
ADDENDUM #1
SITE ENGINEERING REPORT

Prepared For

863 Danbury Road
Wilton, CT

Prepared by
Redniss & Mead, Inc.
22 First Street
Stamford, CT
(203) 327-0500

Addendum Issued on
September 29, 2021

Report Previously Issued on
July 1, 2021



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ADDENDUM TABLE OF CONTENTS

Orientation 3

Drainage Narrative 4

APPENDICES

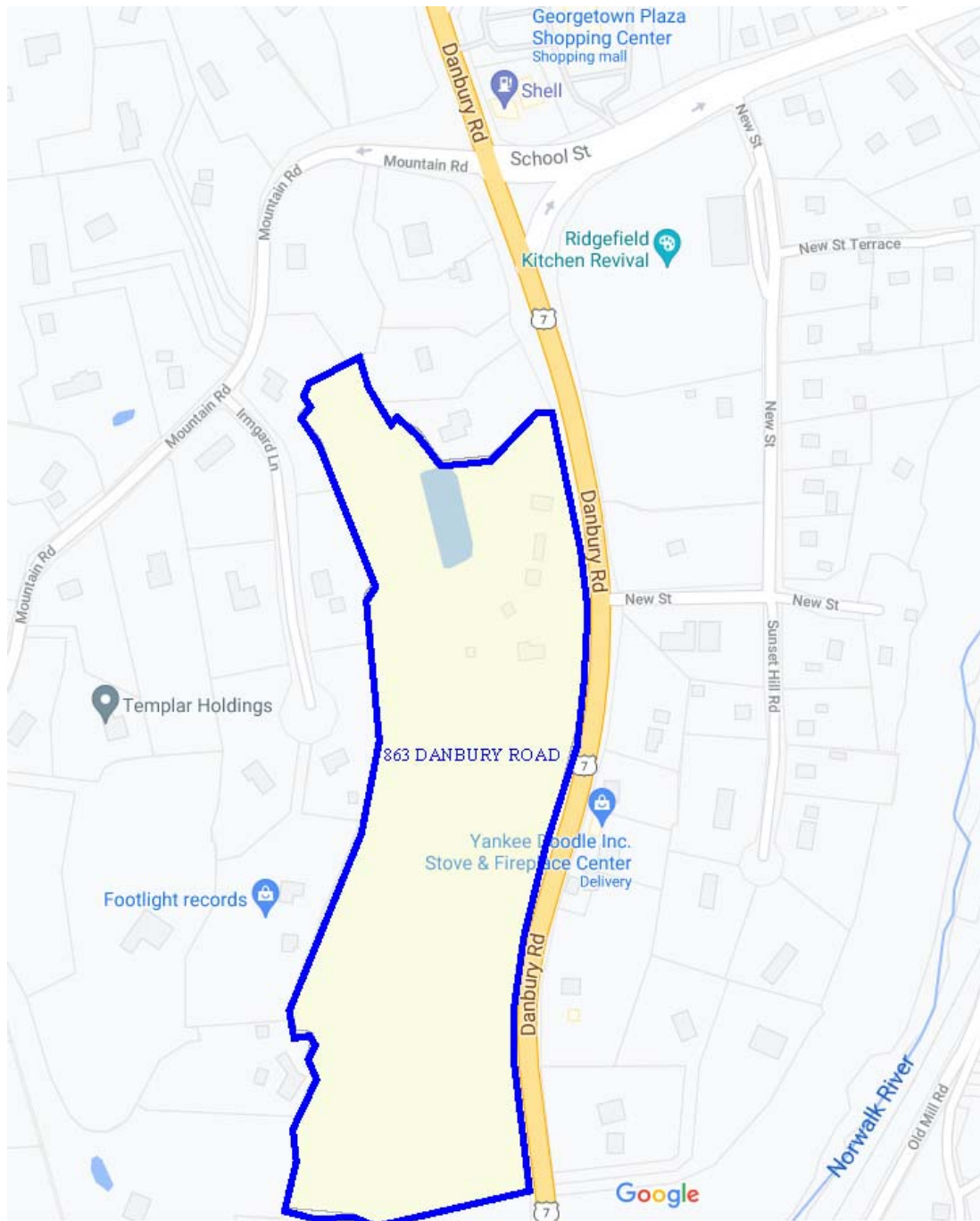
Exhibits App I

Existing and Proposed Overall Drainage Basin Maps

Hydrologic and Hydraulic Data App 2

Hydrologic Model (HydroCad)

Orientation



Drainage Summary

This drainage summary has been prepared as a supplement to the Site Engineering Report last issued July 1, 2021 to reflect changes made to the overall drainage basin exhibit and more specifically to include ponded storage that is realized on-site at 863 Danbury Road and within the West Basin of the study area. Refer to the appendices for the overall drainage basin exhibits and the hydrologic model.

West Basin Existing Conditions

In total, the west basin is $35.71 \pm$ acres ($7.56 \pm$ acres onsite area), of which $4.95 \pm$ acres is impervious coverage ($0.52 \pm$ acres onsite impervious coverage). Based upon town comments and review of the existing conditions, the west basin depicted within the hydrologic model is split into three sub-basins (W-1, W-2, and W-3) to account for ponding that occurs upstream of the existing 12" and 15" pipes.

Sub-basin W-1 consists of $28.95 \pm$ acres ($3.40 \pm$ acres onsite area) that is tributary to an on-site wetland/pond. Runoff from offsite areas generally sheet flow onto the subject property and eventually into the watercourse or into the town owned drainage infrastructure within Irmgard Lane and Mountain Road where it then piped directly to the head of the watercourse in the northwest corner of the site. The watercourse flows in a south/southeast direction toward the pond. The onsite runoff is tributary to the pond via overland sheet flow. The pond is metered via a headwall and 12" pipe.

The metered runoff from sub-basin W-1 discharges into an open watercourse/channel (within sub-basin W-2). Sub-basin W-2 consists of an additional $0.83 \pm$ acres ($0.65 \pm$ acres onsite area) of tributary area. Runoff is tributary to the watercourse via overland sheet flow. This section of watercourse is metered via an earthen berm and a 15" pipe that discharges to a downstream watercourse (within sub-basin W-3). Sub-basin W-3 consists of the remaining west basin area ($5.93 \pm$ acres ($3.51 \pm$ acres onsite)) which sheet flows directly into the downstream watercourse.

West Basin Proposed Conditions

In general, the proposed improvements are primarily kept to the eastern portion of the property (along Danbury Road), with the exception of gravel surfaces and the proposed septic system. Site constraints include steep slopes, watercourse and wetland limits, and shallow depths to ledge and/or groundwater. Considering these constraints, the proposed onsite storm system was designed with an emphasis on maintaining peak flow attenuation and providing water quality improvements via surface treatments where practicable. To that point, a system of porous asphalt and permeable pavers are proposed.

Within the west basin, tributary area increases by 0.05 acres. The total tributary area under proposed conditions is $35.76 \pm$ acres with $5.00 \pm$ acres of impervious coverage (0.57 acres of which is onsite).

Sub-basin W-1 consists of $28.91 \pm$ acres ($3.36 \pm$ acres onsite area) that is tributary to the existing on-site wetland/pond. The offsite runoff will continue to flow into the pond as it does under existing conditions. The existing headwall and a portion of the 12" outlet pipe will be replaced (to the same elevations) as part of the proposed project.

Sub-basin W-2 consists of 2.48± acres (1.47± acres onsite area) of tributary area. The increase in tributary area is primarily due to the expansion of the open watercourse located between the existing 12” pipe and 15” pipe. In addition, the overflow of porous basin P8 is routed to sub-basin W-2. Overflow of porous basins P6 and P7, as well as the remaining west basin area (sub-basin W-3) sheet flow directly into the downstream watercourse.

Below are tables comparing the existing and proposed water surface elevations within W-1 and W-2:

Pond 1 (Basin W-1)				Pond 2 (Basin W-2)			
Event	Ex. WSE	Pr. WSE	Δ	Event	Ex. WSE	Pr. WSE	Δ
2-Year	342.01	341.96	-0.05	2-Year	340.01	339.44	-0.57
10-Year	343.63	343.60	-0.03	10-Year	342.60	341.74	-0.86
25-Year	343.93	343.91	-0.02	25-Year	342.86	341.89	-0.97
100-Year	344.27	344.26	-0.01	100-Year	343.14	342.05	-1.09

Below are the revised peak rates of runoff for the 10 and 25-year storm events, as taken from the included Hydrocad model:

Storm Event (year)	East Basin			West Basin		
	Existing Conditions (cfs)	Proposed Conditions (cfs)	Reduction from Existing (%)	Existing Conditions (cfs)	Proposed Conditions (cfs)	Reduction from Existing (%)
10	47.28	46.66	-1.3	32.43	31.81	-1.9
25	67.69	67.07	-0.9	58.92	58.52	-0.7

Storm Event (year)	Overall Study Point		
	Existing Conditions (cfs)	Proposed Conditions (cfs)	Reduction from Existing (%)
10	68.33	63.74	-6.7
25	120.80	119.31	-1.2

Note, the revised model represents a net decrease in flow between existing and proposed conditions, therefore no changes were made to the proposed stormwater collection system. The design details and further calculations for the above-mentioned porous basins are located within the Site Plan package and original version of the Site Engineering Report.

Conclusion

The proposed storm water management system is designed to accommodate a “25-year” storm and provide water quality improvements. Pursuant to the proper implementation of the design plans, there will be no adverse impacts to adjacent or downstream properties or town/state facilities from the proposed development.



DRAINAGE BASIN SUMMARY TABLE		
BASIN	CN	SIZE (ac)
EAST BASIN	67.7	31.13
W-1	66.3	28.95
W-2	67.0	0.83
W-3	65.8	5.92

LEGEND

DRAINAGE BASIN BOUNDARY

SOIL CLASSIFICATION BOUNDARY

EXISTING OVERALL DRAINAGE BASIN EXHIBIT

863 DANBURY ROAD

WILTON, CT



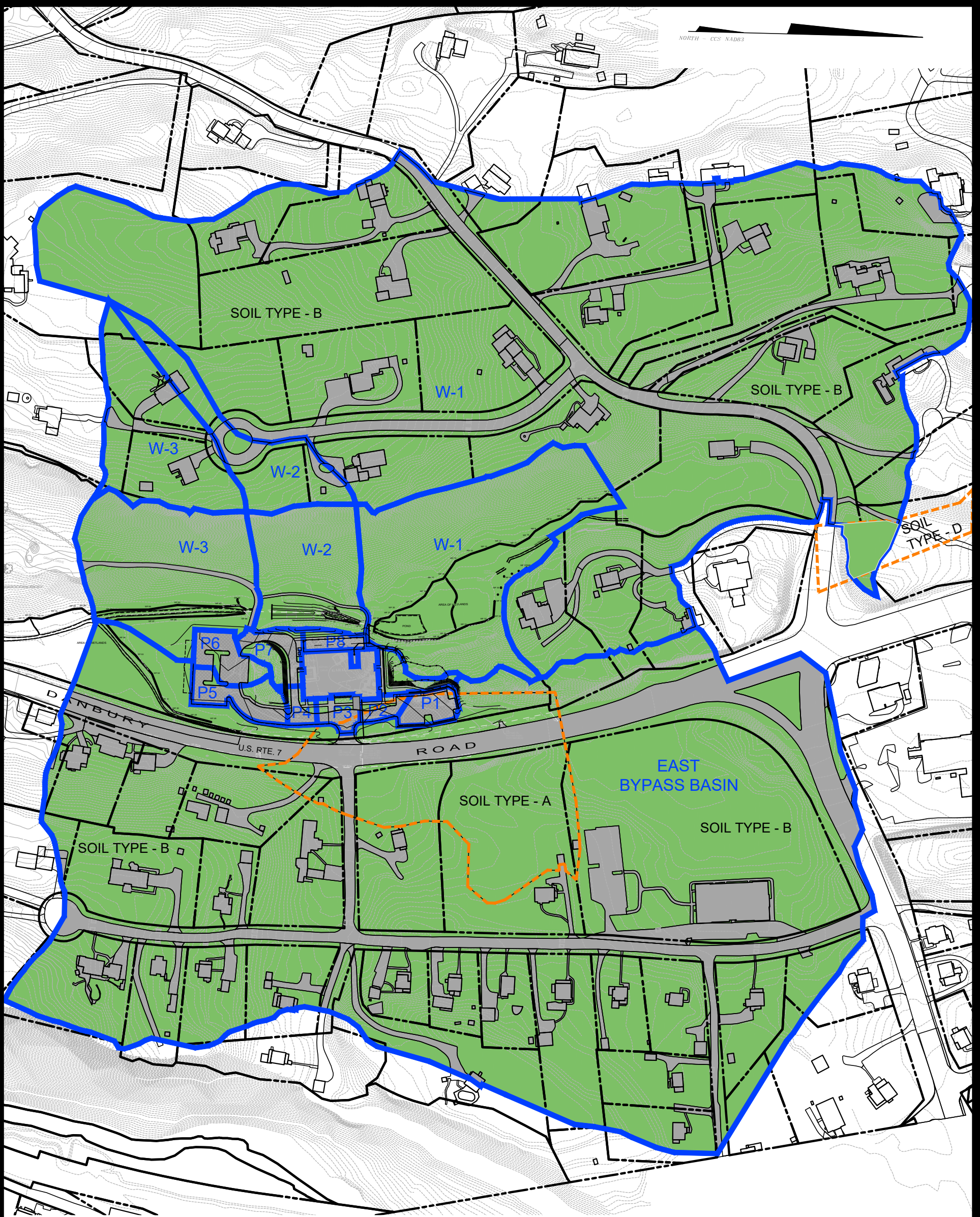
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COMM. NO.:
10258

DATE:
09/23/2021
SCALE:
1" = 200'



DRAINAGE BASIN SUMMARY TABLE		
BASIN	CN	SIZE (ac)
EAST BYPASS BASIN	67.7	30.28
POROUS 1	83.7	0.17
POROUS 2	80.9	0.10
POROUS 3	83.6	0.13
POROUS 4	79.5	0.10
POROUS 5	81.1	0.30
POROUS 6	82.2	0.26
POROUS 7	73.9	0.26
POROUS 8	83.4	0.11
W-1	66.3	28.91
W-2	64.2	2.48
W-3	64.4	3.73

