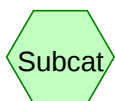
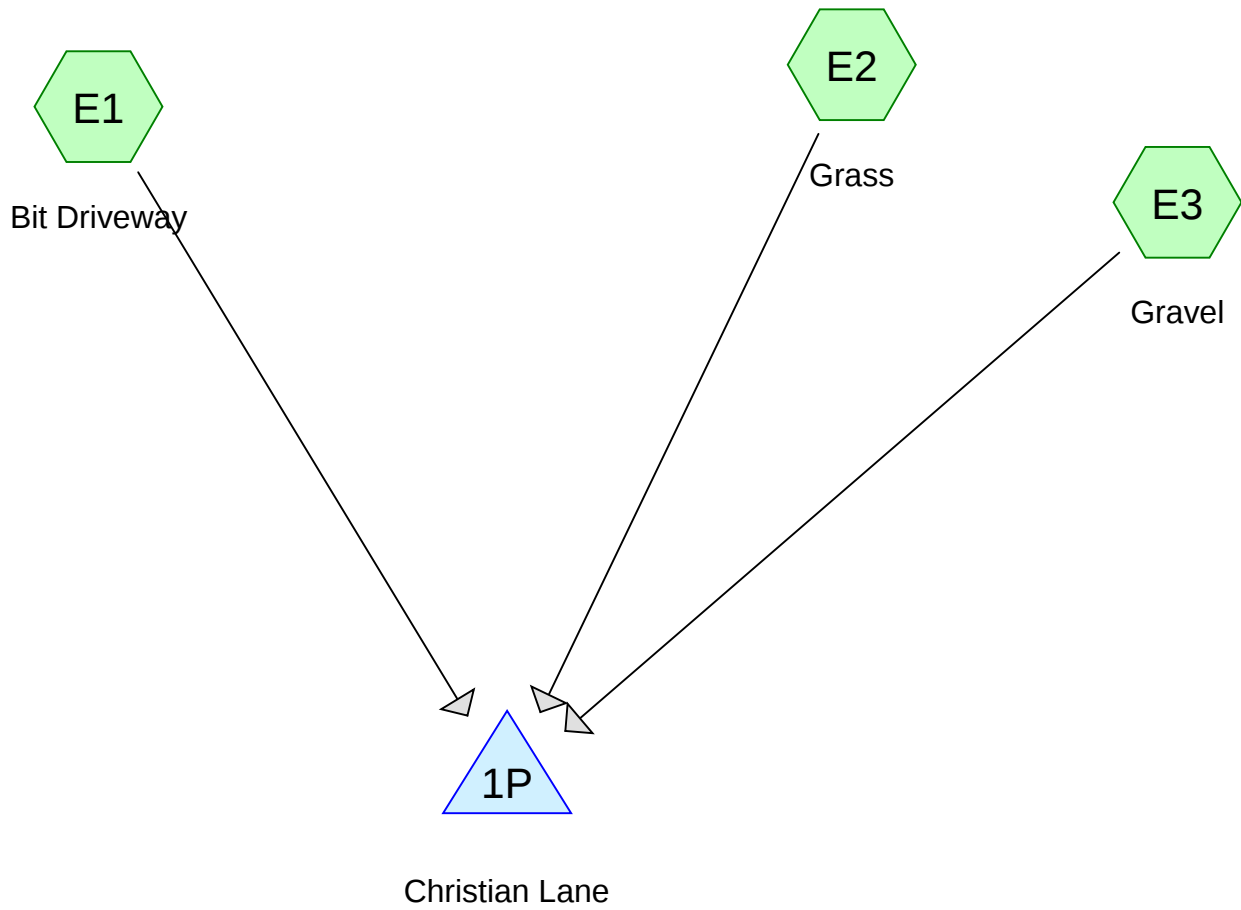


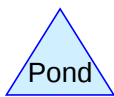
	COMPUTATION SHEET			Made by	T.I.
	INGA CONSULTING ENGINEERS			Date	5/18/2021
Subject	SITE DEVELOPMENT PRE/POST FLOWS			Checked by	
	239 Cchristian Lane,Berlin CT			Date	
SYSTEM -REACH TO STREET					
STORM	PRE- FLOW	POST- FLOW	NET FLOW	REAR STORAGE	FRONT STORAGE
YEAR	CFS	CFS	CFS	CF	CF
2	0.26	0.07	-0.19	5	2
5	0.55	0.1	-0.45	7	2
10	0.86	0.13	-0.73	8	3
25	1.43	0.18	-1.25	218	5
50	2.01	0.23	-1.78	518	147
100	2.75	0.29	-2.46	1154	399
REAR STORAGE FRONT STORAGE 1209 CF 715 CF					



Subcat



Reach



Pond



Link

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.023	85	Gravel roads, HSG B (E3)
0.872	61	Pasture/grassland/range, Good, HSG B (E2)
0.022	98	Paved parking, HSG B (E1)
0.917	62	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.917	HSG B	E1, E2, E3
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.917		TOTAL AREA

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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	0.023	0.000	0.000	0.000	0.023	Gravel roads	E3
0.000	0.872	0.000	0.000	0.000	0.872	Pasture/grassland/range, Good	E2
0.000	0.022	0.000	0.000	0.000	0.022	Paved parking	E1
0.000	0.917	0.000	0.000	0.000	0.917	TOTAL AREA	

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Land-Use Listing (all nodes)

Area (acres)	Land Use	Subcatchment Numbers
0.045	Pavement	E1, E3
0.872	Residential	E2
0.917	TOTAL	

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Type III 24-hr 2-yr Rainfall=3.26"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>3.03"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.04 cfs 0.005 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>0.47"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=0.20 cfs 0.034 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>1.81"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.03 cfs 0.003 af

Pond 1P: Christian Lane

Inflow=0.26 cfs 0.043 af

Primary=0.26 cfs 0.043 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.043 af Average Runoff Depth = 0.56"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

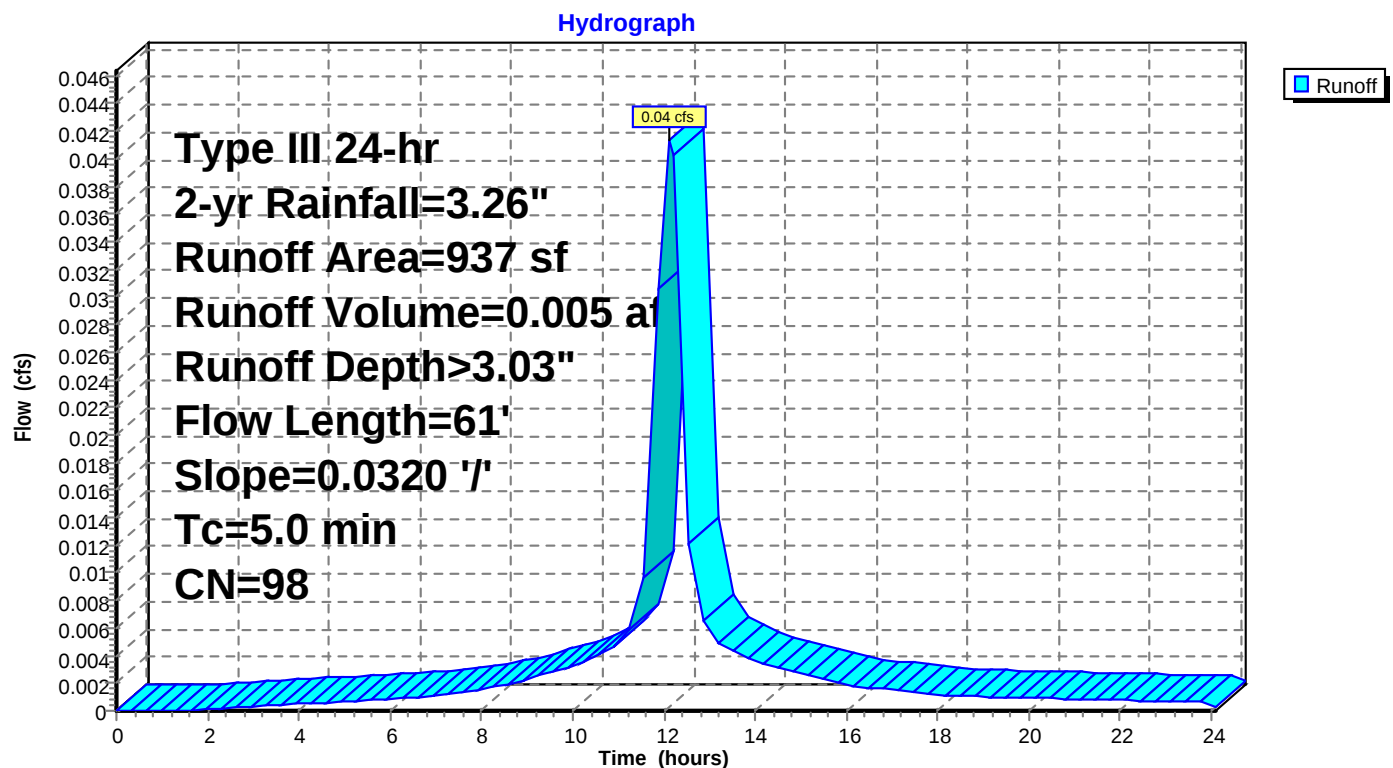
Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.005 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs

Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Summary for Subcatchment E2: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.20 cfs @ 12.36 hrs, Volume= 0.034 af, Depth> 0.47"

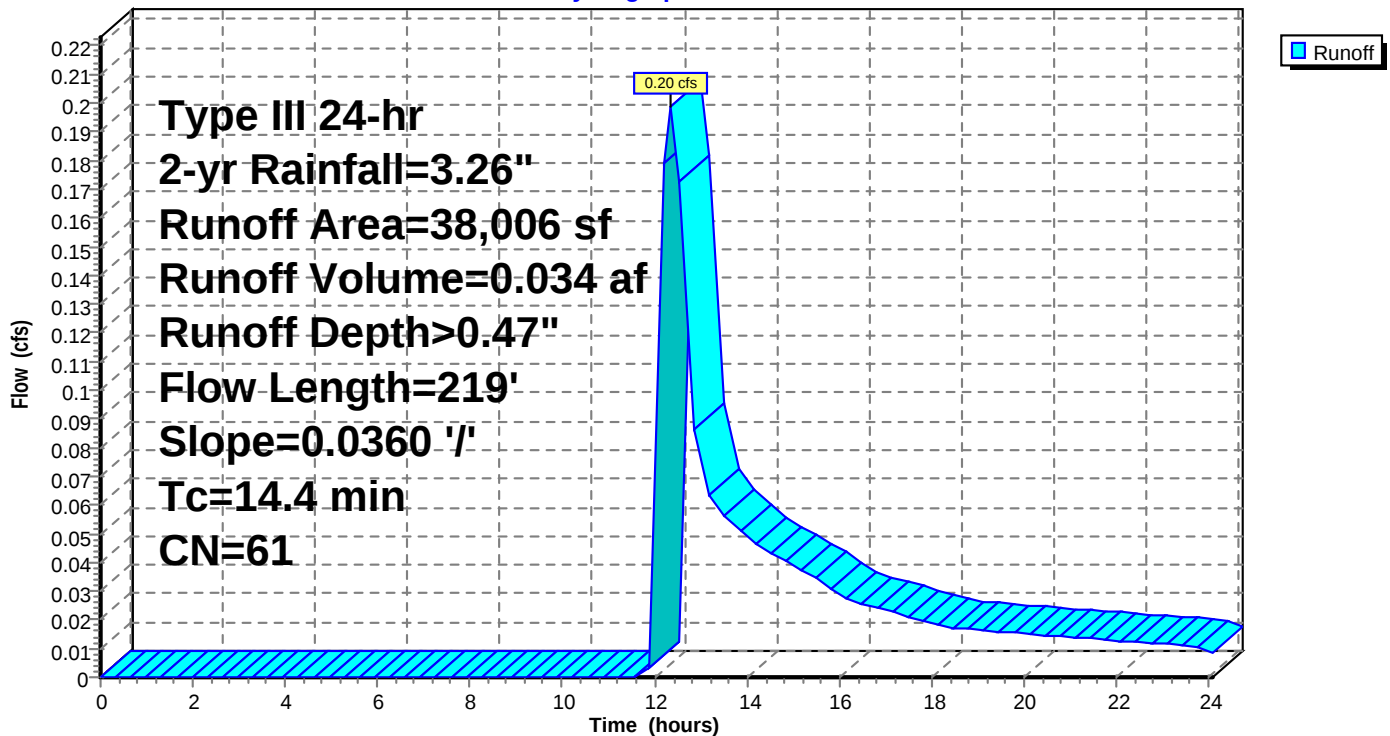
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



Summary for Subcatchment E3: Gravel[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 0.003 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs

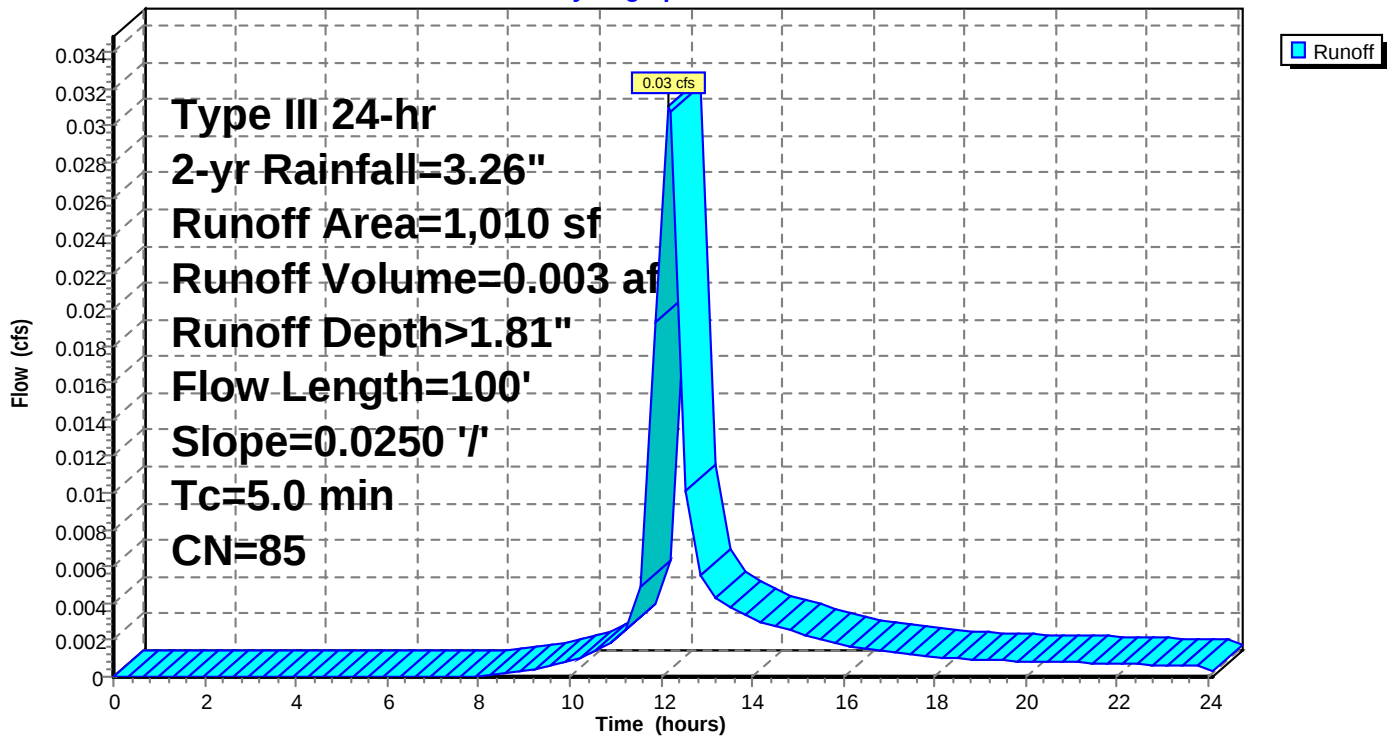
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E3: Gravel

Hydrograph

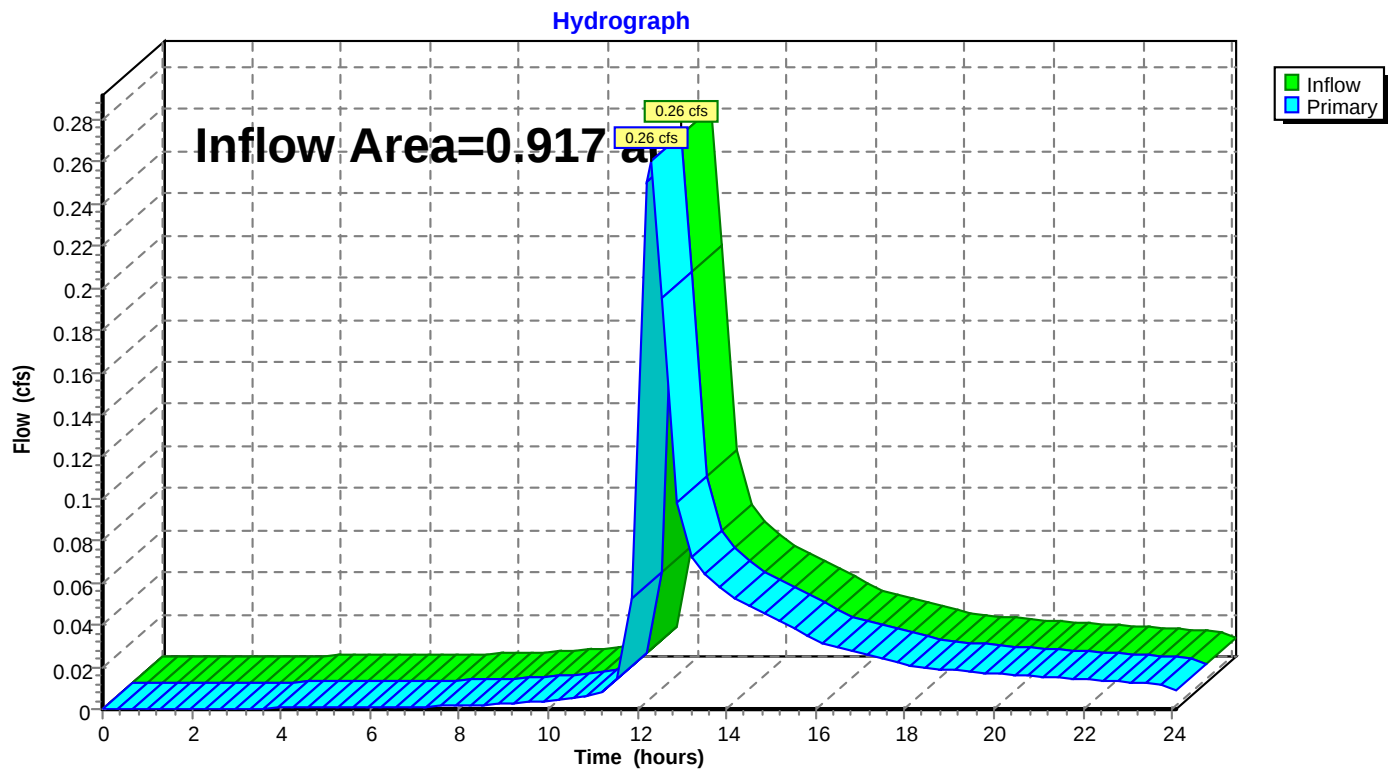


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 0.56" for 2-yr event
Inflow = 0.26 cfs @ 12.30 hrs, Volume= 0.043 af
Primary = 0.26 cfs @ 12.30 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

Pond 1P: Christian Lane

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Type III 24-hr 5-yr Rainfall=4.08"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>3.84"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.05 cfs 0.007 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>0.85"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=0.46 cfs 0.062 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>2.53"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.04 cfs 0.005 af

Pond 1P: Christian Lane

Inflow=0.55 cfs 0.074 af

Primary=0.55 cfs 0.074 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.074 af Average Runoff Depth = 0.97"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

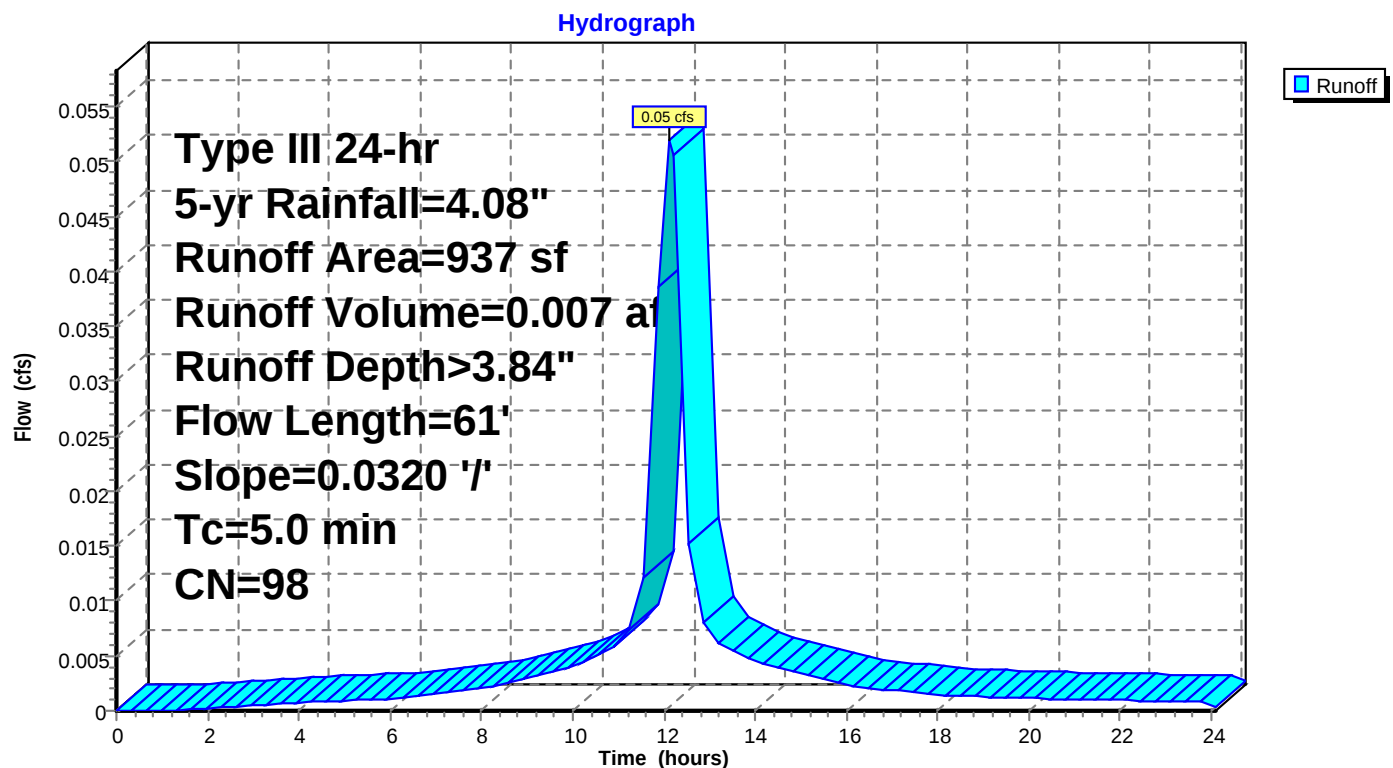
Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.007 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs

Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Summary for Subcatchment E2: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.46 cfs @ 12.30 hrs, Volume= 0.062 af, Depth> 0.85"

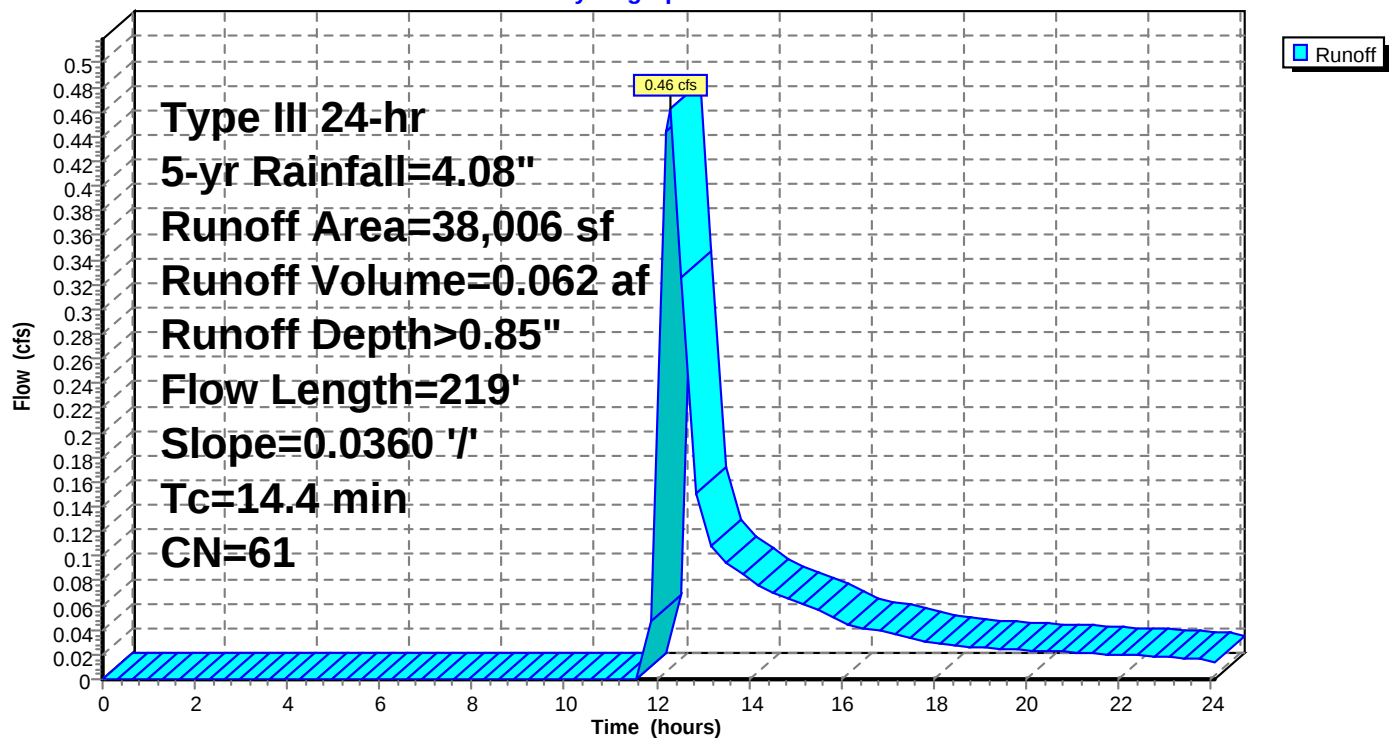
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



Summary for Subcatchment E3: Gravel

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

Runoff = 0.04 cfs @ 12.16 hrs, Volume= 0.005 af, Depth> 2.53"

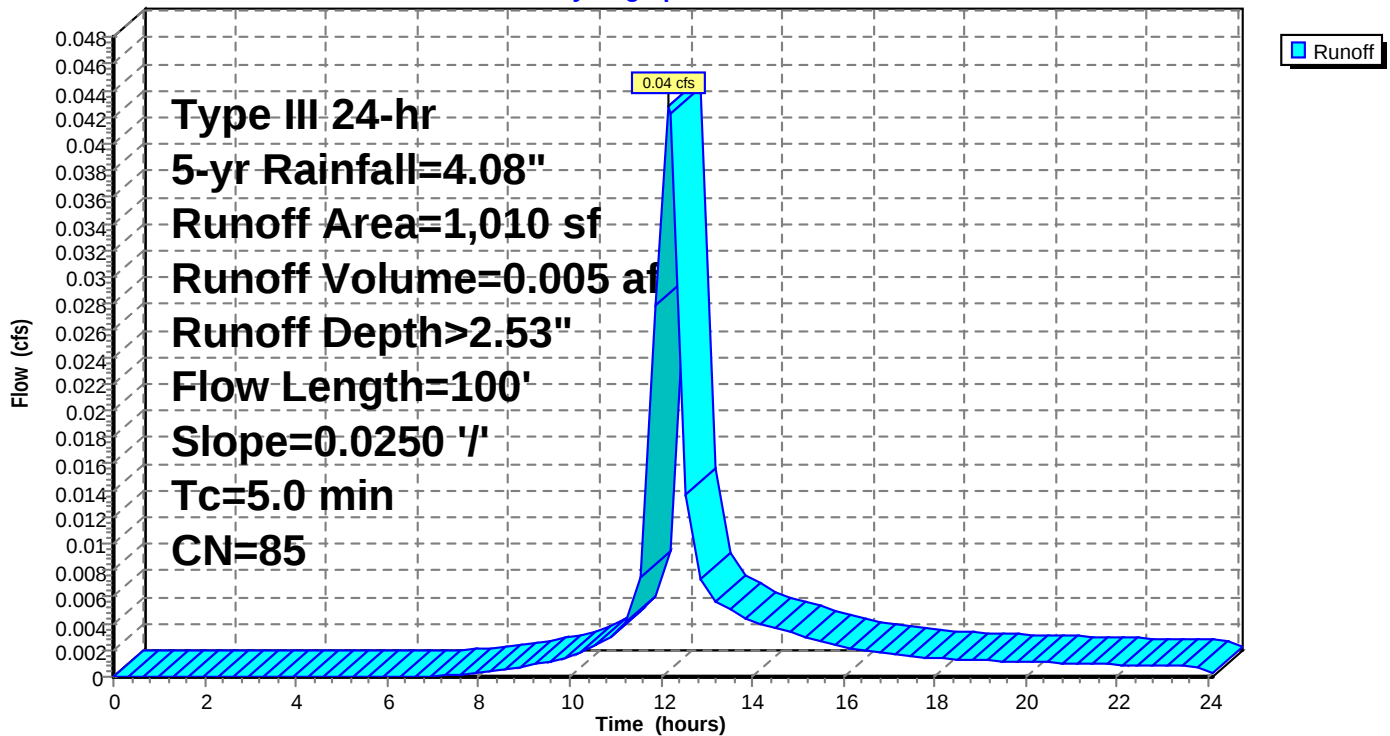
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E3: Gravel

Hydrograph

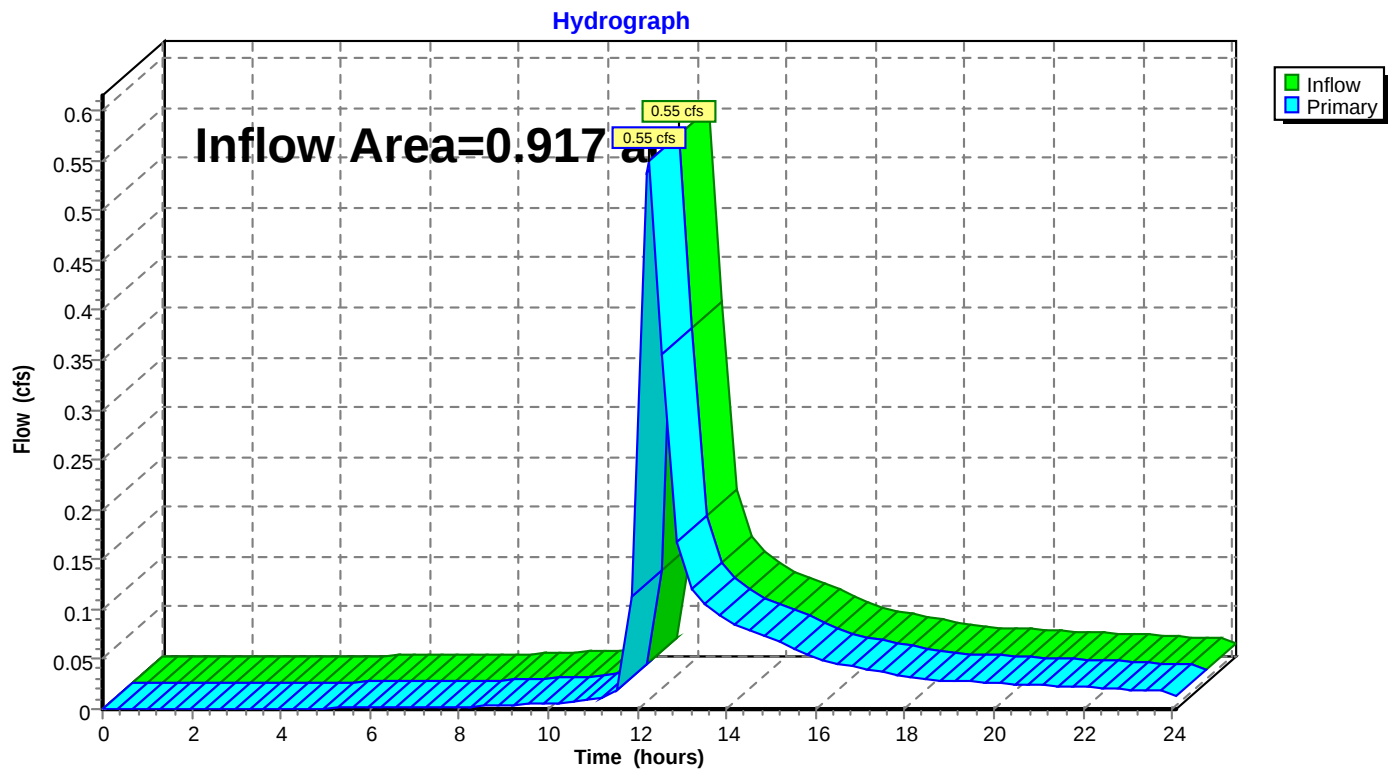


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 0.97" for 5-yr event
Inflow = 0.55 cfs @ 12.28 hrs, Volume= 0.074 af
Primary = 0.55 cfs @ 12.28 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

Pond 1P: Christian Lane

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Type III 24-hr 10-yr Rainfall=4.84"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>4.60"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.06 cfs 0.008 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>1.27"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=0.75 cfs 0.093 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>3.22"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.05 cfs 0.006 af

Pond 1P: Christian Lane

Inflow=0.86 cfs 0.107 af

Primary=0.86 cfs 0.107 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.107 af Average Runoff Depth = 1.40"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.008 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs

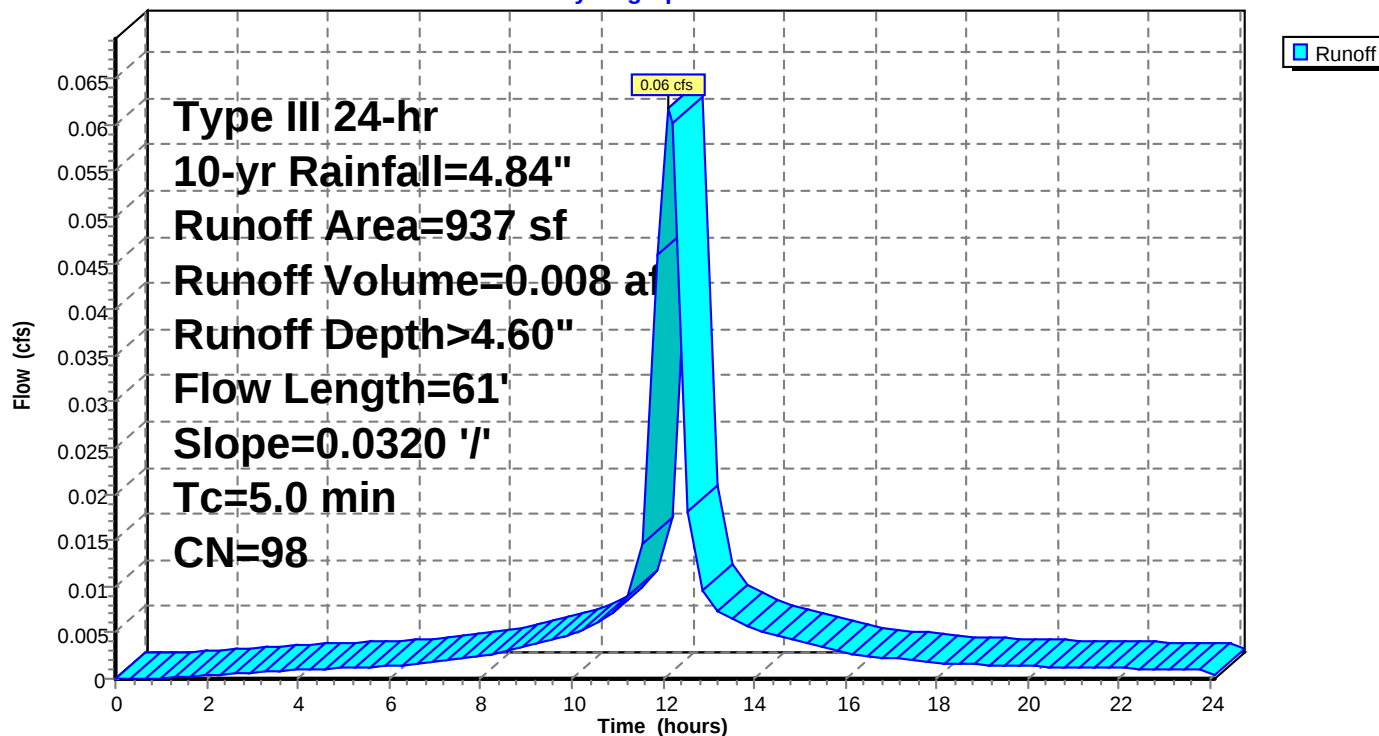
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Hydrograph



Summary for Subcatchment E2: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.75 cfs @ 12.28 hrs, Volume= 0.093 af, Depth> 1.27"

