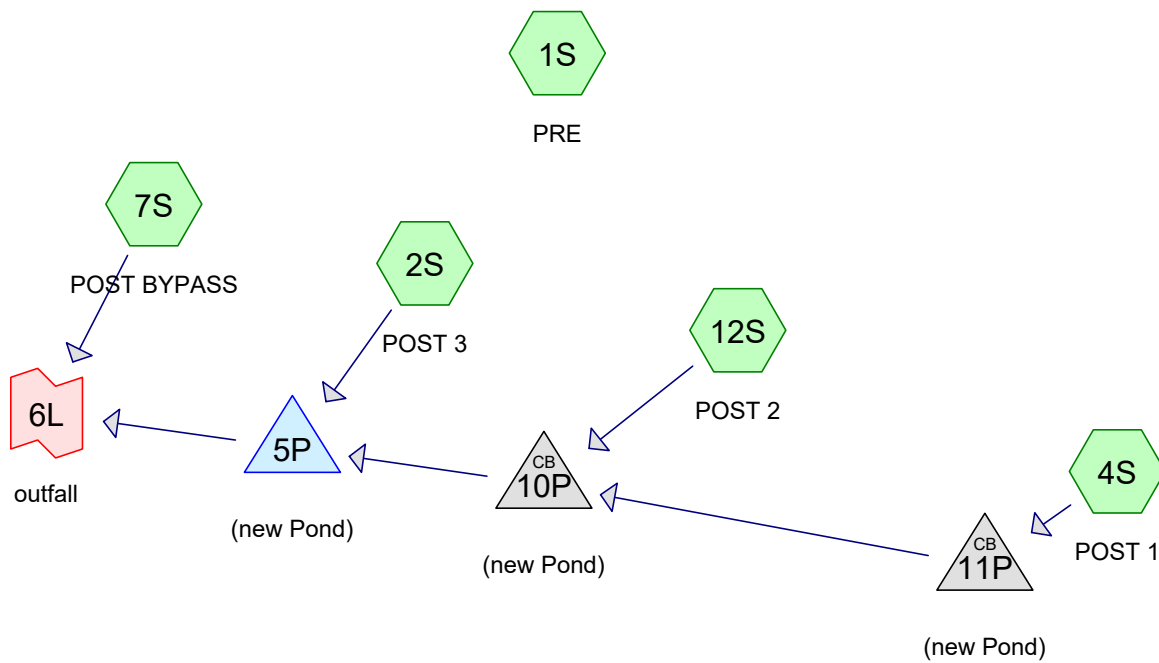


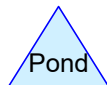
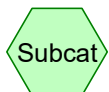
HYDROLOGY REPORT

LINEAGE METALS MT PLEASANT, TN



Handwritten signature and date:
R.D.
6/9/26

Professional Engineer Seal:
RICHARD ANDREW SOMERS
REGISTERED ENGINEER
No. 00106084
STATE OF TENNESSEE



Routing Diagram for lineage metals

Prepared by Somers Consulting Services LLC, Printed 6/9/2026
HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Printed 6/9/2026

Page 2

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.89	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.41	2
3	25-yr	Type II 24-hr		Default	24.00	1	6.33	2
4	100-yr	Type II 24-hr		Default	24.00	1	7.82	2

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Printed 6/9/2026

Page 3

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.416	98	(2S, 4S, 12S)
19.677	61	Pasture/grassland/range, Good, HSG B (1S, 2S, 4S, 7S, 12S)
21.093	63	TOTAL AREA

lineage metals

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	1.416	1.416		2S
							,
							4S
							,
							12
							S
0.000	19.677	0.000	0.000	0.000	19.677	Pasture/grassland/range, Good	1S
							,
							2S
							,
							4S
							,
							7S
							,
							12
							S
0.000	19.677	0.000	0.000	1.416	21.093	TOTAL AREA	

lineage metals

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 5

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	5P	642.10	642.07	6.0	0.0050	0.013	0.0	18.0	0.0	
2	10P	643.12	642.50	124.0	0.0050	0.013	0.0	18.0	0.0	
3	11P	646.39	645.00	277.0	0.0050	0.013	0.0	15.0	0.0	

lineage metals*Type II 24-hr 2-yr Rainfall=3.89"*

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 6

Time span=0.00-24.00 hrs, dt=0.09 hrs, 268 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE Runoff Area=10.563 ac 0.00% Impervious Runoff Depth>0.75"
Flow Length=1,000' Slope=0.0150 '/' Tc=31.8 min CN=61 Runoff=5.12 cfs 0.659 af

Subcatchment2S: POST 3 Runoff Area=7.989 ac 4.92% Impervious Runoff Depth>0.85"
Flow Length=850' Slope=0.0150 '/' Tc=24.4 min CN=63 Runoff=5.55 cfs 0.567 af

Subcatchment4S: POST 1 Runoff Area=0.473 ac 48.63% Impervious Runoff Depth>1.87"
Tc=5.0 min CN=79 Runoff=1.54 cfs 0.074 af

Subcatchment7S: POST BYPASS Runoff Area=0.720 ac 0.00% Impervious Runoff Depth>0.75"
Flow Length=400' Tc=18.4 min CN=61 Runoff=0.50 cfs 0.045 af

Subcatchment12S: POST 2 Runoff Area=58,719 sf 58.83% Impervious Runoff Depth>2.19"
Tc=5.0 min CN=83 Runoff=5.09 cfs 0.246 af

Pond 5P: (new Pond) Peak Elev=643.28' Storage=8,934 cf Inflow=7.99 cfs 0.887 af
Outflow=3.40 cfs 0.883 af

Pond 10P: (new Pond) Peak Elev=644.68' Inflow=6.64 cfs 0.320 af
18.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=6.64 cfs 0.320 af

Pond 11P: (new Pond) Peak Elev=647.07' Inflow=1.54 cfs 0.074 af
15.0" Round Culvert n=0.013 L=277.0' S=0.0050 '/' Outflow=1.54 cfs 0.074 af

Link 6L: outfall Inflow=3.59 cfs 0.928 af
Primary=3.59 cfs 0.928 af

Total Runoff Area = 21.093 ac Runoff Volume = 1.591 af Average Runoff Depth = 0.90"
93.29% Pervious = 19.677 ac 6.71% Impervious = 1.416 ac

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 7

Summary for Subcatchment 1S: PRE

Runoff = 5.12 cfs @ 12.33 hrs, Volume= 0.659 af, Depth> 0.75"

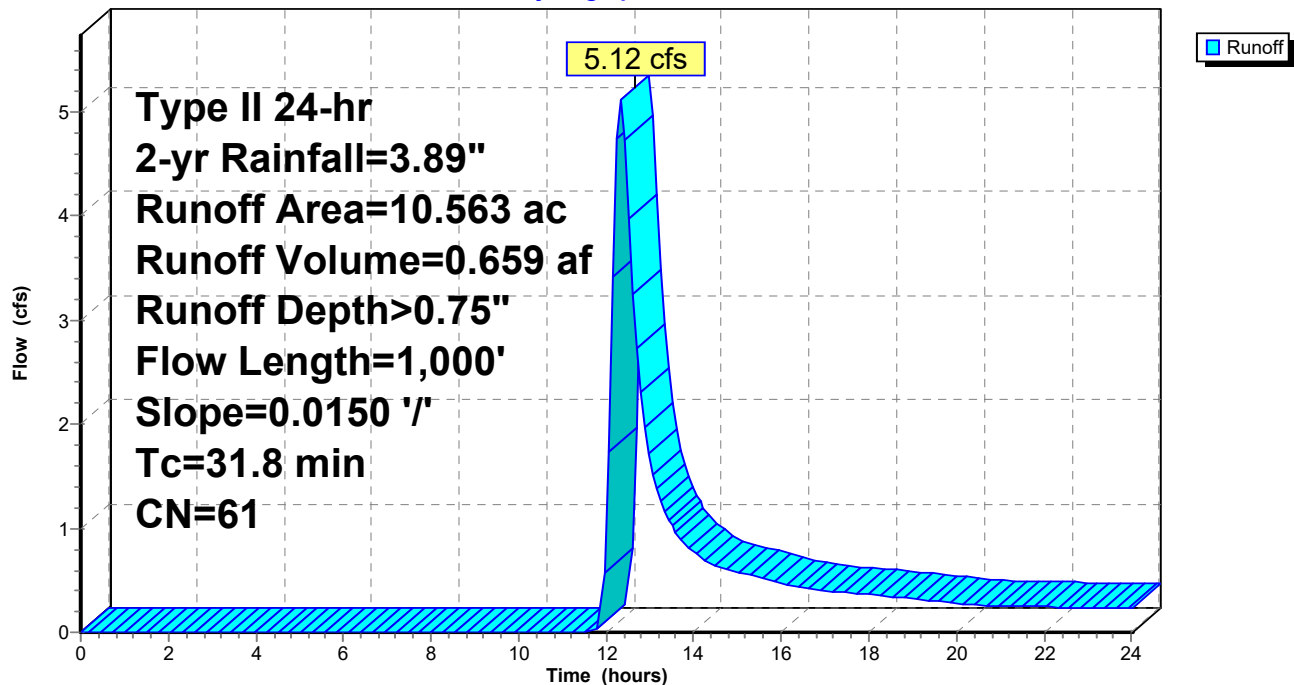
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 2-yr Rainfall=3.89"

Area (ac)	CN	Description
10.563	61	Pasture/grassland/range, Good, HSG B
10.563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
17.5	900	0.0150	0.86		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
31.8	1,000	Total			

Subcatchment 1S: PRE

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 8

Summary for Subcatchment 2S: POST 3

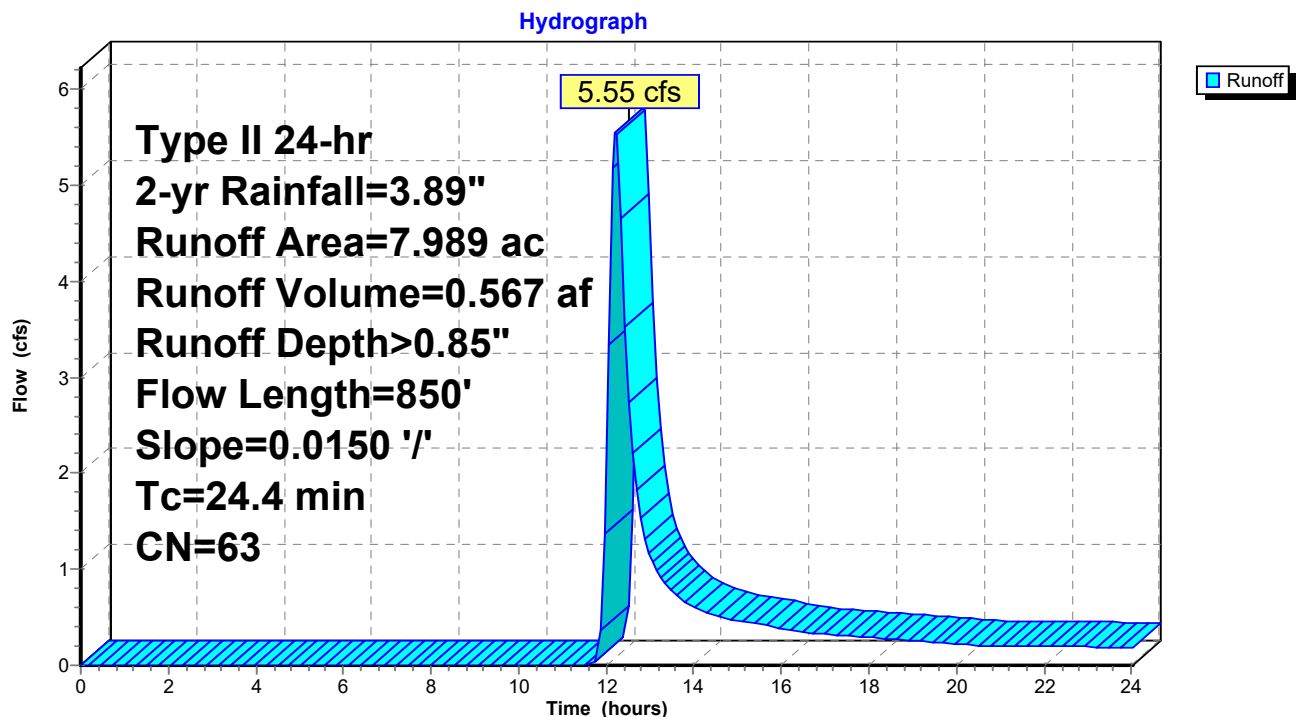
Runoff = 5.55 cfs @ 12.22 hrs, Volume= 0.567 af, Depth> 0.85"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 2-yr Rainfall=3.89"

Area (ac)	CN	Description
7.596	61	Pasture/grassland/range, Good, HSG B
* 0.393	98	
7.989	63	Weighted Average
7.596		95.08% Pervious Area
0.393		4.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0150	0.17		Sheet Flow, Sheet Flow
					Grass: Short n= 0.150 P2= 4.00"
14.6	750	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated
					Short Grass Pasture Kv= 7.0 fps
24.4	850	Total			

Subcatchment 2S: POST 3



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 9

Summary for Subcatchment 4S: POST 1

[49] Hint: $T_c < 2dt$ may require smaller dt

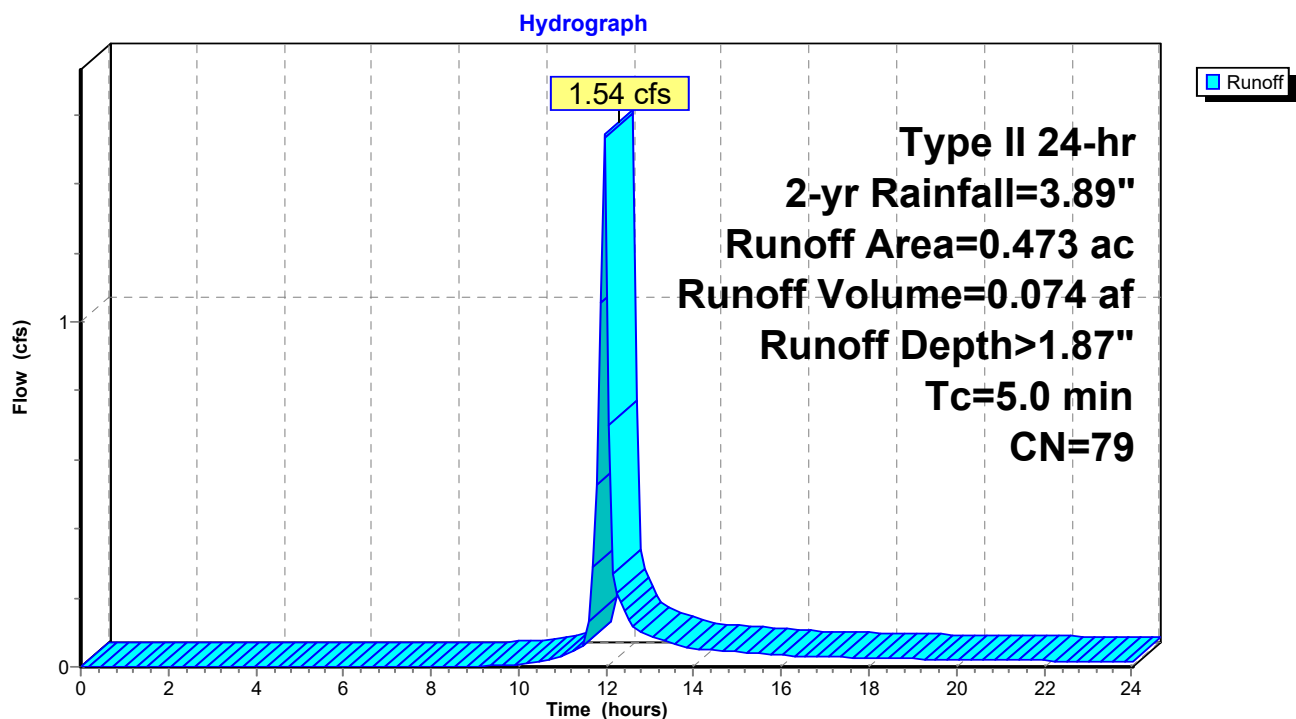
Runoff = 1.54 cfs @ 11.96 hrs, Volume= 0.074 af, Depth> 1.87"
Routed to Pond 11P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 2-yr Rainfall=3.89"

Area (ac)	CN	Description
0.243	61	Pasture/grassland/range, Good, HSG B
* 0.230	98	
0.473	79	Weighted Average
0.243		51.37% Pervious Area
0.230		48.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 4S: POST 1