LEGEND

DRAINAGE BASIN BOUNDARY

SOIL CLASSIFICATION BOUNDARY

PROPOSED OVERALL DRAINAGE BASIN EXHIBIT

863 DANBURY ROAD

WILTON, CT



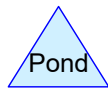
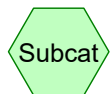
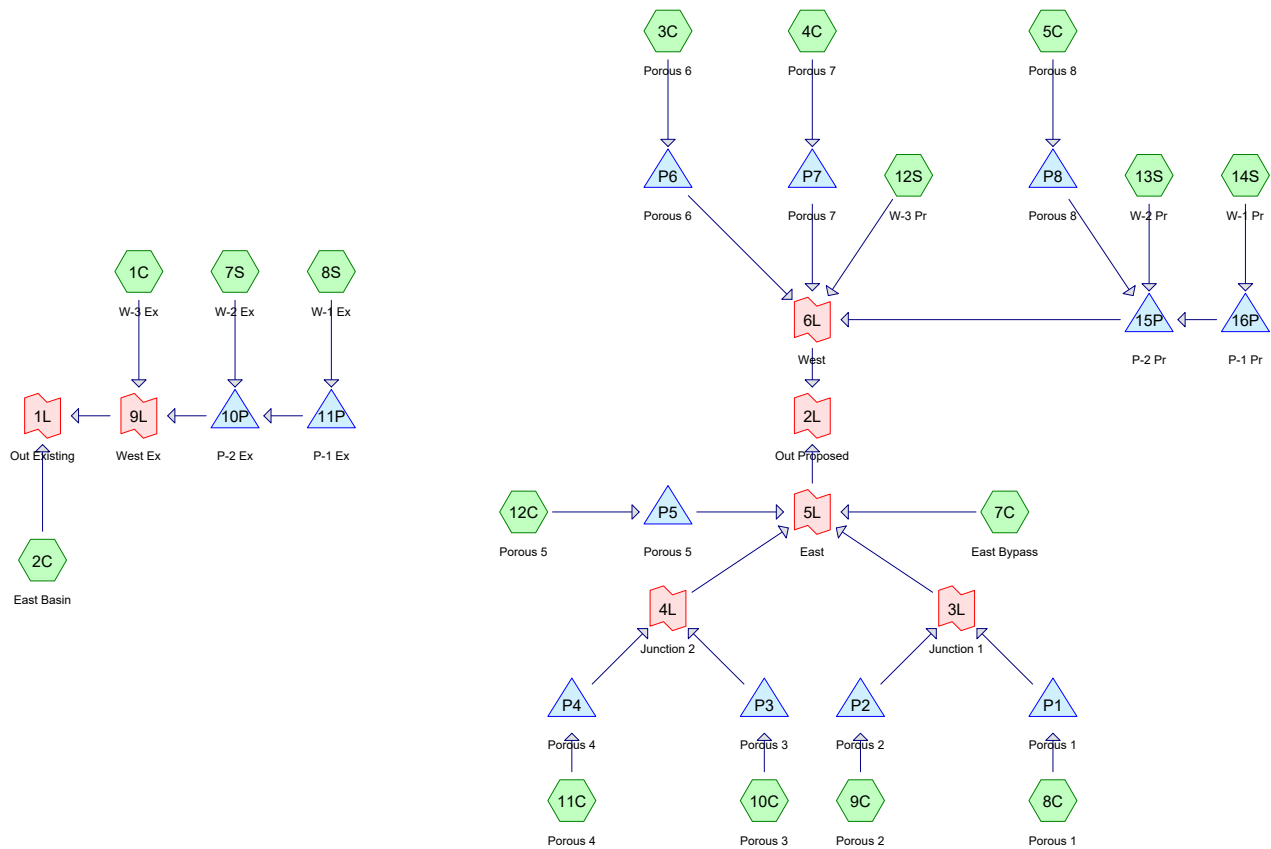
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1" = 200'



Routing Diagram for 10258 hydrocad 2 (2021-09-13)
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10258 hydrocad 2 (2021-09-13)

Prepared by {enter your company name here}

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Page 2

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.57	2
2	10-Year	Type III 24-hr		Default	24.00	1	5.48	2
3	25-Year	Type III 24-hr		Default	24.00	1	6.66	2
4	100-Year	Type III 24-hr		Default	24.00	1	8.49	2

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1C: W-3 Ex	Runoff Area=5.922 ac 13.05% Impervious Runoff Depth>0.83" Flow Length=331' Tc=8.7 min CN=65.8 Runoff=4.48 cfs 0.408 af
Subcatchment2C: East Basin	Runoff Area=31.131 ac 23.71% Impervious Runoff Depth>0.92" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=18.15 cfs 2.384 af
Subcatchment3C: Porous 6	Runoff Area=11,337 sf 2.38% Impervious Runoff Depth>1.85" Tc=5.0 min CN=82.2 Runoff=0.59 cfs 0.040 af
Subcatchment4C: Porous 7	Runoff Area=11,373 sf 7.35% Impervious Runoff Depth>1.28" Tc=5.0 min CN=73.9 Runoff=0.39 cfs 0.028 af
Subcatchment5C: Porous 8	Runoff Area=4,967 sf 15.40% Impervious Runoff Depth>1.95" Tc=5.0 min CN=83.4 Runoff=0.27 cfs 0.019 af
Subcatchment7C: East Bypass	Runoff Area=30.282 ac 23.78% Impervious Runoff Depth>0.92" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=17.66 cfs 2.319 af
Subcatchment7S: W-2 Ex	Runoff Area=0.832 ac 16.11% Impervious Runoff Depth>0.89" Flow Length=322' Tc=7.1 min CN=67.0 Runoff=0.73 cfs 0.062 af
Subcatchment8C: Porous 1	Runoff Area=7,524 sf 9.04% Impervious Runoff Depth>1.97" Tc=5.0 min CN=83.7 Runoff=0.41 cfs 0.028 af
Subcatchment8S: W-1 Ex	Runoff Area=28.954 ac 14.00% Impervious Runoff Depth>0.85" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=15.11 cfs 2.043 af
Subcatchment9C: Porous 2	Runoff Area=4,365 sf 17.18% Impervious Runoff Depth>1.76" Tc=5.0 min CN=80.9 Runoff=0.21 cfs 0.015 af
Subcatchment10C: Porous 3	Runoff Area=5,707 sf 21.55% Impervious Runoff Depth>1.96" Tc=5.0 min CN=83.6 Runoff=0.31 cfs 0.021 af
Subcatchment11C: Porous 4	Runoff Area=4,406 sf 8.08% Impervious Runoff Depth>1.65" Tc=5.0 min CN=79.5 Runoff=0.20 cfs 0.014 af
Subcatchment12C: Porous 5	Runoff Area=13,103 sf 6.53% Impervious Runoff Depth>1.77" Tc=5.0 min CN=81.1 Runoff=0.65 cfs 0.044 af
Subcatchment12S: W-3 Pr	Runoff Area=3.733 ac 9.24% Impervious Runoff Depth>0.76" Flow Length=331' Tc=8.7 min CN=64.4 Runoff=2.50 cfs 0.236 af
Subcatchment13S: W-2 Pr	Runoff Area=2.477 ac 8.56% Impervious Runoff Depth>0.75" Flow Length=322' Tc=7.1 min CN=64.2 Runoff=1.73 cfs 0.155 af
Subcatchment14S: W-1 Pr	Runoff Area=28.914 ac 14.05% Impervious Runoff Depth>0.85" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=15.09 cfs 2.041 af

Pond 10P: P-2 Ex	Peak Elev=340.01' Storage=1,828 cf Inflow=5.48 cfs 2.081 af Outflow=5.43 cfs 2.077 af
Pond 11P: P-1 Ex	Peak Elev=342.01' Storage=21,360 cf Inflow=15.11 cfs 2.043 af Outflow=5.35 cfs 2.020 af
Pond 15P: P-2 Pr	Peak Elev=339.44' Storage=4,377 cf Inflow=6.16 cfs 2.185 af Outflow=6.01 cfs 2.170 af
Pond 16P: P-1 Pr	Peak Elev=341.96' Storage=20,684 cf Inflow=15.09 cfs 2.041 af Outflow=5.82 cfs 2.017 af
Pond P1: Porous 1	Peak Elev=344.73' Storage=1,034 cf Inflow=0.41 cfs 0.028 af Outflow=0.01 cfs 0.005 af
Pond P2: Porous 2	Peak Elev=344.25' Storage=639 cf Inflow=0.21 cfs 0.015 af Outflow=0.00 cfs 0.000 af
Pond P3: Porous 3	Peak Elev=343.94' Storage=933 cf Inflow=0.31 cfs 0.021 af Outflow=0.00 cfs 0.000 af
Pond P4: Porous 4	Peak Elev=344.93' Storage=607 cf Inflow=0.20 cfs 0.014 af Outflow=0.00 cfs 0.000 af
Pond P5: Porous 5	Peak Elev=343.91' Storage=922 cf Inflow=0.65 cfs 0.044 af Outflow=0.22 cfs 0.023 af
Pond P6: Porous 6	Peak Elev=343.00' Storage=1,713 cf Inflow=0.59 cfs 0.040 af Outflow=0.01 cfs 0.001 af
Pond P7: Porous 7	Peak Elev=342.17' Storage=456 cf Inflow=0.39 cfs 0.028 af Outflow=0.17 cfs 0.018 af
Pond P8: Porous 8	Peak Elev=345.17' Storage=333 cf Inflow=0.27 cfs 0.019 af Outflow=0.09 cfs 0.014 af
Link 1L: Out Existing	Inflow=24.82 cfs 4.869 af Primary=24.82 cfs 4.869 af
Link 2L: Out Proposed	Inflow=23.42 cfs 4.772 af Primary=23.42 cfs 4.772 af
Link 3L: Junction 1	Inflow=0.01 cfs 0.005 af Primary=0.01 cfs 0.005 af
Link 4L: Junction 2	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af
Link 5L: East	Inflow=17.88 cfs 2.348 af Primary=17.88 cfs 2.348 af
Link 6L: West	Inflow=6.42 cfs 2.424 af Primary=6.42 cfs 2.424 af

10258 hydrocad 2 (2021-09-13)

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Type III 24-hr 2-Year Rainfall=3.57"

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Page 5

Link 9L: West Ex

Inflow=6.68 cfs 2.485 af

Primary=6.68 cfs 2.485 af

Total Runoff Area = 133.686 ac Runoff Volume = 9.857 af Average Runoff Depth = 0.88"
81.83% Pervious = 109.392 ac 18.17% Impervious = 24.294 ac

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1C: W-3 Ex	Runoff Area=5.922 ac 13.05% Impervious Runoff Depth>2.04" Flow Length=331' Tc=8.7 min CN=65.8 Runoff=12.52 cfs 1.008 af
Subcatchment2C: East Basin	Runoff Area=31.131 ac 23.71% Impervious Runoff Depth>2.19" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=47.28 cfs 5.680 af
Subcatchment3C: Porous 6	Runoff Area=11,337 sf 2.38% Impervious Runoff Depth>3.53" Tc=5.0 min CN=82.2 Runoff=1.11 cfs 0.077 af
Subcatchment4C: Porous 7	Runoff Area=11,373 sf 7.35% Impervious Runoff Depth>2.74" Tc=5.0 min CN=73.9 Runoff=0.87 cfs 0.060 af
Subcatchment5C: Porous 8	Runoff Area=4,967 sf 15.40% Impervious Runoff Depth>3.65" Tc=5.0 min CN=83.4 Runoff=0.50 cfs 0.035 af
Subcatchment7C: East Bypass	Runoff Area=30.282 ac 23.78% Impervious Runoff Depth>2.19" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=45.99 cfs 5.525 af
Subcatchment7S: W-2 Ex	Runoff Area=0.832 ac 16.11% Impervious Runoff Depth>2.14" Flow Length=322' Tc=7.1 min CN=67.0 Runoff=1.96 cfs 0.148 af
Subcatchment8C: Porous 1	Runoff Area=7,524 sf 9.04% Impervious Runoff Depth>3.68" Tc=5.0 min CN=83.7 Runoff=0.76 cfs 0.053 af
Subcatchment8S: W-1 Ex	Runoff Area=28.954 ac 14.00% Impervious Runoff Depth>2.07" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=41.13 cfs 5.002 af
Subcatchment9C: Porous 2	Runoff Area=4,365 sf 17.18% Impervious Runoff Depth>3.40" Tc=5.0 min CN=80.9 Runoff=0.41 cfs 0.028 af
Subcatchment10C: Porous 3	Runoff Area=5,707 sf 21.55% Impervious Runoff Depth>3.67" Tc=5.0 min CN=83.6 Runoff=0.58 cfs 0.040 af
Subcatchment11C: Porous 4	Runoff Area=4,406 sf 8.08% Impervious Runoff Depth>3.26" Tc=5.0 min CN=79.5 Runoff=0.40 cfs 0.028 af
Subcatchment12C: Porous 5	Runoff Area=13,103 sf 6.53% Impervious Runoff Depth>3.42" Tc=5.0 min CN=81.1 Runoff=1.24 cfs 0.086 af
Subcatchment12S: W-3 Pr	Runoff Area=3.733 ac 9.24% Impervious Runoff Depth>1.93" Flow Length=331' Tc=8.7 min CN=64.4 Runoff=7.38 cfs 0.600 af
Subcatchment13S: W-2 Pr	Runoff Area=2.477 ac 8.56% Impervious Runoff Depth>1.91" Flow Length=322' Tc=7.1 min CN=64.2 Runoff=5.13 cfs 0.395 af
Subcatchment14S: W-1 Pr	Runoff Area=28.914 ac 14.05% Impervious Runoff Depth>2.07" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=41.07 cfs 4.995 af

Pond 10P: P-2 Ex	Peak Elev=342.60' Storage=6,373 cf Inflow=29.96 cfs 5.115 af Outflow=29.90 cfs 5.109 af
Pond 11P: P-1 Ex	Peak Elev=343.63' Storage=50,887 cf Inflow=41.13 cfs 5.002 af Outflow=29.61 cfs 4.967 af
Pond 15P: P-2 Pr	Peak Elev=341.74' Storage=15,939 cf Inflow=30.34 cfs 5.385 af Outflow=30.05 cfs 5.363 af
Pond 16P: P-1 Pr	Peak Elev=343.60' Storage=50,366 cf Inflow=41.07 cfs 4.995 af Outflow=29.26 cfs 4.960 af
Pond P1: Porous 1	Peak Elev=344.82' Storage=1,103 cf Inflow=0.76 cfs 0.053 af Outflow=0.30 cfs 0.029 af
Pond P2: Porous 2	Peak Elev=344.35' Storage=673 cf Inflow=0.41 cfs 0.028 af Outflow=0.10 cfs 0.013 af
Pond P3: Porous 3	Peak Elev=344.56' Storage=1,617 cf Inflow=0.58 cfs 0.040 af Outflow=0.01 cfs 0.003 af
Pond P4: Porous 4	Peak Elev=345.05' Storage=647 cf Inflow=0.40 cfs 0.028 af Outflow=0.09 cfs 0.013 af
Pond P5: Porous 5	Peak Elev=343.93' Storage=939 cf Inflow=1.24 cfs 0.086 af Outflow=1.26 cfs 0.065 af
Pond P6: Porous 6	Peak Elev=343.02' Storage=1,734 cf Inflow=1.11 cfs 0.077 af Outflow=0.38 cfs 0.037 af
Pond P7: Porous 7	Peak Elev=342.24' Storage=470 cf Inflow=0.87 cfs 0.060 af Outflow=0.87 cfs 0.049 af
Pond P8: Porous 8	Peak Elev=345.34' Storage=483 cf Inflow=0.50 cfs 0.035 af Outflow=0.29 cfs 0.030 af
Link 1L: Out Existing	Inflow=68.33 cfs 11.796 af Primary=68.33 cfs 11.796 af
Link 2L: Out Proposed	Inflow=63.74 cfs 11.697 af Primary=63.74 cfs 11.697 af
Link 3L: Junction 1	Inflow=0.31 cfs 0.043 af Primary=0.31 cfs 0.043 af
Link 4L: Junction 2	Inflow=0.09 cfs 0.016 af Primary=0.09 cfs 0.016 af
Link 5L: East	Inflow=46.66 cfs 5.648 af Primary=46.66 cfs 5.648 af
Link 6L: West	Inflow=31.81 cfs 6.050 af Primary=31.81 cfs 6.050 af

10258 hydrocad 2 (2021-09-13)

Type III 24-hr 10-Year Rainfall=5.48"

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Page 71

Link 9L: West Ex

Inflow=32.43 cfs 6.116 af

Primary=32.43 cfs 6.116 af

Total Runoff Area = 133.686 ac Runoff Volume = 23.758 af Average Runoff Depth = 2.13"
81.83% Pervious = 109.392 ac 18.17% Impervious = 24.294 ac

