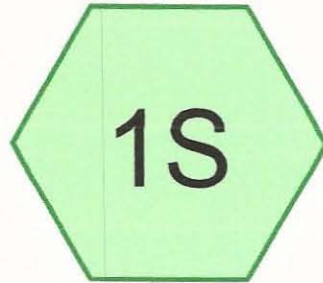
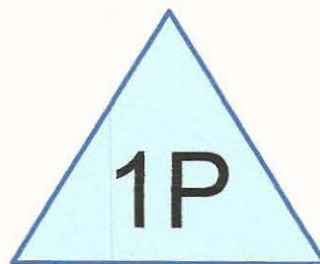


39 HAWTHORNE AVE, NEWTON
- DRYWELL SIZING

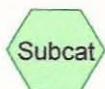


Roof Area of Garage



500 Gallon Conc.
Drywell w/ 6" Stone
Surrounding

6-17-16



Drywell Sizing*Type III 24-hr 2 year Rainfall=3.10"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: Roof Area of Garage

Runoff Area=624 sf Runoff Depth=2.68"

Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Peak Elev=107.54' Storage=2 cf Inflow=0.04 cfs 0.003 af

Outflow=0.04 cfs 0.003 af

Total Runoff Area = 0.014 ac Runoff Volume = 0.003 af Average Runoff Depth = 2.68"

Drywell Sizing

Type III 24-hr 2 year Rainfall=3.10"

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Subcatchment 1S: Roof Area of Garage

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth= 2.68"

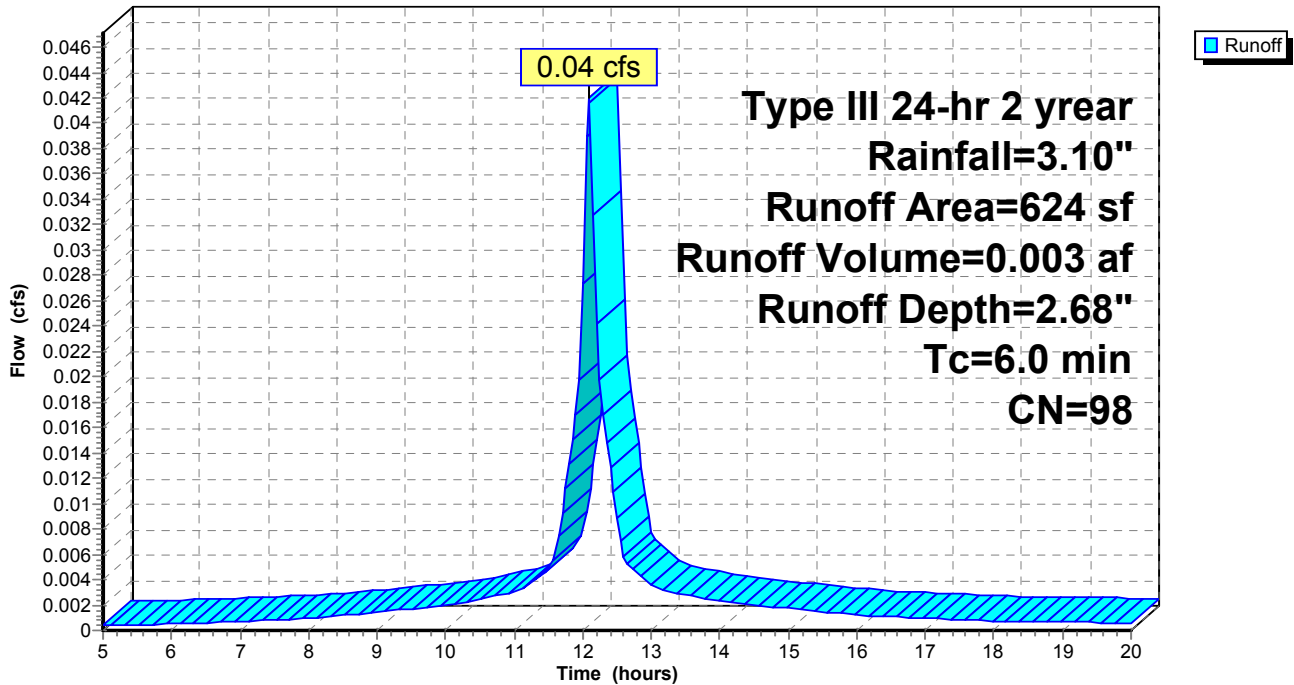
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
624	98	Roof Area of House

