

La Crosse Engineering & Surveying Co., Inc.

SEWERS
WATER
STREETS
SURVEYS
PLATTING

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August 24, 2018

Munson Apartments, City of La Crosse
505 11th St., La Crosse, WI

Storm water Management

Munson Apartments is proposing a building at the above location in La Crosse. A 1,950 sq. ft. building with parking adjacent to proposed building. The existing houses will be razed to make way for the proposed complex. The drainage for the proposed building and parking will be collected in the green areas, or landscaped areas. These areas will be built to infiltrate. During larger storms, the discharge will be restricted by a 6" stand pipe which will discharge directly into the City system. The detail is included on the grading/erosion plan. The computations are attached.

Storm event (yr)	Existing discharge (1S) to alley catch basin (cfs)	Proposed discharge (3P) to catch basin (cfs)
1	0.15	0.00
2	0.21	0.00
5	0.36	0.24
10	0.46	0.41
25	0.57	0.51

TSS removal

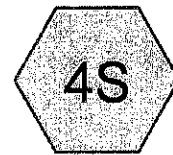
I have attached the WinSlamm calculations for the proposed storm chamber. Since the site is a redevelopment site, the removal rate of 40% is accomplished by these infiltration areas. As the WinSlamm computations show, the removal rate is 100%



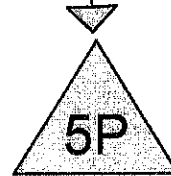
Exist



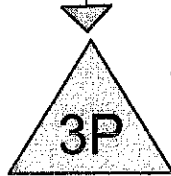
Developed



Developed_North



North



Ponding



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.165	61	>75% Grass cover, Good, HSG B (1S, 2S, 4S)
0.100	98	Paved parking, HSG B (1S, 2S)
0.071	98	Roofs, HSG B (1S, 2S)
0.005	98	Unconnected pavement, Sidewalk (2S)
0.022	98	Unconnected roofs, HSG B (4S)
0.362	81	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.358	HSG B	1S, 2S, 4S
0.000	HSG C	
0.000	HSG D	
0.005	Other	2S
0.362		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.165	0.000	0.000	0.000	0.165	>75% Grass cover, Good	
0.000	0.100	0.000	0.000	0.000	0.100	Paved parking	
0.000	0.071	0.000	0.000	0.000	0.071	Roofs	
0.000	0.000	0.000	0.000	0.005	0.005	Unconnected pavement, Sidewalk	
0.000	0.022	0.000	0.000	0.000	0.022	Unconnected roofs	
0.000	0.358	0.000	0.000	0.005	0.362	TOTAL AREA	

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Type II 24-hr 1 yr Rainfall=2.50"

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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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Exist

Runoff Area=7,890 sf 39.29% Impervious Runoff Depth>0.62"
Tc=15.0 min CN=76 Runoff=0.15 cfs 0.009 af

Subcatchment 2S: Developed

Runoff Area=6,080 sf 74.84% Impervious Runoff Depth>1.35"
Tc=0.0 min CN=89 Runoff=0.41 cfs 0.016 af

Subcatchment 4S: Developed_North

Runoff Area=1,810 sf 52.49% Impervious Runoff Depth>0.81"
Tc=4.0 min CN=80 Runoff=0.07 cfs 0.003 af

Pond 3P: Ponding

Peak Elev=672.72' Storage=348 cf Inflow=0.41 cfs 0.016 af
Discarded=0.02 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.014 af

Pond 5P: North

Peak Elev=673.61' Storage=48 cf Inflow=0.07 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Primary=0.01 cfs 0.000 af Outflow=0.02 cfs 0.003 af

Total Runoff Area = 0.362 ac Runoff Volume = 0.028 af Average Runoff Depth = 0.92"
45.50% Pervious = 0.165 ac 54.50% Impervious = 0.197 ac

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Type II 24-hr 1 yr Rainfall=2.50"

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Summary for Subcatchment 1S: Exist

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 0.62"

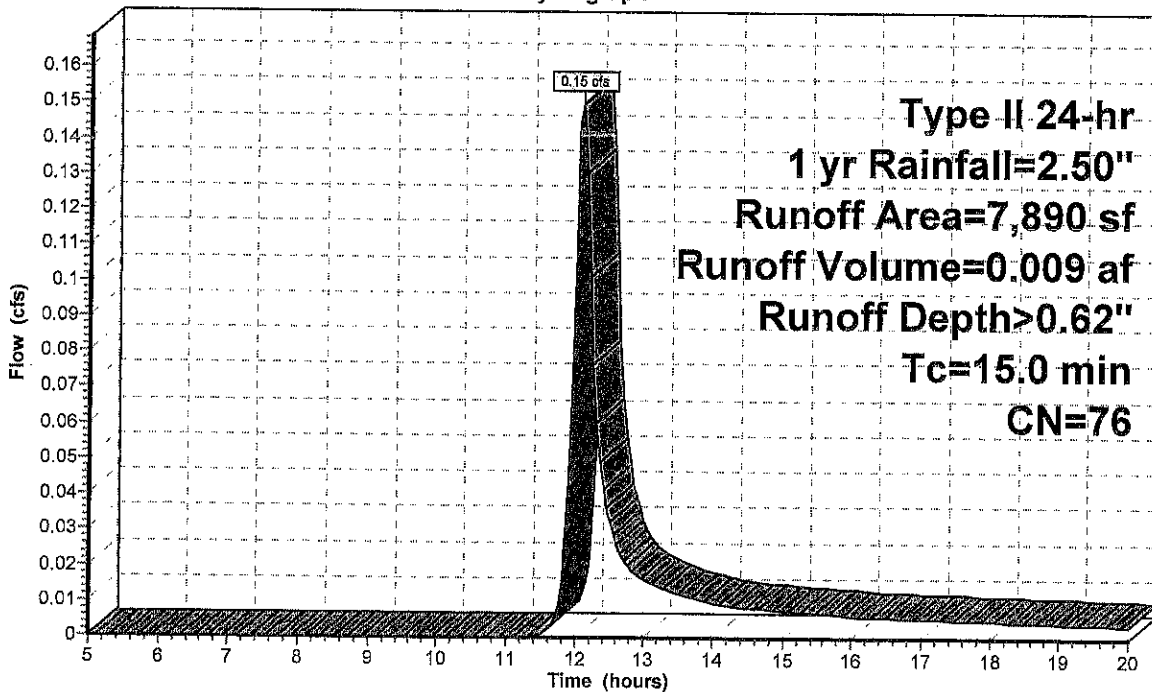
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 yr Rainfall=2.50"

Area (sf)	CN	Description
2,100	98	Roofs, HSG B
1,000	98	Paved parking, HSG B
4,790	61	>75% Grass cover, Good, HSG B
7,890	76	Weighted Average
4,790		60.71% Pervious Area
3,100		39.29% Impervious Area

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

Subcatchment 1S: Exist

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Type II 24-hr 1 yr Rainfall=2.50"

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Summary for Subcatchment 2S: Developed

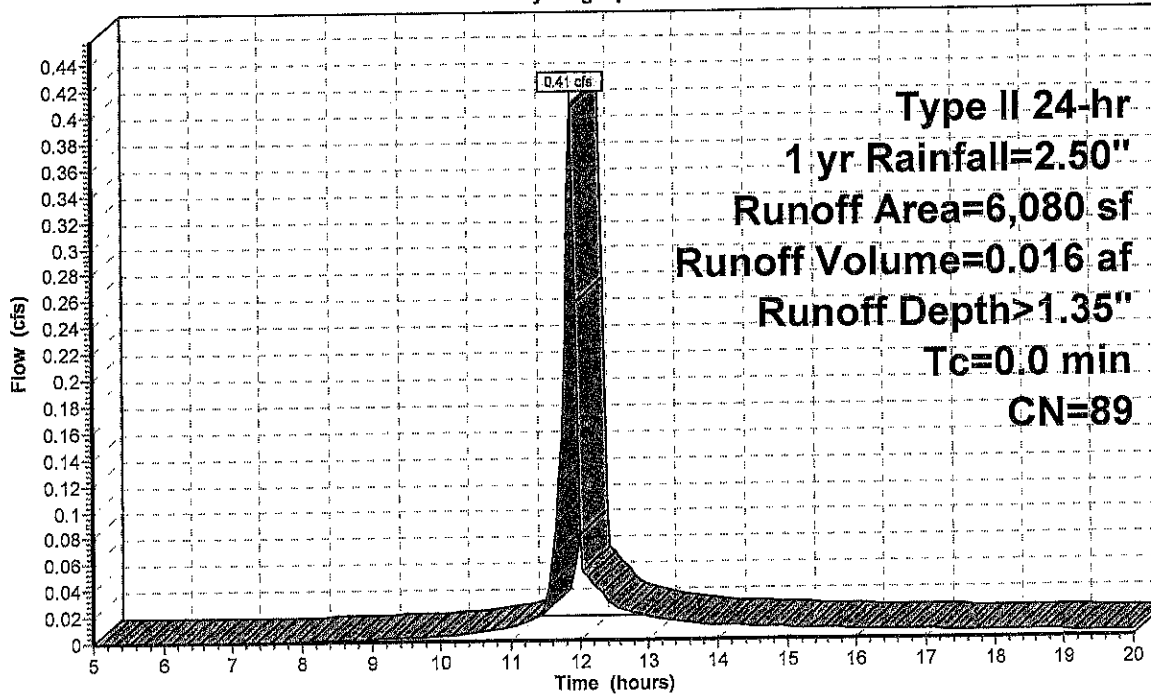
Runoff = 0.41 cfs @ 11.89 hrs, Volume= 0.016 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1 yr Rainfall=2.50"

Area (sf)	CN	Description
1,000	98	Roofs, HSG B
3,350	98	Paved parking, HSG B
* 200	98	Unconnected pavement, Sidewalk
1,530	61	>75% Grass cover, Good, HSG B
6,080	89	Weighted Average
1,530		25.16% Pervious Area
4,550		74.84% Impervious Area
200		4.40% Unconnected

Subcatchment 2S: Developed

Hydrograph



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Type II 24-hr 1 yr Rainfall=2.50"

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Summary for Subcatchment 4S: Developed_North

Runoff = 0.07 cfs @ 11.95 hrs, Volume= 0.003 af, Depth> 0.81"

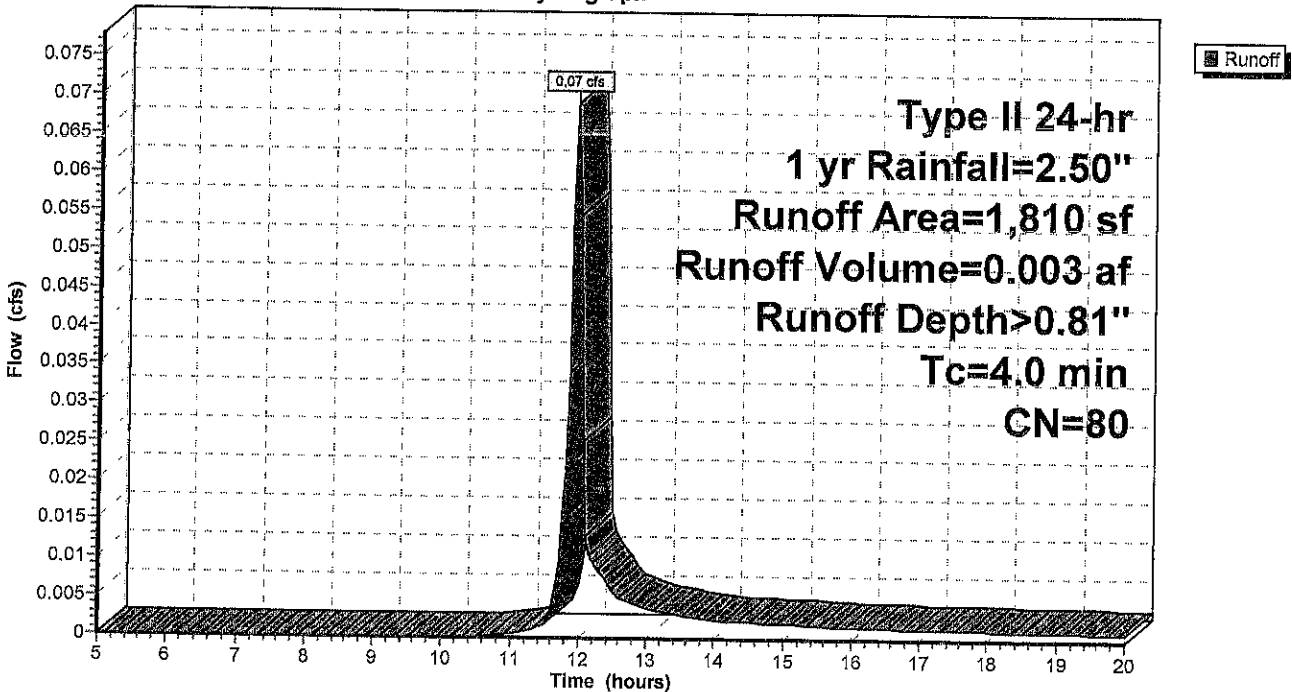
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 yr Rainfall=2.50"