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1C: W-3 Ex	Runoff Area=5.922 ac 13.05% Impervious Runoff Depth>2.91" Flow Length=331' Tc=8.7 min CN=65.8 Runoff=18.24 cfs 1.438 af
Subcatchment2C: East Basin	Runoff Area=31.131 ac 23.71% Impervious Runoff Depth>3.09" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=67.69 cfs 8.014 af
Subcatchment3C: Porous 6	Runoff Area=11,337 sf 2.38% Impervious Runoff Depth>4.62" Tc=5.0 min CN=82.2 Runoff=1.44 cfs 0.100 af
Subcatchment4C: Porous 7	Runoff Area=11,373 sf 7.35% Impervious Runoff Depth>3.73" Tc=5.0 min CN=73.9 Runoff=1.18 cfs 0.081 af
Subcatchment5C: Porous 8	Runoff Area=4,967 sf 15.40% Impervious Runoff Depth>4.75" Tc=5.0 min CN=83.4 Runoff=0.64 cfs 0.045 af
Subcatchment7C: East Bypass	Runoff Area=30.282 ac 23.78% Impervious Runoff Depth>3.09" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=65.84 cfs 7.796 af
Subcatchment7S: W-2 Ex	Runoff Area=0.832 ac 16.11% Impervious Runoff Depth>3.03" Flow Length=322' Tc=7.1 min CN=67.0 Runoff=2.83 cfs 0.210 af
Subcatchment8C: Porous 1	Runoff Area=7,524 sf 9.04% Impervious Runoff Depth>4.78" Tc=5.0 min CN=83.7 Runoff=0.98 cfs 0.069 af
Subcatchment8S: W-1 Ex	Runoff Area=28.954 ac 14.00% Impervious Runoff Depth>2.95" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=59.58 cfs 7.121 af
Subcatchment9C: Porous 2	Runoff Area=4,365 sf 17.18% Impervious Runoff Depth>4.48" Tc=5.0 min CN=80.9 Runoff=0.54 cfs 0.037 af
Subcatchment10C: Porous 3	Runoff Area=5,707 sf 21.55% Impervious Runoff Depth>4.77" Tc=5.0 min CN=83.6 Runoff=0.74 cfs 0.052 af
Subcatchment11C: Porous 4	Runoff Area=4,406 sf 8.08% Impervious Runoff Depth>4.32" Tc=5.0 min CN=79.5 Runoff=0.53 cfs 0.036 af
Subcatchment12C: Porous 5	Runoff Area=13,103 sf 6.53% Impervious Runoff Depth>4.50" Tc=5.0 min CN=81.1 Runoff=1.62 cfs 0.113 af
Subcatchment12S: W-3 Pr	Runoff Area=3.733 ac 9.24% Impervious Runoff Depth>2.78" Flow Length=331' Tc=8.7 min CN=64.4 Runoff=10.90 cfs 0.864 af
Subcatchment13S: W-2 Pr	Runoff Area=2.477 ac 8.56% Impervious Runoff Depth>2.76" Flow Length=322' Tc=7.1 min CN=64.2 Runoff=7.59 cfs 0.570 af
Subcatchment14S: W-1 Pr	Runoff Area=28.914 ac 14.05% Impervious Runoff Depth>2.95" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=59.50 cfs 7.111 af

Pond 10P: P-2 Ex	Peak Elev=342.86' Storage=7,256 cf Inflow=53.27 cfs 7.289 af Outflow=53.22 cfs 7.281 af
Pond 11P: P-1 Ex	Peak Elev=343.93' Storage=57,334 cf Inflow=59.58 cfs 7.121 af Outflow=52.52 cfs 7.079 af
Pond 15P: P-2 Pr	Peak Elev=341.89' Storage=17,127 cf Inflow=54.65 cfs 7.679 af Outflow=54.57 cfs 7.653 af
Pond 16P: P-1 Pr	Peak Elev=343.91' Storage=56,980 cf Inflow=59.50 cfs 7.111 af Outflow=52.34 cfs 7.069 af
Pond P1: Porous 1	Peak Elev=344.87' Storage=1,150 cf Inflow=0.98 cfs 0.069 af Outflow=0.82 cfs 0.045 af
Pond P2: Porous 2	Peak Elev=344.41' Storage=692 cf Inflow=0.54 cfs 0.037 af Outflow=0.31 cfs 0.022 af
Pond P3: Porous 3	Peak Elev=344.57' Storage=1,628 cf Inflow=0.74 cfs 0.052 af Outflow=0.05 cfs 0.015 af
Pond P4: Porous 4	Peak Elev=345.11' Storage=666 cf Inflow=0.53 cfs 0.036 af Outflow=0.29 cfs 0.022 af
Pond P5: Porous 5	Peak Elev=343.94' Storage=944 cf Inflow=1.62 cfs 0.113 af Outflow=1.62 cfs 0.092 af
Pond P6: Porous 6	Peak Elev=343.05' Storage=1,759 cf Inflow=1.44 cfs 0.100 af Outflow=1.17 cfs 0.061 af
Pond P7: Porous 7	Peak Elev=342.26' Storage=474 cf Inflow=1.18 cfs 0.081 af Outflow=1.18 cfs 0.071 af
Pond P8: Porous 8	Peak Elev=345.42' Storage=556 cf Inflow=0.64 cfs 0.045 af Outflow=0.39 cfs 0.040 af
Link 1L: Out Existing	Inflow=120.80 cfs 16.734 af Primary=120.80 cfs 16.734 af
Link 2L: Out Proposed	Inflow=119.31 cfs 16.641 af Primary=119.31 cfs 16.641 af
Link 3L: Junction 1	Inflow=0.98 cfs 0.067 af Primary=0.98 cfs 0.067 af
Link 4L: Junction 2	Inflow=0.29 cfs 0.037 af Primary=0.29 cfs 0.037 af
Link 5L: East	Inflow=67.07 cfs 7.992 af Primary=67.07 cfs 7.992 af
Link 6L: West	Inflow=58.52 cfs 8.649 af Primary=58.52 cfs 8.649 af

10258 hydrocad 2 (2021-09-13)

Type III 24-hr 25-Year Rainfall=6.66"

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Page 137

Link 9L: West Ex

Inflow=58.92 cfs 8.720 af

Primary=58.92 cfs 8.720 af

Total Runoff Area = 133.686 ac Runoff Volume = 33.658 af Average Runoff Depth = 3.02"
81.83% Pervious = 109.392 ac 18.17% Impervious = 24.294 ac

Summary for Subcatchment 1C: W-3 Ex

Runoff = 18.24 cfs @ 12.13 hrs, Volume= 1.438 af, Depth> 2.91"
 Routed to Link 9L : West Ex

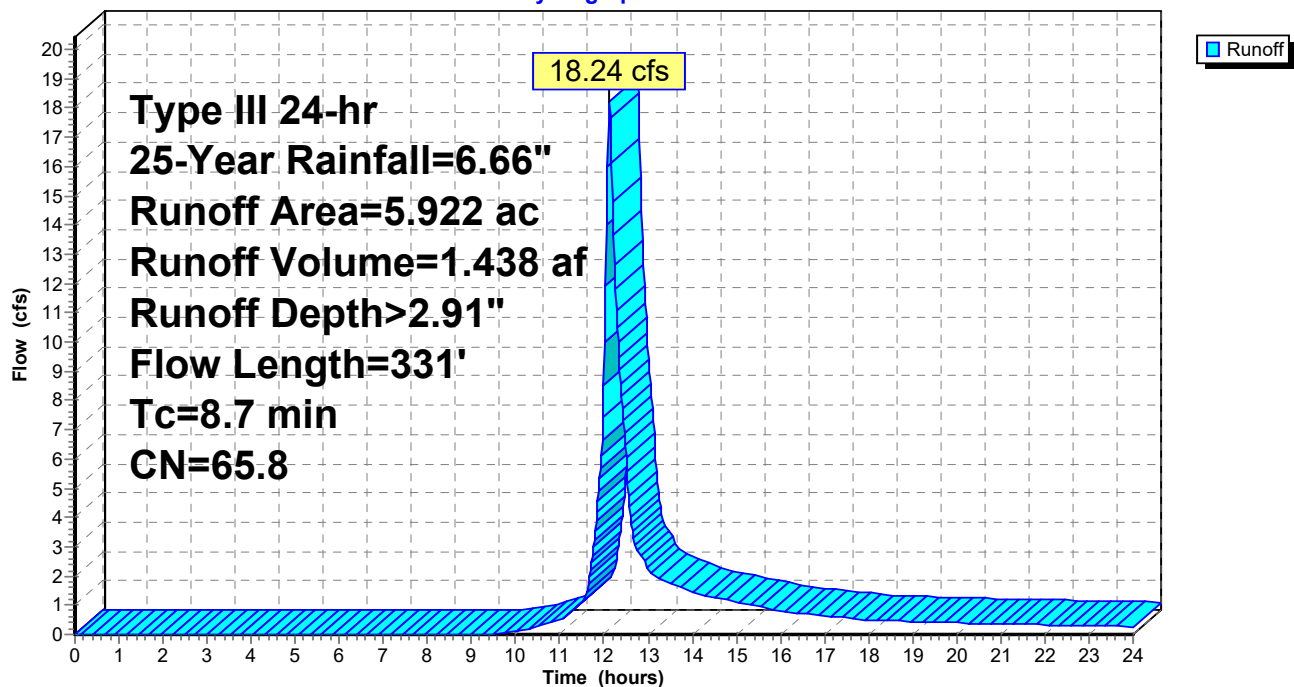
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.434	98.0	Paved parking, HSG B
3.080	61.0	>75% Grass cover, Good, HSG B
* 0.339	98.0	Paved parking, HSG B, Offsite
* 2.069	61.0	>75% Grass cover, Good, HSG B, Offsite
5.922	65.8	Weighted Average
5.149		86.95% Pervious Area
0.773		13.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0800	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 3.40"
0.7	231	0.1299	5.80		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.7	331	Total			

Subcatchment 1C: W-3 Ex

Hydrograph



Summary for Subcatchment 2C: East Basin

Runoff = 67.69 cfs @ 12.38 hrs, Volume= 8.014 af, Depth> 3.09"
 Routed to Link 1L : Out Existing

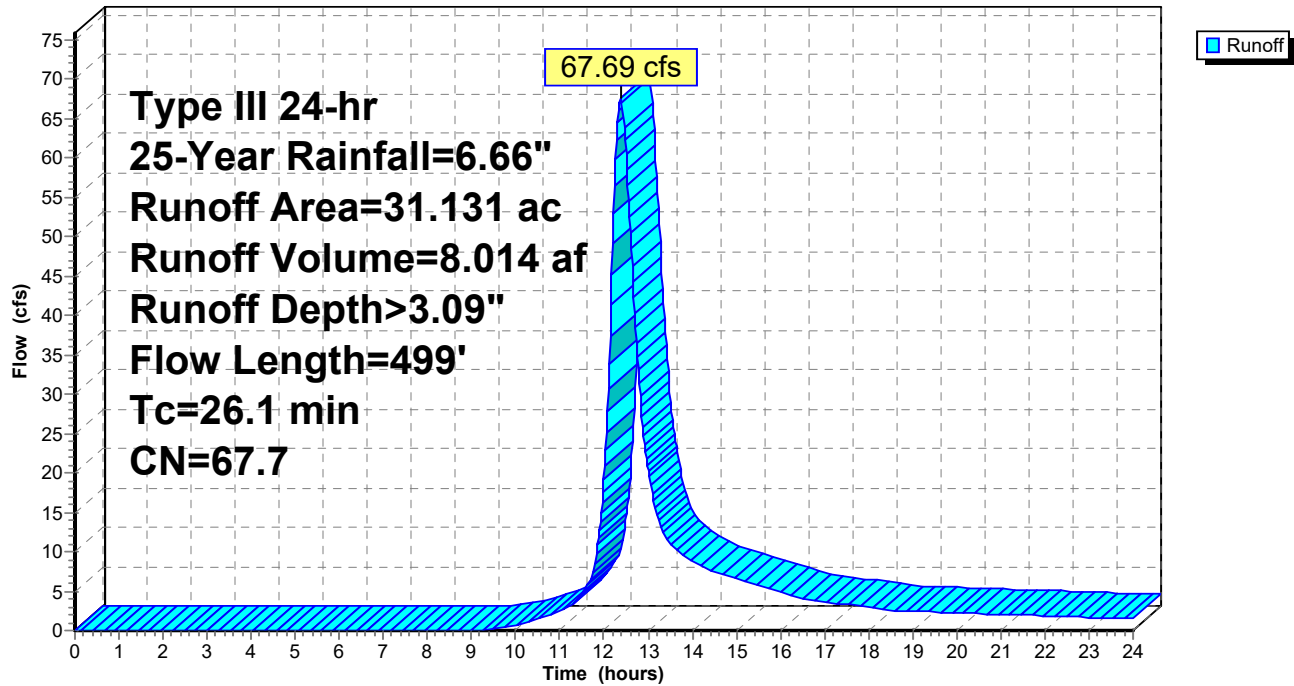
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.501	98.0	Paved parking, HSG B
1.698	61.0	>75% Grass cover, Good, HSG B
0.358	39.0	>75% Grass cover, Good, HSG A
* 6.880	98.0	Paved parking, HSG B, Offsite
* 19.151	61.0	>75% Grass cover, Good, HSG B, Offsite
* 2.543	39.0	>75% Grass cover, Good, HSG A, Offsite
31.131	67.7	Weighted Average
23.750		76.29% Pervious Area
7.381		23.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	74	0.0135	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	29	0.2760	0.18		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
0.5	140	0.0710	4.29		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	256	0.0820	5.81		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0					Direct Entry, Pipe Flow
26.1	499	Total			

Subcatchment 2C: East Basin

Hydrograph



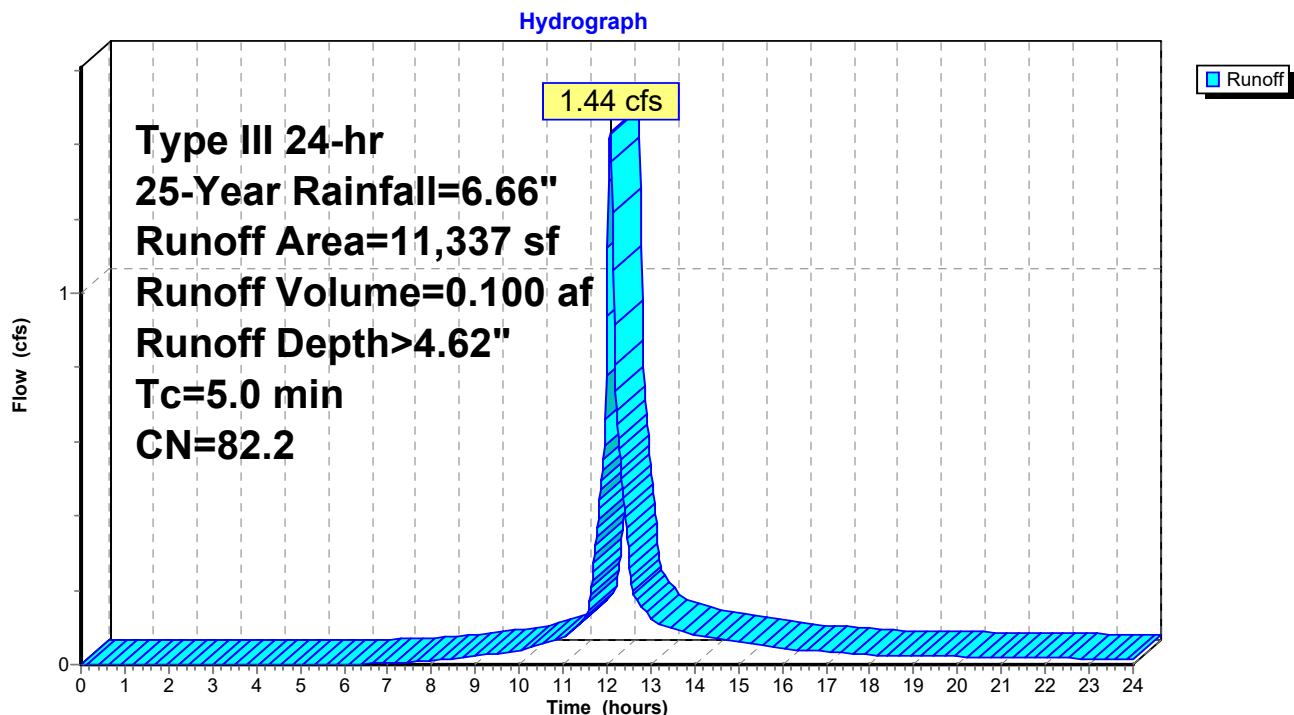
Summary for Subcatchment 3C: Porous 6

Runoff = 1.44 cfs @ 12.07 hrs, Volume= 0.100 af, Depth> 4.62"
 Routed to Pond P6 : Porous 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
270	98.0	Paved parking, HSG B
* 8,217	89.0	Porous Pavement, HSG B
2,850	61.0	>75% Grass cover, Good, HSG B
11,337	82.2	Weighted Average
11,067		97.62% Pervious Area
270		2.38% Impervious Area

