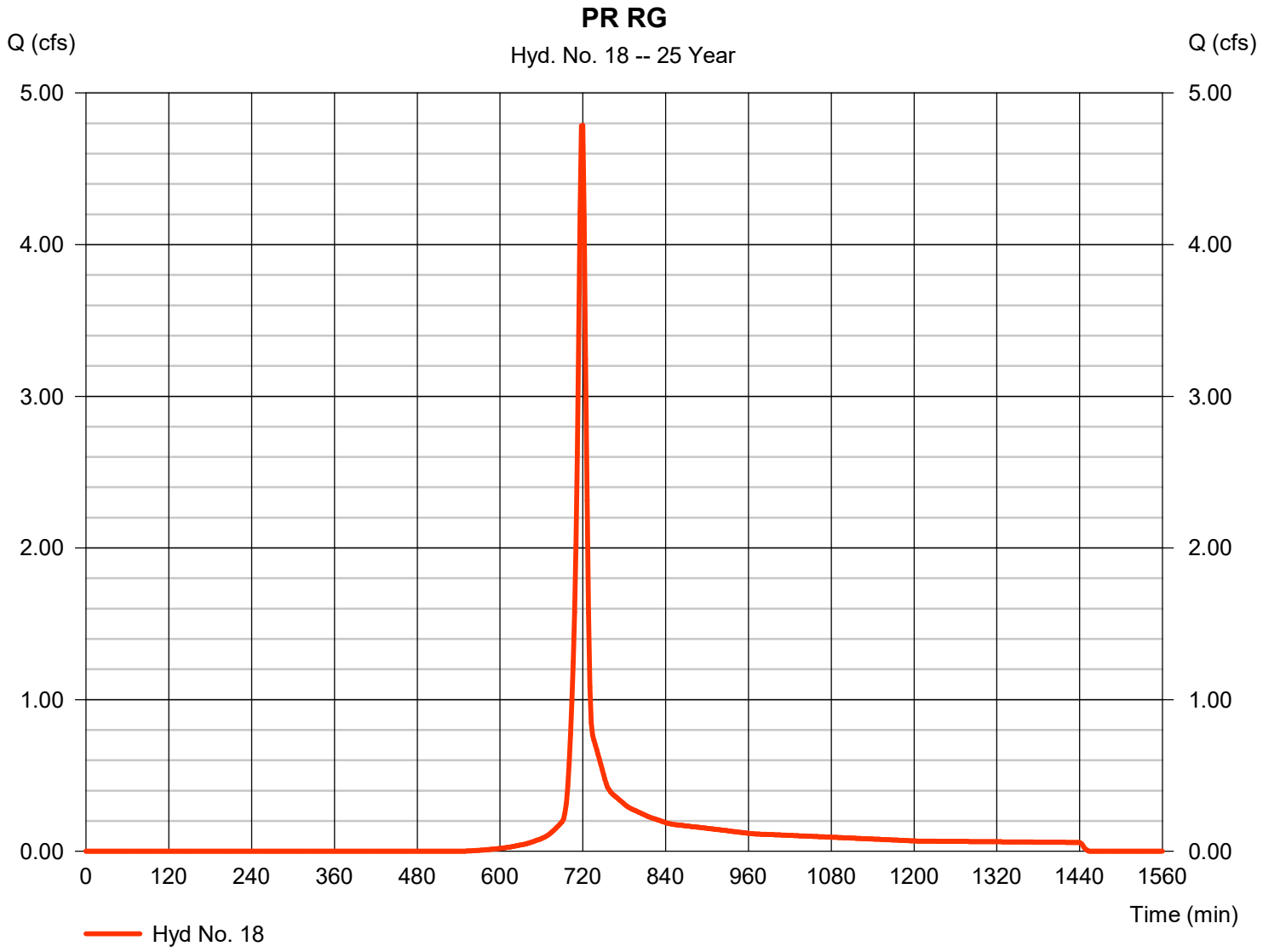
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.786 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	10,964 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



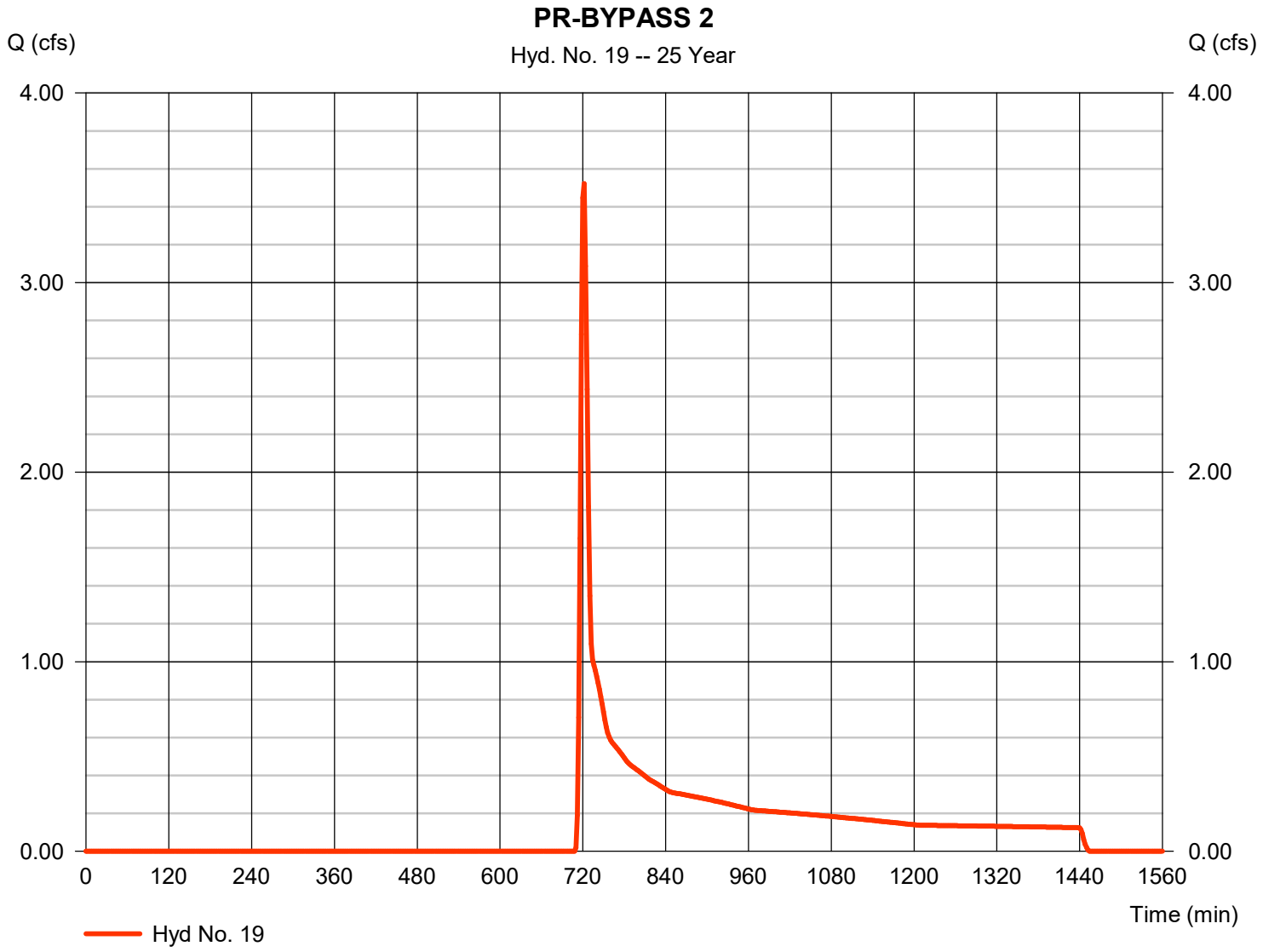
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.522 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	12,562 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



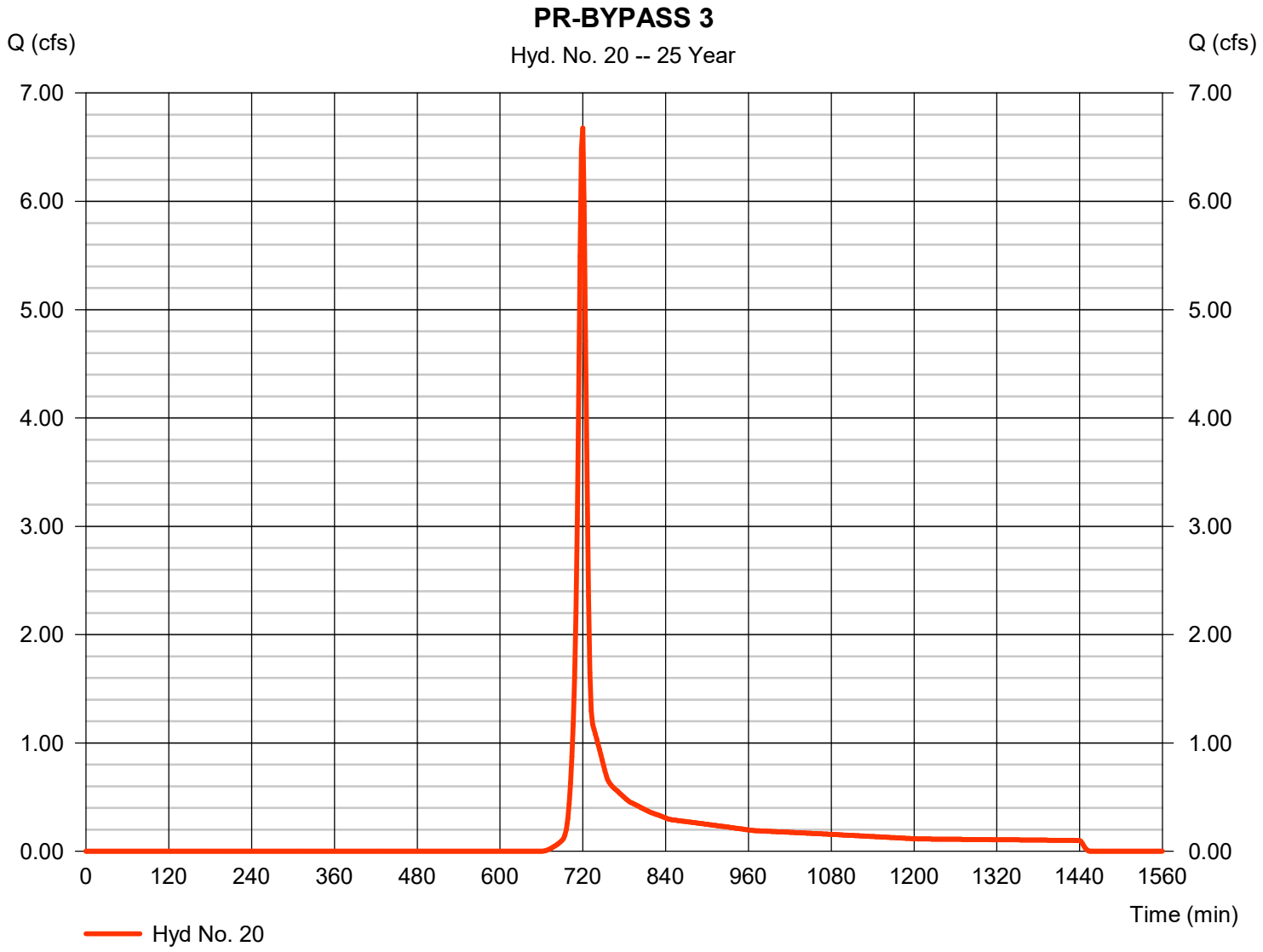
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.676 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	15,535 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

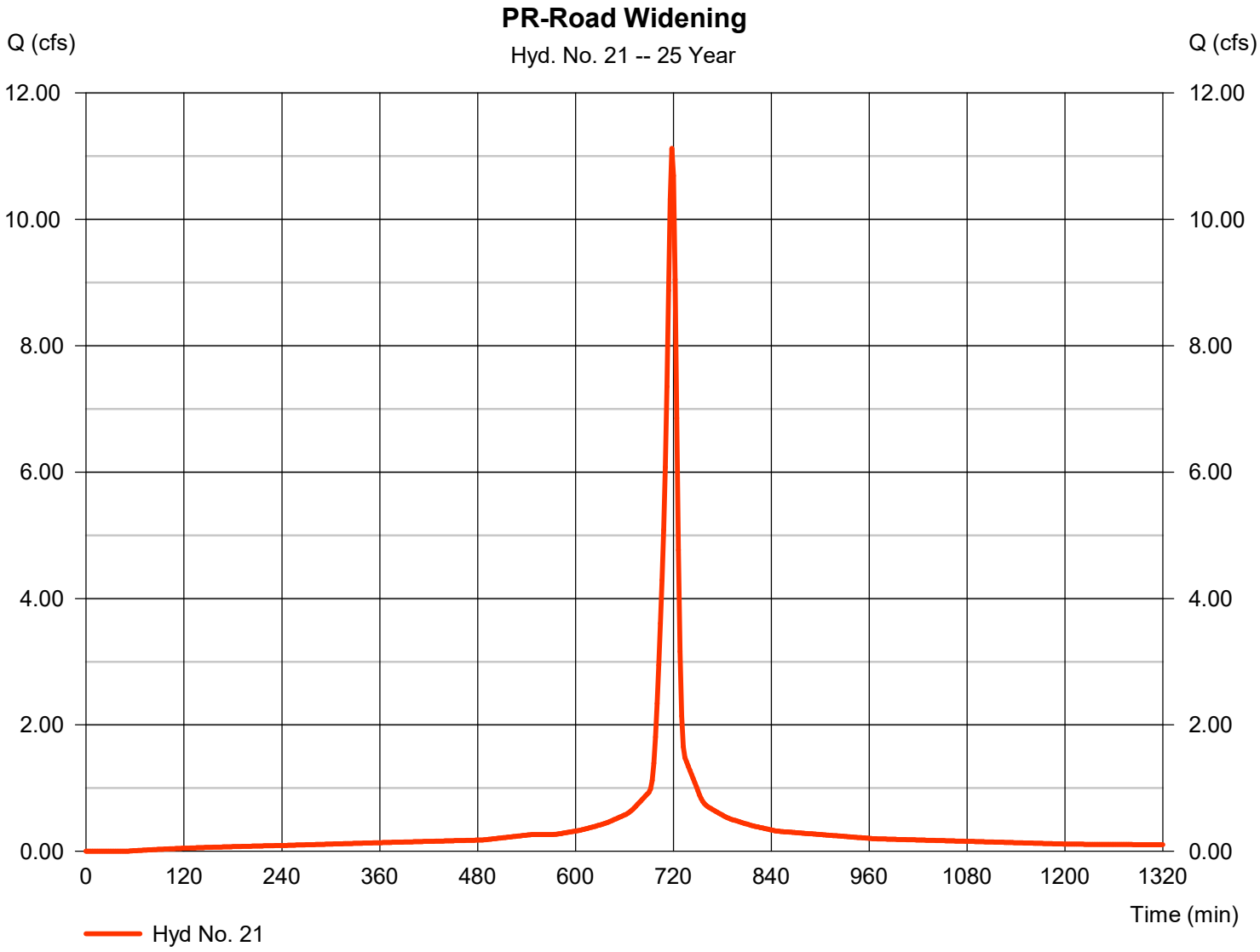


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.12 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	29,722 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

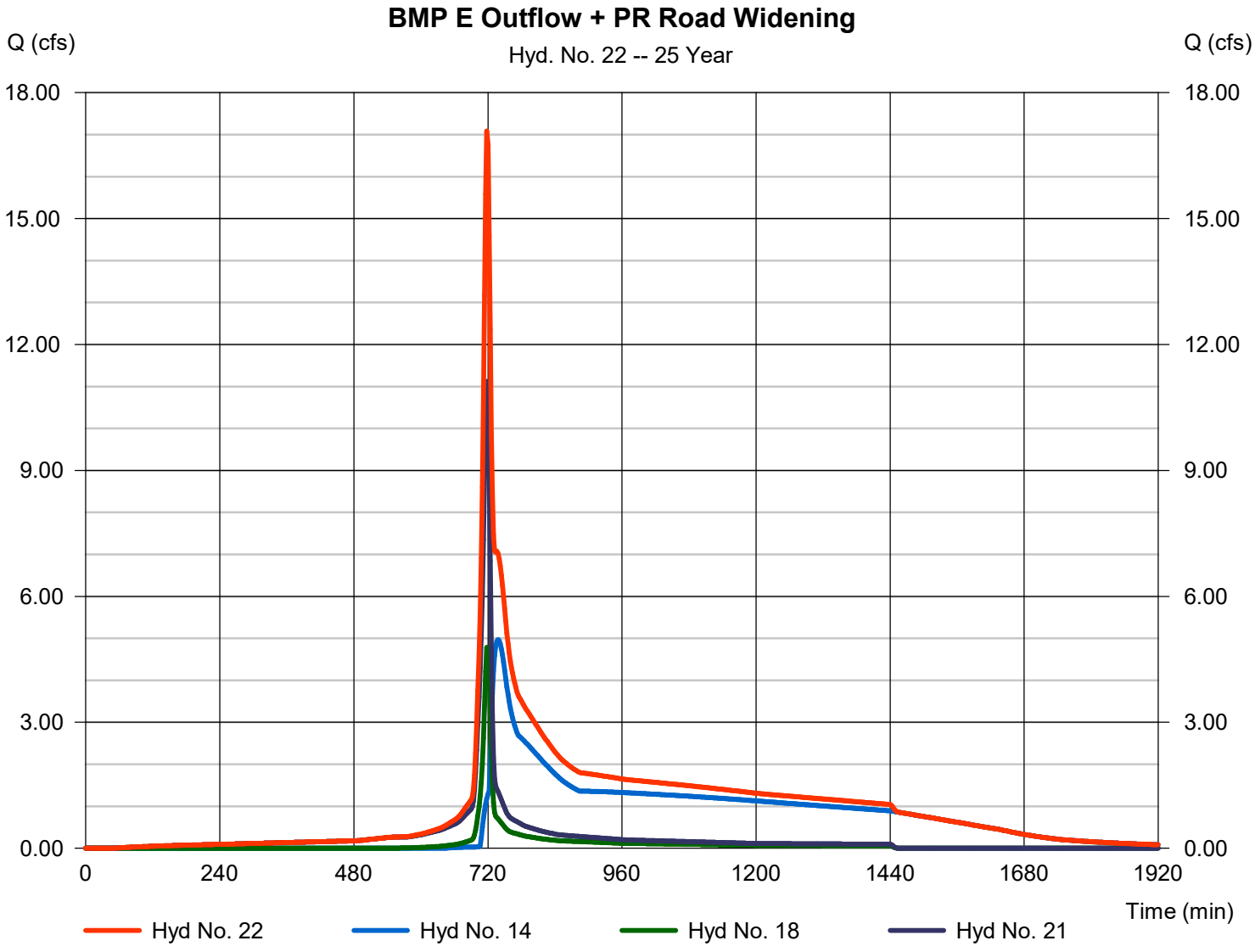


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	17.09 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	123,425 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



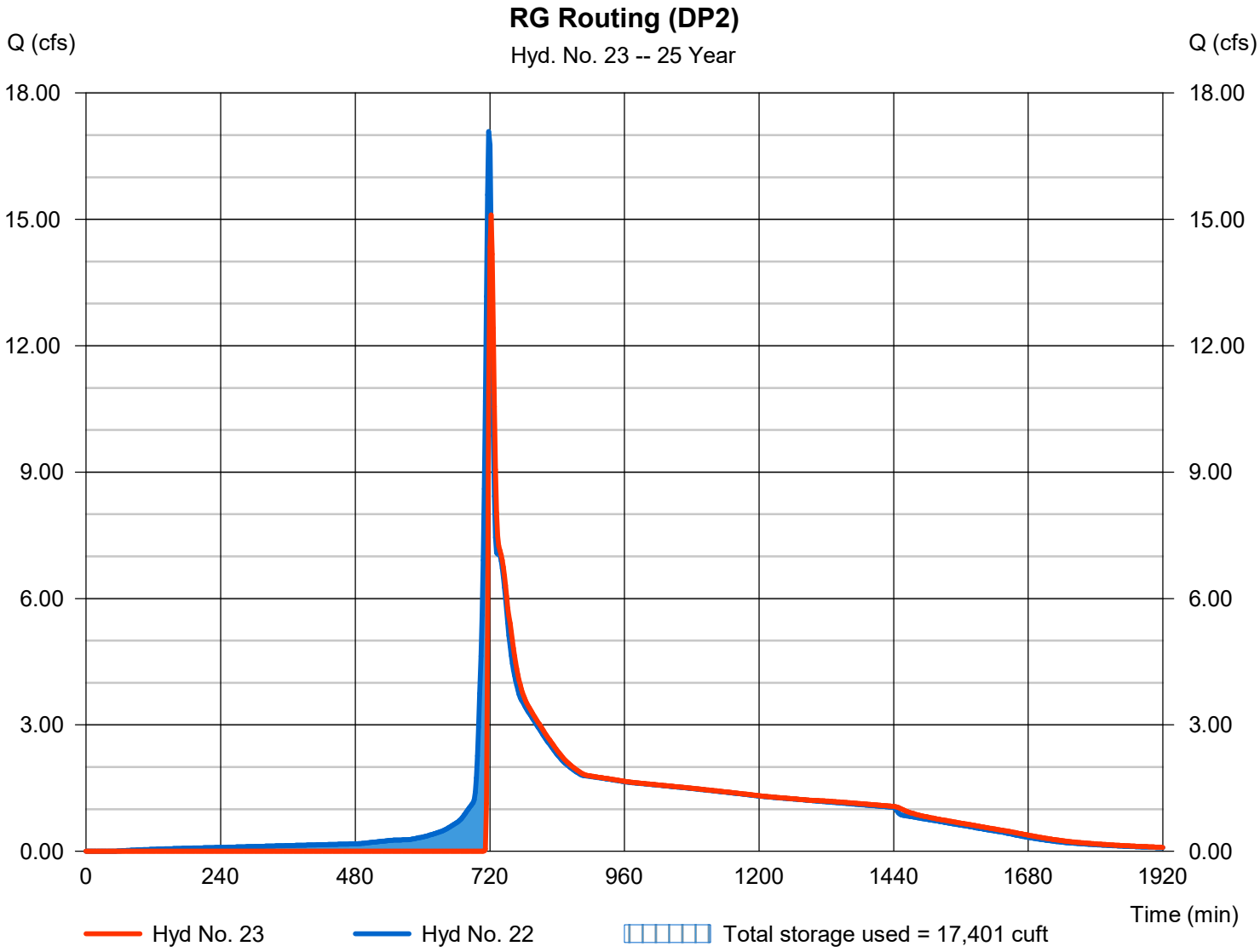
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	15.10 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	110,411 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.19 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	17,401 cuft

Storage Indication method used.

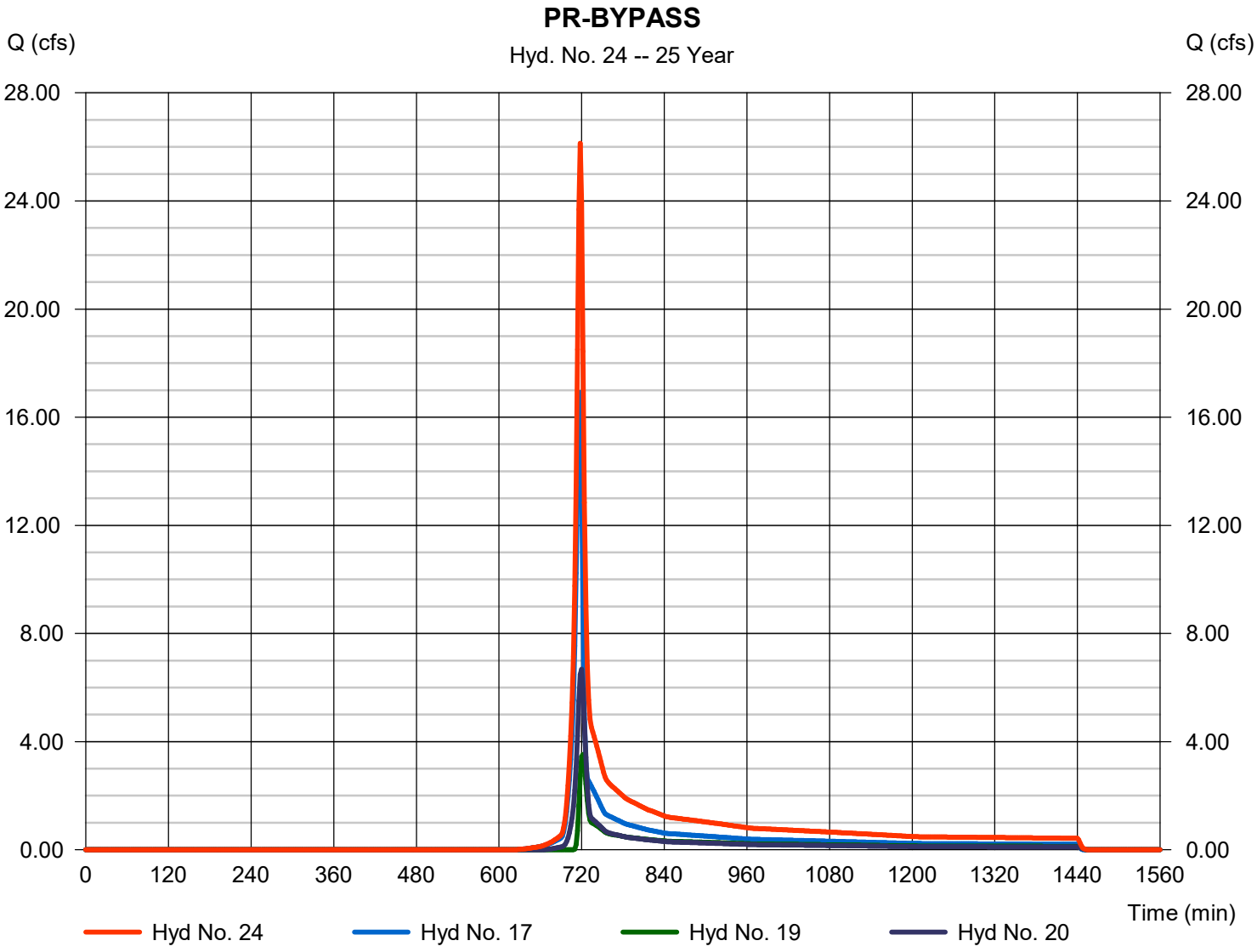


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 26.13 cfs
Storm frequency	= 25 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 61,934 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

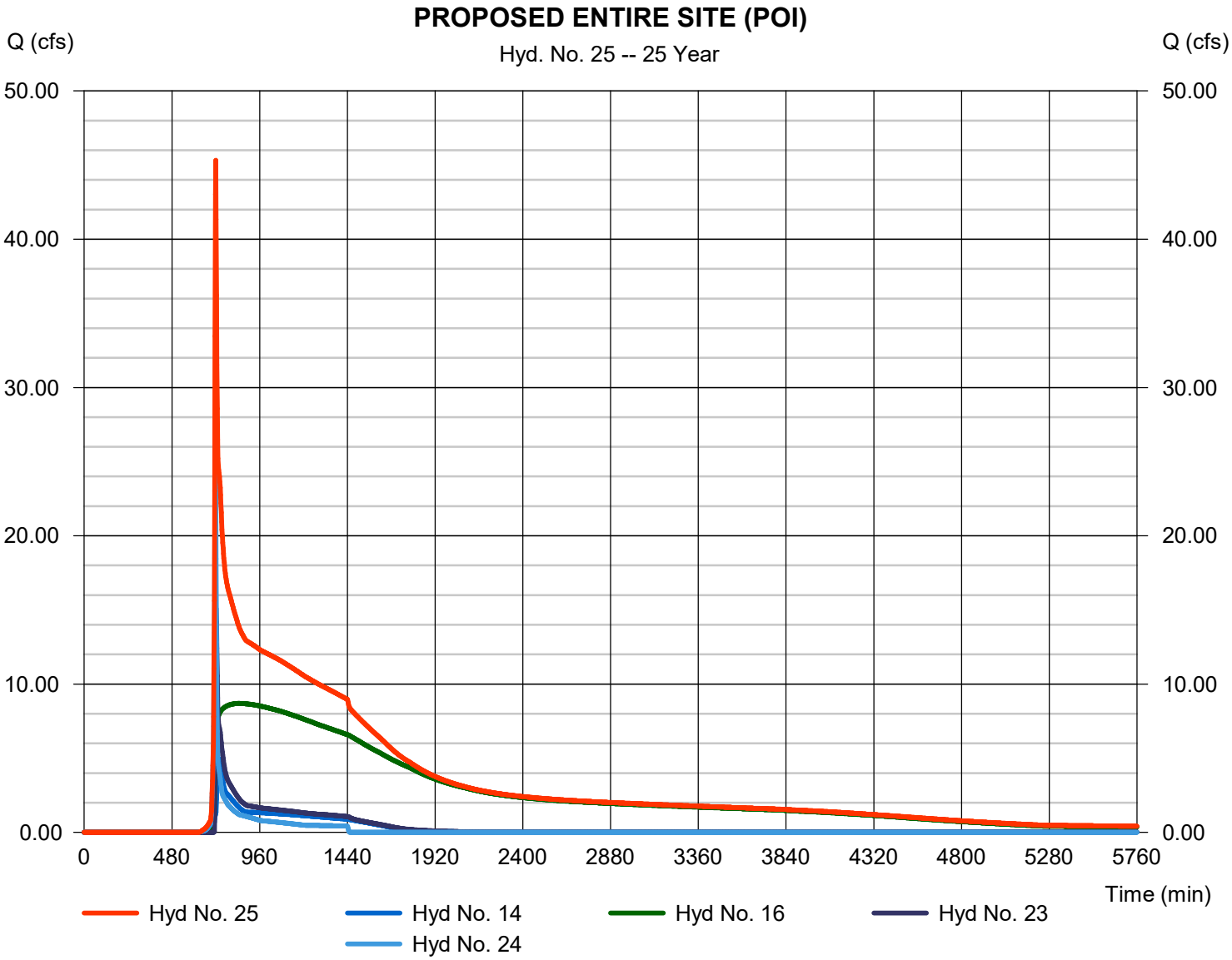


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 45.31 cfs
Storm frequency	= 25 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 1,076,403 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

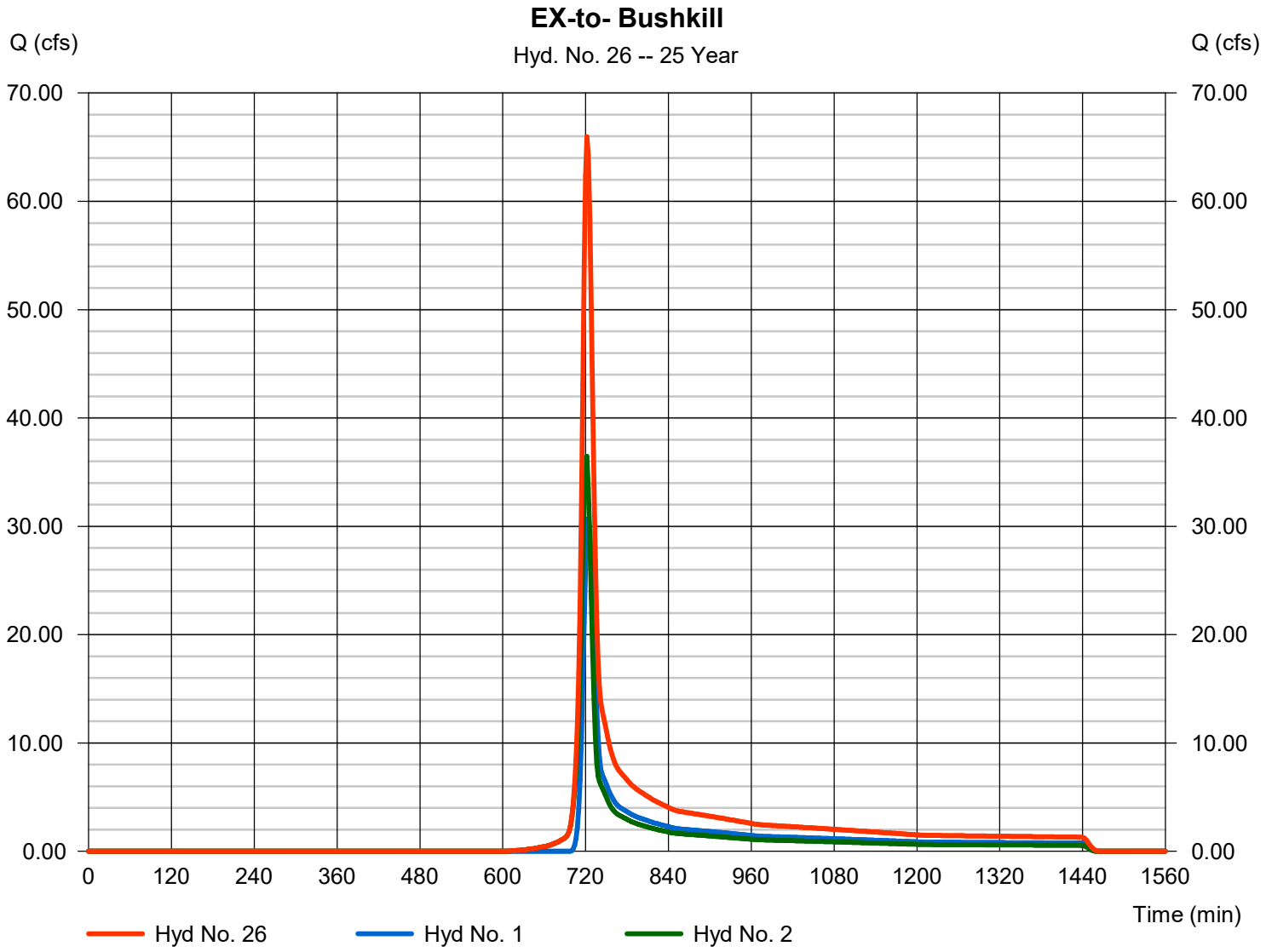


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 65.97 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 195,116 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

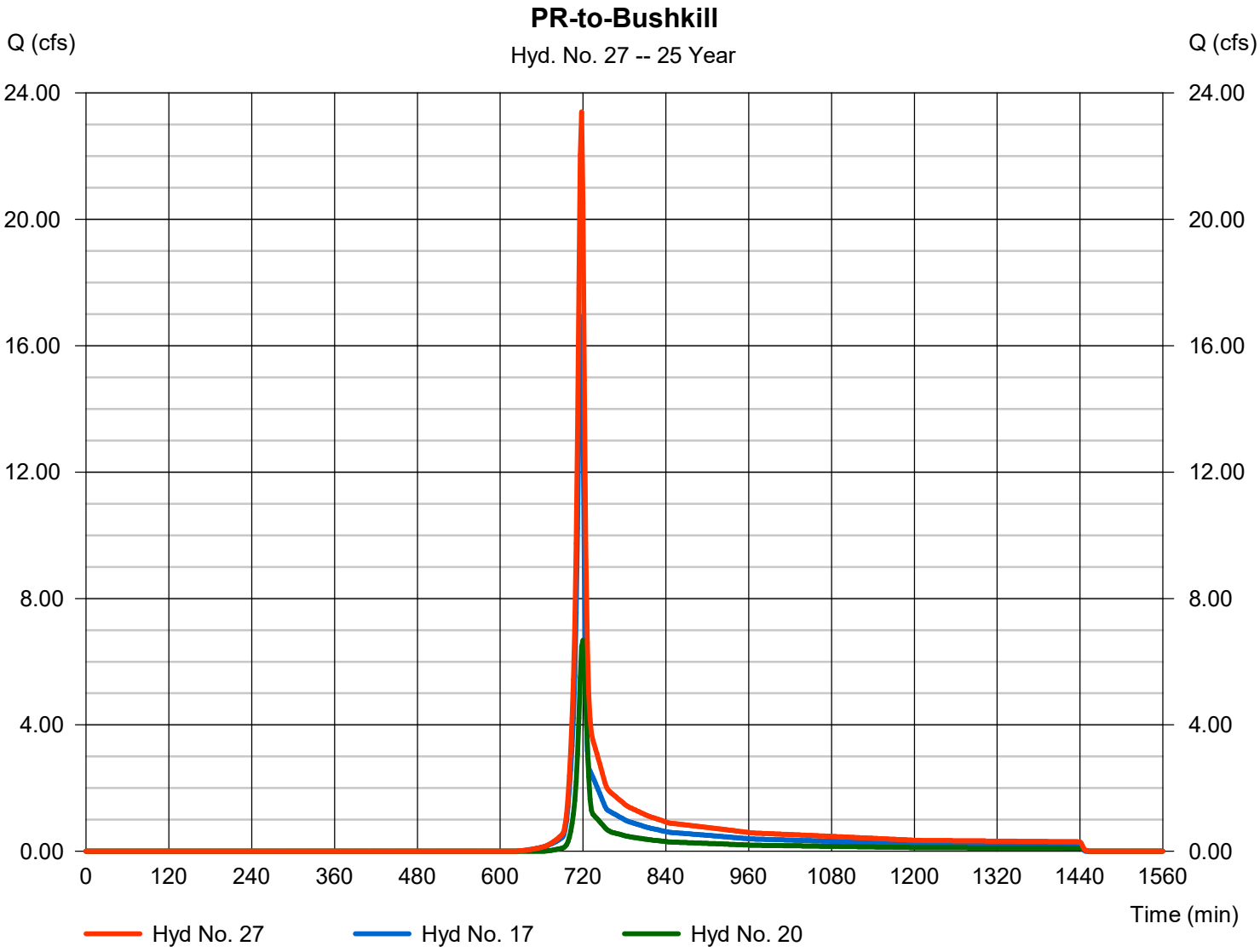


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	23.40 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	49,372 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

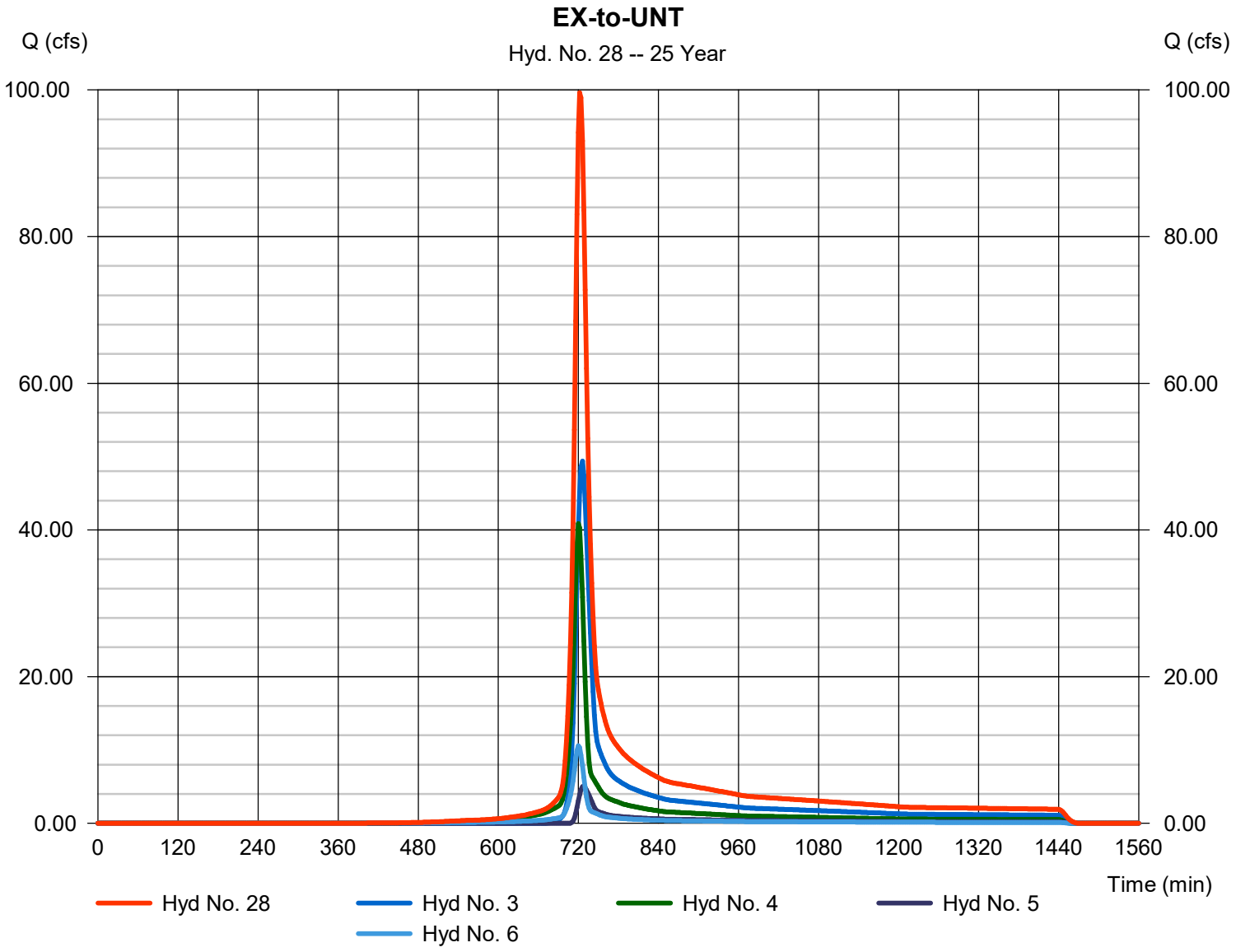


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 99.62 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 322,966 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

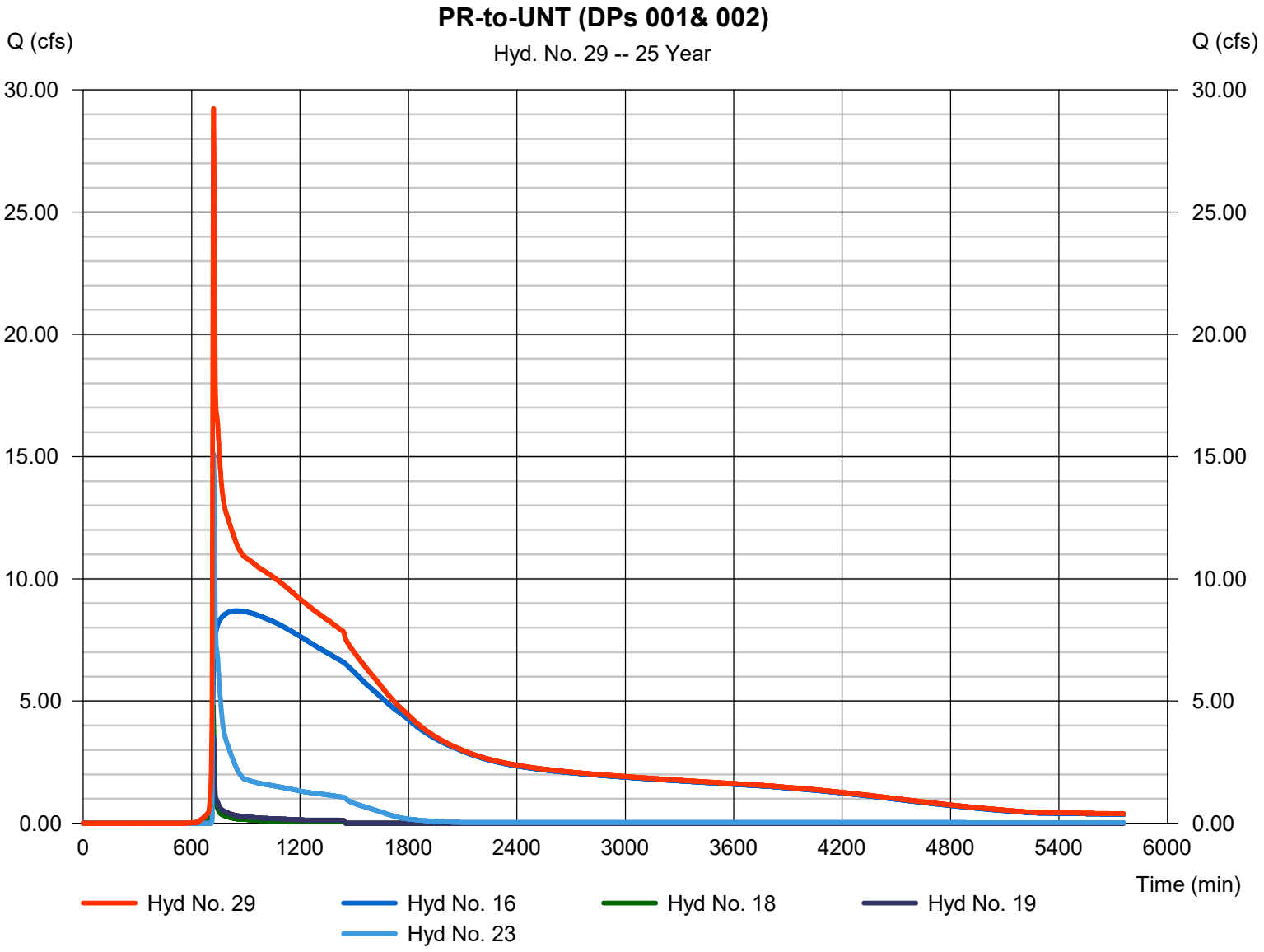


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 29.24 cfs
Storm frequency	= 25 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 955,258 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	47.55	2	724	144,479	------	------	------	EX-DA 1
2	SCS Runoff	48.90	2	720	127,562	------	------	------	EX-DA2
3	SCS Runoff	70.69	2	726	230,260	------	------	------	EX-DA3
4	SCS Runoff	51.62	2	720	134,515	------	------	------	EX-DA4
5	SCS Runoff	9.211	2	726	36,071	------	------	------	EX-DA5
6	SCS Runoff	12.98	2	720	34,448	------	------	------	EX-DA-Road Widening
7	Combine	232.41	2	722	707,335	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	108.42	2	716	253,424	------	------	------	PR-DA-A
9	SCS Runoff	137.01	2	716	320,254	------	------	------	PR-DA-B
10	SCS Runoff	244.36	2	718	598,972	------	------	------	PR-DA-C
11	Reservoir	1.037	2	1186	234,698	8	292.01	204,227	BMP A Routing
12	Reservoir	1.694	2	1090	307,332	9	288.51	244,808	BMP B Routing
13	SCS Runoff	55.27	2	716	113,948	------	------	------	PR-DA-E
14	Reservoir	21.54	2	722	106,059	13	260.13	54,290	BMP E Routing
15	Combine	246.61	2	718	1,141,002	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	10.19	2	842	1,004,749	15	218.77	429,730	MRC BMP C Routing(DP1)
17	SCS Runoff	22.74	2	718	45,587	------	------	------	PR-BYPASS 1
18	SCS Runoff	6.265	2	718	14,332	------	------	------	PR RG
19	SCS Runoff	7.200	2	720	20,363	------	------	------	PR-BYPASS 2
20	SCS Runoff	9.325	2	720	21,428	------	------	------	PR-BYPASS 3
21	SCS Runoff	13.07	2	718	35,117	------	------	------	PR-Road Widening
22	Combine	37.58	2	722	155,507	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	35.22	2	724	142,493	22	233.47	19,460	RG Routing (DP2)
24	Combine	38.24	2	718	87,378	17, 19, 20,	------	------	PR-BYPASS
25	Combine	90.52	2	722	1,340,678	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	95.39	2	722	272,041	1, 2,	------	------	EX-to- Bushkill
27	Combine	31.91	2	718	67,015	17, 20,	------	------	PR-to-Bushkill
28	Combine	137.03	2	722	435,295	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	54.28	2	722	1,181,939	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

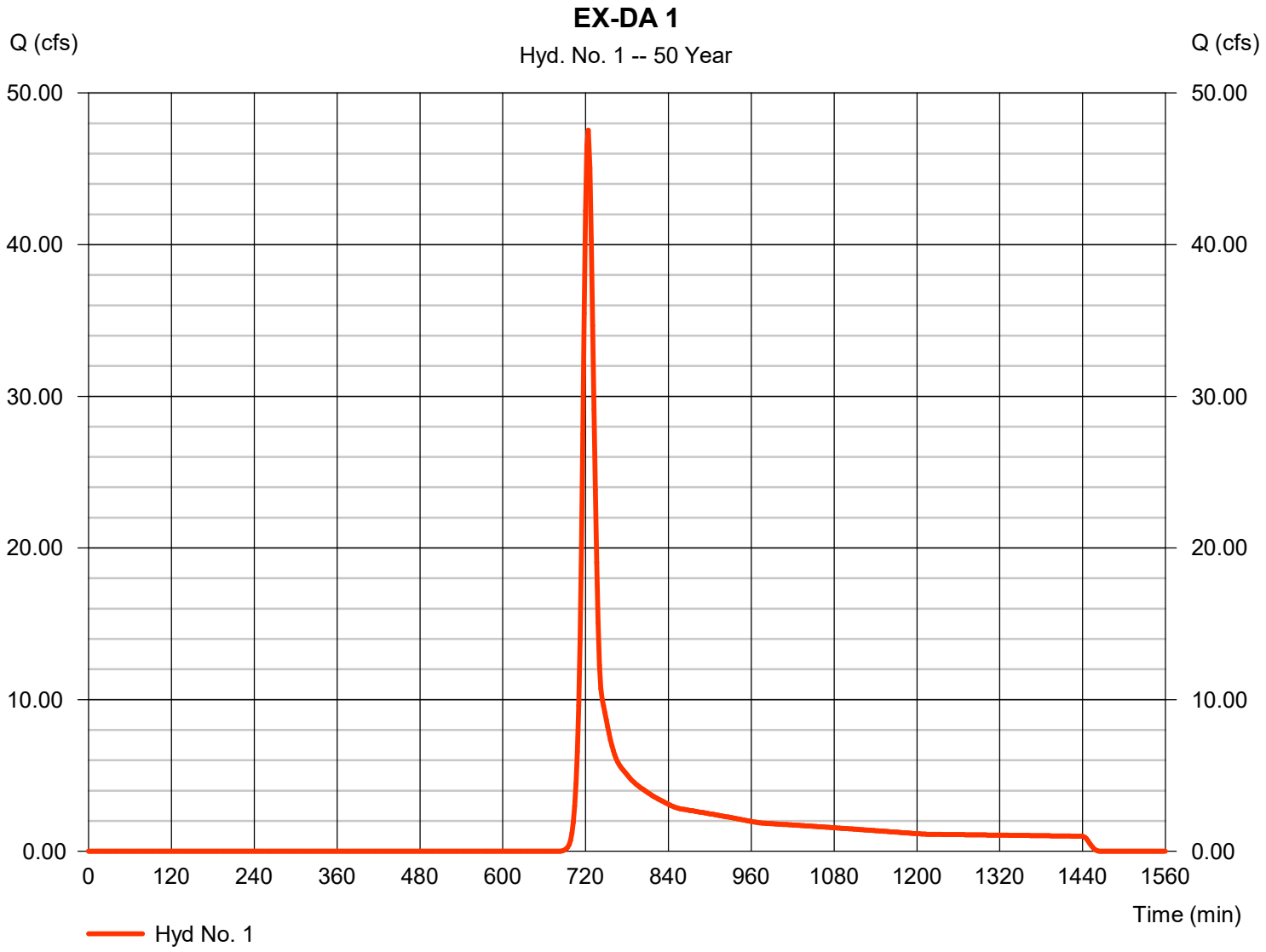
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.55 cfs
Storm frequency	=	50 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	144,479 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



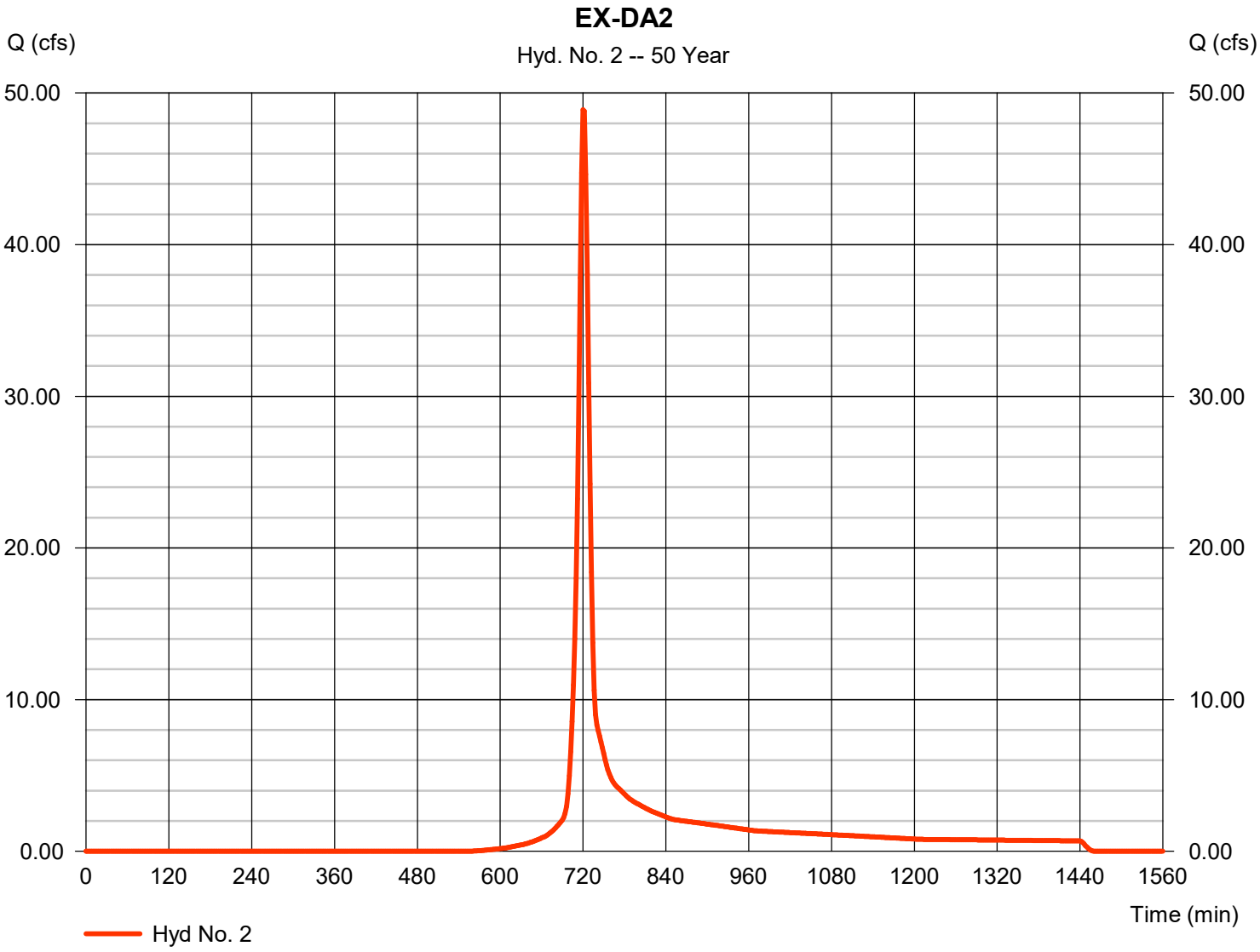
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.90 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	127,562 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



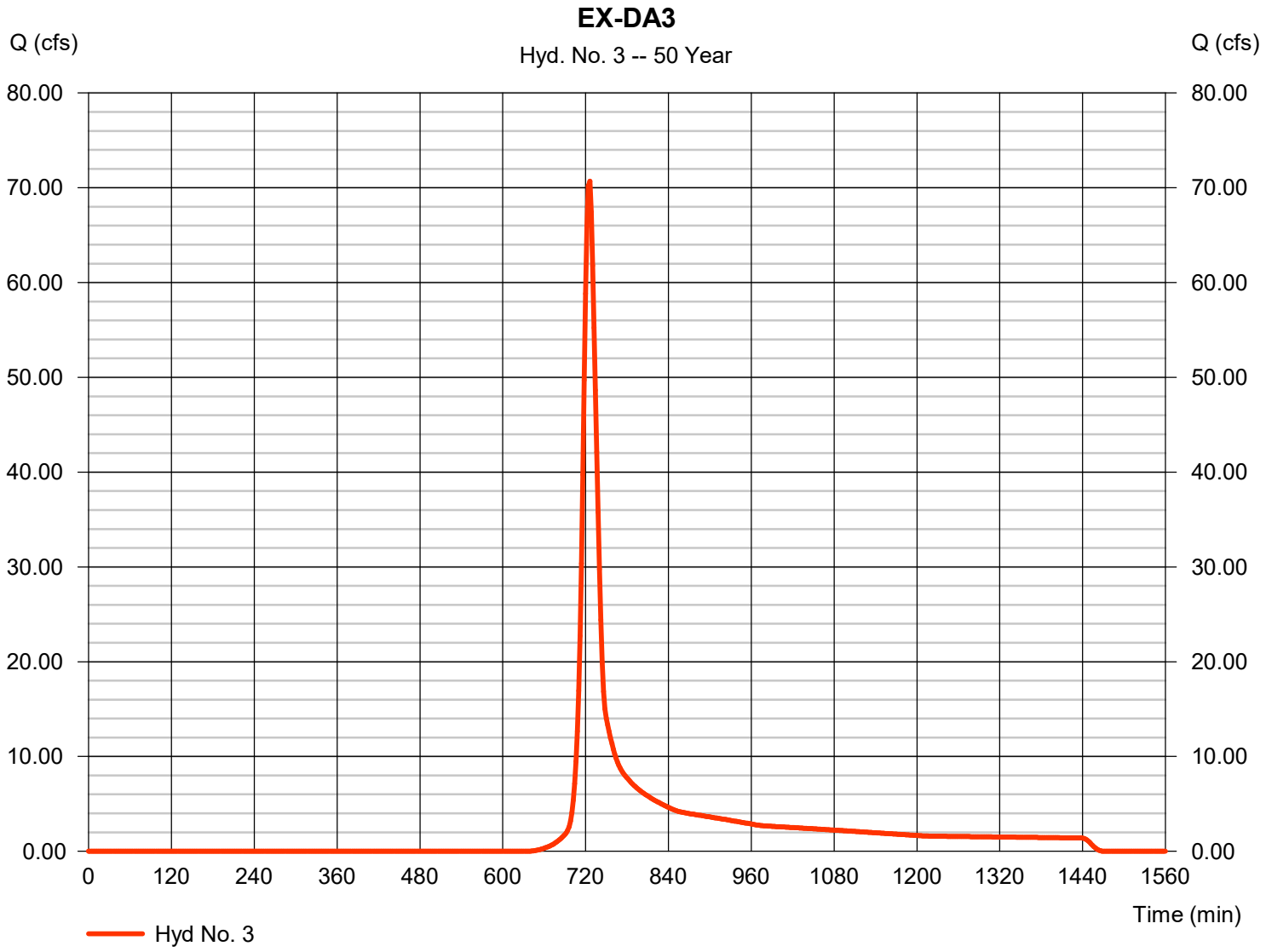
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	70.69 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	230,260 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



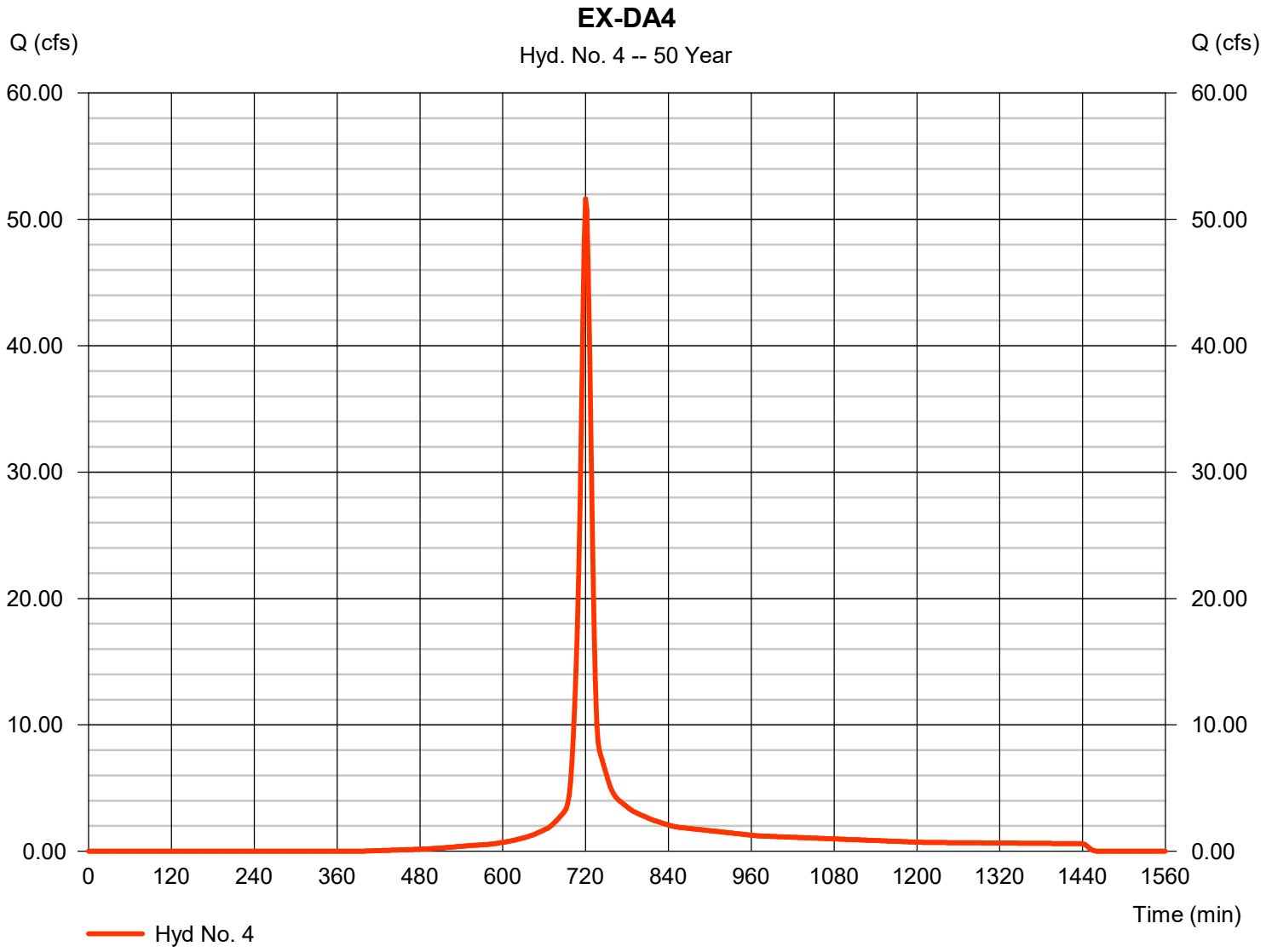
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	51.62 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	134,515 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



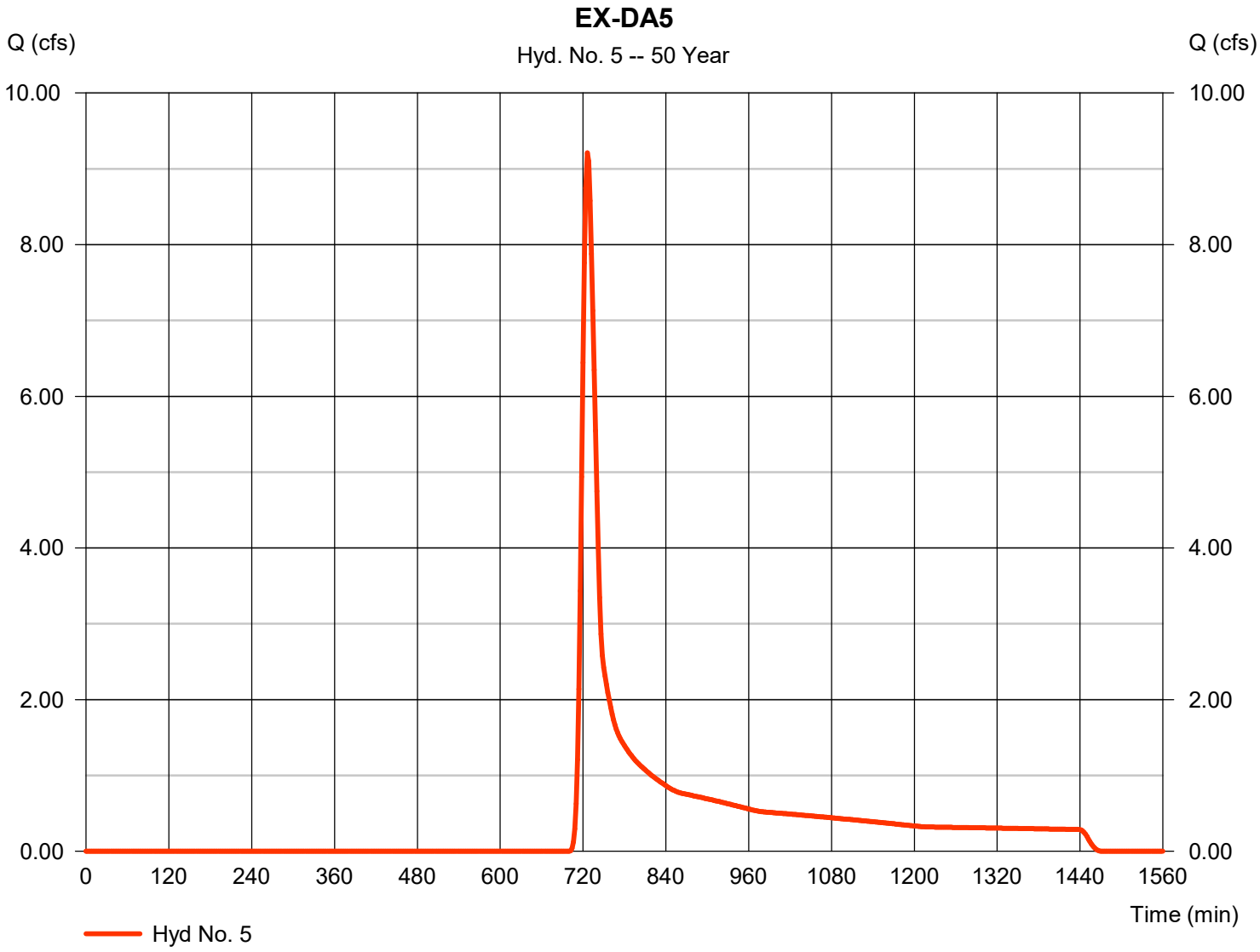
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.211 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	36,071 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



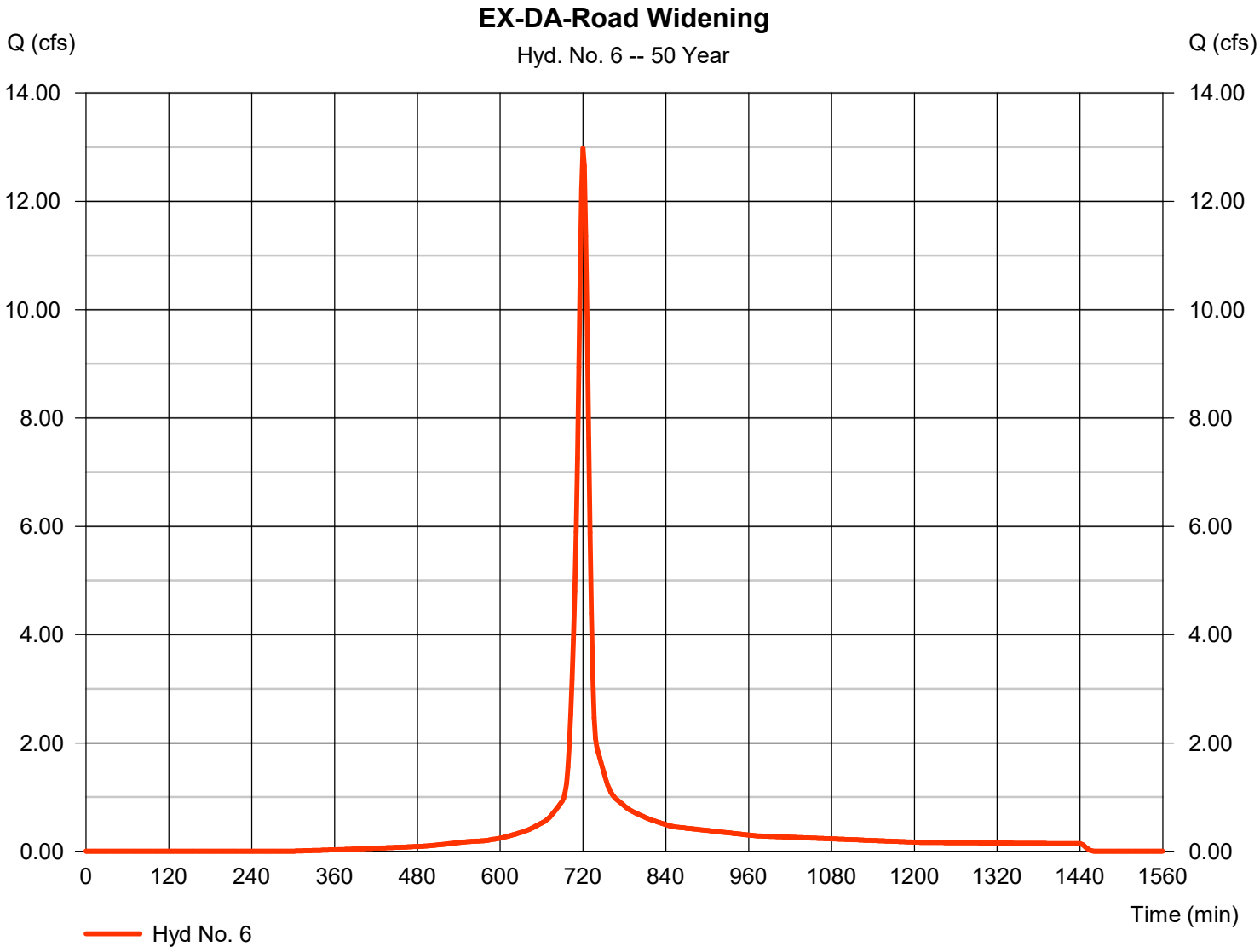
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.98 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	34,448 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

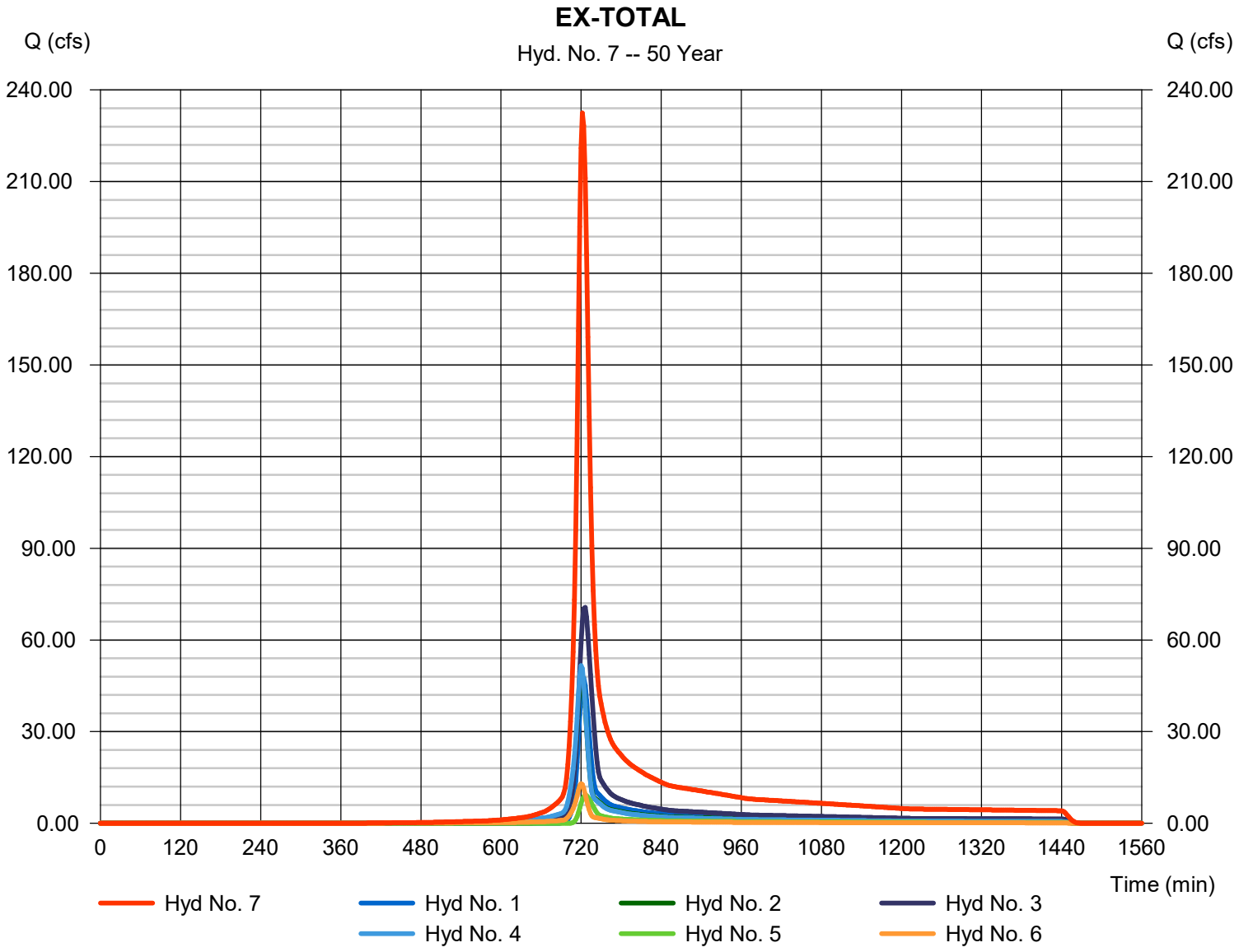


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	232.41 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	707,335 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



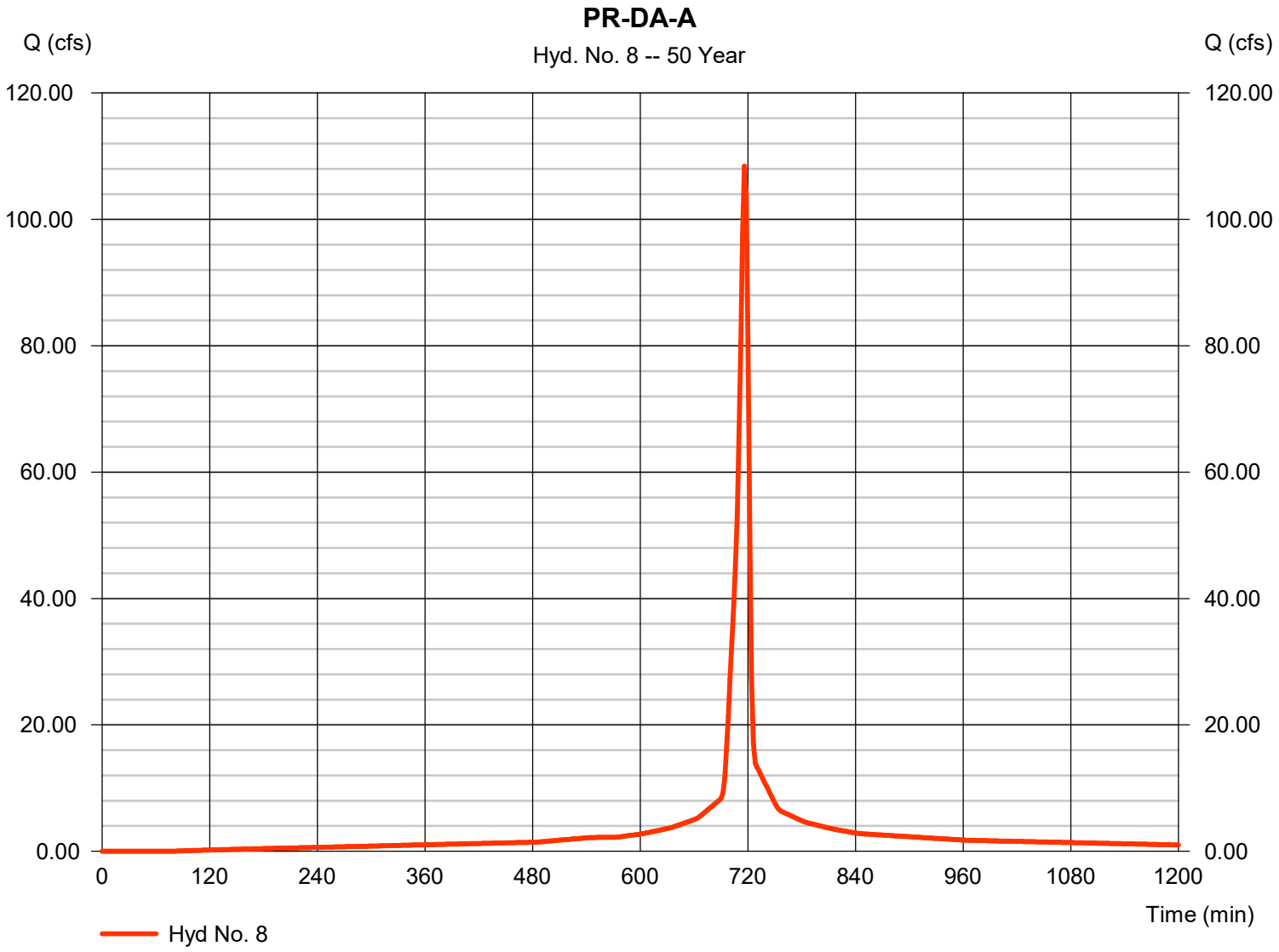
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	108.42 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	253,424 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



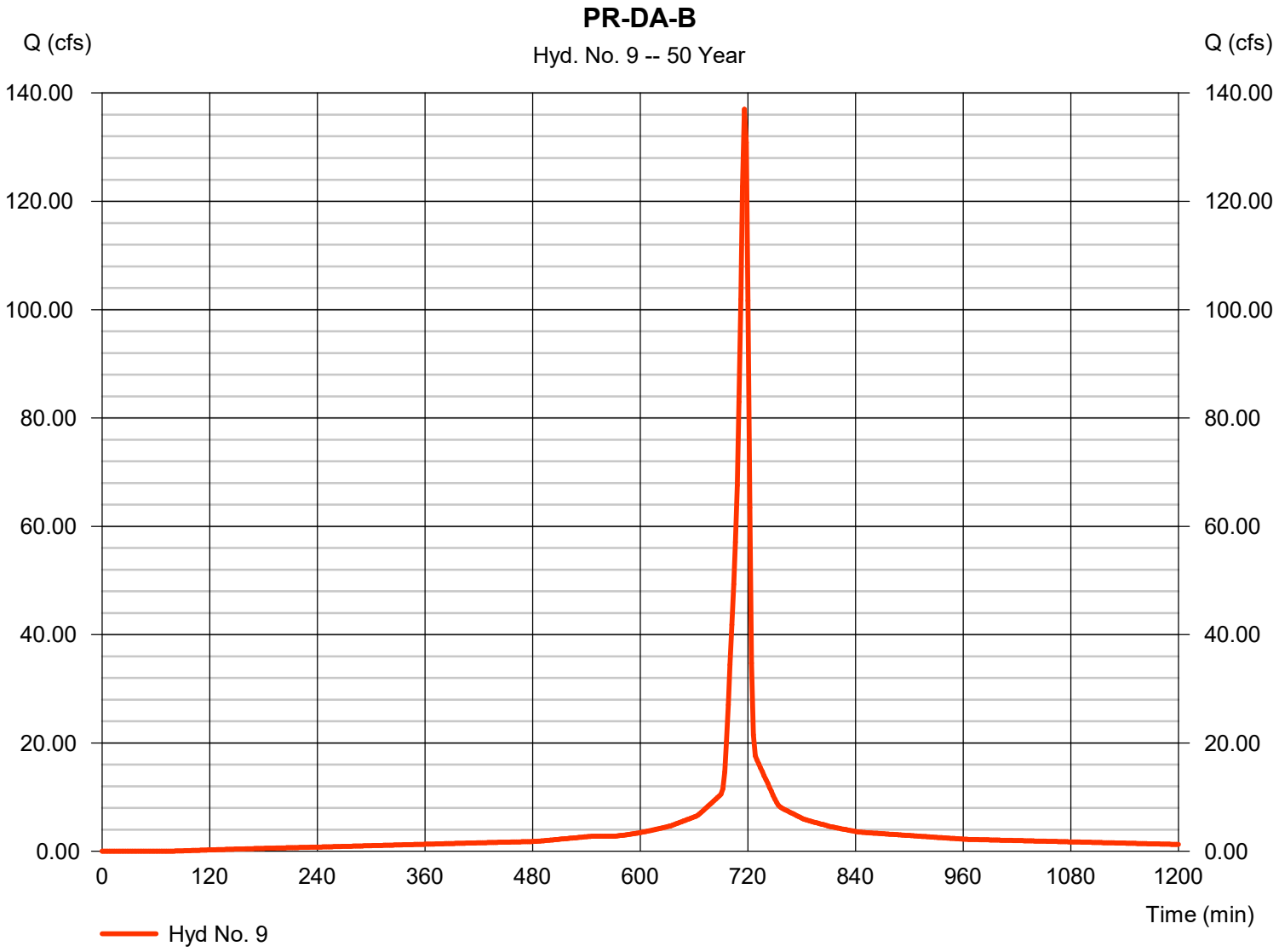
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	137.01 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	320,254 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



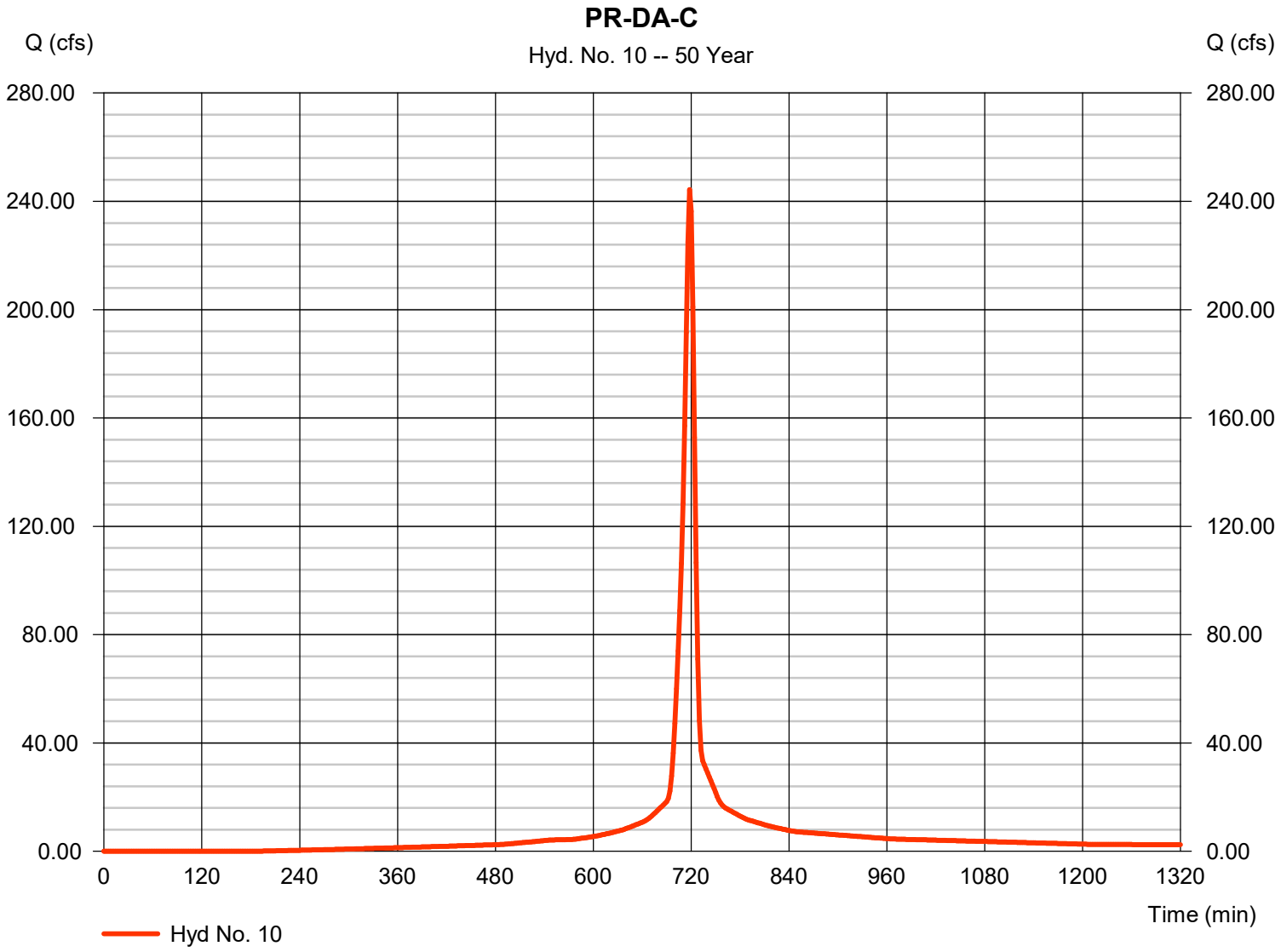
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	244.36 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	598,972 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



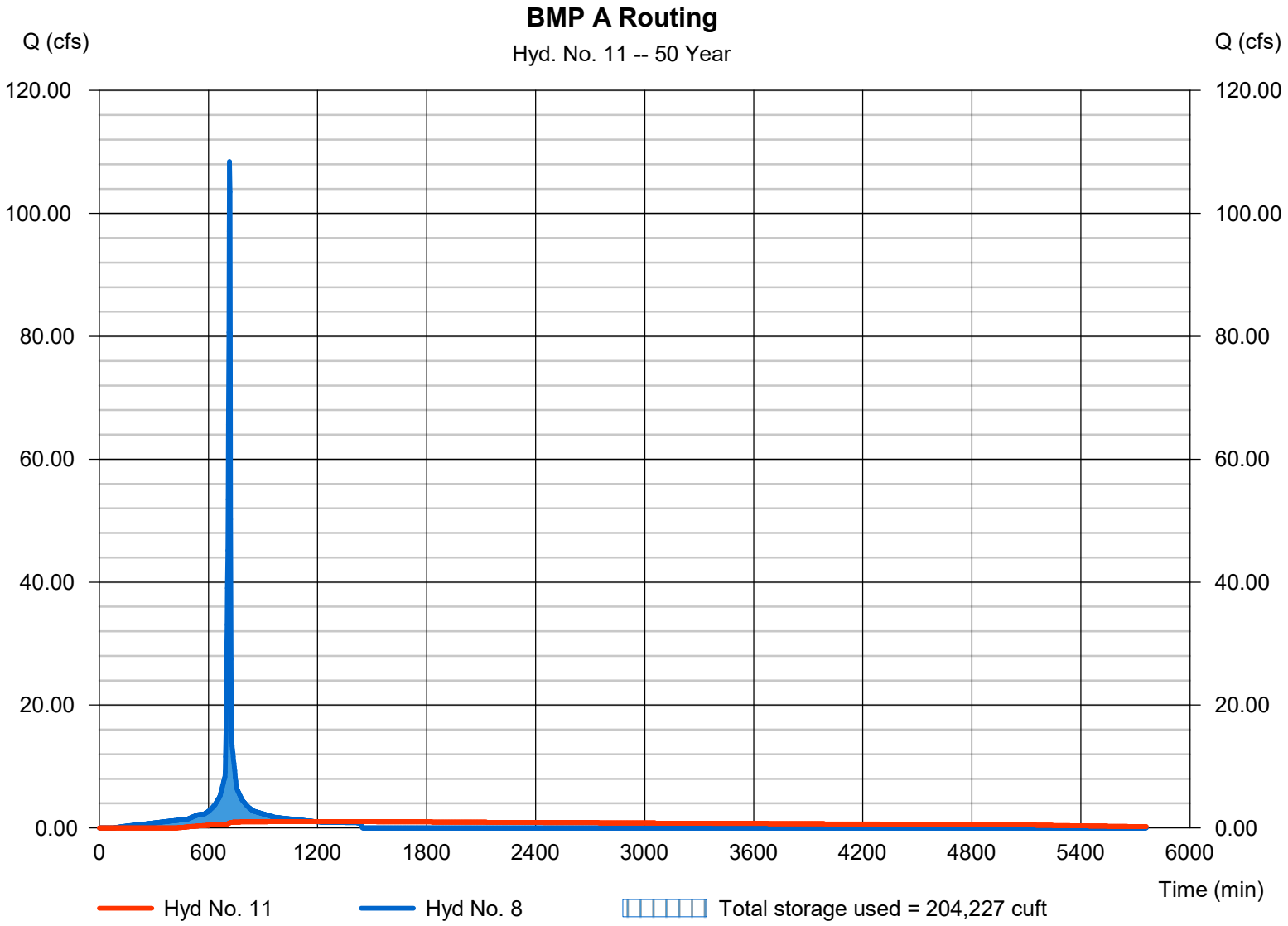
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.037 cfs
Storm frequency	=	50 yrs	Time to peak	=	1186 min
Time interval	=	2 min	Hyd. volume	=	234,698 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.01 ft
Reservoir name	=	BMP A	Max. Storage	=	204,227 cuft

Storage Indication method used.



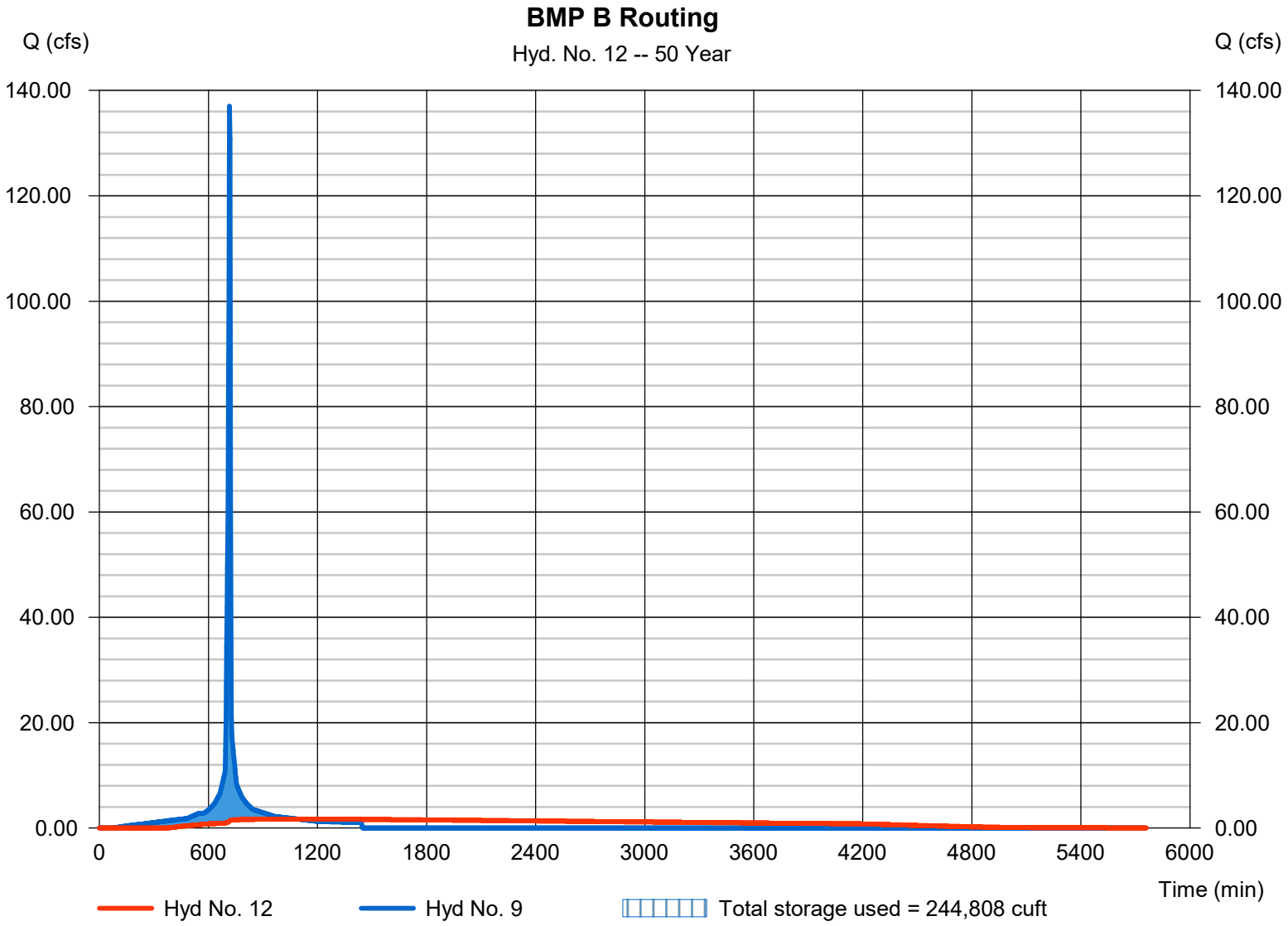
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.694 cfs
Storm frequency	=	50 yrs	Time to peak	=	1090 min
Time interval	=	2 min	Hyd. volume	=	307,332 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.51 ft
Reservoir name	=	BMP B	Max. Storage	=	244,808 cuft

Storage Indication method used.



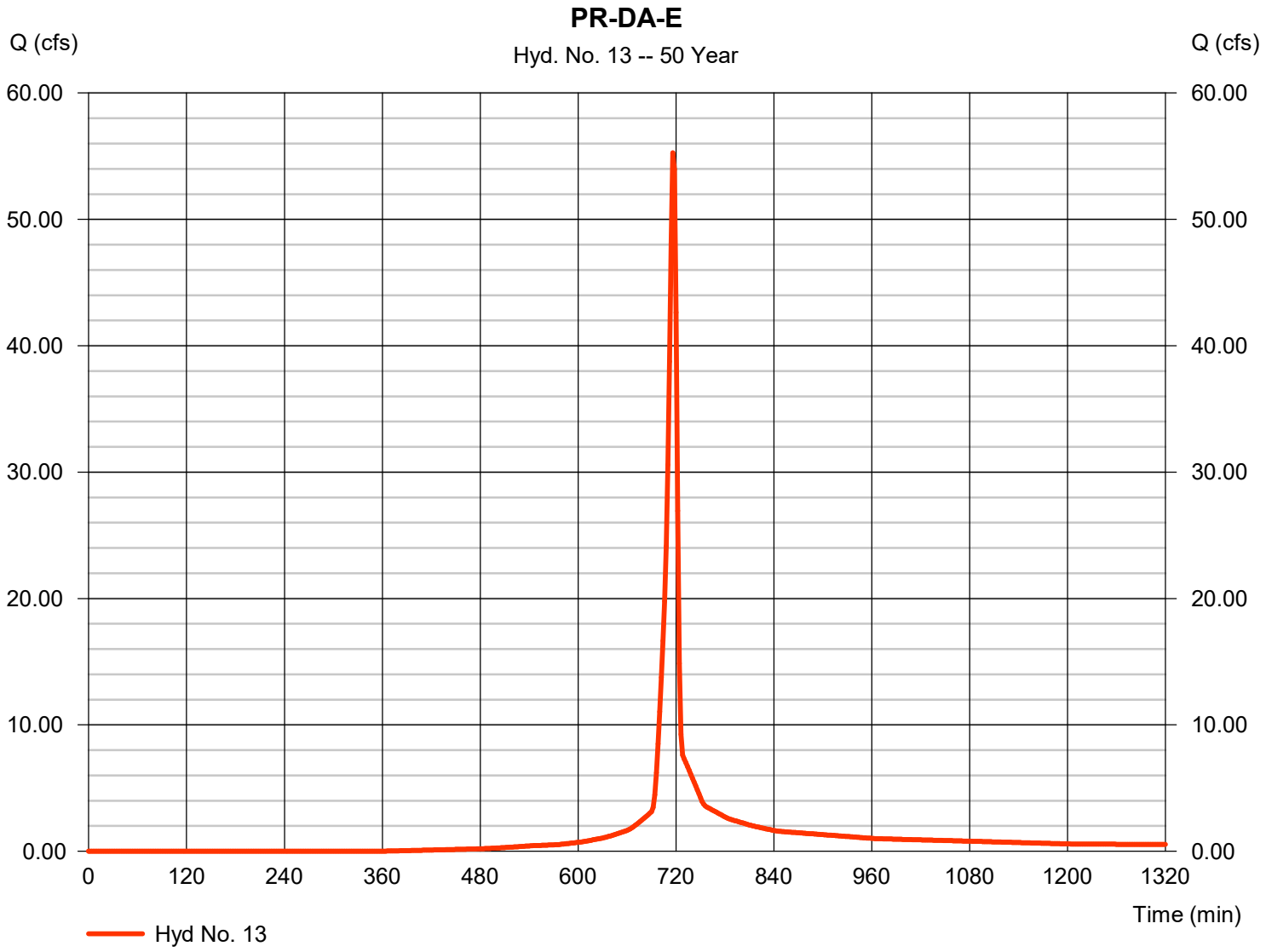
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	55.27 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	113,948 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



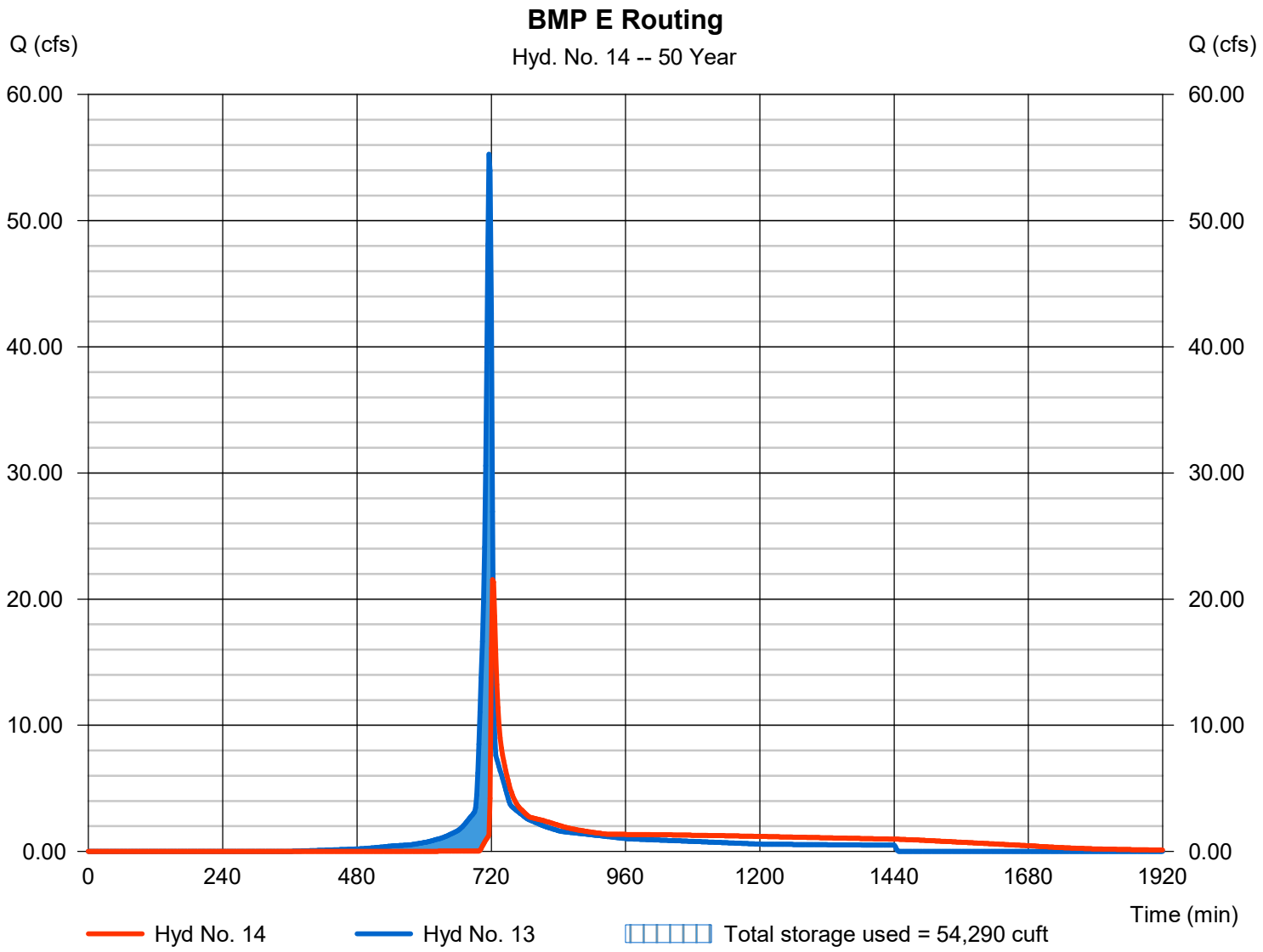
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	21.54 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	106,059 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	260.13 ft
Reservoir name	=	BMP E	Max. Storage	=	54,290 cuft

Storage Indication method used.

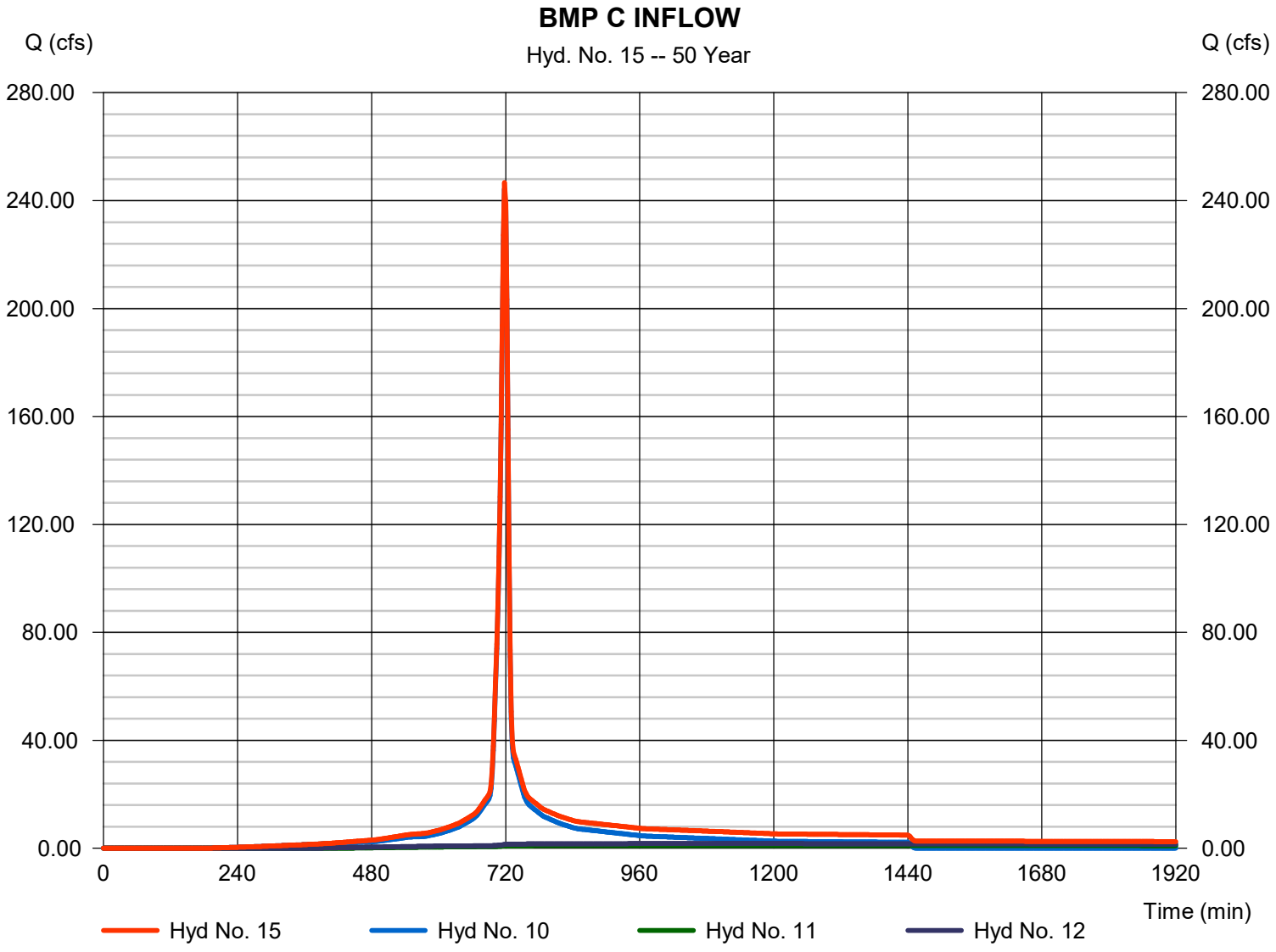


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	246.61 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,141,002 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



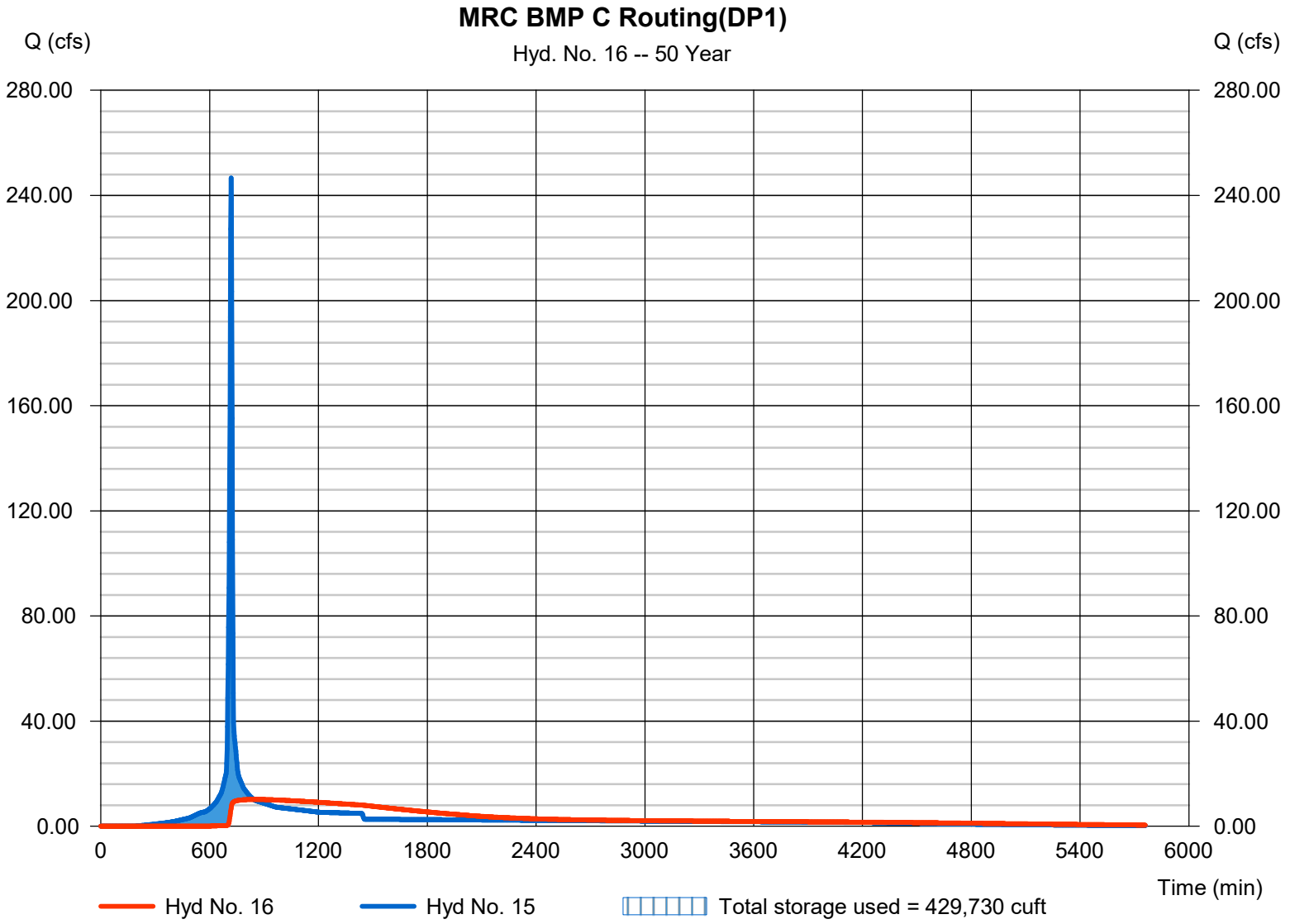
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	10.19 cfs
Storm frequency	=	50 yrs	Time to peak	=	842 min
Time interval	=	2 min	Hyd. volume	=	1,004,749 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	218.77 ft
Reservoir name	=	BMP C	Max. Storage	=	429,730 cuft

Storage Indication method used.



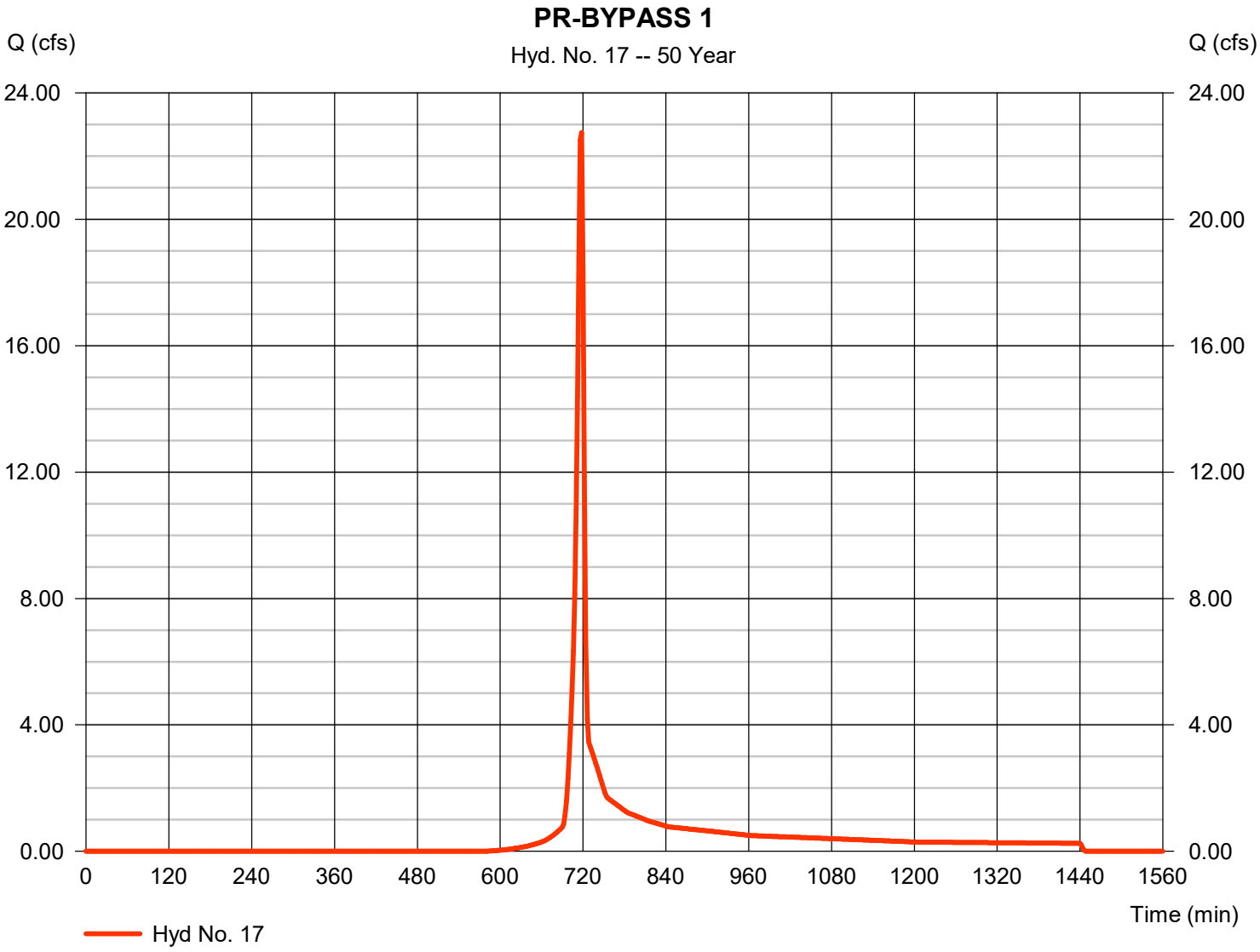
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.74 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	45,587 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



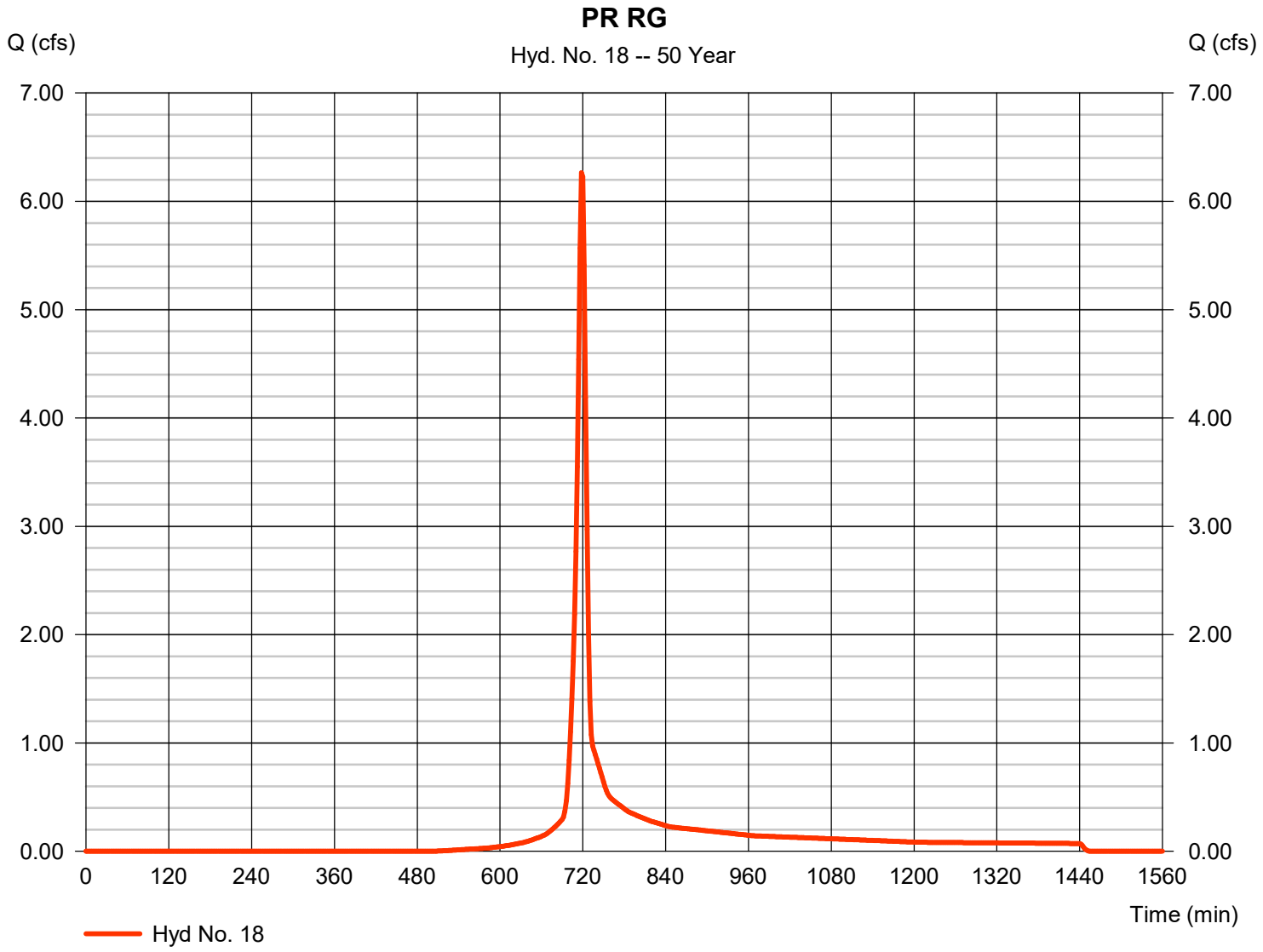
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.265 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	14,332 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



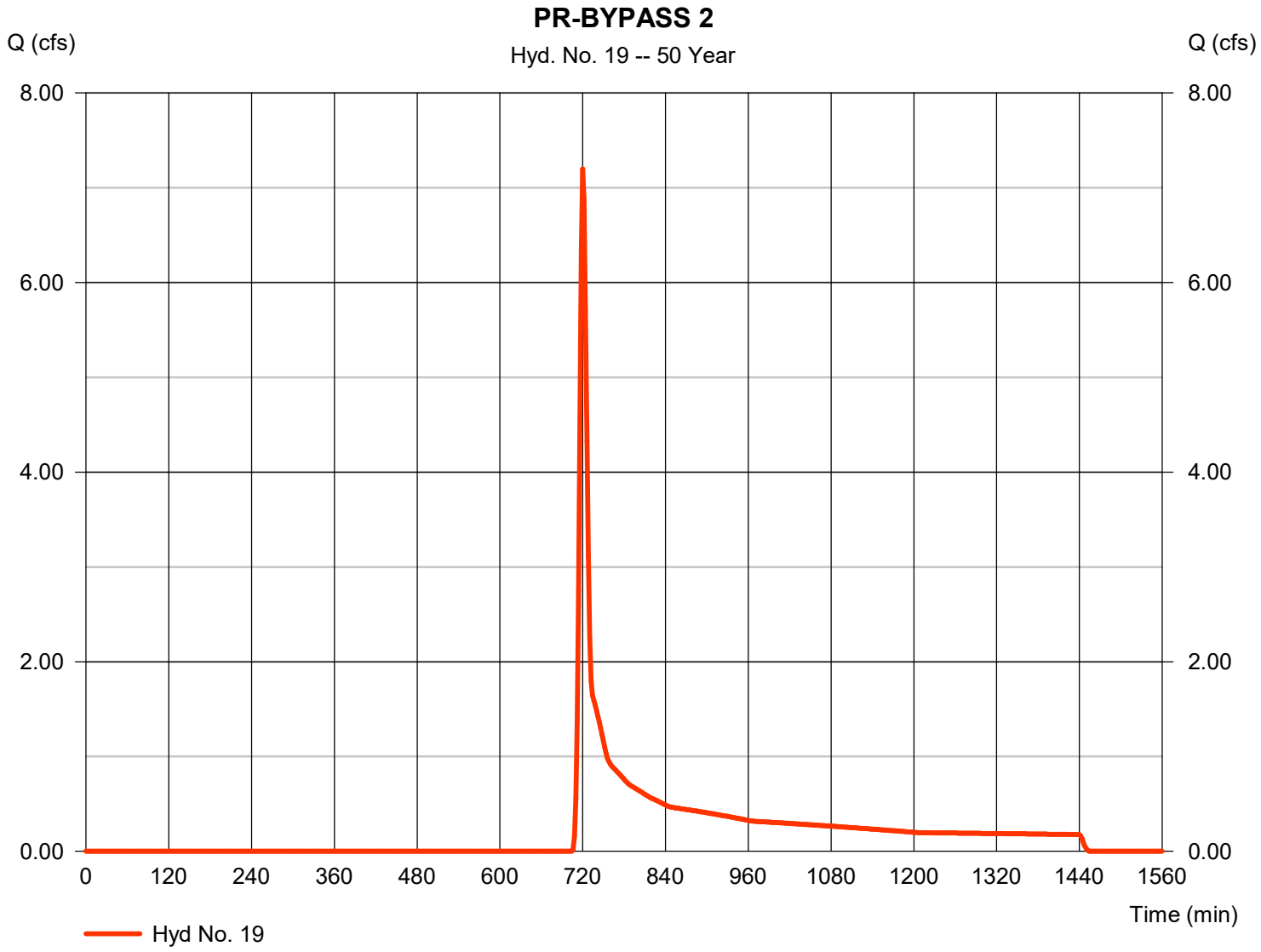
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.200 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	20,363 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



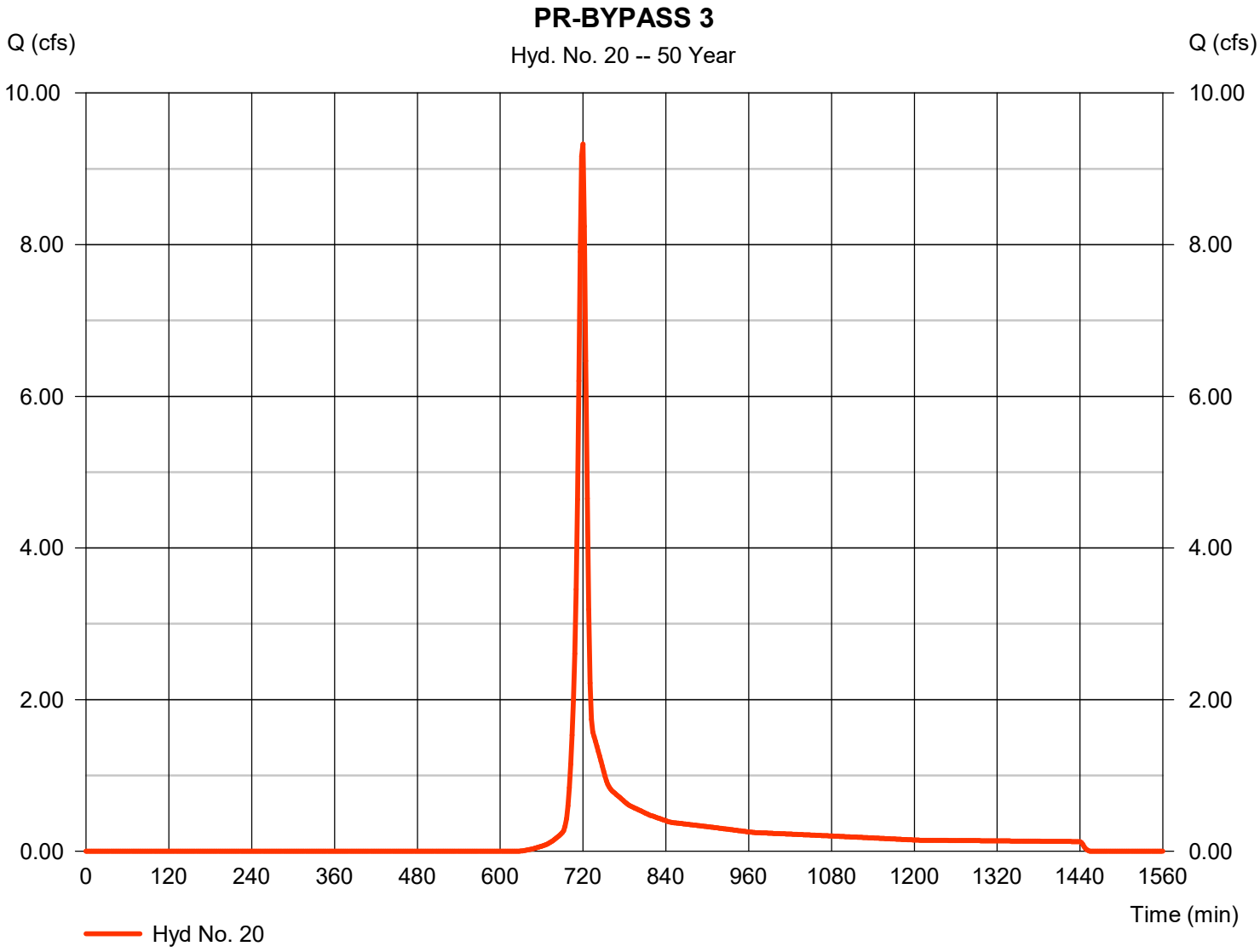
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.325 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	21,428 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

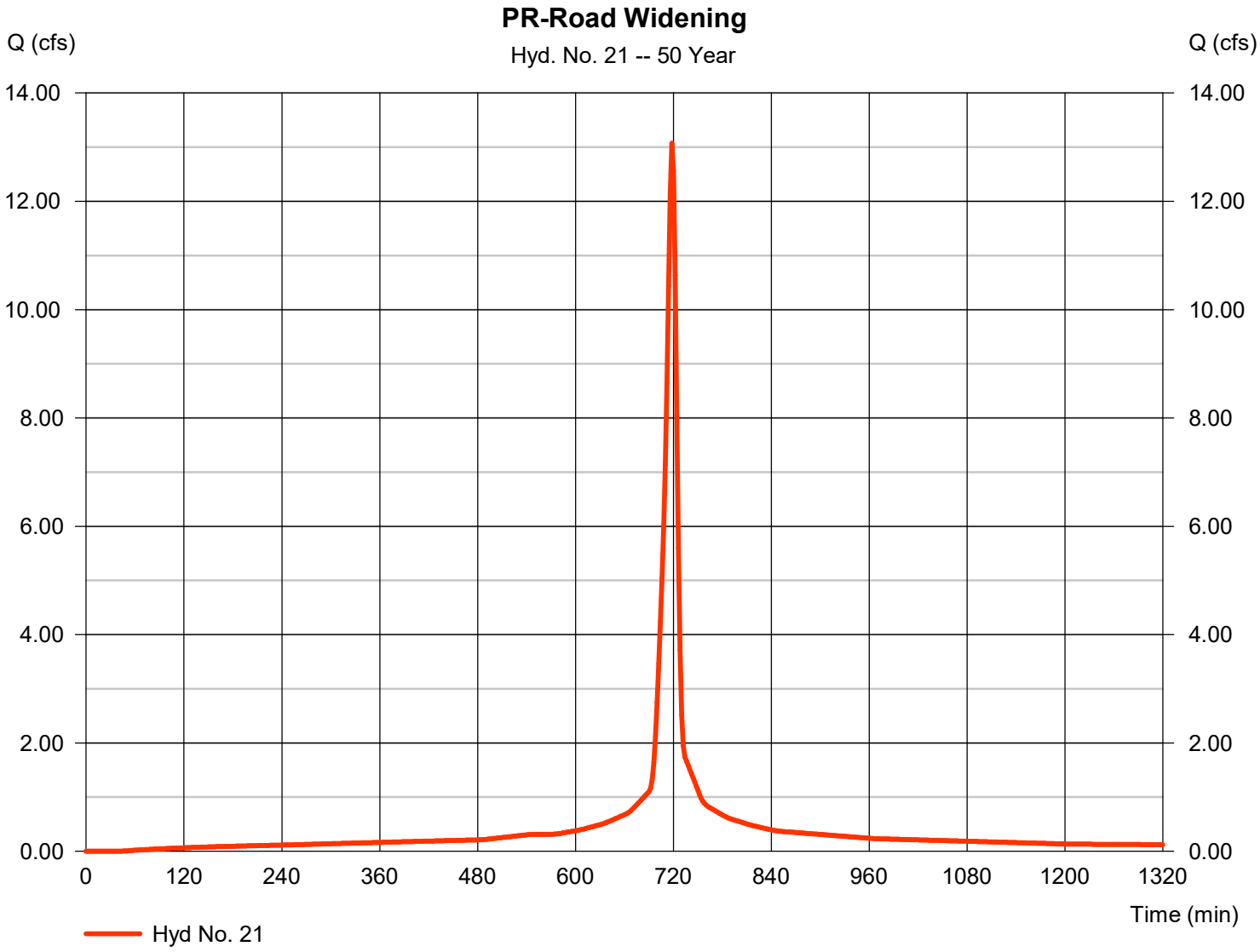


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.07 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	35,117 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

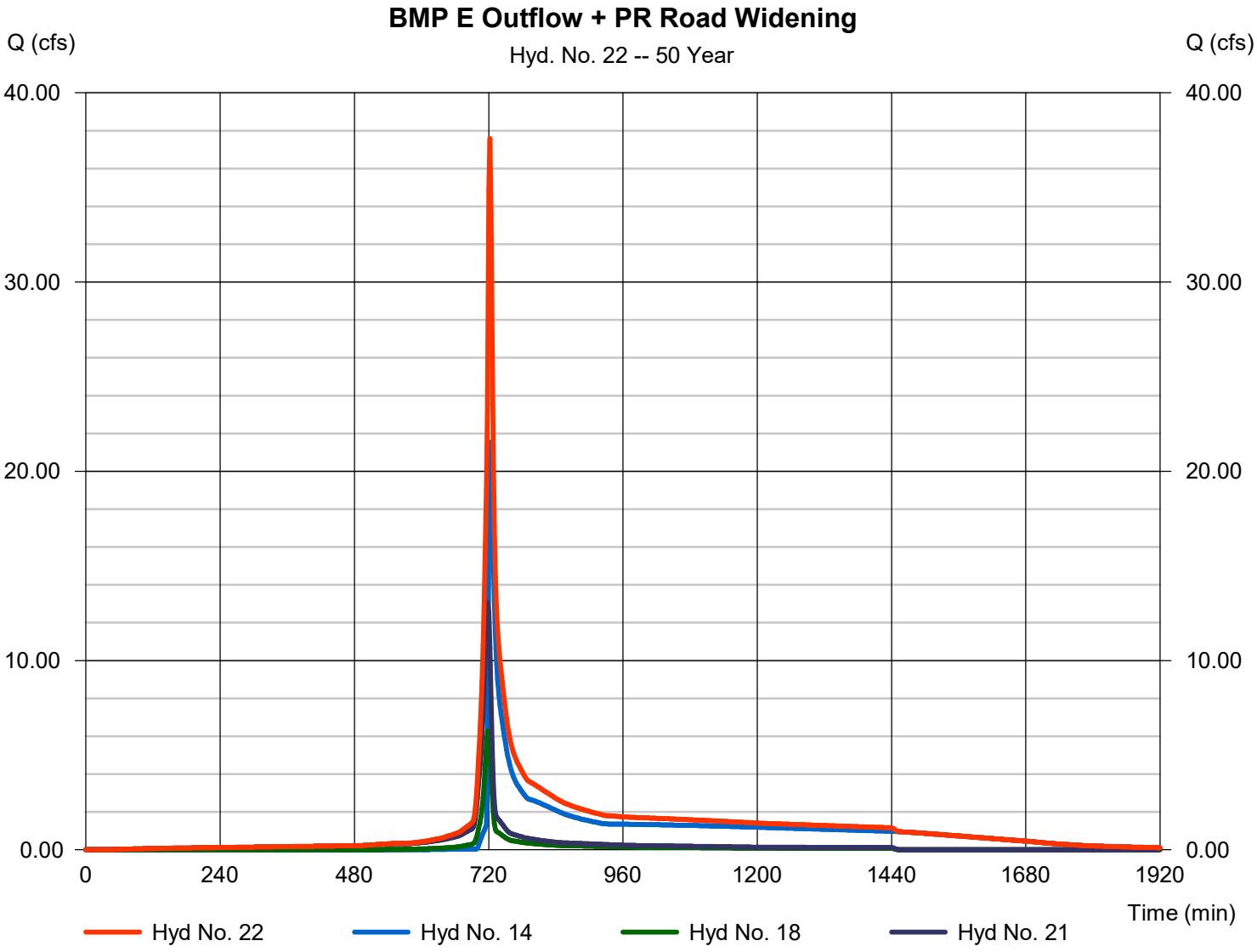


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	37.58 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	155,507 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



Hydrograph Report

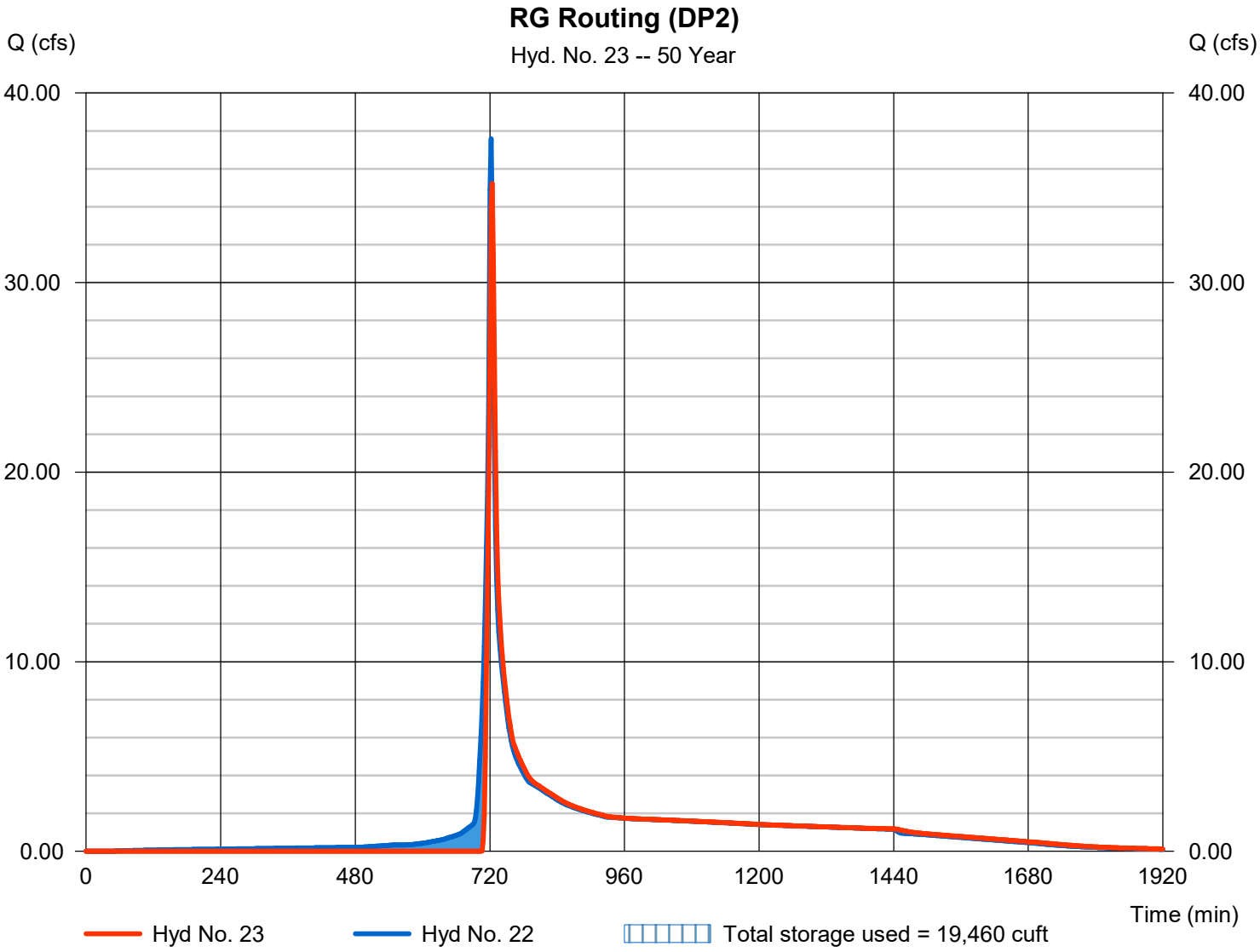
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	35.22 cfs
Storm frequency	=	50 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	142,493 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.47 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	19,460 cuft

Storage Indication method used.

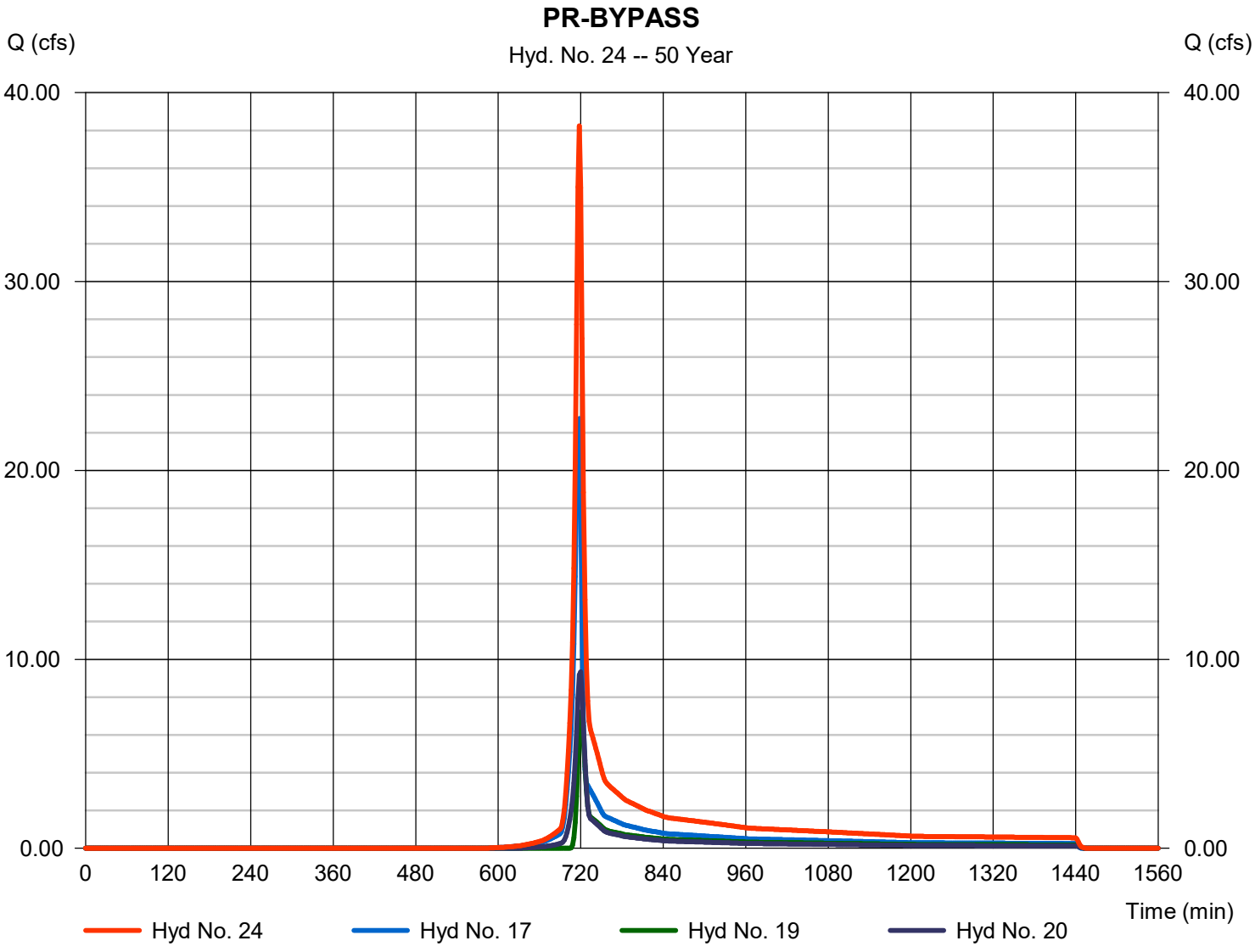


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	38.24 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	87,378 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

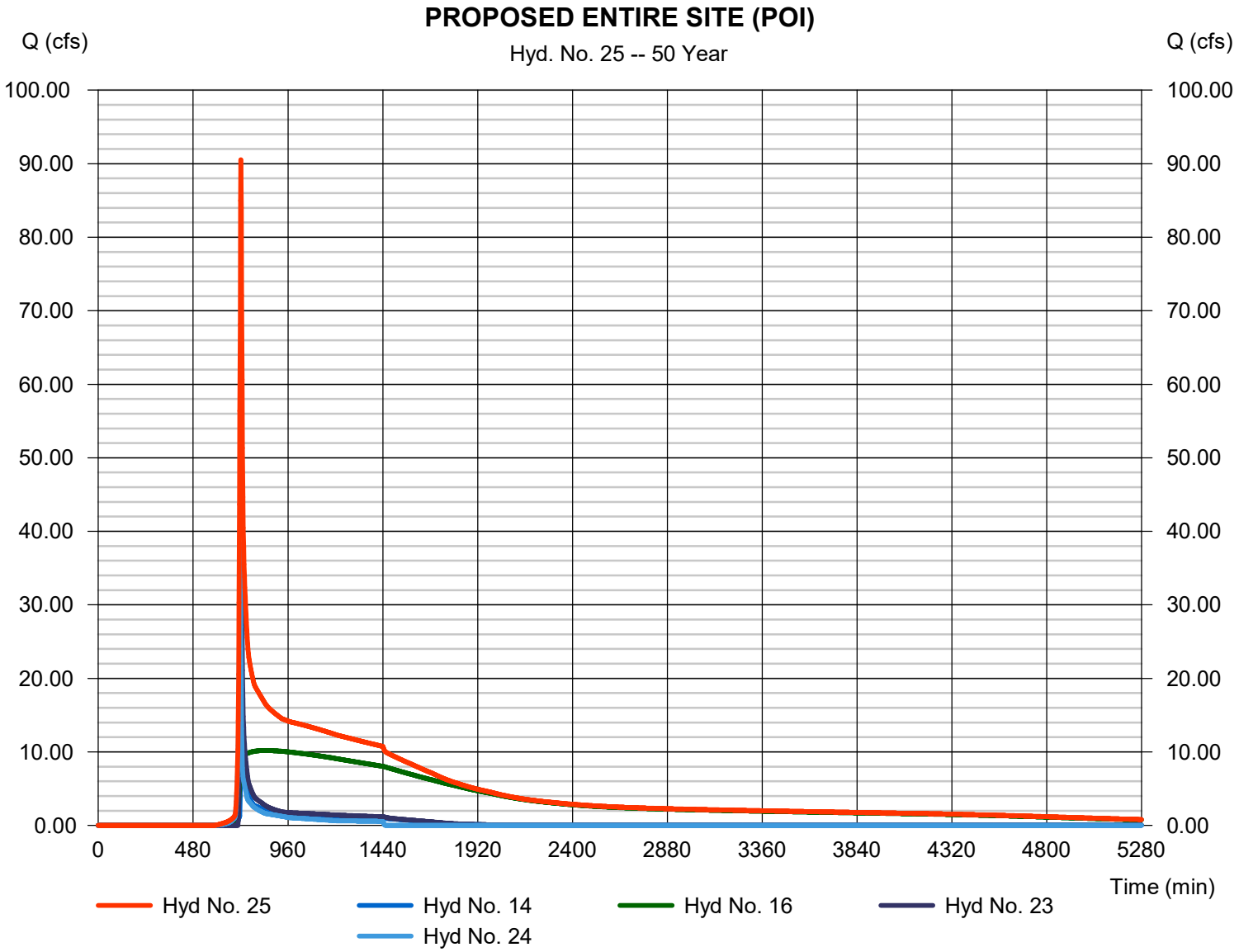


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	90.52 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	1,340,678 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

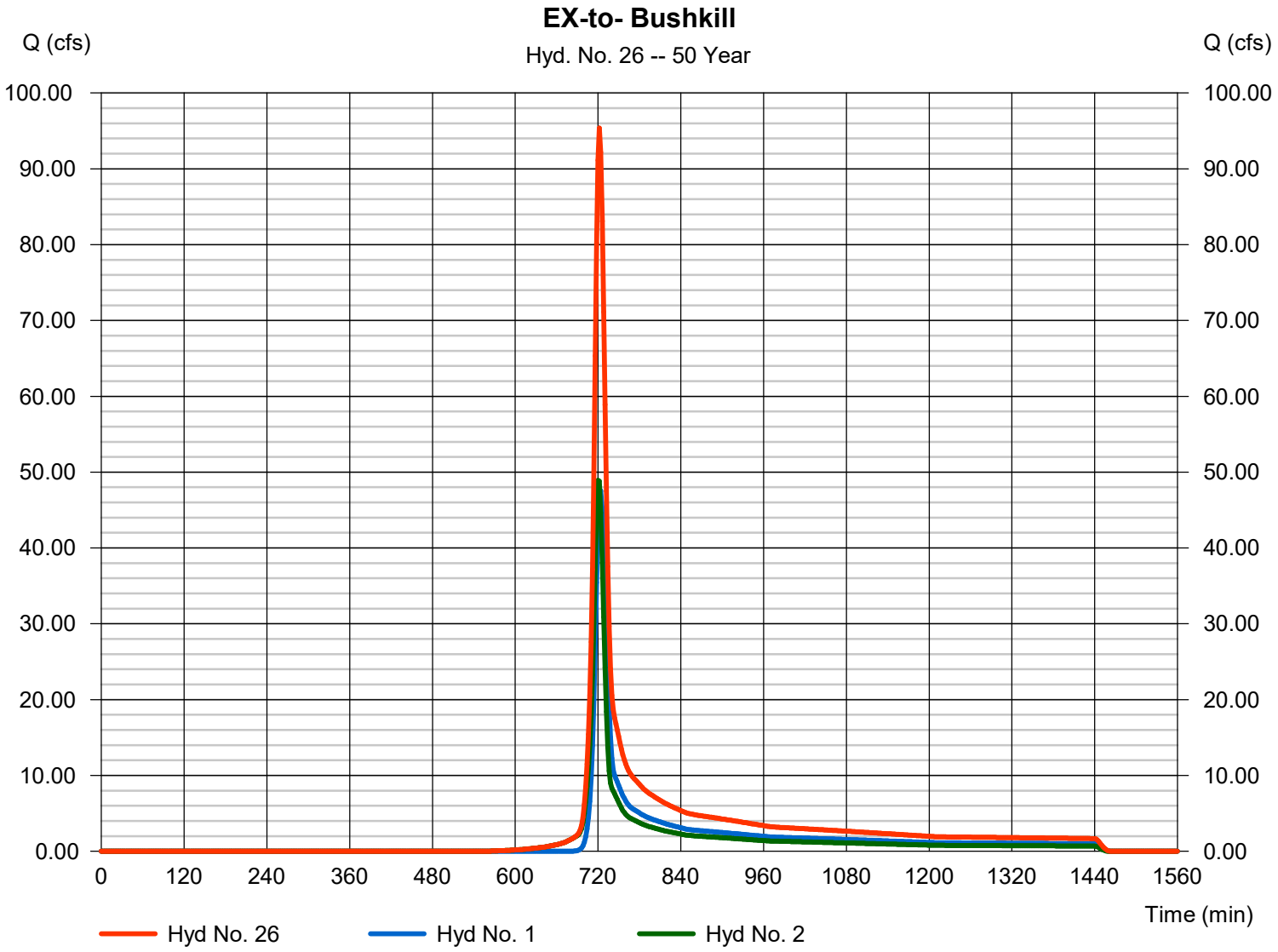


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 95.39 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 272,041 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

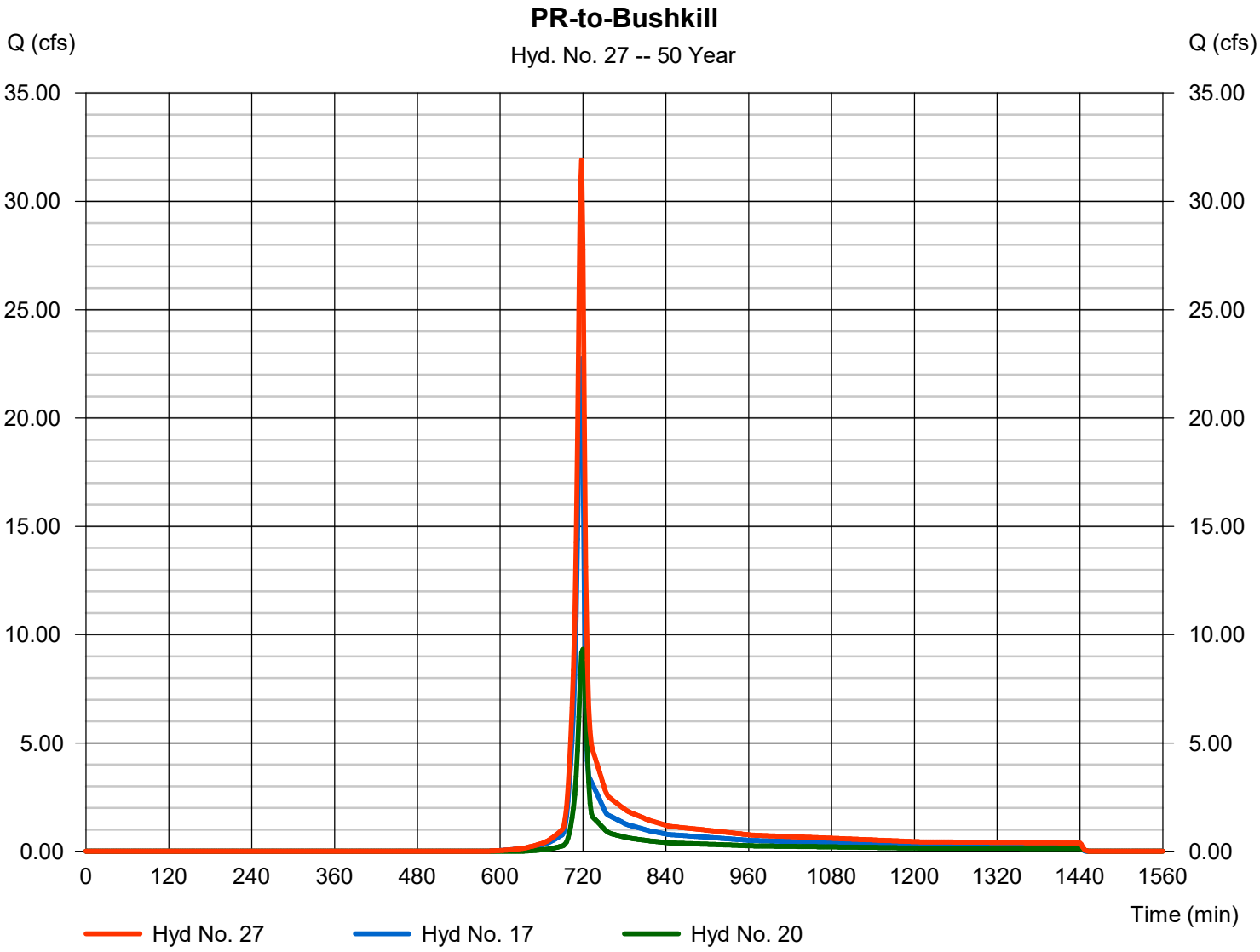


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 31.91 cfs
Storm frequency	= 50 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 67,015 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

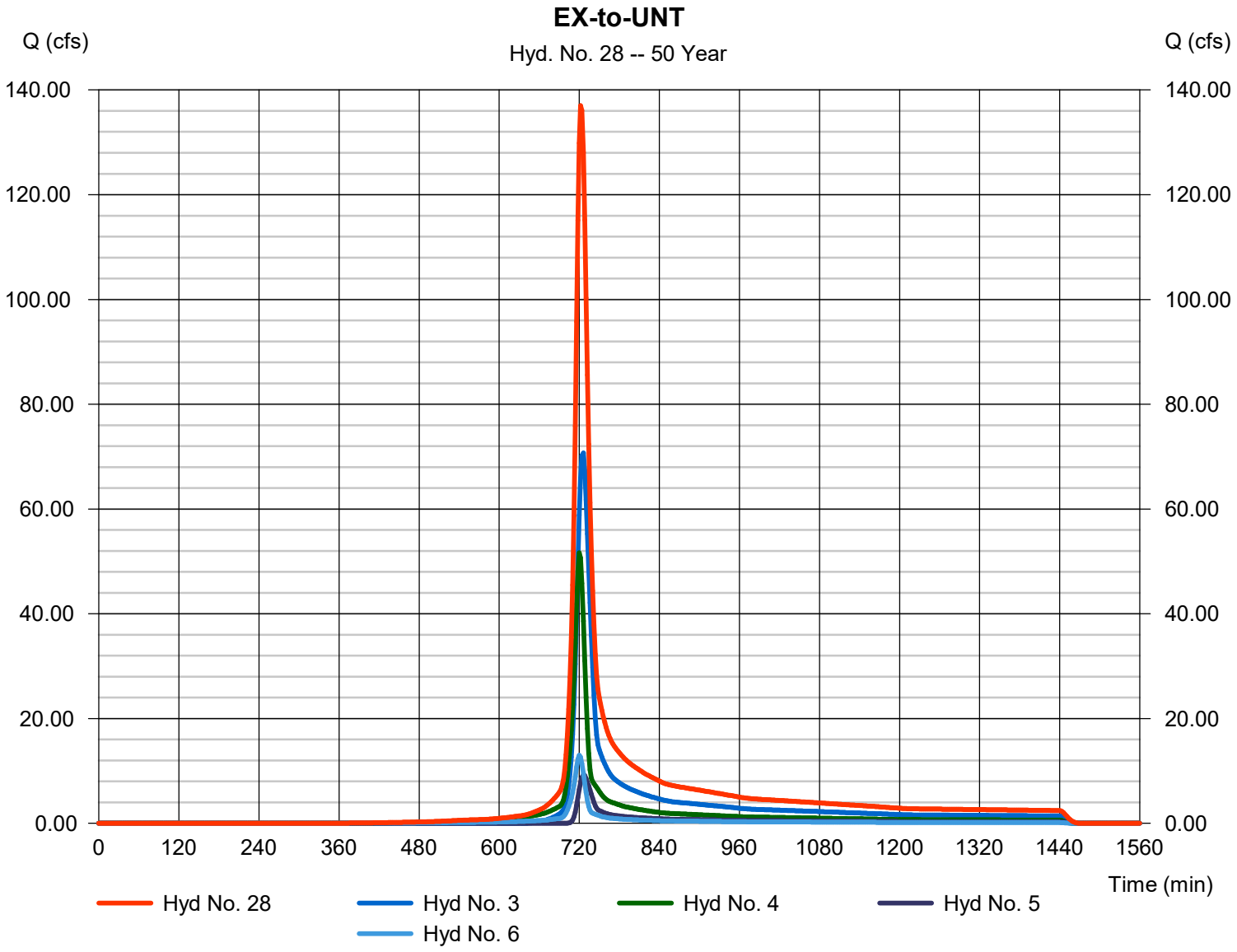


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 137.03 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 435,295 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

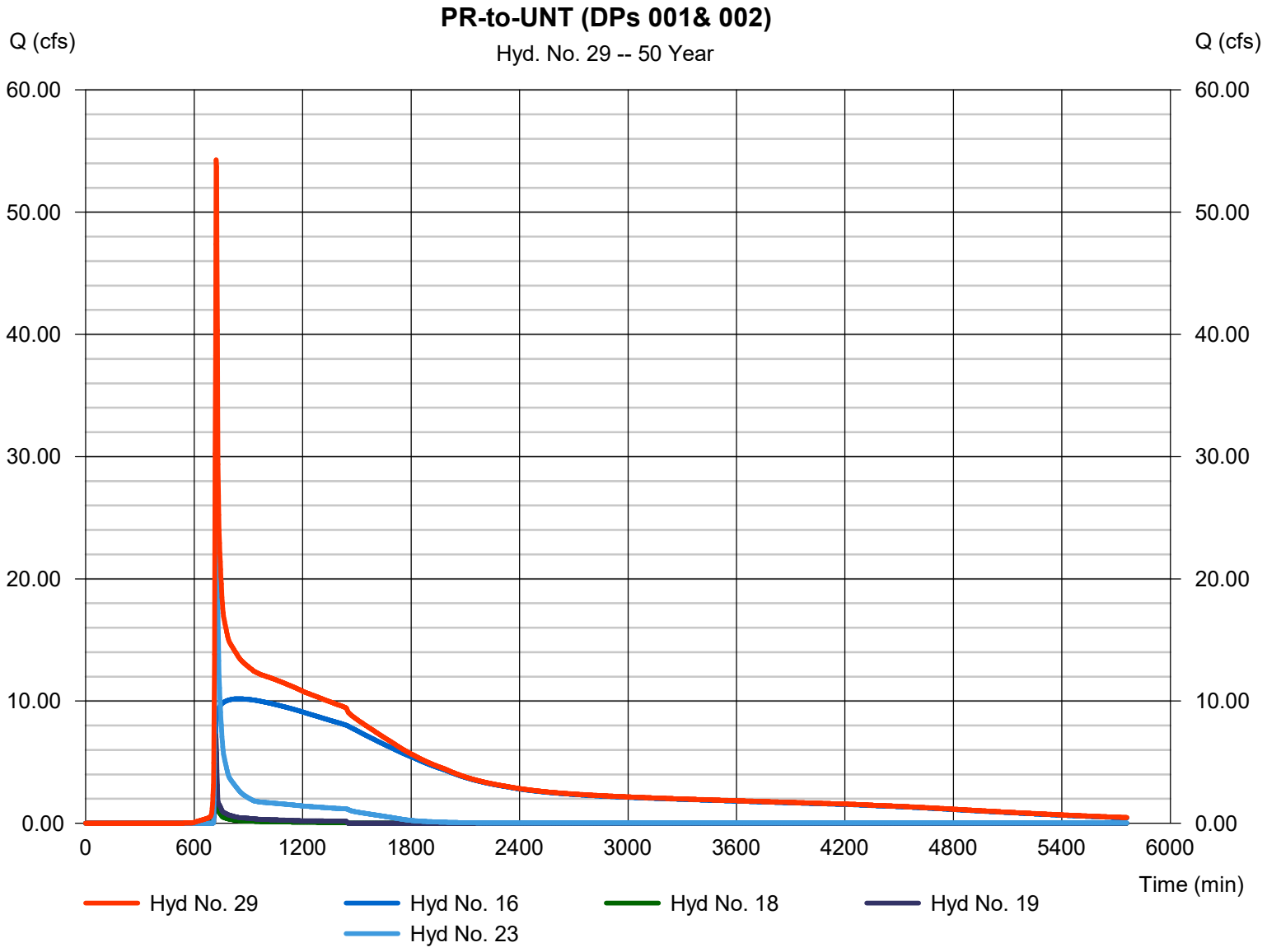


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 54.28 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 1,181,939 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	65.95	2	724	194,360	------	------	------	EX-DA 1
2	SCS Runoff	62.09	2	720	161,178	------	------	------	EX-DA2
3	SCS Runoff	93.46	2	726	299,808	------	------	------	EX-DA3
4	SCS Runoff	62.50	2	720	163,723	------	------	------	EX-DA4
5	SCS Runoff	14.14	2	726	50,700	------	------	------	EX-DA5
6	SCS Runoff	15.39	2	720	41,204	------	------	------	EX-DA-Road Widening
7	Combine	303.92	2	722	910,973	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	124.84	2	716	293,802	------	------	------	PR-DA-A
9	SCS Runoff	157.76	2	716	371,280	------	------	------	PR-DA-B
10	SCS Runoff	284.74	2	718	704,998	------	------	------	PR-DA-C
11	Reservoir	1.107	2	1234	264,452	8	292.39	239,153	BMP A Routing
12	Reservoir	2.162	2	1044	357,786	9	288.91	281,222	BMP B Routing
13	SCS Runoff	66.27	2	716	137,862	------	------	------	PR-DA-E
14	Reservoir	31.35	2	722	129,906	13	260.59	61,451	BMP E Routing
15	Combine	287.14	2	718	1,327,235	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	11.52	2	848	1,184,861	15	219.37	508,935	MRC BMP C Routing(DP1)
17	SCS Runoff	28.81	2	718	58,058	------	------	------	PR-BYPASS 1
18	SCS Runoff	7.790	2	718	17,845	------	------	------	PR RG
19	SCS Runoff	11.53	2	720	29,459	------	------	------	PR-BYPASS 2
20	SCS Runoff	12.13	2	720	27,769	------	------	------	PR-BYPASS 3
21	SCS Runoff	15.02	2	718	40,514	------	------	------	PR-Road Widening
22	Combine	52.91	2	720	188,265	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	50.12	2	722	175,251	22	233.67	21,020	RG Routing (DP2)
24	Combine	51.46	2	718	115,286	17, 19, 20,	------	------	PR-BYPASS
25	Combine	134.29	2	720	1,605,305	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	126.98	2	722	355,538	1, 2,	------	------	EX-to- Bushkill
27	Combine	40.84	2	718	85,828	17, 20,	------	------	PR-to-Bushkill
28	Combine	176.94	2	722	555,436	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	76.86	2	722	1,407,415	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

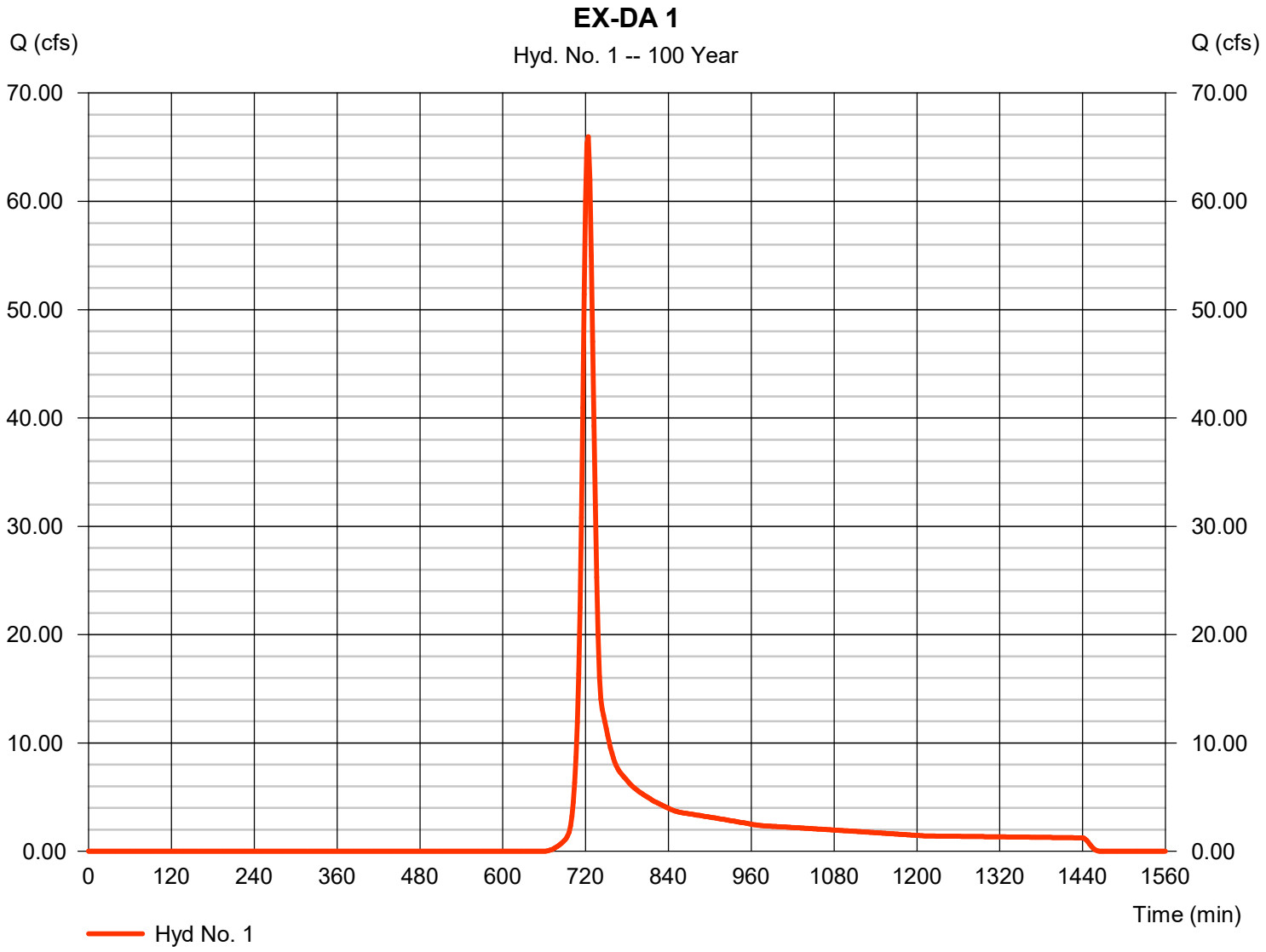
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	65.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	194,360 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



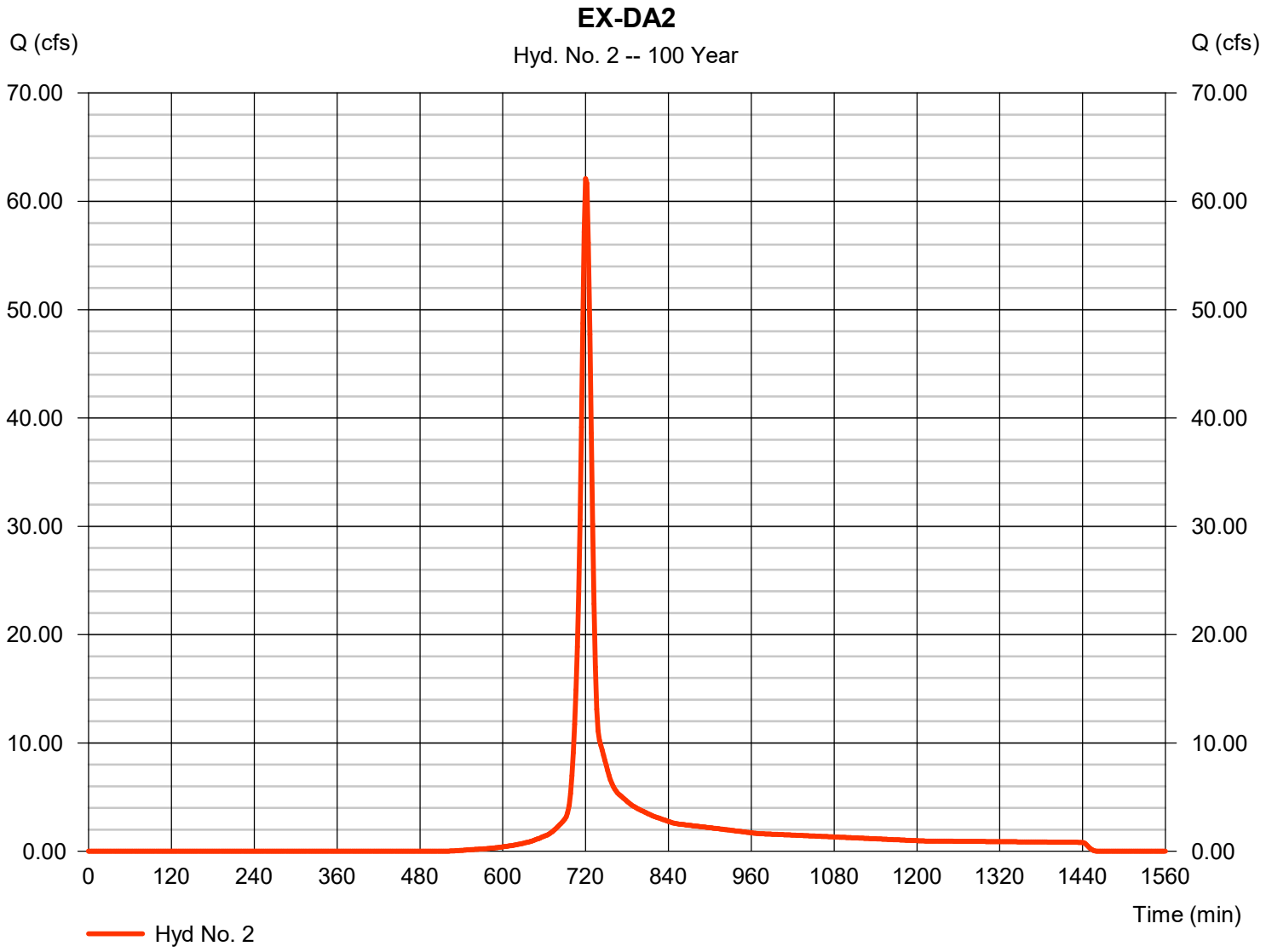
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	62.09 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	161,178 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



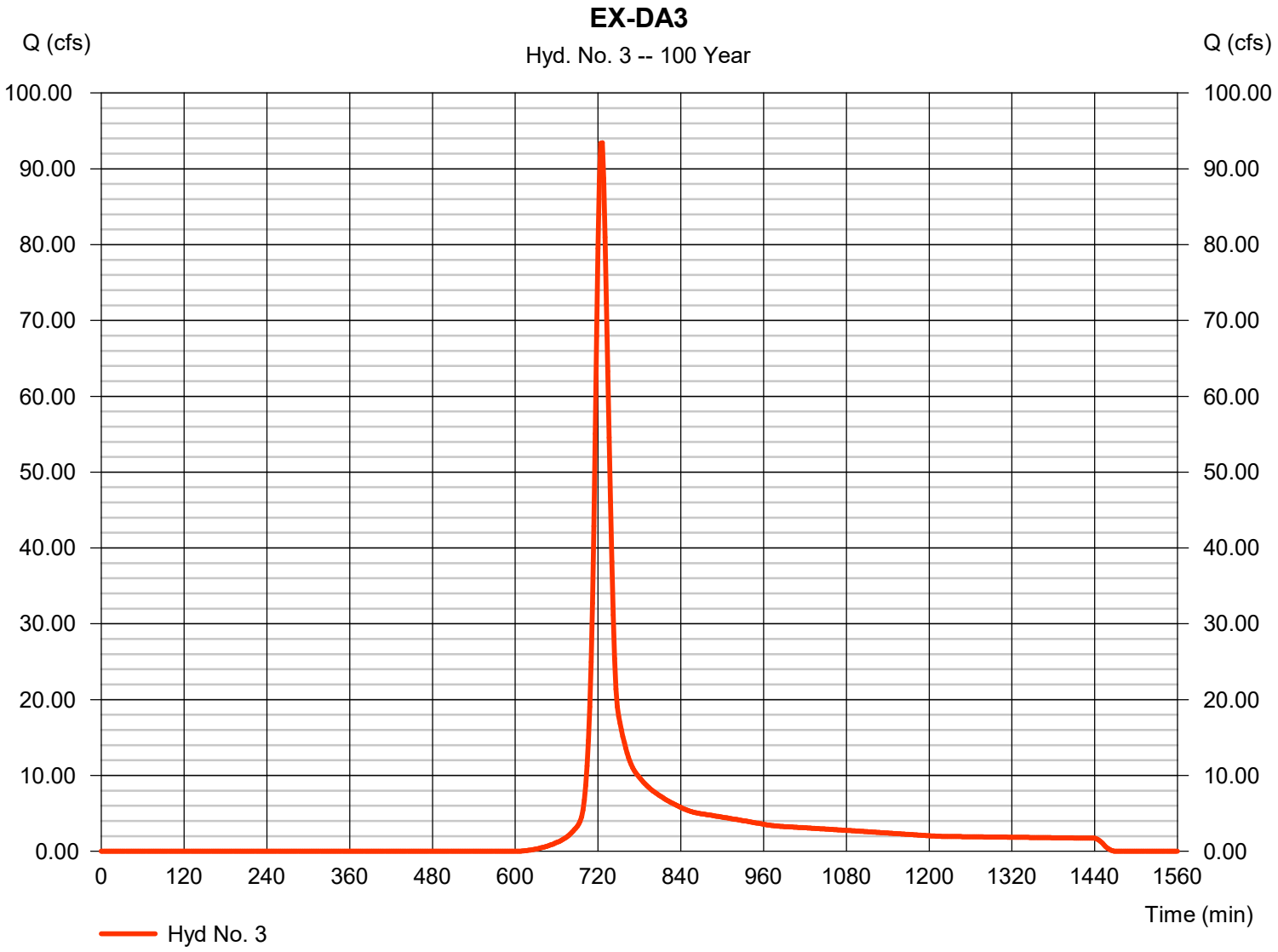
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	93.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	299,808 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



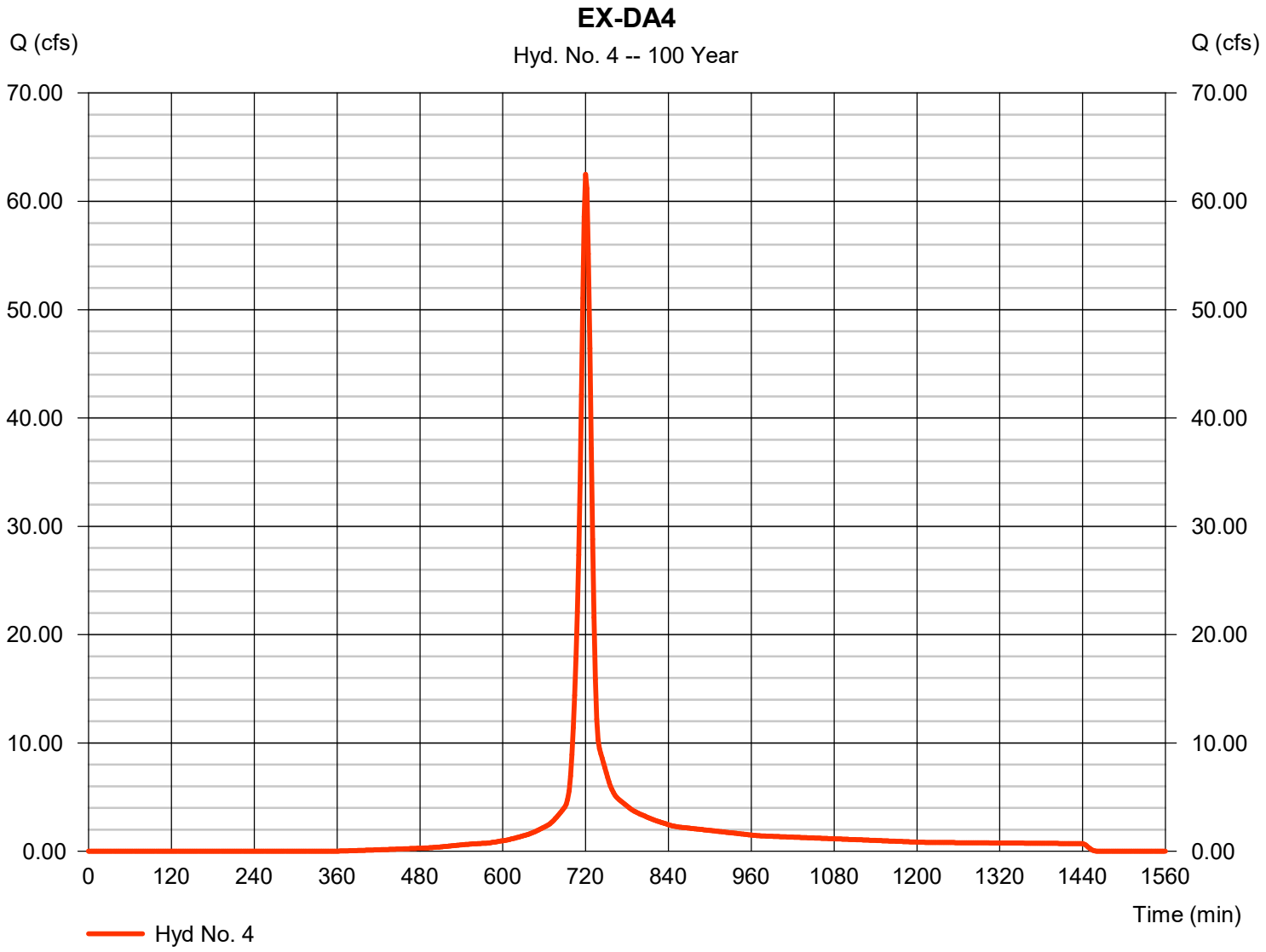
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	62.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	163,723 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



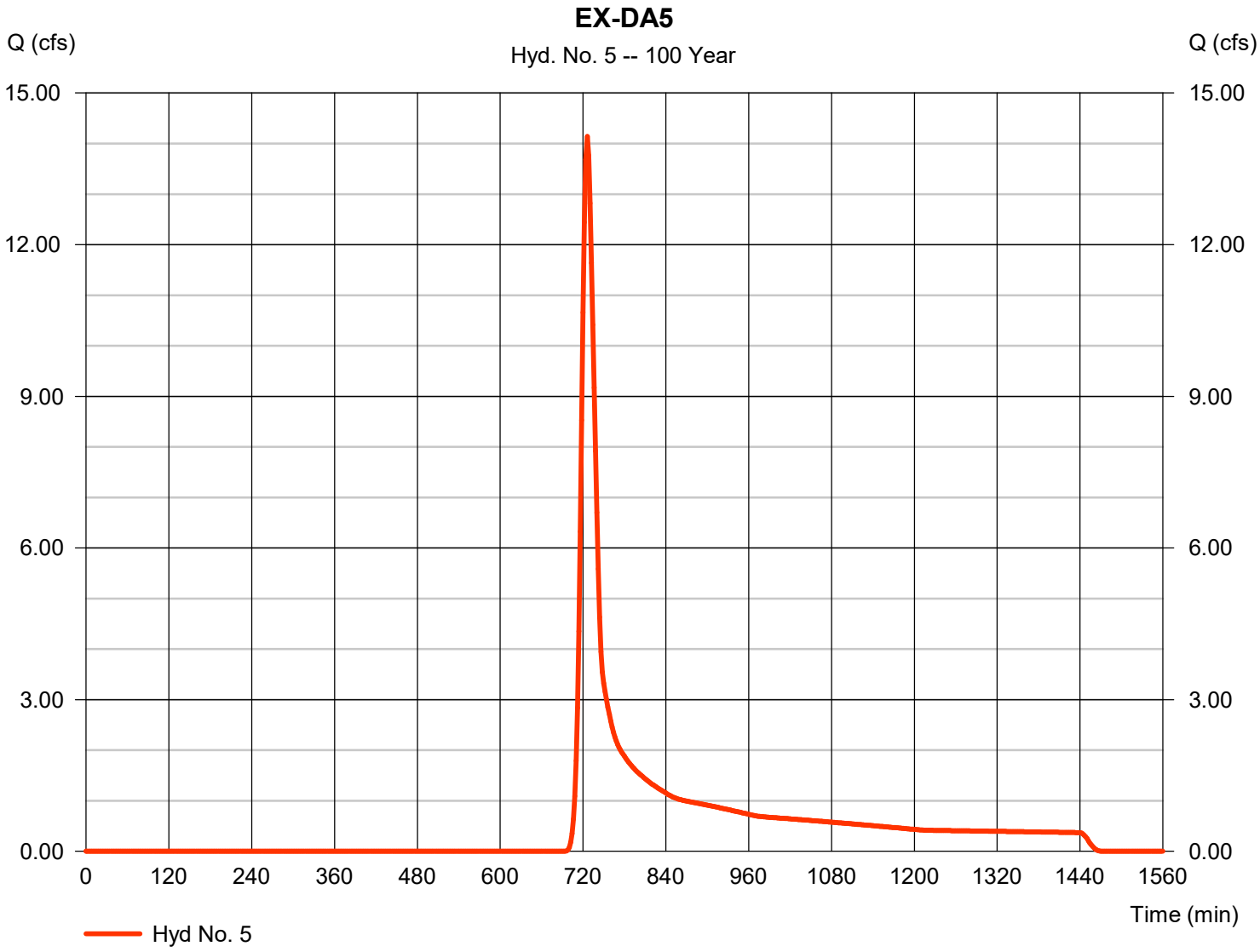
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	50,700 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



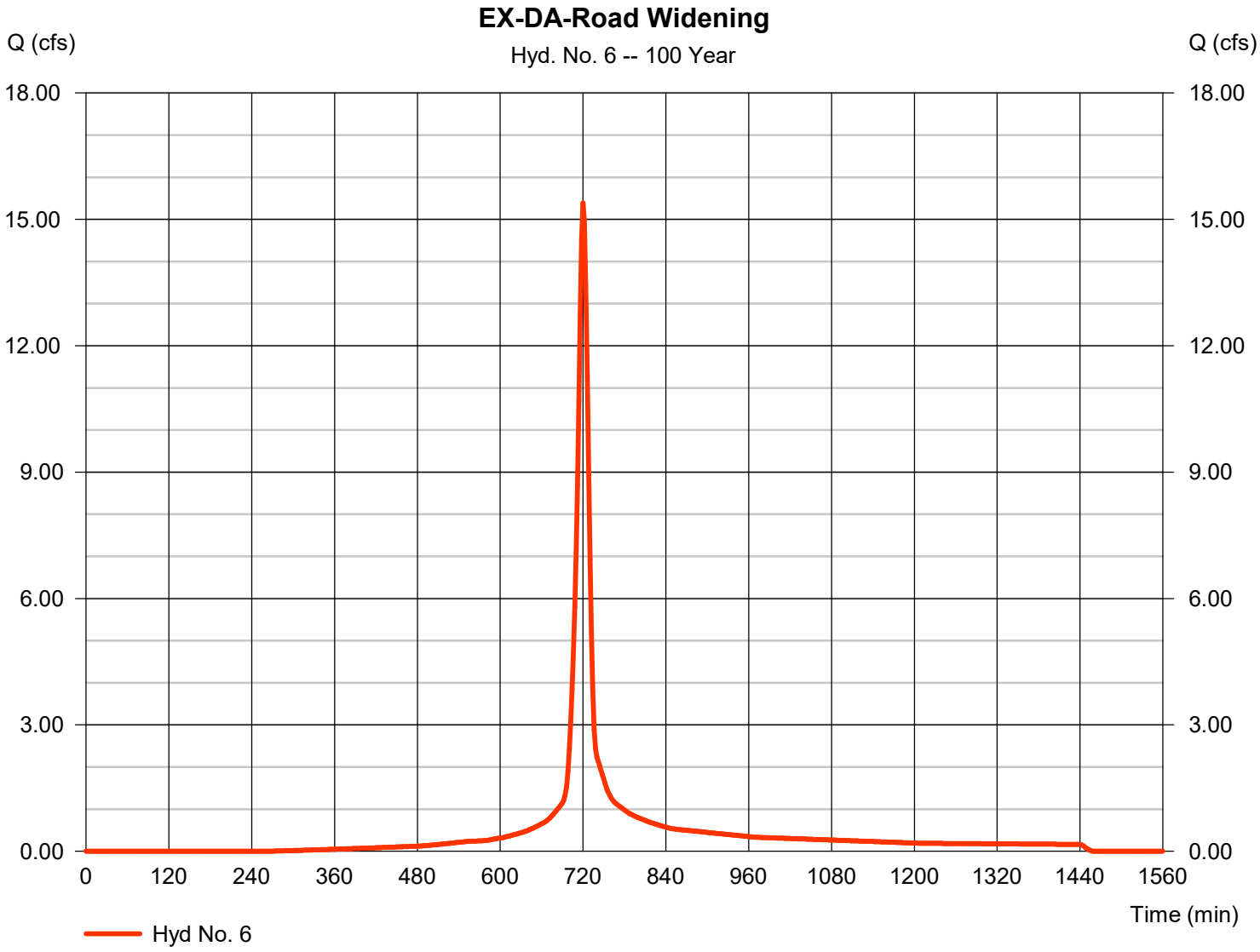
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.39 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	41,204 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

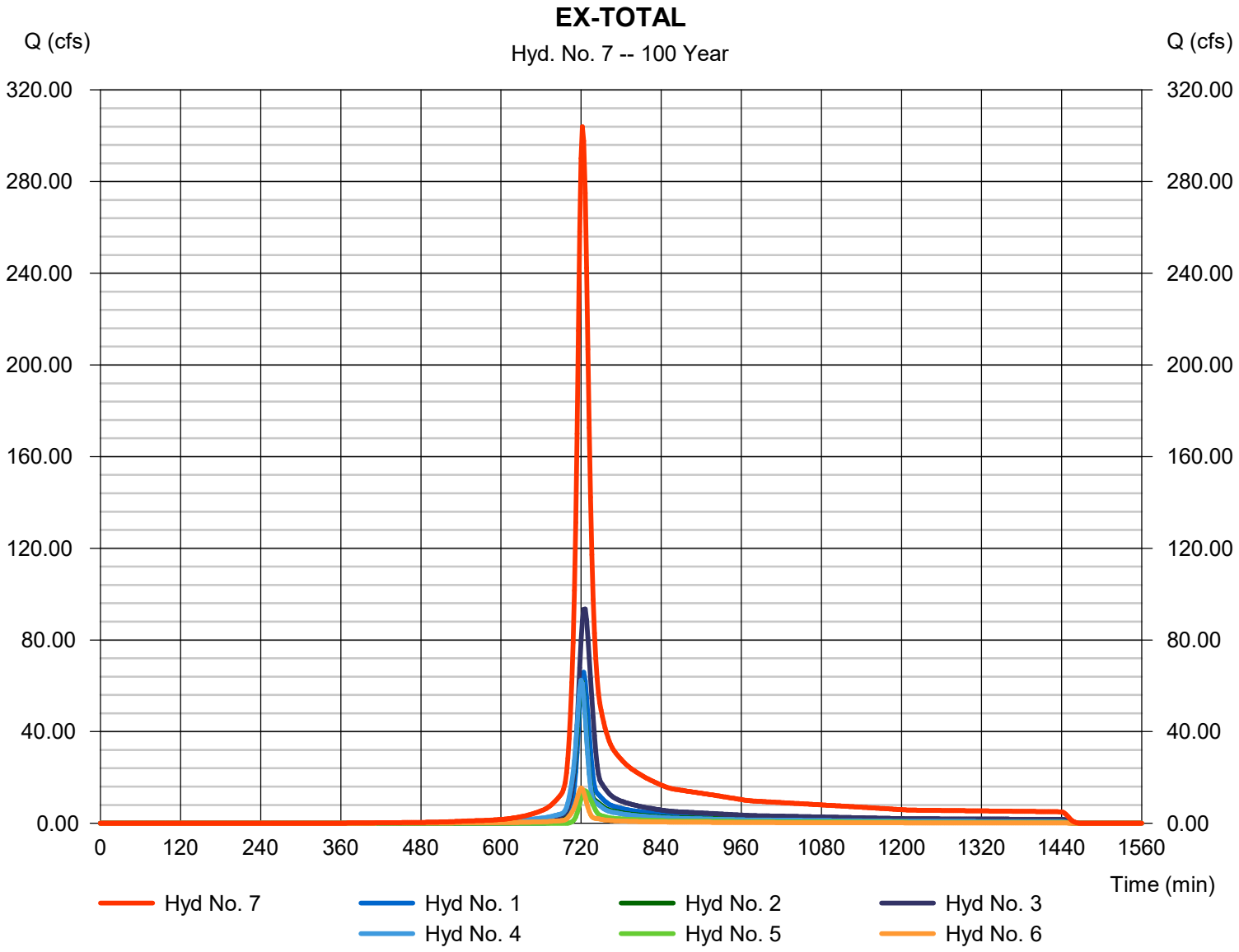


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	303.92 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	910,973 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



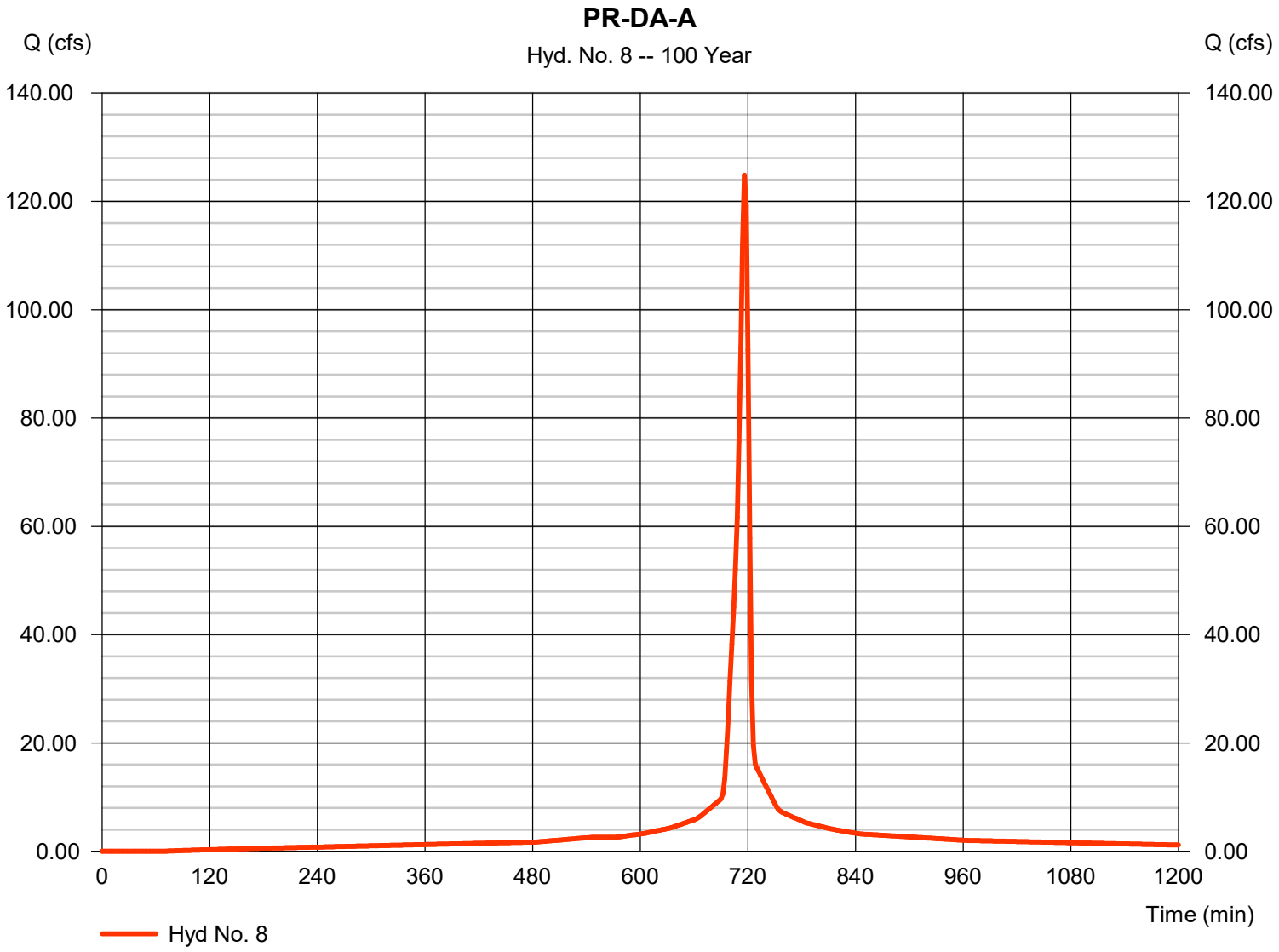
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	124.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	293,802 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



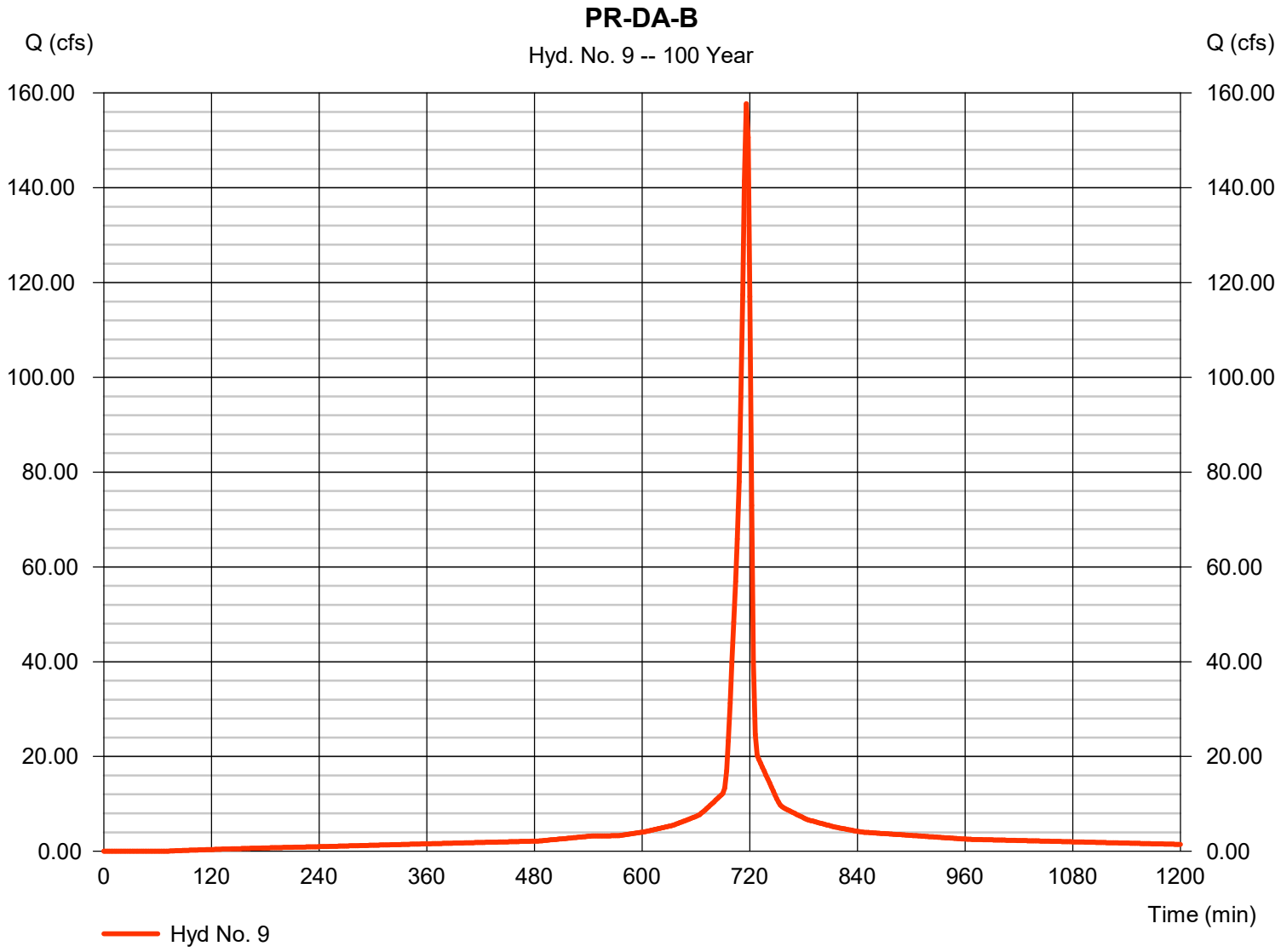
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	157.76 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	371,280 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



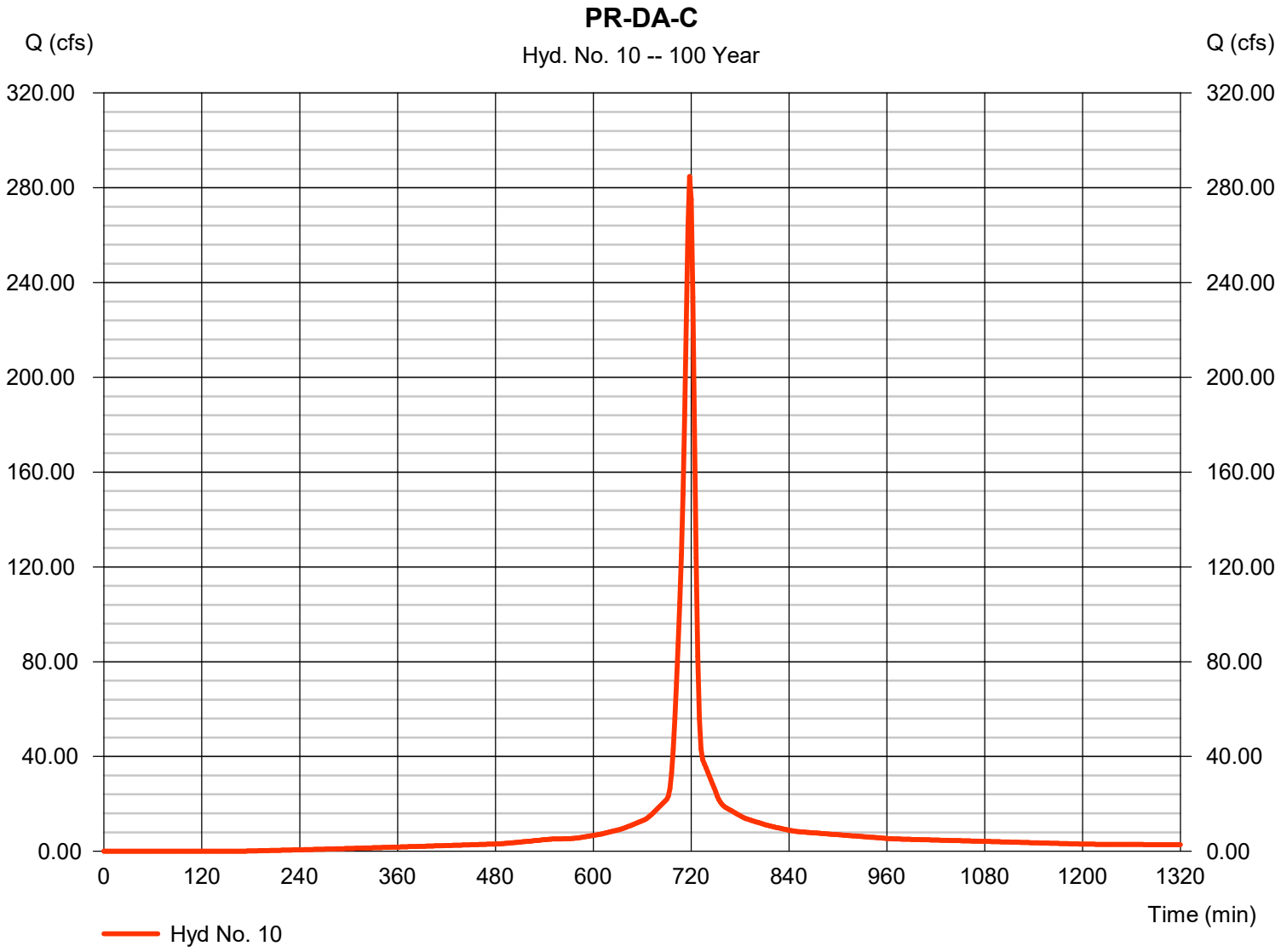
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	284.74 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	704,998 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



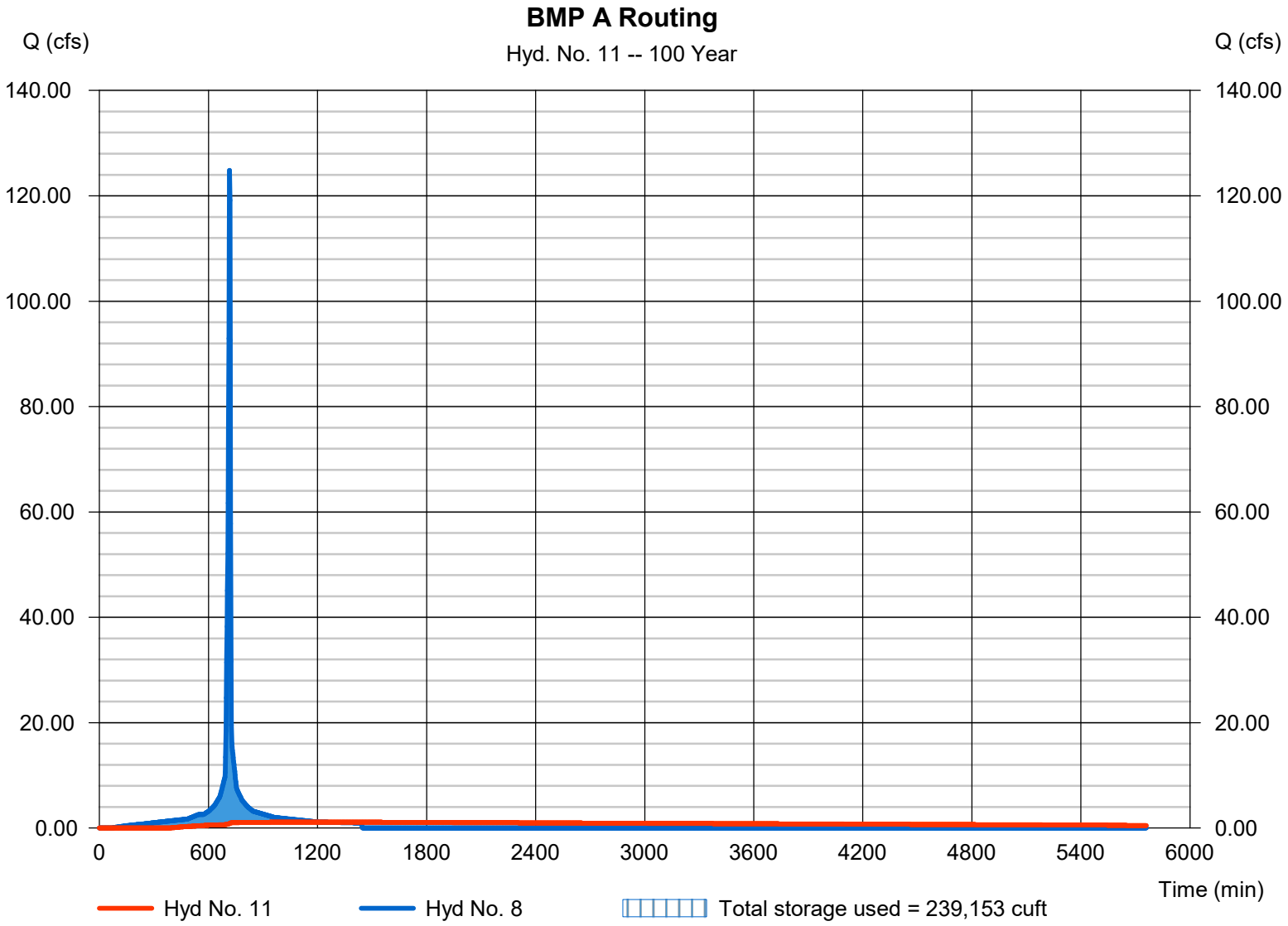
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.107 cfs
Storm frequency	=	100 yrs	Time to peak	=	1234 min
Time interval	=	2 min	Hyd. volume	=	264,452 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.39 ft
Reservoir name	=	BMP A	Max. Storage	=	239,153 cuft

Storage Indication method used.



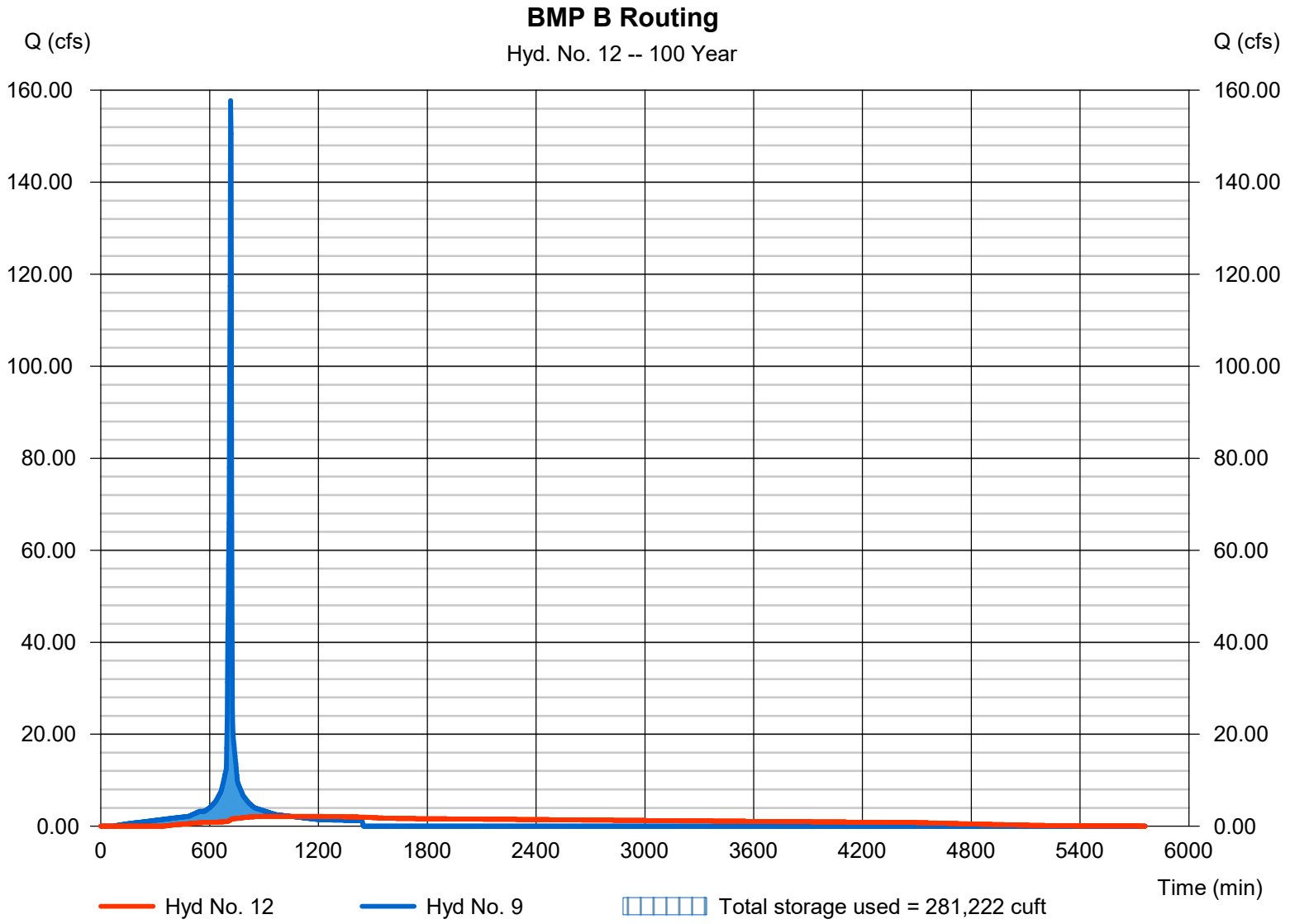
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	2.162 cfs
Storm frequency	=	100 yrs	Time to peak	=	1044 min
Time interval	=	2 min	Hyd. volume	=	357,786 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.91 ft
Reservoir name	=	BMP B	Max. Storage	=	281,222 cuft

Storage Indication method used.



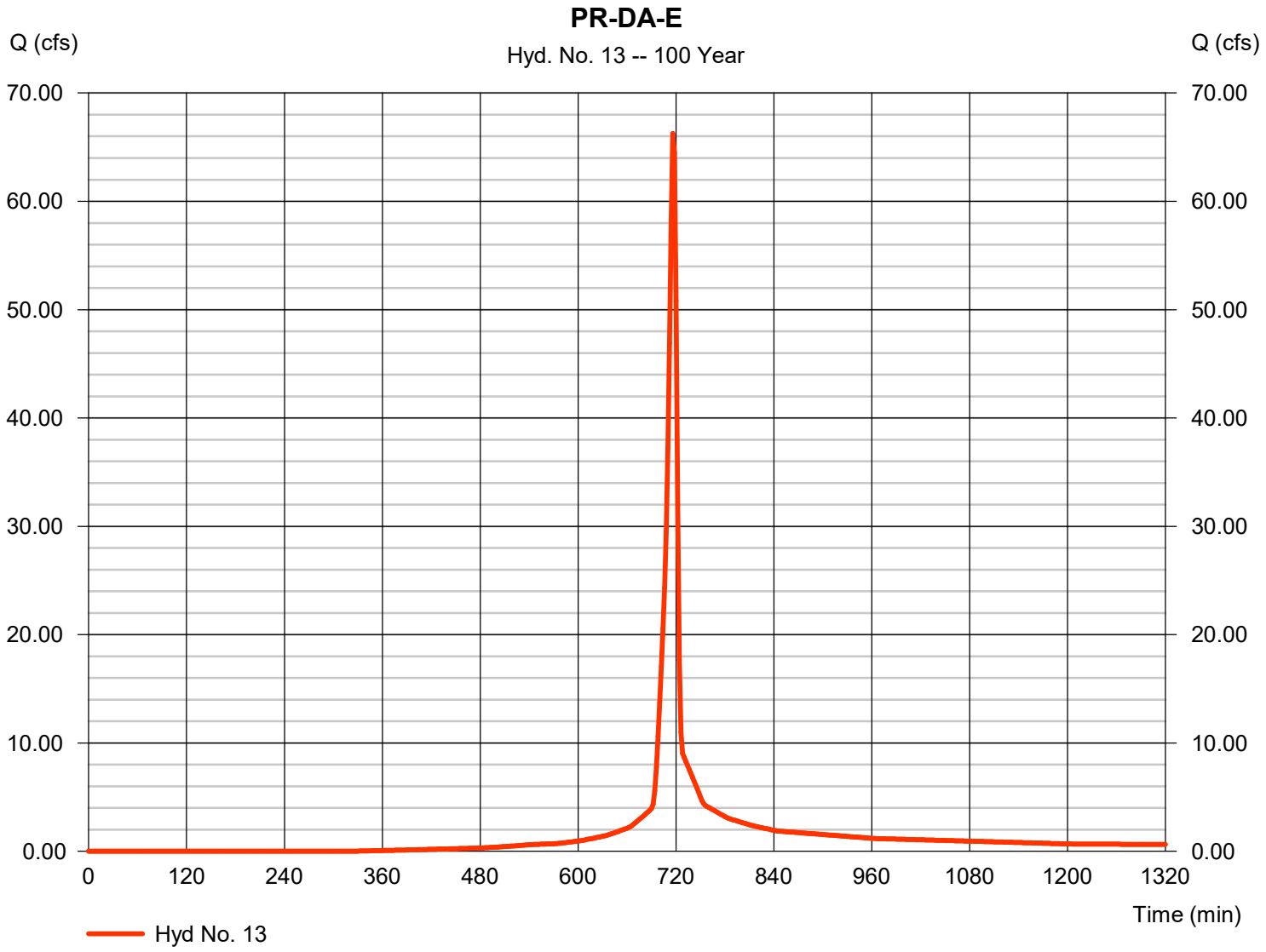
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	66.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	137,862 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



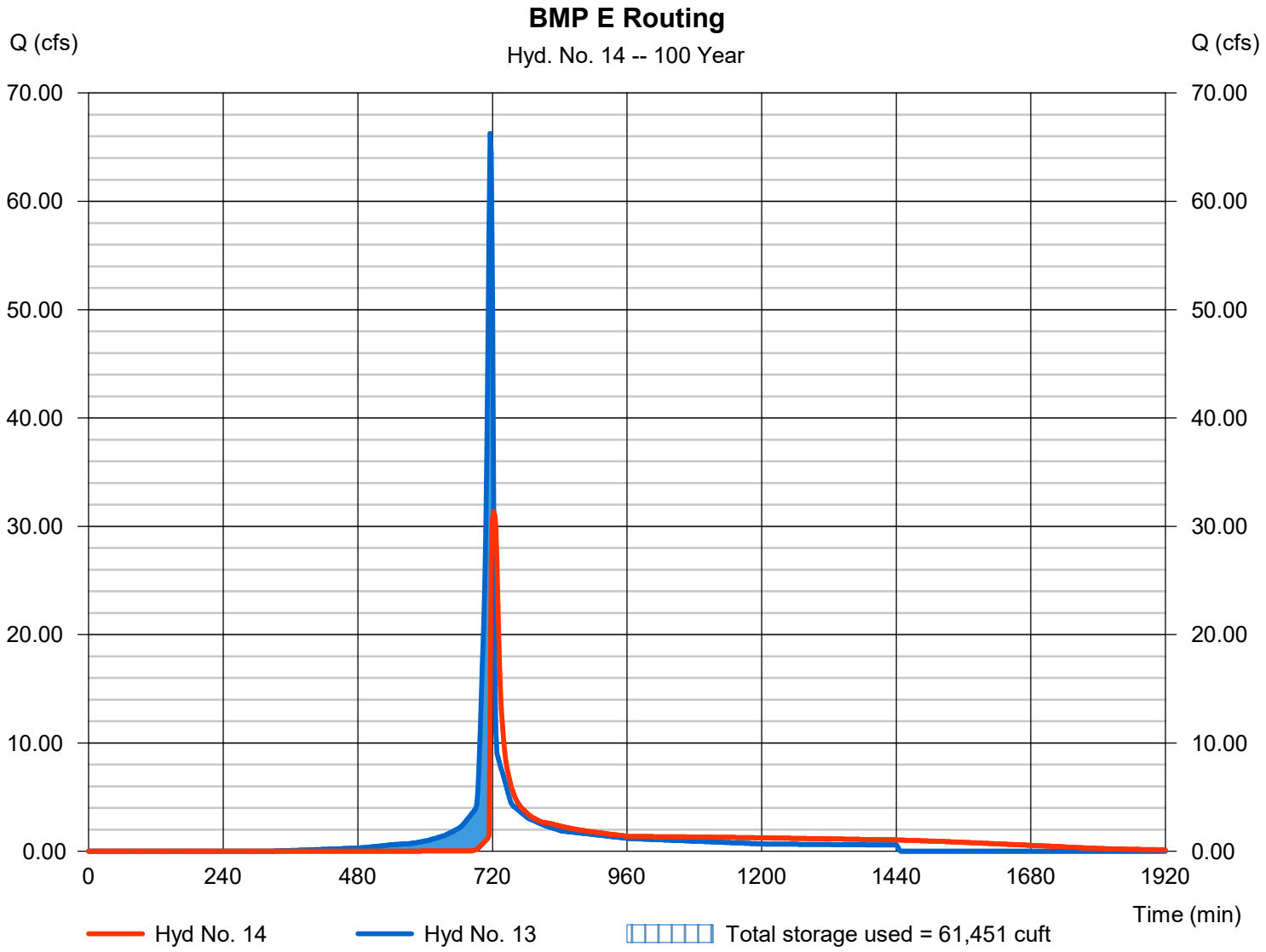
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	31.35 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	129,906 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	260.59 ft
Reservoir name	=	BMP E	Max. Storage	=	61,451 cuft

Storage Indication method used.

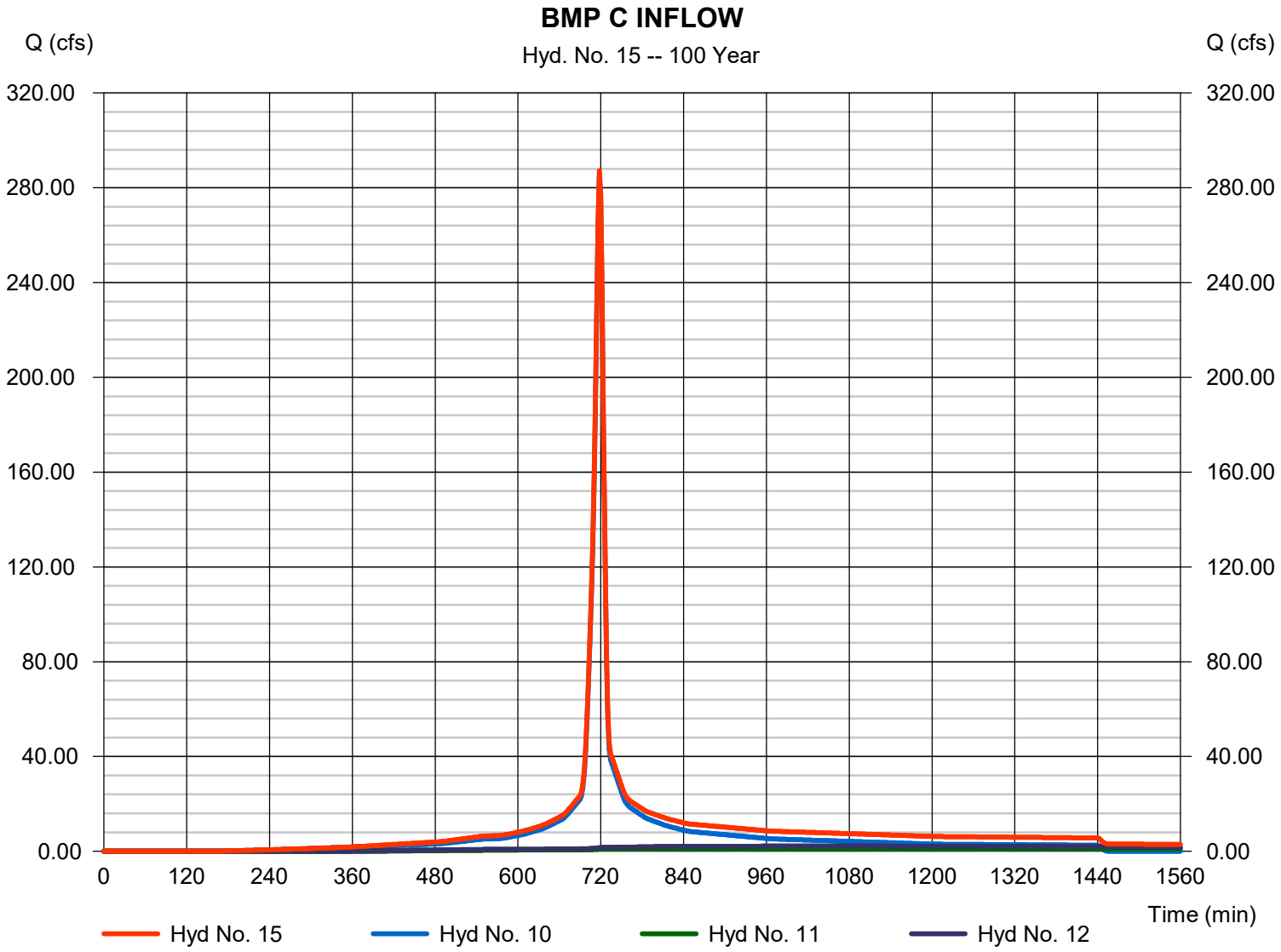


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	287.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,327,235 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



Hydrograph Report

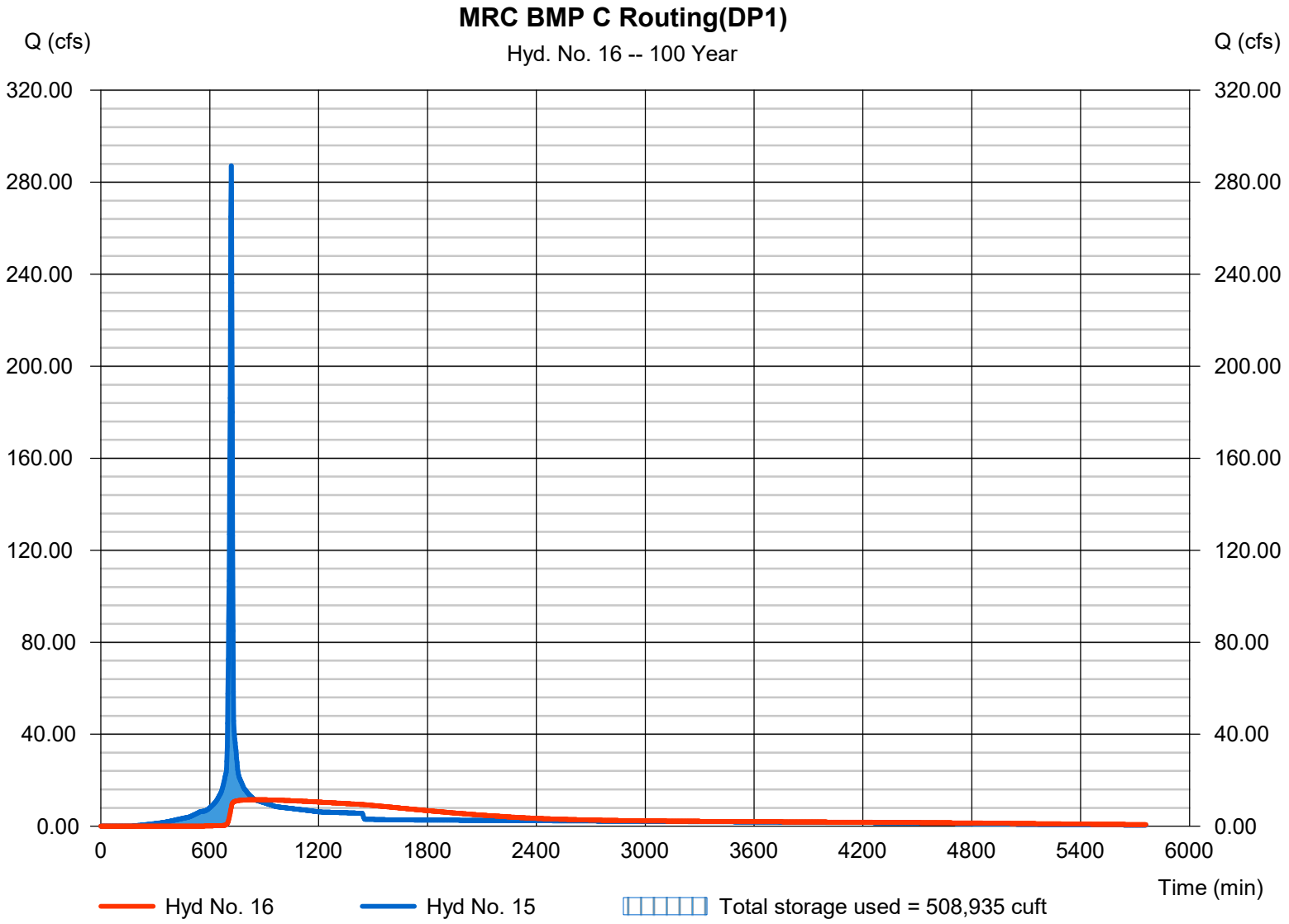
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	= Reservoir	Peak discharge	= 11.52 cfs
Storm frequency	= 100 yrs	Time to peak	= 848 min
Time interval	= 2 min	Hyd. volume	= 1,184,861 cuft
Inflow hyd. No.	= 15 - BMP C INFLOW	Max. Elevation	= 219.37 ft
Reservoir name	= BMP C	Max. Storage	= 508,935 cuft

Storage Indication method used.