Area (sf)	CN	Description
950	98	Unconnected roofs, HSG B
860	61	>75% Grass cover, Good, HSG B
1,810	80	Weighted Average
860		47.51% Pervious Area
950		52.49% Impervious Area
950		100.00% Unconnected

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

Subcatchment 4S: Developed_North

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Type II 24-hr 1 yr Rainfall=2.50"

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Summary for Pond 3P: Ponding

Inflow Area = 0.181 ac, 69.71% Impervious, Inflow Depth > 1.05" for 1 yr event
 Inflow = 0.41 cfs @ 11.89 hrs, Volume= 0.016 af
 Outflow = 0.02 cfs @ 12.69 hrs, Volume= 0.014 af, Atten= 95%, Lag= 47.8 min
 Discarded = 0.02 cfs @ 12.69 hrs, Volume= 0.014 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 672.72' @ 12.69 hrs Surf.Area= 572 sf Storage= 348 cf

Plug-Flow detention time= 173.2 min calculated for 0.014 af (87% of inflow)
 Center-of-Mass det. time= 131.4 min (904.9 - 773.5)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	1,445 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	275	0	0
673.00	685	480	480
674.00	1,245	965	1,445

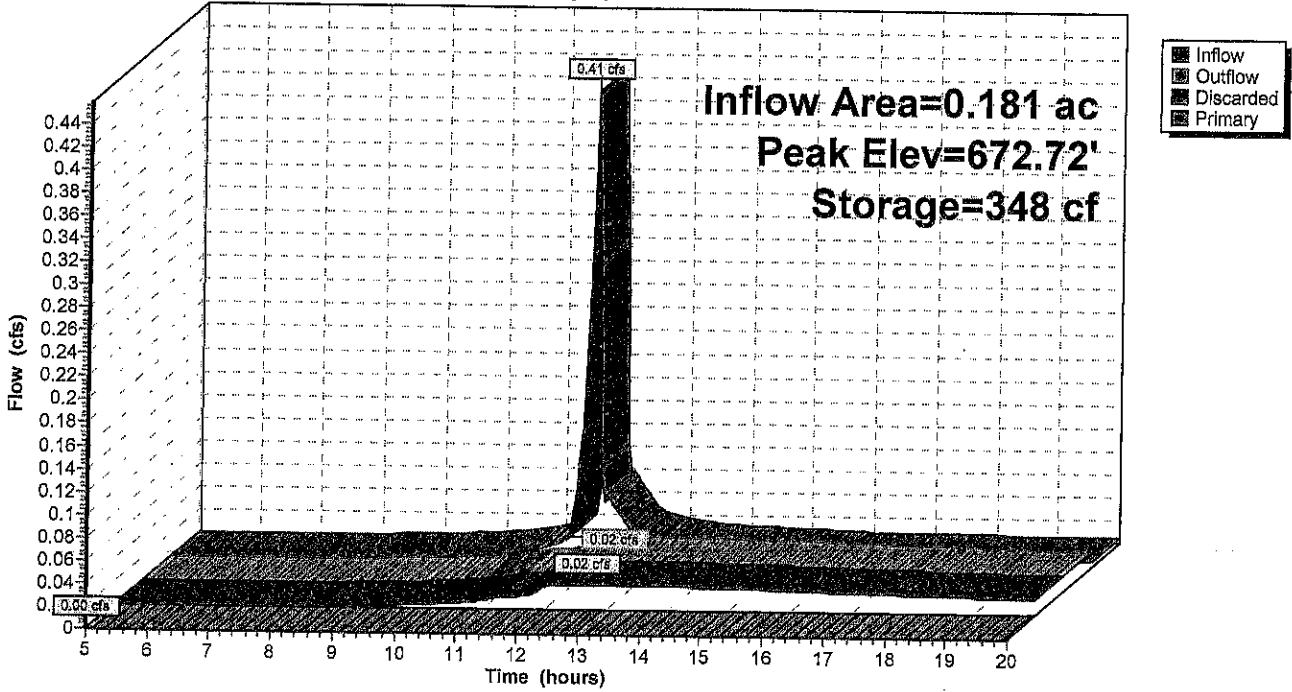
Device	Routing	Invert	Outlet Devices
#1	Discarded	672.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.00'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	673.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.02 cfs @ 12.69 hrs HW=672.72' (Free Discharge)
 ↳1=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=672.00' (Free Discharge)
 ↳2=Orifice/Grate (Controls 0.00 cfs)
 ↳3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Ponding

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Type II 24-hr 1 yr Rainfall=2.50"

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Summary for Pond 5P: North

Inflow Area = 0.042 ac, 52.49% Impervious, Inflow Depth > 0.81" for 1 yr event
 Inflow = 0.07 cfs @ 11.95 hrs, Volume= 0.003 af
 Outflow = 0.02 cfs @ 12.11 hrs, Volume= 0.003 af, Atten= 78%, Lag= 9.8 min
 Discarded = 0.01 cfs @ 12.12 hrs, Volume= 0.003 af
 Primary = 0.01 cfs @ 12.11 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.61' @ 12.12 hrs Surf.Area= 154 sf Storage= 48 cf

Plug-Flow detention time= 93.0 min calculated for 0.003 af (98% of inflow)
 Center-of-Mass det. time= 84.9 min (888.0 - 803.0)

Volume #1	Invert 673.00'	Avail.Storage 128 cf	Storage Description
Custom Stage Data (Prismatic) Listed below (Recalc)			

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
673.00	5	0	0
674.00	250	128	128

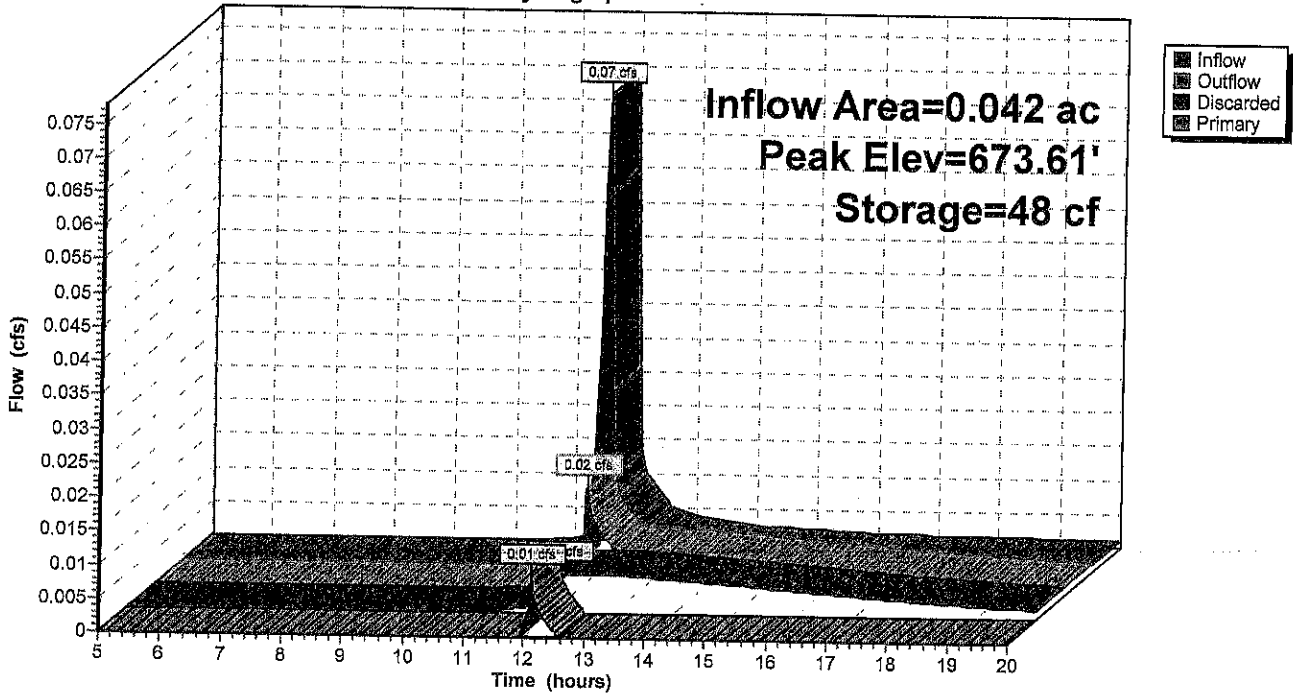
Device	Routing	Invert	Outlet Devices
#1	Discarded	673.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.60'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=673.61' (Free Discharge)
 ↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 12.11 hrs HW=673.61' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.19 fps)

Pond 5P: North

Hydrograph



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Type II 24-hr 2 yr Rainfall=2.90"

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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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Exist	Runoff Area=7,890 sf 39.29% Impervious Runoff Depth>0.85" Tc=15.0 min CN=76 Runoff=0.21 cfs 0.013 af
Subcatchment 2S: Developed	Runoff Area=6,080 sf 74.84% Impervious Runoff Depth>1.69" Tc=0.0 min CN=89 Runoff=0.50 cfs 0.020 af
Subcatchment 4S: Developed_North	Runoff Area=1,810 sf 52.49% Impervious Runoff Depth>1.07" Tc=4.0 min CN=80 Runoff=0.09 cfs 0.004 af
Pond 3P: Ponding	Peak Elev=672.97' Storage=468 cf Inflow=0.50 cfs 0.020 af Discarded=0.03 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.017 af
Pond 5P: North	Peak Elev=673.63' Storage=53 cf Inflow=0.09 cfs 0.004 af Discarded=0.01 cfs 0.003 af Primary=0.06 cfs 0.001 af Outflow=0.07 cfs 0.004 af

Total Runoff Area = 0.362 ac Runoff Volume = 0.036 af Average Runoff Depth = 1.20"
45.50% Pervious = 0.165 ac 54.50% Impervious = 0.197 ac

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Type II 24-hr 2 yr Rainfall=2.90"

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Summary for Subcatchment 1S: Exist

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.013 af, Depth> 0.85"

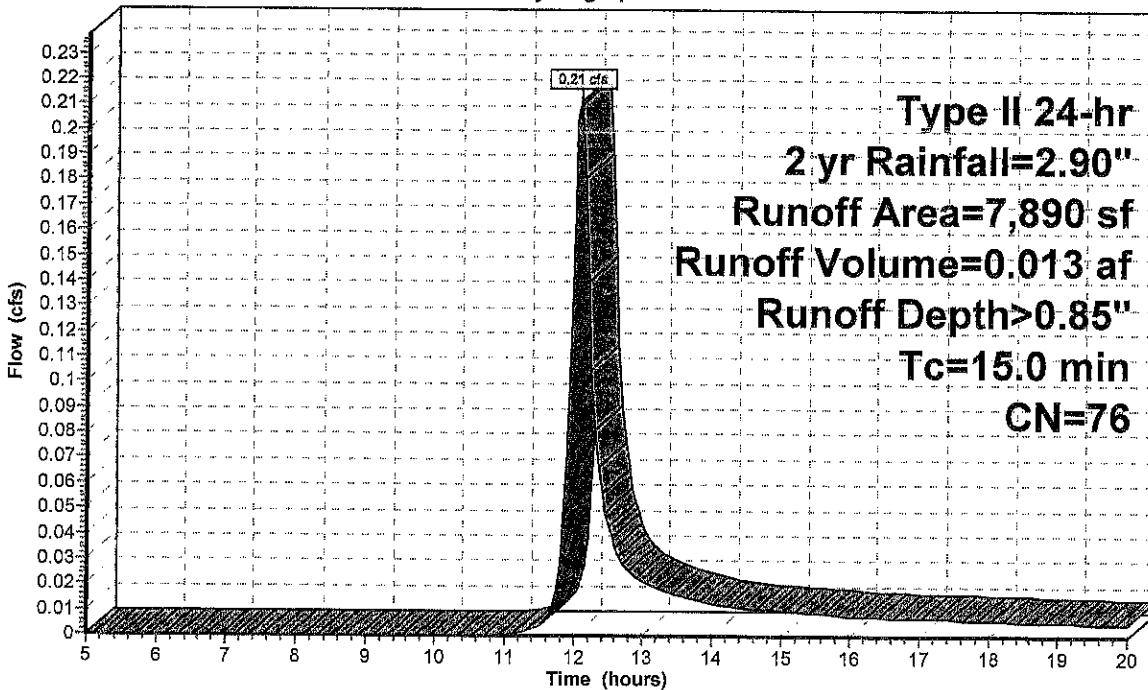
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 yr Rainfall=2.90"

Area (sf)	CN	Description
2,100	98	Roofs, HSG B
1,000	98	Paved parking, HSG B
4,790	61	>75% Grass cover, Good, HSG B
7,890	76	Weighted Average
4,790		60.71% Pervious Area
3,100		39.29% Impervious Area

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

Subcatchment 1S: Exist

Hydrograph



Runoff

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Type II 24-hr 2 yr Rainfall=2.90"

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Summary for Subcatchment 2S: Developed