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

Subcatchment 3C: Porous 6

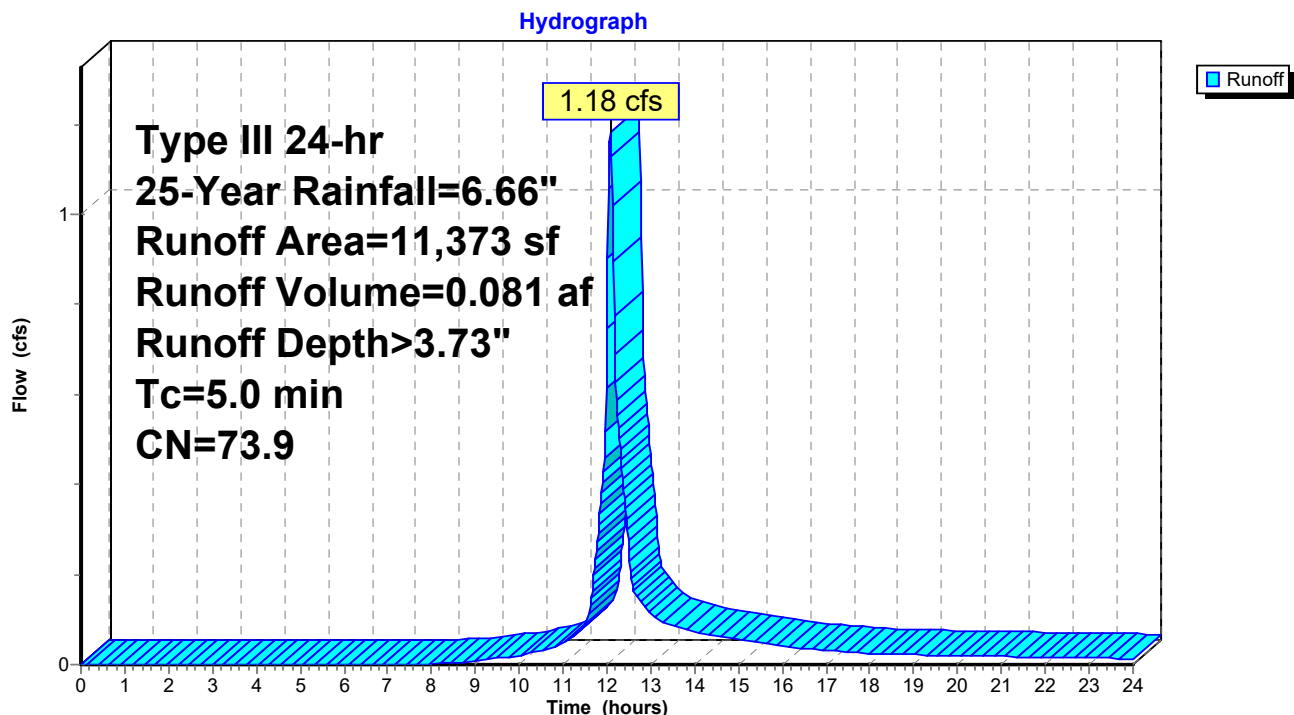
Summary for Subcatchment 4C: Porous 7

Runoff = 1.18 cfs @ 12.08 hrs, Volume= 0.081 af, Depth> 3.73"
 Routed to Pond P7 : Porous 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
836	98.0	Paved parking, HSG B
* 4,119	89.0	Porous Pavement, HSG B
6,418	61.0	>75% Grass cover, Good, HSG B
11,373	73.9	Weighted Average
10,537		92.65% Pervious Area
836		7.35% Impervious Area

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

Subcatchment 4C: Porous 7

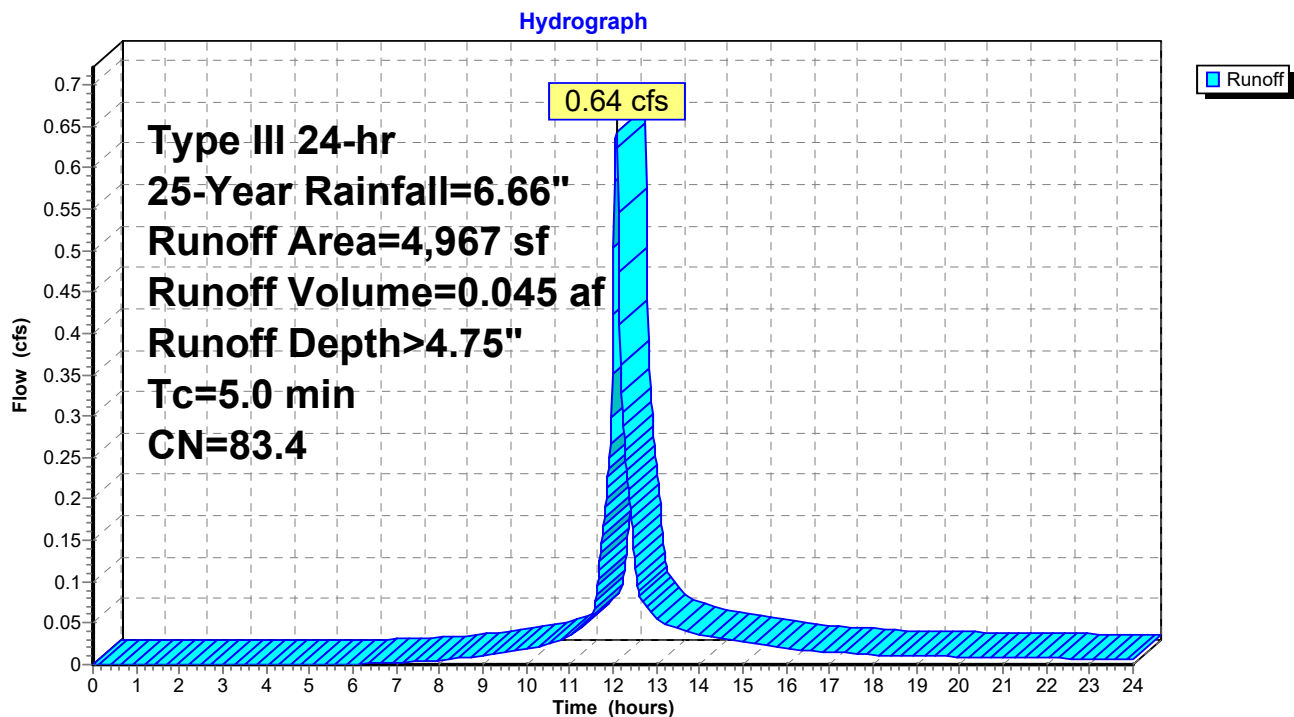
Summary for Subcatchment 5C: Porous 8

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 4.75"
 Routed to Pond P8 : Porous 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
765	98.0	Paved parking, HSG B
* 2,967	89.0	Porous Pavement, HSG B
1,235	61.0	>75% Grass cover, Good, HSG B
4,967	83.4	Weighted Average
4,202		84.60% Pervious Area
765		15.40% Impervious Area

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

Subcatchment 5C: Porous 8

Summary for Subcatchment 7C: East Bypass

Runoff = 65.84 cfs @ 12.38 hrs, Volume= 7.796 af, Depth> 3.09"
 Routed to Link 5L : East

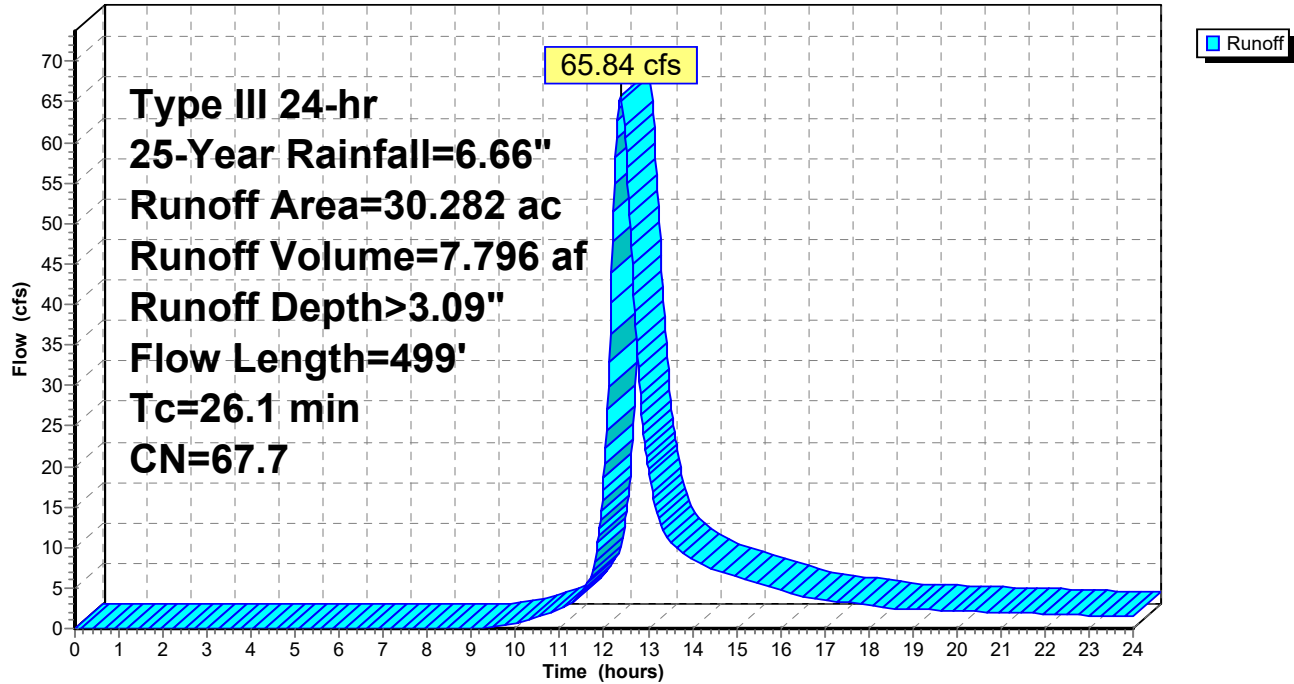
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.347	98.0	Paved parking, HSG B
1.064	61.0	>75% Grass cover, Good, HSG B
0.289	39.0	>75% Grass cover, Good, HSG A
* 6.855	98.0	Paved parking, HSG B, Offsite
* 19.151	61.0	>75% Grass cover, Good, HSG B, Offsite
* 2.576	39.0	>75% Grass cover, Good, HSG A, Offsite
30.282	67.7	Weighted Average
23.080		76.22% Pervious Area
7.202		23.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	74	0.0135	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	29	0.2760	0.18		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
0.5	140	0.0710	4.29		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	256	0.0820	5.81		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0					Direct Entry, Pipe Flow
26.1	499	Total			

Subcatchment 7C: East Bypass

Hydrograph



Summary for Subcatchment 7S: W-2 Ex

Runoff = 2.83 cfs @ 12.11 hrs, Volume= 0.210 af, Depth> 3.03"
 Routed to Pond 10P : P-2 Ex

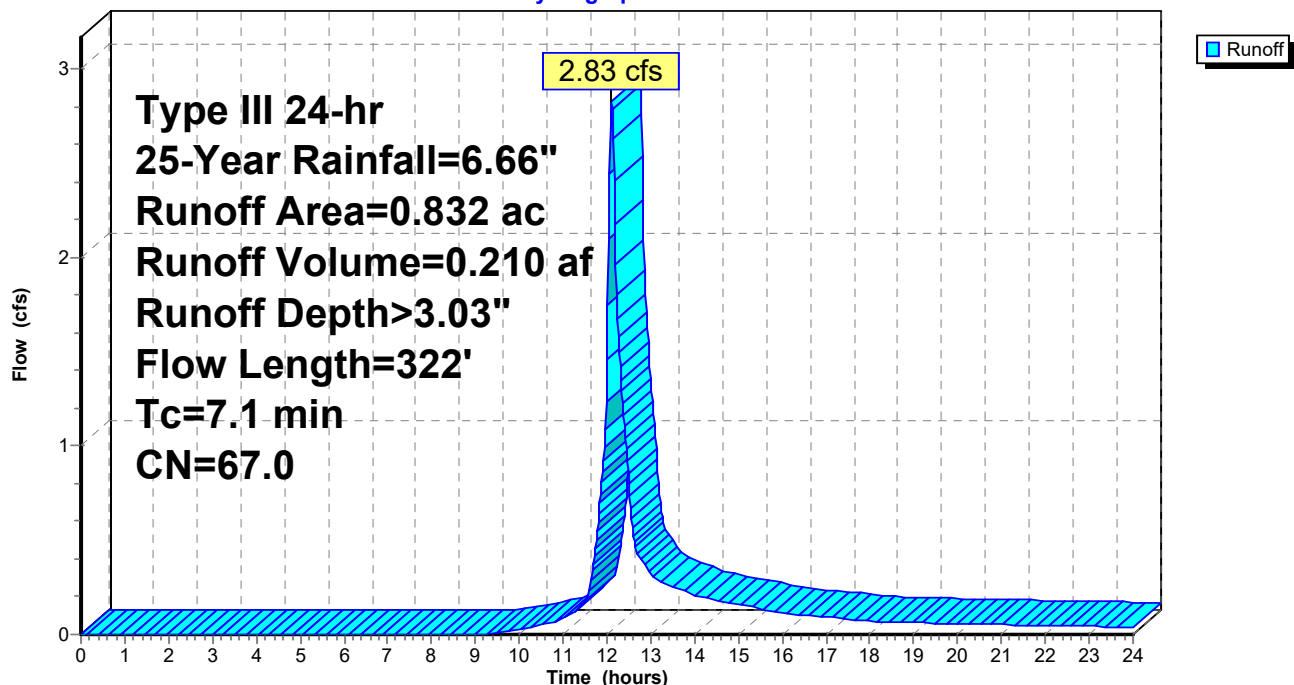
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.083	98.0	Paved parking, HSG B
0.564	61.0	>75% Grass cover, Good, HSG B
* 0.051	98.0	Paved parking, HSG B, Offsite
* 0.134	61.0	>75% Grass cover, Good, HSG B, Offsite
0.832	67.0	Weighted Average
0.698		83.89% Pervious Area
0.134		16.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.1200	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.40"
0.3	222	0.4955	11.33		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.1	322	Total			