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

Subcatchment 1S: Roof Area of Garage

Hydrograph



Drywell Sizing

Type III 24-hr 2 year Rainfall=3.10"

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Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

Percolation Rate = <2 MPI

Inflow Area = 0.014 ac, Inflow Depth = 2.68" for 2 year event
 Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af
 Outflow = 0.04 cfs @ 12.13 hrs, Volume= 0.003 af, Atten= 8%, Lag= 2.3 min
 Discarded = 0.04 cfs @ 12.13 hrs, Volume= 0.003 af

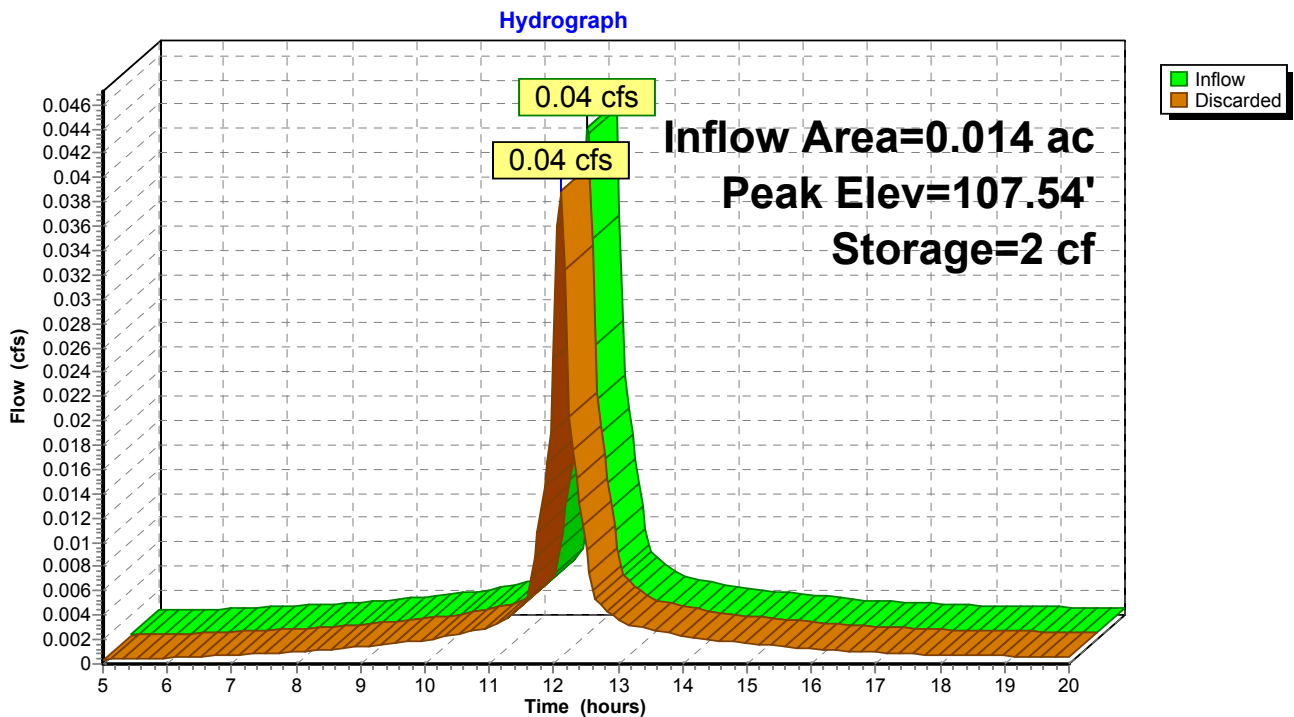
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 107.54' @ 12.11 hrs Surf.Area= 56 sf Storage= 2 cf
 Plug-Flow detention time= 0.8 min calculated for 0.003 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (739.5 - 738.9)