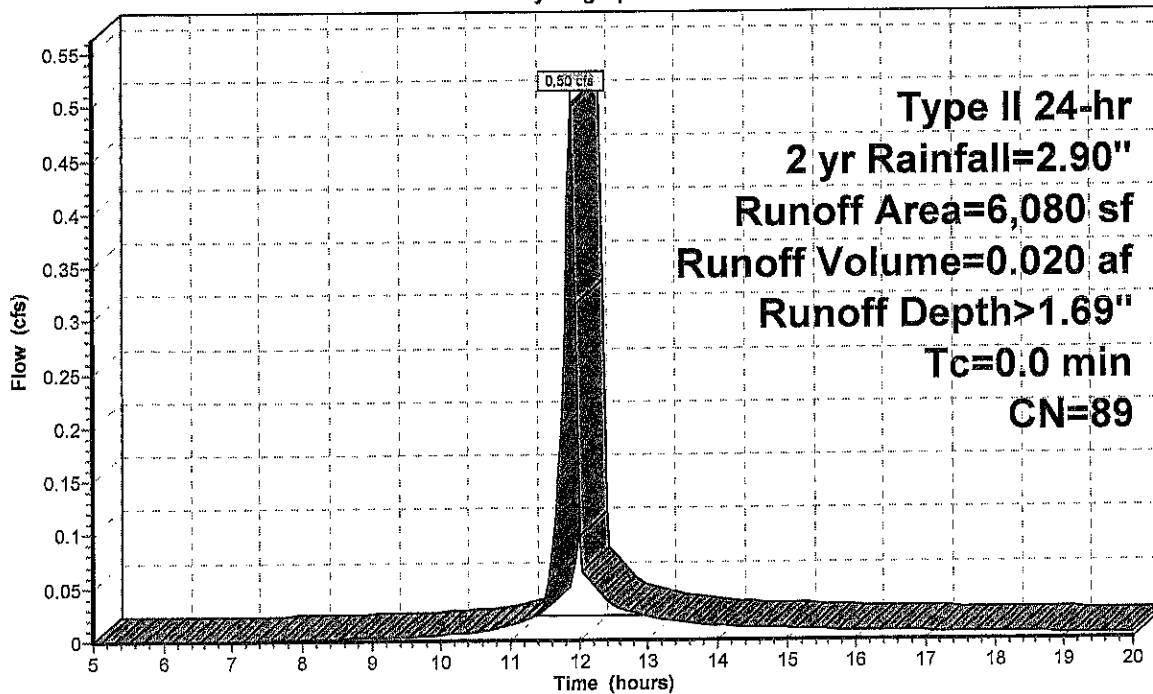
Runoff = 0.50 cfs @ 11.89 hrs, Volume= 0.020 af, Depth> 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 yr Rainfall=2.90"

Area (sf)	CN	Description
1,000	98	Roofs, HSG B
3,350	98	Paved parking, HSG B
* 200	98	Unconnected pavement, Sidewalk
1,530	61	>75% Grass cover, Good, HSG B
6,080	89	Weighted Average
1,530		25.16% Pervious Area
4,550		74.84% Impervious Area
200		4.40% Unconnected

Subcatchment 2S: Developed

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Type II 24-hr 2 yr Rainfall=2.90"

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Summary for Subcatchment 4S: Developed_North

Runoff = 0.09 cfs @ 11.95 hrs, Volume= 0.004 af, Depth> 1.07"

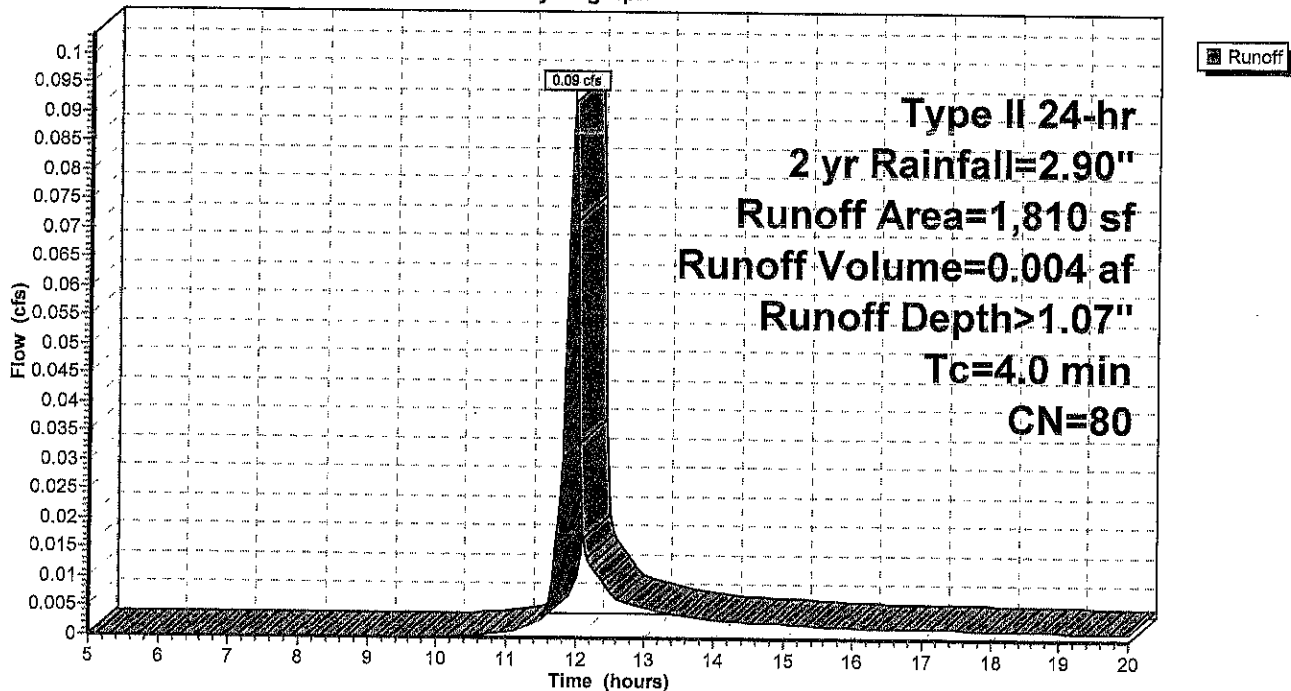
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 yr Rainfall=2.90"

Area (sf)	CN	Description
950	98	Unconnected roofs, HSG B
860	61	>75% Grass cover, Good, HSG B
1,810	80	Weighted Average
860		47.51% Pervious Area
950		52.49% Impervious Area
950		100.00% Unconnected

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

Subcatchment 4S: Developed_North

Hydrograph



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Type II 24-hr 2 yr Rainfall=2.90"

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Summary for Pond 3P: Ponding

Inflow Area = 0.181 ac, 69.71% Impervious, Inflow Depth > 1.35" for 2 yr event
 Inflow = 0.50 cfs @ 11.89 hrs, Volume= 0.020 af
 Outflow = 0.03 cfs @ 12.74 hrs, Volume= 0.017 af, Atten= 95%, Lag= 50.9 min
 Discarded = 0.03 cfs @ 12.74 hrs, Volume= 0.017 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 672.97' @ 12.74 hrs Surf.Area= 674 sf Storage= 468 cf

Plug-Flow detention time= 185.4 min calculated for 0.017 af (82% of inflow)
 Center-of-Mass det. time= 133.1 min (900.6 - 767.4)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	1,445 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	275	0	0
673.00	685	480	480
674.00	1,245	965	1,445

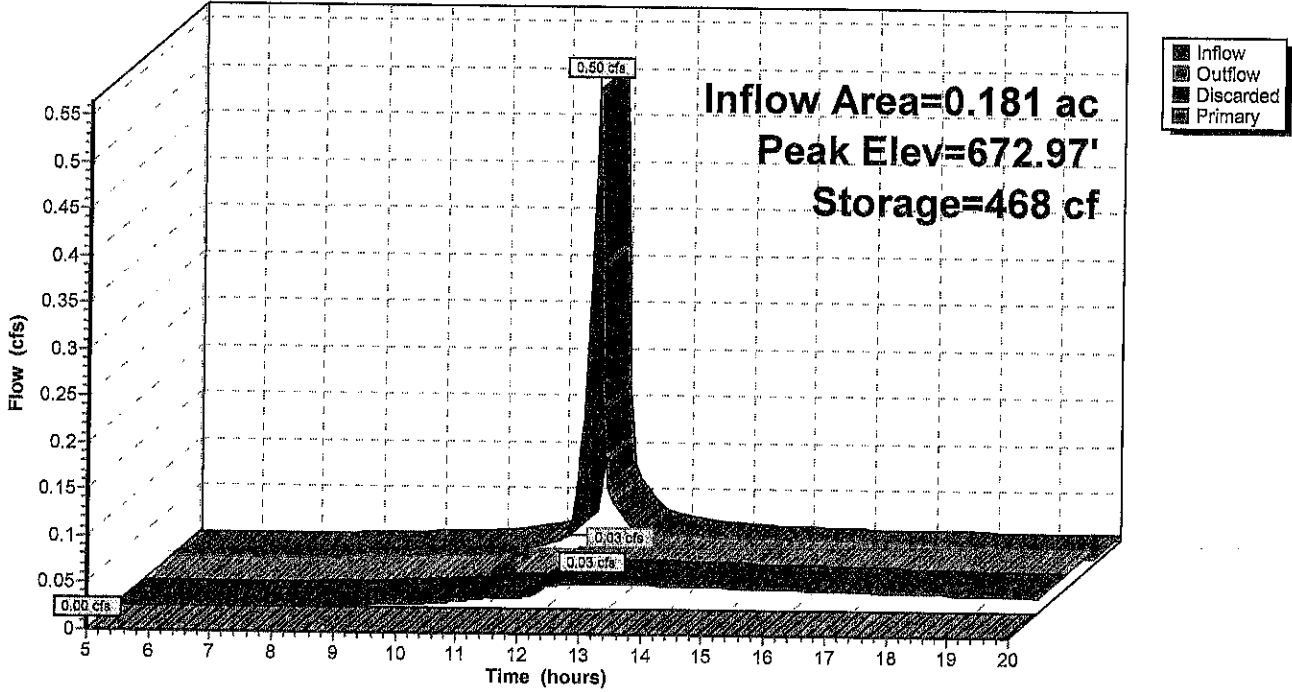
Device	Routing	Invert	Outlet Devices
#1	Discarded	672.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.00'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	673.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 12.74 hrs HW=672.97' (Free Discharge)
 ↳1=Exfiltration (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=672.00' (Free Discharge)
 ↳2=Orifice/Grate (Controls 0.00 cfs)
 ↳3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Ponding

Hydrograph



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Type II 24-hr 2 yr Rainfall=2.90"

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Summary for Pond 5P: North

Inflow Area = 0.042 ac, 52.49% Impervious, Inflow Depth > 1.07" for 2 yr event
 Inflow = 0.09 cfs @ 11.95 hrs, Volume= 0.004 af
 Outflow = 0.07 cfs @ 12.01 hrs, Volume= 0.004 af, Atten= 23%, Lag= 3.8 min
 Discarded = 0.01 cfs @ 12.02 hrs, Volume= 0.003 af
 Primary = 0.06 cfs @ 12.01 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.63' @ 12.02 hrs Surf.Area= 161 sf Storage= 53 cf

Plug-Flow detention time= 82.1 min calculated for 0.004 af (97% of inflow)
 Center-of-Mass det. time= 70.9 min (867.9 - 797.0)

Volume	Invert	Avail.Storage	Storage Description
#1	673.00'	128 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
673.00	5	0	0
674.00	250	128	128

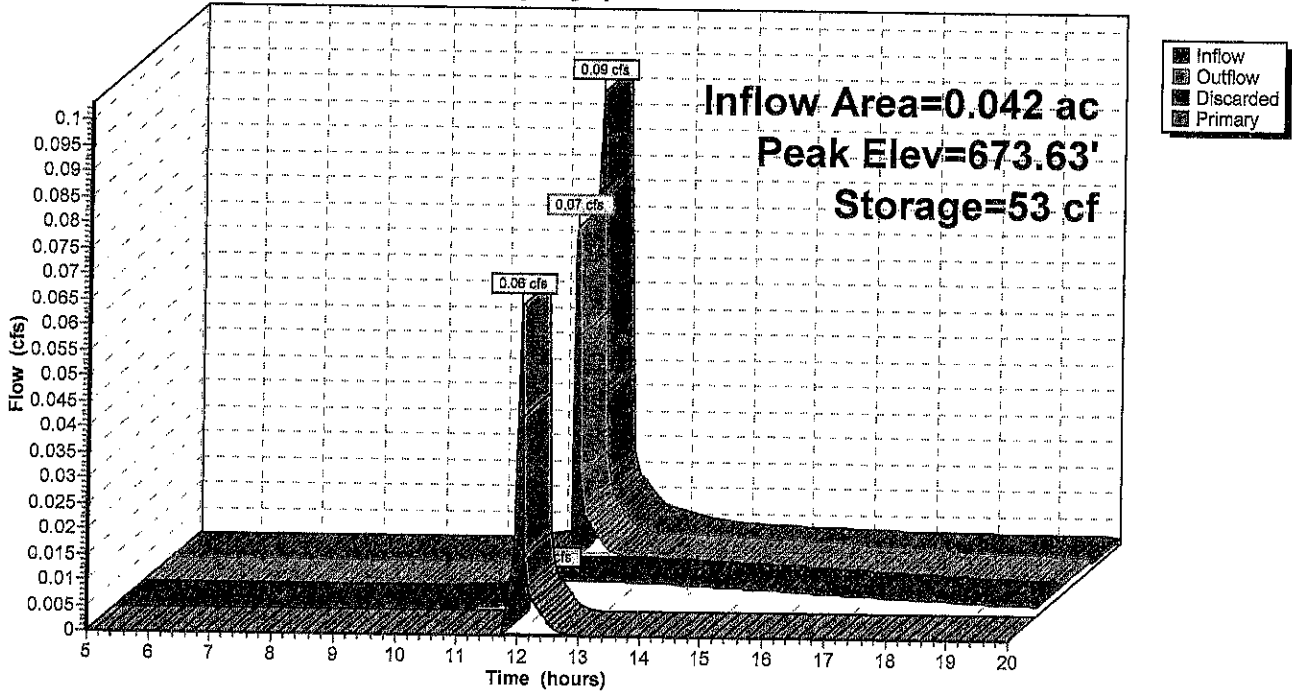
Device	Routing	Invert	Outlet Devices
#1	Discarded	673.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.60'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 12.02 hrs HW=673.63' (Free Discharge)
 ↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.06 cfs @ 12.01 hrs HW=673.63' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.06 cfs @ 0.39 fps)