Subcatchment 7S: W-2 Ex

Hydrograph



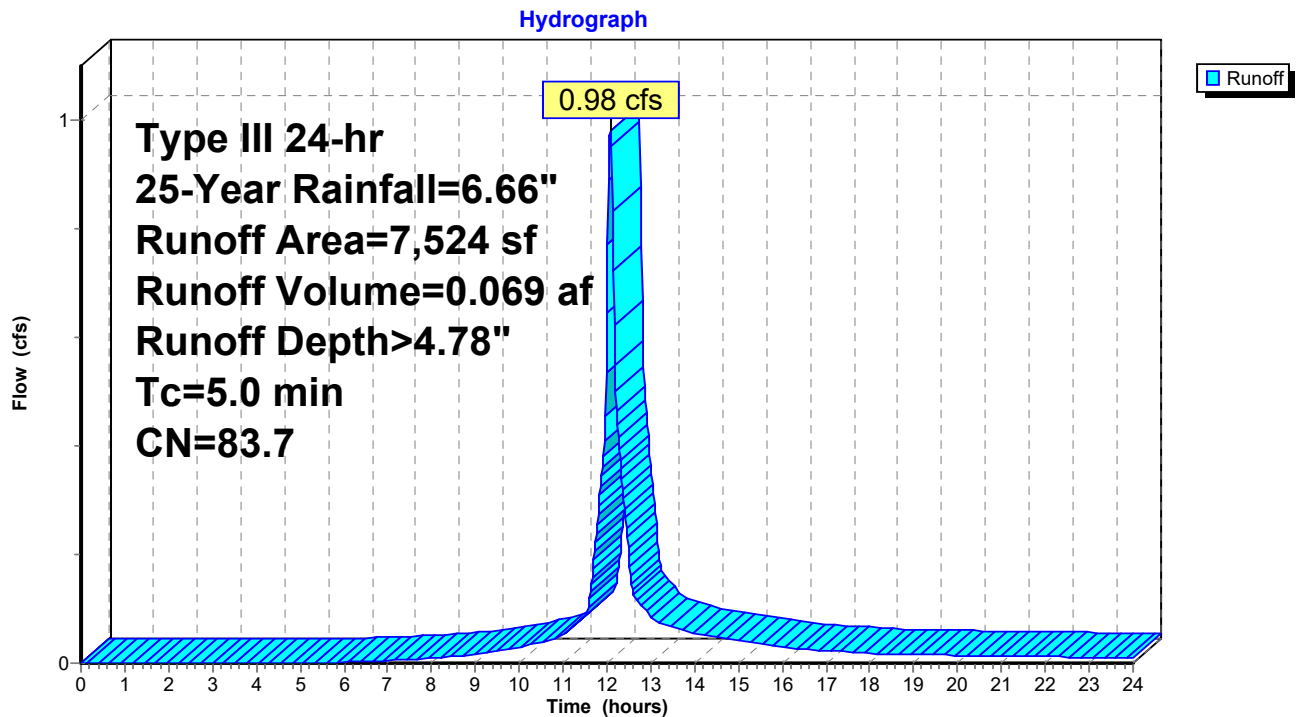
Summary for Subcatchment 8C: Porous 1

Runoff = 0.98 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 4.78"
 Routed to Pond P1 : Porous 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
228	98.0	Paved parking, HSG A
* 5,690	89.0	Porous Pavement, HSG A
753	39.0	>75% Grass cover, Good, HSG A
452	98.0	Paved parking, HSG B
* 92	89.0	Porous Pavement, HSG B
309	61.0	>75% Grass cover, Good, HSG B
7,524	83.7	Weighted Average
6,844		90.96% Pervious Area
680		9.04% Impervious Area

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

Subcatchment 8C: Porous 1

Summary for Subcatchment 8S: W-1 Ex

Runoff = 59.58 cfs @ 12.38 hrs, Volume= 7.121 af, Depth> 2.95"
 Routed to Pond 11P : P-1 Ex

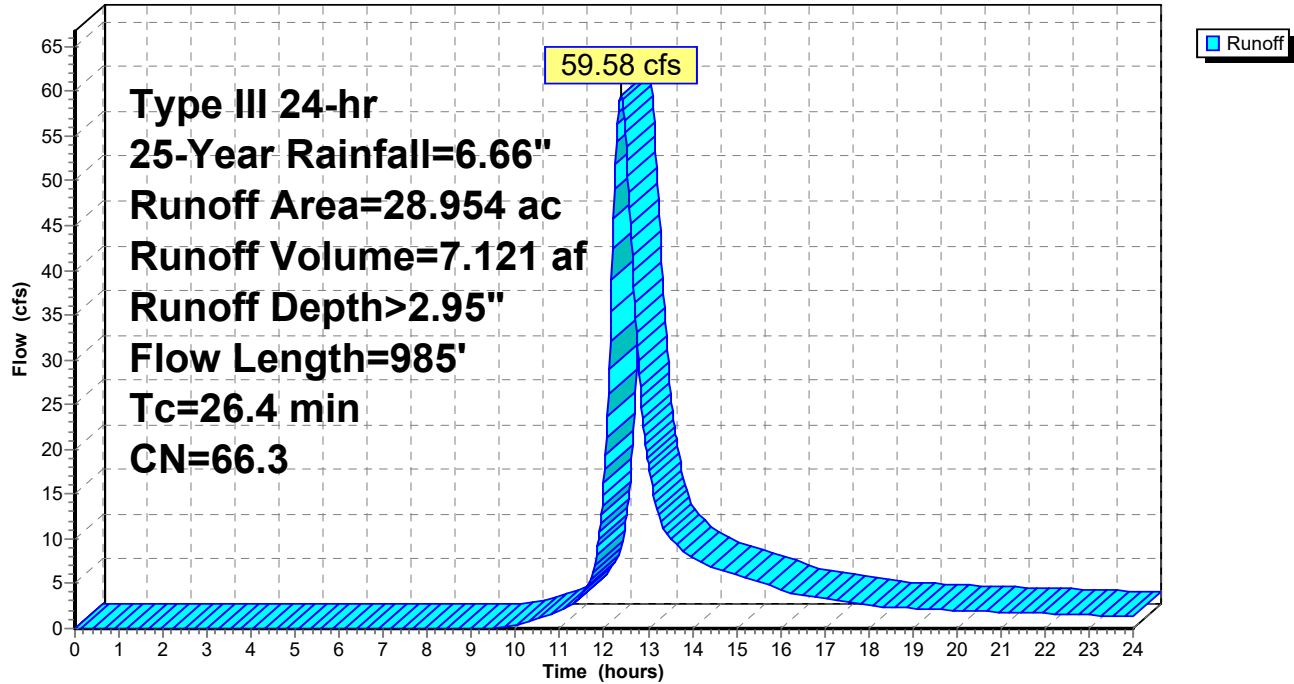
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
3.403	61.0	>75% Grass cover, Good, HSG B
* 4.054	98.0	Paved parking, HSG B, Offsite
* 21.298	61.0	>75% Grass cover, Good, HSG B, Offsite
* 0.199	80.0	>75% Grass cover, Good, HSG D, Offsite
28.954	66.3	Weighted Average
24.900		86.00% Pervious Area
4.054		14.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	755	0.1166	5.50		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	51	0.0880	6.02		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	79	0.1203	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
3.0					Direct Entry, Pipe flow
26.4	985	Total			

Subcatchment 8S: W-1 Ex

Hydrograph



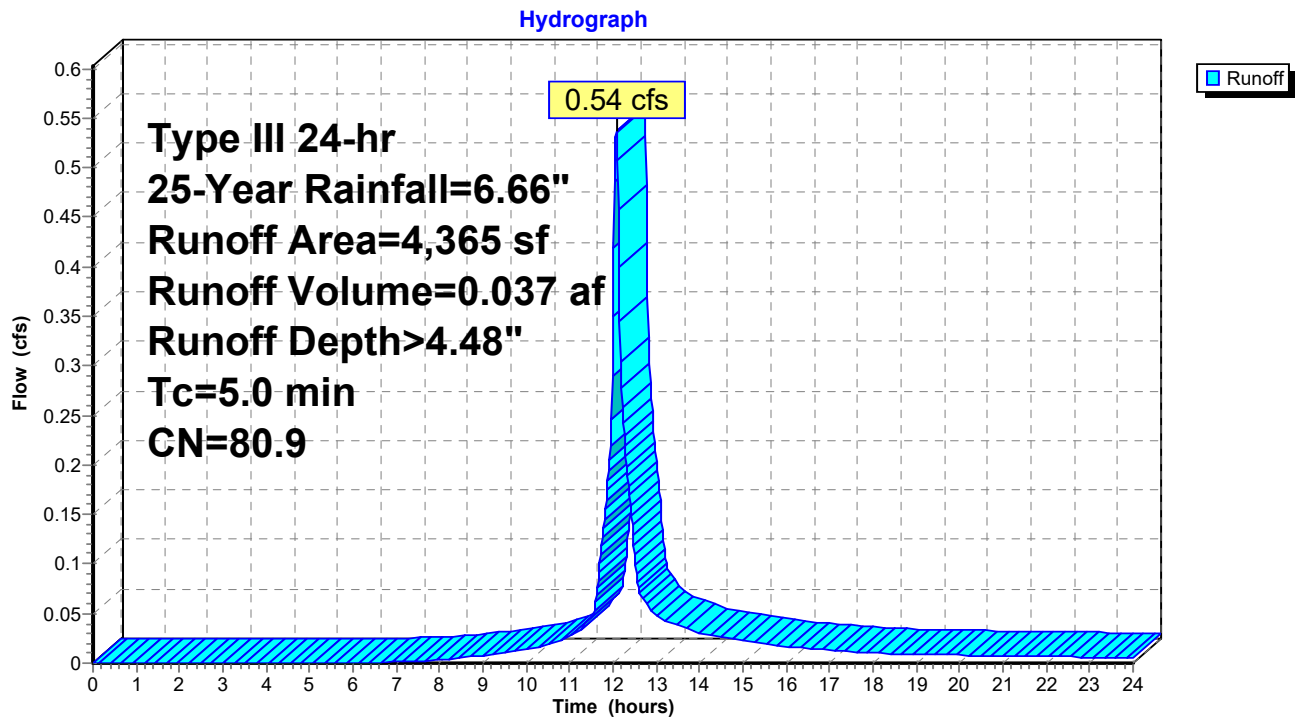
Summary for Subcatchment 9C: Porous 2

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 4.48"
 Routed to Pond P2 : Porous 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
159	98.0	Paved parking, HSG A
* 2,134	89.0	Porous Pavement, HSG A
264	39.0	>75% Grass cover, Good, HSG A
591	98.0	Paved parking, HSG B
* 183	89.0	Porous Pavement, HSG B
1,034	61.0	>75% Grass cover, Good, HSG B
4,365	80.9	Weighted Average
3,615		82.82% Pervious Area
750		17.18% Impervious Area

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

Subcatchment 9C: Porous 2

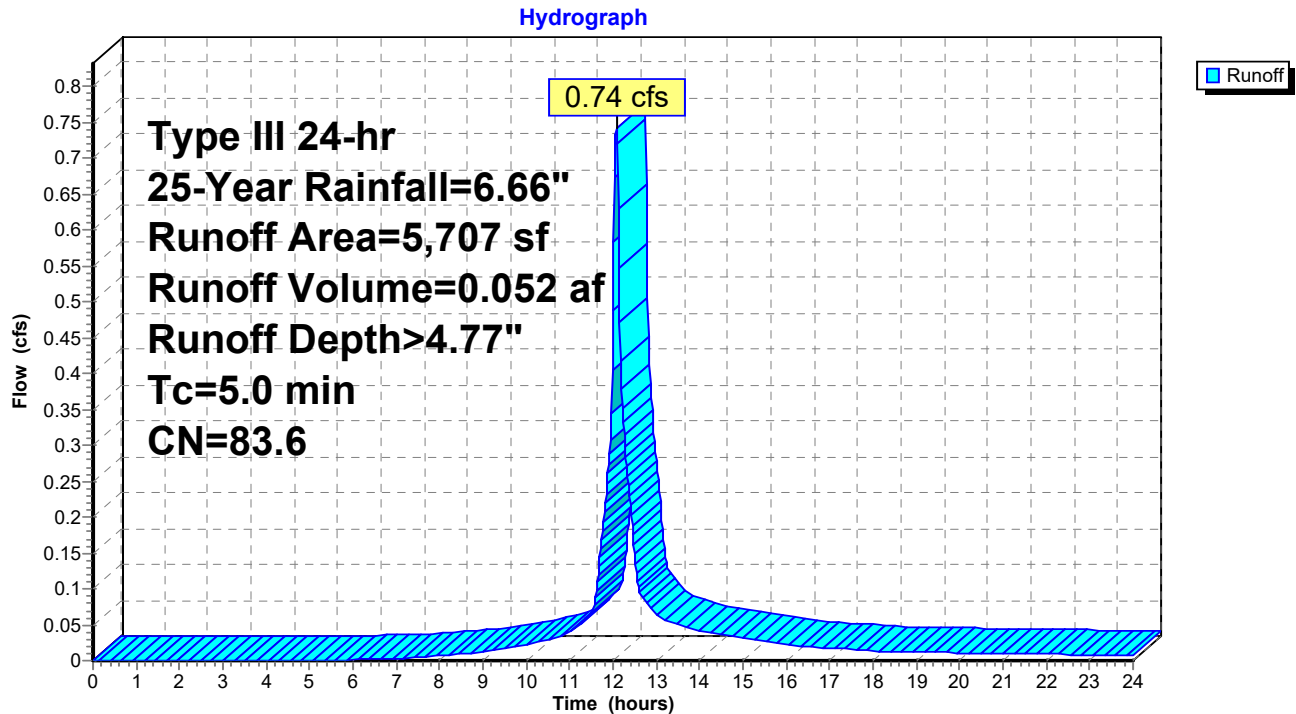
Summary for Subcatchment 10C: Porous 3

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.052 af, Depth> 4.77"
 Routed to Pond P3 : Porous 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
37	98.0	Paved parking, HSG A
* 1,091	89.0	Porous Pavement, HSG A
1,193	98.0	Paved parking, HSG B
* 1,885	89.0	Porous Pavement, HSG B
1,501	61.0	>75% Grass cover, Good, HSG B
5,707	83.6	Weighted Average
4,477		78.45% Pervious Area
1,230		21.55% Impervious Area

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

Subcatchment 10C: Porous 3

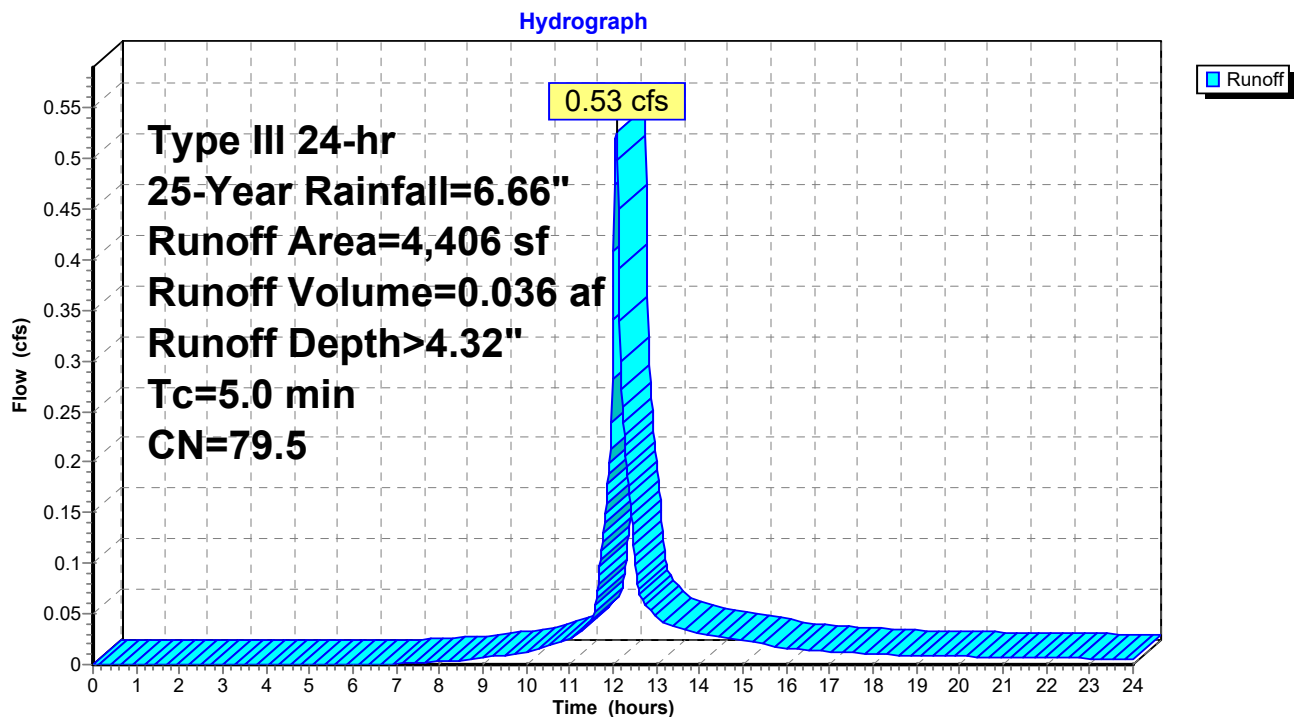
Summary for Subcatchment 11C: Porous 4

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.036 af, Depth> 4.32"
 Routed to Pond P4 : Porous 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
356	98.0	Paved parking, HSG B
* 2,434	89.0	Porous Pavement, HSG B
1,616	61.0	>75% Grass cover, Good, HSG B
4,406	79.5	Weighted Average
4,050		91.92% Pervious Area
356		8.08% Impervious Area