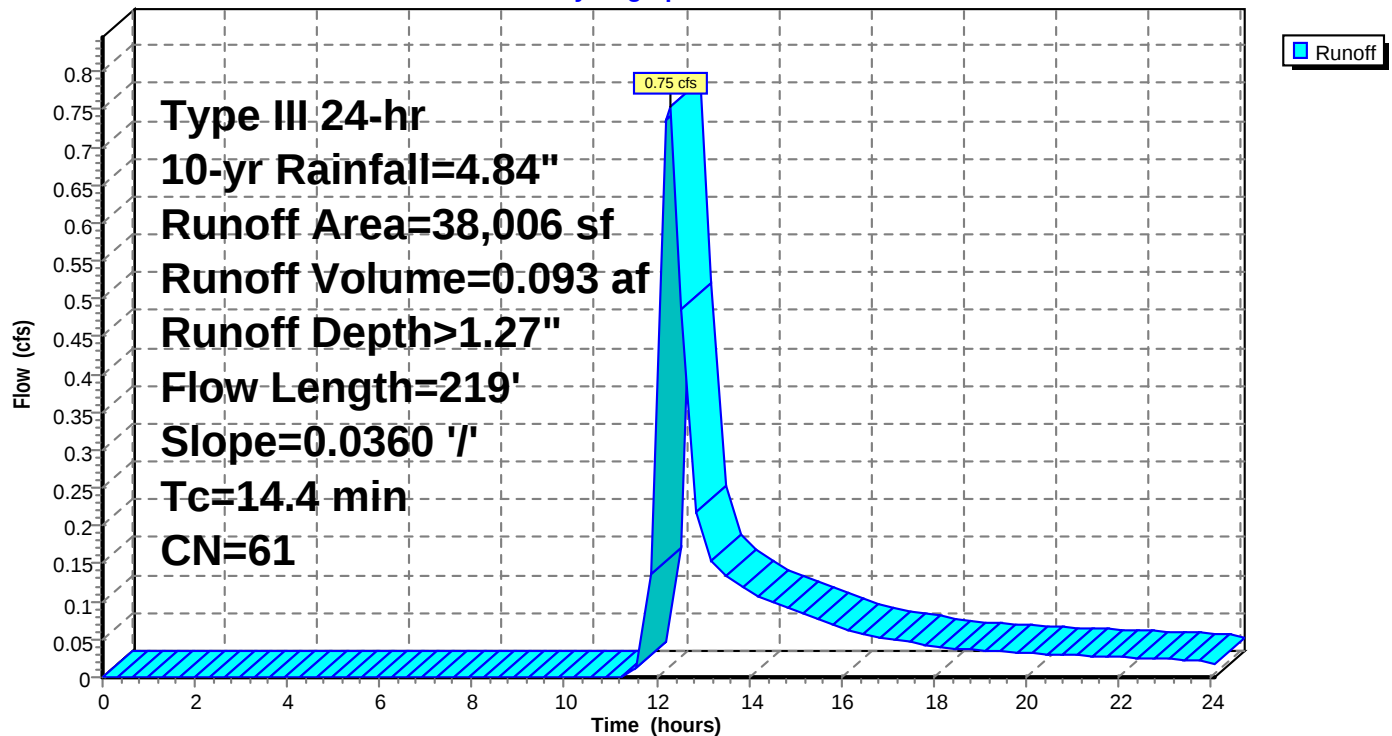
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



Summary for Subcatchment E3: Gravel

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

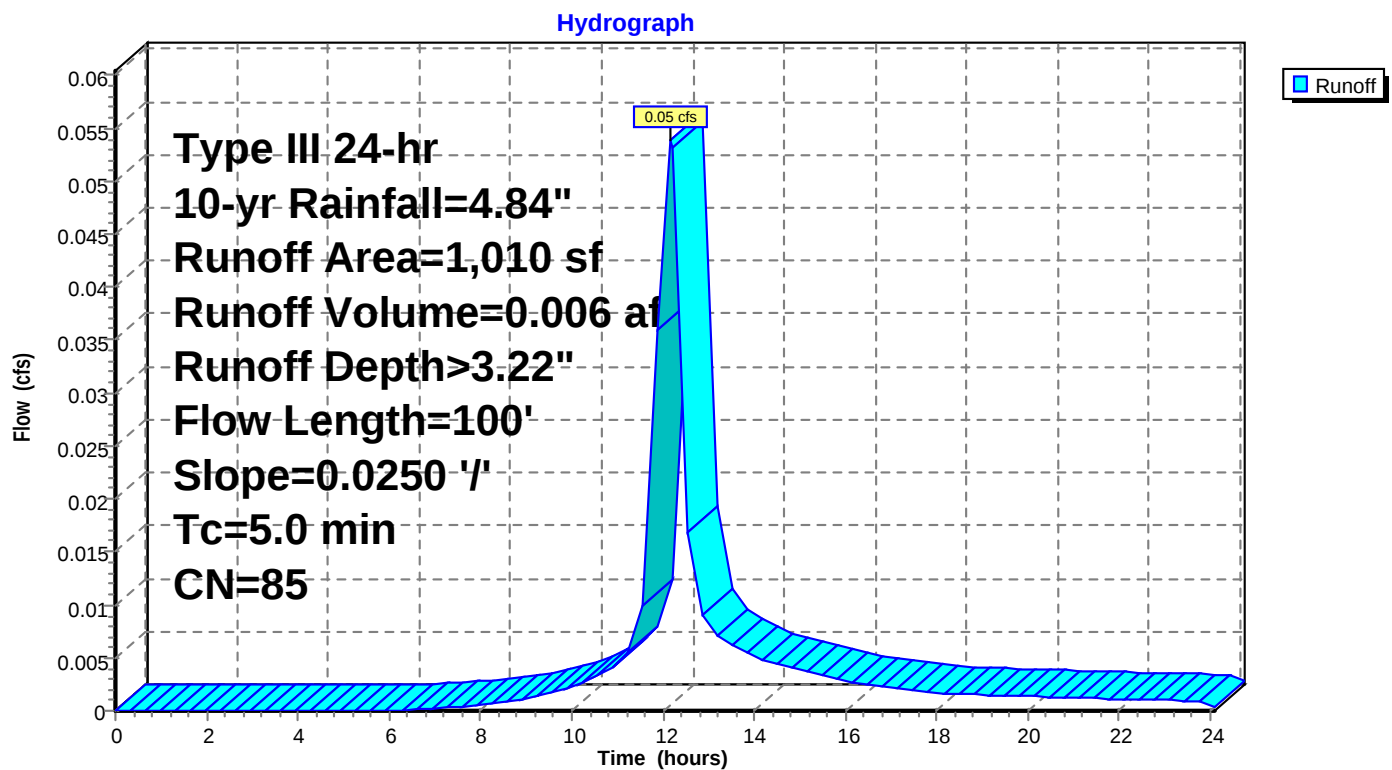
Runoff = 0.05 cfs @ 12.15 hrs, Volume= 0.006 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E3: Gravel

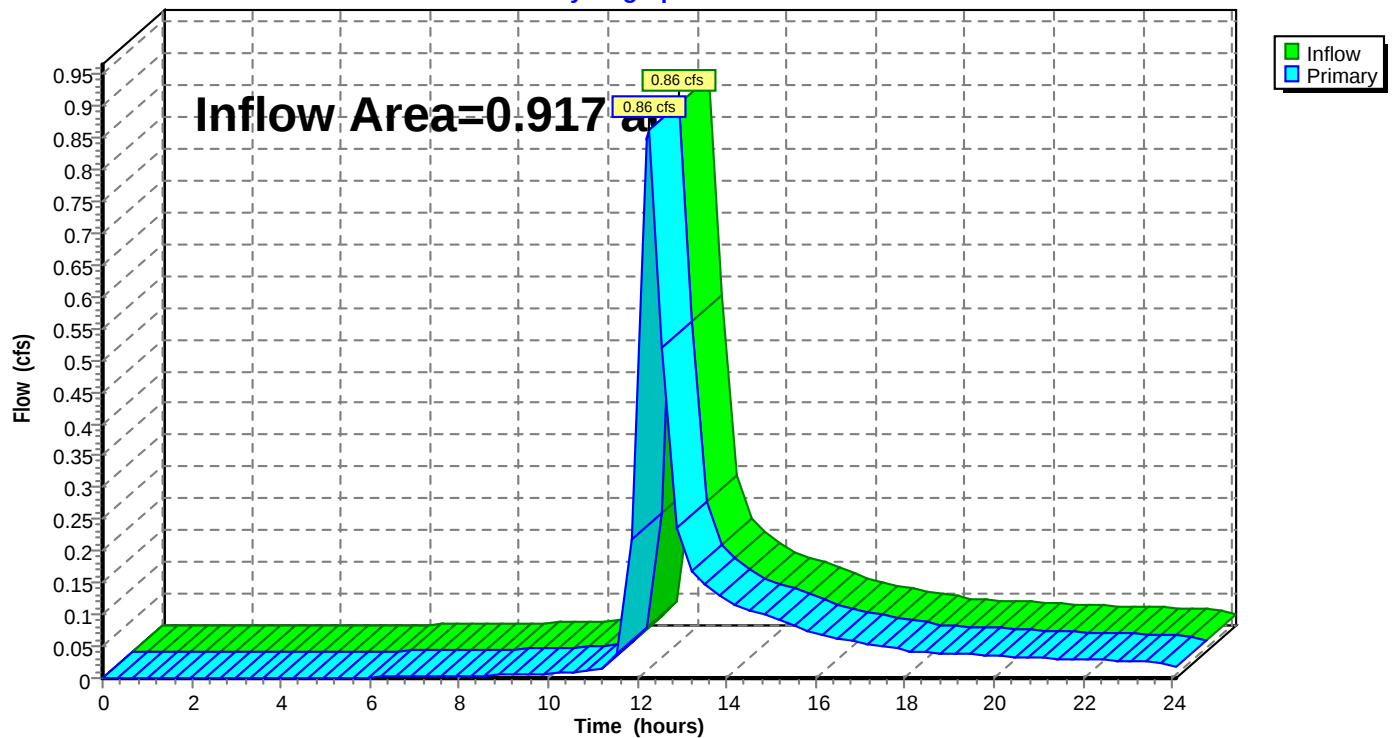


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 1.40" for 10-yr event
Inflow = 0.86 cfs @ 12.26 hrs, Volume= 0.107 af
Primary = 0.86 cfs @ 12.26 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

Pond 1P: Christian Lane**Hydrograph**

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Type III 24-hr 25-yr Rainfall=6.07"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>5.83"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.08 cfs 0.010 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>2.05"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=1.29 cfs 0.149 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>4.37"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.07 cfs 0.008 af

Pond 1P: Christian Lane

Inflow=1.43 cfs 0.168 af

Primary=1.43 cfs 0.168 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.168 af Average Runoff Depth = 2.20"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.010 af, Depth> 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs

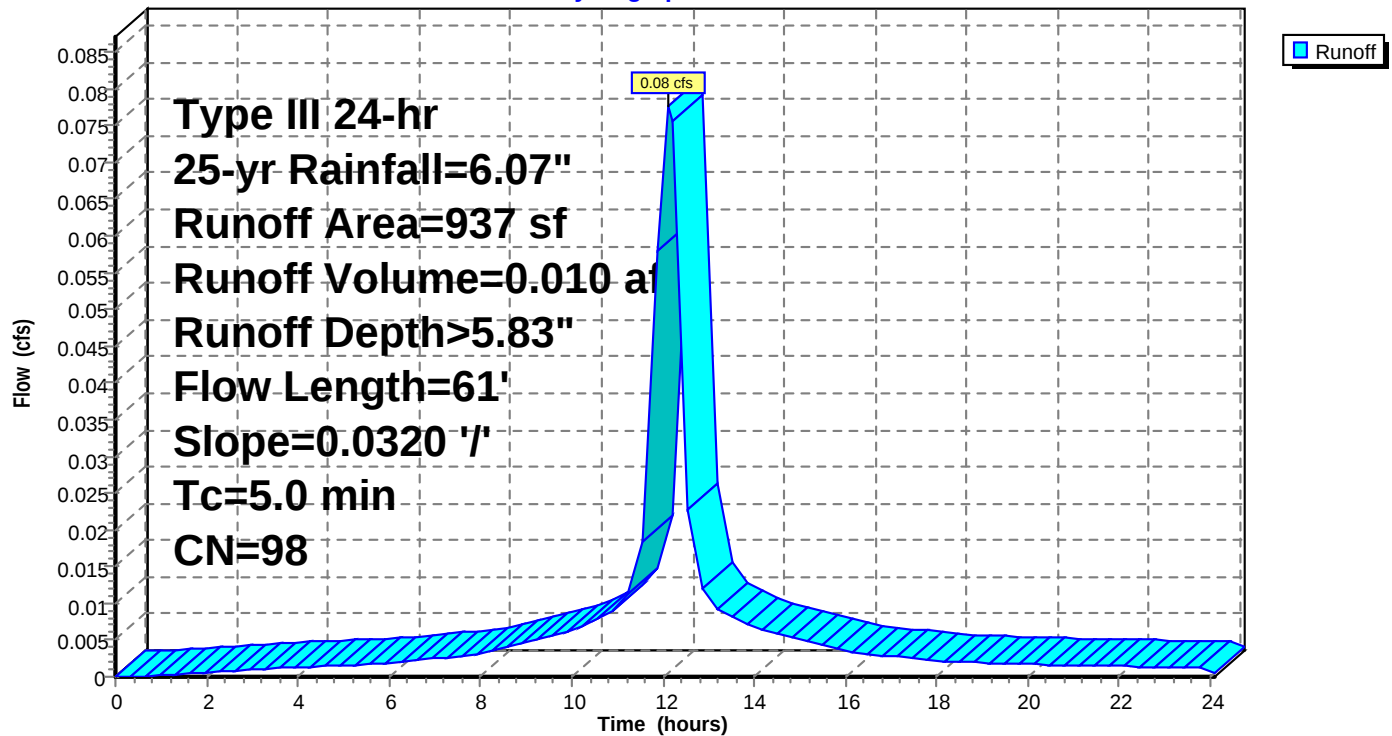
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Hydrograph



Summary for Subcatchment E2: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 1.29 cfs @ 12.26 hrs, Volume= 0.149 af, Depth> 2.05"

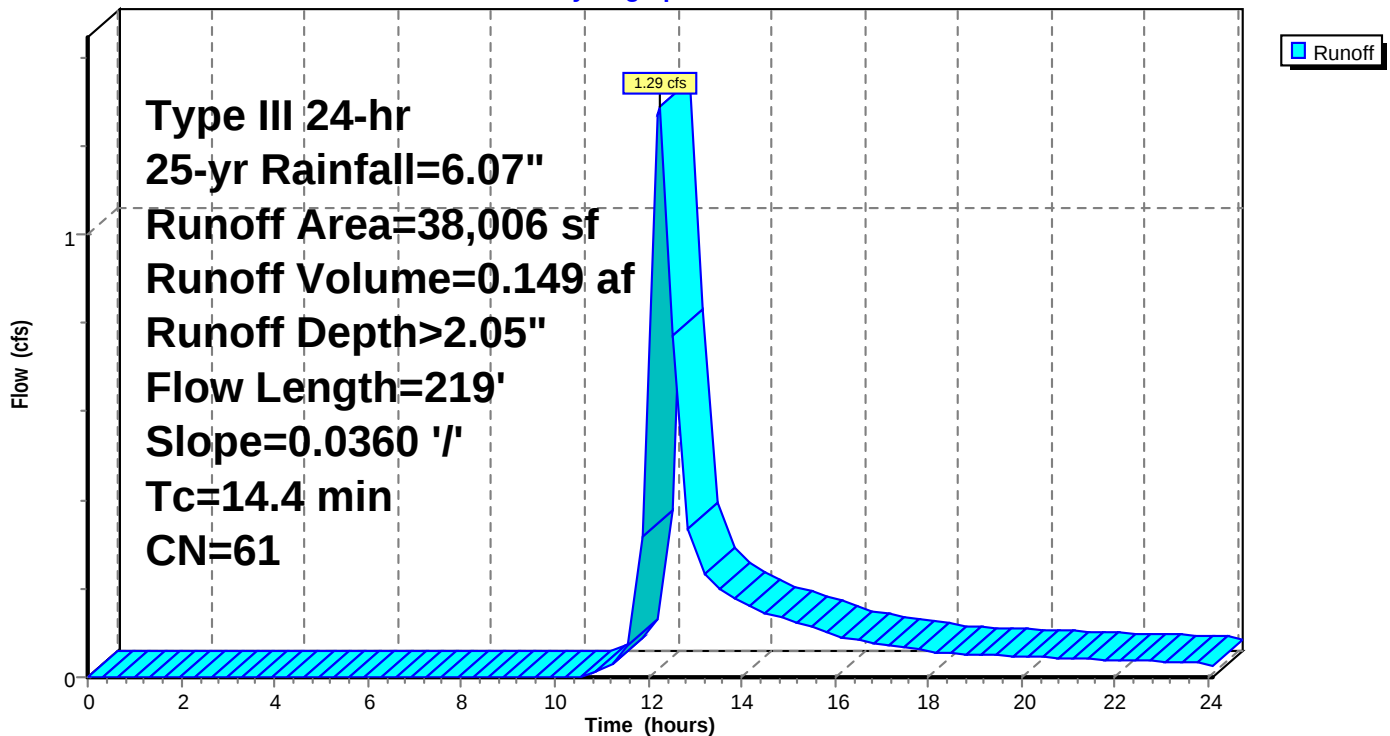
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



Summary for Subcatchment E3: Gravel

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

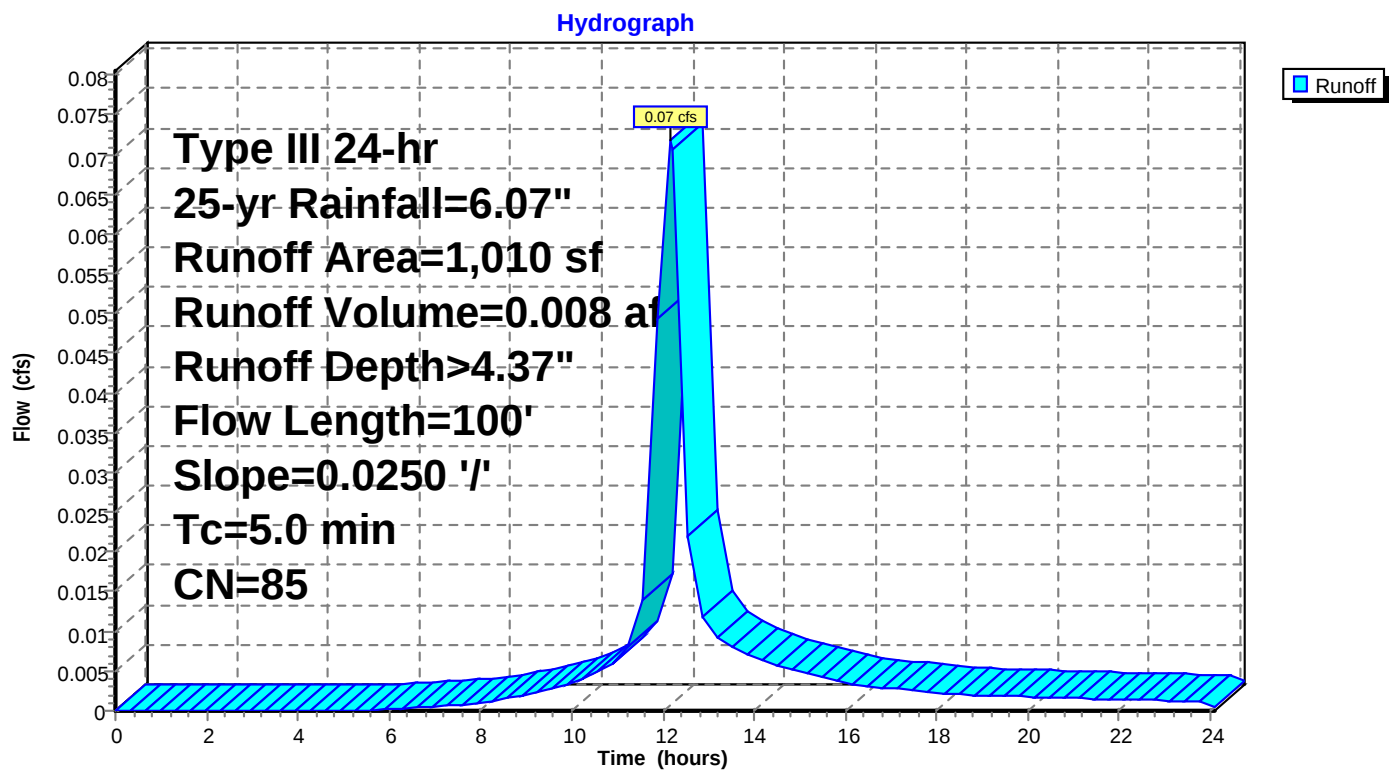
Runoff = 0.07 cfs @ 12.15 hrs, Volume= 0.008 af, Depth> 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E3: Gravel

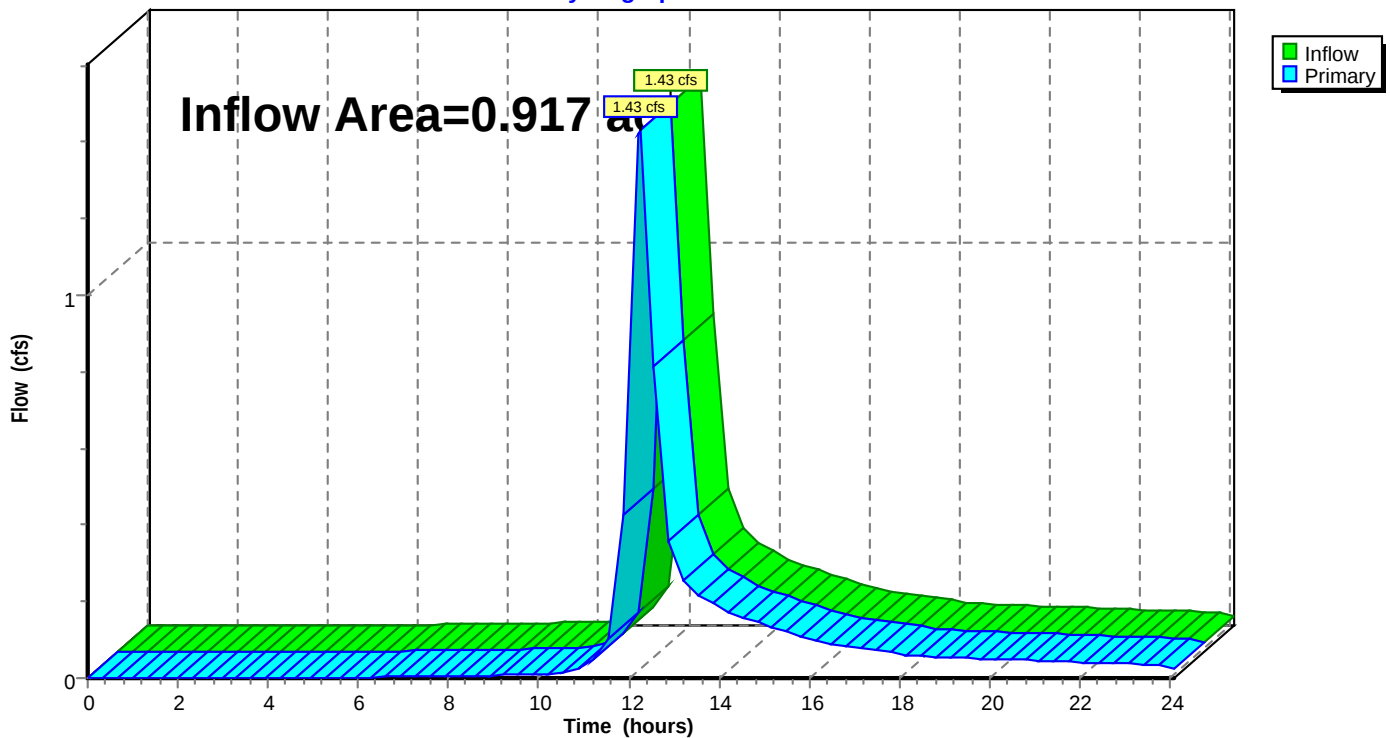


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 2.20" for 25-yr event
Inflow = 1.43 cfs @ 12.25 hrs, Volume= 0.168 af
Primary = 1.43 cfs @ 12.25 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

Pond 1P: Christian Lane**Hydrograph**

239 Christian LanetBerlin Pre

Type III 24-hr 50-yr Rainfall=7.20"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>6.96"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.09 cfs 0.012 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>2.85"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=1.84 cfs 0.207 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>5.44"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.09 cfs 0.011 af

Pond 1P: Christian Lane

Inflow=2.01 cfs 0.230 af

Primary=2.01 cfs 0.230 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.230 af Average Runoff Depth = 3.01"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.09 cfs @ 12.13 hrs, Volume= 0.012 af, Depth> 6.96"

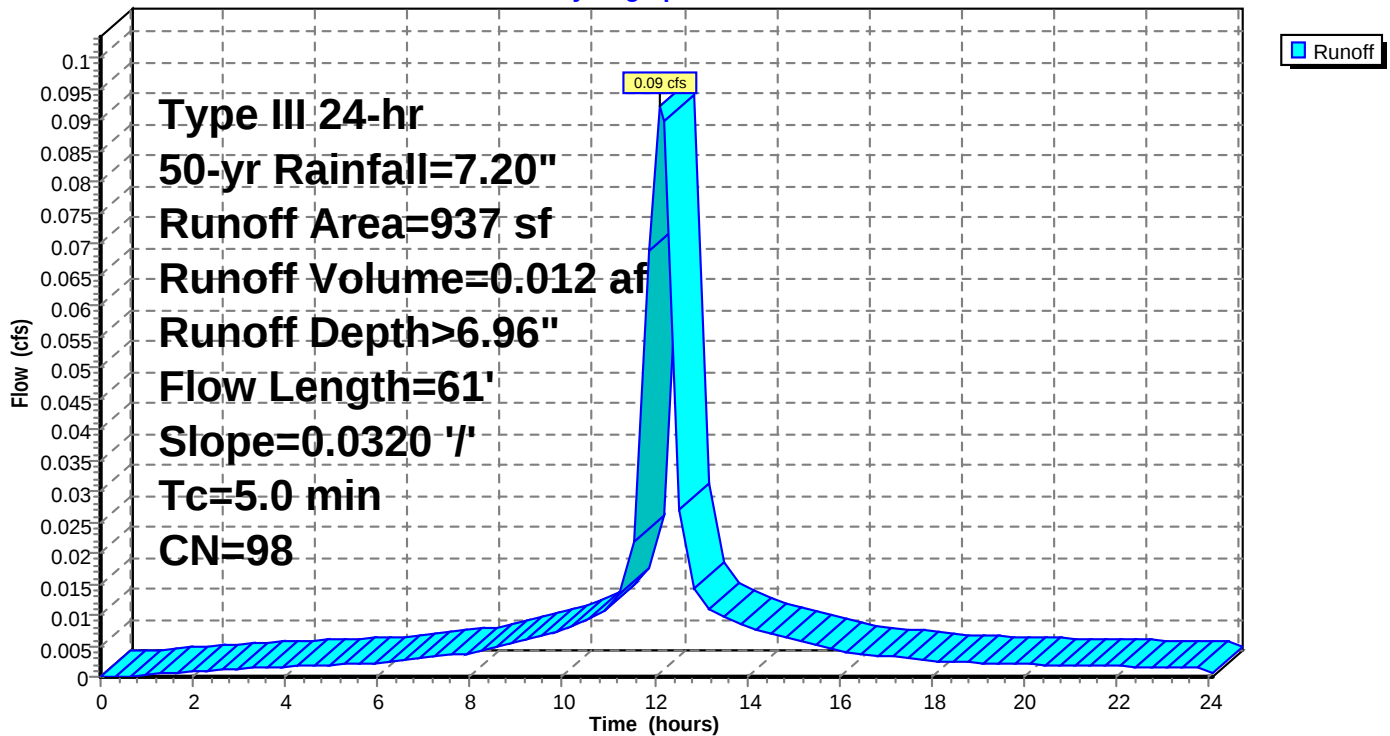
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Hydrograph



Summary for Subcatchment E2: Grass

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

Runoff = 1.84 cfs @ 12.25 hrs, Volume= 0.207 af, Depth> 2.85"

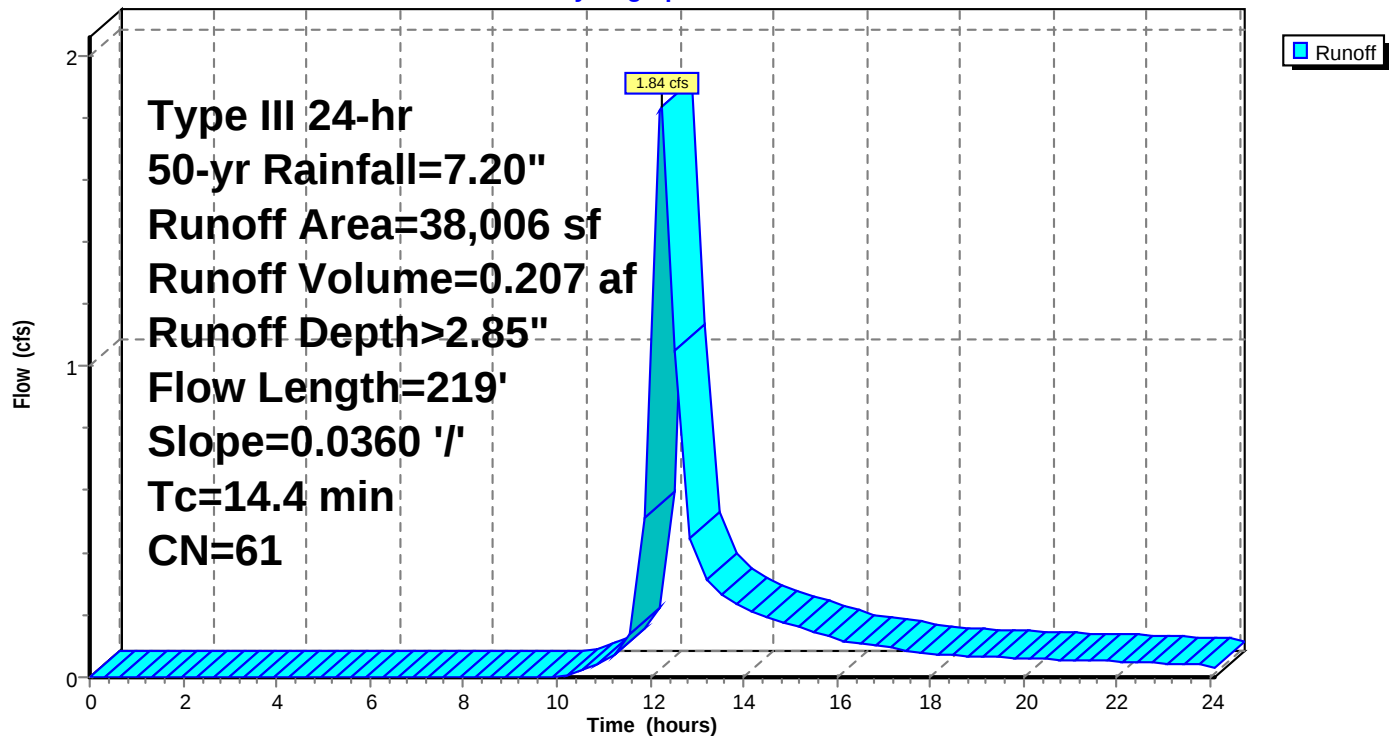
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



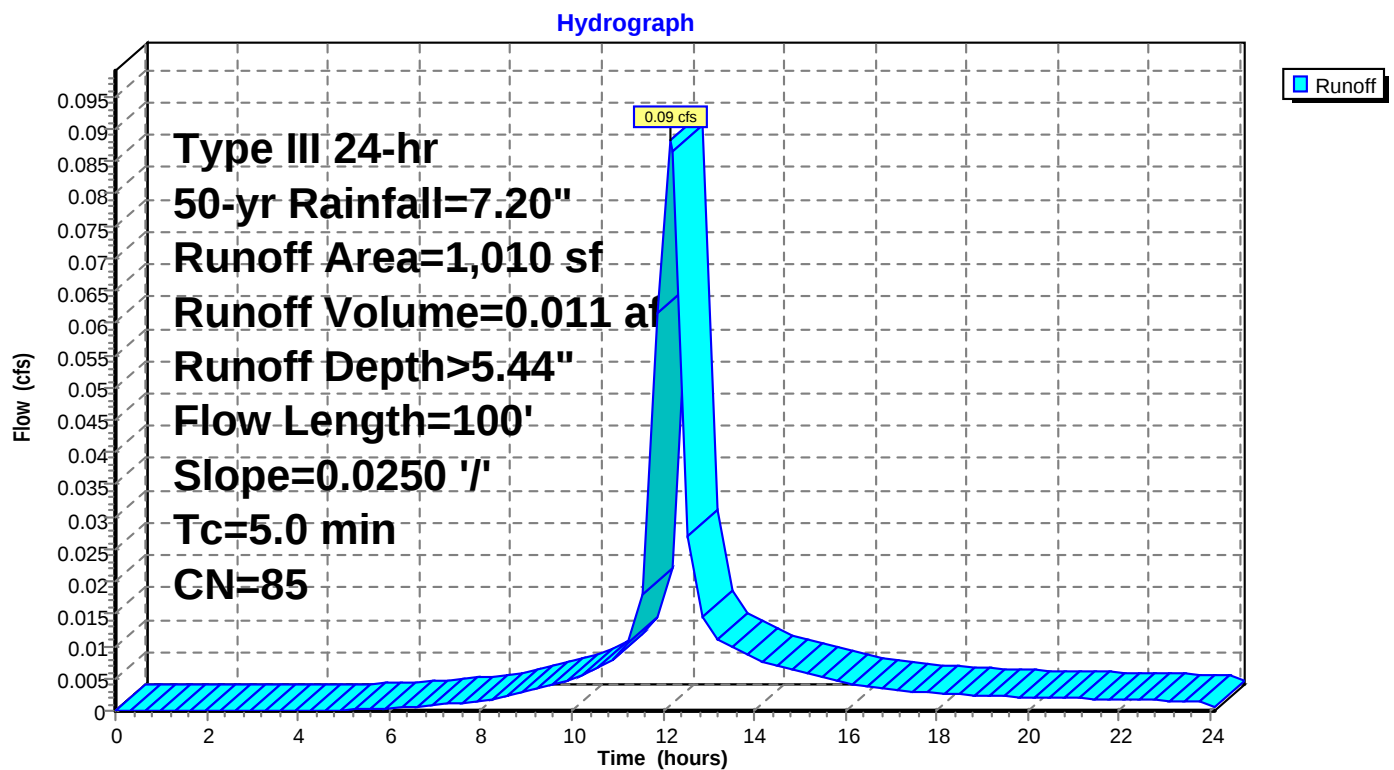
Summary for Subcatchment E3: Gravel[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.011 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

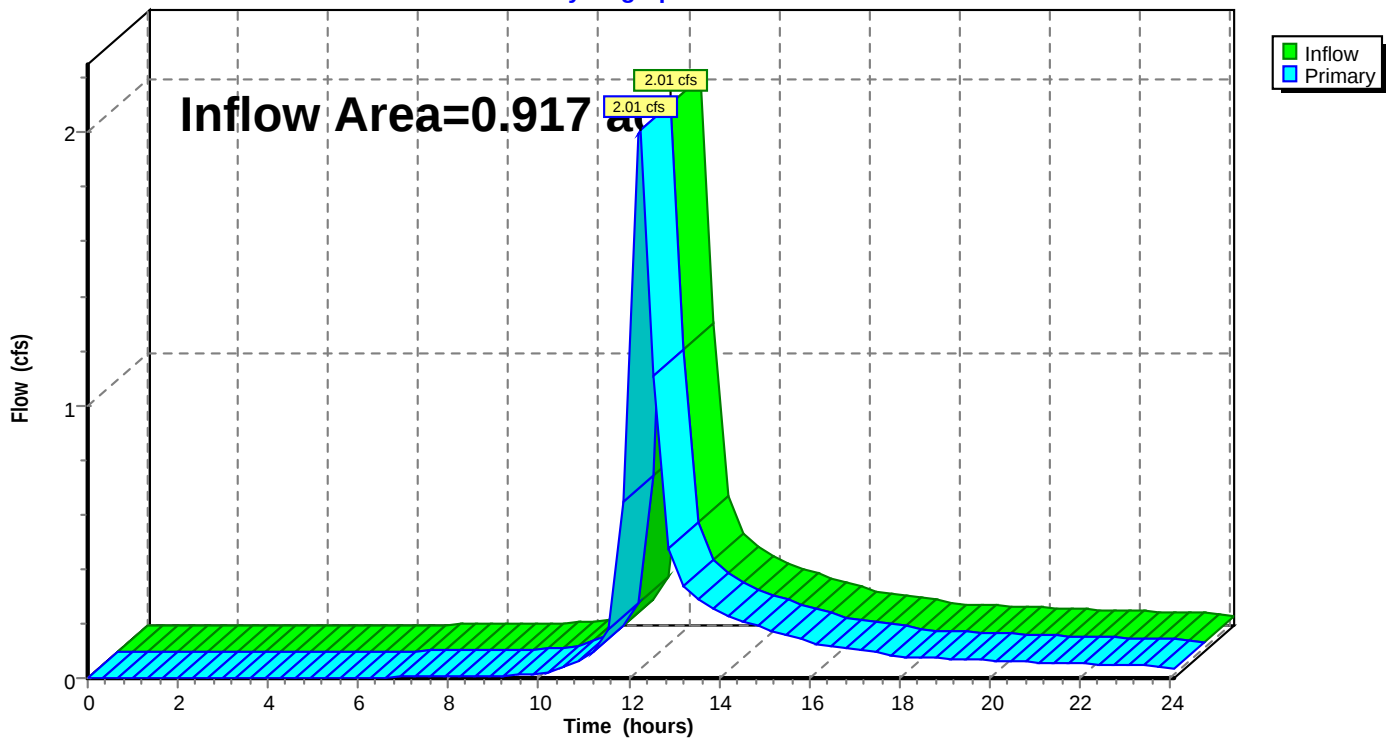
Subcatchment E3: Gravel

Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 3.01" for 50-yr event
Inflow = 2.01 cfs @ 12.24 hrs, Volume= 0.230 af
Primary = 2.01 cfs @ 12.24 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

Pond 1P: Christian Lane**Hydrograph**

239 Christian LanetBerlin Pre

Type III 24-hr 100-yr Rainfall=8.56"

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Time span=0.00-24.00 hrs, dt=0.33 hrs, 74 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1: Bit Driveway