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 10

Summary for Subcatchment 7S: POST BYPASS

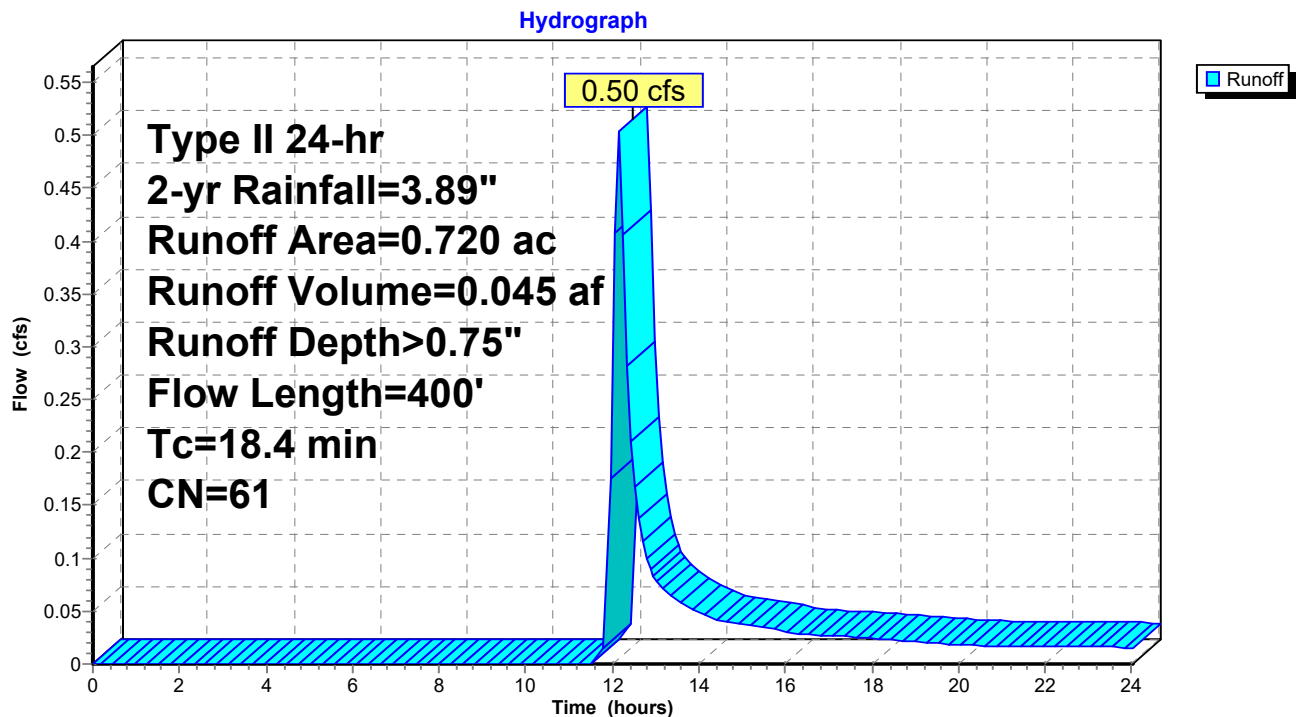
Runoff = 0.50 cfs @ 12.15 hrs, Volume= 0.045 af, Depth> 0.75"
Routed to Link 6L : outfall

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 2-yr Rainfall=3.89"

Area (ac)	CN	Description
0.720	61	Pasture/grassland/range, Good, HSG B
0.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
4.1	300	0.0300	1.21		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
18.4	400	Total			

Subcatchment 7S: POST BYPASS



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 11

Summary for Subcatchment 12S: POST 2

[49] Hint: $T_c < 2dt$ may require smaller dt

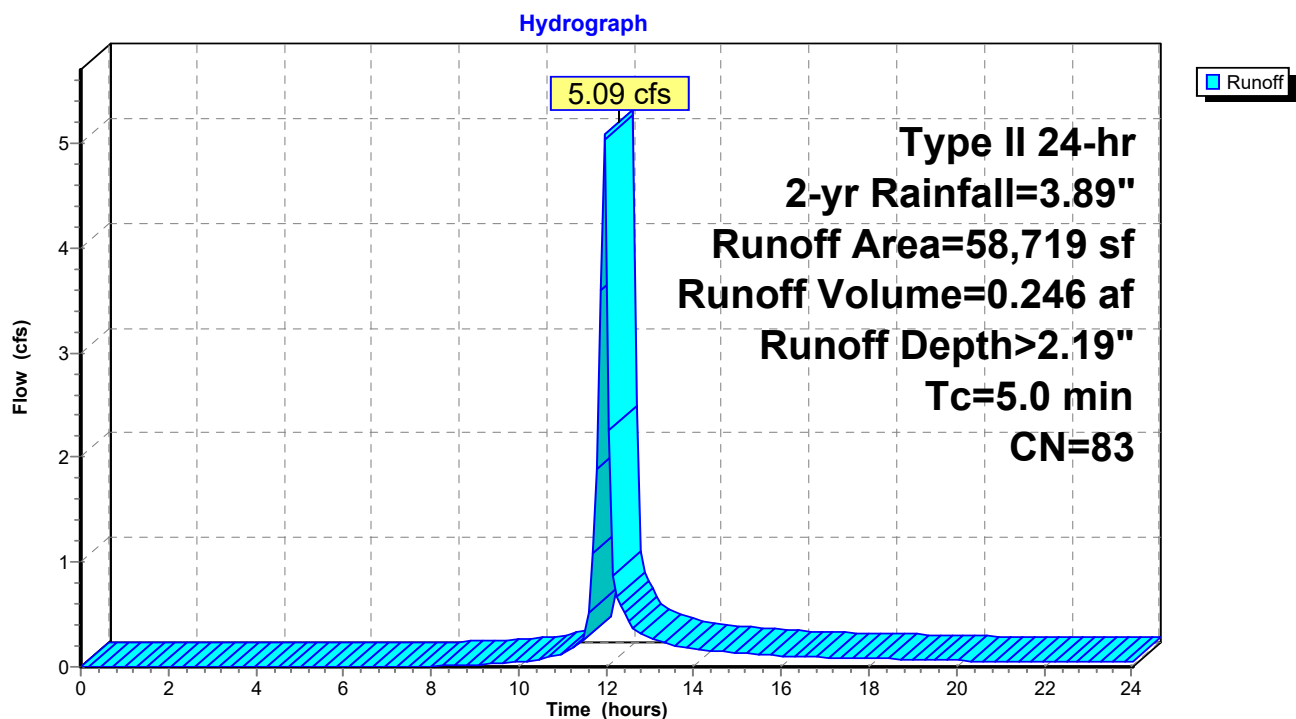
Runoff = 5.09 cfs @ 11.96 hrs, Volume= 0.246 af, Depth> 2.19"
Routed to Pond 10P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 2-yr Rainfall=3.89"

	Area (sf)	CN	Description
	24,176	61	Pasture/grassland/range, Good, HSG B
*	34,543	98	
	58,719	83	Weighted Average
	24,176		41.17% Pervious Area
	34,543		58.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 12S: POST 2



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 12

Summary for Pond 5P: (new Pond)

[79] Warning: Submerged Pond 10P Primary device # 1 INLET by 0.16'

Inflow Area = 9.810 ac, 14.43% Impervious, Inflow Depth > 1.08" for 2-yr event
 Inflow = 7.99 cfs @ 11.98 hrs, Volume= 0.887 af
 Outflow = 3.40 cfs @ 12.51 hrs, Volume= 0.883 af, Atten= 57%, Lag= 31.5 min
 Primary = 3.40 cfs @ 12.51 hrs, Volume= 0.883 af
 Routed to Link 6L : outfall

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs / 3
 Peak Elev= 643.28' @ 12.51 hrs Surf.Area= 16,816 sf Storage= 8,934 cf

Plug-Flow detention time= 28.3 min calculated for 0.880 af (99% of inflow)
 Center-of-Mass det. time= 25.8 min (894.8 - 868.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	642.10'	49,077 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
642.10	4	8.0	0	0	4
643.00	14,962	660.0	4,563	4,563	34,664
644.00	22,218	674.0	18,471	23,034	36,293
644.40	27,824	683.0	9,987	33,021	37,302
644.90	36,600	847.0	16,056	49,077	57,273

Device	Routing	Invert	Outlet Devices
#1	Primary	642.10'	18.0" Round Culvert L= 6.0' Ke= 1.000 Inlet / Outlet Invert= 642.10' / 642.07' S= 0.0050 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Primary	644.40'	10.0' long + 3.0 ' /' SideZ x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

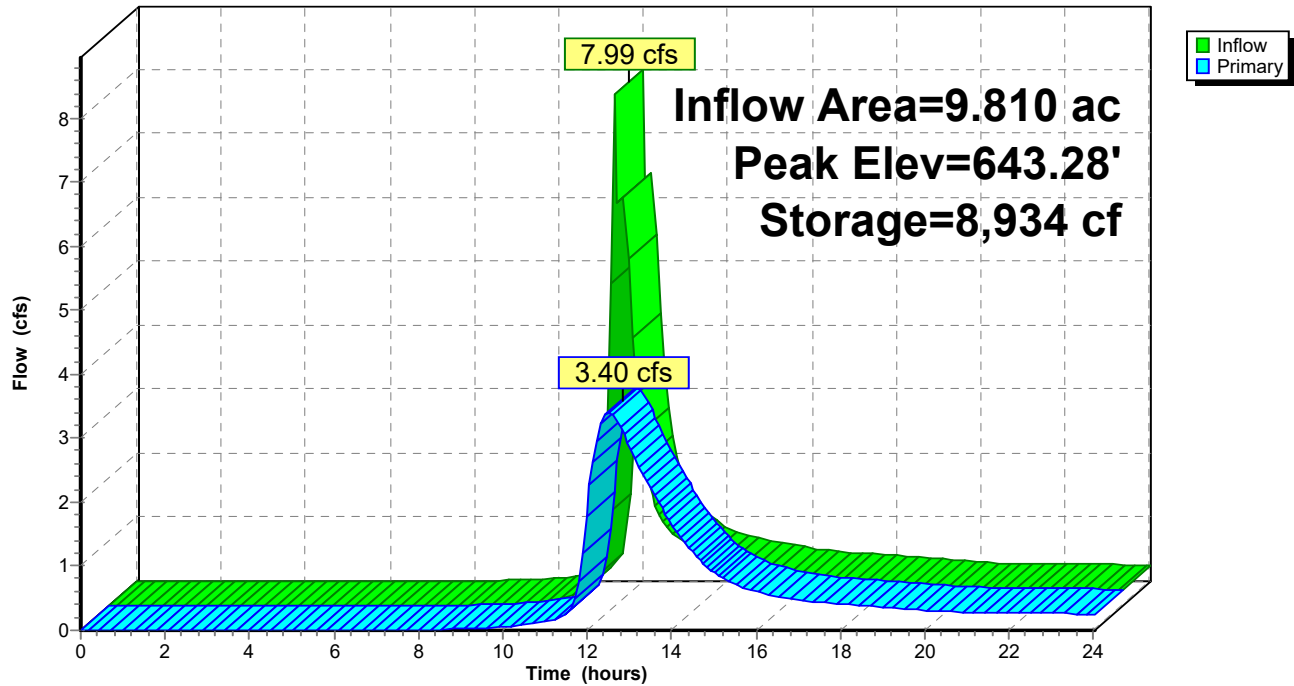
Primary OutFlow Max=3.40 cfs @ 12.51 hrs HW=643.28' (Free Discharge)

1=Culvert (Barrel Controls 3.40 cfs @ 3.15 fps)

2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 5P: (new Pond)

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 14

Summary for Pond 10P: (new Pond)

[57] Hint: Peaked at 644.68' (Flood elevation advised)

Inflow Area = 1.821 ac, 56.18% Impervious, Inflow Depth > 2.11" for 2-yr event
Inflow = 6.64 cfs @ 11.96 hrs, Volume= 0.320 af
Outflow = 6.64 cfs @ 11.96 hrs, Volume= 0.320 af, Atten= 0%, Lag= 0.0 min
Primary = 6.64 cfs @ 11.96 hrs, Volume= 0.320 af
Routed to Pond 5P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

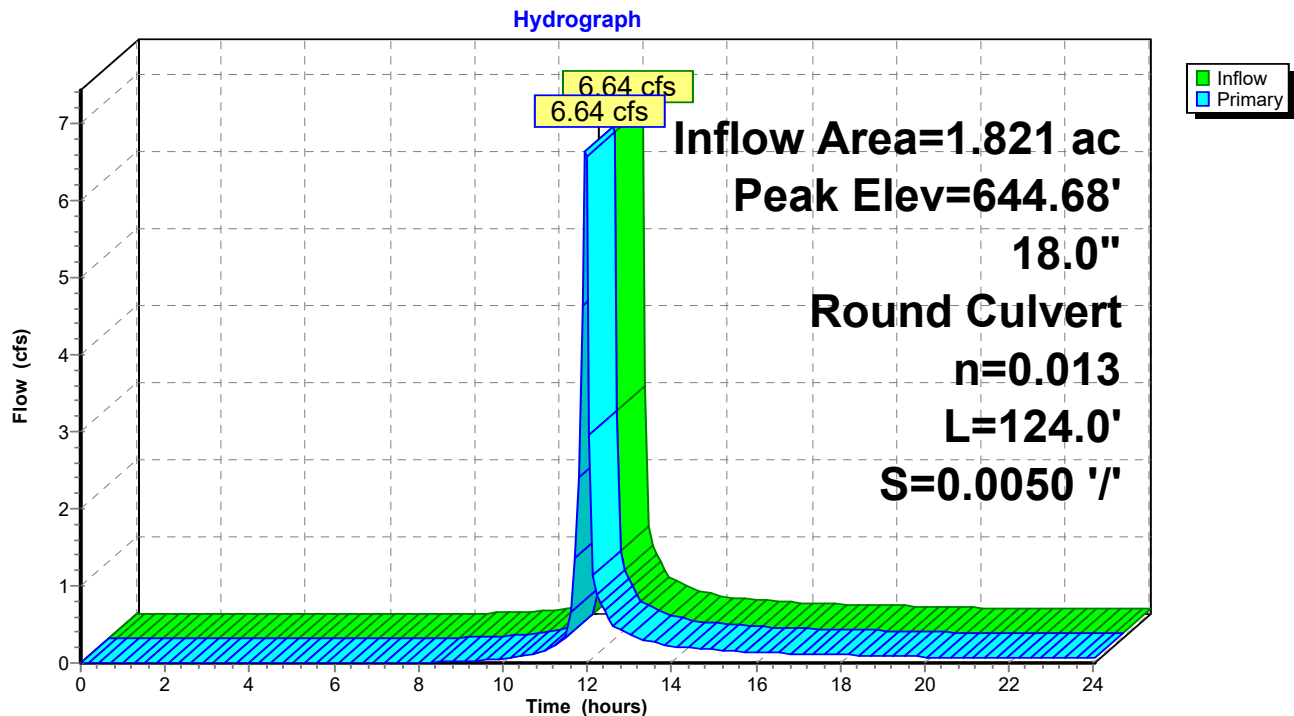
Peak Elev= 644.68' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	643.12'	18.0" Round Culvert L= 124.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 643.12' / 642.50' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=6.30 cfs @ 11.96 hrs HW=644.62' (Free Discharge)

↑1=Culvert (Barrel Controls 6.30 cfs @ 4.43 fps)

Pond 10P: (new Pond)



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 2-yr Rainfall=3.89"

Printed 6/9/2026

Page 15

Summary for Pond 11P: (new Pond)

[57] Hint: Peaked at 647.07' (Flood elevation advised)

Inflow Area = 0.473 ac, 48.63% Impervious, Inflow Depth > 1.87" for 2-yr event
Inflow = 1.54 cfs @ 11.96 hrs, Volume= 0.074 af
Outflow = 1.54 cfs @ 11.96 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 11.96 hrs, Volume= 0.074 af
Routed to Pond 10P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

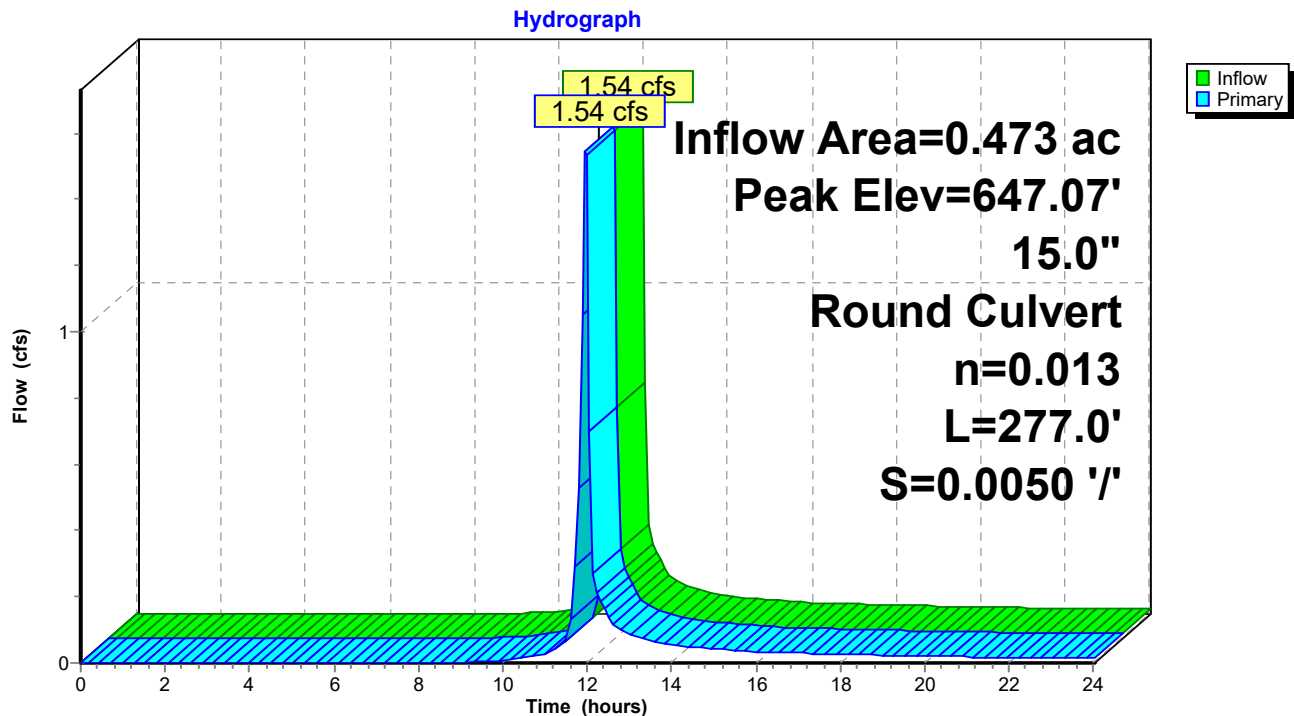
Peak Elev= 647.07' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	646.39'	15.0" Round Culvert L= 277.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 646.39' / 645.00' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.46 cfs @ 11.96 hrs HW=647.05' (Free Discharge)