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

Subcatchment 11C: Porous 4

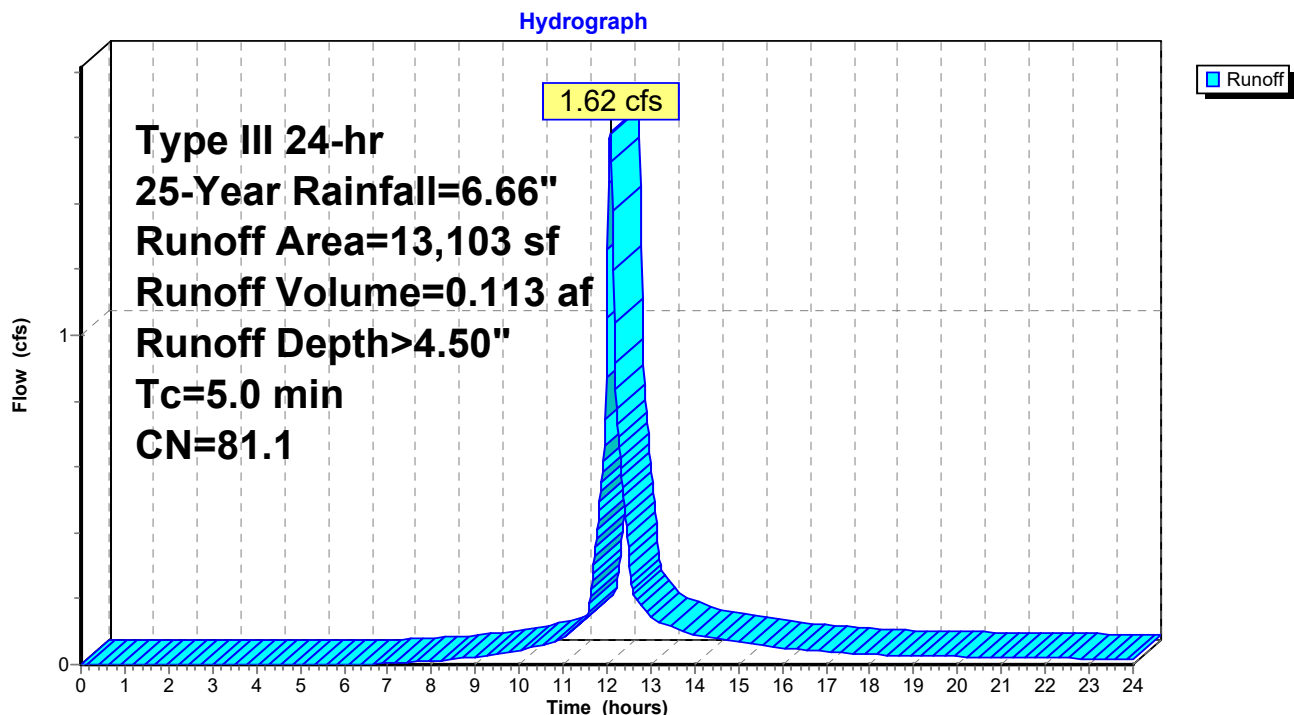
Summary for Subcatchment 12C: Porous 5

Runoff = 1.62 cfs @ 12.07 hrs, Volume= 0.113 af, Depth> 4.50"
 Routed to Pond P5 : Porous 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (sf)	CN	Description
856	98.0	Paved parking, HSG B
* 8,274	89.0	Porous Pavement, HSG B
3,973	61.0	>75% Grass cover, Good, HSG B
13,103	81.1	Weighted Average
12,247		93.47% Pervious Area
856		6.53% Impervious Area

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

Subcatchment 12C: Porous 5

Summary for Subcatchment 12S: W-3 Pr

Runoff = 10.90 cfs @ 12.13 hrs, Volume= 0.864 af, Depth> 2.78"
 Routed to Link 6L : West

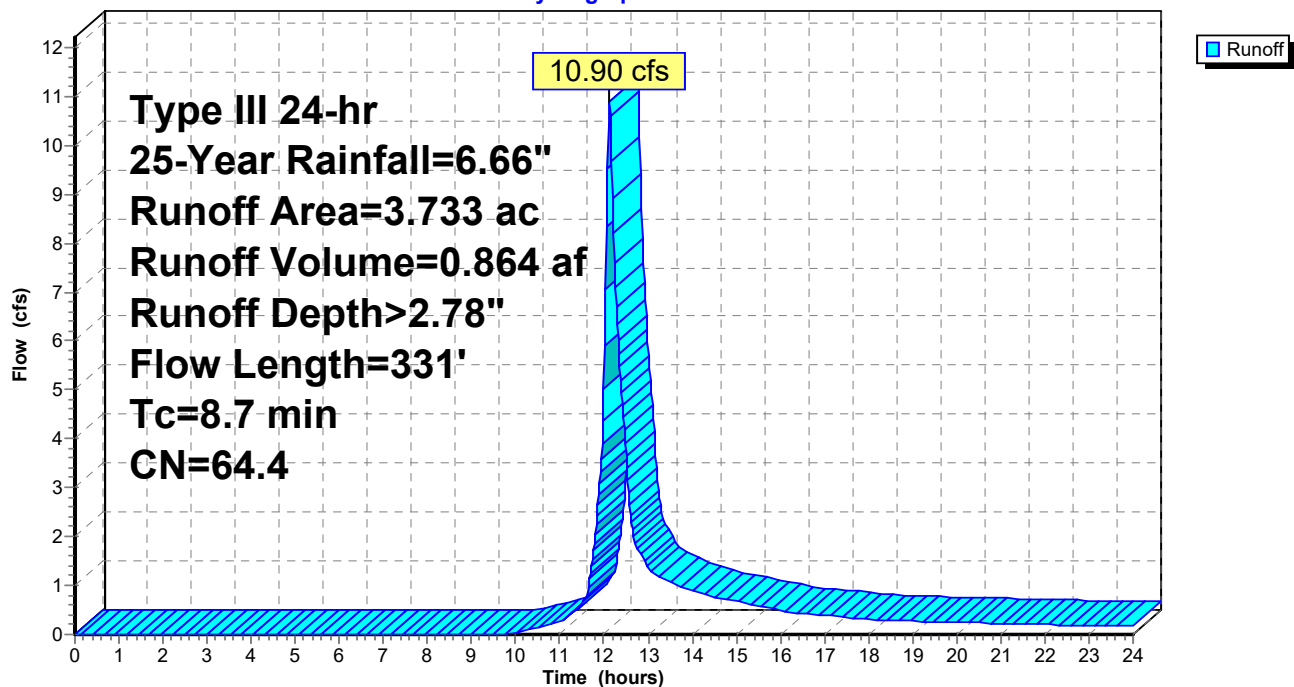
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.109	98.0	Paved parking, HSG B
2.041	61.0	>75% Grass cover, Good, HSG B
* 0.236	98.0	Paved parking, HSG B, Offsite
* 1.347	61.0	>75% Grass cover, Good, HSG B, Offsite
3.733	64.4	Weighted Average
3.388		90.76% Pervious Area
0.345		9.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0800	0.21		Sheet Flow, Grass: Dense n= 0.240 P2= 3.40"
0.7	231	0.1299	5.80		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.7	331	Total			

Subcatchment 12S: W-3 Pr

Hydrograph



Summary for Subcatchment 13S: W-2 Pr

Runoff = 7.59 cfs @ 12.11 hrs, Volume= 0.570 af, Depth> 2.76"
 Routed to Pond 15P : P-2 Pr

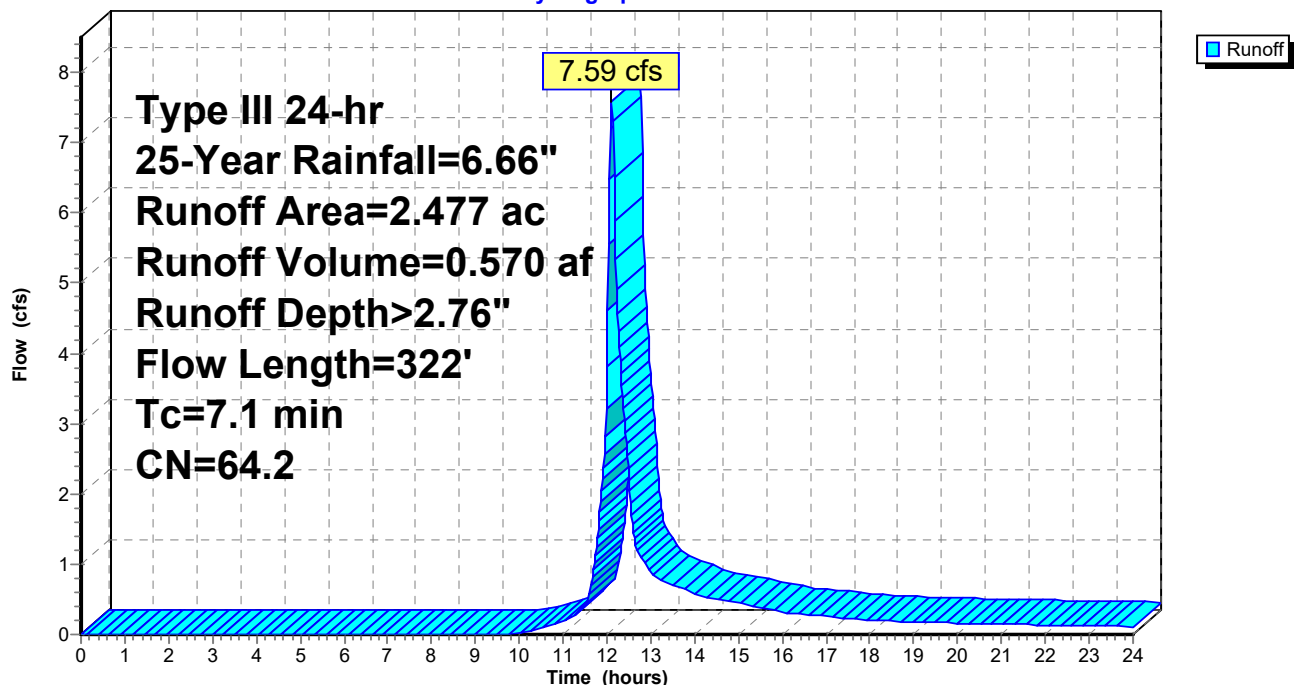
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
0.059	98.0	Paved parking, HSG B
1.409	61.0	>75% Grass cover, Good, HSG B
* 0.153	98.0	Paved parking, HSG B, Offsite
* 0.856	61.0	>75% Grass cover, Good, HSG B, Offsite
2.477	64.2	Weighted Average
2.265		91.44% Pervious Area
0.212		8.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.1200	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.40"
0.3	222	0.4955	11.33		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.1	322	Total			

Subcatchment 13S: W-2 Pr

Hydrograph



Summary for Subcatchment 14S: W-1 Pr

Runoff = 59.50 cfs @ 12.38 hrs, Volume= 7.111 af, Depth> 2.95"
 Routed to Pond 16P : P-1 Pr

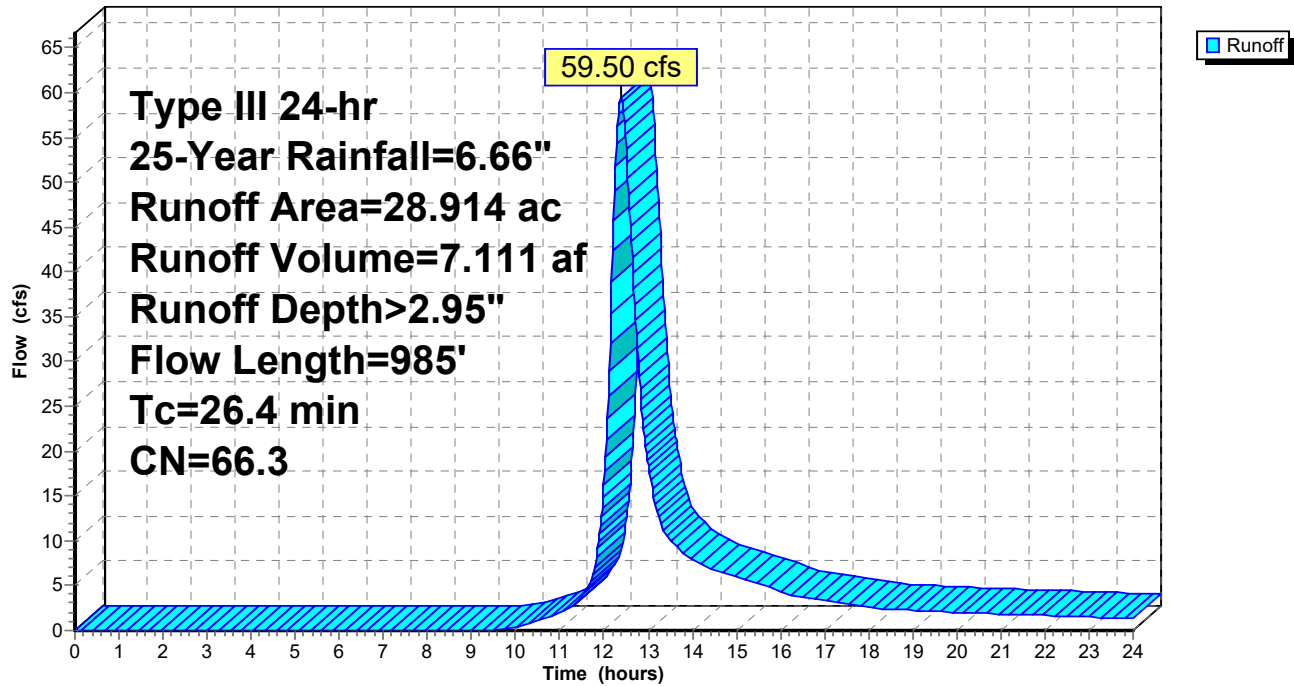
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Type III 24-hr 25-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.007	98.0	Impervious Onsite
3.356	61.0	>75% Grass cover, Good, HSG B
* 4.054	98.0	Paved parking, HSG B, Offsite
* 21.298	61.0	>75% Grass cover, Good, HSG B, Offsite
* 0.199	80.0	>75% Grass cover, Good, HSG D, Offsite
28.914	66.3	Weighted Average
24.853		85.95% Pervious Area
4.061		14.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	755	0.1166	5.50		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	51	0.0880	6.02		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	79	0.1203	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
3.0					Direct Entry, Pipe flow
26.4	985	Total			

Subcatchment 14S: W-1 Pr

Hydrograph



Summary for Pond 10P: P-2 Ex

Inflow Area = 29.786 ac, 14.06% Impervious, Inflow Depth > 2.94" for 25-Year event
 Inflow = 53.27 cfs @ 12.51 hrs, Volume= 7.289 af
 Outflow = 53.22 cfs @ 12.52 hrs, Volume= 7.281 af, Atten= 0%, Lag= 0.6 min
 Primary = 53.22 cfs @ 12.52 hrs, Volume= 7.281 af
 Routed to Link 9L : West Ex

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 342.86' @ 12.52 hrs Surf.Area= 3,611 sf Storage= 7,256 cf

Plug-Flow detention time= 5.3 min calculated for 7.275 af (100% of inflow)
 Center-of-Mass det. time= 4.7 min (907.7 - 903.0)

Volume	Invert	Avail.Storage	Storage Description
#1	337.15'	26,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.15	190	0	0
340.00	1,082	1,813	1,813
342.00	1,962	3,044	4,857
344.00	5,793	7,755	12,612
346.00	8,212	14,005	26,617

