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POST-CONSTRUCTION/E&SPC STORMWATER MANAGEMENT REPORT

FOR

FRANKLIN HILL MANOR
PARCEL #16.7F.1.11
FRANKLIN HILL ROAD & ALBERT LANE
SMITHFIELD TOWNSHIP, MONROE COUNTY, PA

SUBMITTED FOR:

D E & S PROPERTIES LLC
2621 ROUTE 940
POCONO SUMMIT, PA 18346

SUBMITTED TO:

SMITHFIELD TOWNSHIP
MONROE COUNTY, PA

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CN-23-041

STORMWATER MANAGEMENT AND EROSION & SEDIMENT POLLUTION CONTROL NARRATIVE

This narrative has been prepared as part of the Stormwater Management and Erosion Control Plans for Franklin Hill Manor, a proposed subdivision on Albert Lane, owned by D E & S Properties. It has been prepared in accordance with the requirements of the Smithfield Township Ordinances, the Pennsylvania Code Title 25, Chapter 102 and the procedures outlined in the *Pennsylvania Stormwater Best Management Practices Manual*. The proposed project includes the construction of 3 single-family dwellings, on-lot wells and septic systems, and stormwater management berms. The project will be constructed on a wooded lot. The approximate area of earth disturbance is 2.37 acres. A NPDES Permit Application is being submitted concurrently to the Monroe County Conservation District. The project area discharges to a pond and an unnamed tributary to Marshalls Creek from two separate discharge points. In accordance with Pennsylvania Code Chapter 93, Marshalls Creek is a designated use: High Quality (HQ) Cold Water Fishery (CWF), Migratory Fishes (MF). The increase in stormwater runoff rate will be managed through the design of stormwater infiltration berms. Construction will take place immediately upon approval of the necessary permits. A project location map has been included on the plan.

I. SOIL FEATURES AND LIMITATIONS

According to the US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), the soils on the site are listed below. Information can be found on the Plan Sheets and in the Appendix of this Report. There are no wetlands in the area of the project.

BaB - BATH CHANNERY LOAM, 3-8% SLOPES, HYDROLOGIC SOIL GROUP C, DEPTH TO WATER TABLE 24-36 INCHES, DEPTH TO BEDROCK 26-38 INCHES
BeB – BENSON-ROCK OUTCROP COMPLEX, 0-8% SLOPES, HYDROLOGIC SOIL GROUP D, DEPTH TO WATER TABLE >80 INCHES, DEPTH TO BEDROCK 12-20 INCHES
BeC – BENSON-ROCK OUTCROP COMPLEX, 8-25% SLOPES, HYDROLOGIC SOIL GROUP D, DEPTH TO WATER TABLE >80 INCHES, DEPTH TO BEDROCK 12-20 INCHES
MaB - MARDIN CHANNERY SILT LOAM, 3-8% SLOPES, HYDROLOGIC SOIL GROUP D, DEPTH TO WATER TABLE 13-24 INCHES, DEPTH TO BEDROCK 14-26 INCHES

A soil map, soil descriptions, and the soil use limitations and their resolutions are presented in the Appendix of this report.

II. STORMWATER RUNOFF

The project is governed by the Smithfield Township Ordinances and district C of the Brodhead/McMichaels Watershed. If runoff cannot be discharged directly to a watercourse, for the disturbed area the post-development runoff rate is to be reduced from the 2- year post to 1-year pre, the 5-year post to the 5-year pre, the 10-year post to the 10-year pre, the 25-year post to the 25-year pre, the 50-year post to the 50-year pre, and the 100-year post to the 100-year pre. Two points of interest were analyzed, both of which are part of the Marshalls Creek watershed. Point of Interest #1 is a cross-pipe under Franklin Hill Road at the western limit of the project that discharges to a pond and Point of Interest #2 is a cross-pipe under Albert Lane at the eastern end of the project that discharges to a UNT to Marshalls Creek. All proposed earth disturbance discharges to one of these points of interest shown on the plans.

Stormwater Design Methodology:

Stormwater runoff was modeled utilizing the Soil Conservation Service (SCS) methodology and the Hydraflow Hydrographs Extension software for AutoCAD Civil 3D. The design storm rainfall amounts and runoff curve numbers (CN) were taken from the Smithfield Township Ordinances. The Time of Concentration (Tc) was calculated utilizing the methodology set forth in Urban Hydrology for Small Watersheds (TR-55) SCS Segmental Approach/SCS Lag Equation. A summary of discharge rates for the points of interest have been included in the appendix below:

Point of Interest #1 includes an infiltration berm on lot 1 and lot 2. Point of Interest #2 includes an infiltration berm on lot 3. Calculations for these items have been provided in the Appendix.

III. BEST MANAGEMENT PRACTICES

The following E&S BMPs will be utilized for this project:

Rock Construction Entrance: A rock construction entrance will be installed where construction traffic will exit the project site onto a roadway in order to prevent excessive tracking of mud onto exiting roadways. The rock construction entrance will remain until completion of construction and a minimum of 70 percent perennial vegetative cover has been established for the project site.

Compost Filter Sock: Compost Filter Sock will be installed below the disturbed areas to filter sediment from stormwater runoff sheet flow and prevent off site transport of sediment. Compost Filter Sock will remain until completion of construction and a minimum of 70 percent perennial vegetative cover has been established for the project site. Compost Filter Sock will be re-installed if stabilized areas are disturbed after the completion of construction activities.

Temporary Seeding and Mulching: Upon temporary cessation of earth disturbance activity for more than four days the project site will be immediately stabilized with temporary seeding and mulching. Areas will receive topsoil, lime, fertilizer and seed conforming to PennDOT Publication 408, Formula E depending on slope and water content of soil. Temporary stabilization should continue until completion of construction and a minimum of 70 percent perennial vegetative cover has been established for the project site. Temporary seeding will occur in disturbed areas throughout the project site.

Permanent Seeding and Mulching: As soon as slopes, channels, and other disturbed areas reach final grade they will be stabilized. Areas will receive topsoil, lime, fertilizer and seed conforming to the *Erosion and Sediment Pollution Control Program Manual* depending on slope and water content of soil. Permanent seeding and mulching will occur in all disturbed areas throughout the project site.

Stormwater BMPs will include the installation of the stormwater infiltration berms and meadow resotration. This will provide rate reduction, water quality and groundwater recharge.

IV. SEQUENCE OF CONSTRUCTION ACTIVITIES

See the plans for the Sequence of Construction Activities.

V. SUPPORTING CALCULATIONS

Refer to the Appendix for the supporting calculations.

VI. PLAN DRAWINGS

Stormwater and erosion and sediment pollution control plans are attached.

VII. OPERATION AND MAINTENANCE PROGRAM

The operation and maintenance associated with the Erosion and Sediment Pollution Control BMP's were developed in accordance with the *Erosion and Sediment Pollution Control Program Manual.* The BMPs will be maintained as follows:

Rock Construction Entrance: The rock construction entrance thickness will be constantly maintained to the specified dimension. The rock construction entrance will be kept free of sediment and debris. Sediment will be removed from the rock construction entrance by mechanical means and returned to the construction site or sediment laden rock will be removed and replaced with clean rock. A stockpile of clean rock will be maintained on site for this purpose.

Compost Filter Sock: Compost filter sock will be inspected weekly and after each runoff event to ensure that they are intact and functioning properly. Sediment will be removed when accumulations reach 1/2 the height of the sock. Damaged compost filter sock will be repaired immediately. Any section of compost filter sock that has been undermined or over-topped will be replaced with a rock filter outlet.

Temporary Seeding and Mulching: Mulch is to be used as necessary for protection until vegetation is established. Seeded areas will be inspected for failure and reseeded and repaired immediately, as necessary. If inadequate cover is attained, the choice of seed will be reevaluated along with the quantities of lime and fertilizer.

Permanent E&S Control Measures will be maintained as follows:

Permanent Seeding and Mulching: Seeded areas will be inspected for failure and reseeded and repaired immediately, as necessary. If inadequate cover is attained, the choice of seed will be reevaluated along with the quantities of lime and fertilizer.

The operation and maintenance procedures associated with the stormwater features were developed in accordance with the *Pennsylvania Stormwater Best Management Practices Manual* to provide for inspection of the PCSM BMPs, including the repair, replacement, or other routine maintenance of the PCSM BMPs to ensure proper function and operation. The property owner is responsible for the operation and maintenance associated with the proposed stormwater management features. These procedures have been provided on the plan drawings.

VIII. WASTE RECYCLING AND DISPOSAL

All suitable accumulated sediment will be incorporated into the fill and reused on-site. Unsuitable material will be removed from the site and disposed of in a lawful manner according to the Pennsylvania Department of Environmental Protection's Solid Waste Management Regulations (Pennsylvania Code Title 25, Chapter 260.1 et. seq, 271.1 et. seq., and 287.1 et. seq). The disposal site must have a separate erosion control plan and must be approved by either PA DEP or the County Conservation District.

APPENDIX

FRANKLIN HILL MANOR SUBDIVISION - STORMWATER CALCULATIONS:

HYDROGRAPHS AND DRAINAGE AREA MAPS FOLLOW THE SUMMARIZED CALCULATIONS BELOW. SCS METHOD USED IN ACCORDANCE WITH THE NPDES PERMIT APPLICATION REQUIREMENT.

DISCHARGE POINT #1 TO POND

- PRE-DEVELOPMENT POI 1:
  - DRAINAGE AREA = 2.33 ACRES
  - CURVE NUMBER
    - 0.15 LAWN D SOILS = 80
    - 1.74 ACRES WOODS C SOILS = 70
    - 0.29 ACRES WOODS D SOILS = 77
    - 0.15 ACRES IMPERVIOUS = 98
    - WEIGHTED CN = 73
  - TC = 28.2 MINS
    - SHEET FLOW = 200’ @ 5.4% SLOPE, N=0.4
    - SHALLOW CONC = 240’ @ 10.8%, UNPAVED
    - SHALLOW CONC = 250’ @ 6.9%, UNPAVED
  - POI 1 PRE-DEVELOPMENT RUNOFF RATE
    - Q1 = 0.885 CFS
    - Q2 = 1.484 CFS
    - Q5 = 2.507 CFS
    - Q10 = 4.023 CFS
    - Q25 = 6.077 CFS
    - Q50 = 7.371 CFS
    - Q100 = 9.137 CFS
- PRE-DEVELOPMENT POI 1 (DISTURBED AREA ONLY):
  - DRAINAGE AREA = 1.28 ACRES
  - CURVE NUMBER
    - 0.07 ACRES WOODS D SOILS = 77
    - 1.21 ACRES WOODS C SOILS = 70
    - WEIGHTED CN = 70
  - TC = 7.6 MINS
    - SHEET FLOW = 50’ @ 11.91% SLOPE, N=0.4
    - SHALLOW CONC = 60’ @ 11.82%, UNPAVED
    - SHALLOW CONC = 272’ @ 3.9%, UNPAVED
  - POI 1 PRE-DEVELOPMENT RUNOFF RATE
    - Q1 = 0.704 CFS
    - Q2 = 1.229 CFS
    - Q5 = 2.130 CFS
    - Q10 = 3.477 CFS
    - Q25 = 5.307 CFS
    - Q50 = 6.480 CFS
    - Q100 = 8.093 CFS

- POST-DEVELOPMENT POI 1:
- POST-DEVELOPMENT POI 1 BYPASS 1:
    - TOTAL DRAINAGE AREA = 1.03 ACRES
    - CURVE NUMBER
        - 0.30 ACRES MEADOW C SOILS = 71
        - 0.11 ACRES WOODS D SOILS = 77
        - 0.29 ACRES WOODS C SOILS = 70
        - 0.20 ACRES IMPERVIOUS = 98
        - 0.03 ACRES MEADOW D SOILS = 78
        - 0.10 ACRES LAWN C&D SOILS = 79 (AS SHOWN IN HYDROGRAPHS)
        COMBINATION OF 0.09 ACRES LAWN D = 80 & 0.01 LAWN C = 74
        - WEIGHTED CN = 78
    - TC = 27.7 MINS
        - SHEET FLOW = 200’ @ 5.4% SLOPE, N=0.4
        - SHALLOW CONC = 134’ @ 10.8%, UNPAVED
        - SHALLOW CONC = 96’ @ 8.3%, PAVED
        - CHANNEL = 318’ @ 6.6%, N=0.025
        - RUNOFF RATE
            - Q1 = 0.623 CFS
            - Q2 = 0.935 CFS
            - Q5 = 1.446 CFS
            - Q10 = 2.181 CFS
            - Q25 = 3.151 CFS
            - Q50 = 3.747 CFS
            - Q100 = 4.551 CFS
    - AREA TO INFILTRATION BERM #1
        - DRAINAGE AREA = 0.46 ACRES
        - CURVE NUMBER
            - 0.08 ACRES IMPERVIOUS = 98
            - 0.18 ACRES LAWN (C SOILS) = 74
            - 0.07 ACRES MEADOW (C SOILS) = 71
            - 0.07 ACRES WOODS (C SOILS) = 70
            - 0.01 ACRES WOODS (D SOILS) = 77
            - 0.05 ACRES LAWN (D SOILS) = 80
            - WEIGHTED CN = 78
        - TC = 9.0 MINS
            - SHEET FLOW = 56’ @ 7.14% SLOPE, N=0.4
            - SHALLOW CONC = 40’ @ 5.26%, PAVED
            - SHALLOW CONC = 87’ @ 7.31%, UNPAVED
        - RUNOFF RATE
            - Q1 = 0.519 CFS
            - Q2 = 0.759 CFS
            - Q5 = 1.148 CFS
            - Q10 = 1.710 CFS
            - Q25 = 2.448 CFS
            - Q50 = 2.899 CFS
            - Q100 = 3.505 CFS

- BERM #1
  - RECHARGE VOLUME REQUIRED:
    - I = 0.6 INCHES
    - Rev = (I)(IMPERVIOUS AREA)
    - Rev = (0.6 IN)(0.29 AC)(43560 SF)(FT/12 IN)
    - Rev = 631.62 CF
    - VOLUME OF SYSTEM BELOW ORIFICE = 1736 CF
  - RECHARGE VOLUME TIME TO DRAIN:
    - INFILTRATION RATE UTILIZED 1.0 IN/HR
    - TESTING PROVIDED A RATE OF 2.0 IN/HR WITH A SAFETY FACTOR OF 2 = 1.0 IN/HR
    - DRAIN TIME OF REV = (3 FT DEPTH OF INFILTRATION AREA)(HR/1.0 IN)(12 IN/FT) = 36 HOURS

  • BOTTOM @ 680.00, TOP BERM @ 684.00, 5 FT LONG SPILLWAY @ 683.50, RISER @ 683.40, 12" HDPE DISCHARGE PIPE 15' LONG @ 1% INV. OUT @ 681.00, 3" X 36" ORIFICE @ 683.00

  • OUTFLOW
    - o Q1 = 0.000 CFS, ELEV @ 682.06
    - o Q2 = 0.000 CFS, ELEV @ 682.36
    - o Q5 = 0.000 CFS, ELEV @ 682.88
    - o Q10 = 0.196 CFS, ELEV @ 683.06
    - o Q25 = 1.108 CFS, ELEV @ 683.23
    - o Q50 = 1.594 CFS, ELEV @ 683.32
    - o Q100 = 2.431 CFS, ELEV @ 683.43

o AREA TO INFILTRATION BERM #2
- DRAINAGE AREA = 0.89 ACRES
- CURVE NUMBER
  - 0.13 ACRES IMPERVIOUS = 98
  - 0.30 ACRES LAWN (C SOILS) = 74
  - 0.13 ACRES MEADOW (C SOILS) = 71
  - 0.17 ACRES WOODS (C SOILS) = 70
  - 0.10 ACRES WOODS (D SOILS) = 77
  - 0.06 ACRES LAWN (D SOILS) = 80
  - WEIGHTED CN = 77
- TC = 26.6 MINS
  - SHEET FLOW = 200' @ 5.92% SLOPE, N=0.4
  - SHALLOW CONC = 114' @ 8.43%, UNPAVED
  - SHALLOW CONC = 59' @ 8.7%, PAVED
  - SHALLOW CONC = 143' @ 8.1%, UNPAVED
- RUNOFF RATE
  - Q1 = 0.535 CFS
  - Q2 = 0.815 CFS
  - Q5 = 1.275 CFS
  - Q10 = 1.946 CFS
  - Q25 = 2.834 CFS
  - Q50 = 3.381 CFS

- Q100 = 4.120 CFS
- BERM #2
  - RECHARGE VOLUME REQUIRED:
    - I = 0.6 INCHES
    - Rev = (I)(IMPERVIOUS AREA)
    - Rev = (0.6 IN)(0.29 AC)(43560 SF)(FT/12 IN)
    - Rev = 631.62 CF
    - VOLUME OF SYSTEM BELOW ORIFICE = 1705 CF
  - RECHARGE VOLUME TIME TO DRAIN:
    - INFILTRATION RATE UTILIZED 1.75 IN/HR
    - TESTING PROVIDED A RATE OF 3.5 IN/HR WITH A SAFETY FACTOR OF 2 = 1.75 IN/HR
    - DRAIN TIME OF REV = (2 FT DEPTH OF INFILTRATION AREA)(HR/1.75 IN)(12 IN/FT) = 12 HOURS

  • BOTTOM @ 691.00, TOP BERM @ 694.00, 5 FT WIDE SPILLWAY @ 693.50, RISER @ 693.40, 12" HDPE DISCHARGE PIPE 25' LONG @ 1% INV. OUT @ 691.50, 3" X 38" ORIFICE @ 692.75

  • OUTFLOW
    - o Q1 = 0.000 CFS, ELEV @ 692.35
    - o Q2 = 0.014 CFS, ELEV @ 692.71
    - o Q5 = 0.605 CFS, ELEV @ 692.90
    - o Q10 = 1.455 CFS, ELEV @ 693.02
    - o Q25 = 2.146 CFS, ELEV @ 693.19
    - o Q50 = 2.515 CFS, ELEV @ 693.31
    - o Q100 = 3.307 CFS, ELEV @ 693.45

• POST-DEVELOPMENT RELEASE RATE CRITERIA – DISTRICT C ON ACT 167 MAP:

- o 2YR POST TO 1 YR PRE
  - ▪2YR POST=1.484(2YR PRE)–1.229(2YR CHANGED)+0.704(1YR CHANGED)= 0.959CFS
- o 5YR POST TO 5 YR PRE
  - ▪5YR POST=2.507(5YR PRE)CFS
- o 10YR POST TO 10 YR PRE
  - ▪10YR POST=4.023(10YR PRE)CFS
- o 25YR POST TO 25 YR PRE
  - ▪25YR POST=6.077(25YR PRE)CFS
- o 50YR POST TO 50 YR PRE
  - ▪50YR POST=7.371(50YR PRE)CFS
- o 100YR POST TO 100 YR PRE
  - ▪100YR POST= 9.137(100YR PRE)CFS

O TOTAL POI 1 POST-DEVELOPMENT RUNOFF RATE

- **▪ Q1 = 0.623 CFS**
- **▪ Q2 = 0.935 CFS**
- **▪ Q5 = 1.659 CFS**
- **▪ Q10 = 3.726 CFS**
- **▪ Q25 = 6.052 CFS**
- **▪ Q50 = 7.364 CFS**

- **Q100 = 9.091 CFS**

DESIGN STORM	PRE-DEV. FLOW/VOLUME– POI 1	POST-DEV. FLOW/VOLUME – POI 1
1-YEAR	0.885 CFS / 4351 CF	0.623 CFS / 2706 CF
2-YEAR	1.484 CFS / 6635 CF	0.935 CFS / 3939 CF
5-YEAR	2.507 CFS / 10550 CF	1.659 CFS / 7053 CF
10-YEAR	4.023 CFS / 16417 CF	3.726 CFS / 12642 CF
25-YEAR	6.077 CFS / 24449 CF	6.052 CFS / 20657 CF
50-YEAR	7.371 CFS / 29526 CF	7.364 CFS / 25750 CF
100-YEAR	9.137 CFS / 36514 CF	9.091 CFS / 32803 CF

- SWALE 1
    - o FLOW = 7.364 CFS (50-YEAR STORM) SAME AS TOTAL POST TO POI 1
    - o SLOPE @ 6.6%, DEPTH IS 2 FT. AND BOTTOM WIDTH IS 2 FT. SIDE SLOPES 3:1
    - o S150BN MATTING, STAPLE PATTERN D.

- SWALE 2
        - DRAINAGE AREA = 0.08 ACRES
    - CURVE NUMBER
        - 0.01 ACRES LAWN (C SOILS) = 74
        - 0.01 ACRES WOODS (C SOILS) = 70
        - 0.01 ACRES WOODS (D SOILS) = 77
        - 0.05 ACRES LAWN (D SOILS) = 80
        - WEIGHTED CN = 78
    - TC = 5 MINS
    - o FLOW = 0.533 CFS (50-YEAR STORM)
    - o SLOPE @ 5.71%, DEPTH IS 1 FT. AND BOTTOM WIDTH IS 4 FT. SIDE SLOPES 3:1
    - o S75BN MATTING, STAPLE PATTERN D.

- SWALE 3
    - DRAINAGE AREA = 0.08 ACRES
    - CURVE NUMBER
        - 0.07 ACRES LAWN (C SOILS) = 74
        - 0.01 ACRES WOODS (C SOILS) = 70
        - WEIGHTED CN = 74
    - TC = 5 MINS
    - o FLOW = 0.482 CFS (50-YEAR STORM)
    - o SLOPE @ 7.1%, DEPTH IS 1 FT. AND BOTTOM WIDTH IS 3 FT. SIDE SLOPES 8:1
    - o S75BN MATTING, STAPLE PATTERN D.

- RIPRAP APRON 1
    - o FLOW = 7.364 CFS (50-YEAR STORM) SAME AS TOTAL POST TO POI 1
    - o VELOCITY = 4.60 FPS
    - o PROPOSED: R-5 STONE, 5’ INITIAL WIDTH, 13’ TERMINAL WIDTH, 9’ LENGTH, 27” THICK

- RIPRAP APRON 2
    - o FLOW = 1.594 CFS (50-YEAR STORM) SAME AS OUTFLOW OF BERM 1

- VELOCITY = 4.60 FPS
- PROPOSED: R-3 STONE, 3' INITIAL WIDTH, 9' TERMINAL WIDTH, 6' LENGTH, 12" THICK

• RIPRAP APRON 3
- FLOW = 2.515 CFS (50-YEAR STORM) SAME AS OUTFLOW OF BERM 2
- VELOCITY = 5.20 FPS
- PROPOSED: R-3 STONE, 3' INITIAL WIDTH, 9' TERMINAL WIDTH, 6' LENGTH, 12" THICK

DISCHARGE POINT #2 TO UNTO TO MARSHALLS CREEK

• PRE-DEVELOPMENT POI 2:
- DRAINAGE AREA = 10.36 ACRES
- CURVE NUMBER
  - 0.48 ACRES LAWN D SOILS = 80
  - 5.4 ACRES WOODS C SOILS = 70
  - 3.51 ACRES WOODS D SOILS = 77
  - 0.70 ACRES IMPERVIOUS = 98
  - 0.27 ACRES LAWN C SOILS = 74
  - WEIGHTED CN = 75
- TC = 23.0 MINS
  - SHEET FLOW = 175' @ 7.49% SLOPE, N=0.4
  - SHALLOW CONC = 200' @ 6.7%, UNPAVED
  - SHALLOW CONC = 425' @ 10.57%, UNPAVED
- POI 1 PRE-DEVELOPMENT RUNOFF RATE
  - Q1 = 5.768 CFS
  - Q2 = 9.134 CFS
  - Q5 = 14.76 CFS
  - Q10 = 22.98 CFS
  - Q25 = 34.08 CFS
  - Q50 = 40.96 CFS
  - Q100 = 50.30 CFS

• PRE-DEVELOPMENT POI 2 (DISTURBED AREA ONLY):
- DRAINAGE AREA = 1.09 ACRES
- CURVE NUMBER
  - 0.93 ACRES WOODS C SOILS = 70
  - 0.16 ACRES WOODS D SOILS = 77
  - WEIGHTED CN = 71
- TC = 21.3 MINS
  - SHEET FLOW = 100' @ 9.75% SLOPE, N=0.4
  - SHALLOW CONC = 75' @ 9.75%, UNPAVED
- POI 1 PRE-DEVELOPMENT RUNOFF RATE
  - Q1 = 0.396 CFS
  - Q2 = 0.702 CFS
  - Q5 = 1.233 CFS
  - Q10 = 2.031 CFS
  - Q25 = 3.126 CFS
  - Q50 = 3.822 CFS
  - Q100 = 4.776 CFS

- POST-DEVELOPMENT POI 2:
- POST-DEVELOPMENT POI 2 BYPASS 1:
    - TOTAL DRAINAGE AREA = 6.97 ACRES
    - CURVE NUMBER
        - 0.11 ACRES MEADOW D SOILS = 78
        - 0.70 ACRES IMPERVIOUS = 98
        - 1.71 ACRES WOODS D SOILS = 77
        - 3.61 ACRES WOODS C SOILS = 70
        - 0.22 ACRES MEADOW (C SOILS) = 71
        - 0.62 ACRES LAWN C & D SOILS = 77 (AS SHOWN IN HYDROGRAPHS)
        COMBINATION OF 0.35 ACRES LAWN D = 80 & 0.27 LAWN C = 74
        - WEIGHTED CN = 75
    - TC = 23.0 MINS
        - SHEET FLOW = 175’ @ 7.49% SLOPE, N=0.4
        - SHALLOW CONC = 200’ @ 6.7%, UNPAVED
        - SHALLOW CONC = 425’ @ 10.57%, UNPAVED
        - RUNOFF RATE
            - Q1 = 3.881 CFS
            - Q2 = 6.145 CFS
            - Q5 = 9.927 CFS
            - Q10 = 15.46 CFS
            - Q25 = 22.93 CFS
            - Q50 = 27.56 CFS
            - Q100 = 33.84 CFS
    - AREA TO INFILTRATION BERM #3
        - DRAINAGE AREA = 3.34 ACRES
        - CURVE NUMBER
            - 0.16 ACRES IMPERVIOUS = 98
            - 0.32 ACRES LAWN (C SOILS) = 74
            - 0.86 ACRES WOODS (C SOILS) = 70
            - 1.64 ACRES WOODS (D SOILS) = 77
            - 0.21 ACRES MEADOW (C SOILS) = 71
            - 0.15 ACRES LAWN (D SOILS) = 80
            - WEIGHTED CN = 76
        - TC = 21.8 MINS
        - SHEET FLOW = 150’ @ 5.97% SLOPE, N=0.4
        - SHALLOW CONC = 110’ @ 4.76%, UNPAVED
        - SHALLOW CONC = 31’ @ 5%, PAVED
        - SHALLOW CONC = 323’ @ 11.36%, UNPAVED (AVERAGE FOR ENTIRE LENGTH)
        - RUNOFF RATE
            - Q1 = 2.036 CFS
            - Q2 = 3.156 CFS
            - Q5 = 5.011 CFS
            - Q10 = 7.718 CFS
            - Q25 = 11.34 CFS
            - Q50 = 13.58 CFS
            - Q100 = 16.60 CFS

- BERM #3
  - RECHARGE VOLUME REQUIRED:
    - I = 0.6 INCHES
    - Rev = (I)(IMPERVIOUS AREA)
    - Rev = (0.6 IN)(0.29 AC)(43560 SF)(FT/12 IN)
    - Rev = 631.32 CF
    - VOLUME OF SYSTEM BELOW ORIFICE = 8928 CF

  - RECHARGE VOLUME TIME TO DRAIN:
    - INFILTRATION RATE UTILIZED 2.5 IN/HR
    - TESTING PROVIDED A RATE OF 5.0 IN/HR WITH A SAFETY FACTOR OF 2 = 2.5 IN/HR
    - DRAIN TIME OF REV = (2.4 FT DEPTH OF INFILTRATION AREA)(HR/2.5 IN)(12 IN/FT) = 11.52 HOURS

  • BOTTOM @ 686.00, TOP BERM @ 690.00, 5 FT WIDE SPILLWAY @ 689.50, RISER @ 689.40, 18" HDPE DISCHARGE PIPE 27' LONG @ 13.89% INV. OUT @ 686.00, 5" X 36" ORIFICE @ 688.40, (2) 5" X 24" ORIFICES @ 688.40

  • OUTFLOW
    - o Q1 = 0.000 CFS, ELEV @ 687.81
    - o Q2 = 0.000 CFS, ELEV @ 688.30
    - o Q5 = 1.859 CFS, ELEV @ 688.58
    - o Q10 = 5.592 CFS, ELEV @ 688.78
    - o Q25 = 9.083 CFS, ELEV @ 689.03
    - o Q50 = 10.60 CFS, ELEV @ 689.18
    - o Q100 = 12.00 CFS, ELEV @ 689.43

• POST-DEVELOPMENT RELEASE RATE CRITERIA – DISTRICT C ON ACT 167 MAP:
  - o 2YR POST TO 1 YR PRE
    - ▪2YR POST=9.134(2YR PRE)–0.702(2YR CHANGED)+0.396(1YR CHANGED)= 8.828 CFS
  - o 5YR POST TO 5 YR PRE
    - ▪5YR POST=14.76(5YR PRE)CFS
  - o 10YR POST TO 10 YR PRE
    - ▪10YR POST=22.98(10YR PRE)CFS
  - o 25YR POST TO 25 YR PRE
    - ▪25YR POST=34.08(25YR PRE)CFS
  - o 50YR POST TO 50 YR PRE
    - ▪50YR POST=40.96(50YR PRE)CFS
  - o 100YR POST TO 100 YR PRE
    - ▪100YR POST= 50.30(100YR PRE)CFS

O TOTAL POI 1 POST-DEVELOPMENT RUNOFF RATE

- **Q1 = 3.881 CFS**
- **Q2 = 6.145 CFS**
- **Q5 = 9.927 CFS**
- **Q10 = 18.91 CFS**
- **Q25 = 31.23 CFS**
- **Q50 = 37.26 CFS**
- **Q100 = 45.11 CFS**

DESIGN STORM	PRE-DEV. FLOW/VOLUME– POI 2	POST-DEV. FLOW/VOLUME – POI 2
1-YEAR	5.768 CFS / 22698 CF	3.881 CFS / 15271 CF
2-YEAR	9.134 CFS / 33808 CF	6.145 CFS / 22745 CF
5-YEAR	14.76 CFS / 52558 CF	9.927 CFS / 39037 CF
10-YEAR	22.98 CFS / 80289 CF	18.91 CFS / 64716 CF
25-YEAR	34.08 CFS / 117842 CF	31.23 CFS / 100235 CF
50-YEAR	40.96 CFS / 141430 CF	37.26 CFS / 122814 CF
100-YEAR	50.30 CFS / 173760 CF	45.11 CFS / 1537933 CF

• SWALE 4

- DRAINAGE AREA = 0.81 ACRES
- CURVE NUMBER
  - 0.07 ACRES LAWN (C SOILS) = 74
  - 0.27 ACRES WOODS (C SOILS) = 70
  - 0.47 ACRES WOODS (D SOILS) = 77
  - WEIGHTED CN = 74

o TC = 22.8 MINS

- SHEET FLOW = 175’ @ 6.90% SLOPE, N=0.4
- SHALLOW CONC = 155’ @ 7.82%, UNPAVED
- SHALLOW CONC = 61’ @ 3.22%, PAVED
- SHALLOW CONC = 106’ @ 14.57%, UNPAVED

o FLOW = 3.113 CFS (50-YEAR STORM)

o SLOPE @ 2.8%, DEPTH IS 0.5 FT. AND BOTTOM WIDTH IS 4 FT. SIDE SLOPES 3:1 LEFT, 32:1 RIGHT

o S75BN MATTING, STAPLE PATTERN D.

• LEVEL SPREADER 1:

· 100-YEAR MAX DISCHARGE = 12.00 CFS

· LENGTH = 13 FOOT PER CFS = 156 FT

· PROPOSED LEVEL SPREADER TO BE 2 FT DEEP, 1 FT WIDE, AND 156 FT LONG· 6” PERFORATED PIPE RUNNING THROUGH LENGTH OF SPREADER

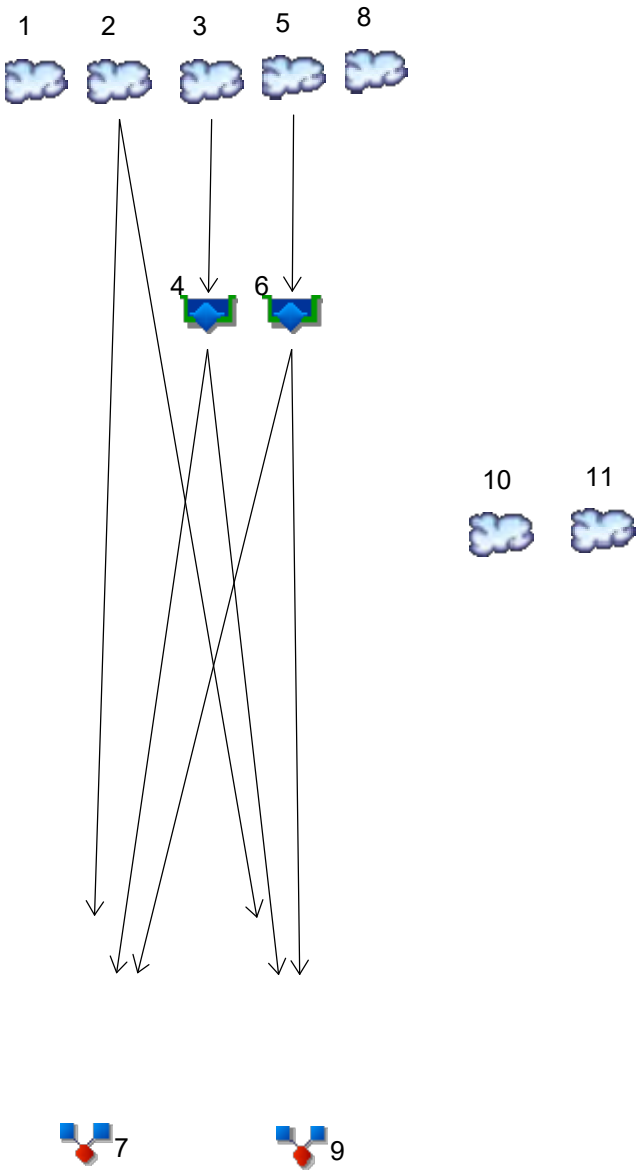
· VELOCITY REQUIREMENT FOR DOWNGRADIENT VEGETATION = 4 FT/S

· Q = CLH^2/3 5.603 12 = 3(156)H^3/2 H = 0.026 FT

· A = 0.026 X 156 = 4.056 FT^2 V = 12/4.056 = 2.96 FT/S – ACCEPTABLE

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023



Legend

Hyd.	Origin	Description
1	SCS Runoff	POI 1 PRE
2	SCS Runoff	POI 1 BYPASS
3	SCS Runoff	TO BERM #1
4	Reservoir	BERM #1
5	SCS Runoff	TO BERM #2
6	Reservoir	BERM #2
7	Combine	TOTAL POST POI 1
8	SCS Runoff	Pre Disturbed Area POI 1
9	Combine	Post to Swale #1
10	SCS Runoff	Post to Swale #2
11	SCS Runoff	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	0.885	2	732	4,351	------	------	------	POI 1 PRE
2	SCS Runoff	0.623	2	732	2,706	------	------	------	POI 1 BYPASS
3	SCS Runoff	0.519	2	720	1,209	------	------	------	TO BERM #1
4	Reservoir	0.000	2	1548	0	3	682.06	666	BERM #1
5	SCS Runoff	0.535	2	730	2,158	------	------	------	TO BERM #2
6	Reservoir	0.000	2	1050	0	5	692.35	973	BERM #2
7	Combine	0.623	2	732	2,706	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	0.704	2	720	1,898	------	------	------	Pre Disturbed Area POI 1
9	Combine	0.623	2	732	2,706	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.098	2	718	197	------	------	------	Post to Swale #2
11	SCS Runoff	0.073	2	718	151	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	1.484	2	732	6,635	------	------	------	POI 1 PRE
2	SCS Runoff	0.935	2	732	3,904	------	------	------	POI 1 BYPASS
3	SCS Runoff	0.759	2	720	1,744	------	------	------	TO BERM #1
4	Reservoir	0.000	2	1498	0	3	682.36	1,015	BERM #1
5	SCS Runoff	0.815	2	730	3,144	------	------	------	TO BERM #2
6	Reservoir	0.014	2	806	35	5	692.71	1,516	BERM #2
7	Combine	0.935	2	732	3,939	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	1.229	2	720	3,014	------	------	------	Pre Disturbed Area POI 1
9	Combine	0.935	2	732	3,939	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.142	2	718	284	------	------	------	Post to Swale #2
11	SCS Runoff	0.112	2	718	227	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.507	2	732	10,550	------	------	------	POI 1 PRE
2	SCS Runoff	1.446	2	732	5,884	------	------	------	POI 1 BYPASS
3	SCS Runoff	1.148	2	720	2,628	------	------	------	TO BERM #1
4	Reservoir	0.000	2	1834	0	3	682.88	1,599	BERM #1
5	SCS Runoff	1.275	2	730	4,787	------	------	------	TO BERM #2
6	Reservoir	0.605	2	744	1,169	5	692.90	1,792	BERM #2
7	Combine	1.659	2	742	7,053	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	2.130	2	720	4,973	------	------	------	Pre Disturbed Area POI 1
9	Combine	1.659	2	742	7,053	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.213	2	718	428	------	------	------	Post to Swale #2
11	SCS Runoff	0.178	2	718	356	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.023	2	732	16,417	------	------	------	POI 1 PRE
2	SCS Runoff	2.181	2	730	8,758	------	------	------	POI 1 BYPASS
3	SCS Runoff	1.710	2	718	3,911	------	------	------	TO BERM #1
4	Reservoir	0.196	2	740	846	3	683.06	1,897	BERM #1
5	SCS Runoff	1.946	2	728	7,185	------	------	------	TO BERM #2
6	Reservoir	1.455	2	736	3,037	5	693.02	2,015	BERM #2
7	Combine	3.726	2	734	12,642	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	3.477	2	720	7,975	------	------	------	Pre Disturbed Area POI 1
9	Combine	3.726	2	734	12,642	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.316	2	716	638	------	------	------	Post to Swale #2
11	SCS Runoff	0.273	2	718	550	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	6.077	2	730	24,449	------	------	------	POI 1 PRE
2	SCS Runoff	3.151	2	730	12,592	------	------	------	POI 1 BYPASS
3	SCS Runoff	2.448	2	718	5,623	------	------	------	TO BERM #1
4	Reservoir	1.108	2	726	2,328	3	683.23	2,355	BERM #1
5	SCS Runoff	2.834	2	728	10,401	------	------	------	TO BERM #2
6	Reservoir	2.146	2	736	5,738	5	693.19	2,496	BERM #2
7	Combine	6.052	2	730	20,657	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	5.307	2	720	12,155	------	------	------	Pre Disturbed Area POI 1
9	Combine	6.052	2	730	20,657	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.450	2	716	917	------	------	------	Post to Swale #2
11	SCS Runoff	0.402	2	716	812	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	7.371	2	730	29,526	------	------	------	POI 1 PRE
2	SCS Runoff	3.747	2	730	14,978	------	------	------	POI 1 BYPASS
3	SCS Runoff	2.899	2	718	6,689	------	------	------	TO BERM #1
4	Reservoir	1.594	2	724	3,284	3	683.32	2,592	BERM #1
5	SCS Runoff	3.381	2	728	12,408	------	------	------	TO BERM #2
6	Reservoir	2.515	2	736	7,488	5	693.31	2,833	BERM #2
7	Combine	7.364	2	730	25,750	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	6.480	2	718	14,826	------	------	------	Pre Disturbed Area POI 1
9	Combine	7.364	2	730	25,750	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.533	2	716	1,091	------	------	------	Post to Swale #2
11	SCS Runoff	0.482	2	716	978	------	------	------	Post to Swale #3

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	9.137	2	730	36,514	------	------	------	POI 1 PRE
2	SCS Runoff	4.551	2	730	18,230	------	------	------	POI 1 BYPASS
3	SCS Runoff	3.505	2	718	8,142	------	------	------	TO BERM #1
4	Reservoir	2.431	2	724	4,629	3	683.43	2,891	BERM #1
5	SCS Runoff	4.120	2	728	15,148	------	------	------	TO BERM #2
6	Reservoir	3.307	2	736	9,943	5	693.45	3,240	BERM #2
7	Combine	9.091	2	732	32,803	2, 4, 6	------	------	TOTAL POST POI 1
8	SCS Runoff	8.093	2	718	18,526	------	------	------	Pre Disturbed Area POI 1
9	Combine	9.091	2	732	32,803	2, 4, 6,	------	------	Post to Swale #1
10	SCS Runoff	0.643	2	716	1,327	------	------	------	Post to Swale #2
11	SCS Runoff	0.591	2	716	1,206	------	------	------	Post to Swale #3

Hydrograph Report

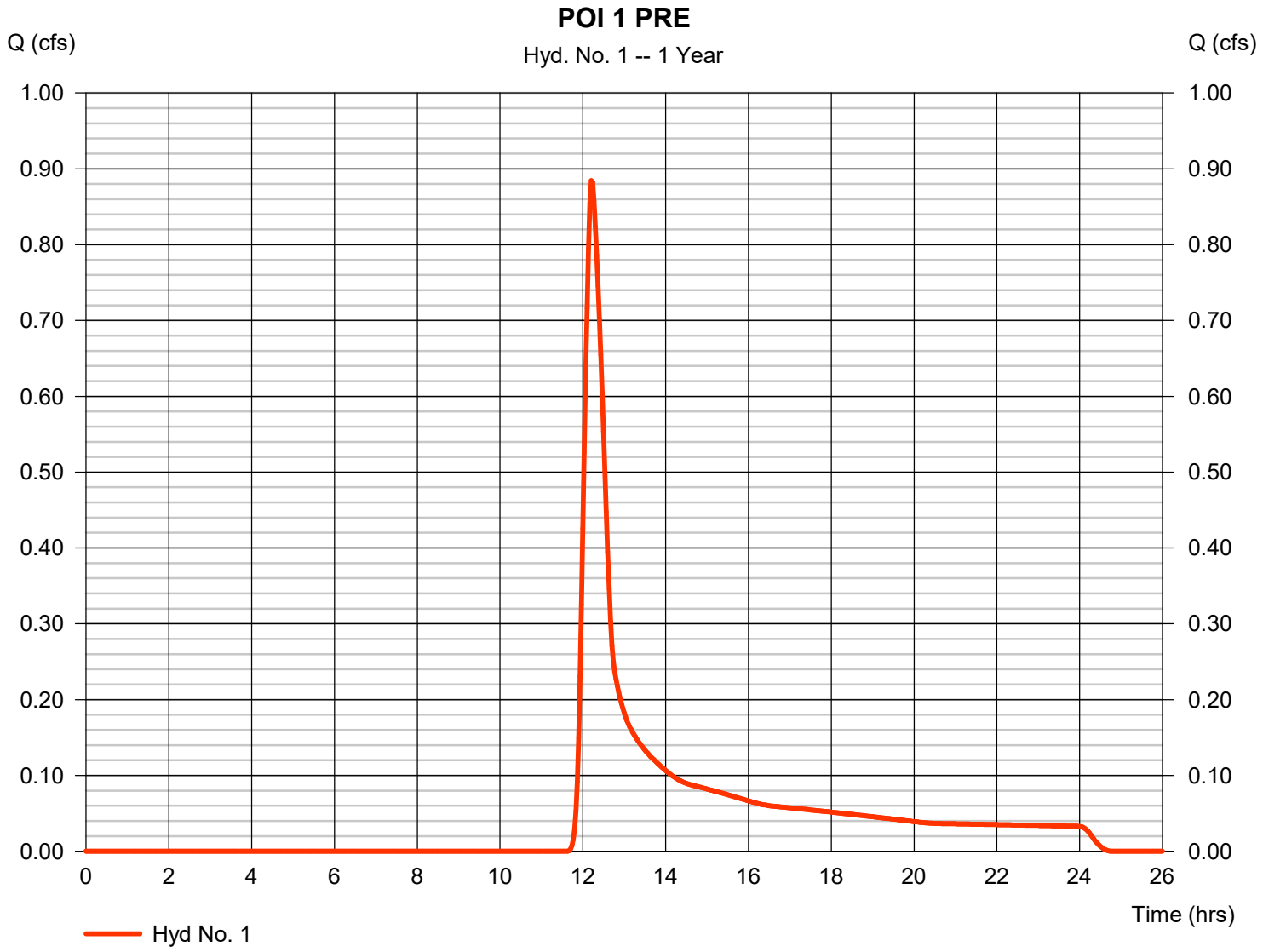
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.885 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 4,351 cuft
Drainage area	= 2.330 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 28.20 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

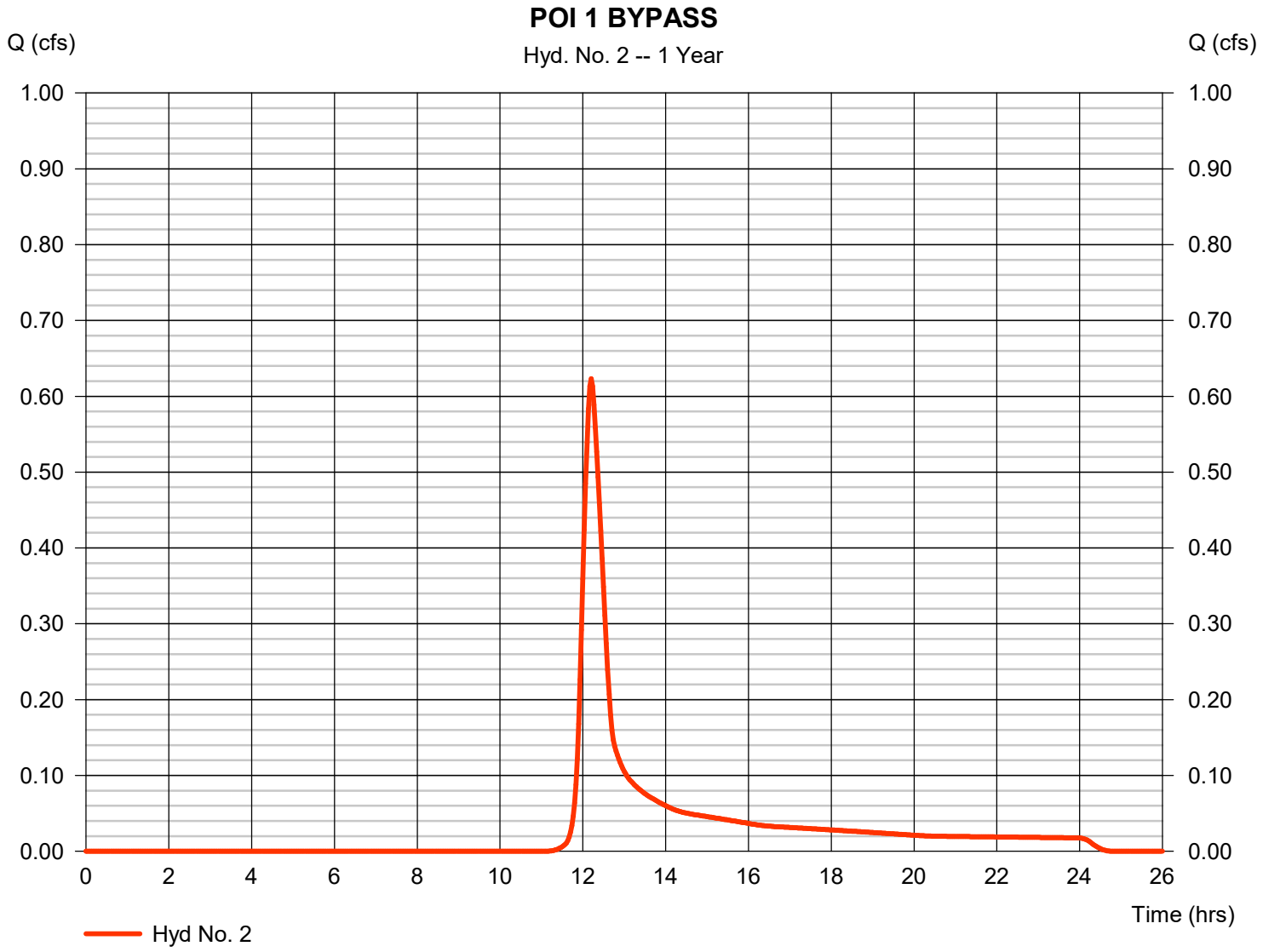
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.623 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	2,706 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

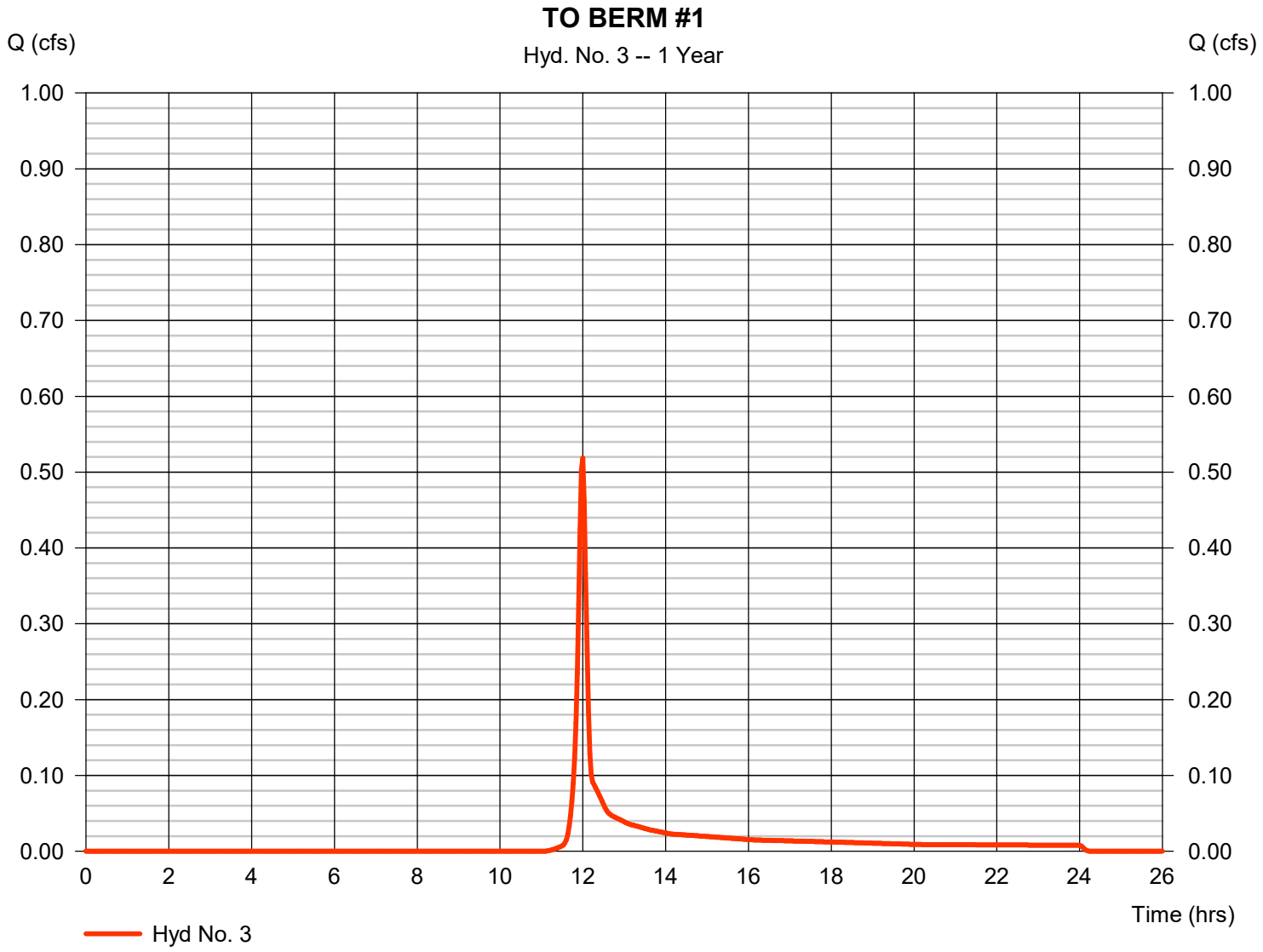
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.519 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	1,209 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

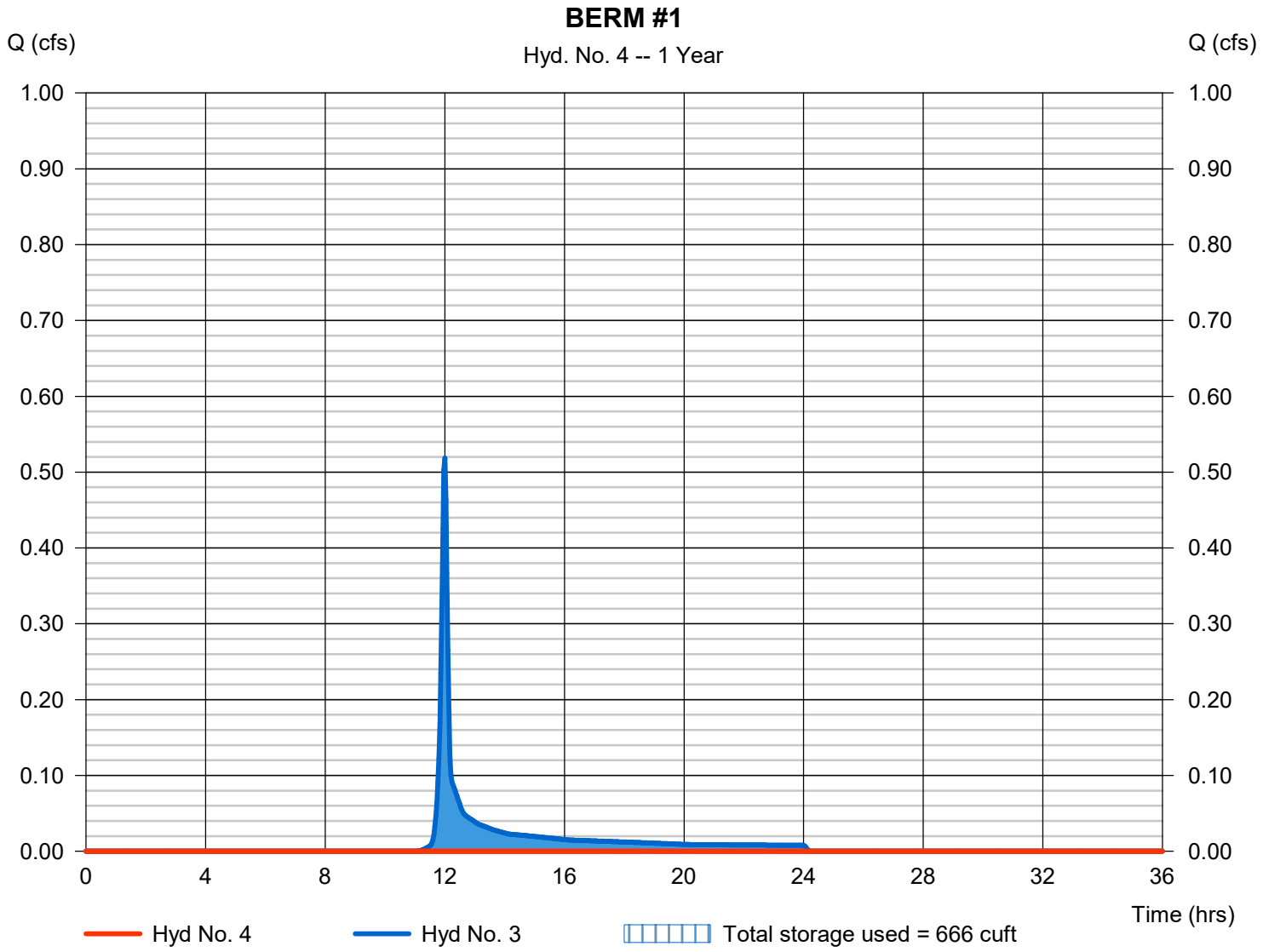
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= 25.80 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - TO BERM #1	Max. Elevation	= 682.06 ft
Reservoir name	= BERM #1	Max. Storage	= 666 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

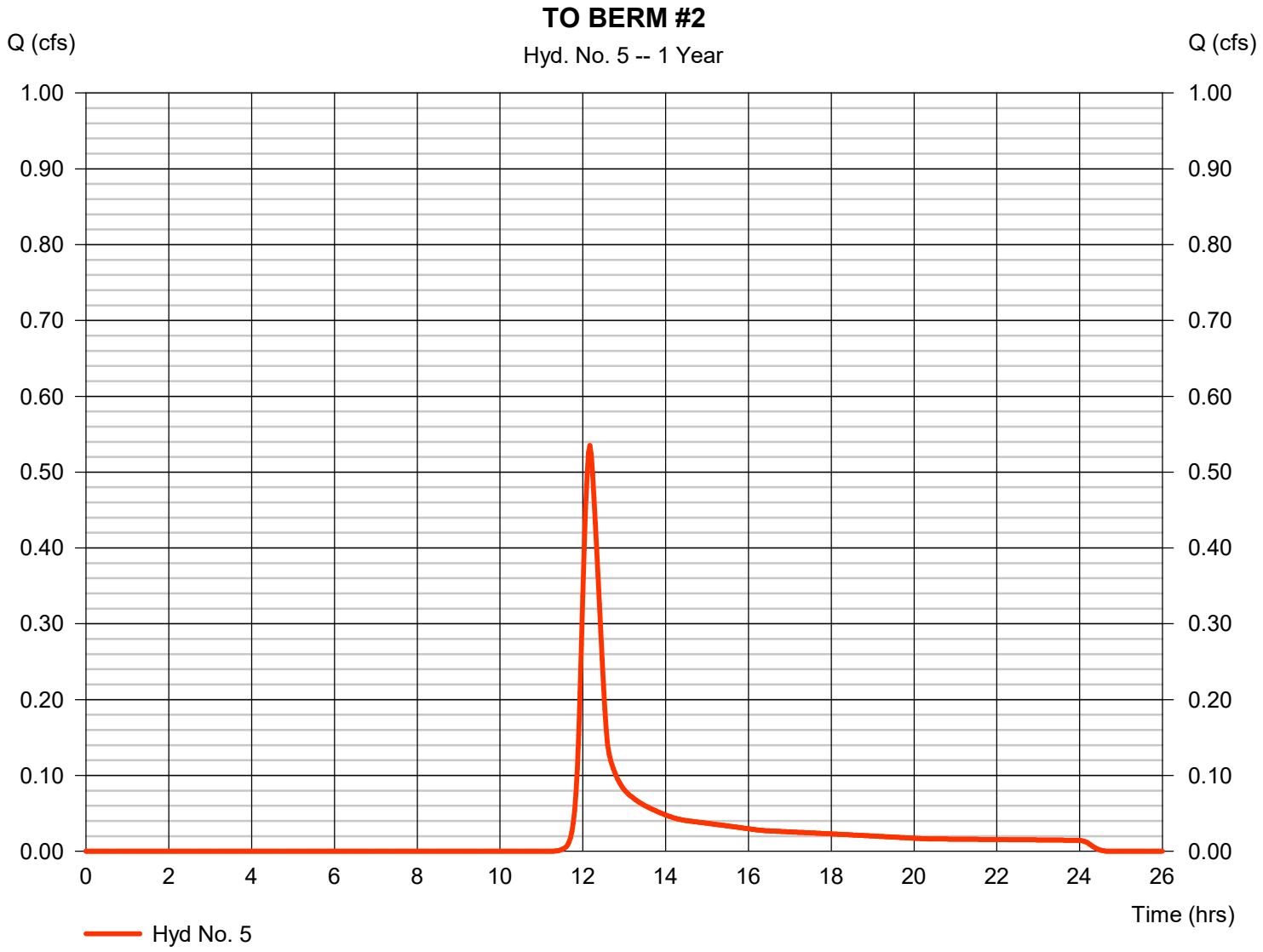
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.535 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	2,158 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

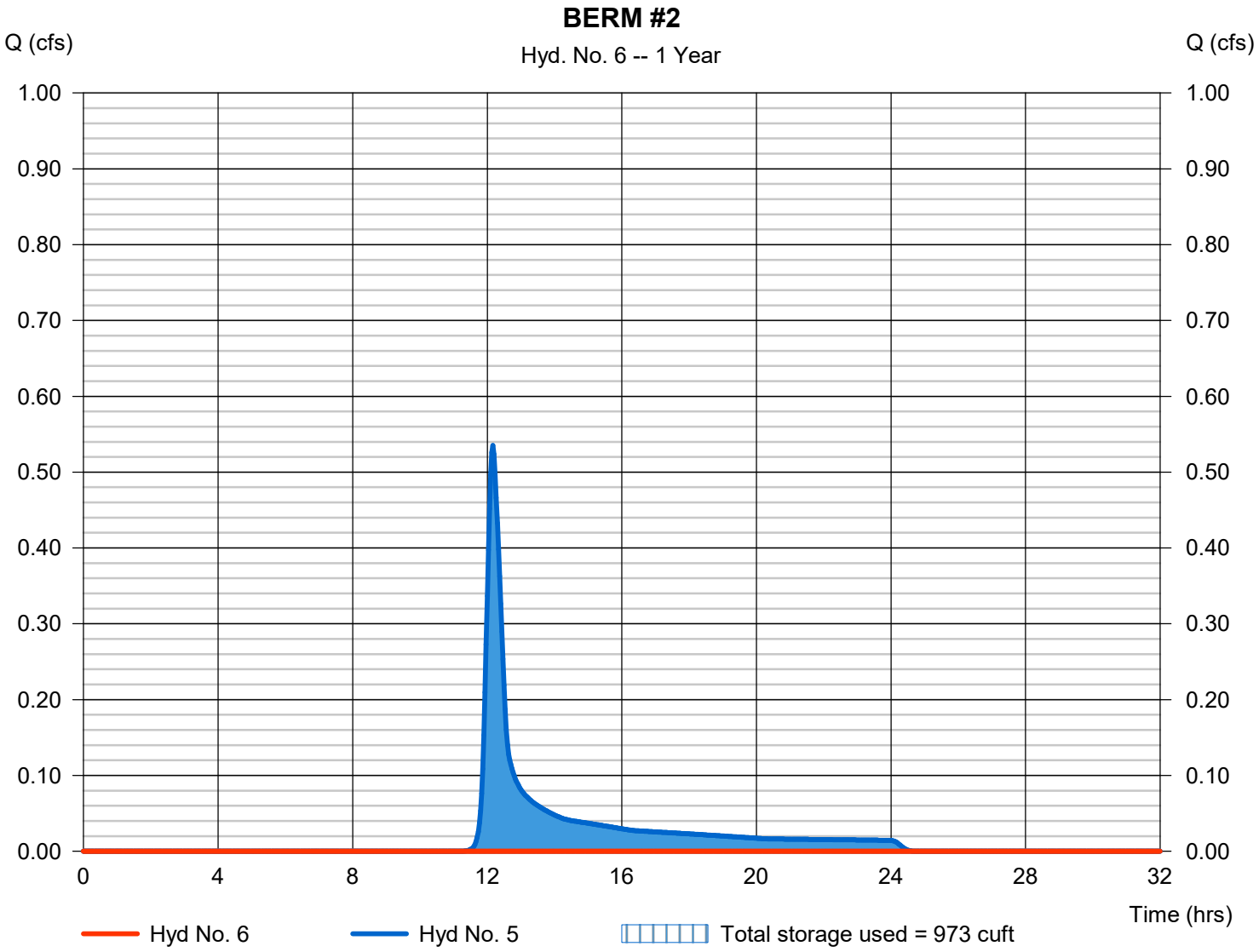
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= 17.50 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 692.35 ft
Reservoir name	= BERM #2	Max. Storage	= 973 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



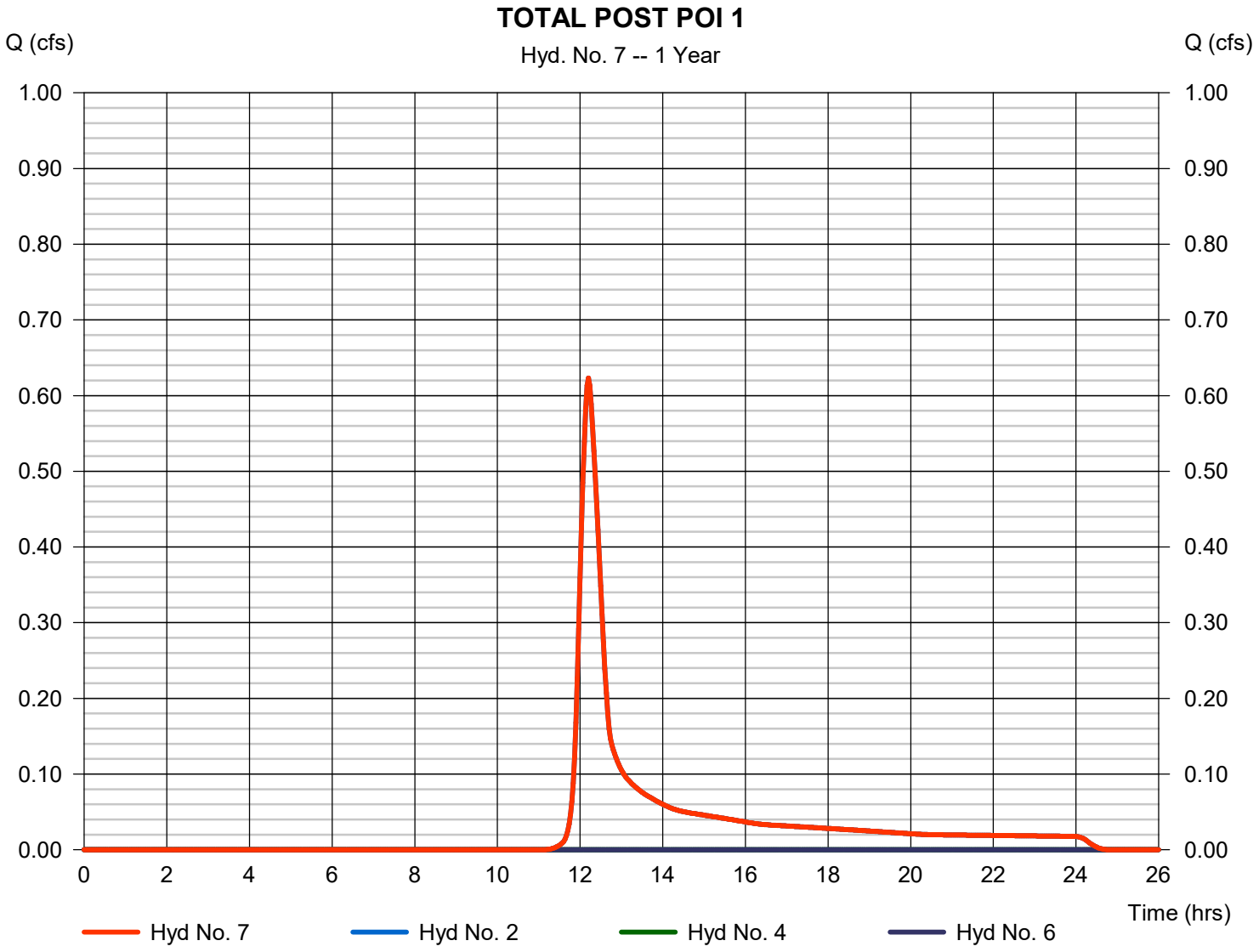
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 0.623 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 2,706 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

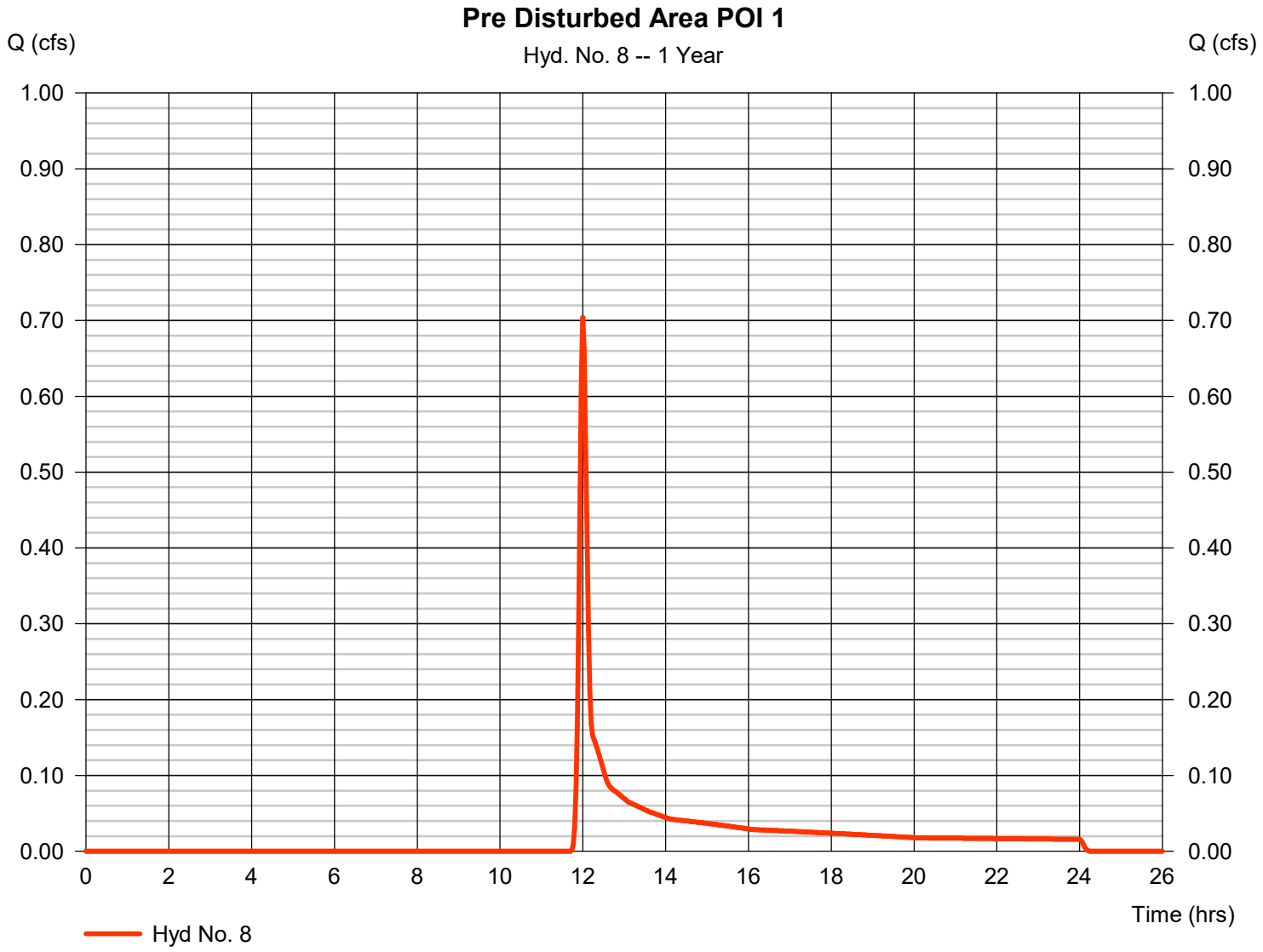
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.704 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,898 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