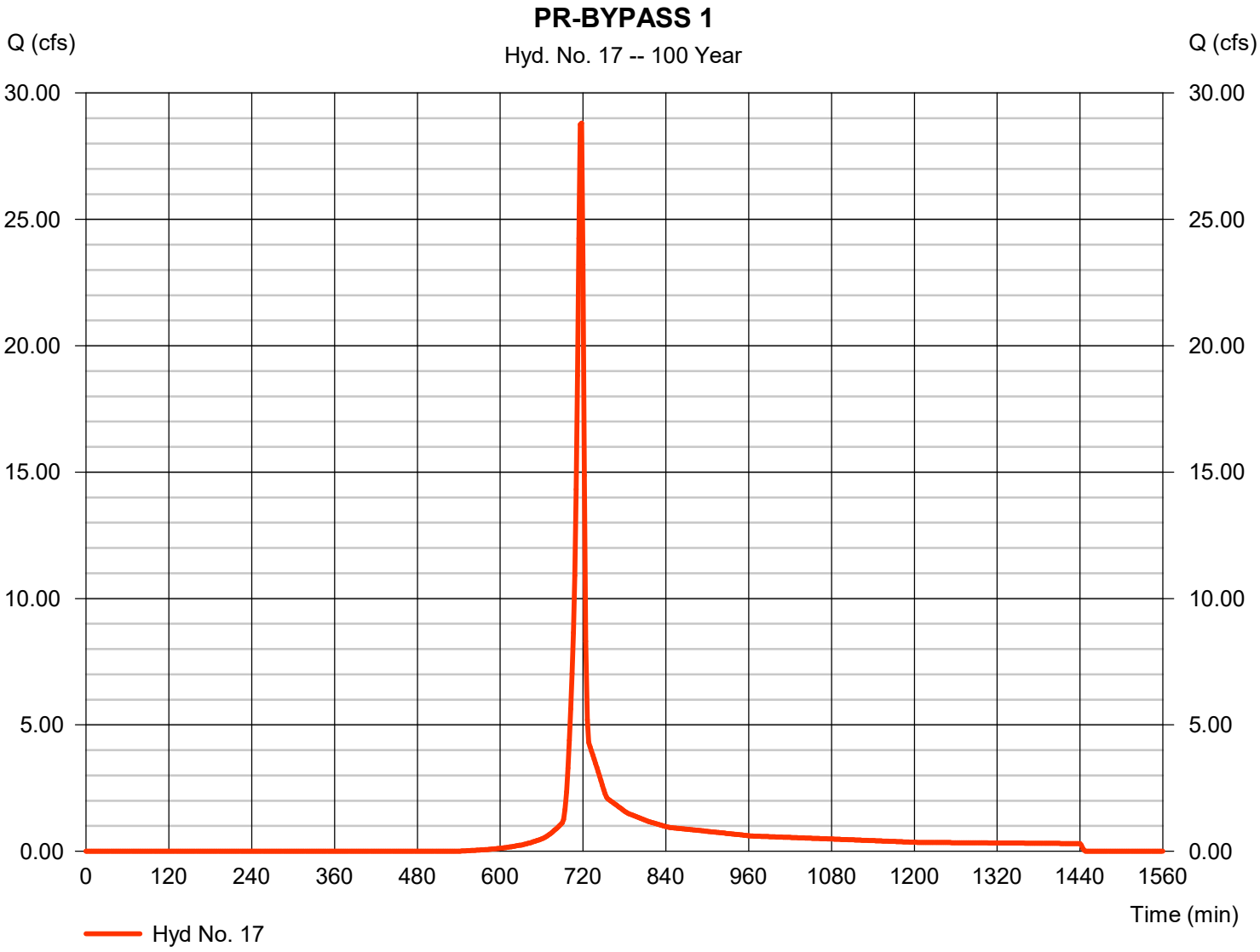
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.81 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	58,058 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



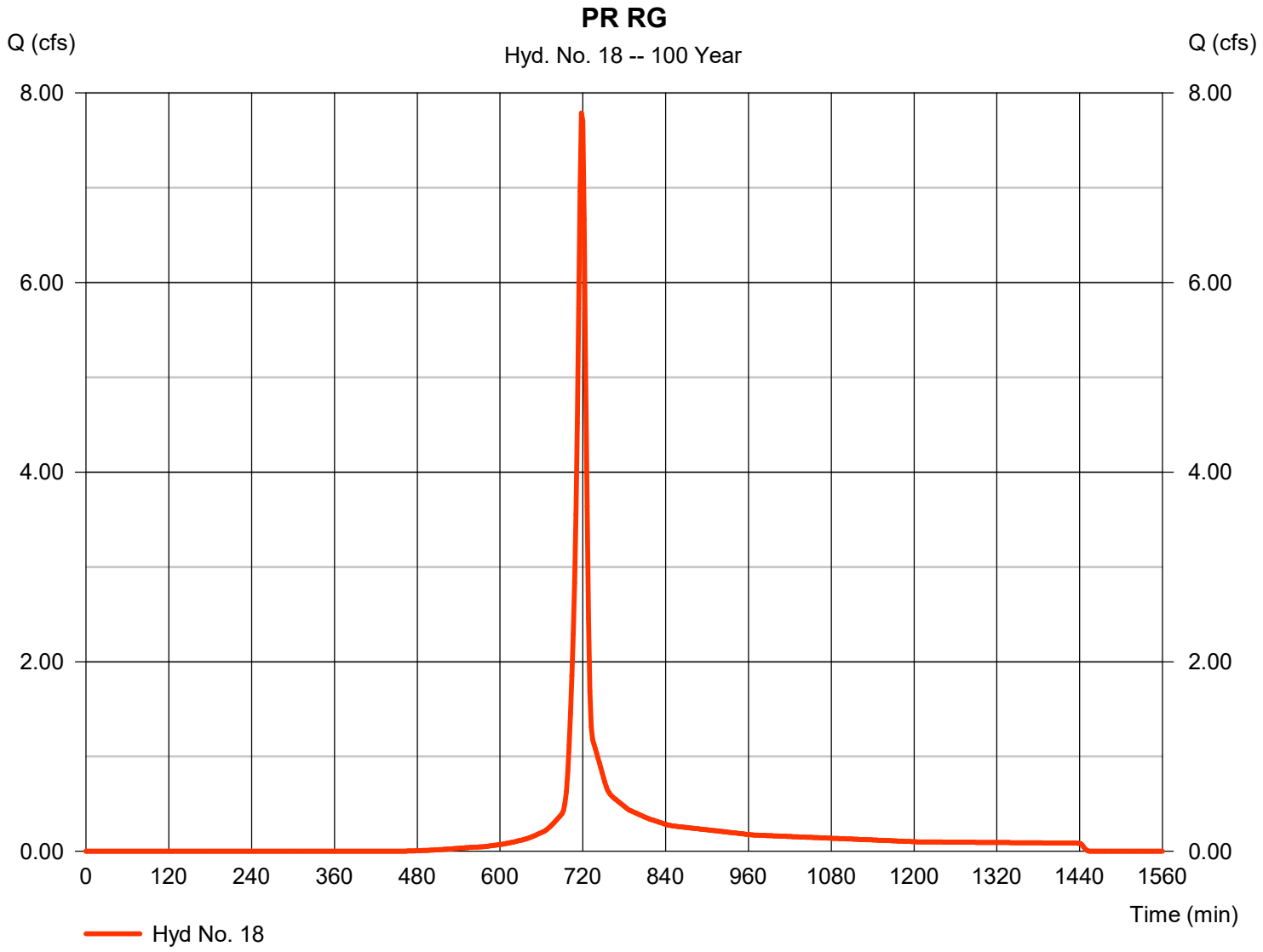
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.790 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	17,845 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



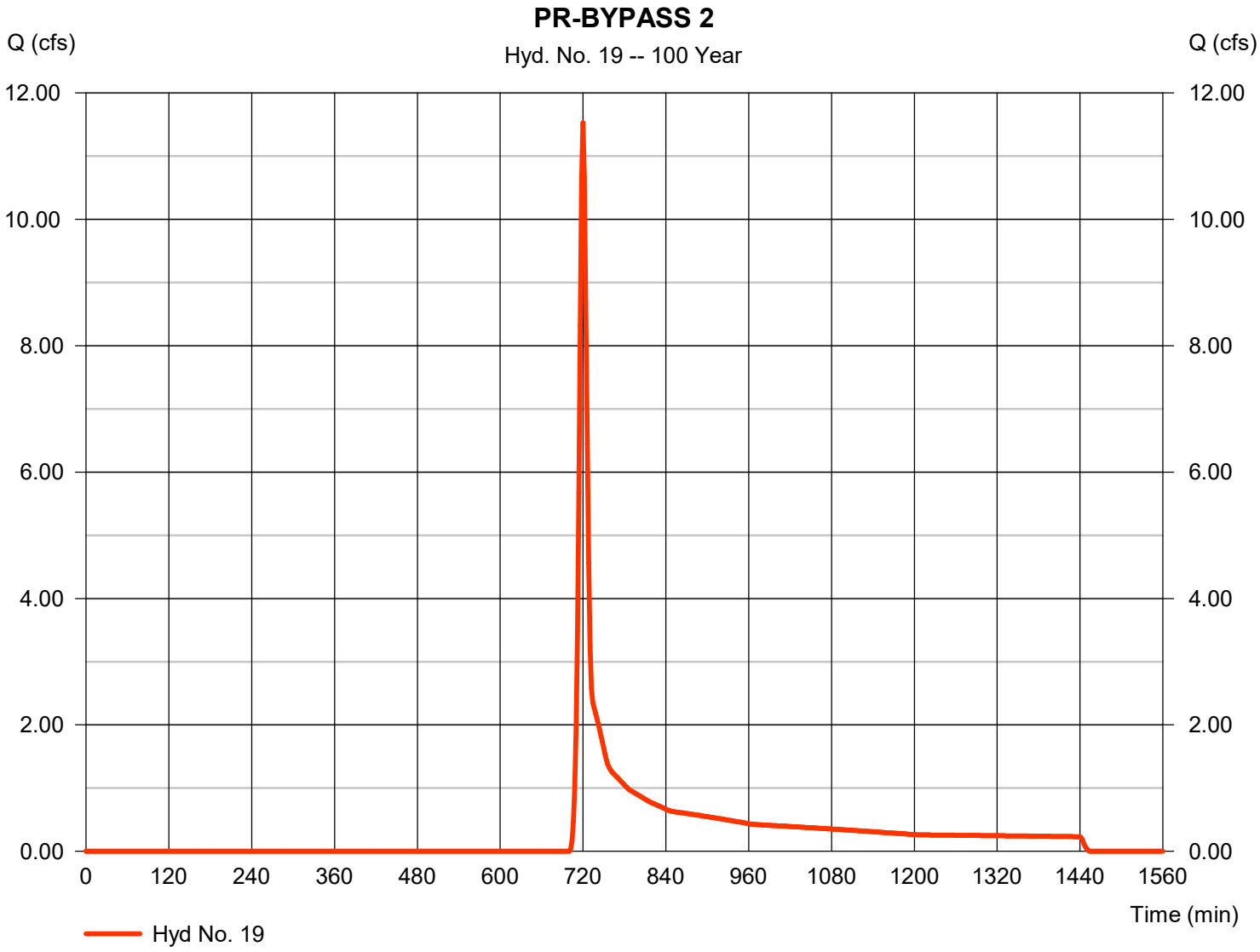
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.53 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	29,459 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



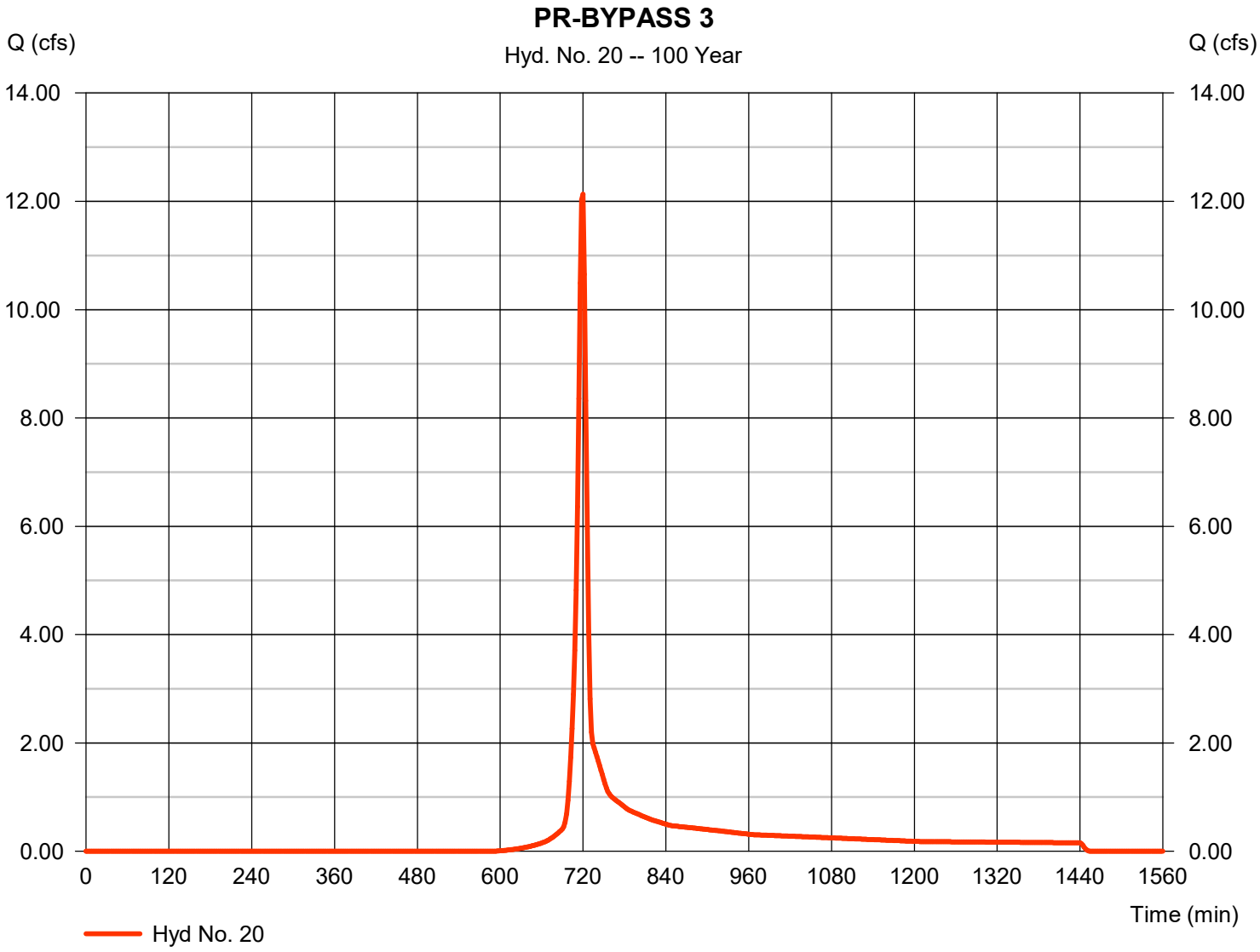
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.13 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	27,769 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

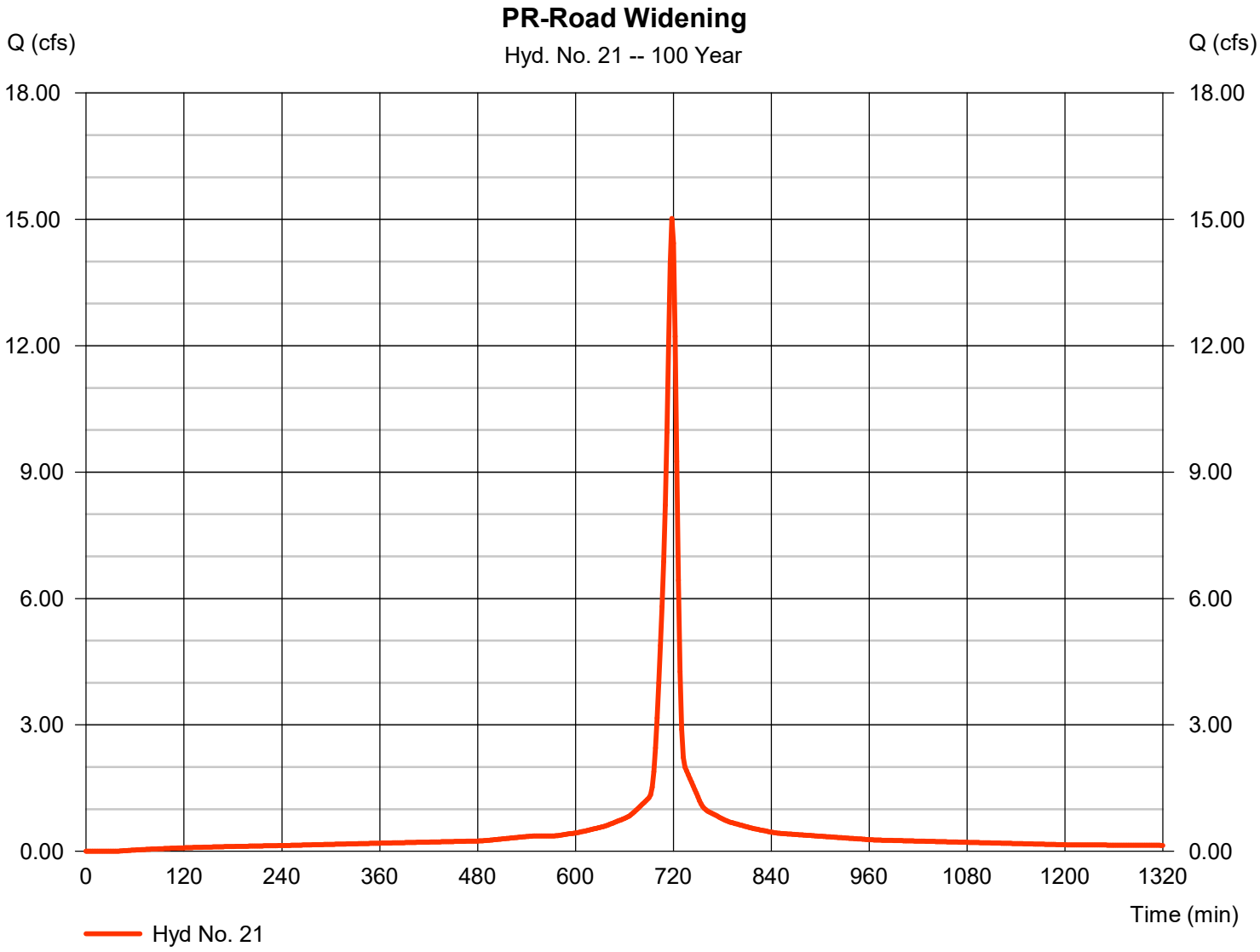


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	40,514 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

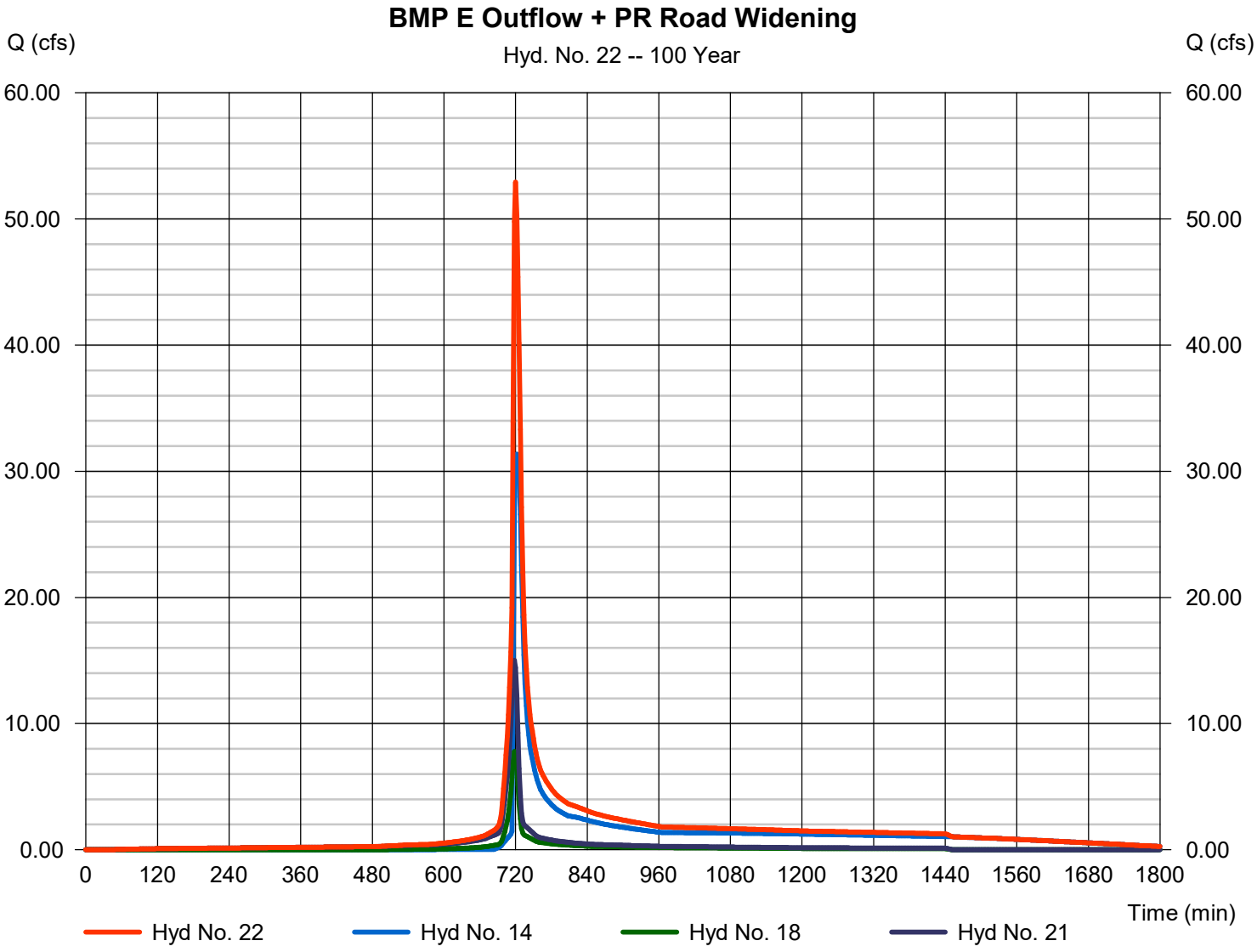


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	52.91 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	188,265 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



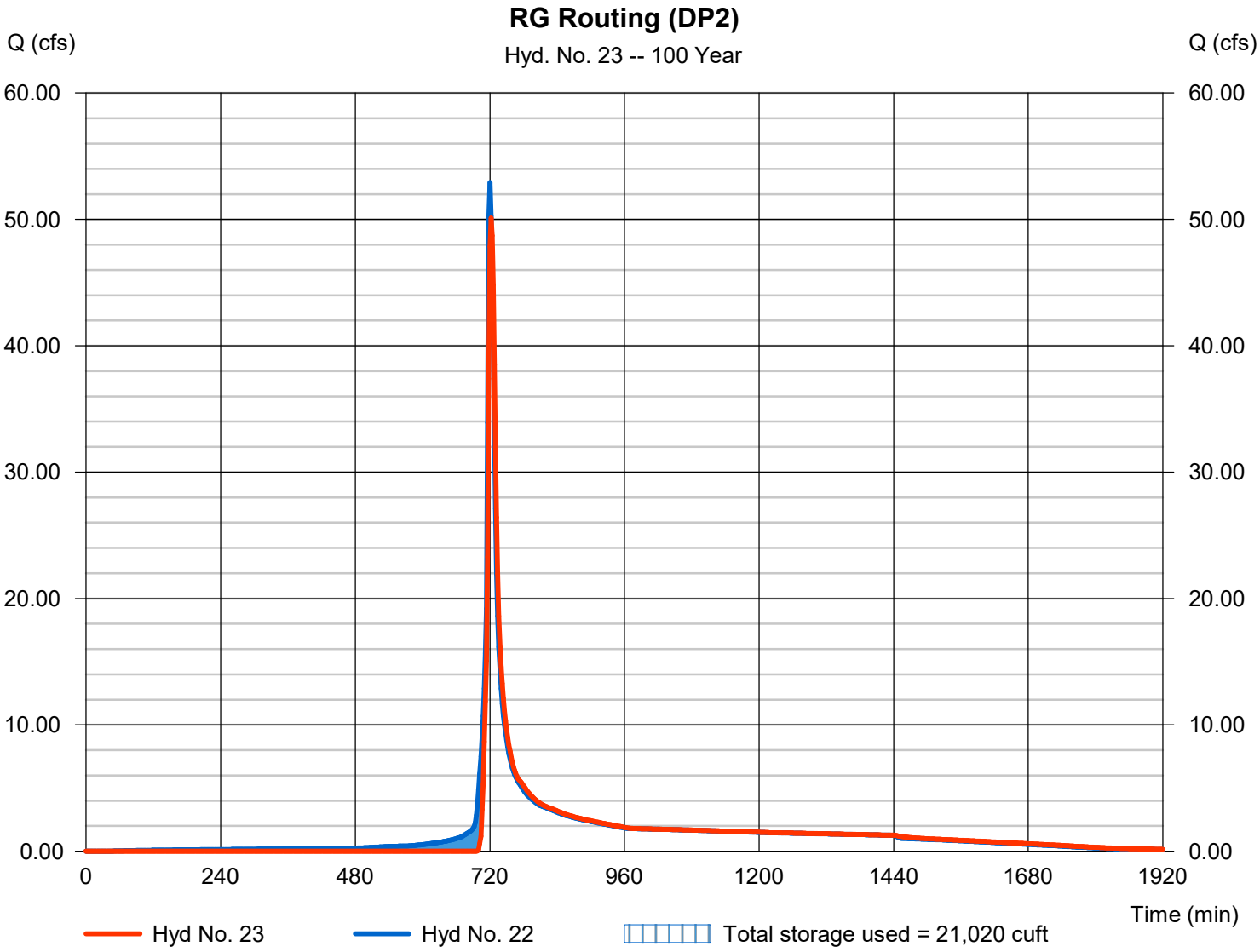
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	50.12 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	175,251 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.67 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	21,020 cuft

Storage Indication method used.

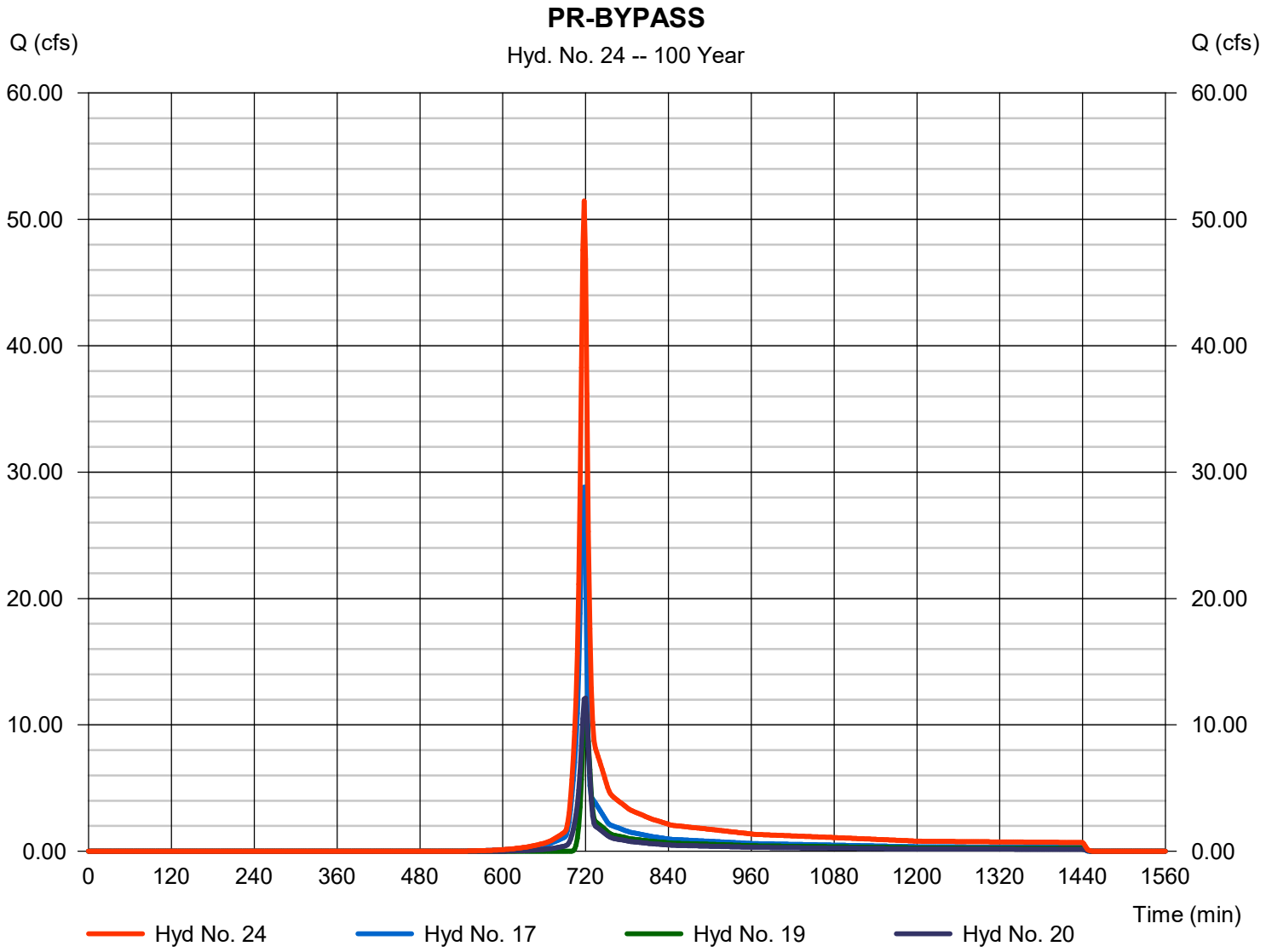


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	51.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	115,286 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

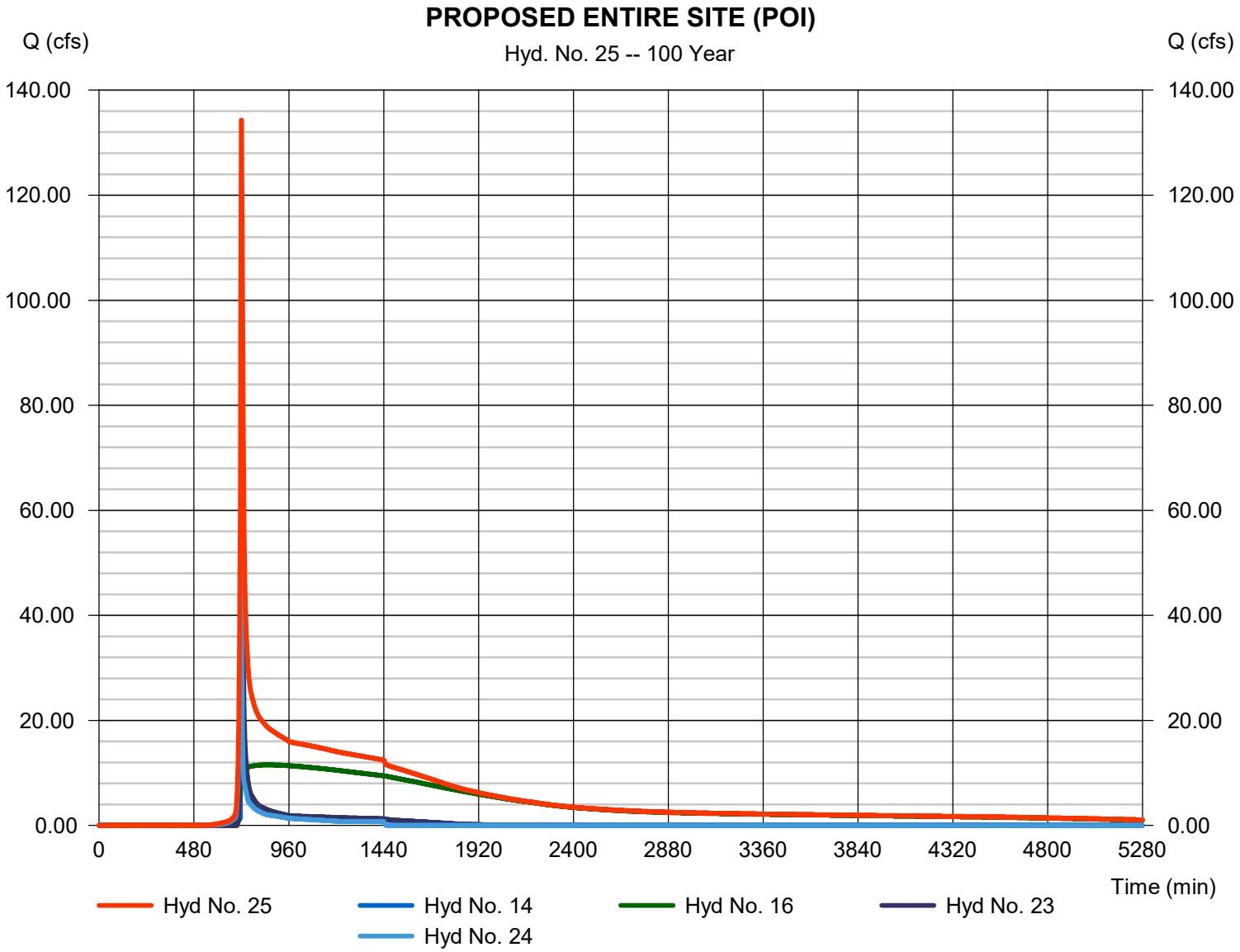


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 134.29 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 1,605,305 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

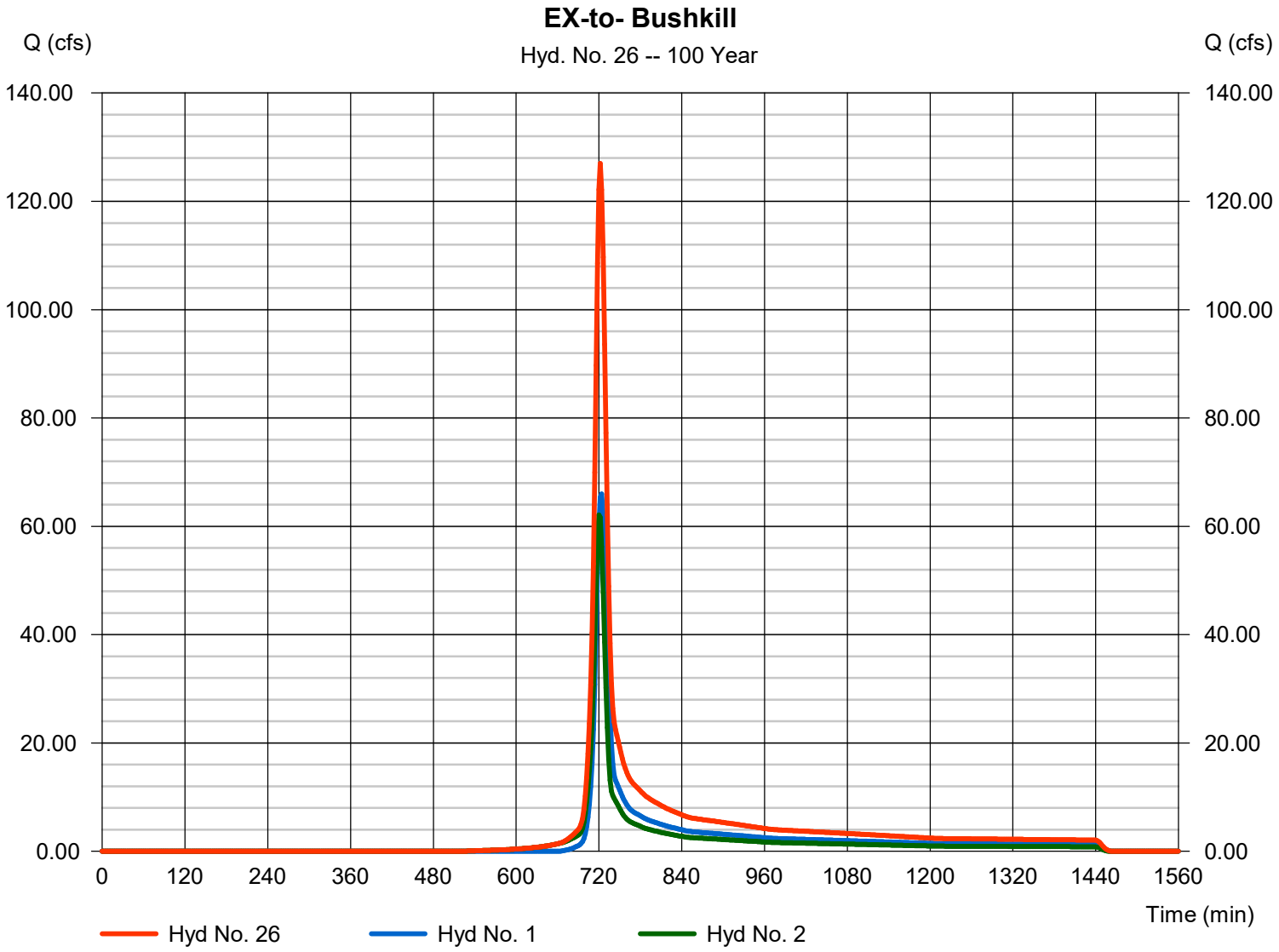


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 126.98 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 355,538 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

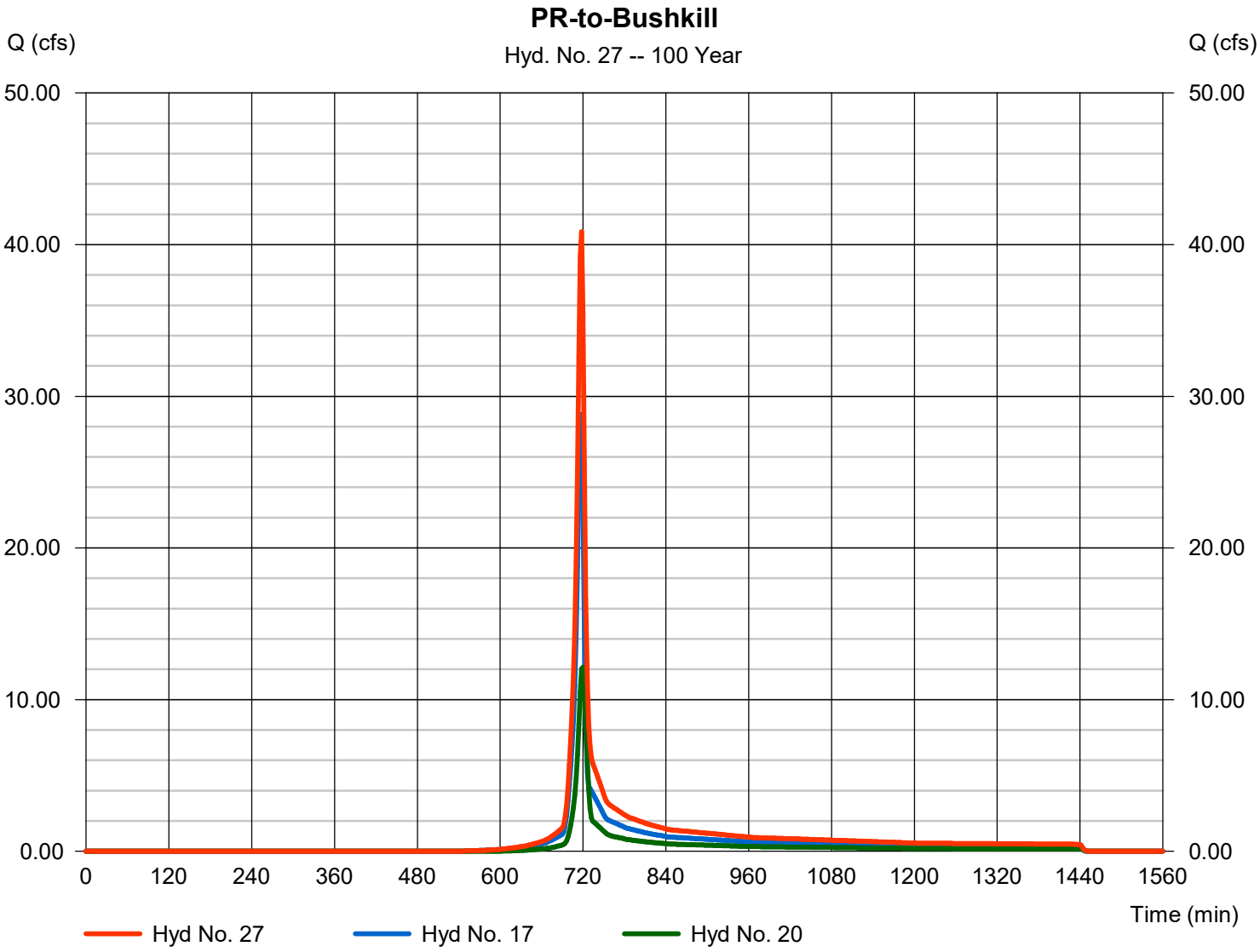


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 40.84 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 85,828 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

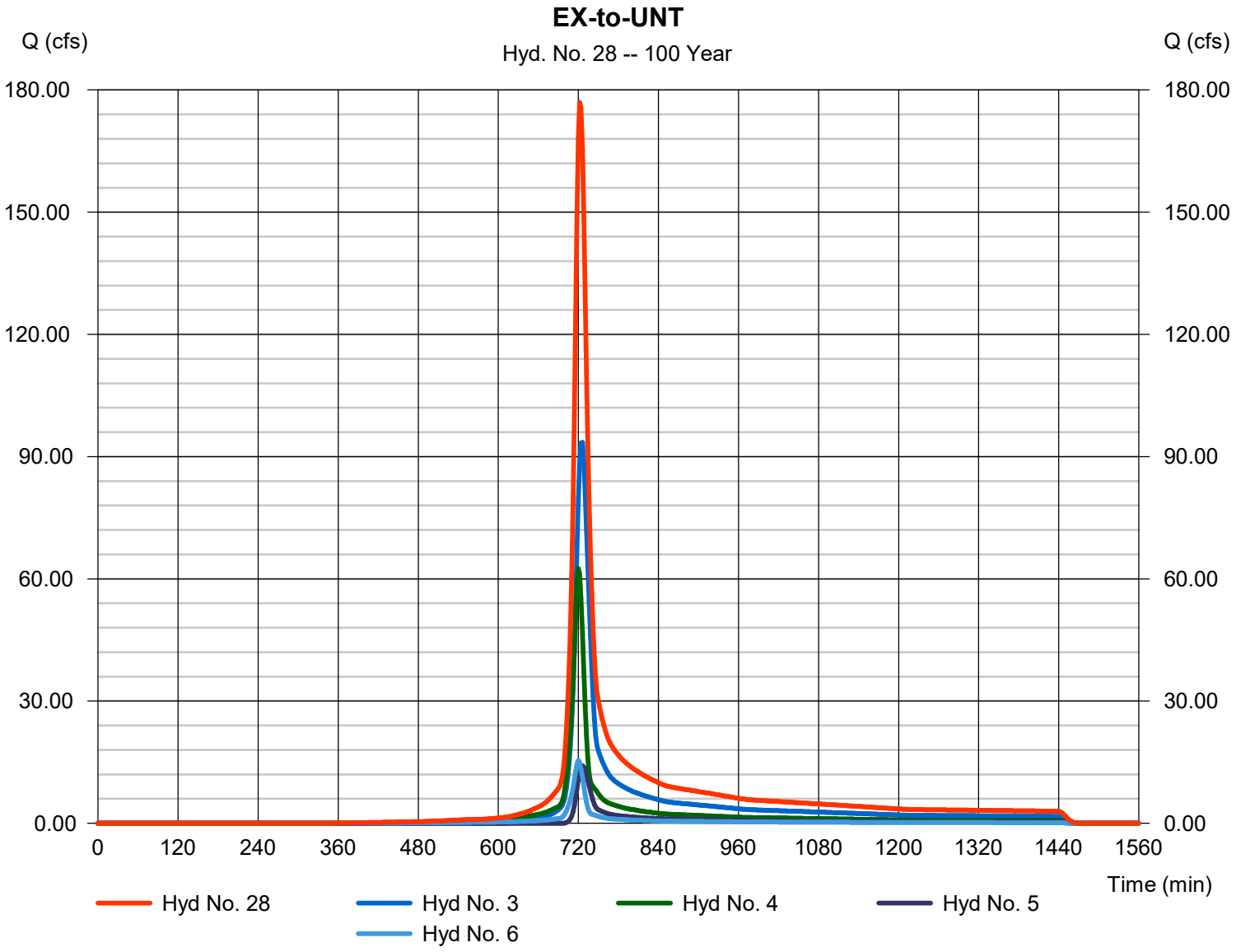


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 176.94 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 555,436 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

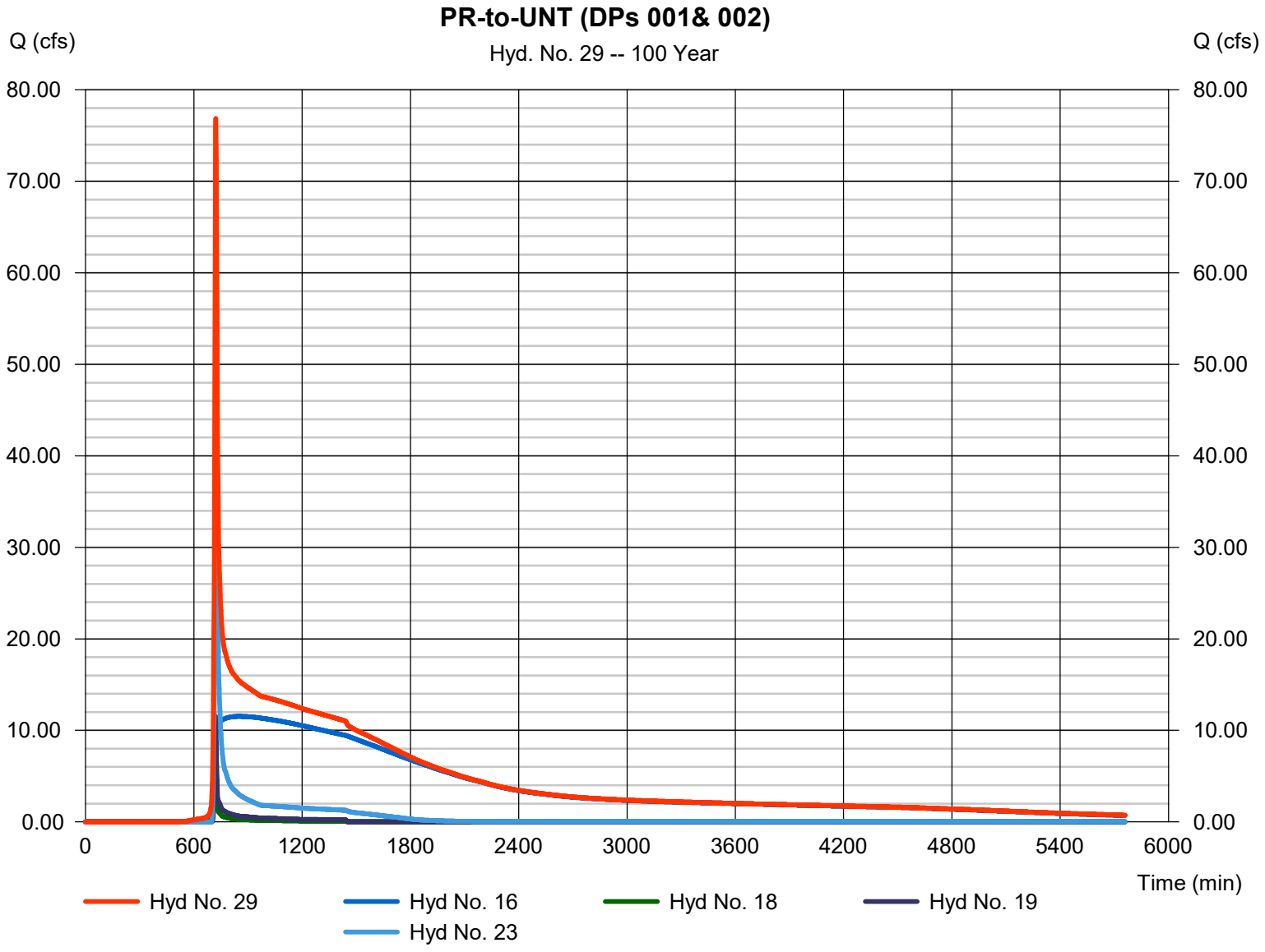


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 76.86 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 1,407,415 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44

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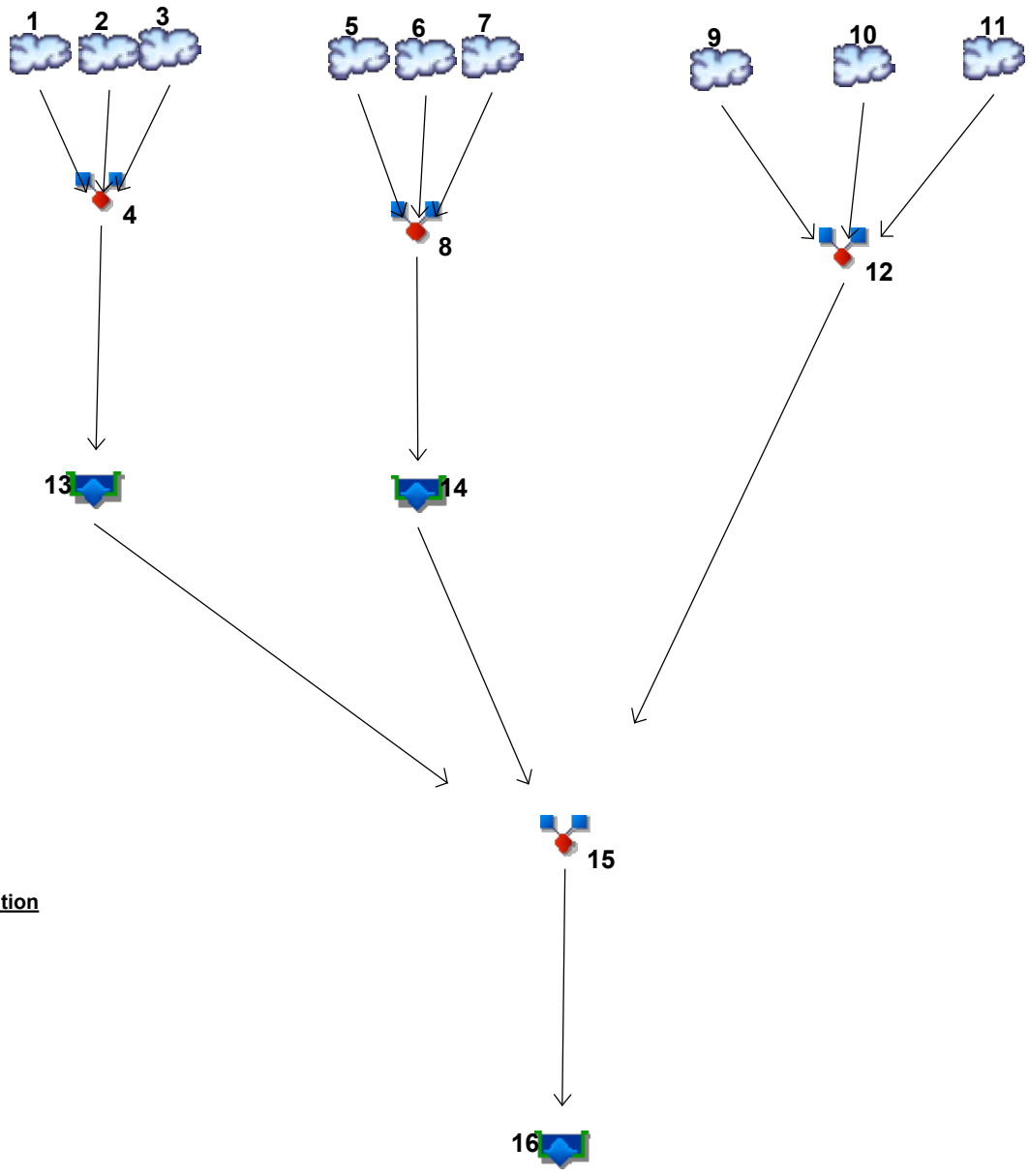
Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

1.2" storm modeling of MRC BMP



Legend

Hyd.	Origin	Description
1	SCS Runoff	PR-A-1
2	SCS Runoff	PR-A-2
3	SCS Runoff	PR-A-3
4	Combine	PR-A
5	SCS Runoff	PR-B-1
6	SCS Runoff	PR-B-2
7	SCS Runoff	PR-B-3
8	Combine	PR-B
9	SCS Runoff	PR-C-1
10	SCS Runoff	PR-C-3
11	SCS Runoff	PR-C-4
12	Combine	PR-C
13	Reservoir	BMP A Routing
14	Reservoir	BMP B Routing
15	Combine	BMP C INFLOW
16	Reservoir	MRC BMP C Routing

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	0.000	-------	-------	-------	-------	-------	PR-A-1
2	SCS Runoff	------	-------	-------	0.177	-------	-------	-------	-------	-------	PR-A-2
3	SCS Runoff	------	-------	-------	31.86	-------	-------	-------	-------	-------	PR-A-3
4	Combine	1, 2, 3	-------	-------	31.99	-------	-------	-------	-------	-------	PR-A
5	SCS Runoff	------	-------	-------	0.000	-------	-------	-------	-------	-------	PR-B-1
6	SCS Runoff	------	-------	-------	0.785	-------	-------	-------	-------	-------	PR-B-2
7	SCS Runoff	------	-------	-------	40.72	-------	-------	-------	-------	-------	PR-B-3
8	Combine	5, 6, 7	-------	-------	41.40	-------	-------	-------	-------	-------	PR-B
9	SCS Runoff	------	-------	-------	0.000	-------	-------	-------	-------	-------	PR-C-1
10	SCS Runoff	------	-------	-------	1.922	-------	-------	-------	-------	-------	PR-C-3
11	SCS Runoff	------	-------	-------	59.95	-------	-------	-------	-------	-------	PR-C-4
12	Combine	9, 10, 11	-------	-------	61.35	-------	-------	-------	-------	-------	PR-C
13	Reservoir	4	-------	-------	0.556	-------	-------	-------	-------	-------	BMP A Routing
14	Reservoir	8	-------	-------	0.862	-------	-------	-------	-------	-------	BMP B Routing
15	Combine	12, 13, 14	-------	-------	62.26	-------	-------	-------	-------	-------	BMP C INFLOW
16	Reservoir	15	-------	-------	0.348	-------	-------	-------	-------	-------	MRC BMP C Routing

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

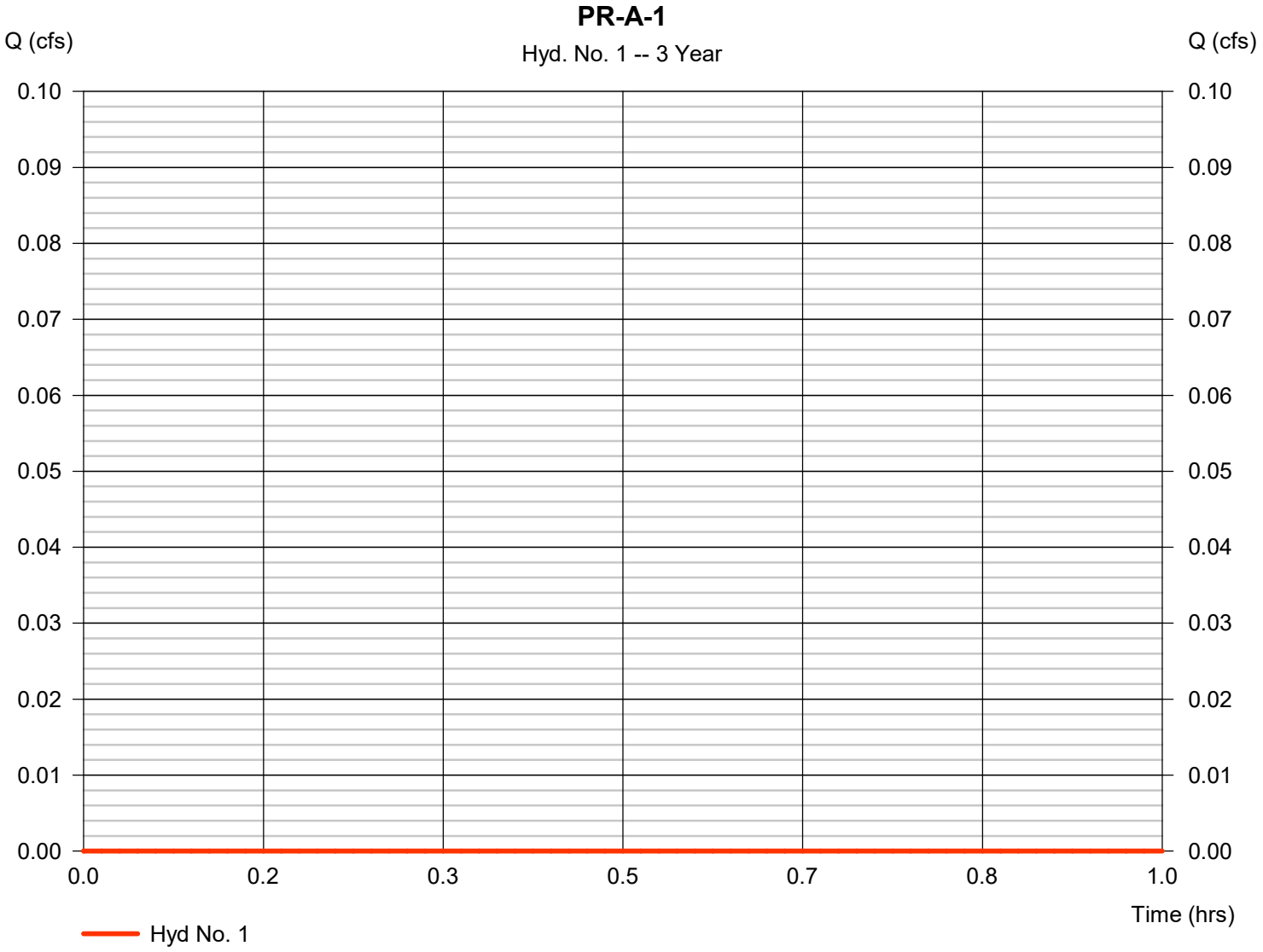
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.000	1	n/a	0	------	------	------	PR-A-1
2	SCS Runoff	0.177	1	69	244	------	------	------	PR-A-2
3	SCS Runoff	31.86	1	66	40,988	------	------	------	PR-A-3
4	Combine	31.99	1	66	41,232	1, 2, 3	------	------	PR-A
5	SCS Runoff	0.000	1	n/a	0	------	------	------	PR-B-1
6	SCS Runoff	0.785	1	67	895	------	------	------	PR-B-2
7	SCS Runoff	40.72	1	65	49,946	------	------	------	PR-B-3
8	Combine	41.40	1	65	50,841	5, 6, 7	------	------	PR-B
9	SCS Runoff	0.000	1	n/a	0	------	------	------	PR-C-1
10	SCS Runoff	1.922	1	71	2,929	------	------	------	PR-C-3
11	SCS Runoff	59.95	1	67	82,111	------	------	------	PR-C-4
12	Combine	61.35	1	67	85,040	9, 10, 11	------	------	PR-C
13	Reservoir	0.556	1	125	28,289	4	290.05	39,336	BMP A Routing
14	Reservoir	0.862	1	122	38,870	8	286.17	47,814	BMP B Routing
15	Combine	62.26	1	67	152,199	12, 13, 14	------	------	BMP C INFLOW
16	Reservoir	0.348	1	1062	47,048	15	216.33	126,209	MRC BMP C Routing

Hydrograph Report

Hyd. No. 1

PR-A-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 3 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Drainage area	= 0.200 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.80 min
Total precip.	= 1.20 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\MRC-WaterQuality.cds		

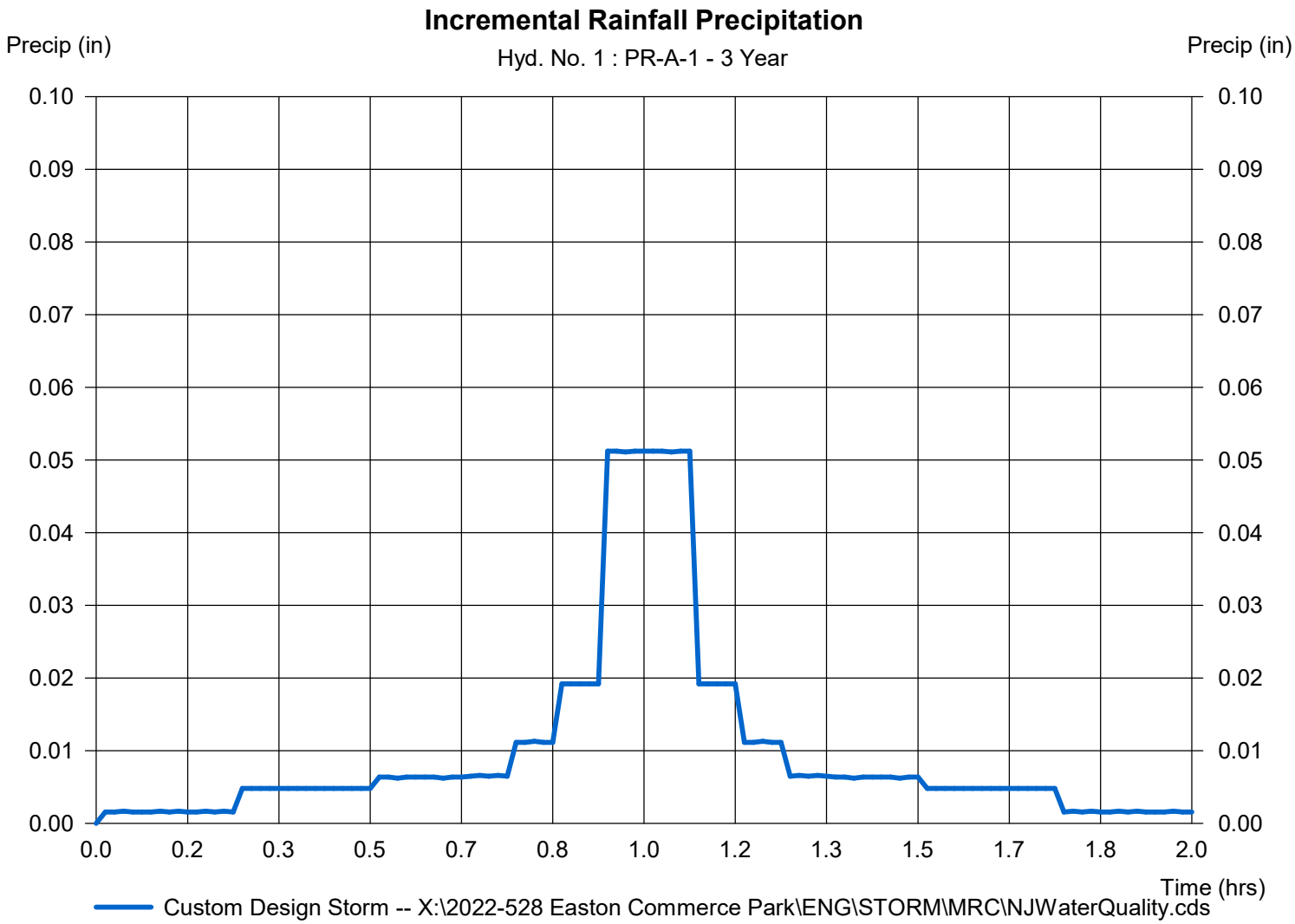


Precipitation Report

Hyd. No. 1

PR-A-1

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

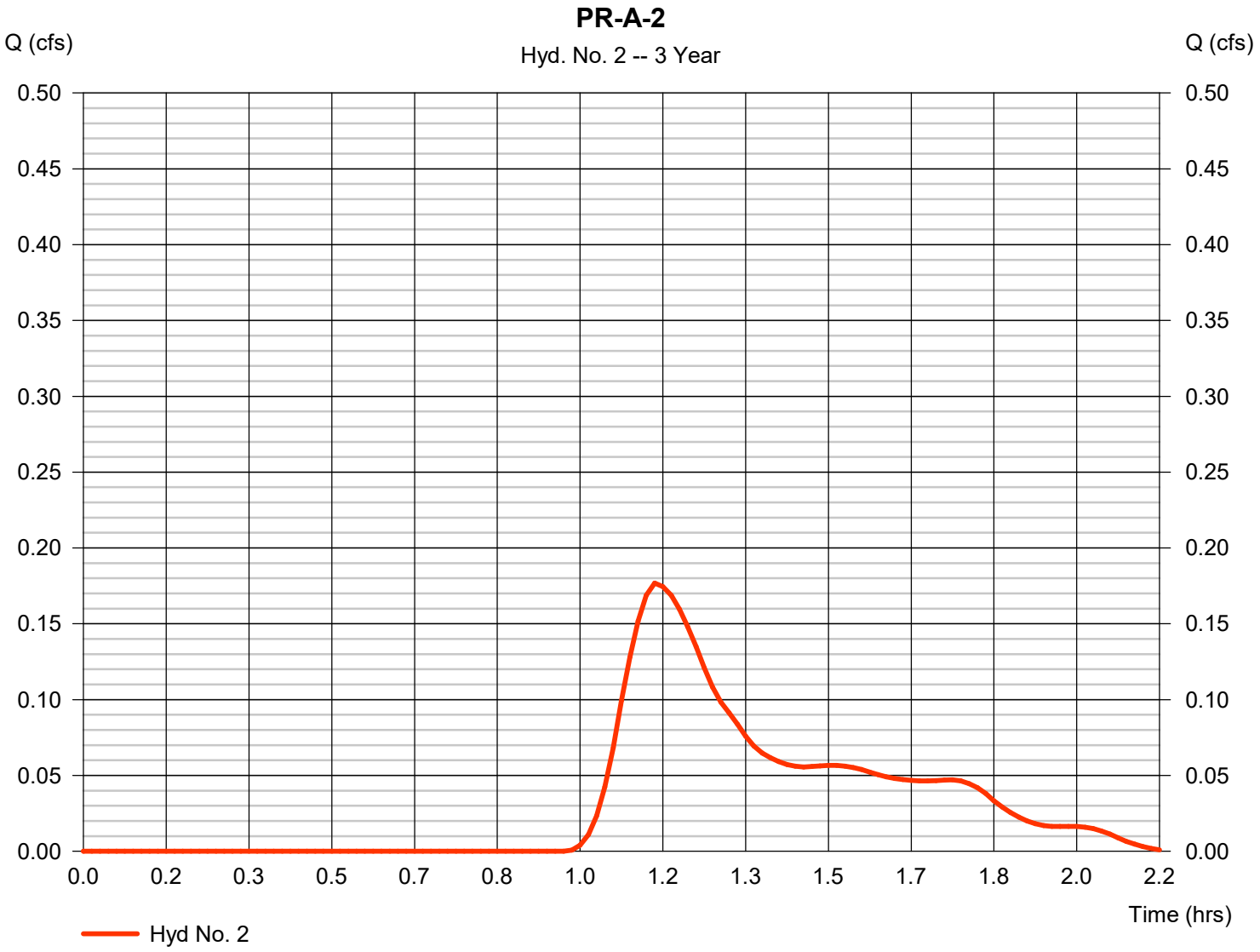


Hydrograph Report

Hyd. No. 2

PR-A-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.177 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.15 hrs
Time interval	=	1 min	Hyd. volume	=	244 cuft
Drainage area	=	0.450 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.80 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24HWaterQuality.cds			

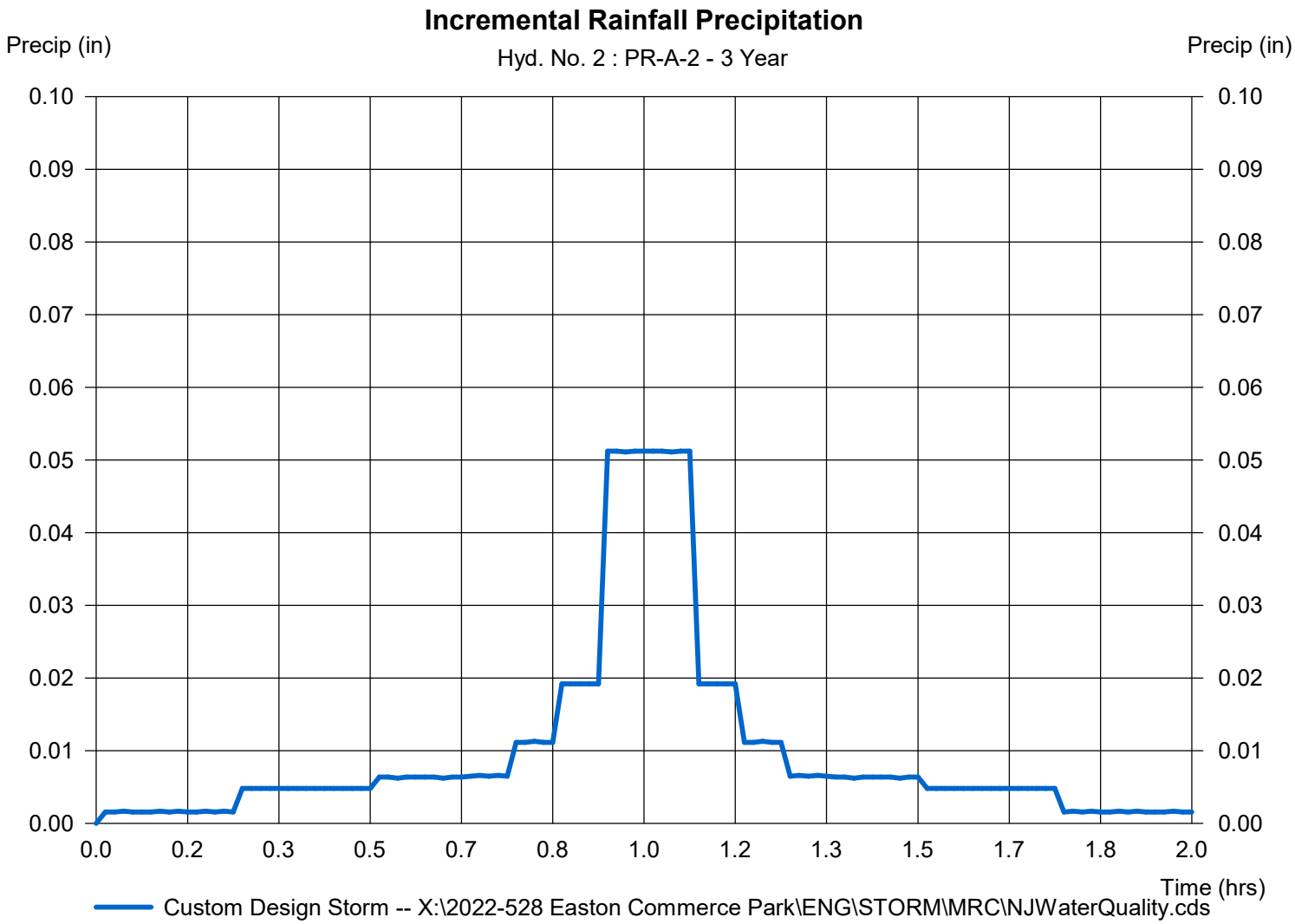


Precipitation Report

Hyd. No. 2

PR-A-2

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

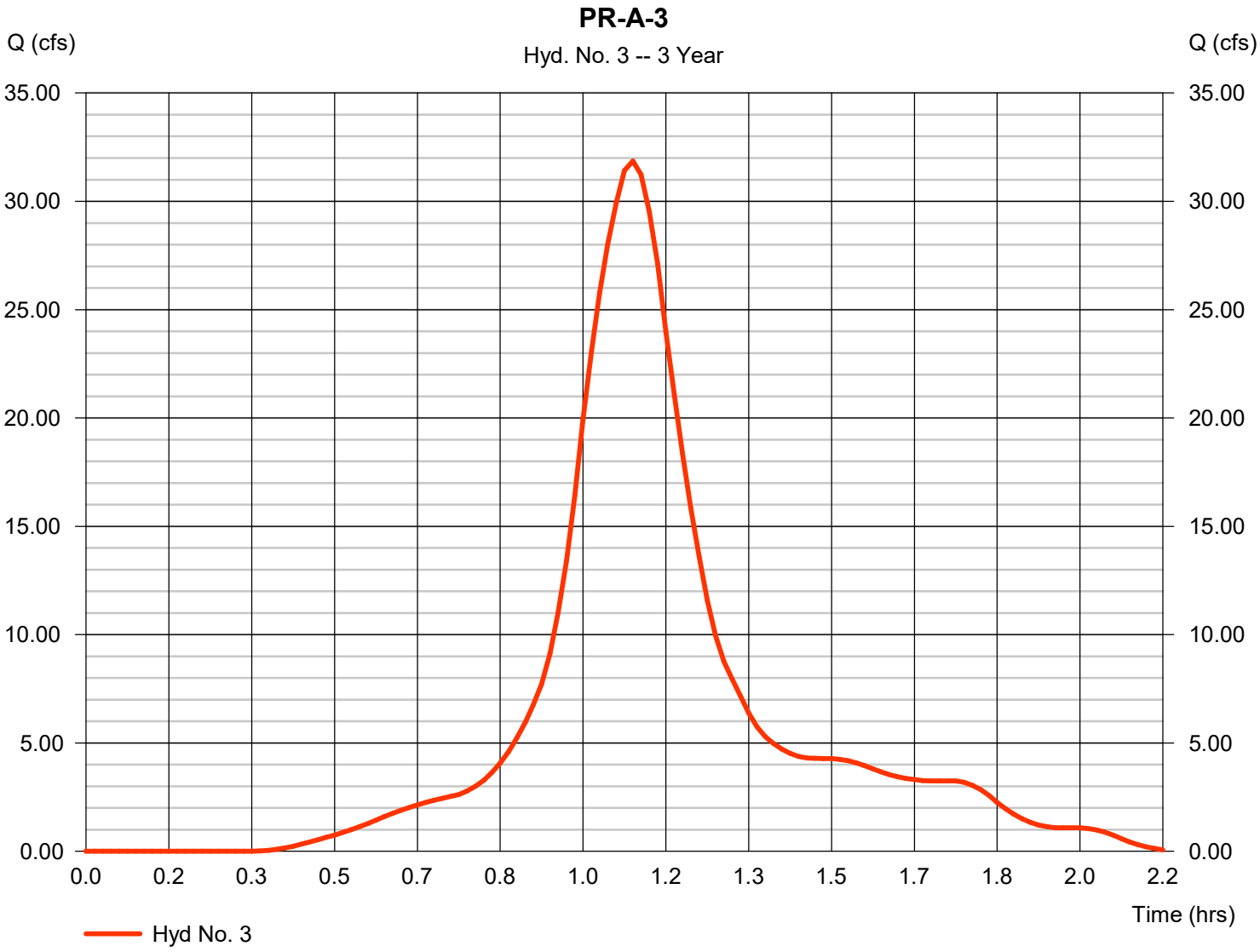


Hydrograph Report

Hyd. No. 3

PR-A-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	31.86 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.10 hrs
Time interval	=	1 min	Hyd. volume	=	40,988 cuft
Drainage area	=	11.750 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.80 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24HWaterQuality.cds			

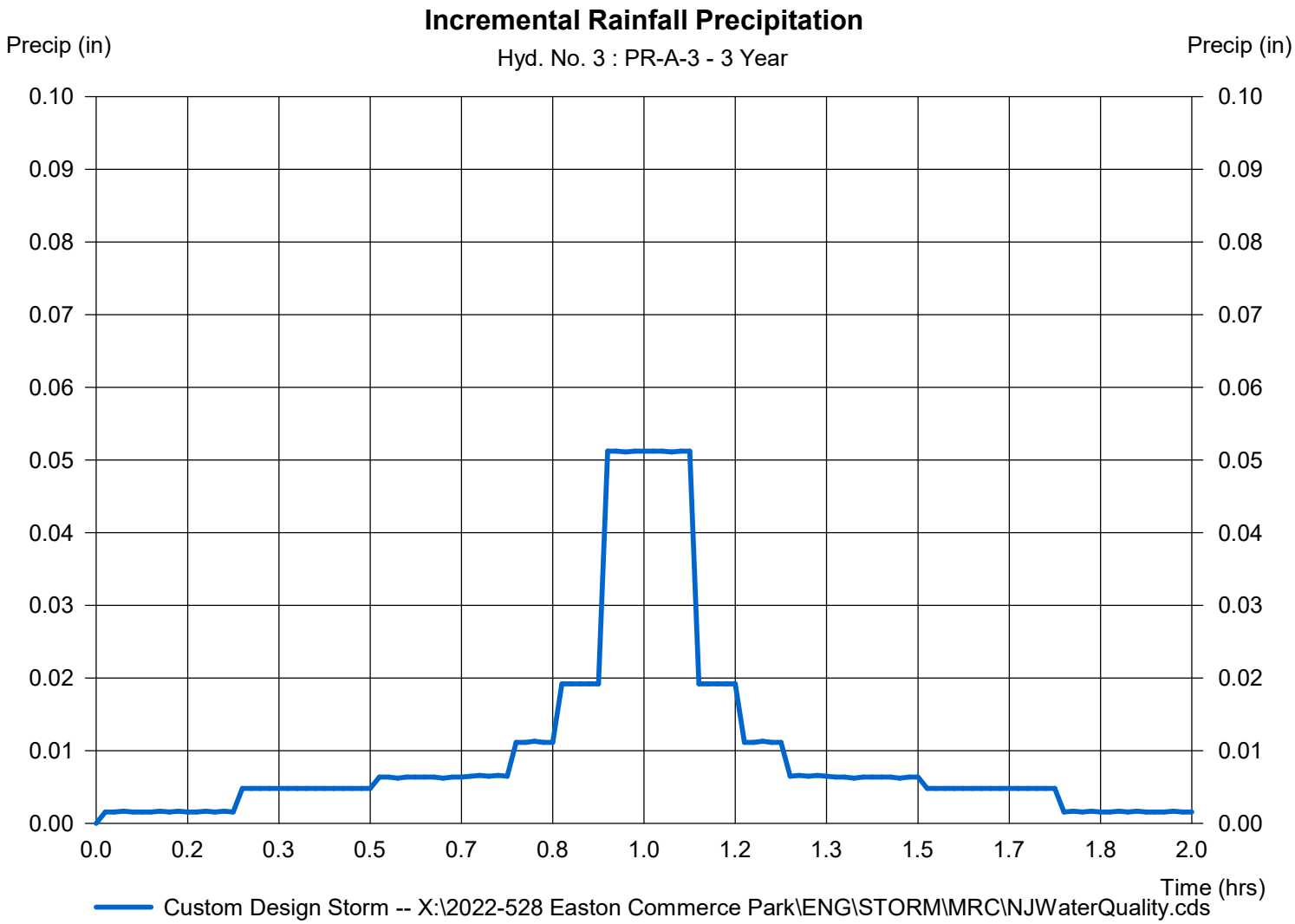


Precipitation Report

Hyd. No. 3

PR-A-3

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

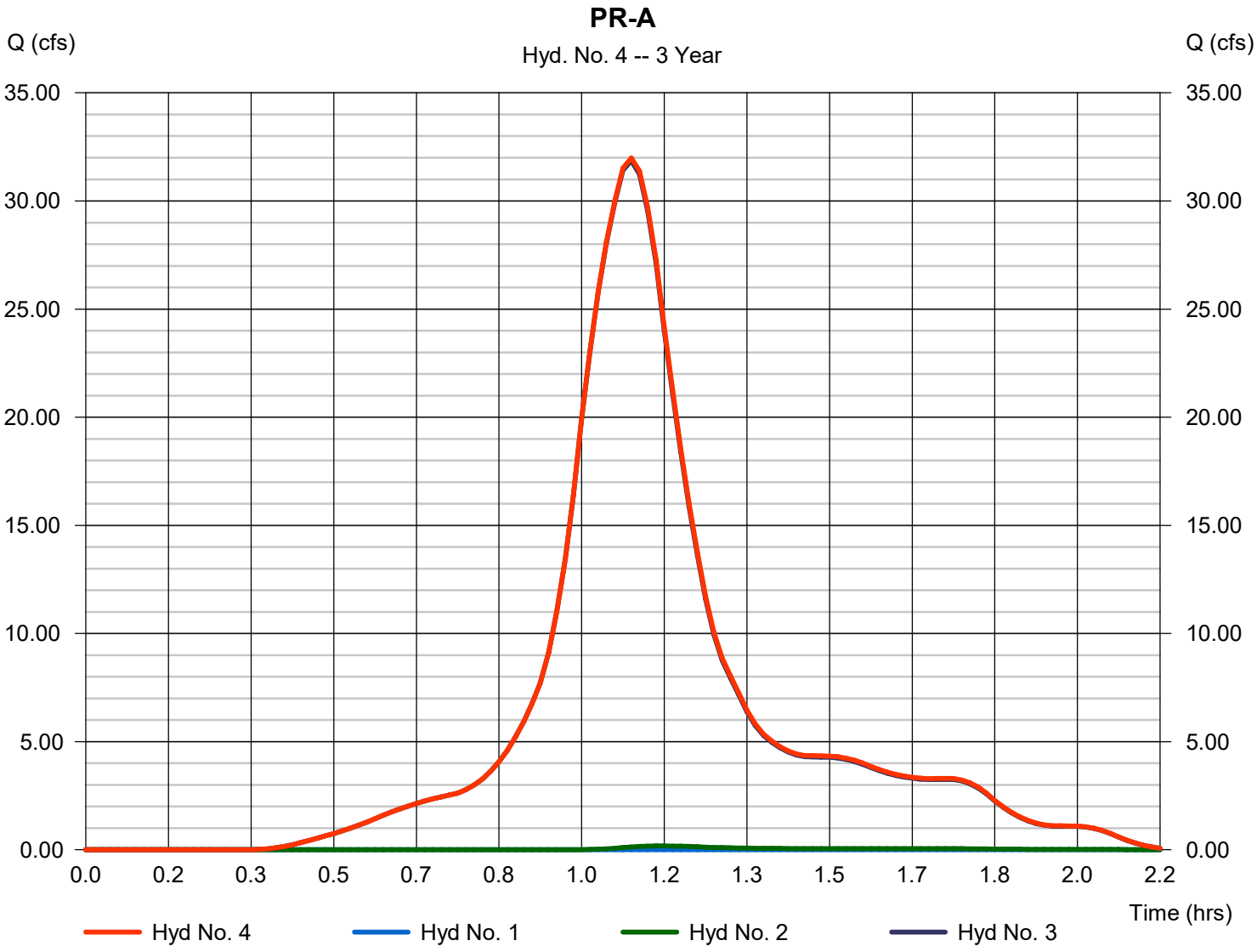


Hydrograph Report

Hyd. No. 4

PR-A

Hydrograph type	= Combine	Peak discharge	= 31.99 cfs
Storm frequency	= 3 yrs	Time to peak	= 1.10 hrs
Time interval	= 1 min	Hyd. volume	= 41,232 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 12.400 ac

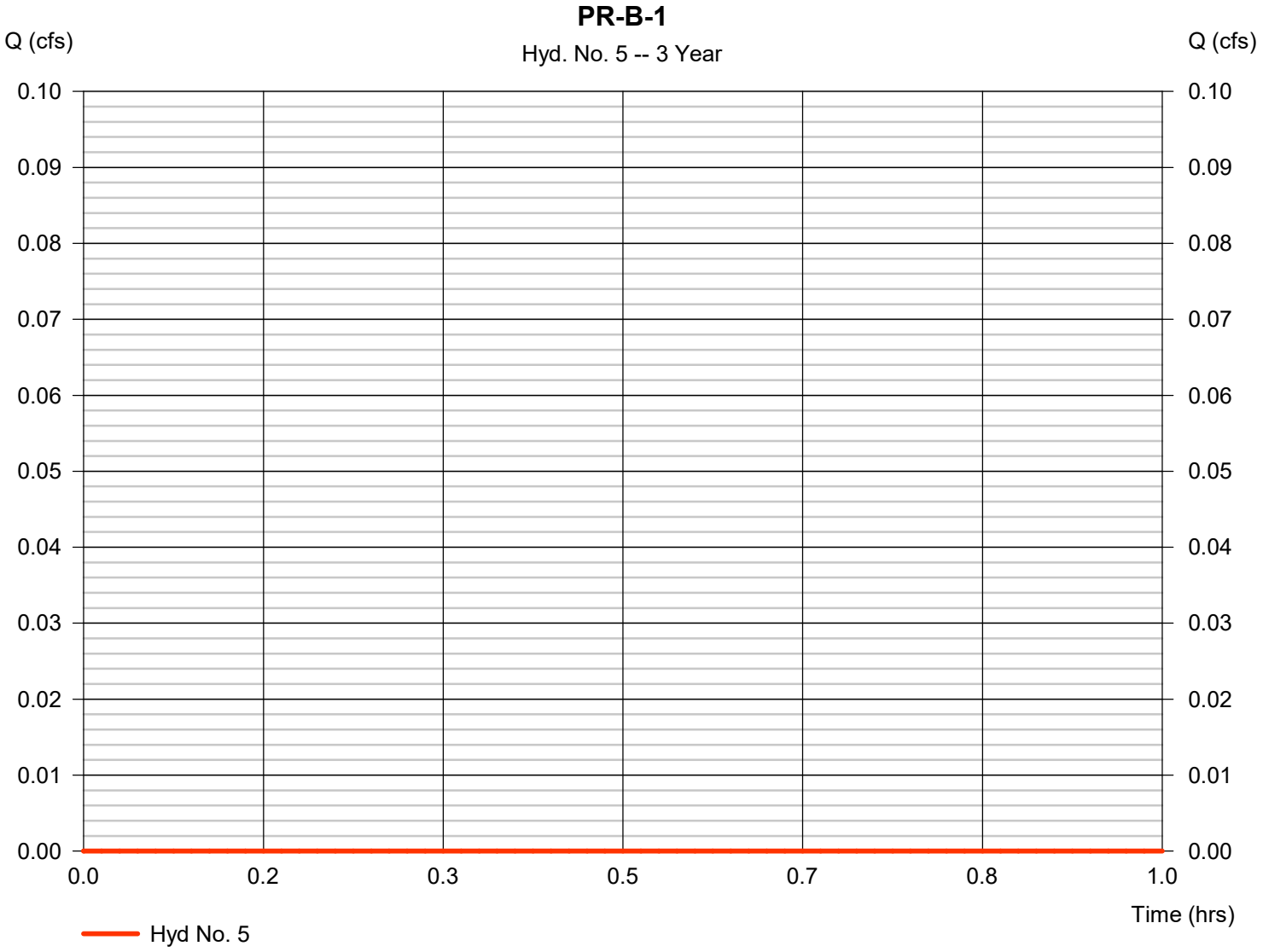


Hydrograph Report

Hyd. No. 5

PR-B-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.000 cfs
Storm frequency	=	3 yrs	Time to peak	=	n/a
Time interval	=	1 min	Hyd. volume	=	0 cuft
Drainage area	=	0.100 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	3.70 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\MRC-WaterQuality.cds			

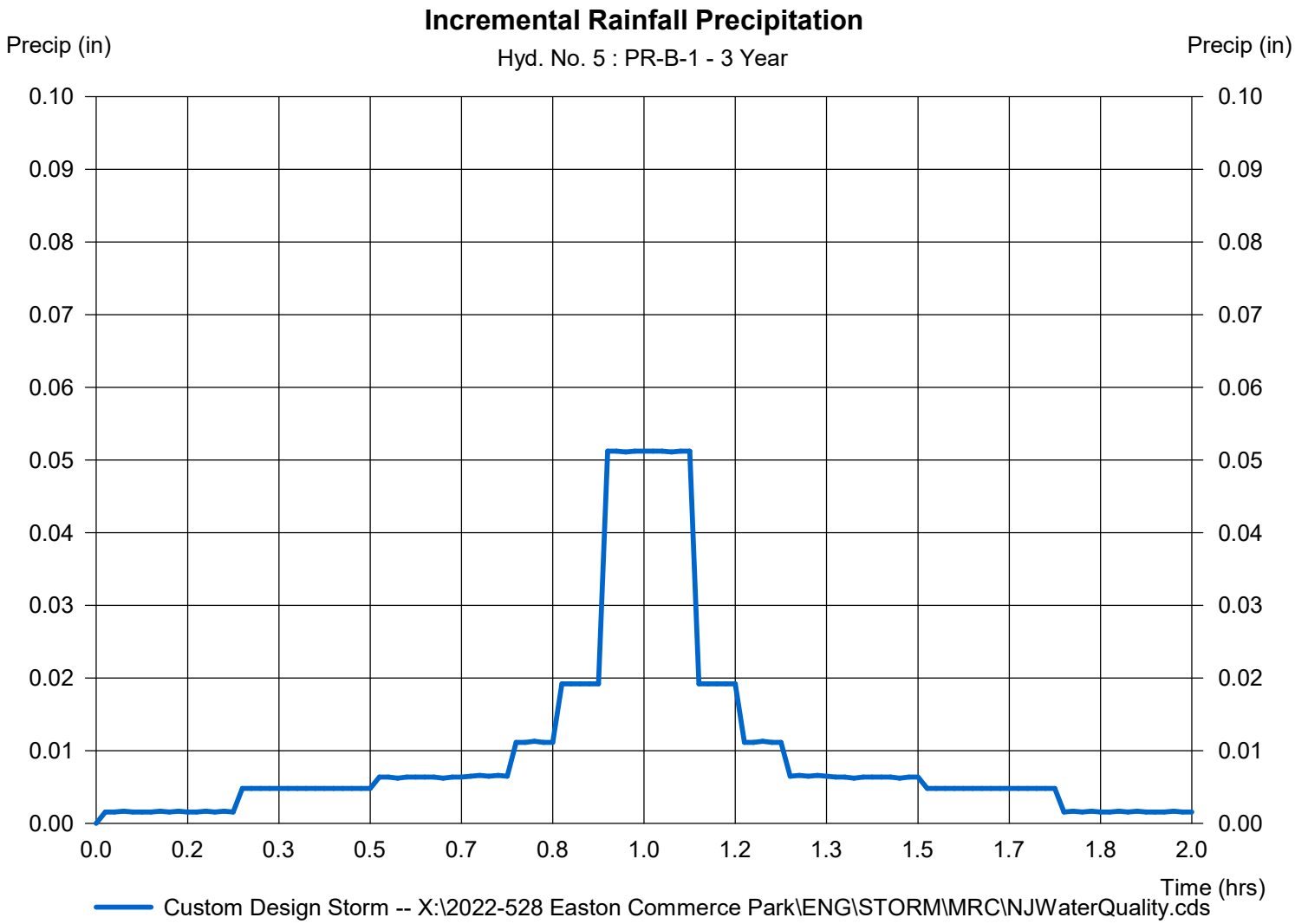


Precipitation Report

Hyd. No. 5

PR-B-1

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

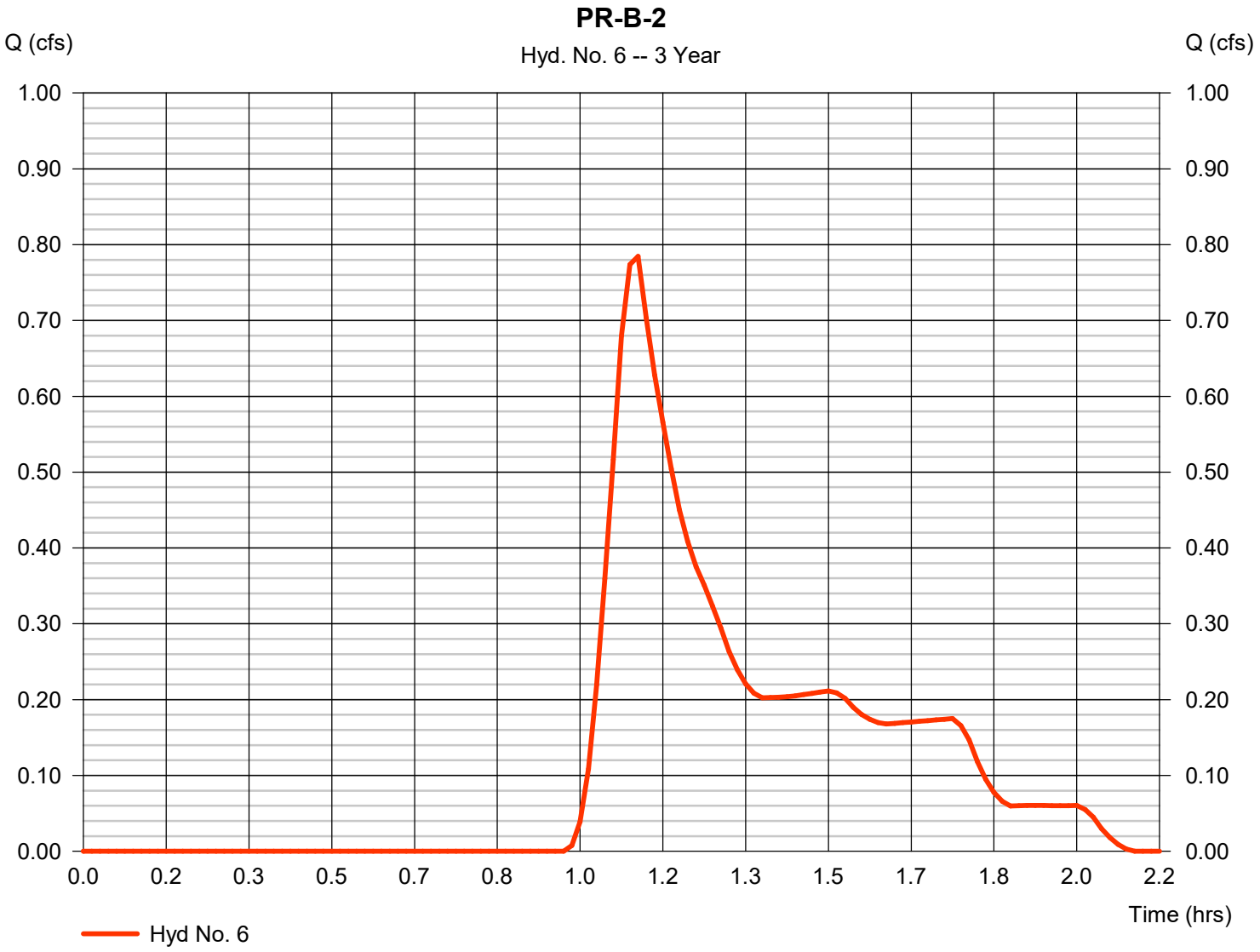


Hydrograph Report

Hyd. No. 6

PR-B-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.785 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.12 hrs
Time interval	=	1 min	Hyd. volume	=	895 cuft
Drainage area	=	1.610 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	3.70 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NW WaterQuality.cds			

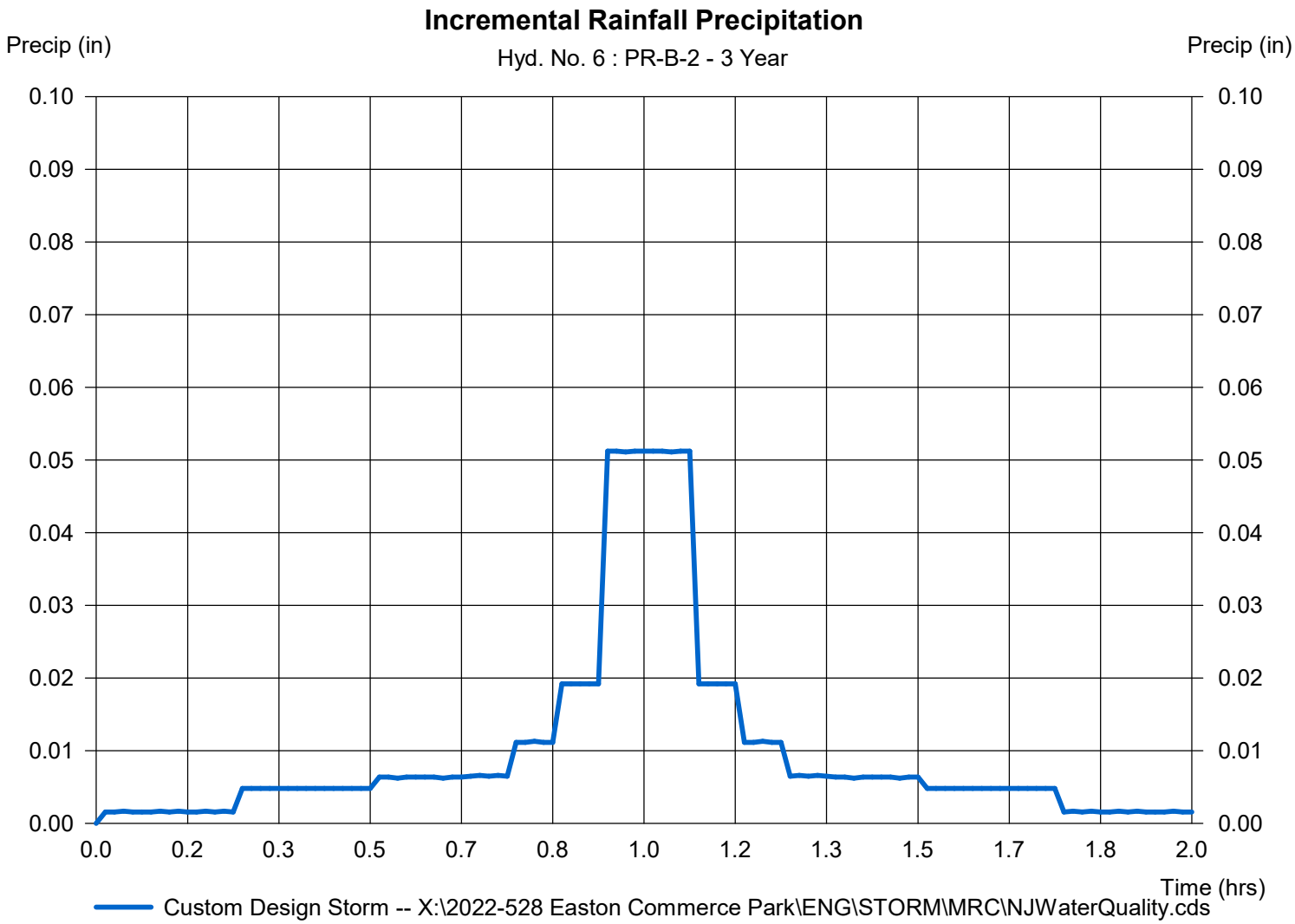


Precipitation Report

Hyd. No. 6

PR-B-2

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

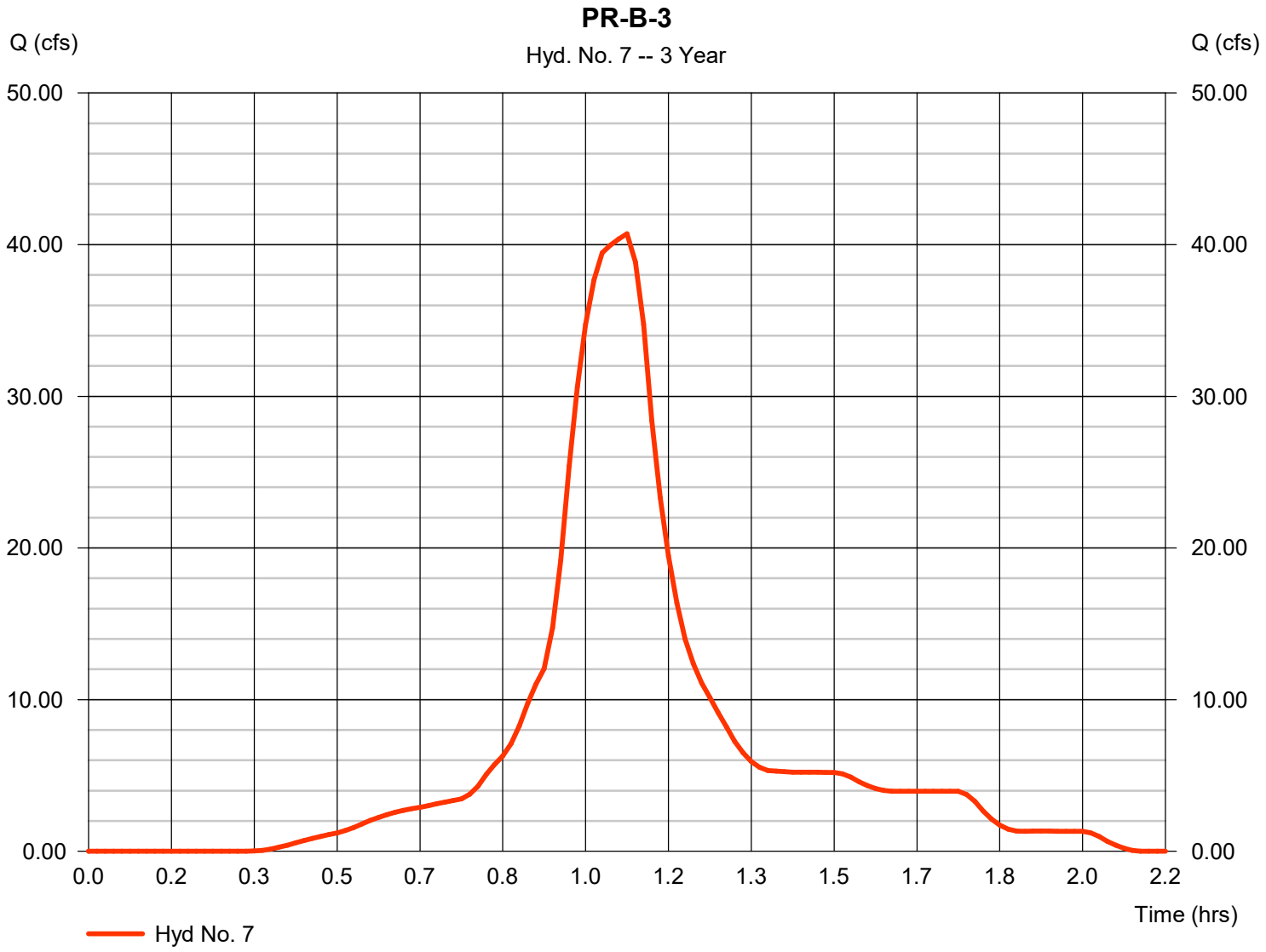


Hydrograph Report

Hyd. No. 7

PR-B-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	40.72 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.08 hrs
Time interval	=	1 min	Hyd. volume	=	49,946 cuft
Drainage area	=	13.960 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	3.70 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24HWaterQuality.cds			

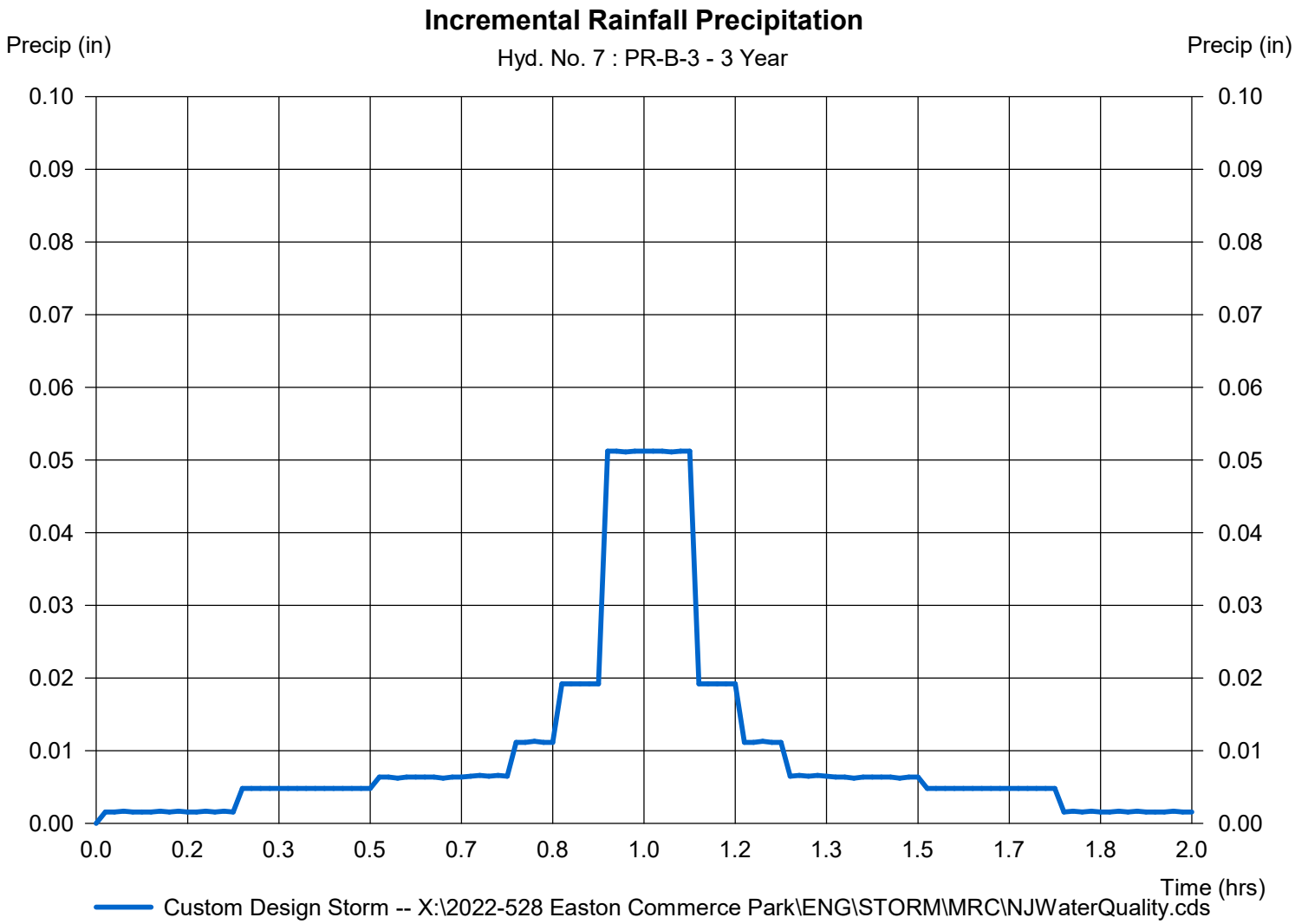


Precipitation Report

Hyd. No. 7

PR-B-3

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

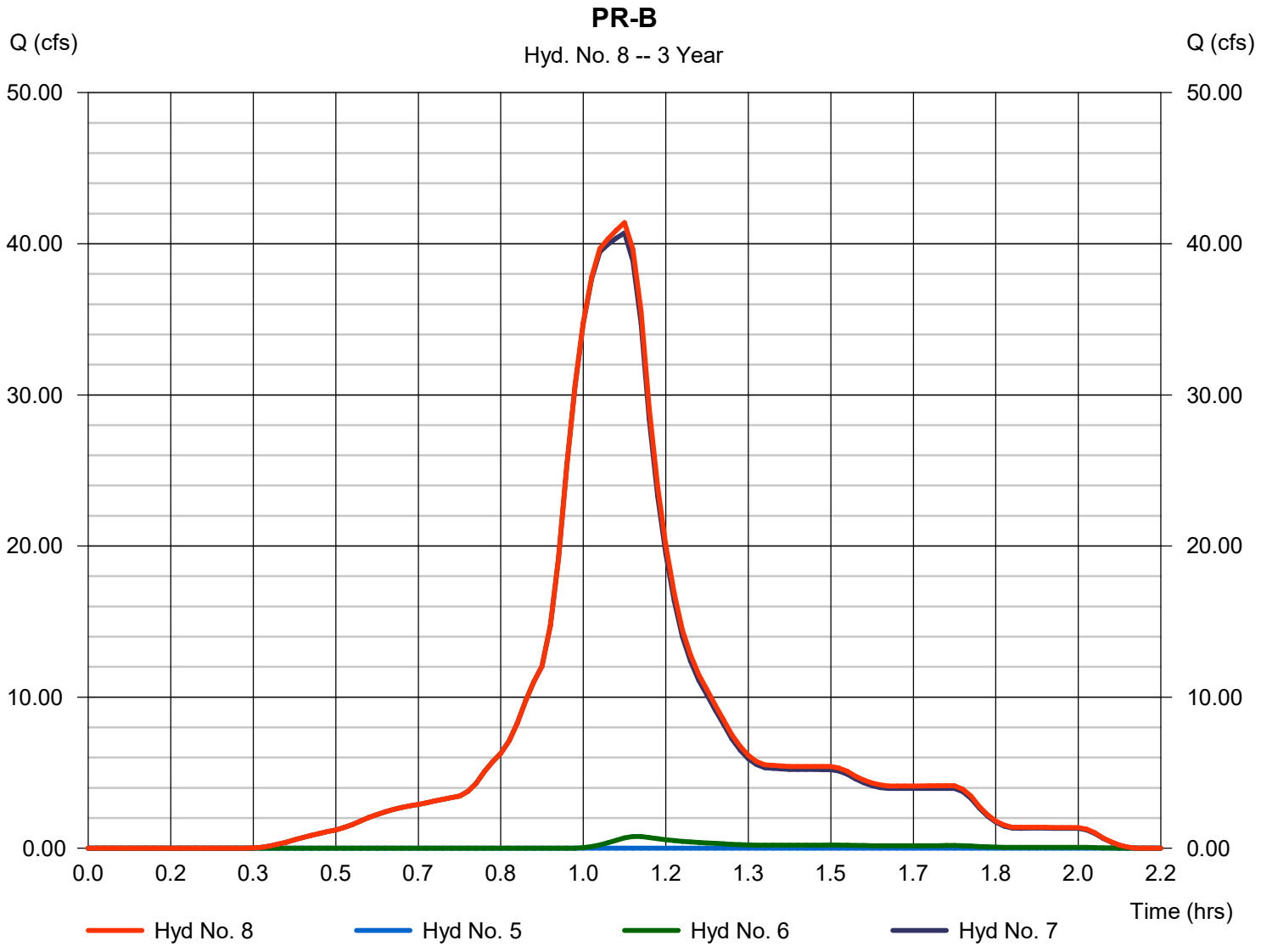


Hydrograph Report

Hyd. No. 8

PR-B

Hydrograph type	=	Combine	Peak discharge	=	41.40 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.08 hrs
Time interval	=	1 min	Hyd. volume	=	50,841 cuft
Inflow hyds.	=	5, 6, 7	Contrib. drain. area	=	15.670 ac

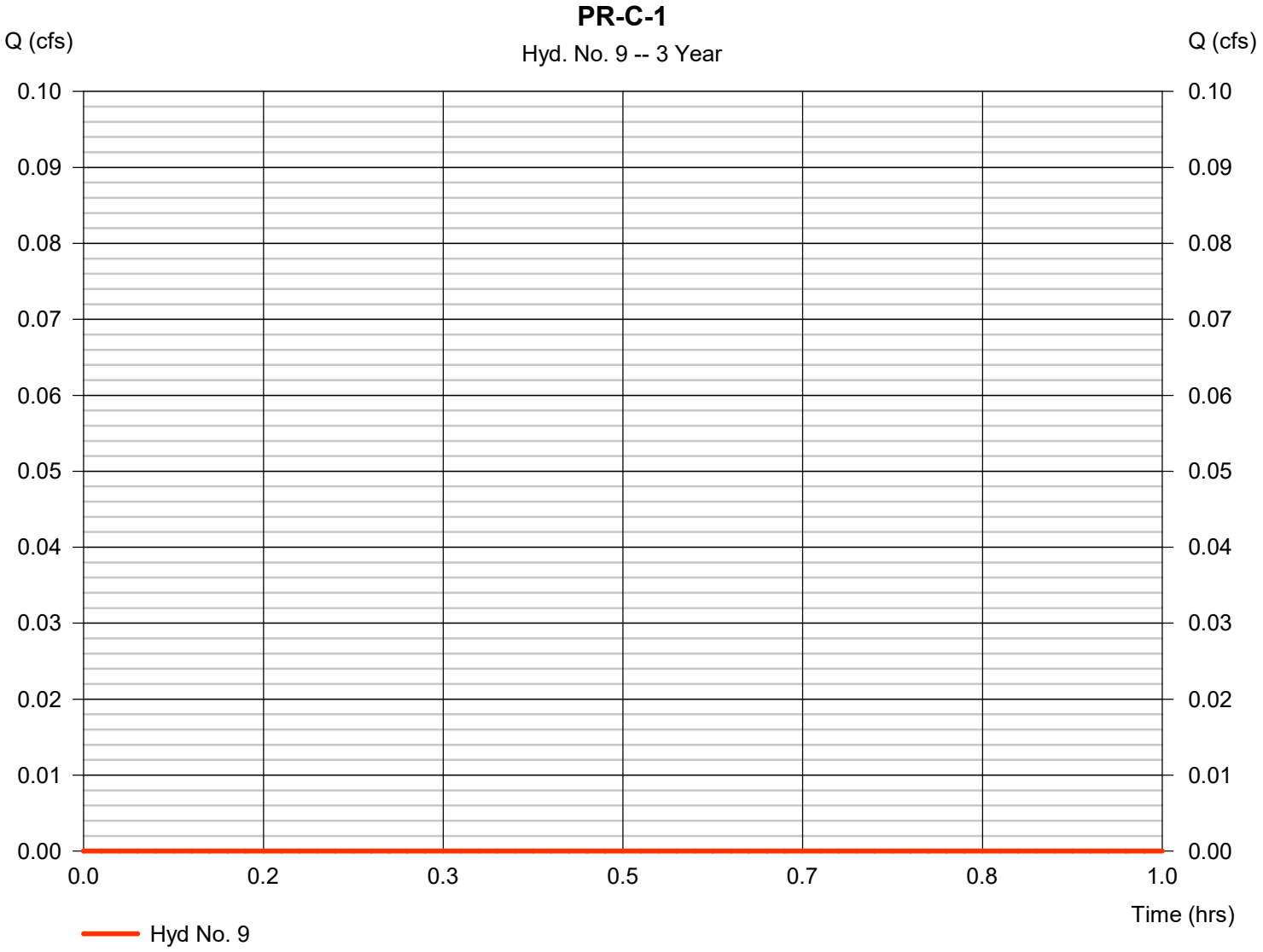


Hydrograph Report

Hyd. No. 9

PR-C-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 3 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Drainage area	= 2.830 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 1.20 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\MRC-WaterQuality.cds		

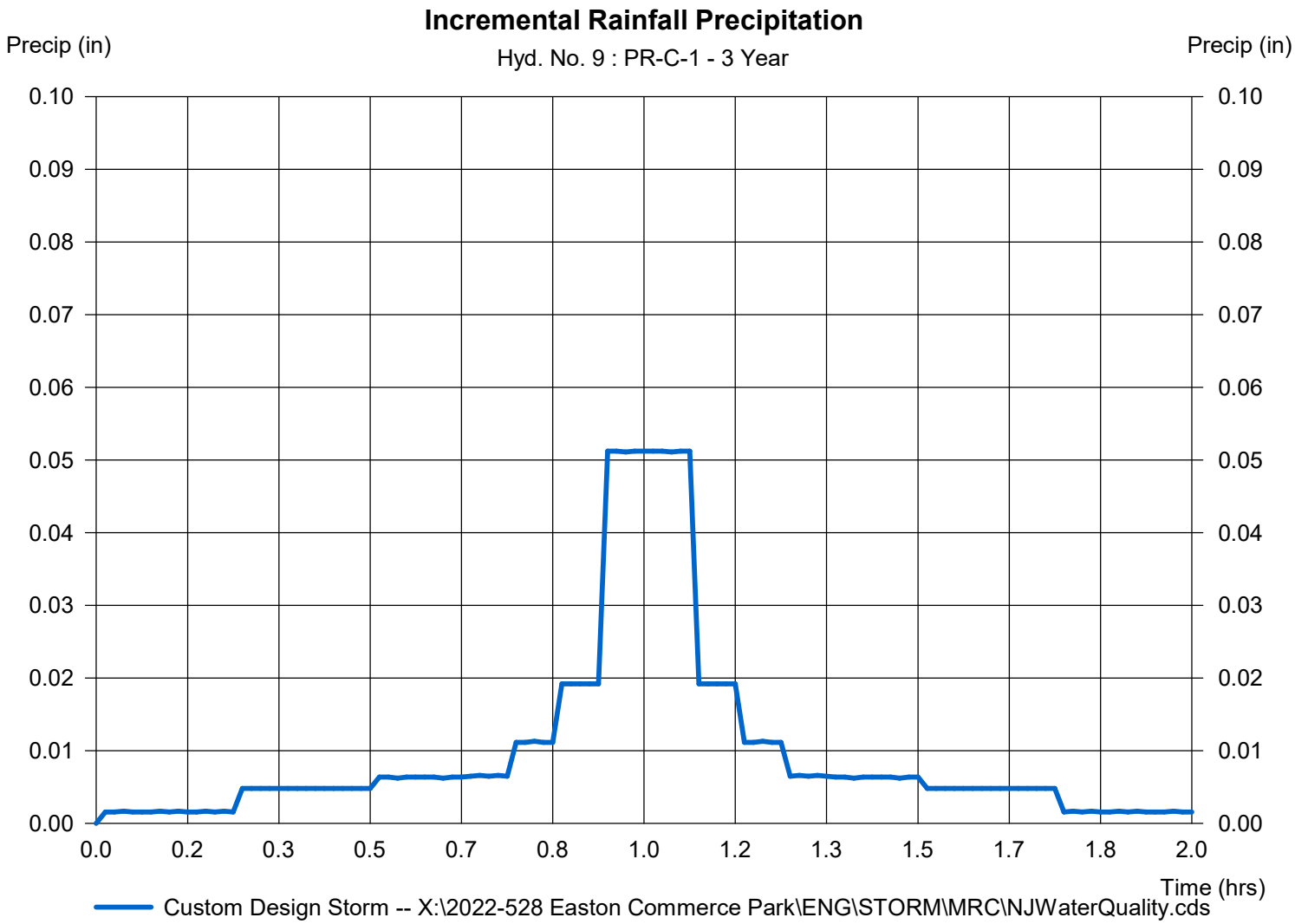


Precipitation Report

Hyd. No. 9

PR-C-1

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

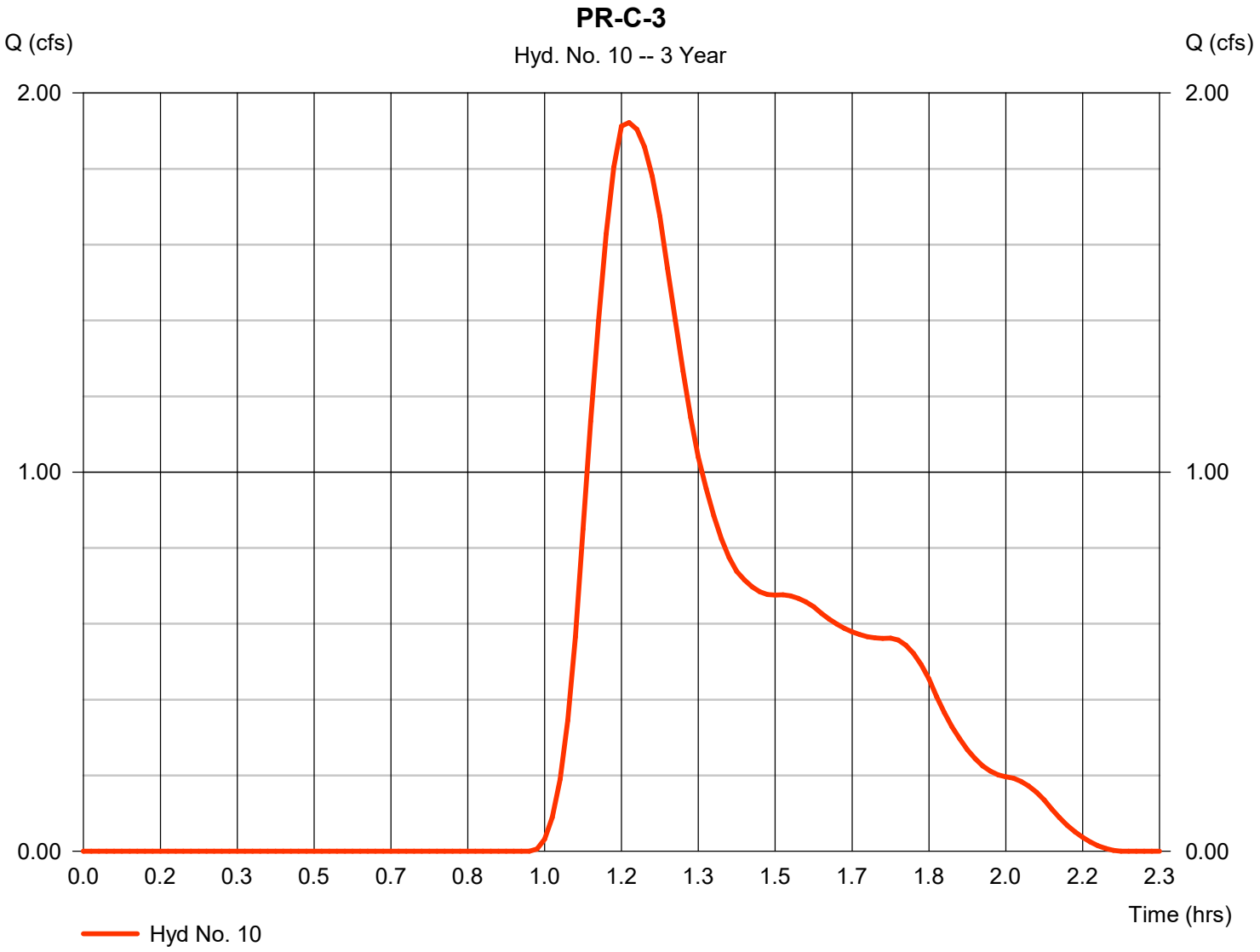


Hydrograph Report

Hyd. No. 10

PR-C-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.922 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.18 hrs
Time interval	=	1 min	Hyd. volume	=	2,929 cuft
Drainage area	=	5.270 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NW WaterQuality.cds			

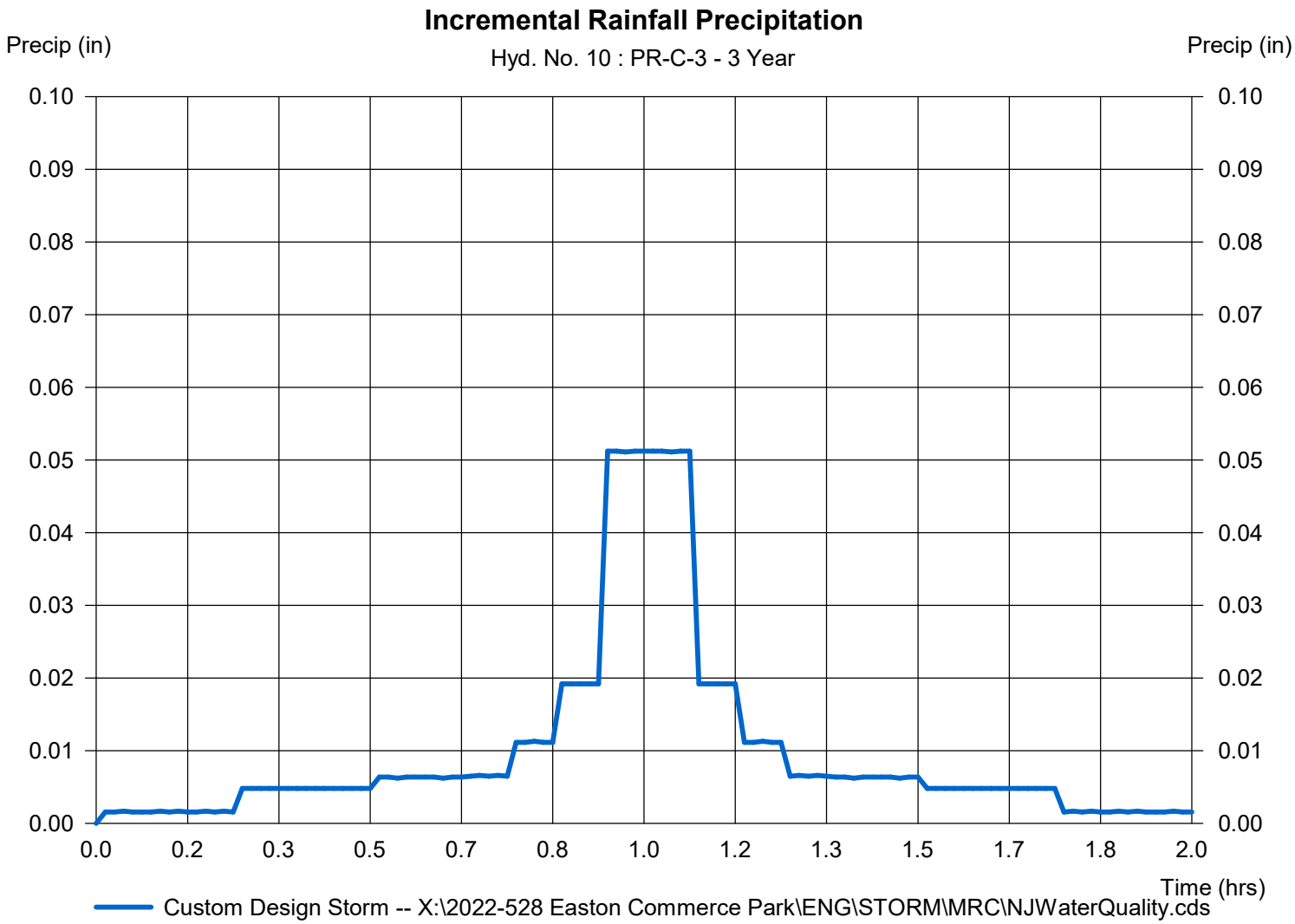


Precipitation Report

Hyd. No. 10

PR-C-3

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

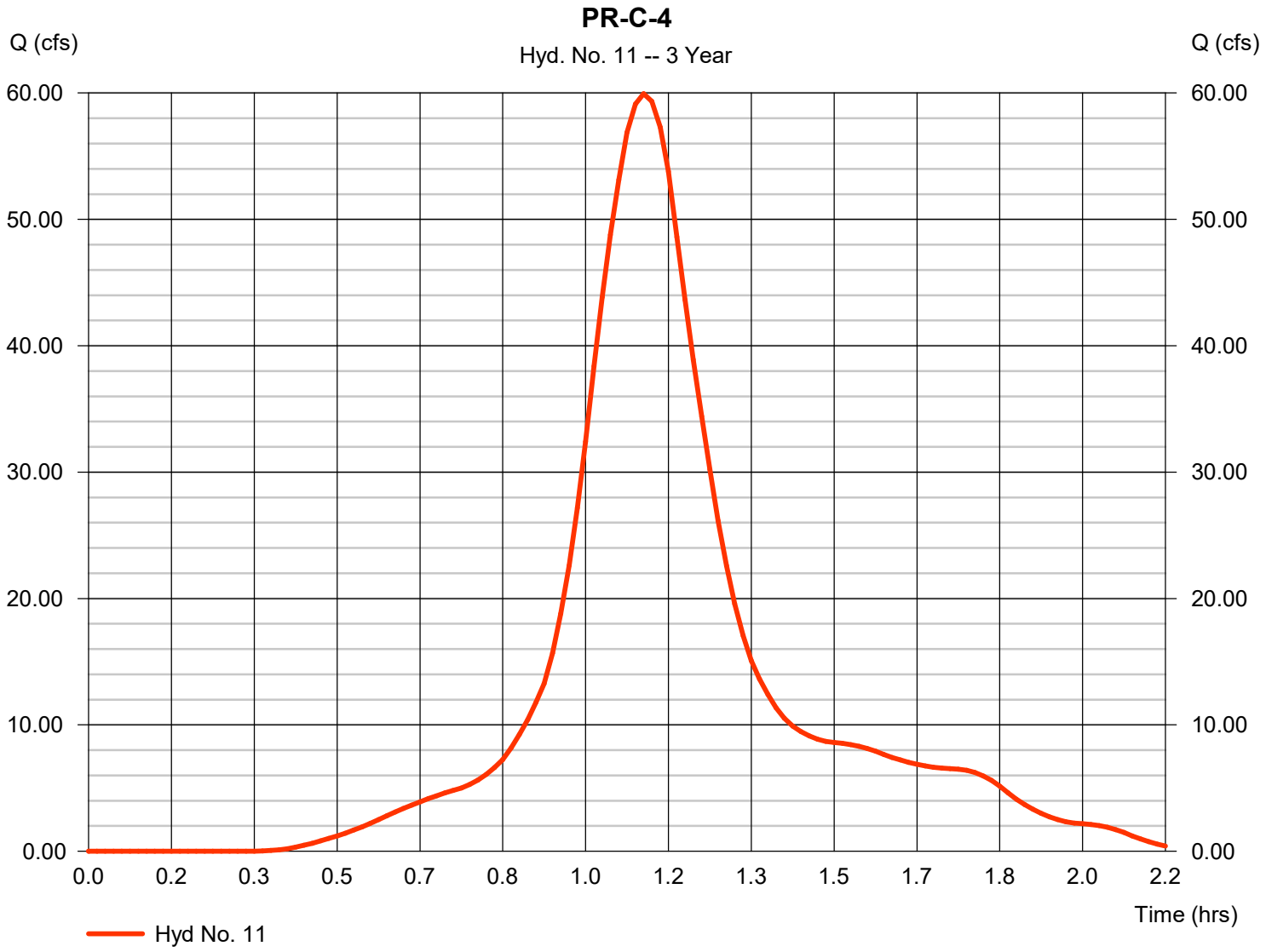


Hydrograph Report

Hyd. No. 11

PR-C-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	59.95 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.12 hrs
Time interval	=	1 min	Hyd. volume	=	82,111 cuft
Drainage area	=	22.950 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	1.20 in	Distribution	=	Custom
Storm duration	=	X:\2022-528 Easton Commerce Park\ENG\STORM\MR24HWaterQuality.cds			

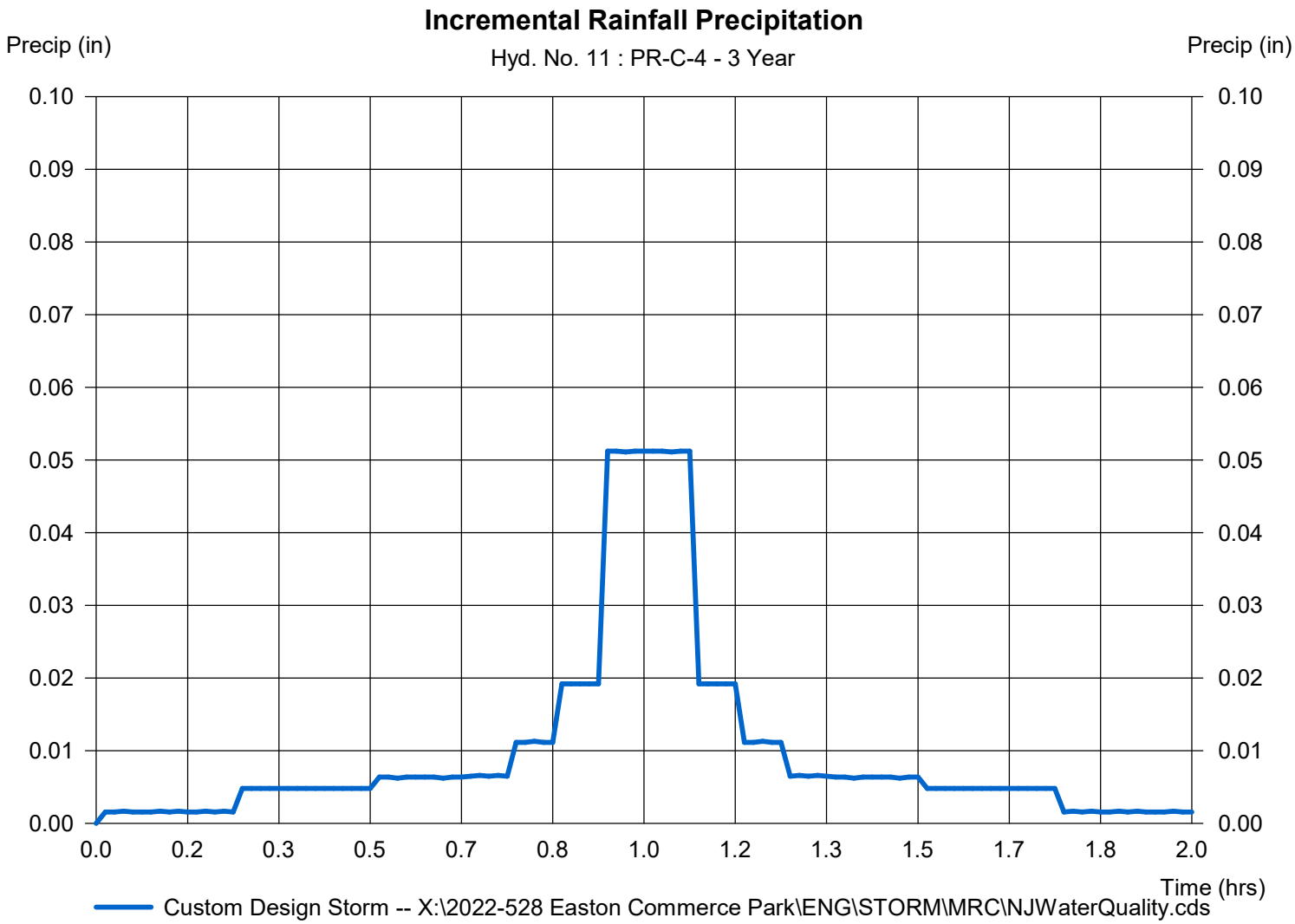


Precipitation Report

Hyd. No. 11

PR-C-4

Storm Frequency	= 3 yrs	Time interval	= 1 min
Total precip.	= 1.2000 in	Distribution	= Custom
Storm duration	= X:\2022-528 Easton Commerce Park\ENG\STORM\MRC\NJWaterQuality.cds		

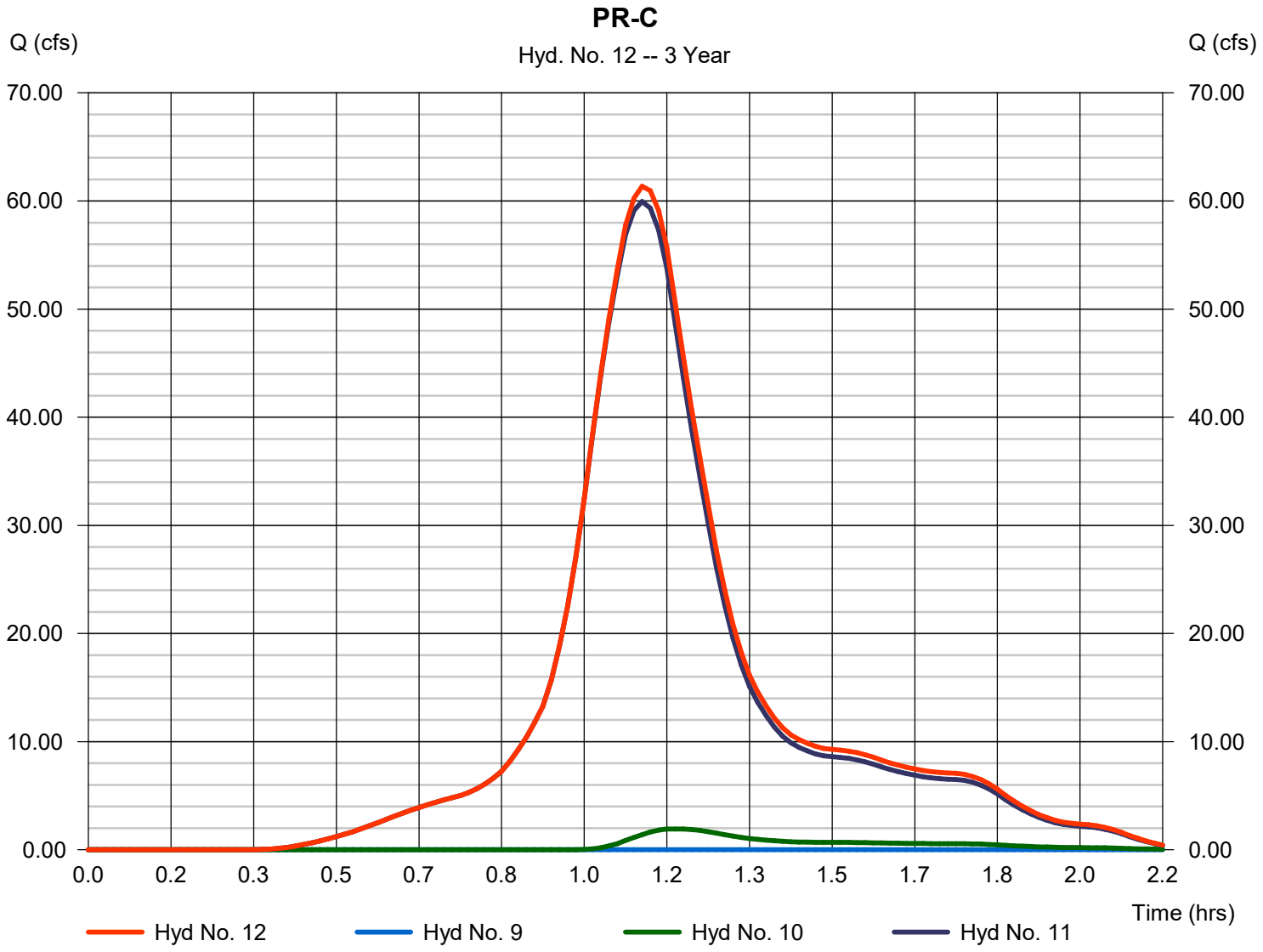


Hydrograph Report

Hyd. No. 12

PR-C

Hydrograph type	= Combine	Peak discharge	= 61.35 cfs
Storm frequency	= 3 yrs	Time to peak	= 1.12 hrs
Time interval	= 1 min	Hyd. volume	= 85,040 cuft
Inflow hyds.	= 9, 10, 11	Contrib. drain. area	= 31.050 ac



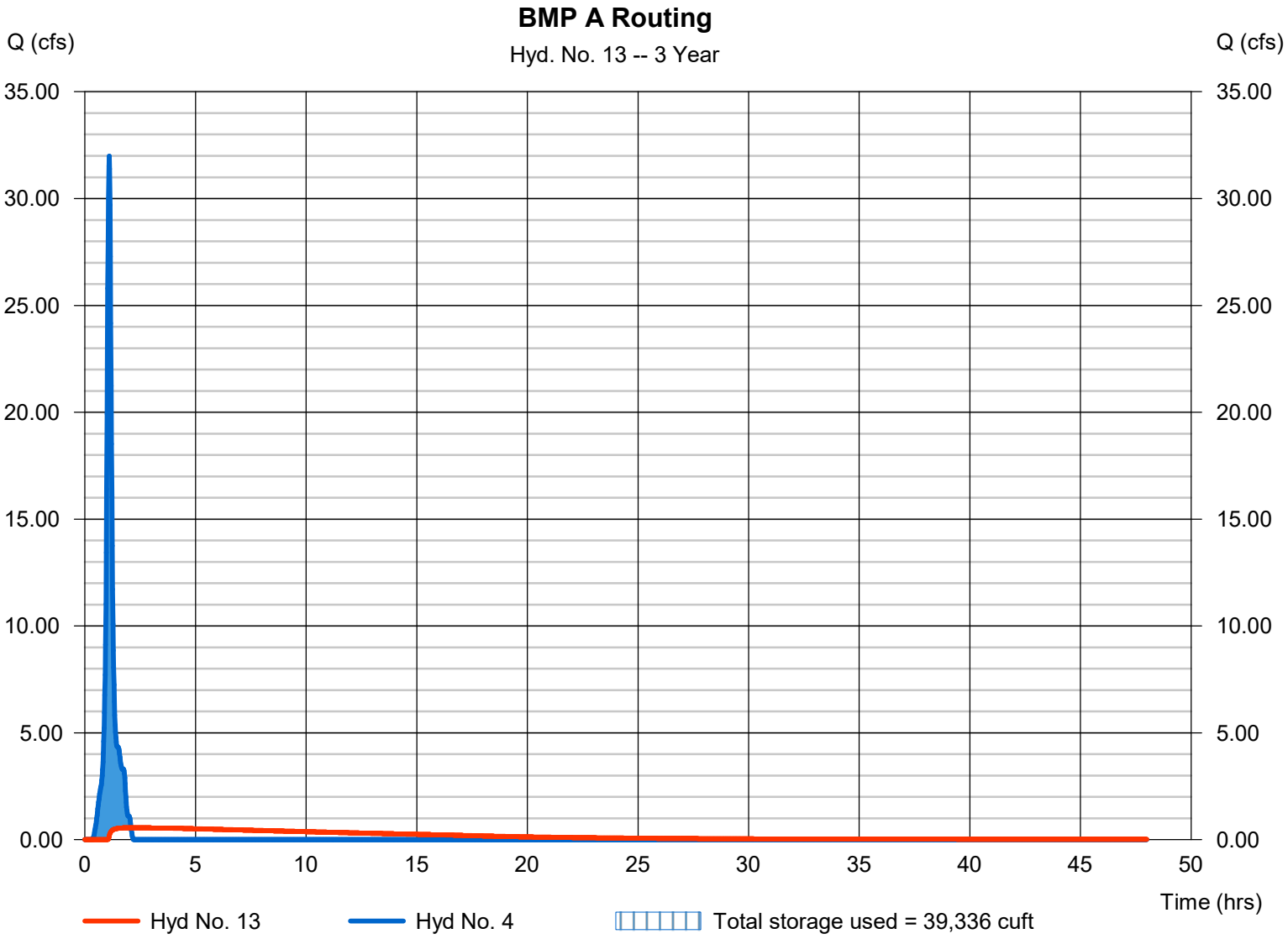
Hydrograph Report

Hyd. No. 13

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.556 cfs
Storm frequency	=	3 yrs	Time to peak	=	2.08 hrs
Time interval	=	1 min	Hyd. volume	=	28,289 cuft
Inflow hyd. No.	=	4 - PR-A	Max. Elevation	=	290.05 ft
Reservoir name	=	BMP A	Max. Storage	=	39,336 cuft

Storage Indication method used.



Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
1.00	289.00	35,950	11,982	11,982
2.00	290.00	13,750	23,975	35,957
2.01	290.01	79,915	423	36,380
4.00	292.00	88,068	167,061	203,441
6.00	294.00	96,468	184,454	387,895
8.00	296.00	105,115	201,501	589,396

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 242.00	0.00	0.00	0.00
Slope (%)	= 30.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	288.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.10	1,198	288.10	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	2,396	288.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.30	3,595	288.30	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	4,793	288.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	5,991	288.50	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	7,189	288.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.70	8,387	288.70	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	9,586	288.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.90	10,784	288.90	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	11,982	289.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.10	14,380	289.10	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.034
1.20	16,777	289.20	0.12 ic	0.12 ic	0.00	---	0.00	---	---	---	---	---	0.120
1.30	19,175	289.30	0.22 ic	0.22 ic	0.00	---	0.00	---	---	---	---	---	0.221
1.40	21,572	289.40	0.29 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.280
1.50	23,970	289.50	0.35 ic	0.33 ic	0.00	---	0.00	---	---	---	---	---	0.335
1.60	26,367	289.60	0.38 ic	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.383
1.70	28,765	289.70	0.44 ic	0.43 ic	0.00	---	0.00	---	---	---	---	---	0.427
1.80	31,162	289.80	0.48 ic	0.47 ic	0.00	---	0.00	---	---	---	---	---	0.468
1.90	33,560	289.90	0.52 ic	0.51 ic	0.00	---	0.00	---	---	---	---	---	0.506
2.00	35,957	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,000	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	36,042	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,084	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	36,127	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.01	36,169	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,211	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	36,253	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,296	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,338	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	36,380	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.545
2.21	53,086	290.21	0.64 ic	0.61 ic	0.00	---	0.00	---	---	---	---	---	0.608
2.41	69,792	290.41	0.69 ic	0.67 ic	0.00	---	0.00	---	---	---	---	---	0.669
2.61	86,498	290.61	0.73 ic	0.72 ic	0.00	---	0.00	---	---	---	---	---	0.724
2.81	103,204	290.81	0.78 ic	0.78 ic	0.00	---	0.00	---	---	---	---	---	0.776
3.01	119,911	291.01	0.84 ic	0.82 ic	0.00	---	0.00	---	---	---	---	---	0.824

Continues on next page...

BMP A

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	136,617	291.20	0.89 ic	0.87 ic	0.00	---	0.00	---	---	---	---	---	0.870
3.40	153,323	291.40	0.95 ic	0.91 ic	0.00	---	0.00	---	---	---	---	---	0.913
3.60	170,029	291.60	0.96 ic	0.96 ic	0.00	---	0.00	---	---	---	---	---	0.956
3.80	186,735	291.80	1.01 ic	1.00 ic	0.00	---	0.00	---	---	---	---	---	0.997
4.00	203,441	292.00	1.07 ic	1.03 ic	0.00	---	0.00	---	---	---	---	---	1.035
4.20	221,886	292.20	1.07 ic	1.07 ic	0.00	---	0.00	---	---	---	---	---	1.073
4.40	240,332	292.40	1.13 ic	1.11 ic	0.00	---	0.00	---	---	---	---	---	1.110
4.60	258,777	292.60	1.14 ic	1.14 ic	0.00	---	0.00	---	---	---	---	---	1.144
4.80	277,222	292.80	1.26 ic	1.18 ic	0.05 ic	---	0.00	---	---	---	---	---	1.225
5.00	295,668	293.00	1.56 ic	1.20 ic	0.31 ic	---	0.00	---	---	---	---	---	1.512
5.20	314,113	293.20	1.73 ic	1.23 ic	0.49 ic	---	0.00	---	---	---	---	---	1.717
5.40	332,559	293.40	1.90 ic	1.26 ic	0.61 ic	---	0.00	---	---	---	---	---	1.874
5.60	351,004	293.60	2.01 ic	1.29 ic	0.72 ic	---	0.00	---	---	---	---	---	2.009
5.80	369,449	293.80	2.18 ic	1.32 ic	0.81 ic	---	0.00	---	---	---	---	---	2.130
6.00	387,895	294.00	2.28 ic	1.35 ic	0.89 ic	---	0.00	---	---	---	---	---	2.241
6.20	408,045	294.20	5.91 ic	1.31 ic	0.97 ic	---	3.57	---	---	---	---	---	5.856
6.40	428,195	294.40	12.44 ic	1.24 ic	1.04 ic	---	10.11	---	---	---	---	---	12.39
6.60	448,345	294.60	20.74 ic	1.06 ic	1.11 ic	---	18.57	---	---	---	---	---	20.74
6.80	468,495	294.80	29.98 ic	0.60 ic	0.78 ic	---	28.59	---	---	---	---	---	29.98
7.00	488,645	295.00	32.43 ic	0.41 ic	0.53 ic	---	31.49 s	---	---	---	---	---	32.43
7.20	508,795	295.20	33.65 ic	0.32 ic	0.42 ic	---	32.90 s	---	---	---	---	---	33.65
7.40	528,945	295.40	34.59 ic	0.27 ic	0.35 ic	---	33.97 s	---	---	---	---	---	34.58
7.60	549,095	295.60	35.40 ic	0.23 ic	0.29 ic	---	34.88 s	---	---	---	---	---	35.40
7.80	569,246	295.80	36.14 ic	0.19 ic	0.25 ic	---	35.68 s	---	---	---	---	---	36.13
8.00	589,396	296.00	36.83 ic	0.17 ic	0.22 ic	---	36.43 s	---	---	---	---	---	36.83

...End

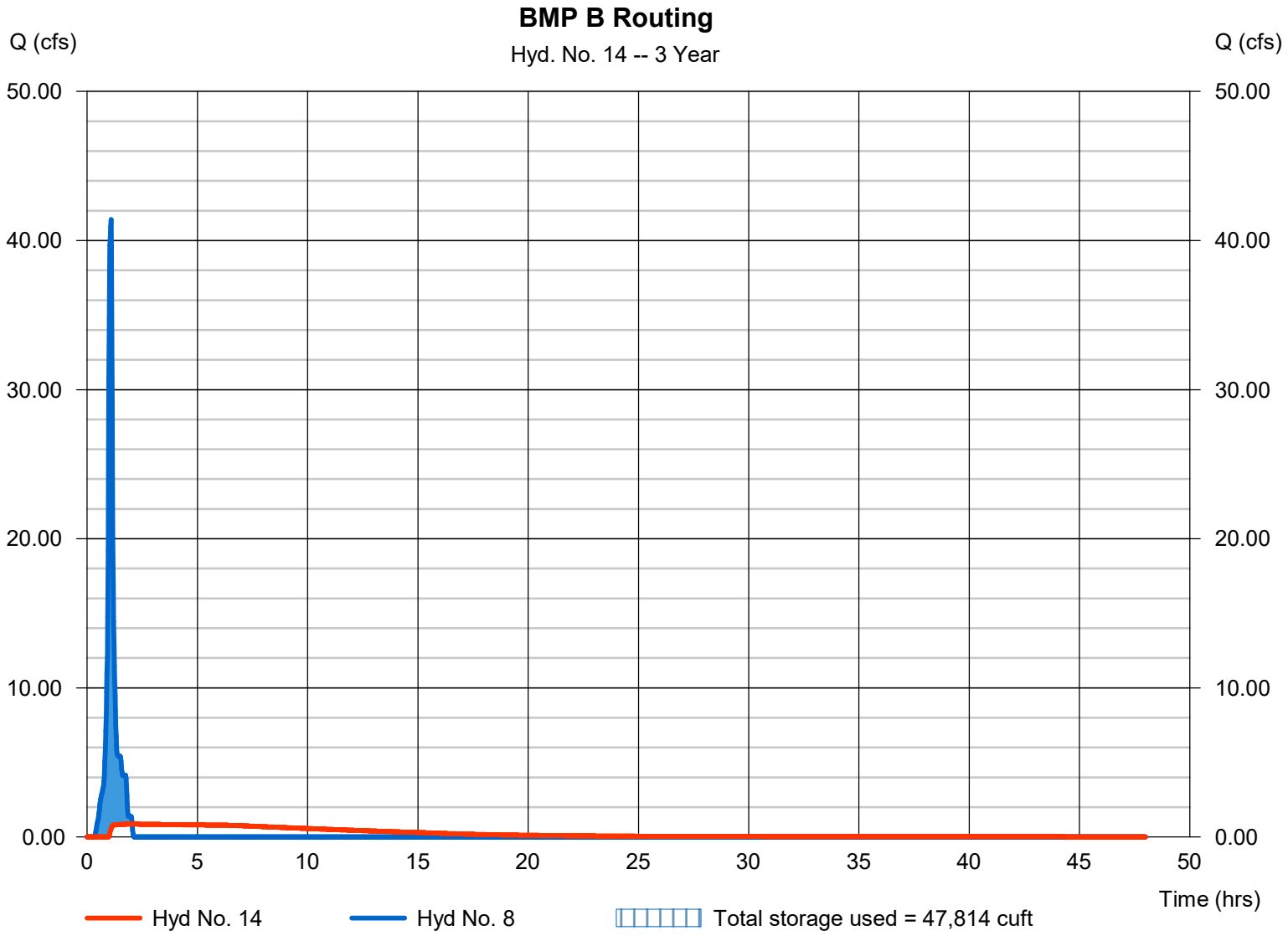
Hydrograph Report

Hyd. No. 14

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.862 cfs
Storm frequency	=	3 yrs	Time to peak	=	2.03 hrs
Time interval	=	1 min	Hyd. volume	=	38,870 cuft
Inflow hyd. No.	=	8 - PR-B	Max. Elevation	=	286.17 ft
Reservoir name	=	BMP B	Max. Storage	=	47,814 cuft

Storage Indication method used.



Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
1.00	285.00	34,350	11,449	11,449
2.00	286.00	13,150	22,915	34,364
2.01	286.01	76,441	404	34,769
4.00	288.00	87,488	162,969	197,738
6.00	290.00	95,788	183,195	380,933
8.00	292.00	104,371	200,078	581,011

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 238.00	0.00	0.00	0.00
Slope (%)	= 29.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	284.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,145	284.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	2,290	284.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	3,435	284.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	4,580	284.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	5,724	284.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	6,869	284.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	8,014	284.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	9,159	284.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	10,304	284.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	11,449	285.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	13,740	285.10	0.04 ic	0.04 ic	0.00	---	0.00	0.00	---	---	---	---	0.042
1.20	16,032	285.20	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.151
1.30	18,324	285.30	0.29 ic	0.29 ic	0.00	---	0.00	0.00	---	---	---	---	0.290
1.40	20,615	285.40	0.38 ic	0.38 ic	0.00	---	0.00	0.00	---	---	---	---	0.381
1.50	22,907	285.50	0.48 ic	0.46 ic	0.00	---	0.00	0.00	---	---	---	---	0.462
1.60	25,198	285.60	0.56 ic	0.53 ic	0.00	---	0.00	0.00	---	---	---	---	0.535
1.70	27,490	285.70	0.60 ic	0.60 ic	0.00	---	0.00	0.00	---	---	---	---	0.602
1.80	29,781	285.80	0.69 ic	0.66 ic	0.00	---	0.00	0.00	---	---	---	---	0.664
1.90	32,073	285.90	0.73 ic	0.72 ic	0.00	---	0.00	0.00	---	---	---	---	0.723
2.00	34,364	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,405	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	34,445	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,486	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	34,526	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.780
2.01	34,566	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,607	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	34,647	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,688	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	34,728	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.01	34,769	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.21	51,066	286.21	0.89 ic	0.88 ic	0.00	---	0.00	0.00	---	---	---	---	0.881
2.41	67,363	286.41	1.01 ic	0.97 ic	0.00	---	0.00	0.00	---	---	---	---	0.969
2.61	83,659	286.61	1.07 ic	1.05 ic	0.00	---	0.00	0.00	---	---	---	---	1.055
2.81	99,956	286.81	1.13 ic	1.13 ic	0.00	---	0.00	0.00	---	---	---	---	1.133
3.01	116,253	287.01	1.21 ic	1.21 ic	0.00	---	0.00	0.00	---	---	---	---	1.205

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BMP B

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.20	132,550	287.20	1.27 ic	1.27 ic	0.00	---	0.00	0.00	---	---	---	---	1.275
3.40	148,847	287.40	1.34 ic	1.34 ic	0.00	---	0.00	0.00	---	---	---	---	1.342
3.60	165,144	287.60	1.41 ic	1.41 ic	0.00	---	0.00	0.00	---	---	---	---	1.407
3.80	181,441	287.80	1.48 ic	1.47 ic	0.00	---	0.00	0.00	---	---	---	---	1.467
4.00	197,738	288.00	1.56 ic	1.52 ic	0.00	---	0.00	0.00	---	---	---	---	1.524
4.20	216,058	288.20	1.58 ic	1.58 ic	0.00	---	0.00	0.00	---	---	---	---	1.581
4.40	234,377	288.40	1.64 ic	1.64 ic	0.00	---	0.00	0.00	---	---	---	---	1.638
4.60	252,697	288.60	1.74 ic	1.69 ic	0.05 ic	---	0.00	0.00	---	---	---	---	1.736
4.80	271,016	288.80	2.08 ic	1.73 ic	0.31 ic	---	0.00	0.00	---	---	---	---	2.039
5.00	289,336	289.00	2.28 ic	1.77 ic	0.49 ic	---	0.00	0.00	---	---	---	---	2.260
5.20	307,655	289.20	2.48 ic	1.82 ic	0.61 ic	---	0.00	0.00	---	---	---	---	2.433
5.40	325,975	289.40	2.59 ic	1.87 ic	0.72 ic	---	0.00	0.00	---	---	---	---	2.586
5.60	344,294	289.60	2.72 ic	1.91 ic	0.81 ic	---	0.00	0.00	---	---	---	---	2.720
5.80	362,614	289.80	2.92 ic	1.95 ic	0.89 ic	---	0.00	0.00	---	---	---	---	2.847
6.00	380,933	290.00	3.03 ic	2.00 ic	0.97 ic	---	0.00	0.00	---	---	---	---	2.966
6.20	400,941	290.20	6.56 ic	1.95 ic	1.04 ic	---	3.57	0.00	---	---	---	---	6.564
6.40	420,949	290.40	13.09 ic	1.85 ic	1.11 ic	---	10.11	0.00	---	---	---	---	13.06
6.60	440,956	290.60	21.30 ic	1.56 ic	1.17 ic	---	18.57	26.57	---	---	---	---	47.87
6.80	460,964	290.80	30.22 ic	0.87 ic	0.76 ic	---	28.59	138.02	---	---	---	---	168.23
7.00	480,972	291.00	32.45 ic	0.61 ic	0.53 ic	---	31.31 s	297.07	---	---	---	---	329.52
7.20	500,980	291.20	33.66 ic	0.48 ic	0.42 ic	---	32.76 s	492.07	---	---	---	---	525.72
7.40	520,987	291.40	34.59 ic	0.40 ic	0.35 ic	---	33.85 s	717.31	---	---	---	---	751.90
7.60	540,995	291.60	35.40 ic	0.34 ic	0.29 ic	---	34.77 s	969.23	---	---	---	---	1004.63
7.80	561,003	291.80	36.14 ic	0.29 ic	0.25 ic	---	35.59 s	1245.23	---	---	---	---	1281.36
8.00	581,011	292.00	36.83 ic	0.26 ic	0.22 ic	---	36.35 s	1543.18	---	---	---	---	1580.01

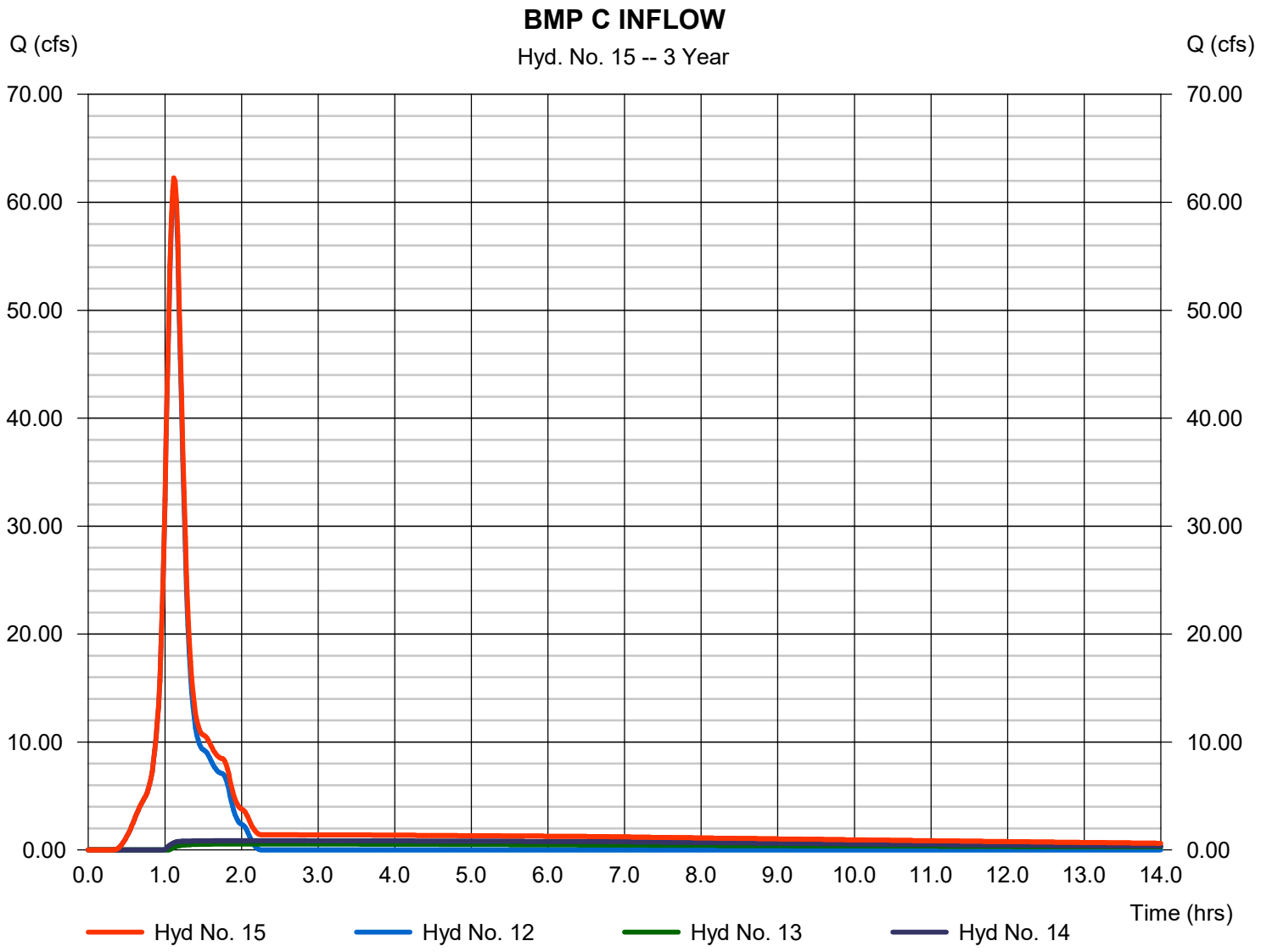
...End

Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	62.26 cfs
Storm frequency	=	3 yrs	Time to peak	=	1.12 hrs
Time interval	=	1 min	Hyd. volume	=	152,199 cuft
Inflow hyds.	=	12, 13, 14	Contrib. drain. area	=	0.000 ac



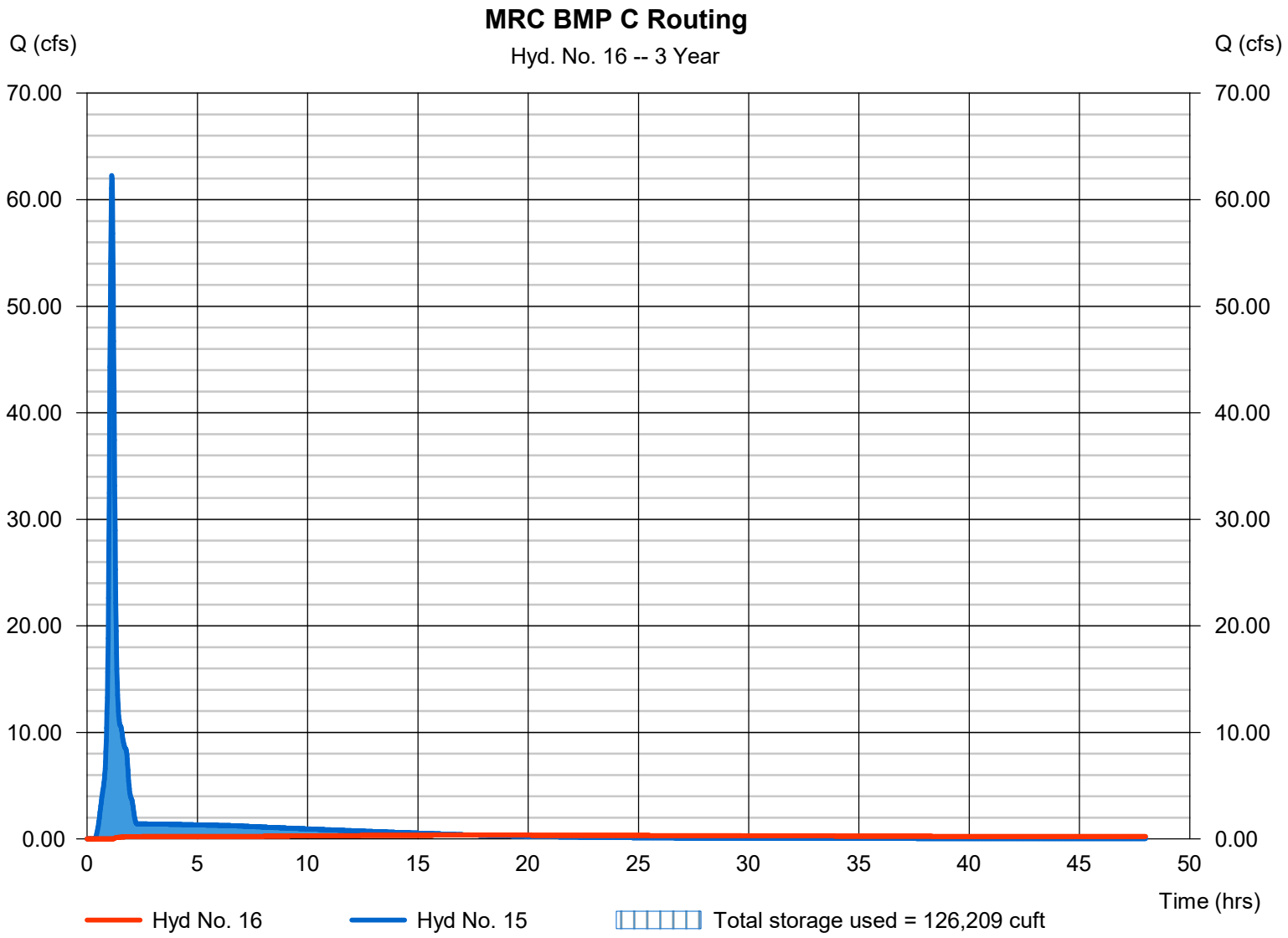
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.348 cfs
Storm frequency	=	3 yrs	Time to peak	=	17.70 hrs
Time interval	=	1 min	Hyd. volume	=	47,048 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.33 ft
Reservoir name	=	BMP C	Max. Storage	=	126,209 cuft

Storage Indication method used.



Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
1.00	213.00	52,150	17,382	17,382
2.00	214.00	00	17,389	34,771
3.00	215.00	52,150	17,389	52,160
4.00	216.00	19,935	34,773	86,933
4.01	216.01	115,916	613	87,546
6.00	218.00	126,194	240,803	328,349
8.00	220.00	136,697	262,795	591,143
10.00	222.00	147,725	284,322	875,466
12.00	224.00	158,385	306,018	1,181,483

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	8.00	0.00
Span (in)	= 24.00	1.50	8.00	0.00
No. Barrels	= 1	4	4	0
Invert El. (ft)	= 215.00	215.00	216.30	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	212.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	1,738	212.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	3,476	212.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.30	5,214	212.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	6,953	212.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.50	8,691	212.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	10,429	212.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.70	12,167	212.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	13,905	212.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.90	15,643	212.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	17,382	213.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.10	19,121	213.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	20,859	213.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.30	22,598	213.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.40	24,337	213.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.50	26,076	213.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.60	27,815	213.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.70	29,554	213.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.80	31,293	213.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.90	33,032	213.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.00	34,771	214.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.10	36,510	214.10	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.20	38,249	214.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.30	39,988	214.30	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.40	41,726	214.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.50	43,465	214.50	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.60	45,204	214.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.70	46,943	214.70	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.80	48,682	214.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.90	50,421	214.90	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.00	52,160	215.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.10	55,637	215.10	0.04 ic	0.03 ic	0.00	---	0.00	0.00	---	---	---	---	0.035
3.20	59,115	215.20	0.07 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.073

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BMP C

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
3.30	62,592	215.30	0.11 ic	0.10 ic	0.00	---	0.00	0.00	---	---	---	---	0.099
3.40	66,069	215.40	0.12 ic	0.12 ic	0.00	---	0.00	0.00	---	---	---	---	0.121
3.50	69,546	215.50	0.15 ic	0.14 ic	0.00	---	0.00	0.00	---	---	---	---	0.140
3.60	73,024	215.60	0.16 ic	0.16 ic	0.00	---	0.00	0.00	---	---	---	---	0.158
3.70	76,501	215.70	0.18 ic	0.17 ic	0.00	---	0.00	0.00	---	---	---	---	0.173
3.80	79,978	215.80	0.20 ic	0.19 ic	0.00	---	0.00	0.00	---	---	---	---	0.187
3.90	83,455	215.90	0.20 ic	0.20 ic	0.00	---	0.00	0.00	---	---	---	---	0.201
4.00	86,933	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	86,994	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,055	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,116	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	87,178	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,239	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	87,300	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,362	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,423	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,484	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	87,546	216.01	0.22 ic	0.22 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.21	111,626	216.21	0.24 ic	0.24 ic	0.00	---	0.00	0.00	---	---	---	---	0.238
4.41	135,706	216.41	0.44 ic	0.25 ic	0.17 ic	---	0.00	0.00	---	---	---	---	0.420
4.61	159,786	216.61	1.48 ic	0.25 ic	1.19 ic	---	0.00	0.00	---	---	---	---	1.435
4.81	183,867	216.81	3.03 ic	0.25 ic	2.76 ic	---	0.00	0.00	---	---	---	---	3.008
5.01	207,947	217.01	4.44 ic	0.25 ic	4.10 ic	---	0.00	0.00	---	---	---	---	4.348
5.20	232,027	217.20	5.34 ic	0.26 ic	5.08 ic	---	0.00	0.00	---	---	---	---	5.338
5.40	256,108	217.40	6.22 ic	0.27 ic	5.90 ic	---	0.00	0.00	---	---	---	---	6.169
5.60	280,188	217.60	7.00 ic	0.28 ic	6.62 ic	---	0.00	0.00	---	---	---	---	6.900
5.80	304,268	217.80	7.64 ic	0.30 ic	7.26 ic	---	0.00	0.00	---	---	---	---	7.561
6.00	328,349	218.00	8.28 ic	0.31 ic	7.86 ic	---	0.00	0.00	---	---	---	---	8.168
6.20	354,628	218.20	8.76 ic	0.32 ic	8.41 ic	---	0.00	0.00	---	---	---	---	8.738
6.40	380,907	218.40	9.27 ic	0.34 ic	8.93 ic	---	0.00	0.00	---	---	---	---	9.271
6.60	407,187	218.60	9.84 ic	0.35 ic	9.43 ic	---	0.00	0.00	---	---	---	---	9.775
6.80	433,466	218.80	10.29 ic	0.36 ic	9.89 ic	---	0.00	0.00	---	---	---	---	10.26
7.00	459,746	219.00	10.73 ic	0.37 ic	10.34 ic	---	0.00	0.00	---	---	---	---	10.71
7.20	486,025	219.20	11.16 ic	0.38 ic	10.77 ic	---	0.00	0.00	---	---	---	---	11.15
7.40	512,305	219.40	11.58 ic	0.40 ic	11.18 ic	---	0.00	0.00	---	---	---	---	11.58
7.60	538,584	219.60	11.98 ic	0.41 ic	11.58 ic	---	0.00	0.00	---	---	---	---	11.98
7.80	564,864	219.80	12.32 ic	0.42 ic	11.91 ic	---	0.00	0.00	---	---	---	---	12.32
8.00	591,143	220.00	12.66 ic	0.43 ic	12.22 ic	---	0.00	0.00	---	---	---	---	12.65
8.20	619,576	220.20	15.83 ic	0.42 ic	11.84 ic	---	3.57	0.00	---	---	---	---	15.83
8.40	648,008	220.40	21.04 ic	0.37 ic	10.56 ic	---	10.11	0.00	---	---	---	---	21.04
8.60	676,440	220.60	26.91 ic	0.28 ic	8.05 ic	---	18.57	0.00	---	---	---	---	26.91
8.80	704,872	220.80	31.27 ic	0.17 ic	4.87 ic	---	26.23 s	0.00	---	---	---	---	31.27
9.00	733,305	221.00	32.75 ic	0.13 ic	3.76 ic	---	28.86 s	0.00	---	---	---	---	32.75
9.20	761,737	221.20	33.80 ic	0.11 ic	3.05 ic	---	30.63 s	0.00	---	---	---	---	33.79
9.40	790,169	221.40	34.67 ic	0.09 ic	2.56 ic	---	32.01 s	0.00	---	---	---	---	34.67
9.60	818,601	221.60	35.45 ic	0.08 ic	2.20 ic	---	33.16 s	0.00	---	---	---	---	35.44
9.80	847,034	221.80	36.17 ic	0.07 ic	1.92 ic	---	34.16 s	0.00	---	---	---	---	36.15
10.00	875,466	222.00	36.85 ic	0.06 ic	1.70 ic	---	35.06 s	0.00	---	---	---	---	36.83
10.20	906,067	222.20	37.50 ic	0.05 ic	1.53 ic	---	35.91 s	25.04	---	---	---	---	62.53
10.40	936,669	222.40	38.14 ic	0.05 ic	1.39 ic	---	36.68 s	70.83	---	---	---	---	108.95
10.60	967,271	222.60	38.75 ic	0.04 ic	1.27 ic	---	37.44 s	130.13	---	---	---	---	168.88
10.80	997,873	222.80	39.35 ic	0.04 ic	1.16 ic	---	38.12 s	200.35	---	---	---	---	239.67
11.00	1,028,474	223.00	39.94 ic	0.04 ic	1.08 ic	---	38.79 s	280.00	---	---	---	---	319.90
11.20	1,059,076	223.20	40.52 ic	0.04 ic	1.00 ic	---	39.46 s	368.07	---	---	---	---	408.57
11.40	1,089,678	223.40	41.09 ic	0.03 ic	0.94 ic	---	40.09 s	463.82	---	---	---	---	504.88
11.60	1,120,280	223.60	41.65 ic	0.03 ic	0.88 ic	---	40.73 s	566.68	---	---	---	---	608.33
11.80	1,150,881	223.80	42.20 ic	0.03 ic	0.83 ic	---	41.25 s	676.19	---	---	---	---	718.30
12.00	1,181,483	224.00	42.74 ic	0.03 ic	0.78 ic	---	41.85 s	791.96	---	---	---	---	834.62

...End

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	2.40	3.00	1.20	3.60	4.56	5.52	6.48	7.44

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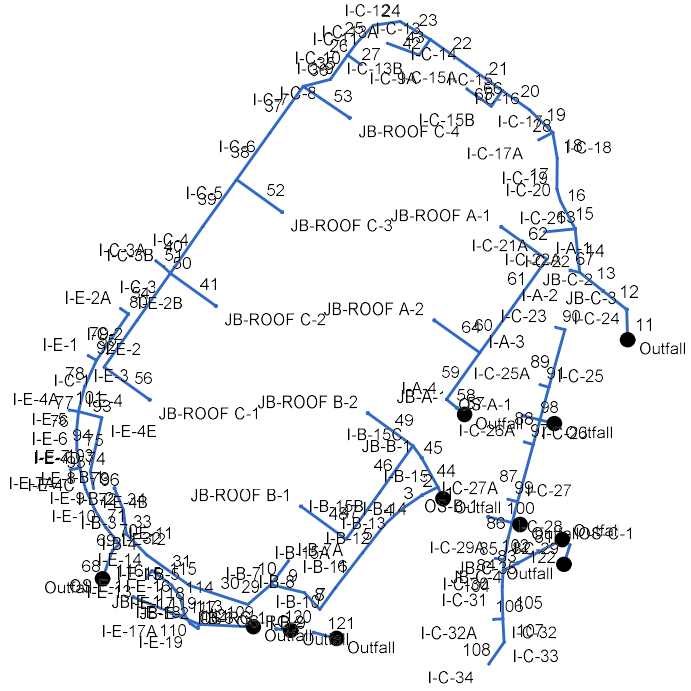
Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Final Storm Network.stm	Number of lines: 122	Date: 5/10/2024

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
122	End	68.703	-73.063	MH	20.00	0.00	0.00	0.0	209.73	5.36	213.41	33	Cir	0.012	1.00	218.16	OS-C-OFF
121	End	79.896	-165.471	MH	0.00	0.24	0.44	5.0	226.95	1.48	228.13	18	Cir	0.012	1.00	231.63	OS-RG-2-OFF
120	End	49.000	-174.543	MH	0.00	0.17	0.44	5.0	230.13	5.10	232.63	18	Cir	0.012	1.00	236.13	OS-RG-1-OFF
119	112	38.810	-71.617	Genr	0.00	0.17	0.58	5.0	241.17	0.50	241.36	18	Cir	0.012	1.00	244.86	P-E-17A
118	117	136.094	0.004	MH	10.00	0.00	0.00	0.0	242.02	8.19	253.16	24	Cir	0.012	1.00	257.16	OS-E-OFF
117	109	101.206	19.745	MH	0.00	0.10	0.96	5.0	241.51	0.50	242.02	24	Cir	0.012	0.15	246.02	P-JB-E-1
116	115	31.583	-90.721	Genr	0.00	0.16	0.65	5.0	249.42	0.50	249.58	18	Cir	0.012	1.00	253.08	P-E-13
115	114	80.484	-18.389	Genr	0.00	0.06	0.45	5.0	245.52	4.85	249.42	18	Cir	0.012	1.50	253.08	P-E-14
114	113	50.530	-21.401	Genr	0.00	0.07	0.39	5.0	243.19	4.61	245.52	18	Cir	0.012	0.55	249.02	P-E-15
113	112	59.438	18.700	Genr	0.00	0.12	0.41	5.0	241.57	2.73	243.19	18	Cir	0.012	0.63	246.69	P-E-16
112	111	35.268	23.724	Genr	0.00	0.13	0.41	5.0	240.36	2.29	241.17	18	Cir	0.012	1.44	245.07	P-E-17
111	110	31.498	110.120	Genr	0.00	0.08	0.78	5.0	239.34	3.24	240.36	18	Cir	0.012	0.69	243.86	P-E-18
110	109	14.652	-79.243	Genr	0.00	0.07	0.43	5.0	239.27	0.50	239.34	18	Cir	0.012	1.50	242.84	P-E-19
109	End	181.805	-177.284	MH	0.00	0.10	0.96	5.0	234.16	2.53	238.77	24	Cir	0.012	0.99	246.09	P-JB-E-2
108	107	89.304	37.323	Genr	0.00	0.20	0.73	5.0	255.47	0.50	255.92	18	Cir	0.012	1.00	259.42	P-C-34
107	105	78.374	-1.814	Genr	0.00	0.15	0.96	5.0	255.08	0.50	255.47	18	Cir	0.012	0.99	263.67	P-C-33
106	105	31.583	88.186	Genr	0.00	0.10	0.96	5.0	263.53	0.50	263.69	18	Cir	0.012	1.00	267.19	P-C-32A
105	104	108.535	-4.535	Genr	0.00	0.08	0.96	5.0	254.54	0.50	255.08	18	Cir	0.012	1.53	267.19	P-C-32
104	83	53.193	-58.440	Genr	0.00	0.07	0.96	5.0	254.27	0.50	254.54	18	Cir	0.012	0.50	272.52	P-C-31
103	73	31.583	-85.973	Genr	0.00	0.14	0.63	5.0	272.48	0.50	272.64	18	Cir	0.012	1.00	276.14	P-E-7A
102	84	31.583	-88.913	Genr	0.00	0.20	0.70	5.0	273.45	0.50	273.61	18	Cir	0.012	1.00	277.11	P-C-29A
101	76	31.643	-86.546	Genr	0.00	0.11	0.72	5.0	282.66	0.50	282.82	18	Cir	0.012	1.00	286.32	P-E-3A
100	End	110.292	-166.720	MH	10.00	0.00	0.00	0.0	282.16	1.81	284.16	24	Cir	0.012	1.00	288.16	OS-B-OFF

Project File: Final Storm Network.stm

Number of lines: 122

Date: 5/10/2024

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
99	86	32.756	-89.084	Genr	0.00	0.68	0.69	5.0	283.49	0.50	283.65	18	Cir	0.012	1.00	287.15	P-C-27A
98	End	109.322	-165.986	MH	10.00	0.00	0.00	0.0	287.61	0.50	288.16	24	Cir	0.012	1.00	292.16	OS-A-OFF
97	87	31.583	-90.000	Genr	0.00	0.08	0.96	5.0	290.67	0.50	290.83	18	Cir	0.012	1.00	294.33	P-C-26A
96	95	58.022	-22.283	Genr	0.00	0.10	0.67	5.0	307.95	6.62	311.79	18	Cir	0.012	1.00	315.29	P-E-4B
95	94	92.040	-0.123	Genr	0.00	0.09	0.64	5.0	300.95	7.61	307.95	18	Cir	0.012	0.65	311.45	P-E-4C
94	93	91.814	87.288	Genr	0.00	0.13	0.58	5.0	293.98	7.59	300.95	18	Cir	0.012	0.50	304.45	P-E-4D
93	76	80.595	98.991	Genr	0.00	0.12	0.66	5.0	282.81	10.00	290.87	18	Cir	0.012	1.50	297.48	P-E-4E
92	78	31.837	-83.848	Genr	0.00	0.18	0.62	5.0	292.45	0.50	292.61	18	Cir	0.012	1.00	296.11	P-E-1
91	88	31.583	-90.000	Genr	0.00	0.10	0.96	5.0	296.47	0.50	296.63	18	Cir	0.012	1.00	300.13	P-C-25A
90	89	31.583	-89.896	Genr	0.00	0.10	0.96	5.0	302.27	0.50	302.43	18	Cir	0.012	1.00	305.93	P-C-23
89	88	199.000	0.000	Genr	0.00	0.10	0.96	5.0	296.63	2.84	302.27	18	Cir	0.012	1.50	305.93	P-C-24
88	87	199.000	0.000	Genr	0.00	0.10	0.96	5.0	290.83	2.84	296.47	18	Cir	0.012	1.50	300.13	P-C-25
87	86	199.000	0.916	Genr	0.00	0.10	0.96	5.0	283.67	3.52	290.67	18	Cir	0.012	1.50	294.33	P-C-26
86	85	124.667	4.906	Genr	0.00	0.10	0.96	5.0	277.39	4.89	283.49	18	Cir	0.012	1.50	287.17	P-C-27
85	84	74.289	3.256	Genr	0.00	0.10	0.96	5.0	273.61	5.09	277.39	18	Cir	0.012	0.50	280.89	P-C-28
84	83	37.221	124.200	Genr	0.00	0.10	0.96	5.0	271.72	4.65	273.45	18	Cir	0.012	1.50	277.11	P-C-29
83	82	53.442	0.000	Genr	0.00	0.07	0.96	5.0	253.51	0.50	253.77	24	Cir	0.012	1.97	275.22	P-C-30
82	81	60.376	0.000	MH	0.00	0.87	0.96	5.0	239.52	10.00	245.56	24	Cir	0.012	0.15	258.82	P-JB-C-34
81	End	108.715	152.050	MH	0.00	0.87	0.96	5.0	214.96	10.00	225.83	30	Cir	0.012	0.15	243.52	P-JB-C-35
80	79	31.750	-88.986	Genr	0.00	0.13	0.67	5.0	302.31	0.50	302.47	18	Cir	0.012	1.00	305.97	P-E-2A
79	78	188.186	10.552	Genr	0.00	0.16	0.65	5.0	292.59	5.17	302.31	18	Cir	0.012	1.50	305.97	P-E-2B
78	77	97.034	10.144	Genr	0.00	0.20	0.80	5.0	287.39	5.22	292.45	18	Cir	0.012	1.49	296.09	P-E-2
77	76	85.235	8.064	Genr	0.00	0.28	0.63	5.0	282.81	5.37	287.39	18	Cir	0.012	0.50	290.89	P-E-3

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
76	75	64.132	7.044	Genr	0.00	0.09	0.57	5.0	279.38	5.12	282.66	18	Cir	0.012	2.25	286.31	P-E-4
75	74	63.707	6.882	Genr	0.00	0.11	0.48	5.0	275.97	5.35	279.38	18	Cir	0.012	0.50	282.88	P-E-5
74	73	62.146	7.426	Genr	0.00	0.10	0.47	5.0	272.64	5.36	275.97	18	Cir	0.012	0.50	279.47	P-E-6
73	72	73.633	8.055	Genr	0.00	0.08	0.57	5.0	268.69	5.15	272.48	18	Cir	0.012	1.50	276.14	P-E-7
72	71	73.633	7.958	Genr	0.00	0.06	0.62	5.0	264.74	5.36	268.69	18	Cir	0.012	0.50	272.19	P-E-8
71	70	71.861	7.861	Genr	0.00	0.09	0.49	5.0	260.89	5.36	264.74	18	Cir	0.012	0.50	268.24	P-E-9
70	69	71.861	-86.070	Genr	0.00	0.14	0.75	5.0	257.04	5.36	260.89	18	Cir	0.012	0.50	264.39	P-E-10
69	68	31.583	27.100	Genr	0.00	0.09	0.47	5.0	256.88	0.50	257.04	18	Cir	0.012	1.50	260.54	P-E-11
68	End	100.212	-70.523	Genr	0.00	0.09	0.55	5.0	256.38	0.50	256.88	18	Cir	0.012	0.77	260.54	P-E-12
67	13	31.715	-27.383	Genr	0.00	0.10	0.96	5.0	308.07	0.50	308.23	18	Cir	0.012	1.00	311.73	P-C-22A
66	65	100.000	90.000	Genr	0.00	0.23	0.90	5.0	321.43	0.50	321.93	18	Cir	0.012	1.00	325.43	P-C-15A
65	20	63.997	-90.000	Genr	0.00	0.26	0.83	5.0	320.82	0.95	321.43	18	Cir	0.012	1.50	325.43	P-C-15B
64	59	186.881	-90.071	MH	0.00	5.78	0.96	5.0	312.82	3.02	318.46	42	Cir	0.012	1.00	323.96	P-ROOF A-2
63	14	103.392	-89.701	Genr	0.00	0.30	0.96	5.0	312.26	4.99	317.42	18	Cir	0.012	1.00	320.92	P-C-21A
62	61	186.881	-90.018	MH	0.00	0.83	0.96	5.0	314.82	3.02	320.46	18	Cir	0.012	1.00	323.96	P-ROOF A-1
61	60	192.000	0.000	Genr	0.00	0.70	0.96	5.0	313.86	0.50	314.82	18	Cir	0.012	1.50	318.32	P-A-1
60	59	192.000	0.001	Genr	0.00	0.84	0.96	5.0	312.40	0.50	313.36	24	Cir	0.012	0.50	318.32	P-A-2
59	58	192.000	85.701	Genr	0.00	0.84	0.96	5.0	309.44	0.50	310.40	48	Cir	0.012	1.50	318.32	P-A-3
58	57	44.870	-0.712	Genr	0.00	0.84	0.96	5.0	295.75	10.00	300.24	48	Cir	0.012	1.50	318.32	P-A-4
57	End	34.034	-139.481	MH	0.00	0.83	0.96	5.0	289.26	10.00	292.66	48	Cir	0.012	0.15	301.75	P-JB-A-1
56	55	186.904	-89.370	MH	0.00	3.40	0.96	5.0	313.57	3.02	319.21	33	Cir	0.012	1.00	323.96	P-ROOF C-1
55	54	192.000	0.000	Genr	0.00	0.75	0.96	5.0	312.36	0.50	313.32	36	Cir	0.012	1.50	318.32	P-C-1
54	40	192.000	0.338	Genr	0.00	0.88	0.96	5.0	311.40	0.50	312.36	36	Cir	0.012	0.50	318.32	P-C-2

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Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
53	36	186.917	-131.216	MH	0.00	3.40	0.96	5.0	313.57	3.02	319.21	33	Cir	0.012	1.00	323.96	P-ROOF C-4
52	38	187.120	-90.030	MH	0.00	3.40	0.96	5.0	313.57	3.01	319.21	33	Cir	0.012	1.00	323.96	P-ROOF C-3
51	50	31.810	-8.629	Genr	0.00	0.40	0.36	5.0	312.64	0.50	312.80	18	Cir	0.012	1.00	316.30	P-C-3A
50	40	32.727	100.599	Genr	0.00	0.13	0.64	5.0	312.48	0.50	312.64	18	Cir	0.012	0.50	316.25	P-C-3B
49	45	186.868	-18.512	MH	0.00	2.89	0.96	5.0	313.82	3.02	319.46	30	Cir	0.012	1.00	323.96	P-ROOF B-2
48	47	186.868	90.566	MH	0.00	2.89	0.96	5.0	313.82	3.02	319.46	30	Cir	0.012	1.00	323.96	P-ROOF B-1
47	46	192.000	0.000	Genr	0.00	0.08	0.96	5.0	312.86	0.50	313.82	30	Cir	0.012	1.50	318.32	P-B-17A
46	45	192.000	-109.078	Genr	0.00	0.31	0.96	5.0	311.90	0.50	312.86	30	Cir	0.012	0.50	318.32	P-B-15B
45	44	48.441	-6.528	Genr	0.00	0.13	0.92	5.0	302.46	10.00	307.30	42	Cir	0.012	1.87	318.32	P-B-15C
44	1	112.488	-4.157	MH	0.00	5.78	0.96	5.0	290.56	10.00	301.81	48	Cir	0.012	0.15	307.96	P-JB-B-1
43	42	113.501	75.094	Genr	0.00	0.08	0.96	5.0	321.56	0.71	322.37	18	Cir	0.012	1.00	325.87	P-C-13A
42	22	63.997	-90.000	Genr	0.00	0.30	0.96	5.0	321.24	0.50	321.56	18	Cir	0.012	1.46	325.06	P-C-13B
41	40	186.848	-89.032	MH	0.00	3.40	0.96	5.0	313.57	3.02	319.21	33	Cir	0.012	1.00	323.96	P-ROOF C-2
40	39	190.878	-0.671	Genr	0.00	0.95	0.96	5.0	309.02	0.50	309.98	48	Cir	0.012	2.19	318.32	P-C-3
39	38	193.221	-0.066	Genr	0.00	1.67	0.64	5.0	308.06	0.50	309.02	48	Cir	0.012	0.50	318.30	P-C-4
38	37	192.000	0.000	Genr	0.00	1.34	0.71	5.0	307.10	0.50	308.06	48	Cir	0.012	1.50	318.32	P-C-5
37	36	192.000	-39.990	Genr	0.00	1.06	0.84	5.0	306.14	0.50	307.10	48	Cir	0.012	0.50	318.32	P-C-6
36	35	93.412	40.008	Genr	0.00	1.39	0.71	5.0	305.67	0.50	306.14	48	Cir	0.012	1.50	318.32	P-C-7
35	26	99.432	-0.048	Genr	0.00	0.19	0.71	5.0	305.17	0.50	305.67	48	Cir	0.012	1.04	321.22	P-C-8
34	33	78.278	-15.158	Genr	0.00	0.15	0.96	5.0	321.50	0.70	322.05	18	Cir	0.012	1.00	325.55	P-B-1
33	32	81.408	36.985	Genr	0.00	0.25	0.92	5.0	320.61	1.09	321.50	18	Cir	0.012	0.50	325.00	P-B-2
32	31	98.140	10.570	Genr	0.00	0.55	0.94	5.0	318.88	1.76	320.61	18	Cir	0.012	0.98	324.11	P-B-3
31	30	175.000	17.326	Genr	0.00	0.00	0.81	5.0	318.01	0.50	318.88	18	Cir	0.012	0.50	322.38	P-B-4

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Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
30	29	205.713	59.273	Genr	0.00	0.01	0.96	5.0	316.98	0.50	318.01	18	Cir	0.012	0.52	322.38	P-B-5
29	9	101.222	-54.587	Genr	0.00	0.92	0.94	5.0	316.47	0.50	316.98	18	Cir	0.012	1.33	324.72	P-B-6
28	18	53.290	-108.071	Genr	0.00	0.27	0.96	5.0	318.13	6.44	321.56	18	Cir	0.012	1.00	325.06	P-C-17A
27	26	54.997	-90.030	Genr	0.00	0.31	0.96	5.0	318.92	4.80	321.56	18	Cir	0.012	1.00	325.06	P-C-9A
26	25	45.000	-7.648	Genr	0.00	0.24	0.83	5.0	304.95	0.50	305.17	48	Cir	0.012	1.58	322.42	P-C-9
25	24	86.940	-38.442	Genr	0.00	0.13	0.90	5.0	304.51	0.50	304.95	48	Cir	0.012	0.50	322.96	P-C-10
24	23	89.597	-39.210	Genr	0.00	0.19	0.77	5.0	304.06	0.50	304.51	48	Cir	0.012	1.01	323.79	P-C-11
23	22	118.046	-4.670	Genr	0.00	0.47	0.74	5.0	303.47	0.50	304.06	48	Cir	0.012	1.02	324.73	P-C-12
22	21	147.500	0.000	Genr	0.00	0.24	0.62	5.0	302.74	0.50	303.47	48	Cir	0.012	1.50	326.16	P-C-13
21	20	147.500	0.000	Genr	0.00	0.11	0.71	5.0	302.00	0.50	302.74	48	Cir	0.012	0.50	326.18	P-C-14
20	19	111.418	-8.714	Genr	0.00	0.17	0.78	5.0	301.44	0.50	302.00	48	Cir	0.012	1.50	324.32	P-C-15
19	18	109.044	-36.369	Genr	0.00	0.35	0.80	5.0	300.90	0.50	301.44	48	Cir	0.012	0.50	322.92	P-C-16
18	17	87.384	-9.796	Genr	0.00	0.16	0.80	5.0	300.46	0.50	300.90	48	Cir	0.012	1.50	321.63	P-C-17
17	16	103.032	16.802	Genr	0.00	0.12	0.82	5.0	299.95	0.50	300.46	48	Cir	0.012	0.50	320.61	P-C-18
16	15	41.791	11.238	Genr	0.00	0.14	0.88	5.0	299.74	0.50	299.95	48	Cir	0.012	0.51	319.27	P-C-19
15	14	104.784	-21.649	Genr	0.00	0.20	0.96	5.0	299.21	0.50	299.74	48	Cir	0.012	0.50	318.62	P-C-20
14	13	146.454	45.450	Genr	0.00	0.30	0.48	5.0	298.48	0.50	299.21	48	Cir	0.012	1.50	315.76	P-C-21
13	12	100.000	0.000	Genr	0.00	0.10	0.96	5.0	277.52	10.00	287.52	48	Cir	0.012	1.16	311.67	P-C-22
12	11	100.000	-49.394	MH	0.00	6.06	0.96	5.0	246.10	10.00	256.10	48	Cir	0.012	0.15	283.52	P-JB-C-2
11	End	101.499	-92.060	MH	0.00	6.06	0.96	5.0	222.00	10.00	232.15	48	Cir	0.012	0.80	252.10	P-JB-C-3
10	9	99.160	112.902	Genr	0.00	0.25	0.96	5.0	321.06	0.50	321.56	18	Cir	0.012	1.00	325.06	P-B-7A
9	8	115.238	-33.390	Genr	0.00	1.03	0.95	5.0	315.39	0.50	315.97	24	Cir	0.012	1.90	326.13	P-B-7
8	7	75.400	100.659	Genr	0.00	0.14	0.96	5.0	315.02	0.50	315.39	24	Cir	0.012	0.91	323.08	P-B-8

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
7	6	86.529	-1.584	Genr	0.00	0.01	0.96	5.0	314.46	0.64	315.02	24	Cir	0.012	1.50	321.19	P-B-9
6	5	149.260	-0.184	Genr	0.00	0.11	0.83	5.0	307.87	4.42	314.46	24	Cir	0.012	0.50	318.46	P-B-10
5	4	121.194	-9.305	Genr	0.00	0.10	0.96	5.0	302.47	4.46	307.87	24	Cir	0.012	0.50	311.87	P-B-11
4	3	72.580	-8.019	Genr	0.00	0.16	0.96	5.0	298.65	4.57	301.97	30	Cir	0.012	0.50	306.47	P-B-12
3	2	86.500	-7.114	Genr	0.00	0.43	0.59	5.0	294.72	4.54	298.65	30	Cir	0.012	0.50	303.15	P-B-13
2	1	58.560	-92.839	Genr	0.00	0.22	0.72	5.0	292.06	4.54	294.72	30	Cir	0.012	0.50	299.22	P-B-14
1	End	42.707	-114.730	Genr	0.00	0.13	0.73	5.0	285.26	10.00	289.53	48	Cir	0.012	1.54	296.56	P-B-15

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Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
122	OS-C-1	Manhole	218.16	Rect	2.00	4.00	33	Cir	213.41			
121	OS-RG-2	Manhole	231.63	Cir	3.00	3.00	18	Cir	228.13			
120	OS-RG-1	Manhole	236.13	Cir	3.00	3.00	18	Cir	232.63			
119	I-E-17A	Generic	244.86	Rect	3.00	3.00	18	Cir	241.36			
118	OS-E-1	Manhole	257.16	Cir	4.00	4.00	24	Cir	253.16			
117	JB-E-1	Manhole	246.02	Cir	4.00	4.00	24	Cir	242.02	24	Cir	242.02
116	I-E-13	Generic	253.08	Rect	3.00	3.00	18	Cir	249.58			
115	I-E-14	Generic	253.08	Rect	3.00	3.00	18	Cir	249.42	18	Cir	249.42
114	I-E-15	Generic	249.02	Rect	3.00	3.00	18	Cir	245.52	18	Cir	245.52
113	I-E-16	Generic	246.69	Rect	3.00	3.00	18	Cir	243.19	18	Cir	243.19
112	I-E-17	Generic	245.07	Rect	3.00	3.00	18	Cir	241.17	18 18	Cir Cir	241.57 241.17
111	I-E-18	Generic	243.86	Rect	3.00	3.00	18	Cir	240.36	18	Cir	240.36
110	I-E-19	Generic	242.84	Rect	3.00	3.00	18	Cir	239.34	18	Cir	239.34
109	JB-E-2	Manhole	246.09	Cir	4.00	4.00	24	Cir	238.77	18 24	Cir Cir	239.27 241.51
108	I-C-34	Generic	259.42	Rect	3.00	3.00	18	Cir	255.92			
107	I-C-33	Generic	263.67	Rect	3.00	3.00	18	Cir	255.47	18	Cir	255.47
106	I-C-32A	Generic	267.19	Rect	3.00	3.00	18	Cir	263.69			
105	I-C-32	Generic	267.19	Rect	3.00	3.00	18	Cir	255.08	18 18	Cir Cir	263.53 255.08
104	I-C-31	Generic	272.52	Rect	3.00	3.00	18	Cir	254.54	18	Cir	254.54
103	I-E-7A	Generic	276.14	Rect	3.00	3.00	18	Cir	272.64			
102	I-C-29A	Generic	277.11	Rect	3.00	3.00	18	Cir	273.61			

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Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
101	I-E-4A	Generic	286.32	Rect	3.00	3.00	18	Cir	282.82			
100	OS-B-1	Manhole	288.16	Cir	4.00	4.00	24	Cir	284.16			
99	I-C-27A	Generic	287.15	Rect	3.00	3.00	18	Cir	283.65			
98	OS-A-1	Manhole	292.16	Cir	4.00	4.00	24	Cir	288.16			
97	I-C-26A	Generic	294.33	Rect	3.00	3.00	18	Cir	290.83			
96	I-E-4B	Generic	315.29	Rect	3.00	3.00	18	Cir	311.79			
95	I-E-4C	Generic	311.45	Rect	3.00	3.00	18	Cir	307.95	18	Cir	307.95
94	I-E-4D	Generic	304.45	Rect	3.00	3.00	18	Cir	300.95	18	Cir	300.95
93	I-E-4E	Generic	297.48	Rect	3.00	3.00	18	Cir	290.87	18	Cir	293.98
92	I-E-1	Generic	296.11	Rect	3.00	3.00	18	Cir	292.61			
91	I-C-25A	Generic	300.13	Rect	3.00	3.00	18	Cir	296.63			
90	I-C-23	Generic	305.93	Rect	3.00	3.00	18	Cir	302.43			
89	I-C-24	Generic	305.93	Rect	3.00	3.00	18	Cir	302.27	18	Cir	302.27
88	I-C-25	Generic	300.13	Rect	3.00	3.00	18	Cir	296.47	18 18	Cir Cir	296.63 296.47
87	I-C-26	Generic	294.33	Rect	3.00	3.00	18	Cir	290.67	18 18	Cir Cir	290.83 290.67
86	I-C-27	Generic	287.17	Rect	3.00	3.00	18	Cir	283.49	18 18	Cir Cir	283.67 283.49
85	I-C-28	Generic	280.89	Rect	3.00	3.00	18	Cir	277.39	18	Cir	277.39
84	I-C-29	Generic	277.11	Rect	3.00	3.00	18	Cir	273.45	18 18	Cir Cir	273.61 273.45
83	I-C-30	Generic	275.22	Rect	3.00	3.00	24	Cir	253.77	18 18	Cir Cir	271.72 254.27
82	JB-C-4	Manhole	258.82	Cir	4.00	4.00	24	Cir	245.56	24	Cir	253.51

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
81	JB-C-35	Manhole	243.52	Cir	4.00	4.00	30	Cir	225.83	24	Cir	239.52
80	I-E-2A	Generic	305.97	Rect	3.00	3.00	18	Cir	302.47			
79	I-E-2B	Generic	305.97	Cir	3.00	3.00	18	Cir	302.31	18	Cir	302.31
78	I-E-2	Generic	296.09	Rect	3.00	3.00	18	Cir	292.45	18 18	Cir Cir	292.59 292.45
77	I-E-3	Generic	290.89	Cir	3.00	3.00	18	Cir	287.39	18	Cir	287.39
76	I-E-4	Generic	286.31	Rect	3.00	3.00	18	Cir	282.66	18 18 18	Cir Cir Cir	282.81 282.81 282.66
75	I-E-5	Generic	282.88	Rect	3.00	3.00	18	Cir	279.38	18	Cir	279.38
74	I-E-6	Generic	279.47	Rect	3.00	3.00	18	Cir	275.97	18	Cir	275.97
73	I-E-7	Generic	276.14	Rect	3.00	3.00	18	Cir	272.48	18 18	Cir Cir	272.64 272.48
72	I-E-8	Generic	272.19	Rect	3.00	3.00	18	Cir	268.69	18	Cir	268.69
71	I-E-9	Generic	268.24	Rect	3.00	3.00	18	Cir	264.74	18	Cir	264.74
70	I-E-10	Generic	264.39	Rect	3.00	3.00	18	Cir	260.89	18	Cir	260.89
69	I-E-11	Generic	260.54	Rect	3.00	3.00	18	Cir	257.04	18	Cir	257.04
68	I-E-12	Generic	260.54	Rect	3.00	3.00	18	Cir	256.88	18	Cir	256.88
67	I-C-22A	Generic	311.73	Cir	3.00	3.00	18	Cir	308.23			
66	I-C-15A	Generic	325.43	Rect	3.00	3.00	18	Cir	321.93			
65	I-C-15B	Generic	325.43	Rect	3.00	3.00	18	Cir	321.43	18	Cir	321.43
64	JB-ROOF A-2	Manhole	323.96	Cir	4.00	4.00	42	Cir	318.46			
63	I-C-21A	Generic	320.92	Rect	3.00	3.00	18	Cir	317.42			
62	JB-ROOF A-1	Manhole	323.96	Cir	4.00	4.00	18	Cir	320.46			
61	I-A-1	Generic	318.32	Rect	3.00	3.00	18	Cir	314.82	18	Cir	314.82

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
60	I-A-2	Generic	318.32	Rect	3.00	3.00	24	Cir	313.36	18	Cir	313.86
59	I-A-3	Generic	318.32	Rect	3.00	3.00	48	Cir	310.40	24 42	Cir Cir	312.40 312.82
58	I-A-4	Generic	318.32	Rect	3.00	3.00	48	Cir	300.24	48	Cir	309.44
57	JB-A-1	Manhole	301.75	Cir	4.00	4.00	48	Cir	292.66	48	Cir	295.75
56	JB-ROOF C-1	Manhole	323.96	Cir	4.00	4.00	33	Cir	319.21			
55	I-C-1	Generic	318.32	Rect	3.00	3.00	36	Cir	313.32	33	Cir	313.57
54	I-C-2	Generic	318.32	Rect	3.00	3.00	36	Cir	312.36	36	Cir	312.36
53	JB-ROOF C-4	Manhole	323.96	Cir	4.00	4.00	33	Cir	319.21			
52	JB-ROOF C-3	Manhole	323.96	Cir	4.00	4.00	33	Cir	319.21			
51	I-C-3A	Generic	316.30	Rect	3.00	3.00	18	Cir	312.80			
50	I-C-3B	Generic	316.25	Rect	3.00	3.00	18	Cir	312.64	18	Cir	312.64
49	JB-ROOF B-2	Manhole	323.96	Cir	4.00	4.00	30	Cir	319.46			
48	JB-ROOF B-1	Manhole	323.96	Cir	4.00	4.00	30	Cir	319.46			
47	I-B-15A	Generic	318.32	Rect	3.00	3.00	30	Cir	313.82	30	Cir	313.82
46	I-B-15B	Generic	318.32	Rect	3.00	3.00	30	Cir	312.86	30	Cir	312.86
45	I-B-15C	Generic	318.32	Rect	3.00	3.00	42	Cir	307.30	30 30	Cir Cir	311.90 313.82
44	JB-B-1	Manhole	307.96	Cir	4.00	4.00	48	Cir	301.81	42	Cir	302.46
43	I-C-13A	Generic	325.87	Rect	3.00	3.00	18	Cir	322.37			
42	I-C-13B	Generic	325.06	Rect	3.00	3.00	18	Cir	321.56	18	Cir	321.56
41	JB-ROOF C-2	Manhole	323.96	Cir	4.00	4.00	33	Cir	319.21			
40	I-C-3	Generic	318.32	Rect	3.00	3.00	48	Cir	309.98	33 18 36	Cir Cir Cir	313.57 312.48 311.40

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
39	I-C-4	Generic	318.30	Rect	3.00	3.00	48	Cir	309.02	48	Cir	309.02
38	I-C-5	Generic	318.32	Rect	3.00	3.00	48	Cir	308.06	48 33	Cir Cir	308.06 313.57
37	I-C-6	Generic	318.32	Rect	3.00	3.00	48	Cir	307.10	48	Cir	307.10
36	I-C-7	Generic	318.32	Rect	3.00	3.00	48	Cir	306.14	48 33	Cir Cir	306.14 313.57
35	I-C-8	Generic	321.22	Rect	3.00	3.00	48	Cir	305.67	48	Cir	305.67
34	I-B-1	Generic	325.55	Cir	3.00	3.00	18	Cir	322.05			
33	I-B-2	Generic	325.00	Rect	3.00	3.00	18	Cir	321.50	18	Cir	321.50
32	I-B-3	Generic	324.11	Cir	3.00	3.00	18	Cir	320.61	18	Cir	320.61
31	I-B-4	Generic	322.38	Rect	3.00	3.00	18	Cir	318.88	18	Cir	318.88
30	I-B-5	Generic	322.38	Rect	3.00	3.00	18	Cir	318.01	18	Cir	318.01
29	I-B-6	Generic	324.72	Rect	3.00	3.00	18	Cir	316.98	18	Cir	316.98
28	I-C-17A	Generic	325.06	Rect	3.00	3.00	18	Cir	321.56			
27	I-C-9A	Generic	325.06	Rect	3.00	3.00	18	Cir	321.56			
26	I-C-9	Generic	322.42	Rect	3.00	3.00	48	Cir	305.17	18 48	Cir Cir	318.92 305.17
25	I-C-10	Generic	322.96	Rect	3.00	3.00	48	Cir	304.95	48	Cir	304.95
24	I-C-11	Generic	323.79	Rect	3.00	3.00	48	Cir	304.51	48	Cir	304.51
23	I-C-12	Generic	324.73	Rect	3.00	3.00	48	Cir	304.06	48	Cir	304.06
22	I-C-13	Generic	326.16	Rect	3.00	3.00	48	Cir	303.47	48 18	Cir Cir	303.47 321.24
21	I-C-14	Generic	326.18	Rect	3.00	3.00	48	Cir	302.74	48	Cir	302.74
20	I-C-15	Generic	324.32	Rect	3.00	3.00	48	Cir	302.00	48 18	Cir Cir	302.00 320.82

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
19	I-C-16	Generic	322.92	Rect	3.00	3.00	48	Cir	301.44	48	Cir	301.44
18	I-C-17	Generic	321.63	Rect	3.00	3.00	48	Cir	300.90	48 18	Cir Cir	300.90 318.13
17	I-C-18	Generic	320.61	Rect	3.00	3.00	48	Cir	300.46	48	Cir	300.46
16	I-C-19	Generic	319.27	Rect	3.00	3.00	48	Cir	299.95	48	Cir	299.95
15	I-C-20	Generic	318.62	Rect	3.00	3.00	48	Cir	299.74	48	Cir	299.74
14	I-C-21	Generic	315.76	Cir	3.00	3.00	48	Cir	299.21	48 18	Cir Cir	299.21 312.26
13	I-C-22	Generic	311.67	Rect	3.00	3.00	48	Cir	287.52	48 18	Cir Cir	298.48 308.07
12	JB-C-2	Manhole	283.52	Cir	4.00	4.00	48	Cir	256.10	48	Cir	277.52
11	JB-C-3	Manhole	252.10	Cir	4.00	4.00	48	Cir	232.15	48	Cir	246.10
10	I-B-7A	Generic	325.06	Rect	3.00	3.00	18	Cir	321.56			
9	I-B-7	Generic	326.13	Rect	3.00	3.00	24	Cir	315.97	18 18	Cir Cir	321.06 316.47
8	I-B-8	Generic	323.08	Rect	3.00	3.00	24	Cir	315.39	24	Cir	315.39
7	I-B-9	Generic	321.19	Rect	3.00	3.00	24	Cir	315.02	24	Cir	315.02
6	I-B-10	Generic	318.46	Rect	3.00	3.00	24	Cir	314.46	24	Cir	314.46
5	I-B-11	Generic	311.87	Rect	3.00	3.00	24	Cir	307.87	24	Cir	307.87
4	I-B-12	Generic	306.47	Rect	3.00	3.00	30	Cir	301.97	24	Cir	302.47
3	I-B-13	Generic	303.15	Rect	3.00	3.00	30	Cir	298.65	30	Cir	298.65
2	I-B-14	Generic	299.22	Cir	3.00	3.00	30	Cir	294.72	30	Cir	294.72
1	I-B-15	Generic	296.56	Rect	3.00	3.00	48	Cir	289.53	30 48	Cir Cir	292.06 290.56

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
122	OS-C-OFF	20.00	33	Cir	68.703	209.73	213.41	5.356	214.60	214.88	n/a	214.88	End	Manhole
121	OS-RG-2-OFF	0.95	18	Cir	79.896	226.95	228.13	1.477	227.48	228.42	n/a	228.42	End	Manhole
120	OS-RG-1-OFF	0.68	18	Cir	49.000	230.13	232.63	5.102	230.56	232.87	n/a	232.87	End	Manhole
119	P-E-17A	0.89	18	Cir	38.810	241.17	241.36	0.500	241.62	241.64	n/a	241.64	112	Generic
118	OS-E-OFF	10.00	24	Cir	136.094	242.02	253.16	8.186	243.18	254.29	n/a	254.29	117	Manhole
117	P-JB-E-1	10.87	24	Cir	101.206	241.51	242.02	0.500	242.64	243.18	n/a	243.18	109	Manhole
116	P-E-13	0.94	18	Cir	31.583	249.42	249.58	0.500	249.73	249.87	n/a	249.87	115	Generic
115	P-E-14	1.14	18	Cir	80.484	245.52	249.42	4.848	245.84	249.73	n/a	249.73	114	Generic
114	P-E-15	1.29	18	Cir	50.530	243.19	245.52	4.611	243.54	245.84	n/a	245.84	113	Generic
113	P-E-16	1.63	18	Cir	59.438	241.57	243.19	2.726	241.79	243.54	n/a	243.54	112	Generic
112	P-E-17	2.75	18	Cir	35.268	240.36	241.17	2.285	240.85	241.62	n/a	241.62	111	Generic
111	P-E-18	3.19	18	Cir	31.498	239.34	240.36	3.238	239.85	240.85	n/a	240.85	110	Generic
110	P-E-19	3.40	18	Cir	14.652	239.27	239.34	0.500	240.04	239.85	n/a	239.85	109	Generic
109	P-JB-E-2	14.82	24	Cir	181.805	234.16	238.77	2.534	235.29	240.04	n/a	240.04	End	Manhole
108	P-C-34	1.32	18	Cir	89.304	255.47	255.92	0.500	255.92	256.26	n/a	256.26	107	Generic
107	P-C-33	2.44	18	Cir	78.374	255.08	255.47	0.500	255.64	255.92	n/a	255.92	105	Generic
106	P-C-32A	0.87	18	Cir	31.583	263.53	263.69	0.500	263.80	263.96	n/a	263.96	105	Generic
105	P-C-32	3.78	18	Cir	108.535	254.54	255.08	0.500	255.12	255.64	n/a	255.64	104	Generic
104	P-C-31	4.23	18	Cir	53.193	254.27	254.54	0.500	254.83	255.12	n/a	255.12	83	Generic
103	P-E-7A	0.80	18	Cir	31.583	272.48	272.64	0.500	273.30	272.90	n/a	272.90	73	Generic
102	P-C-29A	1.27	18	Cir	31.583	273.45	273.61	0.500	274.33	273.94	n/a	273.94	84	Generic
101	P-E-3A	0.72	18	Cir	31.643	282.66	282.82	0.500	283.41	283.07	n/a	283.07	76	Generic
100	OS-B-OFF	10.00	24	Cir	110.292	282.16	284.16	1.813	283.13	285.29	n/a	285.29	End	Manhole
99	P-C-27A	4.24	18	Cir	32.756	283.49	283.65	0.500	284.26	284.27	n/a	284.27	86	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Return period = 50 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
98	OS-A-OFF	10.00	24	Cir	109.322	287.61	288.16	0.500	289.05	289.29	n/a	289.29	End	Manhole
97	P-C-26A	0.69	18	Cir	31.583	290.67	290.83	0.500	291.23	291.07	n/a	291.07	87	Generic
96	P-E-4B	0.61	18	Cir	58.022	307.95	311.79	6.618	308.23	312.02	n/a	312.02	95	Generic
95	P-E-4C	1.02	18	Cir	92.040	300.95	307.95	7.605	301.29	308.23	n/a	308.23	94	Generic
94	P-E-4D	1.52	18	Cir	91.814	293.98	300.95	7.591	294.15	301.29	n/a	301.29	93	Generic
93	P-E-4E	2.03	18	Cir	80.595	282.81	290.87	10.000	283.41	291.25	n/a	291.25	76	Generic
92	P-E-1	1.01	18	Cir	31.837	292.45	292.61	0.500	292.98	292.91	n/a	292.91	78	Generic
91	P-C-25A	0.87	18	Cir	31.583	296.47	296.63	0.500	296.95	296.90	n/a	296.90	88	Generic
90	P-C-23	0.87	18	Cir	31.583	302.27	302.43	0.500	302.65	302.70	n/a	302.70	89	Generic
89	P-C-24	1.67	18	Cir	199.000	296.63	302.27	2.835	296.95	302.65	n/a	302.65	88	Generic
88	P-C-25	2.99	18	Cir	199.000	290.83	296.47	2.835	291.23	296.95	n/a	296.95	87	Generic
87	P-C-26	4.11	18	Cir	199.000	283.67	290.67	3.519	284.26	291.23	n/a	291.23	86	Generic
86	P-C-27	7.99	18	Cir	124.667	277.39	283.49	4.890	278.19	284.26	n/a	284.26	85	Generic
85	P-C-28	8.58	18	Cir	74.289	273.61	277.39	5.088	274.33	278.19	n/a	278.19	84	Generic
84	P-C-29	10.17	18	Cir	37.221	271.72	273.45	4.653	272.19	274.33	n/a	274.33	83	Generic
83	P-C-30	14.32	24	Cir	53.442	253.51	253.77	0.500	254.41	254.73	n/a	254.73	82	Generic
82	P-JB-C-34	20.05	24	Cir	60.376	239.52	245.56	10.000	240.01	246.70	n/a	246.70	81	Manhole
81	P-JB-C-35	25.75	30	Cir	108.715	214.96	225.83	10.000	217.24	227.04	n/a	227.04	End	Manhole
80	P-E-2A	0.79	18	Cir	31.750	302.31	302.47	0.500	302.68	302.73	n/a	302.73	79	Generic
79	P-E-2B	1.66	18	Cir	188.186	292.59	302.31	5.166	292.98	302.68	n/a	302.68	78	Generic
78	P-E-2	3.60	18	Cir	97.034	287.39	292.45	5.215	288.01	292.98	n/a	292.98	77	Generic
77	P-E-3	4.87	18	Cir	85.235	282.81	287.39	5.373	283.41	288.01	n/a	288.01	76	Generic
76	P-E-4	7.41	18	Cir	64.132	279.38	282.66	5.117	280.14	283.41	n/a	283.41	75	Generic
75	P-E-5	7.74	18	Cir	63.707	275.97	279.38	5.353	276.74	280.14	n/a	280.14	74	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

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Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
74	P-E-6	8.02	18	Cir	62.146	272.64	275.97	5.358	273.30	276.74	n/a	276.74	73	Generic
73	P-E-7	8.91	18	Cir	73.633	268.69	272.48	5.150	269.51	273.30	n/a	273.30	72	Generic
72	P-E-8	9.12	18	Cir	73.633	264.74	268.69	5.364	265.57	269.51	n/a	269.51	71	Generic
71	P-E-9	9.37	18	Cir	71.861	260.89	264.74	5.358	261.75	265.57	n/a	265.57	70	Generic
70	P-E-10	10.04	18	Cir	71.861	257.04	260.89	5.358	257.91	261.75	n/a	261.75	69	Generic
69	P-E-11	10.28	18	Cir	31.583	256.88	257.04	0.500	258.08	257.91	n/a	257.91	68	Generic
68	P-E-12	10.60	18	Cir	100.212	256.38	256.88	0.500	257.70	257.85	n/a	258.08	End	Generic
67	P-C-22A	0.87	18	Cir	31.715	308.07	308.23	0.500	308.34	308.50	n/a	308.50	13	Generic
66	P-C-15A	1.87	18	Cir	100.000	321.43	321.93	0.500	321.98	322.34	n/a	322.34	65	Generic
65	P-C-15B	3.61	18	Cir	63.997	320.82	321.43	0.953	321.27	321.98	n/a	321.98	20	Generic
64	P-ROOF A-2	50.16	42	Cir	186.881	312.82	318.46	3.018	313.79	320.20	n/a	320.20	59	Manhole
63	P-C-21A	2.60	18	Cir	103.392	312.26	317.42	4.991	312.52	317.90	n/a	317.90	14	Generic
62	P-ROOF A-1	7.20	18	Cir	186.881	314.82	320.46	3.018	316.65	321.28	n/a	321.28	61	Manhole
61	P-A-1	12.92	18	Cir	192.000	313.86	314.82	0.500	315.07	316.03	n/a	316.65	60	Generic
60	P-A-2	19.70	24	Cir	192.000	312.40	313.36	0.500	313.62	314.60	n/a	314.60	59	Generic
59	P-A-3	73.36	48	Cir	192.000	309.44	310.40	0.500	311.19	312.37	n/a	312.37	58	Generic
58	P-A-4	78.67	48	Cir	44.870	295.75	300.24	10.000	296.57	302.26	n/a	302.26	57	Generic
57	P-JB-A-1	84.95	48	Cir	34.034	289.26	292.66	10.000	292.28	294.76	n/a	294.76	End	Manhole
56	P-ROOF C-1	29.51	33	Cir	186.904	313.57	319.21	3.018	314.82	320.63	n/a	320.63	55	Manhole
55	P-C-1	35.20	36	Cir	192.000	312.36	313.32	0.500	313.97	314.82	n/a	314.82	54	Generic
54	P-C-2	41.70	36	Cir	192.000	311.40	312.36	0.500	312.88	313.97	n/a	313.97	40	Generic
53	P-ROOF C-4	29.51	33	Cir	186.917	313.57	319.21	3.017	314.38	320.63	n/a	320.63	36	Manhole
52	P-ROOF C-3	29.51	33	Cir	187.120	313.57	319.21	3.014	314.38	320.63	n/a	320.63	38	Manhole
51	P-C-3A	1.30	18	Cir	31.810	312.64	312.80	0.500	313.05	313.14	n/a	313.14	50	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

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Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
50	P-C-3B	2.00	18	Cir	32.727	312.48	312.64	0.500	312.87	313.05	n/a	313.05	40	Generic
49	P-ROOF B-2	25.08	30	Cir	186.868	313.82	319.46	3.018	314.59	320.80	n/a	320.80	45	Manhole
48	P-ROOF B-1	25.08	30	Cir	186.868	313.82	319.46	3.018	315.15	320.80	n/a	320.80	47	Manhole
47	P-B-17A	25.21	30	Cir	192.000	312.86	313.82	0.500	314.23	315.15	n/a	315.15	46	Generic
46	P-B-15B	27.22	30	Cir	192.000	311.90	312.86	0.500	313.18	314.23	n/a	314.23	45	Generic
45	P-B-15C	51.18	42	Cir	48.441	302.46	307.30	10.000	304.09	309.00	n/a	309.00	44	Generic
44	P-JB-B-1	97.66	48	Cir	112.488	290.56	301.81	10.000	291.86	304.09	n/a	304.09	1	Manhole
43	P-C-13A	0.69	18	Cir	113.501	321.56	322.37	0.714	322.02	322.61	n/a	322.61	42	Generic
42	P-C-13B	2.81	18	Cir	63.997	321.24	321.56	0.500	321.68	322.02	n/a	322.02	22	Generic
41	P-ROOF C-2	29.51	33	Cir	186.848	313.57	319.21	3.018	314.38	320.63	n/a	320.63	40	Manhole
40	P-C-3	78.20	48	Cir	190.878	309.02	309.98	0.500	311.14	312.01	n/a	312.01	39	Generic
39	P-C-4	85.69	48	Cir	193.221	308.06	309.02	0.500	310.54	311.14	n/a	311.14	38	Generic
38	P-C-5	118.8	48	Cir	192.000	307.10	308.06	0.500	309.63	310.54	n/a	310.54	37	Generic
37	P-C-6	124.6	48	Cir	192.000	306.14	307.10	0.500	308.98	309.63	n/a	309.63	36	Generic
36	P-C-7	157.2	48	Cir	93.412	305.67	306.14	0.500	308.51	308.98	n/a	308.98	35	Generic
35	P-C-8	157.5	48	Cir	99.432	305.17	305.67	0.500	308.03	308.51	n/a	308.51	26	Generic
34	P-B-1	1.30	18	Cir	78.278	321.50	322.05	0.703	322.02	322.39	n/a	322.39	33	Generic
33	P-B-2	3.18	18	Cir	81.408	320.61	321.50	1.093	321.40	322.02	n/a	322.02	32	Generic
32	P-B-3	7.38	18	Cir	98.140	318.88	320.61	1.763	319.66	321.40	n/a	321.40	31	Generic
31	P-B-4	7.29	18	Cir	175.000	318.01	318.88	0.500	319.06	319.66	n/a	319.66	30	Generic
30	P-B-5	7.21	18	Cir	205.713	316.98	318.01	0.500	318.69	318.96	n/a	319.06	29	Generic
29	P-B-6	13.78	18	Cir	101.222	316.47	316.98	0.500	317.63	318.13	n/a	318.69	9	Generic
28	P-C-17A	2.34	18	Cir	53.290	318.13	321.56	6.436	318.36	322.02	n/a	322.02	18	Generic
27	P-C-9A	2.69	18	Cir	54.997	318.92	321.56	4.800	319.19	322.05	n/a	322.05	26	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

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Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
26	P-C-9	160.7	48	Cir	45.000	304.95	305.17	0.500	307.81	308.03	n/a	308.03	25	Generic
25	P-C-10	161.3	48	Cir	86.940	304.51	304.95	0.500	307.37	307.81	n/a	307.81	24	Generic
24	P-C-11	161.8	48	Cir	89.597	304.06	304.51	0.500	306.94	307.37	n/a	307.37	23	Generic
23	P-C-12	163.9	48	Cir	118.046	303.47	304.06	0.500	306.30	306.94	n/a	306.94	22	Generic
22	P-C-13	162.0	48	Cir	147.500	302.74	303.47	0.500	305.55	306.30	n/a	306.30	21	Generic
21	P-C-14	161.5	48	Cir	147.500	302.00	302.74	0.500	304.83	305.55	n/a	305.55	20	Generic
20	P-C-15	164.6	48	Cir	111.418	301.44	302.00	0.500	304.28	304.83	n/a	304.83	19	Generic
19	P-C-16	165.9	48	Cir	109.044	300.90	301.44	0.500	303.75	304.28	n/a	304.28	18	Generic
18	P-C-17	167.9	48	Cir	87.384	300.46	300.90	0.500	303.31	303.75	n/a	303.75	17	Generic
17	P-C-18	168.0	48	Cir	103.032	299.95	300.46	0.500	302.79	303.31	n/a	303.31	16	Generic
16	P-C-19	168.2	48	Cir	41.791	299.74	299.95	0.500	302.59	302.79	n/a	302.79	15	Generic
15	P-C-20	169.3	48	Cir	104.784	299.21	299.74	0.500	302.08	302.59	n/a	302.59	14	Generic
14	P-C-21	171.7	48	Cir	146.454	298.48	299.21	0.500	301.22	302.08	n/a	302.08	13	Generic
13	P-C-22	172.0	48	Cir	100.000	277.52	287.52	10.000	278.67	290.38	n/a	290.38	12	Generic
12	P-JB-C-2	213.2	48	Cir	100.000	246.10	256.10	10.000	247.39	259.27	n/a	259.27	11	Manhole
11	P-JB-C-3	254.3	48	Cir	101.499	222.00	232.15	10.000	224.04	235.57	n/a	235.57	End	Manhole
10	P-B-7A	2.17	18	Cir	99.160	321.06	321.56	0.500	321.48	322.00	n/a	322.00	9	Generic
9	P-B-7	23.15	24	Cir	115.238	315.39	315.97	0.500	316.69	317.25	n/a	317.25	8	Generic
8	P-B-8	24.00	24	Cir	75.400	315.02	315.39	0.500	316.31	316.69	n/a	316.69	7	Generic
7	P-B-9	23.96	24	Cir	86.529	314.46	315.02	0.644	315.77	316.31	n/a	316.31	6	Generic
6	P-B-10	24.52	24	Cir	149.260	307.87	314.46	4.415	309.18	315.77	n/a	315.77	5	Generic
5	P-B-11	25.00	24	Cir	121.194	302.47	307.87	4.456	303.22	309.18	n/a	309.18	4	Generic
4	P-B-12	25.96	30	Cir	72.580	298.65	301.97	4.574	299.94	303.22	n/a	303.22	3	Generic
3	P-B-13	27.67	30	Cir	86.500	294.72	298.65	4.543	296.03	299.94	n/a	299.94	2	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Return period = 50 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
2	P-B-14	28.62	30	Cir	58.560	292.06	294.72	4.542	293.00	296.54	n/a	296.54	1	Generic
1	P-B-15	114.2	48	Cir	42.707	285.26	289.53	10.000	288.21	292.75	n/a	292.75	End	Generic

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Return period = 50 Yrs.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
122	OS-C-1	20.00*	0.00	0.00	20.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
121	OS-RG-2	0.95	0.00	0.00	0.95	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
120	OS-RG-1	0.68	0.00	0.00	0.68	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
119	I-E-17A	0.89	0.00	0.56	0.33	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
118	OS-E-1	10.00*	0.00	0.00	10.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
117	JB-E-1	0.87	0.00	0.00	0.87	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
116	I-E-13	0.94	0.00	0.59	0.35	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
115	I-E-14	0.24	0.00	0.15	0.09	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
114	I-E-15	0.25	0.00	0.16	0.09	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
113	I-E-16	0.44	0.00	0.28	0.16	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
112	I-E-17	0.48	0.00	0.30	0.18	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
111	I-E-18	0.56	0.00	0.36	0.21	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
110	I-E-19	0.27	0.00	0.17	0.10	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
109	JB-E-2	0.87	0.00	0.00	0.87	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
108	I-C-34	1.32	0.00	0.83	0.49	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
107	I-C-33	1.30	0.00	0.82	0.48	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
106	I-C-32A	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
105	I-C-32	0.69	0.00	0.44	0.26	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
104	I-C-31	0.61	0.00	0.38	0.22	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
103	I-E-7A	0.80	0.00	0.50	0.30	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
102	I-C-29A	1.27	0.00	0.80	0.47	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
101	I-E-4A	0.72	0.00	0.45	0.27	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
100	OS-B-1	10.00*	0.00	0.00	10.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
99	I-C-27A	4.24	0.00	2.67	1.57	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
98	OS-A-1	10.00*	0.00	0.00	10.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
97	I-C-26A	0.69	0.00	0.44	0.26	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
96	I-E-4B	0.61	0.00	0.38	0.22	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
95	I-E-4C	0.52	0.00	0.33	0.19	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
94	I-E-4D	0.68	0.00	0.43	0.25	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
93	I-E-4E	0.72	0.00	0.45	0.27	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
92	I-E-1	1.01	0.00	0.64	0.37	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
91	I-C-25A	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
90	I-C-23	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
89	I-C-24	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
88	I-C-25	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
87	I-C-26	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
86	I-C-27	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
85	I-C-28	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
84	I-C-29	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
83	I-C-30	0.61	0.00	0.38	0.22	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
82	JB-C-4	7.55	0.00	0.00	7.55	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
81	JB-C-35	7.55	0.00	0.00	7.55	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
80	I-E-2A	0.79	0.00	0.50	0.29	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
79	I-E-2B	0.94	0.00	0.59	0.35	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
78	I-E-2	1.45	0.00	0.91	0.54	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
77	I-E-3	1.59	0.00	1.00	0.59	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
76	I-E-4	0.46	0.00	0.29	0.17	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
75	I-E-5	0.48	0.00	0.30	0.18	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
74	I-E-6	0.42	0.00	0.27	0.16	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
73	I-E-7	0.41	0.00	0.26	0.15	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
72	I-E-8	0.34	0.00	0.21	0.12	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
71	I-E-9	0.40	0.00	0.25	0.15	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
70	I-E-10	0.95	0.00	0.60	0.35	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
69	I-E-11	0.38	0.00	0.24	0.14	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
68	I-E-12	0.45	0.00	0.28	0.17	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
67	I-C-22A	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
66	I-C-15A	1.87	0.00	1.18	0.69	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
65	I-C-15B	1.95	0.00	1.23	0.72	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
64	JB-ROOF A-2	50.16	0.00	0.00	50.16	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
63	I-C-21A	2.60	0.00	1.64	0.96	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
62	JB-ROOF A-1	7.20	0.00	0.00	7.20	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
61	I-A-1	6.08	0.00	3.83	2.25	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
60	I-A-2	7.29	0.00	4.59	2.70	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
59	I-A-3	7.29	0.00	4.59	2.70	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
58	I-A-4	7.29	0.00	4.59	2.70	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
57	JB-A-1	7.20	0.00	0.00	7.20	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
56	JB-ROOF C-1	29.51	0.00	0.00	29.51	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
55	I-C-1	6.51	0.00	4.10	2.41	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
54	I-C-2	7.64	0.00	4.81	2.83	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
53	JB-ROOF C-4	29.51	0.00	0.00	29.51	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
52	JB-ROOF C-3	29.51	0.00	0.00	29.51	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
51	I-C-3A	1.30	0.00	0.82	0.48	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
50	I-C-3B	0.75	0.00	0.47	0.28	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
49	JB-ROOF B-2	25.08	0.00	0.00	25.08	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
48	JB-ROOF B-1	25.08	0.00	0.00	25.08	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
47	I-B-15A	0.69	0.00	0.44	0.26	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
46	I-B-15B	2.69	0.00	1.69	1.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
45	I-B-15C	1.08	0.00	0.68	0.40	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
44	JB-B-1	50.16	0.00	0.00	50.16	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
43	I-C-13A	0.69	0.00	0.44	0.26	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
42	I-C-13B	2.60	0.00	1.64	0.96	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	22
41	JB-ROOF C-2	29.51	0.00	0.00	29.51	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
40	I-C-3	8.25	0.00	5.19	3.05	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
39	I-C-4	9.66	0.00	6.08	3.58	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
38	I-C-5	8.60	0.00	5.42	3.18	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
37	I-C-6	8.05	0.00	5.07	2.98	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
36	I-C-7	8.92	0.00	5.62	3.30	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
35	I-C-8	1.22	0.00	0.77	0.45	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
34	I-B-1	1.30	0.00	0.82	0.48	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
33	I-B-2	2.08	0.00	1.31	0.77	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
32	I-B-3	4.67	0.00	2.94	1.73	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
31	I-B-4	0.00	0.00	0.00	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
30	I-B-5	0.09	0.00	0.05	0.03	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
29	I-B-6	7.82	0.00	4.92	2.89	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
28	I-C-17A	2.34	0.00	1.48	0.87	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
27	I-C-9A	2.69	0.00	1.69	1.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
26	I-C-9	1.80	0.00	1.13	0.67	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
25	I-C-10	1.06	0.00	0.67	0.39	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
24	I-C-11	1.32	0.00	0.83	0.49	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
23	I-C-12	3.14	0.00	1.98	1.16	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
22	I-C-13	1.35	0.96	0.85	1.46	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
21	I-C-14	0.71	0.00	0.44	0.26	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
20	I-C-15	1.20	0.00	0.75	0.44	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
19	I-C-16	2.53	0.00	1.59	0.94	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
18	I-C-17	1.16	0.00	0.73	0.43	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
17	I-C-18	0.89	0.00	0.56	0.33	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
16	I-C-19	1.11	0.00	0.70	0.41	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
15	I-C-20	1.74	0.00	1.09	0.64	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
14	I-C-21	1.30	0.00	0.82	0.48	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
13	I-C-22	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
12	JB-C-2	52.60	0.00	0.00	52.60	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
11	JB-C-3	52.60	0.00	0.00	52.60	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.013	0.00	0.00	0.00	0.00	0.0	Off
10	I-B-7A	2.17	0.00	1.37	0.80	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
9	I-B-7	8.85	0.00	5.57	3.28	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
8	I-B-8	1.22	0.00	0.77	0.45	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
7	I-B-9	0.09	0.00	0.05	0.03	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
6	I-B-10	0.83	0.00	0.52	0.31	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
5	I-B-11	0.87	0.00	0.55	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
4	I-B-12	1.39	0.00	0.87	0.51	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
3	I-B-13	2.29	0.00	1.44	0.85	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
2	I-B-14	1.43	0.00	0.90	0.53	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off
1	I-B-15	0.86	0.00	0.54	0.32	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.013	0.30	12.00	0.30	12.00	0.0	Off

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

NOTES: Inlet N-Values = 0.016; Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82; Return period = 50 Yrs. ; * Indicates Known Q added.All curb inlets are Horiz throat.