#	Invert	Avail.Storage	Storage Description
1	107.50'	31 cf	6.17'W x 9.00'L x 3.50'H Prismatoid 194 cf Overall - 117 cf Embedded = 77 cf x 40.0% Voids
2	107.50'	117 cf	5.17'W x 8.00'L x 2.83'H 500 Gallon Conc. Drywell Inside #1
		148 cf	Total Available Storage

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.041667 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.04 cfs @ 12.13 hrs HW=107.54' (Free Discharge)
 ↑=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding



Drywell Sizing*Type III 24-hr 10 Year Rainfall=4.80"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: Roof Area of Garage

Runoff Area=624 sf Runoff Depth=4.24"

Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Peak Elev=107.78' Storage=13 cf Inflow=0.07 cfs 0.005 af

Outflow=0.04 cfs 0.005 af

Total Runoff Area = 0.014 ac Runoff Volume = 0.005 af Average Runoff Depth = 4.24"

Drywell Sizing

Type III 24-hr 10 Year Rainfall=4.80"

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Subcatchment 1S: Roof Area of Garage

Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 4.24"

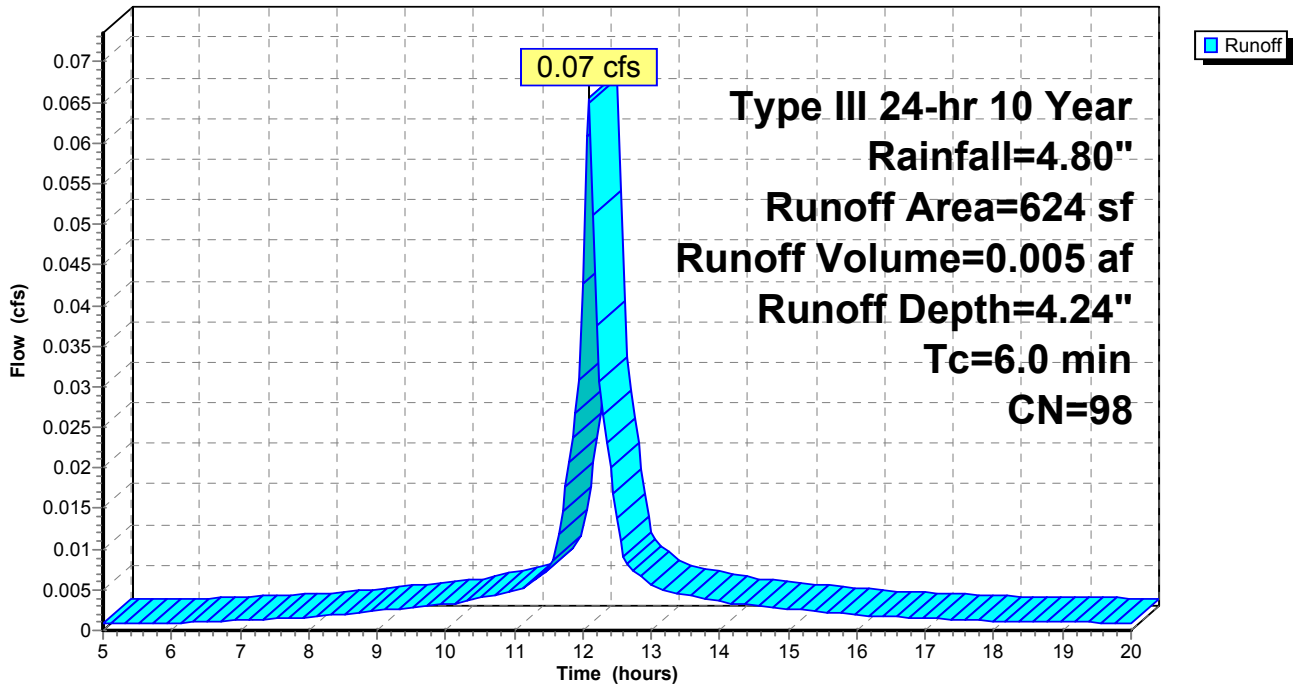
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.80"

Area (sf)	CN	Description
624	98	Roof Area of House

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

Subcatchment 1S: Roof Area of Garage

Hydrograph



Drywell Sizing

Type III 24-hr 10 Year Rainfall=4.80"

