Summary for Subcatchment 3S: Areas Routed to Retention

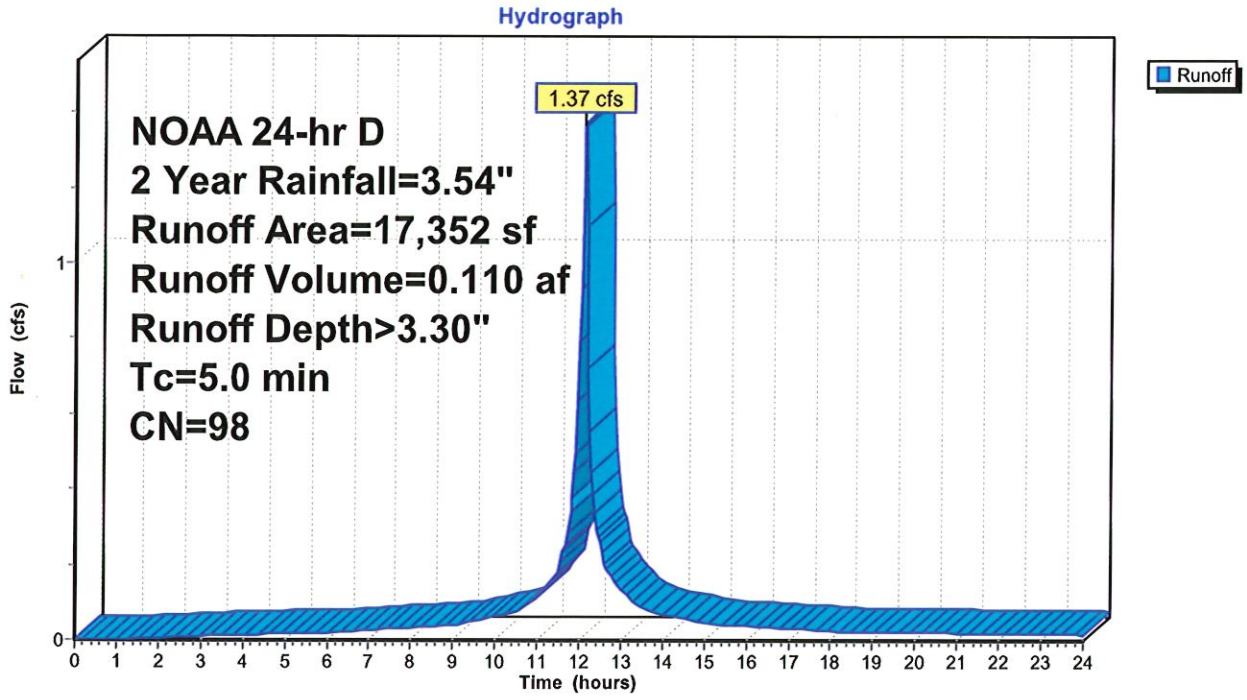
Runoff = 1.37 cfs @ 12.11 hrs, Volume= 0.110 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 2 Year Rainfall=3.54"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

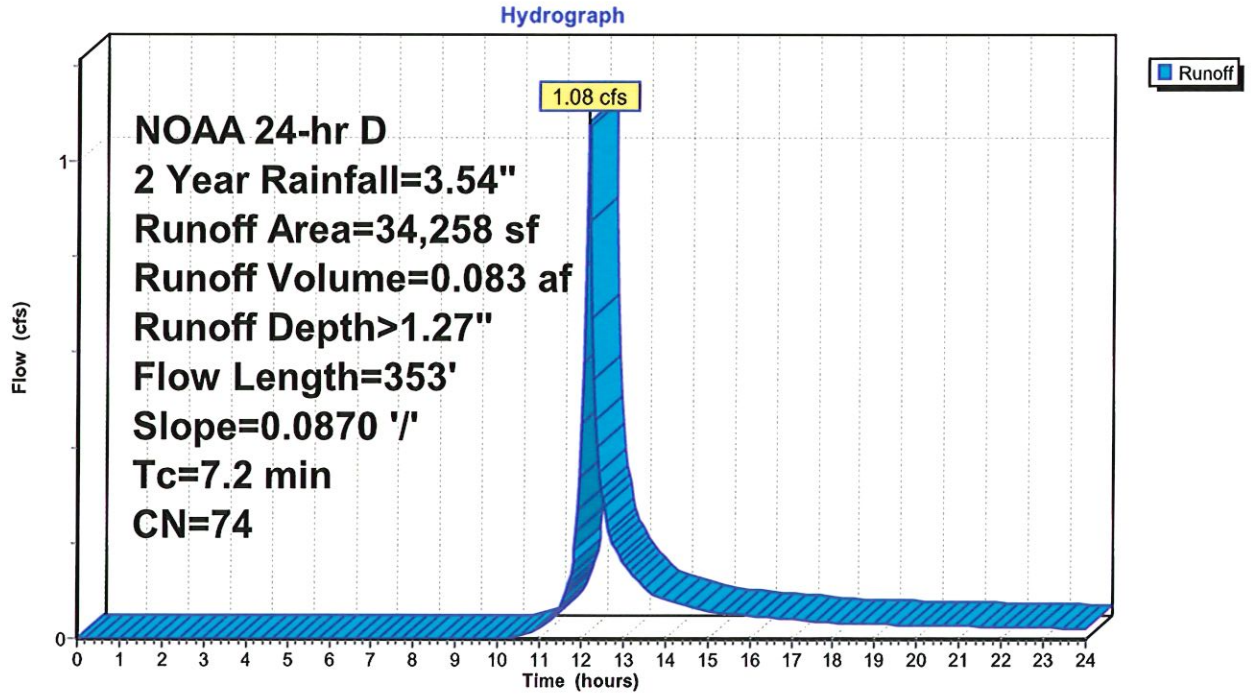
Runoff = 1.08 cfs @ 12.15 hrs, Volume= 0.083 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 2 Year Rainfall=3.54"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 3.30" for 2 Year event
Inflow = 1.37 cfs @ 12.11 hrs, Volume= 0.110 af
Outflow = 0.15 cfs @ 11.32 hrs, Volume= 0.110 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.15 cfs @ 11.32 hrs, Volume= 0.110 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 100.09' @ 12.94 hrs Surf.Area= 1,044 sf Storage= 1,426 cf

Plug-Flow detention time= 62.9 min calculated for 0.110 af (100% of inflow)
Center-of-Mass det. time= 62.3 min (817.0 - 754.7)

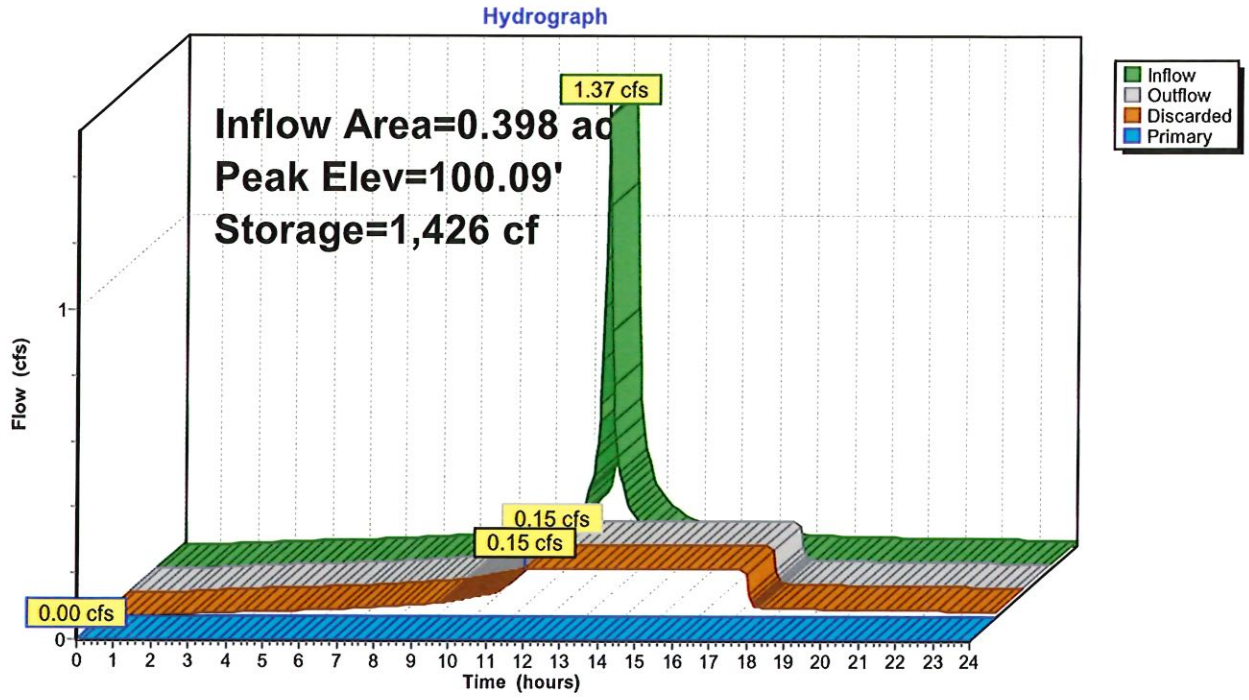
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 11.32 hrs HW=98.64' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.60' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: 48" Concrete Galleries

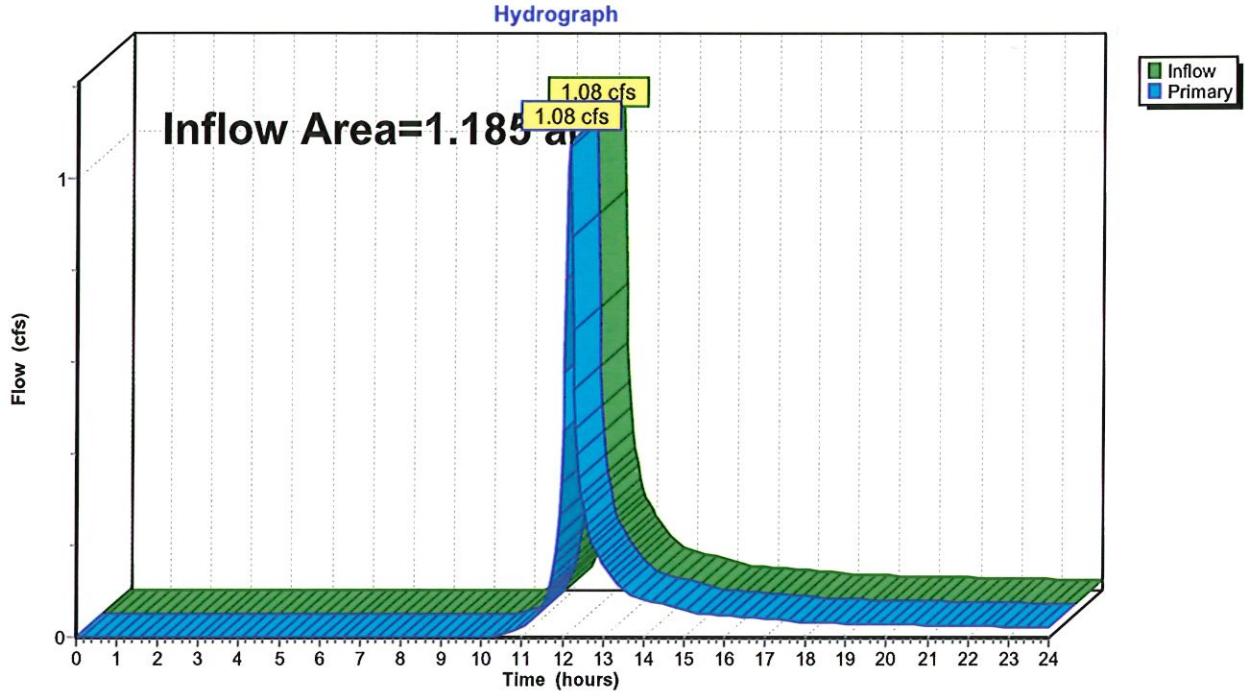


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 0.84" for 2 Year event
Inflow = 1.08 cfs @ 12.15 hrs, Volume= 0.083 af
Primary = 1.08 cfs @ 12.15 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