Runoff Area=937 sf 100.00% Impervious Runoff Depth>8.32"

Flow Length=61' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.11 cfs 0.015 af

SubcatchmentE2: Grass

Runoff Area=38,006 sf 0.00% Impervious Runoff Depth>3.88"

Flow Length=219' Slope=0.0360 '/' Tc=14.4 min CN=61 Runoff=2.54 cfs 0.282 af

SubcatchmentE3: Gravel

Runoff Area=1,010 sf 0.00% Impervious Runoff Depth>6.75"

Flow Length=100' Slope=0.0250 '/' Tc=5.0 min CN=85 Runoff=0.11 cfs 0.013 af

Pond 1P: Christian Lane

Inflow=2.75 cfs 0.310 af

Primary=2.75 cfs 0.310 af

Total Runoff Area = 0.917 ac Runoff Volume = 0.310 af Average Runoff Depth = 4.05"
97.65% Pervious = 0.896 ac 2.35% Impervious = 0.022 ac

Summary for Subcatchment E1: Bit Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.11 cfs @ 12.13 hrs, Volume= 0.015 af, Depth> 8.32"

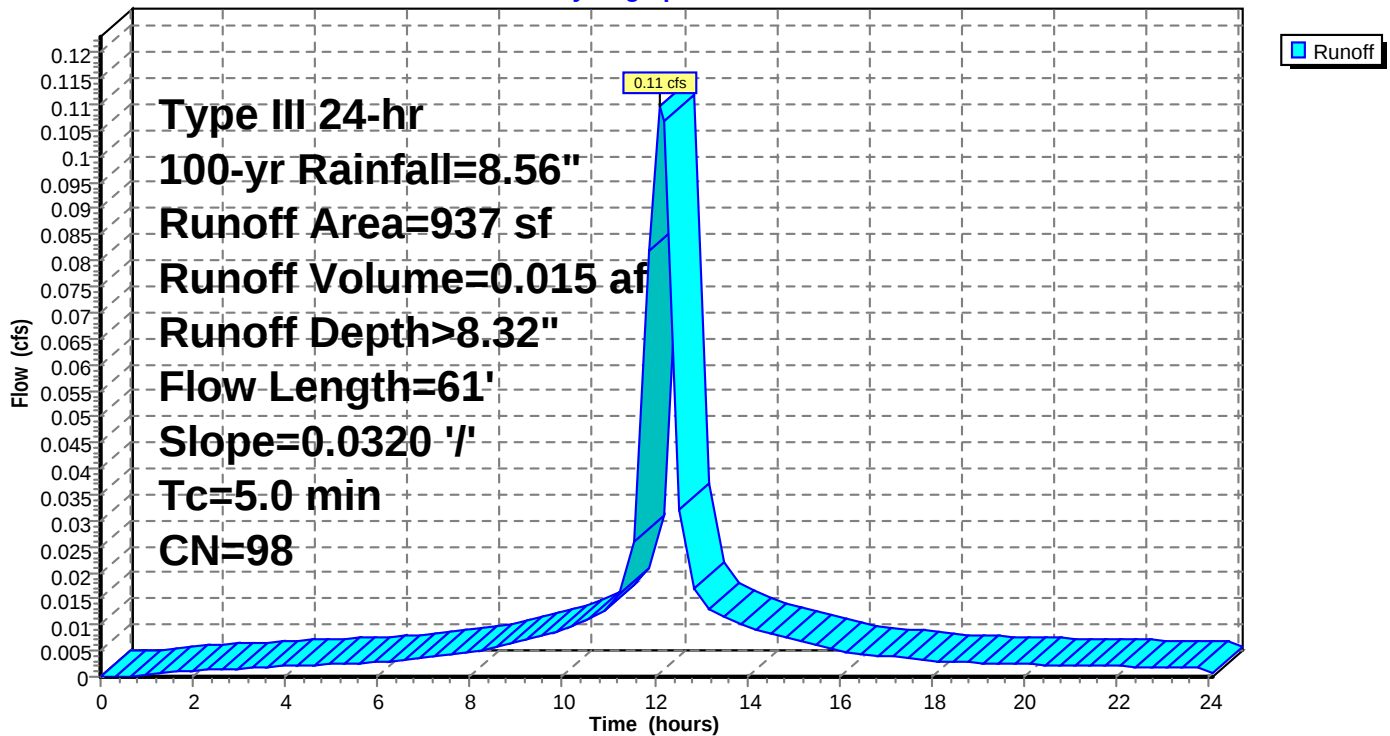
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
937	98	Paved parking, HSG B	Pavement
937		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0320	1.52		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	61	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E1: Bit Driveway

Hydrograph



Summary for Subcatchment E2: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 2.54 cfs @ 12.25 hrs, Volume= 0.282 af, Depth> 3.88"

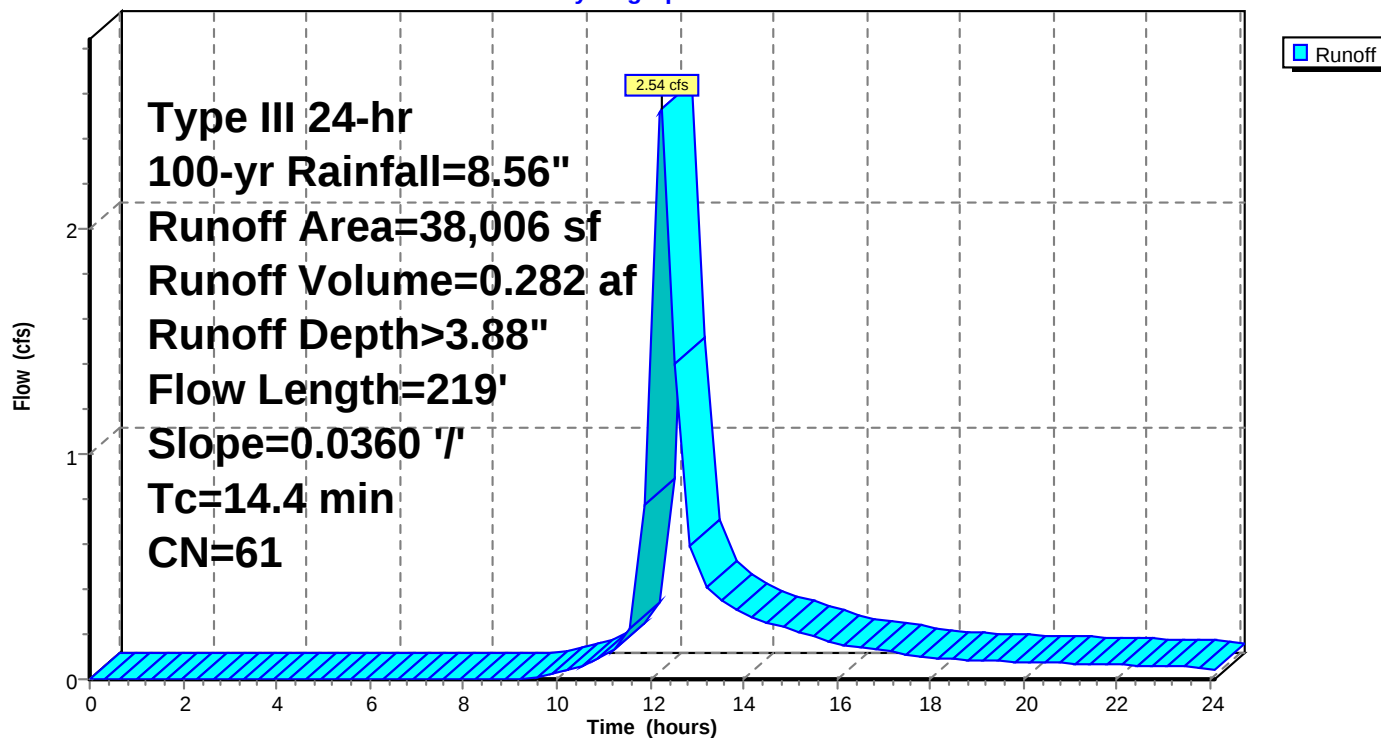
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
38,006	61	Pasture/grassland/range, Good, HSG B	Residential
38,006		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	219	0.0360	0.25		Sheet Flow, Short Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment E2: Grass

Hydrograph



Summary for Subcatchment E3: Gravel[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.11 cfs @ 12.14 hrs, Volume= 0.013 af, Depth> 6.75"

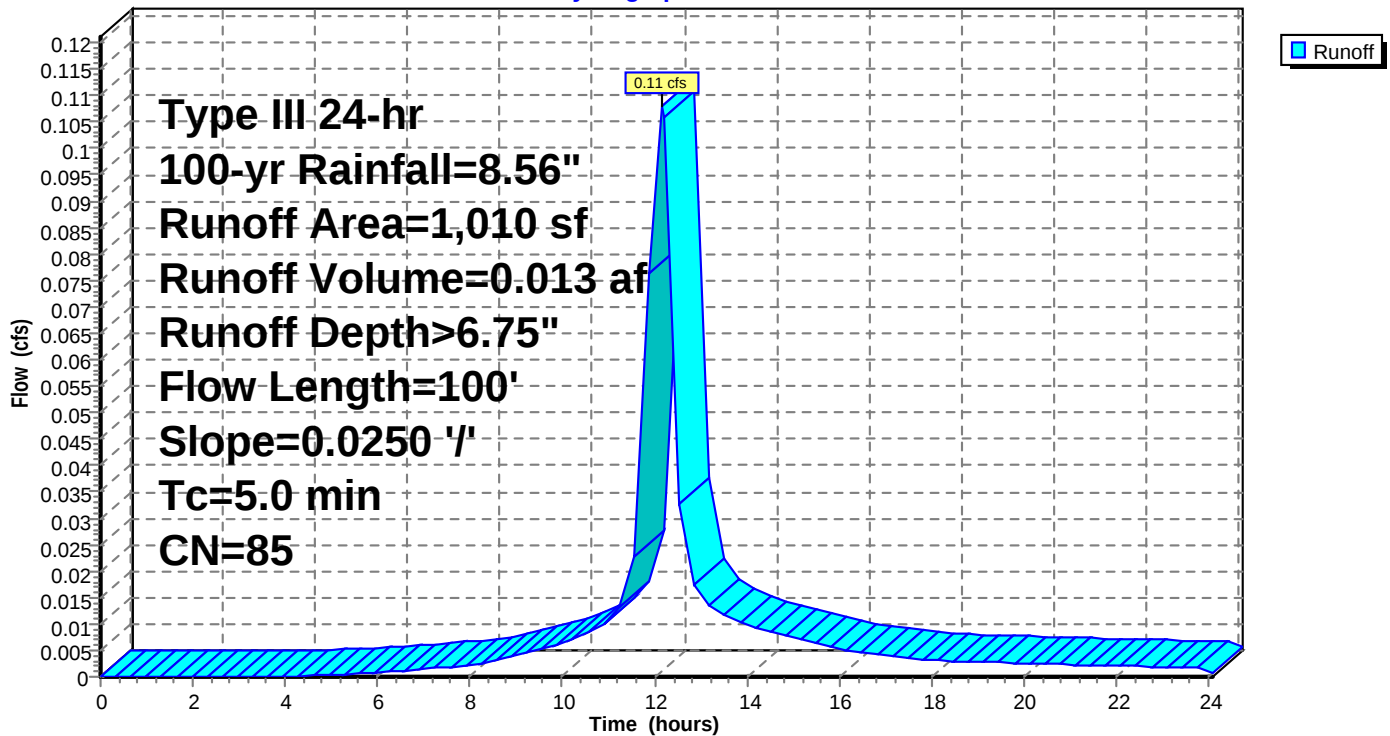
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.09 hrs, $dt=0.33$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
1,010	85	Gravel roads, HSG B	Pavement
1,010		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0250	1.52		Sheet Flow, Gravel Road
					Smooth surfaces n= 0.011 P2= 3.26"
1.1	100	Total, Increased to minimum Tc = 5.0 min			

Subcatchment E3: Gravel

Hydrograph

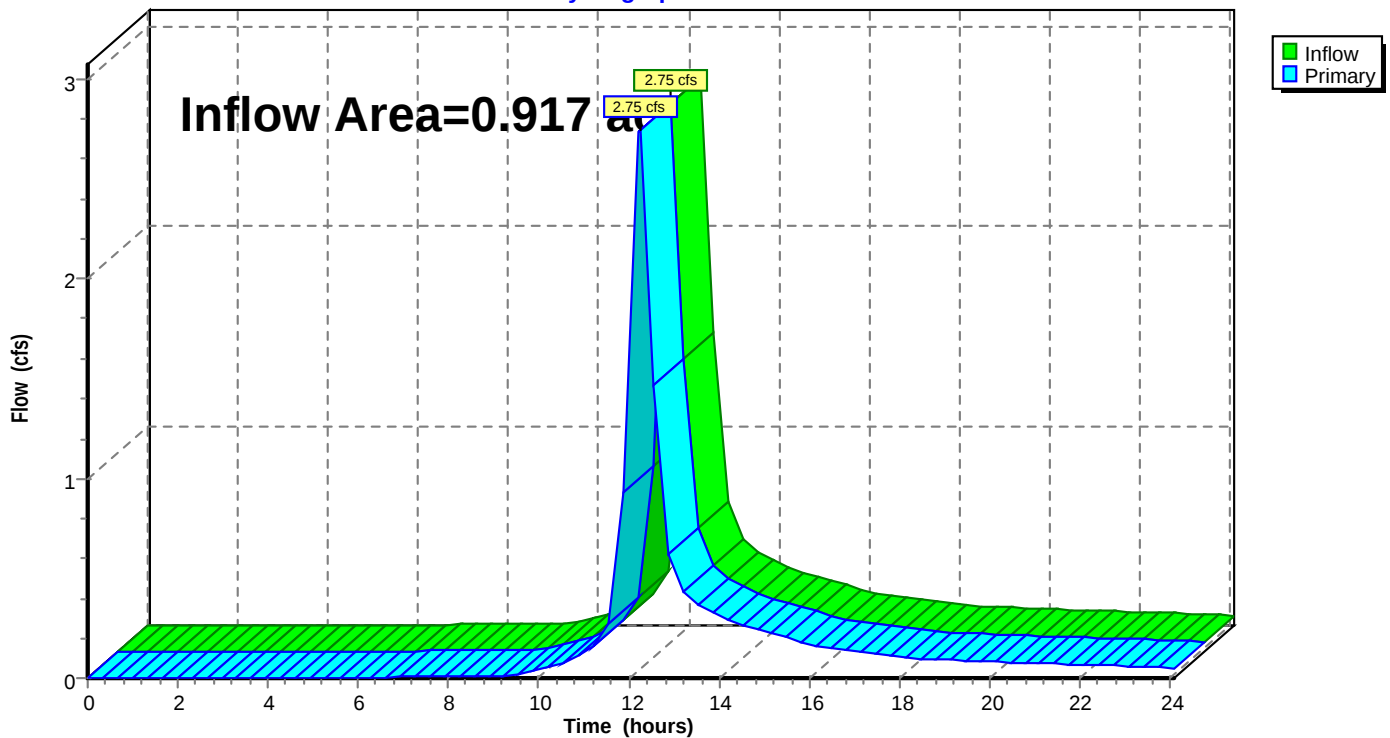


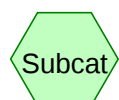
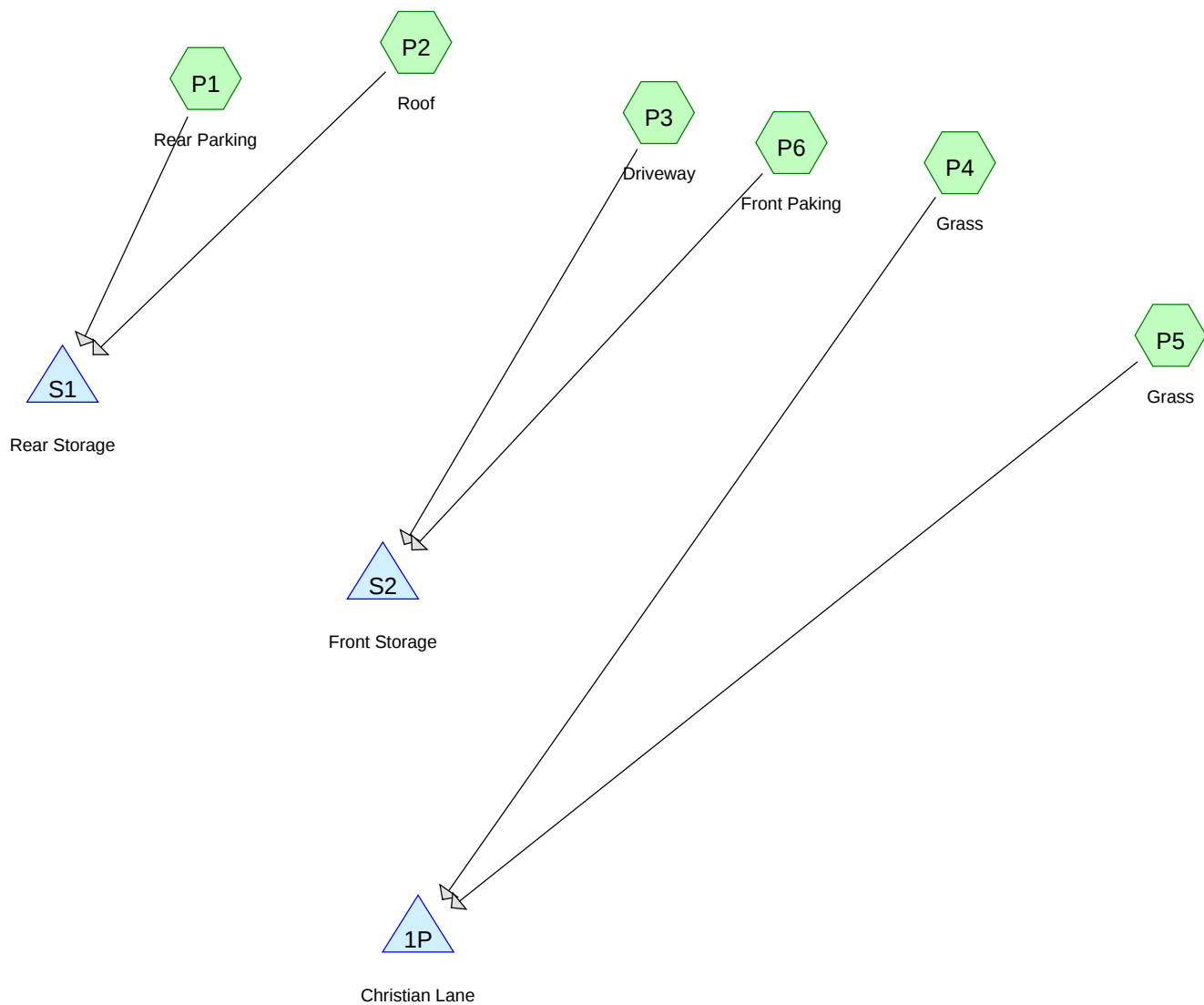
Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.917 ac, 2.35% Impervious, Inflow Depth > 4.05" for 100-yr event
Inflow = 2.75 cfs @ 12.24 hrs, Volume= 0.310 af
Primary = 2.75 cfs @ 12.24 hrs, Volume= 0.310 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.09 hrs, dt= 0.33 hrs

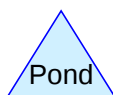
Pond 1P: Christian Lane**Hydrograph**



Subcat



Reach



Pond



Link

Routing Diagram for 239 Chritian Lane Berlin Post
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239 Chritian Lane Berlin Post

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.095	61	>75% Grass cover, Good, HSG B (P4, P5)
0.256	98	Paved parking, HSG B (P1, P3)
0.291	98	Paved roads w/curbs & sewers, HSG B (P6)
0.230	98	Roofs, HSG B (P2)
0.872	94	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.872	HSG B	P1, P2, P3, P4, P5, P6
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.872		TOTAL AREA

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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	0.095	0.000	0.000	0.000	0.095	>75% Grass cover, Good	P4, P5
0.000	0.256	0.000	0.000	0.000	0.256	Paved parking	P1, P3
0.000	0.291	0.000	0.000	0.000	0.291	Paved roads w/curbs & sewers	P6
0.000	0.230	0.000	0.000	0.000	0.230	Roofs	P2
0.000	0.872	0.000	0.000	0.000	0.872	TOTAL AREA	

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Land-Use Listing (all nodes)

Area (acres)	Land Use	Subcatchment Numbers
0.297	Pavement	P1, P4, P5
0.054	Residential	P3
0.291	Roadway	P6
0.230	Roofs	P2
0.872	TOTAL	

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Type III 24-hr 2-yr Rainfall=3.26"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear ParkingRunoff Area=8,817 sf 100.00% Impervious Runoff Depth>3.03"
Flow Length=85' Slope=0.0700 ' ' Tc=5.0 min CN=98 Runoff=0.37 cfs 0.051 af**SubcatchmentP2: Roof**Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>3.03"
Flow Length=141' Slope=0.1420 ' ' Tc=5.0 min CN=98 Runoff=0.42 cfs 0.058 af**SubcatchmentP3: Driveway**Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>3.03"
Flow Length=151' Slope=0.1420 ' ' Tc=5.0 min CN=98 Runoff=0.10 cfs 0.014 af**SubcatchmentP4: Grass**Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>0.47"
Flow Length=209' Slope=0.0380 ' ' Tc=13.5 min CN=61 Runoff=0.01 cfs 0.002 af**SubcatchmentP5: Grass**Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>0.47"
Flow Length=300' Slope=0.0190 ' ' Tc=5.0 min CN=61 Runoff=0.01 cfs 0.001 af**SubcatchmentP6: Front Paking**Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>3.03"
Flow Length=31' Slope=0.0320 ' ' Tc=5.0 min CN=98 Runoff=0.53 cfs 0.073 af**Pond 1P: Christian Lane**Inflow=0.02 cfs 0.004 af
Primary=0.02 cfs 0.004 af**Pond S1: Rear Storage**Peak Elev=61.02' Storage=5 cf Inflow=0.79 cfs 0.109 af
Outflow=0.79 cfs 0.109 af**Pond S2: Front Storage**Peak Elev=59.02' Storage=2 cf Inflow=0.63 cfs 0.087 af
Outflow=0.63 cfs 0.087 af**Total Runoff Area = 0.872 ac Runoff Volume = 0.200 af Average Runoff Depth = 2.75"**
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

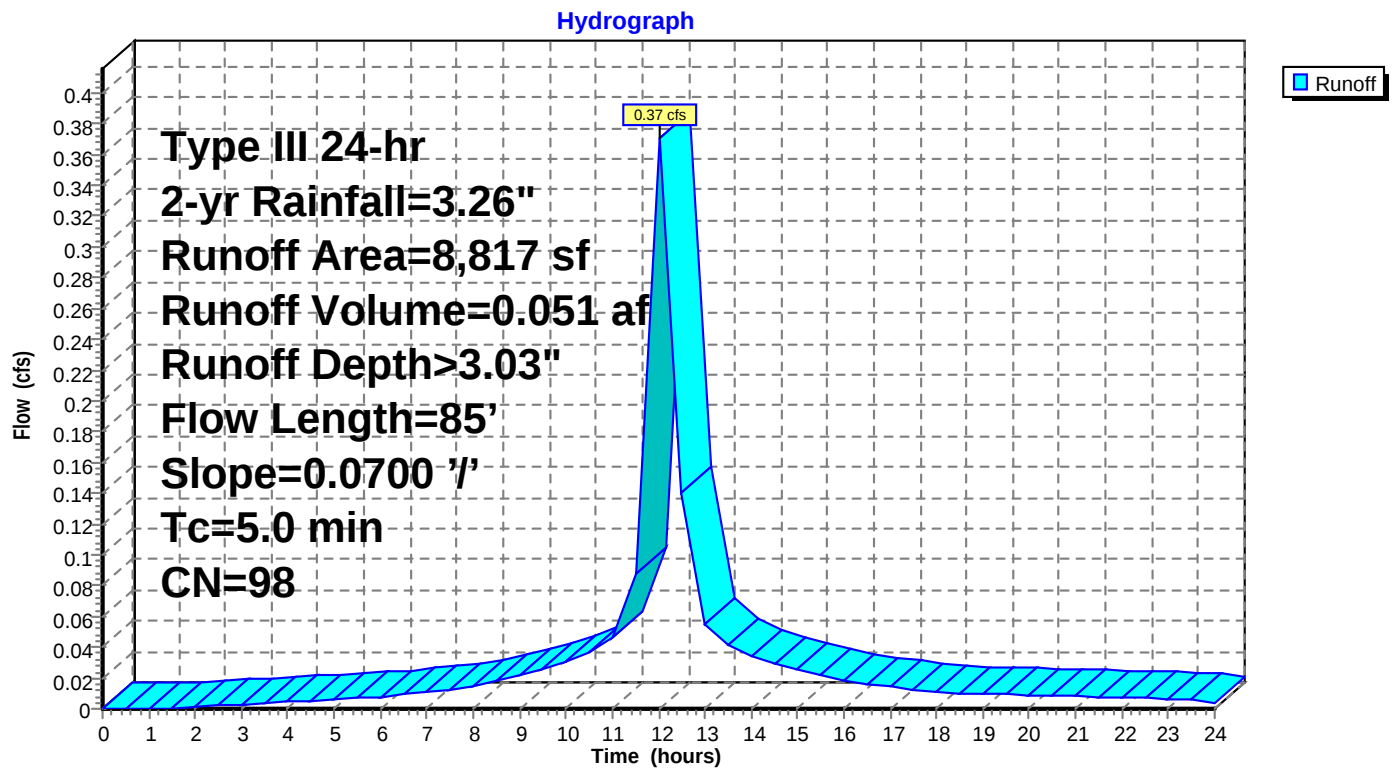
Summary for Subcatchment P1: Rear Parking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.37 cfs @ 12.03 hrs, Volume= 0.051 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking

Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.42 cfs @ 12.03 hrs, Volume= 0.058 af, Depth> 3.03"

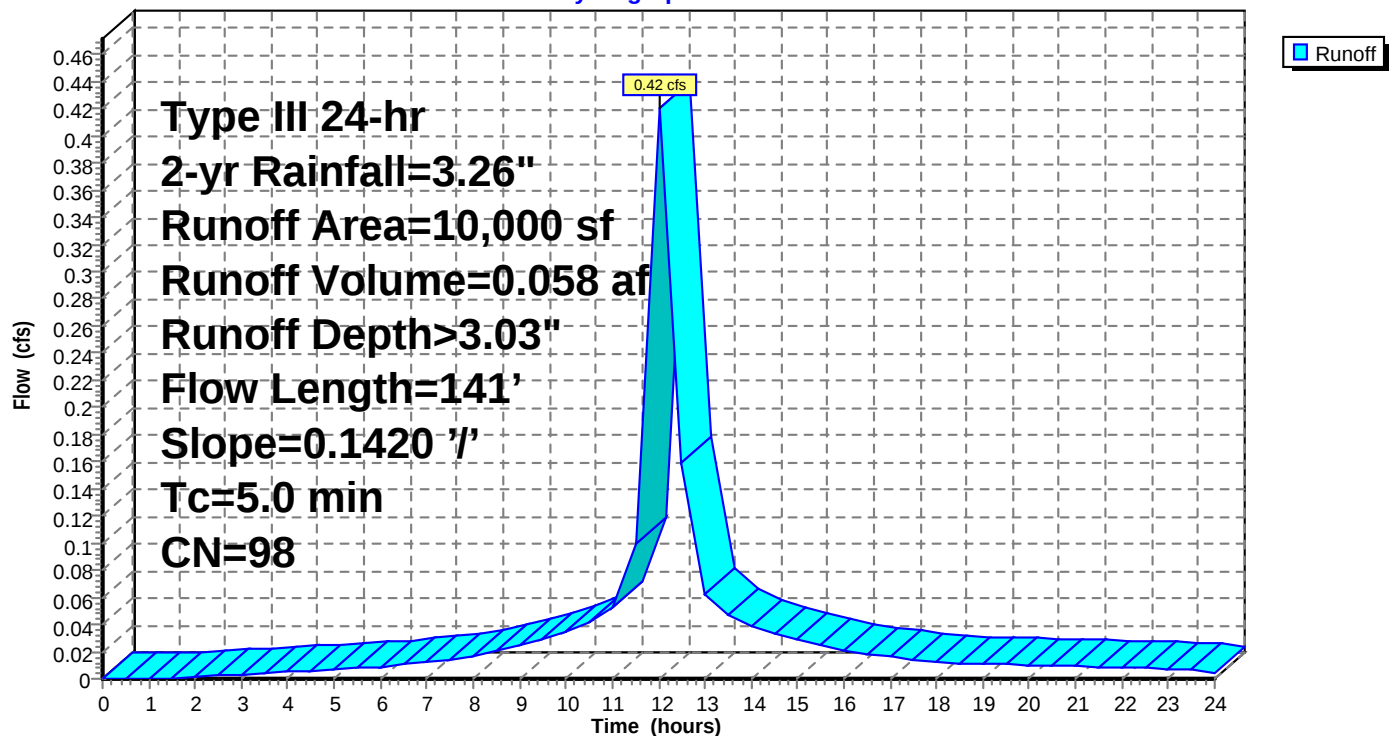
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Hydrograph



Summary for Subcatchment P3: Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.10 cfs @ 12.03 hrs, Volume= 0.014 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

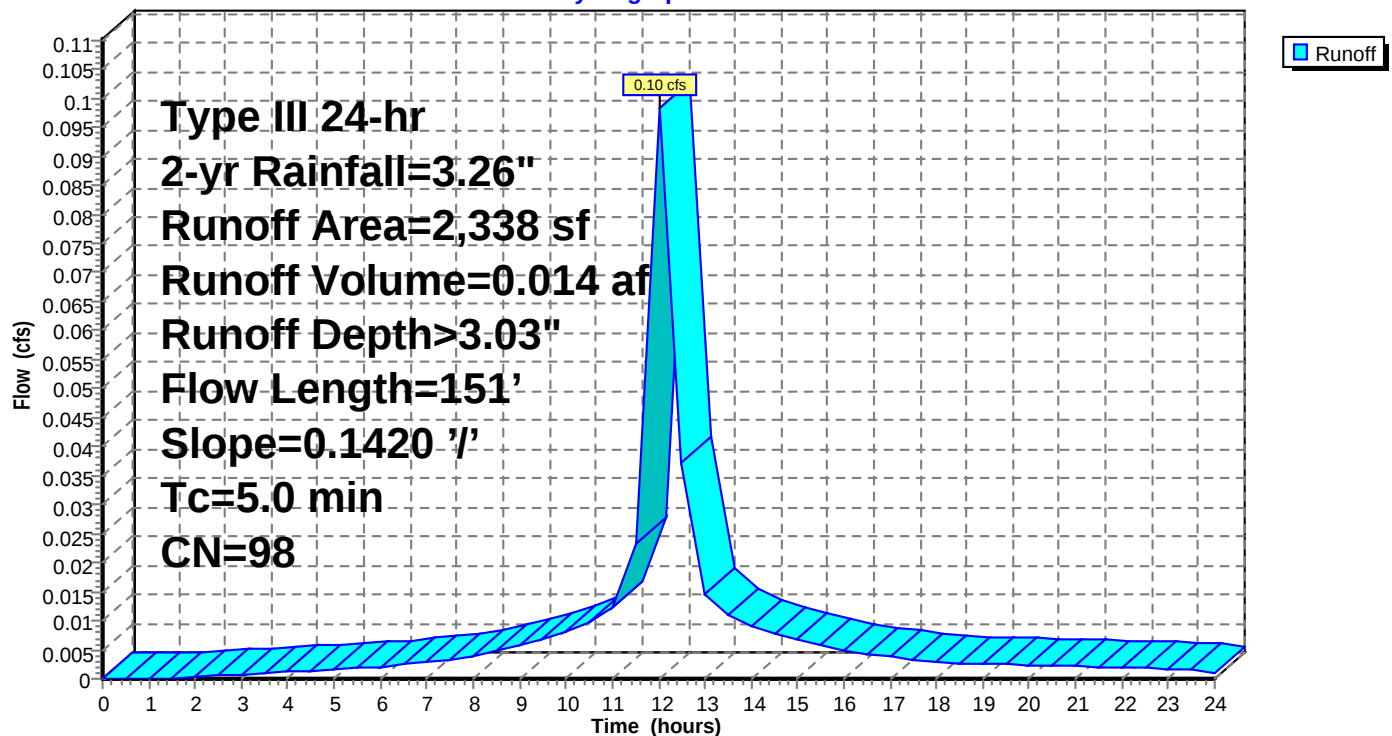
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.26"

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Summary for Subcatchment P4: Grass

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

Runoff = 0.01 cfs @ 12.51 hrs, Volume= 0.002 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

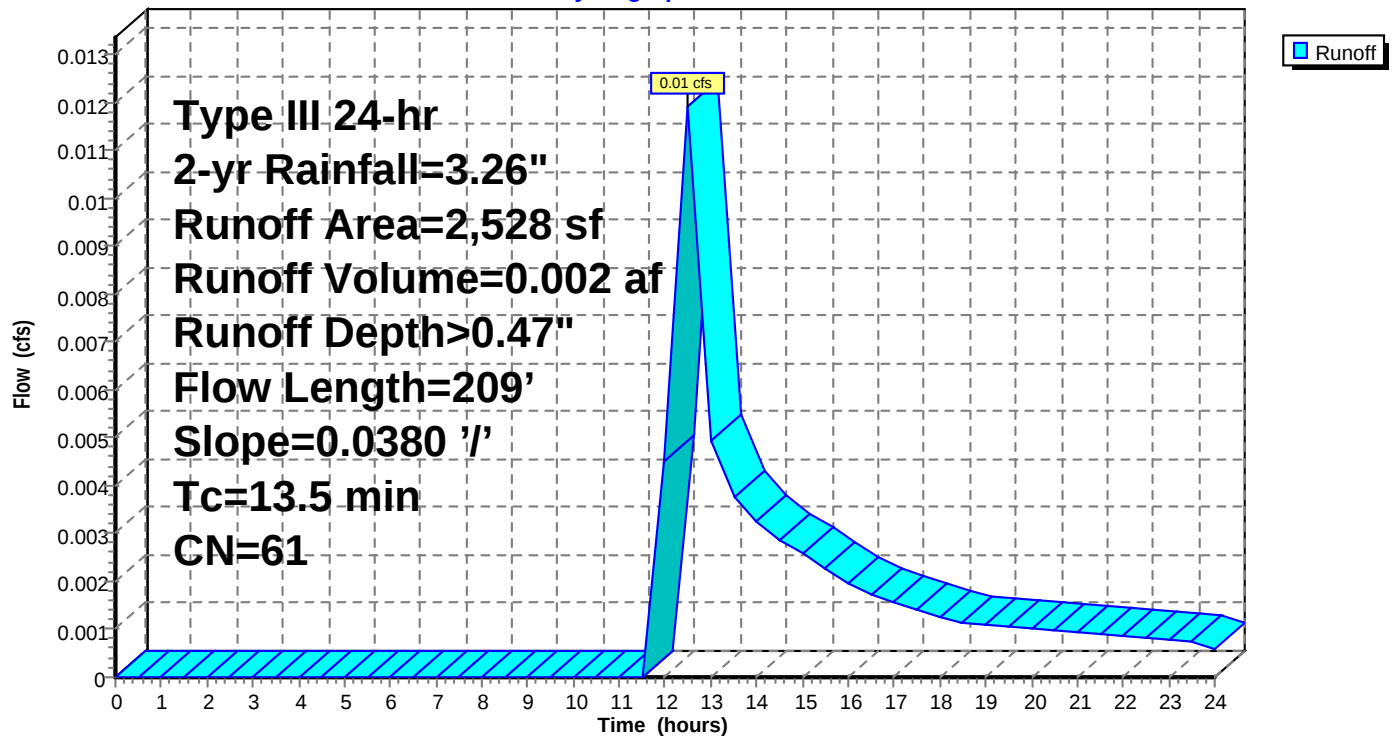
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.26"

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Summary for Subcatchment P5: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.01 cfs @ 12.30 hrs, Volume= 0.001 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

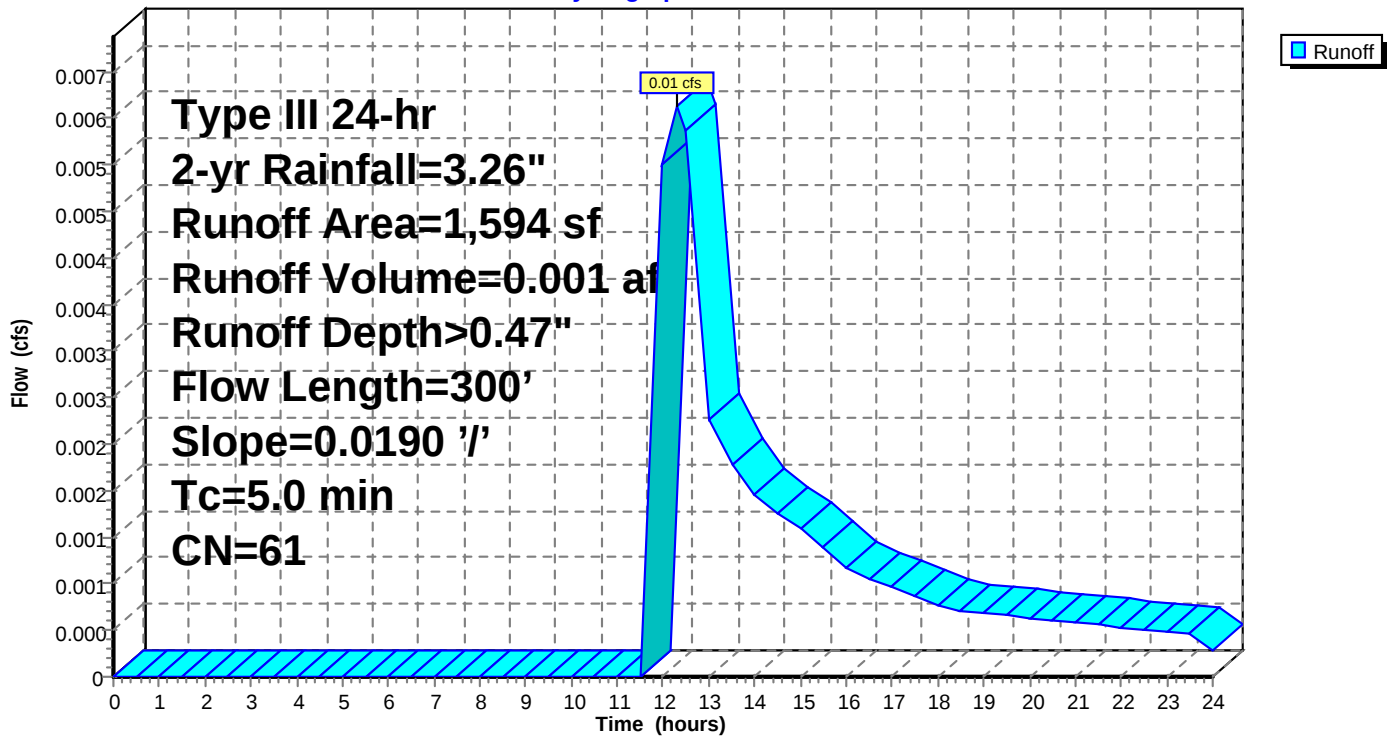
Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.26"