↑1=Culvert (Barrel Controls 1.46 cfs @ 3.24 fps)

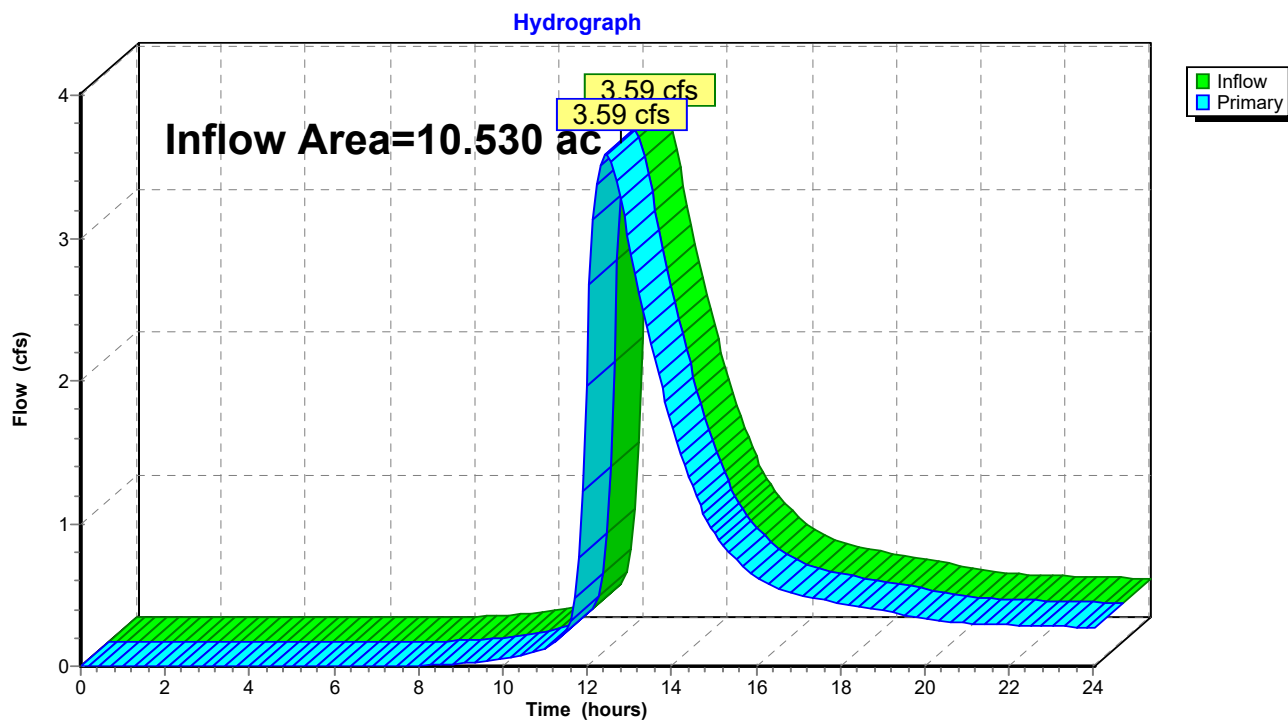
Pond 11P: (new Pond)



Summary for Link 6L: outfall

Inflow Area = 10.530 ac, 13.45% Impervious, Inflow Depth > 1.06" for 2-yr event
Inflow = 3.59 cfs @ 12.45 hrs, Volume= 0.928 af
Primary = 3.59 cfs @ 12.45 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

Link 6L: outfall

lineage metals*Type II 24-hr 10-yr Rainfall=5.41"*

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 17

Time span=0.00-24.00 hrs, dt=0.09 hrs, 268 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE Runoff Area=10.563 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=1,000' Slope=0.0150 '/' Tc=31.8 min CN=61 Runoff=12.87 cfs 1.414 af

Subcatchment2S: POST 3 Runoff Area=7.989 ac 4.92% Impervious Runoff Depth>1.76"
Flow Length=850' Slope=0.0150 '/' Tc=24.4 min CN=63 Runoff=12.93 cfs 1.173 af

Subcatchment4S: POST 1 Runoff Area=0.473 ac 48.63% Impervious Runoff Depth>3.16"
Tc=5.0 min CN=79 Runoff=2.57 cfs 0.124 af

Subcatchment7S: POST BYPASS Runoff Area=0.720 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=400' Tc=18.4 min CN=61 Runoff=1.24 cfs 0.097 af

Subcatchment12S: POST 2 Runoff Area=58,719 sf 58.83% Impervious Runoff Depth>3.55"
Tc=5.0 min CN=83 Runoff=8.08 cfs 0.398 af

Pond 5P: (new Pond) Peak Elev=643.90' Storage=20,781 cf Inflow=15.58 cfs 1.696 af
Outflow=6.43 cfs 1.688 af

Pond 10P: (new Pond) Peak Elev=646.08' Inflow=10.65 cfs 0.523 af
18.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=10.65 cfs 0.523 af

Pond 11P: (new Pond) Peak Elev=647.30' Inflow=2.57 cfs 0.124 af
15.0" Round Culvert n=0.013 L=277.0' S=0.0050 '/' Outflow=2.57 cfs 0.124 af

Link 6L: outfall Inflow=6.81 cfs 1.785 af
Primary=6.81 cfs 1.785 af

Total Runoff Area = 21.093 ac Runoff Volume = 3.207 af Average Runoff Depth = 1.82"
93.29% Pervious = 19.677 ac 6.71% Impervious = 1.416 ac

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 18

Summary for Subcatchment 1S: PRE

Runoff = 12.87 cfs @ 12.30 hrs, Volume= 1.414 af, Depth> 1.61"

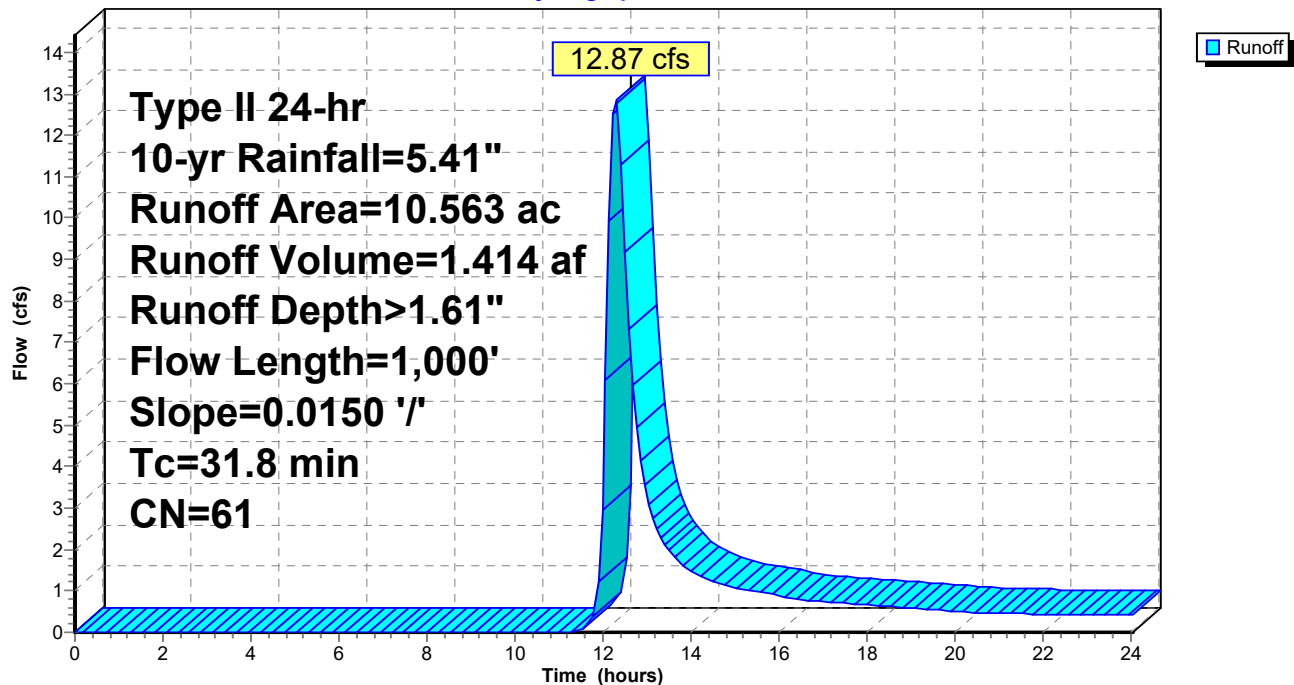
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 10-yr Rainfall=5.41"

Area (ac)	CN	Description
10.563	61	Pasture/grassland/range, Good, HSG B
10.563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
17.5	900	0.0150	0.86		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
31.8	1,000	Total			

Subcatchment 1S: PRE

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 19

Summary for Subcatchment 2S: POST 3

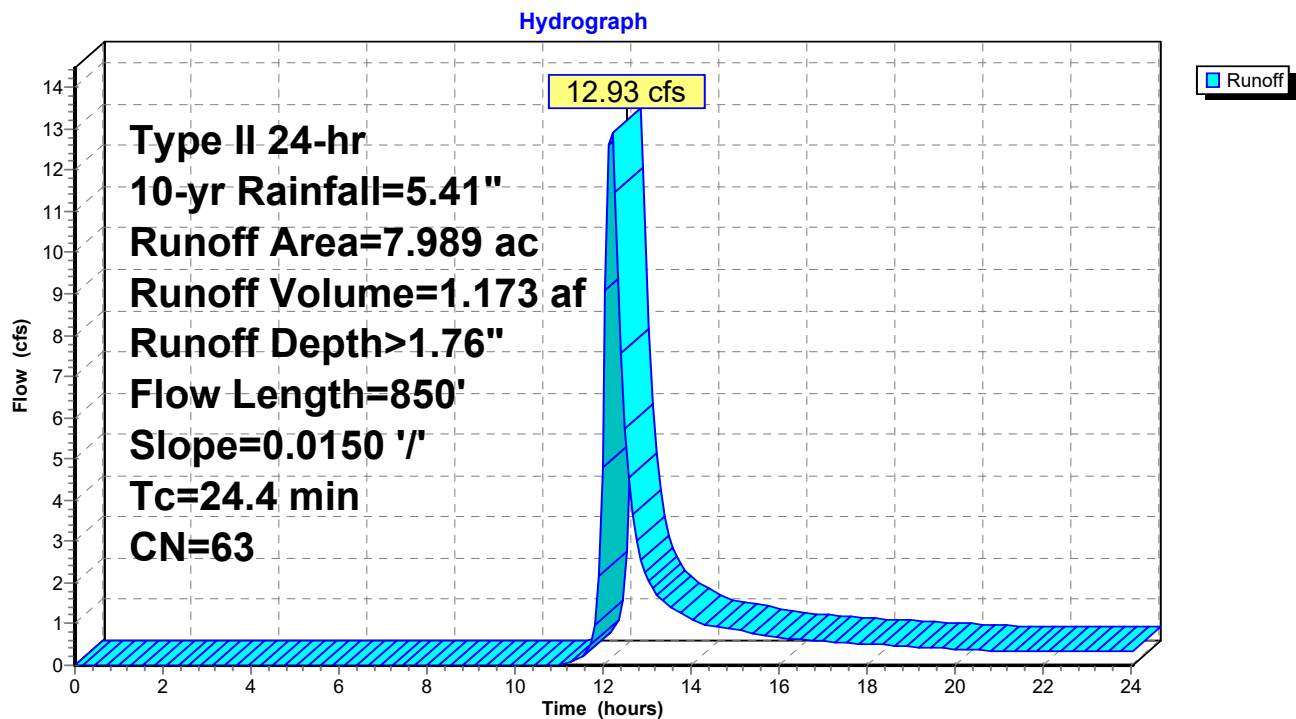
Runoff = 12.93 cfs @ 12.20 hrs, Volume= 1.173 af, Depth> 1.76"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 10-yr Rainfall=5.41"

Area (ac)	CN	Description
7.596	61	Pasture/grassland/range, Good, HSG B
* 0.393	98	
7.989	63	Weighted Average
7.596		95.08% Pervious Area
0.393		4.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0150	0.17		Sheet Flow, Sheet Flow
					Grass: Short n= 0.150 P2= 4.00"
14.6	750	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated
					Short Grass Pasture Kv= 7.0 fps
24.4	850	Total			

Subcatchment 2S: POST 3



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 20

Summary for Subcatchment 4S: POST 1

[49] Hint: $T_c < 2dt$ may require smaller dt

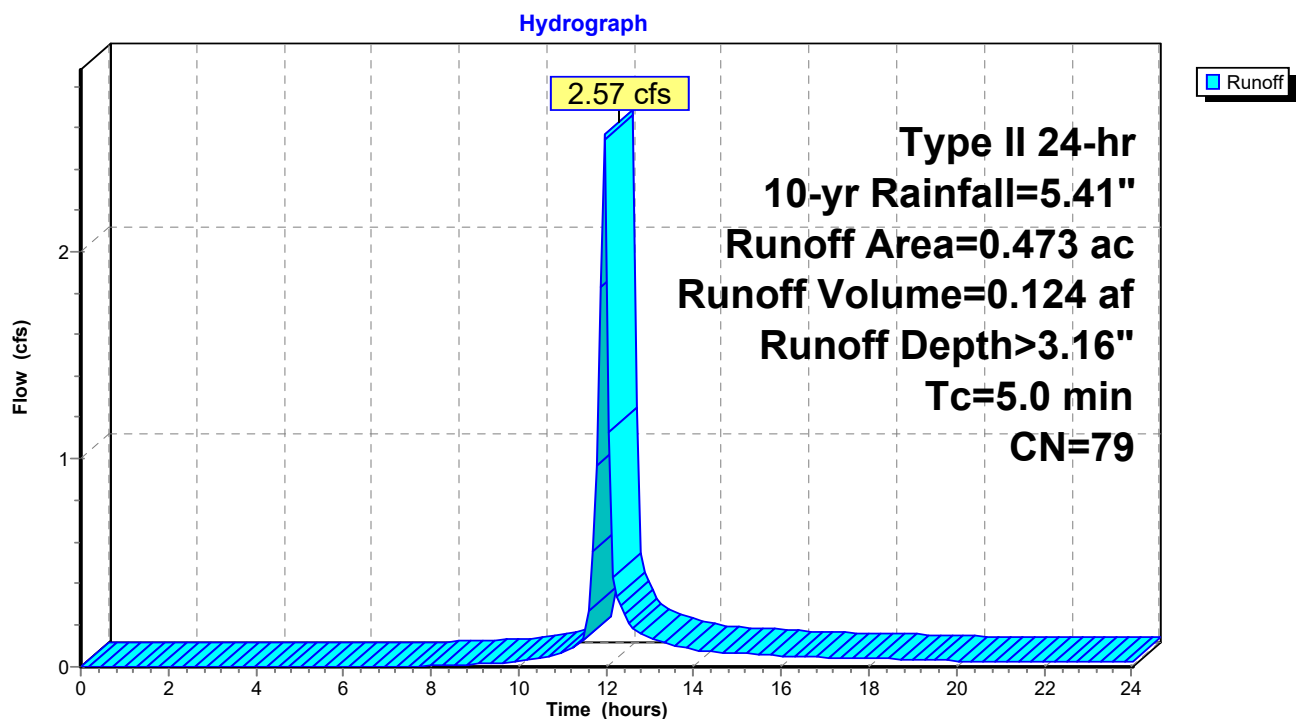
Runoff = 2.57 cfs @ 11.96 hrs, Volume= 0.124 af, Depth> 3.16"
Routed to Pond 11P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 10-yr Rainfall=5.41"

Area (ac)	CN	Description
0.243	61	Pasture/grassland/range, Good, HSG B
* 0.230	98	
0.473	79	Weighted Average
0.243		51.37% Pervious Area
0.230		48.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 4S: POST 1



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 21

Summary for Subcatchment 7S: POST BYPASS

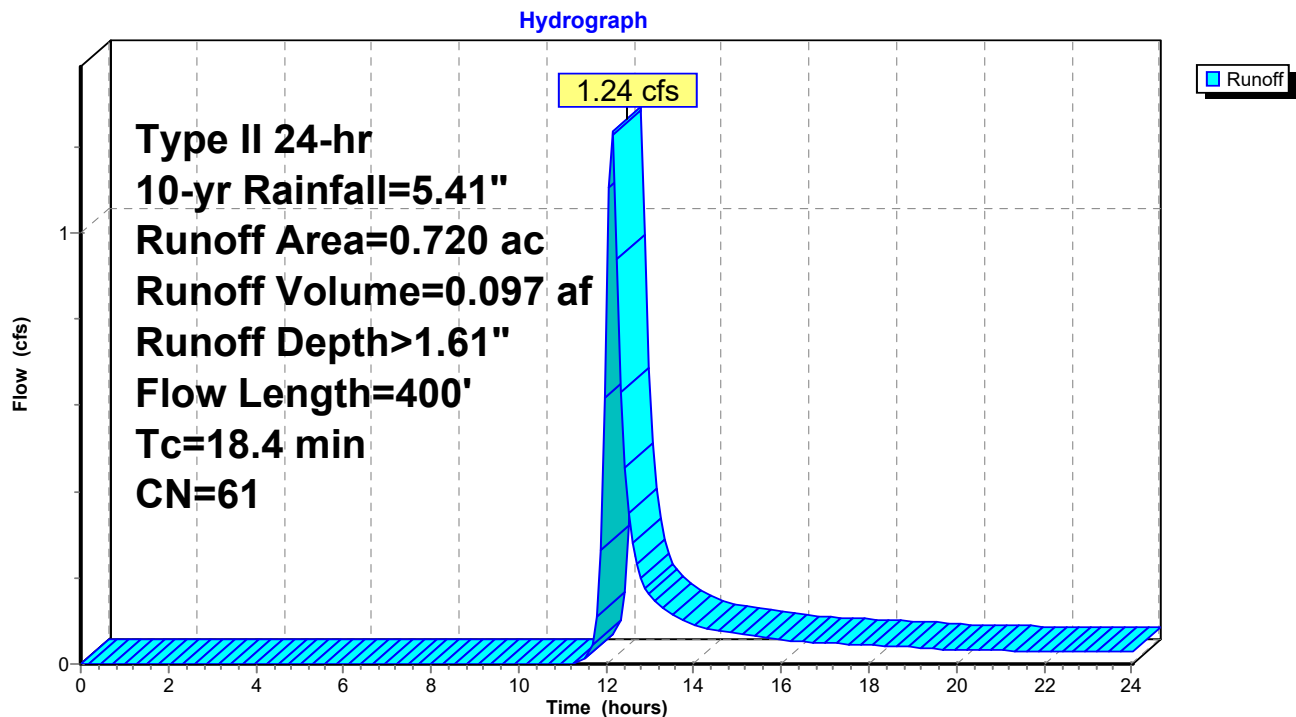
Runoff = 1.24 cfs @ 12.13 hrs, Volume= 0.097 af, Depth> 1.61"
Routed to Link 6L : outfall