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)
122	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-73.063	0.00	0.00**	Outfall	0.00	2666623.48	214.78	214.88	0.000
121	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-165.471	0.00	0.00**	Outfall	0.24	2665767.70	227.58	228.42	0.000
120	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-174.543	0.00	0.00**	Outfall	0.17	2665643.26	230.64	232.87	0.000
119	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-71.617	0.00	0.00**	112	0.17	2665299.71	241.72	241.64	0.000
118	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	0.004	0.00	0.00**	117	0.00	2665166.71	243.65	254.29	0.000
117	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	19.745	0.00	0.00**	109	0.10	2665292.48	243.12	243.18	0.000
116	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.721	0.00	0.00**	115	0.16	2665210.42	249.83	249.87	0.000
115	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-18.389	0.00	0.00**	114	0.06	2665228.77	245.95	249.73	0.000
114	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-21.401	0.00	0.00**	113	0.07	2665293.69	243.66	245.84	0.000
113	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	18.700	0.00	0.00**	112	0.12	2665322.95	241.92	243.54	0.000
112	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	23.724	0.00	0.00**	111	0.13	2665337.31	241.02	241.62	0.000
111	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	110.120	0.00	0.00**	110	0.08	2665356.36	240.03	240.85	0.000
110	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-79.243	0.00	0.00**	109	0.07	2665382.59	240.23	239.85	0.000
109	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-177.284	0.00	0.00**	Outfall	0.10	2665386.01	235.84	240.04	0.000
108	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	37.323	0.00	0.00**	107	0.20	2666352.73	256.04	256.26	0.000
107	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-1.814	0.00	0.00**	105	0.15	2666403.42	255.80	255.92	0.000
106	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	88.186	0.00	0.00**	105	0.10	2666368.13	263.89	263.96	0.000
105	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-4.535	0.00	0.00**	104	0.08	2666399.68	255.33	255.64	0.000
104	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-58.440	0.00	0.00**	83	0.07	2666397.92	255.05	255.12	0.000
103	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-85.973	0.00	0.00**	73	0.14	2664956.81	273.39	272.90	0.000
102	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-88.913	0.00	0.00**	84	0.20	2666374.00	274.44	273.94	0.000
101	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-86.546	0.00	0.00**	76	0.11	2664952.60	283.49	283.07	0.000
100	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-166.720	0.00	0.00**	Outfall	0.00	2666350.27	283.59	285.29	0.000

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)
99	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-89.084	0.00	0.00**	86	0.68	2666417.03	284.50	284.27	0.000
98	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-165.986	0.00	0.00**	Outfall	0.00	2666465.71	289.51	289.29	0.000
97	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.000	0.00	0.00**	87	0.08	2666470.77	291.31	291.07	0.000
96	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-22.283	0.00	0.00**	95	0.10	2665034.19	308.31	312.02	0.000
95	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.123	0.00	0.00**	94	0.09	2665023.72	301.39	308.23	0.000
94	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	87.288	0.00	0.00**	93	0.13	2665042.68	294.27	301.29	0.000
93	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	98.991	0.00	0.00**	76	0.12	2665061.79	283.54	291.25	0.000
92	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-83.848	0.00	0.00**	78	0.18	2665015.99	293.08	292.91	0.000
91	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.000	0.00	0.00**	88	0.10	2666523.37	297.05	296.90	0.000
90	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-89.896	0.00	0.00**	89	0.10	2666575.99	302.74	302.70	0.000
89	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	88	0.10	2666606.43	297.09	302.65	0.000
88	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	87	0.10	2666553.83	291.40	296.95	0.000
87	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.916	0.00	0.00**	86	0.10	2666501.23	284.47	291.23	0.000
86	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	4.906	0.00	0.00**	85	0.10	2666448.62	278.50	284.26	0.000
85	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	3.256	0.00	0.00**	84	0.10	2666417.59	274.65	278.19	0.000
84	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	124.200	0.00	0.00**	83	0.10	2666405.33	272.55	274.33	0.000
83	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	82	0.07	2666401.27	254.78	254.73	0.000
82	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	0.000	0.00	0.00**	81	0.87	2666448.48	240.48	246.70	0.000
81	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	152.050	0.00	0.00**	Outfall	0.87	2666501.81	217.71	227.04	0.000
80	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-88.986	0.00	0.00**	79	0.13	2665124.27	302.77	302.73	0.000
79	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	10.552	0.00	0.00**	78	0.16	2665150.11	293.11	302.68	0.000
78	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	10.144	0.00	0.00**	77	0.20	2665043.54	288.20	292.98	0.000
77	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	8.064	0.00	0.00**	76	0.28	2665004.17	283.64	288.01	0.000

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)
76	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	7.044	0.00	0.00**	75	0.09	2664983.84	280.43	283.41	0.000
75	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	6.882	0.00	0.00**	74	0.11	2664977.43	277.04	280.14	0.000
74	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	7.426	0.00	0.00**	73	0.10	2664978.89	273.60	276.74	0.000
73	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	8.055	0.00	0.00**	72	0.08	2664987.75	269.84	273.30	0.000
72	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	7.958	0.00	0.00**	71	0.06	2665007.58	265.91	269.51	0.000
71	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	7.861	0.00	0.00**	70	0.09	2665037.14	262.09	265.57	0.000
70	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-86.070	0.00	0.00**	69	0.14	2665074.83	258.27	261.75	0.000
69	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	27.100	0.00	0.00**	68	0.09	2665120.53	258.44	257.91	0.000
68	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-70.523	0.00	0.00**	Outfall	0.09	2665097.59	257.86	257.85	0.000
67	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-27.383	0.00	0.00**	13	0.10	2666624.98	308.43	308.50	0.000
66	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	90.000	0.00	0.00**	65	0.23	2666279.32	322.13	322.34	0.000
65	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.000	0.00	0.00**	20	0.26	2666360.72	321.47	321.98	0.000
64	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-90.071	0.00	0.00**	59	5.78	2666170.86	314.47	320.20	0.000
63	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-89.701	0.00	0.00**	14	0.30	2666537.89	312.69	317.90	0.000
62	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-90.018	0.00	0.00**	61	0.83	2666394.00	316.76	321.28	0.000
61	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	60	0.70	2666546.16	315.49	316.03	0.000
60	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.001	0.00	0.00**	59	0.84	2666434.64	314.14	314.60	0.000
59	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	85.701	0.00	0.00**	58	0.84	2666323.12	311.96	312.37	0.000
58	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.712	0.00	0.00**	57	0.84	2666211.60	297.37	302.26	0.000
57	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-139.481	0.00	0.00**	Outfall	0.83	2666246.07	293.12	294.76	0.000
56	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-89.370	0.00	0.00**	55	3.40	2665220.88	315.38	320.63	0.000
55	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	54	0.75	2665069.17	314.56	314.82	0.000
54	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.338	0.00	0.00**	40	0.88	2665179.59	313.53	313.97	0.000

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NOTES: ** Critical depth

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)
53	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-131.216	0.00	0.00**	36	3.40	2665888.38	314.94	320.63	0.000
52	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-90.030	0.00	0.00**	38	3.40	2665663.29	314.94	320.63	0.000
51	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-8.629	0.00	0.00**	50	0.40	2665241.53	313.17	313.14	0.000
50	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	100.599	0.00	0.00**	40	0.13	2665267.02	313.02	313.05	0.000
49	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-18.512	0.00	0.00**	45	2.89	2665949.05	315.13	320.80	0.000
48	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	90.566	0.00	0.00**	47	2.89	2665726.02	315.69	320.80	0.000
47	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	46	0.08	2665877.06	314.76	315.15	0.000
46	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-109.078	0.00	0.00**	45	0.31	2665988.58	313.74	314.23	0.000
45	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-6.528	0.00	0.00**	44	0.13	2666100.09	304.75	309.00	0.000
44	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-4.157	0.00	0.00**	1	5.78	2666128.16	292.79	304.09	0.000
43	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	75.094	0.00	0.00**	42	0.08	2666014.34	322.11	322.61	0.000
42	0.00	0.00	22	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.000	0.00	0.00**	22	0.30	2666120.58	321.85	322.02	0.000
41	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-89.032	0.00	0.00**	40	3.40	2665441.68	314.94	320.63	0.000
40	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.671	0.00	0.00**	39	0.95	2665290.01	311.94	312.01	0.000
39	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.066	0.00	0.00**	38	1.67	2665398.87	311.39	311.14	0.000
38	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	37	1.34	2665510.91	310.69	310.54	0.000
37	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-39.990	0.00	0.00**	36	1.06	2665622.42	310.07	309.63	0.000
36	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	40.008	0.00	0.00**	35	1.39	2665733.94	309.82	308.98	0.000
35	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.048	0.00	0.00**	26	0.19	2665824.37	309.35	308.51	0.000
34	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-15.158	0.00	0.00**	33	0.15	2665103.75	322.13	322.39	0.000
33	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	36.985	0.00	0.00**	32	0.25	2665133.19	321.59	322.02	0.000
32	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	10.570	0.00	0.00**	31	0.55	2665143.03	319.98	321.40	0.000
31	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	17.326	0.00	0.00**	30	0.00	2665211.10	319.37	319.66	0.000

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MyReport

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30	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	59.273	0.00	0.00**	29	0.01	2665353.56	318.77	318.96	0.000
29	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-54.587	0.00	0.00**	9	0.92	2665549.00	318.05	318.13	0.000
28	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-108.071	0.00	0.00**	18	0.27	2666519.46	318.53	322.02	0.000
27	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-90.030	0.00	0.00**	26	0.31	2665926.87	319.36	322.05	0.000
26	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-7.648	0.00	0.00**	25	0.24	2665882.10	309.14	308.03	0.000
25	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-38.442	0.00	0.00**	24	0.13	2665908.25	308.71	307.81	0.000
24	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-39.210	0.00	0.00**	23	0.19	2665967.75	308.27	307.37	0.000
23	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-4.670	0.00	0.00**	22	0.47	2666056.39	307.65	306.94	0.000
22	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	21	0.24	2666157.75	306.86	306.30	0.000
21	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	20	0.11	2666277.82	306.13	305.55	0.000
20	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-8.714	0.00	0.00**	19	0.17	2666397.89	305.60	304.83	0.000
19	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-36.369	0.00	0.00**	18	0.35	2666488.59	305.07	304.28	0.000
18	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-9.796	0.00	0.00**	17	0.16	2666566.74	304.64	303.75	0.000
17	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	16.802	0.00	0.00**	16	0.12	2666581.03	304.11	303.31	0.000
16	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	11.238	0.00	0.00**	15	0.14	2666580.33	303.91	302.79	0.000
15	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-21.649	0.00	0.00**	14	0.20	2666592.14	303.41	302.59	0.000
14	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	45.450	0.00	0.00**	13	0.30	2666640.77	302.56	302.08	0.000
13	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	0.000	0.00	0.00**	12	0.10	2666656.09	280.01	290.38	0.000
12	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-49.394	0.00	0.00**	11	6.06	2666734.30	249.04	259.27	0.000
11	0.00	0.00	n/a	0.20	0.50	0.90	0.00	0.00	....	....	....	-92.060	0.00	0.00**	Outfall	6.06	2666812.51	226.08	235.57	0.000
10	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	112.902	0.00	0.00**	9	0.25	2665684.13	321.64	322.00	0.000
9	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-33.390	0.00	0.00**	8	1.03	2665625.29	317.25	317.25	0.000
8	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	100.659	0.00	0.00**	7	0.14	2665737.35	316.88	316.69	0.000

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7	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-1.584	0.00	0.00**	6	0.01	2665788.88	316.33	316.31	0.000
6	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-0.184	0.00	0.00**	5	0.11	2665840.02	309.76	315.77	0.000
5	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-9.305	0.00	0.00**	4	0.10	2665931.52	303.80	309.18	0.000
4	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-8.019	0.00	0.00**	3	0.16	2666006.12	300.43	303.22	0.000
3	0.00	0.00	Sag	0.20	0.50	0.90	0.00	0.00	0.050	0.020	....	-7.114	0.00	0.00**	2	0.43	2666059.46	296.54	299.94	0.000
2	1.69	3.83	Sag	0.20	0.50	0.90	94.69	1.82	0.050	0.020	....	-92.839	0.94	1.82**	1	0.22	2666130.59	293.87	297.41	0.000
1	9.93	10.85	Sag	0.20	0.50	0.90	492.11	3.22	0.050	0.020	....	-114.730	2.95	3.22**	Outfall	0.13	2666182.50	289.93	294.48	0.000

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
20.00	0.000	0.000	....	....	....	212.48	218.16	....	....	....	....	214.60	214.88	214.88	....	....	0.00	20.00	....	....
0.95	0.000	0.000	....	....	....	228.45	231.63	....	....	....	....	227.48	228.42	228.42	....	....	0.11	0.95	....	....
0.68	0.000	0.000	....	....	....	231.63	236.13	....	....	....	....	230.56	232.87	232.87	....	....	0.07	0.68	....	....
0.89	0.000	0.000	....	....	....	245.07	244.86	0.30	Sag	12.00	2.00	241.62	241.64	241.64	....	....	0.10	0.89	0.30	63
10.00	0.000	0.000	....	....	....	246.02	257.16	....	....	....	....	243.18	254.29	254.29	....	....	0.00	10.00	....	....
10.87	0.000	0.000	....	....	....	246.09	246.02	....	....	....	....	242.64	243.18	243.18	....	....	0.10	0.87	....	....
0.94	0.000	0.000	....	....	....	253.08	253.08	0.30	Sag	12.00	2.00	249.73	249.87	249.87	....	....	0.10	0.94	0.30	63
1.14	0.000	0.000	....	....	....	249.02	253.08	0.30	Sag	12.00	2.00	245.84	249.73	249.73	....	....	0.03	0.24	0.30	63
1.29	0.000	0.000	....	....	....	246.69	249.02	0.30	Sag	12.00	2.00	243.54	245.84	245.84	....	....	0.03	0.25	0.30	63
1.63	0.000	0.000	....	....	....	245.07	246.69	0.30	Sag	12.00	2.00	241.79	243.54	243.54	....	....	0.05	0.44	0.30	63
2.75	0.000	0.000	....	....	....	243.86	245.07	0.30	Sag	12.00	2.00	240.85	241.62	241.62	....	....	0.05	0.48	0.30	63
3.19	0.000	0.000	....	....	....	242.84	243.86	0.30	Sag	12.00	2.00	239.85	240.85	240.85	....	....	0.06	0.56	0.30	63
3.40	0.000	0.000	....	....	....	246.09	242.84	0.30	Sag	12.00	2.00	240.04	239.85	239.85	....	....	0.03	0.27	0.30	62
14.82	0.000	0.000	....	....	....	236.16	246.09	....	....	....	....	235.29	240.04	240.04	....	....	0.10	0.87	....	....
1.32	0.000	0.000	....	....	....	263.67	259.42	0.30	Sag	12.00	2.00	255.92	256.26	256.26	....	....	0.15	1.32	0.30	63
2.44	0.000	0.000	....	....	....	267.19	263.67	0.30	Sag	12.00	2.00	255.64	255.92	255.92	....	....	0.14	1.30	0.30	63
0.87	0.000	0.000	....	....	....	267.19	267.19	0.30	Sag	12.00	2.00	263.80	263.96	263.96	....	....	0.10	0.87	0.30	63
3.78	0.000	0.000	....	....	....	272.52	267.19	0.30	Sag	12.00	2.00	255.12	255.64	255.64	....	....	0.08	0.69	0.30	63
4.23	0.000	0.000	....	....	....	275.22	272.52	0.30	Sag	12.00	2.00	254.83	255.12	255.12	....	....	0.07	0.61	0.30	63
0.80	0.000	0.000	....	....	....	276.14	276.14	0.30	Sag	12.00	2.00	273.30	272.90	272.90	....	....	0.09	0.80	0.30	63
1.27	0.000	0.000	....	....	....	277.11	277.11	0.30	Sag	12.00	2.00	274.33	273.94	273.94	....	....	0.14	1.27	0.30	63
0.72	0.000	0.000	....	....	....	286.31	286.32	0.30	Sag	12.00	2.00	283.41	283.07	283.07	....	....	0.08	0.72	0.30	63
10.00	0.000	0.000	....	....	....	284.16	288.16	....	....	....	....	283.13	285.29	285.29	....	....	0.00	10.00	....	....

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
4.24	0.000	0.000	....	....	....	287.17	287.15	0.30	Sag	12.00	2.00	284.26	284.27	284.27	....	....	0.47	4.24	0.30	63
10.00	0.000	0.000	....	....	....	289.92	292.16	....	....	....	....	289.05	289.29	289.29	....	....	0.00	10.00	....	....
0.69	0.000	0.000	....	....	....	294.33	294.33	0.30	Sag	12.00	2.00	291.23	291.07	291.07	....	....	0.08	0.69	0.30	63
0.61	0.000	0.000	....	....	....	311.45	315.29	0.30	Sag	12.00	2.00	308.23	312.02	312.02	....	....	0.07	0.61	0.30	63
1.02	0.000	0.000	....	....	....	304.45	311.45	0.30	Sag	12.00	2.00	301.29	308.23	308.23	....	....	0.06	0.52	0.30	63
1.52	0.000	0.000	....	....	....	297.48	304.45	0.30	Sag	12.00	2.00	294.15	301.29	301.29	....	....	0.08	0.68	0.30	63
2.03	0.000	0.000	....	....	....	286.31	297.48	0.30	Sag	12.00	2.00	283.41	291.25	291.25	....	....	0.08	0.72	0.30	63
1.01	0.000	0.000	....	....	....	296.09	296.11	0.30	Sag	12.00	2.00	292.98	292.91	292.91	....	....	0.11	1.01	0.30	63
0.87	0.000	0.000	....	....	....	300.13	300.13	0.30	Sag	12.00	2.00	296.95	296.90	296.90	....	....	0.10	0.87	0.30	63
0.87	0.000	0.000	....	....	....	305.93	305.93	0.30	Sag	12.00	2.00	302.65	302.70	302.70	....	....	0.10	0.87	0.30	63
1.67	0.000	0.000	....	....	....	300.13	305.93	0.30	Sag	12.00	2.00	296.95	302.65	302.65	....	....	0.10	0.87	0.30	63
2.99	0.000	0.000	....	....	....	294.33	300.13	0.30	Sag	12.00	2.00	291.23	296.95	296.95	....	....	0.10	0.87	0.30	63
4.11	0.000	0.000	....	....	....	287.17	294.33	0.30	Sag	12.00	2.00	284.26	291.23	291.23	....	....	0.10	0.87	0.30	63
7.99	0.000	0.000	....	....	....	280.89	287.17	0.30	Sag	12.00	2.00	278.19	284.26	284.26	....	....	0.10	0.87	0.30	63
8.58	0.000	0.000	....	....	....	277.11	280.89	0.30	Sag	12.00	2.00	274.33	278.19	278.19	....	....	0.10	0.87	0.30	63
10.17	0.000	0.000	....	....	....	275.22	277.11	0.30	Sag	12.00	2.00	272.19	274.33	274.33	....	....	0.10	0.87	0.30	63
14.32	0.000	0.000	....	....	....	258.82	275.22	0.30	Sag	12.00	2.00	254.41	254.73	254.73	....	....	0.07	0.61	0.30	63
20.05	0.000	0.000	....	....	....	243.52	258.82	....	....	....	....	240.01	246.70	246.70	....	....	0.84	7.55	....	....
25.75	0.000	0.000	....	....	....	217.46	243.52	....	....	....	....	217.24	227.04	227.04	....	....	0.84	7.55	....	....
0.79	0.000	0.000	....	....	....	305.97	305.97	0.30	Sag	12.00	2.00	302.68	302.73	302.73	....	....	0.09	0.79	0.30	63
1.66	0.000	0.000	....	....	....	296.09	305.97	0.30	Sag	12.00	2.00	292.98	302.68	302.68	....	....	0.10	0.94	0.30	63
3.60	0.000	0.000	....	....	....	290.89	296.09	0.30	Sag	12.00	2.00	288.01	292.98	292.98	....	....	0.16	1.45	0.30	63
4.87	0.000	0.000	....	....	....	286.31	290.89	0.30	Sag	12.00	2.00	283.41	288.01	288.01	....	....	0.18	1.59	0.30	63

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
7.41	0.000	0.000	....	....	....	282.88	286.31	0.30	Sag	12.00	2.00	280.14	283.41	283.41	....	....	0.05	0.46	0.30	63
7.74	0.000	0.000	....	....	....	279.47	282.88	0.30	Sag	12.00	2.00	276.74	280.14	280.14	....	....	0.05	0.48	0.30	63
8.02	0.000	0.000	....	....	....	276.14	279.47	0.30	Sag	12.00	2.00	273.30	276.74	276.74	....	....	0.05	0.42	0.30	63
8.91	0.000	0.000	....	....	....	272.19	276.14	0.30	Sag	12.00	2.00	269.51	273.30	273.30	....	....	0.05	0.41	0.30	63
9.12	0.000	0.000	....	....	....	268.24	272.19	0.30	Sag	12.00	2.00	265.57	269.51	269.51	....	....	0.04	0.34	0.30	63
9.37	0.000	0.000	....	....	....	264.39	268.24	0.30	Sag	12.00	2.00	261.75	265.57	265.57	....	....	0.04	0.40	0.30	63
10.04	0.000	0.000	....	....	....	260.54	264.39	0.30	Sag	12.00	2.00	257.91	261.75	261.75	....	....	0.11	0.95	0.30	63
10.28	0.000	0.000	....	....	....	260.54	260.54	0.30	Sag	12.00	2.00	258.08	257.91	257.91	....	....	0.04	0.38	0.30	63
10.60	0.000	0.000	....	....	....	258.16	260.54	0.30	Sag	12.00	2.00	257.70	257.85	258.08	....	....	0.05	0.45	0.30	63
0.87	0.000	0.000	....	....	....	311.67	311.73	0.30	Sag	12.00	2.00	308.34	308.50	308.50	....	....	0.10	0.87	0.30	63
1.87	0.000	0.000	....	....	....	325.43	325.43	0.30	Sag	12.00	2.00	321.98	322.34	322.34	....	....	0.21	1.87	0.30	63
3.61	0.000	0.000	....	....	....	324.32	325.43	0.30	Sag	12.00	2.00	321.27	321.98	321.98	....	....	0.22	1.95	0.30	63
50.16	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	313.79	320.20	320.20	....	....	5.55	50.16	....	....
2.60	0.000	0.000	....	....	....	315.76	320.92	0.30	Sag	12.00	2.00	312.52	317.90	317.90	....	....	0.29	2.60	0.30	63
7.20	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	316.65	321.28	321.28	....	....	0.80	7.20	....	....
12.92	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	315.07	316.03	316.65	....	....	0.67	6.08	0.30	63
19.70	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	313.62	314.60	314.60	....	....	0.81	7.29	0.30	63
73.36	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	311.19	312.37	312.37	....	....	0.81	7.29	0.30	63
78.67	0.000	0.000	....	....	....	301.75	318.32	0.30	Sag	12.00	2.00	296.57	302.26	302.26	....	....	0.81	7.29	0.30	63
84.95	0.000	0.000	....	....	....	293.26	301.75	....	....	....	....	292.28	294.76	294.76	....	....	0.80	7.20	....	....
29.51	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	314.82	320.63	320.63	....	....	3.26	29.51	....	....
35.20	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	313.97	314.82	314.82	....	....	0.72	6.51	0.30	63
41.70	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	312.88	313.97	313.97	....	....	0.84	7.64	0.30	63

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
29.51	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	314.38	320.63	320.63	....	....	3.26	29.51	....	....
29.51	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	314.38	320.63	320.63	....	....	3.26	29.51	....	....
1.30	0.000	0.000	....	....	....	316.25	316.30	0.30	Sag	12.00	2.00	313.05	313.14	313.14	....	....	0.14	1.30	0.30	63
2.00	0.000	0.000	....	....	....	318.32	316.25	0.30	Sag	12.00	2.00	312.87	313.05	313.05	....	....	0.08	0.75	0.30	63
25.08	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	314.59	320.80	320.80	....	....	2.77	25.08	....	....
25.08	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	315.15	320.80	320.80	....	....	2.77	25.08	....	....
25.21	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	314.23	315.15	315.15	....	....	0.08	0.69	0.30	63
27.22	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	313.18	314.23	314.23	....	....	0.30	2.69	0.30	63
51.18	0.000	0.000	....	....	....	307.96	318.32	0.30	Sag	12.00	2.00	304.09	309.00	309.00	....	....	0.12	1.08	0.30	63
97.66	0.000	0.000	....	....	....	296.56	307.96	....	....	....	....	291.86	304.09	304.09	....	....	5.55	50.16	....	....
0.69	0.000	0.000	....	....	....	325.06	325.87	0.30	Sag	12.00	2.00	322.02	322.61	322.61	....	....	0.08	0.69	0.30	63
2.81	0.000	0.000	....	....	....	326.16	325.06	0.30	Sag	12.00	2.00	321.68	322.02	322.02	....	....	0.29	2.60	0.30	63
29.51	0.000	0.000	....	....	....	318.32	323.96	....	....	....	....	314.38	320.63	320.63	....	....	3.26	29.51	....	....
78.20	0.000	0.000	....	....	....	318.30	318.32	0.30	Sag	12.00	2.00	311.14	312.01	312.01	....	....	0.91	8.25	0.30	63
85.69	0.000	0.000	....	....	....	318.32	318.30	0.30	Sag	12.00	2.00	310.54	311.14	311.14	....	....	1.07	9.66	0.30	63
118.77	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	309.63	310.54	310.54	....	....	0.95	8.60	0.30	63
124.57	0.000	0.000	....	....	....	318.32	318.32	0.30	Sag	12.00	2.00	308.98	309.63	309.63	....	....	0.89	8.05	0.30	63
157.15	0.000	0.000	....	....	....	321.22	318.32	0.30	Sag	12.00	2.00	308.51	308.98	308.98	....	....	0.99	8.92	0.30	63
157.53	0.000	0.000	....	....	....	322.42	321.22	0.30	Sag	12.00	2.00	308.03	308.51	308.51	....	....	0.13	1.22	0.30	63
1.30	0.000	0.000	....	....	....	325.00	325.55	0.30	Sag	12.00	2.00	322.02	322.39	322.39	....	....	0.14	1.30	0.30	63
3.18	0.000	0.000	....	....	....	324.11	325.00	0.30	Sag	12.00	2.00	321.40	322.02	322.02	....	....	0.23	2.08	0.30	63
7.38	0.000	0.000	....	....	....	322.38	324.11	0.30	Sag	12.00	2.00	319.66	321.40	321.40	....	....	0.52	4.67	0.30	63
7.29	0.000	0.000	....	....	....	322.38	322.38	0.30	Sag	12.00	2.00	319.06	319.66	319.66	....	....	0.00	0.00	0.30	0

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
7.21	0.000	0.000	....	....	....	324.72	322.38	0.30	Sag	12.00	2.00	318.69	318.96	319.06	....	....	0.01	0.09	0.30	63
13.78	0.000	0.000	....	....	....	326.13	324.72	0.30	Sag	12.00	2.00	317.63	318.13	318.69	....	....	0.86	7.82	0.30	63
2.34	0.000	0.000	....	....	....	321.63	325.06	0.30	Sag	12.00	2.00	318.36	322.02	322.02	....	....	0.26	2.34	0.30	63
2.69	0.000	0.000	....	....	....	322.42	325.06	0.30	Sag	12.00	2.00	319.19	322.05	322.05	....	....	0.30	2.69	0.30	63
160.72	0.000	0.000	....	....	....	322.96	322.42	0.30	Sag	12.00	2.00	307.81	308.03	308.03	....	....	0.20	1.80	0.30	63
161.31	0.000	0.000	....	....	....	323.79	322.96	0.30	Sag	12.00	2.00	307.37	307.81	307.81	....	....	0.12	1.06	0.30	63
161.81	0.000	0.000	....	....	....	324.73	323.79	0.30	Sag	12.00	2.00	306.94	307.37	307.37	....	....	0.15	1.32	0.30	63
163.86	0.000	0.000	....	....	....	326.16	324.73	0.30	Sag	12.00	2.00	306.30	306.94	306.94	....	....	0.35	3.14	0.30	63
161.95	0.000	0.000	....	....	....	326.18	326.16	0.30	Sag	12.00	2.00	305.55	306.30	306.30	....	....	0.15	1.35	0.30	37
161.49	0.000	0.000	....	....	....	324.32	326.18	0.30	Sag	12.00	2.00	304.83	305.55	305.55	....	....	0.08	0.71	0.30	63
164.59	0.000	0.000	....	....	....	322.92	324.32	0.30	Sag	12.00	2.00	304.28	304.83	304.83	....	....	0.13	1.20	0.30	63
165.87	0.000	0.000	....	....	....	321.63	322.92	0.30	Sag	12.00	2.00	303.75	304.28	304.28	....	....	0.28	2.53	0.30	63
167.95	0.000	0.000	....	....	....	320.61	321.63	0.30	Sag	12.00	2.00	303.31	303.75	303.75	....	....	0.13	1.16	0.30	63
168.04	0.000	0.000	....	....	....	319.27	320.61	0.30	Sag	12.00	2.00	302.79	303.31	303.31	....	....	0.10	0.89	0.30	63
168.20	0.000	0.000	....	....	....	318.62	319.27	0.30	Sag	12.00	2.00	302.59	302.79	302.79	....	....	0.12	1.11	0.30	63
169.30	0.000	0.000	....	....	....	315.76	318.62	0.30	Sag	12.00	2.00	302.08	302.59	302.59	....	....	0.19	1.74	0.30	63
171.68	0.000	0.000	....	....	....	311.67	315.76	0.30	Sag	12.00	2.00	301.22	302.08	302.08	....	....	0.14	1.30	0.30	63
172.00	0.000	0.000	....	....	....	283.52	311.67	0.30	Sag	12.00	2.00	278.67	290.38	290.38	....	....	0.10	0.87	0.30	63
213.22	0.000	0.000	....	....	....	252.10	283.52	....	....	....	....	247.39	259.27	259.27	....	....	5.82	52.60	....	....
254.29	0.000	0.000	....	....	....	226.00	252.10	....	....	....	....	224.04	235.57	235.57	....	....	5.82	52.60	....	....
2.17	0.000	0.000	....	....	....	326.13	325.06	0.30	Sag	12.00	2.00	321.48	322.00	322.00	....	....	0.24	2.17	0.30	63
23.15	0.000	0.000	....	....	....	323.08	326.13	0.30	Sag	12.00	2.00	316.69	317.25	317.25	....	....	0.98	8.85	0.30	63
24.00	0.000	0.000	....	....	....	321.19	323.08	0.30	Sag	12.00	2.00	316.31	316.69	316.69	....	....	0.13	1.22	0.30	63

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)
23.96	0.000	0.000	....	....	....	318.46	321.19	0.30	Sag	12.00	2.00	315.77	316.31	316.31	....	....	0.01	0.09	0.30	63
24.52	0.000	0.000	....	....	....	311.87	318.46	0.30	Sag	12.00	2.00	309.18	315.77	315.77	....	....	0.09	0.83	0.30	63
25.00	0.000	0.000	....	....	....	306.47	311.87	0.30	Sag	12.00	2.00	303.22	309.18	309.18	....	....	0.10	0.87	0.30	63
25.96	0.000	0.000	....	....	....	303.15	306.47	0.30	Sag	12.00	2.00	299.94	303.22	303.22	....	....	0.15	1.39	0.30	63
27.67	0.000	0.000	....	....	....	299.22	303.15	0.30	Sag	12.00	2.00	296.03	299.94	299.94	....	....	0.25	2.29	0.30	63
28.62	0.000	0.000	....	....	....	296.56	299.22	0.30	Sag	12.00	2.00	293.00	296.54	296.54	....	....	0.16	1.43	0.30	63
114.24	0.000	0.000	....	....	....	289.26	296.56	0.30	Sag	12.00	2.00	288.21	292.75	292.75	....	....	0.09	0.86	0.30	63

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
OS-C-1	Sag		0.0	0.00	0.00	209.73	213.41	....	....	0.00	0.00	1.00	MH	20.00	3,205	2,885	2,724	OS-C-OFF
OS-RG-2	Sag		5.0	9.04	9.04	226.95	228.13	....	....	0.00	0.00	1.00	MH	0.00	2,644	2,380	2,247	OS-RG-2-OFF
OS-RG-1	Sag		5.0	9.04	9.04	230.13	232.63	....	....	0.00	0.00	1.00	MH	0.00	1,668	1,501	1,418	OS-RG-1-OFF
I-E-17A	Sag		5.0	9.04	9.04	241.17	241.36	....	....	0.00	0.00	1.00	Generic	0.00	1,332	1,199	1,132	P-E-17A
OS-E-1	Sag		0.0	0.00	0.00	242.02	253.16	....	....	0.00	0.00	1.00	MH	10.00	5,056	4,550	4,298	OS-E-OFF
JB-E-1	Sag		5.0	9.04	9.04	241.51	242.02	....	....	0.00	0.00	0.15	MH	0.00	4,544	4,090	3,862	P-JB-E-1
I-E-13	Sag		5.0	9.04	9.04	249.42	249.58	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-E-13
I-E-14	Sag		5.0	8.72	9.04	245.52	249.42	....	....	0.00	0.00	1.50	Generic	0.00	2,660	2,394	2,261	P-E-14
I-E-15	Sag		5.0	8.15	9.04	243.19	245.52	....	....	0.00	0.00	0.55	Generic	0.00	1,716	1,544	1,459	P-E-15
I-E-16	Sag		5.0	7.88	9.04	241.57	243.19	....	....	0.00	0.00	0.63	Generic	0.00	1,988	1,789	1,690	P-E-16
I-E-17	Sag		5.0	7.65	9.04	240.36	241.17	....	....	0.00	0.00	1.44	Generic	0.00	1,220	1,098	1,037	P-E-17
I-E-18	Sag		5.0	7.57	9.04	239.34	240.36	....	....	0.00	0.00	0.69	Generic	0.00	1,092	983	928	P-E-18
I-E-19	Sag		5.0	7.51	9.04	239.27	239.34	....	....	0.00	0.00	1.50	Generic	0.00	678	610	576	P-E-19
JB-E-2	Sag		5.0	7.49	9.04	234.16	238.77	....	....	0.00	0.00	0.99	MH	0.00	7,932	7,139	6,742	P-JB-E-2
I-C-34	Sag		5.0	9.04	9.04	255.47	255.92	....	....	0.00	0.00	1.00	Generic	0.00	3,809	3,428	3,238	P-C-34
I-C-33	Sag		5.0	8.43	9.04	255.08	255.47	....	....	0.00	0.00	0.99	Generic	0.00	4,260	3,834	3,621	P-C-33
I-C-32A	Sag		5.0	9.04	9.04	263.53	263.69	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-32A
I-C-32	Sag		5.0	8.18	9.04	254.54	255.08	....	....	0.00	0.00	1.53	Generic	0.00	7,220	6,498	6,137	P-C-32
I-C-31	Sag		5.0	7.97	9.04	254.27	254.54	....	....	0.00	0.00	0.50	Generic	0.00	4,153	3,737	3,530	P-C-31
I-E-7A	Sag		5.0	9.04	9.04	272.48	272.64	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-E-7A
I-C-29A	Sag		5.0	9.04	9.04	273.45	273.61	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-29A
I-E-4A	Sag		5.0	9.04	9.04	282.66	282.82	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-E-3A
OS-B-1	Sag		0.0	0.00	0.00	282.16	284.16	....	....	0.00	0.00	1.00	MH	10.00	4,060	3,654	3,451	OS-B-OFF

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82 -- Return period = 50 Yrs. ; ** Critical depth

MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
I-C-27A	Sag		5.0	9.04	9.04	283.49	283.65	....	....	0.00	0.00	1.00	Generic	0.00	1,140	1,026	969	P-C-27A
OS-A-1	Sag		0.0	0.00	0.00	287.61	288.16	....	....	0.00	0.00	1.00	MH	10.00	4,024	3,622	3,420	OS-A-OFF
I-C-26A	Sag		5.0	9.04	9.04	290.67	290.83	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-26A
I-E-4B	Sag		5.0	9.04	9.04	307.95	311.79	....	....	0.00	0.00	1.00	Generic	0.00	1,956	1,760	1,663	P-E-4B
I-E-4C	Sag		5.0	8.20	9.04	300.95	307.95	....	....	0.00	0.00	0.65	Generic	0.00	3,044	2,740	2,587	P-E-4C
I-E-4D	Sag		5.0	7.60	9.04	293.98	300.95	....	....	0.00	0.00	0.50	Generic	0.00	3,028	2,725	2,574	P-E-4D
I-E-4E	Sag		5.0	7.26	9.04	282.81	290.87	....	....	0.00	0.00	1.50	Generic	0.00	3,330	2,997	2,831	P-E-4E
I-E-1	Sag		5.0	9.04	9.04	292.45	292.61	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-E-1
I-C-25A	Sag		5.0	9.04	9.04	296.47	296.63	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-25A
I-C-23	Sag		5.0	9.04	9.04	302.27	302.43	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-23
I-C-24	Sag		5.0	8.70	9.04	296.63	302.27	....	....	0.00	0.00	1.50	Generic	0.00	6,468	5,821	5,498	P-C-24
I-C-25	Sag		5.0	7.78	9.04	290.83	296.47	....	....	0.00	0.00	1.50	Generic	0.00	6,468	5,821	5,498	P-C-25
I-C-26	Sag		5.0	7.38	9.04	283.67	290.67	....	....	0.00	0.00	1.50	Generic	0.00	6,468	5,821	5,498	P-C-26
I-C-27	Sag		5.0	7.12	9.04	277.39	283.49	....	....	0.00	0.00	1.50	Generic	0.00	4,084	3,676	3,471	P-C-27
I-C-28	Sag		5.0	7.04	9.04	273.61	277.39	....	....	0.00	0.00	0.50	Generic	0.00	2,468	2,221	2,098	P-C-28
I-C-29	Sag		5.0	7.00	9.04	271.72	273.45	....	....	0.00	0.00	1.50	Generic	0.00	1,284	1,156	1,091	P-C-29
I-C-30	Sag		5.0	6.98	9.04	253.51	253.77	....	....	0.00	0.00	1.97	Generic	0.00	3,706	3,335	3,150	P-C-30
JB-C-4	Sag		5.0	6.95	9.04	239.52	245.56	....	....	0.00	0.00	0.15	MH	0.00	3,593	3,234	3,054	P-JB-C-34
JB-C-35	Sag		5.0	6.92	9.04	214.96	225.83	....	....	0.00	0.00	0.15	MH	0.00	7,489	6,740	6,365	P-JB-C-35
I-E-2A	Sag		5.0	9.04	9.04	302.31	302.47	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-E-2A
I-E-2B	Sag		5.0	8.66	9.04	292.59	302.31	....	....	0.00	0.00	1.50	Generic	0.00	6,116	5,504	5,199	P-E-2B
I-E-2	Sag		5.0	7.79	9.04	287.39	292.45	....	....	0.00	0.00	1.49	Generic	0.00	3,204	2,884	2,723	P-E-2
I-E-3	Sag		5.0	7.62	9.04	282.81	287.39	....	....	0.00	0.00	0.50	Generic	0.00	2,820	2,538	2,397	P-E-3

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82 -- Return period = 50 Yrs. ; ** Critical depth

MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
I-E-4	Sag		5.0	7.07	9.04	279.38	282.66	....	....	0.00	0.00	2.25	Generic	0.00	2,148	1,933	1,826	P-E-4
I-E-5	Sag		5.0	7.02	9.04	275.97	279.38	....	....	0.00	0.00	0.50	Generic	0.00	2,132	1,919	1,812	P-E-5
I-E-6	Sag		5.0	6.99	9.04	272.64	275.97	....	....	0.00	0.00	0.50	Generic	0.00	2,084	1,876	1,771	P-E-6
I-E-7	Sag		5.0	6.95	9.04	268.69	272.48	....	....	0.00	0.00	1.50	Generic	0.00	2,452	2,207	2,084	P-E-7
I-E-8	Sag		5.0	6.91	9.04	264.74	268.69	....	....	0.00	0.00	0.50	Generic	0.00	2,452	2,207	2,084	P-E-8
I-E-9	Sag		5.0	6.87	9.04	260.89	264.74	....	....	0.00	0.00	0.50	Generic	0.00	2,388	2,149	2,030	P-E-9
I-E-10	Sag		5.0	6.84	9.04	257.04	260.89	....	....	0.00	0.00	0.50	Generic	0.00	2,388	2,149	2,030	P-E-10
I-E-11	Sag		5.0	6.80	9.04	256.88	257.04	....	....	0.00	0.00	1.50	Generic	0.00	1,108	997	942	P-E-11
I-E-12	Sag		5.0	6.79	9.04	256.38	256.88	....	....	0.00	0.00	0.77	Generic	0.00	3,300	2,970	2,805	P-E-12
I-C-22A	Sag		5.0	9.04	9.04	308.07	308.23	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-22A
I-C-15A	Sag		5.0	9.04	9.04	321.43	321.93	....	....	0.00	0.00	1.00	Generic	0.00	3,300	2,970	2,805	P-C-15A
I-C-15B	Sag		5.0	8.55	9.04	320.82	321.43	....	....	0.00	0.00	1.50	Generic	0.00	2,132	1,919	1,812	P-C-15B
JB-ROOF A-2	Sag		5.0	9.04	9.04	312.82	318.46	....	....	0.00	0.00	1.00	MH	0.00	10,191	9,172	8,662	P-ROOF A-2
I-C-21A	Sag		5.0	9.04	9.04	312.26	317.42	....	....	0.00	0.00	1.00	Generic	0.00	3,396	3,056	2,887	P-C-21A
JB-ROOF A-1	Sag		5.0	9.04	9.04	314.82	320.46	....	....	0.00	0.00	1.00	MH	0.00	6,068	5,461	5,158	P-ROOF A-1
I-A-1	Sag		5.0	8.79	9.04	313.86	314.82	....	....	0.00	0.00	1.50	Generic	0.00	6,980	6,282	5,933	P-A-1
I-A-2	Sag		5.0	8.66	9.04	312.40	313.36	....	....	0.00	0.00	0.50	Generic	0.00	8,568	7,711	7,283	P-A-2
I-A-3	Sag		5.0	8.50	9.04	309.44	310.40	....	....	0.00	0.00	1.50	Generic	0.00	14,349	12,914	12,196	P-A-3
I-A-4	Sag		5.0	8.34	9.04	295.75	300.24	....	....	0.00	0.00	1.50	Generic	0.00	4,113	3,702	3,496	P-A-4
JB-A-1	Sag		5.0	8.30	9.04	289.26	292.66	....	....	0.00	0.00	0.15	MH	0.00	2,295	2,065	1,950	P-JB-A-1
JB-ROOF C-1	Sag		5.0	9.04	9.04	313.57	319.21	....	....	0.00	0.00	1.00	MH	0.00	9,445	8,501	8,028	P-ROOF C-1
I-C-1	Sag		5.0	8.84	9.04	312.36	313.32	....	....	0.00	0.00	1.50	Generic	0.00	10,104	9,094	8,588	P-C-1
I-C-2	Sag		5.0	8.63	9.04	311.40	312.36	....	....	0.00	0.00	0.50	Generic	0.00	11,576	10,418	9,840	P-C-2

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

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MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
JB-ROOF C-4	Sag		5.0	9.04	9.04	313.57	319.21	....	....	0.00	0.00	1.00	MH	0.00	9,445	8,501	8,028	P-ROOF C-4
JB-ROOF C-3	Sag		5.0	9.04	9.04	313.57	319.21	....	....	0.00	0.00	1.00	MH	0.00	9,470	8,523	8,050	P-ROOF C-3
I-C-3A	Sag		5.0	9.04	9.04	312.64	312.80	....	....	0.00	0.00	1.00	Generic	0.00	1,108	997	942	P-C-3A
I-C-3B	Sag		5.0	8.81	9.04	312.48	312.64	....	....	0.00	0.00	0.50	Generic	0.00	1,352	1,217	1,149	P-C-3B
JB-ROOF B-2	Sag		5.0	9.04	9.04	313.82	319.46	....	....	0.00	0.00	1.00	MH	0.00	9,072	8,165	7,711	P-ROOF B-2
JB-ROOF B-1	Sag		5.0	9.04	9.04	313.82	319.46	....	....	0.00	0.00	1.00	MH	0.00	9,072	8,165	7,711	P-ROOF B-1
I-B-15A	Sag		5.0	8.84	9.04	312.86	313.82	....	....	0.00	0.00	1.50	Generic	0.00	9,336	8,402	7,936	P-B-17A
I-B-15B	Sag		5.0	8.65	9.04	311.90	312.86	....	....	0.00	0.00	0.50	Generic	0.00	10,008	9,007	8,507	P-B-15B
I-B-15C	Sag		5.0	8.47	9.04	302.46	307.30	....	....	0.00	0.00	1.87	Generic	0.00	3,374	3,037	2,868	P-B-15C
JB-B-1	Sag		5.0	8.42	9.04	290.56	301.81	....	....	0.00	0.00	0.15	MH	0.00	7,298	6,568	6,203	P-JB-B-1
I-C-13A	Sag		5.0	9.04	9.04	321.56	322.37	....	....	0.00	0.00	1.00	Generic	0.00	3,732	3,359	3,172	P-C-13A
I-C-13B	Sag		5.0	7.70	9.04	321.24	321.56	....	....	0.00	0.00	1.46	Generic	0.00	2,460	2,214	2,091	P-C-13B
JB-ROOF C-2	Sag		5.0	9.04	9.04	313.57	319.21	....	....	0.00	0.00	1.00	MH	0.00	9,445	8,501	8,028	P-ROOF C-2
I-C-3	Sag		5.0	8.47	9.04	309.02	309.98	....	....	0.00	0.00	2.19	Generic	0.00	14,428	12,985	12,263	P-C-3
I-C-4	Sag		5.0	8.32	9.04	308.06	309.02	....	....	0.00	0.00	0.50	Generic	0.00	15,130	13,617	12,861	P-C-4
I-C-5	Sag		5.0	8.18	9.04	307.10	308.06	....	....	0.00	0.00	1.50	Generic	0.00	16,470	14,823	14,000	P-C-5
I-C-6	Sag		5.0	8.09	9.04	306.14	307.10	....	....	0.00	0.00	0.50	Generic	0.00	16,726	15,053	14,217	P-C-6
I-C-7	Sag		5.0	7.99	9.04	305.67	306.14	....	....	0.00	0.00	1.50	Generic	0.00	9,060	8,154	7,701	P-C-7
I-C-8	Sag		5.0	7.96	9.04	305.17	305.67	....	....	0.00	0.00	1.04	Generic	0.00	10,800	9,720	9,180	P-C-8
I-B-1	Sag		5.0	9.04	9.04	321.50	322.05	....	....	0.00	0.00	1.00	Generic	0.00	2,596	2,336	2,207	P-B-1
I-B-2	Sag		5.0	8.49	9.04	320.61	321.50	....	....	0.00	0.00	0.50	Generic	0.00	2,692	2,423	2,288	P-B-2
I-B-3	Sag		5.0	8.29	9.04	318.88	320.61	....	....	0.00	0.00	0.98	Generic	0.00	3,236	2,912	2,751	P-B-3
I-B-4	Sag		5.0	8.19	0.00	318.01	318.88	....	....	0.00	0.00	0.50	Generic	0.00	6,296	5,666	5,352	P-B-4

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: Intensity = 114.82 / (Inlet time + 17.20) ^ 0.82 -- Return period = 50 Yrs. ; ** Critical depth

MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
I-B-5	Sag		5.0	8.01	9.04	316.98	318.01	....	....	0.00	0.00	0.52	Generic	0.00	8,870	7,983	7,540	P-B-5
I-B-6	Sag		5.0	7.81	9.04	316.47	316.98	....	....	0.00	0.00	1.33	Generic	0.00	5,113	4,601	4,346	P-B-6
I-C-17A	Sag		5.0	9.04	9.04	318.13	321.56	....	....	0.00	0.00	1.00	Generic	0.00	1,796	1,616	1,527	P-C-17A
I-C-9A	Sag		5.0	9.04	9.04	318.92	321.56	....	....	0.00	0.00	1.00	Generic	0.00	1,844	1,660	1,567	P-C-9A
I-C-9	Sag		5.0	7.92	9.04	304.95	305.17	....	....	0.00	0.00	1.58	Generic	0.00	5,135	4,622	4,365	P-C-9
I-C-10	Sag		5.0	7.91	9.04	304.51	304.95	....	....	0.00	0.00	0.50	Generic	0.00	10,580	9,522	8,993	P-C-10
I-C-11	Sag		5.0	7.87	9.04	304.06	304.51	....	....	0.00	0.00	1.01	Generic	0.00	10,940	9,846	9,299	P-C-11
I-C-12	Sag		5.0	7.84	9.04	303.47	304.06	....	....	0.00	0.00	1.02	Generic	0.00	14,160	12,744	12,036	P-C-12
I-C-13	Sag		5.0	7.56	9.04	302.74	303.47	....	....	0.00	0.00	1.50	Generic	0.00	17,700	15,930	15,045	P-C-13
I-C-14	Sag		5.0	7.51	9.04	302.00	302.74	....	....	0.00	0.00	0.50	Generic	0.00	17,700	15,930	15,045	P-C-14
I-C-15	Sag		5.0	7.47	9.04	301.44	302.00	....	....	0.00	0.00	1.50	Generic	0.00	13,320	11,988	11,322	P-C-15
I-C-16	Sag		5.0	7.43	9.04	300.90	301.44	....	....	0.00	0.00	0.50	Generic	0.00	13,080	11,772	11,118	P-C-16
I-C-17	Sag		5.0	7.39	9.04	300.46	300.90	....	....	0.00	0.00	1.50	Generic	0.00	10,440	9,396	8,874	P-C-17
I-C-18	Sag		5.0	7.37	9.04	299.95	300.46	....	....	0.00	0.00	0.50	Generic	0.00	12,360	11,124	10,506	P-C-18
I-C-19	Sag		5.0	7.33	9.04	299.74	299.95	....	....	0.00	0.00	0.51	Generic	0.00	5,180	4,662	4,403	P-C-19
I-C-20	Sag		5.0	7.32	9.04	299.21	299.74	....	....	0.00	0.00	0.50	Generic	0.00	12,090	10,881	10,277	P-C-20
I-C-21	Sag		5.0	7.29	9.04	298.48	299.21	....	....	0.00	0.00	1.50	Generic	0.00	14,735	13,262	12,525	P-C-21
I-C-22	Sag		5.0	7.24	9.04	277.52	287.52	....	....	0.00	0.00	1.16	Generic	0.00	9,806	8,825	8,335	P-C-22
JB-C-2	Sag		5.0	7.21	9.04	246.10	256.10	....	....	0.00	0.00	0.15	MH	0.00	10,139	9,125	8,618	P-JB-C-2
JB-C-3	Sag		5.0	7.19	9.04	222.00	232.15	....	....	0.00	0.00	0.80	MH	0.00	9,054	8,148	7,695	P-JB-C-3
I-B-7A	Sag		5.0	9.04	9.04	321.06	321.56	....	....	0.00	0.00	1.00	Generic	0.00	3,804	3,424	3,233	P-B-7A
I-B-7	Sag		5.0	7.76	9.04	315.39	315.97	....	....	0.00	0.00	1.90	Generic	0.00	6,972	6,274	5,926	P-B-7
I-B-8	Sag		5.0	7.70	9.04	315.02	315.39	....	....	0.00	0.00	0.91	Generic	0.00	4,030	3,627	3,426	P-B-8

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

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MyReport

Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	Line ID
I-B-9	Sag		5.0	7.66	9.04	314.46	315.02	....	....	0.00	0.00	1.50	Generic	0.00	3,992	3,593	3,393	P-B-9
I-B-10	Sag		5.0	7.62	9.04	307.87	314.46	....	....	0.00	0.00	0.50	Generic	0.00	5,464	4,918	4,644	P-B-10
I-B-11	Sag		5.0	7.54	9.04	302.47	307.87	....	....	0.00	0.00	0.50	Generic	0.00	4,464	4,018	3,794	P-B-11
I-B-12	Sag		5.0	7.48	9.04	298.65	301.97	....	....	0.00	0.00	0.50	Generic	0.00	3,600	3,240	3,060	P-B-12
I-B-13	Sag		5.0	7.43	9.04	294.72	298.65	....	....	0.00	0.00	0.50	Generic	0.00	4,272	3,845	3,631	P-B-13
I-B-14	Sag		5.0	7.38	9.04	292.06	294.72	....	....	0.00	0.00	0.50 z	Generic	0.00	2,928	2,635	2,489	P-B-14
I-B-15	Sag		5.0	7.34	9.04	285.26	289.53	....	....	0.00	0.00	1.54 z	Generic	0.00	2,626	2,363	2,232	P-B-15

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

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MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
68.703	33	5.36	Cir	....	....	0.012	n/a	506429.74	0.34	....	....	....	33	0.00	33	0.00	0.00	0.00	0.0	....	0.00	0.00
79.896	18	1.48	Cir	....	....	0.012	n/a	506135.60	2.46	....	....	....	18	0.44	18	0.00	0.00	0.00	5.0	....	0.24	0.11
49.000	18	5.10	Cir	....	....	0.012	n/a	506147.49	2.13	....	....	....	18	0.44	18	0.00	0.00	0.00	5.0	....	0.17	0.07
38.810	18	0.50	Cir	0.0	....	0.012	n/a	506186.61	1.28	0.33	0.56	0.00	18	0.58	18	0.00	0.00	0.00	5.0	....	0.17	0.10
136.094	24	8.19	Cir	....	....	0.012	n/a	506254.00	0.71	....	....	....	24	0.00	24	0.00	0.00	0.00	0.0	....	0.00	0.00
101.206	24	0.50	Cir	....	....	0.012	n/a	506202.00	0.49	....	....	....	24	0.96	24	0.00	0.00	0.00	5.0	....	0.10	0.10
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506316.93	0.99	0.35	0.59	0.00	18	0.65	18	0.00	0.00	0.00	5.0	....	0.16	0.10
80.484	18	4.85	Cir	0.0	....	0.012	n/a	506342.64	2.01	0.09	0.15	0.00	18	0.45	18	0.00	0.00	0.00	6.0	....	0.22	0.13
50.530	18	4.61	Cir	0.0	....	0.012	n/a	506295.07	1.06	0.09	0.16	0.00	18	0.39	18	0.00	0.00	0.00	8.0	....	0.29	0.16
59.438	18	2.73	Cir	0.0	....	0.012	n/a	506253.87	0.96	0.16	0.28	0.00	18	0.41	18	0.00	0.00	0.00	9.1	....	0.41	0.21
35.268	18	2.29	Cir	0.0	....	0.012	n/a	506196.20	0.33	0.18	0.30	0.00	18	0.41	18	0.00	0.00	0.00	10.0	....	0.71	0.36
31.498	18	3.24	Cir	0.0	....	0.012	n/a	506166.51	0.26	0.21	0.36	0.00	18	0.78	18	0.00	0.00	0.00	10.4	....	0.79	0.42
14.652	18	0.50	Cir	0.0	....	0.012	n/a	506149.08	0.11	0.10	0.17	0.00	18	0.43	18	0.00	0.00	0.00	10.6	....	0.86	0.45
181.805	24	2.53	Cir	....	....	0.012	n/a	506163.33	0.61	....	....	....	24	0.96	24	0.00	0.00	0.00	10.7	....	1.06	0.64
89.304	18	0.50	Cir	0.0	....	0.012	n/a	506029.39	1.99	0.49	0.83	0.00	18	0.73	18	0.00	0.00	0.00	5.0	....	0.20	0.15
78.374	18	0.50	Cir	0.0	....	0.012	n/a	506102.92	0.90	0.48	0.82	0.00	18	0.96	18	0.00	0.00	0.00	7.0	....	0.35	0.29
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506179.69	1.07	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.10	0.10
108.535	18	0.50	Cir	0.0	....	0.012	n/a	506181.20	0.79	0.26	0.44	0.00	18	0.96	18	0.00	0.00	0.00	7.9	....	0.53	0.46
53.193	18	0.50	Cir	0.0	....	0.012	n/a	506289.72	0.35	0.22	0.38	0.00	18	0.96	18	0.00	0.00	0.00	8.7	....	0.60	0.53
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506680.49	1.17	0.30	0.50	0.00	18	0.63	18	0.00	0.00	0.00	5.0	....	0.14	0.09
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506383.84	0.73	0.47	0.80	0.00	18	0.70	18	0.00	0.00	0.00	5.0	....	0.20	0.14
31.643	18	0.50	Cir	0.0	....	0.012	n/a	506880.90	1.30	0.27	0.45	0.00	18	0.72	18	0.00	0.00	0.00	5.0	....	0.11	0.08
110.292	24	1.81	Cir	....	....	0.012	n/a	506522.60	0.58	....	....	....	24	0.00	24	0.00	0.00	0.00	0.0	....	0.00	0.00

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NOTES: ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
32.756	18	0.50	Cir	0.0	....	0.012	n/a	506582.48	0.23	1.57	2.67	0.00	18	0.69	18	0.00	0.00	0.00	5.0	....	0.68	0.47
109.322	24	0.50	Cir	....	....	0.012	n/a	506861.98	0.57	....	....	....	24	0.00	24	0.00	0.00	0.00	0.0	....	0.00	0.00
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506774.09	1.34	0.26	0.44	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.08	0.08
58.022	18	6.62	Cir	0.0	....	0.012	n/a	506618.42	2.82	0.22	0.38	0.00	18	0.67	18	0.00	0.00	0.00	5.0	....	0.10	0.07
92.040	18	7.61	Cir	0.0	....	0.012	n/a	506675.49	2.44	0.19	0.33	0.00	18	0.64	18	0.00	0.00	0.00	7.8	....	0.19	0.12
91.814	18	7.59	Cir	0.0	....	0.012	n/a	506765.56	1.54	0.25	0.43	0.00	18	0.58	18	0.00	0.00	0.00	10.3	....	0.32	0.20
80.595	18	10.00	Cir	0.0	....	0.012	n/a	506855.36	0.99	0.27	0.45	0.00	18	0.66	18	0.00	0.00	0.00	11.8	....	0.44	0.28
31.837	18	0.50	Cir	0.0	....	0.012	n/a	507063.27	0.93	0.37	0.64	0.00	18	0.62	18	0.00	0.00	0.00	5.0	....	0.18	0.11
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506966.01	1.07	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.10	0.10
31.583	18	0.50	Cir	0.0	....	0.012	n/a	507157.99	1.07	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.10	0.10
199.000	18	2.84	Cir	0.0	....	0.012	n/a	507149.59	3.40	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	6.1	....	0.20	0.19
199.000	18	2.84	Cir	0.0	....	0.012	n/a	506957.66	1.77	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	9.5	....	0.40	0.38
199.000	18	3.52	Cir	0.0	....	0.012	n/a	506765.74	1.27	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	11.2	....	0.58	0.56
124.667	18	4.89	Cir	0.0	....	0.012	n/a	506573.82	0.41	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	12.5	....	1.36	1.12
74.289	18	5.09	Cir	0.0	....	0.012	n/a	506453.08	0.23	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	12.9	....	1.46	1.22
37.221	18	4.65	Cir	0.0	....	0.012	n/a	506379.81	0.10	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	13.1	....	1.76	1.45
53.442	24	0.50	Cir	0.0	....	0.012	n/a	506342.81	0.18	0.22	0.38	0.00	24	0.96	24	0.00	0.00	0.00	13.2	....	2.43	2.05
60.376	24	10.00	Cir	....	....	0.012	n/a	506367.86	0.14	....	....	....	24	0.96	24	0.00	0.00	0.00	13.4	....	3.30	2.89
108.715	30	10.00	Cir	....	....	0.012	n/a	506396.15	0.32	....	....	....	30	0.96	30	0.00	0.00	0.00	13.6	....	4.17	3.72
31.750	18	0.50	Cir	0.0	....	0.012	n/a	507220.85	1.19	0.29	0.50	0.00	18	0.67	18	0.00	0.00	0.00	5.0	....	0.13	0.09
188.186	18	5.17	Cir	0.0	....	0.012	n/a	507202.41	3.23	0.35	0.59	0.00	18	0.65	18	0.00	0.00	0.00	6.2	....	0.29	0.19
97.034	18	5.22	Cir	0.0	....	0.012	n/a	507047.31	0.71	0.54	0.91	0.00	18	0.80	18	0.00	0.00	0.00	9.4	....	0.67	0.46
85.235	18	5.37	Cir	0.0	....	0.012	n/a	506958.62	0.46	0.59	1.00	0.00	18	0.63	18	0.00	0.00	0.00	10.1	....	0.95	0.64

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NOTES: ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
64.132	18	5.12	Cir	0.0	....	0.012	n/a	506875.85	0.22	0.17	0.29	0.00	18	0.57	18	0.00	0.00	0.00	12.8	....	1.59	1.05
63.707	18	5.35	Cir	0.0	....	0.012	n/a	506812.03	0.21	0.18	0.30	0.00	18	0.48	18	0.00	0.00	0.00	13.0	....	1.70	1.10
62.146	18	5.36	Cir	0.0	....	0.012	n/a	506748.34	0.20	0.16	0.27	0.00	18	0.47	18	0.00	0.00	0.00	13.2	....	1.80	1.15
73.633	18	5.15	Cir	0.0	....	0.012	n/a	506686.83	0.21	0.15	0.26	0.00	18	0.57	18	0.00	0.00	0.00	13.4	....	2.02	1.28
73.633	18	5.36	Cir	0.0	....	0.012	n/a	506615.92	0.21	0.12	0.21	0.00	18	0.62	18	0.00	0.00	0.00	13.6	....	2.08	1.32
71.861	18	5.36	Cir	0.0	....	0.012	n/a	506548.48	0.20	0.15	0.25	0.00	18	0.49	18	0.00	0.00	0.00	13.8	....	2.17	1.36
71.861	18	5.36	Cir	0.0	....	0.012	n/a	506487.30	0.19	0.35	0.60	0.00	18	0.75	18	0.00	0.00	0.00	14.0	....	2.31	1.47
31.583	18	0.50	Cir	0.0	....	0.012	n/a	506431.84	0.08	0.14	0.24	0.00	18	0.47	18	0.00	0.00	0.00	14.2	....	2.40	1.51
100.212	18	0.50	Cir	0.0	....	0.012	n/a	506410.13	0.25	0.17	0.28	0.00	18	0.55	18	0.00	0.00	0.00	14.3	....	2.49	1.56
31.715	18	0.50	Cir	0.0	....	0.012	n/a	507348.31	1.08	0.32	0.55	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.10	0.10
100.000	18	0.50	Cir	0.0	....	0.012	n/a	507956.71	1.57	0.69	1.18	0.00	18	0.90	18	0.00	0.00	0.00	5.0	....	0.23	0.21
63.997	18	0.95	Cir	0.0	....	0.012	n/a	507898.62	0.50	0.72	1.23	0.00	18	0.83	18	0.00	0.00	0.00	6.6	....	0.49	0.42
186.881	42	3.02	Cir	....	....	0.012	n/a	507181.42	0.60	....	....	....	42	0.96	42	0.00	0.00	0.00	5.0	....	5.78	5.55
103.392	18	4.99	Cir	0.0	....	0.012	n/a	507477.54	1.17	0.96	1.64	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.30	0.29
186.881	18	3.02	Cir	....	....	0.012	n/a	507494.15	0.76	....	....	....	18	0.96	18	0.00	0.00	0.00	5.0	....	0.83	0.80
192.000	18	0.50	Cir	0.0	....	0.012	n/a	507385.66	0.44	2.25	3.83	0.00	18	0.96	18	0.00	0.00	0.00	5.8	....	1.53	1.47
192.000	24	0.50	Cir	0.0	....	0.012	n/a	507229.36	0.53	2.70	4.59	0.00	24	0.96	24	0.00	0.00	0.00	6.2	....	2.37	2.28
192.000	48	0.50	Cir	0.0	....	0.012	n/a	507073.07	0.58	2.70	4.59	0.00	48	0.96	48	0.00	0.00	0.00	6.7	....	8.99	8.63
44.870	48	10.00	Cir	0.0	....	0.012	n/a	506916.77	0.13	2.70	4.59	0.00	48	0.96	48	0.00	0.00	0.00	7.3	....	9.83	9.44
34.034	48	10.00	Cir	....	....	0.012	n/a	506888.05	0.09	....	....	....	48	0.96	48	0.00	0.00	0.00	7.4	....	10.66	10.23
186.904	33	3.02	Cir	....	....	0.012	n/a	506915.04	0.63	....	....	....	33	0.96	33	0.00	0.00	0.00	5.0	....	3.40	3.26
192.000	36	0.50	Cir	0.0	....	0.012	n/a	507024.21	0.65	2.41	4.10	0.00	36	0.96	36	0.00	0.00	0.00	5.6	....	4.15	3.98
192.000	36	0.50	Cir	0.0	....	0.012	n/a	507181.28	0.56	2.83	4.81	0.00	36	0.96	36	0.00	0.00	0.00	6.3	....	5.03	4.83

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NOTES: ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
186.917	33	3.02	Cir	....	....	0.012	n/a	507859.88	0.63	....	....	....	33	0.96	33	0.00	0.00	0.00	5.0	....	3.40	3.26
187.120	33	3.01	Cir	....	....	0.012	n/a	507543.97	0.63	....	....	....	33	0.96	33	0.00	0.00	0.00	5.0	....	3.40	3.26
31.810	18	0.50	Cir	0.0	....	0.012	n/a	507380.67	0.72	0.48	0.82	0.00	18	0.36	18	0.00	0.00	0.00	5.0	....	0.40	0.14
32.727	18	0.50	Cir	0.0	....	0.012	n/a	507361.64	0.47	0.28	0.47	0.00	18	0.64	18	0.00	0.00	0.00	5.7	....	0.53	0.23
186.868	30	3.02	Cir	....	....	0.012	n/a	506870.51	0.61	....	....	....	30	0.96	30	0.00	0.00	0.00	5.0	....	2.89	2.77
186.868	30	3.02	Cir	....	....	0.012	n/a	506557.91	0.61	....	....	....	30	0.96	30	0.00	0.00	0.00	5.0	....	2.89	2.77
192.000	30	0.50	Cir	0.0	....	0.012	n/a	506447.88	0.63	0.26	0.44	0.00	30	0.96	30	0.00	0.00	0.00	5.6	....	2.97	2.85
192.000	30	0.50	Cir	0.0	....	0.012	n/a	506604.18	0.59	1.00	1.69	0.00	30	0.96	30	0.00	0.00	0.00	6.2	....	3.28	3.15
48.441	42	10.00	Cir	0.0	....	0.012	n/a	506760.48	0.16	0.40	0.68	0.00	42	0.92	42	0.00	0.00	0.00	6.8	....	6.30	6.04
112.488	48	10.00	Cir	....	....	0.012	n/a	506721.00	0.25	....	....	....	48	0.96	48	0.00	0.00	0.00	7.0	....	12.08	11.59
113.501	18	0.71	Cir	0.0	....	0.012	n/a	508109.90	4.81	0.26	0.44	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.08	0.08
63.997	18	0.50	Cir	0.0	....	0.012	n/a	508069.96	0.58	0.96	1.64	0.00	18	0.96	18	0.00	0.00	0.00	9.8	....	0.38	0.36
186.848	33	3.02	Cir	....	....	0.012	n/a	507229.22	0.63	....	....	....	33	0.96	33	0.00	0.00	0.00	5.0	....	3.40	3.26
190.878	48	0.50	Cir	0.0	....	0.012	n/a	507338.35	0.53	3.05	5.19	0.00	48	0.96	48	0.00	0.00	0.00	6.8	....	9.91	9.23
193.221	48	0.50	Cir	0.0	....	0.012	n/a	507495.15	0.50	3.58	6.08	0.00	48	0.64	48	0.00	0.00	0.00	7.4	....	11.58	10.30
192.000	48	0.50	Cir	0.0	....	0.012	n/a	507652.57	0.37	3.18	5.42	0.00	48	0.71	48	0.00	0.00	0.00	7.9	....	16.32	14.52
192.000	48	0.50	Cir	0.0	....	0.012	n/a	507808.86	0.36	2.98	5.07	0.00	48	0.84	48	0.00	0.00	0.00	8.2	....	17.38	15.41
93.412	48	0.50	Cir	0.0	....	0.012	n/a	507965.16	0.14	3.30	5.62	0.00	48	0.71	48	0.00	0.00	0.00	8.6	....	22.17	19.66
99.432	48	0.50	Cir	0.0	....	0.012	n/a	507988.55	0.15	0.45	0.77	0.00	48	0.71	48	0.00	0.00	0.00	8.7	....	22.36	19.79
78.278	18	0.70	Cir	0.0	....	0.012	n/a	506618.98	1.77	0.48	0.82	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.15	0.14
81.408	18	1.09	Cir	0.0	....	0.012	n/a	506546.45	0.72	0.77	1.31	0.00	18	0.92	18	0.00	0.00	0.00	6.8	....	0.40	0.37
98.140	18	1.76	Cir	0.0	....	0.012	n/a	506465.64	0.37	1.73	2.94	0.00	18	0.94	18	0.00	0.00	0.00	7.5	....	0.95	0.89
175.000	18	0.50	Cir	0.0	....	0.012	n/a	506394.95	0.67	0.00	0.00	0.00	18	0.81	18	0.00	0.00	0.00	7.9	....	0.95	0.89

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NOTES: ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
205.713	18	0.50	Cir	0.0	....	0.012	n/a	506293.31	0.81	0.03	0.05	0.00	18	0.96	18	0.00	0.00	0.00	8.5	....	0.96	0.90
101.222	18	0.50	Cir	0.0	....	0.012	n/a	506229.13	0.21	2.89	4.92	0.00	18	0.94	18	0.00	0.00	0.00	9.3	....	1.88	1.77
53.290	18	6.44	Cir	0.0	....	0.012	n/a	507785.37	0.67	0.87	1.48	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.27	0.26
54.997	18	4.80	Cir	0.0	....	0.012	n/a	508037.57	0.60	1.00	1.69	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.31	0.30
45.000	48	0.50	Cir	0.0	....	0.012	n/a	508069.51	0.07	0.67	1.13	0.00	48	0.83	48	0.00	0.00	0.00	8.9	....	22.91	20.29
86.940	48	0.50	Cir	0.0	....	0.012	n/a	508106.13	0.13	0.39	0.67	0.00	48	0.90	48	0.00	0.00	0.00	8.9	....	23.04	20.41
89.597	48	0.50	Cir	0.0	....	0.012	n/a	508169.52	0.13	0.49	0.83	0.00	48	0.77	48	0.00	0.00	0.00	9.1	....	23.23	20.55
118.046	48	0.50	Cir	0.0	....	0.012	n/a	508182.57	0.18	1.16	1.98	0.00	48	0.74	48	0.00	0.00	0.00	9.2	....	23.70	20.90
147.500	48	0.50	Cir	0.0	....	0.012	n/a	508122.06	0.22	1.46	0.85	0.96	48	0.62	48	0.00	0.00	0.00	10.4	....	24.32	21.41
147.500	48	0.50	Cir	0.0	....	0.012	n/a	508036.39	0.22	0.26	0.44	0.00	48	0.71	48	0.00	0.00	0.00	10.6	....	24.43	21.49
111.418	48	0.50	Cir	0.0	....	0.012	n/a	507950.72	0.17	0.44	0.75	0.00	48	0.78	48	0.00	0.00	0.00	10.8	....	25.09	22.05
109.044	48	0.50	Cir	0.0	....	0.012	n/a	507886.01	0.16	0.94	1.59	0.00	48	0.80	48	0.00	0.00	0.00	11.0	....	25.44	22.33
87.384	48	0.50	Cir	0.0	....	0.012	n/a	507809.96	0.13	0.43	0.73	0.00	48	0.80	48	0.00	0.00	0.00	11.2	....	25.87	22.71
103.032	48	0.50	Cir	0.0	....	0.012	n/a	507723.75	0.16	0.33	0.56	0.00	48	0.82	48	0.00	0.00	0.00	11.3	....	25.99	22.81
41.791	48	0.50	Cir	0.0	....	0.012	n/a	507620.72	0.06	0.41	0.70	0.00	48	0.88	48	0.00	0.00	0.00	11.5	....	26.13	22.94
104.784	48	0.50	Cir	0.0	....	0.012	n/a	507580.63	0.16	0.64	1.09	0.00	48	0.96	48	0.00	0.00	0.00	11.5	....	26.33	23.13
146.454	48	0.50	Cir	0.0	....	0.012	n/a	507487.82	0.22	0.48	0.82	0.00	48	0.48	48	0.00	0.00	0.00	11.7	....	26.93	23.56
100.000	48	10.00	Cir	0.0	....	0.012	n/a	507342.17	0.15	0.32	0.55	0.00	48	0.96	48	0.00	0.00	0.00	11.9	....	27.13	23.75
100.000	48	10.00	Cir	....	....	0.012	n/a	507279.86	0.12	....	....	....	48	0.96	48	0.00	0.00	0.00	12.1	....	33.19	29.57
101.499	48	10.00	Cir	....	....	0.012	n/a	507217.54	0.11	....	....	....	48	0.96	48	0.00	0.00	0.00	12.2	....	39.25	35.39
99.160	18	0.50	Cir	0.0	....	0.012	n/a	506375.47	1.35	0.80	1.37	0.00	18	0.96	18	0.00	0.00	0.00	5.0	....	0.25	0.24
115.238	24	0.50	Cir	0.0	....	0.012	n/a	506295.66	0.26	3.28	5.57	0.00	24	0.95	24	0.00	0.00	0.00	9.6	....	3.16	2.98
75.400	24	0.50	Cir	0.0	....	0.012	n/a	506268.77	0.16	0.45	0.77	0.00	24	0.96	24	0.00	0.00	0.00	9.8	....	3.30	3.12

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NOTES: ** Critical depth

MyReport

Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA
86.529	24	0.64	Cir	0.0	....	0.012	n/a	506213.72	0.19	0.03	0.05	0.00	24	0.96	24	0.00	0.00	0.00	10.0	....	3.31	3.13
149.260	24	4.42	Cir	0.0	....	0.012	n/a	506283.53	0.32	0.31	0.52	0.00	24	0.83	24	0.00	0.00	0.00	10.2	....	3.42	3.22
121.194	24	4.46	Cir	0.0	....	0.012	n/a	506401.45	0.26	0.32	0.55	0.00	24	0.96	24	0.00	0.00	0.00	10.5	....	3.52	3.32
72.580	30	4.57	Cir	0.0	....	0.012	n/a	506496.96	0.24	0.51	0.87	0.00	30	0.96	30	0.00	0.00	0.00	10.8	....	3.68	3.47
86.500	30	4.54	Cir	0.0	....	0.012	n/a	506546.18	0.27	0.85	1.44	0.00	30	0.59	30	0.00	0.00	0.00	11.0	....	4.11	3.72
58.560	30	4.54	Cir	0.0	....	0.012	n/a	506595.40	0.18	0.53	0.90	0.00	30	0.72	30	0.00	0.00	0.00	11.3	....	4.33	3.88
42.707	48	10.00	Cir	0.0	....	0.012	n/a	506622.51	0.08	0.32	0.54	0.00	48	0.73	48	0.00	0.00	0.00	11.4	....	16.54	15.57

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NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
0.00	4.77	3.37	0.00	0.00	6.18	0.00	2.00	0.00
0.95	1.81	1.08	0.00	0.00	2.54	0.00	2.00	0.00
0.68	1.67	1.02	0.00	0.00	2.32	0.00	2.00	0.00
0.89	1.86	1.23	0.00	0.00	2.50	2.40	2.00	0.00
0.00	5.37	5.28	0.00	0.00	5.46	2.00	2.00	0.00
0.87	5.68	5.78	0.00	0.00	5.57	2.58	2.00	0.00
0.94	2.39	2.25	0.00	0.00	2.53	2.16	2.00	0.00
1.14	2.59	2.53	0.00	0.00	2.64	2.00	2.16	0.00
1.29	2.50	2.31	0.00	0.00	2.68	2.00	2.00	0.00
1.63	4.16	5.47	0.00	0.00	2.84	2.00	2.00	0.00
2.75	3.11	2.95	0.00	0.00	3.27	2.00	2.40	0.00
3.19	3.34	3.27	0.00	0.00	3.40	2.00	2.00	0.00
3.40	2.72	1.98	0.00	0.00	3.46	5.32	2.00	0.00
4.82	6.41	6.87	0.00	0.00	5.96	0.00	5.32	0.00
1.32	2.32	1.87	0.00	0.00	2.77	6.70	2.00	0.00
2.44	2.82	2.41	0.00	0.00	3.23	10.61	6.70	0.00
0.87	2.54	2.60	0.00	0.00	2.48	2.16	2.00	0.00
3.78	3.53	3.42	0.00	0.00	3.64	16.48	10.61	0.00
4.23	3.85	3.96	0.00	0.00	3.74	19.45	16.48	0.00
0.80	1.47	0.51	0.00	0.00	2.42	2.16	2.00	0.00
1.27	1.74	0.74	0.00	0.00	2.74	2.16	2.00	0.00
0.72	1.43	0.52	0.00	0.00	2.35	2.15	2.00	0.00
0.00	6.04	6.62	0.00	0.00	5.46	0.00	2.00	0.00

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
4.24	3.39	2.90	0.00	0.00	3.88	2.18	2.00	0.00
0.00	4.80	4.14	0.00	0.00	5.46	0.31	2.00	0.00
0.69	1.53	0.73	0.00	0.00	2.33	2.16	2.00	0.00
0.61	1.95	1.64	0.00	0.00	2.25	2.00	2.00	0.00
1.02	2.25	1.98	0.00	0.00	2.52	2.00	2.00	0.00
1.52	5.19	7.61	0.00	0.00	2.76	2.00	2.00	0.00
2.03	2.29	1.62	0.00	0.00	2.96	2.00	5.11	0.00
1.01	1.86	1.14	0.00	0.00	2.58	2.14	2.00	0.00
0.87	1.80	1.12	0.00	0.00	2.48	2.16	2.00	0.00
0.87	2.03	1.58	0.00	0.00	2.48	2.16	2.00	0.00
1.67	3.27	3.62	0.00	0.00	2.93	2.00	2.16	0.00
2.99	3.86	4.37	0.00	0.00	3.36	2.00	2.16	0.00
4.11	3.49	3.34	0.00	0.00	3.64	2.00	2.16	0.00
7.99	4.37	4.28	0.00	0.00	4.46	2.00	2.18	0.00
8.58	4.90	5.25	0.00	0.00	4.55	2.00	2.00	0.00
10.17	7.91	10.99	0.00	0.00	4.83	2.00	2.16	0.00
14.32	5.08	5.27	0.00	0.00	4.90	3.31	19.45	0.00
20.05	11.26	17.03	0.00	0.00	5.49	2.00	11.26	0.00
25.75	4.14	2.77	0.00	0.00	5.52	0.00	15.19	0.00
0.79	1.93	1.45	0.00	0.00	2.42	2.16	2.00	0.00
1.66	2.82	2.72	0.00	0.00	2.92	2.00	2.16	0.00
3.60	3.23	2.91	0.00	0.00	3.55	2.00	2.14	0.00
4.87	3.94	4.03	0.00	0.00	3.86	2.00	2.00	0.00

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
7.41	4.28	4.23	0.00	0.00	4.34	2.00	2.15	0.00
7.74	4.35	4.30	0.00	0.00	4.40	2.00	2.00	0.00
8.02	4.96	5.48	0.00	0.00	4.44	2.00	2.00	0.00
8.91	4.58	4.55	0.00	0.00	4.60	2.00	2.16	0.00
9.12	4.60	4.56	0.00	0.00	4.64	2.00	2.00	0.00
9.37	4.58	4.48	0.00	0.00	4.67	2.00	2.00	0.00
10.04	4.75	4.72	0.00	0.00	4.79	2.00	2.00	0.00
10.28	4.11	3.39	0.00	0.00	4.82	2.16	2.00	0.00
10.60	3.80	3.21	0.00	0.00	4.38	0.28	2.16	0.00
0.87	2.54	2.60	0.00	0.00	2.48	2.10	2.00	0.00
1.87	2.52	1.99	0.00	0.00	3.06	2.50	2.00	0.00
3.61	4.25	4.86	0.00	0.00	3.64	2.00	2.50	0.00
50.16	10.60	14.57	0.00	0.00	6.63	2.00	2.00	0.00
2.60	5.72	8.07	0.00	0.00	3.36	2.00	2.00	0.00
7.20	3.59	2.57	0.00	0.00	4.61	2.00	2.00	0.00
12.92	5.19	5.19	0.00	0.00	5.19	2.96	2.00	0.00
19.70	5.88	5.94	0.00	0.00	5.82	3.92	2.96	0.00
73.36	7.64	8.23	0.00	0.00	7.05	4.88	3.92	0.00
78.67	15.84	24.50	0.00	0.00	7.17	2.00	14.08	0.00
84.95	6.09	4.83	0.00	0.00	7.35	0.00	5.09	0.00
29.51	6.57	7.11	0.00	0.00	6.02	2.00	2.00	0.00
35.20	5.87	5.59	0.00	0.00	6.15	2.96	2.00	0.00
41.70	6.83	7.19	0.00	0.00	6.47	3.92	2.96	0.00

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
29.51	9.42	12.82	0.00	0.00	6.02	2.00	2.00	0.00
29.51	9.42	12.81	0.00	0.00	6.02	2.00	2.00	0.00
1.30	2.42	2.07	0.00	0.00	2.76	2.11	2.00	0.00
2.00	3.19	3.29	0.00	0.00	3.09	4.34	2.11	0.00
25.08	9.12	12.35	0.00	0.00	5.89	2.00	2.00	0.00
25.08	5.93	5.96	0.00	0.00	5.89	2.00	2.00	0.00
25.21	5.75	5.65	0.00	0.00	5.86	2.96	2.00	0.00
27.22	6.22	6.46	0.00	0.00	5.97	3.92	2.96	0.00
51.18	6.72	6.90	0.00	0.00	6.53	2.00	7.52	0.00
97.66	11.99	16.22	0.00	0.00	7.76	2.00	2.15	0.00
0.69	1.64	0.94	0.00	0.00	2.33	2.00	2.00	0.00
2.81	3.40	3.50	0.00	0.00	3.29	3.42	2.00	0.00
29.51	9.42	12.82	0.00	0.00	6.02	2.00	2.00	0.00
78.20	7.02	6.85	0.00	0.00	7.19	5.28	4.34	0.00
85.69	6.72	6.05	0.00	0.00	7.38	6.26	5.28	0.00
118.77	8.17	8.08	0.00	0.00	8.26	7.22	6.26	0.00
124.57	7.88	7.38	0.00	0.00	8.38	8.18	7.22	0.00
157.15	9.21	9.22	0.00	0.00	9.21	11.55	8.18	0.00
157.53	9.16	9.12	0.00	0.00	9.20	13.25	11.55	0.00
1.30	2.14	1.52	0.00	0.00	2.76	2.00	2.00	0.00
3.18	2.74	1.99	0.00	0.00	3.49	2.00	2.00	0.00
7.38	4.55	4.58	0.00	0.00	4.52	2.00	2.00	0.00
7.29	3.82	3.15	0.00	0.00	4.48	2.88	2.00	0.00

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
7.21	2.85	2.29	0.00	0.00	3.40	6.24	2.88	0.00
13.78	5.18	5.18	0.00	0.00	5.18	8.16	6.24	0.00
2.34	5.91	8.56	0.00	0.00	3.26	2.00	2.00	0.00
2.69	5.72	8.05	0.00	0.00	3.39	2.00	2.00	0.00
160.72	9.26	9.26	0.00	0.00	9.27	14.01	13.25	0.00
161.31	9.28	9.28	0.00	0.00	9.28	15.28	14.01	0.00
161.81	9.25	9.23	0.00	0.00	9.27	16.67	15.28	0.00
163.86	9.39	9.47	0.00	0.00	9.31	18.69	16.67	0.00
161.95	9.20	9.22	0.00	0.00	9.18	19.44	18.69	0.00
161.49	9.11	9.07	0.00	0.00	9.14	18.32	19.44	0.00
164.59	9.19	9.18	0.00	0.00	9.20	17.48	18.32	0.00
165.87	9.19	9.17	0.00	0.00	9.21	16.73	17.48	0.00
167.95	9.25	9.26	0.00	0.00	9.25	16.15	16.73	0.00
168.04	9.24	9.25	0.00	0.00	9.23	15.32	16.15	0.00
168.20	9.21	9.20	0.00	0.00	9.22	14.88	15.32	0.00
169.30	9.22	9.19	0.00	0.00	9.24	12.55	14.88	0.00
171.68	9.52	9.76	0.00	0.00	9.29	9.19	12.55	0.00
172.00	19.50	29.72	0.00	0.00	9.27	2.00	20.15	0.00
213.22	20.93	31.54	0.00	0.00	10.31	2.00	23.42	0.00
254.29	15.88	20.32	0.00	0.00	11.45	0.00	15.95	0.00
2.17	3.29	3.39	0.00	0.00	3.19	3.57	2.00	0.00
23.15	5.92	5.87	0.00	0.00	5.97	5.69	8.16	0.00
24.00	6.05	6.06	0.00	0.00	6.04	4.17	5.69	0.00

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

MyReport

Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
23.96	6.00	5.96	0.00	0.00	6.03	2.00	4.17	0.00
24.52	6.05	6.03	0.00	0.00	6.07	2.00	2.00	0.00
25.00	9.28	12.45	0.00	0.00	6.11	2.00	2.00	0.00
25.96	5.52	5.42	0.00	0.00	5.63	2.00	2.00	0.00
27.67	5.69	5.63	0.00	0.00	5.74	2.00	2.00	0.00
28.62	12.18	16.89	0.87	0.87	7.47	2.00	2.00	162.68
114.24	11.01	11.50	1.72	1.72	10.53	0.00	3.03	444.24

Project File: Final Storm Network.stm | Number of lines: 122 | Date: 5/10/2024

NOTES: ** Critical depth

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
122	OS-C-OFF	User																		0.00
121	OS-RG-2-OFF	User																		5.00
120	OS-RG-1-OFF	User																		5.00
119	P-E-17A	User																		5.00
118	OS-E-OFF	User																		0.00
117	P-JB-E-1	User																		5.00
116	P-E-13	User																		5.00
115	P-E-14	User																		5.00
114	P-E-15	User																		5.00
113	P-E-16	User																		5.00
112	P-E-17	User																		5.00
111	P-E-18	User																		5.00
110	P-E-19	User																		5.00
109	P-JB-E-2	User																		5.00
108	P-C-34	User																		5.00
107	P-C-33	User																		5.00
106	P-C-32A	User																		5.00
105	P-C-32	User																		5.00
104	P-C-31	User																		5.00
103	P-E-7A	User																		5.00
102	P-C-29A	User																		5.00
101	P-E-3A	User																		5.00
100	OS-B-OFF	User																		0.00
99	P-C-27A	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
98	OS-A-OFF	User																		0.00
97	P-C-26A	User																		5.00
96	P-E-4B	User																		5.00
95	P-E-4C	User																		5.00
94	P-E-4D	User																		5.00
93	P-E-4E	User																		5.00
92	P-E-1	User																		5.00
91	P-C-25A	User																		5.00
90	P-C-23	User																		5.00
89	P-C-24	User																		5.00
88	P-C-25	User																		5.00
87	P-C-26	User																		5.00
86	P-C-27	User																		5.00
85	P-C-28	User																		5.00
84	P-C-29	User																		5.00
83	P-C-30	User																		5.00
82	P-JB-C-34	User																		5.00
81	P-JB-C-35	User																		5.00
80	P-E-2A	User																		5.00
79	P-E-2B	User																		5.00
78	P-E-2	User																		5.00
77	P-E-3	User																		5.00
76	P-E-4	User																		5.00
75	P-E-5	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
74	P-E-6	User																		5.00
73	P-E-7	User																		5.00
72	P-E-8	User																		5.00
71	P-E-9	User																		5.00
70	P-E-10	User																		5.00
69	P-E-11	User																		5.00
68	P-E-12	User																		5.00
67	P-C-22A	User																		5.00
66	P-C-15A	User																		5.00
65	P-C-15B	User																		5.00
64	P-ROOF A-2	User																		5.00
63	P-C-21A	User																		5.00
62	P-ROOF A-1	User																		5.00
61	P-A-1	User																		5.00
60	P-A-2	User																		5.00
59	P-A-3	User																		5.00
58	P-A-4	User																		5.00
57	P-JB-A-1	User																		5.00
56	P-ROOF C-1	User																		5.00
55	P-C-1	User																		5.00
54	P-C-2	User																		5.00
53	P-ROOF C-4	User																		5.00
52	P-ROOF C-3	User																		5.00
51	P-C-3A	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
50	P-C-3B	User																		5.00
49	P-ROOF B-2	User																		5.00
48	P-ROOF B-1	User																		5.00
47	P-B-17A	User																		5.00
46	P-B-15B	User																		5.00
45	P-B-15C	User																		5.00
44	P-JB-B-1	User																		5.00
43	P-C-13A	User																		5.00
42	P-C-13B	User																		5.00
41	P-ROOF C-2	User																		5.00
40	P-C-3	User																		5.00
39	P-C-4	User																		5.00
38	P-C-5	User																		5.00
37	P-C-6	User																		5.00
36	P-C-7	User																		5.00
35	P-C-8	User																		5.00
34	P-B-1	User																		5.00
33	P-B-2	User																		5.00
32	P-B-3	User																		5.00
31	P-B-4	User																		5.00
30	P-B-5	User																		5.00
29	P-B-6	User																		5.00
28	P-C-17A	User																		5.00
27	P-C-9A	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
26	P-C-9	User																		5.00
25	P-C-10	User																		5.00
24	P-C-11	User																		5.00
23	P-C-12	User																		5.00
22	P-C-13	User																		5.00
21	P-C-14	User																		5.00
20	P-C-15	User																		5.00
19	P-C-16	User																		5.00
18	P-C-17	User																		5.00
17	P-C-18	User																		5.00
16	P-C-19	User																		5.00
15	P-C-20	User																		5.00
14	P-C-21	User																		5.00
13	P-C-22	User																		5.00
12	P-JB-C-2	User																		5.00
11	P-JB-C-3	User																		5.00
10	P-B-7A	User																		5.00
9	P-B-7	User																		5.00
8	P-B-8	User																		5.00
7	P-B-9	User																		5.00
6	P-B-10	User																		5.00
5	P-B-11	User																		5.00
4	P-B-12	User																		5.00
3	P-B-13	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
2	P-B-14	User																		5.00
1	P-B-15	User																		5.00

Project File: Final Storm Network.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 122 | Date: 5/10/2024

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
122	33	20.00	209.73	214.60	0.00	0.00	3.37	0.00	214.60	0.000	68.703	213.41	214.88	0.00**	0.00	6.18	0.00	214.88	0.000	0.000	0.000	1.00	n/a
121	18	0.95	226.95	227.48	0.00	0.00	1.08	0.00	227.48	0.000	79.896	228.13	228.42	0.00**	0.00	2.54	0.00	228.42	0.000	0.000	0.000	1.00	n/a
120	18	0.68	230.13	230.56	0.00	0.00	1.02	0.00	230.56	0.000	49.000	232.63	232.87	0.00**	0.00	2.32	0.00	232.87	0.000	0.000	0.000	1.00	n/a
119	18	0.89	241.17	241.62	0.00	0.00	1.23	0.00	241.62	0.000	38.810	241.36	241.64	0.00**	0.00	2.50	0.00	241.64	0.000	0.000	0.000	1.00	n/a
118	24	10.00	242.02	243.18	0.00	0.00	5.28	0.00	243.18	0.000	136.094	253.16	254.29	0.00**	0.00	5.46	0.00	254.29	0.000	0.000	0.000	1.00	n/a
117	24	10.87	241.51	242.64	0.00	0.00	5.78	0.00	242.64	0.000	101.206	242.02	243.18	0.00**	0.00	5.57	0.00	243.18	0.000	0.000	0.000	0.15	n/a
116	18	0.94	249.42	249.73	0.00	0.00	2.25	0.00	249.73	0.000	31.583	249.58	249.87	0.00**	0.00	2.53	0.00	249.87	0.000	0.000	0.000	1.00	n/a
115	18	1.14	245.52	245.84	0.00	0.00	2.53	0.00	245.84	0.000	80.484	249.42	249.73	0.00**	0.00	2.64	0.00	249.73	0.000	0.000	0.000	1.50	n/a
114	18	1.29	243.19	243.54	0.00	0.00	2.31	0.00	243.54	0.000	50.530	245.52	245.84	0.00**	0.00	2.68	0.00	245.84	0.000	0.000	0.000	0.55	n/a
113	18	1.63	241.57	241.79	0.00	0.00	5.47	0.00	241.79	0.000	59.438	243.19	243.54	0.00**	0.00	2.84	0.00	243.54	0.000	0.000	0.000	0.63	n/a
112	18	2.75	240.36	240.85	0.00	0.00	2.95	0.00	240.85	0.000	35.268	241.17	241.62	0.00**	0.00	3.27	0.00	241.62	0.000	0.000	0.000	1.44	n/a
111	18	3.19	239.34	239.85	0.00	0.00	3.27	0.00	239.85	0.000	31.498	240.36	240.85	0.00**	0.00	3.40	0.00	240.85	0.000	0.000	0.000	0.69	n/a
110	18	3.40	239.27	240.04	0.00	0.00	1.98	0.00	240.04	0.000	14.652	239.34	239.85	0.00**	0.00	3.46	0.00	239.85	0.000	0.000	0.000	1.50	n/a
109	24	14.82	234.16	235.29	0.00	0.00	6.87	0.00	235.29	0.000	181.805	238.77	240.04	0.00**	0.00	5.96	0.00	240.04	0.000	0.000	0.000	0.99	n/a
108	18	1.32	255.47	255.92	0.00	0.00	1.87	0.00	255.92	0.000	89.304	255.92	256.26	0.00**	0.00	2.77	0.00	256.26	0.000	0.000	0.000	1.00	n/a
107	18	2.44	255.08	255.64	0.00	0.00	2.41	0.00	255.64	0.000	78.374	255.47	255.92	0.00**	0.00	3.23	0.00	255.92	0.000	0.000	0.000	0.99	n/a
106	18	0.87	263.53	263.80	0.00	0.00	2.60	0.00	263.80	0.000	31.583	263.69	263.96	0.00**	0.00	2.48	0.00	263.96	0.000	0.000	0.000	1.00	n/a
105	18	3.78	254.54	255.12	0.00	0.00	3.42	0.00	255.12	0.000	108.535	255.08	255.64	0.00**	0.00	3.64	0.00	255.64	0.000	0.000	0.000	1.53	n/a
104	18	4.23	254.27	254.83	0.00	0.00	3.96	0.00	254.83	0.000	53.193	254.54	255.12	0.00**	0.00	3.74	0.00	255.12	0.000	0.000	0.000	0.50	n/a
103	18	0.80	272.48	273.30	0.00	0.00	0.51	0.00	273.30	0.000	31.583	272.64	272.90	0.00**	0.00	2.42	0.00	272.90	0.000	0.000	0.000	1.00	n/a
102	18	1.27	273.45	274.33	0.00	0.00	0.74	0.00	274.33	0.000	31.583	273.61	273.94	0.00**	0.00	2.74	0.00	273.94	0.000	0.000	0.000	1.00	n/a
101	18	0.72	282.66	283.41	0.00	0.00	0.52	0.00	283.41	0.000	31.643	282.82	283.07	0.00**	0.00	2.35	0.00	283.07	0.000	0.000	0.000	1.00	n/a

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
100	24	10.00	282.16	283.13	0.00	0.00	6.62	0.00	283.13	0.000	110.292	284.16	285.29	0.00**	0.00	5.46	0.00	285.29	0.000	0.000	0.000	1.00	n/a
99	18	4.24	283.49	284.26	0.00	0.00	2.90	0.00	284.26	0.000	32.756	283.65	284.27	0.00**	0.00	3.88	0.00	284.27	0.000	0.000	0.000	1.00	n/a
98	24	10.00	287.61	289.05	0.00	0.00	4.14	0.00	289.05	0.000	109.322	288.16	289.29	0.00**	0.00	5.46	0.00	289.29	0.000	0.000	0.000	1.00	n/a
97	18	0.69	290.67	291.23	0.00	0.00	0.73	0.00	291.23	0.000	31.583	290.83	291.07	0.00**	0.00	2.33	0.00	291.07	0.000	0.000	0.000	1.00	n/a
96	18	0.61	307.95	308.23	0.00	0.00	1.64	0.00	308.23	0.000	58.022	311.79	312.02	0.00**	0.00	2.25	0.00	312.02	0.000	0.000	0.000	1.00	n/a
95	18	1.02	300.95	301.29	0.00	0.00	1.98	0.00	301.29	0.000	92.040	307.95	308.23	0.00**	0.00	2.52	0.00	308.23	0.000	0.000	0.000	0.65	n/a
94	18	1.52	293.98	294.15	0.00	0.00	7.61	0.00	294.15	0.000	91.814	300.95	301.29	0.00**	0.00	2.76	0.00	301.29	0.000	0.000	0.000	0.50	n/a
93	18	2.03	282.81	283.41	0.00	0.00	1.62	0.00	283.41	0.000	80.595	290.87	291.25	0.00**	0.00	2.96	0.00	291.25	0.000	0.000	0.000	1.50	n/a
92	18	1.01	292.45	292.98	0.00	0.00	1.14	0.00	292.98	0.000	31.837	292.61	292.91	0.00**	0.00	2.58	0.00	292.91	0.000	0.000	0.000	1.00	n/a
91	18	0.87	296.47	296.95	0.00	0.00	1.12	0.00	296.95	0.000	31.583	296.63	296.90	0.00**	0.00	2.48	0.00	296.90	0.000	0.000	0.000	1.00	n/a
90	18	0.87	302.27	302.65	0.00	0.00	1.58	0.00	302.65	0.000	31.583	302.43	302.70	0.00**	0.00	2.48	0.00	302.70	0.000	0.000	0.000	1.00	n/a
89	18	1.67	296.63	296.95	0.00	0.00	3.62	0.00	296.95	0.000	199.000	302.27	302.65	0.00**	0.00	2.93	0.00	302.65	0.000	0.000	0.000	1.50	n/a
88	18	2.99	290.83	291.23	0.00	0.00	4.37	0.00	291.23	0.000	199.000	296.47	296.95	0.00**	0.00	3.36	0.00	296.95	0.000	0.000	0.000	1.50	n/a
87	18	4.11	283.67	284.26	0.00	0.00	3.34	0.00	284.26	0.000	199.000	290.67	291.23	0.00**	0.00	3.64	0.00	291.23	0.000	0.000	0.000	1.50	n/a
86	18	7.99	277.39	278.19	0.00	0.00	4.28	0.00	278.19	0.000	124.667	283.49	284.26	0.00**	0.00	4.46	0.00	284.26	0.000	0.000	0.000	1.50	n/a
85	18	8.58	273.61	274.33	0.00	0.00	5.25	0.00	274.33	0.000	74.289	277.39	278.19	0.00**	0.00	4.55	0.00	278.19	0.000	0.000	0.000	0.50	n/a
84	18	10.17	271.72	272.19	0.00	0.00	10.99	0.00	272.19	0.000	37.221	273.45	274.33	0.00**	0.00	4.83	0.00	274.33	0.000	0.000	0.000	1.50	n/a
83	24	14.32	253.51	254.41	0.00	0.00	5.27	0.00	254.41	0.000	53.442	253.77	254.73	0.00**	0.00	4.90	0.00	254.73	0.000	0.000	0.000	1.97	n/a
82	24	20.05	239.52	240.01	0.00	0.00	17.03	0.00	240.01	0.000	60.376	245.56	246.70	0.00**	0.00	5.49	0.00	246.70	0.000	0.000	0.000	0.15	n/a
81	30	25.75	214.96	217.24	0.00	0.00	2.77	0.00	217.24	0.000	108.715	225.83	227.04	0.00**	0.00	5.52	0.00	227.04	0.000	0.000	0.000	0.15	n/a
80	18	0.79	302.31	302.68	0.00	0.00	1.45	0.00	302.68	0.000	31.750	302.47	302.73	0.00**	0.00	2.42	0.00	302.73	0.000	0.000	0.000	1.00	n/a
79	18	1.66	292.59	292.98	0.00	0.00	2.72	0.00	292.98	0.000	188.186	302.31	302.68	0.00**	0.00	2.92	0.00	302.68	0.000	0.000	0.000	1.50	n/a

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
78	18	3.60	287.39	288.01	0.00	0.00	2.91	0.00	288.01	0.000	97.034	292.45	292.98	0.00**	0.00	3.55	0.00	292.98	0.000	0.000	0.000	1.49	n/a
77	18	4.87	282.81	283.41	0.00	0.00	4.03	0.00	283.41	0.000	85.235	287.39	288.01	0.00**	0.00	3.86	0.00	288.01	0.000	0.000	0.000	0.50	n/a
76	18	7.41	279.38	280.14	0.00	0.00	4.23	0.00	280.14	0.000	64.132	282.66	283.41	0.00**	0.00	4.34	0.00	283.41	0.000	0.000	0.000	2.25	n/a
75	18	7.74	275.97	276.74	0.00	0.00	4.30	0.00	276.74	0.000	63.707	279.38	280.14	0.00**	0.00	4.40	0.00	280.14	0.000	0.000	0.000	0.50	n/a
74	18	8.02	272.64	273.30	0.00	0.00	5.48	0.00	273.30	0.000	62.146	275.97	276.74	0.00**	0.00	4.44	0.00	276.74	0.000	0.000	0.000	0.50	n/a
73	18	8.91	268.69	269.51	0.00	0.00	4.55	0.00	269.51	0.000	73.633	272.48	273.30	0.00**	0.00	4.60	0.00	273.30	0.000	0.000	0.000	1.50	n/a
72	18	9.12	264.74	265.57	0.00	0.00	4.56	0.00	265.57	0.000	73.633	268.69	269.51	0.00**	0.00	4.64	0.00	269.51	0.000	0.000	0.000	0.50	n/a
71	18	9.37	260.89	261.75	0.00	0.00	4.48	0.00	261.75	0.000	71.861	264.74	265.57	0.00**	0.00	4.67	0.00	265.57	0.000	0.000	0.000	0.50	n/a
70	18	10.04	257.04	257.91	0.00	0.00	4.72	0.00	257.91	0.000	71.861	260.89	261.75	0.00**	0.00	4.79	0.00	261.75	0.000	0.000	0.000	0.50	n/a
69	18	10.28	256.88	258.08	0.00	0.00	3.39	0.00	258.08	0.000	31.583	257.04	257.91	0.00**	0.00	4.82	0.00	257.91	0.000	0.000	0.000	1.50	n/a
68	18	10.60	256.38	257.70	0.00	0.00	3.21	0.00	257.70	0.000	100.212	256.88	257.85	0.00**	0.00	4.38	0.00	257.85	0.000	0.000	0.000	0.77	n/a
67	18	0.87	308.07	308.34	0.00	0.00	2.60	0.00	308.34	0.000	31.715	308.23	308.50	0.00**	0.00	2.48	0.00	308.50	0.000	0.000	0.000	1.00	n/a
66	18	1.87	321.43	321.98	0.00	0.00	1.99	0.00	321.98	0.000	100.000	321.93	322.34	0.00**	0.00	3.06	0.00	322.34	0.000	0.000	0.000	1.00	n/a
65	18	3.61	320.82	321.27	0.00	0.00	4.86	0.00	321.27	0.000	63.997	321.43	321.98	0.00**	0.00	3.64	0.00	321.98	0.000	0.000	0.000	1.50	n/a
64	42	50.16	312.82	313.79	0.00	0.00	14.57	0.00	313.79	0.000	186.881	318.46	320.20	0.00**	0.00	6.63	0.00	320.20	0.000	0.000	0.000	1.00	n/a
63	18	2.60	312.26	312.52	0.00	0.00	8.07	0.00	312.52	0.000	103.392	317.42	317.90	0.00**	0.00	3.36	0.00	317.90	0.000	0.000	0.000	1.00	n/a
62	18	7.20	314.82	316.65	0.00	0.00	2.57	0.00	316.65	0.000	186.881	320.46	321.28	0.00**	0.00	4.61	0.00	321.28	0.000	0.000	0.000	1.00	n/a
61	18	12.92	313.86	315.07	0.00	0.00	5.19	0.00	315.07	0.000	192.000	314.82	316.03	0.00**	0.00	5.19	0.00	316.03	0.000	0.000	0.000	1.50	n/a
60	24	19.70	312.40	313.62	0.00	0.00	5.94	0.00	313.62	0.000	192.000	313.36	314.60	0.00**	0.00	5.82	0.00	314.60	0.000	0.000	0.000	0.50	n/a
59	48	73.36	309.44	311.19	0.00	0.00	8.23	0.00	311.19	0.000	192.000	310.40	312.37	0.00**	0.00	7.05	0.00	312.37	0.000	0.000	0.000	1.50	n/a
58	48	78.67	295.75	296.57	0.00	0.00	24.50	0.00	296.57	0.000	44.870	300.24	302.26	0.00**	0.00	7.17	0.00	302.26	0.000	0.000	0.000	1.50	n/a
57	48	84.95	289.26	292.28	0.00	0.00	4.83	0.00	292.28	0.000	34.034	292.66	294.76	0.00**	0.00	7.35	0.00	294.76	0.000	0.000	0.000	0.15	n/a

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Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
56	33	29.51	313.57	314.82	0.00	0.00	7.11	0.00	314.82	0.000	186.904	319.21	320.63	0.00**	0.00	6.02	0.00	320.63	0.000	0.000	0.000	1.00	n/a
55	36	35.20	312.36	313.97	0.00	0.00	5.59	0.00	313.97	0.000	192.000	313.32	314.82	0.00**	0.00	6.15	0.00	314.82	0.000	0.000	0.000	1.50	n/a
54	36	41.70	311.40	312.88	0.00	0.00	7.19	0.00	312.88	0.000	192.000	312.36	313.97	0.00**	0.00	6.47	0.00	313.97	0.000	0.000	0.000	0.50	n/a
53	33	29.51	313.57	314.38	0.00	0.00	12.82	0.00	314.38	0.000	186.917	319.21	320.63	0.00**	0.00	6.02	0.00	320.63	0.000	0.000	0.000	1.00	n/a
52	33	29.51	313.57	314.38	0.00	0.00	12.81	0.00	314.38	0.000	187.120	319.21	320.63	0.00**	0.00	6.02	0.00	320.63	0.000	0.000	0.000	1.00	n/a
51	18	1.30	312.64	313.05	0.00	0.00	2.07	0.00	313.05	0.000	31.810	312.80	313.14	0.00**	0.00	2.76	0.00	313.14	0.000	0.000	0.000	1.00	n/a
50	18	2.00	312.48	312.87	0.00	0.00	3.29	0.00	312.87	0.000	32.727	312.64	313.05	0.00**	0.00	3.09	0.00	313.05	0.000	0.000	0.000	0.50	n/a
49	30	25.08	313.82	314.59	0.00	0.00	12.35	0.00	314.59	0.000	186.868	319.46	320.80	0.00**	0.00	5.89	0.00	320.80	0.000	0.000	0.000	1.00	n/a
48	30	25.08	313.82	315.15	0.00	0.00	5.96	0.00	315.15	0.000	186.868	319.46	320.80	0.00**	0.00	5.89	0.00	320.80	0.000	0.000	0.000	1.00	n/a
47	30	25.21	312.86	314.23	0.00	0.00	5.65	0.00	314.23	0.000	192.000	313.82	315.15	0.00**	0.00	5.86	0.00	315.15	0.000	0.000	0.000	1.50	n/a
46	30	27.22	311.90	313.18	0.00	0.00	6.46	0.00	313.18	0.000	192.000	312.86	314.23	0.00**	0.00	5.97	0.00	314.23	0.000	0.000	0.000	0.50	n/a
45	42	51.18	302.46	304.09	0.00	0.00	6.90	0.00	304.09	0.000	48.441	307.30	309.00	0.00**	0.00	6.53	0.00	309.00	0.000	0.000	0.000	1.87	n/a
44	48	97.66	290.56	291.86	0.00	0.00	16.22	0.00	291.86	0.000	112.488	301.81	304.09	0.00**	0.00	7.76	0.00	304.09	0.000	0.000	0.000	0.15	n/a
43	18	0.69	321.56	322.02	0.00	0.00	0.94	0.00	322.02	0.000	113.501	322.37	322.61	0.00**	0.00	2.33	0.00	322.61	0.000	0.000	0.000	1.00	n/a
42	18	2.81	321.24	321.68	0.00	0.00	3.50	0.00	321.68	0.000	63.997	321.56	322.02	0.00**	0.00	3.29	0.00	322.02	0.000	0.000	0.000	1.46	n/a
41	33	29.51	313.57	314.38	0.00	0.00	12.82	0.00	314.38	0.000	186.848	319.21	320.63	0.00**	0.00	6.02	0.00	320.63	0.000	0.000	0.000	1.00	n/a
40	48	78.20	309.02	311.14	0.00	0.00	6.85	0.00	311.14	0.000	190.878	309.98	312.01	0.00**	0.00	7.19	0.00	312.01	0.000	0.000	0.000	2.19	n/a
39	48	85.69	308.06	310.54	0.00	0.00	6.05	0.00	310.54	0.000	193.221	309.02	311.14	0.00**	0.00	7.38	0.00	311.14	0.000	0.000	0.000	0.50	n/a
38	48	118.8	307.10	309.63	0.00	0.00	8.08	0.00	309.63	0.000	192.000	308.06	310.54	0.00**	0.00	8.26	0.00	310.54	0.000	0.000	0.000	1.50	n/a
37	48	124.6	306.14	308.98	0.00	0.00	7.38	0.00	308.98	0.000	192.000	307.10	309.63	0.00**	0.00	8.38	0.00	309.63	0.000	0.000	0.000	0.50	n/a
36	48	157.2	305.67	308.51	0.00	0.00	9.22	0.00	308.51	0.000	93.412	306.14	308.98	0.00**	0.00	9.21	0.00	308.98	0.000	0.000	0.000	1.50	n/a
35	48	157.5	305.17	308.03	0.00	0.00	9.12	0.00	308.03	0.000	99.432	305.67	308.51	0.00**	0.00	9.20	0.00	308.51	0.000	0.000	0.000	1.04	n/a

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
34	18	1.30	321.50	322.02	0.00	0.00	1.52	0.00	322.02	0.000	78.278	322.05	322.39	0.00**	0.00	2.76	0.00	322.39	0.000	0.000	0.000	1.00	n/a
33	18	3.18	320.61	321.40	0.00	0.00	1.99	0.00	321.40	0.000	81.408	321.50	322.02	0.00**	0.00	3.49	0.00	322.02	0.000	0.000	0.000	0.50	n/a
32	18	7.38	318.88	319.66	0.00	0.00	4.58	0.00	319.66	0.000	98.140	320.61	321.40	0.00**	0.00	4.52	0.00	321.40	0.000	0.000	0.000	0.98	n/a
31	18	7.29	318.01	319.06	0.00	0.00	3.15	0.00	319.06	0.000	175.000	318.88	319.66	0.00**	0.00	4.48	0.00	319.66	0.000	0.000	0.000	0.50	n/a
30	18	7.21	316.98	318.69	0.00	0.00	2.29	0.00	318.69	0.000	205.713	318.01	318.96	0.00**	0.00	3.40	0.00	318.96	0.000	0.000	0.000	0.52	n/a
29	18	13.78	316.47	317.63	0.00	0.00	5.18	0.00	317.63	0.000	101.222	316.98	318.13	0.00**	0.00	5.18	0.00	318.13	0.000	0.000	0.000	1.33	n/a
28	18	2.34	318.13	318.36	0.00	0.00	8.56	0.00	318.36	0.000	53.290	321.56	322.02	0.00**	0.00	3.26	0.00	322.02	0.000	0.000	0.000	1.00	n/a
27	18	2.69	318.92	319.19	0.00	0.00	8.05	0.00	319.19	0.000	54.997	321.56	322.05	0.00**	0.00	3.39	0.00	322.05	0.000	0.000	0.000	1.00	n/a
26	48	160.7	304.95	307.81	0.00	0.00	9.26	0.00	307.81	0.000	45.000	305.17	308.03	0.00**	0.00	9.27	0.00	308.03	0.000	0.000	0.000	1.58	n/a
25	48	161.3	304.51	307.37	0.00	0.00	9.28	0.00	307.37	0.000	86.940	304.95	307.81	0.00**	0.00	9.28	0.00	307.81	0.000	0.000	0.000	0.50	n/a
24	48	161.8	304.06	306.94	0.00	0.00	9.23	0.00	306.94	0.000	89.597	304.51	307.37	0.00**	0.00	9.27	0.00	307.37	0.000	0.000	0.000	1.01	n/a
23	48	163.9	303.47	306.30	0.00	0.00	9.47	0.00	306.30	0.000	118.046	304.06	306.94	0.00**	0.00	9.31	0.00	306.94	0.000	0.000	0.000	1.02	n/a
22	48	162.0	302.74	305.55	0.00	0.00	9.22	0.00	305.55	0.000	147.500	303.47	306.30	0.00**	0.00	9.18	0.00	306.30	0.000	0.000	0.000	1.50	n/a
21	48	161.5	302.00	304.83	0.00	0.00	9.07	0.00	304.83	0.000	147.500	302.74	305.55	0.00**	0.00	9.14	0.00	305.55	0.000	0.000	0.000	0.50	n/a
20	48	164.6	301.44	304.28	0.00	0.00	9.18	0.00	304.28	0.000	111.418	302.00	304.83	0.00**	0.00	9.20	0.00	304.83	0.000	0.000	0.000	1.50	n/a
19	48	165.9	300.90	303.75	0.00	0.00	9.17	0.00	303.75	0.000	109.044	301.44	304.28	0.00**	0.00	9.21	0.00	304.28	0.000	0.000	0.000	0.50	n/a
18	48	167.9	300.46	303.31	0.00	0.00	9.26	0.00	303.31	0.000	87.384	300.90	303.75	0.00**	0.00	9.25	0.00	303.75	0.000	0.000	0.000	1.50	n/a
17	48	168.0	299.95	302.79	0.00	0.00	9.25	0.00	302.79	0.000	103.032	300.46	303.31	0.00**	0.00	9.23	0.00	303.31	0.000	0.000	0.000	0.50	n/a
16	48	168.2	299.74	302.59	0.00	0.00	9.20	0.00	302.59	0.000	41.791	299.95	302.79	0.00**	0.00	9.22	0.00	302.79	0.000	0.000	0.000	0.51	n/a
15	48	169.3	299.21	302.08	0.00	0.00	9.19	0.00	302.08	0.000	104.784	299.74	302.59	0.00**	0.00	9.24	0.00	302.59	0.000	0.000	0.000	0.50	n/a
14	48	171.7	298.48	301.22	0.00	0.00	9.76	0.00	301.22	0.000	146.454	299.21	302.08	0.00**	0.00	9.29	0.00	302.08	0.000	0.000	0.000	1.50	n/a
13	48	172.0	277.52	278.67	0.00	0.00	29.72	0.00	278.67	0.000	100.000	287.52	290.38	0.00**	0.00	9.27	0.00	290.38	0.000	0.000	0.000	1.16	n/a

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

Notes: ; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
12	48	213.2	246.10	247.39	0.00	0.00	31.54	0.00	247.39	0.000	100.000	256.10	259.27	0.00**	0.00	10.31	0.00	259.27	0.000	0.000	0.000	0.15	n/a
11	48	254.3	222.00	224.04	0.00	0.00	20.32	0.00	224.04	0.000	101.499	232.15	235.57	0.00**	0.00	11.45	0.00	235.57	0.000	0.000	0.000	0.80	n/a
10	18	2.17	321.06	321.48	0.00	0.00	3.39	0.00	321.48	0.000	99.160	321.56	322.00	0.00**	0.00	3.19	0.00	322.00	0.000	0.000	0.000	1.00	n/a
9	24	23.15	315.39	316.69	0.00	0.00	5.87	0.00	316.69	0.000	115.238	315.97	317.25	0.00**	0.00	5.97	0.00	317.25	0.000	0.000	0.000	1.90	n/a
8	24	24.00	315.02	316.31	0.00	0.00	6.06	0.00	316.31	0.000	75.400	315.39	316.69	0.00**	0.00	6.04	0.00	316.69	0.000	0.000	0.000	0.91	n/a
7	24	23.96	314.46	315.77	0.00	0.00	5.96	0.00	315.77	0.000	86.529	315.02	316.31	0.00**	0.00	6.03	0.00	316.31	0.000	0.000	0.000	1.50	n/a
6	24	24.52	307.87	309.18	0.00	0.00	6.03	0.00	309.18	0.000	149.260	314.46	315.77	0.00**	0.00	6.07	0.00	315.77	0.000	0.000	0.000	0.50	n/a
5	24	25.00	302.47	303.22	0.00	0.00	12.45	0.00	303.22	0.000	121.194	307.87	309.18	0.00**	0.00	6.11	0.00	309.18	0.000	0.000	0.000	0.50	n/a
4	30	25.96	298.65	299.94	0.00	0.00	5.42	0.00	299.94	0.000	72.580	301.97	303.22	0.00**	0.00	5.63	0.00	303.22	0.000	0.000	0.000	0.50	n/a
3	30	27.67	294.72	296.03	0.00	0.00	5.63	0.00	296.03	0.000	86.500	298.65	299.94	0.00**	0.00	5.74	0.00	299.94	0.000	0.000	0.000	0.50	n/a
2	30	28.62	292.06	293.00	0.94*	1.69	16.89	0.87	293.87	0.000	58.560	294.72	296.54	1.82**	3.83	7.47	0.87	297.41	0.000	0.000	n/a	0.50	n/a
1	48	114.2	285.26	288.21	2.95	9.93	11.50	1.72	289.93	0.000	42.707	289.53	292.75	3.22**	10.85	10.53	1.72	294.48	0.000	0.000	n/a	1.54	n/a

Project File: Final Storm Network.stm | Number of lines: 122 | Run Date: 5/10/2024

Notes: * Normal depth assumed; ** Critical depth. ; c = cir e = ellip b = box

TABLE 1106.2
SIZE OF VERTICAL CONDUCTORS AND LEADERS

DIAMETER OF OF LEADER (inches)[a]	HORIZONTALLY PROJECTED ROOF AREA (square feet)											
	Rainfall rate (inches per hour)											
	1	2	3	4	5	6	7	8	9	10	11	12
2	2,880	1,440	960	720	575	480	410	360	320	290	260	240
3	8,800	4,400	2,930	2,200	1,760	1,470	1,260	1,100	980	880	800	730
4	18,400	9,200	6,130	4,600	3,680	3,070	2,630	2,300	2,045	1,840	1,675	1,530
5	34,600	17,300	11,530	8,650	6,920	5,765	4,945	4,325	3,845	3,460	3,145	2,880
6	54,000	27,000	17,995	13,500	10,800	9,000	7,715	6,750	6,000	5,400	4,910	4,500
8	116,000	58,000	38,660	29,000	23,200	19,315	16,570	14,500	12,890	11,600	10,545	9,600

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2.

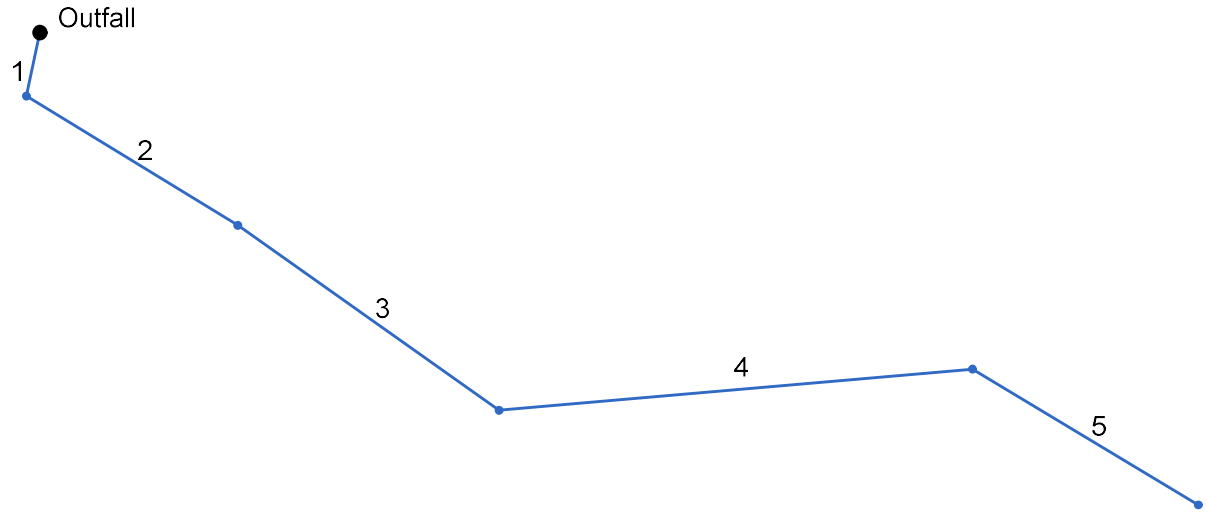
a. Sizes indicated are the diameter of circular piping. This table is applicable to piping of other shapes provided the cross-sectional shape fully encloses a circle of the diameter indicated in this table.

TABLE 1106.3
SIZE OF HORIZONTAL STORM DRAINGE PIPING

SIZE OF HORIZONTAL PIPING (inches)	HORIZONTALLY PROJECTED ROOF AREA (square feet)					
	Rainfall rate (inches per hour)					
	1	2	3	4	5	6
$^1/_8$ unit vertical in 12 units horizontal (1-percent slope)						
3	3,288	1,644	1,096	822	657	548
4	7,520	3,760	2,506	1,800	1,504	1,253
5	13,360	6,680	4,453	3,340	2,672	2,227
6	21,400	10,700	7,133	5,350	4,280	3,566
8	46,000	23,000	15,330	11,500	9,200	7,600
10	82,800	41,400	27,600	20,700	16,580	13,800
12	133,200	66,600	44,400	33,300	26,650	22,200
15	218,000	109,000	72,800	59,500	47,600	39,650
$^1/_4$ unit vertical in 12 units horizontal (2-percent slope)						
3	4,640	2,320	1,546	1,160	928	773
4	10,600	5,300	3,533	2,650	2,120	1,766
5	18,880	9,440	6,293	4,720	3,776	3,146
6	30,200	15,100	10,066	7,550	6,040	5,033
8	65,200	32,600	21,733	16,300	13,040	10,866
10	116,800	58,400	38,950	29,200	23,350	19,450
12	188,000	94,000	62,600	47,000	37,600	31,350
15	336,000	168,000	112,000	84,000	67,250	56,000
$^1/_2$ unit vertical in 12 units horizontal (4-percent slope)						
3	6,576	3,288	2,295	1,644	1,310	1,096
4	15,040	7,520	5,010	3,760	3,010	2,500
5	26,720	13,360	8,900	6,680	5,320	4,450
6	42,800	21,400	13,700	10,700	8,580	7,140
8	92,000	46,000	30,650	23,000	18,400	15,320
10	171,600	85,800	55,200	41,400	33,150	27,600
12	266,400	133,200	88,800	66,600	53,200	44,400
15	476,000	238,000	158,800	119,000	95,300	79,250

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2.

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2022-528-RG.stm	Number of lines: 5	Date: 10/31/2024

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
5	4	87.133	36.170	Comb	0.00	0.20	0.98	5.0	238.00	4.59	242.00	18	Cir	0.012	1.00	248.00	P-RG-5
4	3	157.491	-40.346	Comb	0.00	0.23	0.98	5.0	233.10	3.11	238.00	18	Cir	0.012	0.96	243.00	P-RG-4
3	2	106.186	3.758	Comb	0.00	0.50	0.98	5.0	231.82	1.21	233.10	18	Cir	0.012	1.04	237.70	P-RG-3
2	1	81.979	-70.026	Comb	0.00	0.12	0.98	5.0	231.40	0.51	231.82	18	Cir	0.012	0.50	234.45	P-RG-2
1	End	21.496	101.631	Comb	0.00	0.04	0.98	5.0	231.29	0.51	231.40	18	Cir	0.012	1.43	233.90	P-RG-1

Project File: 2022-528-RG.stm | Number of lines: 5 | Date: 10/31/2024

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
5	P-RG-5	1.93	18	Cir	87.133	238.00	242.00	4.591	238.76	242.52	n/a	242.52 j	4	Combination
4	P-RG-4	3.96	18	Cir	157.491	233.10	238.00	3.111	235.11	238.76	n/a	238.76 j	3	Combination
3	P-RG-3	8.24	18	Cir	106.186	231.82	233.10	1.205	234.20*	234.76*	0.35	235.11	2	Combination
2	P-RG-2	9.19	18	Cir	81.979	231.40	231.82	0.512	233.46*	233.99*	0.21	234.20	1	Combination
1	P-RG-1	9.47	18	Cir	21.496	231.29	231.40	0.512	232.48	232.74	0.72	233.46	End	Combination

Project File: 2022-528-RG.stm | Number of lines: 5 | Run Date: 10/31/2024

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
5	4	87.133	0.20	0.20	0.98	0.20	0.20	5.0	5.0	9.8	1.93	24.37	2.83	18	4.59	238.00	242.00	238.76	242.52	243.00	248.00	P-RG-5
4	3	157.491	0.23	0.43	0.98	0.23	0.42	5.0	6.3	9.4	3.96	20.07	3.32	18	3.11	233.10	238.00	235.11	238.76	237.70	243.00	P-RG-4
3	2	106.186	0.50	0.93	0.98	0.49	0.91	5.0	7.5	9.0	8.24	12.49	4.66	18	1.21	231.82	233.10	234.20	234.76	234.45	237.70	P-RG-3
2	1	81.979	0.12	1.05	0.98	0.12	1.03	5.0	7.8	8.9	9.19	8.14	5.20	18	0.51	231.40	231.82	233.46	233.99	233.90	234.45	P-RG-2
1	End	21.496	0.04	1.09	0.98	0.04	1.07	5.0	8.1	8.9	9.47	8.14	5.99	18	0.51	231.29	231.40	232.48	232.74	228.29	233.90	P-RG-1

Project File: 2022-528-RG.stm | Number of lines: 5 | Run Date: 10/31/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
5	I-RG-5	1.93	0.00	1.93	0.00	Comb	4.0	1.14	2.28	1.14	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
4	I-RG-4	2.22	0.00	2.22	0.00	Comb	4.0	1.91	3.82	1.91	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
3	I-RG-3	4.82	0.00	4.82	0.00	Comb	4.0	8.85	17.70	8.85	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
2	I-RG-2	1.16	0.00	1.16	0.00	Comb	4.0	0.22	0.43	0.22	2.00	Sag	2.00	0.050	0.020	0.000	0.23	8.65	0.23	8.65	0.0	Off
1	I-RG-1	0.39	0.00	0.39	0.00	Comb	4.0	0.07	0.14	0.07	2.00	Sag	2.00	0.050	0.020	0.000	0.13	3.62	0.13	3.62	0.0	Off

Project File: 2022-528-RG.stm | Number of lines: 5 | Run Date: 10/31/2024

NOTES: Inlet N-Values = 0.016; Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
5	18	1.93	238.00	238.76	0.76	0.55	2.14	0.19	238.95	0.000	87.133	242.00	242.52 j	0.52**	0.55	3.52	0.19	242.72	0.000	0.000	n/a	1.00	0.19
4	18	3.96	233.10	235.11	1.50	0.90	2.24	0.08	235.19	0.121	157.491	238.00	238.76 j	0.76**	0.90	4.40	0.30	239.06	0.462	0.291	n/a	0.96	n/a
3	18	8.24	231.82	234.20	1.50	1.77	4.66	0.34	234.54	0.525	106.186	233.10	234.76	1.50	1.77	4.66	0.34	235.10	0.524	0.524	0.557	1.04	0.35
2	18	9.19	231.40	233.46	1.50	1.77	5.20	0.42	233.88	0.653	81.979	231.82	233.99	1.50	1.77	5.20	0.42	234.41	0.653	0.653	0.535	0.50	0.21
1	18	9.47	231.29	232.48	1.19	1.50	6.30	0.62	233.10	0.737	21.496	231.40	232.74	1.34	1.67	5.68	0.50	233.24	0.614	0.675	0.145	1.43	0.72

Project File: 2022-528-RG.stm | Number of lines: 5 | Run Date: 10/31/2024

Notes: ; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

APPENDIX B

BMP Report

BASIN A modeling

The initial model using the contour area of 79,915 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 290.00').

1.0' is 15% void space, from 288.00 to 289.00 with an area of 79,915.

79,915 x 1 x 15% = 11,987 cu. ft.

1.0' is 30% void space, from 289.00 to 290.00 with an area of 79,915.

79,915 x 1 x 30% = 23,974 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP A

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	288.00	0	0.000	0.000
1	1.00	289.00	35,950	11,982	11,982
2	2.00	290.00	13,750	23,975	35,957
3	2.01	290.01	79,915	423	36,380
4	4.00	292.00	88,068	167,061	203,441
5	6.00	294.00	96,468	184,454	387,895
6	8.00	296.00	105,115	201,501	589,396
7					

Fill Media

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Wednesday, 06 / 12 / 2024

Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
1.00	289.00	35,950	11,982	11,982
2.00	290.00	13,750	23,975	35,957
2.01	290.01	79,915	423	36,380
4.00	292.00	88,068	167,061	203,441
6.00	294.00	96,468	184,454	387,895
8.00	296.00	105,115	201,501	589,396

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 95.00	0.00	0.00	0.00
Slope (%)	= 1.32	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	Yes	No

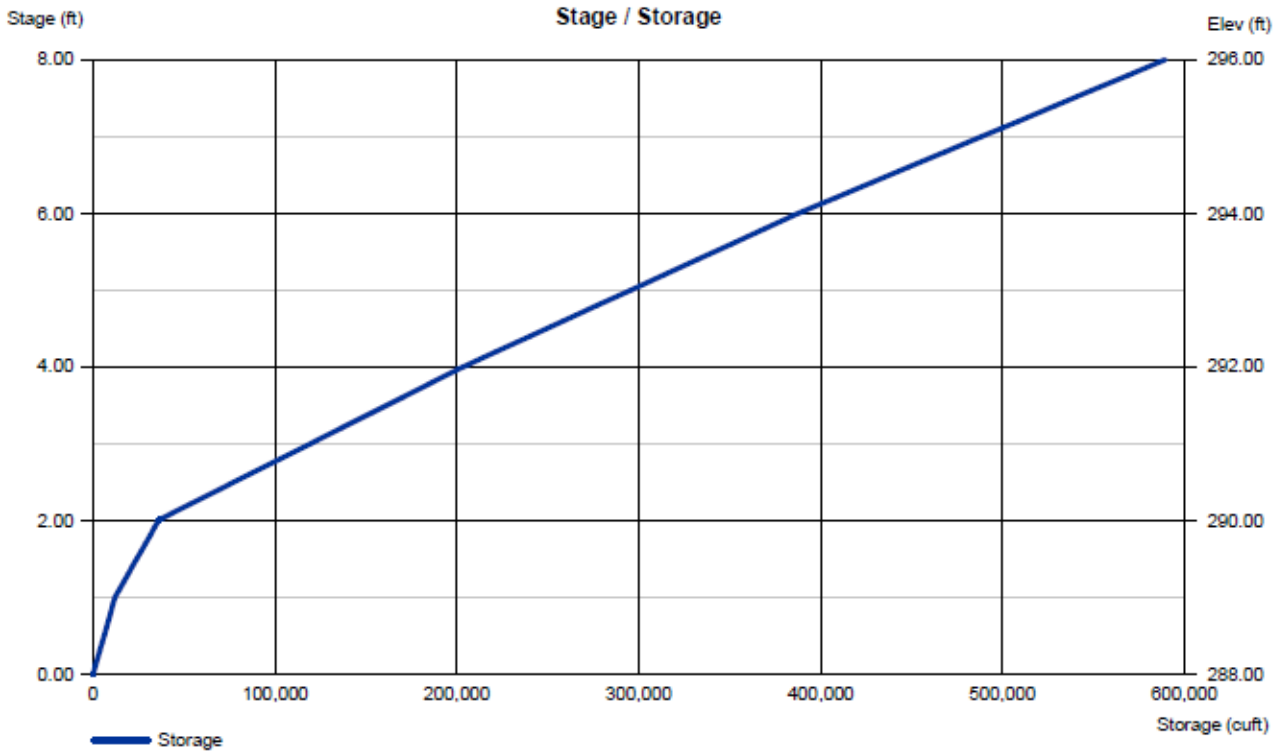
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN B modeling

The initial model using the contour area of 76,441 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 286.00').

1.0' is 15% void space, from 284.00 to 285.00 with an area of 76,441.

76,441 x 1 x 15% = 11,466 cu. ft.

1.0' is 30% void space, from 285.00 to 286.00 with an area of 76,441.

76,441 x 1 x 30% = 22,932 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP B

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	284.00	0	0.000	0.000
1	1.00	285.00	34,350	11,449	11,449
2	2.00	286.00	13,150	22,915	34,364
3	2.01	286.01	76,441	404	34,769
4	4.00	288.00	87,488	162,969	197,738
5	6.00	290.00	95,788	183,195	380,933
6	8.00	292.00	104,371	200,078	581,011
7					

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Wednesday, 06 / 12 / 2024

Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
1.00	285.00	34,350	11,449	11,449
2.00	286.00	13,150	22,915	34,364
2.01	286.01	76,441	404	34,769
4.00	288.00	87,488	162,969	197,738
6.00	290.00	95,788	183,195	380,933
8.00	292.00	104,371	200,078	581,011

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 2.99	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	Yes	No

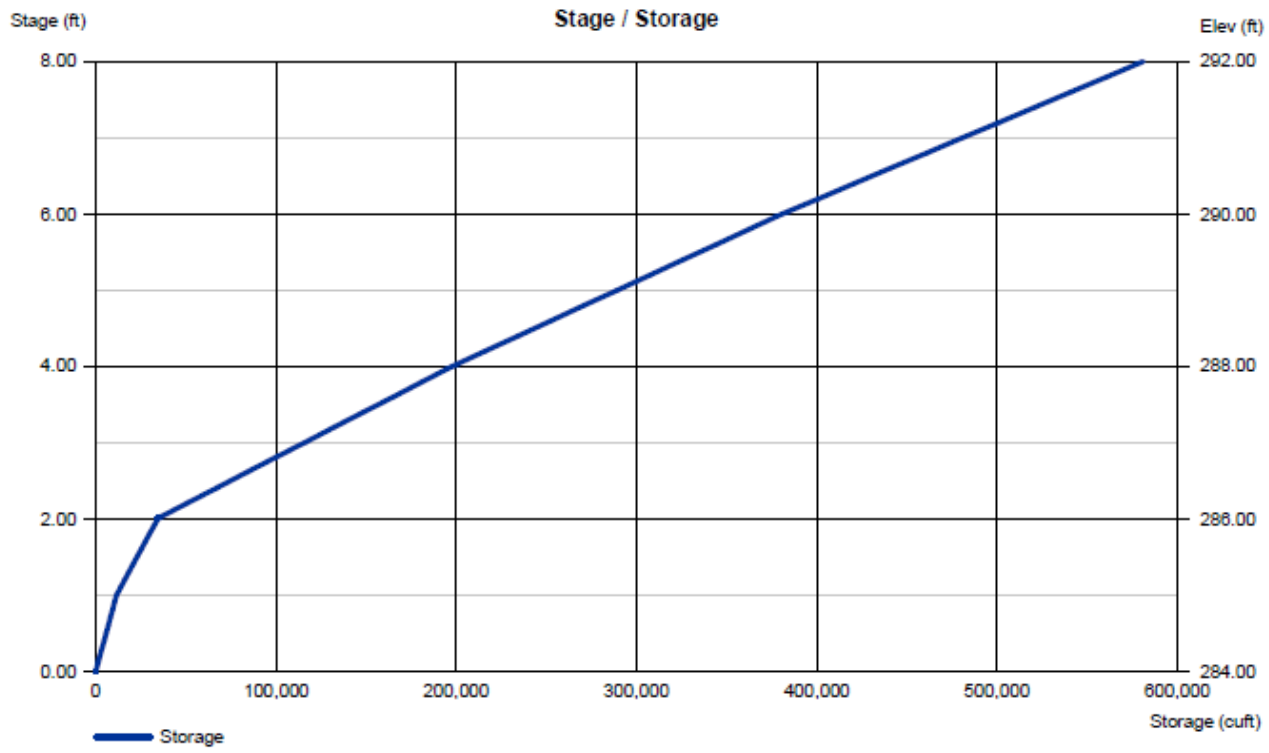
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN C modeling

The initial model using the contour area of 115,916 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 216.00').

1.0' is 15% void space, from 212.00 to 213.00 with an area of 115,916.

115,916 x 1 x 15% = 17,387 cu. ft.

1.0' is 15% void space, from 213.00 to 214.00 with an area of 115,916.

115,916 x 1 x 15% = 17,387 cu. ft.

1.0' is 15% void space, from 214.00 to 215.00 with an area of 115,916.

115,916 x 1 x 15% = 17,387 cu. ft.

1.0' is 30% void space, from 215.00 to 216.00 with an area of 115,916.

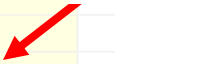
115,916 x 1 x 30% = 37,774 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP C

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	212.00	0	0.000	0.000
1	1.00	213.00	52,150	17,382	17,382
2	2.00	214.00	0	17,389	34,771
3	3.00	215.00	52,150	17,389	52,160
4	4.00	216.00	19,935	34,773	86,933
5	4.01	216.01	115,916	613	87,546
6	6.00	218.00	126,194	240,803	328,349
7	8.00	220.00	136,697	262,795	591,143
8	10.00	222.00	147,725	284,322	875,466
9	12.00	224.00	158,385	306,018	1,181,483
10					



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Wednesday, 06 / 12 / 2024

Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
1.00	213.00	52,150	17,382	17,382
2.00	214.00	00	17,389	34,771
3.00	215.00	52,150	17,389	52,160
4.00	216.00	19,935	34,773	86,933
4.01	216.01	115,916	613	87,546
6.00	218.00	126,194	240,803	328,349
8.00	220.00	136,697	262,795	591,143
10.00	222.00	147,725	284,322	875,466
12.00	224.00	158,385	306,018	1,181,483

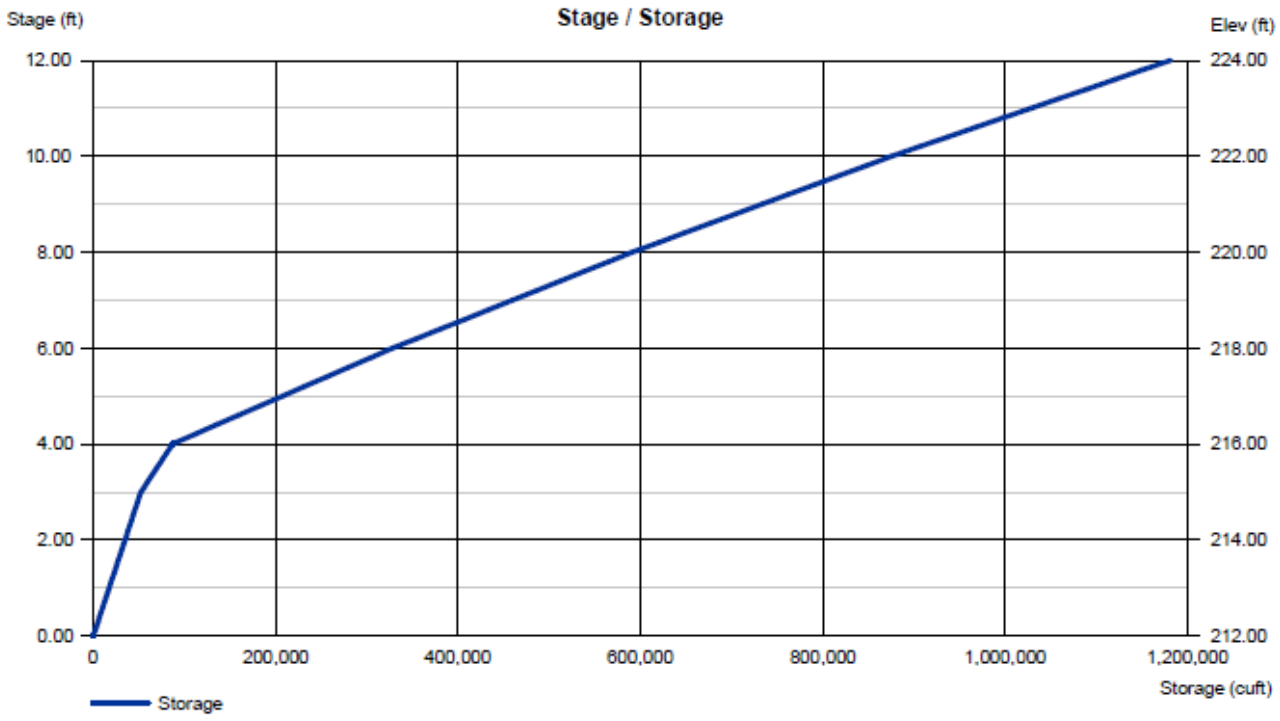
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	4.00	8.00	0.00
Span (in)	= 24.00	4.00	8.00	0.00
No. Barrels	= 1	6	4	0
Invert El. (ft)	= 215.00	215.00	218.00	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN E modeling

The initial model using the contour area of 8,762 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 256.00').

1.0' is 15% void space, from 252.00 to 253.00 with an area of 8,762.

8,762 x 1 x 15% = 1,314 cu. ft.

1.0' is 15% void space, from 253.00 to 254.00 with an area of 8,762.

8,762 x 1 x 15% = 1,314 cu. ft.

1.0' is 15% void space, from 254.00 to 255.00 with an area of 8,762.

8,762 x 1 x 15% = 1,314 cu. ft.

1.0' is 30% void space, from 255.00 to 256.00 with an area of 8,762.

8,762 x 1 x 30% = 2,629 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP E

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	252.00	0	0.000	0.000
1	1.00	253.00	3,940	1,313	1,313
2	2.00	254.00	0	1,315	2,629
3	3.00	255.00	3,940	1,315	3,944
4	4.00	256.00	1,510	2,629	6,573
5	4.01	256.01	8,762	46.4	6,620
6	6.00	258.00	11,385	19,987	26,607
7	8.00	260.00	14,240	25,569	52,176
8	10.00	262.00	17,331	31,517	83,694
9					

Fill Media

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Wednesday, 06 / 12 / 2024

Pond No. 4 - BMP E

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 252.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	252.00	00	0	0
1.00	253.00	3,940	1,313	1,313
2.00	254.00	00	1,315	2,629
3.00	255.00	3,940	1,315	3,944
4.00	256.00	1,510	2,629	6,573
4.01	256.01	8,762	46	6,620
6.00	258.00	11,385	19,987	26,607
8.00	260.00	14,240	25,569	52,176
10.00	262.00	17,331	31,517	83,694

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.00	4.00	0.00
Span (in)	= 24.00	3.00	4.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 255.00	255.00	257.65	0.00
Length (ft)	= 3.18	0.00	0.00	0.00
Slope (%)	= 5.42	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	Yes	No

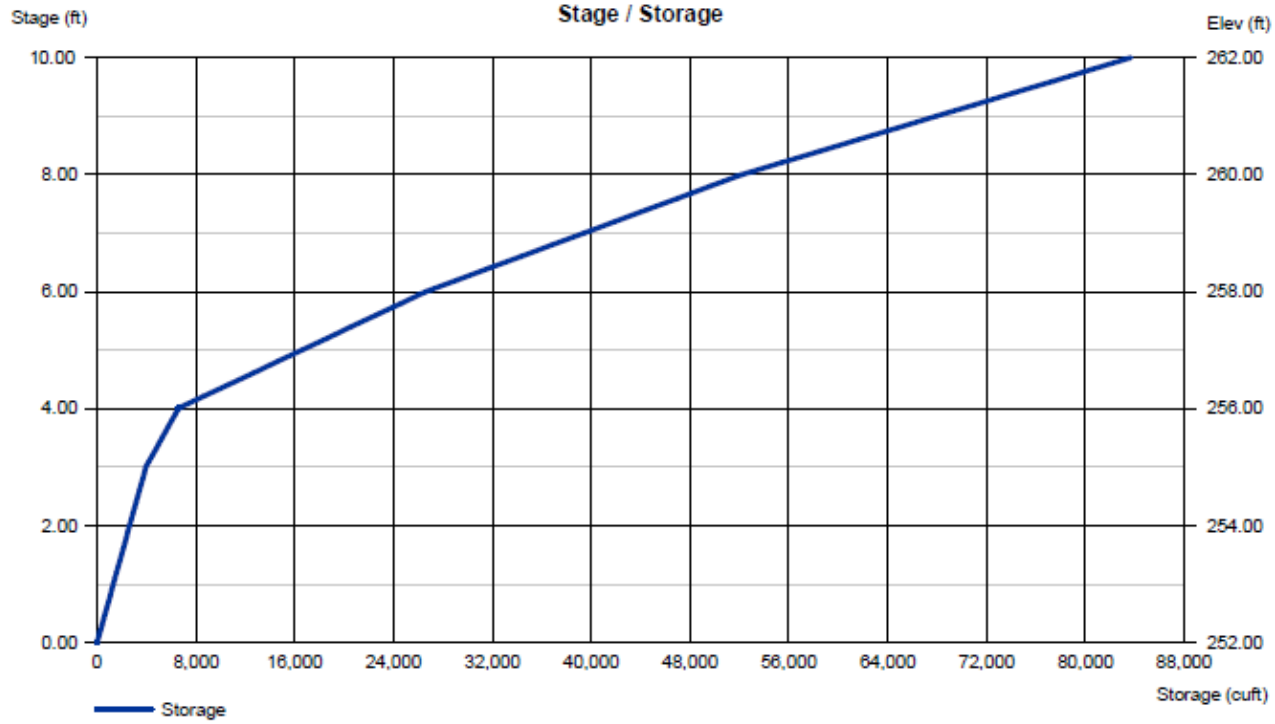
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 259.50	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Rain Garden 1 modeling

The initial model using the contour area of 5,492 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 231.30').

3.3' is 33.5% void space, from 228.00 to 231.30 with an area of 5,492.

5,492 x 3.3 x 33.5% = 6,041 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: Hacket Rain Garden

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	228.00	0	0.000	0.000
1	3.30	231.30	5,492	6,041	6,041
2	4.00	232.00	6,285	4,118	10,159
3	6.00	234.00	8,690	14,909	25,068
4					
5					

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Friday, 11 / 22 / 2024

Pond No. 5 - Hacket Rain Garden

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 228.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	228.00	00	0	0
3.30	231.30	5,492	6,041	6,041
4.00	232.00	6,285	4,118	10,159
6.00	234.00	8,690	14,909	25,068

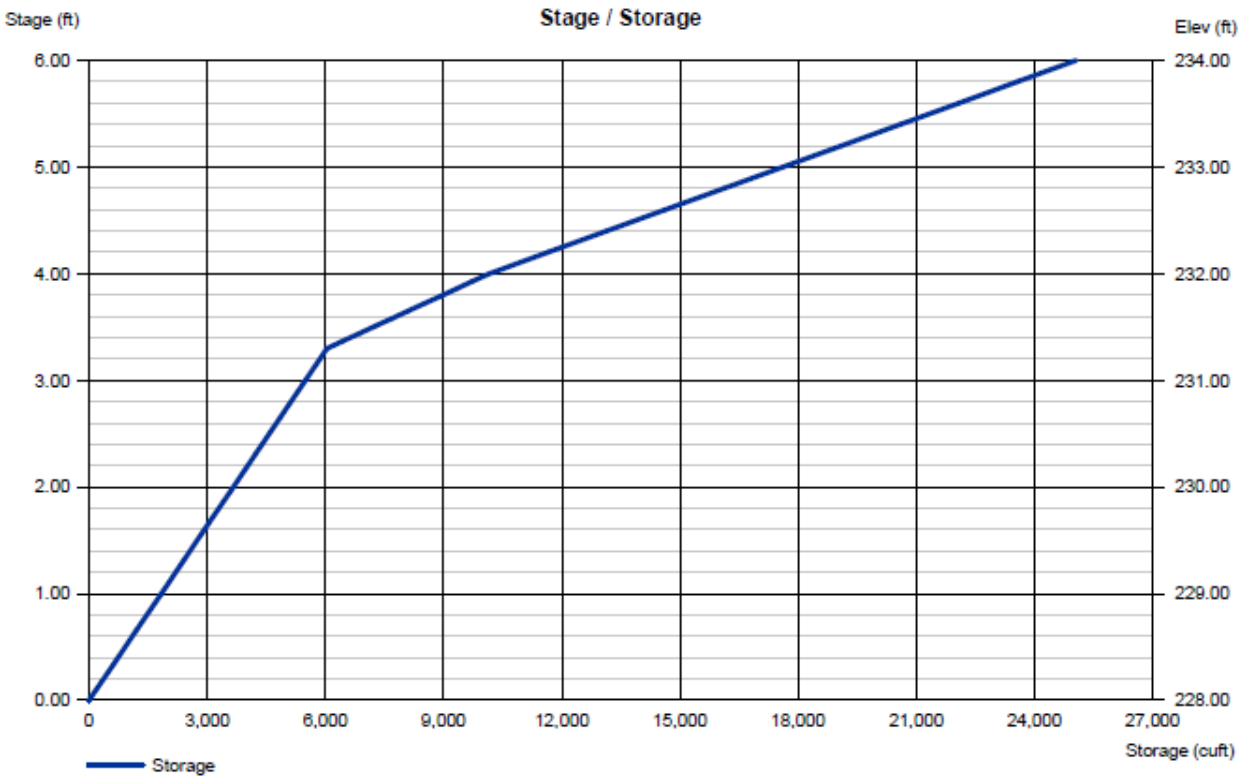
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	4.00	0.00	0.00
Span (in)	= 18.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 228.13	232.50	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 3.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	10.00	0.00	0.00
Crest El. (ft)	= 233.00	232.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC C

GENERAL INFORMATION

Applicant Name:	**Easton Wood Ave Propco, LLC**	Project Name:	**EASTON COMMERCE PARK**
Applicant Address:	**8801 River Crossing Blvd**	Municipality:	**City of Easton, Palmer Township, Wilson Borough**
City, State, Zip:	**Indianapolis, Indiana 46240**	County:	**Northampton**

Permit Type: ☐ NPDES PAG-02 ☒ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	3.96	22.95	18.99

MRC BMP INFORMATION

MRC BMP Type: **Rain Garden** Stormwater BMP Manual Section: **6.4.5**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **Ernst Rain Garden Seed Mix – ERNMX-180**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment:

Name of Surface Water to Receive MRC BMP Discharges: **Bushkill Creek and tributaries**

Designated Use of Surface Water: **HQ, CWF** Existing Use of Surface Water (if different):

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Pathogens, Mercury**

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **To prevent infiltration due to presence of contaminants in the underlying soil**

BMP Media Description: **Amended soils meeting criteria in BMP Manual Section 6.4.5**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations:

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	**22.95**	
Equivalent Contributing Impervious Area to BMP (acres)	**41.93**	
Total Drainage Area to BMP (acres)	**31.05**	
MRC BMP Release Rate (cfs)	**0.42**	*No greater than 0.01 cfs / acre of equivalent contributing impervious*
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	**0.35**	*<= MRC BMP Release Rate (cfs)*
Maximum Storm Event Routed to MRC BMP	**100-yr**	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft^2)	**115,916**	
Bottom BMP Elevation (Native Soils) (ft)	**212.00**	
2-Yr/24-Hr Storm Ponding Depth (ft)	**0.92**	*1 ft (recommended) (2 ft max)*
Maximum Ponding Depth (ft)	**3.52 (100-yr)**	*4 ft (max)*
Overflow Bypass Elevation (ft)	**216.3**	
Media Depth (ft)	**4.0**	*2 ft (min) – 4 ft (max)*
Media Void Space (%)	**30**	
Internal Water Storage (IWS) Depth (ft)	**3**	*1 ft recommended*
Top of IWS Elevation (ft)	**215.00**	
Underdrain Pipe Diameter (in)	**4**	
Underdrain Orifice Diameter (in)	**1.5**	
Underdrain Outlet Elevation (ft)	**215.00**	
IWS Available for Routing (%)	**50**	*50% max*
Separation Distance (Groundwater) (ft)	**> 2**	*1 ft (min) (2 ft recommended)*
Infiltration Rate (in/hr)	**0**	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	**0**	*0 (No overflow allowed)*
1-Yr/24-Hr **Pre**-Development Peak Rate (cfs)	**8.21**	
2-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**3.28**	*1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)*
10-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**6.97**	*10-Yr/24-Hr Pre-Development Peak Rate*
50-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**10.25**	*50-Yr/24-Hr Pre-Development Peak Rate*
100-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**11.57**	*100-Yr/24-Hr Pre-Development Peak Rate*
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	**443,209**	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	**28**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	**49**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	**65**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	**71**	*72 hrs (surface), 7 days (underground)*

Gregg Bogia
Licensed P.E. Name

Gregg Bogia
Licensed P.E. Signature

44503-E
License No.

2/8/24
Date

1. Runoff Capture – The runoff from the 1.2-inch/2-hour storm from the contributing watershed that the MRC is intended to treat should be captured and managed by the MRC BMP, filtered through vegetated media or treated and filtered to the extent practicable through the on-site undisturbed soils or other acceptable treatment systems, and released as indicated in MRC Standard 2. The MRC may be designed for offsetting when contributing non-regulated earth disturbance is present in the contributing drainage area, but the total volume managed may not exceed the volume of runoff generated in the 2-year/24-hour storm. Uncompacted pervious surfaces outside the disturbed area should be bypassed to the maximum extent practical.

   NOTE 1– Runoff from existing similar impervious and compacted pervious areas can be used to offset undetained areas. The runoff volume for the 1.2 inch/2-hour storm from the two areas must be equivalent. In addition, the pollutant contribution as determined through land use of the two areas should be similar.

   NOTE 2 – A composite Curve Number is not adequate for the modeling of the 1.2 inch/2-hour storm due to the large error associated with averaging of initial abstractions for storms less than or equal to the 2-year/24- hour storm event. Curve numbers must be separate for this analysis.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The runoff captured for the 1.2”/2-hour storm is kept fully below the overflow orifice in the basin and only allowed to discharge through the underdrain with limited orifice size. BASIN C storage in the media is 87,546 cu. ft. and the volume from the 1.2” storm generated is 152,199 cu. ft. while the 2-yr storm generates 443,209 cu. ft. The total volume of 1.2” storm to the MRC is greater than the media volume, however, the pool on top of the media would be below the overflow elevation, and the total volume is removed via underdrain pipes during and after the storm. This also shows that the 1.2” storm for the BMP is managed and filtered and treated to the extent practicable while the volume from the 2-yr storm is partially managed in the MRC portion of the basin. This volume is based on only 50% of the IWS below the outlet elevation available for routing computations as required by the MRC design guidelines. No offset credits were taken for the BMP.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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2. Release Rate for the 1.2-inch/2-hour storm – The stormwater release rate from the MRC BMP for the 1.2inch/2-hour storm should not exceed 0.01 cubic feet per second (cfs) from the

equivalent impervious area. To obtain the equivalent impervious area being managed by a MRC BMP, determine the total volume of runoff generated during the 1.2-inch/2-hour event from all pervious and impervious areas contributing to the MRC and divide by 0.0833 feet. This release rate is rounded to the nearest hundredth of a cfs (e.g., 1.576 ac. is 0.01576 cfs, rounded to 0.02 cfs). Routing is necessary to demonstrate compliance with the standard for release rate.

NOTE – This release rate (0.01 cfs / equivalent impervious acre) is approximately the expected rate of interflow (lateral movement of stormwater to a stream) after a 2-year/24-hour storm event for a Pennsylvania non-karst watershed based on the NRCS curvilinear unit hydrograph. Releasing at this rate will produce a condition where baseflow contributions will be similar to that of an undeveloped area during and after storm events. As the level of outflow would be similar to what would be expected during and after the storm, it would not be expected to impact the storm event's effects on flooding and erosion. This rate should also be used for karst watersheds unless it can be demonstrated that interflow on a particular project site differs from this standard (such a demonstration would be considered an alternative to the MRC Design Standard).

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The equivalent impervious calculation noted above is incorrect per the MRC guidelines. The calculation is (1.2" storm volume) divided by (0.083333 * 43560), or (VOLUME / 3630). That calculation was performed for the BMP. The calculation is performed using 152,199 cu. ft. that is generated as a result of 1.2-inch/2-hour storm. The total release rate allowed is 0.42 cfs from the MRC basin and the final discharge is 0.35 cfs, meeting the design criteria.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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3. Internal Water Storage (IWS) – A volume for IWS should be provided that is at least one foot deep below the lowest structural outlet (i.e. the outlet for the underdrain) in the MRC BMP to encourage ET, infiltration and denitrification. To encourage ET, the overall soil media depth of a facility including the IWS can be no deeper than four (4) feet, and up to 50% of the IWS void volume can be included (only for vegetated MRC BMPs) as available storage during hydrologic routings to demonstrate compliance with the standards for the release rate (No. 2 above) and peak flow attenuation (No. 4 below). For soil media, a void space of 30% can be used to describe the soil volume storage and recovery. If an alternate void space is used for soil media, specific data demonstrating the void space should be submitted. For non-vegetated MRC

designs, the IWS must be above the underdrain, but below the outlet, to promote a change of the stormwater stored during rain events.

Use of Liners – The MRC BMP should not have an impervious liner installed unless environmental or geological conditions necessitate use of a liner, or if an existing structure would be damaged as a result of not lining the facility.

NOTE – The presence of a project site in an area of known karst conditions does not, in itself, serve as evidence of the applicability of MRC to a project site or to the use of a liner to avoid infiltration. DEP and delegated CDs reserve the right to request a detailed subsurface investigation where considered warranted to evaluate the likelihood of sinkhole formation as a result of post-construction stormwater management.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The IWS is 3.0' as required by the MRC guidelines with a total media depth of 4.0'. The underdrain outlet invert elevation is 215.00 with the bottom of the media at 212.00. The 30% void was applied to the media, with the volume in the bottom 3' at 50% of that volume as well. This is shown in the stage storage tables where the basin footprint is modeled with corresponding incremental storage volumes.

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The page numbers referenced above are for the PCSM Report, Appendix A.

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4. Peak Flow Attenuation for the 2-year/24-hour Event – The peak flow from the post-construction 2-year/24hour storm should be managed back to the pre-construction 1-year/24-hour storm peak flow, unless an approved and current Act 167 Plan or another requirement (such as limited capacity of a downstream channel) is more restrictive. In general, this rate is determined at the project point of interest. In the event the MRC drainage area is part of a larger overall site with non-MRC BMPs, only the MRC drainage peak flows must be managed back to the 1-year/24-hour level and overflows can be combined with flows from the non-MRC BMPs.

   In situations where the pre-construction drainage area to the MRC BMP varies significantly compared to the post-construction drainage area, the post-construction drainage area boundary

to the MRC BMP (using existing land uses) can be used to calculate the target pre-construction 1-year/24-hour rate, as long as all areas in question are in close proximity to the MRC BMP and drain to the same surface water. In cases where the BMP is managing additional volume to offset adjacent areas that could not be captured in the MRC BMP, the targeted pre-construction 1-year/24-hour release rate should be calculated based on the combined flow rates from the BMP drainage area and adjacent area.

NOTE – This standard is used to ensure that MRC does not contribute to channel-eroding flows in receiving surface waters.

Flows Greater Than 2-Year/24-Hour Storm – The recommended design for MRC BMPs is to bypass storm events larger than the 2-year/24-hour storm to a rate control BMP; however, DEP understands that site and cost limitations may not allow for this bypass. When it is demonstrated by the licensed professional engineer that larger storm events cannot reasonably be bypassed, the MRC BMP surface component should be designed to manage the post-construction 10-, 50- and 100-year/24-hour storm event peak flows to their corresponding pre-construction rates and the MRC BMP should have an increased (i.e., more frequent) inspection and maintenance schedule that includes inspection and repair after extreme events (10-, 50- and 100-year/24-hour storm events).

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The post-development discharge for the 2-yr storm is less than the pre-development rate for the 1-yr storm meeting the criteria. The proposed condition has a discharge rate of 3.28 cfs for post-development 2-yr storm with BMP, while the 1-yr pre-development peak rate is 8.21 cfs . It should be noted that discharge point from Basin C is not a discharge point that can be modeled in the existing condition, therefore, estimation was made using proportionality. The pre-development 1-yr rate is estimated proportional to the ratio of drainage areas conveyed to Basin C (i.e., summation of EX-Das A, B, and C) to total drainage areas. The entire site has 11.56 cfs as 1-yr peak rate and it was multiplied by 71%, as the above-mentioned ratio, to estimate a 1-yr peak rate for pre-development of 8.21 cfs, and it can be used for this comparison. For all other storms, the post-development rate is less than the pre-development rate. 10-Year/24-Hour Post-Development Rate (cfs) with BMP is controlled to 6.97 cfs, which is below 10-Year/24-Hour Pre-Development Peak Rate. 50-Year/24-Hour Post-Development Rate (cfs) with BMP is controlled to 10.25 cfs, which is below 50-Year/24-Hour Pre-Development Peak Rate. 100-Year/24-Hour Post-Development Rate (cfs) with BMP is controlled to 11.57 cfs, which is below 100-Year/24-Hour Pre-Development Peak Rate.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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5. Stormwater BMP Manual – Follow the design considerations for BMPs as presented in the Pennsylvania Stormwater Best Management Practices Manual (Stormwater BMP Manual) (363-0300-002), as revised. MRC may be incorporated into the design of any BMP by a licensed professional engineer.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The MRC design is not incorporated into a rain garden / bioretention design as all the MRC and local ordinances requirements were met without necessity of routing the MRC BMP discharge into another BMP.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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6. MRC BMP Selection – Standard MRC BMPs include the following system types:

   a. Vegetated MRC – Vegetation must be provided for 75% of the surface of the MRC BMP. Native vegetation should be selected by the licensed professional engineer in consultation with a professional that is knowledgeable in native plant ecology. Vegetation should be selected based on the plants' ability to grow within the anticipated conditions considering the depth and duration of stormwater stored in the MRC BMP.

   b. Non-vegetated MRC: Porous Pavement – Porous pavements with a storage bed require a vacuum street sweeping maintenance regime adequate for the drainage area characteristics; the vacuum street sweeping equipment must provide adequate suction capacity to remove particles on the pavement's surface to provide a sufficient water quality demonstration and to maintain flow pathways.

   c. Non-vegetated MRC: Underground Storage Chambers – The use of the MRC BMP with non-vegetated, non-porous pavement stormwater practices must have pre-treatment, post-

treatment, or a combination of both pre- and post-treatment measures incorporated into the design, to provide sufficient water quality. Underground storage chambers must be accessible for maintenance, and for this reason underground storage is not recommended to be rock beds. Pre- and post-treatment can be achieved through a treatment train concept that includes other BMPs listed in the Stormwater BMP Manual (as revised) so that the combination of BMPs provide 85% removal of TSS and associated Phosphorus. The MRC is considered a primary BMP for nitrate removal through the use of the IWS. Preferred pre- and post-treatment BMPs include: level spreader with vegetated filter strip, vegetated swale, other vegetated systems, and manufactured treatment devices. An applicant must demonstrate that the treatment train will meet water requirements by using Worksheets 11 – 13 or by providing an alternative water quality demonstration that is acceptable to DEP.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

a. The vegetation chosen is specifically developed for Rain Gardens and is Ernst Seed Mix ERNMX-180. This is noted on the plan details, seeding requirements, and on E&SC report. The MRC Design Summary sheets. b & c are not applicable.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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7. Pre-Development Site Characterization and Assessment of Soil and Geology – Adequate and appropriate soils and geologic testing and evaluation must be performed to demonstrate the infiltration capacity of the entire project site to the satisfaction of DEP. At a minimum, one infiltration test for every 40,000 square feet of disturbed acreage should be performed with a minimum of four tests, equally distributed across a site. The infiltration tests must be done in the most accommodating soil horizon for infiltration as demonstrated by a deep hole test within 100 feet of the infiltration test. All other sections of Appendix C Protocol 1, Site Evaluation and Soil Infiltration Testing and Appendix C Protocol 2, Infiltration Systems Guidelines per the Stormwater BMP Manual (as revised) should be followed to clearly demonstrate the infiltration capability of on-site undisturbed soils at applicable elevations and for a variety of locations. Soil probes and infiltration test locations should be identified on the PCSM Plan drawing(s). The use of soil borings as a substitute for test pits can be used as a planning tool but will not generally be accepted for final design of infiltration MRC BMPs.

   NOTE – The above recommended number of infiltration tests per disturbed area is to be based upon the disturbed area that is not considered a restoration activity or road maintenance

activity. For example, a large sewer main installation project disturbs 30 acres in total, with 29 acres of disturbance for the sewer line installation (that will be covered by a restoration plan) and 1 acre of disturbance for a pumping station that requires a PCSM plan. The recommended number of infiltration tests would be based on the 1 acre, not 30 acres.

NOTE – The minimum number of tests can be reduced, if it can be demonstrated that the subsurface conditions are uniform; however, this is considered a deviation from MRC Design Standards, requiring an individual permit.

NOTE – Infiltration tests resulting in saturated hydraulic conductivities (as identified in the field) of less than or equal to 0.2 inches per hour classify as extremely limited. This is a saturated hydraulic conductivity representative of the lower part of the range of HSG C soils and HSG D soils.

NOTE – Results from the infiltration testing can be used to describe infiltration losses for unlined MRC BMPs as per Appendix C of the Stormwater BMP Manual (as revised).

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

USDS soil report shows that the site generally does not provide adequate hydraulic capacity. However, more important than hydraulic capacity was the presence of restrictive features on site. Contaminants on site prohibit infiltration in many spots within the site. Generally, there are steep slopes (greater than 8%) in the soil layers. Additionally, depth of fill on top of in-situ soils prohibit infiltration. Aforementioned reasons, in particular contaminated soil, resulted in choosing MRC BMP to manage stormwater instead of infiltration-based BMPs. The MRC BMPs employ adequate vegetative cover as well as amended fill media to enhance the quality of stormwater before discharging it through underdrain outlets. The discharge feeds the adjacent Bushkill Creek stream and multiple UNT's to Bushkill Creek and the MRC design is in keeping with modeling lateral movement of water to the waters of the Commonwealth. A more detailed analysis of site limitations is detailed in Appendix E of the PCSM Report.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix E.

8. Separation Distance – At least one foot of separation distance should be maintained between groundwater or the seasonally high-water table and the bottom footprint of the MRC BMP's soil media; however, a two-foot separation is preferred. There is no minimum separation required between bedrock or hardpan and the MRC BMP's soil media.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

There was no highwater table noted within 1' of the MRC Basin bottoms. The groundwater table is generally deeper than 7' below the ground, except for Bushkill Creek shorelines that are more than 50' away from the basins. The design of the MRC will mimic lateral water flow to the adjacent streams as would occur if infiltration were possible on the project site to the extent necessary to meet regulations. The rain garden basin was determined to be the appropriate method to meet the criteria of the MRC and still allow filtering of water. The location of the MRC basin is adjacent (~50' distance) to Bushkill Creek and multiple UNT's to Bushkill Creek and the design will mimic existing water flows that feed the waters. Lining was proposed to prevent natural infiltration as possible to avoid contaminant transport during infiltration, and the modeling is done under the assumption that no infiltration occurs and is therefore protective of groundwater. The soil media in the design was set at 4.0'. It should be noted that bedrock restrictive layer is located between 2' to 8' below the ground.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix E.

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9. Ponding Depth and Drawdown time – The maximum ponding time (i.e., the time after end of storm event for stored surface water to lower to soil surface) should not exceed 72 hours for any storm event. In general, a maximum ponding depth (i.e., storage depth above BMP surface) of one to two feet at the peak of the 2-year/24hour storm event should not be exceeded for the design of surface BMPs. In accordance with MRC Design Standard 4, the MRC might incorporate a multi-stage detention facility with the upper portions of the facility providing flow attenuation for storm events greater than a 2-year/24-hour storm, to meet 25 Pa. Code § 102.8(g)(3). An engineered overflow structure or reinforced spillway / berm should be installed to provide safe conveyance for storm events greater than a 2-year/24-hour storm. Ponding depth for storms larger than the 2year/24-hour storm should not exceed four feet, and drawdown to the MRC BMP surface should not exceed 72 hours for all design storms. For underground storage chambers and porous pavement MRC systems, drawdown to the IWS storage level should not exceed 7 days.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The basins are designed such that they provide flow attenuation on the surface for 2-yr and greater storm events. The ponding elevations and draw down times for BASIN C are presented in Appendix A with the max. elevations shown. Draw down times for 2-yr, 10-yr, 50-yr, and 100-yr storms are 28, 49, 65, and 71 hours, respectively. Maximum pool elevations for 2-yr, 10-yr, 50-yr, and 100-yr storms are 0.92', 2.10', 2.98', and 3.52' above the top of the fill media, respectively. This was modeled by iterative designs for the outlet size and providing as minimal an orifice while still maintaining the design criteria for total discharge to reduce the post-development 2-yr storm to the pre-development 1-yr storm rate, and pre- to post- matching for greater than 2-yr storm, as well as a maximum 72 hour draw down time.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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10. Soil Media – The selection of soil media should be done by considering anticipated pollutants to be treated and the vegetation that will be used. On-site soils should be evaluated for desired characteristics and infiltration capabilities as listed below. The depth of the soil media above the invert elevation of the underdrain pipe should be a minimum of 2 feet (24 inches) to provide pollutant removal. If on-site undisturbed soils are unsuitable for the purpose of providing IWS, an additional one to two feet of suitable soil media should be provided below the underdrain.

    Soil Media Drainage – The designer will need to exercise caution when selecting a soil media, as there is a delicate balance between infiltration rate and residence time. As noted in Appendix C, Protocol 2 of the Stormwater BMP Manual (as revised), the design soil infiltration rate should be between 0.1 inch per hour and 10 inches per hour for native soils. To maximize water quality treatment, the residence time within the soil media used in MRC BMPs should be selected to be close to the parameters established for infiltration into native soils. The designer will need to select a soil media that provide the proper infiltration rate and ponding time to achieve water quality for the anticipated life cycle of the BMP.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

BASIN C has 4.0' of media with 1' above the underdrain outlet elevation and 3' below that creates IWS (see details on drawings). The on-site soil will be amended as necessary for the

rain garden construction to meet the criteria necessary per the guidelines in the BMP manual. The Rain Garden Media is to be per the BMP manual requirements, Section 6.4.5.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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11. Underdrain Design – The licensed professional engineer can refer to PennDOT Publication 408 Section 610 for specifications of underdrains. However, underdrains should have a minimum flow rate of 10 gallons (1.34 cubic feet) per minute per linear foot of pipe not considering the flow control orifice or upturned elbow. For non-vegetated MRC BMPs, the underdrain should be located at the bottom of the IWS to promote movement of water from previous storms. There may need to be multiple underdrains, or longer underdrains, to provide adequate design capacity for drainage. Section 6.4.7 (Constructed Filter) of the Stormwater BMP Manual (as revised) has recommended design standards for lateral spacing of multiple underdrains.

    IWS Outflow with Capped / Orifice Underdrain – It is highly recommended that an upturned elbow or an elevated weir be designed at the outlet of the underdrain (see Figure 1). The upturned elbow or elevated weir will create a zone within the soil media, referred to as the IWS. Research has shown that IWS can reduce runoff volume and improve water quality treatment. The upturned elbow or elevated weir can also help if site conditions present daylighting issues for the underdrain's discharge elevation. Underdrains should be capped within an outlet structure when used to allow access for maintenance. The cap should be drilled to provide an appropriately sized orifice. Figure 5 below provides an example of an underdrain detail. Note that all cleanouts and angles within the underdrain should not exceed 45 degrees. For lined, nonvegetated MRCs the underdrain leading to the upturned elbow should be located at the bottom of the IWS.

    Underdrain Aggregate Envelope – A 6-inch stone envelope of AASHTO #57 should be placed around the underdrain. A geotextile (or pea gravel diaphragm) is needed around the aggregate envelope. Note that the stone should not be placed throughout the bottom of the BMP, but just in the envelope of the underdrain.

    Cleanout for Underdrain – The underdrain(s) should be equipped with a clean-out for maintenance. The design of any clean-out should ensure that surface water does not enter the underdrain system through the top of the cleanout. Consideration must be given for cleaning and inspecting underdrains and access to the upturned elbow or elevated weir.

Orifices – An appropriately sized orifice is necessary on the outlet of the underdrain to control flow to the required release rate (see Figure 6). The orifice should be clean, smooth and sanded so that no burs or irregularities are present. The orifice should be on a plate or cap of sufficient thickness, and the edges of the orifice should be ground so that flow through the orifice is smooth. Orifices should be vertical. The orifice plate and other connections should be water-tight and accessible for maintenance. Control valves cannot be substituted for an orifice.

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The underdrains are designed at 4" diameter PVC pipe which has a flow rate greater than 10 gallons per minute. A typical 4" pipe with low pressure, as provided by head above it in the IWS as well as proposed length and perforation, has a flow capacity of approximately 1151 gpm, though this is understandably limited by the outlet orifice size. The lateral spacing and number of underdrains was determined using the criteria of BMP 6.4.7 and the area of the basin bottom. This is shown on the plan drawings and details for the project with a lateral spacing of no more than 10' between the underdrain pipes. The underdrain is provided with an upturned elbow as shown in the MRC design guidelines. Though the guidelines shown elbows at 90 degrees, the details for the plan sheets call out 45 degrees as noted in these design standards. The details on the plans show the underdrain envelope and geotextile wrap are 6" on all sides of the underdrain pipe and meet the criteria set forth herein. The cleanouts are shown on the plans to allow access to all portions of the underdrains with the cap type noted as watertight screw cap ensuring that no water flows from the routings enter the underdrain without going through the soil media present. The standards set forth herein for the orifice are labeled on the details on the project plan details. The requirements are appropriate for the safe and continued function of the MRC design and are incorporated into it. Perforations are 3/8" circular holes that are cut on both sides of the pipe and there is two holes per foot (i.e., one on each side per foot) per PennDOT Publication 408 Section 610. The perforated underdrain pipes would drain into another pipe that is perpendicular to them, then from there into a 4.0" orifice placed in the outlet structure. The perpendicular pipe is capped and the 4.0" orifice is cut through the cap. The adequacy of perforations, pipe size, and orifice are presented in PCSM report and its Appendix A.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A.

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12. Discharge Flow Path – The MRC BMP should be directed to a suitably vegetated flow path, which can safely convey the releases without erosion or loss of stability. The discharge should be dispersed through the use of a level spreader. A licensed professional engineer can provide an analysis, with calculations, which identifies that a level spreader is not necessary, or that discharge to a channel will not cause increased erosion

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The discharge is directed to the existing vegetated area leading to the stream via a level spreader that is designed to handle the 100-yr storm discharge as required by the State and local ordinances. The details on the plans show the details of the level spreader design to convert the concentrated flow into sheet flow, thereby meeting the criteria of the guidelines. The discharge is minimal to meet the MRC standards and represents a very limited flow. The calculations for the discharge are summarized in the PCSM and E&SC reports. The discharge area is brush and wooded and handles the higher existing conditions flows without any erosive conditions. The discharge from the proposed development will not increase any erosion in this area.

In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

The page numbers referenced above are for the PCSM Report, Appendix A as well as E&SC report.

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13. Antidegradation Requirements – Where the stormwater from the project site discharges to a special protection surface water, an MRC BMP can be used to satisfy the Antidegradation Best Available Combination of Technologies (ABACT) regulatory requirements from Chapters 93 and 102 (assuming that non-discharge alternatives do not exist).

In the space below, the licensed professional should document and demonstrate how this design standard was specifically addressed in the PCSM Report (Narrative, Calculations, H&H Model, etc.).

The BMP indirectly discharge to an EV/HQ stream as outlined in the NOI instructions that would require an antidegradation analysis and design, presented as part of this submission.

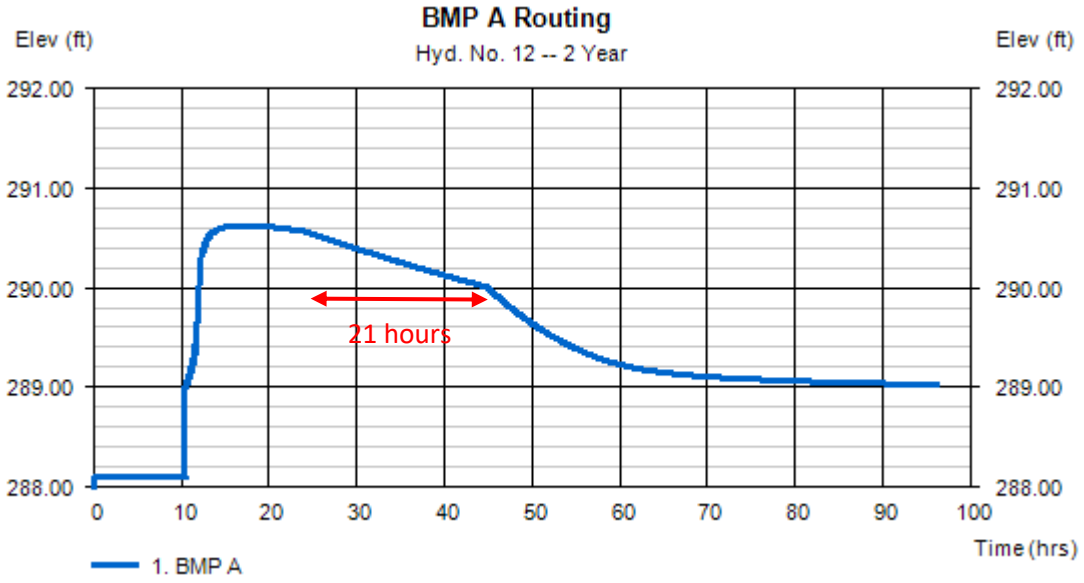
In the space below, the licensed professional should provide the cross reference (i.e. page number) to the specific location in the PCSM Report that addresses this design standard.

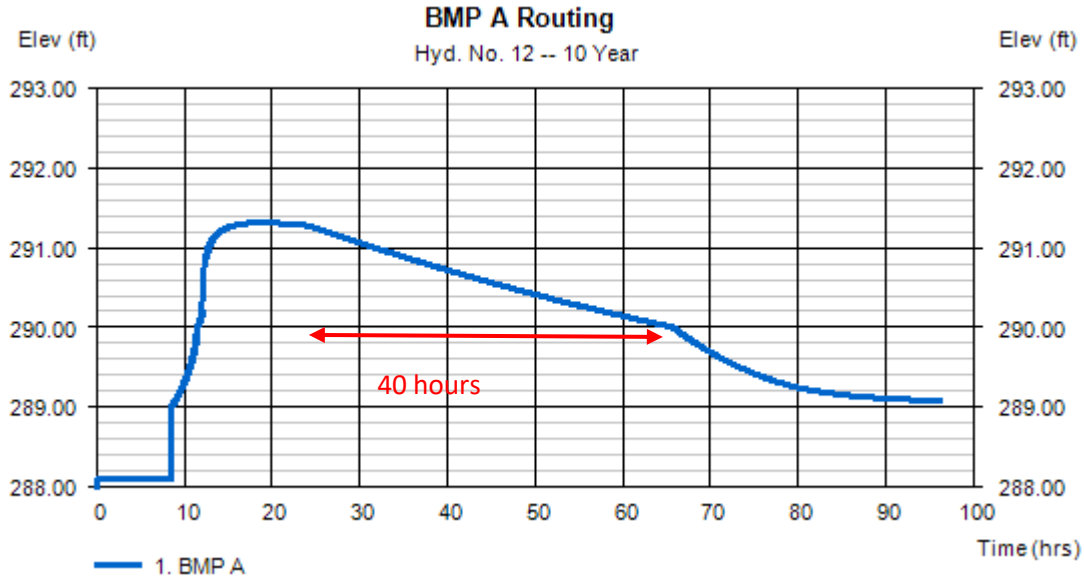
Not applicable.

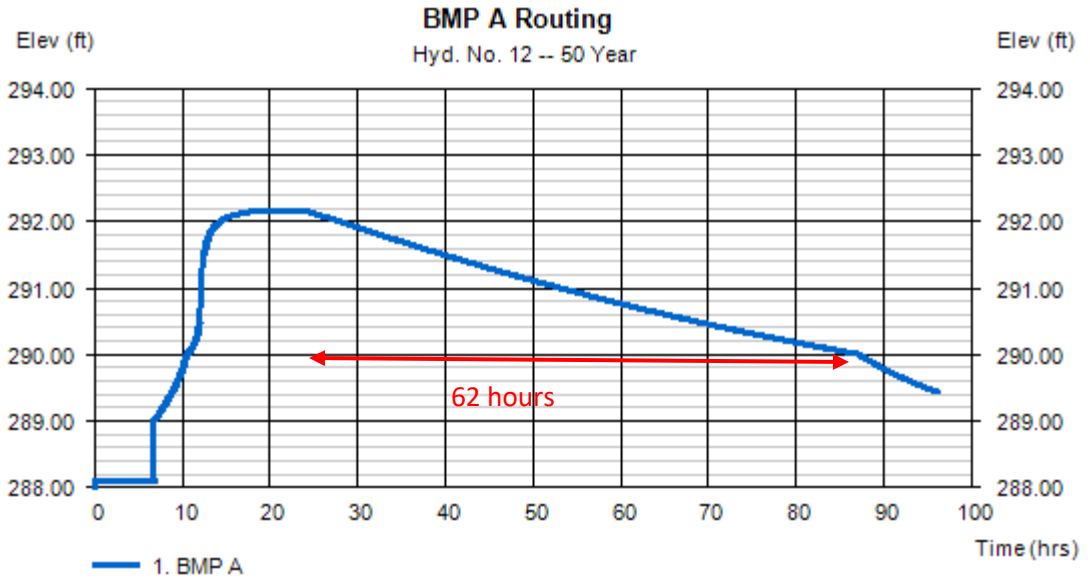
SEAL AND CERTIFICATION BY LICENSED PROFESSIONAL

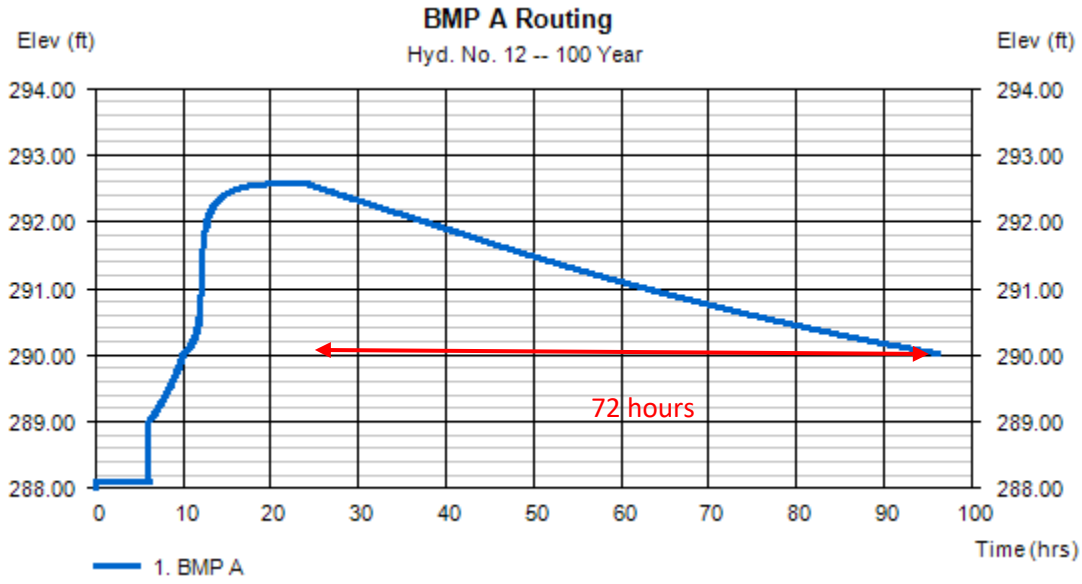
I, Gregg Bogia , do hereby certify pursuant to the penalties of 18 Pa.C.S.A. 4904 to the best of my knowledge, information and belief, that the accompanying report and drawings are in conformance with Chapter 102 of the rules and regulations of the Department of Environmental Protection.

Drain-down time estimations for Basin A:






BMP A Routing
Hyd. No. 12 -- 50 Year
Elev (ft)
Elev (ft)
294.00
293.00
292.00
291.00
290.00
289.00
288.00
0
10
20
30
40
50
60
70
80
90
100
Time (hrs)
62 hours
1. BMP A


BMP A Routing
Hyd. No. 12 -- 100 Year
Elev (ft)
Elev (ft)
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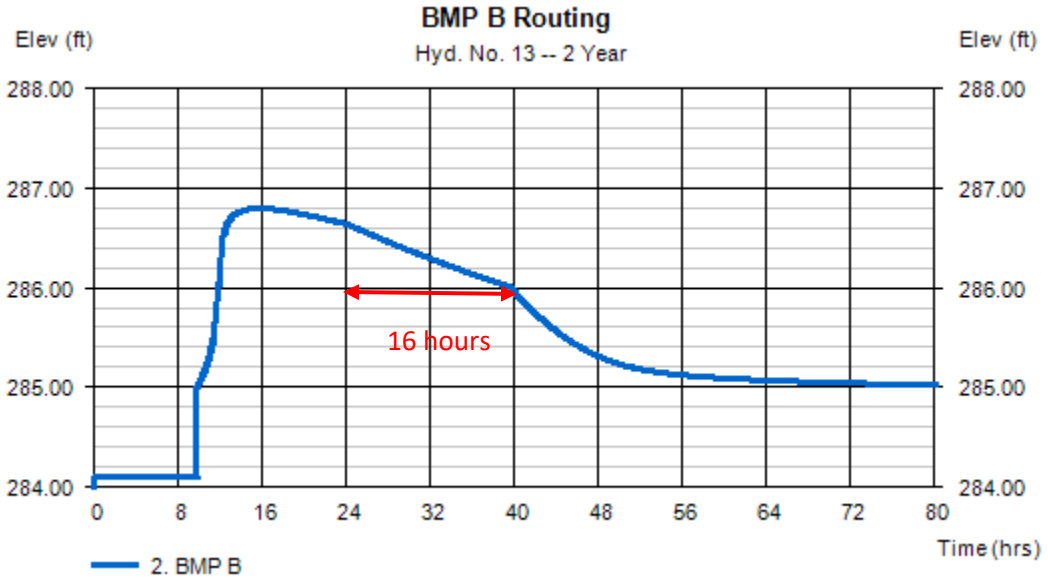
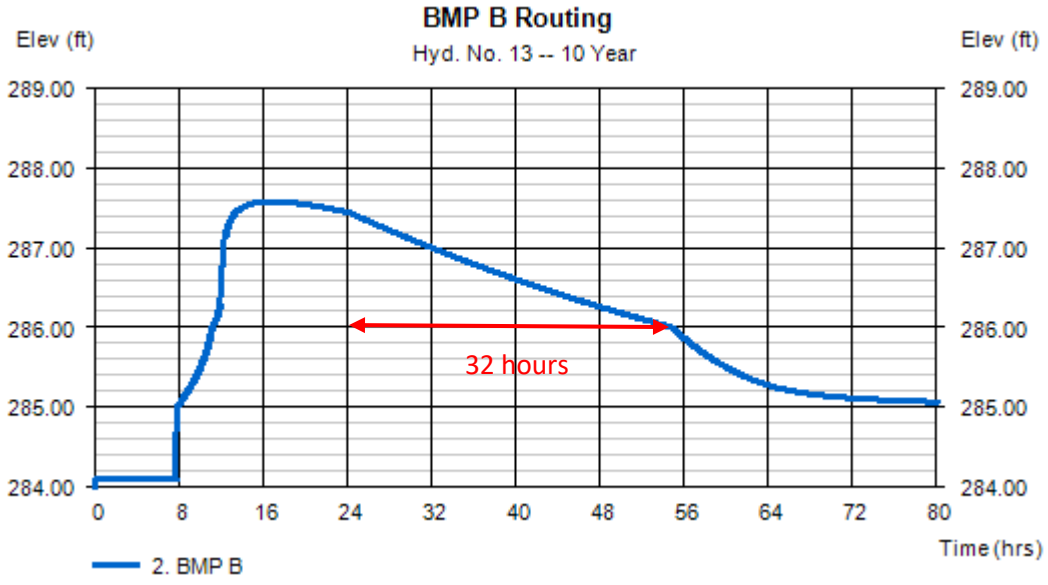
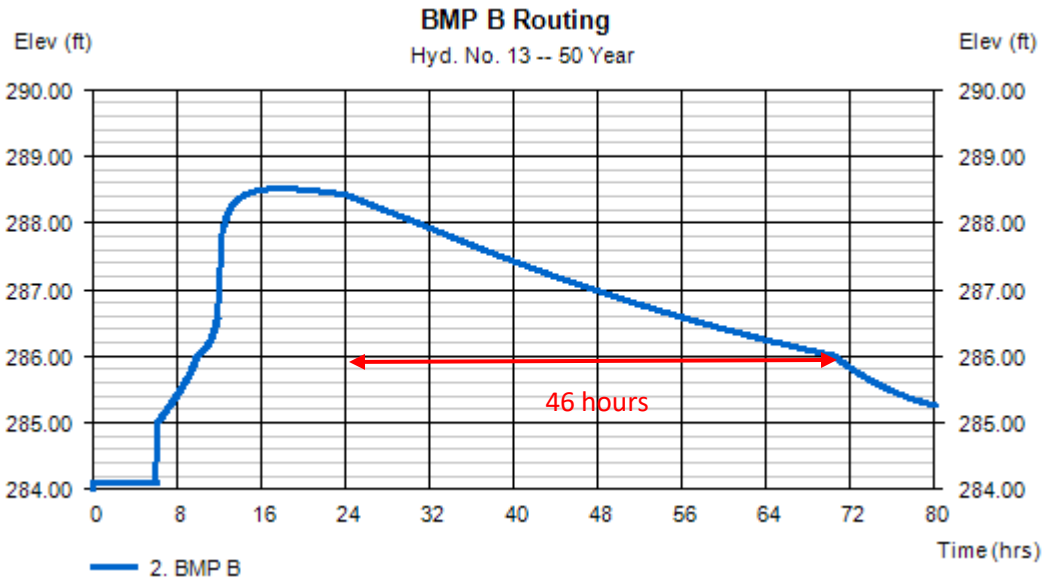
293.00
292.00
291.00
290.00
289.00
288.00
0
10
20
30
40
50
60
70
80
90
100
Time (hrs)
72 hours
1. BMP A

Drain-down time estimations for Basin B:






BMP B Routing
Hyd. No. 13 -- 50 Year
Elev (ft)
Elev (ft)
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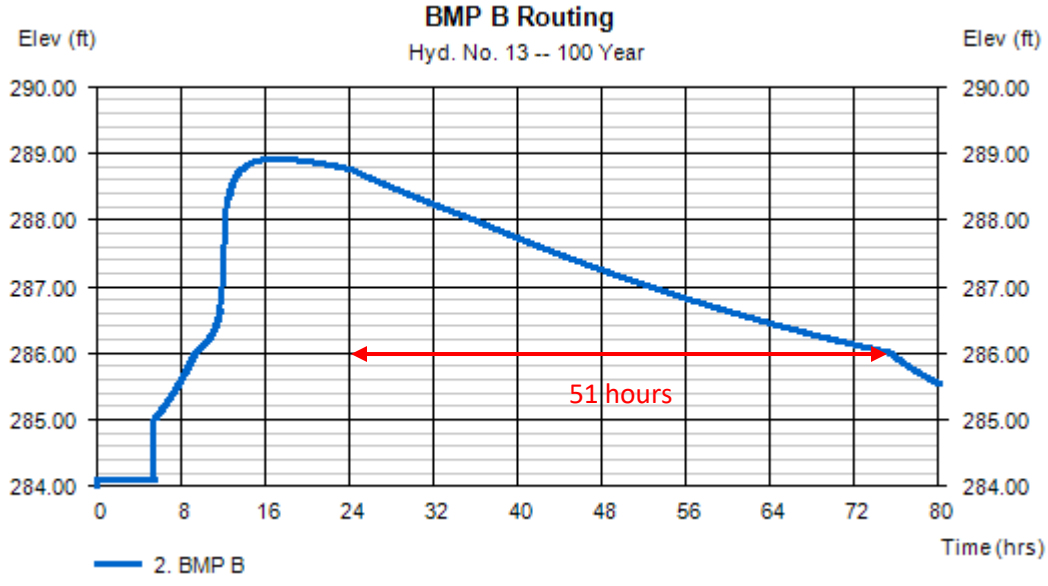
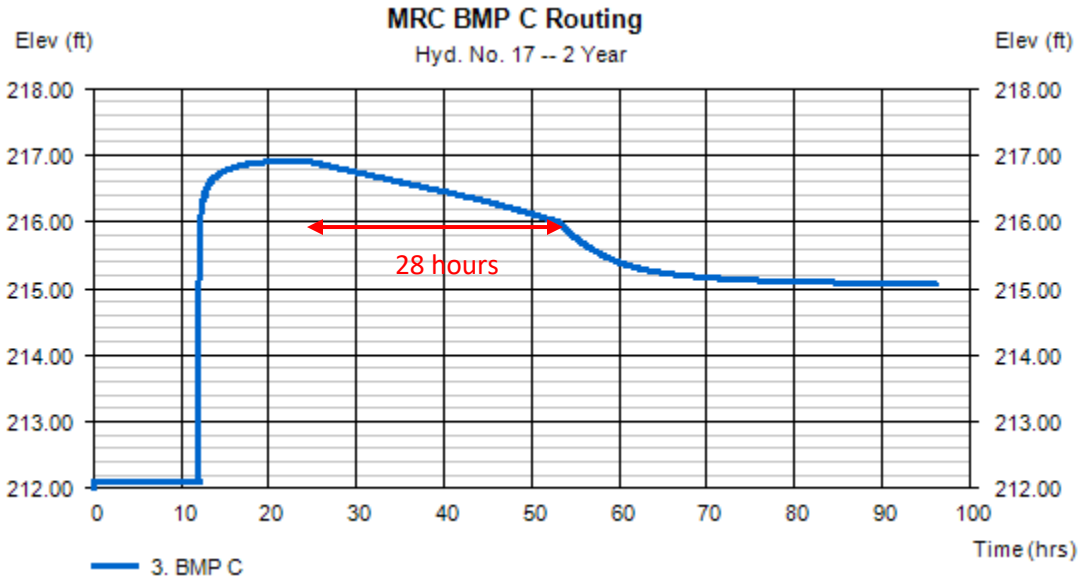
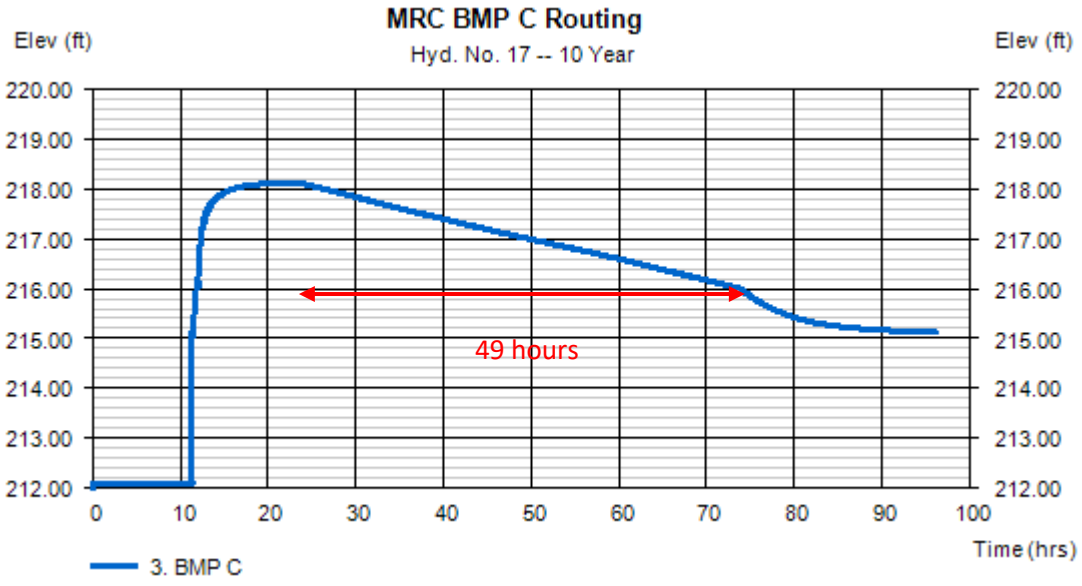
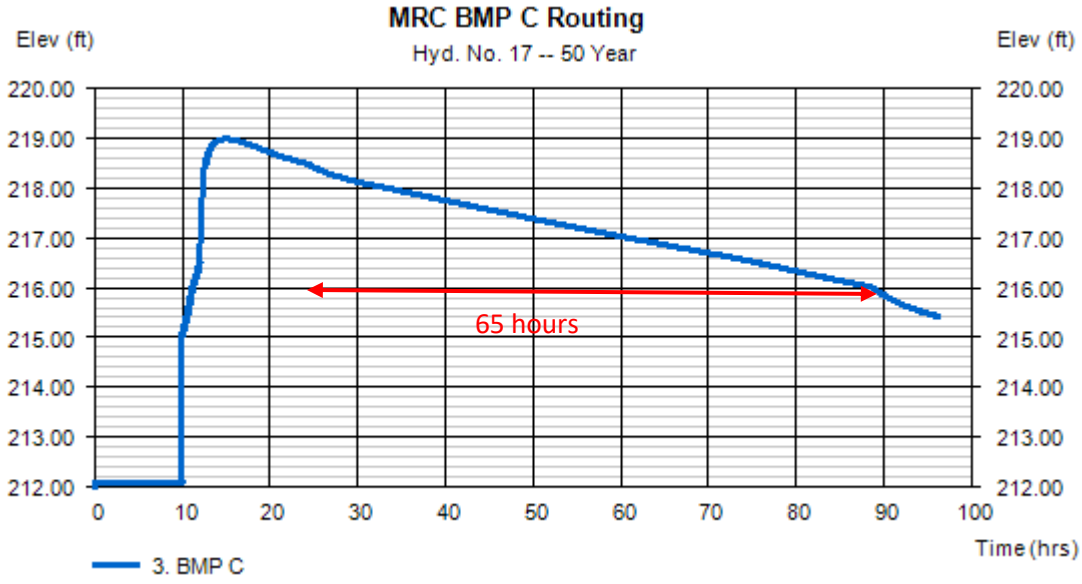
289.00
288.00
287.00
286.00
285.00
284.00
0
8
16
24
32
40
48
56
64
72
80
Time (hrs)
46 hours
2. BMP B


BMP B Routing
Hyd. No. 13 -- 100 Year
Elev (ft)
Elev (ft)
290.00
289.00
288.00
287.00
286.00
285.00
284.00
0
8
16
24
32
40
48
56
64
72
80
Time (hrs)
51 hours
2. BMP B

Drain-down time estimations for Basin C:



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Elev (ft)
Elev (ft)
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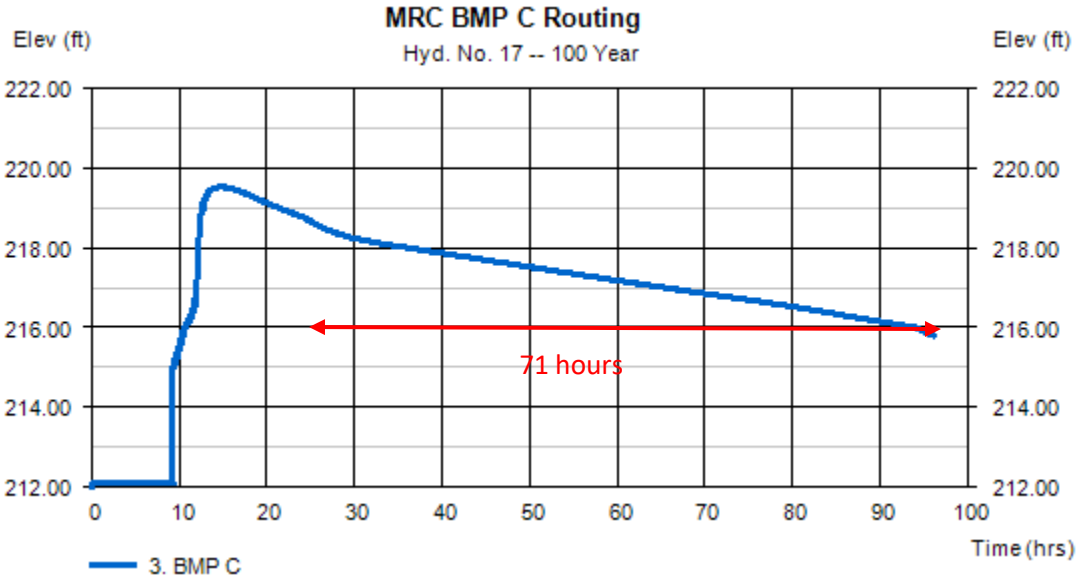
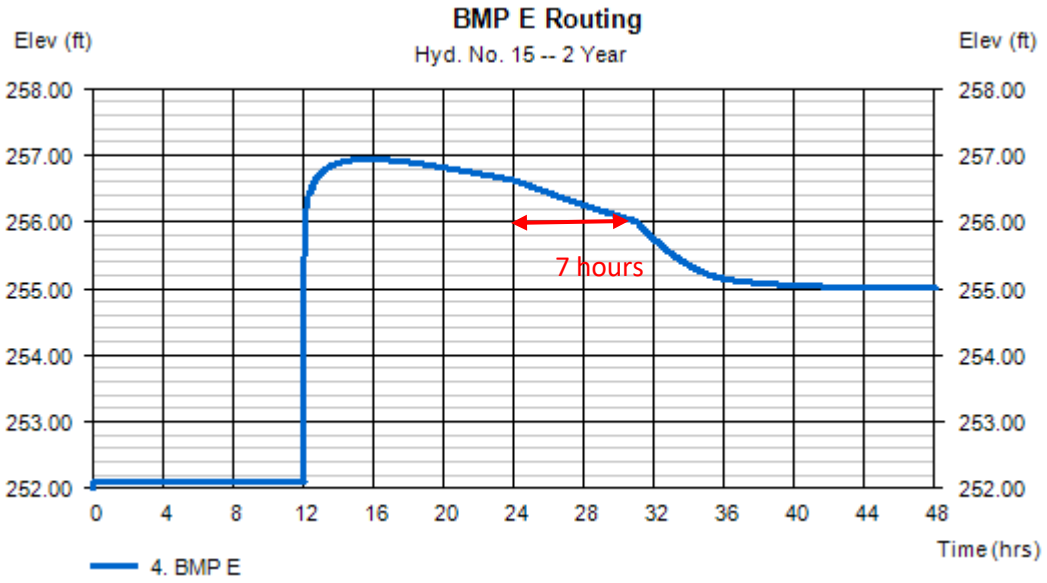
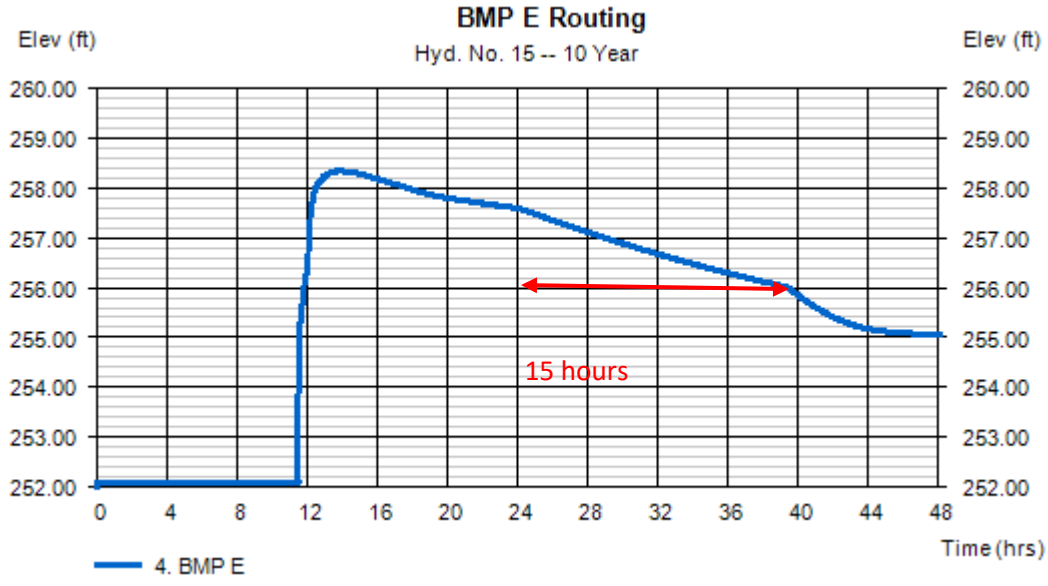
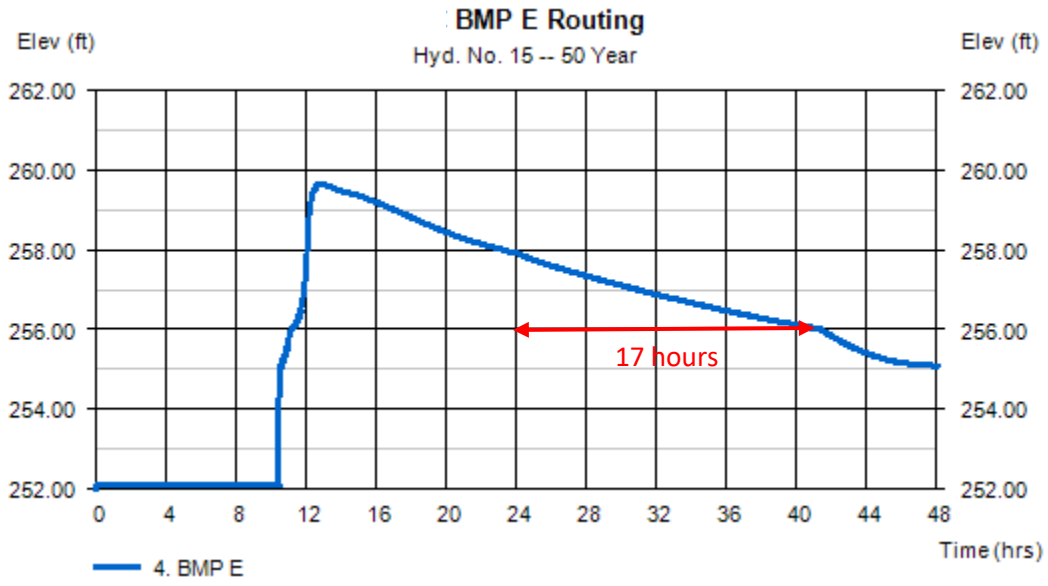
219.00
218.00
217.00
216.00
215.00
214.00
213.00
212.00
0
10
20
30
40
50
60
70
80
90
100
Time (hrs)
65 hours
3. BMP C


MRC BMP C Routing
Hyd. No. 17 -- 100 Year
Elev (ft)
Elev (ft)
222.00
220.00
218.00
216.00
214.00
212.00
0
10
20
30
40
50
60
70
80
90
100
Time (hrs)
71 hours
3. BMP C

Drain-down time estimations for Basin E:






BMP E Routing
Hyd. No. 15 -- 50 Year
Elev (ft)
Elev (ft)
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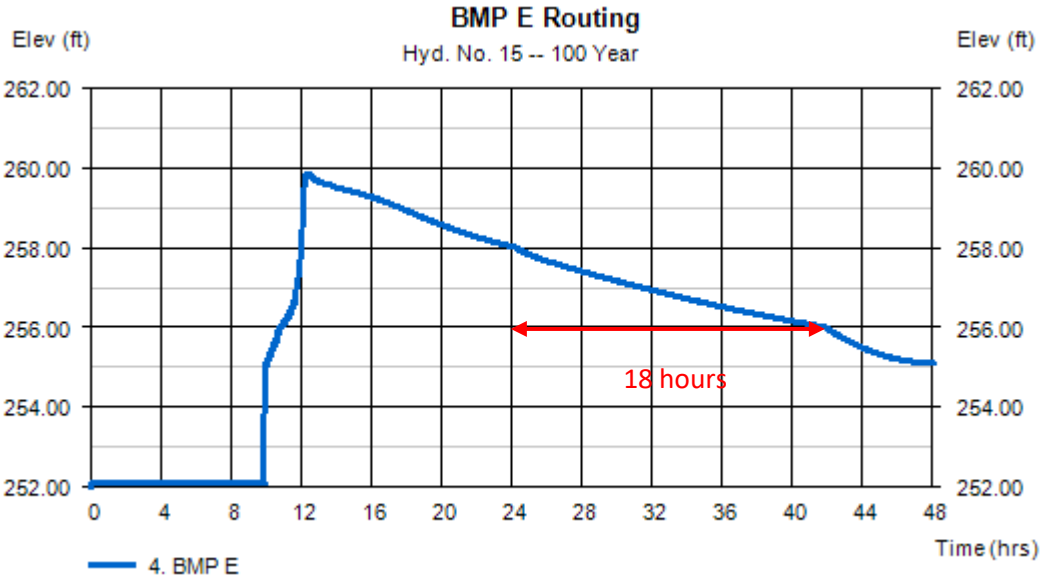
260.00
258.00
256.00
254.00
252.00
0
4
8
12
16
20
24
28
32
36
40
44
48
Time (hrs)
17 hours
4. BMP E


BMP E Routing
Hyd. No. 15 -- 100 Year
Elev (ft)
Elev (ft)
262.00
260.00
258.00
256.00
254.00
252.00
0
4
8
12
16
20
24
28
32
36
40
44
48
Time (hrs)
18 hours
4. BMP E

Underdrain pipe size and perforation design

In addition to all other aforementioned stormwater management criteria such as volume and release rate control, underdrain pipe size and perforations as well as the underdrain orifice size to the outlet structures were designed to meet the following:

- Pass at least 10 gpm
- Space between the underdrain pipes not less than 10 feet
- Perorations not smaller than 3/16 inch and not larger than 3/8 inch

BMP A:

The underdrain pipes were designed by considering 12 inches of saturated layer (1-foot IWS), which imposes 1 foot of head water pressure. Three underdrain pipes with length of 450, would be installed at the designated invert elevation. These pipes are attached to another pipe that that is installed perpendicular to them, and discharges through the designated orifice to the outlet structure. Underdrain pipe would have a minimal slope (S) of 0.01 % toward the outlet structure.