Summary for Subcatchment 3S: Areas Routed to Retention

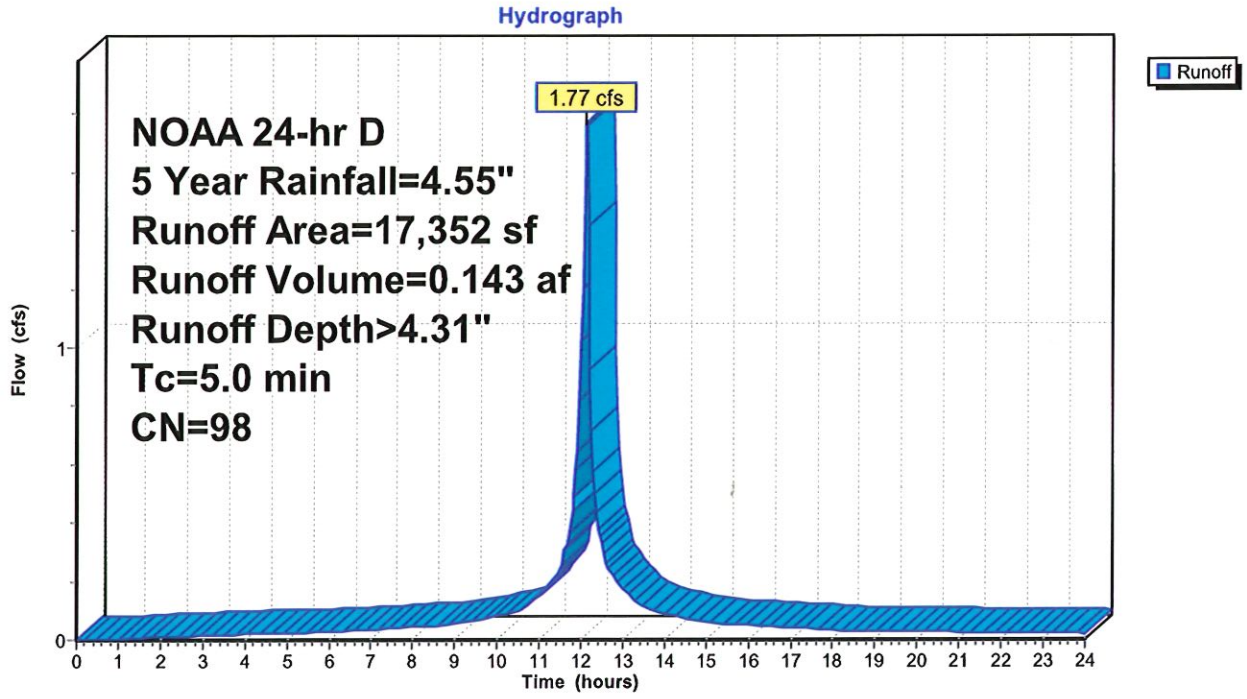
Runoff = 1.77 cfs @ 12.11 hrs, Volume= 0.143 af, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 5 Year Rainfall=4.55"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

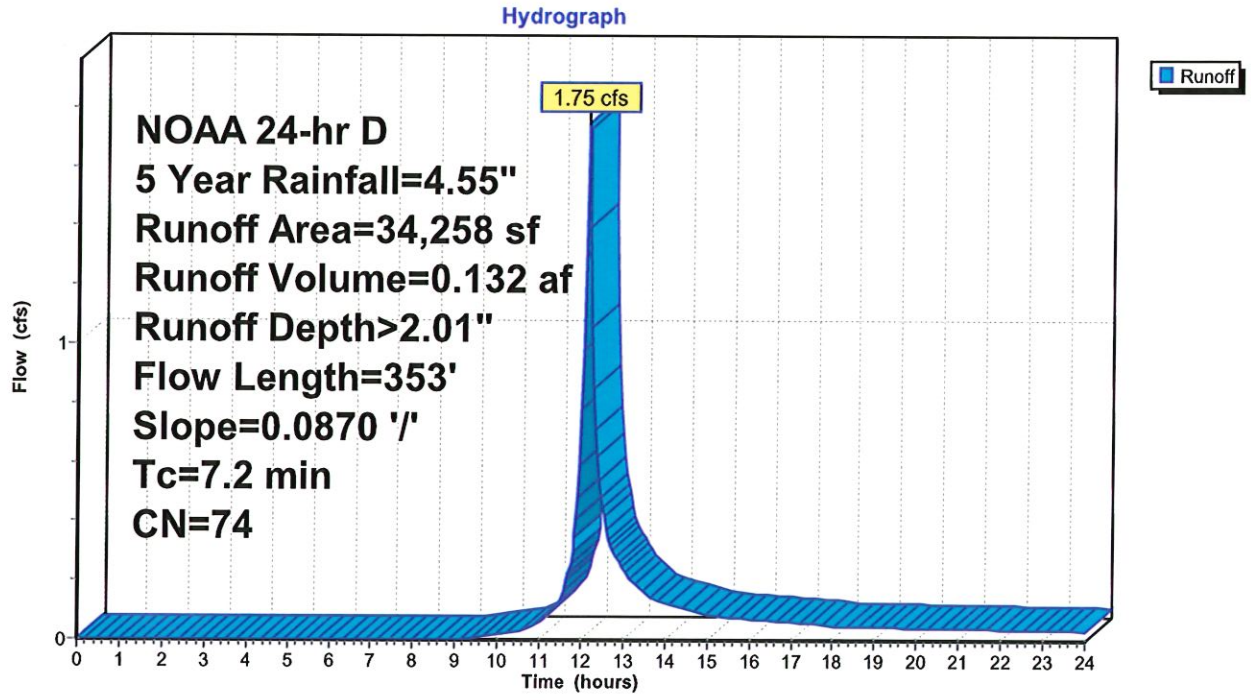
Runoff = 1.75 cfs @ 12.15 hrs, Volume= 0.132 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 5 Year Rainfall=4.55"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 4.31" for 5 Year event
Inflow = 1.77 cfs @ 12.11 hrs, Volume= 0.143 af
Outflow = 0.15 cfs @ 11.08 hrs, Volume= 0.143 af, Atten= 92%, Lag= 0.0 min
Discarded = 0.15 cfs @ 11.08 hrs, Volume= 0.143 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 100.83' @ 13.20 hrs Surf.Area= 1,044 sf Storage= 2,127 cf

Plug-Flow detention time= 100.8 min calculated for 0.143 af (100% of inflow)
Center-of-Mass det. time= 100.1 min (849.7 - 749.6)

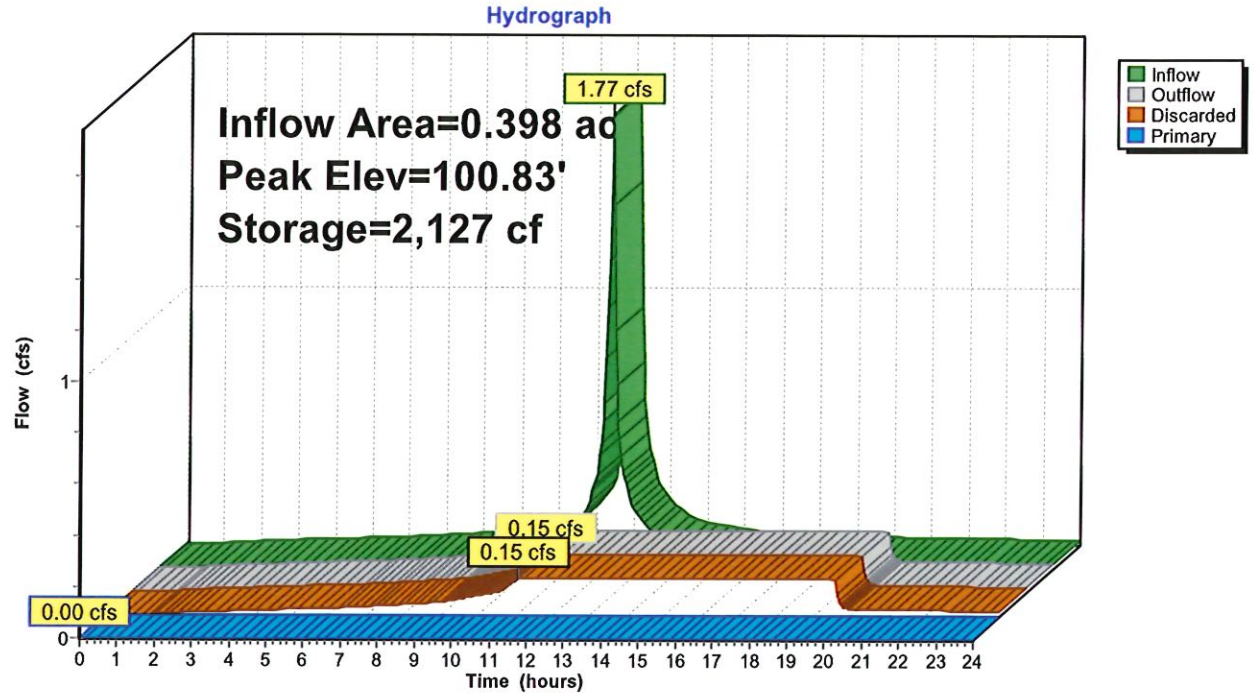
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 11.08 hrs HW=98.64' (Free Discharge)
↳**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.60' (Free Discharge)
↳**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: 48" Concrete Galleries

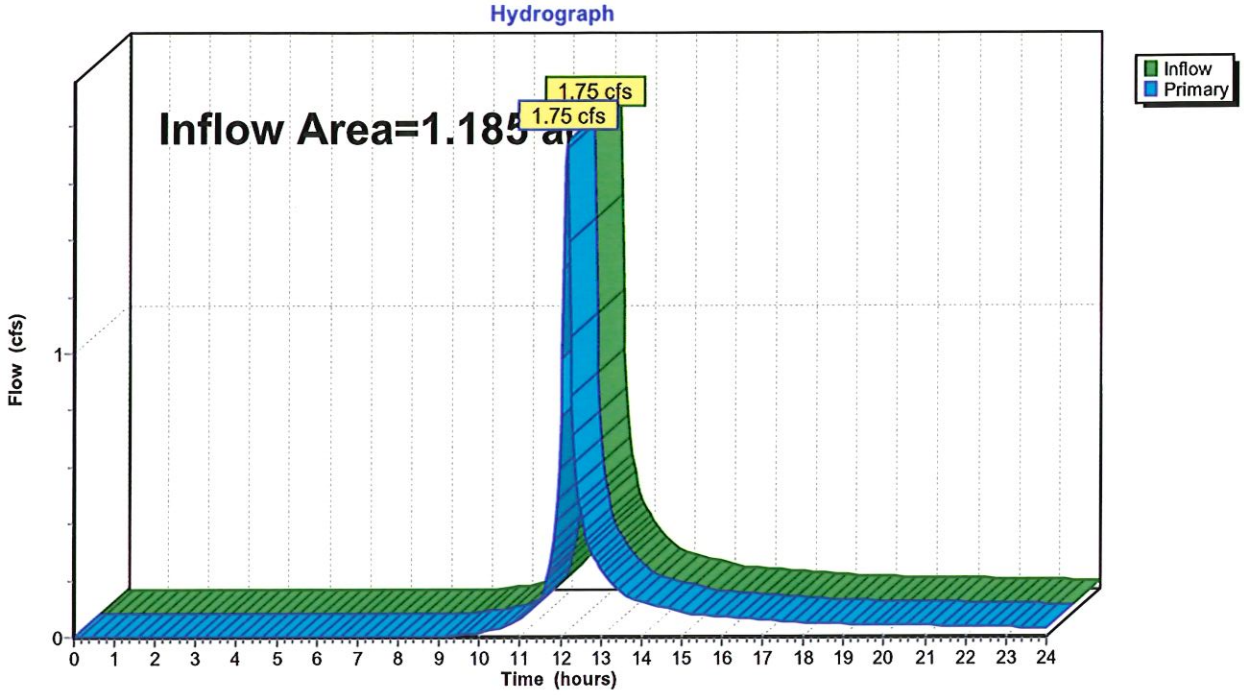


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 1.33" for 5 Year event
Inflow = 1.75 cfs @ 12.15 hrs, Volume= 0.132 af
Primary = 1.75 cfs @ 12.15 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



