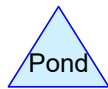
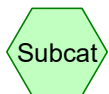
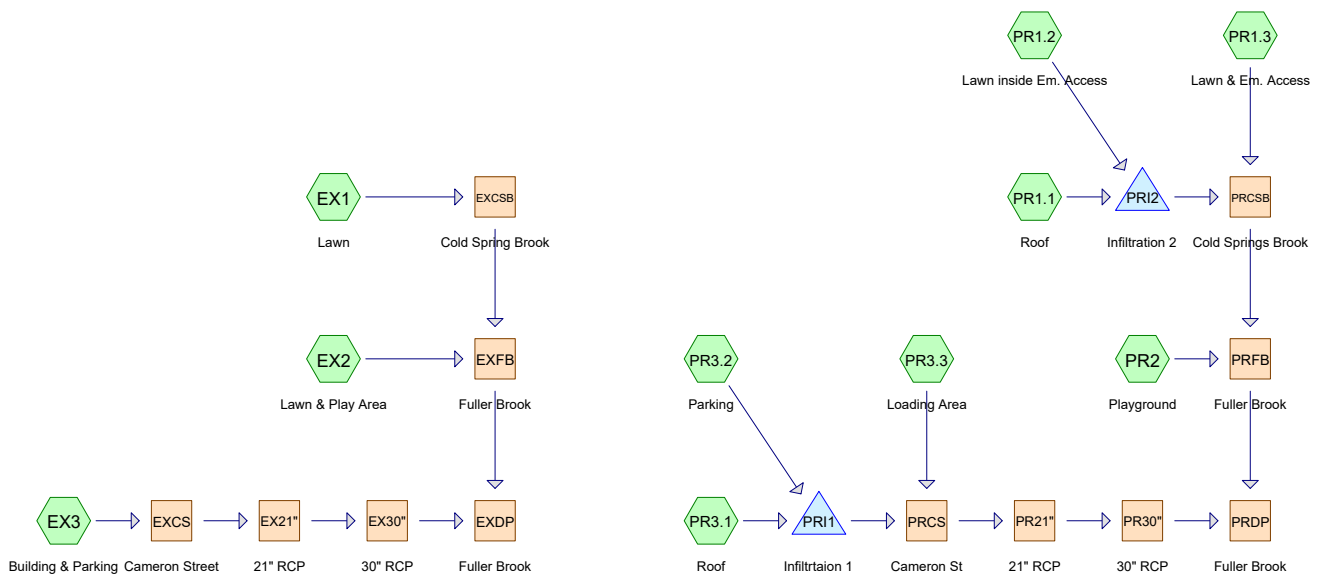

Appendix
HydroCAD Stormwater Report

B



Routing Diagram for 18080-Hunnewell PSI
 Prepared by SMMA, Printed 3/25/2020
 HydroCAD® 10.00-20 s/n 00853 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX1: Lawn	Runoff Area=2.040 ac 12.25% Impervious Runoff Depth>0.61" Flow Length=150' Tc=7.1 min CN=65 Runoff=1.06 cfs 0.104 af
SubcatchmentEX2: Lawn & Play Area	Runoff Area=1.700 ac 14.71% Impervious Runoff Depth>0.61" Flow Length=258' Tc=6.7 min CN=65 Runoff=0.92 cfs 0.086 af
Reach EX21": 21" RCP	Avg. Flow Depth=0.62' Max Vel=3.99 fps Inflow=3.11 cfs 0.235 af 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/' Capacity=11.37 cfs Outflow=2.97 cfs 0.235 af
SubcatchmentEX3: Building & Parking	Runoff Area=1.900 ac 56.32% Impervious Runoff Depth>1.48" Flow Length=141' Tc=7.2 min CN=81 Runoff=3.11 cfs 0.235 af
Reach EX30": 30" RCP	Avg. Flow Depth=0.44' Max Vel=5.07 fps Inflow=2.97 cfs 0.235 af 30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/' Capacity=43.58 cfs Outflow=2.95 cfs 0.234 af
Reach EXCS: Cameron Street	Inflow=3.11 cfs 0.235 af Outflow=3.11 cfs 0.235 af
Reach EXCSB: Cold Spring Brook	Inflow=1.06 cfs 0.104 af Outflow=1.06 cfs 0.104 af
Reach EXDP: Fuller Brook	Inflow=4.89 cfs 0.424 af Outflow=4.89 cfs 0.424 af
Reach EXFB: Fuller Brook	Inflow=2.00 cfs 0.190 af Outflow=2.00 cfs 0.190 af
SubcatchmentPR1.1: Roof	Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>2.99" Tc=5.0 min CN=98 Runoff=1.57 cfs 0.124 af
SubcatchmentPR1.2: Lawn inside Em.	Runoff Area=0.510 ac 31.37% Impervious Runoff Depth>0.99" Tc=5.0 min CN=73 Runoff=0.56 cfs 0.042 af
SubcatchmentPR1.3: Lawn & Em. Access	Runoff Area=1.620 ac 8.64% Impervious Runoff Depth>0.57" Flow Length=175' Tc=6.1 min CN=64 Runoff=0.80 cfs 0.077 af
SubcatchmentPR2: Playground	Runoff Area=1.160 ac 7.76% Impervious Runoff Depth>1.16" Flow Length=211' Slope=0.0170 '/' Tc=7.4 min CN=76 Runoff=1.44 cfs 0.113 af
Reach PR21": 21" RCP	Avg. Flow Depth=0.58' Max Vel=3.87 fps Inflow=2.70 cfs 0.352 af 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/' Capacity=11.37 cfs Outflow=2.67 cfs 0.352 af
SubcatchmentPR3.1: Roof	Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>2.99" Tc=5.0 min CN=98 Runoff=1.57 cfs 0.124 af
SubcatchmentPR3.2: Parking	Runoff Area=1.090 ac 69.72% Impervious Runoff Depth>2.10" Flow Length=151' Slope=0.0200 '/' Tc=5.0 min CN=89 Runoff=2.68 cfs 0.191 af

18080-Hunnewell PSI

Prepared by SMMA

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Type III 24-hr 2-Year Rainfall=3.22"

Printed 3/25/2020

Page 3

Subcatchment PR3.3: Loading Area Runoff Area=0.260 ac 92.31% Impervious Runoff Depth>2.77"
Flow Length=95' Slope=0.0200 '/' Tc=5.0 min CN=96 Runoff=0.79 cfs 0.060 af

Reach PR30": 30" RCP Avg. Flow Depth=0.42' Max Vel=4.91 fps Inflow=2.67 cfs 0.352 af
30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/' Capacity=43.58 cfs Outflow=2.67 cfs 0.351 af

Reach PRCS: Cameron St Inflow=2.70 cfs 0.352 af
Outflow=2.70 cfs 0.352 af

Reach PRCSB: Cold Springs Brook Inflow=0.88 cfs 0.173 af
Outflow=0.88 cfs 0.173 af

Reach PRDP: Fuller Brook Inflow=4.83 cfs 0.637 af
Outflow=4.83 cfs 0.637 af

Reach PRFB: Fuller Brook Inflow=2.32 cfs 0.285 af
Outflow=2.32 cfs 0.285 af

Pond PRI1: Infiltration 1 Peak Elev=1.60' Storage=3,667 cf Inflow=4.25 cfs 0.315 af
Outflow=2.18 cfs 0.292 af

Pond PRI2: Infiltration 2 Peak Elev=1.60' Storage=4,694 cf Inflow=2.13 cfs 0.167 af
Outflow=0.11 cfs 0.096 af

Summary for Subcatchment EX1: Lawn

Runoff = 1.06 cfs @ 12.13 hrs, Volume= 0.104 af, Depth> 0.61"

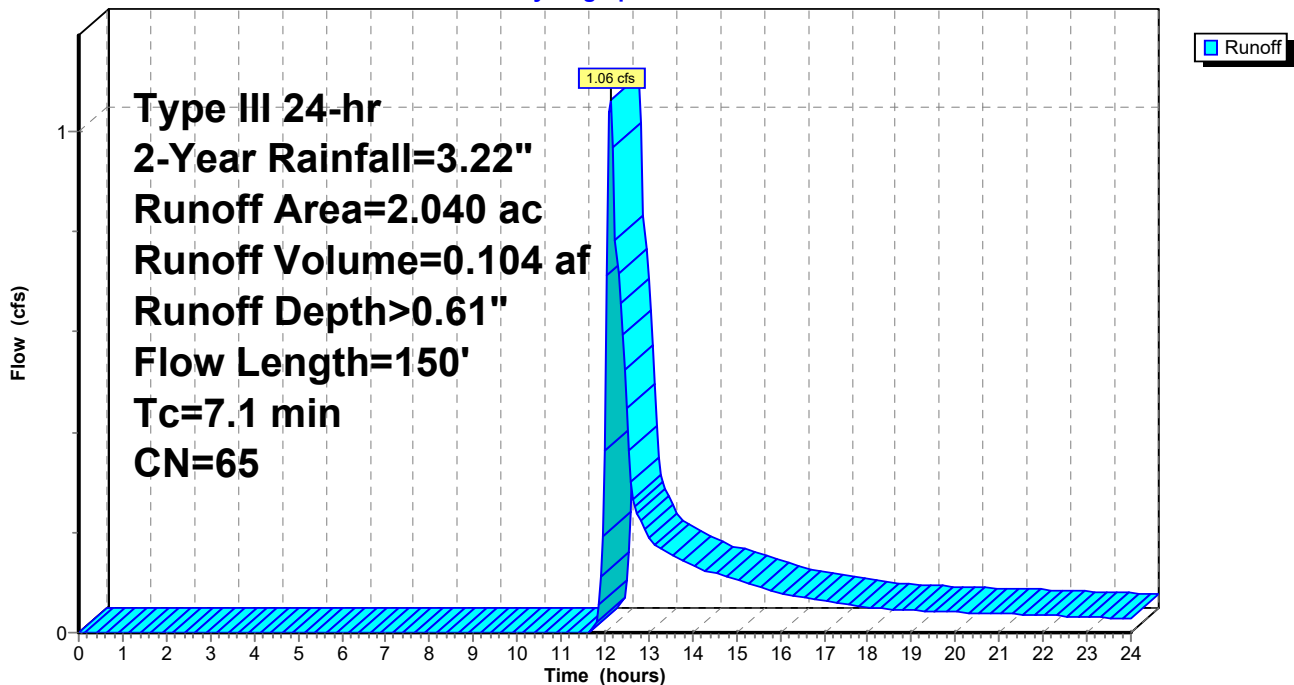
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.190	98	Paved parking, HSG B
0.060	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.440	61	>75% Grass cover, Good, HSG B
2.040	65	Weighted Average
1.790		87.75% Pervious Area
0.250		12.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1145	0.14		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.23"
0.8	81	0.1145	1.69		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
0.2	19	0.0526	1.61		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
7.1	150	Total			

Subcatchment EX1: Lawn

Hydrograph



Summary for Subcatchment EX2: Lawn & Play Area

Runoff = 0.92 cfs @ 12.12 hrs, Volume= 0.086 af, Depth> 0.61"

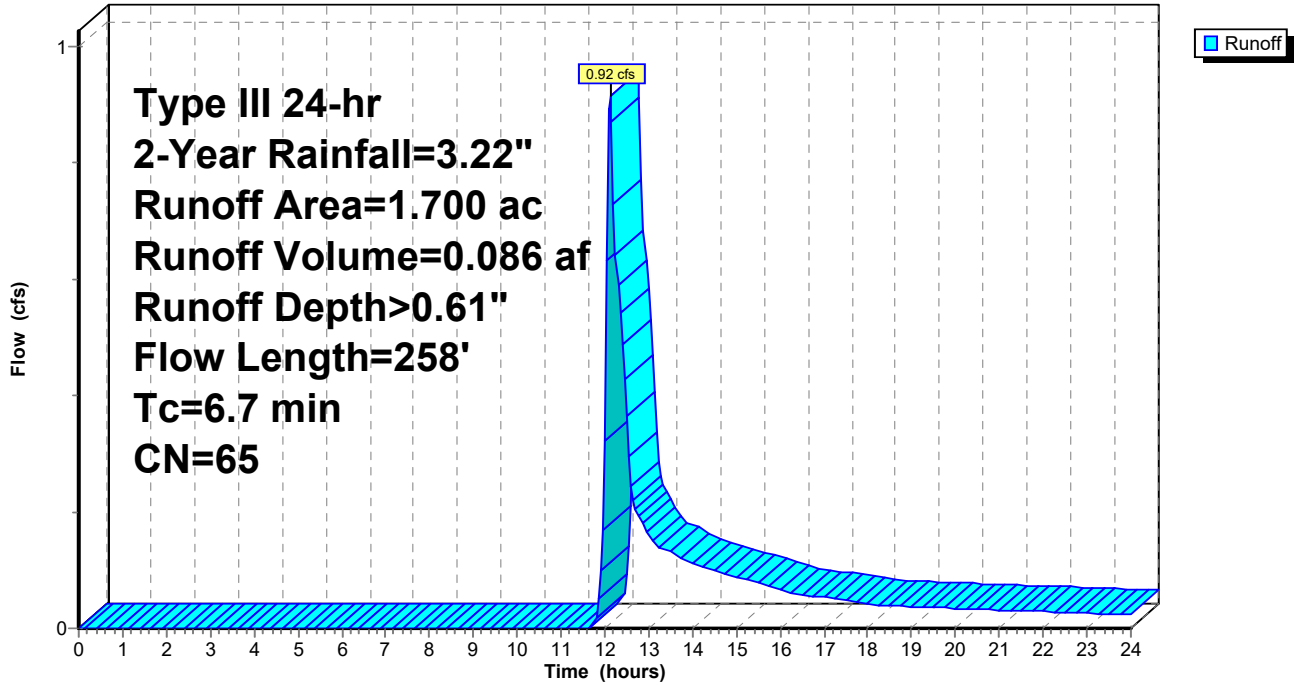
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.130	98	Paved parking, HSG B
0.120	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.100	61	>75% Grass cover, Good, HSG B
1.700	65	Weighted Average
1.450		85.29% Pervious Area
0.250		14.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0500	0.21		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0500	1.57		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
0.0	7	0.0500	4.54		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
2.7	196	0.0306	1.22		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
6.7	258	Total			

Subcatchment EX2: Lawn & Play Area

Hydrograph



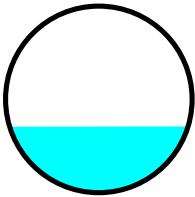
Summary for Reach EX21": 21" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 1.48" for 2-Year event
 Inflow = 3.11 cfs @ 12.11 hrs, Volume= 0.235 af
 Outflow = 2.97 cfs @ 12.14 hrs, Volume= 0.235 af, Atten= 5%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.99 fps, Min. Travel Time= 1.0 min
 Avg. Velocity = 1.51 fps, Avg. Travel Time= 2.6 min

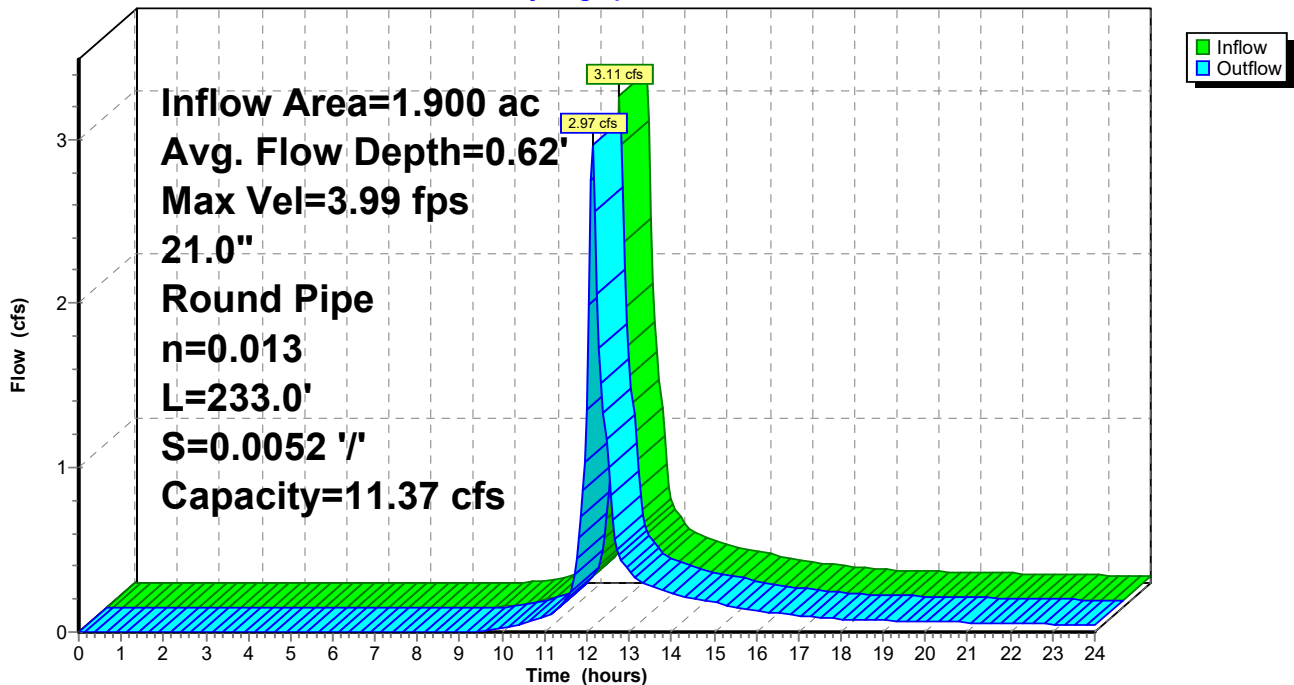
Peak Storage= 178 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.62'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach EX21": 21" RCP

Hydrograph



Summary for Subcatchment EX3: Building & Parking

Runoff = 3.11 cfs @ 12.11 hrs, Volume= 0.235 af, Depth> 1.48"

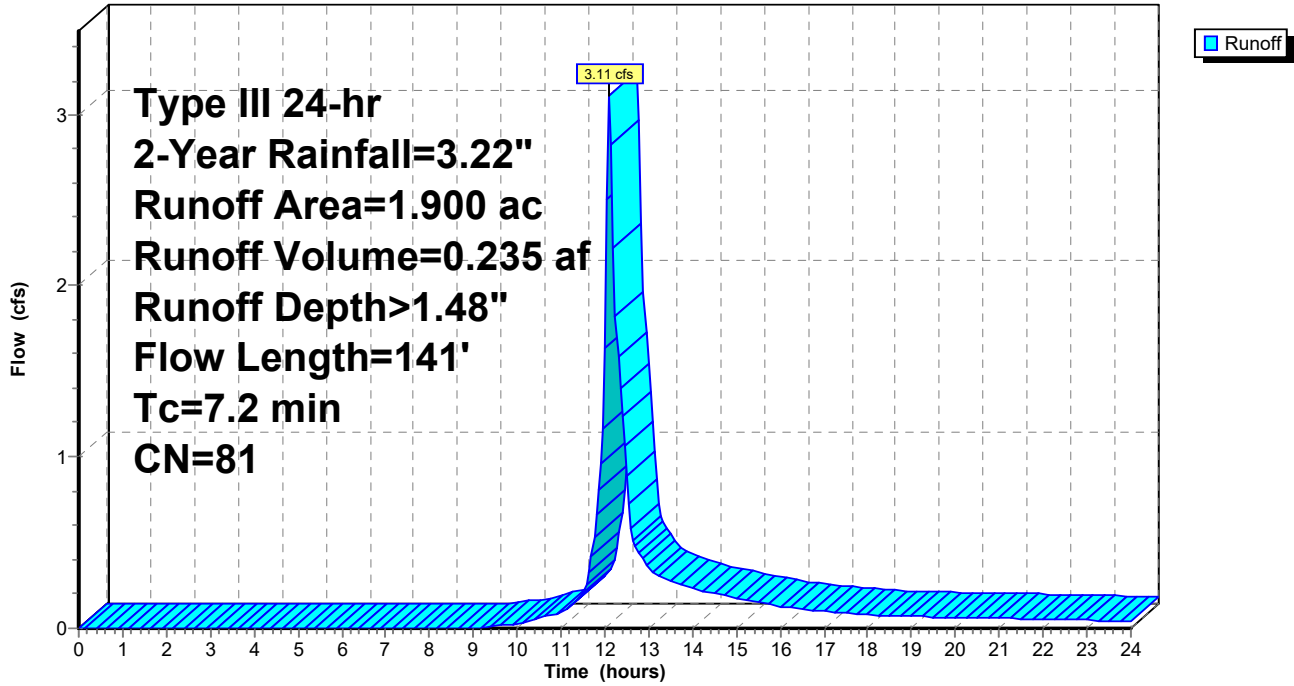
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG B
0.600	98	Roofs, HSG B
* 0.140	56	Brush, Fair, HSG B (mulch)
0.690	61	>75% Grass cover, Good, HSG B
1.900	81	Weighted Average
0.830		43.68% Pervious Area
1.070		56.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	45	0.0111	0.12		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0111	0.60		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 3.23"
0.0	1	0.0111	2.14		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
0.6	90	0.0167	2.62		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
7.2	141	Total			

Subcatchment EX3: Building & Parking

Hydrograph



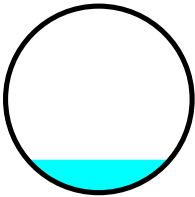
Summary for Reach EX30": 30" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 1.48" for 2-Year event
 Inflow = 2.97 cfs @ 12.14 hrs, Volume= 0.235 af
 Outflow = 2.95 cfs @ 12.15 hrs, Volume= 0.234 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.07 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.91 fps, Avg. Travel Time= 0.5 min

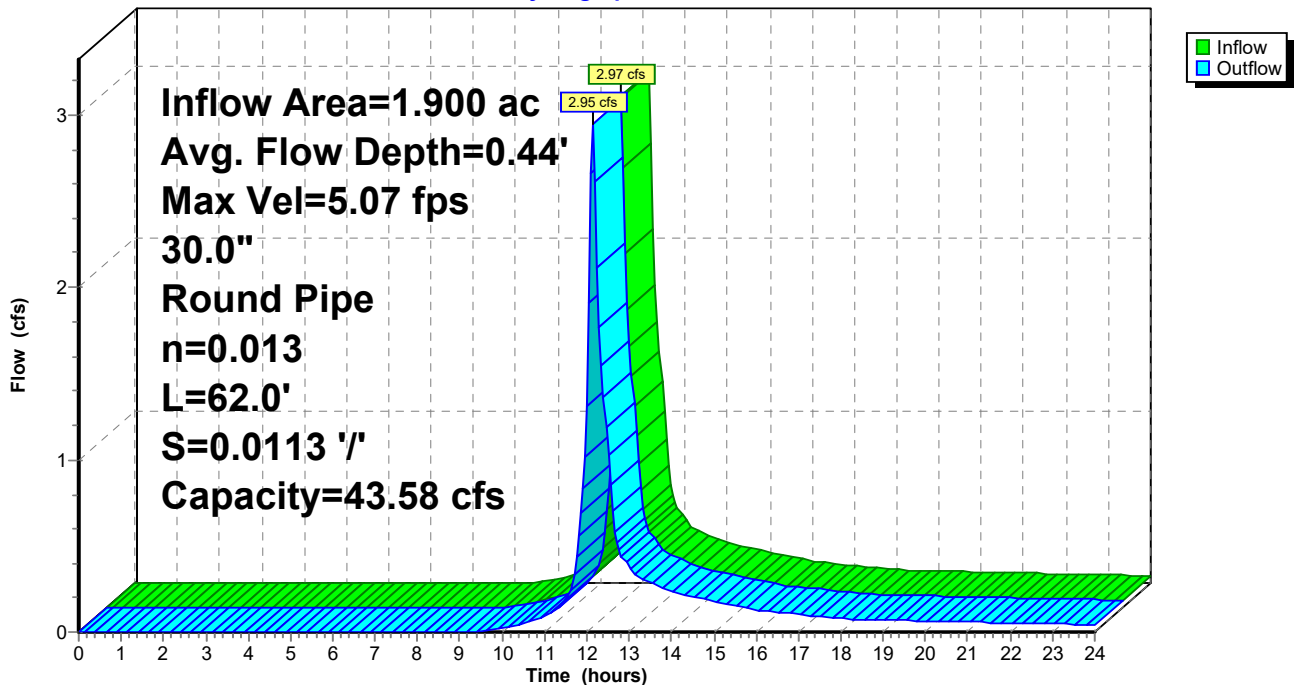
Peak Storage= 36 cf @ 12.14 hrs
 Average Depth at Peak Storage= 0.44'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 62.0' Slope= 0.0113 '/'
 Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach EX30": 30" RCP

Hydrograph



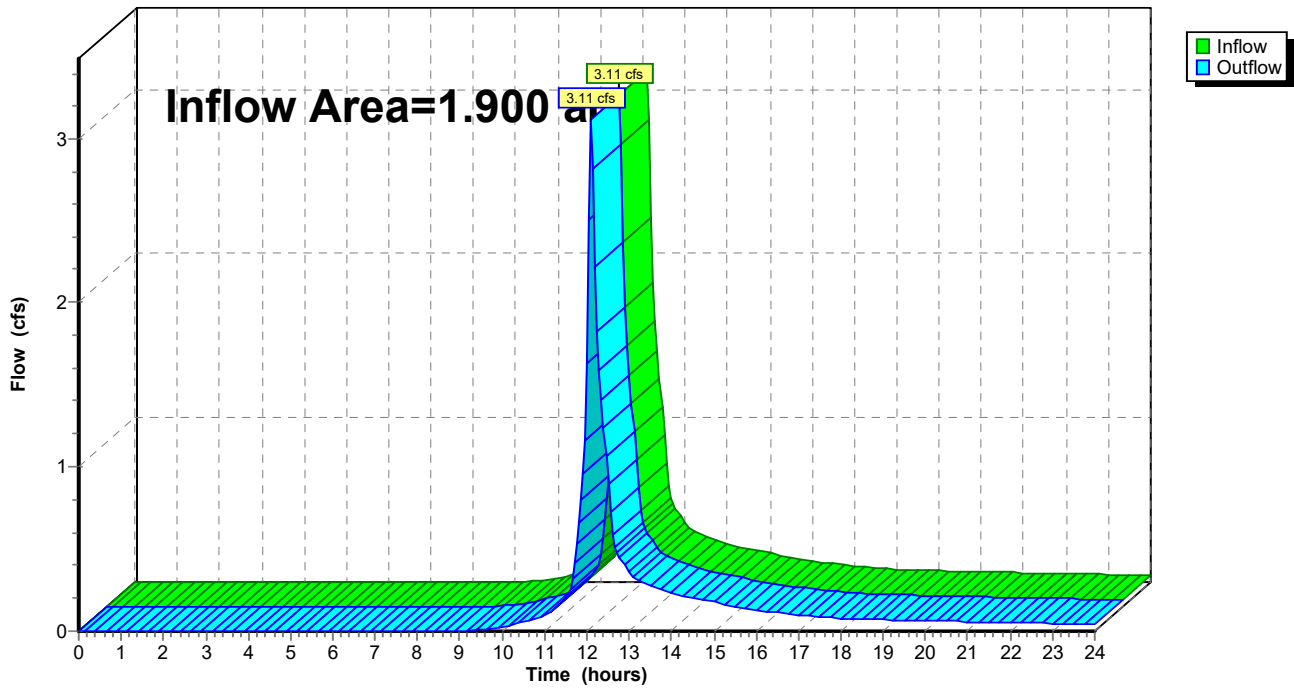
Summary for Reach EXCS: Cameron Street

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 1.48" for 2-Year event
Inflow = 3.11 cfs @ 12.11 hrs, Volume= 0.235 af
Outflow = 3.11 cfs @ 12.11 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCS: Cameron Street

Hydrograph



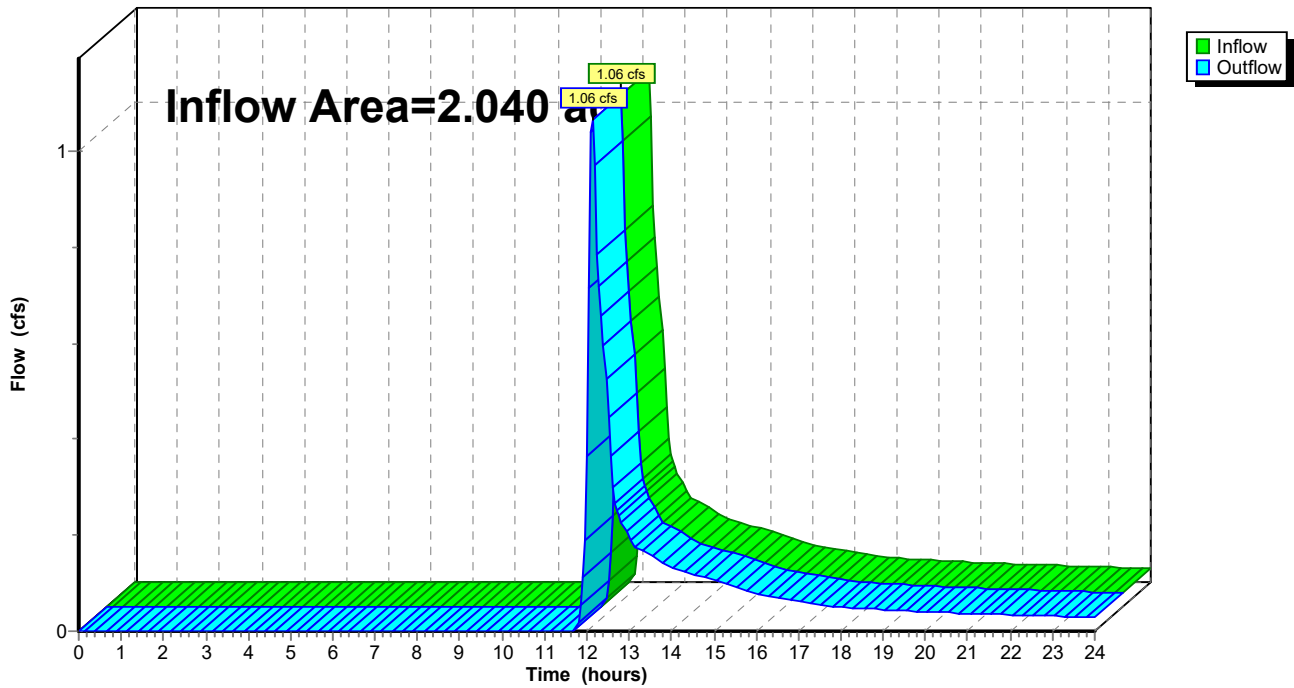
Summary for Reach EXCSB: Cold Spring Brook

Inflow Area = 2.040 ac, 12.25% Impervious, Inflow Depth > 0.61" for 2-Year event
Inflow = 1.06 cfs @ 12.13 hrs, Volume= 0.104 af
Outflow = 1.06 cfs @ 12.13 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCSB: Cold Spring Brook

Hydrograph



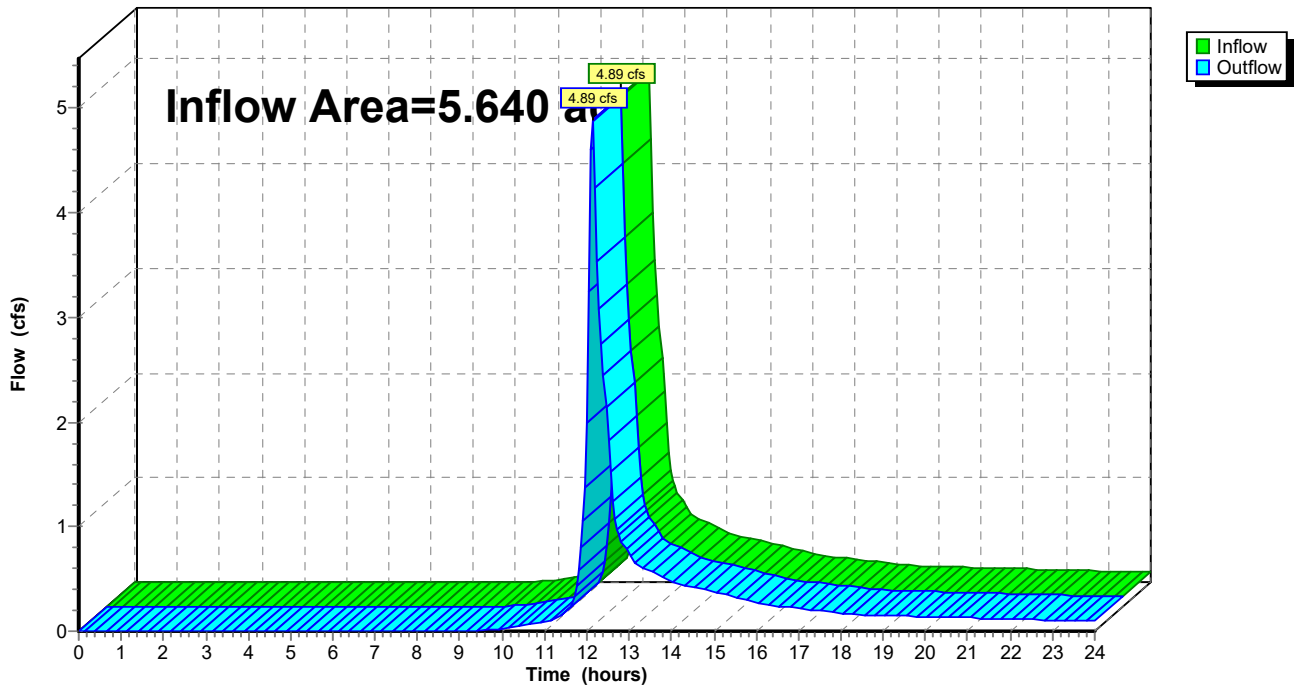
Summary for Reach EXDP: Fuller Brook

Inflow Area = 5.640 ac, 27.84% Impervious, Inflow Depth > 0.90" for 2-Year event
Inflow = 4.89 cfs @ 12.14 hrs, Volume= 0.424 af
Outflow = 4.89 cfs @ 12.14 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXDP: Fuller Brook