The following equation is employed to compute the flow in the underdrain pipe for various opening configurations.

$$Q = n.L.B.C_d.A_0.\sqrt{2gh}$$

In which Q is the discharge capacity of the perforated pipe (in^3/s), $n.L$ is the total length of the pipe, B is clogging factor that is taken as 0.5 for a safety margin, C_d is the coefficient of discharge that is taken as 0.6 that corresponds to thinner pipe wall compared to opening dimension, A_0 is the opening cross-section in a foot (in^2/ft), g is the gravitational acceleration (in/s^2), and h is the water head that is taken as 12 in (i.e., 1' of IWS).

The pipe diameter needs to be sufficient to convey the Q with the proposed opening and pipe slope. The capacity of the pipe was checked using the following equation.

$$V = -2\sqrt{2gDS} \times \mathrm{Log}\left(\frac{k_s}{3.71D} + \frac{2.51v_k}{D\sqrt{2gDS}}\right)$$

In which, V (in/s) is flow velocity in pipe, D is pipe internal diameter (in), k_s (in) is pipe roughness that is taken as 0.06" for PVC drainage pipes, and v_k is water kinematic viscosity (in^2/s).

At first, the pipe size (i.e., D) and opening dimensions were picked per section 610 of PennDOT publication 408, and then they were used to determine whether the specifications meet the required capacity to convey the water head with the proposed slope. PVC pipe with an internal diameter of 4" and circular

perforation with a diameter of 3/8" was chosen. There will be two perforation (one on each side of the pipe) per foot of the pipe.

Flow rate computation through the perforations:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
1	0.110390625	1	0.5	0.6	12	191	32.17	1389744

The computed flow rate (Q) for a length of 450' (L = 450') would yield a total 370 gpm for the pipe that is greater than 10 gpm. This is the capacity of the perforations, and it is required to check the capacity of the pipe too.

Pipe diameter check:

ID (in)	A(in^2)	g (ft/s^2)	g(in/s^2)	S	K_s (in)	V_k (in^2/s)	V (in/s)	Q (in^3/s)	REQ V (in/s)
4	12.56	32.17	386.04	0.0001	0.06	0.0015	2.491129	3.1876837	0.253796473

As can be seen, the proposed pipe size provides sufficient capacity (~ 2.49 in/s is provided while ~ 0.25 in/s is required) to convey drained water through perforations for the given condition of water head and slope. Therefore, the proposed underdrain system would be three 450-foot 4" PVC pipe with 2 circular perforations with a diameter of 3/8" in each foot. The perforations need to be in similar rows on both sides (i.e., 900 perforations; one on each sides per foot). The material and construction sequence shall be per section 610 of PennDOT publication 408.

The orifice size was initially designed to meet the MRC release rate criteria that is to control the discharge rate to 0.01 cfs per equivalent acre. The designed orifice size for this BMP was 3.5" that needs to be checked to have adequate capacity to convey minimum of 10 gpm.

Orifice size check:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
2	9.61625	1	0.5	0.6	72	81622	32.17	1389744

The computed flow rate (Q) for the orifice would yield a total 351 gpm that is greater than 10 gpm.

Underdrain pipe size and perforation design

In addition to all other aforementioned stormwater management criteria such as volume and release rate control, underdrain pipe size and perforations as well as the underdrain orifice size to the outlet structures were designed to meet the following:

- Pass at least 10 gpm
- Space between the underdrain pipes not less than 10 feet
- Perorations not smaller than 3/16 inch and not larger than 3/8 inch

BMP B:

The underdrain pipes were designed by considering 12 inches of saturated layer (1-foot IWS), which imposes 3 foot of head water pressure. Three underdrain pipes with length of 400, would be installed at the designated invert elevation. These pipes are attached to another pipe that that is installed perpendicular to them, and discharges through the designated orifice to the outlet structure. Underdrain pipe would have a minimal slope (S) of 0.01 % toward the outlet structure.

The following equation is employed to compute the flow in the underdrain pipe for various opening configurations.

$$Q = n.L.B.C_d.A_0.\sqrt{2gh}$$

In which Q is the discharge capacity of the perforated pipe (in^3/s), $n.L$ is the total length of the pipe, B is clogging factor that is taken as 0.5 for a safety margin, C_d is the coefficient of discharge that is taken as 0.6 that corresponds to thinner pipe wall compared to opening dimension, A_0 is the opening cross-section in a foot (in^2/ft), g is the gravitational acceleration (in/s^2), and h is the water head that is taken as 12 in (i.e., 1' of IWS).

The pipe diameter needs to be sufficient to convey the Q with the proposed opening and pipe slope. The capacity of the pipe was checked using the following equation.

$$V = -2\sqrt{2gDS} \times \mathrm{Log}\left(\frac{k_s}{3.71D} + \frac{2.51v_k}{D\sqrt{2gDS}}\right)$$

In which, V (in/s) is flow velocity in pipe, D is pipe internal diameter (in), k_s (in) is pipe roughness that is taken as 0.06" for PVC drainage pipes, and v_k is water kinematic viscosity (in^2/s).

At first, the pipe size (i.e., D) and opening dimensions were picked per section 610 of PennDOT publication 408, and then they were used to determine whether the specifications meet the required capacity to convey the water head with the proposed slope. PVC pipe with an internal diameter of 4" and circular perforation with a diameter of 3/8" was chosen. There will be two perforation (one on each side of the pipe) per foot of the pipe.

Flow rate computation through the perforations:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
1	0.110390625	1	0.5	0.6	12	191	32.17	1389744

The computed flow rate (Q) for a length of 400' (L = 400') would yield a total 329 gpm for the pipe that is greater than 10 gpm. This is the capacity of the perforations, and it is required to check the capacity of the pipe too.

Pipe diameter check:

ID (in)	A(in^2)	g (ft/s^2)	g(in/s^2)	S	K_s (in)	V_k (in^2/s)	V (in/s)	Q (in^3/s)	REQ V (in/s)
4	12.56	32.17	386.04	0.0001	0.06	0.0015	2.491129	3.1876837	0.253796473

As can be seen, the proposed pipe size provides sufficient capacity (~ 2.49 in/s is provided while ~ 0.25 in/s is required) to convey drained water through perforations for the given condition of water head and slope. Therefore, the proposed underdrain system would be three 400-foot 4" PVC pipe with 2 circular perforations with a diameter of 3/8" in each foot. The perforations need to be in similar rows on both sides (i.e., 800 perforations; one on each sides per foot). The material and construction sequence shall be per section 610 of PennDOT publication 408.

The orifice size was initially designed to meet the MRC release rate criteria that is to control the discharge rate to 0.01 cfs per equivalent acre. The designed orifice size for this BMP was 3.5" that needs to be checked to have adequate capacity to convey minimum of 10 gpm.

Orifice size check:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
3	9.61625	1	0.5	0.6	72	122433	32.17	1389744

The computed flow rate (Q) for the orifice would yield a total 526 gpm that is greater than 10 gpm.

Underdrain pipe size and perforation design

In addition to all other aforementioned stormwater management criteria such as volume and release rate control, underdrain pipe size and perforations as well as the underdrain orifice size to the outlet structures were designed to meet the following:

- Pass at least 10 gpm
- Space between the underdrain pipes not less than 10 feet
- Perorations not smaller than 3/16 inch and not larger than 3/8 inch

BMP C:

The underdrain pipes were designed by considering 36 inches of saturated layer (3-foot IWS), which imposes 3 foot of head water pressure. Three underdrain pipes with length of 700, would be installed at the designated invert elevation. These pipes are attached to another pipe that that is installed perpendicular to them, and discharges through the designated orifice to the outlet structure. Underdrain pipe would have a minimal slope (S) of 0.01 % toward the outlet structure.

The following equation is employed to compute the flow in the underdrain pipe for various opening configurations.

$$Q = n.L.B.C_d.A_0.\sqrt{2gh}$$

In which Q is the discharge capacity of the perforated pipe (in^3/s), $n.L$ is the total length of the pipe, B is clogging factor that is taken as 0.5 for a safety margin, C_d is the coefficient of discharge that is taken as 0.6 that corresponds to thinner pipe wall compared to opening dimension, A_0 is the opening cross-section in a foot (in^2/ft), g is the gravitational acceleration (in/s^2), and h is the water head that is taken as 36 in (i.e., 3' of IWS).

The pipe diameter needs to be sufficient to convey the Q with the proposed opening and pipe slope. The capacity of the pipe was checked using the following equation.

$$V = -2\sqrt{2gDS} \times Log\left(\frac{k_s}{3.71D} + \frac{2.51v_k}{D\sqrt{2gDS}}\right)$$

In which, V (in/s) is flow velocity in pipe, D is pipe internal diameter (in), k_s (in) is pipe roughness that is taken as 0.06" for PVC drainage pipes, and v_k is water kinematic viscosity (in^2/s).

At first, the pipe size (i.e., D) and opening dimensions were picked per section 610 of PennDOT publication 408, and then they were used to determine whether the specifications meet the required capacity to convey the water head with the proposed slope. PVC pipe with an internal diameter of 4" and circular

perforation with a diameter of 3/8" was chosen. There will be two perforation (one on each side of the pipe) per foot of the pipe.

Flow rate computation through the perforations:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
1	0.110390625	1	0.5	0.6	36	331	32.17	1389744

The computed flow rate (Q) for a length of 700' (L = 700') would yield a total 997 gpm for the pipe that is greater than 10 gpm. This is the capacity of the perforations, and it is required to check the capacity of the pipe too.

Pipe diameter check:

ID (in)	A(in^2)	g (ft/s^2)	g(in/s^2)	S	K_s (in)	V_k (in^2/s)	V (in/s)	Q (in^3/s)	REQ V (in/s)
4	12.56	32.17	386.04	0.0001	0.06	0.0015	2.491129	5.5212301	0.439588385

As can be seen, the proposed pipe size provides sufficient capacity (~ 2.49 in/s is provided while ~ 0.44 in/s is required) to convey drained water through perforations for the given condition of water head and slope. Therefore, the proposed underdrain system would be three 700-foot 4" PVC pipe with 2 circular perforations with a diameter of 3/8" in each foot. The perforations need to be in similar rows on both sides (i.e., 1400 perforations; one on each sides per foot). The material and construction sequence shall be per section 610 of PennDOT publication 408.

The orifice size was initially designed to meet the MRC release rate criteria that is to control the discharge rate to 0.01 cfs per equivalent acre. The designed orifice size for this BMP was 3.0" that needs to be checked to have adequate capacity to convey minimum of 10 gpm.

Orifice size check:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
6	12.56	1	0.5	0.6	72	319824	32.17	1389744

The computed flow rate (Q) for the orifice would yield a total 1375 gpm that is greater than 10 gpm.

Underdrain pipe size and perforation design

In addition to all other aforementioned stormwater management criteria such as volume and release rate control, underdrain pipe size and perforations as well as the underdrain orifice size to the outlet structures were designed to meet the following:

- Pass at least 10 gpm
- Space between the underdrain pipes not less than 10 feet
- Perorations not smaller than 3/16 inch and not larger than 3/8 inch

BMP E:

The underdrain pipes were designed by considering 36 inches of saturated layer (3-foot IWS), which imposes 3 foot of head water pressure. Three underdrain pipes with length of 100, would be installed at the designated invert elevation. These pipes are attached to another pipe that that is installed perpendicular to them, and discharges through the designated orifice to the outlet structure. Underdrain pipe would have a minimal slope (S) of 0.01 % toward the outlet structure.

The following equation is employed to compute the flow in the underdrain pipe for various opening configurations.

$$Q = n.L.B.C_d.A_0.\sqrt{2gh}$$

In which Q is the discharge capacity of the perforated pipe (in^3/s), $n.L$ is the total length of the pipe, B is clogging factor that is taken as 0.5 for a safety margin, C_d is the coefficient of discharge that is taken as 0.6 that corresponds to thinner pipe wall compared to opening dimension, A_0 is the opening cross-section in a foot (in^2/ft), g is the gravitational acceleration (in/s^2), and h is the water head that is taken as 36 in (i.e., 3' of IWS).

The pipe diameter needs to be sufficient to convey the Q with the proposed opening and pipe slope. The capacity of the pipe was checked using the following equation.

$$V = -2\sqrt{2gDS} \times Log\left(\frac{k_s}{3.71D} + \frac{2.51v_k}{D\sqrt{2gDS}}\right)$$

In which, V (in/s) is flow velocity in pipe, D is pipe internal diameter (in), k_s (in) is pipe roughness that is taken as 0.06" for PVC drainage pipes, and v_k is water kinematic viscosity (in^2/s).

At first, the pipe size (i.e., D) and opening dimensions were picked per section 610 of PennDOT publication 408, and then they were used to determine whether the specifications meet the required capacity to convey the water head with the proposed slope. PVC pipe with an internal diameter of 4" and circular perforation with a diameter of 3/8" was chosen. There will be two perforation (one on each side of the pipe) per foot of the pipe.

Flow rate computation through the perforations:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
1	0.110390625	1	0.5	0.6	36	331	32.17	1389744

The computed flow rate (Q) for a length of 100' (L = 100') would yield a total 142 gpm for the pipe that is greater than 10 gpm. This is the capacity of the perforations, and it is required to check the capacity of the pipe too.

Pipe diameter check:

ID (in)	A(in^2)	g (ft/s^2)	g(in/s^2)	S	K_s (in)	V_k (in^2/s)	V (in/s)	Q (in^3/s)	REQ V (in/s)
4	12.56	32.17	386.04	0.0001	0.06	0.0015	2.491129	5.5212301	0.439588385

As can be seen, the proposed pipe size provides sufficient capacity (~ 2.49 in/s is provided while ~ 0.43 in/s is required) to convey drained water through perforations for the given condition of water head and slope. Therefore, the proposed underdrain system would be three 100-foot 4" PVC pipe with 2 circular perforations with a diameter of 3/8" in each foot. The perforations need to be in similar rows on both sides (i.e., 200 perforations; one on each sides per foot). The material and construction sequence shall be per section 610 of PennDOT publication 408.

The orifice size was initially designed to meet the MRC release rate criteria that is to control the discharge rate to 0.01 cfs per equivalent acre. The designed orifice size for this BMP was 3.0" that needs to be checked to have adequate capacity to convey minimum of 10 gpm.

Orifice size check:

n	A_0 (in^2)	L (ft)	B	Cd	h (in)	Q (in^3/min)	g (ft/s^2)	g(in/min^2)
1	7.065	1	0.5	0.6	72	29983	32.17	1389744

The computed flow rate (Q) for the orifice would yield a total 129 gpm that is greater than 10 gpm.

APPENDIX C

NRCS Custom Soil Resource Report

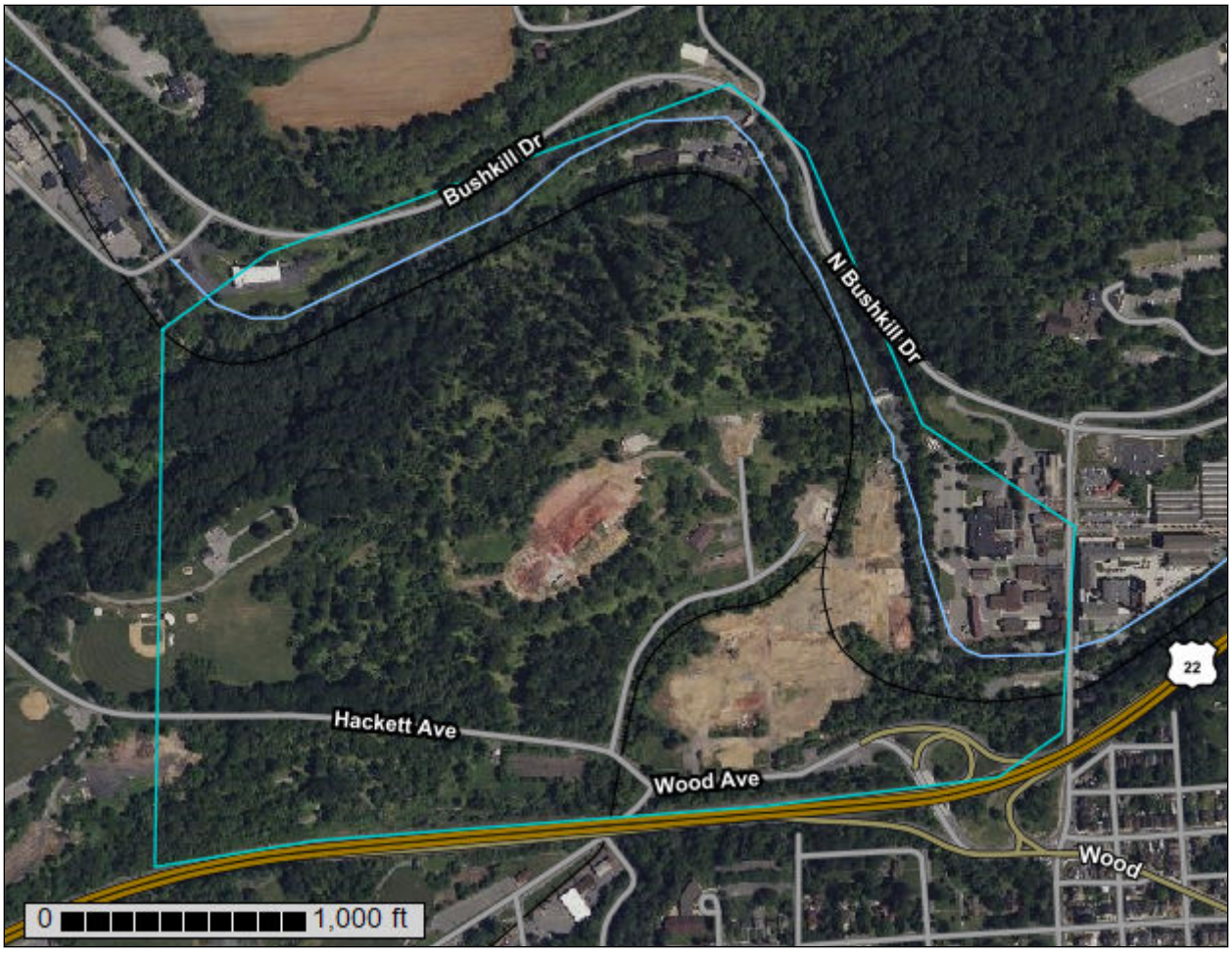
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Northampton County, Pennsylvania



December 2, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

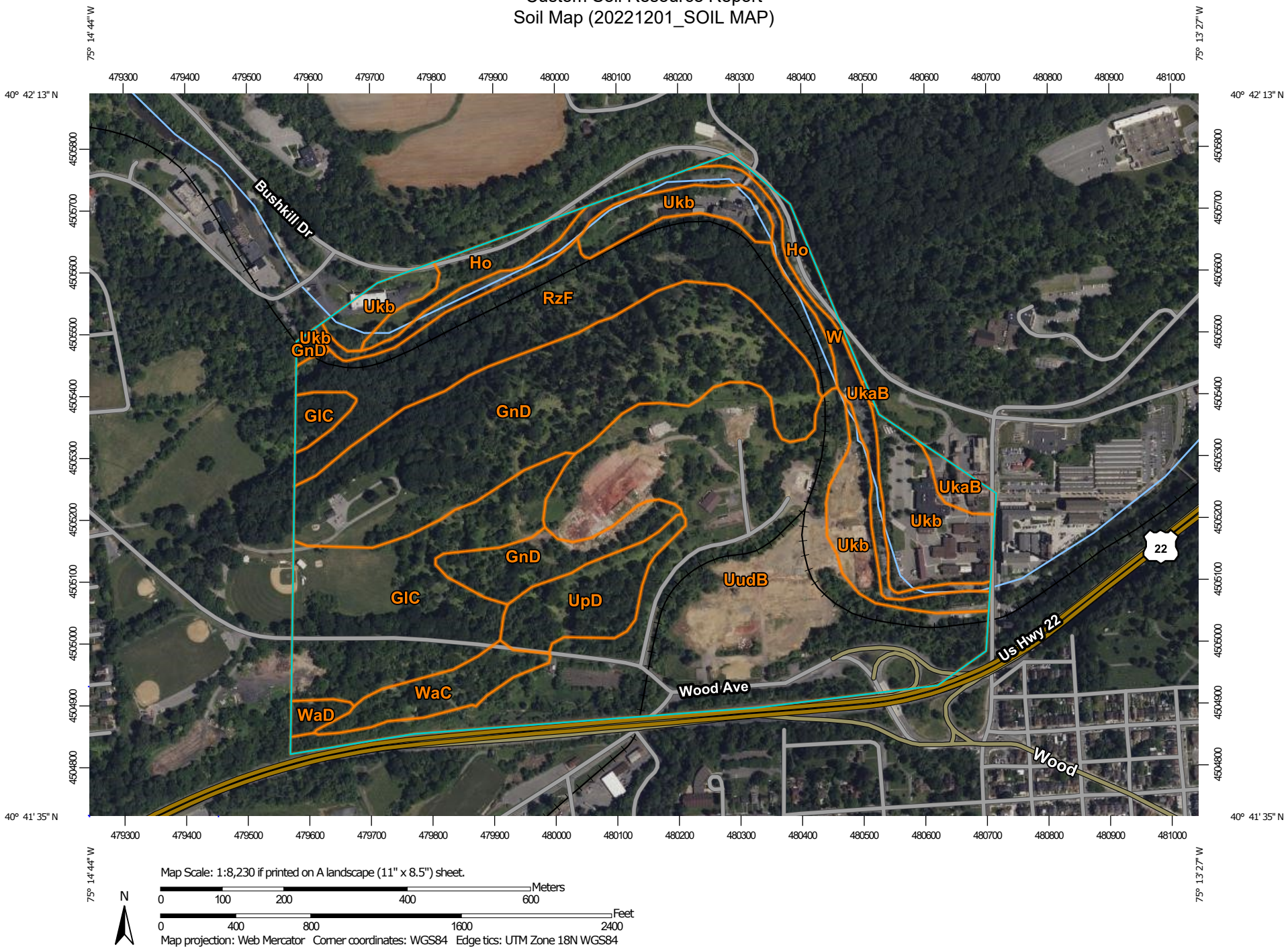
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


75° 14' 44" W
75° 13' 27" W
40° 42' 13" N
40° 41' 35" N
479300
479400
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479700
479800
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480200
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Ukb
Ukb
GnD
W
UkaB
GIC
GnD
UkaB
Ukb
Ukb
GnD
UudB
GIC
UpD
22
Us Hwy 22
Wood Ave
WaC
WaD
Wood
Map Scale: 1:8,230 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
100
200
400
600
Feet
0
400
800
1600
2400
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Northampton County, Pennsylvania
Survey Area Data: Version 15, Sep 6, 2022

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

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

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

Map Unit Legend (20221201_SOIL MAP)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GlC	Gladstone gravelly loam, 8 to 15 percent slopes	23.1	11.6%
GnD	Gladstone-Parker gravelly loams, 15 to 25 percent slopes	42.9	21.5%
Ho	Holly silt loam	6.0	3.0%
RzF	Ryder-Rock outcrop complex, 25 to 75 percent slopes	25.0	12.5%
UkaB	Urban land, 0 to 8 percent slopes	1.6	0.8%
Ukb	Urban land, occasionally flooded	20.1	10.1%
UpD	Urban land-Gladstone complex, 8 to 25 percent slopes	6.8	3.4%
UudB	Urban land-Udorthents, limestone complex, 0 to 8 percent slopes	60.1	30.1%
W	Water	8.0	4.0%
WaC	Washington silt loam, 8 to 15 percent slopes	4.8	2.4%
WaD	Washington silt loam, 15 to 25 percent slopes	1.0	0.5%
Totals for Area of Interest		**199.4**	**100.0%**

Map Unit Descriptions (20221201_SOIL MAP)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Northampton County, Pennsylvania

GlC—Gladstone gravelly loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v7gl
Elevation: 250 to 1,200 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 170 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gladstone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gladstone

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy colluvium derived from granite and gneiss and/or loamy residuum weathered from granite and gneiss

Typical profile

Ap - 0 to 10 inches: gravelly loam
Bt1 - 10 to 22 inches: gravelly sandy clay loam
Bt2 - 22 to 37 inches: gravelly loam
C - 37 to 66 inches: gravelly sandy loam
R - 66 to 76 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 65 to 67 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F148XY024PA - Moist, Piedmont - felsic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Califon

Percent of map unit: 5 percent
Landform: Flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Parker

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Annandale

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

GnD—Gladstone-Parker gravelly loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 23bnw
Elevation: 250 to 1,200 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 150 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Gladstone and similar soils: 58 percent
Parker and similar soils: 42 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gladstone

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Nose slope, side slope

Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Local colluvium and residuum weathered from granite and gneiss

Typical profile

A - 0 to 6 inches: gravelly loam
BA - 6 to 10 inches: gravelly loam
Bt1 - 10 to 25 inches: gravelly loam
Bt2 - 25 to 35 inches: very gravelly loam
C - 35 to 68 inches: extremely gravelly loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 60 to 100 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F148XY024PA - Moist, Piedmont - felsic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Description of Parker

Setting

Landform: Hills
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from granite and gneiss

Typical profile

Ap - 0 to 7 inches: gravelly loam
Bw1 - 7 to 18 inches: very gravelly loam
Bw2 - 18 to 27 inches: very gravelly sandy loam
C - 27 to 41 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 60 to 118 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F148XY021PA - Dry, Piedmont - felsic, Upland, Mixed Oak Heath / Oak-Pine Woodland
Hydric soil rating: No

Ho—Holly silt loam

Map Unit Setting

National map unit symbol: l7bn
Elevation: 100 to 1,300 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Holly and similar soils: 94 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holly

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium derived from sandstone and shale

Typical profile

Ap - 0 to 7 inches: silt loam
Bg - 7 to 26 inches: silty clay loam
Cg - 26 to 44 inches: silty clay loam
2Cg - 44 to 62 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Occasional

Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F148XY031PA - Hydric, Triassic, Riparian Zone, Swamp Meadow-Shrub-Forest, F147XY011PA - Poorly Drained Fine Mixed Floodplain
Hydric soil rating: Yes

Minor Components

Gibraltar

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Brinkerton

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Linden

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

RzF—Ryder-Rock outcrop complex, 25 to 75 percent slopes

Map Unit Setting

National map unit symbol: l7cn
Elevation: 300 to 1,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Ryder and similar soils: 65 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ryder

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from shaly limestone

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 24 inches: channery silt loam
H3 - 24 to 34 inches: very channery silt loam
H4 - 34 to 44 inches: bedrock

Properties and qualities

Slope: 25 to 75 percent
Depth to restrictive feature: 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Valley sides
Landform position (two-dimensional): Shoulder, backslope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Bedrock exposures

Typical profile

H1 - 0 to 0 inches: bedrock

Properties and qualities

Slope: 25 to 75 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

UkaB—Urban land, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 23f0k
Elevation: 800 to 1,500 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Pavement, buildings and other artifically covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Udorthents, unstable fill

Percent of map unit: 10 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ukb—Urban land, occasionally flooded

Map Unit Setting

National map unit symbol: 23f25
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 48 to 57 degrees F

Frost-free period: 161 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land, occasionally flooded: 99 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Occasionally Flooded

Setting
Landform: Flood plains
Parent material: Pavement, buildings and other artifically covered areas

Typical profile
H1 - 0 to 6 inches: variable

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 98 inches to lithic bedrock
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Frequency of flooding: OccasionalNone
Available water supply, 0 to 60 inches: Very low (about 0.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

UpD—Urban land-Gladstone complex, 8 to 25 percent slopes

Map Unit Setting
National map unit symbol: 23f23
Elevation: 200 to 1,200 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 44 to 57 degrees F
Frost-free period: 130 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 65 percent
Gladstone and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 10 to 100 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Gladstone

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Local colluvium and residuum weathered from granite and gneiss

Typical profile

A - 0 to 10 inches: gravelly loam
C - 10 to 42 inches: gravelly clay loam
2Ap - 42 to 68 inches: gravelly loam
R - 68 to 78 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 60 to 100 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F148XY024PA - Moist, Piedmont - felsic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Cokesbury

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

Califon

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

UudB—Urban land-Udorthents, limestone complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 227x6
Elevation: 300 to 1,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent
Udorthents, limestone, and similar soils: 15 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Valleys, hills
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope, nose slope, head slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 99 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Udorthents, Limestone

Setting

Landform: Valleys, hills
Landform position (two-dimensional): Shoulder, footslope, backslope, summit
Landform position (three-dimensional): Interfluve, side slope, nose slope, head slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Graded areas of argillaceous limestone

Typical profile

H1 - 0 to 6 inches: clay loam
H2 - 6 to 60 inches: clay

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 20 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Duffield

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: l7ds
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Runoff class: Negligible
Frequency of ponding: Frequent

WaC—Washington silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: l7dw
Elevation: 160 to 1,500 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 133 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Washington and similar soils: 90 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Washington

Setting

Landform: Valleys
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Colluvium derived from limestone and/or old glacial drift

Typical profile

A1 - 0 to 9 inches: silt loam
B2 - 9 to 42 inches: clay loam
C3 - 42 to 61 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland, F148XY024PA - Moist, Piedmont - felsic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Clarksburg

Percent of map unit: 3 percent
Landform: Valley flats
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Loudonville

Percent of map unit: 2 percent
Landform: Till plains
Landform position (three-dimensional): Head slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ryder

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

WaD—Washington silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: l7dx
Elevation: 180 to 1,500 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Washington and similar soils: 90 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Washington

Setting

Landform: Valleys
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from limestone and/or old glacial drift

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 42 inches: clay loam
H3 - 42 to 61 inches: gravelly loam
H4 - 61 to 63 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Ryder

Percent of map unit: 3 percent
Landform: Hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Clarksburg

Percent of map unit: 3 percent
Landform: Valley flats
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Thorndale

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

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APPENDIX D

City of Easton SWM Ordinance Article III

It should be noted that stormwater management ordinances of all three municipalities (i.e., City of Easton, Palmer Township, and Wilson Borough), at which the project site is located, are similar to each other. However, items and sections provided by City of Easton stormwater management ordinance is employed to report how the requirements are addressed in this design because the end point discharge of PCSM would be in City of Easton. Nonetheless, the concept and design per each of the municipalities would be the same and this ordinance is only picked to reference the corresponding sections.

507-11. G

Lined Bioretention BMPs were designed to manage the post-construction stormwater in accordance with local and state regulations to not only prevent erosion but also enhance the current drainage condition of the site.

507-11. J

Although the infiltration rate of the underlying soil is sufficient to incorporate infiltration-based BMPs, the BMPs are designed to perform as bioretention basins. Furthermore, lining is proposed at the invert of the BMPs to prohibit infiltration although infiltration is encouraged to occur to the extent possible per MRC BMP design handout. The main reason for such considerations is presence of contaminated native soil in the site that can adversely impact the quality of groundwater in case of infiltration.

507-13

Erosion and sediment control plans were submitted to Northampton soil conservation district for E&SC certification, and an individual NPDES permit was applied for from PADEP. No earth disturbance activity would commence without an approved and certified E&SC plan from the abovementioned reviewing agencies. Approved plans are submitted to the municipalities, and they will be available at the project site at all times.

507-14. A

No earth disturbance activity would commence before the drainage and PCSM plans are approved by the municipality.

507-14. B

Water quality volume (WQv) was calculated using both approaches and the highest value was checked with BMP storage volume to show there is adequate capacity to fully capture WQv. It should be noted that the BMP storage volume was considered as the volume that can be captured below the lowest overflow orifice (i.e., no overflow allowed) for this comparison. Below tables report the conformity of the proposed BMPs with this section:

BMP A:

Method one			
C	P (in)	A (ac)	WQv (cf)
0.96	1.25	12.4	54014.4

Method two		
Pre-vol 2-Yr (cf)	Post-vol 2-Yr (cf)	WQv (cf)
22426	114874	92448

WQv (cf)
92,448

Provided (cf)
275,000

BMP B:

Method one			
C	P (in)	A (ac)	WQv (cf)
0.96	1.25	15.67	68258.52

Method two		
Pre-vol 2-Yr (cf)	Post-vol 2-Yr (cf)	WQv (cf)
28340	136095	107755

WQv (cf)
107,755

Provided (cf)
240,000

BMP C:

Method one			
C	P (in)	A (ac)	WQv (cf)
0.88	1.25	31.05	123982.7

Method two		
Pre-vol 2-Yr (cf)	Post-vol 2-Yr (cf)	WQv (cf)
56156	230623	174467

WQv (cf)
174,467

Provided (cf)
328,349

BMP E:

Method one			
C	P (in)	A (ac)	WQv (cf)
0.56	1.25	6.02	15296.82

Method two		
Pre-vol 2-Yr (cf)	Post-vol 2-Yr (cf)	WQv (cf)
10888	25608	14720

WQv (cf)
15,297

Provided (cf)
46,000

507-14. C

As presented in the previous item, WQv associated with each post-development drainage area and its corresponding BMP was computed and checked separately.

507-14. E

The WQv of the site as a result of the proposed project would not be treated by infiltration due to previously discussed contamination of the native soil. Instead, managed release concept is employed. The treatment is provided through fill media and incorporation of internal water storage (IWS) in it. 2-foot fill media, composed of loamy sand per PA BMP manual, is proposed for each of the BMPs A and B, while 4-foot fill media is proposed for BMPs C and E. The fill media would be covered with adequate native and noninvasive vegetative cover. Combination of loamy sand fill media and vegetative cover inside the BMPs would provide water quality enhancement before it discharges from the underdrain pipe. The water quality enhancement would occur owing to processes such as sedimentation, filtration, evapotranspiration, contaminant uptake by plants, denitrification, adsorption, etc. Moreover, elevated underdrain orifice has created at least 1 foot of a saturated IWS that amplifies the water quality enhancement mechanisms, in particular denitrification, plant uptake, and evapotranspiration by increasing the water holding time in the saturated fill media. Overall, the proposed BMPs would provide required treatment by incorporating concepts of bioretention and stormwater filter (sand) as well as discharging the outflow from the BMPs on level vegetated pervious areas, upgradient of UNT to Bushkill Creek, as sheet flow. It should be noted that, as described in the E&SC report, the discharge from outlet pipes would first pass on and through level spreader, where it would turn into sheet flow.

507-14. F

Historically, there is thick layer of deposited fill in the site, and it was one of the other reasons that infiltration-based BMPs were ruled out form the design and instead lined bioretention BMPs were picked.

507-14. G

Generally, from the published sources such as USDA soil report and USGS bedrock geology maps, the bedrock lays between ~10" and ~60" feet below the ground surface, and it is mostly composed of noncarbonate rocks. It should be noted that areas used for BMPs have deep bedrocks although per MRC BMP design guidelines, bedrock is not a restrictive layer for the location of MRC BMPs. Another advantage of employing lined biorettnion and MRC BMPs is independency of them from potential limitations in infiltration imposed by geological features such as carbonate layers and potential for sinkhole. Nonetheless, the geological limitations have notably lower impact on the functionality of lined BMPs when compared to the infiltration-based ones.

507-14. H

The proposed BMPs do not intend to use infiltration for a variety of reasons, including contaminated native soil and sizeable thickness of fill on the site.

507-14. I (1)

The proposed BMPs are located within the areas at which depth to bedrock is greater than 60" below the ground. Since the invert of proposed BMPs is approximately 6 feet below the ground, bedrock and BMP invert separations are not 2 feet or greater in some cases. However, the proposed BMPs would not be impacted by such factor because they do not use infiltration. Bedrocks are not restrictive layer in the design and performance of lined BMPs.

507-14. I (2)

The proposed BMPs are located within the areas at which depth to groundwater table is greater than 7' below the ground. Since the invert of proposed BMPs is approximately 6 feet below the ground, water table and BMP invert separations are not 3 feet or greater in some cases. Per MRC BMP design handout, a minimum separation of 1' is sufficient. However, the proposed BMPs would not be impacted by such factor because they are designed to prohibit infiltration by installing liners to protect groundwater from potentially contaminated infiltrated water. Liners would not only prohibit infiltration but also prevent potential seasonal high water from entering the BMPs.

507-14. I (3)

Soil permeability and hydraulic conductivity do not matter in this design because infiltration is completely ruled out in this project.

507-14. I (4)

Setbacks or buffers from the proposed BMPs are not applicable in this design because infiltration is completely ruled out in this project.

507-14. J

Although the proposed BMPs would not infiltrate the stormwater, recharge volume (Rev) associated with each of the drainage areas and their corresponding BMPs were calculated to show there is sufficient capacity in the BMPs. The volume would be held within the BMPs and then discharged off site. The stormwater discharged from the BMP would move as sheet flow in

the lands adjacent to the receiving surface stream. Recharge process may occur during the sheet flow. Below tables report the conformity of the proposed MRC BMPs with this section:

BMP A:

Impervious A (ac)	REv (cf)
11.75	10663.125

Required REv (cf)
10,663

Provided (cf)
275,000

BMP B:

Impervious A (ac)	REv (cf)
13.96	12668.7

Required REv (cf)
12,669

Provided (cf)
240,000

BMP C:

Impervious A (ac)	REv (cf)
22.95	20827.125

Required REv (cf)
20,827

Provided (cf)
328,349

BMP E:

Impervious A (ac)	REv (cf)
3.65	3312.375

Required REv (cf)
3,312

Provided (cf)
46,000

507-14. O

Infiltration of the entire WQv and Rev is not proposed to occur inside the BMPs, mainly to protect groundwater quality from contaminated native soil. Instead, stormwater discharge quality is designed to enhance through a variety of engineering tools, including bioretention, sand filter, and vegetated buffer, in series. Combination of loamy sand fill media and vegetative cover inside the BMP would provide water quality enhancement before it discharges from the underdrain pipe. The water quality enhancement would occur owing to processes such as sedimentation, filtration, evapotranspiration, contaminant uptake by plants, denitrification, adsorption, etc. Moreover, elevated underdrain orifice has created at least 1 foot of a saturated IWS that amplifies the water quality enhancement mechanisms, in particular denitrification, plant uptake, and evapotranspiration by increasing the water holding time in the saturated fill media. Overall, the proposed MRC BMPs would provide required treatment by incorporating concepts of bioretention and stormwater filter (sand) as well as discharging the outflow from the BMPs on level vegetated pervious areas, upgradient of UNT to Bushkill Creek, as sheet flow. It should be noted that, as described in the E&SC report, the discharge from outlet pipes would first pass on and through level spreader, where it would turn into sheet flow.

507-14. T

The increased volume due to the proposed development is designed to be held temporarily and released gradually with lower releases rates compared to the existing condition. The 2-year post-construction peak stormwater rate is managed to below 30% of the pre-construction peak rate to protect the stability of downgradient water courses as well as to improve the quality of stormwater discharge.

507-15

According to the mapping of the stormwater management districts, the project site is located in the subareas 129 and 130, which are assigned as conditional/provisional no-detention districts. In this area, it is required to reduce the 2-year post-construction peak flow rate to 30% of the pre-construction peak, while larger storms would not require post-construction peak flow control if there is adequate capacity in downgradient conveyance systems to manage the increased flow rates. Below tables report the conformity of the proposed BMPs with this section in controlling

the peak rate at final project POI (confluence of UNT and Bushkill at the southeastern corner of the project site):

Overall Site:

subarea	Control to	Pre- 2-Yr peak (cfs)	Allowable Rate (cfs)	Post- 2-Yr peak (cfs)
130	30%	21.37	6.41	6.24

The downgradient capacity was not studied in this project, therefore, 100% release rate control was used for larger storms. Below tables report the conformity of the proposed BMPs with this section for larger storms in controlling the peak rate at final project POI (confluence of UNT and Bushkill at the southeastern corner of the project site):

Overall Site:

subarea	Control to	Pre- 10-Yr peak (cfs)	Allowable Rate (cfs)	Post- 10-Yr peak (cfs)
130	100%	74.93	74.93	19.47

subarea	Control to	Pre- 25-Yr peak (cfs)	Allowable Rate (cfs)	Post- 25-Yr peak (cfs)
130	100%	119.87	119.87	31.31

subarea	Control to	Pre- 100-Yr peak (cfs)	Allowable Rate (cfs)	Post-100-Yr peak (cfs)
130	100%	224.72	224.72	68.19

507-16

The proposed storm sewer system and MRC BMPs are designed based on the following criteria and assumptions:

1. Pre-development and post-development site runoff are computed using the SCS TR-55 Method to design MRC BMPs with type C distribution per PADEP requirements, while the existing and designed site were also modeled using SCS TR-55 Method with type II distribution to check compliance with local requirements. Pre- vs post-development runoff is computed for the 1-yr, 2-yr, 5-yr, 10-yr, 25-yr, 50-yr, and 100-yr storms. MRC BMPs were also designed using 1.2" storm with a distribution similar to that of NJ Water Quality Design Storm distribution.
2. See the Soil Report Appendix for soil types. The following runoff Curve Numbers were used for the SCS TR-55 runoff hydrograph computations, and are taken from the local Stormwater Management Ordinance:

Cover Condition	CN
Impervious	98
Gravel- HSG A	76
Gravel- HSG B	85
Gravel- HSG D	91
Lawn - HSG A	39
Lawn - HSG B	61
Lawn - HSG D	80
Wooded - HSG A	30
Wooded - HSG B	55
Wooded - HSG D	77

3. BMP emergency spillways are considered to be trapezoidal channels for BMPs B and C, and the top of the grate of the BMP E outlet box, where the outlet boxes were 2' by 4'. Top of the grate elevation was designed to provide at least 1' of freeboard between top of the grate and top of the berm when conveying 100-yr storm through outlet pipe with sufficient capacity. BMP A does not have berm around, therefore, no emergency spillway is needed. The flow to design emergency spillways was 100-yr inflow to the BMPs. Below reports the corresponding calculations:

Basin	D (in)	n	S (ft/ft)	A (sf)	P (ft)	R (ft)	Capacity (cfs)	100-yr inflow (cfs)
E	**24**	**0.013**	**0.0542**	**3.14**	**6.28**	**0.50**	**52.66**	**50.24**

PROJECT NAME: Easton Commerce Center
LOCATION: City of Easton, Northampton County, PA
PREPARED BY: A. Behbahani
CHECKED BY: D. Haas

Sheet: _____
W.O. No: 2022-528
DATE:
REVISED: _____

Basin B Emergency Spillway
Trapezoidal Broadcrested Weir Capacity

Discharge Capacity, $Q_w = C(WH^{1.5} + 0.8H^{2.5} \times SS)$

Crest Width, W = 300 Ft.

Side Slope, SS = 3:1

Discharge Coefficient, C = 2.8

Required Capacity = 163.6 cfs

	Water Surface Elevation	Head, Ft	Discharge, cfs
Invert =	290.50	0.00	0.0
	290.75	0.25	105.2
	291.00	0.50	298.2
	291.25	0.75	548.9
	291.50	1.00	846.7
	291.75	1.25	1185.7
Top of Berm =	292.00	1.50	1561.7
Design WSE =	291.00	0.50	298.2

Freeboard = 292.00 - 291.00 = 1.00'

Flow Velocity = V = Q ÷ A
= 298.2 cfs ÷ 150.8 SF
= 2.0 fps *

A = (H) x (W + SS x H)
= (0.50') x (300' + 3 x 0.50')
= 150.8 SF

*** Provide S75/D ECB lining up to elevation 291.00**

PROJECT NAME: Easton Commerce Center
LOCATION: City of Easton, Northampton County, PA
PREPARED BY: A. Behbahani
CHECKED BY: D. Haas

Sheet: _____
W.O. No: 2022-528
DATE:
REVISED: _____

Basin C&D Emergency Spillway
Trapezoidal Broadcrested Weir Capacity

Discharge Capacity, $Q_w = C(WH^{1.5} + 0.8H^{2.5} \times SS)$

Crest Width, W = 100 Ft.

Side Slope, SS = 3:1

Discharge Coefficient, C = 2.8

Required Capacity = 267.5 cfs

	Water Surface Elevation	Head, Ft	Discharge, cfs
Invert =	222.00	0.00	0.0
	222.20	0.20	25.2
	222.40	0.40	71.5
	222.60	0.60	132.0
	222.80	0.80	204.2
	223.00	1.00	286.7
Top of Berm =	224.00	2.00	830.0
Design WSE =	222.60	0.60	132.0

Freeboard = 224.00 - 222.60 = 1.40'

Flow Velocity = V = Q ÷ A
= 132.0 cfs ÷ 61.1 SF
= 2.2 fps *

A = (H) x (W + SS x H)
= (0.60') x (100' + 3 x 0.60')
= 61.1 SF

*** Provide S75/D ECB lining up to elevation 222.60**

4. Storm sewers are designed for the 50-yr storm event.
5. Runoff flows to the storm sewer and swales are computed using the Rational Method.
6. Runoff coefficients are based on the local Stormwater Management Ordinance

Cover Condition	C_{25+}	
Ground Slope:	2 – 6%	6% +
Impervious	0.96	
Open Space	0.23	0.32
Meadow	0.35	0.44

7. Rainfall intensities are based on the Region Intensity-Duration-Frequency chart that is provided by the local Stormwater Management Ordinance.
8. For all stormwater modeling, rainfall depths are adopted from the local Stormwater Management Ordinance.

Return Period	24-Hour Rainfall Depth (inches)
1-year	2.40
2-year	3.00
5-year	3.60
10-year	4.56
25-year	5.52
50-year	6.48
100-year	7.44

APPENDIX E

No Infiltration Justification

The project site was evaluated for infiltration, however limitations due to past deposition on top of the site leading to a thick layer of fill on the in-situ soil, as well as presence of elevated levels of contaminants on site, have created a site where it does not meet the infiltration requirements in the BMP Manual. As such, the site was designed with other BMP's to credit for the required infiltration; MRC Basins, Amended Soils, Landscape Restoration/Tree planting. Additionally, steep slopes and preserving the maximum amount of forested area encouraged employing MRC BMPs.

USDA soil report notes there are areas at which infiltration is limited and the depth to rock is too shallow to allow for an infiltration BMP. The soil report in another appendix provides the background data for the restrictive layers (bedrock and groundwater) and hydraulic conductivity. Although the groundwater table did not encounter the bottom of BMPs and there was sufficient distance between water tables and invert of BMPs, lining is proposed at the bottom of the MRC BMPs to prohibit infiltration and therefore protect the quality of groundwater from the contaminated in-situ soil.

The MRC BMPs are shown on the downslope side of the areas of the site to allow for capture and treatment of the stormwater runoff from the proposed development. In addition to that, all other pervious disturbed areas are to be provided with amended soils and landscape restoration. A significant amount of tree planting/reforesting will occur on the project site, with particular emphasis on the BMPs and areas around them.

Other alternative BMP's were evaluated, but would require greater earth disturbance to enable (spray irrigation would require clearing more existing vegetation and disturbing greater area to install), or are not feasible in the project goals (capture and reuse, the end use for the buildings is not known to propose that option as a specific use case to allow for permitting).

The following section presents the alternative analysis that evaluated a range of stormwater BMPs. As It was shown that, using lined bioretention BMPs would be the most efficient and viable option. Also geotechnical investigation of the site is reported at the end of this appendix.

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ALTERNATIVE PCSM BMP ANALYSIS

EASTON COMMERCE PARK

FOR EASTON WOOD AVE PROPCO, LLC

CITY OF EASTON, PLAMER TOWNSHIP, AND WILSON BOROUGH

NORTHAMPTON COUNTY

PENNSYLVANIA

Prepared by: Ali Behbahani, Ph.D., EIT
Donald Haas, RLA
Date: May 2024
Revised: ---

Project: 2022-528

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1- Introduction

The proposed project includes construction of an industrial building along with associated access drives and facilities. The project also needs relocation of a watercourse from the center of the site to the southern side. The final receiving water body from the site is Bushkill Creek, which an impaired stream listed as HQ/CWF/MF. The existing unnamed tributary in the middle of the site is passing through an area that is documented to contain contaminated fill, therefore, the relocation of the stream is not just due to the building location but it is intended to enhance the environmental condition of the site and adjacent water bodies. After construction of the proposed development, most of the storm runoff will be directed into proposed managed release concept (MRC) BMPs. An important reason for choosing MRC BMPs (in addition to limited infiltration and presence of underlying restrictive layers) was contamination of the existing media that would adversely impact groundwater in case infiltration-based BMPs were employed. This alternative analysis document is prepared to discuss the feasibility of different structural and non-structural stormwater BMPs to manage the post-construction stormwater from various perspectives of water quality and quantity.

Lined MRC BMPs would not only eliminate the dependence of BMP functionality on infiltration, but also would prevent potential groundwater contamination in case of employing infiltration-based BMPs. Moreover, infiltration-based BMPs would require at least 2 feet of distance between BMP invert and the highest restrictive layer (i.e., groundwater table or bedrock), and this distance was difficult to achieve as reported in geotechnical report. The geotechnical report also revealed almost zero infiltration in the teste areas. All those considerations led to choose of lined MRC BMPs.

Based on a review by NCCD and DEP, it was requested to prepare alternative analysis, and exhaust all other possible forms of stormwater BMPs to allow the use of MRC BMPs. It is noteworthy that demonstration of why other types of BMPs are not applicable is presented with consideration of unnamed tributary relocation, which is already discussed with DEP and TWP, and it is agreed upon to be an environmental and ecological uplift. In other words, it is the alternative analysis for the available tools that can be employed to manage the post-construction stormwater with the new path of the unnamed tributary to Bushkill Creek.

2- Non-structural BMPs

Non-structural BMPs focus on preserving open space, protecting natural systems, and incorporating existing landscape features such as wetlands and stream corridors into a site plan to manage stormwater at its source. Some focus on clustering and concentrating development, minimizing disturbed areas, and reducing the size of impervious areas.

The major categories of non-structural BMPs are as follows:

- Preserving and utilizing existing natural features and systems
- Managing stormwater as close to the source as possible
- Enhance natural landscaping
- Disconnecting, decentralizing, and distributing sources and discharges
- Slowing runoff down, and not speeding it up
- Preventing potential water quality and quantity problems

As can be observed from the existing and proposed plans, there are numerous limitations to use such measures to manage the post-construction stormwater in this site without fundamentally alter the features on this site. The following subsections present how each non-structural alternative is ruled out.

2-1- Use of natural features

There is an unnamed tributary to Bushkill that passes in the middle of the site. There is also a delineated wetland in the vicinity of the existing stream and center of the site. As discussed in the chapter 105 joint permit package, the existing condition index of these two water bodies are not high (0.37 for stream and 0.27 for wetland), indicating their poor condition. Additionally, the size of the channel and acreage of the delineated wetlands are not large enough to provide sufficient capacity for post-construction stormwater management. Such limitations were the major factors that existing water bodies could not create required volume and peak rate control credits by themselves. On the other hand, the site presently consists of developed portions with access driveways and buildings as well as undeveloped portions covered with meadow, woods, and cultivated lands. The quantity of quality of the wooded areas are also limited and cannot play a significant role in post-construction stormwater management. It should be noted that the post-construction condition proposes relocated stream surrounded by mitigated wetlands and enhanced

landscaping, particularly a riparian forest buffer next to the Bushkill Creek that improves the use of natural features in stormwater management. More important than all the abovementioned items is the current contamination in the site that prevents reliability of existing natural features in their current condition to manage stormwater, particularly from water quality point of view. The following plan depicts the known contamination within the site. Hence, this measure cannot be a viable alternative to replace the structural BMPs in the given conditions of the site.

2-2- Managing stormwater close to source

Proposed MRC BMPs serve to manage the stormwater originated from the very upstream of the development, where stormwater mainly is introduced into series of BMPs through the proposed grading and pipe network. The stormwater will leave the site through the installed level spreaders downgradient of the BMPs C and E and enter the relocated stream at the south of the project site, and from there it will be discharged to the Bushkill Creek. The proposed system of combined BMPs and pipe network were initially designed to collect the stormwater as close to its formation source as possible to prevent intensified volumes and rates. If any of the BMPs are fully or partially removed or not functioning properly, there will be no other mitigatory measure near the stormwater formation source that can manage the stormwater. The proposed building is the main contributor of post-construction stormwater generation. The building is proposed to be located at the center of the site and such position facilitates the management of stormwater owing to proximity to low lands in the site, where it is the most efficient location for BMPs. However, it cannot be a replacement for structural BMPs due to the size of the proposed development. It should be noted that it will be a substantial change of the whole concept in the case of reduction in building size, and such alteration would undermine the entire development by not meeting the minimum economic justification. Hence, it can be mentioned that this non-structural measure is already applied to the extent possible.

2-3- Enhancing natural landscaping

This project is proposing substantial environmental and ecological uplift through numerous pathways, including 1) installing riparian buffer next to Bushkill Creek, 2) landscaping throughout, 3) relocating the stream from the contaminated area and route it through engineered stable channel with adequate capacity, and 3) replacing the existing wetland in poor condition with a series of proposed wetlands on the shorelines of the relocated stream. Details of such measures are discussed in other components of this submission, in particular chapter 105 joint permit application. Also, the concept layout was designed to minimize disturbance to natural landscaping as feasible in the first place. Most importantly, the hazards associated with the contaminated area within the site would be eliminated as a result of the adopted measures. This alternative has been utilized to the maximum extent possible and cannot be a viable option for

replacement of structural BMPs as it cannot provide sufficient post-construction stormwater credits to manage water quality and quantity.

2-4- Disconnecting, decentralizing, and distributing sources and discharges

This project is designed based on a layout that can provide the minimum economic feasibility. The layout only proposes one large building and access driveways and parking lots around it, and these features are the main proposed impervious surfaces. The building roof, as the largest impervious surface, would be drained through roof leader from three different direction (to BMPs A, B, and C). The paved area around the building would also be drained in four different directions (to BMPs A, B, C, and E). Such distributions, despite single building configuration, were provided though engineered grading and pipe network. Measures such as minimizing the disturbance to the extend possible, decentralizing the discharge sources by separating drainage areas, etc. as well as placement of pervious covers wherever feasible were considered to comply with this management practice. There are no extra efforts that could be done in this regard that can be a practical replacement to full or partial loss of stormwater management credits gained from structural BMPs, therefore, this option is already exhausted and ruled out of the list of alternatives.

2-5- Slowing runoff down, and not speeding it up

The non-structural measures to slow down the runoff velocity can mainly be provided through incorporating tools such as grading, maximizing the pervious covers like meadow and wooded lands, and use of appropriate lining in the areas with concentrated flow like streams. The proposed development included stable channel bed (through riprap lining) within the relocated stream that will substantially improve the flow in the unnamed tributary as the first recipient of the discharge from the site. The proposed layout was designed to maximize the use of the wooded lands via extensive landscaping throughout the site as well as installing riparian forest buffer next to the final recipient of site discharge (i.e., Bushkill Creek). Such wooded covers would notably mitigate the post-construction runoff velocity and shear stress. Also, the grading and pipe network slopes and sizing were designed in compliance with requirements of the local and State regulations to lower the peak rates as much as possible. There are no further measures that could be incorporated into the general site design that can mitigate the post-development stormwater rates and velocities to regulatory values without employing structural BMPs. This indicates the need for presence of

fully functional structural BMPs, therefore, this alternative cannot be considered as a replacement to structural BMPs and is ruled out as a practical alternative.

2-6- Preventing potential water quality and quantity problems

Main non-structural measures that can be adopted to prevent water quality and quantity problems as a result of a development include riparian buffer establishment/enhancement, floodplain restoration, revegetation, and soil amendment. Although the proposed development is mainly outside of Bushkill riparian buffer and floodplain, the floodplain restoration through installing riparian forest buffer is proposed for this development. The details are presented as a separate component of the submission package. Green landscaping and soil amendment are proposed for this development to the maximum extent possible. Areas designated for roadway, buildings, stormwater conveyance, and storm water BMPs are minimized as feasible and the least practical footprints are proposed. Any area other than areas designated for the above-mentioned uses are proposed to have amended soil installed, covered by revegetation by native and non-invasive vegetative cover, shrubs, and woods. Additionally, there is amended soil and rain garden-type vegetation proposed for the downgradient of BMPE to increase the use of these green tools. However, the proposed green tools within the site cannot compensate for the required water quality and quantity credits. Since there are no other available space to increase the use of the amended soil and revegetation or to extend the riparian forest buffer, this alternative was ruled out as a standalone measure than can handle the post-construction stormwater.

3- Structural BMPs

Structural BMPs are engineered facilities that control stormwater quality and quantity in the discharge leaving a development, entering downstream water bodies. All types of structural BMPs require regular inspection and maintenance to ensure that they are operating effectively. There are numerous well-known structural stormwater BMPs that can be employed to control the quality and quantity of the stormwater in compliance with the local and State regulations. The following discussion introduce the most important classes in accordance with their ranking (i.e., a smaller ranking means it has a priority and is preferred to use over the next one) and presents the reason for not choosing them instead of the MRC approach to manage the post-construction stormwater.

3-1- Infiltration-based

Currently the site is publicly known to contain hazardous contaminants that widely discourages use of any form of infiltration-based system to protect the groundwater. In addition to and despite of such issue, several geotechnical tests was conducted throughout the site to investigate the media. According to geotechnical investigations the infiltration in the site is very limited and on the other hand the restrictive layers in form of bedrock are laid beneath the site. The restrictive layer elevations throughout the site are higher than a level that could allow for 2' separation needed for infiltration-based BMPs. An advantage of MRC BMPs is independence of their functionality on the distance between BMP invert and bedrock. The geotechnical investigations and soil report are presented as other components of this submission. The above-mentioned geotechnical items along with the site contamination prevented the design from incorporating infiltration. There could be an approach to increase using infiltration-based BMPs by finding other appropriate location to install infiltration-based BMPs of the same sizes within the project site. However, although the infiltration tests were only conducted on the areas proposed for the BMPs, the geotechnical layer investigation borings were spread-out through the site, and showed presence of bedrock in different spots. It is impractical to identify an empty area with adequate size to accommodate BMPs of the same size without bedrock beneath unless by significantly changing the proposed grading. Even if such an area could be identified, it will most likely be difficult to employ infiltration-based systems. Moreover, any new area that could be identified for a potential replacement BMP would need to be investigated geotechnically, and there is no guarantee that adequate properties such as sufficient infiltration would be present there. The design team acknowledge the necessity of such thorough investigation when starting a site design, but in this case, we are dealing with a site that is agreed upon to not only exclude infiltration but also prevent it due to the known existing contamination. Hence, the infiltration-based BMPs were avoided as a functional tool to manage the post-construction stormwater.

3-2- Bioretention (Rain Garden)

Aside from the proposed small rain gardens to further treat discharge from BMP E, the site was investigated to identify proper locations to install potential new rain gardens. The general areas available are limited to those of accommodating proposed channel shorelines or main BMPs. None of these areas provide sufficient space for large-enough rain garden areas due to the locations of

the proposed buildings, path of access driveways and grading around them etc. The design team evaluated use of the proposed MRC BMP areas as rain garden and it was demonstrated that these additional rain gardens cannot gain sufficient volume credit through gaining ET credits. It should be noted that as mentioned in the previous subsection, infiltration credit is not a viable option. Evaluation was performed by employing a maximum allowable depth of 5' for the rain gardens to maximize ET credit and PADEP PCSM spreadsheet was utilized to conduct the analysis. It should be noted that BMPs A and B are not MRC BMPs but are lined bioretention as they do not gain any MRC credit.

Scenario one- both MRC BMPs C and E are considered as rain garden

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	Rain Garden / Bioretention C	-	Off-Site	37.15	572,688	115,916			Yes	5.0	52,160		**140,258**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	5.0	3,944		**10,602**
												Totals:		**198,862**

INFILTRATION & ET CREDITS (CF):	**198,862**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**198,862**

VOLUME REQUIREMENT NOT SATISFIED

Scenario two- MRC BMP C is considered as rain garden

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	Rain Garden / Bioretention C	-	Off-Site	37.15	572,688	115,916			Yes	5.0	52,160		**140,258**
002	4	MRC RAIN GARDEN E	Y	Off-Site	4.21	20,309	8,762			Yes	5.0	3,944		**10,602**
												Totals:		**198,862**

INFILTRATION & ET CREDITS (CF):	**198,862**
MANAGED RELEASE CREDIT (CF):	**9,707**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**208,569**

VOLUME REQUIREMENT NOT SATISFIED

Scenario three- MRC BMP E is considered as rain garden

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	MRC RAIN GARDEN C	Y	Off-Site	37.15	572,688	115,916			Yes	5.0	52,160		**140,258**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	5.0	3,944		**10,602**
												Totals:		**198,862**

INFILTRATION & ET CREDITS (CF):	**198,862**
MANAGED RELEASE CREDIT (CF):	**432,430**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**631,291**

VOLUME REQUIREMENT SATISFIED

This scenario showed it can provide adequate volume credit with 5' of fill media, therefore, the original 4' media with 3' IWS (i.e., 3' to use in the spreadsheet) was evaluated again:

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	MRC RAIN GARDEN C	Y	Off-Site	37.15	572,688	115,916			Yes	3.0	52,160		**87,980**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	3.0	3,944		**6,650**
												Totals:		**142,632**

INFILTRATION & ET CREDITS (CF):	**142,632**
MANAGED RELEASE CREDIT (CF):	**484,708**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**627,340**

VOLUME REQUIREMENT SATISFIED

Hence, considering BMPs A, B, and C as lined rain garden (bioretention), and only gaining MRC credits for the BMP C is a viable alternative that would be utilized in design of this site.

3-3- Dry extended detention

Dry extended detention BMPs are mostly effective in peak rate control and does not provide notable volume credits in stormwater management, particularly in areas such as this project site with limited infiltration. The design team tried to model BMP C as dry extended detention BMP in the PADEP PCSM spreadsheet, and as displayed below, such scenario would not provide

sufficient volume credit in the absence of infiltration even in the case of maximum allowable ET credit (i.e., media depth of 5'). Note that other BMPs are set to be rain garden (bioretention) from the previous subsection and it would remain as such because rain garden/biorientation has higher priority compared to the rest of studied alternatives. In other words, from this step forward, the alternatives would only be evaluated to check whether MRC BMP C can be replaced with another type of system.

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	Dry Extended Detention Basin	-	Off-Site	37.15	572,688	115,916			Yes	3.0	52,160		**87,980**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	3.0	3,944		**6,650**
												Totals:		**142,632**

INFILTRATION & ET CREDITS (CF):	**142,632**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**142,632**

VOLUME REQUIREMENT NOT SATISFIED

Therefore, this alternative could not compensate the required volume credit due to lack of infiltration in BMP C. Also as noted in analysis of other BMP types, no additional suitable area whether within the lots or within the general area of the site was identified that can accommodate more stormwater BMPs. Hence, this alternative is ruled out of the viable list.

3-4- Permeable pavement

Drainage area to BMP C is 37.15 ac, which includes approximately 12.6 ac of pavement including parking lot and access driveways. The PADEP PCSM spreadsheet was modified to reflect treatment through impermeable pavement for those paved areas although infiltration is prohibited in the site, the maximum 6 in/hour infiltration that was observed in the site was utilized for this analysis. This infiltration value is most likely an outliner. Nonetheless, the safety factor of 2 was also applied to the in-situ value for modeling. A maximum thickness of 3' for the stone layer beneath the pavement (per PADEP BMP manual) was considered to model the storage volume of the permeable pavement BMP. The entire paved areas associated with BMP C (~ 548,856 sf) was used as infiltration area. As can be seen from the following table, this alternative would provide sufficient volume credit to offset the net change in 2-year storm volume after construction. Even

trying a lower infiltration rate would be sufficient. The inflow is not a function of infiltration rate or the size of volume storge but it originates from the drainage area.

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	Porous Pavement w/Infiltration Bed	-	Off-Site	37.15	572,688	548,856	0.50	72	No	3.0	572,688	**572,688**	
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	3.0	3,944		**6,650**
												Totals:	**572,688**	**54,652**

INFILTRATION & ET CREDITS (CF):	**627,340**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**627,340**

VOLUME REQUIREMENT SATISFIED

However, there are other limitations for the use of this type of BMP, including not meeting rate control and water quality control. In absence of BMP C rate control measures (mainly outlet structure), the volume requirement can be met using porous pavement, but the runoff rate formed on the paved surface (which is no different than when using MRC BMP C) would not be mitigated adequately. But more importantly, infiltration is prohibited in the site and that is the only way for the draining as this system is neither ET(evapotranspiration)-based nor can discharge the stormwater through conduit in distant areas. Therefore, this alternative is not a viable option for post-construction stormwater management and was ruled out.

3-5- Green roof

The effectiveness of this technique to compensate for the loss of volume credit due to lack of infiltration in BMP C is evaluated with the same approach to that of permeable pavement. It was assumed that all the building areas allocated to BMP C would use green roof BMP. The total stormwater volume that can be treated in this scenario was calculated, while corresponding areas were deducted from drainage areas associated with BMP C was adjusted accordingly. The total building roof as part of BMP C drainage area is 12.7 ac. A maximum media depth of 6" (per PADEP BMP manual) with a typical 2 in/hr infiltration rate for the media is assumed to model the green roof and its associated storage volume. As displayed below, this scenario does not fully provide sufficient volume credit, mainly due to limited roof area that can be used. Moreover, this option is considerably more expensive than the ordinary stormwater BMPs. It is also not a standard

practice for this type of construction and represents future concerns that it will be adequately maintained.

Structural BMP Volume Credits: *No. Structural BMPs:* 5 *Start BMP Numbering at:* 1

DP No.	BMP No.	BMP Name	MRC	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	Rain Garden / Bioretention C	-	Off-Site	24.45	376,910	115,916			Yes	3.0	52,160		**87,980**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	3.0	3,944		**6,650**
001	5	Vegetated Roof		to BMP No. 3	12.70	195,778	553,212	2.00	72	Yes	0.5	82,982	**195,778**	**0**
												Totals:	**195,778**	**142,632**

INFILTRATION & ET CREDITS (CF):	**338,410**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**338,410**

VOLUME REQUIREMENT NOT SATISFIED

As can be seen, this alternative will not work in case of considering BMP C as a rain garden/bioretention. Hence, this alternative is ruled out of the viable list.

3-6- Constructed wetland

There are several essential and fundamental items that need to be met in order for a constructed wetland to become and applicable stormwater BMP per PADEP BMP manual. One pre-requisite is allocation of a minimum 5 ac of drainage area to the constructed wetland BMP to ensure sufficient inflow into the wetland BMP. More importantly and to maintain the hydrology, a sustained water supply to create a permanent water surface within the wetland is required. The geotechnical investigation did not show a sustained water supply from the groundwater. There are constructed wetlands proposed on the shorelines of the relocated stream in the southern side of the project site. However, they are not expected to permanently hold a constant water table, and are also smaller than what it takes to manage the stormwater runoff entering BMP C. Contamination in the site is another concerning factor that hinder the use of constructed wetland on the other areas within the site as constructed wetlands need interactions with surrounding media. As discussed in the chapter 105 joint permit package, one of valuable advantages of the proposed project is replacing an existing wetland located within the contaminated media with mitigated wetlands in

clean media with higher acreage. Overall, this alternative was not a stormwater management viable option.

3-7- Water quality filters

This alternative can be immediately eliminated because what needs to be compensated in case of no infiltration in BMP C would be storage volume credit that needs employing some form of water quantity control tool. Hence, any type of BMP that is only targeted at water quality is not and effective measure in this case.

3-7- Spray irrigation

This alternative would need a larger footprint of BMP C so that it can hold the entire 2-year storm without overflow, and then gradually release the stormwater from the basin through the system of pumps, pipes, and orifices. The only area available for the spraying out the ponded water from BMP C is the northern and western edges of the site, where steep slopes exist, as displayed in the project plans. The design team do not believe spraying the water on the steep slopes would be good practice, particularly because the sprayed water in this project should be removed through ET and this needed a flat area to provide sufficient time. In order to provide larger and flatter areas for spraying water, the concept layout needs major modifications but we did not evaluate this further because this system would also require additional tools being installed as well as substantial maintenance and due to its complications, it is not recommended as a standard structural stormwater BMP in PADEP manual.

4- Conclusion

The PCSM scheme was revised to limit the use of MRC BMP to only MRC BMPC. The design team believe that this case is a great example of a project that fits to employ MRC BMPs. A lined MRC BMP simultaneously eliminates the groundwater interference and compensates for the loss of infiltration, as displayed below. More details are presented in PCSM amendment report and drawings.

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Rain Garden / Bioretention A	-	to BMP No. 3	11.48	104,133	79,915			Yes	1.0	11,982		**24,534**
001	2	Rain Garden / Bioretention B	-	to BMP No. 3	18.70	183,598	76,441			Yes	1.0	11,449		**23,467**
001	3	MRC RAIN GARDEN C	Y	Off-Site	37.15	572,688	115,916			Yes	3.0	52,160		**87,980**
002	4	Rain Garden / Bioretention E	-	Off-Site	4.21	20,309	8,762			Yes	3.0	3,944		**6,650**
												Totals:		**142,632**

INFILTRATION & ET CREDITS (CF):	**142,632**
MANAGED RELEASE CREDIT (CF):	**484,708**
NET CHANGE IN VOLUME TO MANAGE (CF):	**492,323**
TOTAL CREDITS (CF):	**627,340**

VOLUME REQUIREMENT SATISFIED

ECS Mid-Atlantic, LLC

Preliminary Geotechnical Engineering Report

1525 Wood Avenue Distribution Warehouse

1525 Wood Avenue
Palmer Township, Wilson Borough & City of Easton
Northampton County, Pennsylvania

ECS Project Number 18:5029

December 18, 2020

December 18, 2020

Mr. David Rickard
NorthPoint Development
4825 NW 41st Street, Suite 500
Riverside, MO 64150

ECS Project No. 18:5029

Reference: Preliminary Geotechnical Engineering Report
1525 Wood Avenue Distribution Warehouse
Palmer Township, Wilson Borough & City of Easton, Northampton County Pennsylvania

Dear Mr. Rickard:

ECS Mid-Atlantic, LLC (ECS) has completed the subsurface exploration and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our Proposal No. 18:7368-GP, dated October 13, 2020. This report presents our understanding of the geotechnical aspects of the project, results of the field exploration, laboratory testing, and our preliminary design and construction recommendations.

It has been our pleasure to be of service to NorthPoint Development during this phase of this project. It is our understanding that this phase of the project was focused on performing a preliminary geotechnical investigation to evaluate the subsurface conditions onsite prior to moving forward in the design process. We would appreciate the opportunity to remain involved during the continuation of the design phase and to provide our services for the final geotechnical exploration and ultimately the construction phase operations to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Mid-Atlantic, LLC

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EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- Based on the provided plan, maximum cuts and fills of approximately 120 and 75 feet, respectively, will be required to reach the proposed building's finished floor elevation. The proposed earthwork includes the removal of a significant portion of a hillside and use of that material as fill within the low areas of the property. Bedrock or auger refusal was encountered within some of our borings and all of the rock probes. Given the proposed finished floor elevation and earth work anticipated to reach proposed site grades, extensive rock excavation at this site will be required. Rock cut material used for structural fill will need to be processed and crushed prior to placement.

- Isolated pockets of perched groundwater may be encountered overlying bedrock or within fractured zones, however, groundwater at this property is expected to correspond closely to the elevation of the nearby Bushkill Creek.

- The proposed building can be supported by conventional shallow foundations consisting of column and/or strip footings bearing on the existing soils or rock. The foundations can be designed for an allowable bearing pressure of 3,000 to 4,000 psf based on anticipated design loads. The building can be designed based on a seismic site classification of D as currently configured.

- Preparation of the building pad should incorporate overexcavation of rock to a minimum depth of 4 feet below finished floor throughout the building pad area, and then replacement with controlled structural fill as a uniform layer beneath the entirety of the building pad and foundation areas. The placement of a uniform layer of controlled fill will be critical to maintaining more uniform performance of the support characteristics under the building.

- The largest proposed "retaining wall" (Wall 1) to the northwest will require stabilization , and possible installation of a rockfall catchment ditch, to be constructed near vertical as shown on the proposed plan. The feasibility of near-vertical construction is questionable based on the limited exploration performed, due to the presence of weathered and fractured rock zones with low Rock Quality Designation (RQD) values. Our exploration of the full height of the rock cut is limited to two (2) geotechnical borings extended through the full height of the proposed cut. It is likely that this cut will require construction as a steepened slope, and/or a benched rock slope, which would generate a larger quantity of cut material.

- The proposed retaining wall (Wall 4) above the detention basin cannot be constructed utilizing traditional retaining wall methods as currently configured. The current configuration reflects a slope in front of the wall down to a stormwater basin, a slope behind the wall up to an access drive, and traffic loading. The combination of the back slope and the front slope create conditions that are considered unstable. Possible changes to the configuration include extending the wall to a greater depth, increasing the height of the wall, or turning the wall into a full/partial reinforced soil slope.

- Based on the plans provided, stormwater management will consist of one (1) detention basin. Infiltration rates ranged between 0.06 in/hr to 6.60 in/hr, including a factor of safety of 2.0 in the four (4) infiltration borings that were completed. Given the size of the proposed stormwater basin and the complexity of the site, we anticipate that additional exploration may be warranted.

- ECS should be provided with the opportunity to review our recommendations and complete additional geotechnical exploration and recommendations based on actual loading conditions and final layout.

Refer to the text of the report for site specific design and construction recommendations.

1.0 INTRODUCTION

The purpose of this study was to provide preliminary geotechnical information for design and construction of the distribution warehouse proposed for construction at 1525 Wood Avenue in Easton, Pennsylvania. The recommendations developed for this report are based on project information supplied by NorthPoint Development.

Our services were provided in accordance with the Proposal No. 7368-GP, dated October 13, 2020 which includes our Terms and Conditions of Service, as authorized by NorthPoint Development's Task Order Reference Number: 2029-0000-ecsm01-AM04 dated October 14, 2020.

This report contains the results of our subsurface exploration, site characterization, laboratory testing, engineering analyses, and recommendations for the design and construction of the proposed development.

This report includes the following:

- A review of area and site geologic conditions.
- A review of surface topographical features and site conditions.
- A brief review and description of our field procedures.
- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our boring logs
- Infiltration testing results and recommendations for stormwater management.
- A discussion on rock removal and evaluation of the rock probes performed onsite.
- Recommendations for site preparation and construction of compacted fills, including an evaluation of on-site soils for use as compacted fills and identification of potentially unsuitable soils and/or soils exhibiting excessive moisture at the time of sampling.
- Recommended foundation type and allowable bearing pressure for foundation design.
- Discussion of parameters for slab on grade construction and modulus of subgrade reaction (k).
- Recommendations for seismic site classification and site seismic design coefficients based on the 2015 IBC parameters.
- Evaluation and recommendations relative to groundwater.
- Evaluation relative to existing onsite Fill
- A discussion of the risk associated with developing in karst geology.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project site is located at the physical address of 1525 Wood Avenue in Easton, Northampton County, Pennsylvania. The site consists of undeveloped wooded land in the northern parts of the site and several industrial facilities and buildings associated with the previous site operations. Currently, the site is generally sloping downwards in the southeast direction with a total topographic relief on the order of approximately ±200 feet.

Refer to Figure 2.1.A and the Site Location Map in Appendix A for a detailed depiction of the project site location.

Figure 2.1.A – Site Location

2.2 PROPOSED CONSTRUCTION

We understand that this project is still in the preliminary stages and concept plans are subject to change. Based on the "Grading and Utility Plan," provided by NorthPoint Development, received October 22, 2020, we understand that the proposed development will consists of a large distribution warehouse. Other site developments include parking areas, truck aprons, drive lanes, retaining walls and/or steepened slopes, and a stormwater management (SWM) facility in the form of a detention basin.

Development of this site will include major earthwork operations to include cuts and fills to support the proposed building and associated structures. Based on the provided grading plan, we understand that maximum depth cuts will be on the order of approximately 120 feet and maximum fill depths will be on the order of approximately 75 feet.

The following table explains our understanding of the warehouse and its anticipated loads:

DESIGN VALUES	
SUBJECT	**DESIGN INFORMATION / EXPECTATIONS**
Approximate Building Footprint	806,000 SF
# of Stories	1 floor warehouse
Usage	Distribution Warehouse
Framing	We anticipate that the building will be concrete slab-on-grade with Structural Steel Framing.
Column Loads	Not Provided- Assume 50 Kips maximum
Wall Loads	Not Provided- Assume 4 kips/ft maximum
Lowest Finish Floor Elevation	326.0 feet

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedures. Our scope of work included drilling a total of 23 geotechnical borings across the site, with four (4) locations including cased borehole infiltration testing with the area of proposed stormwater management. Additionally, 88 rock probes were performed in areas associated with "cuts," to evaluate the depth to and relative competency of rock.

Our borings and rock probes were located with a handheld GPS unit and their approximate locations are shown on the Exploration Location Plan in Appendix A.

3.1 SUBSURFACE CHARACTERIZATION

The following sections provide generalized characterizations of the soil strata based on the results of the test borings. Please refer to the boring logs in Appendix B.

SUBSURFACE STRATIGRAPHY	
Stratum	**Description**
n/a	Surficial Material: Topsoil Thickness 2.0 to 12.0 inches OR Asphalt Thickness 2.0 to 3.0 inches Gravel Thickness 2.0 to 10.0 inches
I	SILT or SAND (ML/SM), varying amounts of gravel present, very loose to medium dense, moist, brown, tan, gray and red, observed becoming more coarse with greater depths
II	Highly weathered rock sampled as gravelly SILT or silty GRAVEL with varying amounts of sand present, medium dense to very dense, moist, brown and gray
III	Moderately to slightly weathered Gneiss bedrock, hard, thick to massive bedding, highly to moderately fractured, low to high angle dip, gray, green, and pink, some interbedded layers of marble

It should be noted that borings B-5, B-9, B-10, B-13, B-14, B-19, IT-3 and IT-4 all encountered Fill materials beneath the surficial materials. The fill material was consistently classified as SILT with varying amounts of sand and gravel, loose to medium dense, moist, brown and gray, and was observed extending up to 8.0 feet below existing grade. This is likely associated with the previous development of the site.

Geology:

According to the Pennsylvania Department of Conservation and Natural Resources Interactive Map (PA DCNR), the site is underlain by four different rock formations. In many cases, when a site is near the meeting of two or more formations, the bedrock encountered displays characteristics of those adjacent formations. Given the size of the site the northernmost parts of the site are anticipated to be dominantly underlain by the Felsic to Mafic Gneiss Formation and the Franklin Marble Formation. The southern portions of the site are underlain by the Allentown and Leithsville formation.

These formations are included in The *Engineering Characteristics of the Rocks of Pennsylvania*, Second Edition, 1982, by Alan Geyer and Peter Wilshusen, and are described as having the following characteristics.

The Felsic and Mafic Gneiss Formation consists of light to dark gneiss with poorly-developed banding that is massive. The formation is typically fine-grained and mica-rich. It is noted as being highly resistant to weathering. Jointing is poorly to moderately developed and have an irregular, moderately to widely spaced, vertical, and open pattern.

The Franklin Marble Formation consist of fine to medium grained, white marble having bedding that is thick to massive. It is noted as being moderately resistant to weathering and is observed being slightly weathered to a shallow depth. Joints are blocky in pattern, well developed and moderately spaced, open, and nearly vertical.

The Allentown Formation consists of medium-gray dolomite and impure limestone contain dark-gray chert and sections of oolite and sharpstone conglomerate. The bedrock is well-bedded in a thick manner with a well-developed, regularly spaced fracture pattern. The fractures are steeply dipping, open, and moderate to highly abundant but can be filled with calcite. The bedrock is moderately resistant to weathering and forms medium sized blocky fragments to a shallow depth. Carbonate bedrock formations such as the Allentown dolomite and impure limestone are susceptible to karst formation due to bedrock dissolution in water.

The Leithsville formation is a dark-gray to medium-gray dolomite with some calcareous shale and sandy dolomites sections. The bedding is massive and moderately well-defined while the fractures have a blocky pattern and are moderately to well developed. The joints are moderately abundant, irregularly spaced and generally open. This formation is moderately resistant to weathering to a shallow depth and can exhibit pinnacling between the soil and bedrock surface.

Soils Mapping:

Based on our review of the Soil Survey (USDA - Natural Resources Conservation Service (websoilsurvey.ncrs.usda.gov), the site soils are mapped as Gladstone-Parker gravelly loams, Gladstone gravelly loam, Ryder Rock Outcrop, and Urban Land. These soil type is described as having the following properties.

SOIL MAPPING SUMMARY						
Mapped Soil Unit	**Soil Unit Symbol**	**Origin/ Type**	**Depth to Restrictive Feature**	**Depth to Water Table**	**Hydrologic Soil Group**	**KSat (in/hr)**
Gladstone-Parker gravelly loams (15-15 percent slopes)	GnD	Local colluvium and residuum weathered from granite and gneiss	60 to 100 inches to lithic bedrock	>80 inches	A	(0.60-6.00)
Gladstone gravelly loam (8-15 percent slopes)	GIC	Loamy colluvium and or loamy residuum derived from granite and gneiss	65 to 67 inches to lithic bedrock	>80 inches	B	(0.00-5.95)

SOIL MAPPING SUMMARY						
Mapped Soil Unit	**Soil Unit Symbol**	**Origin/ Type**	**Depth to Restrictive Feature**	**Depth to Water Table**	**Hydrologic Soil Group**	**KSat (in/hr)**
Ryder Rock Outcrop Complex (25 -75 percent slopes)	RzF	Residuum weathered from shaly limestone	24 to 40 inches to lithic bedrock	>80 inches	N/A	(0.06-2.00)
Urban Land- Gladstone Complex (8-25 percent slopes)	UpD	Pavement, buildings and other artificially covered areas	10 to 100 inches to lithic bedrock	Not Specified	N/A	N/A
Urban land- Udorthents (0-8 percent slopes)	UudB	Pavement, buildings and other artificially covered areas	10 to 99 inches to lithic bedrock	Not Specified	N/A	N/A
Urban Land (occasionally flooded)	UkB	Pavement, buildings and other artificially covered areas	10 to 98 inches to lithic bedrock	Not Specified	N/A	(0.00)

Soil mapping of the site vicinity is presented in Appendix A.

3.1.1 Stormwater Infiltration Testing

Our subsurface exploration also included four (4) cased borehole infiltration tests to explore the subsurface conditions and characterize the site relative to stormwater management. The cased borehole infiltration tests were conducted on-site under the supervision of ECS and the test were performed in the general footprint of the proposed detention basin.

Infiltration testing was completed using the cased borehole methodology in general accordance with Appendix C of the Pennsylvania Stormwater Best Management Practices (PA BMP) Manual. Infiltration test results are provided in the following table.

INFILTRATION TESTING RESULTS						
Test Location	**Surface Elevation (Feet)**	**Probed Depth (Feet)**	**Probed Elevation (Feet)**	**Infiltration Test Depth (Feet)**	**Test Elevation (Feet)**	**Field Infiltration Rate (inches / hour) (Includes FS=2.0)**
IT-1	238.0	10.0	228.0	8.0	230.0	0.06
IT-2	233.0	6.0	227.0	3.0	230.0	0.15
IT-3	242.0	14.0	228.0	12.0	230.0	0.60
IT-4	226.0	10.0	216.0	0.8 (below surficial material)	225.2	6.60[1]

Note[1]: excessive rate, performed in fill materials

3.2 KARST MAPPING

The Allentown and Leithsville Formations are composed of carbonate bedrock that is prone to karst activity. Karst activity can take the form of soft and loose soils above the bedrock, uneven bedrock surfaces, closed surficial depressions, and sinkholes. The Karst Features Map located in Appendix A depicts a scale of the level of karst activity in the vicinity of the site. The Karst Features Map shows 2 surface depressions and no sinkholes within 0.5 miles of the project site; however, the data is incomplete as there is not a requirement within the state to track the naturally developing karst activity. Based on our experience in the area, known karst features at nearby sites, proposed earthwork, and the results of our exploration, the risk of sinkholes and related karst activity near this location is low.

3.3 GROUNDWATER OBSERVATIONS

Water levels were measured during the on-site exploration and are included on our boring logs in Appendix B. Groundwater was encountered in B-5 and B-7 at a depth of 4.0 feet and 18.6 feet below existing grade, respectively. The approximate elevation it was encountered ranged from EL. 341.0 to 351.4. It is worth noting that a potential wetland was observed directly north of B-5 and east of B-7, and no other borings recorded groundwater during our exploration. This groundwater is anticipated to represent a perched condition and is not believed to be indicative of the groundwater table due to its inconsistency and absence across the site.

Water is noted on our Boring logs for B-4 and B-15, but this is indicative of the water directly introduced into the boring to effectively core the rock and advance tooling. The water depths noted are likely elevated above the actual groundwater level as a result and should not be interpreted as a stabilized groundwater table.

It is also worth mentioning that the Bushkill Creek does flow around the approximate perimeter of the site and has an approximate elevation ranging from El. 242.0 in the north to El. 215.0 in the east just north of Hackett Avenue. Variations in the long term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors. Groundwater could potentially be encountered during construction of stormwater management facilities and deep utility installations.

3.4 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Moisture content, classification and index property tests were performed on representative soil samples. Selected samples of rock obtained during the rock coring operation were tested to determine its unconfined compressive strength.

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 PRELIMINARY DESIGN RECOMMENDATIONS

The objective of this exploration was to gain a preliminary understanding of this site relative to the subsurface conditions encountered and focus on aspects that may have a cost impact on the overall job.

Based on our initial interpretation of the provided plans and the proposed construction, critical areas of concern are the proposed site retaining walls, especially Wall 1 and Wall 4, and massive cuts proposed to reach the finished floor elevation of the warehouse, especially in the higher elevated (northernmost) regions of the site. The following sections address these concerns and give preliminary recommendations for shallow foundation design, soil supported slabs, seismic design parameters and retaining wall design recommendations.

4.1 FOUNDATION DESIGN

Provided subgrades and structural fills are prepared as discussed herein, the proposed building can be supported by conventional shallow foundations consisting of column and continuous wall footings. Based on the combination of the proposed site grading and the subsurface conditions, the building will be supported on a combination of bedrock, natural soils, and new structural fill. The design of the foundations may utilize the following parameters for preliminary design:

FOUNDATION DESIGN PARAMETERS		
Design Parameter	**Column Footing**	**Wall Footing**
Net Allowable Bearing Pressure[1]	3,000-4,000 psf	3,000-4,000 psf
Acceptable Bearing Material	Stratum II, Rock, or Structural Fill	Stratum II, Rock, or Structural Fill
Minimum Width	24 inches	18 inches
Minimum Footing Embedment Depth for Interior Foundations (below slab or finished grade)	24 inches	24 inches
Minimum Footing Embedment Depth for Exterior Foundations (below slab or finished grade)	36 inches	36 inches
Estimated Total Settlement (max.)	1 inch	1 inch
Estimated Differential Settlement	Less than 0.5 inches between columns	Less than 0.5 inches over 50 feet

Note[1]: Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.

The proposed grading across the building pad includes very large cuts and fills, therefore preparation of the building pad should incorporate overexcavation of rock to a minimum depth of 4 feet below finished floor throughout the building pad area, and then replacement with controlled structural fill as a uniform layer beneath the entirety of the building pad and foundation areas. The placement of a uniform layer of controlled fill will be critical to maintaining more uniform performance of the support characteristics under the building.

4.2 FLOOR SLABS

The on-site natural soils are considered suitable for support of the floor slabs, although moisture control during earthwork operations, including the use of discing or appropriate drying equipment, may be necessary. Based on a finished floor elevation of EL. +326.0 feet and the proposed earthwork, it appears that the slabs for the structure will bear on new structural fill in some areas and natural materials in other areas.

These materials are anticipated to be suitable for the support of a slab-on-grade. If areas of soft or yielding soils are encountered, they should be removed and replaced in accordance with the recommendations included in this report.

The slab subgrade should be evaluated by proofrolling in accordance with Section 5.3.2. The following graphic depicts our soil-supported slab recommendations:

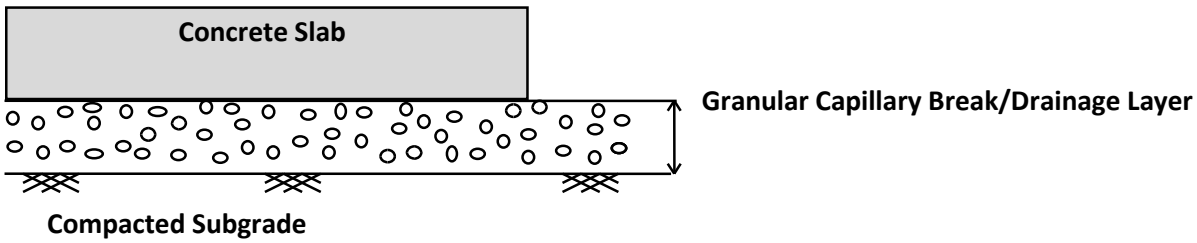


Figure 4.2.A

1. Drainage Layer Thickness: 6 inches minimum
2. Drainage Layer Material: AASHTO #57 Stone or PennDOT 2A aggregate
3. Subgrade compacted to ***95%*** maximum dry density per ASTM D 1557

Subgrade Modulus: Provided the evaluation bearing stratum and Granular Drainage Layer are completed per the recommendations discussed herein, the slab may be designed assuming a modulus of subgrade reaction, k_1, of 200 pci (lbs/cu. inch) for Structural Fill. The modulus of subgrade reaction value is based on a 1 foot by 1 foot plate load test basis.

Slab Isolation: Ground-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab, the slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

4.3 SITE RETAINING WALLS

The provided plans display the location of four (4) proposed segmental retaining walls which will be used to support or retain access drives, parking lots, stormwater management facilities or existing materials. Based on our interpretation of the existing site grades versus proposed site grades, it appears that these walls will retain materials for either vertical cuts, fills, or a combination of both, with site grades varying up to 116.0 feet. A plan labeling the walls can be found in Appendix E as well as a preliminary global stability analysis for each wall.

4.3.1 Wall 1

Wall 1 is a cut wall proposed to retain the hill side from the access drive, warehouse building, and parking lots. This wall has an approximate maximum height on the order of 120 feet and an approximate length of 1,600 feet. The wall traverses the property from the northern point of the building to Hackett Drive to the south.

Based on the Rock Quality Designation (RQD) and weathered rock and/or soil zones encountered in Boring B-15, a traditional, near vertical rock cut wall appears to not be feasible at this site. If a near-vertical cut is required for the overall final design, stabilization techniques utilizing tensioned rock anchors, shear keys, shotcreting, concrete buttressing, and/or passive drainage installation may be required for zones of weak rock and/or areas of potential kinematic failure. Also, a rockfall catchment ditch or other system may be warranted in order to reduce risk of smaller rock fragments from entering pavement areas. Unlike slopes cut into soil, the most likely failure planes in rock typically occur along existing discontinuities within the rock mass, as opposed to through the overall material mass. Therefore, it is important to understand the dip, dip direction, spacing, and persistence, and condition of such discontinuities in order to determine the most likely failure mechanism and design the slope accordingly. Given that no significant rock outcrops are exposed for field determination of the discontinuity characteristics, additional sampling with down-hole televiewer documentation would be needed for the design of a near-vertical slope.

One alternative to the stabilization approaches described above and, as shown in the global stability analysis S1-S1' in Appendix E, would be to create a 1.5H:1V steepened slope. Based on the limited rock information obtained thus far, we believe that this is a feasible option from a geotechnical standpoint. It should be noted that this option will create a large quantity of cut material that is not currently a function of the proposed plan. The approximate extents of the required layback for the referenced slope can be found on the Retaining Wall Plan in Appendix E. Additionally, this option would push more of the proposed construction over the Palmer Township line.

Once additional exploration is performed, it may also be conceivable to have a wall that is a hybrid of rock anchors, benching, and near vertical rock cut. The preferred option will be determined as part of the final geotechnical exploration.

4.3.2 Wall 2

Wall 2 is a cut wall located directly northeast of the westernmost entrance and will retain materials from the access drive and support the southernmost parking lot. This wall has an approximate maximum height on the order of 20 feet and an approximate length of 500 feet.

A preliminary global stability analysis of Wall 2 can be found in Appendix E. This analysis utilized the proposed wall construction as well as conventional retaining wall design practices of a minimum embedment depth of 2 feet and a minimum grid length of 70% of the total retaining wall height. Based on the preliminary analysis, the global stability did meet the industry standard factor of safety of 1.3.

4.3.3 Wall 3

Wall 3 is a fill wall located directly west of the southwestern most corner of the building and will retain materials from the roadway entering the southernmost parking lot and support the southern portion of

the western parking lot. This wall has an approximate maximum height on the order of 50 feet and an approximate length of 1,450 feet.

A preliminary global stability analysis of Wall 3 can be found in Appendix E. This analysis utilized the proposed wall construction as well as conventional retaining wall design practices of a minimum embedment depth of 2 feet and a minimum grid length of 70% of the total retaining wall height. Based on the preliminary analysis, the global stability did meet the industry standard factor of safety of 1.3.

4.3.4 Wall 4

Wall 4 is predominately a fill wall located west of the proposed detention basin. This wall will retain the soil from the access drive to the west to shield the basin to the east. This wall has an approximate maximum height on the order of 18 feet and an approximate length of 450 feet.

A preliminary global stability analysis of Wall 4 can be found in Appendix E. Utilizing the proposed wall construction as well as conventional retaining wall design practices of a minimum embedment depth of 2 feet and a minimum grid length of 70% of the total retaining wall height, the global stability did not meet the industry standard factor of safety of 1.3. The driving factor for this unacceptable factor of safety is the combination of the steepened slopes both behind and in front of the proposed wall.

Multiple options are available to construct this wall as currently aligned. Possible changes to the configuration include embedding the wall to a greater depth, use of ground improvement beneath the wall, increasing the height of the wall, or turning the wall into the reinforced slope. A preliminary stability analysis, titled S4-S4' – Extra Embedment, is included in Appendix E which shows an additional embedment depth to the bottom of the proposed basin elevation and increased strap length proportionally would provide the desired safety factor of 1.3.

4.4 SEISMIC DESIGN CHARACTERISTICS

The International Building Code (IBC) 2015 requires site classification for seismic design based on the upper 100 feet of a soil profile. At least two methods are utilized in classifying sites, namely the shear wave velocity (v_s) method and the Standard Penetration Resistance (N-value) method. The first method (shear wave velocity) was used in classifying this site.

SEISMIC SITE CLASSIFICATION			
Site Class	**Soil Profile Name**	**Shear Wave Velocity, Vs, (ft./s)**	**N value (bpf)**
A	Hard Rock	Vs > 5,000 fps	N/A
B	Rock	2,500 < Vs ≤ 5,000 fps	N/A
C	Very dense soil and soft rock	1,200 < Vs ≤ 2,500 fps	>50
D	Stiff Soil Profile	600 ≤ Vs ≤ 1,200 fps	15 to 60
E	Soft Soil Profile	Vs < 600 fps	<15

Based upon our interpretation of the subsurface conditions, the appropriate Seismic Site Classification is "D" as shown in the preceding table.

Ground Motion Parameters: In addition to the seismic site classification noted above, ECS has determined the design spectral response acceleration parameters following the IBC 2015

methodology. The Mapped Reponses were estimated from the free seismic design maps available from Structural Engineers Association of California (SEAOC) (http://seismicmaps.org). The design responses for the short (0.2 sec, S_{DS}) and 1-second period (S_{D1}) are noted in bold at the far-right end of the following table.

GROUND MOTION PARAMETERS [IBC 2015 METHOD]								
Period (sec)	**Mapped Spectral Response Accelerations (g)**		**Values of Site Coefficient for Site Class**		**Maximum Spectral Response Acceleration Adjusted for Site Class (g)**		**Design Spectral Response Acceleration (g)**	
Reference	Figures 1613.3.1 (1) & (2)		Tables 1613.3.3 (1) & (2)		Eqs. 16-37 & 16-38		Eqs. 16-39 & 16-40	
0.2	S_S	0.184	F_a	1.6	$S_{MS}=F_aS_s$	0.295	$S_{DS}=2/3\ S_{MS}$	0.197
1.0	S_1	0.049	F_v	2.4	$S_{M1}=F_vS_1$	0.118	$S_{D1}=2/3\ S_{M1}$	0.079

The Site Class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses. If a higher site classification is beneficial to the project, we can provide additional testing methods that may yield more favorable results.

4.5 STORMWATER MANAGEMENT AREAS

4.5.1 Stormwater Management Facilities

General: The plan provided to ECS displayed the proposed location for the stormwater management facility. Stormwater management facilities are expected to consist of an at-grade facility proposed as a detention basin. The recommendations presented below should be considered during design and construction.

4.5.1.a Infiltration Characteristics

Once plans become final, additional infiltration testing will likely be required to meet the requirements of the PA BMP Manual due to the large size (~6 Acres) of the proposed stormwater management facility. The BMP Manual recommends between 4 to 6 tests per acre of facility.

Based on the results of the preliminary infiltration testing (IT-1 through IT-4), the infiltration characteristics of the underlying soils were variable ranging from 0.06 to 6.60 in/hr. Infiltration is feasible, but since this site is known to have subsurface contamination present, we recommend creating a lined facility that will limit the infiltration of stormwater into the groundwater table. Additionally, stormwater management for this property could also incorporate volume and rate control (managed release concept) combined with water quality (bio retention) measures. Specific recommendations on the design and construction of the liner will be developed in coordination with the design team and will be presented in the final geotechnical report.

ECS recommends that specific construction notes appear on the plans requiring full-time observation of the excavation of the basins by the authorized ECS representative to verify suitable conditions are present. ECS can assist in developing these notes once plans become more final.

It is also worth mentioning that Fill materials were observed in IT-3 and IT-4 extending up to 8.0 feet below existing grade. Localized undercuts to remove unsuitable fill, soft or loose materials may be necessary prior to final subgrades be established. Undercuts should be backfilled with acceptable fill materials placed in lifts not exceeding 8 inches.

4.5.1.b Embankment/Outlet Structures/Slopes

Stormwater embankment construction or cut slopes to facilitate basin construction should incorporate side slopes of 3(H):1(V) or flatter. If steeper slopes are necessary, ECS should be contacted to review the proposed slope geometry.

Fill materials should be placed to a minimum of 95% of the maximum dry density of the material, as determined by the Modified Proctor method (ASTM D1557). The moisture content of the materials should be within ± 3% of the optimum.

Storm water management facilities with embankments should include the construction of a clay core having a minimum thickness of 2 feet. Clay suitable for this use should consist of CL or CH materials, having a minimum of 70% fines (passing #200 sieve), a minimum liquid limit (LL) of 40 and minimum plasticity index (PI) of 20. This material should be approved by the Geotechnical Engineer. Clay core materials should be compacted to 95% of the modified proctor maximum dry density at a moisture content that is at or up to 3% above the optimum. Based on the preliminary exploration and limited lab testing, it is anticipated that soils meeting the criteria presented above are not present at the project site.

4.5.1.c Temporary Sediment Basin Fill Embankments

Soils used in temporary sediment basin fill embankments should satisfy the requirements for fill discussed below and should be placed and compacted to the specific requirements for Structural Fill. Care should be taken not to track heavy equipment over the basin bottom during construction.

4.5.2 Stormwater Management Considerations

The property is mapped as having areas underlain by carbonate geology which is prone to sinkhole development. Carbonate geology was not identified within the areas explored, but could be present at the site. Additional exploration within the mapped carbonate bedrock area will be necessary as part of the final geotechnical exploration.

If carbonate bedrock is prevalent, the owner should understand that the concentrated influx of stormwater to a select area will increase the potential of sinkhole development. In order to reduce the rate of sinkhole development, and in keeping with the guidelines and recommendations of the PA BMP Manual, we recommend that the following design principles be incorporated.

- Use existing drainage patterns
- Keep stormwater away from known sinkholes or problematic subsidence areas
- Avoid concentrating stormwater
- Reduce runoff volume and velocity
- Use broad shallow basins
- Maintain the facilities post construction
- Provide underdrains in all stormwater management facilities

5.0 PRELIMINARY CONSTRUCTION CONSIDERATIONS

5.1 SITE RECOMMENDATIONS

5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping all vegetation, rootmat, topsoil, unsuitable existing fill, asphalt, concrete, and any soft or unsuitable materials from the 10-foot expanded building and 5-foot expanded pavement limits, and 5 feet beyond the toe of Structural Fills. Borings performed in "undisturbed" areas of the site contained an observed 2 to 12 inches of topsoil. Deeper topsoil or organic laden soils may be present in wet, low-lying, and poorly drained areas. In wooded areas, the root balls may extend as deep as about 2 feet and will require additional localized stripping depth to completely remove the organics. ECS should be retained to verify that topsoil and unsuitable surficial materials have been removed prior to the placement of structural fill or construction of structures.

5.1.2 Existing Buildings and Infrastructure

Multiple existing buildings are located across the property. The existing buildings should be completely removed in the footprint of any proposed construction. Existing foundations may be left in-place if they will be in excess of 10 feet below finished subgrade, which appears to be the case for most buildings. Existing pavements and slabs may also be left in place if in excess of 10 feet below finished subgrade, provided they are broken up sufficiently to promote drainage. We recommend a minimum of a 3-inch perforation on a grid spacing not to exceed 4 feet to facilitate drainage.

It should be noted that there is a large existing culvert/pipe that traverses the center of the site below the existing pavement and buildings, carrying a tributary to the Bushkill Creek to the east. We understand that this stream will be rerouted along the southern border of the site in the early stages of earthwork. After rerouting the stream, the existing culvert should either be removed and the alignment properly backfilled as part of the site preparation activities.

It is also likely that other utilities are present throughout the site. Utilities subject to collapse should be removed and backfilled or abandoned in place by filling with flowable fill concrete.

5.1.3 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be thoroughly proofrolled with construction equipment having a minimum axle load of 10 tons [e.g. fully loaded tandem-axle dump truck]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. This procedure is intended to assist in identifying any localized yielding materials.

Where proofrolling identifies areas that are unstable or "pumping" subgrade, those areas should be repaired prior to the placement of any subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in determining the cause of the observed unstable materials, and to assist in the evaluation of appropriate remedial actions to stabilize the subgrade.

It is worth mentioning that several borings had displayed loose/soft conditions in the top 10 feet of the subsurface profile. These borings were all located in areas expected to receive structural fill materials. As such, it is imperative that the subgrade is evaluated prior to placement of fill materials to verify the long-term performance of the building and associated structures.

5.2 EARTHWORK OPERATIONS

5.2.1 Existing Man-Placed Fill

Fill Content: Existing fill was noted in nine (9) of the borings (B-5, B-9, B-10, B-13, B-14, B-18, B-19, IT-3, and IT-4) during the subsurface exploration and was recorded up to 8.0 feet below existing grade. The density profile throughout the fill materials was noted as being very loose to loose. Most areas that encountered fill materials were relatively close to existing/previously constructed buildings and roadways onsite. Due to the presence of fill on-site, select over-excavation of unsuitable fill materials should be anticipated where proofrolling reveals instability. The existing fill should be evaluated prior to placing any structural fill materials.

5.2.2 Rock Excavation and Bedrock Profiling

Bedrock/auger refusal was encountered in six (6) of the borings (B-1, B-2, B-3, B-4, B-15 and B-16), signified by auger refusal which was encountered as shallow as 7.0 feet below existing grade. It is worth mentioning that these borings were performed at the higher elevated areas of the site and focused on areas of large cuts. Over 100 feet of rock coring was performed in both B-4 and B-15 to reach the proposed warehouse's FFE of 326.0 feet. Core samples revealed that the underlying bedrock was composed of moderately to slightly weathered Gneiss bedrock being hard, thick to massively bedded, highly to moderately fractured, and gray, green, and pink in color. It's also worth noting that zones of harder rock were encountered interbedded in the gneiss bedrock and had characteristics similar to marble.

Additionally, we performed a total of 88 rock probes across the site to assist in determining preliminary values associated with depth of removal for soil and rock in principal cut areas of the site. A total of 4 "profile lines" were completed to profile the underlying rock in these areas. The "lines" were not always linear due to access and safety considerations in the field. The approximate orientations and raw data are presented in Appendix D. Profiling revealed that the depth to rock and its weathering was somewhat variable; however, when encountered the rock was often massive, intact, and hard. Alternatively, we profiled the geotechnical borings across the warehouse building footprint to estimate the bulk excavation required within the building pad.

Significant excavation difficulties which may slow down the construction process should be anticipated, especially while reaching the proposed finished floor elevation of the proposed warehouse, which will be over 100 feet in some areas of the site. Given the amount of bulk excavation proposed within the building pad and other areas expected for cuts onsite, rock is anticipated to be encountered within the cut areas of the proposed building footprint, during construction of site retaining Wall 1, and areas of deep utility installations.

Bulk excavations should be performed using heavy-duty construction equipment capable of ripping and removing weathered rock and removing large boulders and shot rock or blasting as discussed in Section 5.2.4.

The field logs paired with our profiles may be used to estimate rock excavation based on the refusal depths; however, refusal should not be considered to be a definite indicator of rock excavation effort or means of excavation required. The geologic factors affecting the difficulty of excavation include rock hardness, rock structures (i.e., foliation or bedding), joint and fracture spacing and degree of weathering. The ease of excavation will also be governed by the type of excavation equipment used and the contractor's willingness to utilize the equipment to its full potential. Rock excavation is expected to vary due to variability in the rock surface and hardness/weathering between exploration points. Additional borings, test pits, air probes, or geophysics may be performed to increase the data in areas previously unexplored.

5.2.3 Rock Swell

A large quantity of rock is anticipated to be blasted and used as Structural Fill to bring the building pad up to proposed grade. Due to the rearrangement of coarse soil particles during placement, this results in an increase in volume from the original in-tact rock mass. This percentage, known as swell, will be important in order to accomplish balanced cut and fill quantities across the project during construction. The swell percentage is dependent on the resulting blast rock sizes, incorporation of spalls and fines, and durability of blast rock. Therefore, the recommended values for swell should be noted as only approximations. Based on the rock types encountered on site, we would recommend a swell value on the order of 25% be used for hard bedrock across the project site when being crushed into 8" maximum particles sizes (all fill placed up to 10' below bottom of footing [BFE]). We recommend a swell value of on the order of 15% be used for hard bedrock across the project when being crushed into 4" maximum particles sizes (all fill placed from 10' below BFE to grade). Weathered bedrock or soil zones within the bedrock profile will have a swell on the order of 0%.

5.2.4 Blasting Operations

With the significant amount of bulk earthwork required to reach proposed site grades and the competency of the underlying Gneiss bedrock, blasting will be required.

When blasting, it is imperative to minimize charges to avoid "over-blasting" of the bedrock beyond required excavation depths. Increased/manmade fractures within the existing bedrock will increase settlement and sinkhole potential. Upon completion of blasting procedures, all loose rock and "over-blast" must be completely excavated from all structural areas. Excavated bedrock may be utilized as structural fill provided it is sufficiently processed to meet the requirements presented in this report.

Given the variable weathering of the bedrock, the high angle of some of the bedding in the rock, and the potential for soil seams, blasting should be planned and conducted with care. The potential of overshooting the rock and/or shooting soil seams presents a risk that could result in the need for supplemental overexcavation to provide adequate subgrade stability. If excessive charges are set, or if the charge pattern is too close or too deep, the gneiss bedrock could fracture along naturally occurring bedding planes. This expansion can occur below the depth of excavation and can contribute to the development of weak zones

Once loads are placed on expanded bedrock materials, then the open fractures tend to close up causing settlement. Therefore, it is strongly recommended that the charge patterns and the depths be carefully controlled to avoid over blasting. Where over blasting occurs, the disturbed materials must be removed and replaced, often at significant cost.

The potential for over blasting should be recognized during both the design and construction phases. We strongly recommend that ECS meets with the grading contractor and any blasting specialist to review any shot pattern and blasting procedures at the time of construction to minimize difficulties associated with over blasting. Vibration monitoring should be installed to maintain peak particle velocities at nearby structures to less than 2.0 in/sec.

Excavation of blast materials should be observed by ECS to determine the suitability and composition of the materials for reuse as compacted fill. Furthermore, the areas should be examined for the limits and extents of overblast and oversee the overexcavation and stabilization of such areas. The subgrade should be evaluated by the ECS representative to determine if the material has been overblasted. Loose or unstable materials due to overblast will require overexcavation and replacement.

5.2.5 Structural Fill Materials

Prior to placement of Structural Fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications.

We recommend that no "rock" fills be placed, and that all fills meet the grain size criteria provided. Rock fill consists of rock particles that have a high void content between the rock particles. Rock fills are not suitable for satisfactory long-term performance. These rock materials can be blended with other soils types to form a suitable particle size distribution for reuse as engineered fill as outlined below. Due to the large quantities of anticipated rock cut. The use of a rock crusher will be required to process the blasted bedrock to meeting the material properties presented below.

Satisfactory Structural Fill Materials: Materials satisfactory for use as Structural Fill should consist of inorganic soils with the following engineering properties and compaction requirements.

STRUCTURAL FILL INDEX PROPERTIES	
Subject	**Property**
Building and Pavement Areas	LL < 40, PI <20
Max. Particle Size	4 inches (top 10 feet above BFE) 8 inches (up to 10 feet below BFE)
Minimum Dry Density	105 pcf
Max. organic content	5% by dry weight

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Modified Proctor, ASTM D1557
Required Compaction	95% of Max. Dry Density
Moisture Content	-1 to +3 % points of the soil's optimum value
Loose Thickness	12 inches prior to compaction

On-Site Borrow Suitability: Natural deposits of soils that meet the definition of Satisfactory Structural Fill do appear to be present on the site at possible excavation depths.

Fill Placement: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and all frozen or frost-heaved soils should be removed prior to placement of Structural Fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned.

5.2.6 Proposed Fill Slopes

Slopes comprised of engineered fill may be constructed at a slope of 3:1 or flatter. Slopes steeper than 3:1 should be evaluated by ECS. All slopes should be properly vegetated to reduce the likelihood of surficial erosion and sloughing.

5.3 ADDITIONAL RECOMMENDED TESTING AND EXPLORATION

We are aware that this phase of the project is still in the preliminary planning stages and plans are still developing. Once plans become final ECS should be contacted to review final plans and do a more thorough geotechnical exploration of the site relative to the final layout.

The additional exploration will likely be comprised of geotechnical borings with a down-hole televiewer in select locations and test pits and/or cased borehole infiltration. Additionally, air probes could be completed within the principal cut areas and extended to the proposed BFE.

Given the wooded and developed nature of the site, strong consideration should be given to clearing the site prior to the final geotechnical exploration. This would increase the efficiency at which work can be completed as well as provide access to areas of the site not previously accessible. Additionally, an existing building was located in the proposed building footprint during our initial exploration. This building should be removed prior to the final geotechnical exploration in order to effectively gather the required geotechnical information from the center of the proposed building.

5.3.1 Geotechnical Borings

Based on the current proposed construction, we would anticipate an additional 10-15 borings in the building pad, 8-12 borings in drive lanes and parking areas, and 10-15 borings in areas associated with site retaining walls. If a steepened rock slope is desired, a televiewer should be utilized at rock core locations in order to characterize the rock continuities. As part of this exploration, we would also be collecting bulk samples to aid in the design of the pavement section(s) and retaining wall design.

5.3.2 Infiltration Testing

Per the PA BMP Manual for stormwater management, 4 to 6 tests should be performed per acre of stormwater facility. The proposed detention basin has an approximate area on the order of 6 acres, and based on this criterion, we anticipate performing up to 20 more infiltration tests within the facility to further evaluate the infiltration and subsurface characteristics. It should be noted that test pits were not allowed during the last round of exploration, so the method of infiltration testing may be limited to cased boreholes.

5.3.3 Air Probe Drilling

If desired, additional air probes could be completed within the principal cut areas and extended to the proposed BFE. This data would provide the depth to bedrock, as well as a profile of the underlying bedrock with respect to hard and soft rock zones, which will have a large impact on the swell values utilized in the blasted rock cuts. If this exploration is selected, the quantity and spacing of probes would be selected with NorthPoint to provide the desired rock quantity information.

5.3.4 Final Geotechnical Report

The final scope and cost for the additional exploration and report is highly dependent on a number of factors including but not limited to: final proposed layout, selected exploration methods, site clearing, environmental concerns, backfilling requirements, and extent of retaining wall and/or slope stability analysis.

6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by NorthPoint Development. If any of this information is inaccurate, either due to our interpretation of the documents provided or if the site's design changed, ECS should be contacted immediately to review the report in light of the changes and provide additional or alternate recommendations as required to reflect the proposed construction.

We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

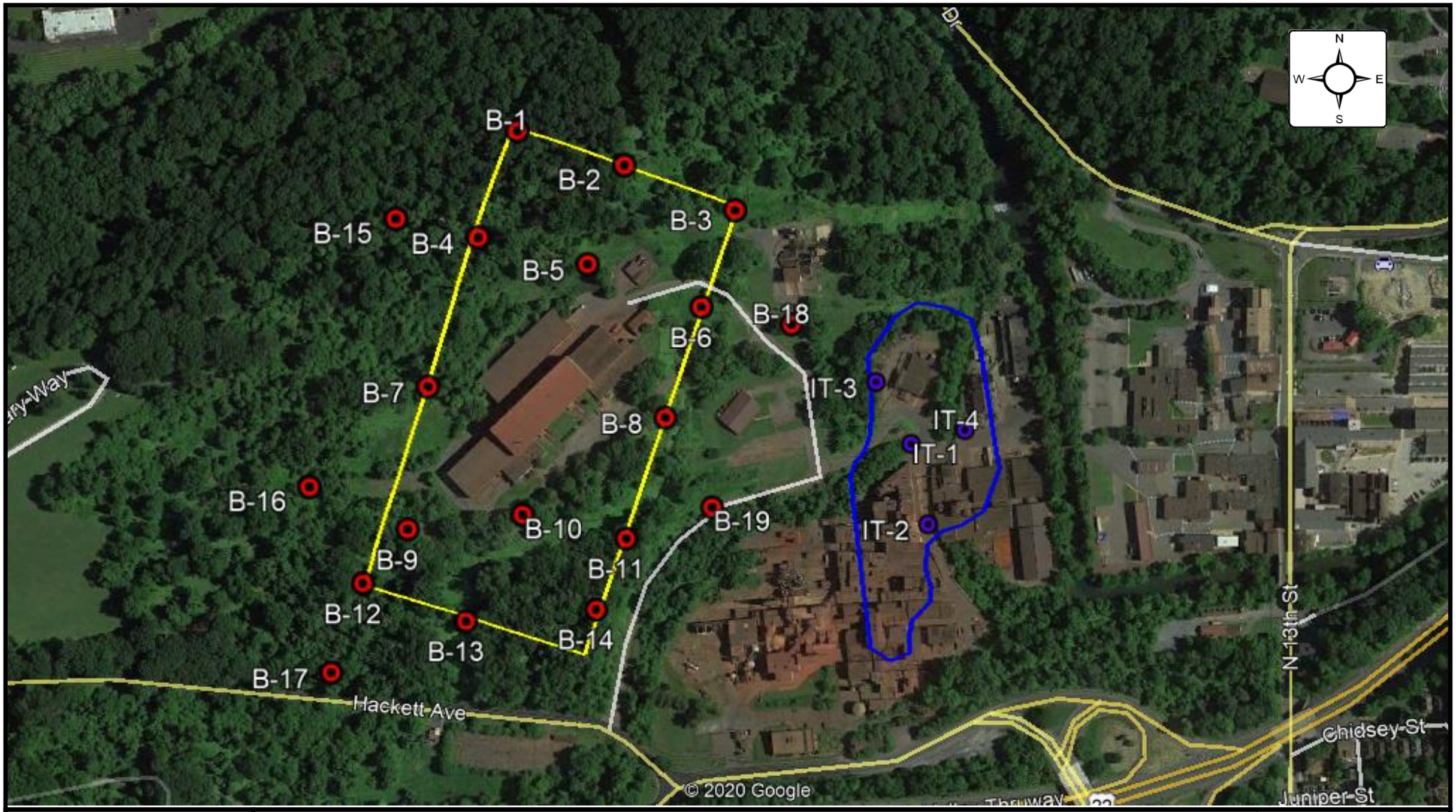
APPENDIX A – Diagrams & Reports

Site Location Map
Exploration Location Plans
Geologic Map
Karst Features Map
Soil Survey Map

Site Location Diagram
1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PENNSYLVANIA
NORTHPOINT DEVELOPMENT

ENGINEER	JMC2
SCALE	AS NOTED
PROJECT NO.	18:5029
SHEET	1 OF 1
DATE	8/6/2020



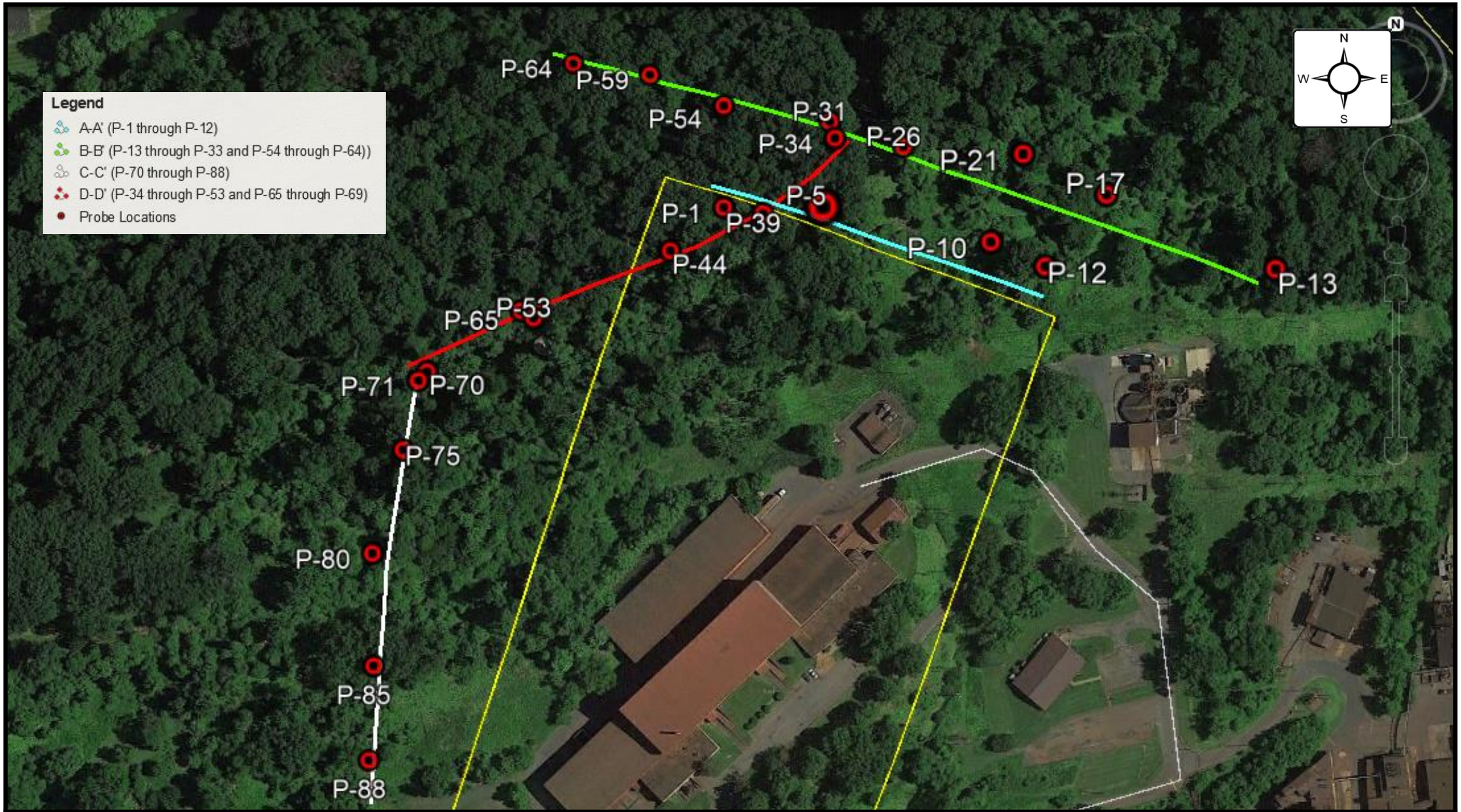
ECS	**Preliminary Exploration Location Plan: Borings** **1525 WOOD AVENUE DISTRIBUTION WAREHOUSE** 1525 WOOD AVENUE, EASTON, PA NORTH POINT DEVELOPMENT	DRAFTER: KTE SCALE: NTS PROJECT NO.: 18:5029 DATE: 11/30/2020 SOURCE: Google Earth

Preliminary Exploration Location Plan: Borings

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	11/30/2020
SOURCE	Google Earth



Preliminary Exploration Location Plan: Rock Probes

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	11/30/2020
SOURCE	Google Earth

Preliminary Exploration Location Plan: Rock Probes

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

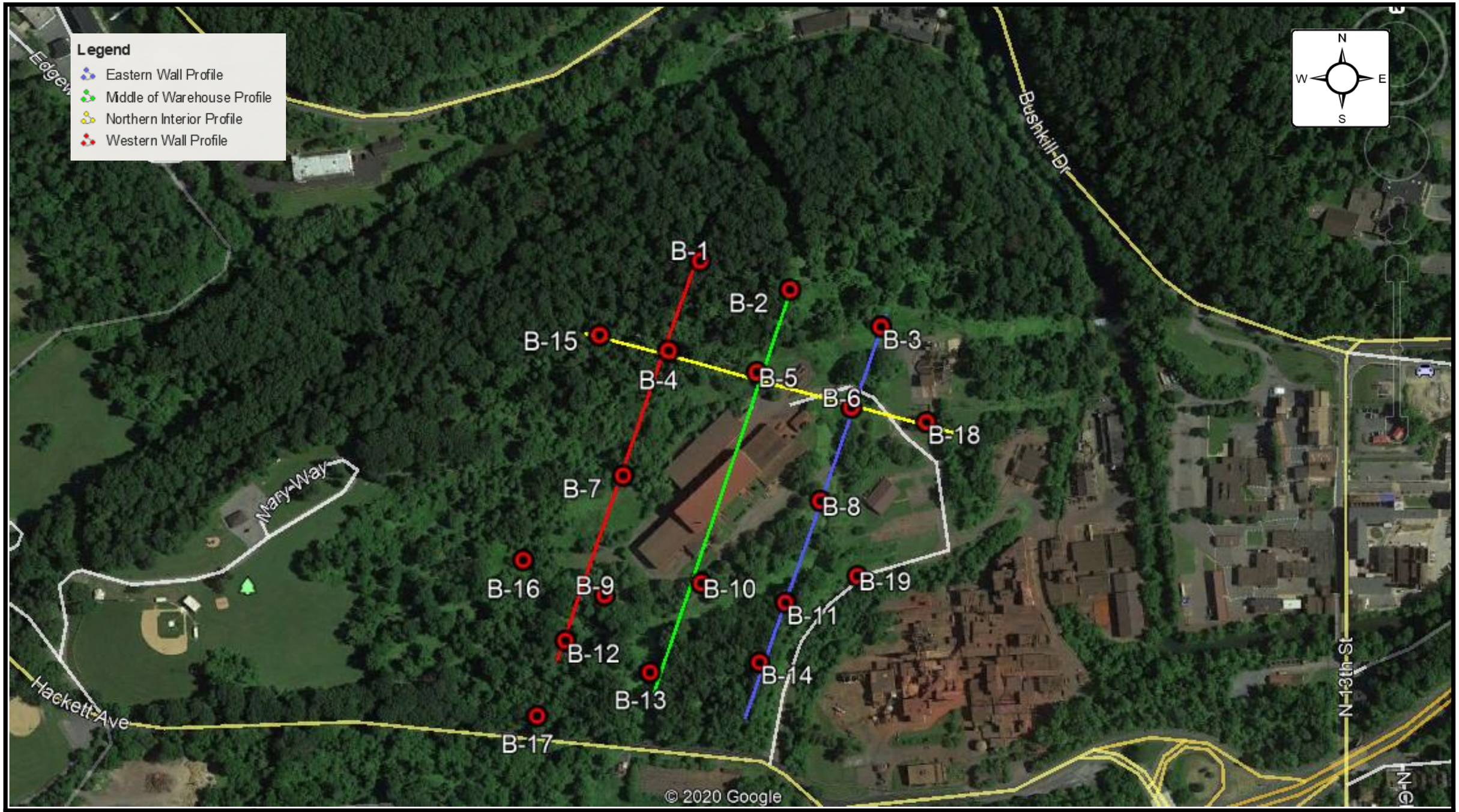
DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	11/30/2020
SOURCE	Google Earth

Preliminary Exploration Location Plan: Boring Profiles

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	11/30/2020
SOURCE	Google Earth

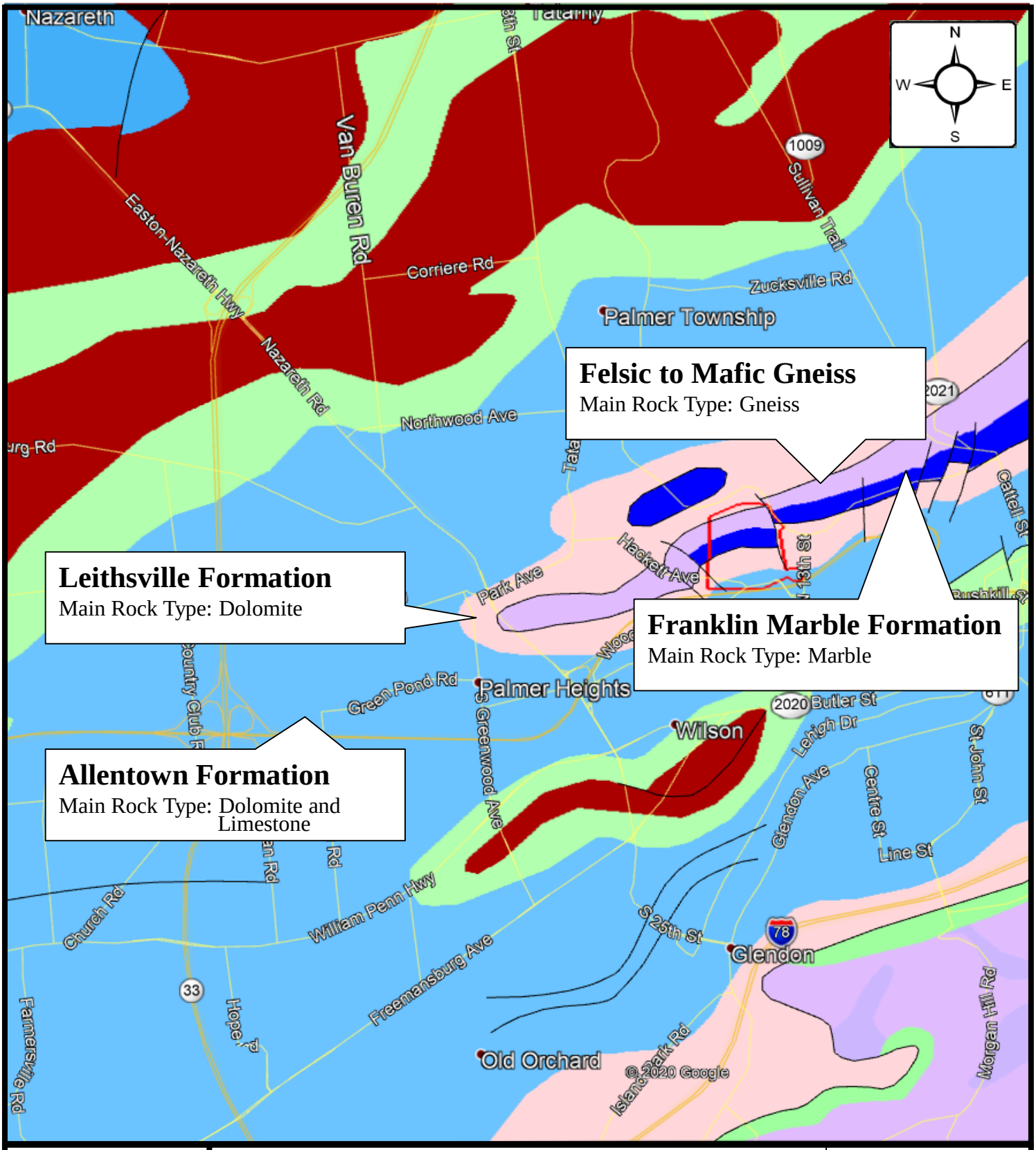


Preliminary Exploration Location Plan: Boring Profiles

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

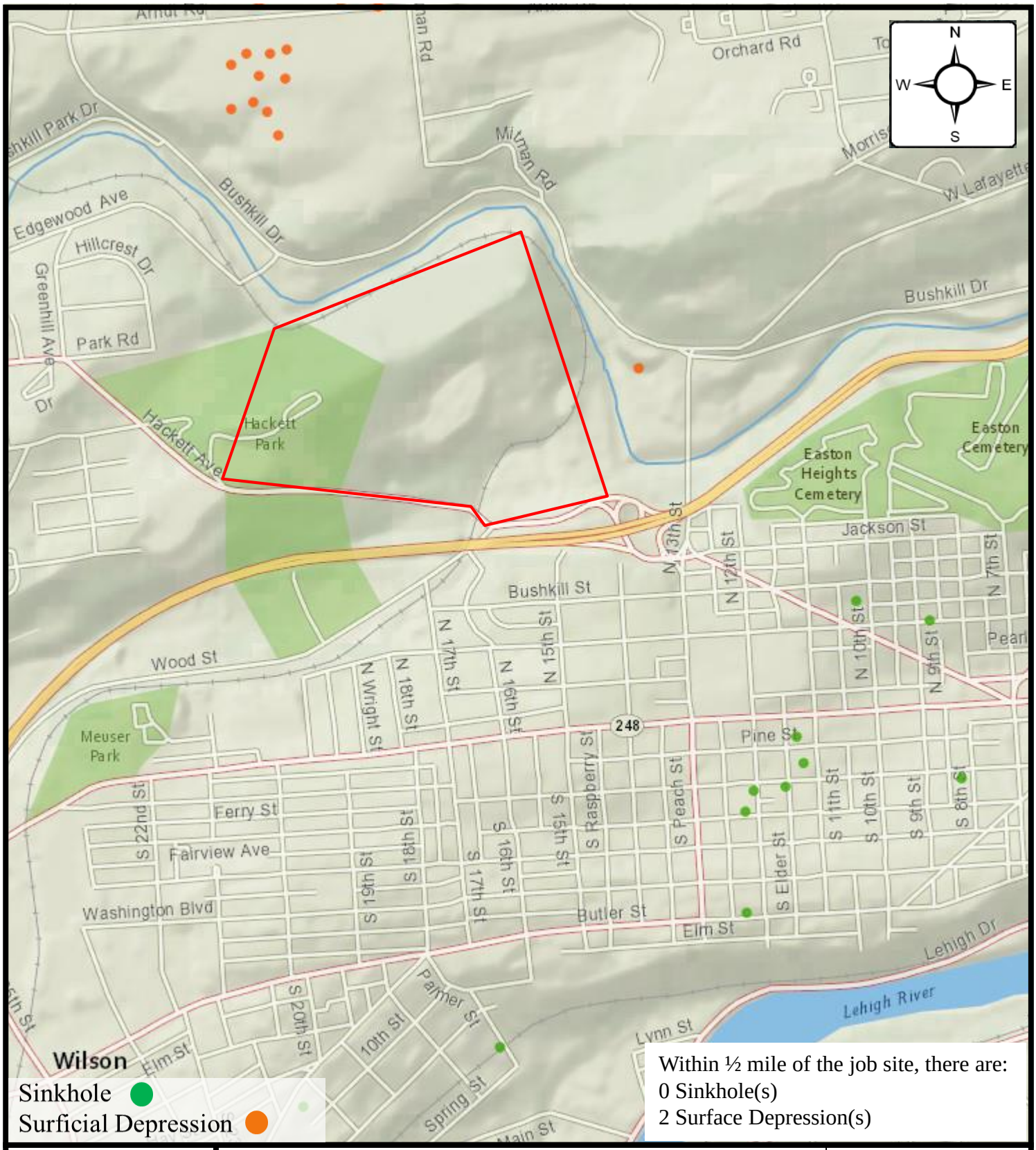
DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	11/30/2020
SOURCE	Google Earth



Geology Map
1525 WOOD AVENUE WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	07/29/2020
SOURCE	PA DCNR Geologic Map http://www.gis.dcnr.state.pa.us

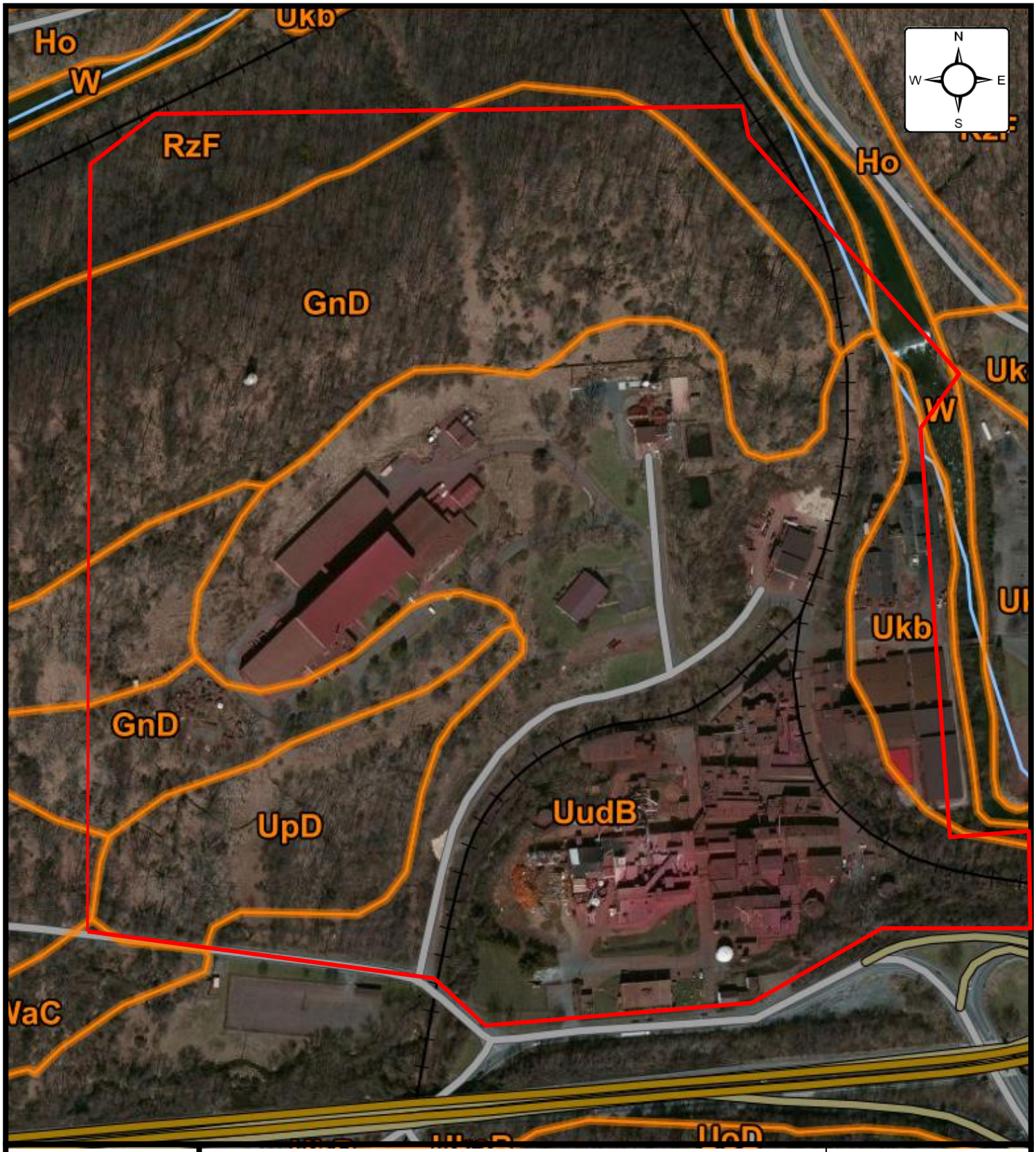


Karst Features Map

1525 WOOD AVENUE DISTRIBUTION WAREHOUSE

1525 WOOD AVENUE, EASTON, PENNSYLVANIA
NORTHPOINT DEVELOPMENT

DRAFTER	HCH
SCALE	NTS
PROJECT NO.	18:5029
DATE	8/7/2020
SOURCE	PA DCNR Geologic Map http://www.gis.dcnr.state.pa.us



Soil Survey Map
1525 WOOD AVENUE WAREHOUSE

1525 WOOD AVENUE, EASTON, PA
NORTH POINT DEVELOPMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5029
DATE	12/1/2020
SOURCE	Web Soil Survey https://websoilsurvey.nrcs.usda.gov

APPENDIX B – Field Operations

Reference Notes for Boring Logs
Reference Notes for Rock Cores
Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
Boring Logs B-1 through B-19, and IT-1 through IT-4
Infiltration Test Results
Rock Core Photographs

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]	
	ASPHALT
	CONCRETE
	GRAVEL
	TOPSOIL
	VOID
	BRICK
	AGGREGATE BASE COURSE
	FILL[3] MAN-PLACED SOILS
GW	**WELL-GRADED GRAVEL** gravel-sand mixtures, little or no fines
GP	**POORLY-GRADED GRAVEL** gravel-sand mixtures, little or no fines
GM	**SILTY GRAVEL** gravel-sand-silt mixtures
GC	**CLAYEY GRAVEL** gravel-sand-clay mixtures
SW	**WELL-GRADED SAND** gravelly sand, little or no fines
SP	**POORLY-GRADED SAND** gravelly sand, little or no fines
SM	**SILTY SAND** sand-silt mixtures
SC	**CLAYEY SAND** sand-clay mixtures
ML	**SILT** non-plastic to medium plasticity
MH	**ELASTIC SILT** high plasticity
CL	**LEAN CLAY** low to medium plasticity
CH	**FAT CLAY** high plasticity
OL	**ORGANIC SILT or CLAY** non-plastic to low plasticity
OH	**ORGANIC SILT or CLAY** high plasticity
PT	**PEAT** highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS			
SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION		
DESIGNATION		**PARTICLE SIZES**
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS		
UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	**SPT[5] (BPF)**	**CONSISTENCY[7] (COHESIVE)**
<0.25	<3	Very Soft
0.25 - <0.50	3 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS	
SPT[5]	**DENSITY**
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
Dual Symbol *(ex: SW-SM)*	10	10
With	15 - 20	15 - 25
Adjective *(ex: "Silty")*	≥25	≥30

WATER LEVELS[6]		
	WL	Water Level (WS)(WD)
		(WS) While Sampling
		(WD) While Drilling
	SHW	Seasonal High WT
	ACR	After Casing Removal
	SWT	Stabilized Water Table
	DCI	Dry Cave-In
	WCI	Wet Cave-In

[1] *Classifications and symbols per ASTM D 2488-09 (Visual-Manual Procedure) unless noted otherwise.*

[2] *To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.*

[3] *Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-**FILL**)].*

[4] *Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).*

[5] *Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf).*

[6] *The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.*

[7] *Minor deviation from ASTM D 2488-09 Note 16.*

[8] *Percentages are estimated to the nearest 5% per ASTM D 2488-09.*

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REFERENCE NOTES FOR ROCK CORES

ROCK – CLASS TYPES		
Igneous	**Sedimentary**	**Metamorphic**
Coarse Grained	**Clastic (sediment)**	**Foliated**
DIABASE	BRECCIA	GNEISS
DIORITE	CONGLOMERATE	PHYLLITE
GABBRO	SILTSTONE	SCHIST
GRANITE	SANDSTONE	SLATE
PEGMATITE	LIMESTONE, OOLITIC	**Non-Foliated**
PERIDOTITE	**Chemically Formed**	AMPHIBOLITE
SYANITE	DOLOSTONE	HORNFELS
Fine Grained	GYPSUM	MARBLE
ANDESITE	HALITE	QUARTZITE
BASALT	LIMESTONE	
RHYOLITE	**Organic Remains**	
TRACHYTE	CHALK	
Pyroclastic	COAL	
OBSIDIAN	COQUINA	
PUMICE		
TUFF		

Recovery (REC(%))

$$\frac{\text{Total rock recovered from run}}{\text{Total Run Length}}$$

Rock Quality Designation (RQD(%))*

$$\frac{\text{Sum of core pieces} > 4 \text{ inches}}{\text{Total Run Length}}$$

RQD%	Description of Rock Quality
0-25%	Very Poor
>25%-50%	Poor
>50%-75%	Fair
>75%-90%	Good
>90%	Excellent

HARDNESS	
Very Soft	Deformed by hand
Soft	Scratched with a fingernail
Moderately Hard	Scratched easily with a knife
Hard	Scratched with difficulty with a knife
Very Hard	Cannot be scratched with a knife

WEATHERING	
Unweathered	No evidence of any chemical or mechanical alteration.
Slightly Weathered	Slight discoloration on surface, slight alteration along discontinuities, less than 10 percent of the rock volume altered.
Moderately Weathered	Discoloring evident, surface pitted and altered with alteration penetrating well below rock surfaces, weathering 'halos' evident. 10 to 50 percent of the rock altered.
Highly Weathered	Entire mass discolored, alteration pervading nearly all of the rock, with some pockets of slightly weathered rock noticeable, some minerals leached away.
Decomposed	Rock reduced to a soil with relict rock structure remaining (i.e. saprolite). Generally molded and crumbled by hand (friable).

JOINT/FRACTURE SPACING	
Fractured/Jointed	**Spacing**
Very Widely	> 10 feet
Slightly	3 - 10 feet
Moderately	1 - 3 feet
Highly	2 inches - 1 foot
Intensely	< 2 inches

BEDDING	
Thinly	≤ 0.3 ft.
Medium	>0.3 ft. ≤ 1 ft.
Thickly	>1 ft. ≤ 3 ft.
Massive	>3 ft.

JOINT OR FRACTURE CONTINUITY

It shall be noted whether the joints or fractures are continuous or discontinuous. If continuity of joints is not discernable at the scale of the rock core, continuous joints or fractures shall be assumed.

JOINT/FRACTURE ORIENTATION

The range or average orientation of each joint set or fracture trend shall be measured in degrees from a horizontal plane where possible. If no measurement is possible, the qualitative terms High, Moderate or Low-angle shall be used. Record whether the joints are present in Conjugate sets (i.e. having an opposite sense of dip)

High	61-90 degree
Moderate	31-60 degree
Low-angle	0-30 degree
Dip-angle	(1-90) ____ degrees (if measured)

JOINT/FRACTURE SURFACE CONDITION

The following qualitative terms shall be used to describe surface condition of joints and fractures. Multiple terms can be used.

Very rough	Slightly rough	Slickensided	Gouge

WALL ROCK CONDITION

The qualitative terms 'hard wall rock' or 'soft wall rock' shall be used to describe the condition of the parent rock on either side of the joint or fracture.

Description Sequence	Example Rock Classification Description
Type, [REC=_%,RQD=_%], Weathering, Hardness, Bedding, Fracturing/Jointing, Condition, Wall Rock Condition, Continuity, Dip, Color, Additional Features	LIMESTONE, [REC=95%,RQD=60%], Moderately Weathered, Hard, Thickly Bedded, Slightly Fractured/Jointed, Slightly Rough, Hard Wall Rock, Discontinuous, Moderate-angle Dip, Gray White

*ASTM D6032

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SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 12 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT test is typically performed for every two to five feet

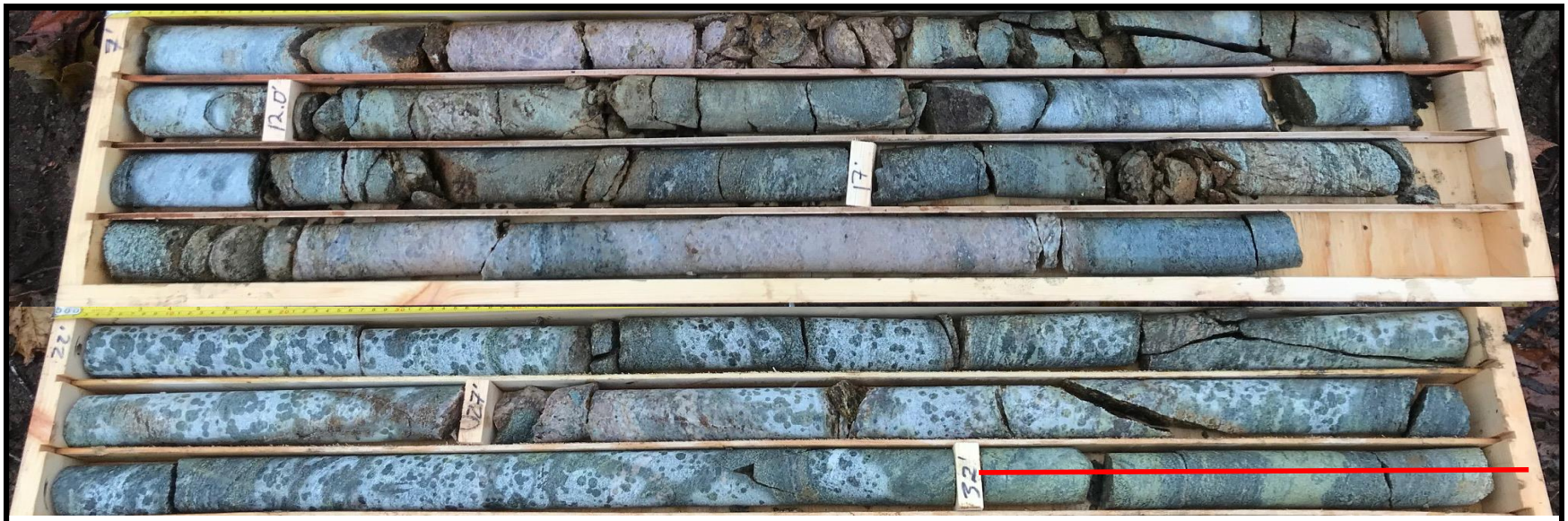
- Obtain two-inch diameter soil sample

**Drilling Methods May Vary—* The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

Cased Borehole Infiltration Testing Results
1525 Wood Avenue Distribution Warehouse
ECS Project No. 18:5029

Date Tested: 11/19/2020

Field Data	IT-1		IT-2		IT-3		IT-4			
Test Depth (ft)	8.00		3.00		12.00		0.83			
	Time	Drop	Time	Drop	Time	Drop	Time	Drop	Time	Drop
Initial Water Depth (ft)	8:42		8:40		7:05		7:07			
Presoak 30 Min (ft)	9:12	0.43	9:10	0.07	7:35	0.07	7:37	0.07		
Presoak 60 Min (ft)	9:42	0.01	9:40	0.04	8:05	0.06	8:07	0.06		
Reading Interval	30 min		30 min		30 min		30 min			
Reading # 1 (ft)	10:12	0.00	10:10	0.02	8:35	0.04	8:37	0.60		
Reading # 2 (ft)	10:42	0.01	10:40	0.01	9:05	0.06	9:07	0.60		
Reading # 3 (ft)	11:12	0.01	11:10	0.01	9:35	0.06	9:37	0.90		
Reading # 4 (ft)	11:42	0.00	11:40	0.01	10:05	0.04	10:07	0.60		
Reading # 5 (ft)							10:37	0.60		
Reading # 6 (ft)							11:07	0.50		
Reading # 7 (ft)							11:37	0.50		
Reading # 8 (ft)										
Diameter of Casing (in)	4.00		4.00		4.00		4.00			
Final Water Level Drop (ft)	0.00		0.01		0.04		0.50			
Average Reading (ft)	0.01		0.01		0.05		0.55			
Average Reading (in)	0.06		0.15		0.60		6.60			
Average Reading (in/hr)	0.12		0.30		1.20		13.20			
Safety Factor	2.00		2.00		2.00		2.00			
Infiltration Rate (in/hr)	0.06		0.15		0.60		6.60			



RUN	DEPTH	RECOVERY	RQD
1	7.0'-12.0'	82%	22%
2	12.0'-17.0'	100%	32%
3	17.0'-22.0'	93%	55%
4	22.0'-27.0'	98%	75%
5	27.0-32.0	100%	75%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-4
Boring Completed: 11/11/2020

RUN	DEPTH	RECOVERY	RQD
6	32.0'-37.0'	100%	37%
7	37.0'-42.0'	100%	73%
8	42.0'-47.0'	98%	98%
9	47.0'-52.0'	100%	78%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-4
Boring Completed: 11/11/2020

RUN	DEPTH	RECOVERY	RQD
10	52.0'-57.0'	100%	58%
11	57.0'-62.0'	98%	63%
12	62.0'-67.0'	92%	45%
13	67.0'-72.0'	92%	75%
14	72.0'-77.0'	100%	70%

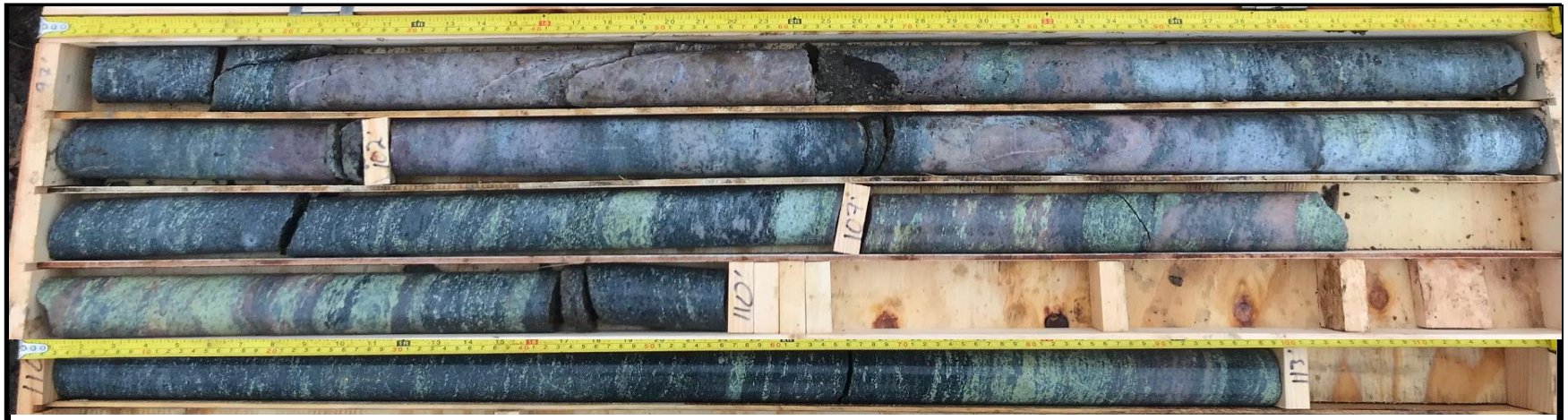
Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-4
Boring Completed: 11/11/2020

RUN	DEPTH	RECOVERY	RQD
15	77.0'-82.0'	95%	88%
16	82.0'-87.0'	98%	78%
17	87.0'-92.0'	100%	80%
18	92.0'-97.0'	98%	88%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-4
Boring Completed: 11/11/2020



RUN	DEPTH	RECOVERY	RQD
19	97.0'-102.0'	95%	70%
20	102.0'-107.0'	100%	97%
21	107.0'-110.0'	97%	92%
22	110.0'-113.0'	100%	100%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-4
Boring Completed: 11/11/2020

RUN	DEPTH	RECOVERY	RQD
1	15.0'-17.0'	96%	42%
2	17.0'-22.0'	97%	70%
3	22.0'-27.0'	97%	15%
4	27.0'-32.0'	100%	90%
5	32.0'-37.0'	100%	48%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-15
Boring Completed: 11/10/2020

RUN	DEPTH	RECOVERY	RQD
6	37.0'-42.0'	87%	42%
7	42.0'-47.0'	100%	42%
8	47.0'-52.0'	100%	58%
9	52.0'-57.0'	100%	47%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-15
Boring Completed: 11/10/2020

RUN	DEPTH	RECOVERY	RQD
10	57.0'-62.0'	100%	22%
11	62.0'-67.0'	33%	0%
12	67.0'-72.0'	98%	20%
13	72.0'-77.0'	100%	42%

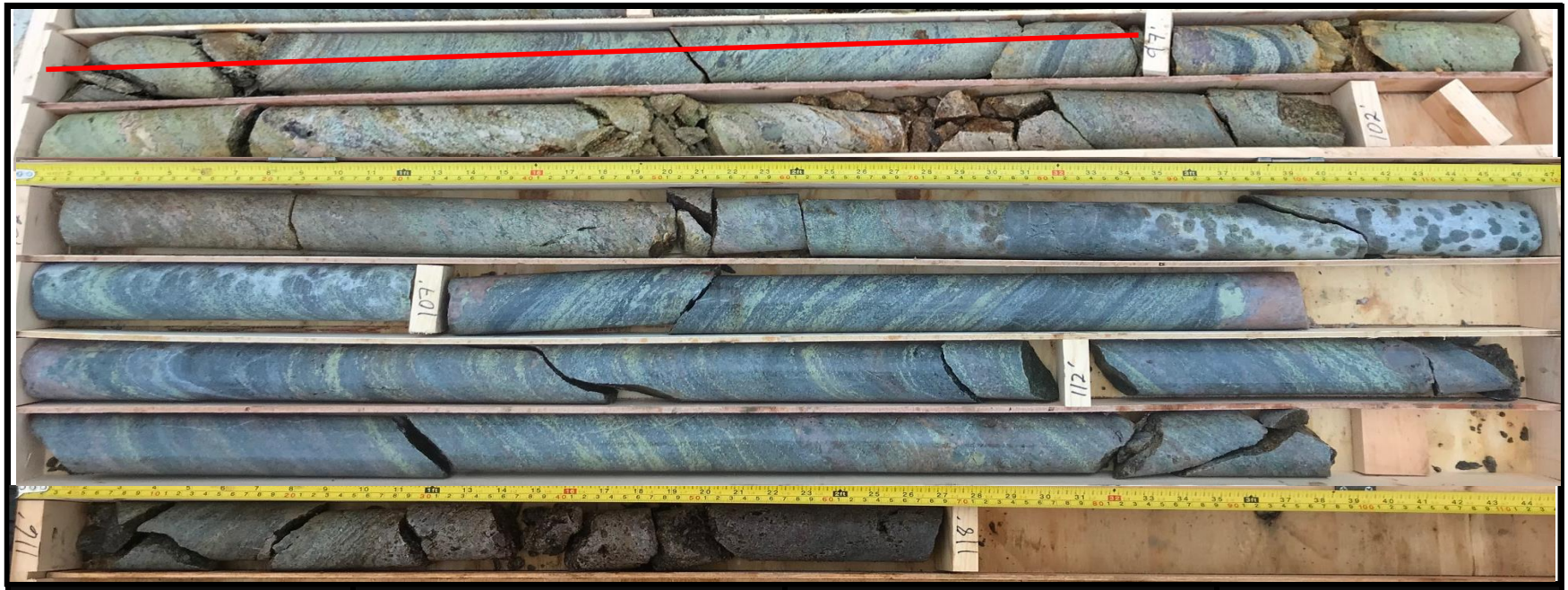
Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-15
Boring Completed: 11/10/2020

RUN	DEPTH	RECOVERY	RQD
14	77.0'-82.0'	100%	67%
15	82.0'-87.0'	100%	90%
16	87.0'-92.0'	100%	82%
17	92.0'-97.0'	100%	47%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-15
Boring Completed: 11/10/2020



RUN	DEPTH	RECOVERY	RQD
18	97.0'-102.0'	85%	45%
19	102.0'-107.0'	95%	83%
20	107.0'-112.0'	100%	78%
21	112.0'-116.0'	100%	81%
22	116.0'-118.0'	100%	25%

Rock Core Photos
1525 Wood Avenue Distribution Warehouse
Project No. 18:5029
Easton, PA

Boring Number: B-15
Boring Completed: 11/10/2020

APPENDIX C – Laboratory Testing

Laboratory Testing Summary
Grain Size Analyses
Plasticity Charts
Unconfined Compressive Strength

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-1	S-1	0-2	19.3										
B-1	S-2	2-4	10.6										
B-1	S-3	4-6	10.6										
B-1	S-4	6-8	6.3										
B-1	S-5	8-9.58	5.8										
B-1	S-6	13-14.08	6.3										
B-10	S-1	0-2	22.3										
B-10	S-2	2-4	10.5										
B-10	S-3	4-6	18.5										
B-10	S-4	6-8	13.1										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
gwaclawski		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-10	S-5	8-10	17.6										
B-10	S-6	13-15	17.4										
B-10	S-7	18-20	15.7										
B-12	S-1	0-2	17.6										
B-12	S-2	2-4	16.5										
B-12	S-3	4-6	16.1										
B-12	S-4	6-8	9.1										
B-12	S-5	8-10	17.1										
B-13	S-1	0-2	51.7										
B-13	S-2	2-4	75.6										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-13	S-3	4-6	144.4										
B-13	S-4	6-8	24.6										
B-13	S-5	8-10	24.6										
B-15	S-1	0-2	31.3										
B-15	S-2	2-4	9.6										
B-15	S-3	4-6	15.7										
B-15	S-4	6-8	7.4	SM	NP	NP	NP	13.9					
B-15	S-5	8-9.25	7.6										
B-15	S-6	13-13.25	23.4										
B-16	S-1	0-2	21.7										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project:	1525 Wood Avenue Distribution Warehouse	Project No.:	18:5029
Client:	NorthPoint Development	Date Reported:	12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
agolihew		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-16	S-2	2-4	15.2										
B-16	S-3	4-6	14.3										
B-16	S-4	6-8	16.8										
B-16	S-5	8-10	15.5										
B-17	S-1	0-2	22.2										
B-17	S-2	2-4	17.4										
B-17	S-3	4-6	15.5	SM	NP	NP	NP	42					
B-17	S-4	6-8	10.9										
B-17	S-5	8-10	11.5										
B-18	S-1	0-2	19.9										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
gwaclawski		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-18	S-2	2-4	14										
B-18	S-3	4-6	18										
B-18	S-4	6-8	27.3										
B-18	S-5	8-10	18.2										
B-18	S-6	13-15	30.2										
B-19	S-1	0.5-2	20.5										
B-19	S-2	2-4	16.5										
B-19	S-3	4-6	23.2										
B-19	S-4	6-8	41.6										
B-19	S-5	8-10	39.6										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
gwaclawski		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-19	S-6	10-12	22.5										
B-19	S-7	12-14	30.2										
B-3	S-1	0-2	6.8										
B-3	S-2	2-4	14.4										
B-3	S-3	4-6	13.5										
B-3	S-4	6-8	6.9	SM	NP	NP	NP	26.7					
B-3	S-5	8-8.83	11										
B-4	S-1	0-2	10.4										
B-4	S-2	2-4	12.2										
B-4	S-3	4-5.08	6.3										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-4	S-4	6-7	8.2										
B-5	S-1	0.5-2	12.6										
B-5	S-2	2-4	14.2										
B-5	S-3	4-6	17										
B-5	S-4	6-8	13.3										
B-5	S-5	8-10	15.5										
B-5	S-6	13-15	9.6										
B-5	S-7	18-18.5	9.3										
B-8	S-1	0-2	17.5										
B-8	S-2	2-4	19										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
agolihew		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
B-8	S-3	4-6	21.1										
B-8	S-4	6-8	29.3										
B-8	S-5	8-10	43.2										
IT-1	S-1	0-2	16.4										
IT-1	S-2	2-4	22.2										
IT-1	S-3	4-6	13.5	GM	NP	NP	NP	14.9					
IT-1	S-4	6-8	10.4										
IT-1	S-5	8-10	14.4										
IT-2	S-1	0-2	19.5										
IT-2	S-2	2-4	11.1										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
agolihew		mhartman	

Laboratory Testing Summary

Sample Source	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)	0.1 in.	0.2 in.	
IT-2	S-3	4-6	8.9										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1

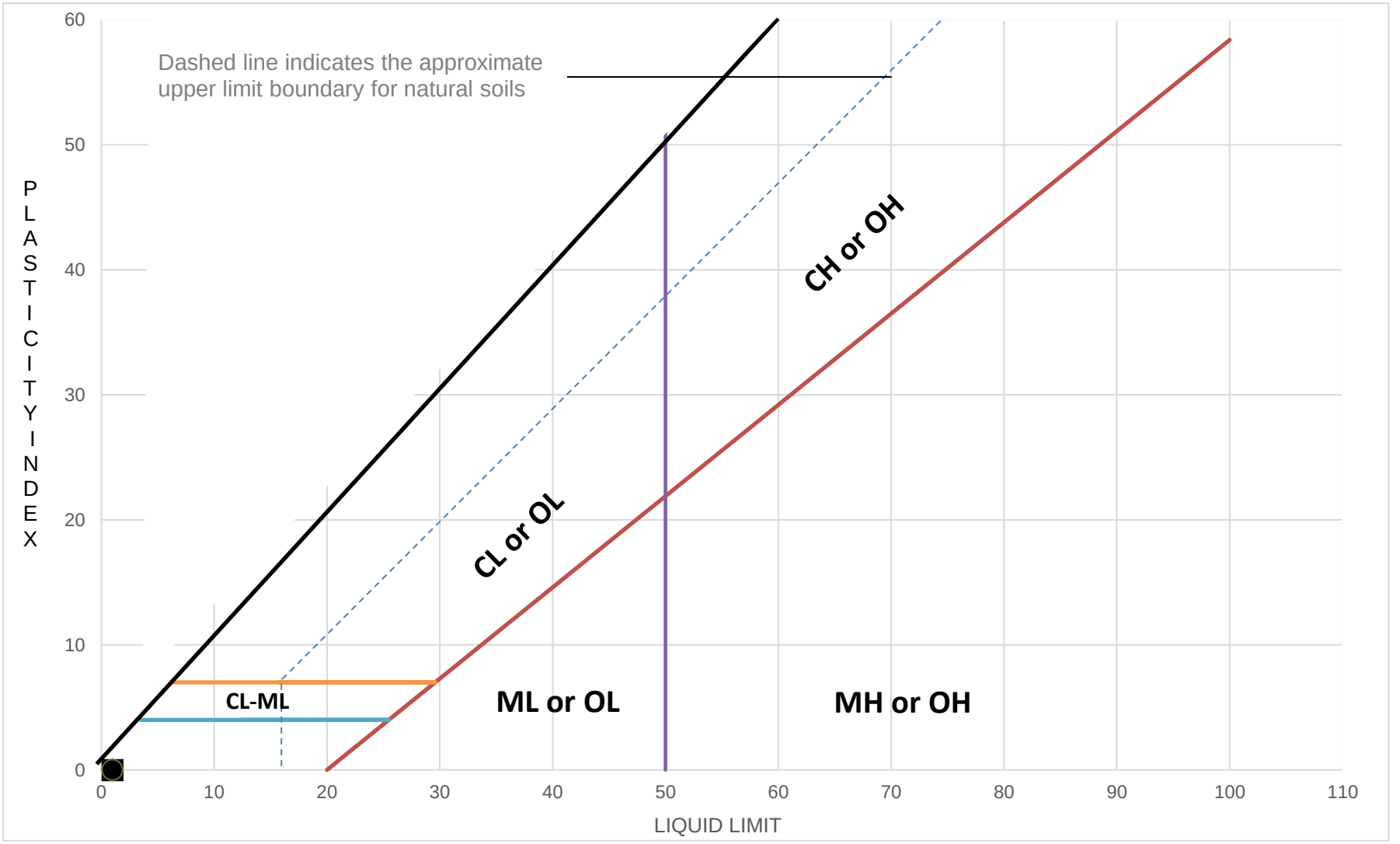
Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
agolihew		mhartman	

LIQUID AND PLASTIC LIMITS TEST REPORT



TEST RESULTS (ASTM D4318-10 (MULTIPOINT TEST))

	Sample Location	Sample Number	Sample Depth (ft)	LL	PL	PI	%<#40	%<#200	AASHTO	USCS	Material Description
■	B-15	S-4	6-8	NP	NP	NP	29.5	13.9	A-1-b	SM	Silty Sand
◆	B-17	S-3	4-6	NP	NP	NP	61.5	42.0	A-4	SM	Silty Sand
▲	B-3	S-4	6-8	NP	NP	NP	68.9	26.7	A-2-4	SM	Silty Sand
●	IT-1	S-3	4-6	NP	NP	NP	21.9	14.9	A-1-a	GM	Silty Gravel with Sand

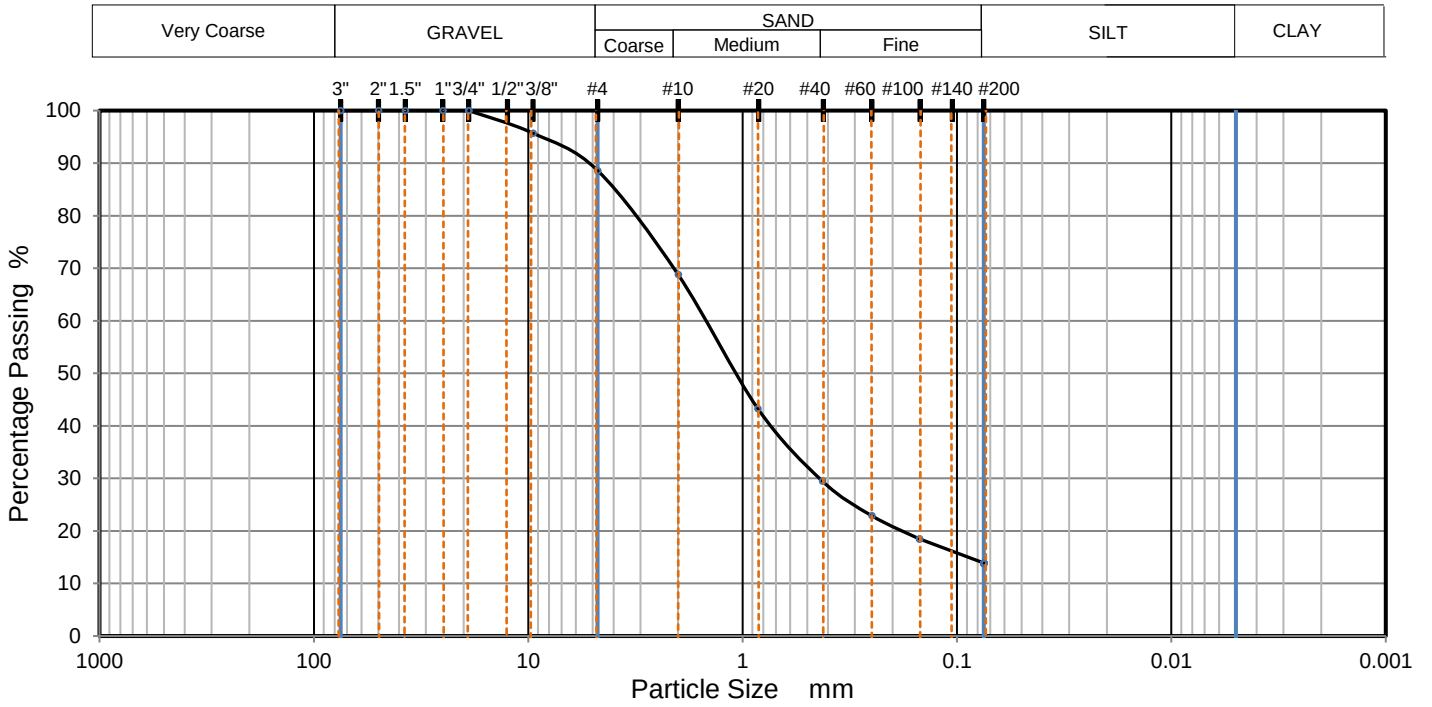
Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development

Project No.: 18:5029
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received
agolihew		mhartman	11/30/2020

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	96		
#4	89		
#10	69		
#20	43		
#40	30		
#60	23		
#100	19		
#200	14		

Dry Mass of sample, g	261.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	11
Coarse Sand, #4 to #10 sieve	20
Medium Sand, #10 to #40	39
Fine Sand, #40 to #200	16
Fines <#200	14

USCS	SM	Liquid Limit	NP	D90	5.446	D50	1.064	D10	0.000
AASHTO	A-1-b	Plastic Limit	NP	D85	4.059	D30	0.436	Cu	0.000
USCS Group Name	Silty sand	Plasticity Index	NP	D60	1.489	D15	0.089	Cc	0.000

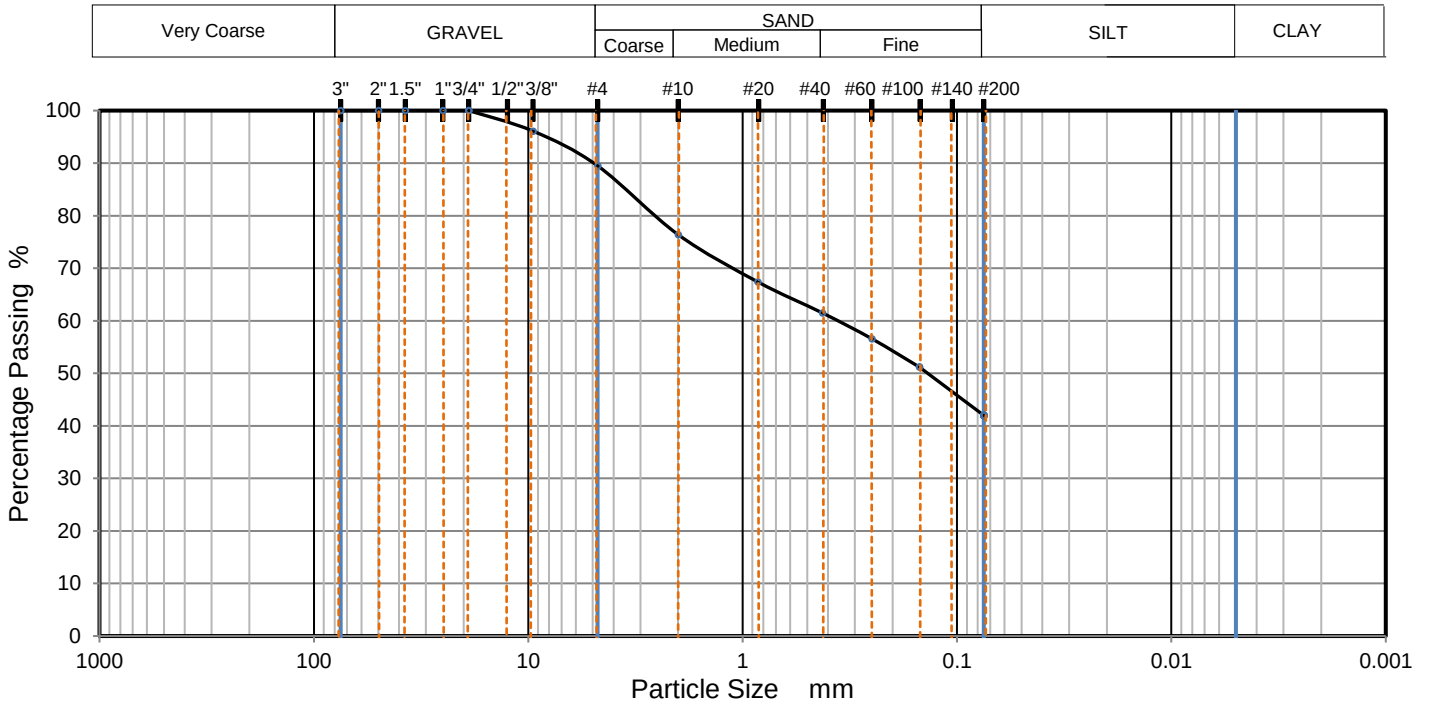
Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Sample Source: B-15

Project No.: 18:5029
Depth (ft): 6 - 8
Sample No.: S-4
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
agolihew		mhartman	11/30/2020	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	96		
#4	90		
#10	76		
#20	67		
#40	62		
#60	57		
#100	51		
#200	42		

Dry Mass of sample, g	184.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	11
Coarse Sand, #4 to #10 sieve	13
Medium Sand, #10 to #40	15
Fine Sand, #40 to #200	20
Fines <#200	42

USCS	SM	Liquid Limit	NP	D90	5.006	D50	0.137	D10	0.000
AASHTO	A-4	Plastic Limit	NP	D85	3.529	D30	0.000	Cu	0.000
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.361	D15	0.000	Cc	0.000

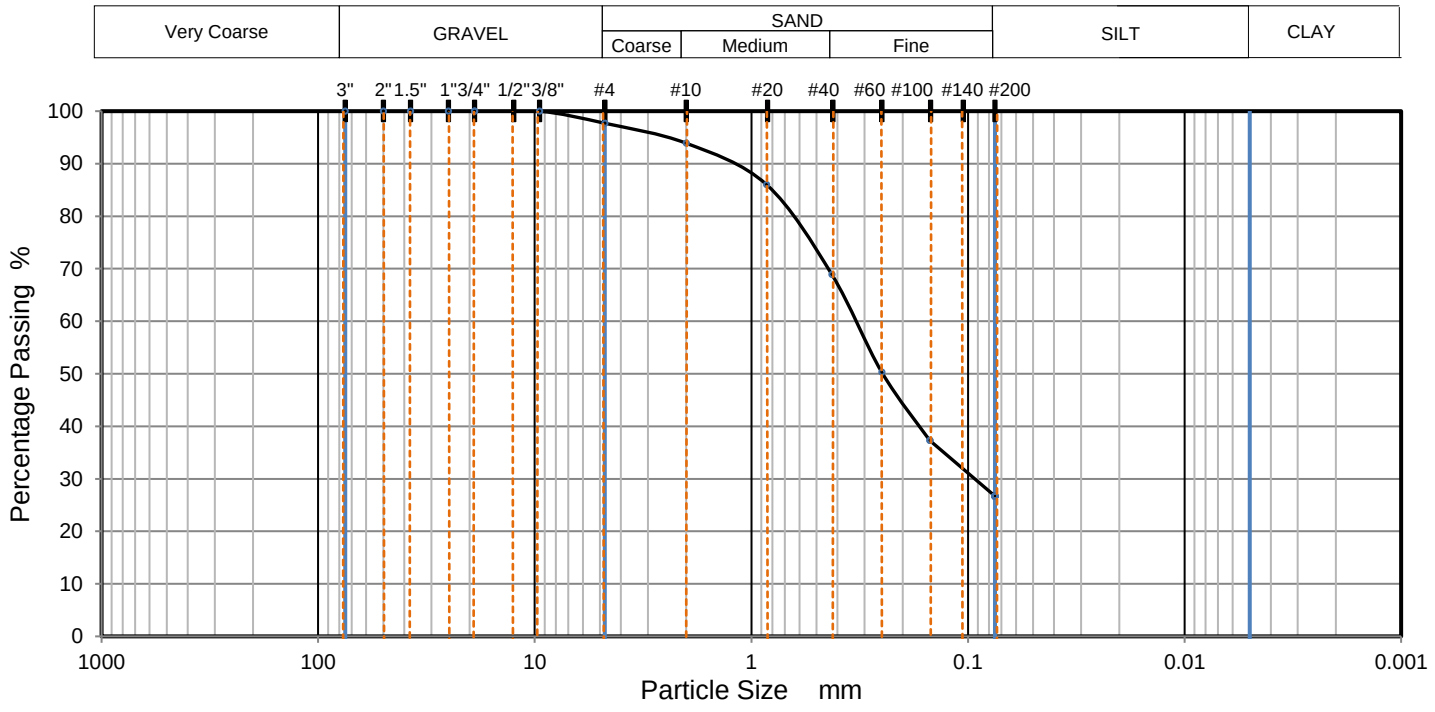
Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Sample Source: B-17

Project No.: 18:5029
Depth (ft): 4 - 6
Sample No.: S-3
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
agolihew		mhartman	11/30/2020	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	98		
#10	94		
#20	86		
#40	69		
#60	50		
#100	37		
#200	27		

Dry Mass of sample, g	278.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	2
Coarse Sand, #4 to #10 sieve	4
Medium Sand, #10 to #40	25
Fine Sand, #40 to #200	42
Fines <#200	27

USCS	SM	Liquid Limit	NP	D90	1.311	D50	0.247	D10	0.000
AASHTO	A-2-4	Plastic Limit	NP	D85	0.816	D30	0.093	Cu	0.000
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.330	D15	0.000	Cc	0.000

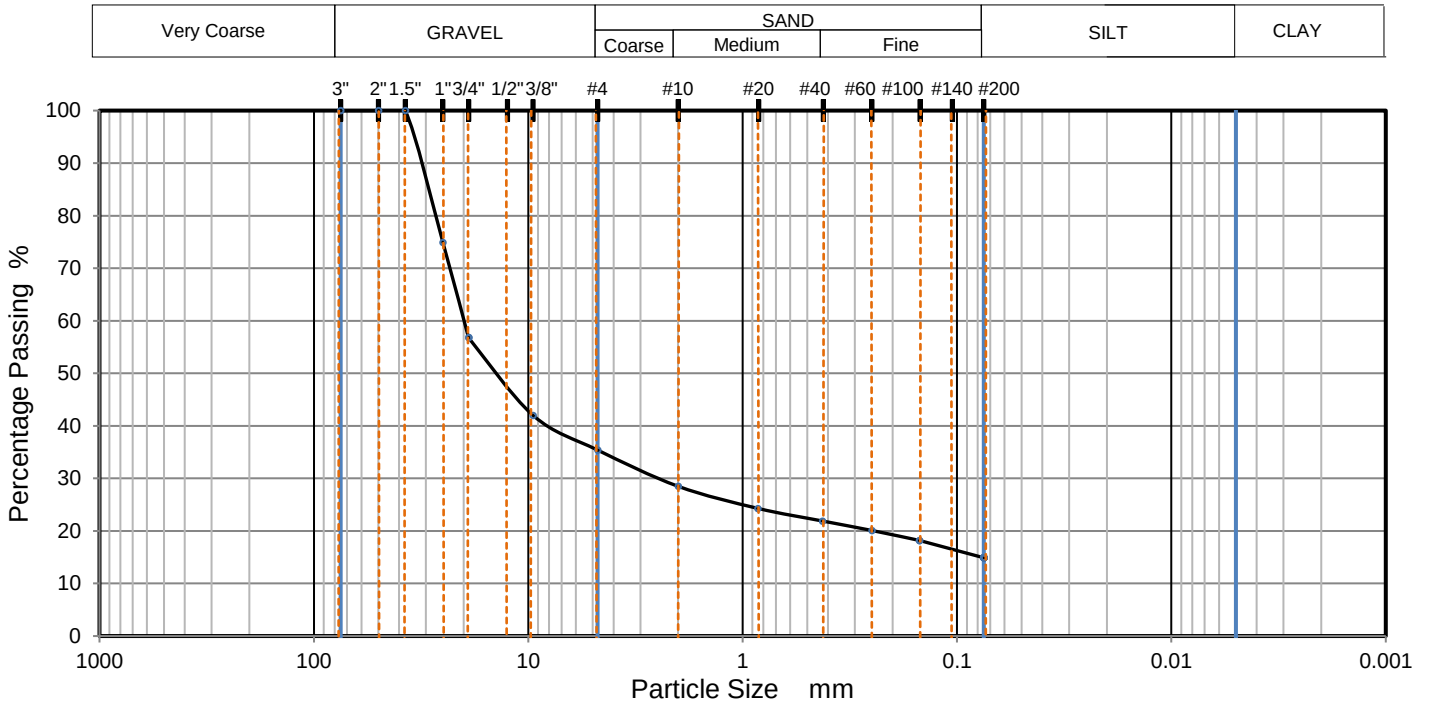
Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Sample Source: B-3

Project No.: 18:5029
Depth (ft): 6 - 8
Sample No.: S-4
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
agolihew		mhartman	11/30/2020	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	75		
3/4"	57		
3/8"	42		
#4	35		
#10	29		
#20	24		
#40	22		
#60	20		
#100	18		
#200	15		

Dry Mass of sample, g	289.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	65
Coarse Sand, #4 to #10 sieve	7
Medium Sand, #10 to #40	7
Fine Sand, #40 to #200	7
Fines <#200	15

USCS	GM	Liquid Limit	NP	D90	31.906	D50	13.818	D10	0.000
AASHTO	A-1-a	Plastic Limit	NP	D85	29.430	D30	2.414	Cu	0.000
USCS Group Name	Silty gravel with sand	Plasticity Index	NP	D60	19.945	D15	0.077	Cc	0.000

Project: 1525 Wood Avenue Distribution Warehouse
Client: NorthPoint Development
Sample Source: IT-1

Project No.: 18:5029
Depth (ft): 4 - 6
Sample No.: S-3
Date Reported: 12/4/2020

Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
agolihew		mhartman	11/30/2020	

ECS MID-ATLANTIC, LLC
52-6 Grumbacher Road
York , PA 17406
Tel: (717) 767-4788
Fax: (717) 767-5658

COMPRESSIVE STRENGTH TEST RESULTS
FOR INTACT ROCK CORE SPECIMENS - ASTM D 7012, METHOD C

PROJECT: 1525 Wood Avenue Distribution Warehouse **ECS NO.:** 5029

CLIENT: NorthPointe **DATE:** 12/3/2020

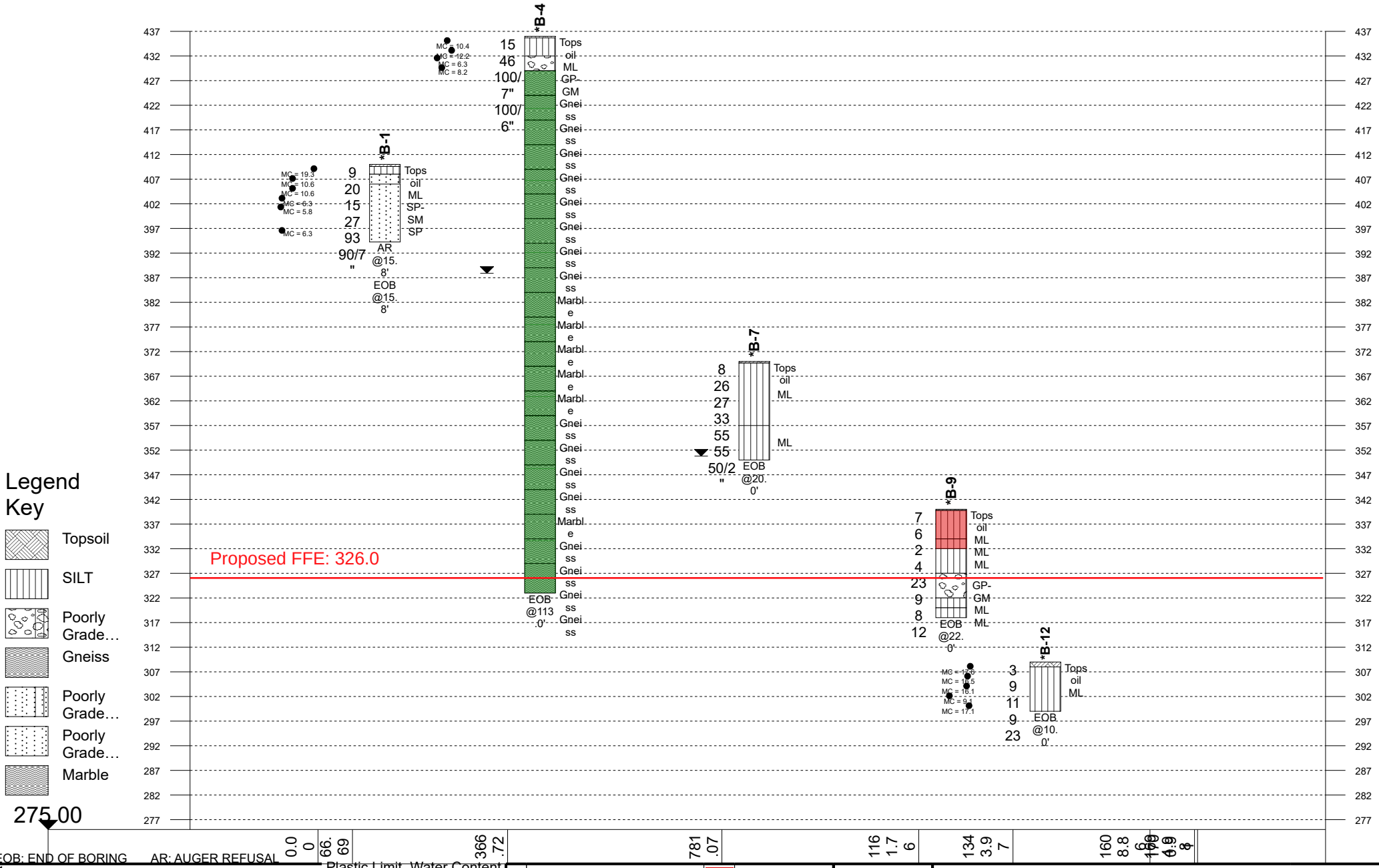
BORING NO.	SAMPLE NO.	APPROX. SAMPLE DEPTH (ft)	TEST DATE	DIAMETER (in)	LENGTH UNCAPPED (in)	AREA (sq in)	LOAD (lbs)	COMPRESSIVE STRENGTH (psi)	COMPRESSIVE STRENGTH (ksf)
B4	1	22.00 - 22.34	12/3/2020	1.97	4.09	3.05	152,140	49,914	7,188
B4	2	107.00 - 107.34	12/3/2020	1.97	4.11	3.05	125,890	41,302	5,947
B15	3	27.00 - 27.34	12/3/2020	1.97	4.08	3.05	147,080	48,254	6,949
B15	4	113.00 - 113.34	12/3/2020	1.97	4.07	3.05	45,260	14,849	2,138
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-
		- 0.00				0.00		-	-

Remarks:

APPENDIX D – Profiles

Subsurface profiles from Borings
- Western Wall of Warehouse
- Middle of Warehouse
- Eastern Wall of Warehouse
- Northern Interior of Warehouse

Rock Probe Data
Subsurface Rock Profiles
- A-A’
- B-B’
- C-C’
- D-D’



Legend Key

- Topsoil
- SILT
- Poorly Grade…
- Gneiss
- Poorly Grade…
- Poorly Grade…
- Marble

275.00

1- EOB: END OF BORING AR: AUGER REFUSAL

0.0 0 | 66.69 | 366.72 | 781.07 | 116 1.7 6 | 134 3.9 7 | 160 8.8 6 | 160 4.9 8

Plastic Limit Water Content
Liquid Limit
X
[Fines Content %]

WL (First Encountered)	Fill
WL (Completion)	Possible Fill
WL (Seasonal High Water)	Probable Fill
WL (Stabilized)	Rock

Notes:

2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.

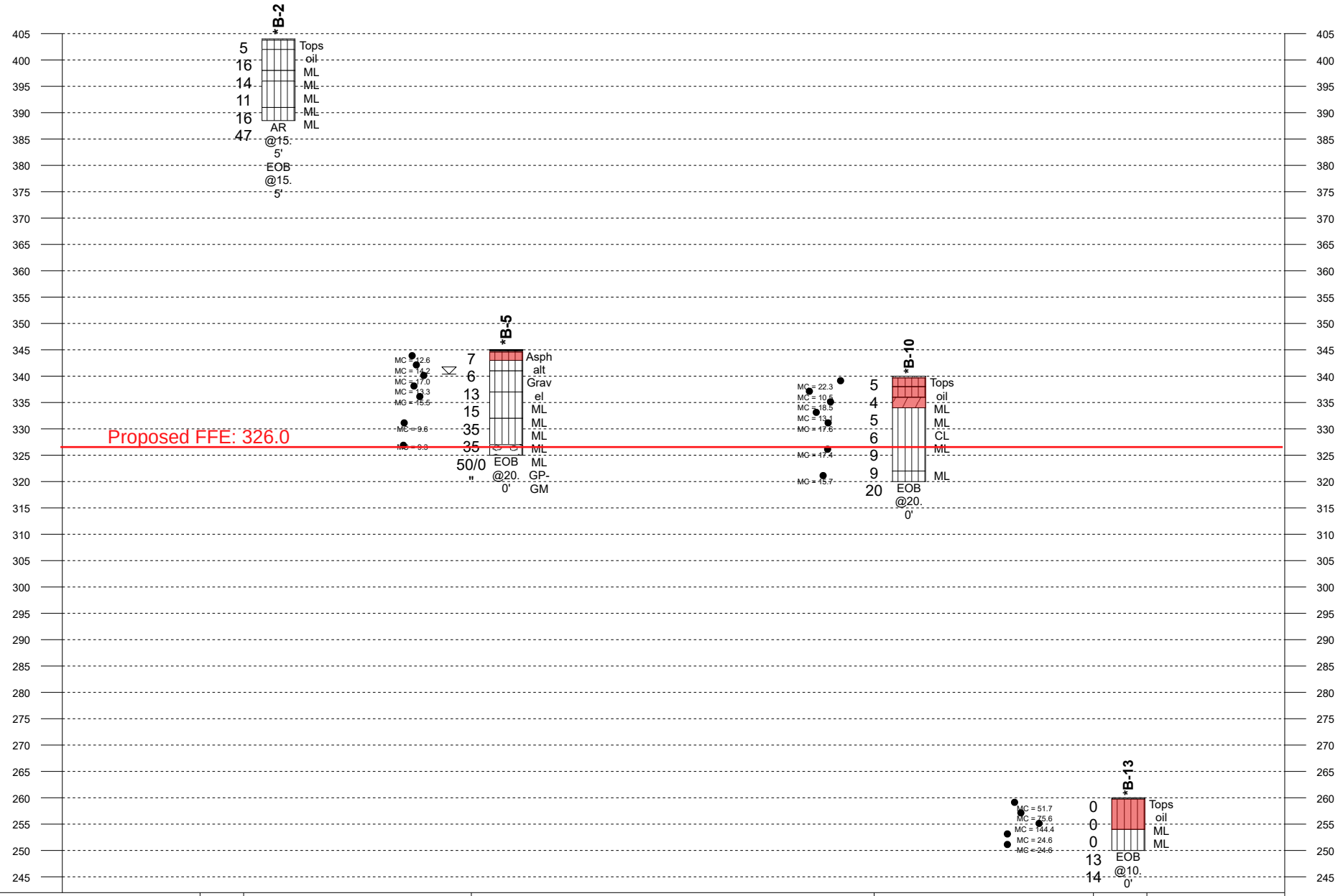
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.

4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

GENERALIZED SUBSURFACE SOIL PROFILE Western Wall

1525 Wood Avenue Distribution Warehouse
NorthPoint Development
1525 Wood Avenue, Easton, Pennsylvania 18045

Project No: 18:5029 Date: 12/09/2020



Legend Key

- Topsoil
- SILT
- Asphalt
- Gravel or Con…
- Lean CLAY
- Poorly Graded…

242.00

1- EOB: END OF BORING AR: AUGER REFUSAL

0.0	0	66.71				415.29					103	1.8	5			136	7.5	3	144	9.3	5		

Plastic Limit Water Content
Liquid Limit
X
[Fines Content %]

WL (First Encountered)	Fill
WL (Completion)	Possible Fill
WL (Seasonal High Water)	Probable Fill
WL (Stabilized)	Rock

Notes:

2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.

3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.

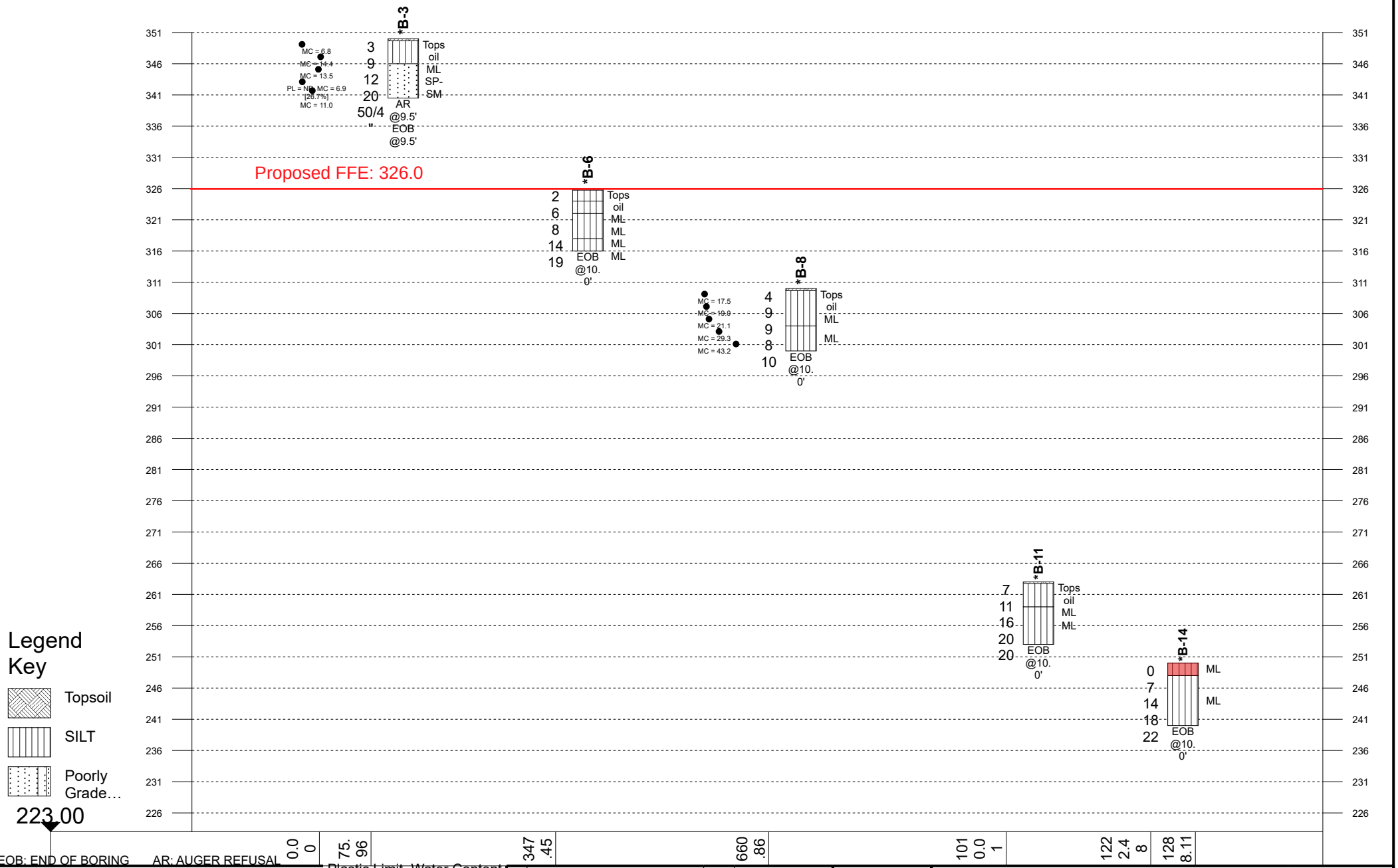
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

GENERALIZED SUBSURFACE SOIL PROFILE

Middle of Warehouse

1525 Wood Avenue Distribution Warehouse
NorthPoint Development
1525 Wood Avenue, Easton, Pennsylvania 18045

Project No: 18:5029 Date: 12/09/2020



Legend Key

- Topsoil
- SILT
- Poorly Grade…

223.00

1- EOB: END OF BORING AR: AUGER REFUSAL

0.0	0	75.	96	347	.45	660	.86	101	0.0	1	
122	2.4	8	128	8.11							

Notes:

2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.

3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.

4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content
Liquid Limit
X
[Fines Content %]

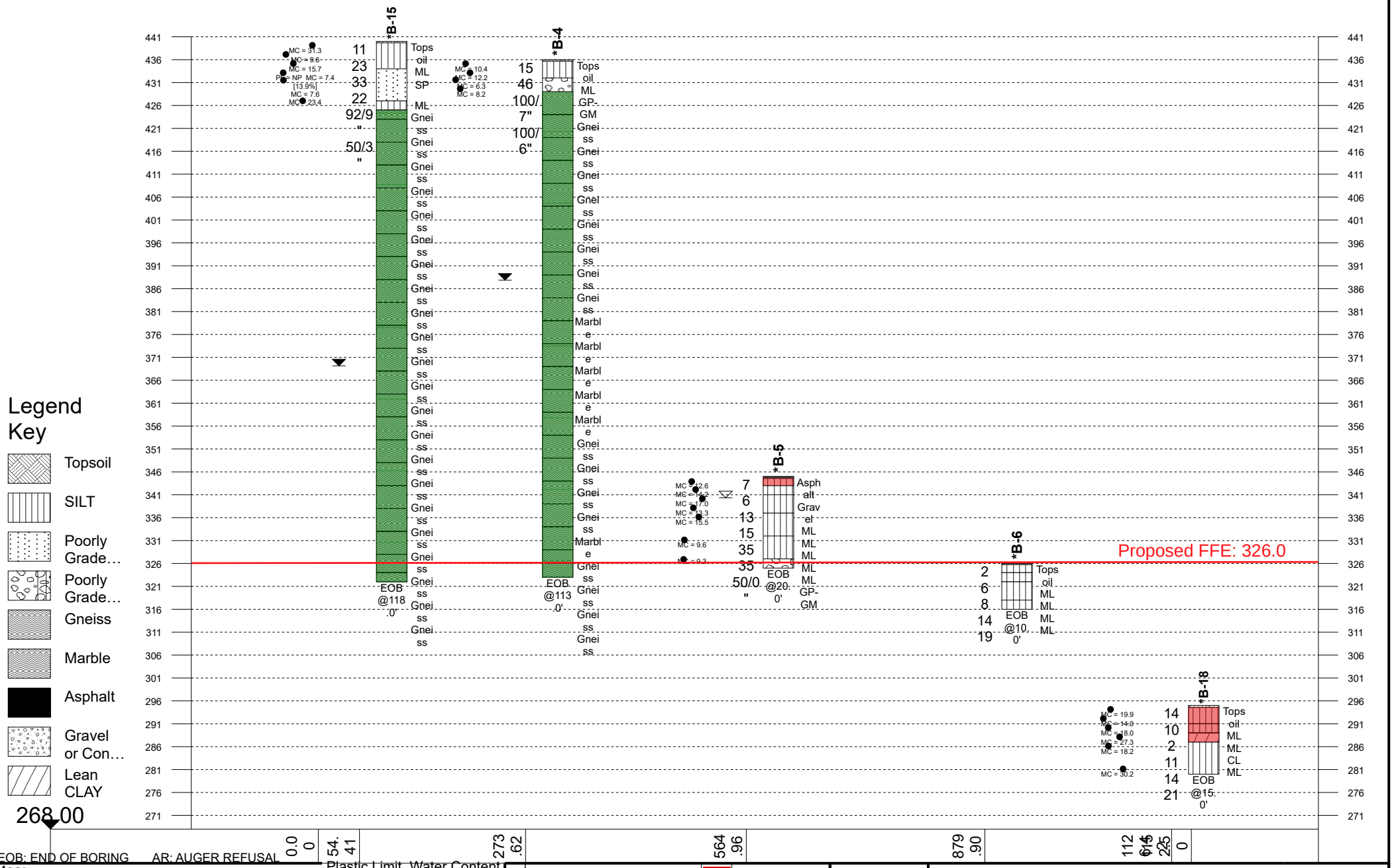
WL (First Encountered)	Fill
WL (Completion)	Possible Fill
WL (Seasonal High Water)	Probable Fill
WL (Stabilized)	Rock

ECS

GENERALIZED SUBSURFACE SOIL PROFILE Eastern Wall

1525 Wood Avenue Distribution Warehouse
NorthPoint Development
1525 Wood Avenue, Easton, Pennsylvania 18045

Project No: 18:5029 Date: 12/09/2020



Legend Key

- Topsoil
- SILT
- Poorly Grade…
- Poorly Grade…
- Gneiss
- Marble
- Asphalt
- Gravel or Con…
- Lean CLAY

268.00

1- EOB: END OF BORING AR: AUGER REFUSAL

0.0 | 54.41 | 273.62 | 564.96 | 879.90 | 1125 | 1225 | 0

Notes:

2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.

3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.

