LAKE COUNTRY ENGINEERING, INC.
Rob Davy, P.E.

Storm Water Management Report
OAKRIDGE HEIGHTS SOUTH
Village of Sussex, Waukesha County, WI

September 25, 2026

Project No. 25-3548

This report will show that by adding 63 of the 88-lot residential development, to the south portion an 80.4-acre parcel with 15.7 acres of secondary environmental corridor, tree lines and cropped fields, and 39.45 acres of offsite flow, the stormwater BMP's shown will be adequate to meet the Village stormwater Ordinance. (Note: stormwater capacity from the development to the north for water quality will be negotiated at a later date.)

The objectives of this report are to show the proposed improvements will not impact the original storm water flows leaving this area

- To make sure the post-development flow rates are the same or below the existing flow rates
- Reduce the total suspended solids in the runoff by 80%
- Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 75% of the pre-development infiltration volume, based on an average annual rainfall.
  (Based on Medium Density Residential)

The parameters used to evaluate the site are:

- The soils are hydrologic group (Hm, Ho, Lm, & Rk "D") and (Th, & Mg "C")
- Rainfall events for 1-yr 24-hr storm = 2.38, 2-yr 24-hr storm = 2.69", 10-yr 24-hr storm = 3.83", and the 100-yr 24-hr storm = 6.6.32" of rain
- Storm distributions are Atlas 14 type MS3
- Hydrology calculations use Hydraflow TR-55 modeling
- Tss & infiltration modeling using WinSLAMM v 10.5.0
  MKE 69 RAN file and winter months 12/06 to 3/28
- 0.19 ac of impervious surface per lot or 8,276 sf. (3,934 roof, 2,342 sidewalks & patios, and 2,000 sf of drives)
- Cn, impervious surface = 98, woods D = 77, crop C = 78, crop D = 83, 1 Ac.
  Residential C = 79, 1 Ac. Residential D = 84, ½ Ac. Residential C = 80, and
  ½ Ac. Residential D = 85.

This portion of the site is divided into 2 main water sheds, 1) Richmond Rd, west & 2) SE to a 12x4 box culvert under Richmond Rd. just to the west of our property.

<u>Southwest to Richmond road</u>

The first area looked at will be to the SW, EX area A for the existing flow rates, and Offsite area South & Pr Area 1 for the proposed flow rates. This flow ultimately flows to a 12x4 box culvert under Richmond Rd. just to the west of our property.

The following table is the comparison of the existing flows, the flows entering the BMP, the flows leaving the BMP into the Richmond Rd. ROW

Storm event	1-year	2-year	10-year	100- year
Existing	2.86 cfs	3.57 cfs	6.35 cfs	12.69 cfs
PROP IN	11.58 cfs	14.41 cfs	25.44 cfs	50.61 cfs
PROP OUT	1.06 cfs	1.14 cfs	5.51 cfs	11.34 cfs

Note the capacity of the 12x4 box culvert is 98.35 cfs

The second area looked at will be to the SE, EX area F for the existing flow rates, and Pr Area 3A routed through a wet pond, then added to Pr Area 3B and routed through a Bio-filter BMP and into a ditch in Richmond flowing East for the proposed flow rates.

The flows entering and exiting the wet pond are as follows

Storm event	1-year	2-year	10-year	100- year
Entering	3.91 cfs	4.90 cfs	8.75 cfs	17.61 cfs
Exiting	0.90 cfs	1.04 cfs	1.44 cfs	9.74 cfs

These flows are then added to the flows from Pr. Area 3B and routed through the Bio-Filter Bmp and released to the Richmond Rd ROW.

The following table is the comparison of the existing flows, the flows entering the BMP, the flows leaving the BMP into the Richmond Rd. ROW

Storm event	1-year	2-year	10-year	100- year
Existing	6.90 cfs	8.69 cfs	15.70 cfs	31.93 cfs
PROP IN	6.44 cfs	7.95 cfs	12.57 cfs	25.84 cfs
PROP OUT	4.77 cfs	6.55 cfs	8.07 cfs	23.94 cfs

The third area looked at will be to the wetlands in the middle of this area flowing east and south to a box culvert under Richmond Rd. The first sub-area of this middle area is Offsite area South, Mid, and North along with EX area B for the existing flow rates, and offsite area Mid and North along with Pr Area 2 routed through the wet pond, the second sub-area is Ex area D for the existing flows, and Pr Area5 draining into Bio-Filter N. Mid for the proposed flows. And the third sub area is Ex area E for the existing flow rates and Proposed area 4 for the proposed flow rates.

The flows from the first sub area are as follows

Storm event	1-year	2-year	10-year	100- year
Existing	46.67 cfs	59.41 cfs	109.99 cfs	230.56 cfs
PROP IN	40.90 cfs	51.67 cfs	94.41 cfs	195.32 cfs
PROP OUT	7.37 cfs	10.51 cfs	53.13 cfs	162.56 cfs

The flows from the second sub area are as follows

Storm event	1-year	2-year	10-year	100- year
Existing	5.79 cfs	7.23 cfs	12.84 cfs	25.67 cfs
PROP IN	9.86 cfs	12.26 cfs	21.56 cfs	42.76 cfs
PROP OUT	1.23 cfs	2.14 cfs	10.34 cfs	13.45 cfs

The flows from the third sub area are as follows

Storm event	1-year	2-year	10-year	100- year
Existing	5.59 cfs	7.03 cfs	12.72 cfs	25.85 cfs
Proposed	5.28 cfs	6.49 cfs	11.13 cfs	21.56 cfs

The total flows in the middle wetland are as follows

Storm event	1-year	2-year	10-year	100- year
Existing	54.26 cfs	69.11 cfs	128.11 cfs	266.78 cfs
Proposed	9.04 cfs	12.46 cfs	57.97 cfs	181.18 cfs

Post-development infiltration >= to 75% of the pre-development infiltration on an average annual basis for the south water shed

Pre-development calculations
Total of 80.23 ac. = 3,494,819 s.f. x 29.02 total inched of rain / 12 in. = 8,451,636 cf that fall on this portion of the property, with 1,111,142 cf running off site or 7,340495 cf infiltrated.

Post-development calculation
Total of 80.23 ac. = 3,494,819 s.f. x 29.02 total inched of rain / 12 in. = 8,451,636 cf that fall on this portion of the property, with 2,049,000 cf running off site or 6,402,636 cf infiltrated.

So post-development runoff is 6,402,636 / 7,340,495 or 87%

Tss & TP removal

Area south
This Area generates 9,397 lbs of Tss on an average annual basis and only releases 1,816 lbs of Tss on an average annual basis, or 7,581 lbs of Tss are removed on an average annual basis or 80.7%

This portion of the site generates 39.08 lbs of Total Phosphorous on an average annual basis and releases 14.40 lbs of Total Phosphorous on an average annual basis, 24.68 lbs of TP are removed on an average annual basis or 63.2%



SCALE 1" = 100'

0 50 100 200
FEET

HmB (D)

HmC2 (D)

HmD2 (D)

LmB (D)

ThB (C)

HmB2(D)

HmC2(D)

EX AREA H
3.59 AC
Cn = 77
3.59 AC @ 77 (WOODS D)
0.0 AC @ 83 (CROP D)
Tc = 12.6 MIN
100 LF @ 15% (SCF)
691 LF @ 11.5% (SF)

OFFSITE AREA NORTH
6.07 AC
Cn = 80
4.48 AC @ 79 (1 AC RES C)
1.59 AC @ 84 (1 AC RES D)
Tc = 35.6 MIN
100 LF @ 10% (SCF)
1462 LF @ 1.0% (SF)

OFFSITE AREA MID
27.0 AC
Cn = 83
5.73 AC @ 79 (1 AC RES C)
21.27 AC @ 84 (1 AC RES D)
Tc = 35.5 MIN
100 LF @ 1.0% (SCF)
1450 LF @ 1.0% (SF)

OFFSITE AREA SOUTH
6.38 AC
Cn = 83
1.00 AC @ 79 (1 AC RES C)
5.38 AC @ 84 (1 AC RES D)
Tc = 16.7 MIN
100 LF @ 6.0% (SCF)
935 LF @ 2.1% (SF)

EX AREA B
24.75 AC
Cn = 80
15.73 AC @ 78 (CROP C)
9.02 AC @ 83 (CROP D)
Tc = 20.7 MIN
100 LF @ 1.0% (SCF)
1032 LF @ 4.4% (SF)

EX AREA A
2.17 AC
Cn = 83
0 AC @ 78 (CROP C)
2.17 AC @ 83 (CROP D)
Tc = 9.9 MIN
100 LF @ 4.0% (SCF)
250 LF @ 8.0% (SF)

PH I

EXISTING OFFSITE DRAINAGE MAP

OAKERIDGE HEIGHTS
SPHEERIS AND COMPANY, LLC..
SE 1/4 S28, T8N, R19E. VO SUSSEX, WAUKESHA CO. WI

PROJ. # 25-3548

SHEET #

LAKE COUNTRY ENGINEERING, INC.
Consulting Engineers - Surveyors
P.O. BOX 144, Oconomowoc, WI 53066
Phone (262) 569-9331

SCALE: 1" = 100'
DRAFTED BY: RJD
CHECKED BY: RJDAVY
DATE: FEBRUARY 26, 2026

REVISION DATE	REMARKS

SCALE 1" = 100'
0 50 100 200
FEET

EX AREA H
3.59 AC
Cn = 77
3.59 AC @ 77 (WOODS D)
0.0 AC @ 83 (CROP D)
Tc = 12.6 MIN
100 LF @ 13.9% (SCF)
691 LF @ 11.5% (SF)

EX AREA I
29.33 AC
Cn = 80
11.00 AC @ 77 (WOODS D)
13.69 AC @ 83 (CROP D)
4.64 AC @ 78 (CROP C)
Tc = 12.5 MIN
100 LF @ 4.0% (SCF)
1100 LF @ 10.0% (SF)

EX AREA C3
1.07 AC
Cn = 77
1.07 AC @ 77 (WOODS D)
0.00 AC @ 83 (CROP D)
Tc = 12.9 MIN
100 LF @ 10% (SCF)
220 LF @ 13.6% (SF)

EX AREA C1
0.87 AC
Cn = 91
0.00 AC @ 88 (CROP C)
0.87 AC @ 91 (CROP D)
Tc = XX MIN
100 LF @ 6.0% (SCF)

EX AREA C2
4.71 AC
Cn = 80
2.72 AC @ 78 (CROP C)
1.99 AC @ 83 (CROP D)
Tc = 15.8 MIN
100 LF @ 1.5% (SCF)
490 LF @ 4.1% (SF)

EX AREA B
24.75 AC
Cn = 80
15.73 AC @ 78 (CROP C)
9.02 AC @ 83 (CROP D)
Tc = 20.7 MIN
100 LF @ 1.0% (SCF)
1032 LF @ 4.4% (SF)

EX AREA D
4.39 AC
Cn = 83
0.0 AC @ 78 (CROP C)
4.39 AC @ 83 (CROP D)
Tc = 12.2 MIN
100 LF @ 2.0% (SCF)
450 LF @ 9.3% (SF)

EX AREA E
4.51 AC
Cn = 82
0.78 AC @ 78 (CROP C)
3.73 AC @ 83 (CROP D)
Tc = 11.8 MIN
100 LF @ 3.0% (SCF)
418 LF @ 6.0% (SF)

EX AREA A
2.17 AC
Cn = 83
0 AC @ 78 (CROP C)
2.17 AC @ 83 (CROP D)
Tc = 9.9 MIN
100 LF @ 4.0% (SCF)
250 LF @ 8.0% (SF)

EX AREA F
5.57 AC
Cn = 82
1.00 AC @ 78 (CROP C)
4.57 AC @ 83 (CROP D)
Tc = 12.7 MIN
100 LF @ 3.0% (SCF)
487 LF @ 8.8% (SF)

MgA (C)
LmB (D)
HmD2 (D)
HmC2 (D)
RkB (D)
HmC2 (D)
HmC2 (D)
ThB (C)
HmC2 (D)
B2(D)
ThB (C)
HmB2(D)
HmC2 (D)
HmB2(D)
HmC2 (D)
HoD3 (D)
HmC2 (D)
HmB2(D)
HmC2 (D)
PROP PUMP STA DETAIL (1" = 10')
RICHMOND ROAD
DRIVE

EXISTING ONSITE DRAINAGE MAP

OAKERIDGE HEIGHTS
SPHEERIS AND COMPANY, LLC..
SE 1/4 S28, T8N, R19E. VO SUSSEX, WAUKESHA CO. WI

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SCALE 1" = 100'

0 50 100 200
FEET

N

PR AREA 8-B
1.11 AC
Cn = 85
0.0 AC @ 77 (WOODS D)
0.0 AC @ 80 (1/2 RES C)
1.11AC @ 85 (1/2 RES D)
Tc = 6.0 MIN

PR AREA 7-B
.56 AC
Cn = 85
0.0 AC @ 77 (WOODS D)
0.0 AC @ 80 (1/2 RES C)
.56 AC @ 85 (1/2 RES D)
Tc = 6.0 MIN

PR AREA 7-A
15.45 AC
Cn = 79
10.72 AC @ 77 (WOODS D)
0.39 AC @ 80 (1/2 RES C)
4.34 AC @ 85 (1/2 RES D)
Tc = 14.9 MIN
100 LF @ 4.0% (SCF)
950 LF @ 10.0 (SF)

PR AREA 8-A
9.87 AC
Cn = 85
0.28 AC @ 77 (WOODS D)
0.0 AC @ 80 (1/2 RES C)
9.59AC @ 85 (1/2 RES D)
Tc = 13.5 MIN
100 LF @ 4.0% (SCF)
780 LF @ 4.3 (SF)

PR AREA 6-A
0.78 AC
Cn = 85
0.00 AC @ 80 (1/2 RES C)
0.78 AC @ 85 (1/2 RES D)
Tc = 11.0 MIN
300 LF @ 5.0% (SCF)
55 LF @ 5.0% (SF)

PR AREA 6-B
1.41 AC
Cn = 80
1.41 AC @ 80 (1/2 RES C)
0.00 AC @ 85 (1/2 RES D)
Tc = 12.7 MIN
100 LF @ 4.0% (SF)
430 LF @ 4.3% (SCF)

PR AREA 5
6.50 AC
Cn = 83
2.23 AC @ 80 (1/2 RES C)
4.27 AC @ 85 (1/2 RES D)
Tc = 6.0 MIN

PR AREA 4
2.88 AC
Cn = 85
0.00 AC @ 80 (1/2 RES C)
2.88 AC @ 85 (1/2 RES D)
Tc = 12.7 MIN
100 LF @ 5.0% (SF)
123 LF @ 6.5% (SCF)

PR AREA 3
3.90 AC
Cn = 85
0.0 AC @ 80 (1/2 RES C)
3.90 AC @ 85 (1/2 RES D)
Tc = LOT #1 MIN
94 LF @ 4.3% (SF)
293 LF @ 8.2% (SCF)

PR AREA 2
4.40 AC
Cn = 85
0.22 AC @ 80 (1/2 RES C)
4.18 AC @ 85 (1/2 RES D)
Tc = 19.7 MIN
100 LF @ 2.0% (SCF)
396 LF @ 1.0% (SF)

PR AREA 1
21.25 AC
Cn = 82
13.67 AC @ 80 (1/2 RES C)
7.58 AC @ 85 (1/2 RES D)
Tc = 19.5 MIN
100 LF @ 2.0% (SCF)
808 LF @ 5.0% (SF)

LOT #1 LOT #2 LOT #3 LOT #4 LOT #5 LOT #6 LOT #7 LOT #8 LOT #9 LOT #10 LOT #11 LOT #12 LOT #13 LOT #14 LOT #15 LOT #16 LOT #17 LOT #18 LOT #19 LOT #20 LOT #21 LOT #22 LOT #23 LOT #24 LOT #25 LOT #26 LOT #27 LOT #28 LOT #29 LOT #30 LOT #31 LOT #32 LOT #33 LOT #34 LOT #35 LOT #36 LOT #37 LOT #38 LOT #39 LOT #40 LOT #41 LOT #42 LOT #43 LOT #44 LOT #45 LOT #46 LOT #47 LOT #48 LOT #49 LOT #50 LOT #51 LOT #52 LOT #53 LOT #54 LOT #55 LOT #56 LOT #57 LOT #58 LOT #59 LOT #60 LOT #61 LOT #62 LOT #63 LOT #64 LOT #65 LOT #66 LOT #67 LOT #68 LOT #69 LOT #70 LOT #71 LOT #72 LOT #73 LOT #74 LOT #75 LOT #76 LOT #77 LOT #78 LOT #79 LOT #80 LOT #81 LOT #82 LOT #83 LOT #84 LOT #85 LOT #86 LOT #87 LOT #88

OUTLOT 1 OUTLOT 2 OUTLOT 3 OUTLOT 4

BMP WEST MID WETLANDS(WET)
BMP SE UPPER (WET)
BMP SE LOWER(WET)
BMP NORTH MID WETLANDS(WET)
BMP SW (BIO-FILTER)

WINDY PASS DRIVE
FOX HOLLOW DRIVE
WRENDALE DRIVE
RICHMOND ROAD
66' WIDE R.O.W.
PROP PUMP STA LOCATION
PROP PUMP STA DETAIL (1" = 10')

PROPOSED ONSITE DRAINAGE MAP

OAKERIDGE HEIGHTS
SPHEERIS AND COMPANY, LLC..
SE 1/4 S28, T8N, R19E. VO SUSSEX, WAUKESHA CO. WI

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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	-------	2.86	3.57	-------	-------	6.35	-------	-------	12.69	EX ARE A
2	SCS Runoff	-------	7.34	9.19	-------	-------	16.42	-------	-------	33.05	OFFSITE AREA SOUTH
3	SCS Runoff	-------	4.24	5.22	-------	-------	9.01	-------	-------	17.56	PR AREA 1
4	Combine	2, 3	11.58	14.41	-------	-------	25.44	-------	-------	50.61	PR FLOW TO BMP SW
5	Reservoir	4	1.06	1.14	-------	-------	5.51	-------	-------	11.34	BMP SW
9	SCS Runoff	-------	20.23	25.44	-------	-------	45.89	-------	-------	93.26	OFFSITE AREA MID
10	SCS Runoff	-------	3.68	4.77	-------	-------	9.13	-------	-------	19.57	OFFSITE AREA NORTH
11	Combine	2, 9, 10	28.60	36.04	-------	-------	65.57	-------	-------	134.31	EXISTING TOTAL OFFSITE FLOW
12	SCS Runoff	-------	20.06	25.84	-------	-------	49.01	-------	-------	104.04	EX AREA B
13	Combine	11, 12	46.67	59.41	-------	-------	109.99	-------	-------	230.56	TOTAL EXISTING FLOW TO WETLAN
14	Combine	9, 10,	23.92	30.21	-------	-------	55.03	-------	-------	112.83	PROPOSED TOTAL OFFSITE FLOW
15	SCS Runoff	-------	22.95	29.00	-------	-------	52.79	-------	-------	108.05	PR AREA 2
16	Combine	14, 15	40.90	51.67	-------	-------	94.41	-------	-------	195.32	TOTAL FLOW TO BMP MID
17	Reservoir	16	7.37	10.51	-------	-------	53.13	-------	-------	162.56	FLOW TO MID WETLANDS E
19	SCS Runoff	-------	6.90	8.69	-------	-------	15.70	-------	-------	31.93	EX AREA F
20	SCS Runoff	-------	3.91	4.90	-------	-------	8.75	-------	-------	17.61	PR AREA 3A
21	Reservoir	20	0.90	1.04	-------	-------	1.44	-------	-------	9.74	FLOW TO RICHMOND UPPER
22	SCS Runoff	-------	5.96	7.33	-------	-------	12.57	-------	-------	24.35	PR AREA 3B
23	Combine	21, 22	6.44	7.95	-------	-------	13.55	-------	-------	25.84	flow to rich lower
24	Reservoir	23	4.77	6.55	-------	-------	8.07	-------	-------	23.94	FLOW TO RICHMOND RD LO
28	SCS Runoff	-------	5.59	7.03	-------	-------	12.72	-------	-------	25.85	EX AREA E
29	SCS Runoff	-------	5.28	6.49	-------	-------	11.13	-------	-------	21.56	PR AREA 4
31	SCS Runoff	-------	5.79	7.23	-------	-------	12.84	-------	-------	25.67	EX AREA D
32	SCS Runoff	-------	9.86	12.26	-------	-------	21.56	-------	-------	42.76	PR AREA 5
33	Reservoir	32	1.23	2.14	-------	-------	10.34	-------	-------	13.45	BMP N MID
34	Diversion1	33	0.00	0.00	-------	-------	0.00	-------	-------	0.00	INFILTRATION

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	
35	Diversion2	33	1.23	2.14	-------	-------	10.34	-------	-------	13.45	OVERLAND
36	Combine	13, 28, 31,	54.26	69.11	-------	-------	128.11	-------	-------	266.78	EX FLOW TO MID WETLANDS
37	Combine	17, 29, 35,	9.04	12.46	-------	-------	57.97	-------	-------	181.18	PR FLOW TO MID WETLANDS

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	SCS Runoff	2.86	3	738	0.175	----	------	------	EX ARE A
2	SCS Runoff	7.34	3	741	0.530	----	------	------	OFFSITE AREA SOUTH
3	SCS Runoff	4.24	3	741	0.304	----	------	------	PR AREA 1
4	Combine	11.58	3	741	0.833	2, 3	------	------	PR FLOW TO BMP SW
5	Reservoir	1.06	3	822	0.817	4	1025.17	0.474	BMP SW
9	SCS Runoff	20.23	3	753	2.140	----	------	------	OFFSITE AREA MID
10	SCS Runoff	3.68	3	753	0.402	----	------	------	OFFSITE AREA NORTH
11	Combine	28.60	3	753	3.071	2, 9, 10	------	------	EXISTING TOTAL OFFSITE FLOW
12	SCS Runoff	20.06	3	744	1.623	----	------	------	EX AREA B
13	Combine	46.67	3	747	4.694	11, 12	------	------	TOTAL EXISTING FLOW TO WETLAN
14	Combine	23.92	3	753	2.542	9, 10,	------	------	PROPOSED TOTAL OFFSITE FLOW
15	SCS Runoff	22.95	3	741	1.667	----	------	------	PR AREA 2
16	Combine	40.90	3	747	4.209	14, 15	------	------	TOTAL FLOW TO BMP MID
17	Reservoir	7.37	3	813	4.202	16	1019.82	2.267	FLOW TO MID WETLANDS E
19	SCS Runoff	6.90	3	738	0.423	----	------	------	EX AREA F
20	SCS Runoff	3.91	3	741	0.282	----	------	------	PR AREA 3A
21	Reservoir	0.90	3	768	0.282	20	1010.16	0.121	FLOW TO RICHMOND UPPER
22	SCS Runoff	5.96	3	738	0.362	----	------	------	PR AREA 3B
23	Combine	6.44	3	738	0.644	21, 22	------	------	flow to rich lower
24	Reservoir	4.77	3	744	0.644	23	981.19	0.091	FLOW TO RICHMOND RD LO
28	SCS Runoff	5.59	3	738	0.342	----	------	------	EX AREA E
29	SCS Runoff	5.28	3	738	0.321	----	------	------	PR AREA 4
31	SCS Runoff	5.79	3	738	0.353	----	------	------	EX AREA D
32	SCS Runoff	9.86	3	735	0.491	----	------	------	PR AREA 5
33	Reservoir	1.23	3	765	0.489	32	984.68	0.228	BMP N MID
34	Diversion1	0.00	3	0	0.000	33	------	------	INFILTRATION

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
35	Diversion2	1.23	3	765	0.489	33	------	------	OVERLAND
36	Combine	54.26	3	744	5.390	13, 28, 31,	------	------	EX FLOW TO MID WETLANDS
37	Combine	9.04	3	804	5.011	17, 29, 35,	------	------	PR FLOW TO MID WETLANDS

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	SCS Runoff	3.57	3	738	0.217	----	------	------	EX ARE A
2	SCS Runoff	9.19	3	741	0.659	----	------	------	OFFSITE AREA SOUTH
3	SCS Runoff	5.22	3	741	0.373	----	------	------	PR AREA 1
4	Combine	14.41	3	741	1.032	2, 3	------	------	PR FLOW TO BMP SW
5	Reservoir	1.14	3	825	1.015	4	1025.43	0.613	BMP SW
9	SCS Runoff	25.44	3	753	2.661	----	------	------	OFFSITE AREA MID
10	SCS Runoff	4.77	3	753	0.509	----	------	------	OFFSITE AREA NORTH
11	Combine	36.04	3	750	3.829	2, 9, 10	------	------	EXISTING TOTAL OFFSITE FLOW
12	SCS Runoff	25.84	3	744	2.056	----	------	------	EX AREA B
13	Combine	59.41	3	747	5.885	11, 12	------	------	TOTAL EXISTING FLOW TO WETLAN
14	Combine	30.21	3	753	3.170	9, 10,	------	------	PROPOSED TOTAL OFFSITE FLOW
15	SCS Runoff	29.00	3	741	2.086	----	------	------	PR AREA 2
16	Combine	51.67	3	747	5.256	14, 15	------	------	TOTAL FLOW TO BMP MID
17	Reservoir	10.51	3	801	5.249	16	1020.19	2.780	FLOW TO MID WETLANDS E
19	SCS Runoff	8.69	3	738	0.529	----	------	------	EX AREA F
20	SCS Runoff	4.90	3	741	0.351	----	------	------	PR AREA 3A
21	Reservoir	1.04	3	771	0.351	20	1010.45	0.157	FLOW TO RICHMOND UPPER
22	SCS Runoff	7.33	3	738	0.445	----	------	------	PR AREA 3B
23	Combine	7.95	3	738	0.796	21, 22	------	------	flow to rich lower
24	Reservoir	6.55	3	744	0.796	23	981.29	0.098	FLOW TO RICHMOND RD LO
28	SCS Runoff	7.03	3	738	0.428	----	------	------	EX AREA E
29	SCS Runoff	6.49	3	738	0.394	----	------	------	PR AREA 4
31	SCS Runoff	7.23	3	738	0.440	----	------	------	EX AREA D
32	SCS Runoff	12.26	3	735	0.610	----	------	------	PR AREA 5
33	Reservoir	2.14	3	759	0.608	32	985.08	0.285	BMP N MID
34	Diversion1	0.00	3	0	0.000	33	------	------	INFILTRATION

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
35	Diversion2	2.14	3	759	0.608	33	------	------	OVERLAND
36	Combine	69.11	3	744	6.753	13, 28, 31,	------	------	EX FLOW TO MID WETLANDS
37	Combine	12.46	3	798	6.251	17, 29, 35,	------	------	PR FLOW TO MID WETLANDS

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	SCS Runoff	6.35	3	738	0.387	----	------	------	EX ARE A
2	SCS Runoff	16.42	3	741	1.173	----	------	------	OFFSITE AREA SOUTH
3	SCS Runoff	9.01	3	741	0.646	----	------	------	PR AREA 1
4	Combine	25.44	3	741	1.819	2, 3	------	------	PR FLOW TO BMP SW
5	Reservoir	5.51	3	768	1.803	4	1026.03	0.980	BMP SW
9	SCS Runoff	45.89	3	753	4.738	----	------	------	OFFSITE AREA MID
10	SCS Runoff	9.13	3	753	0.947	----	------	------	OFFSITE AREA NORTH
11	Combine	65.57	3	750	6.858	2, 9, 10	------	------	EXISTING TOTAL OFFSITE FLOW
12	SCS Runoff	49.01	3	744	3.825	----	------	------	EX AREA B
13	Combine	109.99	3	747	10.683	11, 12	------	------	TOTAL EXISTING FLOW TO WETLAN
14	Combine	55.03	3	753	5.685	9, 10,	------	------	PROPOSED TOTAL OFFSITE FLOW
15	SCS Runoff	52.79	3	741	3.768	----	------	------	PR AREA 2
16	Combine	94.41	3	744	9.453	14, 15	------	------	TOTAL FLOW TO BMP MID
17	Reservoir	53.13	3	768	9.446	16	1020.95	3.860	FLOW TO MID WETLANDS E
19	SCS Runoff	15.70	3	738	0.956	----	------	------	EX AREA F
20	SCS Runoff	8.75	3	741	0.625	----	------	------	PR AREA 3A
21	Reservoir	1.44	3	777	0.625	20	1011.56	0.309	FLOW TO RICHMOND UPPER
22	SCS Runoff	12.57	3	738	0.771	----	------	------	PR AREA 3B
23	Combine	13.55	3	738	1.396	21, 22	------	------	flow to rich lower
24	Reservoir	8.07	3	747	1.396	23	982.30	0.185	FLOW TO RICHMOND RD LO
28	SCS Runoff	12.72	3	738	0.774	----	------	------	EX AREA E
29	SCS Runoff	11.13	3	738	0.682	----	------	------	PR AREA 4
31	SCS Runoff	12.84	3	738	0.783	----	------	------	EX AREA D
32	SCS Runoff	21.56	3	735	1.086	----	------	------	PR AREA 5
33	Reservoir	10.34	3	741	1.084	32	985.73	0.391	BMP N MID
34	Diversion1	0.00	3	0	0.000	33	------	------	INFILTRATION

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
35	Diversion2	10.34	3	741	1.084	33	------	------	OVERLAND
36	Combine	128.11	3	744	12.240	13, 28, 31,	------	------	EX FLOW TO MID WETLANDS
37	Combine	57.97	3	768	11.213	17, 29, 35,	------	------	PR FLOW TO MID WETLANDS

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
1	SCS Runoff	12.69	3	738	0.794	----	------	------	EX ARE A
2	SCS Runoff	33.05	3	741	2.407	----	------	------	OFFSITE AREA SOUTH
3	SCS Runoff	17.56	3	741	1.290	----	------	------	PR AREA 1
4	Combine	50.61	3	741	3.697	2, 3	------	------	PR FLOW TO BMP SW
5	Reservoir	11.34	3	765	3.680	4	1027.31	1.878	BMP SW
9	SCS Runoff	93.26	3	753	9.722	----	------	------	OFFSITE AREA MID
10	SCS Runoff	19.57	3	753	2.027	----	------	------	OFFSITE AREA NORTH
11	Combine	134.31	3	750	14.155	2, 9, 10	------	------	EXISTING TOTAL OFFSITE FLOW
12	SCS Runoff	104.04	3	744	8.187	----	------	------	EX AREA B
13	Combine	230.56	3	744	22.342	11, 12	------	------	TOTAL EXISTING FLOW TO WETLAN
14	Combine	112.83	3	753	11.749	9, 10,	------	------	PROPOSED TOTAL OFFSITE FLOW
15	SCS Runoff	108.05	3	741	7.839	----	------	------	PR AREA 2
16	Combine	195.32	3	744	19.588	14, 15	------	------	TOTAL FLOW TO BMP MID
17	Reservoir	162.56	3	756	19.580	16	1021.94	5.432	FLOW TO MID WETLANDS E
19	SCS Runoff	31.93	3	738	1.988	----	------	------	EX AREA F
20	SCS Runoff	17.61	3	741	1.283	----	------	------	PR AREA 3A
21	Reservoir	9.74	3	753	1.282	20	1012.96	0.547	FLOW TO RICHMOND UPPER
22	SCS Runoff	24.35	3	738	1.539	----	------	------	PR AREA 3B
23	Combine	25.84	3	738	2.821	21, 22	------	------	flow to rich lower
24	Reservoir	23.94	3	741	2.821	23	982.96	0.258	FLOW TO RICHMOND RD LO
28	SCS Runoff	25.85	3	738	1.610	----	------	------	EX AREA E
29	SCS Runoff	21.56	3	738	1.362	----	------	------	PR AREA 4
31	SCS Runoff	25.67	3	738	1.606	----	------	------	EX AREA D
32	SCS Runoff	42.76	3	732	2.229	----	------	------	PR AREA 5
33	Reservoir	13.45	3	744	2.227	32	987.81	0.826	BMP N MID
34	Diversion1	0.00	3	0	0.000	33	------	------	INFILTRATION

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
35	Diversion2	13.45	3	744	2.227	33	------	------	OVERLAND
36	Combine	266.78	3	744	25.558	13, 28, 31,	------	------	EX FLOW TO MID WETLANDS
37	Combine	181.18	3	756	23.169	17, 29, 35,	------	------	PR FLOW TO MID WETLANDS

Hydrograph Plot

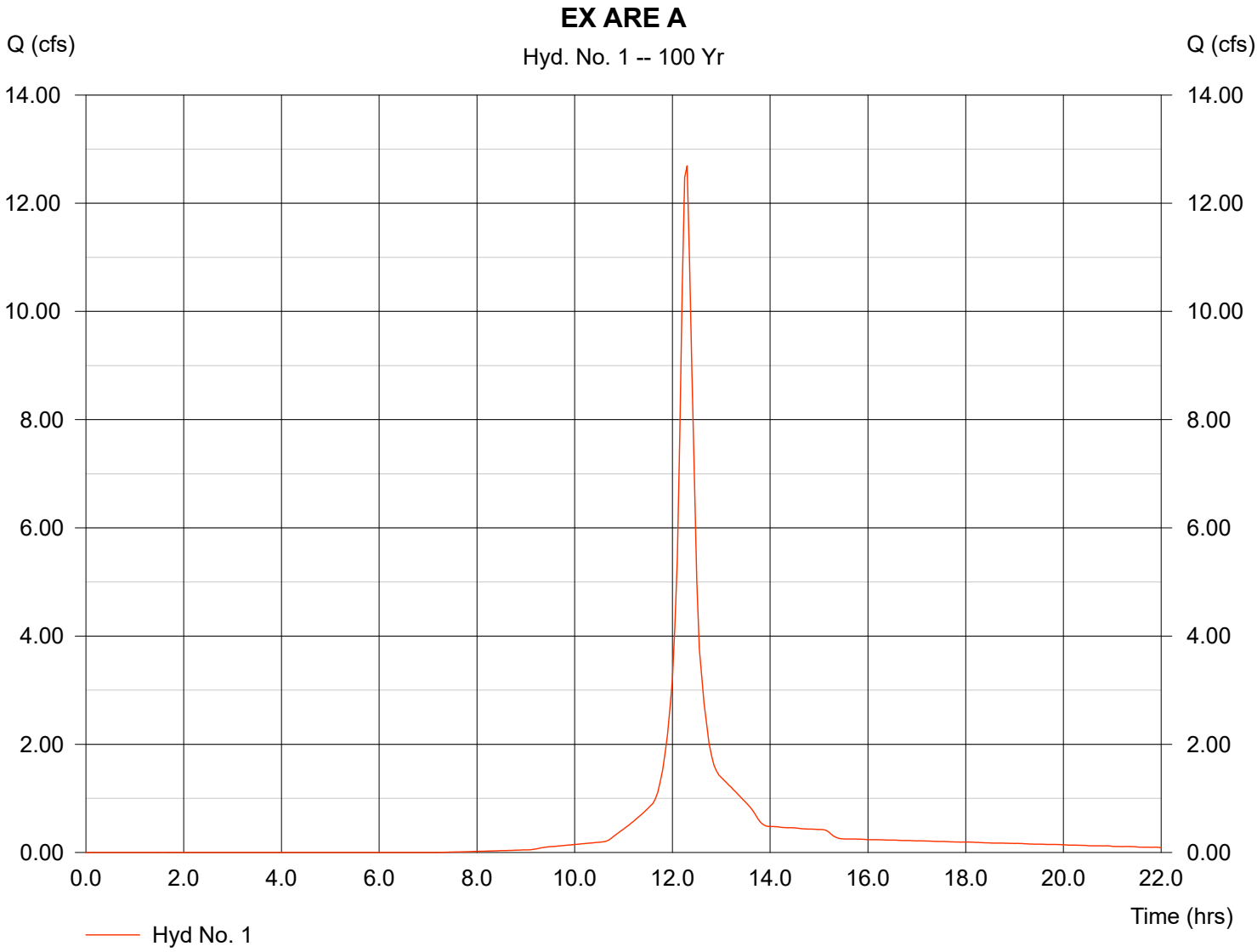
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:17 AM