Hydrograph



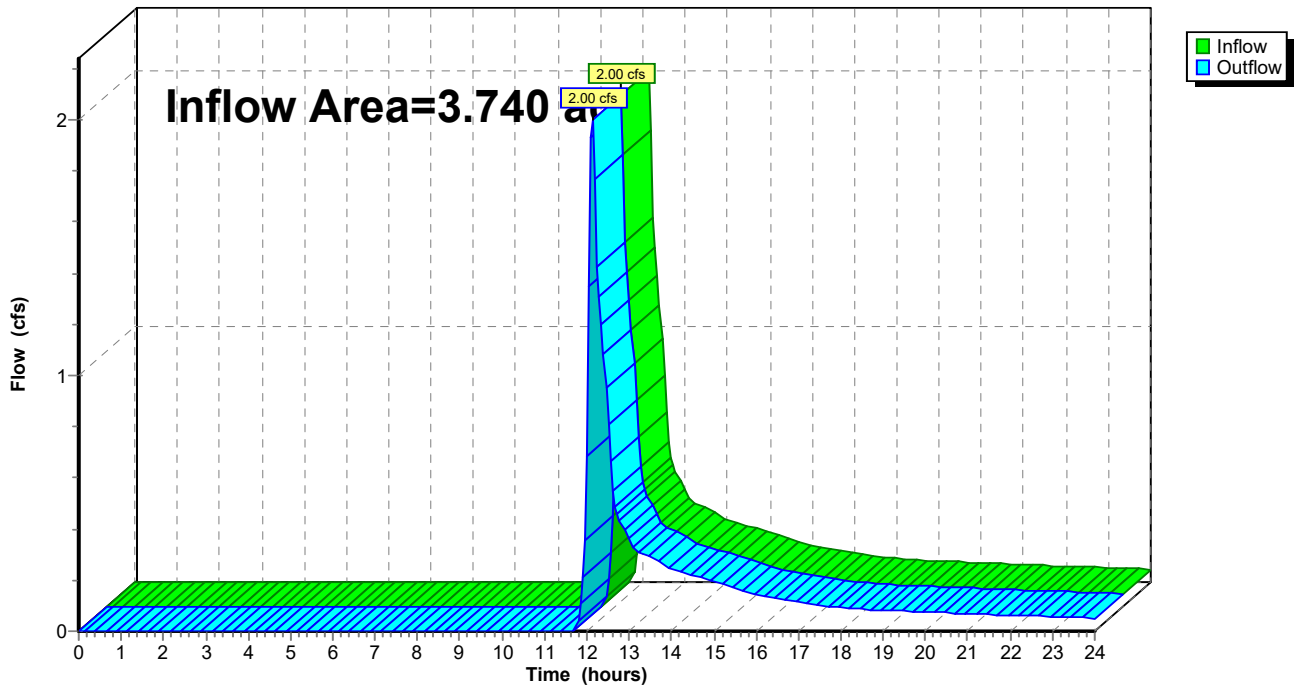
Summary for Reach EXFB: Fuller Brook

Inflow Area = 3.740 ac, 13.37% Impervious, Inflow Depth > 0.61" for 2-Year event
Inflow = 2.00 cfs @ 12.12 hrs, Volume= 0.190 af
Outflow = 2.00 cfs @ 12.12 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXFB: Fuller Brook

Hydrograph



Summary for Subcatchment PR1.1: Roof

Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.124 af, Depth> 2.99"

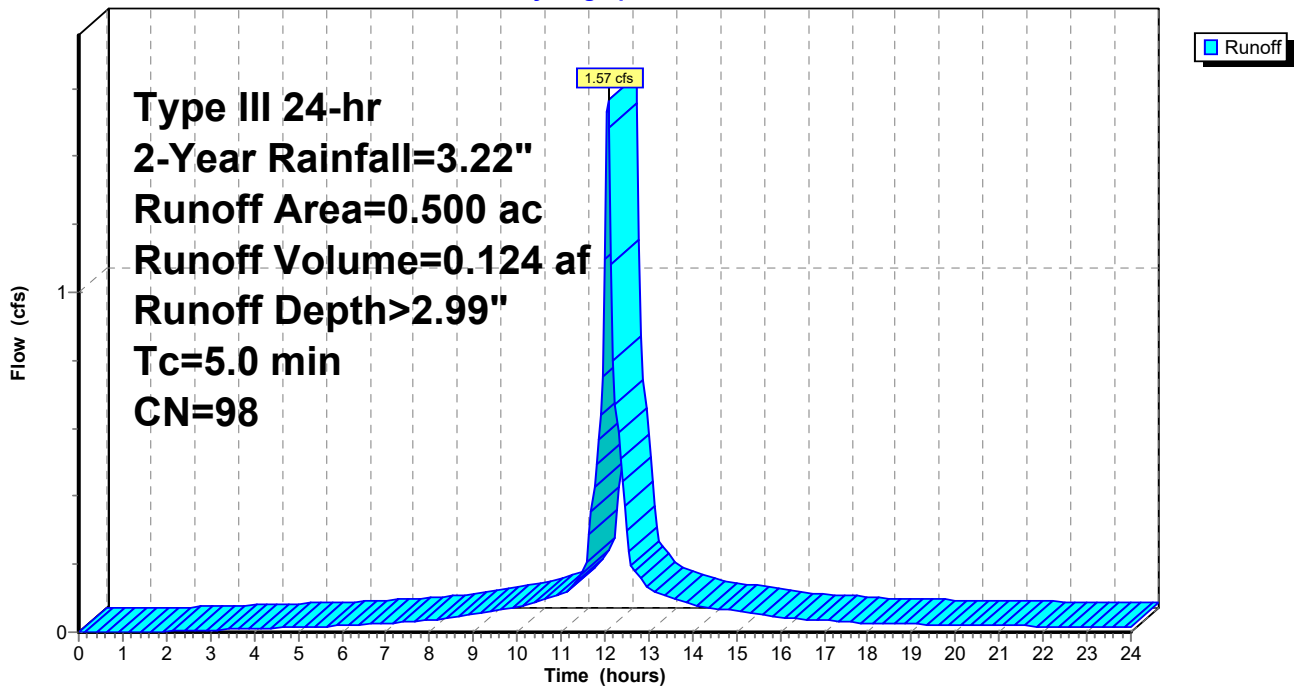
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR1.1: Roof

Hydrograph



Summary for Subcatchment PR1.2: Lawn inside Em. Access

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.042 af, Depth> 0.99"

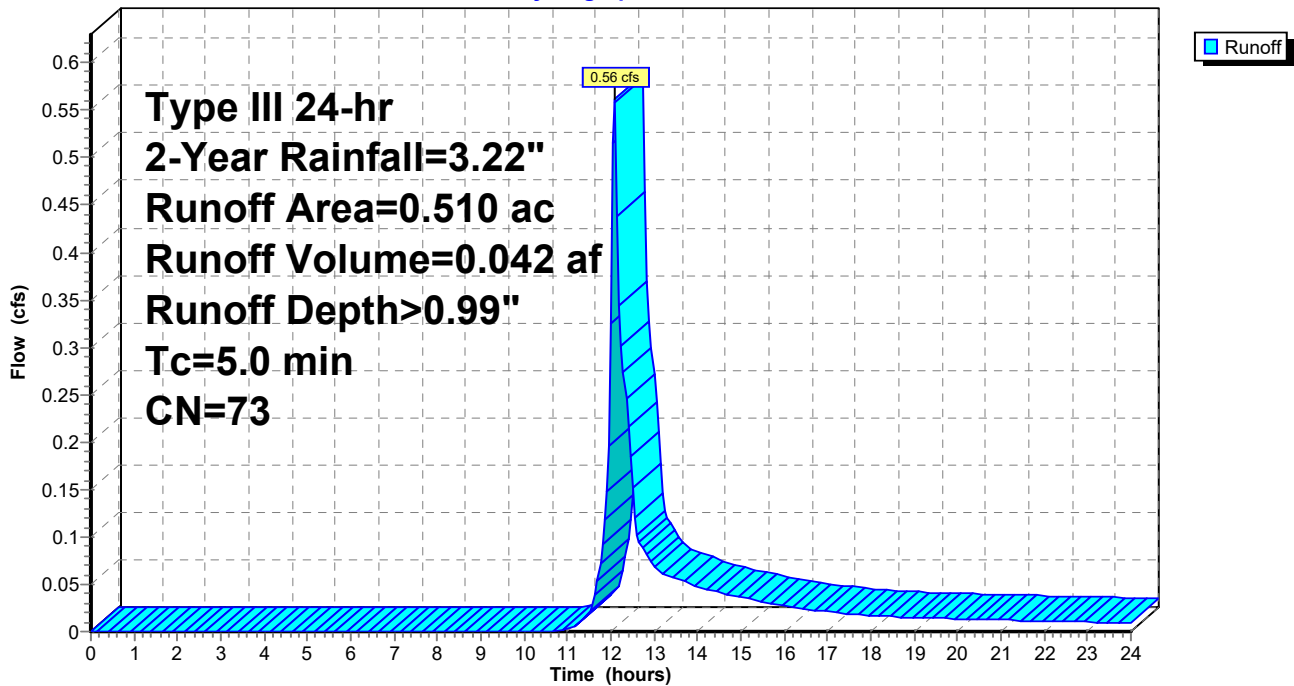
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.350	61	>75% Grass cover, Good, HSG B
* 0.000	98	emergency access
* 0.160	98	pavement
* 0.000	56	Brush, Fair, HSG B (mulch)
0.510	73	Weighted Average
0.350		68.63% Pervious Area
0.160		31.37% Impervious Area

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

Subcatchment PR1.2: Lawn inside Em. Access

Hydrograph



Summary for Subcatchment PR1.3: Lawn & Em. Access

Runoff = 0.80 cfs @ 12.12 hrs, Volume= 0.077 af, Depth> 0.57"

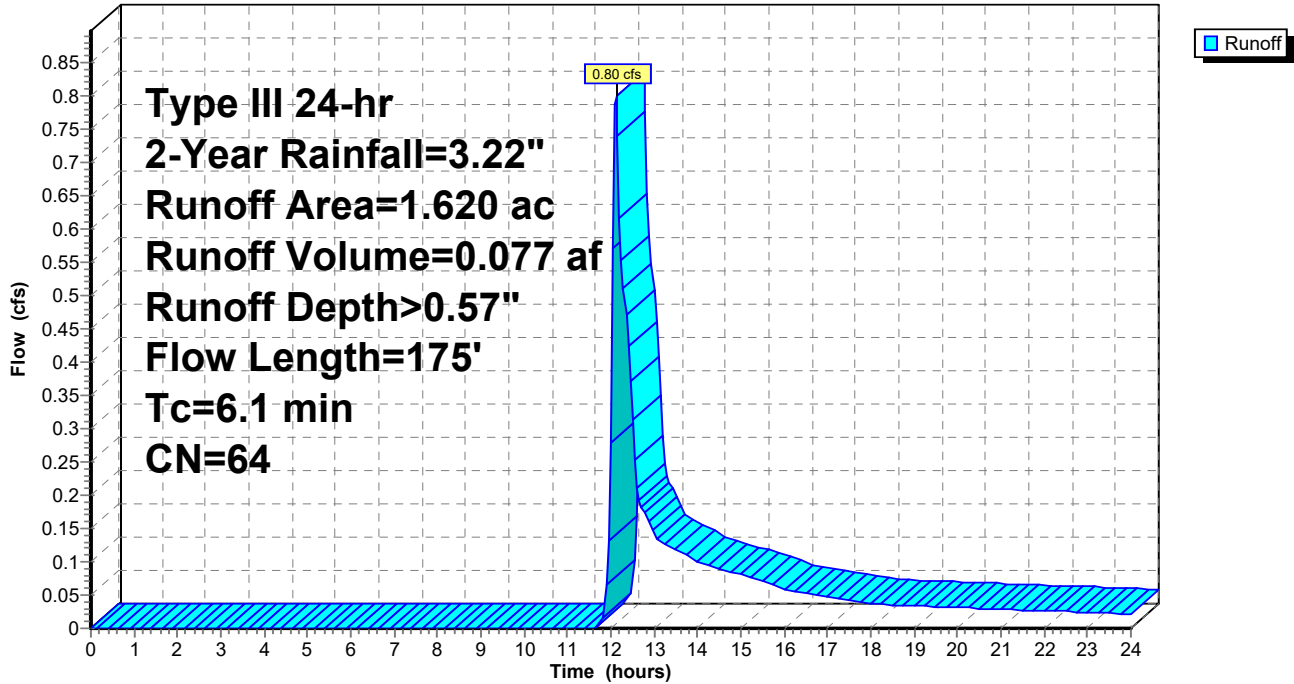
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
1.140	61	>75% Grass cover, Good, HSG B
* 0.140	98	emergency access
* 0.030	82	walks- stonedust
* 0.310	56	Brush, Fair, HSG B (mulch)
1.620	64	Weighted Average
1.480		91.36% Pervious Area
0.140		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	25	0.1200	0.18		Sheet Flow, Bush Grass: Dense n= 0.240 P2= 3.23"
1.7	25	0.1000	0.25		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.23"
0.1	15	0.1100	2.32		Shallow Concentrated Flow, Sloped Lawn Short Grass Pasture Kv= 7.0 fps
0.3	40	0.1000	2.21		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
1.7	70	0.0100	0.70		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
6.1	175	Total			

Subcatchment PR1.3: Lawn & Em. Access

Hydrograph



Summary for Subcatchment PR2: Playground

Runoff = 1.44 cfs @ 12.11 hrs, Volume= 0.113 af, Depth> 1.16"

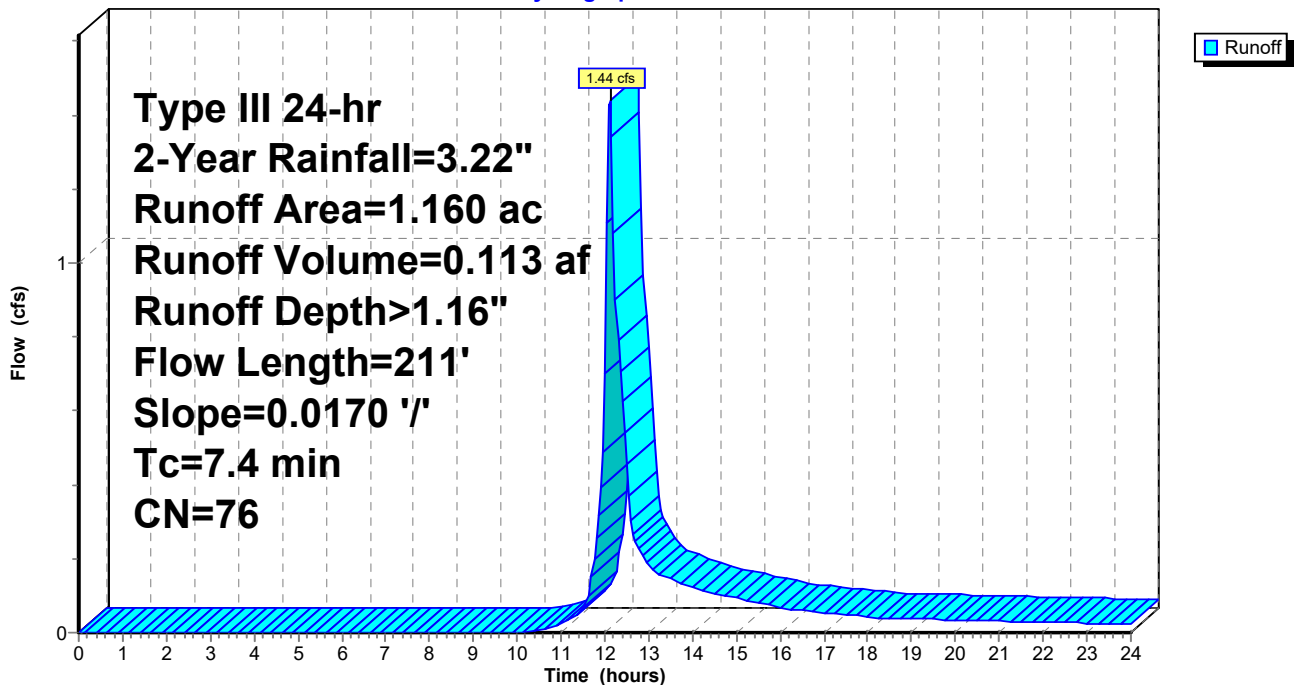
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.640	69	50-75% Grass cover, Fair, HSG B
* 0.430	82	Dirt roads, HSG B (play surface)
* 0.060	98	fire access
* 0.030	98	pavement
1.160	76	Weighted Average
1.070		92.24% Pervious Area
0.090		7.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0170	0.14		Sheet Flow, Playground Grass: Short n= 0.150 P2= 3.23"
0.3	19	0.0170	0.91		Shallow Concentrated Flow, Playground Short Grass Pasture Kv= 7.0 fps
1.1	142	0.0170	2.10		Shallow Concentrated Flow, Playground Unpaved Kv= 16.1 fps
7.4	211	Total			

Subcatchment PR2: Playground

Hydrograph



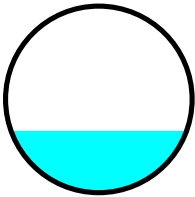
Summary for Reach PR21": 21" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 2.28" for 2-Year event
 Inflow = 2.70 cfs @ 12.12 hrs, Volume= 0.352 af
 Outflow = 2.67 cfs @ 12.17 hrs, Volume= 0.352 af, Atten= 1%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.87 fps, Min. Travel Time= 1.0 min
 Avg. Velocity = 1.40 fps, Avg. Travel Time= 2.8 min

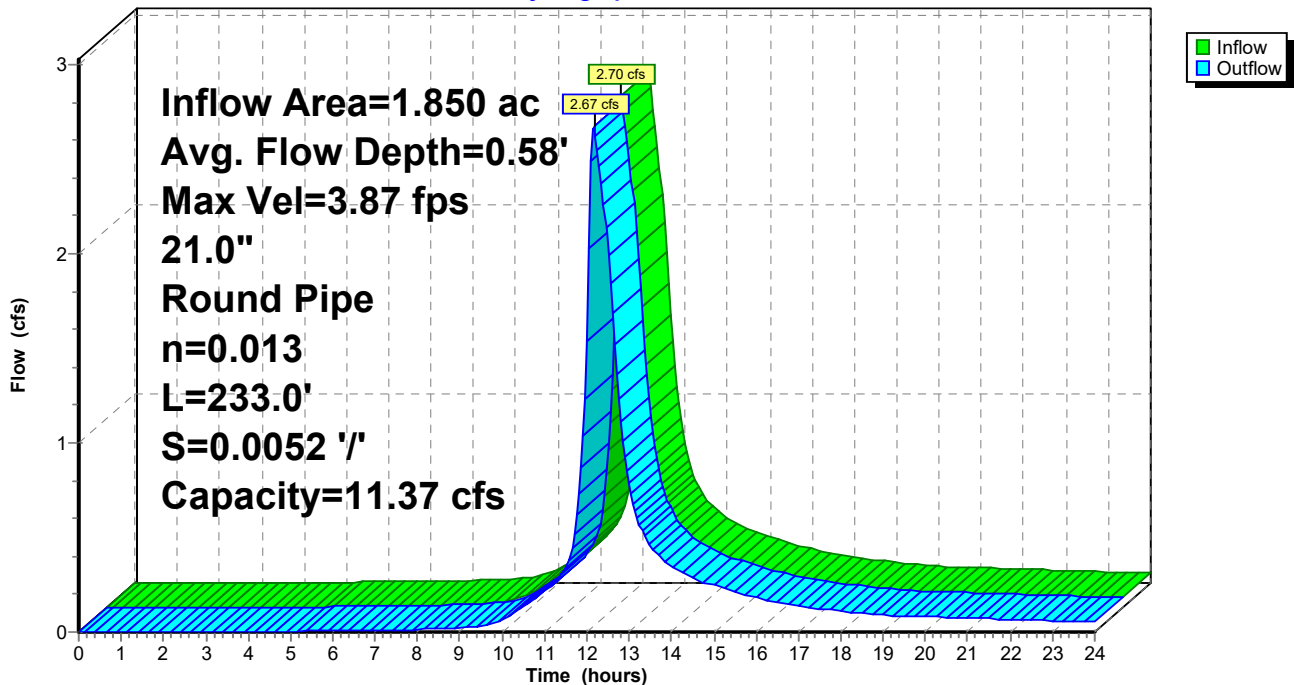
Peak Storage= 162 cf @ 12.14 hrs
 Average Depth at Peak Storage= 0.58'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach PR21": 21" RCP

Hydrograph



Summary for Subcatchment PR3.1: Roof

Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.124 af, Depth> 2.99"

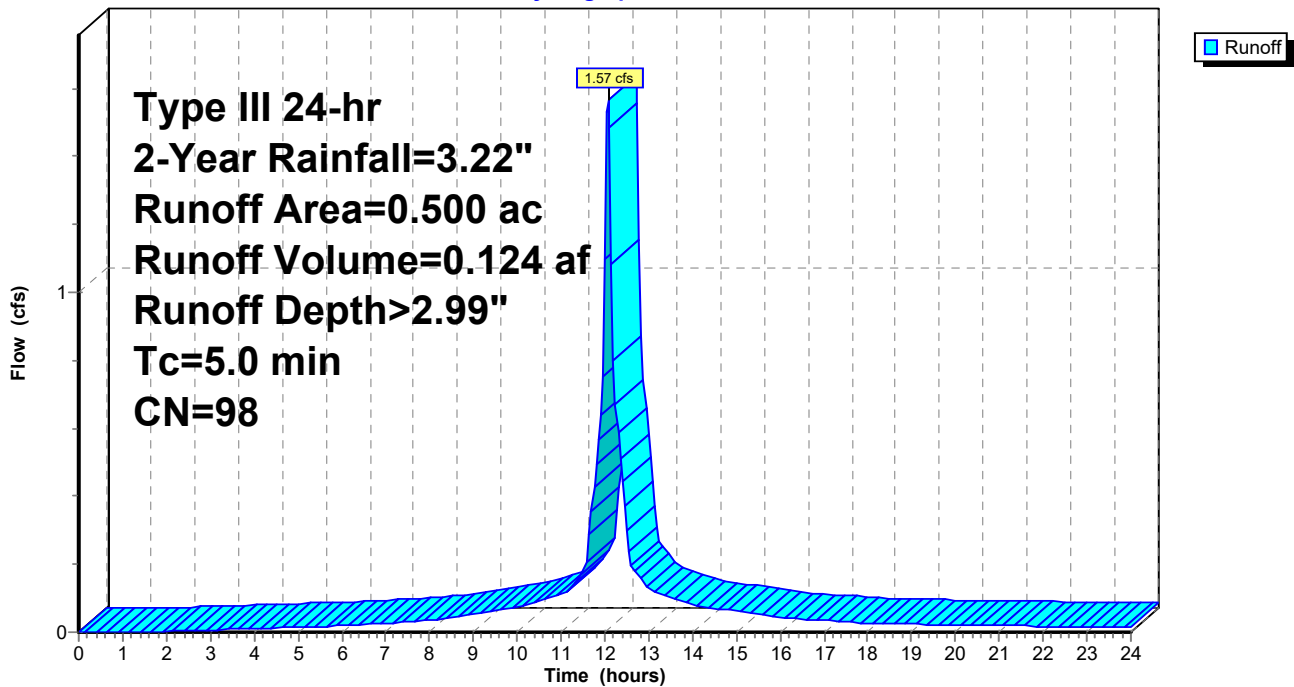
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR3.1: Roof

Hydrograph



Summary for Subcatchment PR3.2: Parking

Runoff = 2.68 cfs @ 12.07 hrs, Volume= 0.191 af, Depth> 2.10"

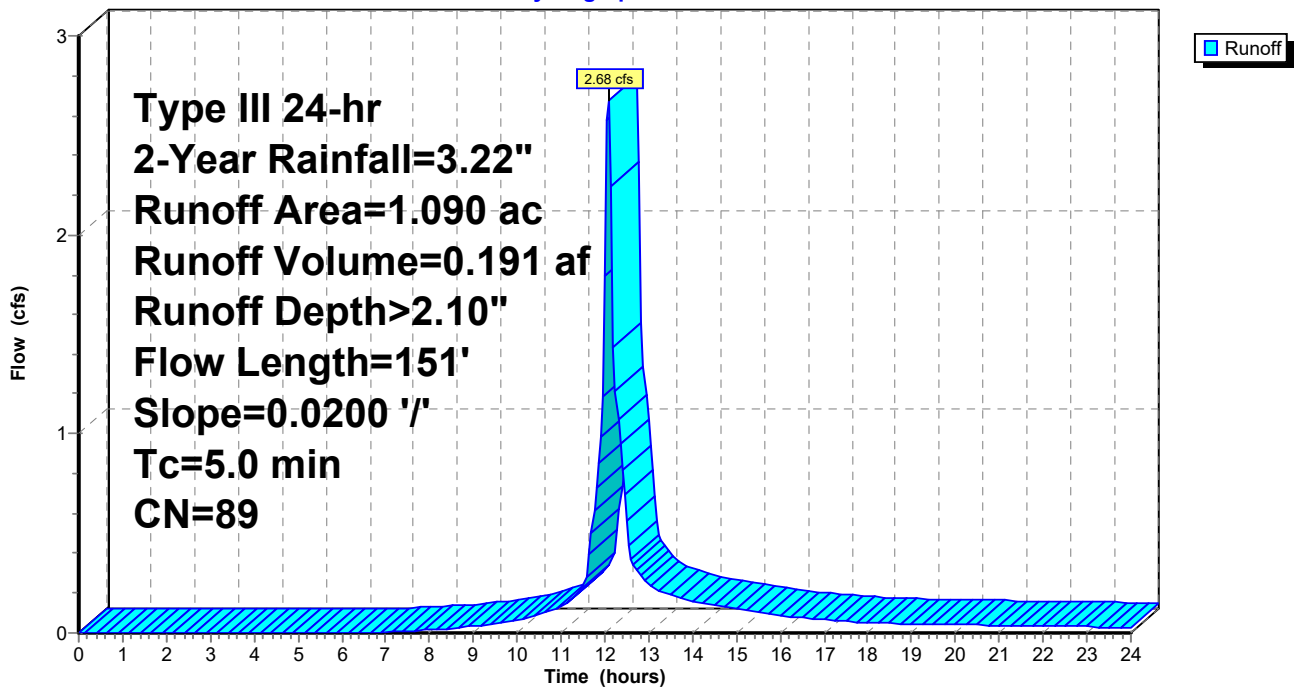
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.330	69	50-75% Grass cover, Fair, HSG B
0.760	98	Paved roads w/curbs & sewers, HSG B
1.090	89	Weighted Average
0.330		30.28% Pervious Area
0.760		69.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	11	0.0200	0.11		Sheet Flow, Landscaping Grass: Short n= 0.150 P2= 3.23"
0.6	39	0.0200	1.14		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.6	101	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
2.1					Direct Entry, extra
5.0	151	Total			

Subcatchment PR3.2: Parking

Hydrograph



Summary for Subcatchment PR3.3: Loading Area

Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.060 af, Depth> 2.77"

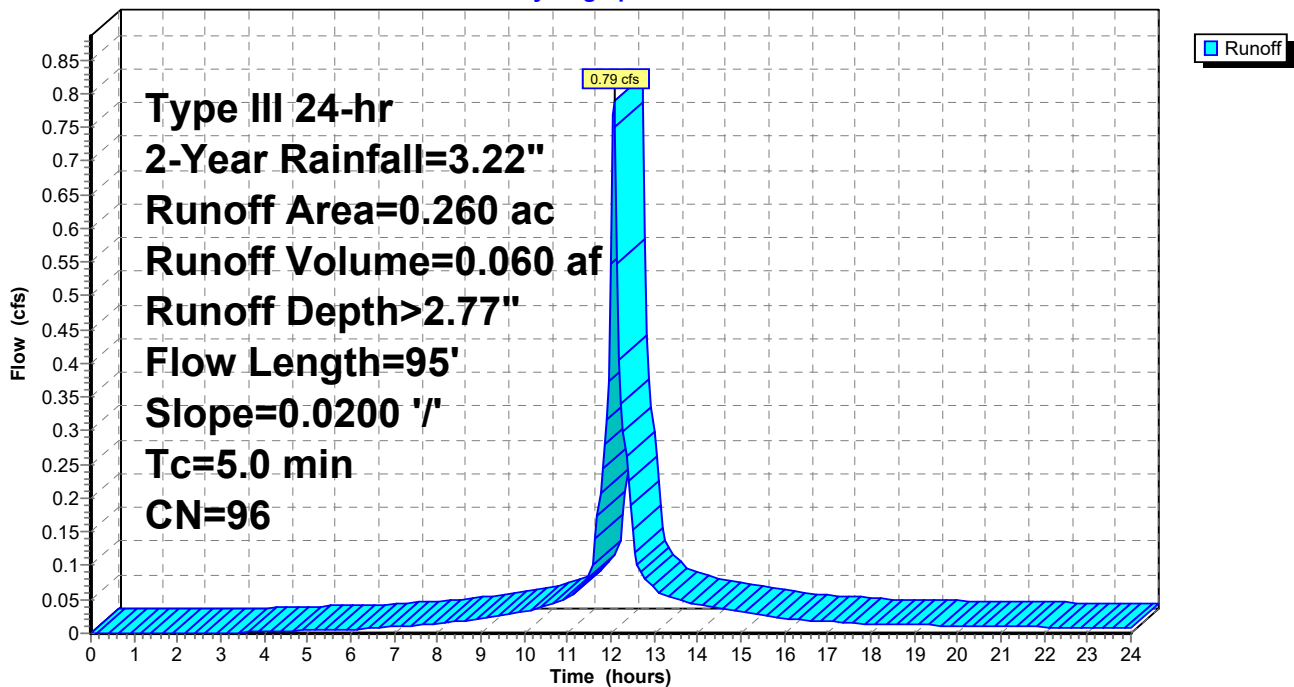
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG B
0.020	69	50-75% Grass cover, Fair, HSG B
0.260	96	Weighted Average
0.020		7.69% Pervious Area
0.240		92.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.3	45	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
4.0					Direct Entry, Extra
5.0	95	Total			

Subcatchment PR3.3: Loading Area

Hydrograph



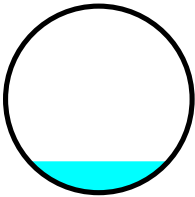
Summary for Reach PR30": 30" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow = 2.67 cfs @ 12.17 hrs, Volume= 0.352 af
Outflow = 2.67 cfs @ 12.17 hrs, Volume= 0.351 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.91 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 0.6 min

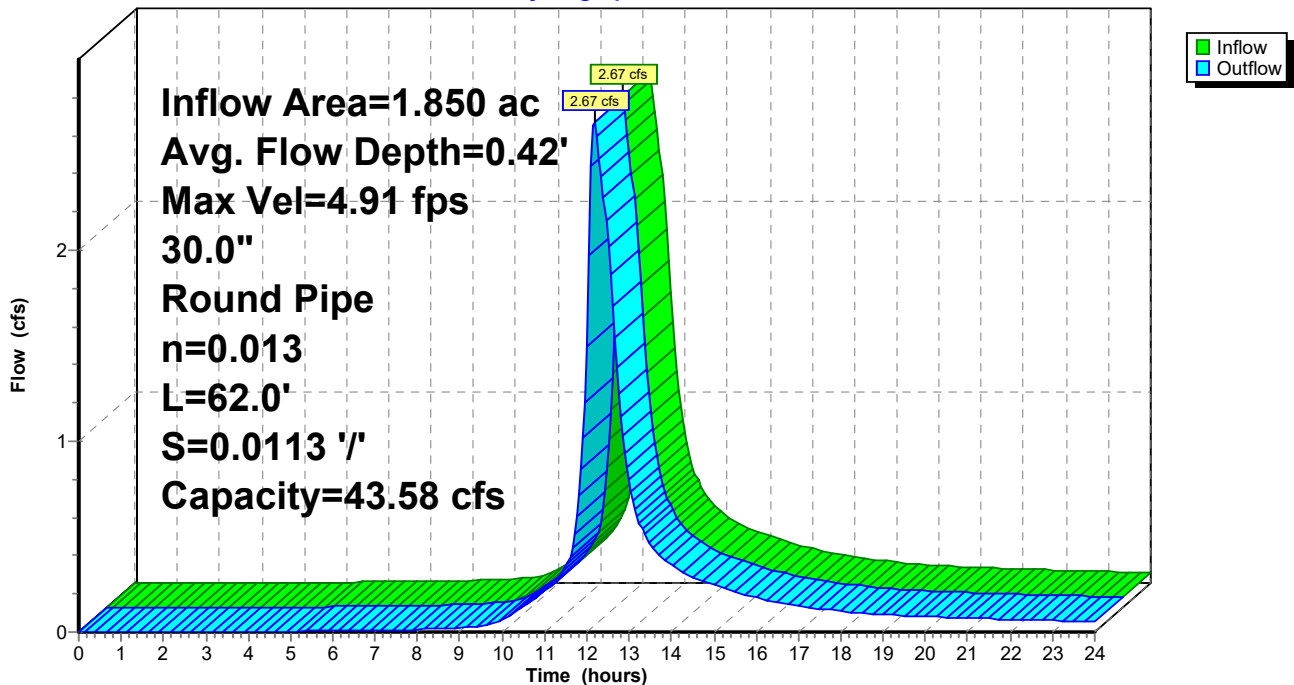
Peak Storage= 34 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 62.0' Slope= 0.0113 '/'
Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach PR30": 30" RCP