4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content
Liquid Limit
X
[Fines Content %]

WL (First Encountered)	Fill
WL (Completion)	Possible Fill
WL (Seasonal High Water)	Probable Fill
WL (Stabilized)	Rock

GENERALIZED SUBSURFACE SOIL PROFILE

Northern interior

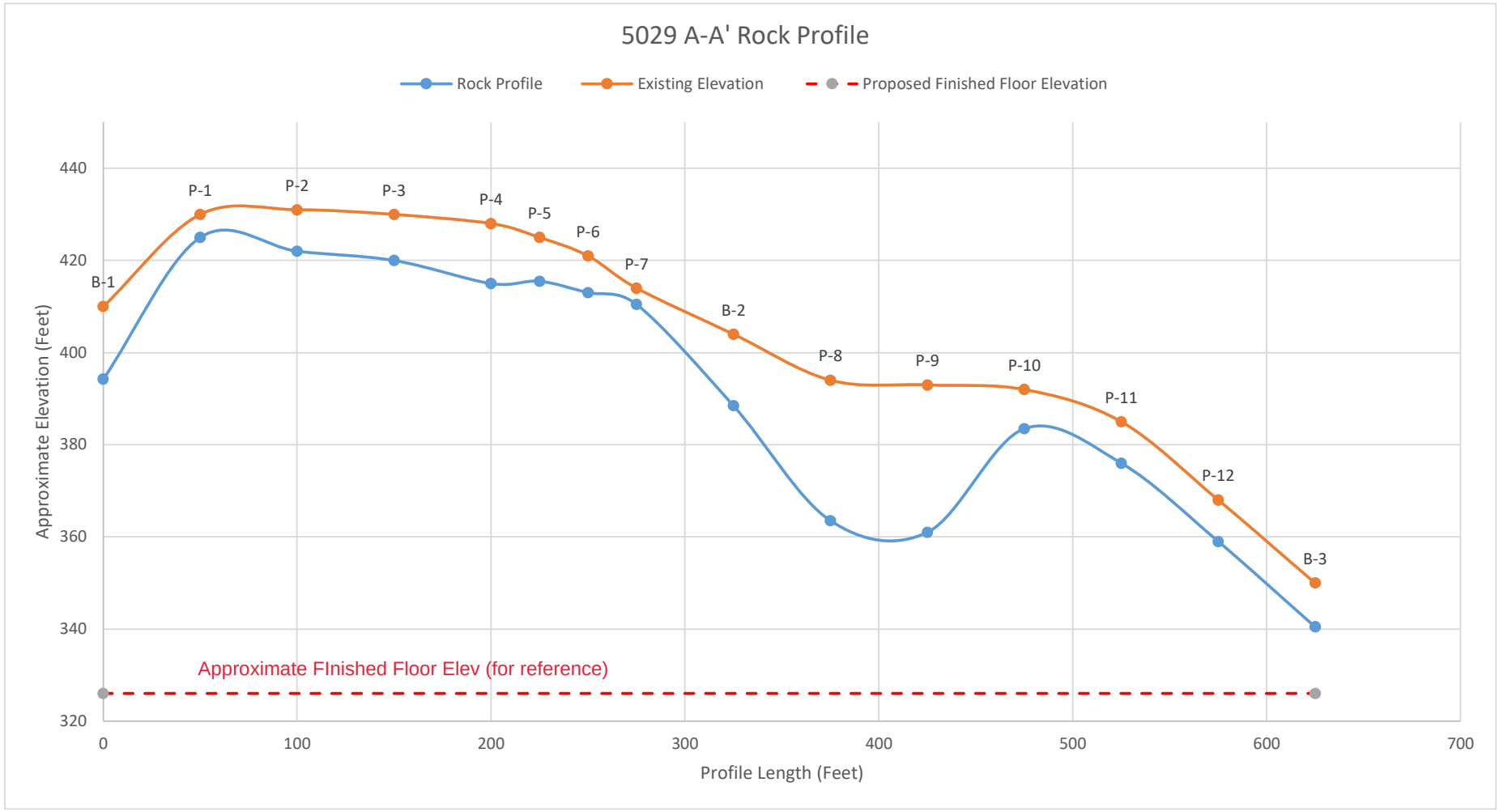
1525 Wood Avenue Distribution Warehouse
NorthPoint Development
1525 Wood Avenue, Easton, Pennsylvania 18045

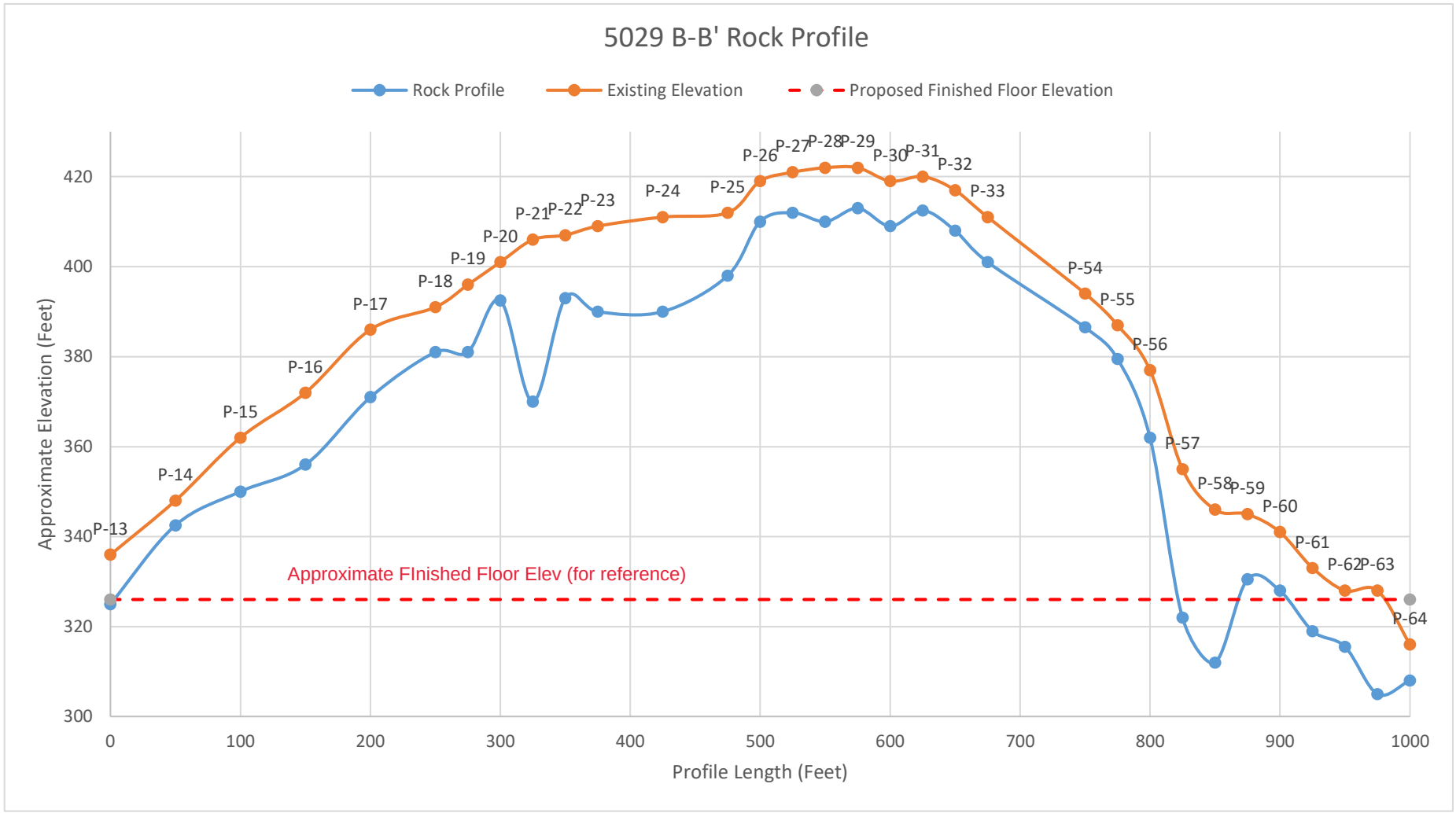
Project No: 18:5029 Date: 12/09/2020

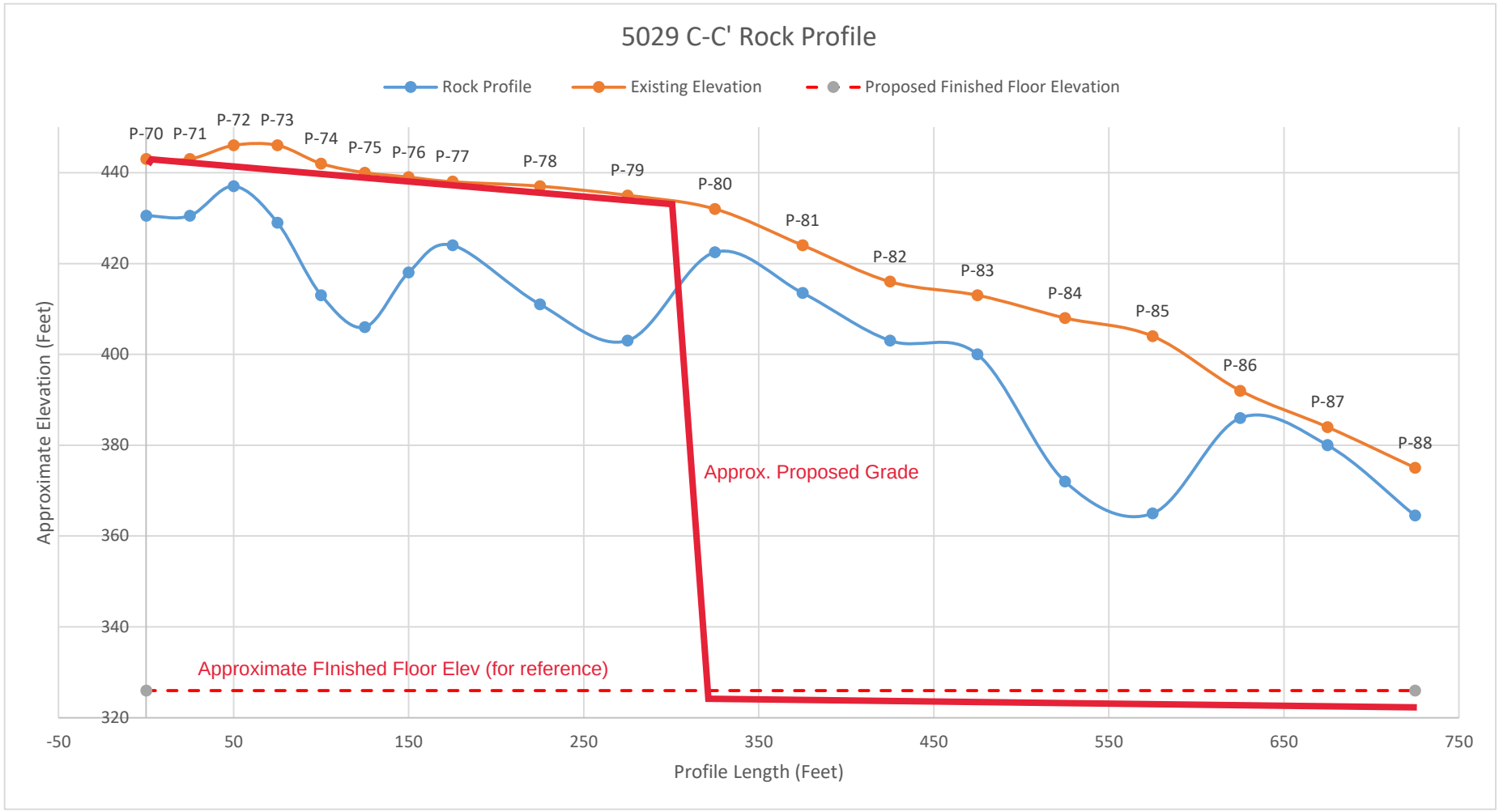
18.5029
1525 Wood Avenue Distribution Warehouse
Rock Probe Data
Nov-20

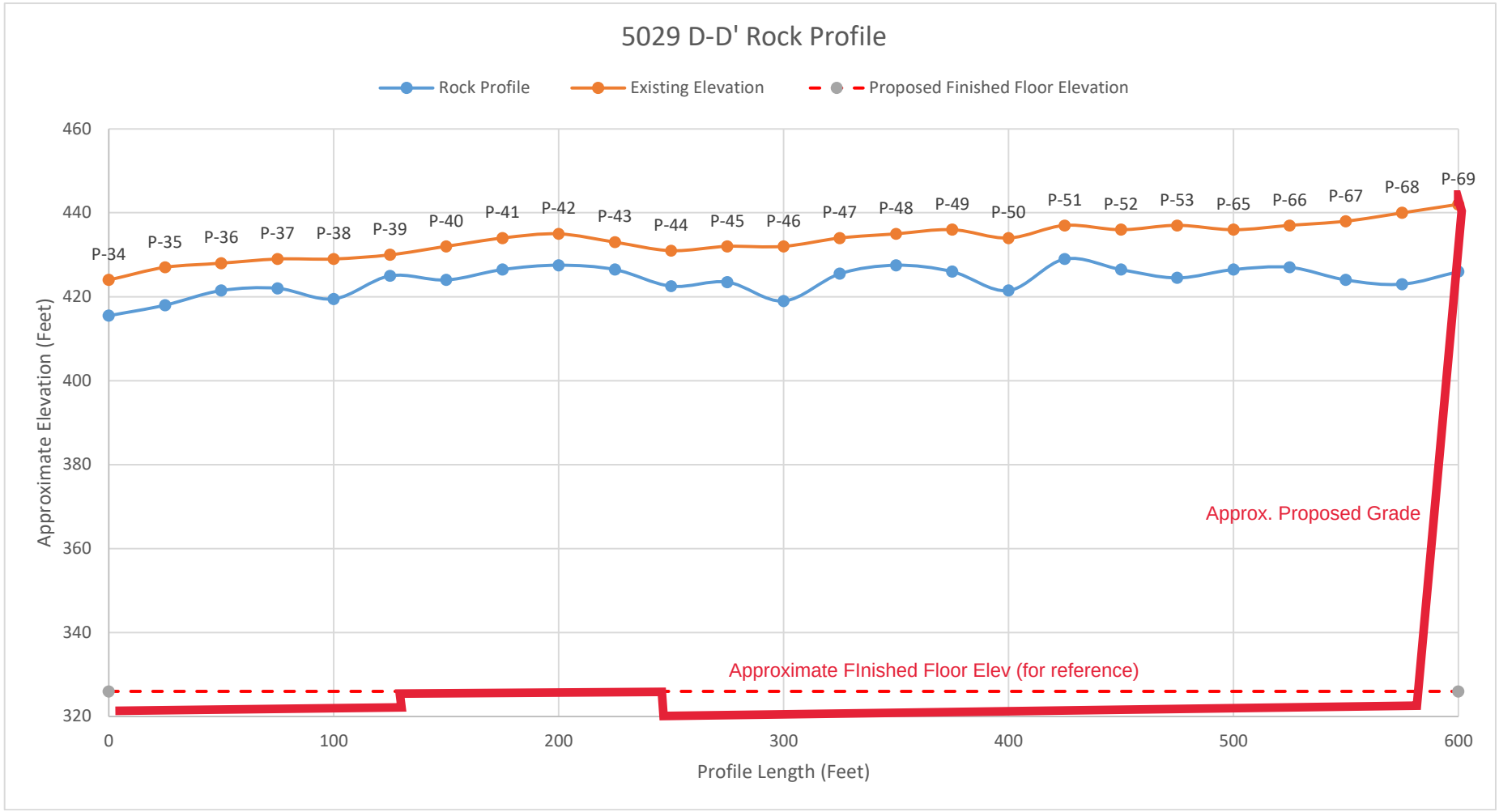
Profile	Probe ID	Approximate elevation	First encountered rock(ft)	Hard Rock/Refusal Mateials (ft)	Terminaton depth (ft)	Estimated Refusal elevation
A-A'	P-1	430	2	5	7	425
	P-2	431	6	9	11	422
	P-3	430	10	10	12	420
	P-4	428	10	13	15	415
	P-5	425	9.5	9.5	12	415.5
	P-6	421	4.5	8	11	413
	P-7	414	3.5	3.5	8	410.5
	P-8	394	6	30.5	33.5	363.5
	P-9	393	9.5	32	34.5	361
	P-10	392	6	8.5	11	383.5
	P-11	385	8.5	9	12	376
	P-12	368	9	9	12	359
B-B'	P-13	336	11	11	13	325
	P-14	348	5.5	5.5	11	342.5
	P-15	362	12	12	15.5	350
	P-16	372	3.5	16	18	356
	P-17	386	9.5	15	17	371
	P-18	391	9	10	12	381
	P-19	396	8	15	17	381
	P-20	401	4	8.5	11	392.5
	P-21	406	7.5	36	39	370
	P-22	407	8	14	16	393
	P-23	409	8	19	21	390
	P-24	411	21	21	24	390
	P-25	412	11.5	14	16	398
	P-26	419	8	9	11	410
	P-27	421	9	9	11	412
	P-28	422	5	12	14	410
	P-29	422	5	9	12	413
	P-30	419	5	10	12	409
	P-31	420	7.5	7.5	11	412.5
	P-32	417	9	9	11	408
	P-33	411	8.5	10	12.5	401
D-D'	P-34	424	4	8.5	11	415.5
	P-35	427	9	9	11	418
	P-36	428	6.5	6.5	8.5	421.5
	P-37	429	7	7	9	422
	P-38	429	9.5	9.5	12	419.5
	P-39	430	5	5	7	425
	P-40	432	8	8	10	424
	P-41	434	6.5	7.5	9.5	426.5
	P-42	435	5	7.5	9.5	427.5
	P-43	433	5.5	6.5	8.5	426.5
	P-44	431	3	8.5	10.5	422.5
	P-45	432	5	8.5	10.5	423.5
	P-46	432	6.5	13	15	419
	P-47	434	6.5	8.5	10.5	425.5
	P-48	435	5.5	7.5	9.5	427.5
	P-49	436	5.5	10	17	426

	P-50	434	6.5	12.5	14.5	421.5
	P-51	437	5	8	11	429
	P-52	436	7.5	9.5	11.5	426.5
	P-53	437	9.5	12.5	14.5	424.5
	P-54	394	7.5	7.5	9.5	386.5
	P-55	387	7.5	7.5	10	379.5
	P-56	377	9	15	17	362
	P-57	355	13	33	35	322
	P-58	346	13.5	34	39	312
B-B' continued	P-59	345	9	14.5	17.5	330.5
	P-60	341	10	13	15	328
	P-61	333	6.5	14	16.5	319
	P-62	328	8.5	12.5	15	315.5
	P-63	328	8	23	25.5	305
	P-64	316	5.5	8	10	308
	P-65	436	9.5	9.5	11.5	426.5
	P-66	437	10	34	36	403
D-D' continued	P-67	438	7.5	14	16.5	424
	P-68	440	7	17	19.5	423
	P-69	442	7	16	18.5	426
	P-70	443	7	12.5	14.5	430.5
	P-71	443	12.5	12.5	14.5	430.5
	P-72	446	4	9	11	437
	P-73	446	8	17	19	429
	P-74	442	29	29	31.5	413
	P-75	440	32	34	36	406
	P-76	439	21	21	23	418
	P-77	438	14	14	16	424
	P-78	437	26	26	29	411
C-C'	P-79	435	32	32	34.5	403
	P-80	432	9.5	9.5	14	422.5
	P-81	424	10	10.5	14.5	413.5
	P-82	416	8	13	15.5	403
	P-83	413	13	13	15	400
	P-84	408	36	36	38	372
	P-85	404	39	39	41.5	365
	P-86	392	6	6	11	386
	P-87	384	4	4	10	380
	P-88	375	10.5	10.5	12.5	364.5


5029 A-A' Rock Profile
Rock Profile
Existing Elevation
Proposed Finished Floor Elevation
Approximate Elevation (Feet)
440
420
400
380
360
340
320
0
100
200
300
400
500
600
700
Profile Length (Feet)
B-1
P-1
P-2
P-3
P-4
P-5
P-6
P-7
B-2
P-8
P-9
P-10
P-11
P-12
B-3
Approximate FInished Floor Elev (for reference)


5029 B-B' Rock Profile
Rock Profile
Existing Elevation
Proposed Finished Floor Elevation
Approximate Elevation (Feet)
Profile Length (Feet)
Approximate FInished Floor Elev (for reference)
P-13
P-14
P-15
P-16
P-17
P-18
P-19
P-20
P-21
P-22
P-23
P-24
P-25
P-26
P-27
P-28
P-29
P-30
P-31
P-32
P-33
P-54
P-55
P-56
P-57
P-58
P-59
P-60
P-61
P-62
P-63
P-64
300
320
340
360
380
400
420
0
100
200
300
400
500
600
700
800
900
1000

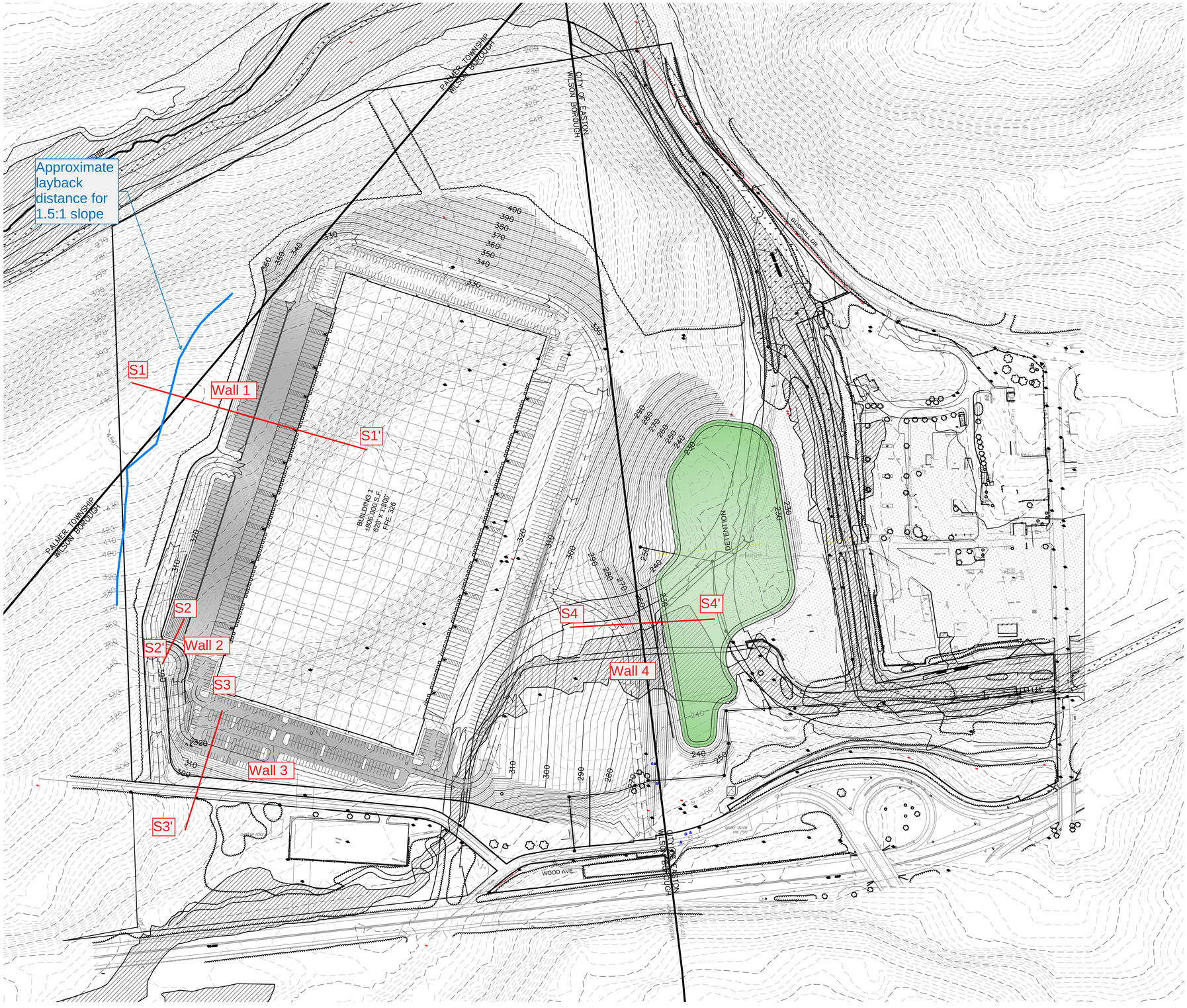

5029 C-C' Rock Profile
Rock Profile
Existing Elevation
Proposed Finished Floor Elevation
P-70
P-71
P-72
P-73
P-74
P-75
P-76
P-77
P-78
P-79
P-80
P-81
P-82
P-83
P-84
P-85
P-86
P-87
P-88
Approx. Proposed Grade
Approximate FInished Floor Elev (for reference)
Approximate Elevation (Feet)
Profile Length (Feet)
440
420
400
380
360
340
320
-50
50
150
250
350
450
550
650
750


5029 D-D' Rock Profile
Rock Profile
Existing Elevation
Proposed Finished Floor Elevation
Approximate Elevation (Feet)
460
440
420
400
380
360
340
320
0
100
200
300
400
500
600
Profile Length (Feet)
P-34
P-35
P-36
P-37
P-38
P-39
P-40
P-41
P-42
P-43
P-44
P-45
P-46
P-47
P-48
P-49
P-50
P-51
P-52
P-53
P-65
P-66
P-67
P-68
P-69
Approx. Proposed Grade
Approximate FInished Floor Elev (for reference)

APPENDIX E – Preliminary Analyses

Retaining Wall Plan
Global Stability Runs
- S1-S1’
- S2-S2’
- S3-S3’
- S4-S4’
- S4-S4’ – Extra Embedment

RETAINING WALL PLAN



LEGEND	
	WATER LINE
	POWER POLE
	POWER LINE
	COMMUNICATION LINE
	SANITARY SEWER
	STORM SEWER
	NATURAL GAS LINE

LEGEND	
100	EXISTING INDEX CONTOURS
100	EXISTING INTERMEDIATE CONTOURS
100	PROPOSED INDEX CONTOURS
100	PROPOSED INTERMEDIATE CONTOURS

N

0' 75' 150' 300'

SCALE IN FEET
(PLAN SHEET 22"x34")

SITEPOINT
A Division of NorthPoint Development
816.888.7380
sitepoint@northpointkc.com
4825 NW 41st Street, Suite 500
Riverside, MO 64150

NorthPoint DEVELOPMENT

1525 WOOD AVENUE

WILSON BOROUGH
NORTHAMPTON COUNTY
PA
Certificate of Authority #:

Project No.: 0000
Date: 2020.10.22
Issued For: Zoning Information
Revisions:

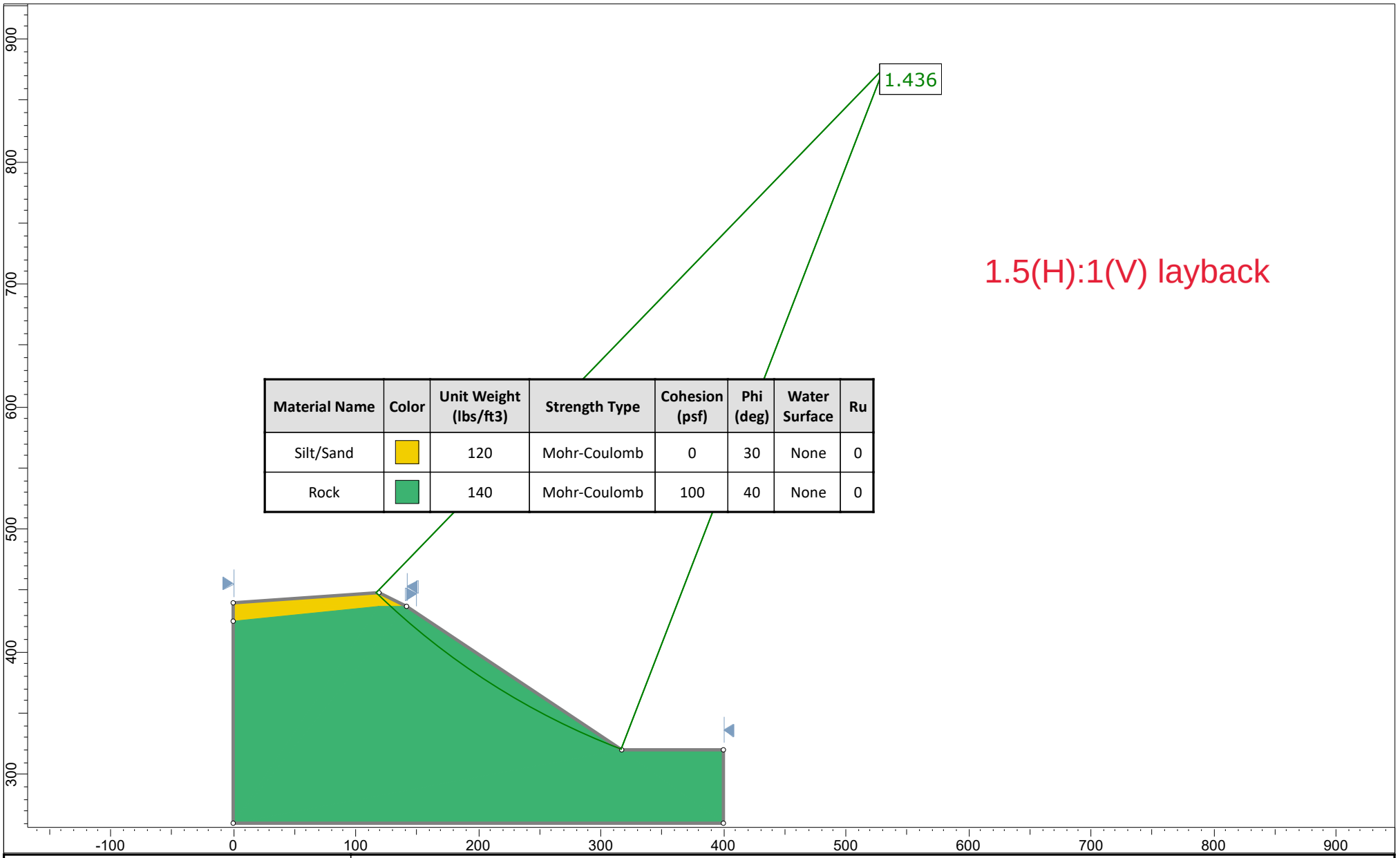
No.	Date	Description

Preliminary
Not For Construction

C-0400

GRADING & UTILITY PLAN

D:\SitePoint Dropbox\01 Projects_Industrial\2029 1525 Wood Ave (Easton, PA)\08 Zoning Plan\Plans\01_Site Plans\C-0400 Grading Plan.dwg



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Silt/Sand		120	Mohr-Coulomb	0	30	None	0
Rock		140	Mohr-Coulomb	100	40	None	0

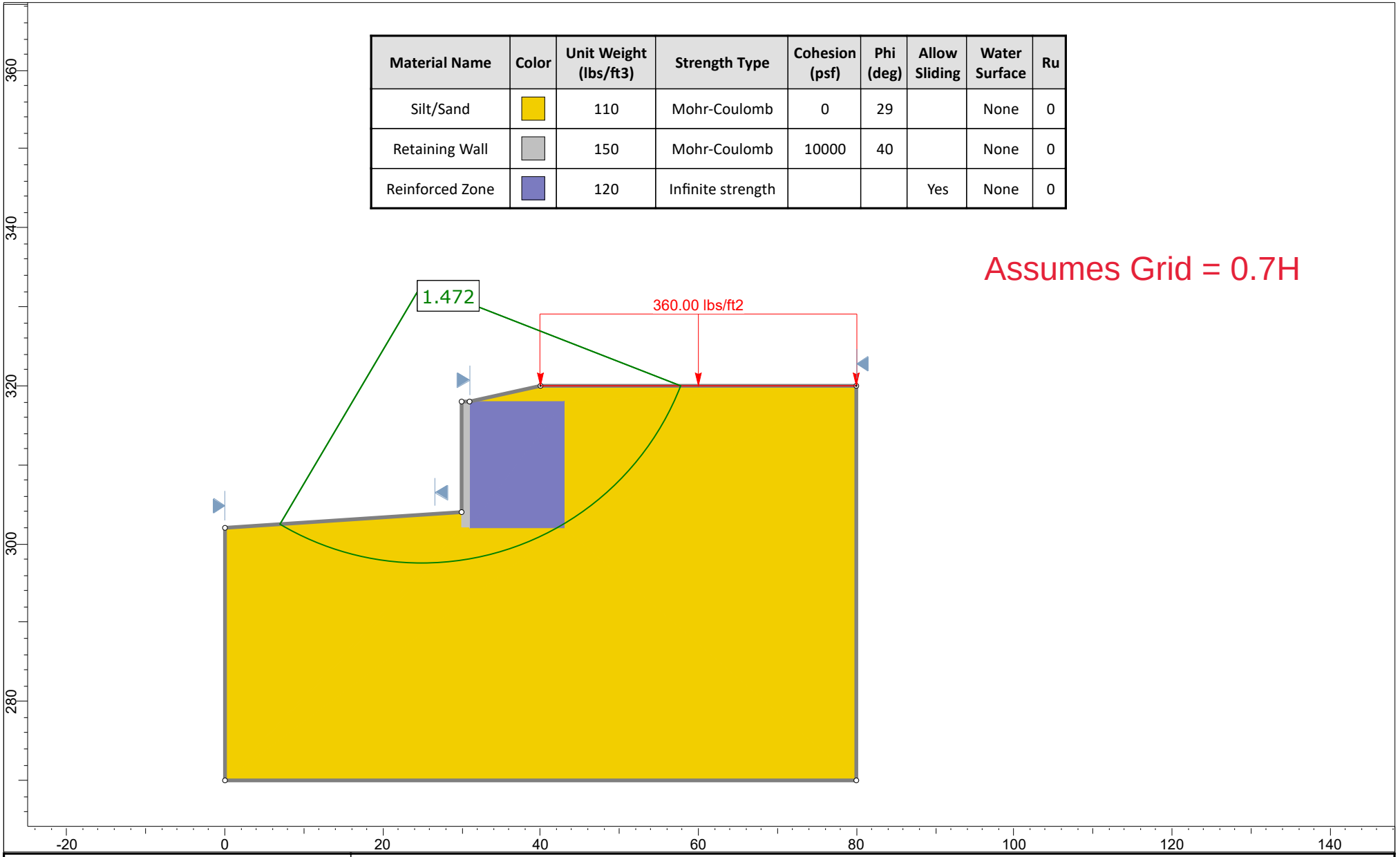
rocscience

SLIDEINTERPRET 8.019

Project	1525 Wood Avenue		
Analysis Description	S1-S1'		
Drawn By	DGR	*Scale* 1:1299	*Company* ECS
Date		*File Name*	S1-S1'.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Ru
Silt/Sand		110	Mohr-Coulomb	0	29		None	0
Retaining Wall		150	Mohr-Coulomb	10000	40		None	0
Reinforced Zone		120	Infinite strength			Yes	None	0

Assumes Grid = 0.7H

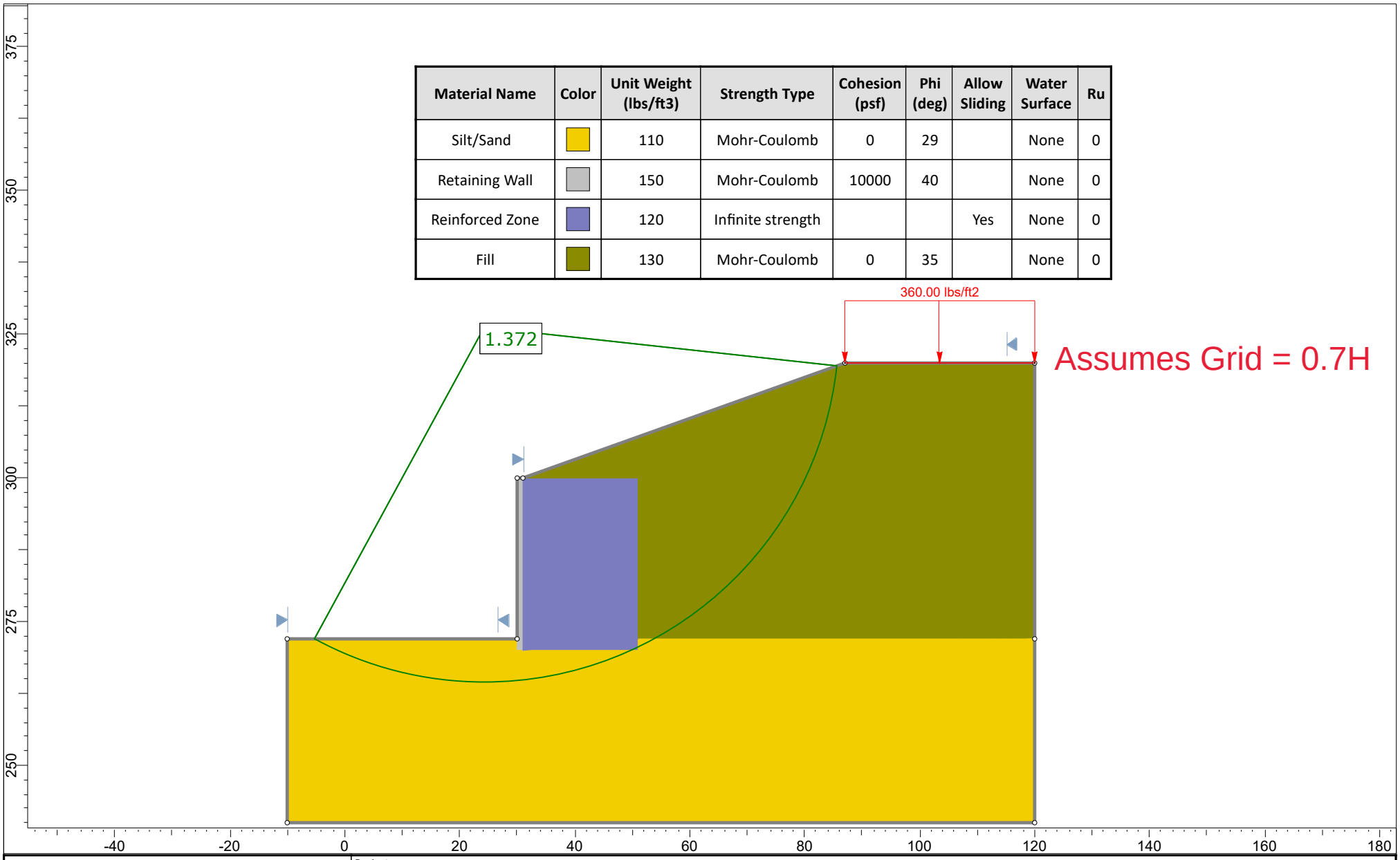


rocscience

SLIDEINTERPRET 8.019

Project	1525 Wood Avenue		
Analysis Description	S2-S2'		
Drawn By	DGR	Scale 1:202	Company ECS
Date			File Name S2-S2'.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Ru
Silt/Sand		110	Mohr-Coulomb	0	29		None	0
Retaining Wall		150	Mohr-Coulomb	10000	40		None	0
Reinforced Zone		120	Infinite strength			Yes	None	0
Fill		130	Mohr-Coulomb	0	35		None	0



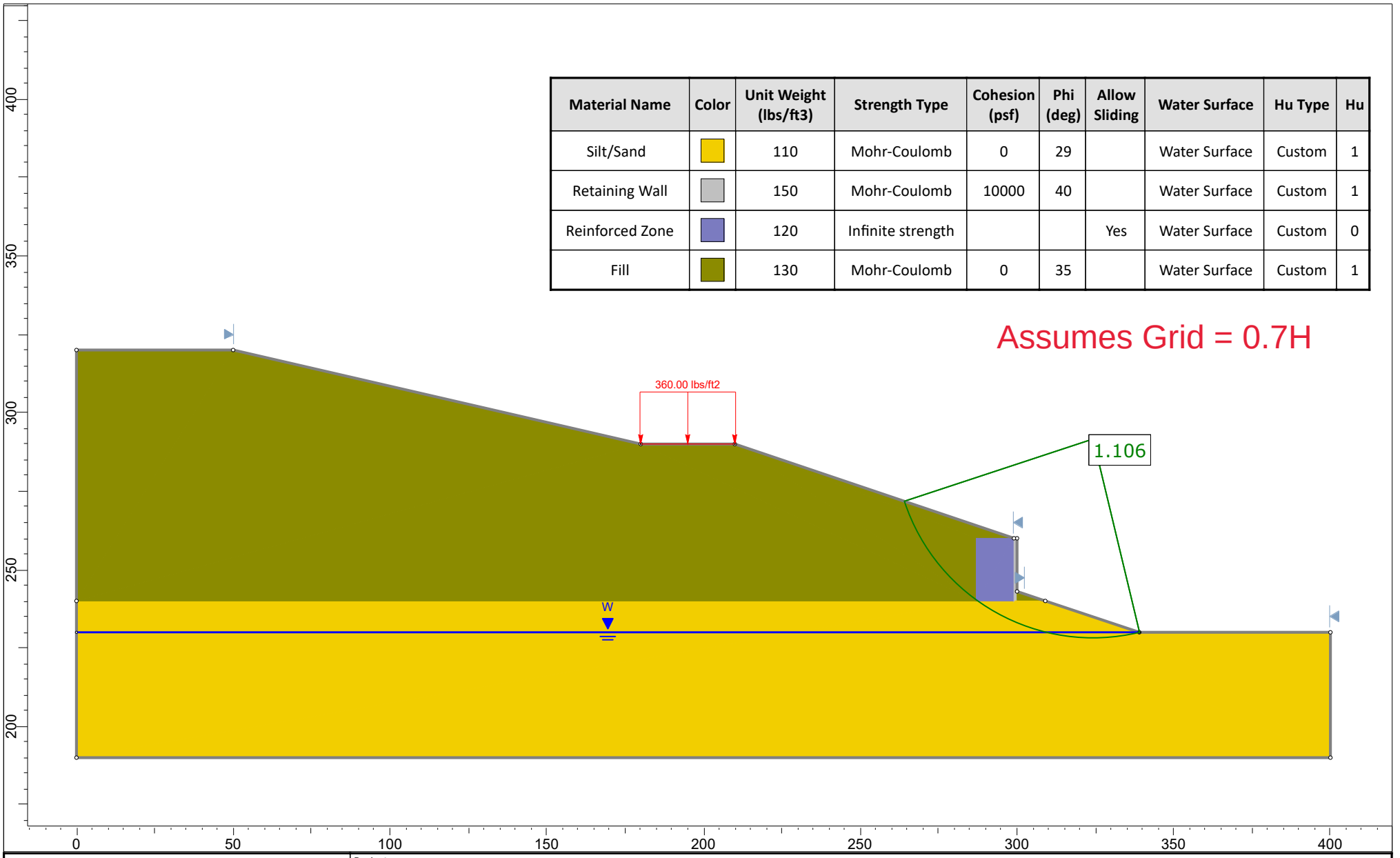
rocscience

SLIDEINTERPRET 8.019

Project	1525 Wood Avenue		
Analysis Description	S3-S3'		
Drawn By	DGR	Scale 1:277	Company ECS
Date			File Name S3-S3'.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Hu Type	Hu
Silt/Sand		110	Mohr-Coulomb	0	29		Water Surface	Custom	1
Retaining Wall		150	Mohr-Coulomb	10000	40		Water Surface	Custom	1
Reinforced Zone		120	Infinite strength			Yes	Water Surface	Custom	0
Fill		130	Mohr-Coulomb	0	35		Water Surface	Custom	1

Assumes Grid = 0.7H

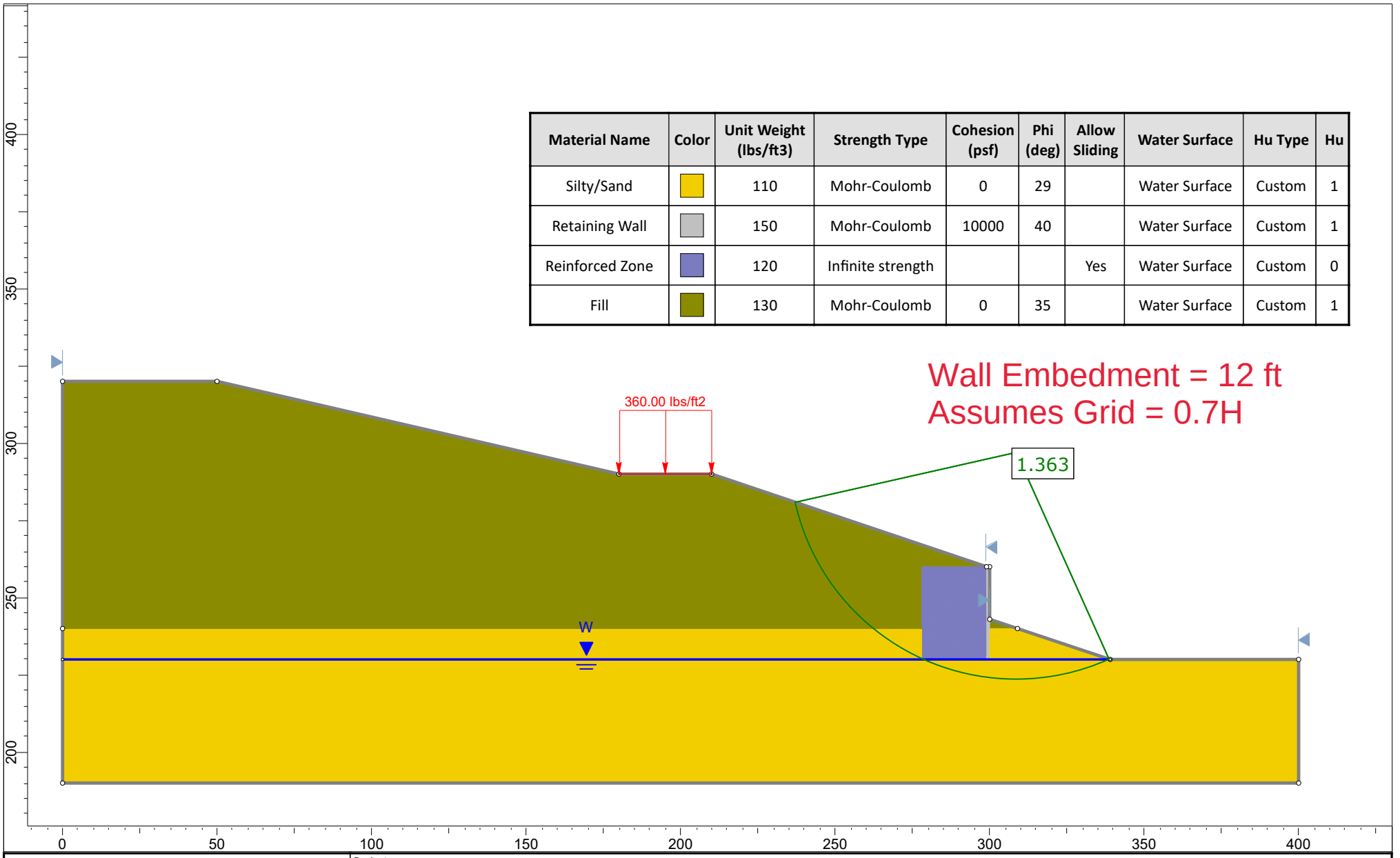


rocscience

SLIDEINTERPRET 8.019

Project	1525 Wood Avenue		
Analysis Description	S4-S4'		
Drawn By	DGR	Scale 1:507	Company ECS
Date			File Name S4-S4'.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Allow Sliding	Water Surface	Hu Type	Hu
Silty/Sand		110	Mohr-Coulomb	0	29		Water Surface	Custom	1
Retaining Wall		150	Mohr-Coulomb	10000	40		Water Surface	Custom	1
Reinforced Zone		120	Infinite strength			Yes	Water Surface	Custom	0
Fill		130	Mohr-Coulomb	0	35		Water Surface	Custom	1



rocscience

SLIDEINTERPRET 8.019

Project	1525 Wood Avenue		
Analysis Description	S4-S4' - Extra Embedment		
Drawn By	DGR	Scale 1:514	Company ECS
Date			File Name S4-S4'.slmd

APPENDIX F

Operation and Maintenance Manual

BMP OPERATION MAINTENANCE RECOMMENDATIONS			
BMP AND REQUIREMENT	Inspection Frequency	Inspection Complete	In Complianc
1. Minimized Disturbance / Soil Compaction Areas			
A. Debris and Sediment			
1. Contributing area clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Drainage Area Stabilization			
1. Contributing area stabilized, no erosion evident	2 times per year	Yes/No	Yes/No
C. Vegetative Cover			
1. Vegetation covers entire area to required density	2 times per year	Yes/No	Yes/No
2. Vegetation is in good condition, no evidence of weeds or invasive plants	2 times per year	Yes/No	Yes/No
D. Revegetate as necessary to maintain pervious cover.			
2. MRC/ Rain Garden Basin			
A. Debris and Sediment			
1. Contributing area clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Drainage Area Stabilization			
1. Contributing area stabilized, no erosion evident	2 times per year	Yes/No	Yes/No
C. Oil and Grease			
1. Activities in drainage areas minimize oil and grease contamination potential.	Ongoing	Yes/No	Yes/No
D. Vegetative Cover			
1. Vegetation covers entire area to required density	2 times per year	Yes/No	Yes/No
2. Vegetation is in good condition, no evidence of weeds or invasive plants	2 times per year	Yes/No	Yes/No
E. Structural Components (Berm, Riser, Spillway)	2 times per year	Yes/No	Yes/No
1. No evidence of structural deterioration. See details on PCSM-3 for replacement specifications.	Ongoing		
F. Repair, aerate, regrade or replace to maintain infiltration. Consult with landscaper as needed. See PCSM-3 for details if replacement required.	Ongoing		
3. Sumped Stormwater Structures			
A. Grate and inlet screens unobstructed (inlets)	2 times per year	Yes/No	Yes/No
B. Inlets and outlets clear of debris	2 times per year	Yes/No	Yes/No
C. Sediment at least 6" below outfall pipe invert	2 times per year	Yes/No	Yes/No
D. Inspect for evidence of structural deterioration Repair or replace to maintain designed operation.	2 times per year	Yes/No	Yes/No
4 Trees and plantings			
A. Live and hardy/Replace if dead	1 time per year	Yes/No	Yes/No
B. Properly Trimmed	1 time per year	Yes/No	Yes/No
C. Mulch and "saucer" sufficient	1 time per year	Yes/No	Yes/No
5. Soil Amendment Areas			
A. Debris and Sediment			
1. Contributing area clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Drainage Area Stabilization			
1. Contributing area stabilized, no erosion evident	2 times per year	Yes/No	Yes/No
C. Vegetative Cover			
1. Vegetation covers entire area to required density	2 times per year	Yes/No	Yes/No
2. Vegetation is in good condition, no evidence of weeds or invasive plants	2 times per year	Yes/No	Yes/No
D. Revegetate as necessary to maintain pervious cover. Soil restoration process may need to be repeated over time due to compaction by use or settling.			
6. Roof Gutter Guards/Filters			
A. Debris and Sediment			
1. Contributing rooftop clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Inspect for evidence of clogging	2 times per year	Yes/No	Yes/No
7. Inlet Water Quality Inserts/ Filters			
A. Removal of oil, floatable trash and debris.	2 times per year	Yes/No	Yes/No

B. Removal of collected sediments from manhole sump	2 times per year	Yes/No	Yes/No
C. Rinsing and re-installing the filter cartridges	2 times per year	Yes/No	Yes/No
D. Manufacturer recommended maintenance, as needed	2 times per year	Yes/No	Yes/No
8. Minimize Total Disturbed Area - Grading(BMP 5.6.1)			
A. Area is not be be graded. Existing soil not be be moved.	Ongoing	Yes/No	Yes/No
B. Existing healthy native vegetation may not be removed. Future grading or disturbance in this area will require stormwater management to address disturbance.	Ongoing	Yes/No	Yes/No
9. Infiltration BMP			
A. Debris and Sediment			
1. Contributing area clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Drainage Area Stabilization			
1. Contributing area stabilized, no erosion evident	2 times per year	Yes/No	Yes/No
C. Oil and Grease			
1. Activities in drainage areas minimize oil and grease contamination potential.	Ongoing	Yes/No	Yes/No
D. Vegetative Cover			
1. Vegetation covers entire area to required density	2 times per year	Yes/No	Yes/No
2. Vegetation is in good condition, no evidence of weeds or invasive plants	2 times per year	Yes/No	Yes/No
E. Structural Components (Berm, Riser, Spillway)	2 times per year	Yes/No	Yes/No
1. No evidence of structural deterioration. See details on PCSM-3 for replacement specifications.	Ongoing		
F. Repair, aerate, regrade or replace to maintain infiltration. Consult with landscaper as needed. See PCSM-3 for details if replacement required.	Ongoing		
10. Vegetated Swale			
A. Debris and Sediment			
1. Contributing area clean of debris and sediment	2 times per year	Yes/No	Yes/No
B. Drainage Area Stabilization			
1. Contributing area stabilized, no erosion evident	2 times per year	Yes/No	Yes/No
C. Oil and Grease			
1. Activities in drainage areas minimize oil and grease contamination potential.	Ongoing	Yes/No	Yes/No
D. Vegetative Cover			
1. Vegetation covers entire area to required density	2 times per year	Yes/No	Yes/No
2. Vegetation is in good condition, no evidence of weeds or invasive plants	2 times per year	Yes/No	Yes/No
Repair or replace to maintain designed operation. See details on PCSM-3 for replacement specifications.	Ongoing	Yes/No	Yes/No
11. Turf Reinforcement Mat			
A. Repair or replace to maintain designed operation.	1 time per year	Yes/No	Yes/No
12. Rip-Rap Apron			
A. Length, Width, shape and composition of the rip-rap aprons matches design criteria after construction and before/after flow events.	2 times per year	Yes/No	Yes/No
B. Inspect apron for displacement of rip-rap and damage to the underlying fabric	2 times per year	Yes/No	Yes/No
C. Observe and document any scour or other erosion in the vicinity of the rip-rap apron	2 times per year	Yes/No	Yes/No
D. Note any accumulation of woody or other debis at the outlet or within the apron structure	2 times per year	Yes/No	Yes/No
E. Inspect culvert or ditch inlet on flow areas for accumulations of woody or other debris	2 times per year	Yes/No	Yes/No

A written report is to be kept for all inspection and repair activities, and is to be available for review by the municipality, the Conservation District or PA DEP.

Appendix G:

Stormwater Calculations for LVPC

BASIN A modeling

The initial model using the contour area of 79,915 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 290.00').

1.0' is 30% void space, from 289.00 to 290.00 with an area of 79,915.

79,915 x 1 x 30% = 23,974 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP A

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	288.00	0	0.000	0.000
1	2.00	290.00	35,965	23,974	23,974
2	2.01	290.01	79,915	565	24,539
3	4.00	292.00	88,068	167,061	191,600
4	6.00	294.00	96,468	184,454	376,054
5	8.00	296.00	105,115	201,501	577,555
6					
7					

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Friday, 09 / 20 / 2024

Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
2.00	290.00	35,965	23,974	23,974
2.01	290.01	79,915	565	24,539
4.00	292.00	88,068	167,061	191,600
6.00	294.00	96,468	184,454	376,054
8.00	296.00	105,115	201,501	577,555

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 95.00	0.00	0.00	0.00
Slope (%)	= 1.32	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	Yes	No

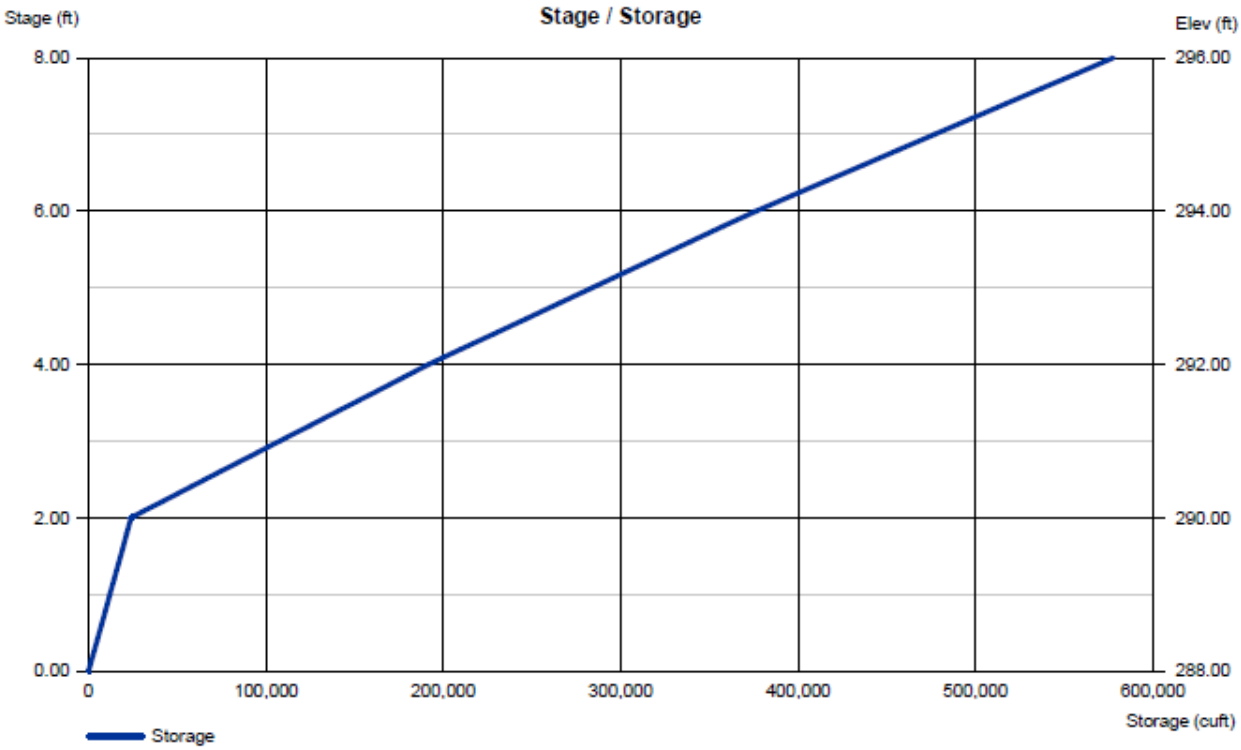
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN B modeling

The initial model using the contour area of 76,441 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 286.00').

1.0' is 30% void space, from 285.00 to 286.00 with an area of 76,441.

76,441 x 1 x 30% = 22,932 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP B

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	284.00	0	0.000	0.000
1	2.00	286.00	34,400	22,931	22,931
2	2.01	286.01	76,441	540	23,471
3	4.00	288.00	87,488	162,969	186,441
4	6.00	290.00	95,788	183,195	369,636
5	8.00	292.00	104,371	200,078	569,713
6					

Fill

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Friday, 09 / 20 / 2024

Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
2.00	286.00	34,400	22,931	22,931
2.01	286.01	76,441	540	23,471
4.00	288.00	87,488	162,969	186,441
6.00	290.00	95,788	183,195	369,636
8.00	292.00	104,371	200,078	569,713

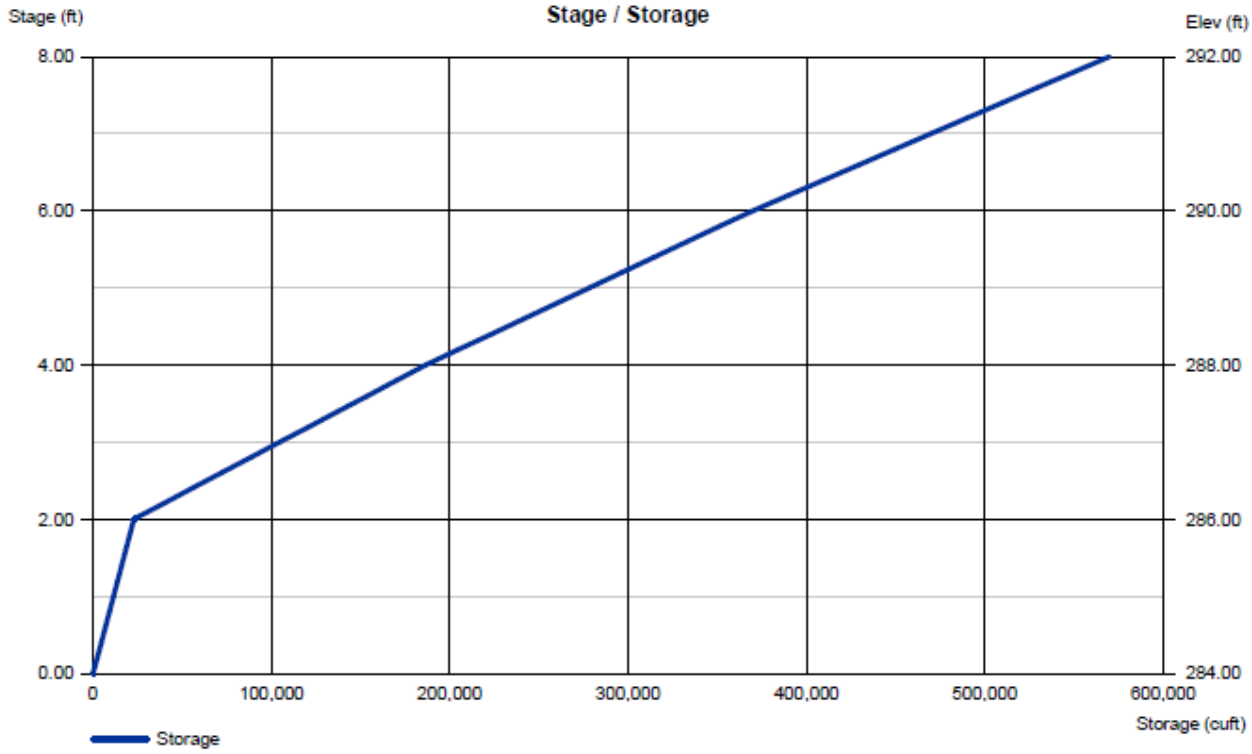
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 2.99	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN C modeling

The initial model using the contour area of 115,916 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 216.00').

1.0' is 30% void space, from 215.00 to 216.00 with an area of 115,916.

115,916 x 1 x 30% = 37,774 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP C

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	212.00	0	0.000	0.000
1	4.00	216.00	28,333	37,774	37,774
2	4.01	216.01	115,916	672	38,445
3	6.00	218.00	126,194	240,803	279,248
4	8.00	220.00	136,697	262,795	542,043
5	10.00	222.00	147,725	284,322	826,365
6	12.00	224.00	158,385	306,018	1,132,383
7					

Fill

Pond Report

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Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
4.00	216.00	28,333	37,774	37,774
4.01	216.01	115,916	672	38,445
6.00	218.00	126,194	240,803	279,248
8.00	220.00	136,697	262,795	542,043
10.00	222.00	147,725	284,322	826,365
12.00	224.00	158,385	306,018	1,132,383

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	4.00	8.00	0.00
Span (in)	= 24.00	4.00	8.00	0.00
No. Barrels	= 1	6	4	0
Invert El. (ft)	= 215.00	215.00	218.00	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

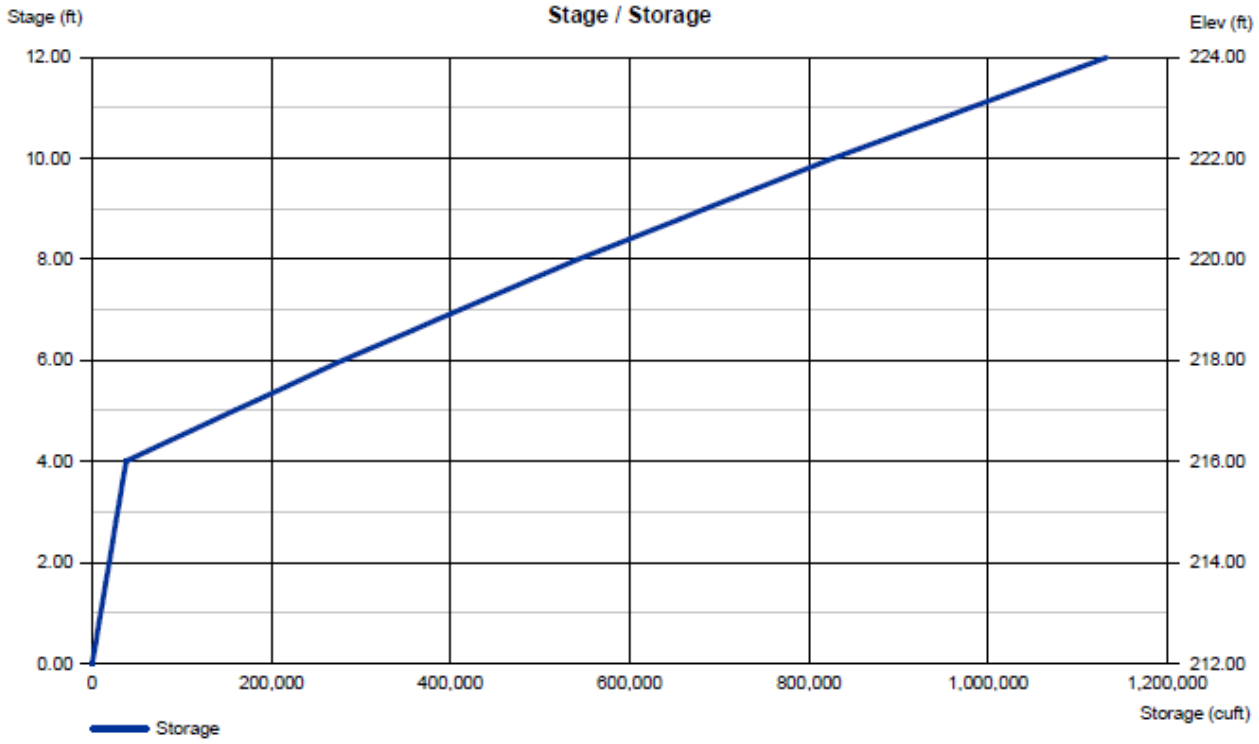
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



BASIN E modeling

The initial model using the contour area of 8,762 sq. ft. for the basin bottom as well as the top of fill media (i.e., contour 256.00').

1.0' is 30% void space, from 255.00 to 256.00 with an area of 8,762.

8,762 x 1 x 30% = 2,629 cu. ft.

This was then approximated by artificially adjusting the contour areas to achieve the noted volumes. Some volume was not utilized leaving the calculations slightly conservative.

The remaining contours are reflective of the surface design conditions.

Pond Name: BMP E

Row	Stage	Elevation	Contour Area	Incremental Storage	Total Storage
	(ft)	(ft)	(sqft)	(cuft)	(cuft)
0	0.00	252.00	0	0.000	0.000
1	4.00	256.00	1,972	2,629	2,629
2	4.01	256.01	8,762	49.6	2,679
3	6.00	258.00	11,385	19,987	22,666
4	8.00	260.00	14,240	25,569	48,235
5	10.00	262.00	17,331	31,517	79,753
6					

Fill

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Friday, 09 / 20 / 2024

Pond No. 4 - BMP E

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 252.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	252.00	00	0	0
4.00	256.00	1,972	2,629	2,629
4.01	256.01	8,762	50	2,679
6.00	258.00	11,385	19,987	22,666
8.00	260.00	14,240	25,569	48,235
10.00	262.00	17,331	31,517	79,753

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.00	4.00	0.00
Span (in)	= 24.00	3.00	4.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 255.00	255.00	257.65	0.00
Length (ft)	= 3.18	0.00	0.00	0.00
Slope (%)	= 5.42	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	Yes	No

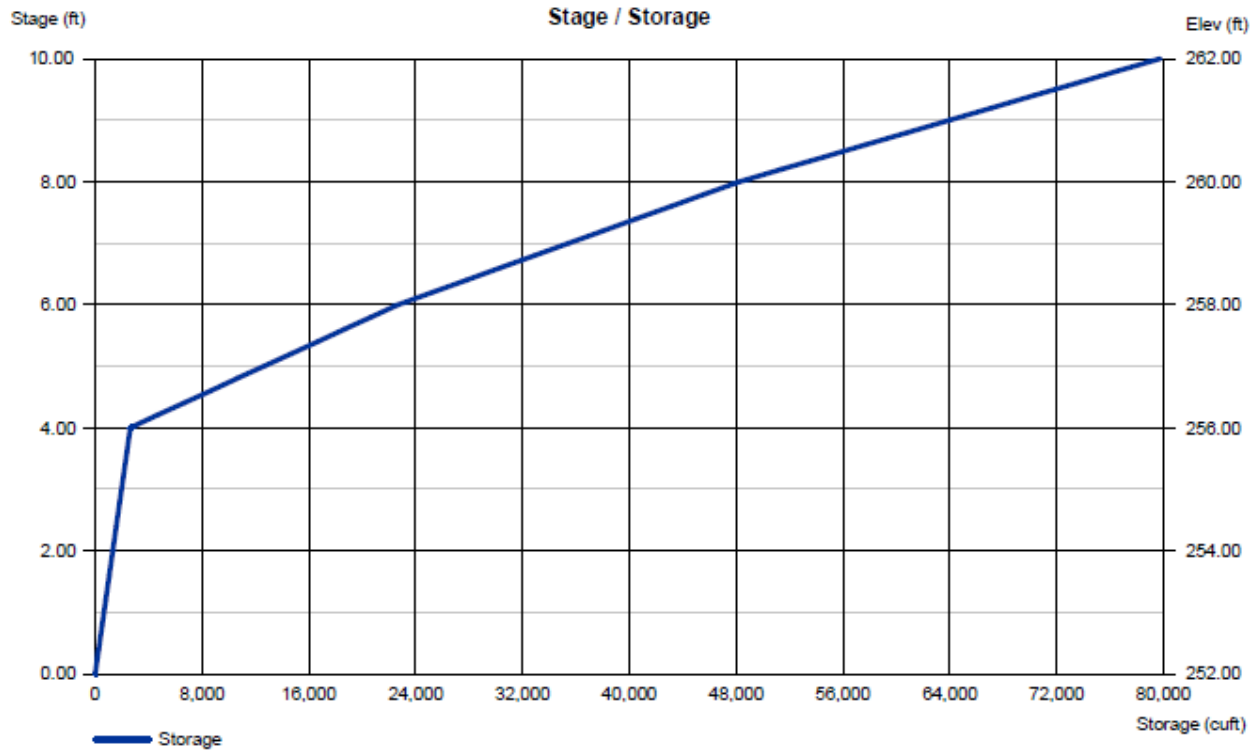
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 259.50	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

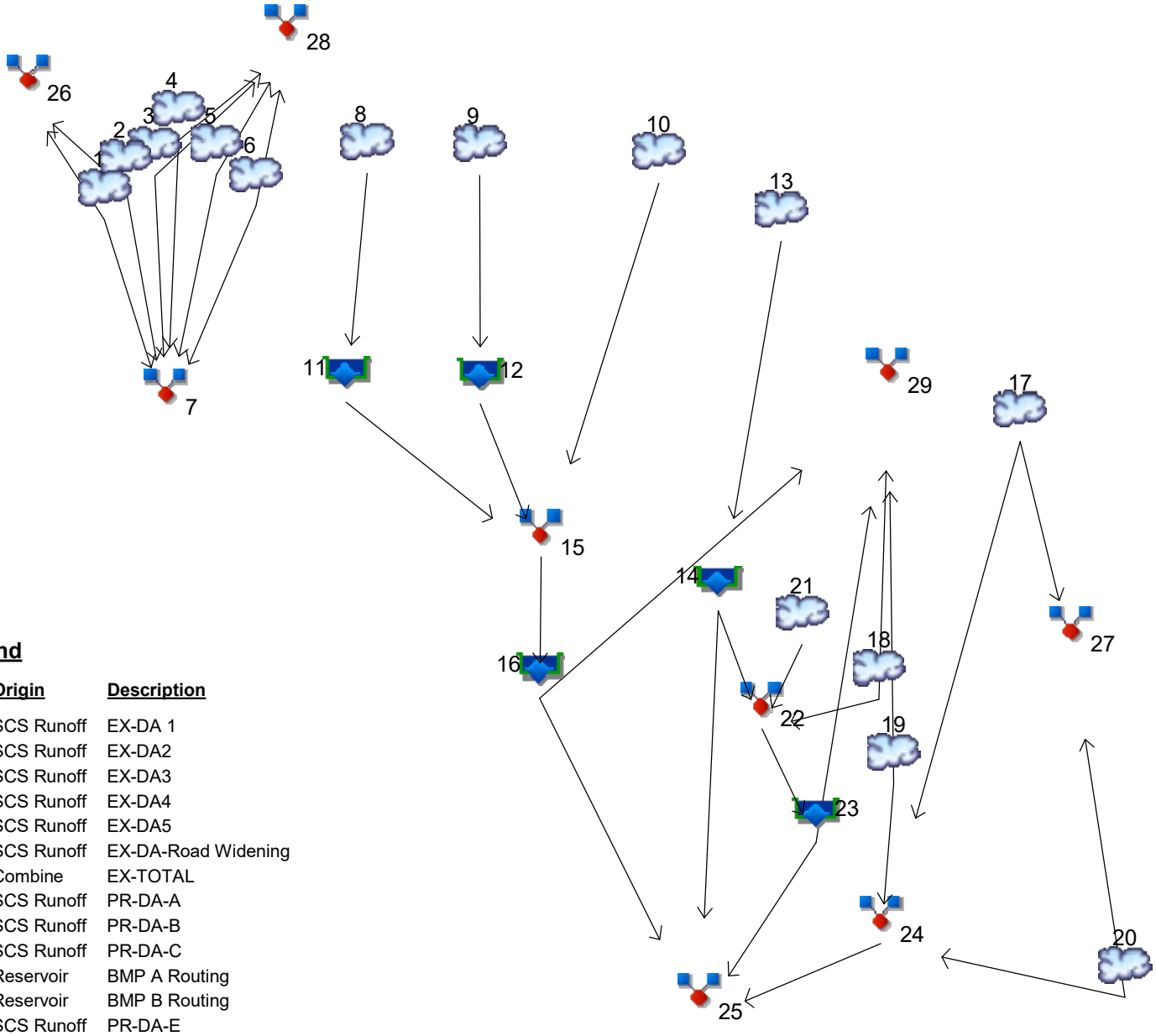
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



PROJECT SUMMARY				
OVERALL PROJECT SITE				
DESIGN STORM	EXISTING (CFS) HYDROGRAPH 7	CRITERIA	ALLOWABLE RATE (CFS)	PROPOSED (CFS) HYDROGRAPH 25
1YR	16.07	N/A	N/A	3.67
2YR	31.95	< 30% OF EXISITNG 2YR	8.26	6.33
5YR	55.33	N/A	N/A	11.14
10YR	105.30	N/A	N/A	25.63
25YR	165.60	N/A	N/A	47.46
50YR	232.41	N/A	N/A	100.98
100YR	303.92	N/A	N/A	137.88

Watershed Model Schematic

24-hour storm modeling using type II distribution for LVPC



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX-DA 1
2	SCS Runoff	EX-DA2
3	SCS Runoff	EX-DA3
4	SCS Runoff	EX-DA4
5	SCS Runoff	EX-DA5
6	SCS Runoff	EX-DA-Road Widening
7	Combine	EX-TOTAL
8	SCS Runoff	PR-DA-A
9	SCS Runoff	PR-DA-B
10	SCS Runoff	PR-DA-C
11	Reservoir	BMP A Routing
12	Reservoir	BMP B Routing
13	SCS Runoff	PR-DA-E
14	Reservoir	BMP E Routing
15	Combine	BMP C INFLOW
16	Reservoir	MRC BMP C Routing(DP1)
17	SCS Runoff	PR-BYPASS 1
18	SCS Runoff	PR RG
19	SCS Runoff	PR-BYPASS 2
20	SCS Runoff	PR-BYPASS 3
21	SCS Runoff	PR-Road Widening
22	Combine	BMP E Outflow + PR Road Widening
23	Reservoir	RG Routing (DP2)
24	Combine	PR-BYPASS
25	Combine	PROPOSED ENTIRE SITE (POI)
26	Combine	EX-to- Bushkill
27	Combine	PR-to-Bushkill
28	Combine	EX-to-UNT
29	Combine	PR-to-UNT (DPs 001& 002)

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	0.129	1.184	-------	5.145	16.00	30.73	47.55	65.95	EX-DA 1
2	SCS Runoff	------	3.627	8.484	-------	14.28	24.81	36.44	48.90	62.09	EX-DA2
3	SCS Runoff	------	1.271	6.047	-------	13.66	30.08	49.39	70.69	93.46	EX-DA3
4	SCS Runoff	------	9.002	14.39	-------	20.23	30.33	40.87	51.62	62.50	EX-DA4
5	SCS Runoff	------	0.009	0.051	-------	0.282	1.919	5.040	9.211	14.14	EX-DA5
6	SCS Runoff	------	2.945	4.333	-------	5.779	8.154	10.56	12.98	15.39	EX-DA-Road Widening
7	Combine	1, 2, 3, 4, 5, 6	16.07	31.95	-------	55.33	105.30	165.60	232.41	303.92	EX-TOTAL
8	SCS Runoff	------	37.88	48.40	-------	58.85	75.45	91.97	108.42	124.84	PR-DA-A
9	SCS Runoff	------	47.87	61.17	-------	74.37	95.35	116.22	137.01	157.76	PR-DA-B
10	SCS Runoff	------	70.60	96.15	-------	121.84	162.91	203.76	244.36	284.74	PR-DA-C
11	Reservoir	8	0.677	0.743	-------	0.803	0.894	0.979	1.056	1.125	BMP A Routing
12	Reservoir	9	1.058	1.169	-------	1.273	1.429	1.567	1.735	2.243	BMP B Routing
13	SCS Runoff	------	11.08	16.85	-------	22.97	33.49	44.31	55.27	66.27	PR-DA-E
14	Reservoir	13	0.320	0.700	-------	0.992	1.338	7.733	25.46	31.89	BMP E Routing
15	Combine	10, 11, 12,	72.15	97.82	-------	123.64	164.88	205.90	246.67	287.19	BMP C INFLOW
16	Reservoir	15	2.896	4.410	-------	5.905	7.953	9.544	10.91	12.11	MRC BMP C Routing(DP1)
17	SCS Runoff	------	1.516	3.812	-------	6.515	11.45	16.92	22.74	28.81	PR-BYPASS 1
18	SCS Runoff	------	0.739	1.385	-------	2.116	3.404	4.786	6.265	7.790	PR RG
19	SCS Runoff	------	0.000	0.016	-------	0.066	0.941	3.522	7.200	11.53	PR-BYPASS 2
20	SCS Runoff	------	0.237	0.999	-------	2.116	4.244	6.676	9.325	12.13	PR-BYPASS 3
21	SCS Runoff	------	4.753	5.984	-------	7.211	9.169	11.12	13.07	15.02	PR-Road Widening
22	Combine	14, 18, 21	5.457	7.356	-------	9.830	13.53	17.54	41.50	53.64	BMP E Outflow + PR Road Widening
23	Reservoir	22	0.440	1.027	-------	2.119	9.117	17.11	39.43	51.29	RG Routing (DP2)
24	Combine	17, 19, 20,	1.671	4.628	-------	8.420	15.91	26.13	38.24	51.46	PR-BYPASS
25	Combine	14, 16, 23, 24	3.669	6.325	-------	11.14	25.63	47.46	100.98	137.88	PROPOSED ENTIRE SITE (POI)
26	Combine	1, 2,	3.627	9.106	-------	18.35	39.60	65.97	95.39	126.98	EX-to- Bushkill
27	Combine	17, 20,	1.671	4.628	-------	8.420	15.48	23.40	31.91	40.84	PR-to-Bushkill
28	Combine	3, 4, 5, 6,	12.48	22.84	-------	36.98	65.70	99.62	137.03	176.94	EX-to-UNT
29	Combine	16, 18, 19, 23,	3.303	5.415	-------	8.895	20.55	32.40	61.15	79.07	PR-to-UNT (DPs 001& 002)

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.129	2	896	4,430	------	------	------	EX-DA 1
2	SCS Runoff	3.627	2	724	13,895	------	------	------	EX-DA2
3	SCS Runoff	1.271	2	736	15,096	------	------	------	EX-DA3
4	SCS Runoff	9.002	2	722	24,306	------	------	------	EX-DA4
5	SCS Runoff	0.009	2	1440	144	------	------	------	EX-DA5
6	SCS Runoff	2.945	2	720	7,701	------	------	------	EX-DA-Road Widening
7	Combine	16.07	2	722	65,571	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	37.88	2	716	82,858	------	------	------	PR-DA-A
9	SCS Runoff	47.87	2	716	104,708	------	------	------	PR-DA-B
10	SCS Runoff	70.60	2	718	162,535	------	------	------	PR-DA-C
11	Reservoir	0.677	2	948	70,851	8	290.44	60,501	BMP A Routing
12	Reservoir	1.058	2	898	93,228	9	286.62	73,046	BMP B Routing
13	SCS Runoff	11.08	2	718	22,169	------	------	------	PR-DA-E
14	Reservoir	0.320	2	916	18,858	13	257.10	13,608	BMP E Routing
15	Combine	72.15	2	718	326,613	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	2.896	2	1086	283,871	15	216.79	133,049	MRC BMP C Routing(DP1)
17	SCS Runoff	1.516	2	718	4,390	------	------	------	PR-BYPASS 1
18	SCS Runoff	0.739	2	720	1,926	------	------	------	PR RG
19	SCS Runoff	0.000	2	n/a	0	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.237	2	722	1,534	------	------	------	PR-BYPASS 3
21	SCS Runoff	4.753	2	718	12,217	------	------	------	PR-Road Widening
22	Combine	5.457	2	718	33,001	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	0.440	2	948	19,987	22	232.67	13,534	RG Routing (DP2)
24	Combine	1.671	2	720	5,924	17, 19, 20,	------	------	PR-BYPASS
25	Combine	3.669	2	1004	328,641	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	3.627	2	724	18,325	1, 2,	------	------	EX-to- Bushkill
27	Combine	1.671	2	720	5,924	17, 20,	------	------	PR-to-Bushkill
28	Combine	12.48	2	722	47,246	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	3.303	2	1034	307,128	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

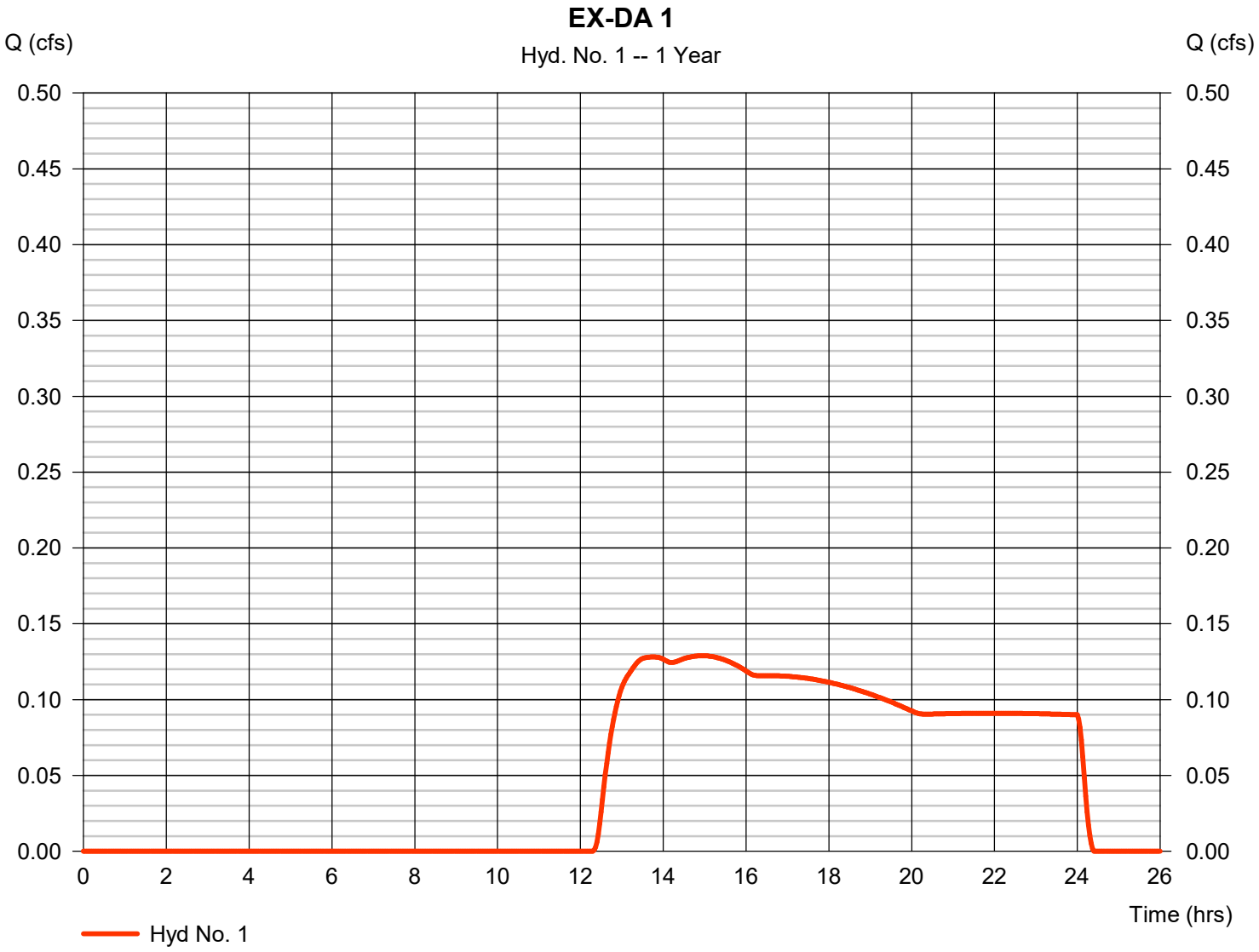
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.129 cfs
Storm frequency	=	1 yrs	Time to peak	=	14.93 hrs
Time interval	=	2 min	Hyd. volume	=	4,430 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



TR55 Tc Worksheet

Hyd. No. 1

EX-DA 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 2.99		0.00		0.00		
Travel Time (min)	**= 11.92**	**+**	**0.00**	**+**	**0.00**	**=**	**11.92**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		363.00		0.00		
Watercourse slope (%)	= 2.99		2.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		2.55		0.00		
Travel Time (min)	**= 0.90**	**+**	**2.37**	**+**	**0.00**	**=**	**3.27**
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		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 15.20 min

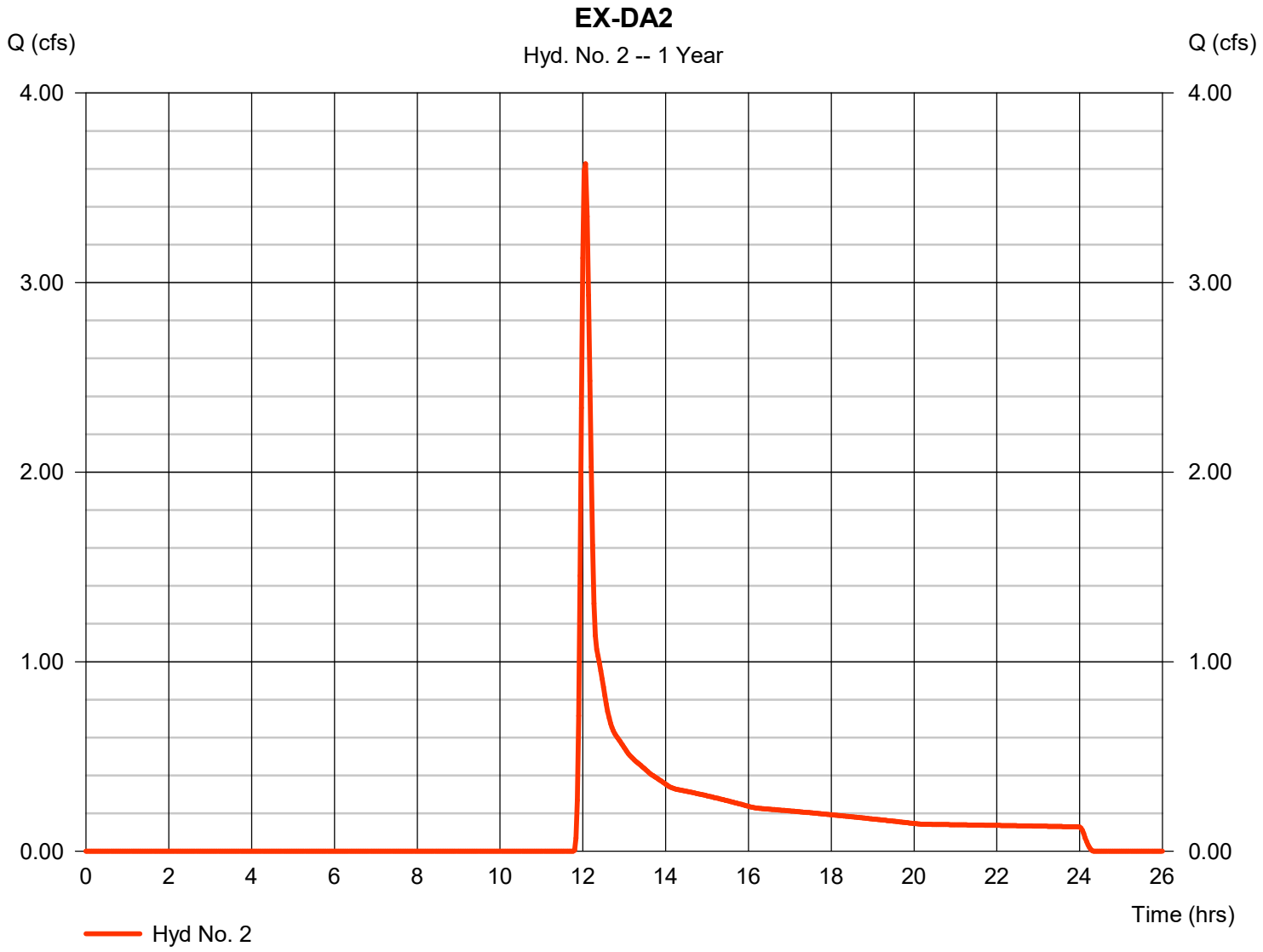
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.627 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	13,895 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



TR55 Tc Worksheet

Hyd. No. 2

EX-DA2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 9.50		0.00		0.00		
Travel Time (min)	**= 8.30**	**+**	**0.00**	**+**	**0.00**	**=**	**8.30**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		200.00		886.00		
Watercourse slope (%)	= 9.50		5.00		7.50		
Surface description	= Unpaved		Unpaved		Unpaved		
Average velocity (ft/s)	=4.97		3.61		4.42		
Travel Time (min)	**= 0.50**	**+**	**0.92**	**+**	**3.34**	**=**	**4.77**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 13.10 min

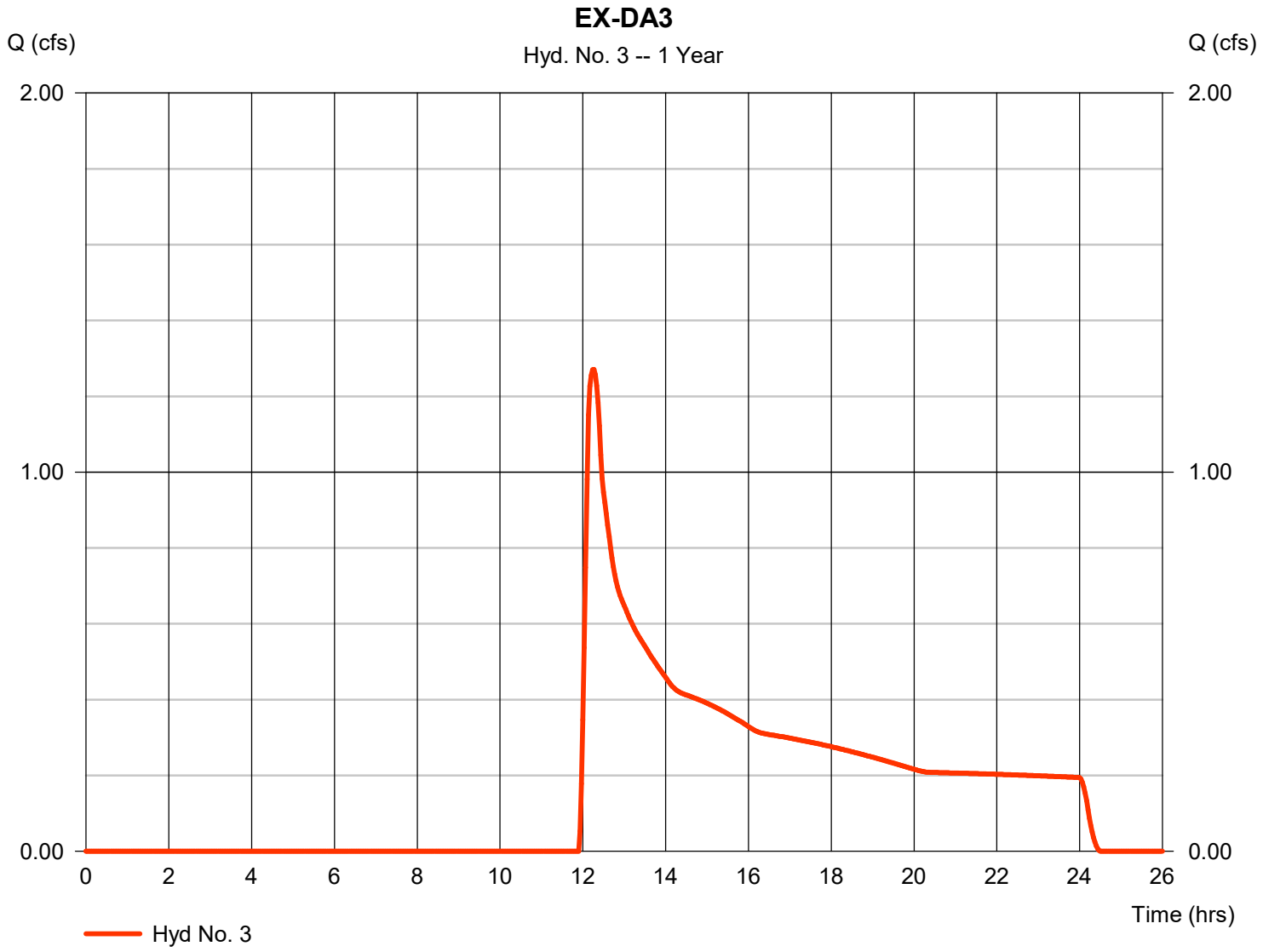
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.271 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	15,096 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



TR55 Tc Worksheet

Hyd. No. 3

EX-DA3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.06		0.00		0.00		
Travel Time (min)	**= 11.81**	**+**	**0.00**	**+**	**0.00**	**=**	**11.81**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		1132.00		0.00		
Watercourse slope (%)	= 3.06		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.82		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**6.25**	**+**	**0.00**	**=**	**7.14**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 18.90 min

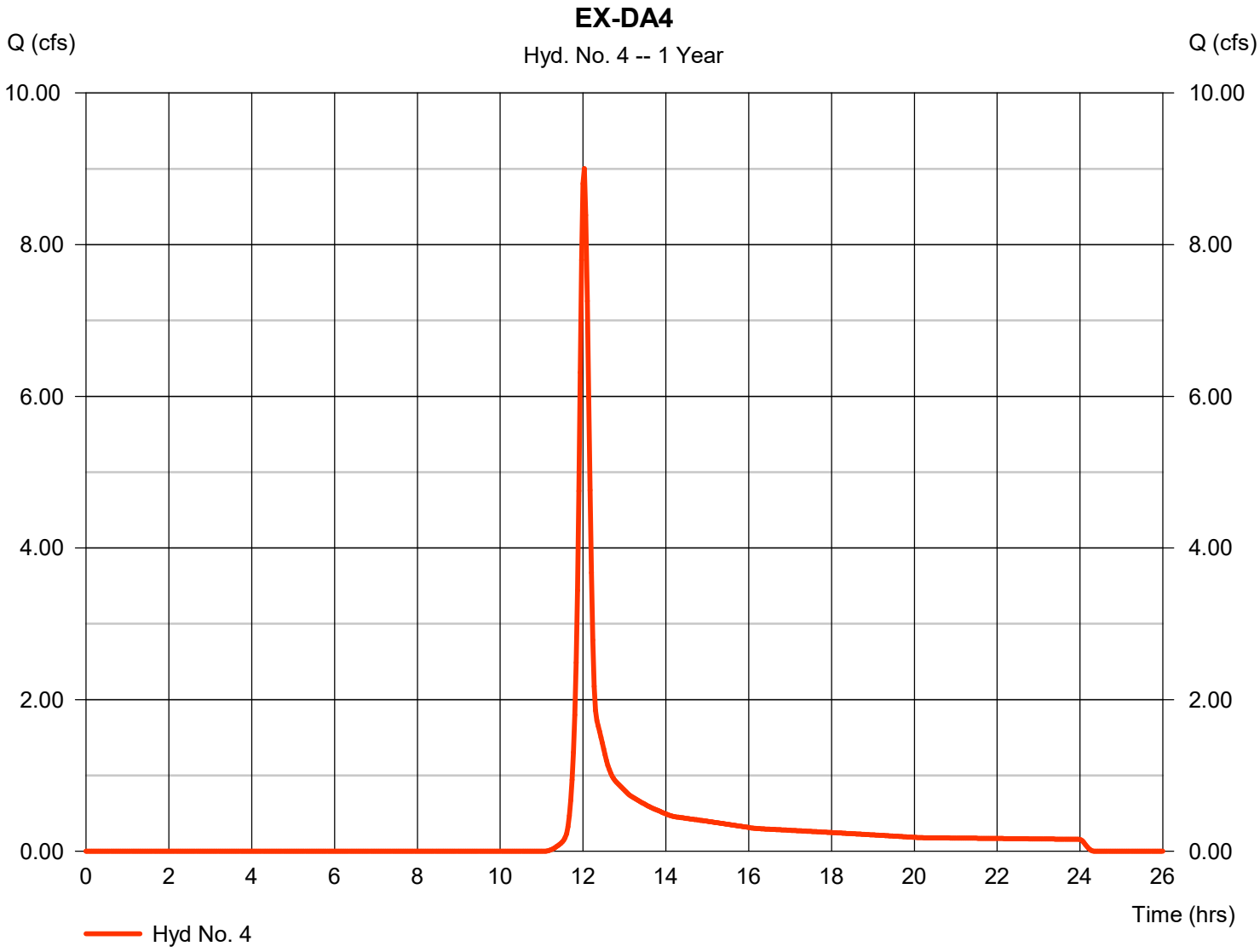
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.002 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	24,306 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



TR55 Tc Worksheet

Hyd. No. 4

EX-DA4

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.130		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 5.00		0.00		0.00		
Travel Time (min)	**= 8.65**	**+**	**0.00**	**+**	**0.00**	**=**	**8.65**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		539.00		0.00		
Watercourse slope (%)	= 5.00		6.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=3.61		4.11		0.00		
Travel Time (min)	**= 0.69**	**+**	**2.18**	**+**	**0.00**	**=**	**2.88**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 11.50 min

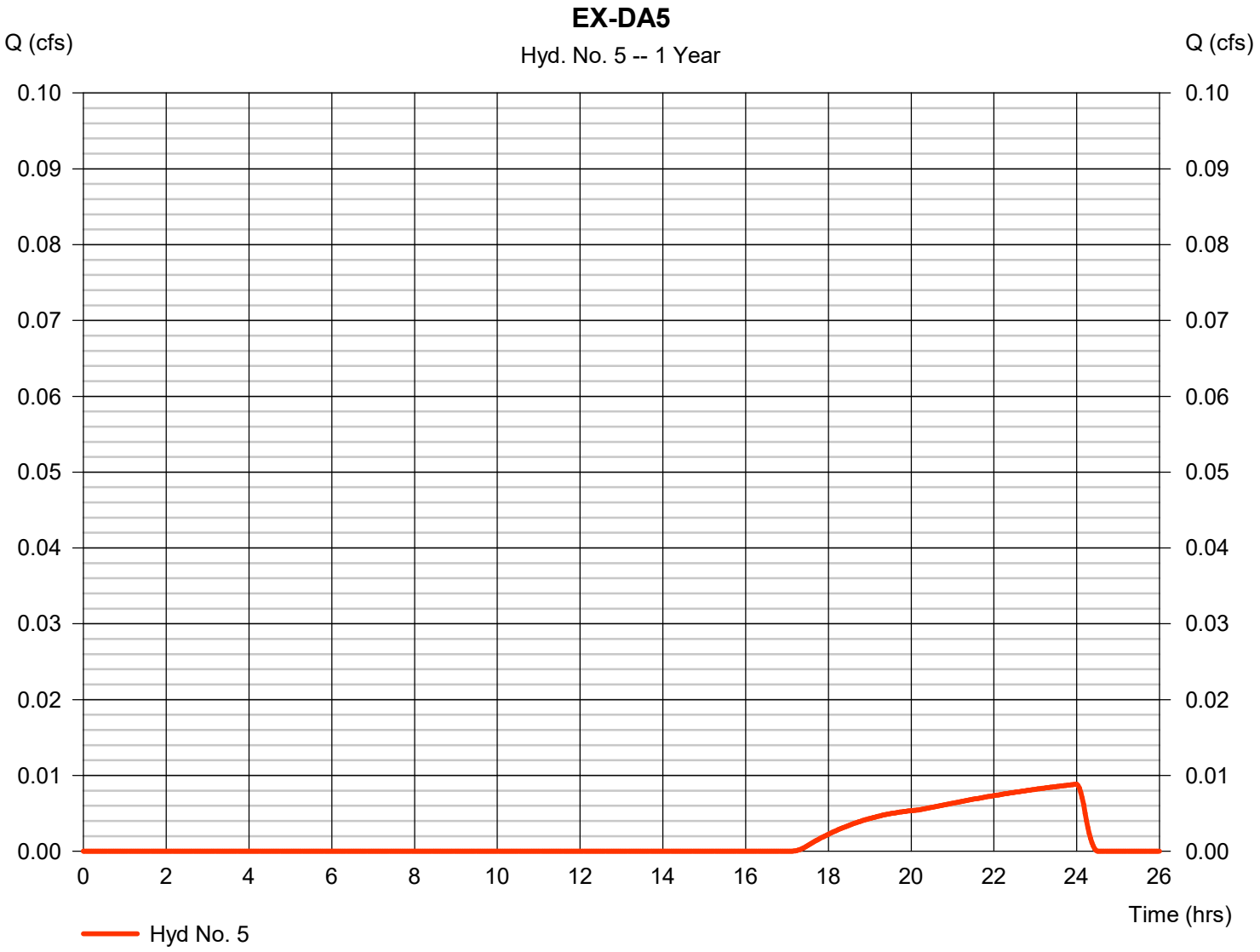
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.009 cfs
Storm frequency	=	1 yrs	Time to peak	=	24.00 hrs
Time interval	=	2 min	Hyd. volume	=	144 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



TR55 Tc Worksheet

Hyd. No. 5

EX-DA5

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 11.90**	**+**	**0.00**	**+**	**0.00**	**=**	**11.90**
Shallow Concentrated Flow							
Flow length (ft)	= 150.00		856.00		0.00		
Watercourse slope (%)	= 3.00		3.50		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		3.02		0.00		
Travel Time (min)	**= 0.89**	**+**	**4.73**	**+**	**0.00**	**=**	**5.62**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 17.50 min

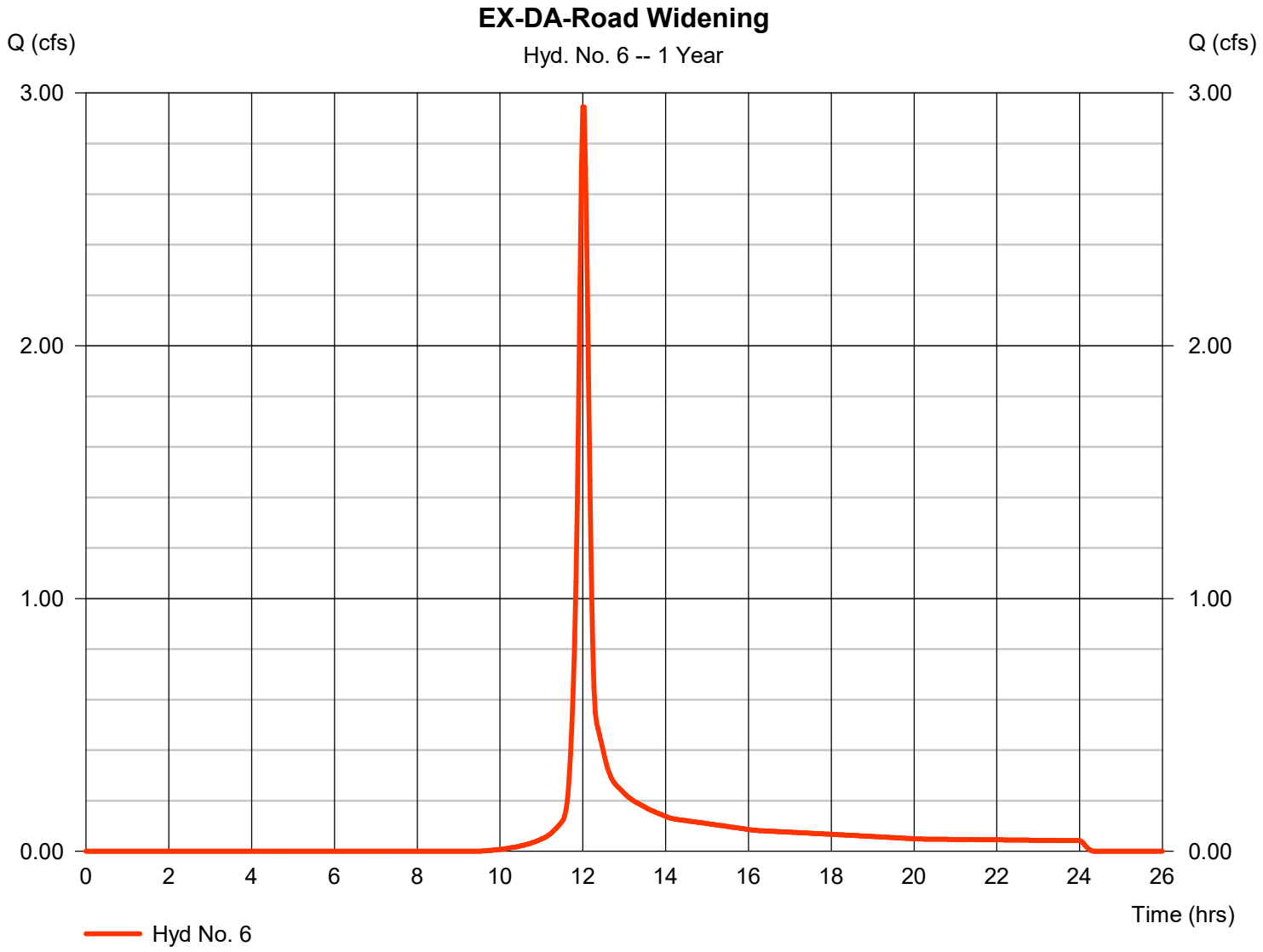
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.945 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,701 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980



TR55 Tc Worksheet

Hyd. No. 6

EX-DA-Road Widening

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 679.00		856.00		0.00		
Watercourse slope (%)	= 1.00		3.50		0.00		
Surface description	= Paved		Unpaved		Paved		
Average velocity (ft/s)	=2.03		3.02		0.00		
Travel Time (min)	**= 5.57**	**+**	**4.73**	**+**	**0.00**	**=**	**10.29**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

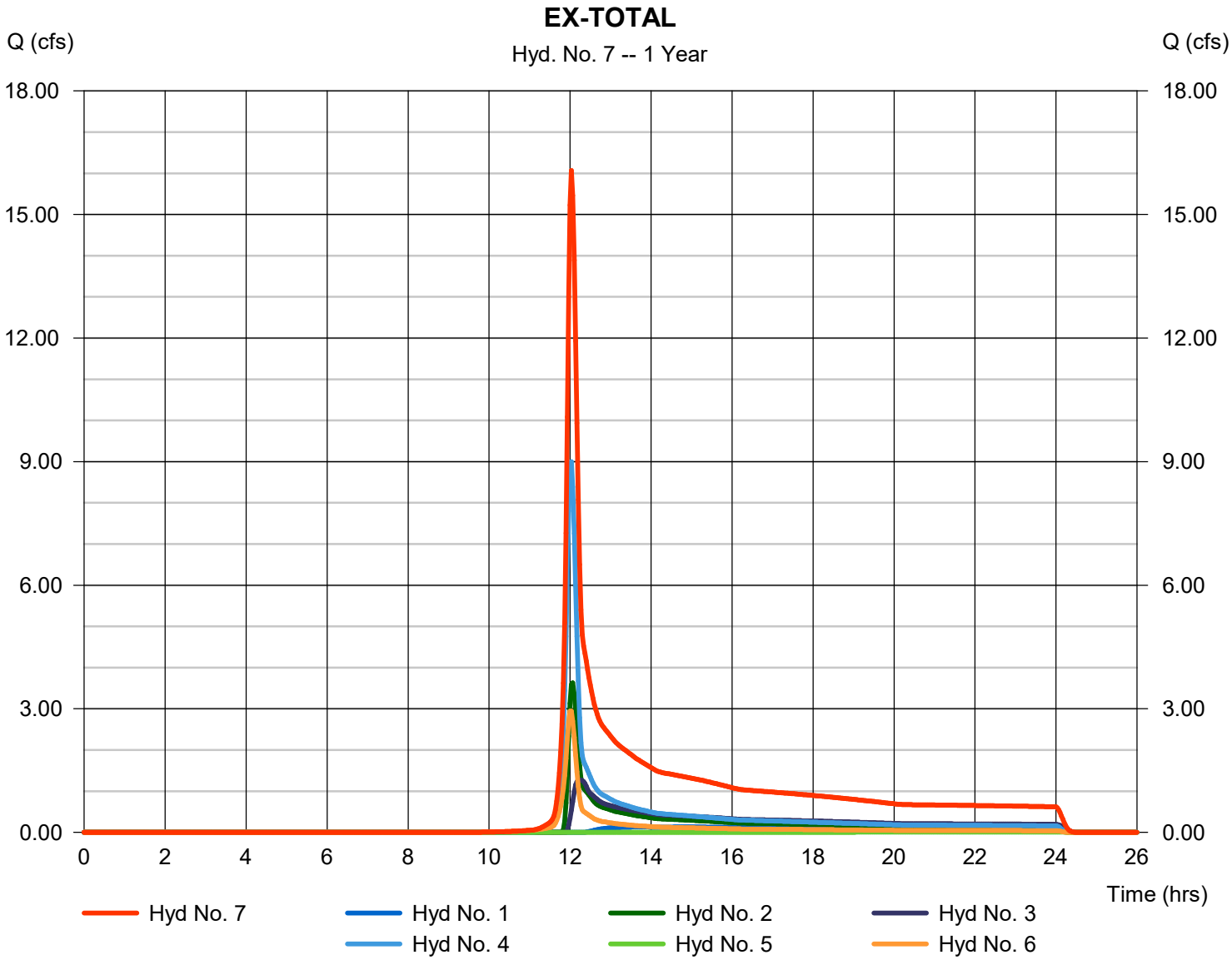
Total Travel Time, Tc ..... 12.60 min

Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	16.07 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	65,571 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



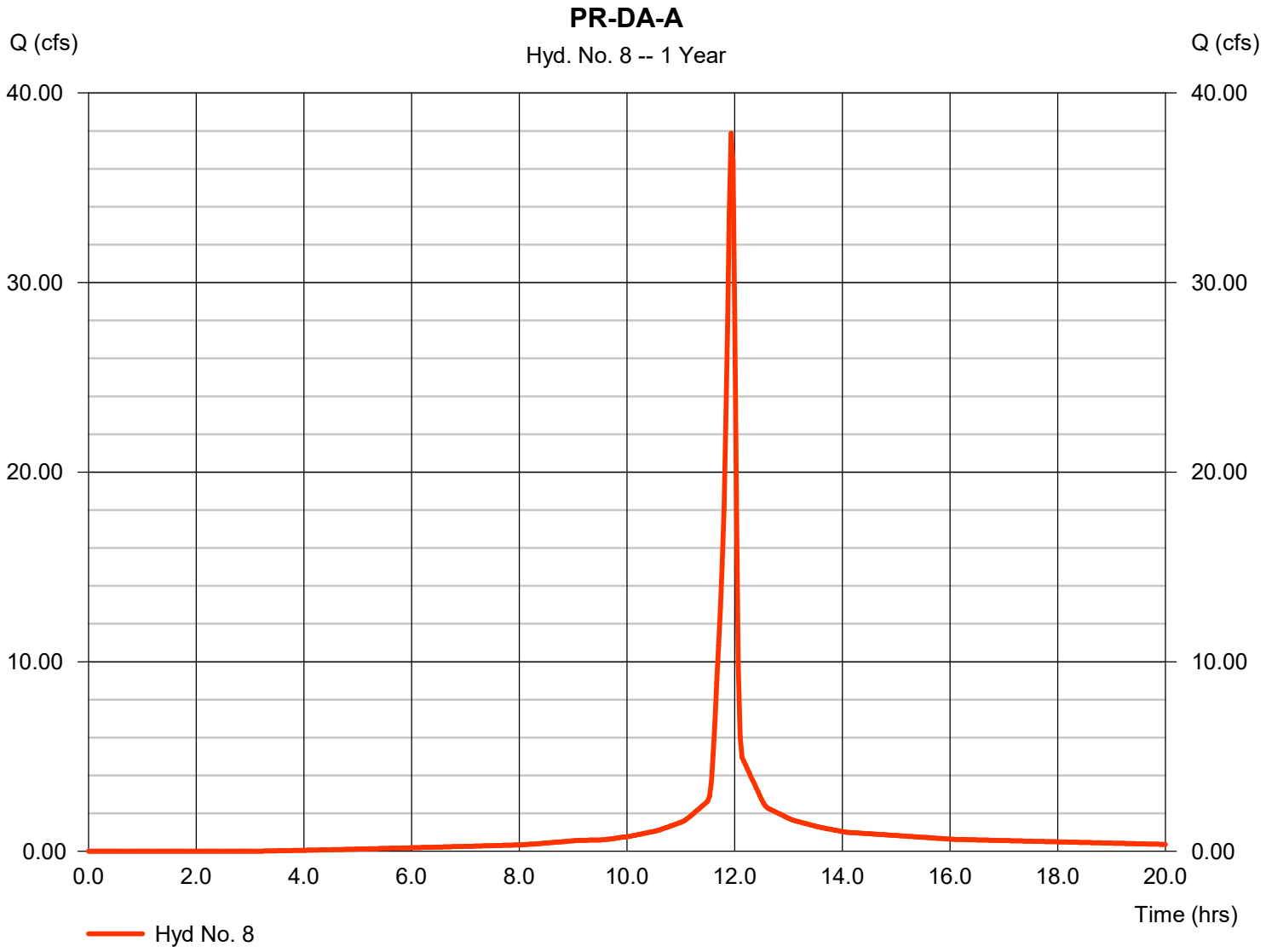
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.88 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	82,858 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



TR55 Tc Worksheet

Hyd. No. 8

PR-DA-A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 160.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.31**	**+**	**0.00**	**+**	**0.00**	**=**	**1.31**
Channel Flow							
X sectional flow area (sqft)	= 0.79		1.77		12.56		
Wetted perimeter (ft)	= 3.14		4.71		12.56		
Channel slope (%)	= 4.00		0.50		10.00		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			5.46				
					47.12		
Flow length (ft)	({0})242.0		764.0		76.0		
Travel Time (min)	**= 0.34**	**+**	**2.33**	**+**	**0.03**	**=**	**2.70**

Total Travel Time, Tc ..... 6.30 min

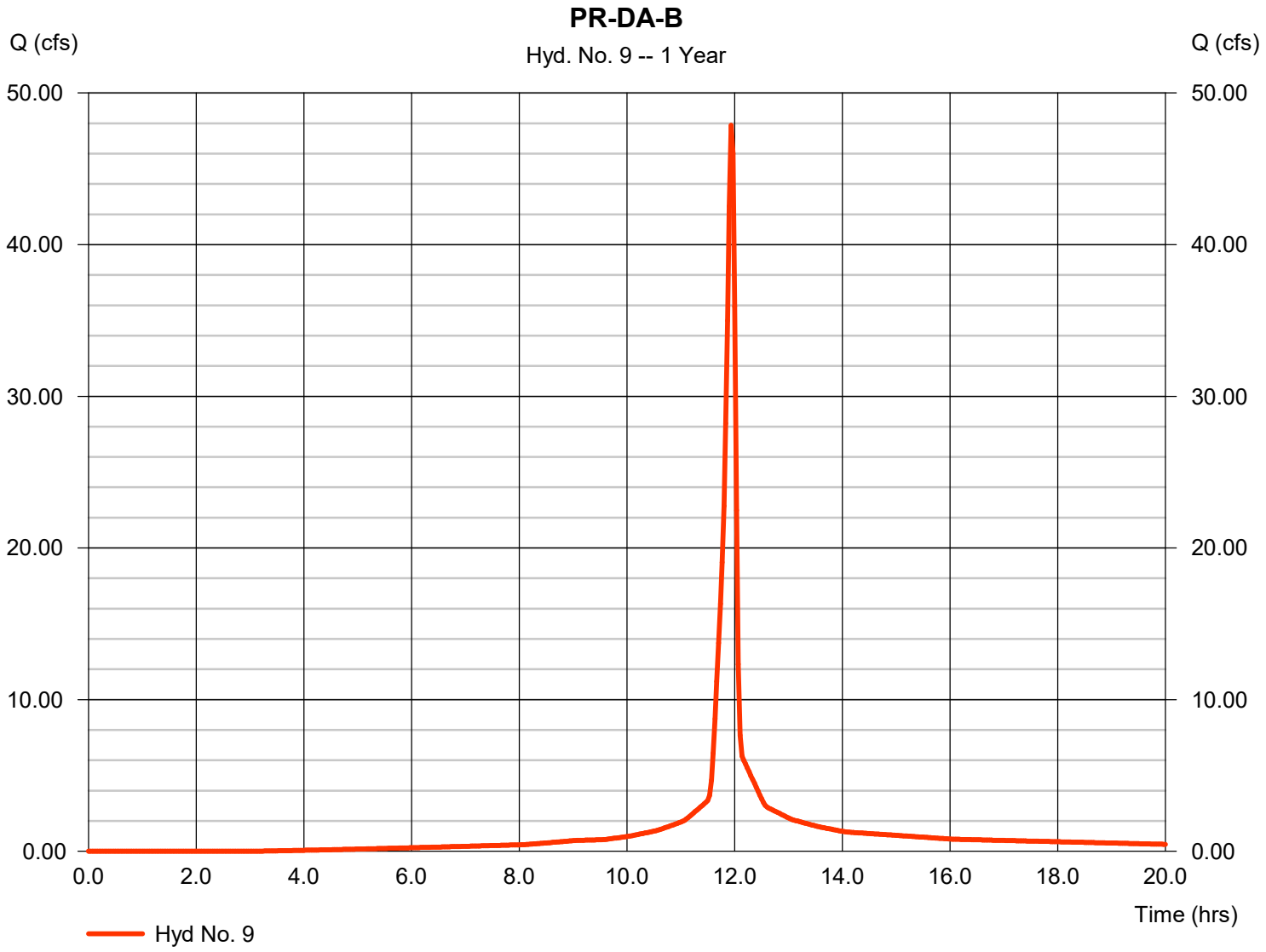
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.87 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	104,708 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



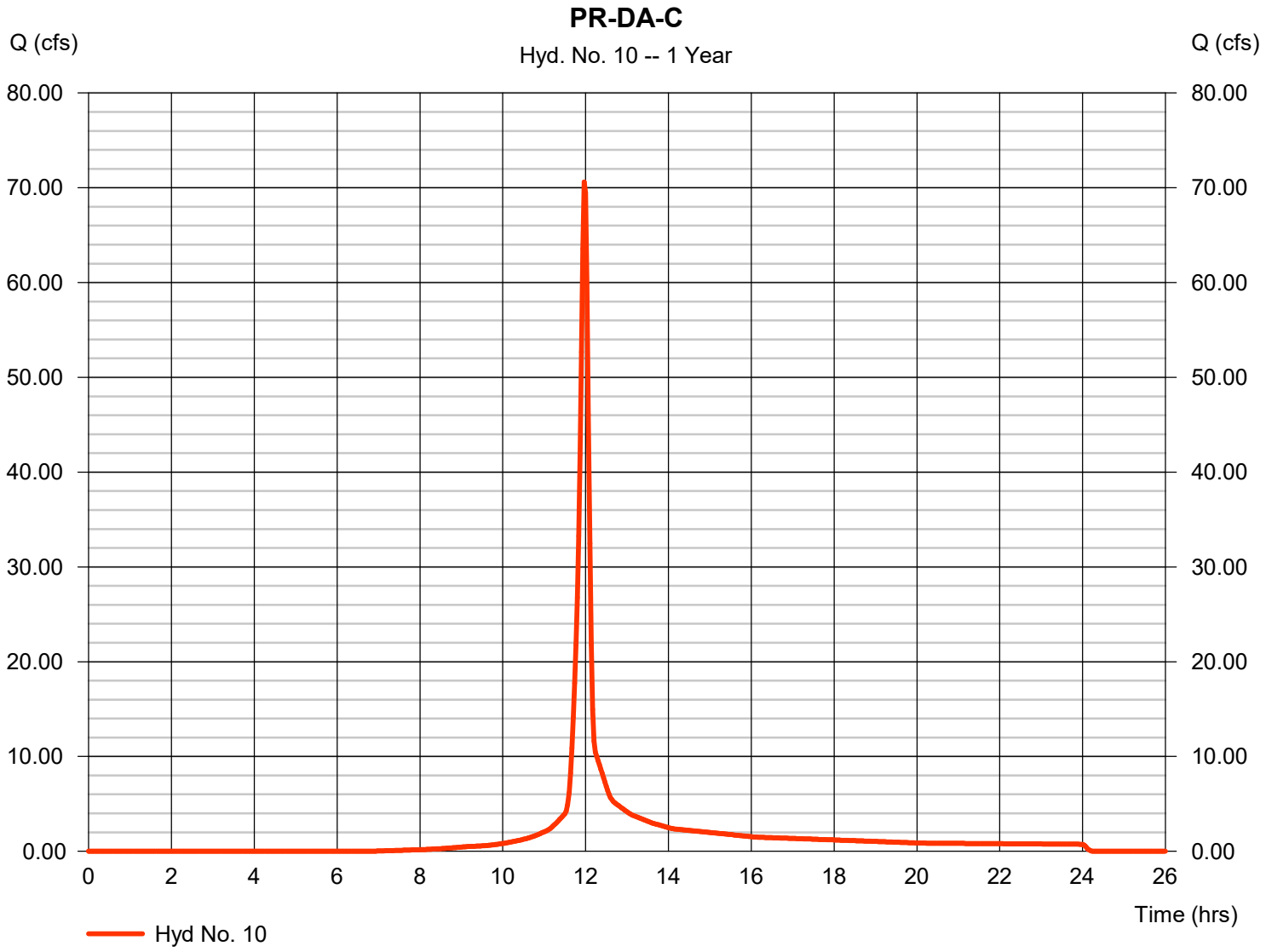
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	70.60 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	162,535 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



TR55 Tc Worksheet

Hyd. No. 10

PR-DA-C

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 2.28**	**+**	**0.00**	**+**	**0.00**	**=**	**2.28**
Shallow Concentrated Flow							
Flow length (ft)	= 224.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 1.84**	**+**	**0.00**	**+**	**0.00**	**=**	**1.84**
Channel Flow							
X sectional flow area (sqft)	= 0.79		7.07		12.56		
Wetted perimeter (ft)	= 3.14		9.42		12.56		
Channel slope (%)	= 4.00		0.50		0.50		
Manning's n-value	= 0.010		0.010		0.010		
Velocity (ft/s)	=11.77						
			8.69				
					10.54		
Flow length (ft)	({0})173.0		563.0		2588.0		
Travel Time (min)	**= 0.24**	**+**	**1.08**	**+**	**4.09**	**=**	**5.42**

Total Travel Time, Tc ..... 9.50 min

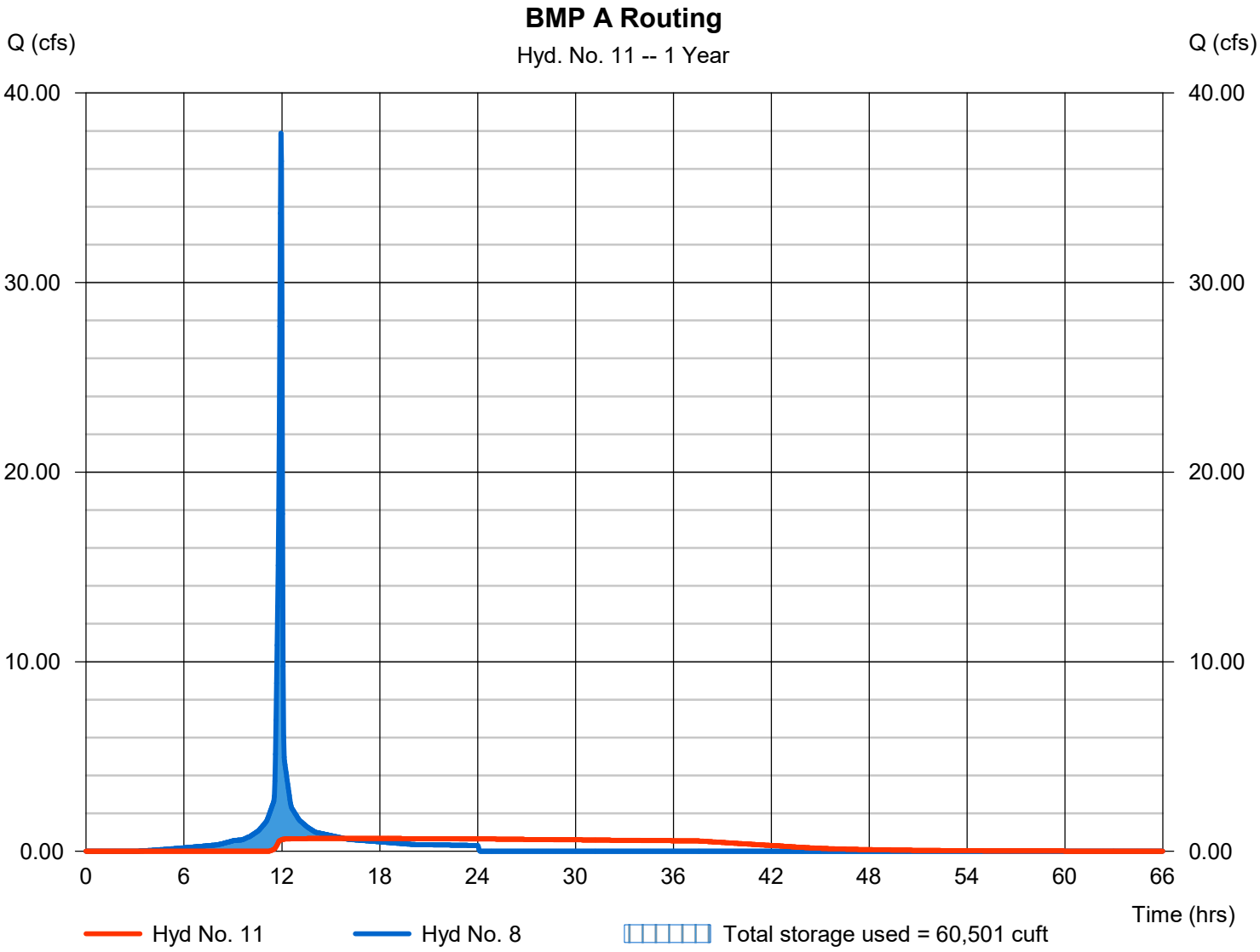
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.677 cfs
Storm frequency	=	1 yrs	Time to peak	=	15.80 hrs
Time interval	=	2 min	Hyd. volume	=	70,851 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.44 ft
Reservoir name	=	BMP A	Max. Storage	=	60,501 cuft

Storage Indication method used.



Pond No. 1 - BMP A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 288.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	288.00	00	0	0
2.00	290.00	35,965	23,974	23,974
2.01	290.01	79,915	565	24,539
4.00	292.00	88,068	167,061	191,600
6.00	294.00	96,468	184,454	376,054
8.00	296.00	105,115	201,501	577,555

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	2	2	0
Invert El. (ft)	= 289.00	289.00	292.70	0.00
Length (ft)	= 242.00	0.00	0.00	0.00
Slope (%)	= 30.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 294.00	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	288.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.20	2,397	288.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	4,795	288.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.60	7,192	288.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	9,590	288.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	11,987	289.00	0.00	0.00 ic	0.00	---	0.00	---	---	---	---	---	0.000
1.20	14,385	289.20	0.12 ic	0.12 ic	0.00	---	0.00	---	---	---	---	---	0.120
1.40	16,782	289.40	0.29 ic	0.28 ic	0.00	---	0.00	---	---	---	---	---	0.281
1.60	19,179	289.60	0.38 ic	0.38 ic	0.00	---	0.00	---	---	---	---	---	0.383
1.80	21,577	289.80	0.48 ic	0.47 ic	0.00	---	0.00	---	---	---	---	---	0.468
2.00	23,974	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	24,031	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.541
2.00	24,087	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	24,144	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.00	24,200	290.00	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.542
2.01	24,257	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	24,313	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.543
2.01	24,370	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	24,426	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	24,483	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.544
2.01	24,539	290.01	0.56 ic	0.54 ic	0.00	---	0.00	---	---	---	---	---	0.545
2.21	41,245	290.21	0.64 ic	0.61 ic	0.00	---	0.00	---	---	---	---	---	0.608
2.41	57,951	290.41	0.69 ic	0.67 ic	0.00	---	0.00	---	---	---	---	---	0.669
2.61	74,657	290.61	0.73 ic	0.72 ic	0.00	---	0.00	---	---	---	---	---	0.725
2.81	91,363	290.81	0.78 ic	0.78 ic	0.00	---	0.00	---	---	---	---	---	0.776
3.01	108,070	291.01	0.84 ic	0.82 ic	0.00	---	0.00	---	---	---	---	---	0.824
3.20	124,776	291.20	0.89 ic	0.87 ic	0.00	---	0.00	---	---	---	---	---	0.870
3.40	141,482	291.40	0.95 ic	0.91 ic	0.00	---	0.00	---	---	---	---	---	0.913
3.60	158,188	291.60	0.96 ic	0.96 ic	0.00	---	0.00	---	---	---	---	---	0.956
3.80	174,894	291.80	1.01 ic	1.00 ic	0.00	---	0.00	---	---	---	---	---	0.997
4.00	191,600	292.00	1.07 ic	1.03 ic	0.00	---	0.00	---	---	---	---	---	1.035
4.20	210,045	292.20	1.07 ic	1.07 ic	0.00	---	0.00	---	---	---	---	---	1.073
4.40	228,491	292.40	1.13 ic	1.11 ic	0.00	---	0.00	---	---	---	---	---	1.110
4.60	246,936	292.60	1.14 ic	1.14 ic	0.00	---	0.00	---	---	---	---	---	1.144
4.80	265,381	292.80	1.26 ic	1.18 ic	0.05 ic	---	0.00	---	---	---	---	---	1.225
5.00	283,827	293.00	1.56 ic	1.20 ic	0.31 ic	---	0.00	---	---	---	---	---	1.512
5.20	302,272	293.20	1.73 ic	1.23 ic	0.49 ic	---	0.00	---	---	---	---	---	1.717

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BMP A

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
5.40	320,718	293.40	1.90 ic	1.26 ic	0.61 ic	---	0.00	---	---	---	---	---	1.874
5.60	339,163	293.60	2.01 ic	1.29 ic	0.72 ic	---	0.00	---	---	---	---	---	2.009
5.80	357,608	293.80	2.18 ic	1.32 ic	0.81 ic	---	0.00	---	---	---	---	---	2.130
6.00	376,054	294.00	2.28 ic	1.35 ic	0.89 ic	---	0.00	---	---	---	---	---	2.241
6.20	396,204	294.20	5.91 ic	1.31 ic	0.97 ic	---	3.57	---	---	---	---	---	5.856
6.40	416,354	294.40	12.44 ic	1.24 ic	1.04 ic	---	10.11	---	---	---	---	---	12.39
6.60	436,504	294.60	20.74 ic	1.06 ic	1.11 ic	---	18.57	---	---	---	---	---	20.74
6.80	456,654	294.80	29.98 ic	0.60 ic	0.78 ic	---	28.59	---	---	---	---	---	29.98
7.00	476,804	295.00	32.43 ic	0.41 ic	0.53 ic	---	31.49 s	---	---	---	---	---	32.43
7.20	496,954	295.20	33.65 ic	0.32 ic	0.42 ic	---	32.90 s	---	---	---	---	---	33.64
7.40	517,104	295.40	34.59 ic	0.27 ic	0.35 ic	---	33.97 s	---	---	---	---	---	34.58
7.60	537,254	295.60	35.40 ic	0.23 ic	0.29 ic	---	34.88 s	---	---	---	---	---	35.40
7.80	557,405	295.80	36.14 ic	0.19 ic	0.25 ic	---	35.68 s	---	---	---	---	---	36.13
8.00	577,555	296.00	36.83 ic	0.17 ic	0.22 ic	---	36.43 s	---	---	---	---	---	36.83

...End

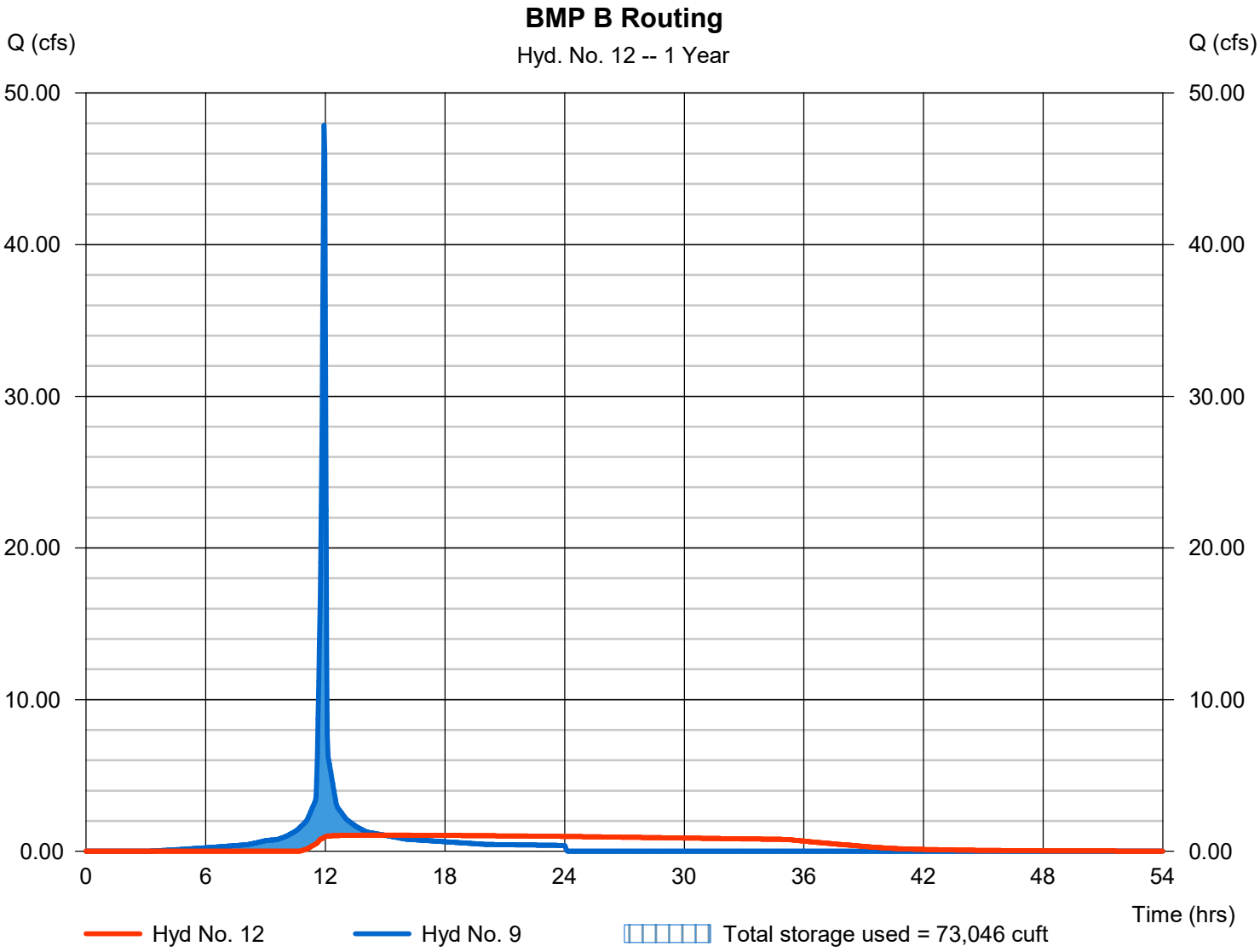
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.058 cfs
Storm frequency	=	1 yrs	Time to peak	=	14.97 hrs
Time interval	=	2 min	Hyd. volume	=	93,228 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.62 ft
Reservoir name	=	BMP B	Max. Storage	=	73,046 cuft

Storage Indication method used.



Pond No. 2 - BMP B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 284.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	284.00	00	0	0
2.00	286.00	34,400	22,931	22,931
2.01	286.01	76,441	540	23,471
4.00	288.00	87,488	162,970	186,441
6.00	290.00	95,788	183,195	369,636
8.00	292.00	104,371	200,078	569,713

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	3.50	4.00	0.00
Span (in)	= 24.00	3.50	4.00	0.00
No. Barrels	= 1	3	2	0
Invert El. (ft)	= 285.00	285.00	288.50	0.00
Length (ft)	= 238.00	0.00	0.00	0.00
Slope (%)	= 29.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	300.00	Inactive	0.00
Crest El. (ft)	= 290.00	290.50	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	284.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.20	2,293	284.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	4,586	284.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.60	6,879	284.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	9,172	284.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.00	11,466	285.00	0.00	0.00 ic	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	13,759	285.20	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.151
1.40	16,052	285.40	0.38 ic	0.38 ic	0.00	---	0.00	0.00	---	---	---	---	0.381
1.60	18,345	285.60	0.56 ic	0.53 ic	0.00	---	0.00	0.00	---	---	---	---	0.535
1.80	20,638	285.80	0.69 ic	0.66 ic	0.00	---	0.00	0.00	---	---	---	---	0.664
2.00	22,931	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	22,985	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.778
2.00	23,039	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	23,093	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.779
2.00	23,147	286.00	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.780
2.01	23,201	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	23,255	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.781
2.01	23,309	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	23,363	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.782
2.01	23,417	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.01	23,471	286.01	0.78 ic	0.78 ic	0.00	---	0.00	0.00	---	---	---	---	0.783
2.21	39,768	286.21	0.89 ic	0.88 ic	0.00	---	0.00	0.00	---	---	---	---	0.881
2.41	56,065	286.41	1.01 ic	0.97 ic	0.00	---	0.00	0.00	---	---	---	---	0.969
2.61	72,362	286.61	1.07 ic	1.05 ic	0.00	---	0.00	0.00	---	---	---	---	1.055
2.81	88,659	286.81	1.13 ic	1.13 ic	0.00	---	0.00	0.00	---	---	---	---	1.133
3.01	104,956	287.01	1.21 ic	1.21 ic	0.00	---	0.00	0.00	---	---	---	---	1.205
3.20	121,253	287.20	1.27 ic	1.27 ic	0.00	---	0.00	0.00	---	---	---	---	1.275
3.40	137,550	287.40	1.34 ic	1.34 ic	0.00	---	0.00	0.00	---	---	---	---	1.342
3.60	153,847	287.60	1.41 ic	1.41 ic	0.00	---	0.00	0.00	---	---	---	---	1.407
3.80	170,144	287.80	1.48 ic	1.47 ic	0.00	---	0.00	0.00	---	---	---	---	1.467
4.00	186,441	288.00	1.56 ic	1.52 ic	0.00	---	0.00	0.00	---	---	---	---	1.524
4.20	204,760	288.20	1.58 ic	1.58 ic	0.00	---	0.00	0.00	---	---	---	---	1.581
4.40	223,080	288.40	1.64 ic	1.64 ic	0.00	---	0.00	0.00	---	---	---	---	1.638
4.60	241,399	288.60	1.74 ic	1.69 ic	0.05 ic	---	0.00	0.00	---	---	---	---	1.736
4.80	259,719	288.80	2.08 ic	1.73 ic	0.31 ic	---	0.00	0.00	---	---	---	---	2.039
5.00	278,038	289.00	2.28 ic	1.77 ic	0.49 ic	---	0.00	0.00	---	---	---	---	2.260
5.20	296,358	289.20	2.48 ic	1.82 ic	0.61 ic	---	0.00	0.00	---	---	---	---	2.433

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BMP B

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
5.40	314,677	289.40	2.59 ic	1.87 ic	0.72 ic	---	0.00	0.00	---	---	---	---	2.586
5.60	332,997	289.60	2.72 ic	1.91 ic	0.81 ic	---	0.00	0.00	---	---	---	---	2.720
5.80	351,316	289.80	2.92 ic	1.95 ic	0.89 ic	---	0.00	0.00	---	---	---	---	2.847
6.00	369,636	290.00	3.03 ic	2.00 ic	0.97 ic	---	0.00	0.00	---	---	---	---	2.966
6.20	389,644	290.20	6.56 ic	1.95 ic	1.04 ic	---	3.57	0.00	---	---	---	---	6.564
6.40	409,651	290.40	13.09 ic	1.85 ic	1.11 ic	---	10.11	0.00	---	---	---	---	13.06
6.60	429,659	290.60	21.30 ic	1.56 ic	1.17 ic	---	18.57	26.57	---	---	---	---	47.87
6.80	449,667	290.80	30.22 ic	0.87 ic	0.76 ic	---	28.59	138.02	---	---	---	---	168.23
7.00	469,675	291.00	32.45 ic	0.61 ic	0.53 ic	---	31.31 s	297.07	---	---	---	---	329.52
7.20	489,682	291.20	33.66 ic	0.48 ic	0.42 ic	---	32.76 s	492.07	---	---	---	---	525.72
7.40	509,690	291.40	34.59 ic	0.40 ic	0.35 ic	---	33.85 s	717.31	---	---	---	---	751.90
7.60	529,698	291.60	35.40 ic	0.34 ic	0.29 ic	---	34.77 s	969.23	---	---	---	---	1004.63
7.80	549,706	291.80	36.14 ic	0.29 ic	0.25 ic	---	35.58 s	1245.23	---	---	---	---	1281.36
8.00	569,713	292.00	36.83 ic	0.26 ic	0.22 ic	---	36.35 s	1543.18	---	---	---	---	1580.01

...End

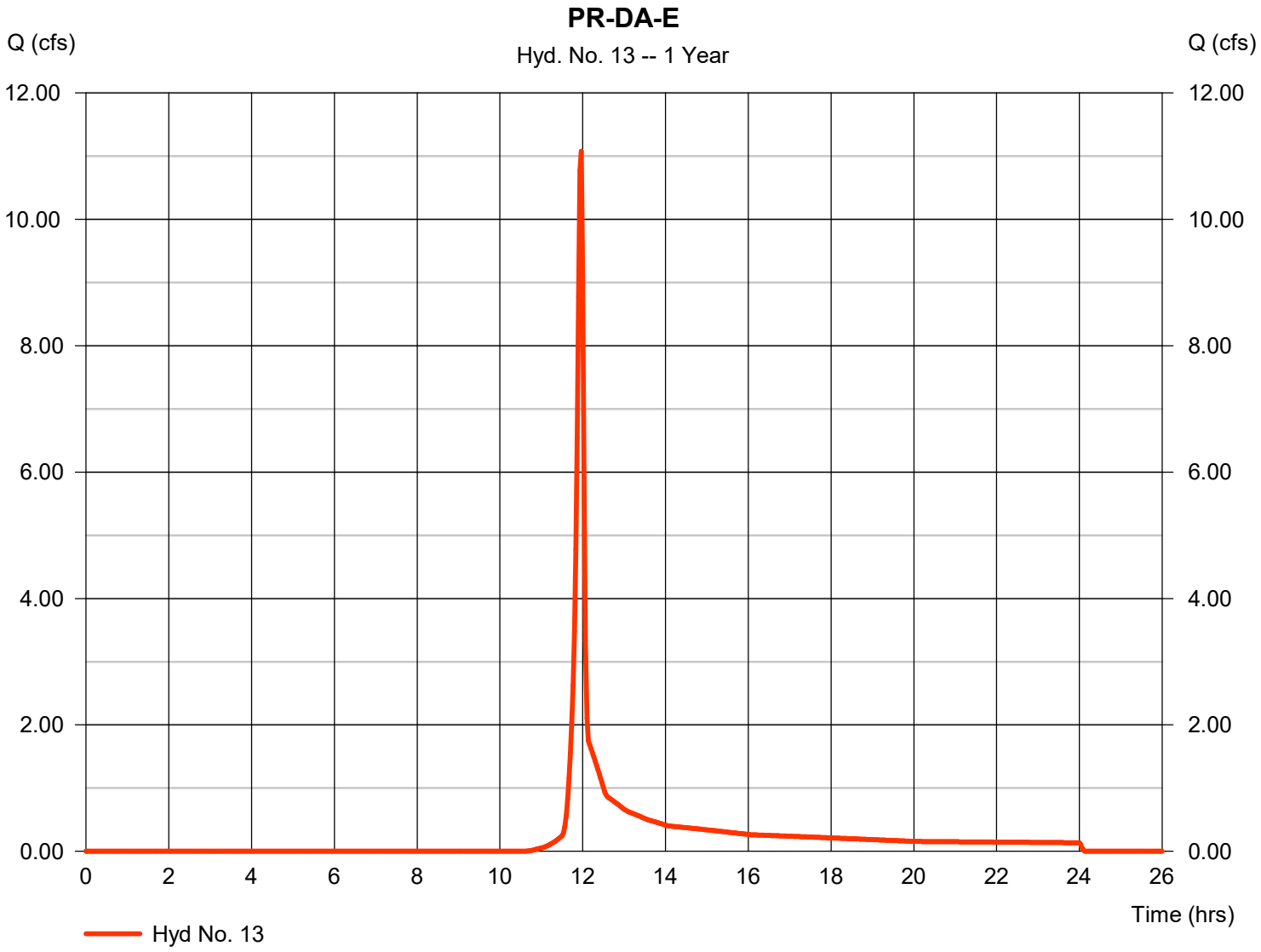
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.08 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	22,169 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



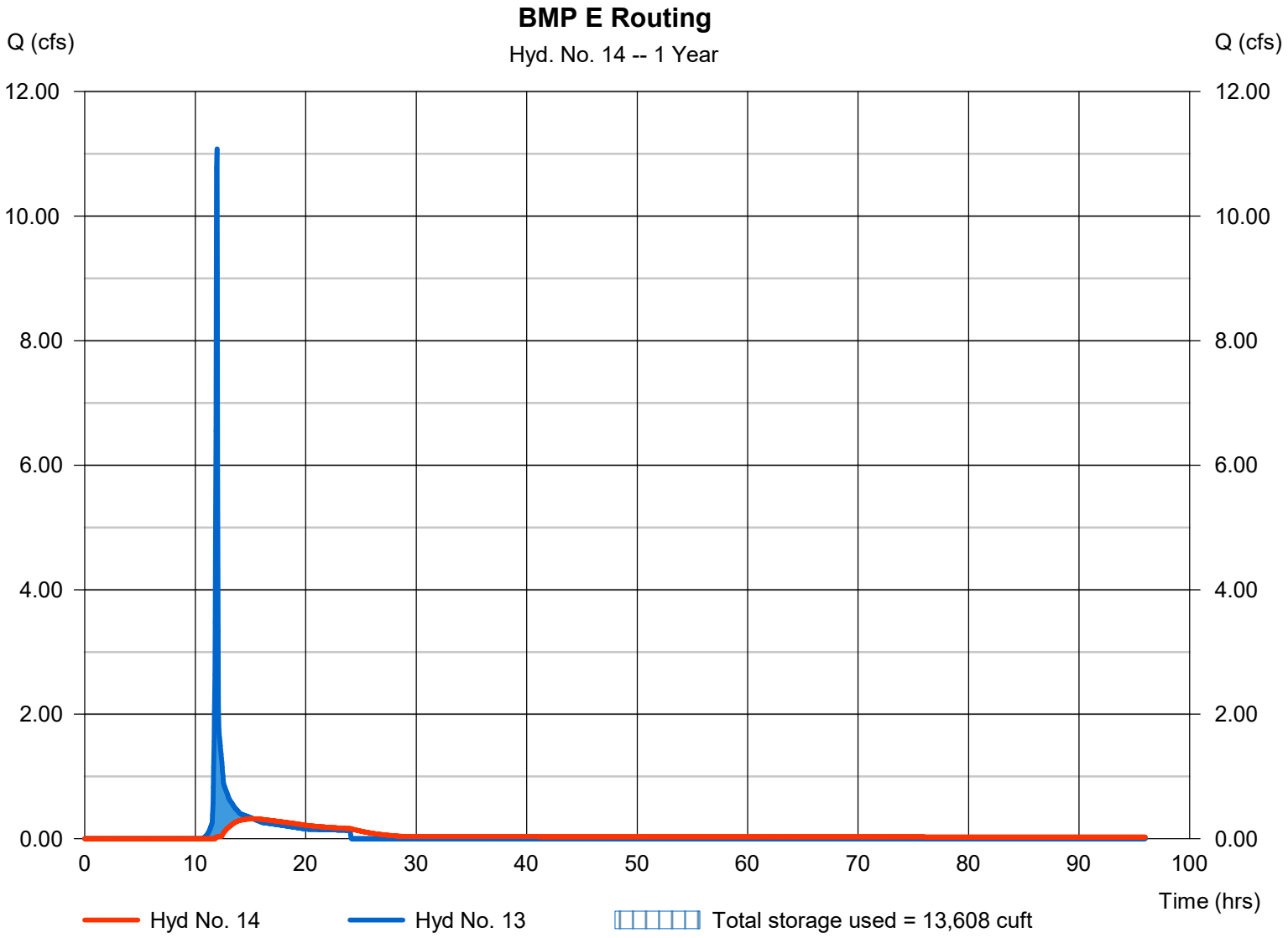
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.320 cfs
Storm frequency	=	1 yrs	Time to peak	=	15.27 hrs
Time interval	=	2 min	Hyd. volume	=	18,858 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	257.10 ft
Reservoir name	=	BMP E	Max. Storage	=	13,608 cuft

Storage Indication method used.



Pond No. 4 - BMP E

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 252.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	252.00	00	0	0
4.00	256.00	1,972	2,629	2,629
4.01	256.01	8,762	50	2,679
6.00	258.00	11,385	19,987	22,666
8.00	260.00	14,240	25,569	48,235
10.00	262.00	17,331	31,517	79,753

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.00	4.00	0.00
Span (in)	= 24.00	1.00	4.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 255.00	255.00	256.80	0.00
Length (ft)	= 3.18	0.00	0.00	0.00
Slope (%)	= 5.42	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	Inactive	0.00
Crest El. (ft)	= 259.50	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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	252.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.40	263	252.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.80	526	252.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.20	789	253.20	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.60	1,052	253.60	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.00	1,315	254.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.40	1,577	254.40	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
2.80	1,840	254.80	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
3.20	2,103	255.20	0.01 ic	0.01 ic	0.00	---	0.00	---	---	---	---	---	0.010
3.60	2,366	255.60	0.02 ic	0.02 ic	0.00	---	0.00	---	---	---	---	---	0.019
4.00	2,629	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	2,634	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	2,639	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.025
4.00	2,644	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.00	2,649	256.00	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,654	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,659	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,664	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,669	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,674	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.01	2,679	256.01	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.026
4.21	4,677	256.21	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.028
4.41	6,676	256.41	0.03 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.030
4.61	8,675	256.61	0.04 ic	0.03 ic	0.00	---	0.00	---	---	---	---	---	0.033
4.81	10,674	256.81	0.04 ic	0.03 ic	0.00 ic	---	0.00	---	---	---	---	---	0.035
5.01	12,672	257.01	0.22 ic	0.04 ic	0.17 ic	---	0.00	---	---	---	---	---	0.210
5.20	14,671	257.20	0.45 ic	0.04 ic	0.41 ic	---	0.00	---	---	---	---	---	0.446
5.40	16,670	257.40	0.60 ic	0.04 ic	0.56 ic	---	0.00	---	---	---	---	---	0.593
5.60	18,669	257.60	0.73 ic	0.04 ic	0.67 ic	---	0.00	---	---	---	---	---	0.709
5.80	20,667	257.80	0.84 ic	0.04 ic	0.77 ic	---	0.00	---	---	---	---	---	0.809
6.00	22,666	258.00	0.90 ic	0.04 ic	0.85 ic	---	0.00	---	---	---	---	---	0.897
6.20	25,223	258.20	1.00 ic	0.04 ic	0.93 ic	---	0.00	---	---	---	---	---	0.977
6.40	27,780	258.40	1.07 ic	0.05 ic	1.01 ic	---	0.00	---	---	---	---	---	1.051
6.60	30,337	258.60	1.13 ic	0.05 ic	1.07 ic	---	0.00	---	---	---	---	---	1.121
6.80	32,894	258.80	1.20 ic	0.05 ic	1.14 ic	---	0.00	---	---	---	---	---	1.186
7.00	35,451	259.00	1.26 ic	0.05 ic	1.20 ic	---	0.00	---	---	---	---	---	1.248
7.20	38,008	259.20	1.33 ic	0.05 ic	1.26 ic	---	0.00	---	---	---	---	---	1.307

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BMP E

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
7.40	40,565	259.40	1.41 ic	0.05 ic	1.31 ic	---	0.00	---	---	---	---	---	1.363
7.60	43,122	259.60	2.73 oc	0.05 ic	1.36 ic	---	1.27	---	---	---	---	---	2.681
7.80	45,678	259.80	8.05 oc	0.05 ic	1.41 ic	---	6.57	---	---	---	---	---	8.030
8.00	48,235	260.00	15.52 oc	0.04 ic	1.35 ic	---	14.13	---	---	---	---	---	15.52
8.20	51,387	260.20	24.49 ic	0.03 ic	1.06 ic	---	23.40	---	---	---	---	---	24.49
8.40	54,539	260.40	29.96 ic	0.02 ic	0.58 ic	---	29.36 s	---	---	---	---	---	29.96
8.60	57,691	260.60	31.44 ic	0.01 ic	0.44 ic	---	30.98 s	---	---	---	---	---	31.43
8.80	60,842	260.80	32.50 ic	0.01 ic	0.36 ic	---	32.12 s	---	---	---	---	---	32.49
9.00	63,994	261.00	33.38 ic	0.01 ic	0.30 ic	---	33.06 s	---	---	---	---	---	33.38
9.20	67,146	261.20	34.17 ic	0.01 ic	0.26 ic	---	33.90 s	---	---	---	---	---	34.17
9.40	70,297	261.40	34.91 ic	0.01 ic	0.23 ic	---	34.67 s	---	---	---	---	---	34.91
9.60	73,449	261.60	35.61 ic	0.01 ic	0.20 ic	---	35.38 s	---	---	---	---	---	35.59
9.80	76,601	261.80	36.28 ic	0.01 ic	0.18 ic	---	36.09 s	---	---	---	---	---	36.28
10.00	79,753	262.00	36.93 ic	0.01 ic	0.16 ic	---	36.74 s	---	---	---	---	---	36.91

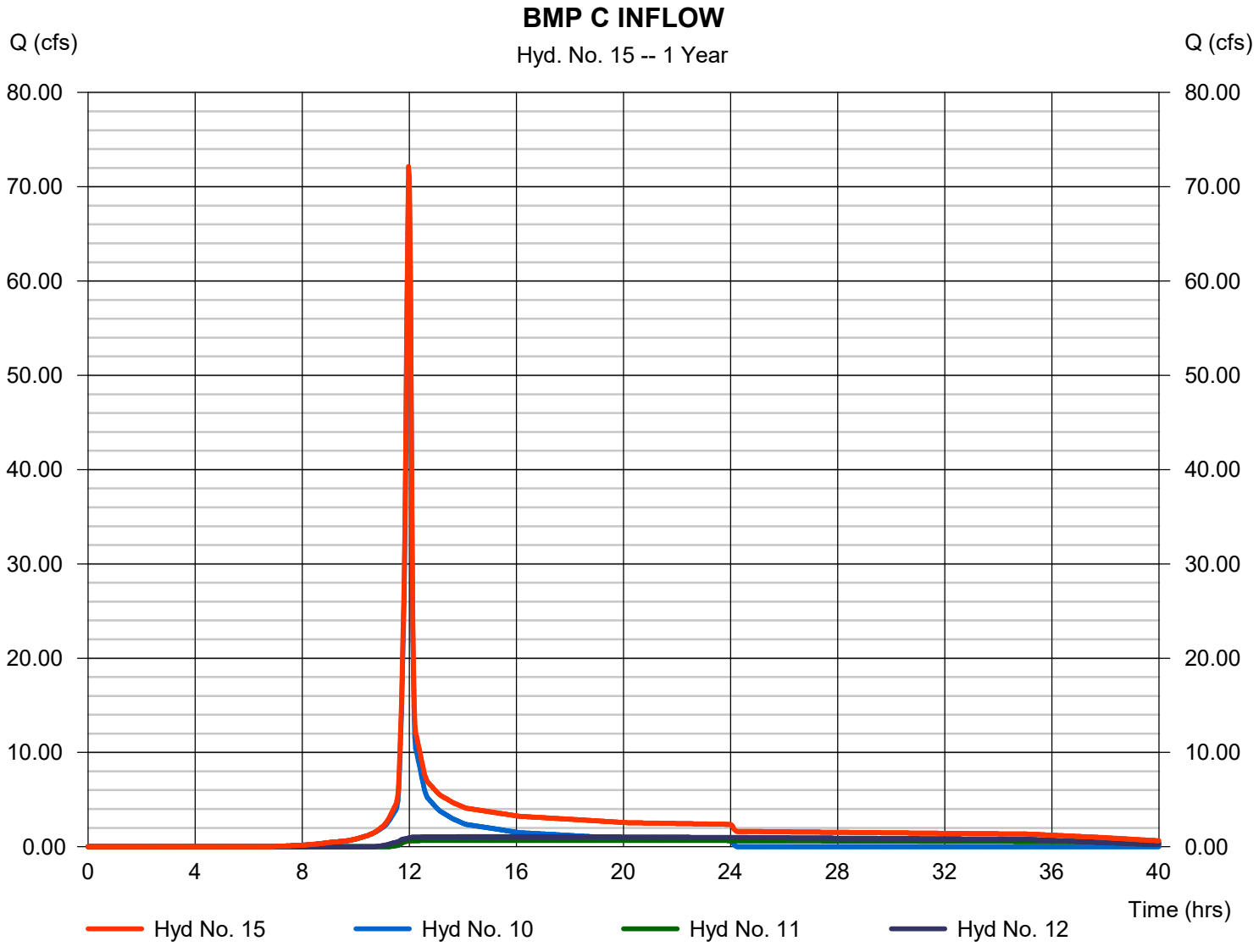
...End

Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	72.15 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	326,613 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



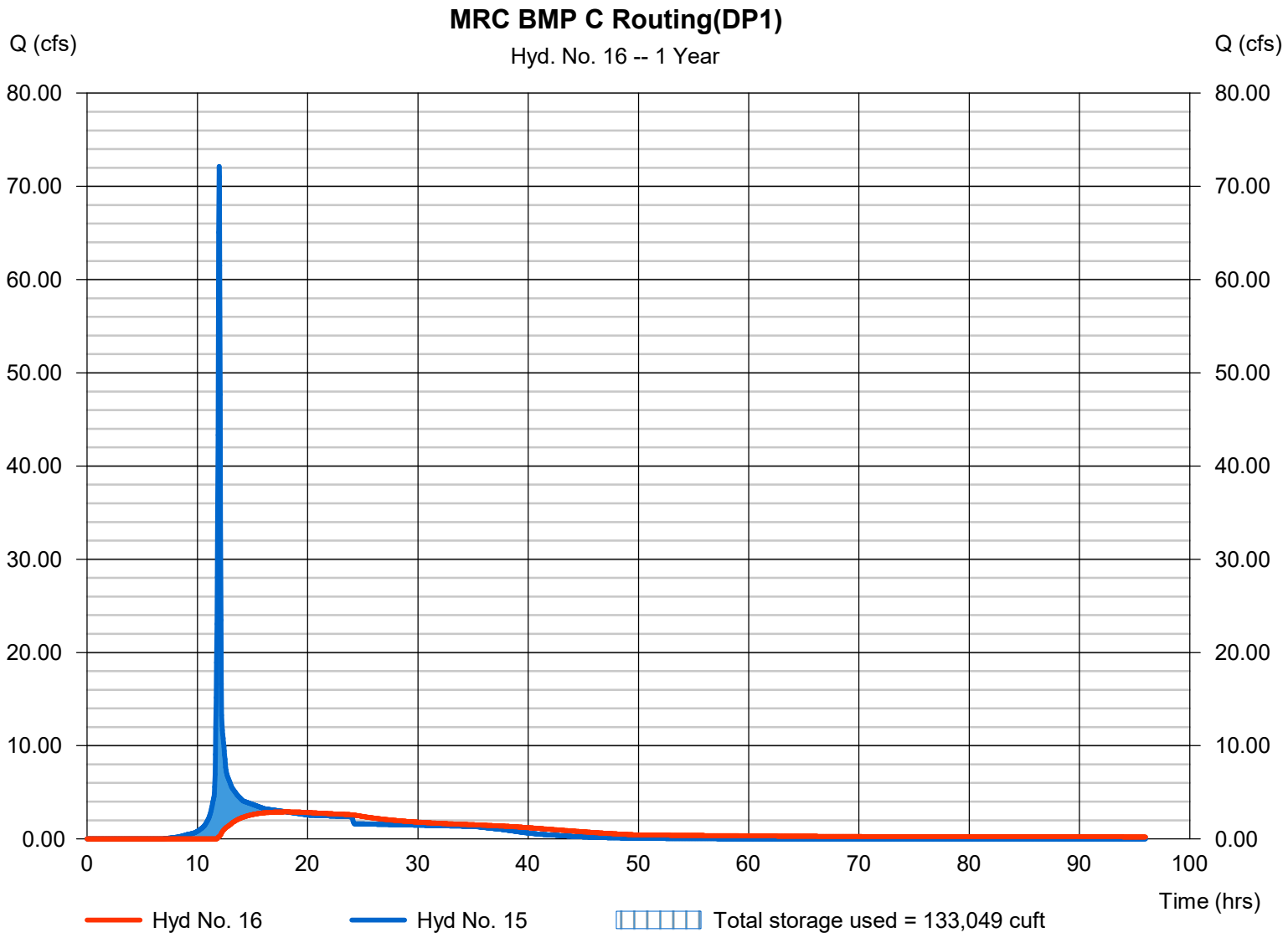
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	2.896 cfs
Storm frequency	=	1 yrs	Time to peak	=	18.10 hrs
Time interval	=	2 min	Hyd. volume	=	283,871 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	216.79 ft
Reservoir name	=	BMP C	Max. Storage	=	133,049 cuft

Storage Indication method used.



Pond No. 3 - BMP C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 212.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	212.00	00	0	0
4.00	216.00	28,333	37,774	37,774
4.01	216.01	115,916	672	38,445
6.00	218.00	126,194	240,803	279,248
8.00	220.00	136,697	262,795	542,043
10.00	222.00	147,725	284,322	826,365
12.00	224.00	158,385	306,018	1,132,383

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	8.00	0.00
Span (in)	= 24.00	1.50	8.00	0.00
No. Barrels	= 1	4	4	0
Invert El. (ft)	= 215.00	215.00	216.30	0.00
Length (ft)	= 61.00	0.00	0.00	0.00
Slope (%)	= 3.26	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	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	100.00	Inactive	0.00
Crest El. (ft)	= 220.00	222.00	0.00	0.00
Weir Coeff.	= 3.33	2.80	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	212.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.40	3,777	212.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.80	7,555	212.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.20	11,332	213.20	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
1.60	15,109	213.60	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.00	18,887	214.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.40	22,664	214.40	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
2.80	26,441	214.80	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
3.20	30,219	215.20	0.07 ic	0.07 ic	0.00	---	0.00	0.00	---	---	---	---	0.073
3.60	33,996	215.60	0.16 ic	0.16 ic	0.00	---	0.00	0.00	---	---	---	---	0.158
4.00	37,774	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	37,841	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	37,908	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	37,975	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.00	38,042	216.00	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	38,109	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.214
4.01	38,177	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	38,244	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	38,311	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	38,378	216.01	0.22 ic	0.21 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.01	38,445	216.01	0.22 ic	0.22 ic	0.00	---	0.00	0.00	---	---	---	---	0.215
4.21	62,526	216.21	0.24 ic	0.24 ic	0.00	---	0.00	0.00	---	---	---	---	0.238
4.41	86,606	216.41	0.44 ic	0.25 ic	0.17 ic	---	0.00	0.00	---	---	---	---	0.420
4.61	110,686	216.61	1.48 ic	0.25 ic	1.19 ic	---	0.00	0.00	---	---	---	---	1.435
4.81	134,767	216.81	3.03 ic	0.25 ic	2.76 ic	---	0.00	0.00	---	---	---	---	3.008
5.01	158,847	217.01	4.44 ic	0.25 ic	4.10 ic	---	0.00	0.00	---	---	---	---	4.348
5.20	182,927	217.20	5.34 ic	0.26 ic	5.08 ic	---	0.00	0.00	---	---	---	---	5.338
5.40	207,007	217.40	6.22 ic	0.27 ic	5.90 ic	---	0.00	0.00	---	---	---	---	6.169
5.60	231,088	217.60	7.00 ic	0.28 ic	6.62 ic	---	0.00	0.00	---	---	---	---	6.900
5.80	255,168	217.80	7.64 ic	0.30 ic	7.26 ic	---	0.00	0.00	---	---	---	---	7.561
6.00	279,248	218.00	8.28 ic	0.31 ic	7.86 ic	---	0.00	0.00	---	---	---	---	8.168
6.20	305,528	218.20	8.76 ic	0.32 ic	8.41 ic	---	0.00	0.00	---	---	---	---	8.738
6.40	331,807	218.40	9.27 ic	0.34 ic	8.93 ic	---	0.00	0.00	---	---	---	---	9.271
6.60	358,087	218.60	9.84 ic	0.35 ic	9.43 ic	---	0.00	0.00	---	---	---	---	9.775
6.80	384,366	218.80	10.29 ic	0.36 ic	9.89 ic	---	0.00	0.00	---	---	---	---	10.26
7.00	410,646	219.00	10.73 ic	0.37 ic	10.34 ic	---	0.00	0.00	---	---	---	---	10.71

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BMP C

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
7.20	436,925	219.20	11.16 ic	0.38 ic	10.77 ic	---	0.00	0.00	---	---	---	---	11.15
7.40	463,205	219.40	11.58 ic	0.40 ic	11.18 ic	---	0.00	0.00	---	---	---	---	11.58
7.60	489,484	219.60	11.98 ic	0.41 ic	11.58 ic	---	0.00	0.00	---	---	---	---	11.98
7.80	515,764	219.80	12.32 ic	0.42 ic	11.91 ic	---	0.00	0.00	---	---	---	---	12.32
8.00	542,043	220.00	12.66 ic	0.43 ic	12.22 ic	---	0.00	0.00	---	---	---	---	12.65
8.20	570,475	220.20	15.83 ic	0.42 ic	11.84 ic	---	3.57	0.00	---	---	---	---	15.83
8.40	598,908	220.40	21.04 ic	0.37 ic	10.56 ic	---	10.11	0.00	---	---	---	---	21.04
8.60	627,340	220.60	26.91 ic	0.28 ic	8.05 ic	---	18.57	0.00	---	---	---	---	26.91
8.80	655,772	220.80	31.27 ic	0.17 ic	4.87 ic	---	26.22 s	0.00	---	---	---	---	31.27
9.00	684,204	221.00	32.75 ic	0.13 ic	3.76 ic	---	28.86 s	0.00	---	---	---	---	32.75
9.20	712,637	221.20	33.80 ic	0.11 ic	3.05 ic	---	30.63 s	0.00	---	---	---	---	33.79
9.40	741,069	221.40	34.67 ic	0.09 ic	2.56 ic	---	32.01 s	0.00	---	---	---	---	34.66
9.60	769,501	221.60	35.45 ic	0.08 ic	2.20 ic	---	33.16 s	0.00	---	---	---	---	35.44
9.80	797,933	221.80	36.17 ic	0.07 ic	1.92 ic	---	34.17 s	0.00	---	---	---	---	36.17
10.00	826,365	222.00	36.85 ic	0.06 ic	1.70 ic	---	35.07 s	0.00	---	---	---	---	36.83
10.20	856,967	222.20	37.50 ic	0.05 ic	1.53 ic	---	35.91 s	25.04	---	---	---	---	62.54
10.40	887,569	222.40	38.14 ic	0.05 ic	1.39 ic	---	36.68 s	70.83	---	---	---	---	108.95
10.60	918,171	222.60	38.75 ic	0.04 ic	1.27 ic	---	37.44 s	130.13	---	---	---	---	168.88
10.80	948,772	222.80	39.35 ic	0.04 ic	1.16 ic	---	38.12 s	200.35	---	---	---	---	239.67
11.00	979,374	223.00	39.94 ic	0.04 ic	1.08 ic	---	38.79 s	279.99	---	---	---	---	319.90
11.20	1,009,976	223.20	40.52 ic	0.04 ic	1.00 ic	---	39.46 s	368.06	---	---	---	---	408.56
11.40	1,040,578	223.40	41.09 ic	0.03 ic	0.94 ic	---	40.09 s	463.81	---	---	---	---	504.88
11.60	1,071,179	223.60	41.65 ic	0.03 ic	0.88 ic	---	40.72 s	566.67	---	---	---	---	608.30
11.80	1,101,781	223.80	42.20 ic	0.03 ic	0.83 ic	---	41.24 s	676.17	---	---	---	---	718.27
12.00	1,132,383	224.00	42.74 ic	0.03 ic	0.78 ic	---	41.87 s	791.96	---	---	---	---	834.64

...End

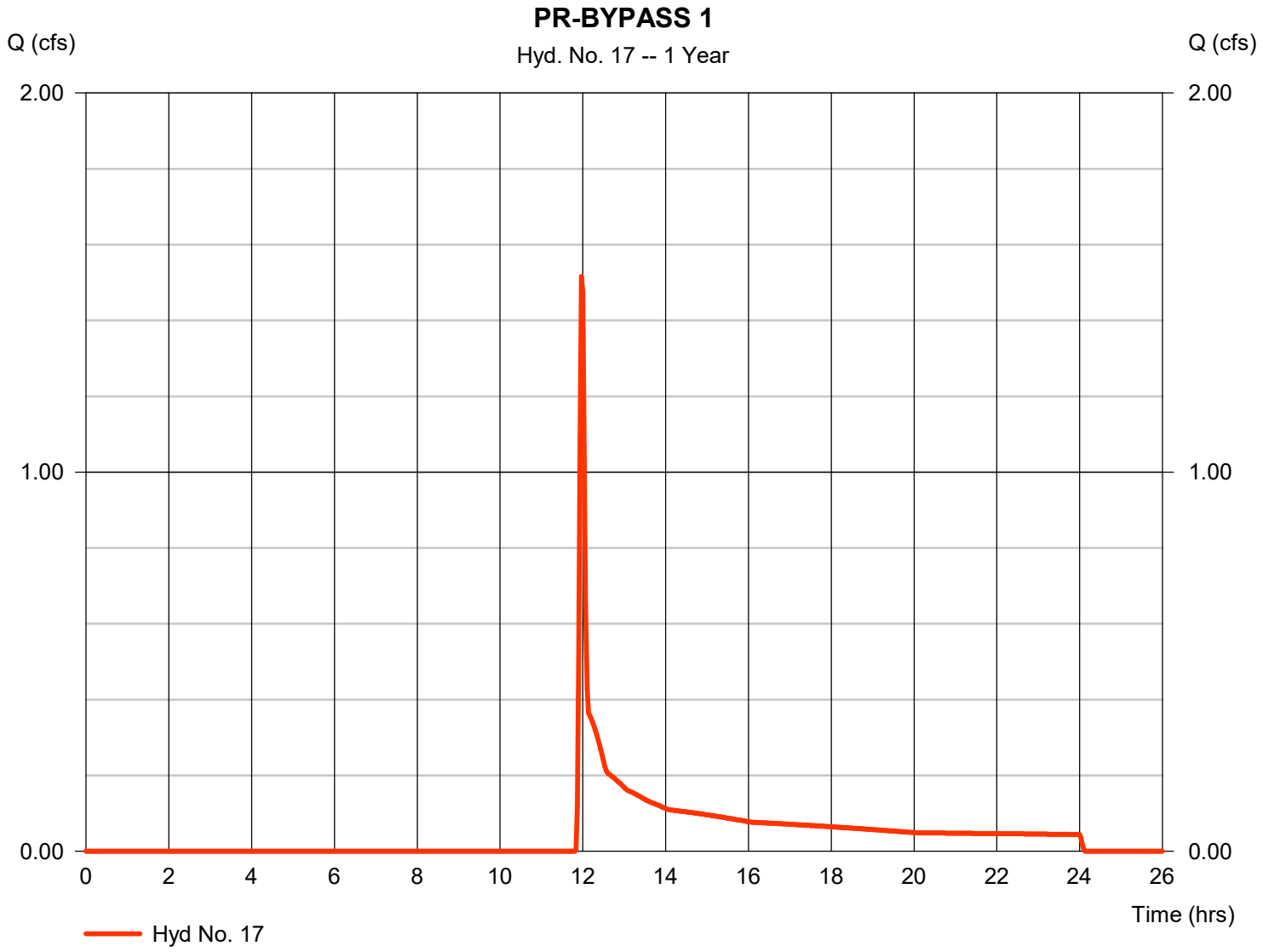
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.516 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	4,390 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



TR55 Tc Worksheet

Hyd. No. 17

PR-BYPASS 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 4.74**	**+**	**0.00**	**+**	**0.00**	**=**	**4.74**
Shallow Concentrated Flow							
Flow length (ft)	= 140.00		153.00		0.00		
Watercourse slope (%)	= 30.00		1.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		2.03		0.00		
Travel Time (min)	**= 0.26**	**+**	**1.25**	**+**	**0.00**	**=**	**1.52**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 6.30 min

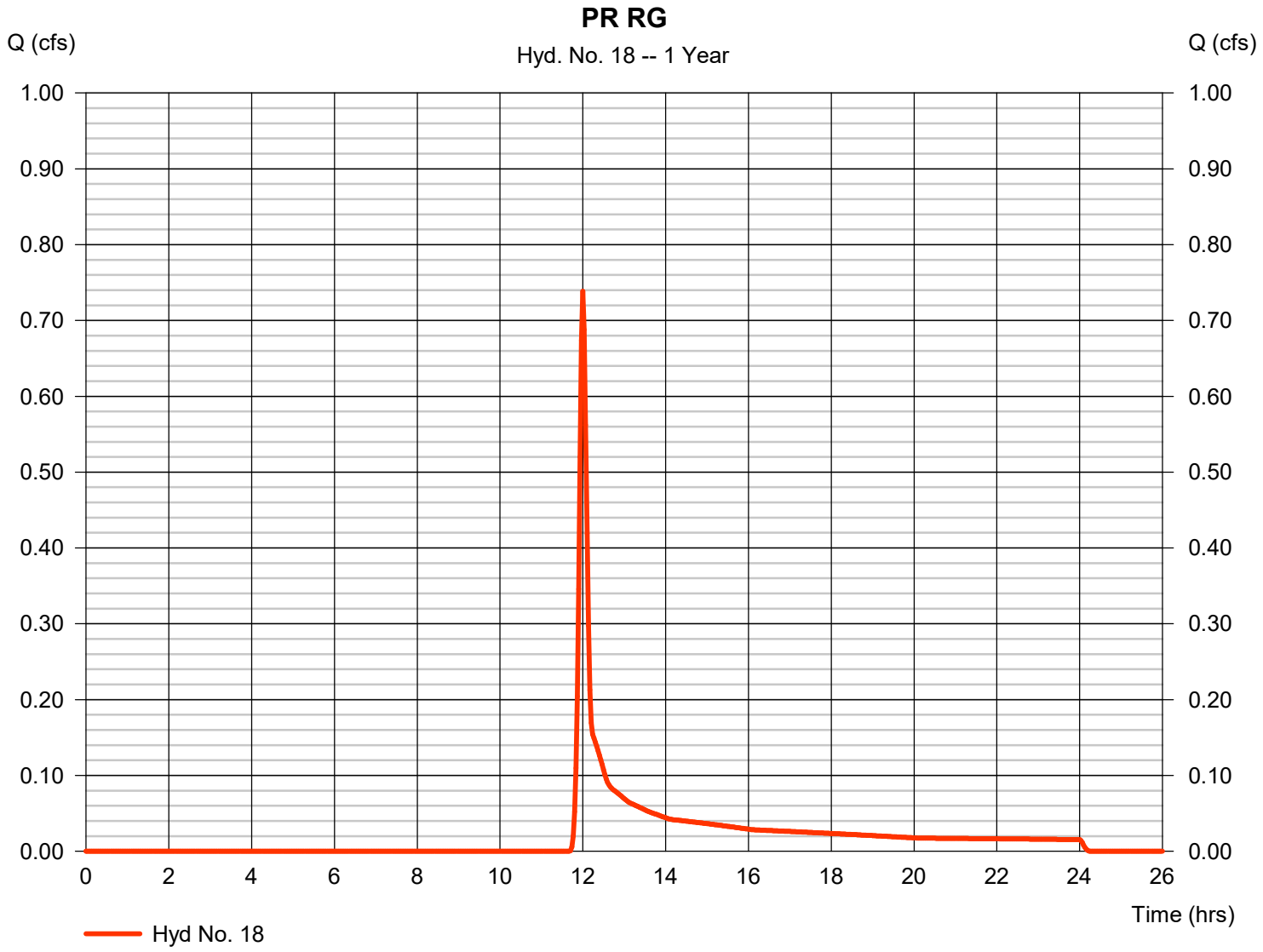
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.739 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	1,926 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



TR55 Tc Worksheet

Hyd. No. 18

PR RG

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		1007.00		0.00		
Watercourse slope (%)	= 0.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=0.00		2.28		0.00		
Travel Time (min)	**= 0.00**	**+**	**7.36**	**+**	**0.00**	**=**	**7.36**
Channel Flow							
X sectional flow area (sqft)	= 3.14		0.00		0.00		
Wetted perimeter (ft)	= 0.50		0.00		0.00		
Channel slope (%)	= 1.50		0.00		0.00		
Manning's n-value	= 0.010		0.015		0.015		
Velocity (ft/s)	=62.50						
			0.00				
					0.00		
Flow length (ft)	({0})120.0		0.0		0.0		
Travel Time (min)	**= 0.03**	**+**	**0.00**	**+**	**0.00**	**=**	**0.03**

Total Travel Time, Tc ..... 7.40 min

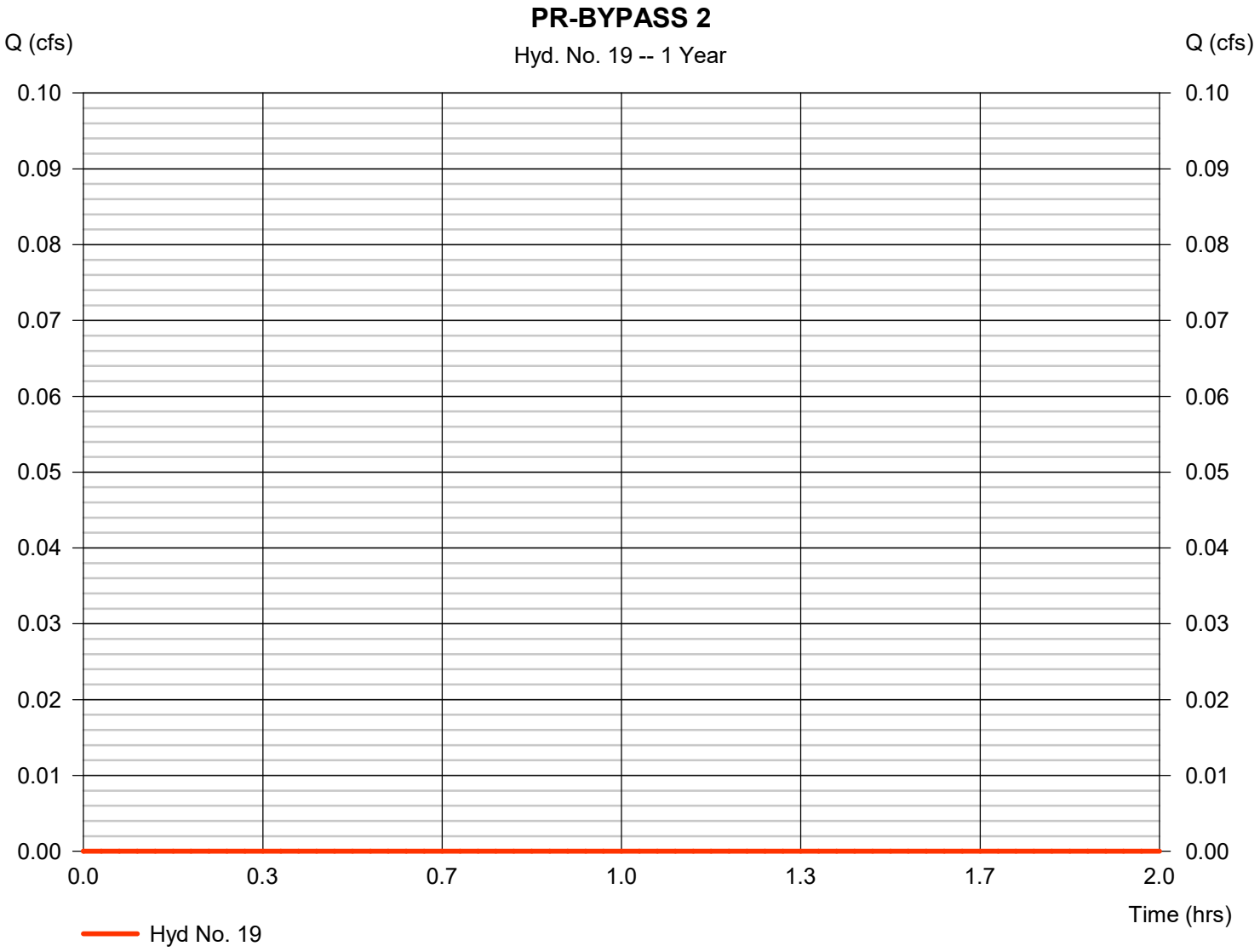
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 5.600 ac	Curve number	= 45*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.50 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



TR55 Tc Worksheet

Hyd. No. 19

PR-BYPASS 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 1131.00		1007.00		0.00		
Watercourse slope (%)	= 30.00		2.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=8.84		2.28		0.00		
Travel Time (min)	**= 2.13**	**+**	**7.36**	**+**	**0.00**	**=**	**9.49**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 9.50 min

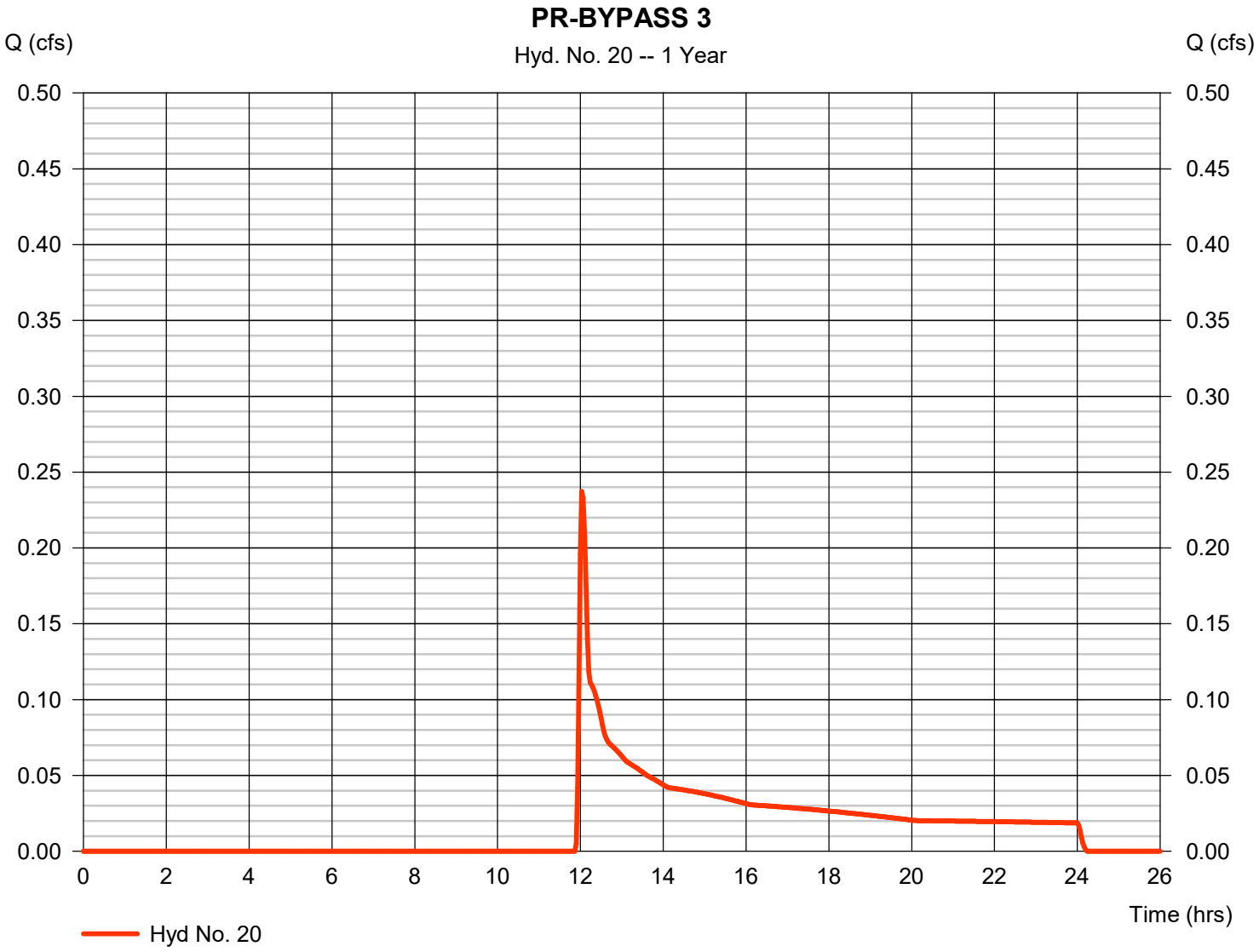
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.237 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,534 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530



TR55 Tc Worksheet

Hyd. No. 20

PR-BYPASS 3

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 247.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.00		0.00		0.00		
Land slope (%)	= 30.00		0.00		0.00		
Travel Time (min)	**= 7.06**	**+**	**0.00**	**+**	**0.00**	**=**	**7.06**
Shallow Concentrated Flow							
Flow length (ft)	= 97.00		0.00		0.00		
Watercourse slope (%)	= 30.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=8.84		0.00		0.00		
Travel Time (min)	**= 0.18**	**+**	**0.00**	**+**	**0.00**	**=**	**0.18**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

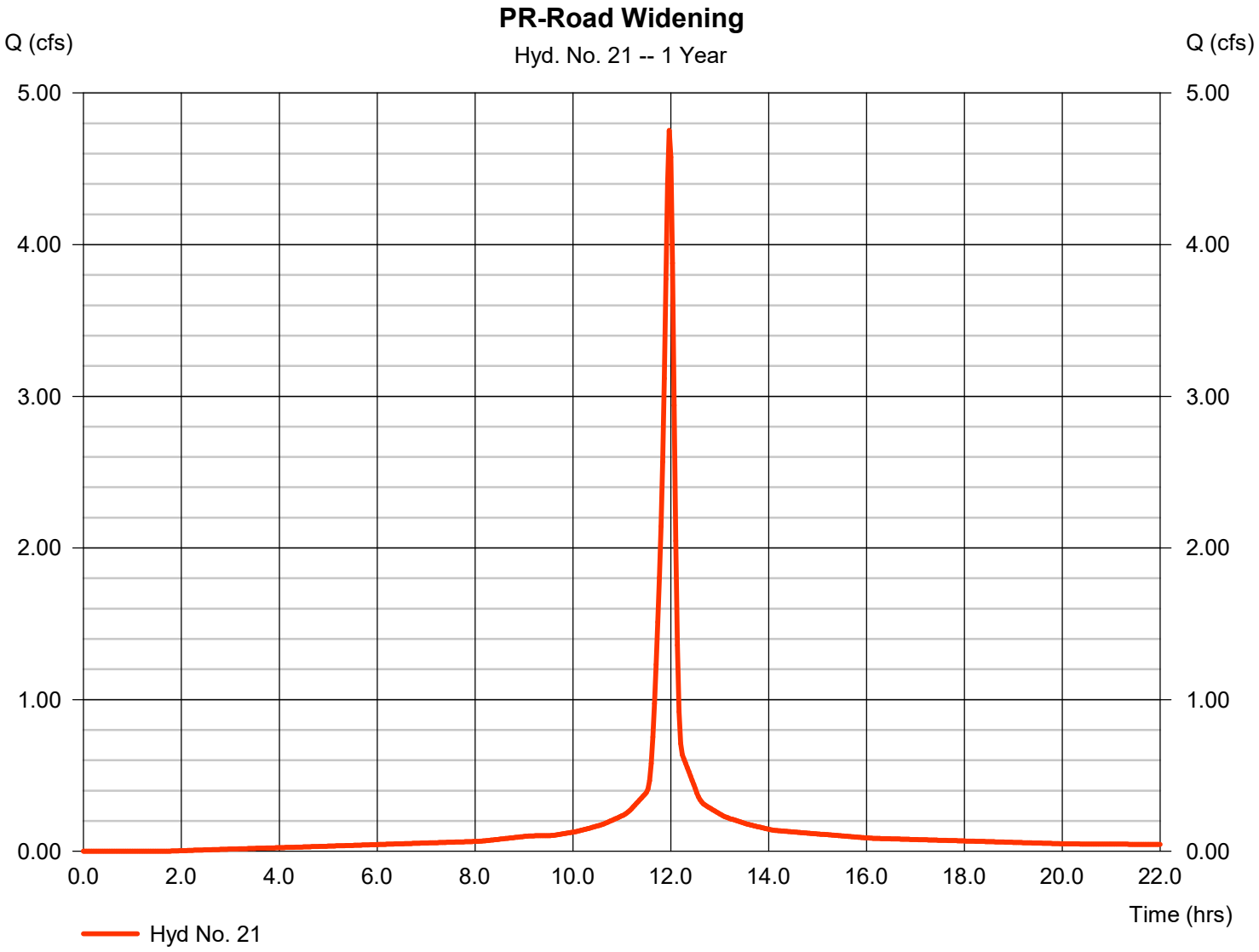
Total Travel Time, Tc ..... 7.20 min

Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.753 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	12,217 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 21

PR-Road Widening

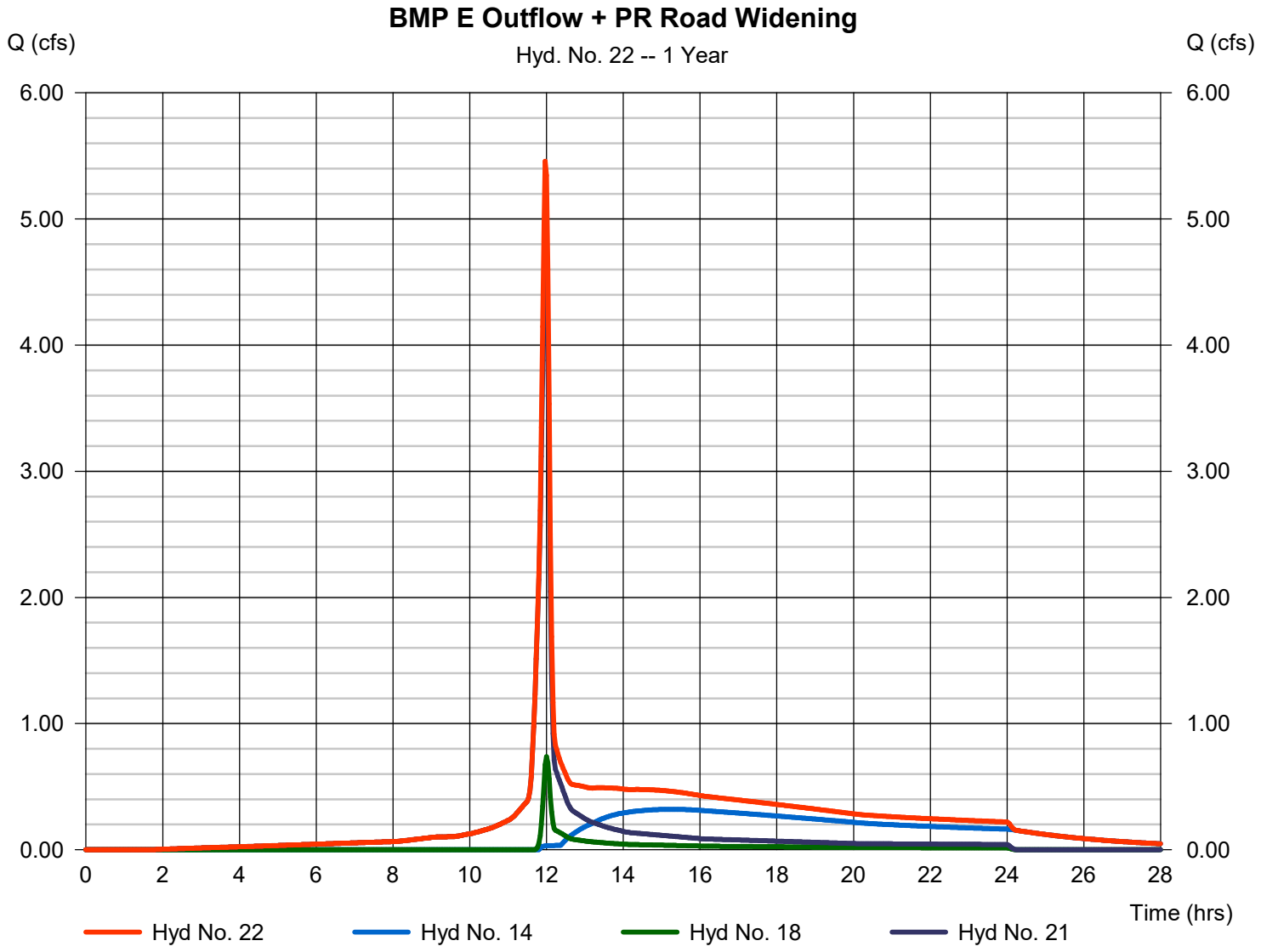
Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.011		0.011		0.011		
Flow length (ft)	= 0.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 0.00		0.00		0.00		
Land slope (%)	= 0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Shallow Concentrated Flow							
Flow length (ft)	= 735.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=2.03		0.00		0.00		
Travel Time (min)	**= 6.03**	**+**	**0.00**	**+**	**0.00**	**=**	**6.03**
Channel Flow							
X sectional flow area (sqft)	= 1.77		0.00		0.00		
Wetted perimeter (ft)	= 3.54		0.00		0.00		
Channel slope (%)	= 1.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=6.24						
			0.00				
					0.00		
Flow length (ft)	({0})614.0		0.0		0.0		
Travel Time (min)	**= 1.64**	**+**	**0.00**	**+**	**0.00**	**=**	**1.64**
Total Travel Time, Tc							**7.70 min**

Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	5.457 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	33,001 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



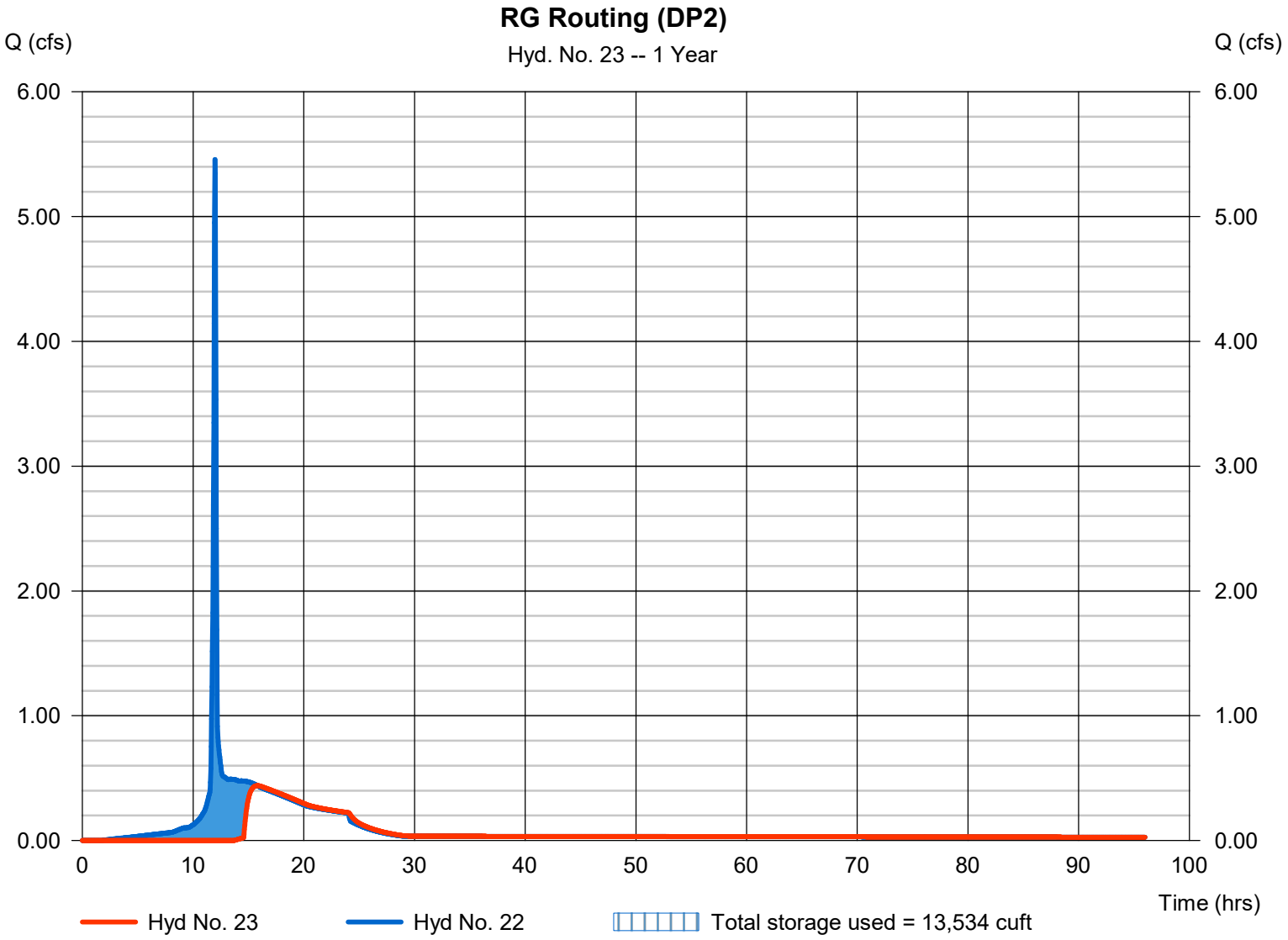
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	0.440 cfs
Storm frequency	=	1 yrs	Time to peak	=	15.80 hrs
Time interval	=	2 min	Hyd. volume	=	19,987 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.67 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	13,534 cuft

Storage Indication method used.



Pond Report

Pond No. 5 - Hacket Rain Garden

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 228.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	228.00	00	0	0
3.70	231.70	5,492	6,773	6,773
4.00	232.00	6,285	1,765	8,538
6.00	234.00	8,690	14,909	23,447

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	4.00	0.00	0.00
Span (in)	= 18.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 228.13	232.50	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 3.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	10.00	0.00	0.00
Crest El. (ft)	= 233.00	232.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Broad	---	---
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 (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

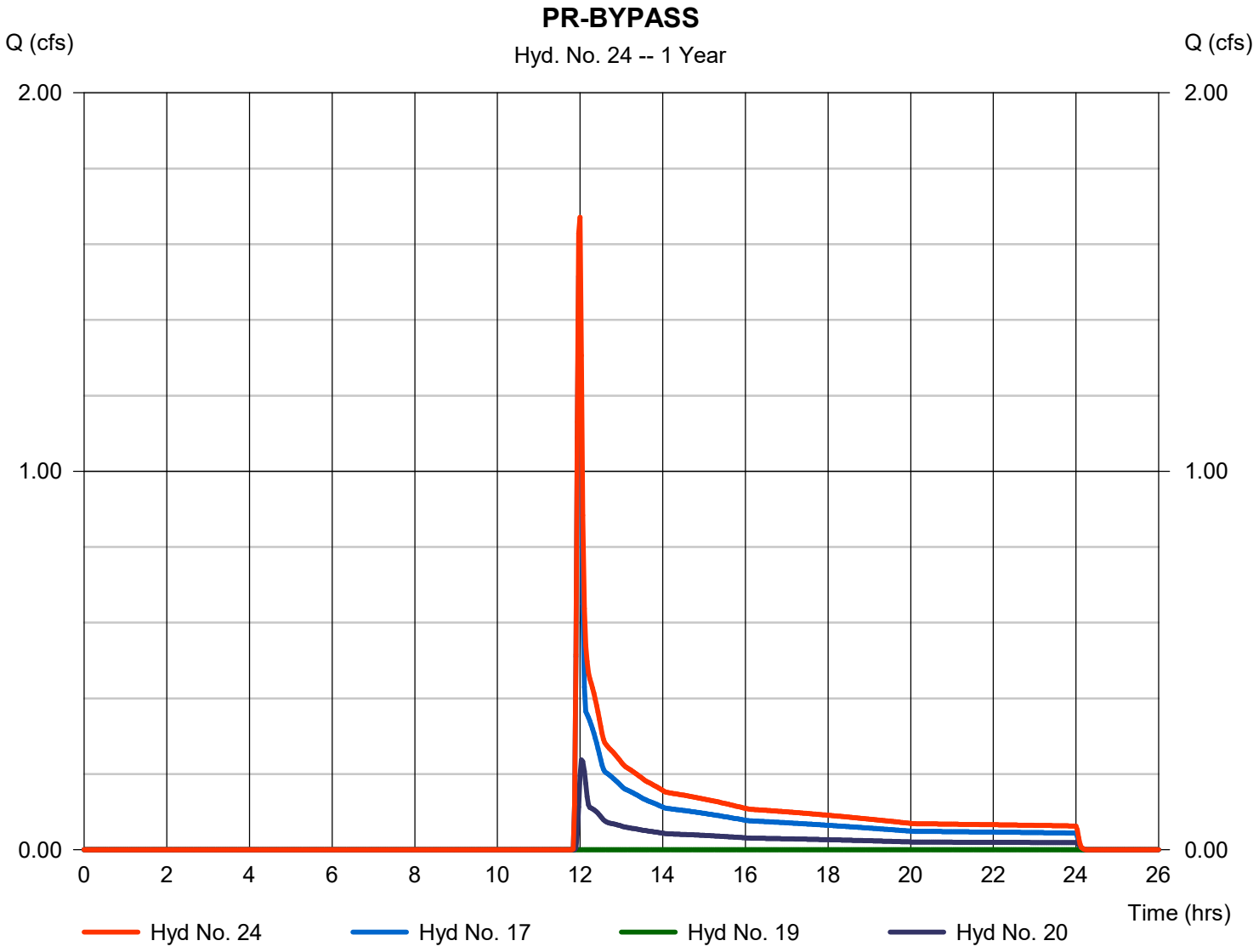
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	228.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.37	677	228.37	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.74	1,355	228.74	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.11	2,032	229.11	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.48	2,709	229.48	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.85	3,386	229.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.22	4,064	230.22	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.59	4,741	230.59	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
2.96	5,418	230.96	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.33	6,096	231.33	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.70	6,773	231.70	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.73	6,949	231.73	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.76	7,126	231.76	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.79	7,302	231.79	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.82	7,479	231.82	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.85	7,655	231.85	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.88	7,832	231.88	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.91	8,008	231.91	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.94	8,185	231.94	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
3.97	8,361	231.97	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.00	8,538	232.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.20	10,029	232.20	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.40	11,520	232.40	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
4.60	13,010	232.60	0.02 ic	0.02 ic	---	---	0.00	0.00	---	---	---	---	0.024
4.80	14,501	232.80	0.16 ic	0.15 ic	---	---	0.00	1.05	---	---	---	---	1.208
5.00	15,992	233.00	0.25 ic	0.24 ic	---	---	0.00	5.47	---	---	---	---	5.714
5.20	17,483	233.20	3.88 ic	0.31 ic	---	---	3.57	11.77	---	---	---	---	15.65
5.40	18,974	233.40	10.47 ic	0.36 ic	---	---	10.11	19.50	---	---	---	---	29.97
5.60	20,465	233.60	17.64 ic	0.27 ic	---	---	17.36 s	28.43	---	---	---	---	46.07
5.80	21,956	233.80	18.52 ic	0.18 ic	---	---	18.35 s	38.42	---	---	---	---	56.94
6.00	23,447	234.00	19.07 ic	0.13 ic	---	---	18.93 s	49.36	---	---	---	---	68.42

Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 1.671 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 5,924 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

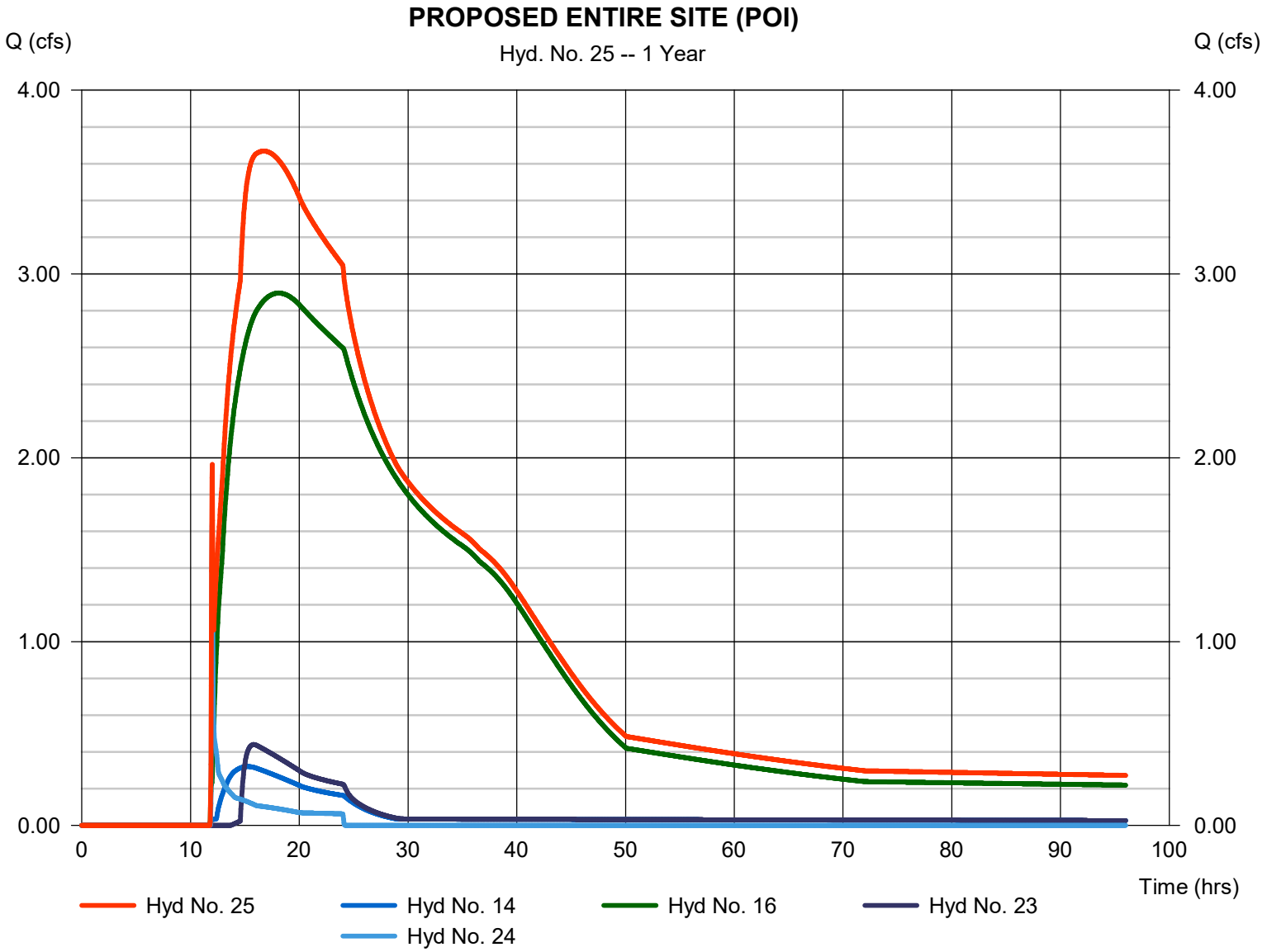


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 3.669 cfs
Storm frequency	= 1 yrs	Time to peak	= 16.73 hrs
Time interval	= 2 min	Hyd. volume	= 328,641 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

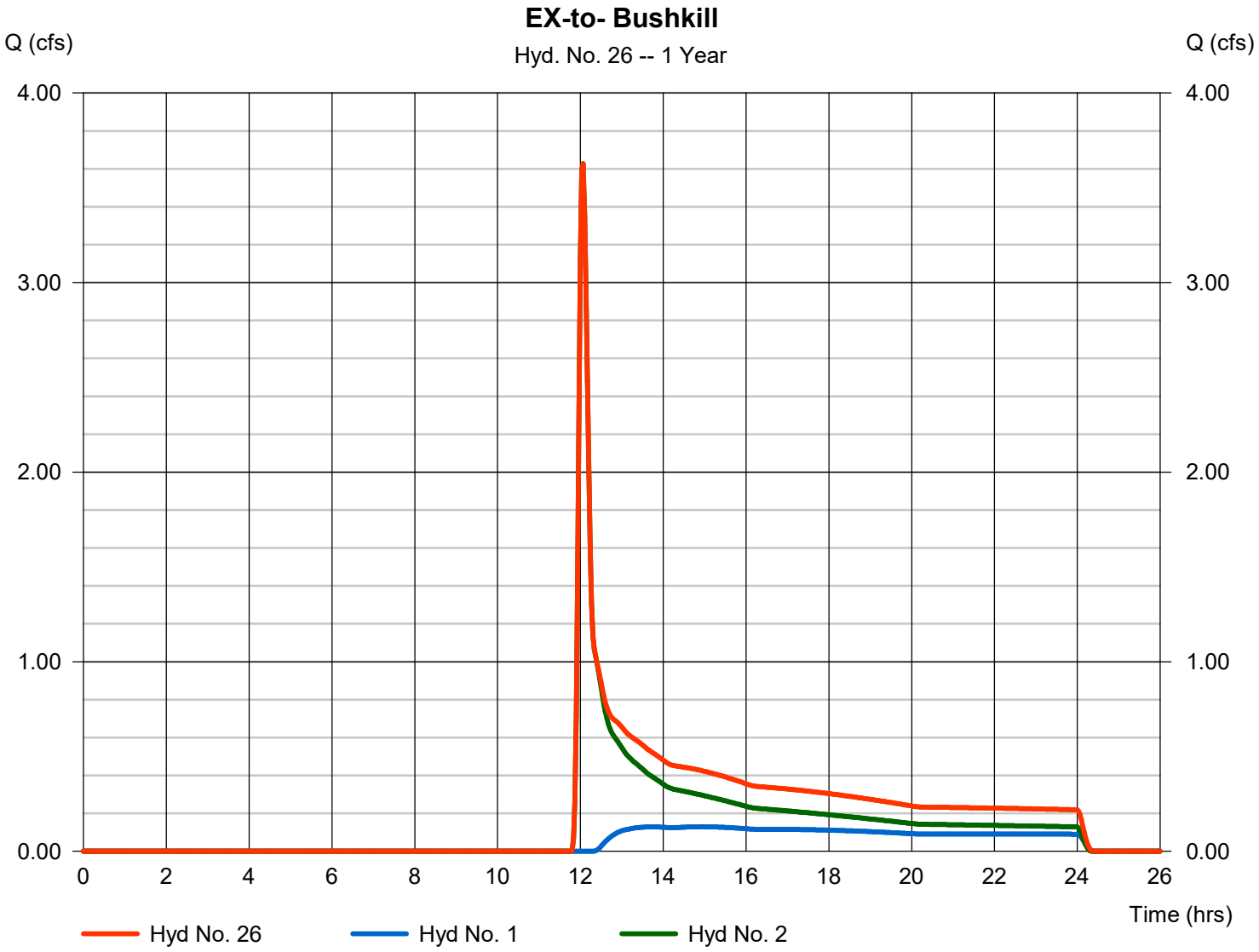


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 3.627 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 18,325 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

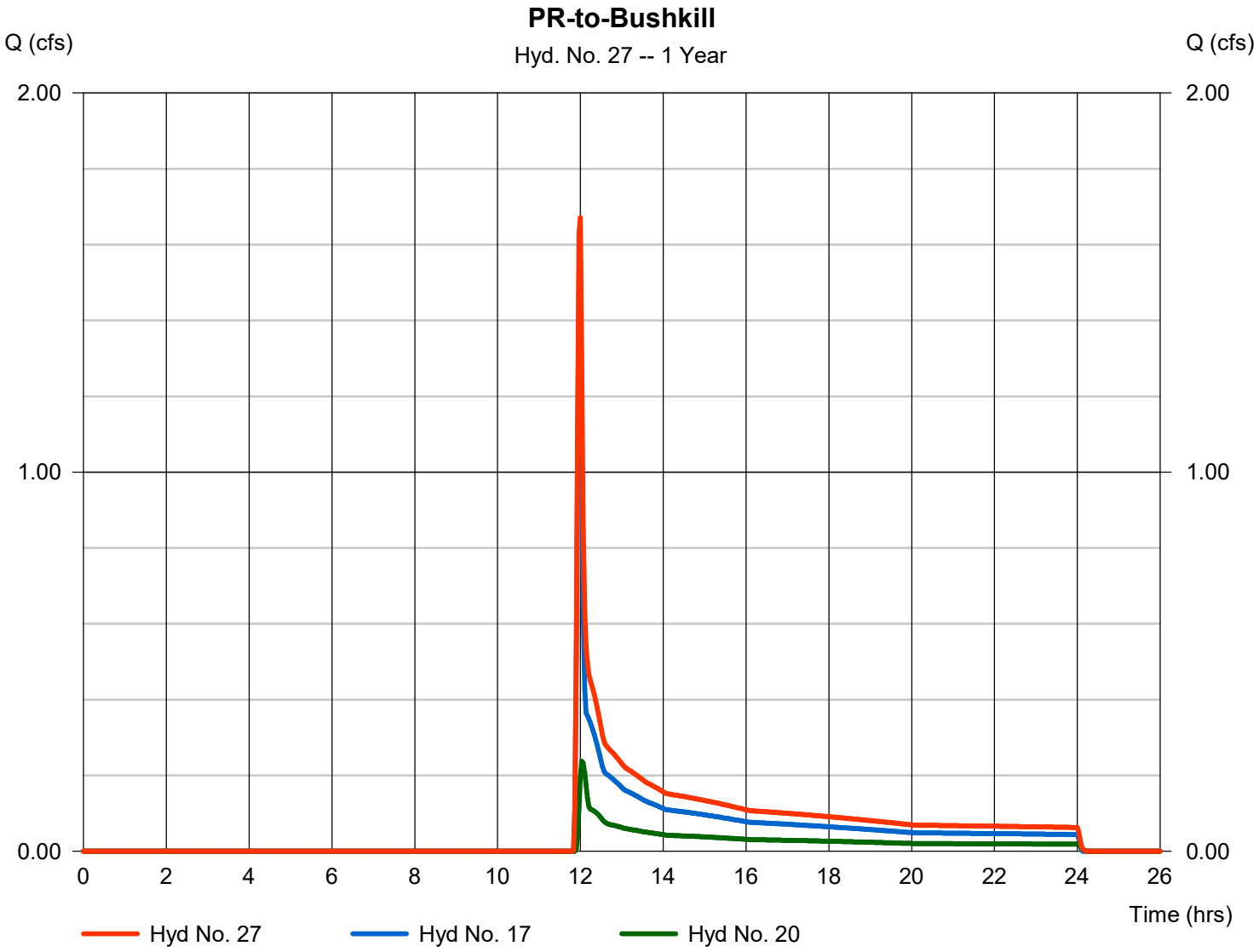


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 1.671 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 5,924 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

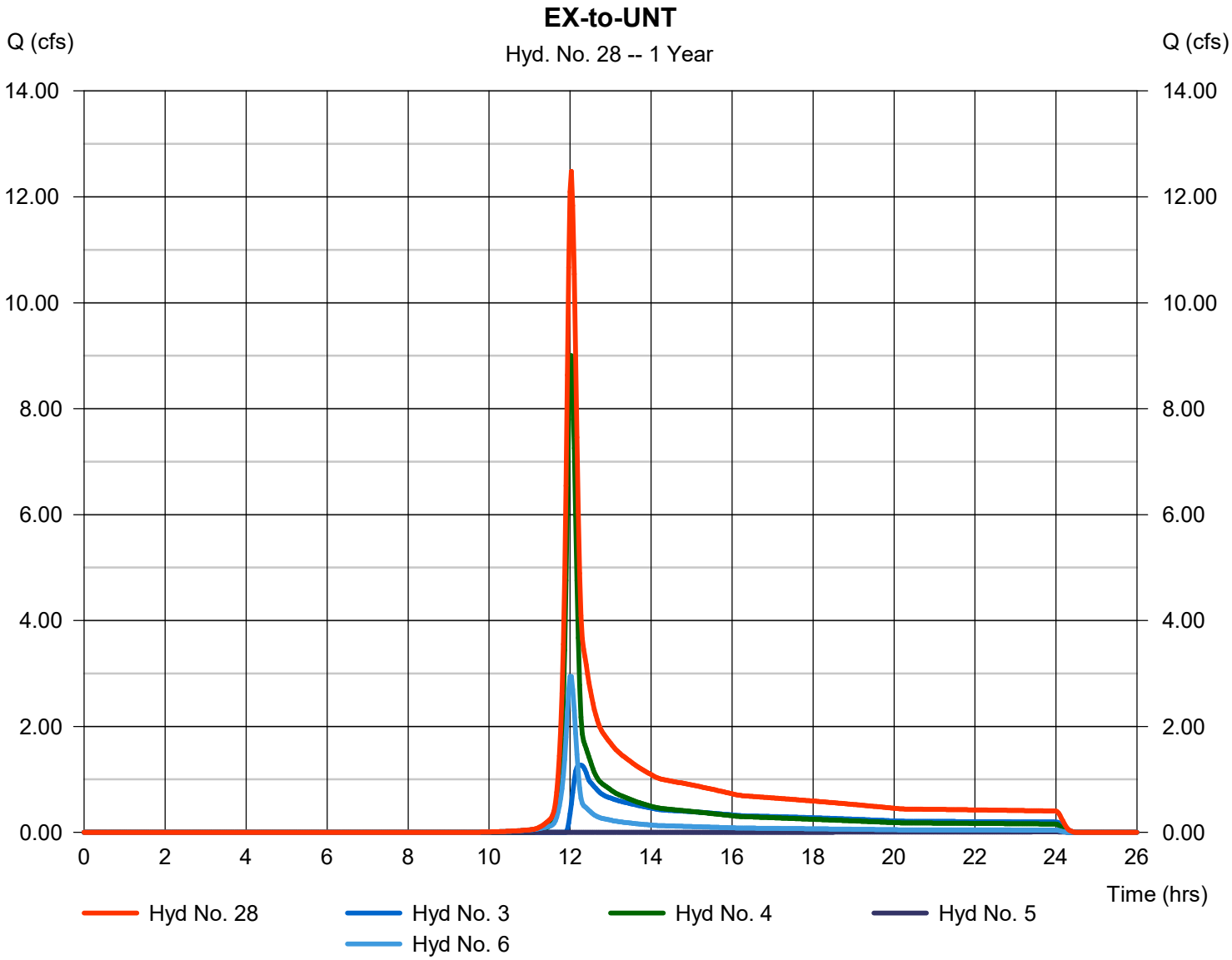


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 12.48 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 47,246 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

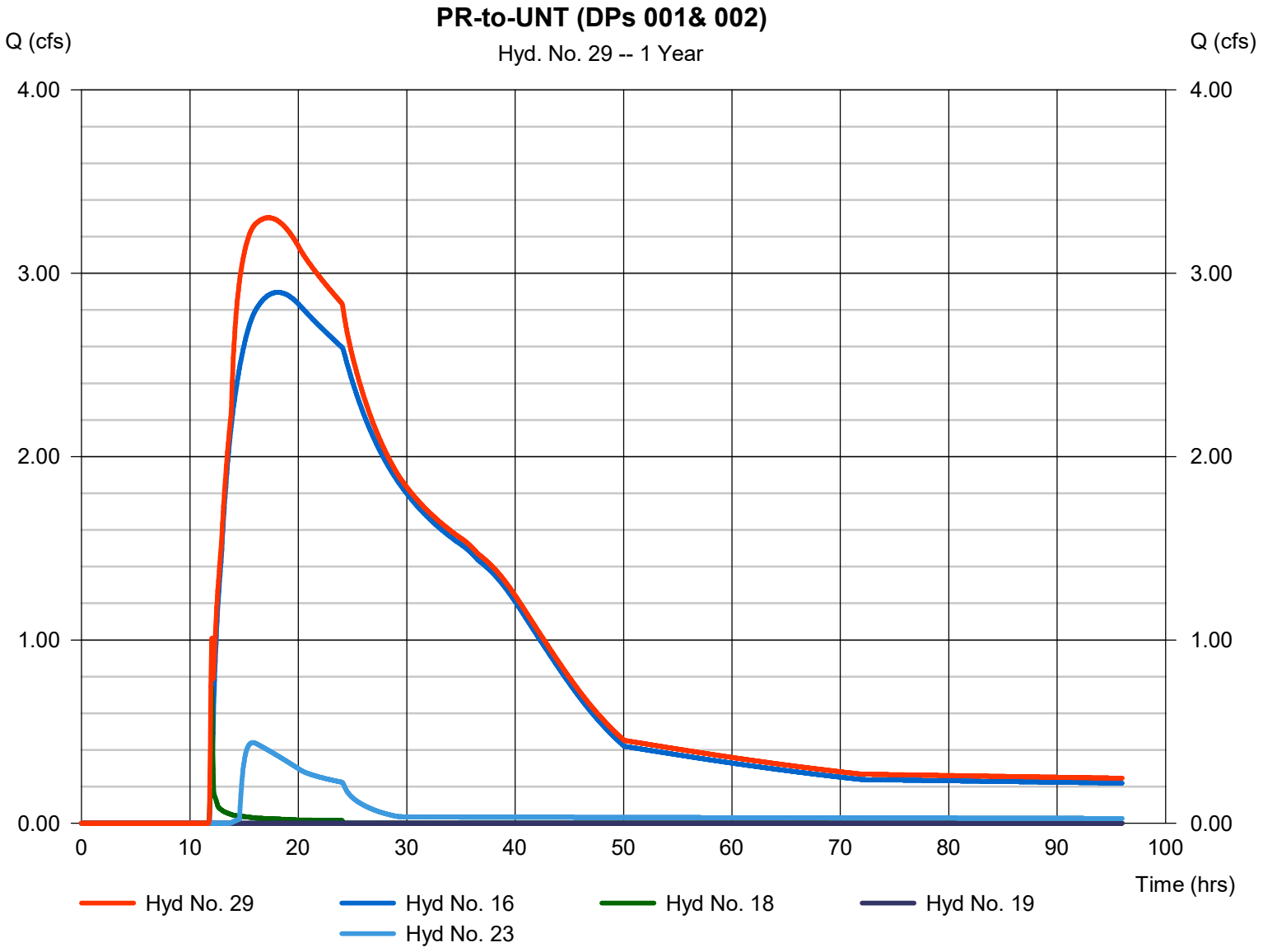


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	=	Combine	Peak discharge	=	3.303 cfs
Storm frequency	=	1 yrs	Time to peak	=	17.23 hrs
Time interval	=	2 min	Hyd. volume	=	307,128 cuft
Inflow hyds.	=	16, 18, 19, 23	Contrib. drain. area	=	6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.184	2	732	14,416	------	------	------	EX-DA 1
2	SCS Runoff	8.484	2	722	25,748	------	------	------	EX-DA2
3	SCS Runoff	6.047	2	728	34,205	------	------	------	EX-DA3
4	SCS Runoff	14.39	2	722	37,905	------	------	------	EX-DA4
5	SCS Runoff	0.051	2	908	1,748	------	------	------	EX-DA5
6	SCS Runoff	4.333	2	720	11,239	------	------	------	EX-DA-Road Widening
7	Combine	31.95	2	722	125,260	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	48.40	2	716	107,695	------	------	------	PR-DA-A
9	SCS Runoff	61.17	2	716	136,095	------	------	------	PR-DA-B
10	SCS Runoff	96.15	2	718	223,634	------	------	------	PR-DA-C
11	Reservoir	0.743	2	998	95,688	8	290.68	80,516	BMP A Routing
12	Reservoir	1.169	2	930	124,614	9	286.90	96,740	BMP B Routing
13	SCS Runoff	16.85	2	718	33,776	------	------	------	PR-DA-E
14	Reservoir	0.700	2	818	30,368	13	257.59	18,510	BMP E Routing
15	Combine	97.82	2	718	443,935	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	4.410	2	908	395,047	15	217.02	160,362	MRC BMP C Routing(DP1)
17	SCS Runoff	3.812	2	718	8,524	------	------	------	PR-BYPASS 1
18	SCS Runoff	1.385	2	720	3,312	------	------	------	PR RG
19	SCS Runoff	0.016	2	1440	491	------	------	------	PR-BYPASS 2
20	SCS Runoff	0.999	2	722	3,353	------	------	------	PR-BYPASS 3
21	SCS Runoff	5.984	2	718	15,576	------	------	------	PR-Road Widening
22	Combine	7.356	2	718	49,256	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	1.027	2	808	36,242	22	232.77	14,274	RG Routing (DP2)
24	Combine	4.628	2	718	12,368	17, 19, 20,	------	------	PR-BYPASS
25	Combine	6.325	2	830	474,026	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	9.106	2	722	40,163	1, 2,	------	------	EX-to- Bushkill
27	Combine	4.628	2	718	11,877	17, 20,	------	------	PR-to-Bushkill
28	Combine	22.84	2	722	85,096	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	5.415	2	838	436,437	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

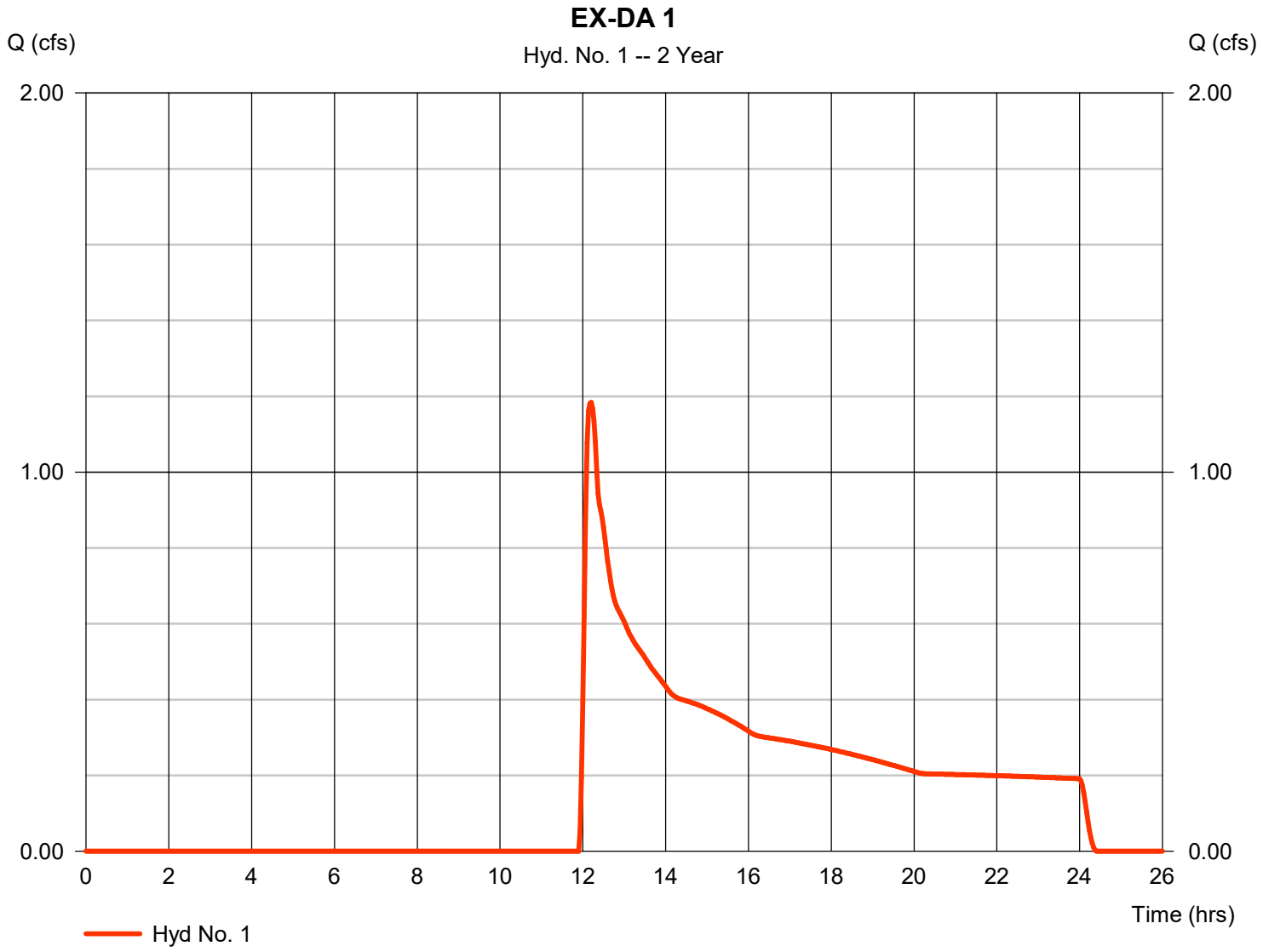
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.184 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	14,416 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



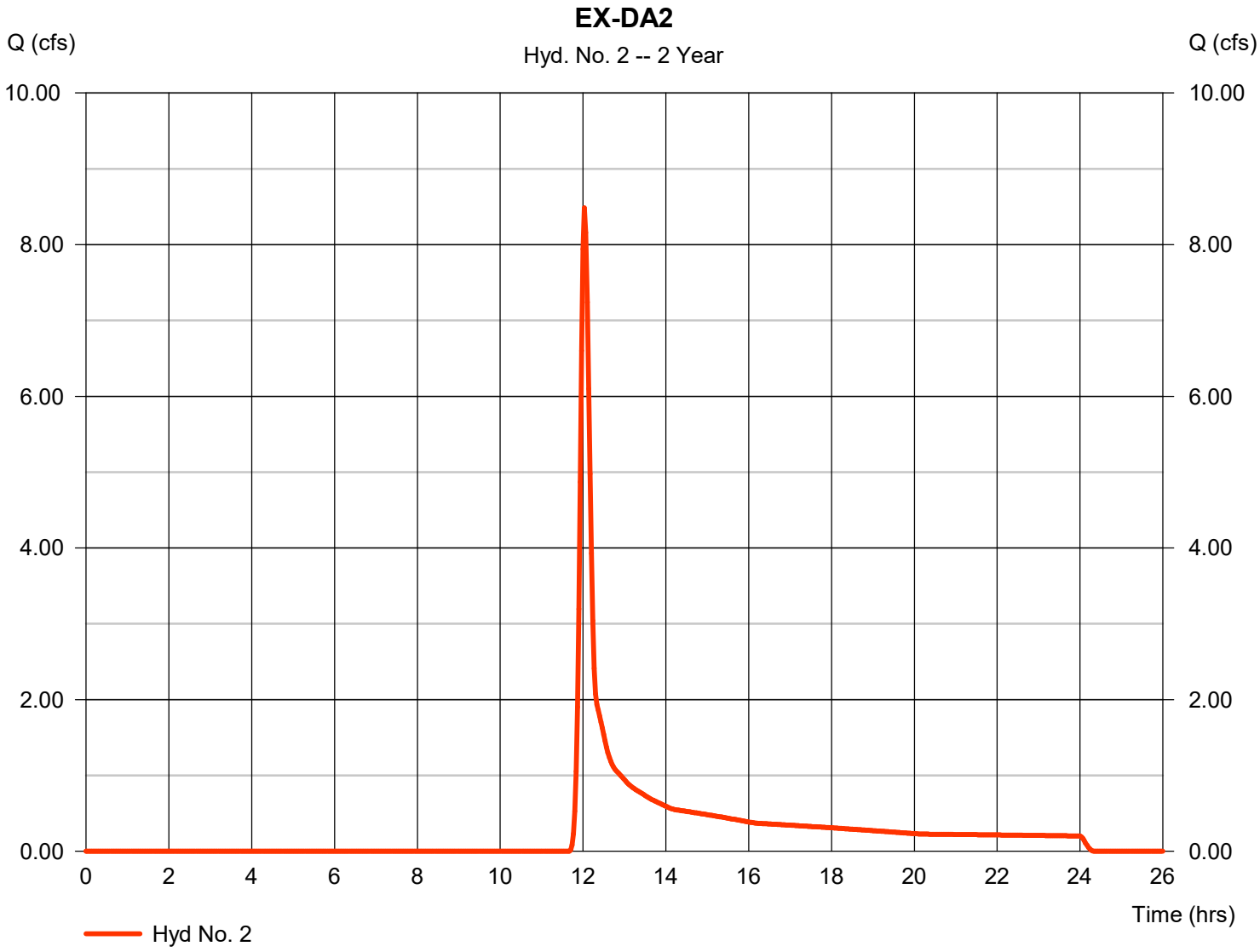
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.484 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	25,748 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



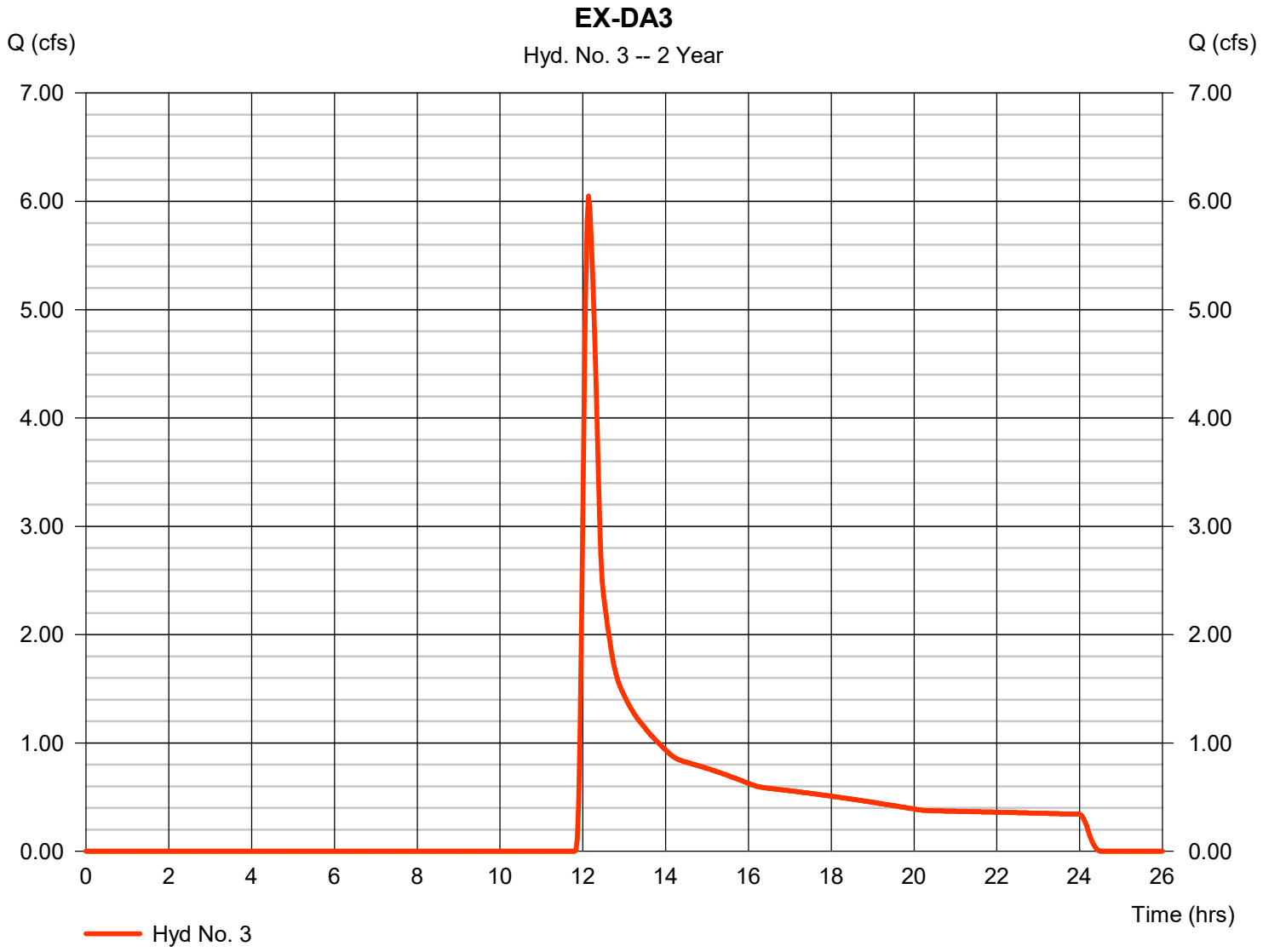
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.047 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	34,205 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



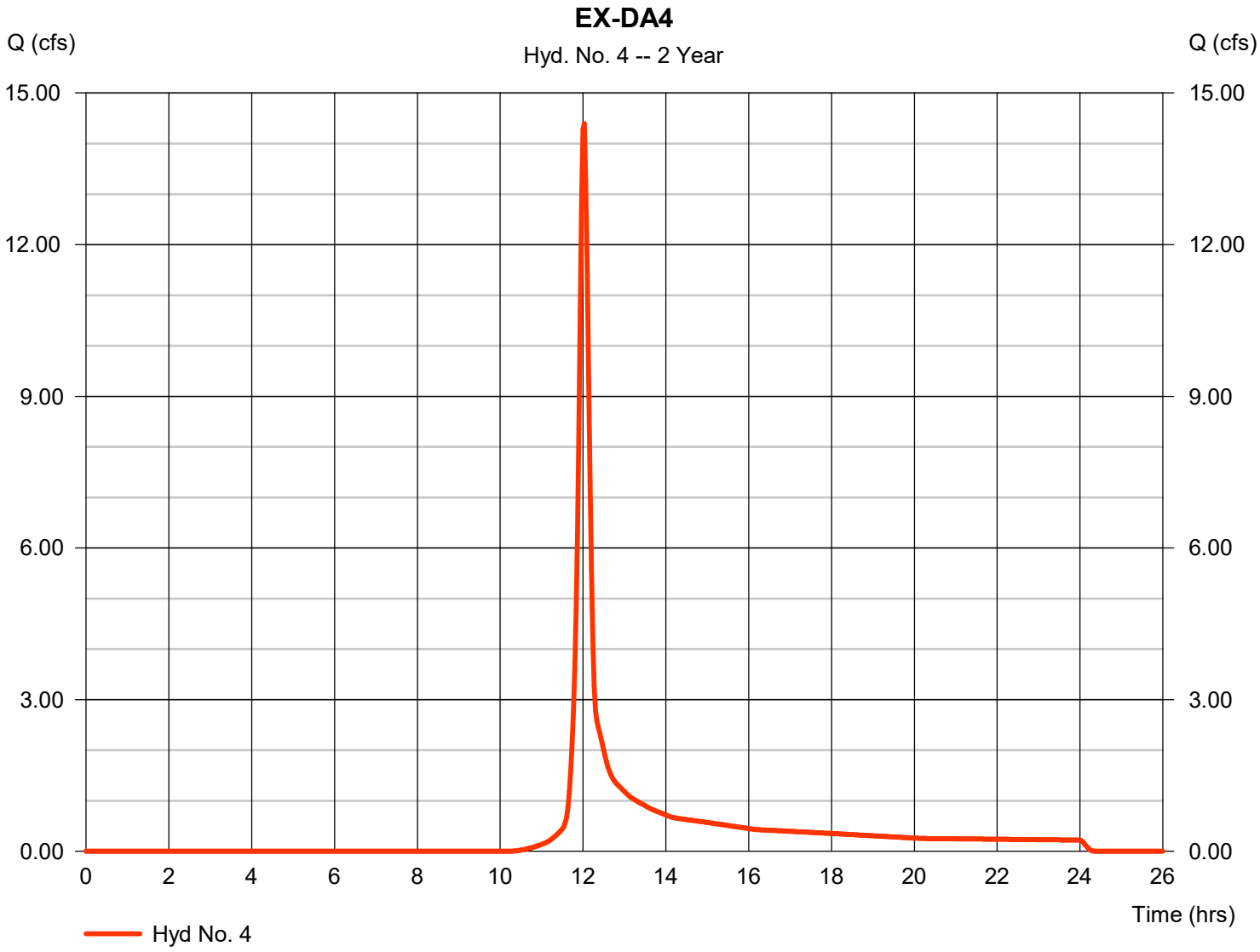
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.39 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	37,905 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



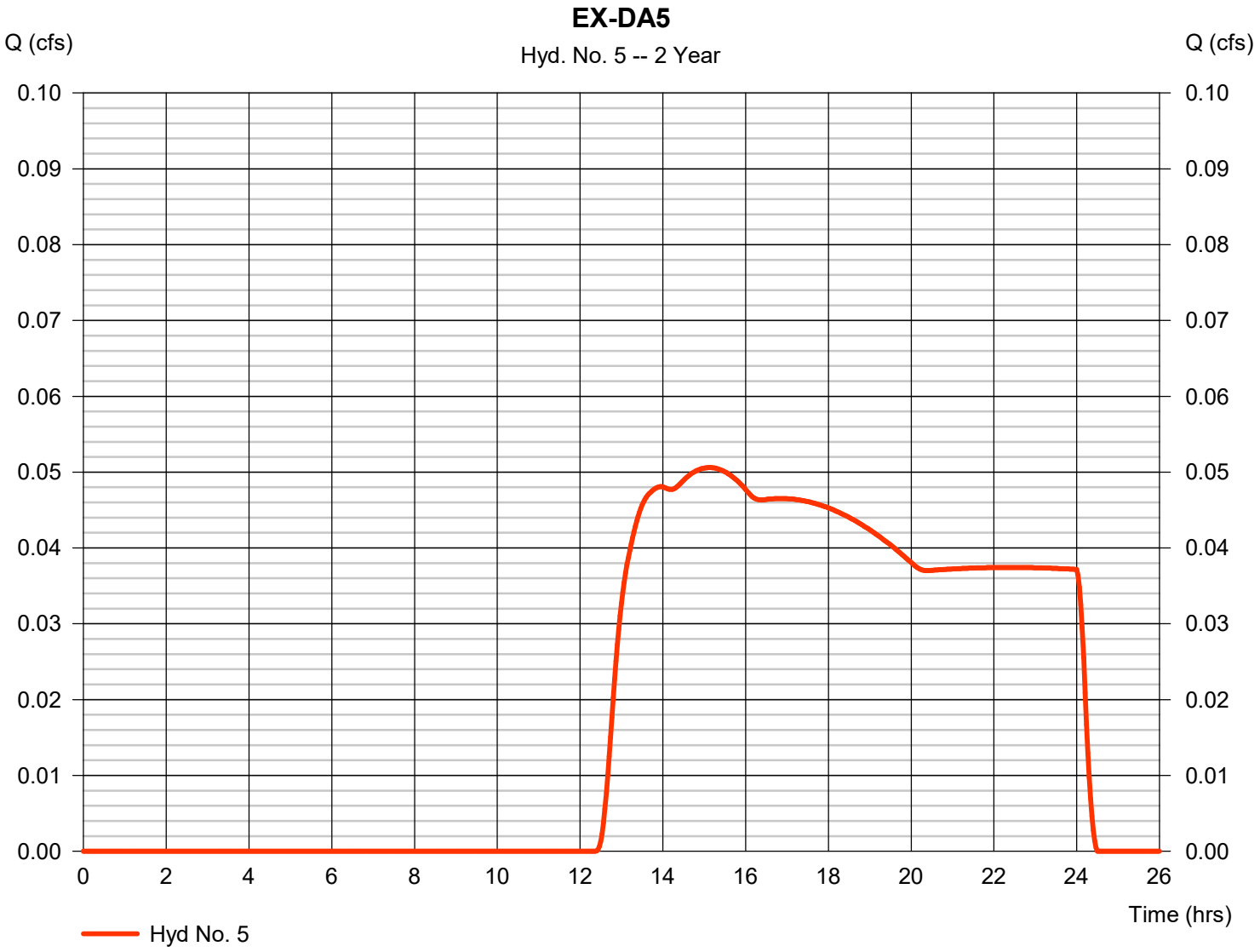
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.051 cfs
Storm frequency	=	2 yrs	Time to peak	=	15.13 hrs
Time interval	=	2 min	Hyd. volume	=	1,748 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



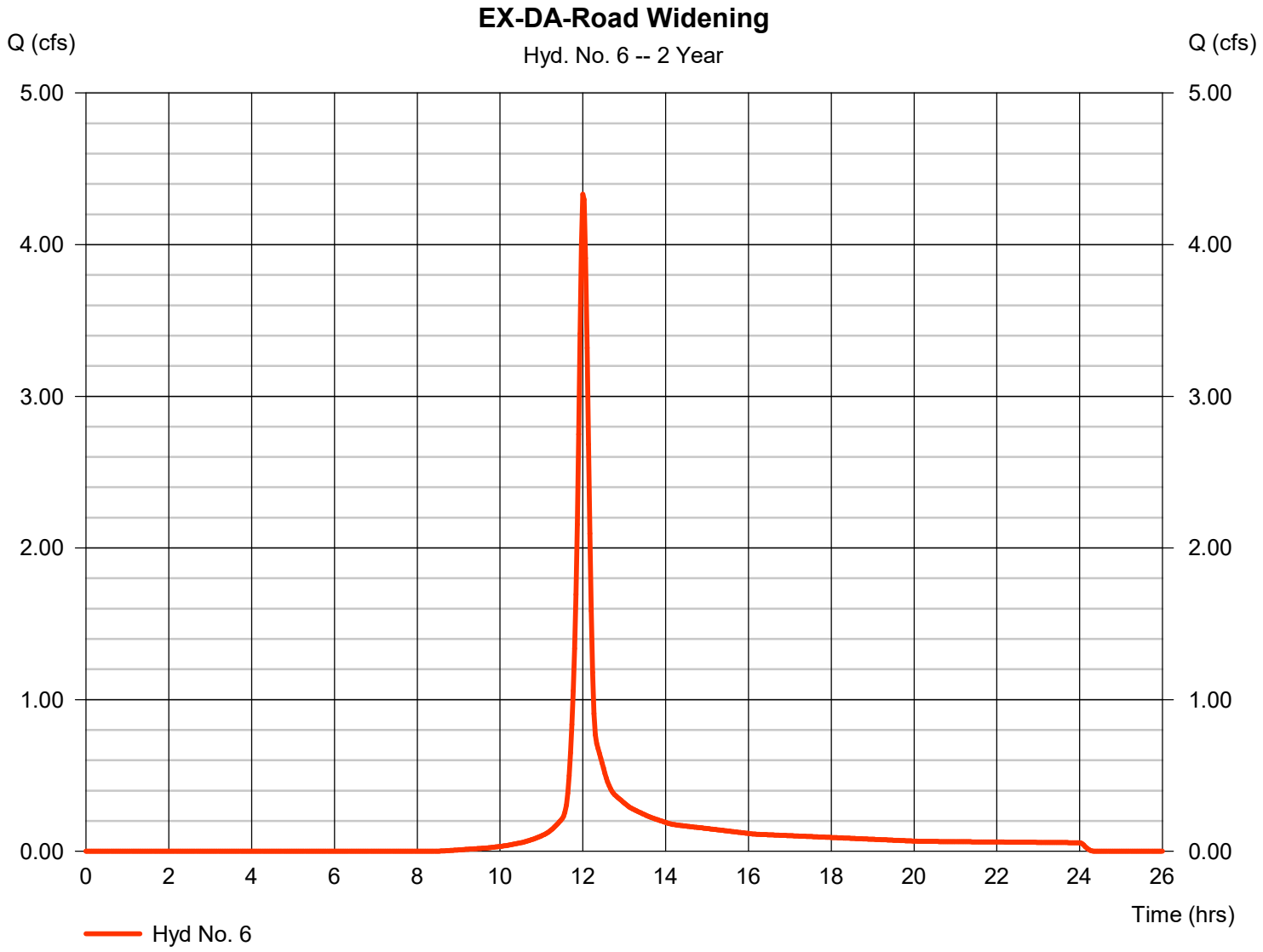
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.333 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	11,239 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

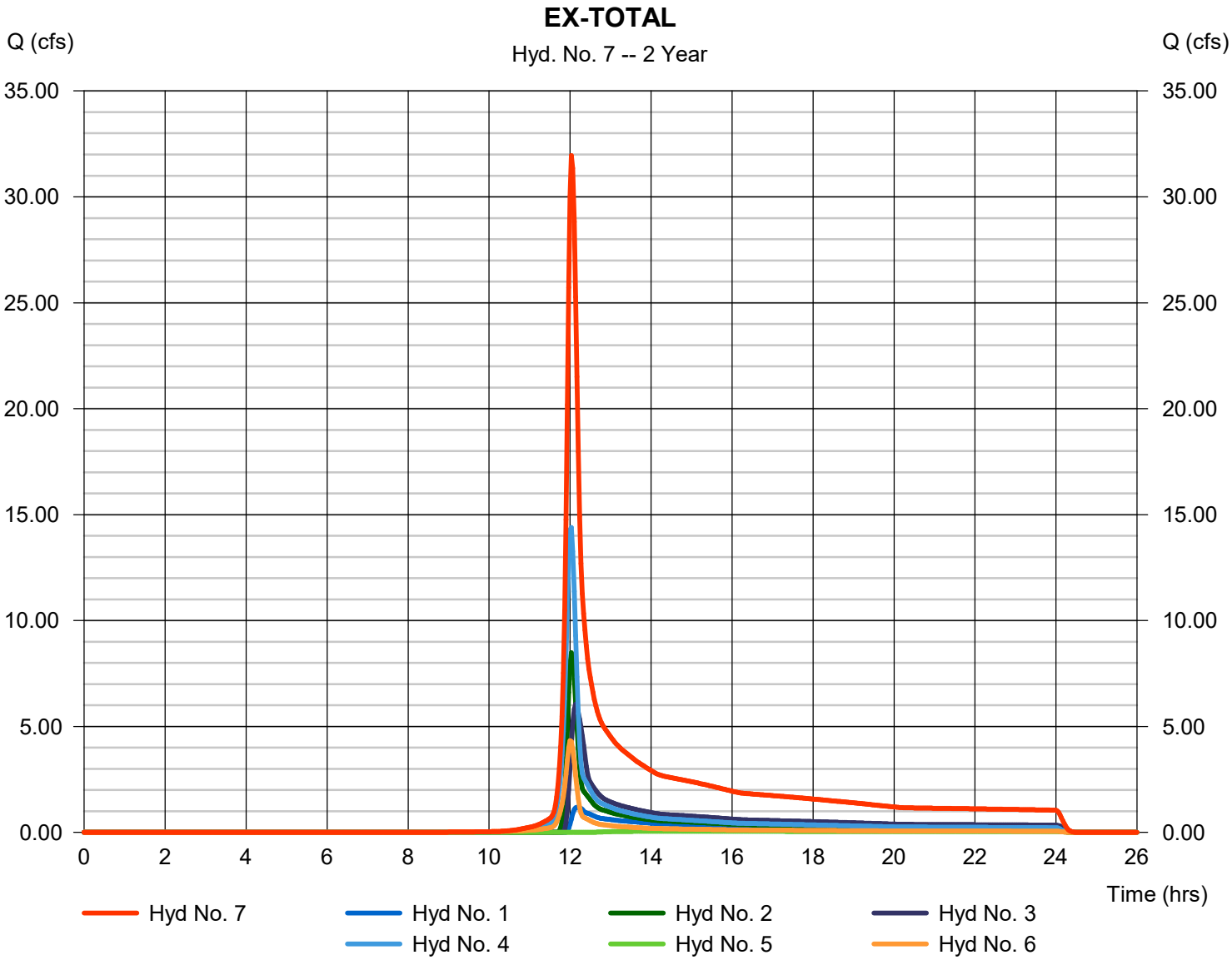


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	= Combine	Peak discharge	= 31.95 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 125,260 cuft
Inflow hyds.	= 1, 2, 3, 4, 5, 6	Contrib. drain. area	= 82.880 ac



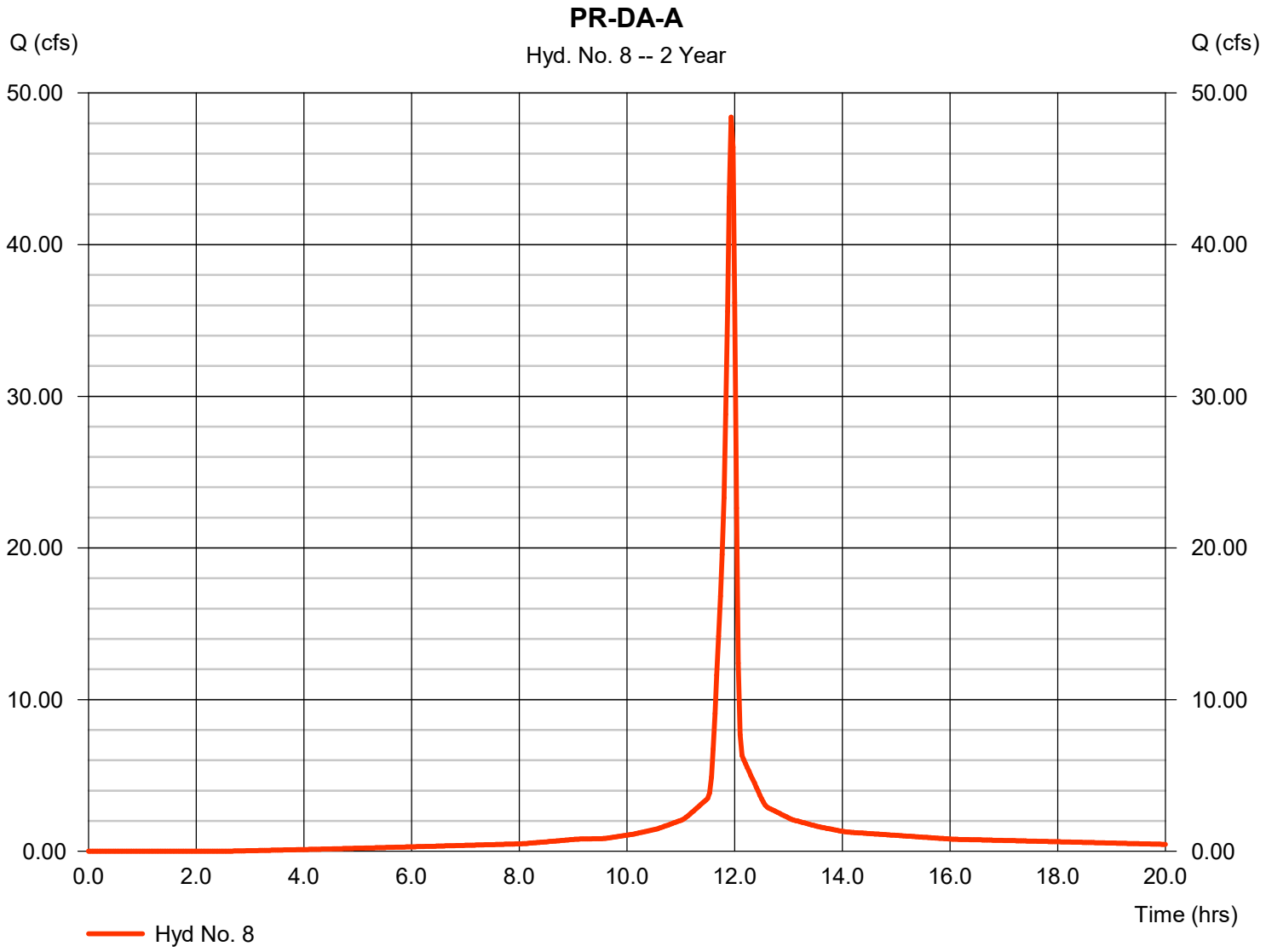
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.40 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	107,695 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



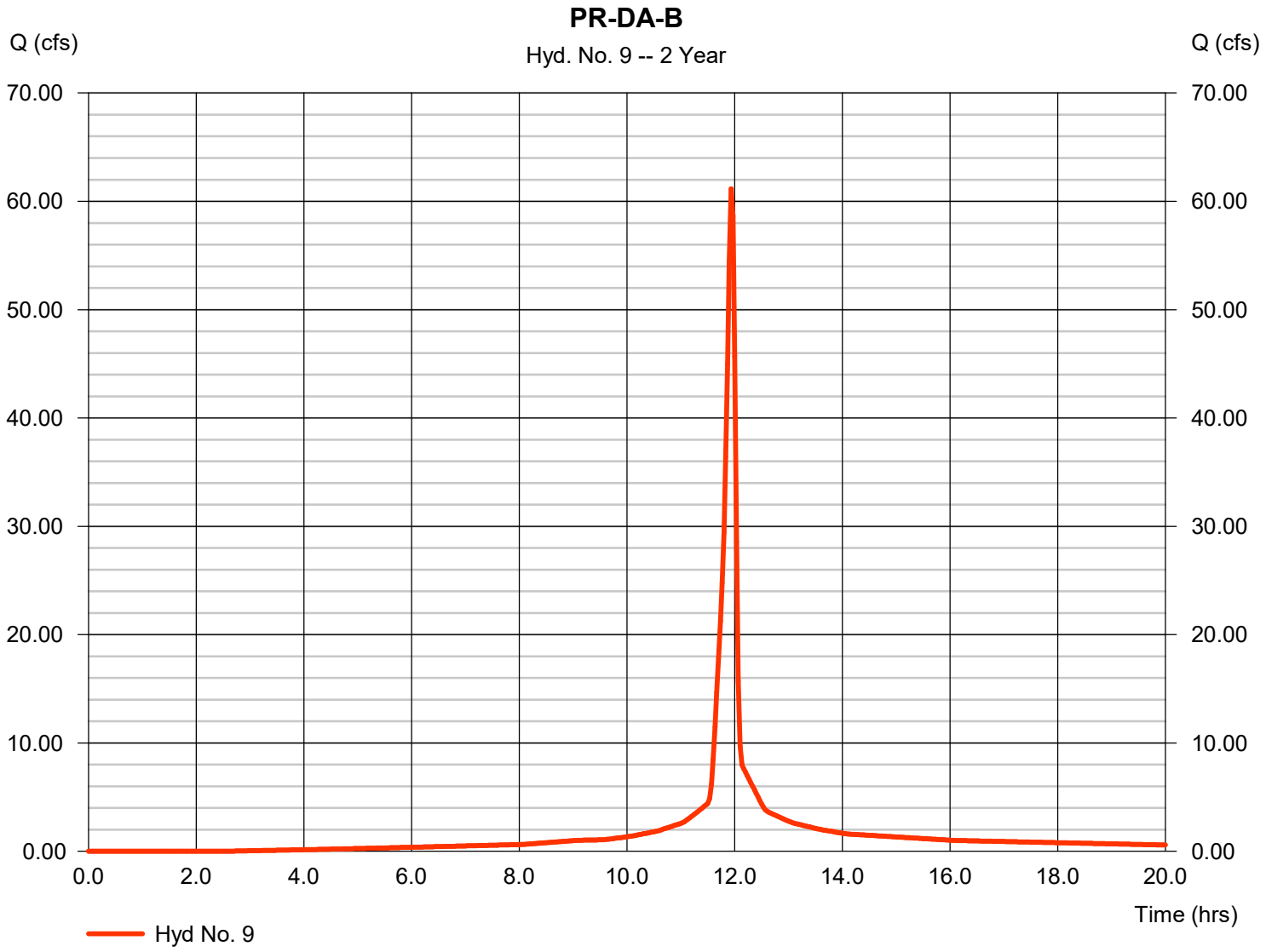
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	61.17 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	136,095 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



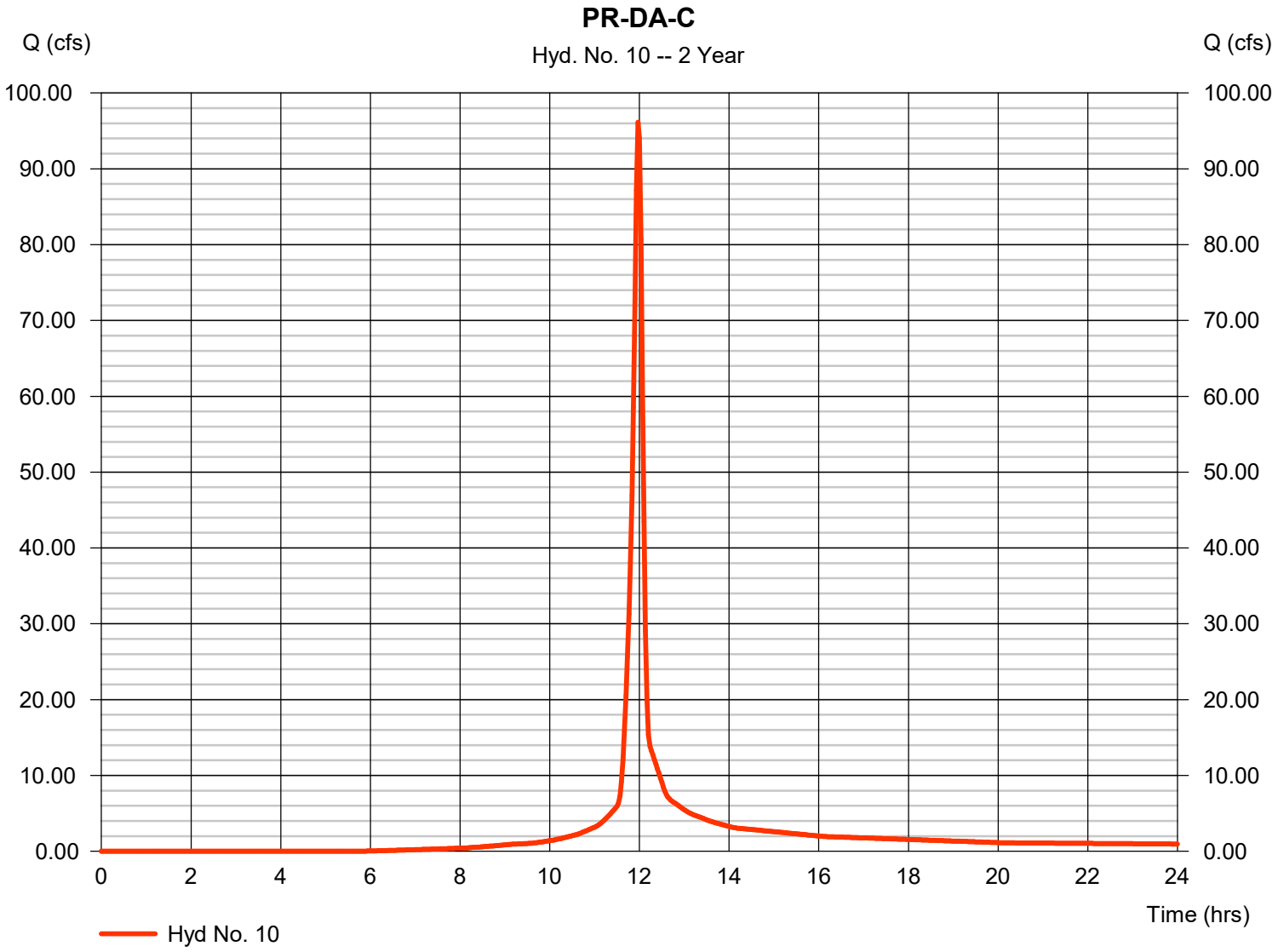
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	96.15 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	223,634 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



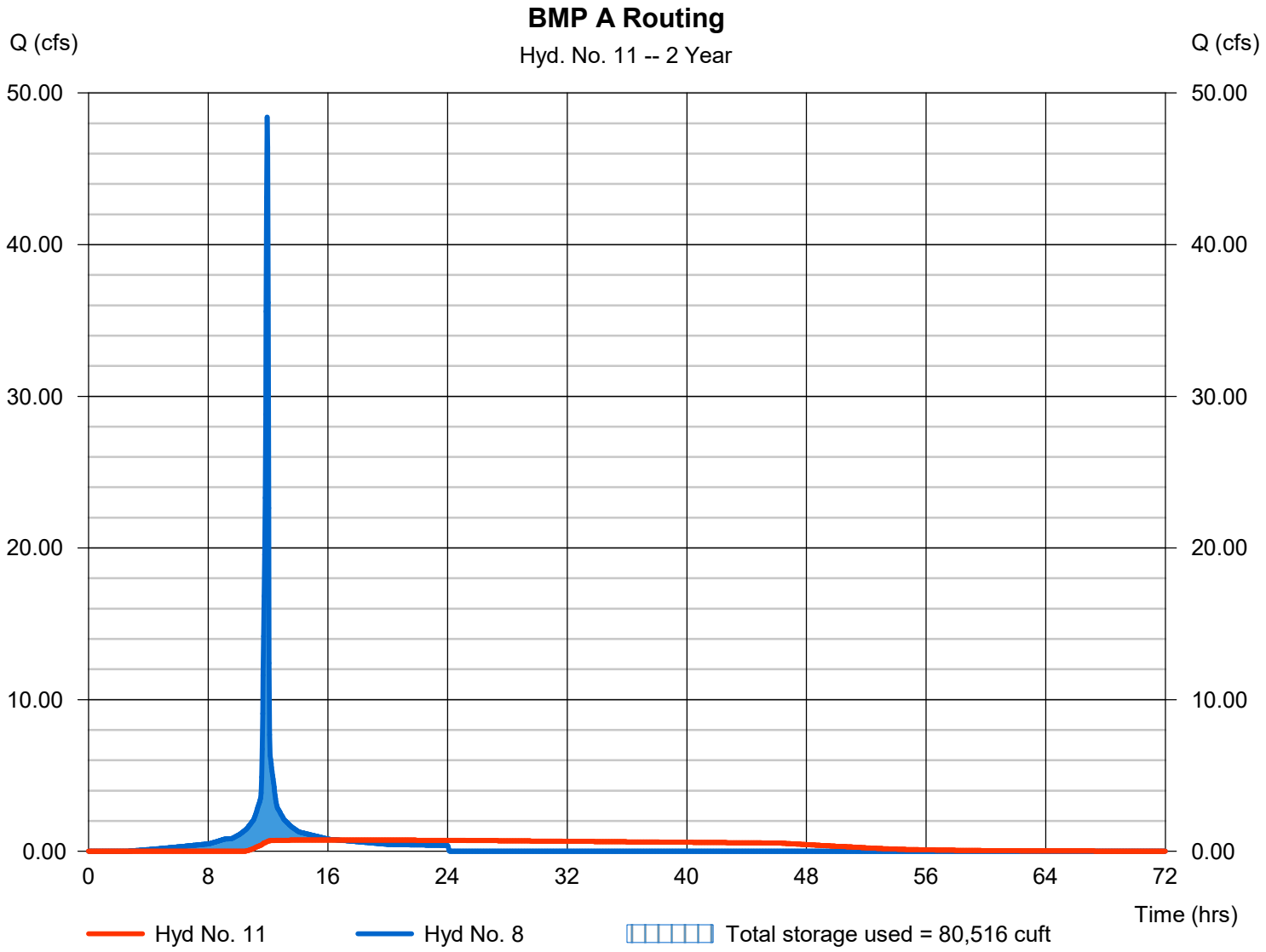
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.743 cfs
Storm frequency	=	2 yrs	Time to peak	=	16.63 hrs
Time interval	=	2 min	Hyd. volume	=	95,688 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.68 ft
Reservoir name	=	BMP A	Max. Storage	=	80,516 cuft

Storage Indication method used.