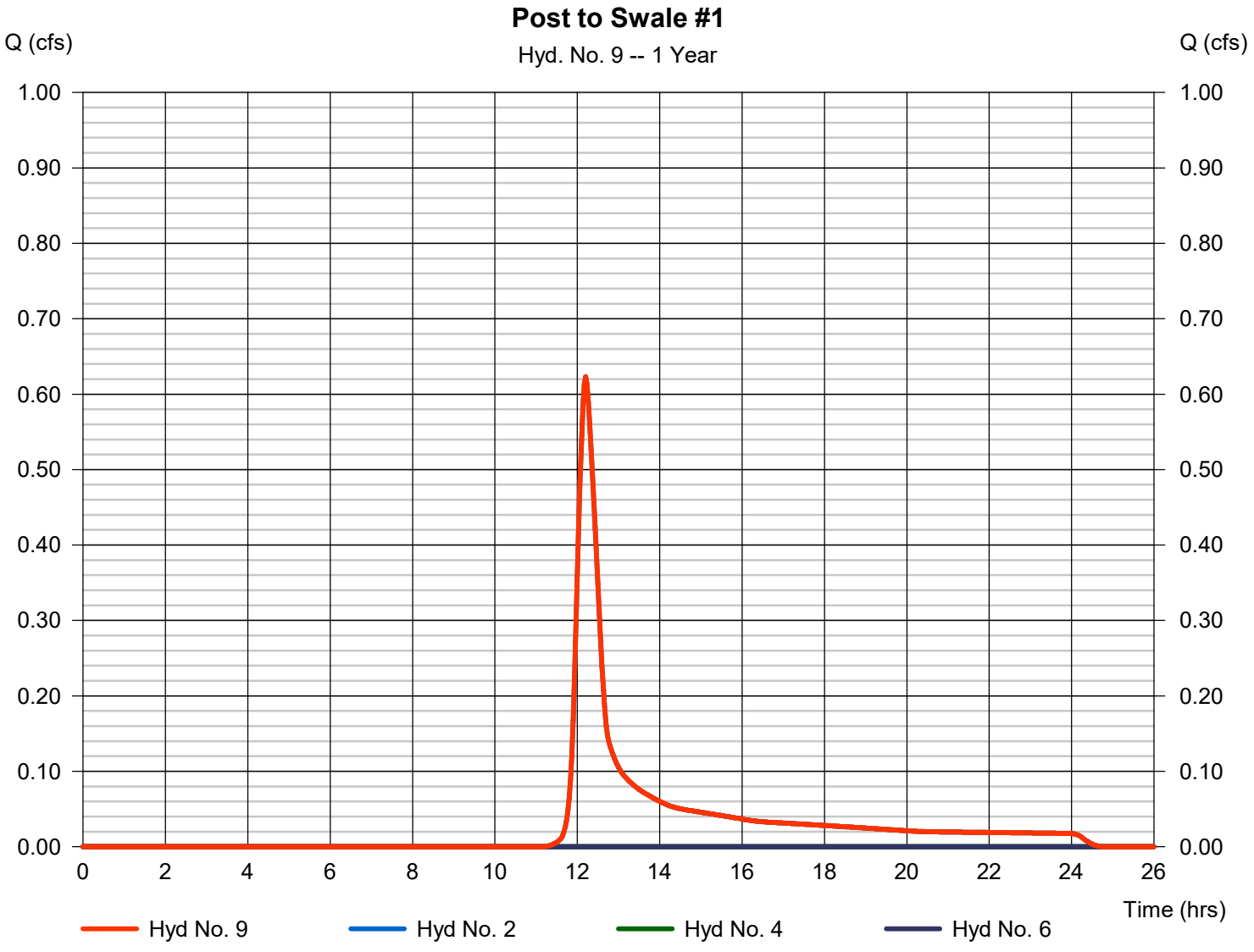
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 9

Post to Swale #1

Hydrograph type	= Combine	Peak discharge	= 0.623 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 2,706 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

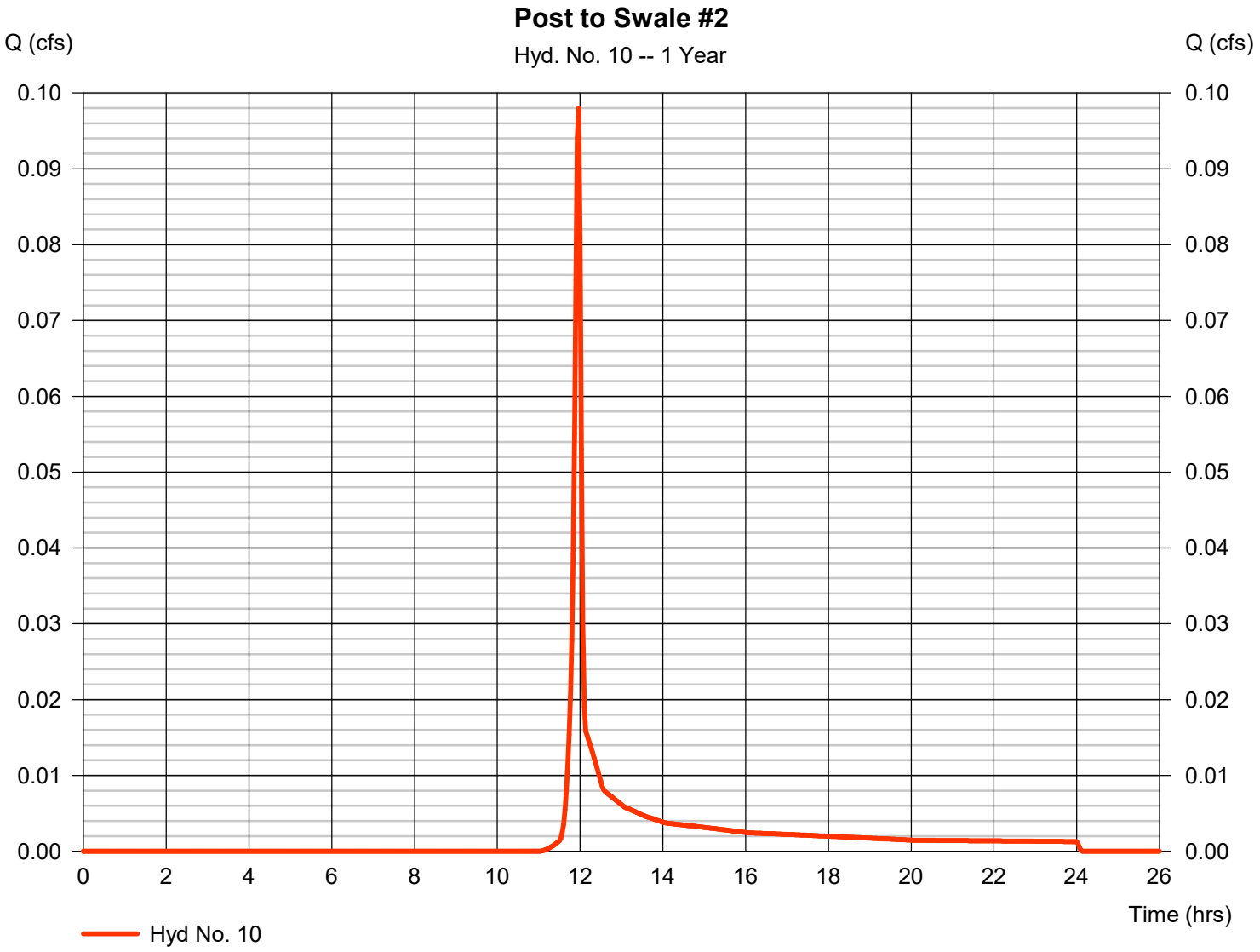
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 10

Post to Swale #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.098 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	197 cuft
Drainage area	=	0.080 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.050 x 80) + (0.010 x 74) + (0.010 x 77) + (0.010 x 70)] / 0.080



Hydrograph Report

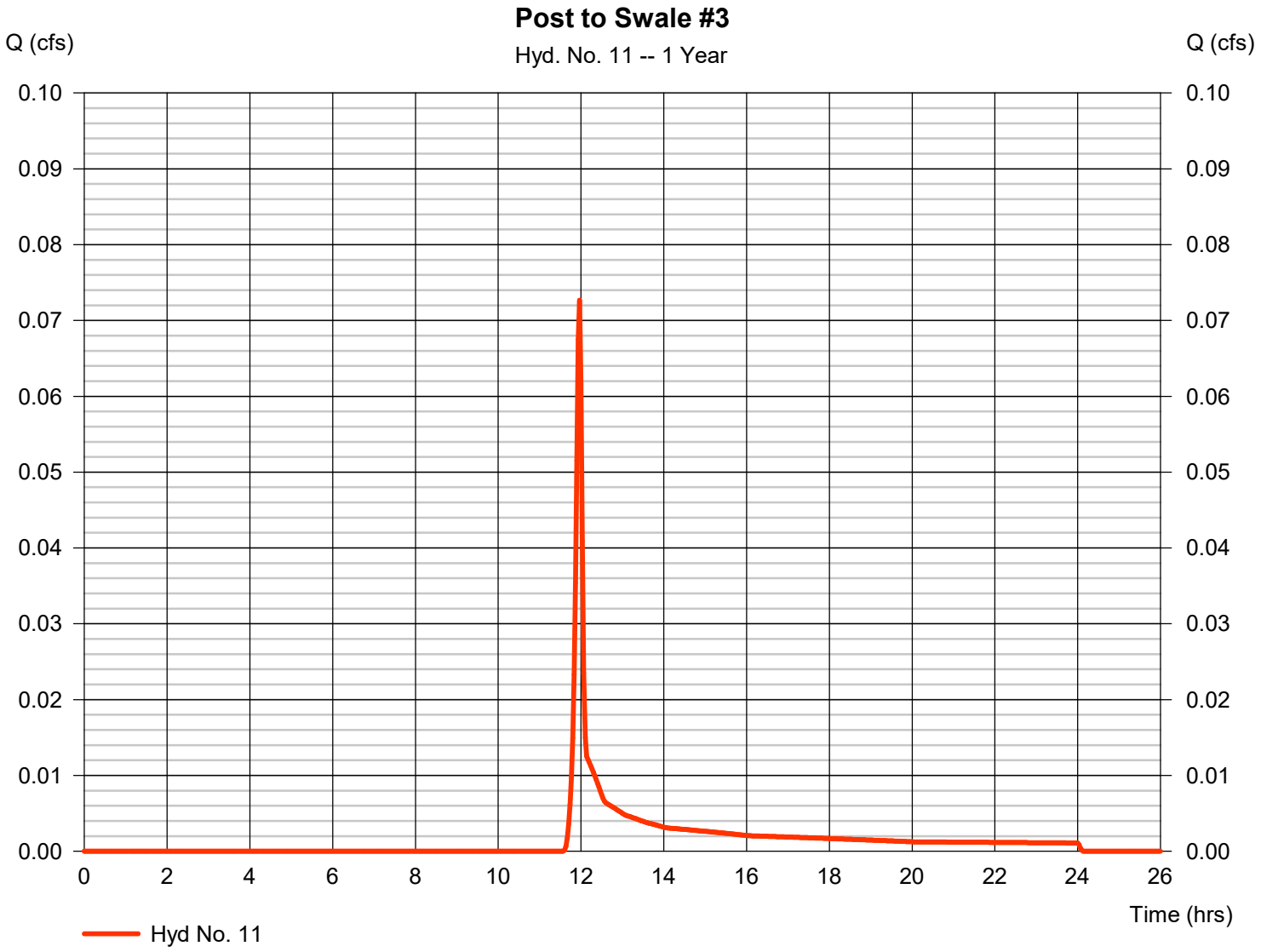
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.073 cfs
Storm frequency	=	1 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	151 cuft
Drainage area	=	0.080 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

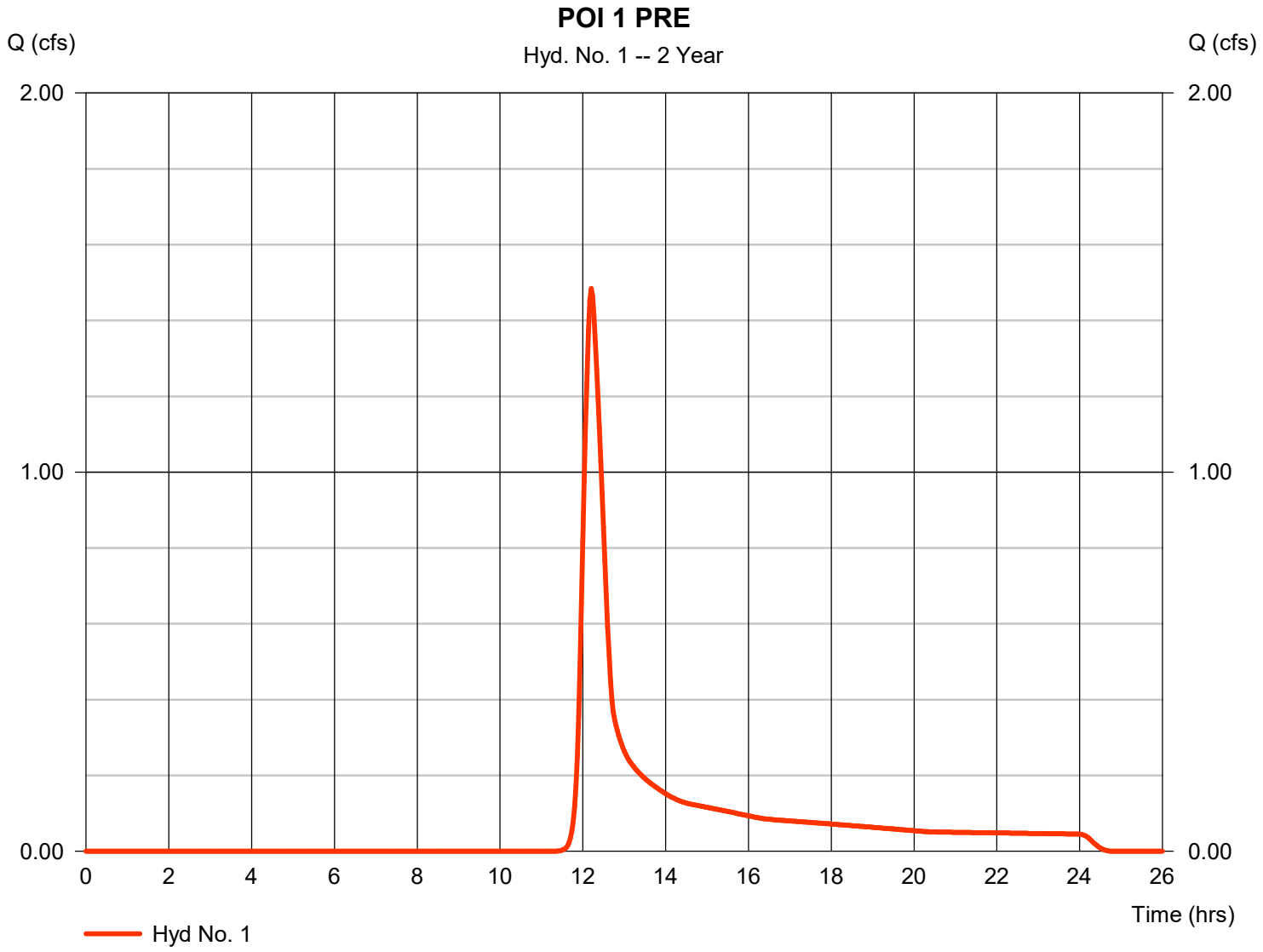
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.484 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	6,635 cuft
Drainage area	=	2.330 ac	Curve number	=	73*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	28.20 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

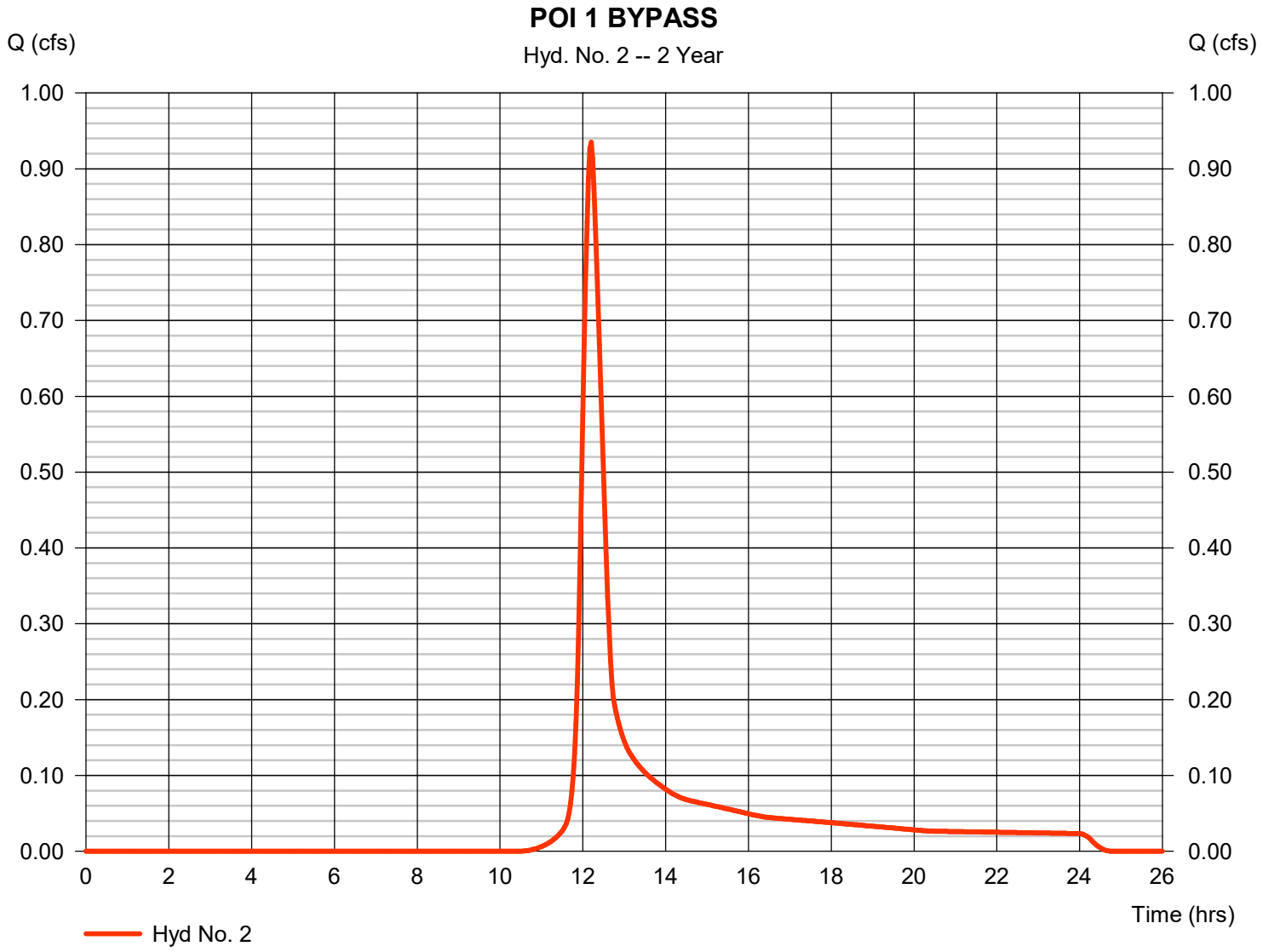
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.935 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	3,904 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

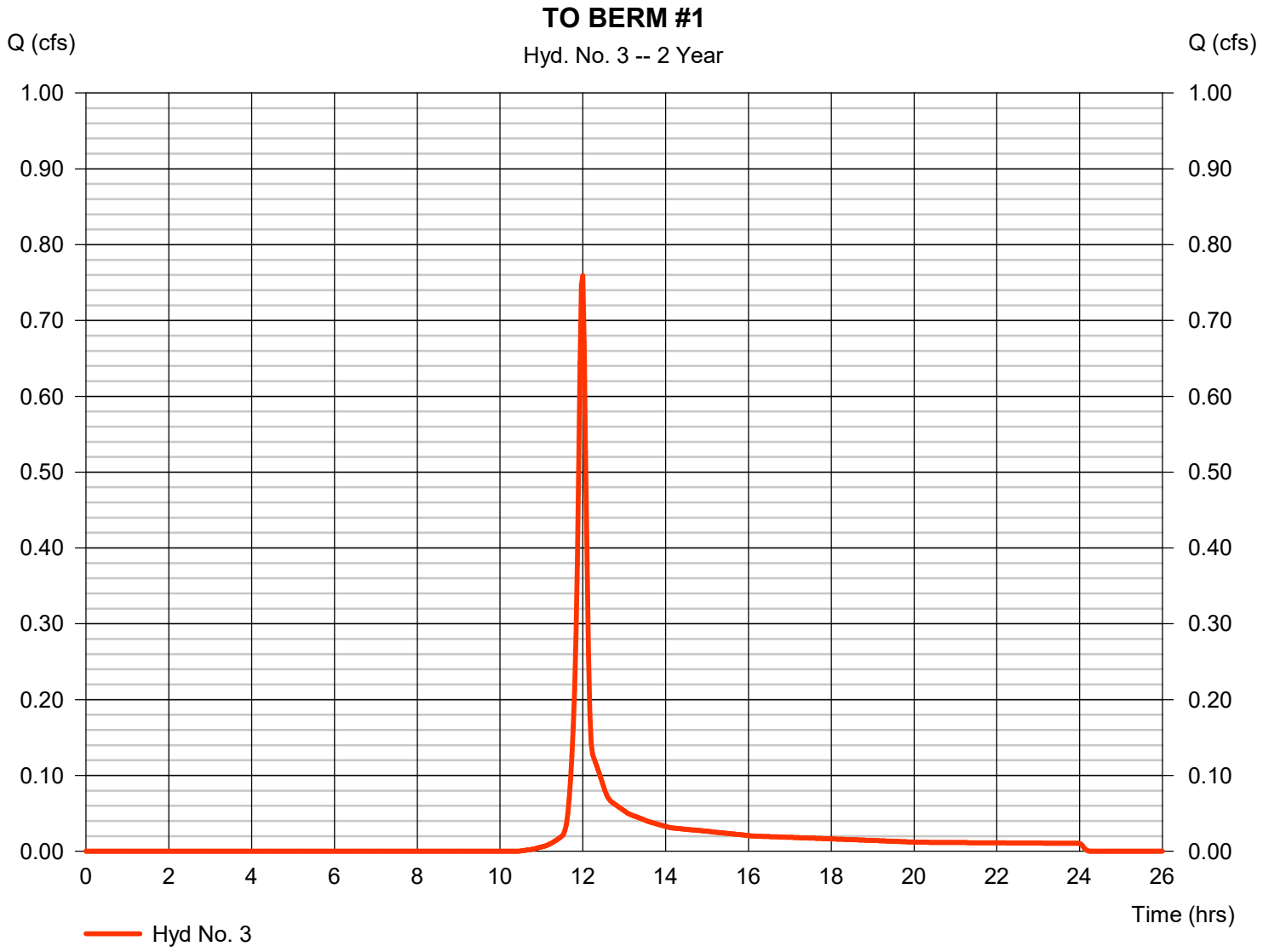
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.759 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,744 cuft
Drainage area	= 0.460 ac	Curve number	= 78*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 9.00 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

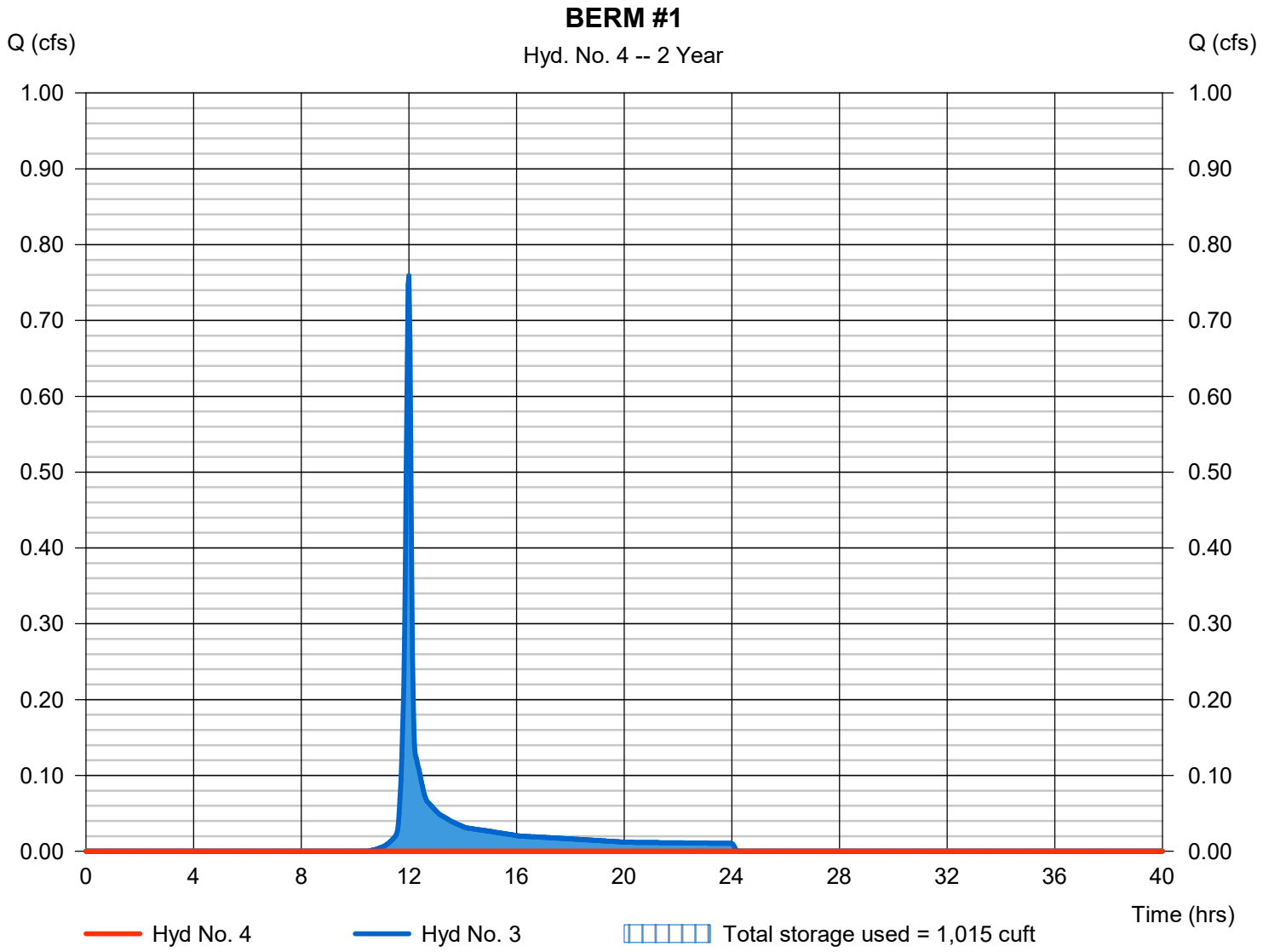
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 24.97 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - TO BERM #1	Max. Elevation	= 682.36 ft
Reservoir name	= BERM #1	Max. Storage	= 1,015 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

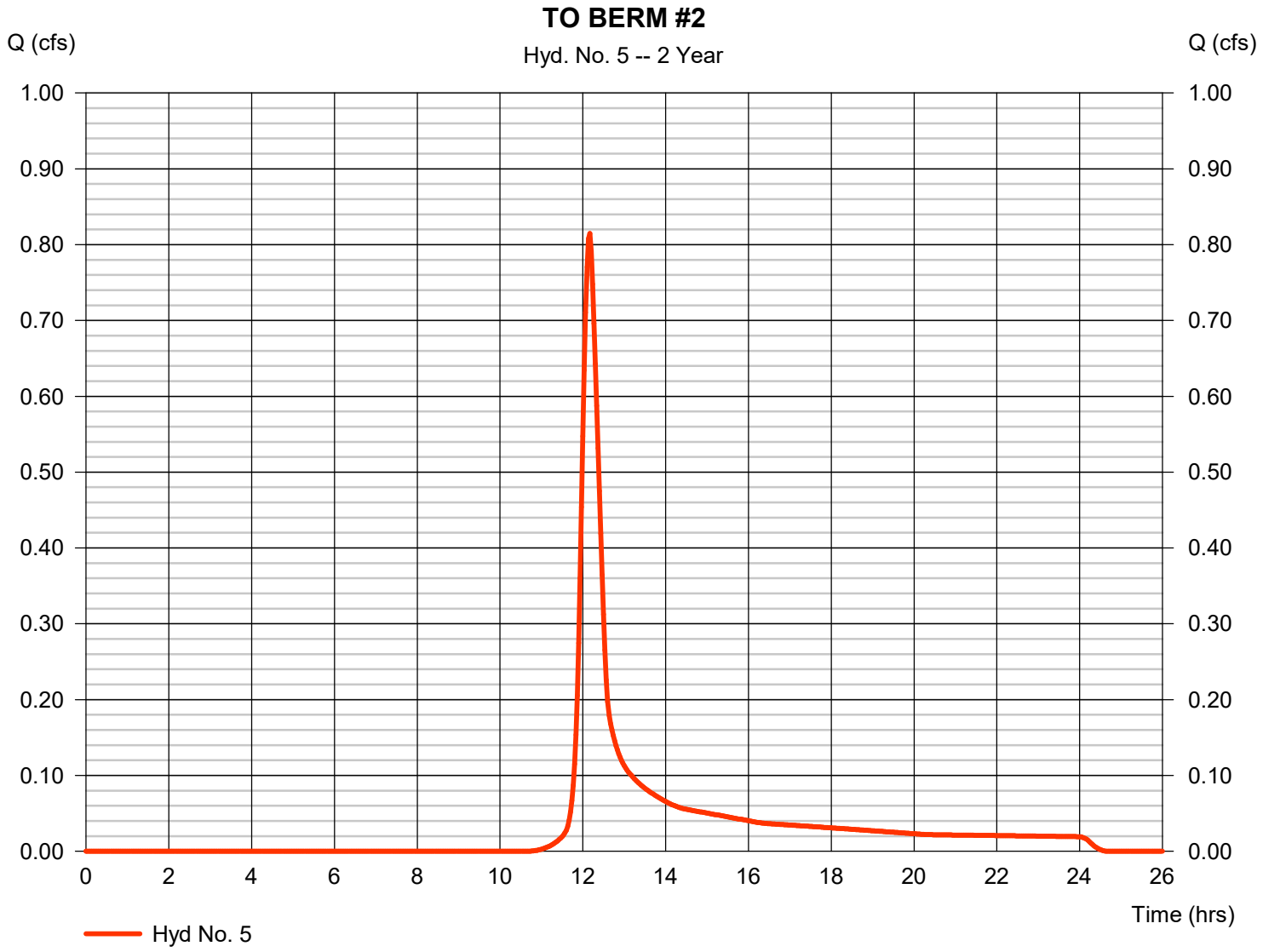
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.815 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 3,144 cuft
Drainage area	= 0.890 ac	Curve number	= 77*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 26.60 min
Total precip.	= 2.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

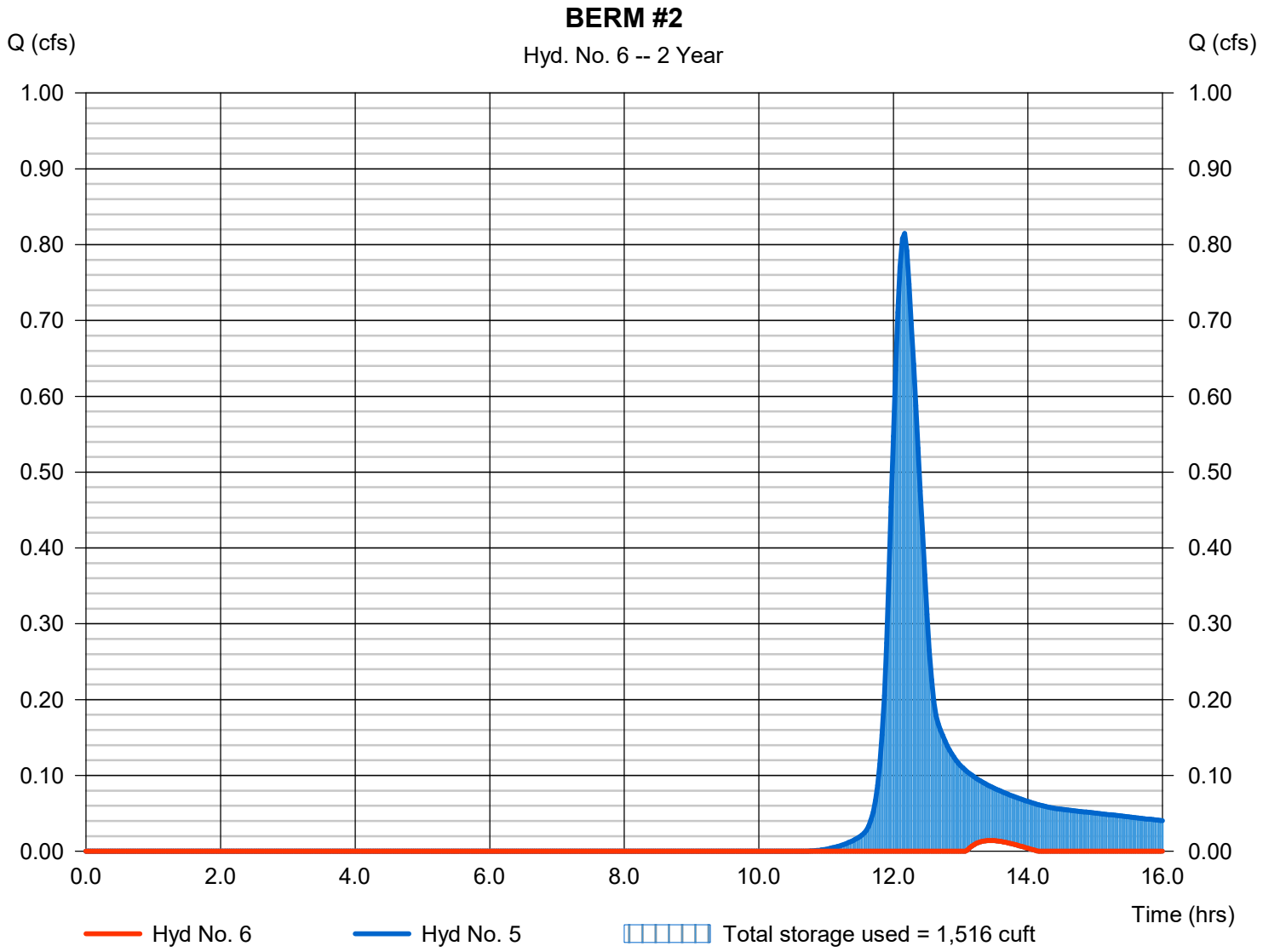
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 0.014 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.43 hrs
Time interval	= 2 min	Hyd. volume	= 35 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 692.71 ft
Reservoir name	= BERM #2	Max. Storage	= 1,516 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



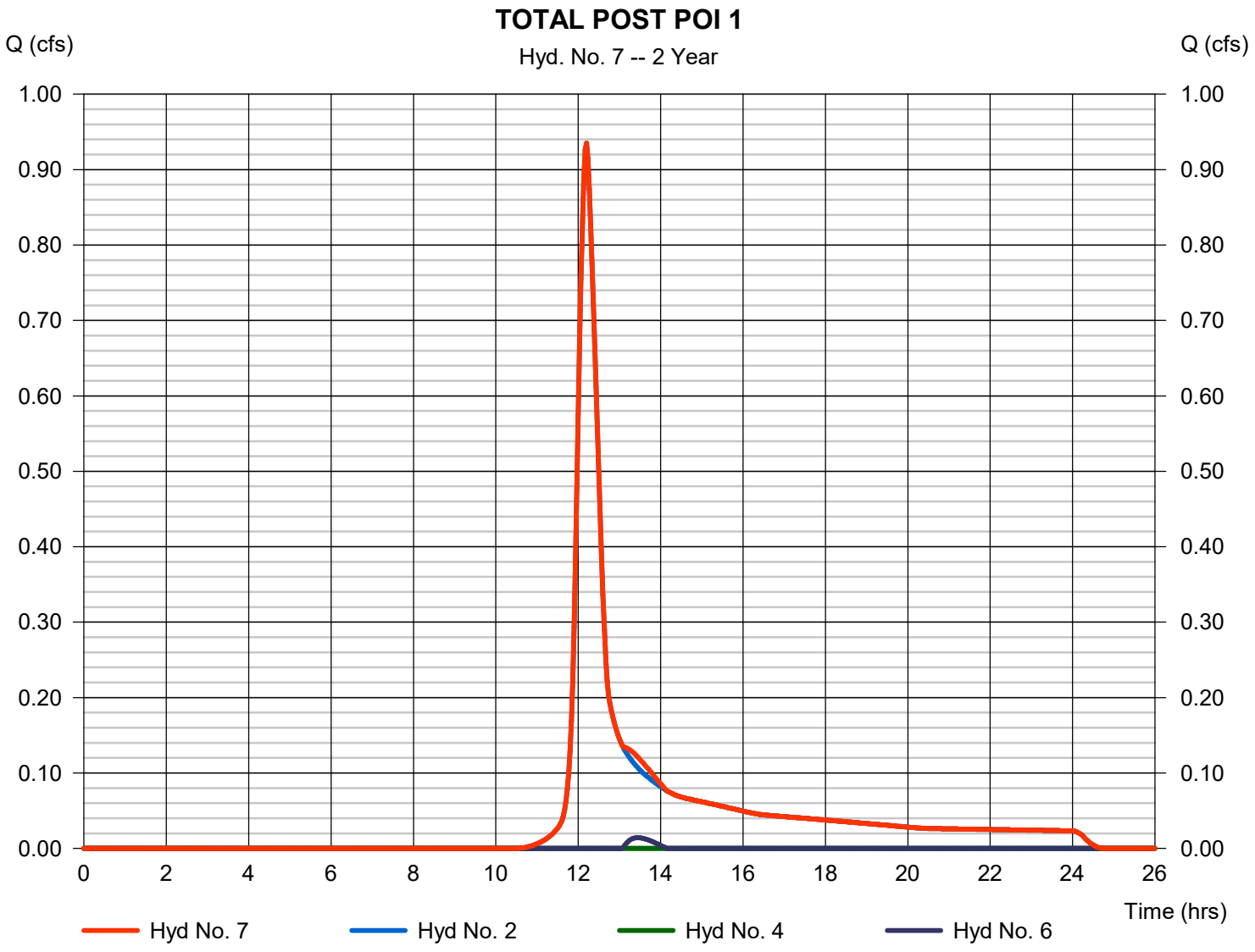
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 0.935 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 3,939 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

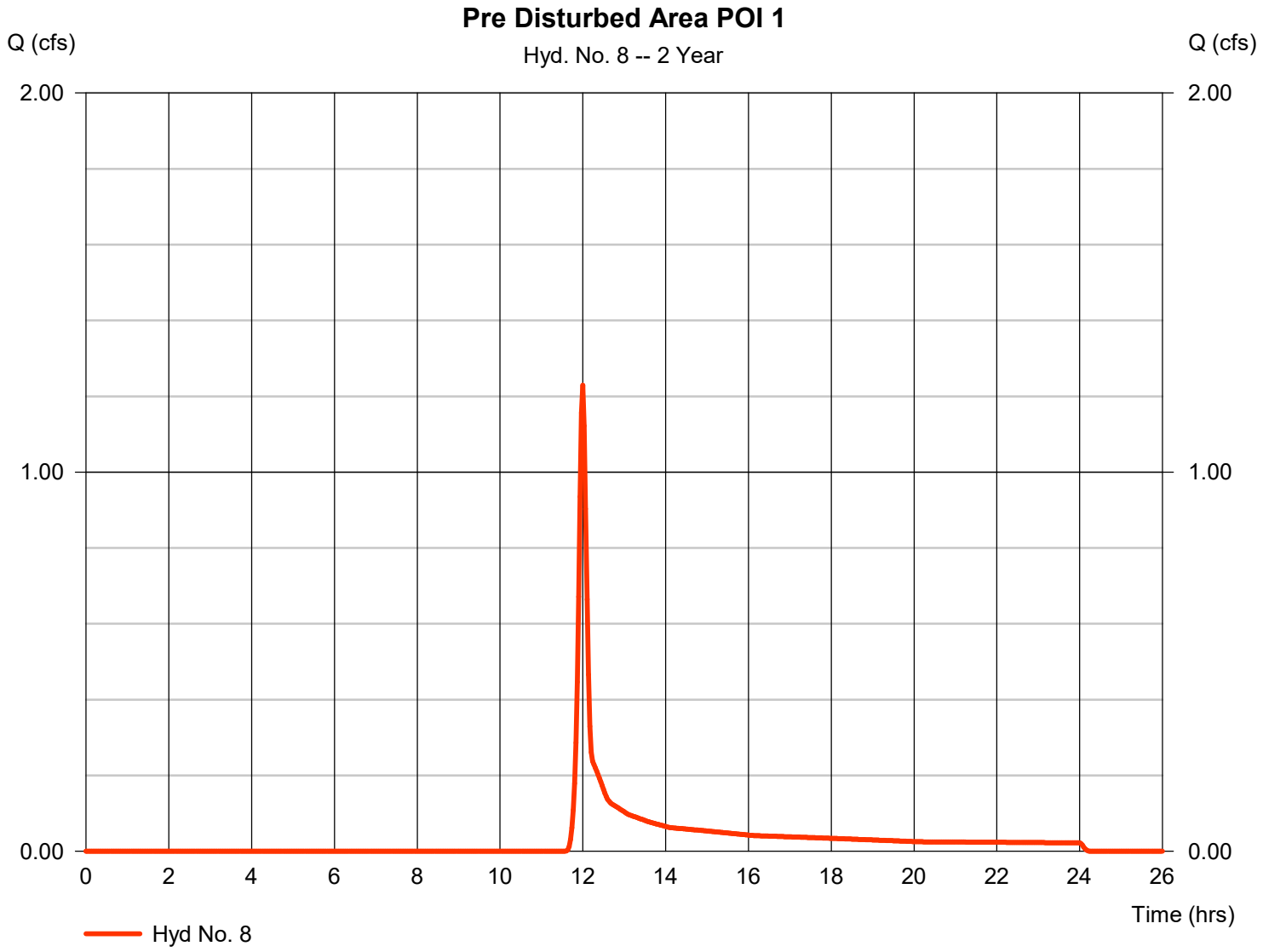
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.229 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	3,014 cuft
Drainage area	=	1.280 ac	Curve number	=	70*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.60 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



Hydrograph Report

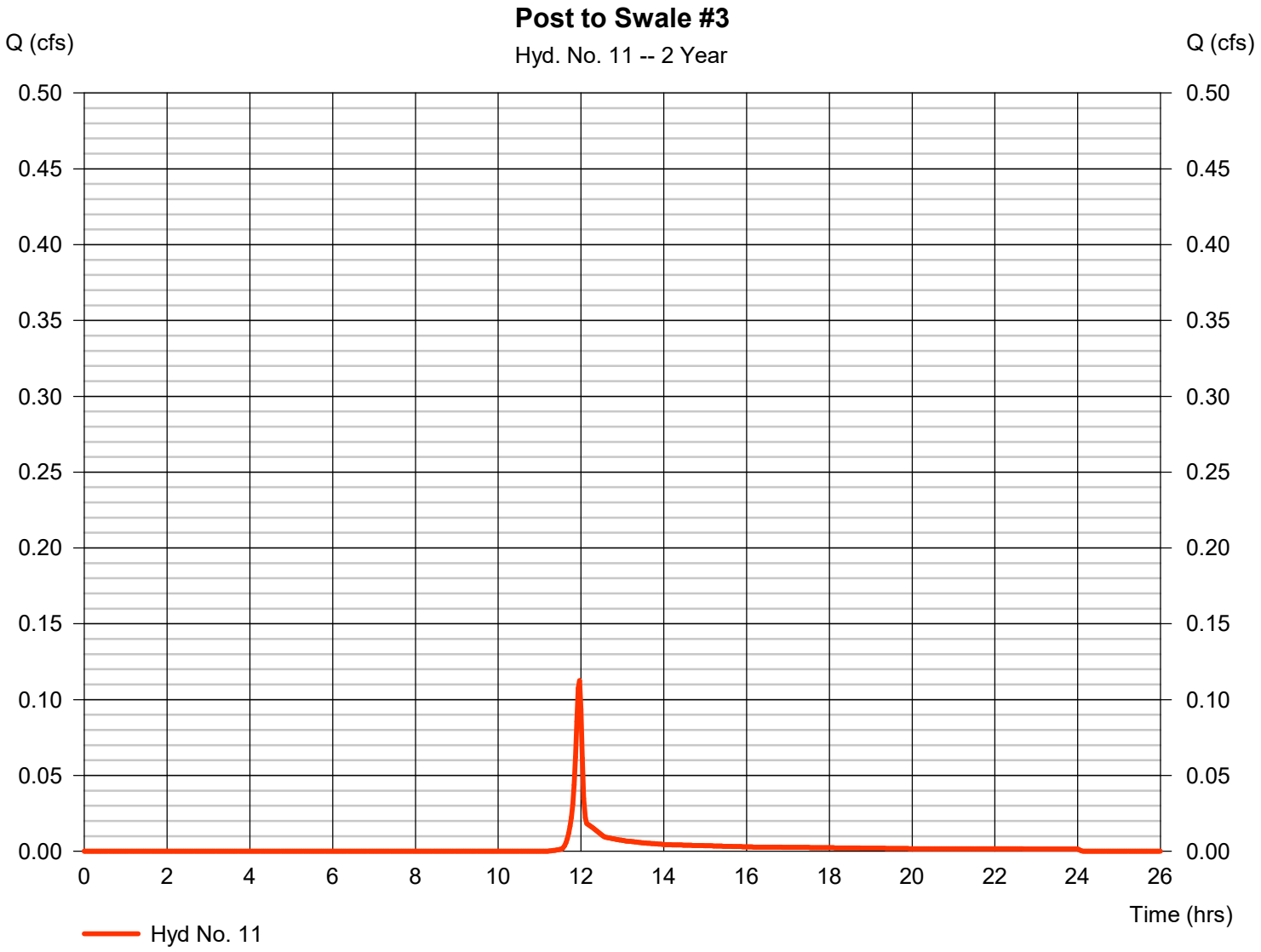
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.112 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	227 cuft
Drainage area	=	0.080 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

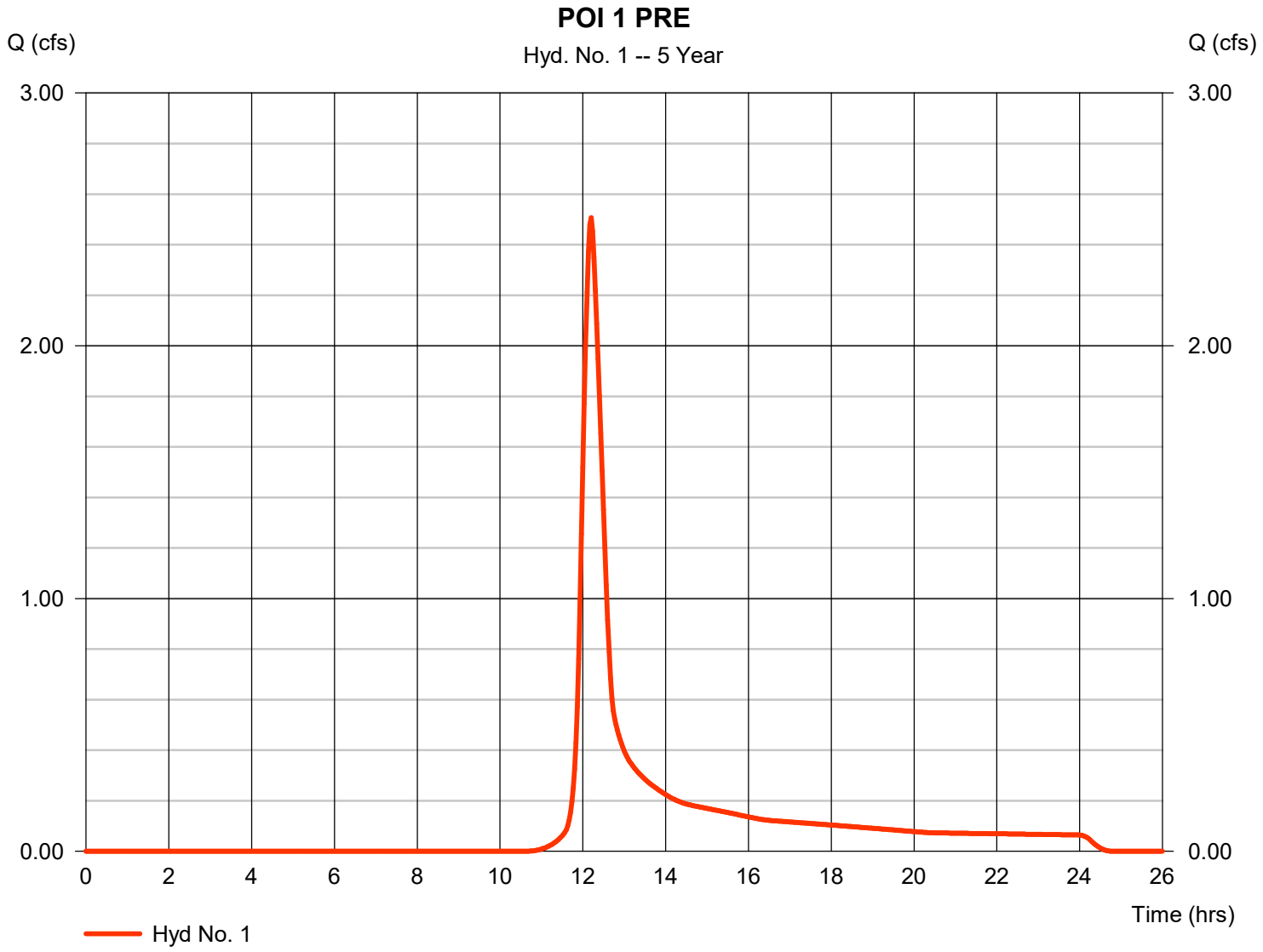
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.507 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	10,550 cuft
Drainage area	=	2.330 ac	Curve number	=	73*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	28.20 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

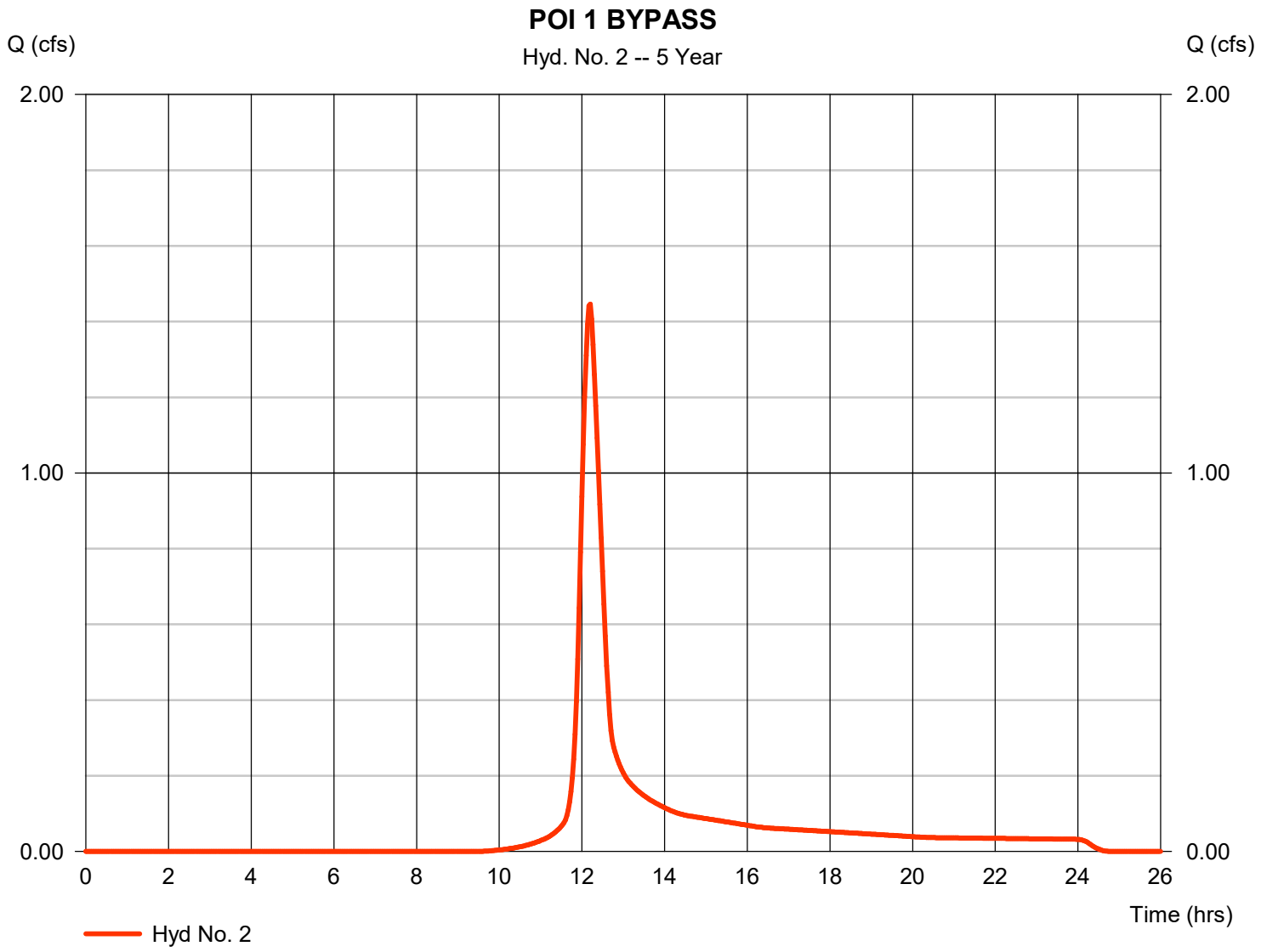
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.446 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.20 hrs
Time interval	=	2 min	Hyd. volume	=	5,884 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

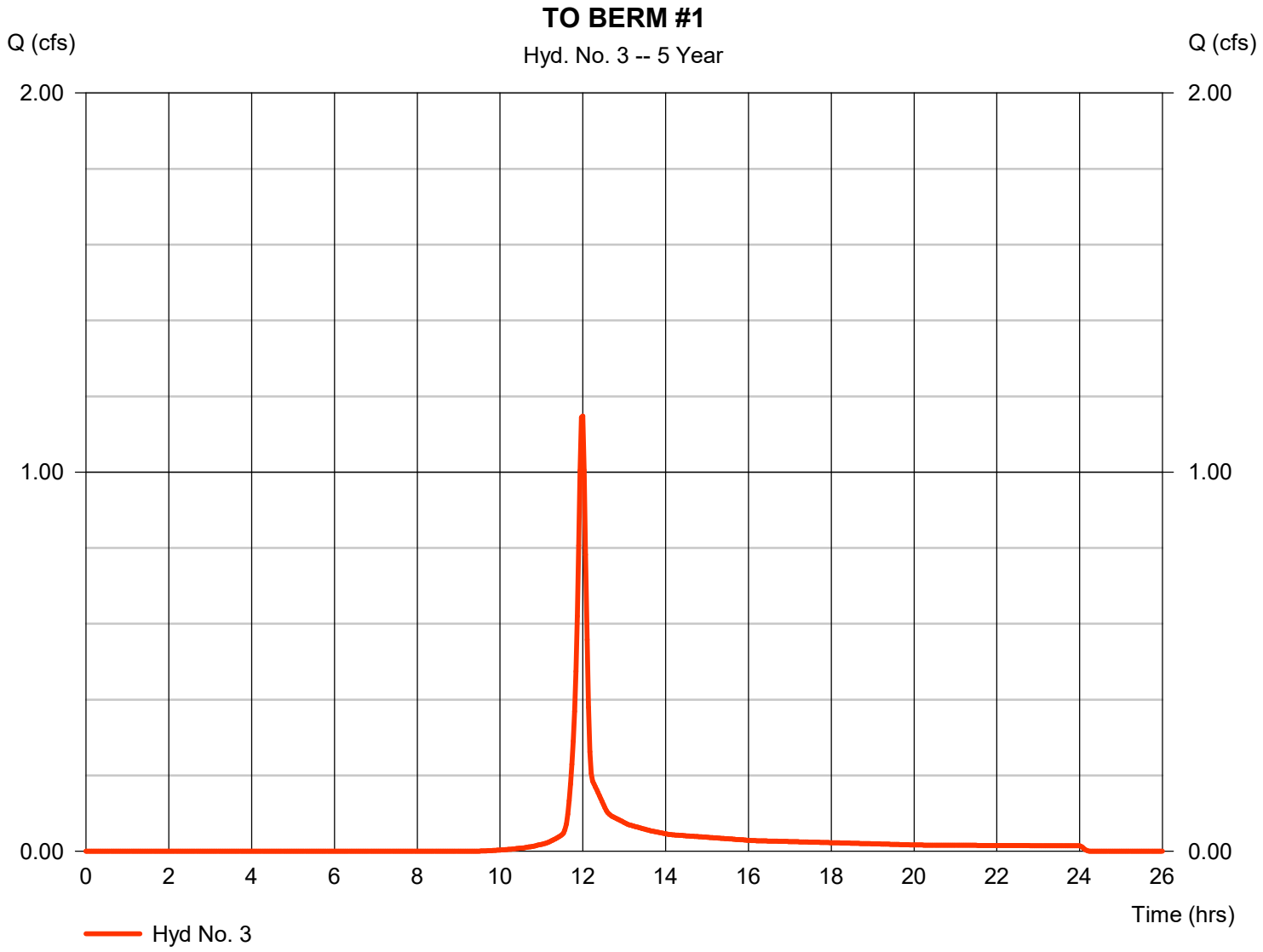
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.148 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	2,628 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

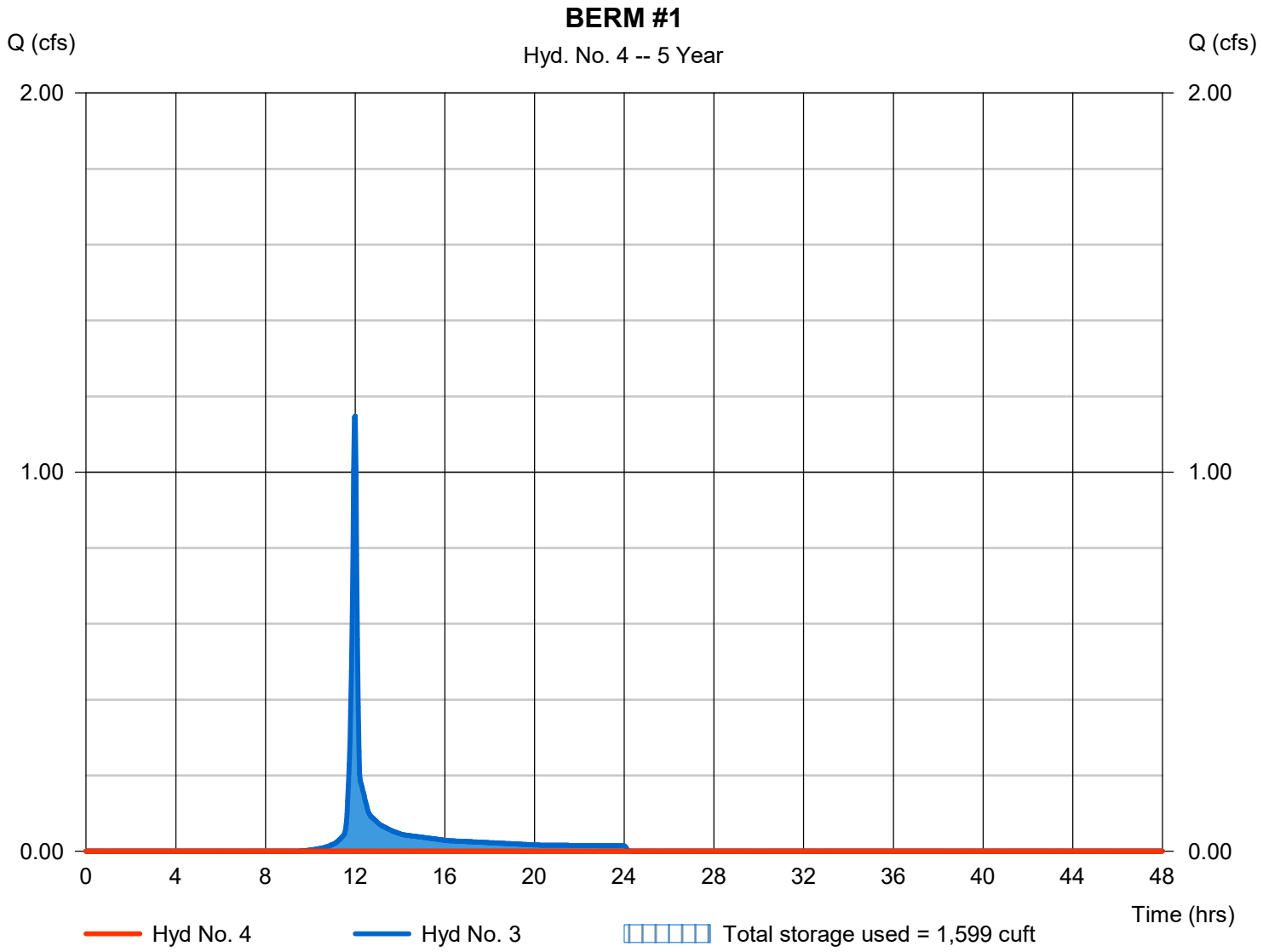
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= 30.57 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - TO BERM #1	Max. Elevation	= 682.88 ft
Reservoir name	= BERM #1	Max. Storage	= 1,599 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

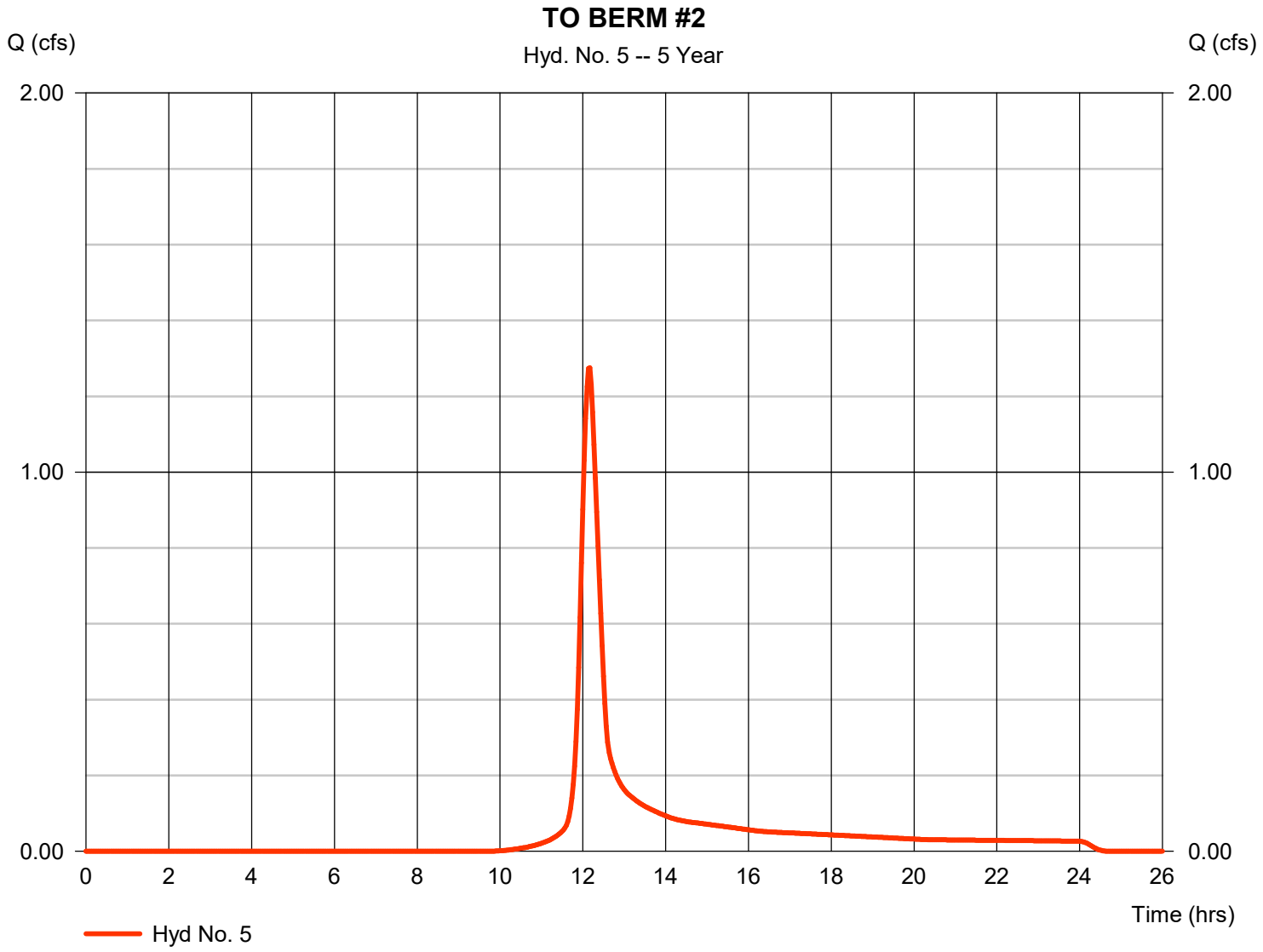
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.275 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	4,787 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

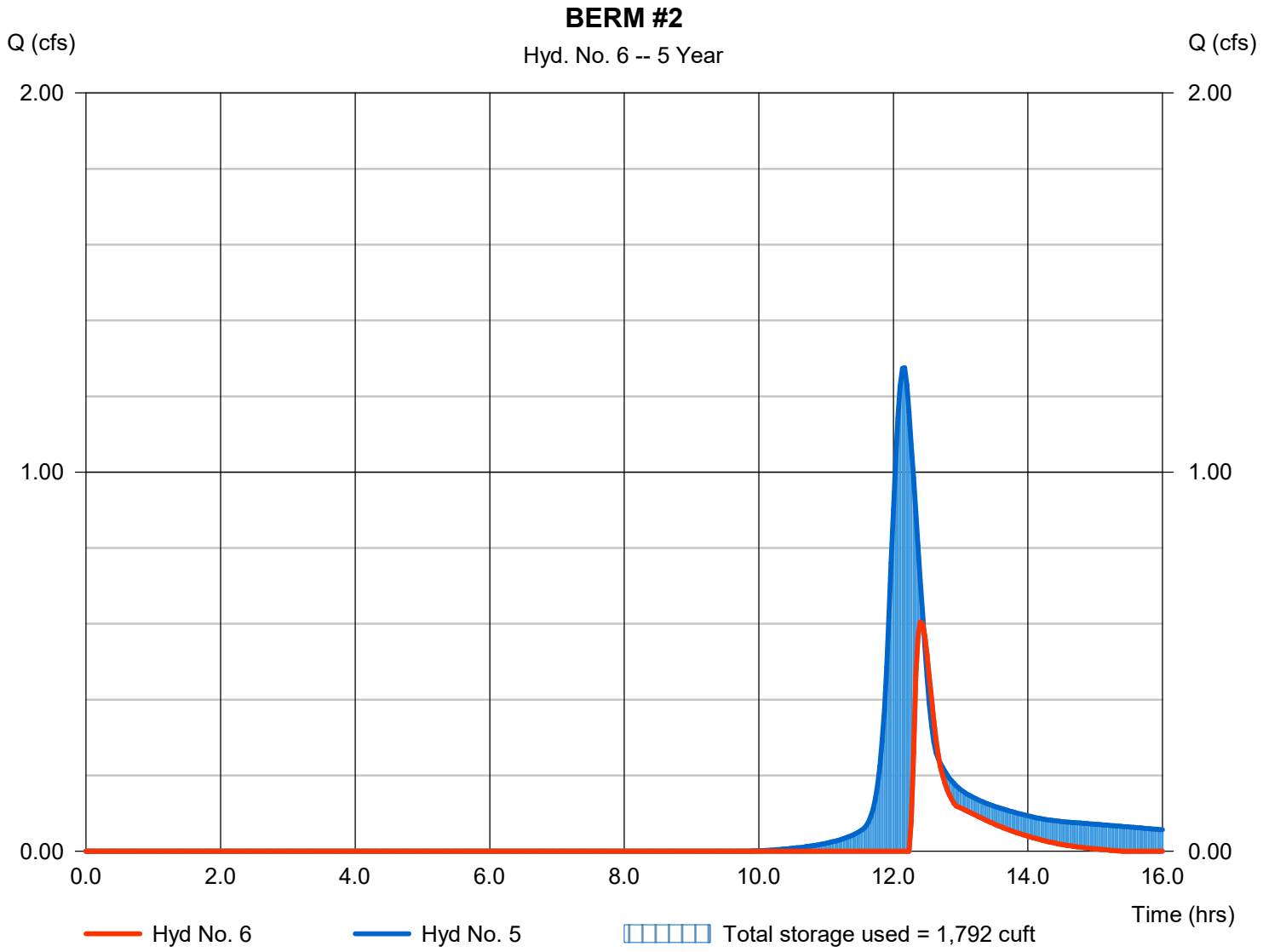
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 0.605 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 1,169 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 692.90 ft
Reservoir name	= BERM #2	Max. Storage	= 1,792 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