Hydrograph



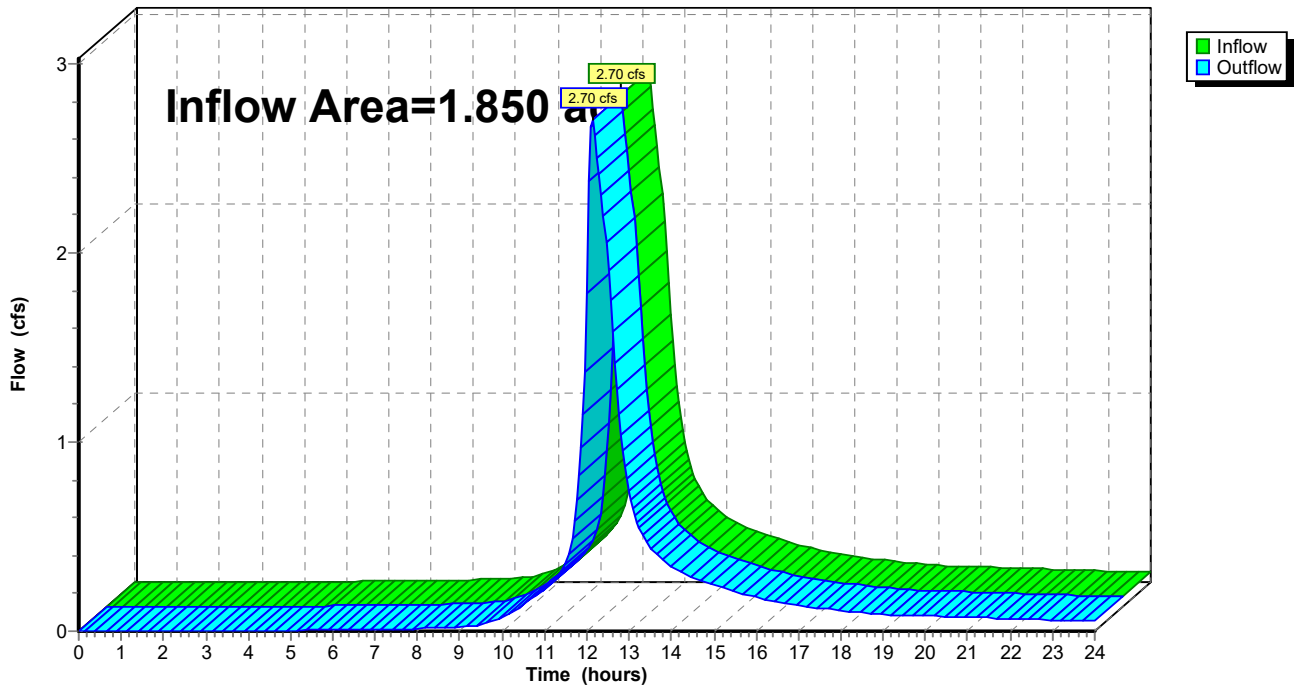
Summary for Reach PRCS: Cameron St

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow = 2.70 cfs @ 12.12 hrs, Volume= 0.352 af
Outflow = 2.70 cfs @ 12.12 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCS: Cameron St

Hydrograph



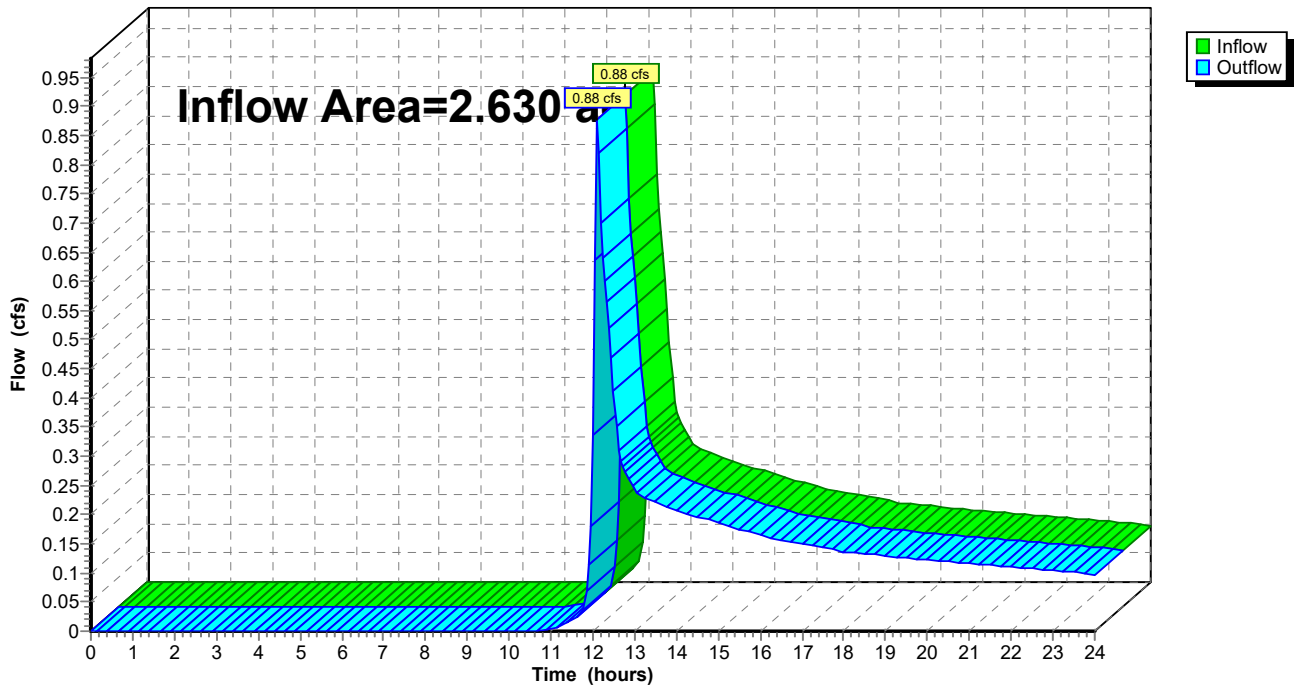
Summary for Reach PRCSB: Cold Springs Brook

Inflow Area = 2.630 ac, 30.42% Impervious, Inflow Depth > 0.79" for 2-Year event
Inflow = 0.88 cfs @ 12.12 hrs, Volume= 0.173 af
Outflow = 0.88 cfs @ 12.12 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCSB: Cold Springs Brook

Hydrograph



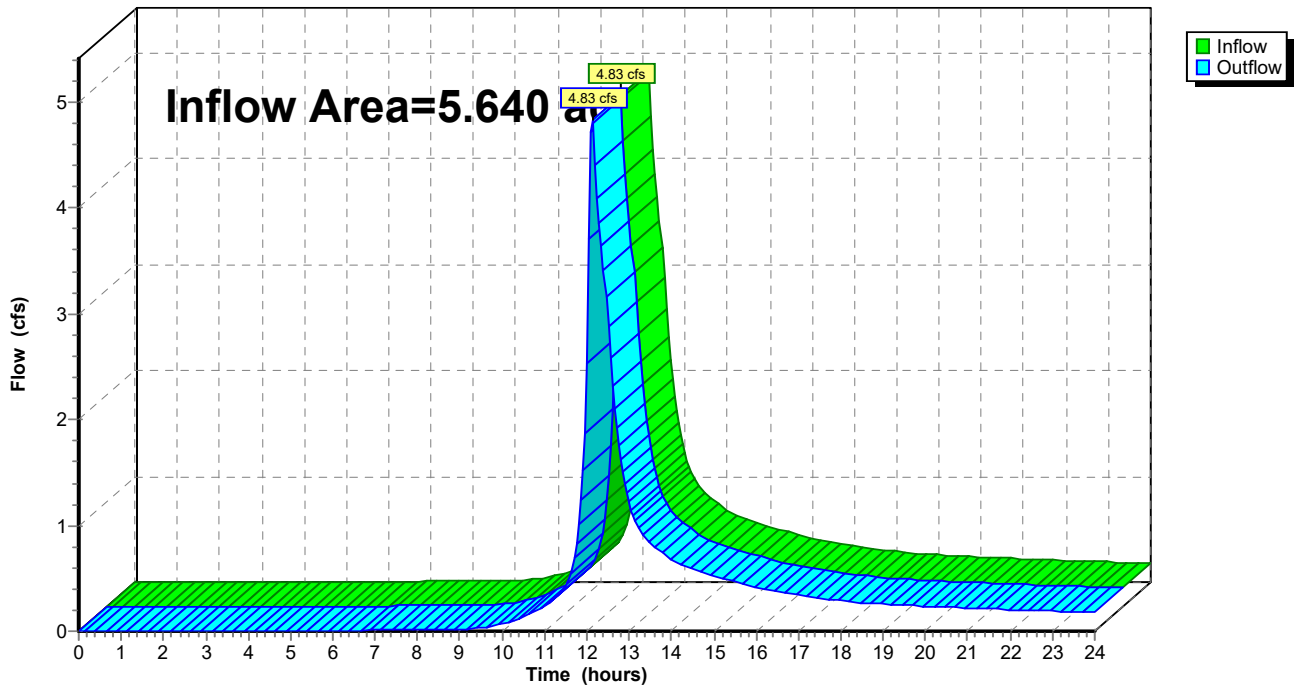
Summary for Reach PRDP: Fuller Brook

Inflow Area = 5.640 ac, 42.38% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 4.83 cfs @ 12.13 hrs, Volume= 0.637 af
Outflow = 4.83 cfs @ 12.13 hrs, Volume= 0.637 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRDP: Fuller Brook

Hydrograph



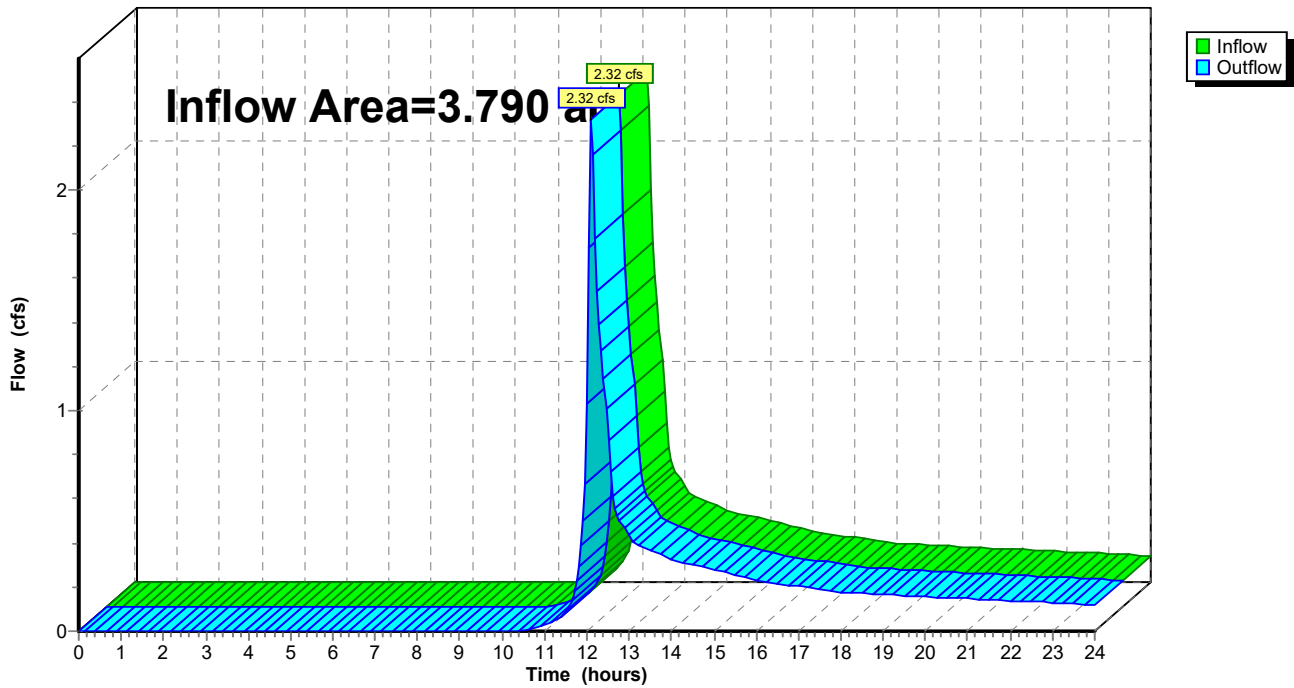
Summary for Reach PRFB: Fuller Brook

Inflow Area = 3.790 ac, 23.48% Impervious, Inflow Depth > 0.90" for 2-Year event
Inflow = 2.32 cfs @ 12.12 hrs, Volume= 0.285 af
Outflow = 2.32 cfs @ 12.12 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRFB: Fuller Brook

Hydrograph



Summary for Pond PRI1: Infiltration 1

Inflow Area = 1.590 ac, 79.25% Impervious, Inflow Depth > 2.38" for 2-Year event
 Inflow = 4.25 cfs @ 12.07 hrs, Volume= 0.315 af
 Outflow = 2.18 cfs @ 12.22 hrs, Volume= 0.292 af, Atten= 49%, Lag= 8.6 min
 Primary = 2.18 cfs @ 12.22 hrs, Volume= 0.292 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 1.60' @ 12.22 hrs Surf.Area= 3,502 sf Storage= 3,667 cf

Plug-Flow detention time= 85.5 min calculated for 0.292 af (93% of inflow)
 Center-of-Mass det. time= 47.2 min (835.2 - 788.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	2,484 cf	47.00'W x 74.50'L x 2.54'H Field A 8,900 cf Overall - 2,689 cf Embedded = 6,211 cf x 40.0% Voids
#2A	0.50'	2,689 cf	Cultec R-150XLHD x 98 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 14 rows
		5,173 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	10.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	24.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.17 cfs @ 12.22 hrs HW=1.60' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 2.17 cfs @ 3.98 fps)
- └─2=Orifice/Grate (Controls 0.00 cfs)

Pond PRI1: Infiltration 1 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 14 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

14 Rows x 33.0" Wide + 6.0" Spacing x 13 + 12.0" Side Stone x 2 = 47.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

98 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 14 Rows = 2,688.7 cf Chamber Storage

8,899.6 cf Field - 2,688.7 cf Chambers = 6,210.9 cf Stone x 40.0% Voids = 2,484.4 cf Stone Storage

Chamber Storage + Stone Storage = 5,173.1 cf = 0.119 af

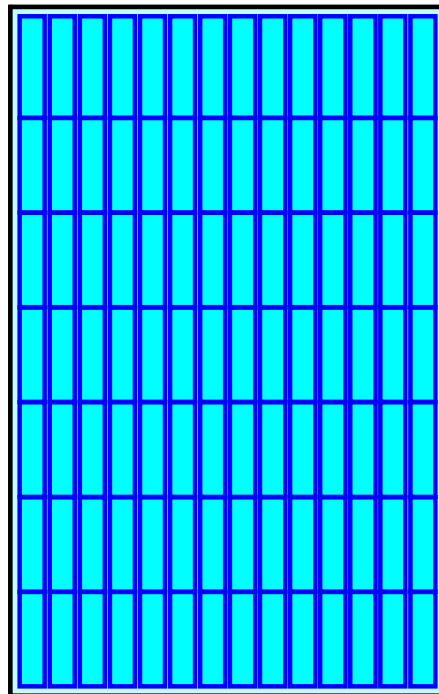
Overall Storage Efficiency = 58.1%

Overall System Size = 74.50' x 47.00' x 2.54'

98 Chambers

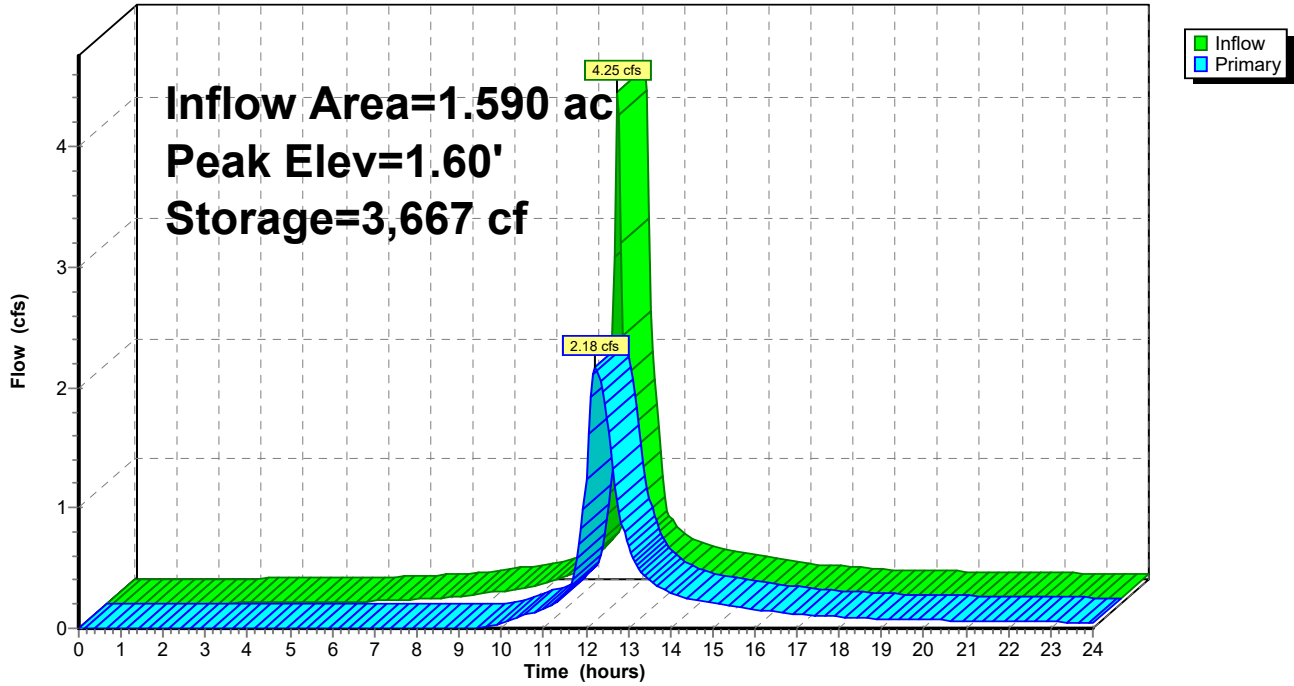
329.6 cy Field

230.0 cy Stone



Pond PRI1: Infiltration 1

Hydrograph



Summary for Pond PRI2: Infiltration 2

Inflow Area = 1.010 ac, 65.35% Impervious, Inflow Depth > 1.98" for 2-Year event
 Inflow = 2.13 cfs @ 12.07 hrs, Volume= 0.167 af
 Outflow = 0.11 cfs @ 14.74 hrs, Volume= 0.096 af, Atten= 95%, Lag= 160.1 min
 Primary = 0.11 cfs @ 14.74 hrs, Volume= 0.096 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 1.60' @ 14.74 hrs Surf.Area= 4,470 sf Storage= 4,694 cf

Plug-Flow detention time= 391.4 min calculated for 0.096 af (57% of inflow)
 Center-of-Mass det. time= 275.1 min (1,057.7 - 782.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	3,162 cf	60.00'W x 74.50'L x 2.54'H Field A 11,361 cf Overall - 3,457 cf Embedded = 7,904 cf x 40.0% Voids
#2A	0.50'	3,457 cf	Cultec R-150XLHD x 126 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 18 rows
		6,619 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.11 cfs @ 14.74 hrs HW=1.60' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 0.11 cfs @ 4.86 fps)
- └─2=Orifice/Grate (Controls 0.00 cfs)

Pond PRI2: Infiltration 2 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 18 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

18 Rows x 33.0" Wide + 6.0" Spacing x 17 + 12.0" Side Stone x 2 = 60.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

126 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 18 Rows = 3,456.9 cf Chamber Storage

11,361.3 cf Field - 3,456.9 cf Chambers = 7,904.3 cf Stone x 40.0% Voids = 3,161.7 cf Stone Storage

Chamber Storage + Stone Storage = 6,618.7 cf = 0.152 af

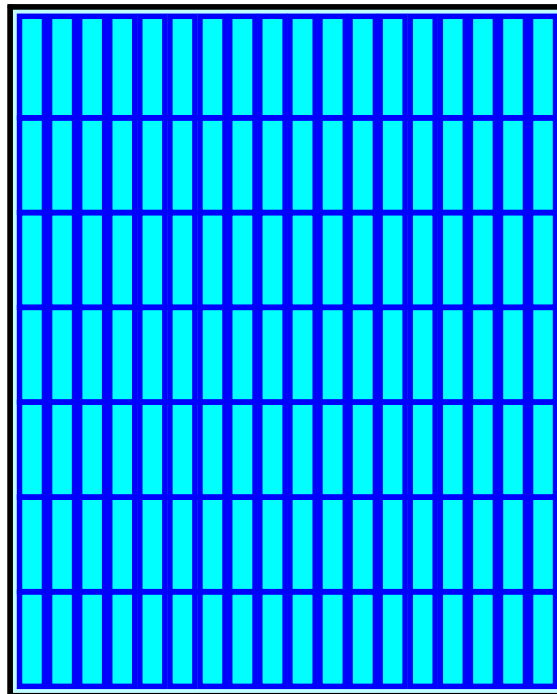
Overall Storage Efficiency = 58.3%

Overall System Size = 74.50' x 60.00' x 2.54'

126 Chambers

420.8 cy Field

292.8 cy Stone



Pond PRI2: Infiltration 2



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX1: Lawn	Runoff Area=2.040 ac 12.25% Impervious Runoff Depth>1.56" Flow Length=150' Tc=7.1 min CN=65 Runoff=3.35 cfs 0.265 af
SubcatchmentEX2: Lawn & Play Area	Runoff Area=1.700 ac 14.71% Impervious Runoff Depth>1.56" Flow Length=258' Tc=6.7 min CN=65 Runoff=2.83 cfs 0.221 af
Reach EX21": 21" RCP	Avg. Flow Depth=0.90' Max Vel=4.77 fps Inflow=6.04 cfs 0.453 af 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/ Capacity=11.37 cfs Outflow=5.76 cfs 0.452 af
SubcatchmentEX3: Building & Parking	Runoff Area=1.900 ac 56.32% Impervious Runoff Depth>2.86" Flow Length=141' Tc=7.2 min CN=81 Runoff=6.04 cfs 0.453 af
Reach EX30": 30" RCP	Avg. Flow Depth=0.61' Max Vel=6.15 fps Inflow=5.76 cfs 0.452 af 30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/ Capacity=43.58 cfs Outflow=5.74 cfs 0.452 af
Reach EXCS: Cameron Street	Inflow=6.04 cfs 0.453 af Outflow=6.04 cfs 0.453 af
Reach EXCSB: Cold Spring Brook	Inflow=3.35 cfs 0.265 af Outflow=3.35 cfs 0.265 af
Reach EXDP: Fuller Brook	Inflow=11.82 cfs 0.938 af Outflow=11.82 cfs 0.938 af
Reach EXFB: Fuller Brook	Inflow=6.19 cfs 0.486 af Outflow=6.19 cfs 0.486 af
SubcatchmentPR1.1: Roof	Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>4.62" Tc=5.0 min CN=98 Runoff=2.39 cfs 0.193 af
SubcatchmentPR1.2: Lawn inside Em.	Runoff Area=0.510 ac 31.37% Impervious Runoff Depth>2.17" Tc=5.0 min CN=73 Runoff=1.29 cfs 0.092 af
SubcatchmentPR1.3: Lawn & Em. Access	Runoff Area=1.620 ac 8.64% Impervious Runoff Depth>1.49" Flow Length=175' Tc=6.1 min CN=64 Runoff=2.60 cfs 0.201 af
SubcatchmentPR2: Playground	Runoff Area=1.160 ac 7.76% Impervious Runoff Depth>2.42" Flow Length=211' Slope=0.0170 '/ Tc=7.4 min CN=76 Runoff=3.09 cfs 0.234 af
Reach PR21": 21" RCP	Avg. Flow Depth=0.89' Max Vel=4.77 fps Inflow=5.91 cfs 0.593 af 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/ Capacity=11.37 cfs Outflow=5.70 cfs 0.593 af
SubcatchmentPR3.1: Roof	Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>4.62" Tc=5.0 min CN=98 Runoff=2.39 cfs 0.193 af
SubcatchmentPR3.2: Parking	Runoff Area=1.090 ac 69.72% Impervious Runoff Depth>3.64" Flow Length=151' Slope=0.0200 '/ Tc=5.0 min CN=89 Runoff=4.55 cfs 0.330 af

18080-Hunnewell PSI

Prepared by SMMA

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Type III 24-hr 10-Year Rainfall=4.86"

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Subcatchment PR3.3: Loading Area Runoff Area=0.260 ac 92.31% Impervious Runoff Depth>4.39"
Flow Length=95' Slope=0.0200 '/' Tc=5.0 min CN=96 Runoff=1.22 cfs 0.095 af

Reach PR30": 30" RCP Avg. Flow Depth=0.61' Max Vel=6.09 fps Inflow=5.70 cfs 0.593 af
30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/' Capacity=43.58 cfs Outflow=5.62 cfs 0.593 af

Reach PRCS: Cameron St Inflow=5.91 cfs 0.593 af
Outflow=5.91 cfs 0.593 af

Reach PRCSB: Cold Springs Brook Inflow=2.72 cfs 0.394 af
Outflow=2.72 cfs 0.394 af

Reach PRDP: Fuller Brook Inflow=10.73 cfs 1.220 af
Outflow=10.73 cfs 1.220 af

Reach PRFB: Fuller Brook Inflow=5.81 cfs 0.628 af
Outflow=5.81 cfs 0.628 af

Pond PRI1: Infiltration 1 Peak Elev=2.33' Storage=4,878 cf Inflow=6.94 cfs 0.523 af
Outflow=5.09 cfs 0.498 af

Pond PRI2: Infiltration 2 Peak Elev=2.46' Storage=6,476 cf Inflow=3.68 cfs 0.285 af
Outflow=0.79 cfs 0.193 af

Summary for Subcatchment EX1: Lawn

Runoff = 3.35 cfs @ 12.11 hrs, Volume= 0.265 af, Depth> 1.56"

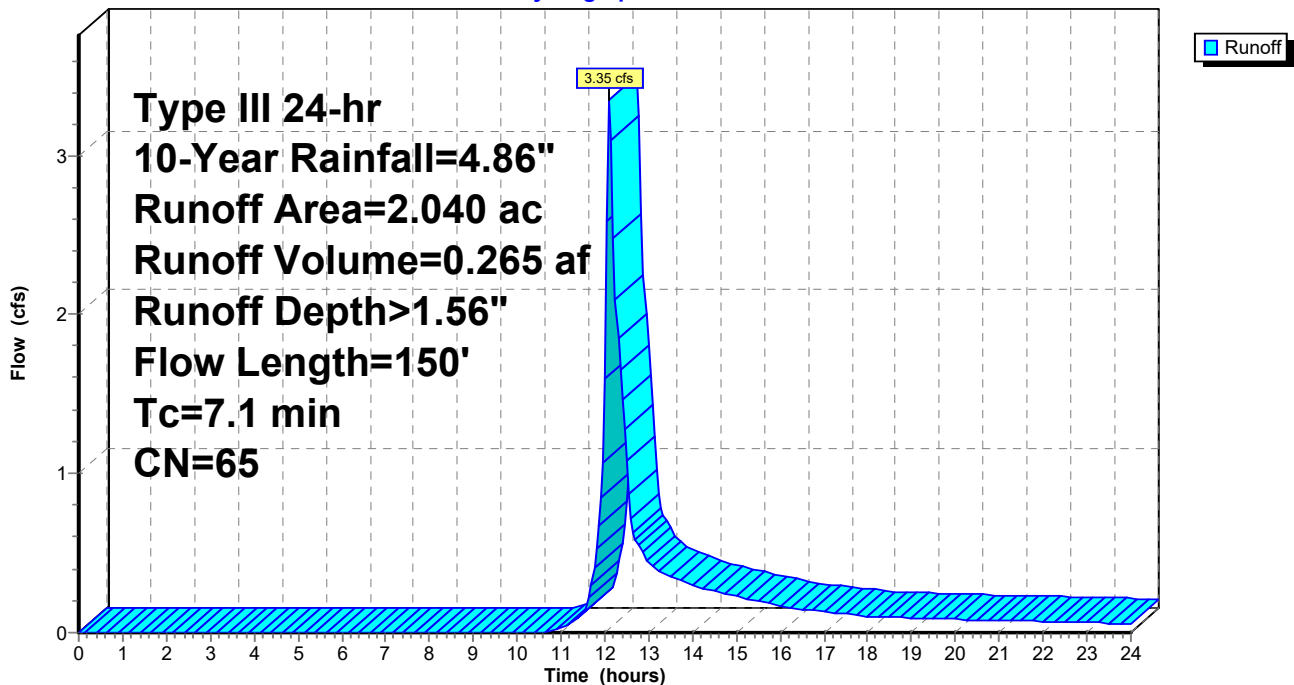
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.190	98	Paved parking, HSG B
0.060	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.440	61	>75% Grass cover, Good, HSG B
2.040	65	Weighted Average
1.790		87.75% Pervious Area
0.250		12.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1145	0.14		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.23"
0.8	81	0.1145	1.69		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
0.2	19	0.0526	1.61		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
7.1	150	Total			

Subcatchment EX1: Lawn

Hydrograph



Summary for Subcatchment EX2: Lawn & Play Area

Runoff = 2.83 cfs @ 12.11 hrs, Volume= 0.221 af, Depth> 1.56"

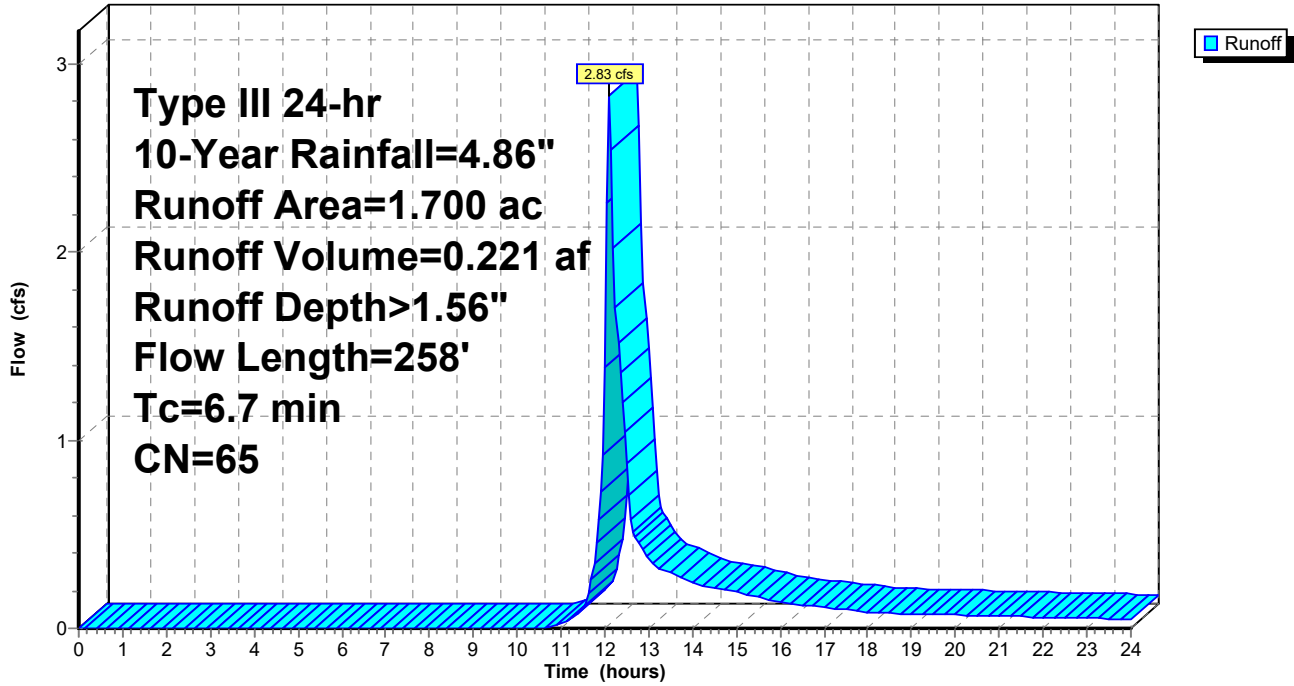
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.130	98	Paved parking, HSG B
0.120	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.100	61	>75% Grass cover, Good, HSG B
1.700	65	Weighted Average
1.450		85.29% Pervious Area
0.250		14.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0500	0.21		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0500	1.57		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
0.0	7	0.0500	4.54		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
2.7	196	0.0306	1.22		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
6.7	258	Total			