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Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

Percolation Rate = <2 MPI

Inflow Area = 0.014 ac, Inflow Depth = 4.24" for 10 Year event
 Inflow = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af
 Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.005 af, Atten= 41%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 12.00 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 107.78' @ 12.20 hrs Surf.Area= 56 sf Storage= 13 cf
 Plug-Flow detention time= 1.6 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (736.8 - 735.4)

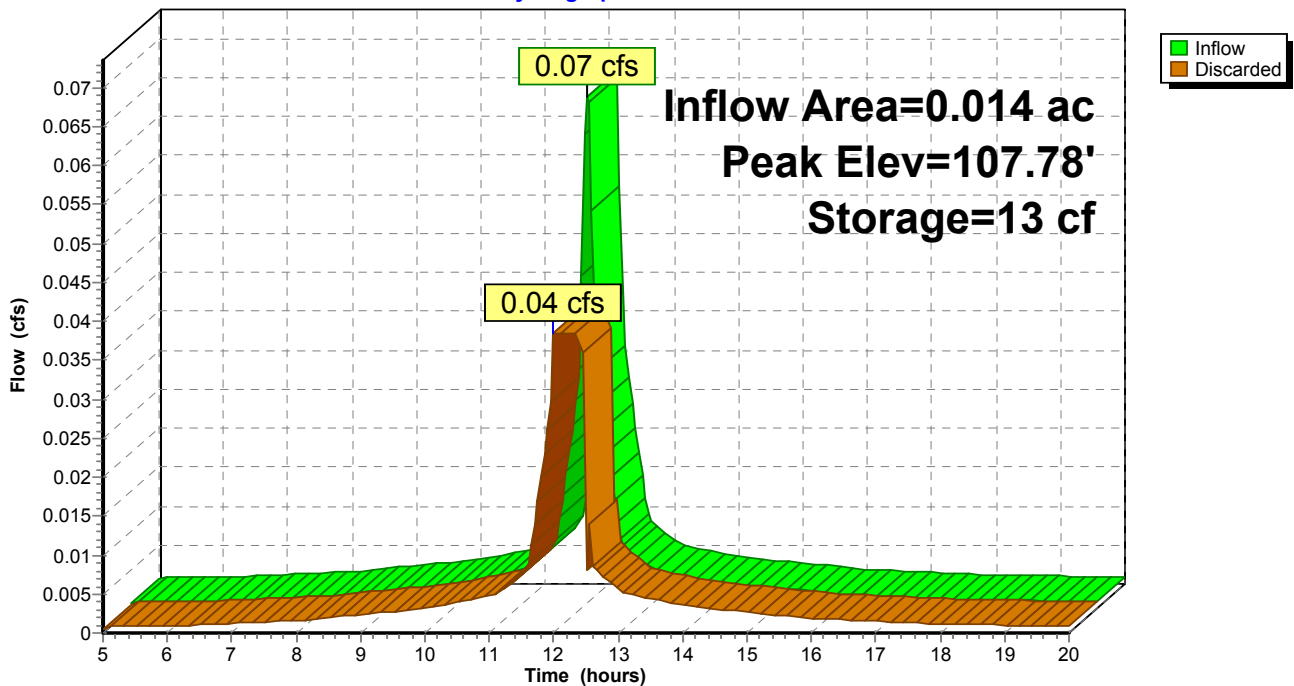
#	Invert	Avail.Storage	Storage Description
1	107.50'	31 cf	6.17'W x 9.00'L x 3.50'H PrismaToid 194 cf Overall - 117 cf Embedded = 77 cf x 40.0% Voids
2	107.50'	117 cf	5.17'W x 8.00'L x 2.83'H 500 Gallon Conc. Drywell Inside #1
		148 cf	Total Available Storage

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.041667 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.04 cfs @ 12.00 hrs HW=107.54' (Free Discharge)
 ↳=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

Hydrograph



Drywell Sizing*Type III 24-hr 25 Year Rainfall=5.65"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: Roof Area of Garage

Runoff Area=624 sf Runoff Depth=5.01"