Hyd. No. 1

EX ARE A

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.69 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	2.17 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.9 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 0.794 acft



TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

EX ARE A

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.69		0.00		0.00		
Land slope (%)	= 4.00		0.00		0.00		
Travel Time (min)	**= 8.95**	**+**	**0.00**	**+**	**0.00**	**=**	**8.95**
Shallow Concentrated Flow							
Flow length (ft)	= 250.00		0.00		0.00		
Watercourse slope (%)	= 8.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 4.56		0.00		0.00		
Travel Time (min)	**= 0.91**	**+**	**0.00**	**+**	**0.00**	**=**	**0.91**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

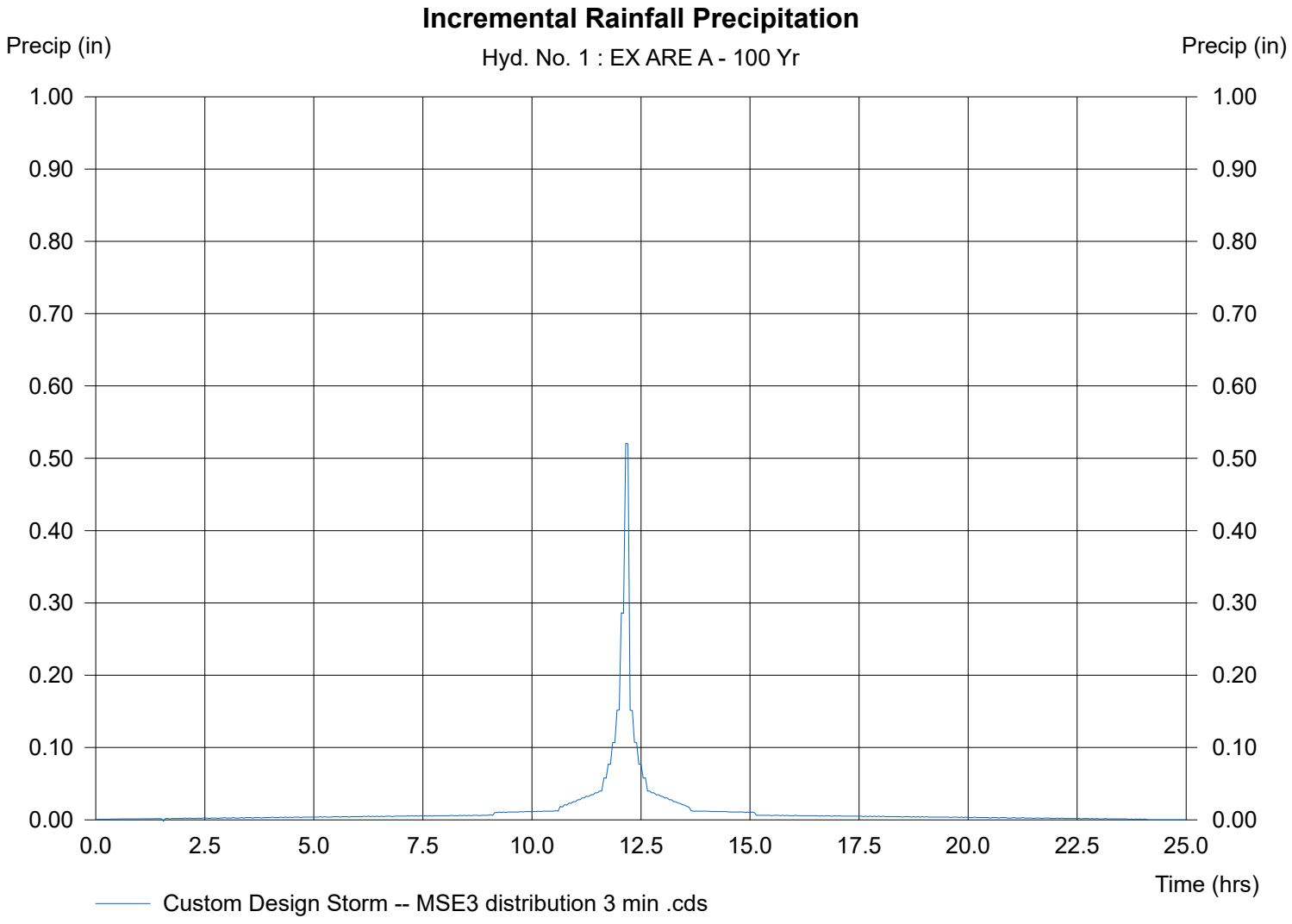
Total Travel Time, Tc ..... 9.90 min

Precipitation Report

Hyd. No. 1

EX ARE A

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

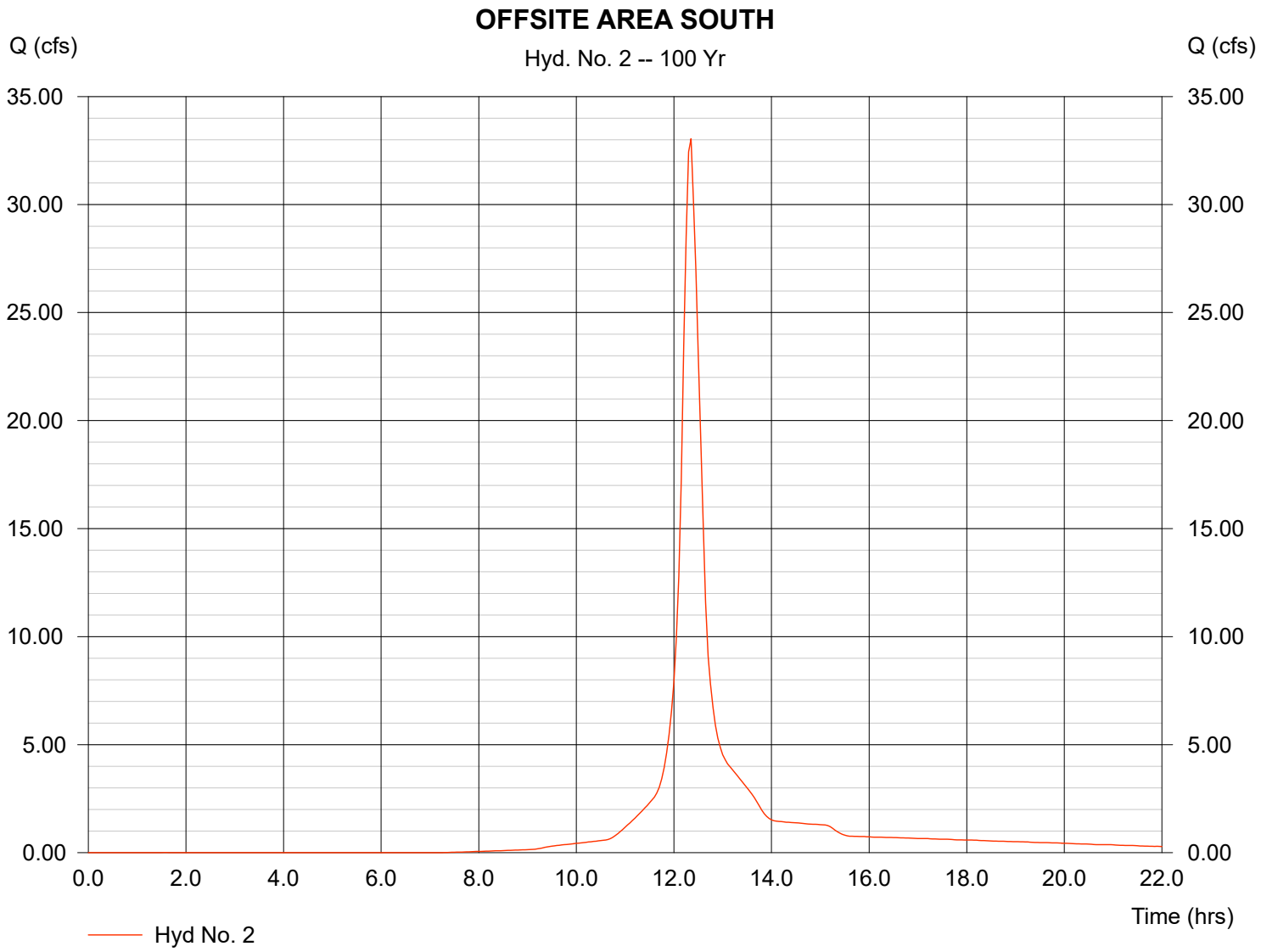
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:17 AM

Hyd. No. 2

OFFSITE AREA SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.05 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	6.38 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.7 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 2.407 acft



TR55 Tc Worksheet

Hyd. No. 2

OFFSITE AREA SOUTH

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 6.00	0.00	0.00	
Travel Time (min)	**= 10.03 +**	**0.00 +**	**0.00 =**	**10.03**
Shallow Concentrated Flow				
Flow length (ft)	= 935.00	0.00	0.00	
Watercourse slope (%)	= 2.10	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 2.34	0.00	0.00	
Travel Time (min)	**= 6.66 +**	**0.00 +**	**0.00 =**	**6.66**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00 +**	**0.00 +**	**0.00 =**	**0.00**

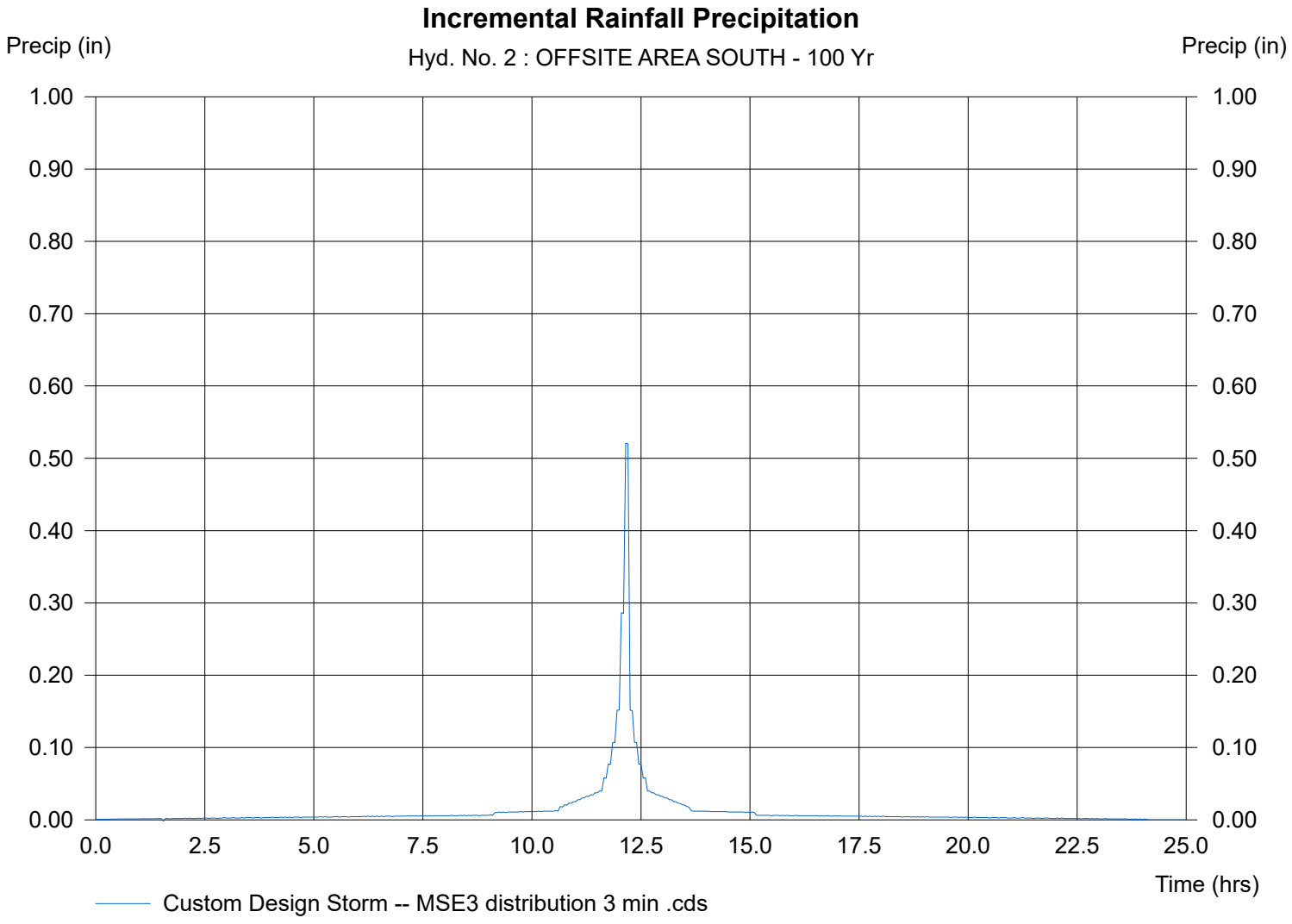
Total Travel Time, Tc ..... 16.70 min

Precipitation Report

Hyd. No. 2

OFFSITE AREA SOUTH

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

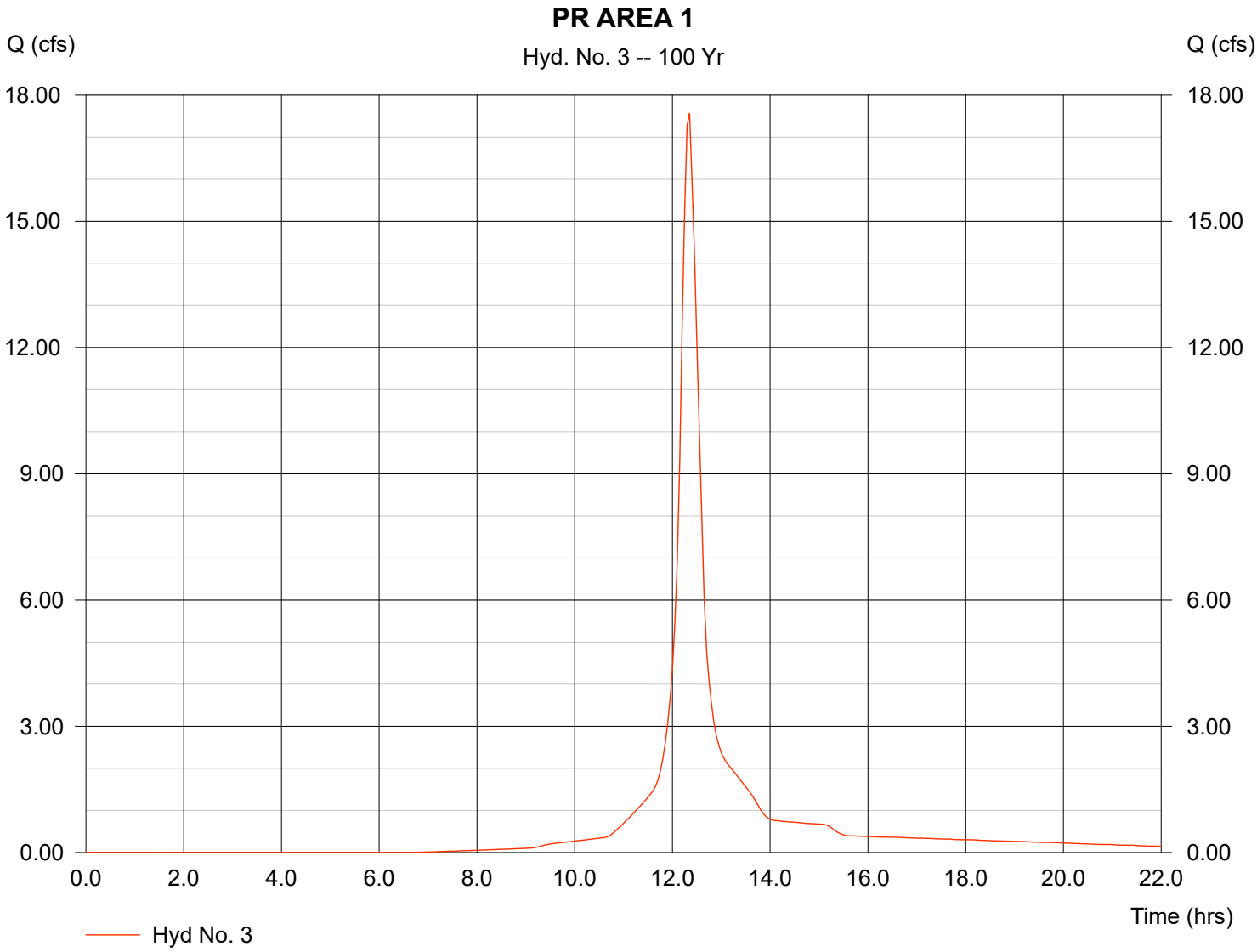
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 3

PR AREA 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.56 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	3.26 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.7 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.290 acft



TR55 Tc Worksheet

Hyd. No. 3

PR AREA 1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 15.56**	**+ 0.00**	**+ 0.00**	**= 15.56**
Shallow Concentrated Flow				
Flow length (ft)	= 396.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 1.61	0.00	0.00	
Travel Time (min)	**= 4.09**	**+ 0.00**	**+ 0.00**	**= 4.09**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

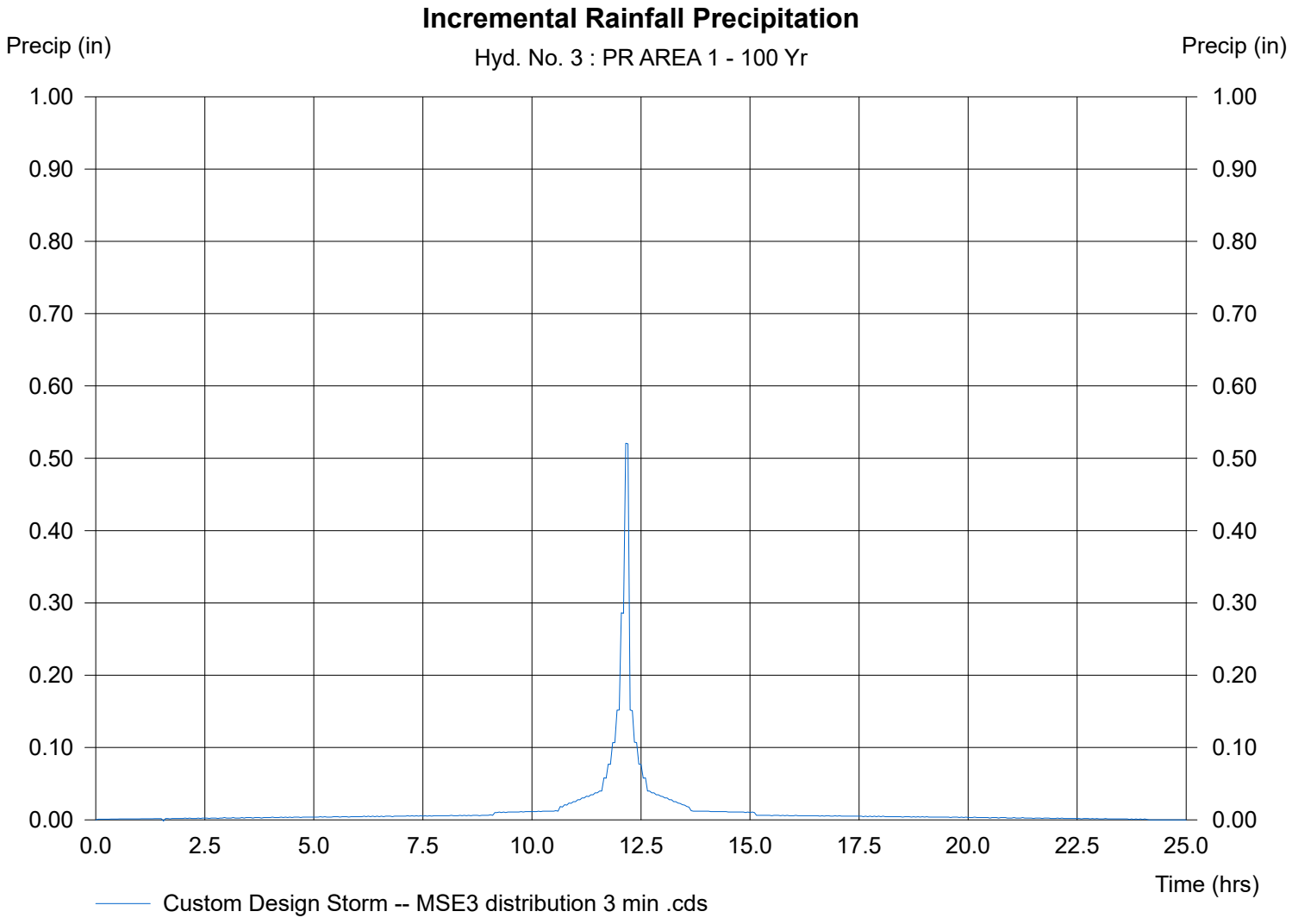
Total Travel Time, Tc ..... 19.70 min

Precipitation Report

Hyd. No. 3

PR AREA 1

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



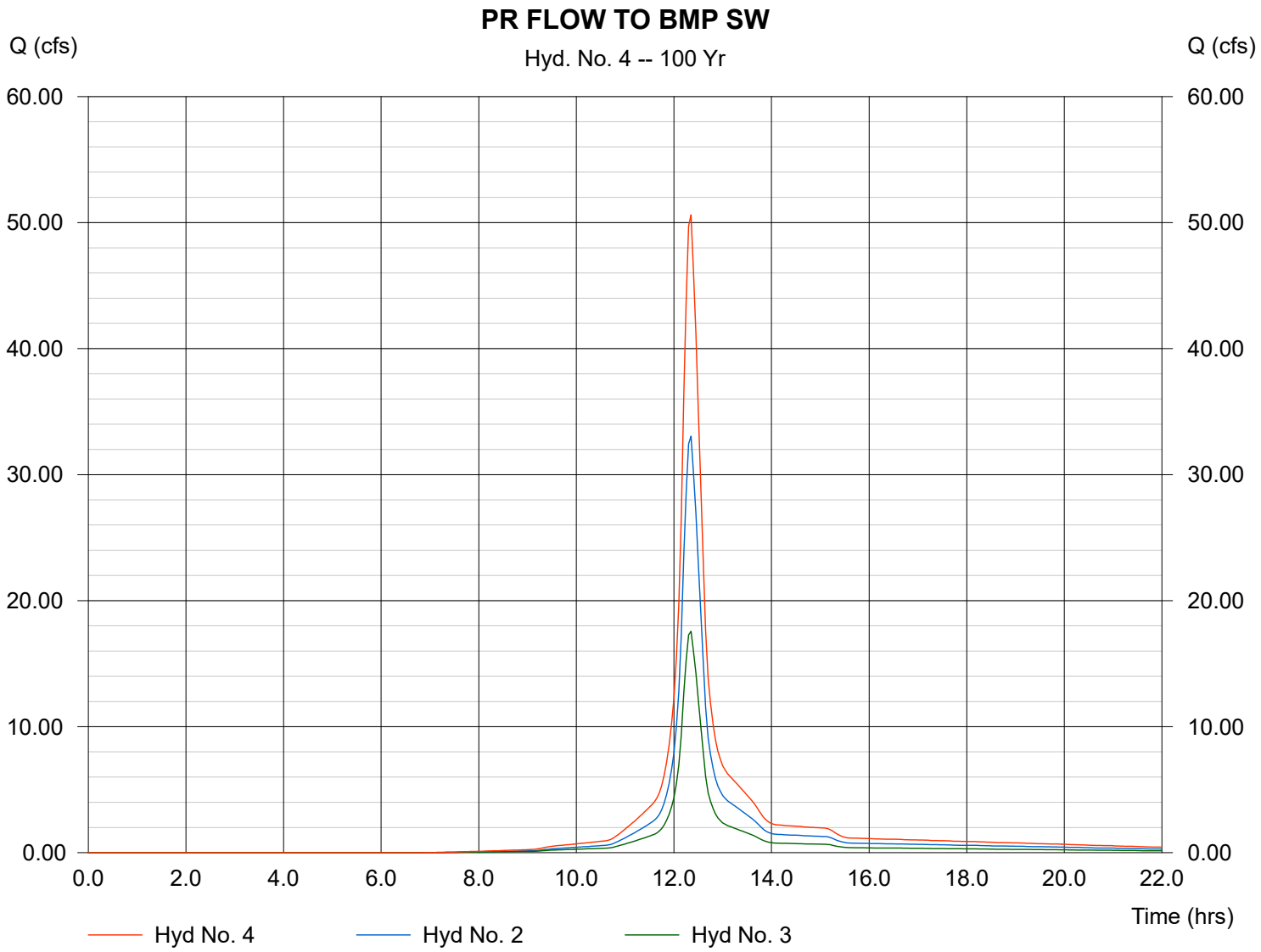
Hydrograph Plot

Hyd. No. 4

PR FLOW TO BMP SW

Hydrograph type	= Combine	Peak discharge	= 50.61 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 3.697 acft



Hydrograph Plot

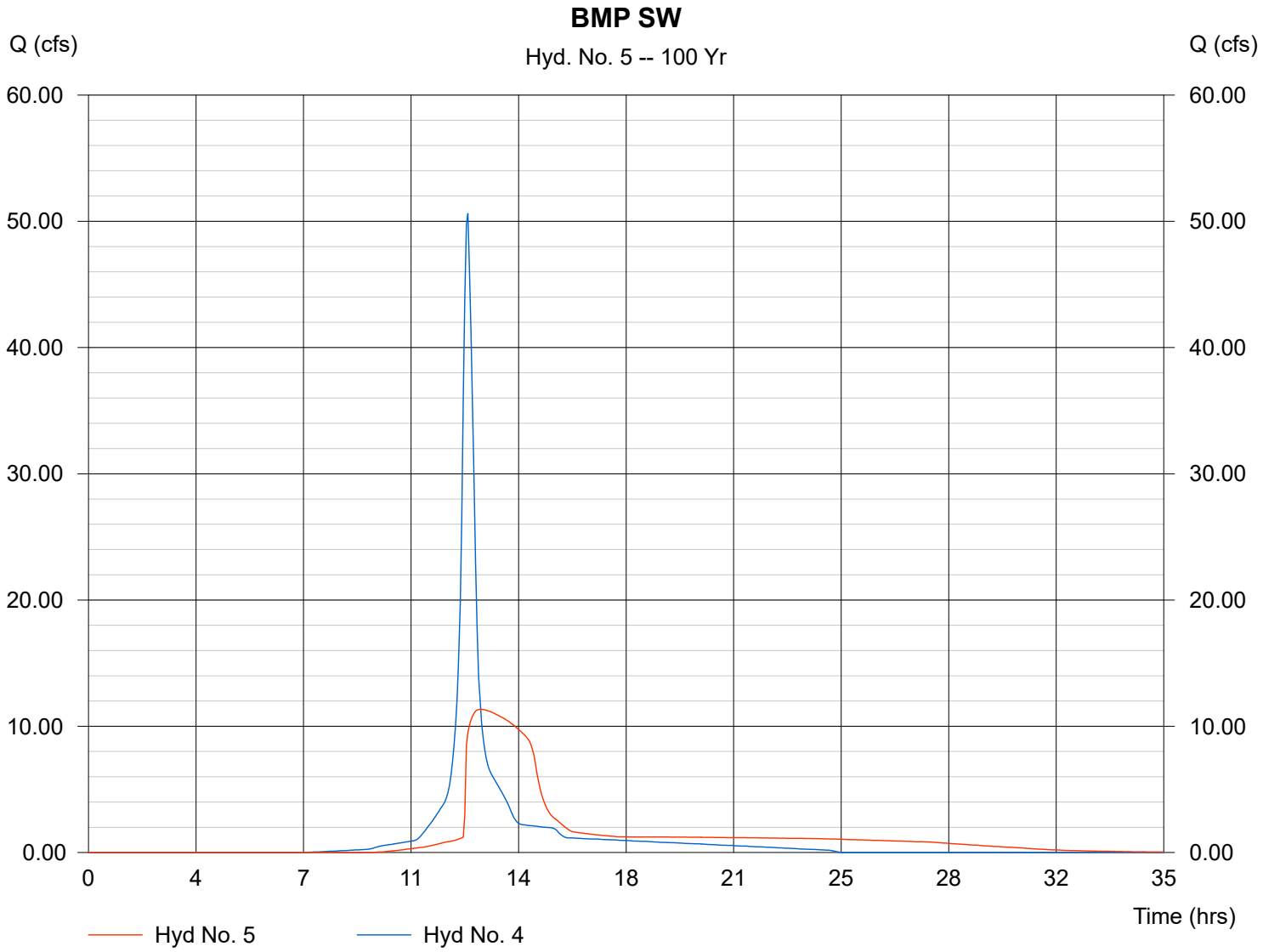
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Hyd. No. 5

BMP SW

Hydrograph type	=	Reservoir	Peak discharge	=	11.34 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Inflow hyd. No.	=	4	Max. Elevation	=	1027.31 ft
Reservoir name	=	BMP SW	Max. Storage	=	1.878 acft

Storage Indication method used. | Hydrograph Volume = 3.680 acft



Pond Report

Pond No. 2 - BMP SW

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1023.00	6,700	0.000	0.000
0.50	1023.50	6,702	0.077	0.077
1.00	1024.00	6,704	0.077	0.154
1.50	1024.50	6,706	0.077	0.231
2.25	1025.25	25,092	0.274	0.505
3.00	1026.00	28,090	0.458	0.962
4.00	1027.00	31,258	0.681	1.644
5.00	1028.00	34,693	0.757	2.401

Culvert / Orifice Structures

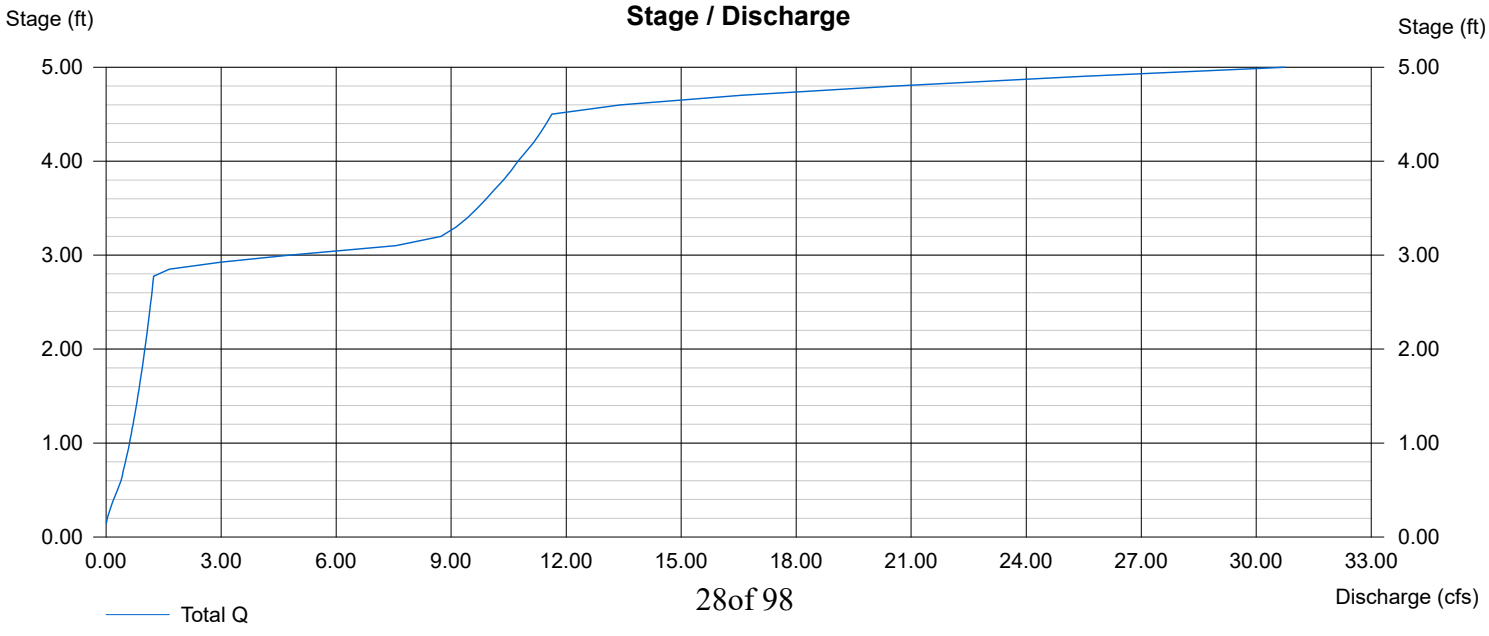
	[A]	[B]	[C]	[D]
Rise (in)	= 15.00	6.00	0.00	0.00
Span (in)	= 15.00	6.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1023.00	1023.10	0.00	0.00
Length (ft)	= 42.00	0.00	0.00	0.00
Slope (%)	= 0.10	0.00	0.00	0.00
N-Value	= .012	.012	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.56	20.00	0.00	0.00
Crest El. (ft)	= 1025.80	1027.50	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