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Summary for Subcatchment P6: Front Paking

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

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 0.073 af, Depth> 3.03"

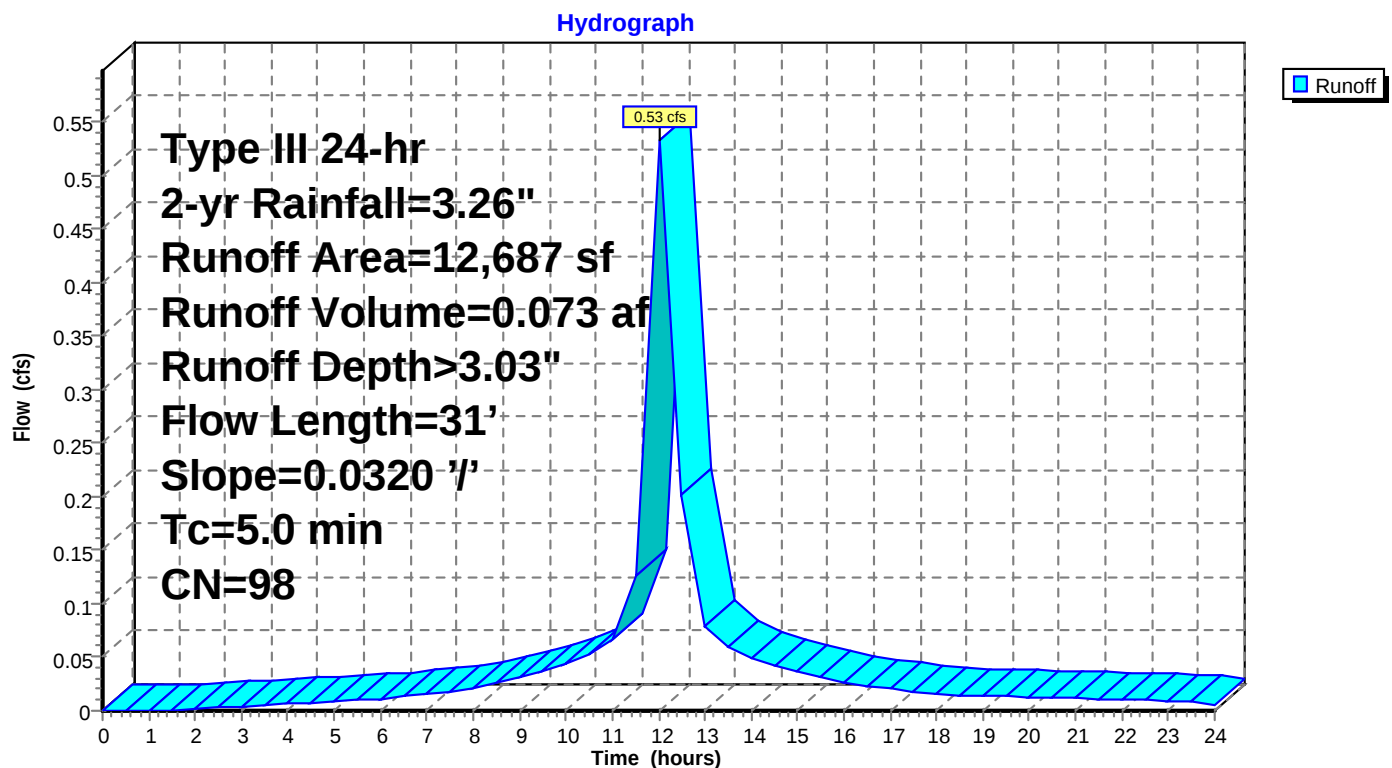
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

Type III 24-hr 2-yr Rainfall=3.26"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Paking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P6: Front Paking

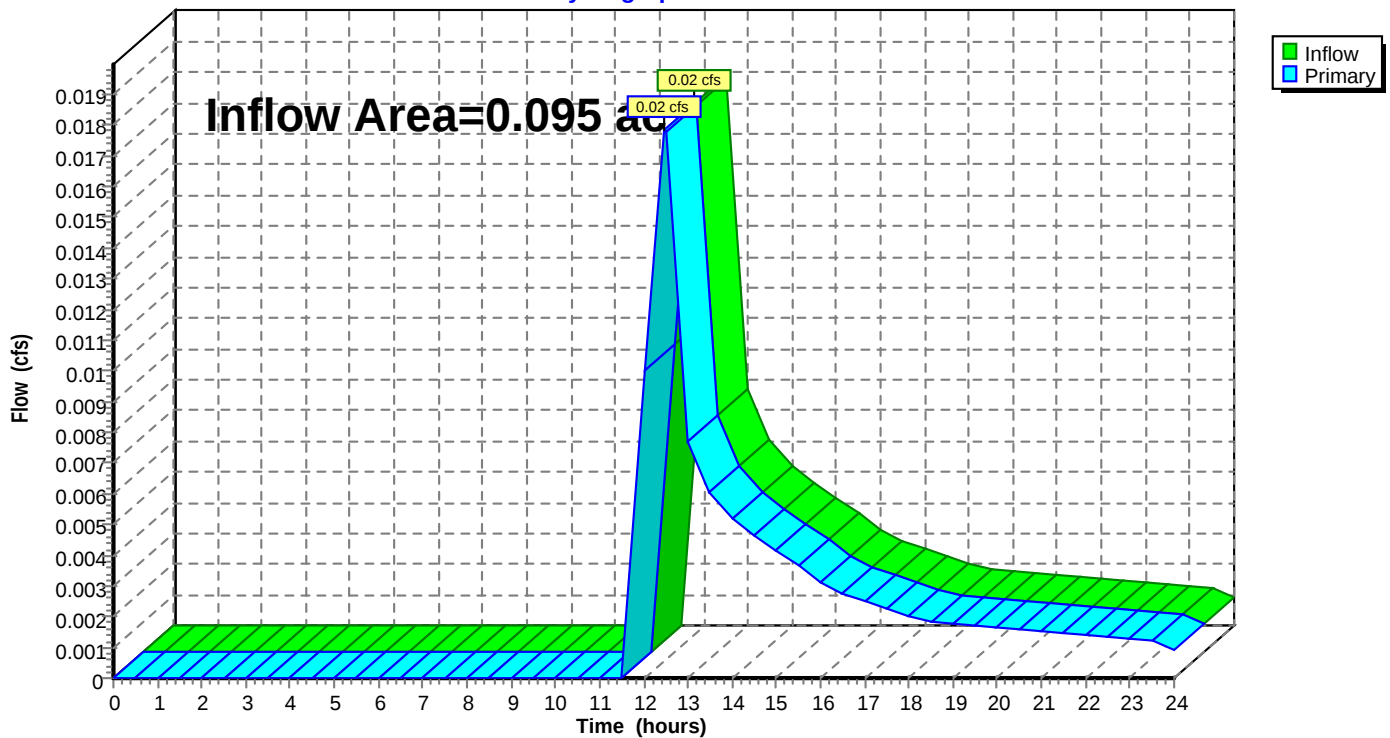


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 0.47" for 2-yr event
Inflow = 0.02 cfs @ 12.47 hrs, Volume= 0.004 af
Primary = 0.02 cfs @ 12.47 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane**Hydrograph**

Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 3.03" for 2-yr event
 Inflow = 0.79 cfs @ 12.03 hrs, Volume= 0.109 af
 Outflow = 0.79 cfs @ 12.03 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.79 cfs @ 12.03 hrs, Volume= 0.109 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 61.02' @ 12.03 hrs Surf.Area= 588 sf Storage= 5 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=61.02' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

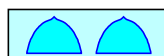
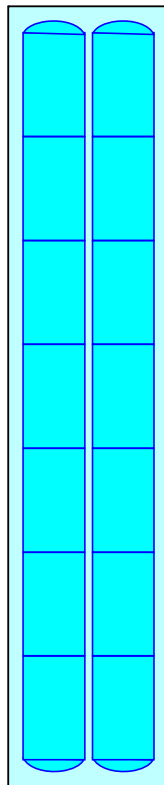
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

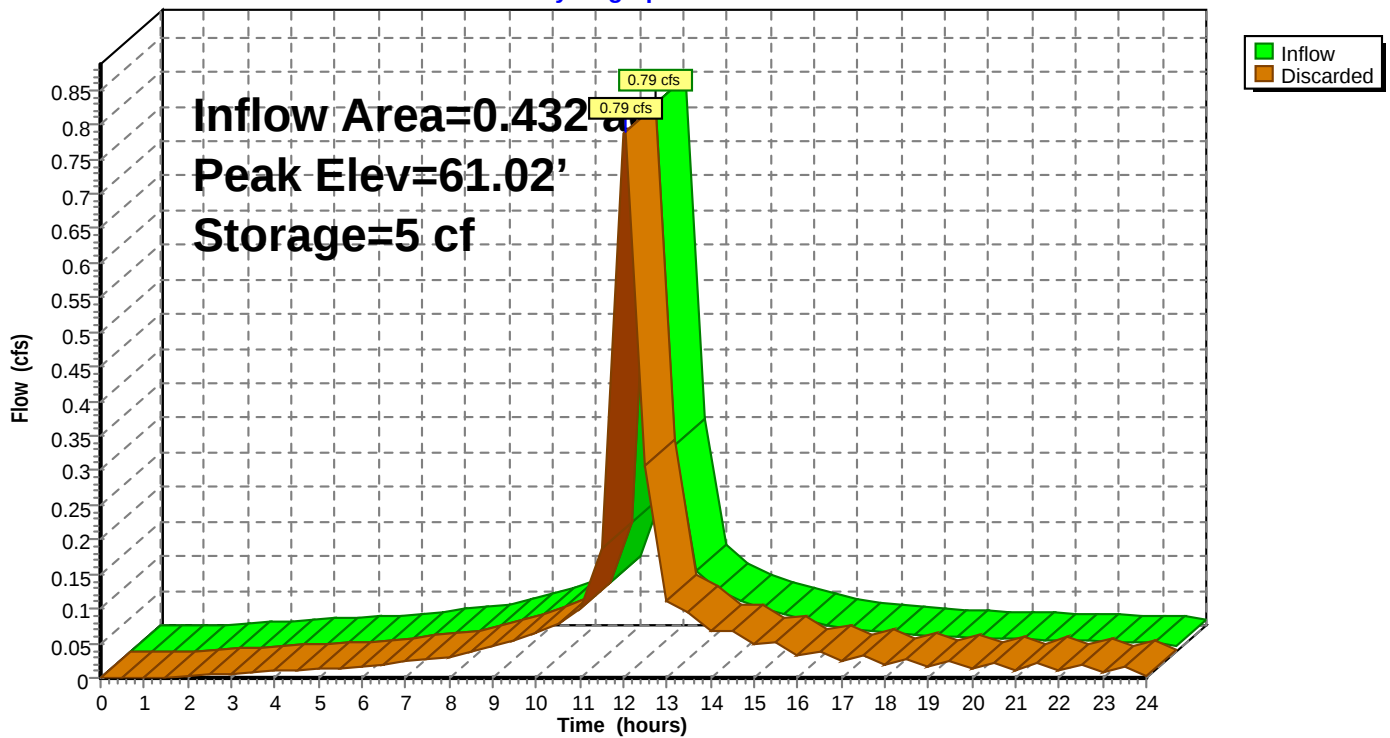
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 3.03" for 2-yr event
 Inflow = 0.63 cfs @ 12.03 hrs, Volume= 0.087 af
 Outflow = 0.63 cfs @ 12.03 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.63 cfs @ 12.03 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 59.02' @ 12.03 hrs Surf.Area= 275 sf Storage= 2 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=59.02' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

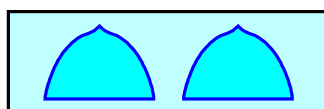
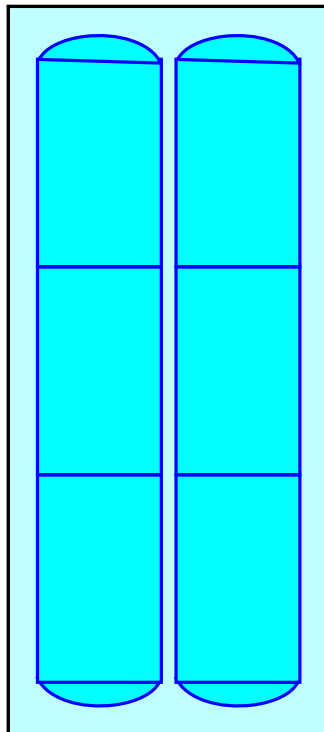
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

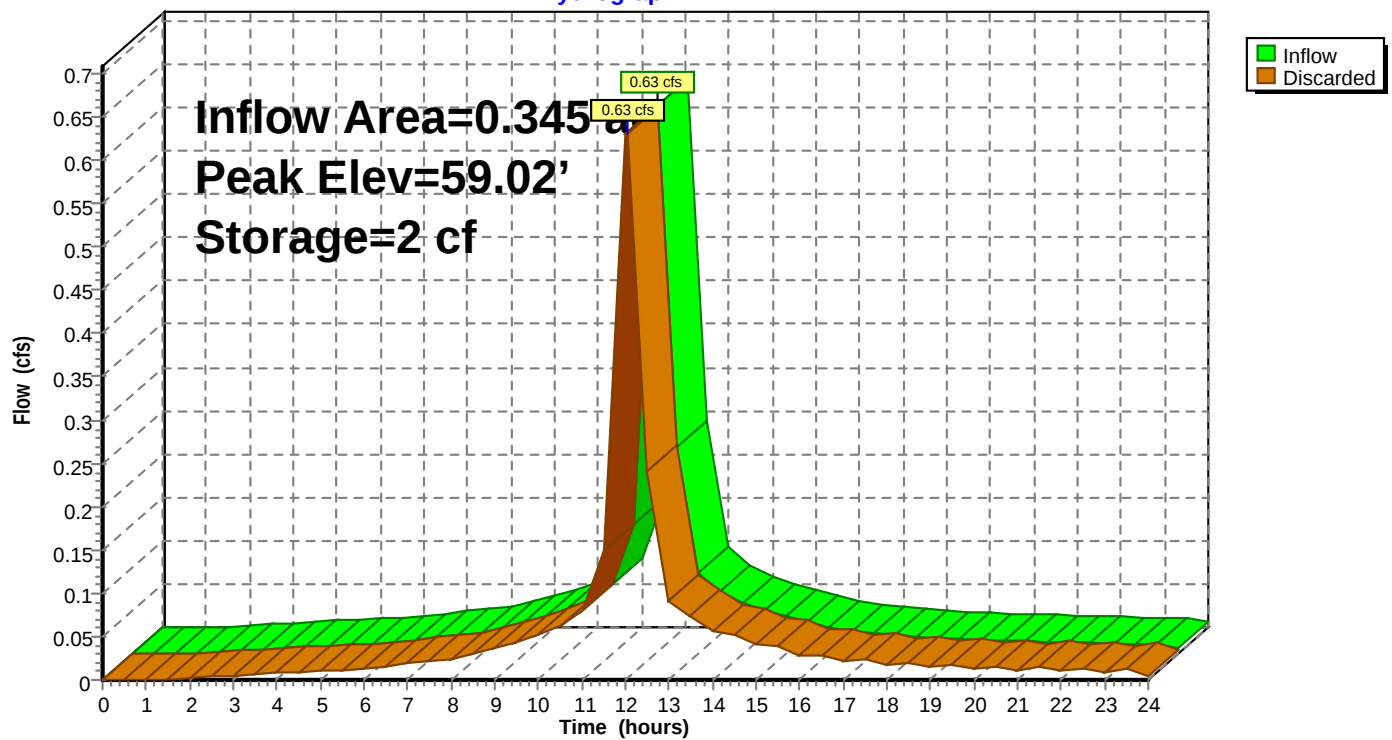
35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph



239 Chritian Lane Berlin Post

Prepared by Inga Consulting Engineers

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Type III 24-hr 5-yr Rainfall=4.08"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear ParkingRunoff Area=8,817 sf 100.00% Impervious Runoff Depth>3.84"
Flow Length=85' Slope=0.0700 '/' Tc=5.0 min CN=98 Runoff=0.47 cfs 0.065 af**SubcatchmentP2: Roof**Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>3.84"
Flow Length=141' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.53 cfs 0.074 af**SubcatchmentP3: Driveway**Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>3.84"
Flow Length=151' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.12 cfs 0.017 af**SubcatchmentP4: Grass**Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=209' Slope=0.0380 '/' Tc=13.5 min CN=61 Runoff=0.02 cfs 0.004 af**SubcatchmentP5: Grass**Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=300' Slope=0.0190 '/' Tc=5.0 min CN=61 Runoff=0.02 cfs 0.003 af**SubcatchmentP6: Front Paking**Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>3.84"
Flow Length=31' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.67 cfs 0.093 af**Pond 1P: Christian Lane**Inflow=0.04 cfs 0.007 af
Primary=0.04 cfs 0.007 af**Pond S1: Rear Storage**Peak Elev=61.03' Storage=7 cf Inflow=1.00 cfs 0.138 af
Outflow=0.99 cfs 0.138 af**Pond S2: Front Storage**Peak Elev=59.02' Storage=2 cf Inflow=0.80 cfs 0.111 af
Outflow=0.79 cfs 0.110 af**Total Runoff Area = 0.872 ac Runoff Volume = 0.256 af Average Runoff Depth = 3.52"**
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

Summary for Subcatchment P1: Rear Parking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 0.065 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

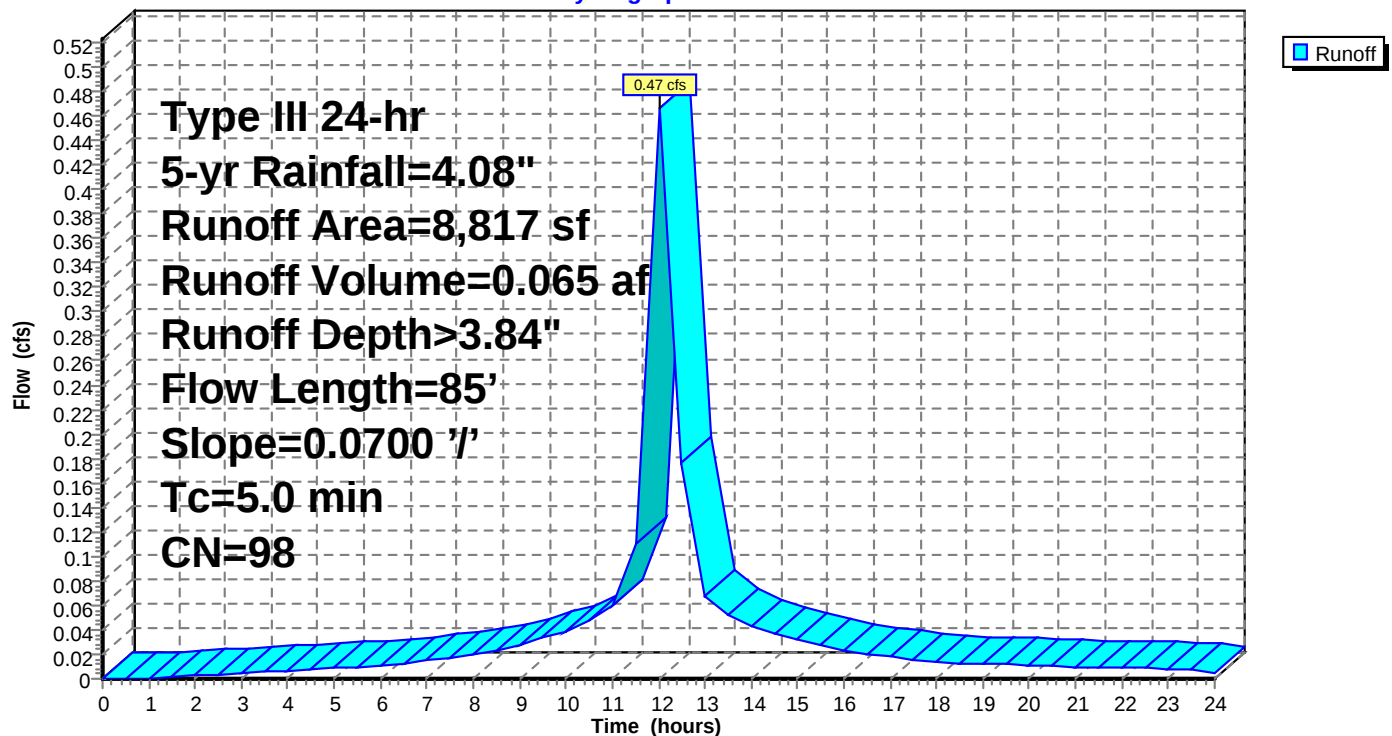
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking

Hydrograph



Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 0.074 af, Depth> 3.84"

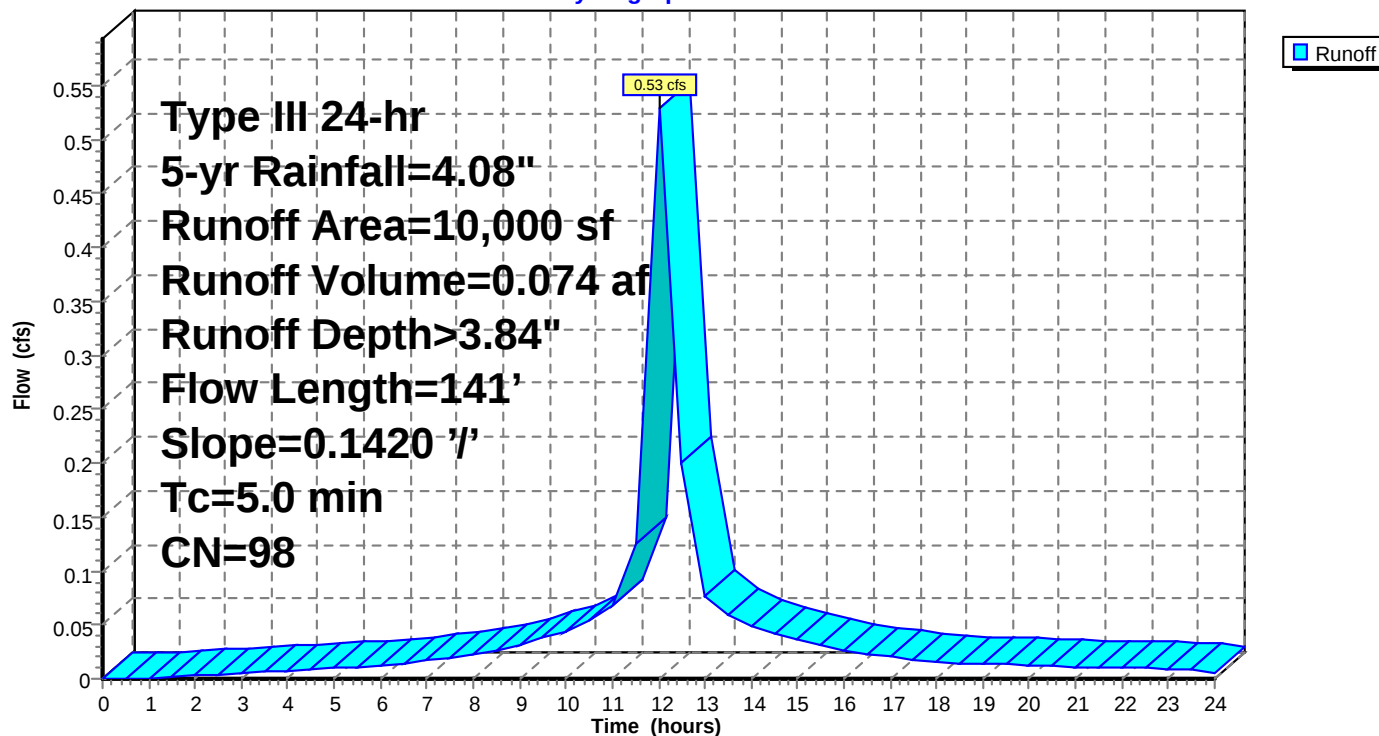
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Hydrograph



Summary for Subcatchment P3: Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 0.017 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

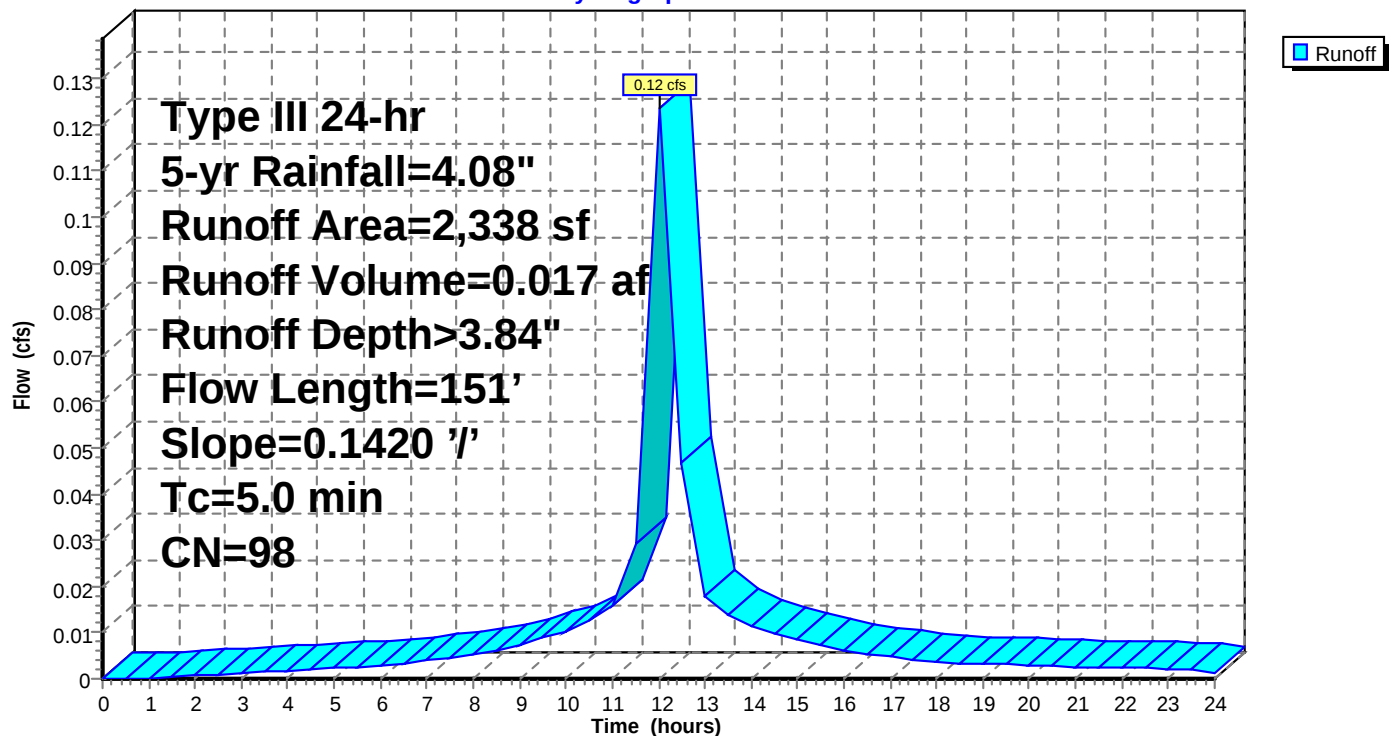
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway

Hydrograph



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Prepared by Inga Consulting Engineers

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Type III 24-hr 5-yr Rainfall=4.08"

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Summary for Subcatchment P4: Grass

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

Runoff = 0.02 cfs @ 12.44 hrs, Volume= 0.004 af, Depth> 0.85"

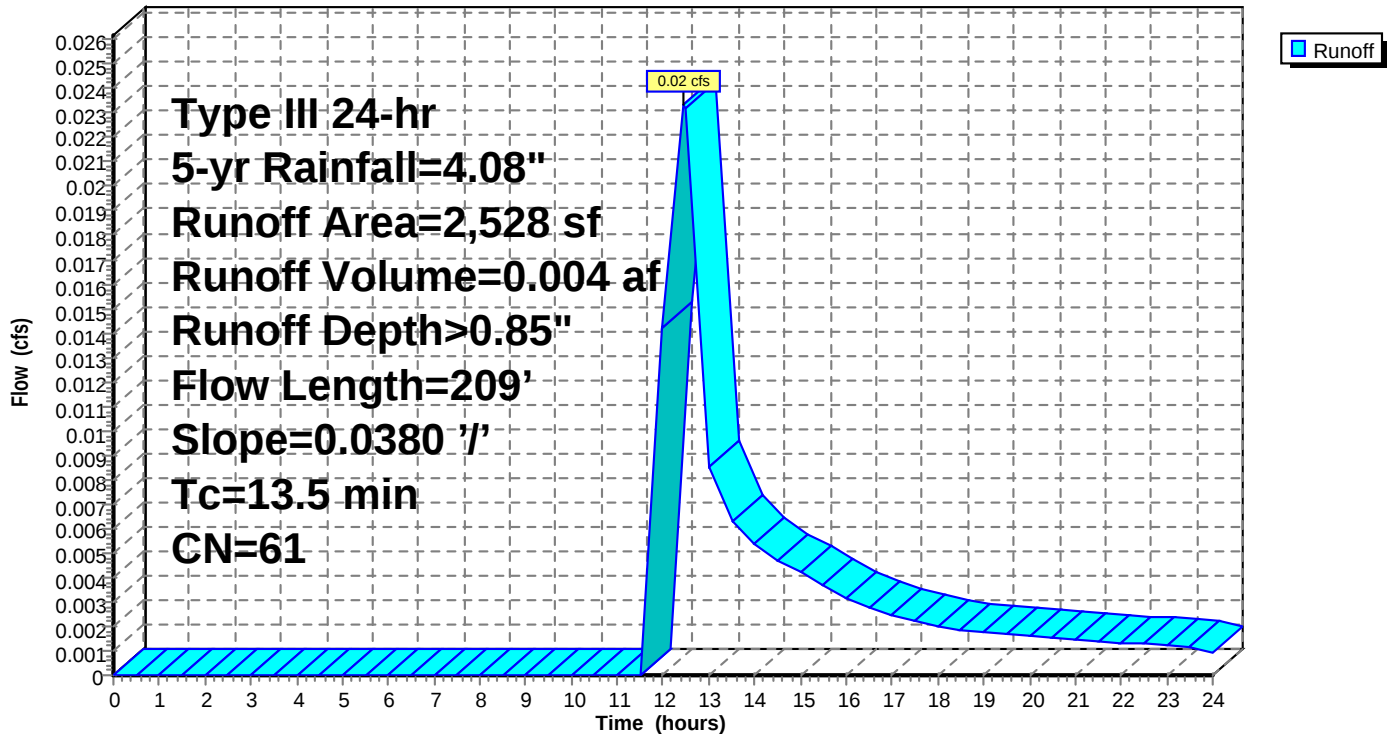
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



Summary for Subcatchment P5: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.003 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

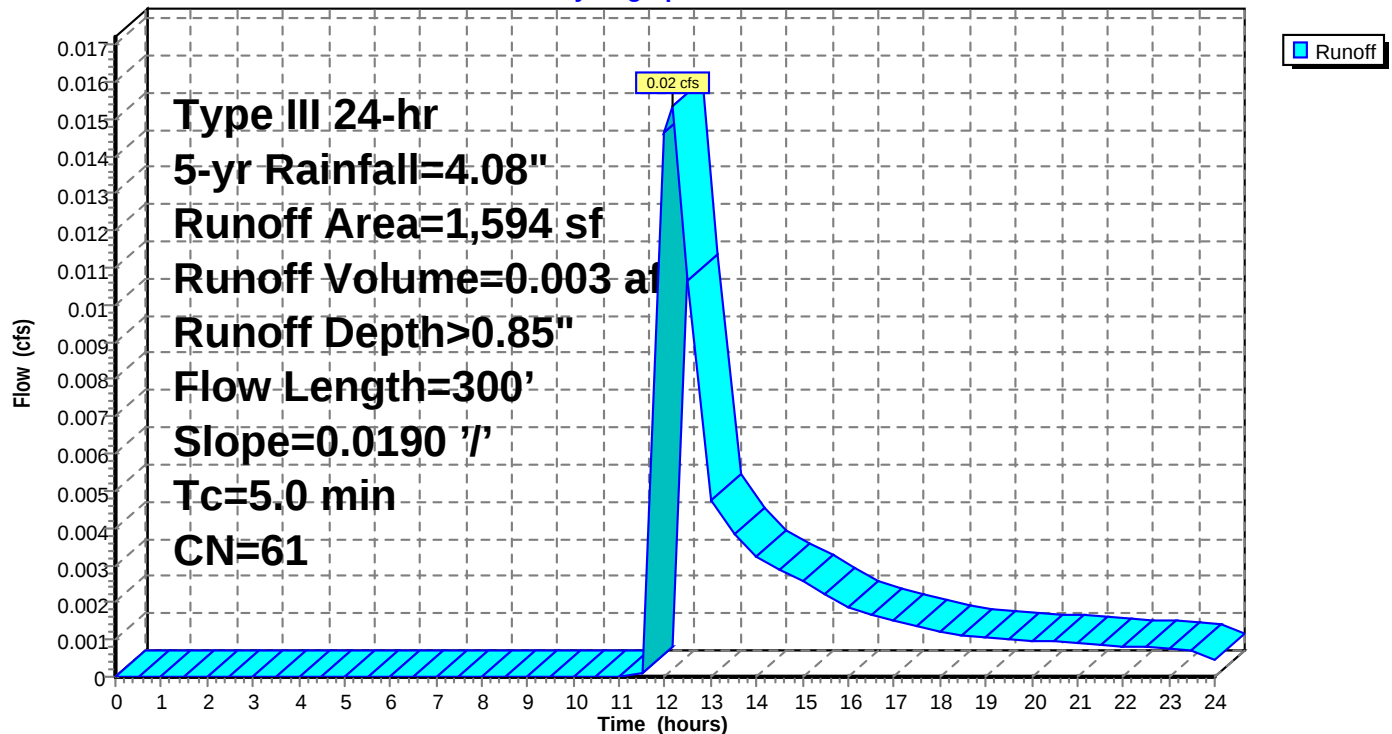
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



Summary for Subcatchment P6: Front Paking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.67 cfs @ 12.03 hrs, Volume= 0.093 af, Depth> 3.84"

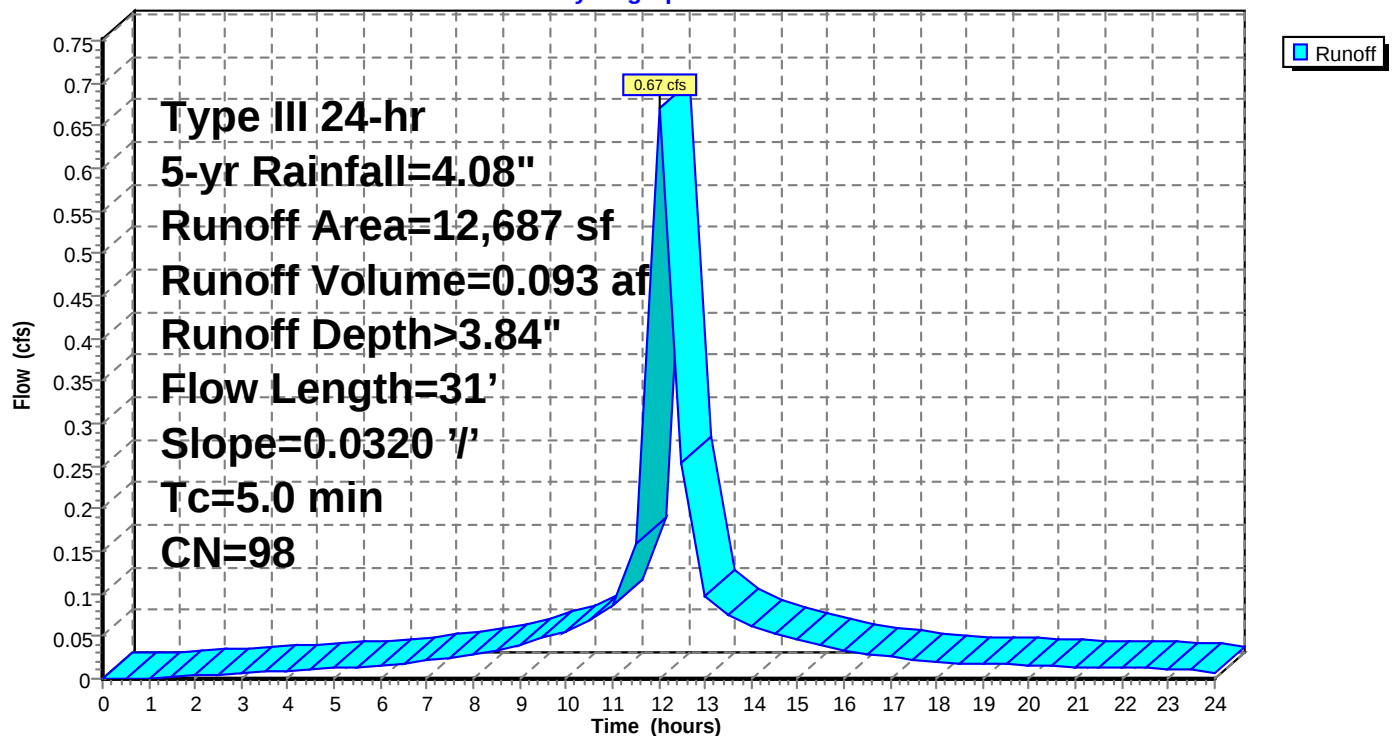
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 5-yr Rainfall=4.08"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P6: Front Paking