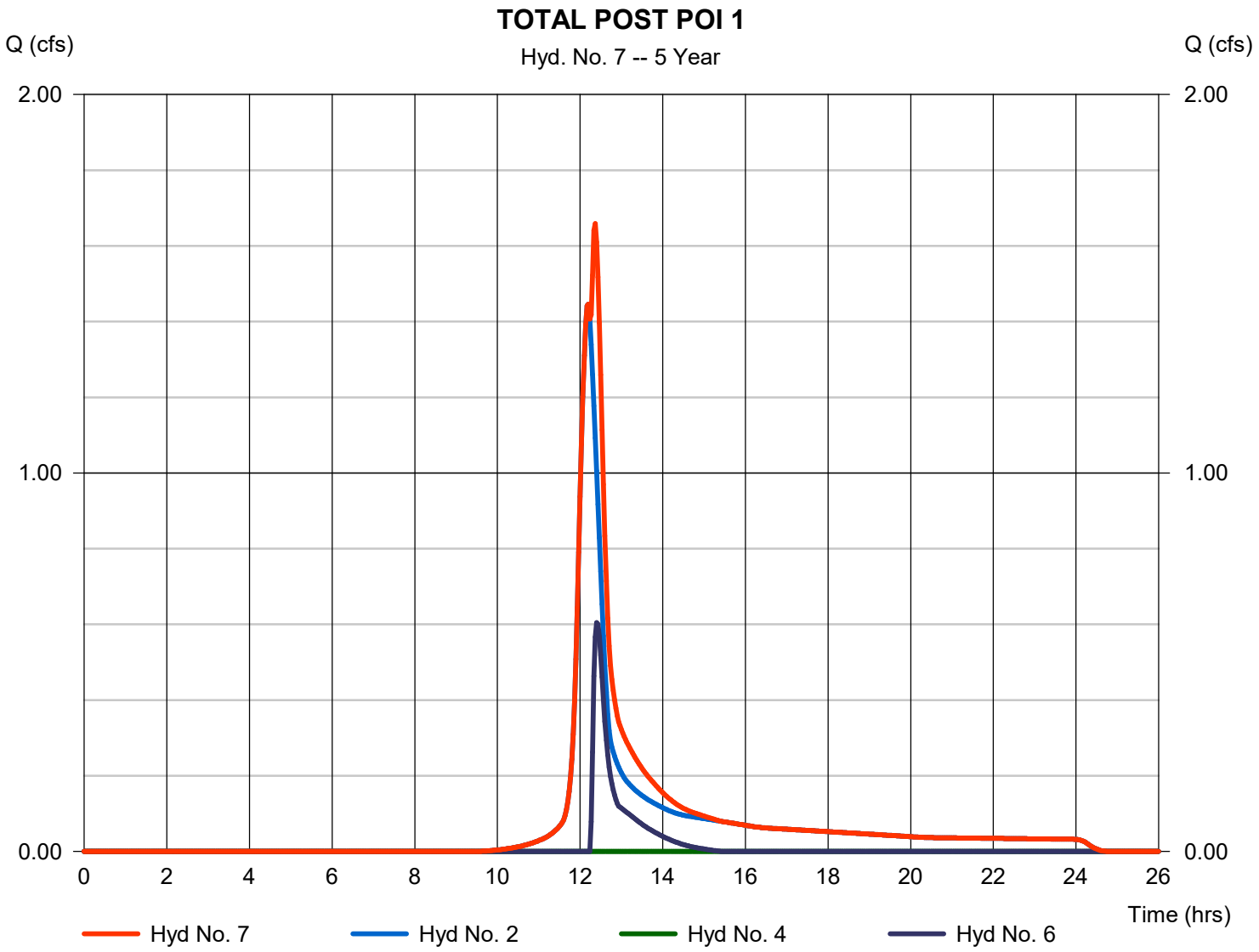
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 1.659 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 7,053 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

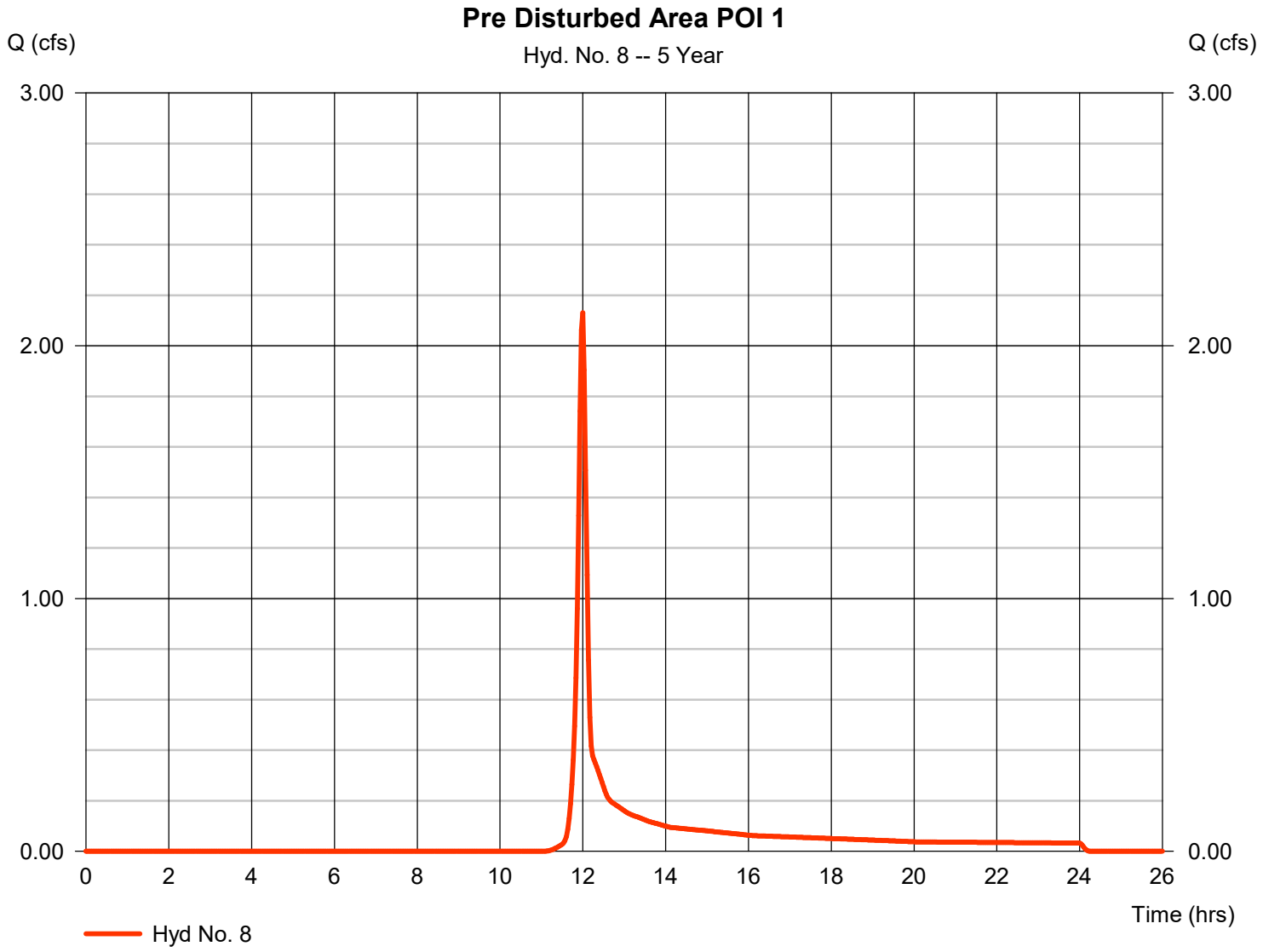
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.130 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 4,973 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



Hydrograph Report

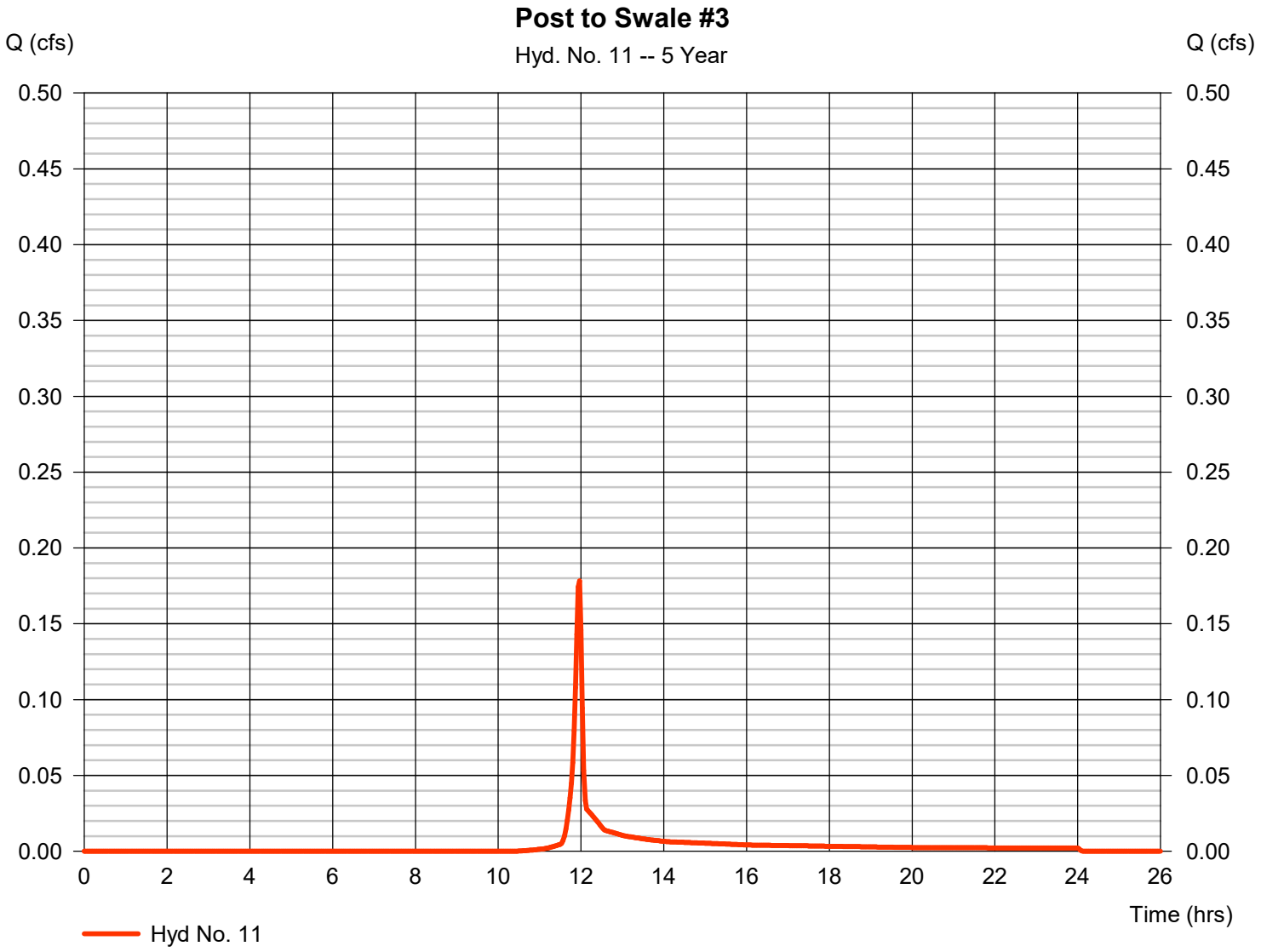
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.178 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	356 cuft
Drainage area	=	0.080 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

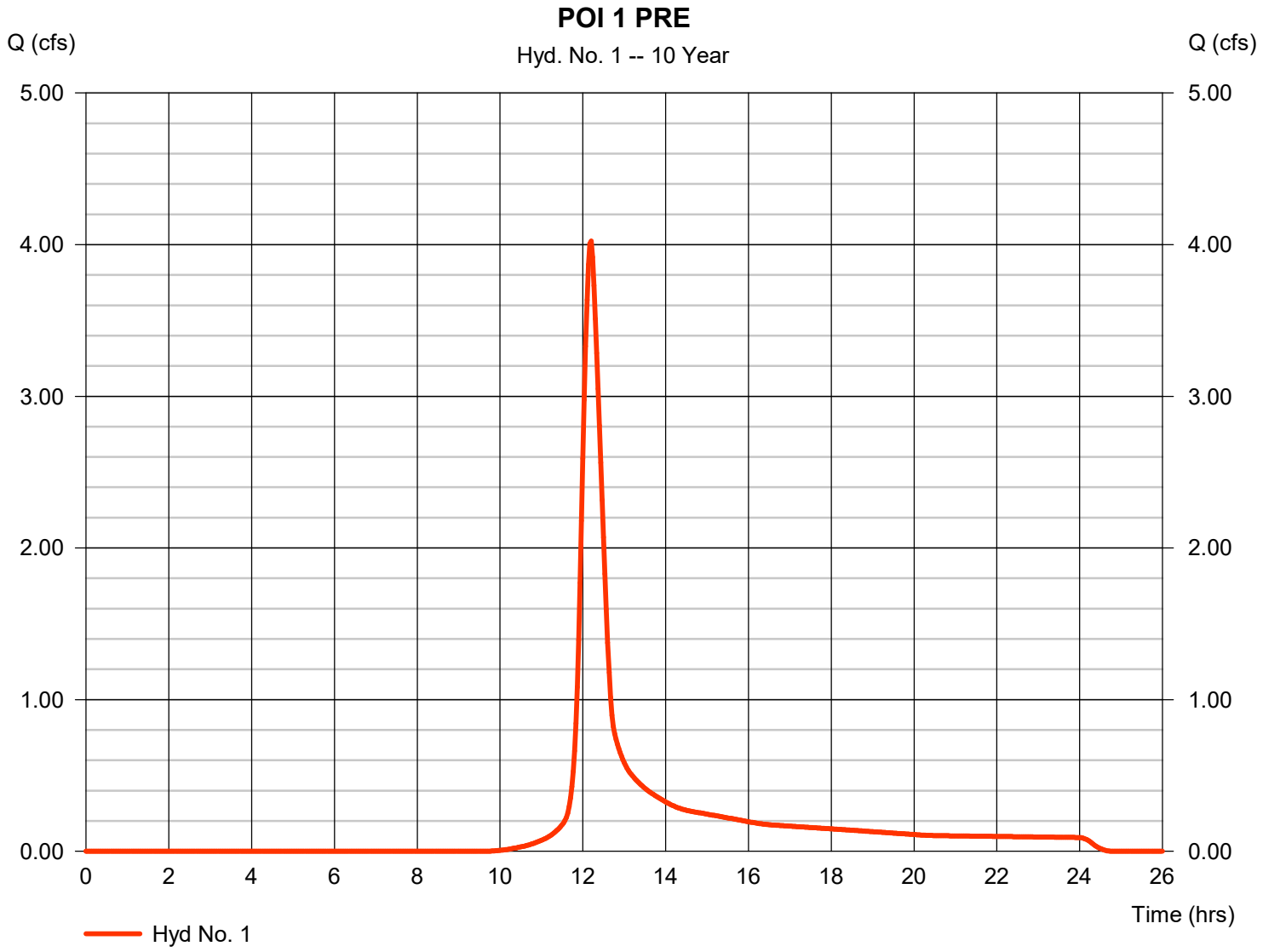
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 4.023 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 16,417 cuft
Drainage area	= 2.330 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 28.20 min
Total precip.	= 4.56 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

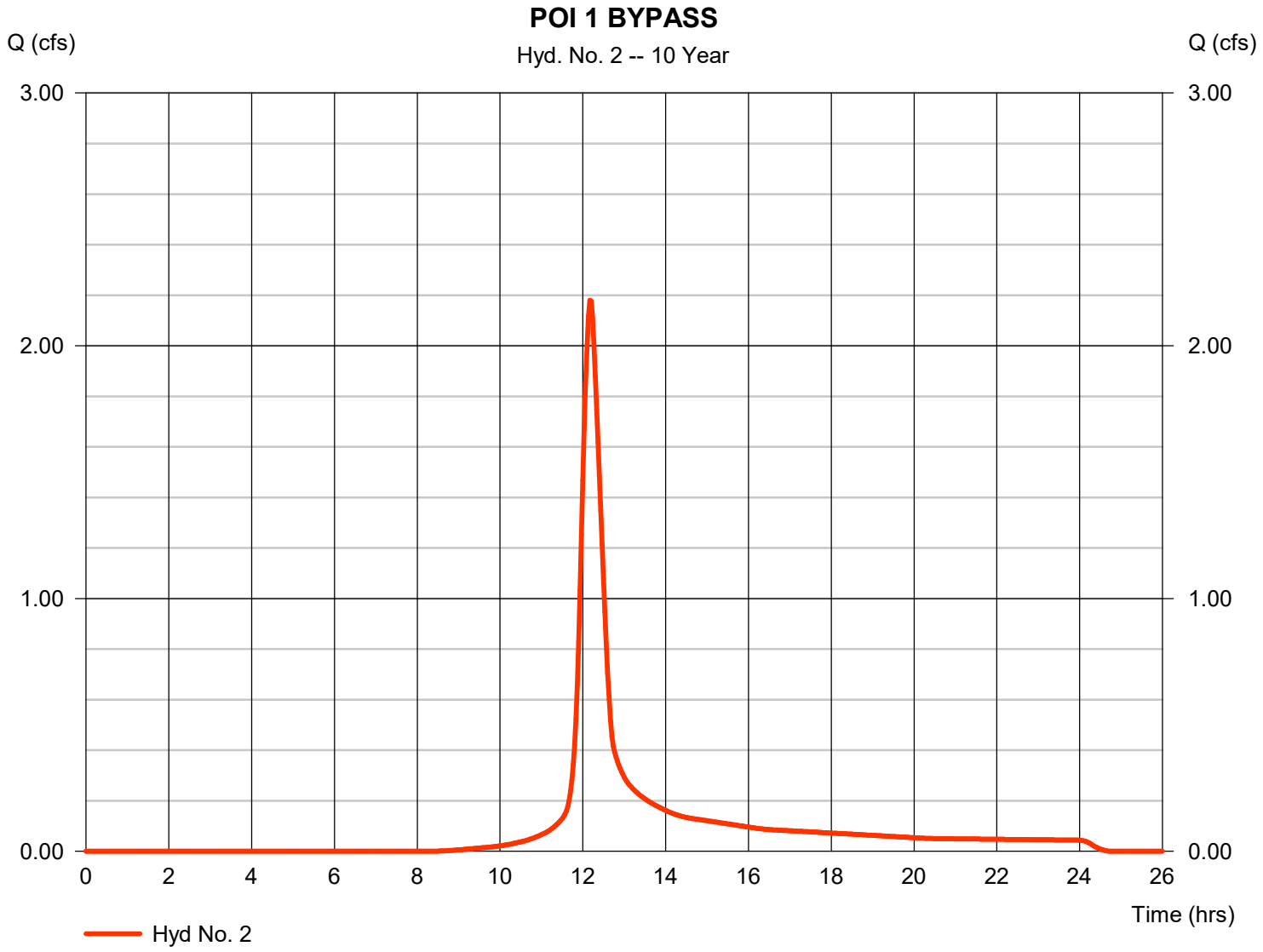
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.181 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	8,758 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

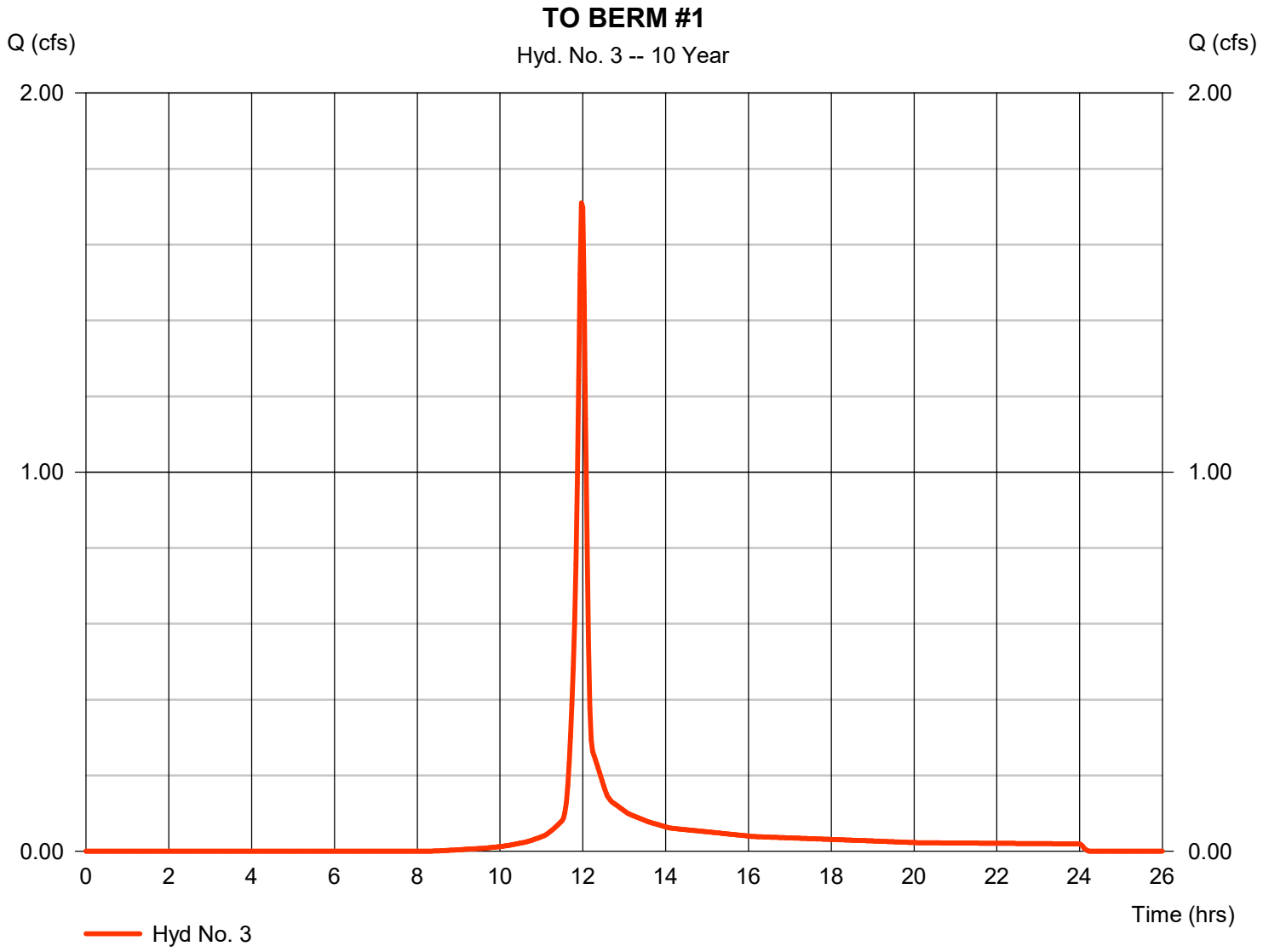
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.710 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	3,911 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

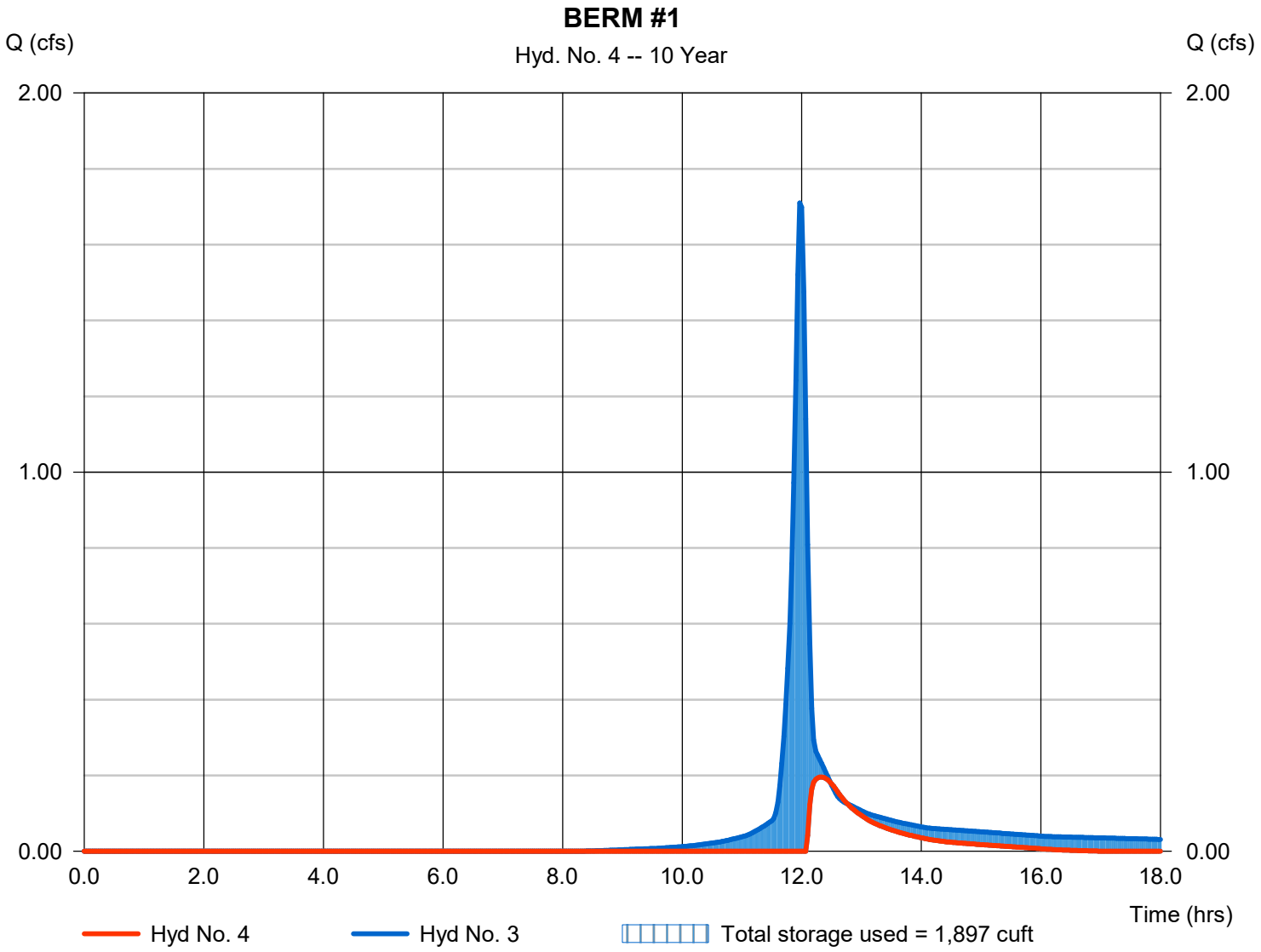
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	=	Reservoir	Peak discharge	=	0.196 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	846 cuft
Inflow hyd. No.	=	3 - TO BERM #1	Max. Elevation	=	683.06 ft
Reservoir name	=	BERM #1	Max. Storage	=	1,897 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

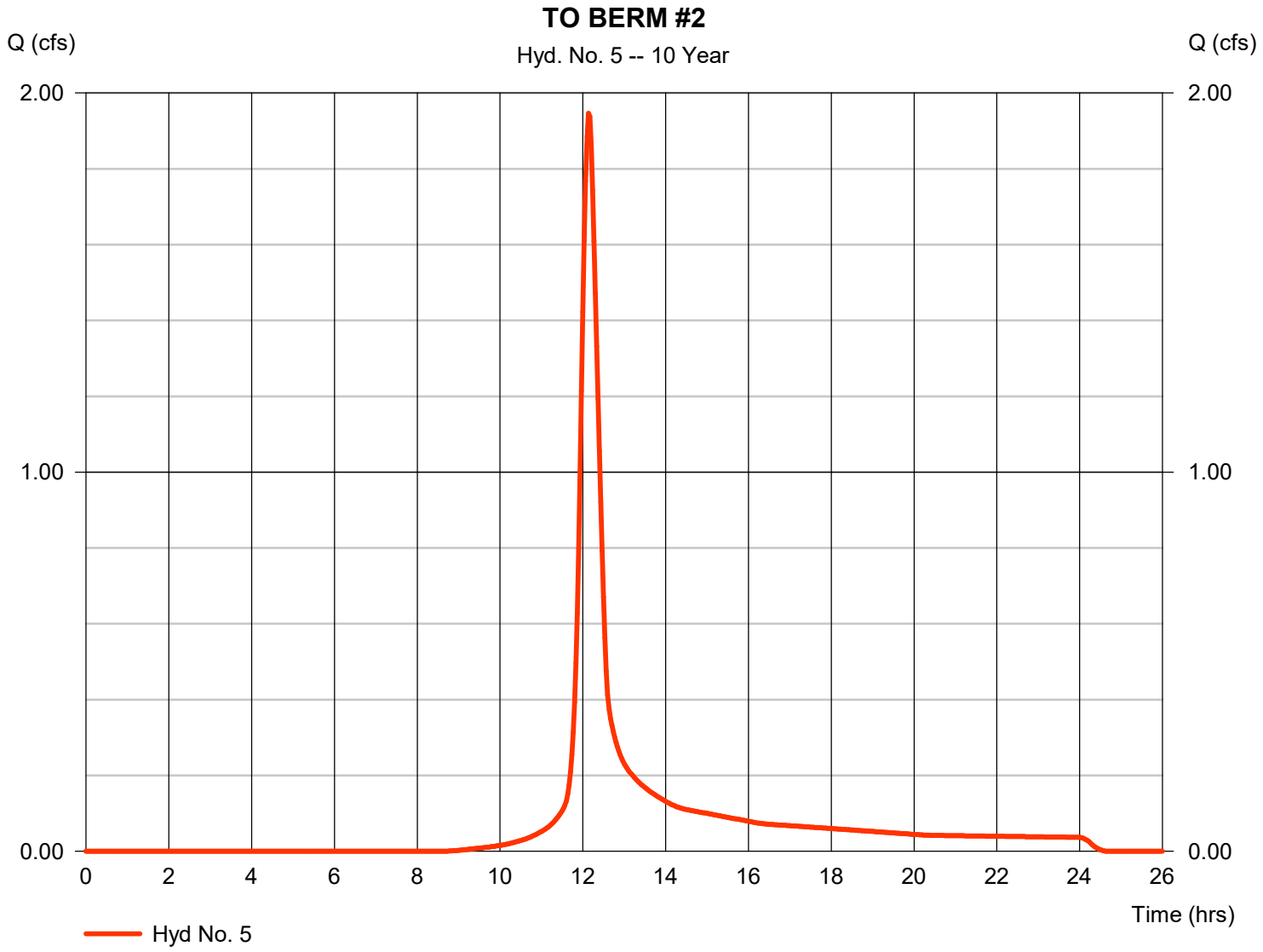
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.946 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	7,185 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

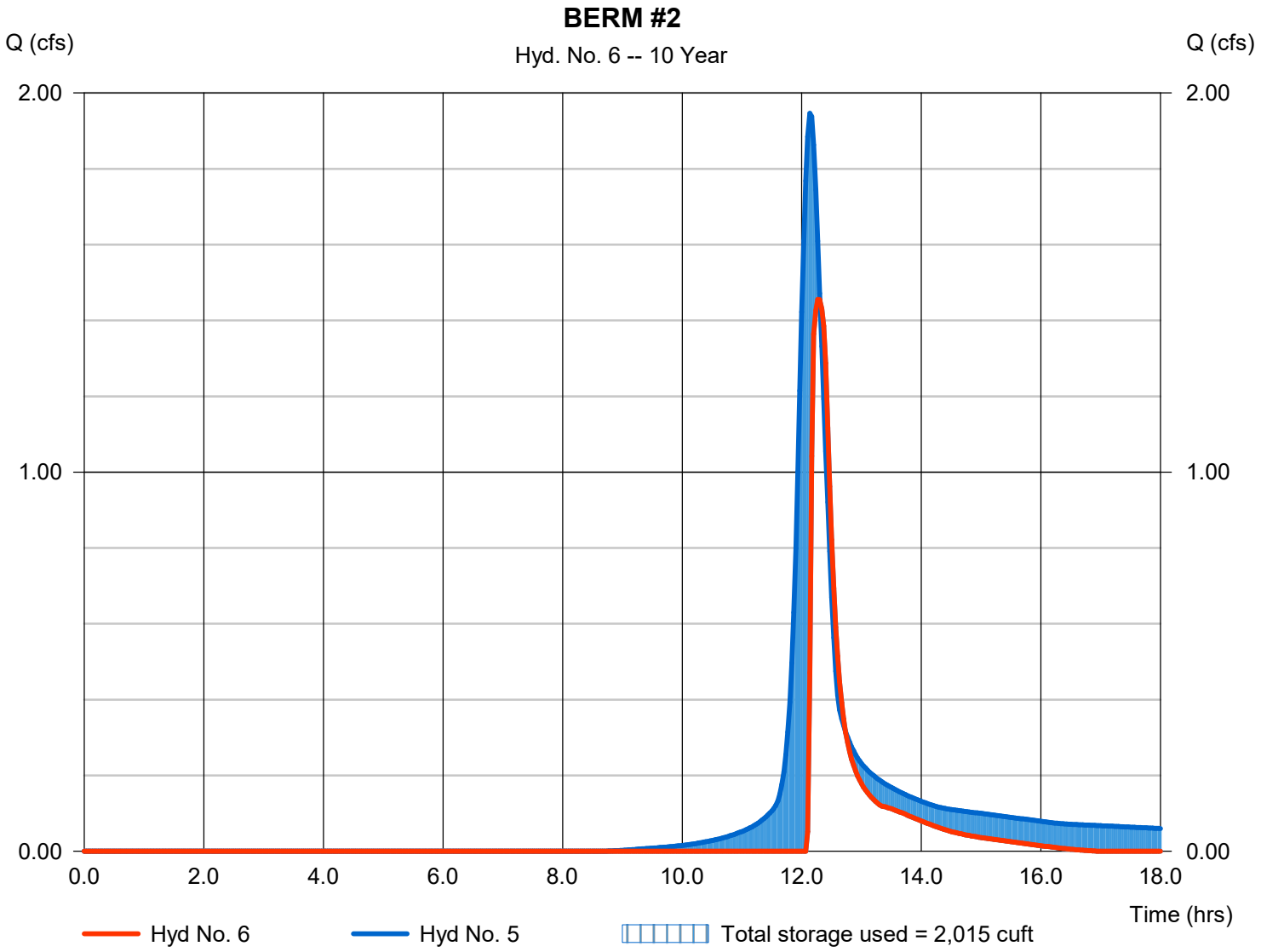
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 1.455 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 3,037 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 693.02 ft
Reservoir name	= BERM #2	Max. Storage	= 2,015 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



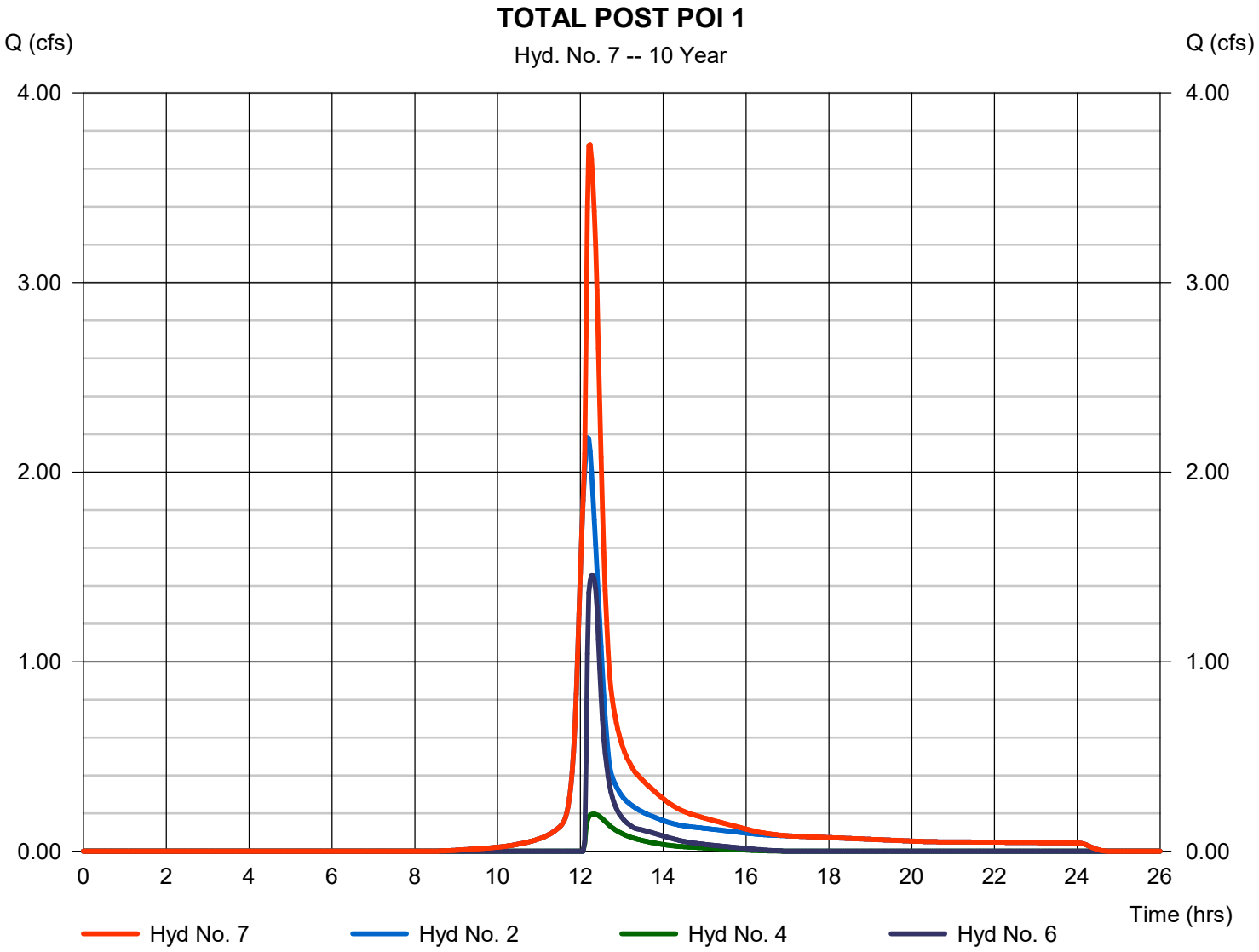
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 3.726 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 12,642 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

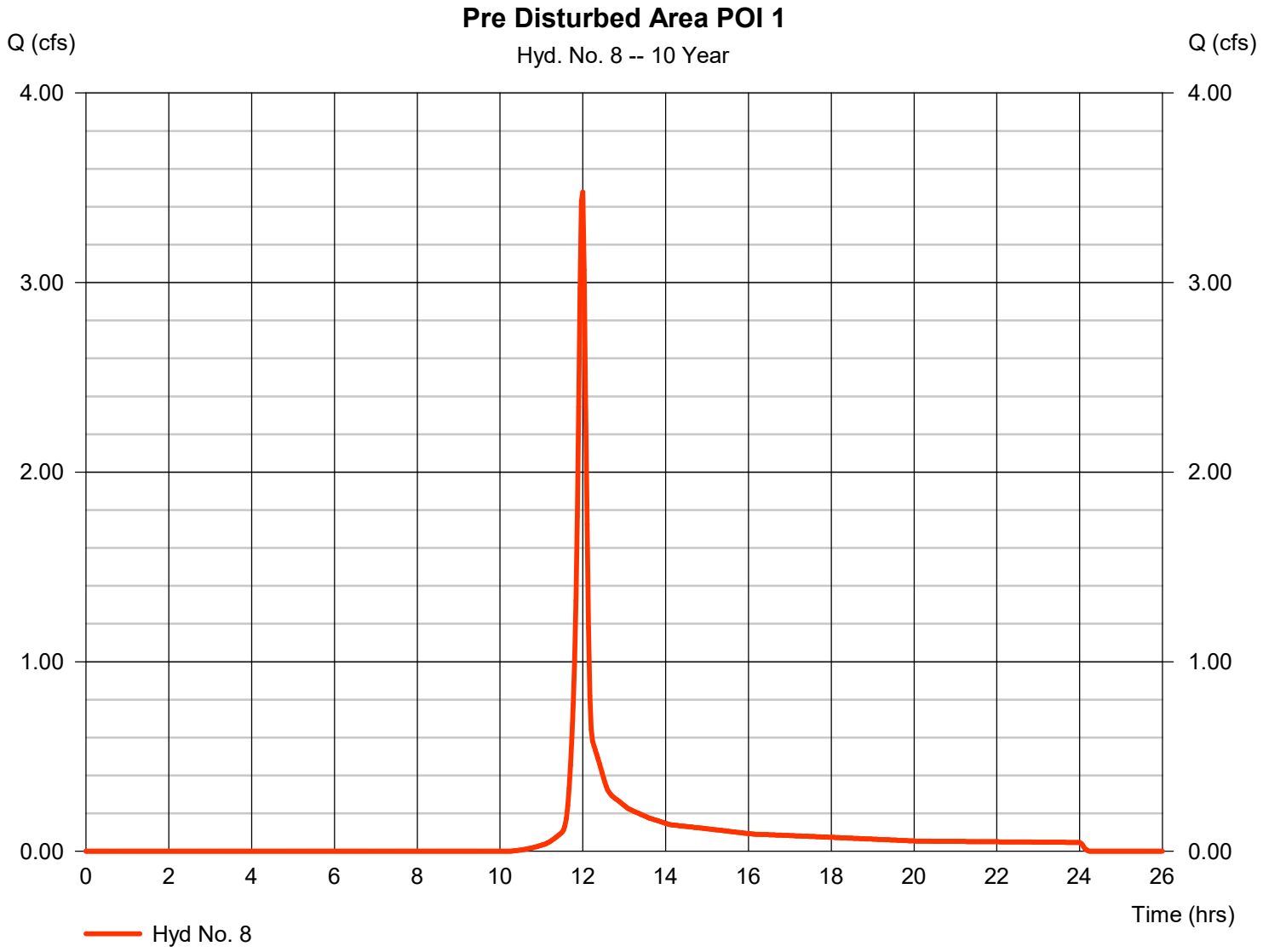
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 3.477 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 7,975 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 4.56 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



Hydrograph Report

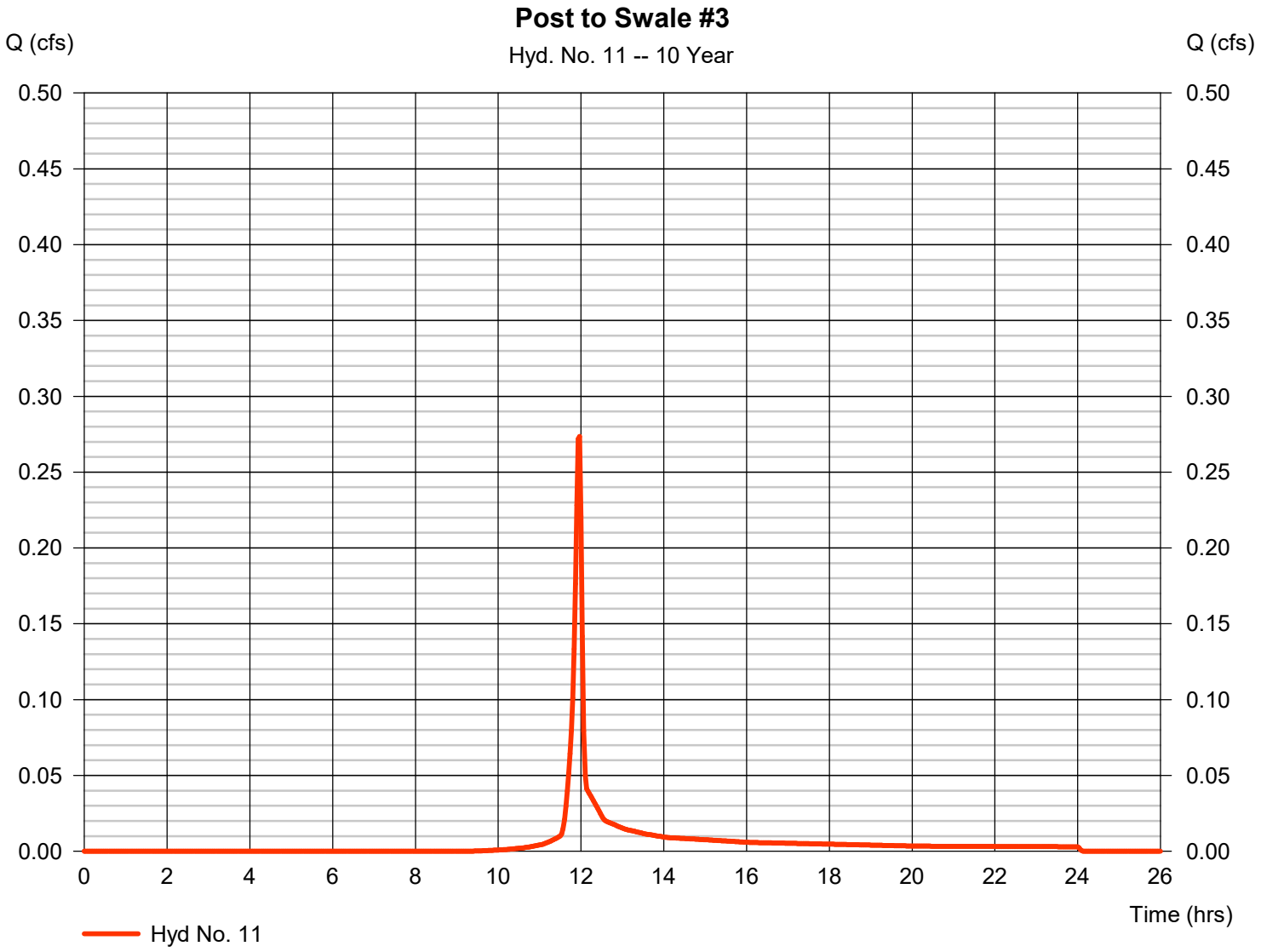
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.273 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	550 cuft
Drainage area	=	0.080 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

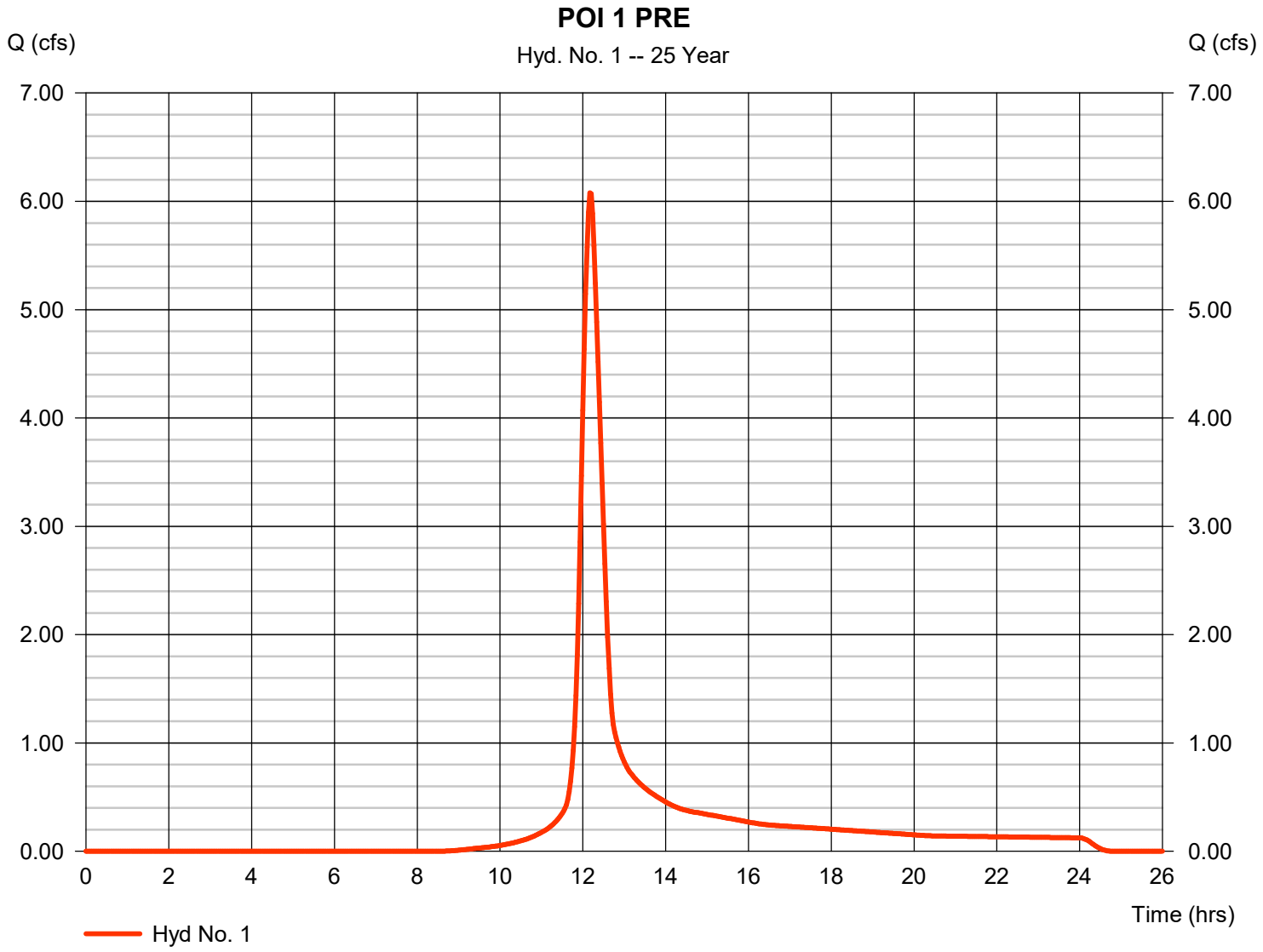
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.077 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	24,449 cuft
Drainage area	=	2.330 ac	Curve number	=	73*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	28.20 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

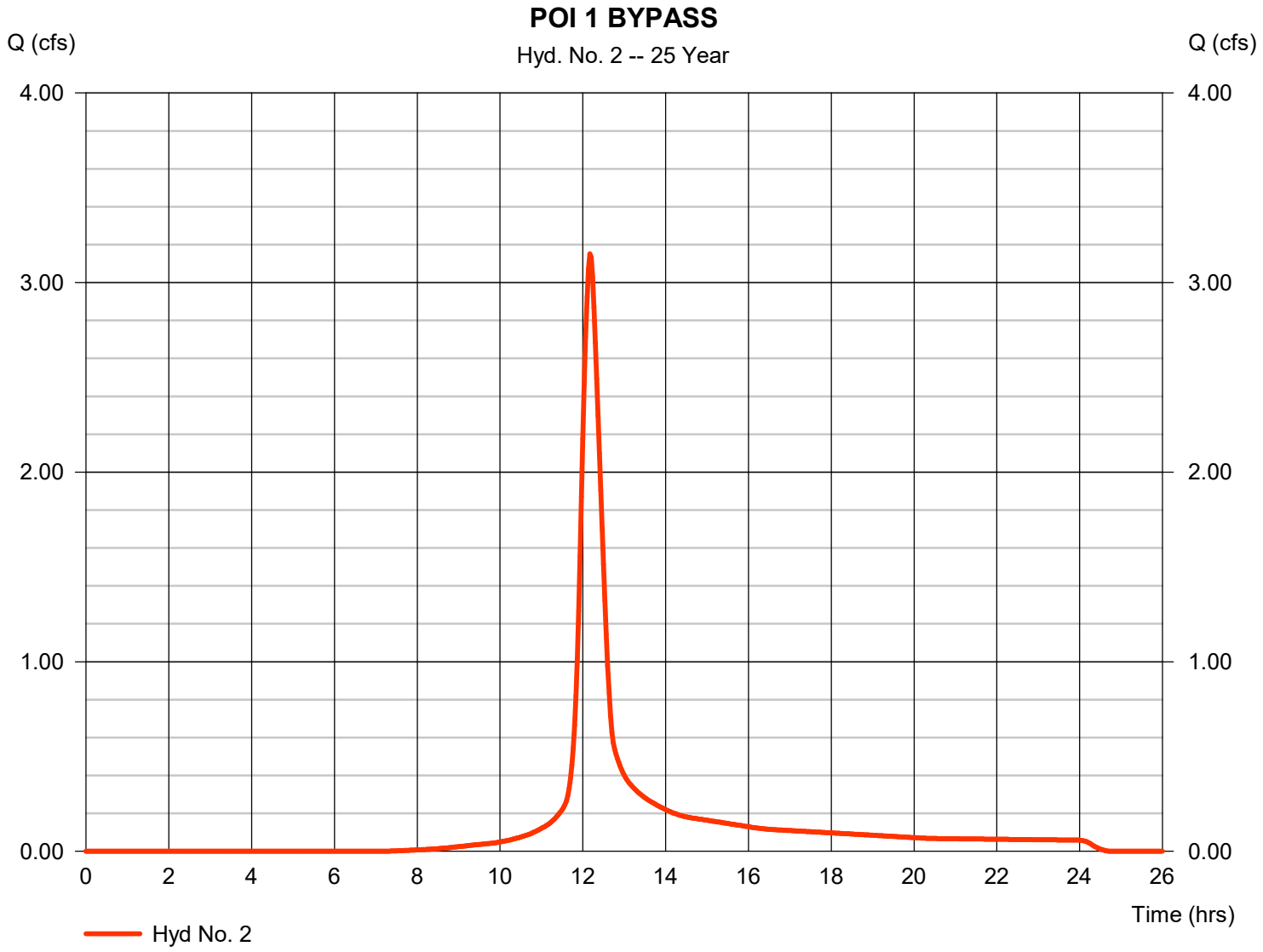
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.151 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	12,592 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

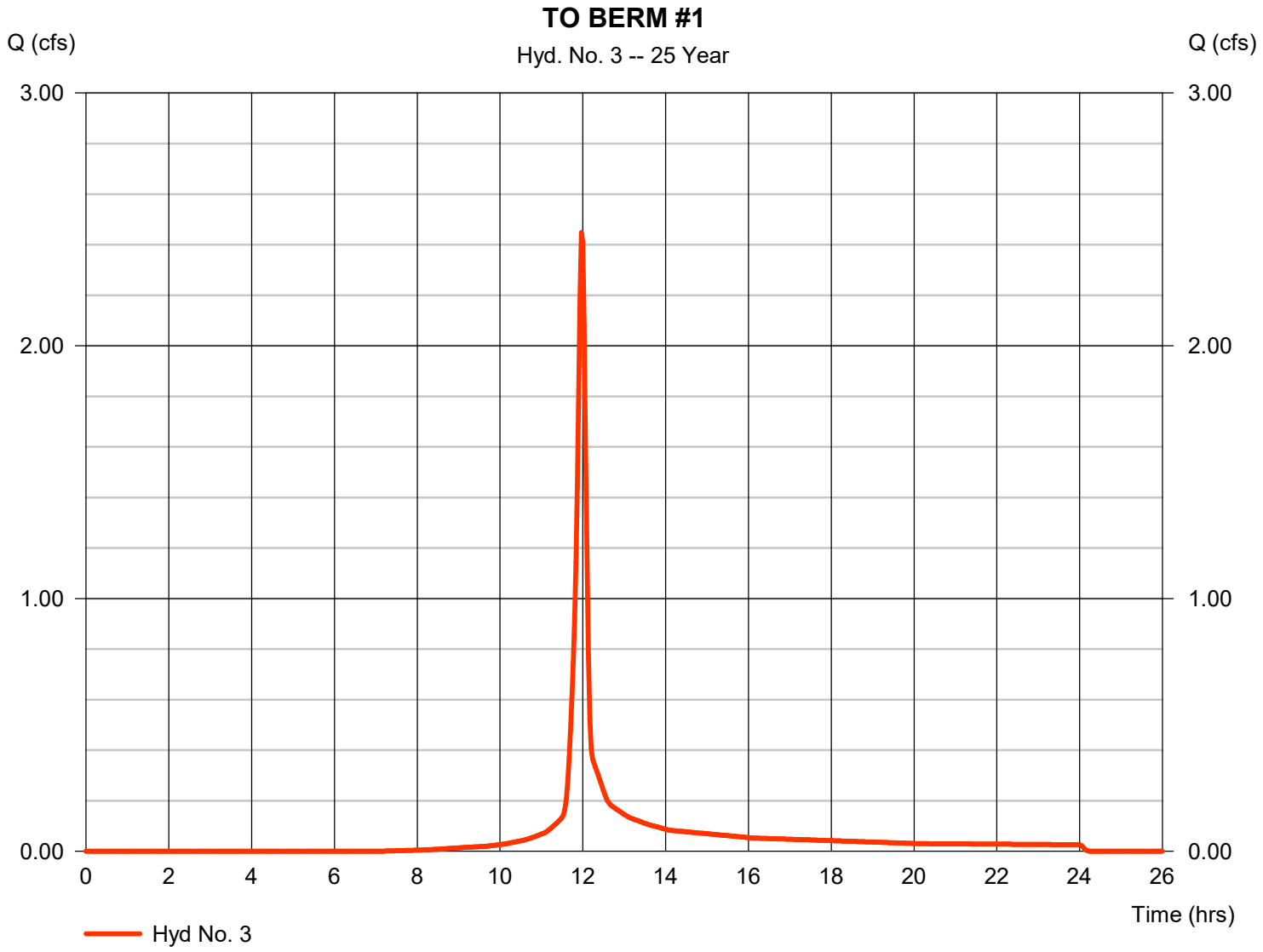
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.448 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	5,623 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

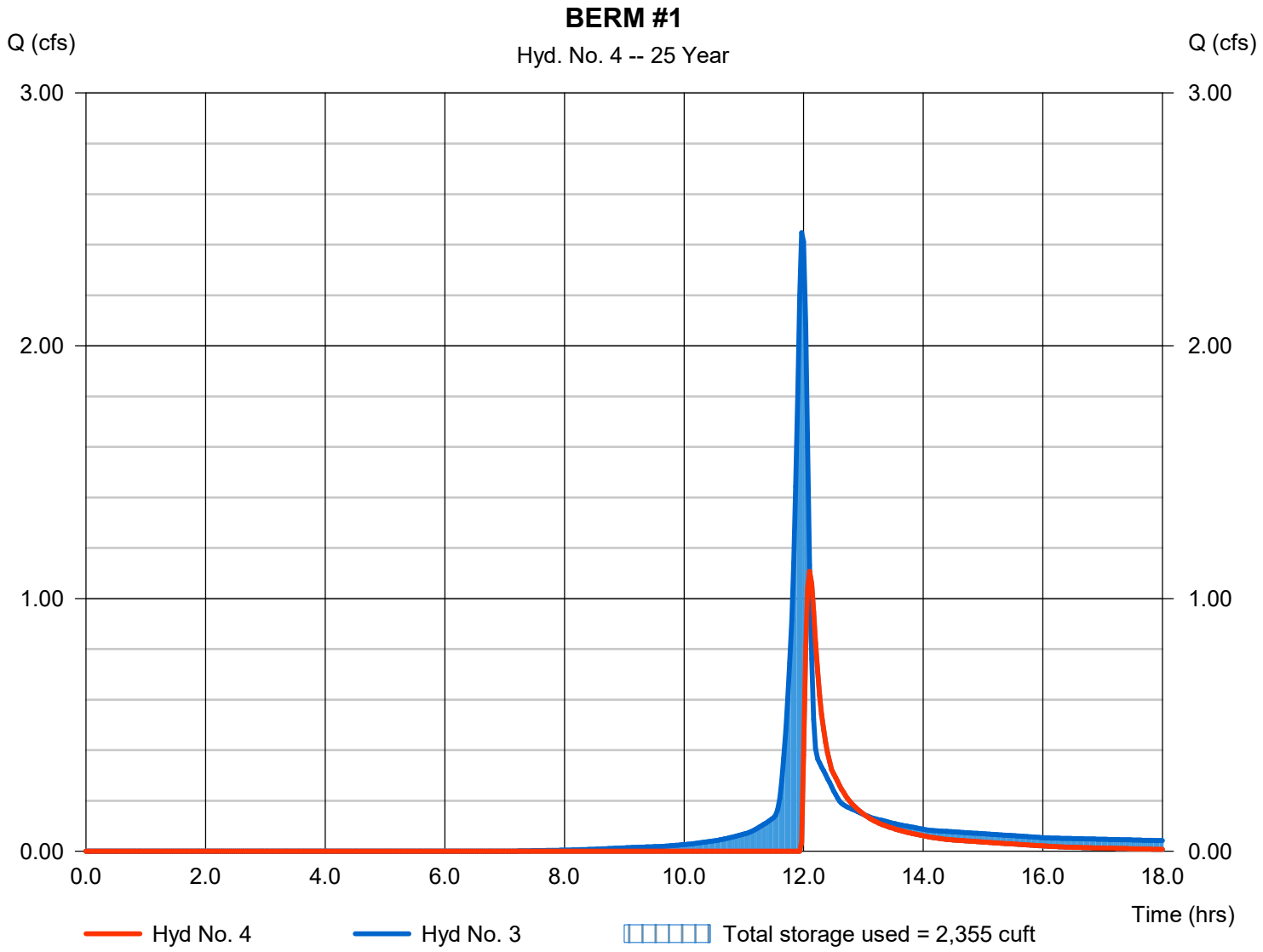
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	=	Reservoir	Peak discharge	=	1.108 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	2,328 cuft
Inflow hyd. No.	=	3 - TO BERM #1	Max. Elevation	=	683.23 ft
Reservoir name	=	BERM #1	Max. Storage	=	2,355 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

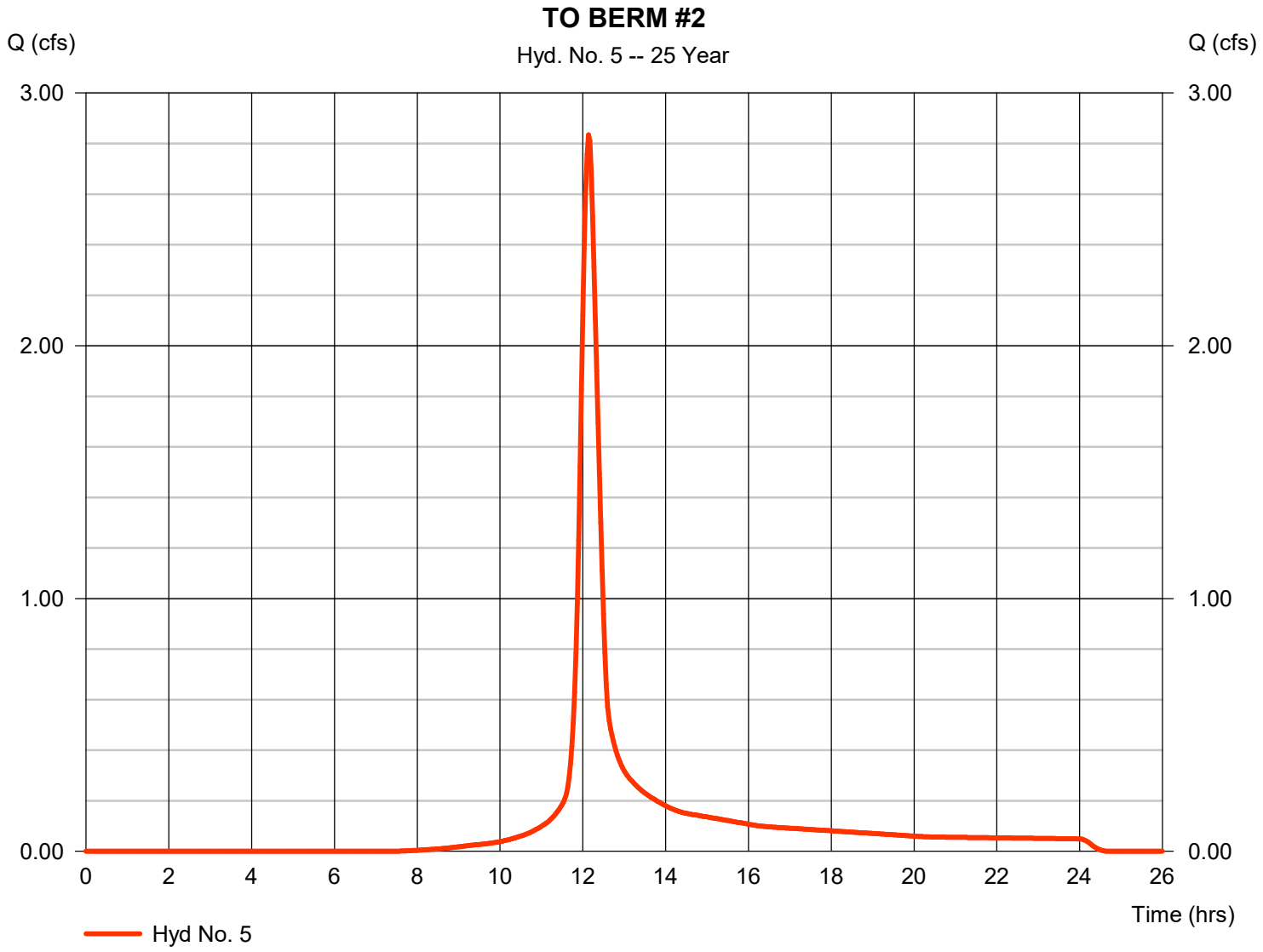
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.834 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	10,401 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

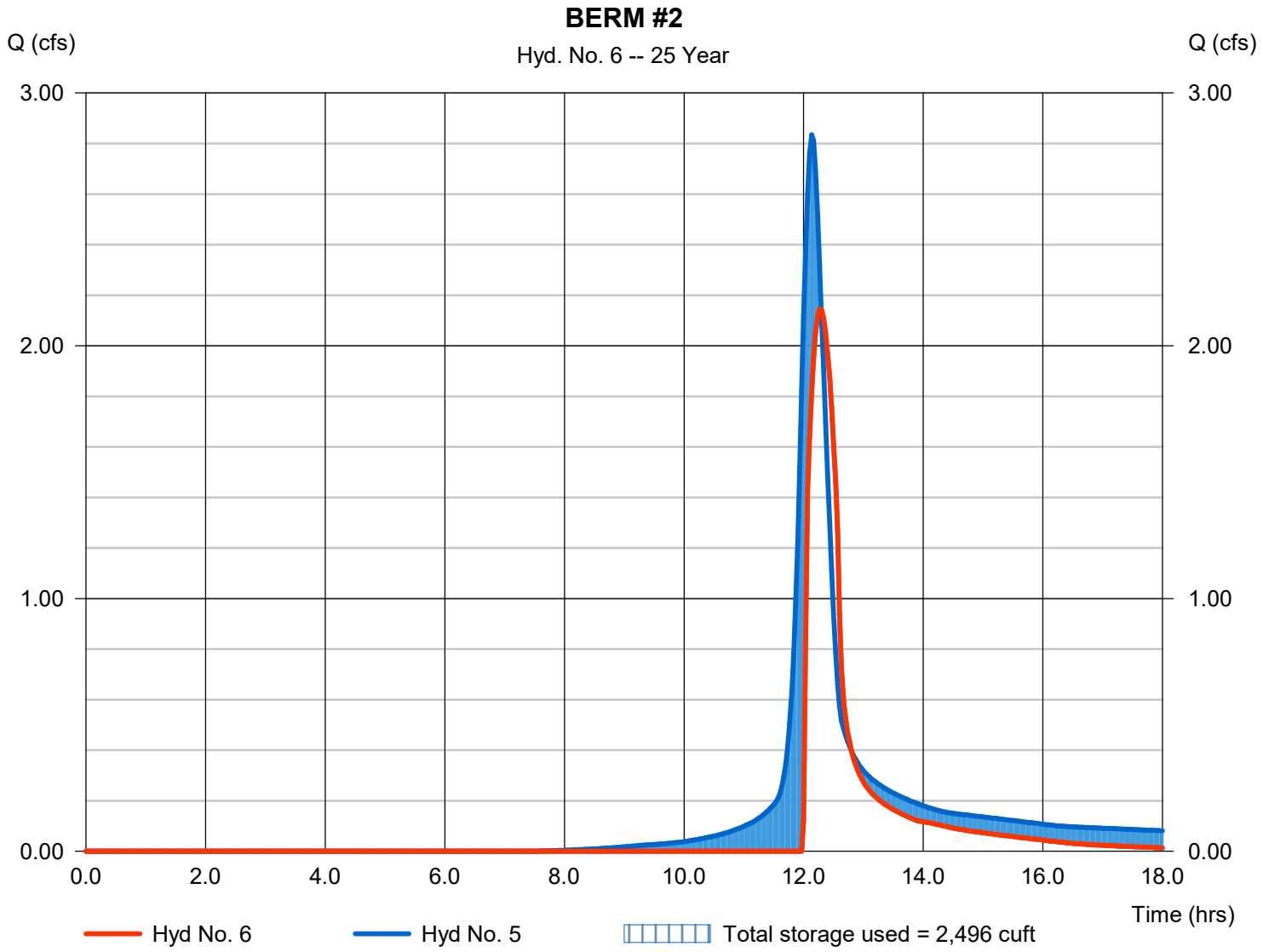
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 2.146 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 5,738 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 693.19 ft
Reservoir name	= BERM #2	Max. Storage	= 2,496 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



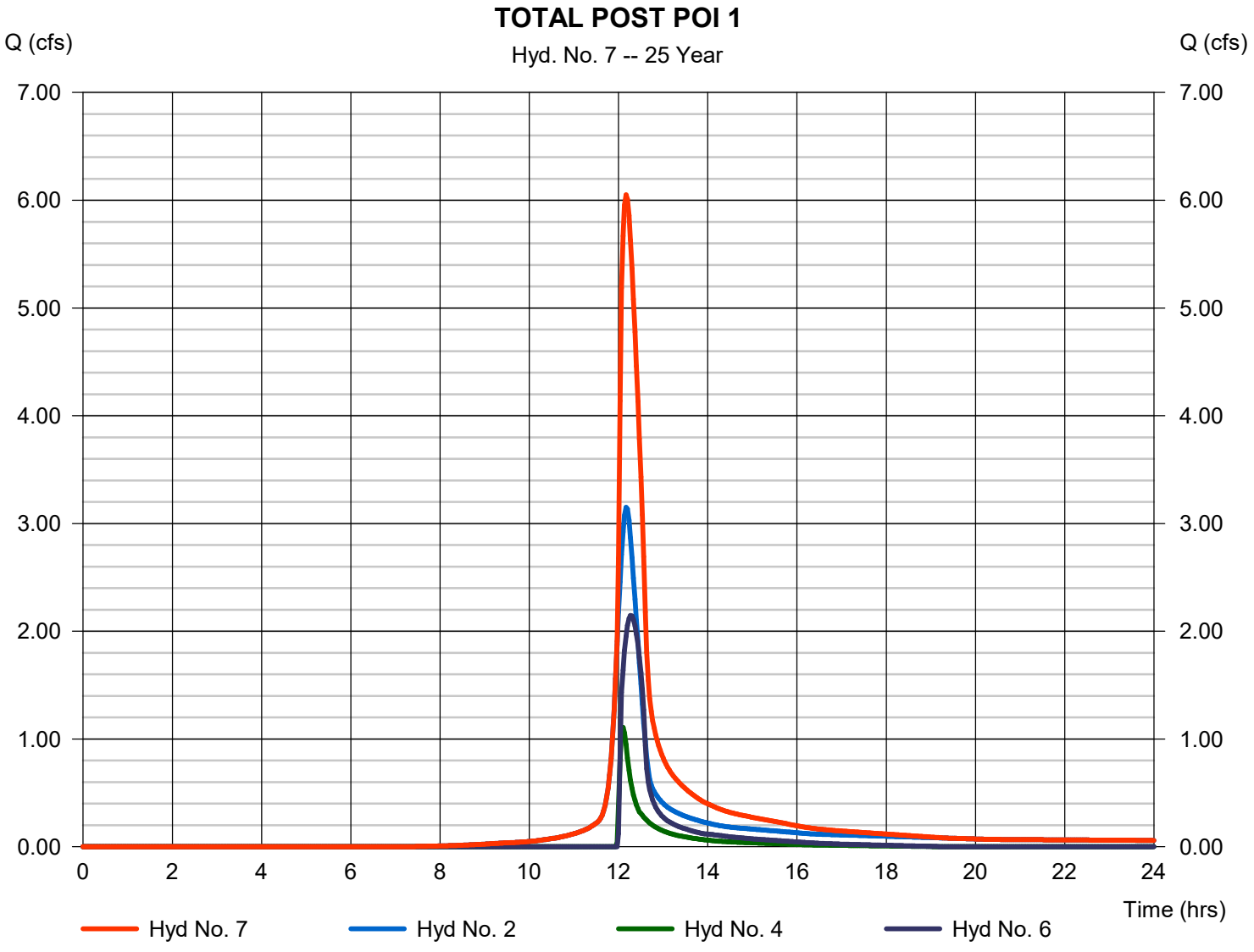
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 6.052 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 20,657 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