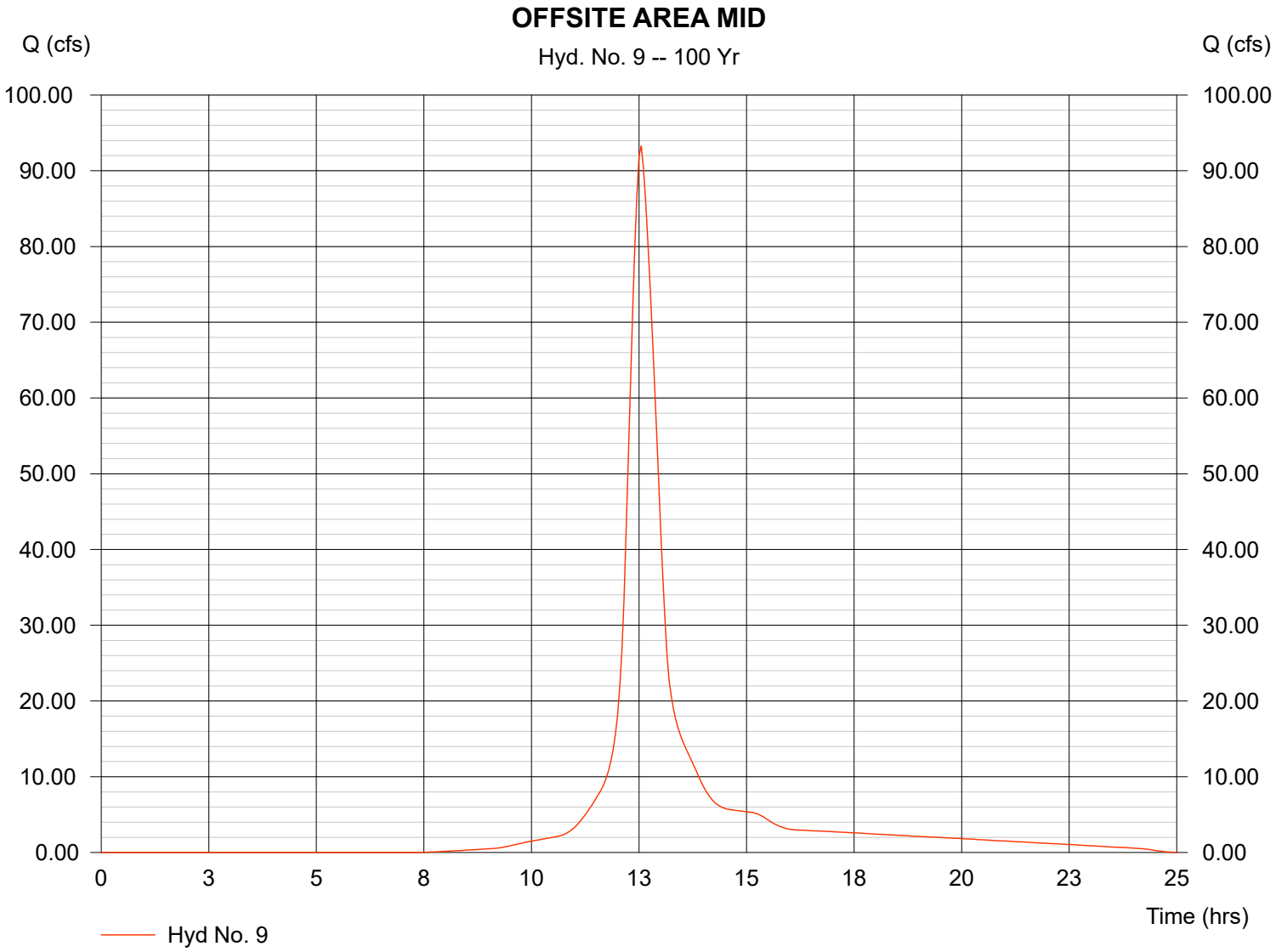
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 9

OFFSITE AREA MID

Hydrograph type	=	SCS Runoff	Peak discharge	=	93.26 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	27.00 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	35.5 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 9.722 acft



TR55 Tc Worksheet

Hyd. No. 9

OFFSITE AREA MID

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	**= 20.54**	**+ 0.00**	**+ 0.00**	**= 20.54**
Shallow Concentrated Flow				
Flow length (ft)	= 1450.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 1.61	0.00	0.00	
Travel Time (min)	**= 14.98**	**+ 0.00**	**+ 0.00**	**= 14.98**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

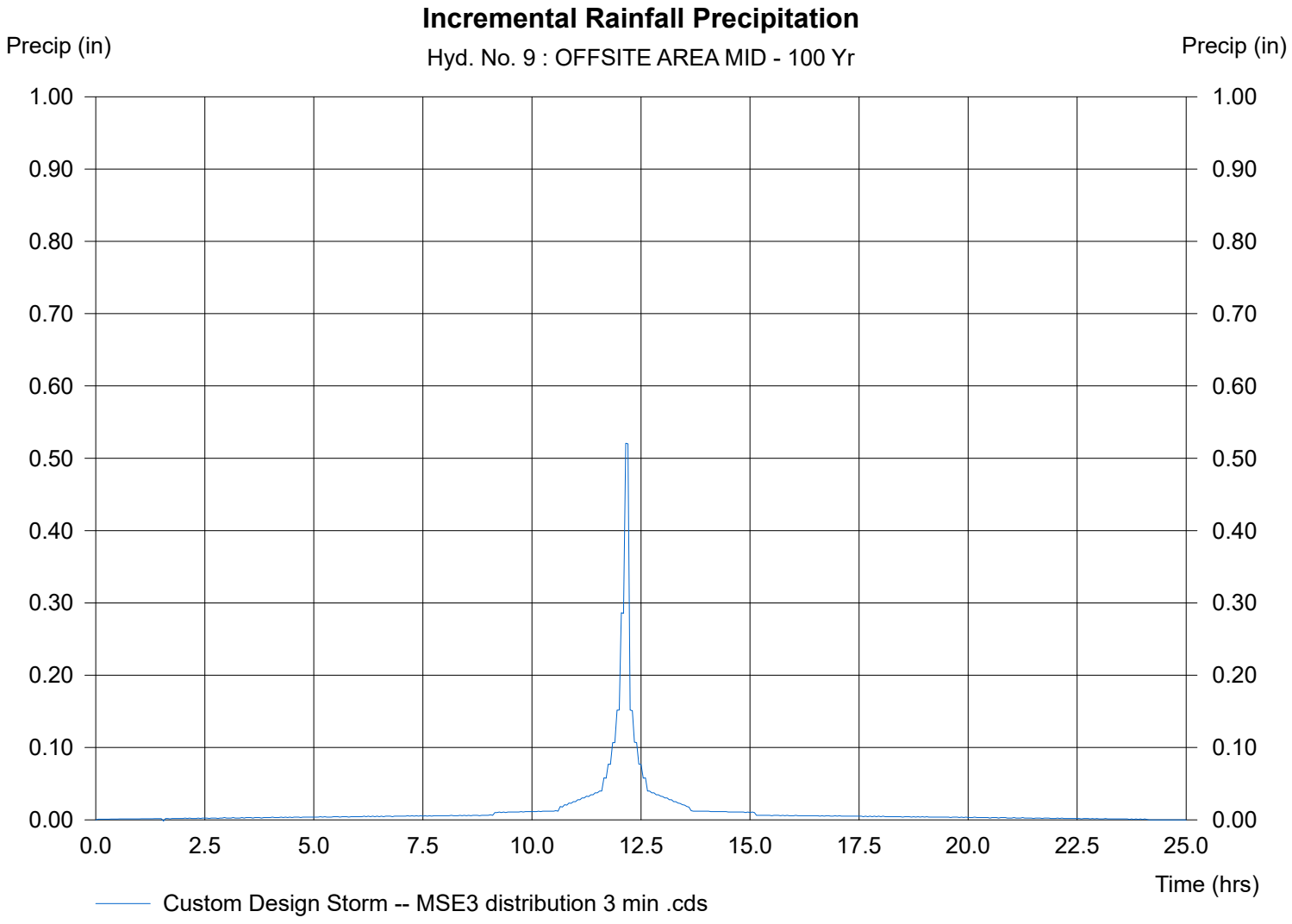
Total Travel Time, Tc ..... 35.50 min

Precipitation Report

Hyd. No. 9

OFFSITE AREA MID

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

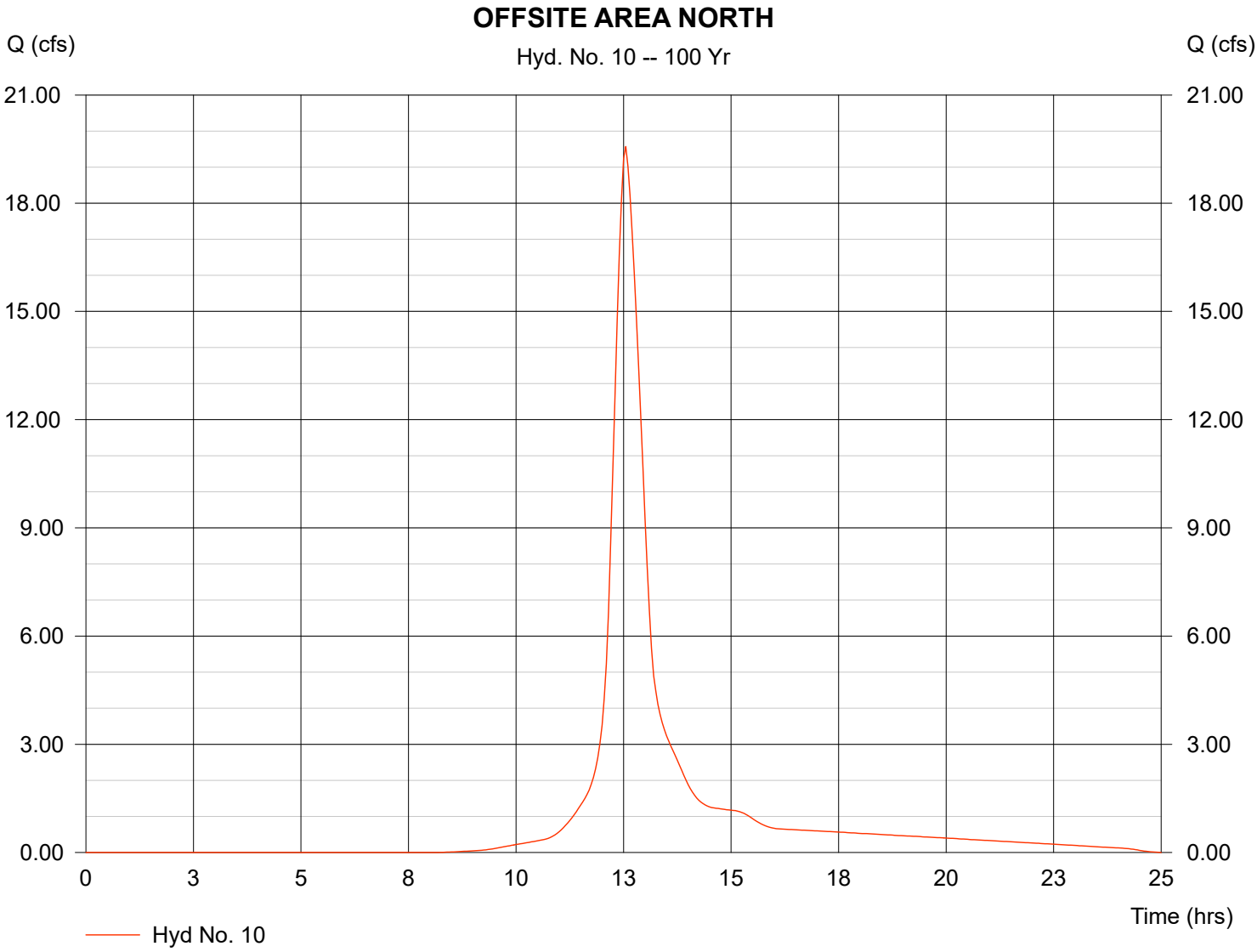
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 10

OFFSITE AREA NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.57 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	6.07 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	35.6 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 2.027 acft



TR55 Tc Worksheet

Hyd. No. 10

OFFSITE AREA NORTH

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.69		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 20.54**	**+**	**0.00**	**+**	**0.00**	**=**	**20.54**
Shallow Concentrated Flow							
Flow length (ft)	= 1462.00		0.00		0.00		
Watercourse slope (%)	= 1.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 1.61		0.00		0.00		
Travel Time (min)	**= 15.10**	**+**	**0.00**	**+**	**0.00**	**=**	**15.10**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

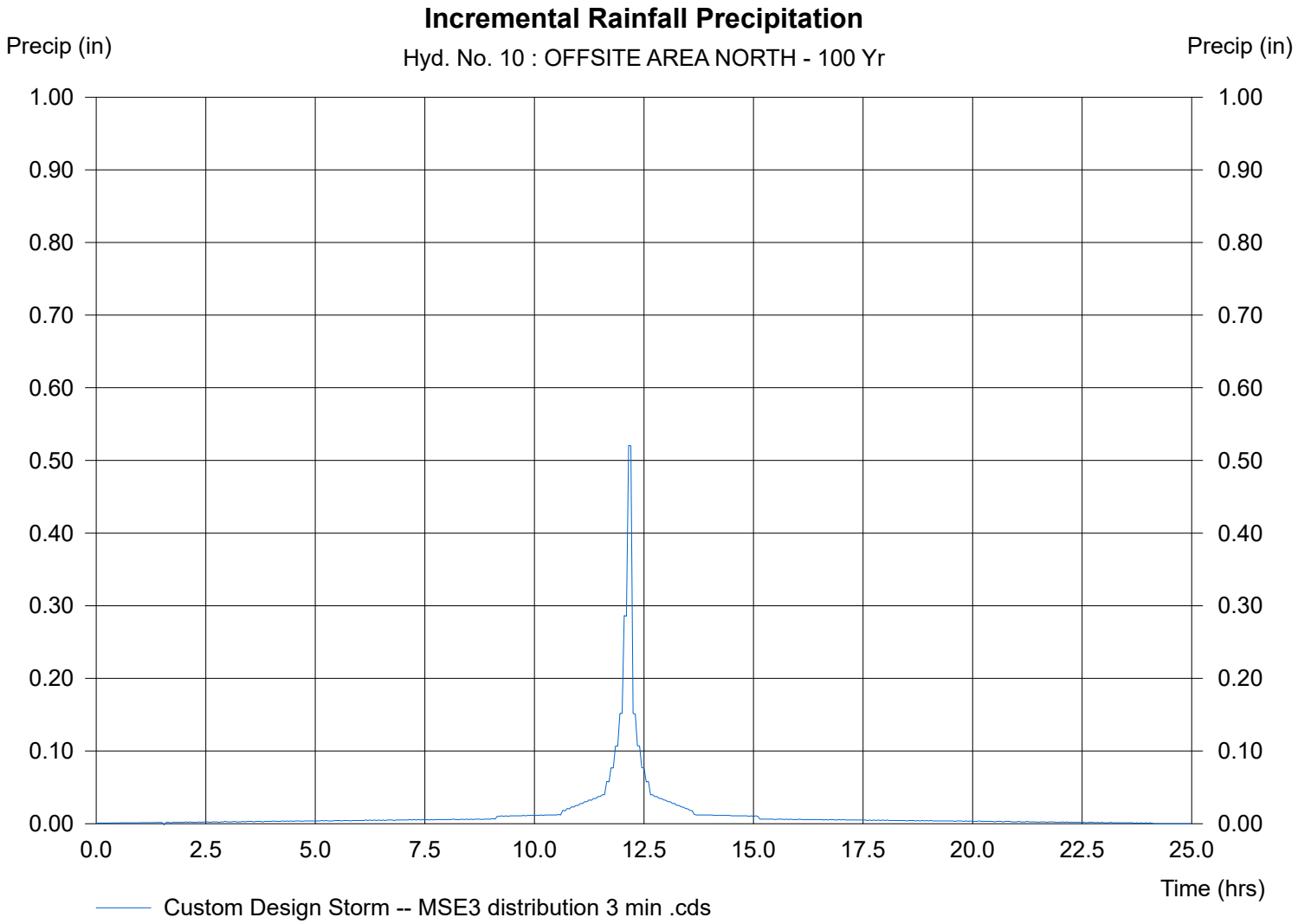
Total Travel Time, Tc ..... 35.60 min

Precipitation Report

Hyd. No. 10

OFFSITE AREA NORTH

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



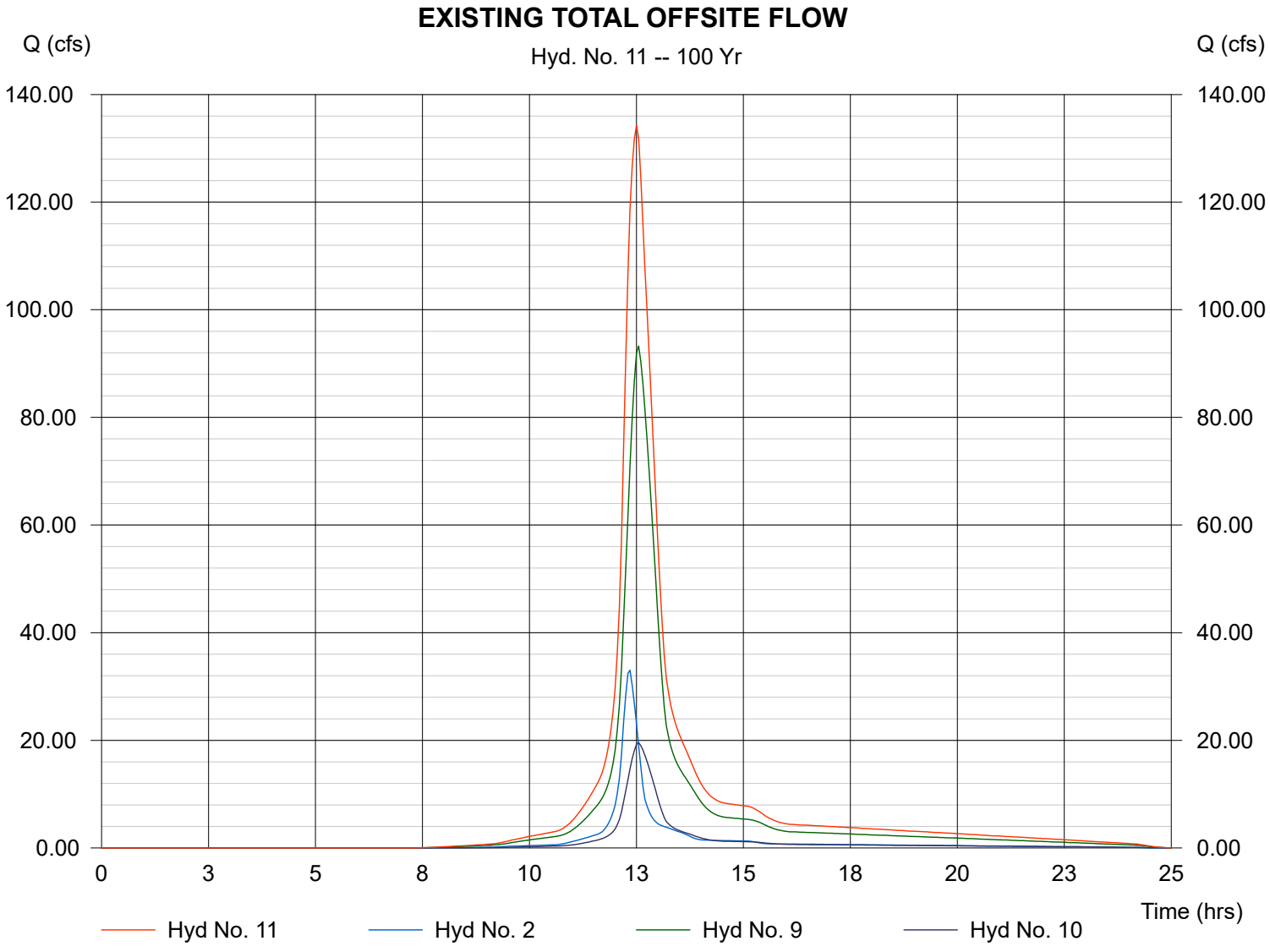
Hydrograph Plot

Hyd. No. 11

EXISTING TOTAL OFFSITE FLOW

Hydrograph type	= Combine	Peak discharge	= 134.31 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 2, 9, 10		

Hydrograph Volume = 14.155 acft



Hydrograph Plot

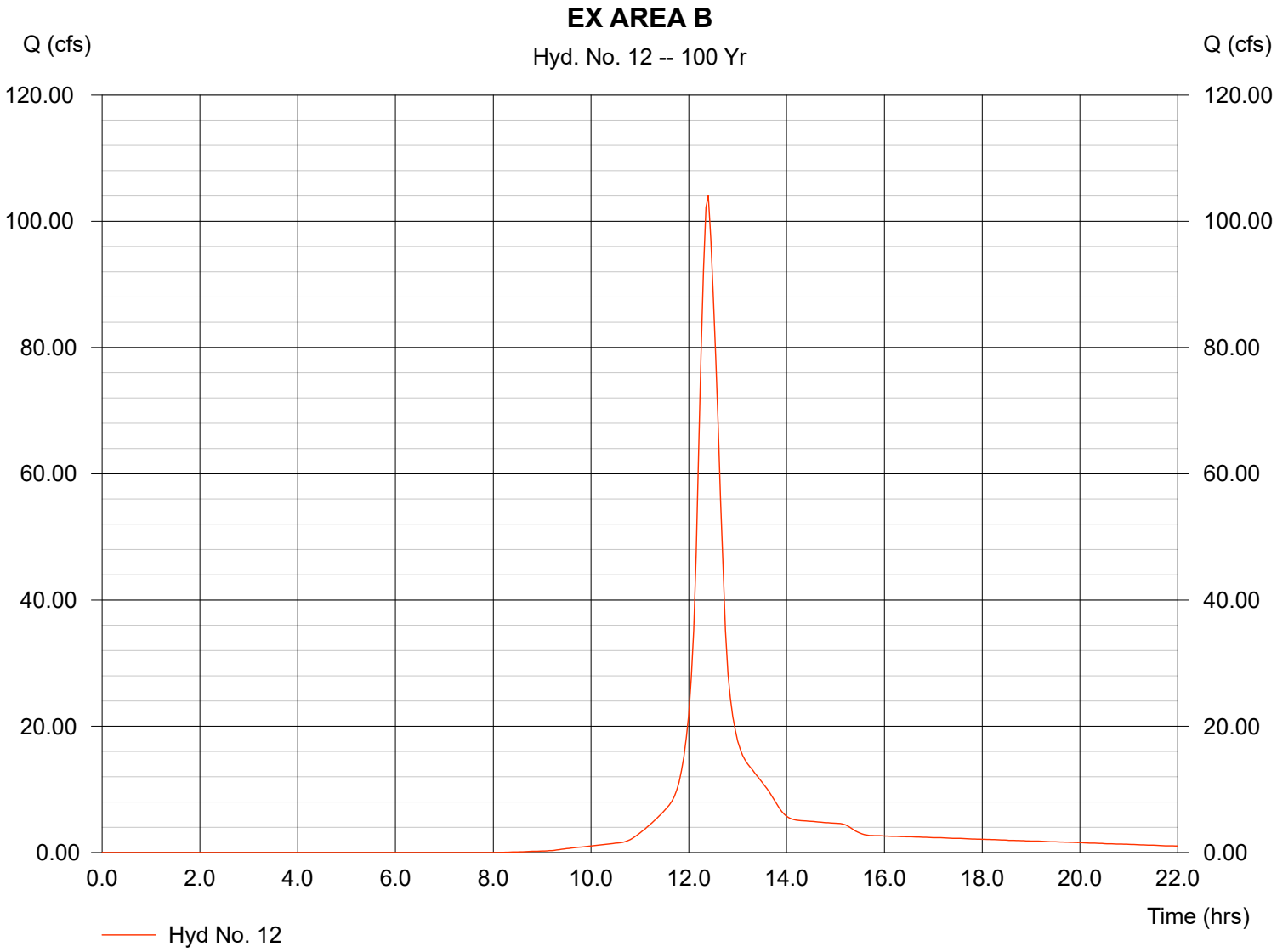
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 12

EX AREA B

Hydrograph type	=	SCS Runoff	Peak discharge	=	104.04 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	24.75 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	20.7 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 8.187 acft



TR55 Tc Worksheet

Hyd. No. 12

EX AREA B

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.170	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	**= 15.59**	**+ 0.00**	**+ 0.00**	**= 15.59**
Shallow Concentrated Flow				
Flow length (ft)	= 1032.00	0.00	0.00	
Watercourse slope (%)	= 4.40	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.38	0.00	0.00	
Travel Time (min)	**= 5.08**	**+ 0.00**	**+ 0.00**	**= 5.08**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

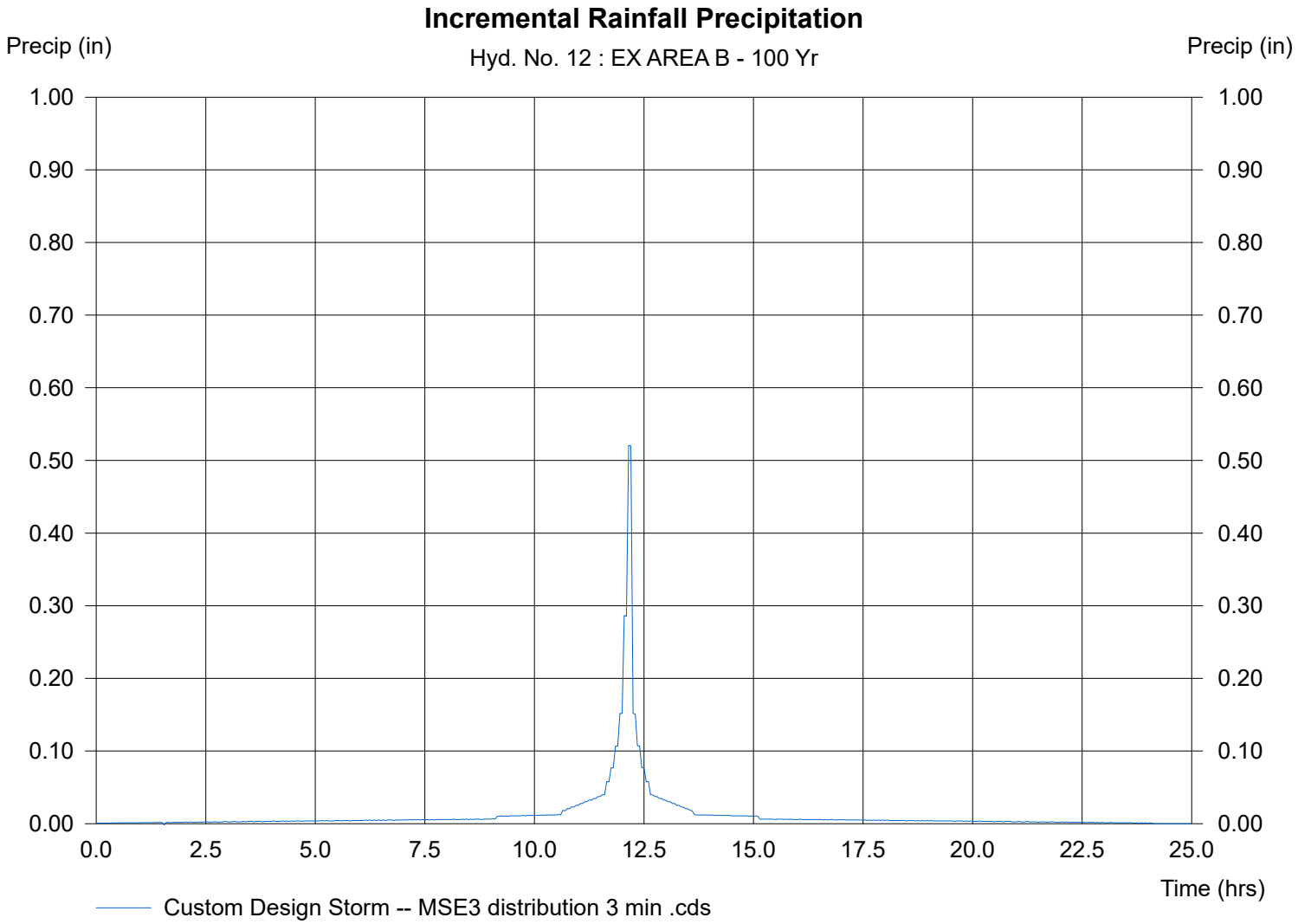
Total Travel Time, Tc ..... 20.70 min

Precipitation Report

Hyd. No. 12

EX AREA B

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

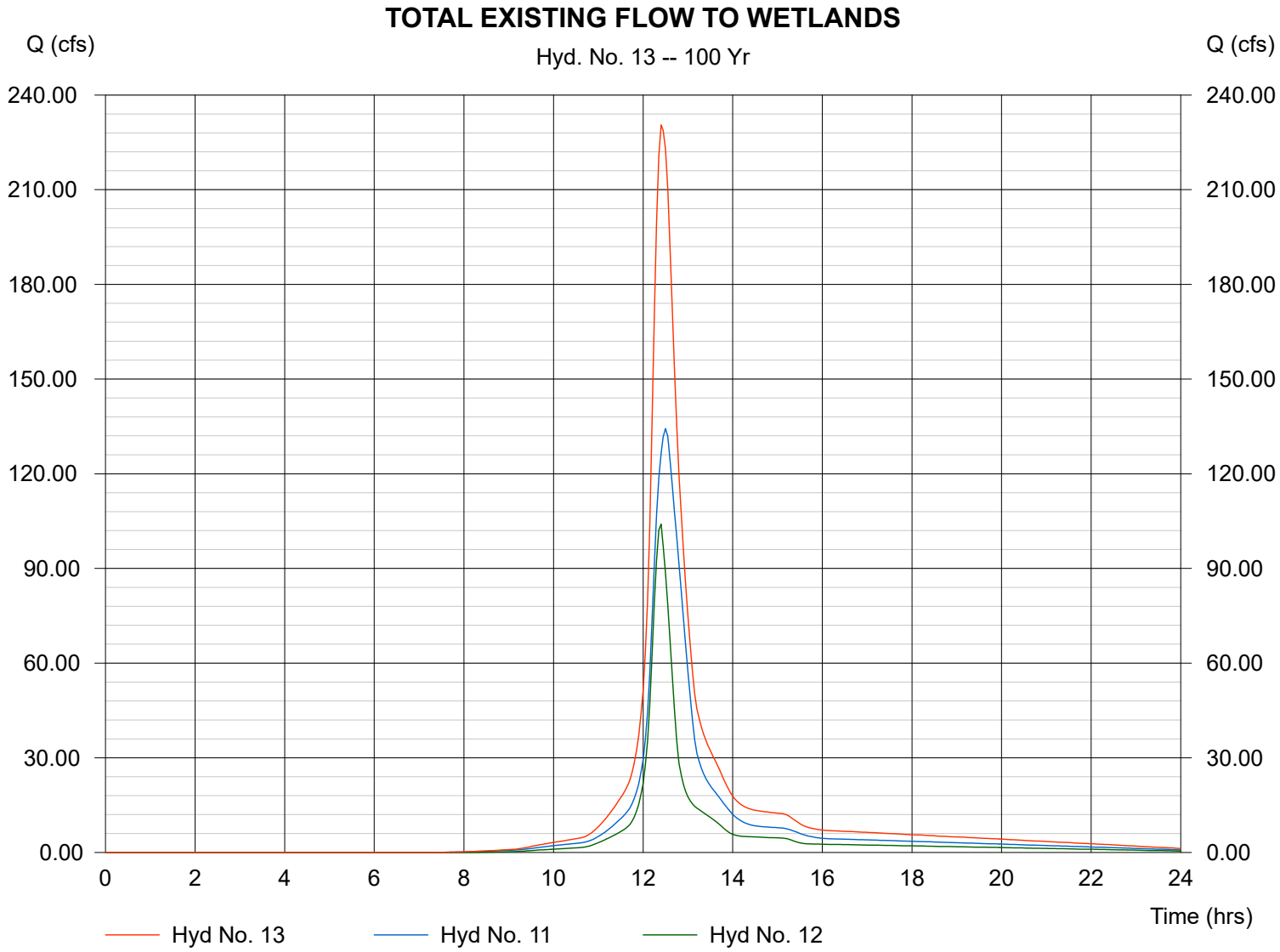
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 13

TOTAL EXISTING FLOW TO WETLANDS

Hydrograph type	= Combine	Peak discharge	= 230.56 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 11, 12		

Hydrograph Volume = 22.342 acft



Hydrograph Plot

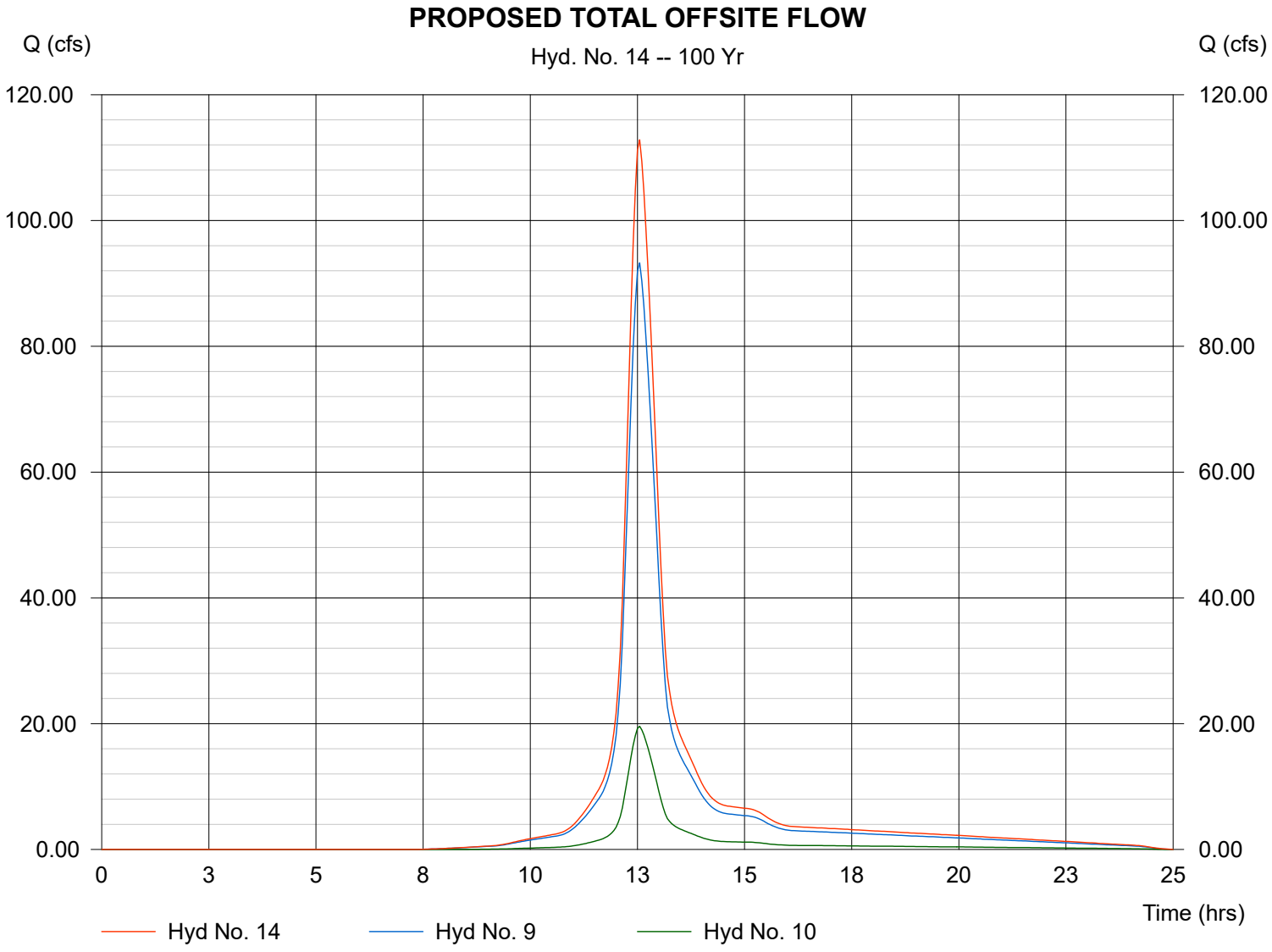
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 14