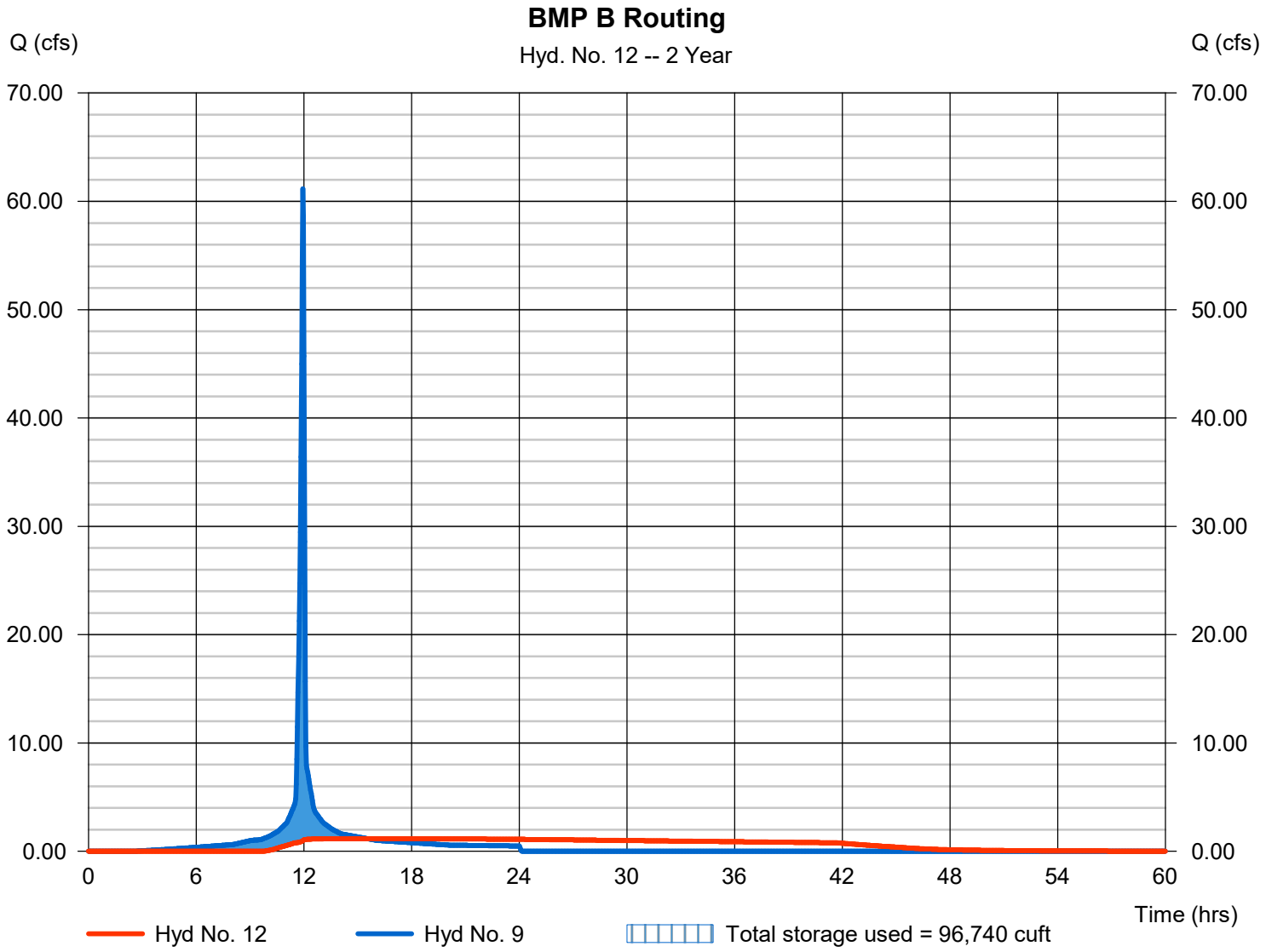
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.169 cfs
Storm frequency	=	2 yrs	Time to peak	=	15.50 hrs
Time interval	=	2 min	Hyd. volume	=	124,614 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	286.90 ft
Reservoir name	=	BMP B	Max. Storage	=	96,740 cuft

Storage Indication method used.



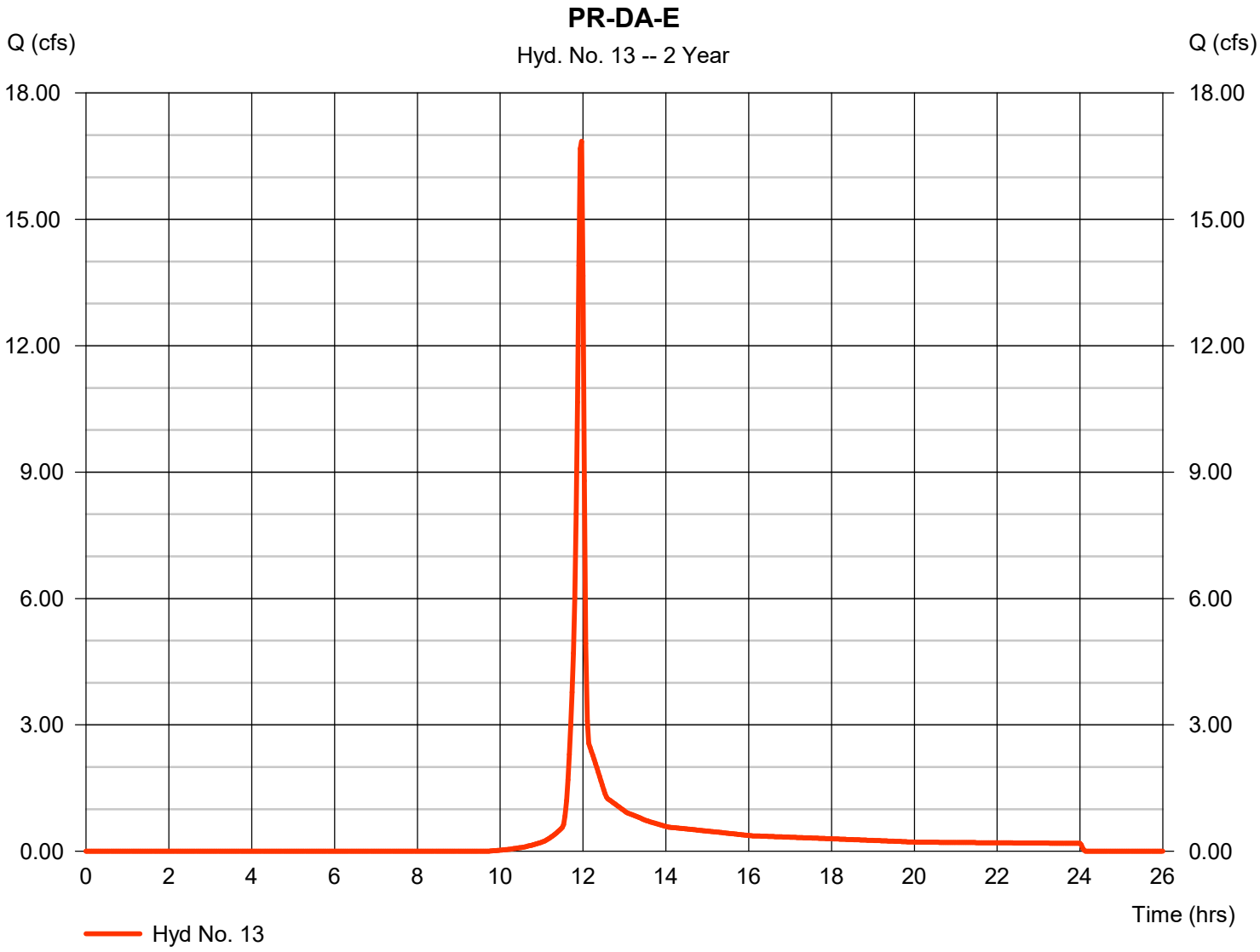
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.85 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	33,776 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



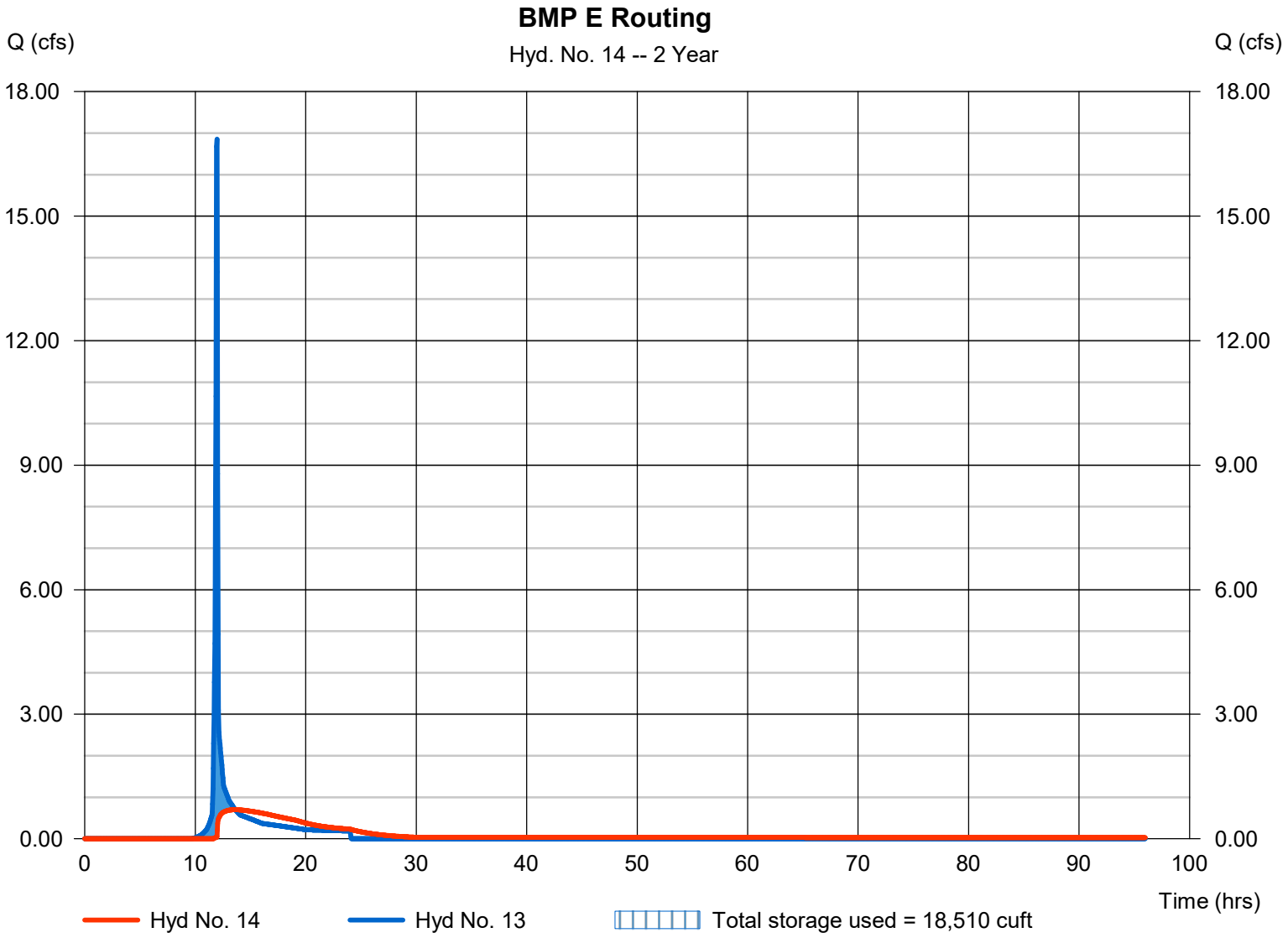
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.700 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.63 hrs
Time interval	=	2 min	Hyd. volume	=	30,368 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	257.59 ft
Reservoir name	=	BMP E	Max. Storage	=	18,510 cuft

Storage Indication method used.

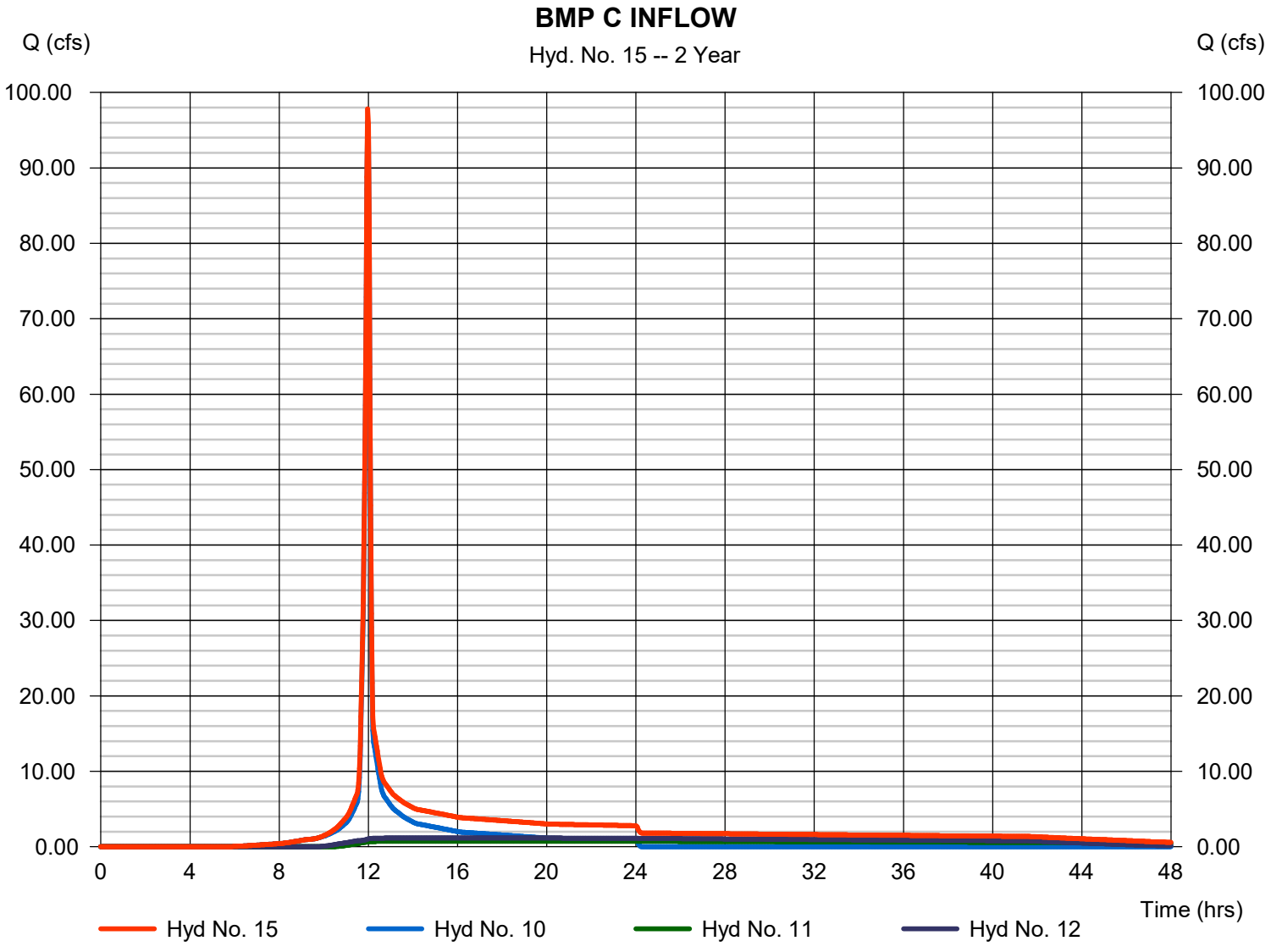


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	= Combine	Peak discharge	= 97.82 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 443,935 cuft
Inflow hyds.	= 10, 11, 12	Contrib. drain. area	= 31.050 ac



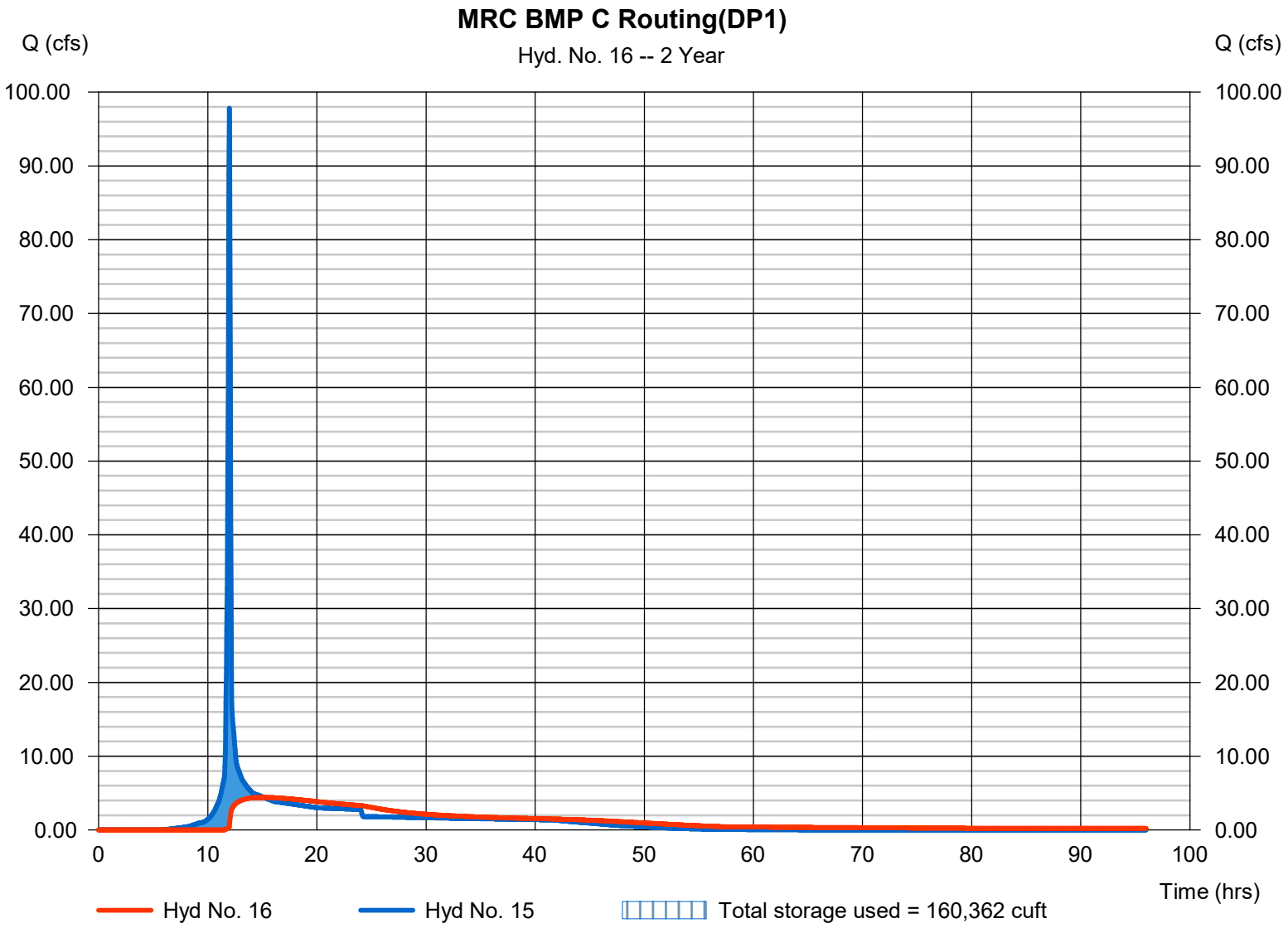
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	4.410 cfs
Storm frequency	=	2 yrs	Time to peak	=	15.13 hrs
Time interval	=	2 min	Hyd. volume	=	395,047 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.02 ft
Reservoir name	=	BMP C	Max. Storage	=	160,362 cuft

Storage Indication method used.



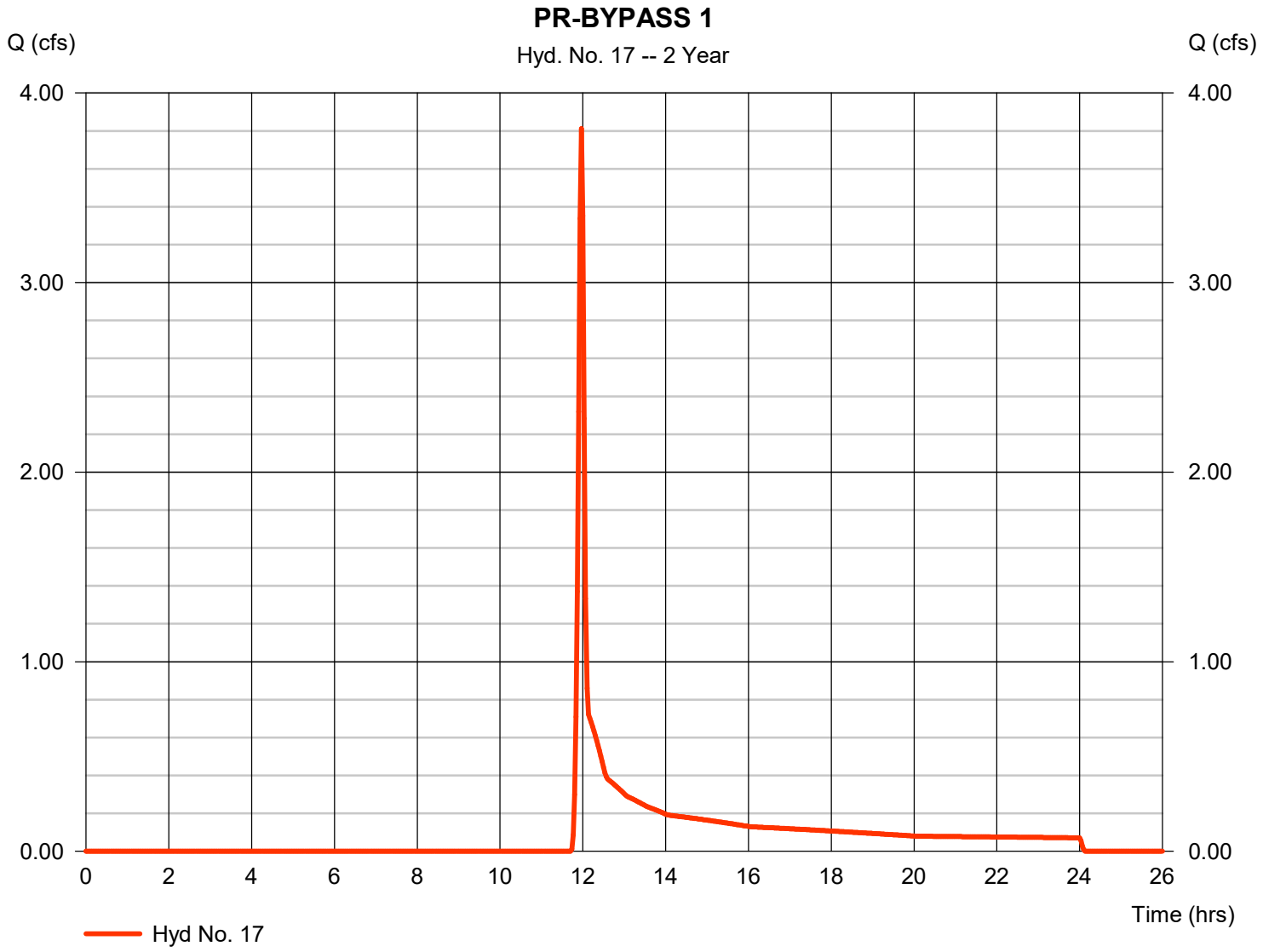
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.812 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	8,524 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



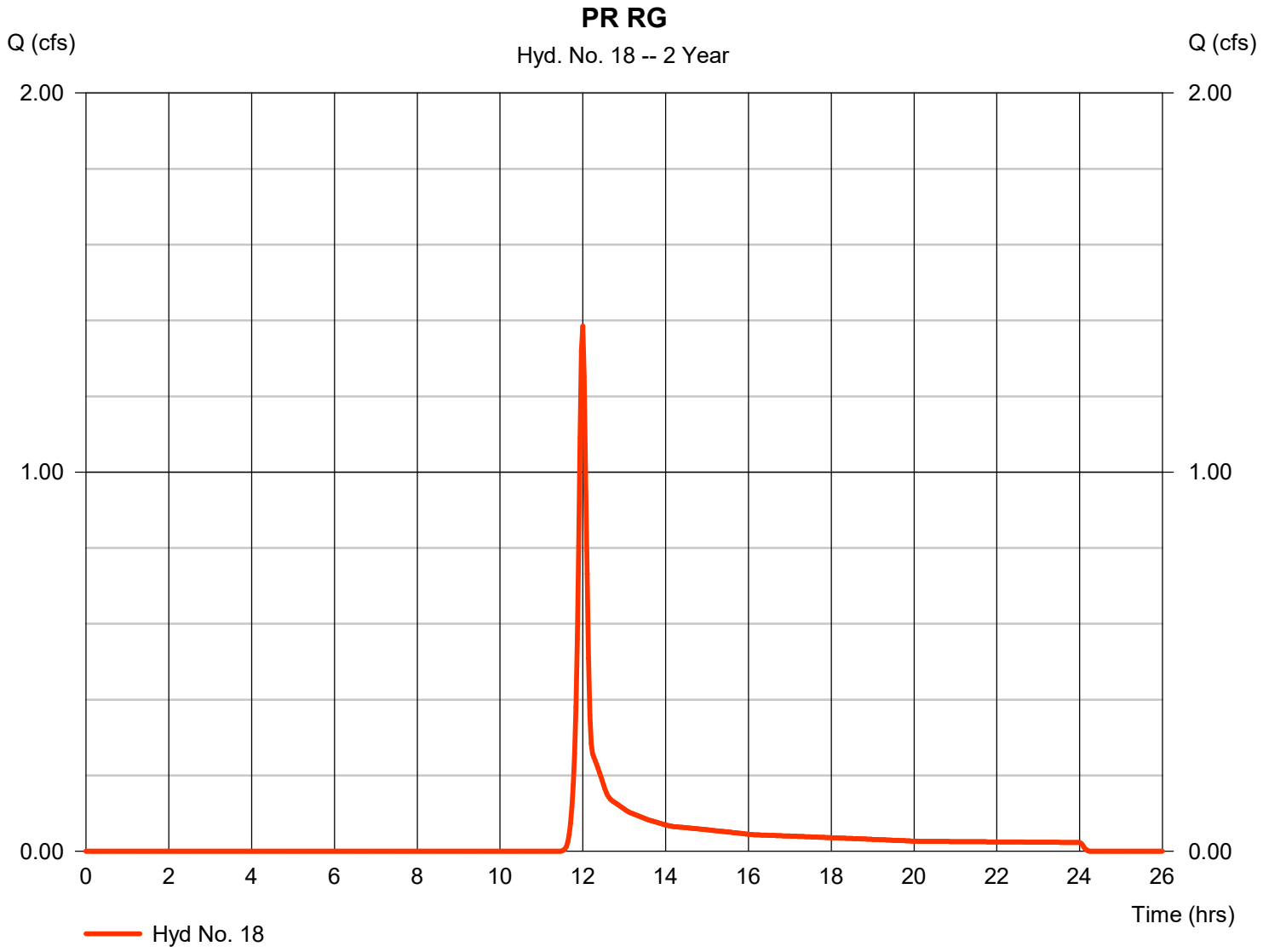
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.385 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	3,312 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



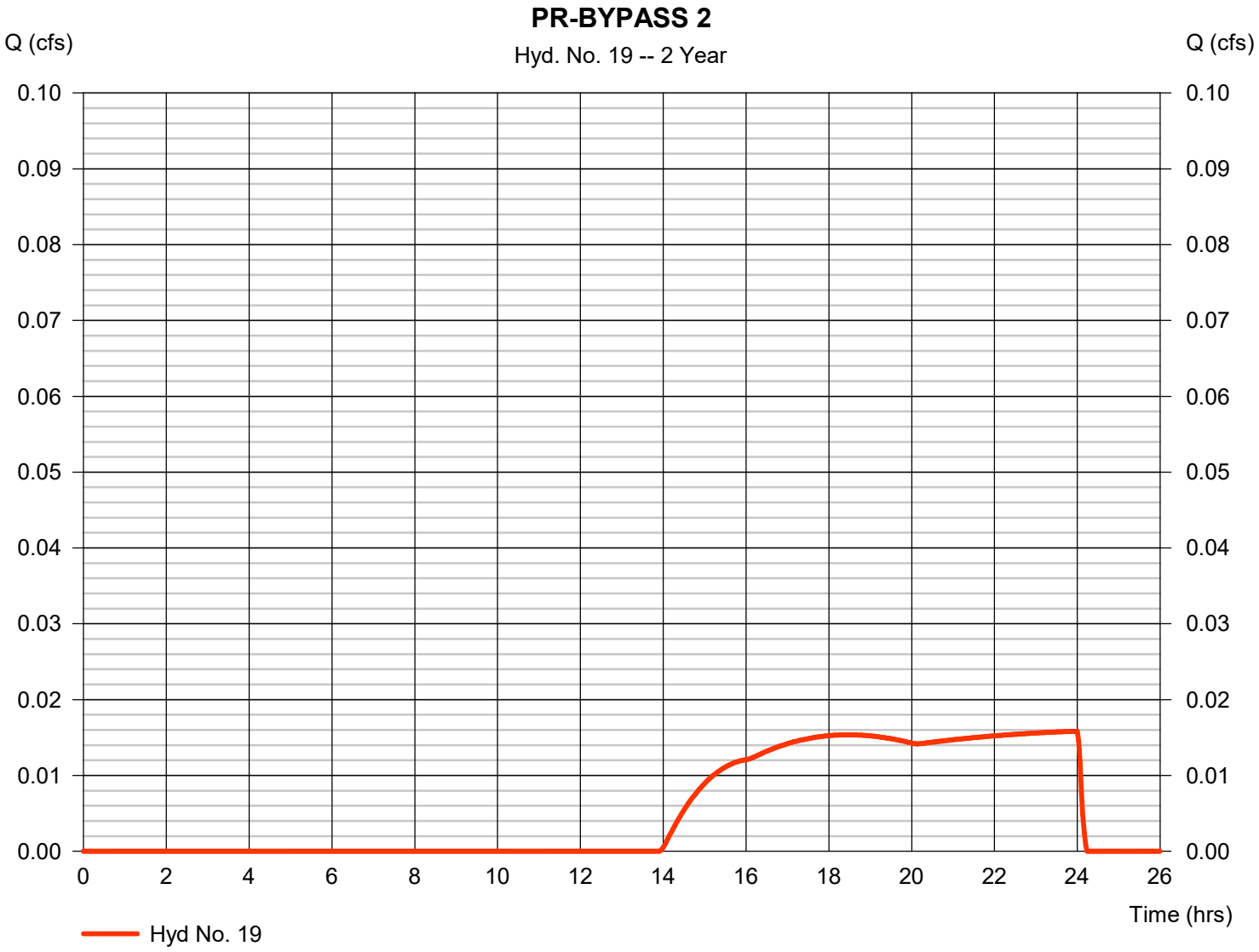
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.016 cfs
Storm frequency	= 2 yrs	Time to peak	= 24.00 hrs
Time interval	= 2 min	Hyd. volume	= 491 cuft
Drainage area	= 5.600 ac	Curve number	= 45*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.50 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



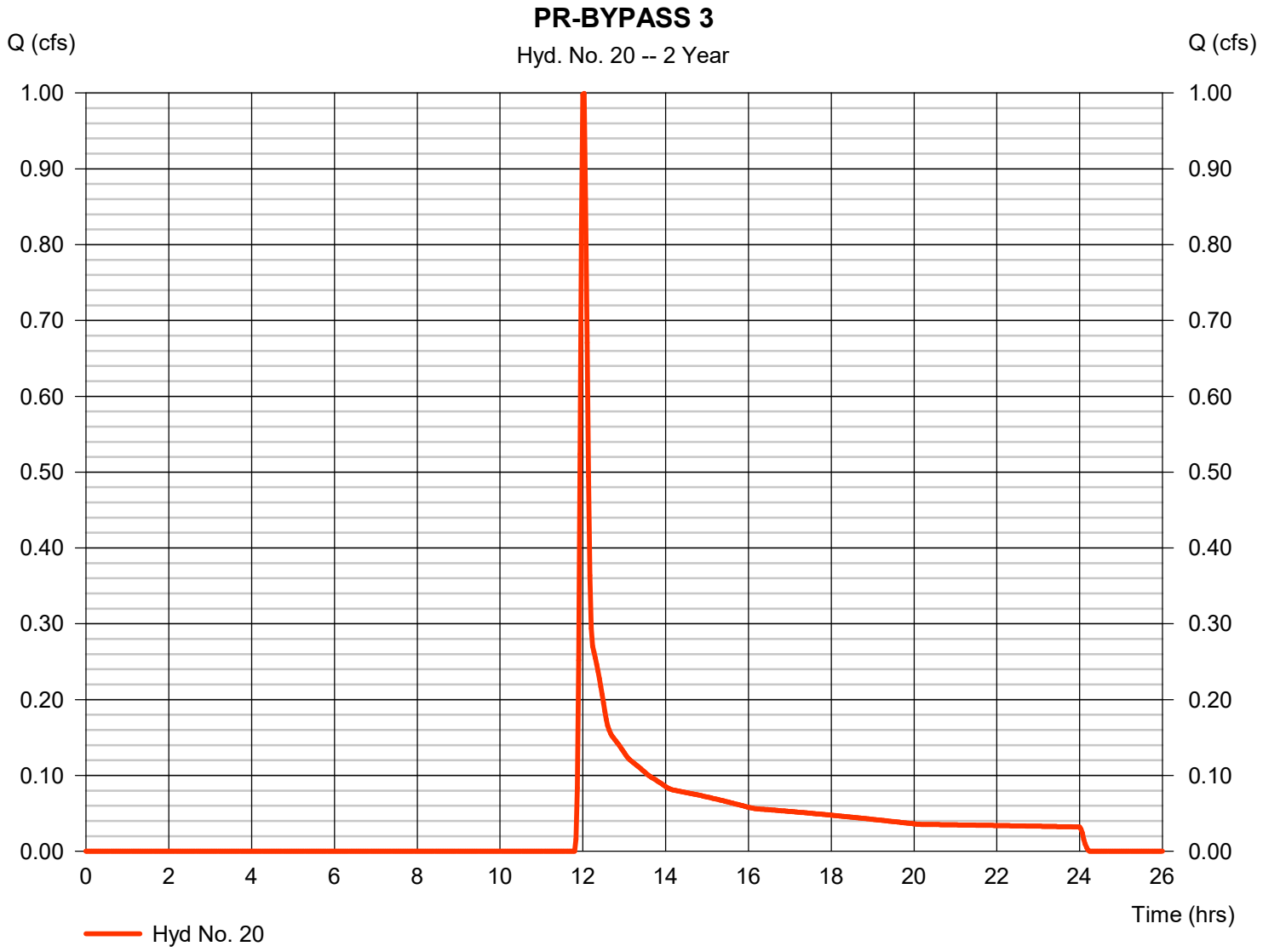
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.999 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	3,353 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

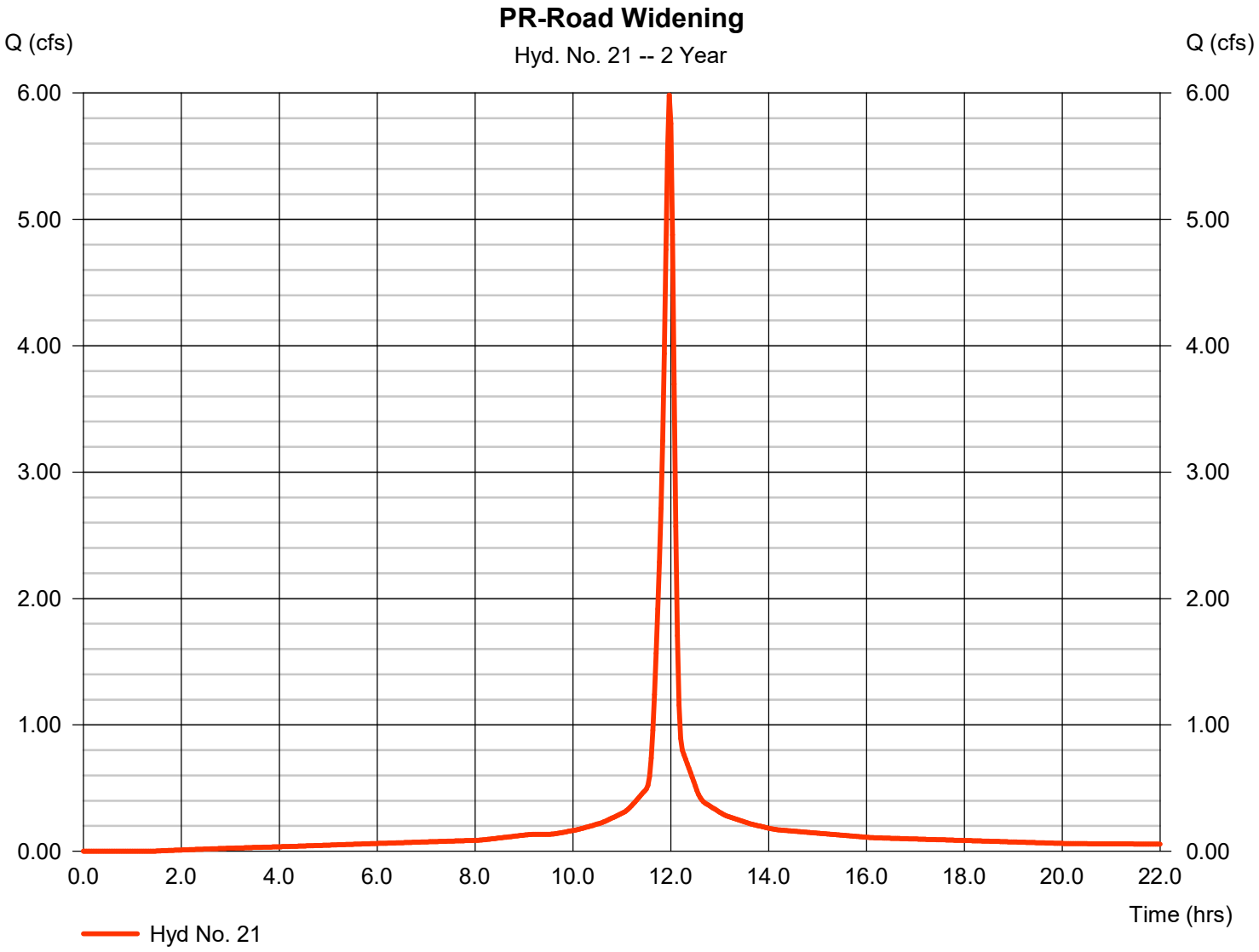


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.984 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	15,576 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

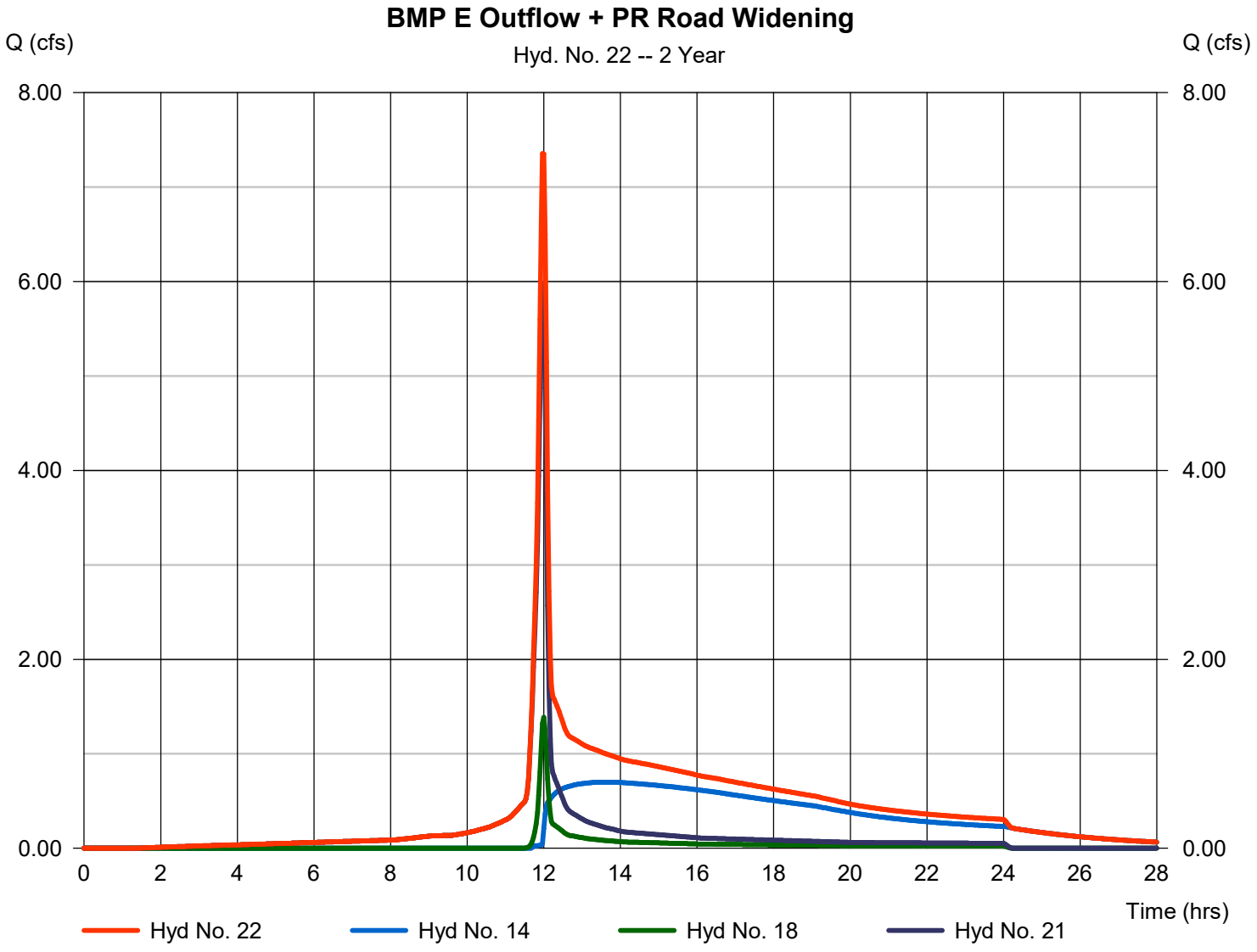


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	7.356 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	49,256 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



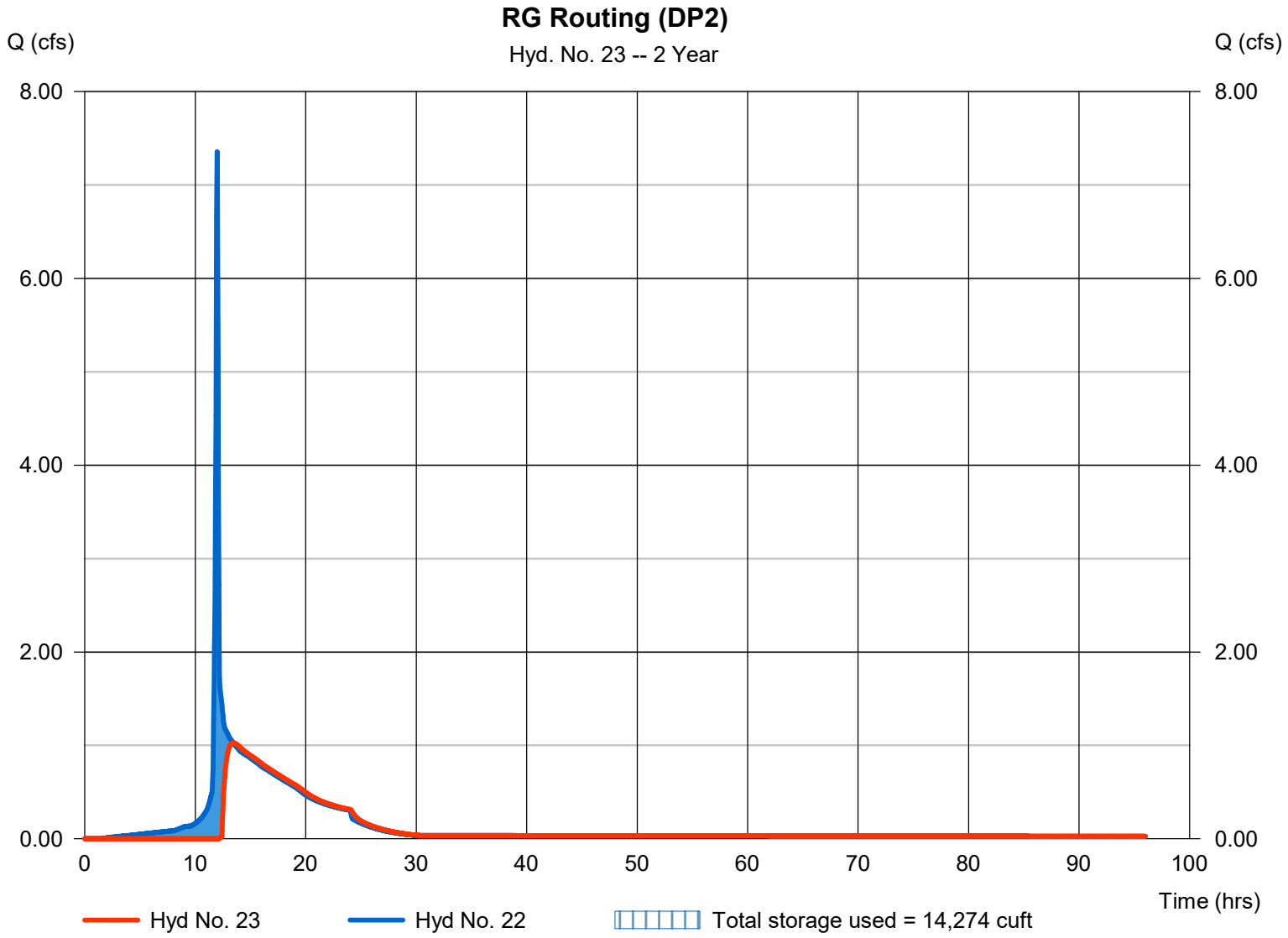
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	1.027 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.47 hrs
Time interval	=	2 min	Hyd. volume	=	36,242 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.77 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,274 cuft

Storage Indication method used.

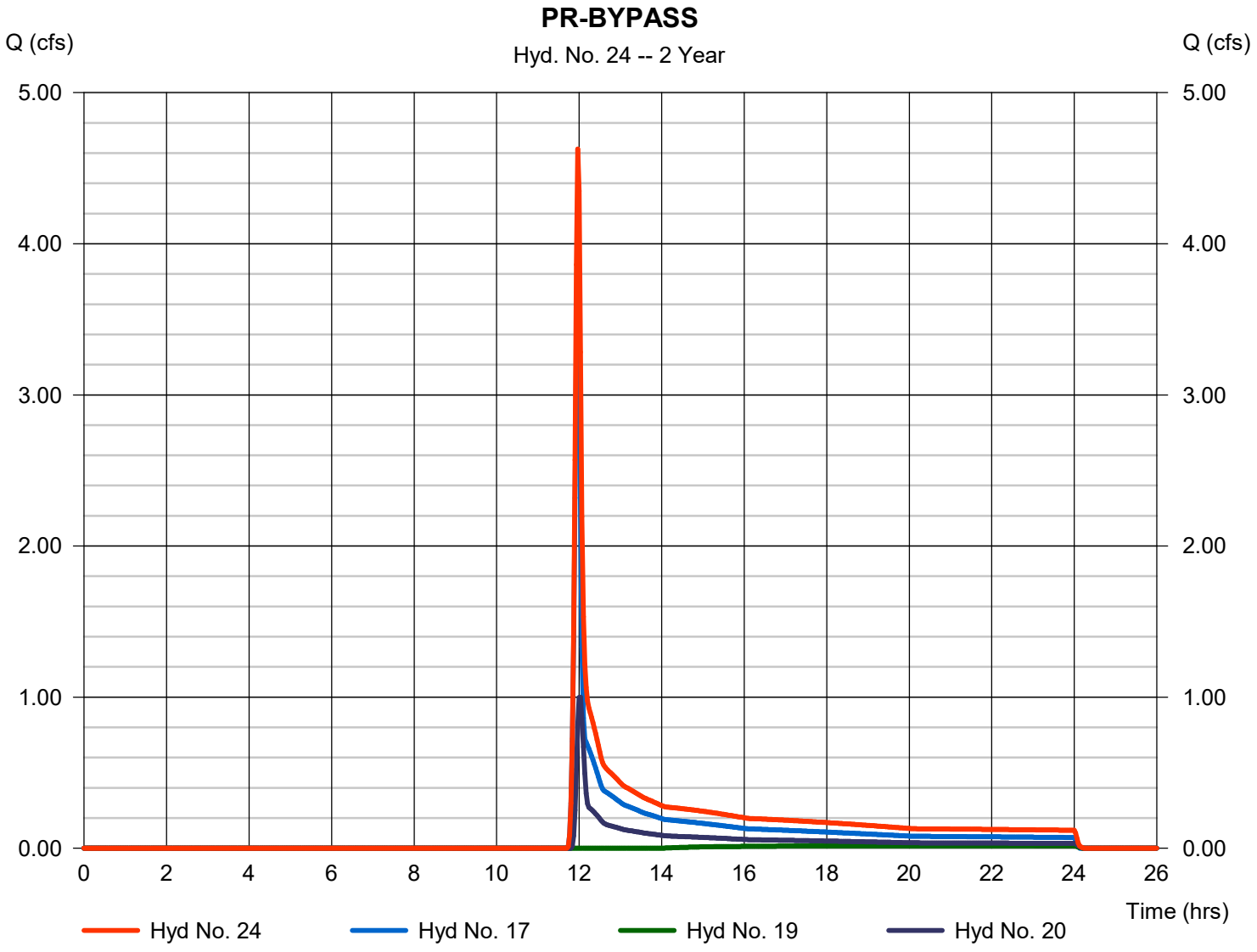


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	4.628 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	12,368 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

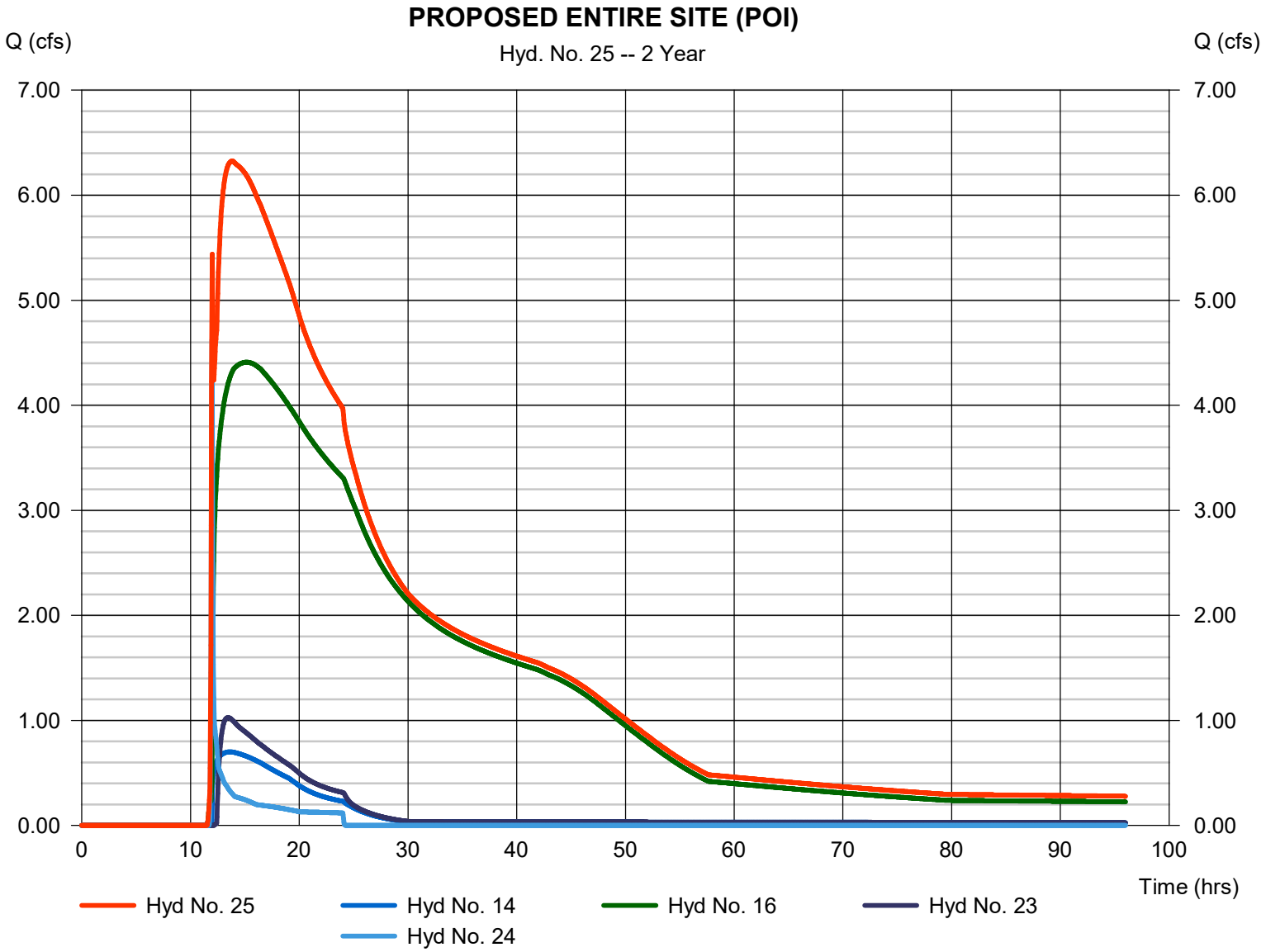


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 6.325 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.83 hrs
Time interval	= 2 min	Hyd. volume	= 474,026 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

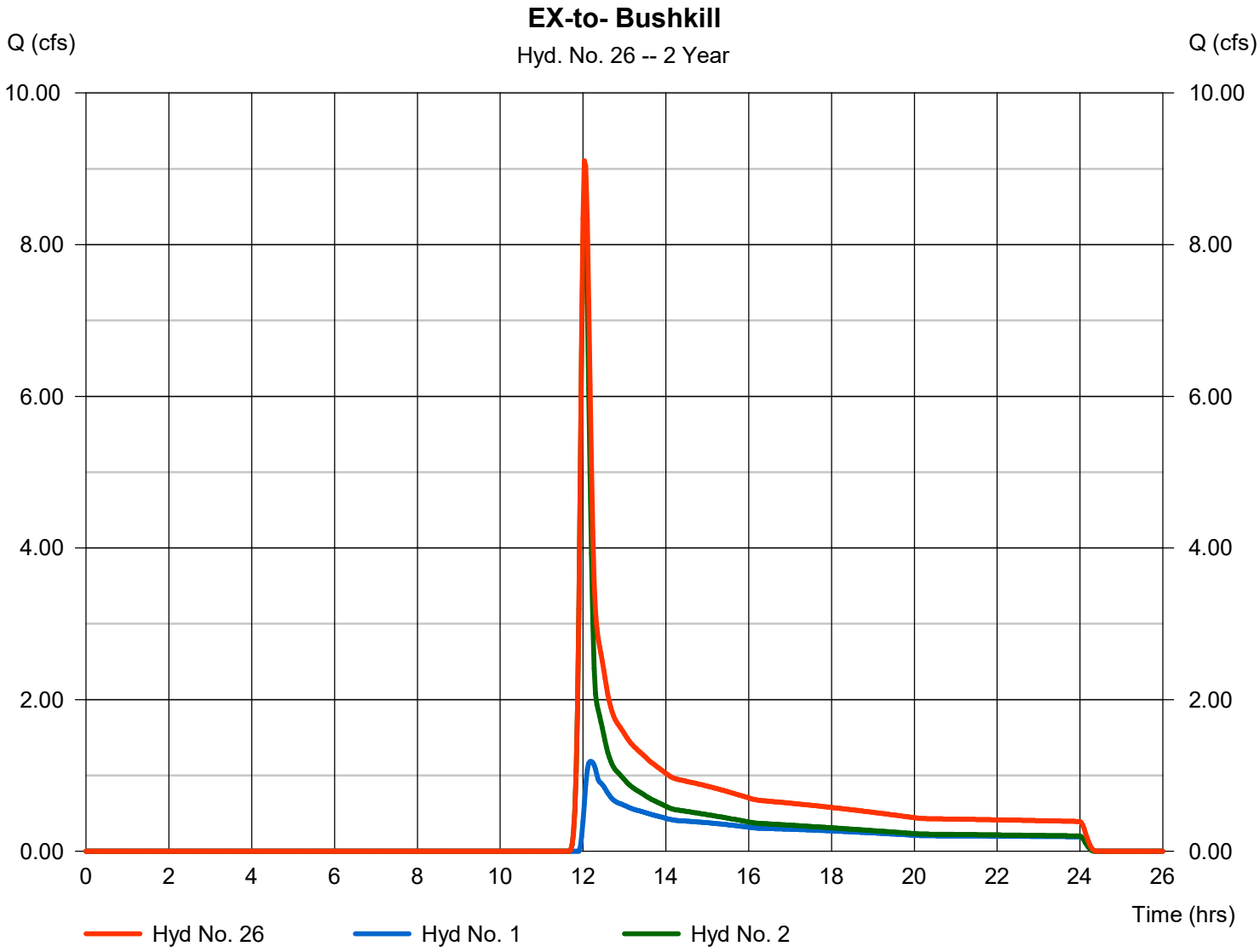


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 9.106 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 40,163 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

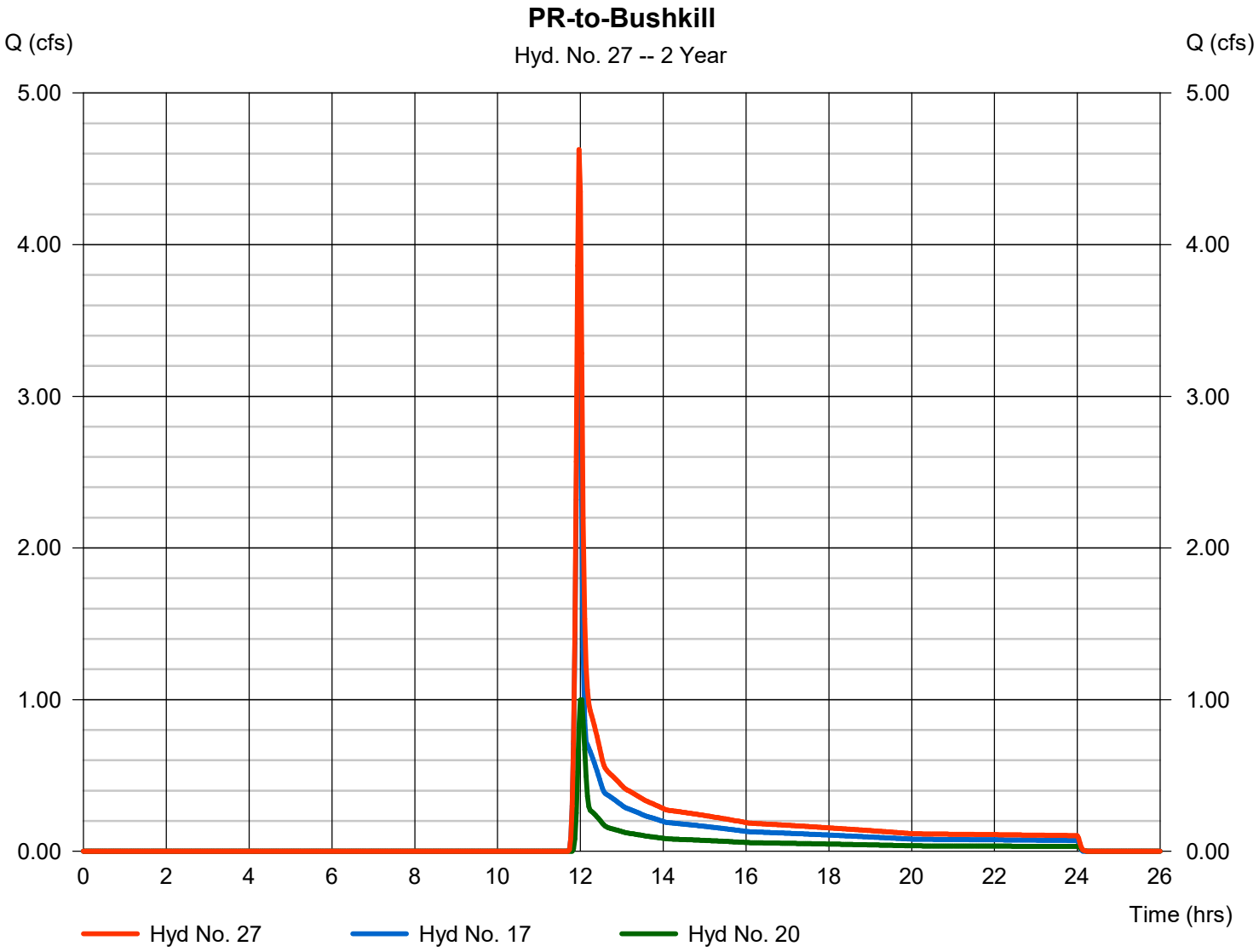


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 4.628 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 11,877 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

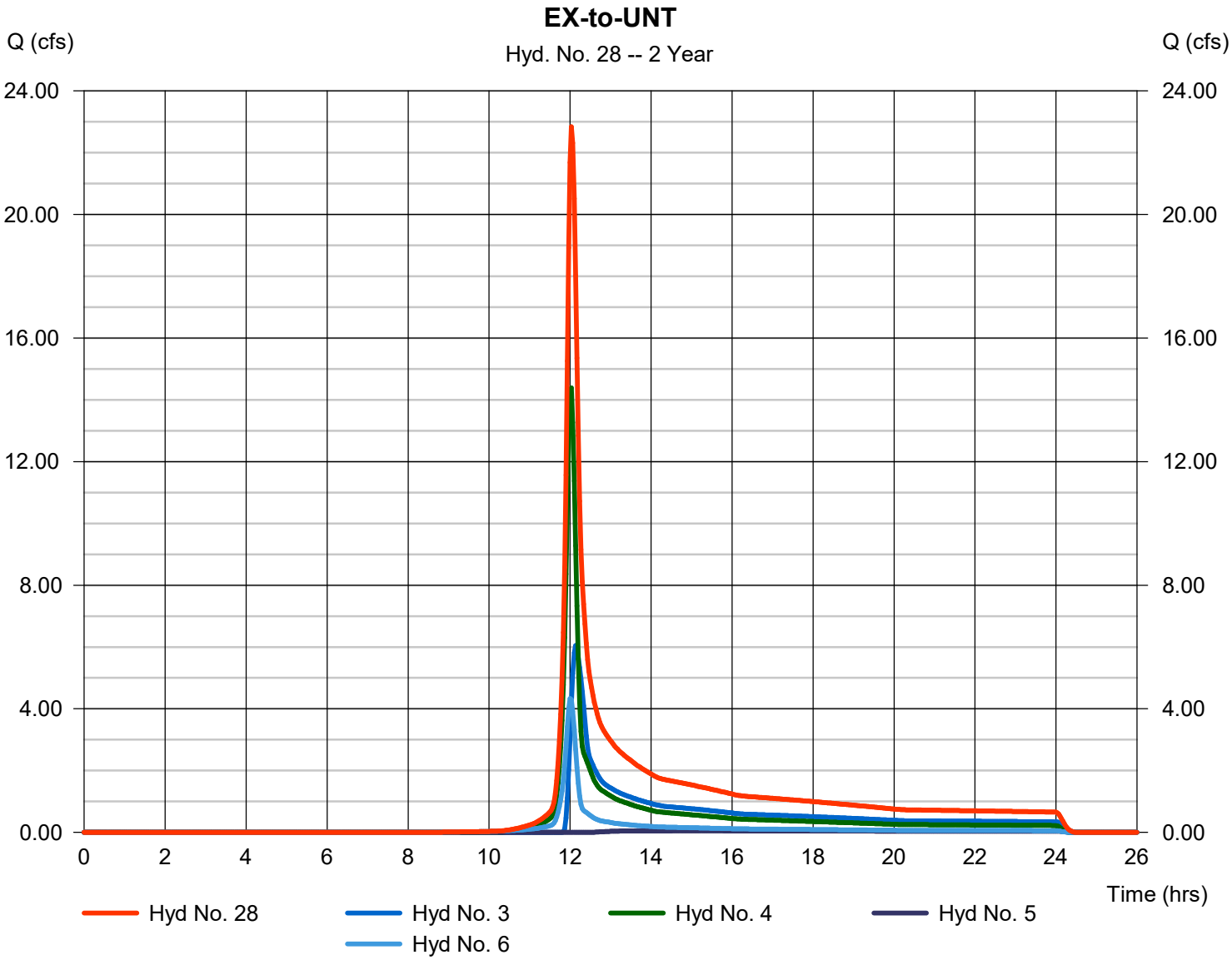


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 22.84 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 85,096 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

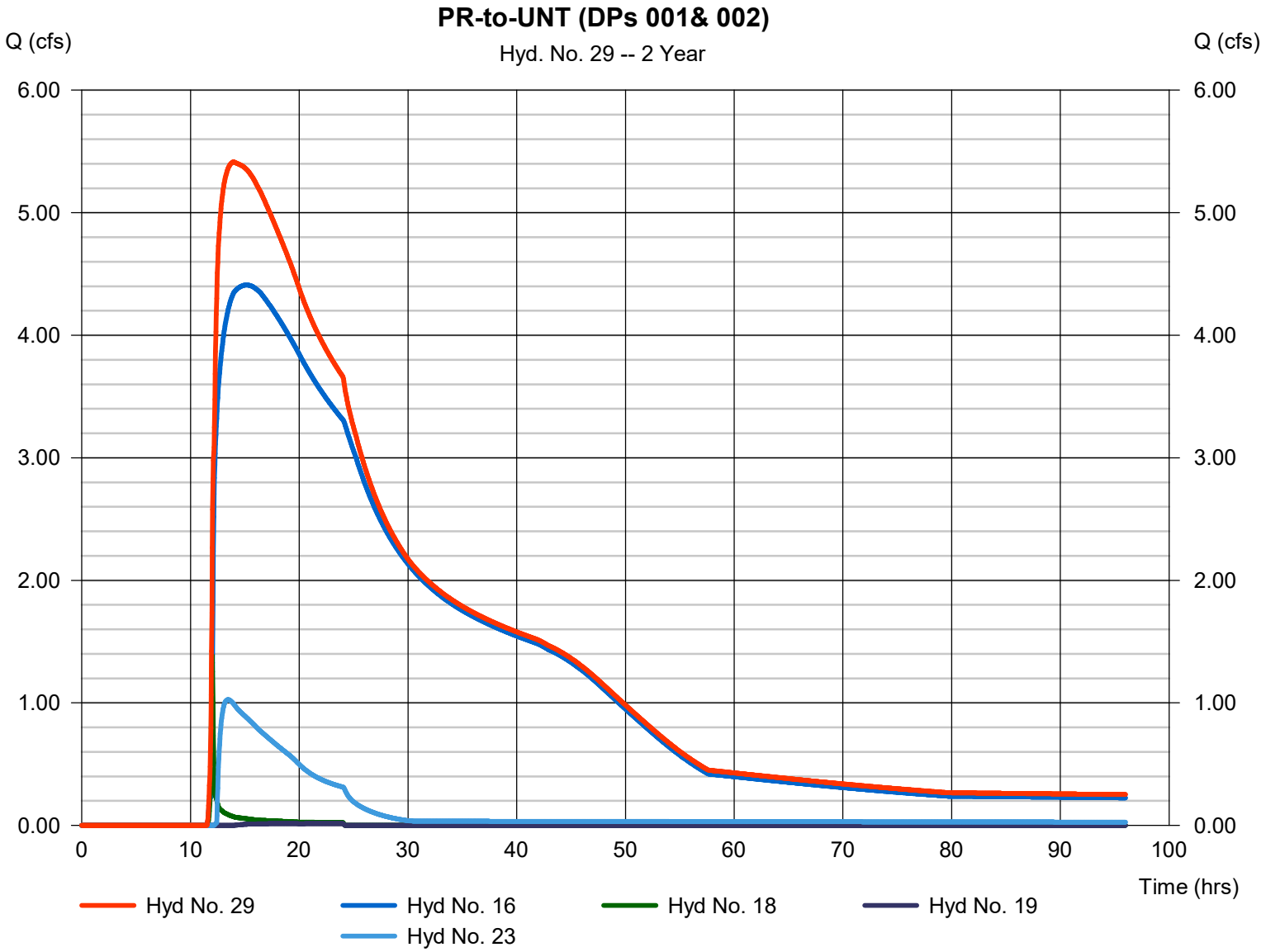


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 5.415 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.97 hrs
Time interval	= 2 min	Hyd. volume	= 436,437 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.145	2	726	29,069	------	------	------	EX-DA 1
2	SCS Runoff	14.28	2	722	39,921	------	------	------	EX-DA2
3	SCS Runoff	13.66	2	728	59,056	------	------	------	EX-DA3
4	SCS Runoff	20.23	2	720	52,845	------	------	------	EX-DA4
5	SCS Runoff	0.282	2	744	4,911	------	------	------	EX-DA5
6	SCS Runoff	5.779	2	720	14,990	------	------	------	EX-DA-Road Widening
7	Combine	55.33	2	722	200,793	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	58.85	2	716	132,679	------	------	------	PR-DA-A
9	SCS Runoff	74.37	2	716	167,667	------	------	------	PR-DA-B
10	SCS Runoff	121.84	2	718	286,478	------	------	------	PR-DA-C
11	Reservoir	0.803	2	1052	120,672	8	290.92	100,794	BMP A Routing
12	Reservoir	1.273	2	954	156,187	9	287.20	120,727	BMP B Routing
13	SCS Runoff	22.97	2	716	46,370	------	------	------	PR-DA-E
14	Reservoir	0.992	2	808	42,859	13	258.24	25,738	BMP E Routing
15	Combine	123.64	2	718	563,336	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	5.905	2	846	508,579	15	217.34	199,360	MRC BMP C Routing(DP1)
17	SCS Runoff	6.515	2	718	13,561	------	------	------	PR-BYPASS 1
18	SCS Runoff	2.116	2	720	4,913	------	------	------	PR RG
19	SCS Runoff	0.066	2	798	2,029	------	------	------	PR-BYPASS 2
20	SCS Runoff	2.116	2	720	5,679	------	------	------	PR-BYPASS 3
21	SCS Runoff	7.211	2	718	18,940	------	------	------	PR-Road Widening
22	Combine	9.830	2	718	66,712	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	2.119	2	738	53,698	22	232.84	14,803	RG Routing (DP2)
24	Combine	8.420	2	718	21,268	17, 19, 20,	------	------	PR-BYPASS
25	Combine	11.14	2	720	626,403	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	18.35	2	722	68,991	1, 2,	------	------	EX-to- Bushkill
27	Combine	8.420	2	718	19,239	17, 20,	------	------	PR-to-Bushkill
28	Combine	36.98	2	722	131,802	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	8.895	2	728	570,560	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

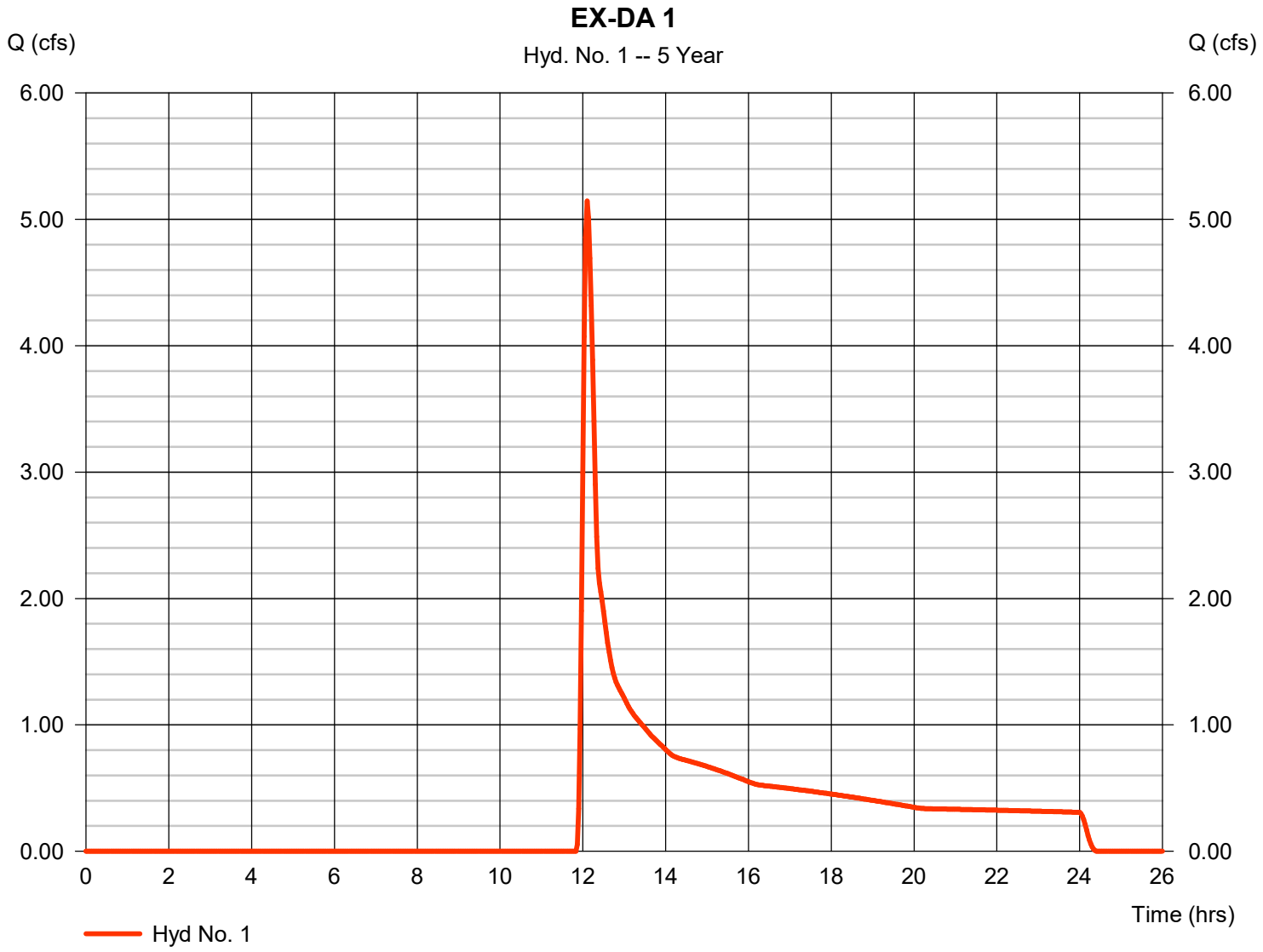
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.145 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	29,069 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



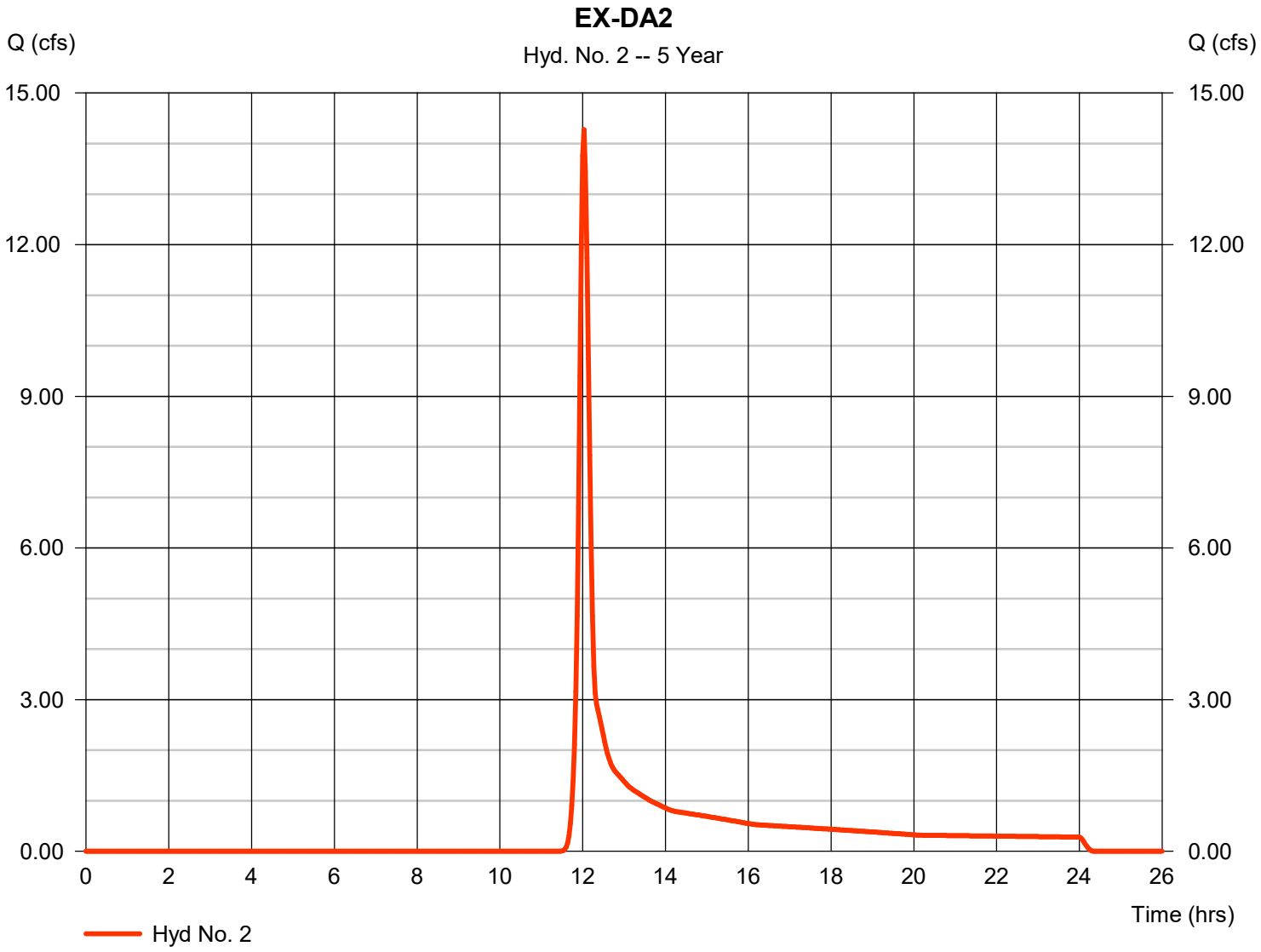
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.28 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	39,921 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



Hydrograph Report

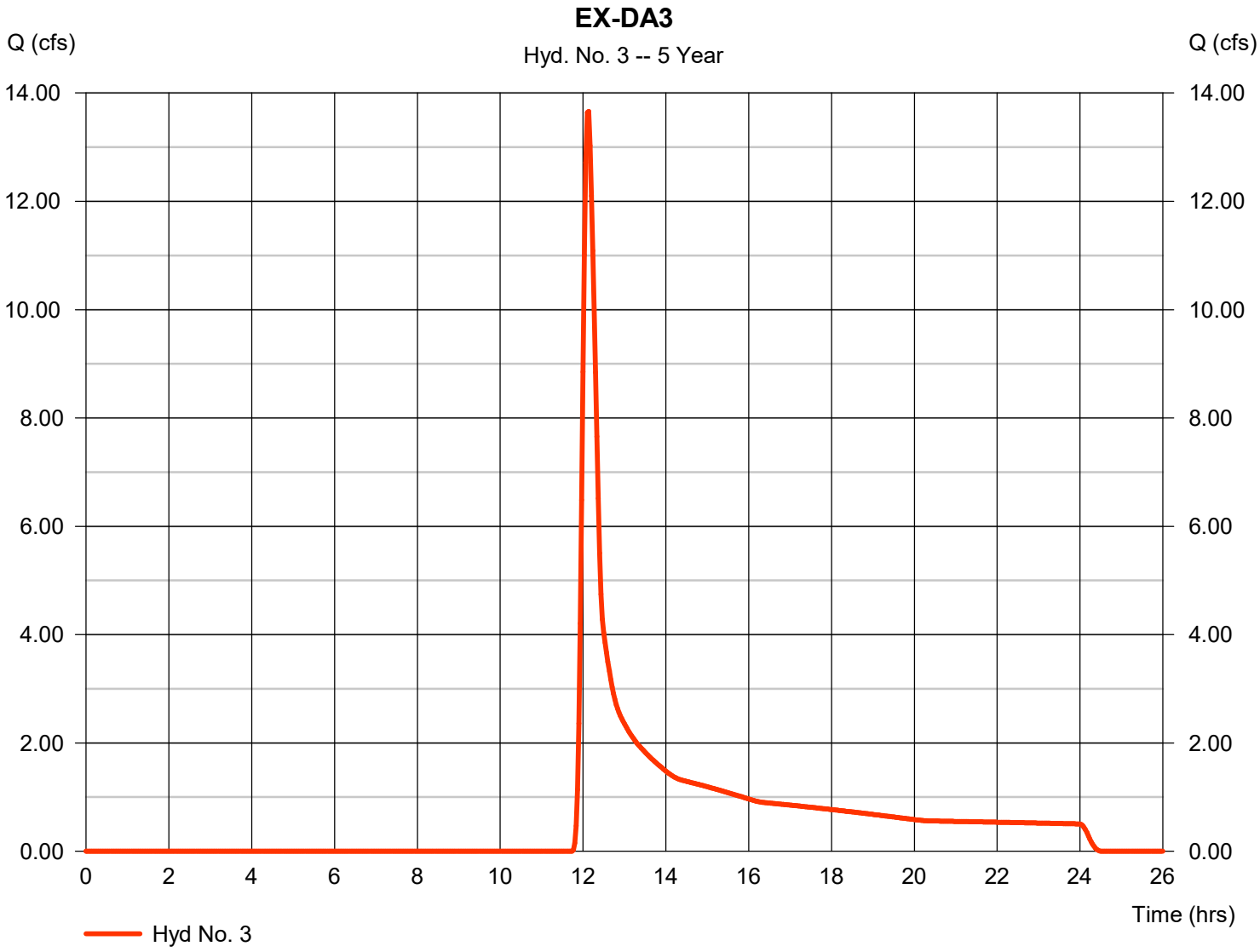
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.66 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	59,056 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



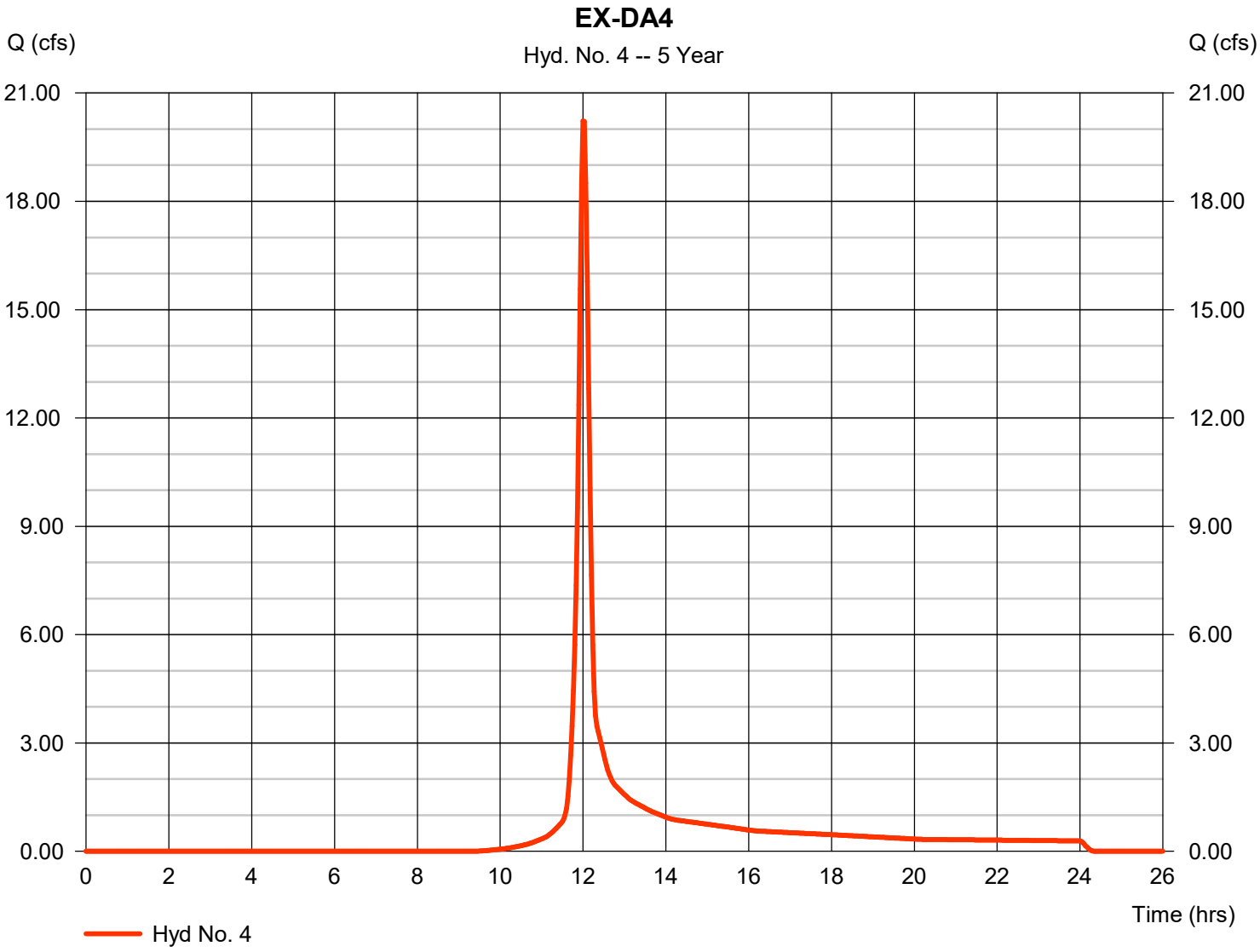
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.23 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	52,845 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



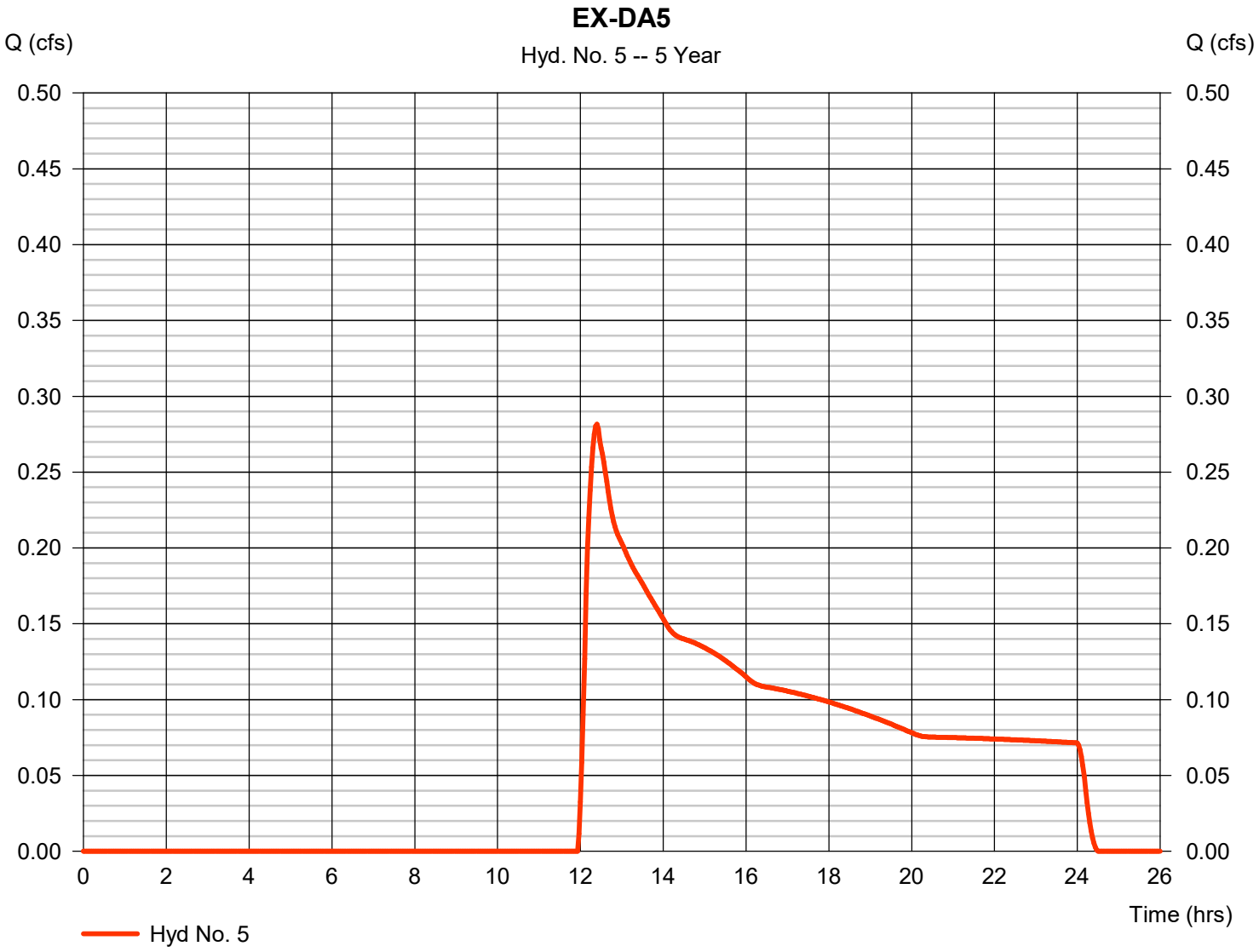
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.282 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.40 hrs
Time interval	=	2 min	Hyd. volume	=	4,911 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



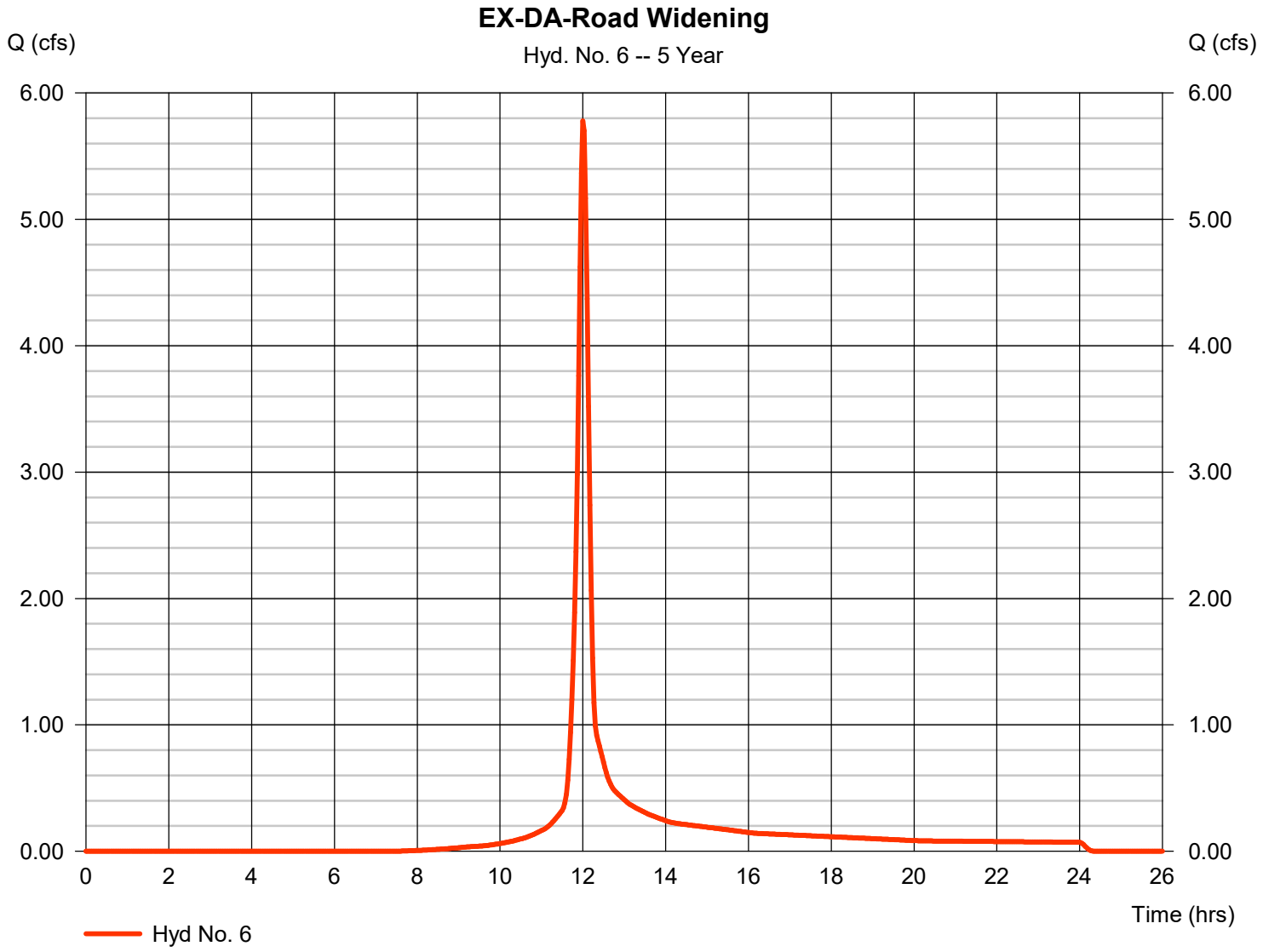
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.779 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	14,990 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

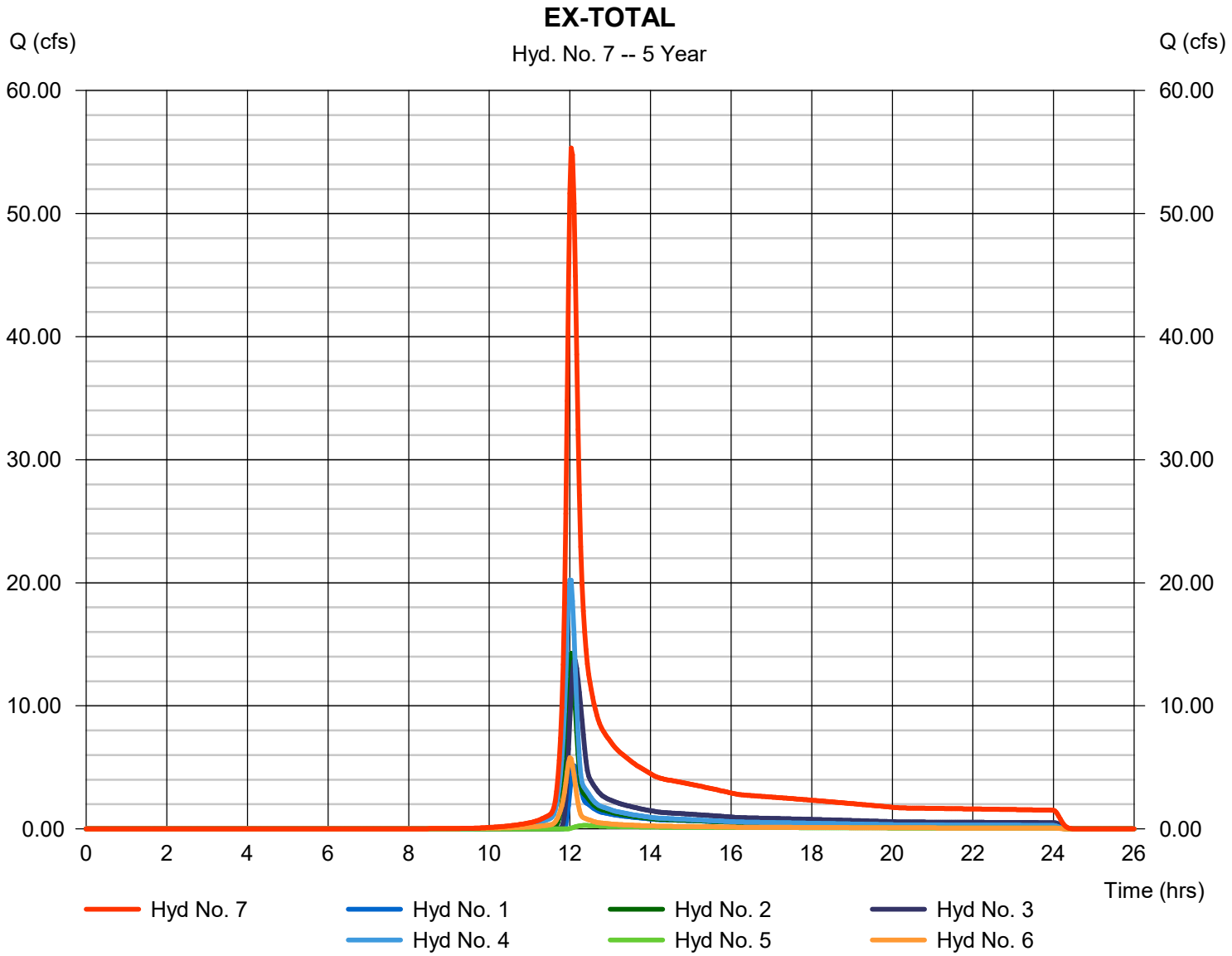


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	55.33 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	200,793 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



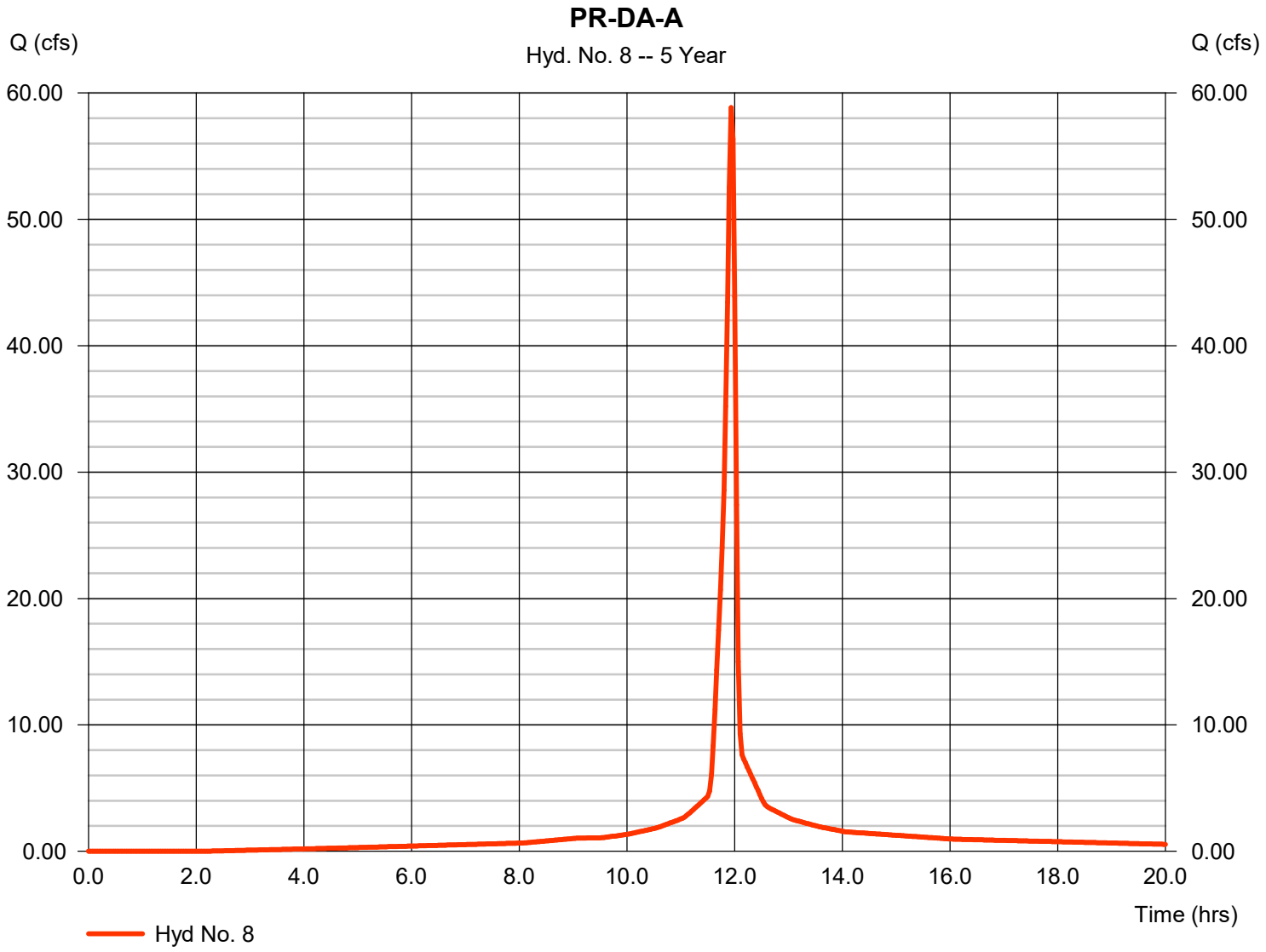
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	58.85 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	132,679 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



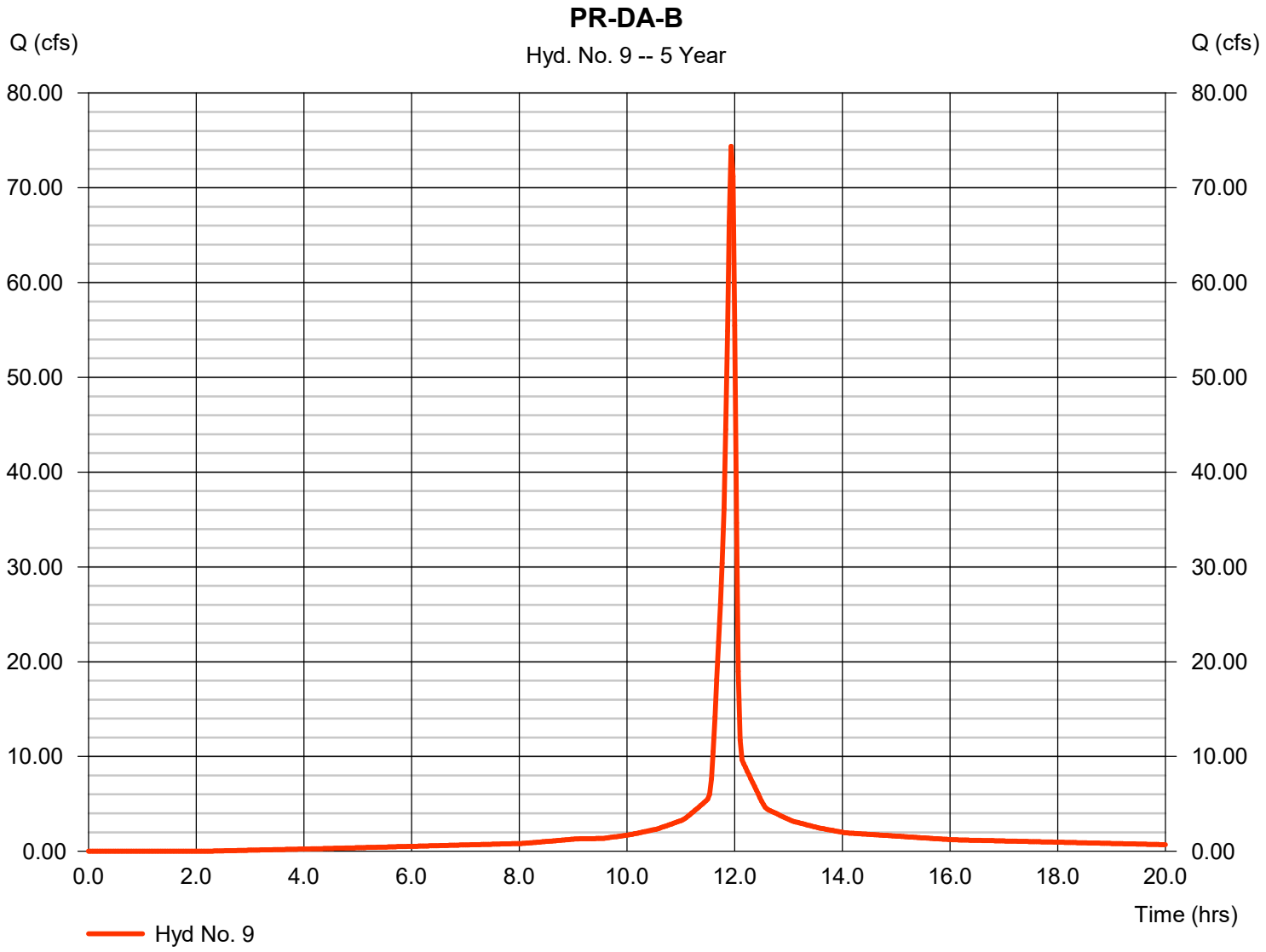
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	74.37 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	167,667 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



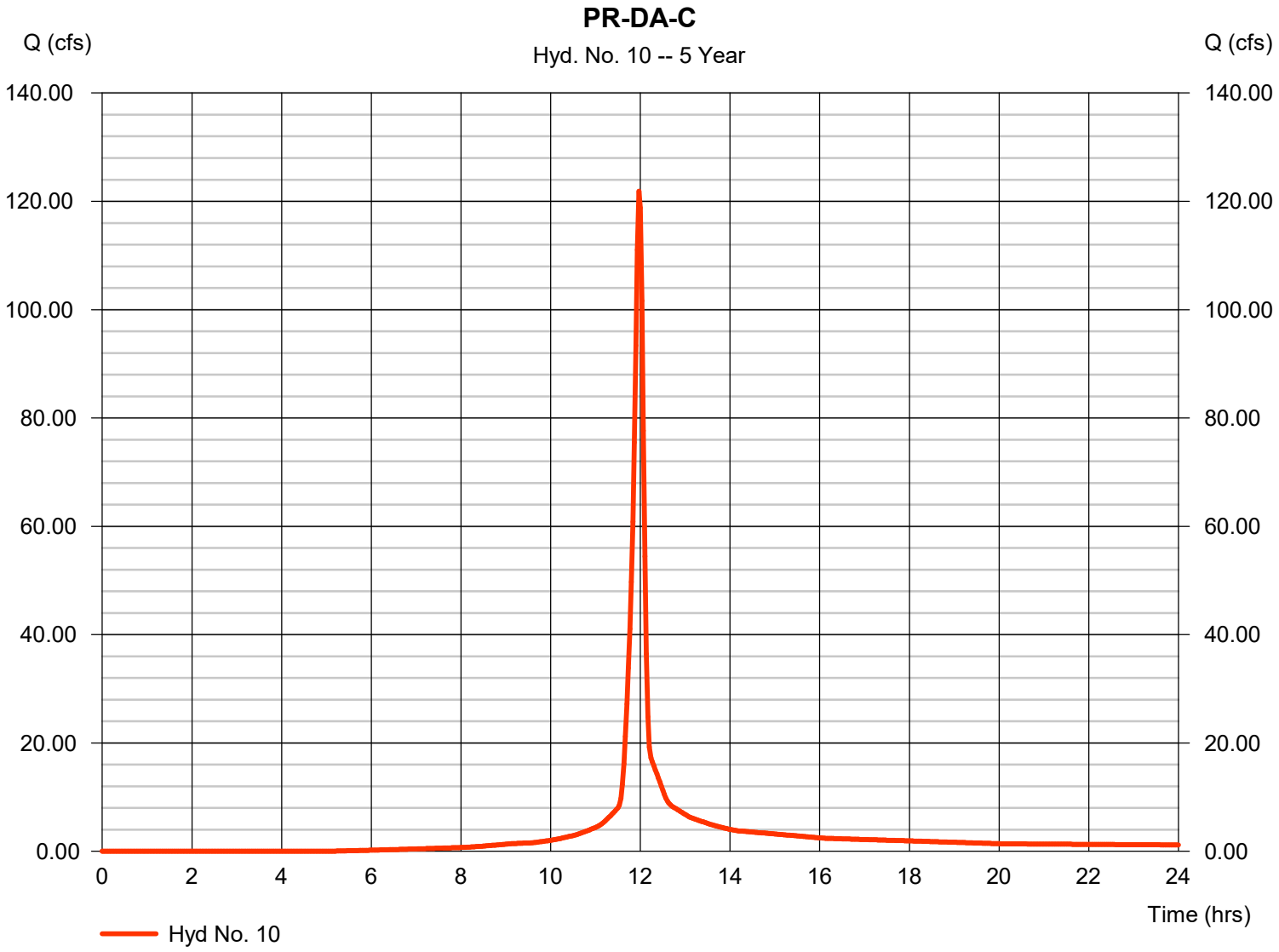
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	121.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	286,478 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



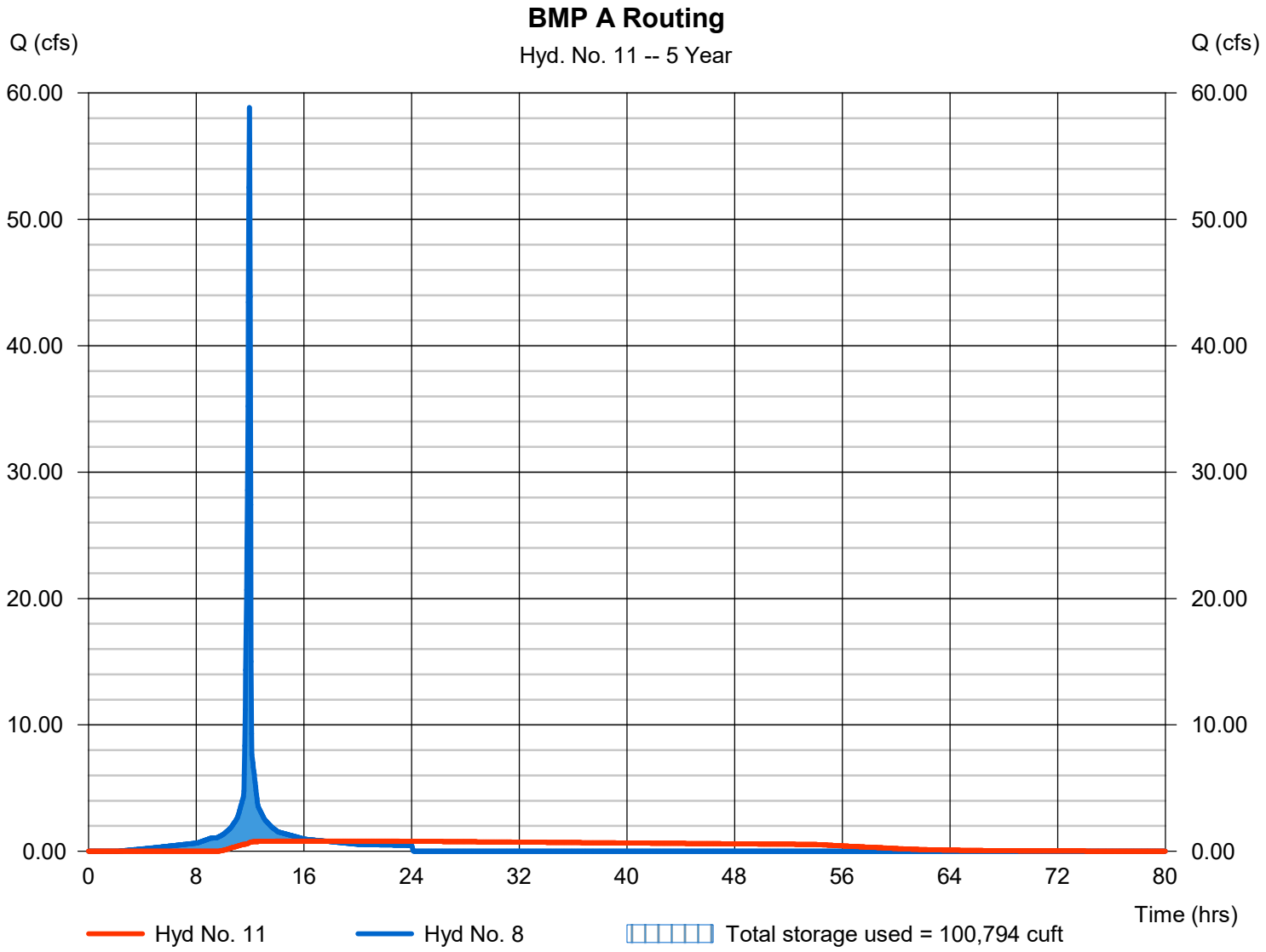
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.803 cfs
Storm frequency	=	5 yrs	Time to peak	=	17.53 hrs
Time interval	=	2 min	Hyd. volume	=	120,672 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	290.92 ft
Reservoir name	=	BMP A	Max. Storage	=	100,794 cuft

Storage Indication method used.



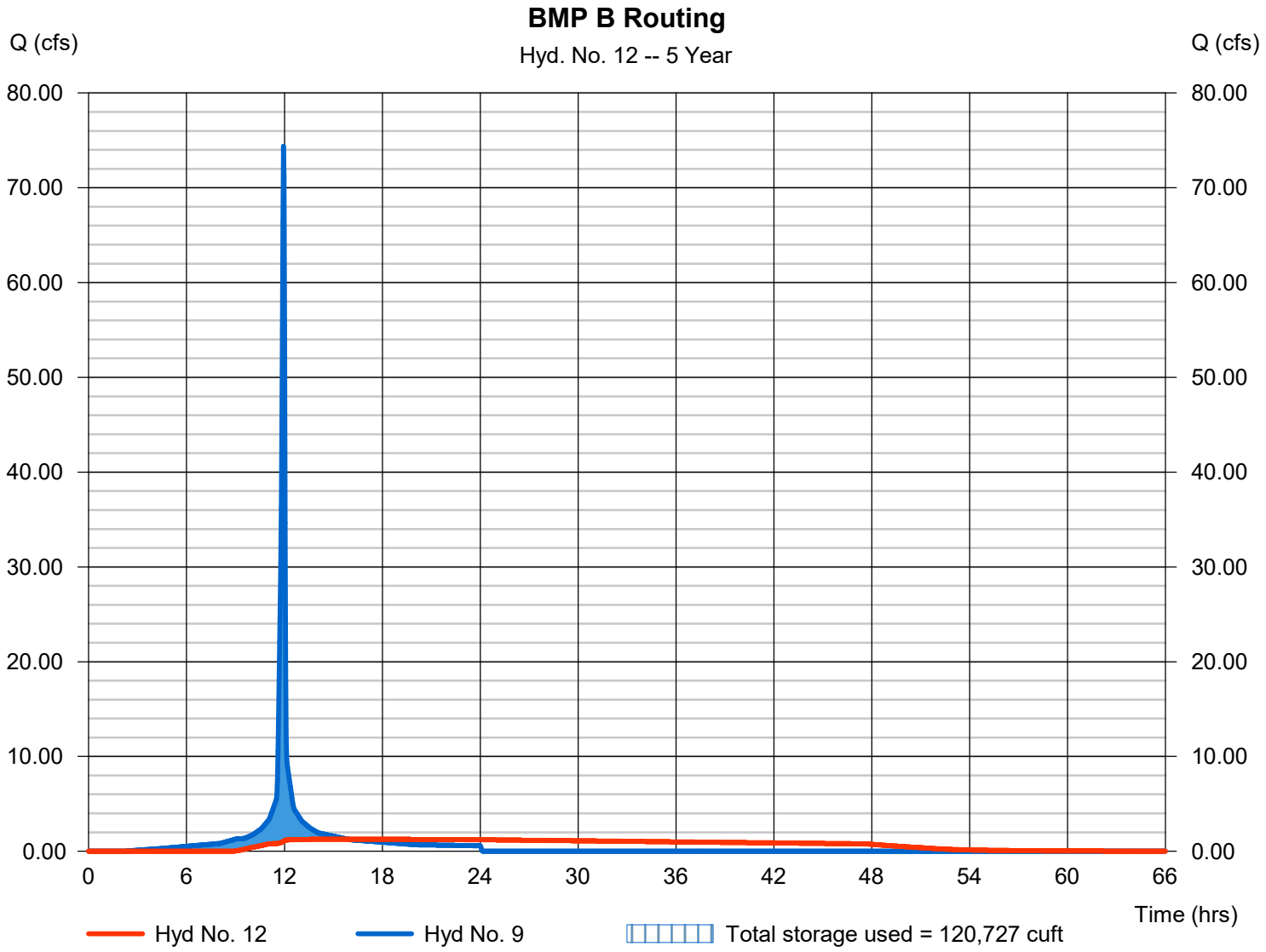
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.273 cfs
Storm frequency	=	5 yrs	Time to peak	=	15.90 hrs
Time interval	=	2 min	Hyd. volume	=	156,187 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.20 ft
Reservoir name	=	BMP B	Max. Storage	=	120,727 cuft

Storage Indication method used.



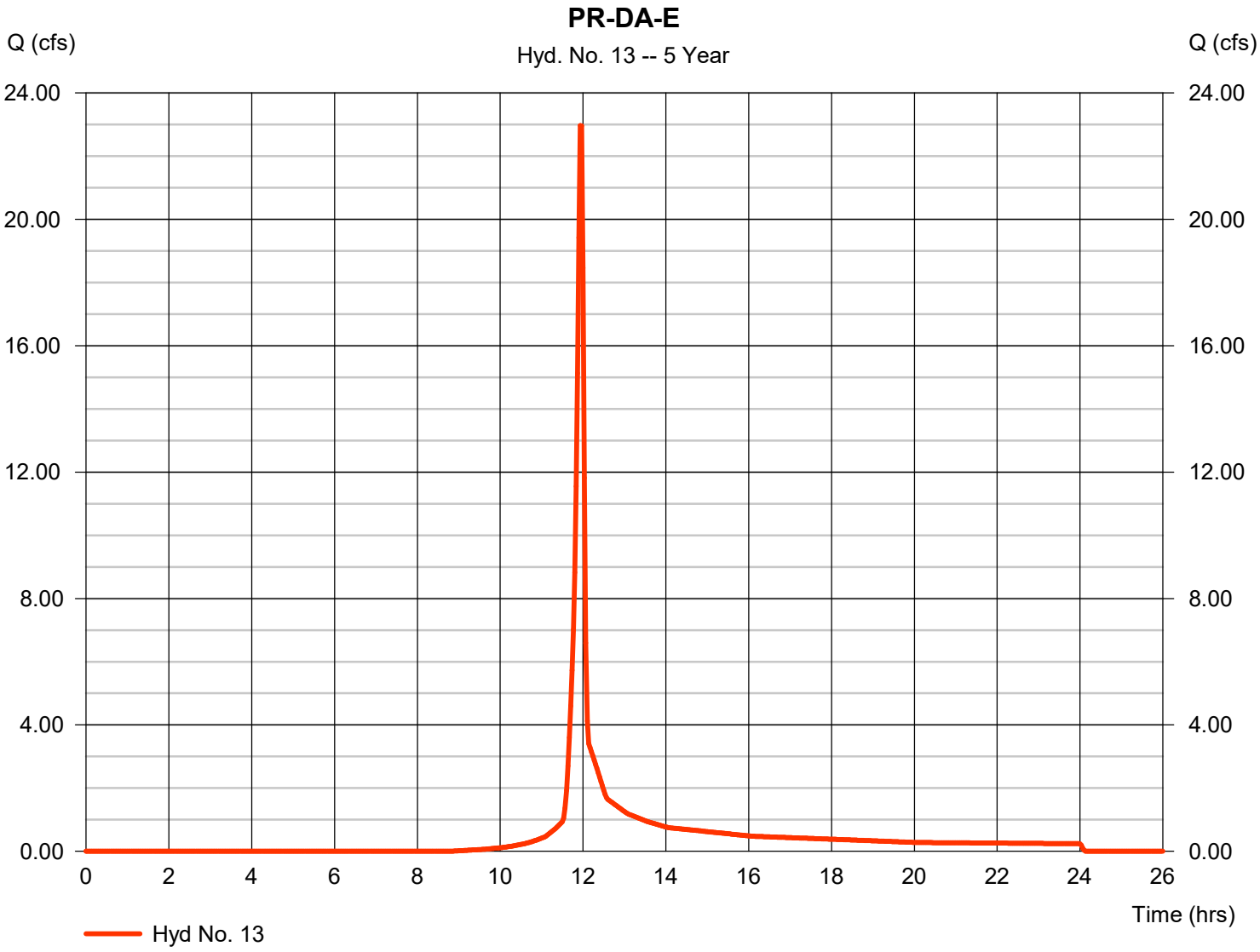
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.97 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	46,370 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



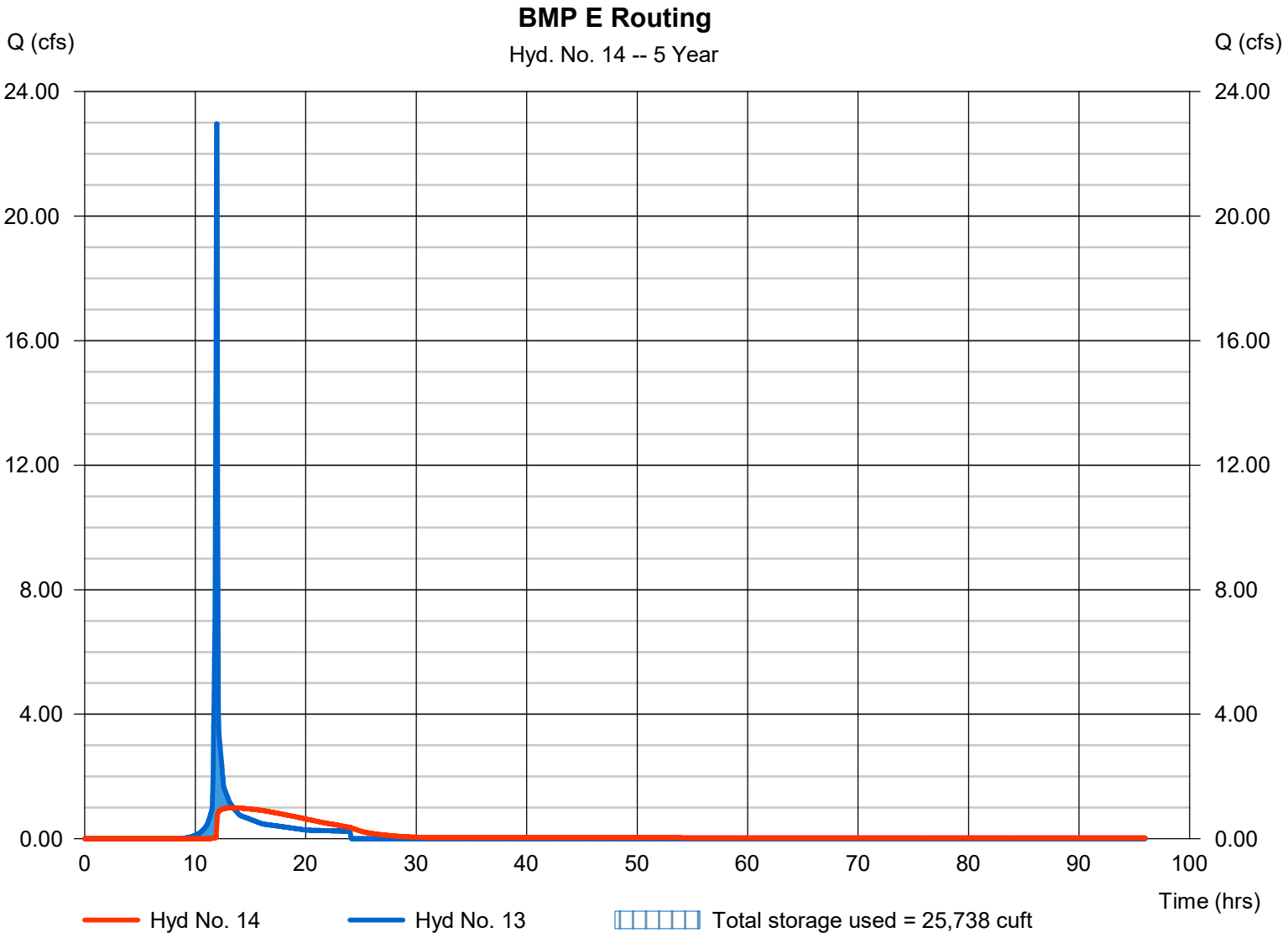
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	= Reservoir	Peak discharge	= 0.992 cfs
Storm frequency	= 5 yrs	Time to peak	= 13.47 hrs
Time interval	= 2 min	Hyd. volume	= 42,859 cuft
Inflow hyd. No.	= 13 - PR-DA-E	Max. Elevation	= 258.24 ft
Reservoir name	= BMP E	Max. Storage	= 25,738 cuft

Storage Indication method used.

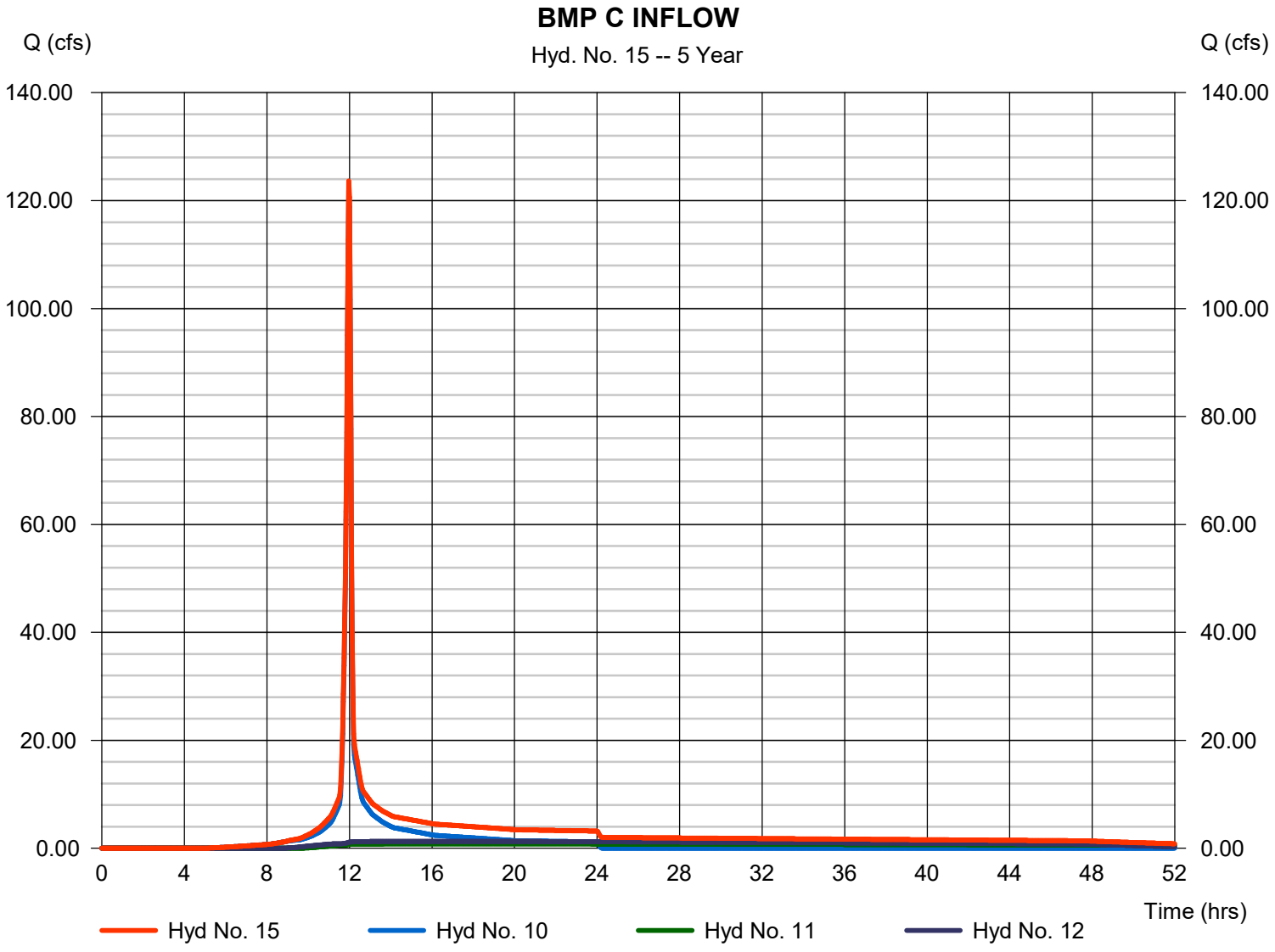


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	123.64 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	563,336 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



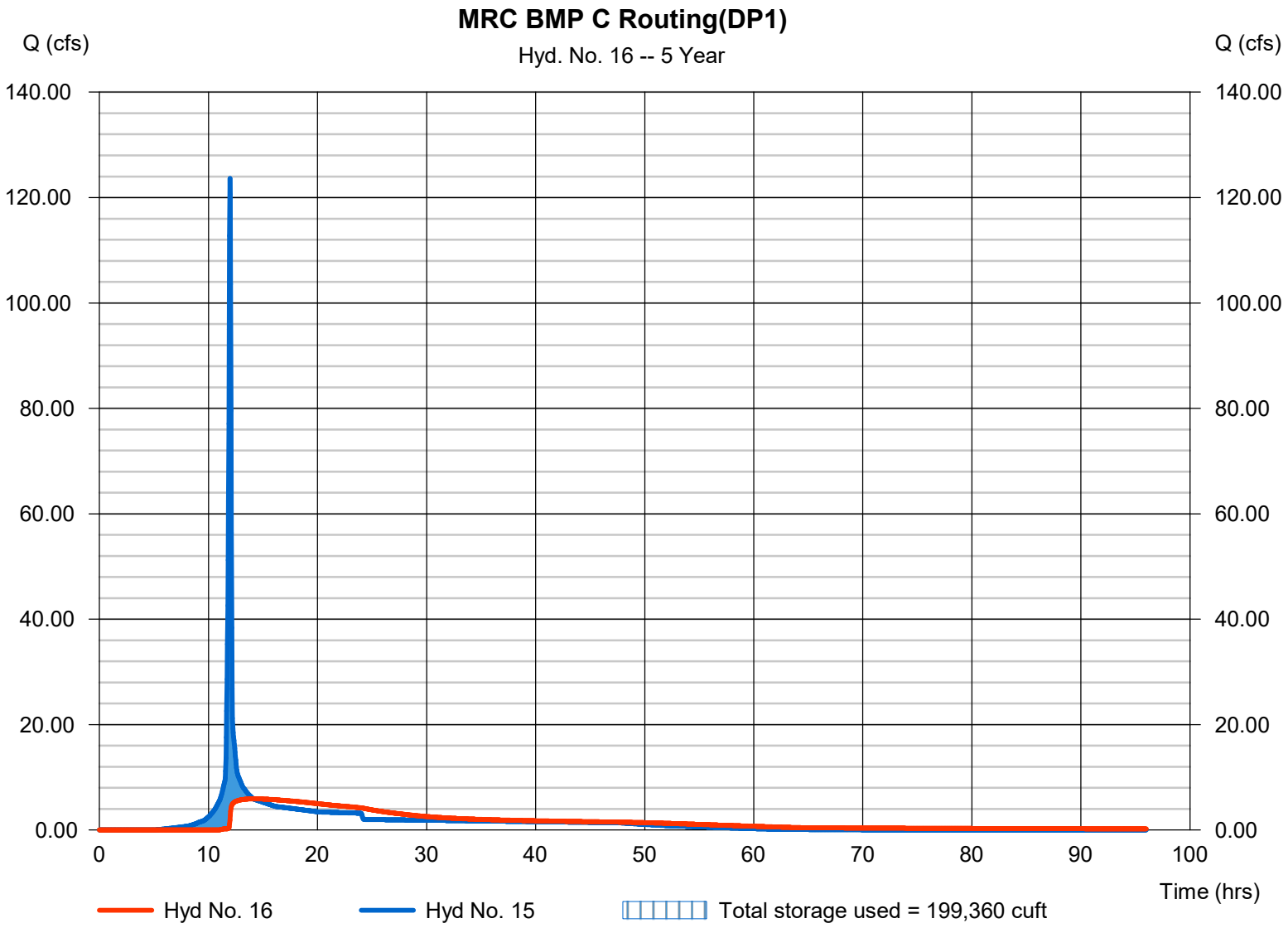
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	5.905 cfs
Storm frequency	=	5 yrs	Time to peak	=	14.10 hrs
Time interval	=	2 min	Hyd. volume	=	508,579 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.34 ft
Reservoir name	=	BMP C	Max. Storage	=	199,360 cuft

Storage Indication method used.



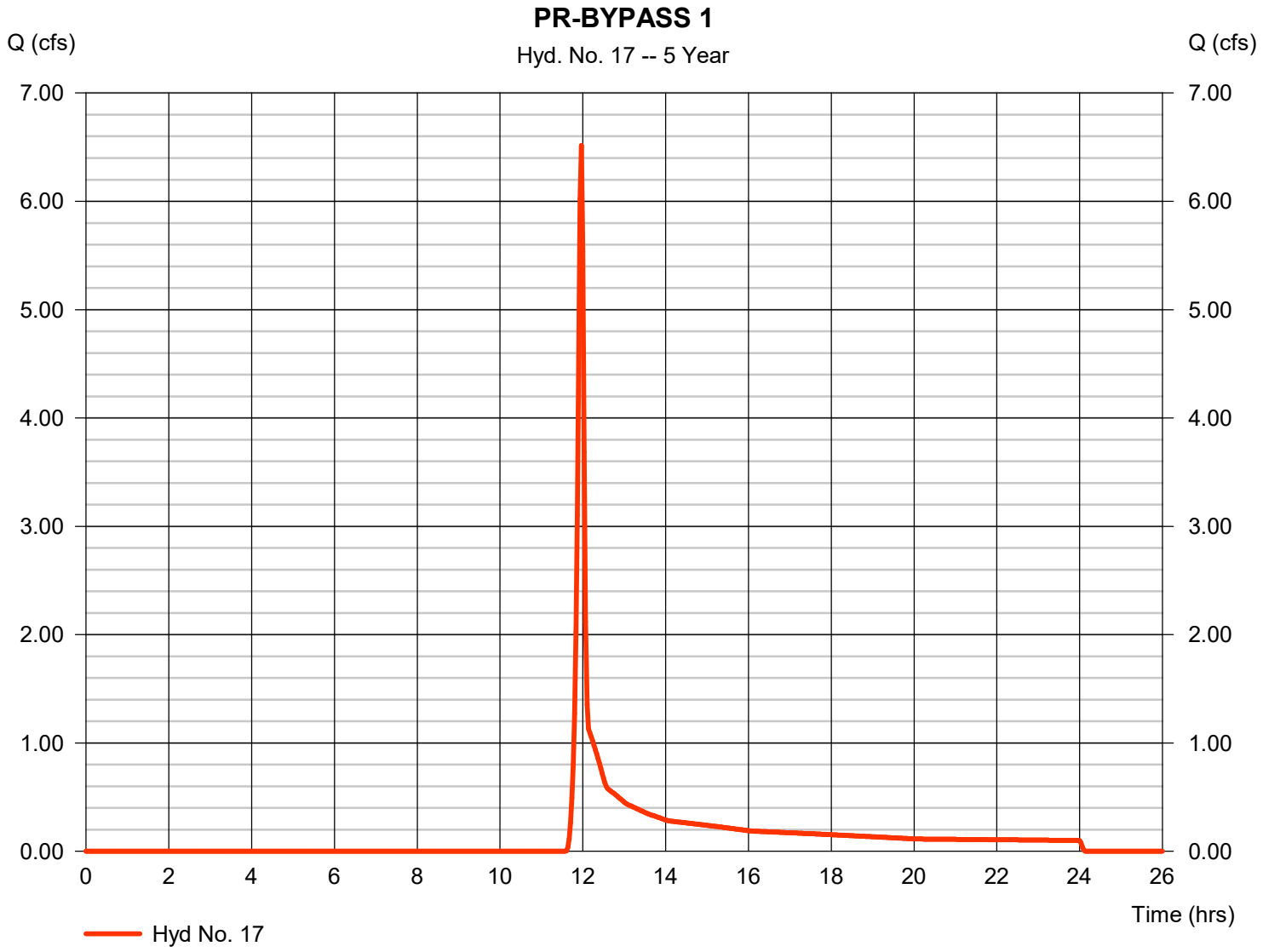
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.515 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	13,561 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



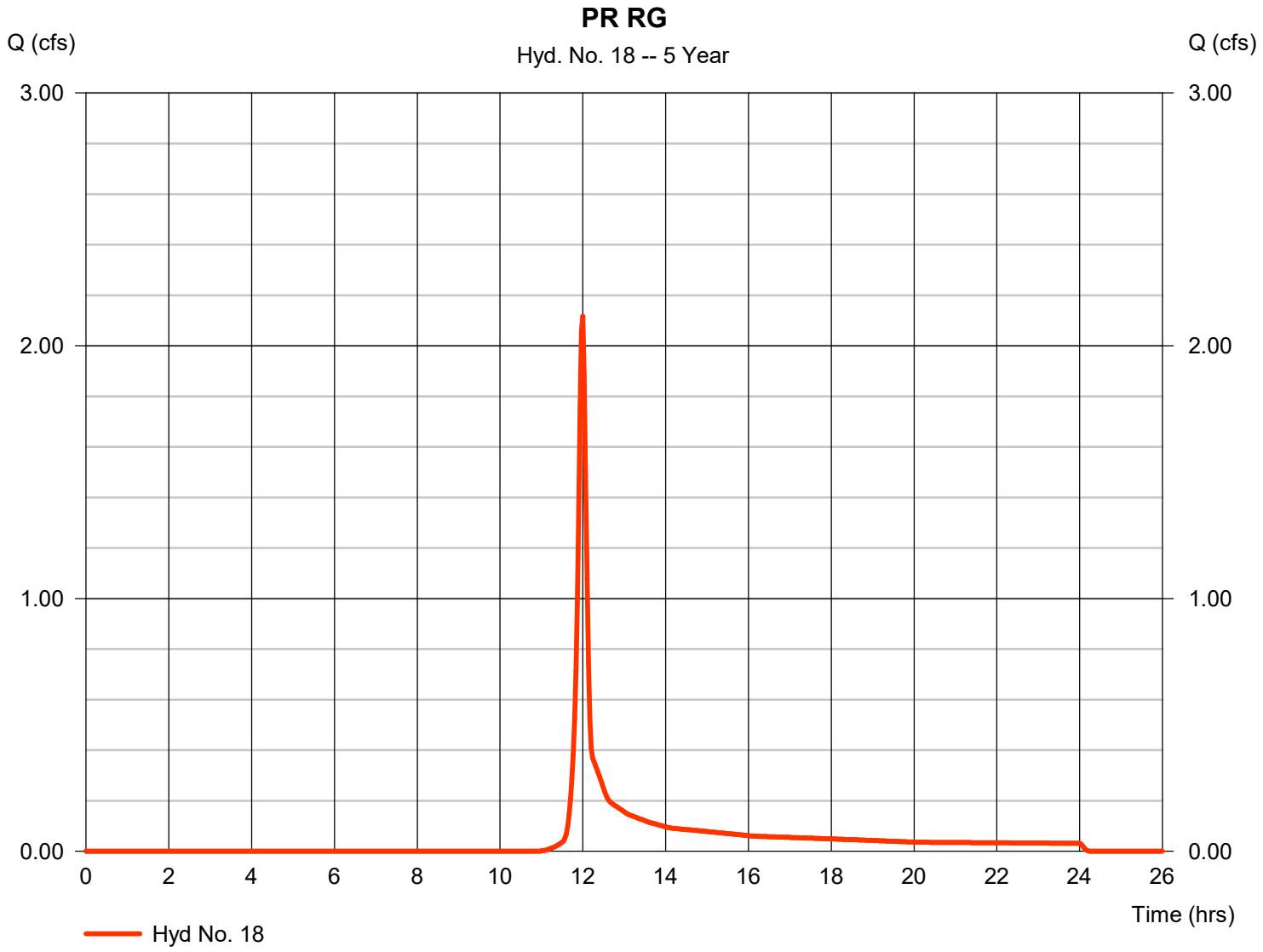
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.116 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	4,913 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



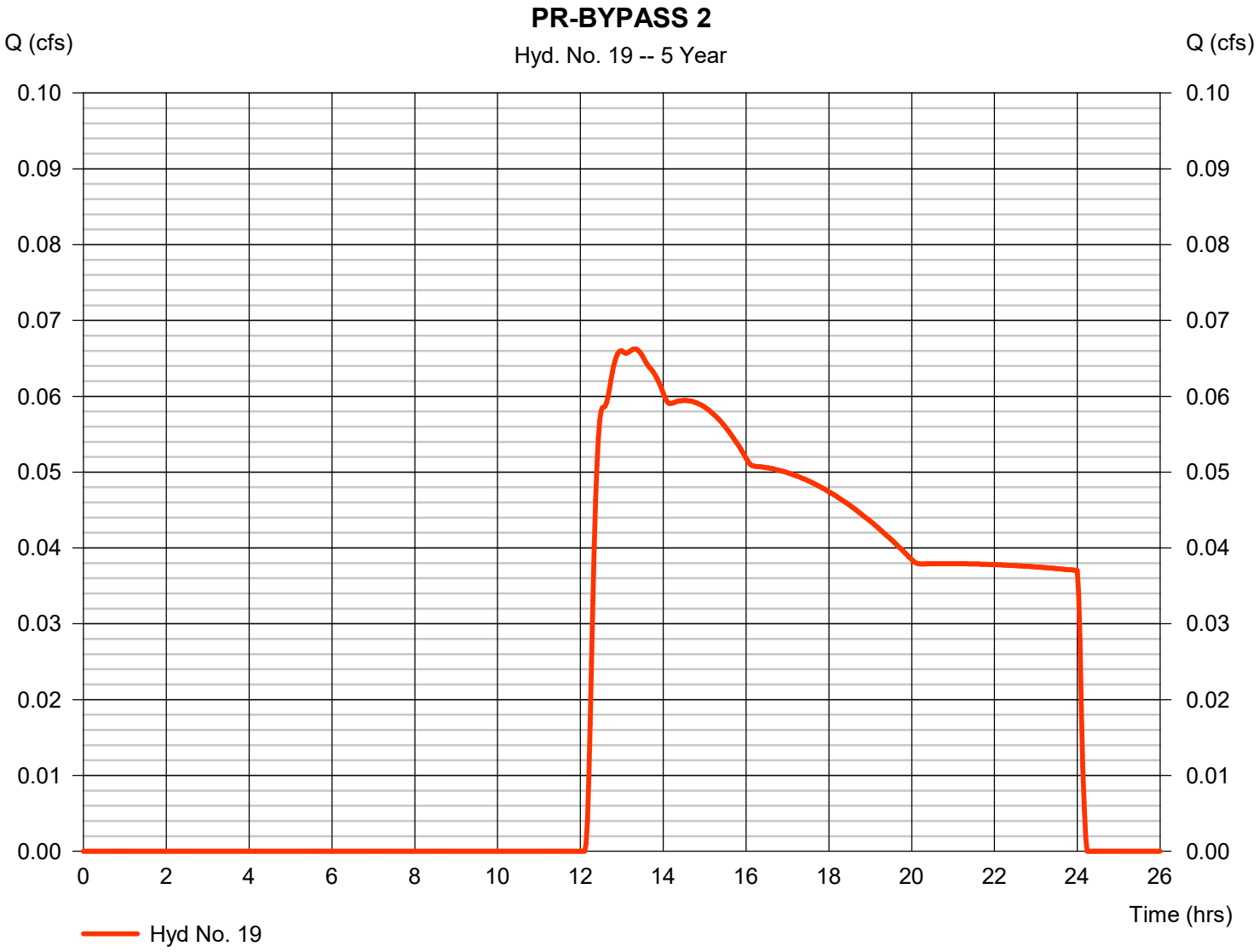
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.066 cfs
Storm frequency	=	5 yrs	Time to peak	=	13.30 hrs
Time interval	=	2 min	Hyd. volume	=	2,029 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



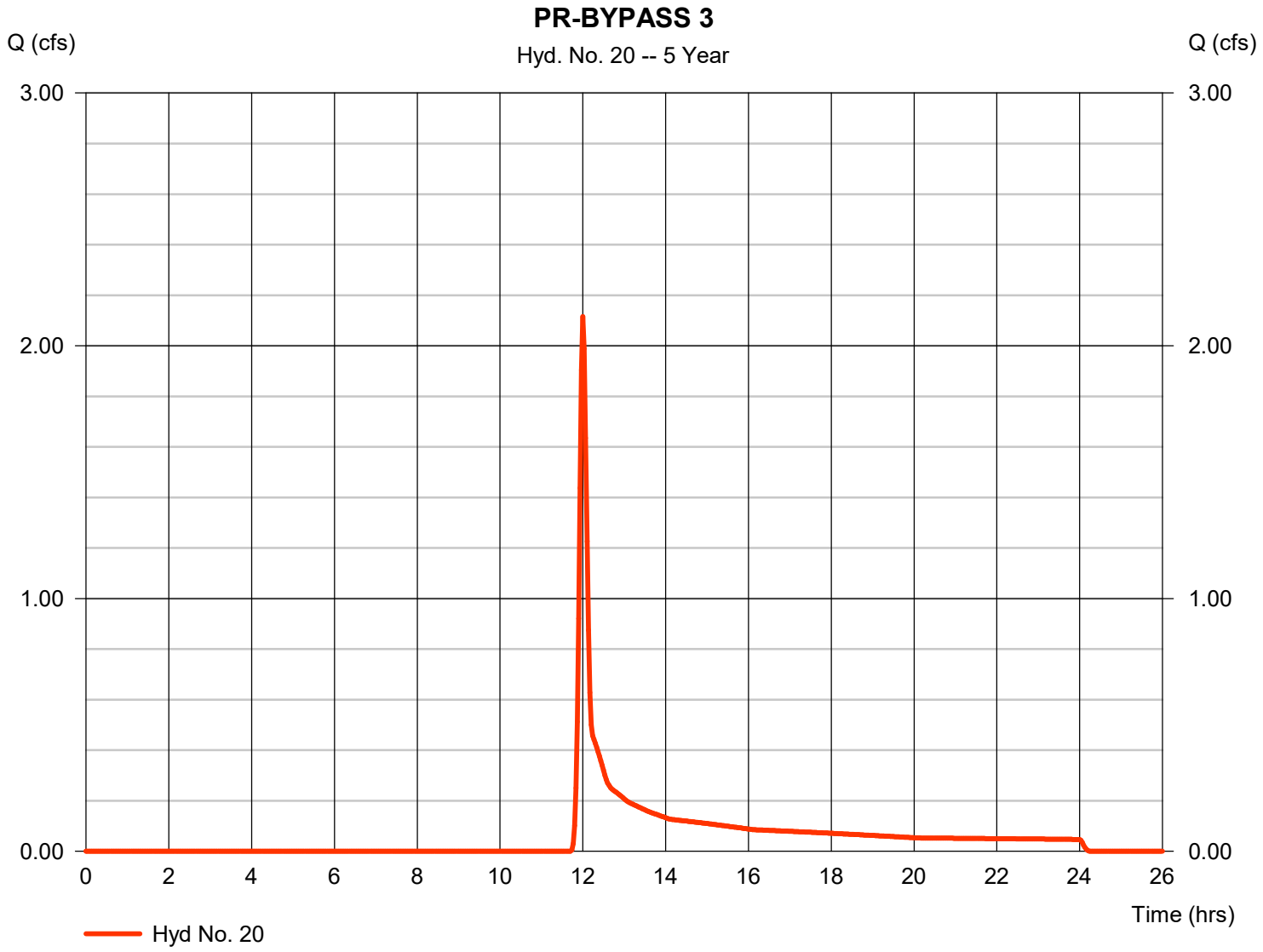
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.116 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	5,679 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

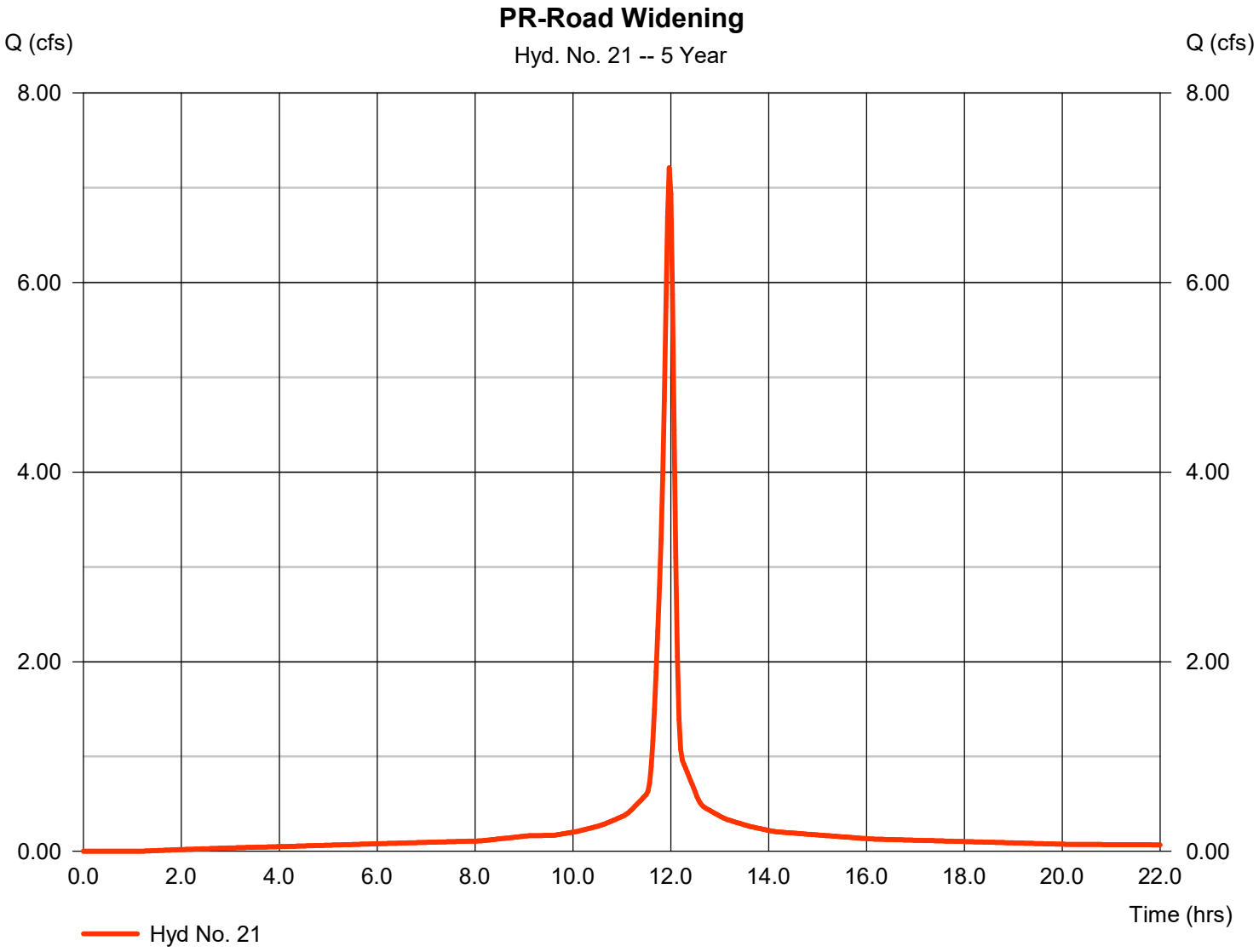


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.211 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	18,940 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

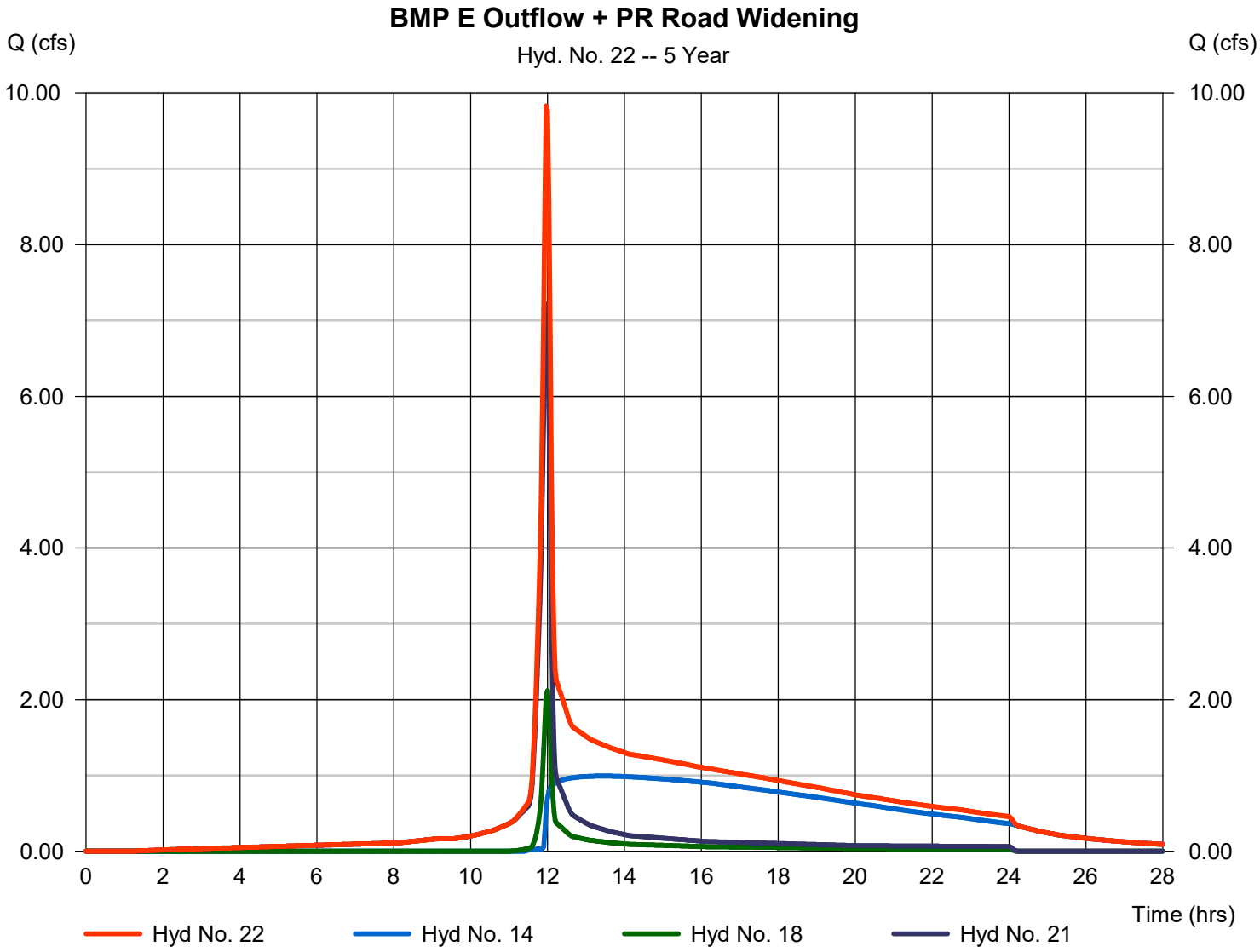


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	9.830 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	66,712 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



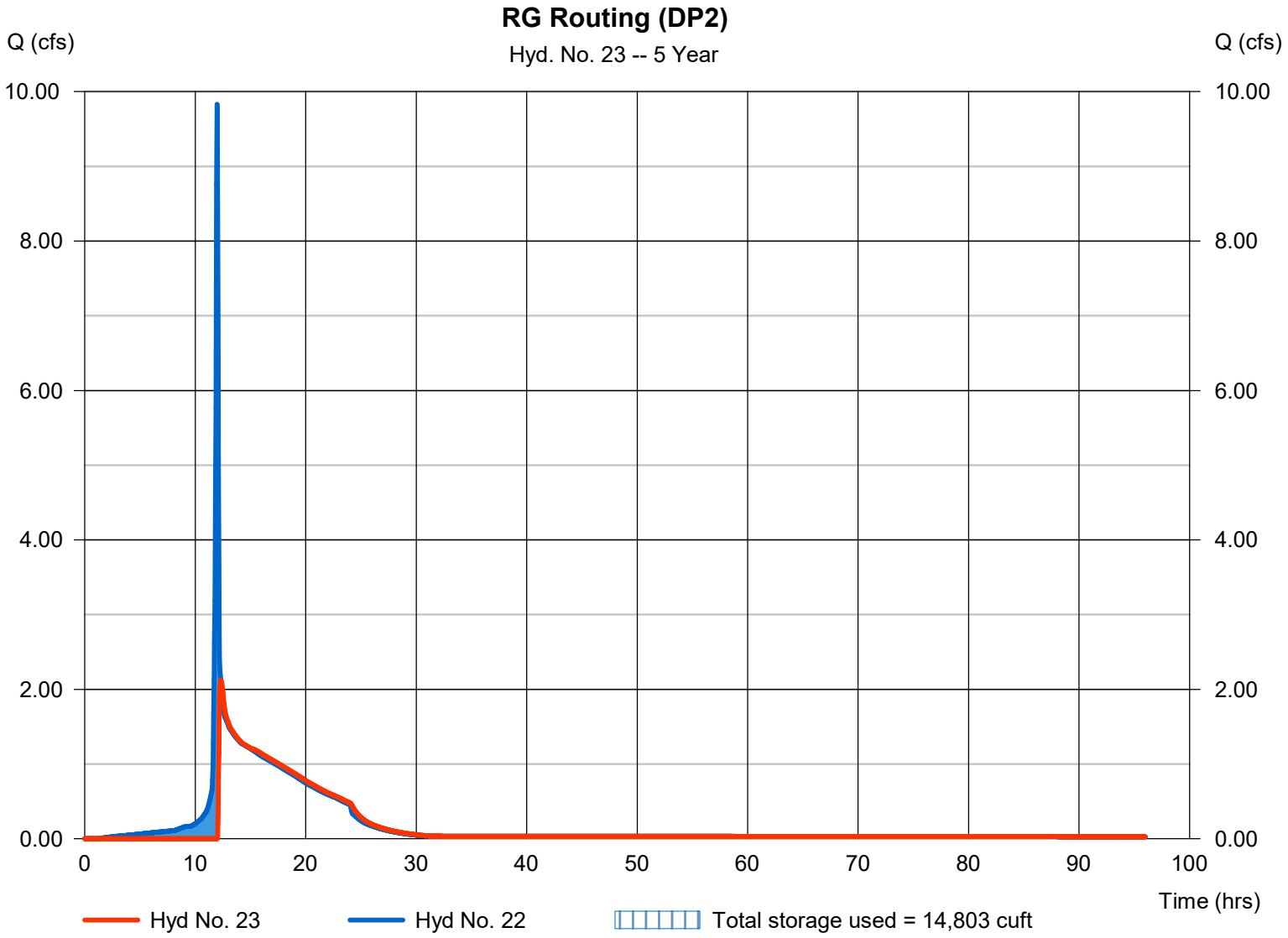
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	2.119 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	53,698 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	232.84 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	14,803 cuft

Storage Indication method used.

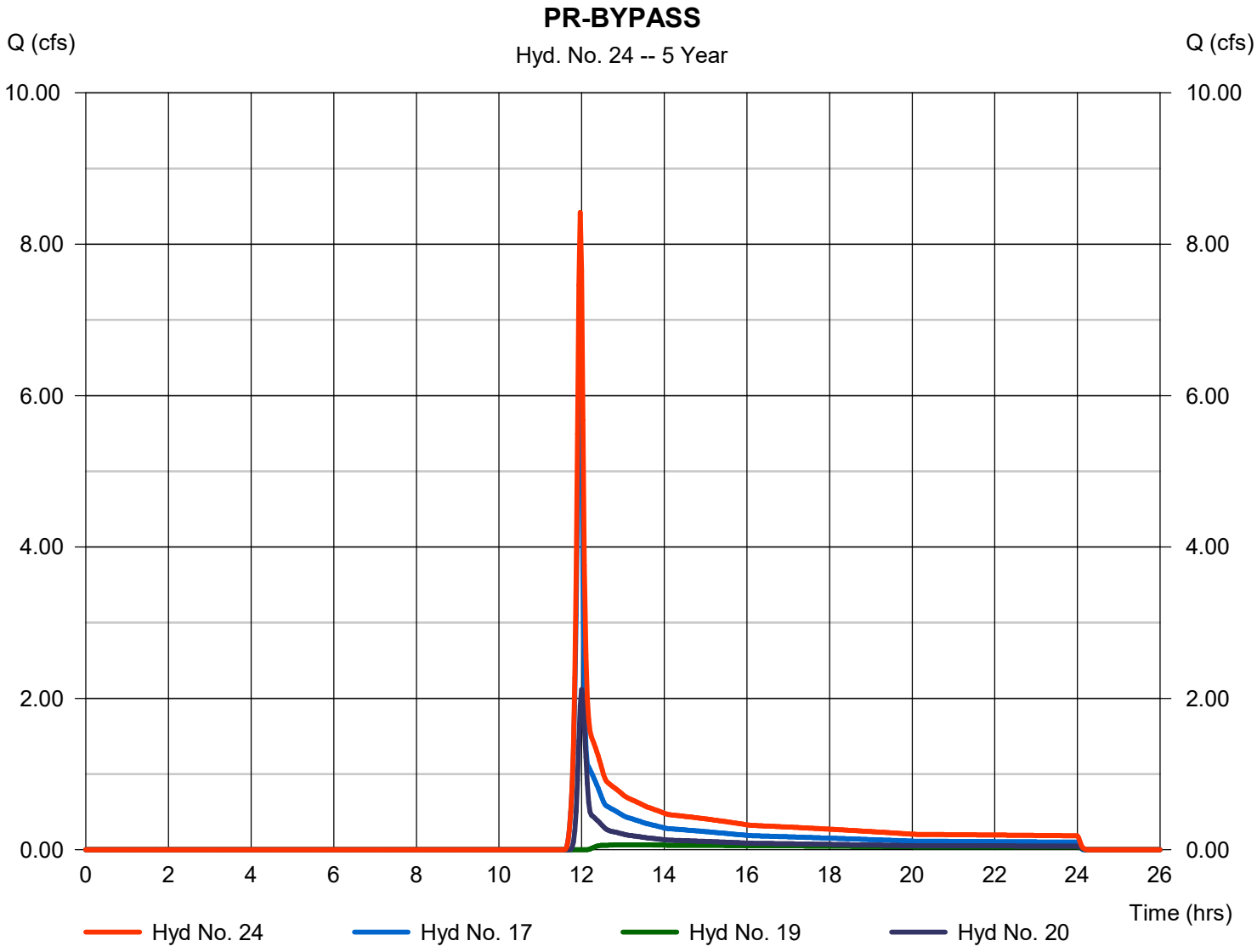


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 8.420 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 21,268 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

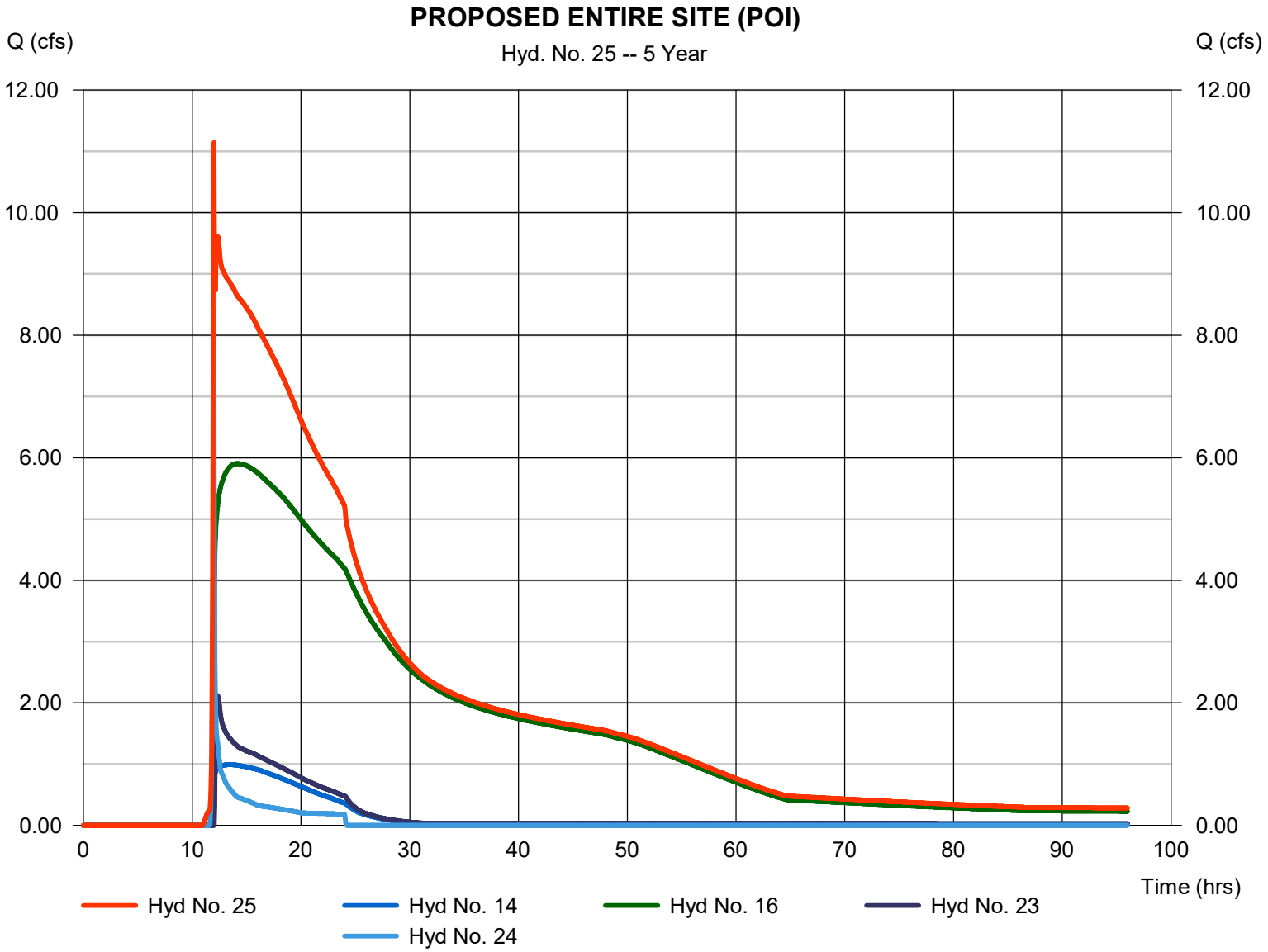


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 11.14 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 626,403 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

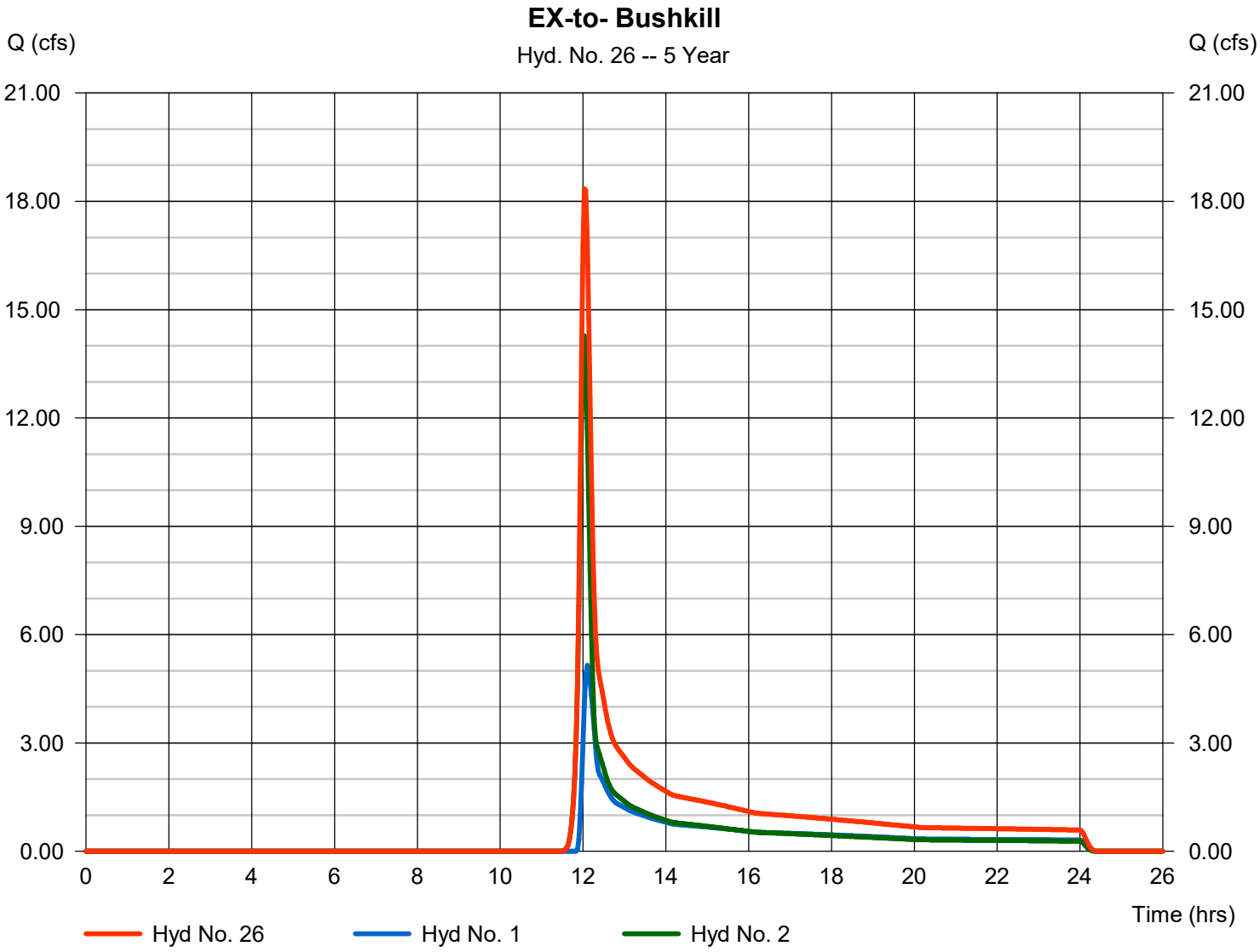


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 18.35 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 68,991 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

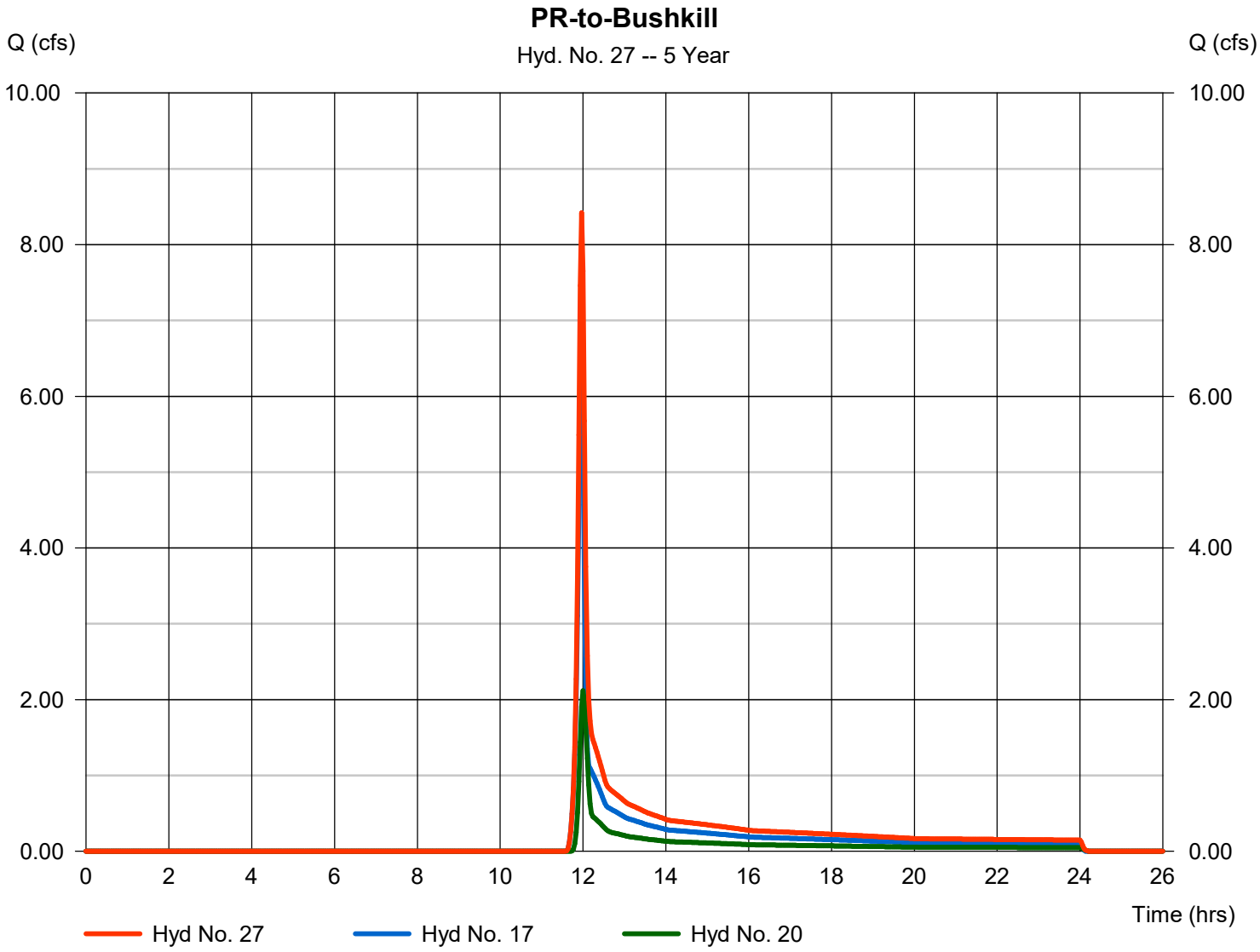


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 8.420 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 19,239 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

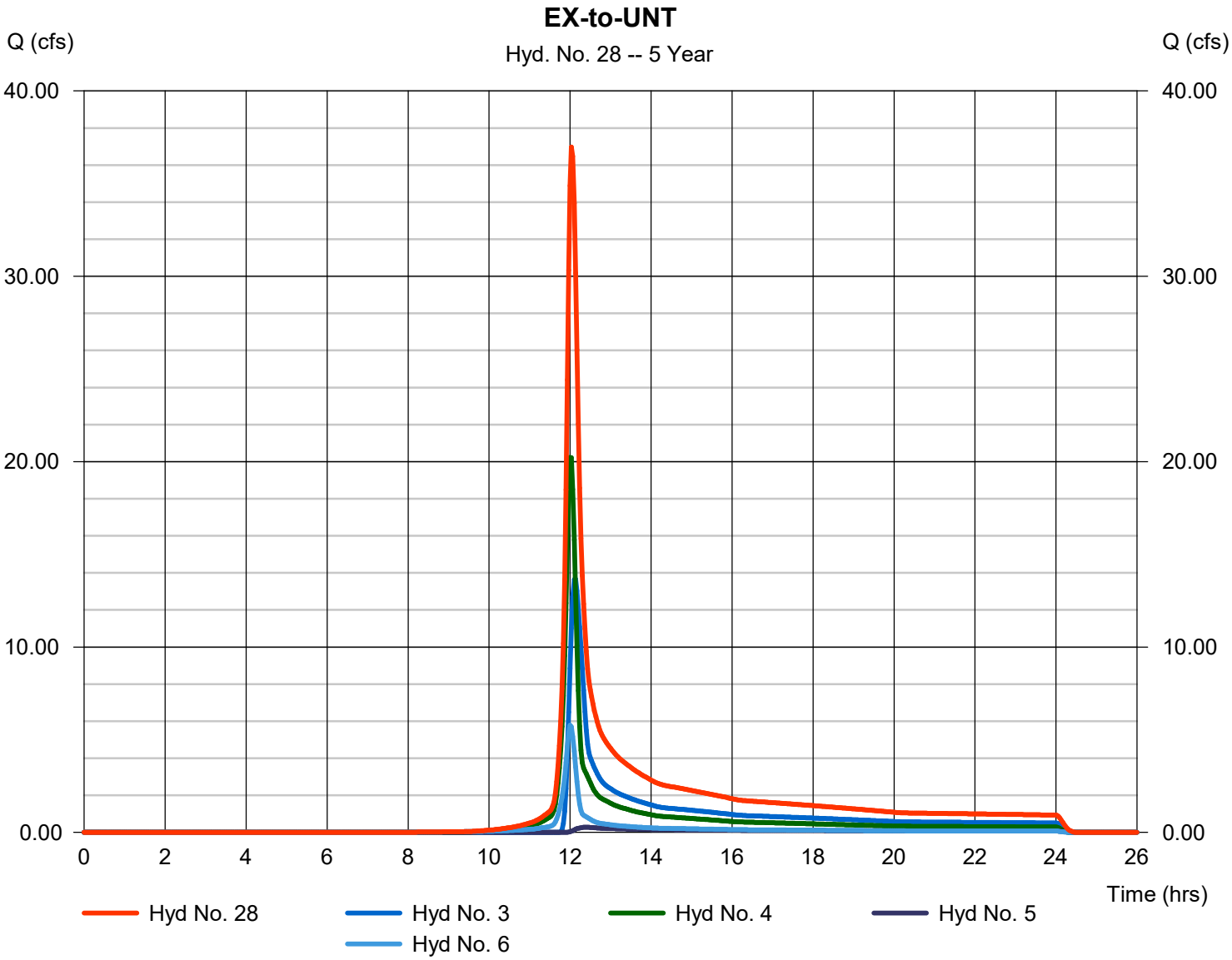


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 36.98 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 131,802 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

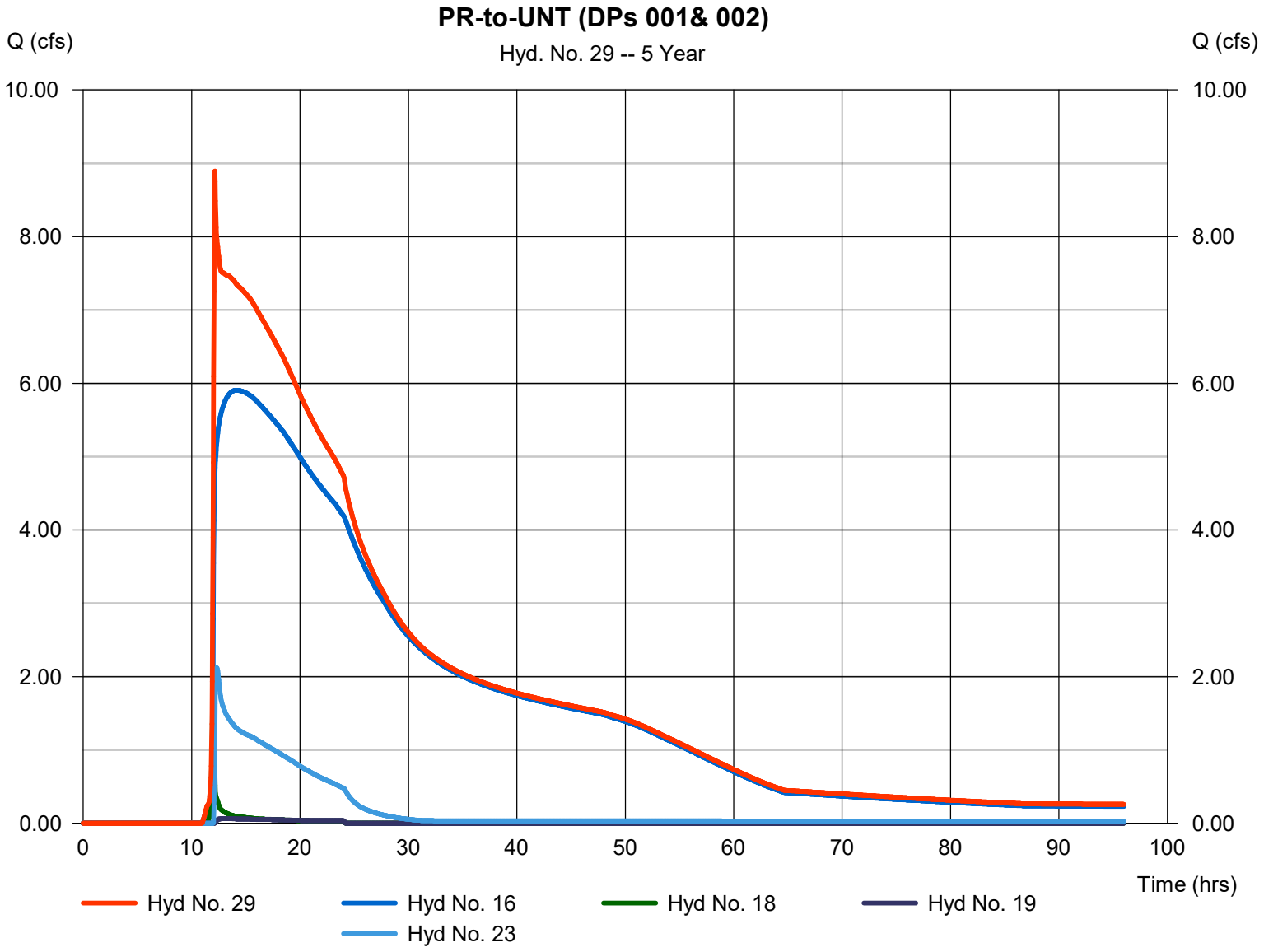


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 8.895 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 570,560 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	16.00	2	724	60,390	------	------	------	EX-DA 1
2	SCS Runoff	24.81	2	722	66,188	------	------	------	EX-DA2
3	SCS Runoff	30.08	2	726	108,065	------	------	------	EX-DA3
4	SCS Runoff	30.33	2	720	78,657	------	------	------	EX-DA4
5	SCS Runoff	1.919	2	728	12,716	------	------	------	EX-DA5
6	SCS Runoff	8.154	2	720	21,277	------	------	------	EX-DA-Road Widening
7	Combine	105.30	2	722	347,292	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	75.45	2	716	172,824	------	------	------	PR-DA-A
9	SCS Runoff	95.35	2	716	218,399	------	------	------	PR-DA-B
10	SCS Runoff	162.91	2	718	389,220	------	------	------	PR-DA-C
11	Reservoir	0.894	2	1112	160,794	8	291.31	133,835	BMP A Routing
12	Reservoir	1.429	2	1004	206,919	9	287.68	159,895	BMP B Routing
13	SCS Runoff	33.49	2	716	67,896	------	------	------	PR-DA-E
14	Reservoir	1.338	2	810	64,137	13	259.31	39,443	BMP E Routing
15	Combine	164.88	2	718	756,932	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	7.953	2	830	693,176	15	217.93	270,697	MRC BMP C Routing(DP1)
17	SCS Runoff	11.45	2	718	23,046	------	------	------	PR-BYPASS 1
18	SCS Runoff	3.404	2	720	7,797	------	------	------	PR RG
19	SCS Runoff	0.941	2	722	6,330	------	------	------	PR-BYPASS 2
20	SCS Runoff	4.244	2	720	10,221	------	------	------	PR-BYPASS 3
21	SCS Runoff	9.169	2	718	24,329	------	------	------	PR-Road Widening
22	Combine	13.53	2	718	96,262	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	9.117	2	724	83,248	22	233.07	16,503	RG Routing (DP2)
24	Combine	15.91	2	718	39,596	17, 19, 20,	------	------	PR-BYPASS
25	Combine	25.63	2	722	880,158	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	39.60	2	722	126,577	1, 2,	------	------	EX-to- Bushkill
27	Combine	15.48	2	718	33,267	17, 20,	------	------	PR-to-Bushkill
28	Combine	65.70	2	722	220,715	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	20.55	2	722	791,894	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

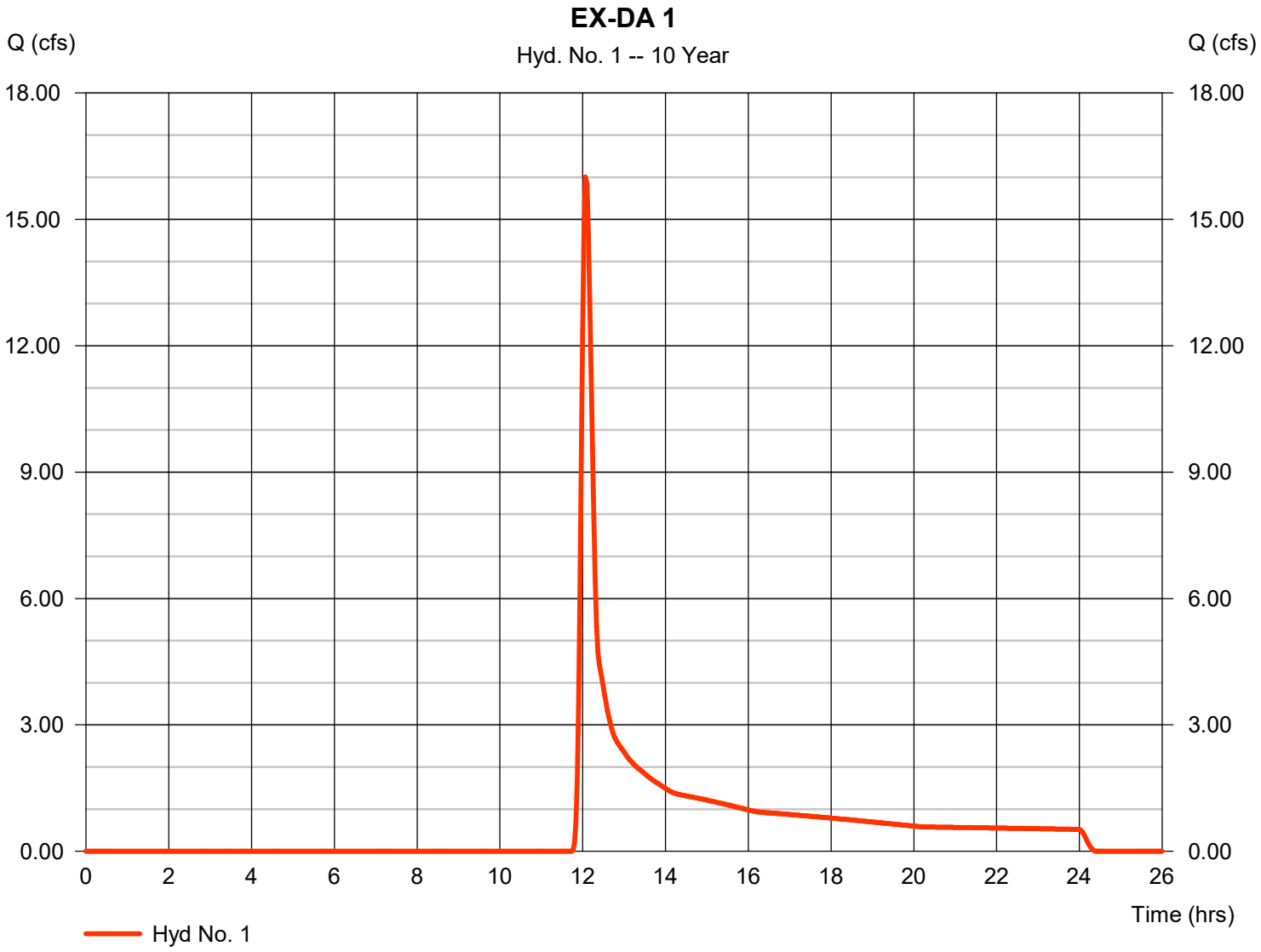
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.00 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	60,390 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



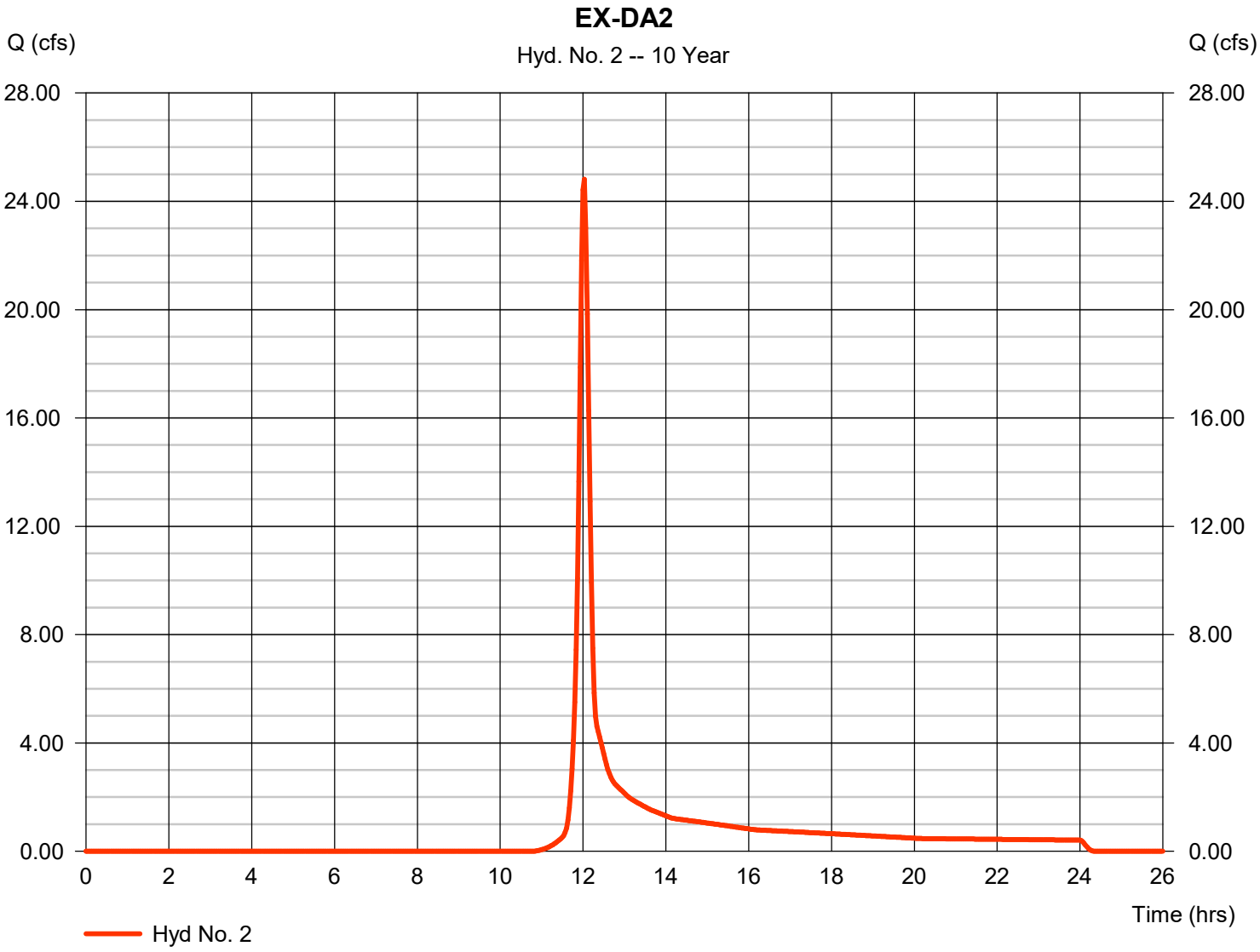
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.81 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	66,188 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



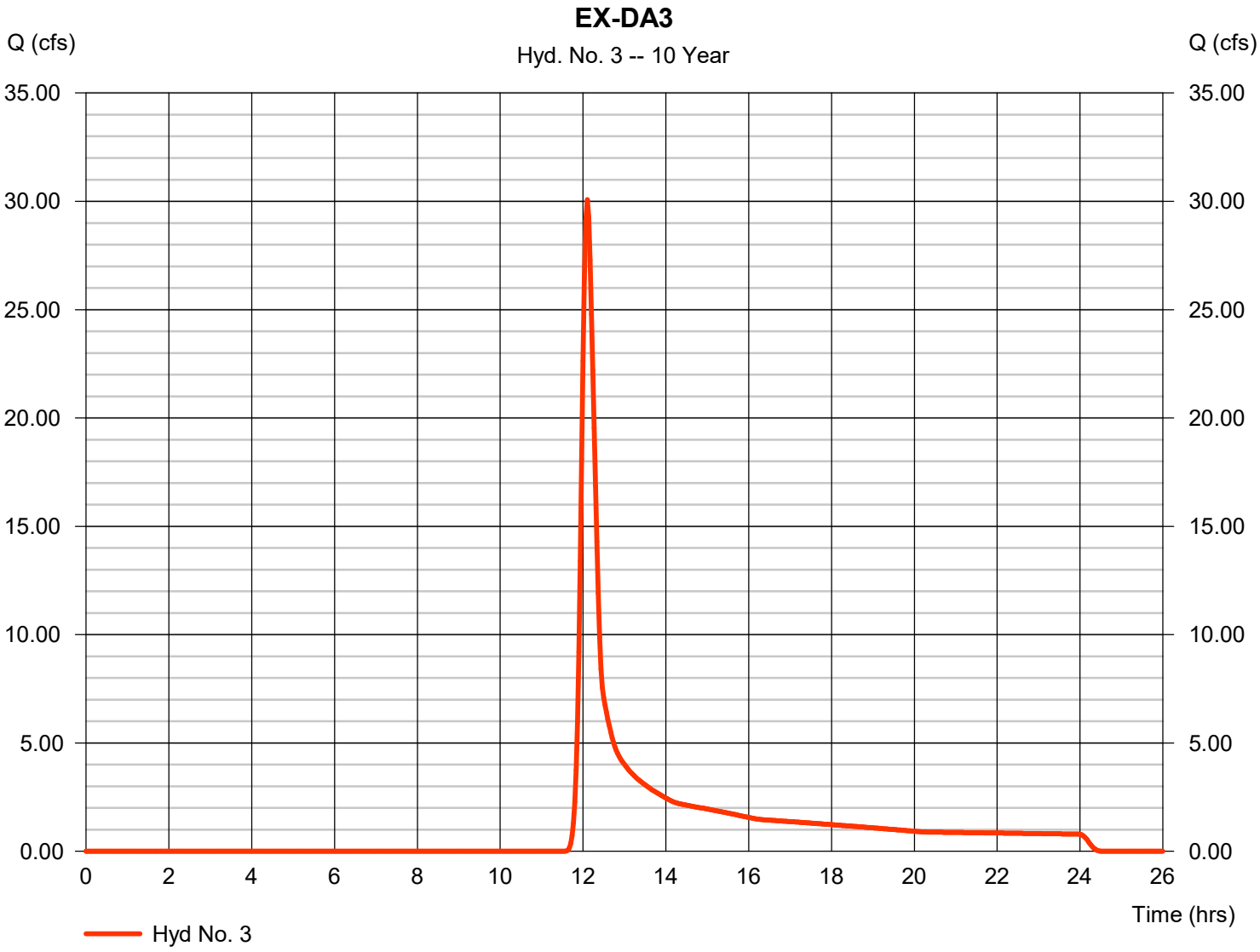
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.08 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	108,065 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



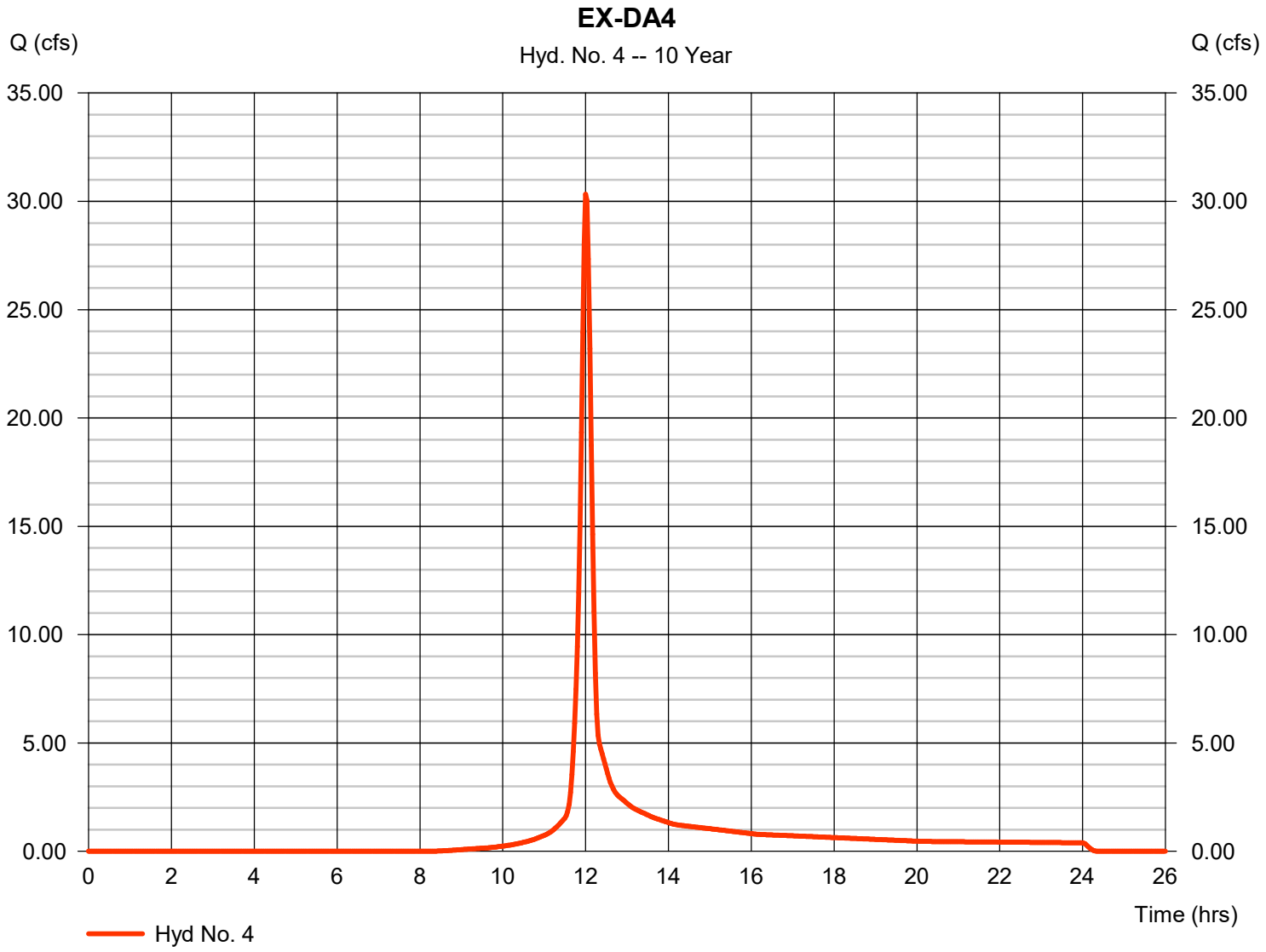
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.33 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	78,657 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



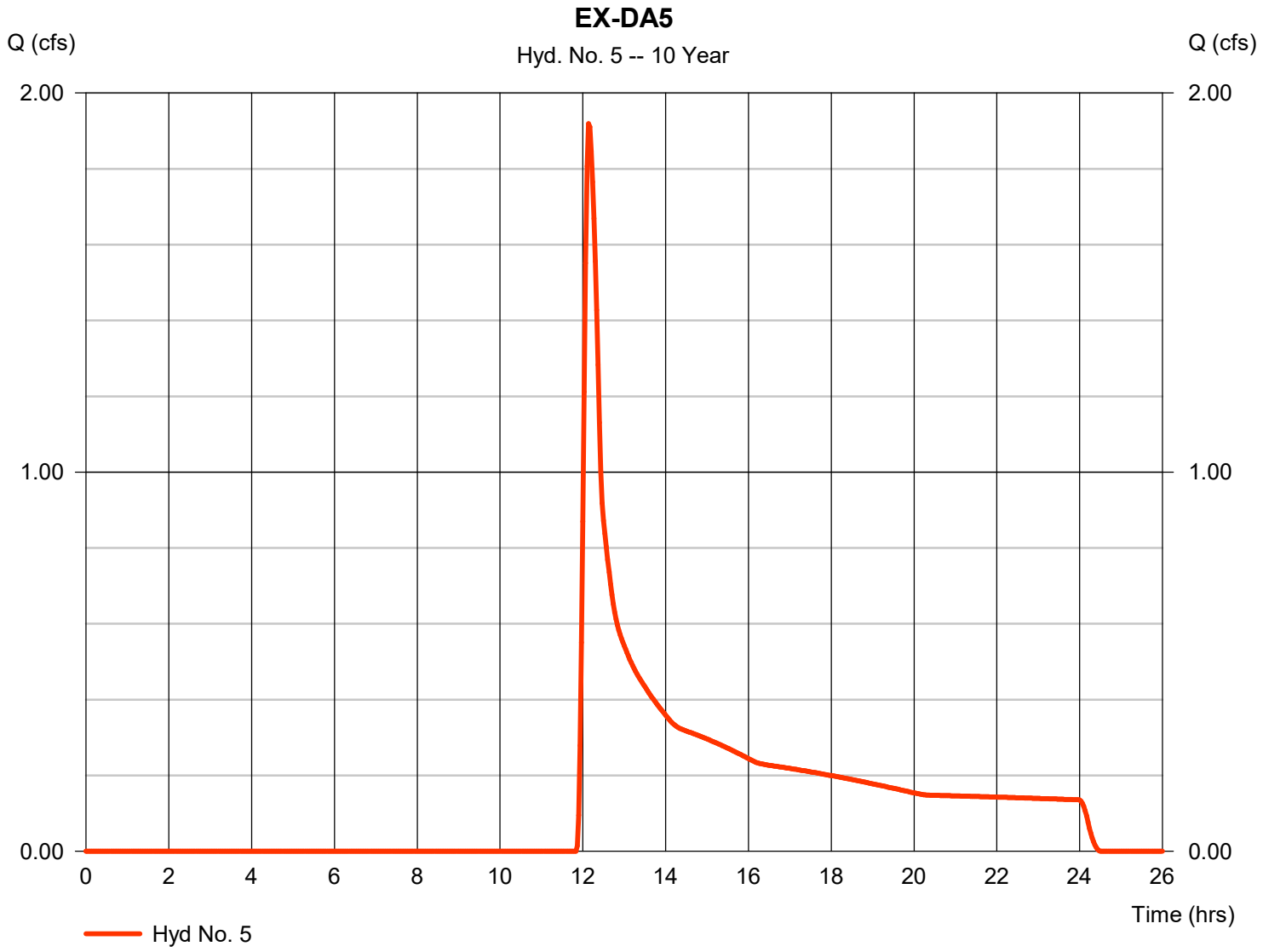
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.919 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	12,716 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



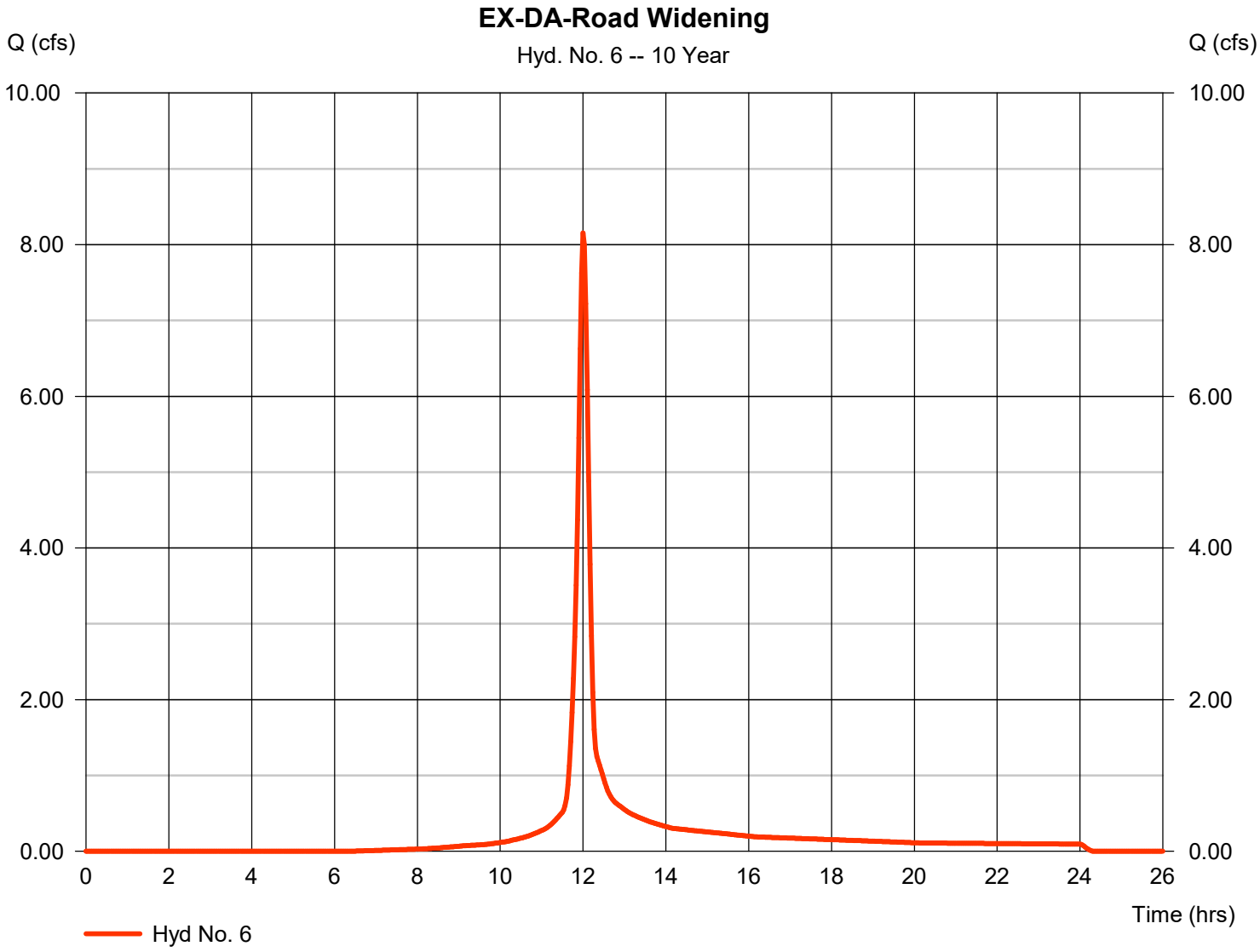
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.154 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	21,277 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

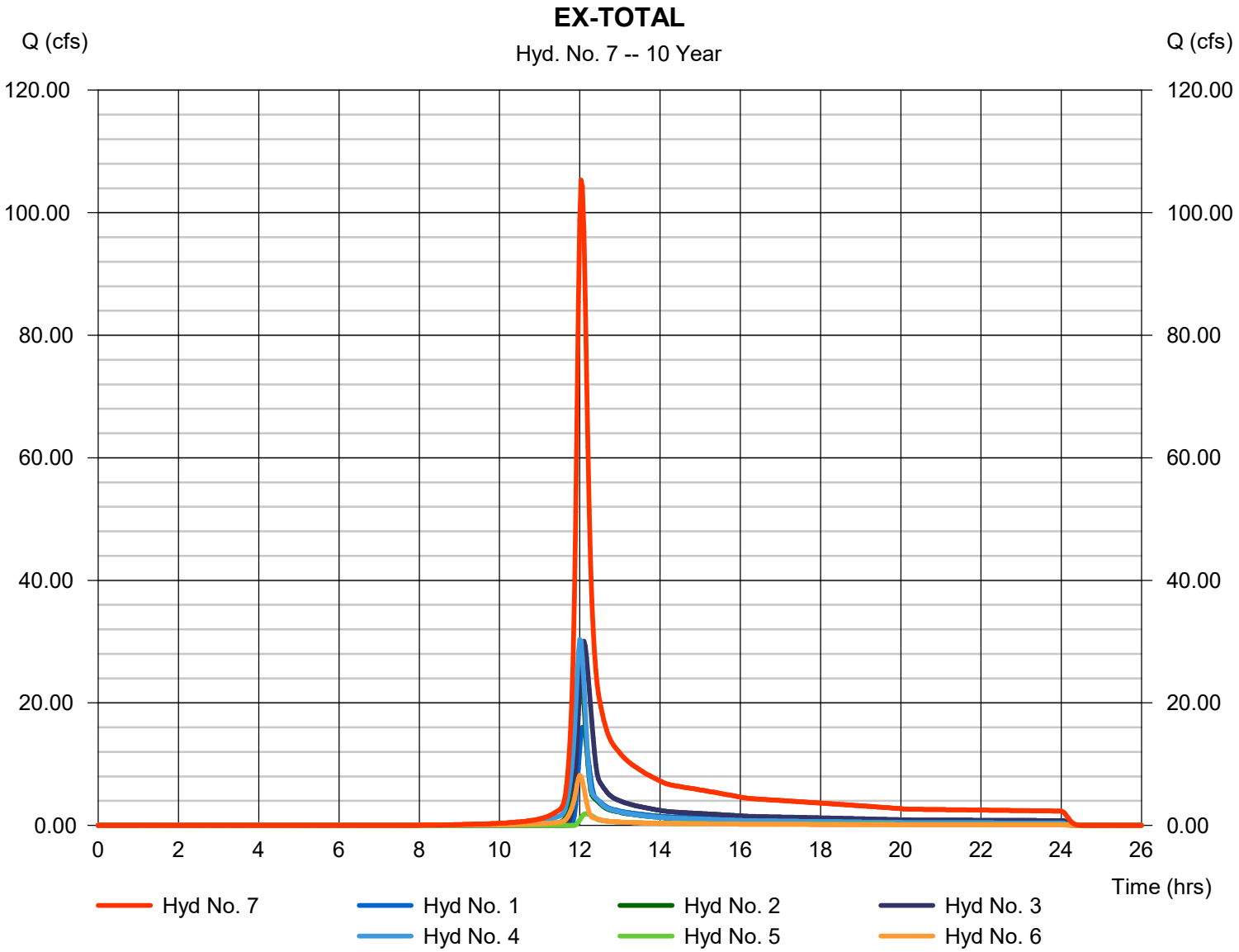


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	105.30 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	347,292 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



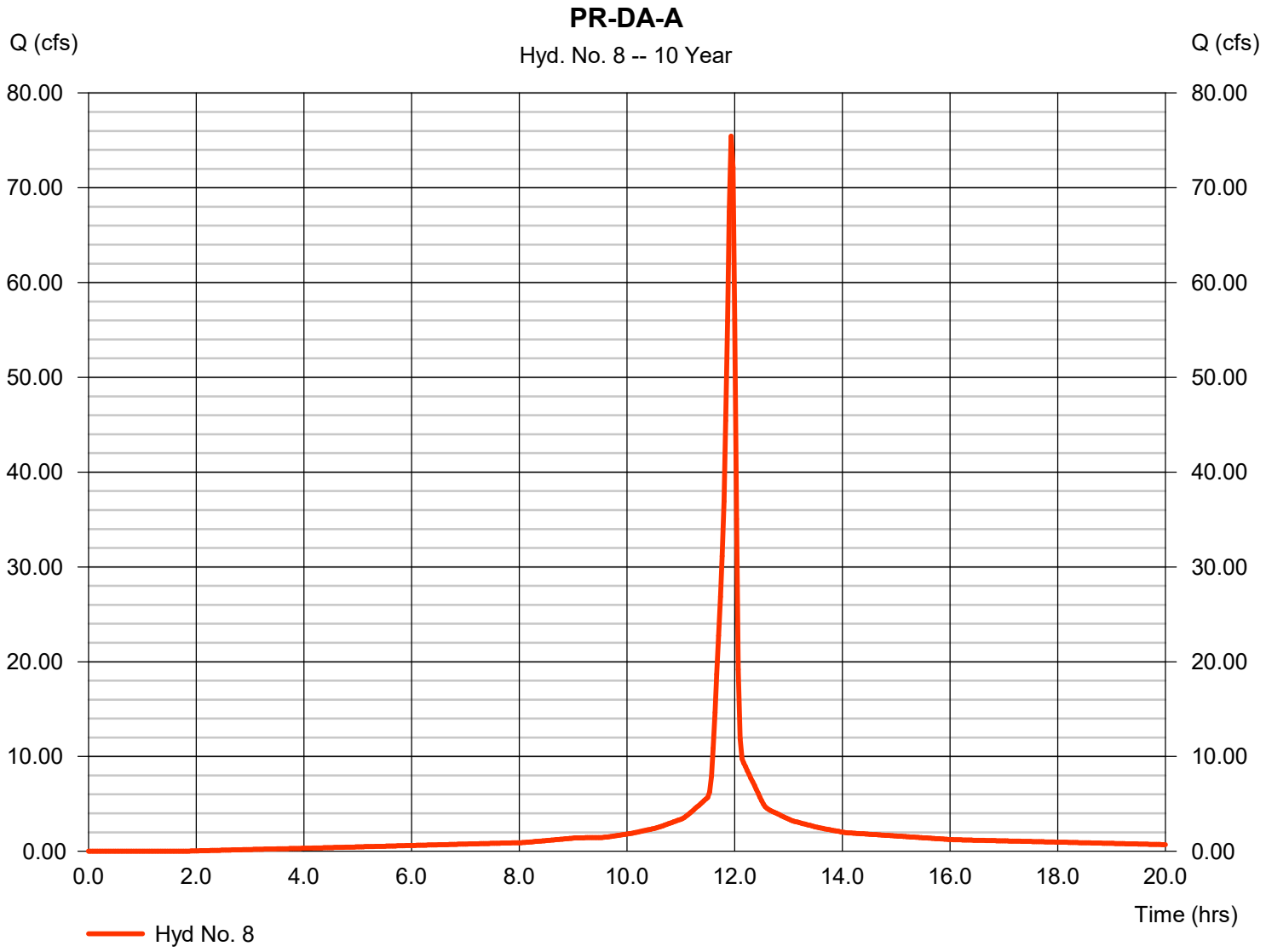
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	75.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	172,824 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



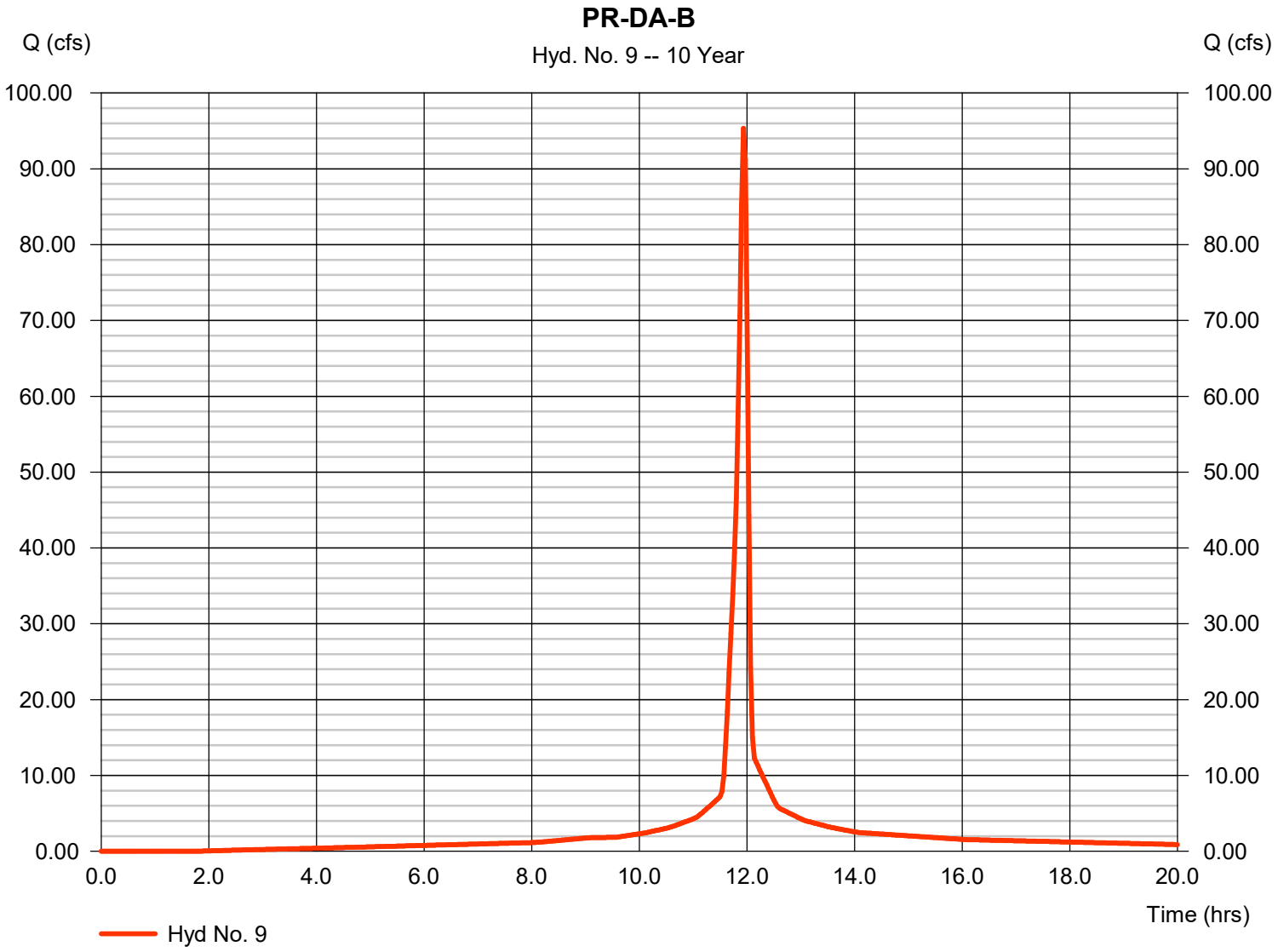
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	95.35 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	218,399 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



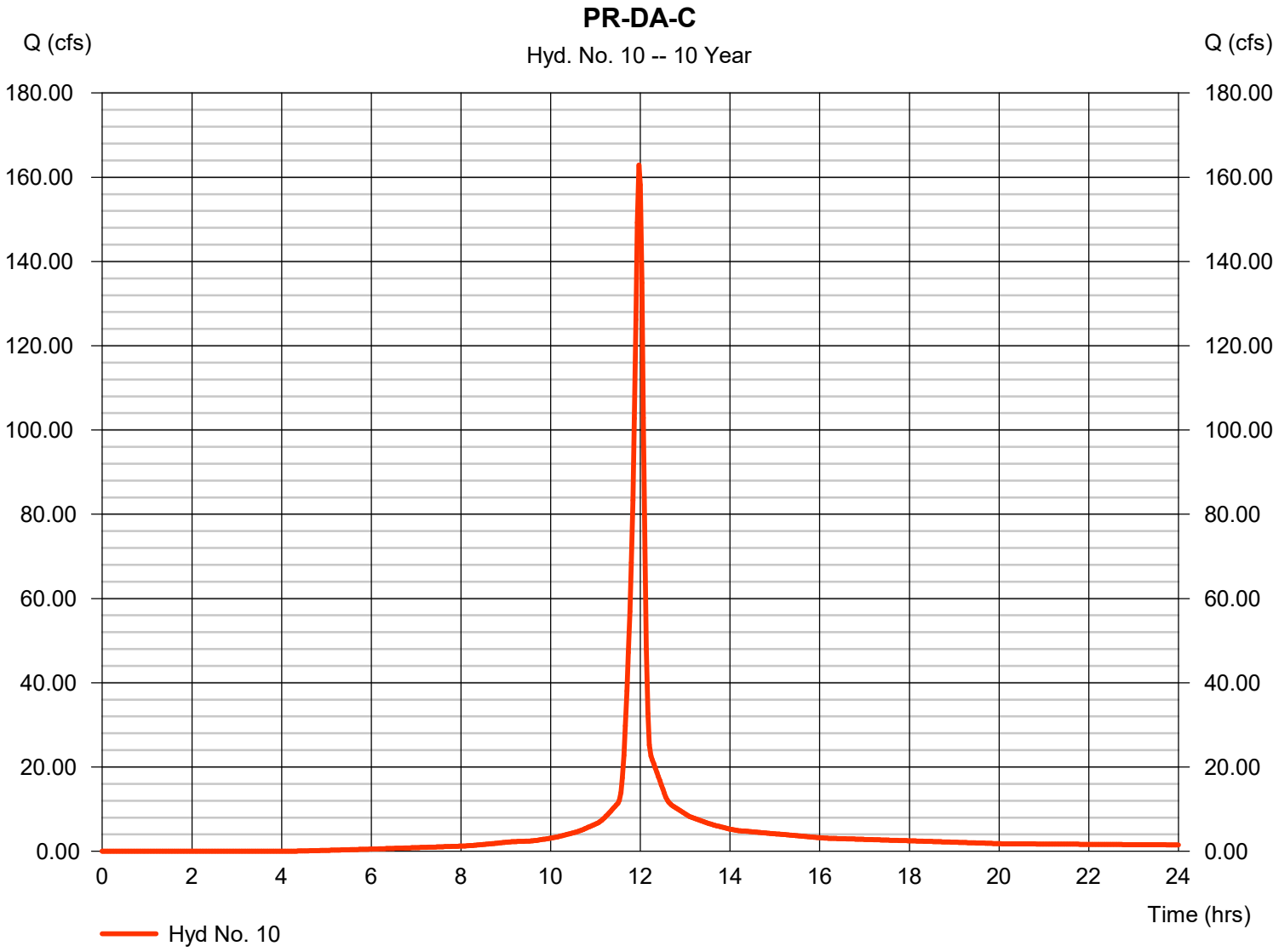
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	162.91 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	389,220 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



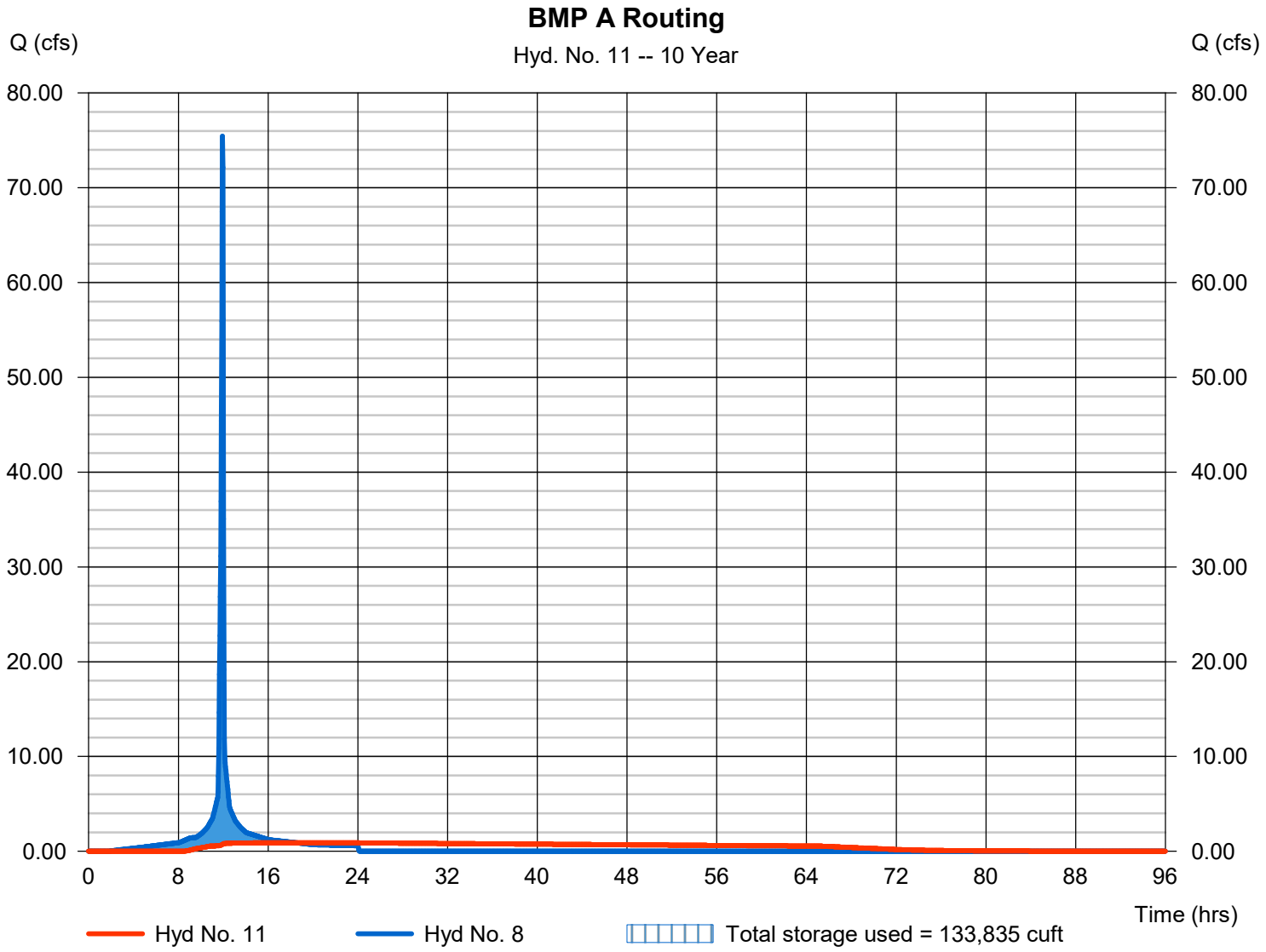
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.894 cfs
Storm frequency	=	10 yrs	Time to peak	=	18.53 hrs
Time interval	=	2 min	Hyd. volume	=	160,794 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.31 ft
Reservoir name	=	BMP A	Max. Storage	=	133,835 cuft

Storage Indication method used.