Subcatchment EX2: Lawn & Play Area

Hydrograph



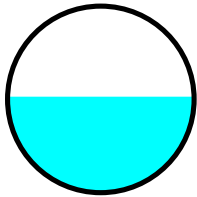
Summary for Reach EX21": 21" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 2.86" for 10-Year event
 Inflow = 6.04 cfs @ 12.11 hrs, Volume= 0.453 af
 Outflow = 5.76 cfs @ 12.13 hrs, Volume= 0.452 af, Atten= 5%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.77 fps, Min. Travel Time= 0.8 min
 Avg. Velocity = 1.76 fps, Avg. Travel Time= 2.2 min

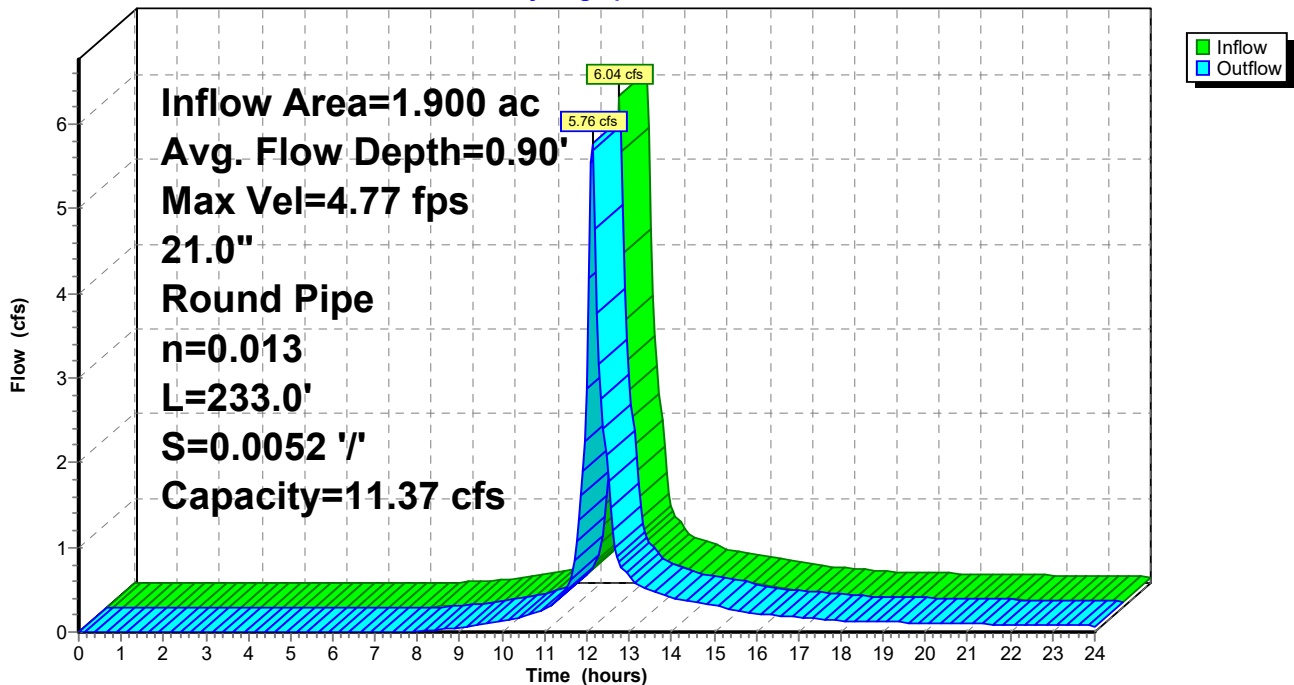
Peak Storage= 291 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.90'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach EX21": 21" RCP

Hydrograph



Summary for Subcatchment EX3: Building & Parking

Runoff = 6.04 cfs @ 12.11 hrs, Volume= 0.453 af, Depth> 2.86"

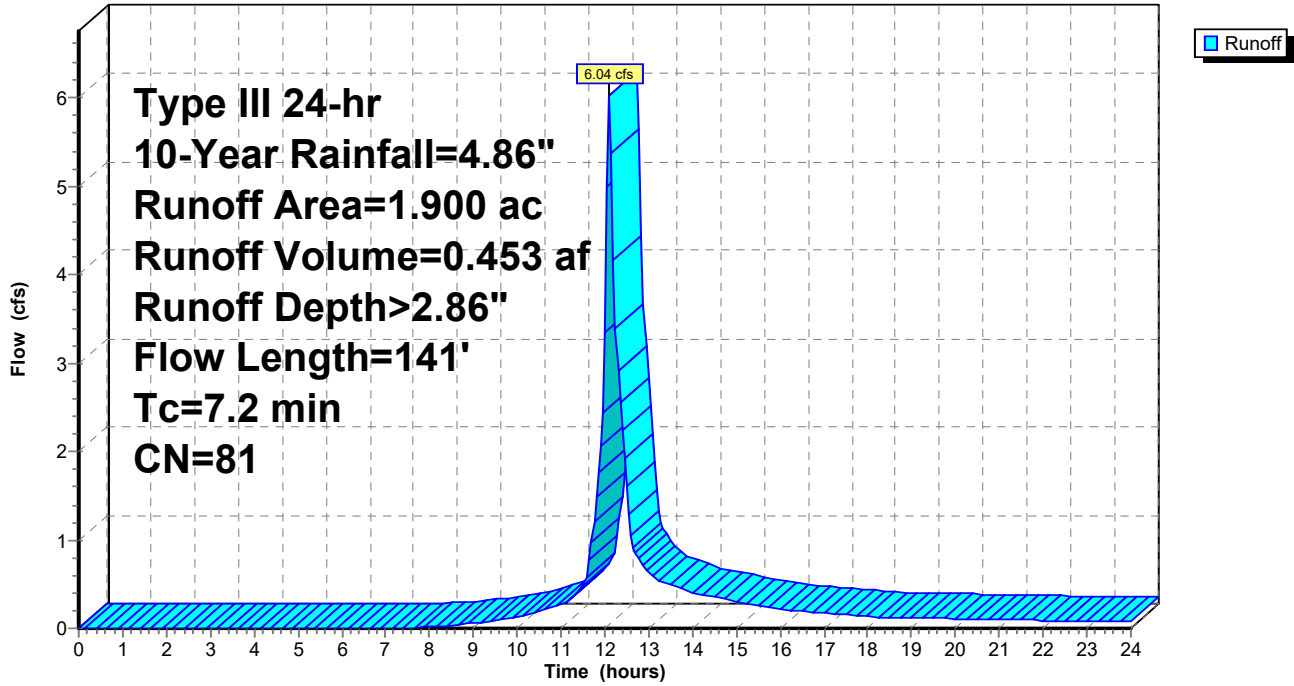
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG B
0.600	98	Roofs, HSG B
* 0.140	56	Brush, Fair, HSG B (mulch)
0.690	61	>75% Grass cover, Good, HSG B
1.900	81	Weighted Average
0.830		43.68% Pervious Area
1.070		56.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	45	0.0111	0.12		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0111	0.60		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 3.23"
0.0	1	0.0111	2.14		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
0.6	90	0.0167	2.62		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
7.2	141	Total			

Subcatchment EX3: Building & Parking

Hydrograph



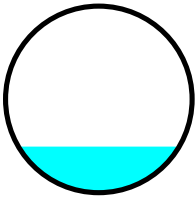
Summary for Reach EX30": 30" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 2.86" for 10-Year event
 Inflow = 5.76 cfs @ 12.13 hrs, Volume= 0.452 af
 Outflow = 5.74 cfs @ 12.14 hrs, Volume= 0.452 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.15 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.21 fps, Avg. Travel Time= 0.5 min

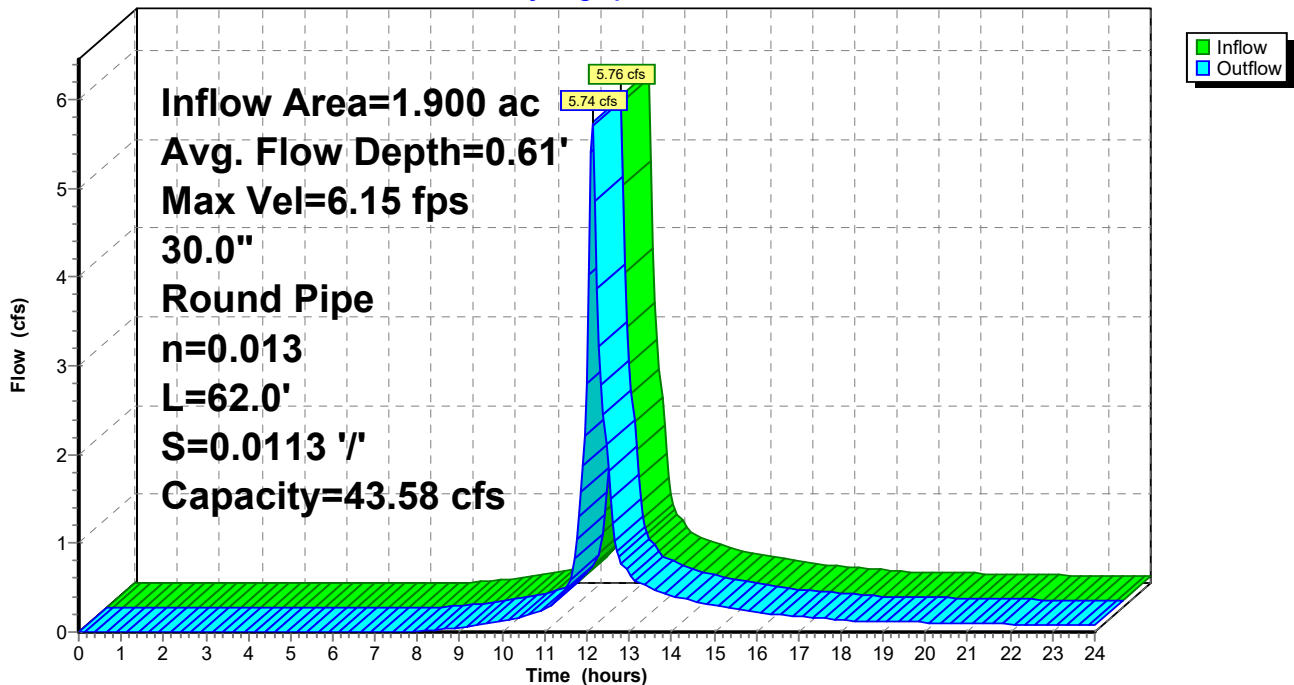
Peak Storage= 58 cf @ 12.13 hrs
 Average Depth at Peak Storage= 0.61'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 62.0' Slope= 0.0113 '/'
 Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach EX30": 30" RCP

Hydrograph



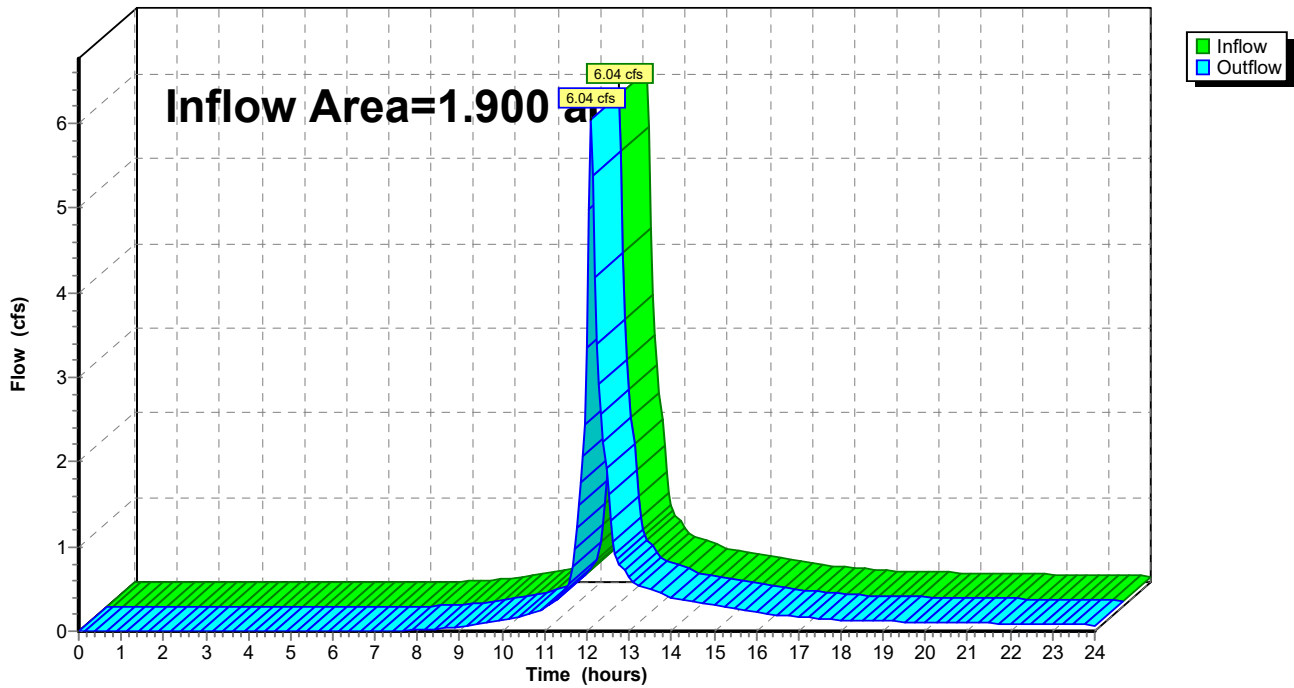
Summary for Reach EXCS: Cameron Street

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 2.86" for 10-Year event
Inflow = 6.04 cfs @ 12.11 hrs, Volume= 0.453 af
Outflow = 6.04 cfs @ 12.11 hrs, Volume= 0.453 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCS: Cameron Street

Hydrograph



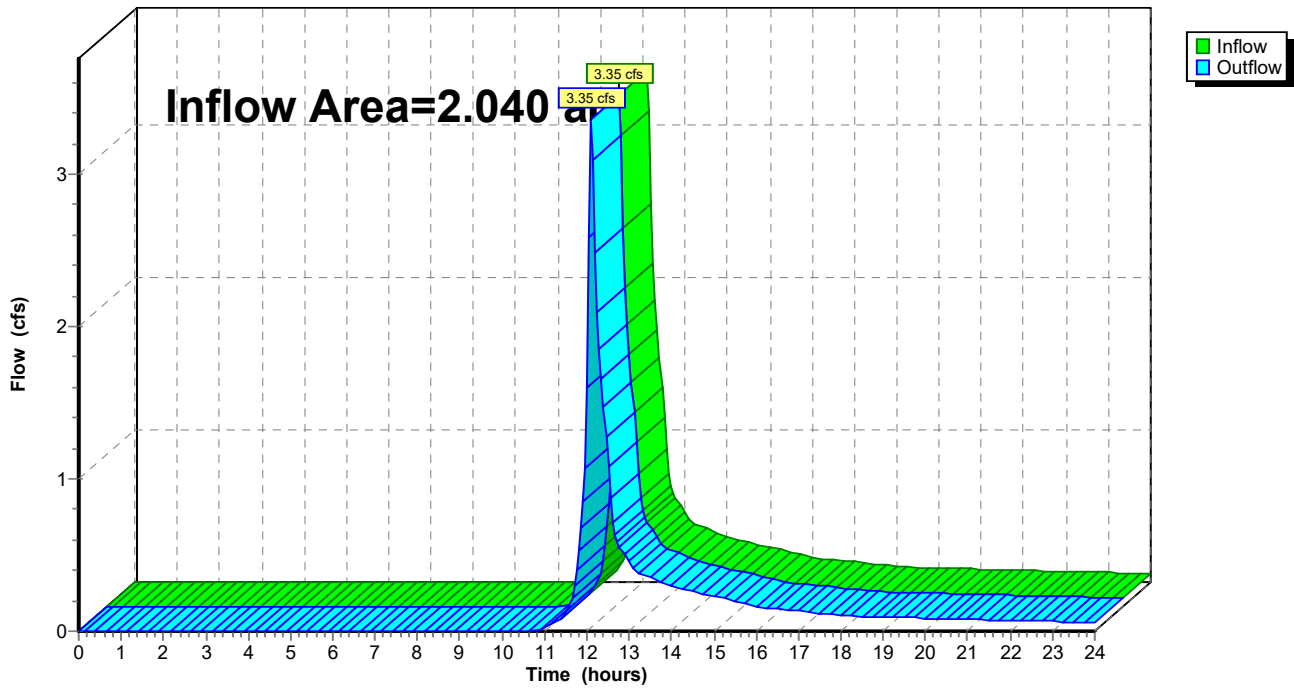
Summary for Reach EXCSB: Cold Spring Brook

Inflow Area = 2.040 ac, 12.25% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 3.35 cfs @ 12.11 hrs, Volume= 0.265 af
Outflow = 3.35 cfs @ 12.11 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCSB: Cold Spring Brook

Hydrograph



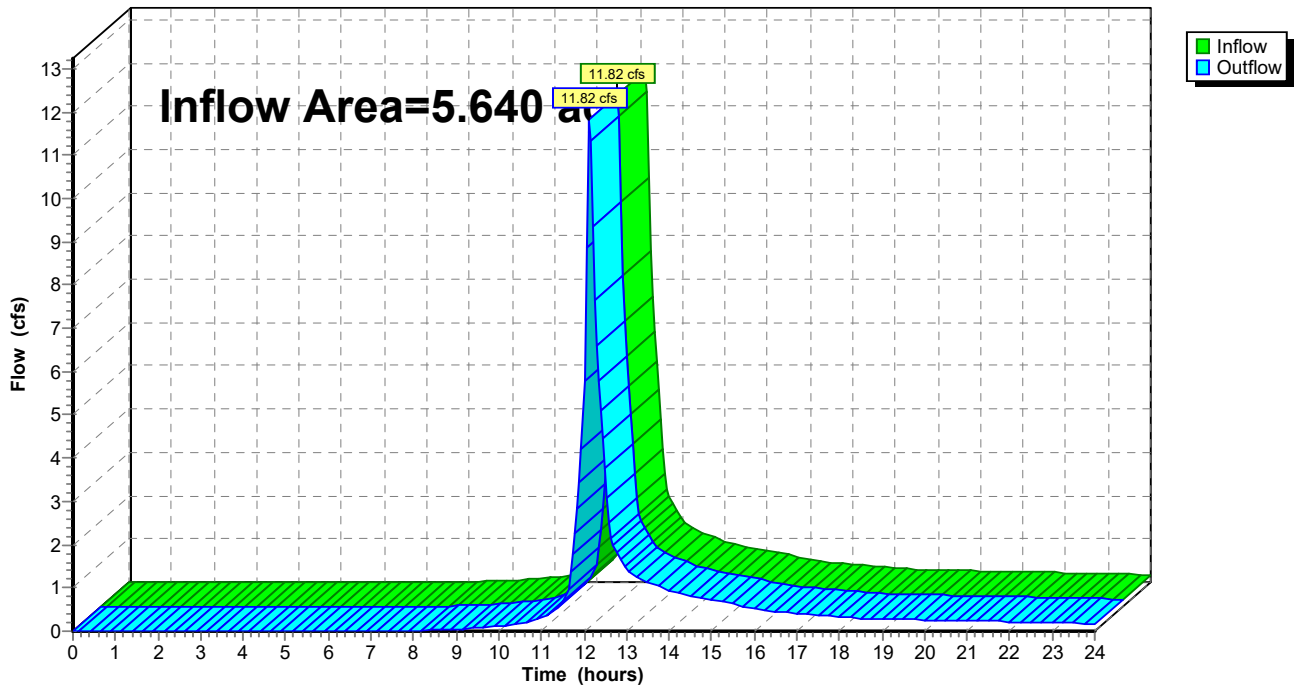
Summary for Reach EXDP: Fuller Brook

Inflow Area = 5.640 ac, 27.84% Impervious, Inflow Depth > 2.00" for 10-Year event
Inflow = 11.82 cfs @ 12.12 hrs, Volume= 0.938 af
Outflow = 11.82 cfs @ 12.12 hrs, Volume= 0.938 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXDP: Fuller Brook

Hydrograph



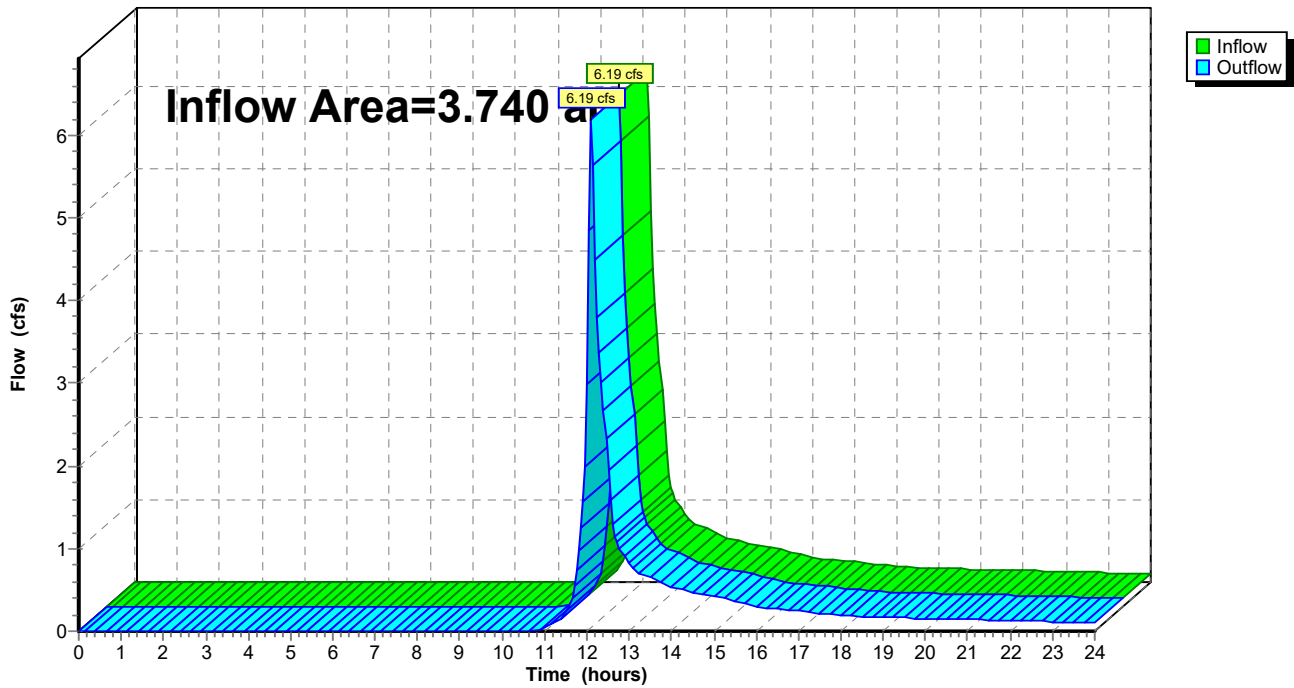
Summary for Reach EXFB: Fuller Brook

Inflow Area = 3.740 ac, 13.37% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 6.19 cfs @ 12.11 hrs, Volume= 0.486 af
Outflow = 6.19 cfs @ 12.11 hrs, Volume= 0.486 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXFB: Fuller Brook

Hydrograph



Summary for Subcatchment PR1.1: Roof

Runoff = 2.39 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 4.62"

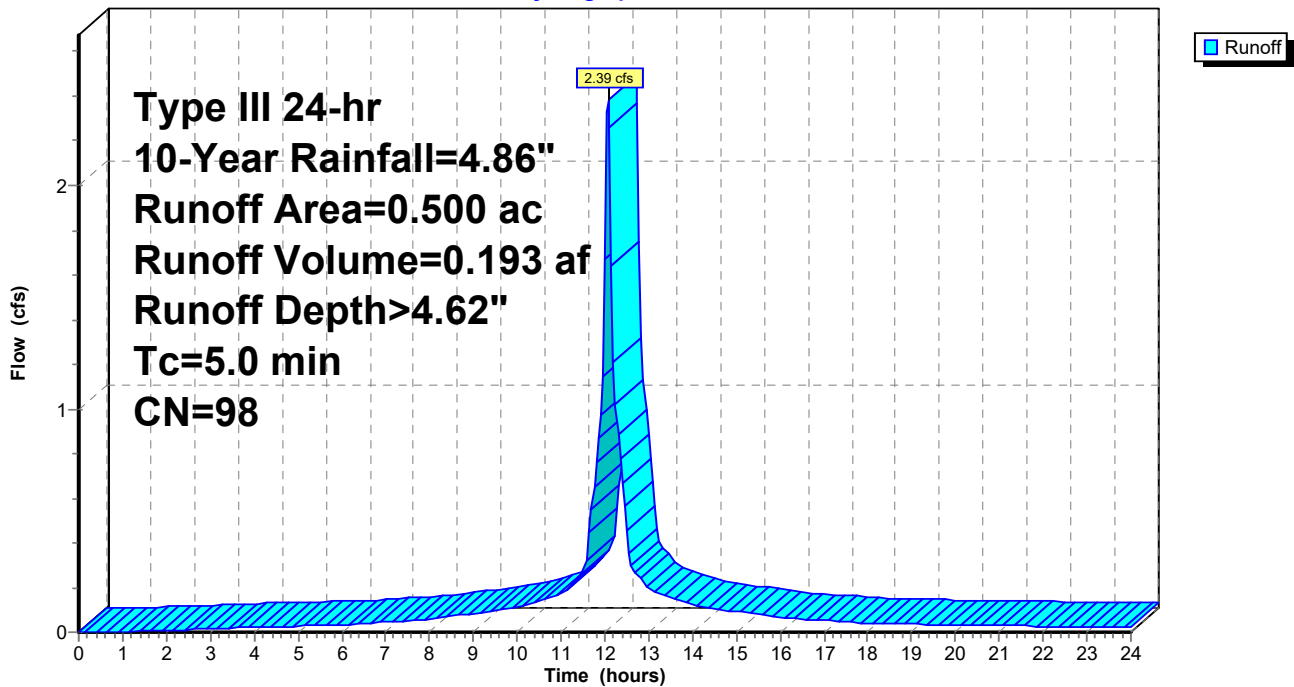
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR1.1: Roof

Hydrograph



Summary for Subcatchment PR1.2: Lawn inside Em. Access

Runoff = 1.29 cfs @ 12.08 hrs, Volume= 0.092 af, Depth> 2.17"

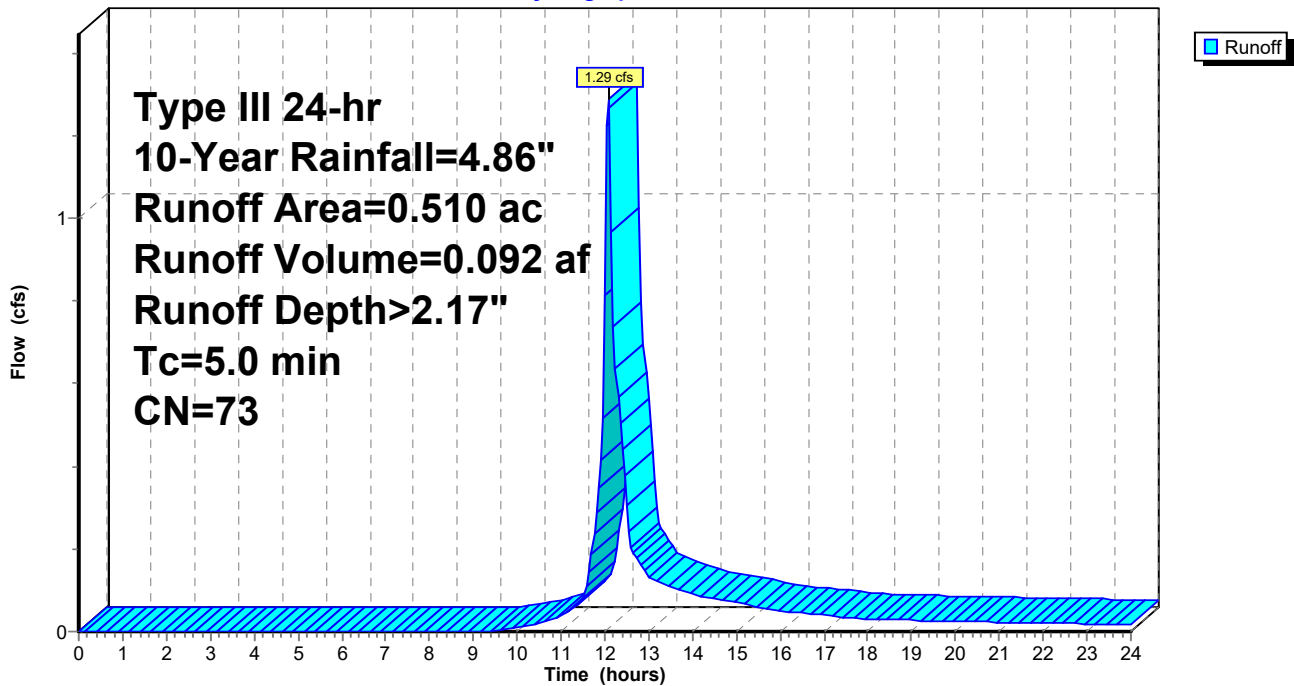
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.350	61	>75% Grass cover, Good, HSG B
* 0.000	98	emergency access
* 0.160	98	pavement
* 0.000	56	Brush, Fair, HSG B (mulch)
0.510	73	Weighted Average
0.350		68.63% Pervious Area
0.160		31.37% Impervious Area

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

Subcatchment PR1.2: Lawn inside Em. Access

Hydrograph



Summary for Subcatchment PR1.3: Lawn & Em. Access

Runoff = 2.60 cfs @ 12.10 hrs, Volume= 0.201 af, Depth> 1.49"

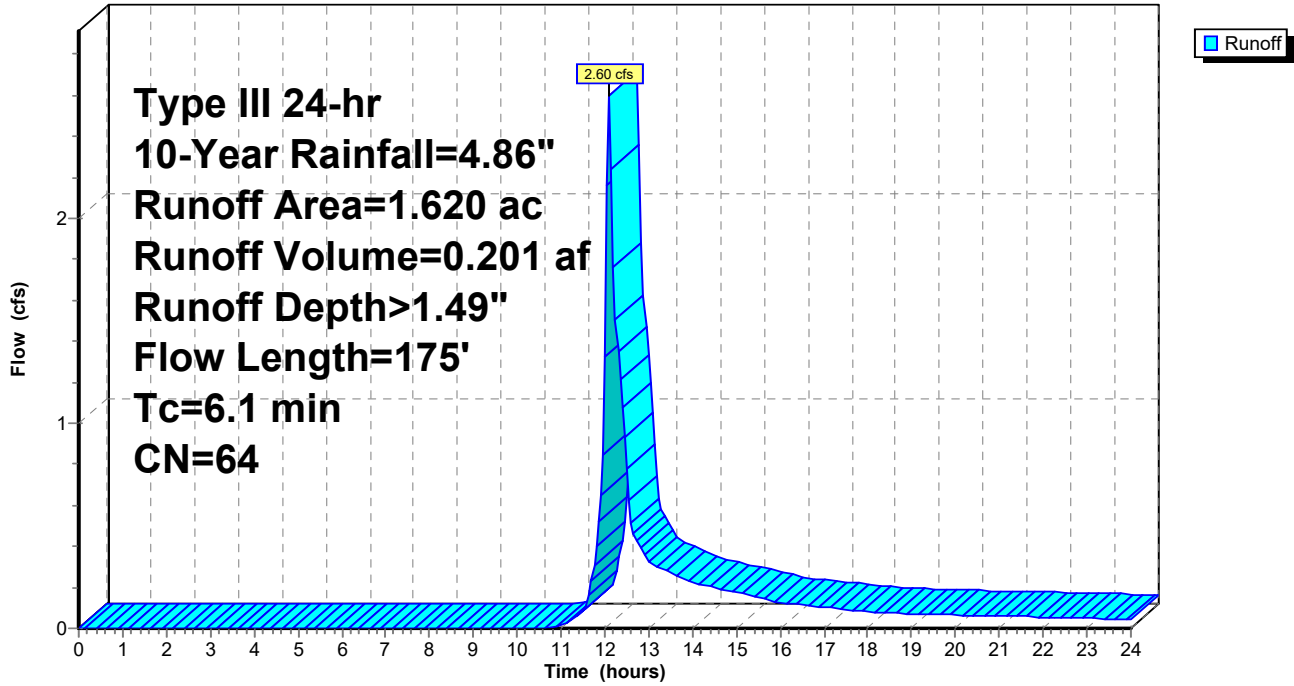
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
1.140	61	>75% Grass cover, Good, HSG B
* 0.140	98	emergency access
* 0.030	82	walks- stonedust
* 0.310	56	Brush, Fair, HSG B (mulch)
1.620	64	Weighted Average
1.480		91.36% Pervious Area
0.140		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	25	0.1200	0.18		Sheet Flow, Bush Grass: Dense n= 0.240 P2= 3.23"
1.7	25	0.1000	0.25		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.23"
0.1	15	0.1100	2.32		Shallow Concentrated Flow, Sloped Lawn Short Grass Pasture Kv= 7.0 fps
0.3	40	0.1000	2.21		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
1.7	70	0.0100	0.70		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
6.1	175	Total			

Subcatchment PR1.3: Lawn & Em. Access

Hydrograph



Summary for Subcatchment PR2: Playground

Runoff = 3.09 cfs @ 12.11 hrs, Volume= 0.234 af, Depth> 2.42"