PROPOSED TOTAL OFFSITE FLOW

Hydrograph type	= Combine	Peak discharge	= 112.83 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 9, 10		

Hydrograph Volume = 11.749 acft



Hydrograph Plot

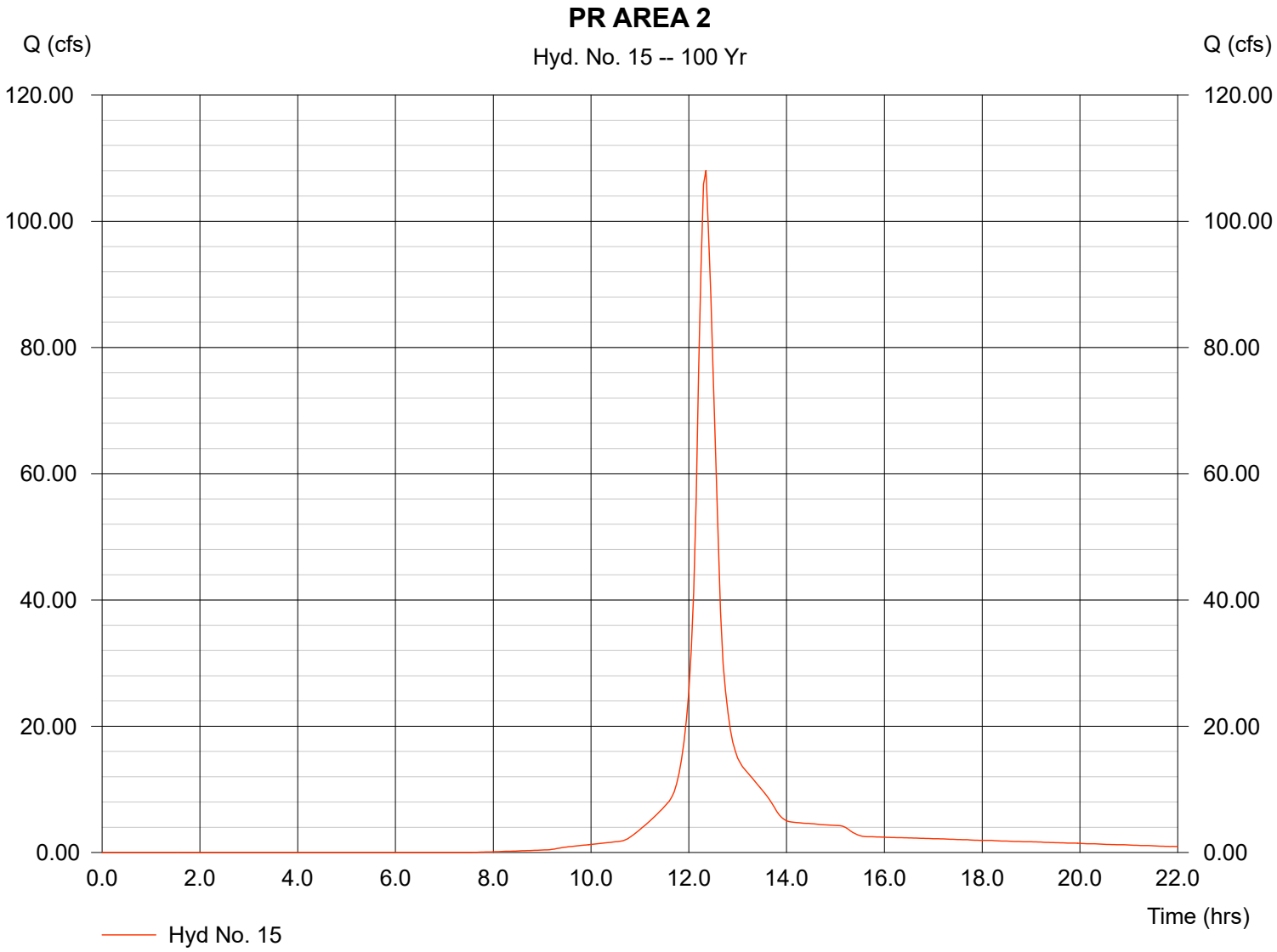
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:18 AM

Hyd. No. 15

PR AREA 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	108.05 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	21.30 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.5 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 7.839 acft



TR55 Tc Worksheet

Hyd. No. 15

PR AREA 2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 15.56**	**+ 0.00**	**+ 0.00**	**= 15.56**
Shallow Concentrated Flow				
Flow length (ft)	= 860.00	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 3.97**	**+ 0.00**	**+ 0.00**	**= 3.97**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

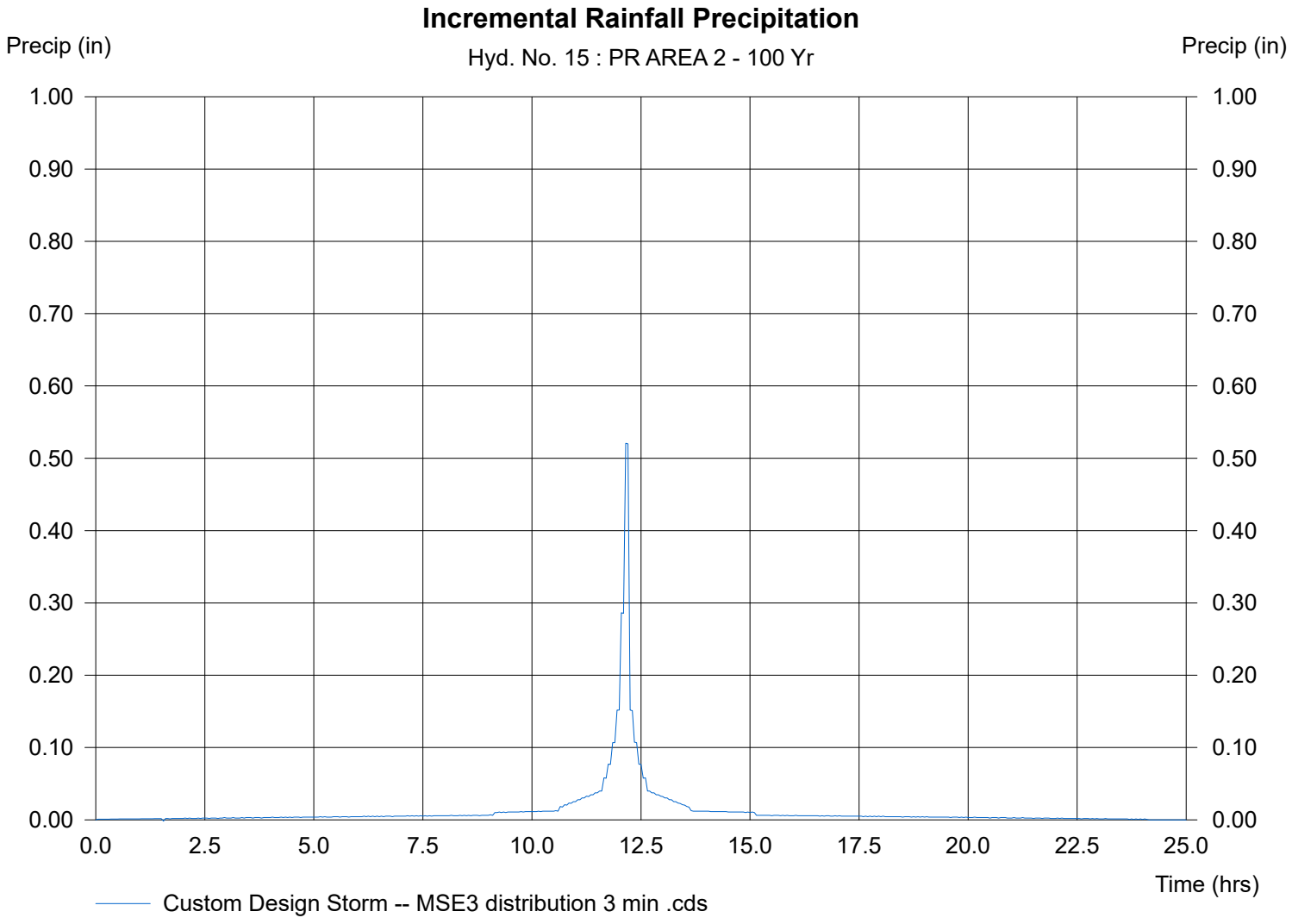
Total Travel Time, Tc ..... 19.50 min

Precipitation Report

Hyd. No. 15

PR AREA 2

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

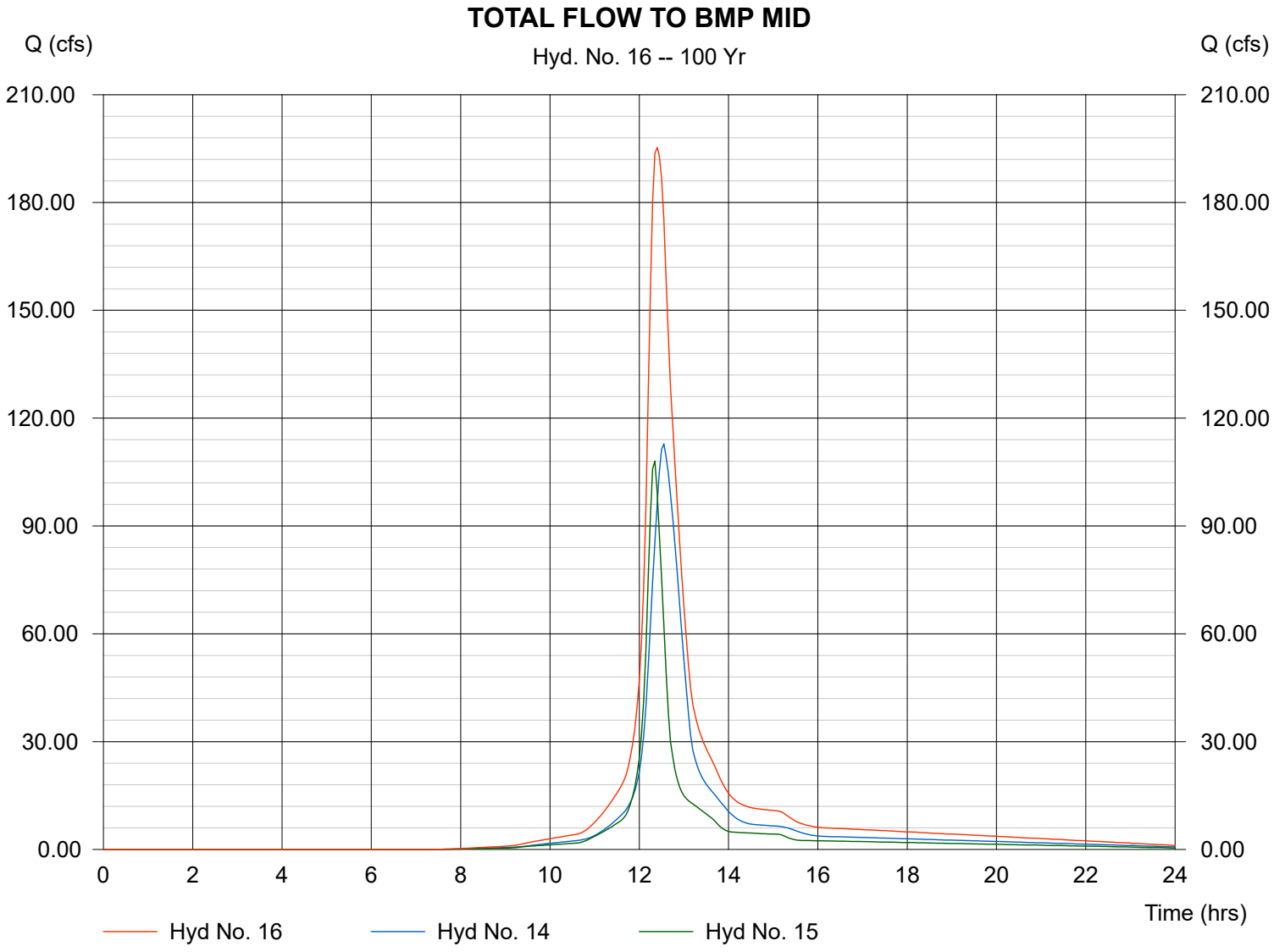
Friday, Sep 25 2026, 6:19 AM

Hyd. No. 16

TOTAL FLOW TO BMP MID

Hydrograph type	= Combine	Peak discharge	= 195.32 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 14, 15		

Hydrograph Volume = 19.588 acft



Hydrograph Plot

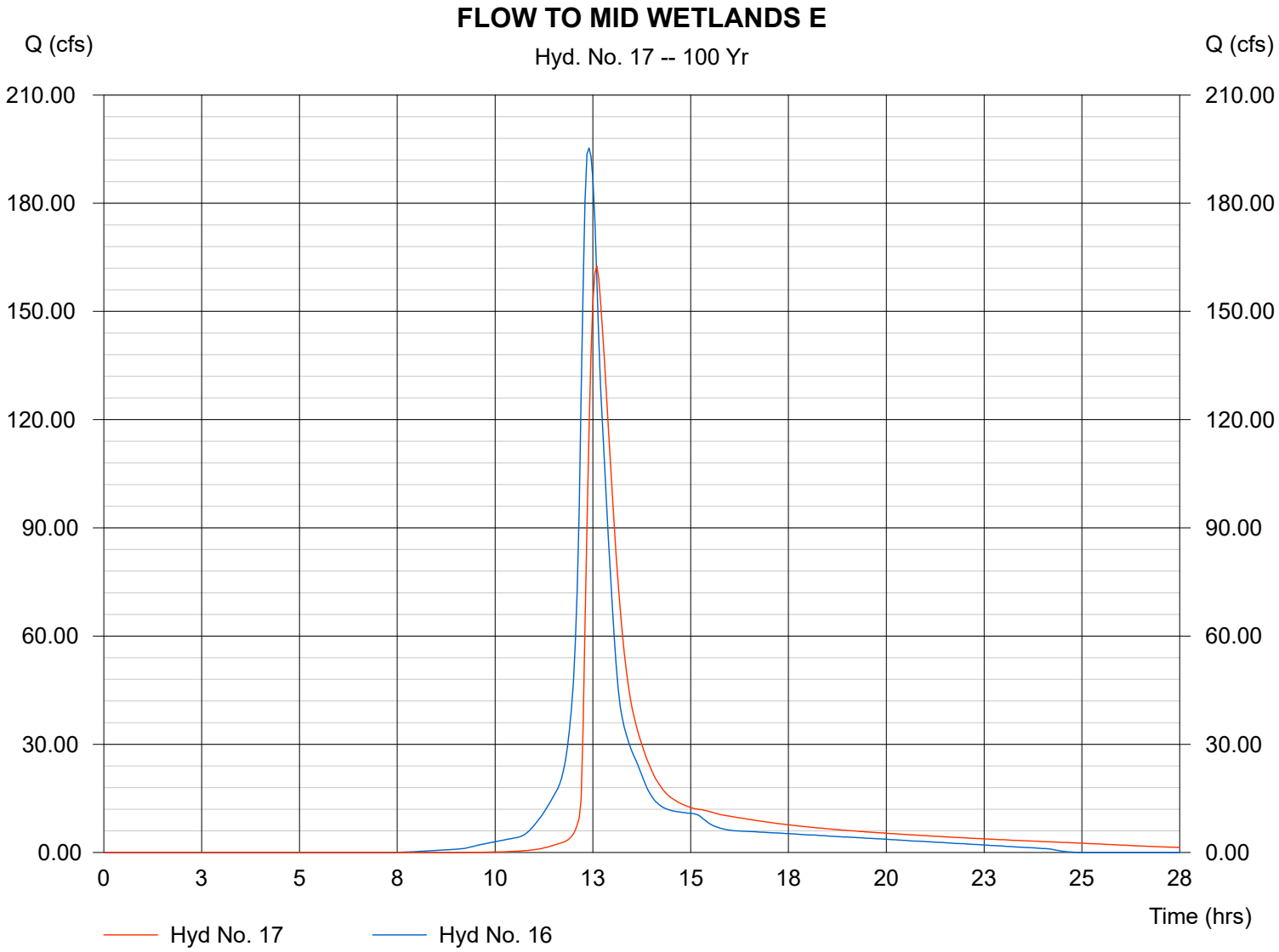
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:19 AM

Hyd. No. 17

FLOW TO MID WETLANDS E

Hydrograph type	= Reservoir	Peak discharge	= 162.56 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyd. No.	= 16	Max. Elevation	= 1021.94 ft
Reservoir name	= BMP EAST MID WETLANDS	Max. Storage	= 5.432 acft

Storage Indication method used. | Hydrograph Volume = 19.580 acft



Pond Report

Pond No. 1 - BMP EAST MID WETLANDS

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1018.00	49,896	0.000	0.000
1.00	1019.00	54,585	1.199	1.199
2.00	1020.00	59,375	1.308	2.507
3.00	1021.00	65,021	1.428	3.935
4.00	1022.00	73,584	1.591	5.526

Culvert / Orifice Structures

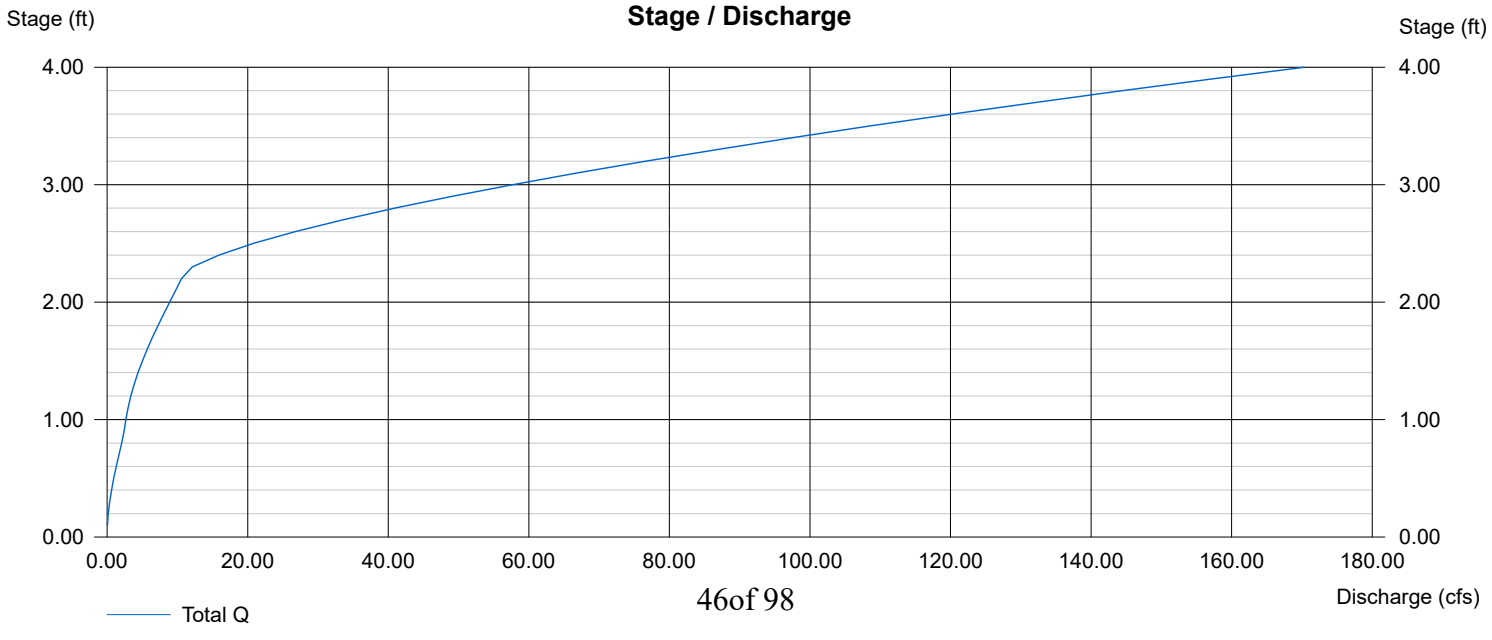
	[A]	[B]	[C]	[D]
Rise (in)	= 12.00	18.00	0.00	0.00
Span (in)	= 12.00	18.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1018.00	1019.00	0.00	0.00
Length (ft)	= 50.00	50.00	0.00	0.00
Slope (%)	= 2.98	2.98	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 25.00	0.00	0.00	0.00
Crest El. (ft)	= 1020.25	0.00	0.00	0.00
Weir Coeff.	= 2.60	0.00	0.00	0.00
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

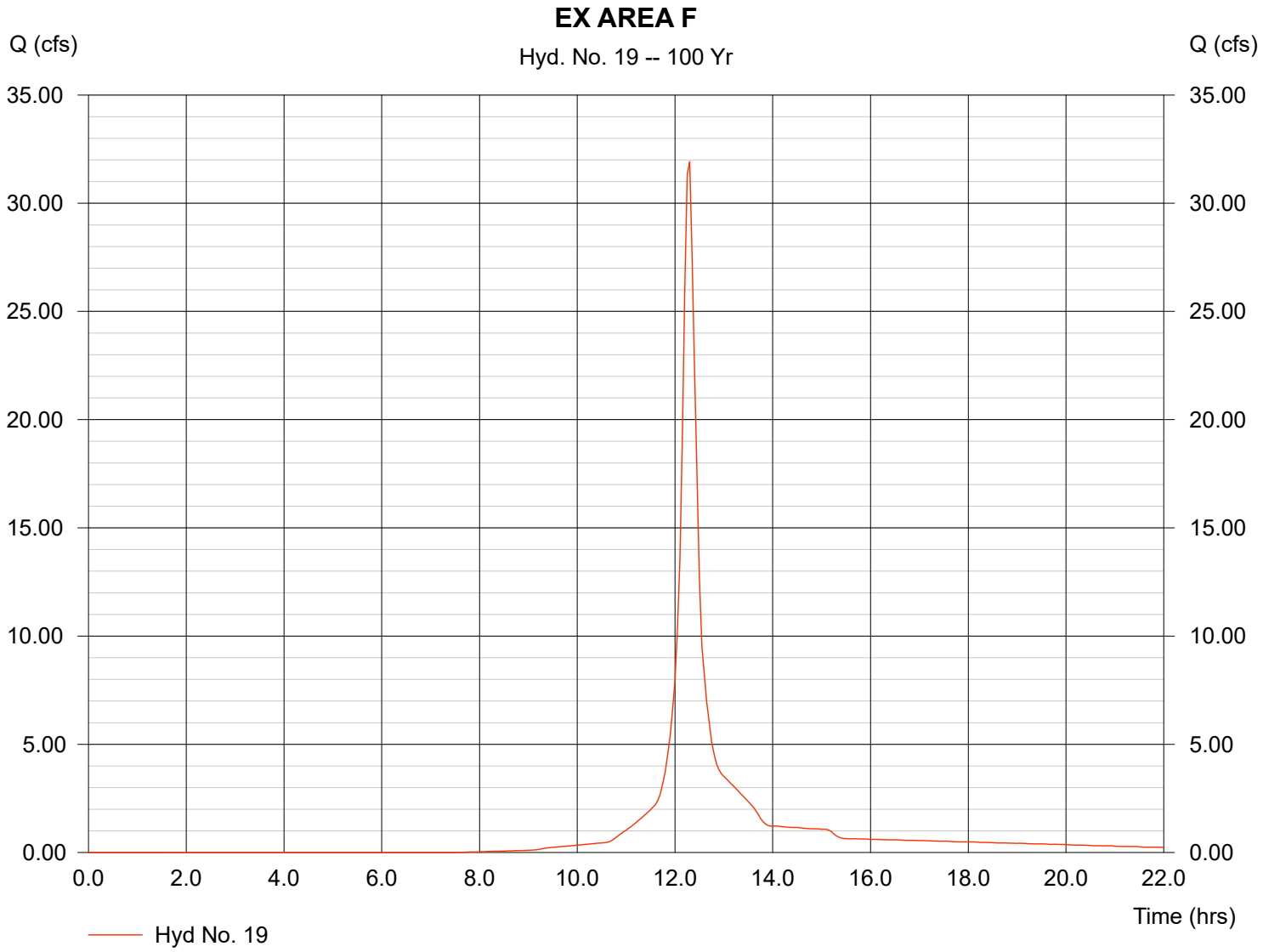
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:19 AM

Hyd. No. 19

EX AREA F

Hydrograph type	=	SCS Runoff	Peak discharge	=	31.93 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	5.57 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.7 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.988 acft



TR55 Tc Worksheet

Hyd. No. 19

EX AREA F

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.69		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 10.04**	**+**	**0.00**	**+**	**0.00**	**=**	**10.04**
Shallow Concentrated Flow							
Flow length (ft)	= 487.00		0.00		0.00		
Watercourse slope (%)	= 8.80		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 4.79		0.00		0.00		
Travel Time (min)	**= 1.70**	**+**	**0.00**	**+**	**0.00**	**=**	**1.70**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

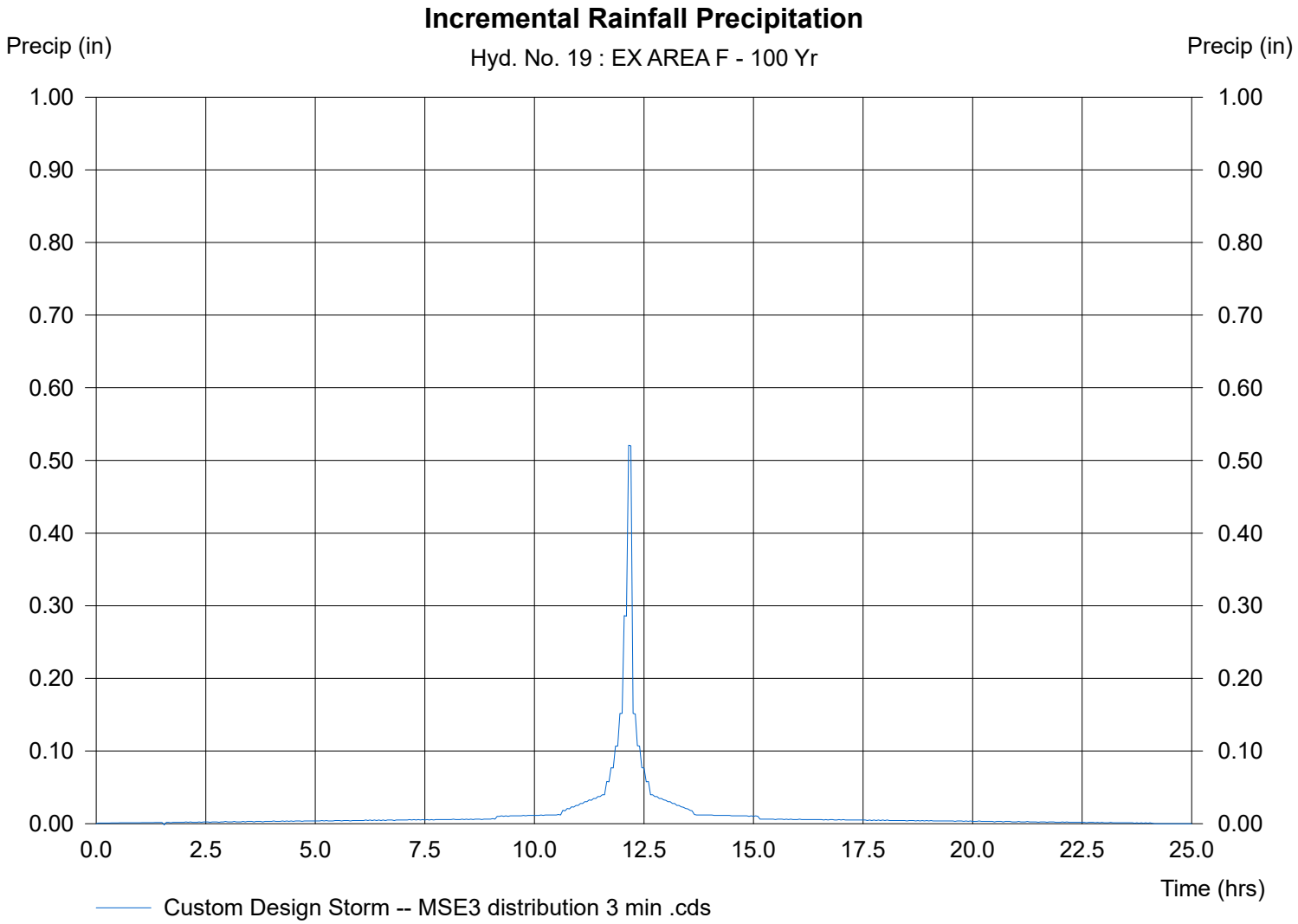
Total Travel Time, Tc ..... 11.70 min

Precipitation Report

Hyd. No. 19

EX AREA F

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

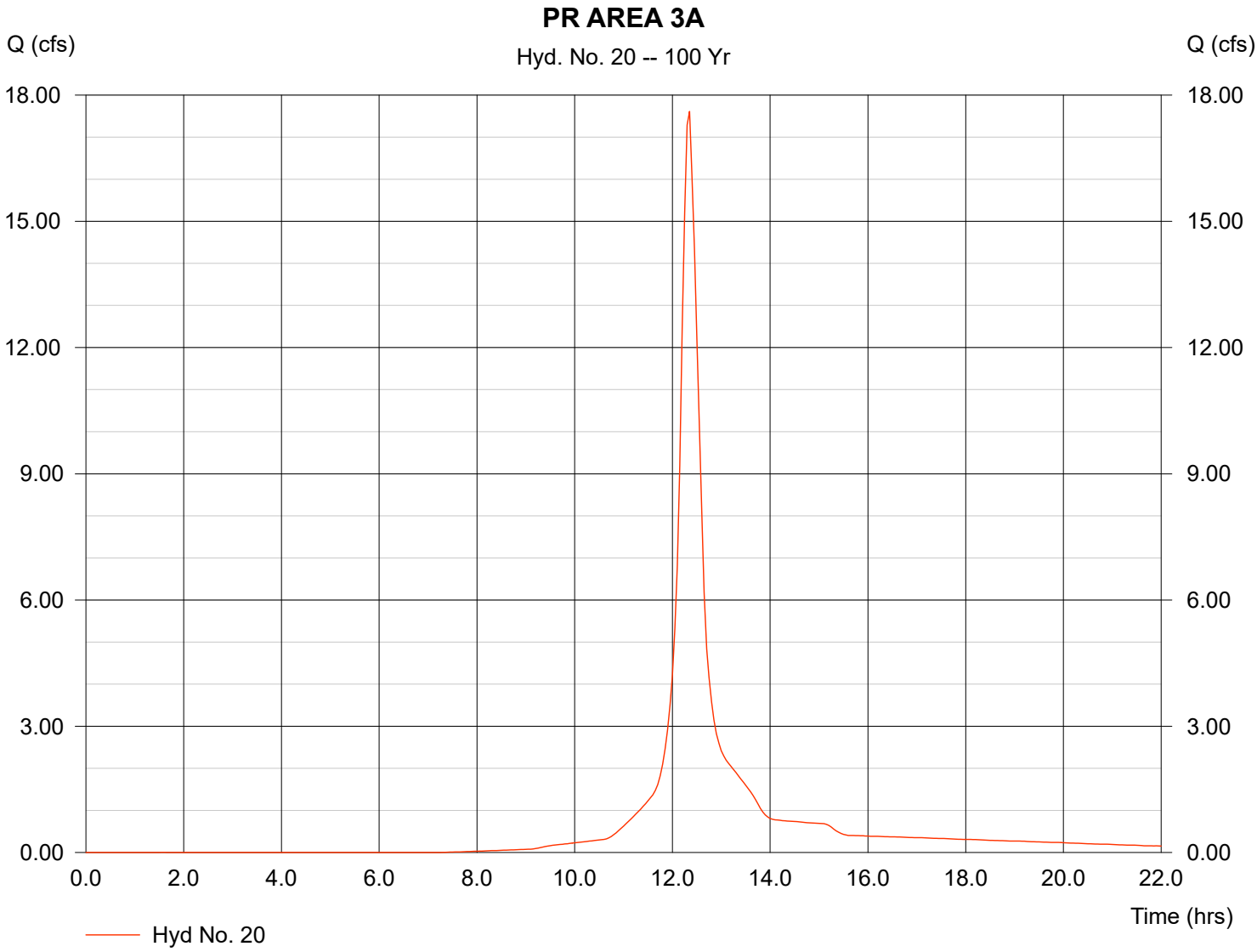
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Hyd. No. 20

PR AREA 3A

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.61 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	3.40 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.6 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.283 acft



TR55 Tc Worksheet

Hyd. No. 20

PR AREA 3A

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 15.56**	**+ 0.00**	**+ 0.00**	**= 15.56**
Shallow Concentrated Flow				
Flow length (ft)	= 226.00	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 1.04**	**+ 0.00**	**+ 0.00**	**= 1.04**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