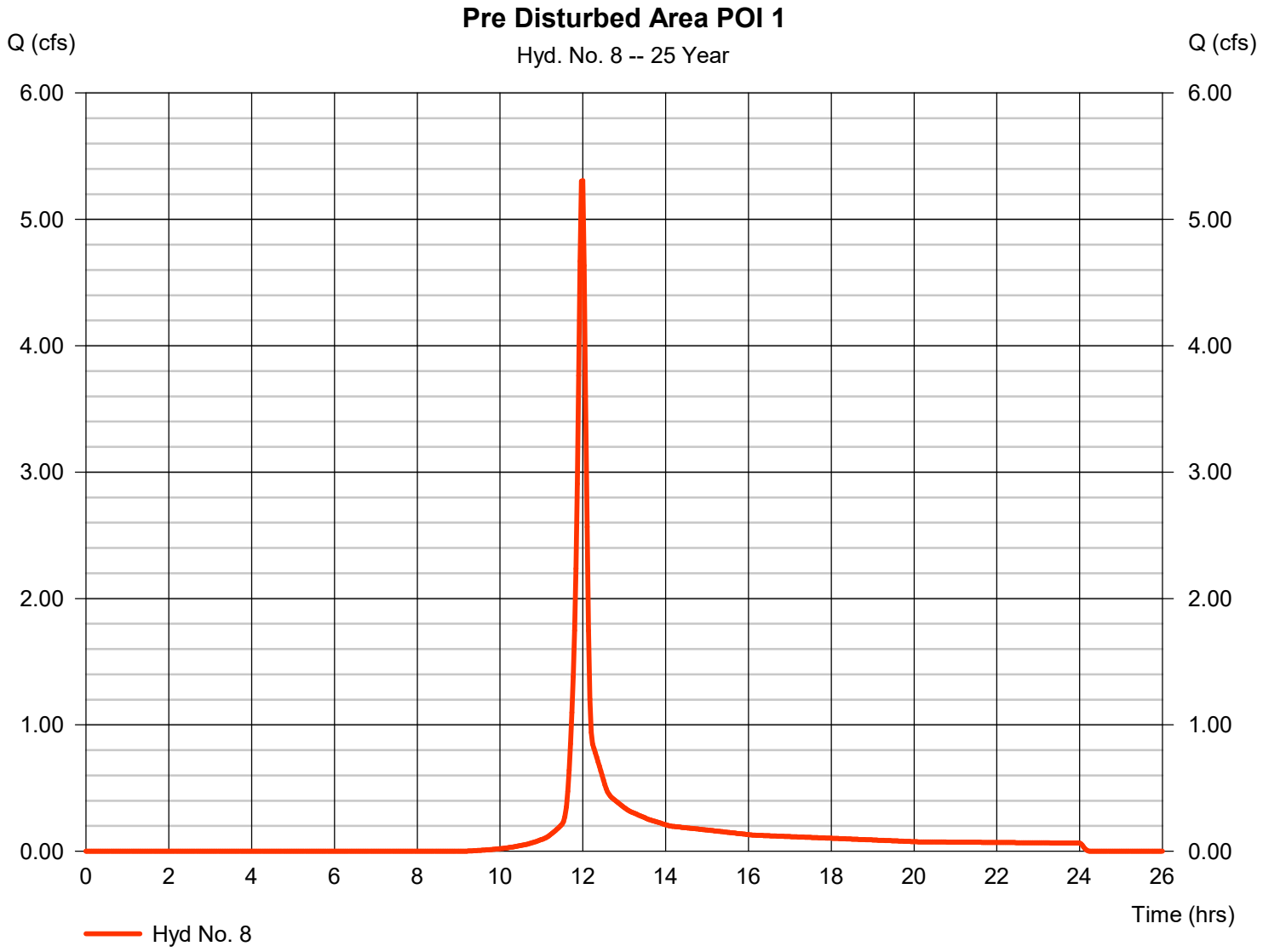
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.307 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 12,155 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 5.76 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



Hydrograph Report

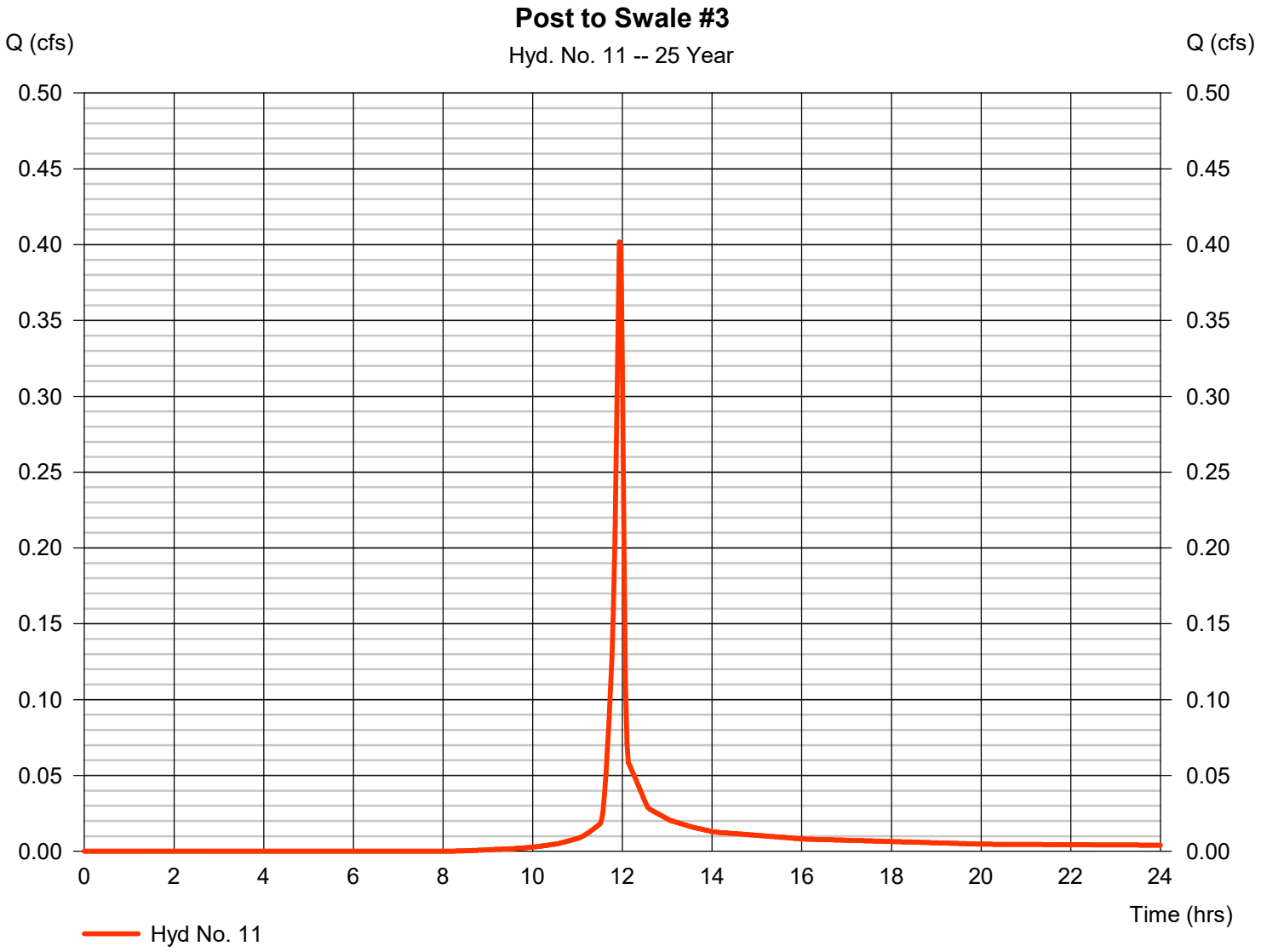
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.402 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	812 cuft
Drainage area	=	0.080 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

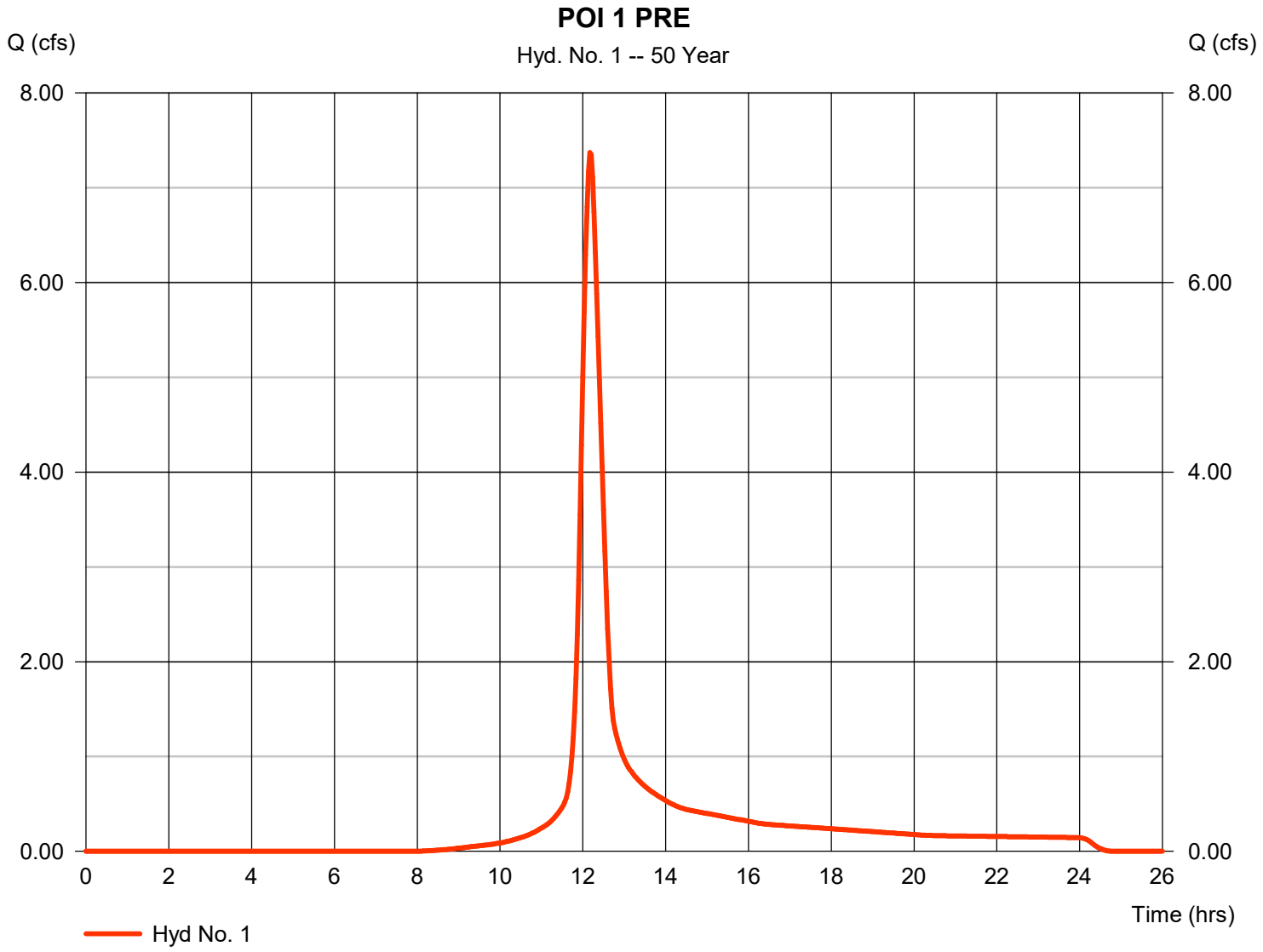
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 7.371 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 29,526 cuft
Drainage area	= 2.330 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 28.20 min
Total precip.	= 6.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

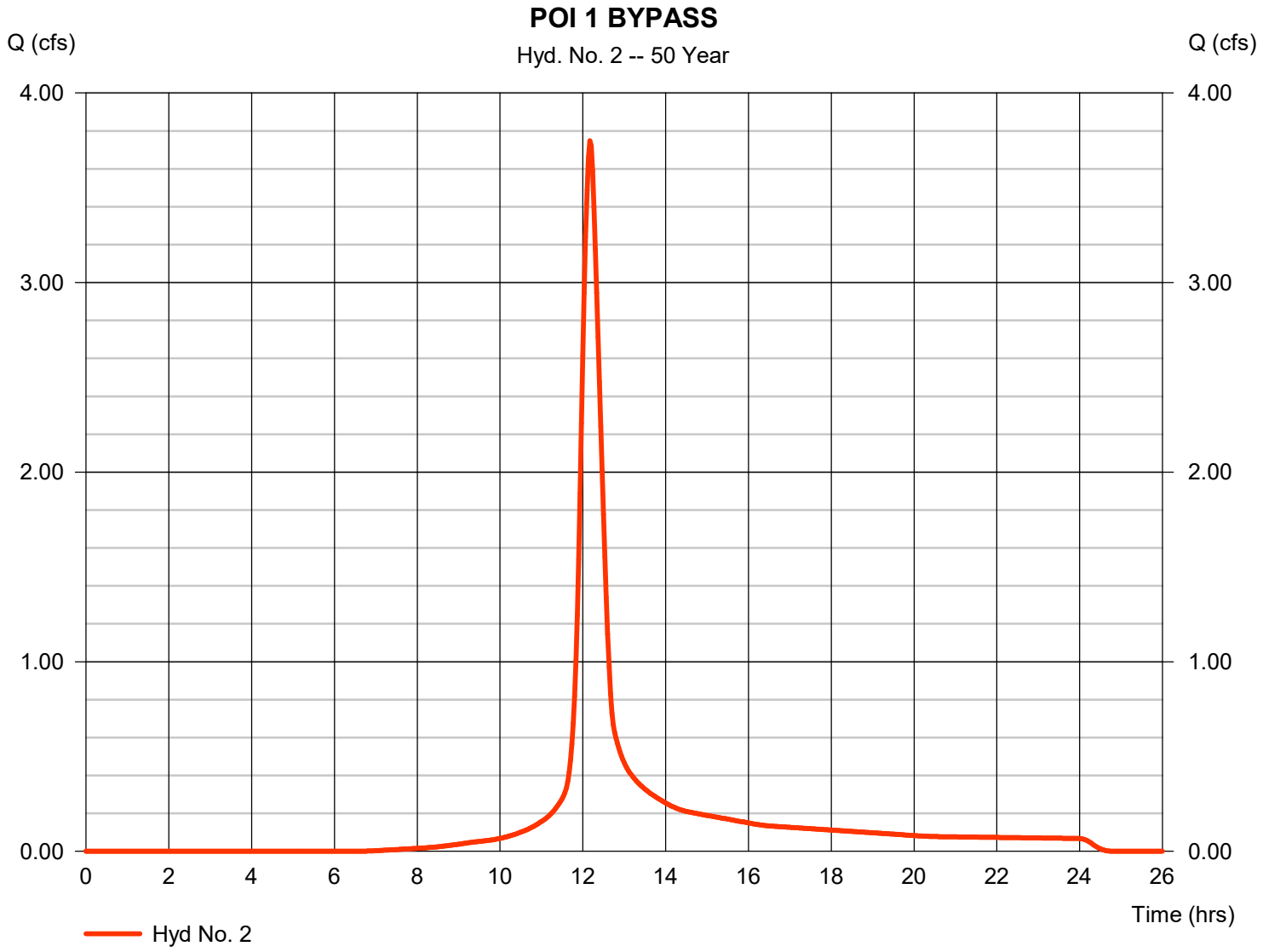
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.747 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	14,978 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

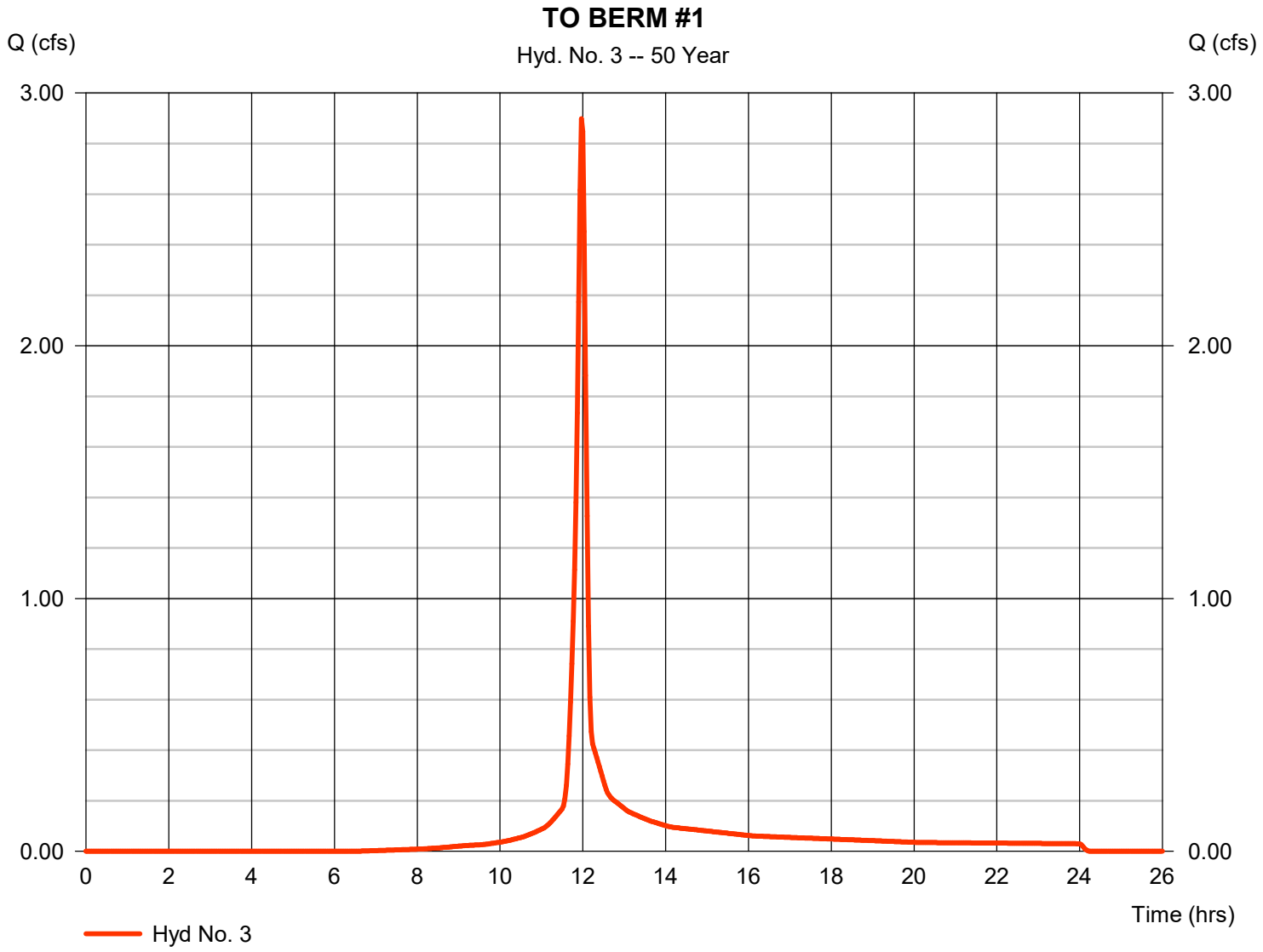
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.899 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	6,689 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

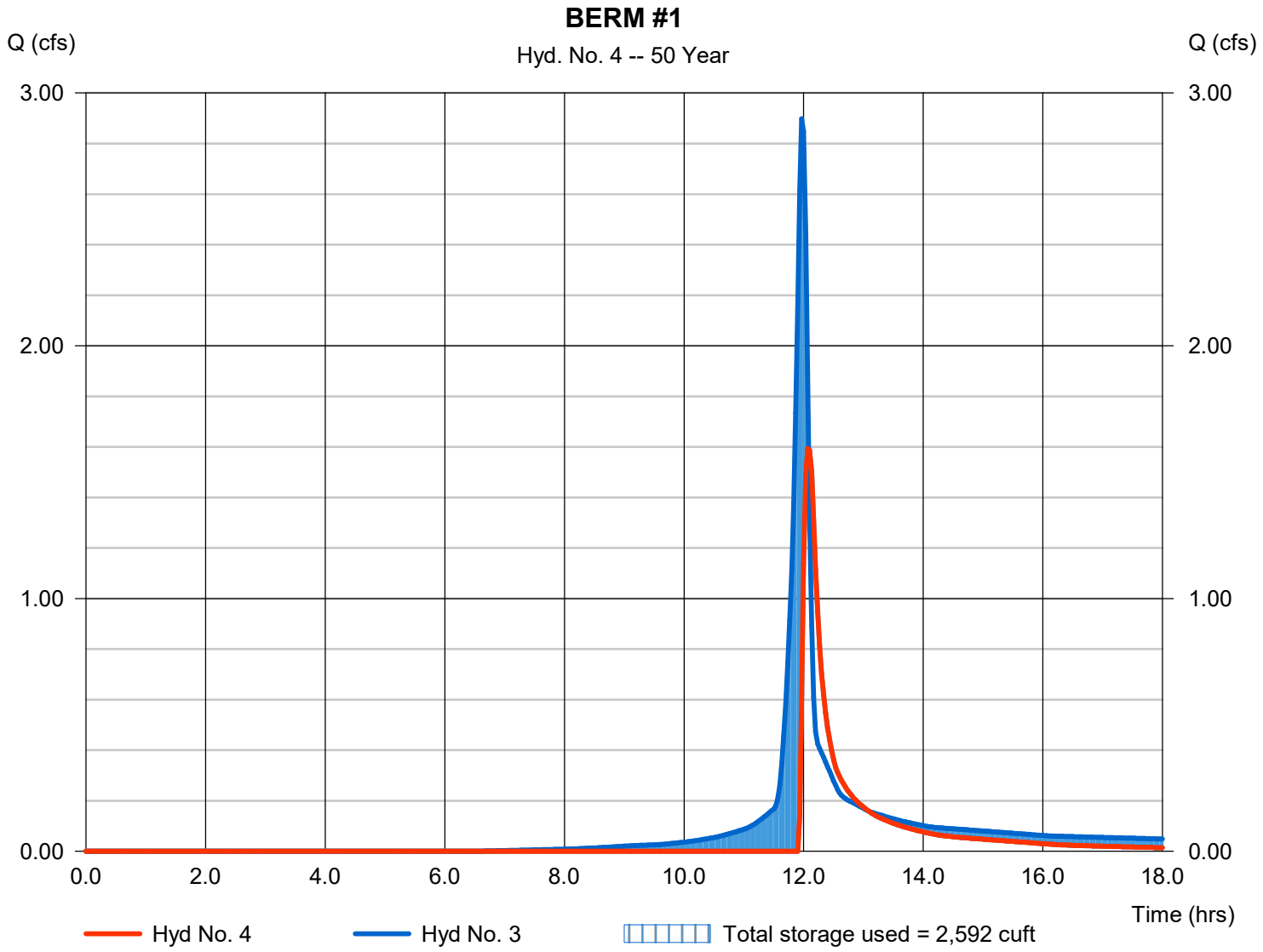
Hyd. No. 4

BERM #1

Hydrograph type	=	Reservoir	Peak discharge	=	1.594 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	3,284 cuft
Inflow hyd. No.	=	3 - TO BERM #1	Max. Elevation	=	683.32 ft
Reservoir name	=	BERM #1	Max. Storage	=	2,592 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

USED FLOW FOR RIPRAP APRON #2



Hydrograph Report

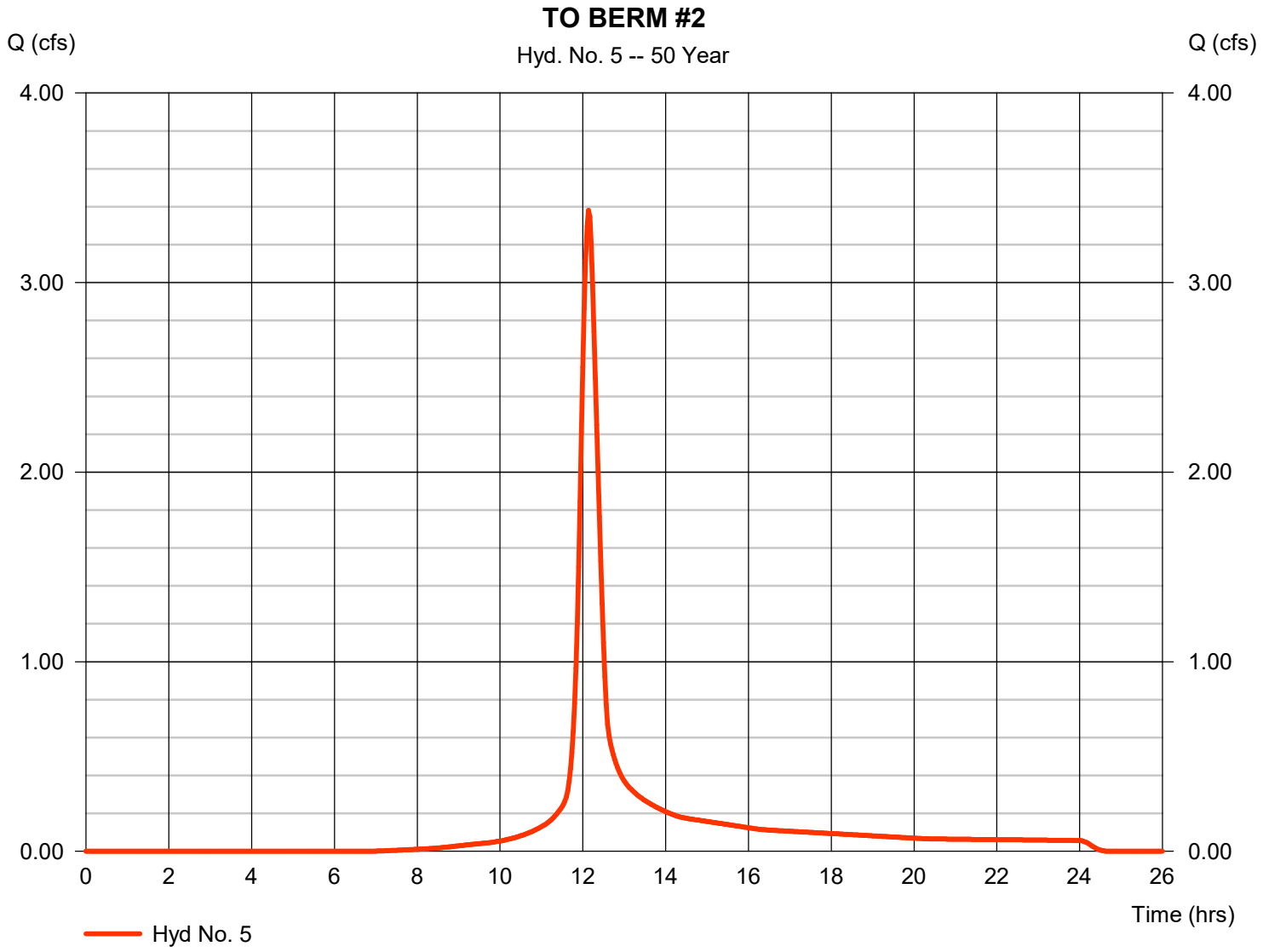
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.381 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	12,408 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

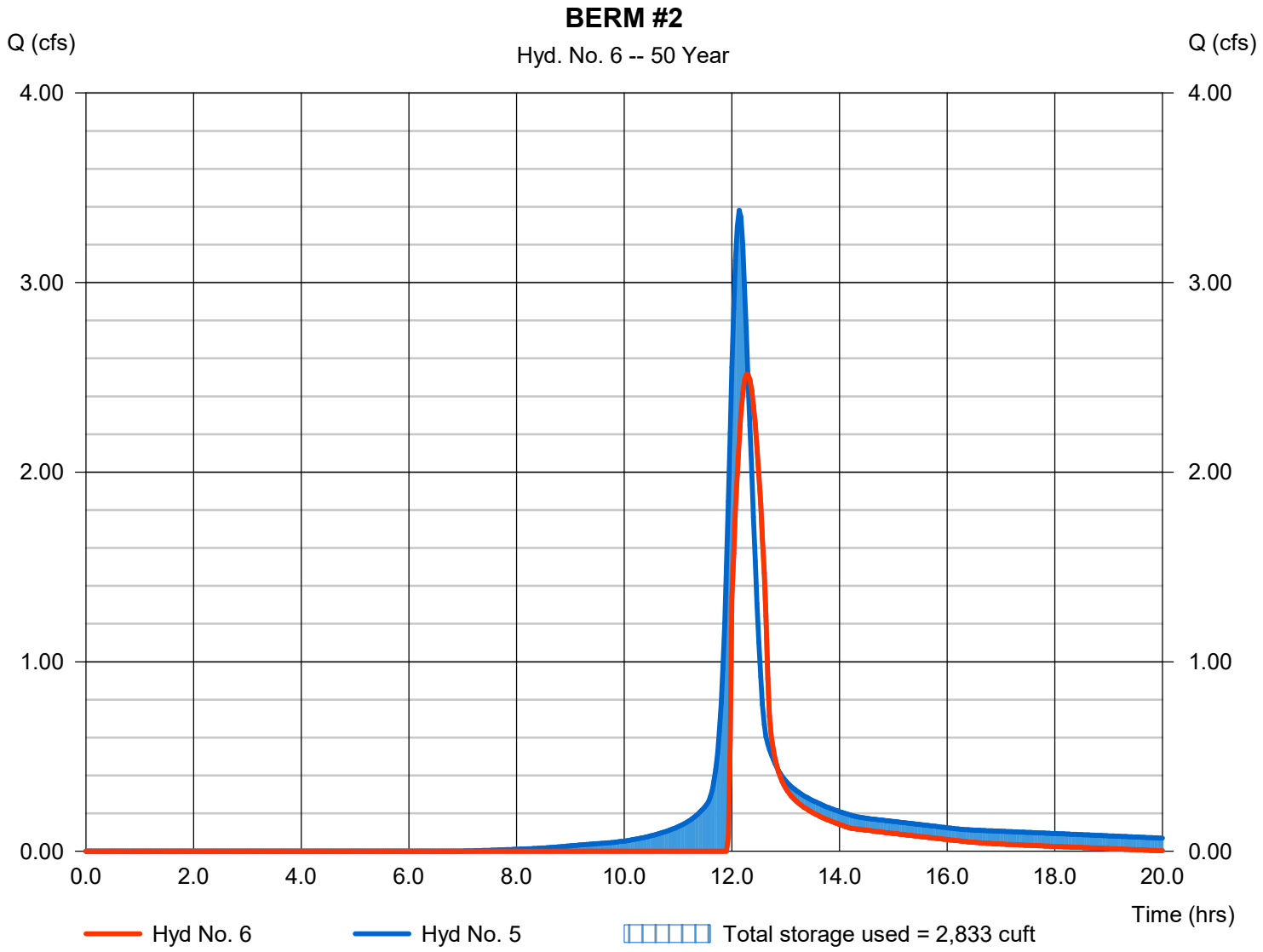
Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 2.515 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 7,488 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 693.31 ft
Reservoir name	= BERM #2	Max. Storage	= 2,833 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

USED FLOW FOR RIPRAP APRON #3



Hydrograph Report

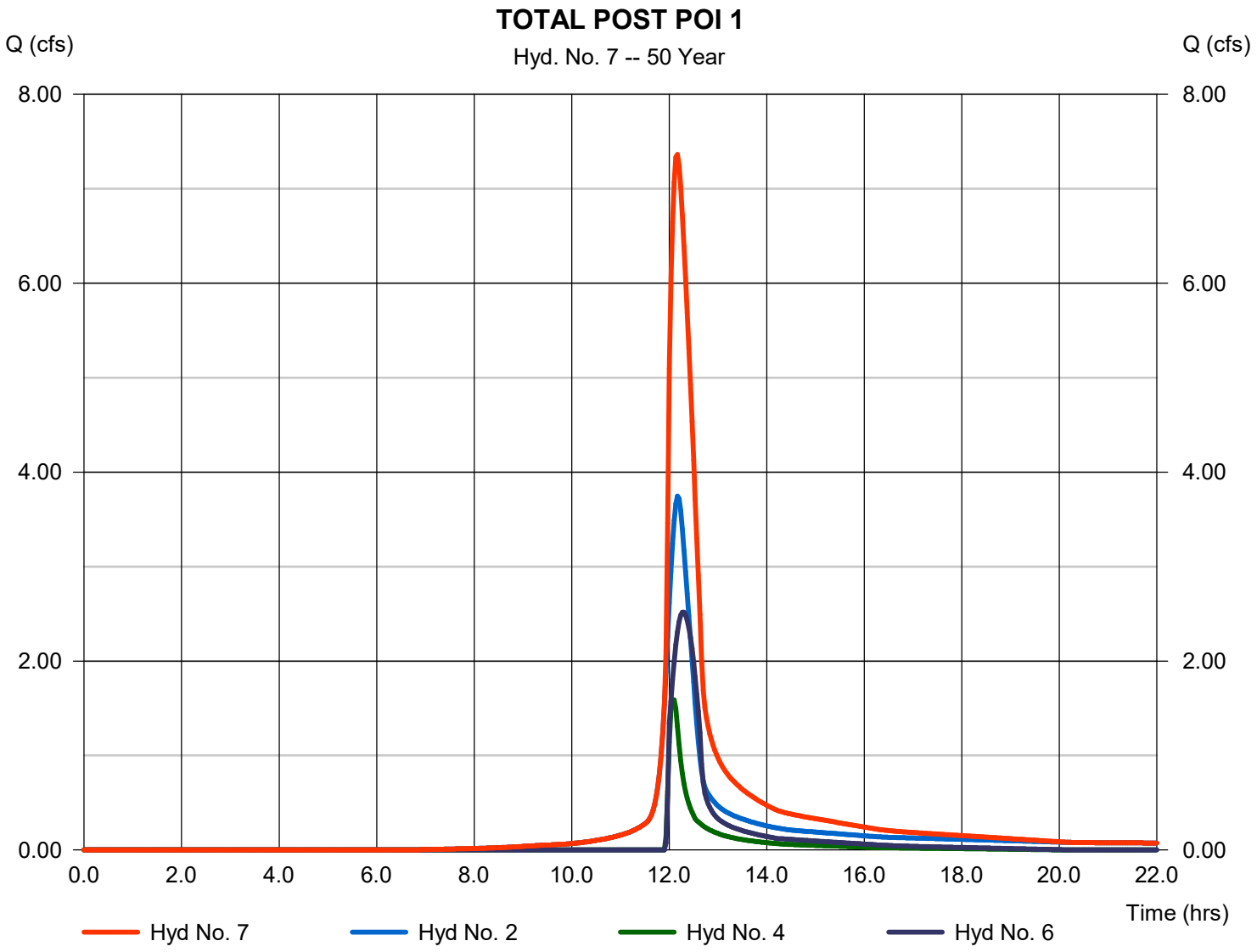
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 7.364 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 25,750 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac

USED FLOW FOR RIPRAP APRON #1



Hydrograph Report

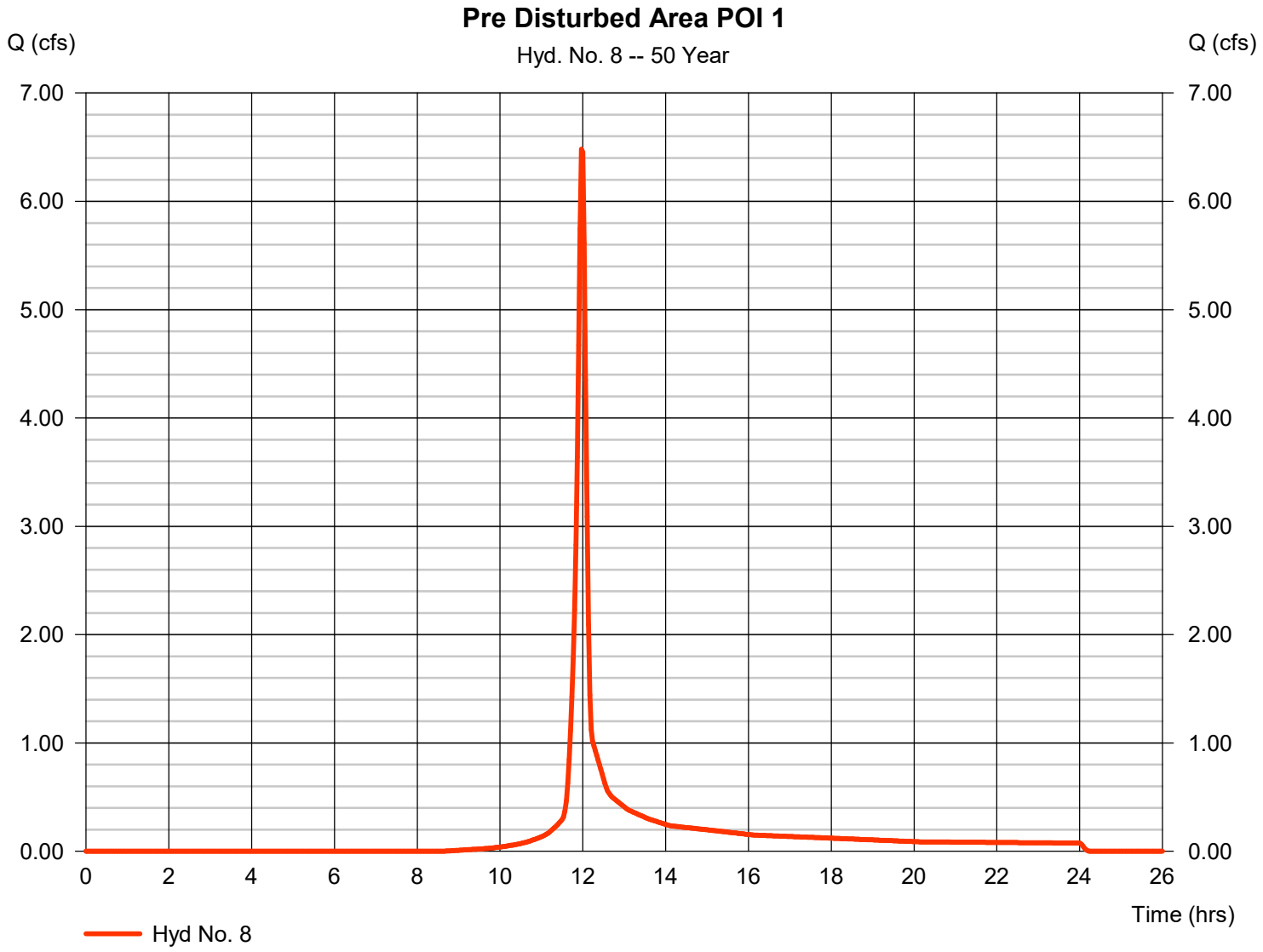
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 6.480 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 14,826 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 6.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



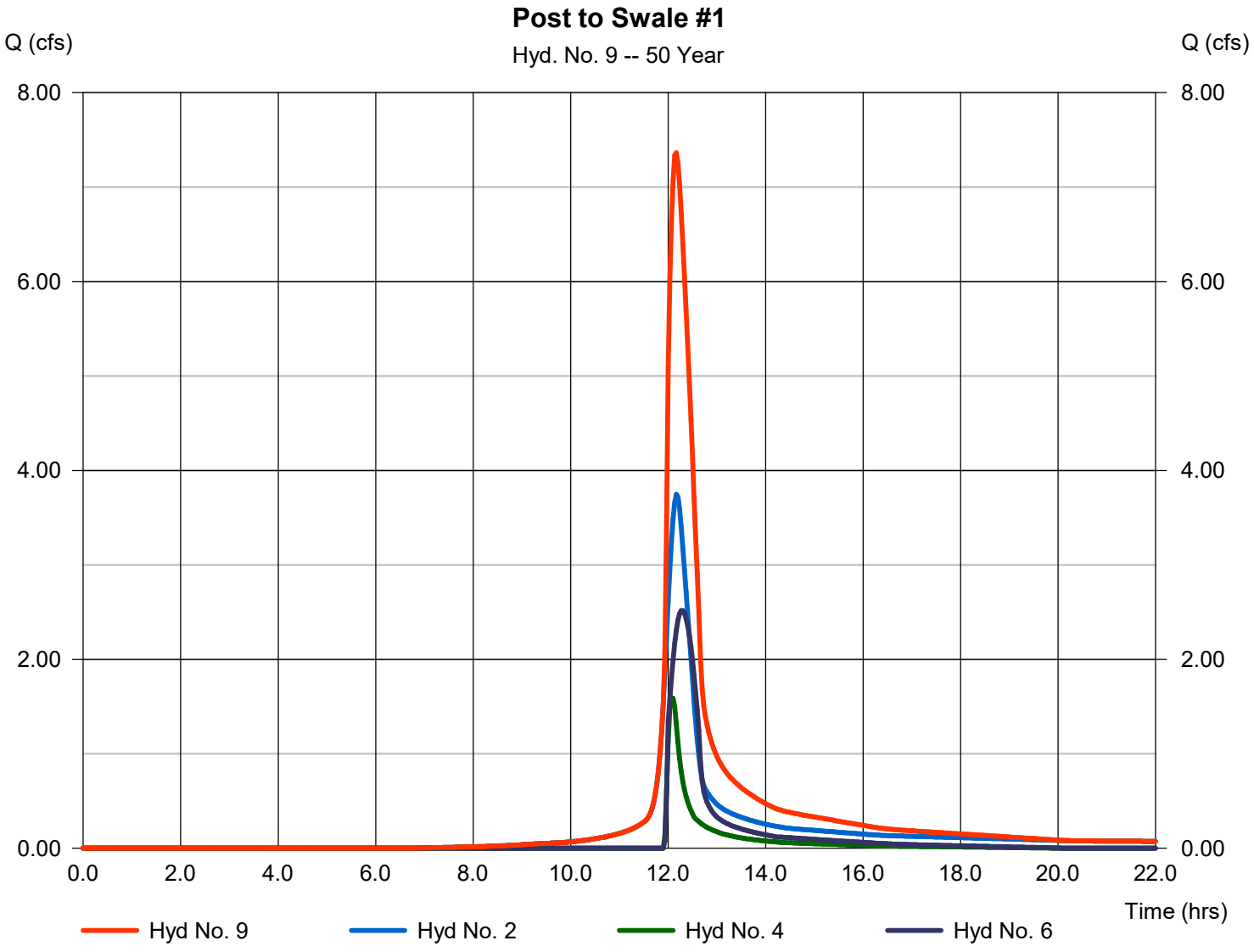
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 9

Post to Swale #1

Hydrograph type	= Combine	Peak discharge	= 7.364 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 25,750 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

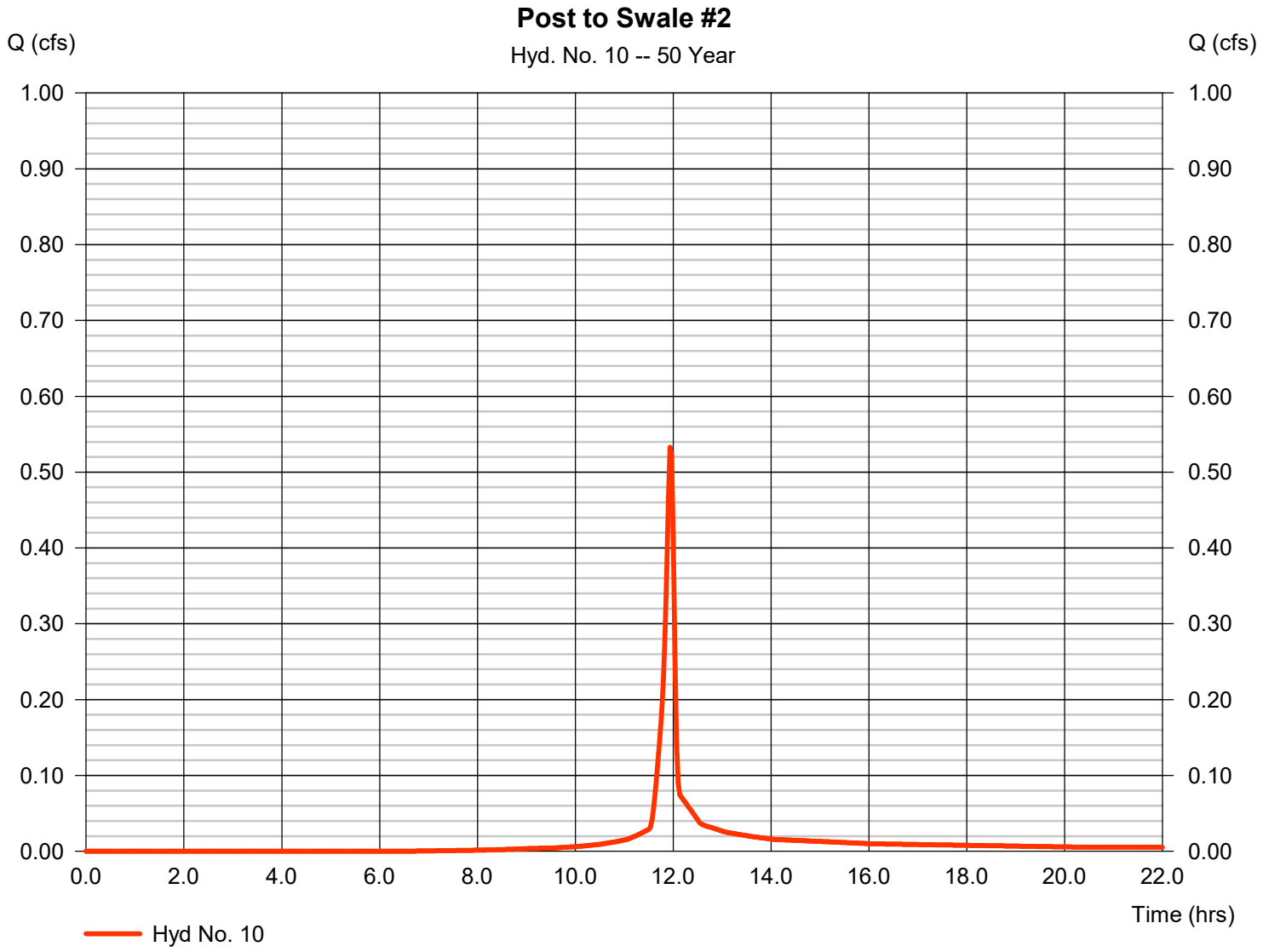
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 10

Post to Swale #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.533 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,091 cuft
Drainage area	=	0.080 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.050 x 80) + (0.010 x 74) + (0.010 x 77) + (0.010 x 70)] / 0.080



Hydrograph Report

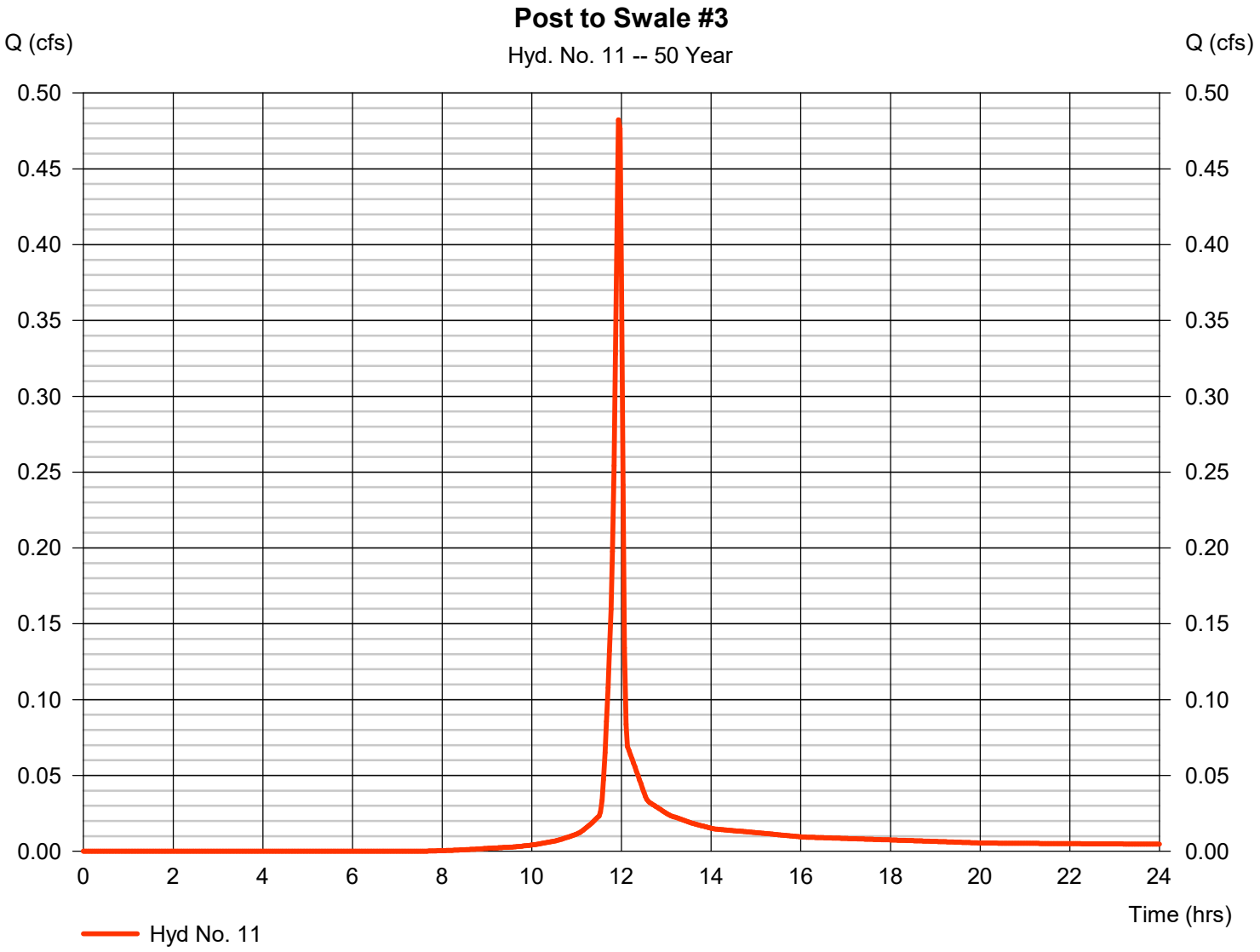
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 11

Post to Swale #3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.482 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.93 hrs
Time interval	= 2 min	Hyd. volume	= 978 cuft
Drainage area	= 0.080 ac	Curve number	= 74*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 74) + (0.010 x 70)] / 0.080



Hydrograph Report

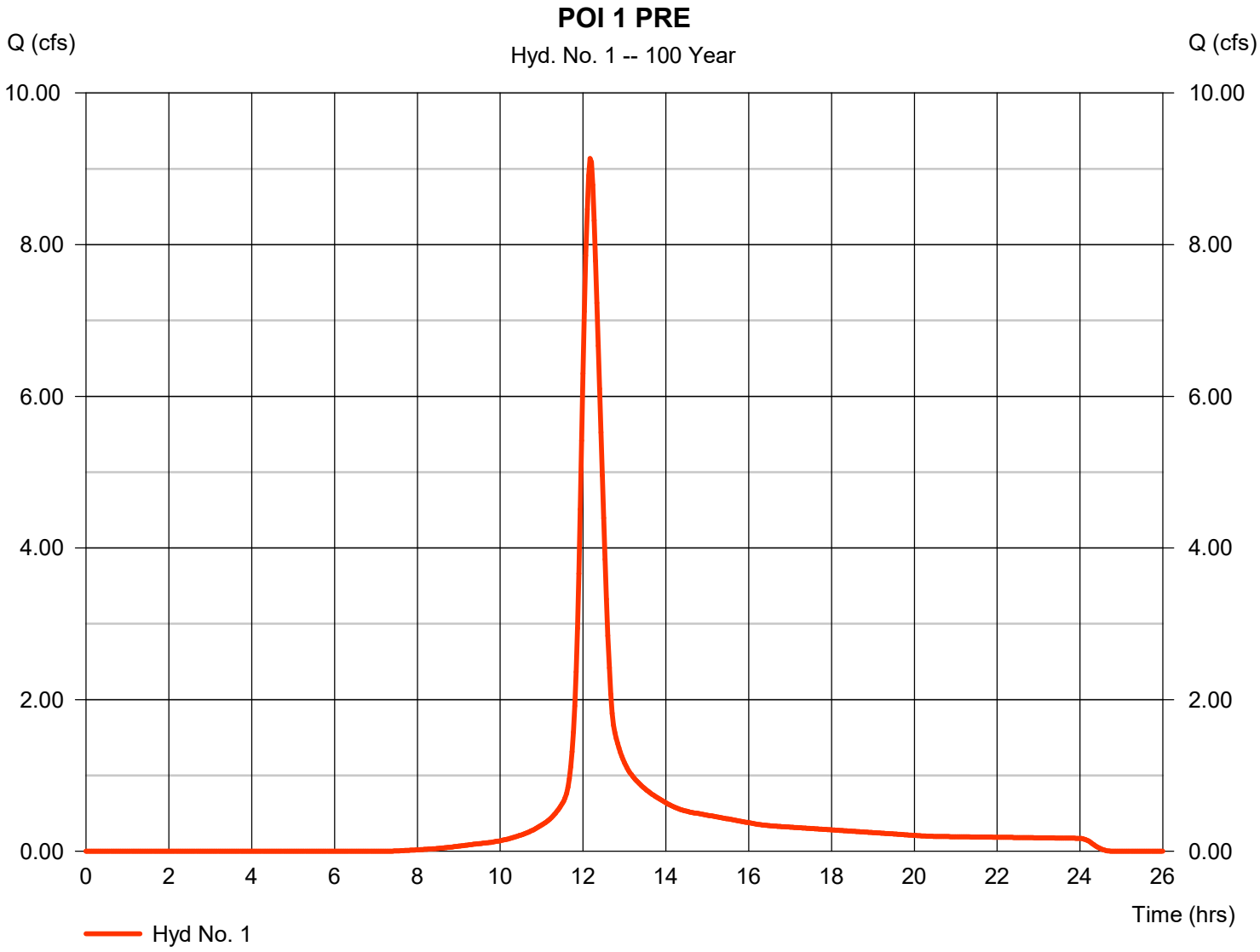
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 1

POI 1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 9.137 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 36,514 cuft
Drainage area	= 2.330 ac	Curve number	= 73*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 28.20 min
Total precip.	= 7.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.150 x 98) + (0.290 x 77) + (1.740 x 70) + (0.150 x 80)] / 2.330



Hydrograph Report

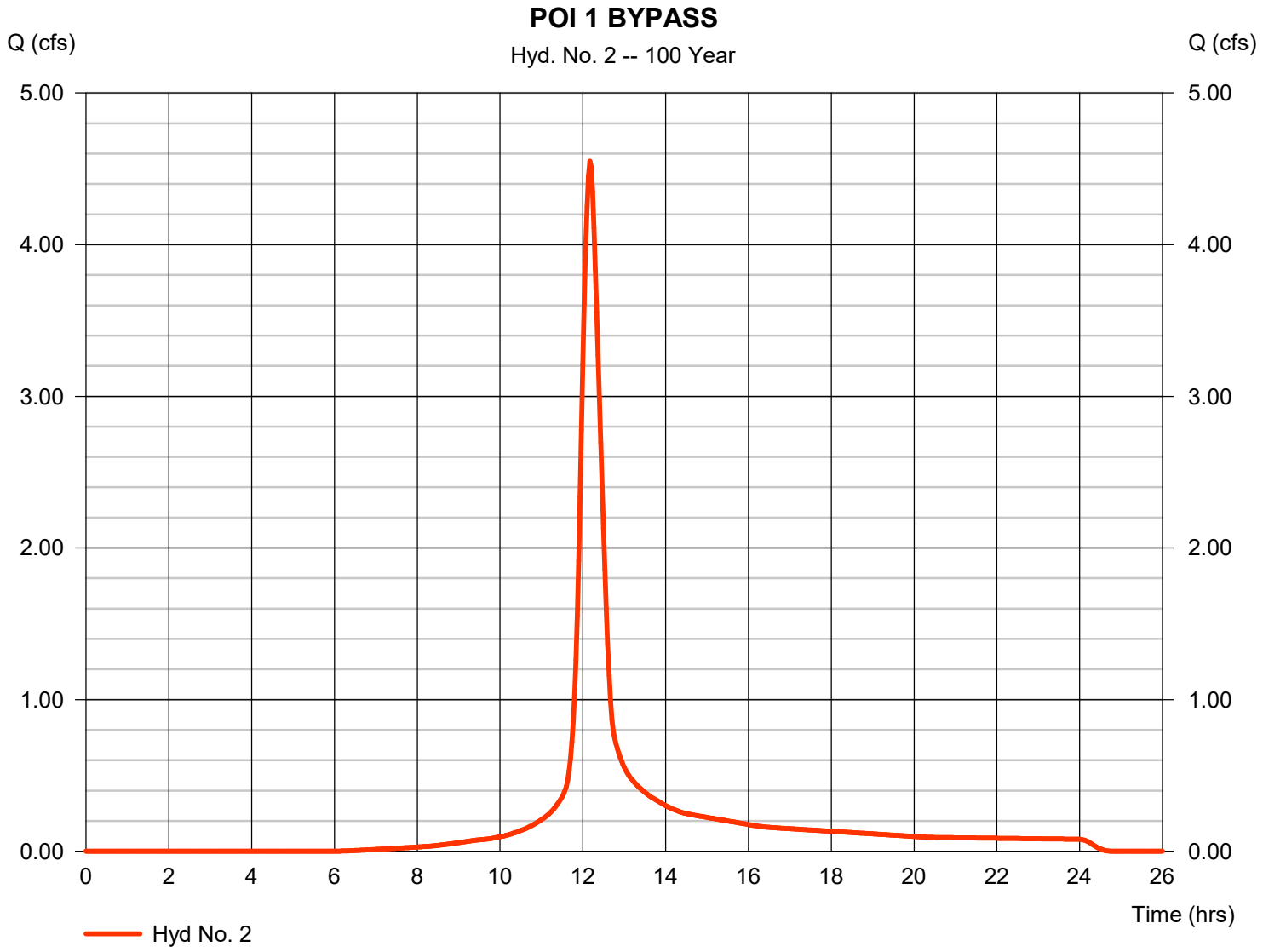
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 2

POI 1 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.551 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.17 hrs
Time interval	=	2 min	Hyd. volume	=	18,230 cuft
Drainage area	=	1.030 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	27.70 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.110 x 77) + (0.200 x 98) + (0.100 x 79) + (0.300 x 71) + (0.290 x 70) + (0.030 x 78)] / 1.030



Hydrograph Report

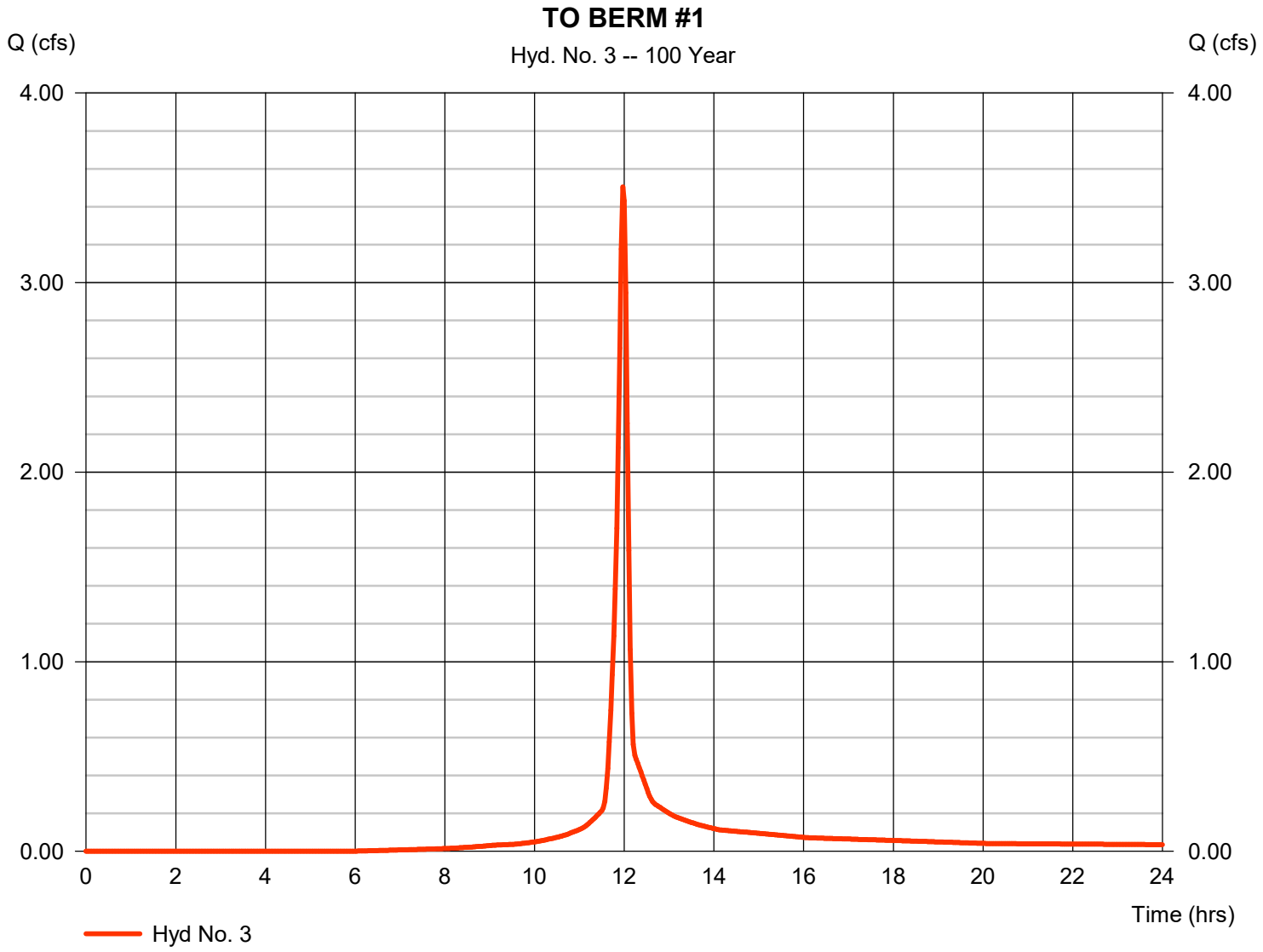
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 3

TO BERM #1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.505 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	8,142 cuft
Drainage area	=	0.460 ac	Curve number	=	78*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.080 x 98) + (0.180 x 74) + (0.070 x 71) + (0.070 x 70) + (0.010 x 77) + (0.050 x 80)] / 0.460



Hydrograph Report

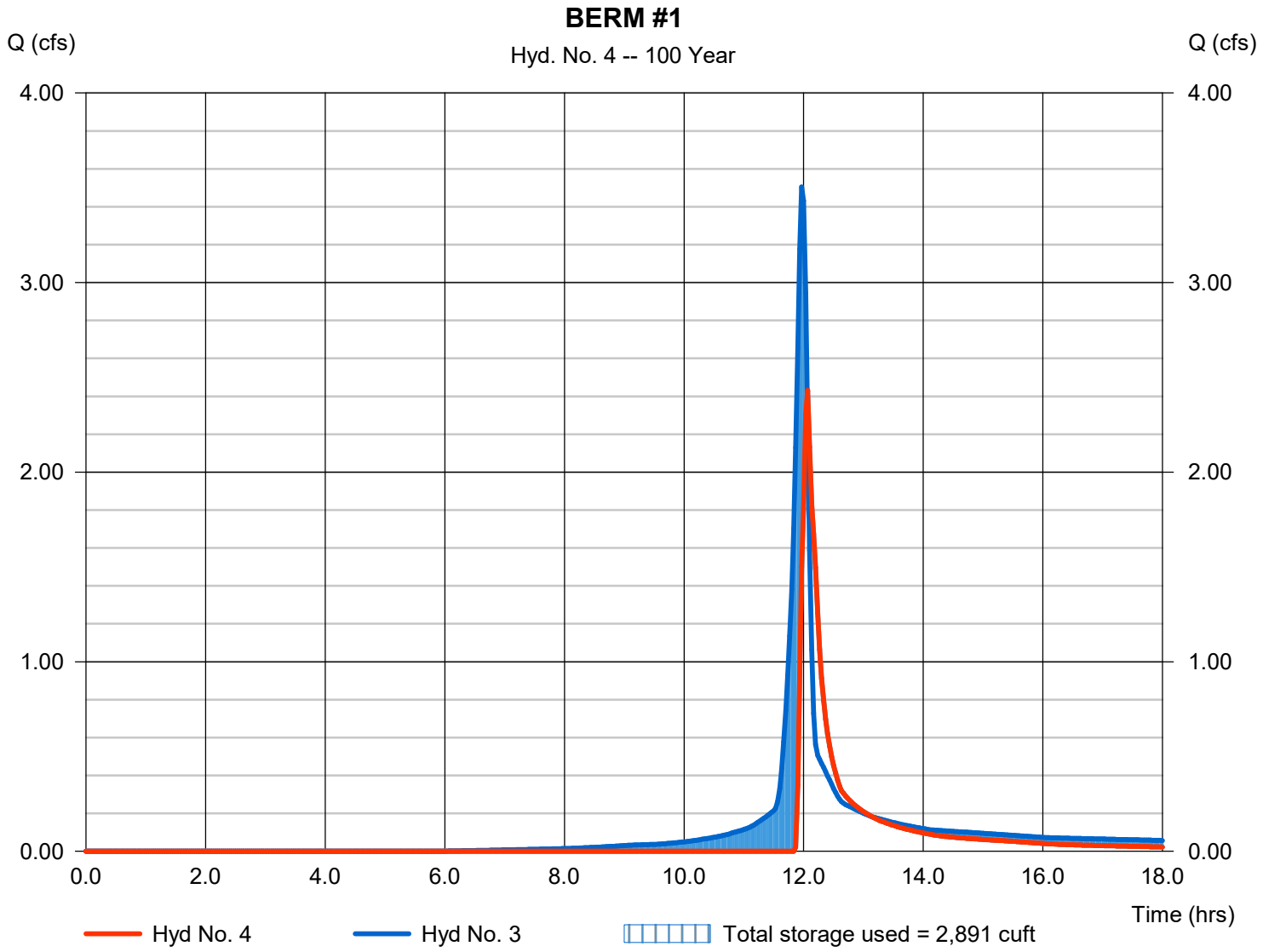
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 4

BERM #1

Hydrograph type	= Reservoir	Peak discharge	= 2.431 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 4,629 cuft
Inflow hyd. No.	= 3 - TO BERM #1	Max. Elevation	= 683.43 ft
Reservoir name	= BERM #1	Max. Storage	= 2,891 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

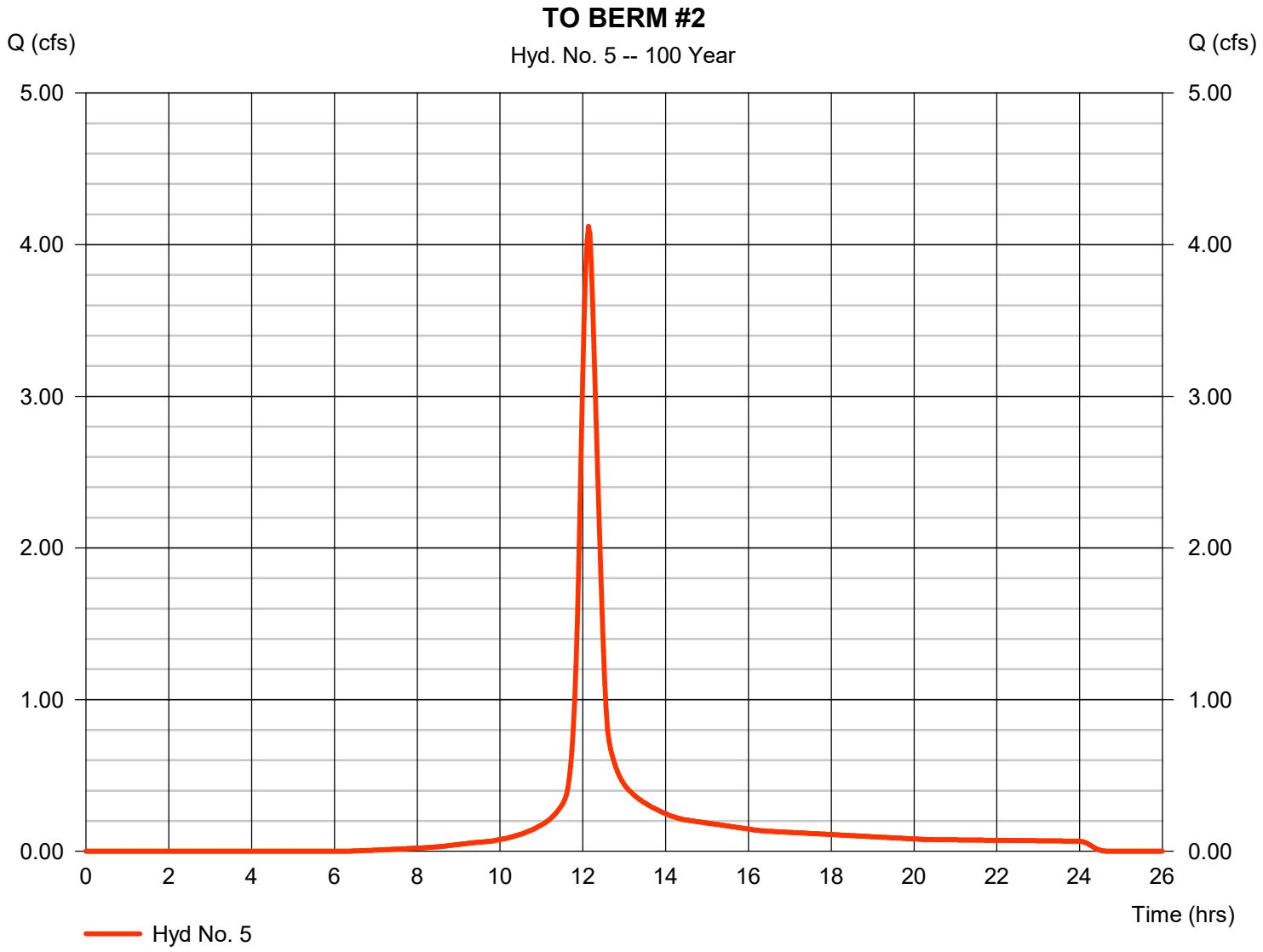
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 5

TO BERM #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.120 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	15,148 cuft
Drainage area	=	0.890 ac	Curve number	=	77*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	26.60 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 98) + (0.130 x 71) + (0.170 x 70) + (0.300 x 74) + (0.100 x 77) + (0.060 x 80)] / 0.890