Hydrograph

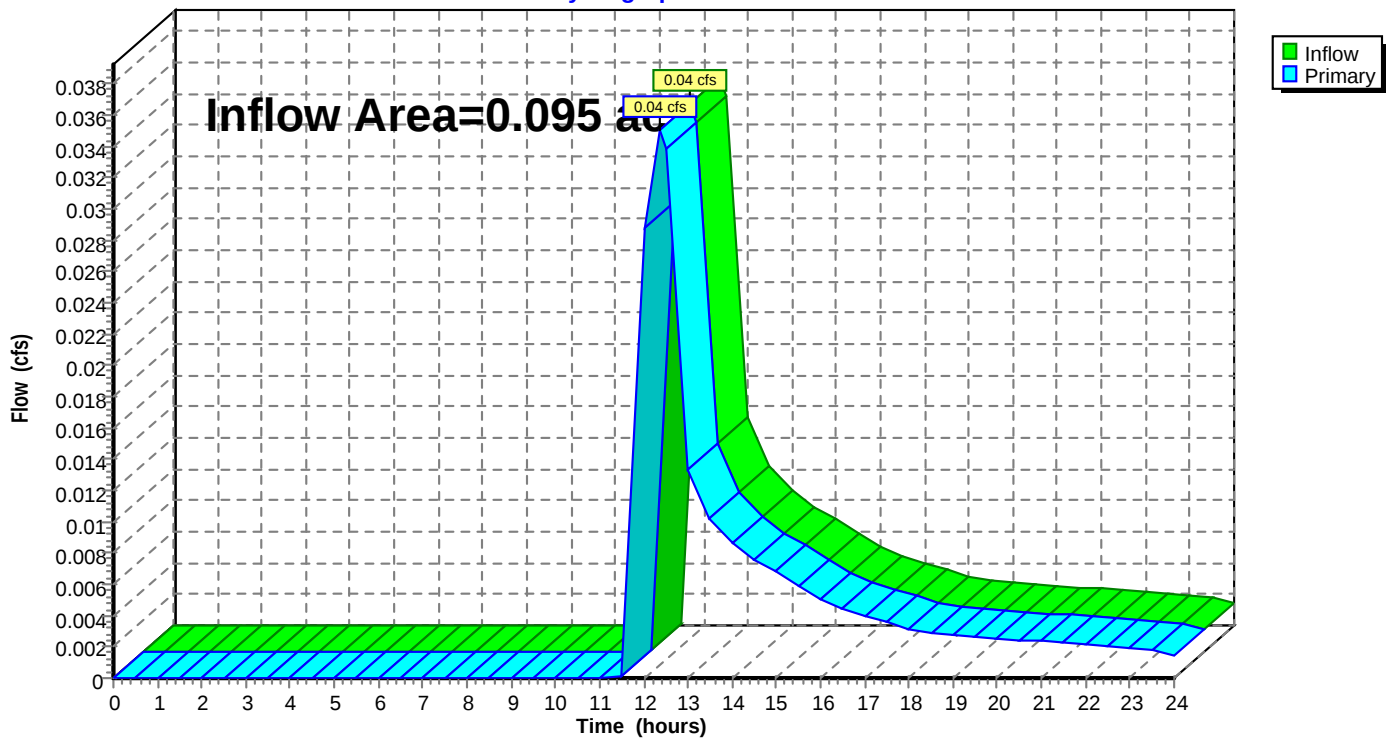


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 0.85" for 5-yr event
Inflow = 0.04 cfs @ 12.35 hrs, Volume= 0.007 af
Primary = 0.04 cfs @ 12.35 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane**Hydrograph**

Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 3.84" for 5-yr event
 Inflow = 1.00 cfs @ 12.03 hrs, Volume= 0.138 af
 Outflow = 0.99 cfs @ 12.03 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.99 cfs @ 12.03 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 61.03' @ 12.03 hrs Surf.Area= 588 sf Storage= 7 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=61.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

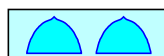
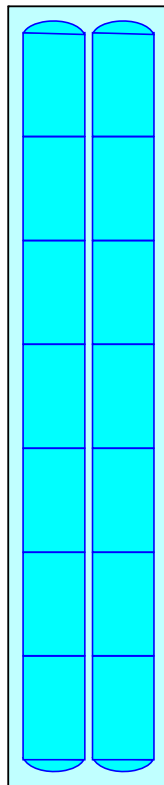
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

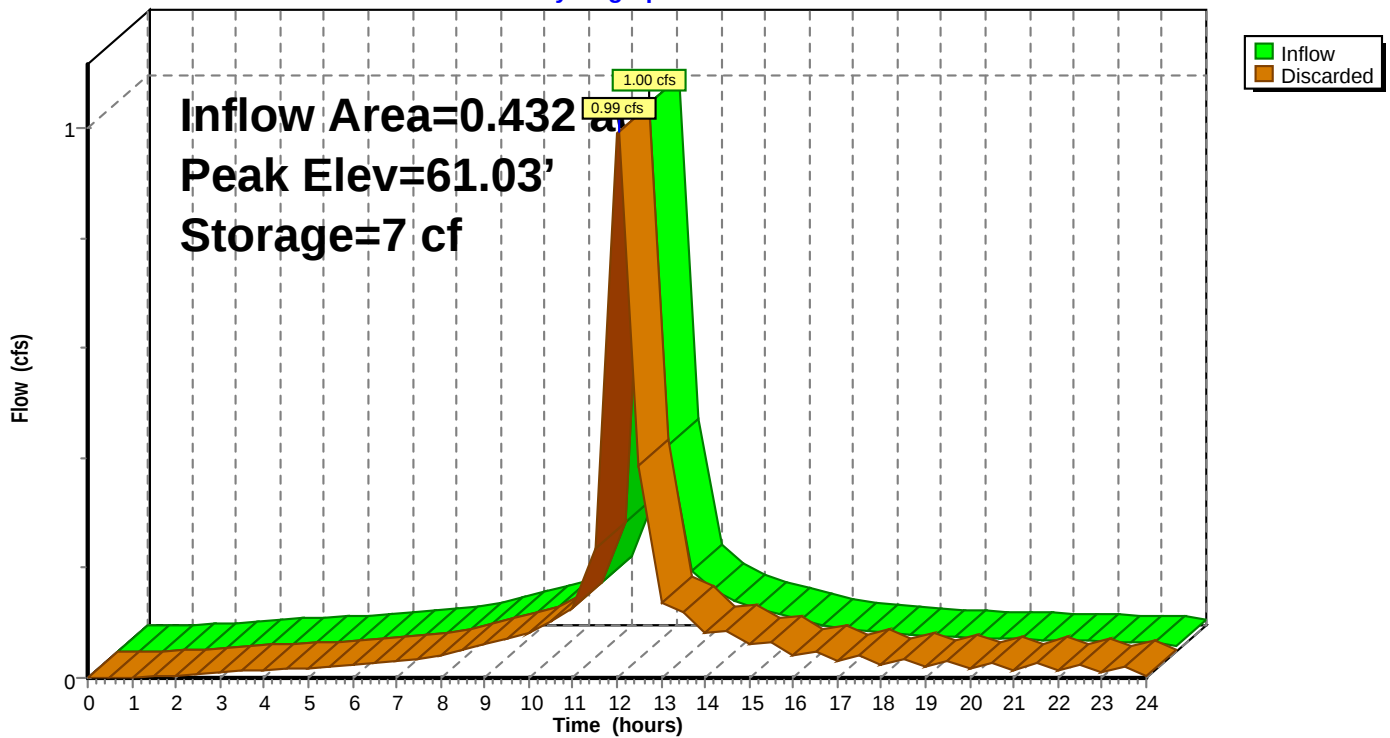
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 3.84" for 5-yr event
 Inflow = 0.80 cfs @ 12.03 hrs, Volume= 0.111 af
 Outflow = 0.79 cfs @ 12.03 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.79 cfs @ 12.03 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 59.02' @ 12.03 hrs Surf.Area= 275 sf Storage= 2 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=59.02' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

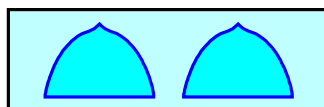
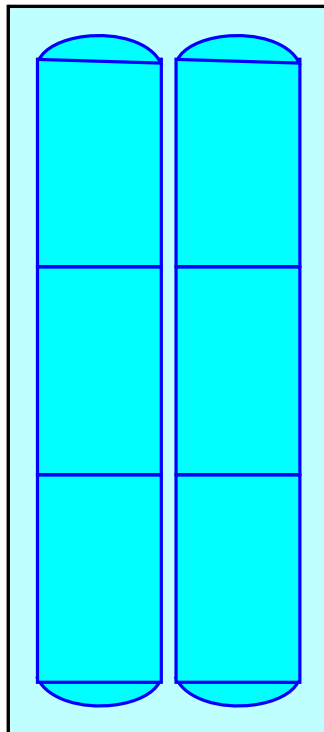
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

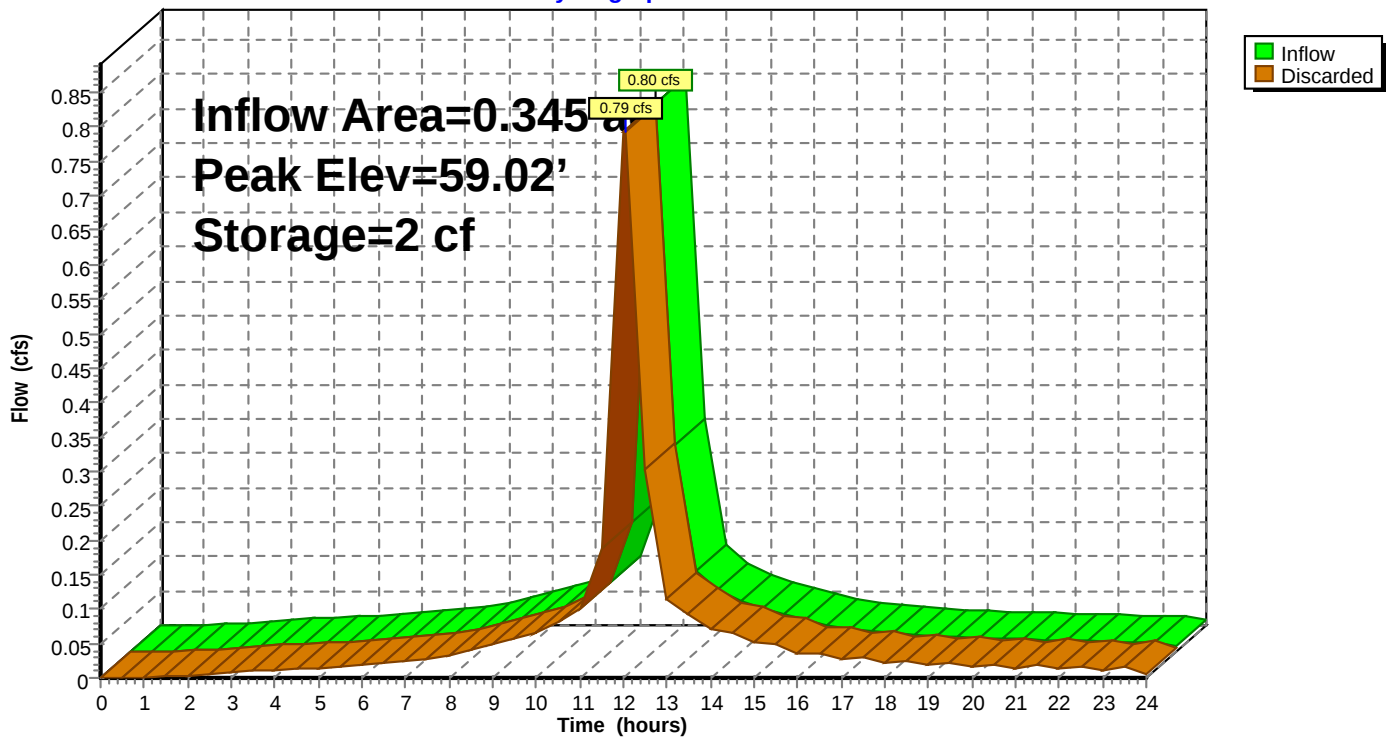
35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph



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Prepared by Inga Consulting Engineers

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Type III 24-hr 10-yr Rainfall=4.84"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear ParkingRunoff Area=8,817 sf 100.00% Impervious Runoff Depth>4.60"
Flow Length=85' Slope=0.0700 '/' Tc=5.0 min CN=98 Runoff=0.56 cfs 0.078 af**SubcatchmentP2: Roof**Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>4.60"
Flow Length=141' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.63 cfs 0.088 af**SubcatchmentP3: Driveway**Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>4.60"
Flow Length=151' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.15 cfs 0.021 af**SubcatchmentP4: Grass**Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>1.27"
Flow Length=209' Slope=0.0380 '/' Tc=13.5 min CN=61 Runoff=0.04 cfs 0.006 af**SubcatchmentP5: Grass**Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>1.27"
Flow Length=300' Slope=0.0190 '/' Tc=5.0 min CN=61 Runoff=0.03 cfs 0.004 af**SubcatchmentP6: Front Paking**Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>4.60"
Flow Length=31' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=0.80 cfs 0.112 af**Pond 1P: Christian Lane**Inflow=0.06 cfs 0.010 af
Primary=0.06 cfs 0.010 af**Pond S1: Rear Storage**Peak Elev=61.03' Storage=8 cf Inflow=1.19 cfs 0.166 af
Outflow=1.18 cfs 0.166 af**Pond S2: Front Storage**Peak Elev=59.03' Storage=3 cf Inflow=0.95 cfs 0.132 af
Outflow=0.94 cfs 0.132 af**Total Runoff Area = 0.872 ac Runoff Volume = 0.308 af Average Runoff Depth = 4.24"**
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

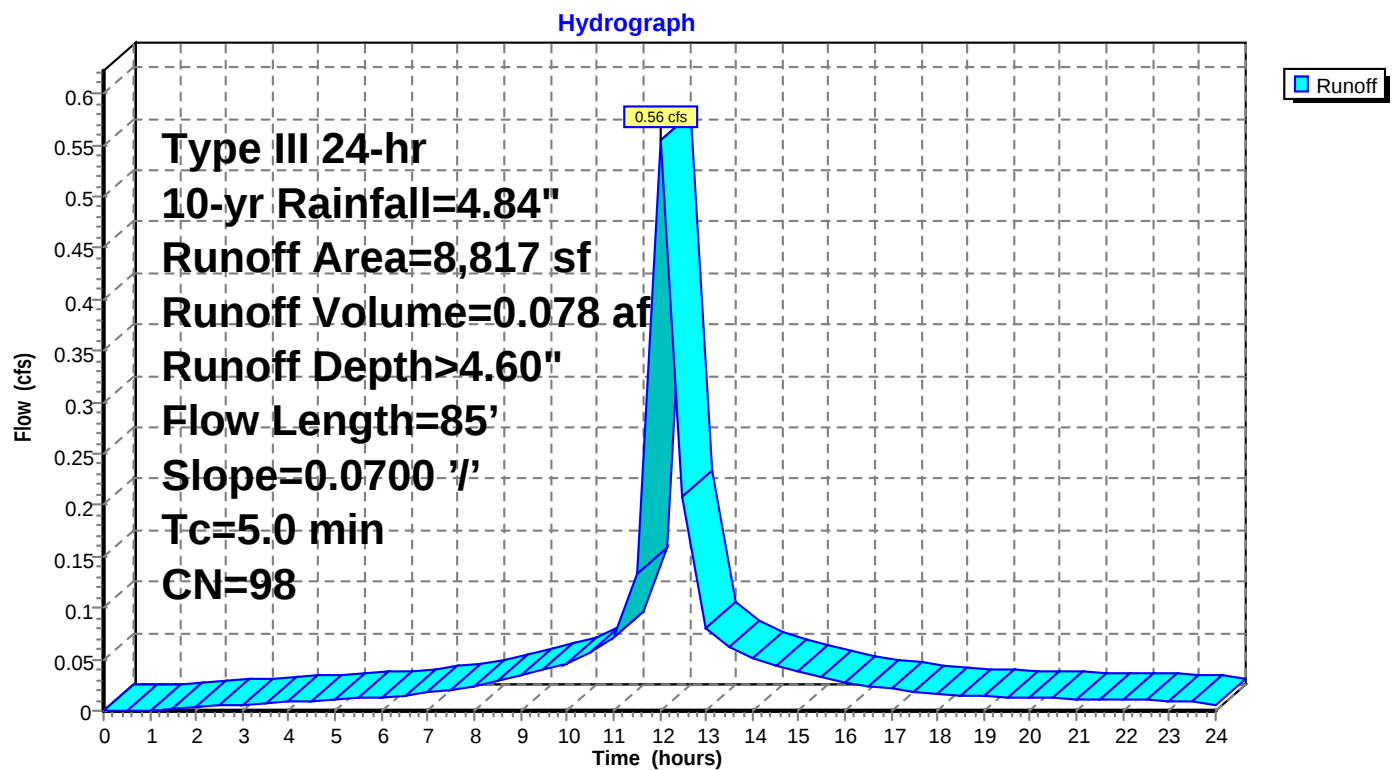
Summary for Subcatchment P1: Rear Parking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.56 cfs @ 12.02 hrs, Volume= 0.078 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking

Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.63 cfs @ 12.02 hrs, Volume= 0.088 af, Depth> 4.60"

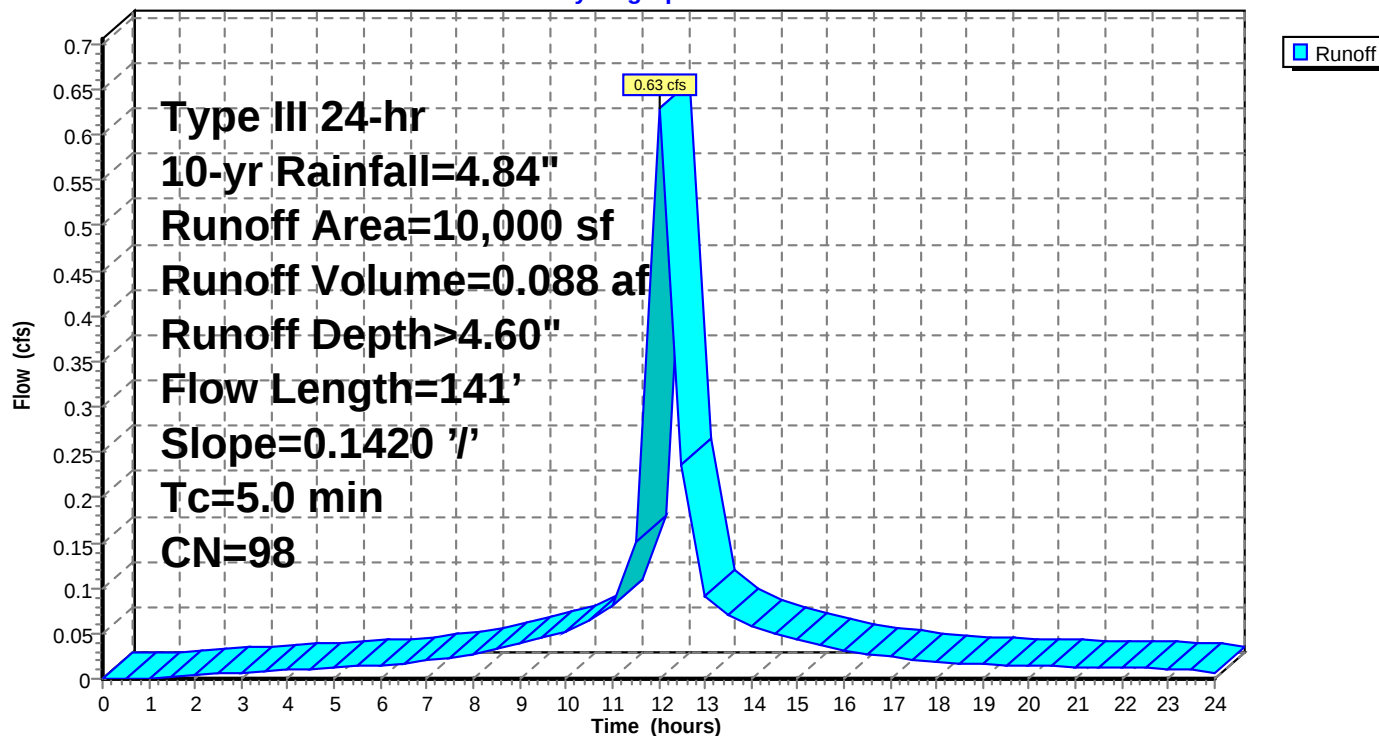
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Hydrograph



Summary for Subcatchment P3: Driveway

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

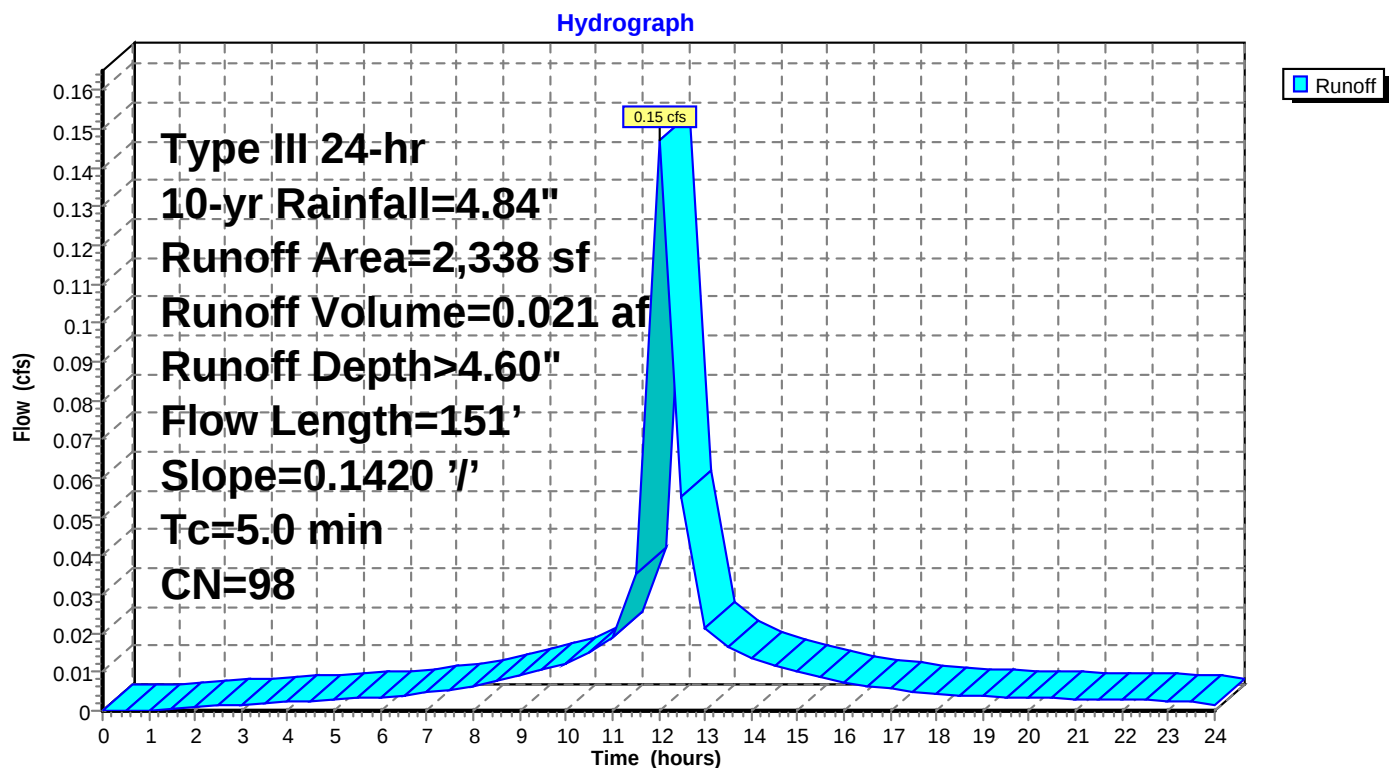
Runoff = 0.15 cfs @ 12.02 hrs, Volume= 0.021 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway



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Prepared by Inga Consulting Engineers

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Type III 24-hr 10-yr Rainfall=4.84"

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Summary for Subcatchment P4: Grass

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

Runoff = 0.04 cfs @ 12.39 hrs, Volume= 0.006 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

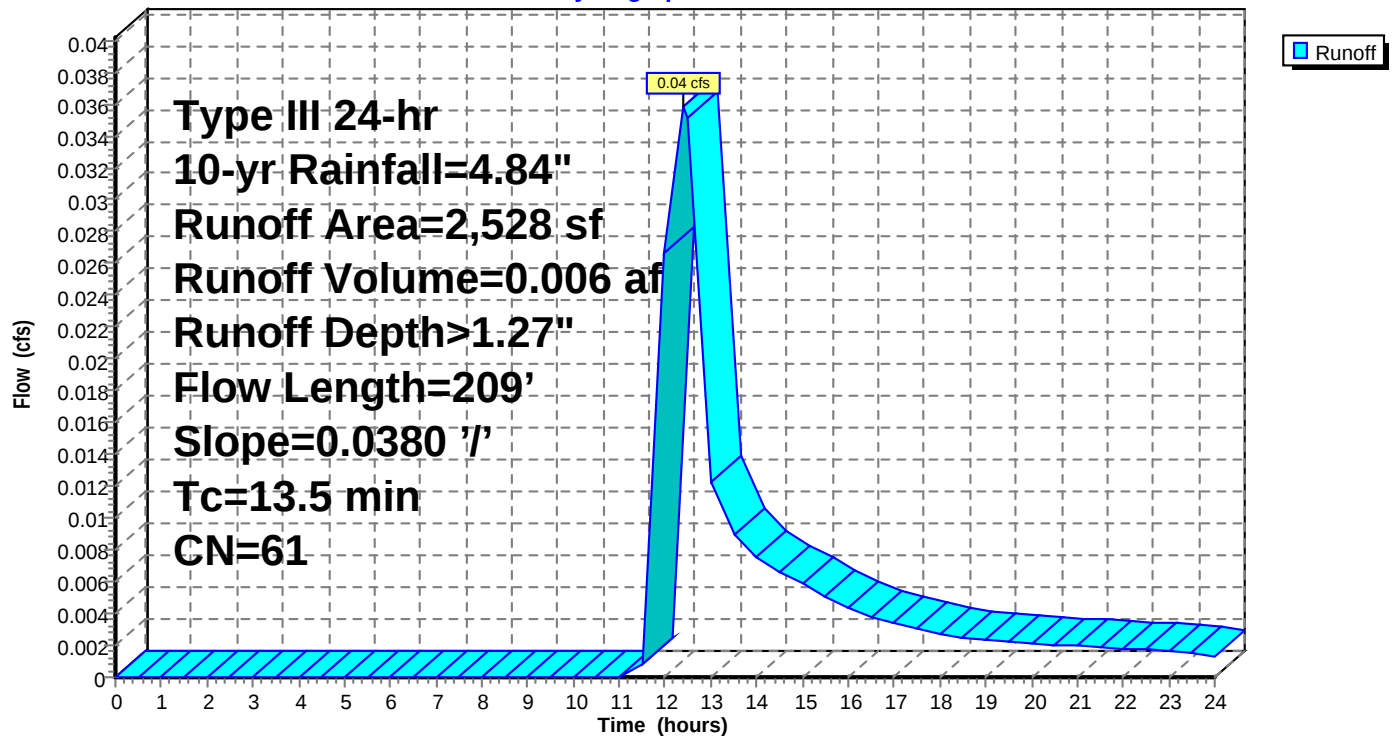
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



Summary for Subcatchment P5: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.03 cfs @ 12.11 hrs, Volume= 0.004 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

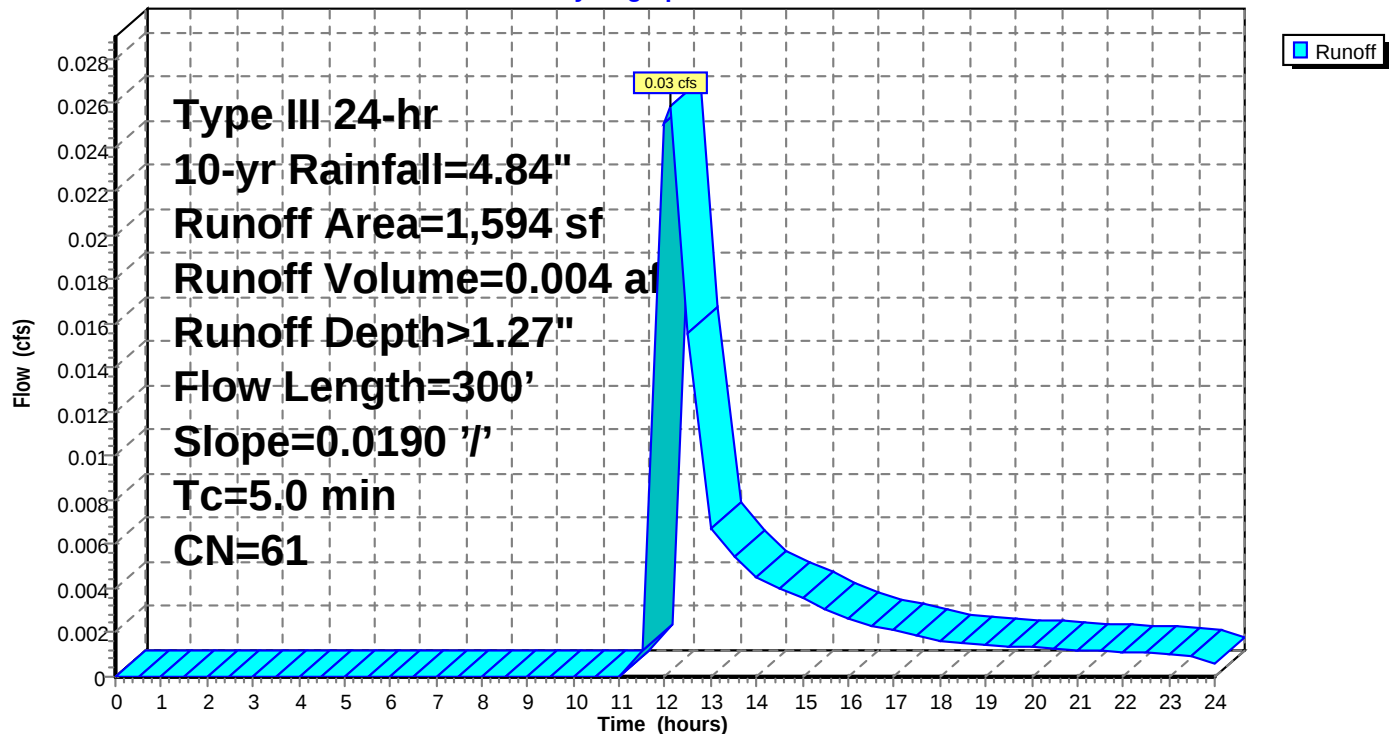
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



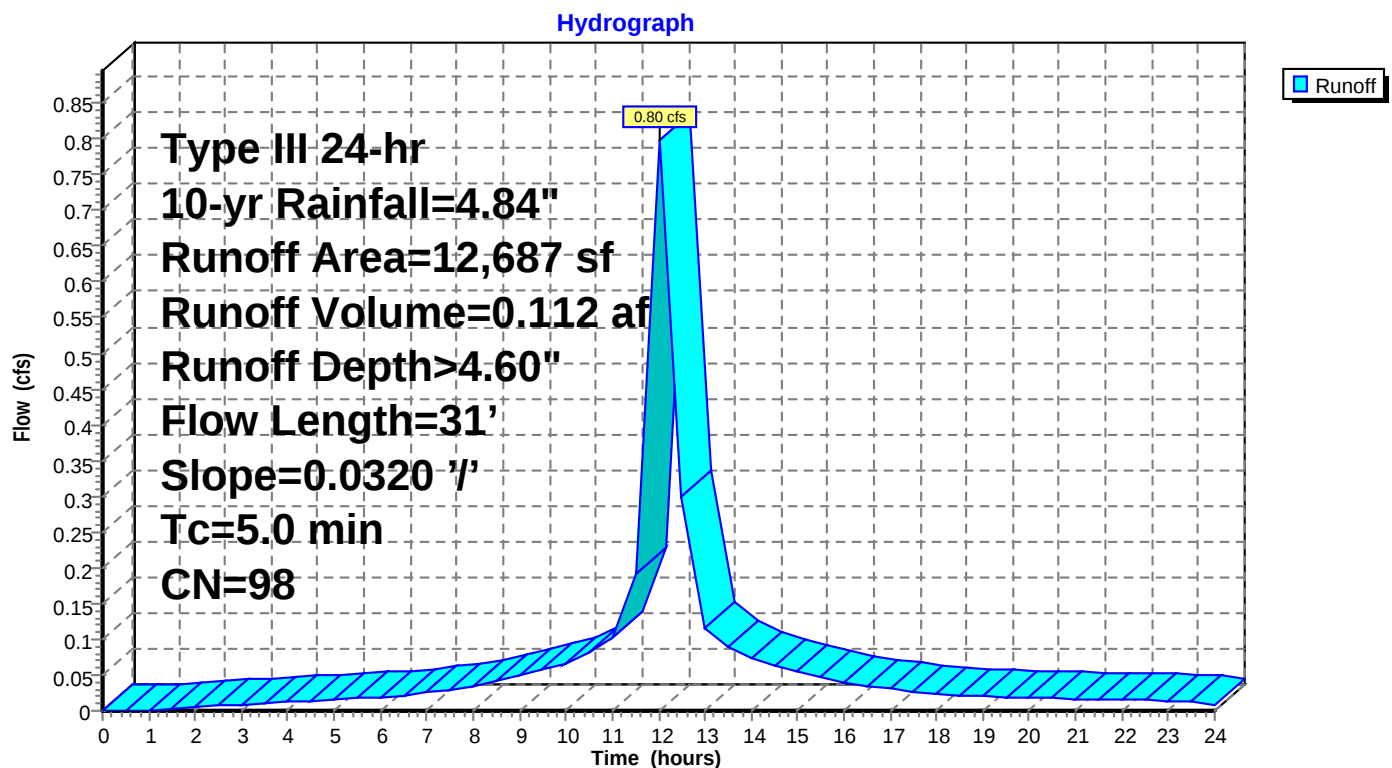
Summary for Subcatchment P6: Front Paking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.80 cfs @ 12.02 hrs, Volume= 0.112 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 10-yr Rainfall=4.84"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Paking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

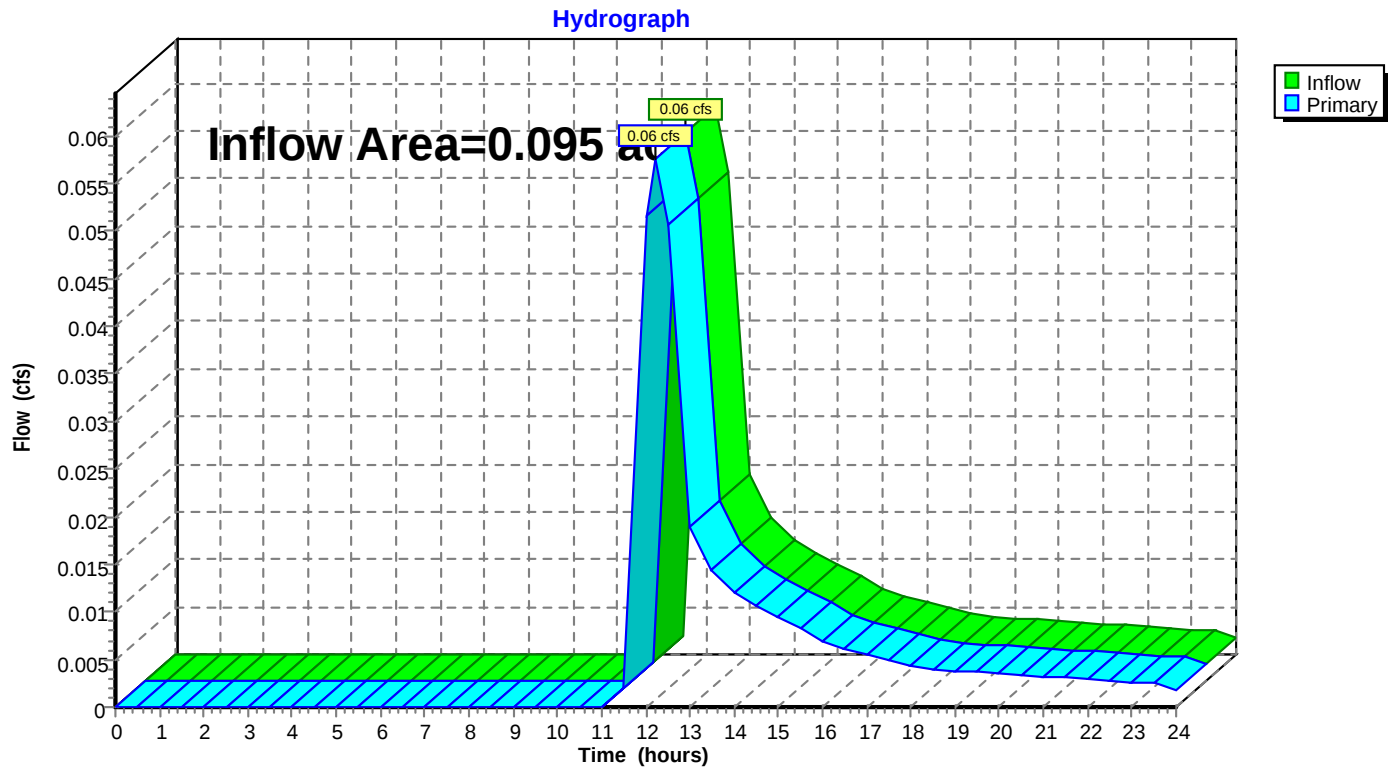
Subcatchment P6: Front Paking

Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 1.27" for 10-yr event
Inflow = 0.06 cfs @ 12.24 hrs, Volume= 0.010 af
Primary = 0.06 cfs @ 12.24 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane

Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 4.60" for 10-yr event
 Inflow = 1.19 cfs @ 12.02 hrs, Volume= 0.166 af
 Outflow = 1.18 cfs @ 12.03 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.1 min
 Discarded = 1.18 cfs @ 12.03 hrs, Volume= 0.166 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Peak Elev= 61.03' @ 12.03 hrs Surf.Area= 588 sf Storage= 8 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)

Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=61.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

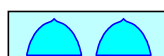
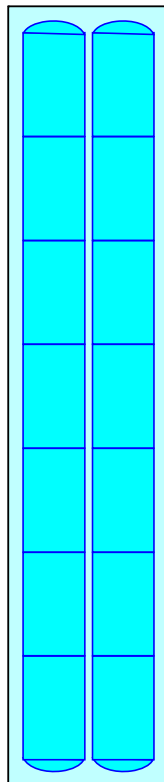
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

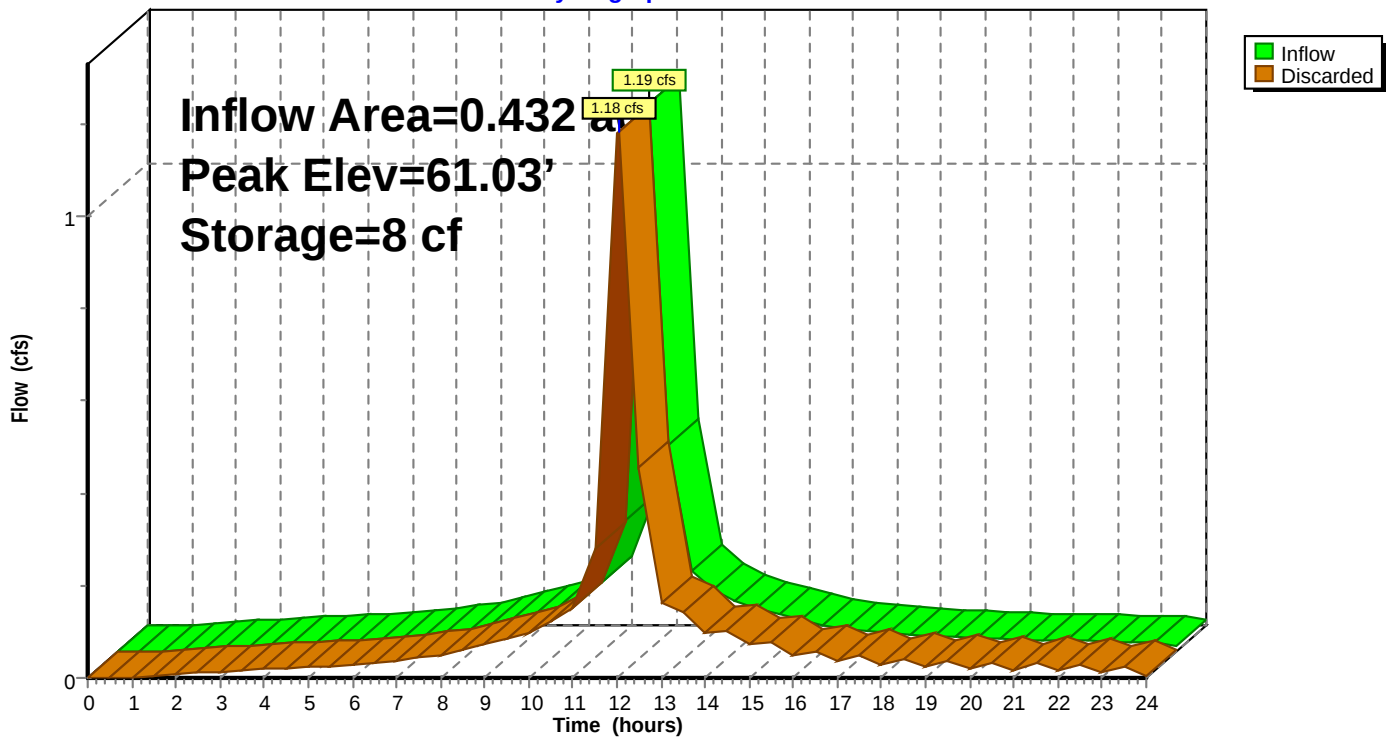
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 4.60" for 10-yr event
 Inflow = 0.95 cfs @ 12.02 hrs, Volume= 0.132 af
 Outflow = 0.94 cfs @ 12.03 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.94 cfs @ 12.03 hrs, Volume= 0.132 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 59.03' @ 12.03 hrs Surf.Area= 275 sf Storage= 3 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=59.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

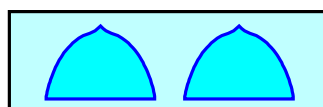
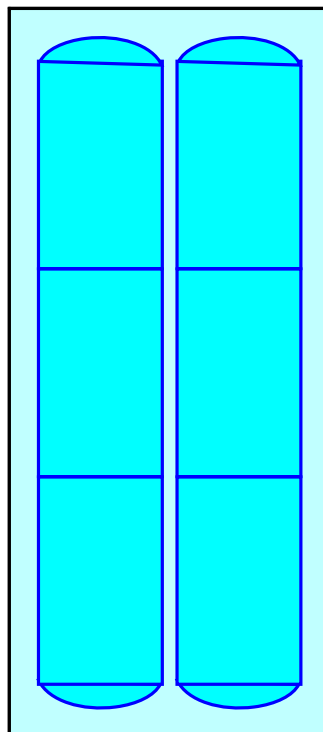
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

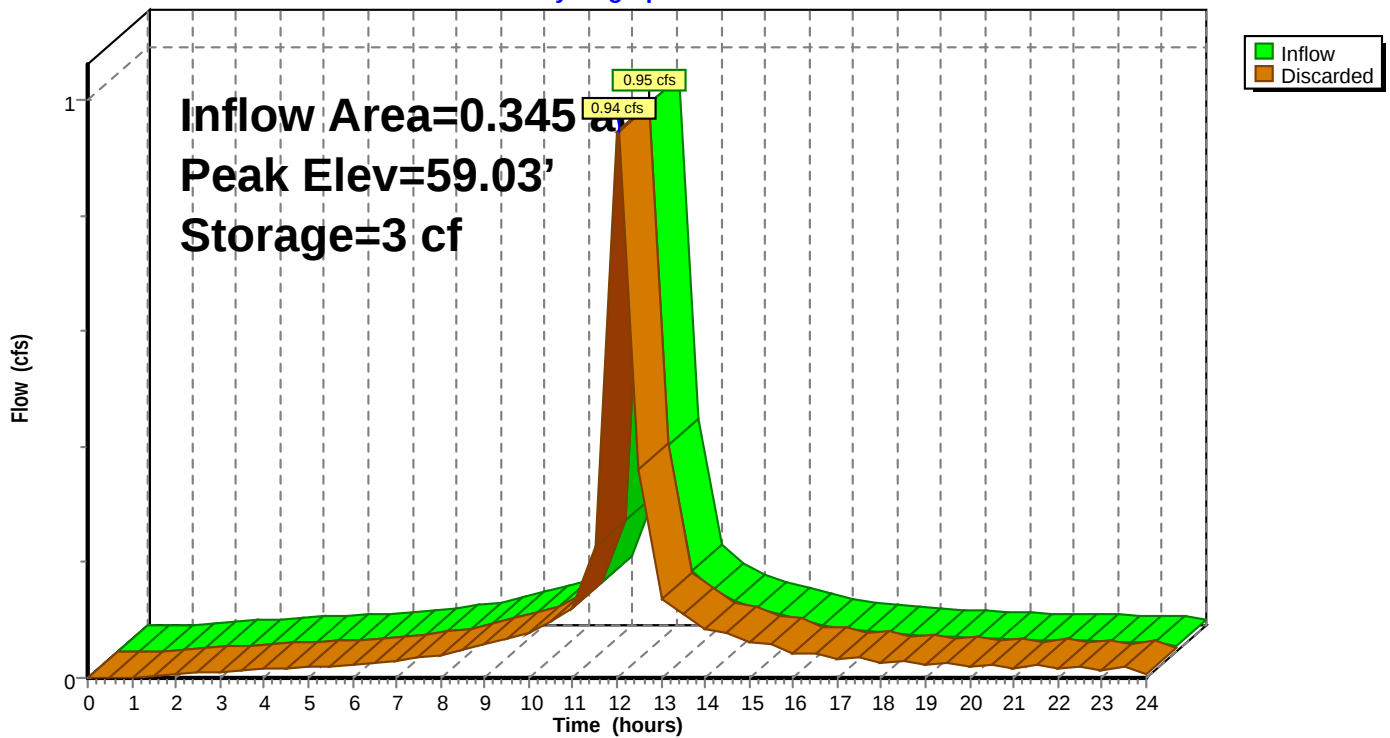
35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph



239 Chritian Lane Berlin Post

Prepared by Inga Consulting Engineers

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Type III 24-hr 25-yr Rainfall=6.07"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear Parking

Runoff Area=8,817 sf 100.00% Impervious Runoff Depth>5.83"
Flow Length=85' Slope=0.0700 '/' Tc=5.0 min CN=98 Runoff=0.70 cfs 0.098 af

SubcatchmentP2: Roof

Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>5.83"
Flow Length=141' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.79 cfs 0.112 af

SubcatchmentP3: Driveway

Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>5.83"
Flow Length=151' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.19 cfs 0.026 af

SubcatchmentP4: Grass

Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>2.05"
Flow Length=209' Slope=0.0380 '/' Tc=13.5 min CN=61 Runoff=0.06 cfs 0.010 af

SubcatchmentP5: Grass

Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>2.05"
Flow Length=300' Slope=0.0190 '/' Tc=5.0 min CN=61 Runoff=0.05 cfs 0.006 af

SubcatchmentP6: Front Paking

Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>5.83"
Flow Length=31' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=1.00 cfs 0.142 af

Pond 1P: Christian Lane

Inflow=0.10 cfs 0.016 af
Primary=0.10 cfs 0.016 af

Pond S1: Rear Storage

Peak Elev=61.72' Storage=218 cf Inflow=1.49 cfs 0.210 af
Outflow=1.30 cfs 0.218 af

Pond S2: Front Storage

Peak Elev=59.03' Storage=4 cf Inflow=1.19 cfs 0.168 af
Outflow=1.19 cfs 0.168 af

Total Runoff Area = 0.872 ac Runoff Volume = 0.394 af Average Runoff Depth = 5.42"
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

Summary for Subcatchment P1: Rear Parking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.70 cfs @ 12.02 hrs, Volume= 0.098 af, Depth> 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

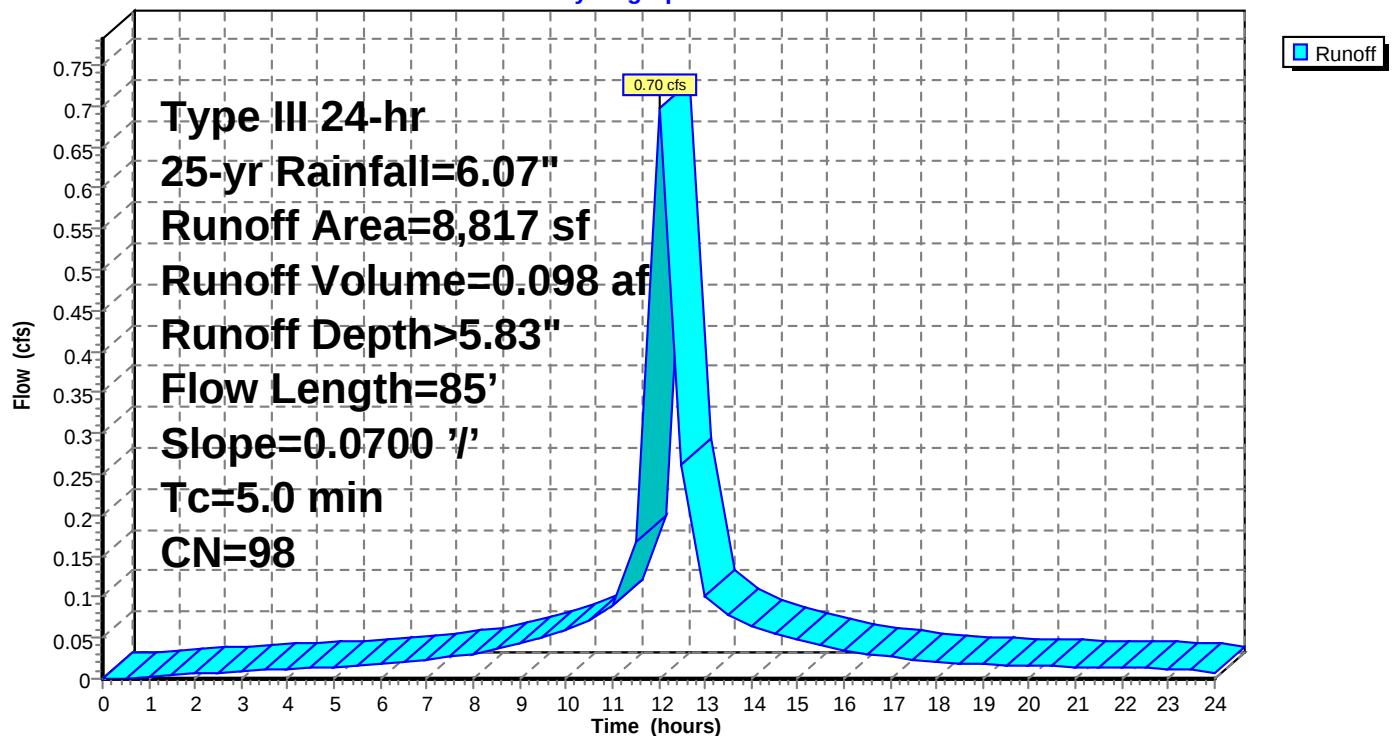
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking

Hydrograph



Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.79 cfs @ 12.02 hrs, Volume= 0.112 af, Depth> 5.83"

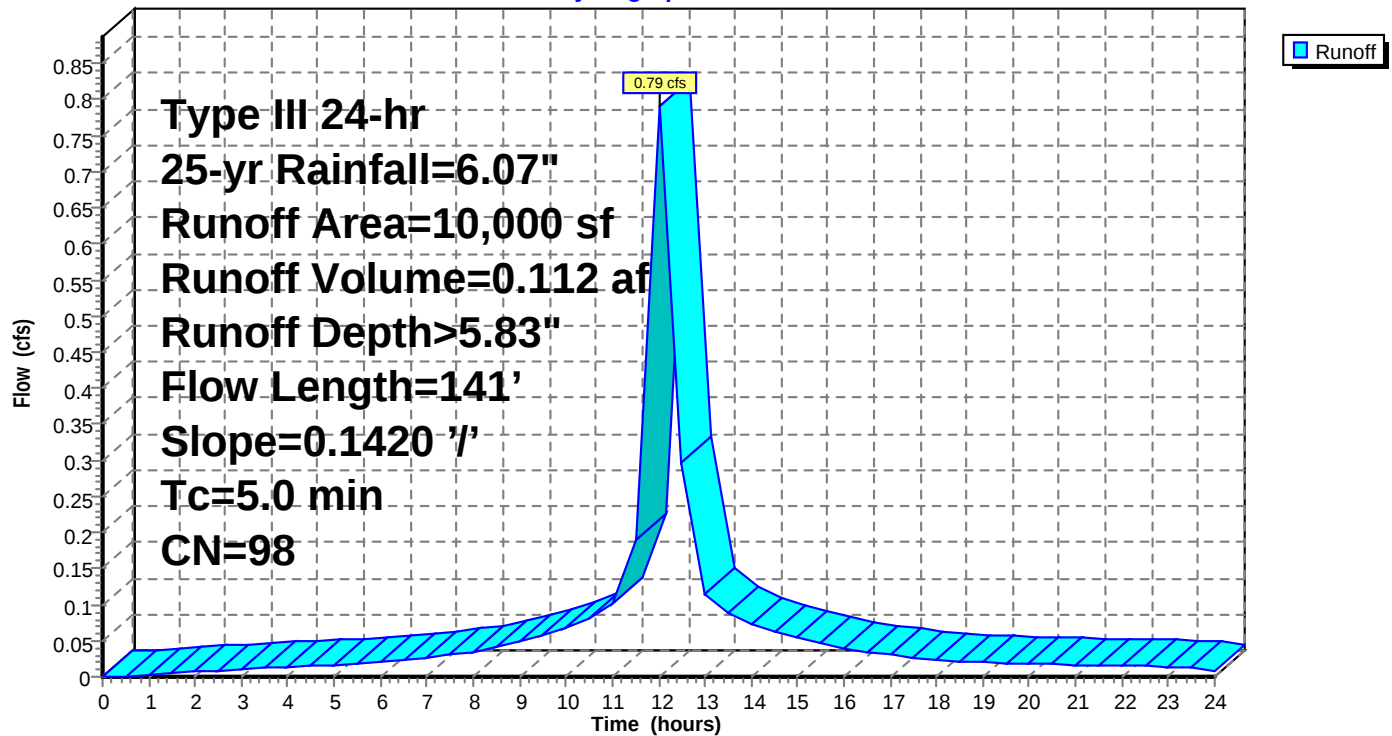
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Hydrograph



Summary for Subcatchment P3: Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.19 cfs @ 12.02 hrs, Volume= 0.026 af, Depth> 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

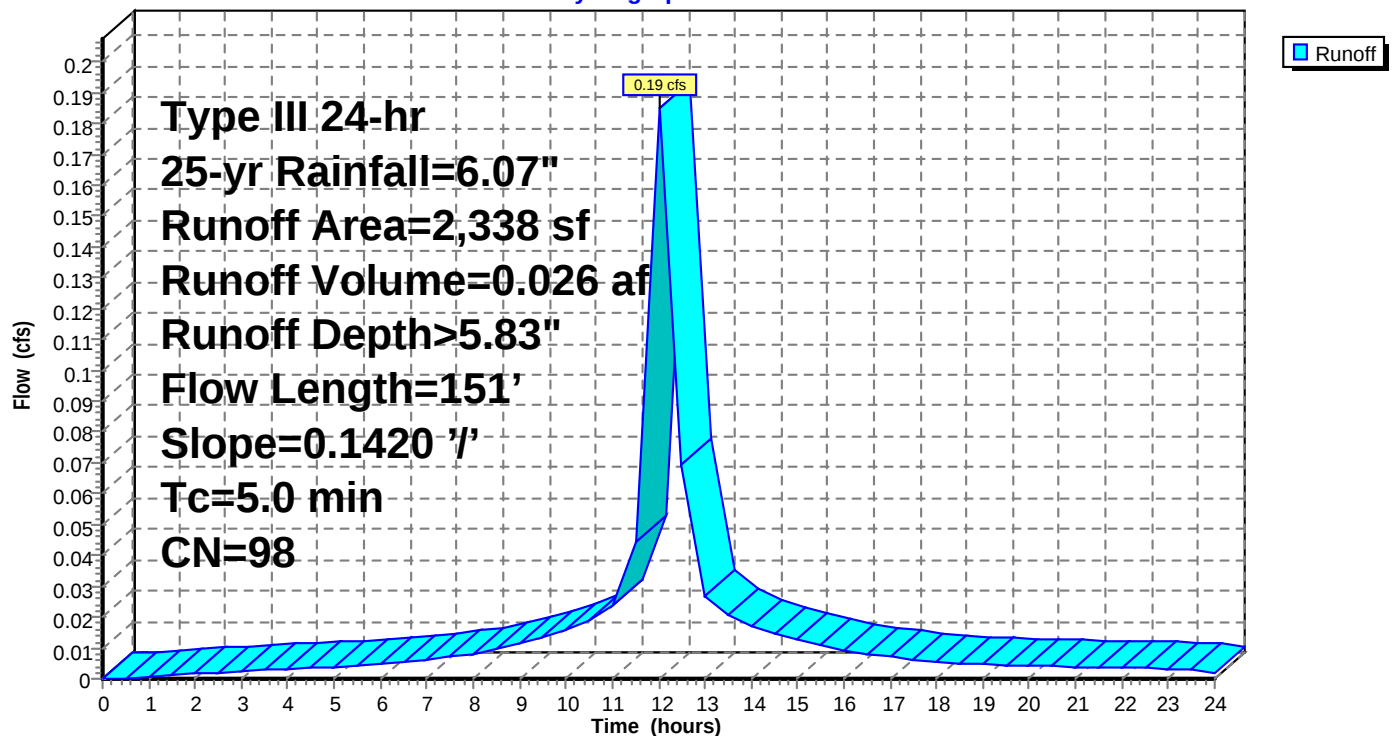
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway

Hydrograph



Summary for Subcatchment P4: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.06 cfs @ 12.32 hrs, Volume= 0.010 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

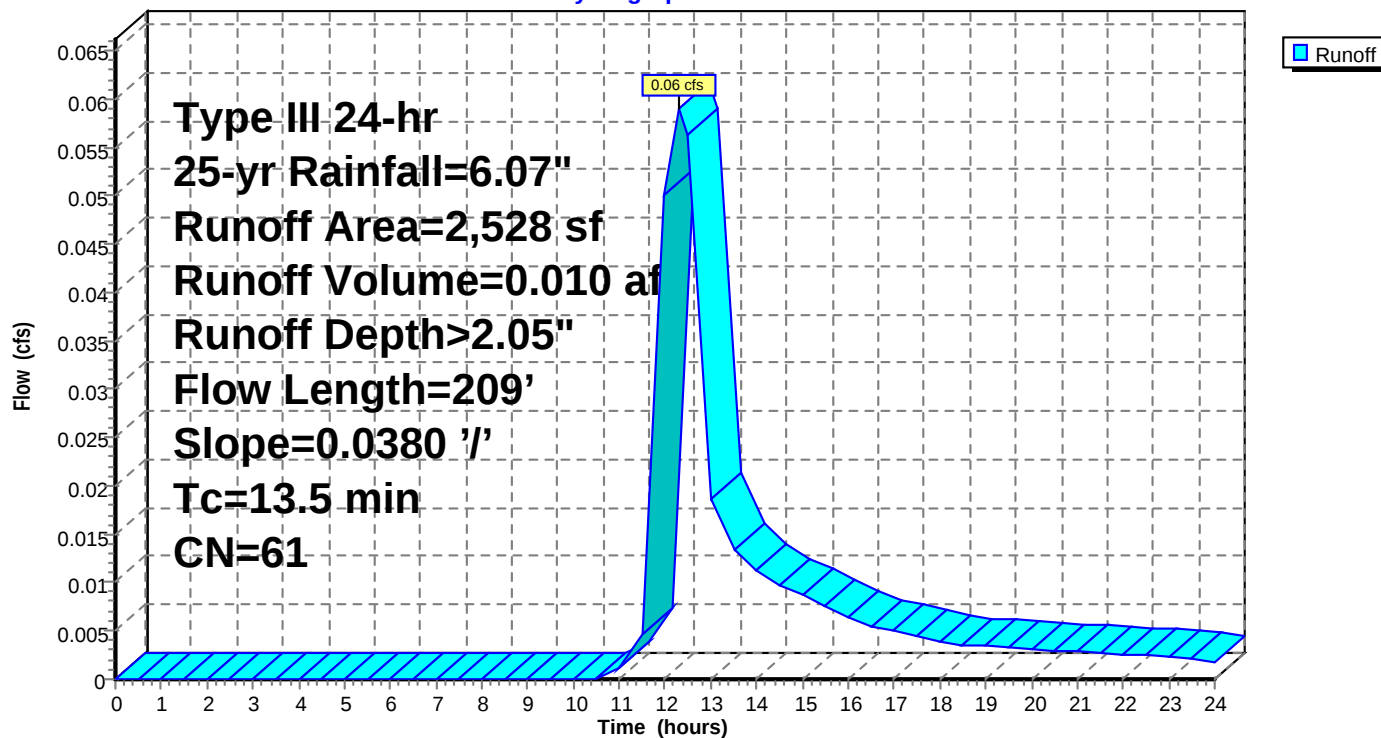
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



Summary for Subcatchment P5: Grass

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

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 0.006 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

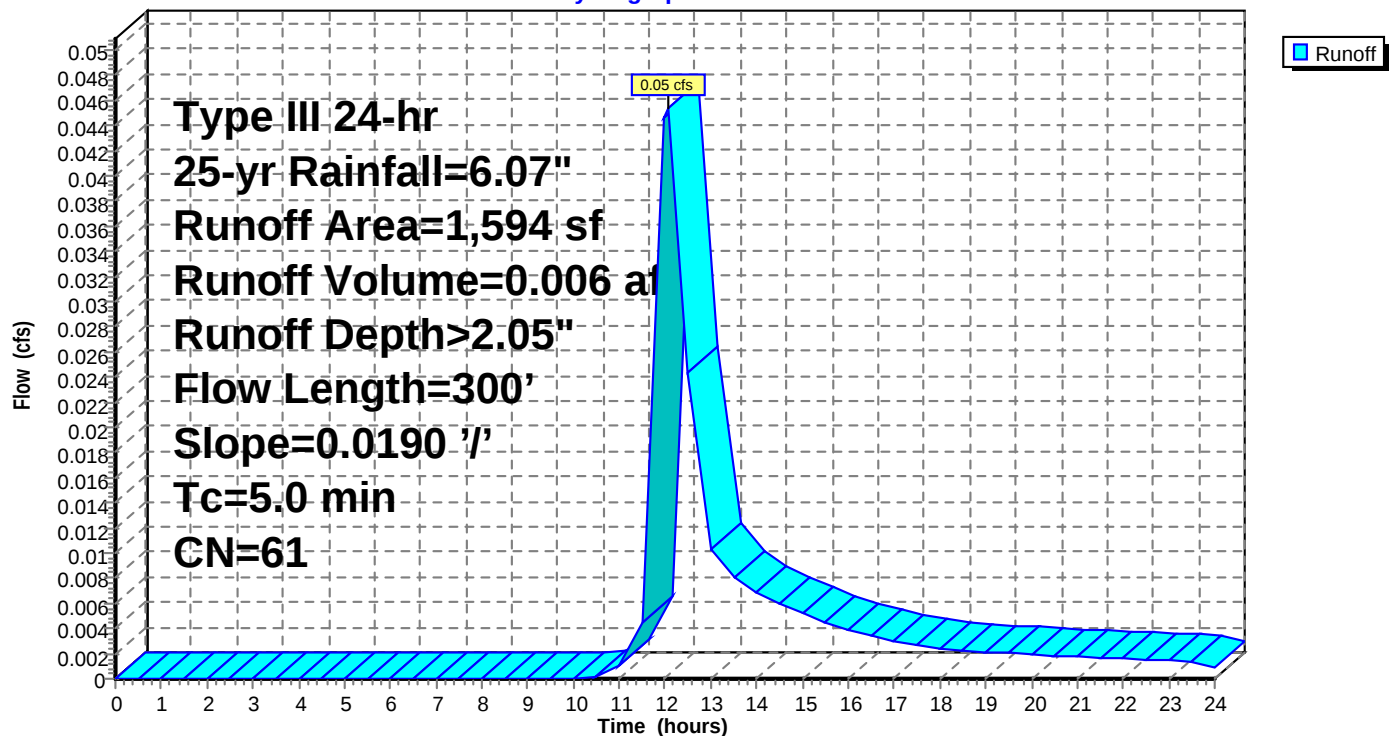
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



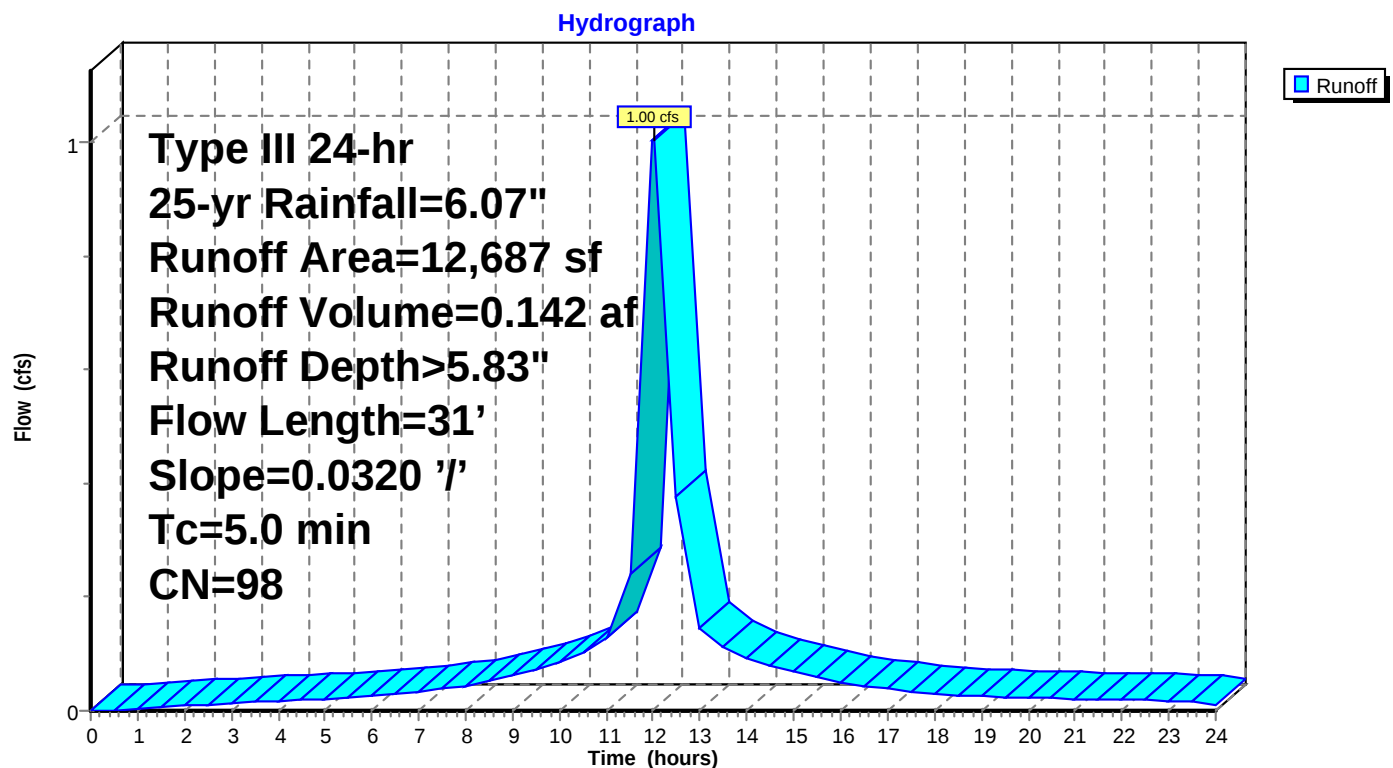
Summary for Subcatchment P6: Front Paking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.142 af, Depth> 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 25-yr Rainfall=6.07"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

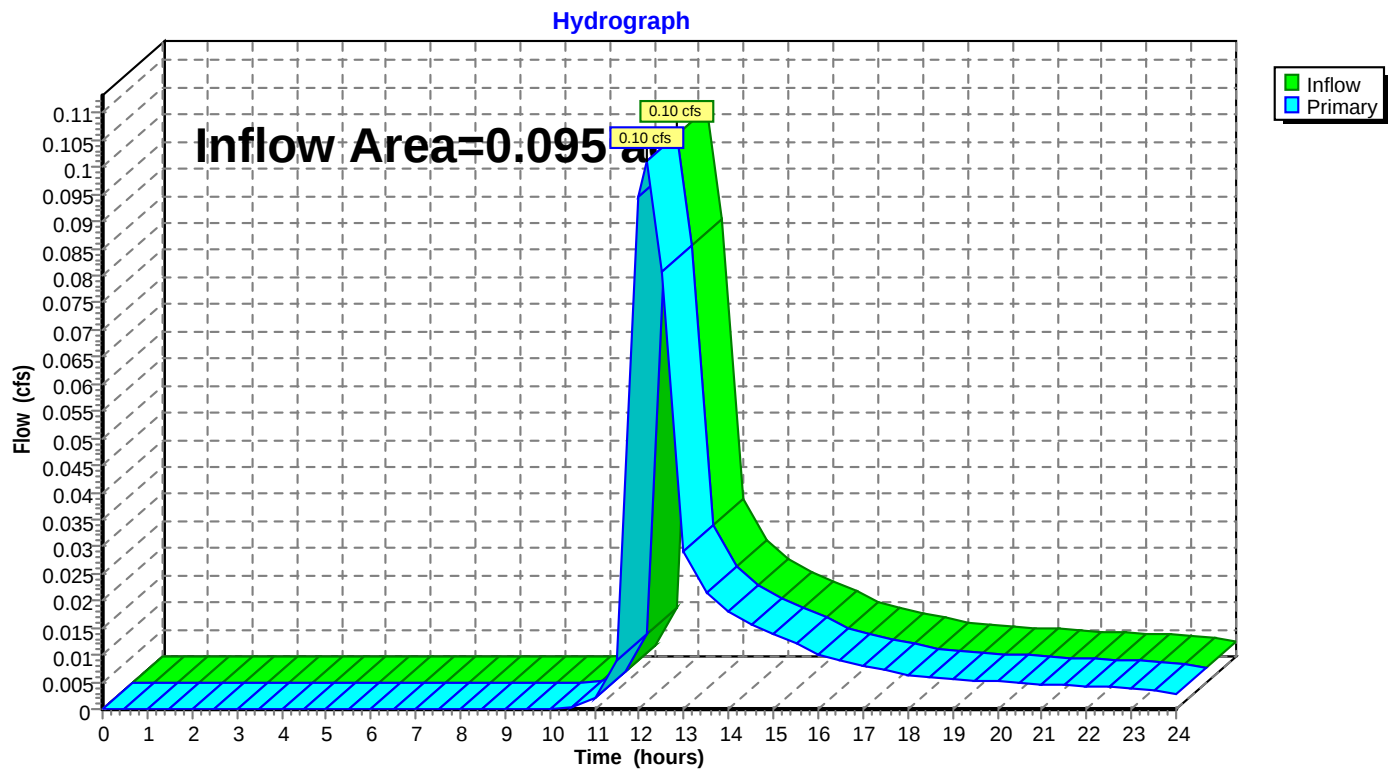
Subcatchment P6: Front Paking

Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 2.05" for 25-yr event
Inflow = 0.10 cfs @ 12.18 hrs, Volume= 0.016 af
Primary = 0.10 cfs @ 12.18 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane

Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 5.83" for 25-yr event
 Inflow = 1.49 cfs @ 12.02 hrs, Volume= 0.210 af
 Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.218 af, Atten= 13%, Lag= 7.6 min
 Discarded = 1.30 cfs @ 12.15 hrs, Volume= 0.218 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 61.72' @ 12.00 hrs Surf.Area= 588 sf Storage= 218 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 3.7 min (747.4 - 743.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.15 hrs HW=61.51' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

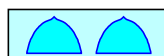
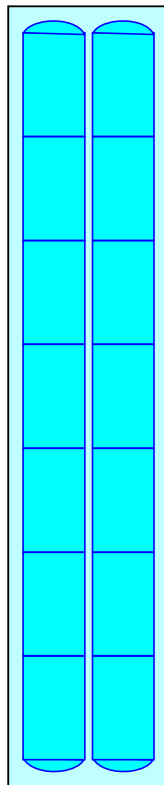
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

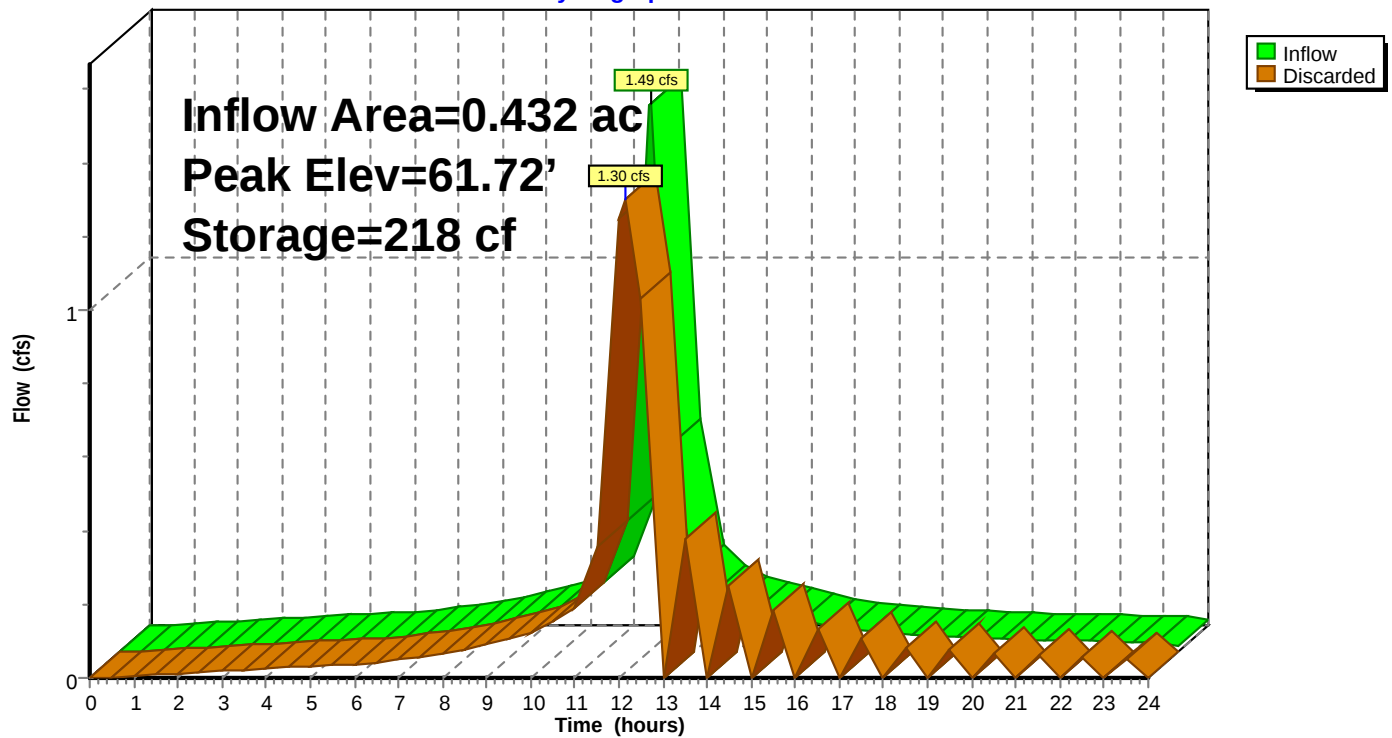
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 5.83" for 25-yr event
 Inflow = 1.19 cfs @ 12.02 hrs, Volume= 0.168 af
 Outflow = 1.19 cfs @ 12.03 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.1 min
 Discarded = 1.19 cfs @ 12.03 hrs, Volume= 0.168 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 59.03' @ 12.03 hrs Surf.Area= 275 sf Storage= 4 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time=(not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.03 hrs HW=59.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