Device	Routing	Invert	Outlet Devices
#1	Primary	337.15'	15.0" Round Culvert L= 163.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 337.15' / 337.15' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Primary	342.00'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 20.00 37.50 60.50 76.00 81.00 85.00 Height (feet) 4.00 2.00 1.50 0.20 0.00 2.00 4.00

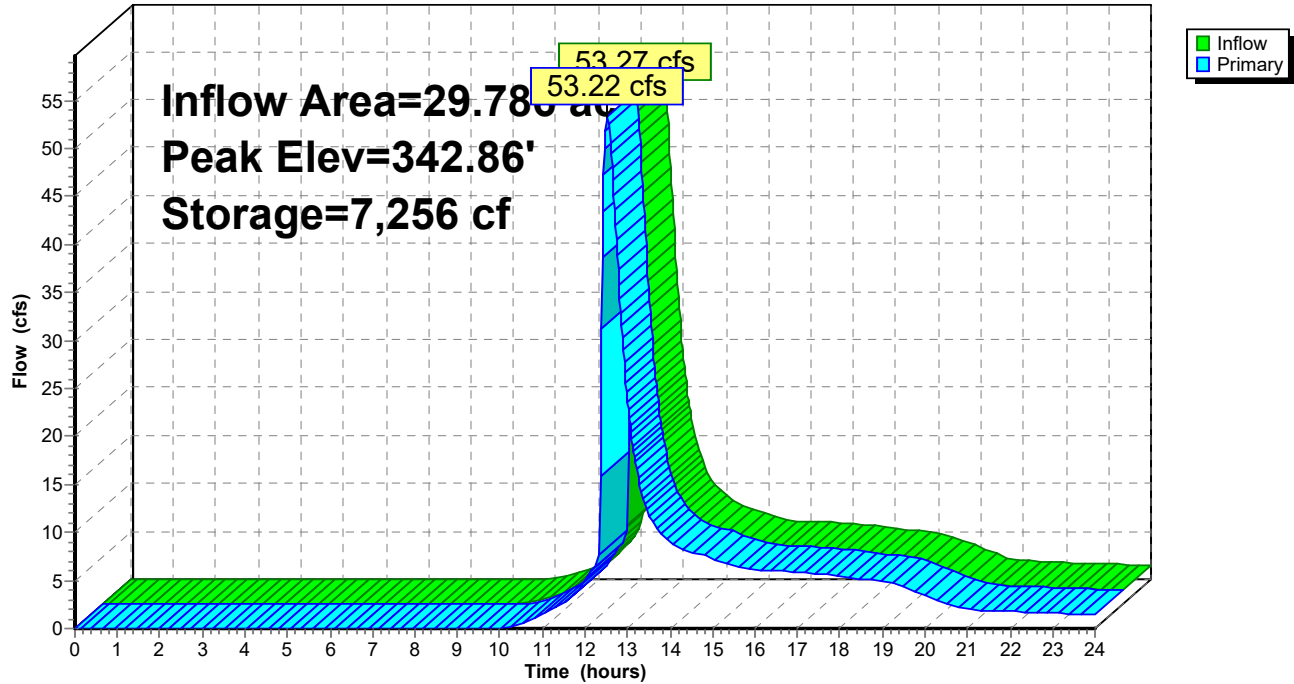
Primary OutFlow Max=53.18 cfs @ 12.52 hrs HW=342.86' TW=0.00' (Dynamic Tailwater)

1=Culvert (Barrel Controls 9.03 cfs @ 7.36 fps)

2=Asymmetrical Weir (Weir Controls 44.14 cfs @ 1.93 fps)

Pond 10P: P-2 Ex

Hydrograph



Stage-Area-Storage for Pond 10P: P-2 Ex

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
337.15	190	0	342.45	2,824	5,933
337.25	221	21	342.55	3,016	6,225
337.35	253	44	342.65	3,207	6,537
337.45	284	71	342.75	3,399	6,867
337.55	315	101	342.85	3,590	7,216
337.65	346	134	342.95	3,782	7,585
337.75	378	170	343.05	3,973	7,973
337.85	409	210	343.15	4,165	8,380
337.95	440	252	343.25	4,356	8,806
338.05	472	298	343.35	4,548	9,251
338.15	503	346	343.45	4,739	9,715
338.25	534	398	343.55	4,931	10,199
338.35	566	453	343.65	5,123	10,701
338.45	597	511	343.75	5,314	11,223
338.55	628	573	343.85	5,506	11,764
338.65	659	637	343.95	5,697	12,324
338.75	691	705	344.05	5,853	12,903
338.85	722	775	344.15	5,974	13,494
338.95	753	849	344.25	6,095	14,098
339.05	785	926	344.35	6,216	14,713
339.15	816	1,006	344.45	6,337	15,341
339.25	847	1,089	344.55	6,458	15,981
339.35	879	1,175	344.65	6,579	16,633
339.45	910	1,265	344.75	6,700	17,297
339.55	941	1,357	344.85	6,821	17,973
339.65	972	1,453	344.95	6,942	18,661
339.75	1,004	1,552	345.05	7,063	19,361
339.85	1,035	1,654	345.15	7,184	20,073
339.95	1,066	1,759	345.25	7,305	20,798
340.05	1,104	1,867	345.35	7,426	21,534
340.15	1,148	1,980	345.45	7,547	22,283
340.25	1,192	2,097	345.55	7,668	23,044
340.35	1,236	2,218	345.65	7,789	23,816
340.45	1,280	2,344	345.75	7,910	24,601
340.55	1,324	2,474	345.85	8,031	25,398
340.65	1,368	2,609	345.95	8,152	26,208
340.75	1,412	2,748			
340.85	1,456	2,891			
340.95	1,500	3,039			
341.05	1,544	3,191			
341.15	1,588	3,348			
341.25	1,632	3,509			
341.35	1,676	3,674			
341.45	1,720	3,844			
341.55	1,764	4,018			
341.65	1,808	4,197			
341.75	1,852	4,380			
341.85	1,896	4,567			
341.95	1,940	4,759			
342.05	2,058	4,957			
342.15	2,249	5,172			
342.25	2,441	5,407			
342.35	2,632	5,661			

Summary for Pond 11P: P-1 Ex

Inflow Area = 28.954 ac, 14.00% Impervious, Inflow Depth > 2.95" for 25-Year event
 Inflow = 59.58 cfs @ 12.38 hrs, Volume= 7.121 af
 Outflow = 52.52 cfs @ 12.52 hrs, Volume= 7.079 af, Atten= 12%, Lag= 8.3 min
 Primary = 52.52 cfs @ 12.52 hrs, Volume= 7.079 af
 Routed to Pond 10P : P-2 Ex

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 343.93' @ 12.52 hrs Surf.Area= 22,198 sf Storage= 57,334 cf

Plug-Flow detention time= 51.3 min calculated for 7.079 af (99% of inflow)
 Center-of-Mass det. time= 48.0 min (904.8 - 856.8)

Volume	Invert	Avail.Storage	Storage Description
#1	339.10'	115,260 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
339.10	2,733	0	0
340.00	3,235	2,686	2,686
342.00	15,303	18,538	21,224
344.00	22,463	37,766	58,990
346.00	33,807	56,270	115,260

Device	Routing	Invert	Outlet Devices
#1	Primary	339.10'	12.0" Round Culvert L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 339.10' / 338.61' S= 0.0148 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	343.00'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 36.00 41.50 55.50 64.50 83.50 Height (feet) 3.00 2.00 0.00 0.00 2.00 3.00

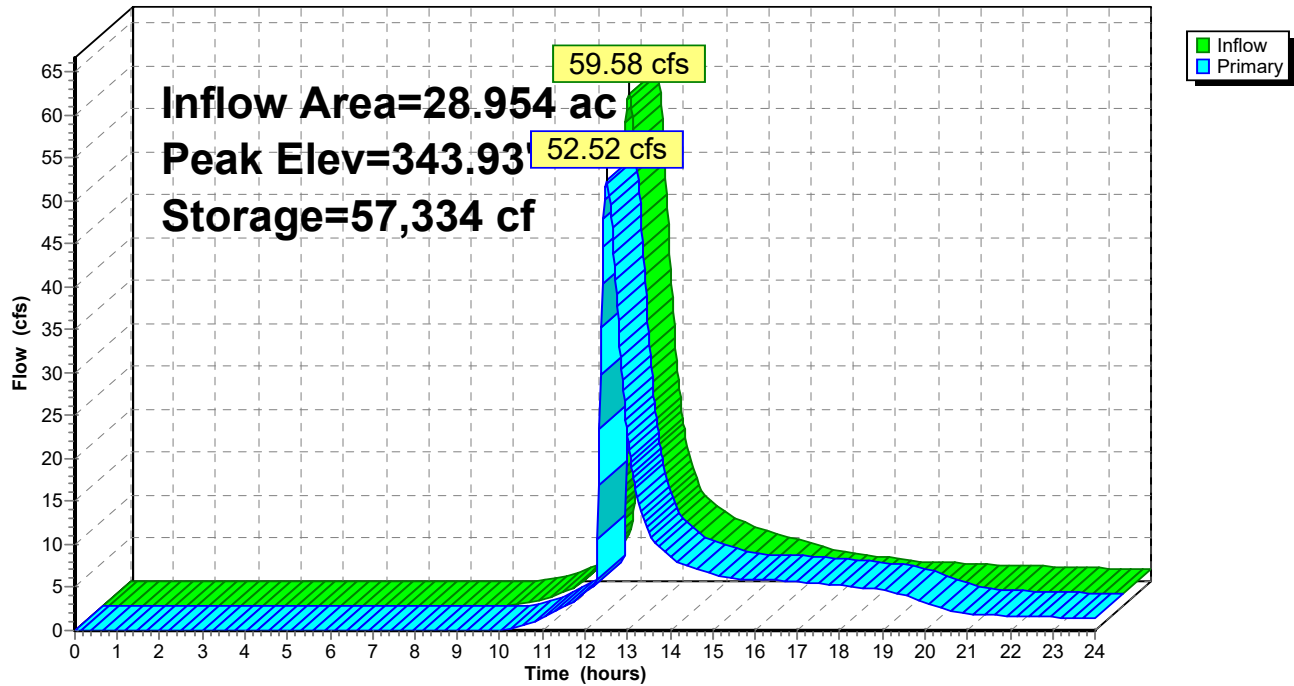
Primary OutFlow Max=52.48 cfs @ 12.52 hrs HW=343.93' TW=342.86' (Dynamic Tailwater)

1=Culvert (Inlet Controls 3.90 cfs @ 4.97 fps)

2=Asymmetrical Weir (Weir Controls 48.58 cfs @ 2.53 fps)

Pond 11P: P-1 Ex

Hydrograph



Stage-Area-Storage for Pond 11P: P-1 Ex

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
339.10	2,733	0	344.40	24,732	68,429
339.20	2,789	276	344.50	25,299	70,930
339.30	2,845	558	344.60	25,866	73,488
339.40	2,900	845	344.70	26,433	76,103
339.50	2,956	1,138	344.80	27,001	78,775
339.60	3,012	1,436	344.90	27,568	81,503
339.70	3,068	1,740	345.00	28,135	84,289
339.80	3,123	2,050	345.10	28,702	87,130
339.90	3,179	2,365	345.20	29,269	90,029
340.00	3,235	2,686	345.30	29,837	92,984
340.10	3,838	3,039	345.40	30,404	95,996
340.20	4,442	3,453	345.50	30,971	99,065
340.30	5,045	3,928	345.60	31,538	102,191
340.40	5,649	4,462	345.70	32,105	105,373
340.50	6,252	5,057	345.80	32,673	108,612
340.60	6,855	5,713	345.90	33,240	111,907
340.70	7,459	6,428	346.00	33,807	115,260
340.80	8,062	7,204			
340.90	8,666	8,041			
341.00	9,269	8,938			
341.10	9,872	9,895			
341.20	10,476	10,912			
341.30	11,079	11,990			
341.40	11,683	13,128			
341.50	12,286	14,326			
341.60	12,889	15,585			
341.70	13,493	16,904			
341.80	14,096	18,284			
341.90	14,700	19,723			
342.00	15,303	21,224			
342.10	15,661	22,772			
342.20	16,019	24,356			
342.30	16,377	25,976			
342.40	16,735	27,631			
342.50	17,093	29,323			
342.60	17,451	31,050			
342.70	17,809	32,813			
342.80	18,167	34,612			
342.90	18,525	36,446			
343.00	18,883	38,317			
343.10	19,241	40,223			
343.20	19,599	42,165			
343.30	19,957	44,143			
343.40	20,315	46,156			
343.50	20,673	48,206			
343.60	21,031	50,291			
343.70	21,389	52,412			
343.80	21,747	54,569			
343.90	22,105	56,761			
344.00	22,463	58,990			
344.10	23,030	61,264			
344.20	23,597	63,596			
344.30	24,165	65,984			

Summary for Pond 15P: P-2 Pr

Inflow Area = 31.505 ac, 13.62% Impervious, Inflow Depth > 2.92" for 25-Year event
 Inflow = 54.65 cfs @ 12.51 hrs, Volume= 7.679 af
 Outflow = 54.57 cfs @ 12.52 hrs, Volume= 7.653 af, Atten= 0%, Lag= 0.8 min
 Primary = 54.57 cfs @ 12.52 hrs, Volume= 7.653 af
 Routed to Link 6L : West

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 341.89' @ 12.52 hrs Surf.Area= 7,968 sf Storage= 17,127 cf

Plug-Flow detention time= 12.5 min calculated for 7.653 af (100% of inflow)
 Center-of-Mass det. time= 10.7 min (907.5 - 896.8)

Volume	Invert	Avail.Storage	Storage Description
#1	337.00'	76,032 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.00	554	0	0
338.00	1,568	1,061	1,061
340.00	3,587	5,155	6,216
342.00	8,226	11,813	18,029
344.00	15,350	23,576	41,605
346.00	19,077	34,427	76,032

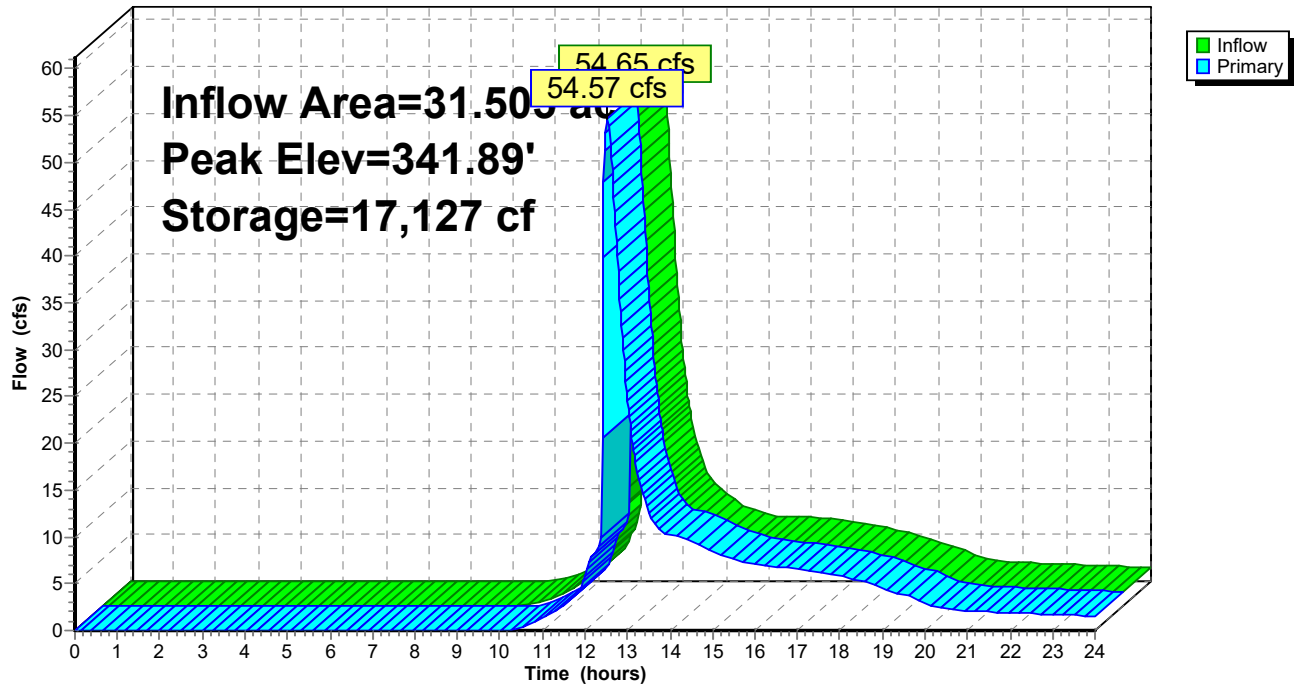
Device	Routing	Invert	Outlet Devices
#1	Primary	337.15'	15.0" Round Culvert L= 56.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 337.15' / 337.15' S= 0.0000 ' /' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Primary	341.50'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 7.00 28.00 41.00 87.00 103.00 108.50 116.00 Height (feet) 4.50 2.50 0.50 0.00 0.00 0.50 2.50 4.50