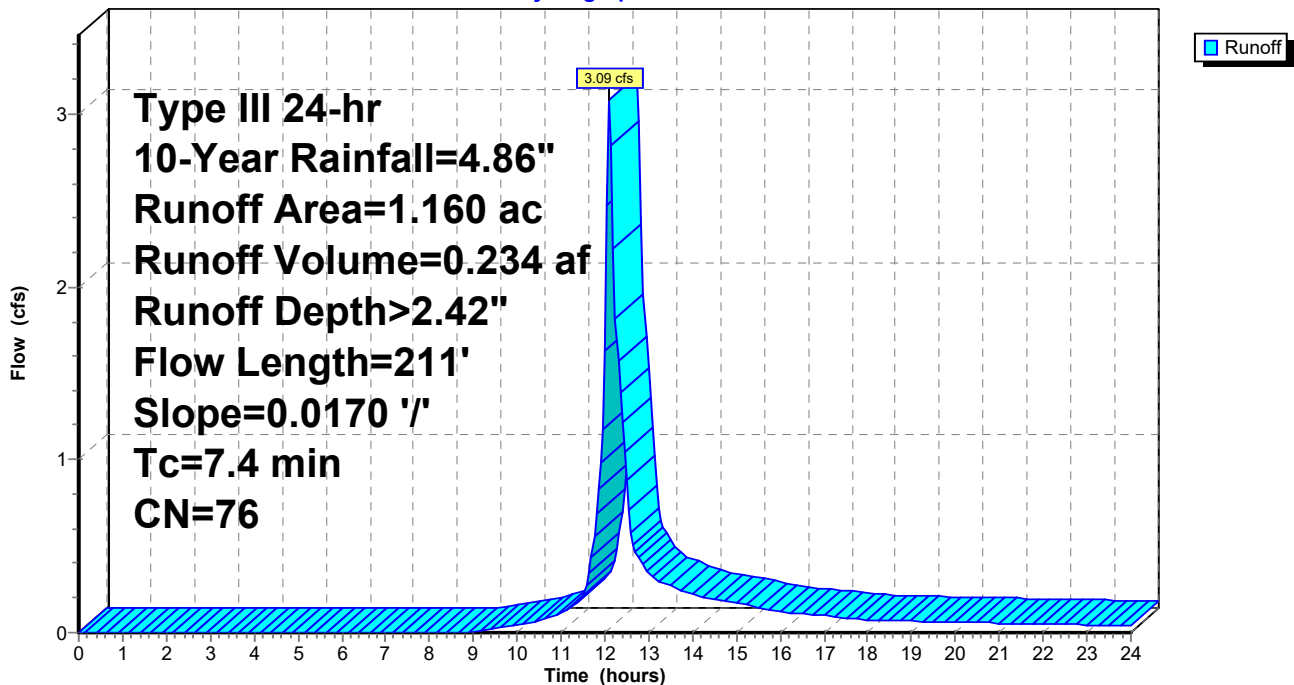
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.640	69	50-75% Grass cover, Fair, HSG B
* 0.430	82	Dirt roads, HSG B (play surface)
* 0.060	98	fire access
* 0.030	98	pavement
1.160	76	Weighted Average
1.070		92.24% Pervious Area
0.090		7.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0170	0.14		Sheet Flow, Playground Grass: Short n= 0.150 P2= 3.23"
0.3	19	0.0170	0.91		Shallow Concentrated Flow, Playground Short Grass Pasture Kv= 7.0 fps
1.1	142	0.0170	2.10		Shallow Concentrated Flow, Playground Unpaved Kv= 16.1 fps
7.4	211	Total			

Subcatchment PR2: Playground

Hydrograph



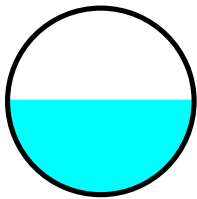
Summary for Reach PR21": 21" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 3.85" for 10-Year event
 Inflow = 5.91 cfs @ 12.15 hrs, Volume= 0.593 af
 Outflow = 5.70 cfs @ 12.17 hrs, Volume= 0.593 af, Atten= 4%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.77 fps, Min. Travel Time= 0.8 min
 Avg. Velocity = 1.63 fps, Avg. Travel Time= 2.4 min

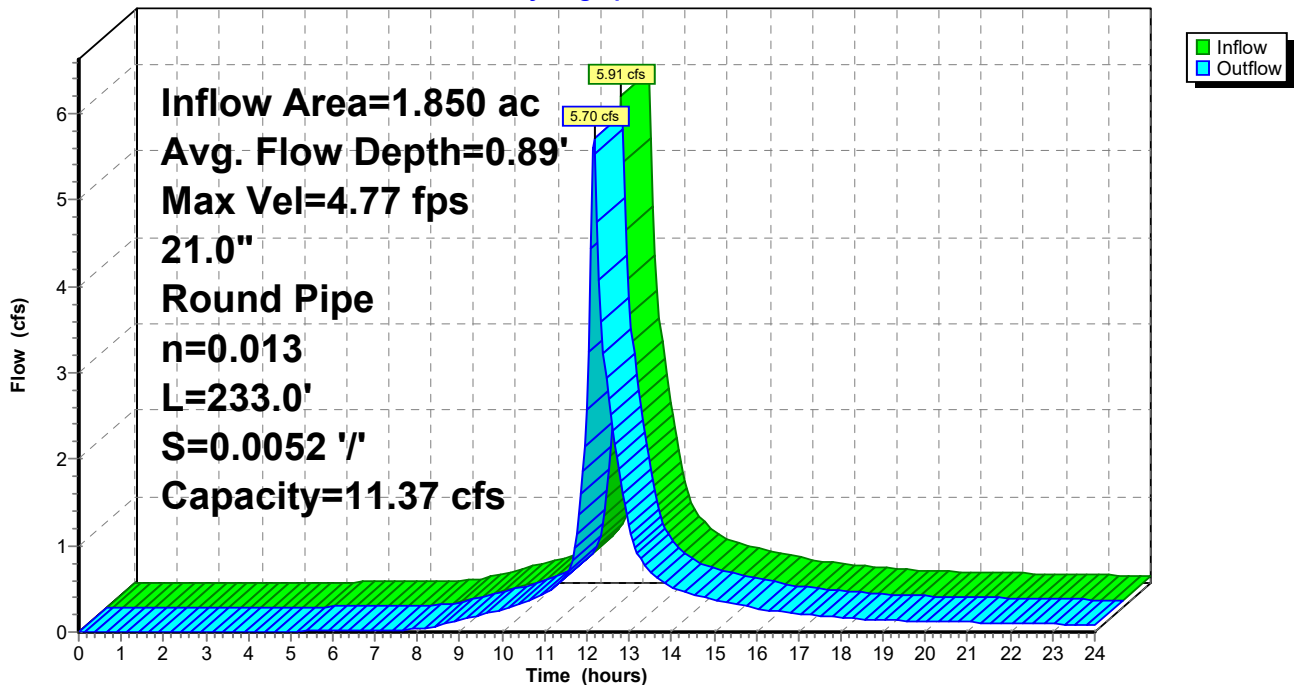
Peak Storage= 288 cf @ 12.16 hrs
 Average Depth at Peak Storage= 0.89'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach PR21": 21" RCP

Hydrograph



Summary for Subcatchment PR3.1: Roof

Runoff = 2.39 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 4.62"

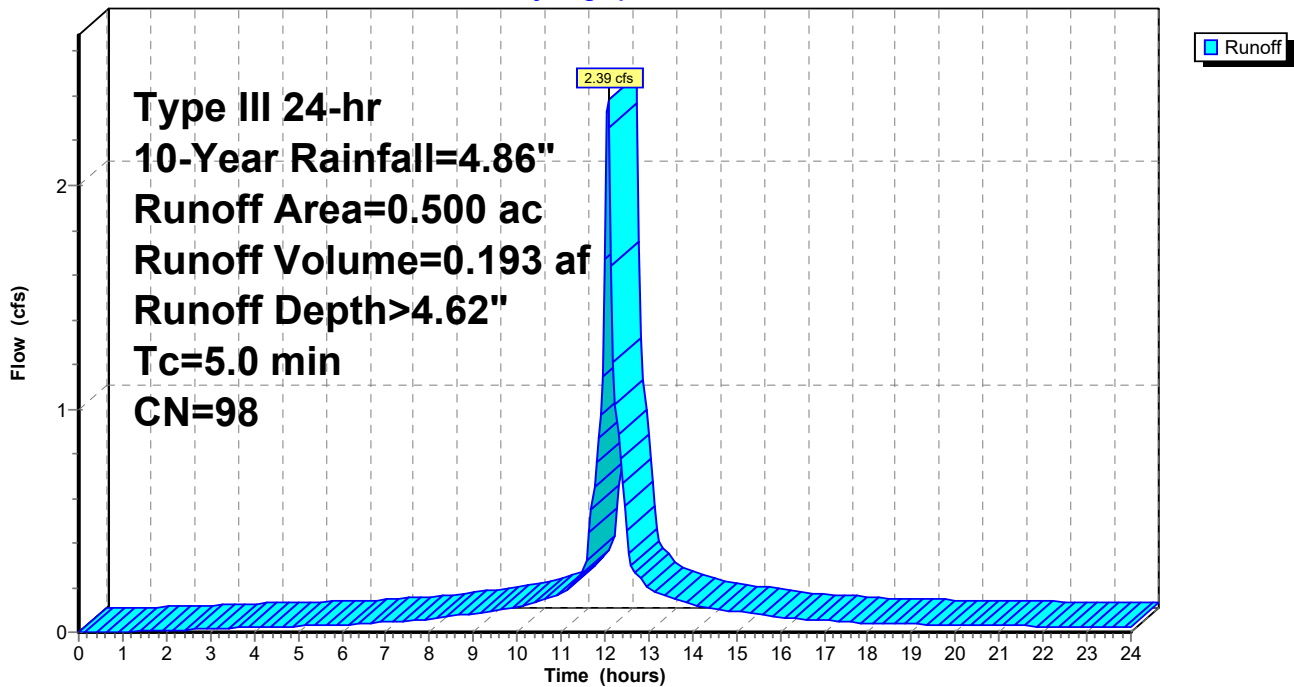
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR3.1: Roof

Hydrograph



Summary for Subcatchment PR3.2: Parking

Runoff = 4.55 cfs @ 12.07 hrs, Volume= 0.330 af, Depth> 3.64"

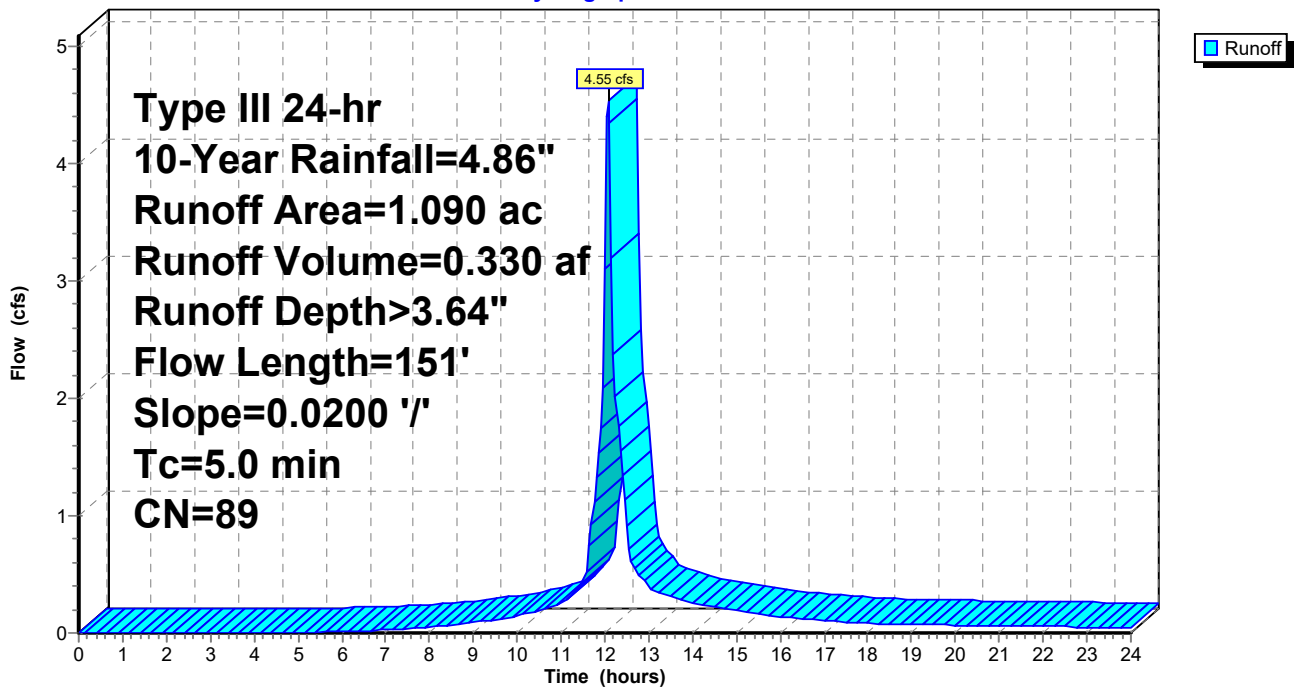
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.330	69	50-75% Grass cover, Fair, HSG B
0.760	98	Paved roads w/curbs & sewers, HSG B
1.090	89	Weighted Average
0.330		30.28% Pervious Area
0.760		69.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	11	0.0200	0.11		Sheet Flow, Landscaping Grass: Short n= 0.150 P2= 3.23"
0.6	39	0.0200	1.14		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.6	101	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
2.1					Direct Entry, extra
5.0	151	Total			

Subcatchment PR3.2: Parking

Hydrograph



Summary for Subcatchment PR3.3: Loading Area

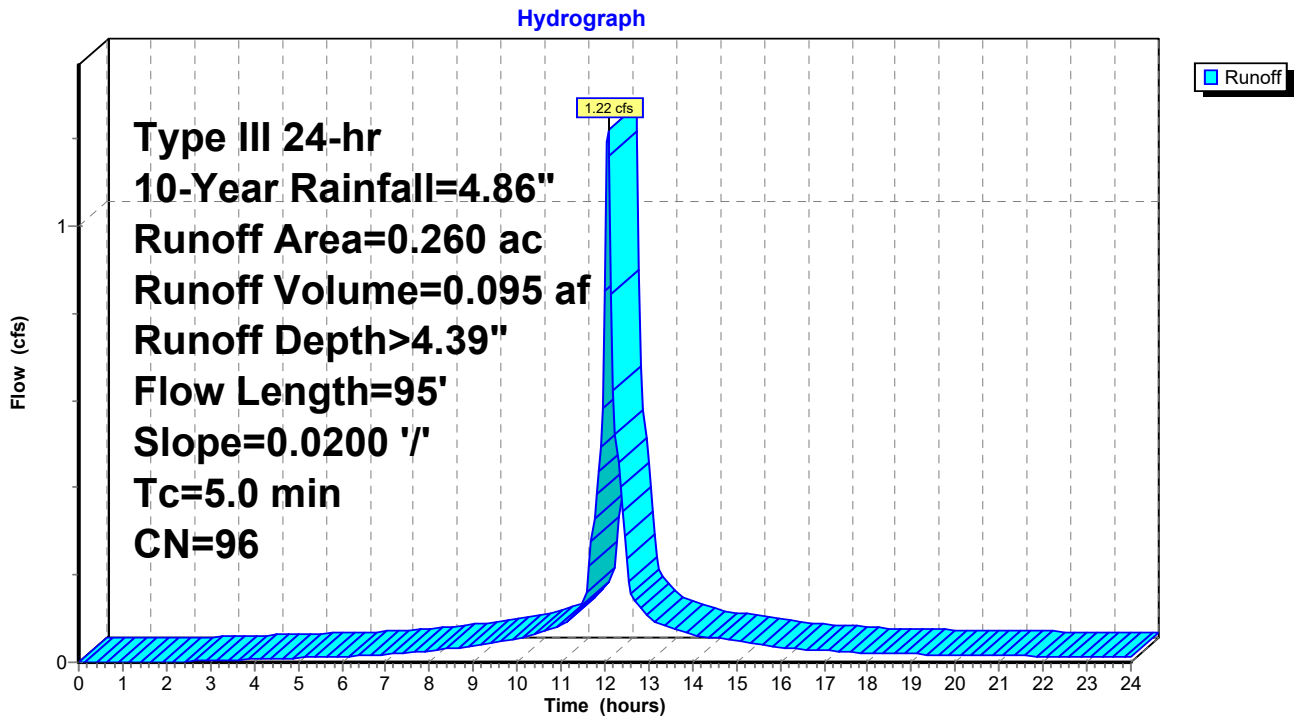
Runoff = 1.22 cfs @ 12.07 hrs, Volume= 0.095 af, Depth> 4.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.86"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG B
0.020	69	50-75% Grass cover, Fair, HSG B
0.260	96	Weighted Average
0.020		7.69% Pervious Area
0.240		92.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.3	45	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
4.0					Direct Entry, Extra
5.0	95	Total			

Subcatchment PR3.3: Loading Area



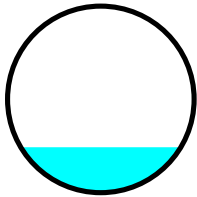
Summary for Reach PR30": 30" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 3.84" for 10-Year event
 Inflow = 5.70 cfs @ 12.17 hrs, Volume= 0.593 af
 Outflow = 5.62 cfs @ 12.18 hrs, Volume= 0.593 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 6.09 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 2.06 fps, Avg. Travel Time= 0.5 min

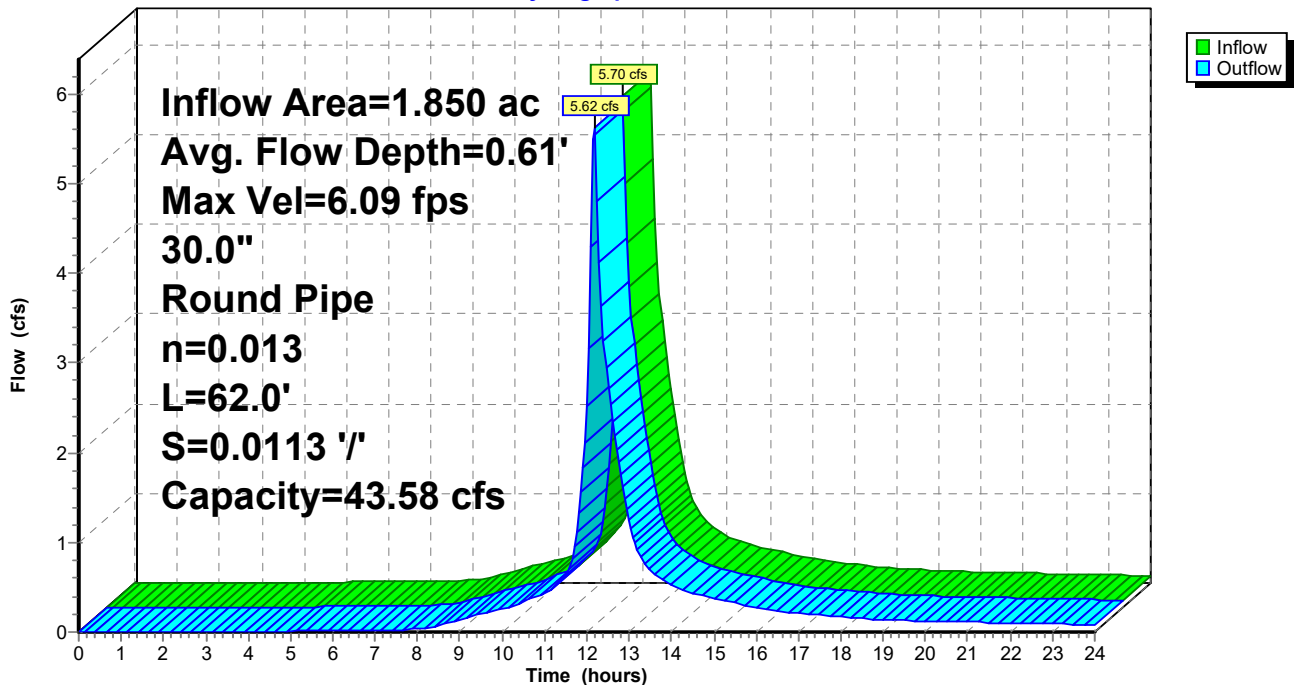
Peak Storage= 57 cf @ 12.18 hrs
 Average Depth at Peak Storage= 0.61'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 62.0' Slope= 0.0113 '/'
 Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach PR30": 30" RCP

Hydrograph



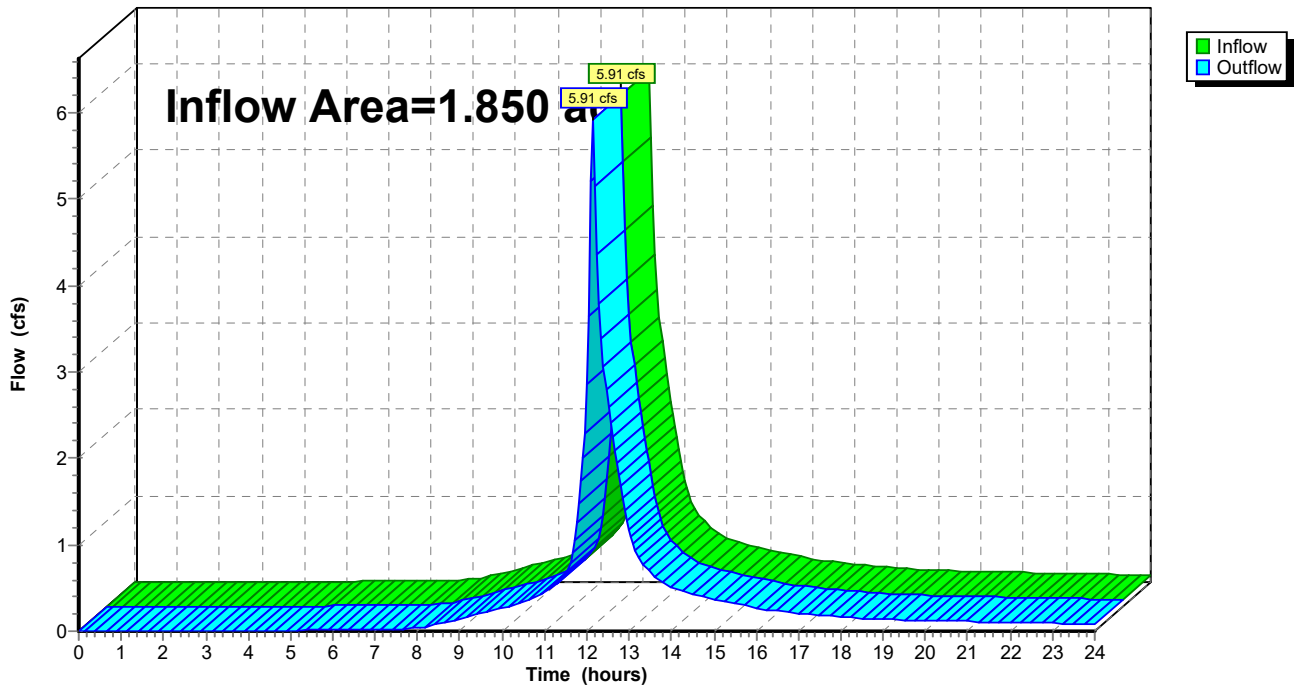
Summary for Reach PRCS: Cameron St

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 3.85" for 10-Year event
Inflow = 5.91 cfs @ 12.15 hrs, Volume= 0.593 af
Outflow = 5.91 cfs @ 12.15 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCS: Cameron St

Hydrograph

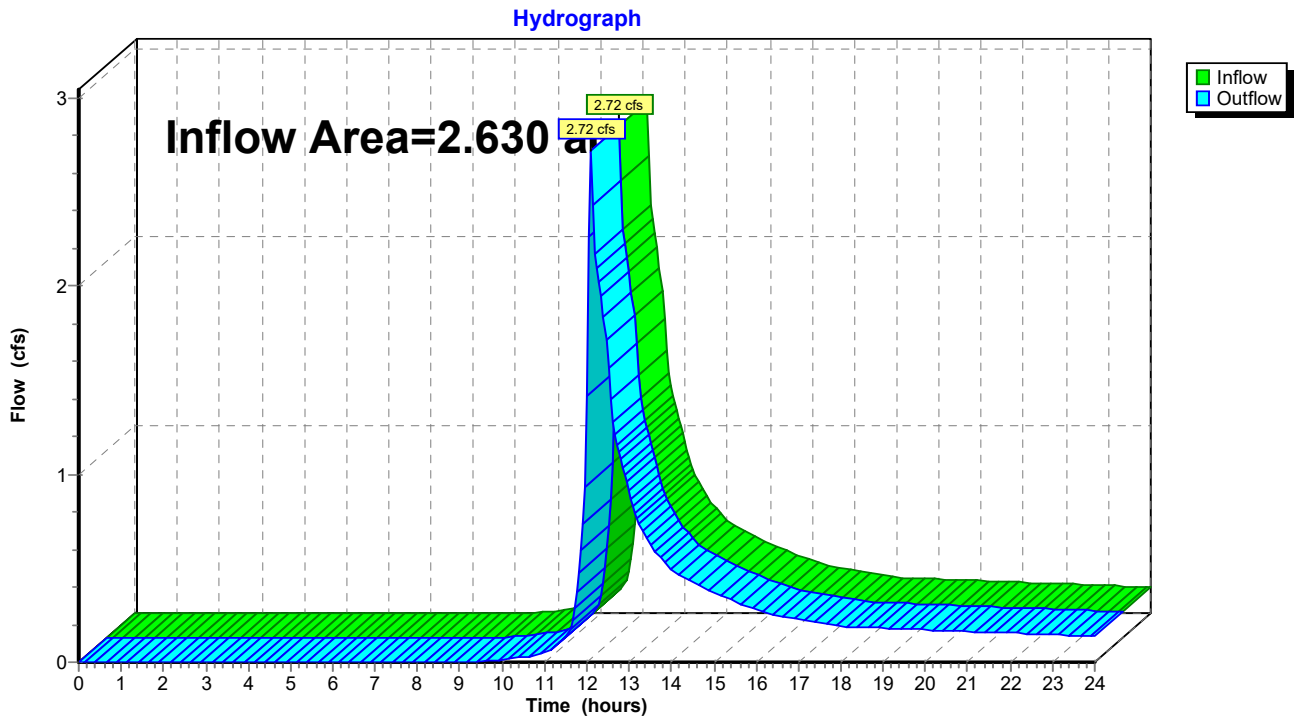


Summary for Reach PRCSB: Cold Springs Brook

Inflow Area = 2.630 ac, 30.42% Impervious, Inflow Depth > 1.80" for 10-Year event
Inflow = 2.72 cfs @ 12.11 hrs, Volume= 0.394 af
Outflow = 2.72 cfs @ 12.11 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCSB: Cold Springs Brook



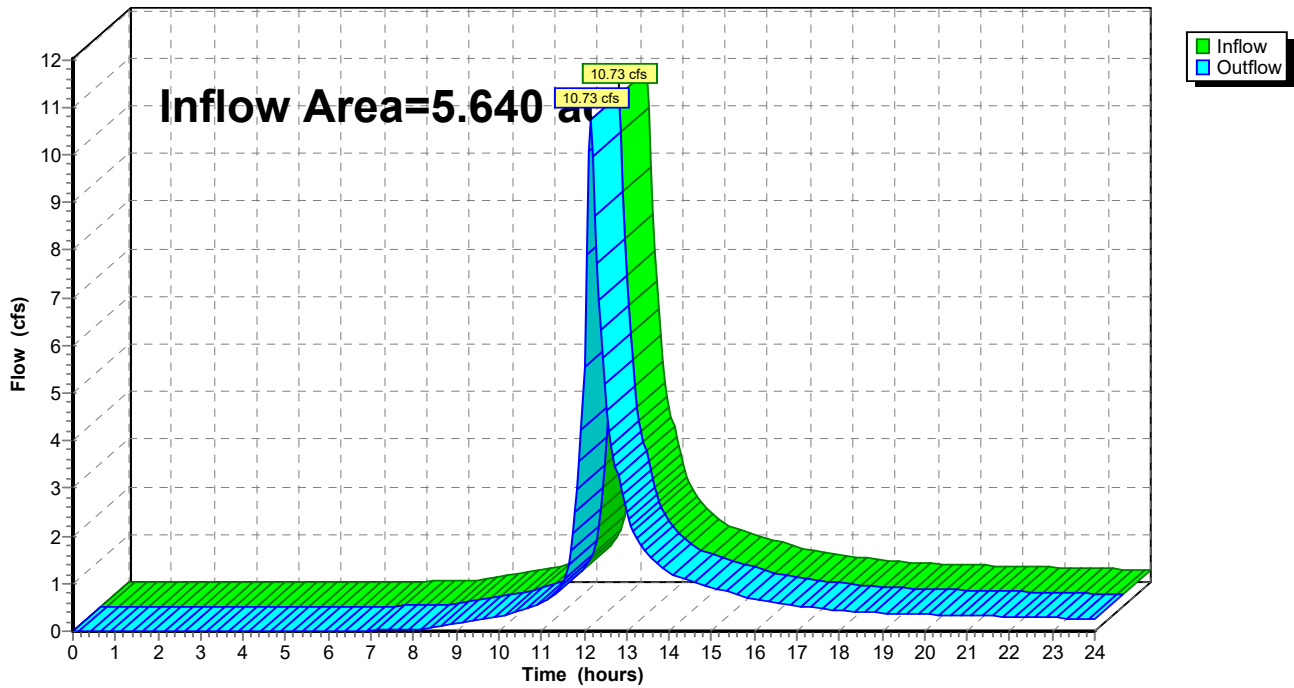
Summary for Reach PRDP: Fuller Brook

Inflow Area = 5.640 ac, 42.38% Impervious, Inflow Depth > 2.60" for 10-Year event
Inflow = 10.73 cfs @ 12.15 hrs, Volume= 1.220 af
Outflow = 10.73 cfs @ 12.15 hrs, Volume= 1.220 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRDP: Fuller Brook

Hydrograph



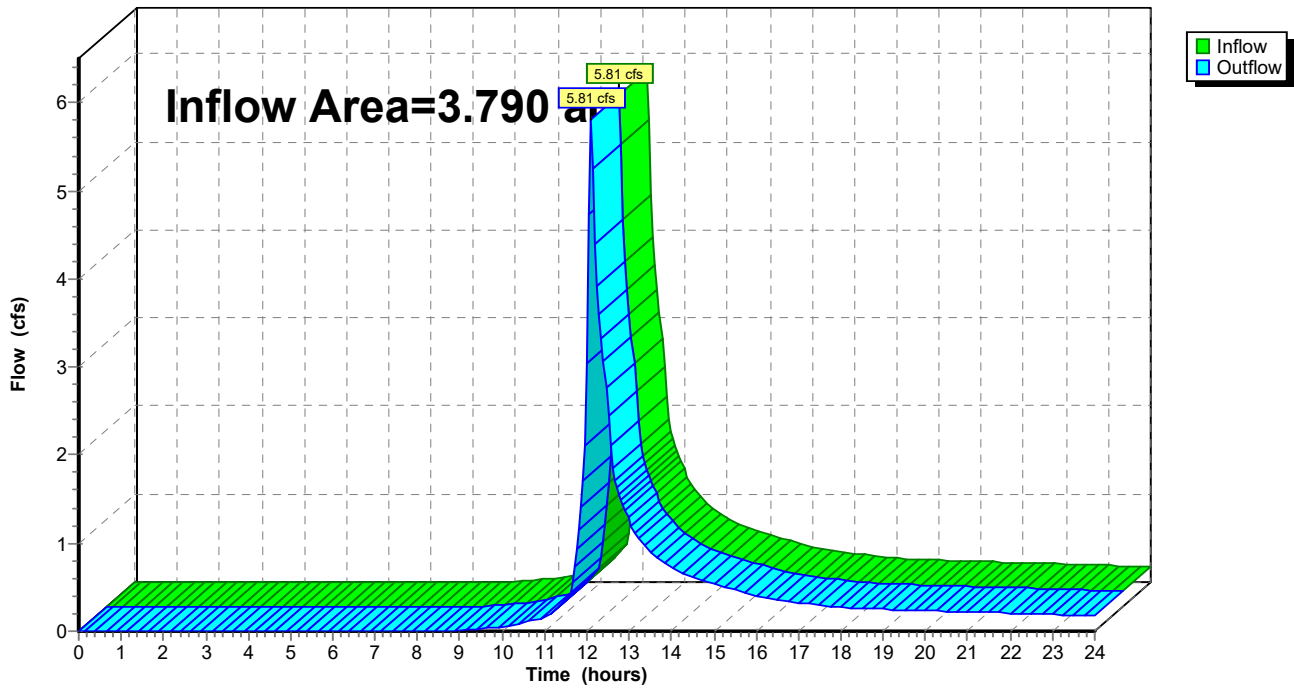
Summary for Reach PRFB: Fuller Brook

Inflow Area = 3.790 ac, 23.48% Impervious, Inflow Depth > 1.99" for 10-Year event
Inflow = 5.81 cfs @ 12.11 hrs, Volume= 0.628 af
Outflow = 5.81 cfs @ 12.11 hrs, Volume= 0.628 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRFB: Fuller Brook

Hydrograph



Summary for Pond PRI1: Infiltration 1

Inflow Area = 1.590 ac, 79.25% Impervious, Inflow Depth > 3.95" for 10-Year event
 Inflow = 6.94 cfs @ 12.07 hrs, Volume= 0.523 af
 Outflow = 5.09 cfs @ 12.16 hrs, Volume= 0.498 af, Atten= 27%, Lag= 5.1 min
 Primary = 5.09 cfs @ 12.16 hrs, Volume= 0.498 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.33' @ 12.16 hrs Surf.Area= 3,502 sf Storage= 4,878 cf