Tc=6.0 min CN=98 Runoff=0.08 cfs 0.006 af

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Peak Elev=107.95' Storage=21 cf Inflow=0.08 cfs 0.006 af

Outflow=0.04 cfs 0.006 af

Total Runoff Area = 0.014 ac Runoff Volume = 0.006 af Average Runoff Depth = 5.01"

Drywell Sizing

Type III 24-hr 25 Year Rainfall=5.65"

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Subcatchment 1S: Roof Area of Garage

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 5.01"

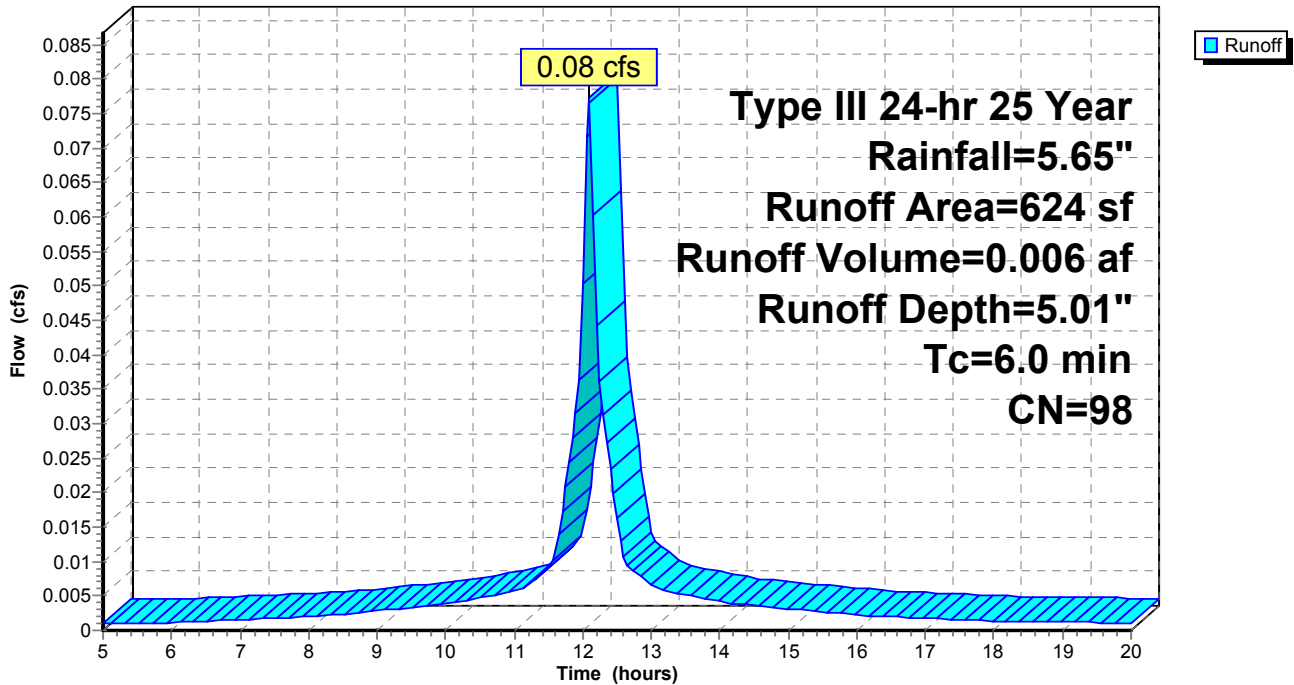
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.65"

Area (sf)	CN	Description
624	98	Roof Area of House

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

Subcatchment 1S: Roof Area of Garage

Hydrograph



Drywell Sizing

Type III 24-hr 25 Year Rainfall=5.65"

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Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

Percolation Rate = <2 MPI

Inflow Area = 0.014 ac, Inflow Depth = 5.01" for 25 Year event
 Inflow = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af
 Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.006 af, Atten= 50%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 12.00 hrs, Volume= 0.006 af