Hydrograph Report

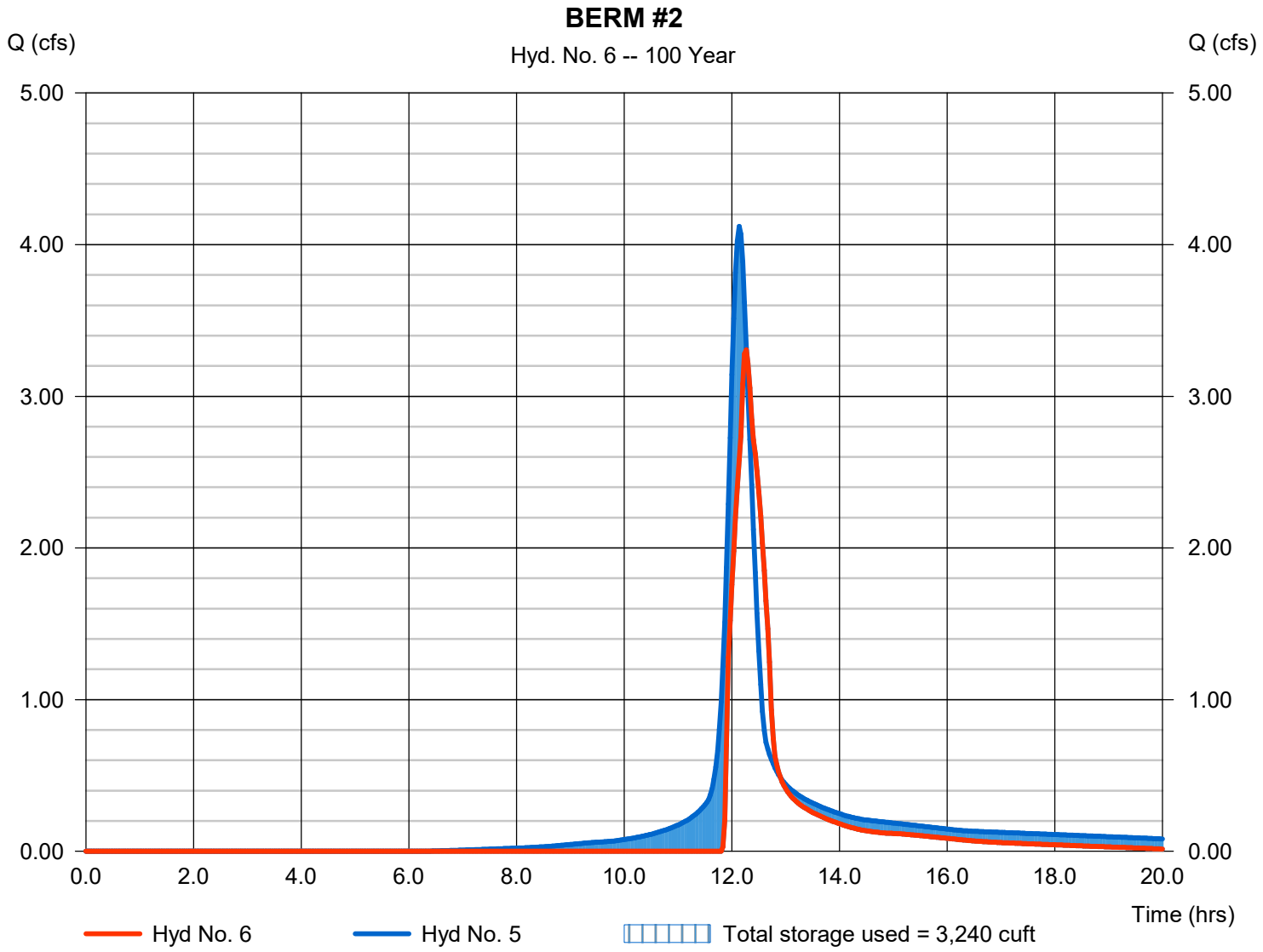
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 6

BERM #2

Hydrograph type	= Reservoir	Peak discharge	= 3.307 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 9,943 cuft
Inflow hyd. No.	= 5 - TO BERM #2	Max. Elevation	= 693.45 ft
Reservoir name	= BERM #2	Max. Storage	= 3,240 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



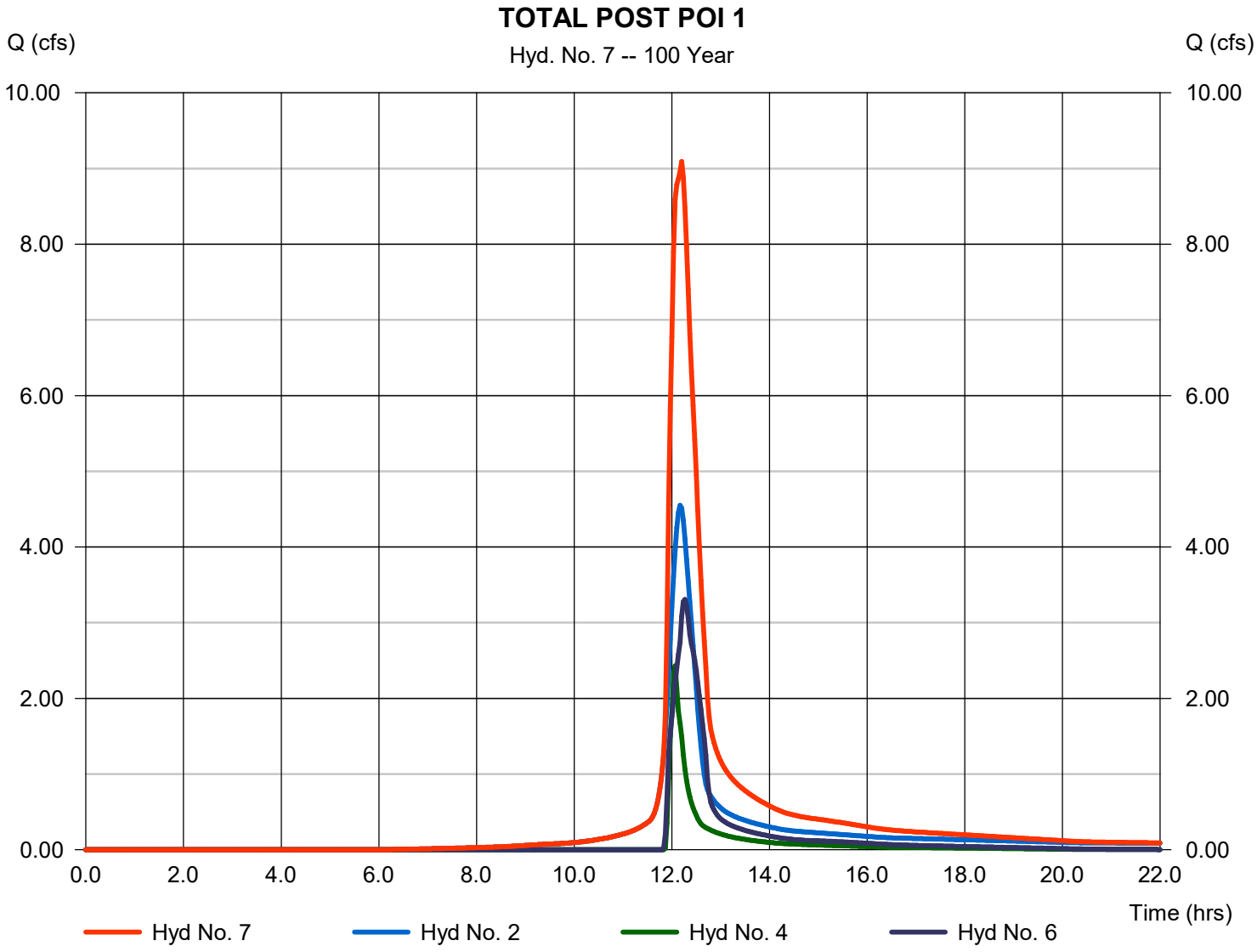
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 7

TOTAL POST POI 1

Hydrograph type	= Combine	Peak discharge	= 9.091 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 32,803 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 1.030 ac



Hydrograph Report

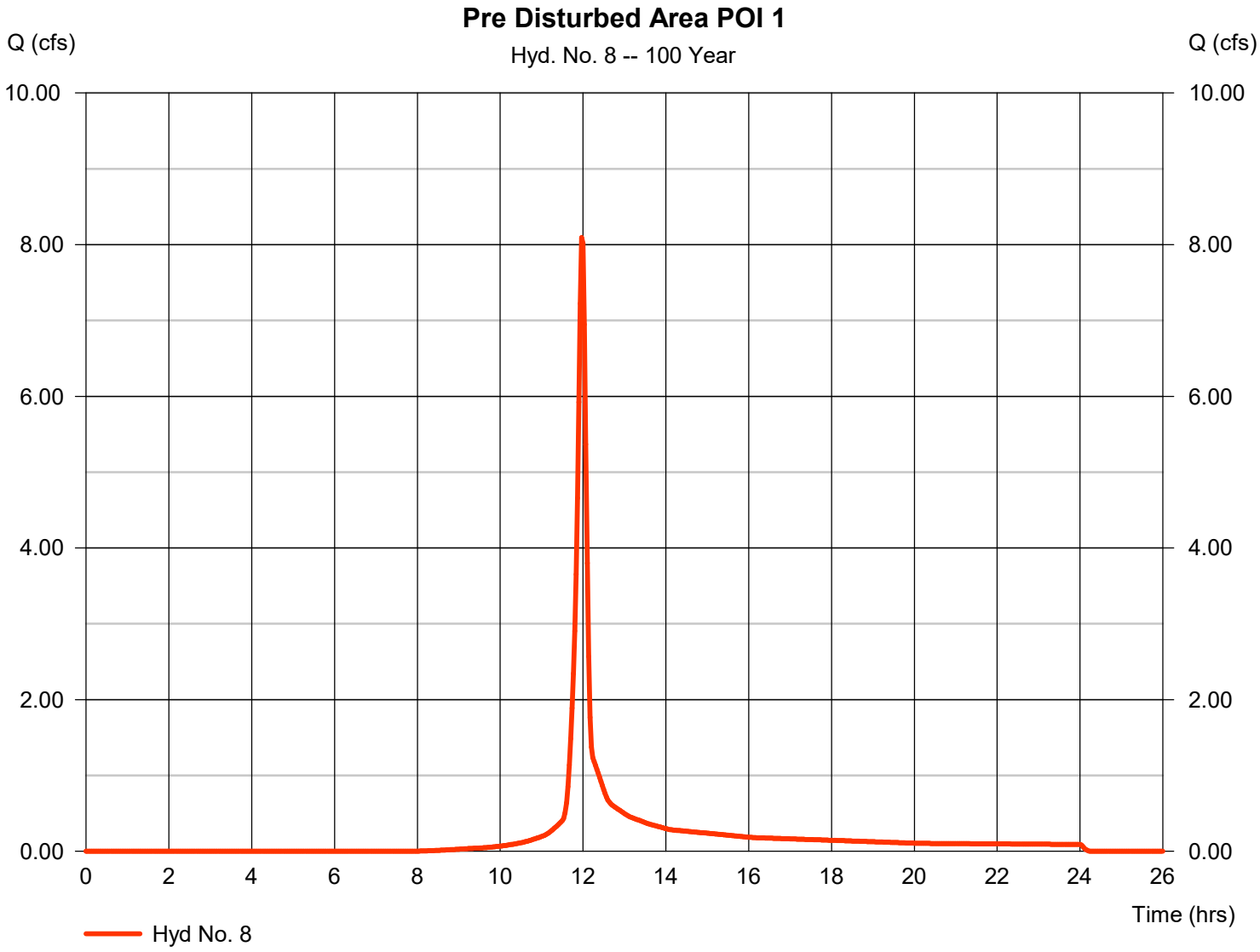
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Hyd. No. 8

Pre Disturbed Area POI 1

Hydrograph type	= SCS Runoff	Peak discharge	= 8.093 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 18,526 cuft
Drainage area	= 1.280 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.60 min
Total precip.	= 7.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.070 x 77) + (1.210 x 70)] / 1.280



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Pond No. 1 - BERM #1

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 680.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	680.00	00	0	0
1.00	681.00	242	121	121
2.00	682.00	719	481	602
3.00	683.00	1,550	1,135	1,736
4.00	684.00	3,770	2,660	4,396

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	3.00	0.00	0.00
Span (in)	= 12.00	36.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 681.00	683.00	0.00	0.00
Length (ft)	= 15.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

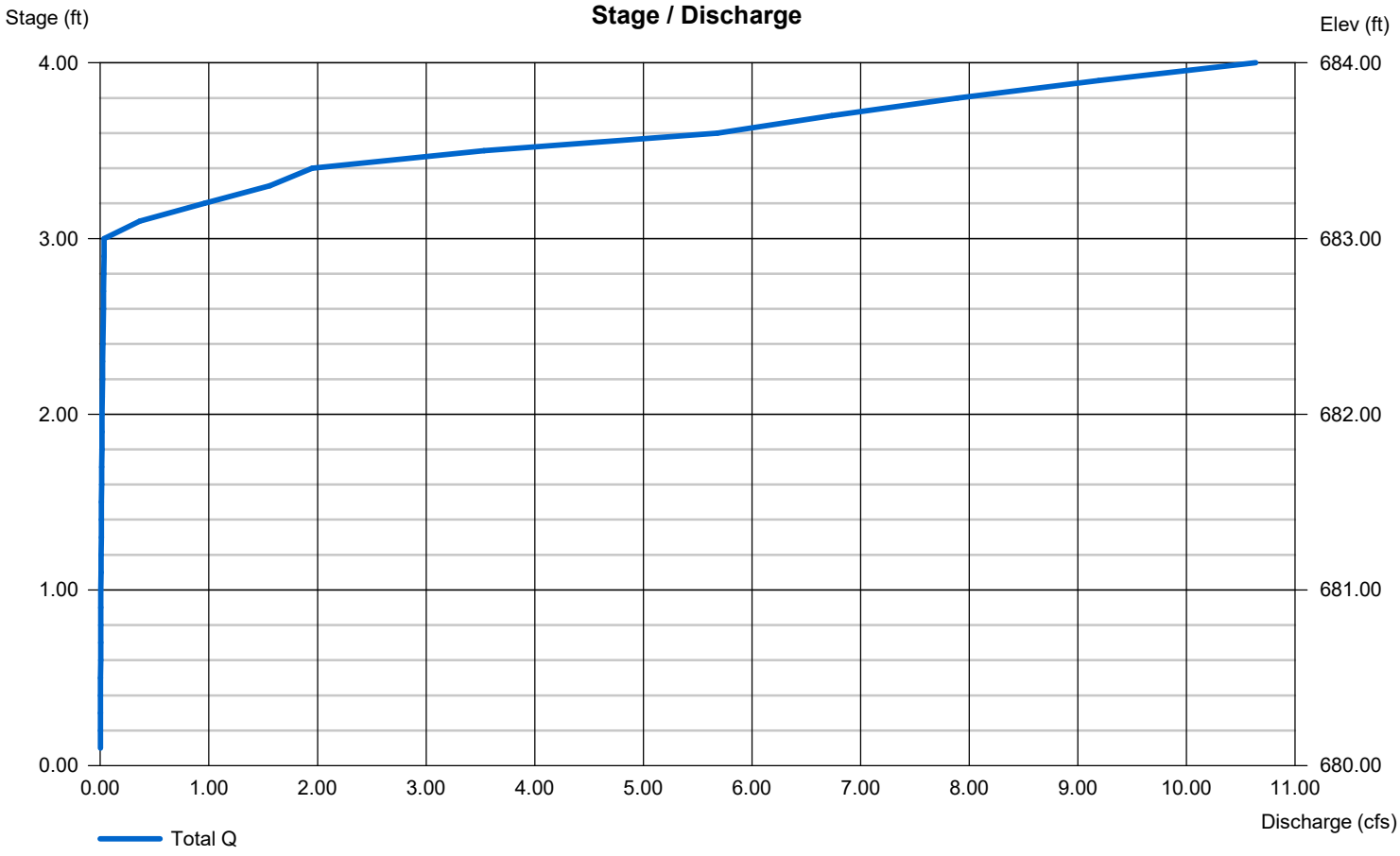
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	5.00	0.00	0.00
Crest El. (ft)	= 683.40	683.50	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

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



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Wednesday, 02 / 21 / 2024

Pond No. 2 - BERM #2

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 691.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	691.00	00	0	0
1.00	692.00	893	447	447
2.00	693.00	2,111	1,502	1,949
3.00	694.00	3,580	2,846	4,794

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	3.00	0.00	0.00
Span (in)	= 12.00	38.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 691.50	692.75	0.00	0.00
Length (ft)	= 25.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

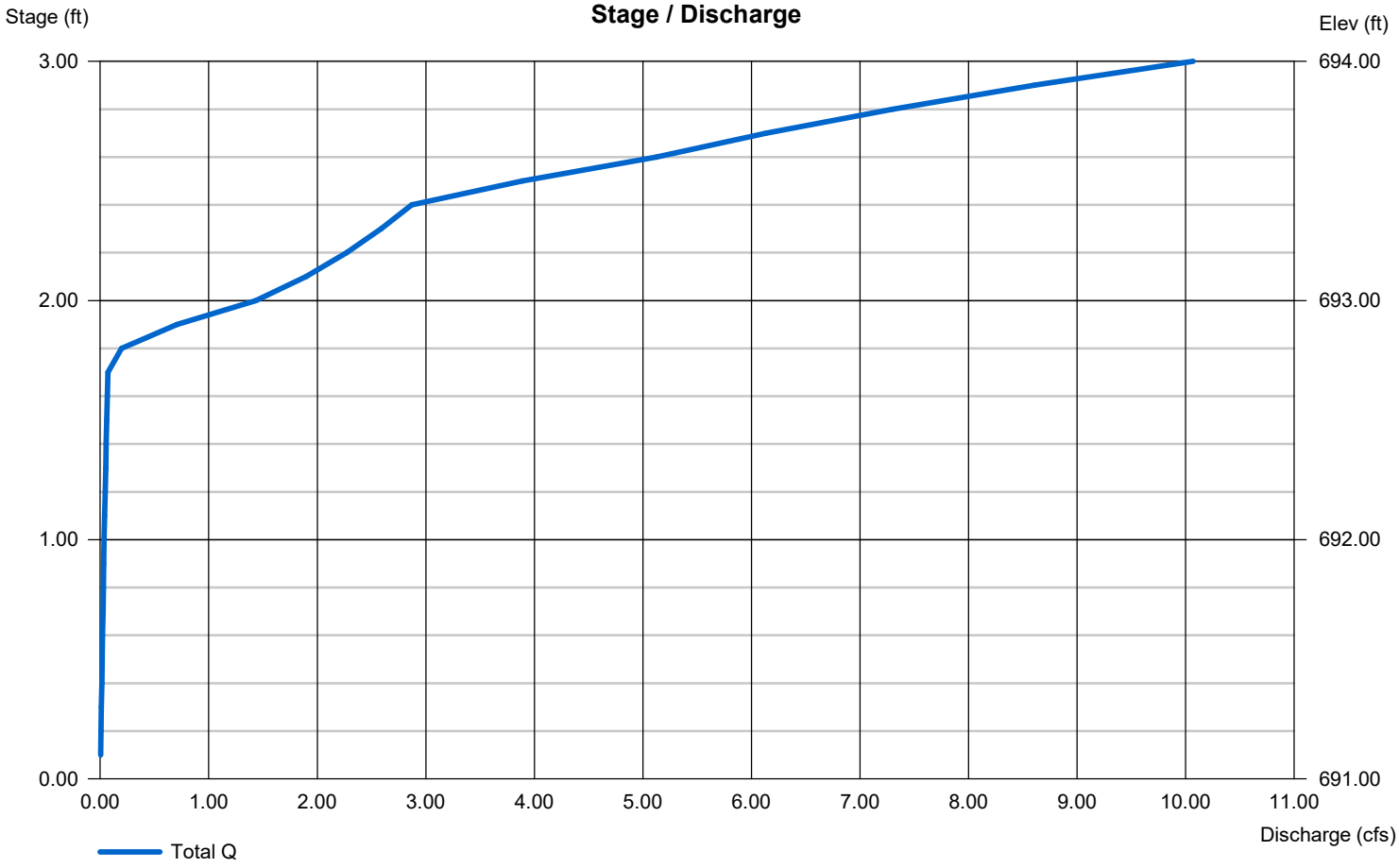
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	5.00	0.00	0.00
Crest El. (ft)	= 693.40	693.50	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 1.750 (by Contour)

TW Elev. (ft) = 0.00

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



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

PROPOSED 18 IN. RCP - POI 1

Invert Elev Dn (ft)	=	673.18
Pipe Length (ft)	=	42.00
Slope (%)	=	2.55
Invert Elev Up (ft)	=	674.25
Rise (in)	=	18.0
Shape	=	Circular
Span (in)	=	18.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Groove end projecting (C)
Coeff. K,M,c,Y,k	=	0.0045, 2, 0.0317, 0.69, 0.2

Embankment

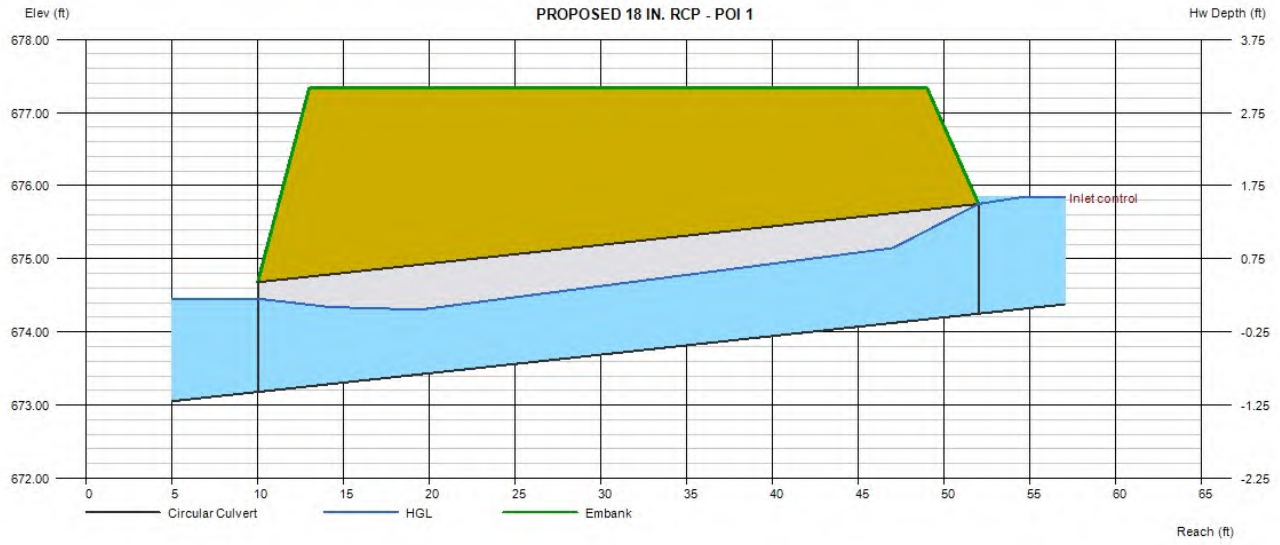
Top Elevation (ft)	=	677.33
Top Width (ft)	=	36.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	7.36
Qmax (cfs)	=	7.36
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	7.36
Qpipe (cfs)	=	7.36
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	4.60
Veloc Up (ft/s)	=	5.57
HGL Dn (ft)	=	674.45
HGL Up (ft)	=	675.30
Hw Elev (ft)	=	675.84
Hw/D (ft)	=	1.06
Flow Regime	=	Inlet Control



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

Swale #1

Trapezoidal

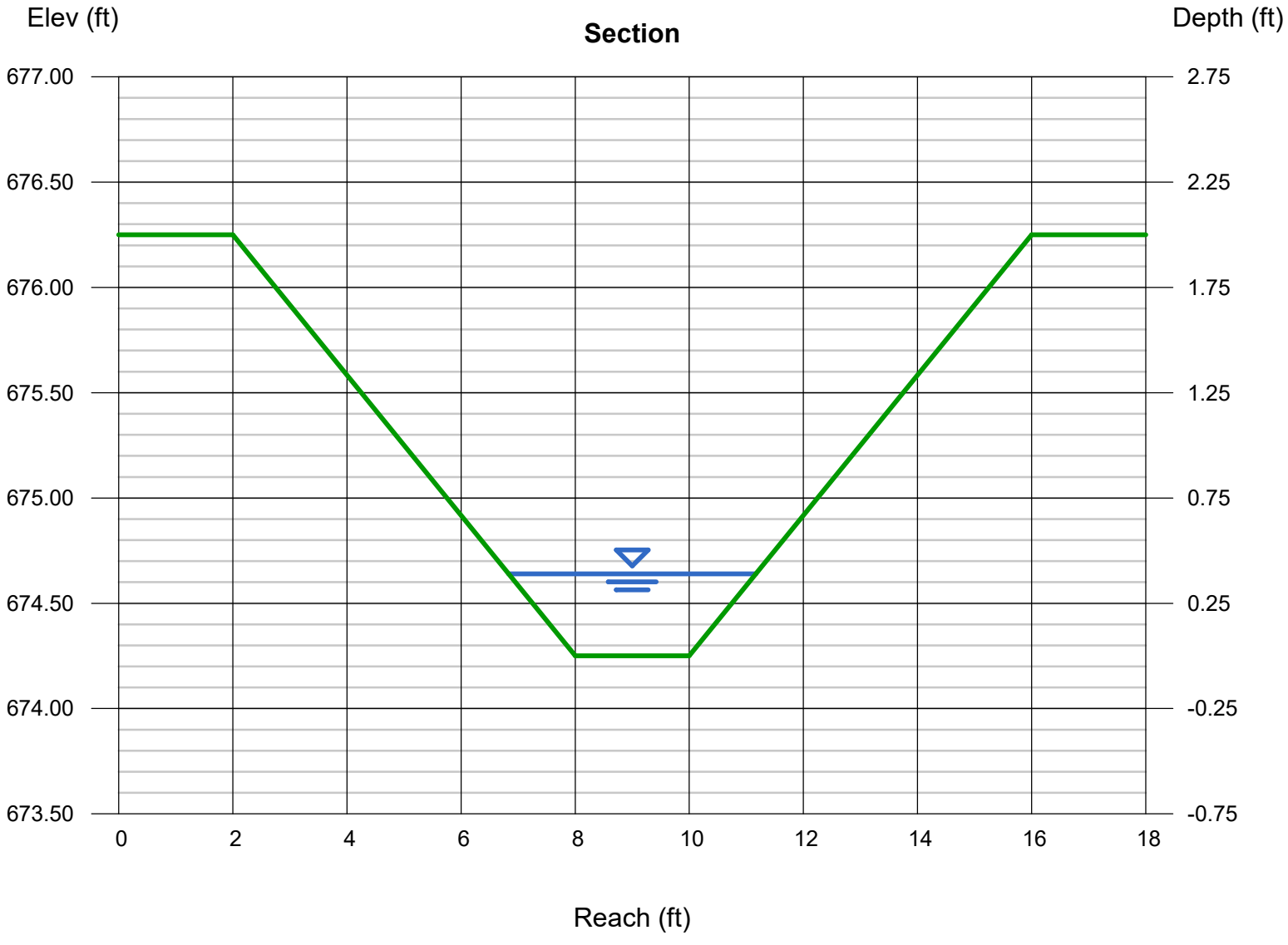
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 674.25
Slope (%)	= 6.60
N-Value	= 0.026

Calculations

Compute by:	Known Q
Known Q (cfs)	= 7.36

Highlighted

Depth (ft)	= 0.39
Q (cfs)	= 7.360
Area (sqft)	= 1.24
Velocity (ft/s)	= 5.95
Wetted Perim (ft)	= 4.47
Crit Depth, Yc (ft)	= 0.57
Top Width (ft)	= 4.34
EGL (ft)	= 0.94



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

Swale #2

Trapezoidal

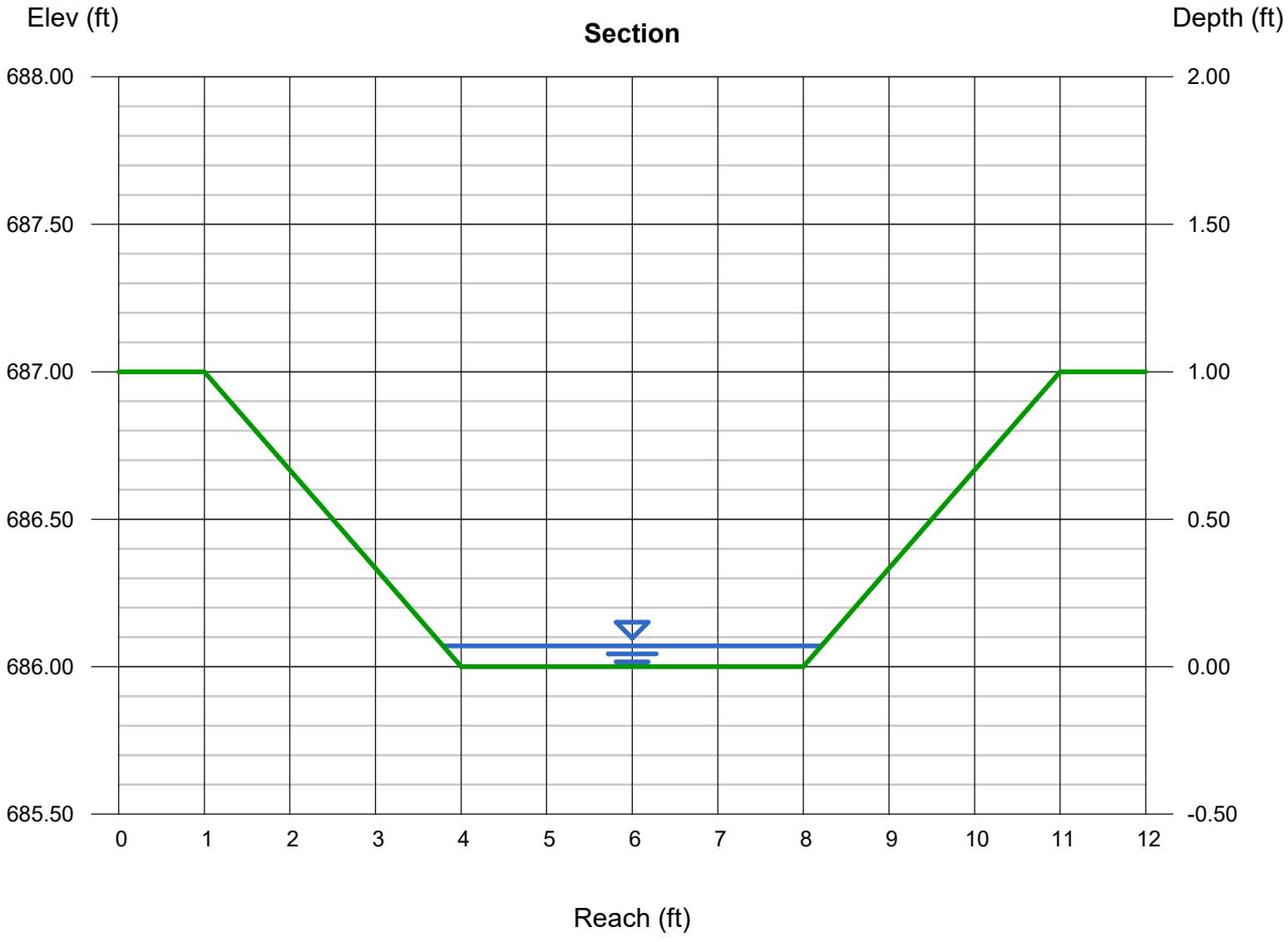
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 686.00
Slope (%)	= 5.71
N-Value	= 0.026

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.53

Highlighted

Depth (ft)	= 0.07
Q (cfs)	= 0.533
Area (sqft)	= 0.29
Velocity (ft/s)	= 1.81
Wetted Perim (ft)	= 4.44
Crit Depth, Yc (ft)	= 0.09
Top Width (ft)	= 4.42
EGL (ft)	= 0.12



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

Swale #3

Trapezoidal

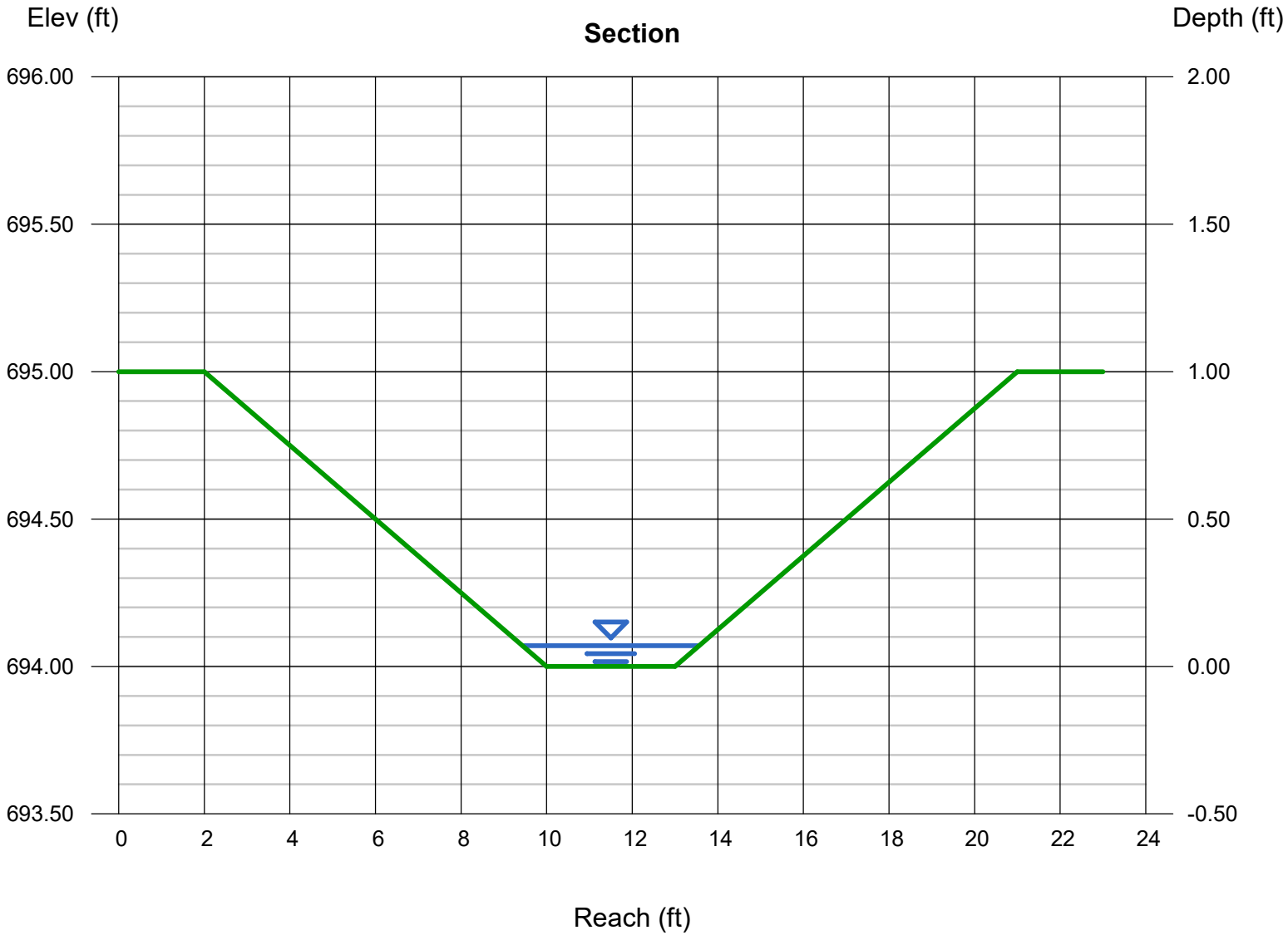
Bottom Width (ft)	= 3.00
Side Slopes (z:1)	= 8.00, 8.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 694.00
Slope (%)	= 7.10
N-Value	= 0.026

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.48

Highlighted

Depth (ft)	= 0.07
Q (cfs)	= 0.482
Area (sqft)	= 0.25
Velocity (ft/s)	= 1.93
Wetted Perim (ft)	= 4.13
Crit Depth, Yc (ft)	= 0.09
Top Width (ft)	= 4.12
EGL (ft)	= 0.13



CHANNEL ANALYSIS

Home > View Projects > Project > Swale #1

Print This Page

View Computations

Duplicate Analysis
Delete Analysis

Name	Swale #1
Discharge	7.364
Channel Slope	0.066
Channel Bottom Width	2
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardence Class	C 6-12 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Good 65-79%
Soil Type	Silt Loam (SM)

S150BN

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
S150BN Unvegetated	Straight	7.36 cfs	5.27 $^{ft}/_{s}$	0.43 ft	0.032	1.9 $^{lbs}/_{ft2}$	1.75 $^{lbs}/_{ft2}$	1.08	STABLE	D
Underlying Substrate	Straight	7.36 cfs	5.27 $^{ft}/_{s}$	0.43 ft	0.032	1.39 $^{lbs}/_{ft2}$	1.22 $^{lbs}/_{ft2}$	1.14	STABLE	D

Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	7.36 cfs	4.39 $^{ft}/_{s}$	0.48 ft	0.041	4 $^{lbs}/_{ft2}$	1.99 $^{lbs}/_{ft2}$	2.01	STABLE	--
Underlying Substrate	Straight	7.36 cfs	4.39 $^{ft}/_{s}$	0.48 ft	0.041	1.88 $^{lbs}/_{ft2}$	1.36 $^{lbs}/_{ft2}$	1.39	STABLE	--

CHANNEL ANALYSIS

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Name	Swale #2
Discharge	0.53
Channel Slope	0.0571
Channel Bottom Width	4
Left Side Slope	3
Right Side Slope	3
Low Flow Liner	
Retardence Class	C 6-12 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Good 65-79%
Soil Type	Silt Loam (SM)

Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	0.53 cfs	1.1 $^{ft}/_{s}$	0.11 ft	0.07	4 $^{lbs}/_{ft2}$	0.39 $^{lbs}/_{ft2}$	10.14	STABLE	--
Underlying Substrate	Straight	0.53 cfs	1.1 $^{ft}/_{s}$	0.11 ft	0.07	4 $^{lbs}/_{ft2}$	0.36 $^{lbs}/_{ft2}$	11	STABLE	--

S75BN

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
S75BN Unvegetated	Straight	0.53 cfs	1.68 $^{ft}/_{s}$	0.07 ft	0.036	1.6 $^{lbs}/_{ft2}$	0.27 $^{lbs}/_{ft2}$	6.02	STABLE	D
Underlying Substrate	Straight	0.53 cfs	1.68 $^{ft}/_{s}$	0.07 ft	0.036	1.17 $^{lbs}/_{ft2}$	0.25 $^{lbs}/_{ft2}$	4.67	STABLE	D

CHANNEL ANALYSIS

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Name	Swale #3
Discharge	0.48
Channel Slope	0.071
Channel Bottom Width	3
Left Side Slope	8
Right Side Slope	8
Low Flow Liner	
Retardence Class	C 6-12 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Good 65-79%
Soil Type	Silt Loam (SM)

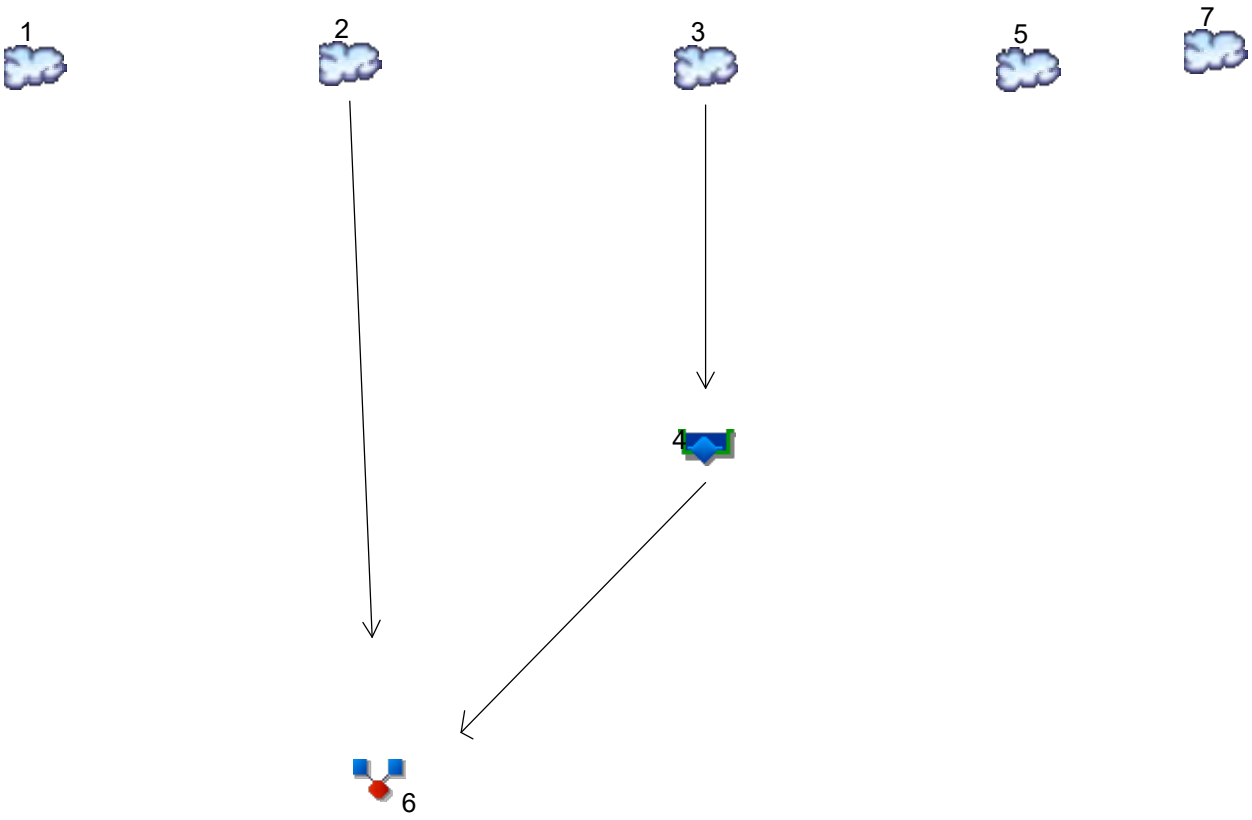
Unreinforced Vegetation

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	0.48 cfs	1.15 $^{ft}/_{s}$	0.11 ft	0.068	4 $^{lbs}/_{ft2}$	0.48 $^{lbs}/_{ft2}$	8.35	STABLE	--
Underlying Substrate	Straight	0.48 cfs	1.15 $^{ft}/_{s}$	0.11 ft	0.068	4 $^{lbs}/_{ft2}$	0.39 $^{lbs}/_{ft2}$	10.25	STABLE	--

S75BN

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
S75BN Unvegetated	Straight	0.48 cfs	1.79 $^{ft}/_{s}$	0.07 ft	0.035	1.6 $^{lbs}/_{ft2}$	0.33 $^{lbs}/_{ft2}$	4.84	STABLE	D
Underlying Substrate	Straight	0.48 cfs	1.79 $^{ft}/_{s}$	0.07 ft	0.035	1.17 $^{lbs}/_{ft2}$	0.28 $^{lbs}/_{ft2}$	4.14	STABLE	D

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	POI 2 PRE
2	SCS Runoff	POI 2 BYPASS
3	SCS Runoff	TO BERM #3
4	Reservoir	BERM #3
5	SCS Runoff	POI 2 PRE - CHANGED AREA
6	Combine	TOTAL POST POI 2
7	SCS Runoff	Post to Swale #4

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	------	5.768	9.134	-------	14.76	22.98	34.08	40.96	50.30	POI 2 PRE
2	SCS Runoff	------	3.881	6.145	-------	9.927	15.46	22.93	27.56	33.84	POI 2 BYPASS
3	SCS Runoff	------	2.036	3.156	-------	5.011	7.718	11.34	13.58	16.60	TO BERM #3
4	Reservoir	3	0.000	0.000	-------	1.859	5.592	9.083	10.60	12.00	BERM #3
5	SCS Runoff	------	0.396	0.702	-------	1.233	2.031	3.126	3.822	4.776	POI 2 PRE - CHANGED AREA
6	Combine	2, 4,	3.881	6.145	-------	9.927	18.91	31.23	37.26	45.11	TOTAL POST POI 2
7	SCS Runoff	------	0.410	0.664	-------	1.093	1.722	2.579	3.113	3.838	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	5.768	2	728	22,698	------	------	------	POI 2 PRE
2	SCS Runoff	3.881	2	728	15,271	------	------	------	POI 2 BYPASS
3	SCS Runoff	2.036	2	728	7,834	------	------	------	TO BERM #3
4	Reservoir	0.000	2	994	0	3	687.81	3,392	BERM #3
5	SCS Runoff	0.396	2	728	1,781	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	3.881	2	728	15,271	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	0.410	2	728	1,655	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	9.134	2	728	33,808	------	------	------	POI 2 PRE
2	SCS Runoff	6.145	2	728	22,745	------	------	------	POI 2 BYPASS
3	SCS Runoff	3.156	2	728	11,540	------	------	------	TO BERM #3
4	Reservoir	0.000	2	800	0	3	688.30	5,497	BERM #3
5	SCS Runoff	0.702	2	728	2,788	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	6.145	2	728	22,745	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	0.664	2	728	2,493	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	14.76	2	728	52,558	------	------	------	POI 2 PRE
2	SCS Runoff	9.927	2	728	35,360	------	------	------	POI 2 BYPASS
3	SCS Runoff	5.011	2	728	17,750	------	------	------	TO BERM #3
4	Reservoir	1.859	2	744	3,677	3	688.58	6,906	BERM #3
5	SCS Runoff	1.233	2	728	4,542	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	9.927	2	728	39,037	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	1.093	2	728	3,919	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	22.98	2	726	80,289	------	------	------	POI 2 PRE
2	SCS Runoff	15.46	2	726	54,017	------	------	------	POI 2 BYPASS
3	SCS Runoff	7.718	2	726	26,875	------	------	------	TO BERM #3
4	Reservoir	5.592	2	736	10,699	3	688.78	7,924	BERM #3
5	SCS Runoff	2.031	2	728	7,209	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	18.91	2	732	64,716	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	1.722	2	728	6,041	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	34.08	2	726	117,842	------	------	------	POI 2 PRE
2	SCS Runoff	22.93	2	726	79,282	------	------	------	POI 2 BYPASS
3	SCS Runoff	11.34	2	726	39,169	------	------	------	TO BERM #3
4	Reservoir	9.083	2	734	20,953	3	689.03	9,263	BERM #3
5	SCS Runoff	3.126	2	726	10,900	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	31.23	2	728	100,235	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	2.579	2	726	8,931	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	40.96	2	726	141,430	------	------	------	POI 2 PRE
2	SCS Runoff	27.56	2	726	95,151	------	------	------	POI 2 BYPASS
3	SCS Runoff	13.58	2	726	46,867	------	------	------	TO BERM #3
4	Reservoir	10.60	2	734	27,663	3	689.18	10,414	BERM #3
5	SCS Runoff	3.822	2	726	13,250	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	37.26	2	728	122,814	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	3.113	2	726	10,752	------	------	------	Post to Swale #4

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

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	50.30	2	726	173,760	------	------	------	POI 2 PRE
2	SCS Runoff	33.84	2	726	116,902	------	------	------	POI 2 BYPASS
3	SCS Runoff	16.60	2	726	57,398	------	------	------	TO BERM #3
4	Reservoir	12.00	2	734	37,031	3	689.43	12,315	BERM #3
5	SCS Runoff	4.776	2	726	16,499	------	------	------	POI 2 PRE - CHANGED AREA
6	Combine	45.11	2	728	153,933	2, 4,	------	------	TOTAL POST POI 2
7	SCS Runoff	3.838	2	726	13,252	------	------	------	Post to Swale #4

Hydrograph Report

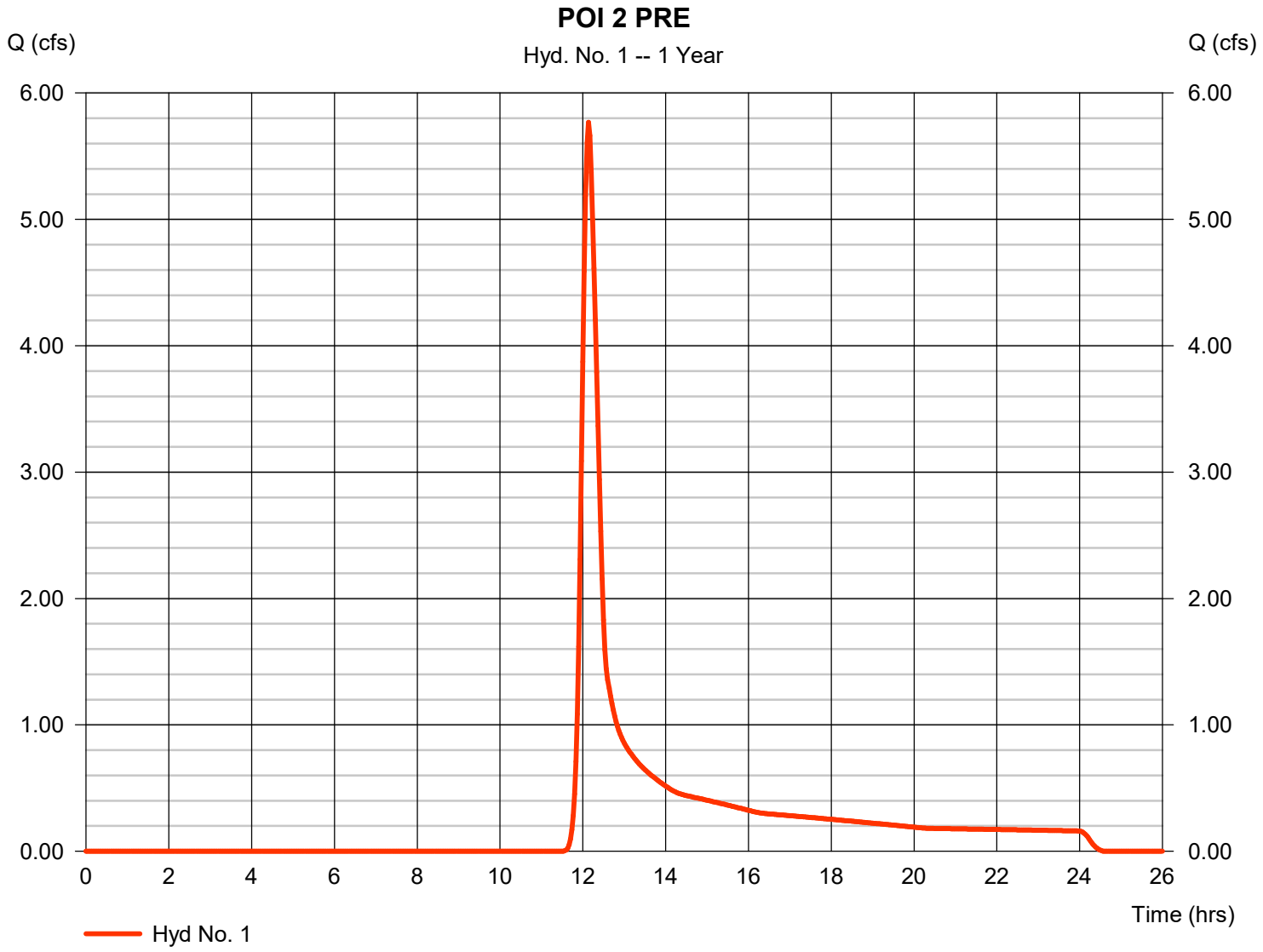
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 02 / 22 / 2024

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.768 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	22,698 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



Hydrograph Report

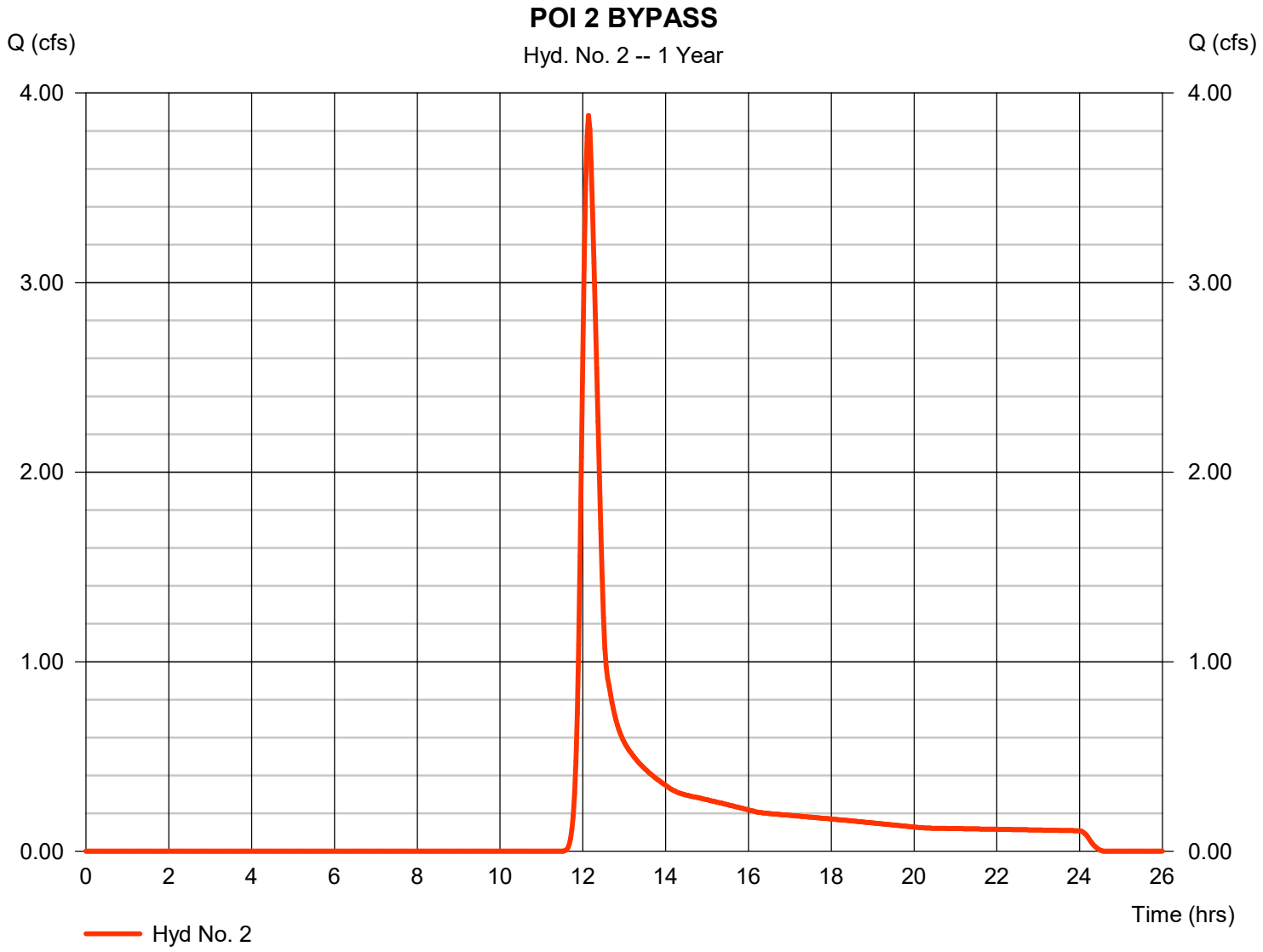
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 02 / 22 / 2024

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.881 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	15,271 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	2.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



Hydrograph Report

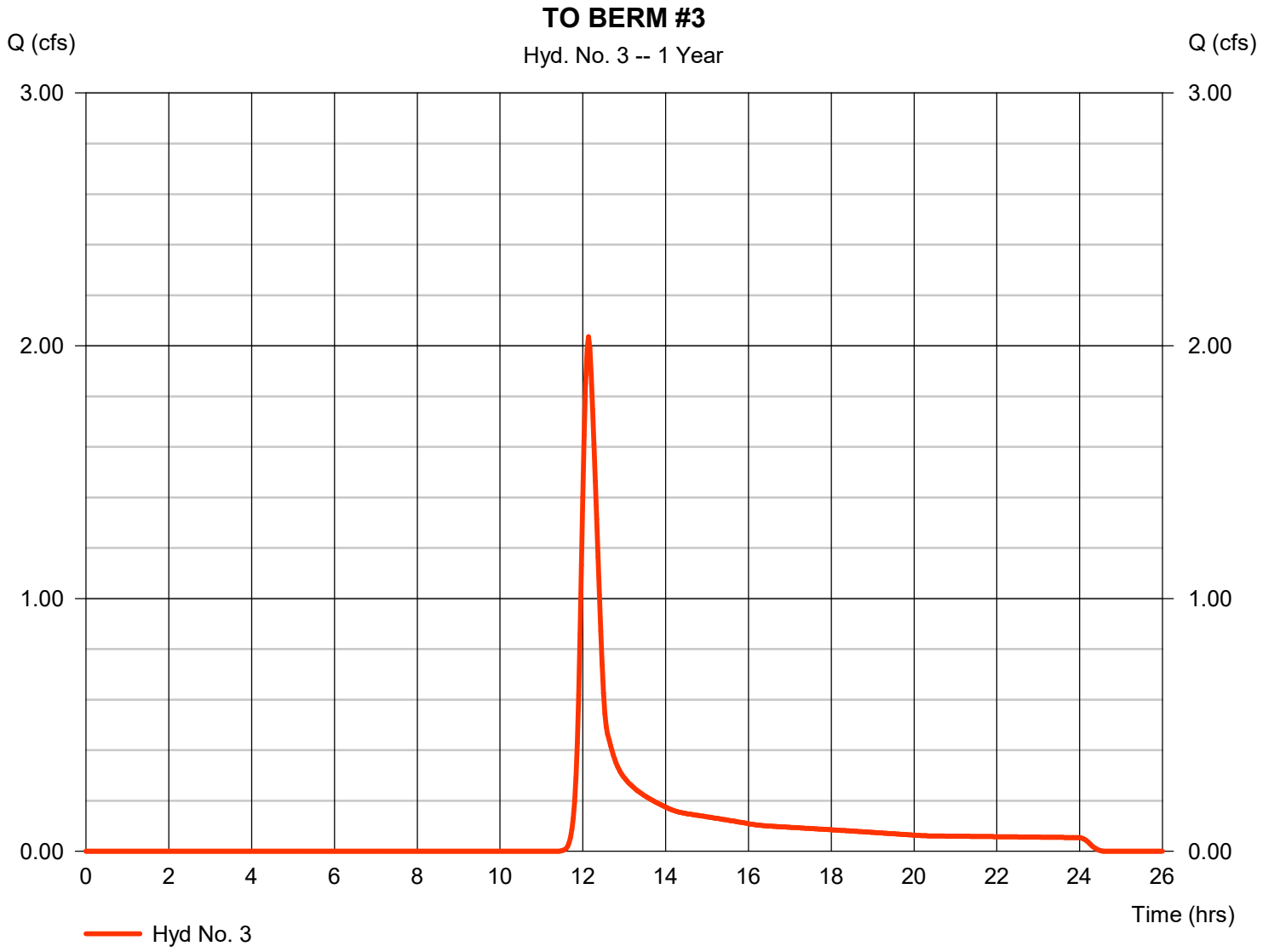
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 02 / 22 / 2024

Hyd. No. 3

TO BERM #3

Hydrograph type	= SCS Runoff	Peak discharge	= 2.036 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 7,834 cuft
Drainage area	= 3.340 ac	Curve number	= 76*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.84 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



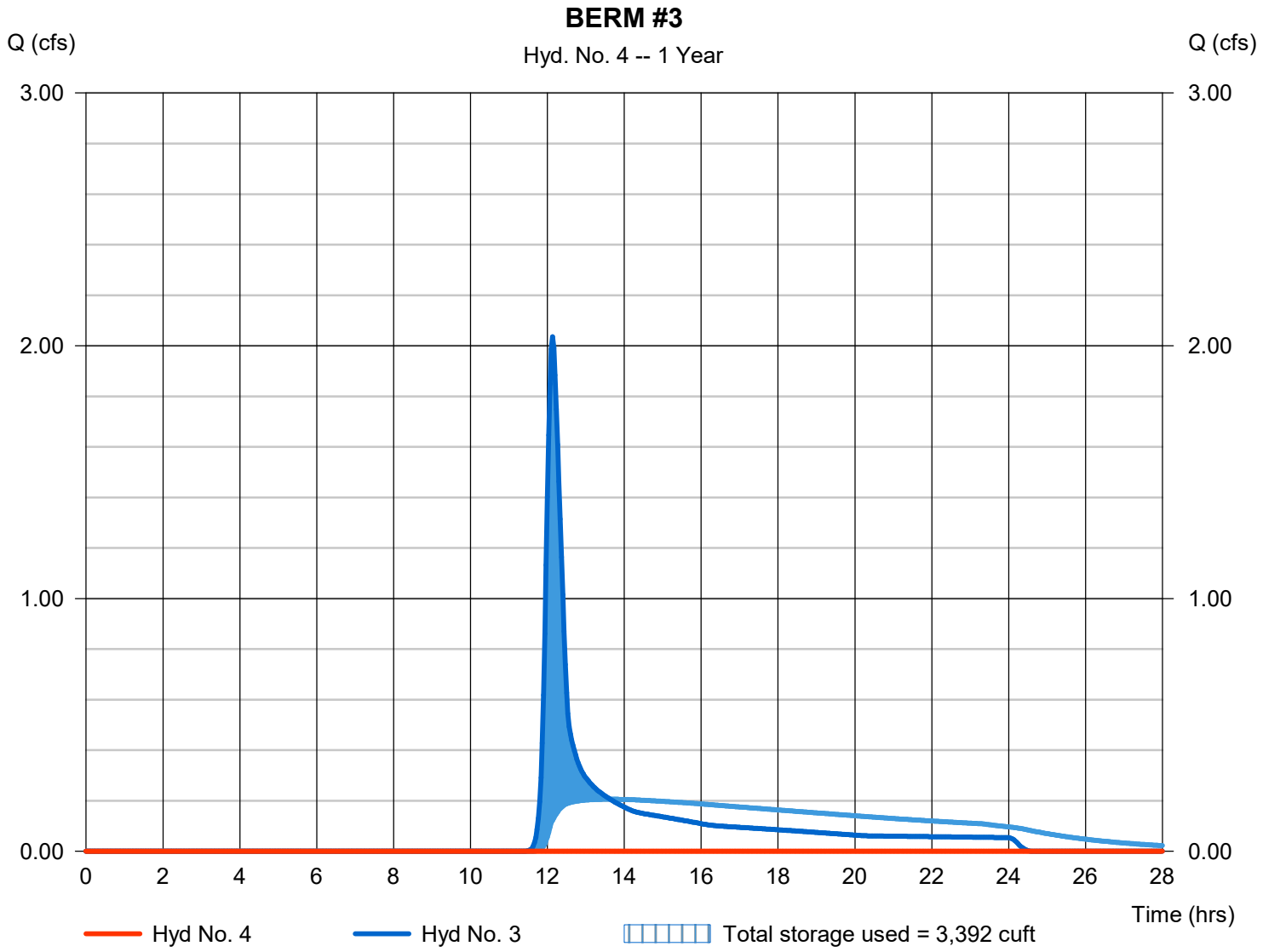
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	1 yrs	Time to peak	=	16.57 hrs
Time interval	=	2 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	687.81 ft
Reservoir name	=	BERM #3	Max. Storage	=	3,392 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

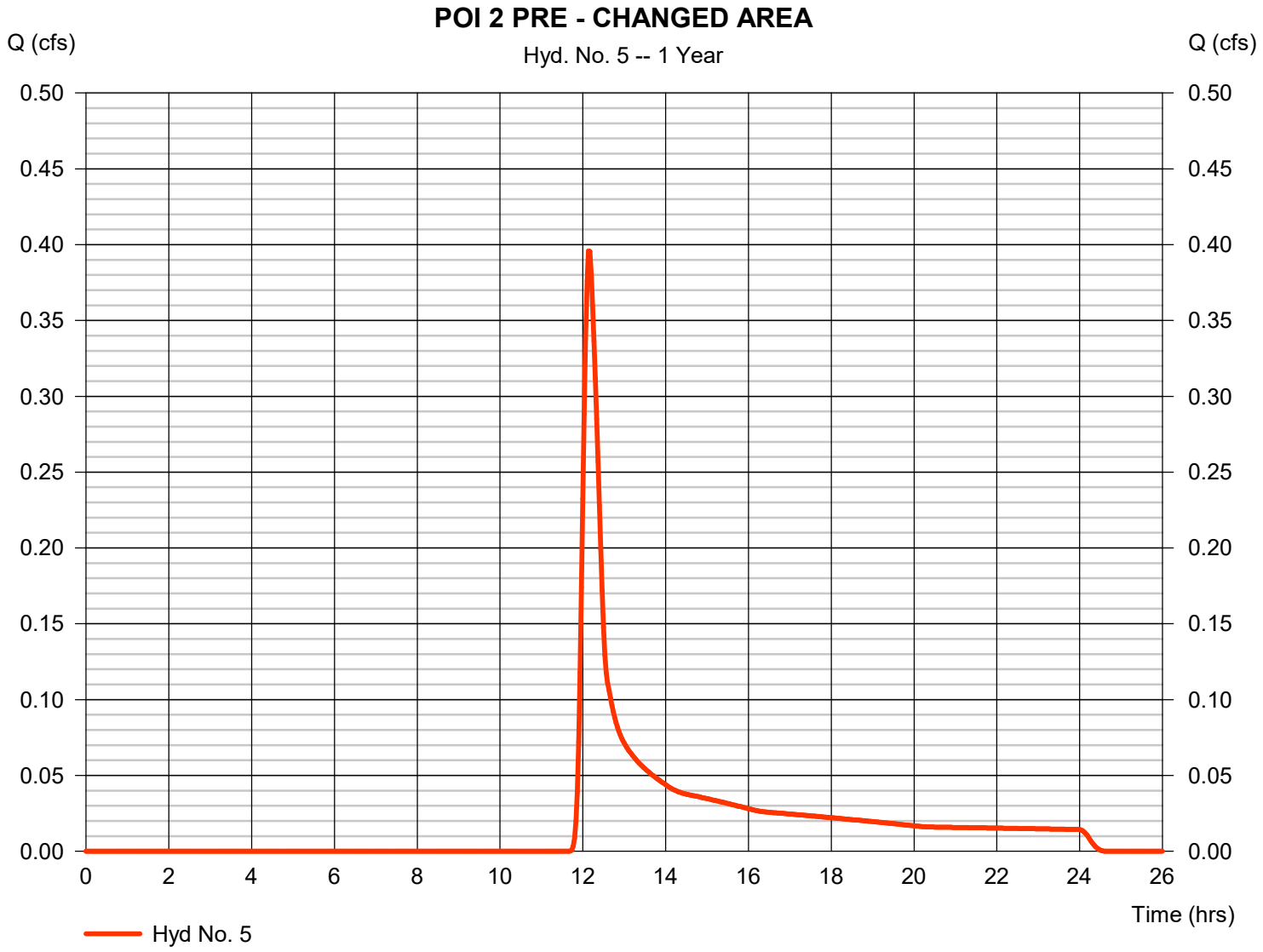
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 02 / 22 / 2024

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 0.396 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 1,781 cuft
Drainage area	= 1.090 ac	Curve number	= 71*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.30 min
Total precip.	= 2.40 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

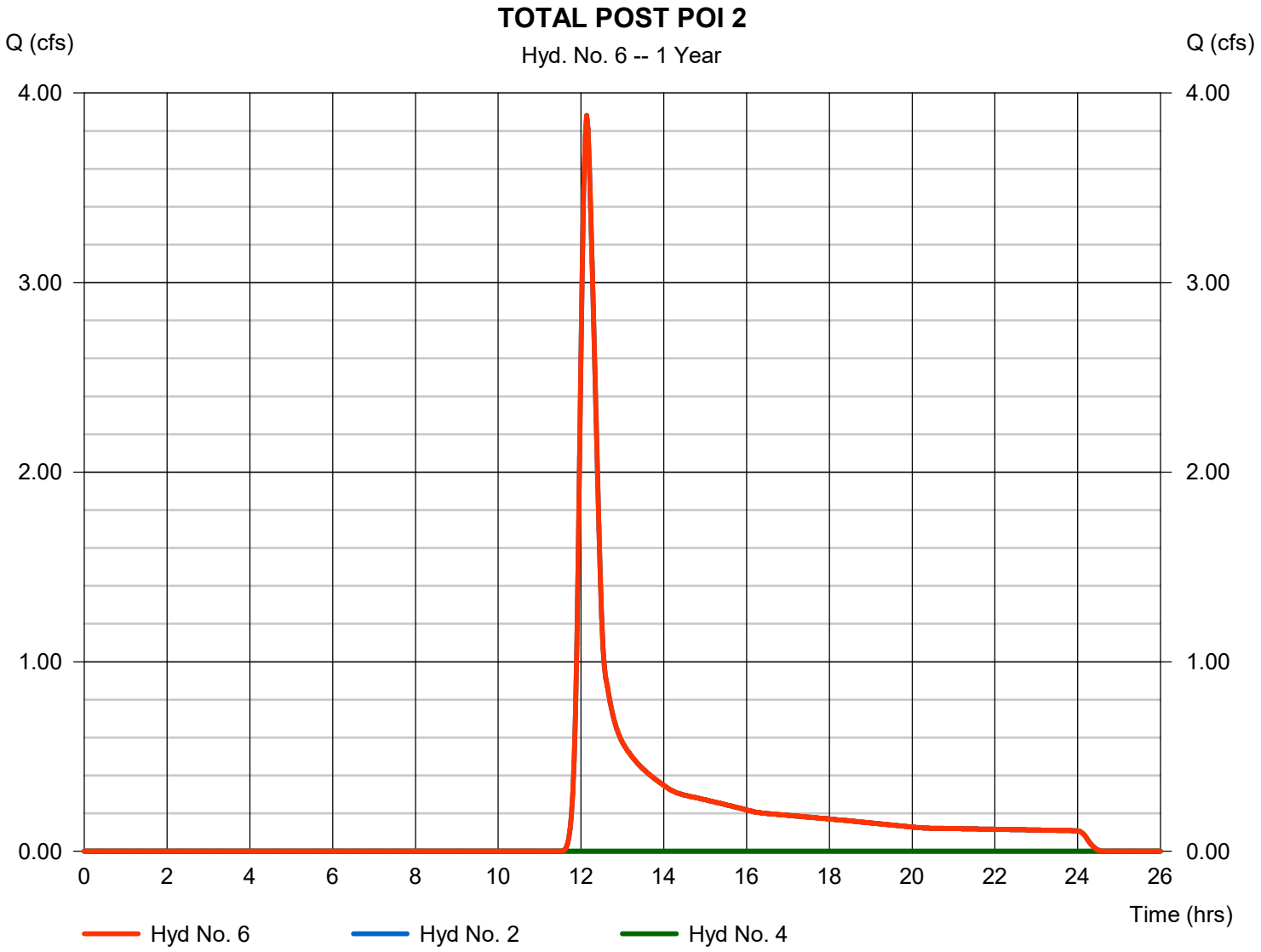


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 3.881 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 15,271 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