Summary for Subcatchment 3S: Areas Routed to Retention

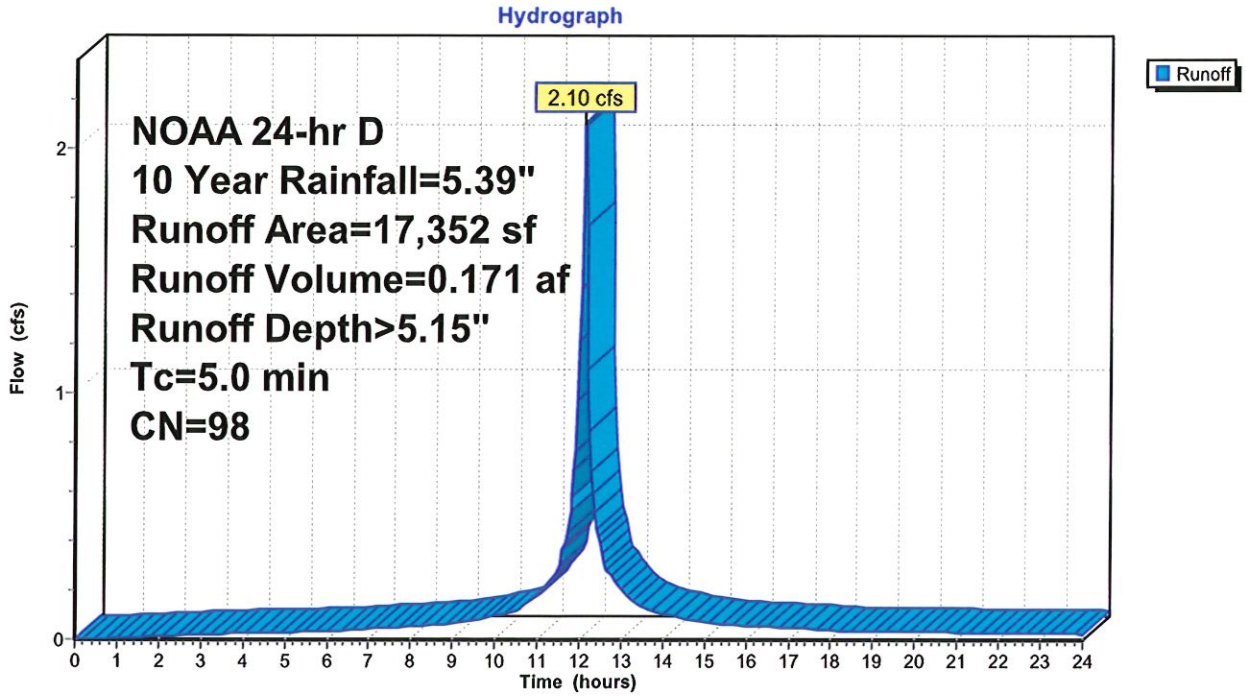
Runoff = 2.10 cfs @ 12.11 hrs, Volume= 0.171 af, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 10 Year Rainfall=5.39"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

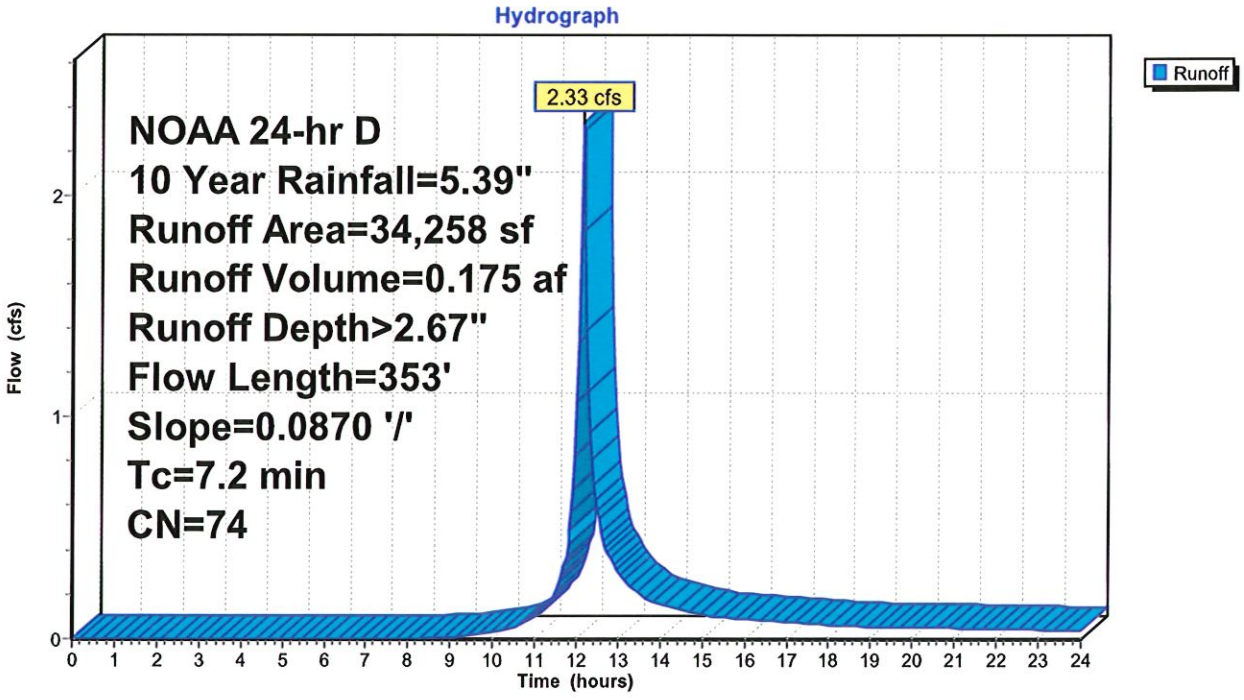
Runoff = 2.33 cfs @ 12.15 hrs, Volume= 0.175 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 10 Year Rainfall=5.39"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 5.15" for 10 Year event
Inflow = 2.10 cfs @ 12.11 hrs, Volume= 0.171 af
Outflow = 0.15 cfs @ 10.84 hrs, Volume= 0.171 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.15 cfs @ 10.84 hrs, Volume= 0.171 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 101.49' @ 13.41 hrs Surf.Area= 1,044 sf Storage= 2,756 cf

Plug-Flow detention time= 137.2 min calculated for 0.171 af (100% of inflow)
Center-of-Mass det. time= 136.6 min (883.2 - 746.6)

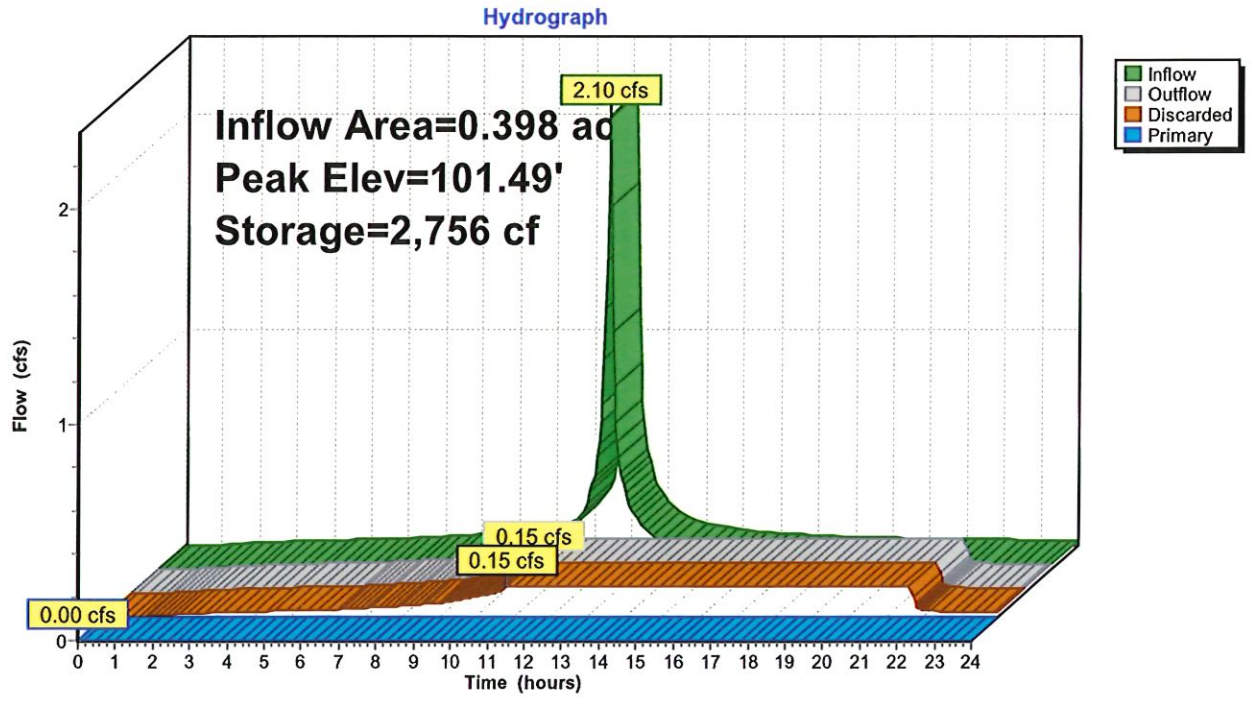
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 10.84 hrs HW=98.64' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.60' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: 48" Concrete Galleries