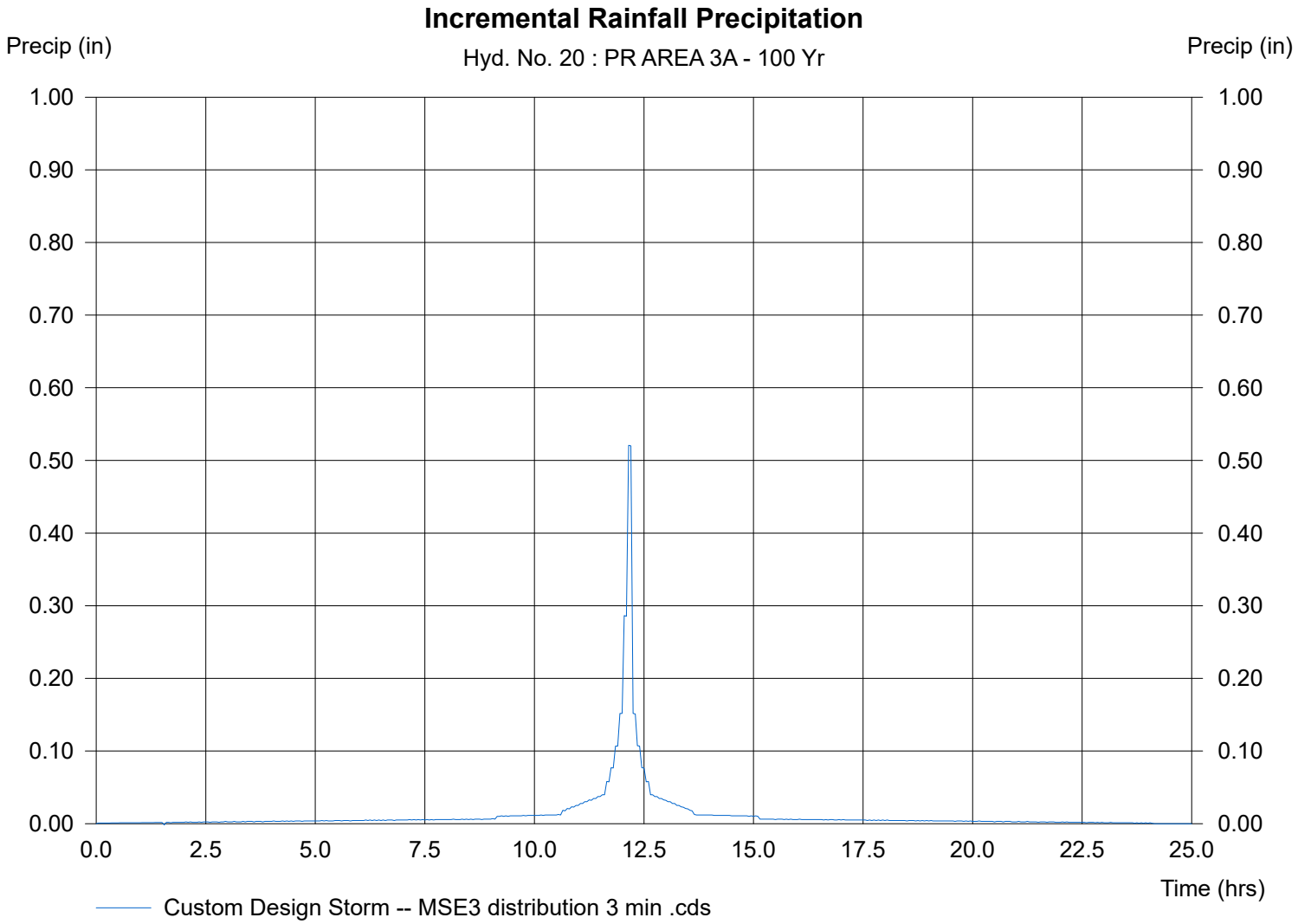
Total Travel Time, Tc ..... 16.60 min

Precipitation Report

Hyd. No. 20

PR AREA 3A

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

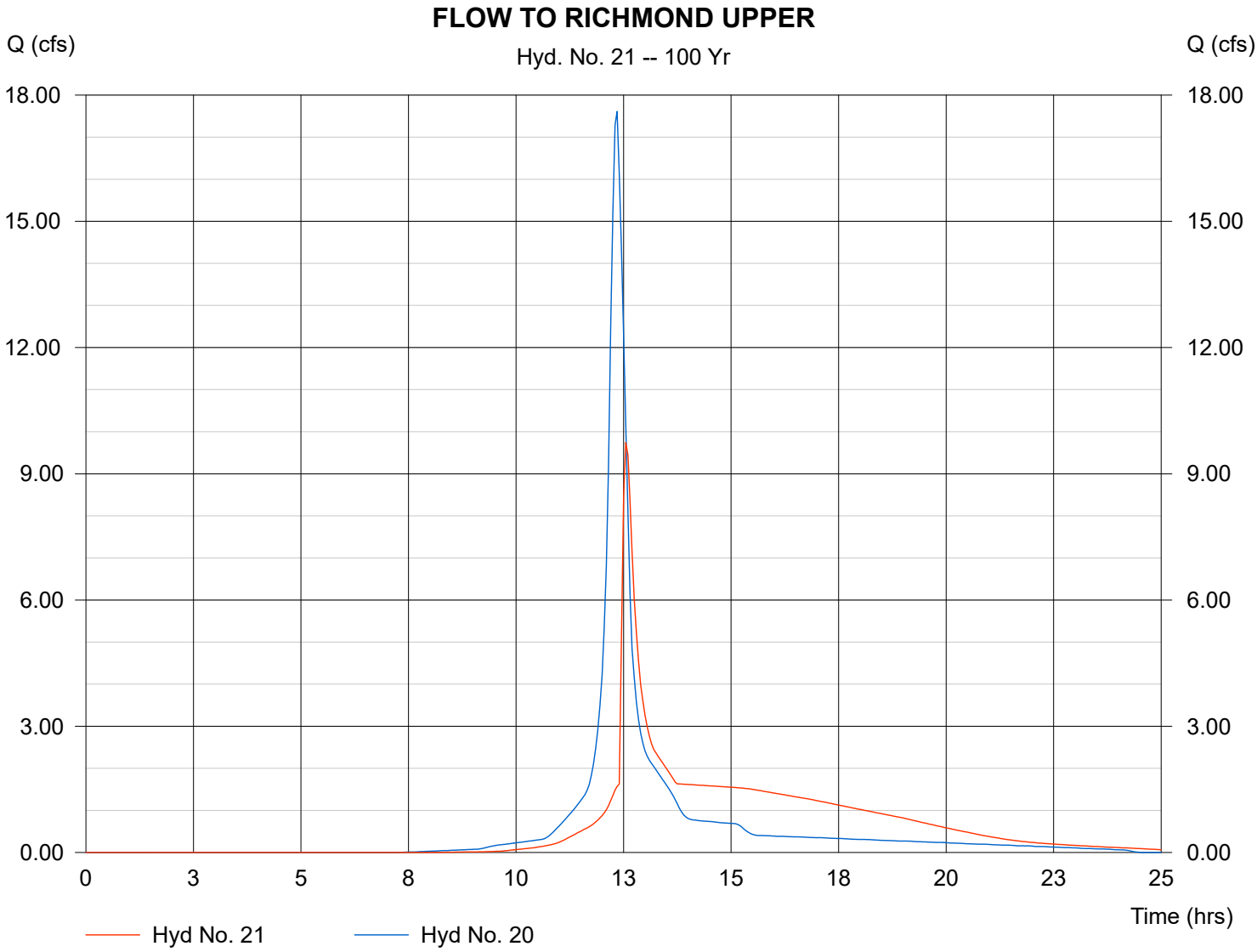
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:19 AM

Hyd. No. 21

FLOW TO RICHMOND UPPER

Hydrograph type	= Reservoir	Peak discharge	= 9.74 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyd. No.	= 20	Max. Elevation	= 1012.96 ft
Reservoir name	= BMP SE UPPER	Max. Storage	= 0.547 acft

Storage Indication method used. | Hydrograph Volume = 1.282 acft



Pond Report

Pond No. 3 - BMP SE UPPER

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1009.00	3,902	0.000	0.000
1.00	1010.00	4,882	0.101	0.101
2.00	1011.00	5,964	0.124	0.225
3.00	1012.00	7,146	0.150	0.376
4.00	1013.00	8,460	0.179	0.555

Culvert / Orifice Structures

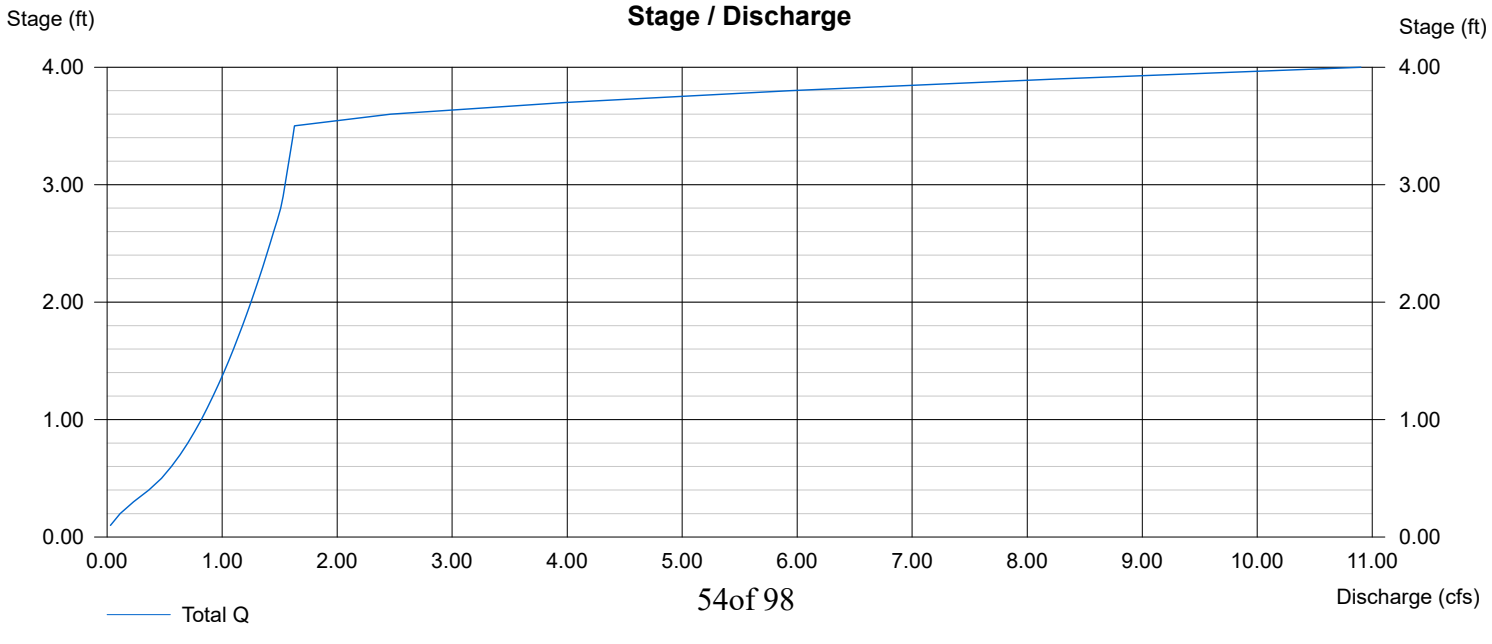
	[A]	[B]	[C]	[D]
Rise (in)	= 6.00	0.00	0.00	0.00
Span (in)	= 6.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1009.00	0.00	0.00	0.00
Length (ft)	= 48.00	0.00	0.00	0.00
Slope (%)	= 4.20	0.00	0.00	0.00
N-Value	= .012	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	0.00	0.00	0.00
Crest El. (ft)	= 1012.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	0.00	0.00	0.00
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

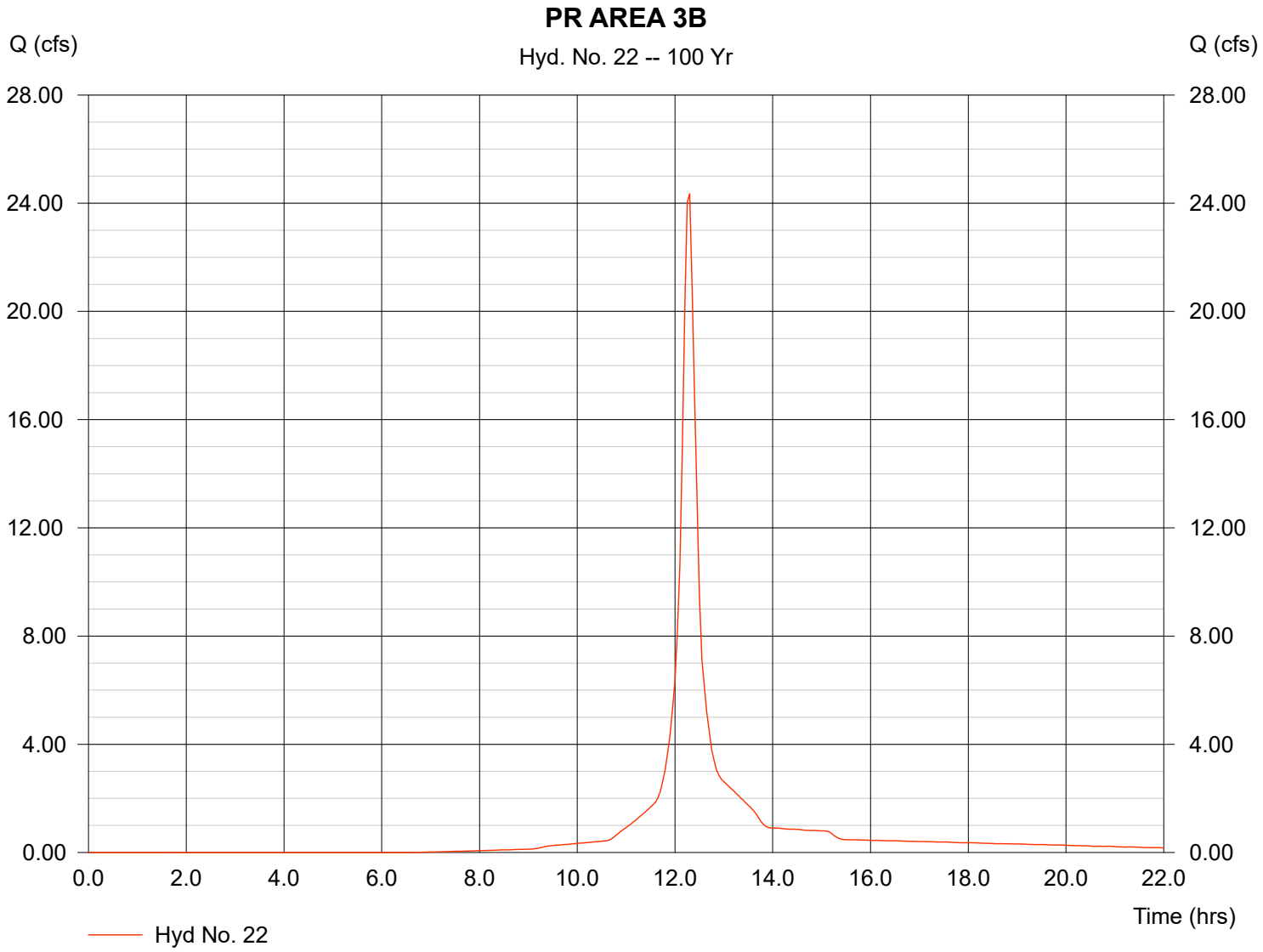
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:19 AM

Hyd. No. 22

PR AREA 3B

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.35 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	4.01 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.539 acft



TR55 Tc Worksheet

Hyd. No. 22

PR AREA 3B

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 94.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 4.30	0.00	0.00	
Travel Time (min)	**= 10.91**	**+ 0.00**	**+ 0.00**	**= 10.91**
Shallow Concentrated Flow				
Flow length (ft)	= 293.00	0.00	0.00	
Watercourse slope (%)	= 8.20	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 4.62	0.00	0.00	
Travel Time (min)	**= 1.06**	**+ 0.00**	**+ 0.00**	**= 1.06**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

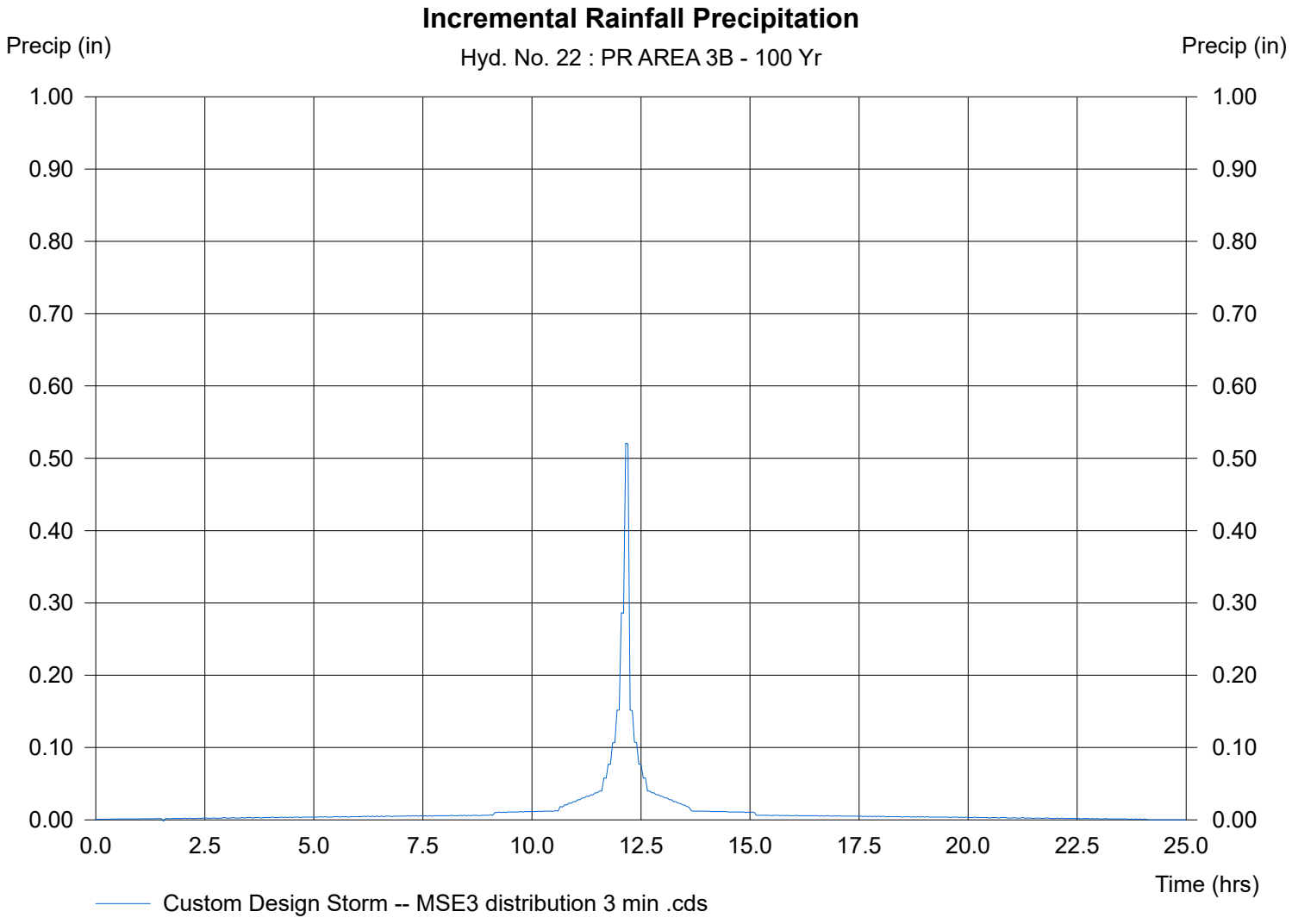
Total Travel Time, Tc ..... 12.00 min

Precipitation Report

Hyd. No. 22

PR AREA 3B

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

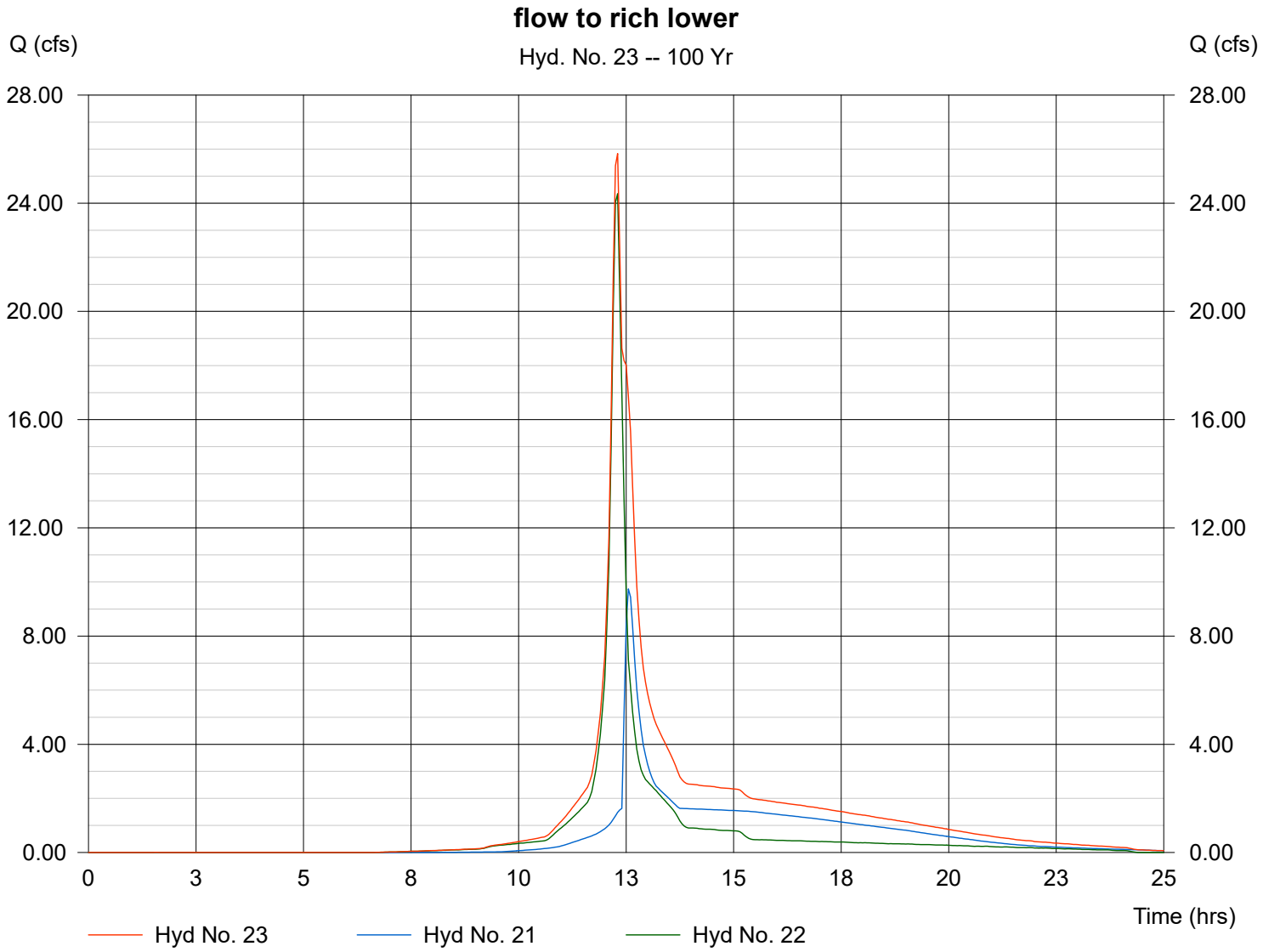
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Hyd. No. 23

flow to rich lower

Hydrograph type	= Combine	Peak discharge	= 25.84 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 21, 22		

Hydrograph Volume = 2.821 acft



Hydrograph Plot

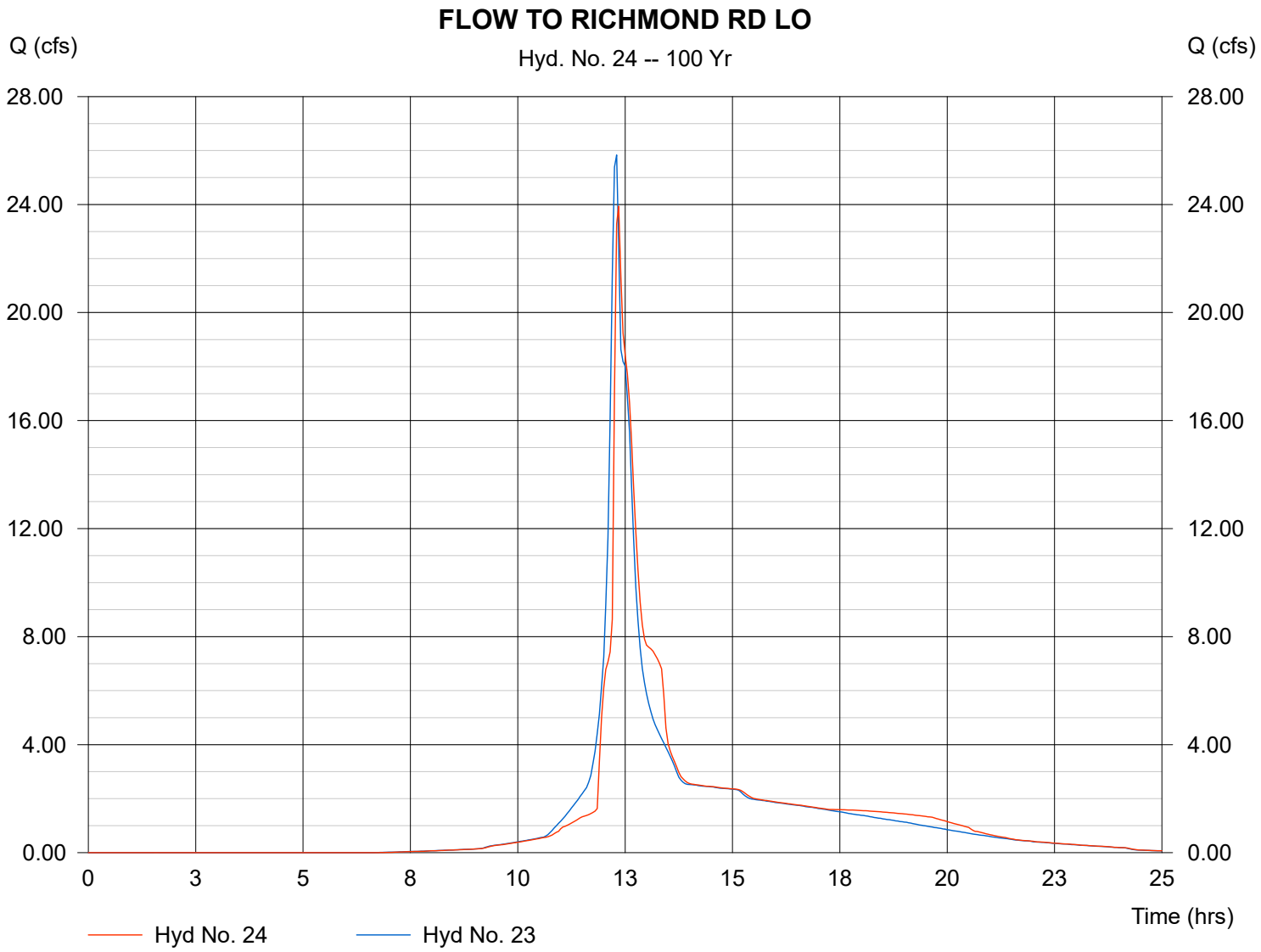
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:19 AM

Hyd. No. 24

FLOW TO RICHMOND RD LO

Hydrograph type	= Reservoir	Peak discharge	= 23.94 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyd. No.	= 23	Max. Elevation	= 982.96 ft
Reservoir name	= BMP SE LOWER	Max. Storage	= 0.258 acft

Storage Indication method used. Wet pond routing start elevation = 977.00 ft. | Hydrograph Volume = 2.821 acft



Pond Report

Pond No. 4 - BMP SE LOWER

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	976.00	108	0.000	0.000
1.00	977.00	110	0.003	0.003
2.00	978.00	112	0.003	0.005
3.00	979.00	418	0.006	0.011
4.00	980.00	1,326	0.020	0.031
5.00	981.00	2,595	0.045	0.076
6.00	982.00	3,985	0.076	0.152
7.00	983.00	5,625	0.110	0.262

Culvert / Orifice Structures

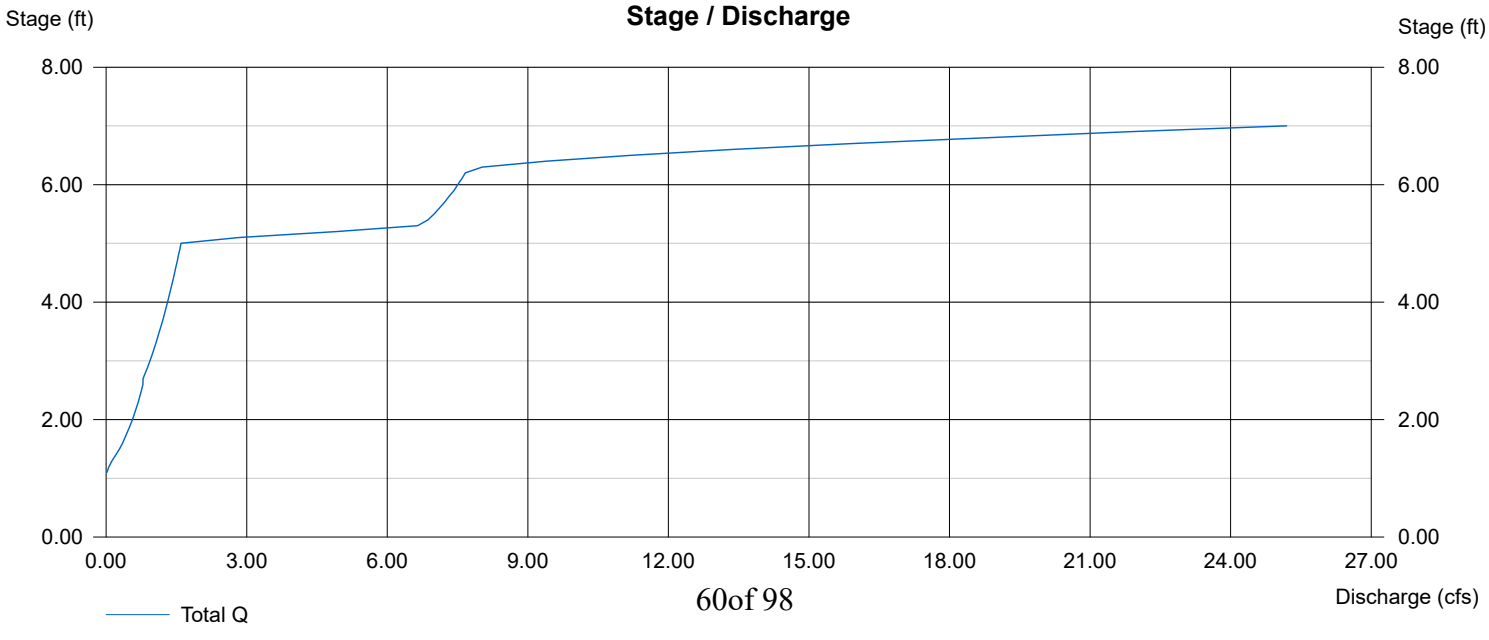
	[A]	[B]	[C]	[D]
Rise (in)	= 12.00	6.00	0.00	0.00
Span (in)	= 12.00	6.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 977.00	977.01	0.00	0.00
Length (ft)	= 43.00	0.00	0.00	0.00
Slope (%)	= 0.10	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.56	10.00	0.00	0.00
Crest El. (ft)	= 981.00	982.25	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

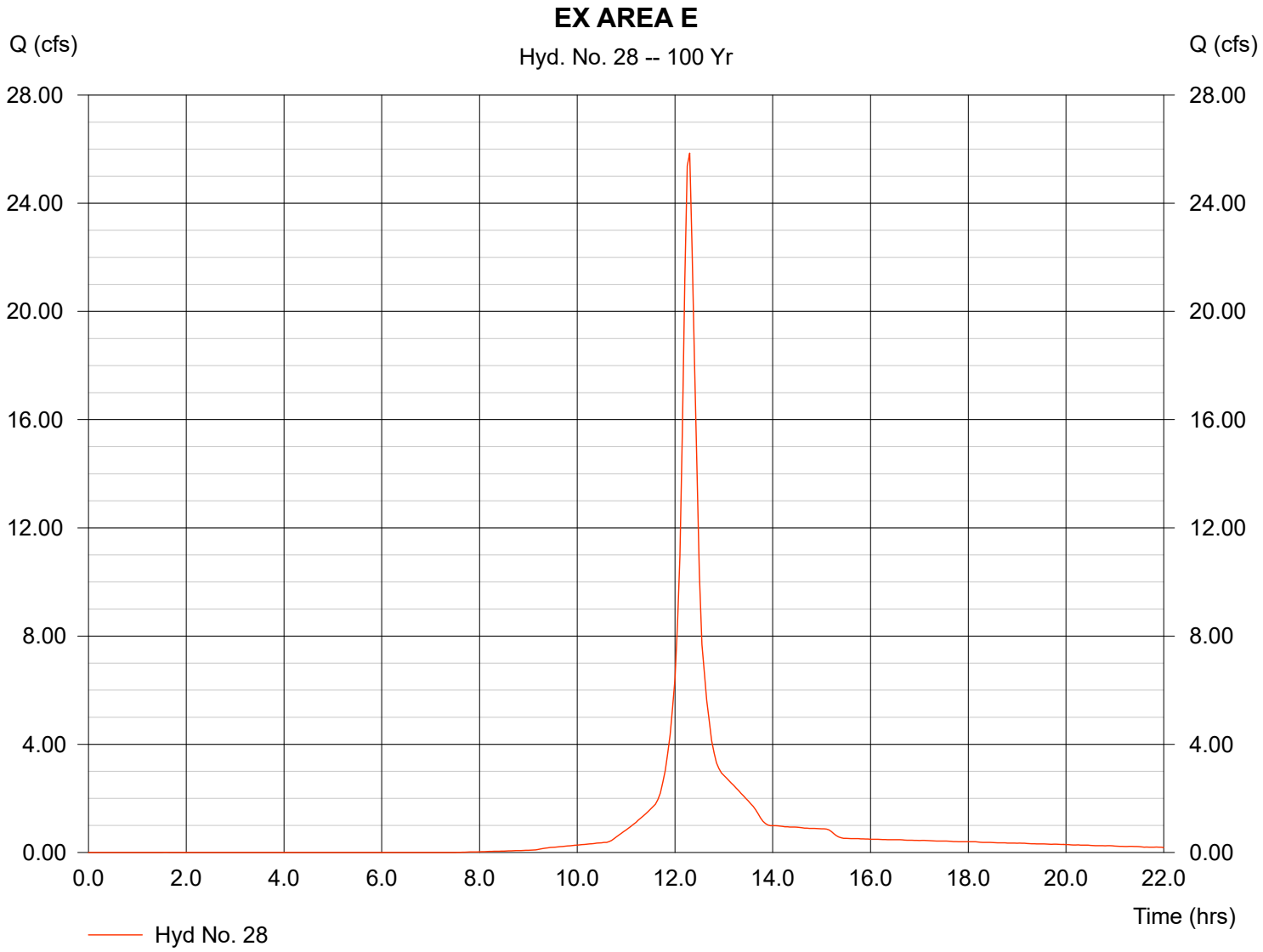
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Hyd. No. 28