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 10-yr Rainfall=5.41"

Area (ac)	CN	Description
0.720	61	Pasture/grassland/range, Good, HSG B
0.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
4.1	300	0.0300	1.21		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
18.4	400	Total			

Subcatchment 7S: POST BYPASS



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 22

Summary for Subcatchment 12S: POST 2

[49] Hint: $T_c < 2dt$ may require smaller dt

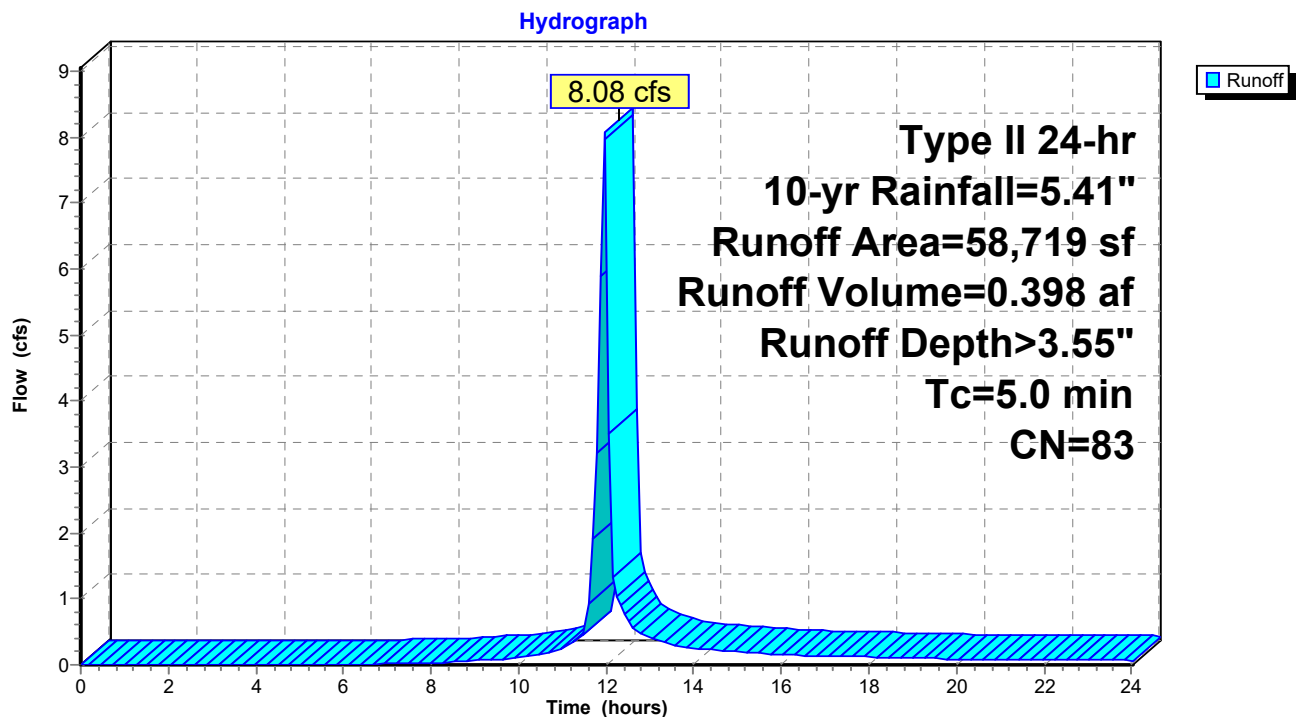
Runoff = 8.08 cfs @ 11.95 hrs, Volume= 0.398 af, Depth> 3.55"
Routed to Pond 10P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 10-yr Rainfall=5.41"

	Area (sf)	CN	Description
	24,176	61	Pasture/grassland/range, Good, HSG B
*	34,543	98	
	58,719	83	Weighted Average
	24,176		41.17% Pervious Area
	34,543		58.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 12S: POST 2



lineage metals

Type II 24-hr 10-yr Rainfall=5.41"

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 23

Summary for Pond 5P: (new Pond)

[81] Warning: Exceeded Pond 10P by 0.33' @ 12.60 hrs

Inflow Area = 9.810 ac, 14.43% Impervious, Inflow Depth > 2.07" for 10-yr event
 Inflow = 15.58 cfs @ 11.99 hrs, Volume= 1.696 af
 Outflow = 6.43 cfs @ 12.53 hrs, Volume= 1.688 af, Atten= 59%, Lag= 32.1 min
 Primary = 6.43 cfs @ 12.53 hrs, Volume= 1.688 af
 Routed to Link 6L : outfall

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs / 3
 Peak Elev= 643.90' @ 12.53 hrs Surf.Area= 21,402 sf Storage= 20,781 cf

Plug-Flow detention time= 37.4 min calculated for 1.682 af (99% of inflow)
 Center-of-Mass det. time= 34.5 min (886.4 - 851.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	642.10'	49,077 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
642.10	4	8.0	0	0	4
643.00	14,962	660.0	4,563	4,563	34,664
644.00	22,218	674.0	18,471	23,034	36,293
644.40	27,824	683.0	9,987	33,021	37,302
644.90	36,600	847.0	16,056	49,077	57,273

Device	Routing	Invert	Outlet Devices
#1	Primary	642.10'	18.0" Round Culvert L= 6.0' Ke= 1.000 Inlet / Outlet Invert= 642.10' / 642.07' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Primary	644.40'	10.0' long + 3.0 ' SideZ x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

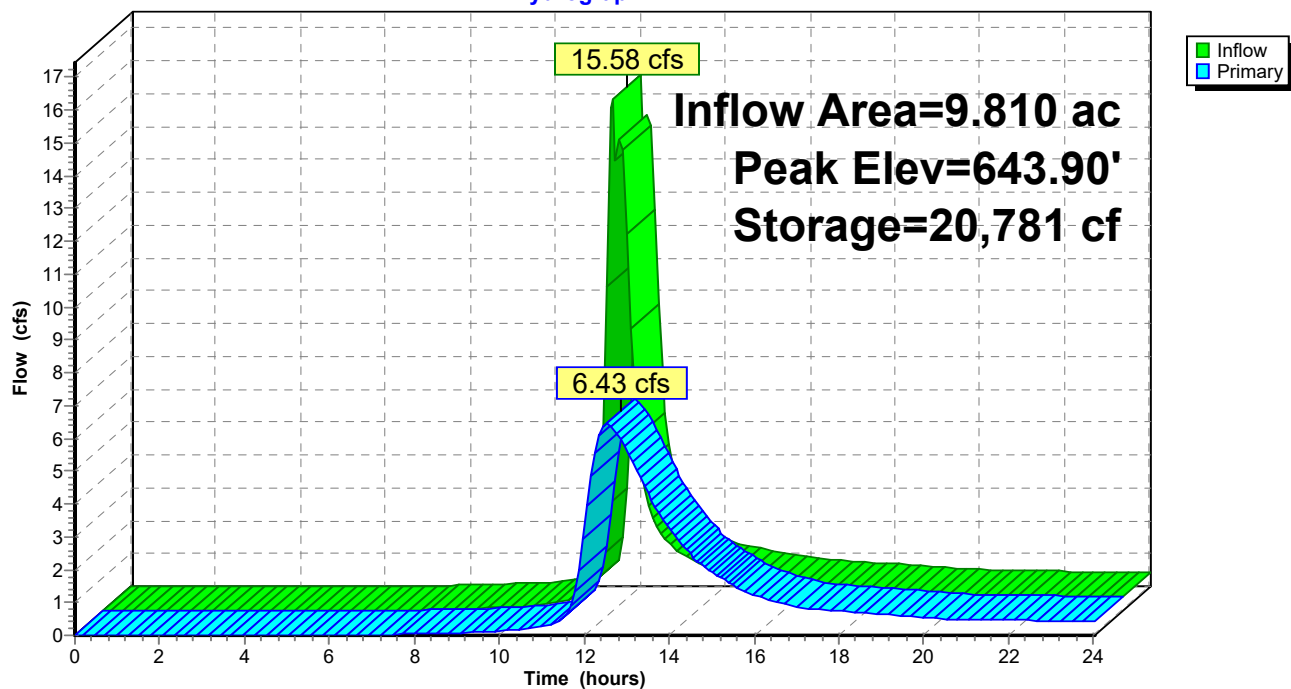
Primary OutFlow Max=6.42 cfs @ 12.53 hrs HW=643.89' (Free Discharge)

1=Culvert (Barrel Controls 6.42 cfs @ 3.84 fps)

2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 5P: (new Pond)

Hydrograph



Summary for Pond 10P: (new Pond)

[57] Hint: Peaked at 646.08' (Flood elevation advised)

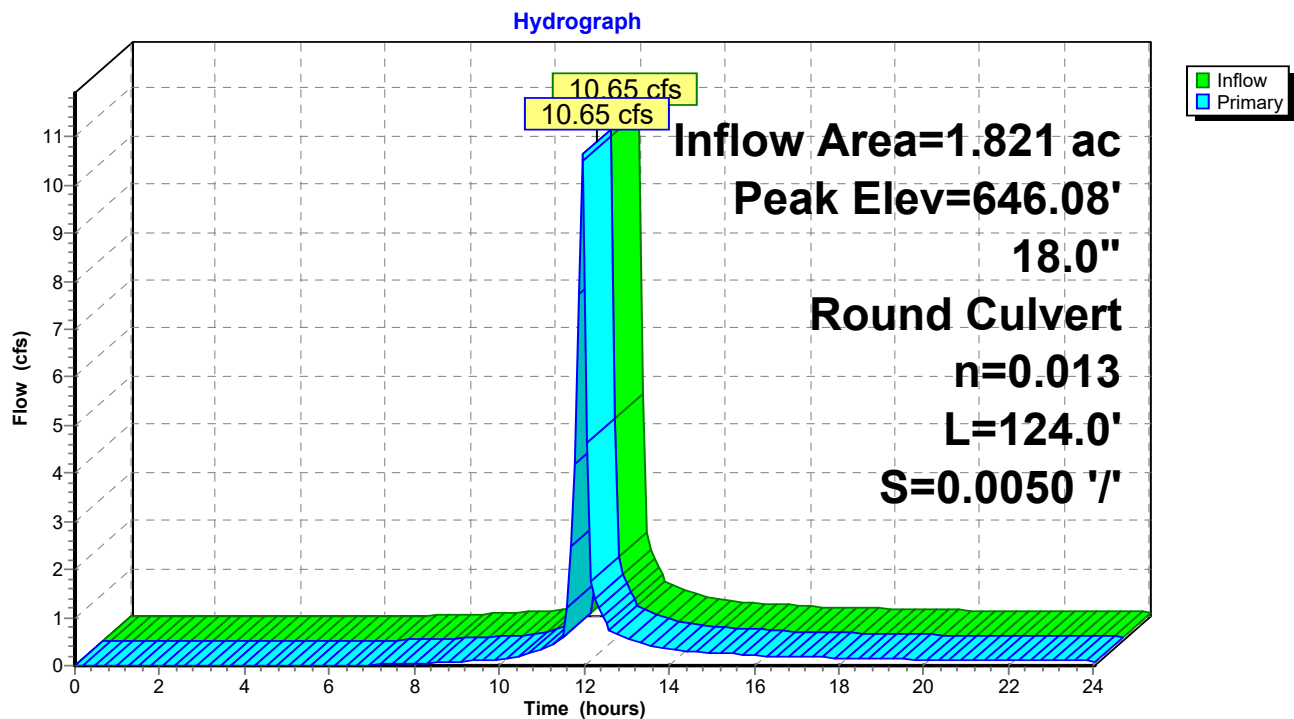
[79] Warning: Submerged Pond 11P Primary device # 1 OUTLET by 1.07'

Inflow Area = 1.821 ac, 56.18% Impervious, Inflow Depth > 3.45" for 10-yr event
 Inflow = 10.65 cfs @ 11.95 hrs, Volume= 0.523 af
 Outflow = 10.65 cfs @ 11.95 hrs, Volume= 0.523 af, Atten= 0%, Lag= 0.0 min
 Primary = 10.65 cfs @ 11.95 hrs, Volume= 0.523 af
 Routed to Pond 5P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
 Peak Elev= 646.08' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	643.12'	18.0" Round Culvert L= 124.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 643.12' / 642.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=9.98 cfs @ 11.95 hrs HW=645.87' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 9.98 cfs @ 5.65 fps)

Pond 10P: (new Pond)

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 10-yr Rainfall=5.41"

Printed 6/9/2026

Page 26

Summary for Pond 11P: (new Pond)

[57] Hint: Peaked at 647.30' (Flood elevation advised)

Inflow Area = 0.473 ac, 48.63% Impervious, Inflow Depth > 3.16" for 10-yr event
Inflow = 2.57 cfs @ 11.96 hrs, Volume= 0.124 af
Outflow = 2.57 cfs @ 11.96 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Primary = 2.57 cfs @ 11.96 hrs, Volume= 0.124 af
Routed to Pond 10P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

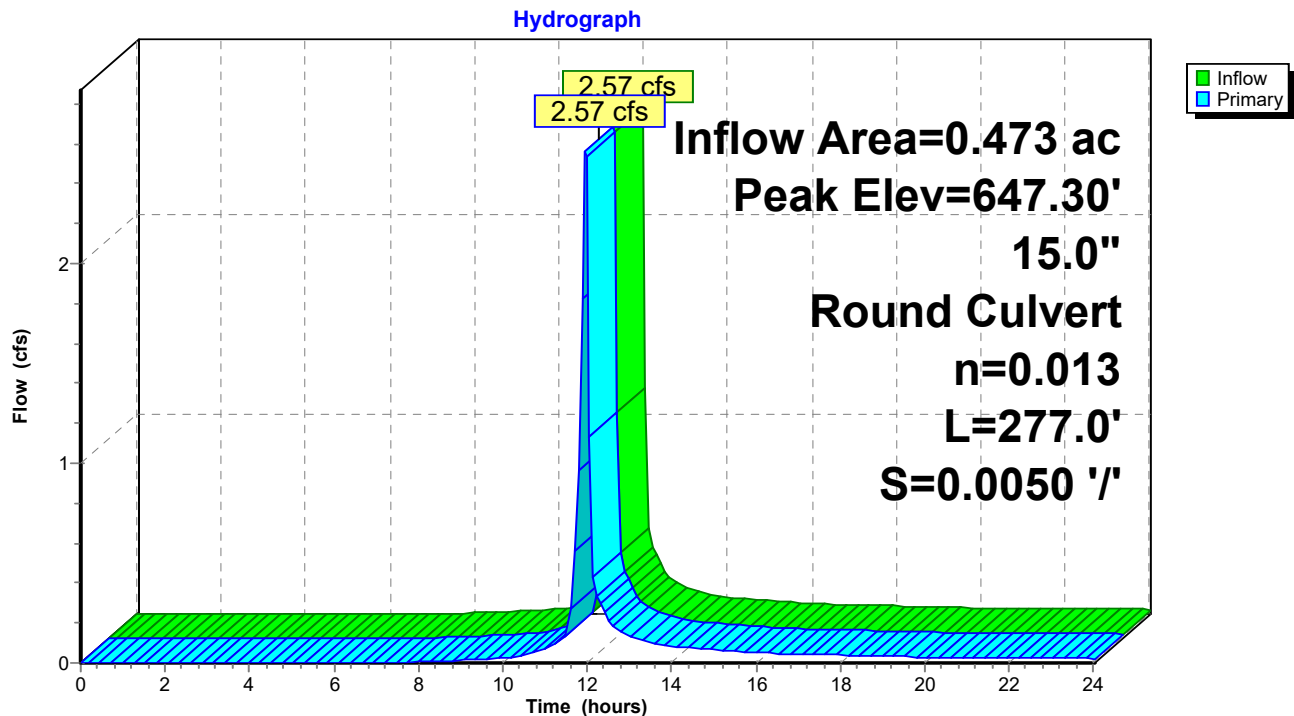
Peak Elev= 647.30' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	646.39'	15.0" Round Culvert L= 277.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 646.39' / 645.00' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.42 cfs @ 11.96 hrs HW=647.27' (Free Discharge)

↑1=Culvert (Barrel Controls 2.42 cfs @ 3.68 fps)

Pond 11P: (new Pond)