Pond 5P: North

Hydrograph



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Type II 24-hr 5 yr Rainfall=3.80"

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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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Exist	Runoff Area=7,890 sf 39.29% Impervious Runoff Depth>1.44" Tc=15.0 min CN=76 Runoff=0.36 cfs 0.022 af
Subcatchment 2S: Developed	Runoff Area=6,080 sf 74.84% Impervious Runoff Depth>2.47" Tc=0.0 min CN=89 Runoff=0.72 cfs 0.029 af
Subcatchment 4S: Developed_North	Runoff Area=1,810 sf 52.49% Impervious Runoff Depth>1.73" Tc=4.0 min CN=80 Runoff=0.15 cfs 0.006 af
Pond 3P: Ponding	Peak Elev=673.13' Storage=604 cf Inflow=0.77 cfs 0.031 af Discarded=0.03 cfs 0.019 af Primary=0.24 cfs 0.007 af Outflow=0.26 cfs 0.026 af
Pond 5P: North	Peak Elev=673.66' Storage=56 cf Inflow=0.15 cfs 0.006 af Discarded=0.01 cfs 0.003 af Primary=0.15 cfs 0.002 af Outflow=0.16 cfs 0.006 af

Total Runoff Area = 0.362 ac Runoff Volume = 0.056 af Average Runoff Depth = 1.87"
45.50% Pervious = 0.165 ac 54.50% Impervious = 0.197 ac

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Type II 24-hr 5 yr Rainfall=3.80"

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Summary for Subcatchment 1S: Exist

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.022 af, Depth> 1.44"

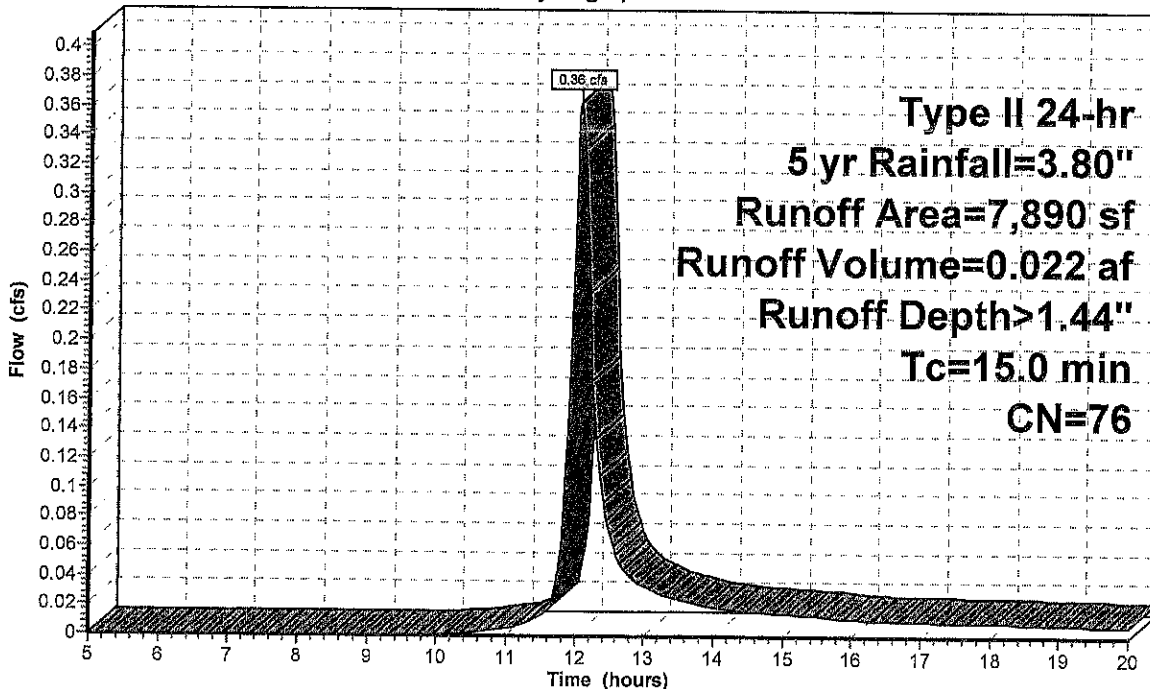
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 yr Rainfall=3.80"

Area (sf)	CN	Description
2,100	98	Roofs, HSG B
1,000	98	Paved parking, HSG B
4,790	61	>75% Grass cover, Good, HSG B
7,890	76	Weighted Average
4,790		60.71% Pervious Area
3,100		39.29% Impervious Area

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

Subcatchment 1S: Exist

Hydrograph



Runoff

Type II 24-hr
5 yr Rainfall=3.80"
Runoff Area=7,890 sf
Runoff Volume=0.022 af
Runoff Depth>1.44"
Tc=15.0 min
CN=76

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Type II 24-hr 5 yr Rainfall=3.80"

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Summary for Subcatchment 2S: Developed

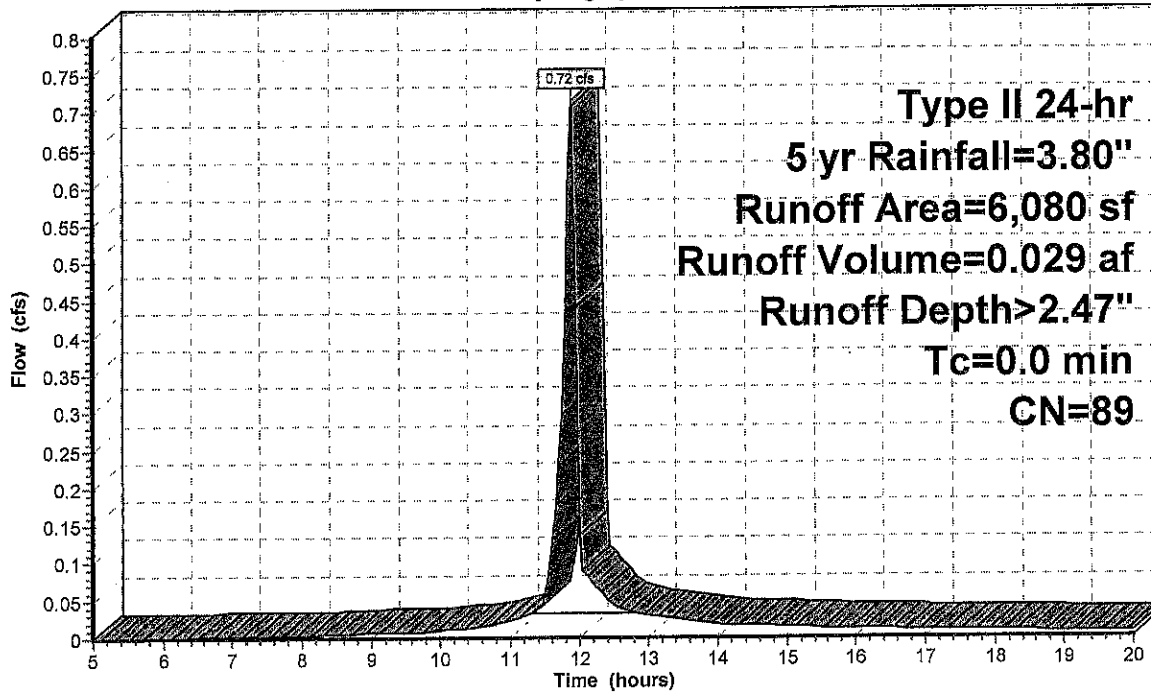
Runoff = 0.72 cfs @ 11.89 hrs, Volume= 0.029 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 yr Rainfall=3.80"

Area (sf)	CN	Description
1,000	98	Roofs, HSG B
3,350	98	Paved parking, HSG B
* 200	98	Unconnected pavement, Sidewalk
1,530	61	>75% Grass cover, Good, HSG B
6,080	89	Weighted Average
1,530		25.16% Pervious Area
4,550		74.84% Impervious Area
200		4.40% Unconnected

Subcatchment 2S: Developed

Hydrograph



Runoff

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Type II 24-hr 5 yr Rainfall=3.80"

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Summary for Subcatchment 4S: Developed_North

Runoff = 0.15 cfs @ 11.95 hrs, Volume= 0.006 af, Depth> 1.73"

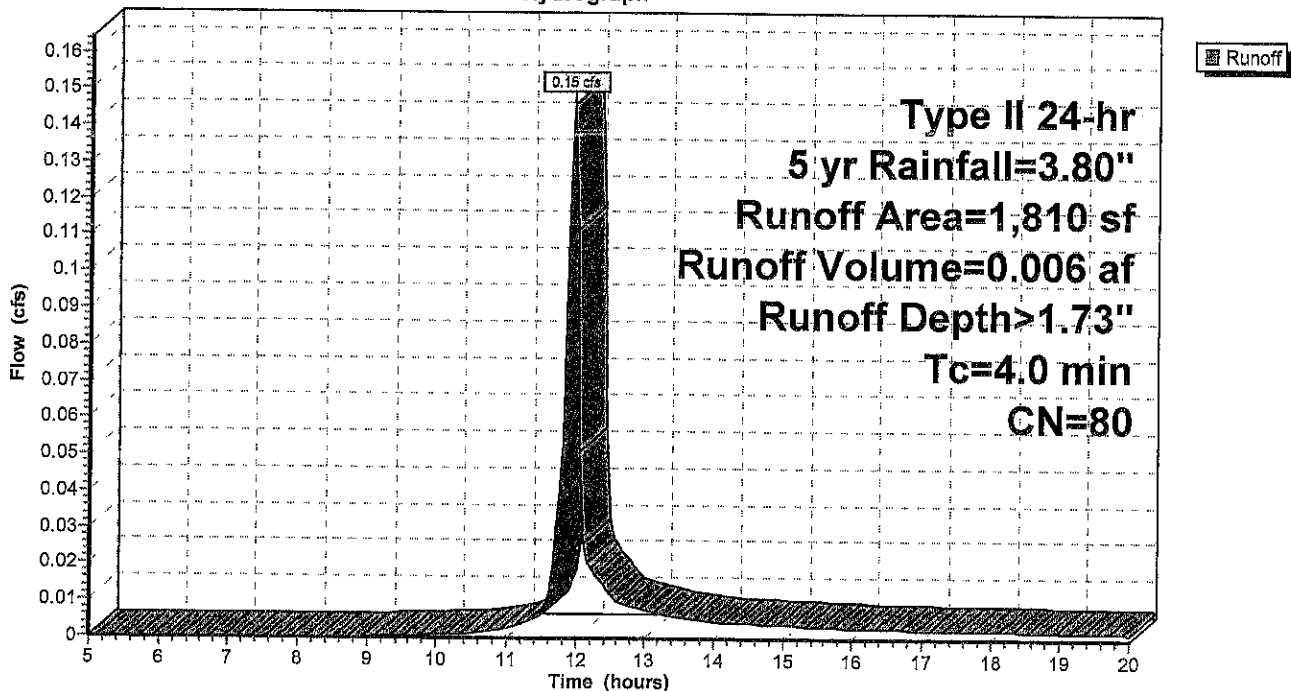
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 yr Rainfall=3.80"

Area (sf)	CN	Description
950	98	Unconnected roofs, HSG B
860	61	>75% Grass cover, Good, HSG B
1,810	80	Weighted Average
860		47.51% Pervious Area
950		52.49% Impervious Area
950		100.00% Unconnected

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

Subcatchment 4S: Developed_North

Hydrograph



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Type II 24-hr 5 yr Rainfall=3.80"

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Summary for Pond 3P: Ponding

Inflow Area = 0.181 ac, 69.71% Impervious, Inflow Depth > 2.05" for 5 yr event
 Inflow = 0.77 cfs @ 11.90 hrs, Volume= 0.031 af
 Outflow = 0.26 cfs @ 12.02 hrs, Volume= 0.026 af, Atten= 65%, Lag= 7.0 min
 Discarded = 0.03 cfs @ 12.02 hrs, Volume= 0.019 af
 Primary = 0.24 cfs @ 12.02 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.13' @ 12.02 hrs Surf.Area= 757 sf Storage= 604 cf