EX AREA E

Hydrograph type	=	SCS Runoff	Peak discharge	=	25.85 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	4.51 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.8 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.610 acft



TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve

Hyd. No. 28

EX AREA E

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.170		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.69		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 10.04**	**+**	**0.00**	**+**	**0.00**	**=**	**10.04**
Shallow Concentrated Flow							
Flow length (ft)	= 418.00		0.00		0.00		
Watercourse slope (%)	= 6.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 3.95		0.00		0.00		
Travel Time (min)	**= 1.76**	**+**	**0.00**	**+**	**0.00**	**=**	**1.76**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

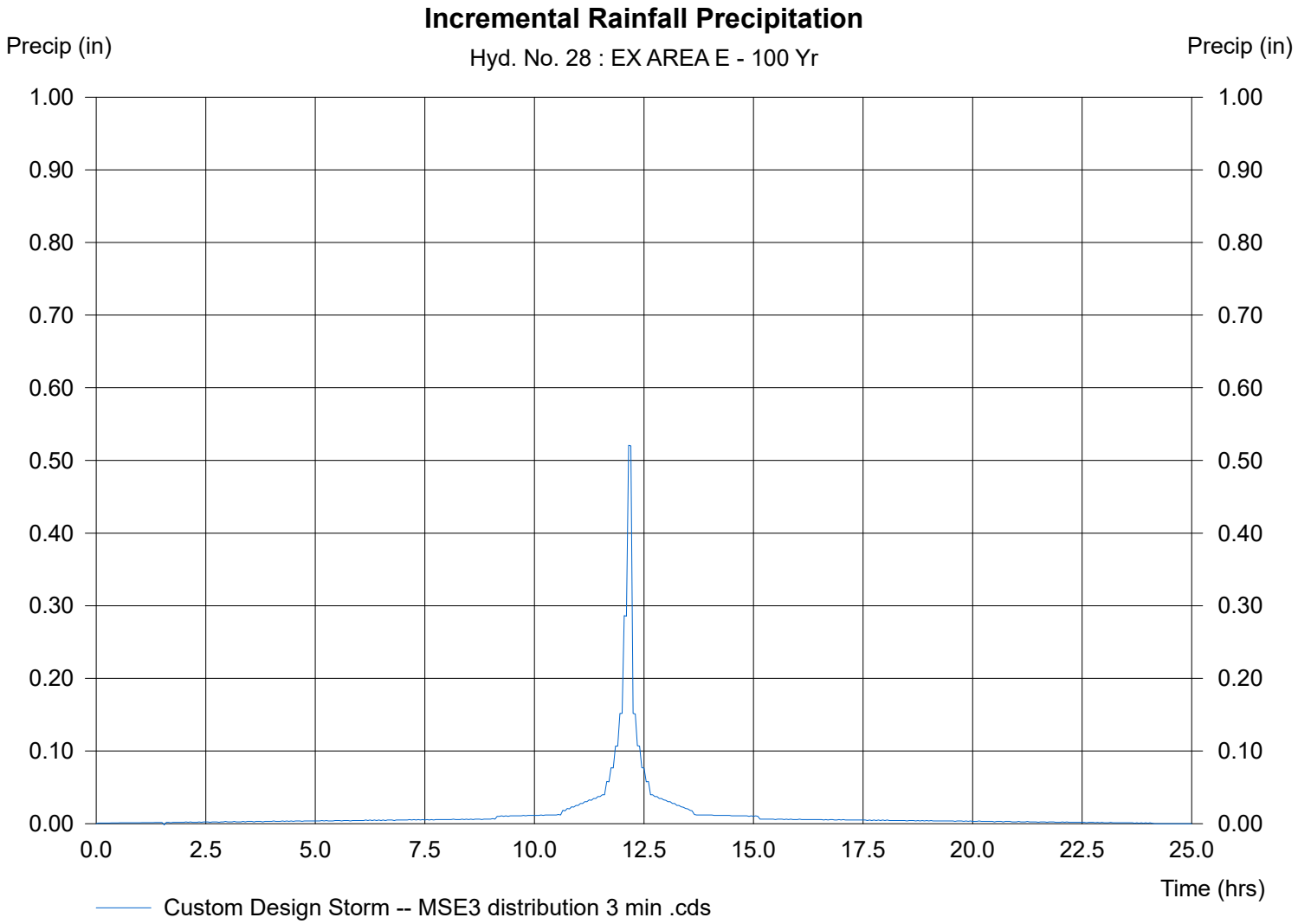
Total Travel Time, Tc ..... 11.80 min

Precipitation Report

Hyd. No. 28

EX AREA E

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

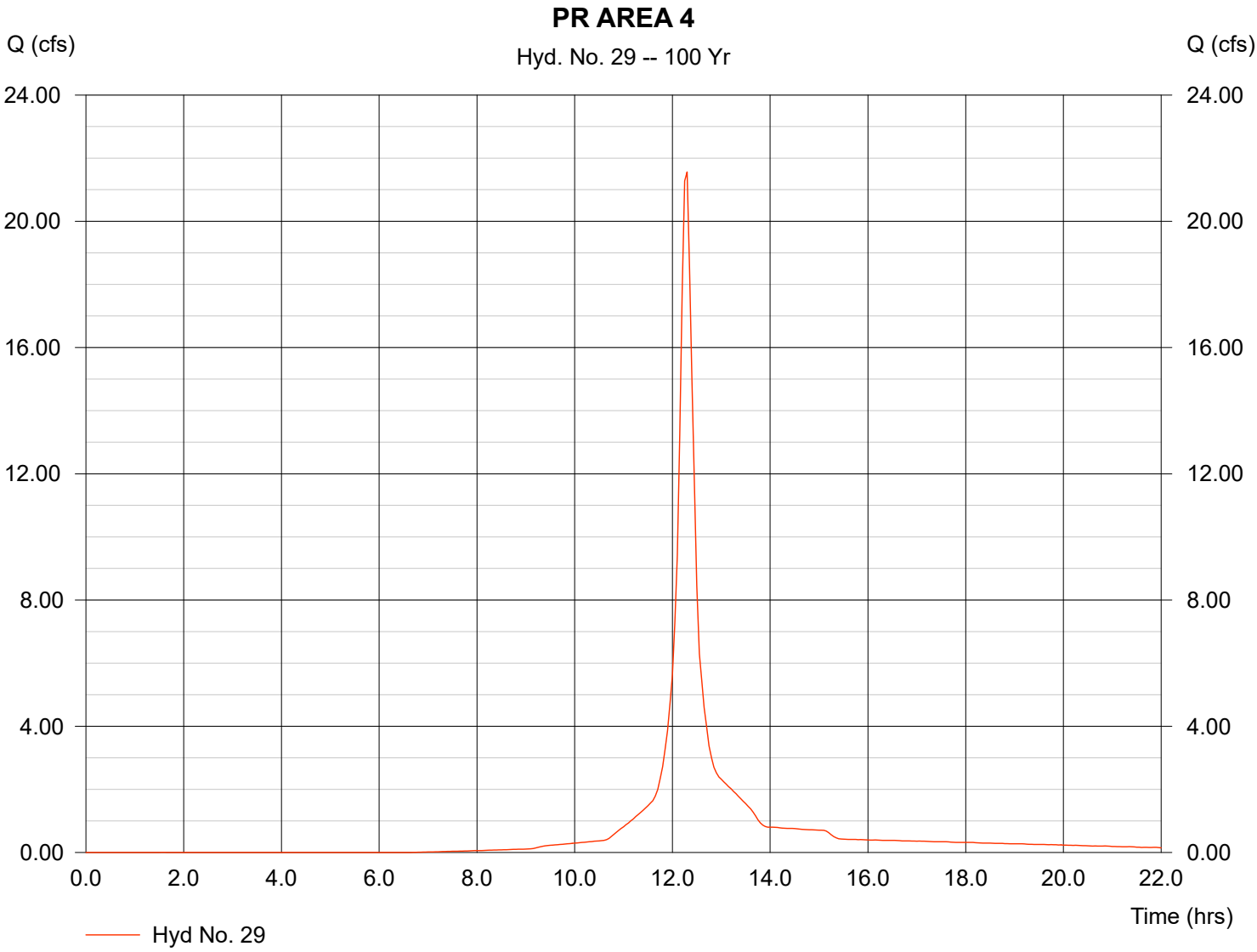
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Hyd. No. 29

PR AREA 4

Hydrograph type	=	SCS Runoff	Peak discharge	=	21.56 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	3.55 ac	Curve number	=	85
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.7 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.362 acft



TR55 Tc Worksheet

Hyd. No. 29

PR AREA 4

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 3.00	0.00	0.00	
Travel Time (min)	**= 13.23**	**+ 0.00**	**+ 0.00**	**= 13.23**
Shallow Concentrated Flow				
Flow length (ft)	= 123.00	0.00	0.00	
Watercourse slope (%)	= 6.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 4.11	0.00	0.00	
Travel Time (min)	**= 0.50**	**+ 0.00**	**+ 0.00**	**= 0.50**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

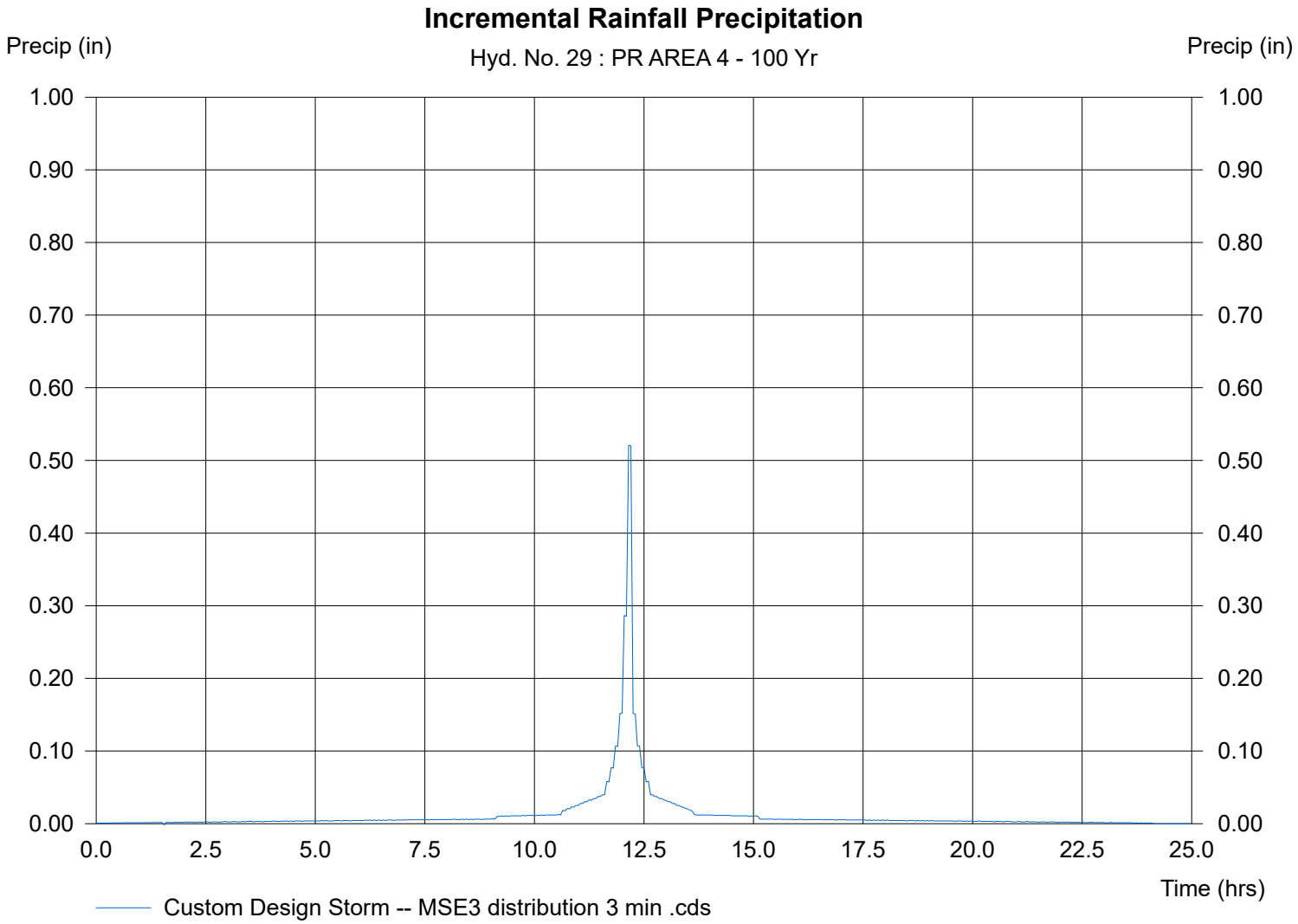
Total Travel Time, Tc ..... 13.70 min

Precipitation Report

Hyd. No. 29

PR AREA 4

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

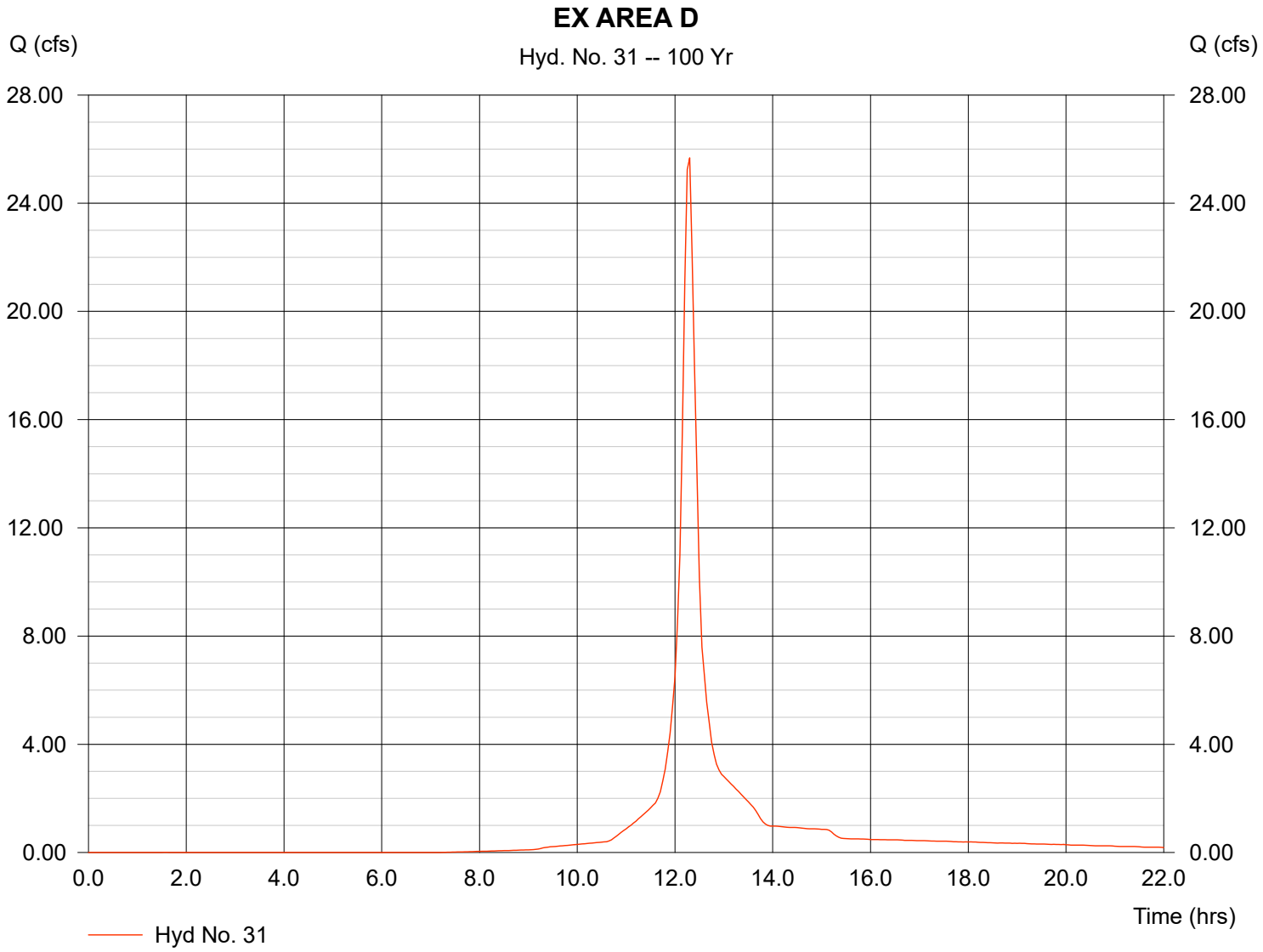
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

Hyd. No. 31

EX AREA D

Hydrograph type	=	SCS Runoff	Peak discharge	=	25.67 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	4.39 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.2 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 1.606 acft



TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve

Hyd. No. 31

EX AREA D

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.69	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 10.69 +**	**0.00 +**	**0.00 =**	**10.69**
Shallow Concentrated Flow				
Flow length (ft)	= 450.00	0.00	0.00	
Watercourse slope (%)	= 9.30	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 4.92	0.00	0.00	
Travel Time (min)	**= 1.52 +**	**0.00 +**	**0.00 =**	**1.52**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00 +**	**0.00 +**	**0.00 =**	**0.00**

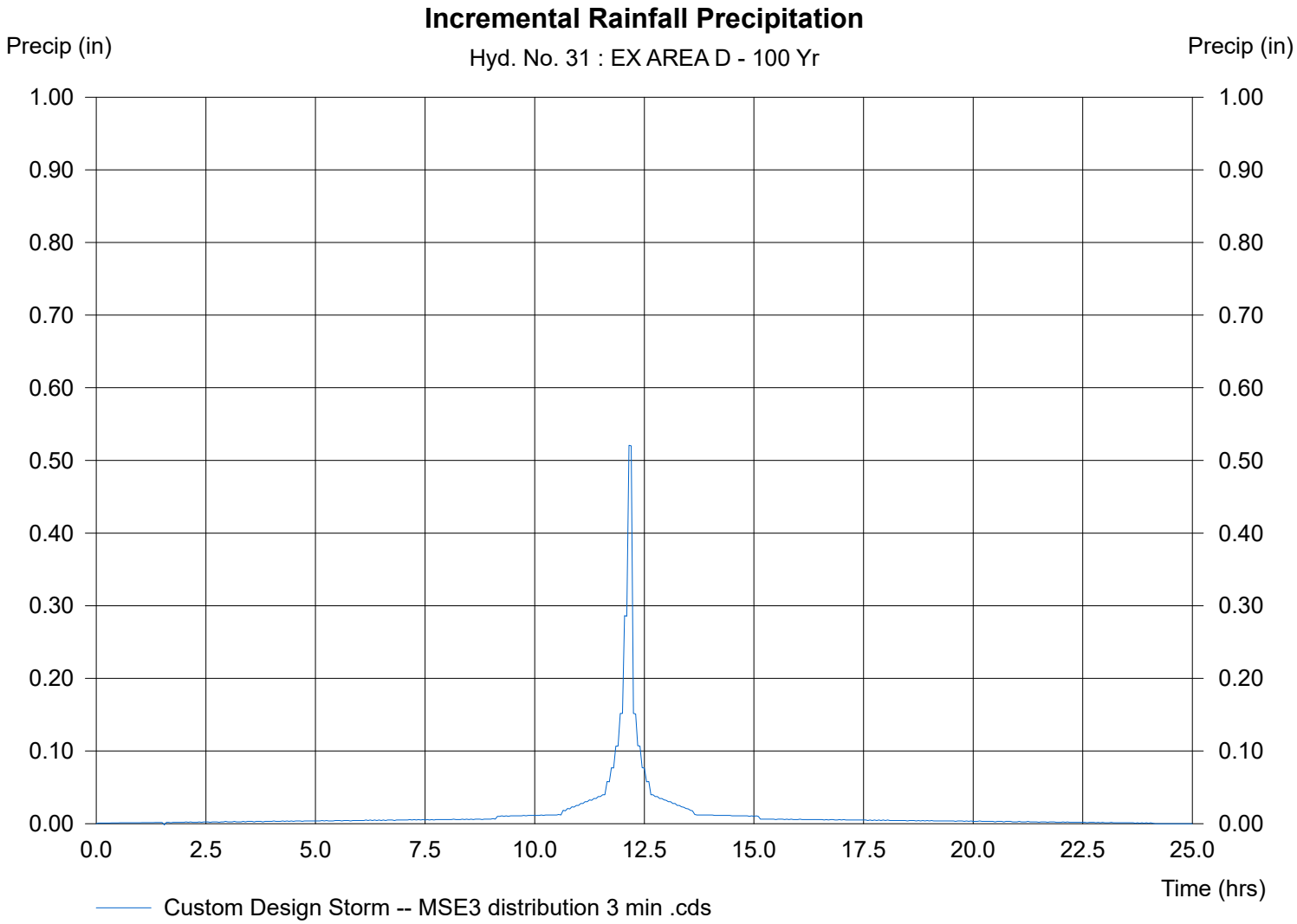
Total Travel Time, Tc ..... 12.20 min

Precipitation Report

Hyd. No. 31

EX AREA D

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

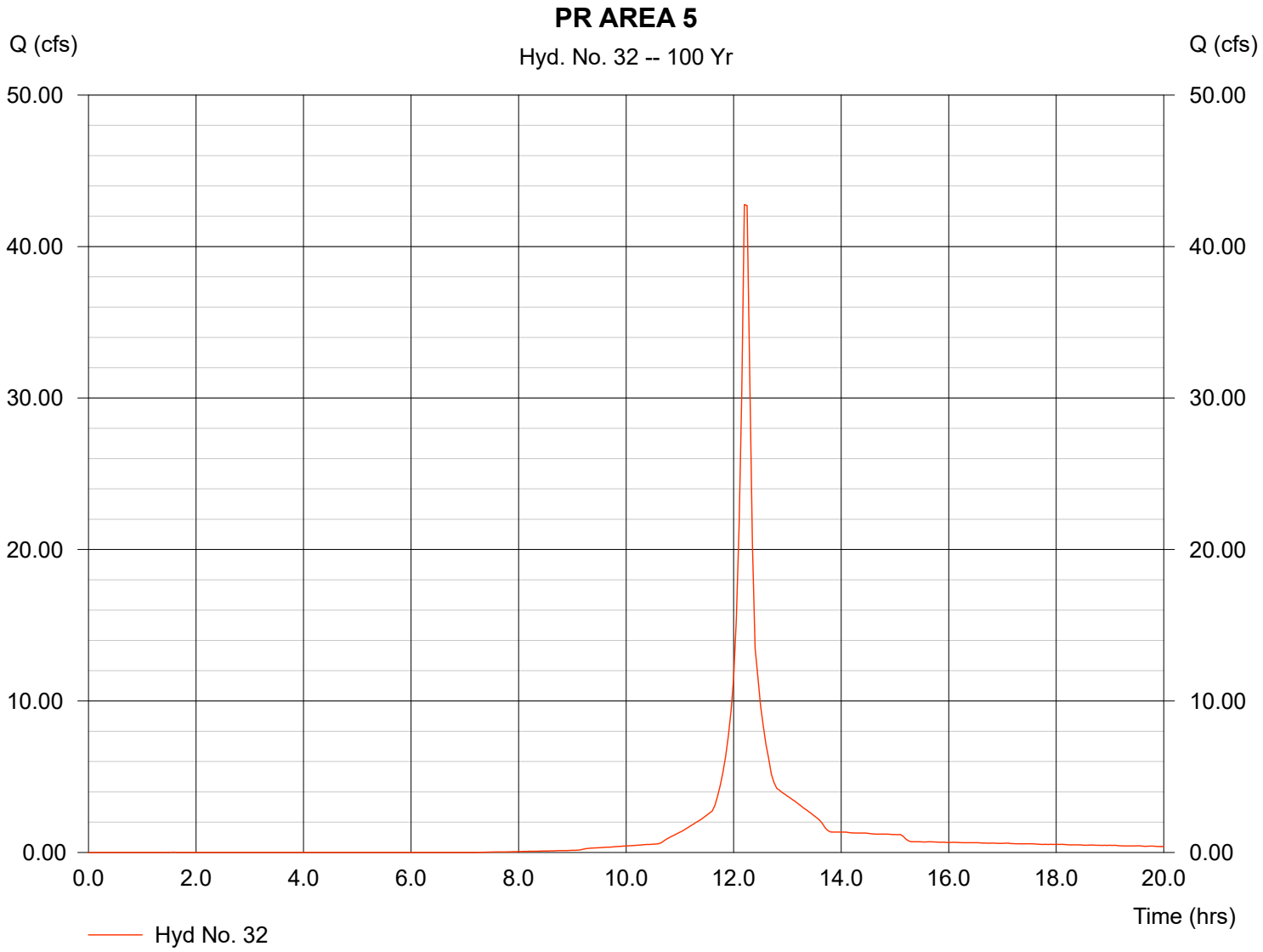
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

Hyd. No. 32

PR AREA 5

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.76 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Drainage area	=	6.50 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6 min
Total precip.	=	6.32 in	Distribution	=	Custom
Storm duration	=	MSE3 distribution 3 min .cds	Shape factor	=	484

Hydrograph Volume = 2.229 acft

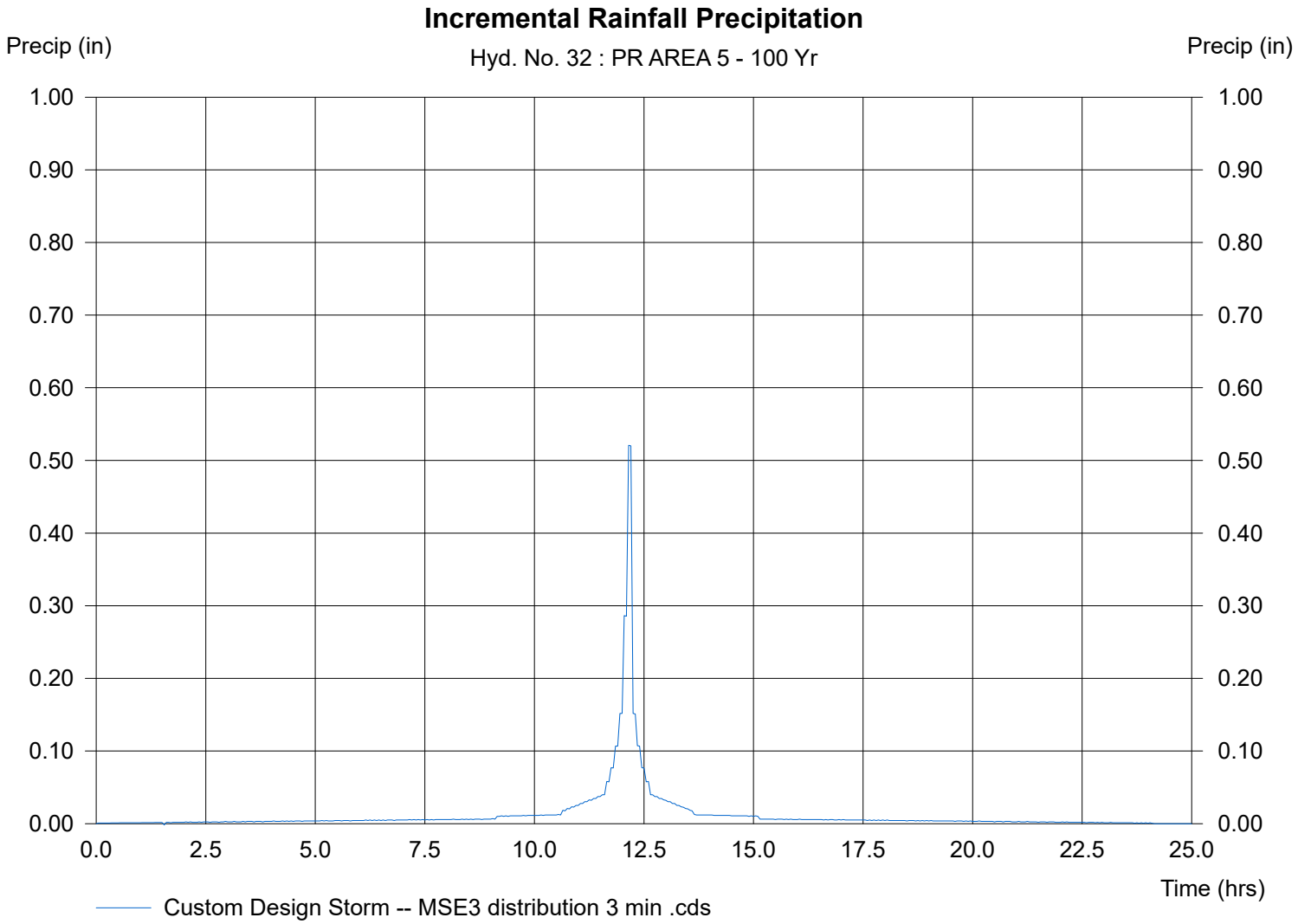


Precipitation Report

Hyd. No. 32

PR AREA 5

Storm Frequency	= 100 yrs	Time interval	= 3 min
Total precip.	= 6.32 in	Distribution	= Custom
Storm duration	= MSE3 distribution 3 min .cds		



Hydrograph Plot

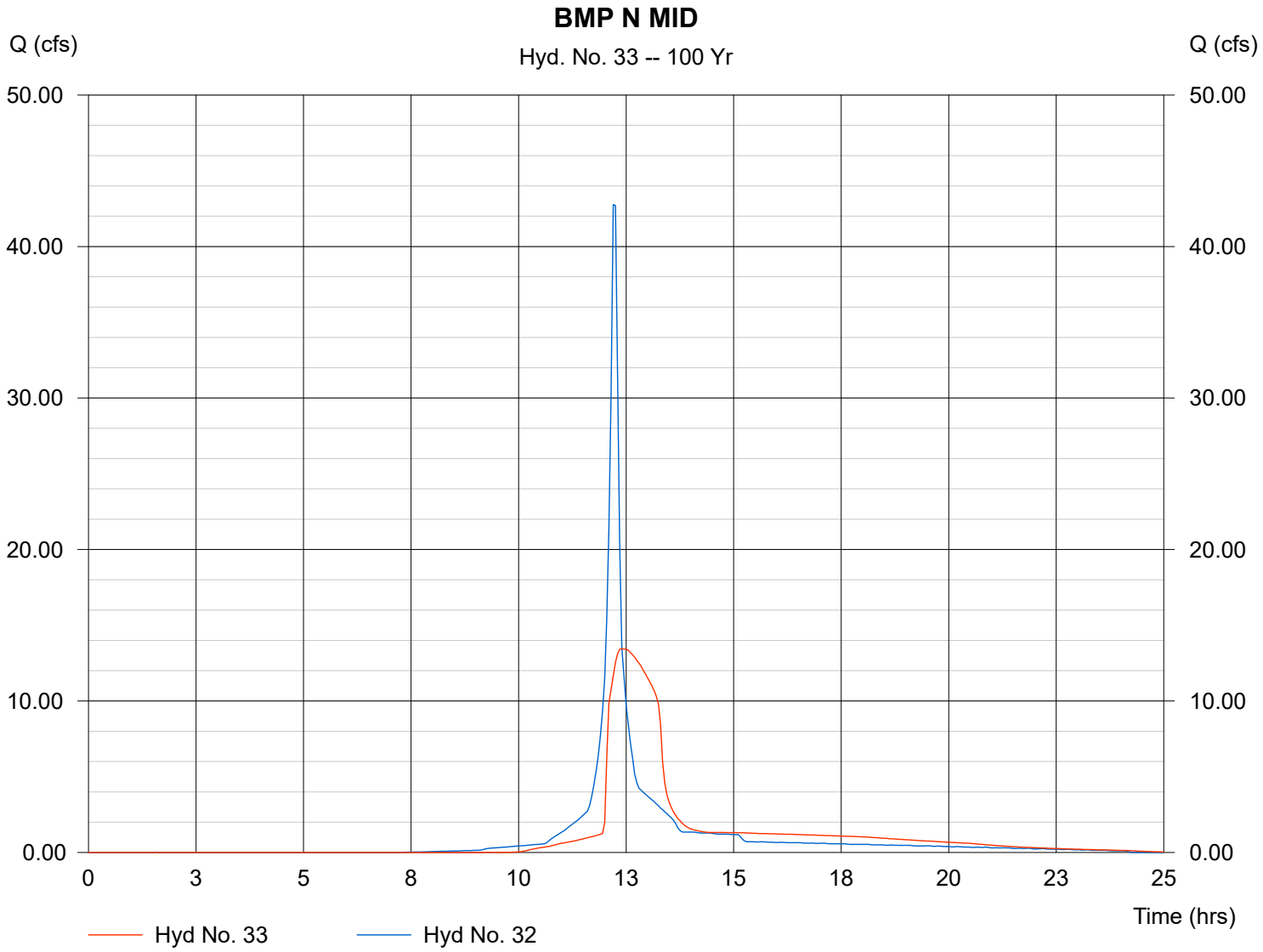
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

Hyd. No. 33

BMP N MID

Hydrograph type	=	Reservoir	Peak discharge	=	13.45 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Inflow hyd. No.	=	32	Max. Elevation	=	987.81 ft
Reservoir name	=	BMP NORTH MID WETLANDS	Max. Storage	=	0.826 acft