Plug-Flow detention time= 65.3 min calculated for 0.498 af (95% of inflow)
 Center-of-Mass det. time= 38.4 min (815.2 - 776.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	2,484 cf	47.00'W x 74.50'L x 2.54'H Field A 8,900 cf Overall - 2,689 cf Embedded = 6,211 cf x 40.0% Voids
#2A	0.50'	2,689 cf	Cultec R-150XLHD x 98 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 14 rows
		5,173 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	10.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	24.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.98 cfs @ 12.16 hrs HW=2.32' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 3.11 cfs @ 5.70 fps)
- └─2=Orifice/Grate (Orifice Controls 1.88 cfs @ 2.56 fps)

Pond PRI1: Infiltration 1 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 14 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

14 Rows x 33.0" Wide + 6.0" Spacing x 13 + 12.0" Side Stone x 2 = 47.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

98 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 14 Rows = 2,688.7 cf Chamber Storage

8,899.6 cf Field - 2,688.7 cf Chambers = 6,210.9 cf Stone x 40.0% Voids = 2,484.4 cf Stone Storage

Chamber Storage + Stone Storage = 5,173.1 cf = 0.119 af

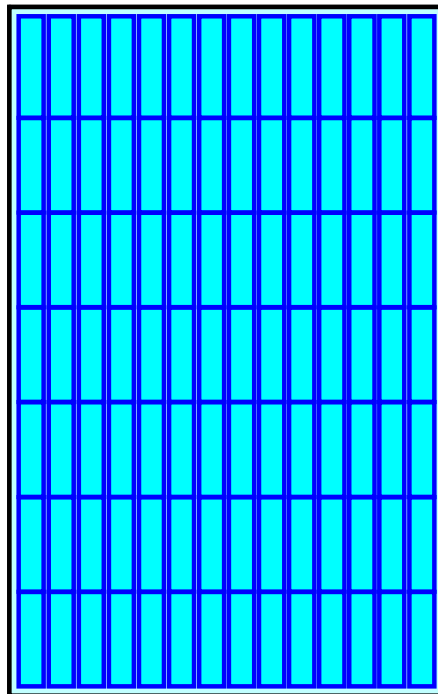
Overall Storage Efficiency = 58.1%

Overall System Size = 74.50' x 47.00' x 2.54'

98 Chambers

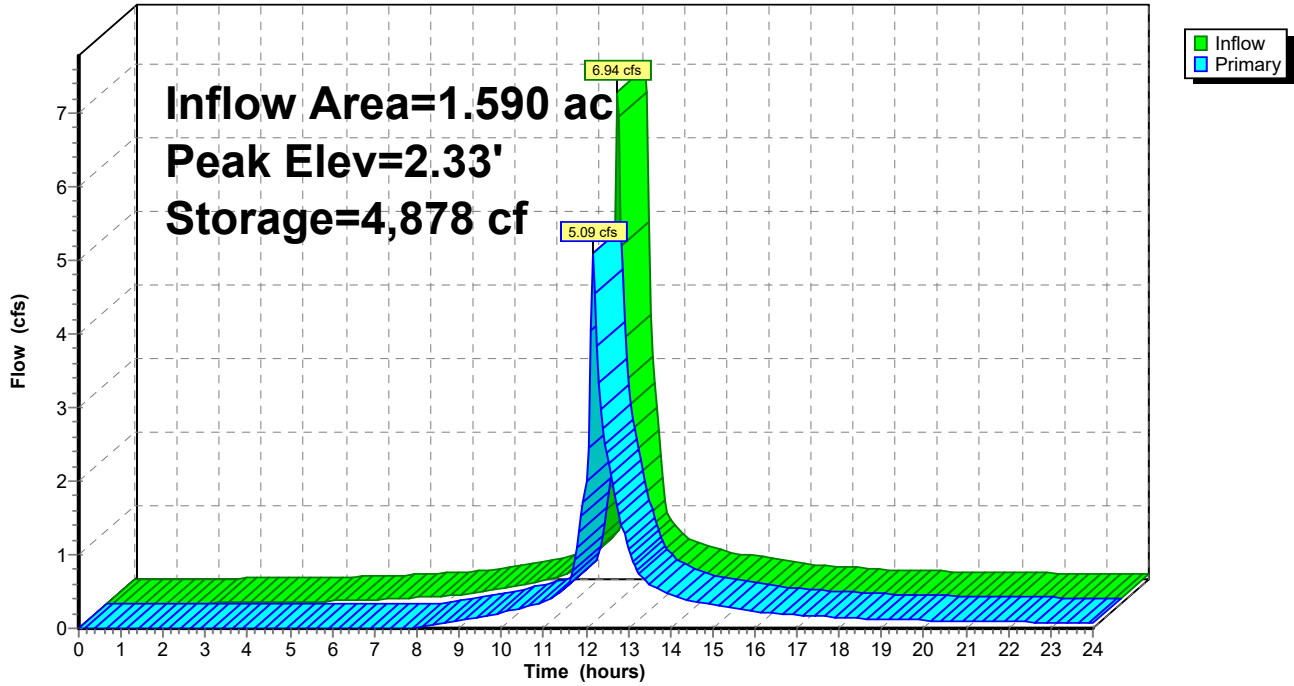
329.6 cy Field

230.0 cy Stone



Pond PRI1: Infiltration 1

Hydrograph



Summary for Pond PRI2: Infiltration 2

Inflow Area = 1.010 ac, 65.35% Impervious, Inflow Depth > 3.38" for 10-Year event
 Inflow = 3.68 cfs @ 12.07 hrs, Volume= 0.285 af
 Outflow = 0.79 cfs @ 12.49 hrs, Volume= 0.193 af, Atten= 79%, Lag= 25.3 min
 Primary = 0.79 cfs @ 12.49 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.46' @ 12.49 hrs Surf.Area= 4,470 sf Storage= 6,476 cf

Plug-Flow detention time= 269.6 min calculated for 0.193 af (68% of inflow)
 Center-of-Mass det. time= 169.0 min (946.3 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	3,162 cf	60.00'W x 74.50'L x 2.54'H Field A 11,361 cf Overall - 3,457 cf Embedded = 7,904 cf x 40.0% Voids
#2A	0.50'	3,457 cf	Cultec R-150XLHD x 126 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 18 rows
		6,619 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.79 cfs @ 12.49 hrs HW=2.46' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.60 fps)
- └─2=Orifice/Grate (Orifice Controls 0.64 cfs @ 3.27 fps)

Pond PRI2: Infiltration 2 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 18 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

18 Rows x 33.0" Wide + 6.0" Spacing x 17 + 12.0" Side Stone x 2 = 60.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

126 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 18 Rows = 3,456.9 cf Chamber Storage

11,361.3 cf Field - 3,456.9 cf Chambers = 7,904.3 cf Stone x 40.0% Voids = 3,161.7 cf Stone Storage

Chamber Storage + Stone Storage = 6,618.7 cf = 0.152 af

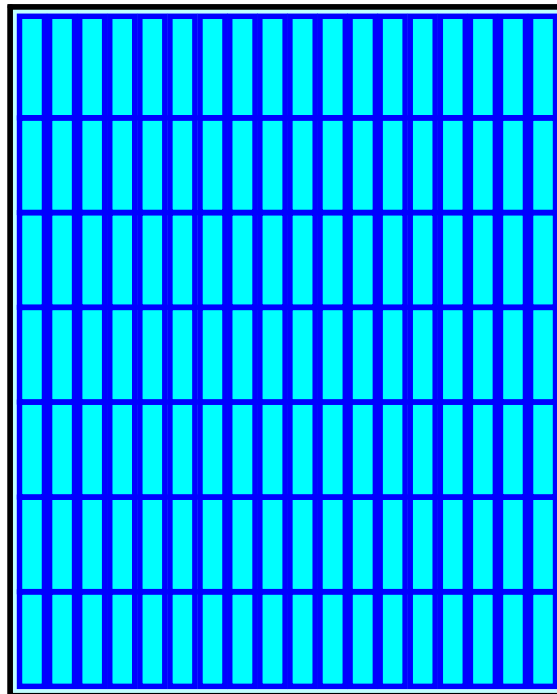
Overall Storage Efficiency = 58.3%

Overall System Size = 74.50' x 60.00' x 2.54'

126 Chambers

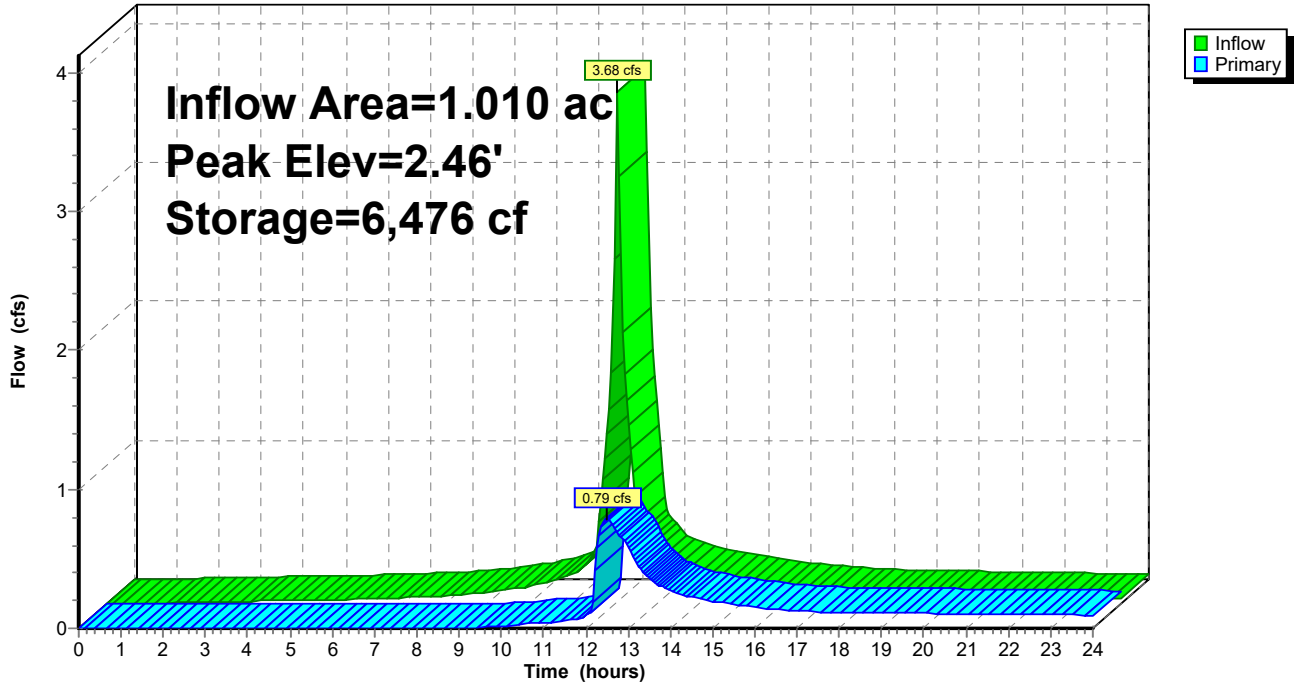
420.8 cy Field

292.8 cy Stone



Pond PRI2: Infiltration 2

Hydrograph



18080-Hunnewell PSI**Type III 24-hr 100-Year Rainfall=8.80"**

Prepared by SMMA

Printed 3/25/2020

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEX1: Lawn Runoff Area=2.040 ac 12.25% Impervious Runoff Depth>4.55"
 Flow Length=150' Tc=7.1 min CN=65 Runoff=10.34 cfs 0.773 af

SubcatchmentEX2: Lawn & Play Area Runoff Area=1.700 ac 14.71% Impervious Runoff Depth>4.55"
 Flow Length=258' Tc=6.7 min CN=65 Runoff=8.72 cfs 0.644 af

Reach EX21": 21" RCP Avg. Flow Depth=1.75' Max Vel=5.38 fps Inflow=13.38 cfs 1.028 af
 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/' Capacity=11.37 cfs Outflow=11.82 cfs 1.028 af

SubcatchmentEX3: Building & Parking Runoff Area=1.900 ac 56.32% Impervious Runoff Depth>6.49"
 Flow Length=141' Tc=7.2 min CN=81 Runoff=13.38 cfs 1.028 af

Reach EX30": 30" RCP Avg. Flow Depth=0.89' Max Vel=7.51 fps Inflow=11.82 cfs 1.028 af
 30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/' Capacity=43.58 cfs Outflow=11.78 cfs 1.028 af

Reach EXCS: Cameron Street Inflow=13.38 cfs 1.028 af
 Outflow=13.38 cfs 1.028 af

Reach EXCSB: Cold Spring Brook Inflow=10.34 cfs 0.773 af
 Outflow=10.34 cfs 0.773 af

Reach EXDP: Fuller Brook Inflow=30.28 cfs 2.444 af
 Outflow=30.28 cfs 2.444 af

Reach EXFB: Fuller Brook Inflow=19.06 cfs 1.417 af
 Outflow=19.06 cfs 1.417 af

SubcatchmentPR1.1: Roof Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>8.56"
 Tc=5.0 min CN=98 Runoff=4.35 cfs 0.356 af

SubcatchmentPR1.2: Lawn inside Em. Runoff Area=0.510 ac 31.37% Impervious Runoff Depth>5.52"
 Tc=5.0 min CN=73 Runoff=3.29 cfs 0.235 af

SubcatchmentPR1.3: Lawn & Em. Access Runoff Area=1.620 ac 8.64% Impervious Runoff Depth>4.42"
 Flow Length=175' Tc=6.1 min CN=64 Runoff=8.22 cfs 0.597 af

SubcatchmentPR2: Playground Runoff Area=1.160 ac 7.76% Impervious Runoff Depth>5.88"
 Flow Length=211' Slope=0.0170 '/' Tc=7.4 min CN=76 Runoff=7.47 cfs 0.569 af

Reach PR21": 21" RCP Avg. Flow Depth=1.75' Max Vel=5.39 fps Inflow=17.65 cfs 1.187 af
 21.0" Round Pipe n=0.013 L=233.0' S=0.0052 '/' Capacity=11.37 cfs Outflow=11.37 cfs 1.186 af

SubcatchmentPR3.1: Roof Runoff Area=0.500 ac 100.00% Impervious Runoff Depth>8.56"
 Tc=5.0 min CN=98 Runoff=4.35 cfs 0.356 af

SubcatchmentPR3.2: Parking Runoff Area=1.090 ac 69.72% Impervious Runoff Depth>7.47"
 Flow Length=151' Slope=0.0200 '/' Tc=5.0 min CN=89 Runoff=8.99 cfs 0.678 af

18080-Hunnewell PSI

Type III 24-hr 100-Year Rainfall=8.80"

Prepared by SMMA

Printed 3/25/2020

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Subcatchment PR3.3: Loading Area Runoff Area=0.260 ac 92.31% Impervious Runoff Depth>8.32"
Flow Length=95' Slope=0.0200 '/' Tc=5.0 min CN=96 Runoff=2.25 cfs 0.180 af

Reach PR30": 30" RCP Avg. Flow Depth=0.87' Max Vel=7.48 fps Inflow=11.37 cfs 1.186 af
30.0" Round Pipe n=0.013 L=62.0' S=0.0113 '/' Capacity=43.58 cfs Outflow=11.41 cfs 1.186 af

Reach PRCS: Cameron St Inflow=17.65 cfs 1.187 af
Outflow=17.65 cfs 1.187 af

Reach PRCSB: Cold Springs Brook Inflow=16.42 cfs 1.076 af
Outflow=16.42 cfs 1.076 af

Reach PRDP: Fuller Brook Inflow=33.05 cfs 2.831 af
Outflow=33.05 cfs 2.831 af

Reach PRFB: Fuller Brook Inflow=23.15 cfs 1.645 af
Outflow=23.15 cfs 1.645 af

Pond PRI1: Infiltration 1 Peak Elev=3.33' Storage=5,173 cf Inflow=13.34 cfs 1.035 af
Outflow=15.43 cfs 1.007 af

Pond PRI2: Infiltration 2 Peak Elev=72.00' Storage=6,619 cf Inflow=7.66 cfs 0.591 af
Outflow=8.84 cfs 0.479 af

Summary for Subcatchment EX1: Lawn

Runoff = 10.34 cfs @ 12.11 hrs, Volume= 0.773 af, Depth> 4.55"

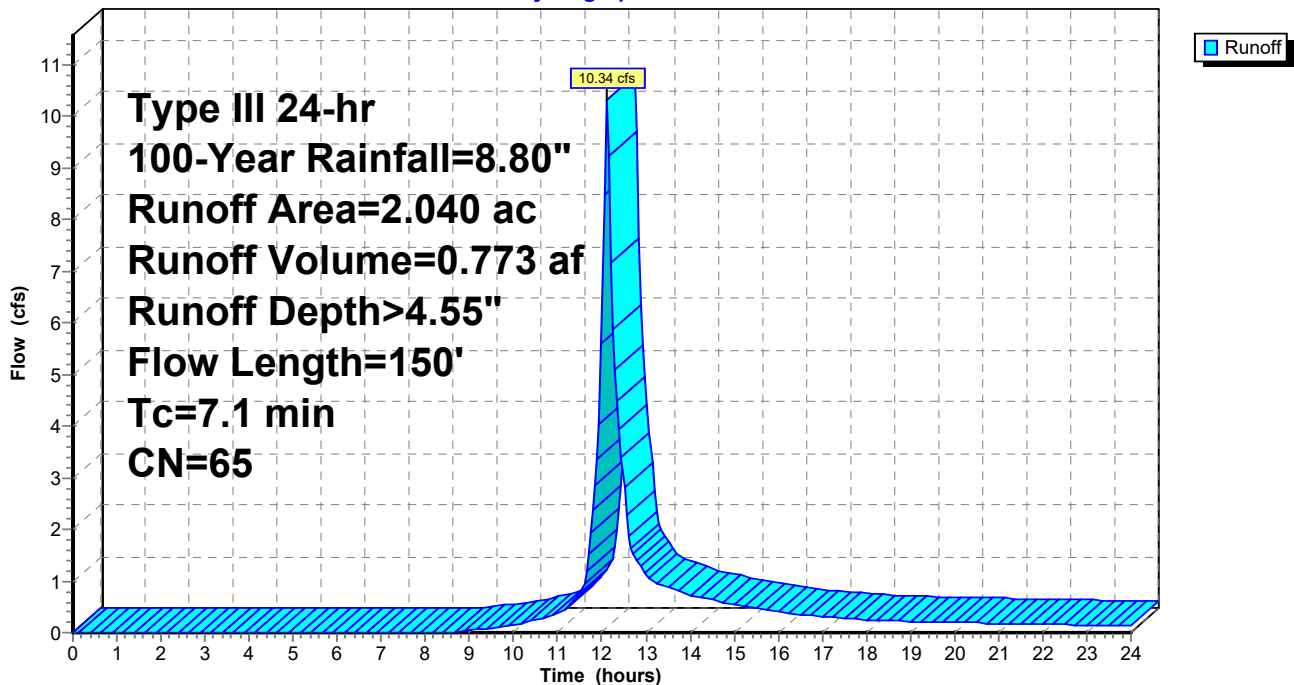
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.190	98	Paved parking, HSG B
0.060	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.440	61	>75% Grass cover, Good, HSG B
2.040	65	Weighted Average
1.790		87.75% Pervious Area
0.250		12.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1145	0.14		Sheet Flow, Woods Woods: Light underbrush n= 0.400 P2= 3.23"
0.8	81	0.1145	1.69		Shallow Concentrated Flow, Woods Woodland Kv= 5.0 fps
0.2	19	0.0526	1.61		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
7.1	150	Total			

Subcatchment EX1: Lawn

Hydrograph



Summary for Subcatchment EX2: Lawn & Play Area

Runoff = 8.72 cfs @ 12.10 hrs, Volume= 0.644 af, Depth> 4.55"

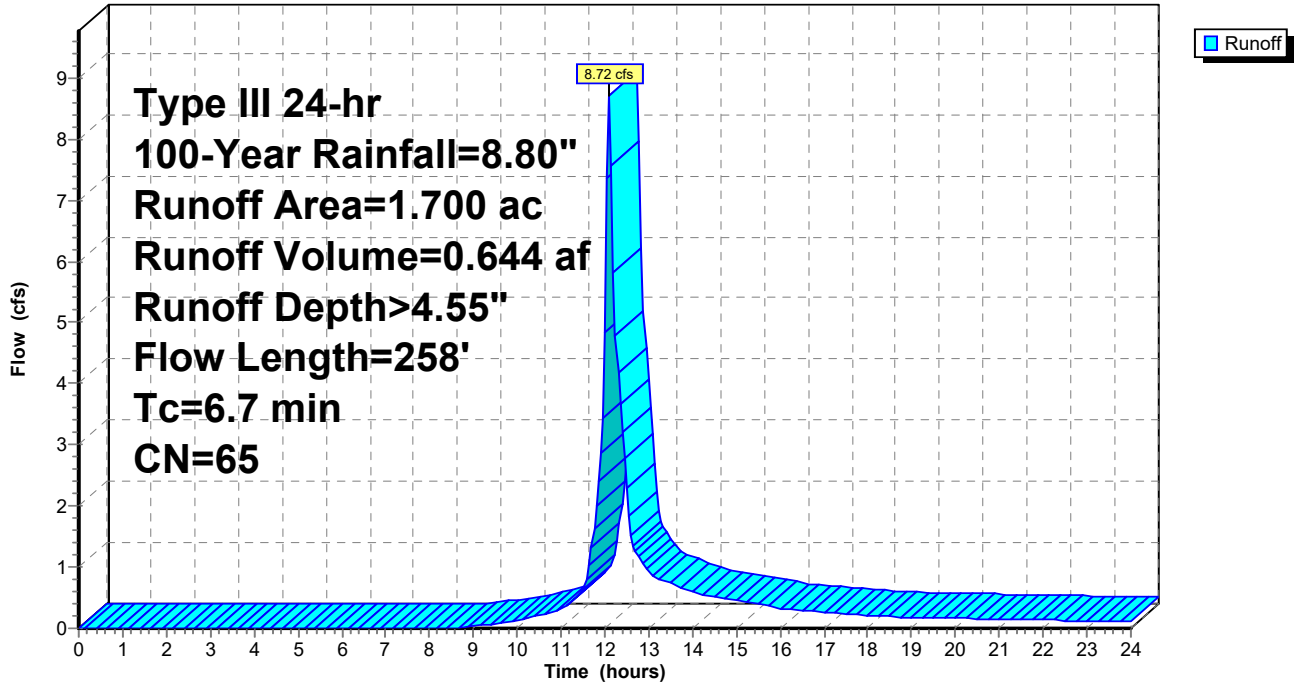
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.130	98	Paved parking, HSG B
0.120	98	Roofs, HSG B
* 0.350	56	Brush, Fair, HSG B (mulch)
1.100	61	>75% Grass cover, Good, HSG B
1.700	65	Weighted Average
1.450		85.29% Pervious Area
0.250		14.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0500	0.21		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0500	1.57		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
0.0	7	0.0500	4.54		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
2.7	196	0.0306	1.22		Shallow Concentrated Flow, Grass Short Grass Pasture Kv= 7.0 fps
6.7	258	Total			

Subcatchment EX2: Lawn & Play Area

Hydrograph



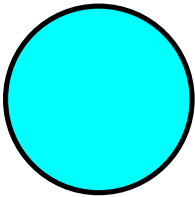
Summary for Reach EX21": 21" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 6.49" for 100-Year event
 Inflow = 13.38 cfs @ 12.10 hrs, Volume= 1.028 af
 Outflow = 11.82 cfs @ 12.18 hrs, Volume= 1.028 af, Atten= 12%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.38 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 2.10 fps, Avg. Travel Time= 1.8 min

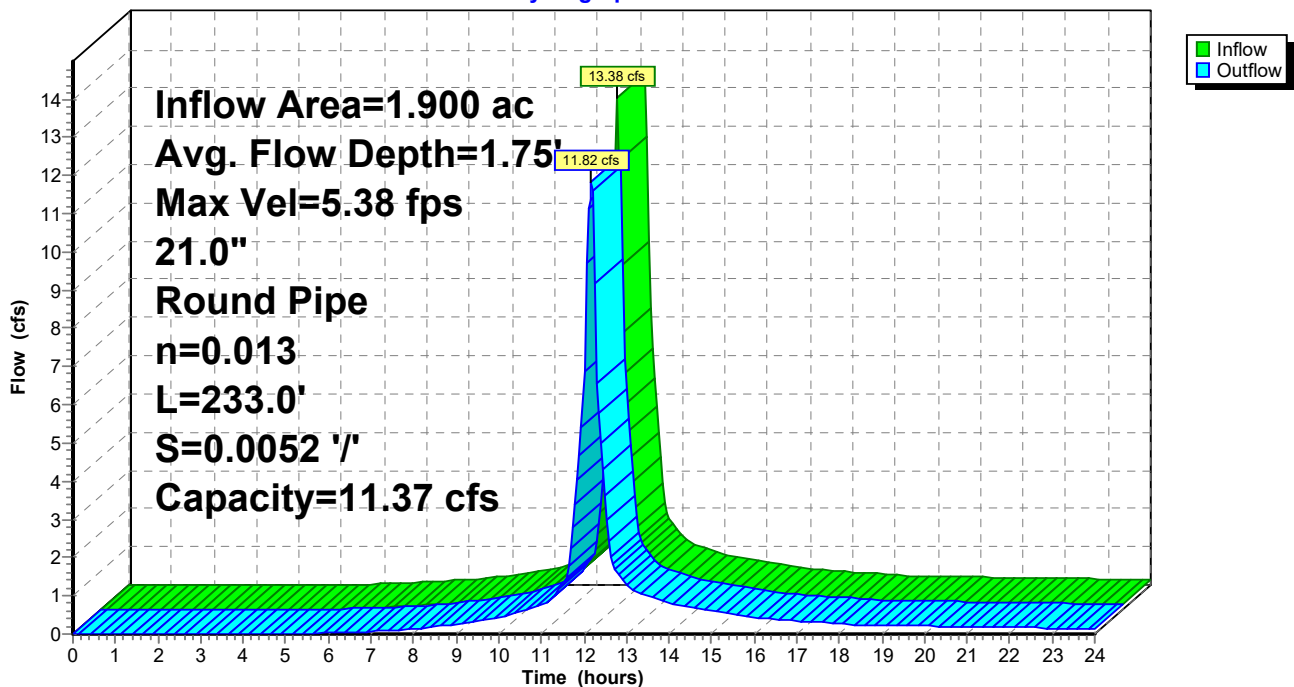
Peak Storage= 574 cf @ 12.13 hrs
 Average Depth at Peak Storage= 1.75'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach EX21": 21" RCP

Hydrograph



Summary for Subcatchment EX3: Building & Parking

Runoff = 13.38 cfs @ 12.10 hrs, Volume= 1.028 af, Depth> 6.49"

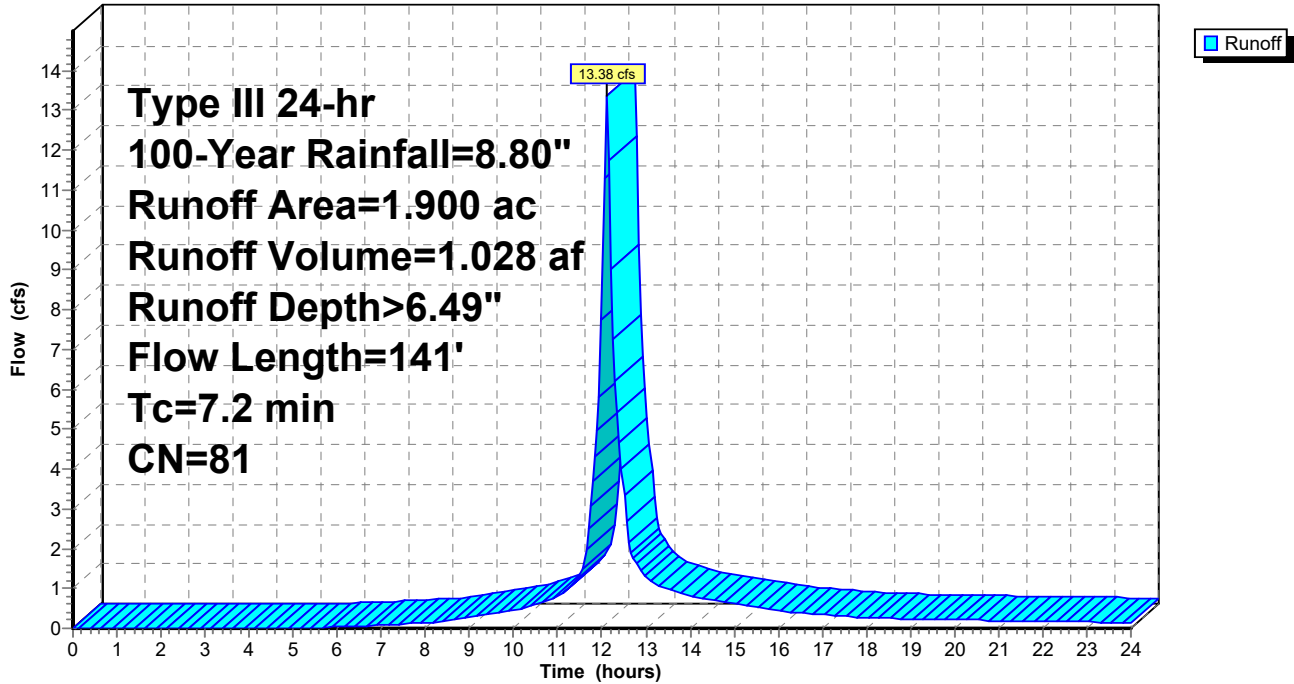
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG B
0.600	98	Roofs, HSG B
* 0.140	56	Brush, Fair, HSG B (mulch)
0.690	61	>75% Grass cover, Good, HSG B
1.900	81	Weighted Average
0.830		43.68% Pervious Area
1.070		56.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	45	0.0111	0.12		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.23"
0.1	5	0.0111	0.60		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 3.23"
0.0	1	0.0111	2.14		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
0.6	90	0.0167	2.62		Shallow Concentrated Flow, Sidewalk Paved Kv= 20.3 fps
7.2	141	Total			

Subcatchment EX3: Building & Parking

Hydrograph



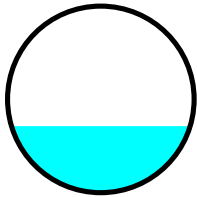
Summary for Reach EX30": 30" RCP

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 6.49" for 100-Year event
 Inflow = 11.82 cfs @ 12.18 hrs, Volume= 1.028 af
 Outflow = 11.78 cfs @ 12.18 hrs, Volume= 1.028 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.51 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.67 fps, Avg. Travel Time= 0.4 min

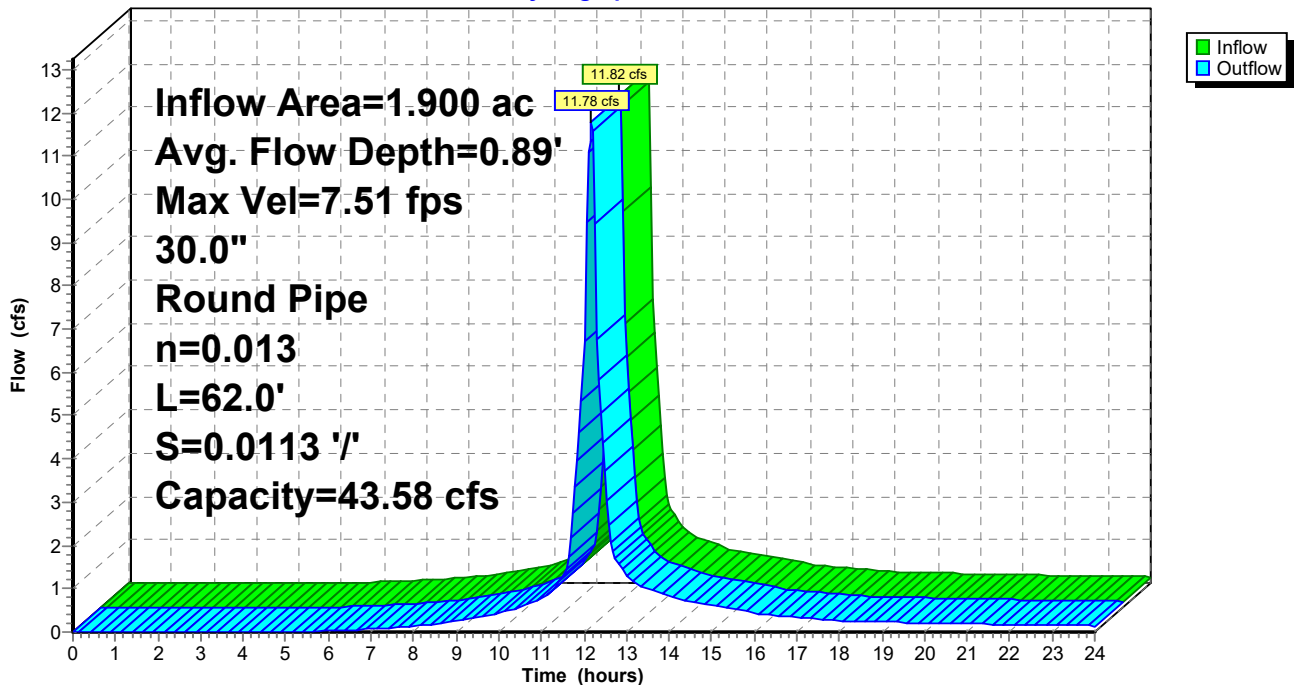
Peak Storage= 97 cf @ 12.18 hrs
 Average Depth at Peak Storage= 0.89'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 62.0' Slope= 0.0113 '/'
 Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach EX30": 30" RCP