Plug-Flow detention time= 135.7 min calculated for 0.026 af (83% of inflow)
 Center-of-Mass det. time= 87.9 min (845.5 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	1,445 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	275	0	0
673.00	685	480	480
674.00	1,245	965	1,445

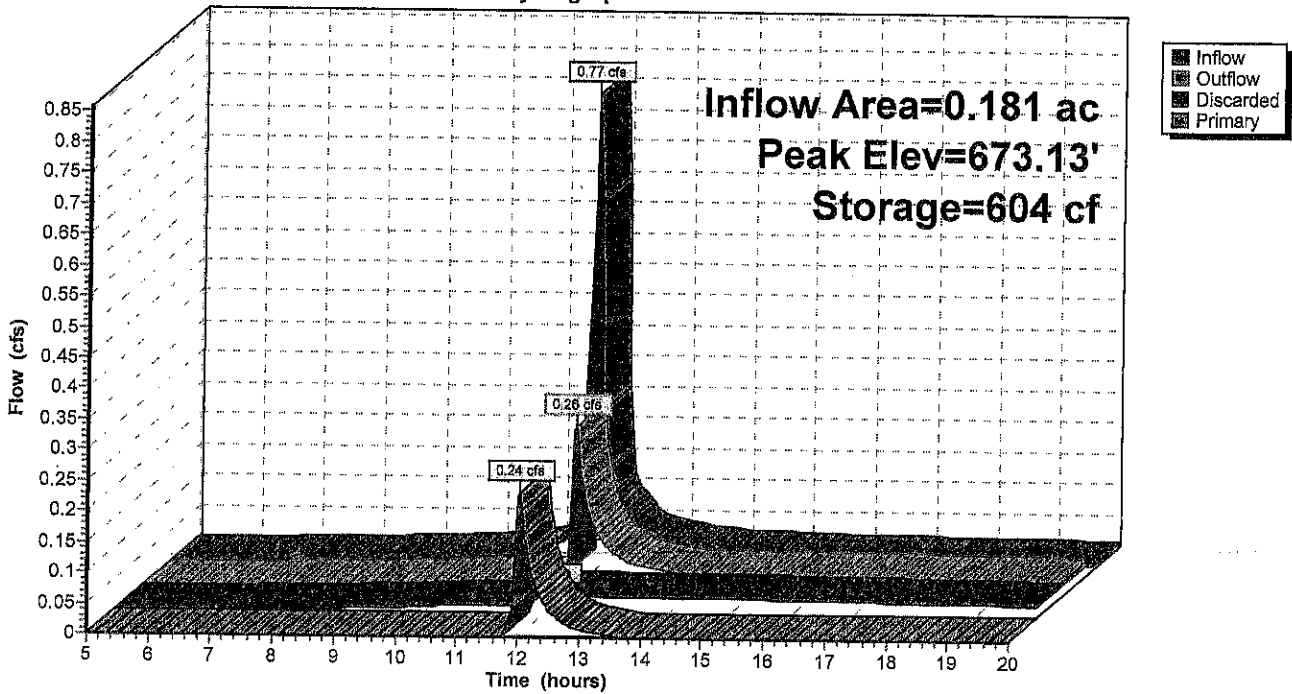
Device	Routing	Invert	Outlet Devices
#1	Discarded	672.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.00'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	673.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 12.02 hrs HW=673.12' (Free Discharge)
 ↑ **1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.22 cfs @ 12.02 hrs HW=673.12' (Free Discharge)
 ↑ **2=Orifice/Grate** (Weir Controls 0.22 cfs @ 1.15 fps)
 ↓ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Ponding

Hydrograph



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Type II 24-hr 5 yr Rainfall=3.80"

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Summary for Pond 5P: North

Inflow Area = 0.042 ac, 52.49% Impervious, Inflow Depth > 1.73" for 5 yr event
 Inflow = 0.15 cfs @ 11.95 hrs, Volume= 0.006 af
 Outflow = 0.16 cfs @ 11.96 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.8 min
 Discarded = 0.01 cfs @ 11.96 hrs, Volume= 0.003 af
 Primary = 0.15 cfs @ 11.96 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.66' @ 11.96 hrs Surf.Area= 166 sf Storage= 56 cf

Plug-Flow detention time= 65.1 min calculated for 0.006 af (95% of inflow)
 Center-of-Mass det. time= 48.9 min (835.9 - 787.0)

Volume	Invert	Avail.Storage	Storage Description
#1	673.00'	128 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
673.00	5	0	0
674.00	250	128	128

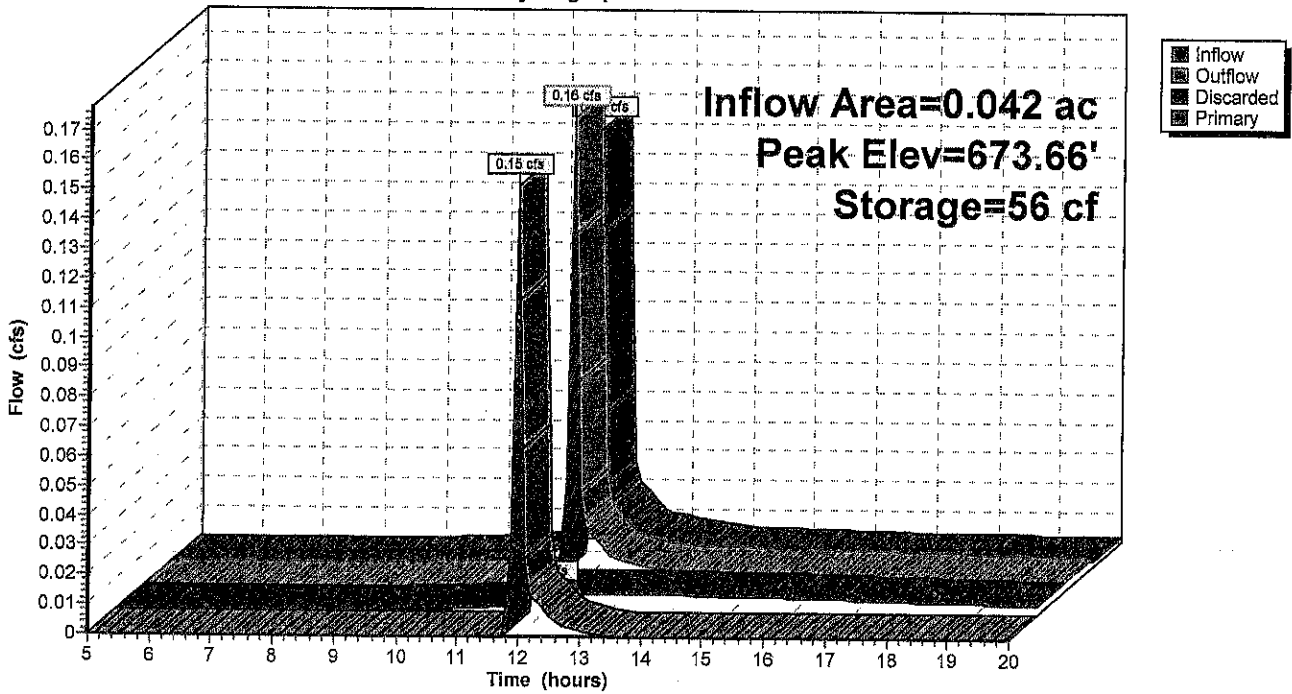
Device	Routing	Invert	Outlet Devices
#1	Discarded	673.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.60'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 11.96 hrs HW=673.65' (Free Discharge)
 ↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.14 cfs @ 11.96 hrs HW=673.65' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.14 cfs @ 0.54 fps)

Pond 5P: North

Hydrograph



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Type II 24-hr 10 yr Rainfall=4.30"

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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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Exist	Runoff Area=7,890 sf 39.29% Impervious Runoff Depth>1.80" Tc=15.0 min CN=76 Runoff=0.46 cfs 0.027 af
Subcatchment 2S: Developed	Runoff Area=6,080 sf 74.84% Impervious Runoff Depth>2.91" Tc=0.0 min CN=89 Runoff=0.83 cfs 0.034 af
Subcatchment 4S: Developed_North	Runoff Area=1,810 sf 52.49% Impervious Runoff Depth>2.12" Tc=4.0 min CN=80 Runoff=0.18 cfs 0.007 af
Pond 3P: Ponding	Peak Elev=673.19' Storage=665 cf Inflow=0.97 cfs 0.037 af Discarded=0.03 cfs 0.020 af Primary=0.41 cfs 0.011 af Outflow=0.45 cfs 0.031 af
Pond 5P: North	Peak Elev=673.66' Storage=56 cf Inflow=0.18 cfs 0.007 af Discarded=0.01 cfs 0.004 af Primary=0.16 cfs 0.003 af Outflow=0.17 cfs 0.007 af
Total Runoff Area = 0.362 ac Runoff Volume = 0.068 af Average Runoff Depth = 2.27"	
45.50% Pervious = 0.165 ac 54.50% Impervious = 0.197 ac	

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Type II 24-hr 10 yr Rainfall=4.30"

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Summary for Subcatchment 1S: Exist

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.027 af, Depth> 1.80"

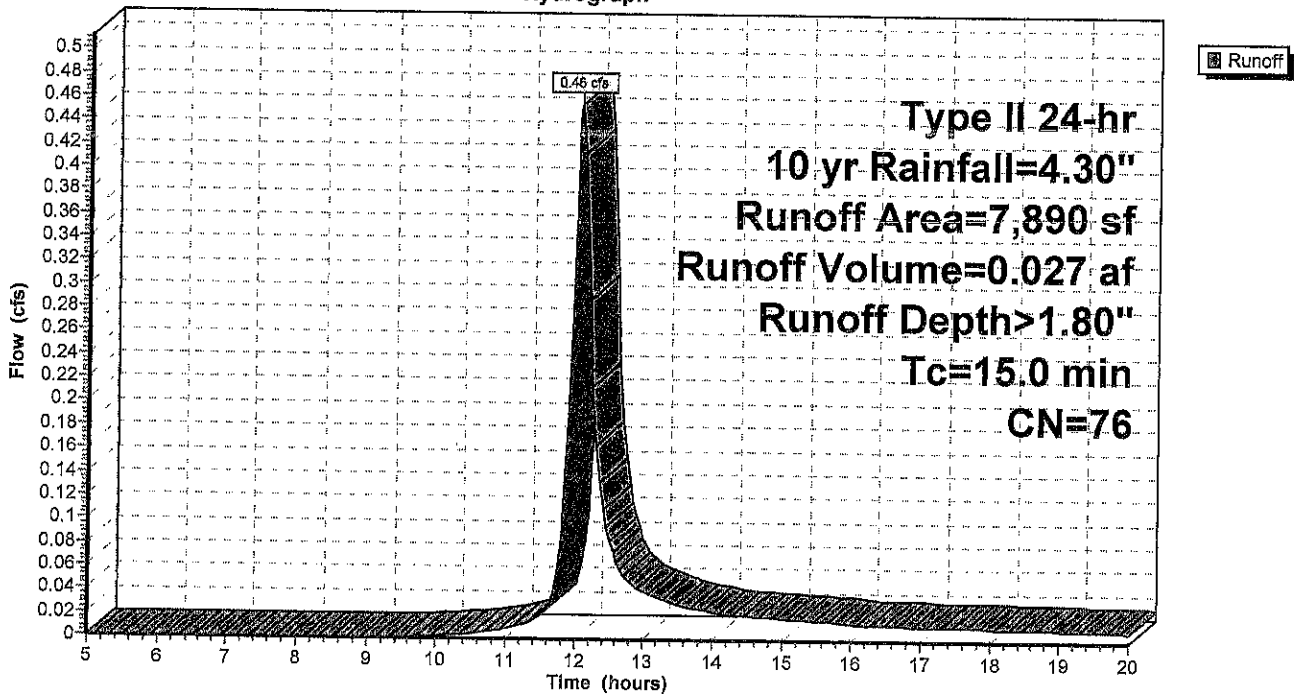
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 yr Rainfall=4.30"

Area (sf)	CN	Description
2,100	98	Roofs, HSG B
1,000	98	Paved parking, HSG B
4,790	61	>75% Grass cover, Good, HSG B
7,890	76	Weighted Average
4,790		60.71% Pervious Area
3,100		39.29% Impervious Area

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

Subcatchment 1S: Exist

Hydrograph



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Type II 24-hr 10 yr Rainfall=4.30"

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Summary for Subcatchment 2S: Developed