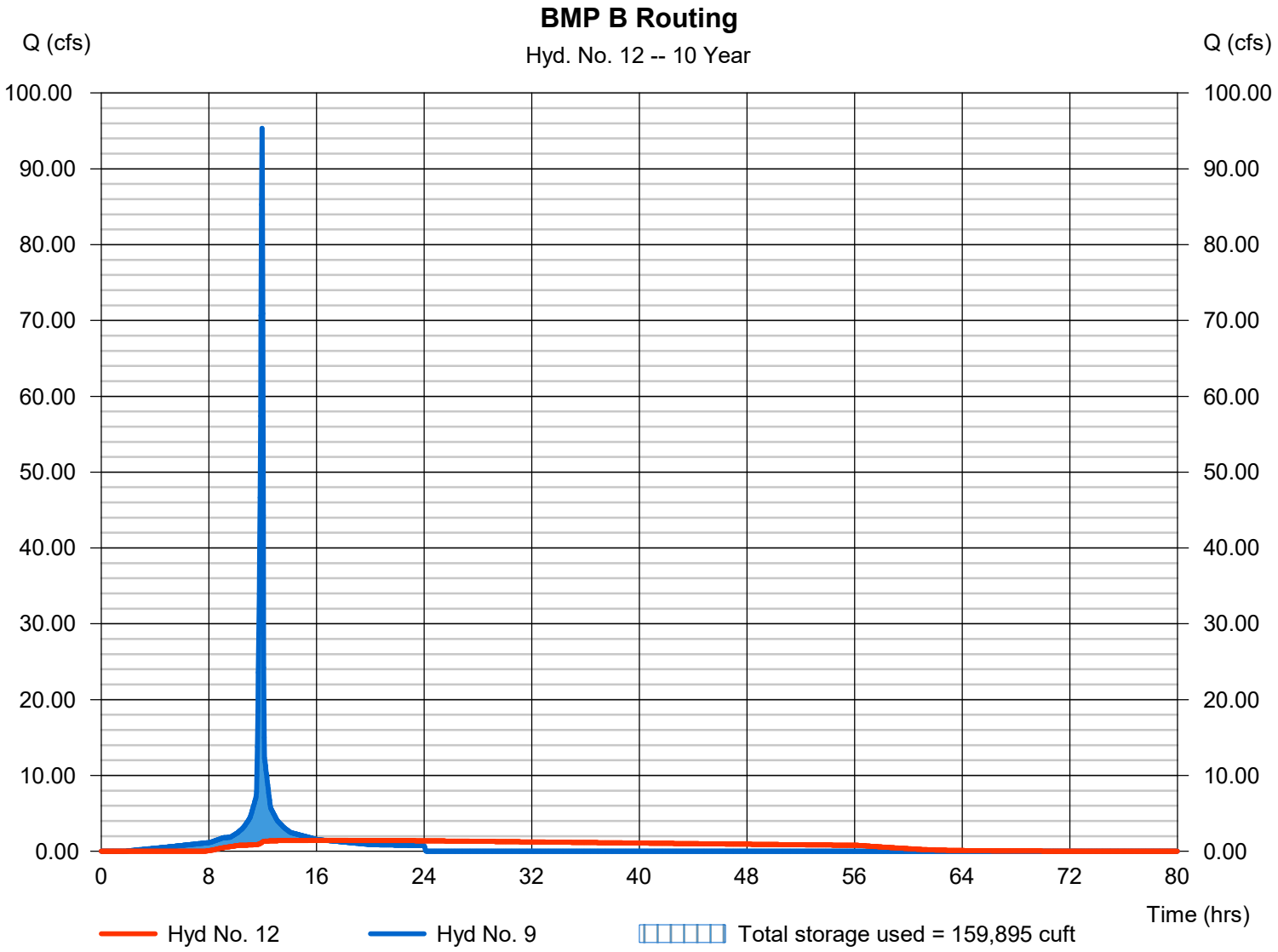
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.429 cfs
Storm frequency	=	10 yrs	Time to peak	=	16.73 hrs
Time interval	=	2 min	Hyd. volume	=	206,919 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	287.68 ft
Reservoir name	=	BMP B	Max. Storage	=	159,895 cuft

Storage Indication method used.



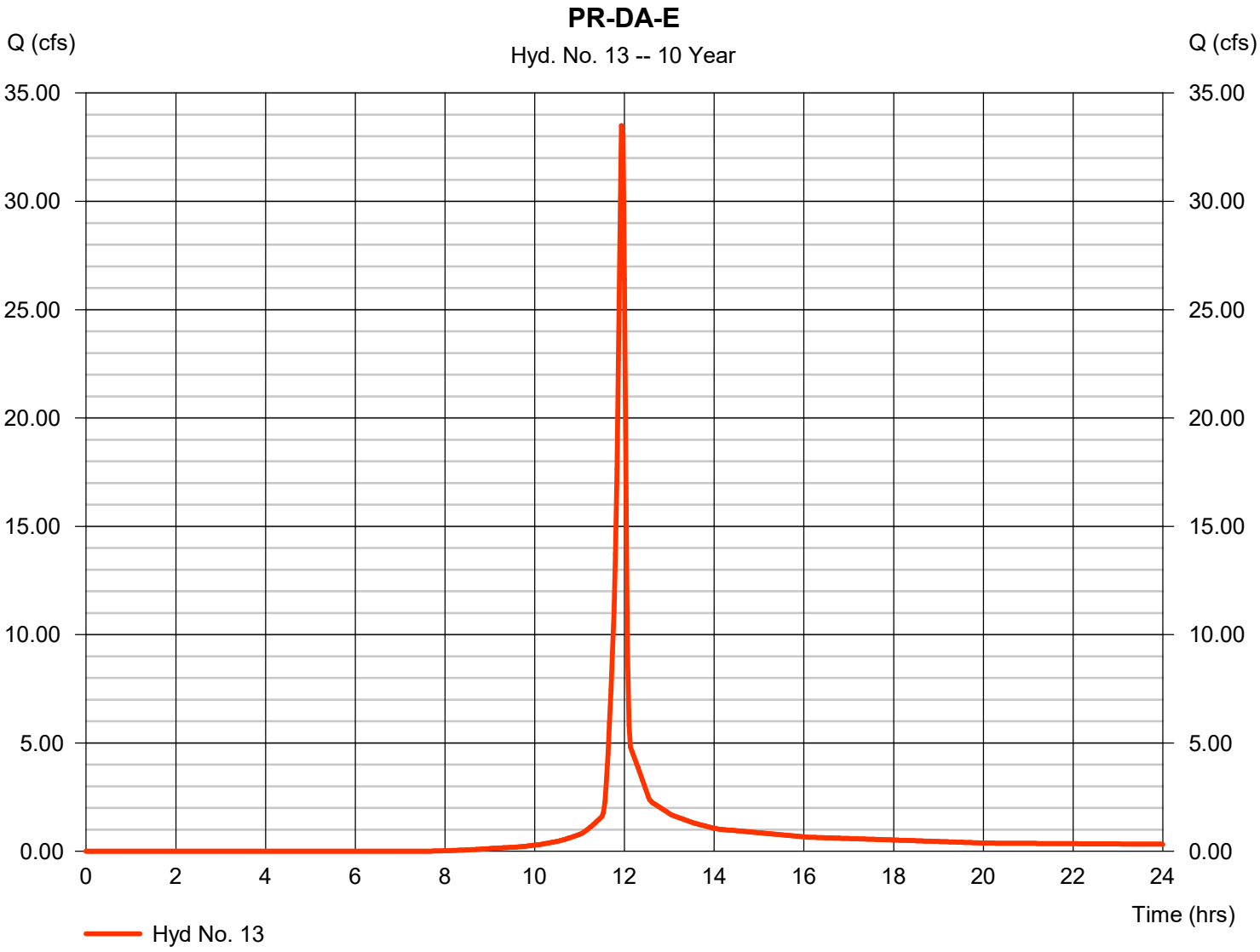
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.49 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	67,896 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



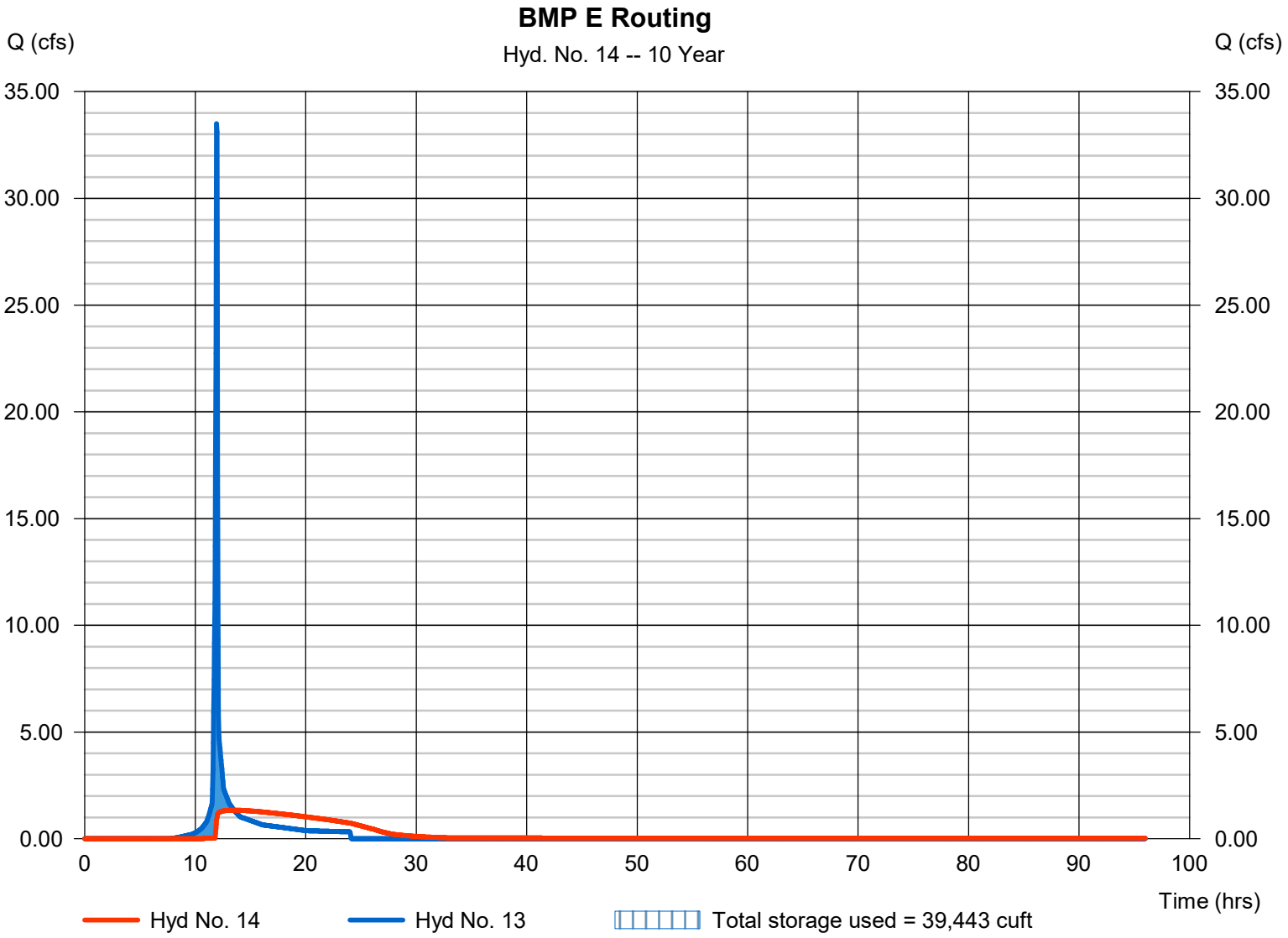
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.338 cfs
Storm frequency	=	10 yrs	Time to peak	=	13.50 hrs
Time interval	=	2 min	Hyd. volume	=	64,137 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.31 ft
Reservoir name	=	BMP E	Max. Storage	=	39,443 cuft

Storage Indication method used.

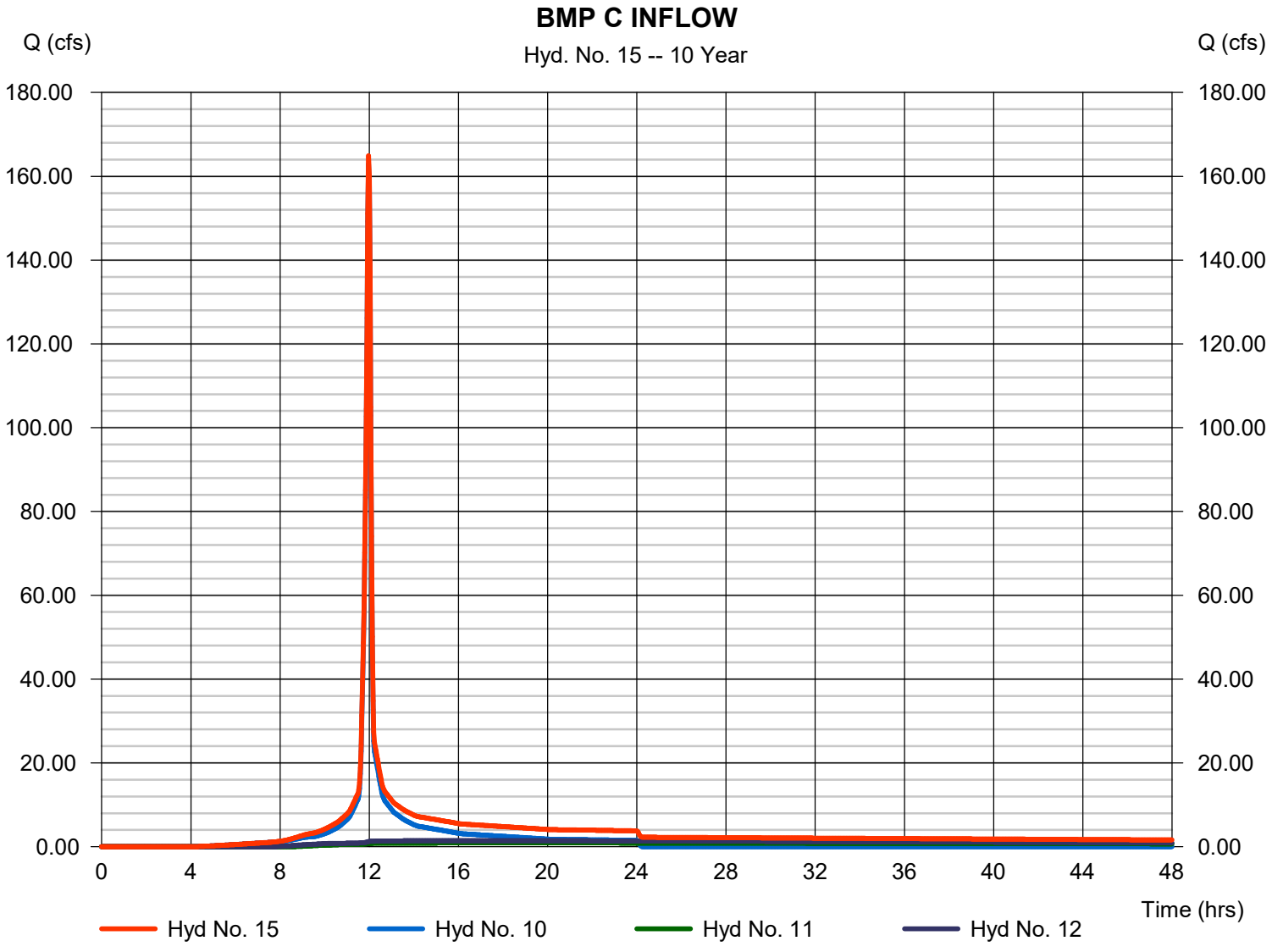


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	164.88 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	756,932 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



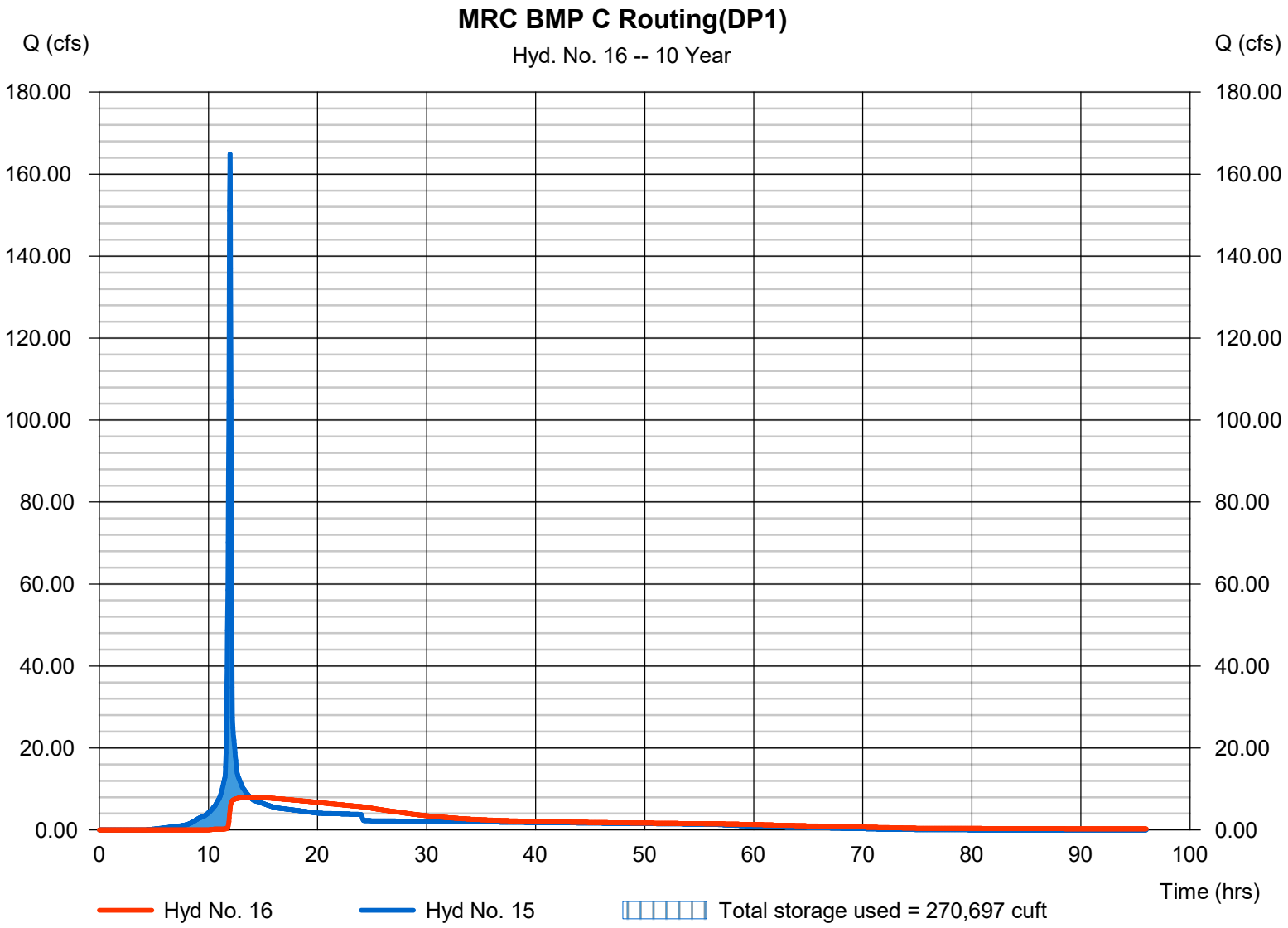
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	7.953 cfs
Storm frequency	=	10 yrs	Time to peak	=	13.83 hrs
Time interval	=	2 min	Hyd. volume	=	693,176 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	217.93 ft
Reservoir name	=	BMP C	Max. Storage	=	270,697 cuft

Storage Indication method used.



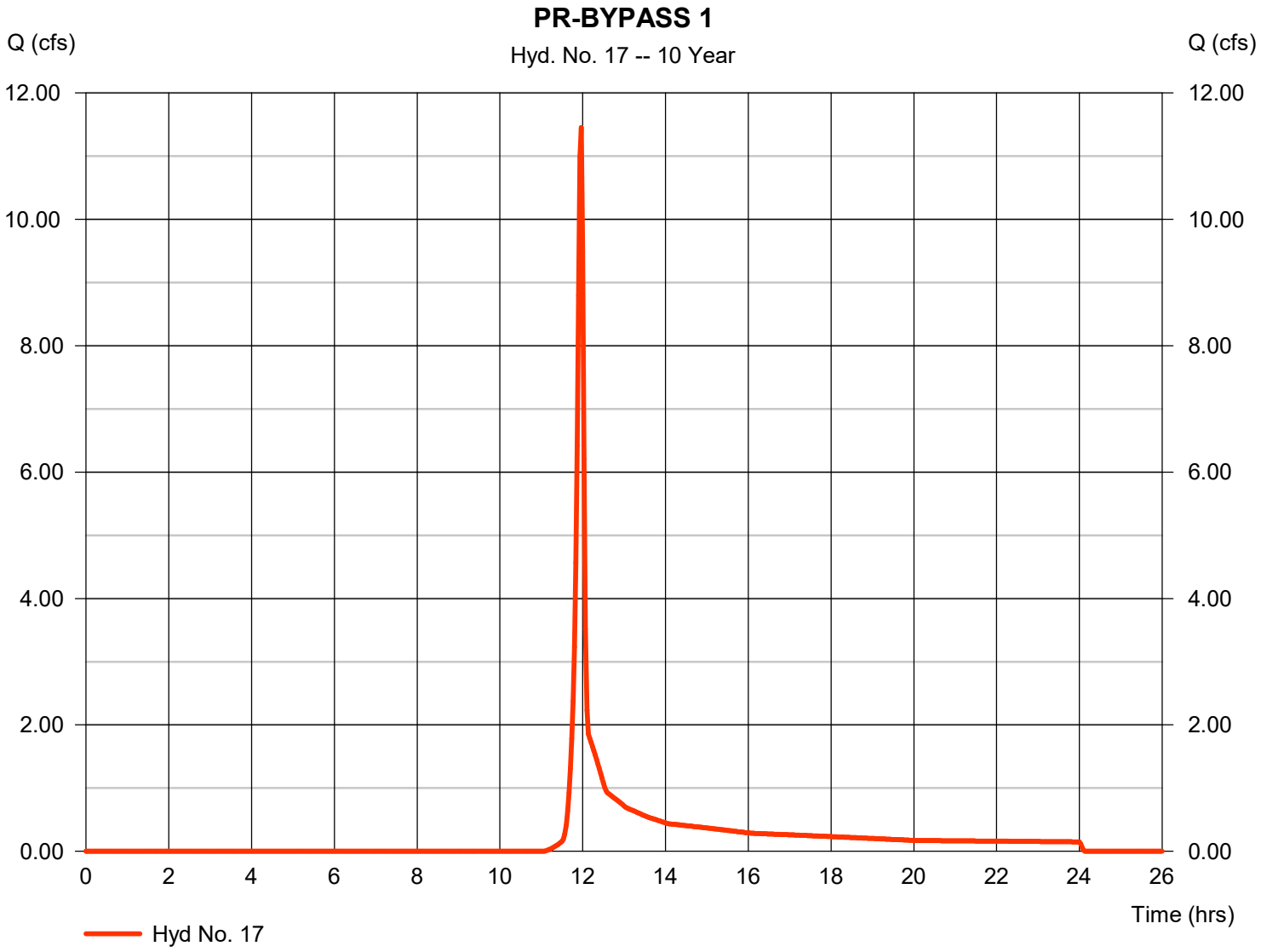
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.45 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	23,046 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



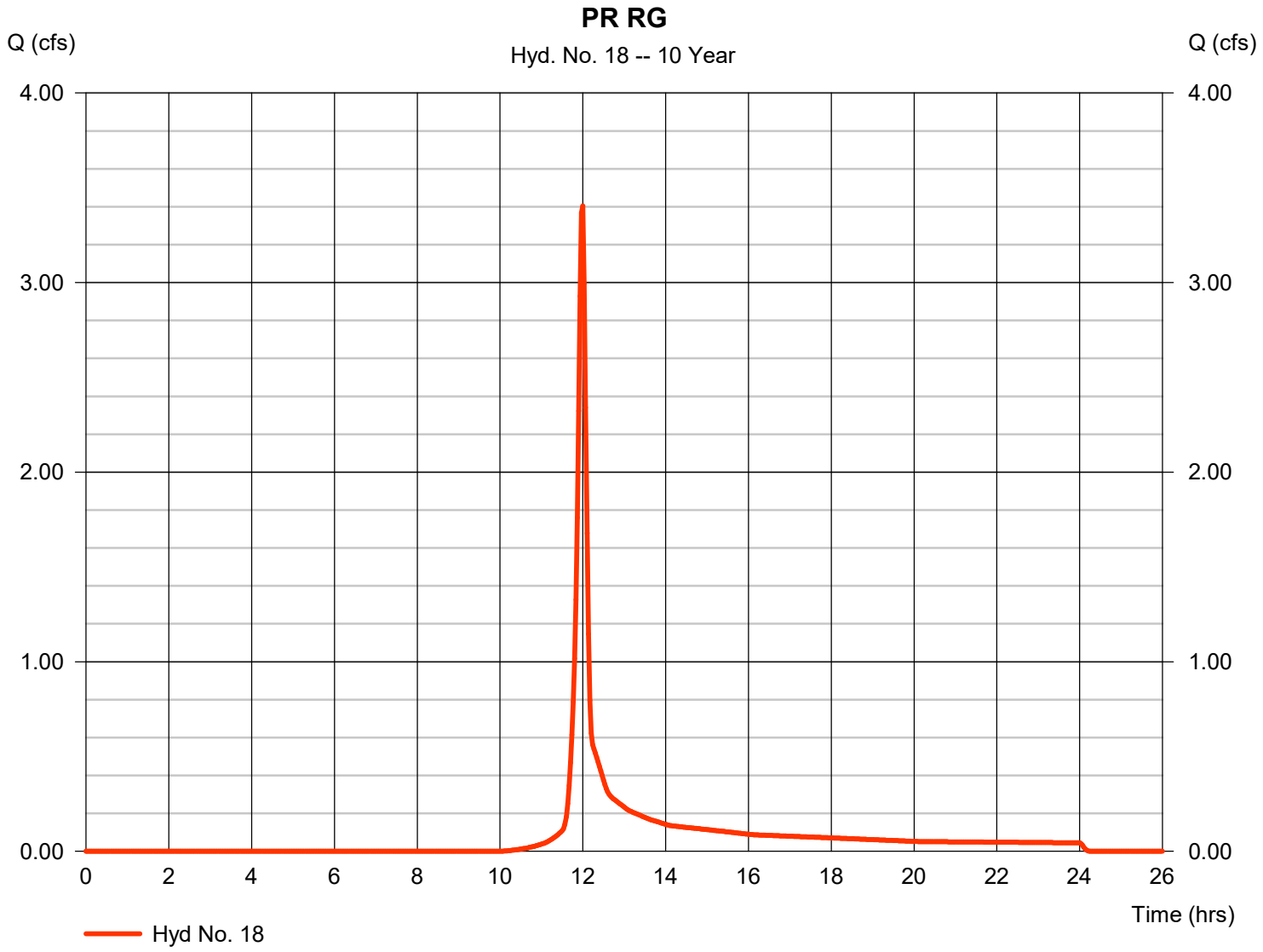
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.404 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,797 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



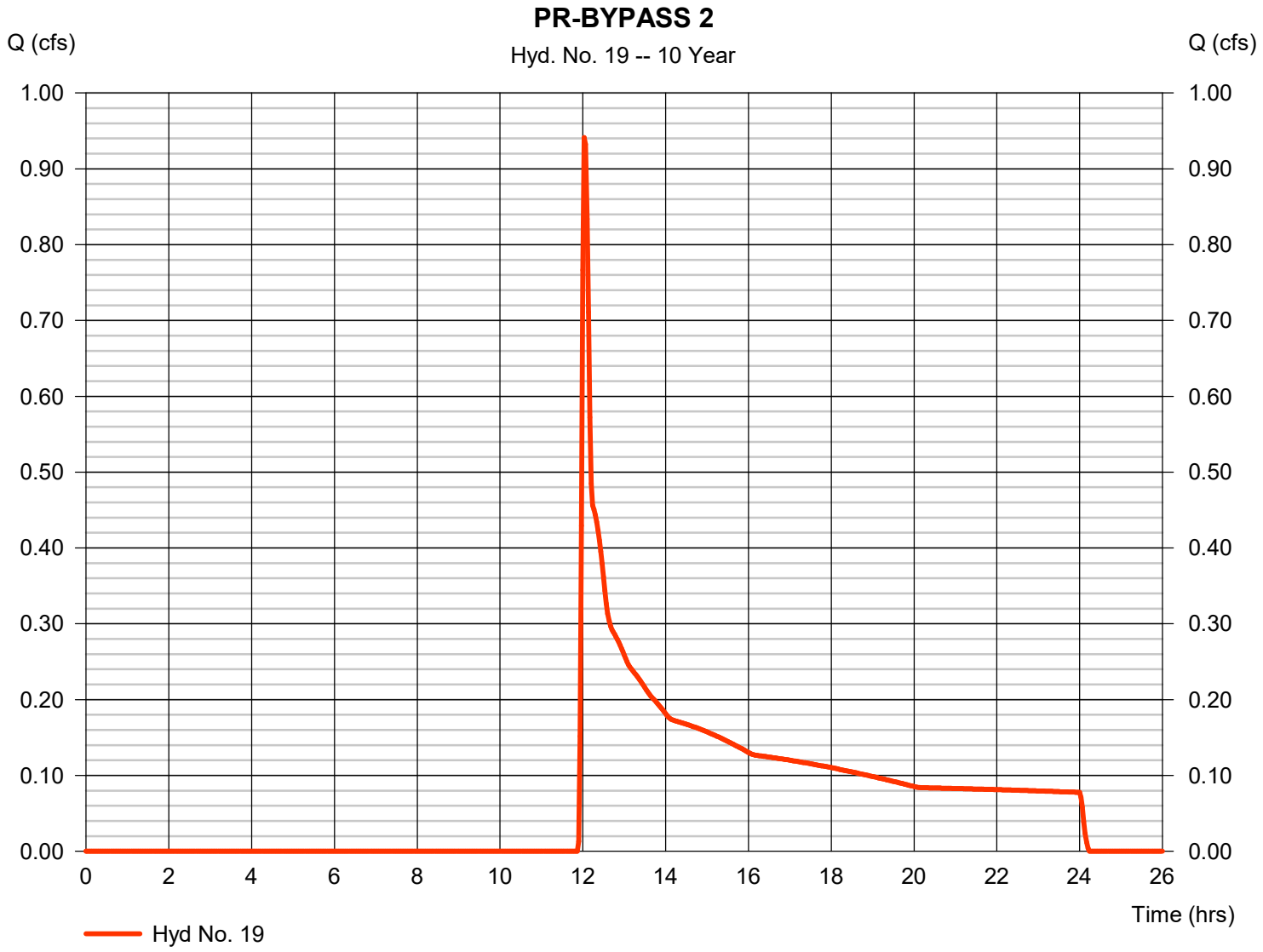
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.941 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	6,330 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



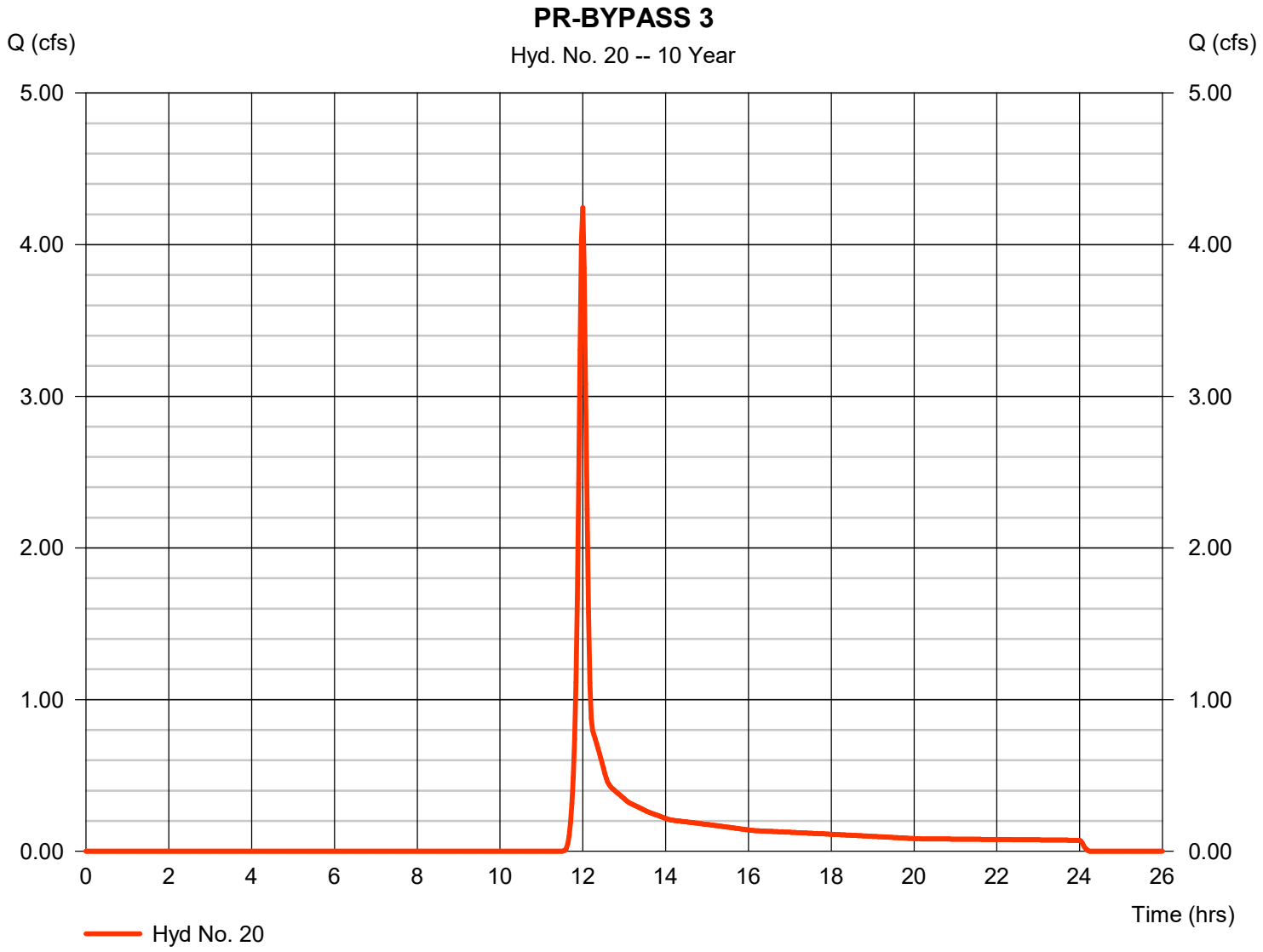
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.244 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	10,221 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

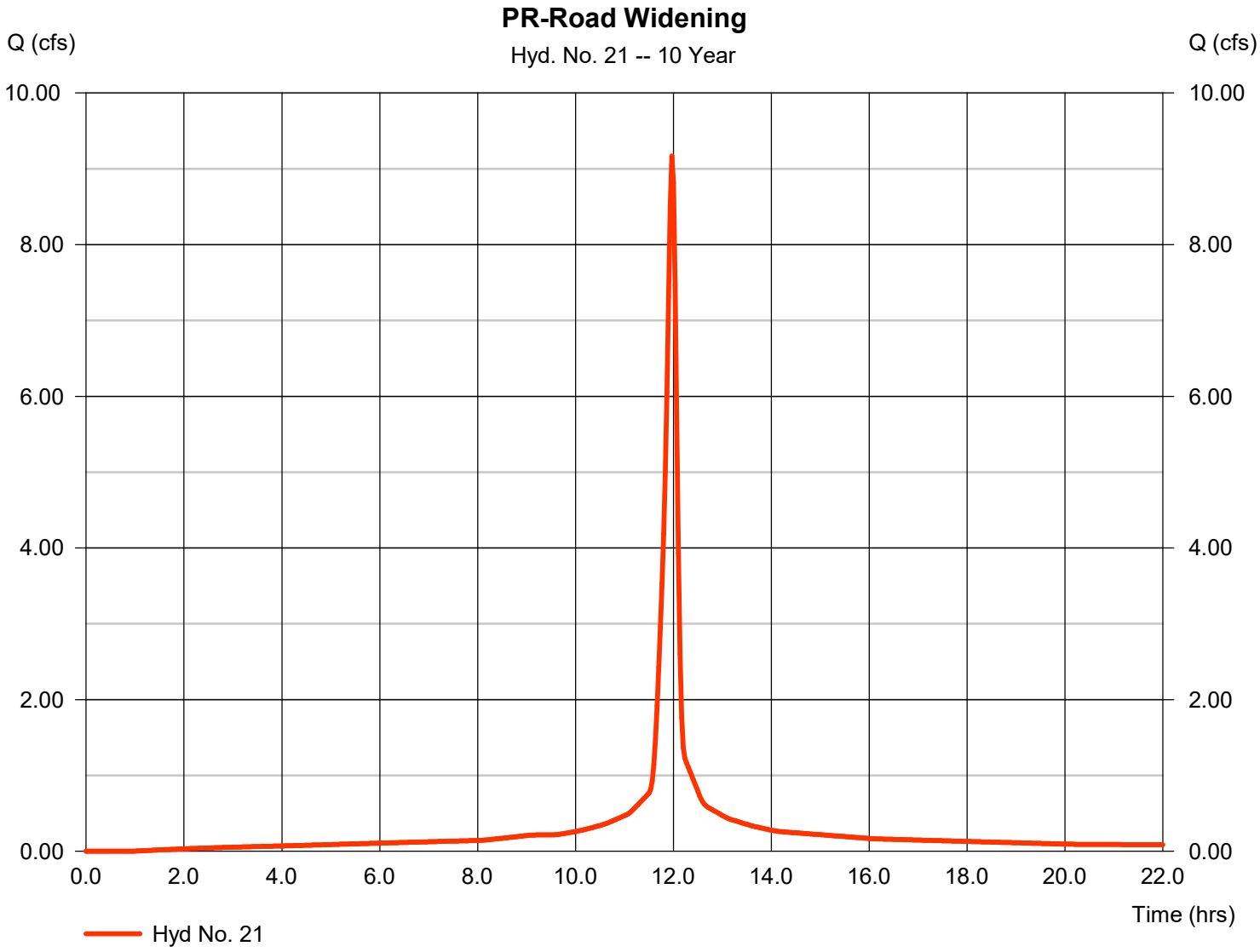


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.169 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	24,329 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

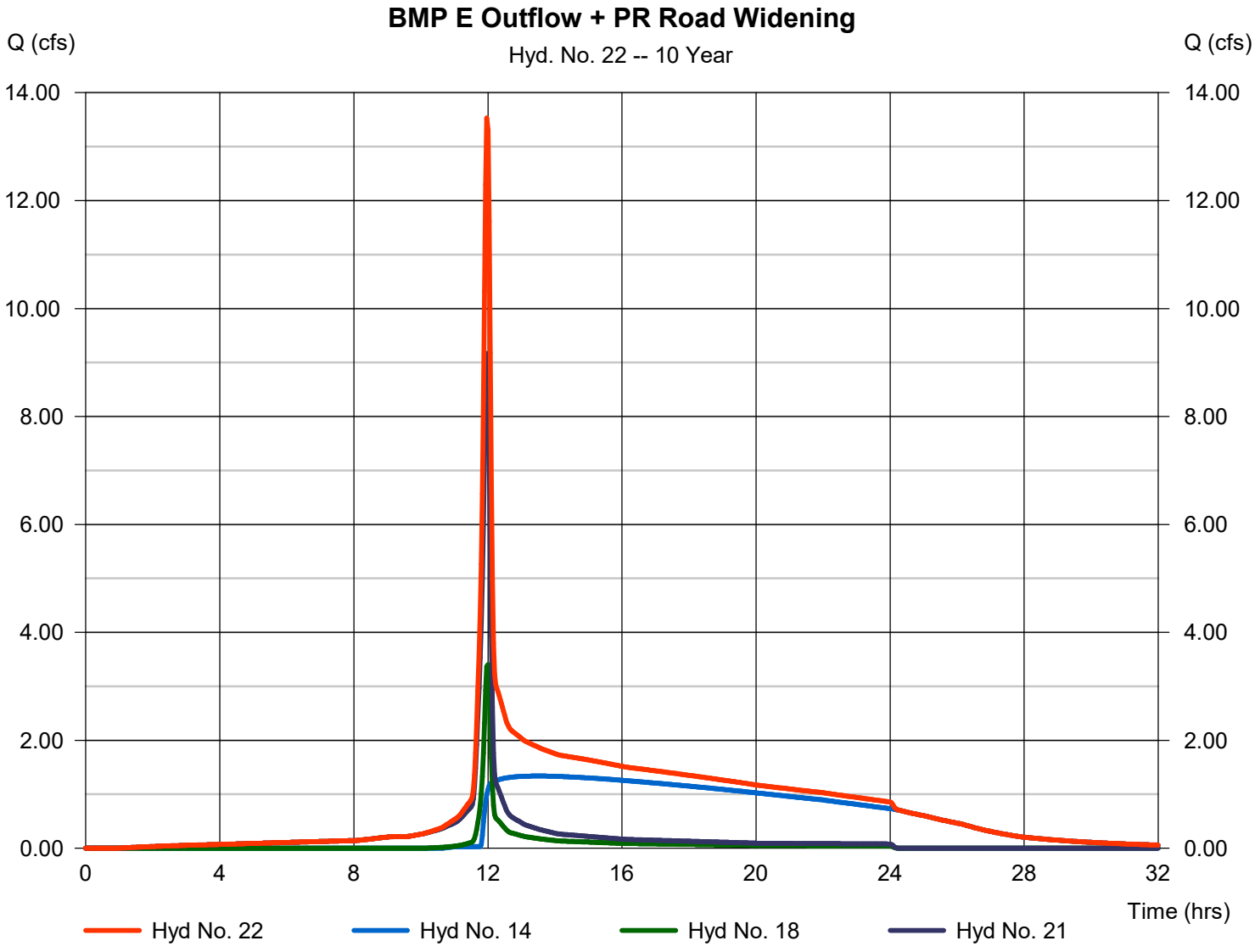


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	13.53 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	96,262 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



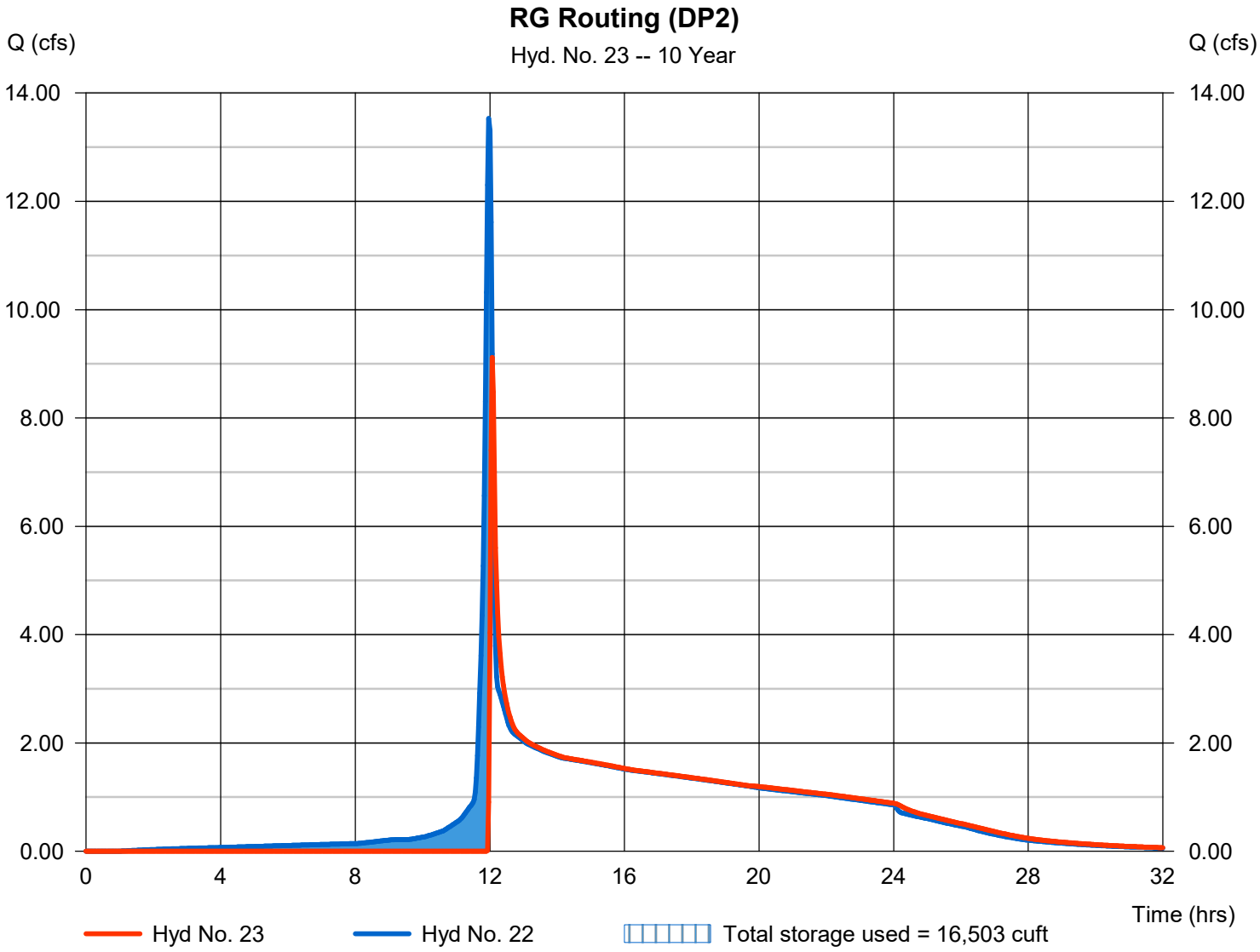
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	9.117 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	83,248 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.07 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	16,503 cuft

Storage Indication method used.

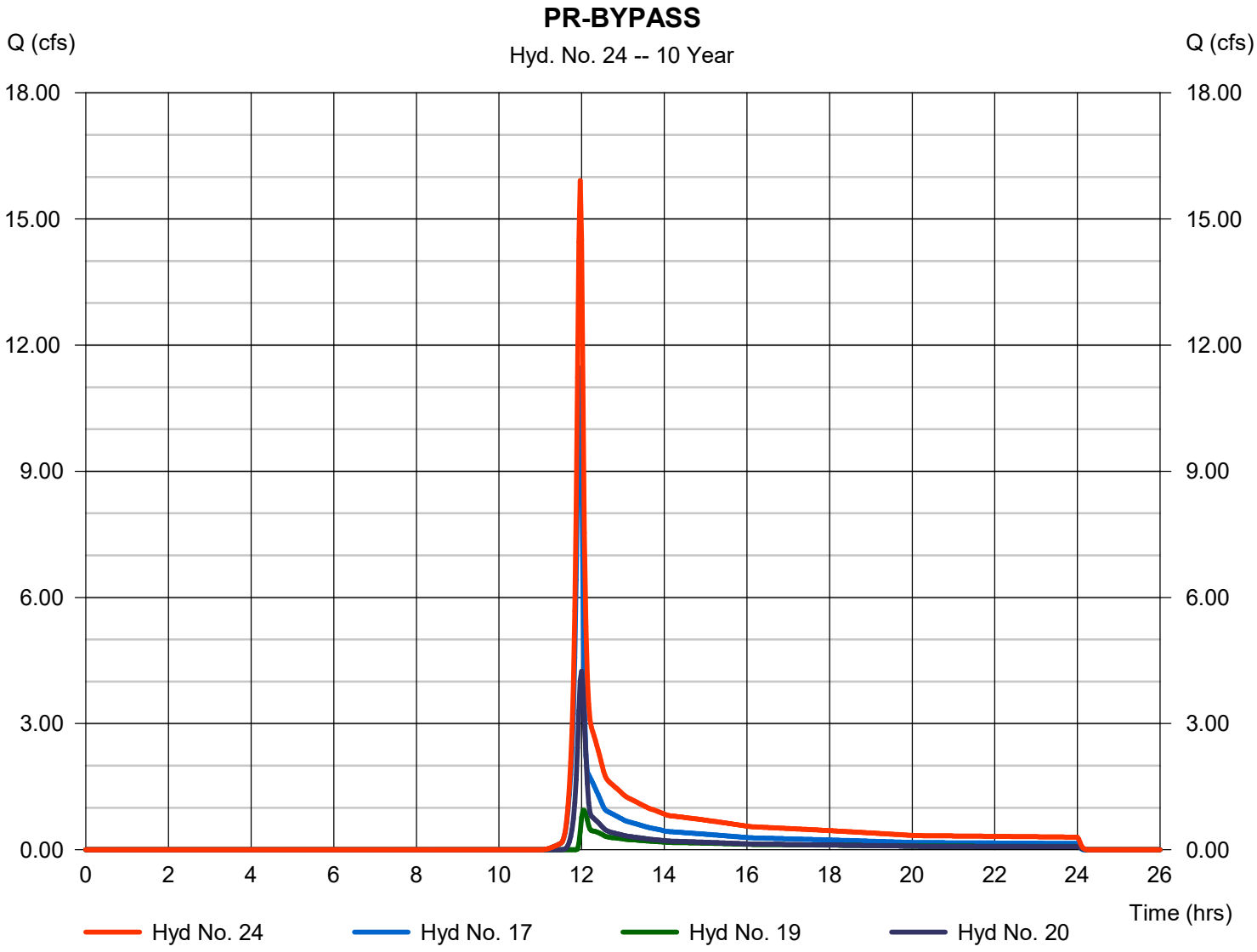


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	15.91 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	39,596 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

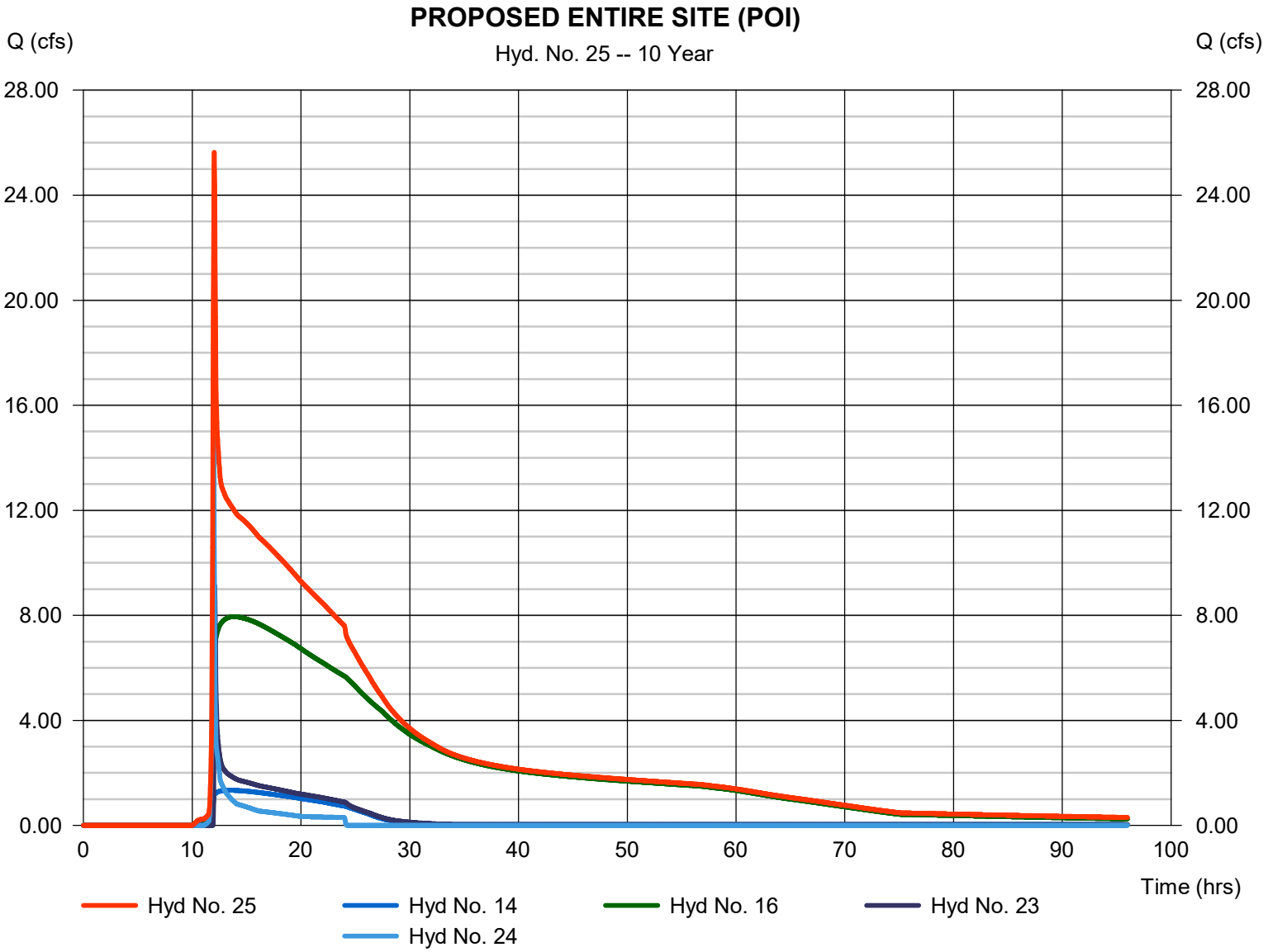


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 25.63 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 880,158 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

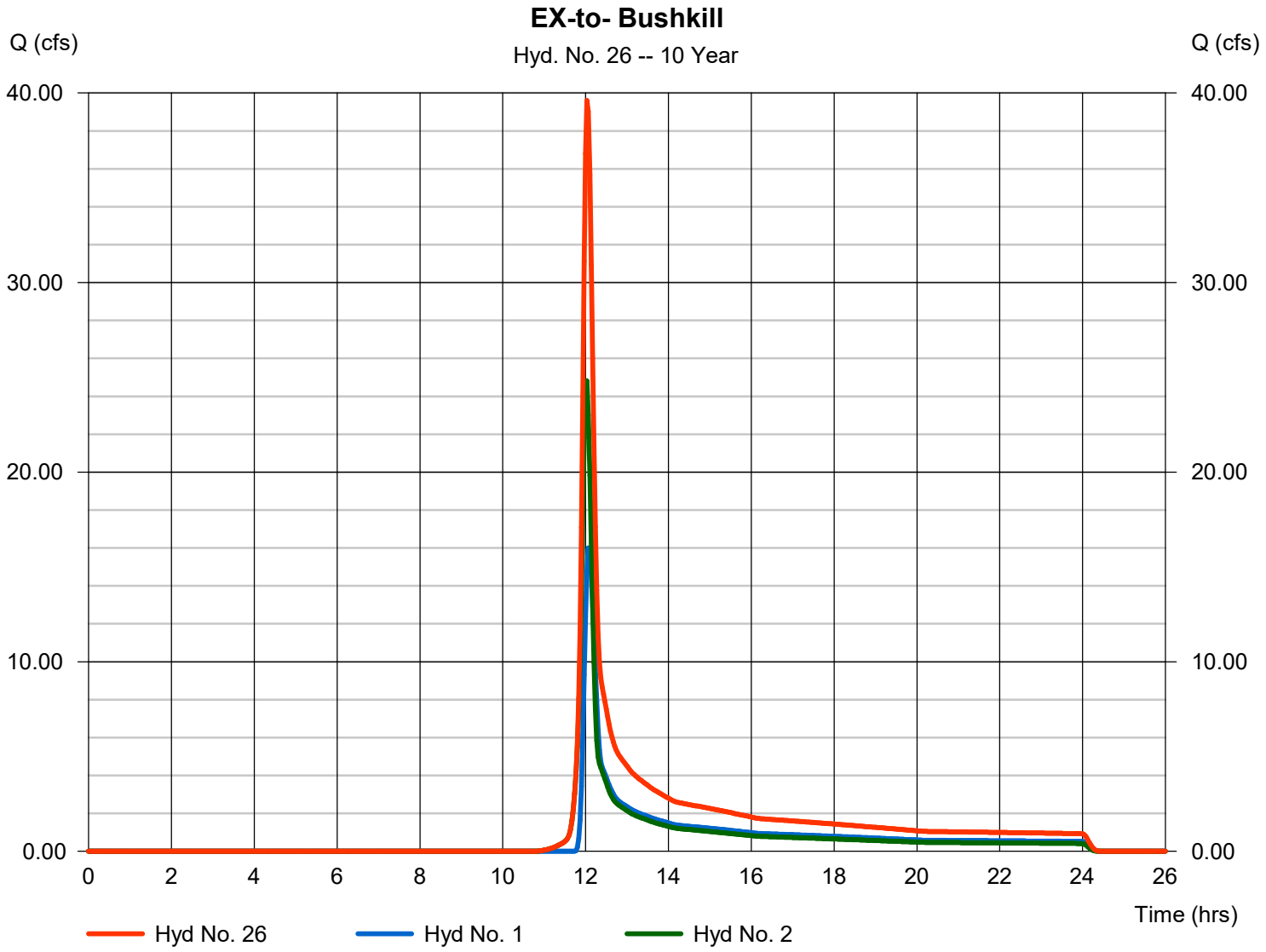


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 39.60 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 126,577 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

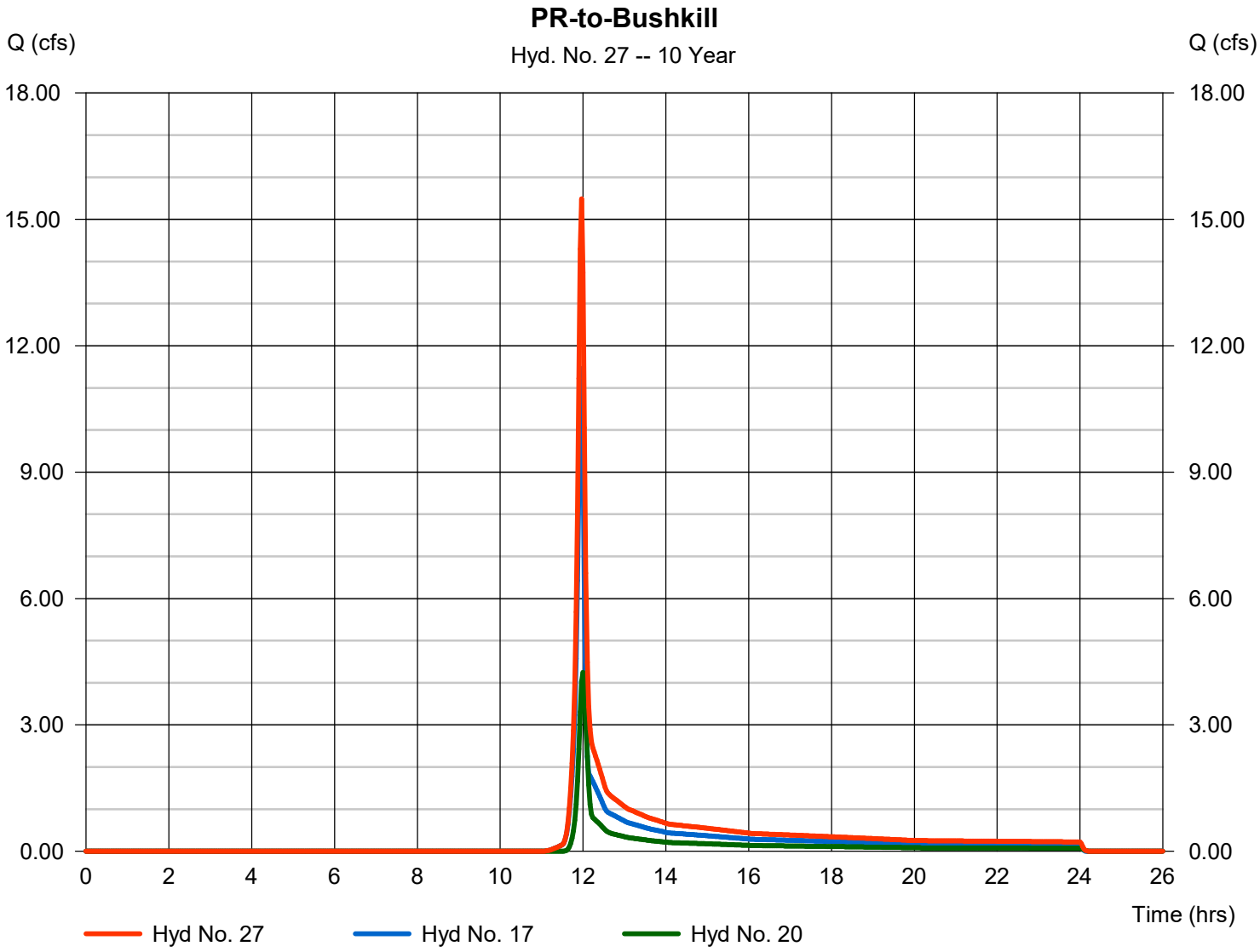


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	=	Combine	Peak discharge	=	15.48 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	33,267 cuft
Inflow hyds.	=	17, 20	Contrib. drain. area	=	7.480 ac

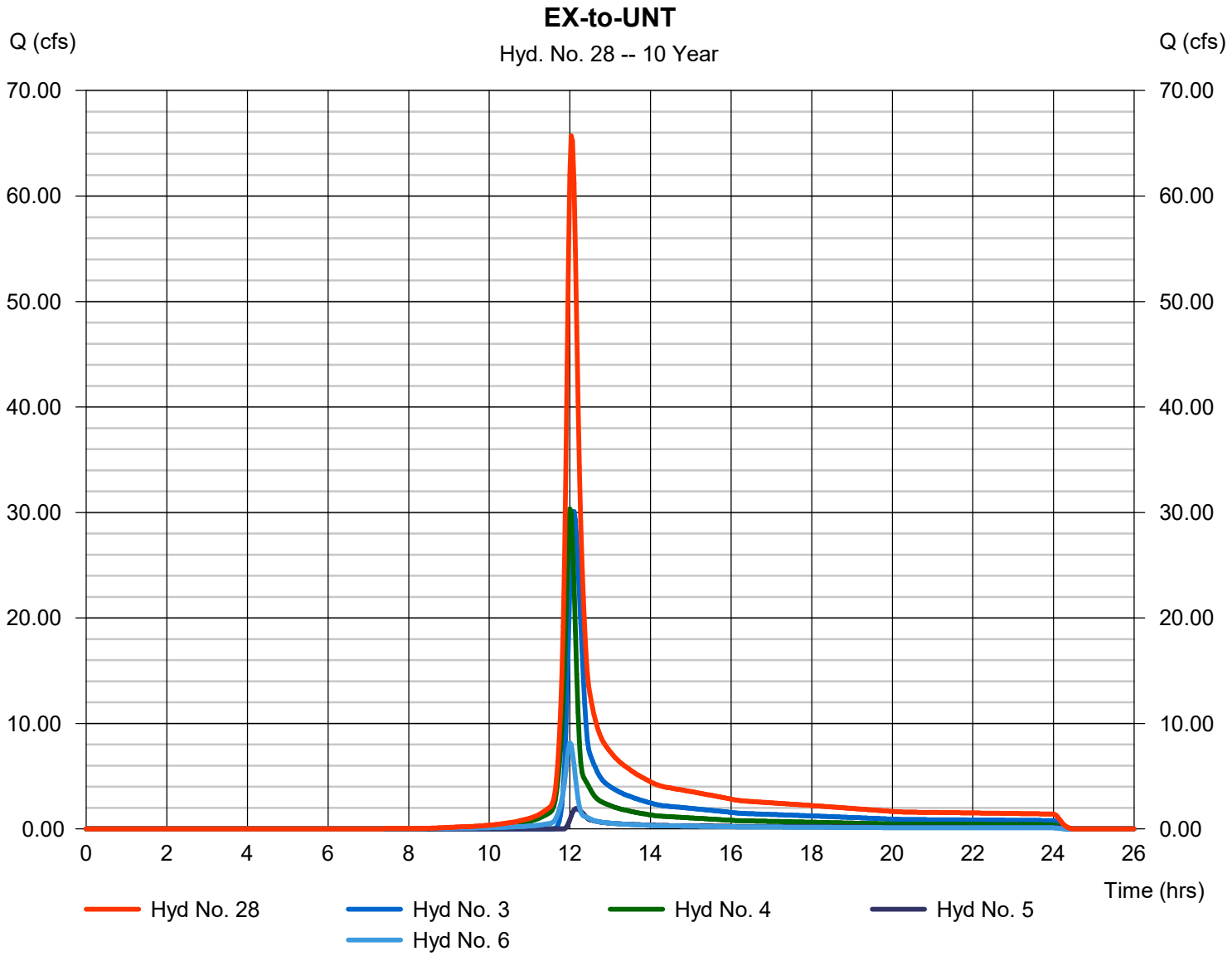


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 65.70 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 220,715 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

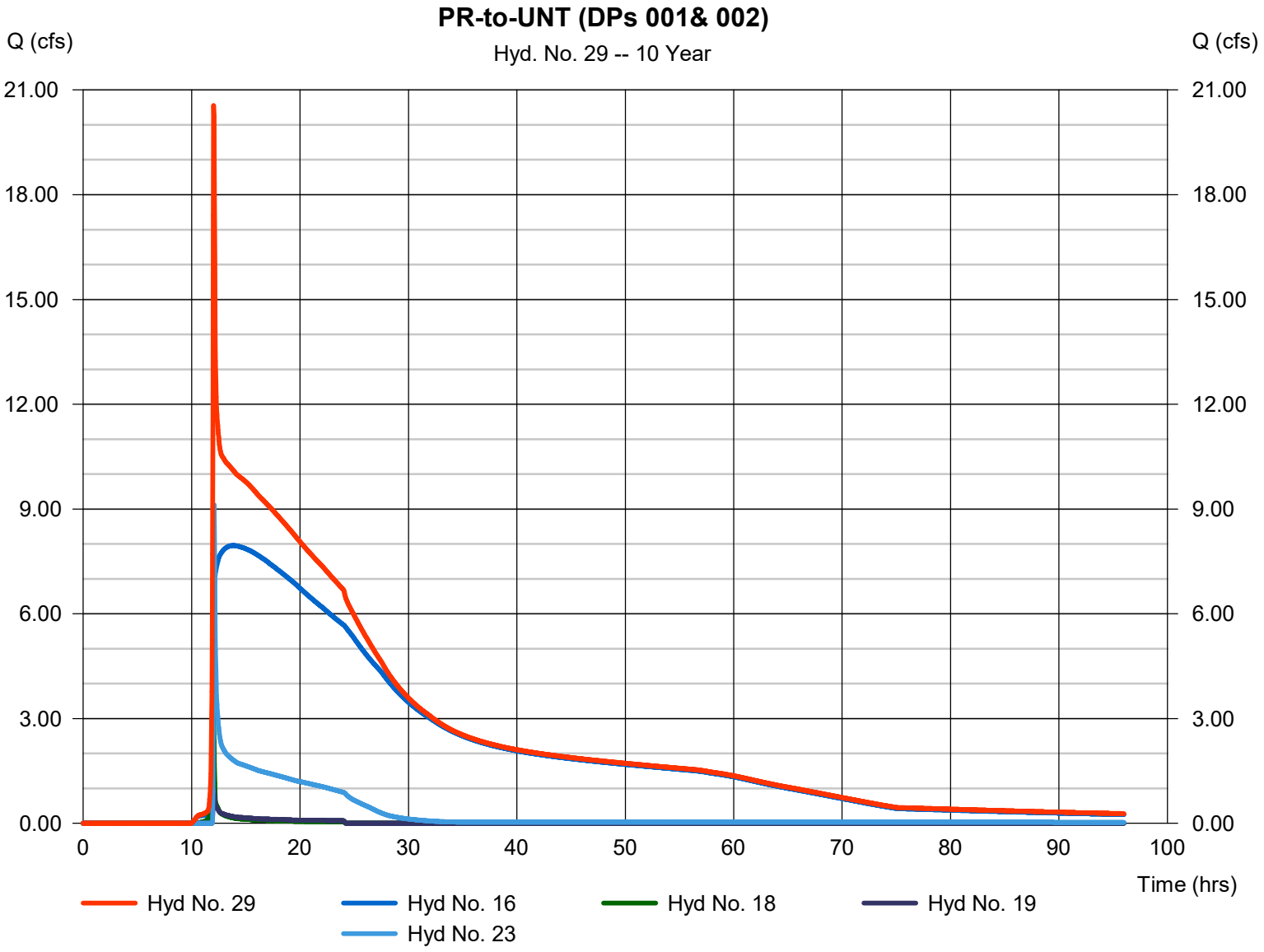


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 20.55 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 791,894 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	30.73	2	724	99,415	------	------	------	EX-DA 1
2	SCS Runoff	36.44	2	722	95,700	------	------	------	EX-DA2
3	SCS Runoff	49.39	2	726	165,849	------	------	------	EX-DA3
4	SCS Runoff	40.87	2	720	106,054	------	------	------	EX-DA4
5	SCS Runoff	5.040	2	728	23,273	------	------	------	EX-DA5
6	SCS Runoff	10.56	2	720	27,790	------	------	------	EX-DA-Road Widening
7	Combine	165.60	2	722	518,082	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	91.97	2	716	213,089	------	------	------	PR-DA-A
9	SCS Runoff	116.22	2	716	269,283	------	------	------	PR-DA-B
10	SCS Runoff	203.76	2	718	493,598	------	------	------	PR-DA-C
11	Reservoir	0.979	2	1150	200,818	8	291.71	167,526	BMP A Routing
12	Reservoir	1.567	2	1052	257,802	9	288.15	200,289	BMP B Routing
13	SCS Runoff	44.31	2	716	90,550	------	------	------	PR-DA-E
14	Reservoir	7.733	2	726	86,680	13	259.79	45,536	BMP E Routing
15	Combine	205.90	2	718	952,219	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	9.544	2	830	878,627	15	218.51	346,023	MRC BMP C Routing(DP1)
17	SCS Runoff	16.92	2	718	33,838	------	------	------	PR-BYPASS 1
18	SCS Runoff	4.786	2	720	10,964	------	------	------	PR RG
19	SCS Runoff	3.522	2	722	12,562	------	------	------	PR-BYPASS 2
20	SCS Runoff	6.676	2	720	15,535	------	------	------	PR-BYPASS 3
21	SCS Runoff	11.12	2	718	29,722	------	------	------	PR-Road Widening
22	Combine	17.54	2	722	127,366	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	17.11	2	724	114,352	22	233.22	17,634	RG Routing (DP2)
24	Combine	26.13	2	718	61,934	17, 19, 20,	------	------	PR-BYPASS
25	Combine	47.46	2	720	1,141,594	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	65.97	2	722	195,116	1, 2,	------	------	EX-to- Bushkill
27	Combine	23.40	2	718	49,372	17, 20,	------	------	PR-to-Bushkill
28	Combine	99.62	2	722	322,966	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	32.40	2	722	1,017,849	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

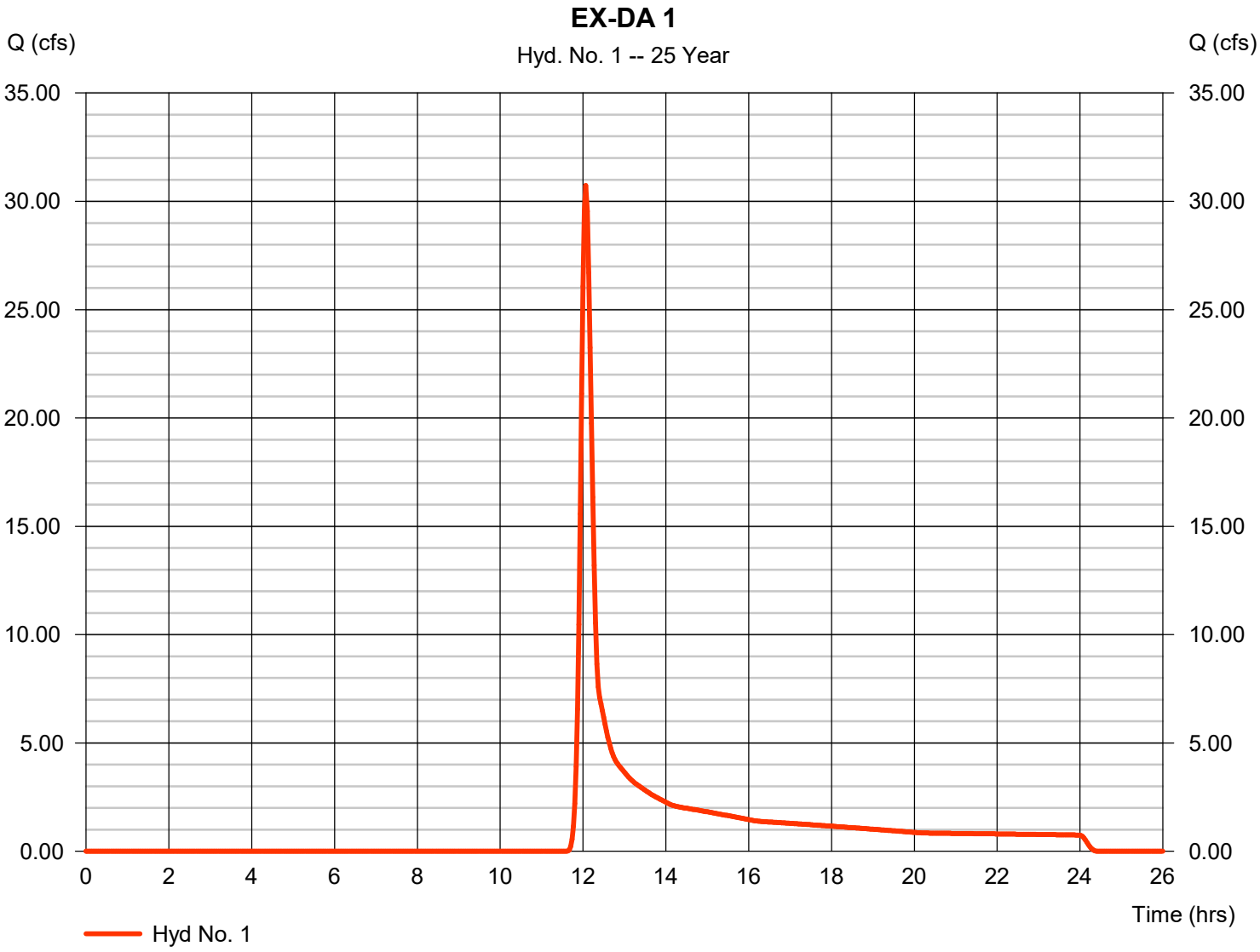
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	30.73 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	99,415 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



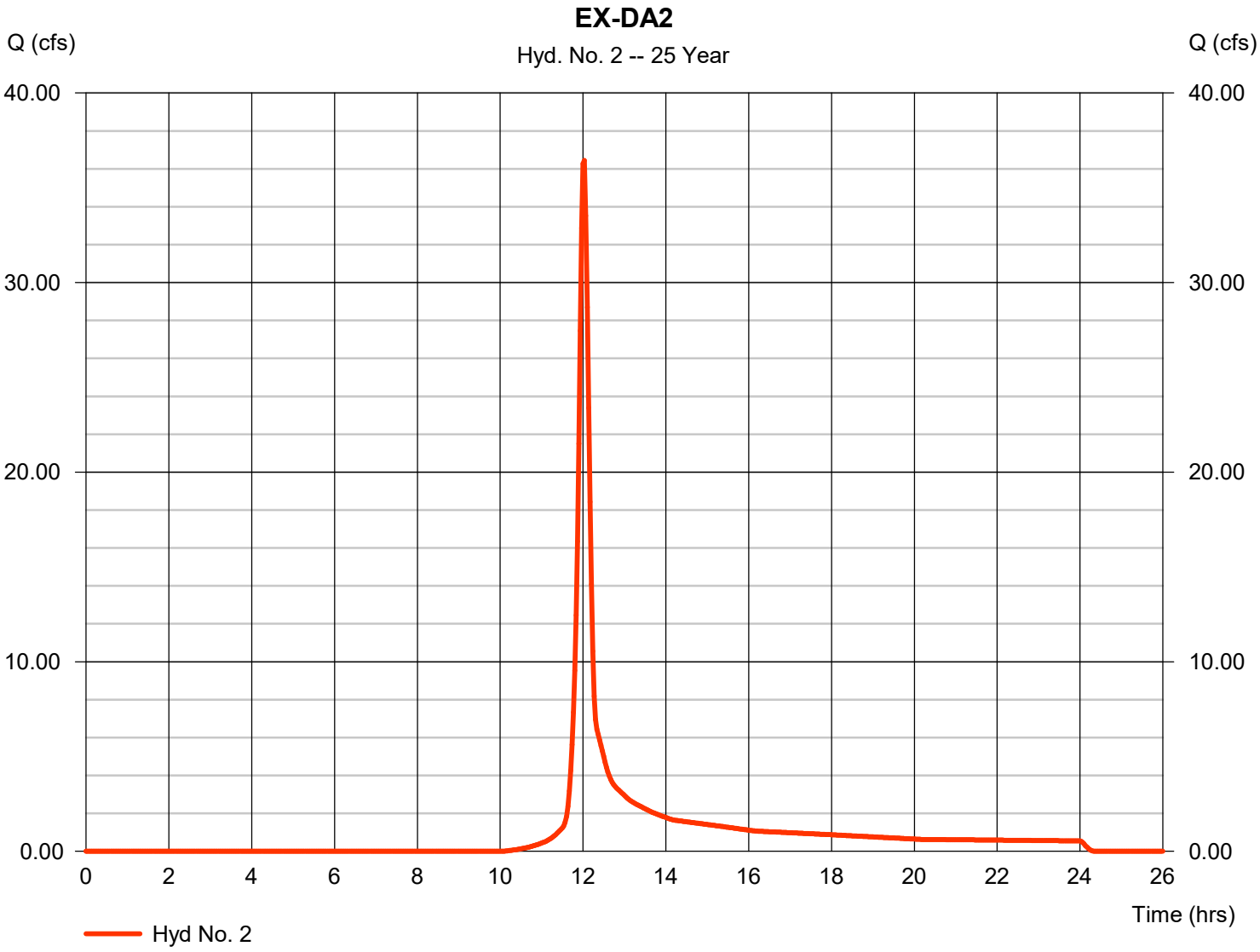
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	36.44 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	95,700 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



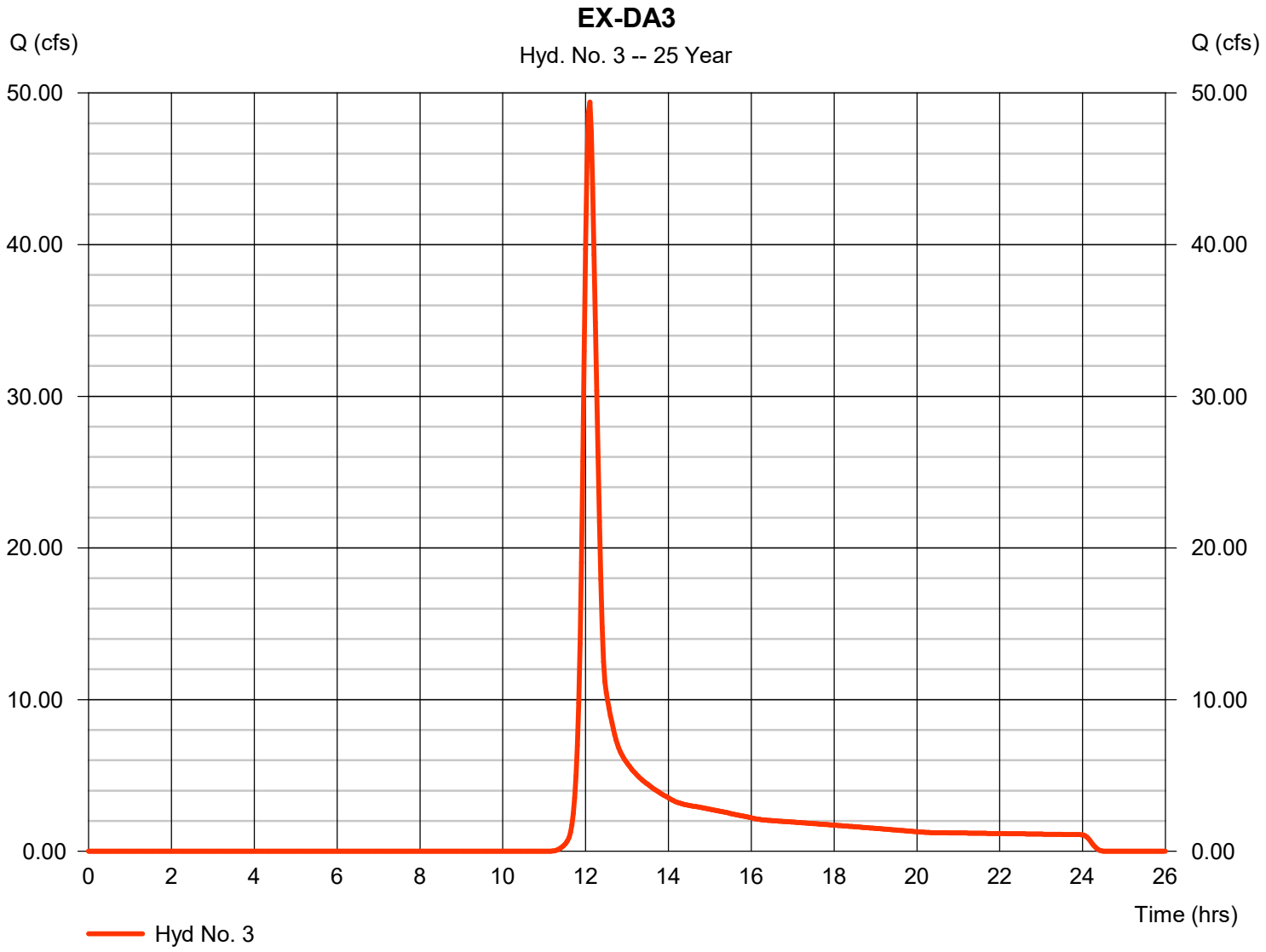
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	49.39 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	165,849 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



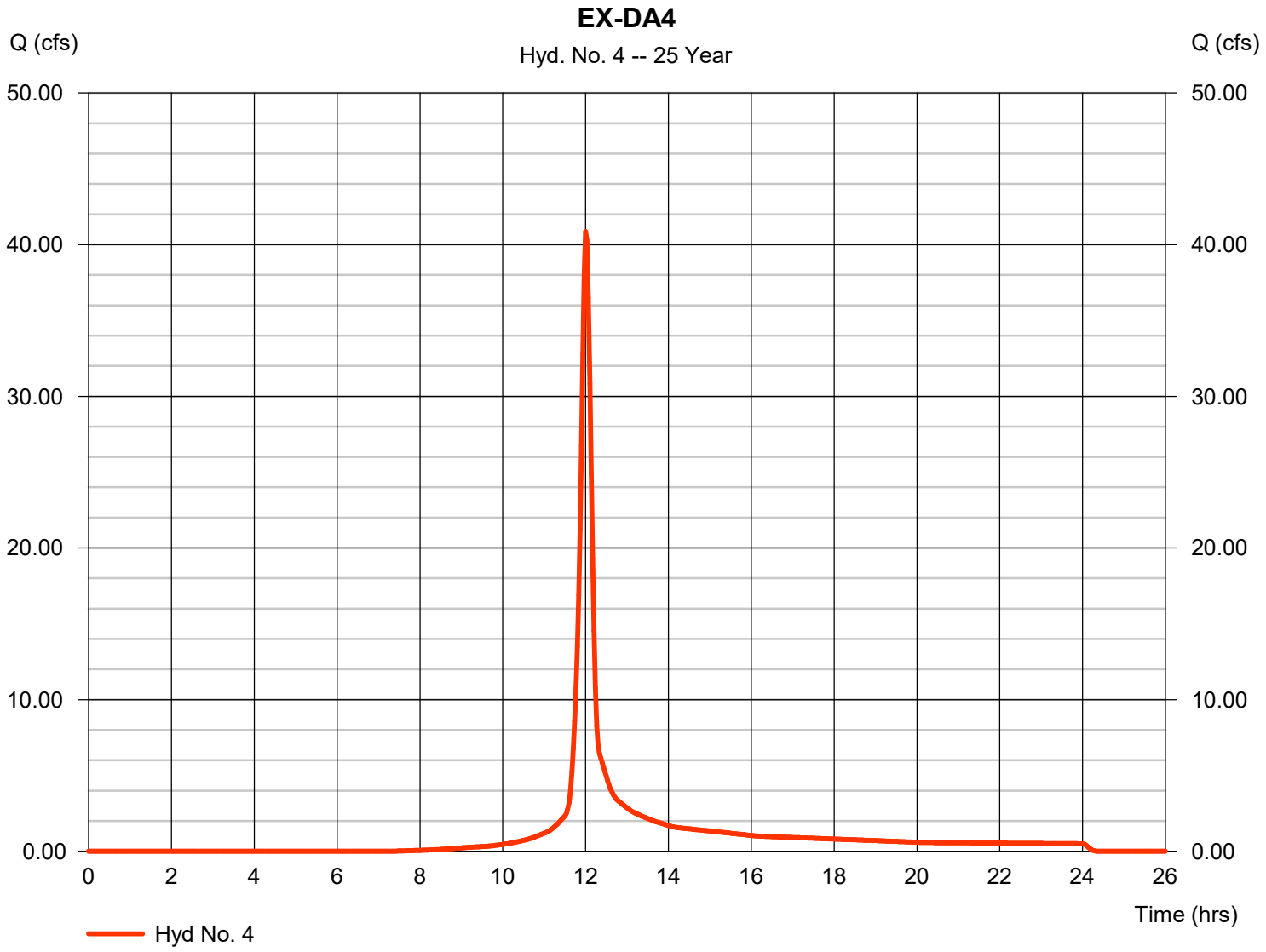
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	40.87 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	106,054 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



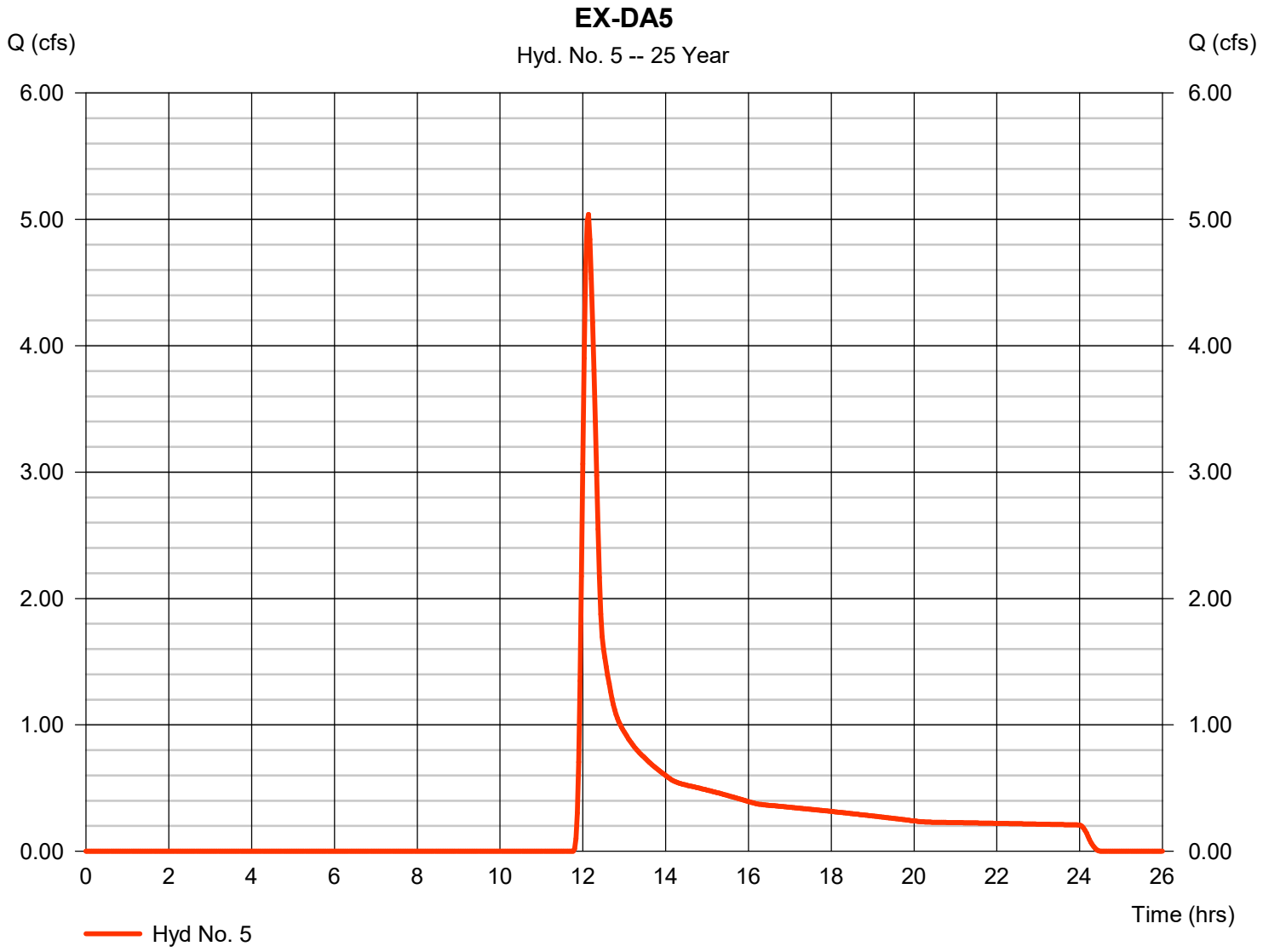
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.040 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	23,273 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



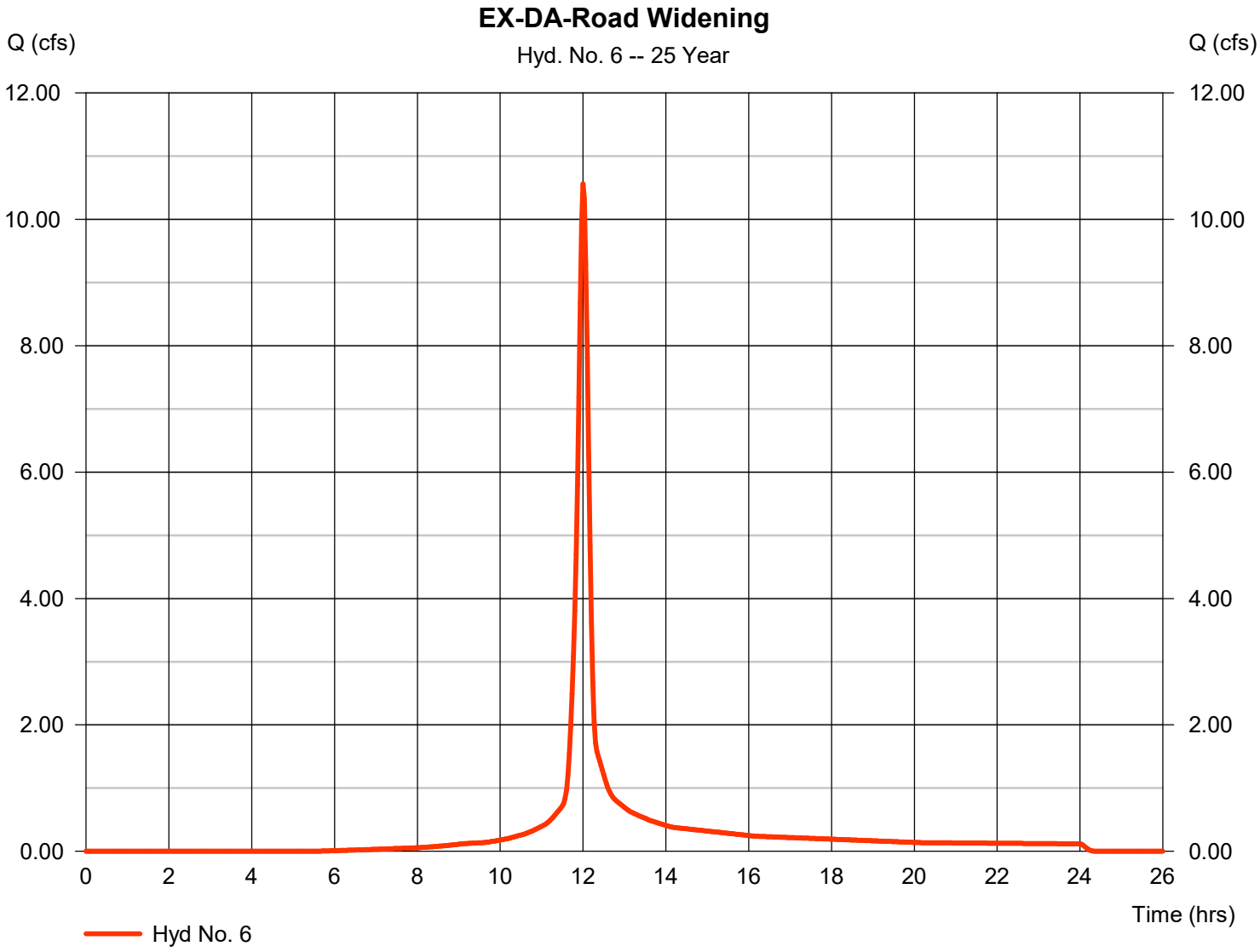
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.56 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	27,790 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

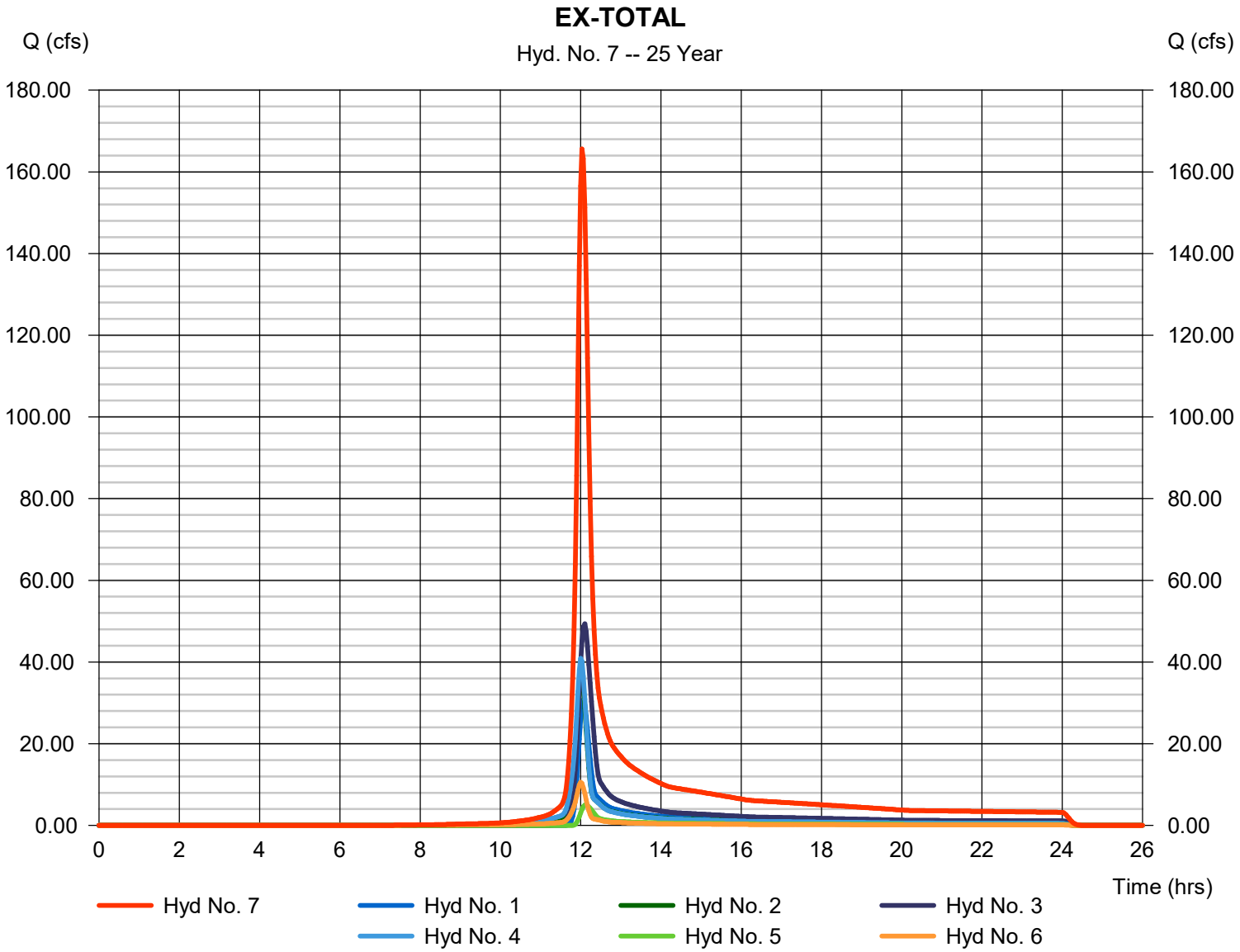


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	165.60 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	518,082 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



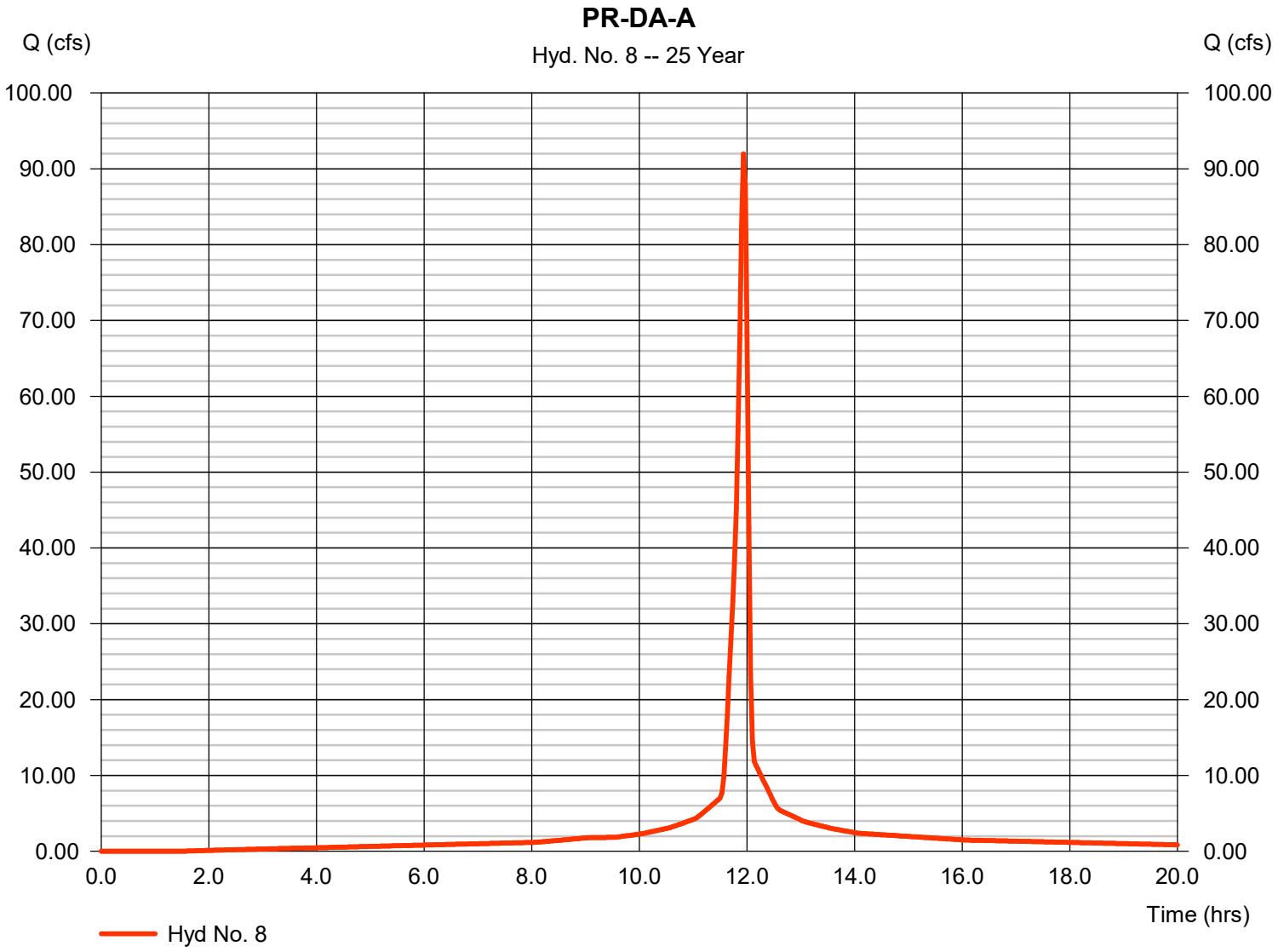
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	91.97 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	213,089 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



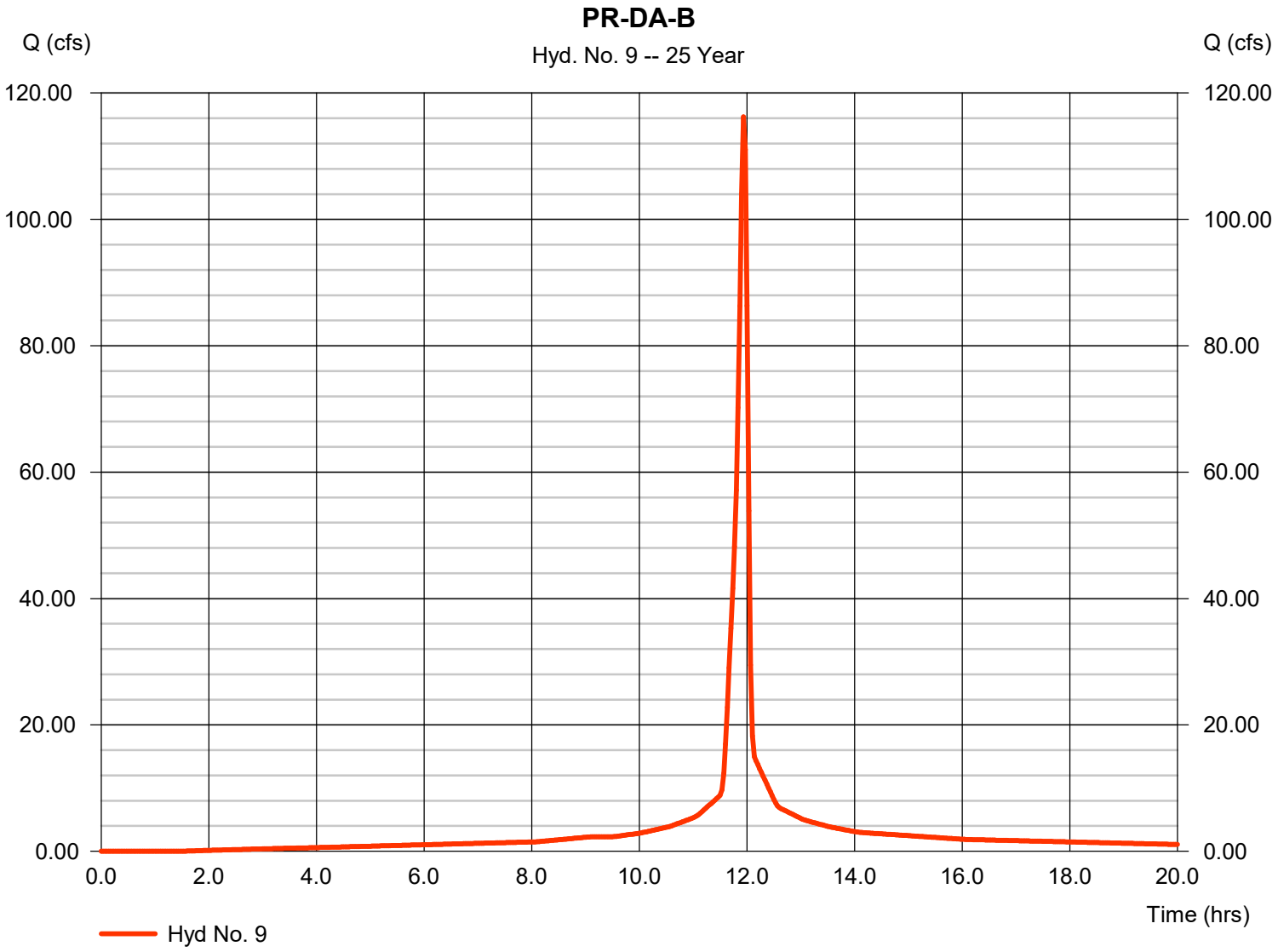
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	116.22 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	269,283 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



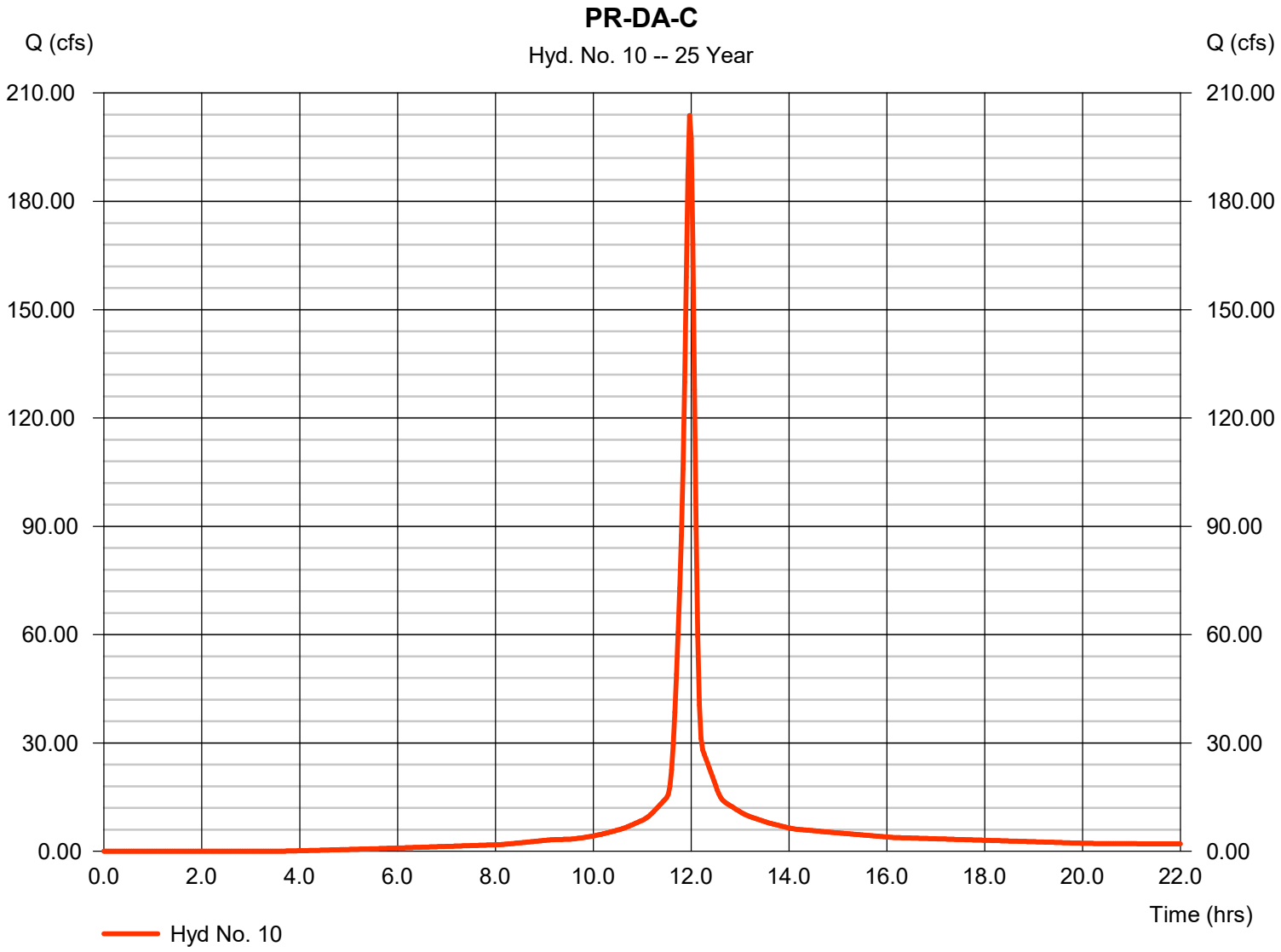
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	203.76 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	493,598 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



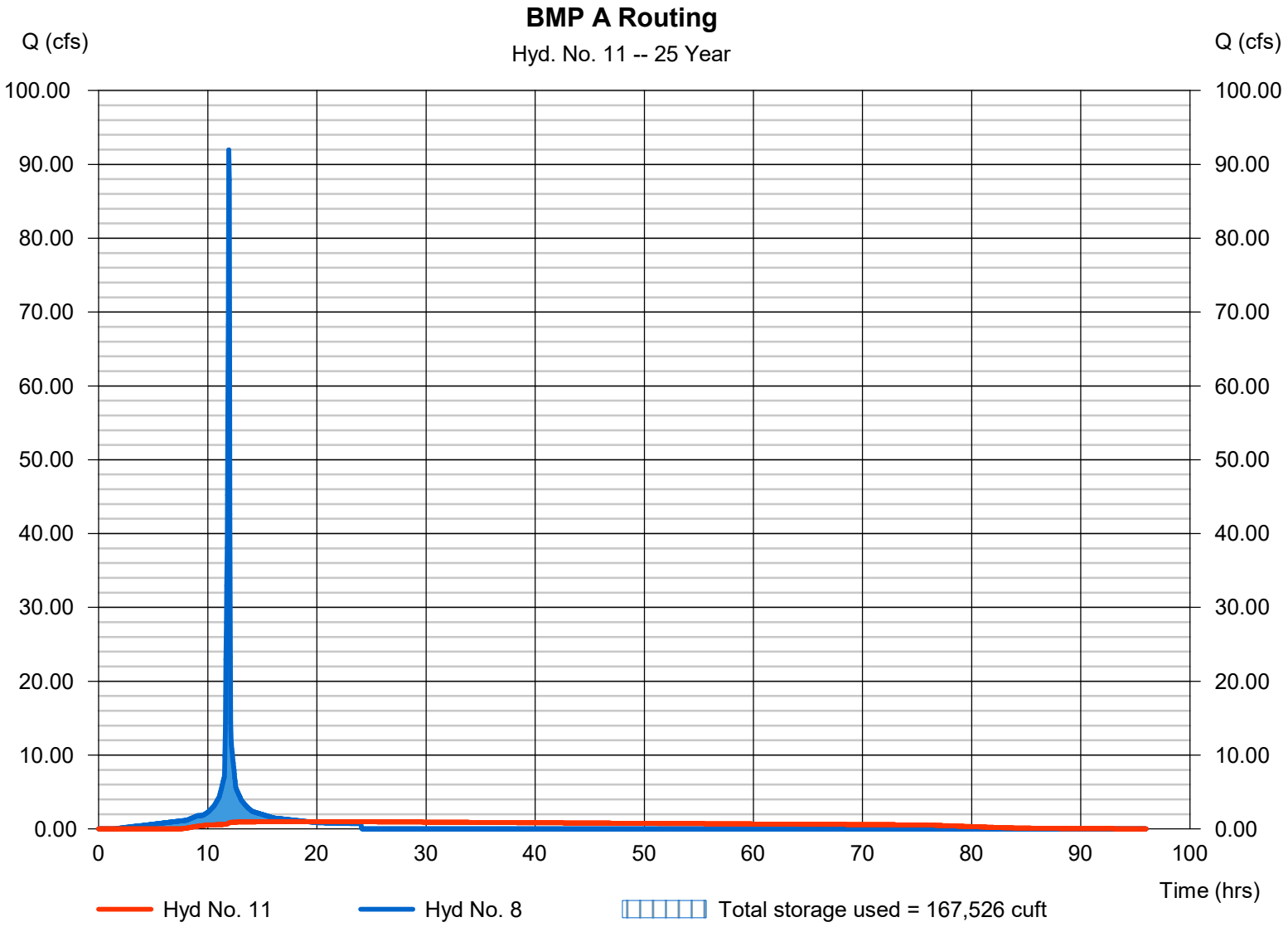
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	0.979 cfs
Storm frequency	=	25 yrs	Time to peak	=	19.17 hrs
Time interval	=	2 min	Hyd. volume	=	200,818 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	291.71 ft
Reservoir name	=	BMP A	Max. Storage	=	167,526 cuft

Storage Indication method used.



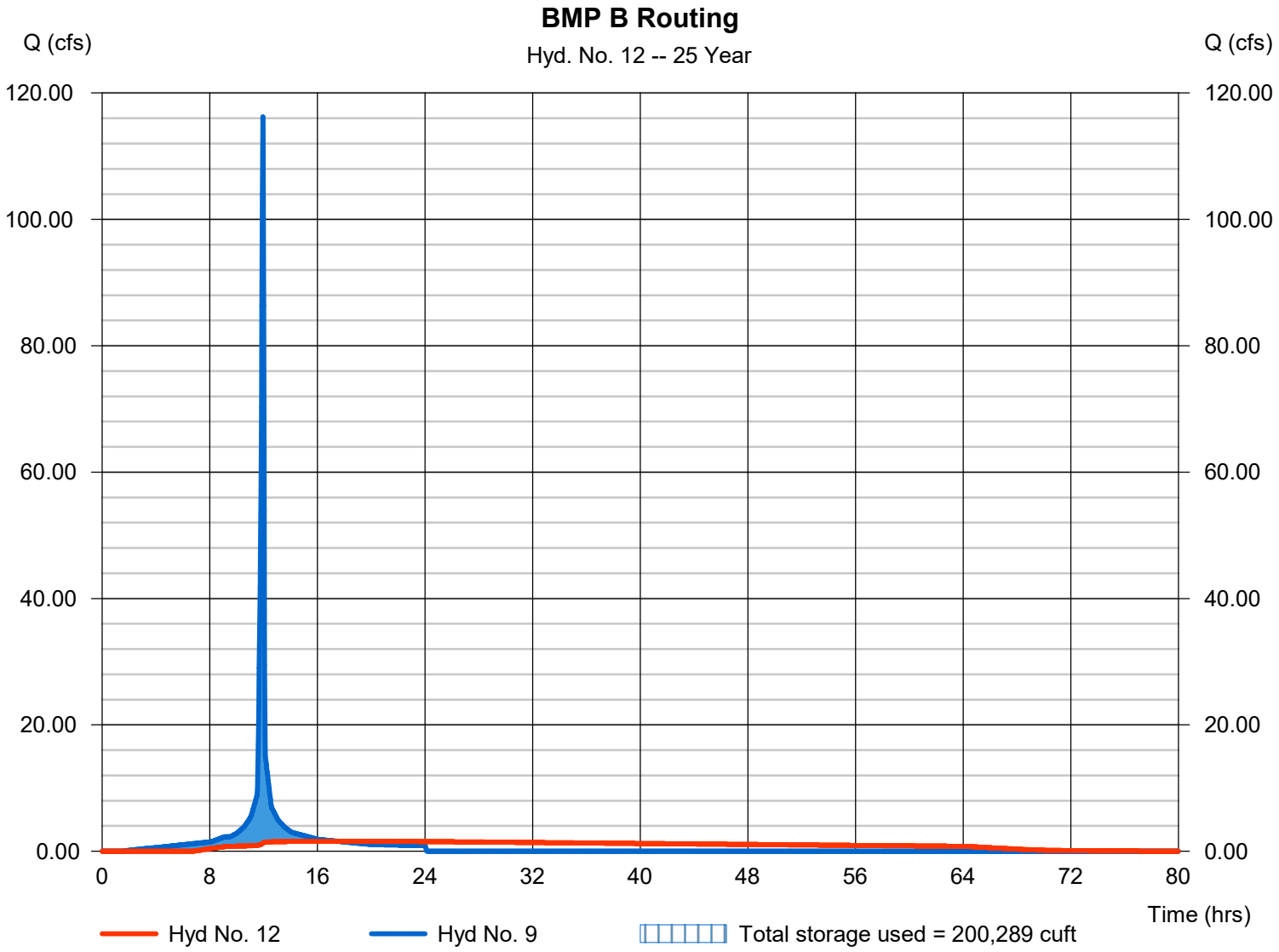
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.567 cfs
Storm frequency	=	25 yrs	Time to peak	=	17.53 hrs
Time interval	=	2 min	Hyd. volume	=	257,802 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.15 ft
Reservoir name	=	BMP B	Max. Storage	=	200,289 cuft

Storage Indication method used.



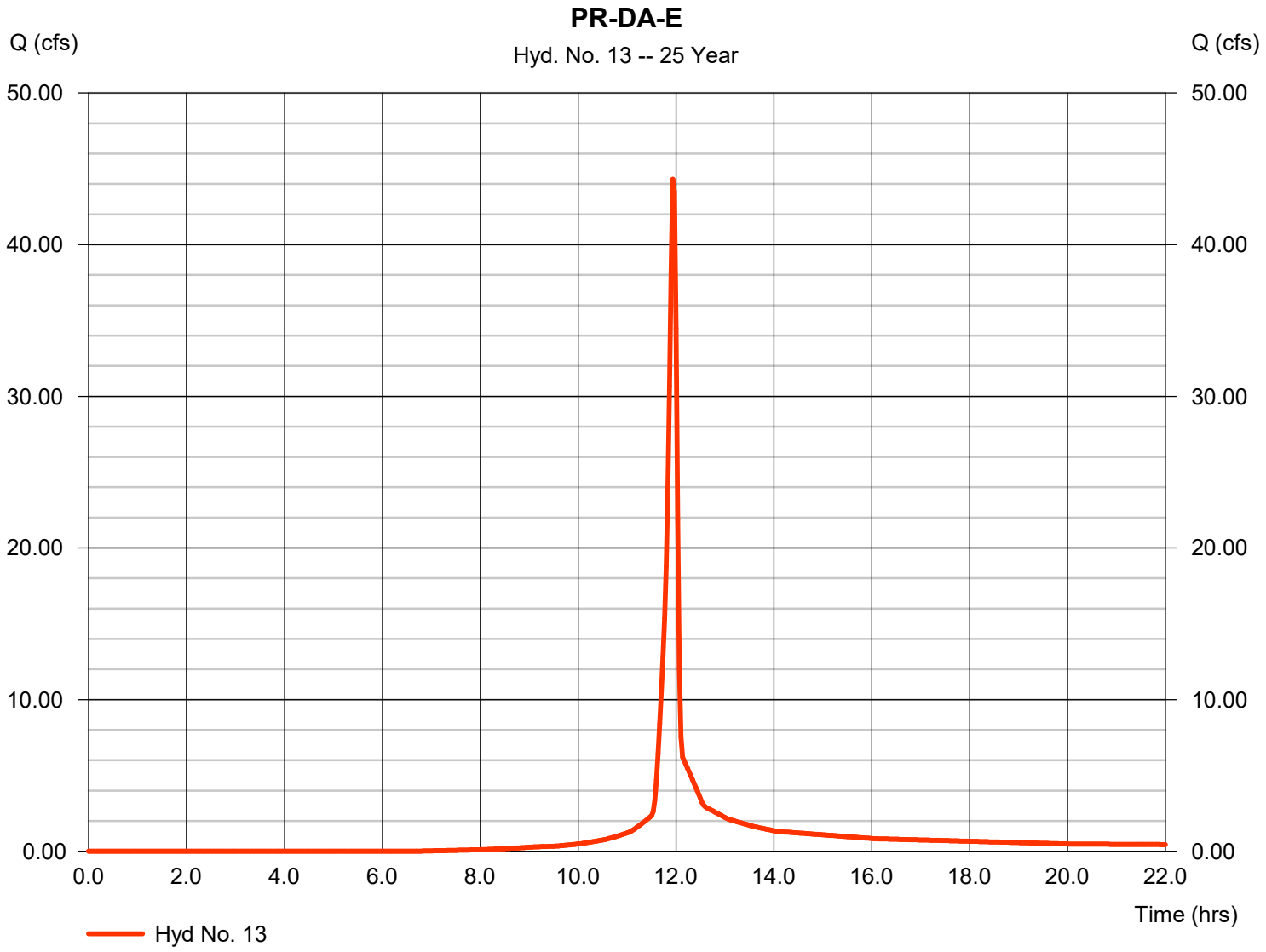
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	44.31 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	90,550 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



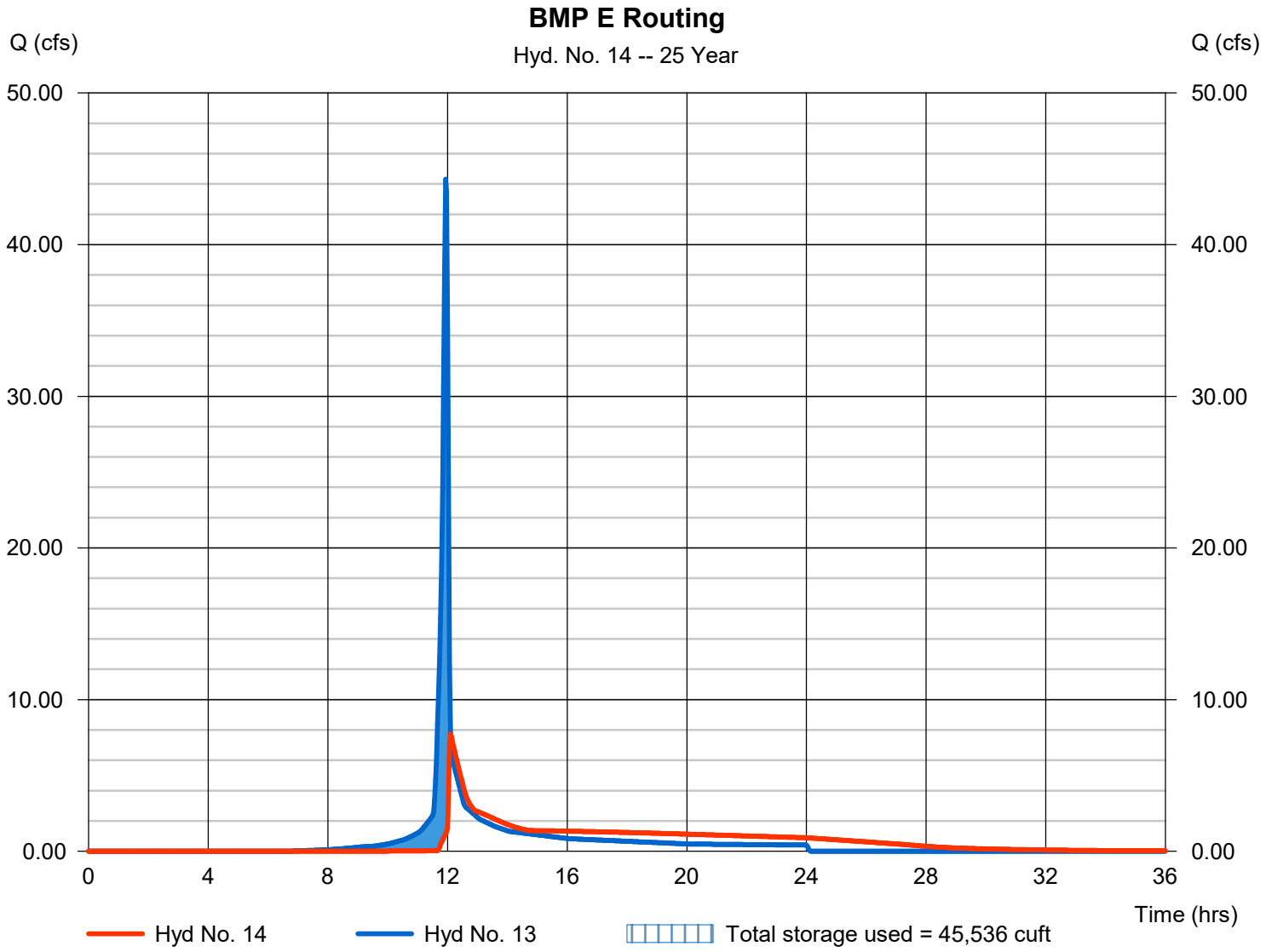
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	7.733 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	86,680 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	259.79 ft
Reservoir name	=	BMP E	Max. Storage	=	45,536 cuft

Storage Indication method used.

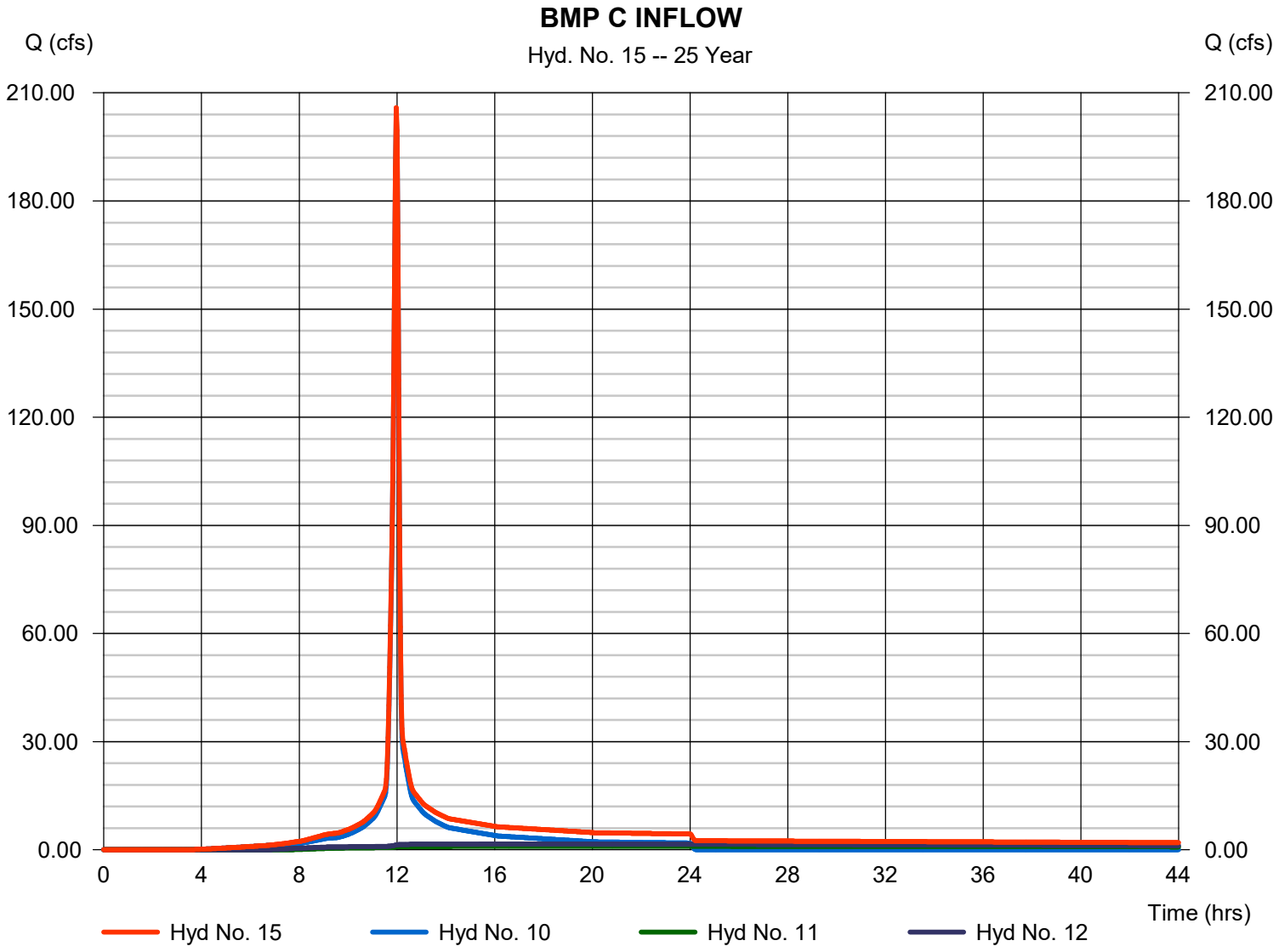


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	205.90 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	952,219 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



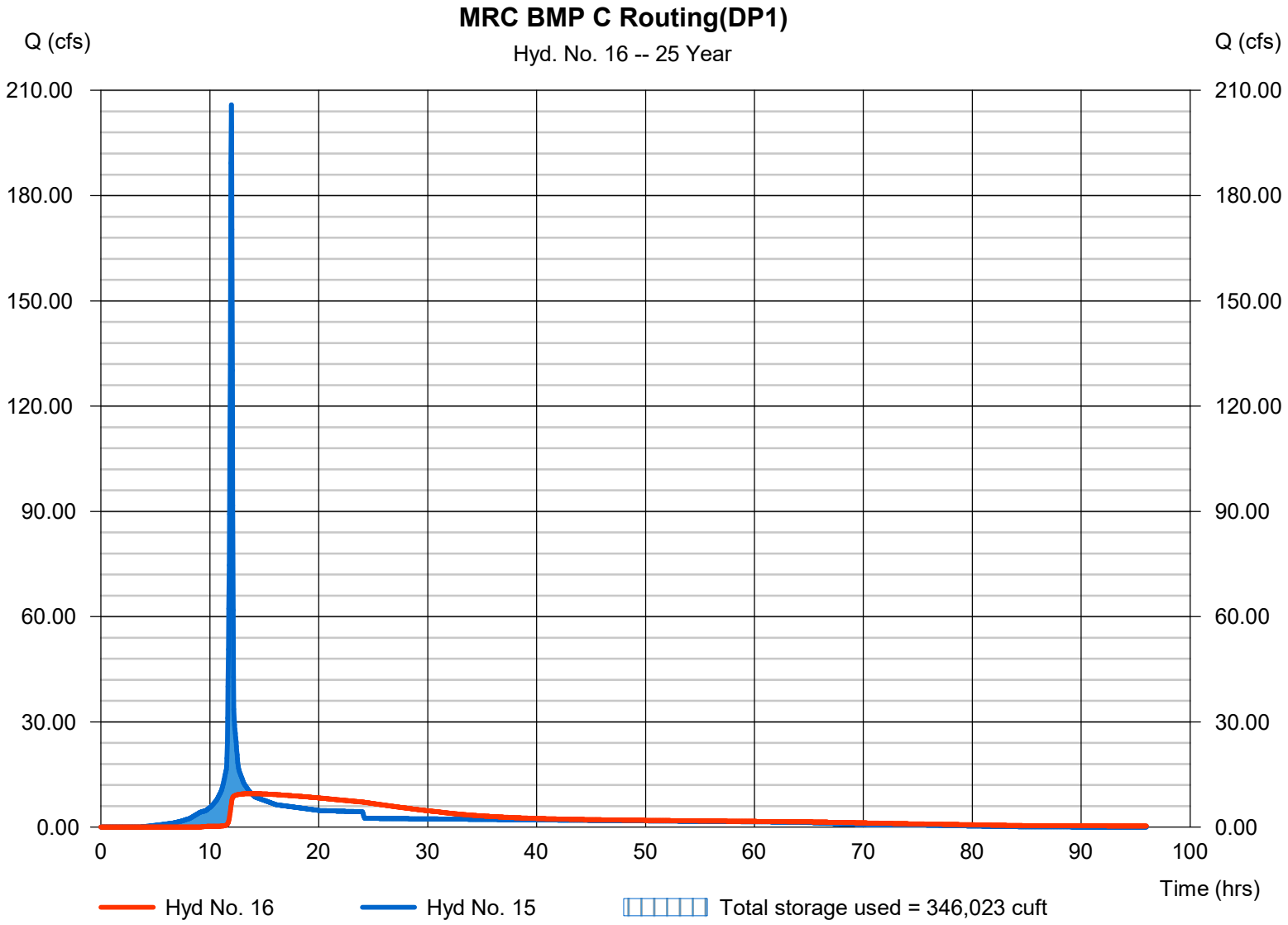
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	9.544 cfs
Storm frequency	=	25 yrs	Time to peak	=	13.83 hrs
Time interval	=	2 min	Hyd. volume	=	878,627 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	218.51 ft
Reservoir name	=	BMP C	Max. Storage	=	346,023 cuft

Storage Indication method used.



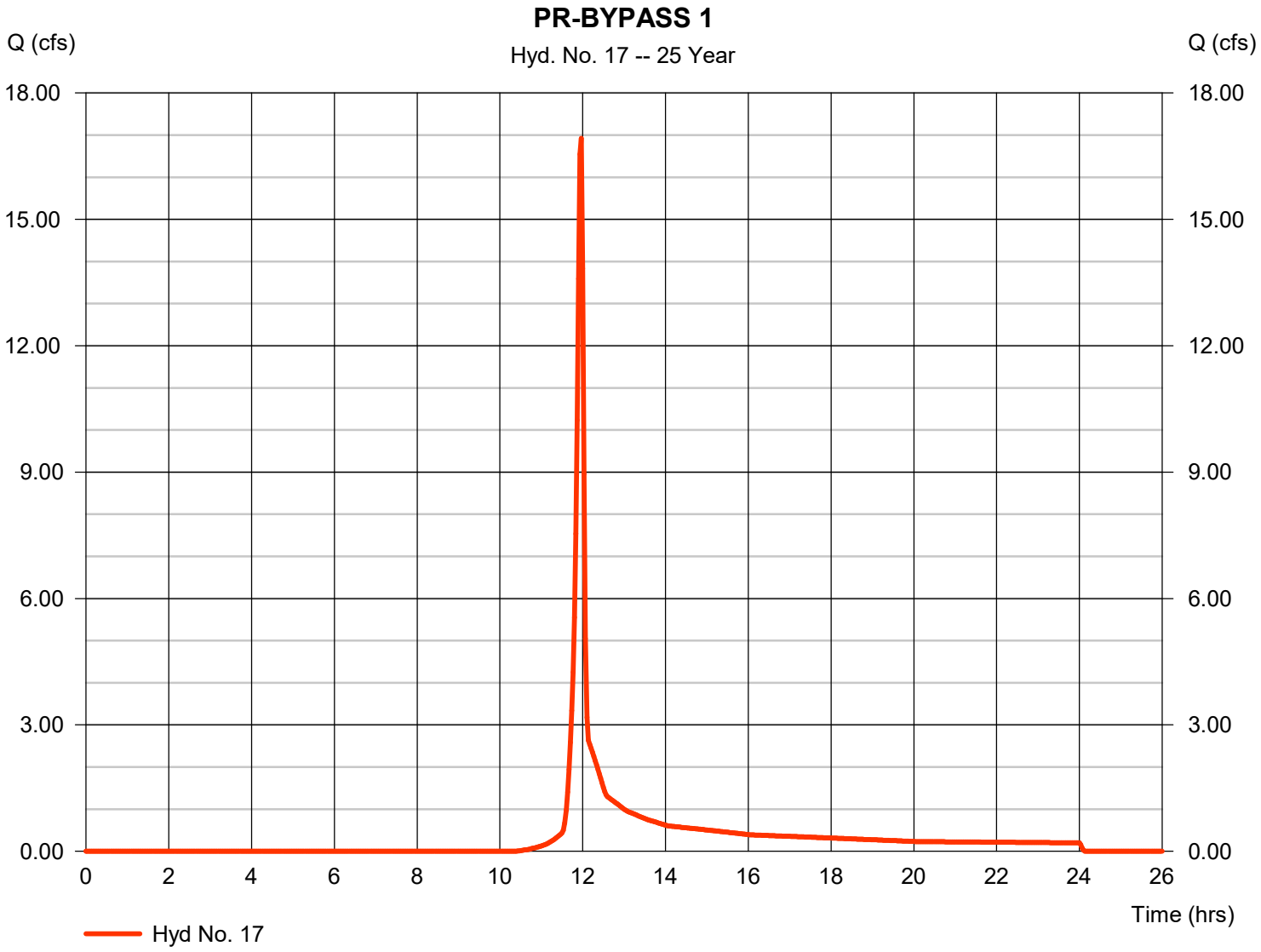
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.92 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	33,838 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



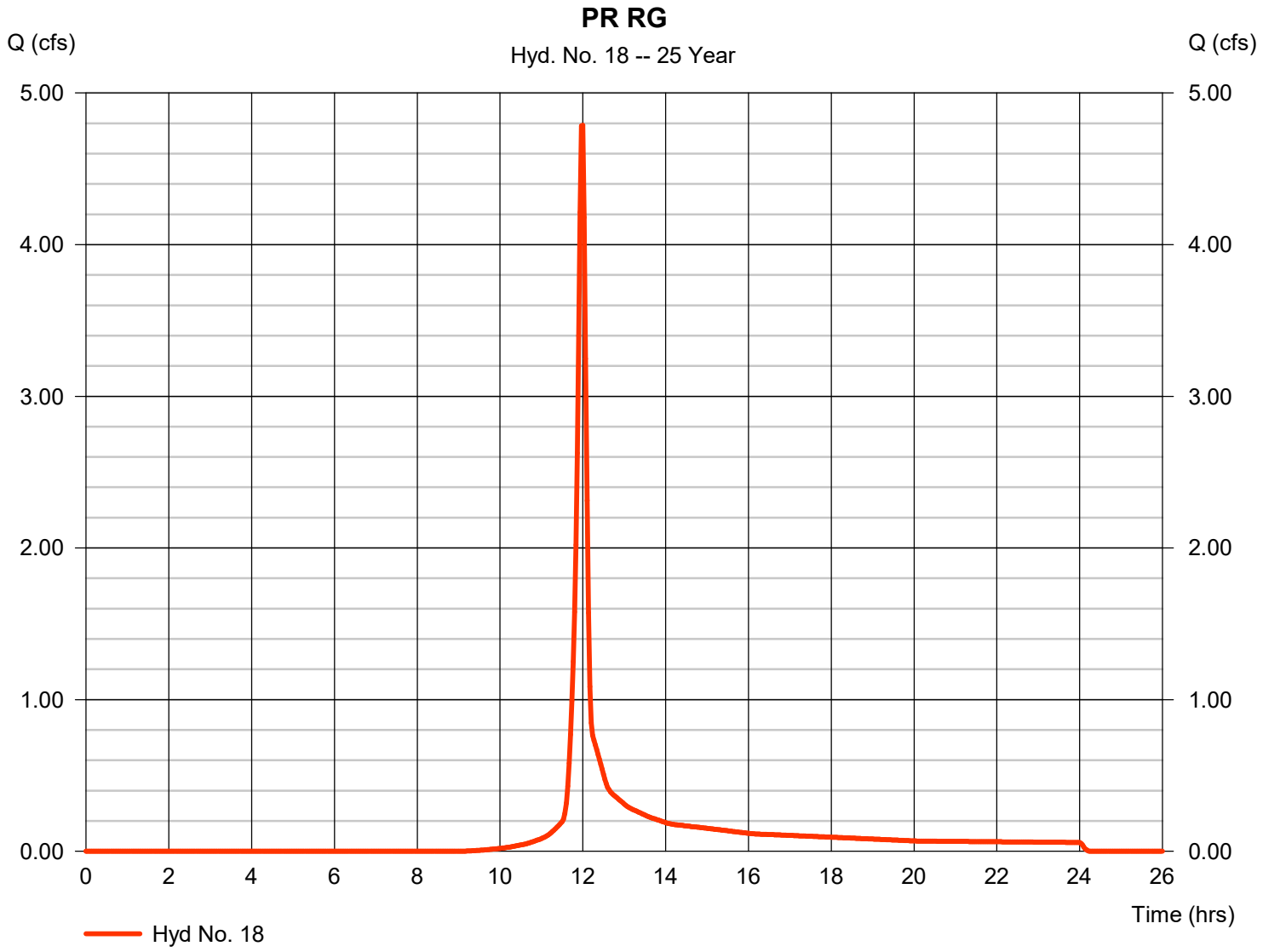
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.786 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	10,964 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



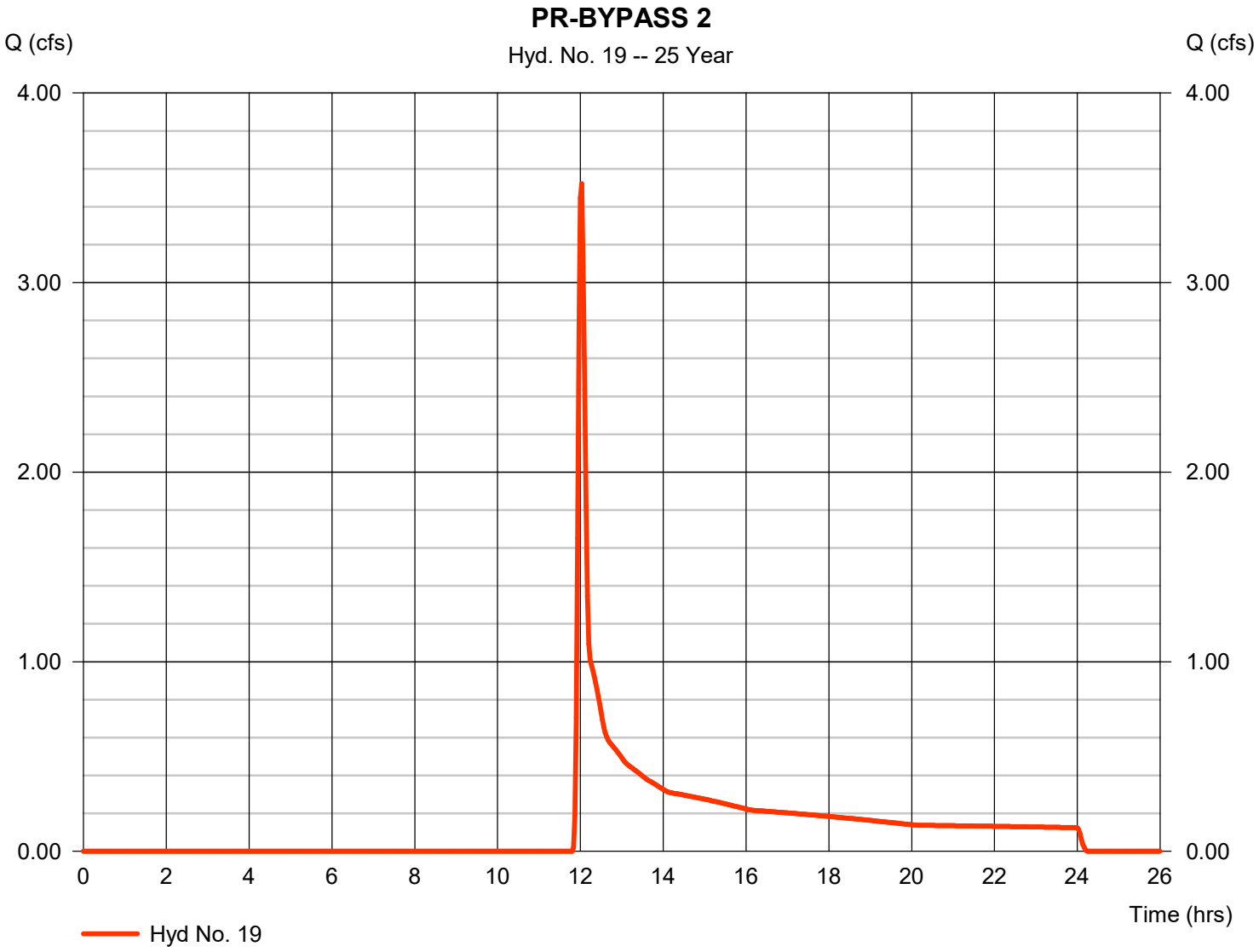
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.522 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	12,562 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



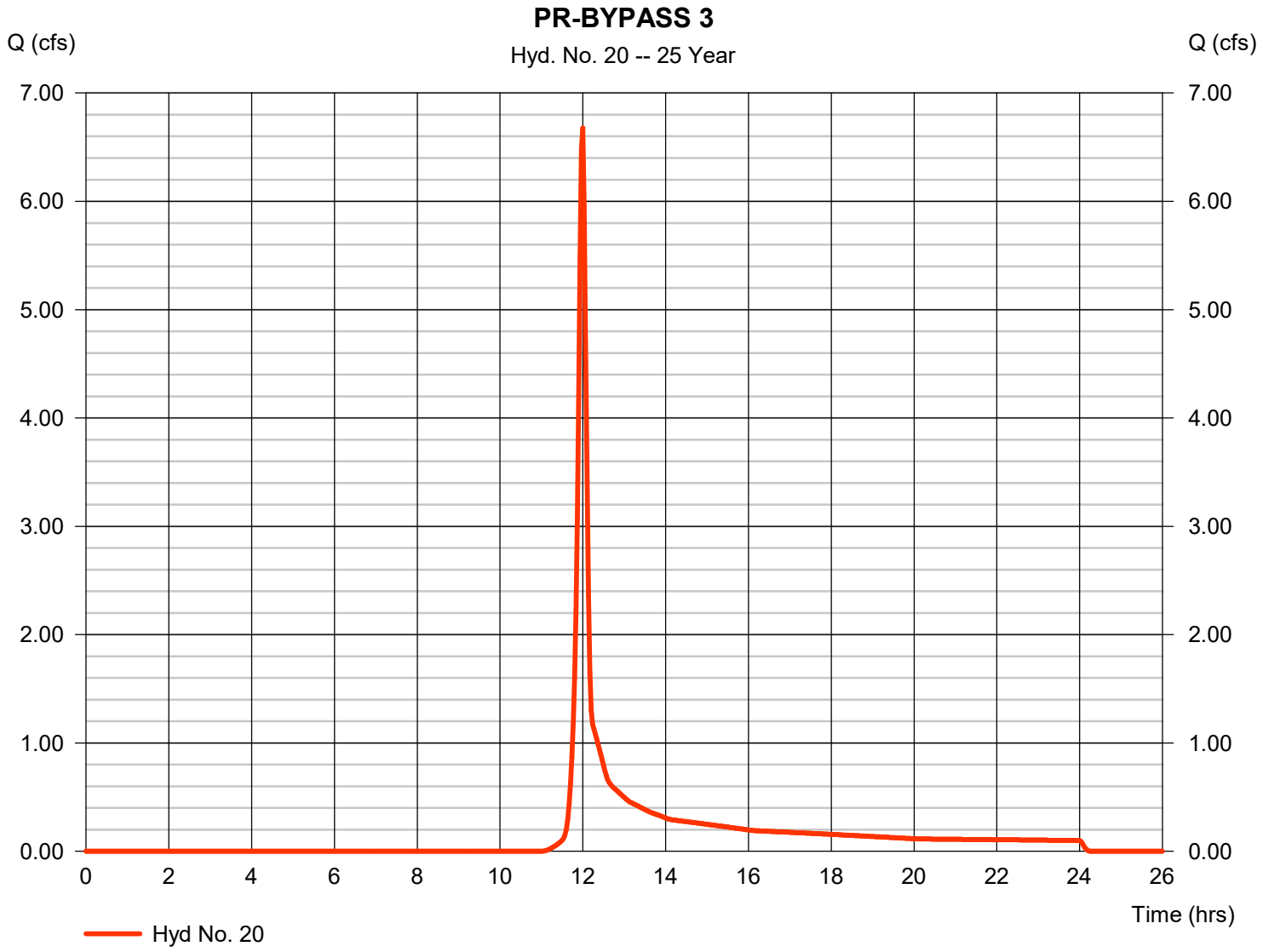
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.676 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	15,535 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

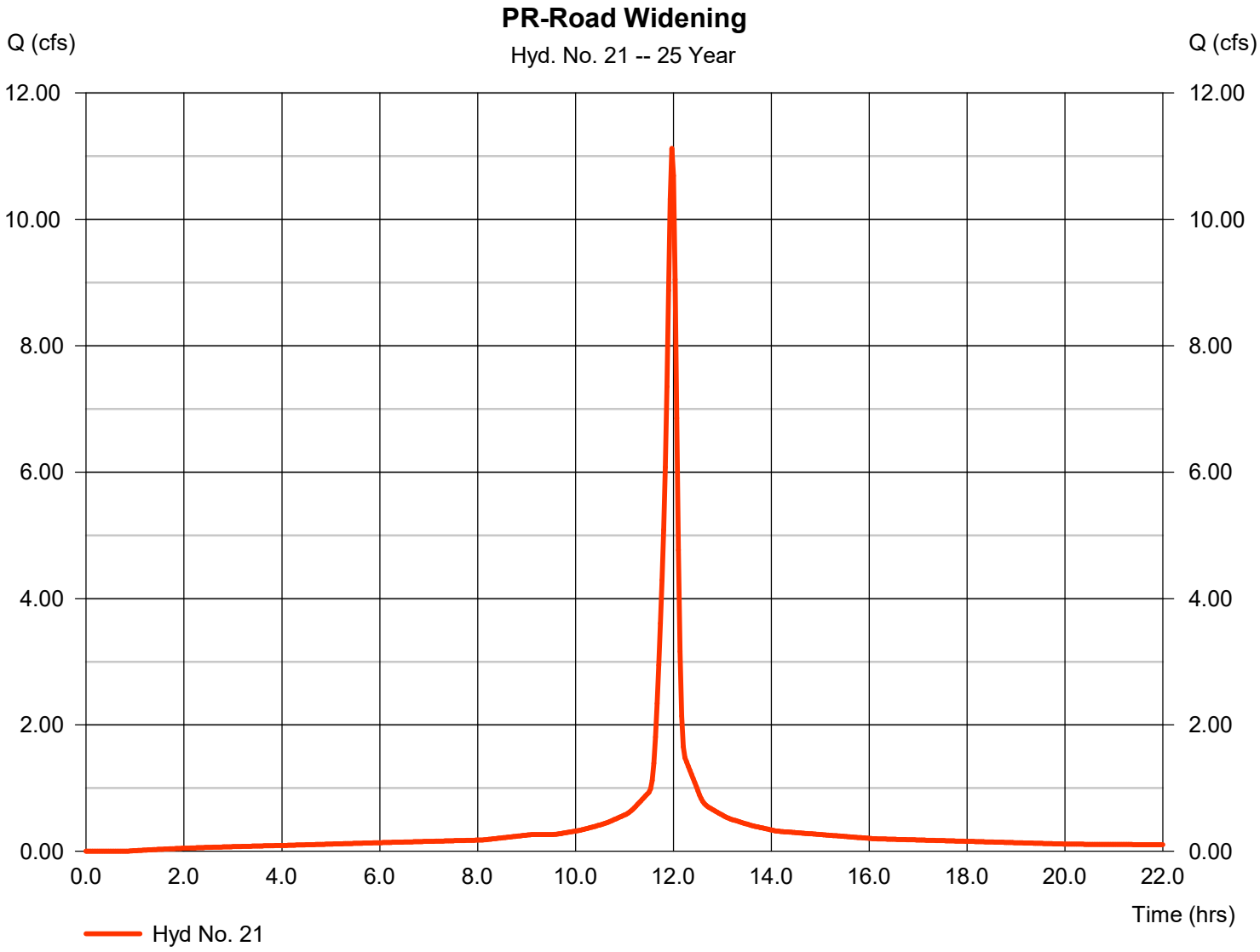


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.12 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	29,722 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	5.52 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

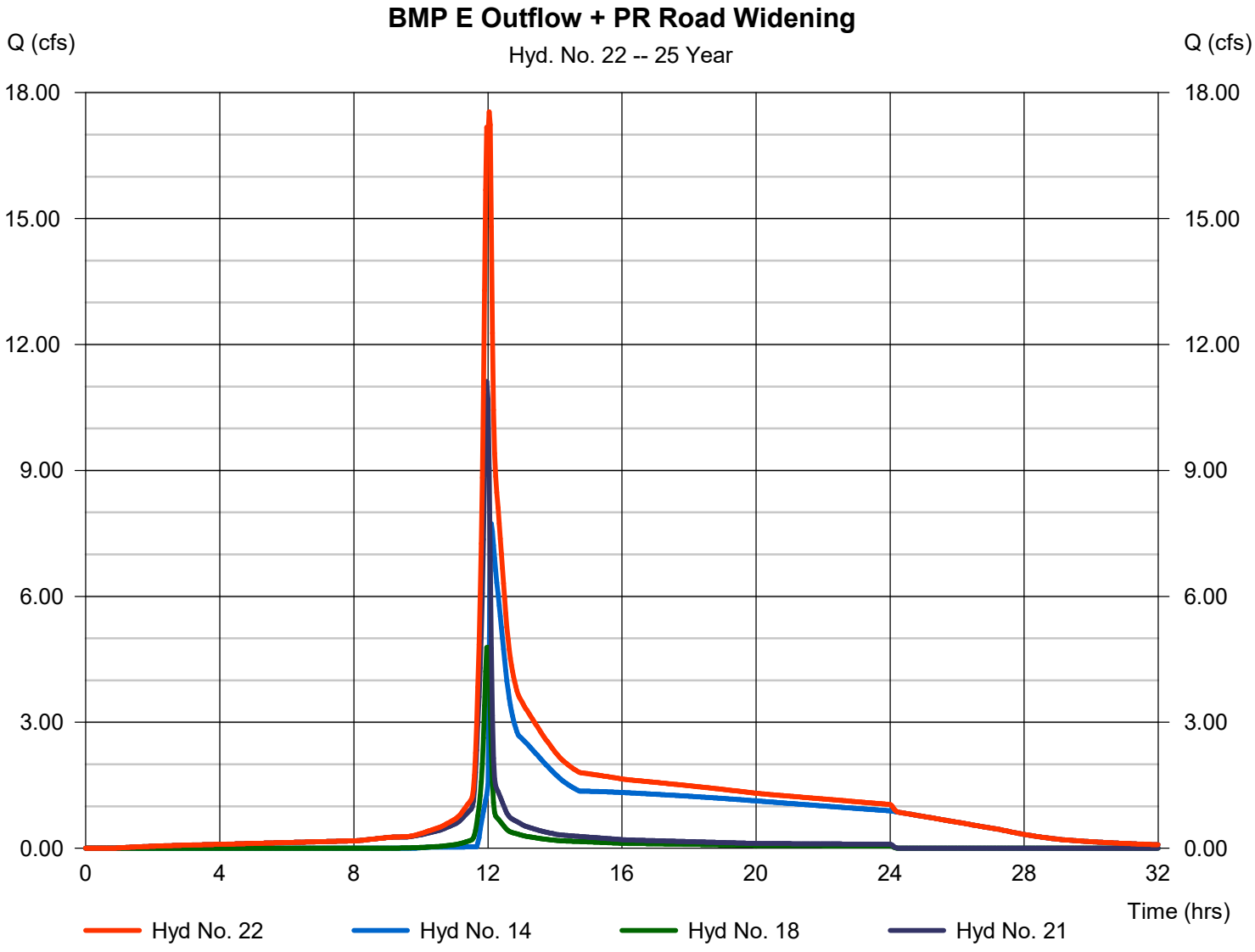


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	17.54 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	127,366 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



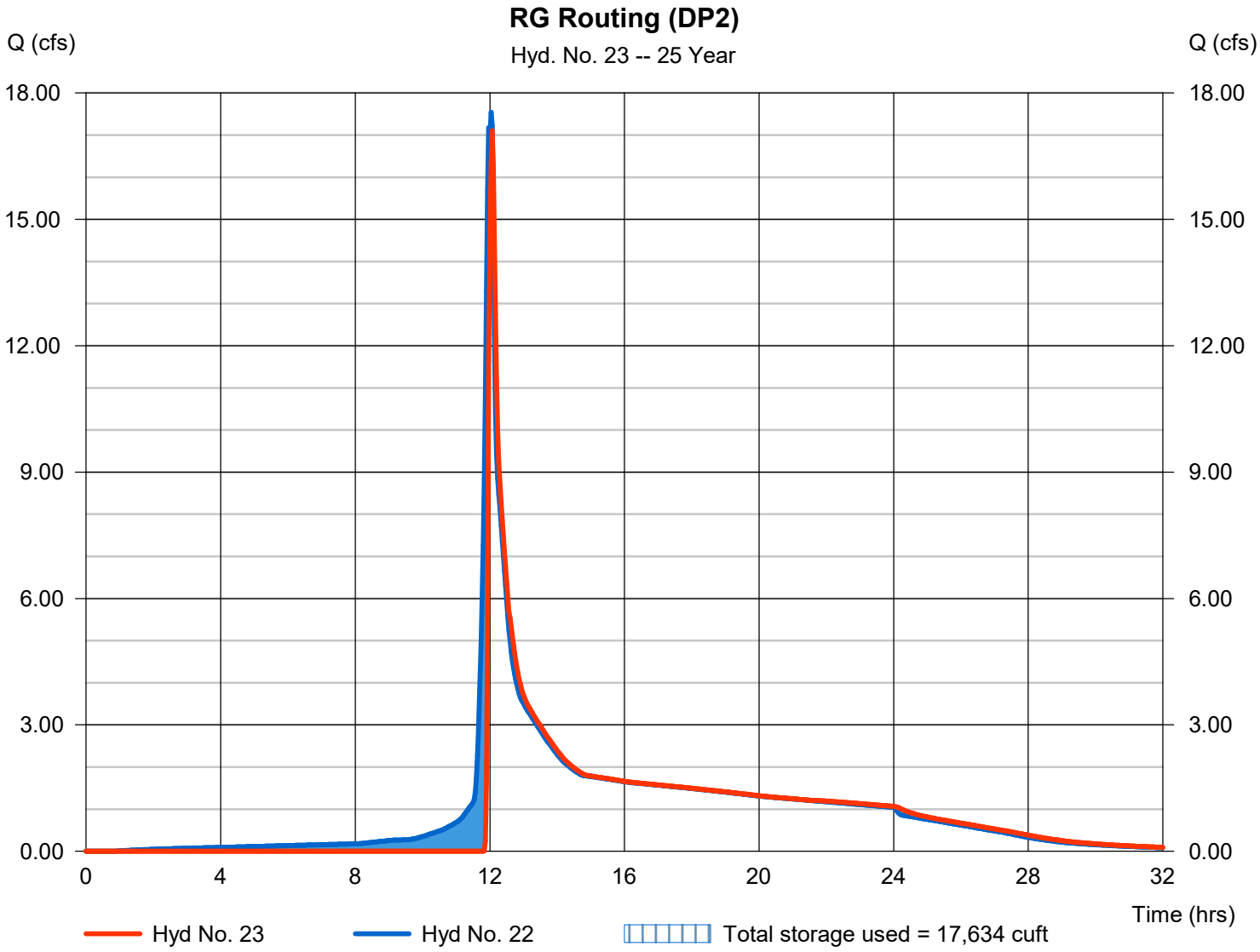
Hydrograph Report

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	17.11 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	114,352 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.22 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	17,634 cuft

Storage Indication method used.