Hydrograph



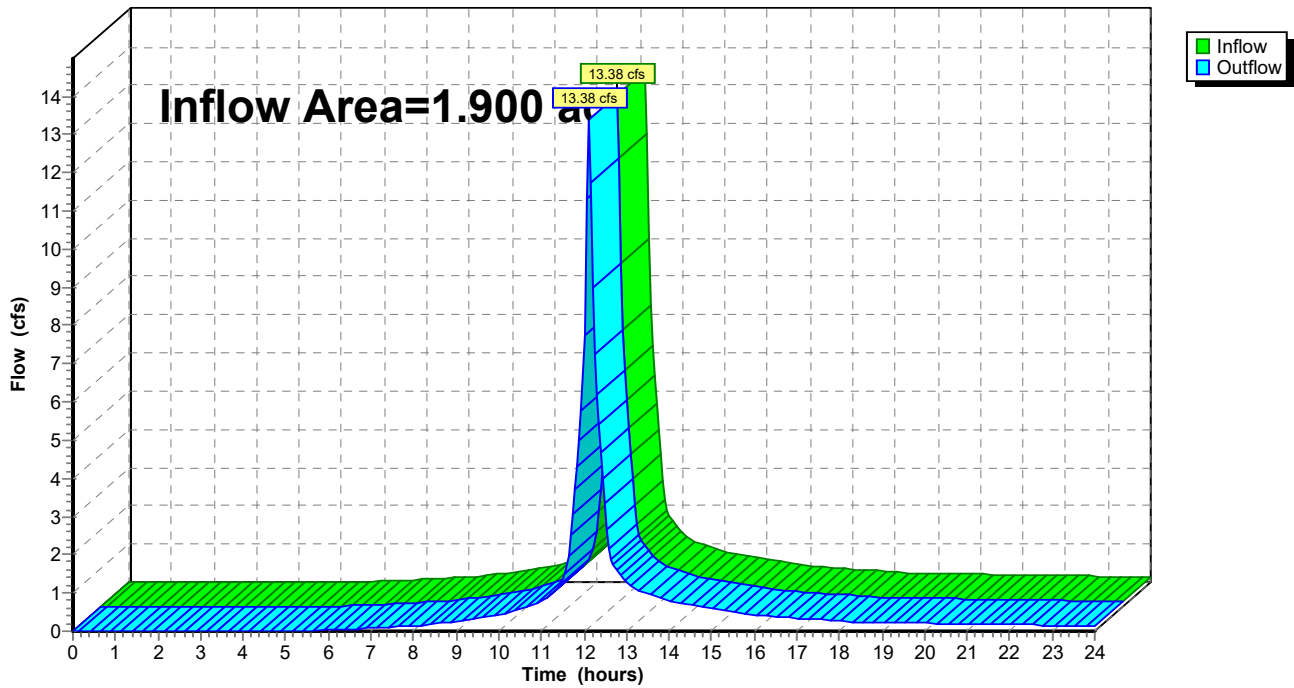
Summary for Reach EXCS: Cameron Street

Inflow Area = 1.900 ac, 56.32% Impervious, Inflow Depth > 6.49" for 100-Year event
Inflow = 13.38 cfs @ 12.10 hrs, Volume= 1.028 af
Outflow = 13.38 cfs @ 12.10 hrs, Volume= 1.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCS: Cameron Street

Hydrograph



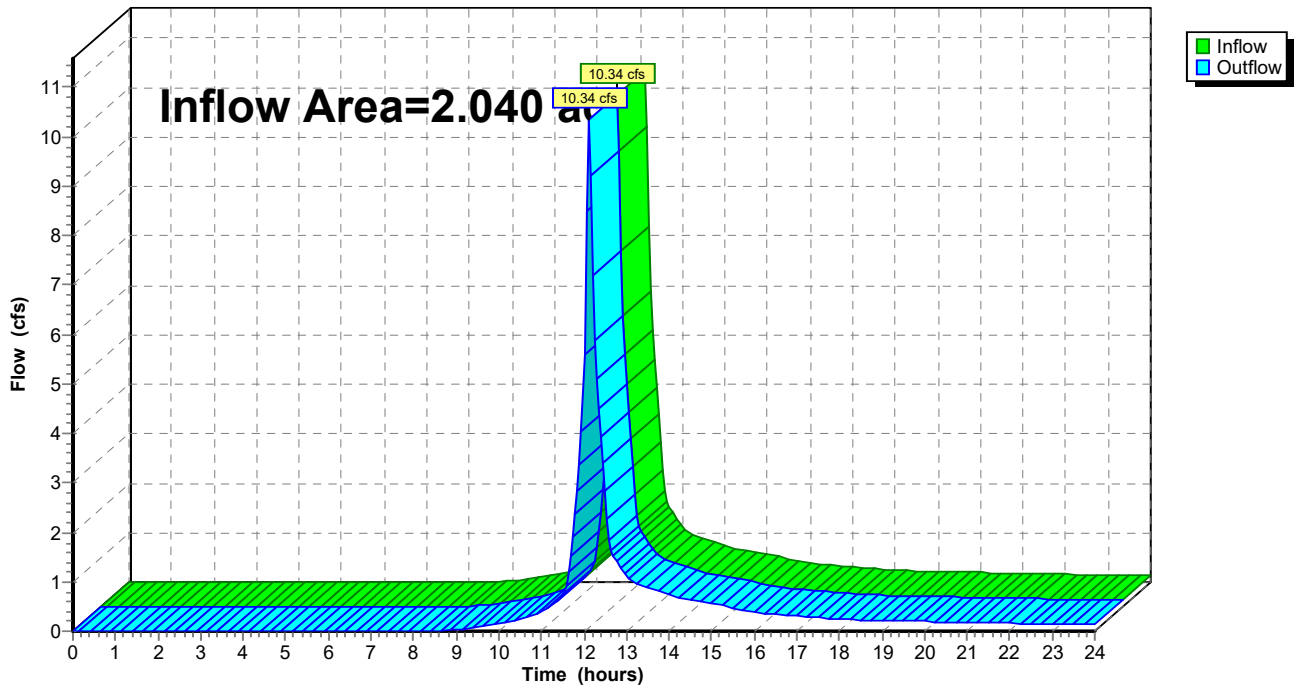
Summary for Reach EXCSB: Cold Spring Brook

Inflow Area = 2.040 ac, 12.25% Impervious, Inflow Depth > 4.55" for 100-Year event
Inflow = 10.34 cfs @ 12.11 hrs, Volume= 0.773 af
Outflow = 10.34 cfs @ 12.11 hrs, Volume= 0.773 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXCSB: Cold Spring Brook

Hydrograph



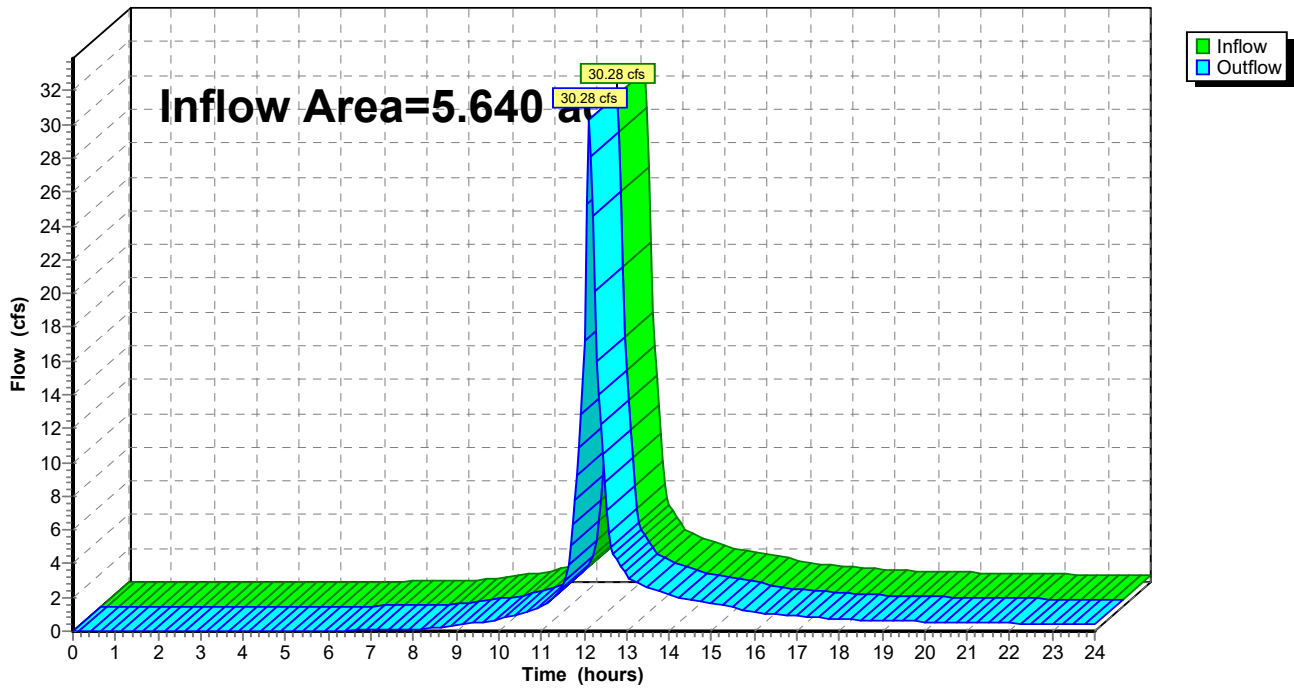
Summary for Reach EXDP: Fuller Brook

Inflow Area = 5.640 ac, 27.84% Impervious, Inflow Depth > 5.20" for 100-Year event
Inflow = 30.28 cfs @ 12.11 hrs, Volume= 2.444 af
Outflow = 30.28 cfs @ 12.11 hrs, Volume= 2.444 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXDP: Fuller Brook

Hydrograph



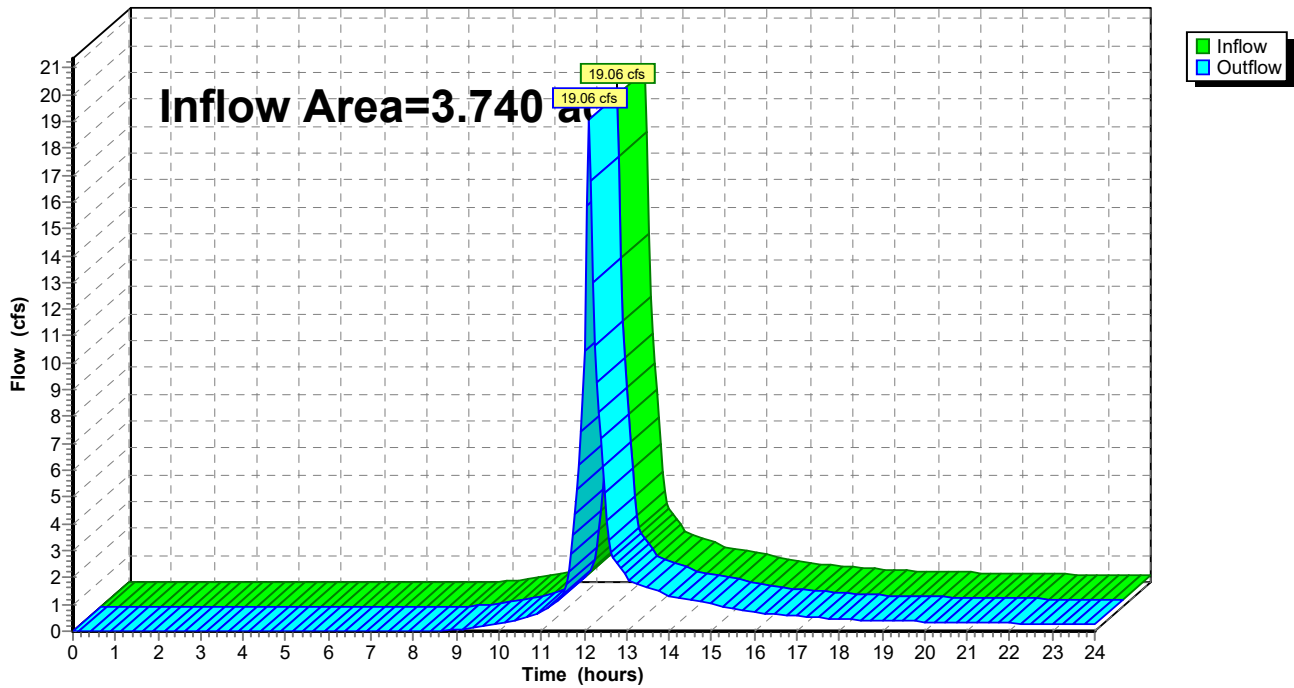
Summary for Reach EXFB: Fuller Brook

Inflow Area = 3.740 ac, 13.37% Impervious, Inflow Depth > 4.55" for 100-Year event
Inflow = 19.06 cfs @ 12.10 hrs, Volume= 1.417 af
Outflow = 19.06 cfs @ 12.10 hrs, Volume= 1.417 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach EXFB: Fuller Brook

Hydrograph



Summary for Subcatchment PR1.1: Roof

Runoff = 4.35 cfs @ 12.07 hrs, Volume= 0.356 af, Depth> 8.56"

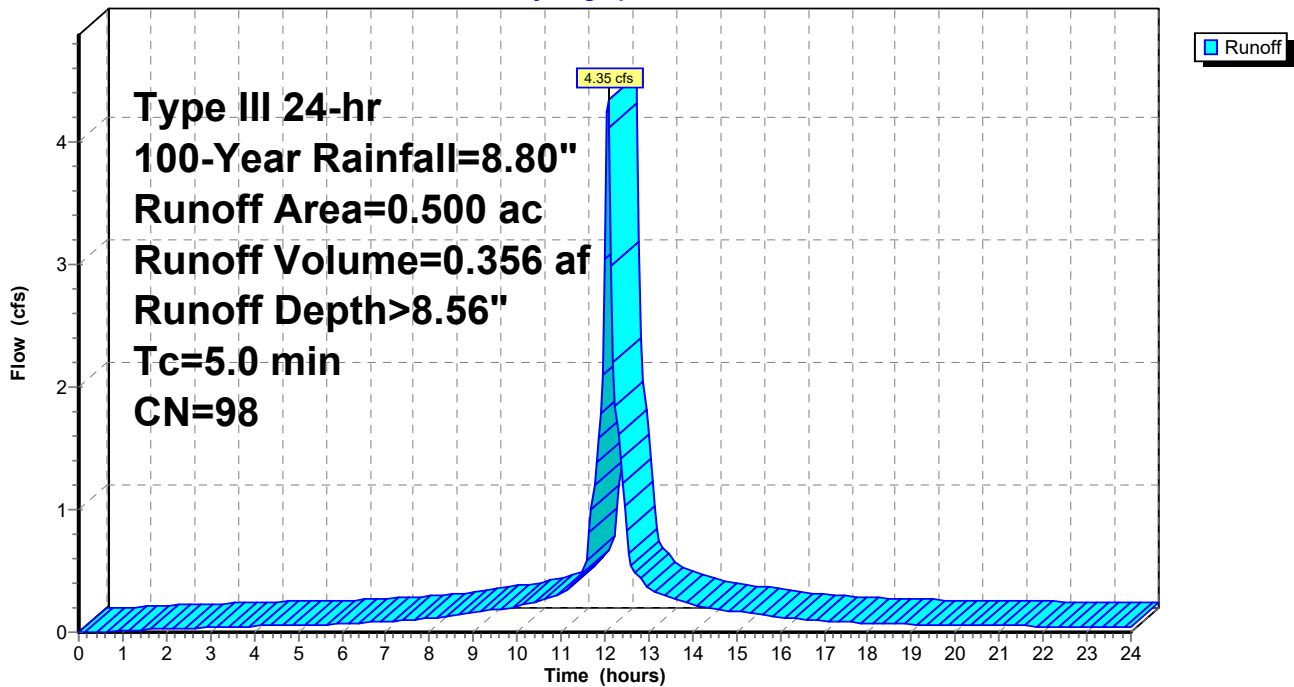
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR1.1: Roof

Hydrograph



Summary for Subcatchment PR1.2: Lawn inside Em. Access

Runoff = 3.29 cfs @ 12.08 hrs, Volume= 0.235 af, Depth> 5.52"

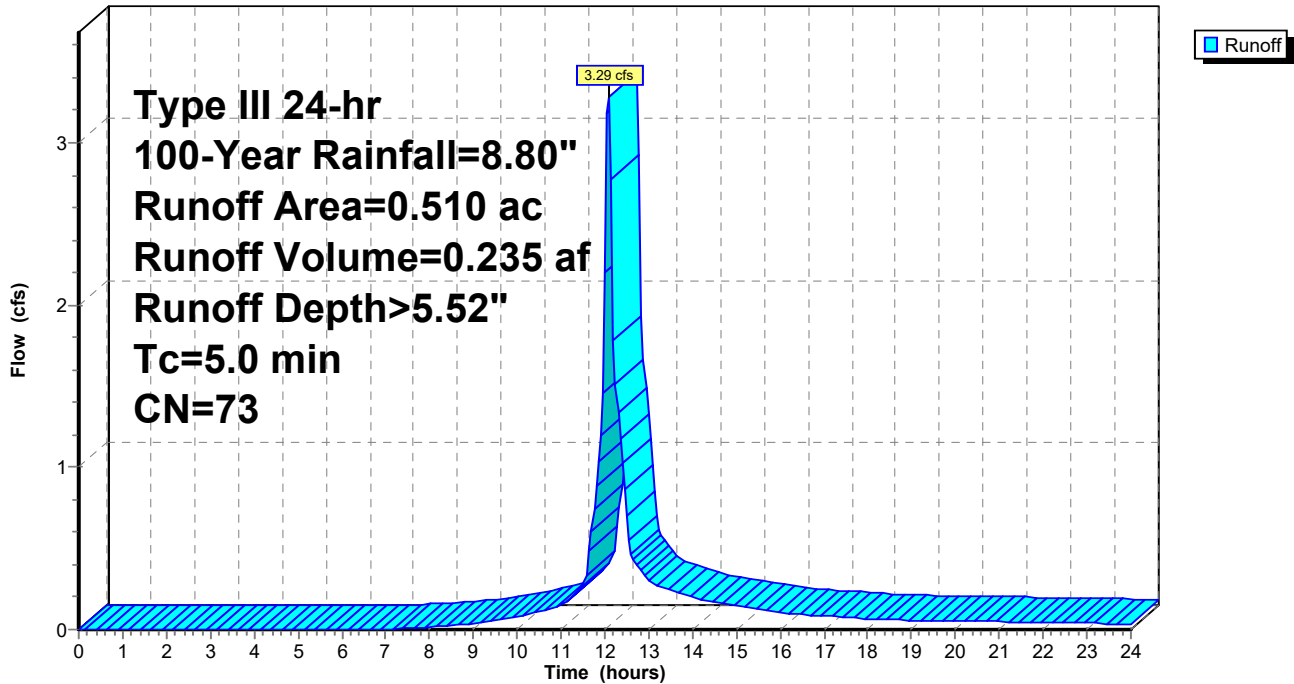
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.350	61	>75% Grass cover, Good, HSG B
* 0.000	98	emergency access
* 0.160	98	pavement
* 0.000	56	Brush, Fair, HSG B (mulch)
0.510	73	Weighted Average
0.350		68.63% Pervious Area
0.160		31.37% Impervious Area

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

Subcatchment PR1.2: Lawn inside Em. Access

Hydrograph



Summary for Subcatchment PR1.3: Lawn & Em. Access

Runoff = 8.22 cfs @ 12.10 hrs, Volume= 0.597 af, Depth> 4.42"

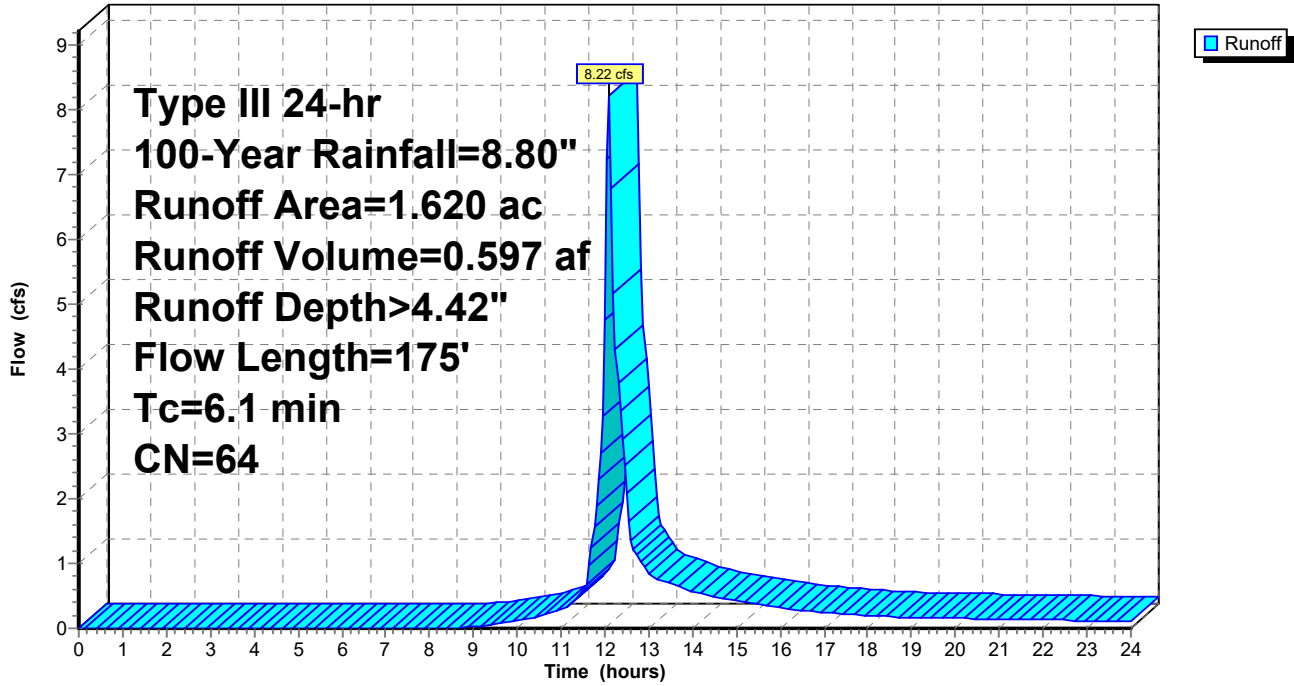
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
1.140	61	>75% Grass cover, Good, HSG B
* 0.140	98	emergency access
* 0.030	82	walks- stonedust
* 0.310	56	Brush, Fair, HSG B (mulch)
1.620	64	Weighted Average
1.480		91.36% Pervious Area
0.140		8.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	25	0.1200	0.18		Sheet Flow, Bush Grass: Dense n= 0.240 P2= 3.23"
1.7	25	0.1000	0.25		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.23"
0.1	15	0.1100	2.32		Shallow Concentrated Flow, Sloped Lawn Short Grass Pasture Kv= 7.0 fps
0.3	40	0.1000	2.21		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
1.7	70	0.0100	0.70		Shallow Concentrated Flow, Lawn Short Grass Pasture Kv= 7.0 fps
6.1	175	Total			

Subcatchment PR1.3: Lawn & Em. Access

Hydrograph



Summary for Subcatchment PR2: Playground

Runoff = 7.47 cfs @ 12.11 hrs, Volume= 0.569 af, Depth> 5.88"

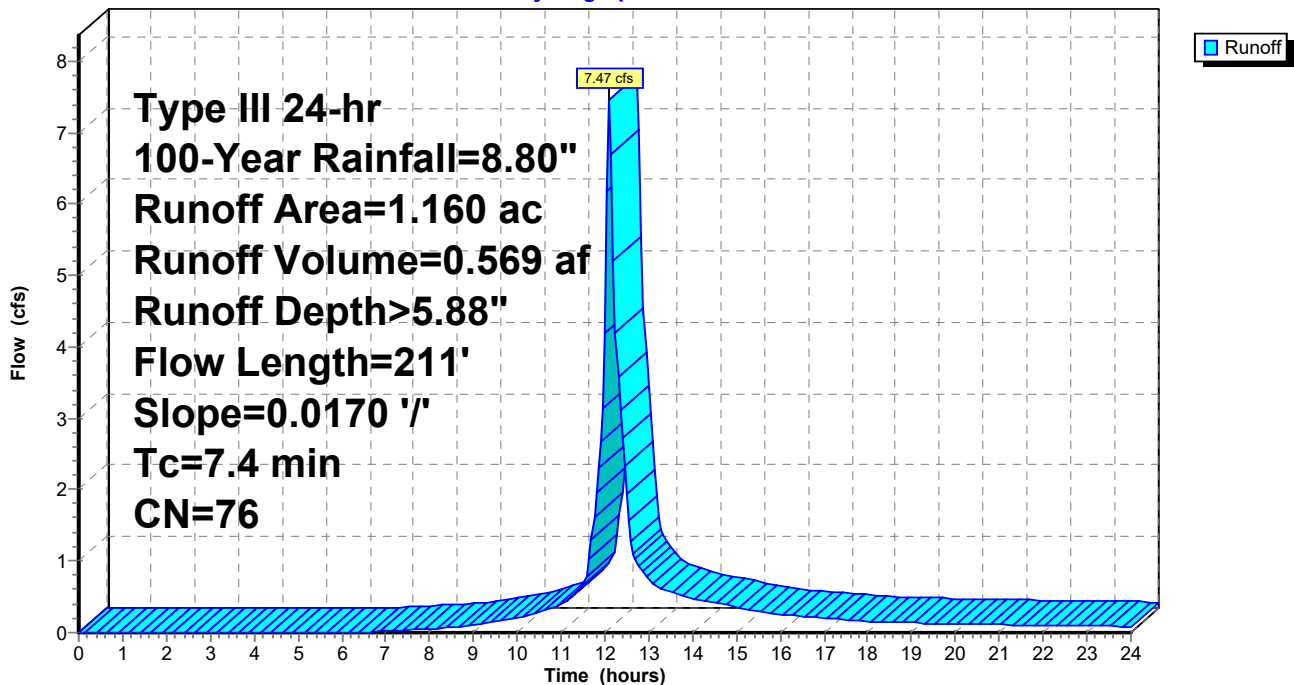
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.640	69	50-75% Grass cover, Fair, HSG B
* 0.430	82	Dirt roads, HSG B (play surface)
* 0.060	98	fire access
* 0.030	98	pavement
1.160	76	Weighted Average
1.070		92.24% Pervious Area
0.090		7.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0170	0.14		Sheet Flow, Playground Grass: Short n= 0.150 P2= 3.23"
0.3	19	0.0170	0.91		Shallow Concentrated Flow, Playground Short Grass Pasture Kv= 7.0 fps
1.1	142	0.0170	2.10		Shallow Concentrated Flow, Playground Unpaved Kv= 16.1 fps
7.4	211	Total			

Subcatchment PR2: Playground

Hydrograph



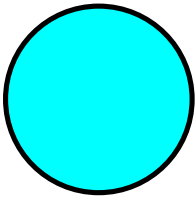
Summary for Reach PR21": 21" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 7.70" for 100-Year event
 Inflow = 17.65 cfs @ 12.06 hrs, Volume= 1.187 af
 Outflow = 11.37 cfs @ 12.10 hrs, Volume= 1.186 af, Atten= 36%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.39 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 2.01 fps, Avg. Travel Time= 1.9 min

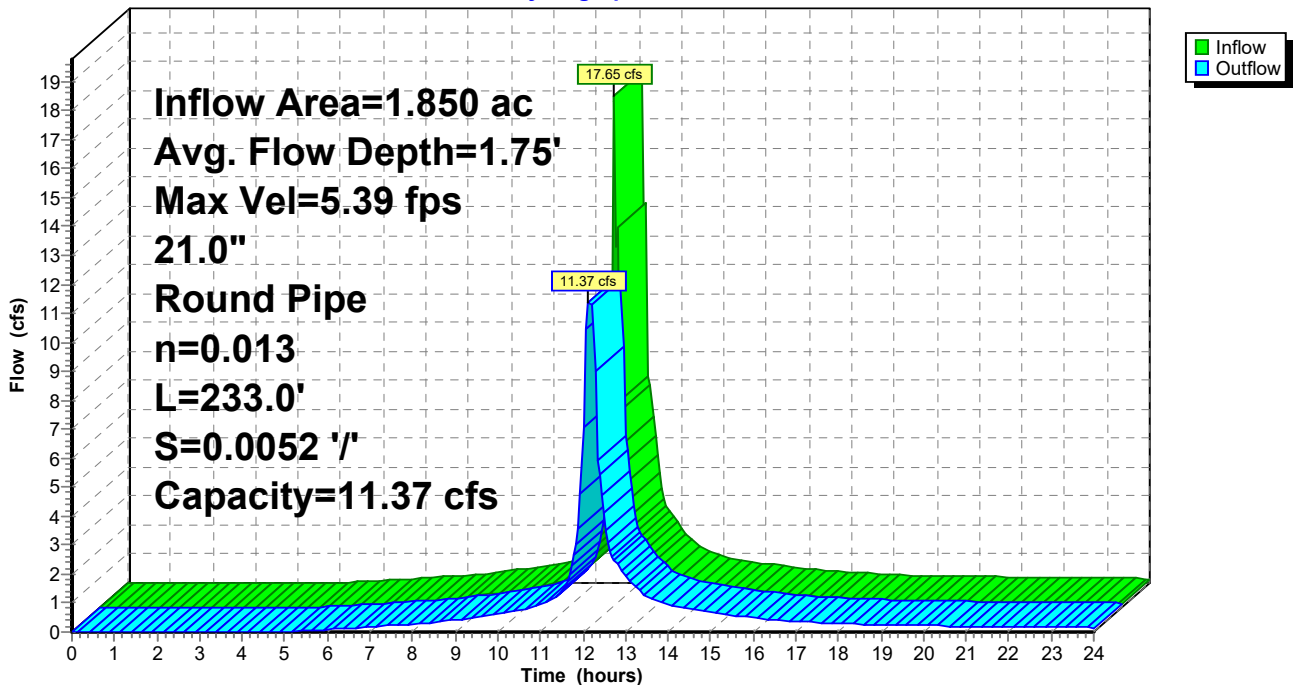
Peak Storage= 560 cf @ 12.05 hrs
 Average Depth at Peak Storage= 1.75'
 Bank-Full Depth= 1.75' Flow Area= 2.4 sf, Capacity= 11.37 cfs

21.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 233.0' Slope= 0.0052 '/'
 Inlet Invert= 114.30', Outlet Invert= 113.10'



Reach PR21": 21" RCP

Hydrograph



Summary for Subcatchment PR3.1: Roof

Runoff = 4.35 cfs @ 12.07 hrs, Volume= 0.356 af, Depth> 8.56"

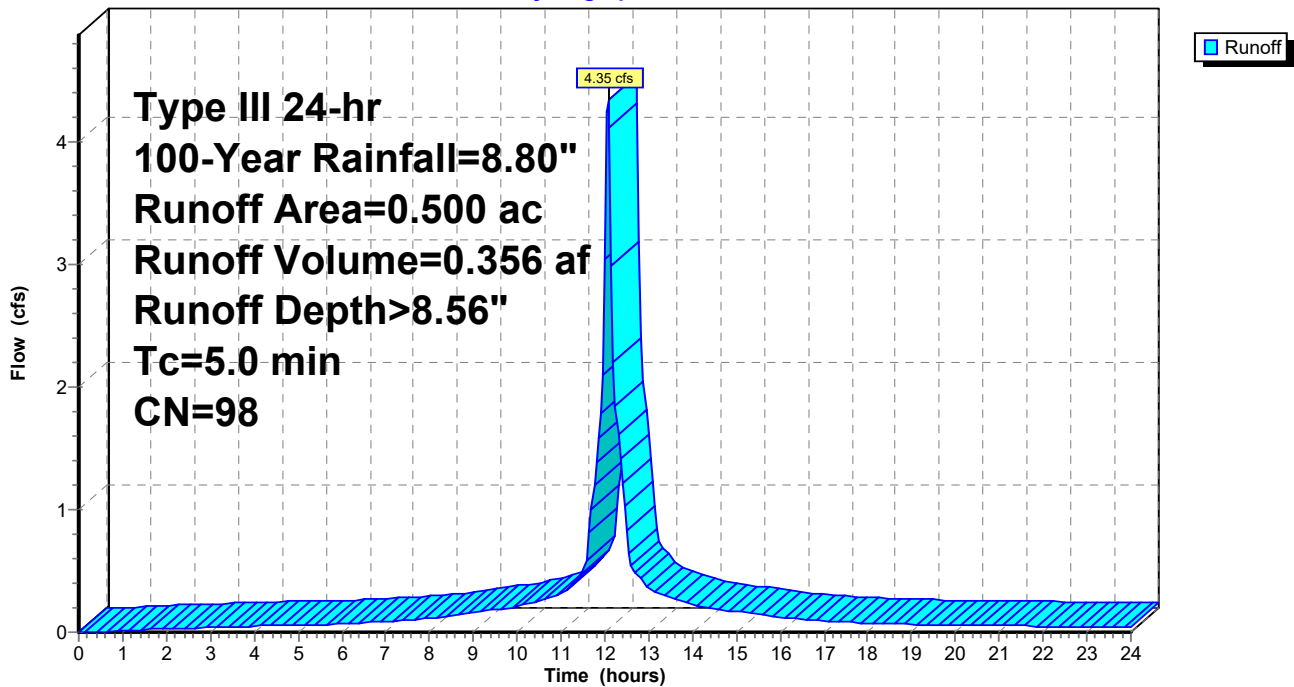
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.500	98	Roofs, HSG B
0.500		100.00% Impervious Area