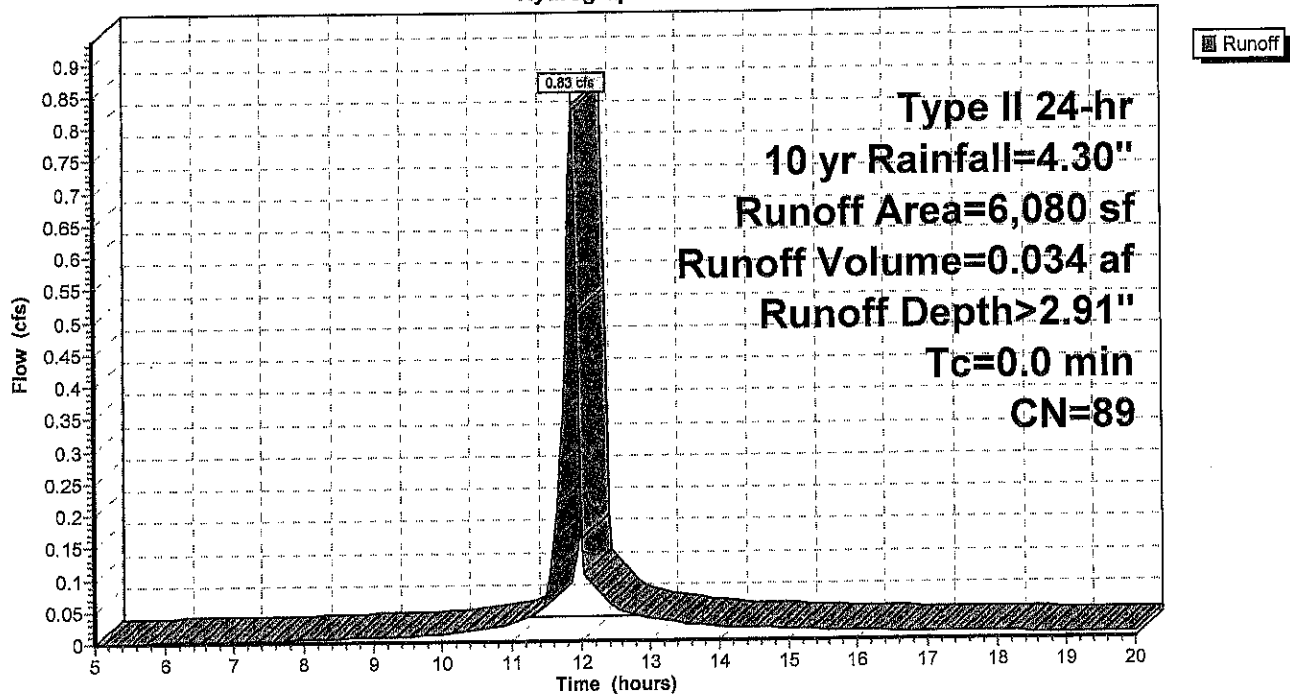
Runoff = 0.83 cfs @ 11.89 hrs, Volume= 0.034 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 yr Rainfall=4.30"

Area (sf)	CN	Description
1,000	98	Roofs, HSG B
3,350	98	Paved parking, HSG B
* 200	98	Unconnected pavement, Sidewalk
1,530	61	>75% Grass cover, Good, HSG B
6,080	89	Weighted Average
1,530		25.16% Pervious Area
4,550		74.84% Impervious Area
200		4.40% Unconnected

Subcatchment 2S: Developed

Hydrograph



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Type II 24-hr 10 yr Rainfall=4.30"

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Summary for Subcatchment 4S: Developed_North

Runoff = 0.18 cfs @ 11.95 hrs, Volume= 0.007 af, Depth> 2.12"

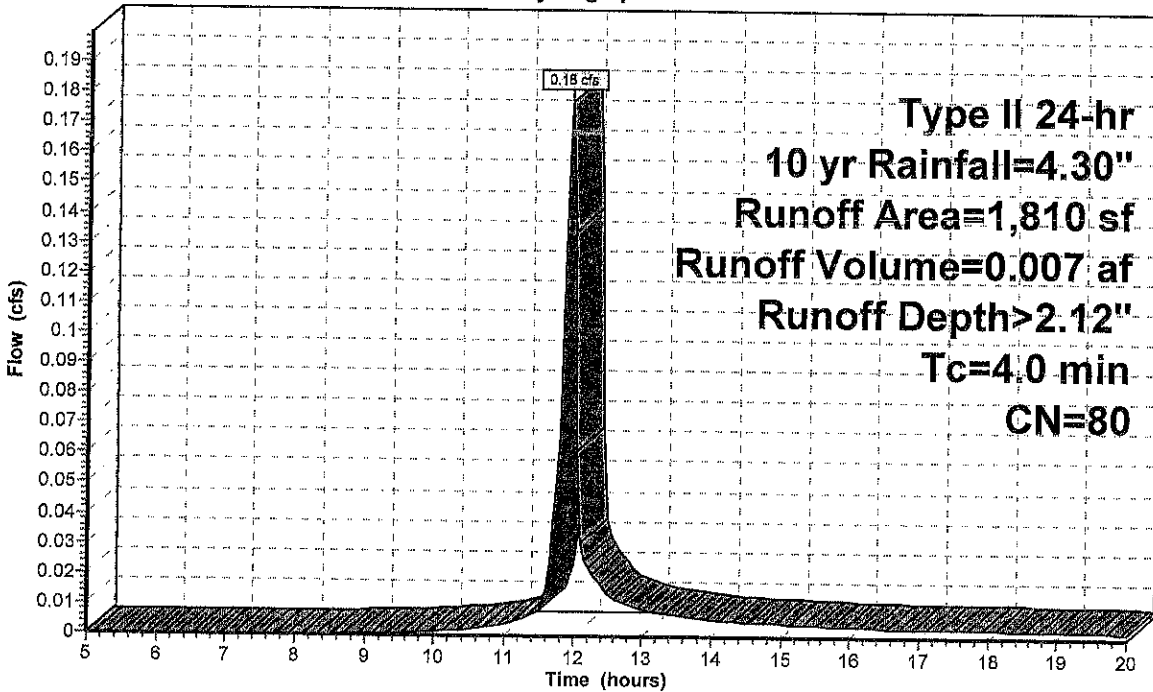
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 yr Rainfall=4.30"

Area (sf)	CN	Description
950	98	Unconnected roofs, HSG B
860	61	>75% Grass cover, Good, HSG B
1,810	80	Weighted Average
860		47.51% Pervious Area
950		52.49% Impervious Area
950		100.00% Unconnected

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

Subcatchment 4S: Developed_North

Hydrograph



Runoff

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Type II 24-hr 10 yr Rainfall=4.30"

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Summary for Pond 3P: Ponding

Inflow Area = 0.181 ac, 69.71% Impervious, Inflow Depth > 2.46" for 10 yr event
 Inflow = 0.97 cfs @ 11.90 hrs, Volume= 0.037 af
 Outflow = 0.45 cfs @ 11.98 hrs, Volume= 0.031 af, Atten= 54%, Lag= 5.2 min
 Discarded = 0.03 cfs @ 11.99 hrs, Volume= 0.020 af
 Primary = 0.41 cfs @ 11.98 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.19' @ 11.99 hrs Surf.Area= 793 sf Storage= 665 cf

Plug-Flow detention time= 117.0 min calculated for 0.031 af (84% of inflow)
 Center-of-Mass det. time= 71.5 min (825.1 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	1,445 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	275	0	0
673.00	685	480	480
674.00	1,245	965	1,445

Device	Routing	Invert	Outlet Devices
#1	Discarded	672.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.00'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	673.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 11.99 hrs HW=673.19' (Free Discharge)

↑ **1=Exfiltration** (Controls 0.03 cfs)

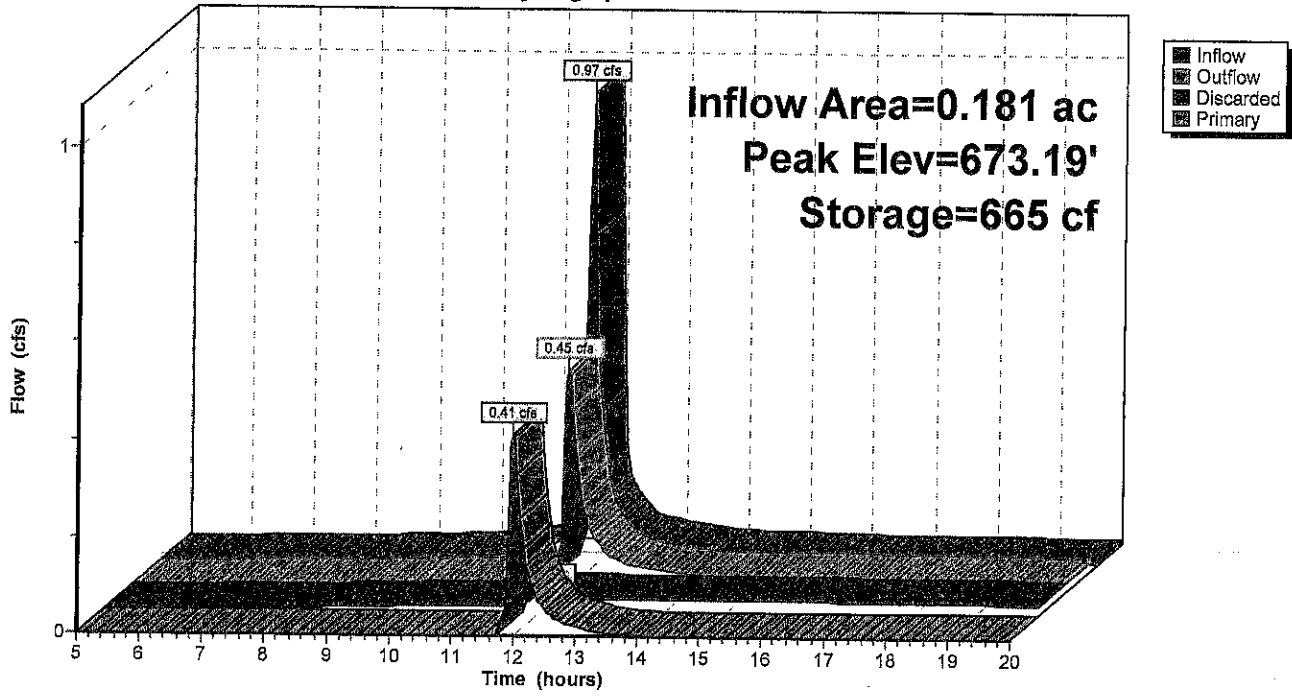
Primary OutFlow Max=0.41 cfs @ 11.98 hrs HW=673.19' (Free Discharge)

↑ **2=Orifice/Grate** (Orifice Controls 0.41 cfs @ 2.09 fps)

↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Ponding

Hydrograph



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Type II 24-hr 10 yr Rainfall=4.30"

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Summary for Pond 5P: North

Inflow Area = 0.042 ac, 52.49% Impervious, Inflow Depth > 2.12" for 10 yr event
 Inflow = 0.18 cfs @ 11.95 hrs, Volume= 0.007 af
 Outflow = 0.17 cfs @ 11.95 hrs, Volume= 0.007 af, Atten= 6%, Lag= 0.4 min
 Discarded = 0.01 cfs @ 11.95 hrs, Volume= 0.004 af
 Primary = 0.16 cfs @ 11.95 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.66' @ 11.95 hrs Surf.Area= 166 sf Storage= 56 cf

Plug-Flow detention time= 58.6 min calculated for 0.007 af (95% of inflow)
 Center-of-Mass det. time= 40.5 min (823.1 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1	673.00'	128 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
673.00	5	0	0
674.00	250	128	128

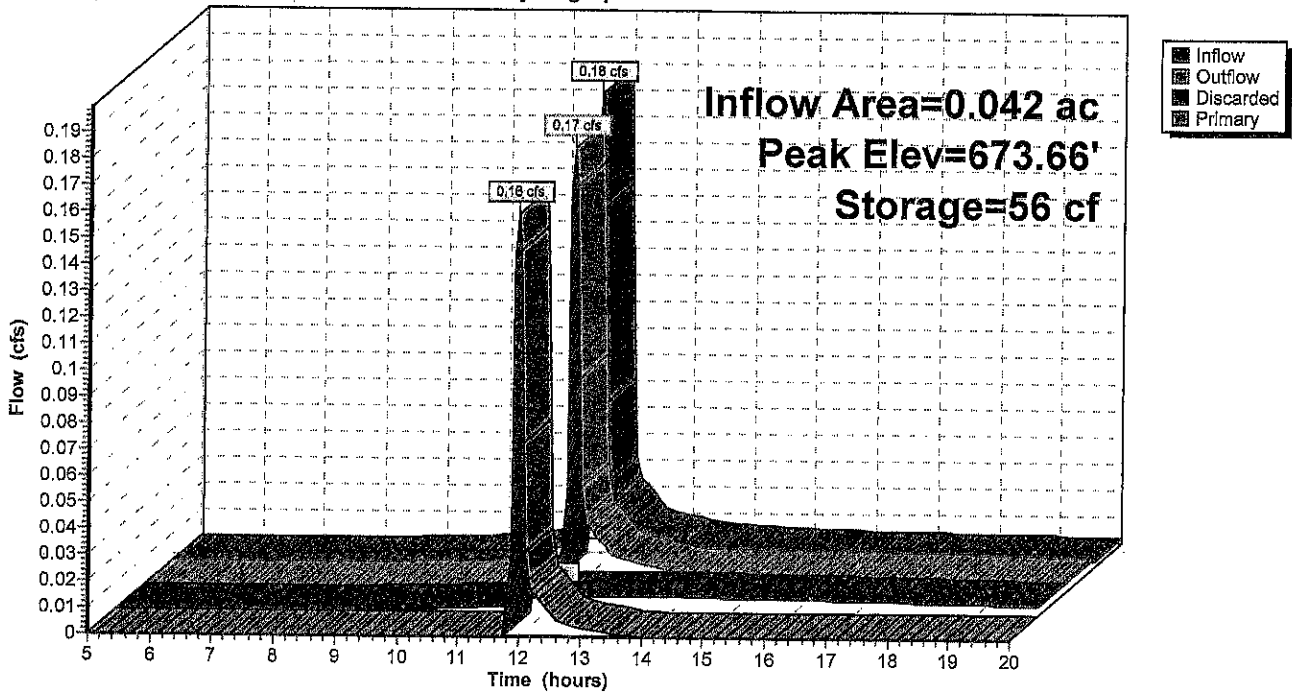
Device	Routing	Invert	Outlet Devices
#1	Discarded	673.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.60'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 11.95 hrs HW=673.66' (Free Discharge)
 ↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.16 cfs @ 11.95 hrs HW=673.66' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.16 cfs @ 0.56 fps)