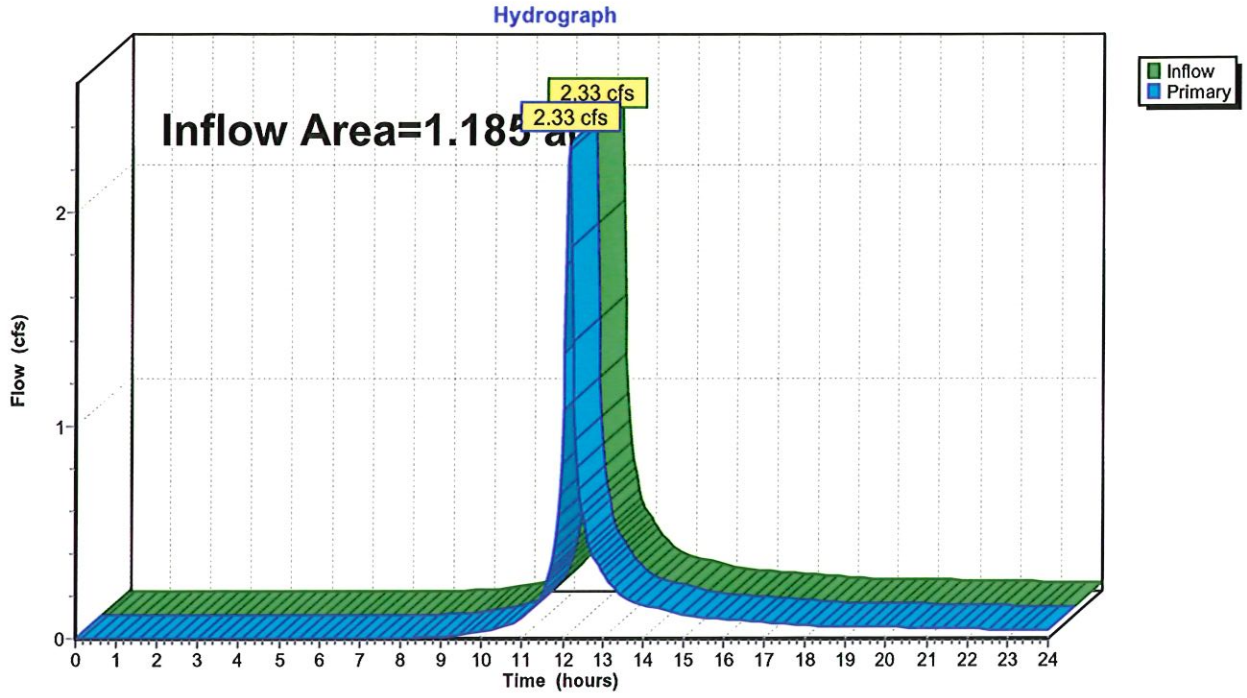


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 1.78" for 10 Year event
Inflow = 2.33 cfs @ 12.15 hrs, Volume= 0.175 af
Primary = 2.33 cfs @ 12.15 hrs, Volume= 0.175 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



Summary for Subcatchment 3S: Areas Routed to Retention

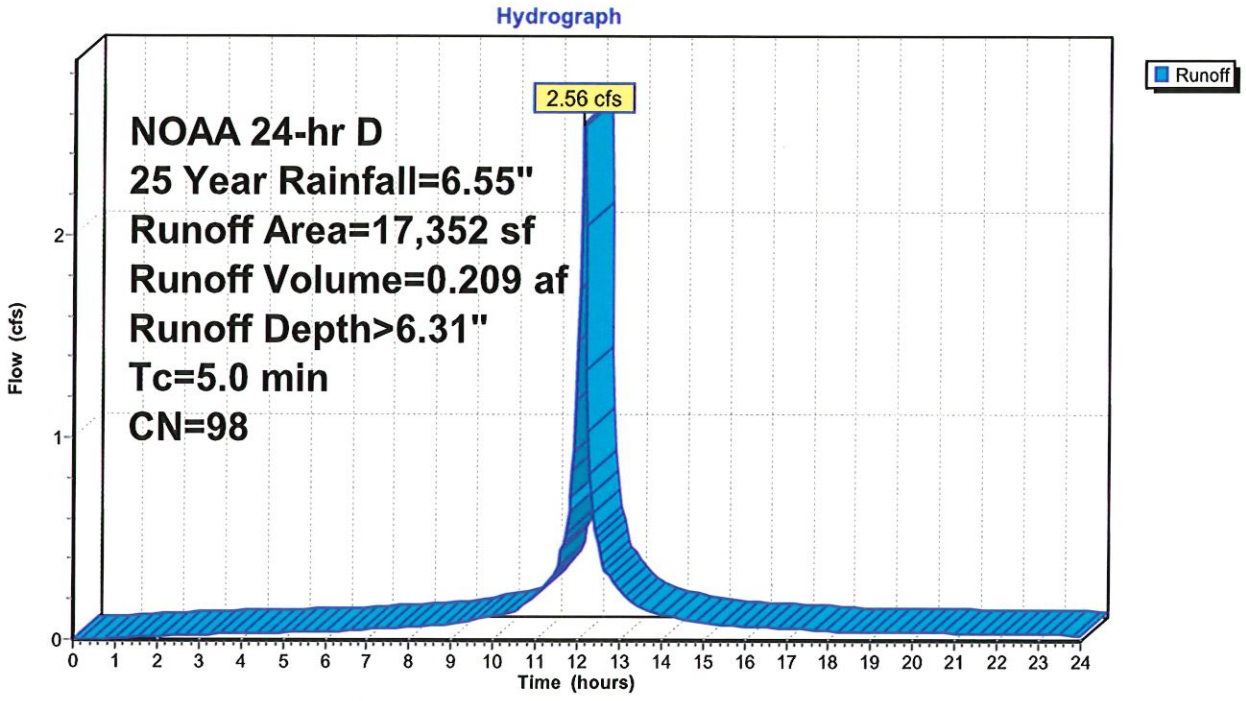
Runoff = 2.56 cfs @ 12.11 hrs, Volume= 0.209 af, Depth> 6.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 25 Year Rainfall=6.55"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

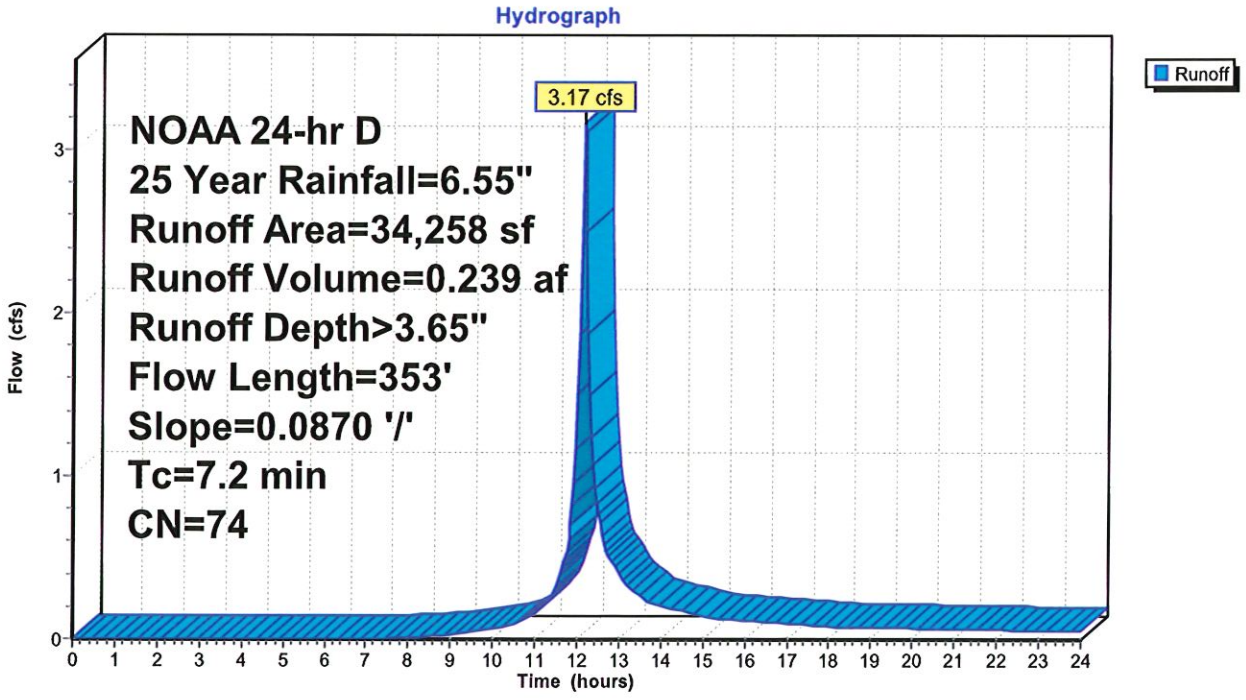
Runoff = 3.17 cfs @ 12.14 hrs, Volume= 0.239 af, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 25 Year Rainfall=6.55"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 6.31" for 25 Year event
Inflow = 2.56 cfs @ 12.11 hrs, Volume= 0.209 af
Outflow = 0.23 cfs @ 13.32 hrs, Volume= 0.202 af, Atten= 91%, Lag= 72.4 min
Discarded = 0.15 cfs @ 10.64 hrs, Volume= 0.202 af
Primary = 0.08 cfs @ 13.32 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 102.66' @ 13.32 hrs Surf.Area= 1,044 sf Storage= 3,643 cf

Plug-Flow detention time= 195.3 min calculated for 0.202 af (96% of inflow)
Center-of-Mass det. time= 173.9 min (917.4 - 743.5)

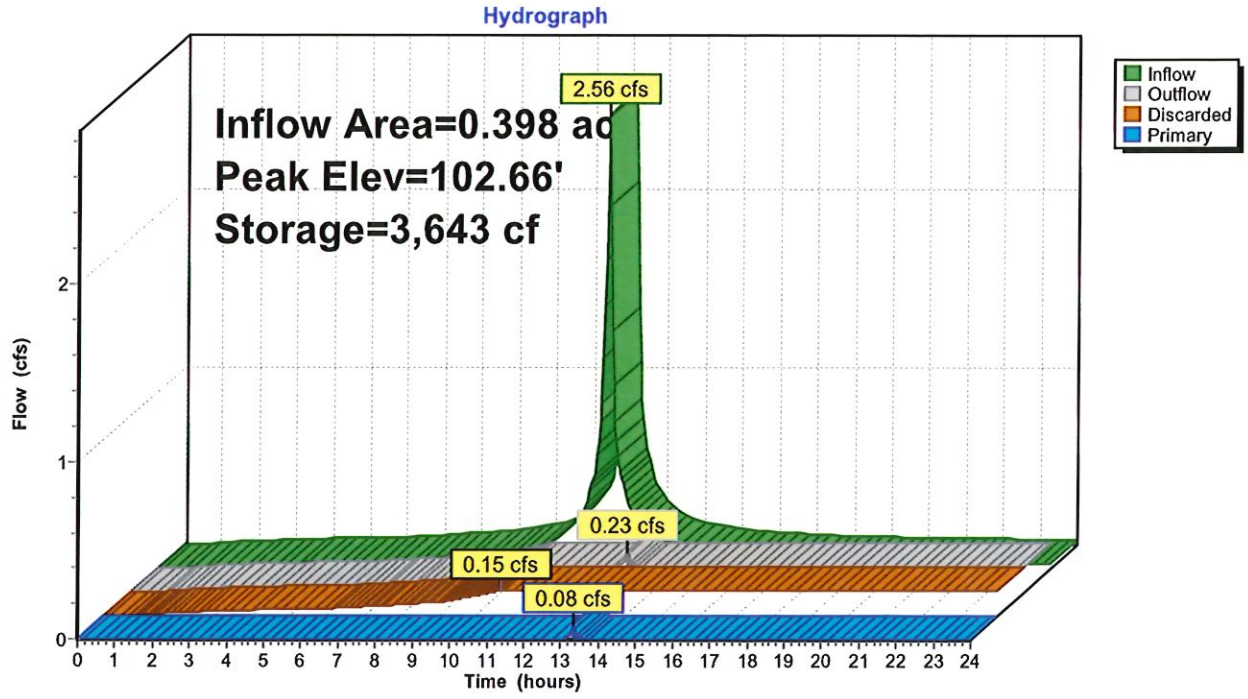
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 10.64 hrs HW=98.64' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.08 cfs @ 13.32 hrs HW=102.66' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 0.08 cfs @ 0.82 fps)