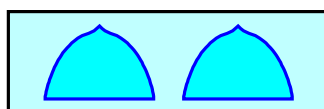
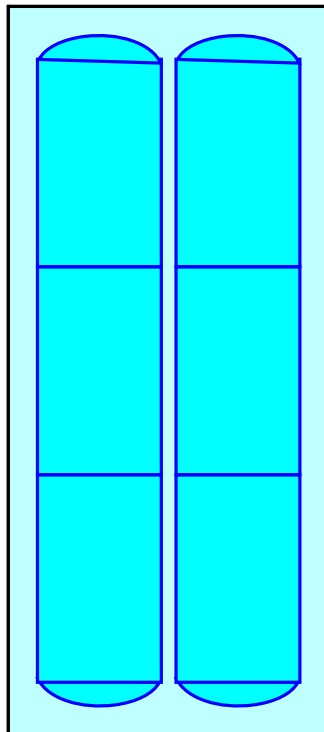
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

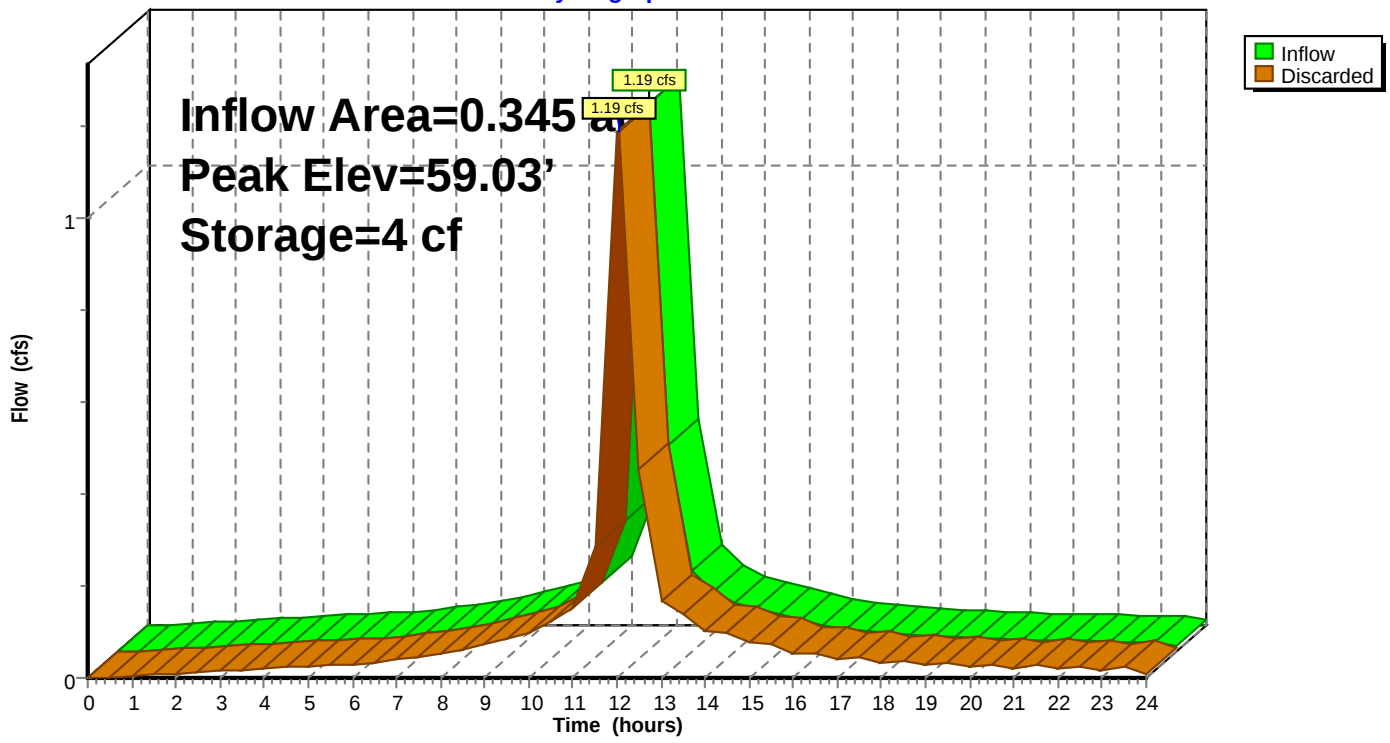
35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph



239 Chritian Lane Berlin Post

Prepared by Inga Consulting Engineers

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Type III 24-hr 50-yr Rainfall=7.20"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear ParkingRunoff Area=8,817 sf 100.00% Impervious Runoff Depth>6.96"
Flow Length=85' Slope=0.0700 ' ' Tc=5.0 min CN=98 Runoff=0.83 cfs 0.117 af**SubcatchmentP2: Roof**Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>6.96"
Flow Length=141' Slope=0.1420 ' ' Tc=5.0 min CN=98 Runoff=0.94 cfs 0.133 af**SubcatchmentP3: Driveway**Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>6.96"
Flow Length=151' Slope=0.1420 ' ' Tc=5.0 min CN=98 Runoff=0.22 cfs 0.031 af**SubcatchmentP4: Grass**Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>2.85"
Flow Length=209' Slope=0.0380 ' ' Tc=13.5 min CN=61 Runoff=0.08 cfs 0.014 af**SubcatchmentP5: Grass**Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>2.85"
Flow Length=300' Slope=0.0190 ' ' Tc=5.0 min CN=61 Runoff=0.07 cfs 0.009 af**SubcatchmentP6: Front Paking**Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>6.96"
Flow Length=31' Slope=0.0320 ' ' Tc=5.0 min CN=98 Runoff=1.19 cfs 0.169 af**Pond 1P: Christian Lane**Inflow=0.15 cfs 0.022 af
Primary=0.15 cfs 0.022 af**Pond S1: Rear Storage**Peak Elev=62.40' Storage=518 cf Inflow=1.77 cfs 0.251 af
Outflow=1.35 cfs 0.252 af**Pond S2: Front Storage**Peak Elev=59.95' Storage=147 cf Inflow=1.41 cfs 0.200 af
Outflow=1.28 cfs 0.206 af**Total Runoff Area = 0.872 ac Runoff Volume = 0.473 af Average Runoff Depth = 6.51"**
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

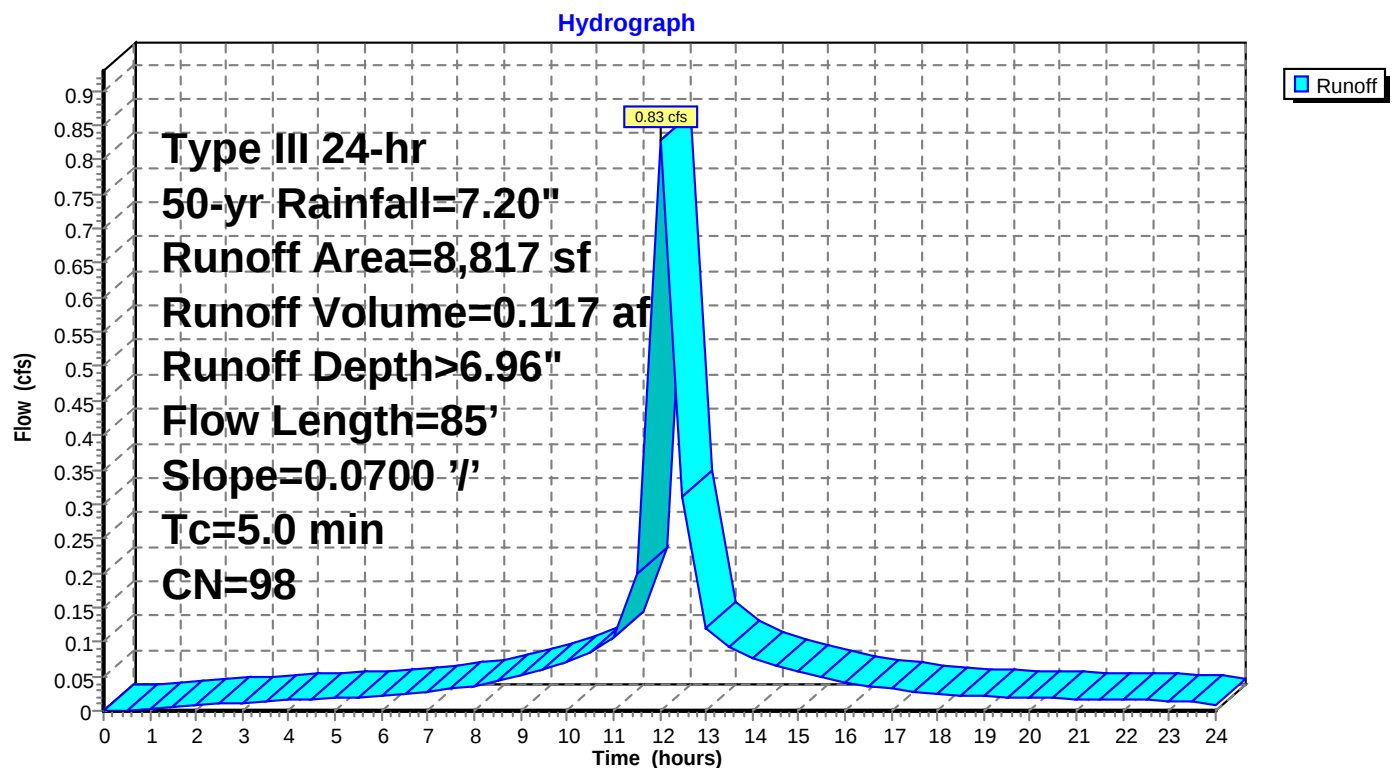
Summary for Subcatchment P1: Rear Parking[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.83 cfs @ 12.02 hrs, Volume= 0.117 af, Depth> 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking

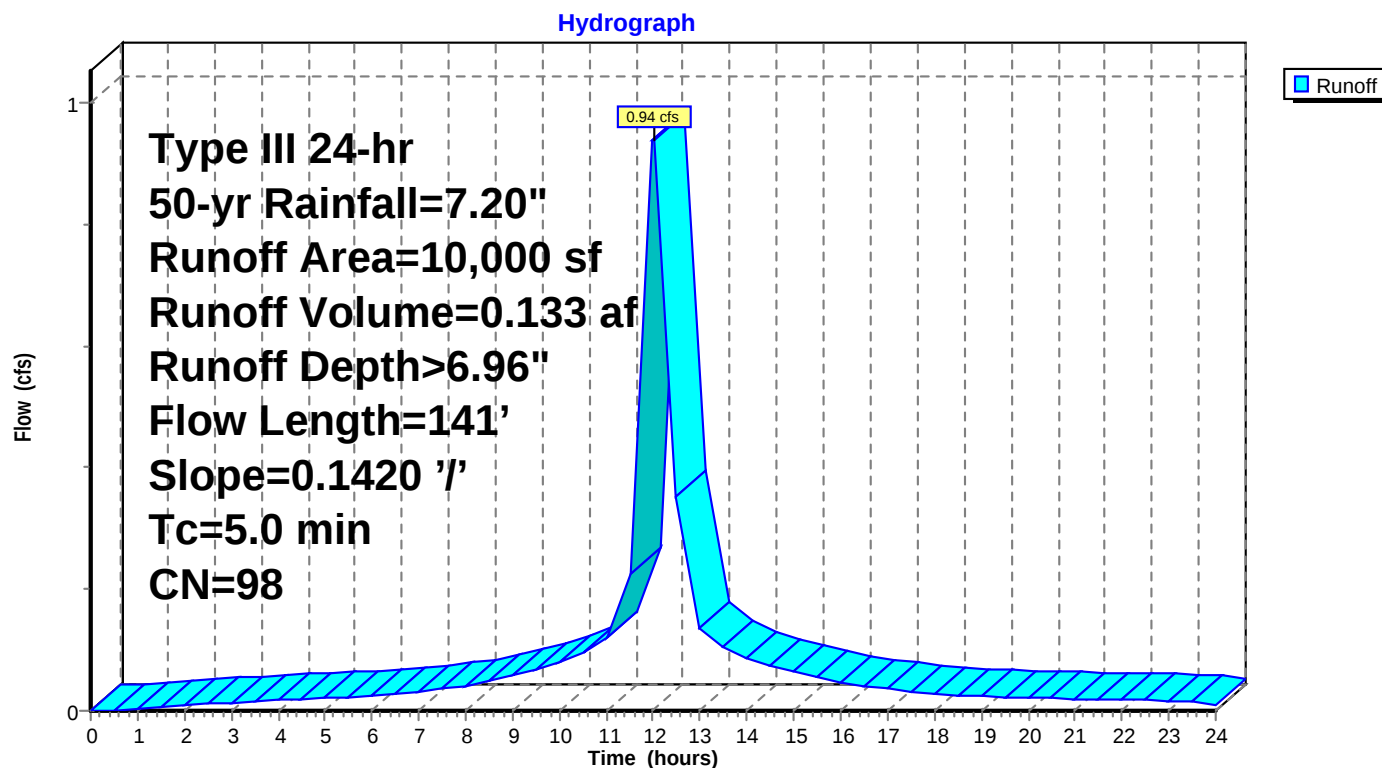
Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.94 cfs @ 12.02 hrs, Volume= 0.133 af, Depth> 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Summary for Subcatchment P3: Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.22 cfs @ 12.02 hrs, Volume= 0.031 af, Depth> 6.96"

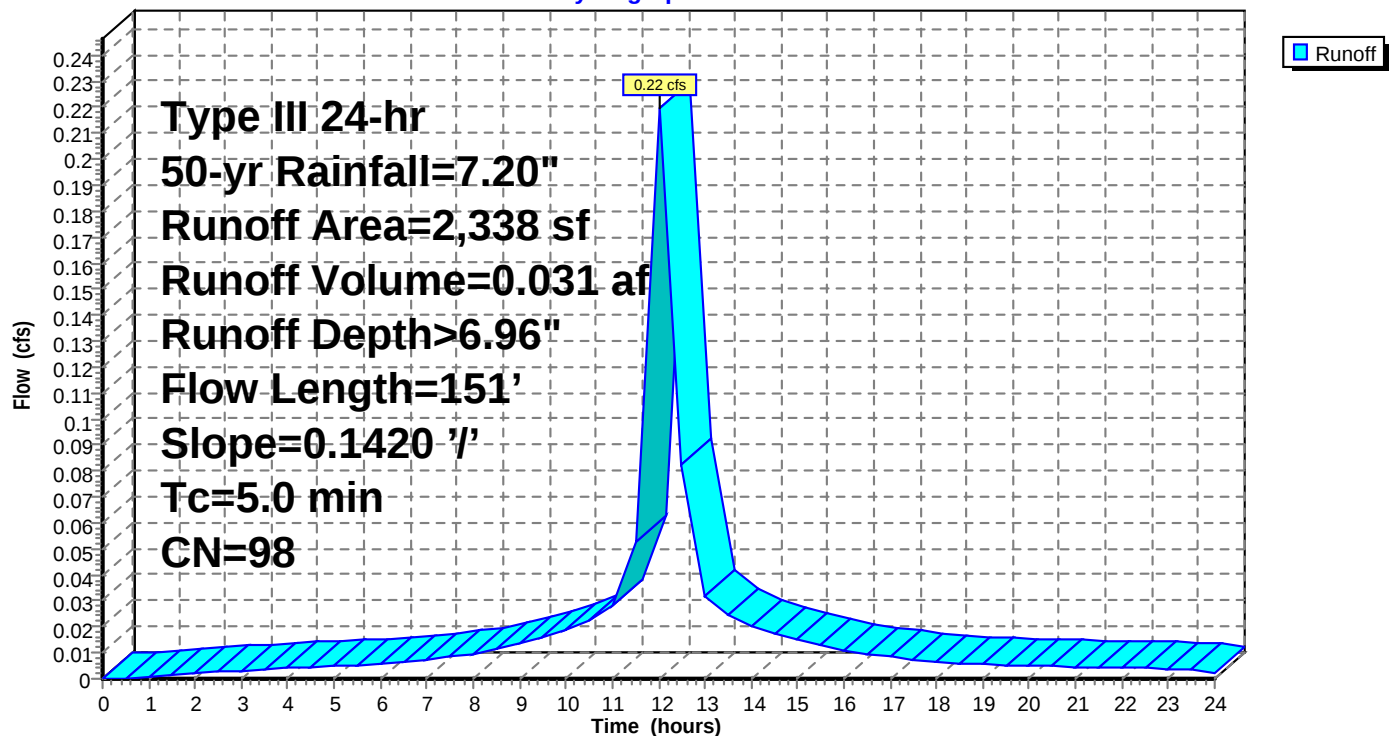
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway

Hydrograph



Summary for Subcatchment P4: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.08 cfs @ 12.28 hrs, Volume= 0.014 af, Depth> 2.85"

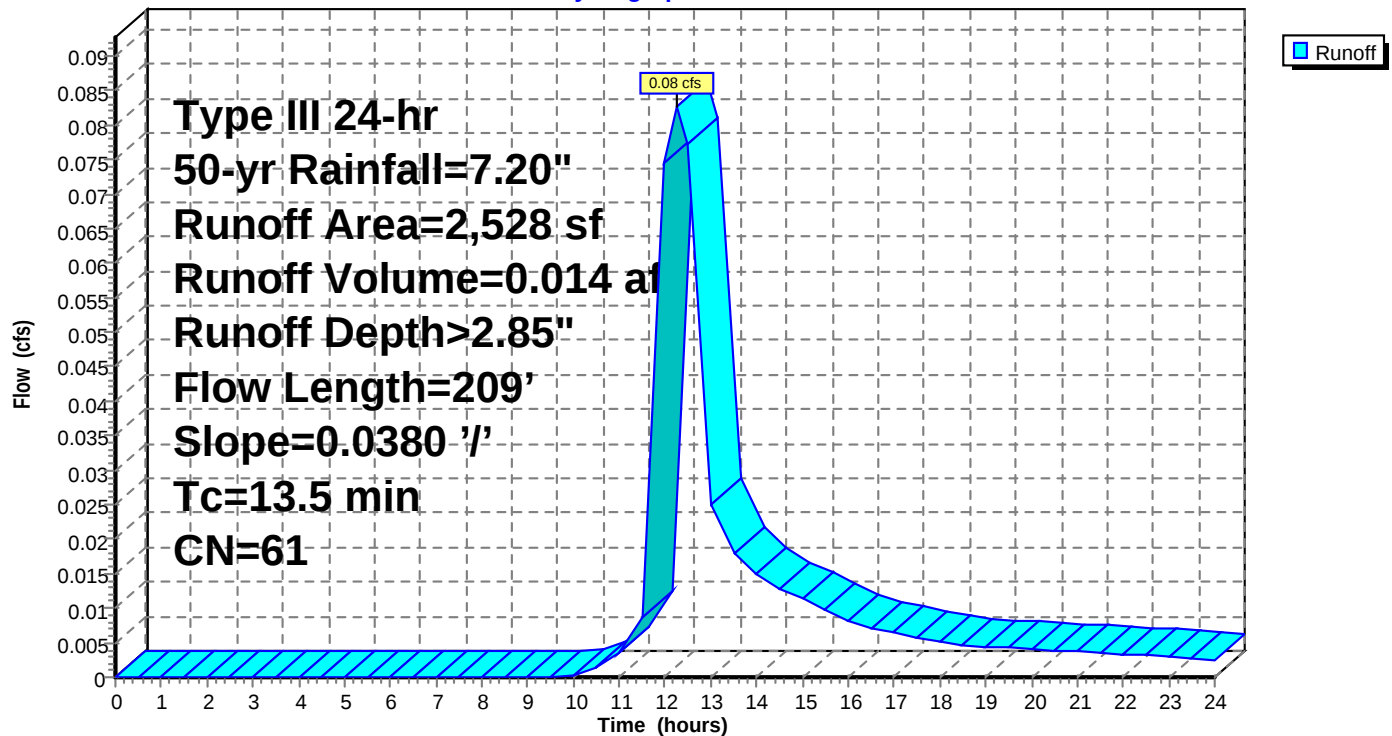
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass
					Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



Summary for Subcatchment P5: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

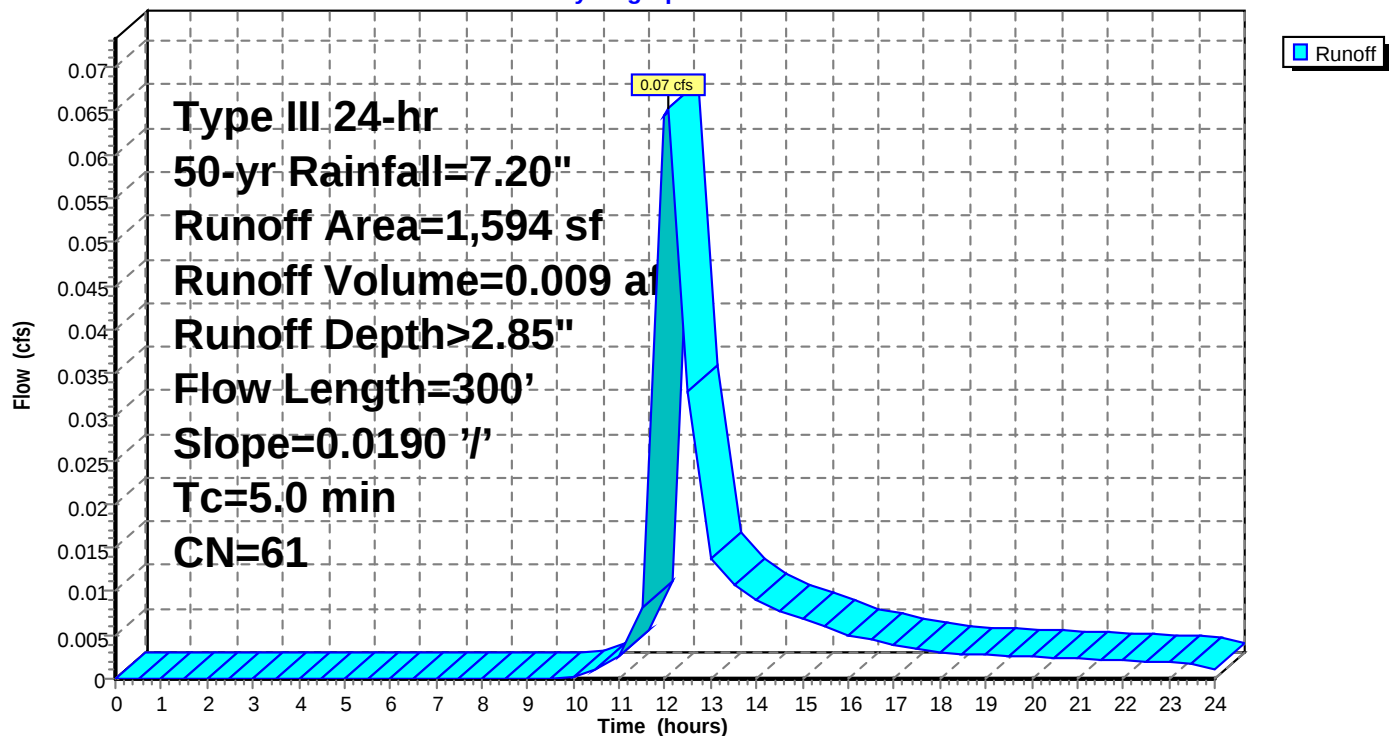
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



Summary for Subcatchment P6: Front Paking

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

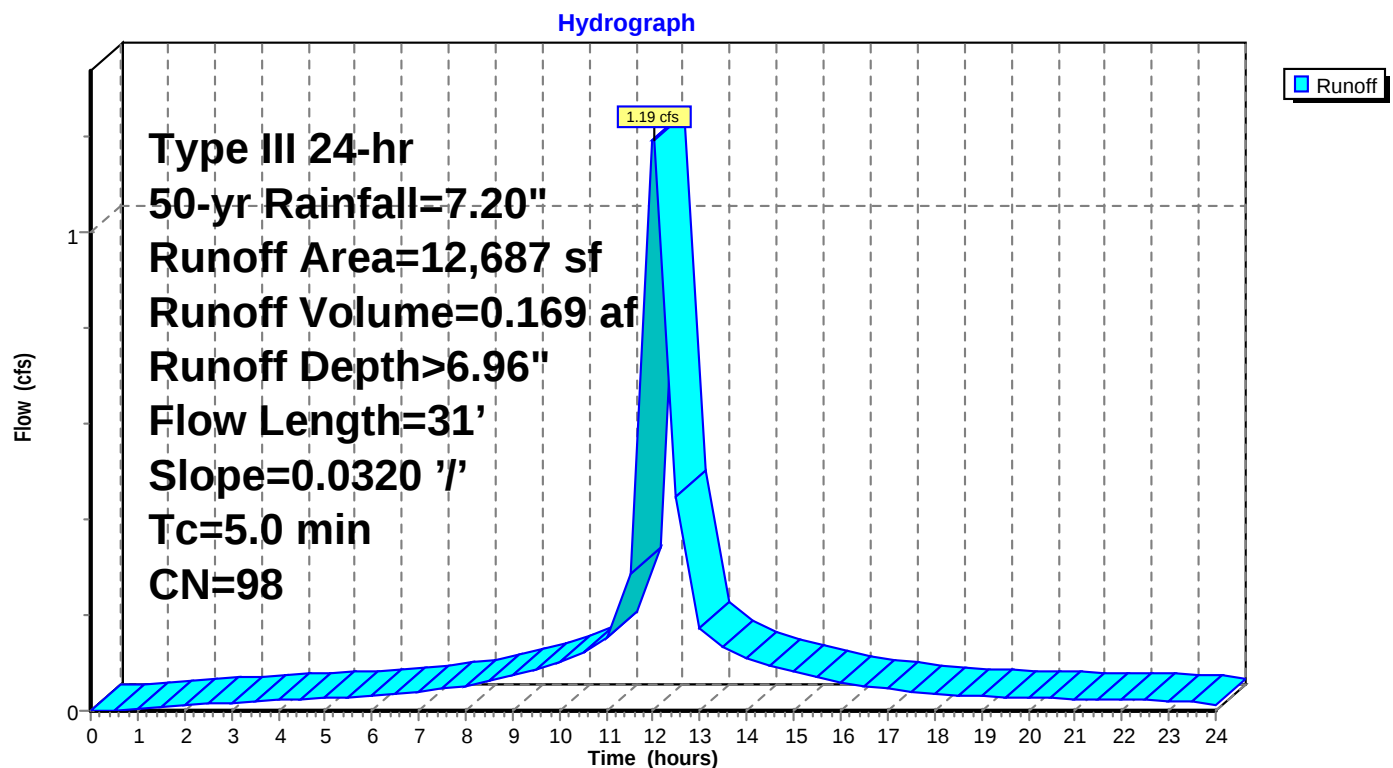
Runoff = 1.19 cfs @ 12.02 hrs, Volume= 0.169 af, Depth> 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 50-yr Rainfall=7.20"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P6: Front Paking



Summary for Pond 1P: Christian Lane

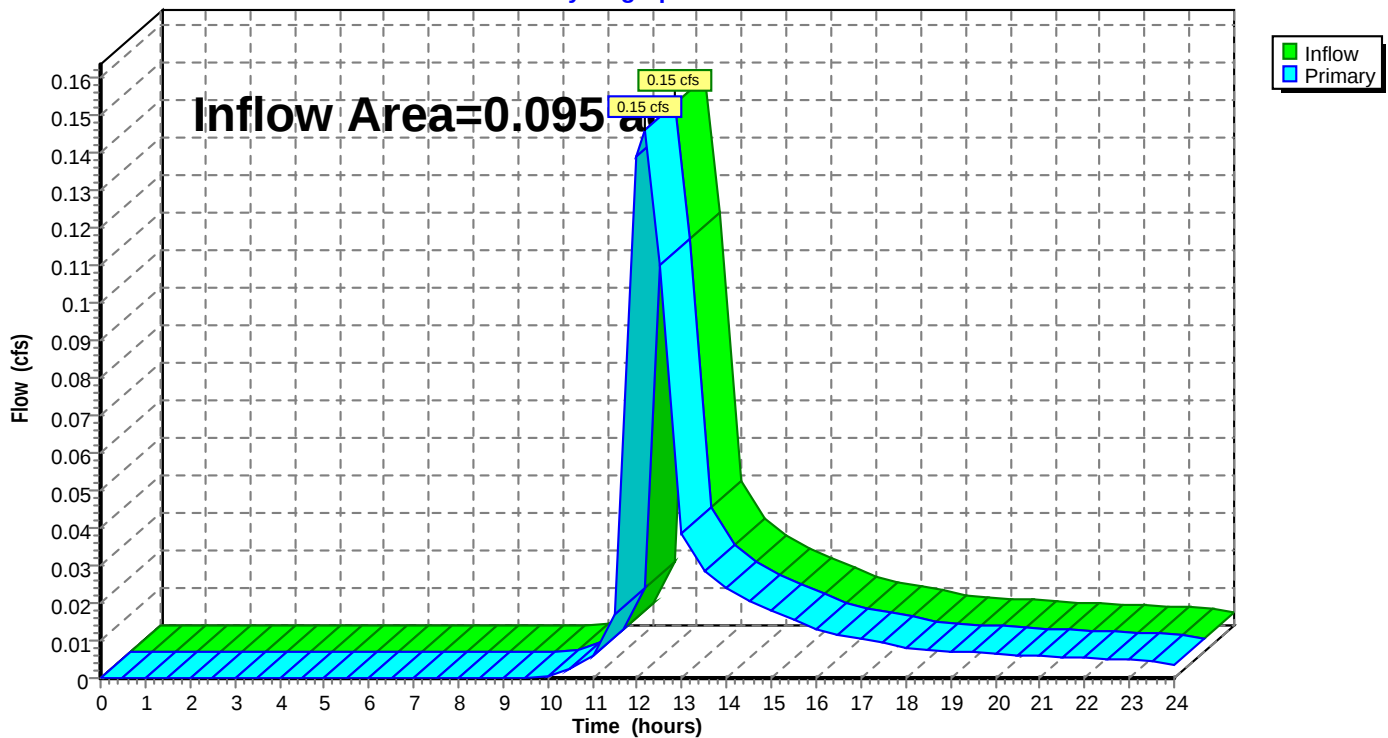
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 2.85" for 50-yr event
 Inflow = 0.15 cfs @ 12.15 hrs, Volume= 0.022 af
 Primary = 0.15 cfs @ 12.15 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane

Hydrograph



Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 6.96" for 50-yr event
 Inflow = 1.77 cfs @ 12.02 hrs, Volume= 0.251 af
 Outflow = 1.35 cfs @ 12.25 hrs, Volume= 0.252 af, Atten= 24%, Lag= 13.5 min
 Discarded = 1.35 cfs @ 12.25 hrs, Volume= 0.252 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Peak Elev= 62.40' @ 12.20 hrs Surf.Area= 588 sf Storage= 518 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)

Center-of-Mass det. time= 4.0 min (745.3 - 741.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.25 hrs HW=62.21' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

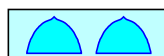
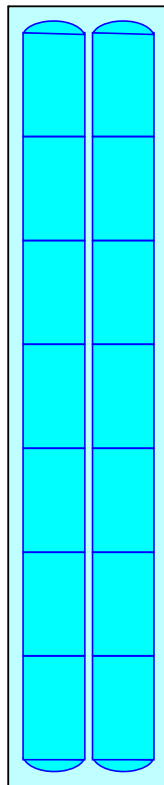
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

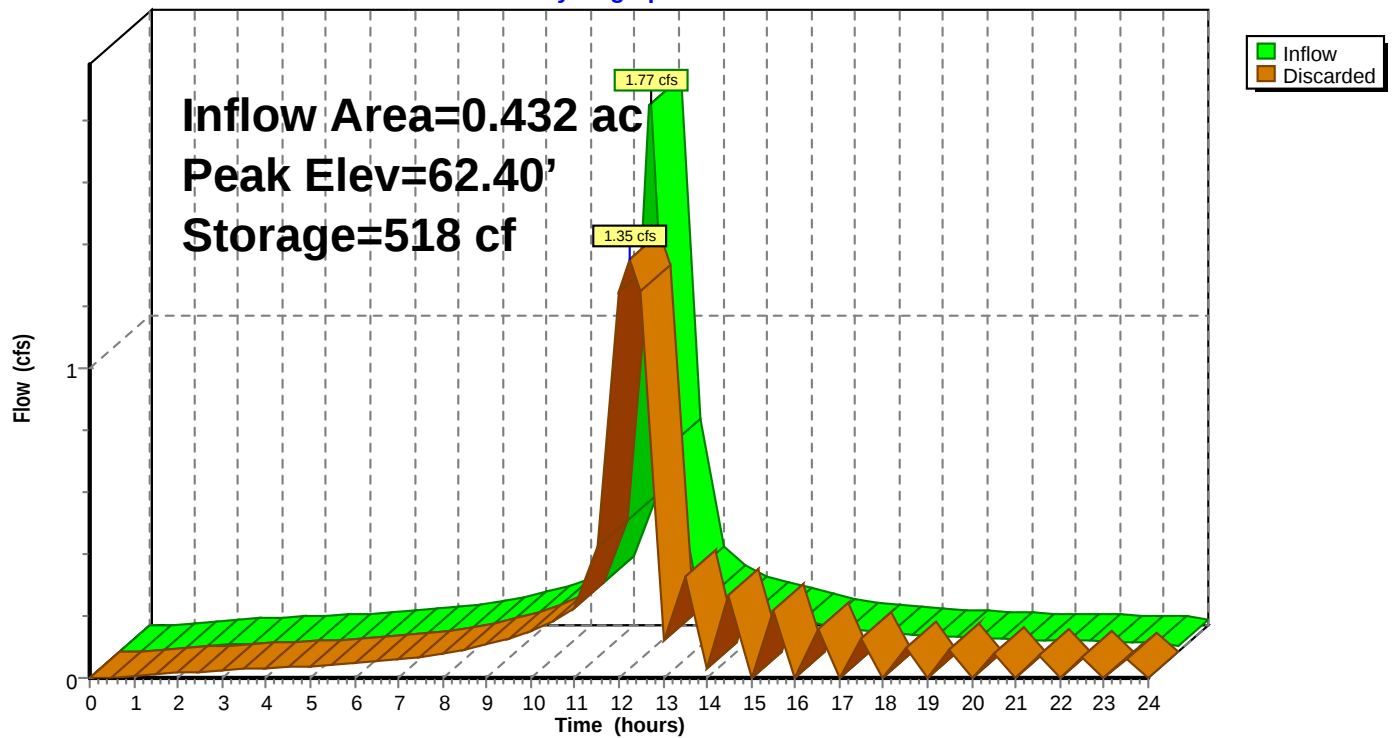
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 6.96" for 50-yr event
 Inflow = 1.41 cfs @ 12.02 hrs, Volume= 0.200 af
 Outflow = 1.28 cfs @ 12.10 hrs, Volume= 0.206 af, Atten= 10%, Lag= 4.4 min
 Discarded = 1.28 cfs @ 12.10 hrs, Volume= 0.206 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Peak Elev= 59.95' @ 12.00 hrs Surf.Area= 275 sf Storage= 147 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.5 min (744.9 - 741.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.10 hrs HW=59.77' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

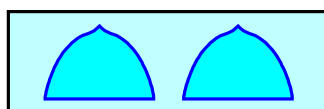
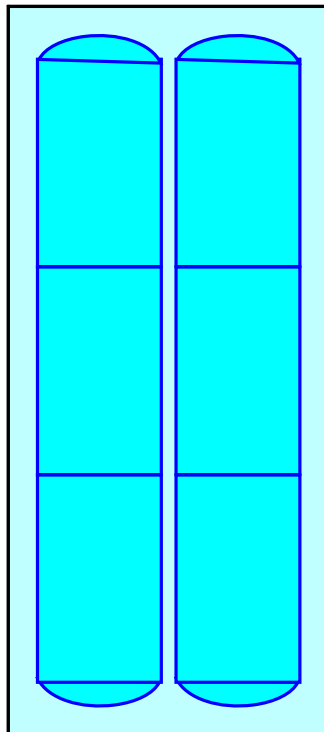
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