Pond 5P: North

Hydrograph



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Type II 24-hr 25 yr Rainfall=4.90"

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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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Exist	Runoff Area=7,890 sf 39.29% Impervious Runoff Depth>2.25" Tc=15.0 min CN=76 Runoff=0.57 cfs 0.034 af
Subcatchment 2S: Developed	Runoff Area=6,080 sf 74.84% Impervious Runoff Depth>3.45" Tc=0.0 min CN=89 Runoff=0.98 cfs 0.040 af
Subcatchment 4S: Developed_North	Runoff Area=1,810 sf 52.49% Impervious Runoff Depth>2.60" Tc=4.0 min CN=80 Runoff=0.22 cfs 0.009 af
Pond 3P: Ponding	Peak Elev=673.29' Storage=761 cf Inflow=1.12 cfs 0.045 af Discarded=0.03 cfs 0.021 af Primary=0.51 cfs 0.017 af Outflow=0.54 cfs 0.038 af
Pond 5P: North	Peak Elev=673.67' Storage=58 cf Inflow=0.22 cfs 0.009 af Discarded=0.01 cfs 0.004 af Primary=0.21 cfs 0.004 af Outflow=0.21 cfs 0.009 af

Total Runoff Area = 0.362 ac Runoff Volume = 0.083 af Average Runoff Depth = 2.75"
45.50% Pervious = 0.165 ac 54.50% Impervious = 0.197 ac

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Type II 24-hr 25 yr Rainfall=4.90"

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Summary for Subcatchment 1S: Exist

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.034 af, Depth> 2.25"

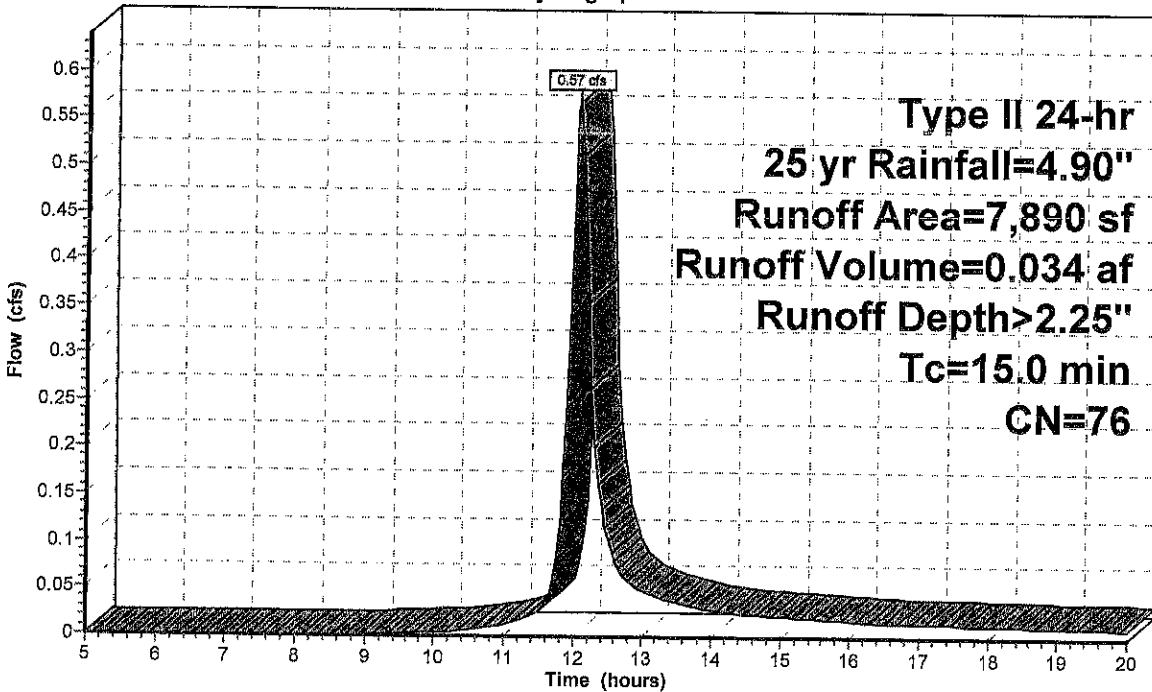
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 yr Rainfall=4.90"

Area (sf)	CN	Description
2,100	98	Roofs, HSG B
1,000	98	Paved parking, HSG B
4,790	61	>75% Grass cover, Good, HSG B
7,890	76	Weighted Average
4,790		60.71% Pervious Area
3,100		39.29% Impervious Area

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

Subcatchment 1S: Exist

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Type II 24-hr 25 yr Rainfall=4.90"

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Summary for Subcatchment 2S: Developed

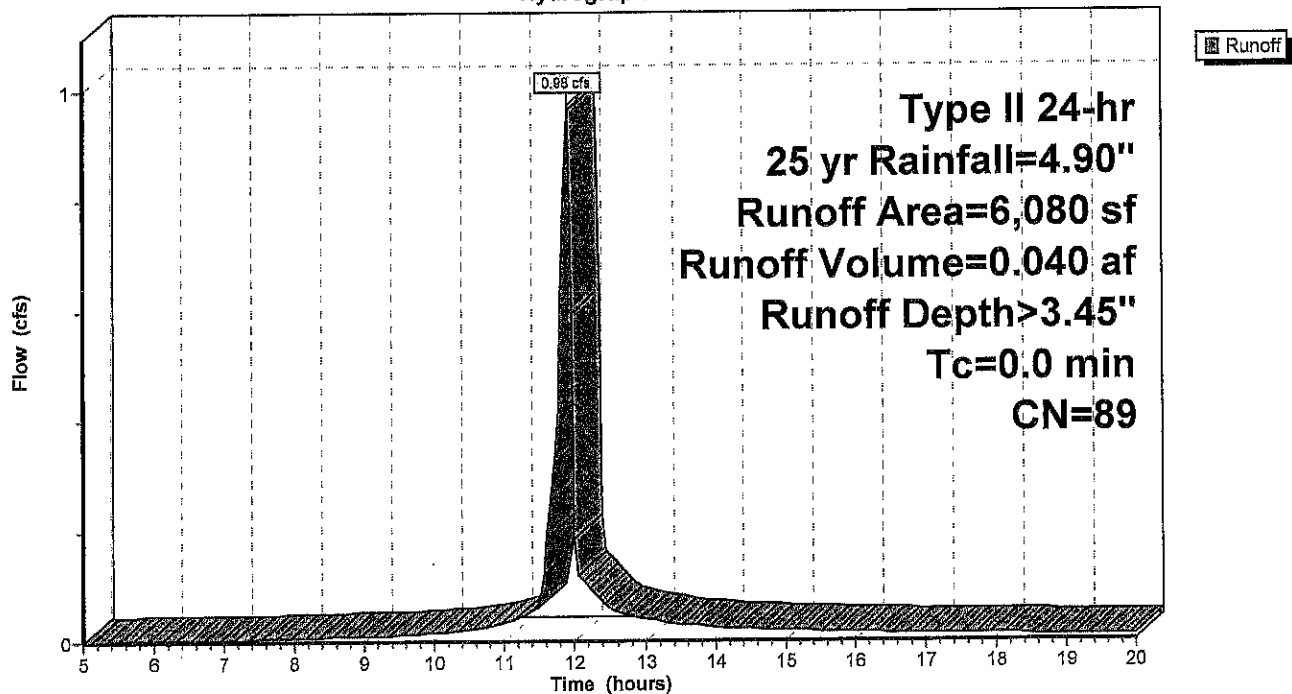
Runoff = 0.98 cfs @ 11.89 hrs, Volume= 0.040 af, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 yr Rainfall=4.90"

Area (sf)	CN	Description
1,000	98	Roofs, HSG B
3,350	98	Paved parking, HSG B
* 200	98	Unconnected pavement, Sidewalk
1,530	61	>75% Grass cover, Good, HSG B
6,080	89	Weighted Average
1,530		25.16% Pervious Area
4,550		74.84% Impervious Area
200		4.40% Unconnected

Subcatchment 2S: Developed

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Type II 24-hr 25 yr Rainfall=4.90"

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Summary for Subcatchment 4S: Developed_North

Runoff = 0.22 cfs @ 11.95 hrs, Volume= 0.009 af, Depth> 2.60"

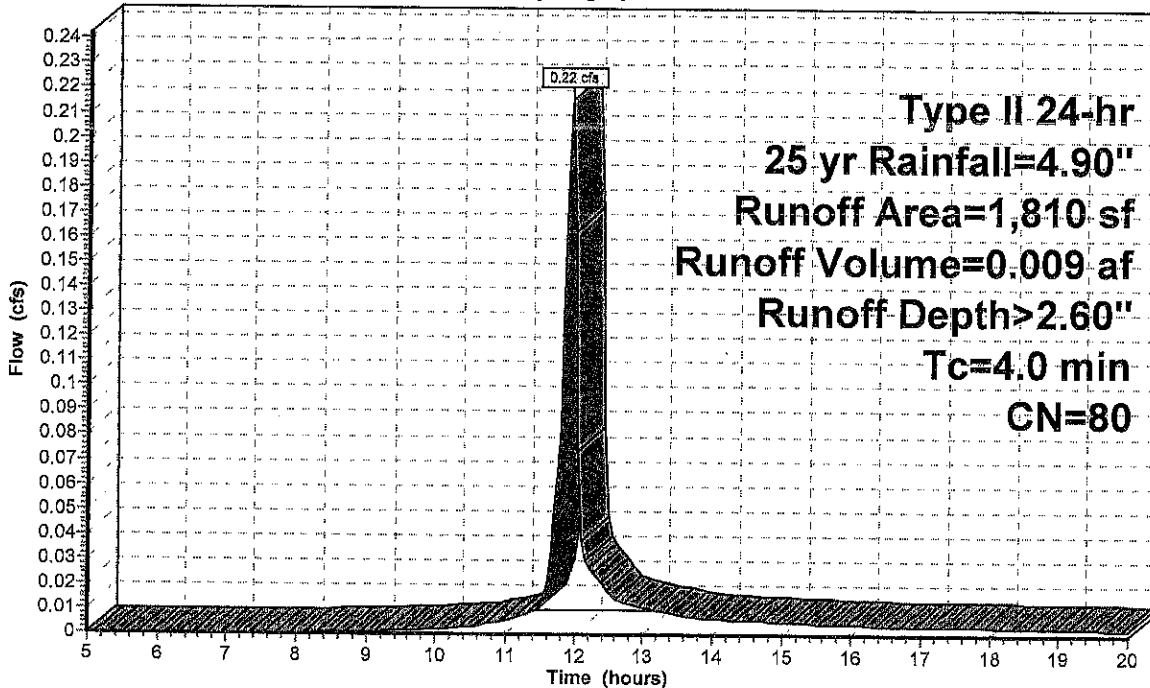
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 yr Rainfall=4.90"

Area (sf)	CN	Description
950	98	Unconnected roofs, HSG B
860	61	>75% Grass cover, Good, HSG B
1,810	80	Weighted Average
860		47.51% Pervious Area
950		52.49% Impervious Area
950		100.00% Unconnected

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

Subcatchment 4S: Developed_North

Hydrograph



Munson

Type II 24-hr 25 yr Rainfall=4.90"

Prepared by {enter your company name here}

Printed 8/25/2018

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Summary for Pond 3P: Ponding

Inflow Area = 0.181 ac, 69.71% Impervious, Inflow Depth > 2.95" for 25 yr event
 Inflow = 1.12 cfs @ 11.89 hrs, Volume= 0.045 af
 Outflow = 0.54 cfs @ 11.98 hrs, Volume= 0.038 af, Atten= 52%, Lag= 5.4 min
 Discarded = 0.03 cfs @ 11.98 hrs, Volume= 0.021 af
 Primary = 0.51 cfs @ 11.98 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.29' @ 11.98 hrs Surf.Area= 848 sf Storage= 761 cf