Pond 1P: 48" Concrete Galleries

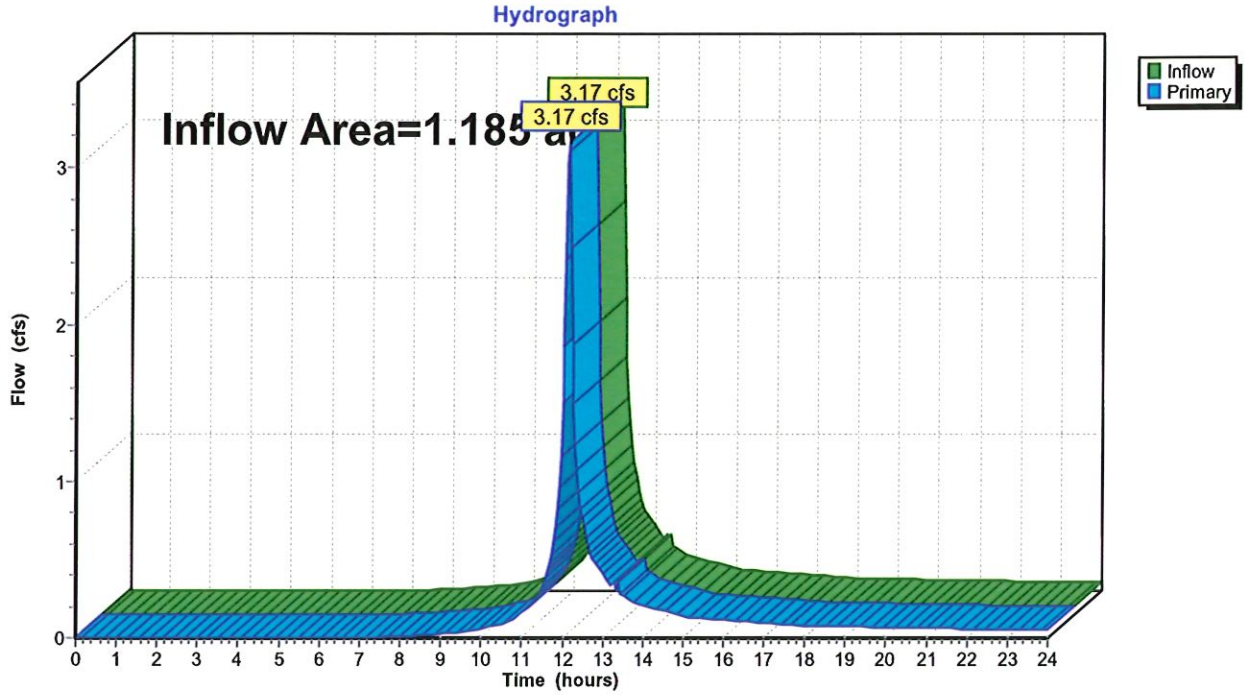


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 2.43" for 25 Year event
Inflow = 3.17 cfs @ 12.14 hrs, Volume= 0.240 af
Primary = 3.17 cfs @ 12.14 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



Summary for Subcatchment 3S: Areas Routed to Retention

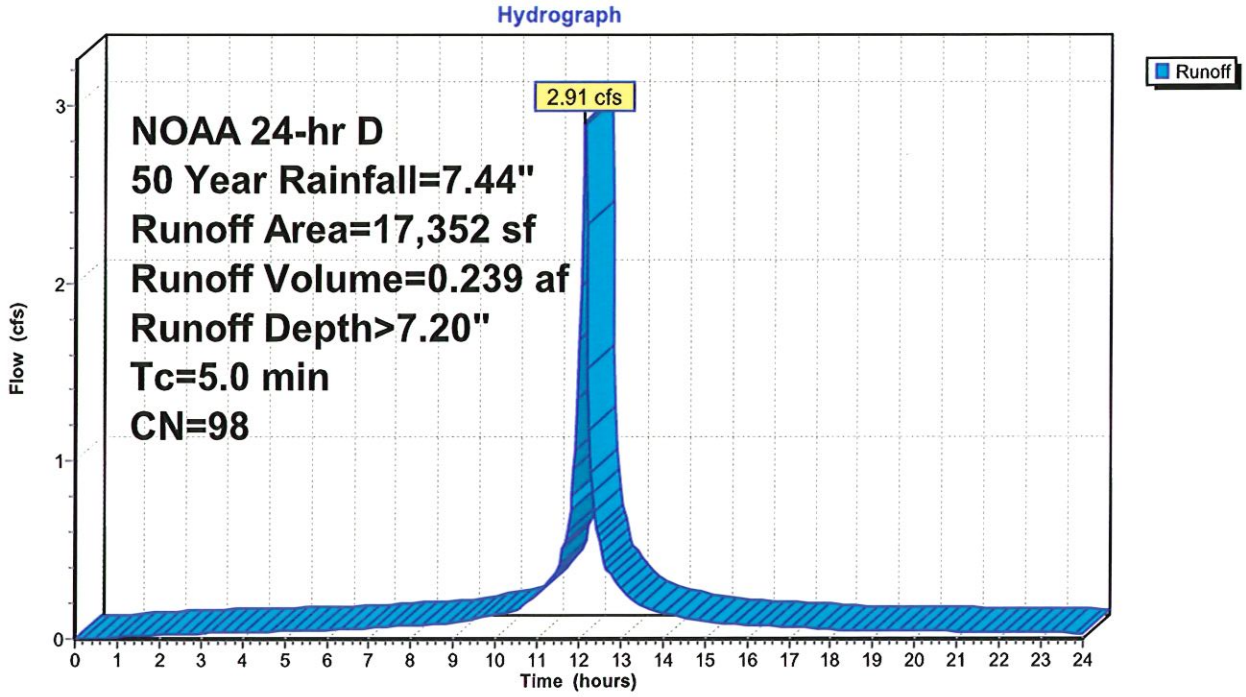
Runoff = 2.91 cfs @ 12.11 hrs, Volume= 0.239 af, Depth> 7.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 50 Year Rainfall=7.44"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

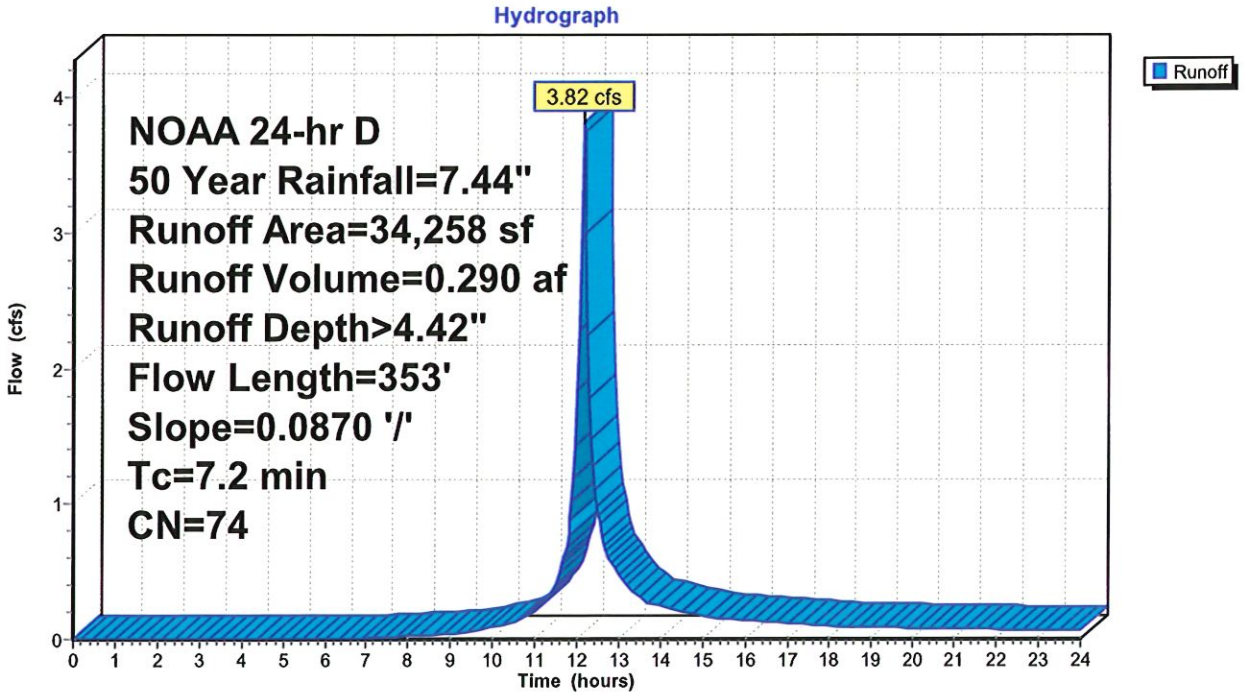
Runoff = 3.82 cfs @ 12.14 hrs, Volume= 0.290 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 50 Year Rainfall=7.44"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 7.20" for 50 Year event
Inflow = 2.91 cfs @ 12.11 hrs, Volume= 0.239 af
Outflow = 0.87 cfs @ 12.44 hrs, Volume= 0.226 af, Atten= 70%, Lag= 19.5 min
Discarded = 0.15 cfs @ 10.28 hrs, Volume= 0.208 af
Primary = 0.72 cfs @ 12.44 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 103.18' @ 12.44 hrs Surf.Area= 1,044 sf Storage= 3,643 cf

Plug-Flow detention time= 183.6 min calculated for 0.225 af (94% of inflow)
Center-of-Mass det. time= 150.2 min (891.9 - 741.6)

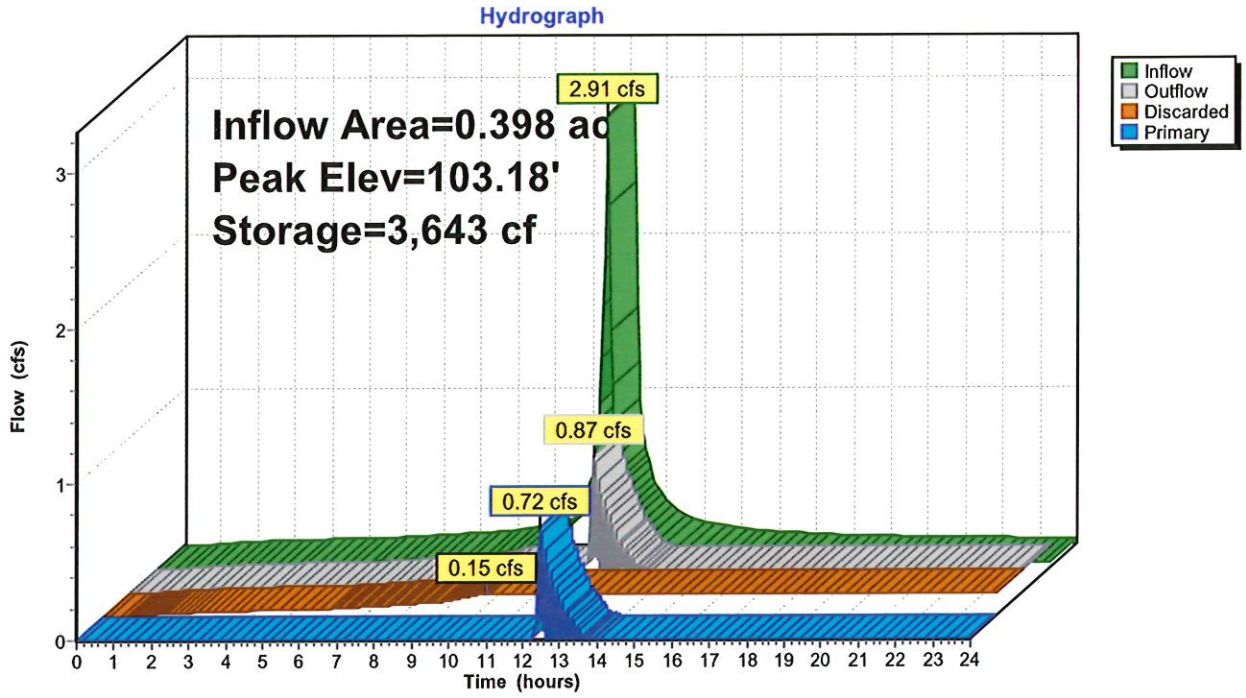
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 10.28 hrs HW=98.64' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.71 cfs @ 12.44 hrs HW=103.17' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.71 cfs @ 3.64 fps)