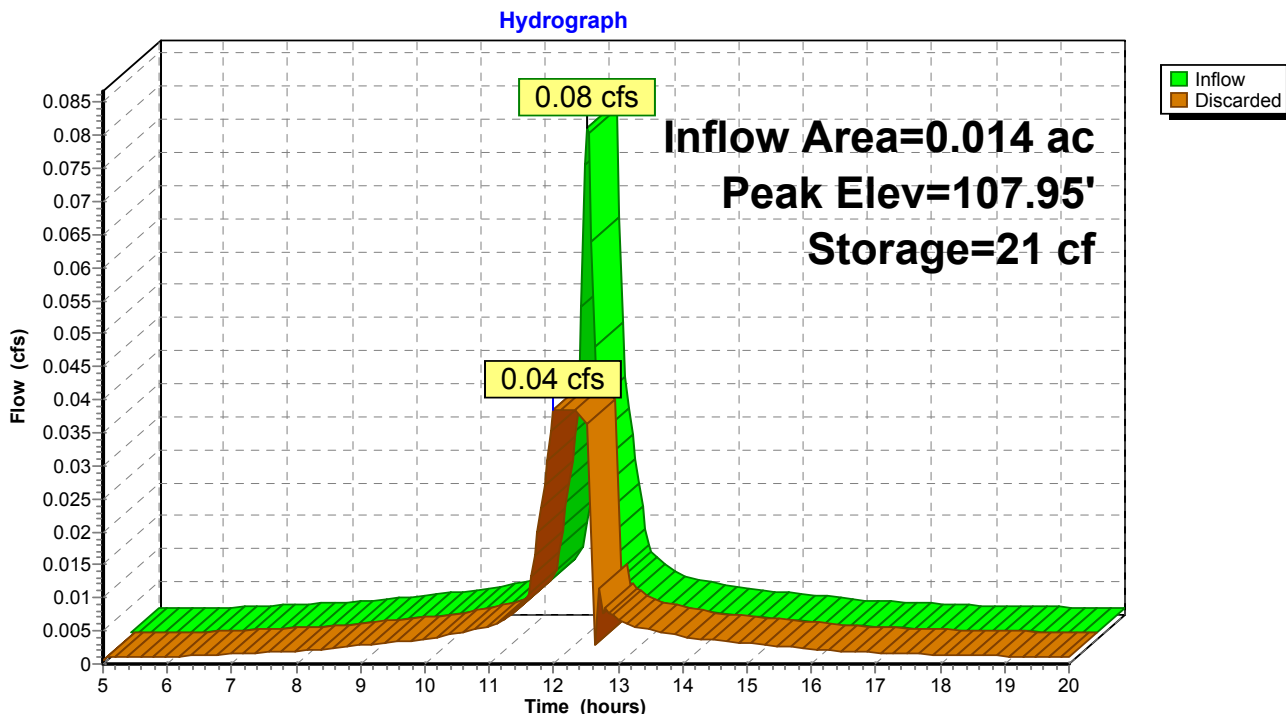
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 107.95' @ 12.24 hrs Surf.Area= 56 sf Storage= 21 cf
 Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	107.50'	31 cf	6.17'W x 9.00'L x 3.50'H Prismatoid 194 cf Overall - 117 cf Embedded = 77 cf x 40.0% Voids
2	107.50'	117 cf	5.17'W x 8.00'L x 2.83'H 500 Gallon Conc. Drywell Inside #1
		148 cf	Total Available Storage

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.041667 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.04 cfs @ 12.00 hrs HW=107.56' (Free Discharge)
 ←1=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding



Drywell Sizing*Type III 24-hr 100 Year Rainfall=7.00"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

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

Subcatchment 1S: Roof Area of Garage

Runoff Area=624 sf Runoff Depth=6.24"

Tc=6.0 min CN=98 Runoff=0.10 cfs 0.007 af

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Peak Elev=108.29' Storage=37 cf Inflow=0.10 cfs 0.007 af

Outflow=0.04 cfs 0.007 af

Total Runoff Area = 0.014 ac Runoff Volume = 0.007 af Average Runoff Depth = 6.24"

Drywell Sizing

Type III 24-hr 100 Year Rainfall=7.00"

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Subcatchment 1S: Roof Area of Garage

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth= 6.24"