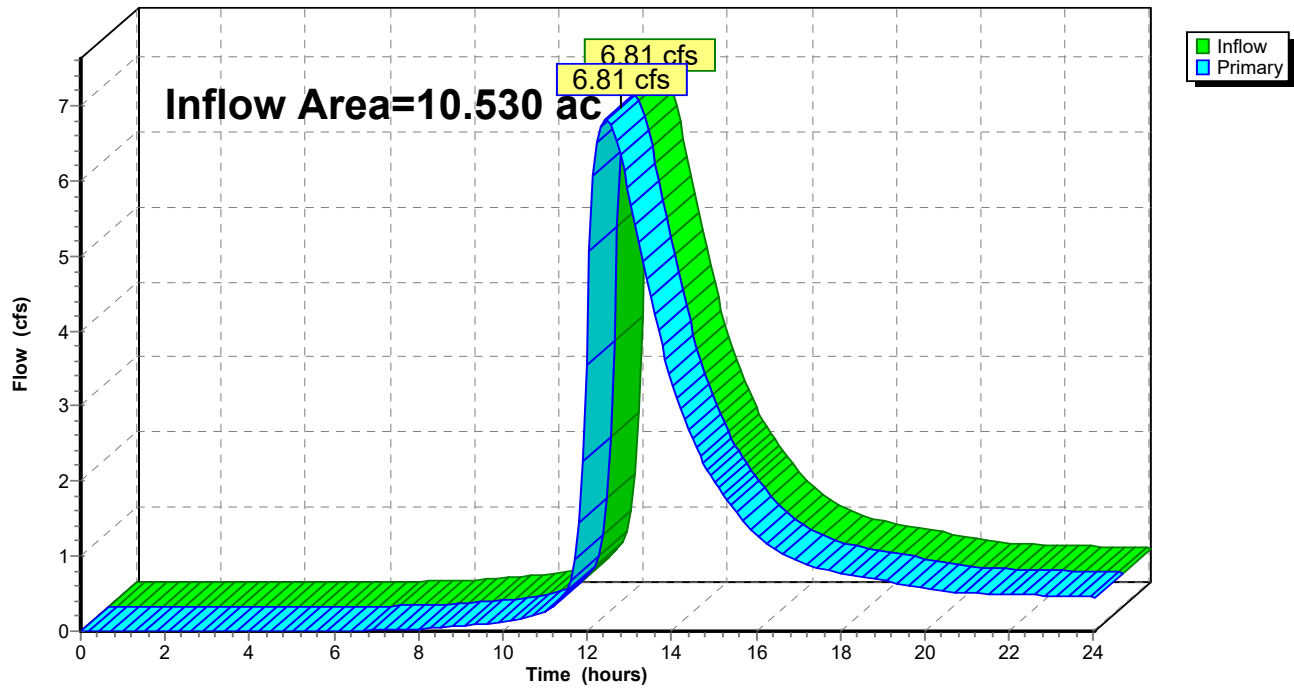
Summary for Link 6L: outfall

Inflow Area = 10.530 ac, 13.45% Impervious, Inflow Depth > 2.03" for 10-yr event
Inflow = 6.81 cfs @ 12.44 hrs, Volume= 1.785 af
Primary = 6.81 cfs @ 12.44 hrs, Volume= 1.785 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

Link 6L: outfall

Hydrograph



lineage metals*Type II 24-hr 25-yr Rainfall=6.33"*

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 28

Time span=0.00-24.00 hrs, dt=0.09 hrs, 268 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE Runoff Area=10.563 ac 0.00% Impervious Runoff Depth>2.21"
Flow Length=1,000' Slope=0.0150 '/' Tc=31.8 min CN=61 Runoff=18.38 cfs 1.945 af

Subcatchment2S: POST 3 Runoff Area=7.989 ac 4.92% Impervious Runoff Depth>2.39"
Flow Length=850' Slope=0.0150 '/' Tc=24.4 min CN=63 Runoff=18.22 cfs 1.594 af

Subcatchment4S: POST 1 Runoff Area=0.473 ac 48.63% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=79 Runoff=3.20 cfs 0.157 af

Subcatchment7S: POST BYPASS Runoff Area=0.720 ac 0.00% Impervious Runoff Depth>2.22"
Flow Length=400' Tc=18.4 min CN=61 Runoff=1.75 cfs 0.133 af

Subcatchment12S: POST 2 Runoff Area=58,719 sf 58.83% Impervious Runoff Depth>4.40"
Tc=5.0 min CN=83 Runoff=9.90 cfs 0.494 af

Pond 5P: (new Pond) Peak Elev=644.29' Storage=29,985 cf Inflow=20.24 cfs 2.245 af
Outflow=7.65 cfs 2.234 af

Pond 10P: (new Pond) Peak Elev=647.17' Inflow=13.10 cfs 0.651 af
18.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=13.10 cfs 0.651 af

Pond 11P: (new Pond) Peak Elev=647.44' Inflow=3.20 cfs 0.157 af
15.0" Round Culvert n=0.013 L=277.0' S=0.0050 '/' Outflow=3.20 cfs 0.157 af

Link 6L: outfall Inflow=8.25 cfs 2.367 af
Primary=8.25 cfs 2.367 af

Total Runoff Area = 21.093 ac Runoff Volume = 4.323 af Average Runoff Depth = 2.46"
93.29% Pervious = 19.677 ac 6.71% Impervious = 1.416 ac

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 29

Summary for Subcatchment 1S: PRE

Runoff = 18.38 cfs @ 12.29 hrs, Volume= 1.945 af, Depth> 2.21"

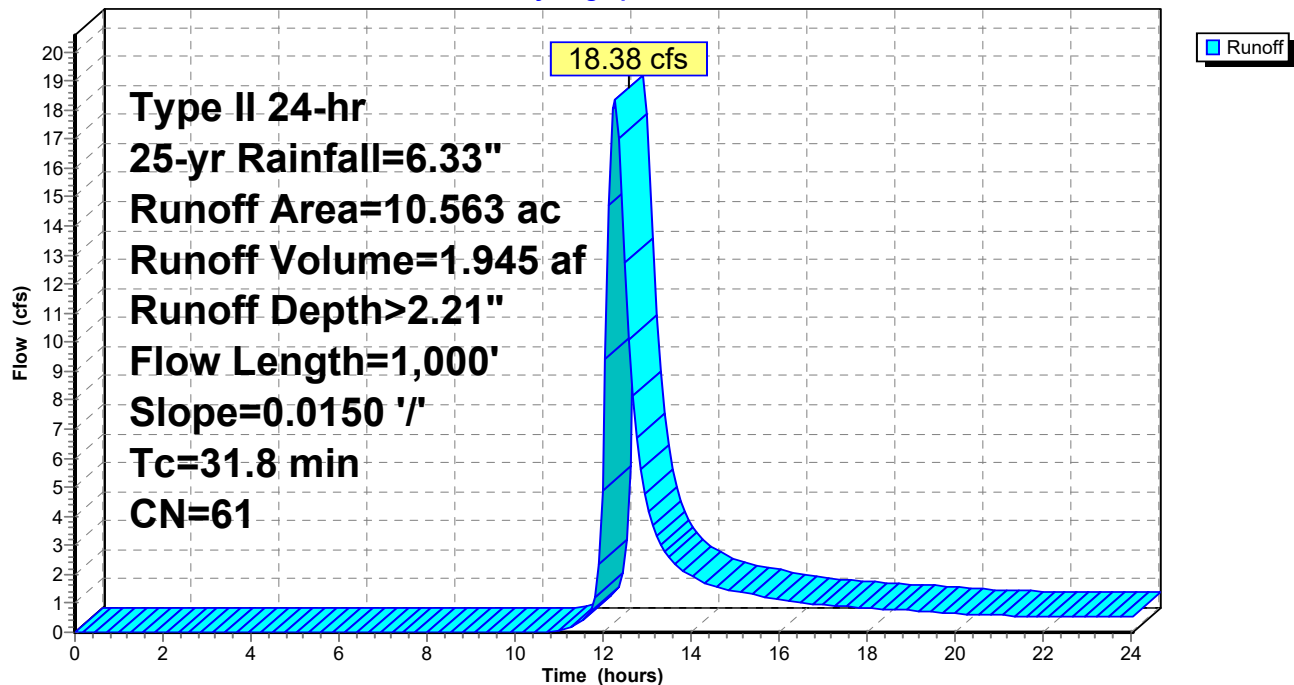
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 25-yr Rainfall=6.33"

Area (ac)	CN	Description
10.563	61	Pasture/grassland/range, Good, HSG B
10.563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
17.5	900	0.0150	0.86		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
31.8	1,000	Total			

Subcatchment 1S: PRE

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 30

Summary for Subcatchment 2S: POST 3

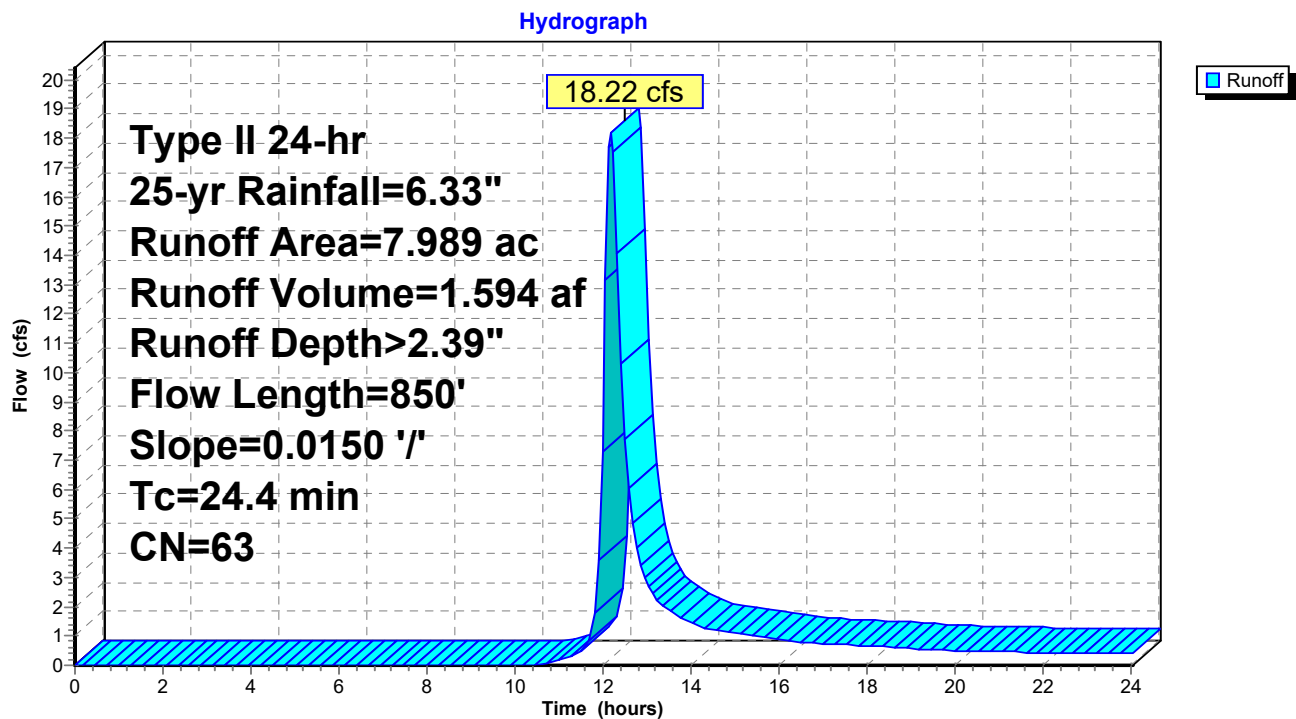
Runoff = 18.22 cfs @ 12.19 hrs, Volume= 1.594 af, Depth> 2.39"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 25-yr Rainfall=6.33"

Area (ac)	CN	Description
7.596	61	Pasture/grassland/range, Good, HSG B
* 0.393	98	
7.989	63	Weighted Average
7.596		95.08% Pervious Area
0.393		4.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0150	0.17		Sheet Flow, Sheet Flow
					Grass: Short n= 0.150 P2= 4.00"
14.6	750	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated
					Short Grass Pasture Kv= 7.0 fps
24.4	850	Total			

Subcatchment 2S: POST 3



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 31

Summary for Subcatchment 4S: POST 1

[49] Hint: $T_c < 2dt$ may require smaller dt

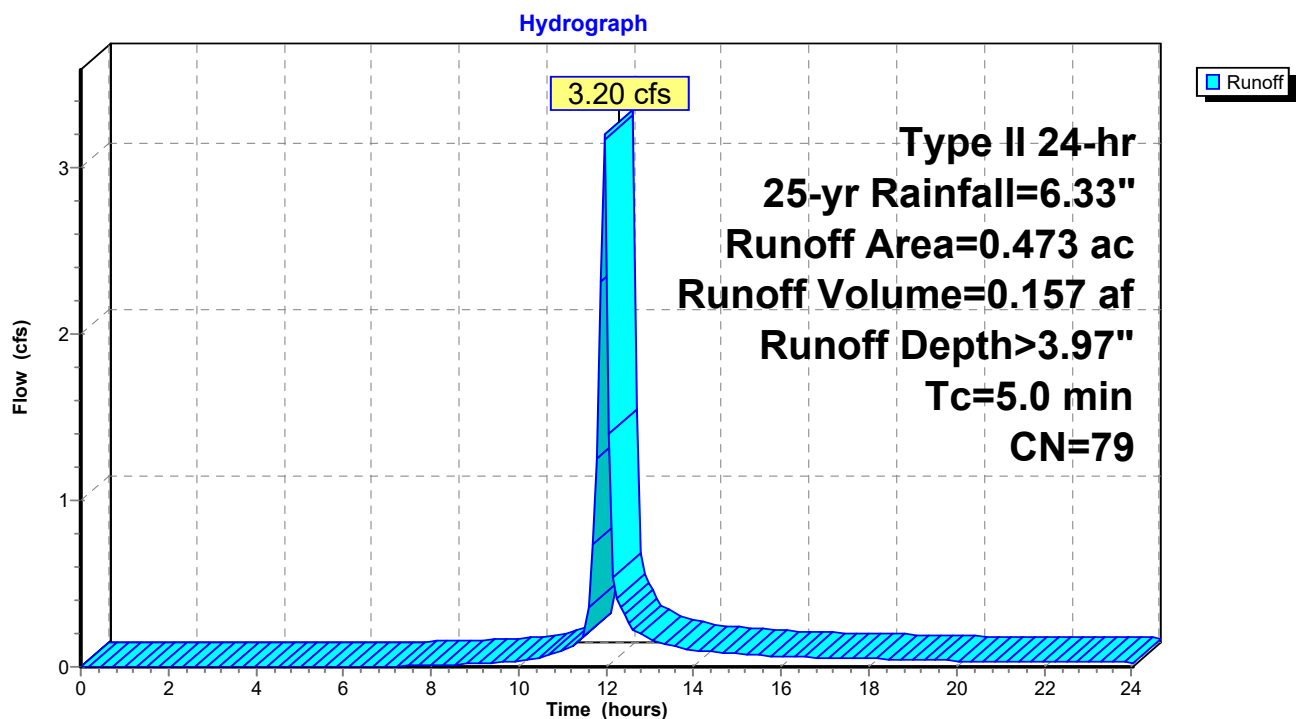
Runoff = 3.20 cfs @ 11.95 hrs, Volume= 0.157 af, Depth> 3.97"
Routed to Pond 11P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 25-yr Rainfall=6.33"

Area (ac)	CN	Description
0.243	61	Pasture/grassland/range, Good, HSG B
* 0.230	98	
0.473	79	Weighted Average
0.243		51.37% Pervious Area
0.230		48.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 4S: POST 1



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 32

Summary for Subcatchment 7S: POST BYPASS

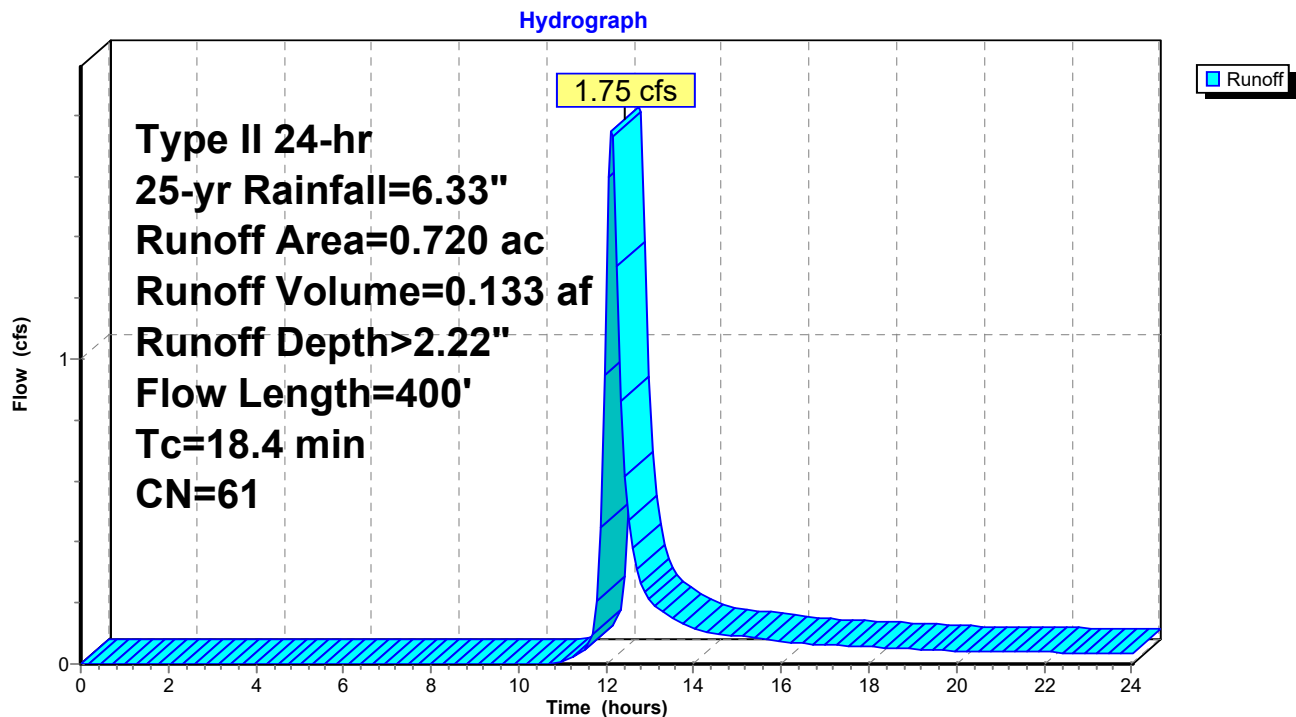
Runoff = 1.75 cfs @ 12.13 hrs, Volume= 0.133 af, Depth> 2.22"
Routed to Link 6L : outfall