Plug-Flow detention time= 100.6 min calculated for 0.038 af (85% of inflow)
 Center-of-Mass det. time= 58.1 min (808.1 - 749.9)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	1,445 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	275	0	0
673.00	685	480	480
674.00	1,245	965	1,445

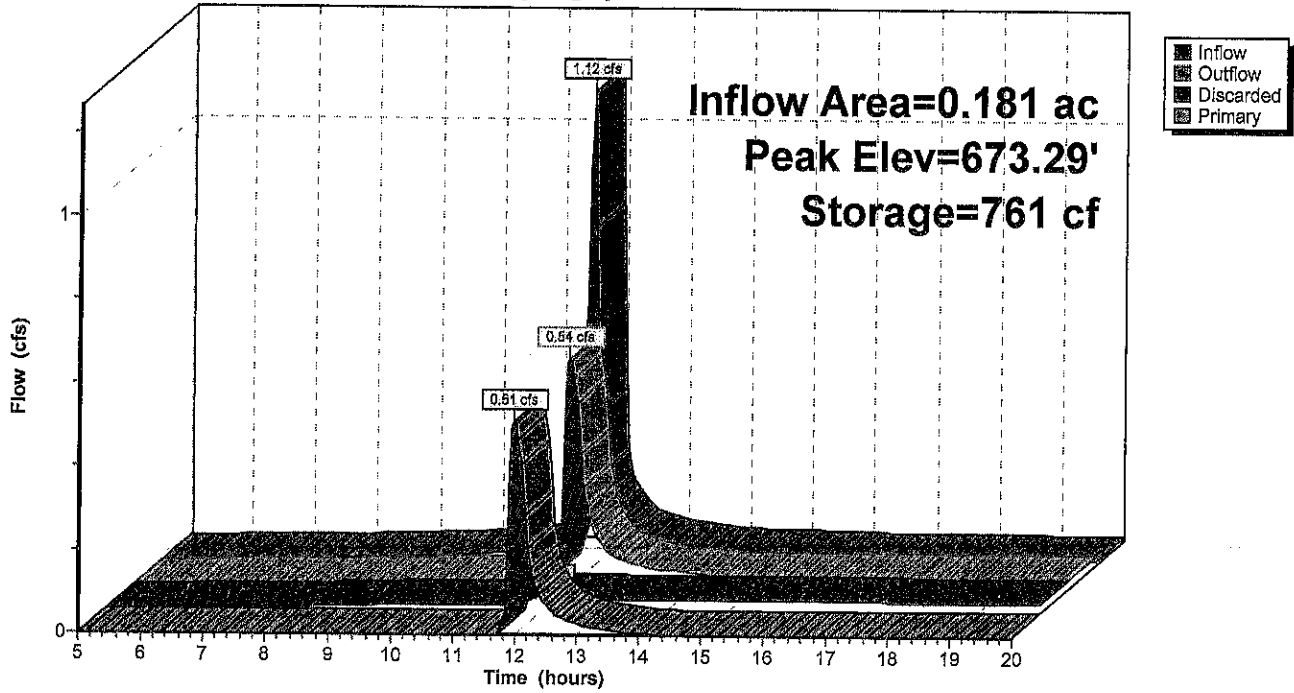
Device	Routing	Invert	Outlet Devices
#1	Discarded	672.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.00'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	673.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.03 cfs @ 11.98 hrs HW=673.29' (Free Discharge)
 ↑1=Exfiltration (Controls 0.03 cfs)

Primary OutFlow Max=0.50 cfs @ 11.98 hrs HW=673.29' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.50 cfs @ 2.57 fps)
 ↓3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Ponding

Hydrograph



Munson

Type II 24-hr 25 yr Rainfall=4.90"

Prepared by {enter your company name here}

Printed 8/25/2018

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Summary for Pond 5P: North

Inflow Area = 0.042 ac, 52.49% Impervious, Inflow Depth > 2.60" for 25 yr event
 Inflow = 0.22 cfs @ 11.95 hrs, Volume= 0.009 af
 Outflow = 0.21 cfs @ 11.96 hrs, Volume= 0.009 af, Atten= 2%, Lag= 0.6 min
 Discarded = 0.01 cfs @ 11.96 hrs, Volume= 0.004 af
 Primary = 0.21 cfs @ 11.96 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 673.67' @ 11.96 hrs Surf.Area= 169 sf Storage= 58 cf

Plug-Flow detention time= 52.1 min calculated for 0.009 af (94% of inflow)
 Center-of-Mass det. time= 32.7 min (810.8 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1	673.00'	128 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
673.00	5	0	0
674.00	250	128	128

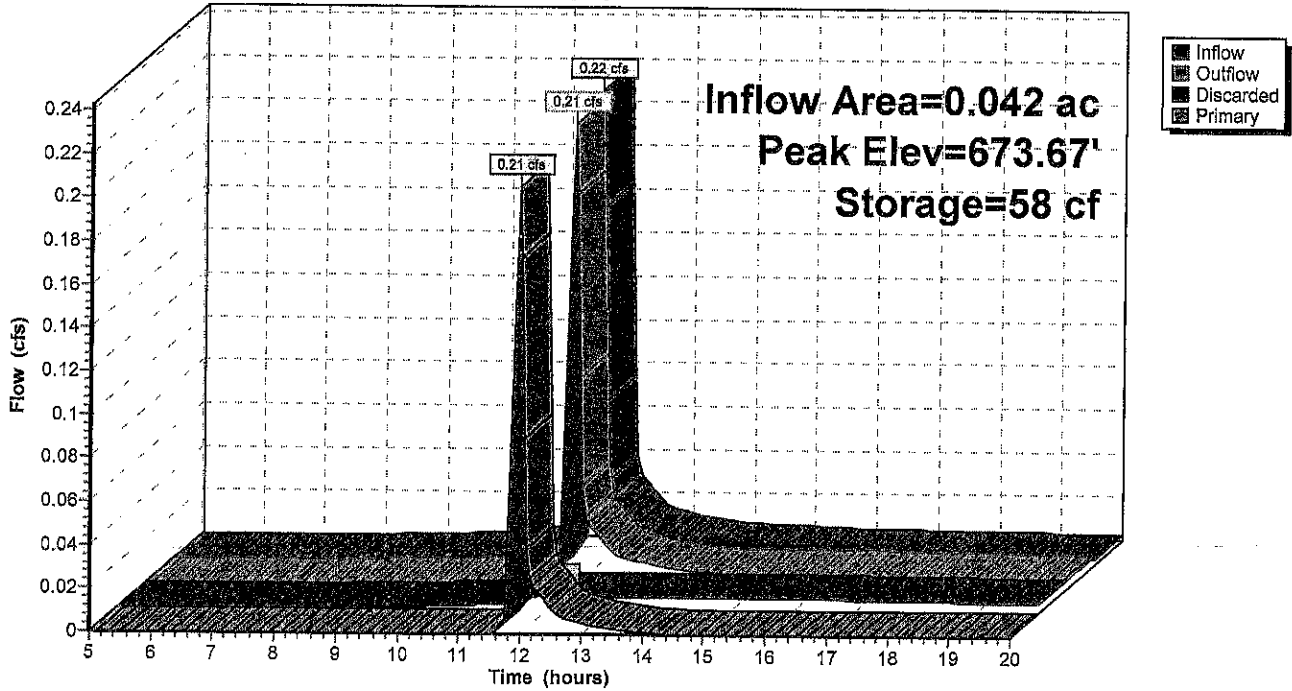
Device	Routing	Invert	Outlet Devices
#1	Discarded	673.00'	1.630 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 650.00'
#2	Primary	673.60'	5.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

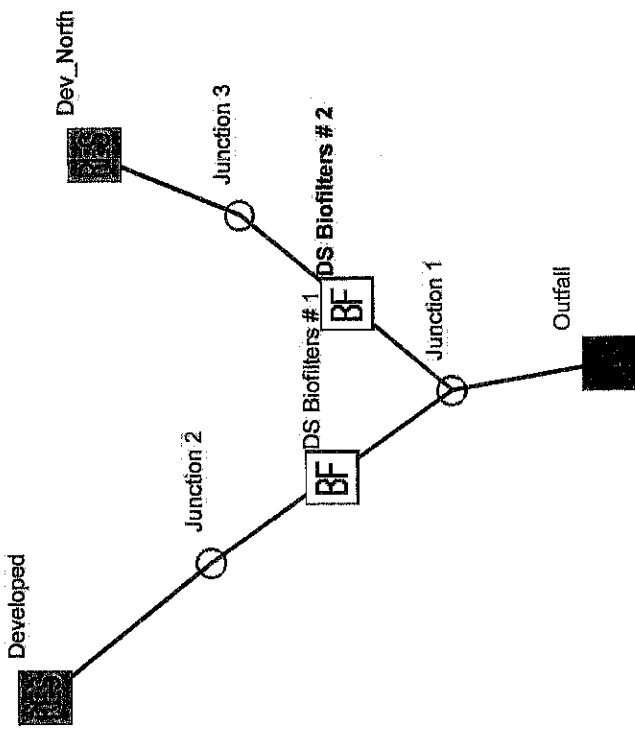
Discarded OutFlow Max=0.01 cfs @ 11.96 hrs HW=673.67' (Free Discharge)
 ↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.20 cfs @ 11.96 hrs HW=673.67' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.20 cfs @ 0.60 fps)

Pond 5P: North

Hydrograph





Data file name: \\hilby2\projects\505 11th st North lax\Munson.mdb
WinSLAMM Version 10.3.4
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\w10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 03/12/81 Study period ending date: 12/03/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-25-2018 Time: 11:40:31

Site information:

505 11th Street

LU# 1 - Residential: Developed Total area (ac): 0.139

- 1 - Roofs 1: 0.023 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
- 13 - Paved Parking 1: 0.077 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
- 31 - Sidewalks 1: 0.004 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
- 51 - Small Landscaped Areas 1: 0.035 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: Dev_North Total area (ac): 0.042

- 1 - Roofs 1: 0.022 ac. Pitched Disconnected Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
- 45 - Large Landscaped Areas 1: 0.020 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1

- 1. Top area (square feet) = 900
- 2. Bottom area (square feet) = 275
- 3. Depth (ft): 1.7
- 4. Biofilter width (ft) - for Cost Purposes Only: 10
- 5. Infiltration rate (in/hr) = 1.63
- 6. Random infiltration rate generation? No
- 7. Infiltration rate fraction (side): 1
- 8. Infiltration rate fraction (bottom): 1
- 9. Depth of biofilter that is rock filled (ft) 0
- 10. Porosity of rock filled volume = 0
- 11. Engineered soil infiltration rate: 0
- 12. Engineered soil depth (ft) = 0
- 13. Engineered soil porosity = 0
- 14. Percent solids reduction due to flow through engineered soil = 0
- 15. Biofilter peak to average flow ratio = 3.8
- 16. Number of biofiltration control devices = 1
- 17. Particle size distribution file: Not needed - calculated by program
- 18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

- 1. Weir crest length (ft): 10
- 2. Weir crest width (ft): 10
- 3. Height of datum to bottom of weir opening: 1.5

Outlet type: Vertical Stand Pipe

- 1. Stand pipe diameter (ft): 0.5
- 2. Stand pipe height above datum (ft): 1

Control Practice 2: Biofilter CP# 2 (DS) - DS Biofilters # 2

- 1. Top area (square feet) = 250
- 2. Bottom area (square feet) = 5
- 3. Depth (ft): 1
- 4. Biofilter width (ft) - for Cost Purposes Only: 10
- 5. Infiltration rate (in/hr) = 1.63
- 6. Random infiltration rate generation? No
- 7. Infiltration rate fraction (side): 1
- 8. Infiltration rate fraction (bottom): 1
- 9. Depth of biofilter that is rock filled (ft) 0
- 10. Porosity of rock filled volume = 0
- 11. Engineered soil infiltration rate: 0
- 12. Engineered soil depth (ft) = 0
- 13. Engineered soil porosity = 0
- 14. Percent solids reduction due to flow through engineered soil = 0
- 15. Biofilter peak to average flow ratio = 3.8
- 16. Number of biofiltration control devices = 1
- 17. Particle size distribution file: Not needed - calculated by program
- 18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

- 1. Weir crest length (ft): 5
- 2. Weir crest width (ft): 5
- 3. Height of datum to bottom of weir opening: 0.6

SLAMM for Windows Version 10.3.4
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Data file name: \\Hilby2\I\projects\505 11th st North\ax\Munson.mdb
 Data file description: 505 11th Street
 Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
 Particulate Solids Concentration file name: C:\WinSLAMM Files\10.1 WI_AVG01.pscx
 Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
 Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Corn Inst Indust Dec06.std
 Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Corn Inst Indust Dec06.std
 Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Corn Inst Indust Dec06.std
 Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
 Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
 Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
 Start of Winter Season: 12/02 End of Winter Season: 03/12
 Model Run Start Date: 03/12/81 Model Run End Date: 12/03/81
 Date of run: 08-25-2018 Time of run: 11:39:56
 Total Area Modeled (acres): 0.181
 Years in Model Run: 0.69

Total of all Land Uses without Controls:
 Outfall Total with Controls:
 Annualized Total After Outfall Controls:

Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
8434	-	104.1	54.82	-
0	100.00%	0	0	100.00%
0			0	