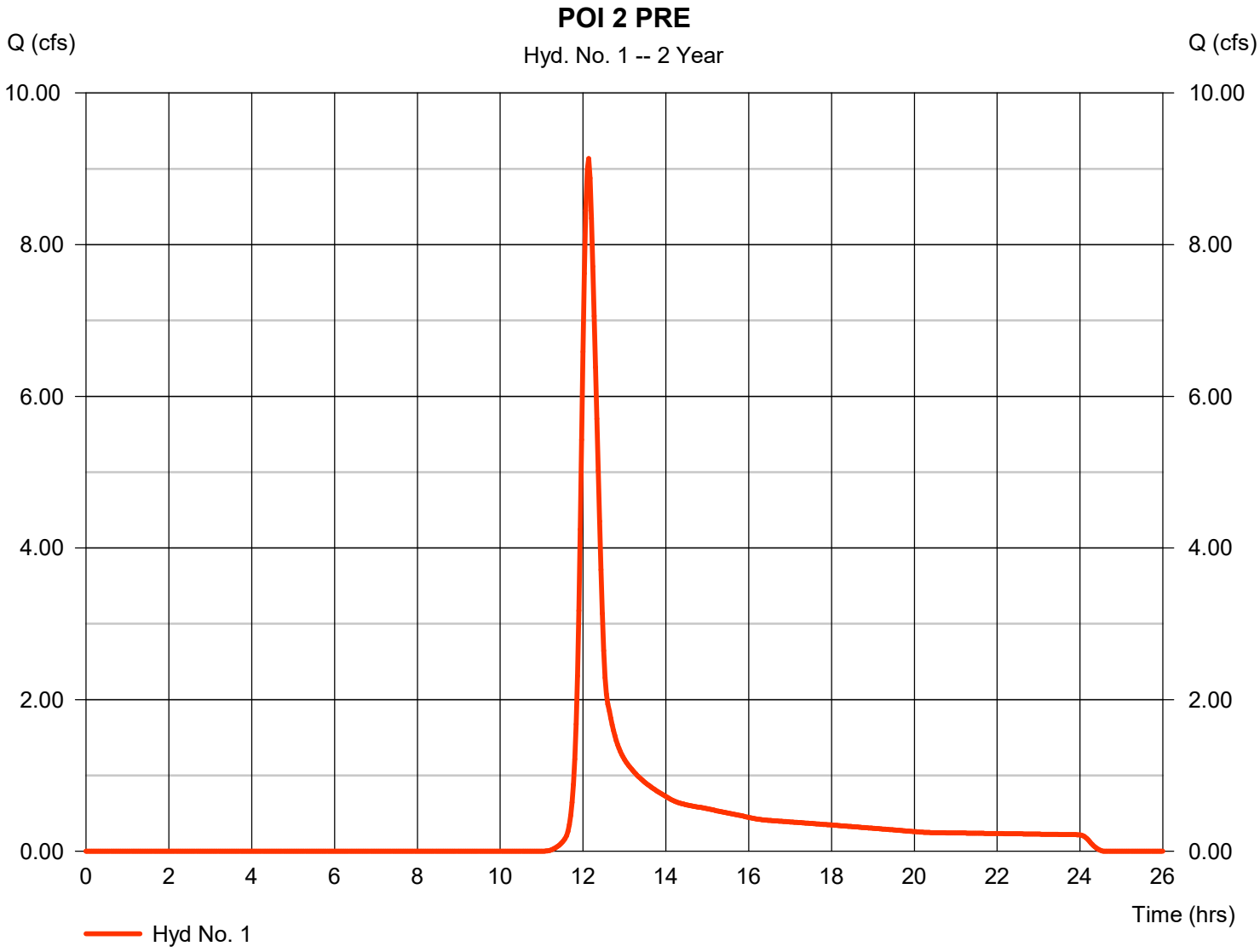
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.134 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	33,808 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



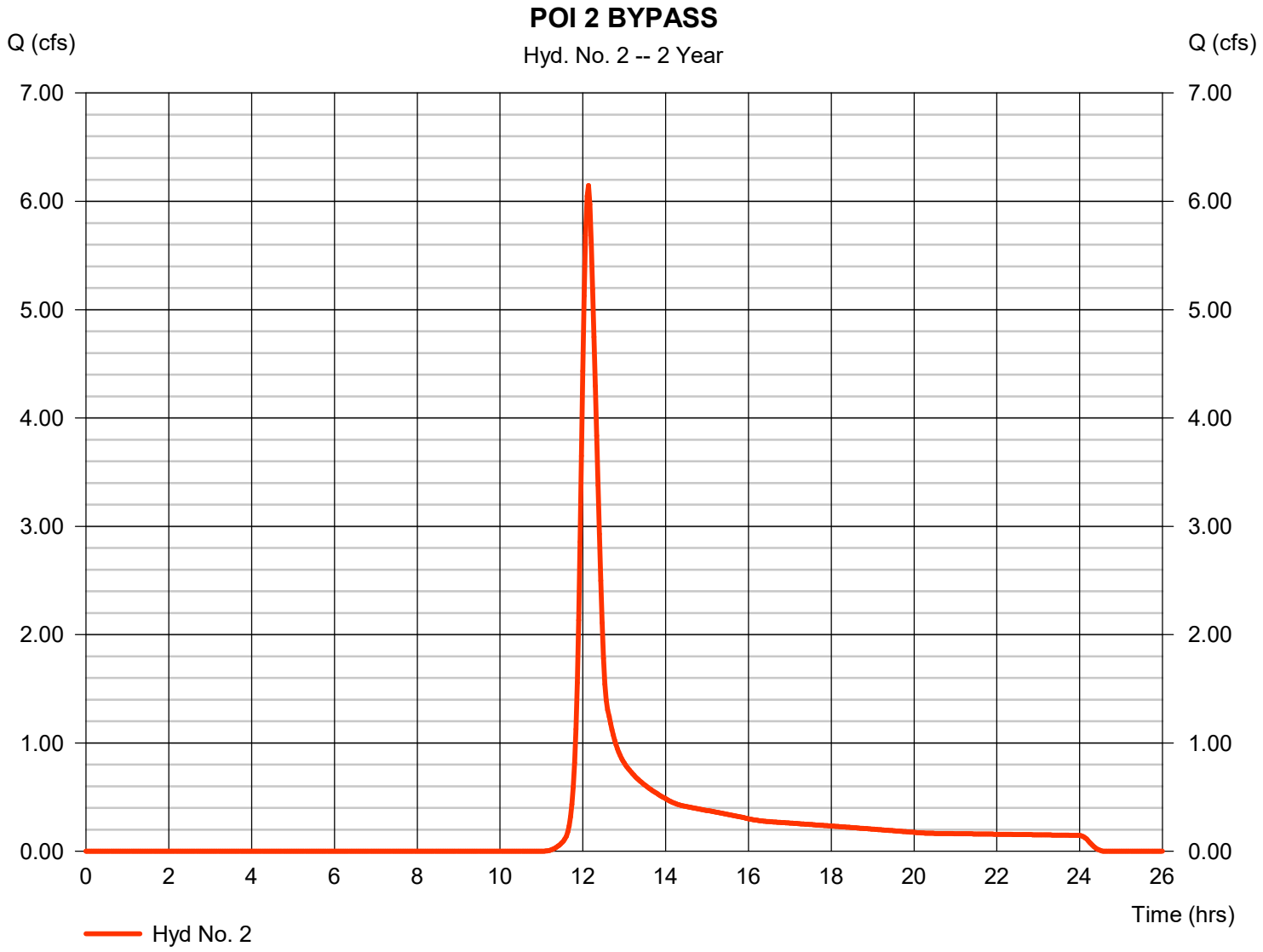
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.145 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	22,745 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



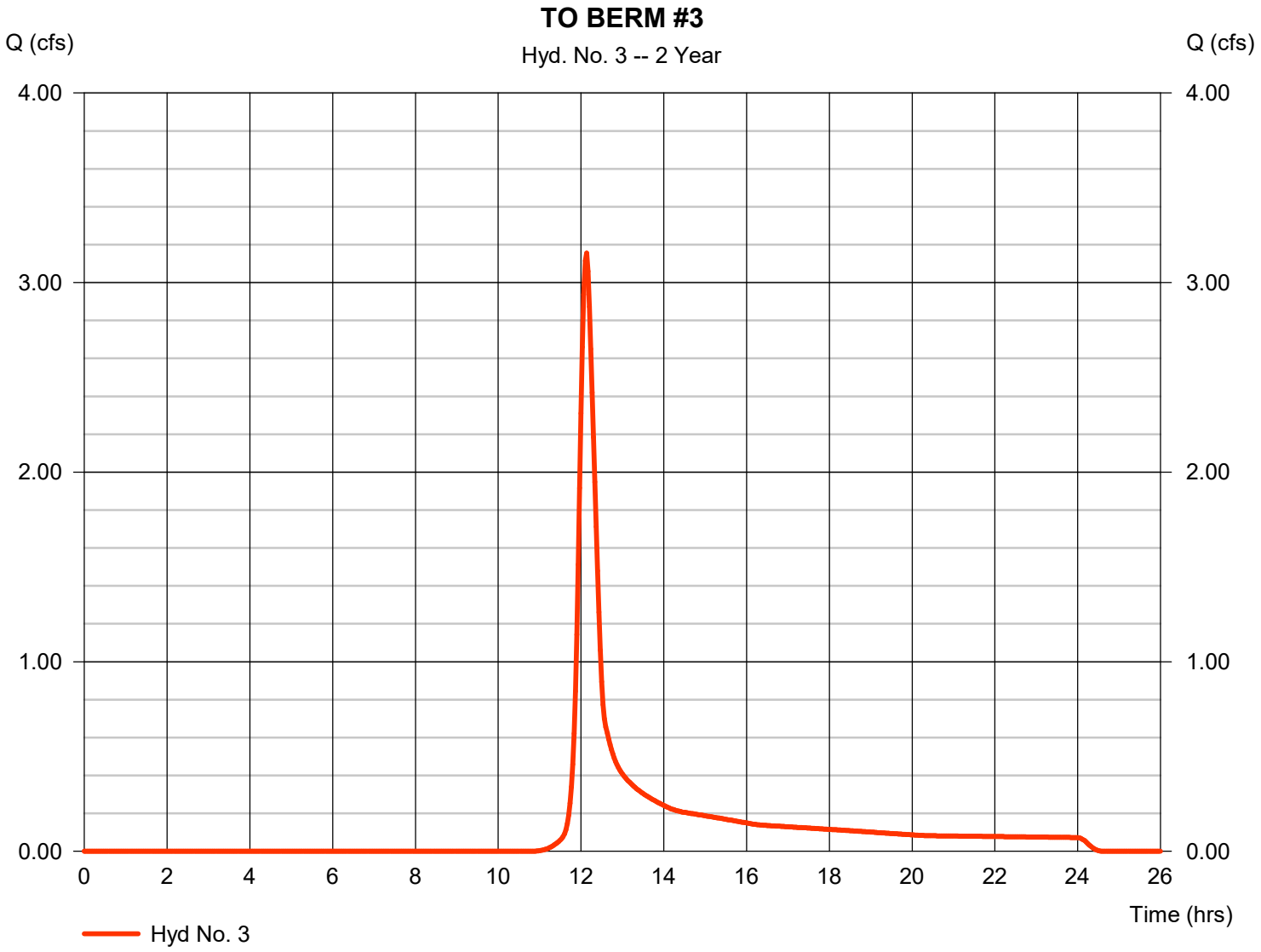
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.156 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	11,540 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



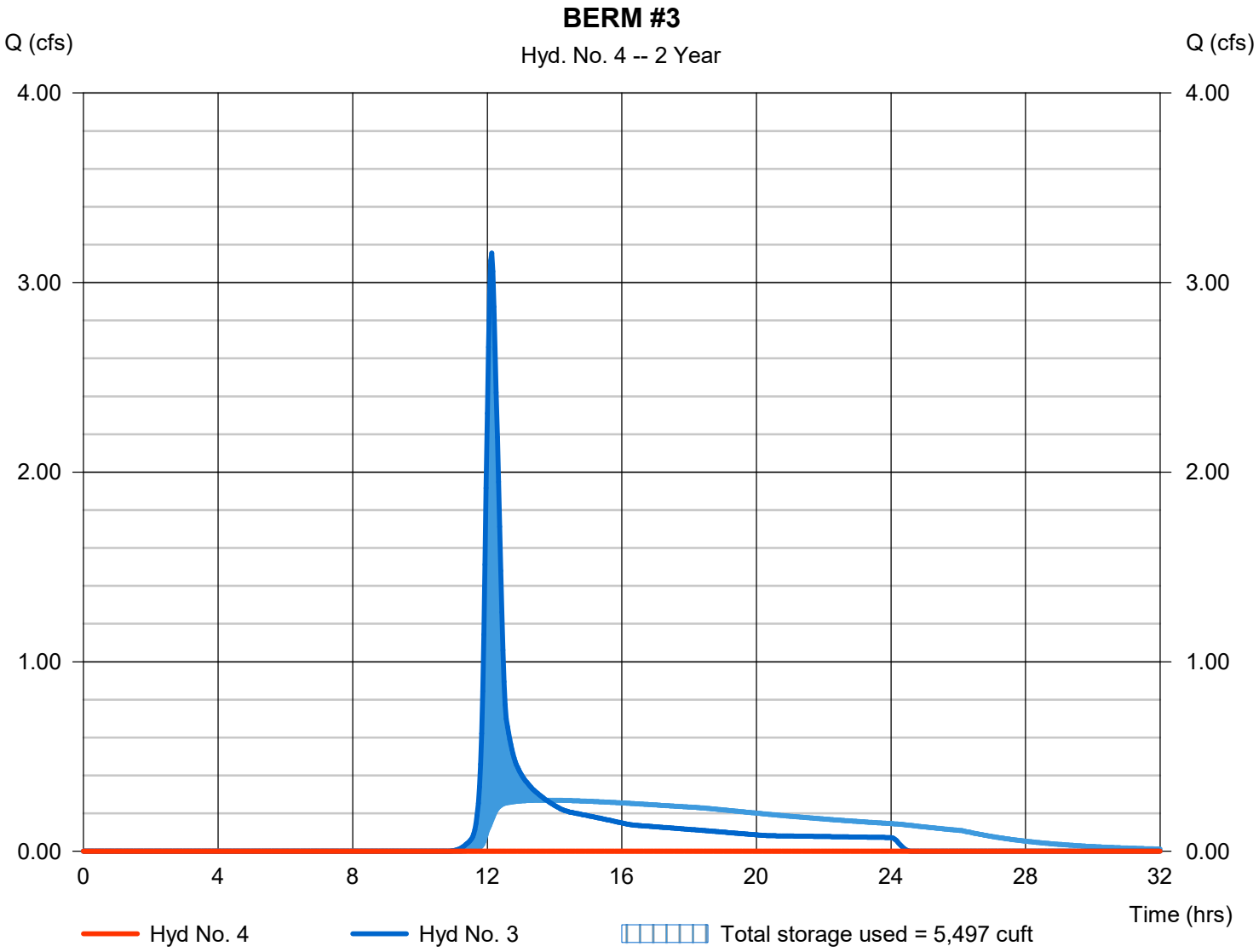
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.33 hrs
Time interval	=	2 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	688.30 ft
Reservoir name	=	BERM #3	Max. Storage	=	5,497 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



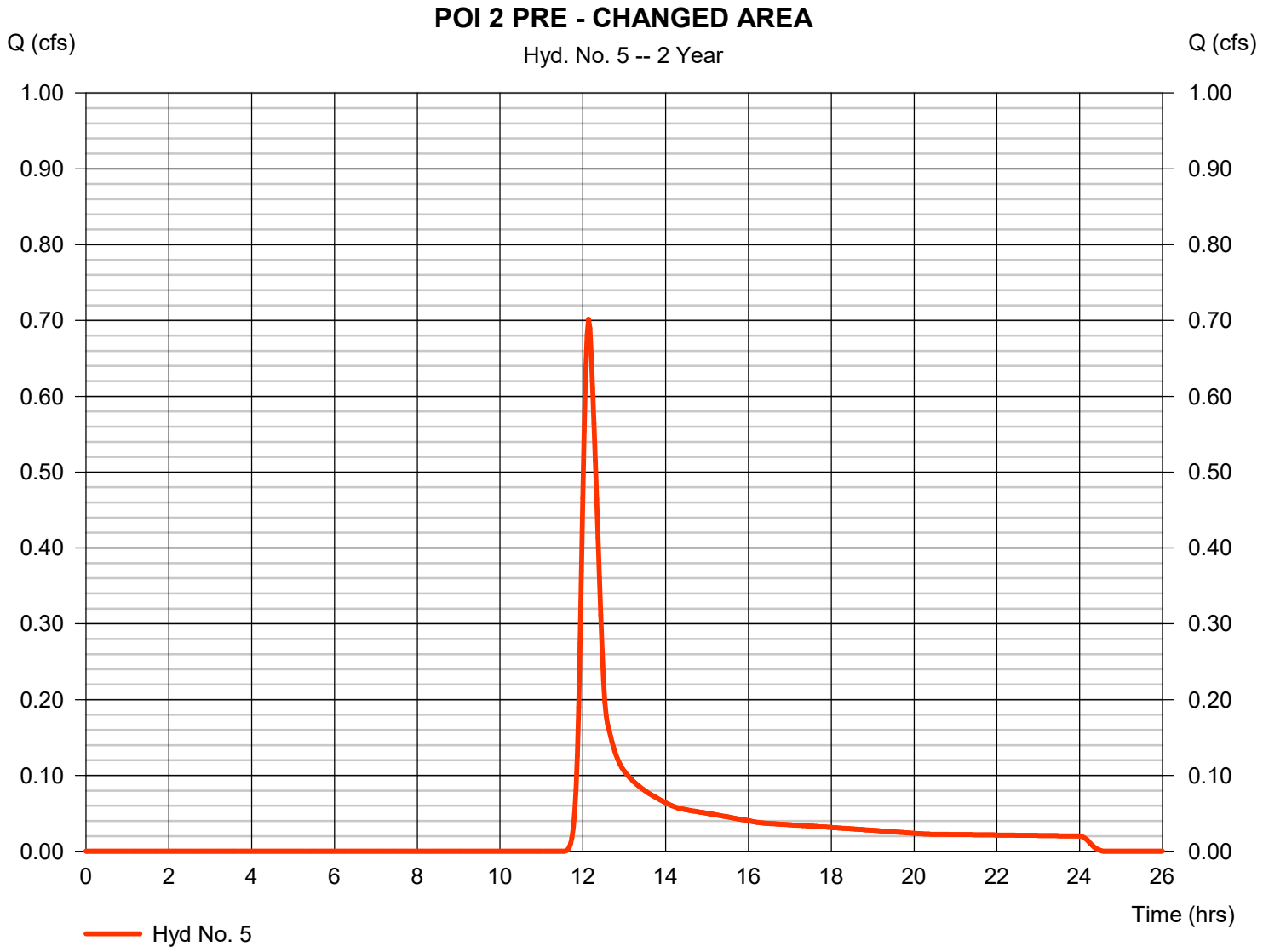
Hydrograph Report

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.702 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	2,788 cuft
Drainage area	=	1.090 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.30 min
Total precip.	=	2.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

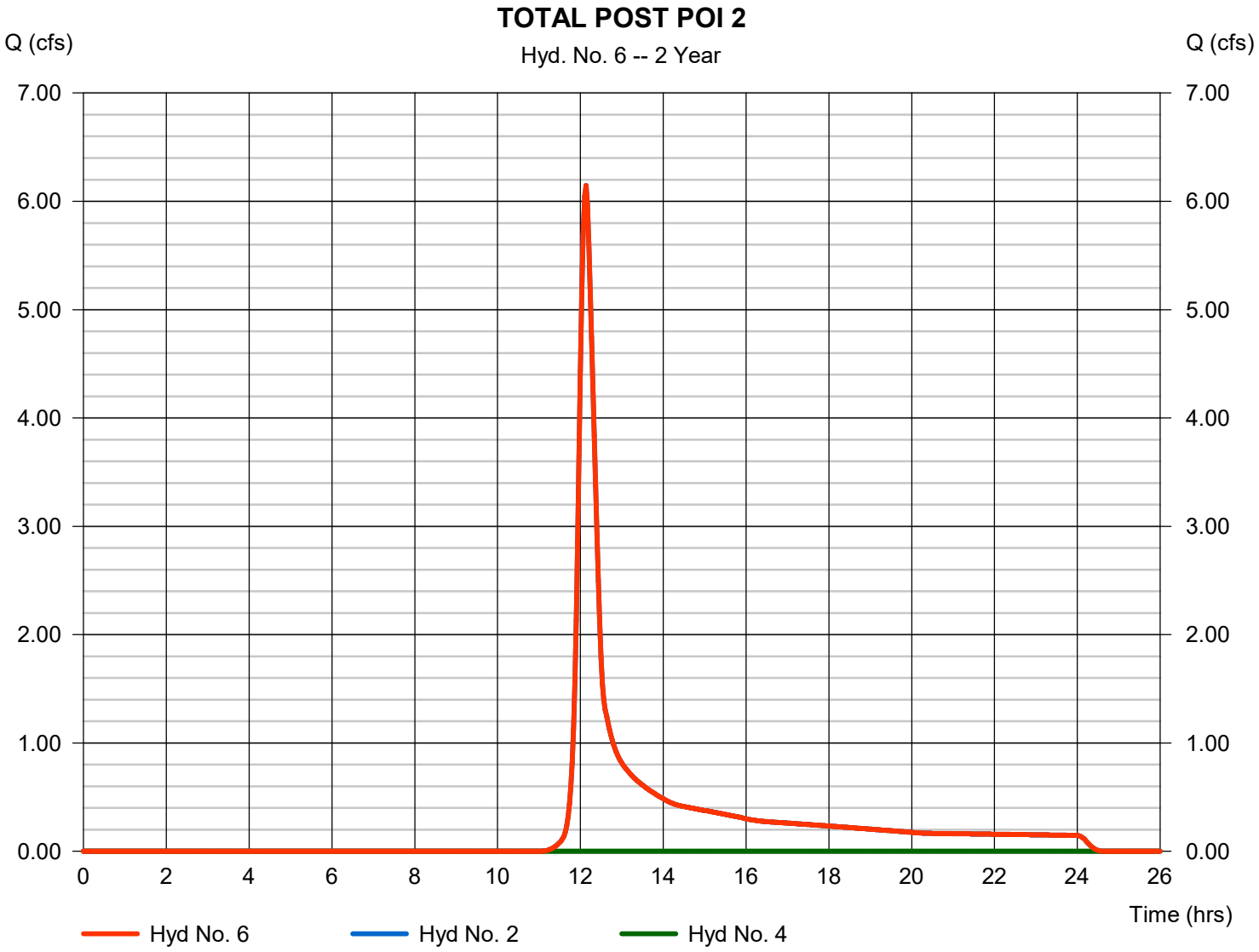


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 6.145 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 22,745 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



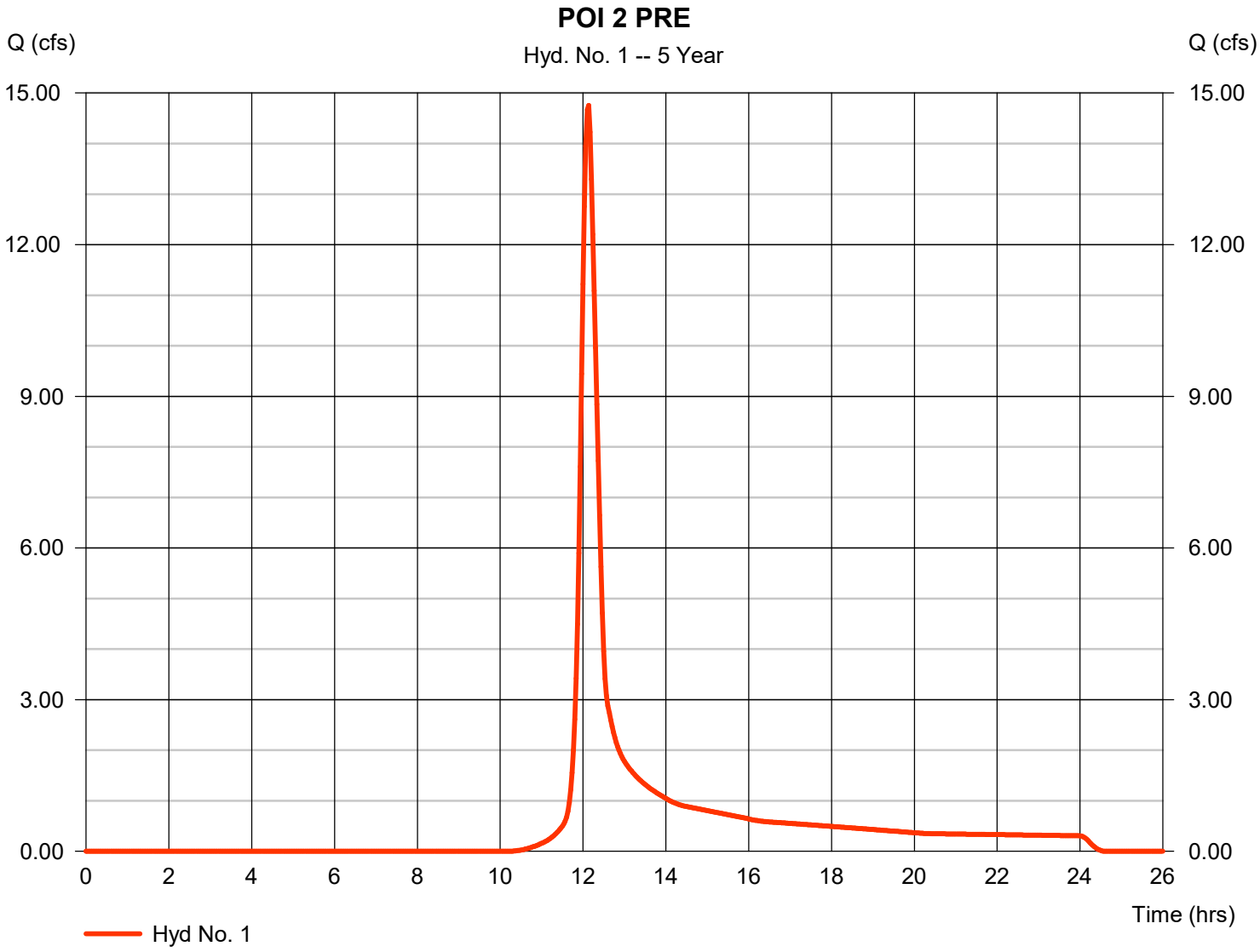
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.76 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	52,558 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



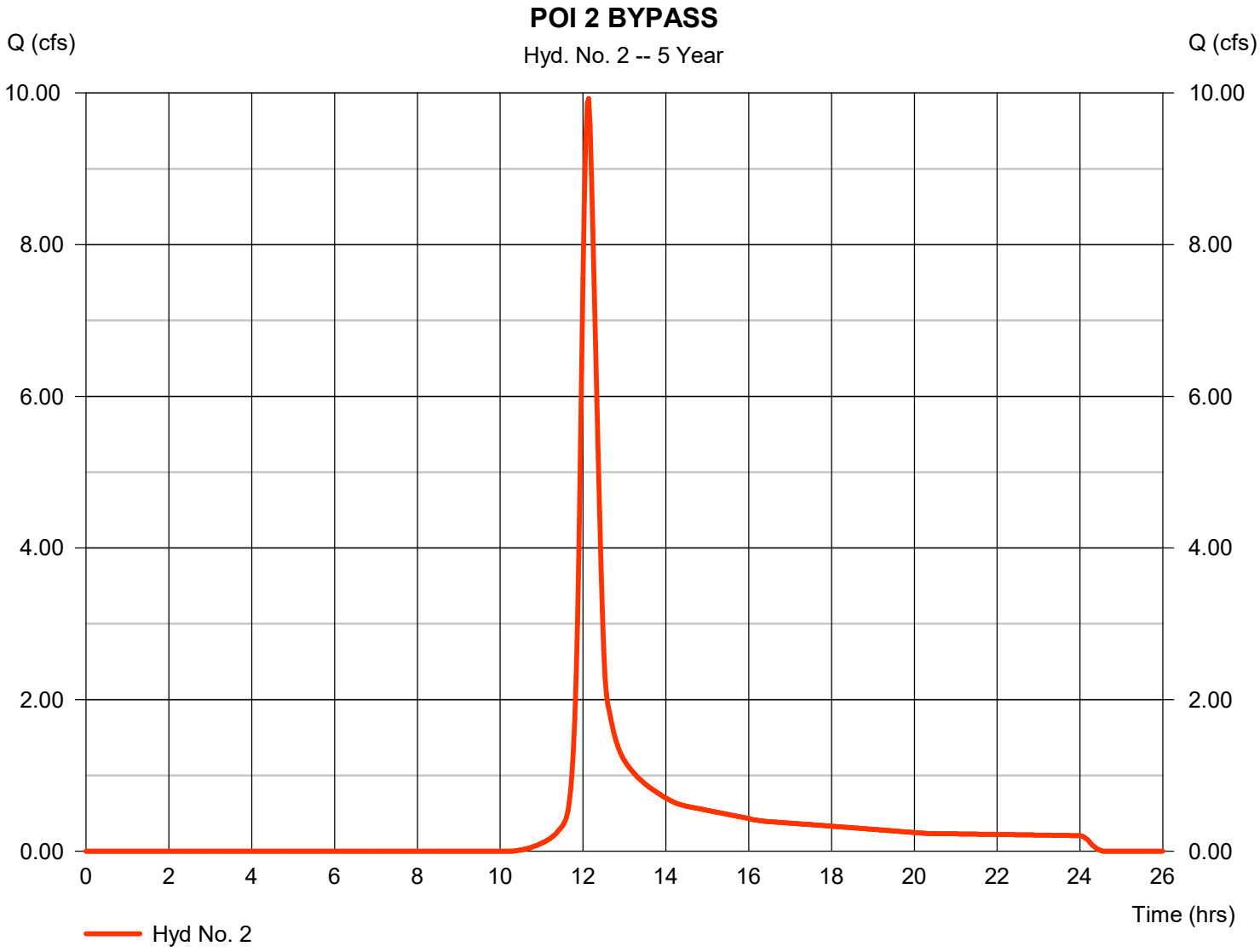
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.927 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	35,360 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



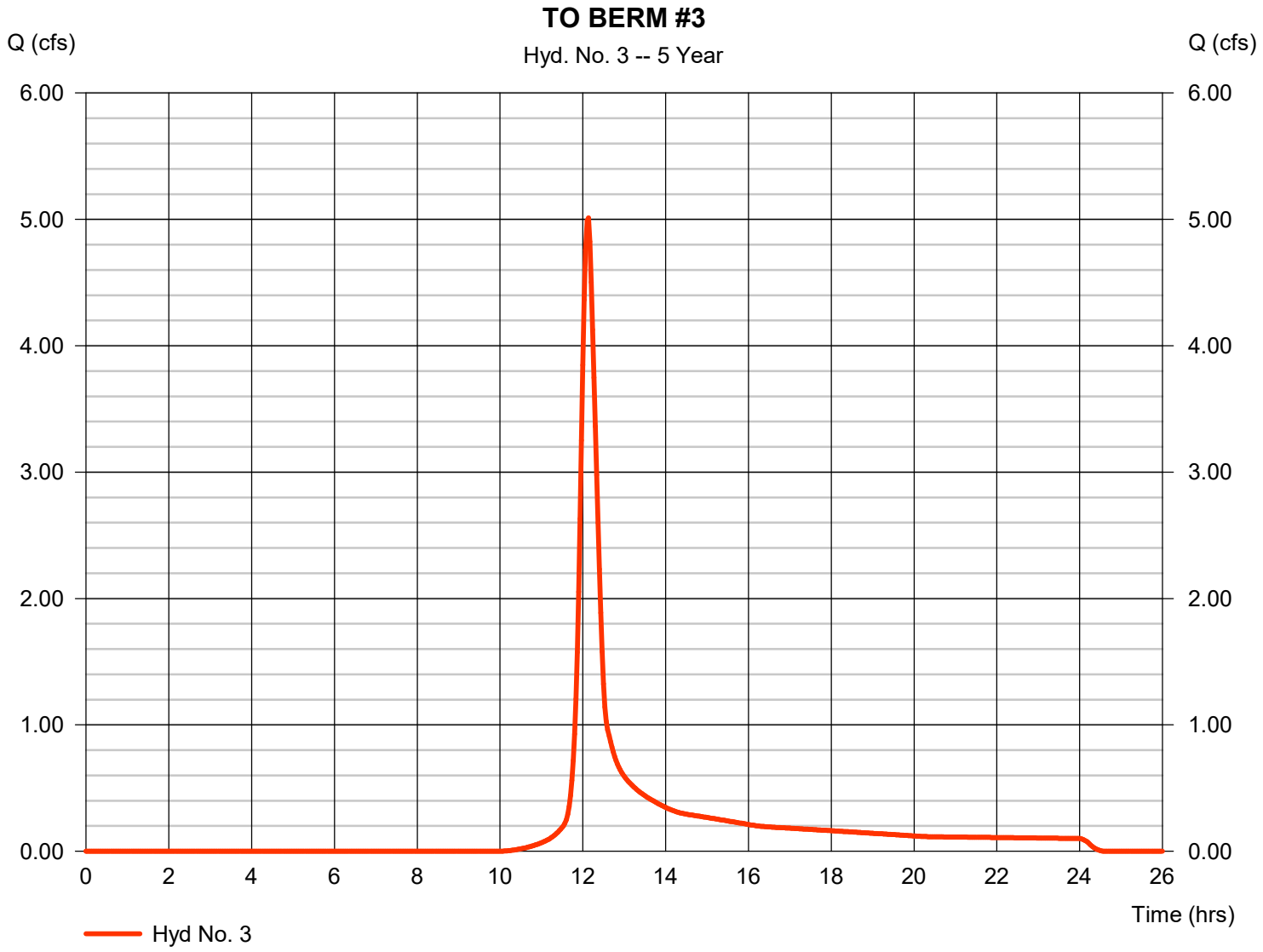
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.011 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	17,750 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



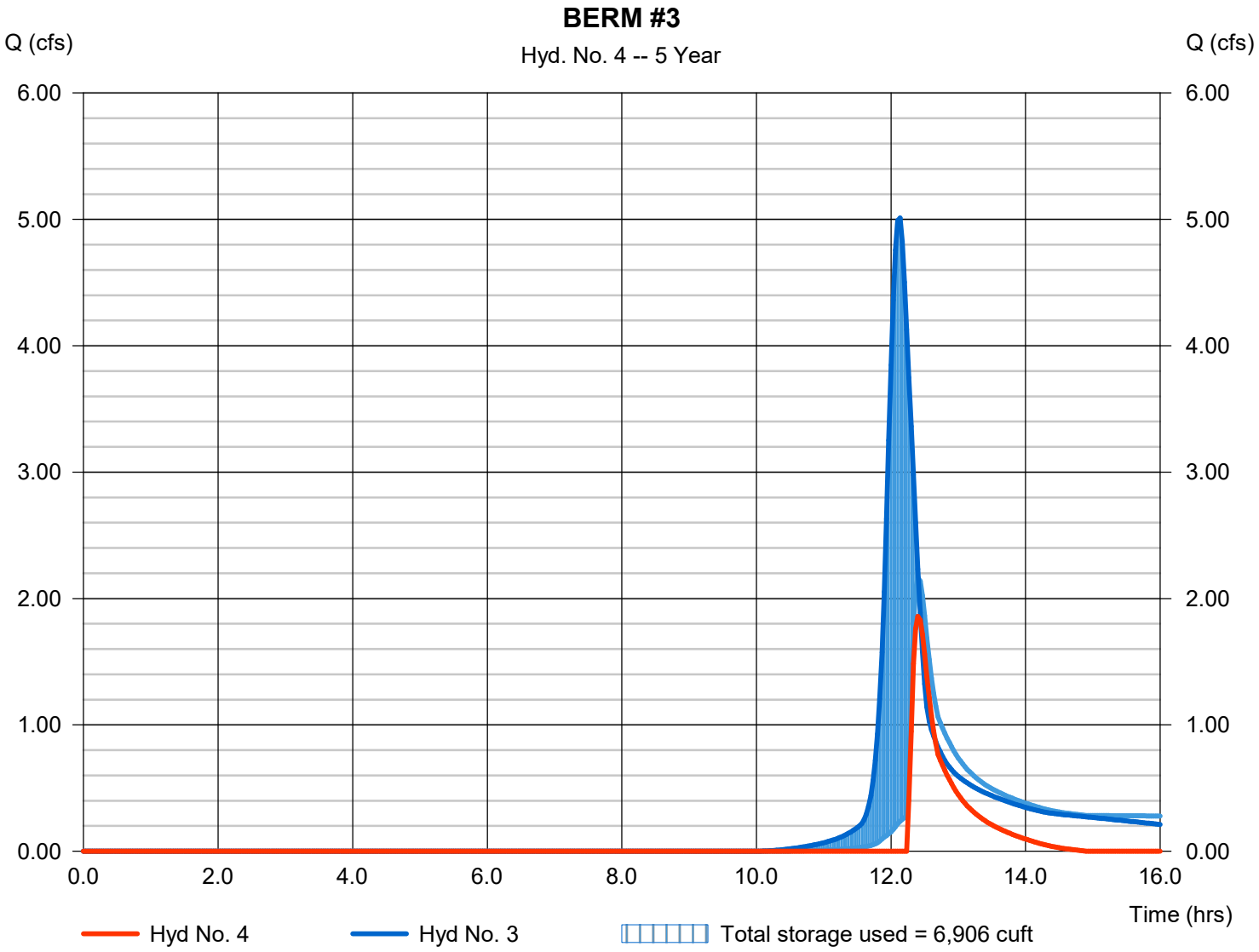
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	1.859 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.40 hrs
Time interval	=	2 min	Hyd. volume	=	3,677 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	688.58 ft
Reservoir name	=	BERM #3	Max. Storage	=	6,906 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



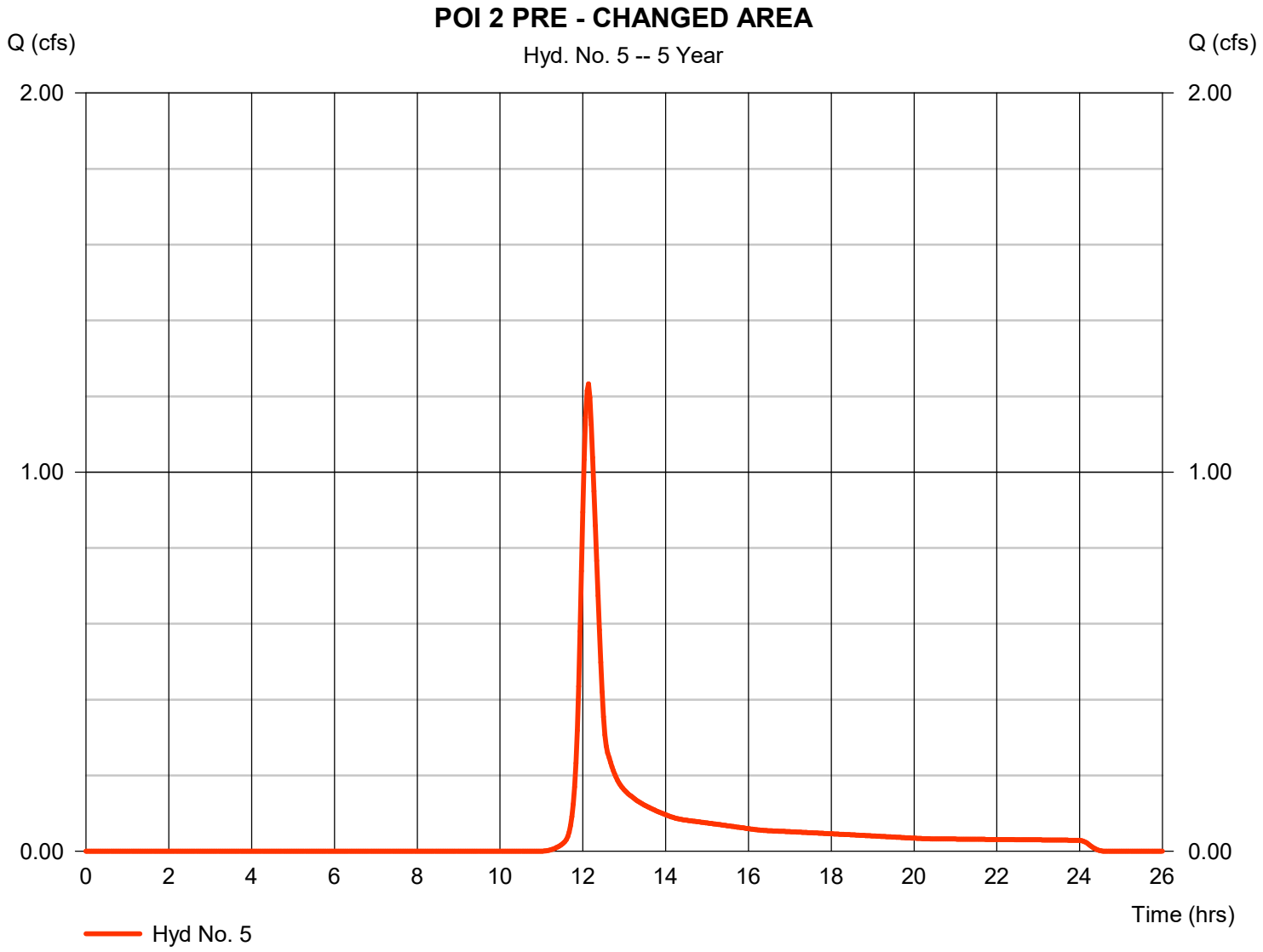
Hydrograph Report

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.233 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	4,542 cuft
Drainage area	=	1.090 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.30 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

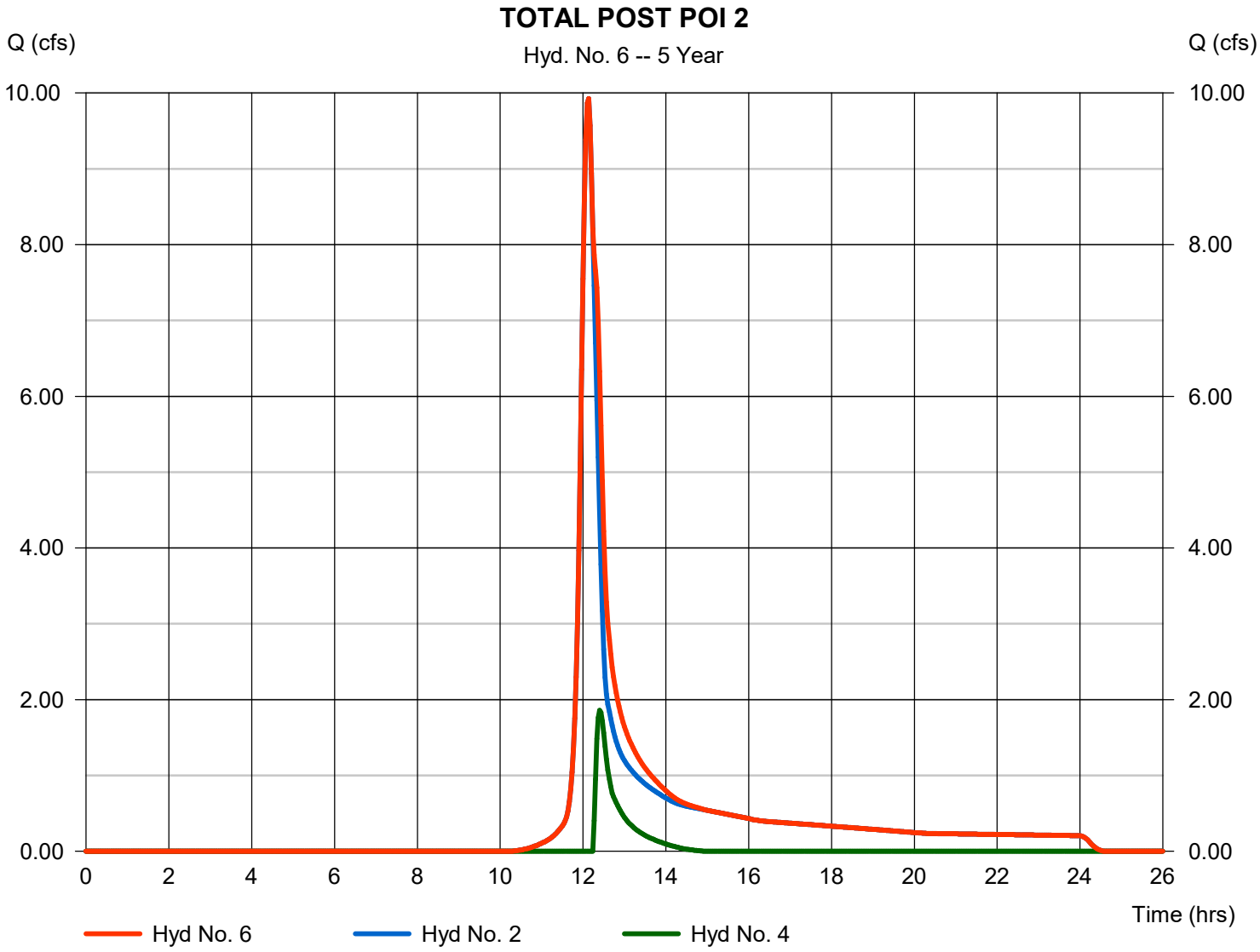


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 9.927 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 39,037 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



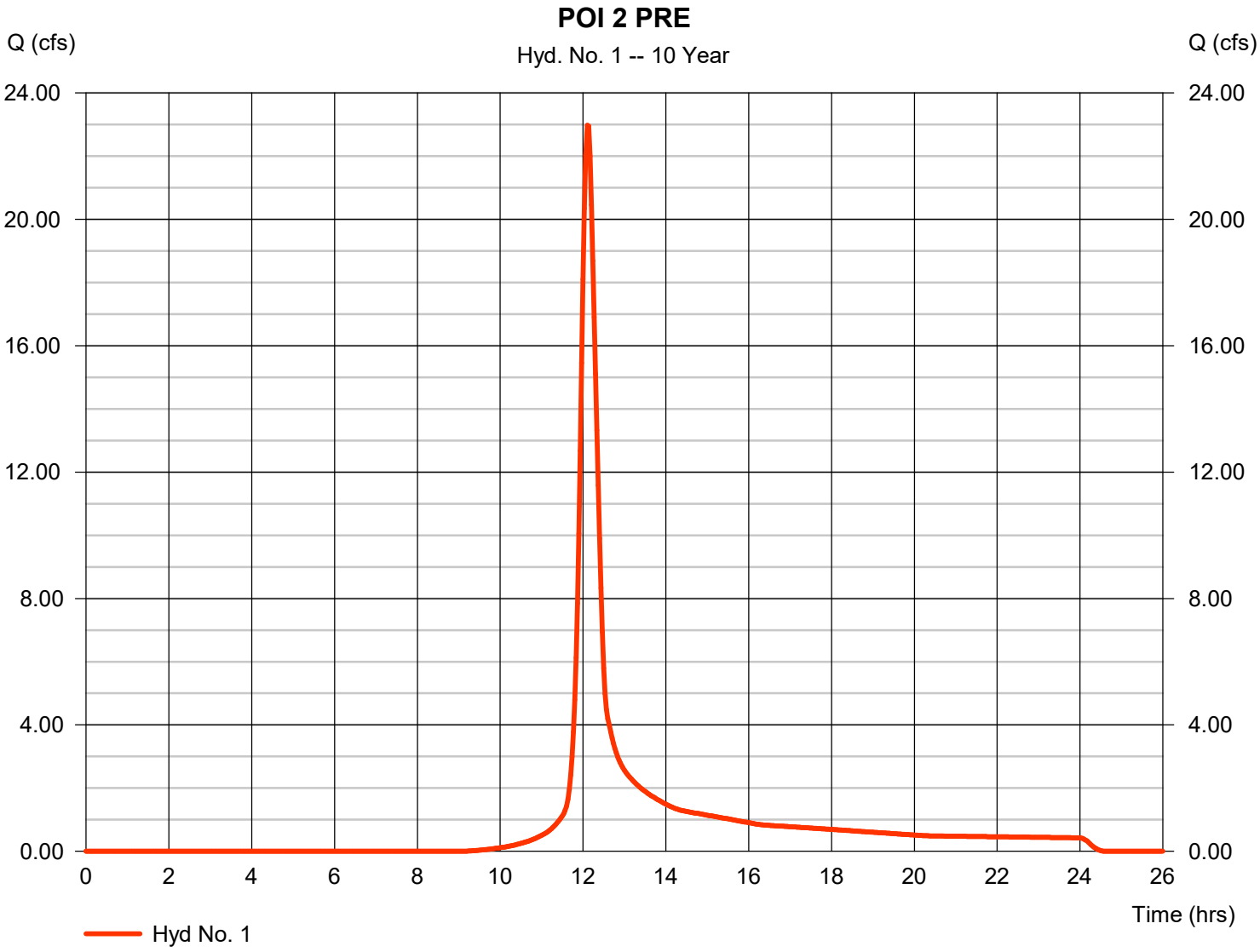
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.98 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	80,289 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



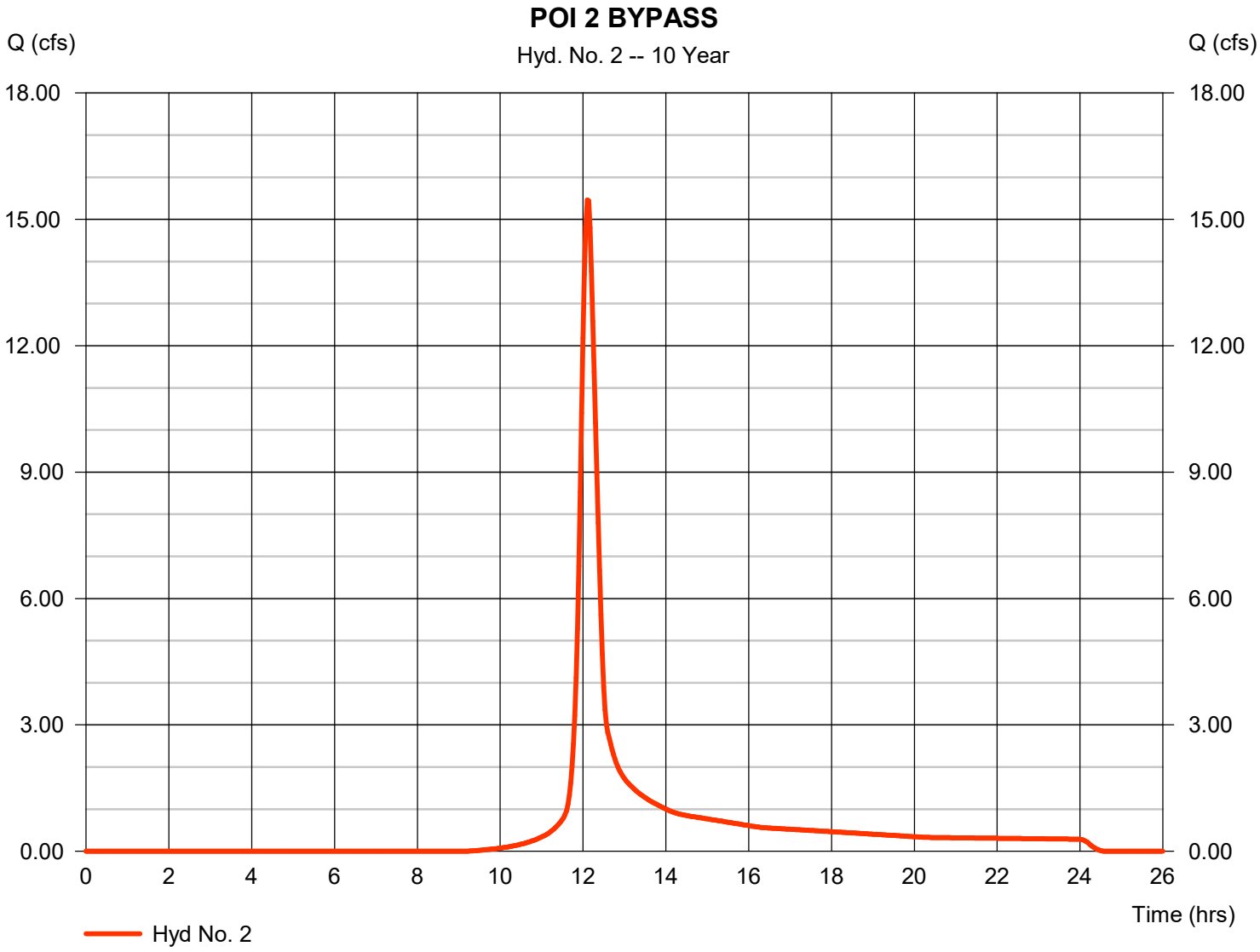
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.46 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	54,017 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



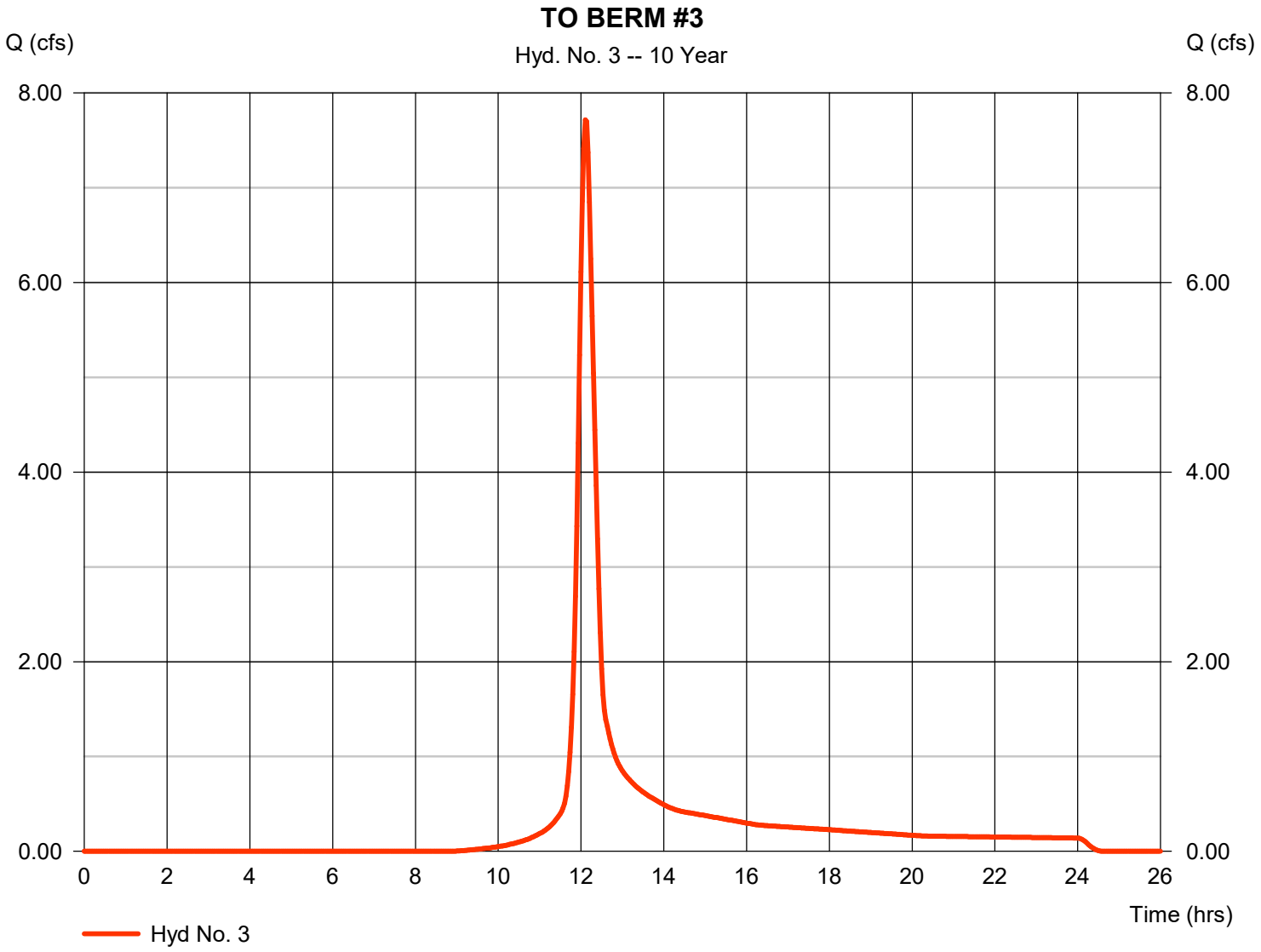
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.718 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	26,875 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



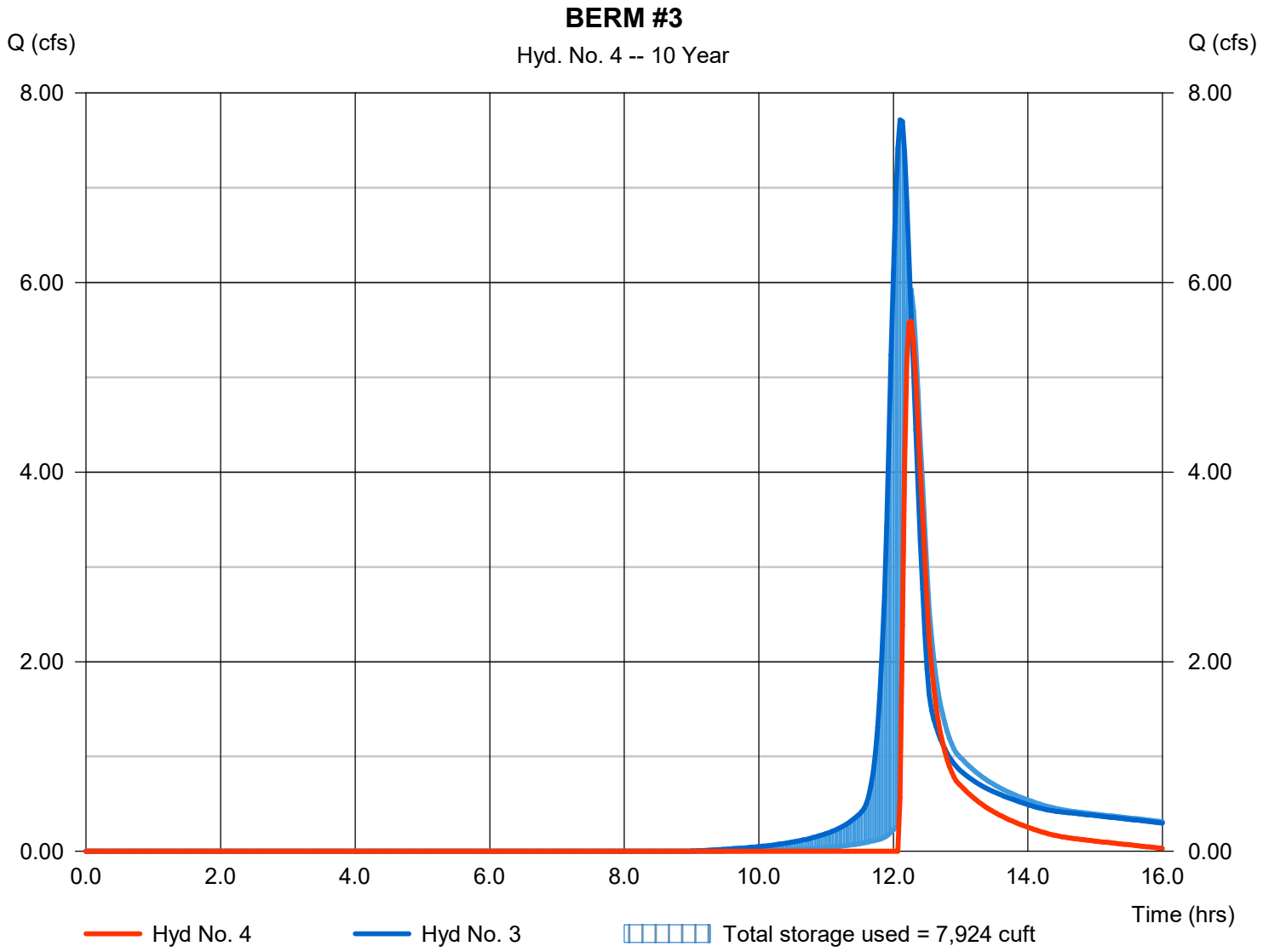
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	5.592 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	10,699 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	688.78 ft
Reservoir name	=	BERM #3	Max. Storage	=	7,924 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



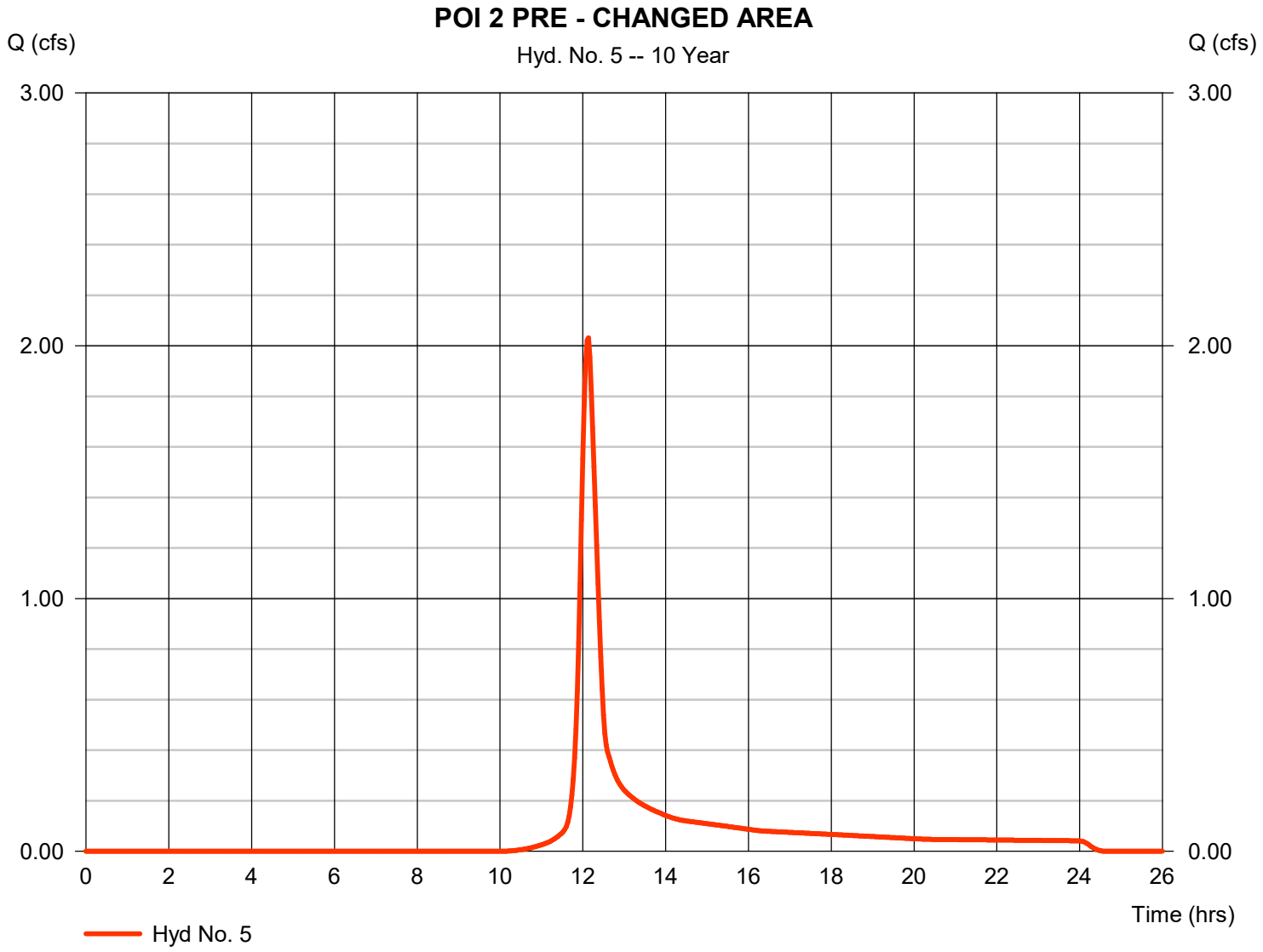
Hydrograph Report

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.031 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	2 min	Hyd. volume	=	7,209 cuft
Drainage area	=	1.090 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.30 min
Total precip.	=	4.56 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

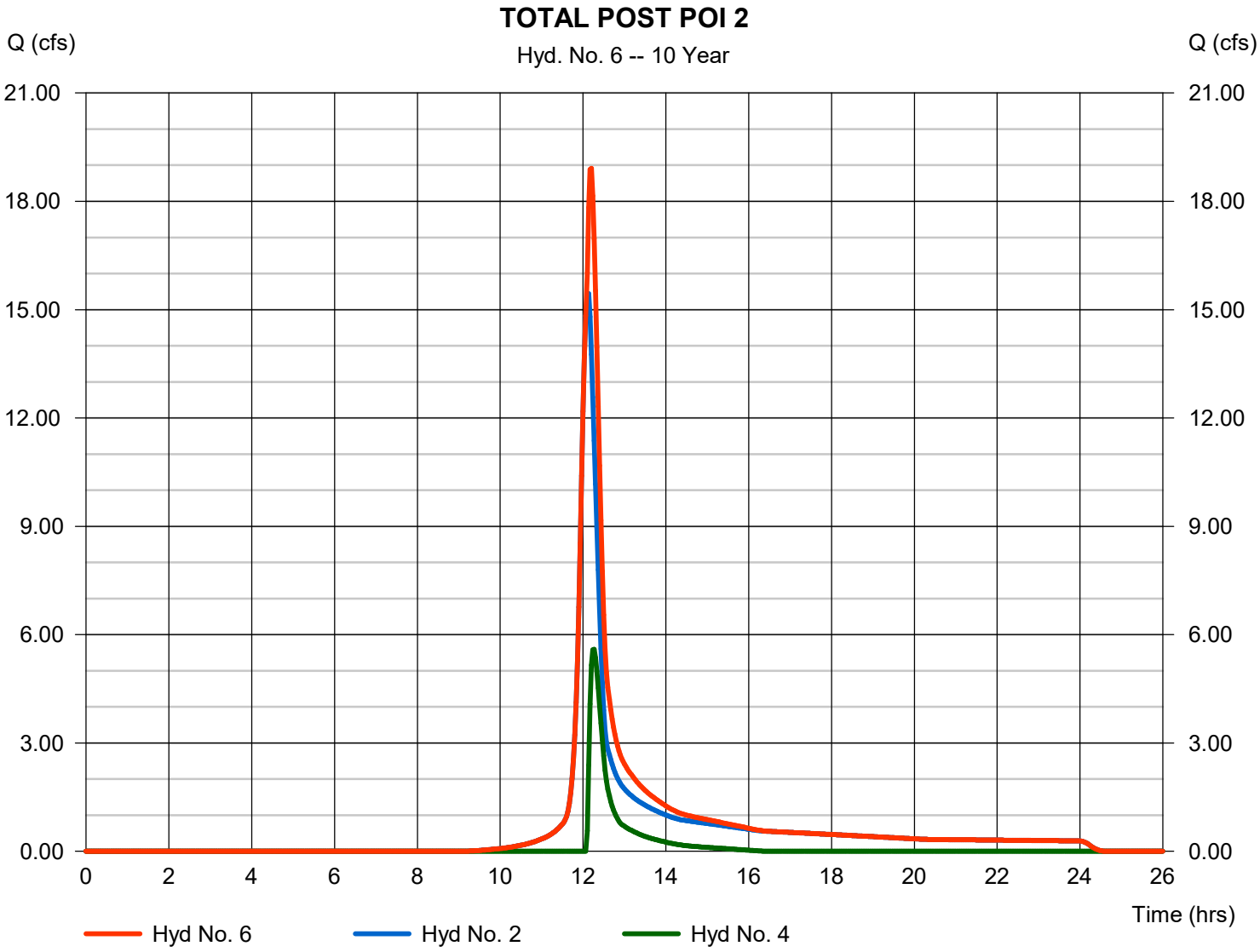


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 18.91 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 64,716 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



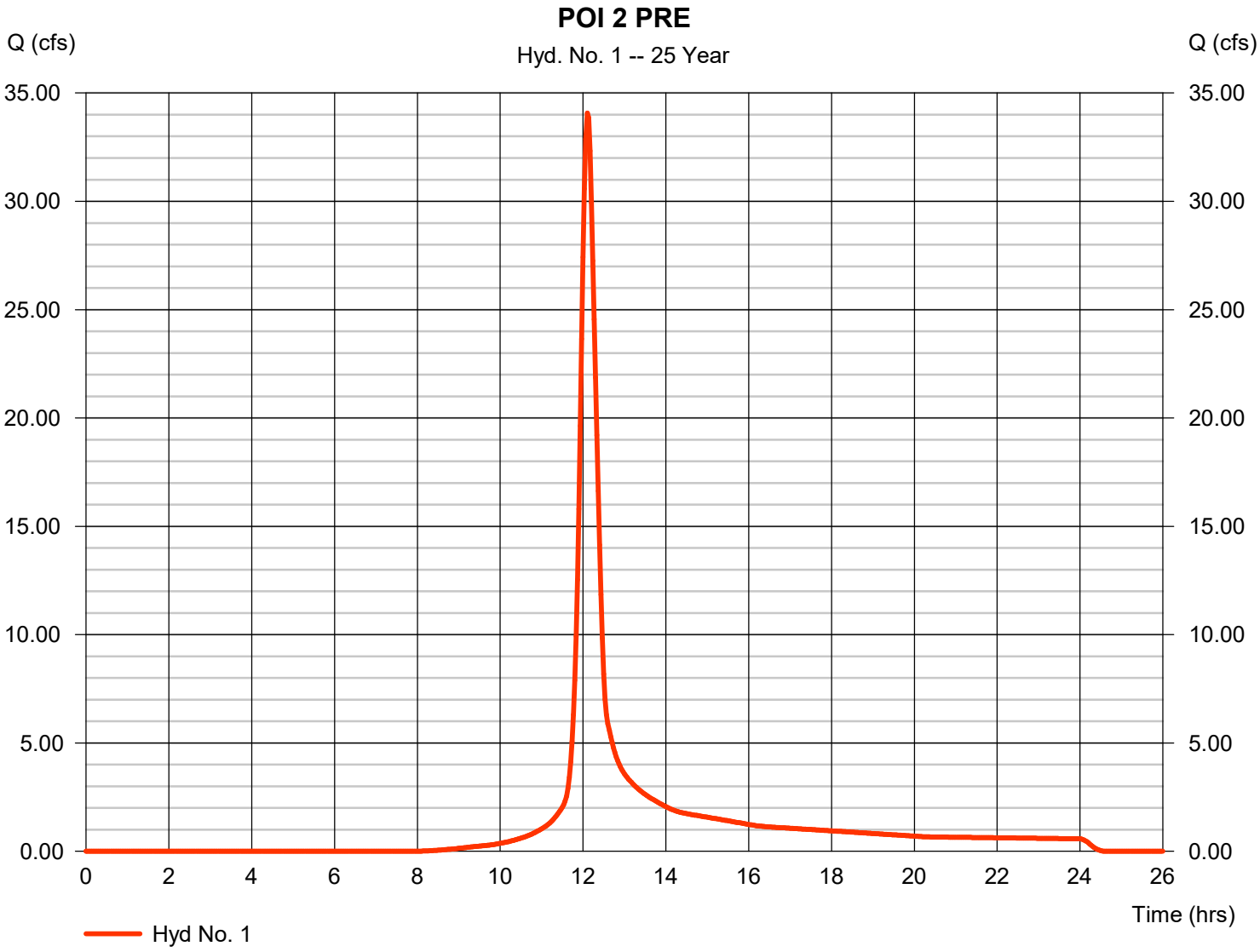
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	34.08 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	117,842 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