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 25-yr Rainfall=6.33"

Area (ac)	CN	Description
0.720	61	Pasture/grassland/range, Good, HSG B
0.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
4.1	300	0.0300	1.21		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
18.4	400	Total			

Subcatchment 7S: POST BYPASS



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 33

Summary for Subcatchment 12S: POST 2

[49] Hint: $T_c < 2dt$ may require smaller dt

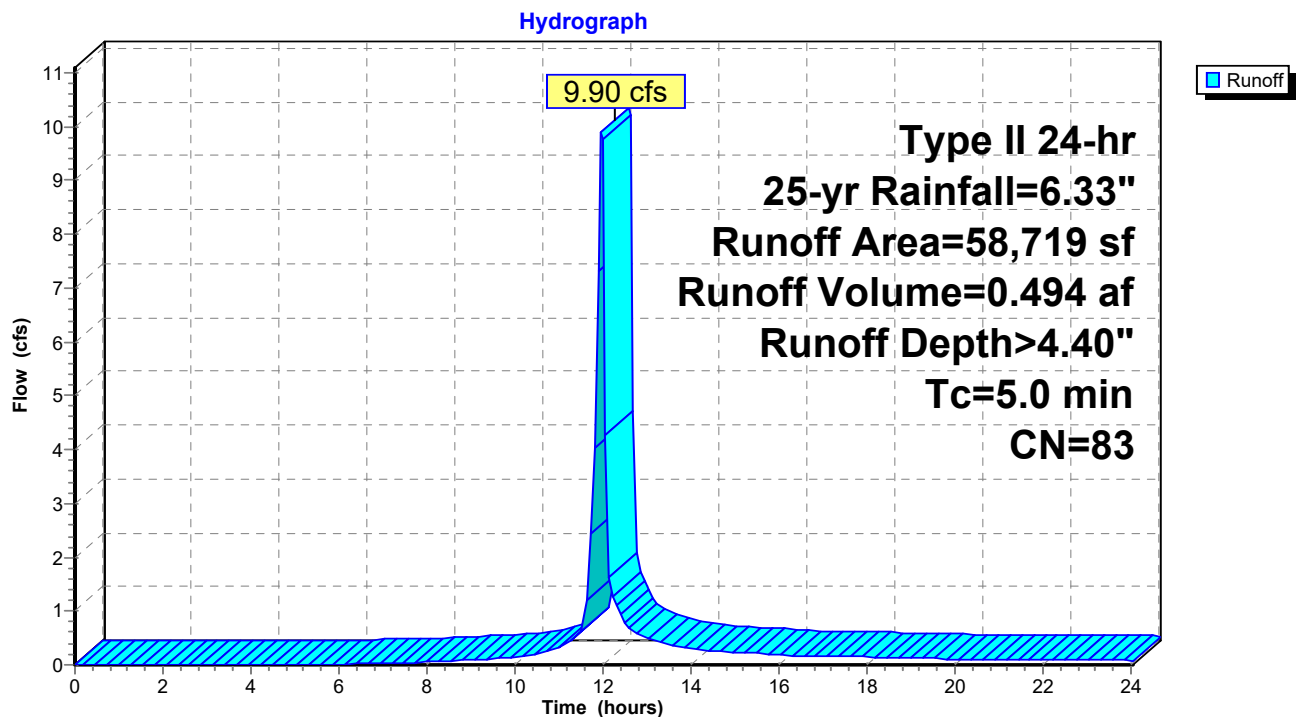
Runoff = 9.90 cfs @ 11.95 hrs, Volume= 0.494 af, Depth> 4.40"
Routed to Pond 10P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 25-yr Rainfall=6.33"

	Area (sf)	CN	Description
	24,176	61	Pasture/grassland/range, Good, HSG B
*	34,543	98	
	58,719	83	Weighted Average
	24,176		41.17% Pervious Area
	34,543		58.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 12S: POST 2



lineage metals

Type II 24-hr 25-yr Rainfall=6.33"

Prepared by Somers Consulting Services LLC

Printed 6/9/2026

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Page 34

Summary for Pond 5P: (new Pond)

[81] Warning: Exceeded Pond 10P by 0.69' @ 12.69 hrs

Inflow Area = 9.810 ac, 14.43% Impervious, Inflow Depth > 2.75" for 25-yr event
 Inflow = 20.24 cfs @ 11.97 hrs, Volume= 2.245 af
 Outflow = 7.65 cfs @ 12.57 hrs, Volume= 2.234 af, Atten= 62%, Lag= 35.9 min
 Primary = 7.65 cfs @ 12.57 hrs, Volume= 2.234 af
 Routed to Link 6L : outfall

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs / 3
 Peak Elev= 644.29' @ 12.57 hrs Surf.Area= 26,184 sf Storage= 29,985 cf

Plug-Flow detention time= 43.0 min calculated for 2.234 af (99% of inflow)
 Center-of-Mass det. time= 40.0 min (884.7 - 844.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	642.10'	49,077 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
642.10	4	8.0	0	0	4
643.00	14,962	660.0	4,563	4,563	34,664
644.00	22,218	674.0	18,471	23,034	36,293
644.40	27,824	683.0	9,987	33,021	37,302
644.90	36,600	847.0	16,056	49,077	57,273

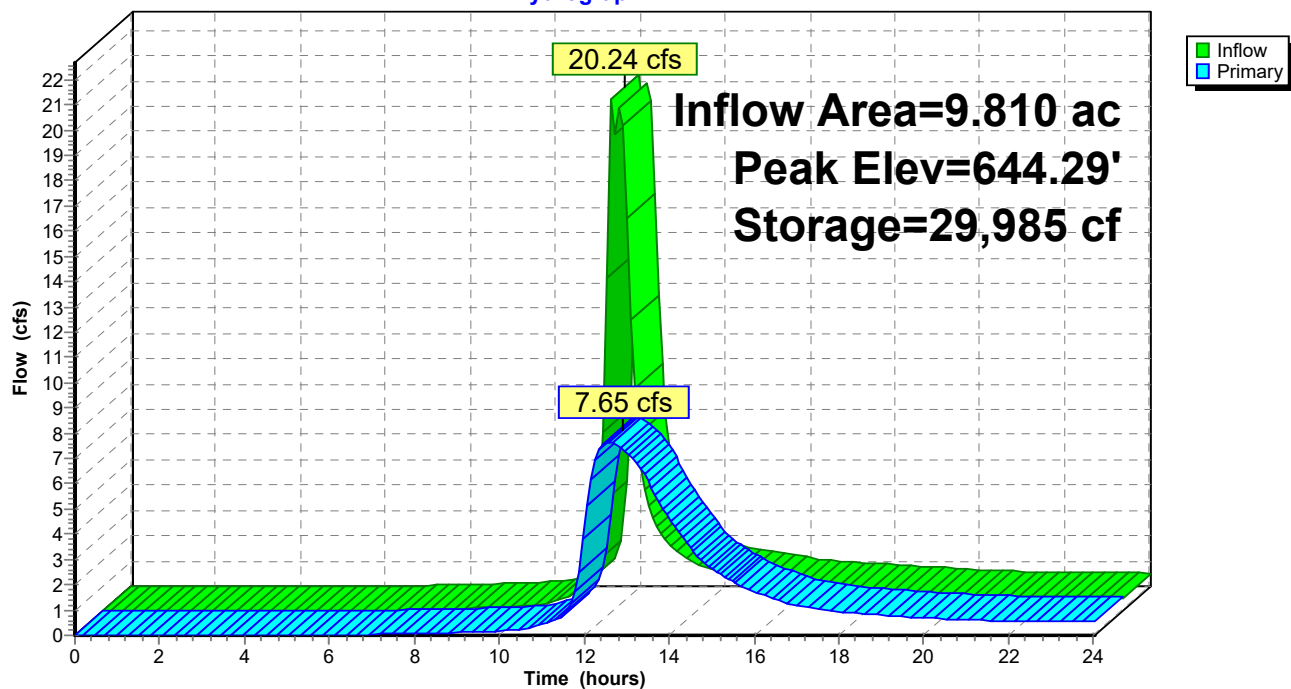
Device	Routing	Invert	Outlet Devices
#1	Primary	642.10'	18.0" Round Culvert L= 6.0' Ke= 1.000 Inlet / Outlet Invert= 642.10' / 642.07' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Primary	644.40'	10.0' long + 3.0 ' SideZ x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=7.65 cfs @ 12.57 hrs HW=644.29' (Free Discharge)

1=Culvert (Inlet Controls 7.65 cfs @ 4.33 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: (new Pond)

Hydrograph



Summary for Pond 10P: (new Pond)

[57] Hint: Peaked at 647.17' (Flood elevation advised)

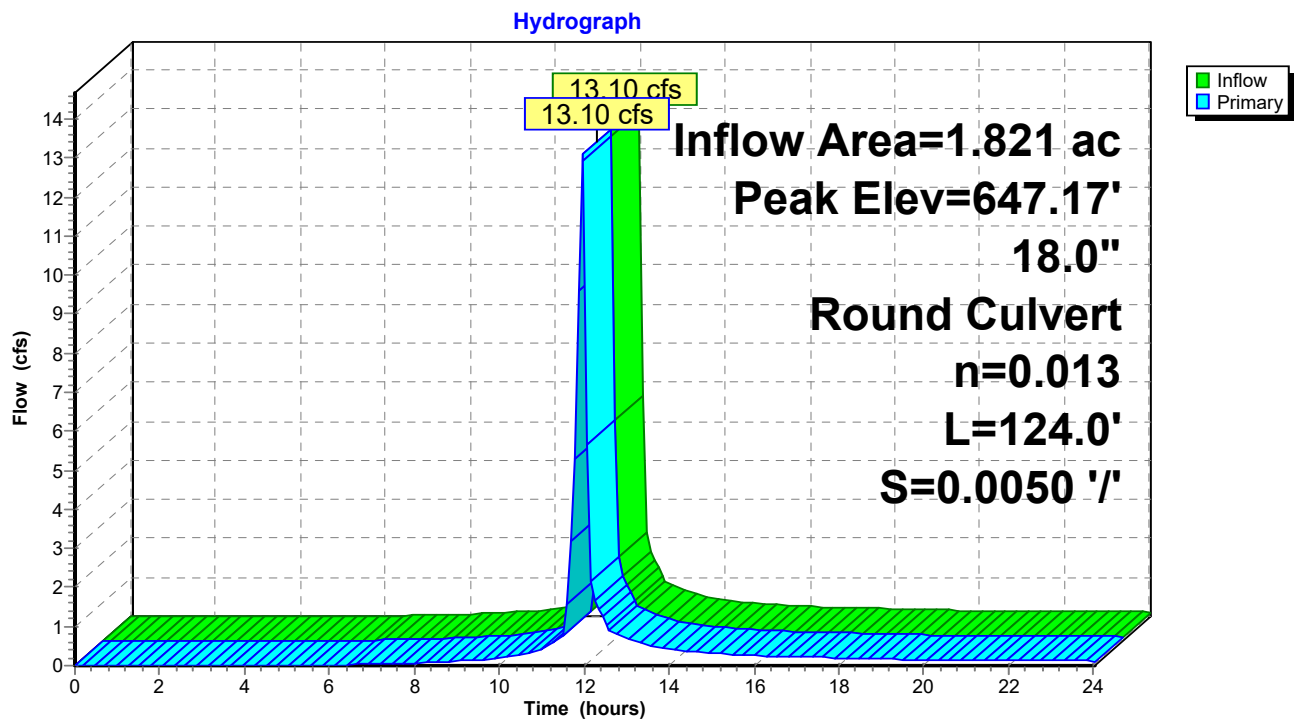
[79] Warning: Submerged Pond 11P Primary device # 1 INLET by 0.74'

Inflow Area = 1.821 ac, 56.18% Impervious, Inflow Depth > 4.29" for 25-yr event
 Inflow = 13.10 cfs @ 11.95 hrs, Volume= 0.651 af
 Outflow = 13.10 cfs @ 11.95 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min
 Primary = 13.10 cfs @ 11.95 hrs, Volume= 0.651 af
 Routed to Pond 5P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
 Peak Elev= 647.17' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	643.12'	18.0" Round Culvert L= 124.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 643.12' / 642.50' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=12.36 cfs @ 11.95 hrs HW=646.86' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 12.36 cfs @ 7.00 fps)

Pond 10P: (new Pond)

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 25-yr Rainfall=6.33"

Printed 6/9/2026

Page 37

Summary for Pond 11P: (new Pond)

[57] Hint: Peaked at 647.44' (Flood elevation advised)

Inflow Area = 0.473 ac, 48.63% Impervious, Inflow Depth > 3.97" for 25-yr event
Inflow = 3.20 cfs @ 11.95 hrs, Volume= 0.157 af
Outflow = 3.20 cfs @ 11.95 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min
Primary = 3.20 cfs @ 11.95 hrs, Volume= 0.157 af
Routed to Pond 10P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

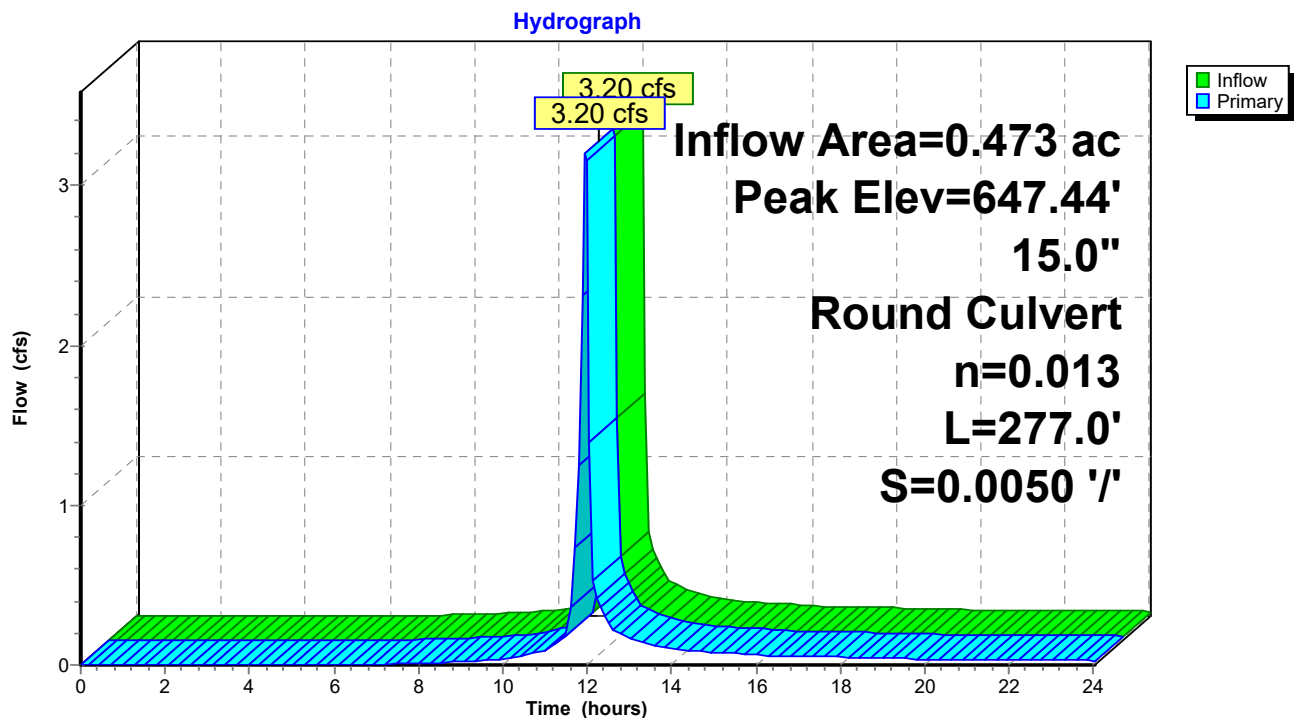
Peak Elev= 647.44' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	646.39'	15.0" Round Culvert L= 277.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 646.39' / 645.00' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.01 cfs @ 11.95 hrs HW=647.40' (Free Discharge)

↑1=Culvert (Barrel Controls 3.01 cfs @ 3.87 fps)

Pond 11P: (new Pond)