Storage Indication method used. | Hydrograph Volume = 2.227 acft



Pond Report

Pond No. 5 - BMP NORTH MID WETLANDS

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	981.00	1,380	0.000	0.000
1.00	982.00	1,382	0.032	0.032
2.00	983.00	1,384	0.032	0.063
3.00	984.00	5,136	0.075	0.138
4.00	985.00	6,470	0.133	0.272
5.00	986.00	7,907	0.165	0.437
6.00	987.00	9,445	0.199	0.636
7.00	988.00	11,085	0.236	0.871
8.00	989.00	12,827	0.274	1.146

Culvert / Orifice Structures

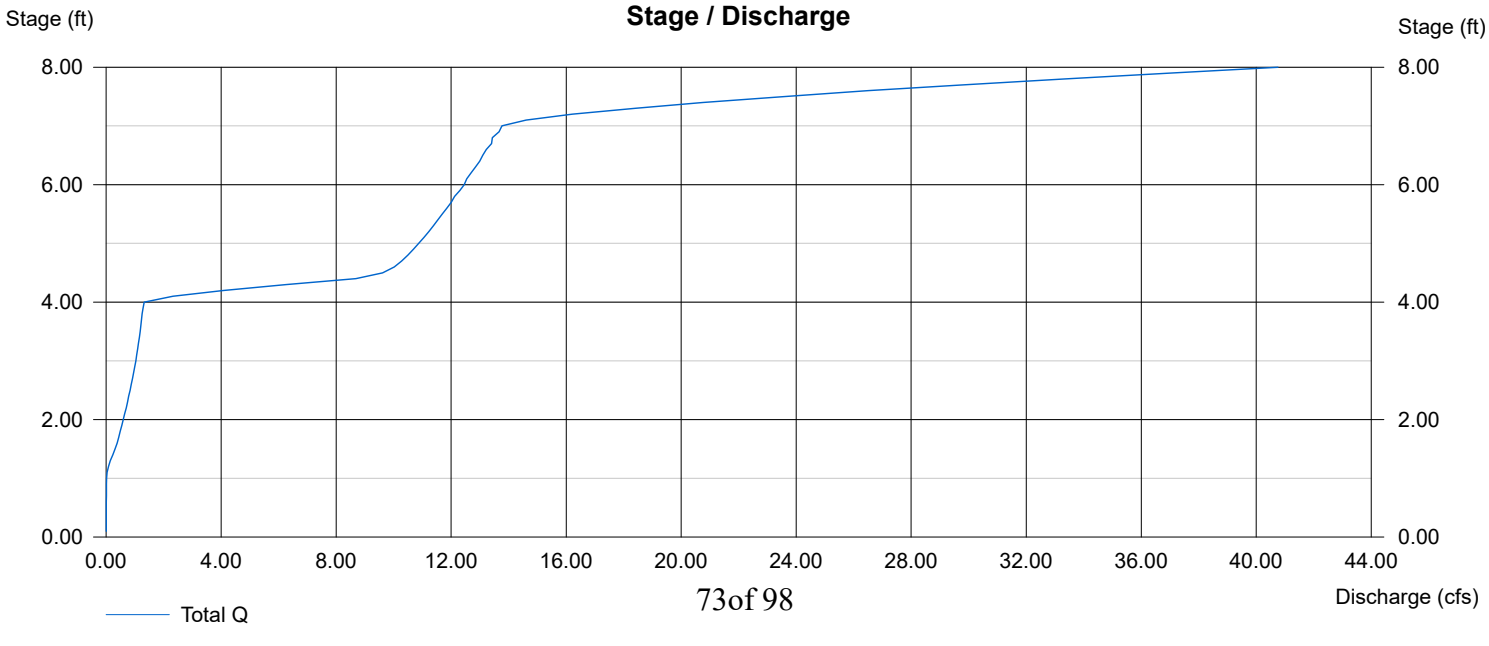
	[A]	[B]	[C]	[D]
Rise (in)	= 15.00	6.00	0.00	0.00
Span (in)	= 15.00	6.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 982.00	982.00	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 0.10	0.00	0.00	0.00
N-Value	= .013	.013	.000	.000
Orif. Coeff.	= 0.60	0.60	0.00	0.00
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 9.42	10.00	0.00	0.00
Crest El. (ft)	= 985.00	988.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	0.00	0.00
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.500 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

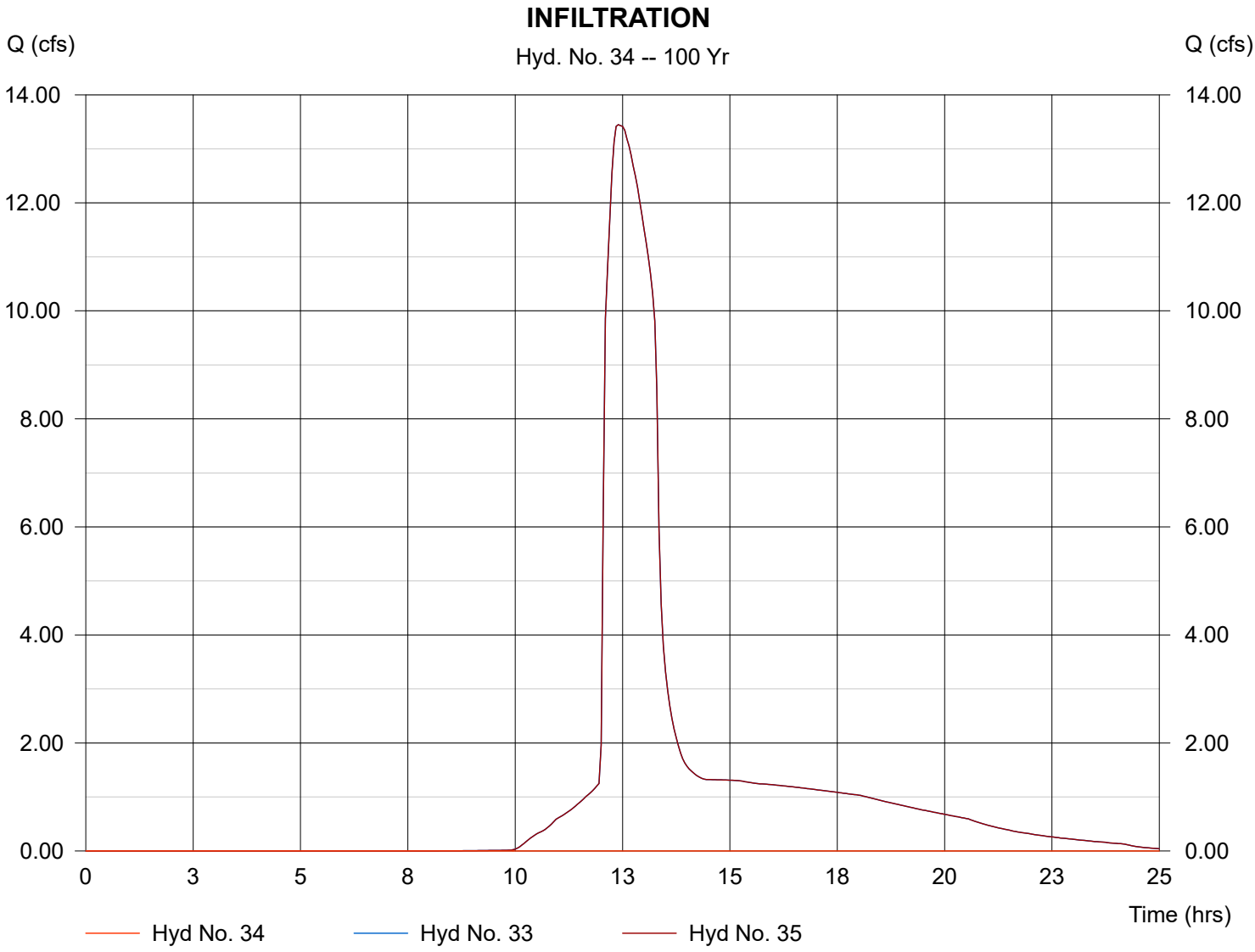
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Hyd. No. 34

INFILTRATION

Hydrograph type	=	Diversion1	Peak discharge	=	0.00 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Inflow hydrograph	=	33	2nd diverted hyd.	=	35
Diversion method	=	Pond - BMP NORTH MID WETLANDS	Pond structure	=	Exfiltration

Hydrograph Volume = 0.000 acft



Hydrograph Plot

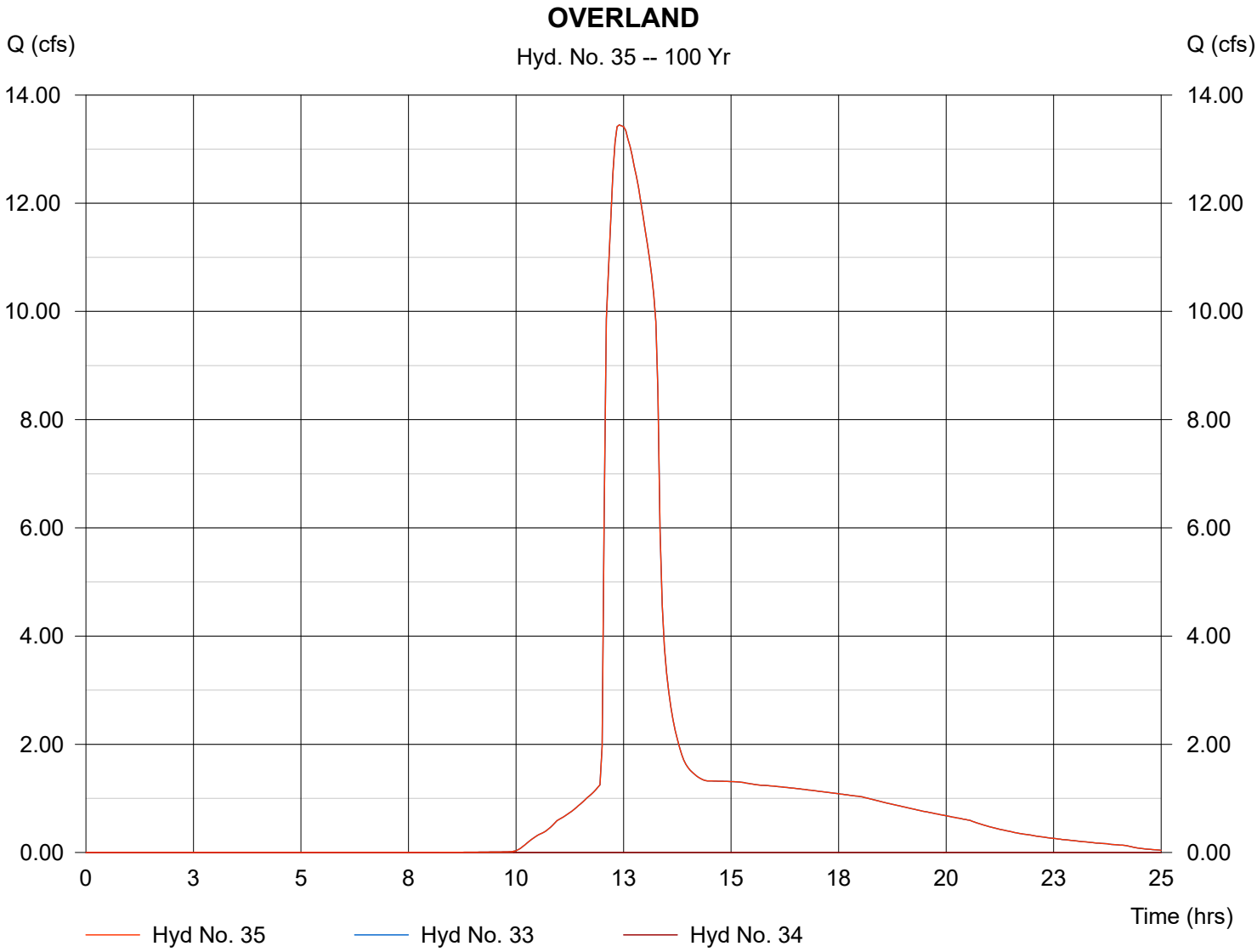
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

Hyd. No. 35

OVERLAND

Hydrograph type	=	Diversion2	Peak discharge	=	13.45 cfs
Storm frequency	=	100 yrs	Time interval	=	3 min
Inflow hydrograph	=	33	2nd diverted hyd.	=	34
Diversion method	=	Pond - BMP NORTH MID WETLANDS	Pond structure	=	Exfiltration

Hydrograph Volume = 2.227 acft



Hydrograph Plot

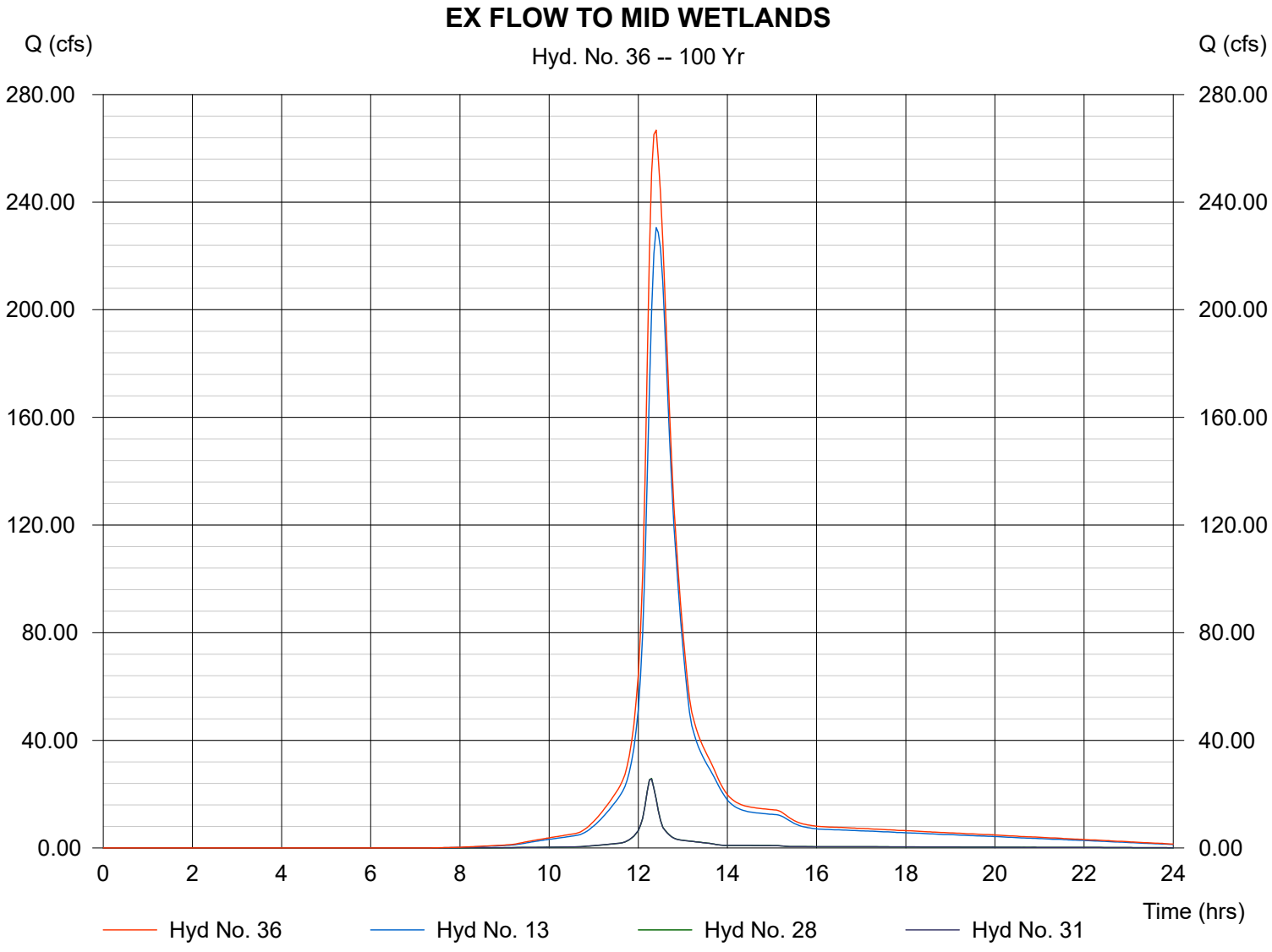
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

Hyd. No. 36

EX FLOW TO MID WETLANDS

Hydrograph type	= Combine	Peak discharge	= 266.78 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 13, 28, 31		

Hydrograph Volume = 25.558 acft



Hydrograph Plot

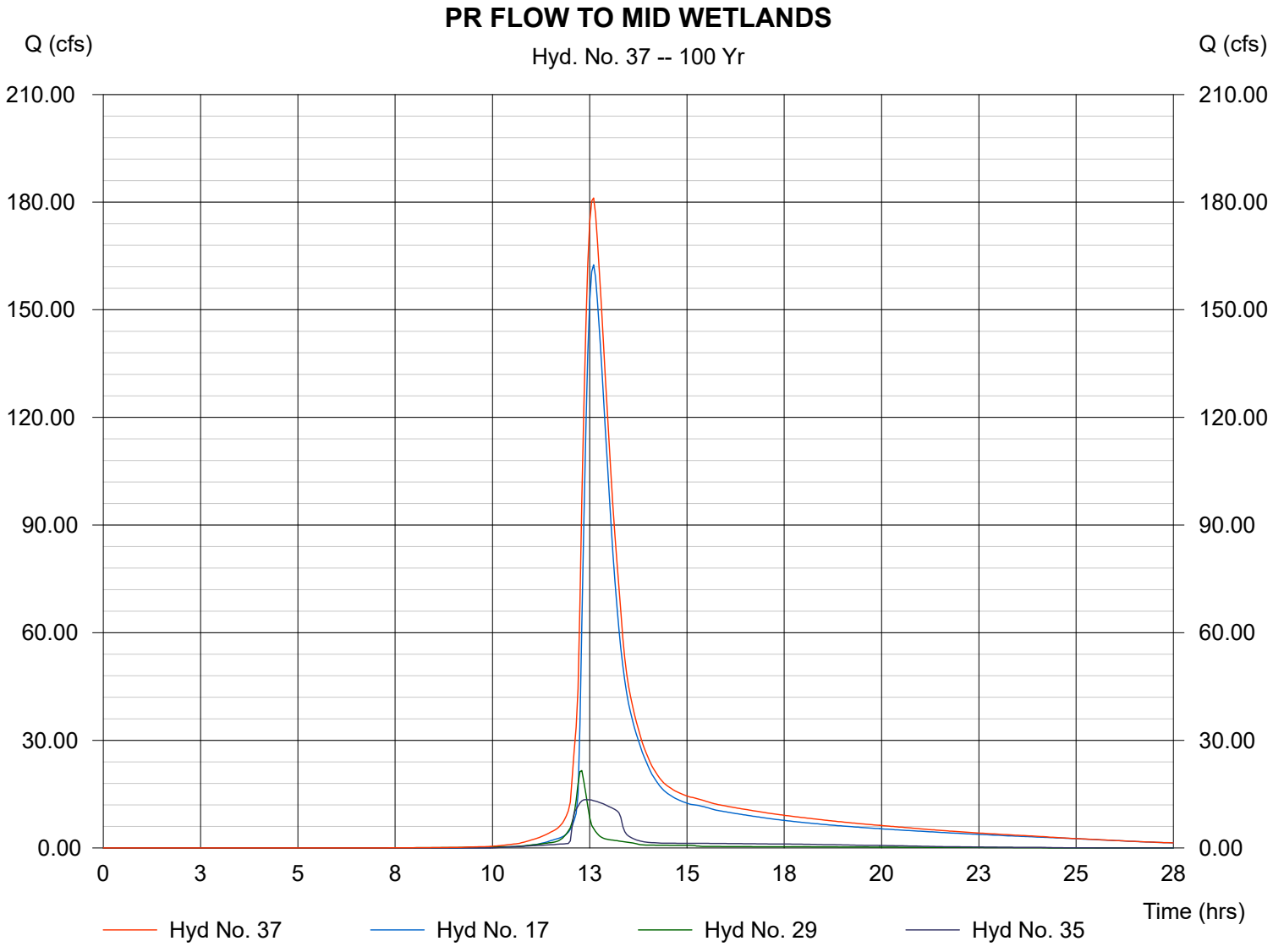
Hydraflow Hydrographs by Intelisolve | Friday, Sep 25 2026, 6:20 AM

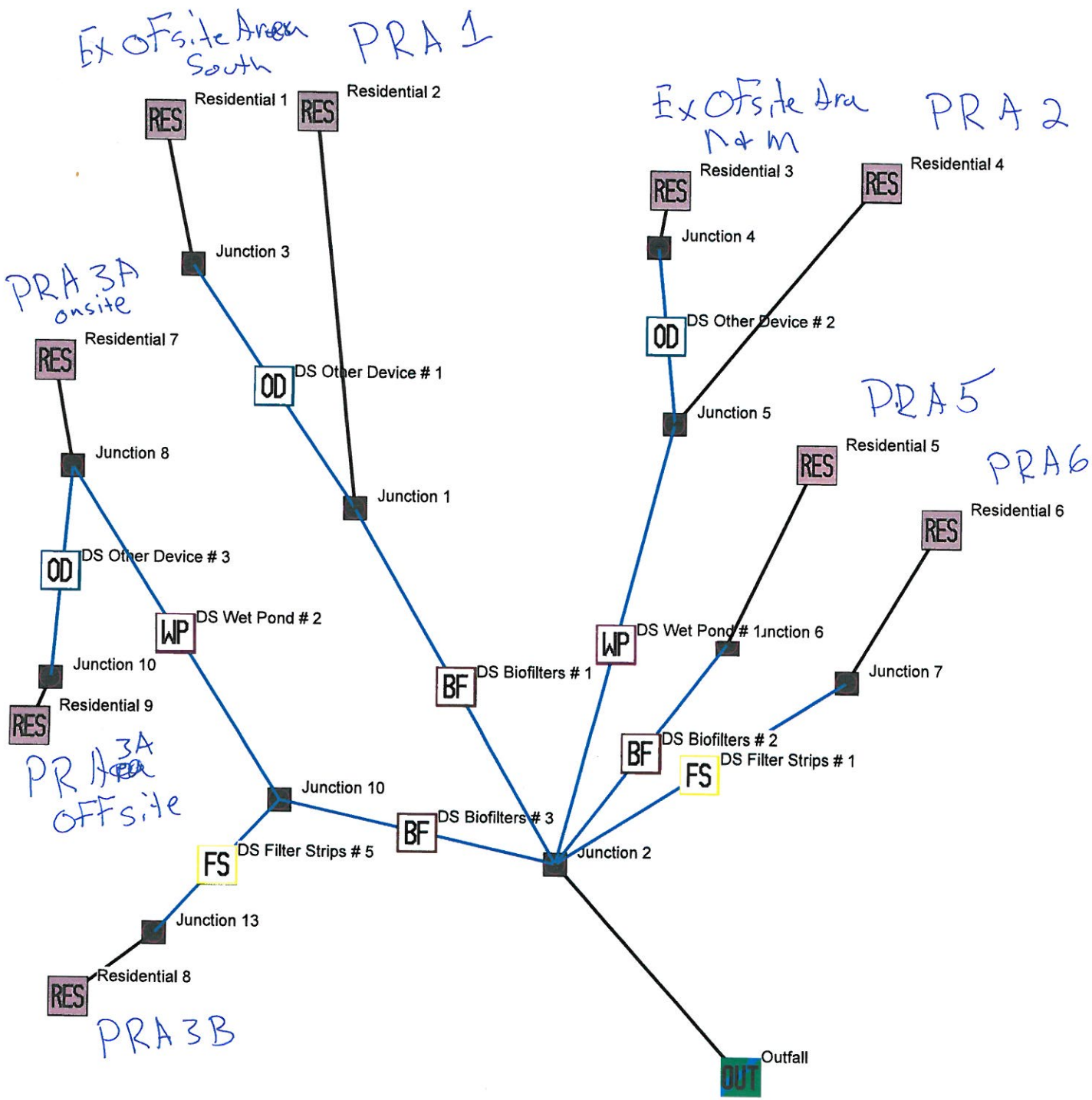
Hyd. No. 37

PR FLOW TO MID WETLANDS

Hydrograph type	= Combine	Peak discharge	= 181.18 cfs
Storm frequency	= 100 yrs	Time interval	= 3 min
Inflow hyds.	= 17, 29, 35		

Hydrograph Volume = 23.169 acft




Ex Offsite Area South
PRA 1
Residential 1
Residential 2
Junction 3
Ex Offsite Area North
PRA 2
Residential 3
Residential 4
Junction 4
DS Other Device # 2
PRA 3A onsite
Residential 7
DS Other Device # 1
Junction 5
PRA 5
PRA 6
Junction 8
Residential 5
Residential 6
Junction 1
DS Other Device # 3
DS Wet Pond # 2
DS Wet Pond # 1
Junction 6
Junction 10
Junction 7
Residential 9
DS Biofilters # 1
DS Biofilters # 2
PRA 3A Offsite
DS Filter Strips # 1
Junction 10
DS Biofilters # 3
DS Filter Strips # 5
Junction 2
Junction 13
Residential 8
PRA 3B
Outfall

Data file name: K:\WinSLAMM\25-3548 Oakridge Heights\25-3548 Oakridge Heights South .mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Date: 09-25-2026 Time: 05:51:54
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 6.380
1 - Roofs 1: 0.500 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.250 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.300 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.400 ac. Intermediate Street Length = 0.1375 mi Street Width = 24 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 4.930 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: Residential 2 Total area (ac): 3.260
1 - Roofs 1: 0.360 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.180 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
32 - Sidewalks 2: 0.220 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.133 ac. Smooth Street Length = 0.0333 mi Street Width = 32.95045 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 2.367 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Residential: Residential 3 Total area (ac): 33.070
1 - Roofs 1: 3.160 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 1.610 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 1.880 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 2.273 ac. Smooth Street Length = 0.7813 mi Street Width = 24.00134 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 24.147 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Residential: Residential 4 Total area (ac): 20.000
1 - Roofs 1: 2.620 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 2.180 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 1.560 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 1.910 ac. Smooth Street Length = 0.4775 mi Street Width = 33 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 11.730 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 5 - Residential: Residential 5 Total area (ac): 6.500
1 - Roofs 1: 0.722 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.367 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.430 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.511 ac. Smooth Street Length = 0.1278 mi Street Width = 32.98709 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 4.470 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 6 - Residential: Residential 6 Total area (ac): 3.650
1 - Roofs 1: 0.361 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.108 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 3.181 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 7 - Residential: Residential 7 Total area (ac): 2.100
1 - Roofs 1: 0.090 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.092 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.023 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.398 ac. Smooth Street Length = 0.0995 mi Street Width = 33 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 1.497 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 8 - Residential: Residential 8 Total area (ac): 3.970
1 - Roofs 1: 0.632 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.321 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.188 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.360 ac. Smooth Street Length = 0.09 mi Street Width = 33 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 2.469 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 9 - Residential: Residential 9 Total area (ac): 1.300
1 - Roofs 1: 0.051 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

25 - Driveways 1: 0.101 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.084 ac. Smooth Street Length = 0.0578 mi Street Width = 11.98962 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 1.064 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 62536
2. Bottom aea (square feet) = 12353
3. Depth (ft): 5.17
4. Biofilter width (ft) - for Cost Purposes Only: 100
5. Infiltration rate (in/hr) = 0.13
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0.92
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data	Soil Type Fraction in Eng. Soil
User-Defined Media Type	1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 6
3. Height of datum to bottom of weir opening: 4.67
Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 4
2. Stand pipe height above datum (ft): 2.97
Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0.17
3. Number of underdrain outlets: 1

Control Practice 2: Other Device CP# 1 (DS) - DS Other Device # 1
Fraction of drainage area served by device (ac) = 1.00
Particulate Concentration reduction fraction = 1.00
Filterable Concentration reduction fraction = 1.00
Runoff volume reduction fraction = 0

Control Practice 3: Other Device CP# 2 (DS) - DS Other Device # 2
Fraction of drainage area served by device (ac) = 1.00
Particulate Concentration reduction fraction = 1.00
Filterable Concentration reduction fraction = 1.00
Runoff volume reduction fraction = 0

Control Practice 4: Wet Detention Pond CP# 1 (DS) - DS Wet Pond # 1
Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 5
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:
Outlet type: Orifice 1
1. Orifice diameter (ft): 1
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5
Outlet type: Orifice 2
1. Orifice diameter (ft): 1.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 6
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 25
2. Weir crest width (ft): 6
3. Height from datum to bottom of weir opening: 7

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.10	0.6370	0.00	0.00
2	1.00	0.6940	0.00	0.00
3	2.00	0.7520	0.00	0.00
4	3.00	0.8110	0.00	0.00
5	4.00	0.8710	0.00	0.00
6	5.00	1.1450	0.00	0.00
7	6.00	1.2530	0.00	0.00
8	7.00	1.3630	0.00	0.00
9	8.00	1.4750	0.00	0.00
10	9.00	1.5900	0.00	0.00

Control Practice 5: Biofilter CP# 2 (DS) - DS Biofilters # 2
1. Top area (square feet) = 12827
2. Bottom aea (square feet) = 5136
3. Depth (ft): 8
4. Biofilter width (ft) - for Cost Purposes Only: 30
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1.5
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data	Soil Type Fraction in Eng. Soil
User-Defined Media Type	1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 6
3. Height of datum to bottom of weir opening: 7

Outlet type: Surface Discharge Pipe
1. Surface discharge pipe outlet diameter (ft): 1.25
2. Pipe invert elevation above datum (ft): 5
3. Number of surface pipe outlets: 1

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 1
3. Number of underdrain outlets: 1

Control Practice 6: Filter Strip CP# 1 (DS) - DS Filter Strips # 1
Total drainage area (acres)= 3.650
Fraction of drainage area served by filter strips (ac) = 1.00
Total filter strip width (ft) = 500.0
Effective flow length (ft) = 60
Infiltration rate (in/hr)= 0.500
Typical longitudinal slope (ft.H/ft.V) = 0.050
Typical grass height (in) = 4.0
Swale retardance factor = C
Use stochastic analysis to determine infiltration rate: False
Infiltration rate coeficient of variation (COV) = 0.00
Particle size distribution file name: Not needed - calculated by program
Surface Clogging Load (lbs/sf) = 3.50

Control Practice 7: Wet Detention Pond CP# 2 (DS) - DS Wet Pond # 2
Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 5
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:
Outlet type: Orifice 1
1. Orifice diameter (ft): 0.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5

Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 8
3. Height from datum to bottom of weir opening: 8.5

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.10	0.0170	0.00	0.00
2	1.00	0.0230	0.00	0.00
3	2.00	0.0290	0.00	0.00
4	3.00	0.0360	0.00	0.00
5	4.00	0.0440	0.00	0.00
6	5.00	0.0910	0.00	0.00
7	6.00	0.1130	0.00	0.00
8	7.00	0.1380	0.00	0.00
9	8.00	0.1650	0.00	0.00
10	9.00	0.1940	0.00	0.00

Control Practice 8: Biofilter CP# 3 (DS) - DS Biofilters # 3
1. Top area (square feet) = 5818
2. Bottom aea (square feet) = 493
3. Depth (ft): 6.17
4. Biofilter width (ft) - for Cost Purposes Only: 20
5. Infiltration rate (in/hr) = 0.13
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0.67
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 6
3. Height of datum to bottom of weir opening: 5.42

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 4
2. Stand pipe height above datum (ft): 4.17

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0.17
3. Number of underdrain outlets: 1

Control Practice 9: Other Device CP# 3 (DS) - DS Other Device # 3
Fraction of drainage area served by device (ac) = 1.00
Particulate Concentration reduction fraction = 1.00
Filterable Concentration reduction fraction = 1.00
Runoff volume reduction fraction = 0

Control Practice 10: Filter Strip CP# 2 (DS) - DS Filter Strips # 5
Total drainage area (acres)= 3.970
Fraction of drainage area served by filter strips (ac) = 0.75
Total filter strip width (ft) = 600.0
Effective flow length (ft) = 25
Infiltration rate (in/hr)= 0.500
Typical longitudinal slope (ft.H/ft.V) = 0.100
Typical grass height (in) = 4.0
Swale retardance factor = C
Use stochastic analysis to determine infiltration rate: False
Infiltration rate coeficient of variation (COV) = 0.00
Particle size distribution file name: Not needed - calculated by program
Surface Clogging Load (lbs/sf) = 3.50

SLAMM for Windows Version 10.5.0
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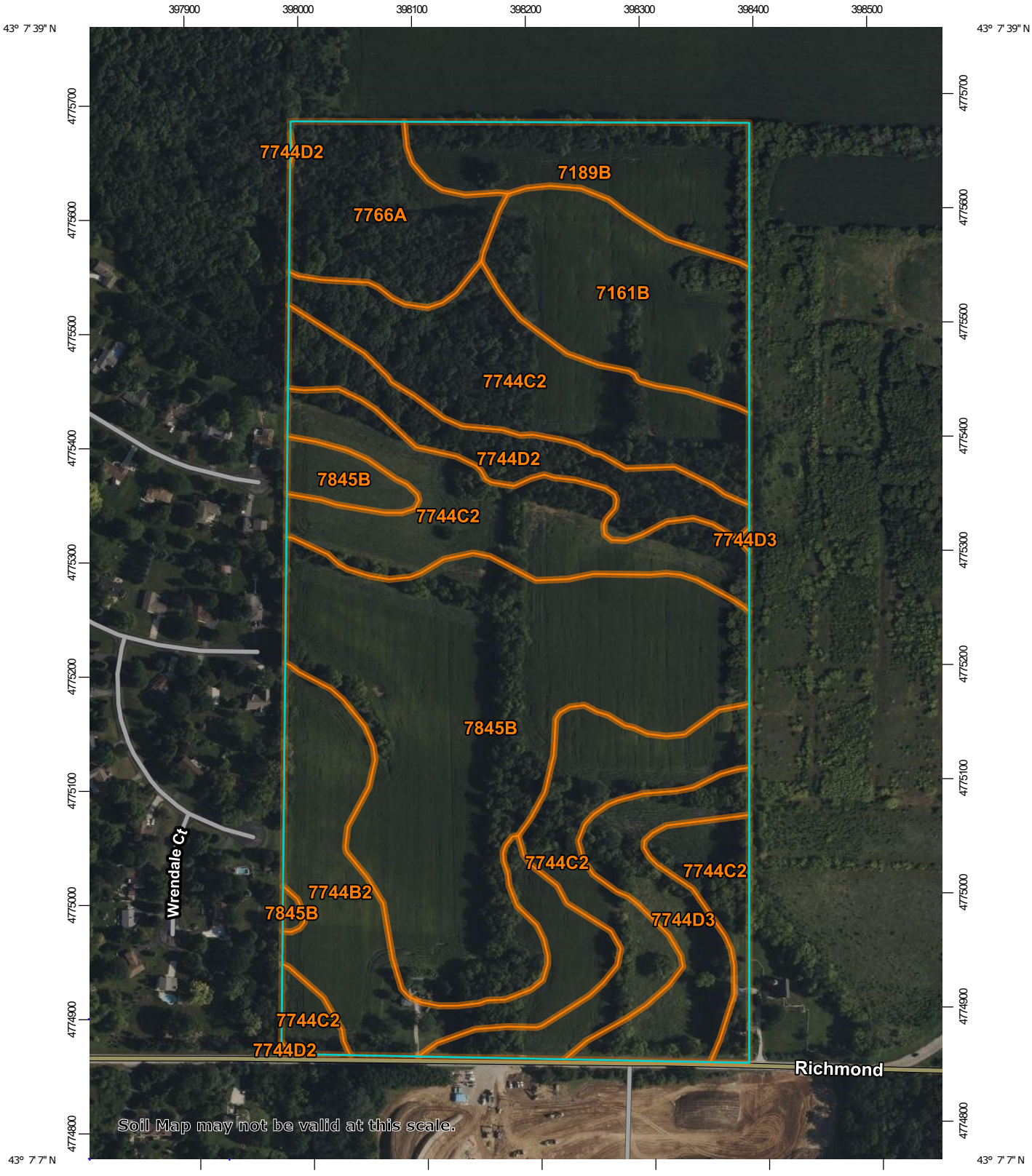
Data file name: K:\WinSLAMM\25-3548 Oakridge Heights\25-3548 Oakridge Heights South .mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 09-25-2026 Time of run: 05:50:57
Total Area Modeled (acres): 80.230
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	2.403E+06	-	62.65	9397	-
Outfall Total with Controls:	2.049E+06	14.73%	14.20	1816	80.67%
Annualized Total After Outfall Controls:	2.077E+06			1841	

Pollutant	Conc. No Controls	Conc. With Controls	Conc. Units	Pollutant Yield No Controls	Pollutant Yield With Controls	Pol. Yield Units	Percent Reduction
Particulate Solids	62.65	14.20	mg/L	9397	1816	lbs	80.67 %
Total Phosphorus	0.2606	0.1126	mg/L	39.08	14.40	lbs	63.15 %

Biofilter # 1 is expected to clog in 42.53 years.. Percent Solids Reduction due to Engineered Media = 80
Biofilter # 2 is expected to clog in 7.48 years.. Percent Solids Reduction due to Engineered Media = 80
Biofilter # 3 is expected to clog in 2.53 years.. Percent Solids Reduction due to Engineered Media = 80

Soil Map—Waukesha County, Wisconsin



Map Scale: 1:4,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N 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 1:15,800.