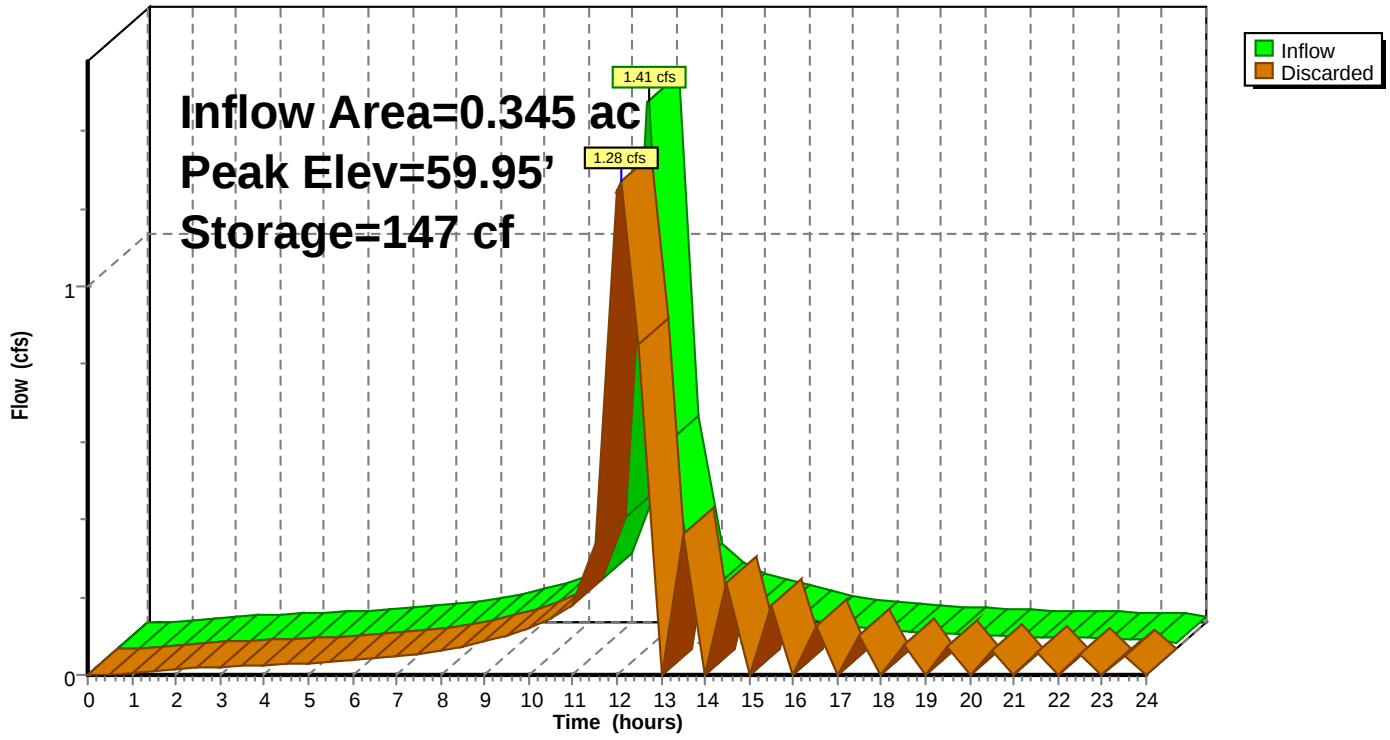
35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph



239 Chritian Lane Berlin Post

Prepared by Inga Consulting Engineers

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Type III 24-hr 100-yr Rainfall=8.56"

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Time span=0.00-24.00 hrs, dt=0.50 hrs, 49 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1: Rear ParkingRunoff Area=8,817 sf 100.00% Impervious Runoff Depth>8.32"
Flow Length=85' Slope=0.0700 '/' Tc=5.0 min CN=98 Runoff=0.99 cfs 0.140 af**SubcatchmentP2: Roof**Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>8.32"
Flow Length=141' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=1.12 cfs 0.159 af**SubcatchmentP3: Driveway**Runoff Area=2,338 sf 100.00% Impervious Runoff Depth>8.32"
Flow Length=151' Slope=0.1420 '/' Tc=5.0 min CN=98 Runoff=0.26 cfs 0.037 af**SubcatchmentP4: Grass**Runoff Area=2,528 sf 0.00% Impervious Runoff Depth>3.88"
Flow Length=209' Slope=0.0380 '/' Tc=13.5 min CN=61 Runoff=0.12 cfs 0.019 af**SubcatchmentP5: Grass**Runoff Area=1,594 sf 0.00% Impervious Runoff Depth>3.88"
Flow Length=300' Slope=0.0190 '/' Tc=5.0 min CN=61 Runoff=0.09 cfs 0.012 af**SubcatchmentP6: Front Paking**Runoff Area=12,687 sf 100.00% Impervious Runoff Depth>8.32"
Flow Length=31' Slope=0.0320 '/' Tc=5.0 min CN=98 Runoff=1.42 cfs 0.202 af**Pond 1P: Christian Lane**Inflow=0.20 cfs 0.031 af
Primary=0.20 cfs 0.031 af**Pond S1: Rear Storage**Peak Elev=64.26' Storage=1,154 cf Inflow=2.11 cfs 0.300 af
Outflow=1.34 cfs 0.315 af**Pond S2: Front Storage**Peak Elev=61.31' Storage=399 cf Inflow=1.68 cfs 0.239 af
Outflow=1.36 cfs 0.246 af**Total Runoff Area = 0.872 ac Runoff Volume = 0.569 af Average Runoff Depth = 7.84"**
10.86% Pervious = 0.095 ac 89.14% Impervious = 0.777 ac

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Type III 24-hr 100-yr Rainfall=8.56"

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Summary for Subcatchment P1: Rear Parking

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

Runoff = 0.99 cfs @ 12.02 hrs, Volume= 0.140 af, Depth> 8.32"

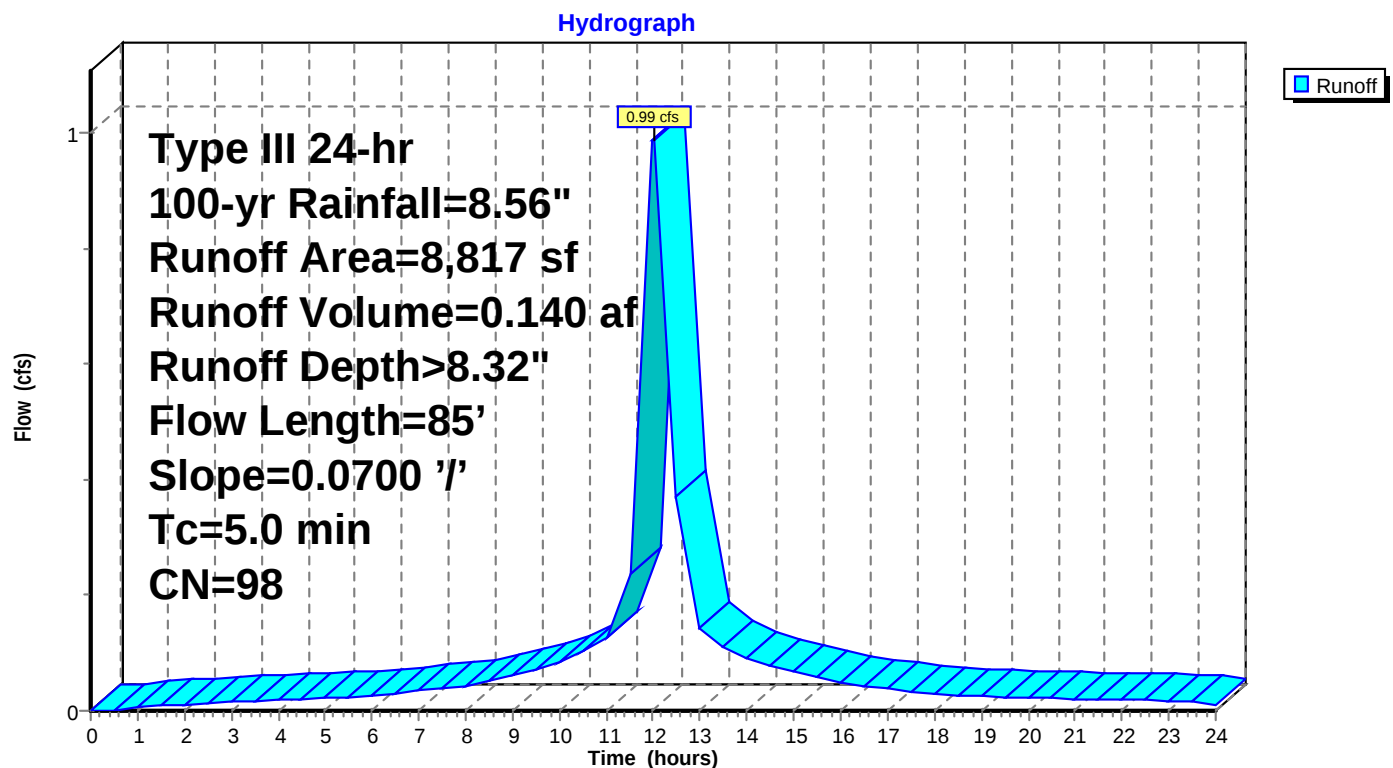
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
8,817	98	Paved parking, HSG B	Pavement
8,817		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0700	2.22		Sheet Flow, Paved Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.6	85	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P1: Rear Parking



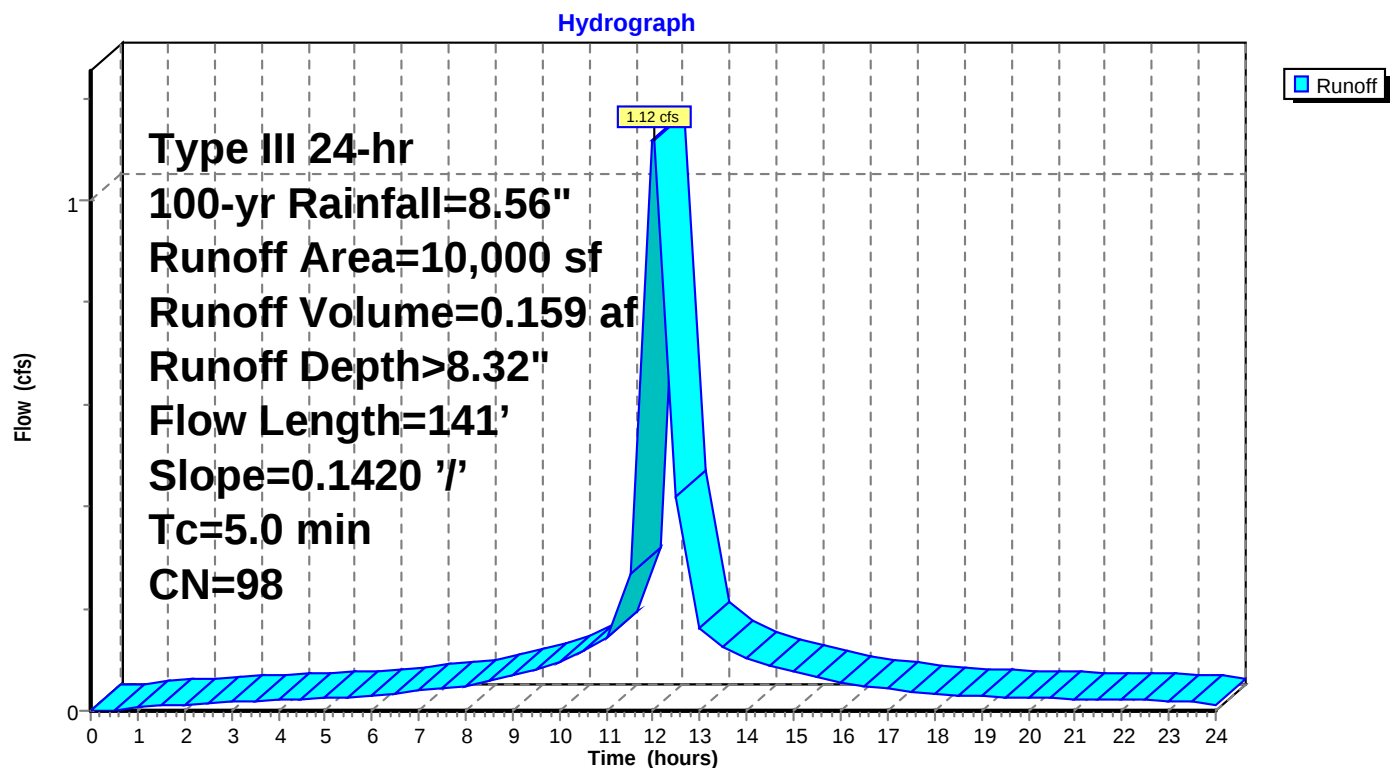
Summary for Subcatchment P2: Roof[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 1.12 cfs @ 12.02 hrs, Volume= 0.159 af, Depth> 8.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
10,000	98	Roofs, HSG B	Roofs
10,000		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	141	0.1420	3.26		Sheet Flow, Top of Roof
					Smooth surfaces n= 0.011 P2= 3.26"
0.7	141	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P2: Roof

Summary for Subcatchment P3: Driveway[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.26 cfs @ 12.02 hrs, Volume= 0.037 af, Depth> 8.32"

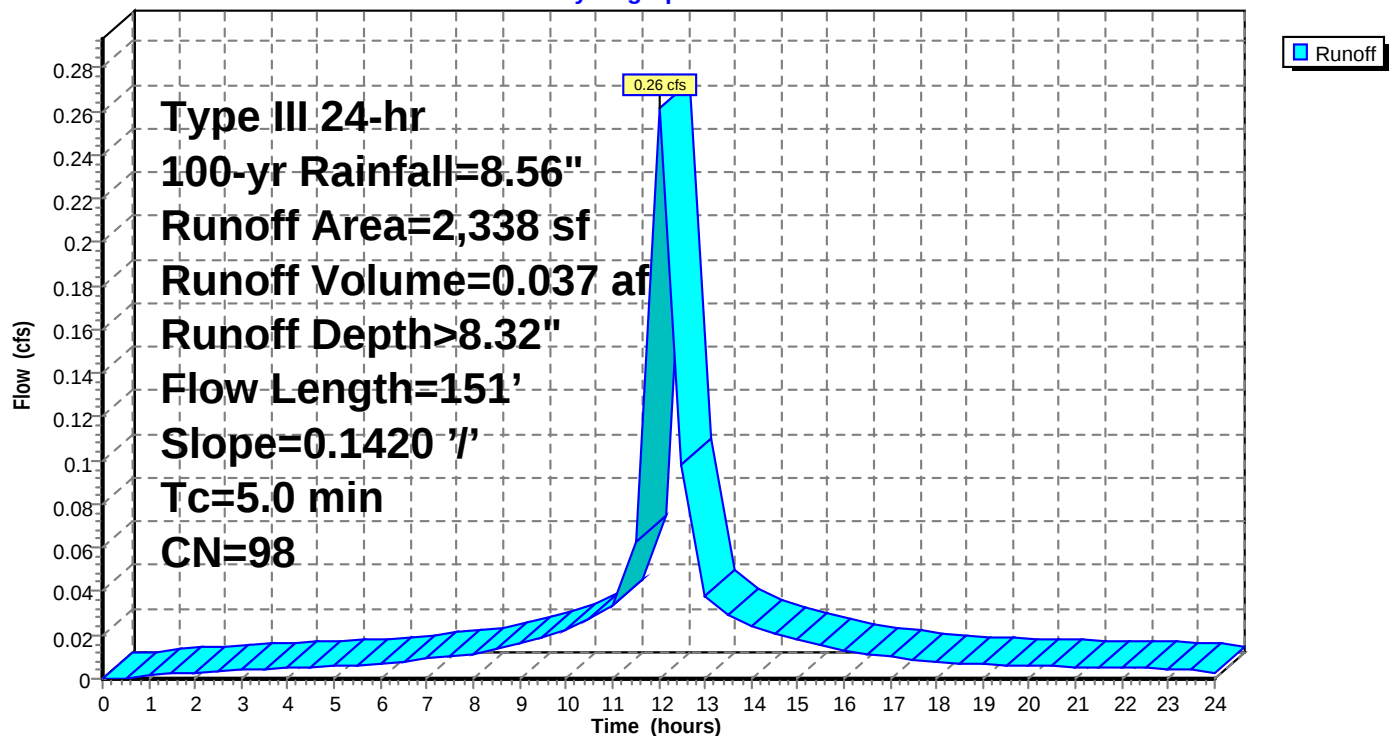
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
2,338	98	Paved parking, HSG B	Residential
2,338		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	151	0.1420	3.30		Sheet Flow, Paved
					Smooth surfaces n= 0.011 P2= 3.26"
0.8	151	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P3: Driveway

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.56"

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Summary for Subcatchment P4: Grass

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

Runoff = 0.12 cfs @ 12.24 hrs, Volume= 0.019 af, Depth> 3.88"

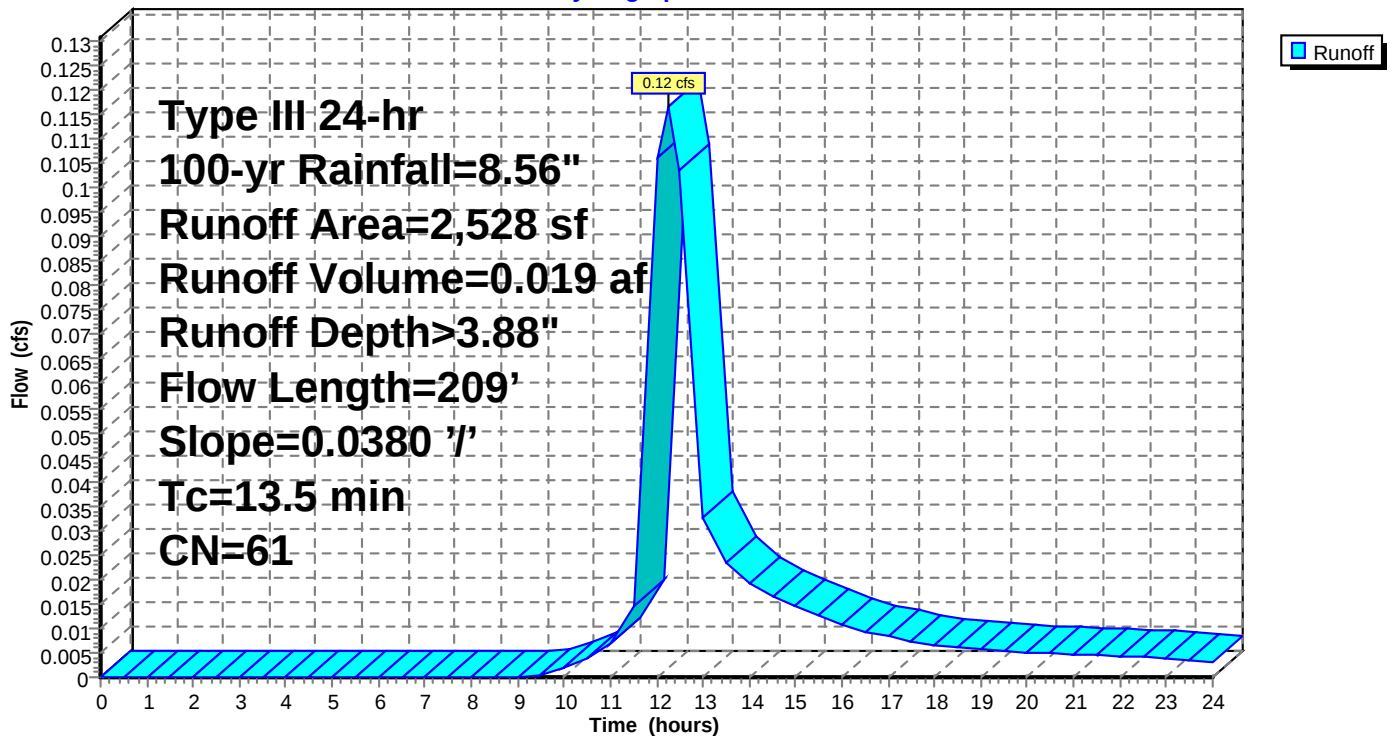
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
2,528	61	>75% Grass cover, Good, HSG B	Pavement
2,528		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	209	0.0380	0.26		Sheet Flow, Right Side Grass Grass: Short n= 0.150 P2= 3.26"

Subcatchment P4: Grass

Hydrograph



Summary for Subcatchment P5: Grass[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 0.09 cfs @ 12.06 hrs, Volume= 0.012 af, Depth> 3.88"

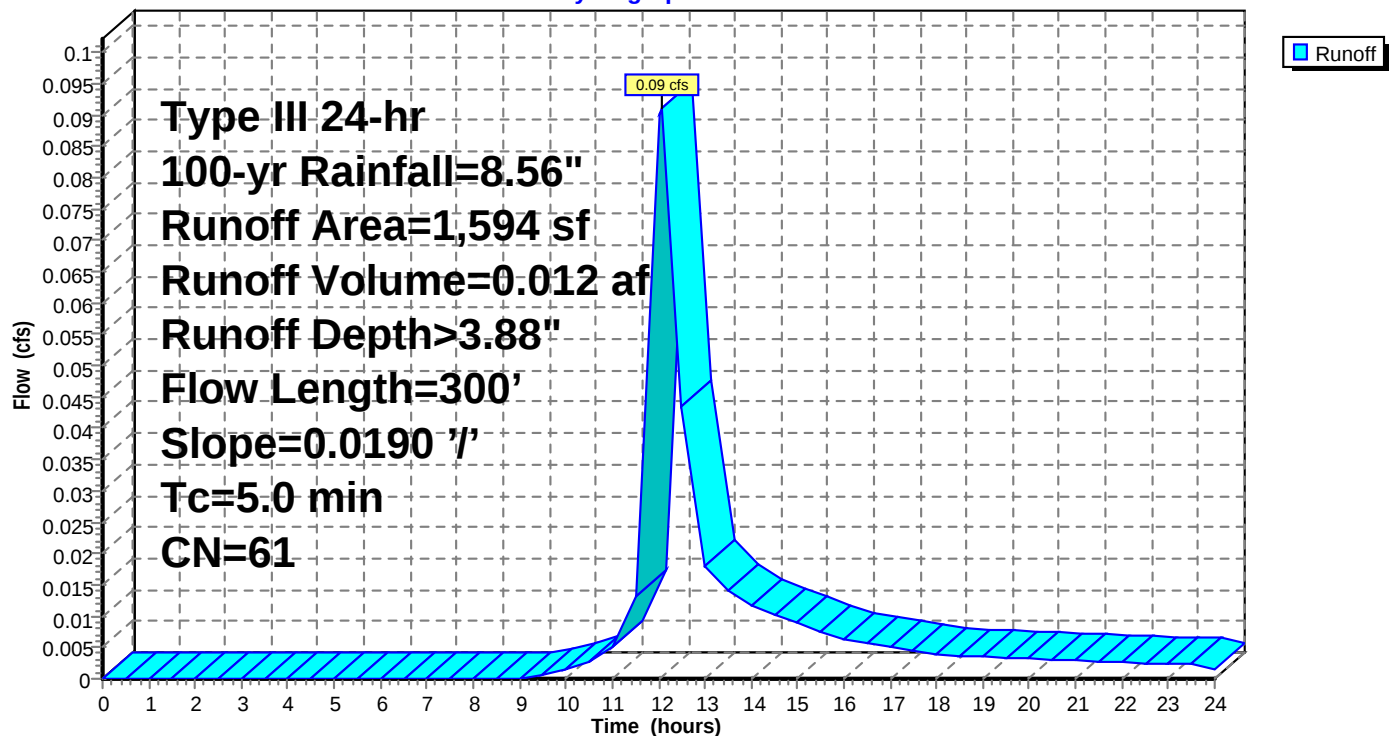
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs
Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
1,594	61	>75% Grass cover, Good, HSG B	Pavement
1,594		100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	300	0.0190	1.69		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.26"
3.0	300	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P5: Grass

Hydrograph



Summary for Subcatchment P6: Front Paking

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

Runoff = 1.42 cfs @ 12.02 hrs, Volume= 0.202 af, Depth> 8.32"

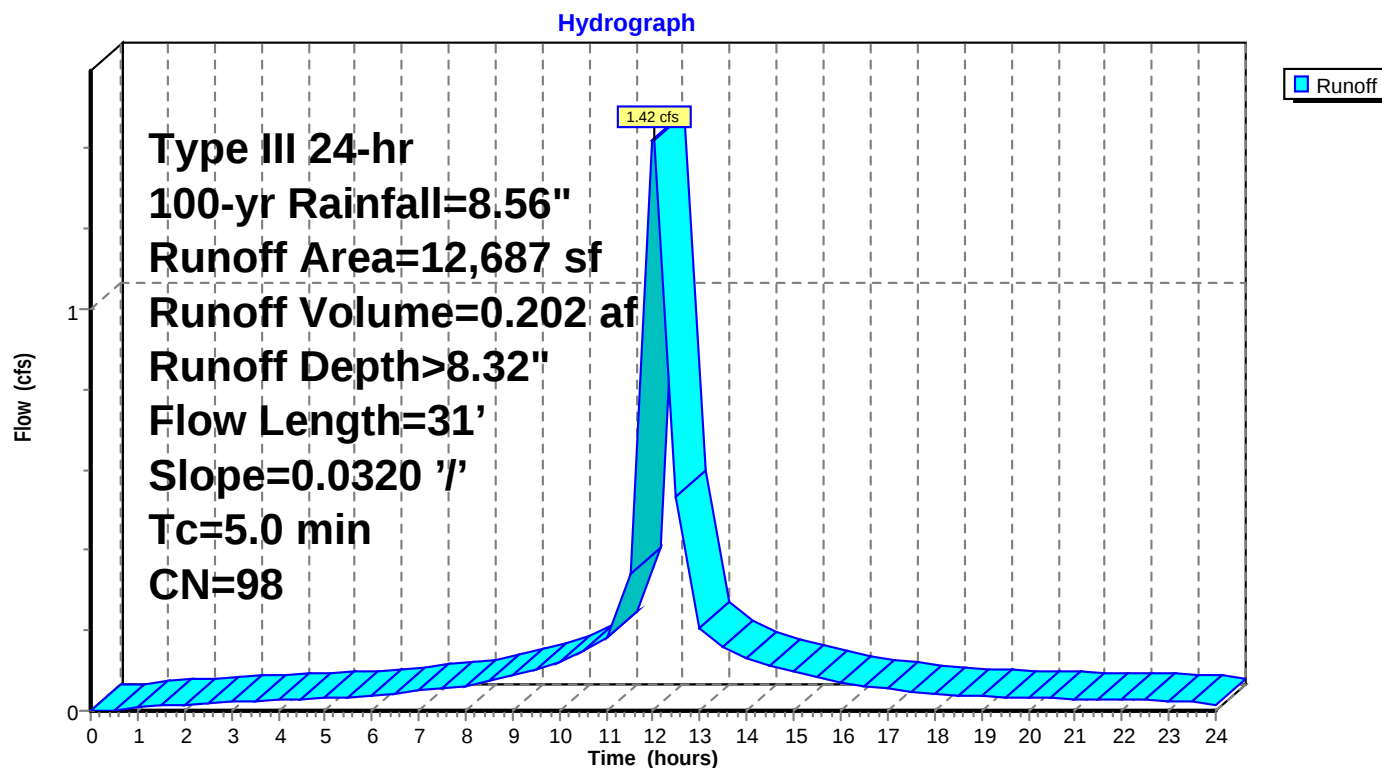
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.50$ hrs

Type III 24-hr 100-yr Rainfall=8.56"

Area (sf)	CN	Description	Land Use
12,687	98	Paved roads w/curbs & sewers, HSG B	Roadway
12,687		100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.33		Sheet Flow, Front Parking
					Smooth surfaces n= 0.011 P2= 3.26"
0.4	31	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P6: Front Paking

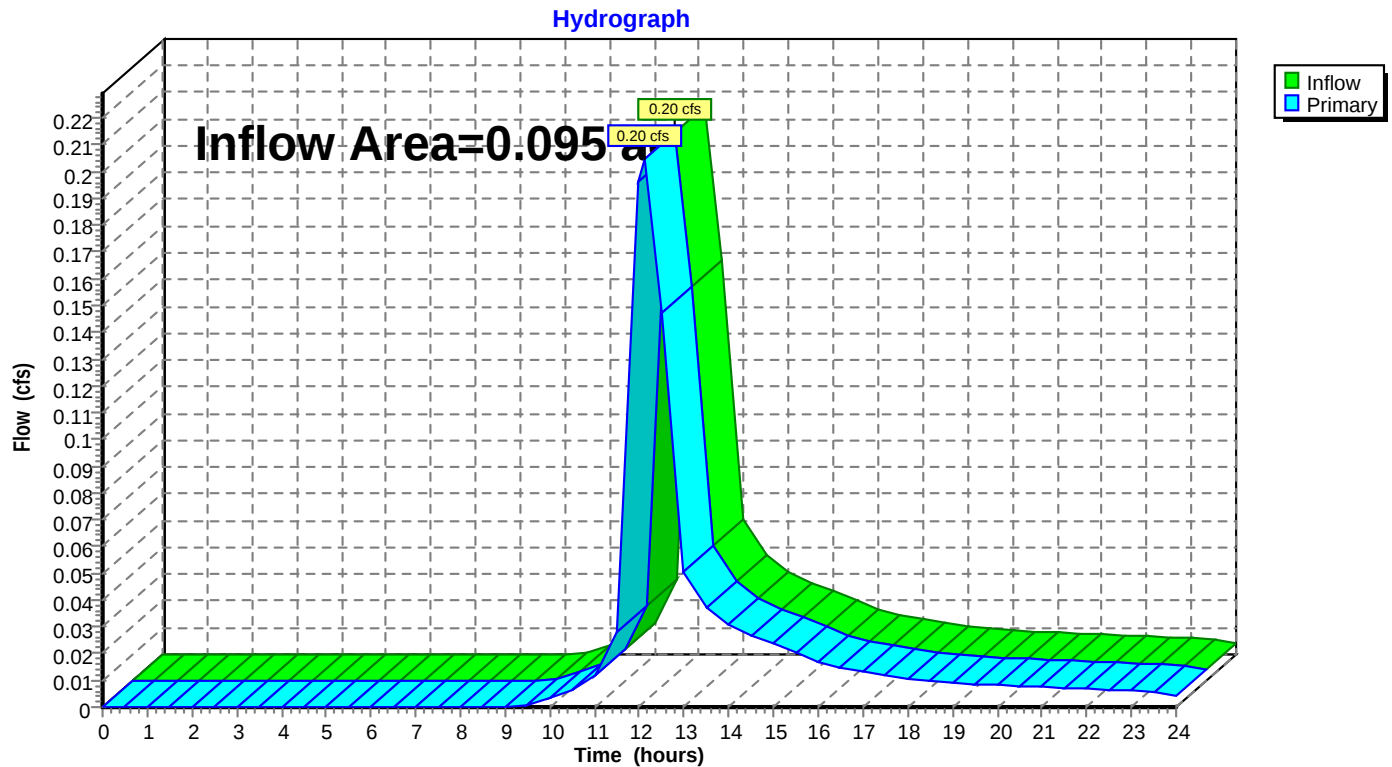


Summary for Pond 1P: Christian Lane

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.095 ac, 0.00% Impervious, Inflow Depth > 3.88" for 100-yr event
Inflow = 0.20 cfs @ 12.14 hrs, Volume= 0.031 af
Primary = 0.20 cfs @ 12.14 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs

Pond 1P: Christian Lane

Summary for Pond S1: Rear Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=8)

Inflow Area = 0.432 ac, 100.00% Impervious, Inflow Depth > 8.32" for 100-yr event
 Inflow = 2.11 cfs @ 12.02 hrs, Volume= 0.300 af
 Outflow = 1.34 cfs @ 12.25 hrs, Volume= 0.315 af, Atten= 36%, Lag= 13.5 min
 Discarded = 1.34 cfs @ 12.25 hrs, Volume= 0.315 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 64.26' @ 12.38 hrs Surf.Area= 588 sf Storage= 1,154 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 10.3 min (749.5 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	566 cf	11.00'W x 53.46'L x 3.50'H Field A 2,058 cf Overall - 643 cf Embedded = 1,415 cf x 40.0% Voids
#2A	61.50'	643 cf	ADS_StormTech SC-740 +Cap x 14 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 7 Chambers
		1,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.25 hrs HW=63.58' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S1: Rear Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

7 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 51.46' Row Length +12.0" End Stone x 2 = 53.46' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

14 Chambers x 45.9 cf = 643.2 cf Chamber Storage

2,058.1 cf Field - 643.2 cf Chambers = 1,414.9 cf Stone x 40.0% Voids = 566.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,209.1 cf = 0.028 af

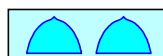
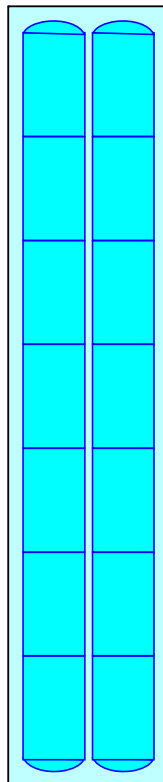
Overall Storage Efficiency = 58.8%

Overall System Size = 53.46' x 11.00' x 3.50'

14 Chambers

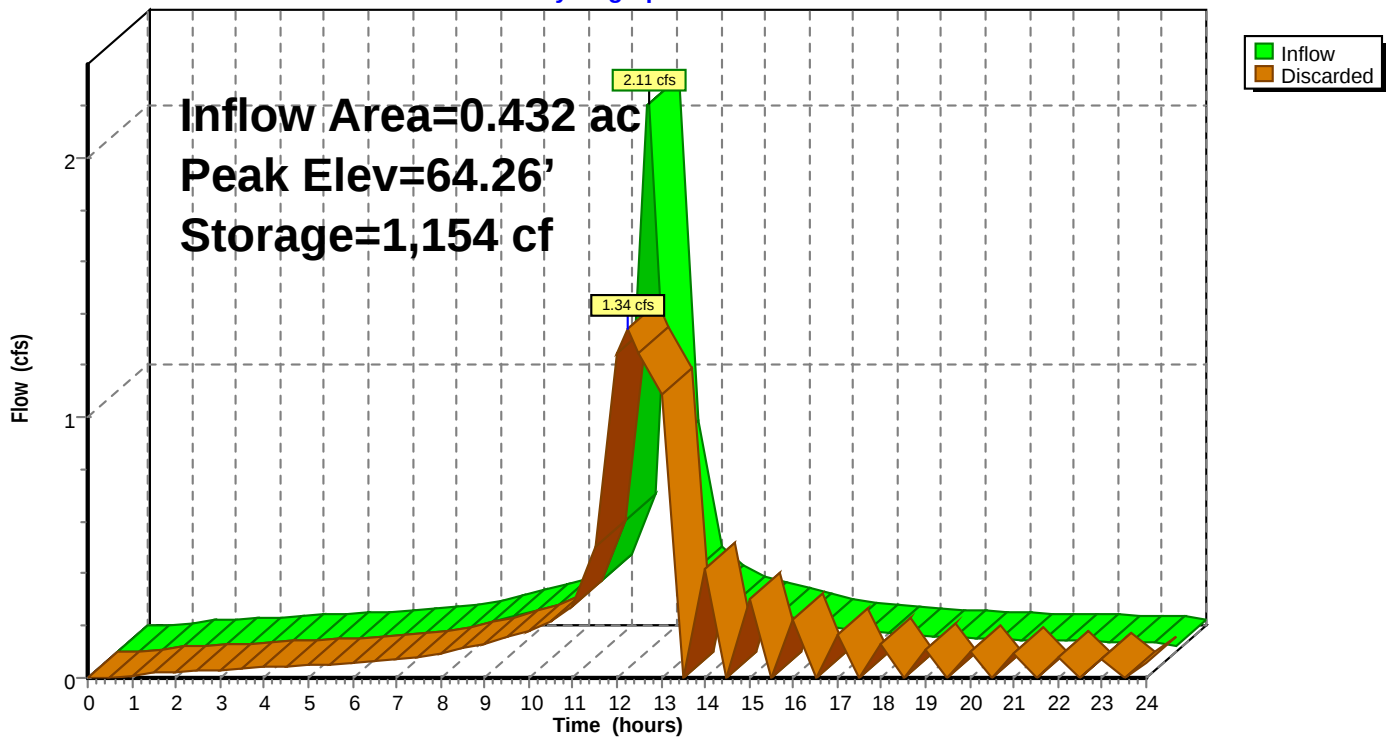
76.2 cy Field

52.4 cy Stone



Pond S1: Rear Storage

Hydrograph



Summary for Pond S2: Front Storage

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

Inflow Area = 0.345 ac, 100.00% Impervious, Inflow Depth > 8.32" for 100-yr event
 Inflow = 1.68 cfs @ 12.02 hrs, Volume= 0.239 af
 Outflow = 1.36 cfs @ 12.25 hrs, Volume= 0.246 af, Atten= 19%, Lag= 13.5 min
 Discarded = 1.36 cfs @ 12.25 hrs, Volume= 0.246 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.50 hrs
 Peak Elev= 61.31' @ 12.10 hrs Surf.Area= 275 sf Storage= 399 cf

Plug-Flow detention time=(not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 4.8 min (743.9 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.00'	274 cf	11.00'W x 24.98'L x 3.50'H Field A 962 cf Overall - 276 cf Embedded = 686 cf x 40.0% Voids
#2A	59.50'	276 cf	ADS_StormTech SC-740 +Cap x 6 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 2 Rows of 3 Chambers
		550 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	1.25 cfs Exfiltration at all elevations

Discarded OutFlow Max=1.25 cfs @ 12.25 hrs HW=60.77' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Pond S2: Front Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 22.98' Row Length +12.0" End Stone x 2 = 24.98' Base Length

2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

6 Chambers x 45.9 cf = 275.6 cf Chamber Storage

961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage

Chamber Storage + Stone Storage = 550.0 cf = 0.013 af

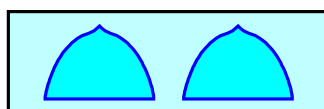
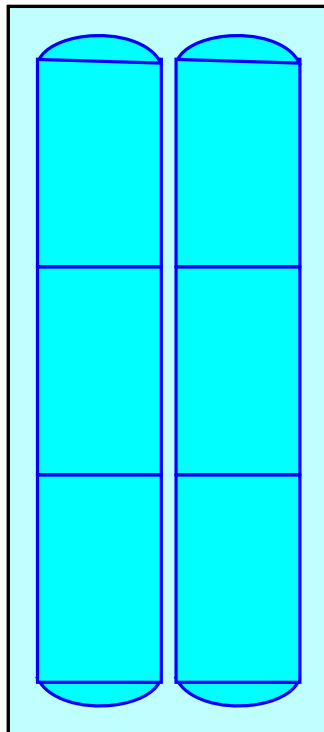
Overall Storage Efficiency = 57.2%

Overall System Size = 24.98' x 11.00' x 3.50'

6 Chambers

35.6 cy Field

25.4 cy Stone



Pond S2: Front Storage

Hydrograph