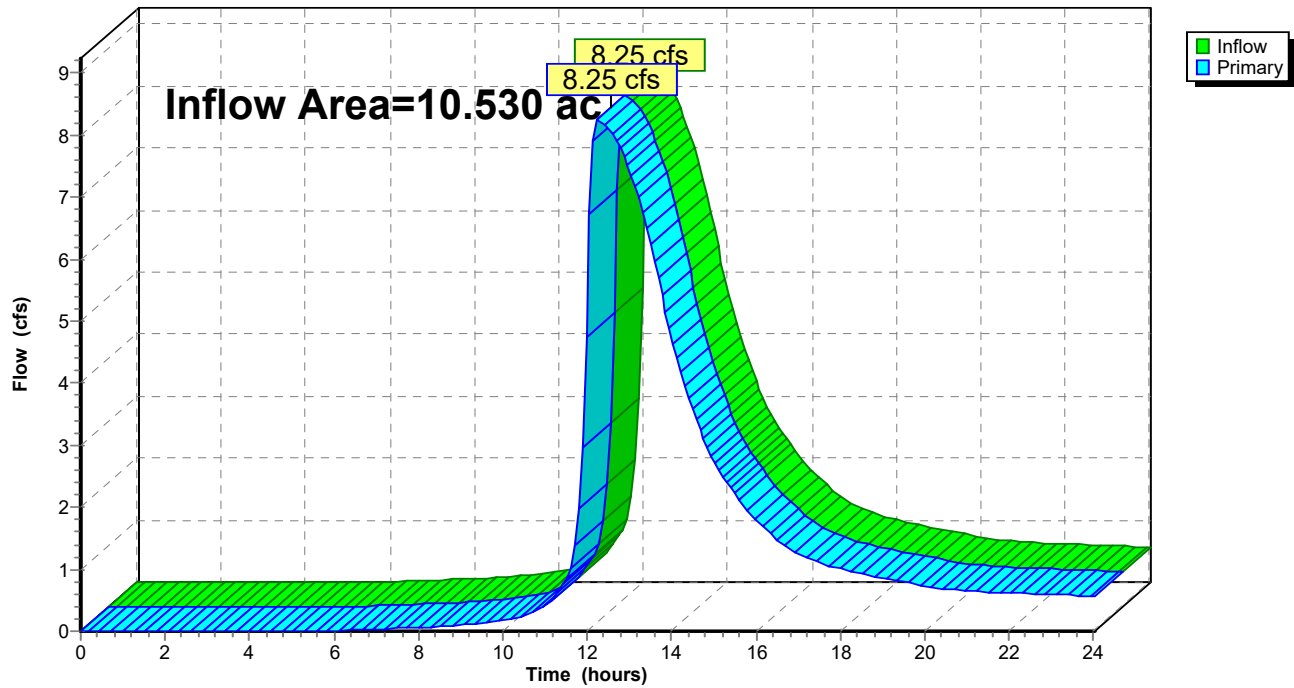
Summary for Link 6L: outfall

Inflow Area = 10.530 ac, 13.45% Impervious, Inflow Depth > 2.70" for 25-yr event
Inflow = 8.25 cfs @ 12.24 hrs, Volume= 2.367 af
Primary = 8.25 cfs @ 12.24 hrs, Volume= 2.367 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

Link 6L: outfall

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 39

Time span=0.00-24.00 hrs, dt=0.09 hrs, 268 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PRE Runoff Area=10.563 ac 0.00% Impervious Runoff Depth>3.28"
Flow Length=1,000' Slope=0.0150 '/' Tc=31.8 min CN=61 Runoff=28.31 cfs 2.888 af

Subcatchment2S: POST 3 Runoff Area=7.989 ac 4.92% Impervious Runoff Depth>3.51"
Flow Length=850' Slope=0.0150 '/' Tc=24.4 min CN=63 Runoff=27.25 cfs 2.335 af

Subcatchment4S: POST 1 Runoff Area=0.473 ac 48.63% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=79 Runoff=4.23 cfs 0.210 af

Subcatchment7S: POST BYPASS Runoff Area=0.720 ac 0.00% Impervious Runoff Depth>3.29"
Flow Length=400' Tc=18.4 min CN=61 Runoff=2.66 cfs 0.198 af

Subcatchment12S: POST 2 Runoff Area=58,719 sf 58.83% Impervious Runoff Depth>5.80"
Tc=5.0 min CN=83 Runoff=12.85 cfs 0.652 af

Pond 5P: (new Pond) Peak Elev=644.74' Storage=43,303 cf Inflow=29.46 cfs 3.197 af
Outflow=14.19 cfs 3.180 af

Pond 10P: (new Pond) Peak Elev=649.39' Inflow=17.09 cfs 0.862 af
18.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=17.09 cfs 0.862 af

Pond 11P: (new Pond) Peak Elev=647.69' Inflow=4.23 cfs 0.210 af
15.0" Round Culvert n=0.013 L=277.0' S=0.0050 '/' Outflow=4.23 cfs 0.210 af

Link 6L: outfall Inflow=15.05 cfs 3.378 af
Primary=15.05 cfs 3.378 af

Total Runoff Area = 21.093 ac Runoff Volume = 6.283 af Average Runoff Depth = 3.57"
93.29% Pervious = 19.677 ac 6.71% Impervious = 1.416 ac

lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 40

Summary for Subcatchment 1S: PRE

Runoff = 28.31 cfs @ 12.28 hrs, Volume= 2.888 af, Depth> 3.28"

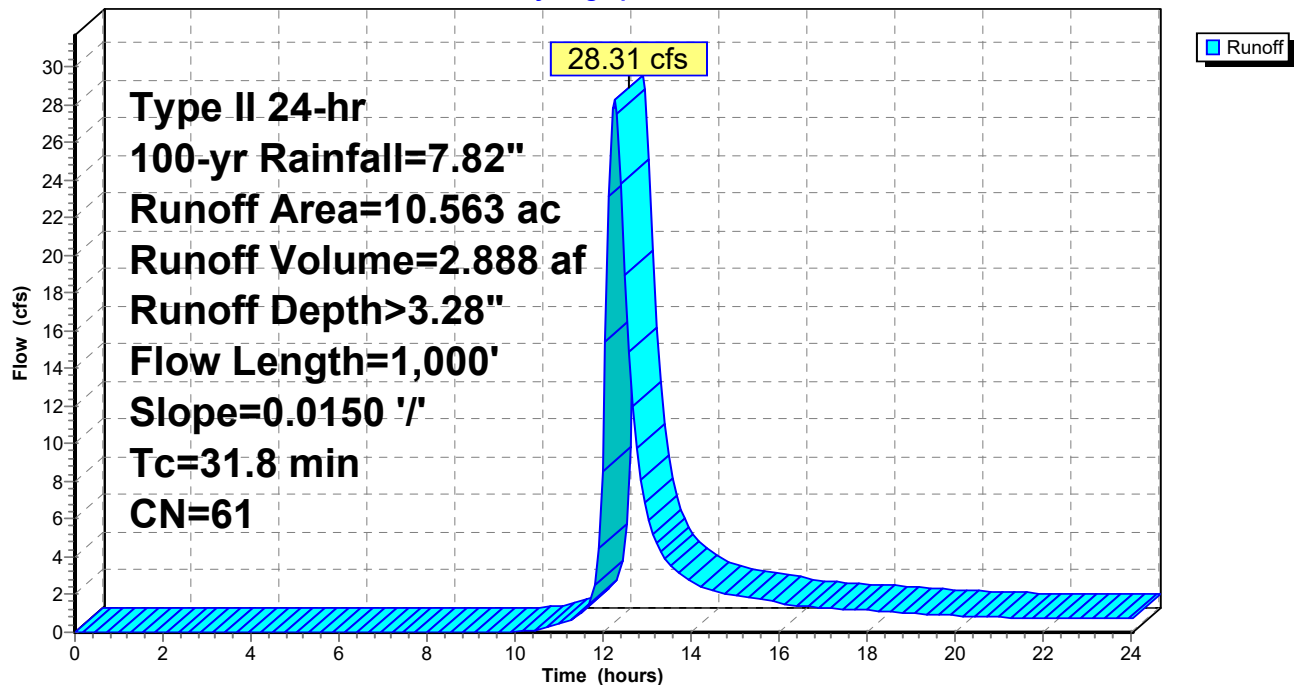
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 100-yr Rainfall=7.82"

Area (ac)	CN	Description
10.563	61	Pasture/grassland/range, Good, HSG B
10.563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
17.5	900	0.0150	0.86		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
31.8	1,000	Total			

Subcatchment 1S: PRE

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 41

Summary for Subcatchment 2S: POST 3

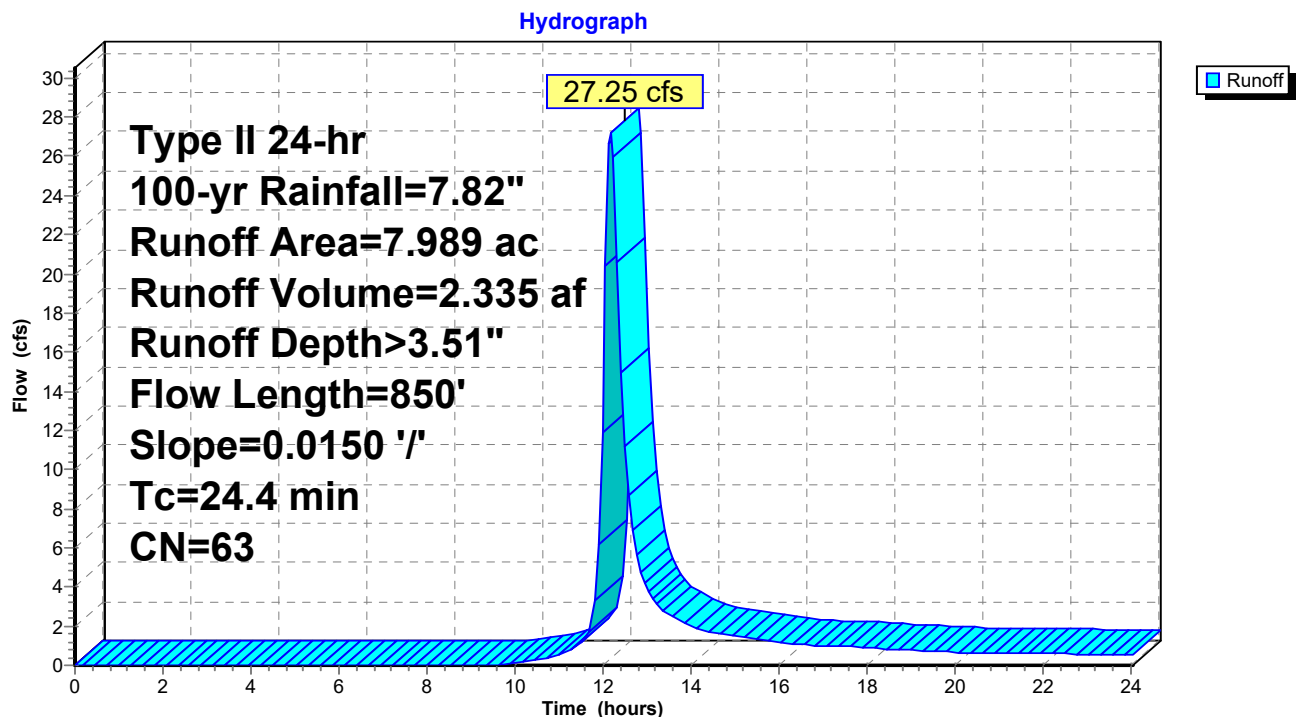
Runoff = 27.25 cfs @ 12.19 hrs, Volume= 2.335 af, Depth> 3.51"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 100-yr Rainfall=7.82"

Area (ac)	CN	Description
7.596	61	Pasture/grassland/range, Good, HSG B
* 0.393	98	
7.989	63	Weighted Average
7.596		95.08% Pervious Area
0.393		4.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0150	0.17		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 4.00"
14.6	750	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
24.4	850	Total			

Subcatchment 2S: POST 3



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 42

Summary for Subcatchment 4S: POST 1

[49] Hint: $T_c < 2dt$ may require smaller dt

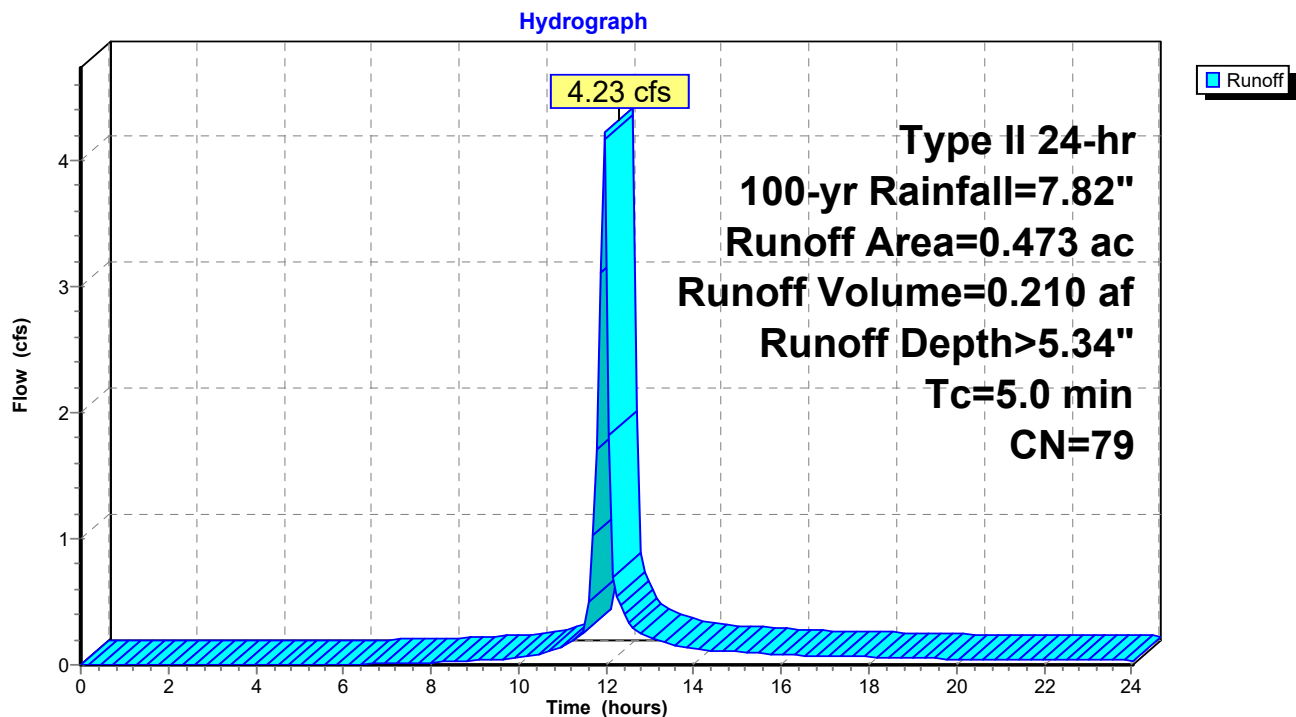
Runoff = 4.23 cfs @ 11.95 hrs, Volume= 0.210 af, Depth> 5.34"
Routed to Pond 11P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 100-yr Rainfall=7.82"

Area (ac)	CN	Description
0.243	61	Pasture/grassland/range, Good, HSG B
* 0.230	98	
0.473	79	Weighted Average
0.243		51.37% Pervious Area
0.230		48.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 4S: POST 1



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 43

Summary for Subcatchment 7S: POST BYPASS

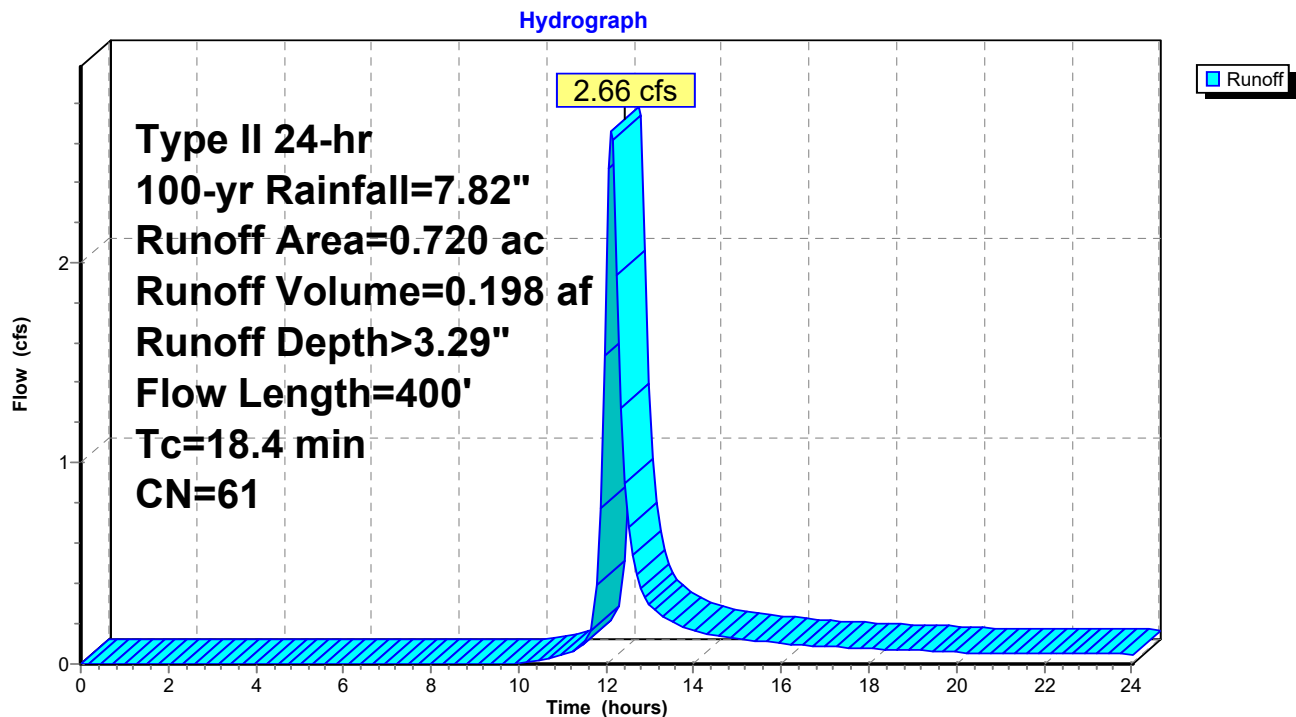
Runoff = 2.66 cfs @ 12.12 hrs, Volume= 0.198 af, Depth> 3.29"
Routed to Link 6L : outfall