Pond 1P: 48" Concrete Galleries

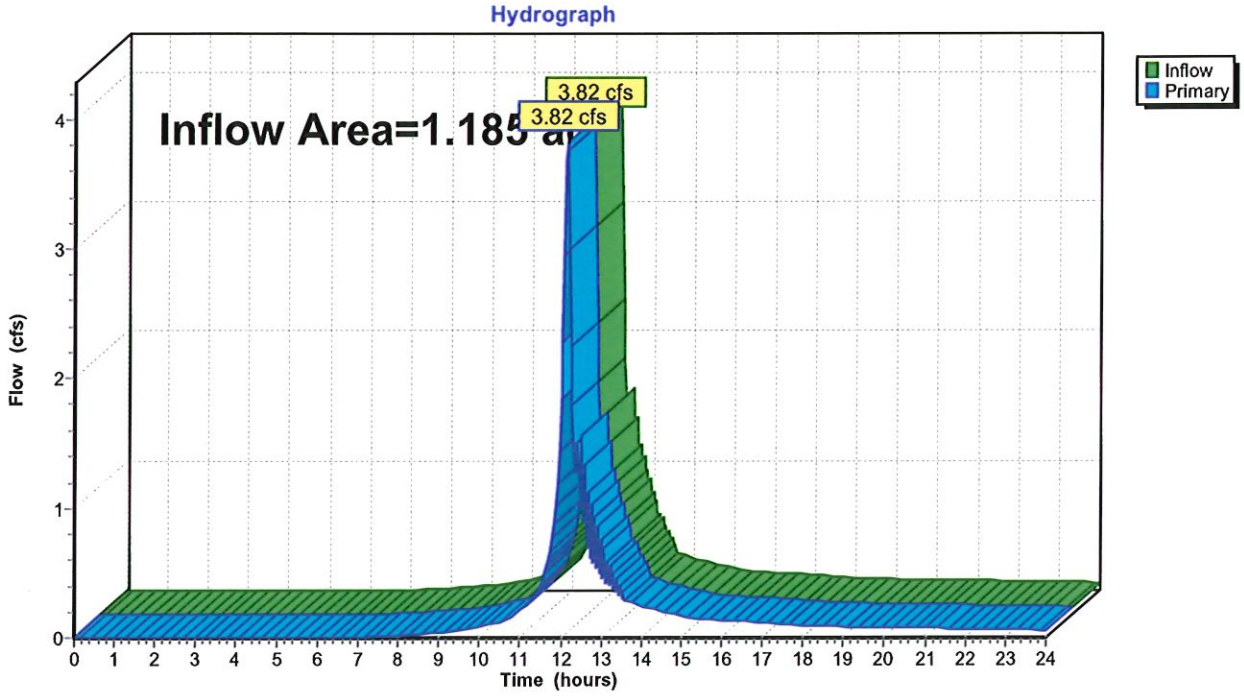


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 3.11" for 50 Year event
Inflow = 3.82 cfs @ 12.14 hrs, Volume= 0.308 af
Primary = 3.82 cfs @ 12.14 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



Summary for Subcatchment 3S: Areas Routed to Retention

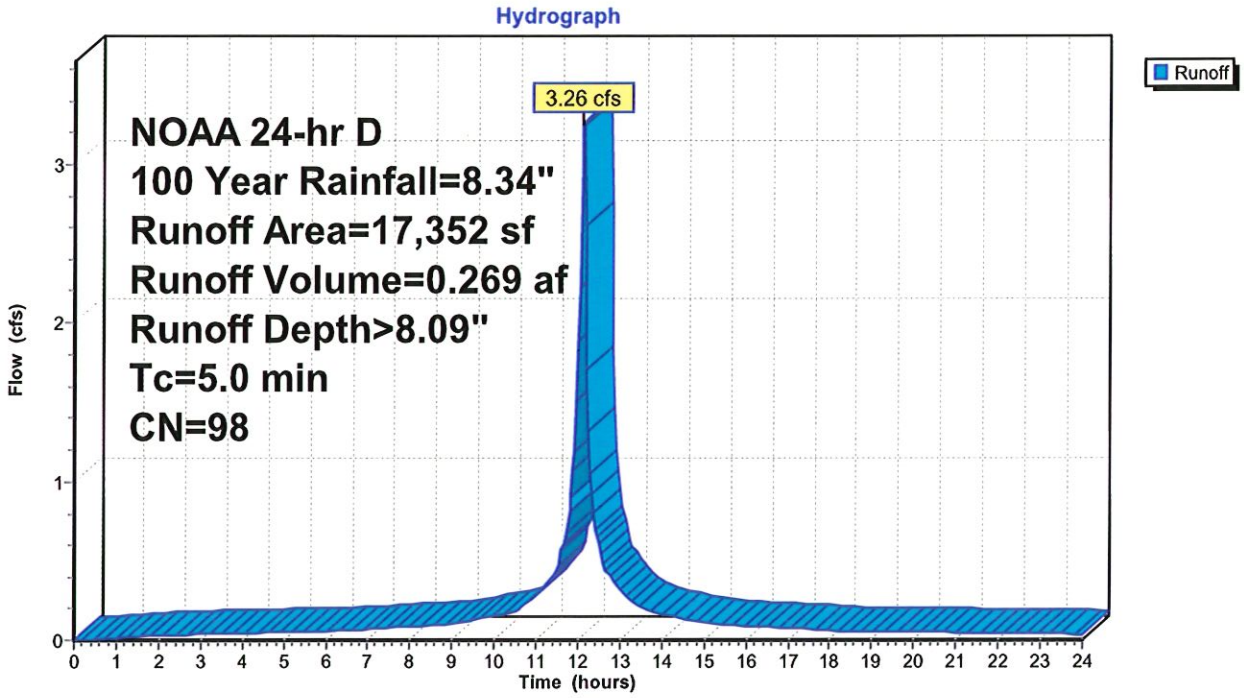
Runoff = 3.26 cfs @ 12.11 hrs, Volume= 0.269 af, Depth> 8.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 100 Year Rainfall=8.34"

	Area (sf)	CN	Description
*	10,597	98	Driveway/Parking
*	6,755	98	Portion of Building roof
	17,352	98	Weighted Average
	17,352		100.00% Impervious Area

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

Subcatchment 3S: Areas Routed to Retention



Summary for Subcatchment 4S: Areas not Routed to Retention

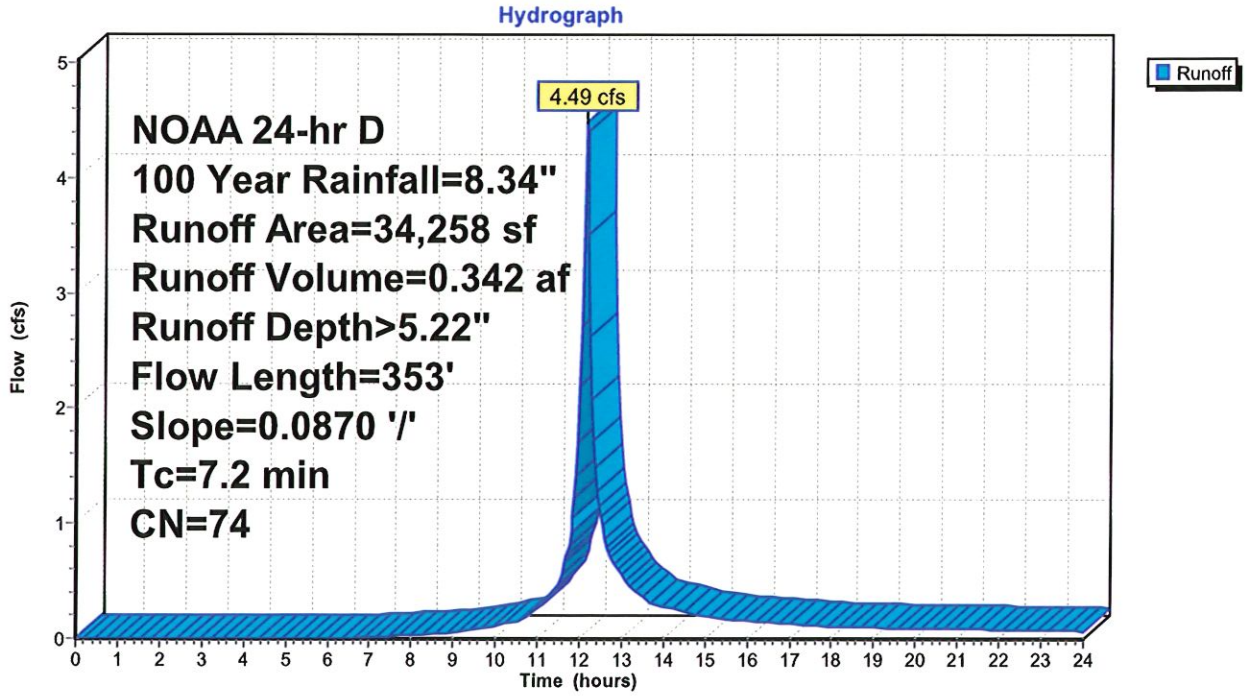
Runoff = 4.49 cfs @ 12.14 hrs, Volume= 0.342 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
NOAA 24-hr D 100 Year Rainfall=8.34"

	Area (sf)	CN	Description
*	5,414	98	Buildings
	28,844	69	50-75% Grass cover, Fair, HSG B
	34,258	74	Weighted Average
	28,844		84.20% Pervious Area
	5,414		15.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.0870	0.32		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.54"
2.0	253	0.0870	2.06		**Shallow Concentrated Flow, Shallow Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
7.2	353	Total			

Subcatchment 4S: Areas not Routed to Retention



Summary for Pond 1P: 48" Concrete Galleries

Inflow Area = 0.398 ac,100.00% Impervious, Inflow Depth > 8.09" for 100 Year event
Inflow = 3.26 cfs @ 12.11 hrs, Volume= 0.269 af
Outflow = 2.67 cfs @ 12.24 hrs, Volume= 0.250 af, Atten= 18%, Lag= 7.6 min
Discarded = 0.15 cfs @ 10.00 hrs, Volume= 0.213 af
Primary = 2.53 cfs @ 12.24 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 109.74' @ 12.24 hrs Surf.Area= 1,044 sf Storage= 3,643 cf

Plug-Flow detention time= 171.8 min calculated for 0.249 af (93% of inflow)
Center-of-Mass det. time= 130.9 min (871.0 - 740.1)