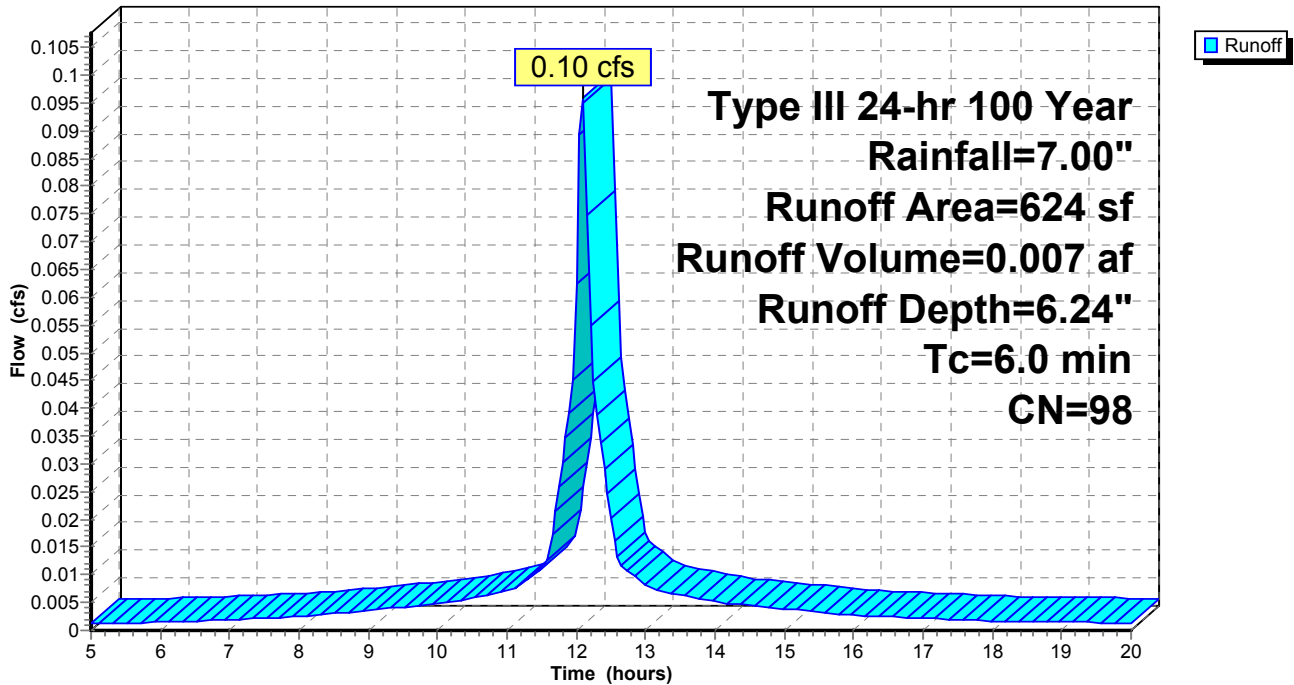
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.00"

Area (sf)	CN	Description
624	98	Roof Area of House

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

Subcatchment 1S: Roof Area of Garage

Hydrograph



Drywell Sizing

Type III 24-hr 100 Year Rainfall=7.00"

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Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

Percolation Rate = <2 MPI

Inflow Area = 0.014 ac, Inflow Depth = 6.24" for 100 Year event
 Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af
 Outflow = 0.04 cfs @ 11.95 hrs, Volume= 0.007 af, Atten= 60%, Lag= 0.0 min
 Discarded = 0.04 cfs @ 11.95 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 108.29' @ 12.30 hrs Surf.Area= 56 sf Storage= 37 cf
 Plug-Flow detention time= 4.3 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 4.1 min (737.6 - 733.5)

#	Invert	Avail.Storage	Storage Description
1	107.50'	31 cf	6.17'W x 9.00'L x 3.50'H Prismatoid 194 cf Overall - 117 cf Embedded = 77 cf x 40.0% Voids
2	107.50'	117 cf	5.17'W x 8.00'L x 2.83'H 500 Gallon Conc. Drywell Inside #1
		148 cf	Total Available Storage

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.041667 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.04 cfs @ 11.95 hrs HW=107.55' (Free Discharge)
 ↳=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond 1P: 500 Gallon Conc. Drywell w/ 6" Stone Surrounding