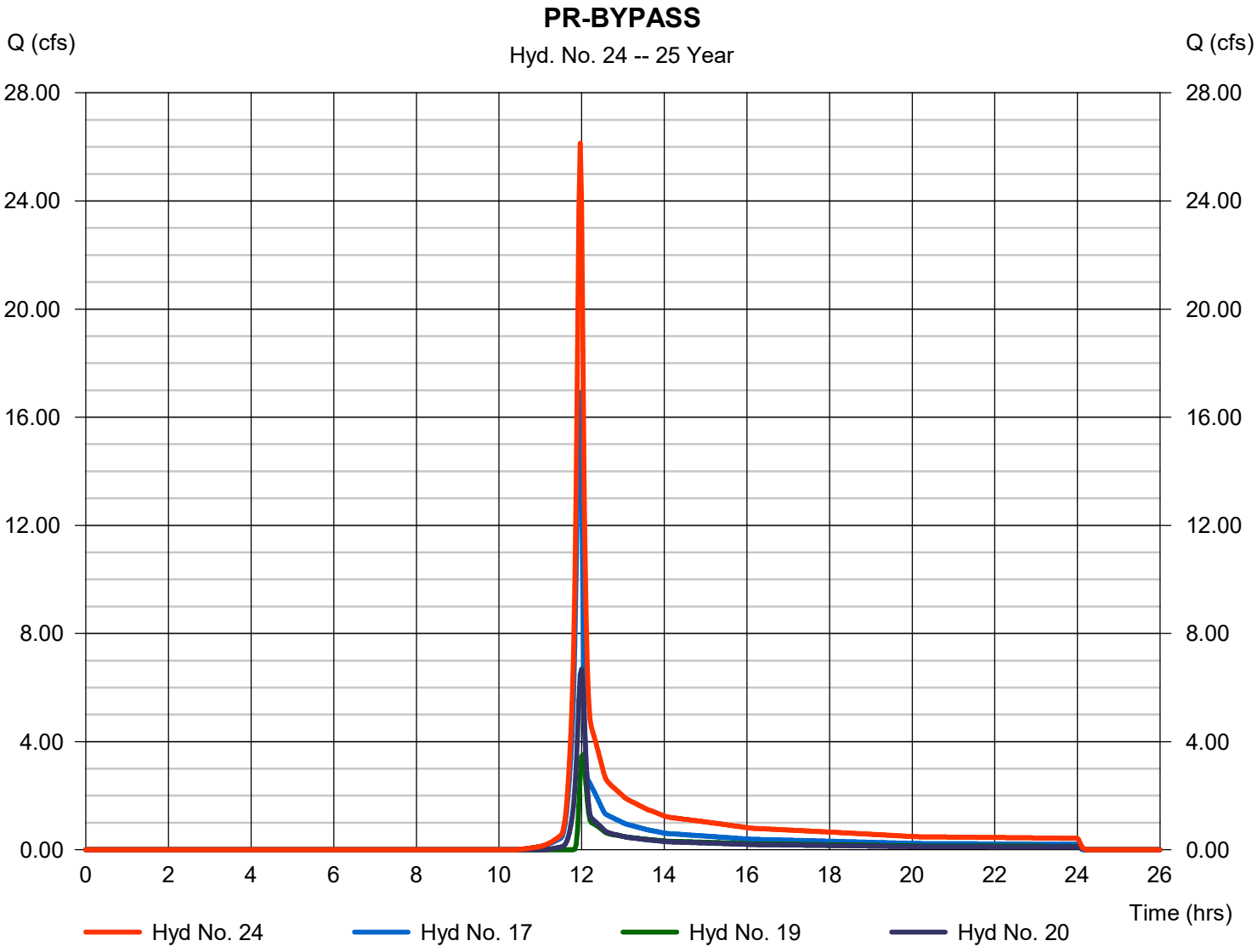


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	= Combine	Peak discharge	= 26.13 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 61,934 cuft
Inflow hyds.	= 17, 19, 20	Contrib. drain. area	= 13.080 ac

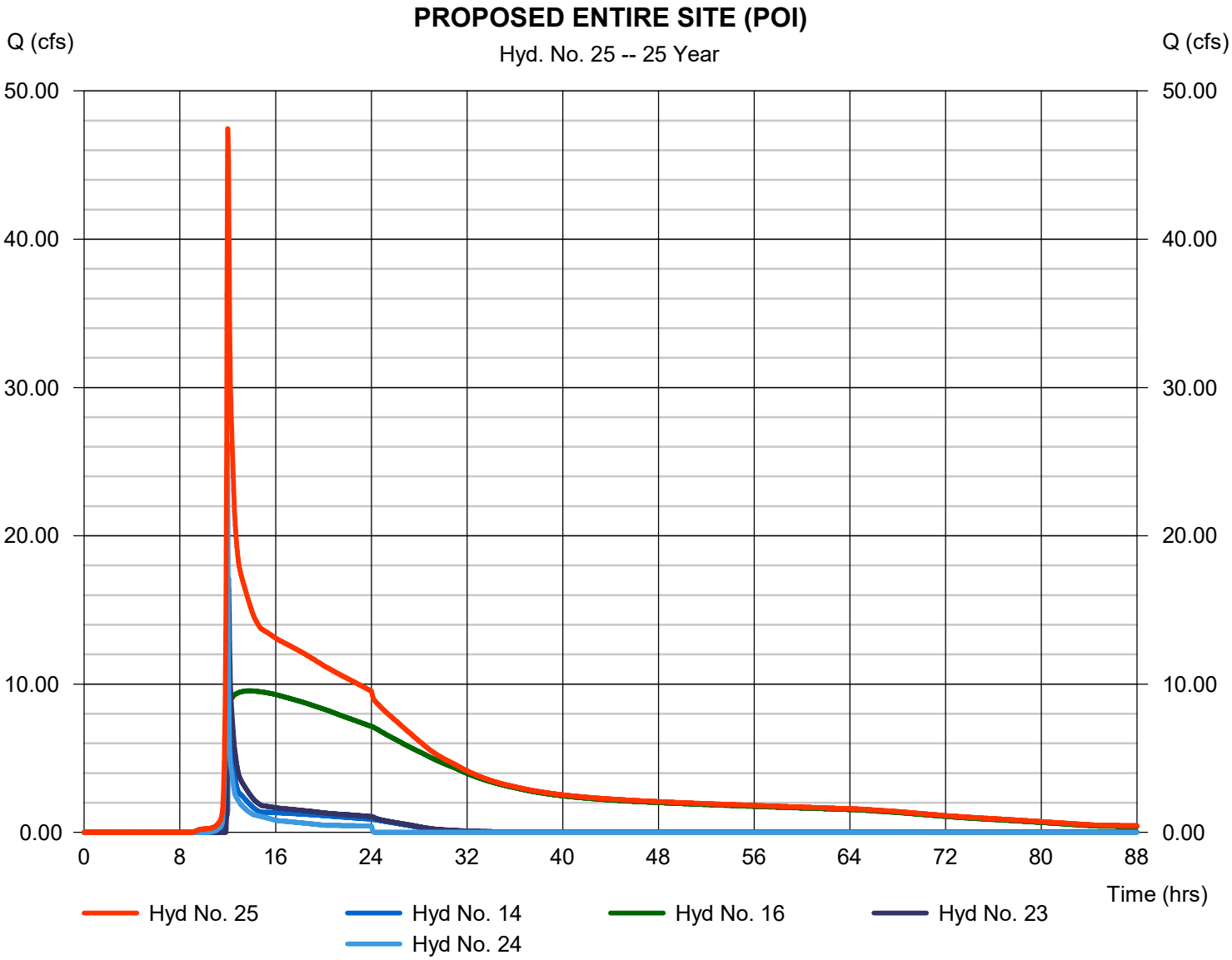


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	= Combine	Peak discharge	= 47.46 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,141,594 cuft
Inflow hyds.	= 14, 16, 23, 24	Contrib. drain. area	= 0.000 ac

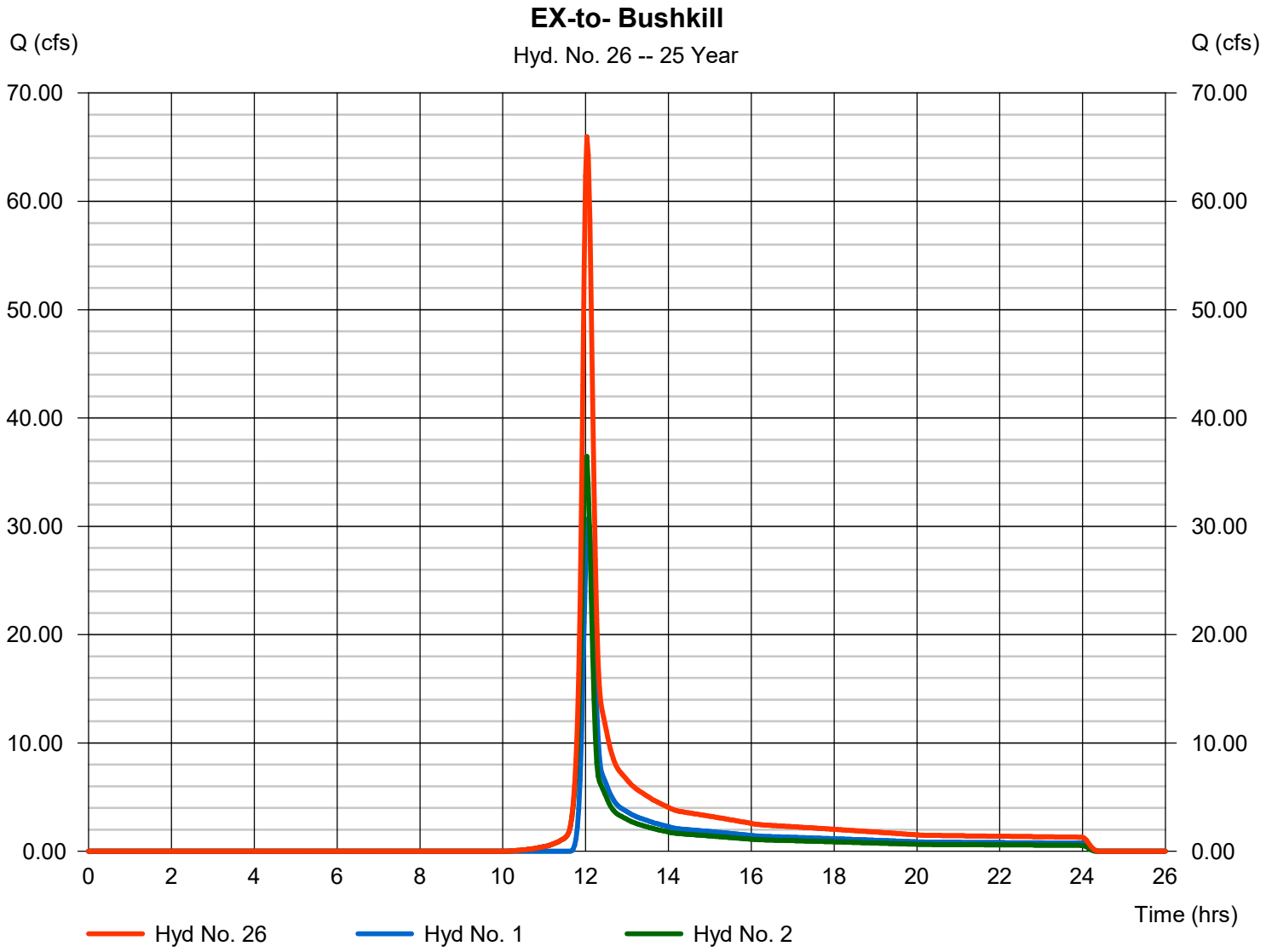


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 65.97 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 195,116 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

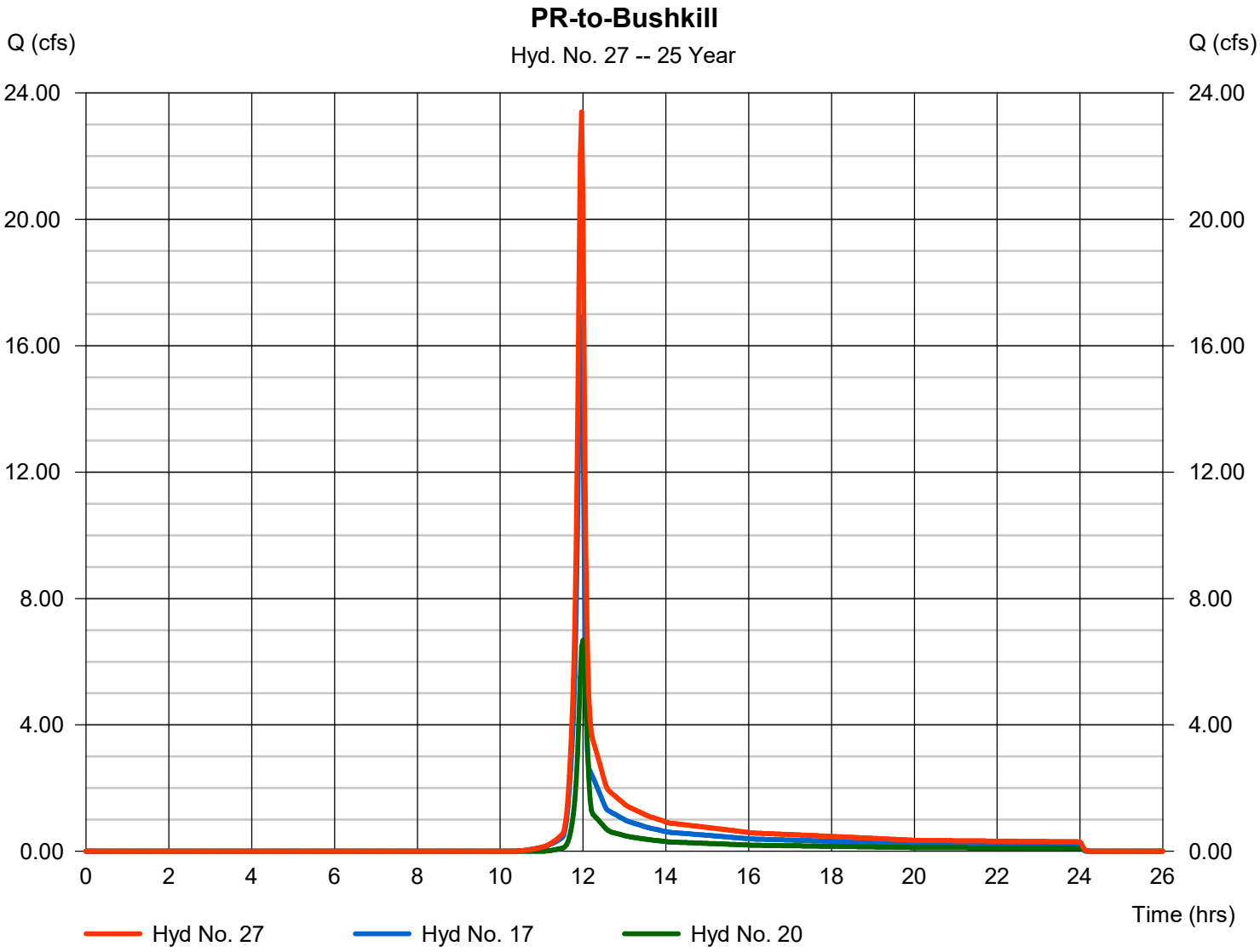


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 23.40 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 49,372 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

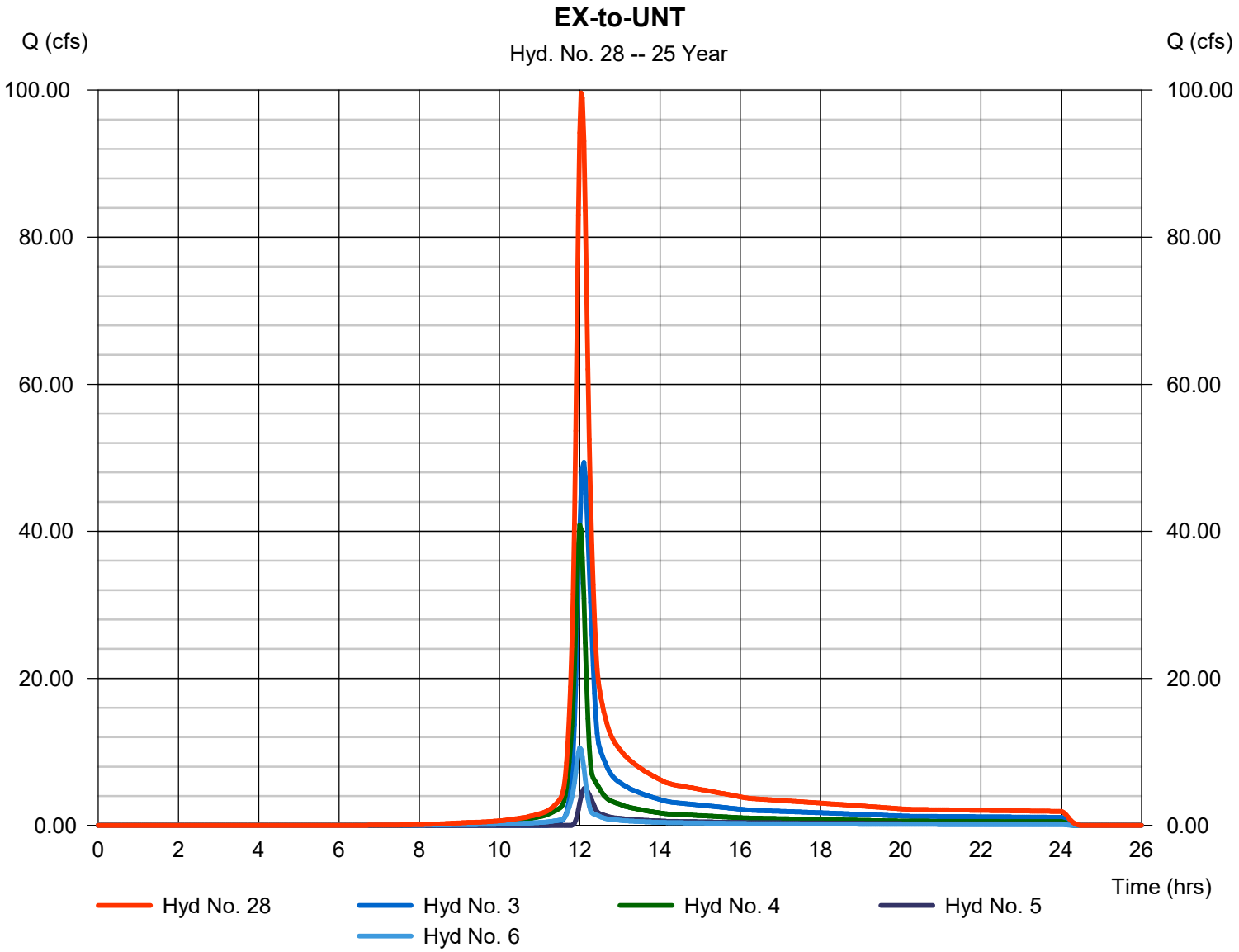


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 99.62 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 322,966 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

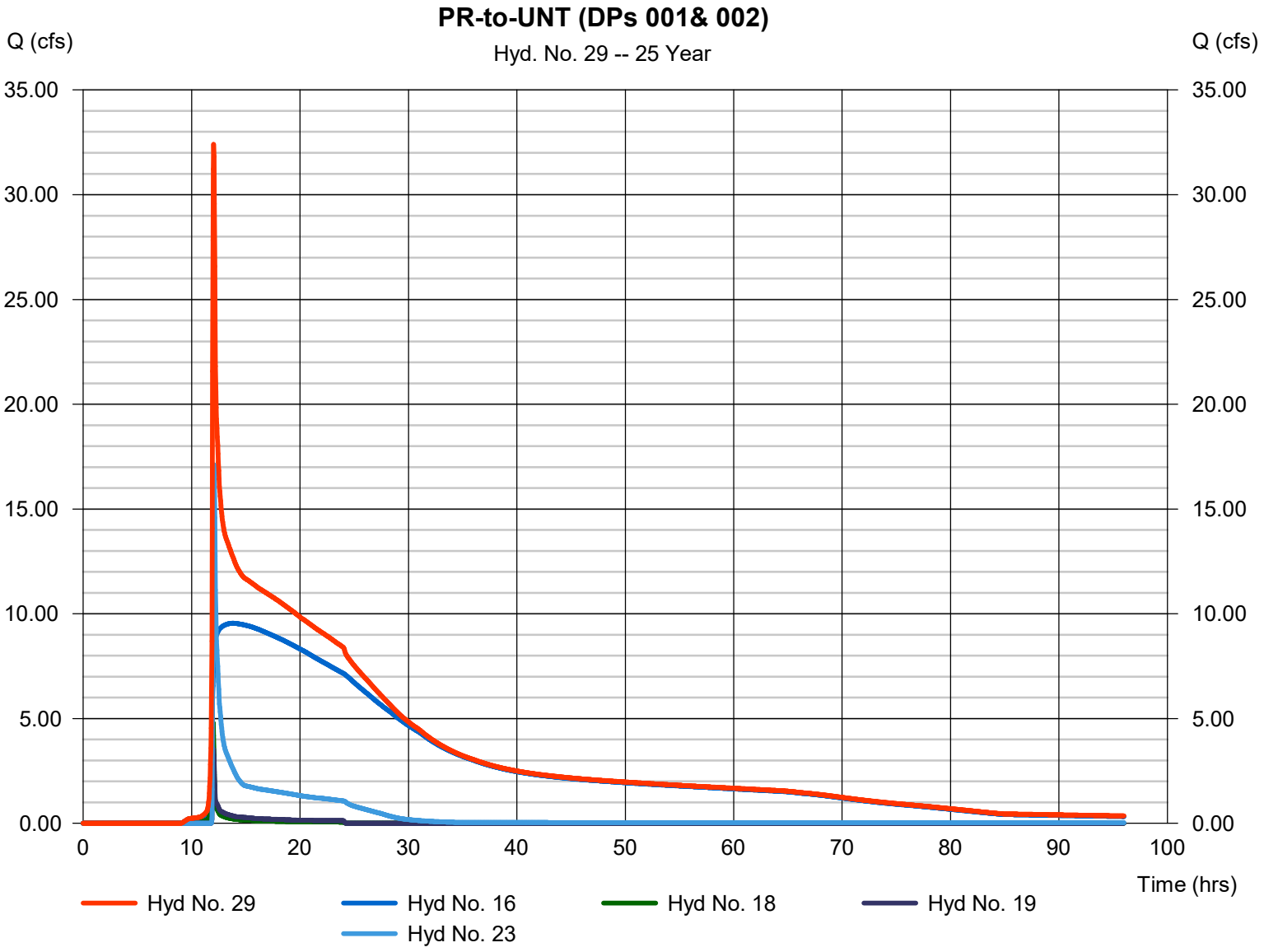


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 32.40 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 1,017,849 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	47.55	2	724	144,479	------	------	------	EX-DA 1
2	SCS Runoff	48.90	2	720	127,562	------	------	------	EX-DA2
3	SCS Runoff	70.69	2	726	230,260	------	------	------	EX-DA3
4	SCS Runoff	51.62	2	720	134,515	------	------	------	EX-DA4
5	SCS Runoff	9.211	2	726	36,071	------	------	------	EX-DA5
6	SCS Runoff	12.98	2	720	34,448	------	------	------	EX-DA-Road Widening
7	Combine	232.41	2	722	707,335	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	108.42	2	716	253,424	------	------	------	PR-DA-A
9	SCS Runoff	137.01	2	716	320,254	------	------	------	PR-DA-B
10	SCS Runoff	244.36	2	718	598,972	------	------	------	PR-DA-C
11	Reservoir	1.056	2	1180	239,806	8	292.11	201,780	BMP A Routing
12	Reservoir	1.735	2	1080	308,761	9	288.60	241,193	BMP B Routing
13	SCS Runoff	55.27	2	716	113,948	------	------	------	PR-DA-E
14	Reservoir	25.46	2	722	110,000	13	260.24	51,945	BMP E Routing
15	Combine	246.67	2	718	1,147,538	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	10.91	2	832	1,063,243	15	219.09	422,142	MRC BMP C Routing(DP1)
17	SCS Runoff	22.74	2	718	45,587	------	------	------	PR-BYPASS 1
18	SCS Runoff	6.265	2	718	14,332	------	------	------	PR RG
19	SCS Runoff	7.200	2	720	20,363	------	------	------	PR-BYPASS 2
20	SCS Runoff	9.325	2	720	21,428	------	------	------	PR-BYPASS 3
21	SCS Runoff	13.07	2	718	35,117	------	------	------	PR-Road Widening
22	Combine	41.50	2	722	159,448	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	39.43	2	722	146,434	22	233.52	19,850	RG Routing (DP2)
24	Combine	38.24	2	718	87,378	17, 19, 20,	------	------	PR-BYPASS
25	Combine	100.98	2	722	1,407,054	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	95.39	2	722	272,041	1, 2,	------	------	EX-to- Bushkill
27	Combine	31.91	2	718	67,015	17, 20,	------	------	PR-to-Bushkill
28	Combine	137.03	2	722	435,295	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	61.15	2	722	1,245,713	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

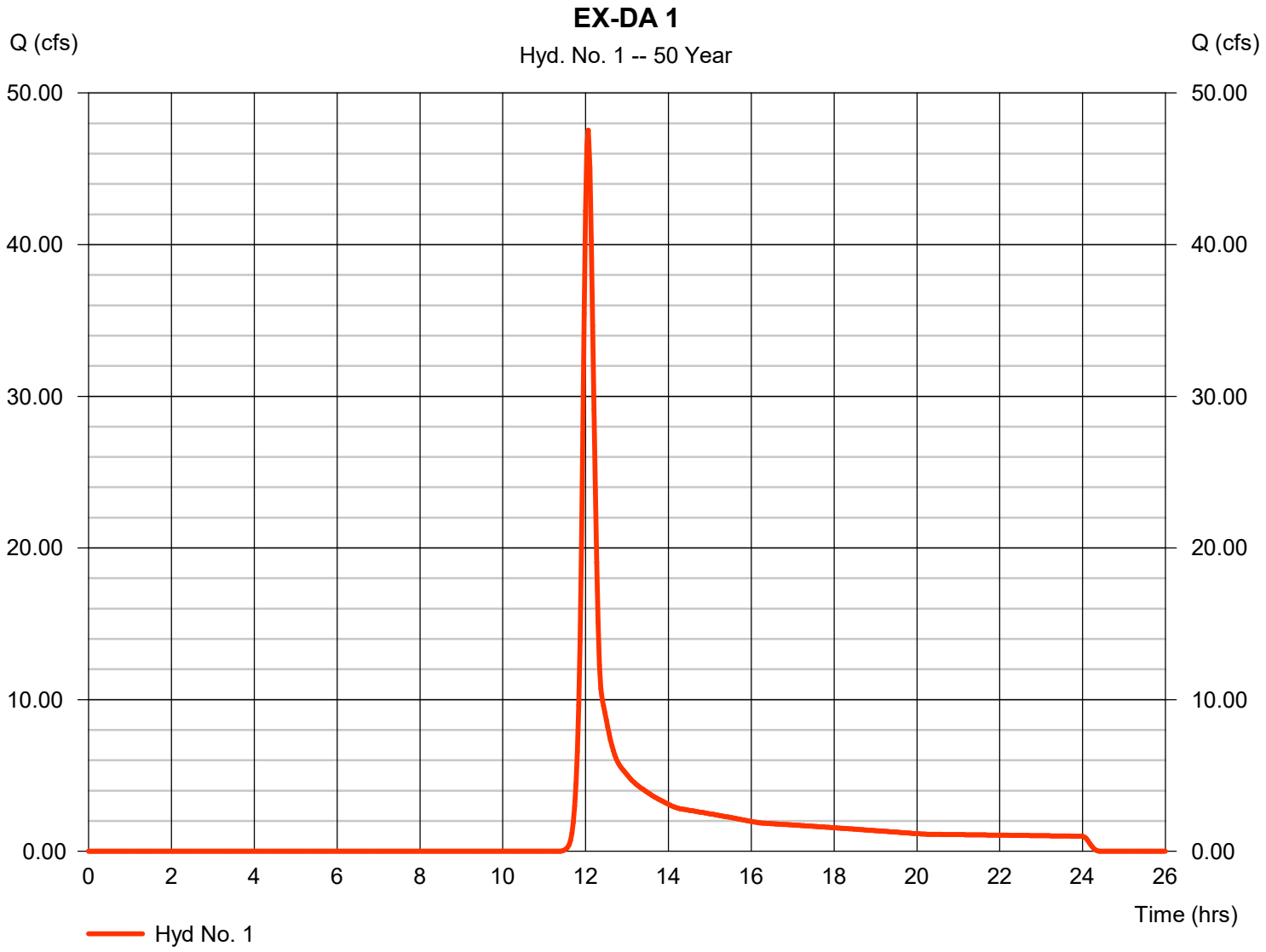
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.55 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	144,479 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



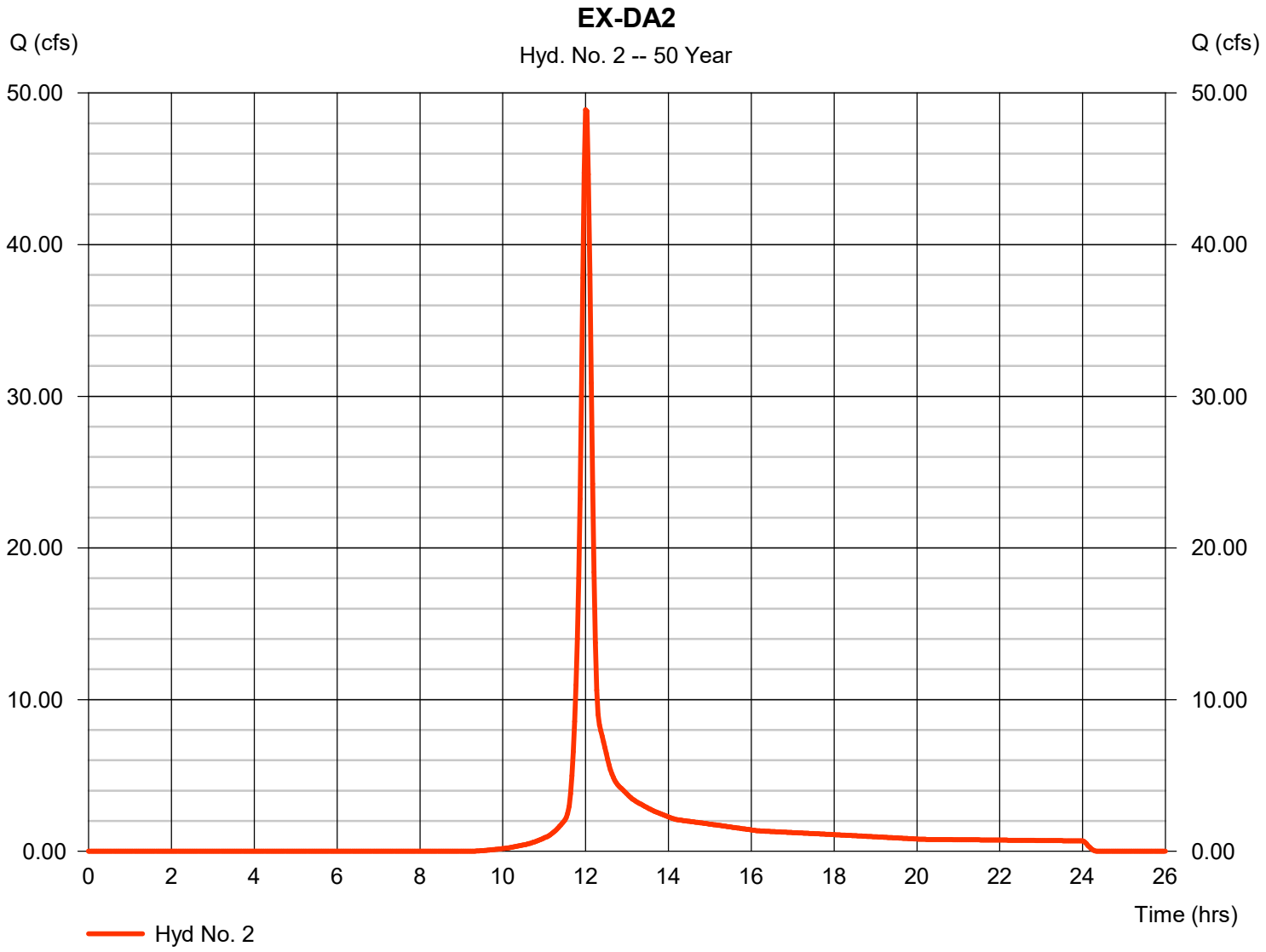
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.90 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	127,562 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



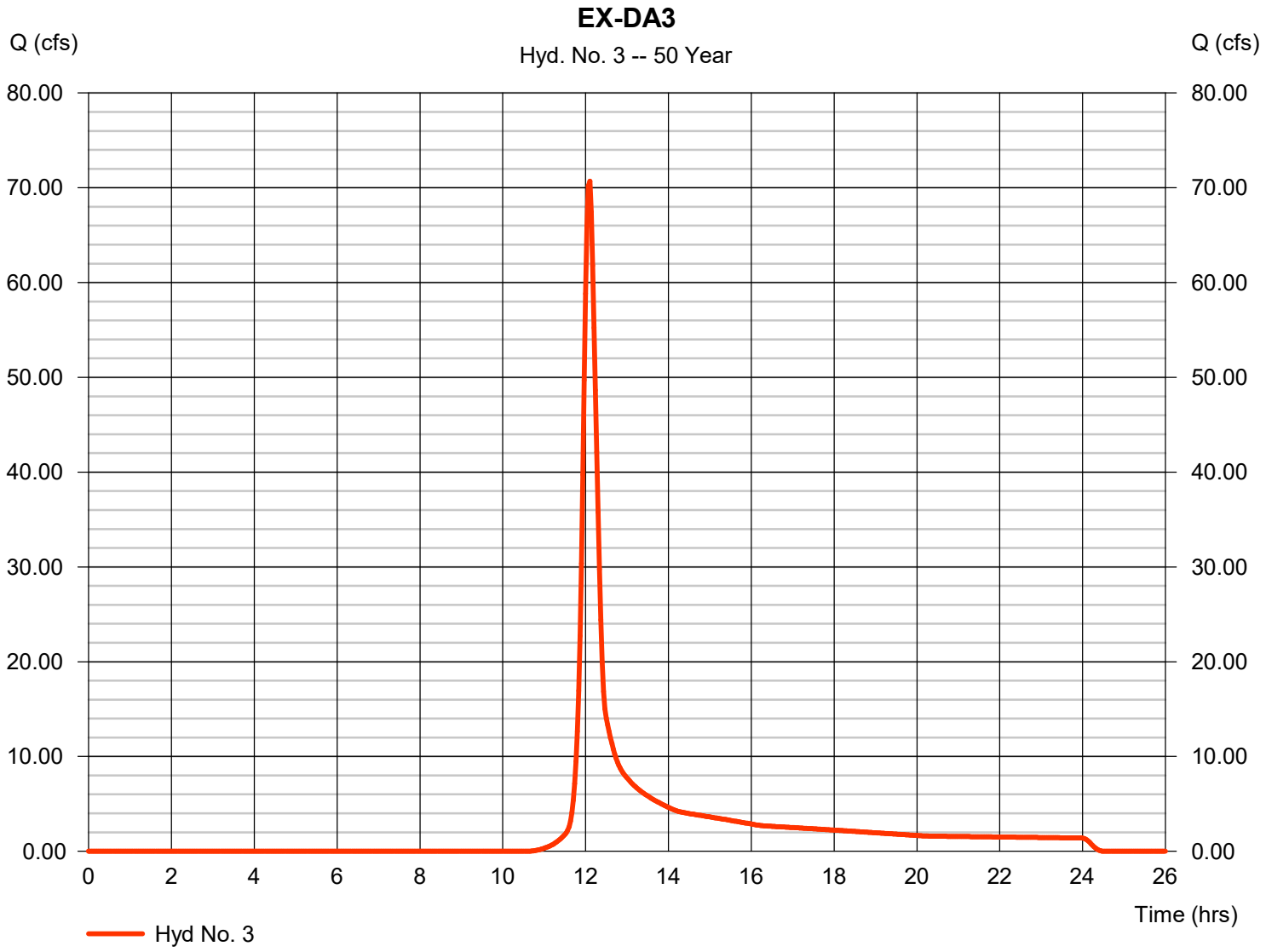
Hydrograph Report

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	70.69 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	230,260 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



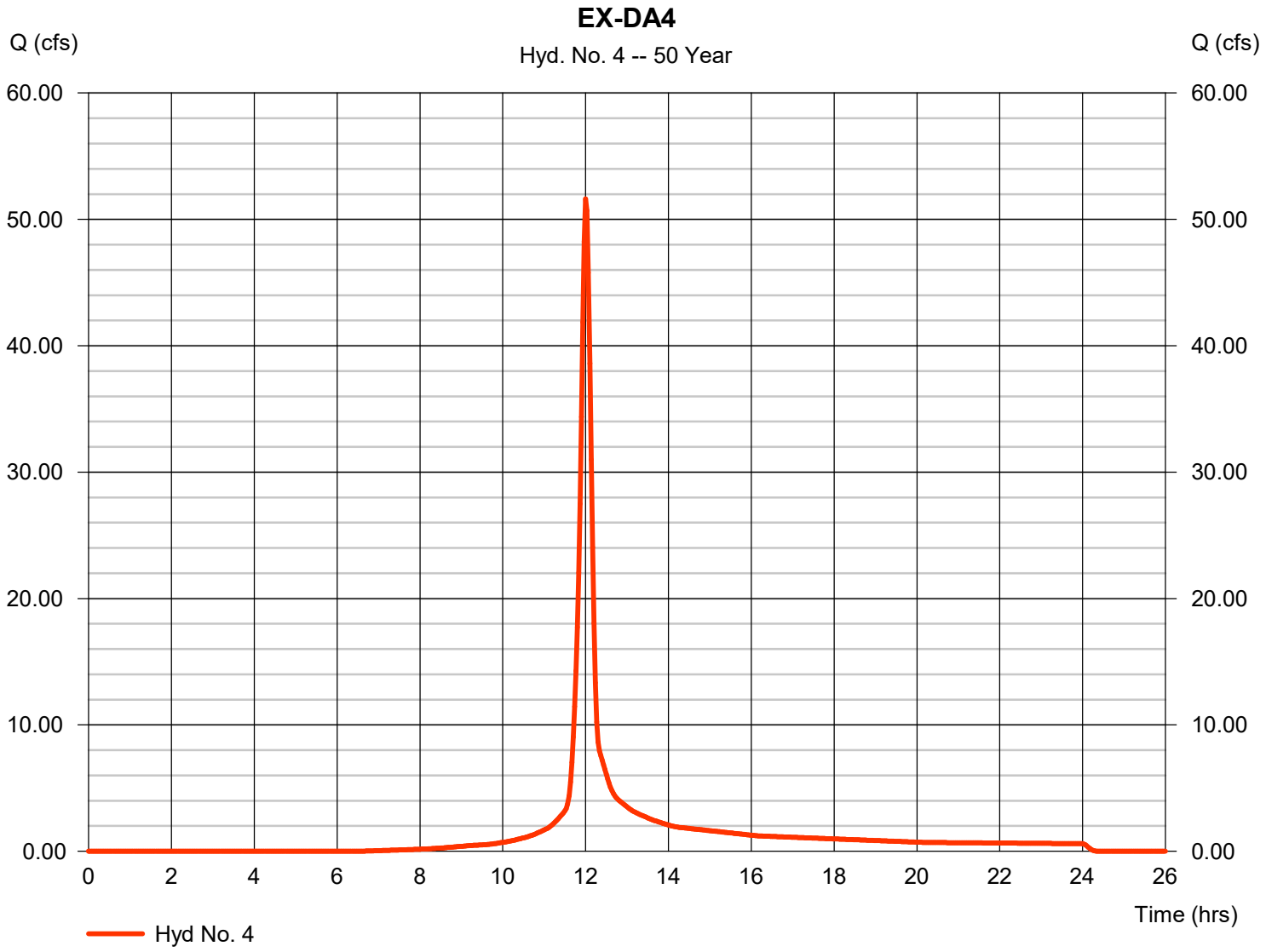
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	51.62 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	134,515 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



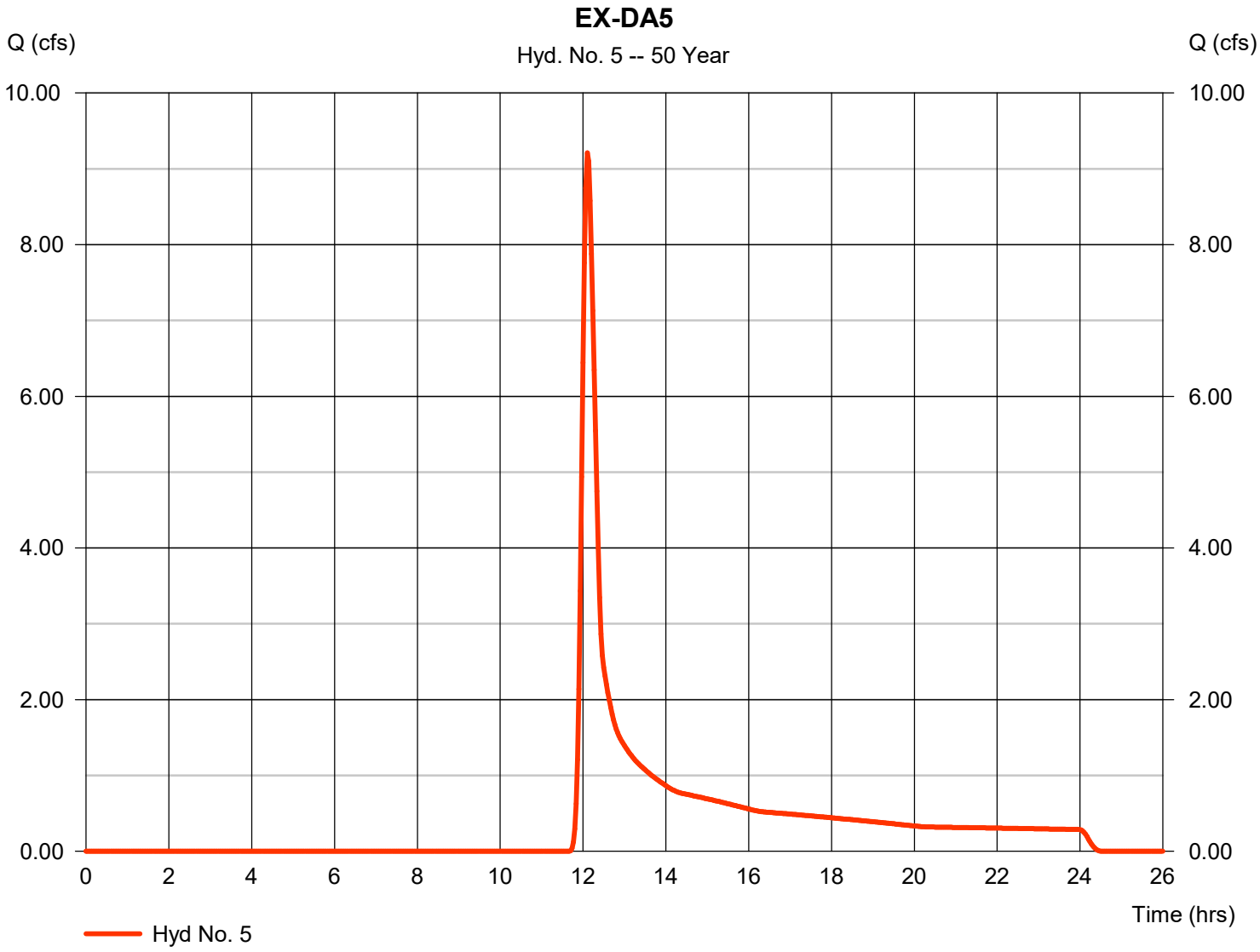
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.211 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	36,071 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



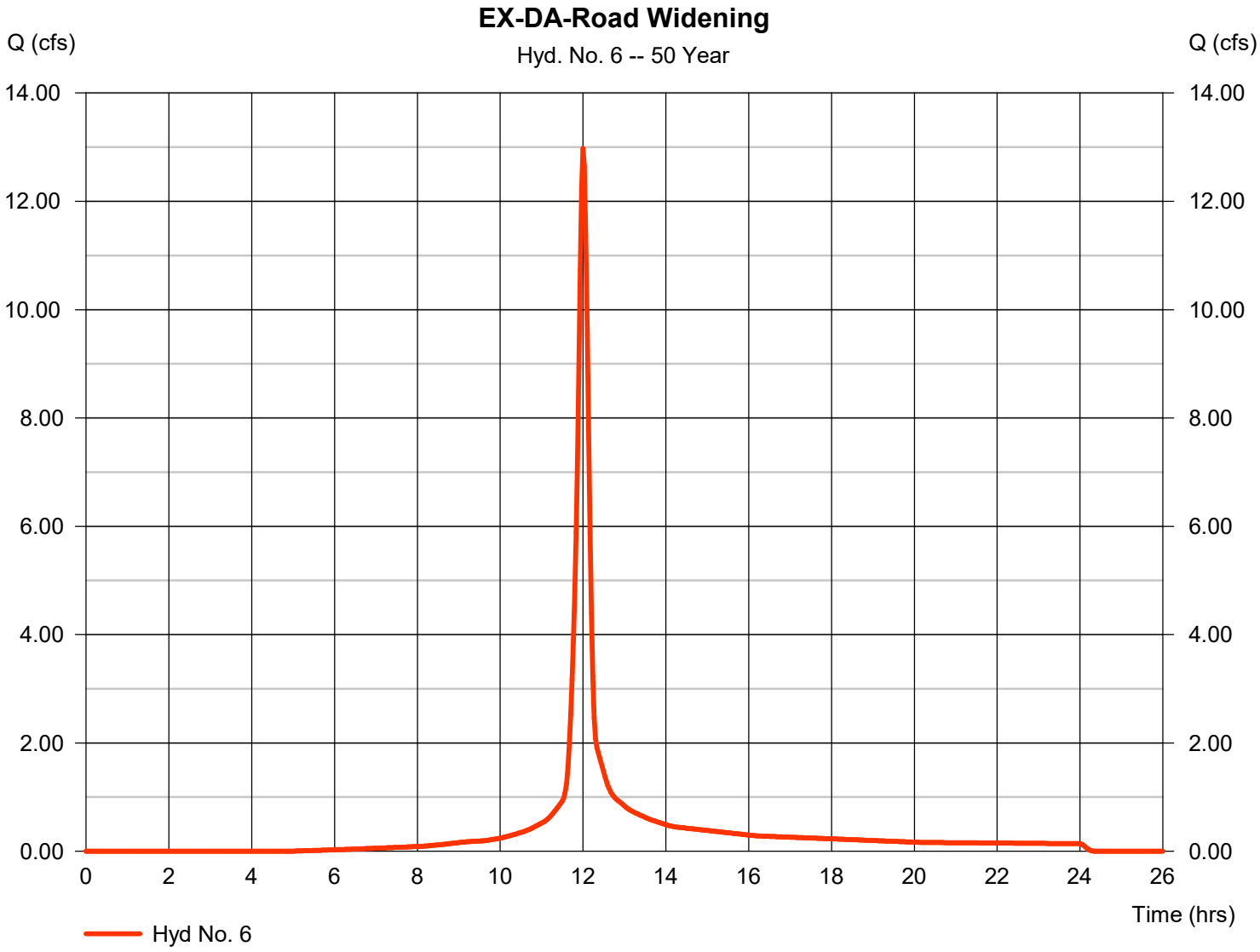
Hydrograph Report

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.98 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	34,448 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

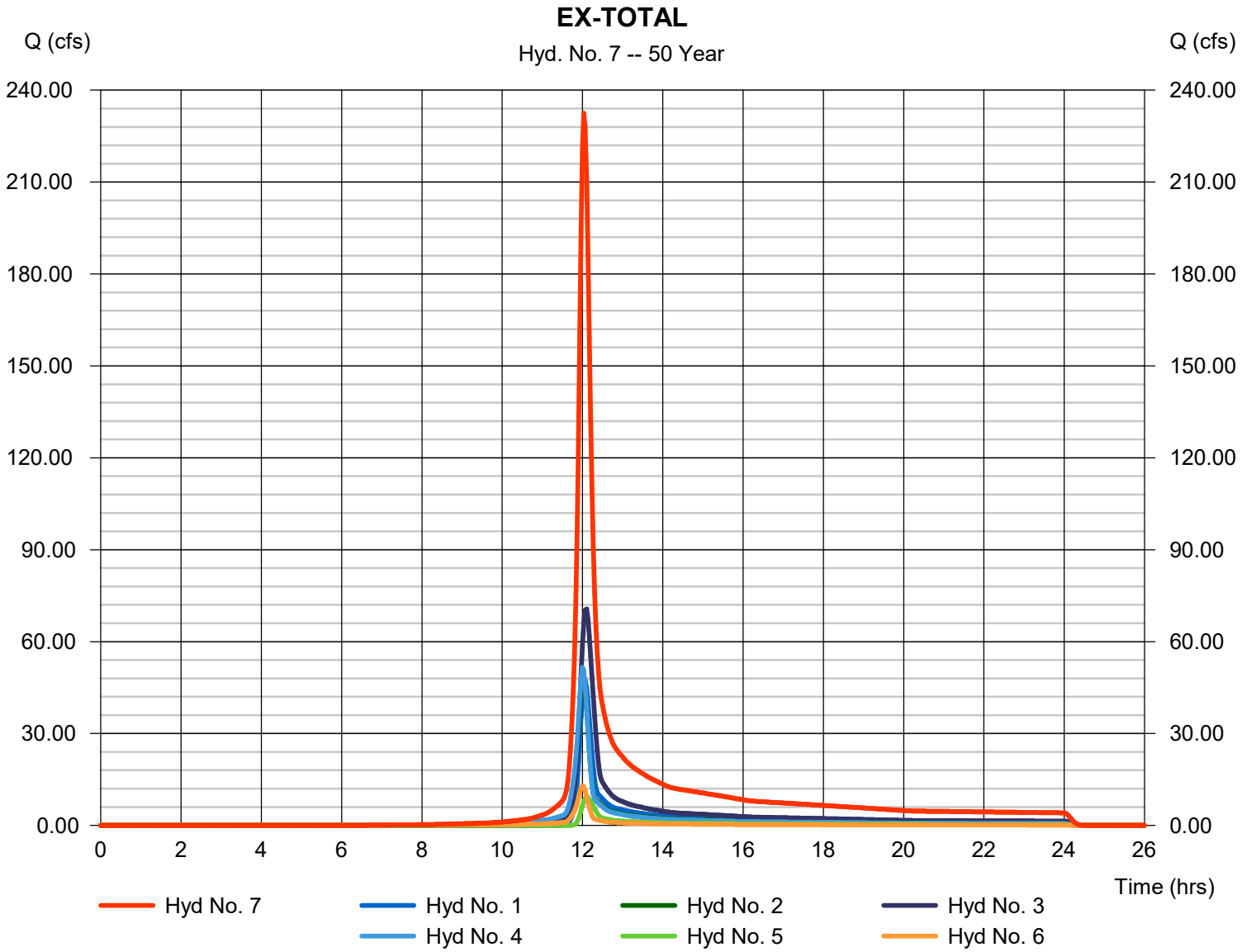


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	232.41 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	707,335 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



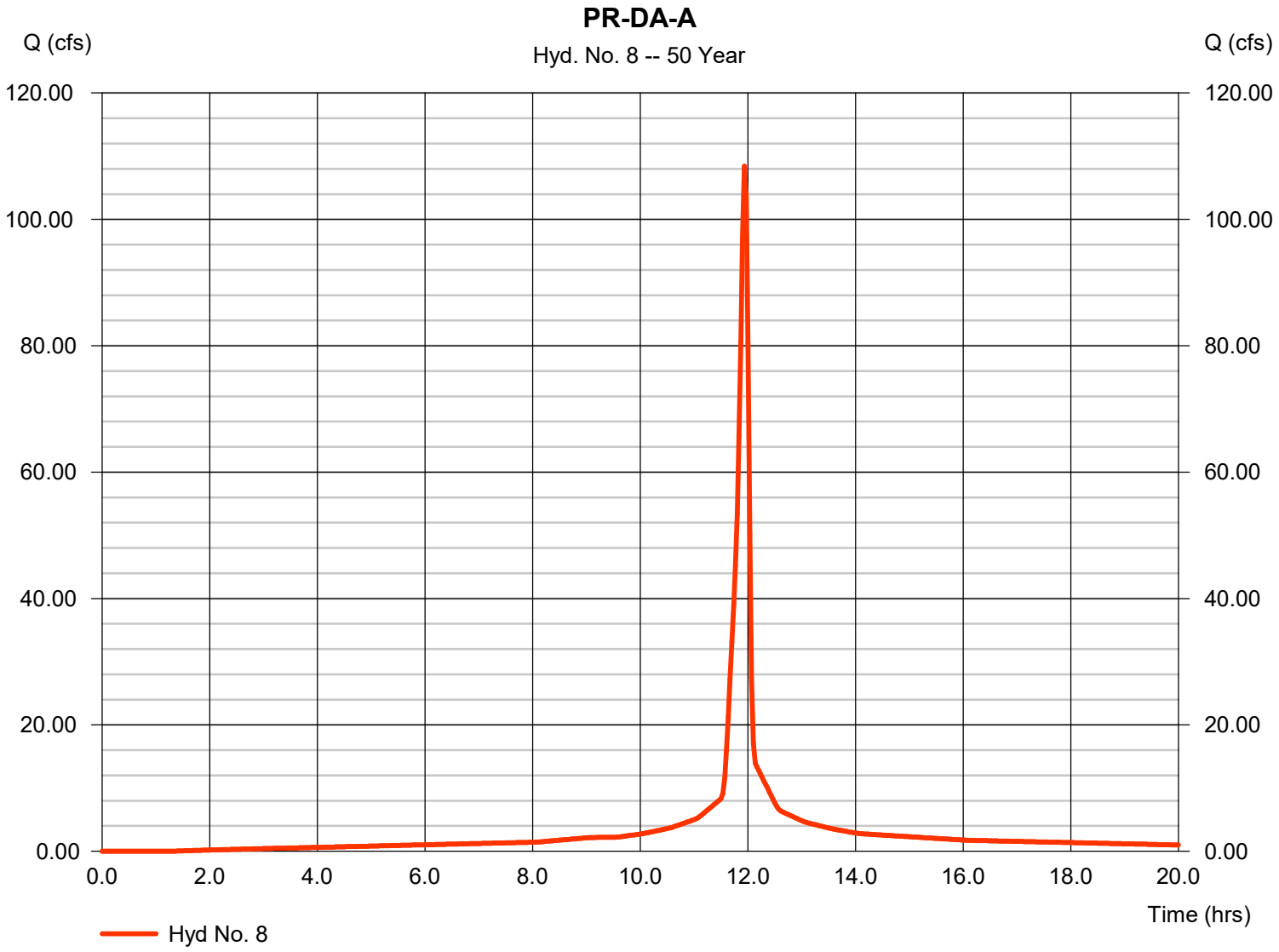
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	108.42 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	253,424 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



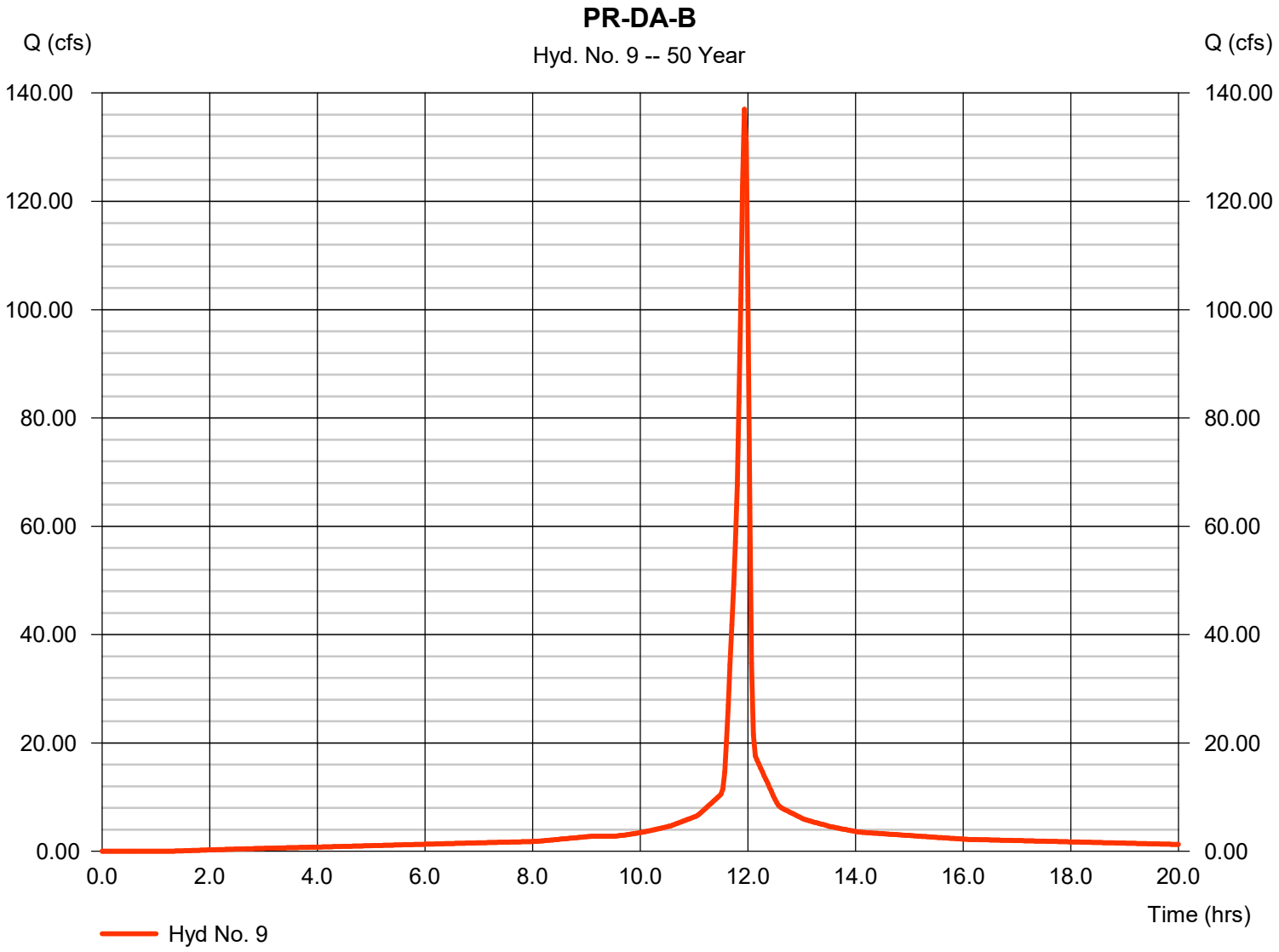
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	137.01 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	320,254 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



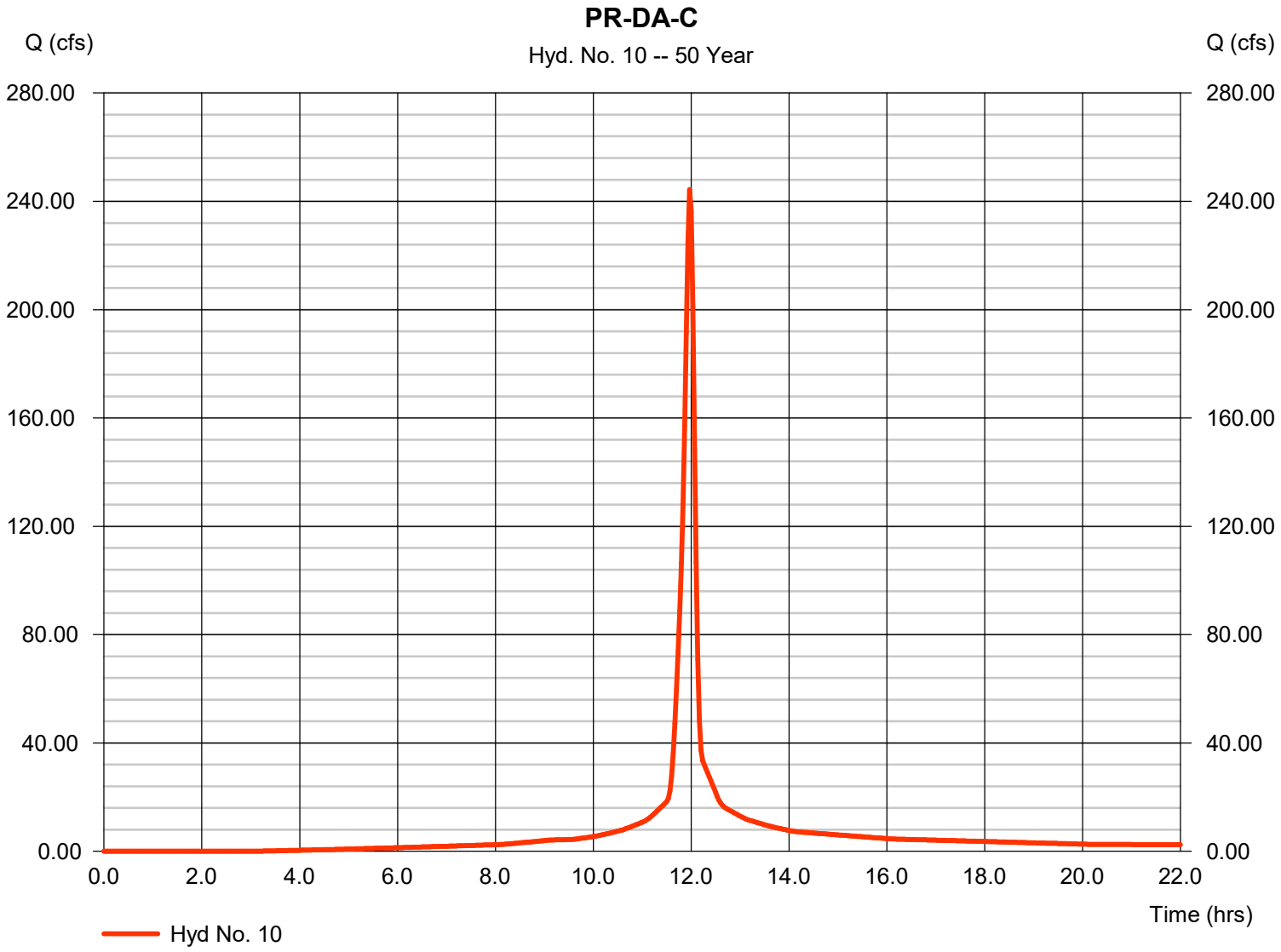
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	244.36 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	598,972 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



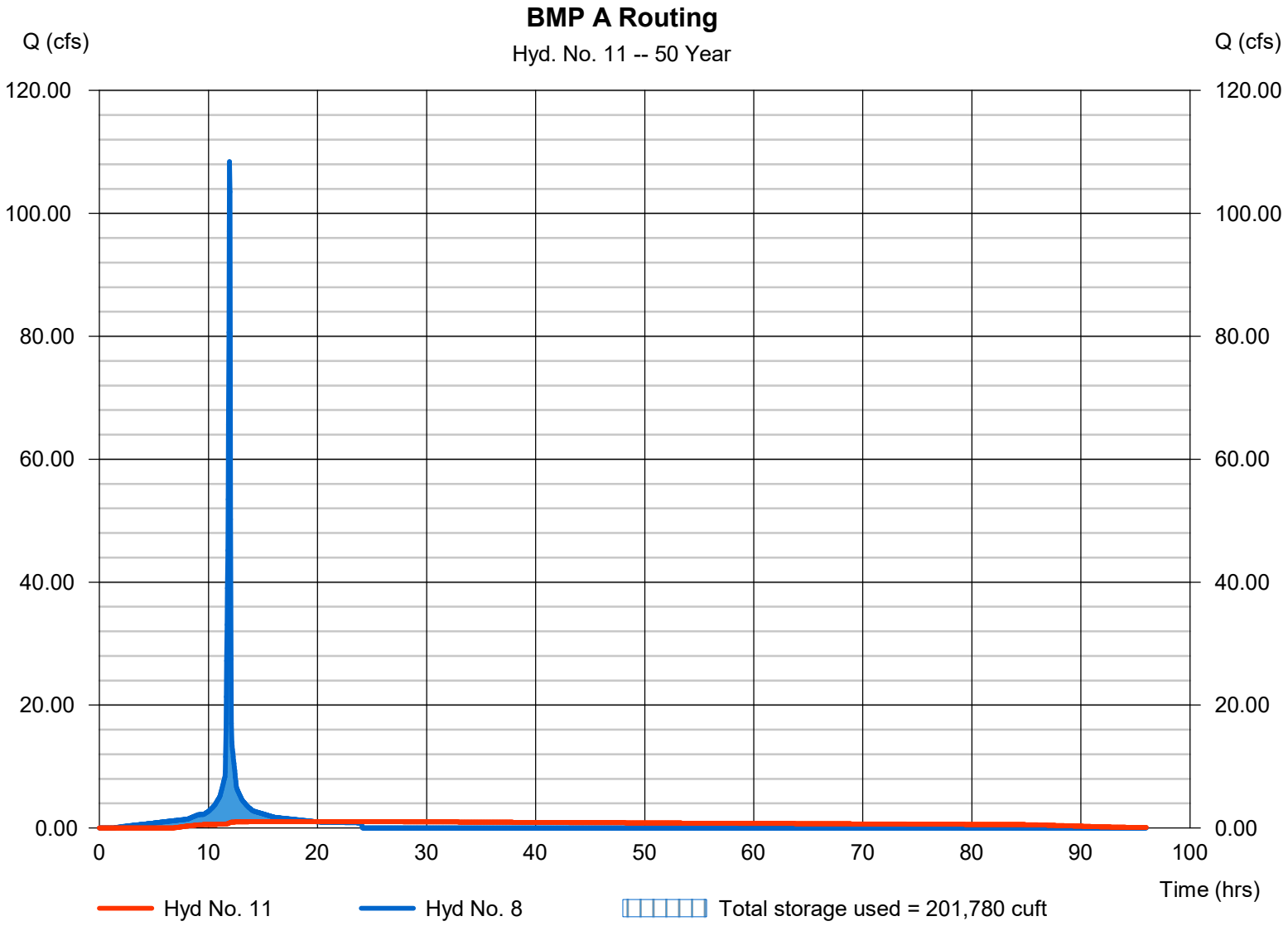
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.056 cfs
Storm frequency	=	50 yrs	Time to peak	=	19.67 hrs
Time interval	=	2 min	Hyd. volume	=	239,806 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.11 ft
Reservoir name	=	BMP A	Max. Storage	=	201,780 cuft

Storage Indication method used.



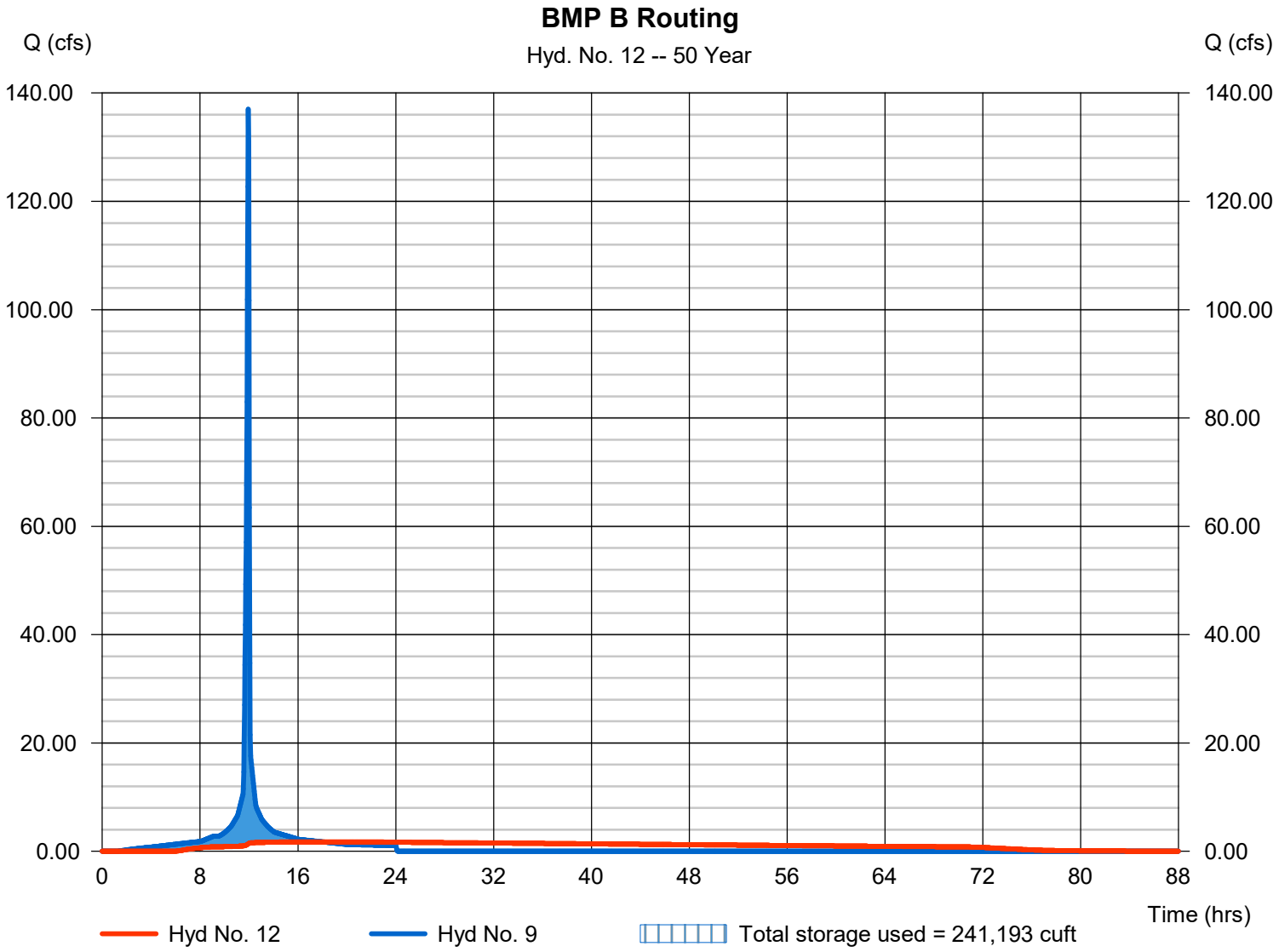
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.735 cfs
Storm frequency	=	50 yrs	Time to peak	=	18.00 hrs
Time interval	=	2 min	Hyd. volume	=	308,761 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.60 ft
Reservoir name	=	BMP B	Max. Storage	=	241,193 cuft

Storage Indication method used.



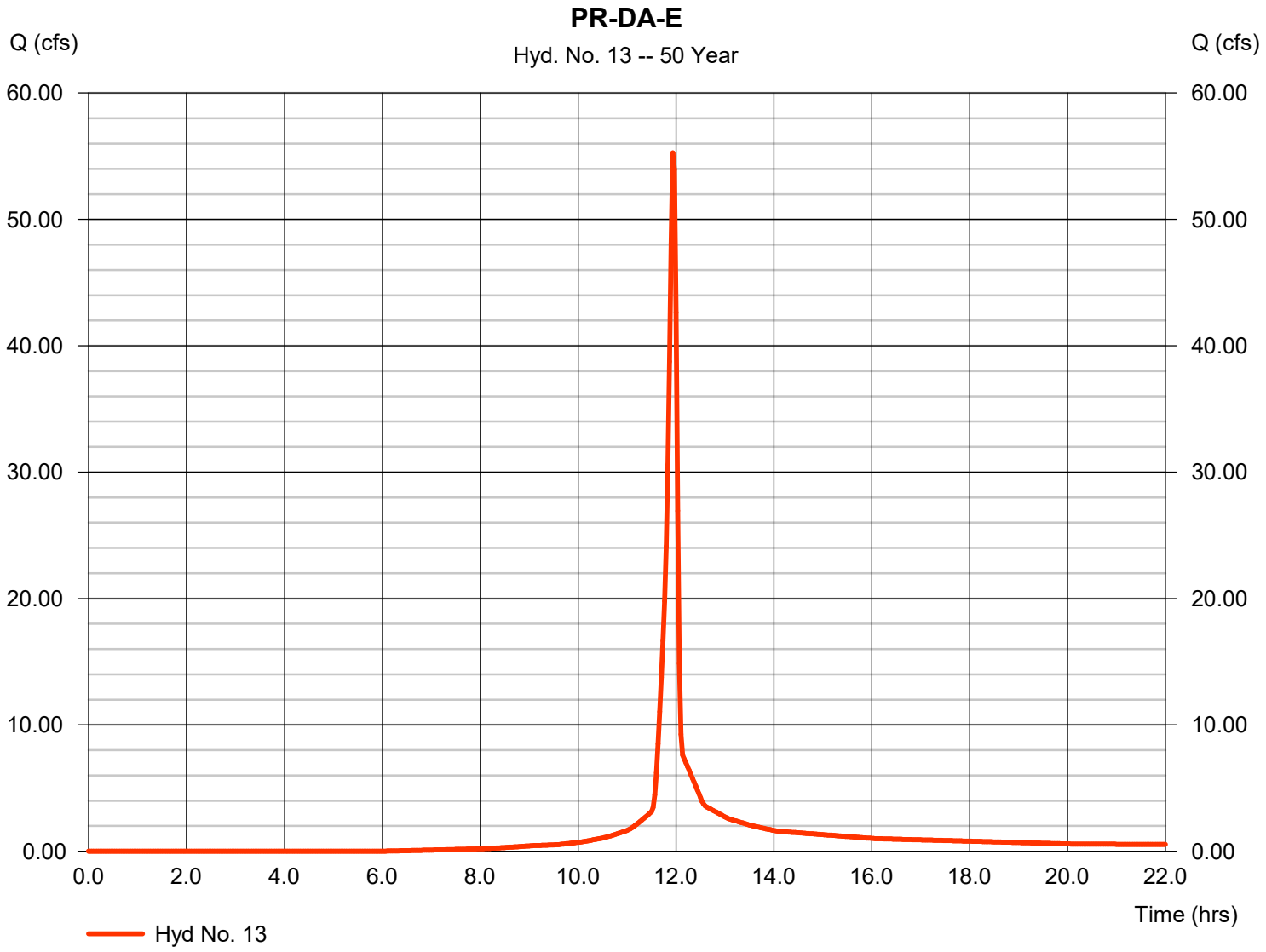
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	55.27 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	113,948 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



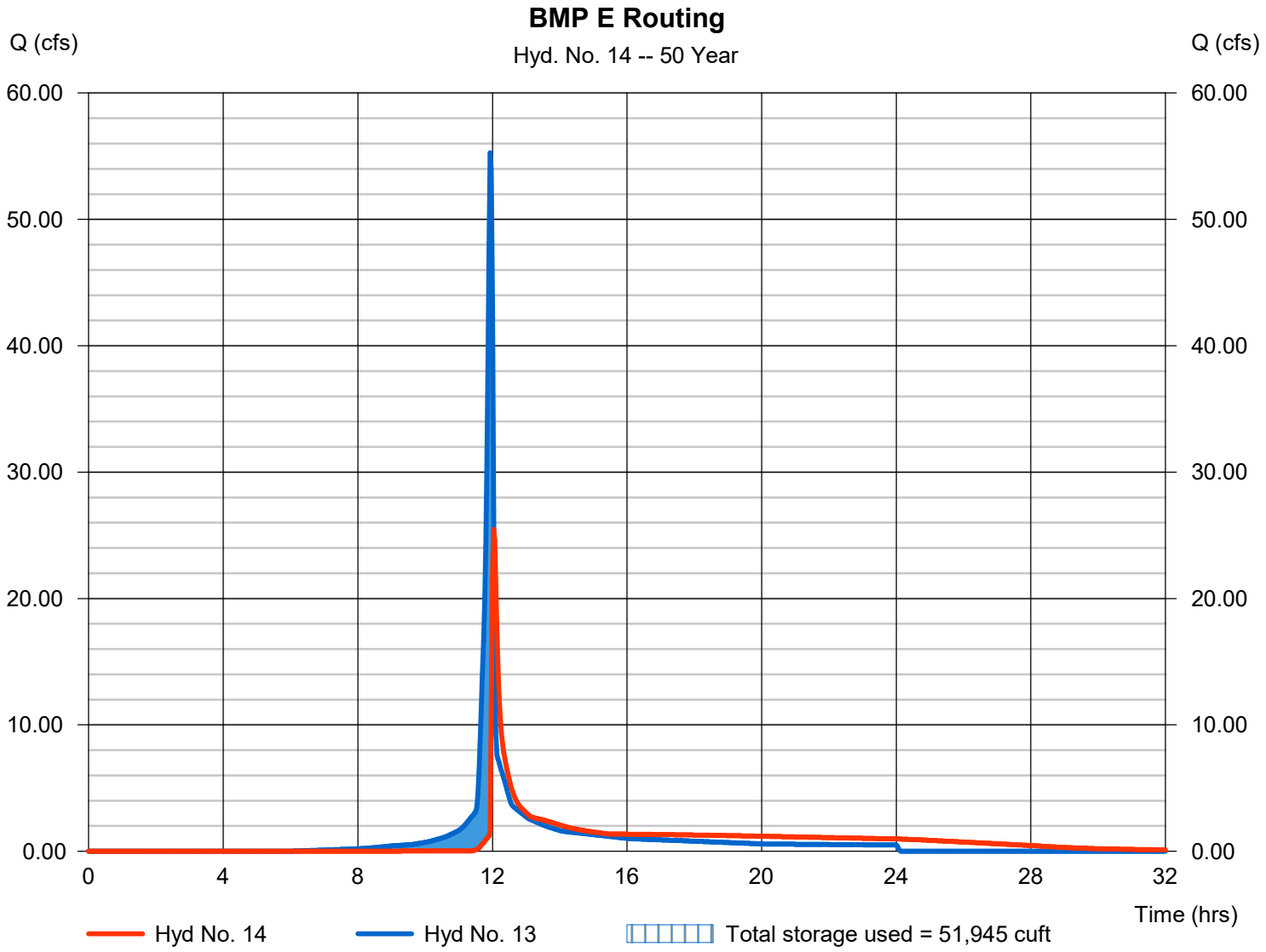
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	25.46 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	110,000 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	260.24 ft
Reservoir name	=	BMP E	Max. Storage	=	51,945 cuft

Storage Indication method used.

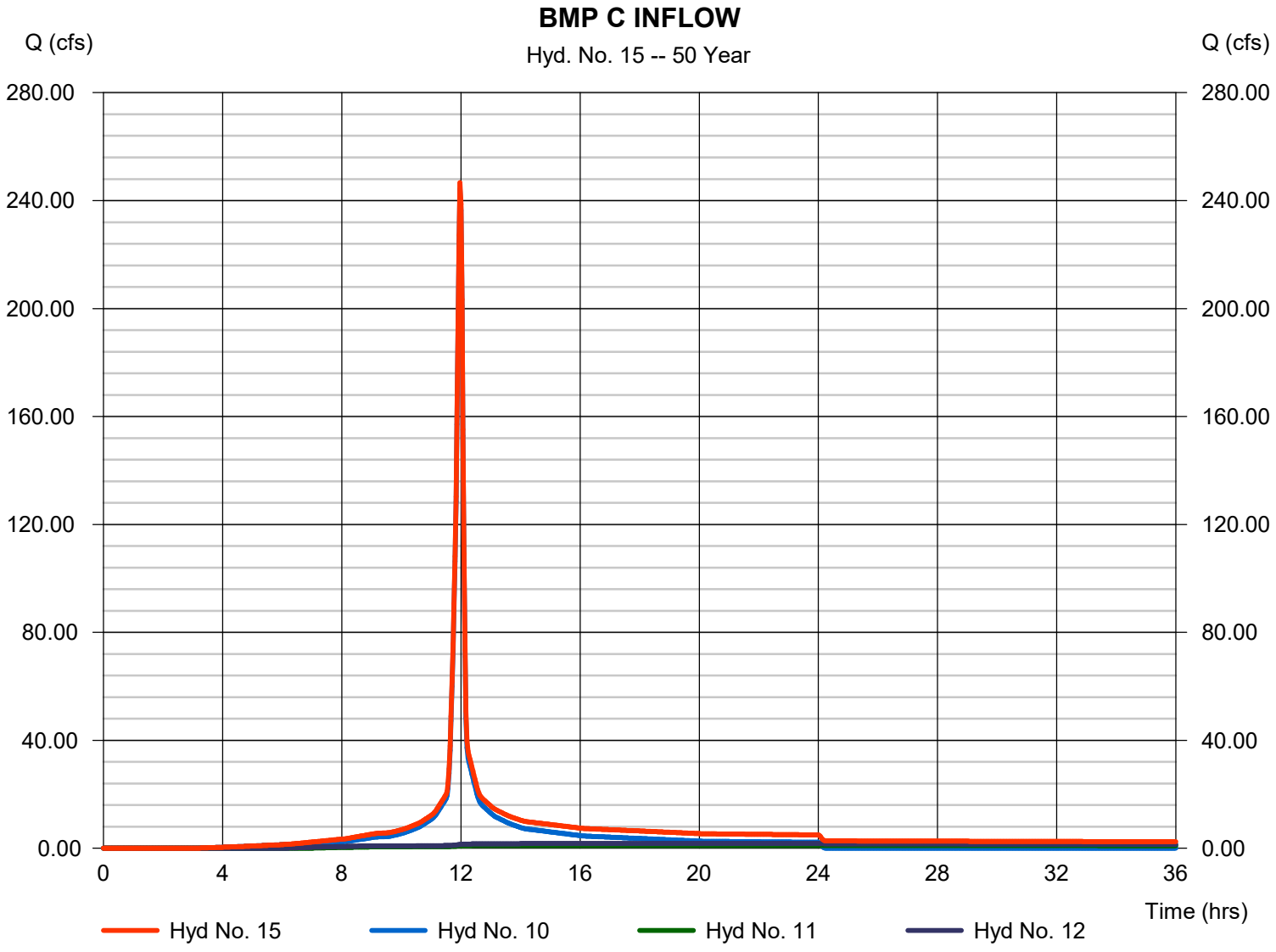


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	246.67 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	1,147,538 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



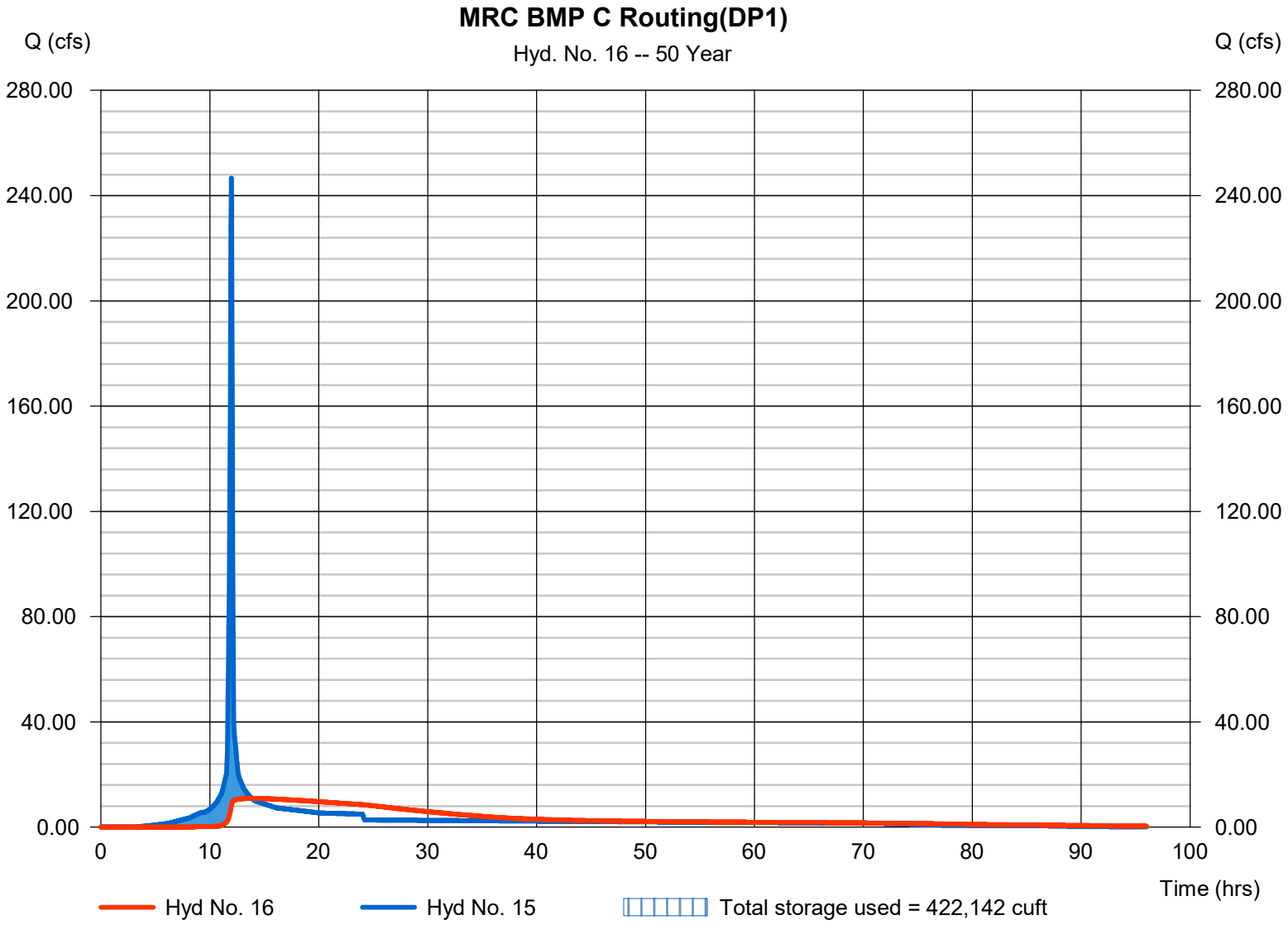
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	10.91 cfs
Storm frequency	=	50 yrs	Time to peak	=	13.87 hrs
Time interval	=	2 min	Hyd. volume	=	1,063,243 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	219.09 ft
Reservoir name	=	BMP C	Max. Storage	=	422,142 cuft

Storage Indication method used.



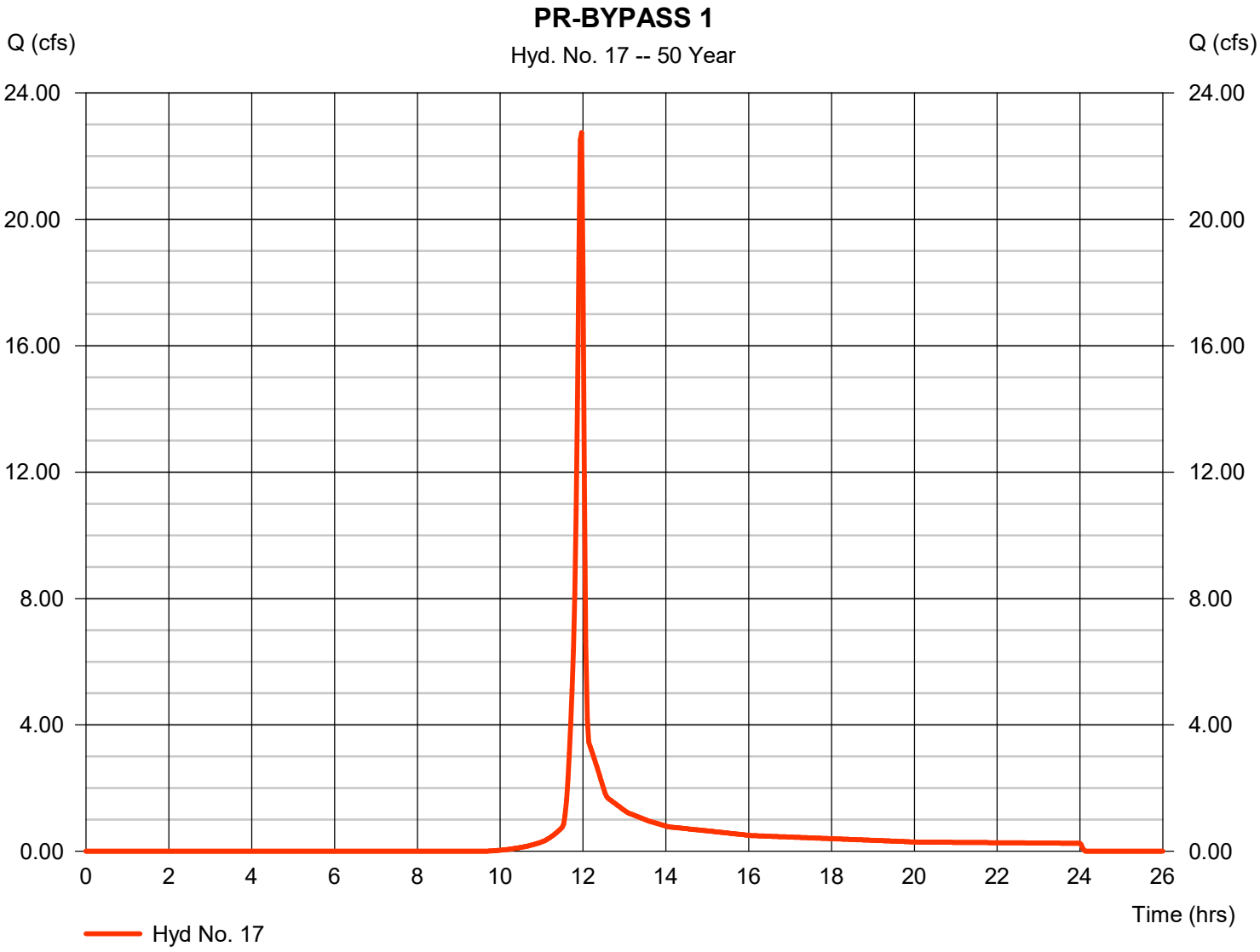
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.74 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	45,587 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



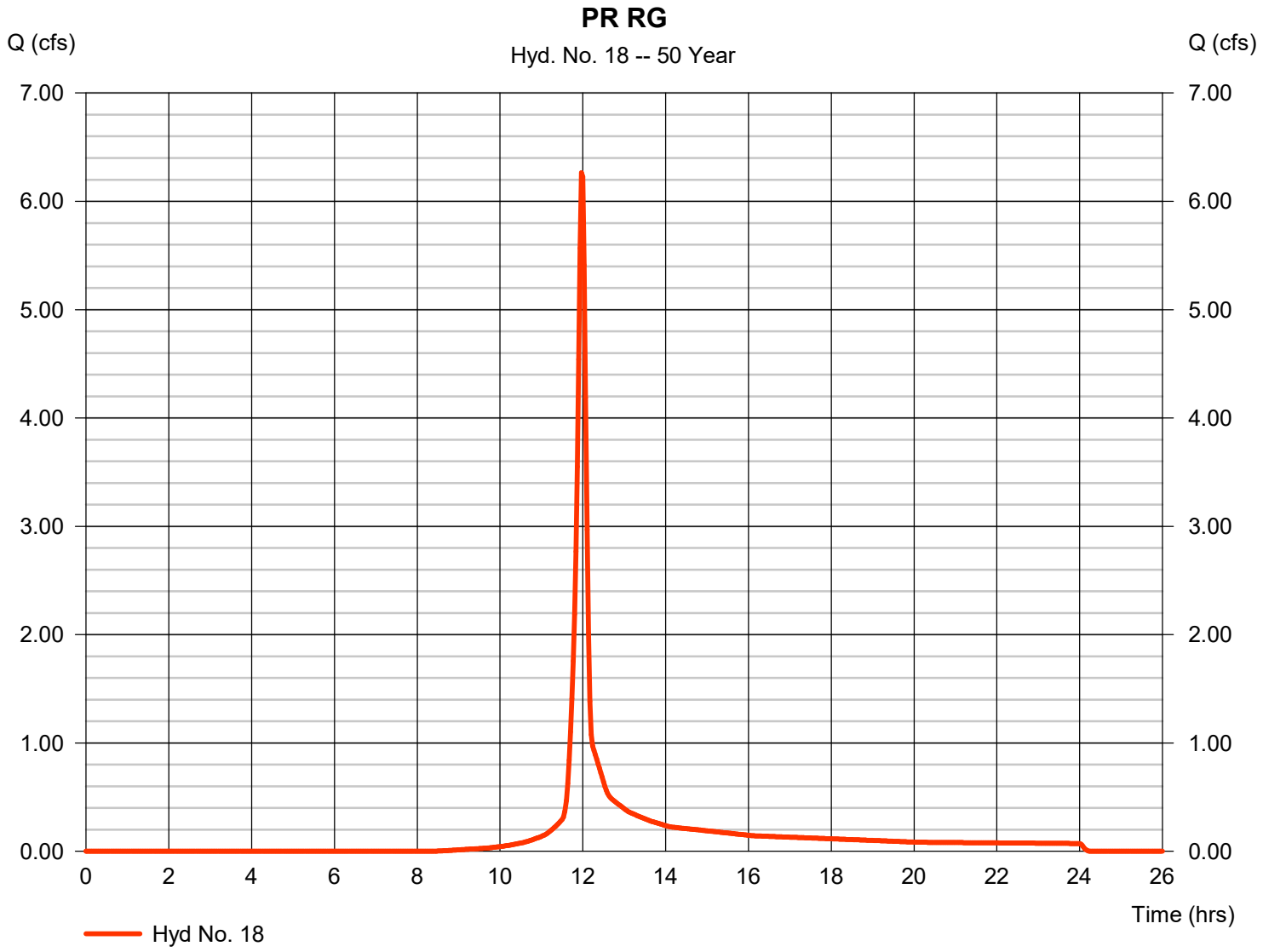
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.265 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	14,332 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



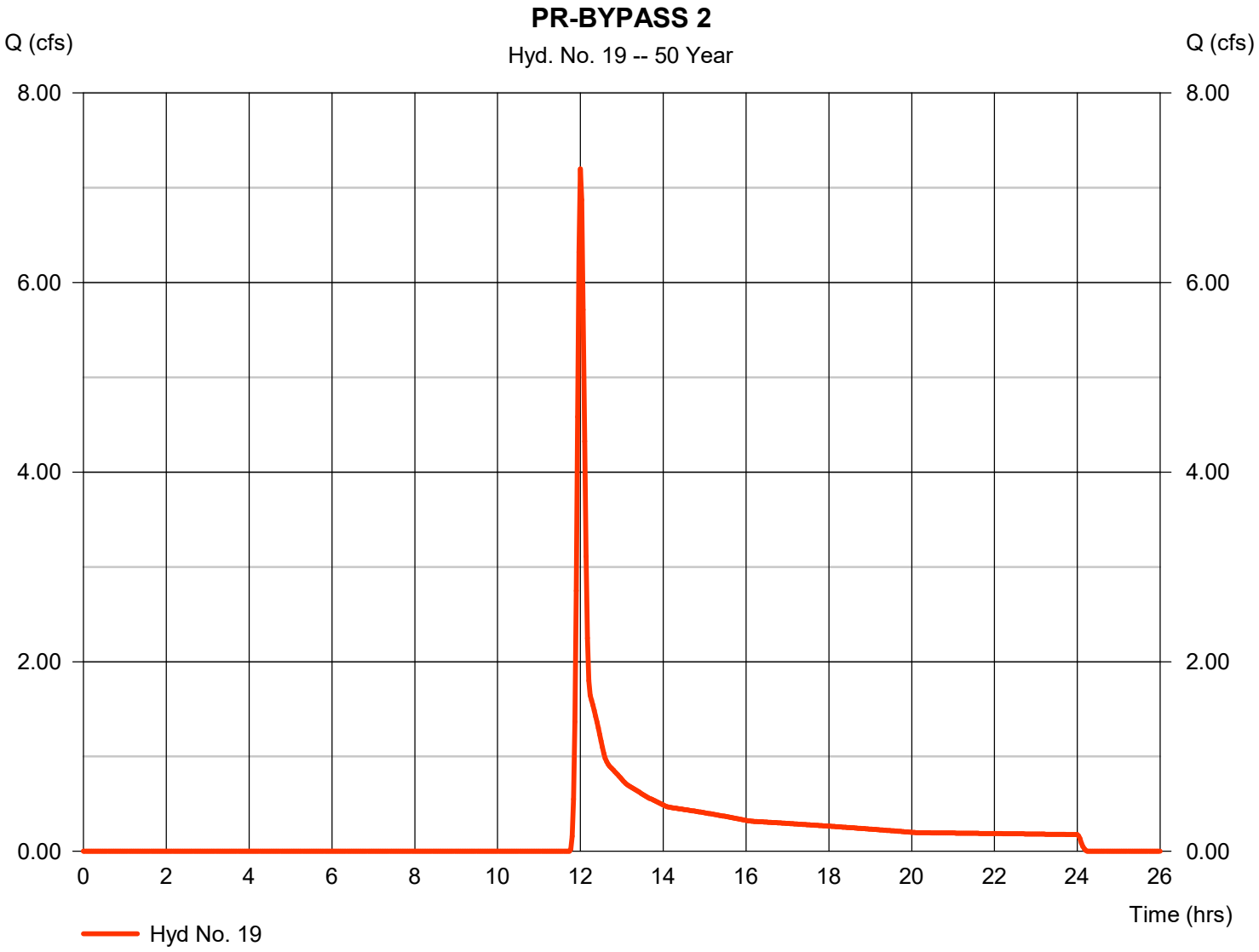
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.200 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	20,363 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



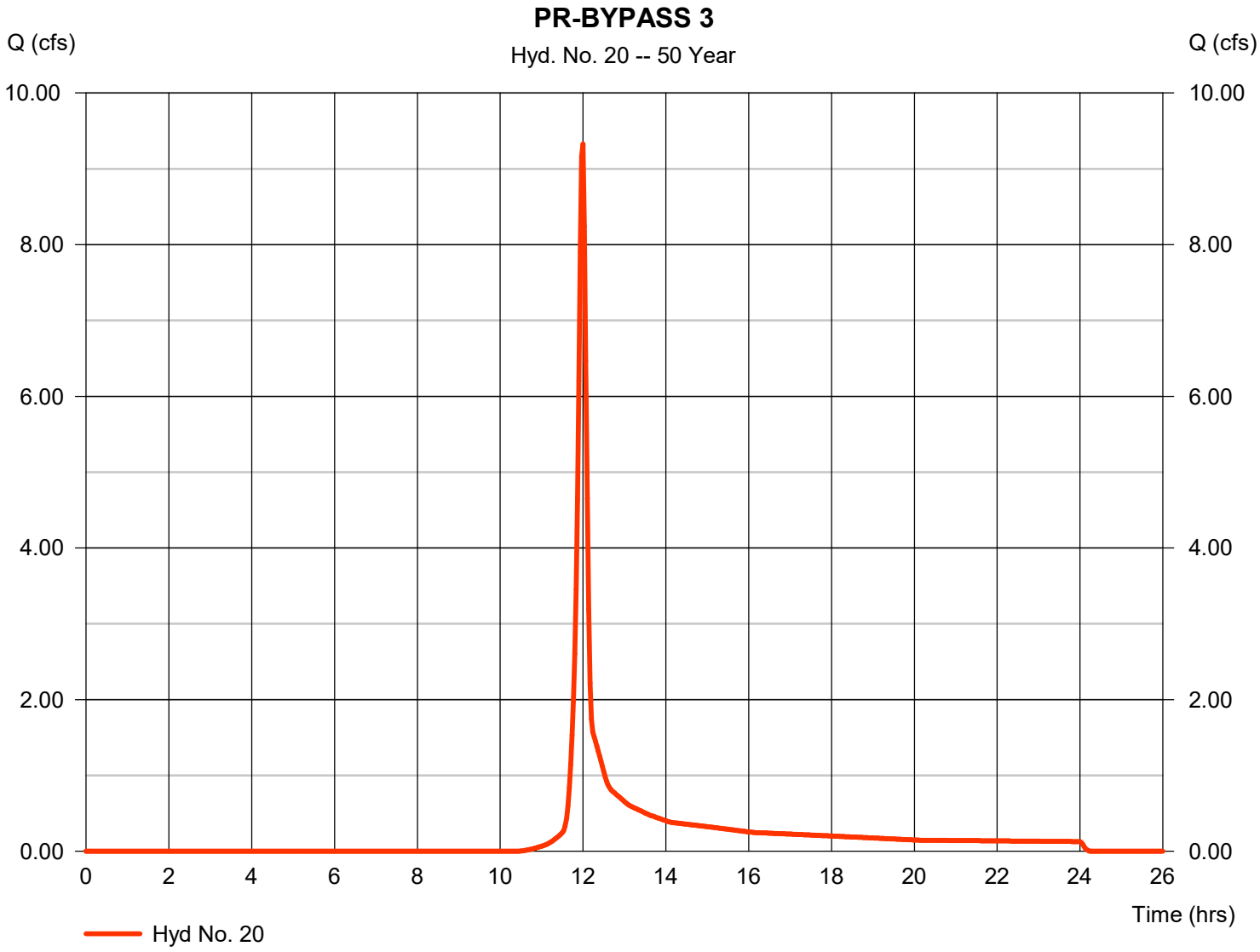
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.325 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	21,428 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

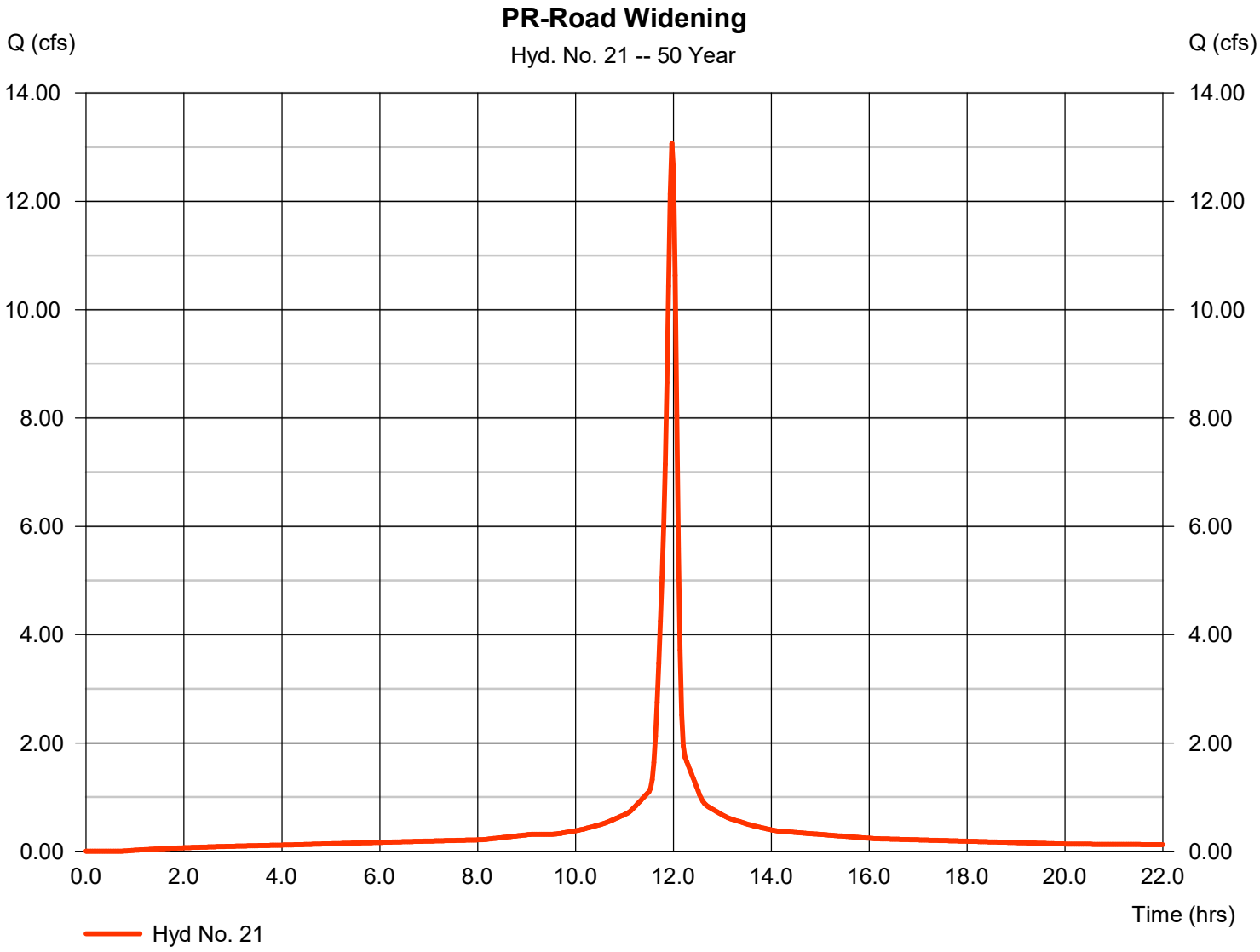


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.07 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	35,117 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

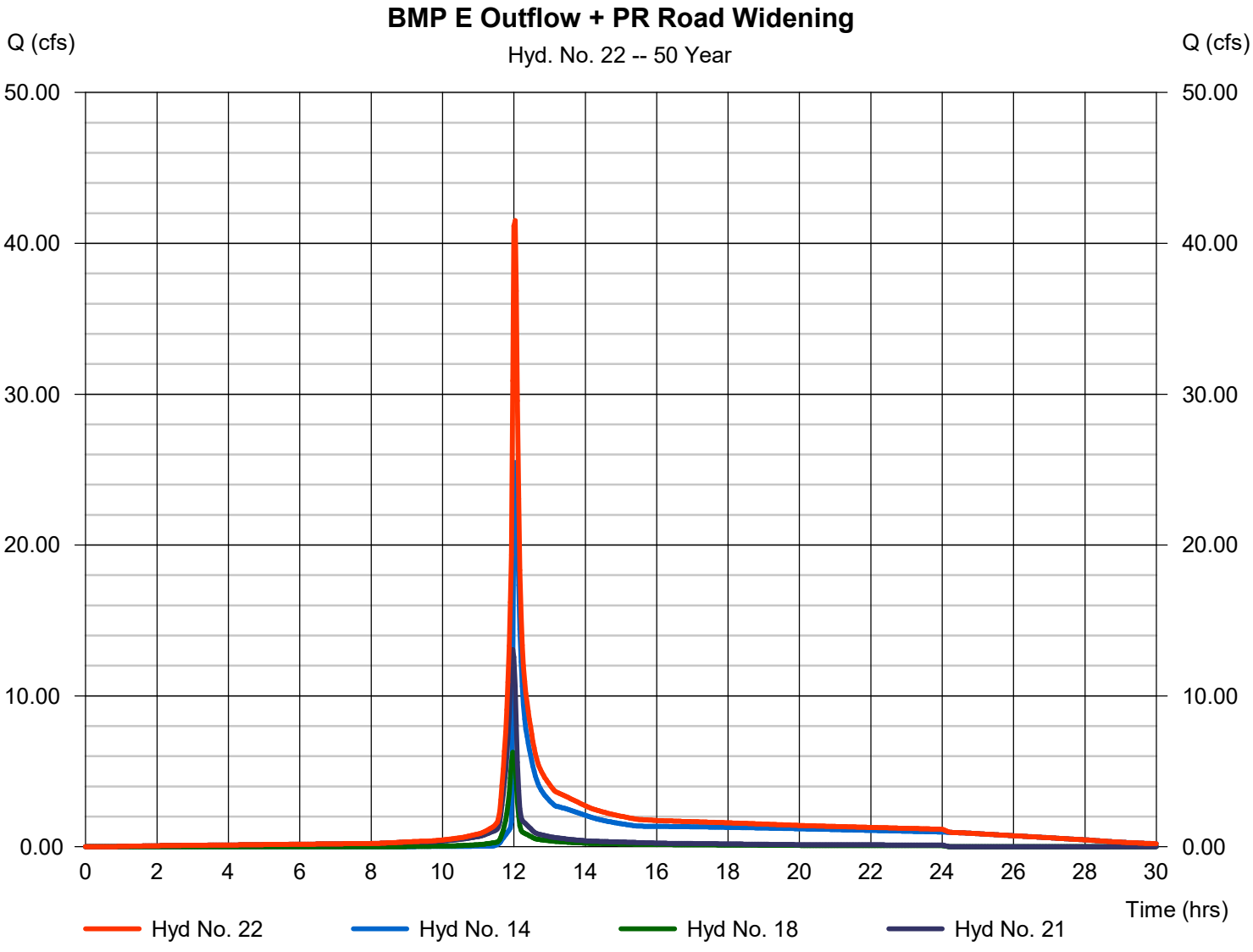


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	= Combine	Peak discharge	= 41.50 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 159,448 cuft
Inflow hyds.	= 14, 18, 21	Contrib. drain. area	= 2.750 ac



Hydrograph Report

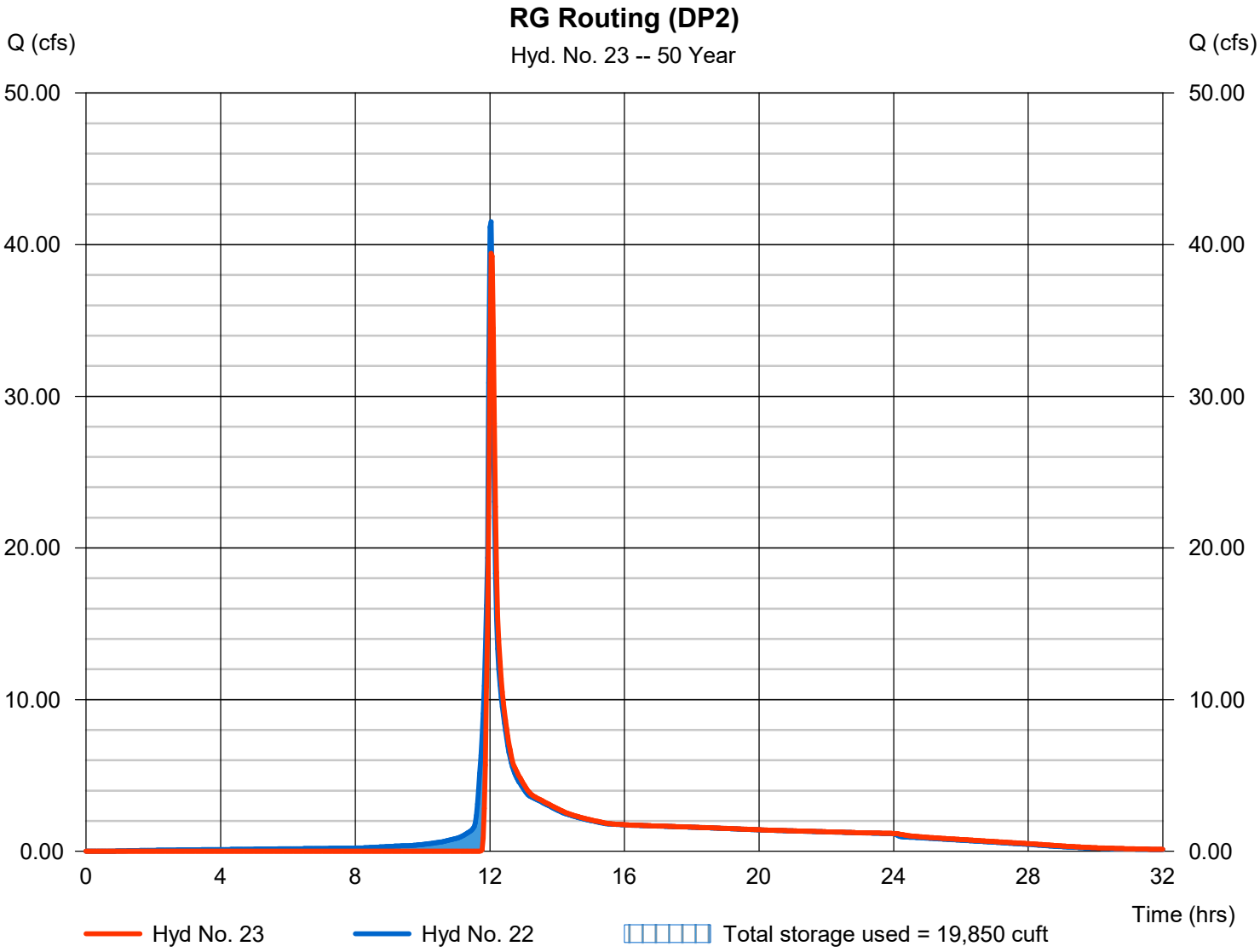
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	39.43 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	146,434 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.52 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	19,850 cuft

Storage Indication method used.

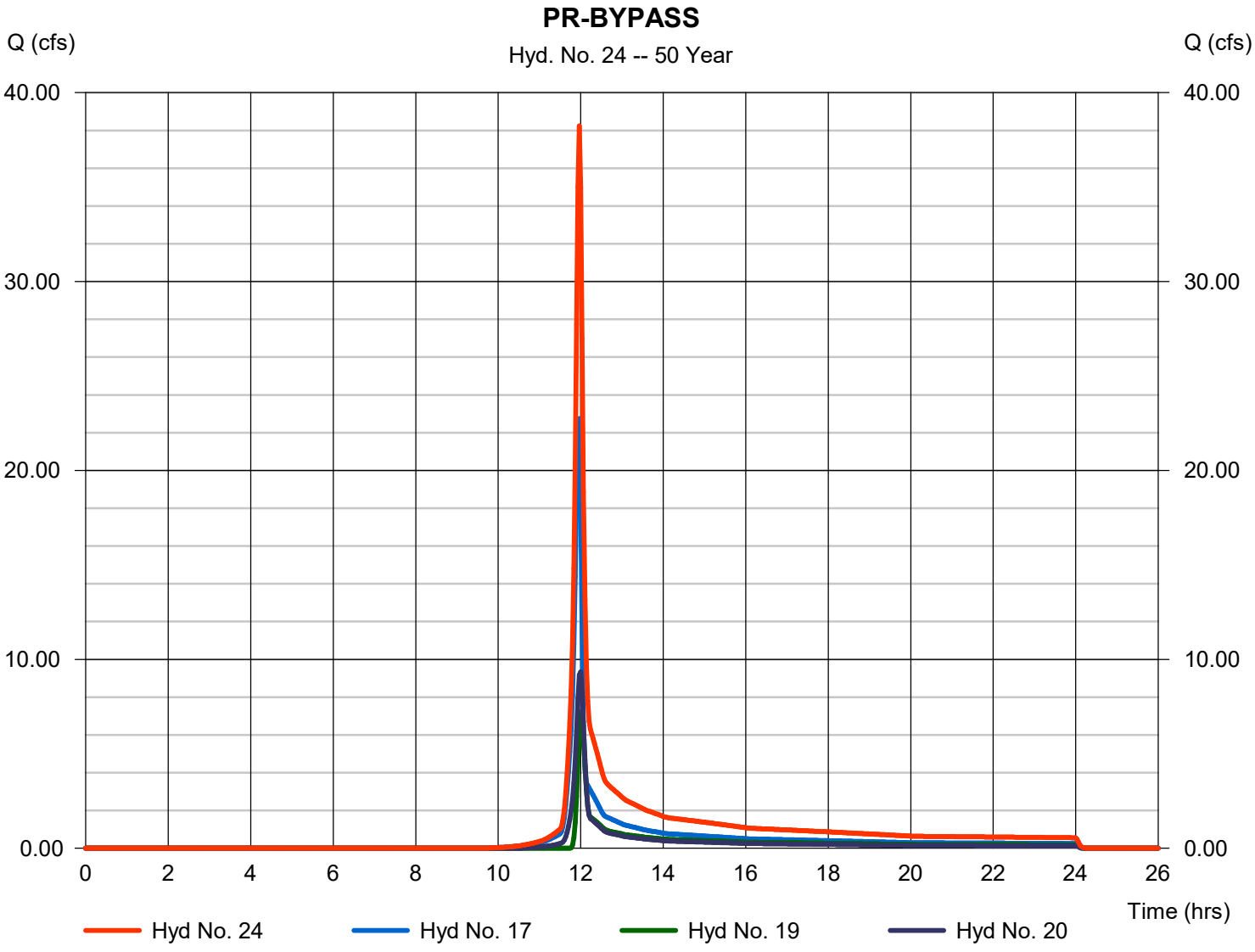


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	38.24 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	87,378 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

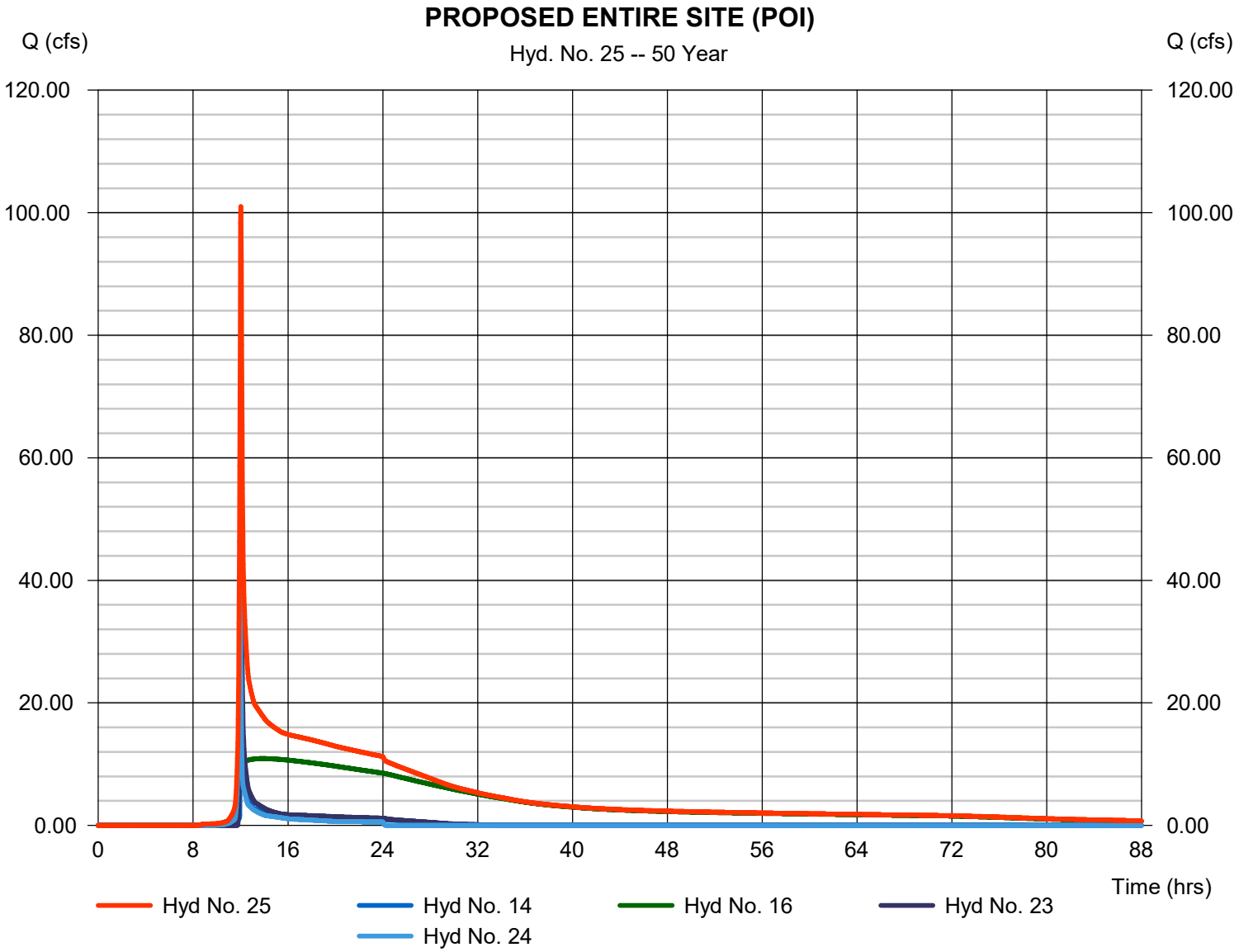


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	100.98 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,407,054 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac



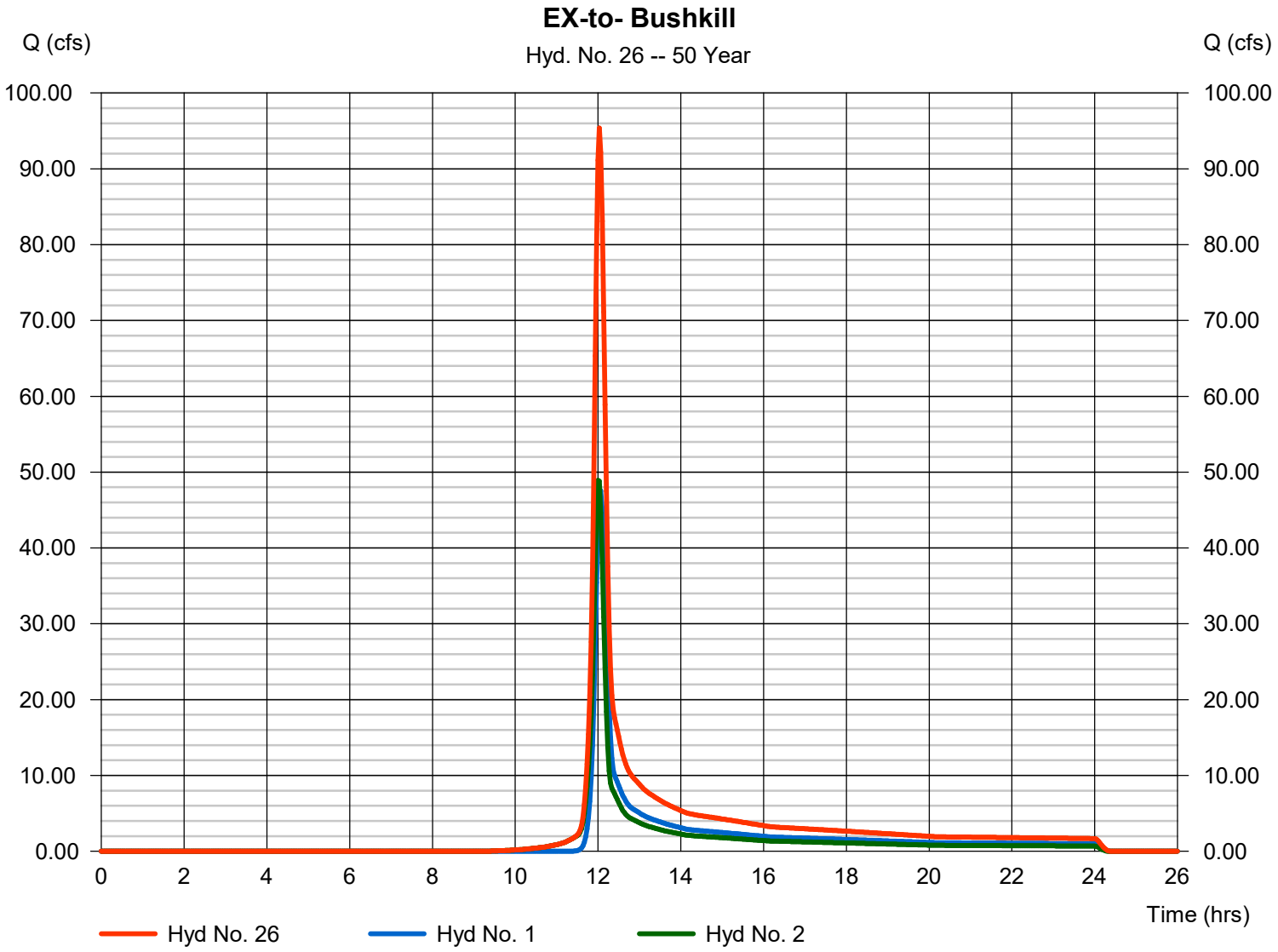
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	= Combine	Peak discharge	= 95.39 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 272,041 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 35.550 ac

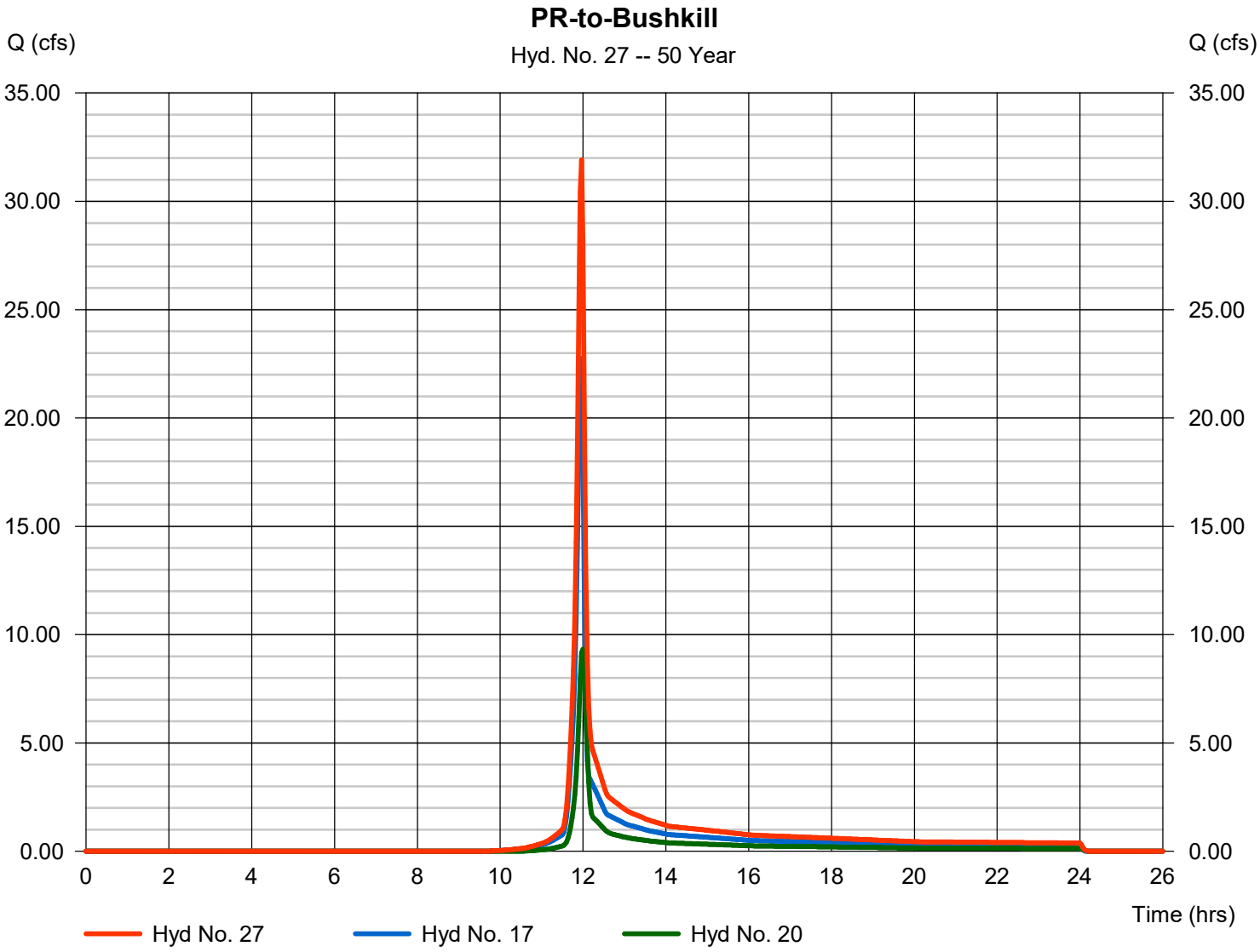


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 31.91 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 67,015 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

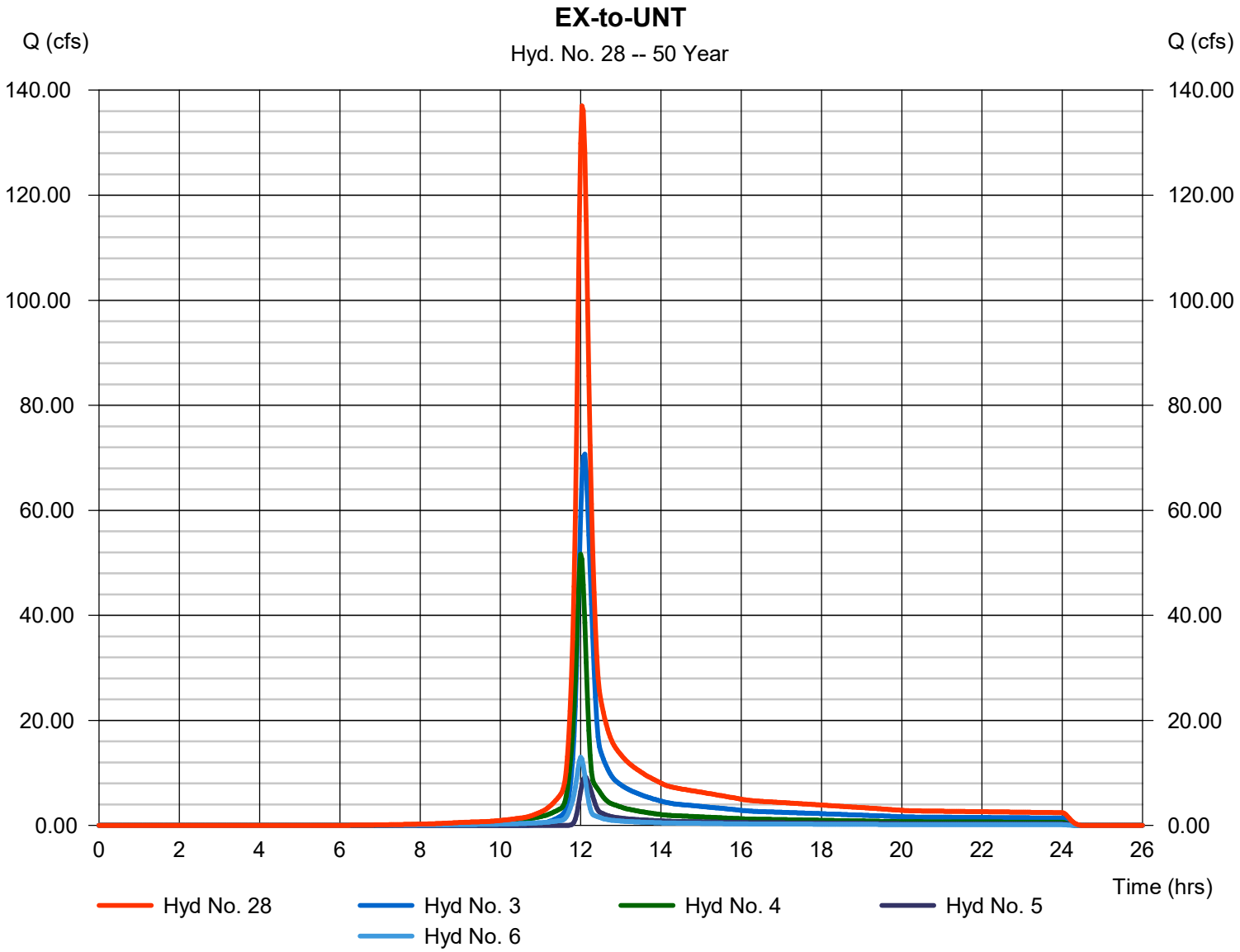


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 137.03 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 435,295 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

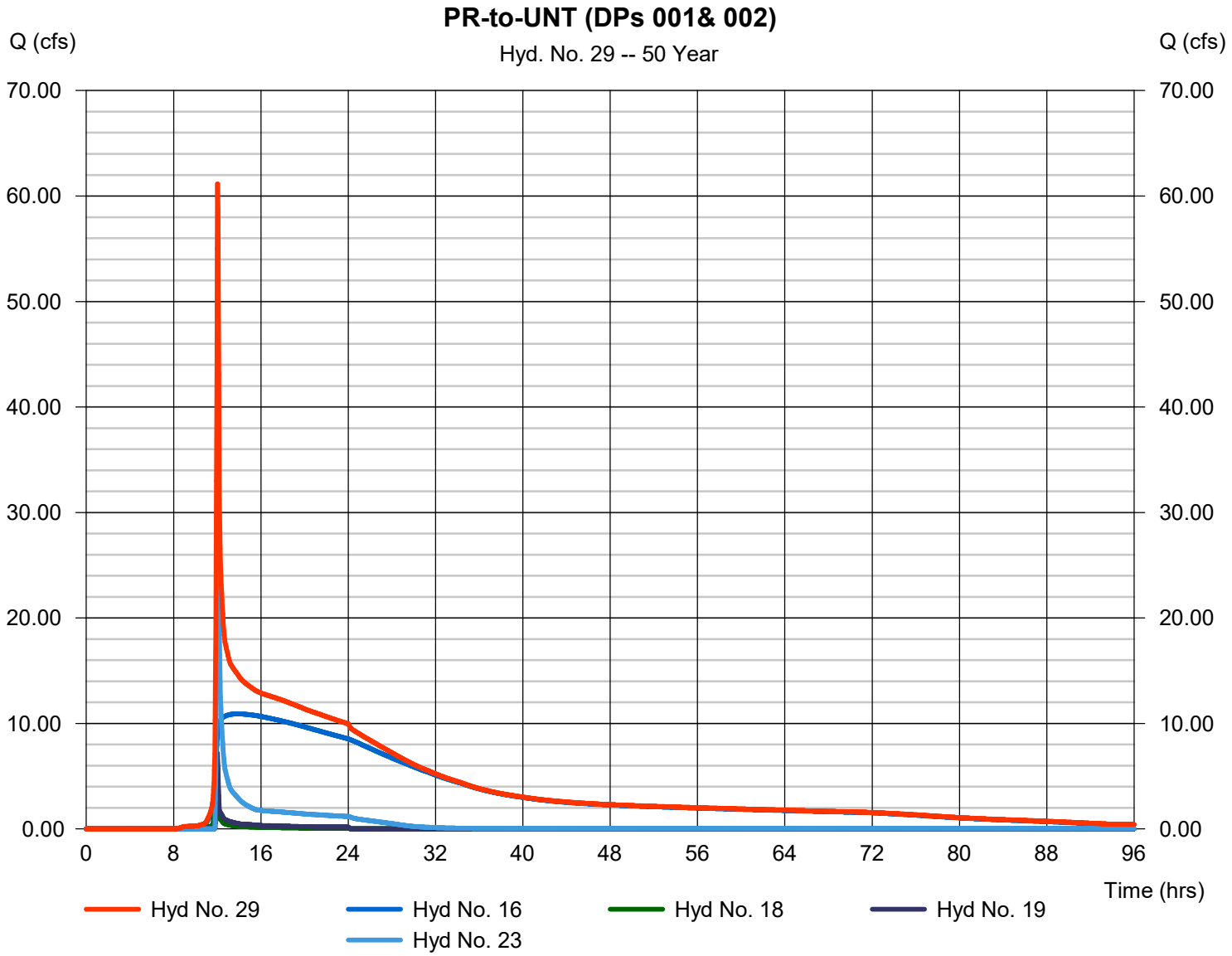


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	=	Combine	Peak discharge	=	61.15 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,245,713 cuft
Inflow hyds.	=	16, 18, 19, 23	Contrib. drain. area	=	6.800 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	65.95	2	724	194,360	------	------	------	EX-DA 1
2	SCS Runoff	62.09	2	720	161,178	------	------	------	EX-DA2
3	SCS Runoff	93.46	2	726	299,808	------	------	------	EX-DA3
4	SCS Runoff	62.50	2	720	163,724	------	------	------	EX-DA4
5	SCS Runoff	14.14	2	726	50,700	------	------	------	EX-DA5
6	SCS Runoff	15.39	2	720	41,204	------	------	------	EX-DA-Road Widening
7	Combine	303.92	2	722	910,973	1, 2, 3, 4, 5, 6	------	------	EX-TOTAL
8	SCS Runoff	124.84	2	716	293,802	------	------	------	PR-DA-A
9	SCS Runoff	157.76	2	716	371,280	------	------	------	PR-DA-B
10	SCS Runoff	284.74	2	718	704,998	------	------	------	PR-DA-C
11	Reservoir	1.125	2	1210	272,389	8	292.49	236,618	BMP A Routing
12	Reservoir	2.243	2	1026	359,735	9	288.98	276,625	BMP B Routing
13	SCS Runoff	66.27	2	716	137,862	------	------	------	PR-DA-E
14	Reservoir	31.89	2	722	133,847	13	260.69	59,058	BMP E Routing
15	Combine	287.19	2	718	1,337,122	10, 11, 12,	------	------	BMP C INFLOW
16	Reservoir	12.11	2	840	1,244,779	15	219.67	499,313	MRC BMP C Routing(DP1)
17	SCS Runoff	28.81	2	718	58,058	------	------	------	PR-BYPASS 1
18	SCS Runoff	7.790	2	718	17,845	------	------	------	PR RG
19	SCS Runoff	11.53	2	720	29,459	------	------	------	PR-BYPASS 2
20	SCS Runoff	12.13	2	720	27,769	------	------	------	PR-BYPASS 3
21	SCS Runoff	15.02	2	718	40,514	------	------	------	PR-Road Widening
22	Combine	53.64	2	720	192,206	14, 18, 21	------	------	BMP E Outflow + PR Road Widening
23	Reservoir	51.29	2	722	179,192	22	233.70	21,180	RG Routing (DP2)
24	Combine	51.46	2	718	115,286	17, 19, 20,	------	------	PR-BYPASS
25	Combine	137.88	2	720	1,673,109	14, 16, 23, 24	------	------	PROPOSED ENTIRE SITE (POI)
26	Combine	126.98	2	722	355,538	1, 2,	------	------	EX-to- Bushkill
27	Combine	40.84	2	718	85,828	17, 20,	------	------	PR-to-Bushkill
28	Combine	176.94	2	722	555,436	3, 4, 5, 6,	------	------	EX-to-UNT
29	Combine	79.07	2	720	1,472,618	16, 18, 19, 23,	------	------	PR-to-UNT (DPs 001& 002)

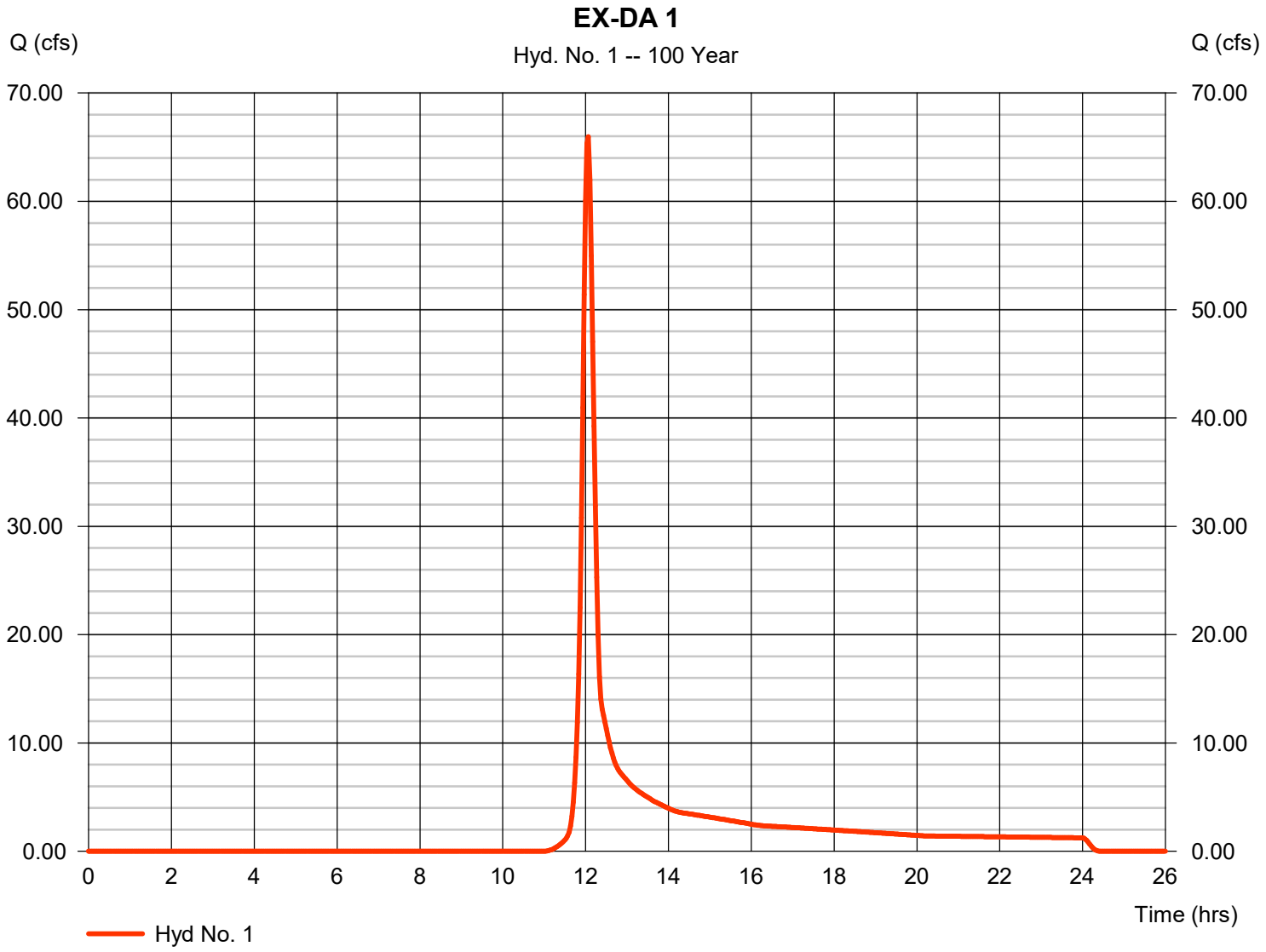
Hydrograph Report

Hyd. No. 1

EX-DA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	65.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	194,360 cuft
Drainage area	=	23.790 ac	Curve number	=	54*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	15.20 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(5.640 x 39) + (0.690 x 61) + (8.150 x 77) + (5.640 x 30) + (2.770 x 55) + (0.900 x 74)] / 23.790



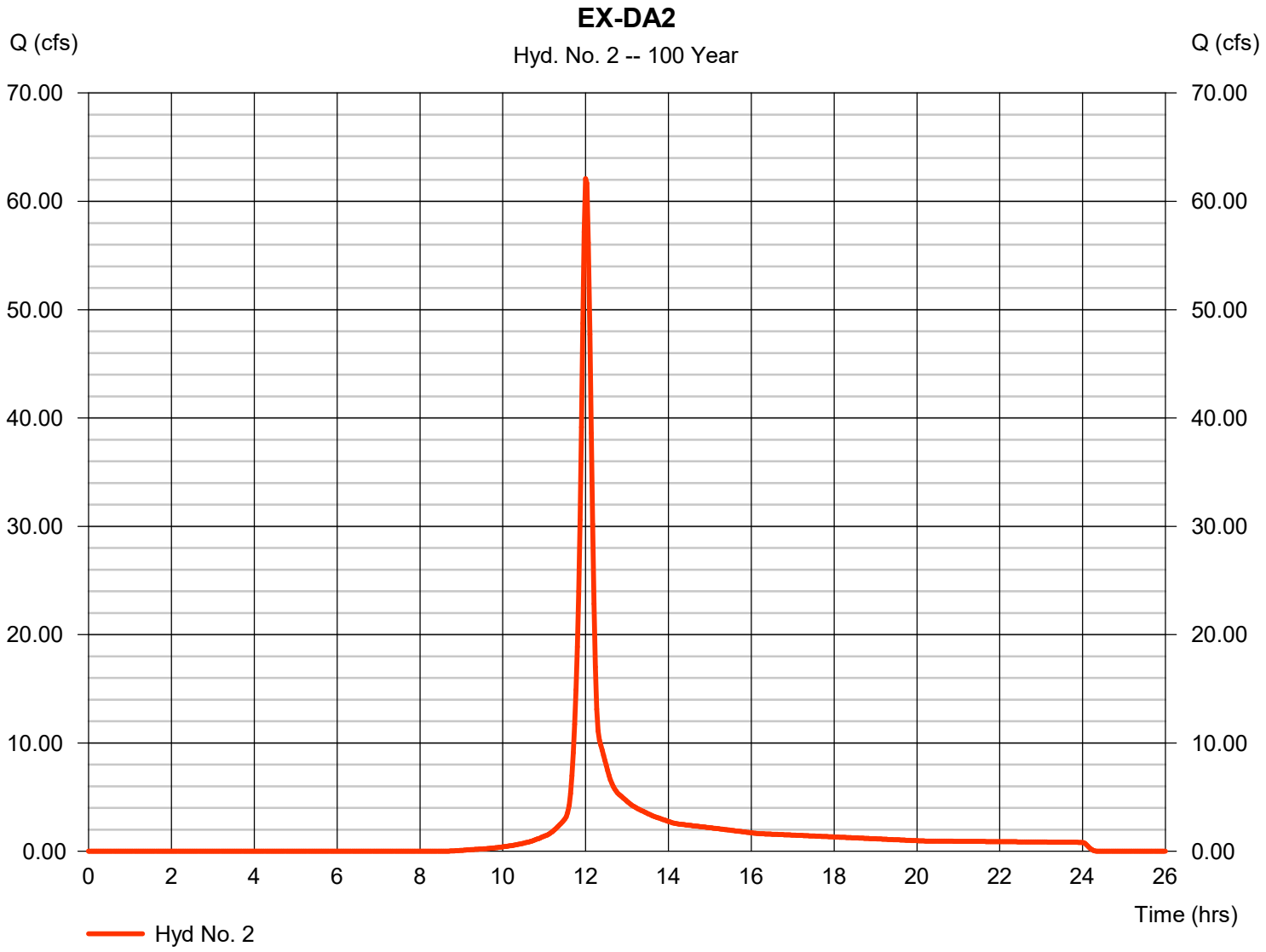
Hydrograph Report

Hyd. No. 2

EX-DA2

Hydrograph type	=	SCS Runoff	Peak discharge	=	62.09 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	161,178 cuft
Drainage area	=	11.760 ac	Curve number	=	67*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.10 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.060 x 39) + (5.190 x 77) + (1.370 x 30) + (1.600 x 74) + (1.540 x 98)] / 11.760



Hydrograph Report

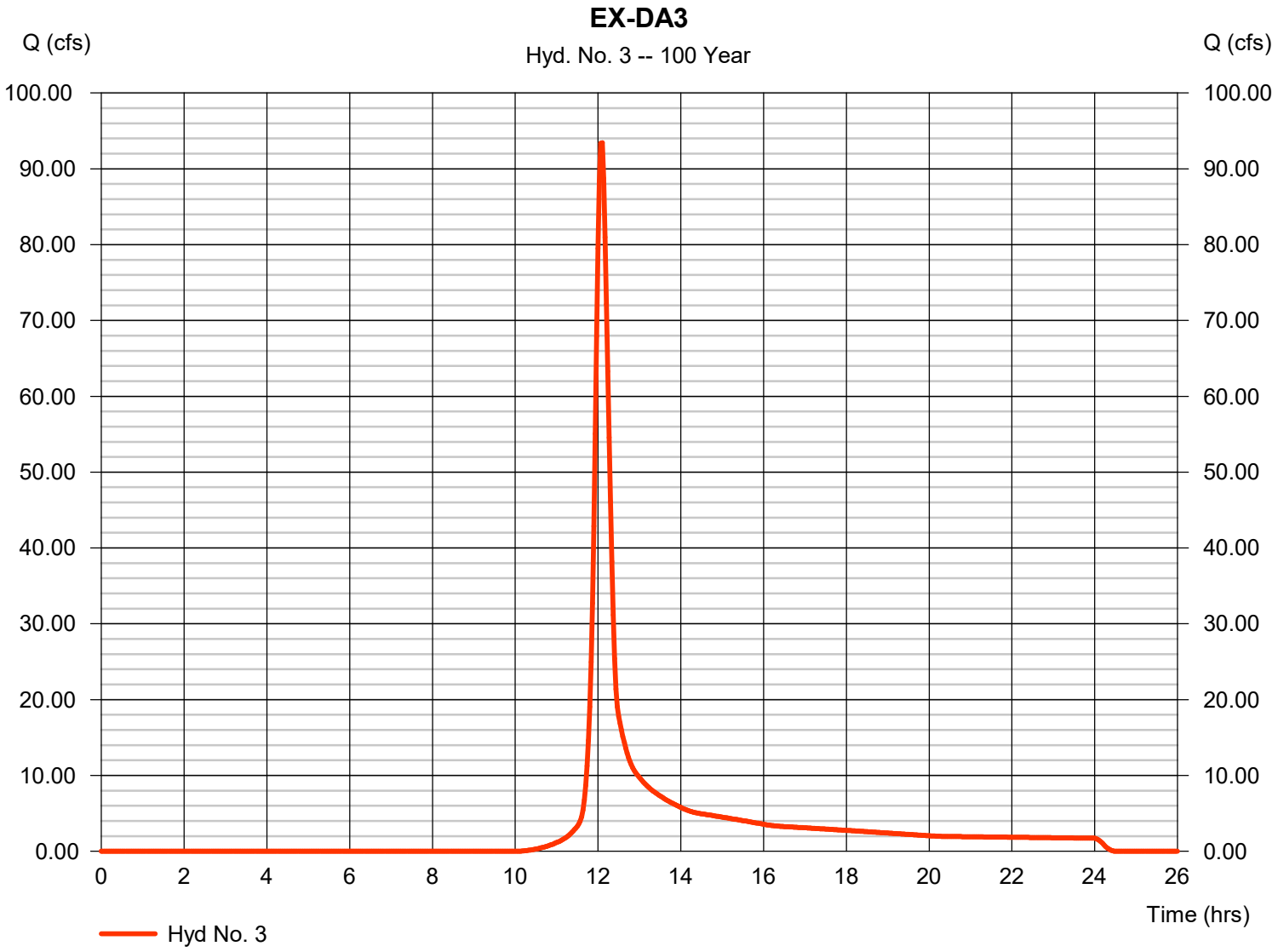
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 3

EX-DA3

Hydrograph type	=	SCS Runoff	Peak discharge	=	93.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	299,808 cuft
Drainage area	=	28.290 ac	Curve number	=	60*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	18.90 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.920 x 39) + (11.890 x 77) + (0.630 x 61) + (7.210 x 30) + (4.530 x 70) + (1.110 x 98)] / 28.290



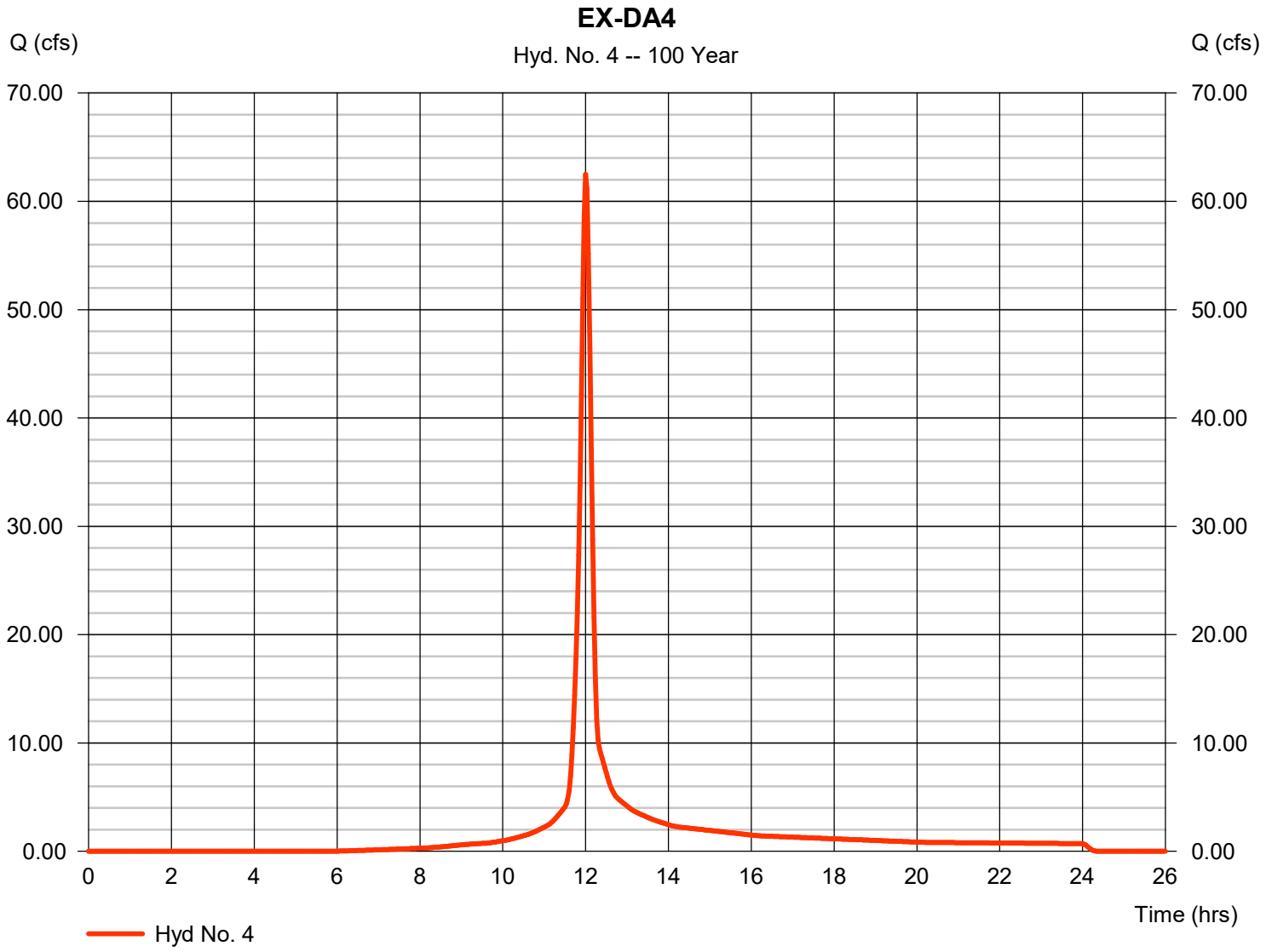
Hydrograph Report

Hyd. No. 4

EX-DA4

Hydrograph type	=	SCS Runoff	Peak discharge	=	62.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	163,724 cuft
Drainage area	=	8.970 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(8.040 x 77) + (0.420 x 74) + (0.510 x 98)] / 8.970



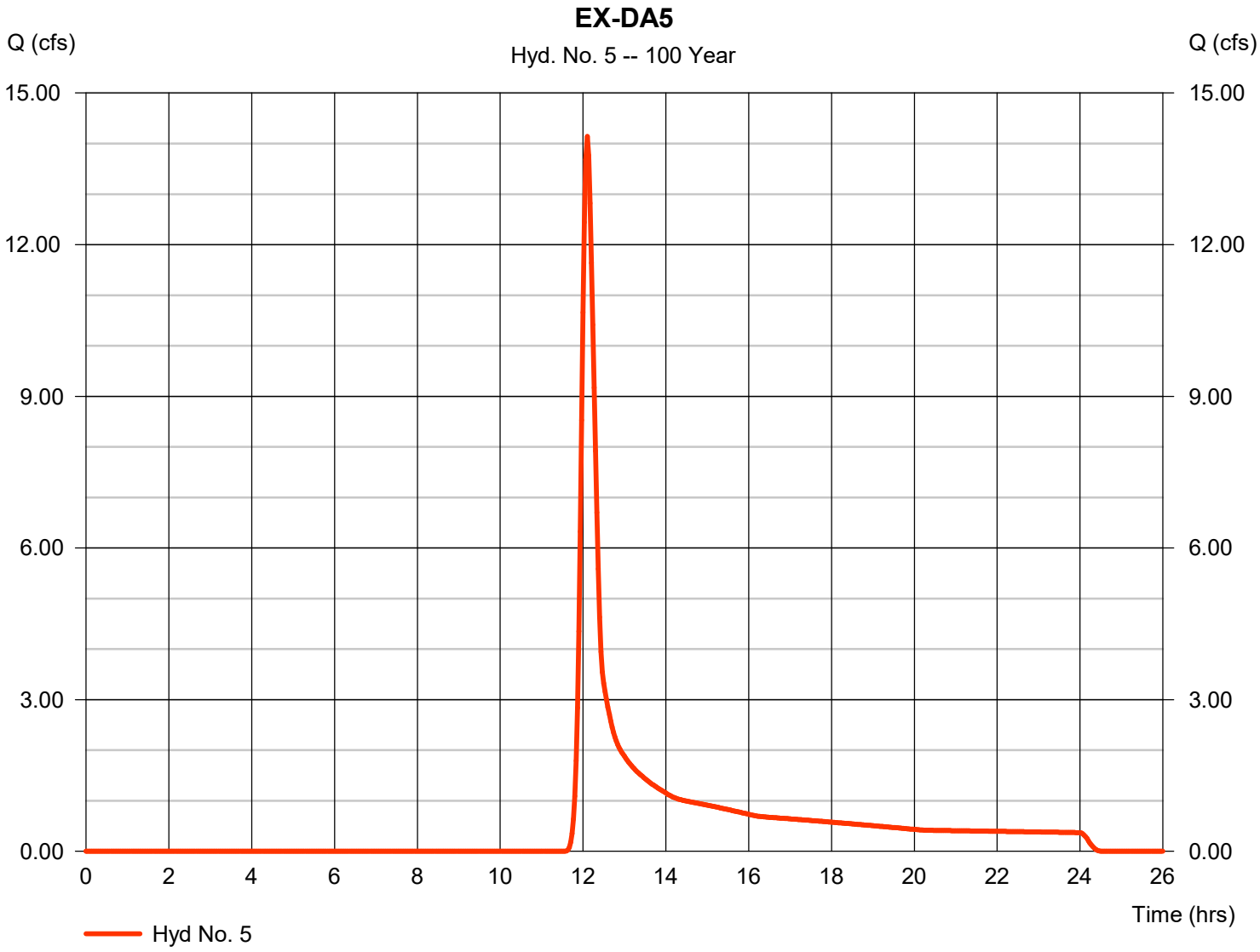
Hydrograph Report

Hyd. No. 5

EX-DA5

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.14 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	50,700 cuft
Drainage area	=	8.090 ac	Curve number	=	48*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 39) + (0.260 x 77) + (0.690 x 61) + (3.640 x 30) + (2.270 x 65) + (0.320 x 98)] / 8.090



Hydrograph Report

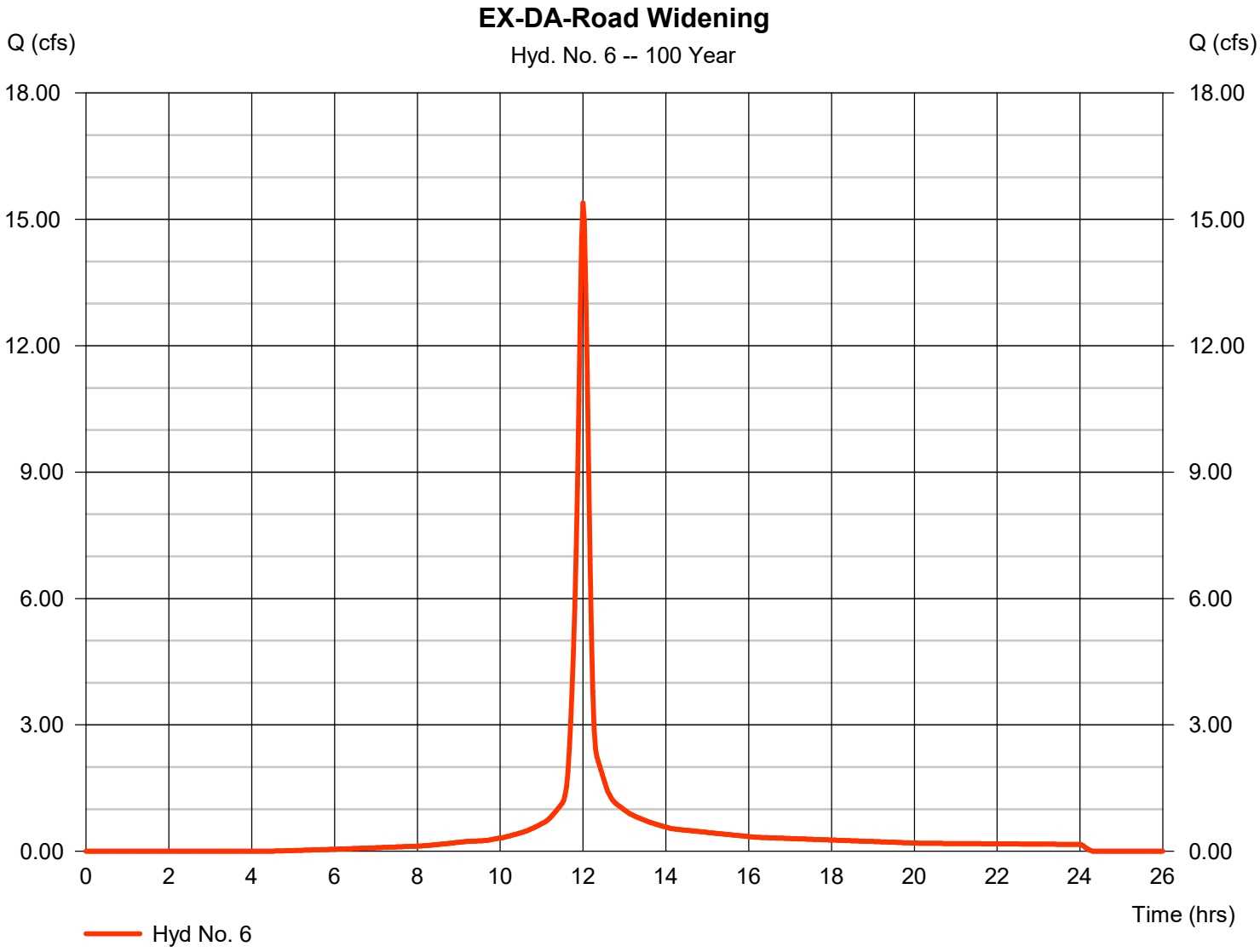
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 6

EX-DA-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.39 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	41,204 cuft
Drainage area	=	1.980 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.60 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 77) + (1.000 x 74) + (0.780 x 98)] / 1.980

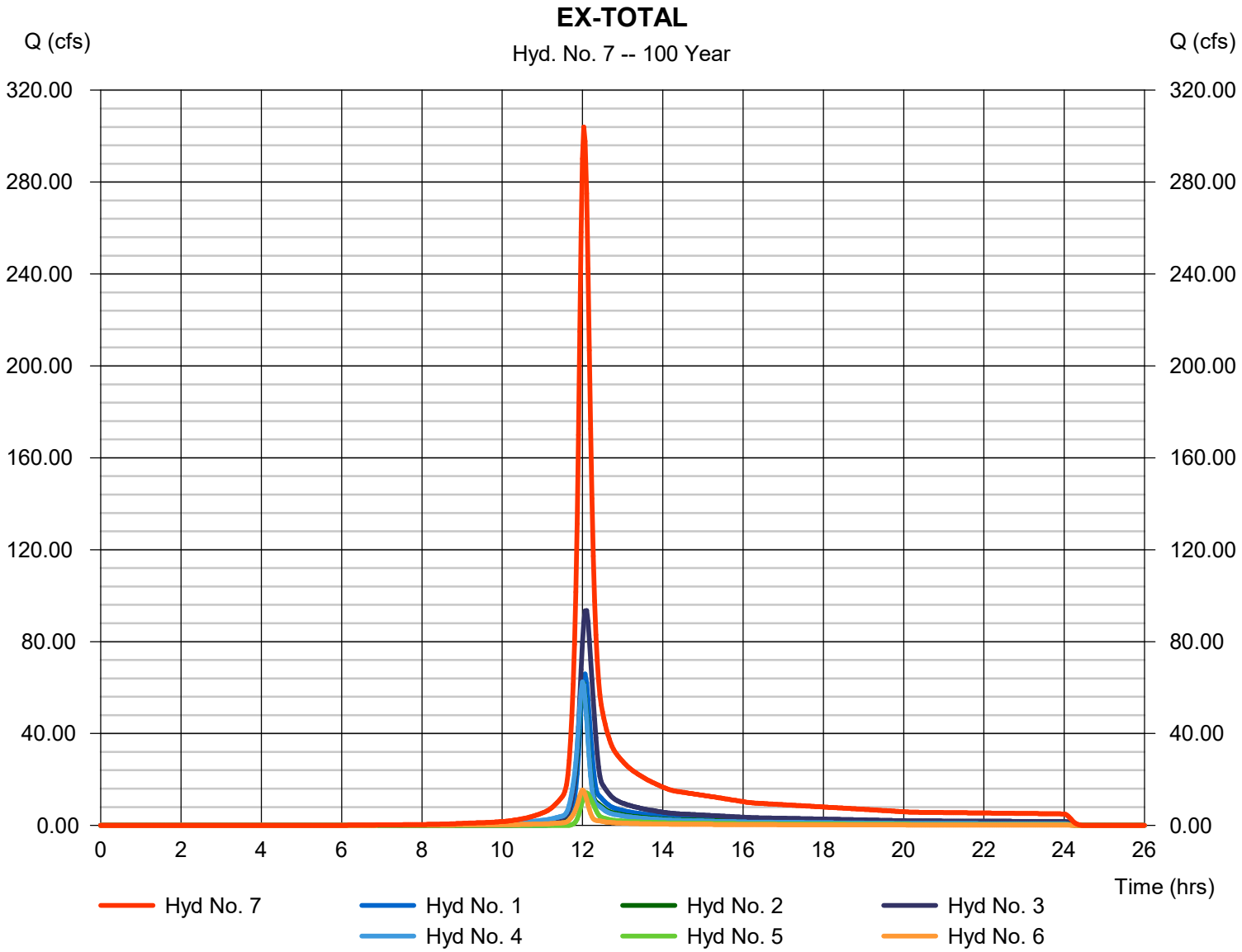


Hydrograph Report

Hyd. No. 7

EX-TOTAL

Hydrograph type	=	Combine	Peak discharge	=	303.92 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	910,973 cuft
Inflow hyds.	=	1, 2, 3, 4, 5, 6	Contrib. drain. area	=	82.880 ac



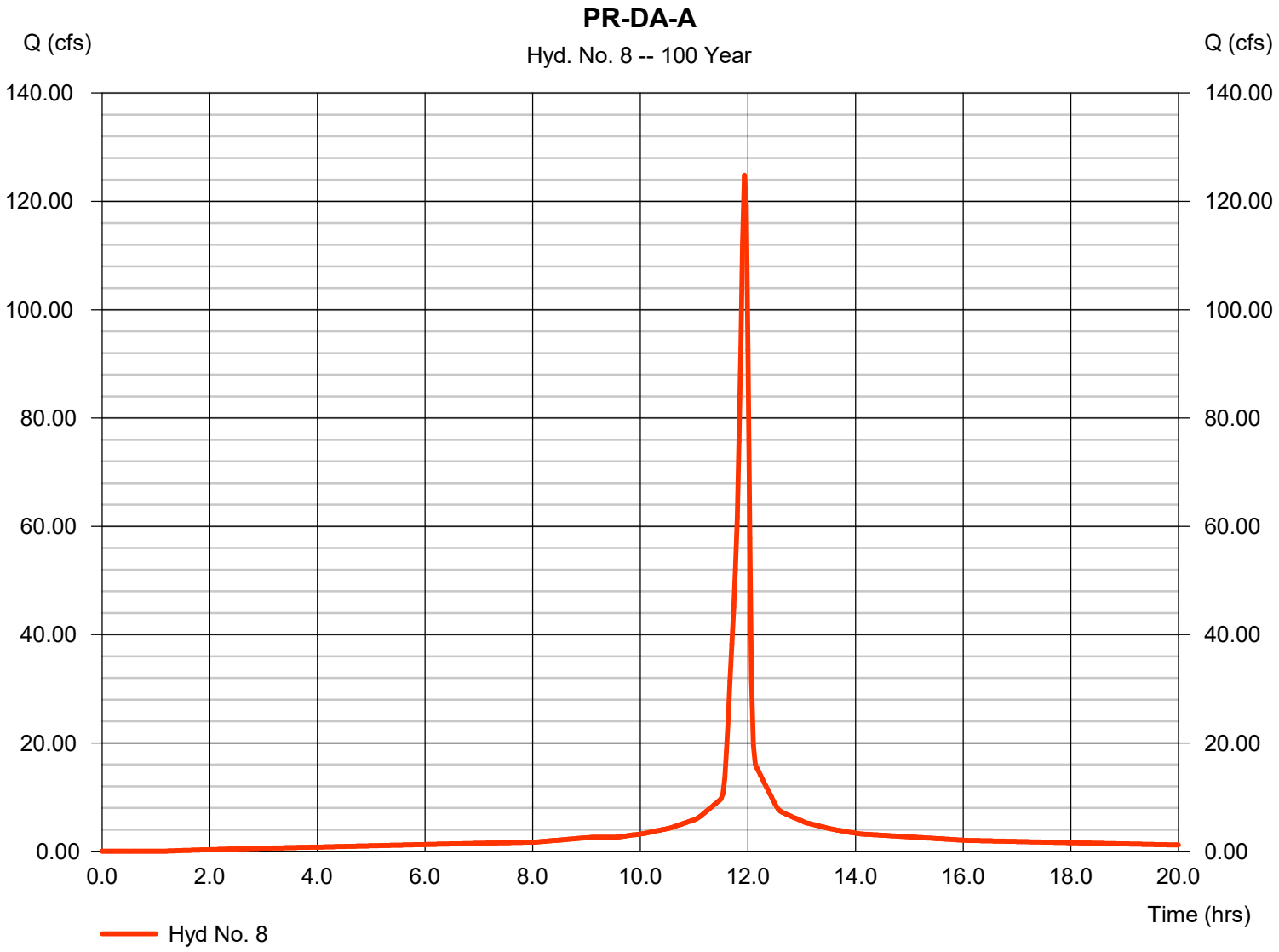
Hydrograph Report

Hyd. No. 8

PR-DA-A

Hydrograph type	=	SCS Runoff	Peak discharge	=	124.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	293,802 cuft
Drainage area	=	12.400 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.200 x 39) + (0.450 x 80) + (11.750 x 98)] / 12.400



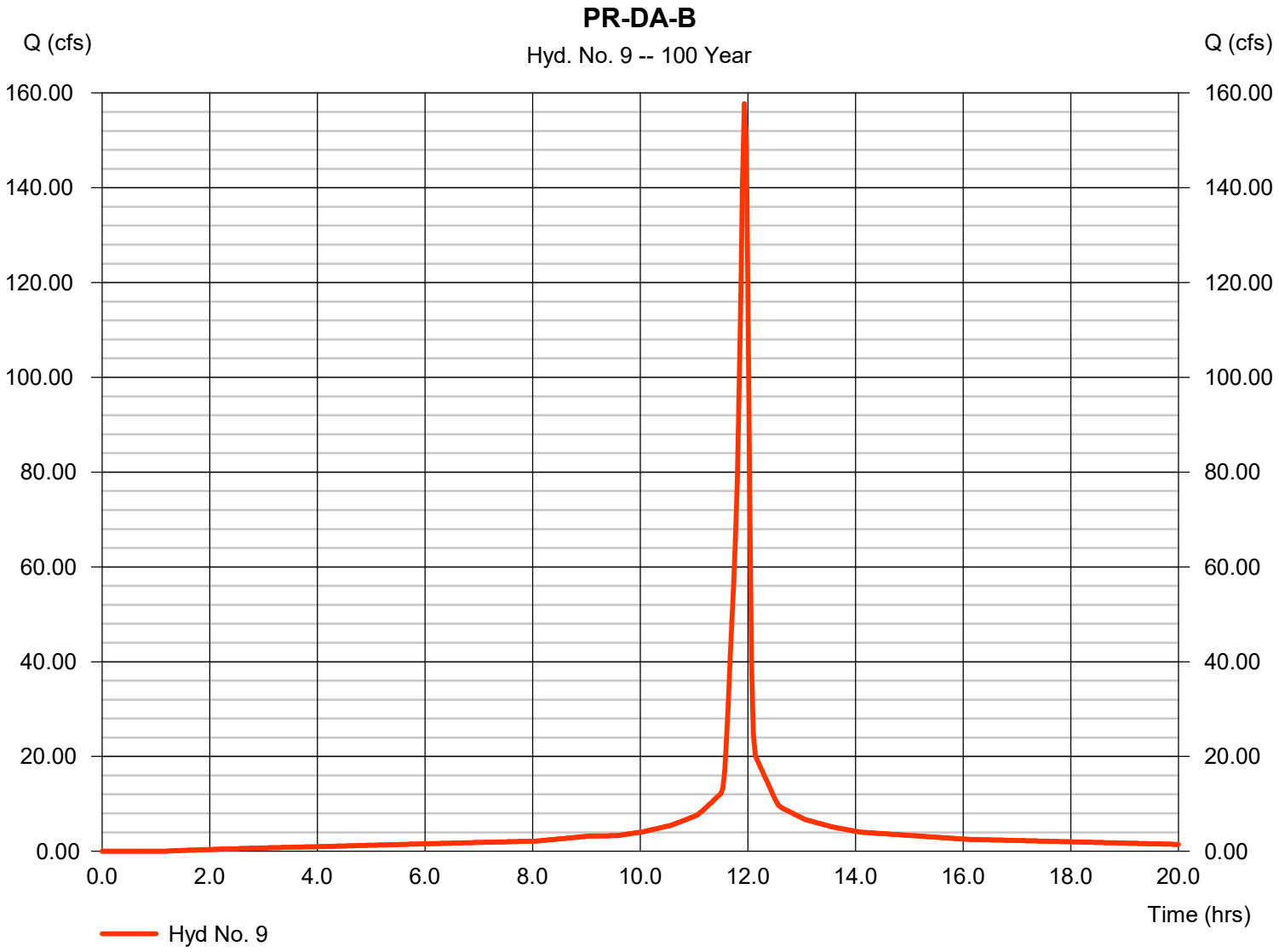
Hydrograph Report

Hyd. No. 9

PR-DA-B

Hydrograph type	=	SCS Runoff	Peak discharge	=	157.76 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	371,280 cuft
Drainage area	=	15.670 ac	Curve number	=	96*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 39) + (1.610 x 80) + (13.960 x 98)] / 15.670



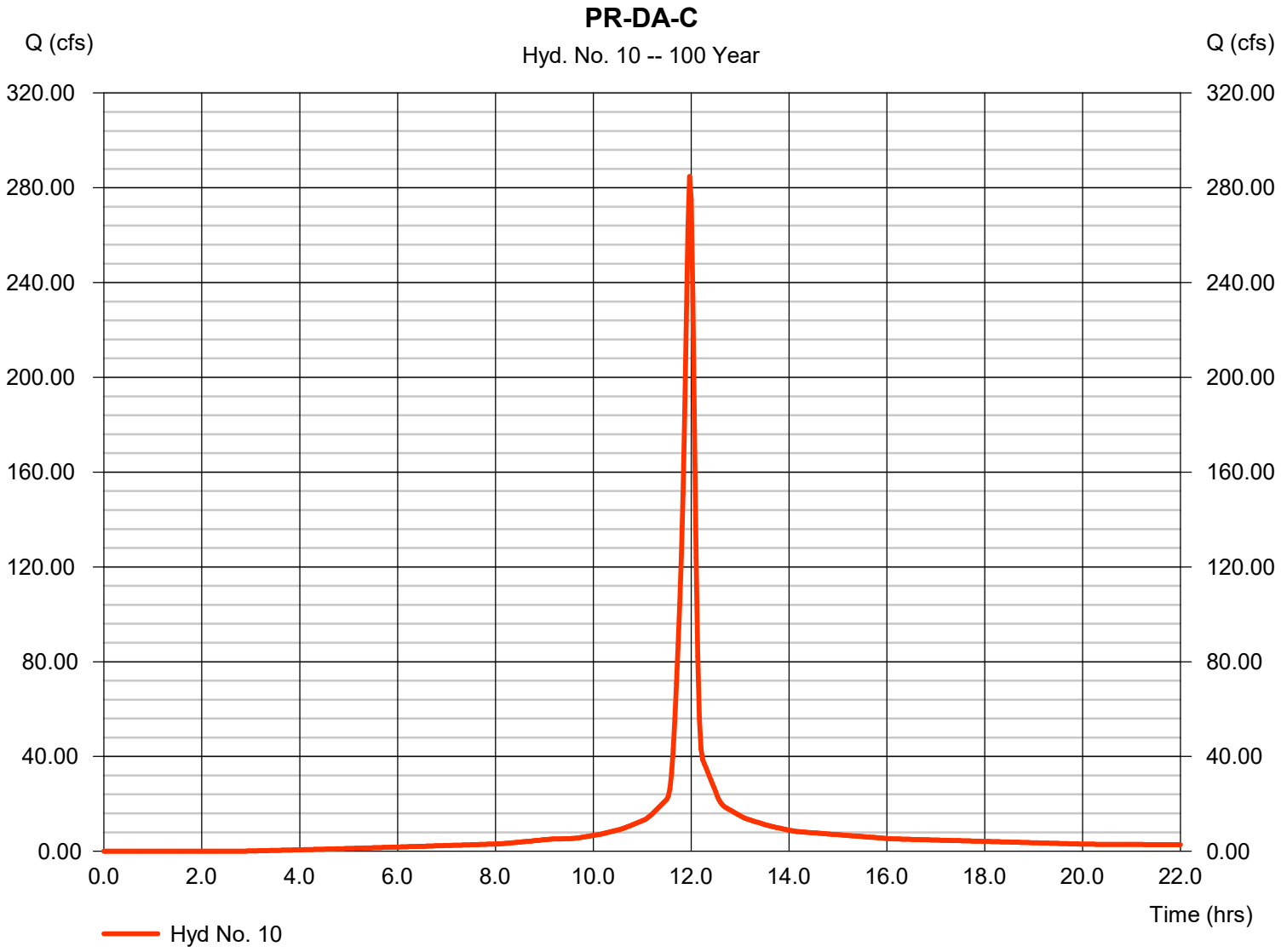
Hydrograph Report

Hyd. No. 10

PR-DA-C

Hydrograph type	=	SCS Runoff	Peak discharge	=	284.74 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	704,998 cuft
Drainage area	=	31.050 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.830 x 39) + (5.270 x 80) + (22.950 x 98)] / 31.050



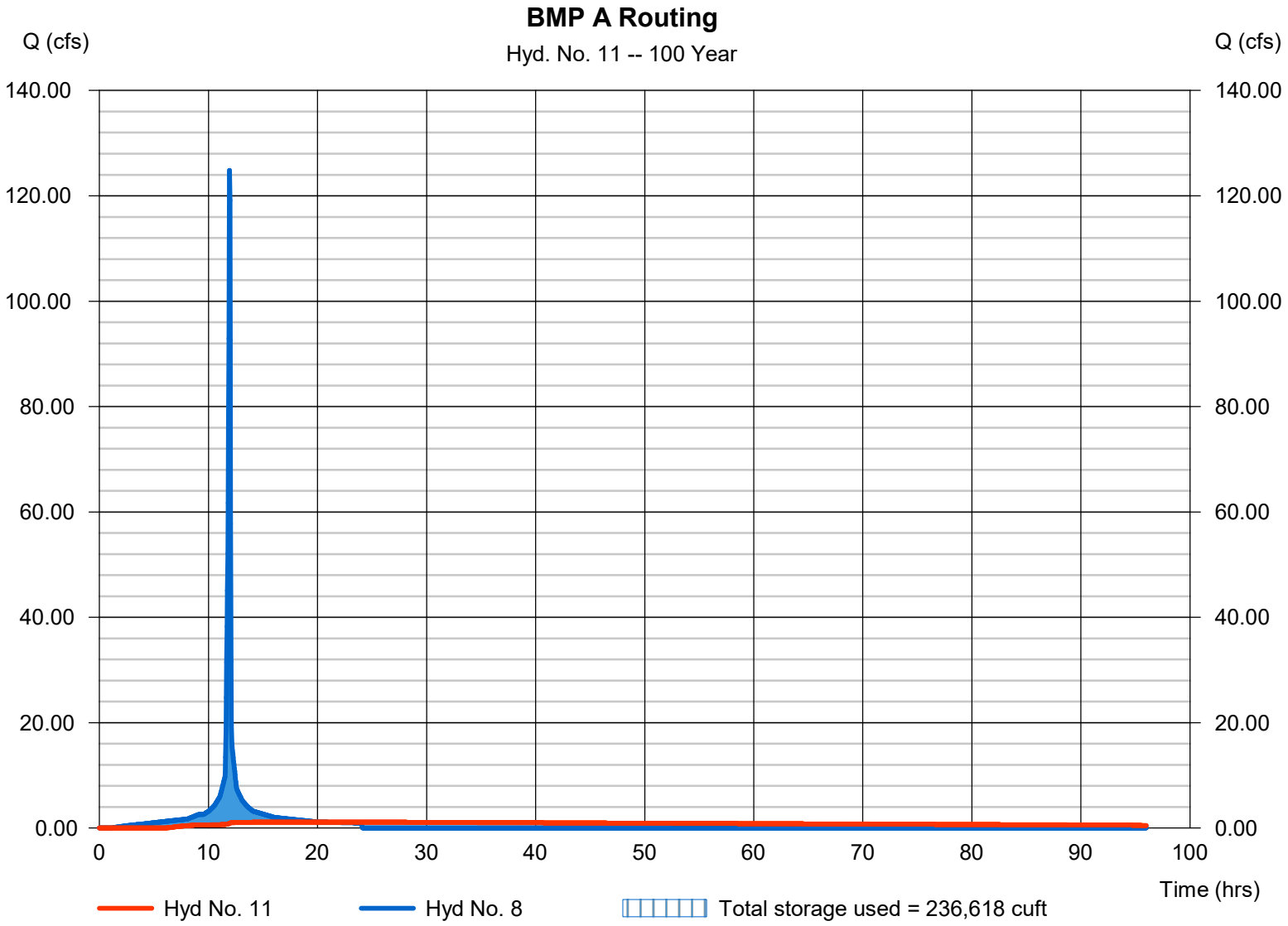
Hydrograph Report

Hyd. No. 11

BMP A Routing

Hydrograph type	=	Reservoir	Peak discharge	=	1.125 cfs
Storm frequency	=	100 yrs	Time to peak	=	20.17 hrs
Time interval	=	2 min	Hyd. volume	=	272,389 cuft
Inflow hyd. No.	=	8 - PR-DA-A	Max. Elevation	=	292.49 ft
Reservoir name	=	BMP A	Max. Storage	=	236,618 cuft

Storage Indication method used.



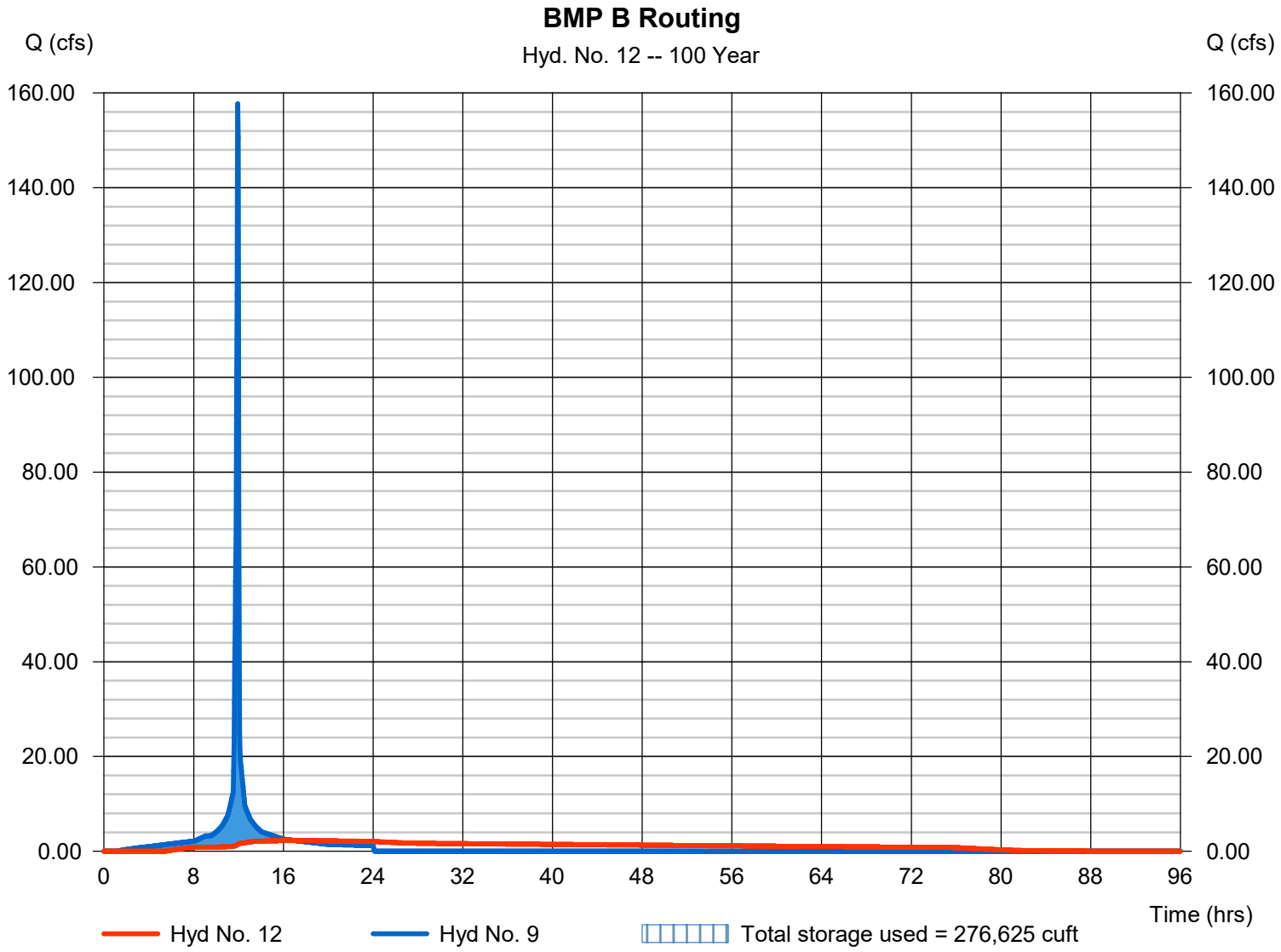
Hydrograph Report

Hyd. No. 12

BMP B Routing

Hydrograph type	=	Reservoir	Peak discharge	=	2.243 cfs
Storm frequency	=	100 yrs	Time to peak	=	17.10 hrs
Time interval	=	2 min	Hyd. volume	=	359,735 cuft
Inflow hyd. No.	=	9 - PR-DA-B	Max. Elevation	=	288.98 ft
Reservoir name	=	BMP B	Max. Storage	=	276,625 cuft

Storage Indication method used.



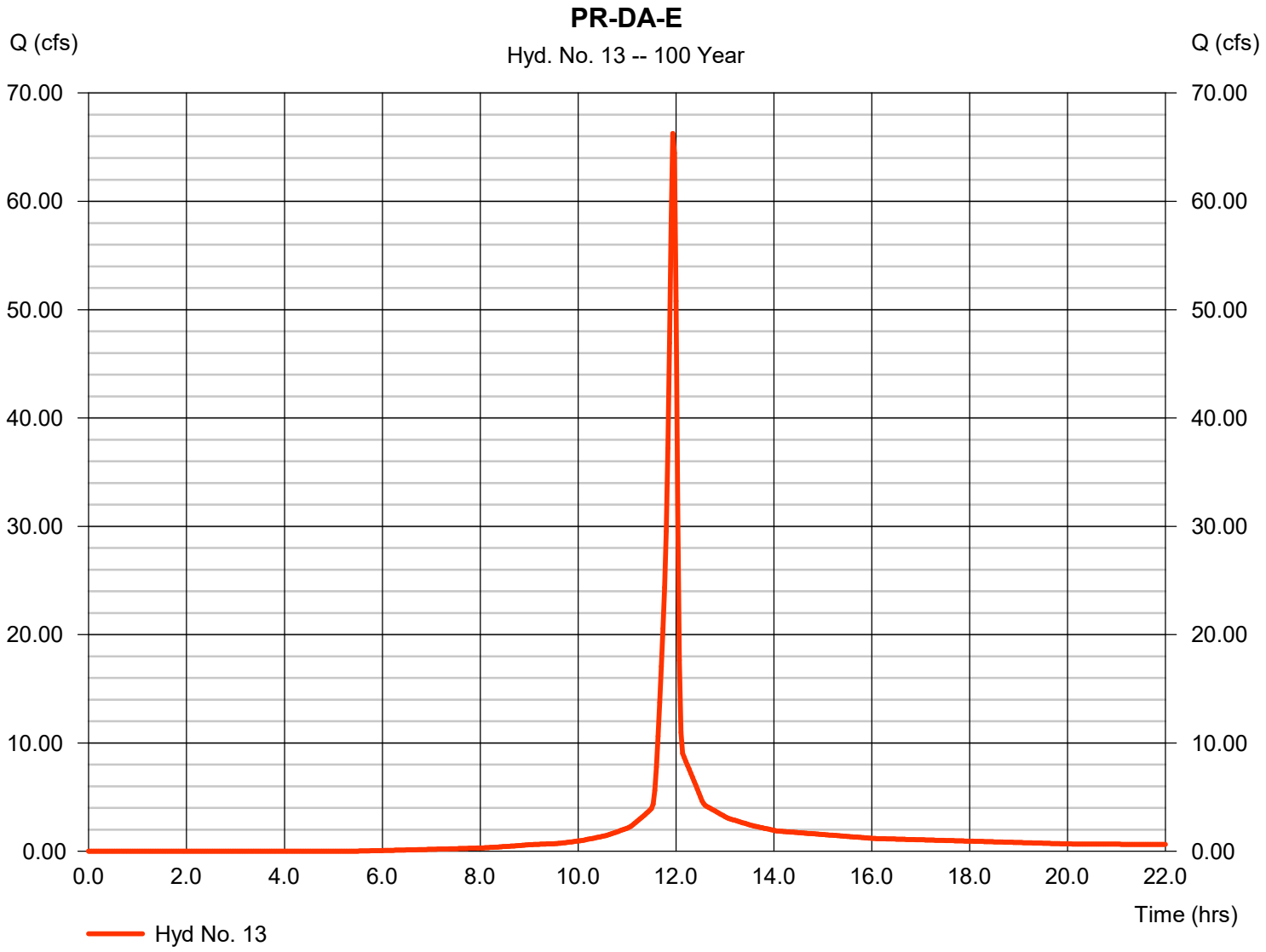
Hydrograph Report

Hyd. No. 13

PR-DA-E

Hydrograph type	=	SCS Runoff	Peak discharge	=	66.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	137,862 cuft
Drainage area	=	7.940 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.220 x 39) + (0.880 x 61) + (2.190 x 80) + (3.650 x 98)] / 7.940



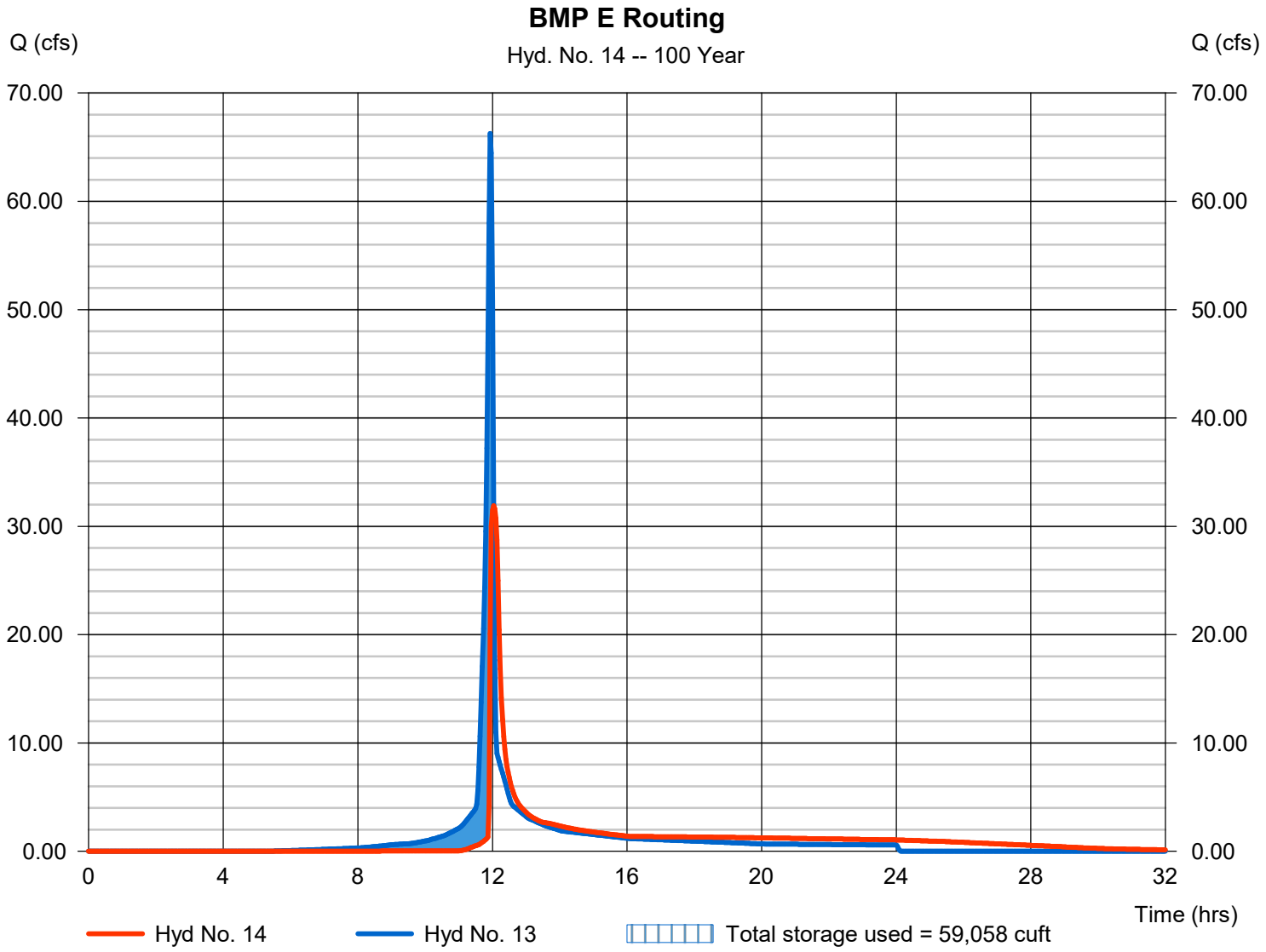
Hydrograph Report

Hyd. No. 14

BMP E Routing

Hydrograph type	=	Reservoir	Peak discharge	=	31.89 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	133,847 cuft
Inflow hyd. No.	=	13 - PR-DA-E	Max. Elevation	=	260.69 ft
Reservoir name	=	BMP E	Max. Storage	=	59,058 cuft

Storage Indication method used.

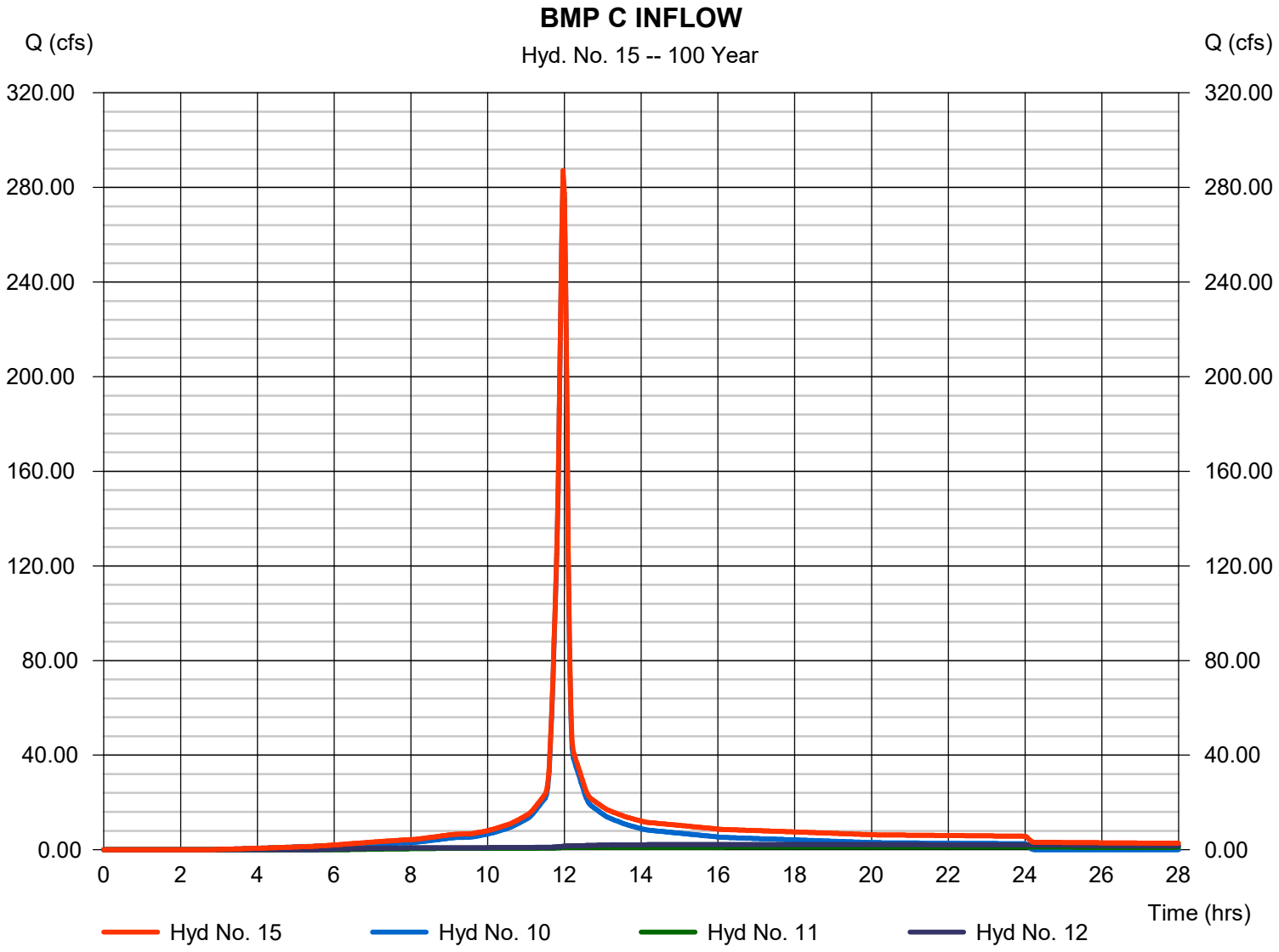


Hydrograph Report

Hyd. No. 15

BMP C INFLOW

Hydrograph type	=	Combine	Peak discharge	=	287.19 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	1,337,122 cuft
Inflow hyds.	=	10, 11, 12	Contrib. drain. area	=	31.050 ac



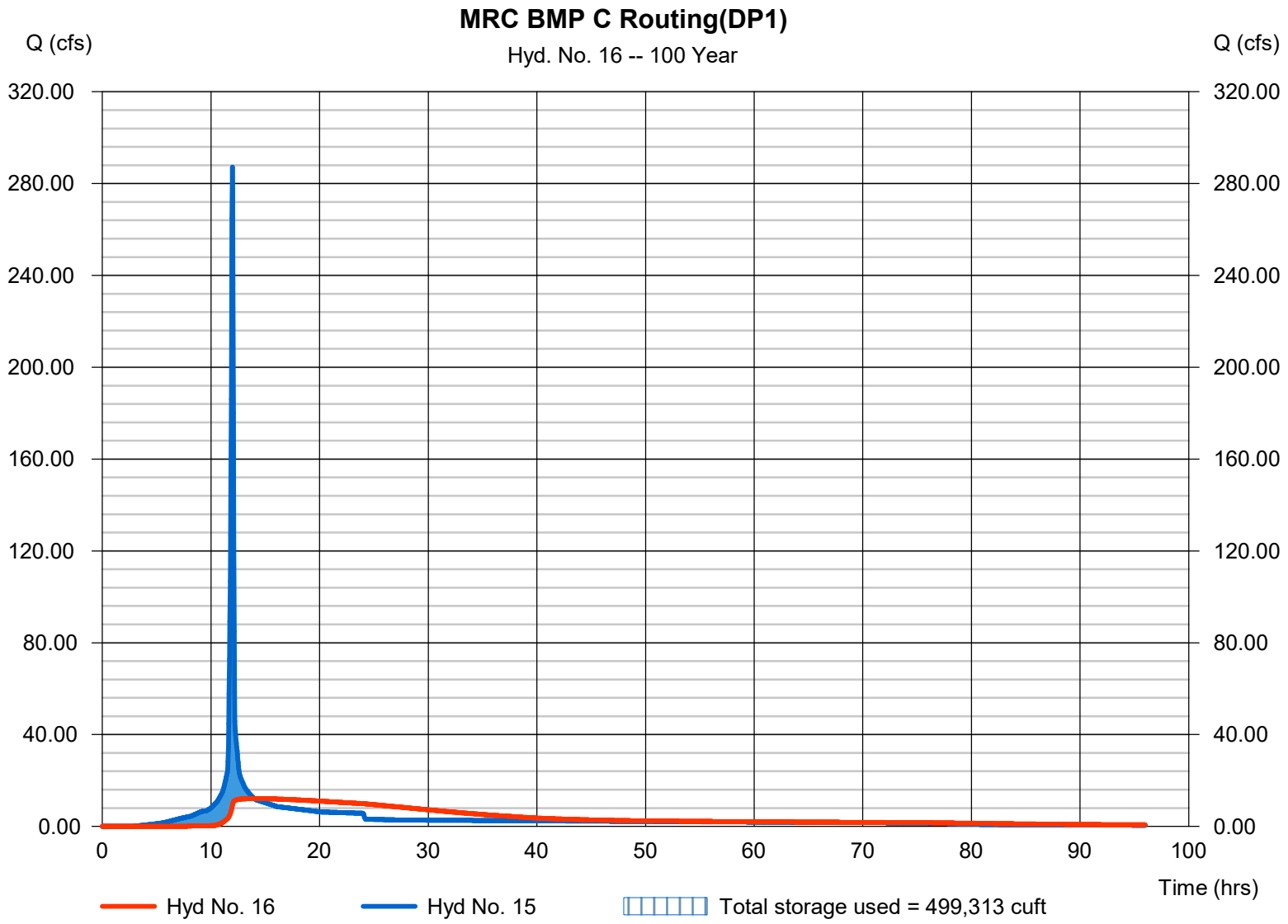
Hydrograph Report

Hyd. No. 16

MRC BMP C Routing(DP1)

Hydrograph type	=	Reservoir	Peak discharge	=	12.11 cfs
Storm frequency	=	100 yrs	Time to peak	=	14.00 hrs
Time interval	=	2 min	Hyd. volume	=	1,244,779 cuft
Inflow hyd. No.	=	15 - BMP C INFLOW	Max. Elevation	=	219.67 ft
Reservoir name	=	BMP C	Max. Storage	=	499,313 cuft

Storage Indication method used.



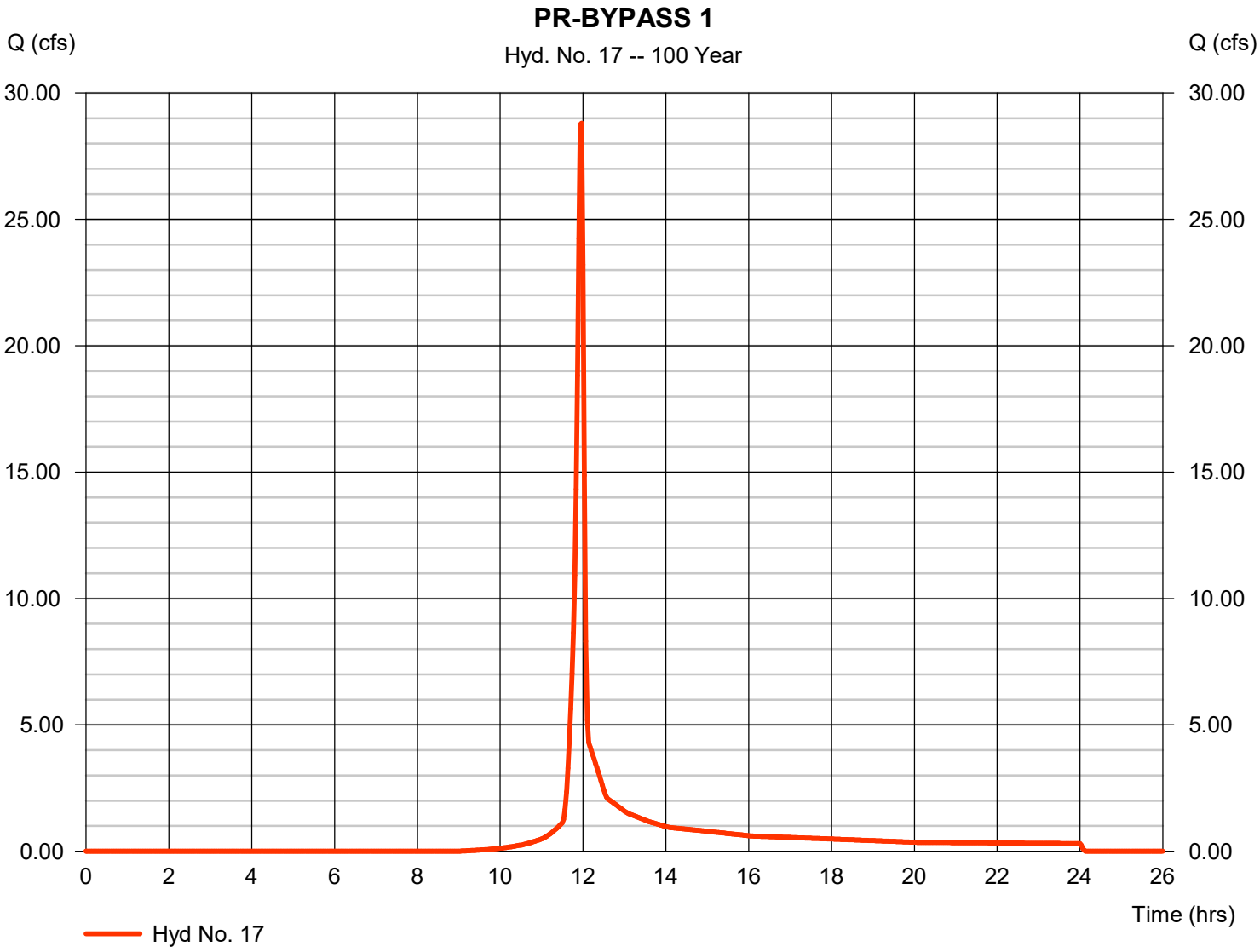
Hydrograph Report

Hyd. No. 17

PR-BYPASS 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.81 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	58,058 cuft
Drainage area	=	4.950 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.30 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.830 x 39) + (1.480 x 61) + (1.640 x 98)] / 4.950



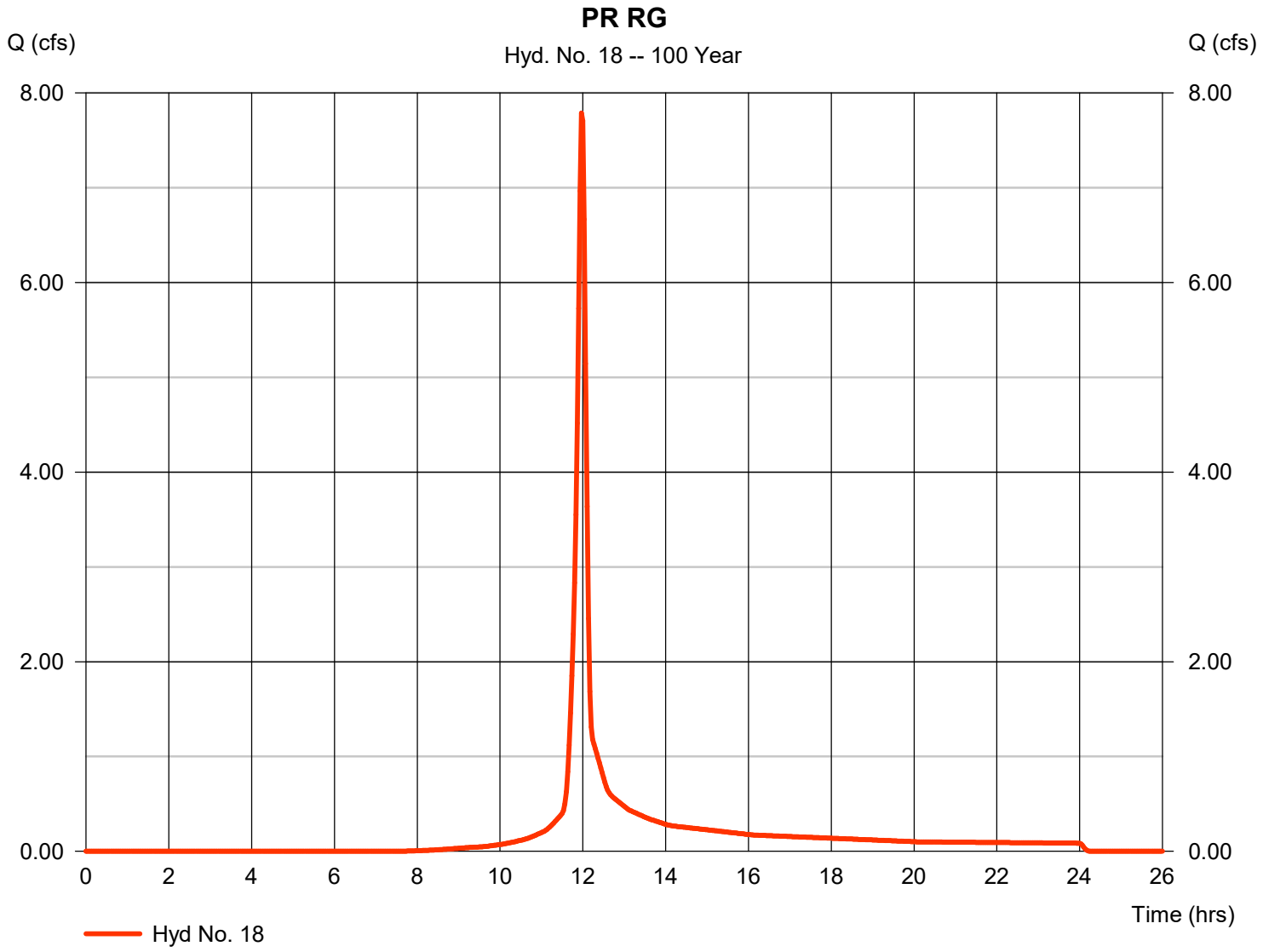
Hydrograph Report

Hyd. No. 18

PR RG

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.790 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	17,845 cuft
Drainage area	=	1.200 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.40 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.410 x 80) + (0.690 x 61) + (0.100 x 98)] / 1.200



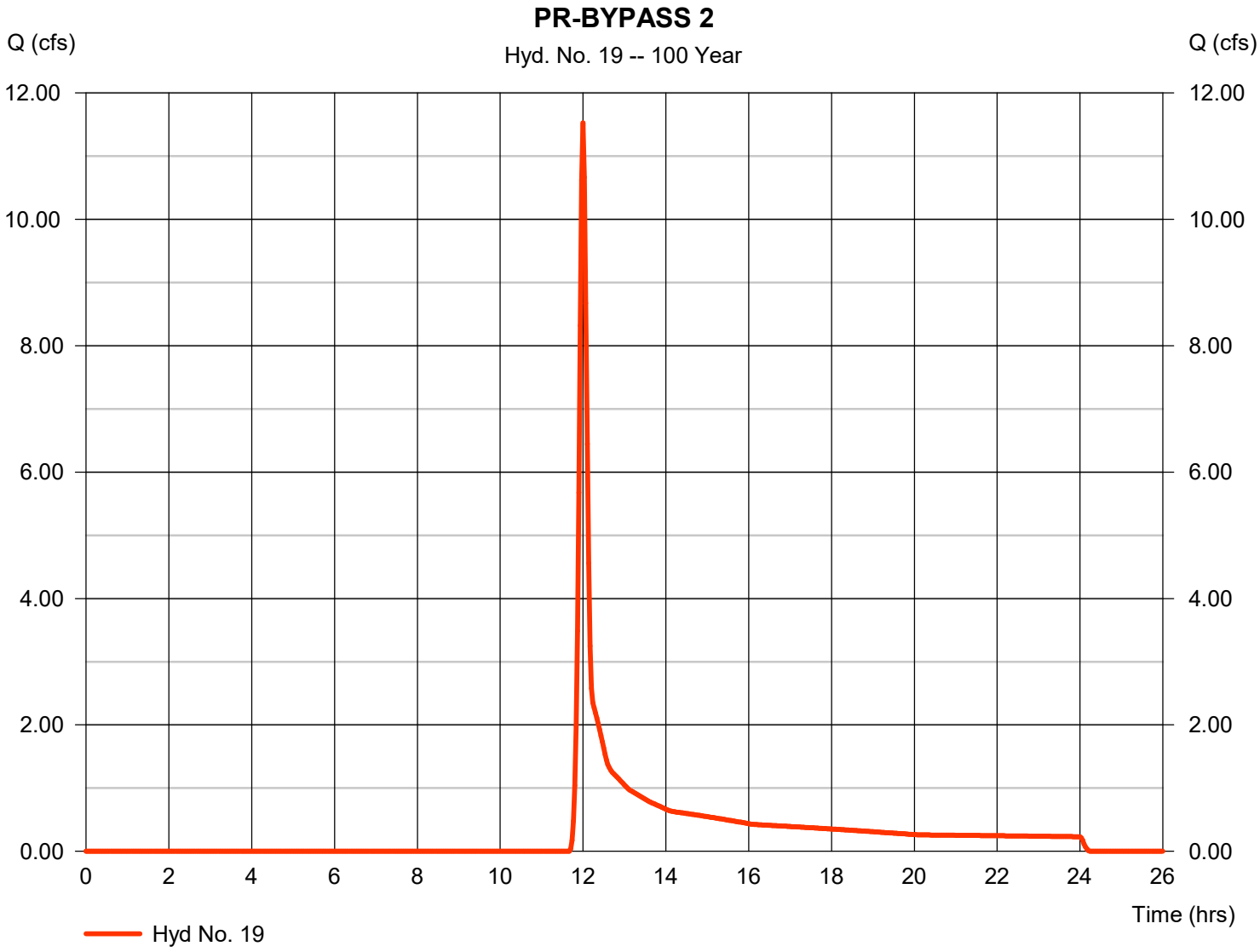
Hydrograph Report

Hyd. No. 19

PR-BYPASS 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.53 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	29,459 cuft
Drainage area	=	5.600 ac	Curve number	=	45*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.50 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(4.520 x 39) + (0.490 x 61) + (0.530 x 80) + (0.060 x 98)] / 5.600



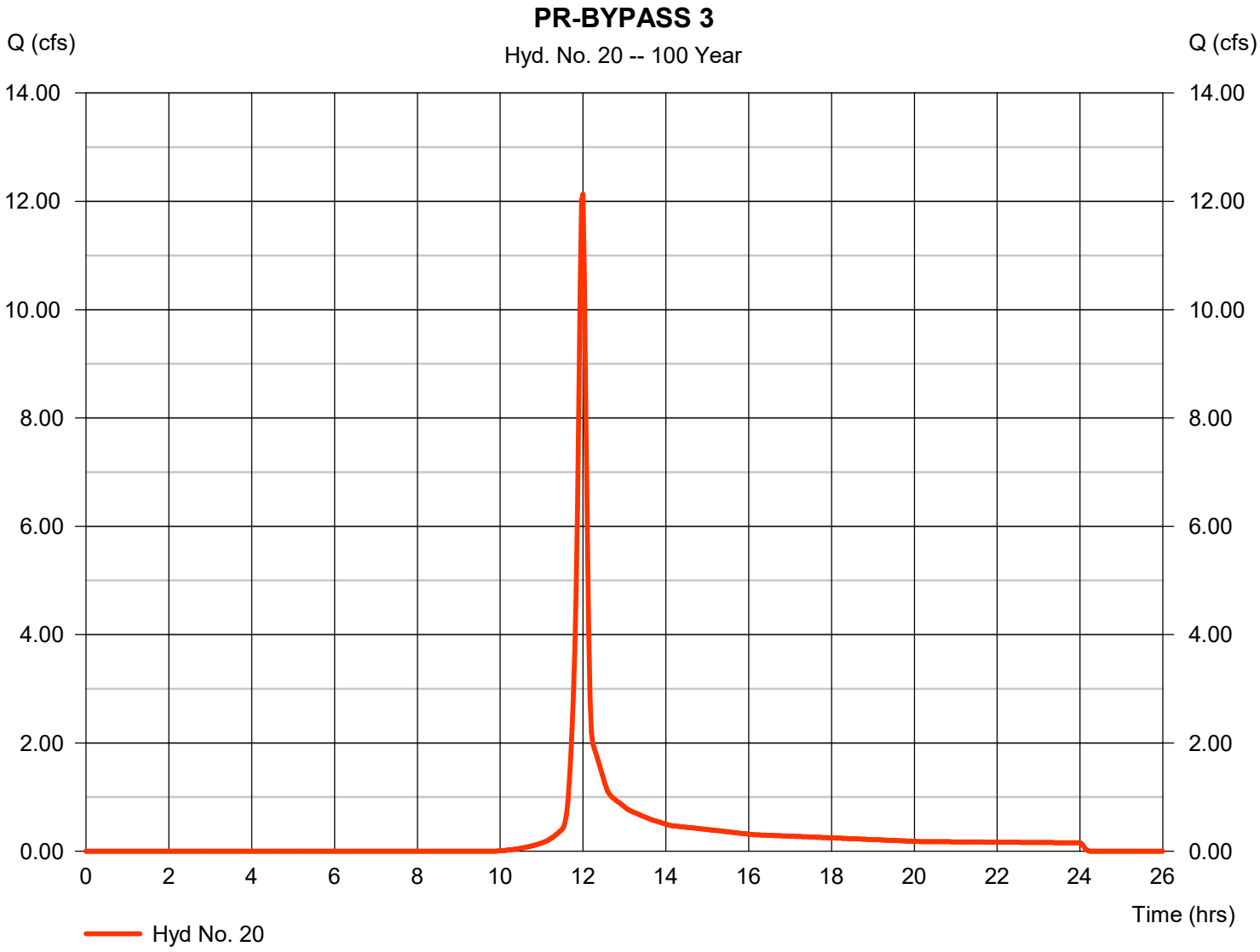
Hydrograph Report

Hyd. No. 20

PR-BYPASS 3

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.13 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	27,769 cuft
Drainage area	=	2.530 ac	Curve number	=	61*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.20 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.530 x 61)] / 2.530

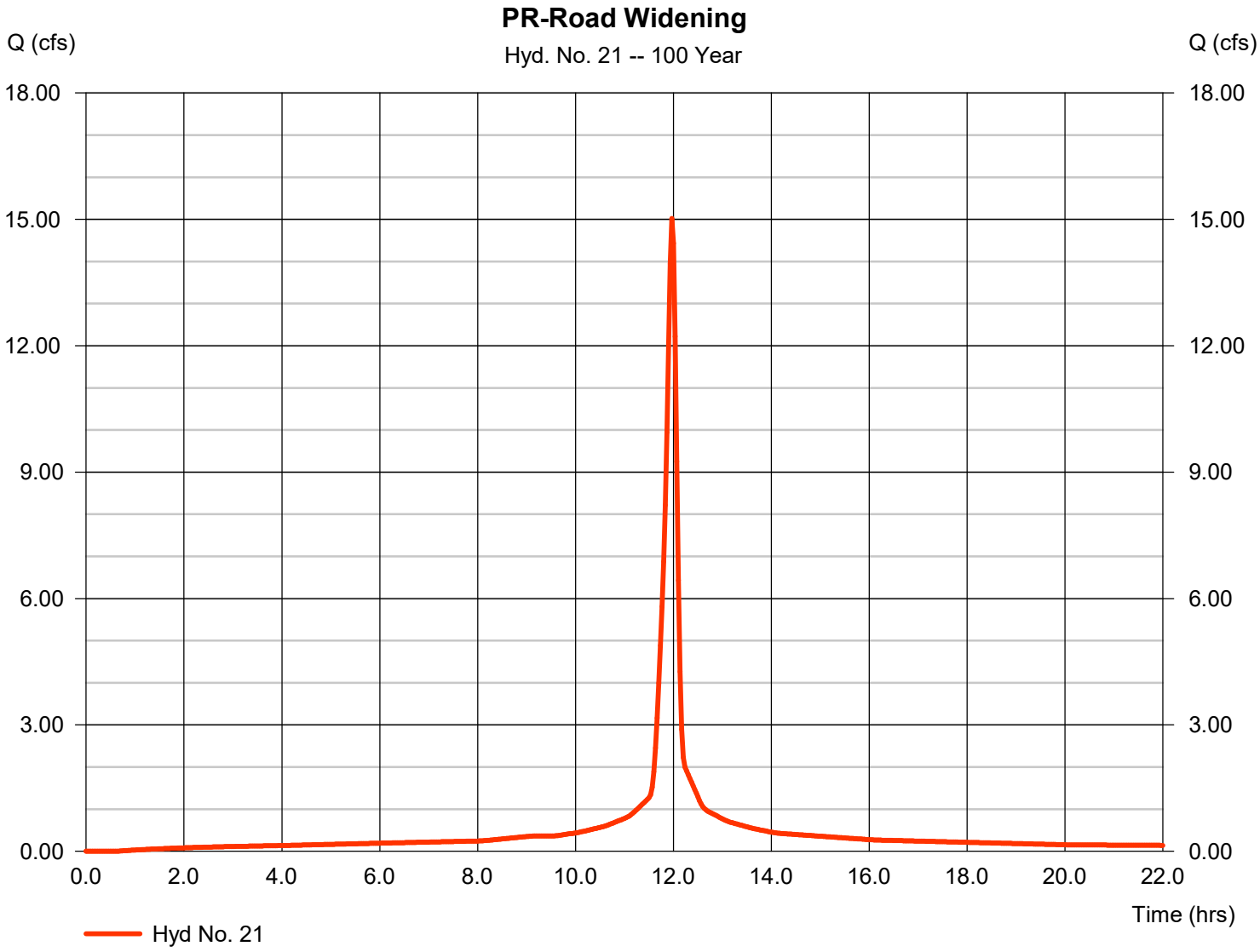


Hydrograph Report

Hyd. No. 21

PR-Road Widening

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	40,514 cuft
Drainage area	=	1.550 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.70 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

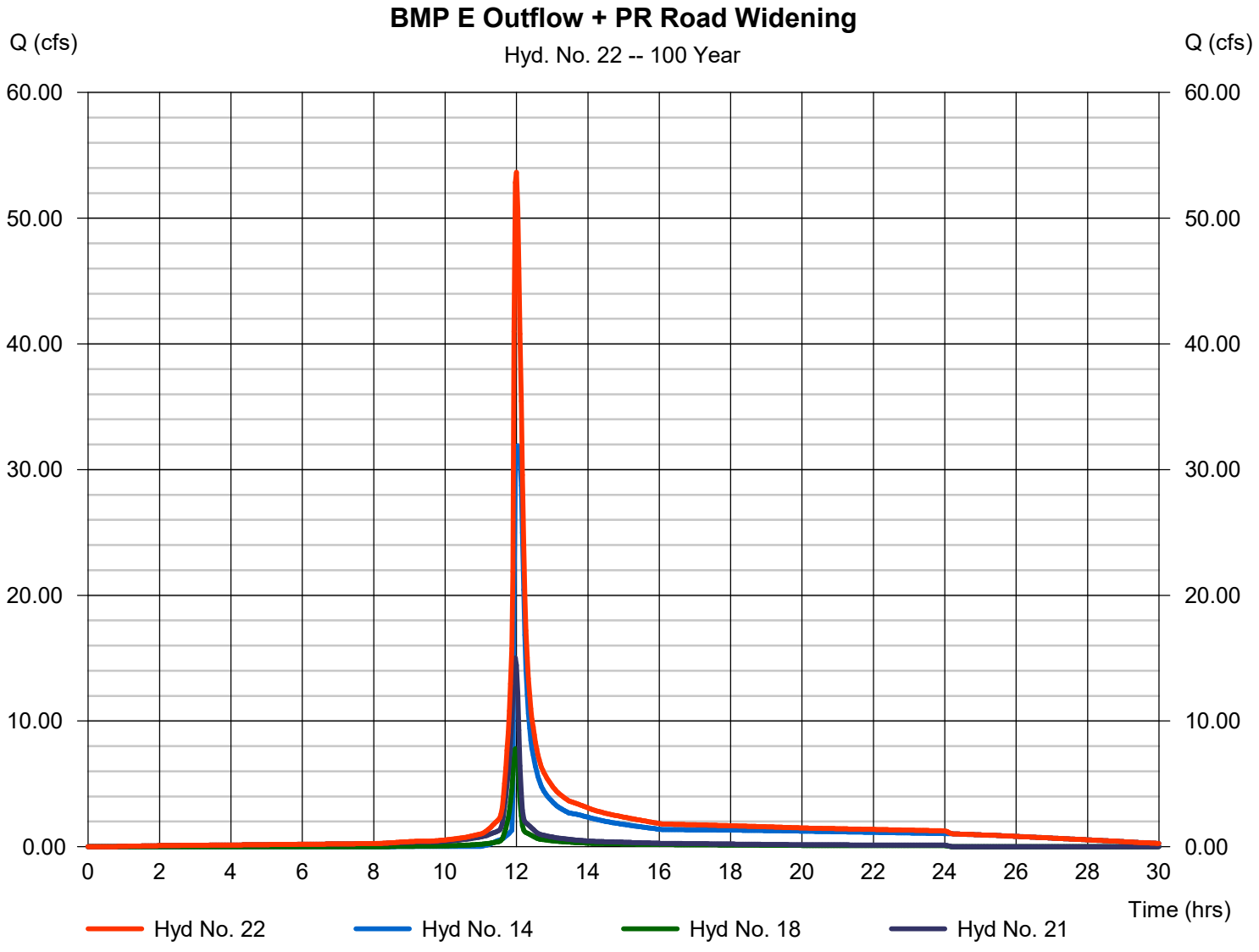


Hydrograph Report

Hyd. No. 22

BMP E Outflow + PR Road Widening

Hydrograph type	=	Combine	Peak discharge	=	53.64 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	192,206 cuft
Inflow hyds.	=	14, 18, 21	Contrib. drain. area	=	2.750 ac



Hydrograph Report

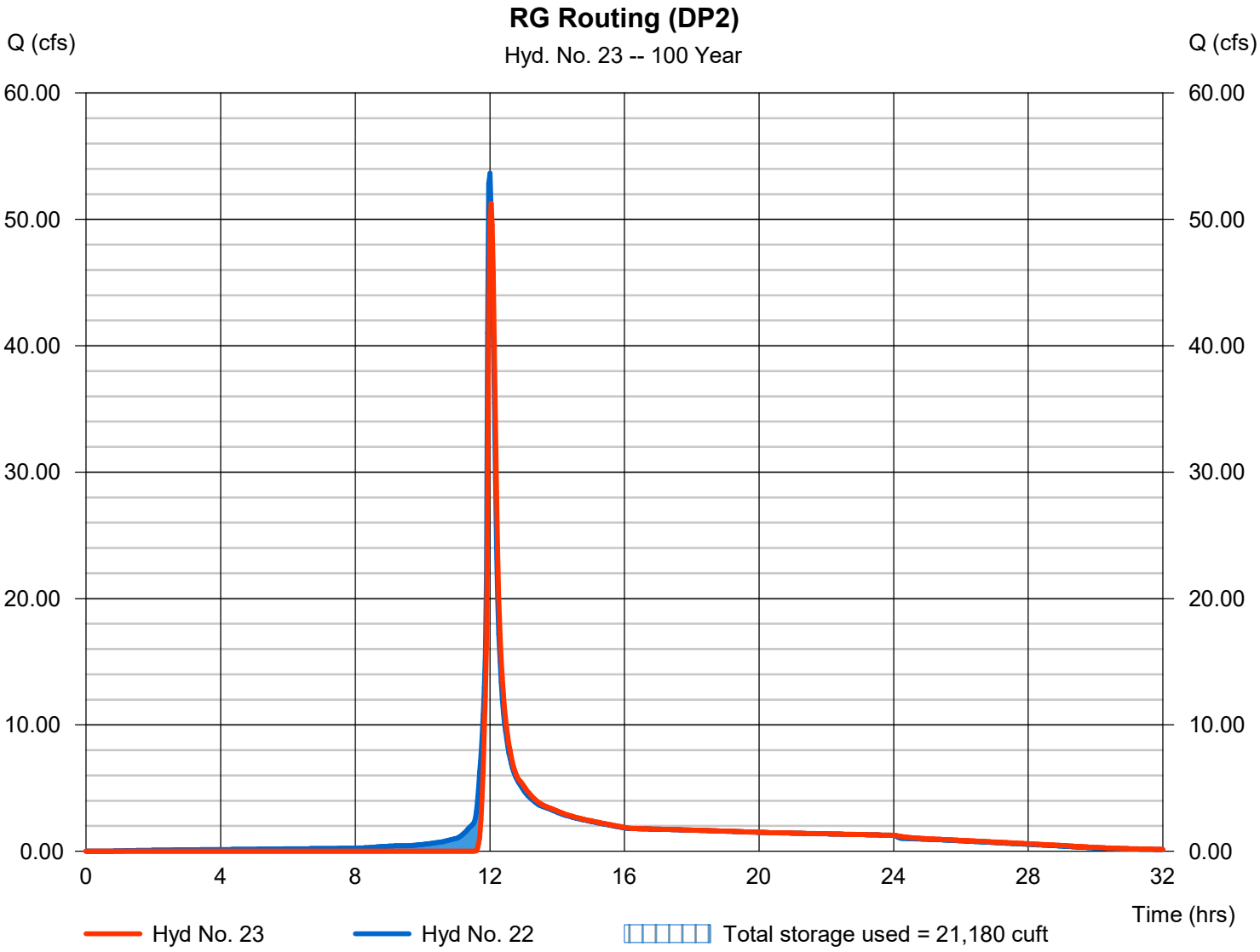
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Friday, 11 / 22 / 2024

Hyd. No. 23

RG Routing (DP2)

Hydrograph type	=	Reservoir	Peak discharge	=	51.29 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	179,192 cuft
Inflow hyd. No.	=	22 - BMP E Outflow + PR Road Widening	Max. Elevation	=	233.70 ft
Reservoir name	=	Hacket Rain Garden	Max. Storage	=	21,180 cuft

Storage Indication method used.

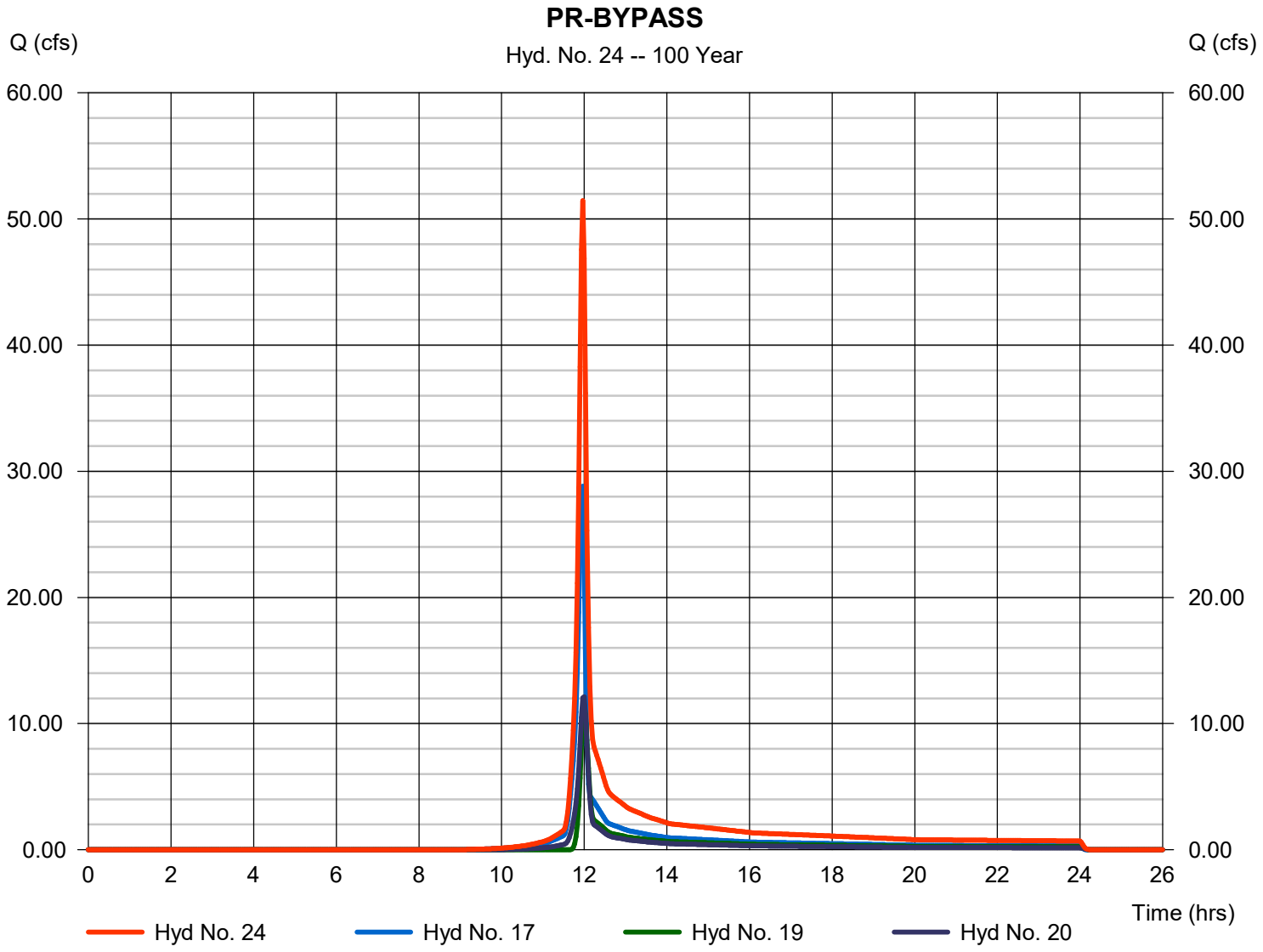


Hydrograph Report

Hyd. No. 24

PR-BYPASS

Hydrograph type	=	Combine	Peak discharge	=	51.46 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	115,286 cuft
Inflow hyds.	=	17, 19, 20	Contrib. drain. area	=	13.080 ac

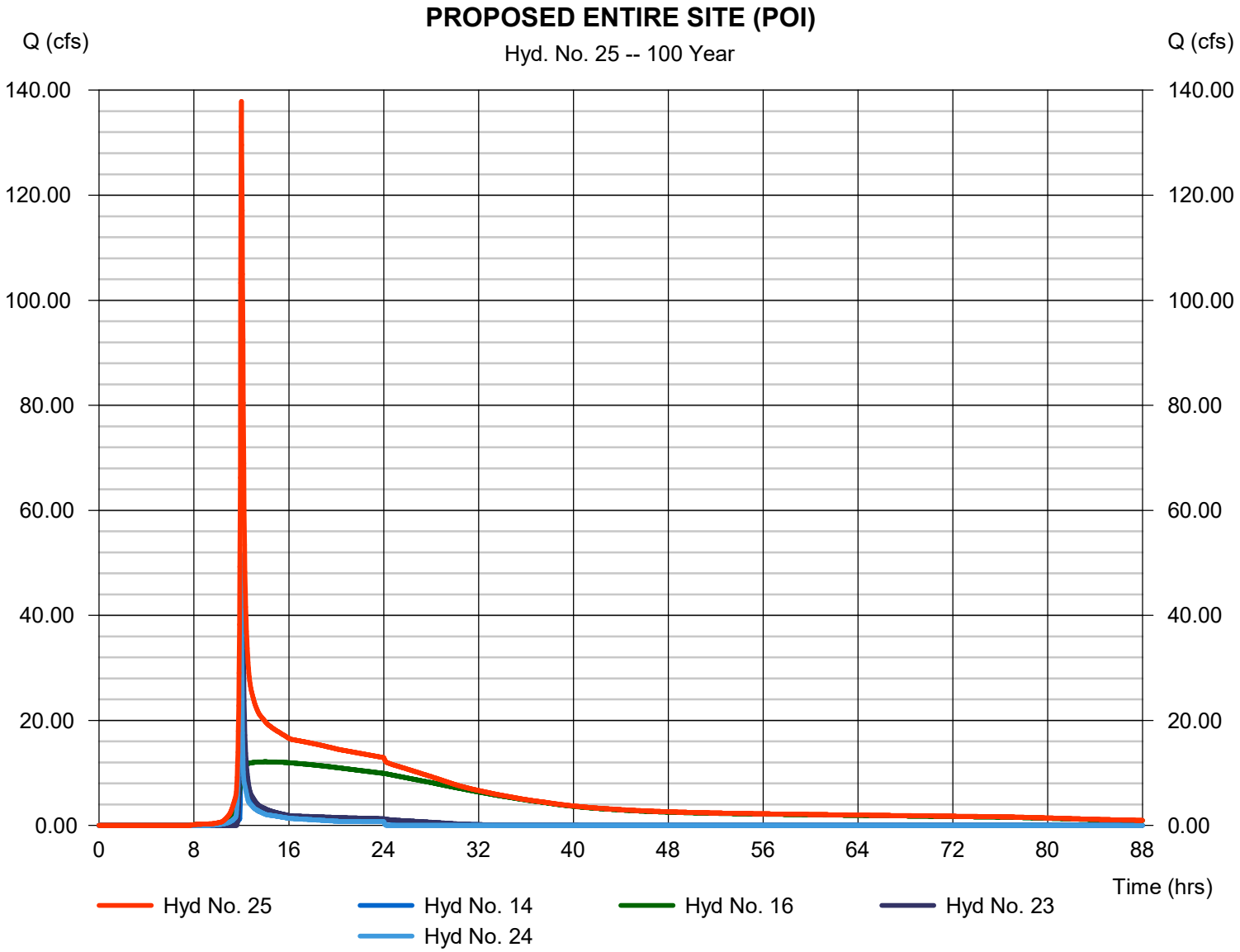


Hydrograph Report

Hyd. No. 25

PROPOSED ENTIRE SITE (POI)

Hydrograph type	=	Combine	Peak discharge	=	137.88 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	1,673,109 cuft
Inflow hyds.	=	14, 16, 23, 24	Contrib. drain. area	=	0.000 ac

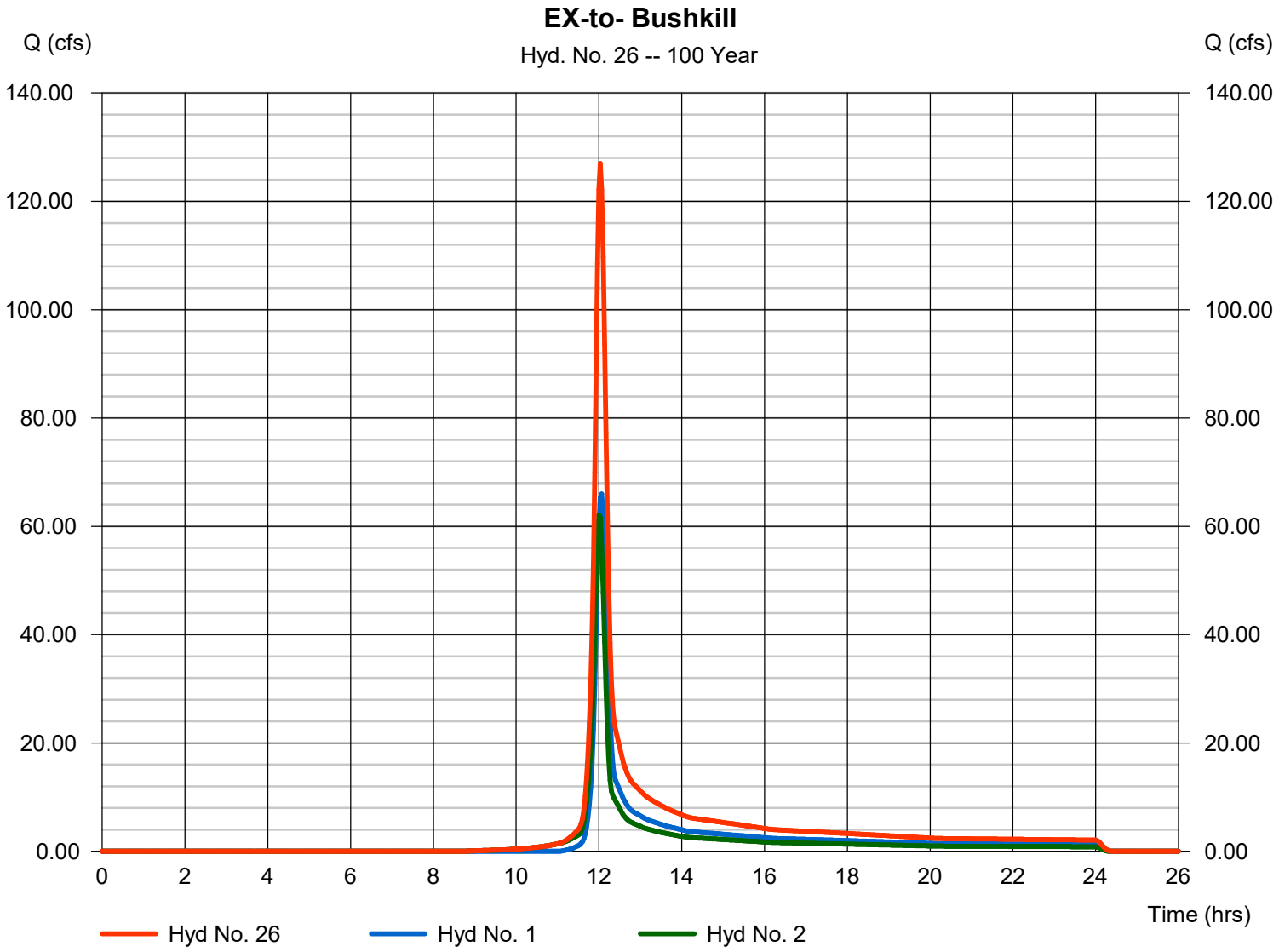


Hydrograph Report

Hyd. No. 26

EX-to- Bushkill

Hydrograph type	=	Combine	Peak discharge	=	126.98 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	355,538 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	35.550 ac

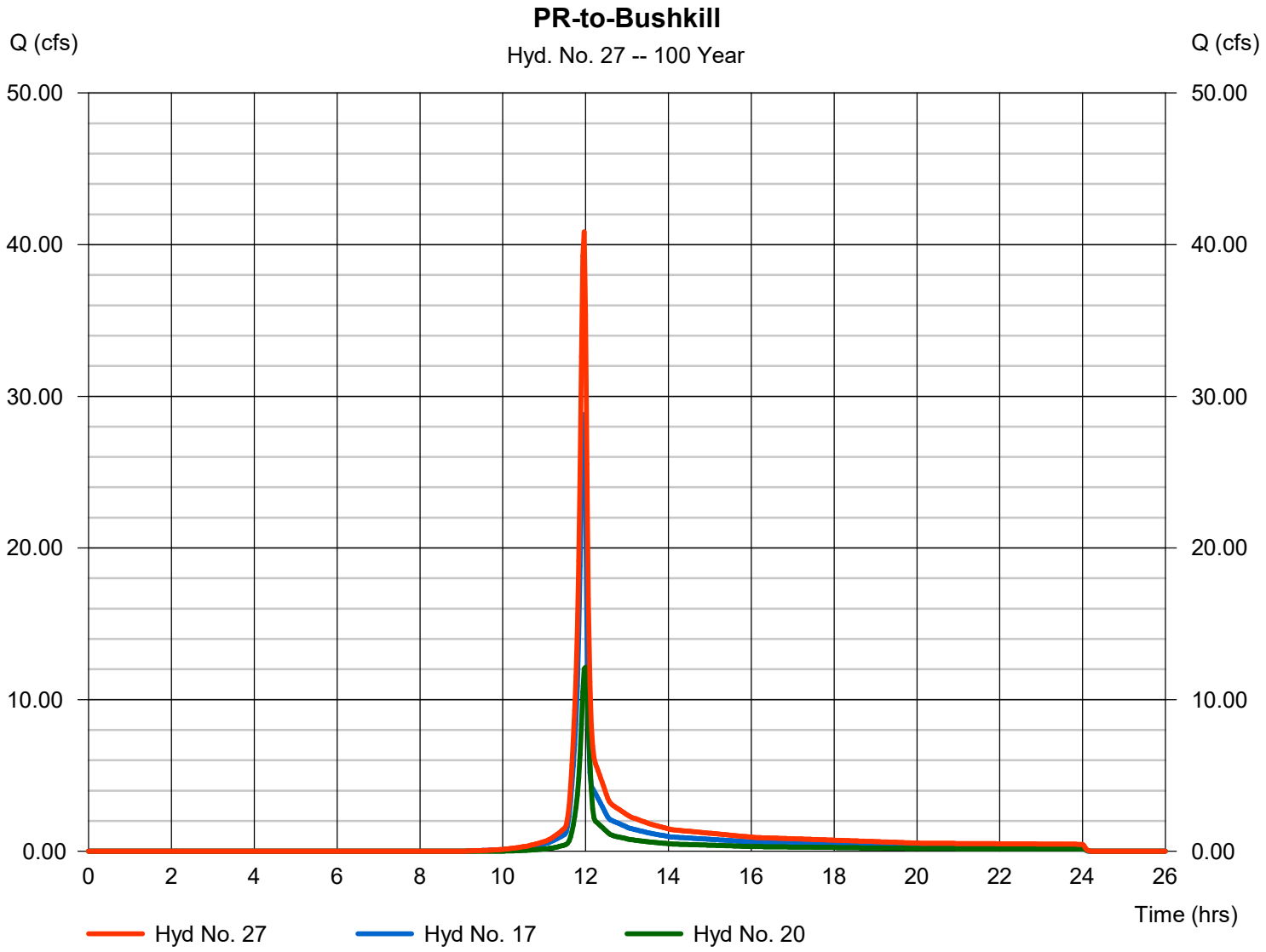


Hydrograph Report

Hyd. No. 27

PR-to-Bushkill

Hydrograph type	= Combine	Peak discharge	= 40.84 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 85,828 cuft
Inflow hyds.	= 17, 20	Contrib. drain. area	= 7.480 ac

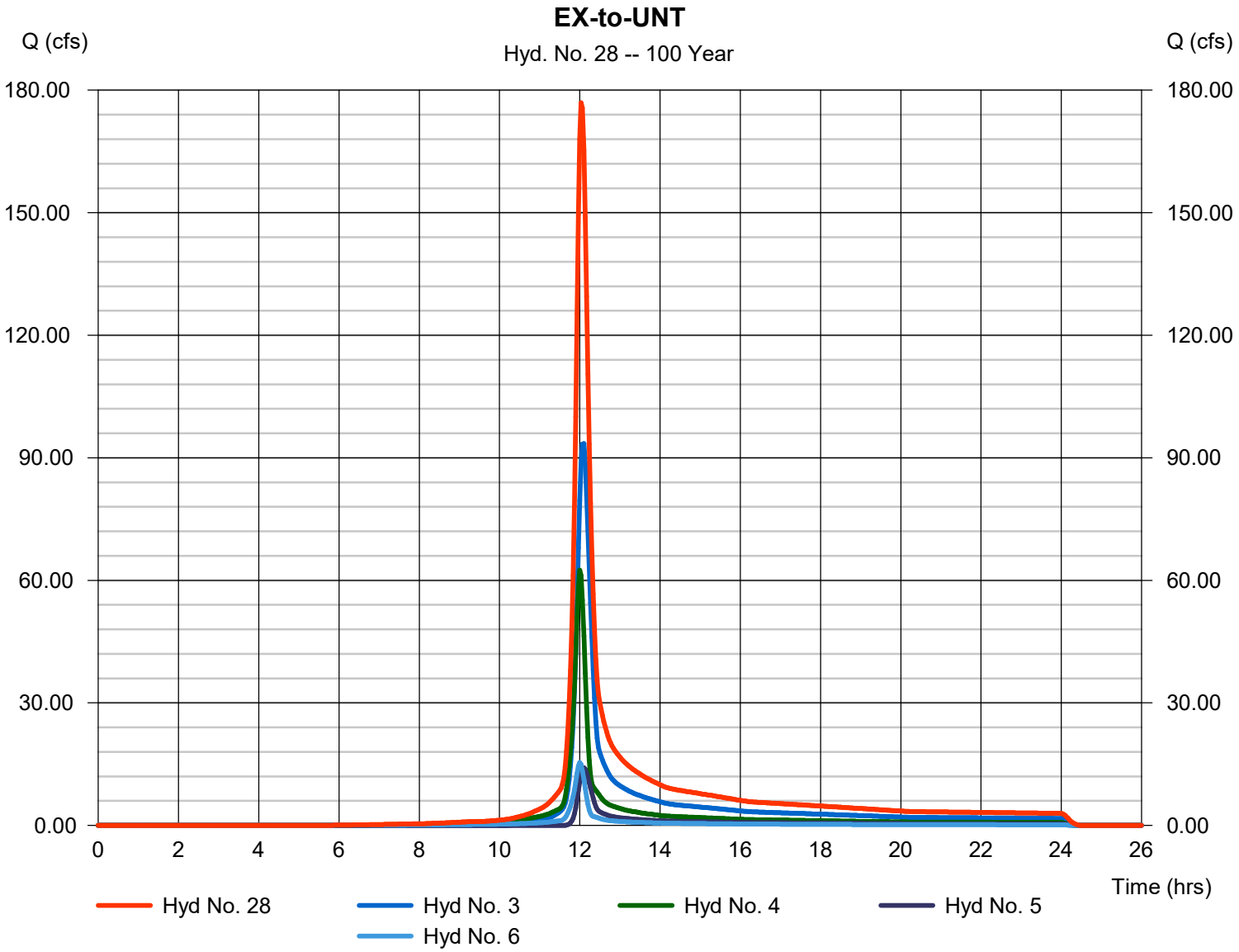


Hydrograph Report

Hyd. No. 28

EX-to-UNT

Hydrograph type	= Combine	Peak discharge	= 176.94 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 555,436 cuft
Inflow hyds.	= 3, 4, 5, 6	Contrib. drain. area	= 47.330 ac

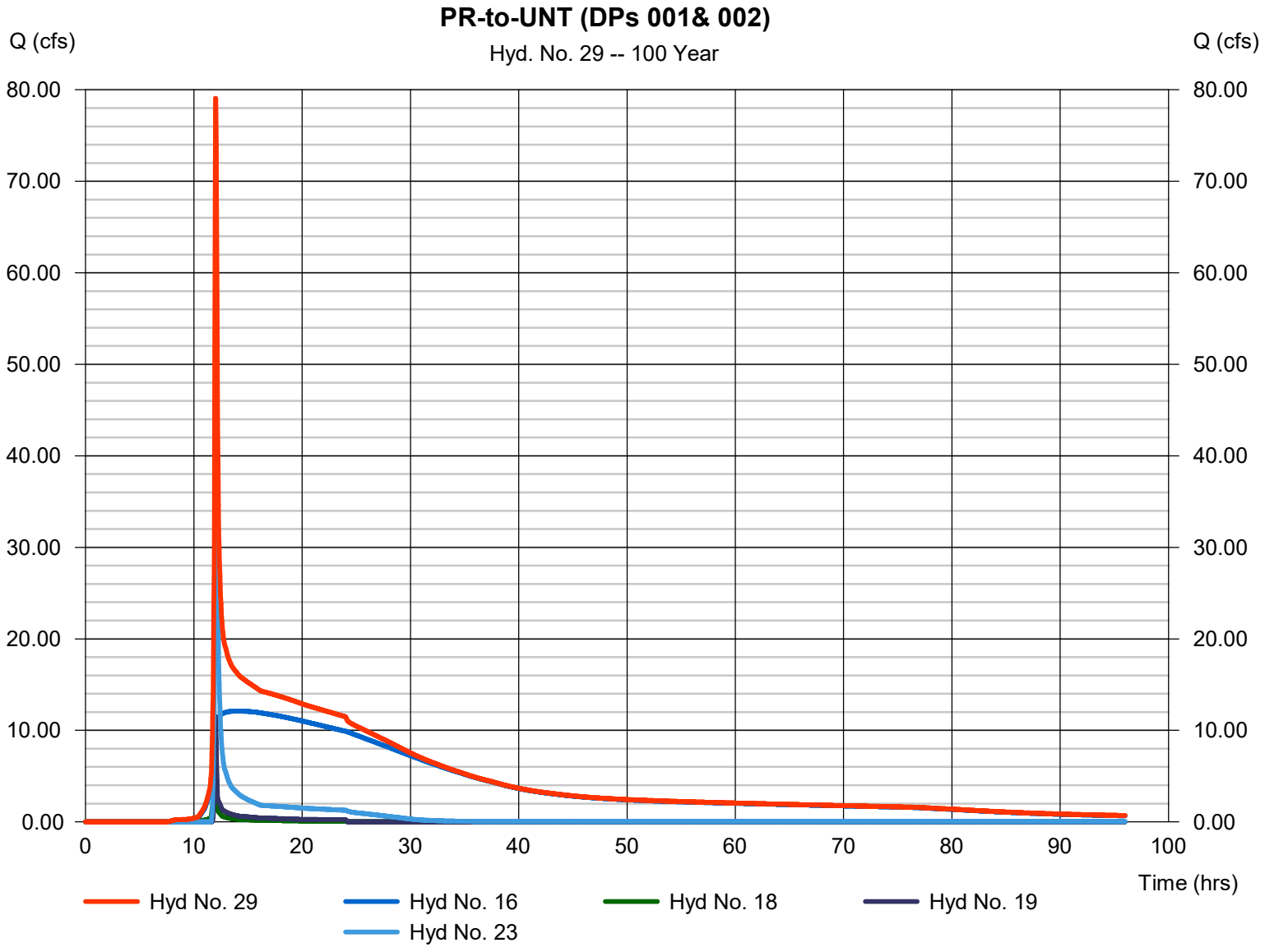


Hydrograph Report

Hyd. No. 29

PR-to-UNT (DPs 001& 002)

Hydrograph type	= Combine	Peak discharge	= 79.07 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,472,618 cuft
Inflow hyds.	= 16, 18, 19, 23	Contrib. drain. area	= 6.800 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	2.40	3.00	0.00	3.60	4.56	5.52	6.48	7.44

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