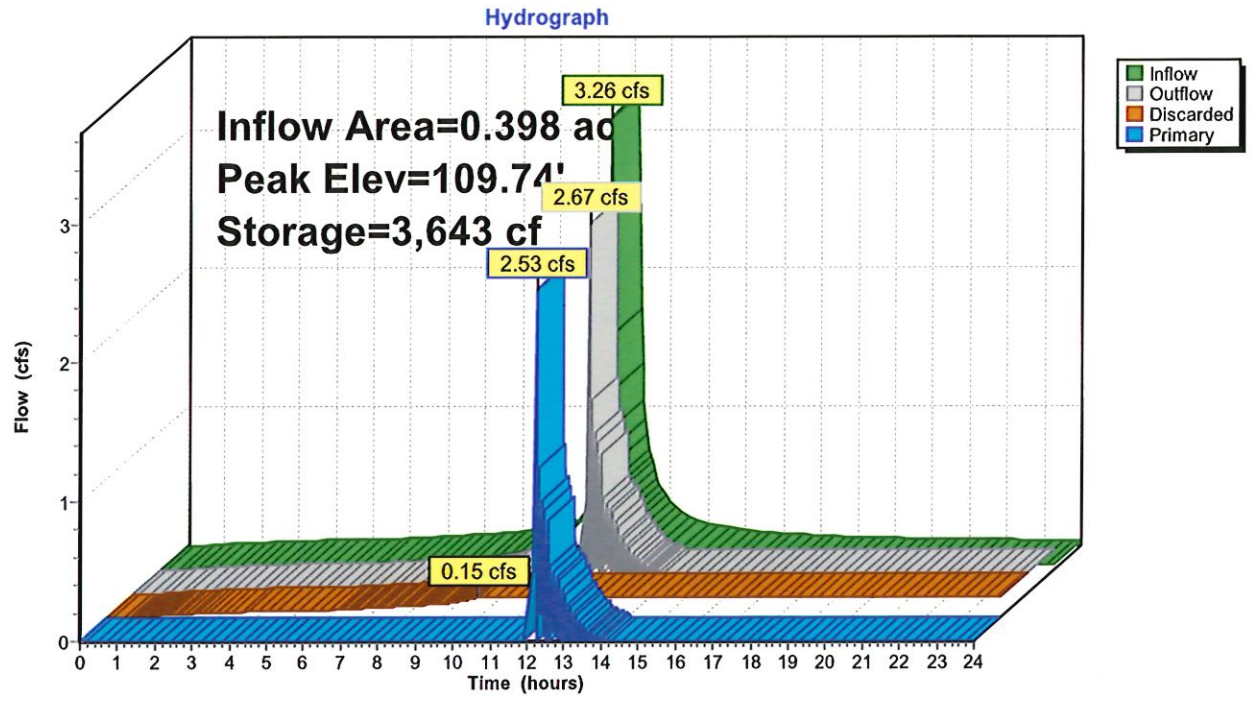
Volume	Invert	Avail.Storage	Storage Description
#1	98.60'	355 cf	**18.00'W x 58.00'L x 4.00'H Stone** 4,176 cf Overall - 3,288 cf Embedded = 888 cf x 40.0% Voids
#2	98.60'	3,288 cf	**16.00'W x 56.00'L x 3.67'H 48" Concrete Galleries** Inside #1
		3,643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	102.60'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	98.60'	**6.000 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.15 cfs @ 10.00 hrs HW=98.68' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=2.53 cfs @ 12.24 hrs HW=109.74' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.53 cfs @ 12.86 fps)

Pond 1P: 48" Concrete Galleries

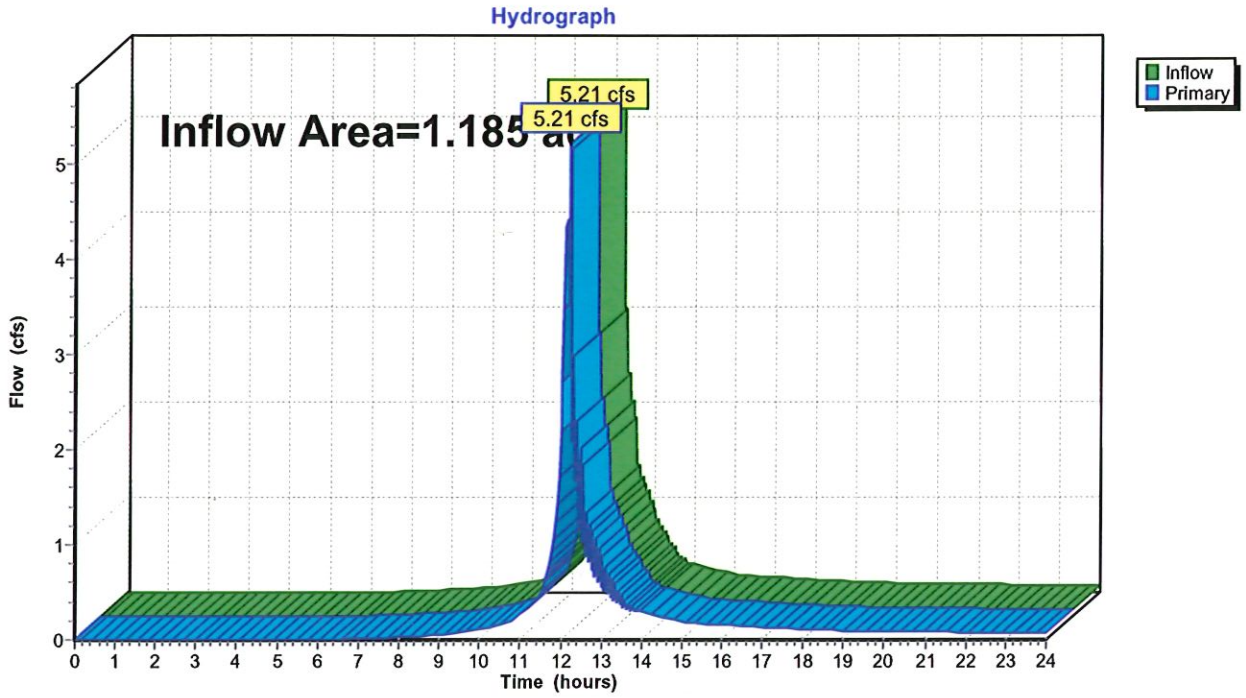


Summary for Link 1L: Combined Hydrograph

Inflow Area = 1.185 ac, 44.11% Impervious, Inflow Depth > 3.84" for 100 Year event
Inflow = 5.21 cfs @ 12.23 hrs, Volume= 0.379 af
Primary = 5.21 cfs @ 12.23 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min

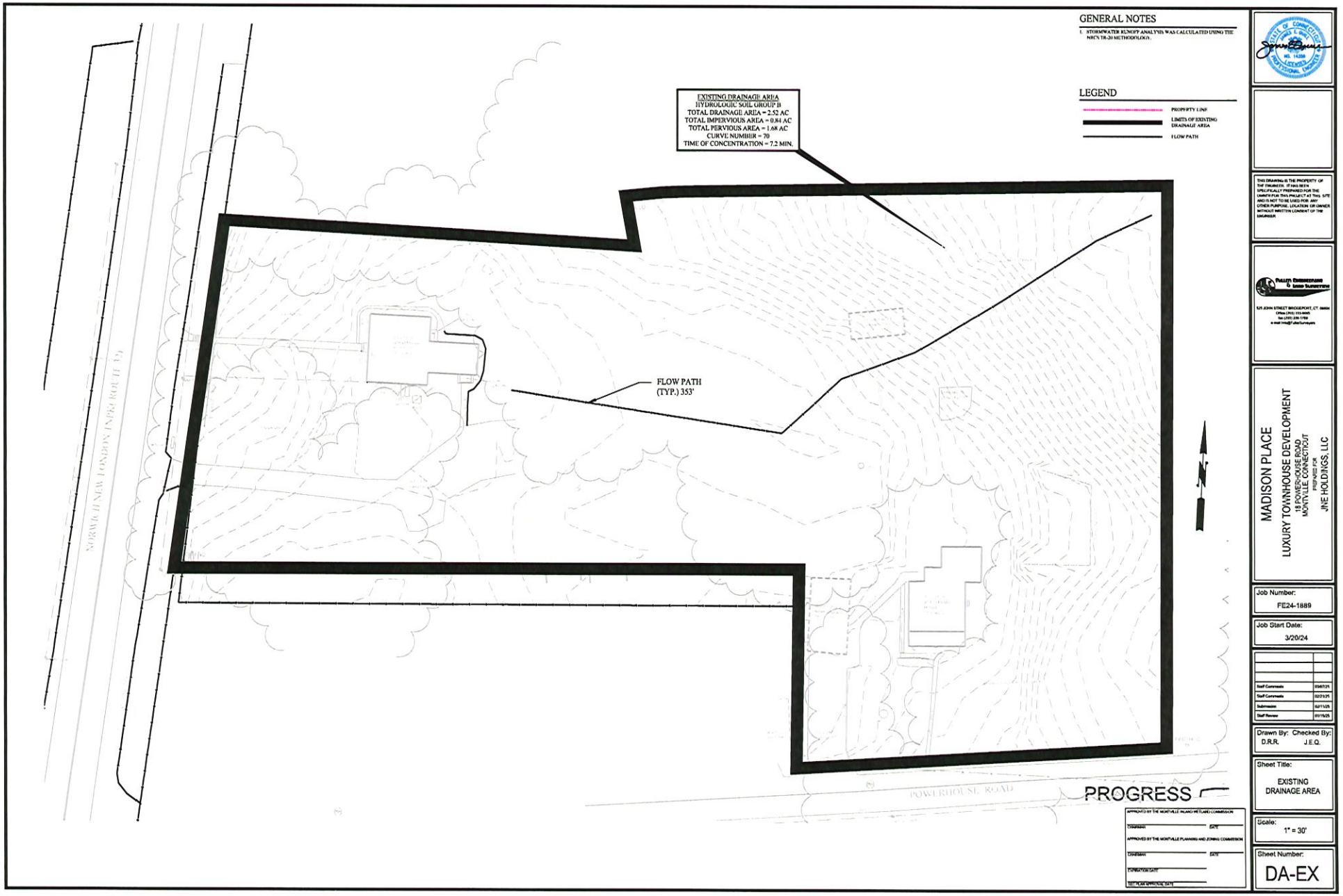
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Link 1L: Combined Hydrograph



APPENDIX E

WATERSHED MAPS
FOR
EXISTING & PROPOSED CONDITIONS



GENERAL NOTES

1. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE NRCS TR-20 METHODOLOGY.

LEGEND

- PROPERTY LINE
- LIMITS OF EXISTING DRAINAGE AREA
- FLOW PATH

APPROVED BY THE MONTVILLE INLAND WETLAND COMMISSION

CHAIRMAN _____ DATE _____

APPROVED BY THE MONTVILLE PLANNING AND ZONING COMMISSION

CHAIRMAN _____ DATE _____

EXPIRATION DATE _____

SITE PLAN APPROVAL DATE _____

Fuller Engineering & Land Surveyors
521 JOHN STREET BRIDGEPORT, CT. 06604
Office (203) 333-9441
fax (203) 259-1799
e-mail: info@fullersurveyors