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

Subcatchment PR3.1: Roof

Hydrograph



Summary for Subcatchment PR3.2: Parking

Runoff = 8.99 cfs @ 12.07 hrs, Volume= 0.678 af, Depth> 7.47"

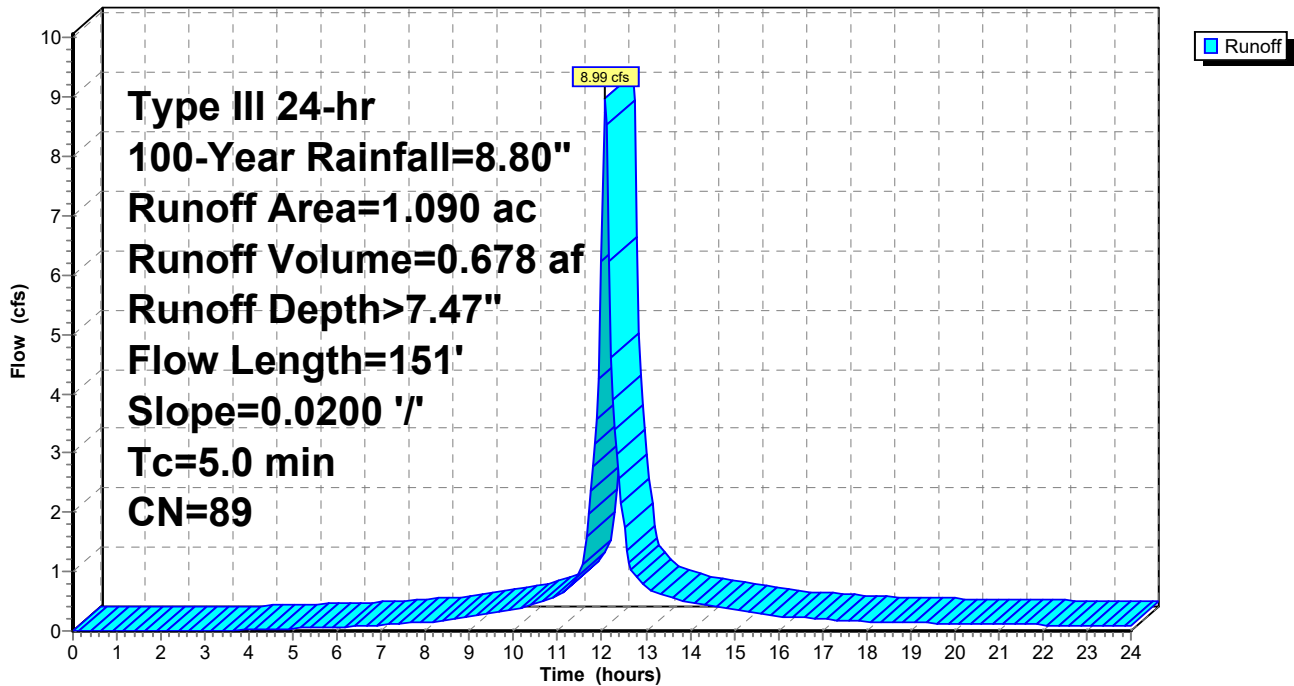
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.330	69	50-75% Grass cover, Fair, HSG B
0.760	98	Paved roads w/curbs & sewers, HSG B
1.090	89	Weighted Average
0.330		30.28% Pervious Area
0.760		69.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	11	0.0200	0.11		Sheet Flow, Landscaping Grass: Short n= 0.150 P2= 3.23"
0.6	39	0.0200	1.14		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.6	101	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
2.1					Direct Entry, extra
5.0	151	Total			

Subcatchment PR3.2: Parking

Hydrograph



Summary for Subcatchment PR3.3: Loading Area

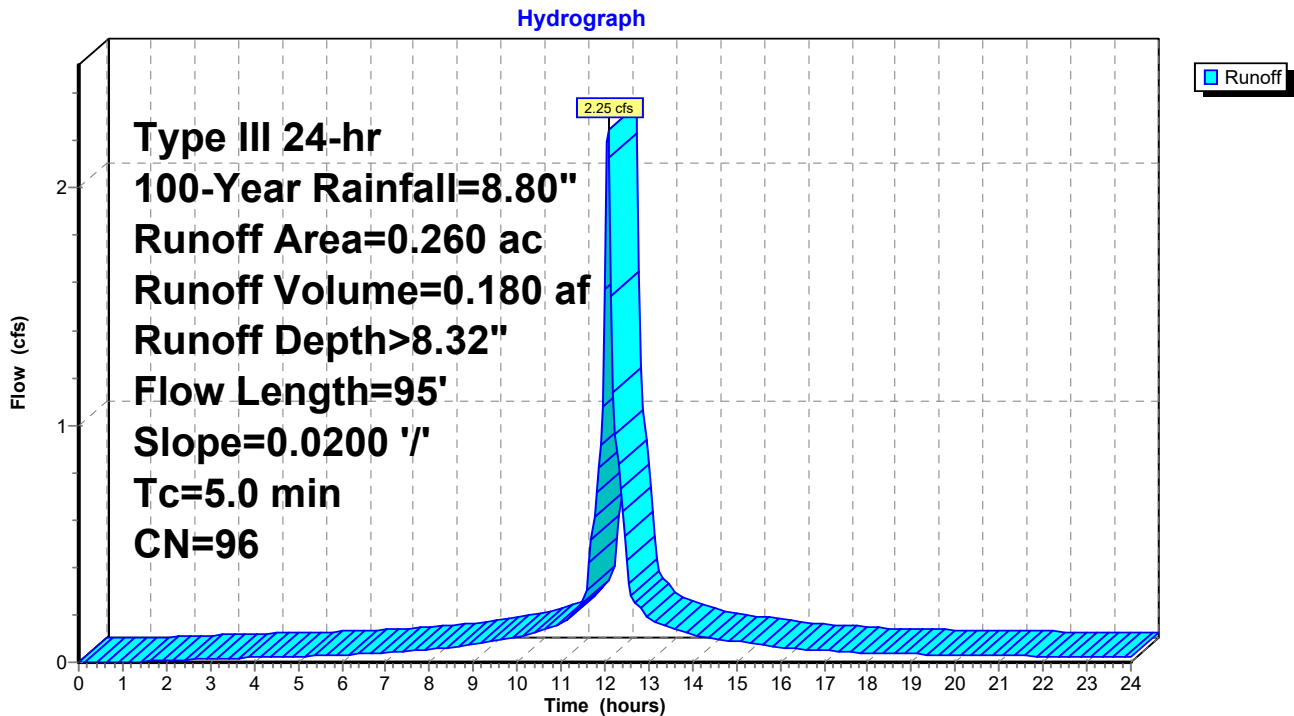
Runoff = 2.25 cfs @ 12.07 hrs, Volume= 0.180 af, Depth> 8.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.80"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG B
0.020	69	50-75% Grass cover, Fair, HSG B
0.260	96	Weighted Average
0.020		7.69% Pervious Area
0.240		92.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		Sheet Flow, Road Smooth surfaces n= 0.011 P2= 3.23"
0.3	45	0.0200	2.87		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
4.0					Direct Entry, Extra
5.0	95	Total			

Subcatchment PR3.3: Loading Area



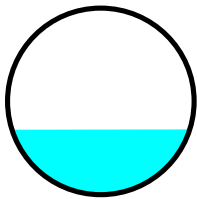
Summary for Reach PR30": 30" RCP

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 7.70" for 100-Year event
 Inflow = 11.37 cfs @ 12.10 hrs, Volume= 1.186 af
 Outflow = 11.41 cfs @ 12.20 hrs, Volume= 1.186 af, Atten= 0%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.48 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.55 fps, Avg. Travel Time= 0.4 min

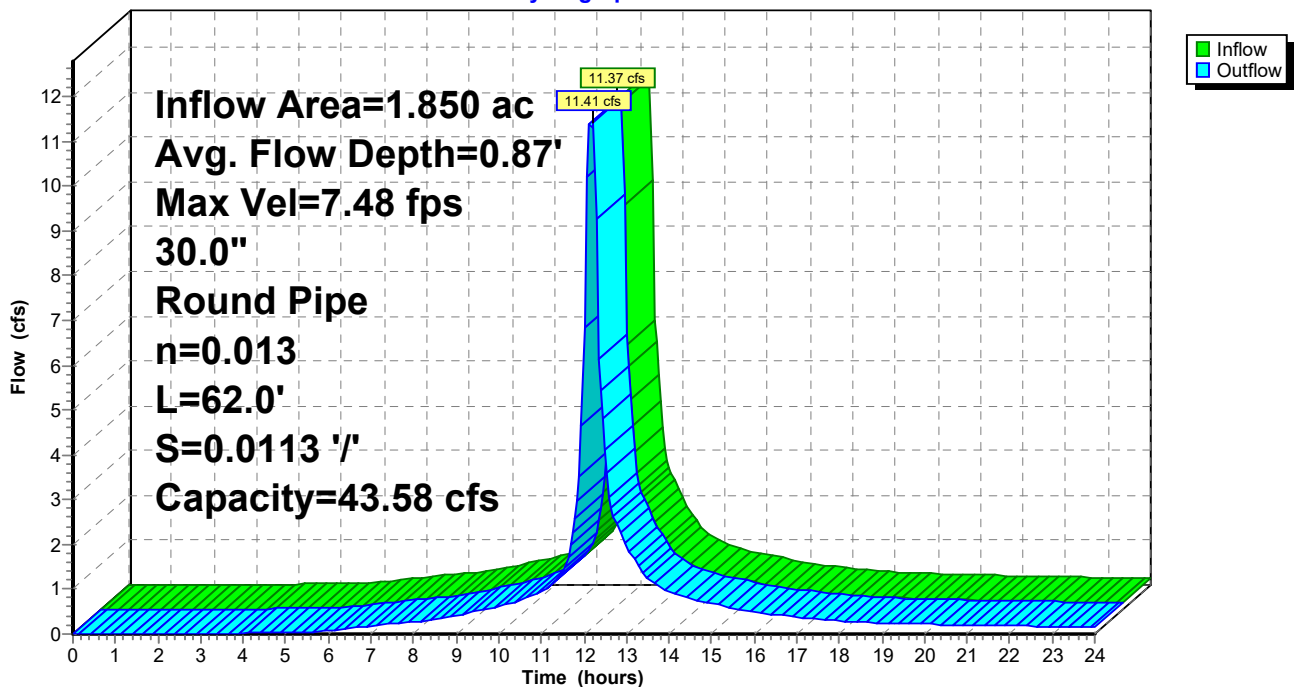
Peak Storage= 95 cf @ 12.10 hrs
 Average Depth at Peak Storage= 0.87'
 Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 43.58 cfs

30.0" Round Pipe
 n= 0.013 Concrete pipe, bends & connections
 Length= 62.0' Slope= 0.0113 '/'
 Inlet Invert= 113.10', Outlet Invert= 112.40'



Reach PR30": 30" RCP

Hydrograph



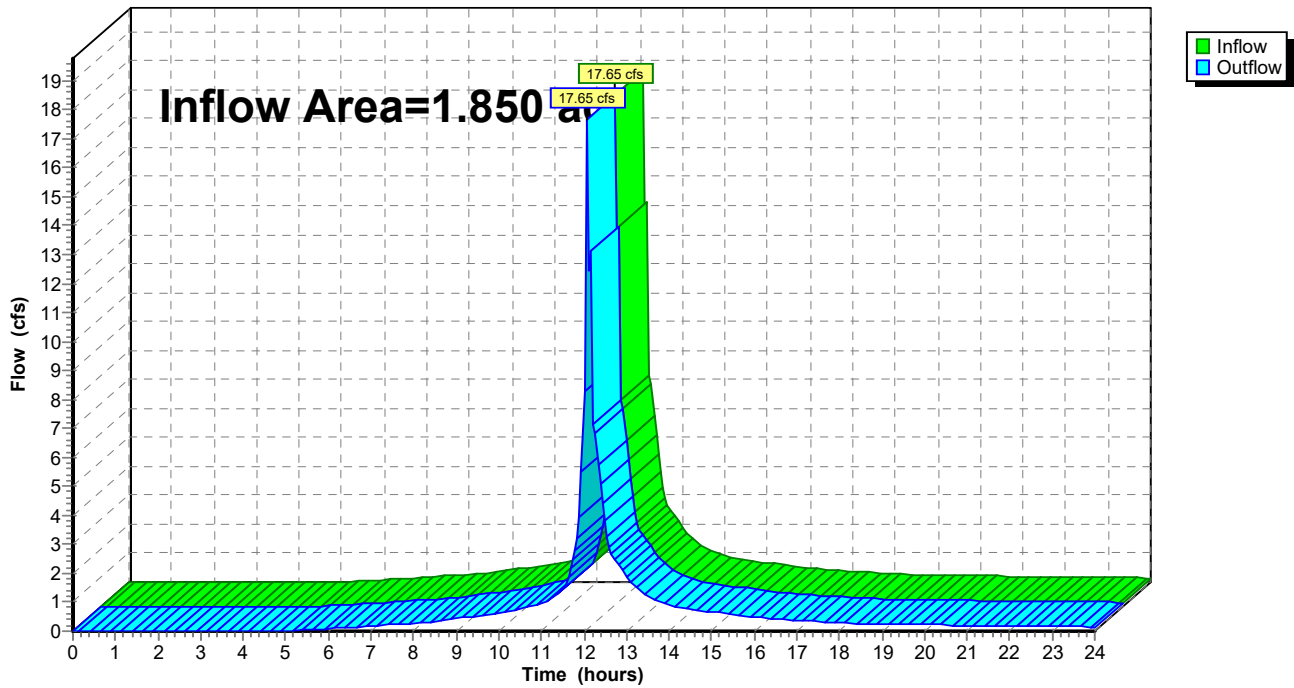
Summary for Reach PRCS: Cameron St

Inflow Area = 1.850 ac, 81.08% Impervious, Inflow Depth > 7.70" for 100-Year event
Inflow = 17.65 cfs @ 12.06 hrs, Volume= 1.187 af
Outflow = 17.65 cfs @ 12.06 hrs, Volume= 1.187 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCS: Cameron St

Hydrograph



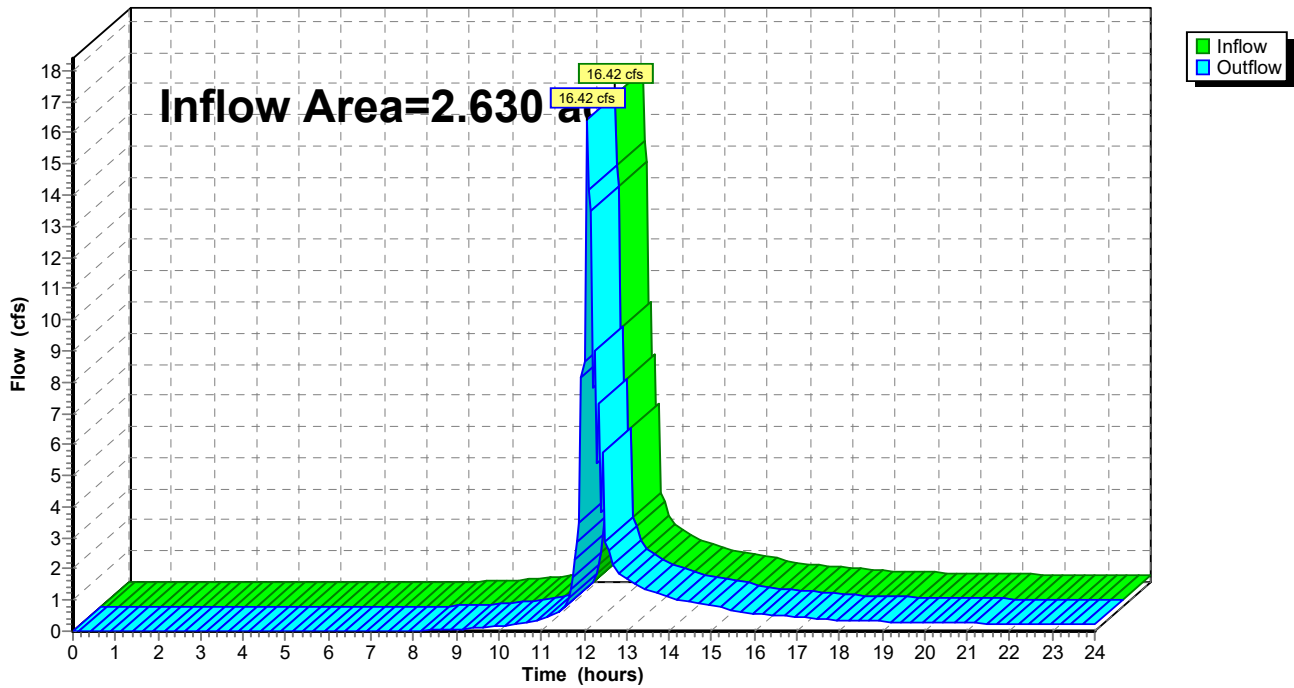
Summary for Reach PRCSB: Cold Springs Brook

Inflow Area = 2.630 ac, 30.42% Impervious, Inflow Depth > 4.91" for 100-Year event
Inflow = 16.42 cfs @ 12.06 hrs, Volume= 1.076 af
Outflow = 16.42 cfs @ 12.06 hrs, Volume= 1.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRCSB: Cold Springs Brook

Hydrograph



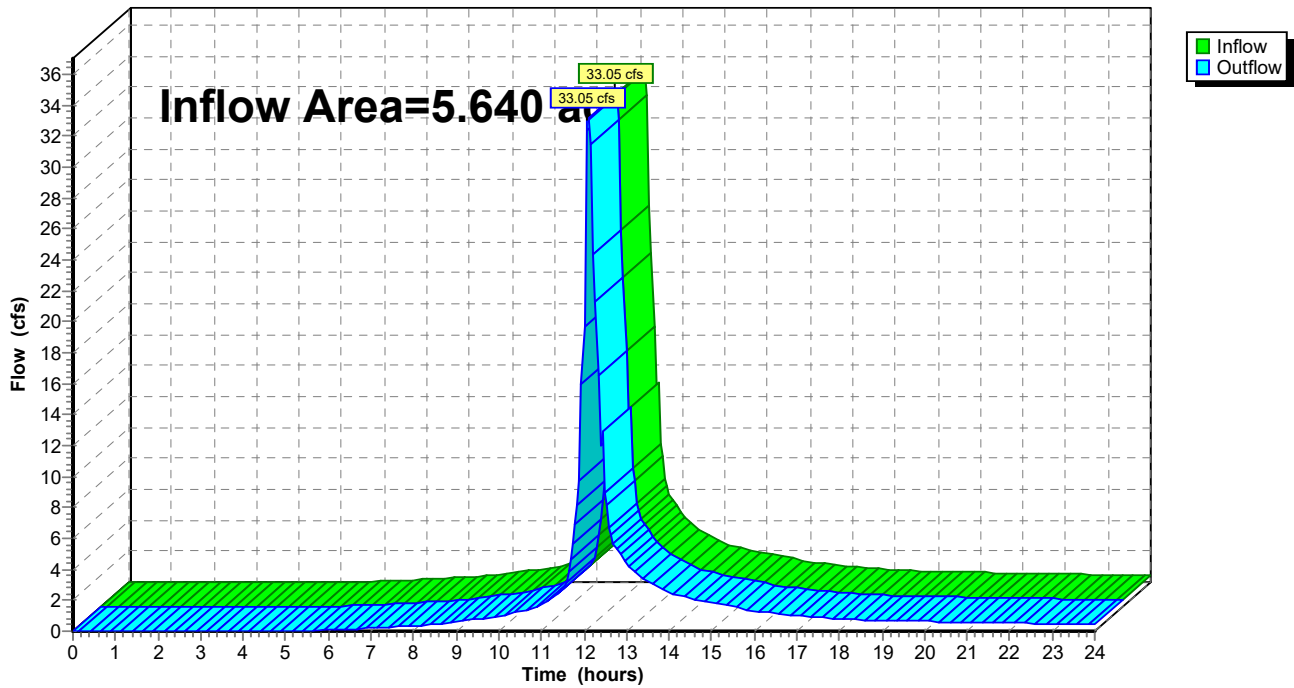
Summary for Reach PRDP: Fuller Brook

Inflow Area = 5.640 ac, 42.38% Impervious, Inflow Depth > 6.02" for 100-Year event
Inflow = 33.05 cfs @ 12.09 hrs, Volume= 2.831 af
Outflow = 33.05 cfs @ 12.09 hrs, Volume= 2.831 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRDP: Fuller Brook

Hydrograph



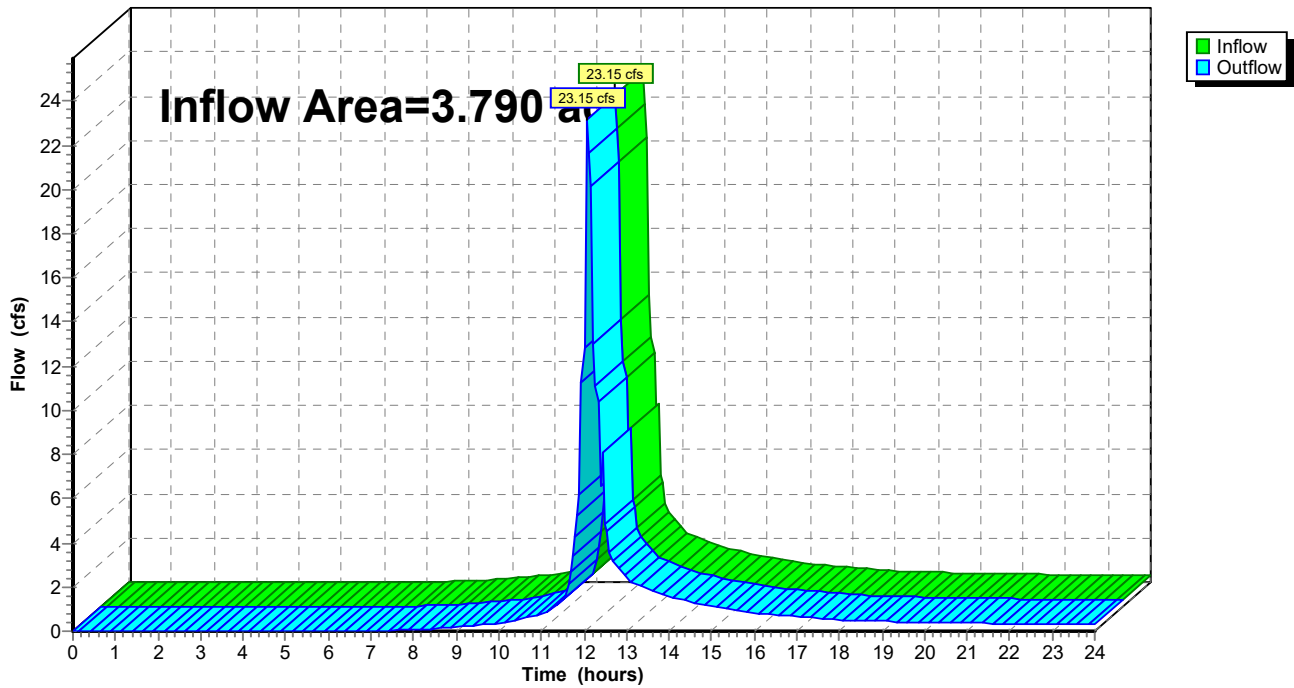
Summary for Reach PRFB: Fuller Brook

Inflow Area = 3.790 ac, 23.48% Impervious, Inflow Depth > 5.21" for 100-Year event
Inflow = 23.15 cfs @ 12.07 hrs, Volume= 1.645 af
Outflow = 23.15 cfs @ 12.07 hrs, Volume= 1.645 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach PRFB: Fuller Brook

Hydrograph



Summary for Pond PRI1: Infiltration 1

Inflow Area = 1.590 ac, 79.25% Impervious, Inflow Depth > 7.81" for 100-Year event
 Inflow = 13.34 cfs @ 12.07 hrs, Volume= 1.035 af
 Outflow = 15.43 cfs @ 12.06 hrs, Volume= 1.007 af, Atten= 0%, Lag= 0.0 min
 Primary = 15.43 cfs @ 12.06 hrs, Volume= 1.007 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.33' @ 12.06 hrs Surf.Area= 3,502 sf Storage= 5,173 cf

Plug-Flow detention time= 43.8 min calculated for 1.005 af (97% of inflow)
 Center-of-Mass det. time= 27.5 min (790.0 - 762.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	2,484 cf	47.00'W x 74.50'L x 2.54'H Field A 8,900 cf Overall - 2,689 cf Embedded = 6,211 cf x 40.0% Voids
#2A	0.50'	2,689 cf	Cultec R-150XLHD x 98 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 14 rows
		5,173 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	10.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	24.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=14.64 cfs @ 12.06 hrs HW=3.26' (Free Discharge)

- ↑ 1=Orifice/Grate (Orifice Controls 4.02 cfs @ 7.37 fps)
- └ 2=Orifice/Grate (Orifice Controls 10.62 cfs @ 4.18 fps)

Pond PRI1: Infiltration 1 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 14 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

14 Rows x 33.0" Wide + 6.0" Spacing x 13 + 12.0" Side Stone x 2 = 47.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

98 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 14 Rows = 2,688.7 cf Chamber Storage

8,899.6 cf Field - 2,688.7 cf Chambers = 6,210.9 cf Stone x 40.0% Voids = 2,484.4 cf Stone Storage

Chamber Storage + Stone Storage = 5,173.1 cf = 0.119 af

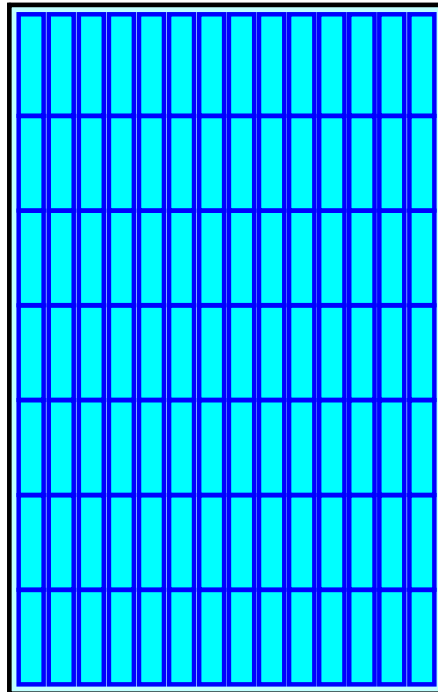
Overall Storage Efficiency = 58.1%

Overall System Size = 74.50' x 47.00' x 2.54'

98 Chambers

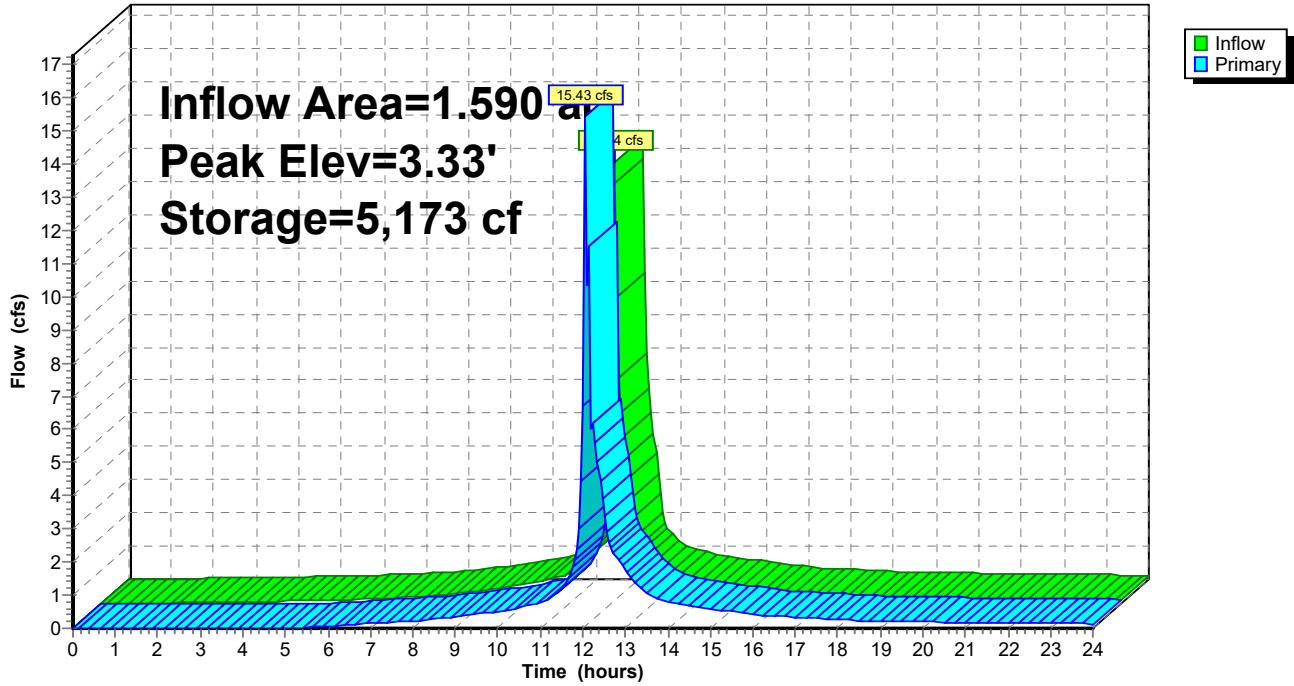
329.6 cy Field

230.0 cy Stone



Pond PRI1: Infiltrtaion 1

Hydrograph



Summary for Pond PRI2: Infiltration 2

Inflow Area = 1.010 ac, 65.35% Impervious, Inflow Depth > 7.02" for 100-Year event
 Inflow = 7.66 cfs @ 12.07 hrs, Volume= 0.591 af
 Outflow = 8.84 cfs @ 12.06 hrs, Volume= 0.479 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.84 cfs @ 12.06 hrs, Volume= 0.479 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.00' @ 12.05 hrs Surf.Area= 4,470 sf Storage= 6,619 cf

Plug-Flow detention time= 153.0 min calculated for 0.479 af (81% of inflow)
 Center-of-Mass det. time= 77.7 min (846.0 - 768.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	3,162 cf	60.00'W x 74.50'L x 2.54'H Field A 11,361 cf Overall - 3,457 cf Embedded = 7,904 cf x 40.0% Voids
#2A	0.50'	3,457 cf	Cultec R-150XLHD x 126 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 18 rows
		6,619 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	1.75'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=8.45 cfs @ 12.06 hrs HW=66.52' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 0.85 cfs @ 39.10 fps)
- └─2=Orifice/Grate (Orifice Controls 7.59 cfs @ 38.68 fps)

Pond PRI2: Infiltration 2 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 18 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

7 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 72.50' Row Length +12.0" End Stone x 2 = 74.50' Base Length

18 Rows x 33.0" Wide + 6.0" Spacing x 17 + 12.0" Side Stone x 2 = 60.00' Base Width

6.0" Base + 18.5" Chamber Height + 6.0" Cover = 2.54' Field Height

126 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 18 Rows = 3,456.9 cf Chamber Storage

11,361.3 cf Field - 3,456.9 cf Chambers = 7,904.3 cf Stone x 40.0% Voids = 3,161.7 cf Stone Storage

Chamber Storage + Stone Storage = 6,618.7 cf = 0.152 af

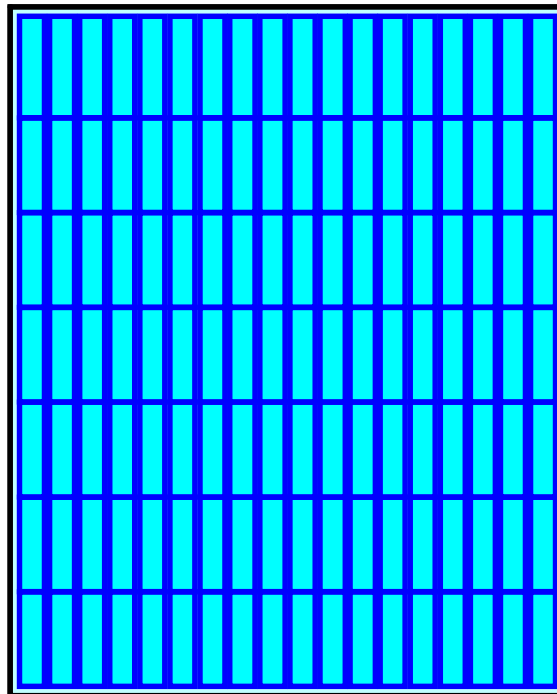
Overall Storage Efficiency = 58.3%

Overall System Size = 74.50' x 60.00' x 2.54'

126 Chambers

420.8 cy Field

292.8 cy Stone



Pond PRI2: Infiltration 2

Hydrograph