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs
Type II 24-hr 100-yr Rainfall=7.82"

Area (ac)	CN	Description
0.720	61	Pasture/grassland/range, Good, HSG B
0.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0150	0.12		Sheet Flow, Sheet flow Grass: Dense n= 0.240 P2= 4.00"
4.1	300	0.0300	1.21		Shallow Concentrated Flow, Shallow concentrated Short Grass Pasture Kv= 7.0 fps
18.4	400	Total			

Subcatchment 7S: POST BYPASS



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 44

Summary for Subcatchment 12S: POST 2

[49] Hint: $T_c < 2dt$ may require smaller dt

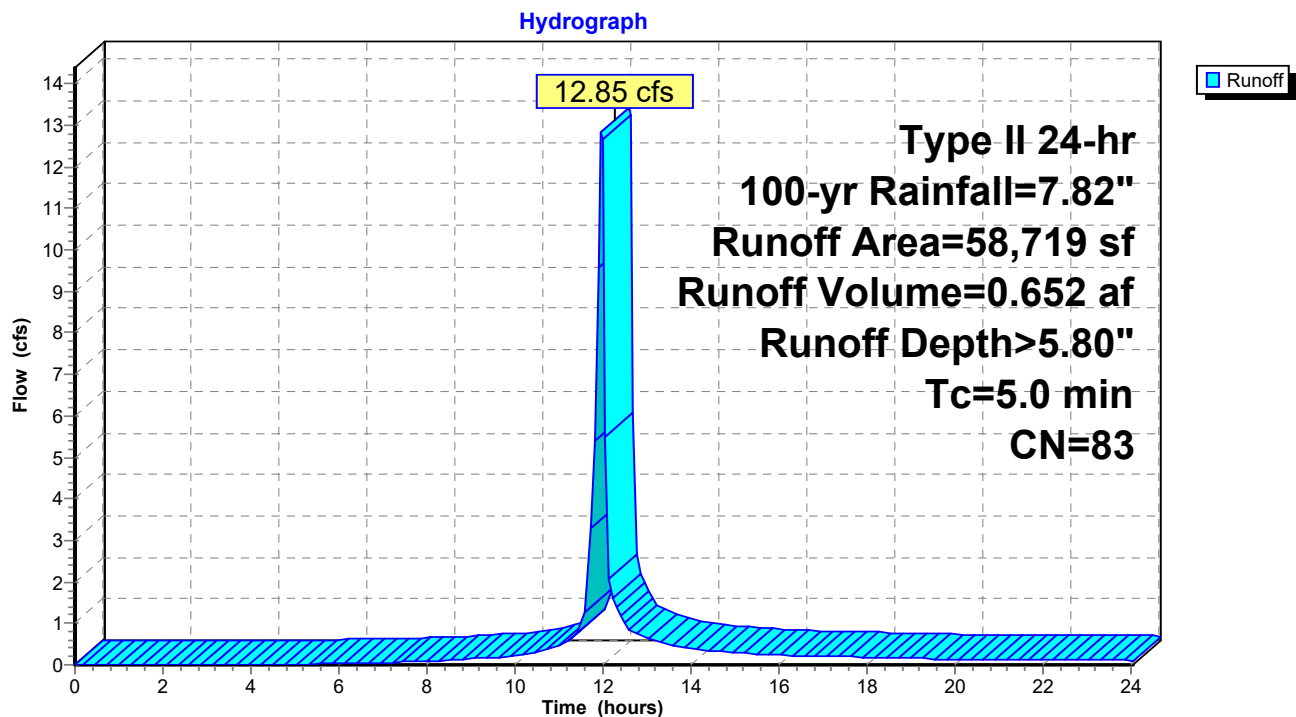
Runoff = 12.85 cfs @ 11.95 hrs, Volume= 0.652 af, Depth> 5.80"
Routed to Pond 10P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.03 hrs, $dt=0.09$ hrs
Type II 24-hr 100-yr Rainfall=7.82"

	Area (sf)	CN	Description
	24,176	61	Pasture/grassland/range, Good, HSG B
*	34,543	98	
	58,719	83	Weighted Average
	24,176		41.17% Pervious Area
	34,543		58.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Assumed

Subcatchment 12S: POST 2



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 45

Summary for Pond 5P: (new Pond)

[81] Warning: Exceeded Pond 10P by 1.04' @ 12.60 hrs

Inflow Area = 9.810 ac, 14.43% Impervious, Inflow Depth > 3.91" for 100-yr event
 Inflow = 29.46 cfs @ 12.16 hrs, Volume= 3.197 af
 Outflow = 14.19 cfs @ 12.48 hrs, Volume= 3.180 af, Atten= 52%, Lag= 19.2 min
 Primary = 14.19 cfs @ 12.48 hrs, Volume= 3.180 af
 Routed to Link 6L : outfall

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs / 3
 Peak Elev= 644.74' @ 12.48 hrs Surf.Area= 33,578 sf Storage= 43,303 cf

Plug-Flow detention time= 46.3 min calculated for 3.180 af (99% of inflow)
 Center-of-Mass det. time= 43.0 min (878.8 - 835.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	642.10'	49,077 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
642.10	4	8.0	0	0	4
643.00	14,962	660.0	4,563	4,563	34,664
644.00	22,218	674.0	18,471	23,034	36,293
644.40	27,824	683.0	9,987	33,021	37,302
644.90	36,600	847.0	16,056	49,077	57,273

Device	Routing	Invert	Outlet Devices
#1	Primary	642.10'	18.0" Round Culvert L= 6.0' Ke= 1.000 Inlet / Outlet Invert= 642.10' / 642.07' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Primary	644.40'	10.0' long + 3.0 ' SideZ x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

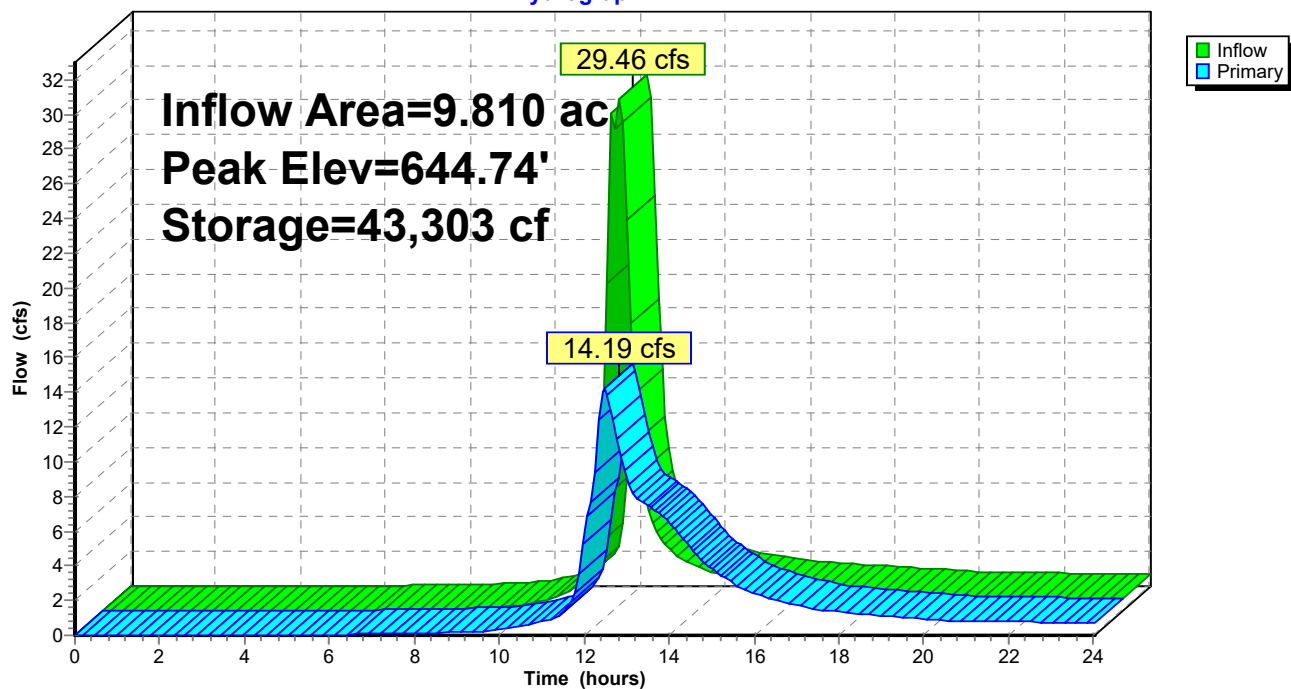
Primary OutFlow Max=14.09 cfs @ 12.48 hrs HW=644.73' (Free Discharge)

1=Culvert (Inlet Controls 8.75 cfs @ 4.95 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 5.34 cfs @ 1.46 fps)

Pond 5P: (new Pond)

Hydrograph



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 47

Summary for Pond 10P: (new Pond)

[57] Hint: Peaked at 649.39' (Flood elevation advised)

[81] Warning: Exceeded Pond 11P by 1.63' @ 11.97 hrs

Inflow Area = 1.821 ac, 56.18% Impervious, Inflow Depth > 5.68" for 100-yr event
Inflow = 17.09 cfs @ 11.95 hrs, Volume= 0.862 af
Outflow = 17.09 cfs @ 11.95 hrs, Volume= 0.862 af, Atten= 0%, Lag= 0.0 min
Primary = 17.09 cfs @ 11.95 hrs, Volume= 0.862 af
Routed to Pond 5P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

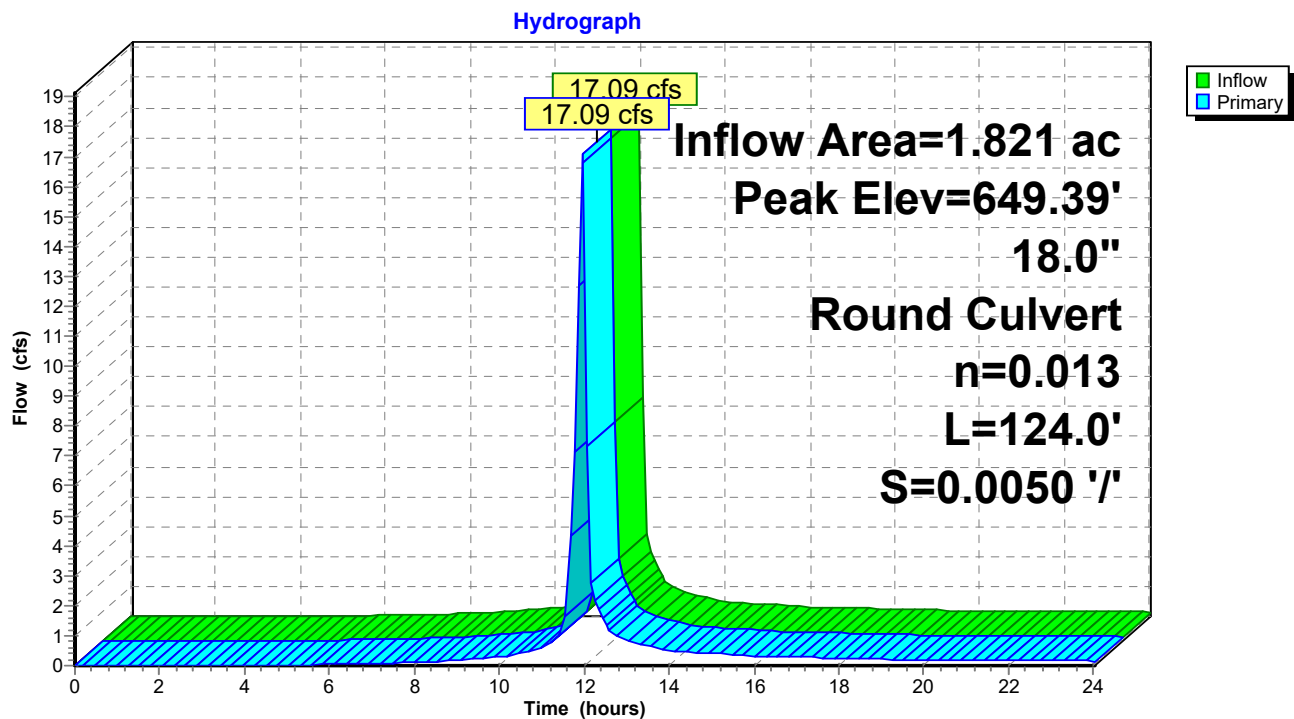
Peak Elev= 649.39' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	643.12'	18.0" Round Culvert L= 124.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 643.12' / 642.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=16.09 cfs @ 11.95 hrs HW=648.85' (Free Discharge)

↑1=Culvert (Barrel Controls 16.09 cfs @ 9.10 fps)

Pond 10P: (new Pond)



lineage metals

Prepared by Somers Consulting Services LLC

HydroCAD® 10.20-8a s/n 14166 © 2025 HydroCAD Software Solutions LLC

Type II 24-hr 100-yr Rainfall=7.82"

Printed 6/9/2026

Page 48

Summary for Pond 11P: (new Pond)

[57] Hint: Peaked at 647.69' (Flood elevation advised)

Inflow Area = 0.473 ac, 48.63% Impervious, Inflow Depth > 5.34" for 100-yr event
Inflow = 4.23 cfs @ 11.95 hrs, Volume= 0.210 af
Outflow = 4.23 cfs @ 11.95 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 11.95 hrs, Volume= 0.210 af
Routed to Pond 10P : (new Pond)

Routing by Stor-Ind method, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

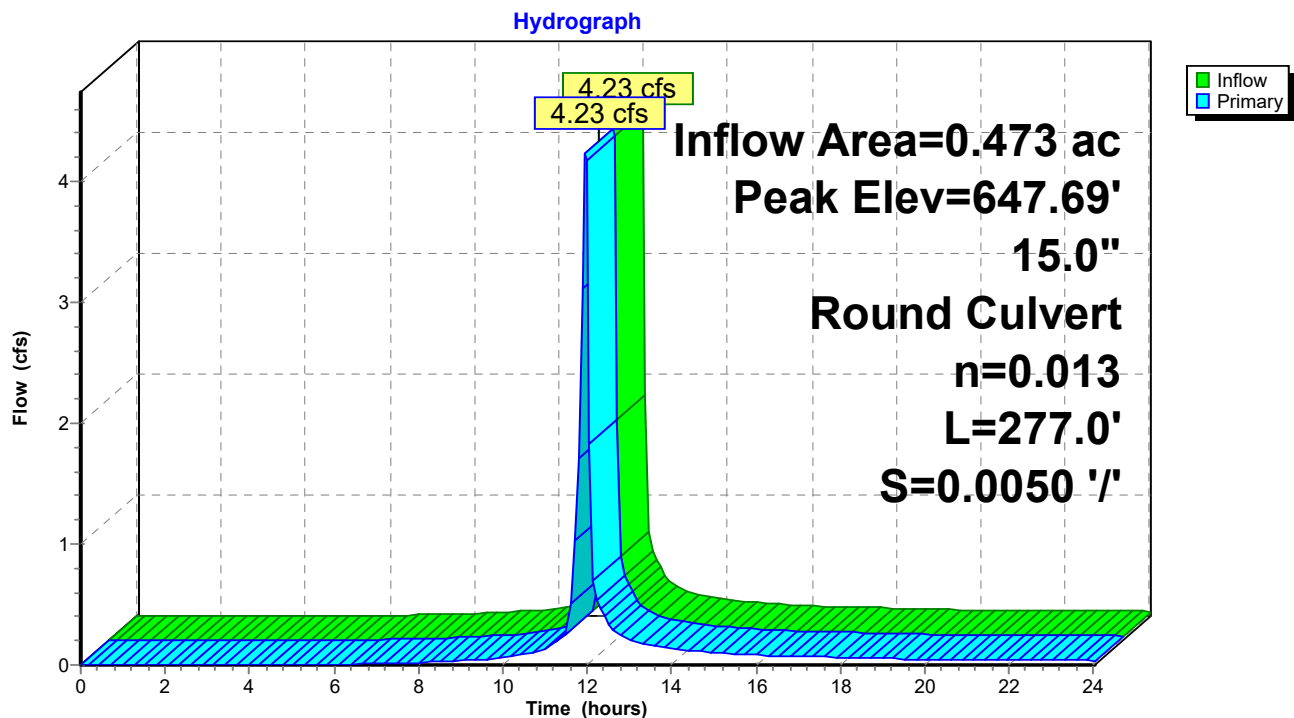
Peak Elev= 647.69' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	646.39'	15.0" Round Culvert L= 277.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 646.39' / 645.00' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.99 cfs @ 11.95 hrs HW=647.63' (Free Discharge)

↑1=Culvert (Barrel Controls 3.99 cfs @ 4.09 fps)

Pond 11P: (new Pond)



Summary for Link 6L: outfall

Inflow Area = 10.530 ac, 13.45% Impervious, Inflow Depth > 3.85" for 100-yr event
Inflow = 15.05 cfs @ 12.46 hrs, Volume= 3.378 af
Primary = 15.05 cfs @ 12.46 hrs, Volume= 3.378 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.03 hrs, dt= 0.09 hrs

Link 6L: outfall

Hydrograph