MADISON PLACE

LUXURY TOWNHOUSE DEVELOPMENT

18 POWERHOUSE ROAD
MONTVILLE, CONNECTICUT

PREPARED FOR
JNE HOLDINGS, LLC

Job Number: FE24-1889

Job Start Date: 3/20/24

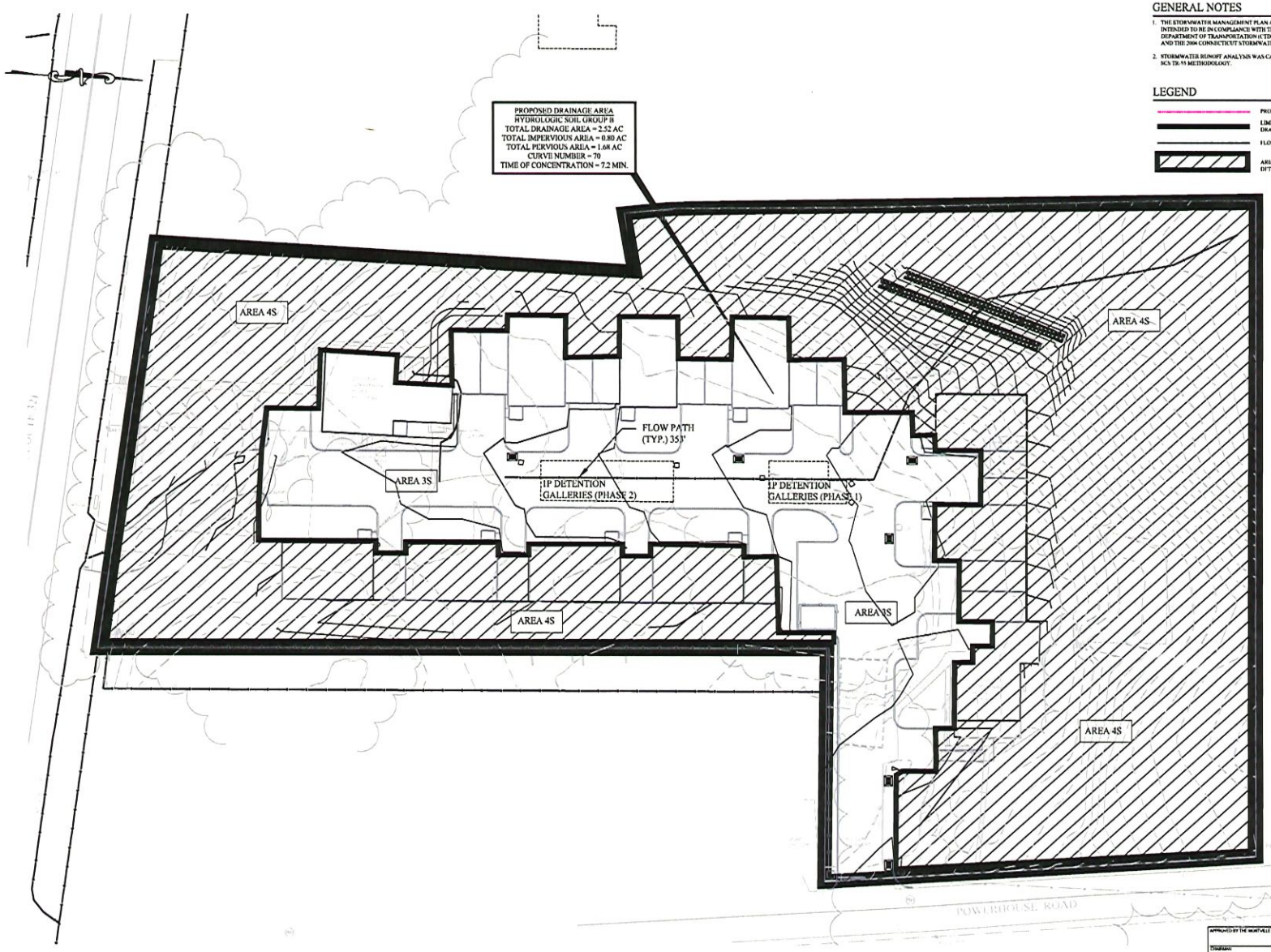
Staff Comments	05/07/25
Staff Comments	02/21/25
Submission	02/11/25
Staff Review	01/15/25

Drawn By: D.R.R. Checked By: J.E.Q.

Sheet Title: EXISTING DRAINAGE AREA

Scale: 1" = 30'

Sheet Number: DA-EX



GENERAL NOTES

1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE 2000 CONNECTICUT DEPARTMENT OF TRANSPORTATION (CTDOT) DRAINAGE MANUAL AND THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- LIMITS OF EXISTING DRAINAGE AREA
- FLOW PATH
- AREA NOT ROUTED TO DITENTION

APPROVED BY THE NORTHVILLE INLAND WETLAND COMMISSION

CHAIRMAN DATE

APPROVED BY THE NORTHVILLE PLANNING AND ZONING COMMISSION

CHAIRMAN DATE

EXPIRATION DATE

SITE PLAN APPROVAL DATE

525 JOHN STREET BRIDGEPORT, CT. 06604
Office (203) 333-9405
fax (203) 259-1795
e-mail: info@FuscoSurveyors.com

MADISON PLACE

LUXURY TOWNHOUSE DEVELOPMENT
181 POWERHOUSE ROAD
NORTHVILLE, CONNECTICUT
PREPARED FOR:
JKNE HOLDINGS, LLC

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Staff Comments	02/21/25
Submission	02/11/25
Staff Review	01/15/25

Drawn By: D.R.R. Checked By: J.E.Q.

Sheet Title: PROPOSED DRAINAGE AREA

Scale: 1" = 20'

Sheet Number: DA-PR

APPENDIX F

PIPE FLOW CALCULATIONS

FULLER ENGINEERING & LAND SURVEYING, LLC
525 John Street – Second Floor – Bridgeport, CT 06604

Phone: (203) 333-9465 **Fax: (203) 336-1769**

PIPE FLOW CALCULATIONS

Phase 1

8" pipe @ 1% = **1.43 cfs**
10" pipe @ 0.5 % = **1.83 cfs**

Therefore, good for Phase 1; max flow 0.85 cfs

Phase 2

8" pipe @ 3 % = **2.47 cfs**
8" pipe @ 1.5 % = **1.74 cfs**

Therefore, good for Phase 2and 3 ; max flow 1.63 cfs

APPENDIX "G"

OPERATIONS AND MAINTENANCE PLAN

Appendix O
Operations and Maintenance Plan

145 Norwich New London Tpke. Route 32 &
18 Powerhouse Road
Montville, CT

February 11, 2025

Scope:

The purpose of the Operations and Maintenance Plan is to ensure that the existing and proposed stormwater components installed at *145 Route 32, Norwich New London Turnpike and 18 Powerhouse Road, Montville, CT* are maintained in operational condition throughout the life of the project. The service procedures associated with this plan shall be performed as required by the parties legally responsible for their maintenance.

Recommended Frequency of Service:

As further defined below, all stormwater components should be checked on a periodic basis and kept in full working order. Ultimately, the required frequency of inspection and service will depend on runoff quantities, pollutant loading, and clogging due to debris. At a minimum, we recommend that all stormwater components be inspected and serviced twice per year, once before winter begins and once during spring cleanup.

Qualified Inspector:

The inspections must be completed by an individual experienced in the construction and maintenance of stormwater drainage systems. Once every five years the inspections must be completed by a professional engineer.

Service Procedures:

1. Catch Basins & Drainage Inlets:
   a. Catch basins and drainage inlets shall be completely cleaned of accumulated debris and sediments at the completion of construction.
   b. For the first year, catch basins and drainage inlets shall be inspected on a quarterly basis.
   c. Any accumulated debris within the catch basins/inlets shall be removed and any repairs as required.
   d. From the second year onward, visual inspections shall occur twice per year, once in the spring and once in the fall, after fall cleanup of leaves has occurred.
   e. Accumulated debris within the catch basins/inlets shall be removed and repairs made as required.
   f. Accumulated sediments shall be removed at which time they are within 12 inches of the invert of the outlet pipe.
   g. Any additional maintenance required per the manufacturer's specifications shall also be completed.

2. Storm Drainage Piping and Manholes/Junction Boxes:
   a. All storm drainage piping shall be completely flushed of debris and accumulated sediment at the completion of construction.
   b. Manholes/Junction Boxes shall be inspected and repaired on an annual basis.

c. Unless system performance indicates degradation of piping, comprehensive video inspection of storm drainage piping shall occur once every ten years.

d. Any additional maintenance required per the manufacturer's specifications shall also be completed.

3. Stormwater Inlet/Control Structures:
   a. All control structures (orifice, weir, etc.) shall be completely cleaned of accumulated debris and sediments at the completion of construction. Any repairs shall be performed.
   b. For the first year, control structures (orifice, weir, etc.) shall be inspected on a quarterly basis.
   c. Any accumulated debris shall be removed and any repairs made to the control structures (orifice, weir, etc.) as required.
   d. From the second year onward, visual inspections shall occur twice per year, once in the spring and once in the fall, after fall cleanup of leaves has occurred.
   e. Accumulated debris shall be removed and repairs made as required.
   f. Any additional maintenance required per the manufacturer's specifications shall also be completed.
4. Drywells and Infiltration Systems:
   a. All drywells/infiltrators shall be completely cleaned of accumulated debris and sediments upon the completion of construction.
   b. For the first year, the drywells/infiltrators shall be inspected on a quarterly basis.
   c. Any accumulated debris within the drywells/infiltrators shall be removed and any repairs made to the units as required.
   d. From the second year onward, visual inspection shall occur twice per year, once in the spring and once in the fall, after fall cleanup of leaves has occurred.
   e. Accumulated debris within the units shall be removed and repairs made as required.
   f. Any additional maintenance required per the manufacturer's specifications shall also be completed.
5. Roof Gutters:
   a. Remove accumulated debris and inspect for damage. Any damage should be repaired as required.

Disposal of Debris and Sediment:

All debris and sediment removed from the stormwater structures and bioretention/biofiltration basins shall be disposed of legally. There shall be no dumping of silt or debris into or in proximity to any inland or tidal wetlands.

Maintenance Records:

The Owners(s) must maintain all records (logs, invoices, reports, data, etc.) and have them readily available for inspection at all times.

Operations and Maintenance Log (Page 1 of 3)

#245 Route 32 Norwich New London Tpke. Montville, CT
March 8, 2022 30,

Type of Inspection: ☐ Spring ☐ Fall ☐ Other

Inspector's Name:_____ Date of Inspection:_____

Affiliation:_____ Phone #:_____

Catch Basins & Drainage Inlets:

- Has accumulated debris been removed from grates? ☐ Yes ☐ No ☐ N/A
- Do any basins require additional repair? (identify below): ☐ Yes ☐ No ☐ N/A
- Have sumps been cleaned of sediment? ☐ Yes ☐ No ☐ N/A

Notes:

Storm Drainage Piping and Manholes/Junction Boxes:

- Has accumulated debris been removed? ☐ Yes ☐ No ☐ N/A
- Do any manholes require additional repair? (identify below): ☐ Yes ☐ No ☐ N/A
- Is there any evidence of stormwater piping failure? ☐ Yes ☐ No ☐ N/A
- Has a comprehensive video inspection been completed? ☐ Yes ☐ No ☐ N/A

Notes:

Stormwater Control Structures:

- Has accumulated debris been removed? ☐ Yes ☐ No ☐ N/A
- Are any repairs required? (identify below): ☐ Yes ☐ No ☐ N/A
- Have orifices and weirs been cleaned of debris? ☐ Yes ☐ No ☐ N/A

Notes:

Operations and Maintenance Log (Page 2 of 3)

#245 Route 32 Norwich New London Tpke., Montville, CT
March 8, 2022

Drainage Outfalls/Splash Pads/Scour Holes/Level Spreaders:

- Have all drainage outlets been cleared of debris? ☐ Yes ☐ No ☐ N/A
- Have all outlet protections been inspected/repaired? ☐ Yes ☐ No ☐ N/A
- Have all erosion issues been repaired? ☐ Yes ☐ No ☐ N/A

Notes:

Drywells and Infiltration Systems:

- Have units been cleared of debris/sediments? ☐ Yes ☐ No ☐ N/A
- Do units require additional repair? (identify below): ☐ Yes ☐ No ☐ N/A
- Has draining times of system been verified? ☐ Yes ☐ No ☐ N/A

Notes:

Roof Gutters:

- Has accumulated debris been removed from gutters? ☐ Yes ☐ No ☐ N/A
- Do any gutters require additional repair? (identify below): ☐ Yes ☐ No ☐ N/A

Notes:

Operations and Maintenance Log (Page 3 of 3)

#245 Route 32 Norwich New London Tpke. Montville CT
March 8, 2022

Please make additional notes/observations and particular concerns below. Also record any additional maintenance that has been performed:

Signature of Inspector: **Date:**