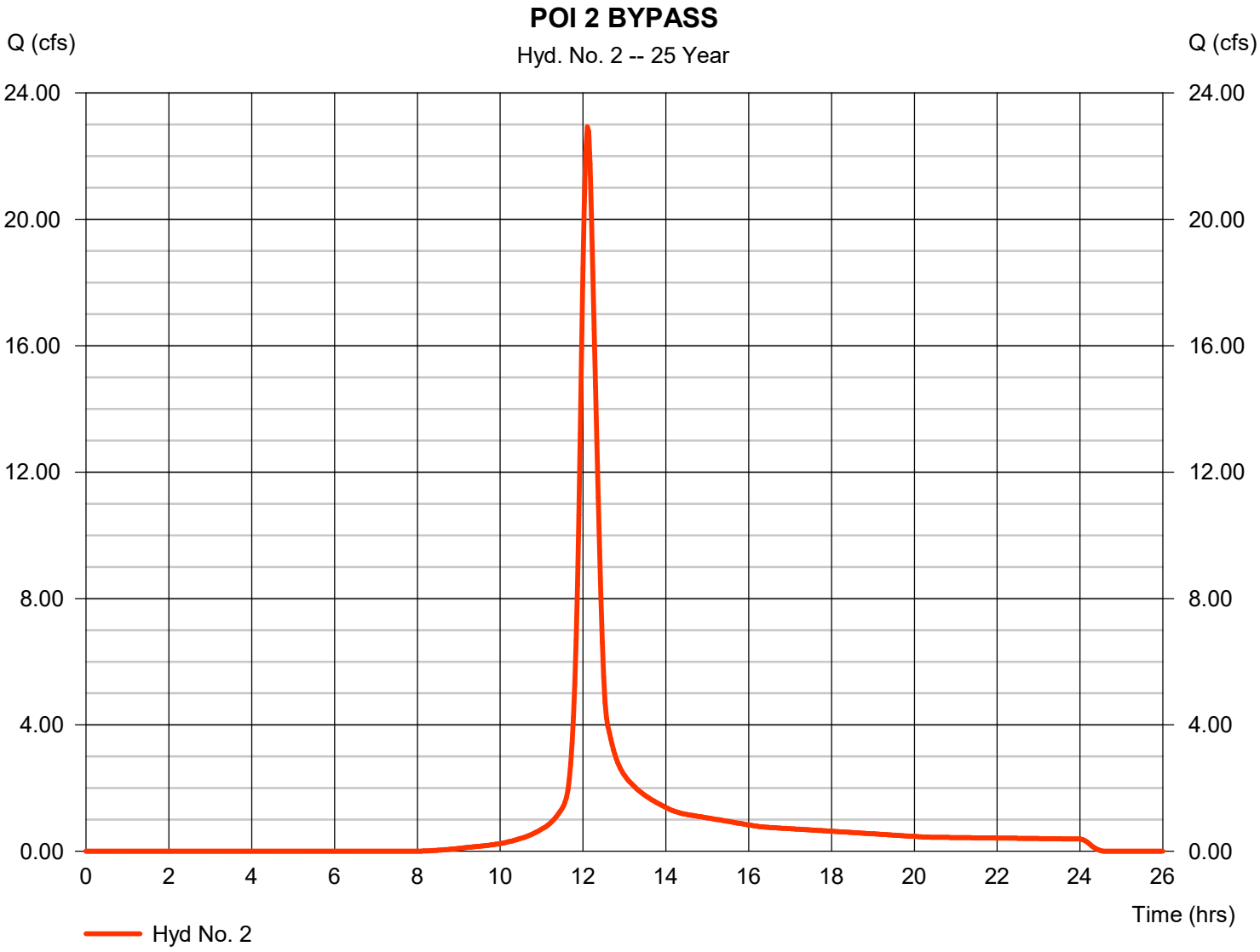
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.93 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	79,282 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



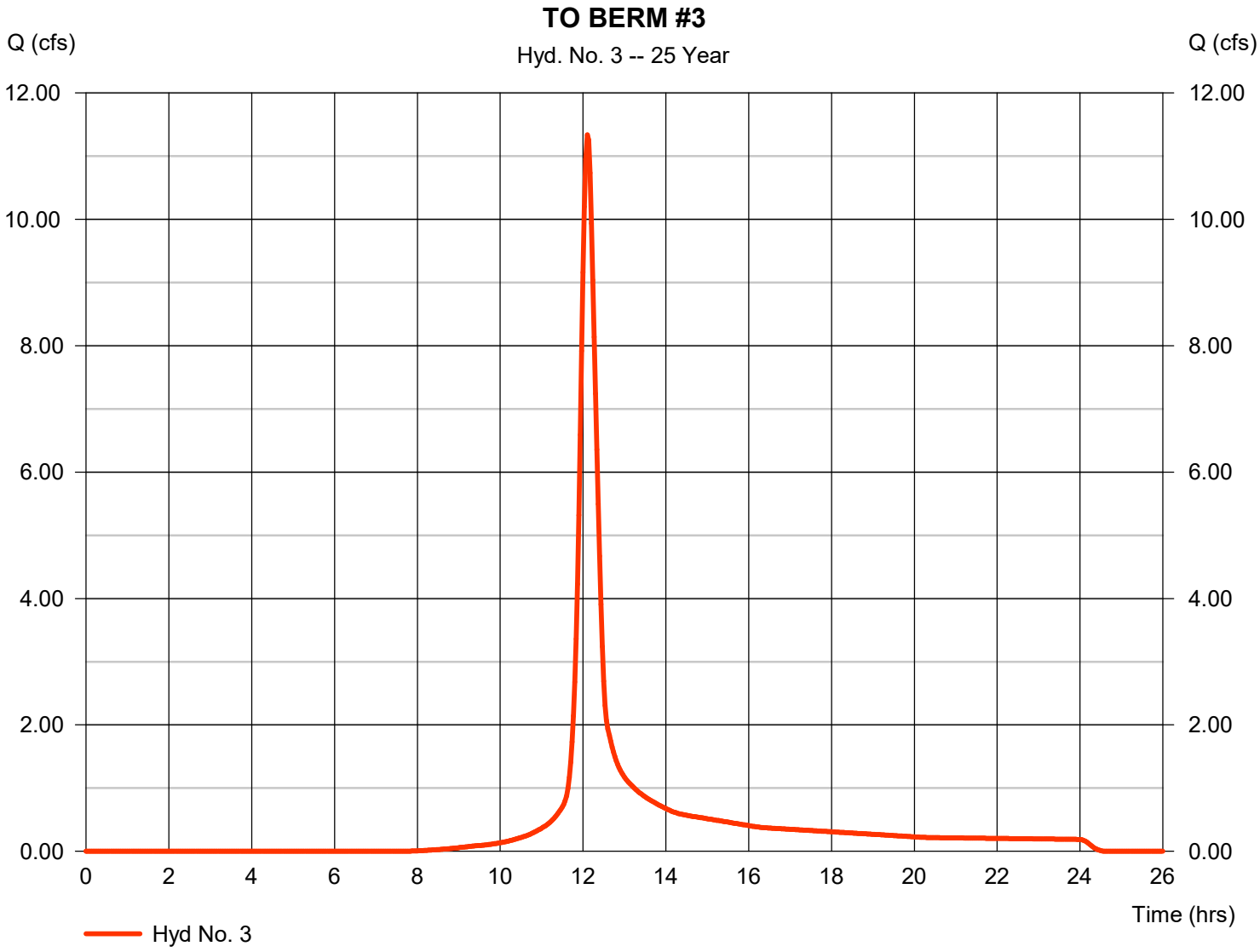
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.34 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	39,169 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



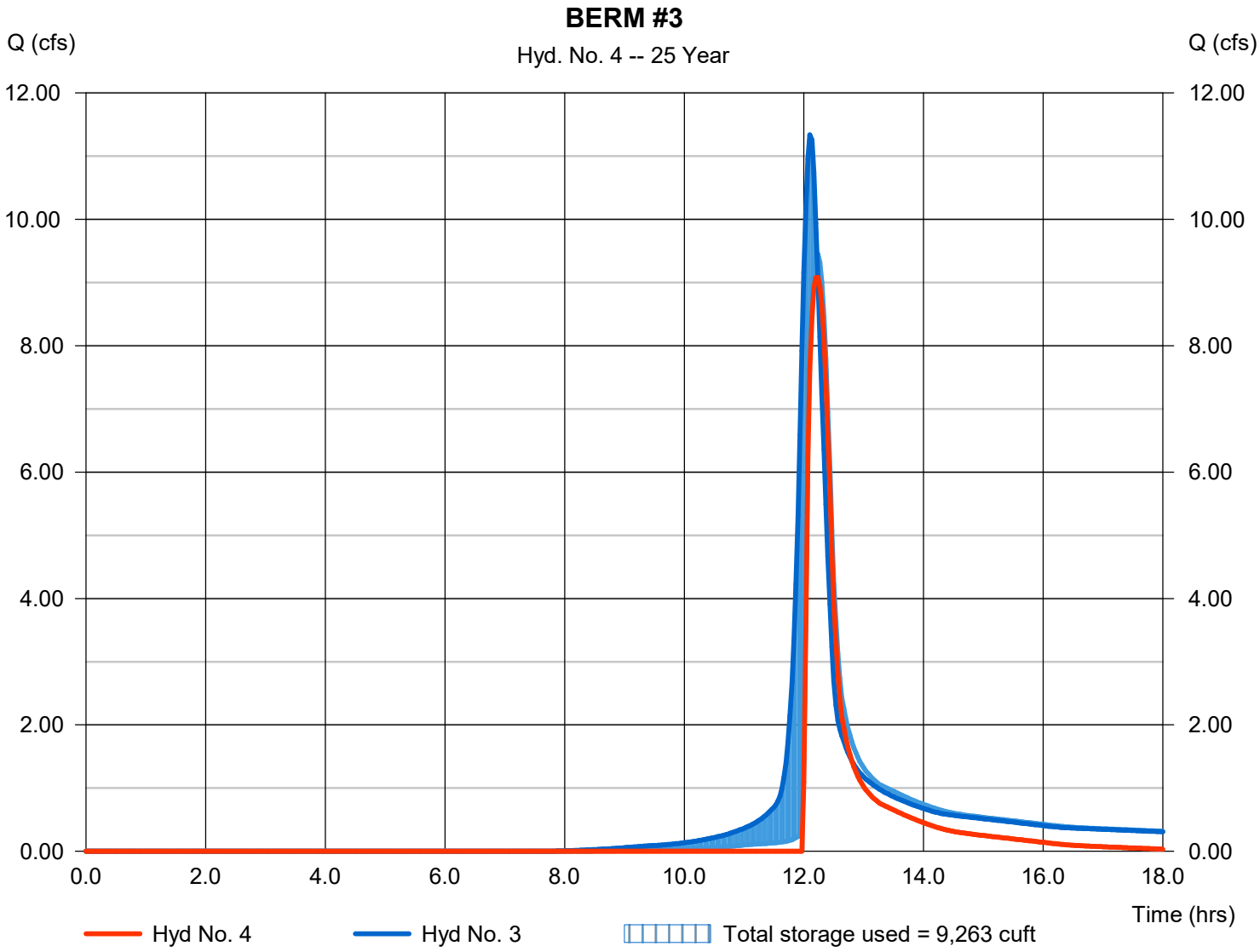
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	9.083 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	20,953 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	689.03 ft
Reservoir name	=	BERM #3	Max. Storage	=	9,263 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



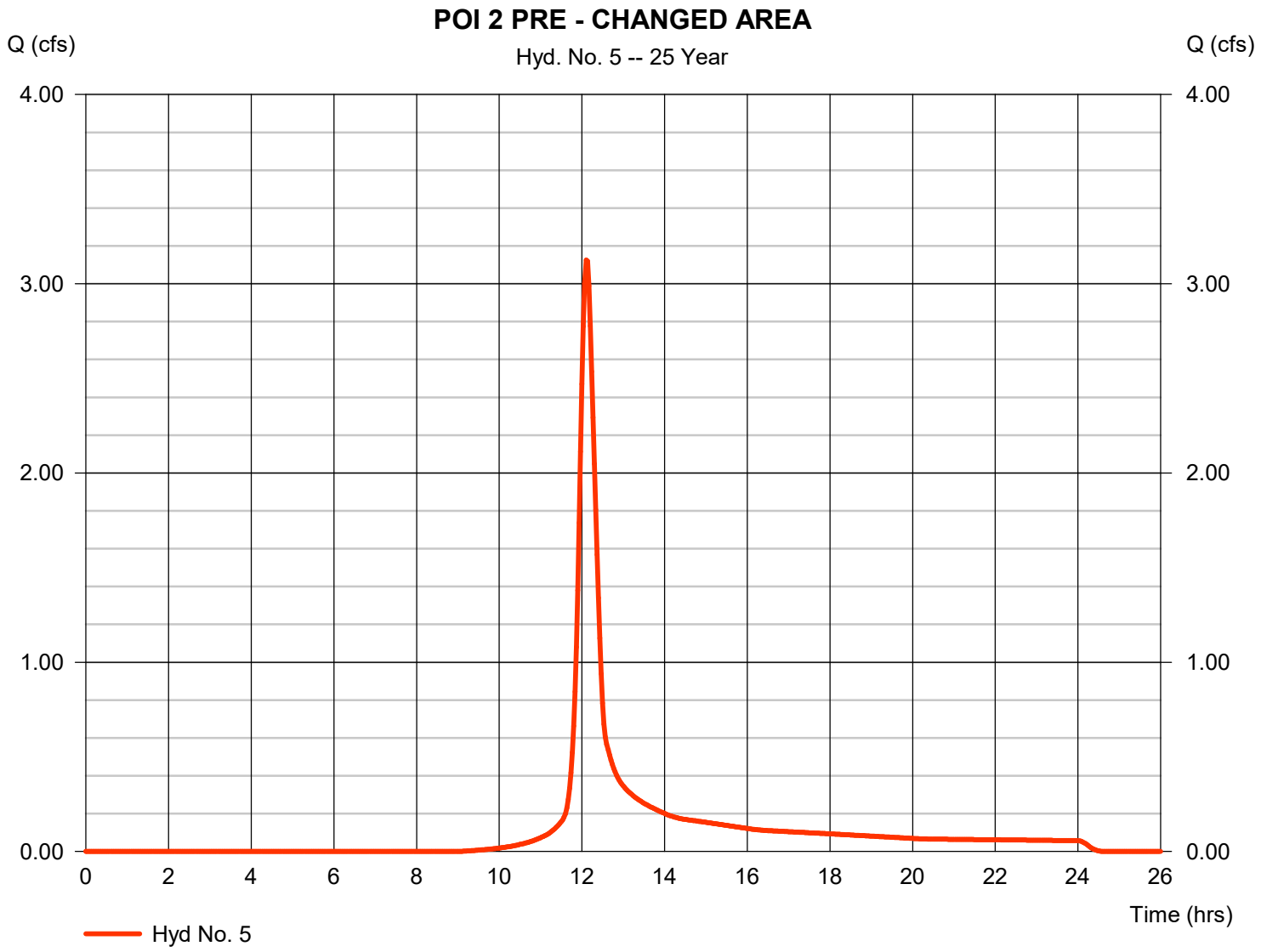
Hydrograph Report

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.126 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	10,900 cuft
Drainage area	=	1.090 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.30 min
Total precip.	=	5.76 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

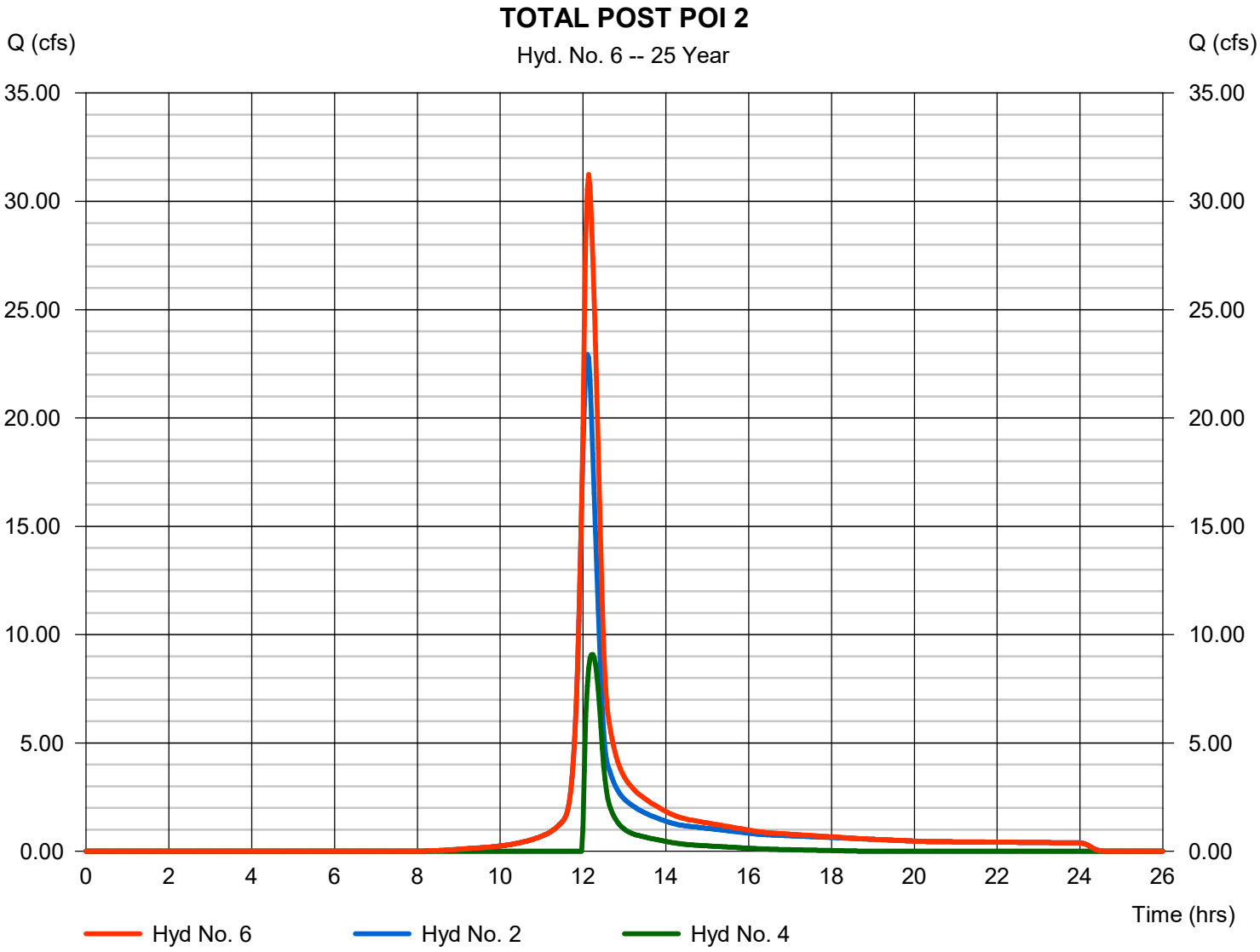


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 31.23 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 100,235 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



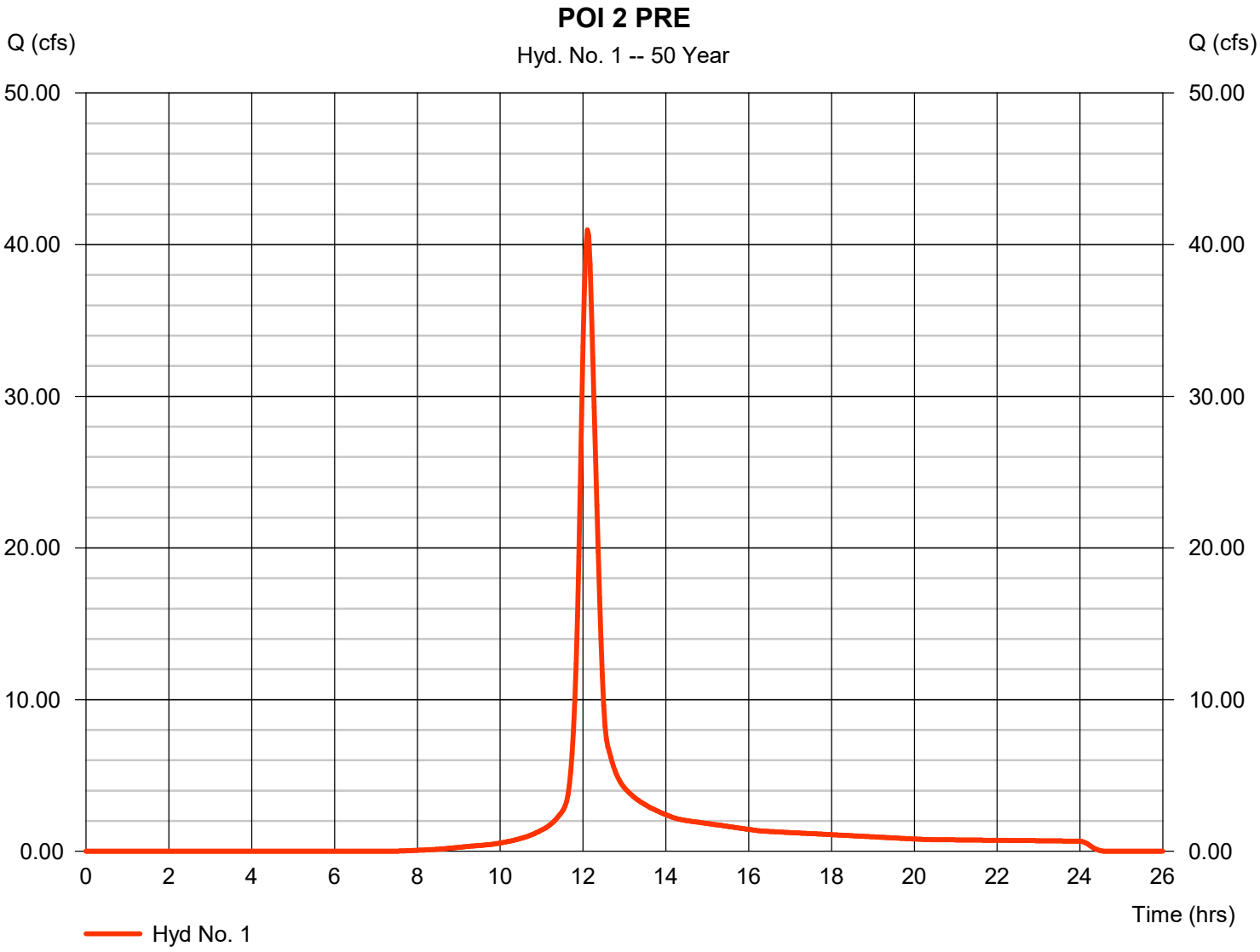
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	40.96 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	141,430 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



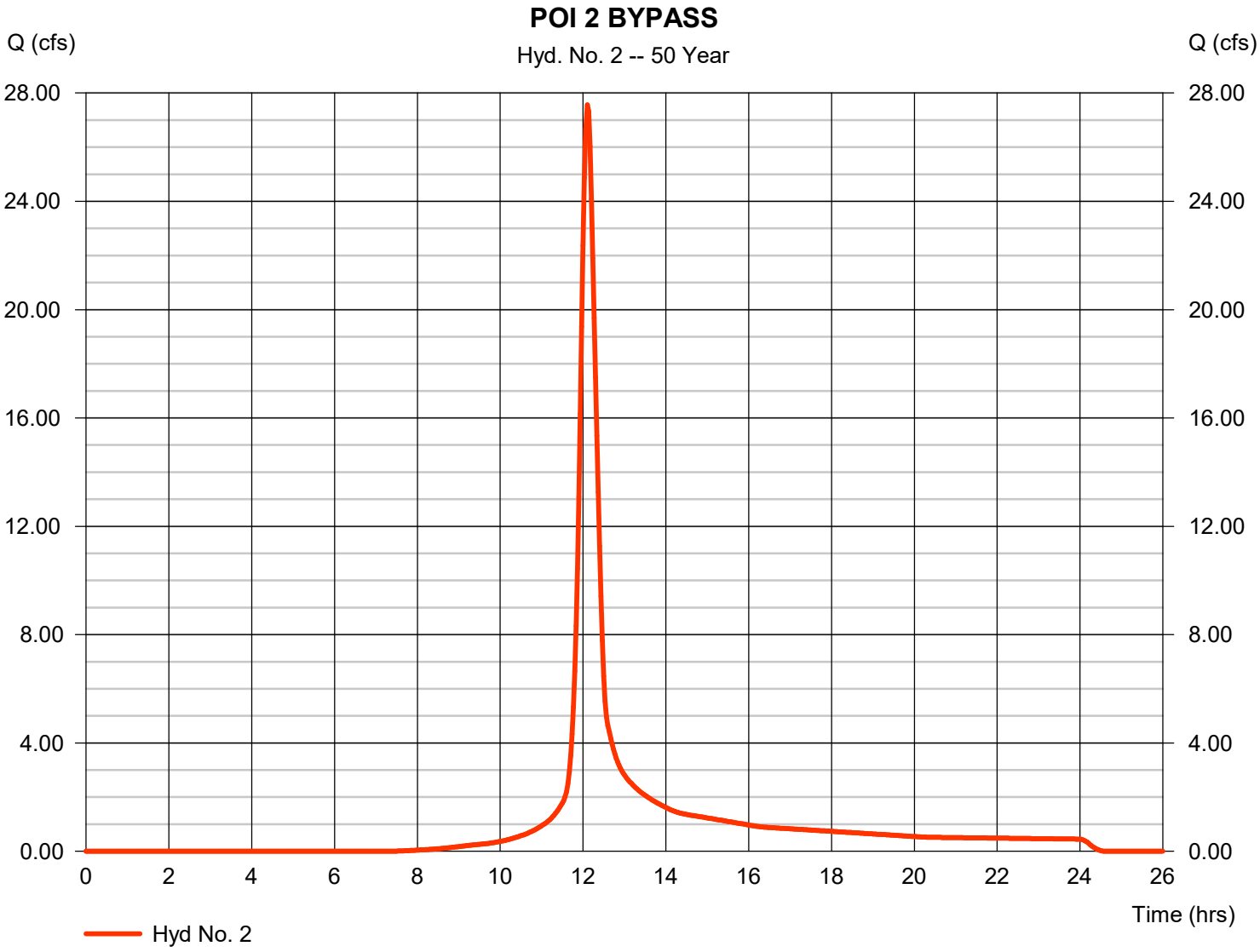
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	27.56 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	95,151 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



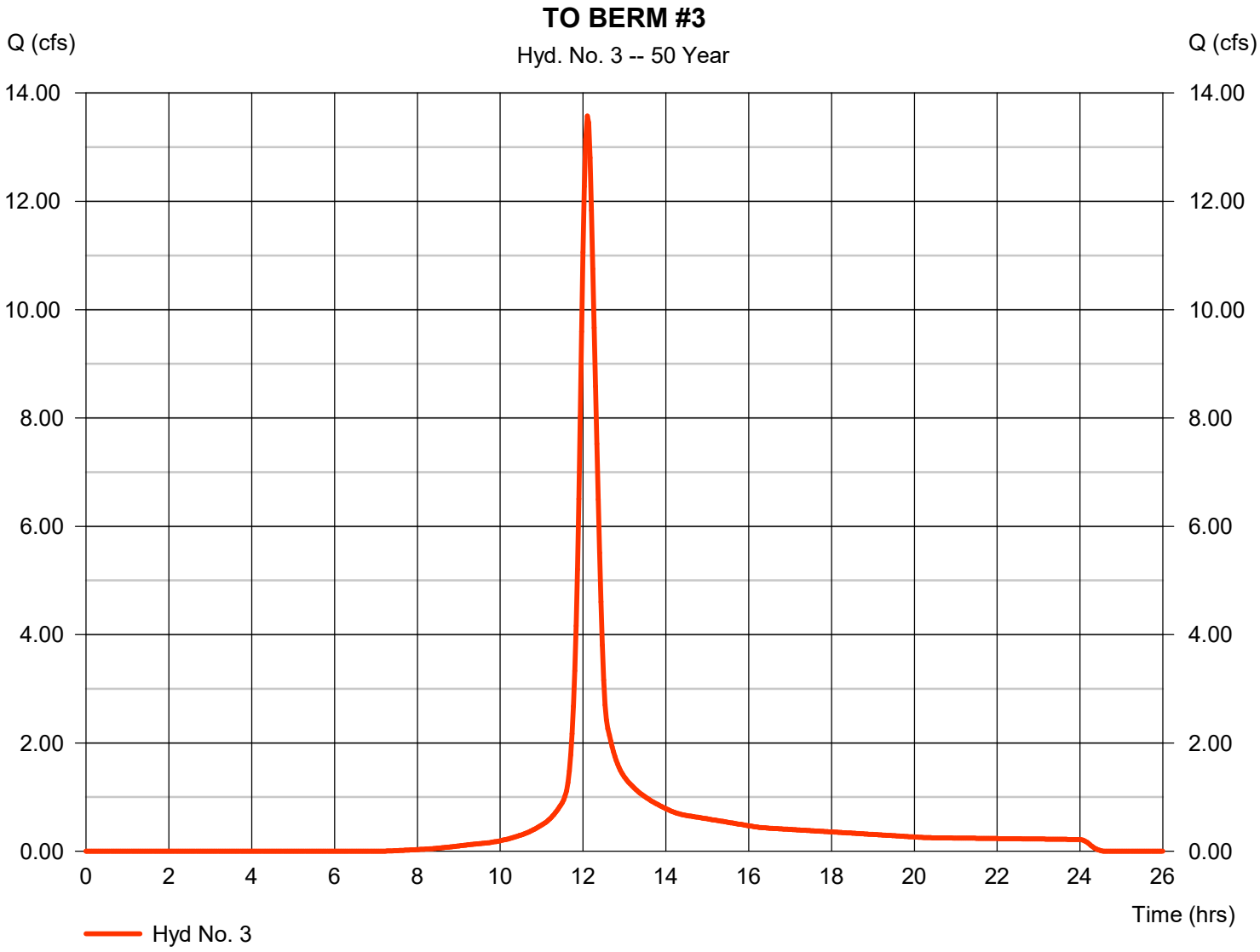
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.58 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	46,867 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



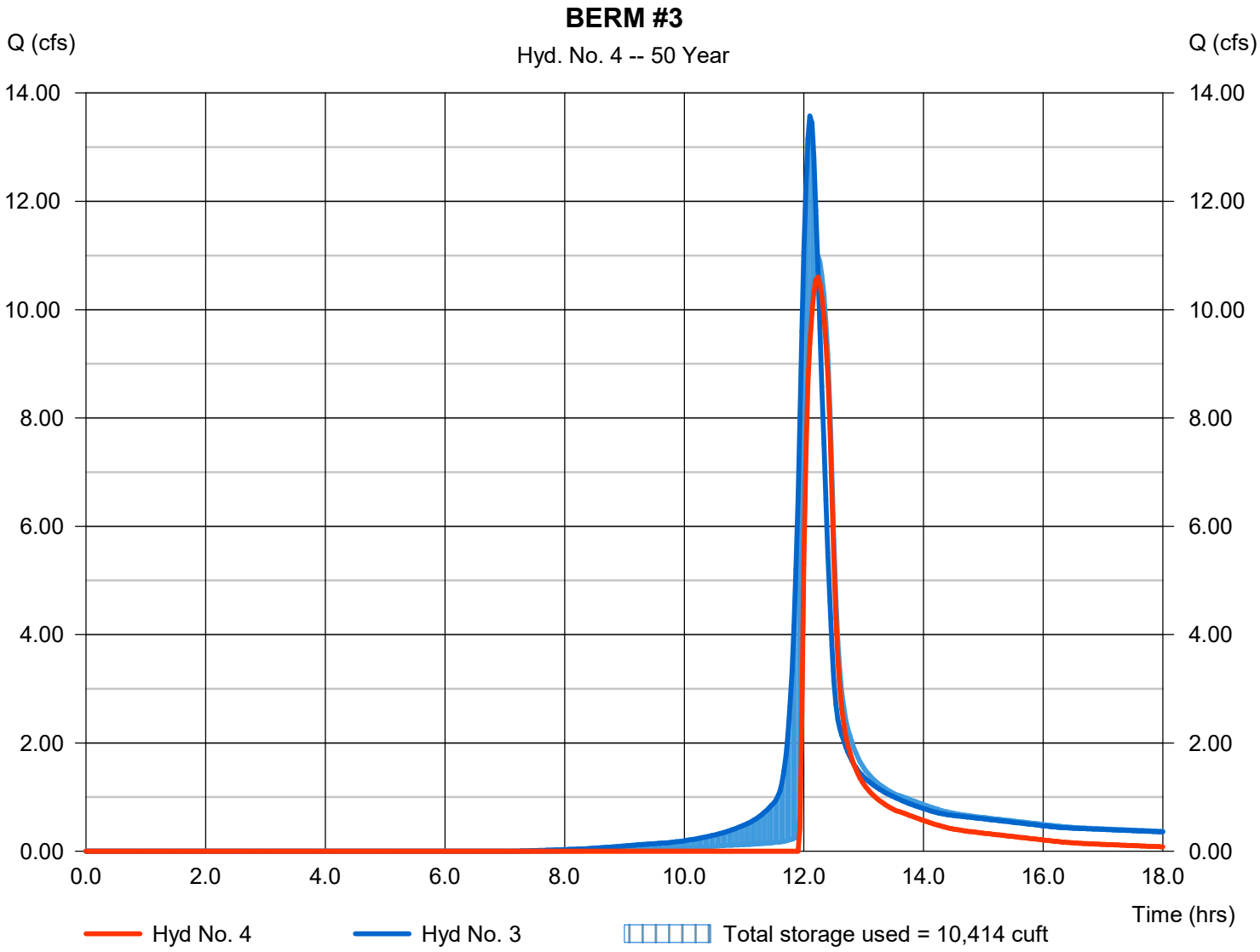
Hydrograph Report

Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	10.60 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	27,663 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	689.18 ft
Reservoir name	=	BERM #3	Max. Storage	=	10,414 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

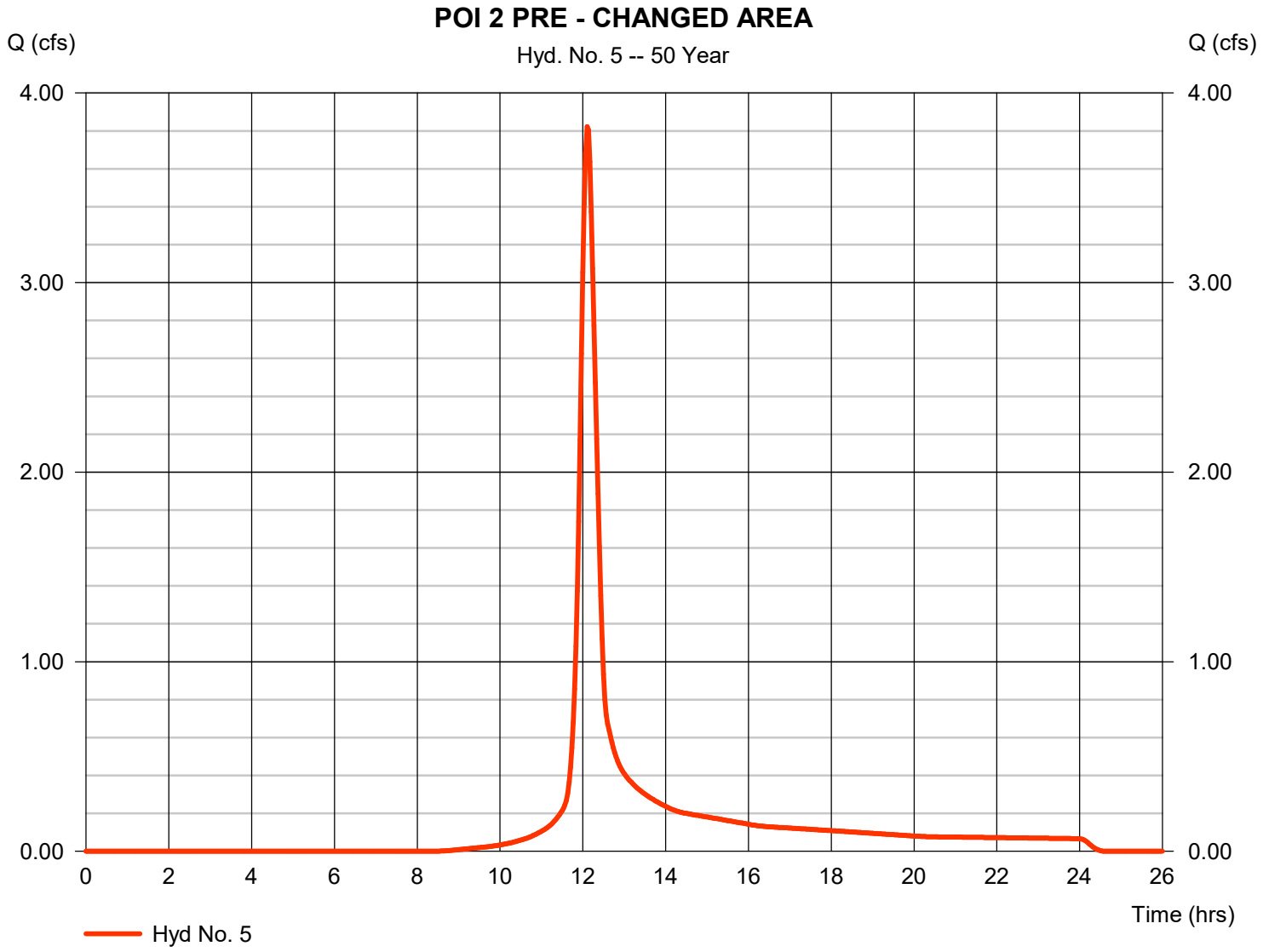
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 02 / 22 / 2024

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.822 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	13,250 cuft
Drainage area	=	1.090 ac	Curve number	=	71*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.30 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

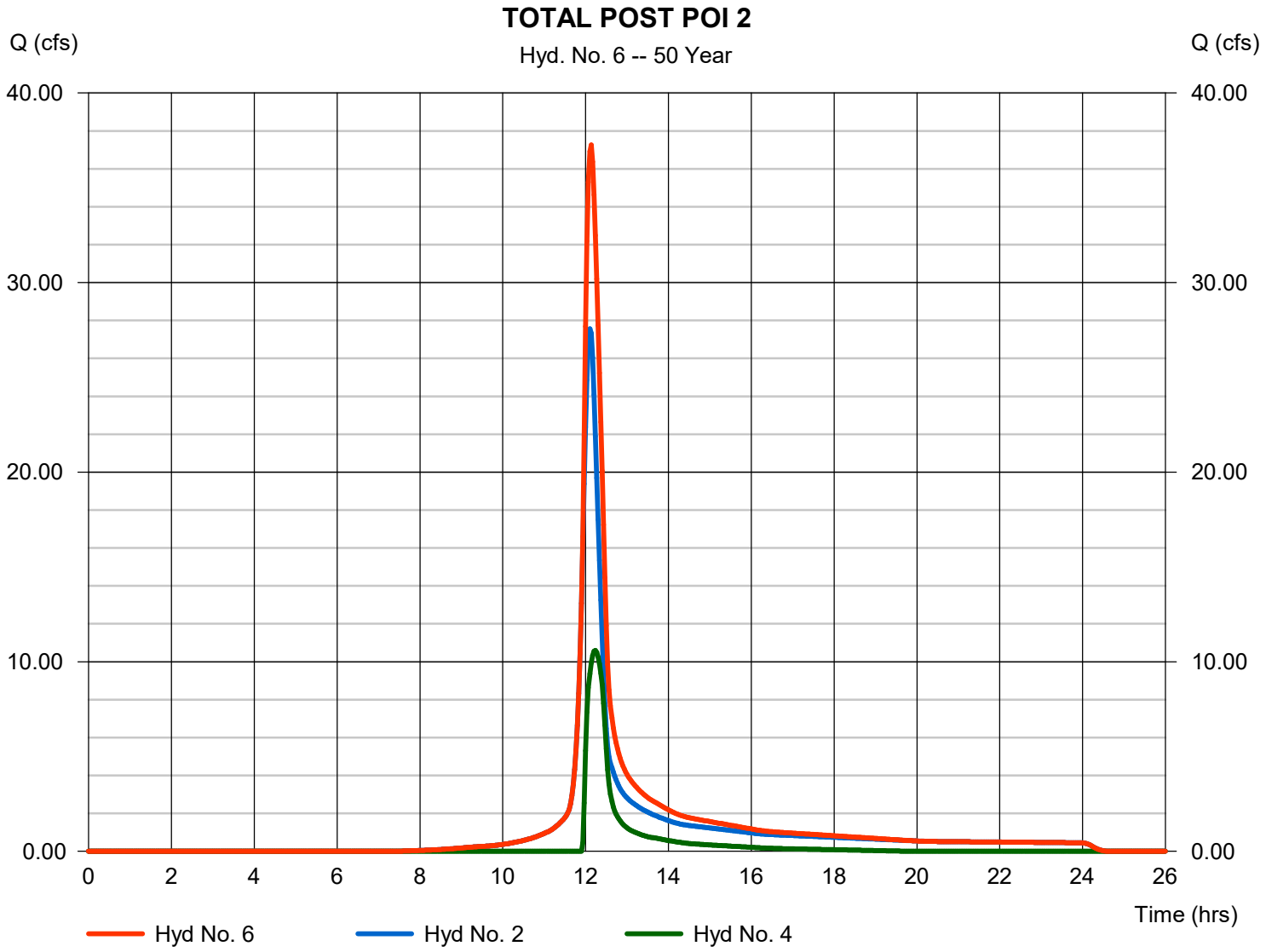


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 37.26 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 122,814 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



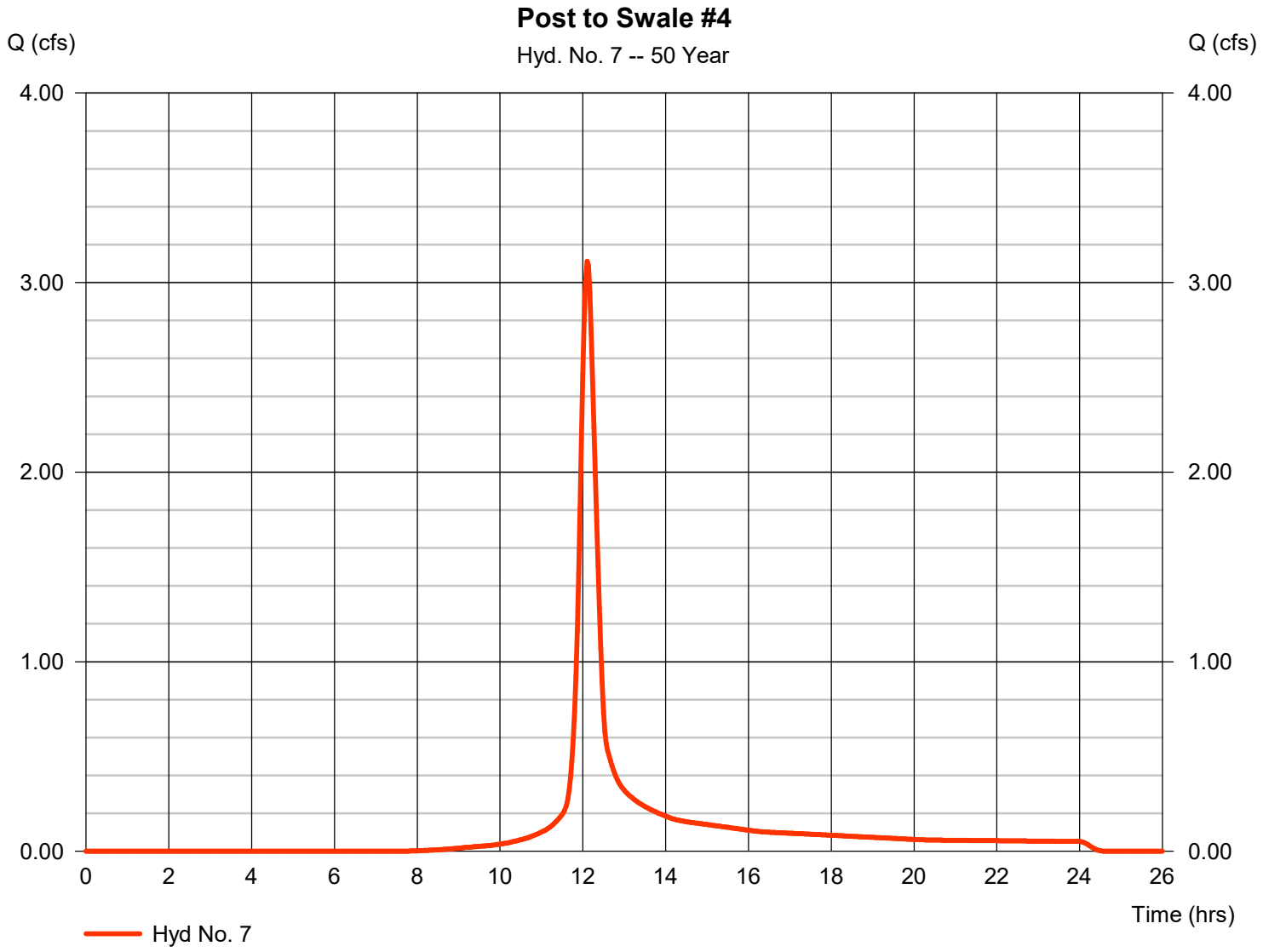
Hydrograph Report

Hyd. No. 7

Post to Swale #4

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.113 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	10,752 cuft
Drainage area	=	0.810 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	22.80 min
Total precip.	=	6.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.470 x 77) + (0.270 x 70) + (0.070 x 74)] / 0.810



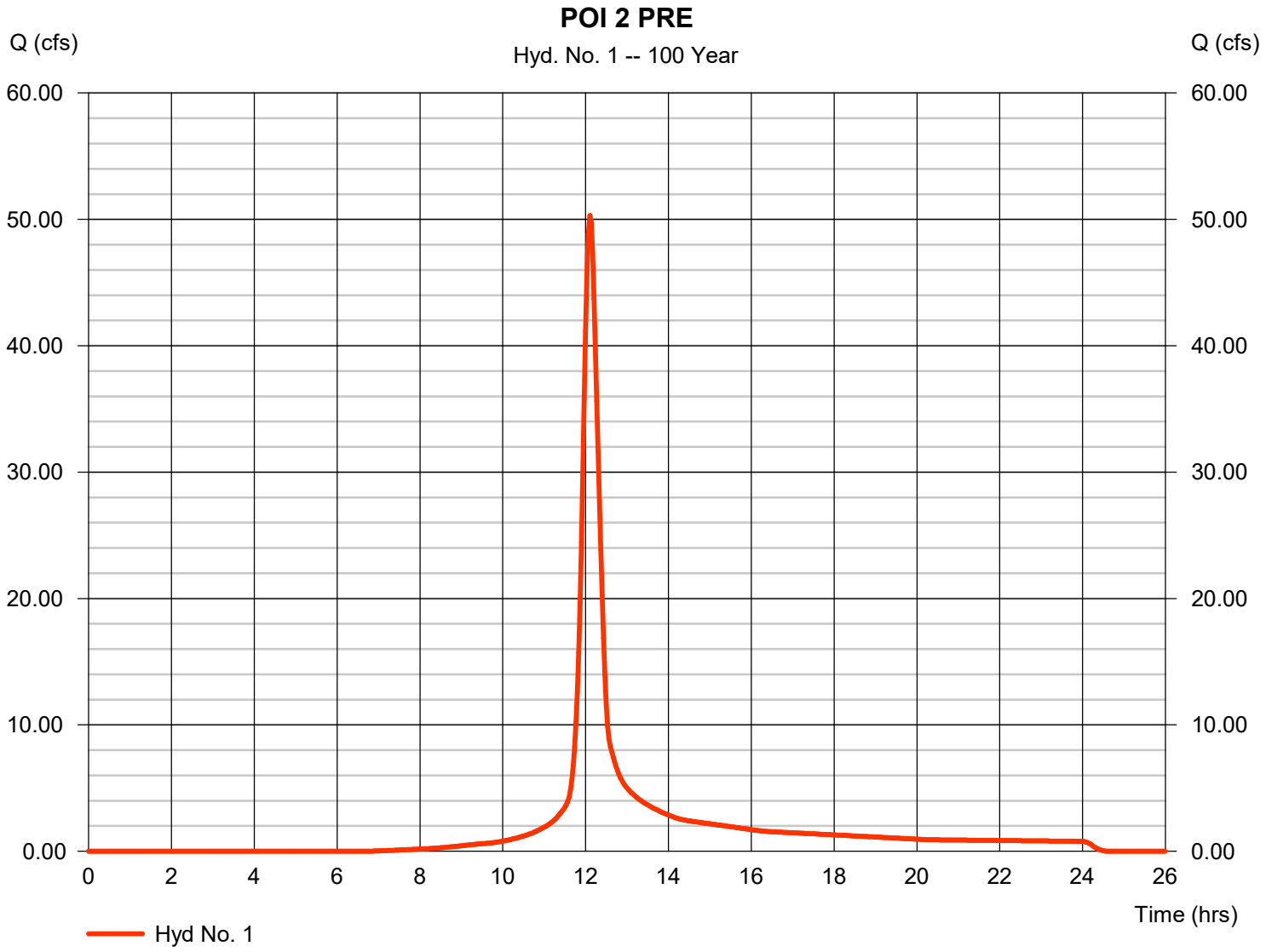
Hydrograph Report

Hyd. No. 1

POI 2 PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	50.30 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	173,760 cuft
Drainage area	=	10.360 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.700 x 98) + (3.510 x 77) + (5.400 x 70) + (0.480 x 80) + (0.270 x 74)] / 10.360



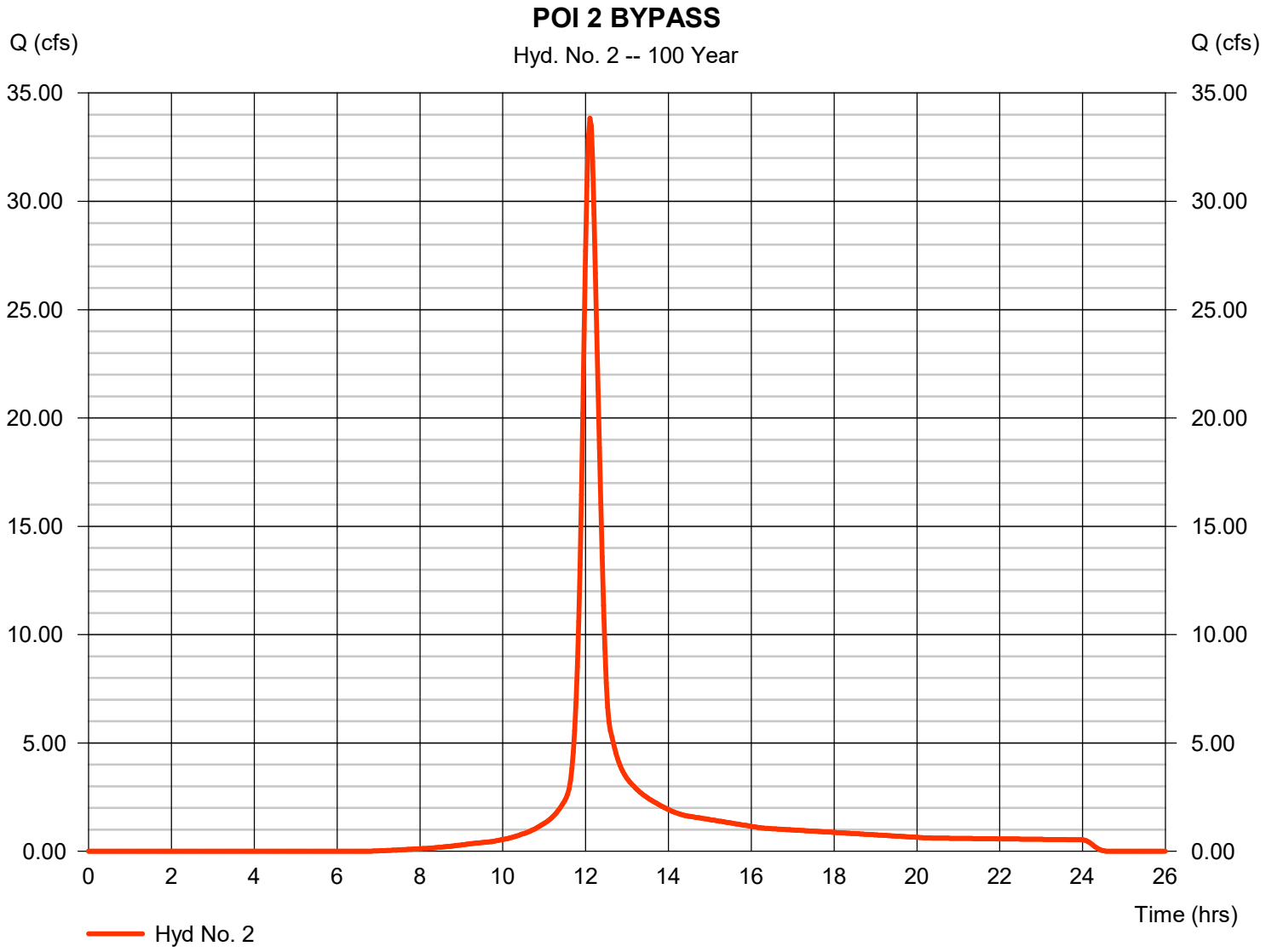
Hydrograph Report

Hyd. No. 2

POI 2 BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	116,902 cuft
Drainage area	=	6.970 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	23.00 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.710 x 77) + (0.700 x 98) + (3.610 x 70) + (0.110 x 78) + (0.220 x 71) + (0.620 x 77)] / 6.970



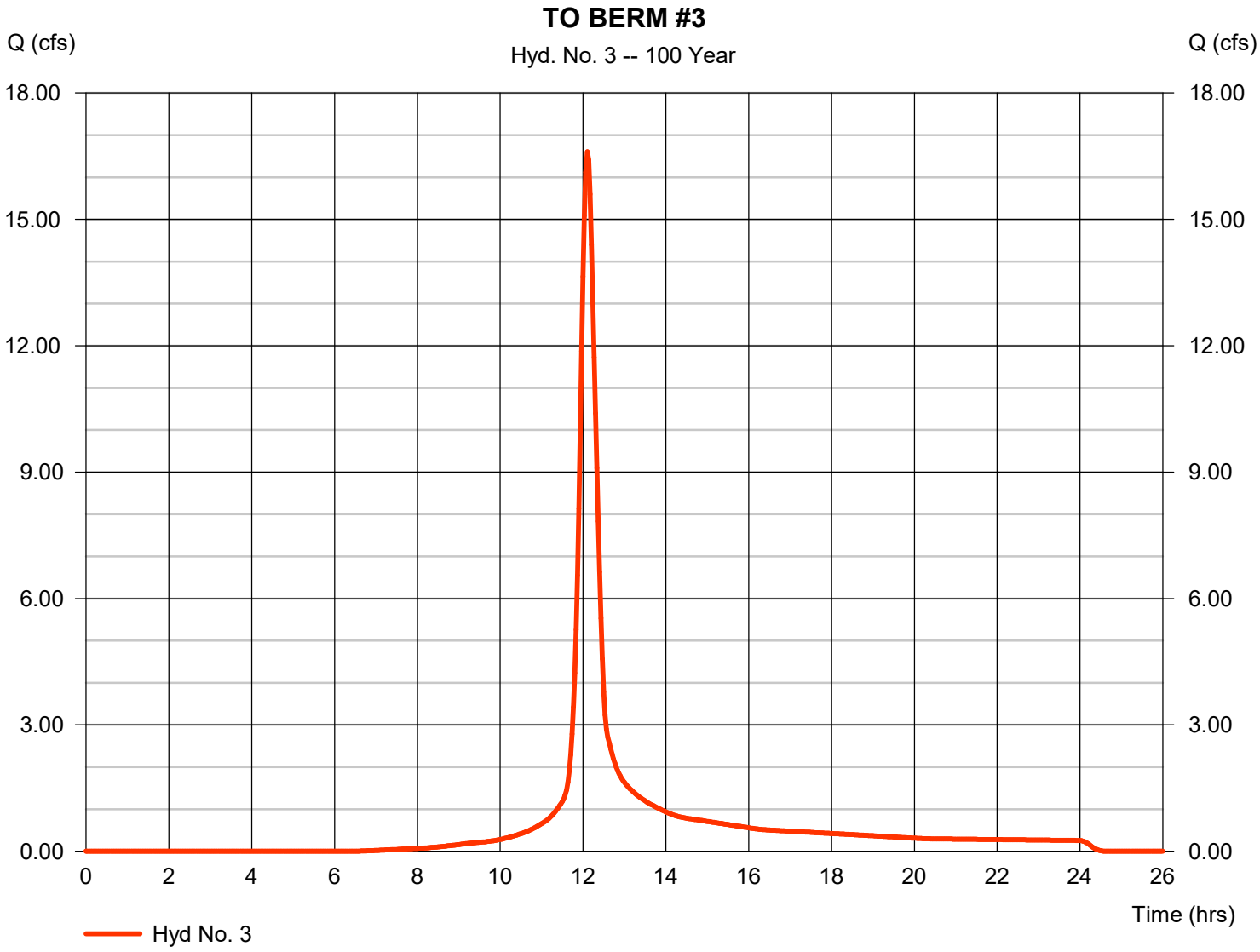
Hydrograph Report

Hyd. No. 3

TO BERM #3

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.60 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	57,398 cuft
Drainage area	=	3.340 ac	Curve number	=	76*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	21.84 min
Total precip.	=	7.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.860 x 70) + (1.640 x 77) + (0.320 x 74) + (0.210 x 71) + (0.150 x 80)] / 3.340



Hydrograph Report

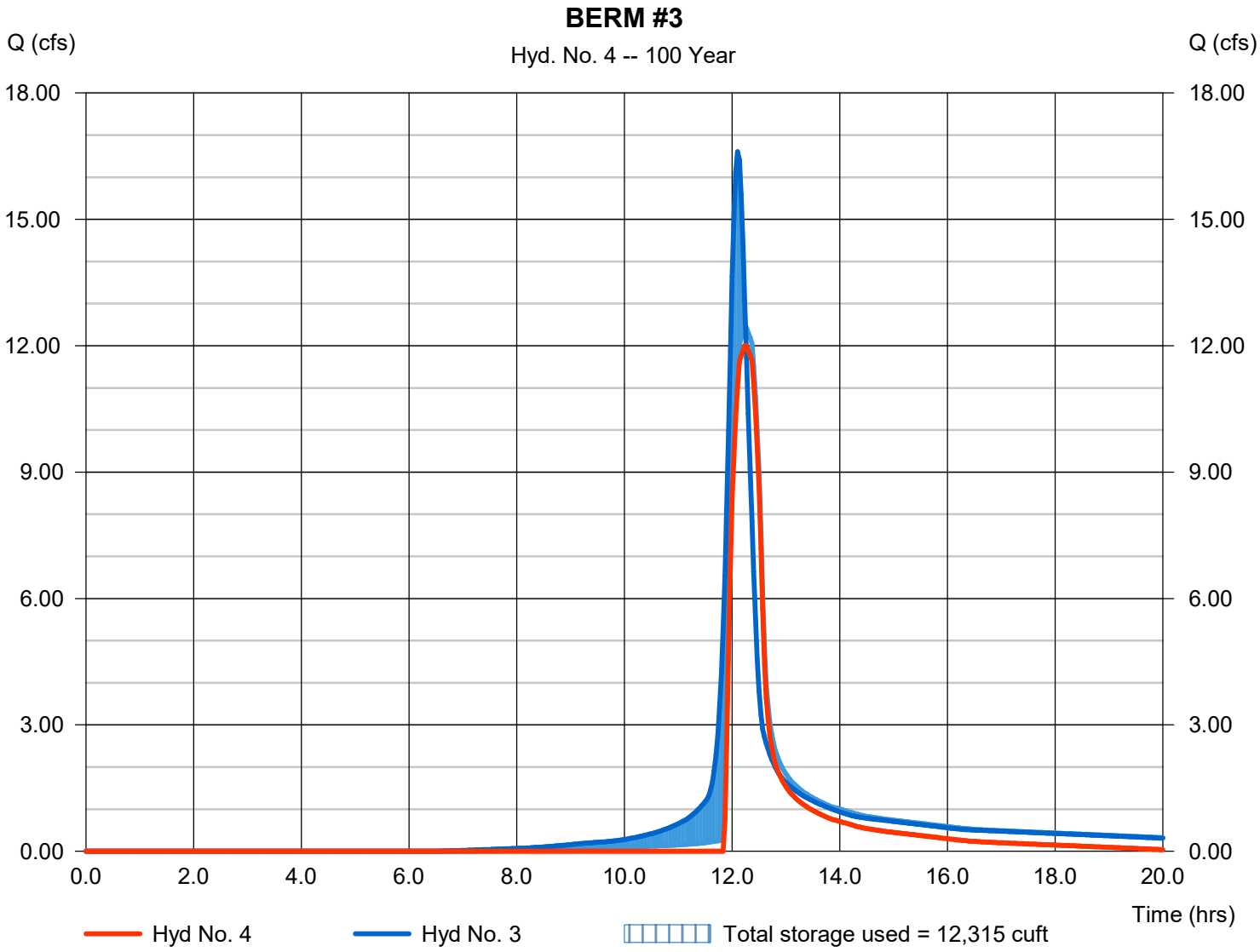
Hyd. No. 4

BERM #3

Hydrograph type	=	Reservoir	Peak discharge	=	12.00 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.23 hrs
Time interval	=	2 min	Hyd. volume	=	37,031 cuft
Inflow hyd. No.	=	3 - TO BERM #3	Max. Elevation	=	689.43 ft
Reservoir name	=	BERM #3	Max. Storage	=	12,315 cuft

Storage Indication method used. Exfiltration extracted from Outflow.