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: Waukesha County, Wisconsin
Survey Area Data: Version 4, Sep 10, 2025

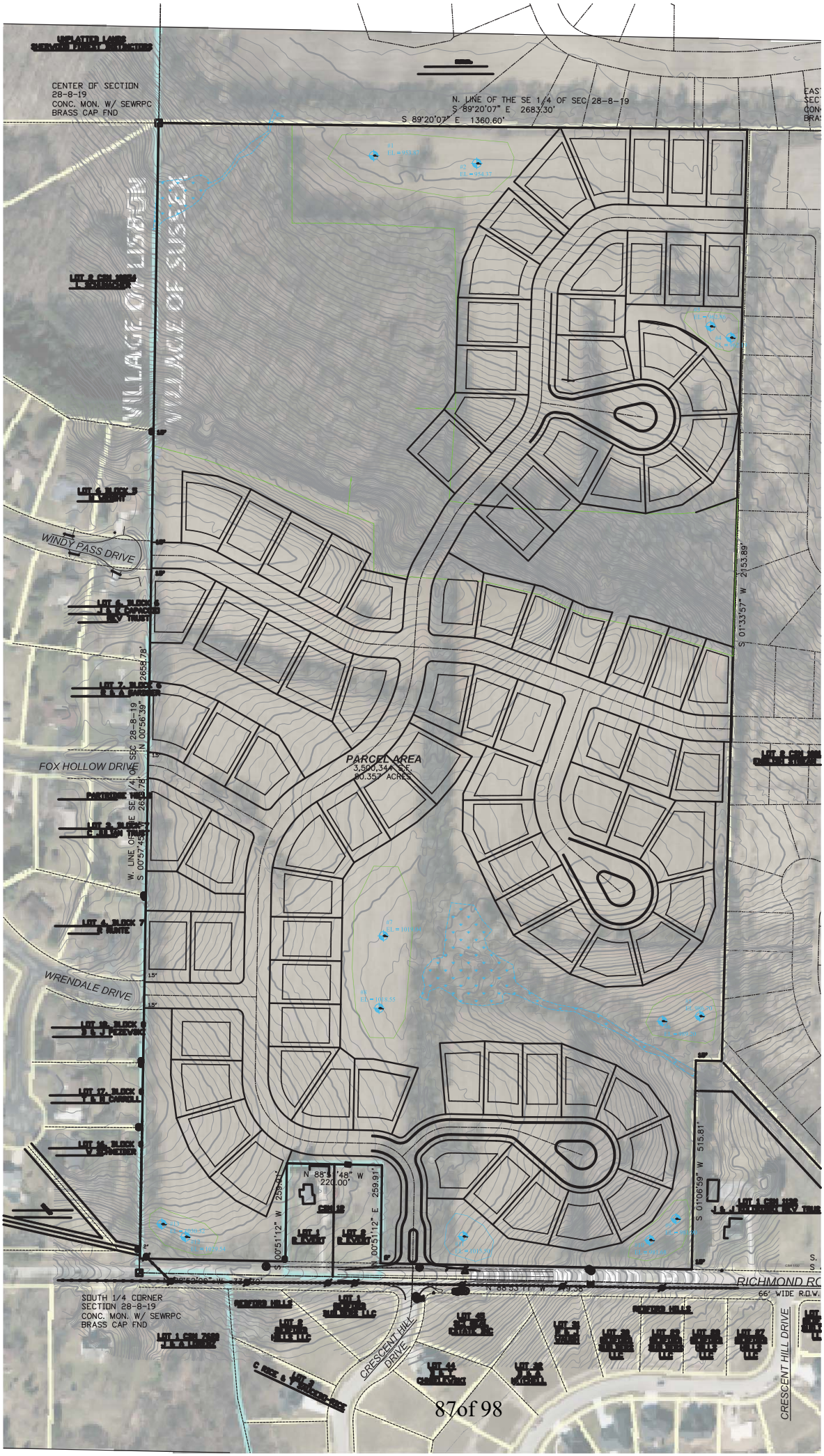
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7161B	Ritchey silt loam, 1 to 6 percent slopes	7.3	8.8%
7189B	Martinton silt loam, 1 to 3 percent slopes	5.7	6.9%
7744B2	Hochheim loam, 2 to 6 percent slopes, eroded	8.3	10.1%
7744C2	Hochheim loam, 6 to 12 percent slopes, eroded	24.8	29.9%
7744D2	Hochheim loam, 12 to 20 percent slopes, eroded	4.3	5.2%
7744D3	Hochheim soils, 12 to 20 percent slopes, severely eroded	4.6	5.5%
7766A	Lamartine silt loam, 0 to 3 percent slopes	5.3	6.4%
7845B	Theresa silt loam, 2 to 6 percent slopes	22.6	27.3%
Totals for Area of Interest		**82.8**	**100.0%**


CENTER OF SECTION
28-8-19
CONC. MON. W/ SEWRPC
BRASS CAP FND
N. LINE OF THE SE 1/4 OF SEC 28-8-19
S 89°20'07" E 2683.30'
S 89°20'07" E 1360.60'
VILLAGE OF LISBON
VILLAGE OF SUSSEX
WINDY PASS DRIVE
FOX HOLLOW DRIVE
WRENDALE DRIVE
PARCEL AREA
3,500,344 S.F.
80.357 ACRES
S 01°33'57" W 2153.89'
S 01°06'59" W 515.81'
N 88°53'48" W
220.00'
S 00°51'12" W 259.91'
N 00°51'12" E 259.91'
N 88°53'48" W 29.38'
RICHMOND RD
66' WIDE R.O.W.
SOUTH 1/4 CORNER
SECTION 28-8-19
CONC. MON. W/ SEWRPC
BRASS CAP FND
CRESCENT HILL DRIVE
CRESCENT HILL DRIVE

Wisconsin Department of Safety and Professional Services
Division of Industry Services
4822 Madison Yards Way
PO Box 7302
Madison, WI 53707

Phone: 608-266-2112
Web: http://dsps.wi.gov
Email: dsps@wisconsin.gov

Program: Plumbing
Web: https://dsps.wi.gov/Pages/Programs/Plumbing

Soil and Site Evaluation – Stormwater Infiltration

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but is not limited to: vertical and horizontal reference point (BM); direction and percent of slope; scale or dimensions; north arrow; and BM referenced to nearest road.

PLEASE PRINT ALL INFORMATION

COUNTY: Waukesha

PARCEL ID: SUXV0256994003

PROPERTY OWNER: Lisbon Hilltop LLC

PROPERTY OWNER'S MAILING ADDRESS: N56W32960 Wisconsin Ave

CITY, STATE, ZIP CODE / PHONE: Oconomowoc, WI 53066

PROPERTY LOCATION

Govt. Lot ____, ____ ¼, SE ¼, S 28, T 8 N, R 19 E

Lot #, Block #, Subd. Name or CSM #: _____

Municipality: Sussex

☐ City ☒ Village ☐ Town

Nearest Road: Richmond Rd

Drainage area _____ ☐ sq. ft. ☐ acres

Test site suitable for (check all that apply):

☐ Site not suitable ☐ Bioretention

☐ Reuse ☐ Subsurface Dispersal System

☐ Irrigation ☐ Other _____

HYDRAULIC APPLICATION TEST METHOD

☒ Morphological Evaluation

☐ Double Ring Infiltrometer

☐ Other: (specify)

_____

SOIL MOISTURE

Date of soil borings: November 3, 2025

USDA-NRCS WETS VALUE:

☐ Dry = 1

☒ Normal = 2

☐ Wet = 3

1 #OBS. ☐ Pit ☐ Boring Ground Surface Elevation 953.87 ft. Elevation of Limiting Factor 946.87 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-12	10YR 3/2	----------	L	2fsbk	Mvfr	CA	< 4%	> 20%	0.24
2	12-30	10YR 6/4	C2D 7.5YR 5/8 Spots	SicI	0M	mfr	CW	< 4 %	> 20 %	.04
3	30-84	10YR 6/4	M3P 7.5YR 5/8 Spots & Streaks	SicI	0M	mfr	--------	< 4%	> 20 %	.04
			M3P Gley1 7/N Spots & Streaks							

Comments:
Water observed at 84 inches. Gley / reduced conditions beginning at 30 inches.

2 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 954.37 ft. Elevation of Limiting Factor 946.21 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-12	10YR 3/2	----------	L	2fsbk	mvfr	aw	< 4%	> 20 %	0.24
2	12-31	10 YR 4/4	----------	CL	2msbk	mfr	aw	< 4 %	> 20%	0.03
3	31-64	10YR 6/4	C2D 7.5YR 5/8 spots	SiCL	0M	mfr	aw	< 4 %	> 20 %	0.04
4	64-87	10 YR 6/4	C2D 7.5YR 5/8 spots	SL& BR*	1sbk-0M	mfr	cw	< 35 %	> 20%	0.50
5	87-98	10YR 6/4	M3P 7.5YR 5/8 spots	SL & BR*	0M	mfr	---------	< 35 %	> 20%	0.50
			Gley 1 7/N							

Comments:
Stones throughout boring. *Some fractured bedrock at 63 inches.

3 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 962.86 ft. Elevation of Limiting Factor 961.36 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-18	10YR3/2	----------	L	2fsbk	mvfr	as	<4%	>20%	0.24
2	18	--------	----------	Bedrock	-----	-------	---------	100	0	0

Comments:
Solid bedrock at 18 inches deep

4 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 962.19 ft. Elevation of Limiting Factor 960.11 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-10	10YR 3/2	----------	L	2fsbk	mvfr	cw	< 4 %	> 20 %	0.24
2	10-25	10YR 4/4	----------	CL	2msbk	mfr	as	< 4 %	> 20 %	0.03
3	25	--------	----------	BEDROCK	------	----------	--------	100	0	0

Comments:
Solid bedrock at 25 inches deep

5 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 986.7 ft. Elevation of Limiting Factor 978.367 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-10	10YR 3/2	----------	L	2fsbk	mvfr	aw	< 4 %	> 20 %	0.24
2	10-36	10 YR 4/4	----------	CL	2msbk	mfr	cw	< 4 %	> 20 %	0.03
3	36-66	10YR 6/4	f1f 7.5YR 5/8 spots	SL	1fsbk	mfr	cw	< 8 %	> 20 %	0.50
4	66-100	10 YR 6/4	C2D 7.5YR 5/8 spots	SL	0m	mfr	-------	< 8 %	> 20 %	0.50

Comments:

6 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 989.20 ft. Elevation of Limiting Factor 981.2 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-10	10YR 3/2	----------	L	2fsbk	mvfr	aw	< 4 %	> 20 %	0.24
2	10-37	10 YR 4/4	f1f 7.5YR 5/8 spots	CL	2msbk	mfr	aw	< 4 %	> 20 %	0.03
3	37-46	10 YR 4/4	f1f 7.5YR 5/8 spots	gCL	1fsbk	mfr	cw	< 15%	> 20 %	0.03
4	46-96	10YR 6/4	c2d 7.5TR 5/8 spots	SL	0m	mfr	-----	< 15 %	> 20 %	0.50

Comments:
Lots of fractured bedrock within the top 46 inches of this pit.

7 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 1019.04 ft. Elevation of Limiting Factor 1012.14 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-12	10YR3/2	----------	L	2fsbk	mvfr	aw	<4%	>20%	0.24
2	12-30	10YR 4/4	----------	CL	2msbk	mfr	cw	<4%	>20%	0.03
3	30-56	10YR 4/4	f1f 7.5YR5/8 spots	CL	1msbk	mfr	cw	<4%	>20%	0.03
4	56-78	10YR 6/4	C2D 7.5YR 5/8 spots and streaks	SiCL	0M	mfr	cw	<4%	>20%	0.04
5	78-83	10YR 6/4	M3P 7.5YR 5/8 spots	SL	0M	mfr	----------	<15%	>20%	0.50
	83			water						

Comments:
Water was observed at 83 inches deep

8 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 1018.55 ft. Elevation of Limiting Factor 1011.3 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-12	10YR 3/2	----------	L	2fsbk	mvfr	aw	< 4 %	> 20 %	0.24
2	12-38	10YR 4/4	----------	CL	2msbk	mfr	cw	< 4 %	> 20 %	0.03
3	38-61	10YR 6/4	f1f 7.5YR 5/8	SL	2fsbk	mfr	cw	< 4 %	> 20 %	0.50
4	61-87	10YR 6/4	c2d 7.5YR 5/8	SL	1fsbk	mfr	cw	< 4 %	> 20 %	0.50
5	87	10YR 6/4	M3P 7.5YR 5/8	SL	0M	mfr	----------	< 4 %	> 20 %	0.50

Comments:
Water at 87 inches

9 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 981.9 ft. Elevation of Limiting Factor 973.9 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-8	10YR 3/2	----------	L	2msbk	mfr	aw	~ 18%	> 20 %	0.24
2	8-14	10YR 4/4	----------	gCL	1fsbk	mfr	cw	~ 18 %	> 20 %	0.03
3	14-58	10YR 6/4	f1f 7.5YR 5/8	SL & cob*	1fsbk	mfr	cw	~ 18 %	> 20 %	0.50
4	58-80	10YR 4/4	f1f 7.5YR 5/8	CL	2cbk	mfr	cw	< 5 %	> 20 %	0.03
5	80-96	10YR 6/4	f1f 7.5YR 5/8	SL	0M	mfr	----------	< 5 %	> 20 %	0.50

Comments:
*Very possible top 58 inches was filled due to recurrence of clay loam and much fractured bedrock and stones in the top 58 inches of this excavation.

10 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 981.68 ft. Elevation of Limiting Factor 973.68 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-8	10YR 3/2	----------	L	2msbk	mfr	cw	~ 15%	> 20 %	0.24
2	8-21	10YR 3/2	----------	gL	2fsbk	mfr	cw	~ 15 %	> 20 %	0.24
3	21-96	7.5YR 4/4	f1f 7.5YR 5/8 spots	CL	2msbk	mfr	cw	< 4 %	> 20 %	0.03

Comments:

H 3 is 2 structure to 30 inches , 1 structure to 47 inches then 0 structure. Please note 0-21 inches has a lot of cobbles and stone.

11 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 1015.50 ft. Elevation of Limiting Factor 1006.9 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-11	10YR 3/2	----------	L & BR*	2fsbk	mfr	cw	~8-10%	> 20 %	0.24
2	11-29	10YR 4/4	----------	CL& BR	2msbk	mfr	cw	~ 8-10 %	> 20 %	0.03
3	29-104	10YR 6/4	f1f 7.5YR 5/8 spots	SL & BR	1fsbk	mfr	cw	< 4 %	> 20 %	0.50

Comments:

*Lots of fractured bedrock in first 46 inches from the surface. Fractured bedrock begins again at 89 inches.

12 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 1029.54 ft. Elevation of Limiting Factor 1021.21 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-10	10YR 3/2	----------	L	2msbk	mfr	cw	< 4 % %	> 20 %	0.24
2	10-32	10YR 3/2	----------	CL	2fsbk	mfr	cw	< 4 % %	> 20 %	0.03
3	32-37	10YR 5/6	----------	gLFS& cb	0sg	ml	cw	~20%	~ 15 %	0.50
4	37-61	10YR 5/6	f1f 7.5YR 5/8	gLFS& cb	0sg	ml	cw	~20%	~15%	0.50
5	61-100	10YR 5/6	C2D 7.5TR 5/8	gLFS& cb	0sg	ml	------	~ 20 %	~15%	0.50

Comments:

13 #OBS. ■ Pit ☐ Boring Ground Surface Elevation 1030.32 ft. Elevation of Limiting Factor 1022.32 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
1	0-8	10YR 3/2	----------	L	2fsbk	mfr	cw	< 4 %	> 20 %	0.24
2	8-32	10YR 4/4	----------	CL	2msbk	mfr	cw	< 4 %	> 20 %	0.03
3	32-86	10YR 5/6	f1f 7.5YR 5/8	LFS & g	0sg	ml	cw	~ 15%	~ 15 %	0.50
4	86-96	10YR 5/6	f1f 7.5 YR 5/8	LFS & cb	0sg	ml	------	~ 15 %	~ 15 %	0.50

Comments:

Overall Site Comments:

Todd Stair — Name (Please Print)

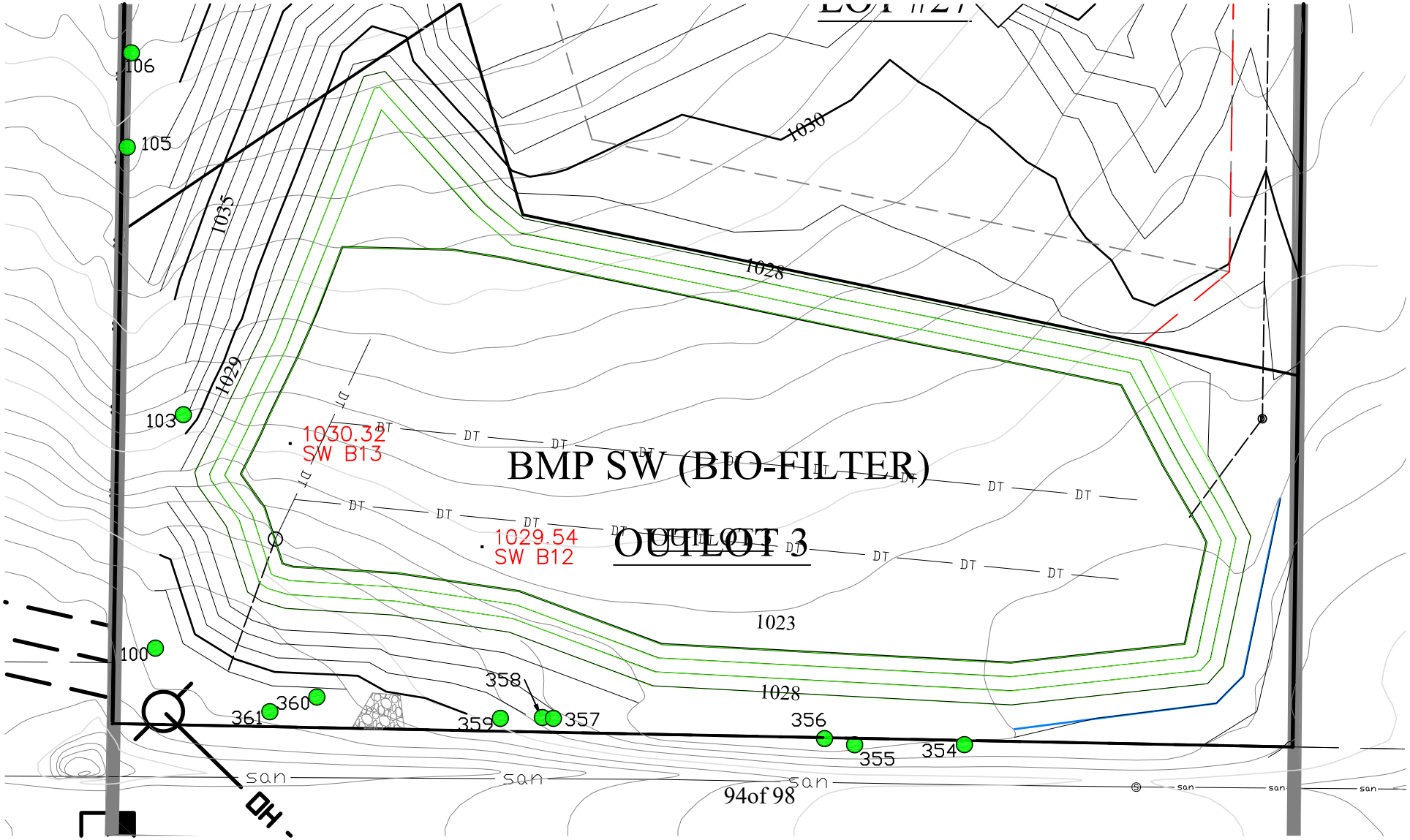
Todd Stair vice-pres. — Signature

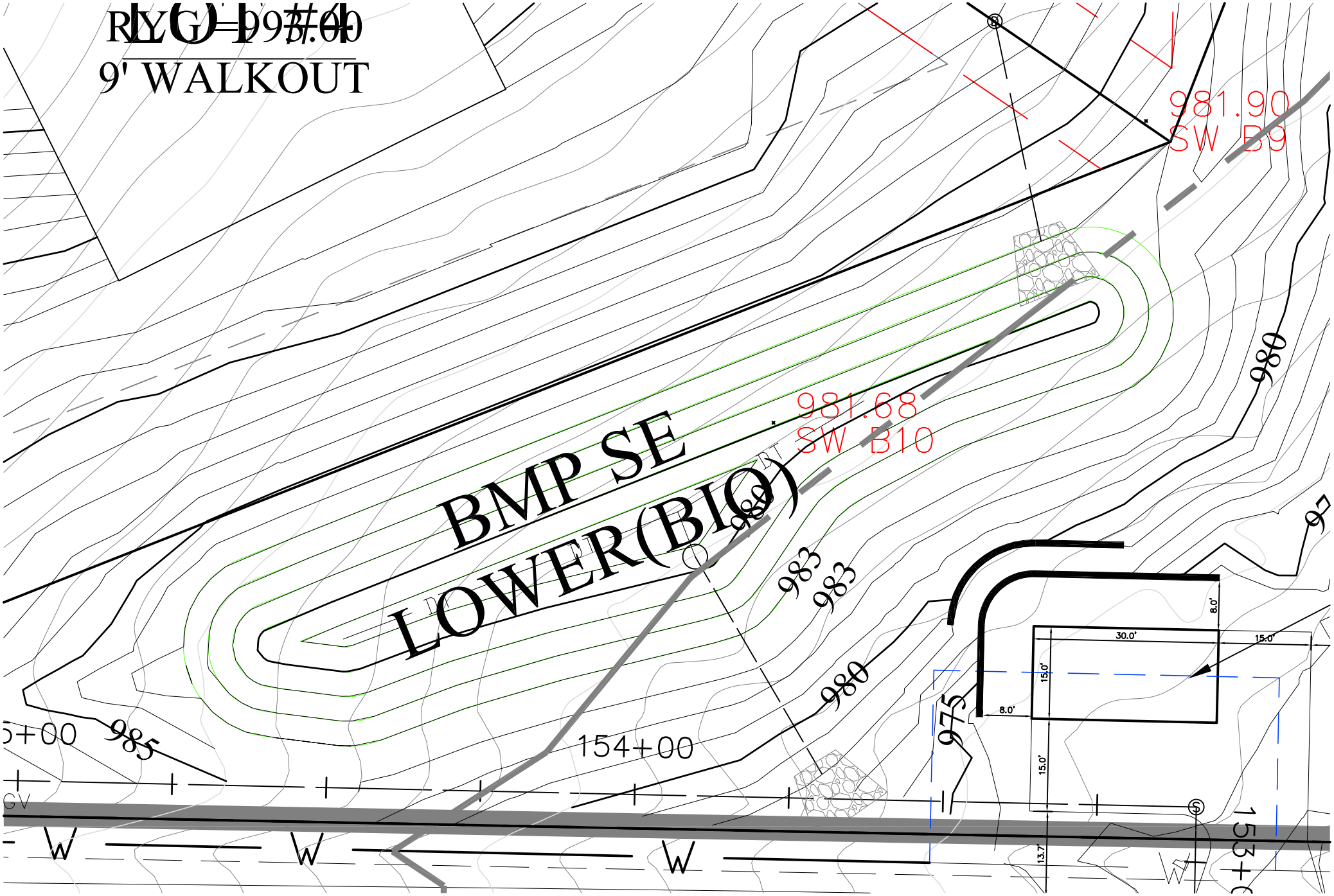
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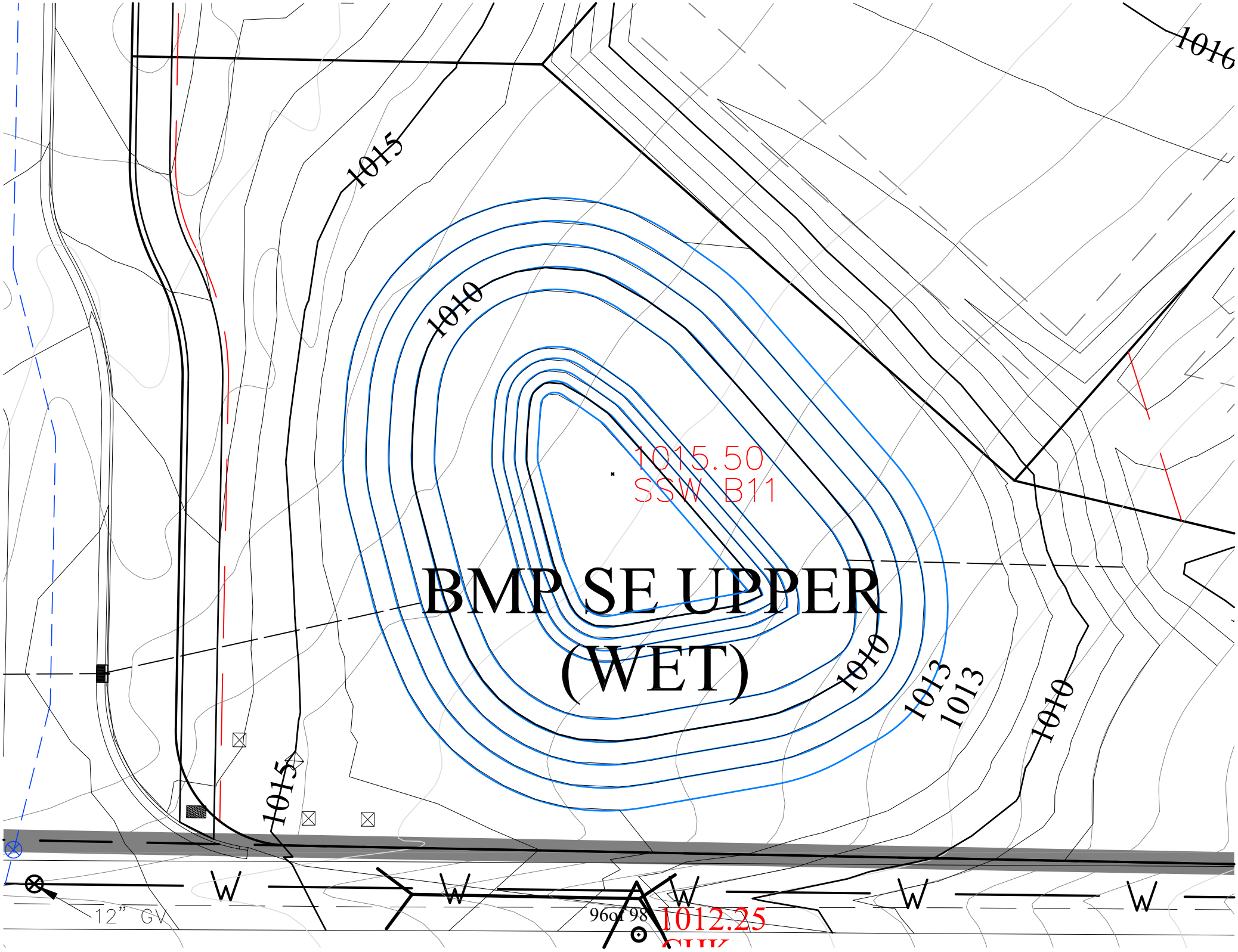
S15W33670 Wolf Rd Oconomowoc, WI 53066 — Address

Nov 3, 2025 — Date Evaluation Conducted

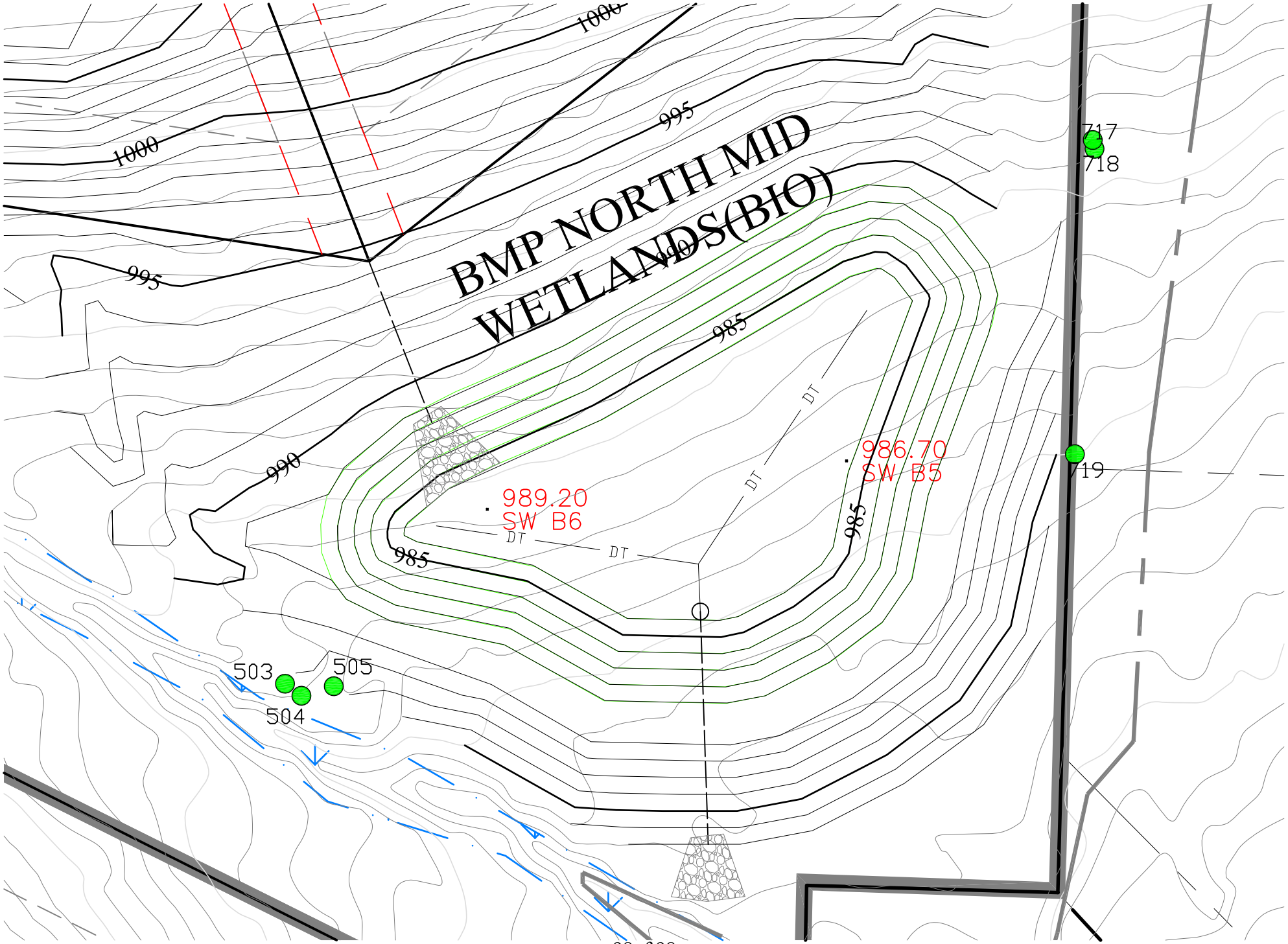
262-968-2550 — Phone Number


LOT #27
106
105
1030
1035
1028
1029
103
1030.32
SW B13
BMP SW (BIO-FILTER)
OUTLOT 3
1029.54
SW B12
DT
1023
100
358
1028
360
361
359
357
356
355
354
san
DH


9' WALKOUT
981.90
SW B9
981.68
SW B10
BMP SE
LOWER(BIO)
980
983
983
980
975
154+00
985
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15.0'
8.0'
15.0'
8.0'
15.0'
13.7'


1016
1015
1010
1015.50
SSW B11
BMP SE UPPER
(WET)
1010
1013
1013
1010
1015
12" GV
96of98
1012.25

1020
1020
1021
1016
1015
1011
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SW B7
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1015
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1021
1021
1017
1018.55
SW B8


BMP NORTH MID
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SW B6
986.70
SW B5
503
504
505
717
718
719