USED FOR LEVEL SPREADER #1



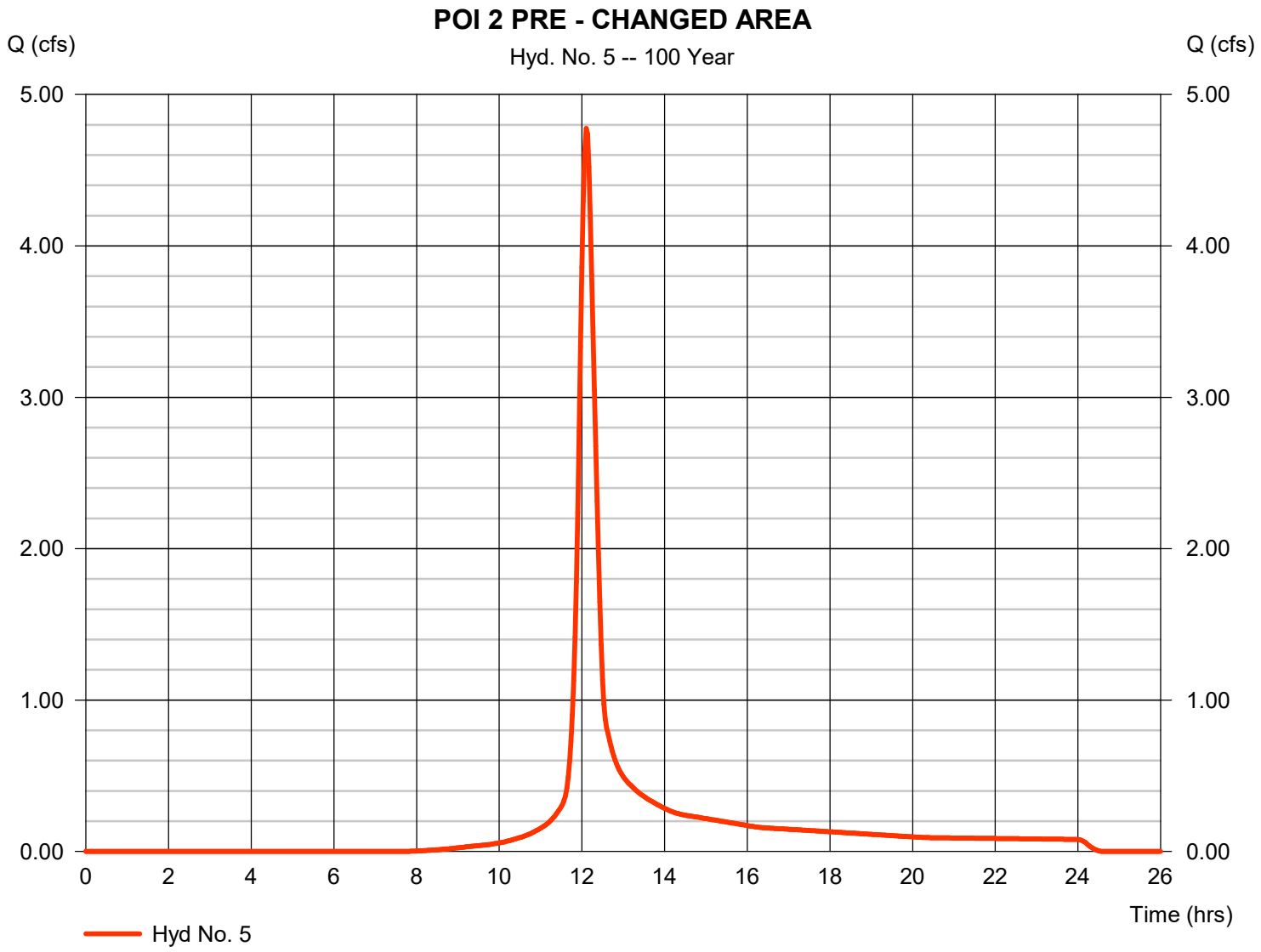
Hydrograph Report

Hyd. No. 5

POI 2 PRE - CHANGED AREA

Hydrograph type	= SCS Runoff	Peak discharge	= 4.776 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 16,499 cuft
Drainage area	= 1.090 ac	Curve number	= 71*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 21.30 min
Total precip.	= 7.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.930 x 70) + (0.160 x 77)] / 1.090

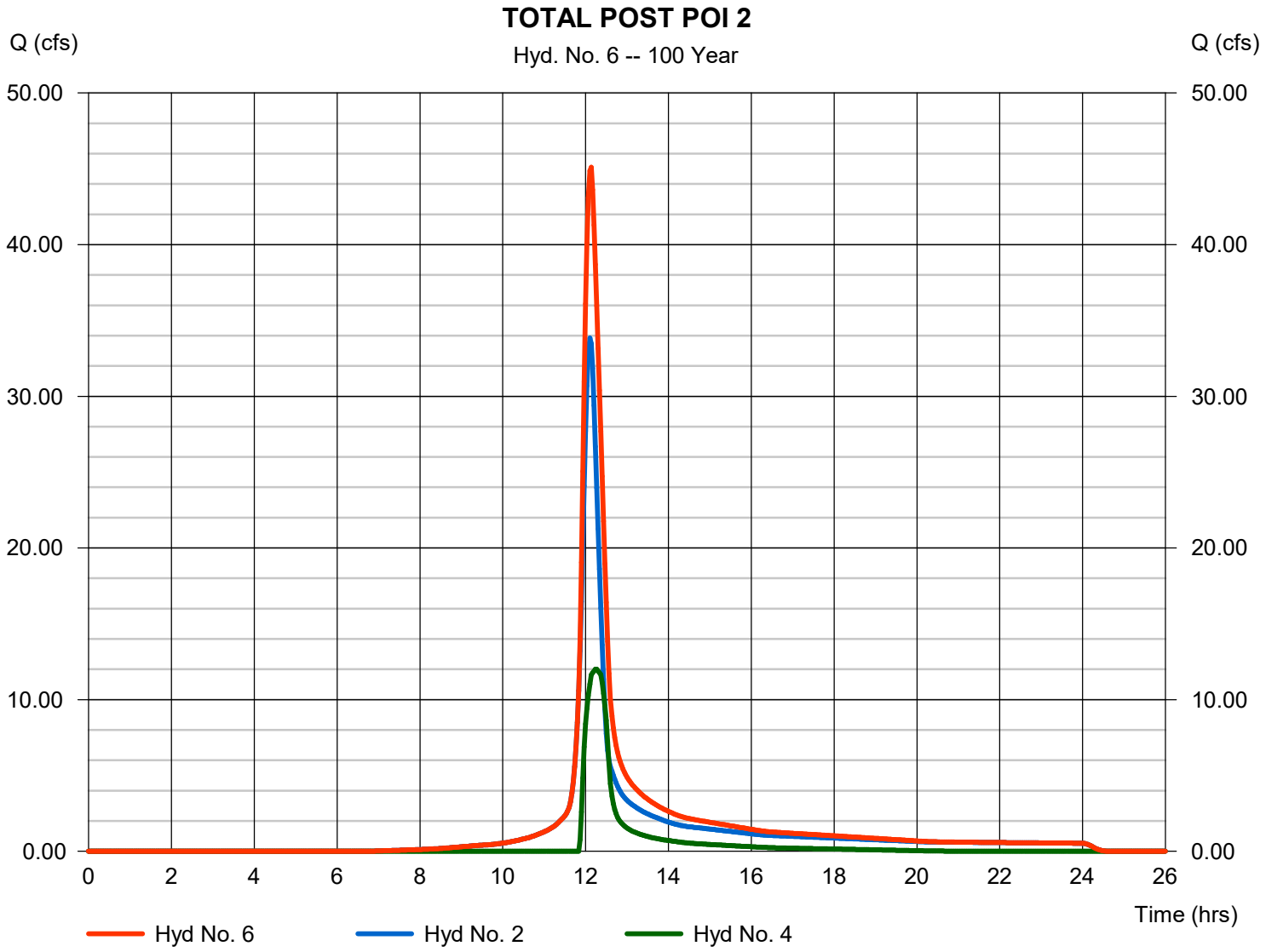


Hydrograph Report

Hyd. No. 6

TOTAL POST POI 2

Hydrograph type	= Combine	Peak discharge	= 45.11 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 153,933 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 6.970 ac



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Tuesday, 02 / 20 / 2024

Pond No. 1 - BERM #3

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 686.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	686.00	179	0	0
1.00	687.00	1,876	1,028	1,028
2.00	688.00	3,947	2,912	3,939
3.00	689.00	6,278	5,113	9,052
4.00	690.00	8,941	7,610	16,661

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	5.00	5.00	0.00
Span (in)	= 18.00	36.00	24.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 686.00	688.40	688.40	0.00
Length (ft)	= 27.00	0.00	0.00	0.00
Slope (%)	= 13.89	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

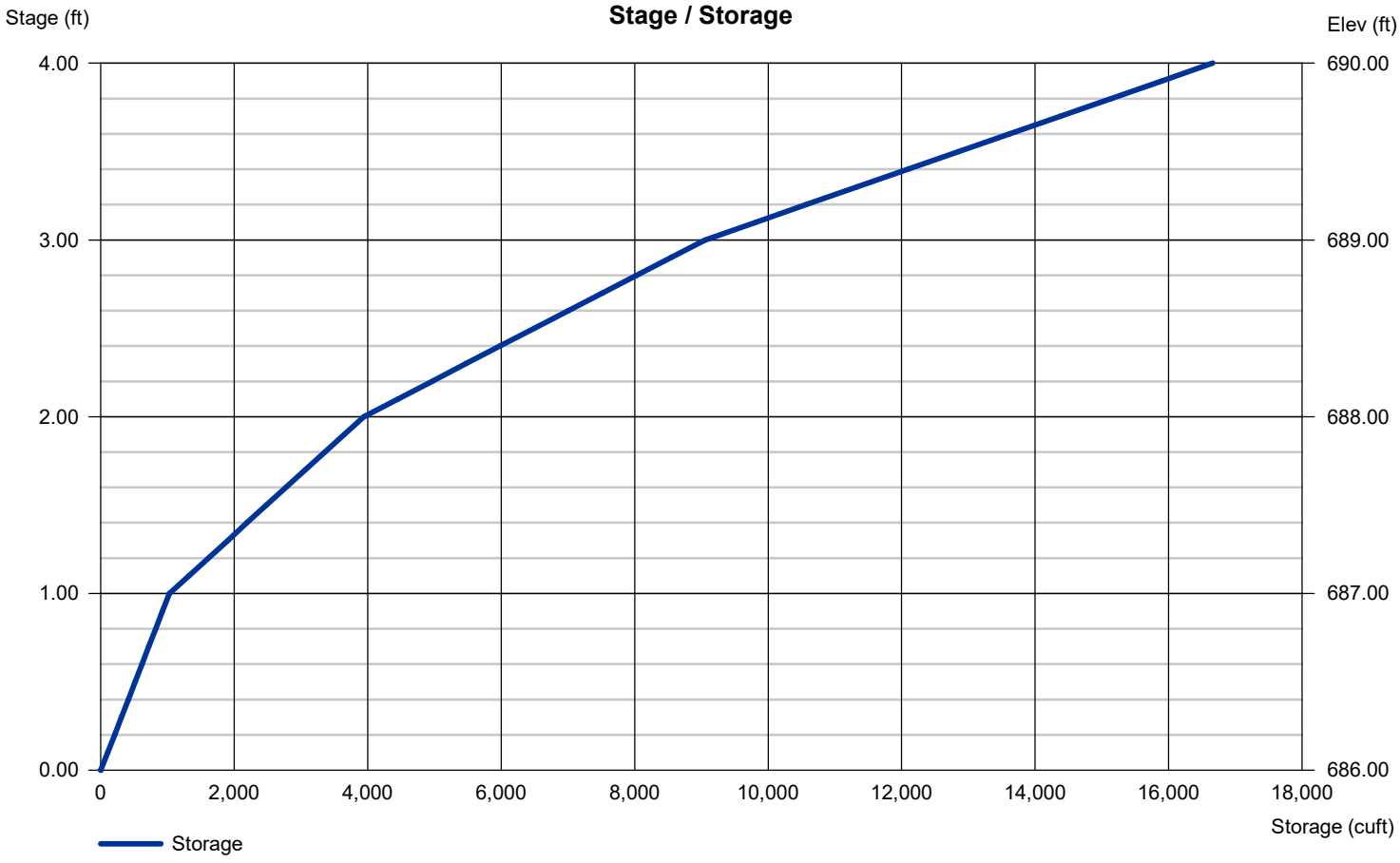
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	5.00	0.00	0.00
Crest El. (ft)	= 689.40	689.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 2.500 (by Contour)

TW Elev. (ft) = 0.00

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



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

Swale #4

Trapezoidal

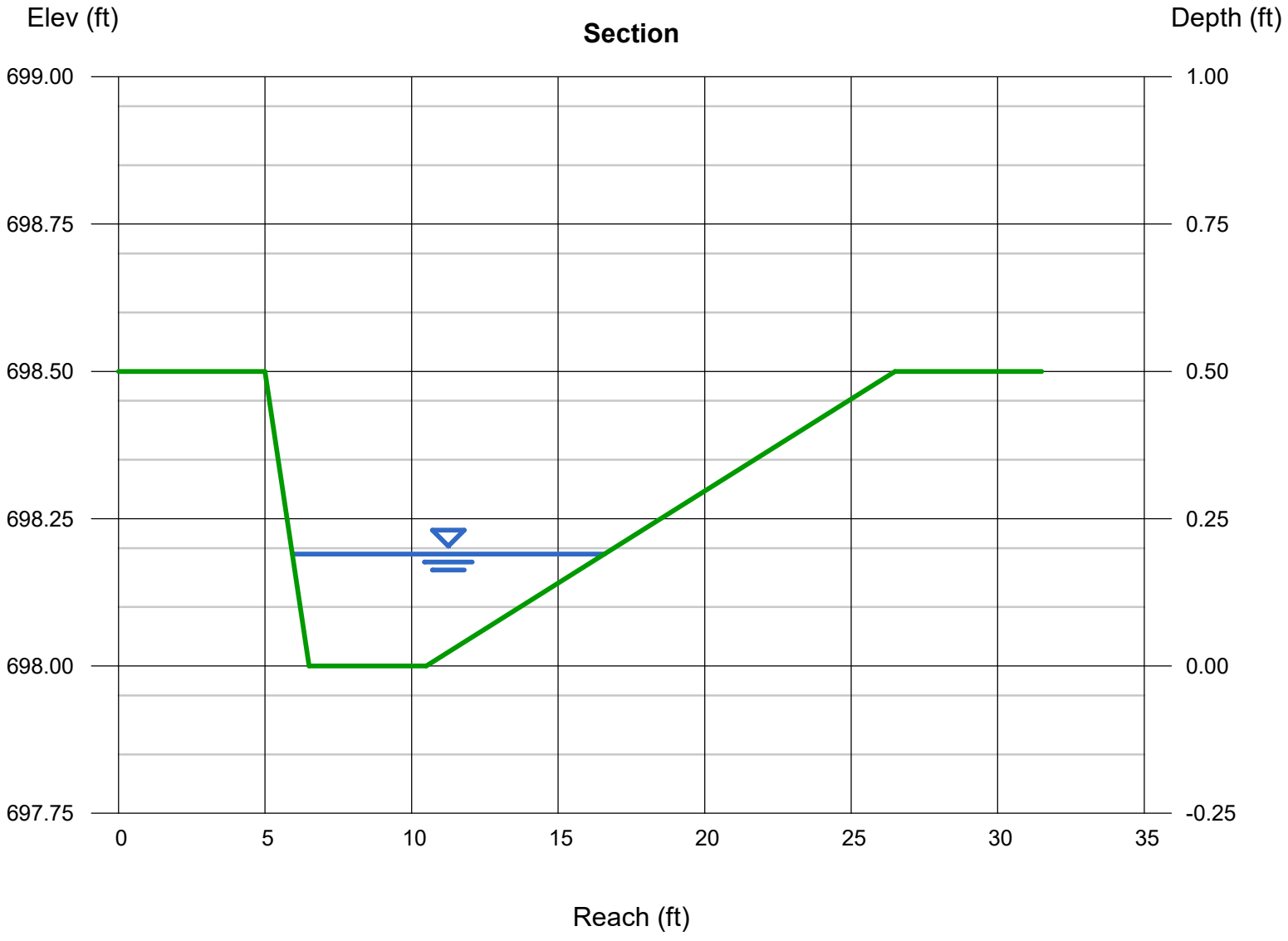
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 3.00, 32.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 698.00
Slope (%)	= 2.80
N-Value	= 0.026

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.11

Highlighted

Depth (ft)	= 0.19
Q (cfs)	= 3.110
Area (sqft)	= 1.39
Velocity (ft/s)	= 2.23
Wetted Perim (ft)	= 10.68
Crit Depth, Yc (ft)	= 0.20
Top Width (ft)	= 10.65
EGL (ft)	= 0.27



CHANNEL ANALYSIS

Home > View Projects > Project > Swale #4

Print This Page

View Computations

Duplicate Analysis
Delete Analysis

Name	Swale #4
Discharge	3.11
Channel Slope	0.028
Channel Bottom Width	4
Left Side Slope	3
Right Side Slope	32
Low Flow Liner	
Retardence Class	C 6-12 in
Vegetation Type	Mix (Sod and Bunch)
Vegetation Density	Good 65-79%
Soil Type	Silt Loam (SM)

Unreinforced Vegetation

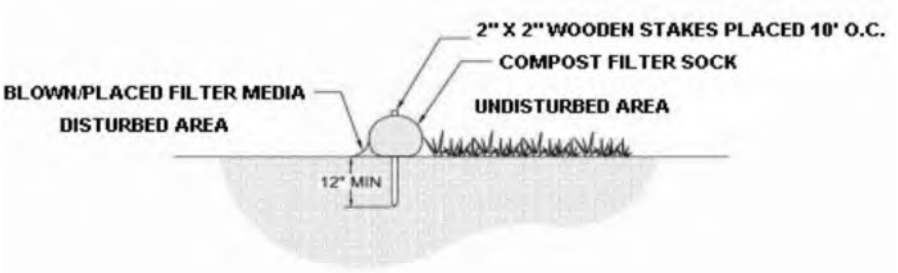
Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Unreinforced Vegetation	Straight	3.11 cfs	1.13 $^{ft}/_{s}$	0.3 ft	0.073	4 $^{lbs}/_{ft2}$	0.52 $^{lbs}/_{ft2}$	7.66	STABLE	--
Underlying Substrate	Straight	3.11 cfs	1.13 $^{ft}/_{s}$	0.3 ft	0.073	4 $^{lbs}/_{ft2}$	0.33 $^{lbs}/_{ft2}$	12.05	STABLE	--

S75BN

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
S75BN Unvegetated	Straight	3.11 cfs	1.89 $^{ft}/_{s}$	0.21 ft	0.036	1.6 $^{lbs}/_{ft2}$	0.37 $^{lbs}/_{ft2}$	4.3	STABLE	D
Underlying Substrate	Straight	3.11 cfs	1.89 $^{ft}/_{s}$	0.21 ft	0.036	1.17 $^{lbs}/_{ft2}$	0.25 $^{lbs}/_{ft2}$	4.68	STABLE	D

STANDARD E&S WORKSHEET #1
COMPOST FILTER SOCKS

PROJECT NAME: FRANKLIN HILL MANOR
LOCATION: ALBERT LANE
PREPARED BY: TMM DATE: 10-5-21
CHECKED BY: JLS DATE: 10-5-21



SOCK (NO)	DIA (IN.)	LOCATION	SLOPE (%)	SLOPE LENGTH ABOVE BARRIER (FT)
1	12	WEST OF BERM 1	7.3	190
2	12	SOUTH OF LOT 1 HOUSE	5.8	140
3	12	SOUTH OF LOT 1 SEPTIC	8.4	200
4	18	SOUTH & WEST OF BERM 2	9	190
5	18	SOUTH OF LOT 2 SEPTIC	10.4	200
6	18	SOUTH OF LOT 3 DRIVEWAY	7.1	200
7	18	SOUTH OF BERM 3	10.4	200

(26, App. B, cont'd)

TABLE B-1

DESIGN STORM RAINFALL AMOUNT (INCHES)

The design storm rainfall amount chosen for design should be obtained from the PennDOT region in which the site is located according to Figure B-2.

Source: "Field Manual of Pennsylvania Department of Transportation"
STORM INTENSITY-DURATION-FREQUENCY CHARTS
PDT - IDF May 1986.

Region 4
Precipitation Depth (in)

Duration	1 Yr	2Yr	5Yr	10 Yr	25 Yr	50 Yr	100 Yr
5 min	0.30	0.35	0.41	0.45	0.50	0.55	0.61
15 min	0.58	0.68	0.80	0.93	1.03	1.13	1.25
1 hr	1.01	1.22	1.48	1.70	1.91	2.16	2.41
2 hrs	1.24	1.50	1.84	2.14	2.46	2.80	3.18
3 hrs	1.38	1.71	2.10	2.43	2.82	3.24	3.69
6 hrs	1.68	2.04	2.52	3.06	3.60	4.14	4.74
12 hrs	2.04	2.52	3.00	3.84	4.56	5.16	6.00
24 hrs	2.40	2.88	3.60	4.56	5.76	6.48	7.44

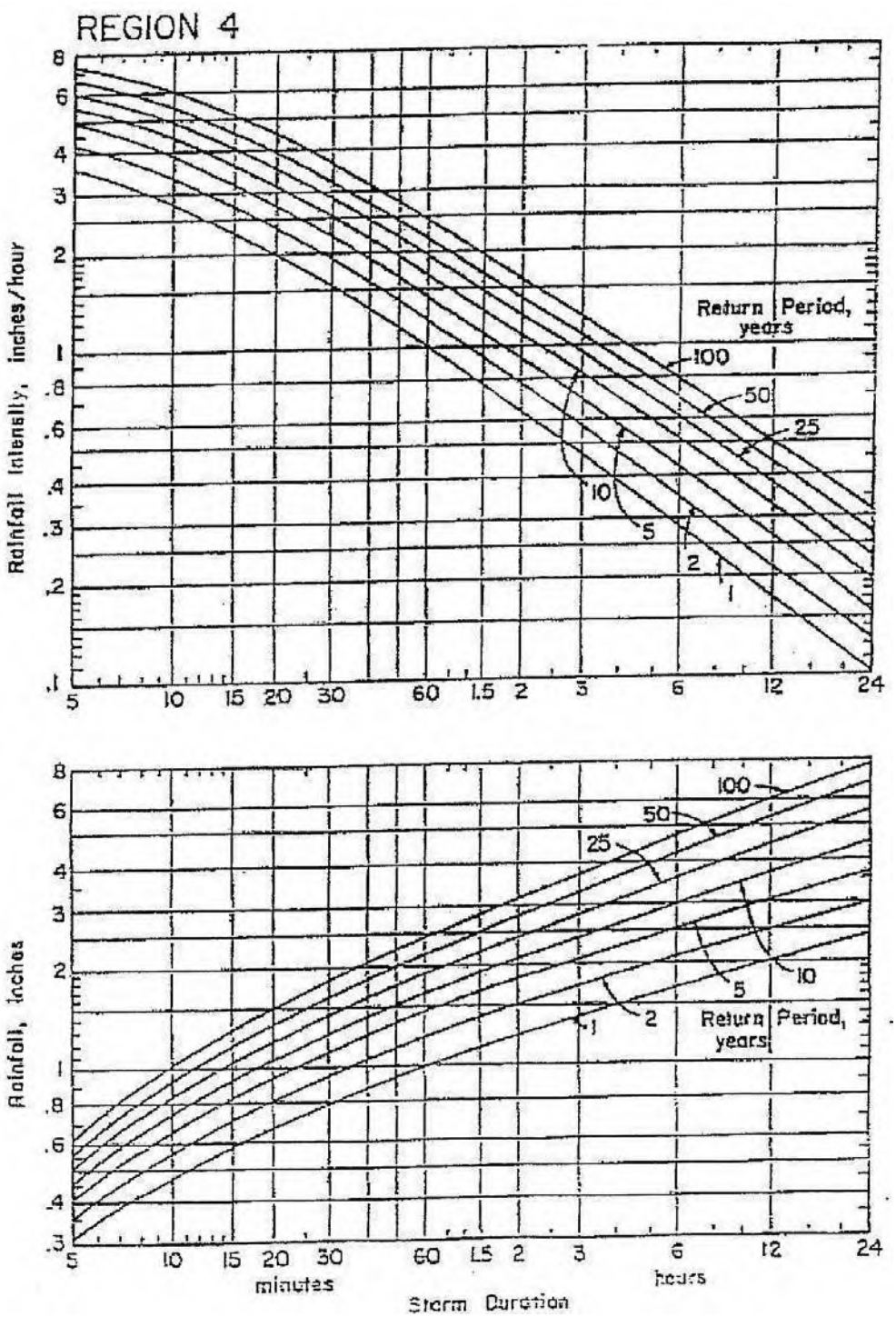
Region 5
Precipitation Depth (in)

Duration	1 Yr	2Yr	5Yr	10 Yr	25 Yr	50 Yr	100 Yr
5 min	0.33	0.38	0.45	0.50	0.56	0.63	0.68
15 min	0.64	0.75	0.90	1.00	1.15	1.35	1.50
1 hr	1.10	1.35	1.61	1.85	2.15	2.60	2.98
2 hrs	1.34	1.66	2.00	2.34	2.70	3.26	3.76
3 hrs	1.50	1.86	2.28	2.67	3.09	3.69	4.29
6 hrs	1.86	2.28	2.82	3.36	3.90	4.62	5.40
12 hrs	2.28	2.76	3.48	4.20	4.92	5.76	6.72
24 hrs	2.64	3.36	4.32	5.28	6.24	7.20	8.40

(26, App. B, cont'd)

FIGURE B-3

PENNDOT STORM INTENSITY-DURATION-FREQUENCY CURVE



(26, App. B, cont'd)

TABLE B-2

Runoff Curve Numbers
(From NRCS (SCS) TR-55)

LAND USE DESCRIPTION		HYDROLOGIC SOIL GROUP				
		Hydrologic Condition	A	B	C	D
Open Space						
	Grass cover < 50%	Poor	68	79	86	89
	Grass cover 50% to 75%	Fair	49	69	79	84
	Grass cover > 75%	Good	39	61	74	80
Meadow			30	58	71	78
Agricultural						
	Pasture, grassland, or range - Continuous forage for grazing	Poor	68	79	86	89
	Pasture, grassland, or range - Continuous forage for grazing	Fair	49	69	79	84
	Pasture, grassland, or range - Continuous forage for grazing	Good	39	61	74	80
	Brush-brush-weed-grass mixture with brush the major element	Poor	48	67	77	83
	Brush-brush-weed-grass mixture with brush the major element	Fair	35	56	70	77
	Brush-brush-weed-grass mixture with brush the major element	Good	30	48	65	73
Fallow	Bare soil	----	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Woods - grass combination (orchard or tree farm)		Poor	57	73	82	86
		Fair	43	65	76	82
		Good	32	58	72	79
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	30	55	70	77
Commercial	(85% Impervious)		89	92	94	95

(26, App. B, cont'd)

LAND USE DESCRIPTION		HYDROLOGIC SOIL GROUP			
	Hydrologic Condition	A	B	C	D
Industrial	(72% Impervious)	81	88	91	93
Institutional	(50% impervious)	71	82	88	90
Residential districts by average lot size:					
	% Impervious				
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Farmstead		59	74	82	86
Smooth Surfaces (Concrete, Asphalt, Gravel or Bare Compacted Soil)		98	98	98	98
Water		98	98	98	98
Mining/Newly Graded Areas (Pervious Areas Only)		77	86	91	94

* Includes Multi-Family Housing unless justified lower density can be provided.

Note: Existing site conditions of bare earth or fallow ground shall be considered as meadow when choosing a CN value.

(26, App. B, cont'd)

TABLE B-3

RATIONAL RUNOFF COEFFICIENTS

		HYDROLOGIC SOIL GROUP			
LAND USE DESCRIPTION		A	B	C	D
Cultivated Land : without conservation treatment		.49	.67	.81	.88
: with conservation treatment		.27	.43	.61	.67
Pasture or range land : poor condition		.38	.63	.78	.84
: good condition		---*	.25	.51	.65
Meadow : good condition		---*	---*	.44	.61
Wood or Forest Land : thin stand, poor cover, no mulch		---*	.34	.59	.70
: good cover		---*	---*	.45	.59
Open Spaces, lawns, parks, golf courses, cemeteries					
Good condition grass cover on 75% or more of the area		---*	.25	.51	.65
Fair condition : grass cover on 50% to 75% of the area		---*	.45	.63	.74
Commercial and business areas (85% impervious)		.84	.90	.93	.96
Industrial districts (72% impervious)		.67	.81	.88	.92
Residential :					
Average lot size	Average % Impervious				
1/8 acre or less	65	.59	.76	.86	.90
1/4 acre	38	.25	.49	.67	.78
1/3 acre	30	---*	.49	.67	.78
1/2 acre	25	---*	.45	.65	.76
1 acre	20	---*	.41	.63	.74
Paved parking lots, roofs, driveways, etc.		.99	.99	.99	.99
Streets and roads :					
Paved with curbs and storm sewers		.99	.99	.99	.99
Gravel		.57	.76	.84	.88
Dirt		.49	.69	.80	.84

Notes : Values are based on S.C.S. definitions and are average values. Values indicated by "---" should be determined by the design engineer based on site characteristics.

Source : New Jersey Department of Transportation, Technical Manual for Stream Encroachment, August, 1984

(26, App. B, cont'd)

TABLE B-4

Roughness Coefficients (Manning's "n") For Overland Flow
(U.S. Army Corps Of Engineers, HEC-1 Users Manual)

Surface Description		n		
Dense Growth		0.4	-	0.5
Pasture		0.3	-	0.4
Lawns		0.2	-	0.3
Bluegrass Sod		0.2	-	0.5
Short Grass Prairie		0.1	-	0.2
Sparse Vegetation		0.05	-	0.13
Bare Clay-Loam Soil	(eroded)	0.01	-	0.03
Concrete/Asphalt	- very shallow depths (less than 1/4 inch)	0.10	-	0.15
	- small depths (1/4 inch to several inches)	0.05	-	0.10

Roughness Coefficients (Manning's "n") For Channel Flow

Reach Description	n
Natural stream, clean, straight, no rifts or pools	0.03
Natural stream, clean, winding, some pools or shoals	0.04
Natural stream, winding, pools, shoals, stony with some weeds	0.05
Natural stream, sluggish deep pools and weeds	0.07
Natural stream or swale, very weedy or with timber under-brush	0.10
Concrete pipe, culvert or channel	0.012
Corrugated metal pipe	0.012-0.027(1)
High Density Polyethylene (HDPE) Pipe	
Corrugated	0.021-0.029(2)
Smooth Lined	0.012-0.020(2)

(1) Depending upon type, coating and diameter

(2) Values recommended by the American Concrete Pipe Association, check Manufacturer's recommended value.

1. PROJECT INFORMATION

Project Name: **Franklin Hill Manor**
Date of Review: **1/24/2024 01:02:39 PM**
Project Category: **Development, Residential, Subdivision containing more than 2 lots and/or 2 single-family units**
Project Area: **6.38 acres**
County(s): **Monroe**
Township/Municipality(s): **SMITHFIELD TOWNSHIP**
ZIP Code:
Quadrangle Name(s): **EAST STROUDSBURG**
Watersheds HUC 8: **Middle Delaware-Mongaup-Brodhead**
Watersheds HUC 12: **Marshalls Creek**
Decimal Degrees: **41.017505, -75.144408**
Degrees Minutes Seconds: **41° 1' 3.166" N, 75° 8' 39.8674" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	**Conservation Measure**	**No Further Review Required, See Agency Comments**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	**Potential Impact**	**MORE INFORMATION REQUIRED, See Agency Response**

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

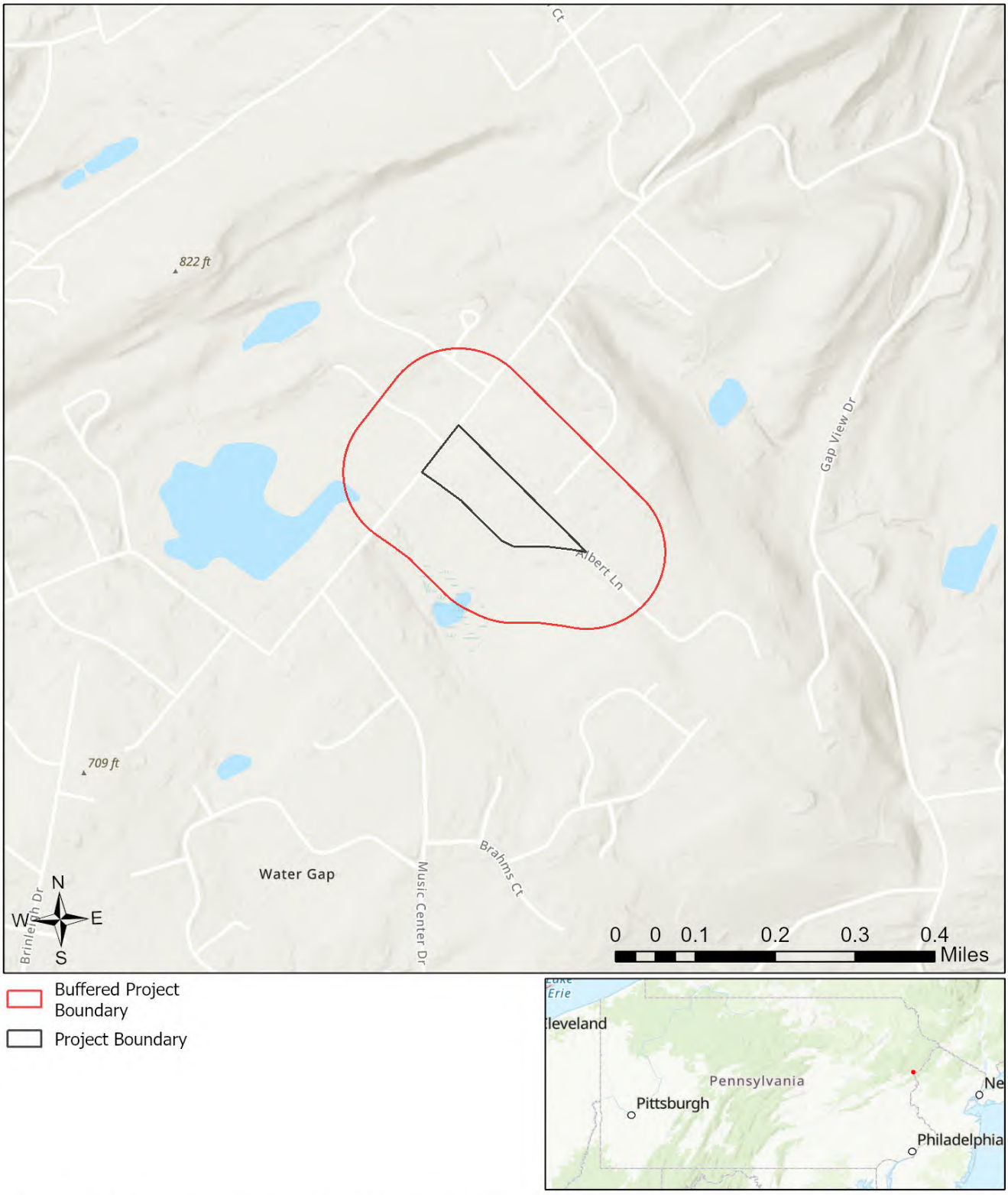
Franklin Hill Manor

Buffered Project Boundary

Project Boundary

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Franklin Hill Manor



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur.
Your answer is: Someone qualified to identify and delineate wetlands (holding a natural resource degree or equivalent work experience) has investigated the site, and determined that wetlands ARE located in or within 300 feet of the project area. (A written report from the wetland specialist, and detailed project maps should document this.)

Q2: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).
Your answer is: The project will affect 1 to 39 acres of forests, woodlots and trees.

Q3: Is tree removal, tree cutting or forest clearing necessary to implement all aspects of this project?
Your answer is: Yes

Q4: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?
Your answer is: No

Q5: How many acres of woodland, forest, forested fencerows and trees will be cut, cleared, removed, disturbed or flooded (inundated) as a result of carrying out all aspects or phases of this project? [Round acreages UP to the nearest acre (e.g., 0.2 acres = 1 acre).]
Your answer is: 1 to 10 acres

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Conservation Measure: Potential impacts to state and federally listed species which are under the jurisdiction of both the Pennsylvania Game Commission (PGC) and the U.S. Fish and Wildlife Service may occur as a result of this project. As a result, the PGC defers comments on potential impacts to federally listed species to the U.S. Fish and Wildlife Service. No further coordination with the Pennsylvania Game Commission is required at this time.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

Information Request: Conduct a Bog Turtle Habitat (Phase 1) Survey in accordance with USFWS Guidelines for Bog Turtle Surveys (April 2020). Evaluate all wetlands within 300 feet of the project area, which includes all areas that will be impacted by earth disturbance or project features (e.g., roads, structures, utility lines, lawns, detention basins, staging areas, etc.). IF THE PHASE 1 SURVEY IS DONE BY A QUALIFIED BOG TURTLE SURVEYOR (see Pennsylvania Qualified Surveyors | FWS.gov): 1) Send positive results to USFWS for concurrence, along with a project description documenting how impacts will be avoided. OR, conduct a Phase 2 survey and send Phase 1 and 2 results to USFWS for concurrence. 2) Send a courtesy copy of negative results to USFWS (label as "Negative Phase 1 Survey Results by Qualified Bog Turtle Surveyor: USFWS Courtesy Copy"). USFWS approval of negative results is not necessary when a qualified surveyor does the survey in full accordance with USFWS guidelines. IF THE PHASE 1 SURVEY IS NOT DONE BY A QUALIFIED SURVEYOR: Send ALL Phase 1 results to USFWS for concurrence, and if potential habitat is found, also send a project description documenting how impacts will be avoided.
As a qualified bog turtle surveyor, I _____ (name) certify that I conducted a Phase 1 survey of all wetlands in and within 300 feet of the project area on _____(date) and determined that bog turtle habitat is absent.
_____ (Signature)

Avoidance Measure: The proposed project is located in the vicinity of northern long-eared bat spring staging/fall swarming habitat. To ensure take is not reasonably certain to occur, do not conduct tree removal from May 15 to August 15. The U.S. Fish and Wildlife Service determined take is not reasonably certain to occur from tree removal if activities are avoided during the pup season (i.e., the range of time when females are close to giving birth (i.e., two weeks prior to birth) and have non-volant (i.e., unable to fly) young). For more information, see the Interim Voluntary Guidance for the Northern Long-Eared Bat: Forest Habitat Modification, available here: https://www.fws.gov/library/collections/interim-habitat-modification-guidance.

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:
_____(Signature)

SPECIAL NOTE: **If you agree to implement the above Avoidance Measure and if applicable, any Information Requests, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required.** If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).
*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:
_X_ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
_X_ A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
_X_ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

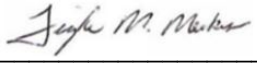
PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Tighe Meckes
Company/Business Name: Keystone Consulting Engineers Inc.
Address: 863 Interchange Road, Suite 101, P.O. Box 639
City, State, Zip: Kresgeville, PA 18333
Phone: (610) 681-5233 Fax: (610) 681-5248
Email: tmeckes@kceinc.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



applicant/project proponent signature

1-24-2024
date

Map Scale: 1:1,960 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Monroe County, Pennsylvania
Survey Area Data: Version 15, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 5, 2014—Oct 15, 2016

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaB	Bath channery silt loam, 3 to 8 percent slopes	4.3	73.5%
MaB	Mardin channery silt loam, 3 to 8 percent slopes	1.5	26.5%
Totals for Area of Interest		**5.8**	**100.0%**

SOIL LIMITATIONS

Map Symbol and Soil Description	HSG	Hydric Soil/ Inclusions	Depth To		Soil Limitations															
			HWT (in)	Bedrock (in)	Cut Banks Cave	Corrosive to Steel/ Concrete	Droughty	Easily Erodible	Flooding	High Water Table	Hydric Soils	Low Strength	Slow Percolation	Piping	Poor Source of Topsoil	Frost Action	Shrink/ Swell	Potential Sinkhole	Ponding	Wetness
BaB - Bath channery silt loam 3-8% slopes																				
Soil Component: Bath	C	No	24-36	26-38	X	C/S	-	-	-	X	X	-	X	-	X	X	-	-	-	-
BeB - Benson-Rock outcrop complex 0-8% slopes																				
Soil Component: Benson	D	No	>80	12-20	X	C	X	-	-	-	-	X	X	X	X	X	-	-	-	-
BeC - Benson-Rock outcrop complex 8-25% slopes																				
Soil Component: Benson	D	No	>80	12-20	X	C	X	-	-	-	-	X	X	X	X	X	-	-	-	-
MaB - Mardin channery silt loam 3-8% slopes																				
Soil Component: Mardin	D	No	13-24	14-26	X	S	X	X	-	X	X	X	X	X	-	X	-	-	-	X

PROJECT NAME: Franklin Hill Manor

CALCULATED BY: TMM DATE: 10/16/2020

CHECKED BY: JLS DATE: 10/16/2020

Soil Limitations and Resolutions

Soil Limitation	Soil Resolutions		
Cut Bank Cave	Consult with engineer	Over-excavate material and replace with suitable material	Construct appropriate rock slope protection or benching as directed by engineer
Corrosive to Concrete/Steel	Use corrosion resistant pipe materials	Apply corrosion resistant products to surface of constructed features	Over excavate and replace corrosive soils
Droughty Soils	Slope lining will be installed on all disturbed or proposed slopes 3H:1V or steeper	Soil amendments will be used to promote growth of vegetation	-
Easily Erodible	Install slope blankets on slopes 3:1 or steeper	Stabilize disturbed areas with seeding and soil supplements	Protect downstream areas from sediment laden sheet flow with compost filter sock or silt fence
High Water Table	Use pump water filter bag to dewater excavation, use trench boxes	Avoid seeps or wet spots	Ensure positive drainage away from excavations
Hydric Soils/Hydric Inclusions	Mark wetland areas with temporary protective fencing and avoid wetlands/wet areas	Ensure positive drainage away from potentially hydric areas	Return stormwater conveyance to sheetflow
Low Strength	Consult with engineer	Compact fill with a vibratory roller delivering 50,000 pounds total dynamic force	Over-excavate to firm material and backfill with suitable on-site excavated material
Slow Percolation	Avoid placing stormwater infiltration basins in these areas	Avoid placing on-lot septic systems in these areas	-
Piping	Install end sections or headwalls on all new pipes	Compact fill with a vibratory roller delivering 50,000 pounds total dynamic force	In lieu of extending existing feature, replace with new pipe and end section/end wall
Poor Source of Topsoil	Strip and stockpile material onsite. Remove stone and coarse fragment	Use for bulk fill and remove excess material from site.	Import suitable topsoil if existing material is inadequate.
Frost Action	Construction shall be limited when there is a risk of freezing to non-obstructive measures	Contractor shall consult project engineer for earthwork which is to occur during periods of	-
Wetness	Ensure that the site has proper drainage	Avoid seeps or wet spots	Ensure positive drainage away from excavations

ER-BWQ-290 Appendix A
Revised 5-87

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ON-LOT DISPOSAL OF SEWAGE

Application No. _____ Municipality Smithfield Township County Monroe

Site Location Franklin Hill Road Subd'n Name Lot# 1 Franklin Hill Manor

☑ Suitable Soil Type Mardin Tax Slope 8-12% Limiting Zone 24"M' Ave. Perc. Rate _____

☐ Unsuitable ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments ☐ Perc. Rate

☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE

SOILS DESCRIPTION:

Soils Description Complete by: VW Consultants LLC / JAV Date: 7/17/20

Inches	Pit# 1	Description of Horizon
Ap	0 TO 10 "	10YR3/4 Gravelly, Silt Loam, Weak, Fine, Granular, Very Friable
Bw1	10 TO 18 "	10YR5/4 Gravelly, Silt Loam, Weak, Fine, Subangular Blocky, Friable
Bw2	18 TO 24 "	10YR5/4 Very Gravelly, Loam, Weak, Medium, Subangular Blocky, Friable Common distinct redox features
C	24 TO 36 "	2.5Y5/4 Very Gravelly, Loam, Structureless, Massive, Firm
R	36+ TO ____ "	Bedrock
	____ TO ____ "	
	____ TO ____ "	

Additional Pits
Pit #2 30"M

Depth to Limiting Zone: **24** Inches

PERCOLATION TEST:

Percolation Test Completed by: _____ Date: _____

Weather Conditions : ☐ Below 40 F ☐ 40 F or Above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ☐ Dry ☐ Frozen

Hole No.	H20 Left *** Yes	H20 Left *** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7: Inches of drop	Reading No. 8: Inches of drop
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30 minute presoak ? Yes, use 30 minute interval; No use 10 minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
	"		"
	"		"
	"		"
	"		"
	"		"
	"		"

TOTAL OF MIN/IN. _____ = _____ Min

TOTAL No. OF HOLES _____ Inch

The information provided is the true and correct results of tests conducted by me, performed under my personal supervision, or confirmed in a manner approved by the Department.

(S) _____

Sewage Enforcement Officer

3850-FM-BCW0290A 4/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

FRANKLIN HILL RD/ ALBERT

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

▲1/2

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp County Monroe

Site Location PARCEL # 16/7F/1/11 Subdivision Name _____

☐ SUITABLE ☐ UNSUITABLE Soil Type _____ Slope 8-10 % Depth to Limiting Zone _____ Ave. Perc. Rate 17.32

☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches			Description of Horizon
_____	TO	_____	
_____	TO	_____	
_____	TO	_____	
_____	TO	_____	
_____	TO	_____	
_____	TO	_____	

PERCOLATION TEST:

Percolation Test Completed by: Karen Koch c/o ClassiQuality Date: September 1, 2020

Weather Conditions: ☐ Below 40°F ■ 40°F or above ■ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ■ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 9:40 Inches of drop	Reading No. 2: 10:10 Inches of drop	Reading No. 3: 10:40 Inches of drop	Reading No. 4: 11:10 Inches of drop	Reading No. 5: 11:40 Inches of drop	Reading No. 6: 12:10 Inches of drop	Reading No. 7 12:40 Inches of drop	Reading No. 8: Inches of drop
1	X		10 (30)	2 1/8"	1 3/4"	1 3/4"	1 5/8"	1 3/4"			
2	X		10 (30)	4 1/8"	3 5/8"	3 1/4"	2 3/4"	2 7/8"	2 7/8"	2 7/8"	
3	X		10 (30)	1 1/2"	1 5/8"	1 1/8"	1 1/4"	1 1/4"	1 1/8"		
4	X		10 (30)	2 5/8"	2 1/8"	2 1/8"	2 1/8"	2 1/8"			
5	X		10 (30)	2 1/8"	1 3/4"	1 7/8"	1 5/8"	1 3/4"			
6	X		10 (30)	1 7/8"	1 1/2"	1 5/8"	1 1/2"	1 5/8"			

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole	
1	1 3/4 "	17.1	20	"
2	2 7/8 "	10.4		"
3	1 1/8 "	26.7		"
4	2 1/8 "	14.1		"
5	1 3/4 "	17.1		"
6	1 5/8 "	18.5		" Min Inch
TOTAL OF MIN / IN →		103.9	= 17.32	
TOTAL NO. OF HOLES →		6		

PERC BETWEEN PIT #1 & #2 CONVERTED TO IN/HR = 3.5 IN/HR

Presoak 8:10 - 9:10

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

3800-FM-WSWM0290A Rev. 10/2003

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality SMITHFIELD TOWNSHIP County MONROE

Site Location LOT 1 - TEST PIT 15 Subdivision Name FRANKLIN HILL MANOR

■ SUITABLE Soil Type BaB Slope 8 % Depth to Limiting Zone 28" Ave. Perc. Rate _____

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: JONATHAN SHUPP Date: 6-21-2021

Inches			Description of Horizon
0	TO	8	10YR 3/4 GRAVELLY, SILT LOAM, WEAK, FINE, GRANULAR, VERY FRIABLE
8	TO	16	10YR 5/4 GRAVELLY, SILT LOAM, WEAK, MEDIUM, SUBANGULAR BLOCKY, FRIABLE
16	TO	28	10YR 4/6 VERY GRAVELLY, SILT LOAM, STRUCTURELESS, MASSIVE, FRIABLE
28+	TO		BEDROCK
	TO		
	TO		

PERCOLATION TEST:

Percolation Test Completed by: J.L.S. Date: 6-21-2021

Weather Conditions: ☐ Below 40°F ■ 40°F or above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ■ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
TP#15	X		10 / (30)	1-1/8	1-1/8	1	1				
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	HC RATE ~~Perc. Rate~~ as Minutes/Inch	Depth of Hole
TP#15	1 "	30	0 "
	"		"
	"		"
	"		"
	"		"
	"		" Min / Inch
TOTAL OF MIN / IN →		30 =	

Double-ring infiltrometer test
30 min/in = 2 in/hr

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by DEP.

(S)_____
Sewage Enforcement Officer

3850-FM-BCW0290A 4/2016

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

AK101 (RESERVE)

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp. County Monroe

Site Location Albert Lane / Franklin Hill Rd. Subdivision Name TBD

☐ SUITABLE ☐ UNSUITABLE Soil Type _____ Slope 8-10 % Depth to Limiting Zone 25" BR Ave. Perc. Rate 79.0

☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	

PERCOLATION TEST:

Percolation Test Completed by: Karen Leech c/o Classic Quality Homes Date: October 18, 2023

Weather Conditions: ☐ Below 40°F ■ 40°F or above ■ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ■ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 1005 Inches of drop	Reading No. 2: 1035 Inches of drop	Reading No. 3: 1105 Inches of drop	Reading No. 4: 1135 Inches of drop	Reading No. 5: 1205 Inches of drop	Reading No. 6: 1235 Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
1	X		10 (30)	3/8"	1/4"	1/4"	1/4"				
2	X		10 (30)	5/8"	5/8"	1/2"	1/2"				
3	X		10 (30)	3/8"	3/8"	3/8"	1/4"				
4	X		10 (30)	3/8"	3/8"	1/4"	1/4"				
5	X		10 (30)	1 1/2"	1 1/8"	1 1/8"	1"	1"			
6	X		10 (30)	1 5/8"	1 1/2"	1 1/8"	1 1/4"	1 1/4"	1 1/4"		

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
1	1/4 "	120	17 "
2	1/2" "	60	"
3	1/4 "	120	"
4	1/4 "	120	"
5	1 "	30	"
6	1 1/4 "	24	" Min / Inch
TOTAL OF MIN / IN →		474	= 79.0
TOTAL NO. OF HOLES →		6	(2.60)

Pre Soak 835 - 935

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

18 x 73 = 1314 sq ft.

3850-FM-BCW0290A 4/2016

DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

AK102 (PRIMARY)

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Township County Monroe

Site Location Albert Lane / Franklin Hill Rd. Subdivision Name TBD.

☐ SUITABLE Soil Type _____ Slope 10 % Depth to Limiting Zone 23 M Ave. Perc. Rate 39.92

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	

PERCOLATION TEST:

Percolation Test Completed by: Kaverbeach & Classic Quality Homes Date: November 7, 2023

Weather Conditions: ☐ Below 40°F ■ 40°F or above ☐ Dry ■ Rain, Sleet, Snow (last 24 hours) (Showers)

Soil Conditions: ■ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 9:05 Inches of drop	Reading No. 2: 9:35 Inches of drop	Reading No. 3: 10:05 Inches of drop	Reading No. 4: 10:35 Inches of drop	Reading No. 5: 11:05 Inches of drop	Reading No. 6: 11:35 Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
1	X		10/(30)	1 3/4"	1 3/4"	1 5/8"	1 5/8"				
2	X		10/(30)	2 3/8"	2 1/8	1 3/4"	1 3/4"	1 1/2"	1 1/2"		
3	X		10/(30)	1 3/4"	1 1/8"	1 1/8"	1 1/8"	1 1/8"			
4	X		10/(30)	1 3/8"	1"	1"	7/8"	7/8"			
5	X		10/(30)	5/8"	1/2"	1/2"	1/2"				
6	X		10/(30)	1/2"	1/2"	3/8"	3/8"				

***Water remaining in the hole at the end of the final 30-minute presoak? (Yes) use 30-minute interval; No, use 10-minute interval. ALL

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
1	1 5/8 "	18.5	20 "
2	1 1/2 "	20	"
3	1 1/8 "	26.7	"
4	7/8 "	34.3	"
5	1/2 "	60	"
6	3/8 "	80	" Min / Inch
TOTAL OF MIN / IN →		239.5	= 39.92 (1.78)
TOTAL NO. OF HOLES →		6	

PreSoak 7:35 - 8:35

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

(1.78)(500) = 880 15x60

3850-FM-BCW0290A 4/2016

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

AK103 (23")

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp County Monroe

Site Location Albert Lane / Franklin Hill Road Subdivision Name TBD

☐ SUITABLE Soil Type _____ Slope 8-10 % Depth to Limiting Zone 23" BR Ave. Perc. Rate 43.67

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	confirming pit K104 20"

PERCOLATION TEST:

Percolation Test Completed by: Karen Leech of Classic Quality Homes Date: October 19, 2023

Weather Conditions: ☐ Below 40°F ■ 40°F or above ■ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ■ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 1050 Inches of drop	Reading No. 2: 1120 Inches of drop	Reading No. 3: 1150 Inches of drop	Reading No. 4: 1220 Inches of drop	Reading No. 5: 1250 Inches of drop	Reading No. 6: 120 Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
1	X		10/(30)	1 1/4"	1 1/4"	1 1/8"	1 1/8"				
2	X		10/(30)	1 3/8"	1 1/4"	1 1/4"	1 1/8"				
3	X		10/(30)	1 1/2"	1 1/4"	1"	1"	7/8"	7/8"		
4	X		10/(30)	5/8"	1/2"	3/8"	3/8"				
5	X		10/(30)	1 1/8"	1 1/8"	7/8"	7/8"				
6	X		10/(30)	5/8"	1/2"	1/2"	1/2"				

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use (30)-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
1	1 1/8 "	26.7	15 "
2	1 1/8 "	26.7	"
3	7/8 "	34.3	"
4	3/8 "	80	"
5	7/8 "	34.3	"
6	1/2 "	60	" Min / Inch
TOTAL OF MIN / IN →		262	= 43.67 (1.86)
TOTAL NO. OF HOLES →		6	

Pre Soak 920 - 1020

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

20-502-1000 Sub1

ER-BWQ-290 Appendix A
Revised 5-87

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ON-LOT DISPOSAL OF SEWAGE

Application No. _____ Municipality Smithfield Township County Monroe

Site Location Franklin Hill Road Subd'n Name Lot# 2 Franklin Hill Manor

☑ Suitable Soil Type Lordstown] Slope 8-12% Limiting Zone 25"R Ave. Perc. Rate _____

☐ Unsuitable ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments ☐ Perc. Rate

☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE

SOILS DESCRIPTION:

Soils Description Complete by: VW Consultants LLC / JAV Date: 7/17/20

	Inches	Pit# 5 Description of Horizon	Additional Pits
Ap	0 TO 10 "	10YR3/4 Gravelly, Silt Loam, Weak, Fine, Granular, Very Friable	Pit #4 25"R
Bw	10 TO 18 "	10YR5/4 Gravelly, Silt Loam, Weak, Medium, Subangular Blocky, Friable	
C	18 TO 25 "	10YR4/6 Very Gravelly, Silt Loam, Structureless, Massive, Friable	
R	25+ TO ___ "	Bedrock	
	___ TO ___ "		
	___ TO ___ "		Depth to Limiting Zone: 25 Inches
	___ TO ___ "		

PERCOLATION TEST:

Percolation Test Completed by: _____ Date: _____

Weather Conditions : ☐ Below 40 F ☐ 40 F or Above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ☐ Dry ☐ Frozen

Hole No.	H20 Left *** Yes	H20 Left *** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7: Inches of drop	Reading No. 8: Inches of drop
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30 minute presoak ? Yes, use 30 minute interval; No use 10 minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
	"		"
	"		"
	"		"
	"		"
	"		"
	"		"
	"		"

TOTAL OF MIN/IN. _____ = _____ Min

TOTAL No. OF HOLES _____ Inch

The information provided is the true and correct results of tests conducted by me, performed under my personal supervision, or confirmed in a manner approved by the Department.

(S) _____

Sewage Enforcement Officer

3850-FM-BCW0290A 4/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

A4

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

FRANKLIN HILL / ALBERT

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp. County Monroe

Site Location PARCEL # 16/7F/1/11 Subdivision Name Franklin Hill Manor (TBD)

☐ SUITABLE Soil Type _____ Slope 9 % Depth to Limiting Zone 25" Ave. Perc. Rate 21.18

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	

PERCOLATION TEST:

Percolation Test Completed by: Kerenhoech c/o Classic Quality Date: September 2, 2020

Weather Conditions: ☐ Below 40°F ■ 40°F or above ☐ Dry ■ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ■ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 940 Inches of drop	Reading No. 2: 1010 Inches of drop	Reading No. 3: 1040 Inches of drop	Reading No. 4: 1110 Inches of drop	Reading No. 5: 1140 Inches of drop	Reading No. 6: 1210 Inches of drop	Reading No. 7 1240 Inches of drop	Reading No. 8: Inches of drop
1	X		10/(30)	2 7/8"	2 3/8"	2 1/4"	2 1/8"	2 1/8"			
2	X		10/(30)	1 3/4"	1 3/4"	1 3/8"	1 3/8"	1 3/8"	1 1/8"		
3	X		10/(30)	1 1/2"	1 1/4"	1 1/8"	1 1/4"	1 1/8"			
4	X		10/(30)	2 1/4"	2 1/8"	1 5/8"	1 5/8"	1 3/8"	1 3/8"		
5	X		10/(30)	2"	1 3/4"	1 3/8"	1 1/2"	1 3/8"	1 3/8"		
6	X		10/(30)	2 5/8"	2 5/8"	2 1/4"	1 7/8"	1 3/4"	1 7/8"	1 7/8"	

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use (30)-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
1	2 1/8 "	14.1	20 "
2	1 1/8 "	26.7	"
3	1 1/8 "	26.7	"
4	1 3/8 "	21.8	"
5	1 3/8 "	21.8	"
6	1 7/8 "	16	√ " Min / Inch
TOTAL OF MIN / IN →		127.1 =	21.18
TOTAL NO. OF HOLES →		6	

Presoak 8:10 - 9:10

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S)_____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

ER-BWQ-290 Appendix A
Revised 5-87

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ON-LOT DISPOSAL OF SEWAGE

Application No. _____ Municipality Smithfield Township County Monroe

Site Location Franklin Hill Road Subd'n Name Lot# 2 Franklin Hill Manor

☑ Suitable Soil Type Lordstown 1 Slope 8-12% Limiting Zone 25"M' Ave. Perc. Rate _____

☐ Unsuitable ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments ☐ Perc. Rate

☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE

SOILS DESCRIPTION:

Soils Description Complete by: VW Consultants LLC / JAV Date: 7/17/20

	Inches	Pit# 6 Description of Horizon
Ap	0 TO 10 "	10YR3/4 Gravelly, Silt Loam, Weak, Fine, Granular, Very Friable
Bw1	10 TO 18 "	10YR5/4 Gravelly, Silt Loam, Weak, Fine, Subangular Blocky, Friable
Bw2	18 TO 25 "	10YR5/4 Very Gravelly, Loam, Weak, Medium, Subangular Blocky, Friable Common distinct redox features
C	25 TO 30 "	2.5Y5/4 Very Gravelly, Loam, Structureless, Massive, Firm
R	30+ TO ___ "	Bedrock
	___ TO ___ "	
	___ TO ___ "	

Additional Pits
Pit #5 25"R

Depth to Limiting Zone: 25 Inches

PERCOLATION TEST:

Percolation Test Completed by: _____ Date: _____

Weather Conditions : ☐ Below 40 F ☐ 40 F or Above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ☐ Dry ☐ Frozen

Hole No.	H20 Left *** Yes	H20 Left *** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7: Inches of drop	Reading No. 8: Inches of drop
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30 minute presoak ? Yes, use 30 minute interval; No use 10 minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
	"		"
	"		"
	"		"
	"		"
	"		"
	"		"
	"		"

TOTAL OF MIN/IN. _____ = _____ Min / Inch

TOTAL No. OF HOLES

The information provided is the true and correct results of tests conducted by me, performed under my personal supervision, or confirmed in a manner approved by the Department.

(S) _____

Sewage Enforcement Officer

3850-FM-BCW0290A 4/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

A 5

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

FRANKLIN HILL / ALBERT

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp. County Monroe

Site Location PARCEL #16/7F/1/11 Subdivision Name Franklin Hill Manor (TBD)

☐ SUITABLE Soil Type _____ Slope 7-8 % Depth to Limiting Zone 25" Ave. Perc. Rate 18.3

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	
_____	TO _____	

PERCOLATION TEST:

Percolation Test Completed by: Kimberly C/o Classic Quality Date: September 2, 2020

Weather Conditions: ☐ Below 40°F ☒ 40°F or above ☐ Dry ☒ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☒ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: 945 Inches of drop	Reading No. 2: 1015 Inches of drop	Reading No. 3: 1045 Inches of drop	Reading No. 4: 1115 Inches of drop	Reading No. 5: 1145 Inches of drop	Reading No. 6: 1215 Inches of drop	Reading No. 7 1245 Inches of drop	Reading No. 8: 115 Inches of drop
1	X		10 (30)	2 3/4"	1 7/8"	2 1/8"	2"	1 3/4"	1 3/4"	1 3/4"	
2	X		10 (30)	3"	2 5/8"	2 1/4"	2"	1 3/4"	2"	1 7/8"	
3	X		10 (30)	2 5/8"	2 1/4"	2 1/8"	2"	1 7/8"	1 7/8"		
4	X		10 (30)	2 1/4"	1 3/8"	1 1/2"	1 3/8"	1 3/8"			
5	X		10 (30)	2 1/4"	2 3/8"	2 1/8"	1 3/4"	1 1/2"	1 3/8"	1 3/8"	1 3/8"
6	X		10 (30)	1 1/2"	1 1/2"	1 5/8"	1 3/4"				

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole	
1	1 3/4 "	17.1	20	"
2	1 7/8 "	16		"
3	1 7/8 "	16		"
4	1 3/8 "	21.8		"
5	1 3/8 "	21.8		"
6	1 3/4 "	17.1	↓	" Min / Inch
TOTAL OF MIN / IN →		109.8	= 18.3	
TOTAL NO. OF HOLES →		6		

Pre Soak 8:15 - 9:15

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

ER-BWQ-290 Appendix A
Revised 5-87

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ON-LOT DISPOSAL OF SEWAGE

Application No. _____ Municipality Smithfield Township County Monroe

Site Location Franklin Hill Road Subd'n Name Lot# 3 Franklin Hill Manor

☑ Suitable Soil Type Mardin Tax Slope 3-8% Limiting Zone 21"M Ave. Perc. Rate _____

☐ Unsuitable ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments ☐ Perc. Rate

☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE

SOILS DESCRIPTION:

Soils Description Complete by: VW Consultants LLC / JAV Date: 7/17/20

Inches	Pit# 7 Description of Horizon
Ap 0 TO 10 "	10YR3/4 Gravelly, Silt Loam, Weak, Fine, Granular, Very Friable
Bw1 10 TO 18 "	10YR4/4 Gravelly, Silt Loam, Weak, Fine, Subangular Blocky, Friable
Bw2 18 TO 21 "	10YR5/4 Very Gravelly, Loam, Weak, Medium, Subangular Blocky, Friable Common distinct redox features
C 21 TO 27 "	2.5Y5/4 Very Gravelly, Loam, Structureless, Massive, Firm
R 27+ TO ___ "	Bedrock
___ TO ___ "	
___ TO ___ "	

Additional Pits
Pit #8 21"M

Depth to Limiting Zone:
21 Inches

PERCOLATION TEST:

Percolation Test Completed by: _____ Date: _____

Weather Conditions : ☐ Below 40 F ☐ 40 F or Above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ☐ Dry ☐ Frozen

Hole No.	H20 Left *** Yes	H20 Left *** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7: Inches of drop	Reading No. 8: Inches of drop
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30 minute presoak ? Yes, use 30 minute interval; No use 10 minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "
_____	_____ "	_____	_____ "

TOTAL OF MIN/IN. _____ = _____ Min

TOTAL No. OF HOLES _____ Inch

The information provided is the true and correct results of tests conducted by me, performed under my personal supervision, or confirmed in a manner approved by the Department.

(S) _____

Sewage Enforcement Officer

3850-FM-BCW0290A 4/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

FRANKLIN HILL ALBERT

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

▲ 7 & 8

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality Smithfield Twsp. County Monroe

Site Location PARCEL #16/1F/1/11 Subdivision Name Franklin Hill Manor (TBD)

☐ SUITABLE Soil Type _____ Slope 8 % Depth to Limiting Zone 21" Ave. Perc. Rate 29.60

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: _____ Date: _____

Inches		Description of Horizon
_____	TO _____	_____
_____	TO _____	_____
_____	TO _____	_____
_____	TO _____	_____
_____	TO _____	_____
_____	TO _____	_____

PERCOLATION TEST:

Percolation Test Completed by: Kratzer Creek c/o Classic Quality Date: September 8, 2020

Weather Conditions: ☐ Below 40°F ■ 40°F or above ■ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ■ Wet ☐ Dry ☐ Frozen

				9:50	10:20	10:50	11:20	11:50	12:20		
Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
1	X		10 (30)	2 1/8"	1 3/4"	1 1/2"	1 5/8"	1 3/8"	1 3/8"		
2	X		10 (30)	2 1/8"	1 5/8"	1 1/2"	1 5/8"	1 3/8"			
3	X		10 (30)	1 3/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"			
4	X		10 (30)	2 1/8"	1 3/4"	1 1/2"	1 5/8"	1 1/2"			
5	X		10 (30)	1 3/8"	1"	1"	1"	1"			
6	X		10 (30)	5/8"	1/2"	1/2"	1/2"				

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use (30) minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole
1	1 3/8 "	21.8	20 "
2	1 3/8 "	21.8	"
3	1 1/4 "	24	"
4	1 1/2 "	20	"
5	1 "	30	"
6	1/2 "	60	" Min / Inch
TOTAL OF MIN / IN →		177.6 =	29.6
TOTAL NO. OF HOLES →		6	

Pre Soak 8:20 - 9:20

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S) _____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

3800-FM-WSWM0290A Rev. 10/2003

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality SMITHFIELD TOWNSHIP County MONROE

Site Location TEST PIT 19 Subdivision Name FRANKLIN HILL MANOR

■ SUITABLE Soil Type BaB Slope 8 % Depth to Limiting Zone 24" Ave. Perc. Rate _____

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodplain ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: C.Q.H. - KAREN LEECH Date: 11-29-2023

Inches			Description of Horizon
0	TO	8	10YR 3/5 L VERY FRIABLE/LOOSE GRANULAR CF<10%
8	TO	18	10YR 4/5 SIL VERY WEAK SBK CF<10%
18	TO	24	10YR 5/5 SIL WEAK TO MODERATE SBK CF<20% STONES
24	TO		BEDROCK
	TO		
	TO		

PERCOLATION TEST:

Percolation Test Completed by: C.Q.H. - KAREN LEECH Date: 11-29-2023

Weather Conditions: ☐ Below 40°F ■ 40°F or above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ■ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
TP#19	X		10 / (30)	3	2-3/4	2-3/4	2-1/2	2-1/2			
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

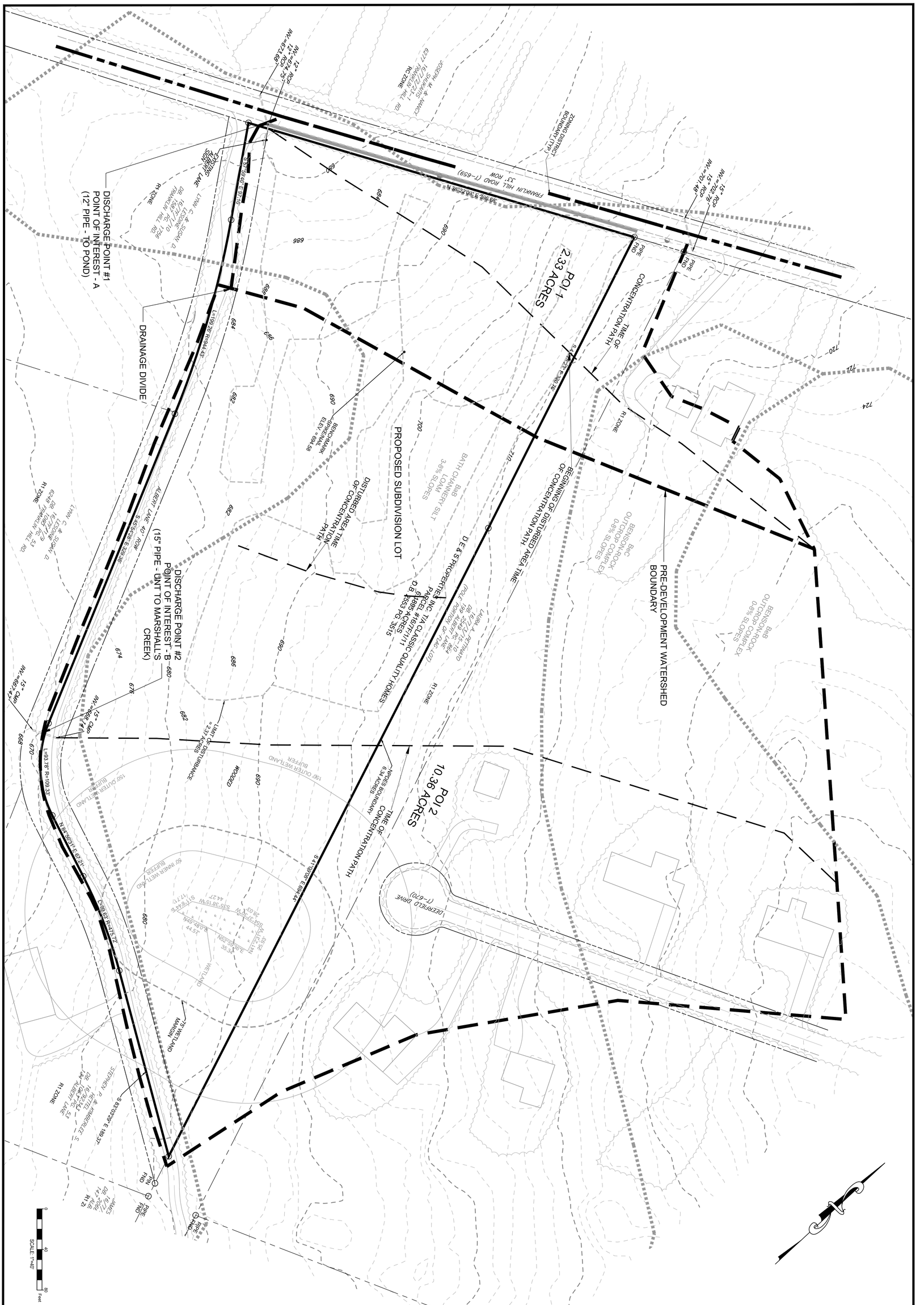
Calculation of Average Percolation Rate:

Hole No.	Drop during final period	HC RATE ~~Perc. Rate~~ as Minutes/Inch	Depth of Hole	
TP#19	2-1/2 "	12	0	"
	"			"
	"			"
	"			"
	"			"
	"			" Min / Inch
TOTAL OF MIN / IN →		12	=	

Double-ring infiltrometer test
30 min/in = 5 in/hr

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by DEP.

(S)_____
Sewage Enforcement Officer



DESIGNED BY:	TMM
DRAWN BY:	TMM
CHECKED BY:	ESS
DATE:	DEC 1, 2023
SCALE:	AS NOTED
JOB NUMBER:	CN-23-041
SHEET:	1 OF 1

REVISIONS	
BY	DATE
TMM	2-14-2024
TMM	3-28-2024

PRE-DEVELOPMENT DRAINAGE AREA MAP
FRANKLIN HILL MANOR

PRELIMINARY/FINAL MINOR SUBDIVISION OF LANDS OF D E & S PROPERTIES LLC
2621 ROUTE 940 POCONO SUMMIT, PA 18346

SMITHFIELD TOWNSHIP
MONROE COUNTY, PENNSYLVANIA

KEYSTONE CONSULTING ENGINEERS

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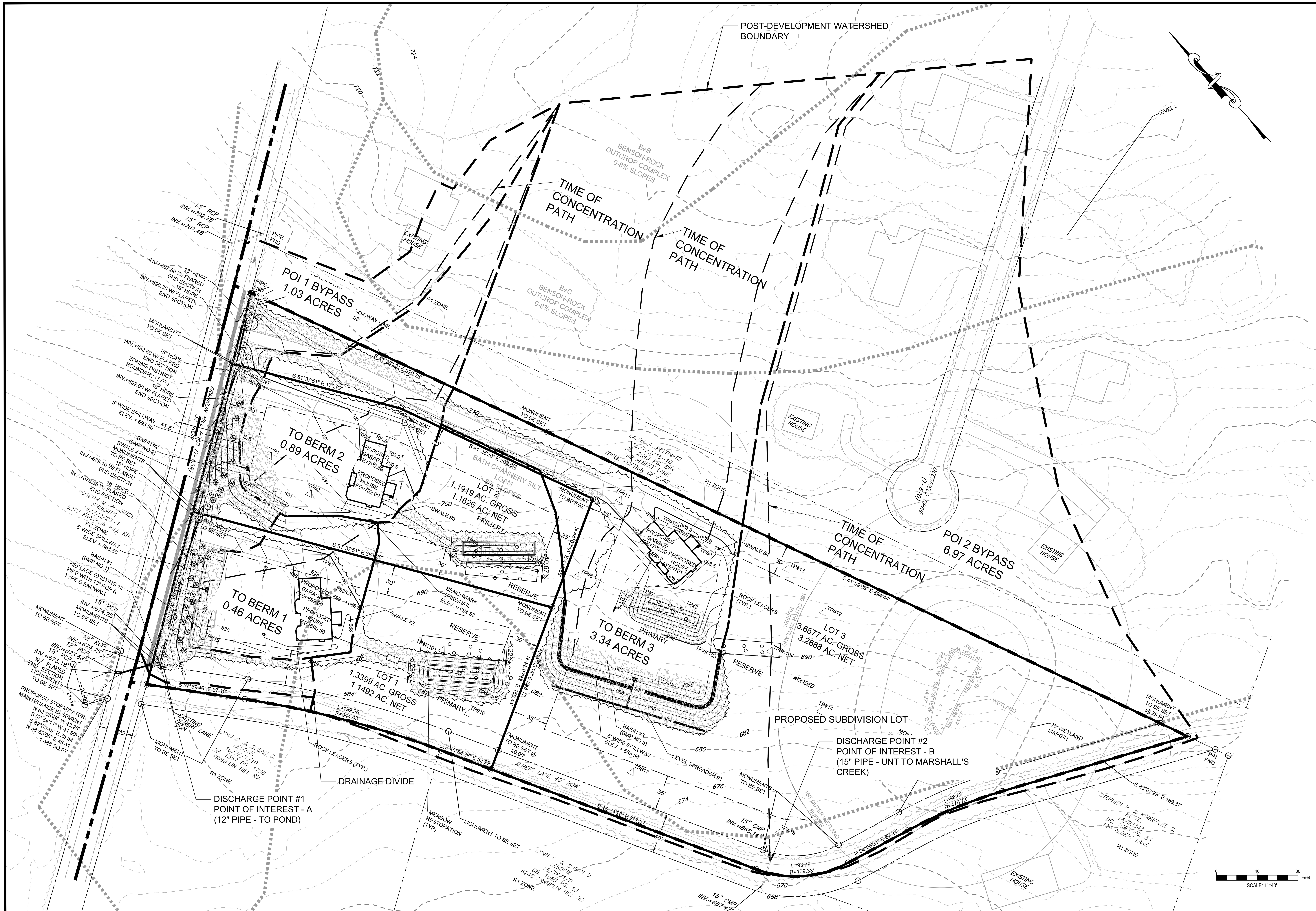
863 INTERCHANGE ROAD, SUITE 101, P.O. BOX 639
KRESGEVILLE, PA 18333 PH: (610) 681-5233 FAX: (610) 681-5248
East Office: Bethlehem; West Office: Allentown
www.KeystoneConsultingEngineers.com



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KCE KEYSTONE CONSULTING ENGINEERS

POST-DEVELOPMENT DRAINAGE AREA MAP
FRANKLIN HILL MANOR

PRELIMINARY/FINAL MINOR SUBDIVISION OF LANDS OF D E & S PROPERTIES LLC
2621 ROUTE 940 POCONO SUMMIT, PA 18346

SMITHFIELD TOWNSHIP
MONROE COUNTY, PENNSYLVANIA

REVISIONS

BY	DATE
TMM	2-14-2024
TMM	3-28-2024

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POST-DEVELOPMENT WATERSHED BOUNDARY

TIME OF CONCENTRATION PATH

TIME OF CONCENTRATION PATH

POI 1 BYPASS
1.03 ACRES

POST TO SWALE 3
0.08 ACRES

POST TO SWALE 4
0.81 ACRES

TIME OF CONCENTRATION PATH

POI 2 BYPASS
6.97 ACRES

TO BERM 2
0.89 ACRES

LOT 2
1.1919 AC. GROSS
1.1626 AC. NET

TO BERM 1
0.46 ACRES

POST TO SWALE 2
0.08 ACRES

LOT 1
1.3399 AC. GROSS
1.1492 AC. NET

TO BERM 3
3.34 ACRES

LOT 3
3.6577 AC. GROSS
3.2888 AC. NET

PROPOSED SUBDIVISION LOT

DISCHARGE POINT #1
POINT OF INTEREST - A
(12" PIPE - TO POND)

DRAINAGE DIVIDE

DISCHARGE POINT #2
POINT OF INTEREST - B
(15" PIPE - UNT TO MARSHALL'S CREEK)

BeB BENSON-ROCK OUTCROP COMPLEX 0-8% SLOPES

BeC BENSON-ROCK OUTCROP COMPLEX 0-8% SLOPES

BATH CHANNERY SILT LOAM 3-8% SLOPES

R1 ZONE

ALBERT LANE 40' ROW

EXISTING ALBERT LANE

LEVEL SPREADER #1

SWALE #1

SWALE #2

SWALE #3

BASIN #1 (BMP NO.1)

BASIN #2 (BMP NO.2)

BASIN #3 (BMP NO.3)

RESERVE

WOODED

WETLAND

75' WETLAND MARGIN

150' OUTER BUFFER WETLAND

MEADOW RESTORATION (TYP)

ROOF LEADERS (TYP.)

0 40 80 Feet
SCALE: 1"=40'

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KEYSTONE CONSULTING ENGINEERS

POST-DEVELOPMENT DRAINAGE AREA MAP (SWALES) FRANKLIN HILL MANOR

PRELIMINARY/FINAL MINOR SUBDIVISION OF LANDS OF D E & S PROPERTIES LLC
2621 ROUTE 940 POCONO SUMMIT, PA 18346

SMITHFIELD TOWNSHIP
MONROE COUNTY, PENNSYLVANIA

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