Primary OutFlow Max=54.53 cfs @ 12.52 hrs HW=341.89' TW=0.00' (Dynamic Tailwater)

1=Culvert (Barrel Controls 10.98 cfs @ 8.95 fps)
 2=Asymmetrical Weir (Weir Controls 43.55 cfs @ 1.64 fps)

Pond 15P: P-2 Pr

Hydrograph



Stage-Area-Storage for Pond 15P: P-2 Pr

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
337.00	554	0	342.30	9,295	20,657
337.10	655	60	342.40	9,651	21,604
337.20	757	131	342.50	10,007	22,587
337.30	858	212	342.60	10,363	23,606
337.40	960	303	342.70	10,719	24,660
337.50	1,061	404	342.80	11,076	25,750
337.60	1,162	515	342.90	11,432	26,875
337.70	1,264	636	343.00	11,788	28,036
337.80	1,365	768	343.10	12,144	29,233
337.90	1,467	909	343.20	12,500	30,465
338.00	1,568	1,061	343.30	12,857	31,733
338.10	1,669	1,223	343.40	13,213	33,036
338.20	1,770	1,395	343.50	13,569	34,375
338.30	1,871	1,577	343.60	13,925	35,750
338.40	1,972	1,769	343.70	14,281	37,160
338.50	2,073	1,971	343.80	14,638	38,606
338.60	2,174	2,184	343.90	14,994	40,088
338.70	2,275	2,406	344.00	15,350	41,605
338.80	2,376	2,638	344.10	15,536	43,149
338.90	2,477	2,881	344.20	15,723	44,712
339.00	2,578	3,134	344.30	15,909	46,294
339.10	2,678	3,397	344.40	16,095	47,894
339.20	2,779	3,669	344.50	16,282	49,513
339.30	2,880	3,952	344.60	16,468	51,150
339.40	2,981	4,246	344.70	16,654	52,807
339.50	3,082	4,549	344.80	16,841	54,481
339.60	3,183	4,862	344.90	17,027	56,175
339.70	3,284	5,185	345.00	17,214	57,887
339.80	3,385	5,519	345.10	17,400	59,617
339.90	3,486	5,862	345.20	17,586	61,367
340.00	3,587	6,216	345.30	17,773	63,135
340.10	3,819	6,586	345.40	17,959	64,921
340.20	4,051	6,980	345.50	18,145	66,726
340.30	4,283	7,396	345.60	18,332	68,550
340.40	4,515	7,836	345.70	18,518	70,393
340.50	4,747	8,299	345.80	18,704	72,254
340.60	4,979	8,786	345.90	18,891	74,134
340.70	5,211	9,295	346.00	19,077	76,032
340.80	5,443	9,828			
340.90	5,675	10,384			
341.00	5,907	10,963			
341.10	6,138	11,565			
341.20	6,370	12,190			
341.30	6,602	12,839			
341.40	6,834	13,511			
341.50	7,066	14,206			
341.60	7,298	14,924			
341.70	7,530	15,666			
341.80	7,762	16,430			
341.90	7,994	17,218			
342.00	8,226	18,029			
342.10	8,582	18,869			
342.20	8,938	19,745			

Summary for Pond 16P: P-1 Pr

Inflow Area = 28.914 ac, 14.05% Impervious, Inflow Depth > 2.95" for 25-Year event
 Inflow = 59.50 cfs @ 12.38 hrs, Volume= 7.111 af
 Outflow = 52.34 cfs @ 12.52 hrs, Volume= 7.069 af, Atten= 12%, Lag= 8.4 min
 Primary = 52.34 cfs @ 12.52 hrs, Volume= 7.069 af
 Routed to Pond 15P : P-2 Pr

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 343.91' @ 12.52 hrs Surf.Area= 22,140 sf Storage= 56,980 cf

Plug-Flow detention time= 47.7 min calculated for 7.069 af (99% of inflow)
 Center-of-Mass det. time= 44.3 min (901.2 - 856.8)

Volume	Invert	Avail.Storage	Storage Description
#1	339.10'	115,260 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
339.10	2,733	0	0
340.00	3,235	2,686	2,686
342.00	15,303	18,538	21,224
344.00	22,463	37,766	58,990
346.00	33,807	56,270	115,260

Device	Routing	Invert	Outlet Devices
#1	Primary	339.10'	12.0" Round Culvert L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 339.10' / 338.61' S= 0.0148 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	343.00'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 36.00 41.50 55.50 64.00 76.00 Height (feet) 3.00 2.00 0.00 0.00 2.00 3.00

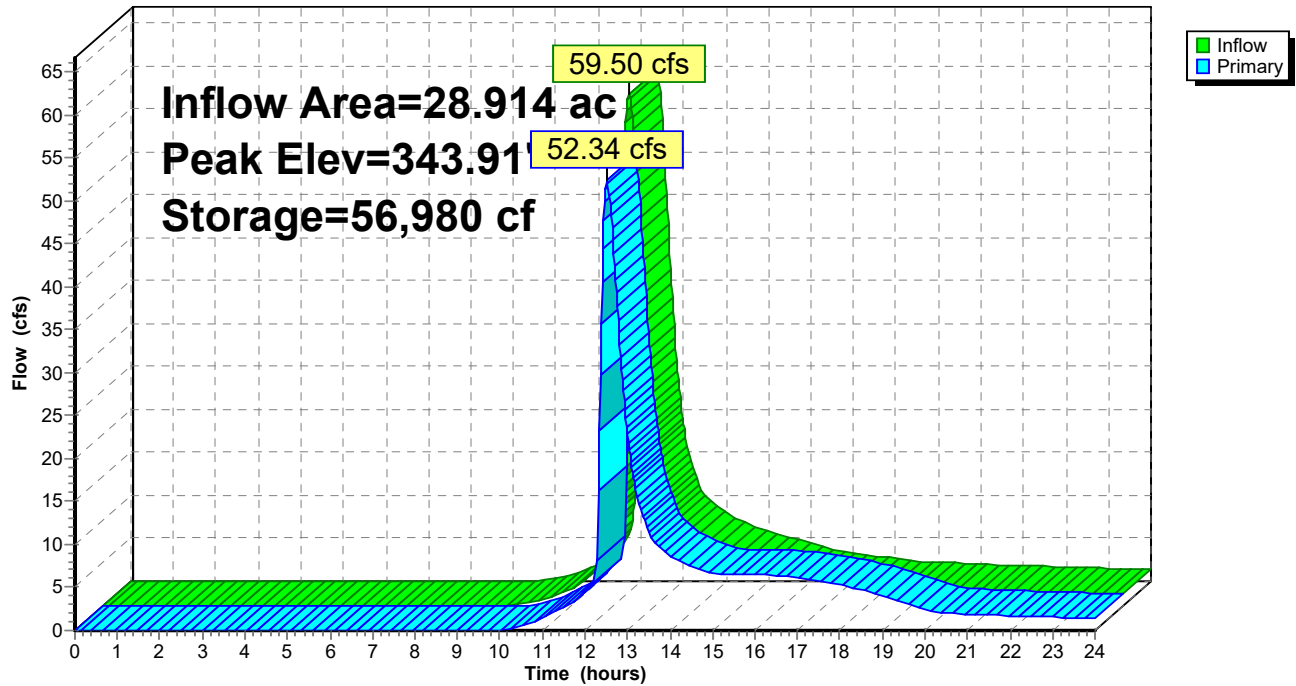
Primary OutFlow Max=52.33 cfs @ 12.52 hrs HW=343.91' TW=341.89' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.38 cfs @ 6.85 fps)

2=Asymmetrical Weir (Weir Controls 46.95 cfs @ 2.53 fps)

Pond 16P: P-1 Pr

Hydrograph



Stage-Area-Storage for Pond 16P: P-1 Pr

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
339.10	2,733	0	344.40	24,732	68,429
339.20	2,789	276	344.50	25,299	70,930
339.30	2,845	558	344.60	25,866	73,488
339.40	2,900	845	344.70	26,433	76,103
339.50	2,956	1,138	344.80	27,001	78,775
339.60	3,012	1,436	344.90	27,568	81,503
339.70	3,068	1,740	345.00	28,135	84,289
339.80	3,123	2,050	345.10	28,702	87,130
339.90	3,179	2,365	345.20	29,269	90,029
340.00	3,235	2,686	345.30	29,837	92,984
340.10	3,838	3,039	345.40	30,404	95,996
340.20	4,442	3,453	345.50	30,971	99,065
340.30	5,045	3,928	345.60	31,538	102,191
340.40	5,649	4,462	345.70	32,105	105,373
340.50	6,252	5,057	345.80	32,673	108,612
340.60	6,855	5,713	345.90	33,240	111,907
340.70	7,459	6,428	346.00	33,807	115,260
340.80	8,062	7,204			
340.90	8,666	8,041			
341.00	9,269	8,938			
341.10	9,872	9,895			
341.20	10,476	10,912			
341.30	11,079	11,990			
341.40	11,683	13,128			
341.50	12,286	14,326			
341.60	12,889	15,585			
341.70	13,493	16,904			
341.80	14,096	18,284			
341.90	14,700	19,723			
342.00	15,303	21,224			
342.10	15,661	22,772			
342.20	16,019	24,356			
342.30	16,377	25,976			
342.40	16,735	27,631			
342.50	17,093	29,323			
342.60	17,451	31,050			
342.70	17,809	32,813			
342.80	18,167	34,612			
342.90	18,525	36,446			
343.00	18,883	38,317			
343.10	19,241	40,223			
343.20	19,599	42,165			
343.30	19,957	44,143			
343.40	20,315	46,156			
343.50	20,673	48,206			
343.60	21,031	50,291			
343.70	21,389	52,412			
343.80	21,747	54,569			
343.90	22,105	56,761			
344.00	22,463	58,990			
344.10	23,030	61,264			
344.20	23,597	63,596			
344.30	24,165	65,984			

Summary for Pond P1: Porous 1

Inflow Area = 0.173 ac, 9.04% Impervious, Inflow Depth > 4.78" for 25-Year event
 Inflow = 0.98 cfs @ 12.07 hrs, Volume= 0.069 af
 Outflow = 0.82 cfs @ 12.13 hrs, Volume= 0.045 af, Atten= 16%, Lag= 3.2 min
 Primary = 0.82 cfs @ 12.13 hrs, Volume= 0.045 af
 Routed to Link 3L : Junction 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 344.87' @ 12.13 hrs Storage= 1,150 cf

Plug-Flow detention time= 171.3 min calculated for 0.045 af (66% of inflow)
 Center-of-Mass det. time= 73.8 min (872.8 - 799.0)

Volume	Invert	Avail.Storage	Storage Description
#1	342.70'	1,295 cf	Custom Stage Data Listed below

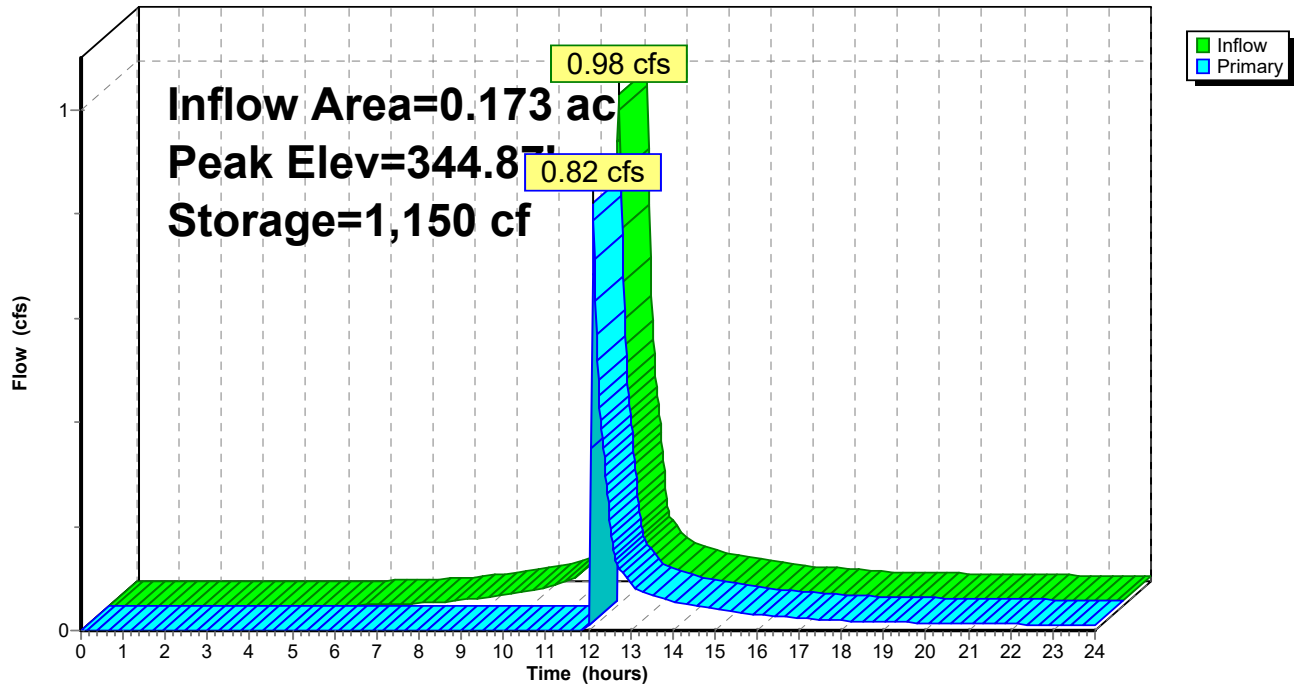
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.70	0	0
344.20	608	608
344.37	138	746
344.70	262	1,008
345.05	287	1,295

Device	Routing	Invert	Outlet Devices
#1	Primary	344.70'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 0.01 17.50 Height (feet) 0.35 0.00 0.35

Primary OutFlow Max=0.80 cfs @ 12.13 hrs HW=344.87' TW=0.00' (Dynamic Tailwater)
 ↑1=Asymmetrical Weir (Weir Controls 0.80 cfs @ 0.54 fps)

Pond P1: Porous 1

Hydrograph



Stage-Area-Storage for Pond P1: Porous 1

Elevation (feet)	Storage (cubic-feet)
342.70	0
342.80	41
342.90	81
343.00	122
343.10	162
343.20	203
343.30	243
343.40	284
343.50	324
343.60	365
343.70	405
343.80	446
343.90	486
344.00	527
344.10	567
344.20	608
344.30	689
344.40	770
344.50	849
344.60	929
344.70	1,008
344.80	1,090
344.90	1,172
345.00	1,254

Summary for Pond P2: Porous 2

Inflow Area = 0.100 ac, 17.18% Impervious, Inflow Depth > 4.48" for 25-Year event
 Inflow = 0.54 cfs @ 12.07 hrs, Volume= 0.037 af
 Outflow = 0.31 cfs @ 12.19 hrs, Volume= 0.022 af, Atten= 43%, Lag= 6.7 min
 Primary = 0.31 cfs @ 12.19 hrs, Volume= 0.022 af
 Routed to Link 3L : Junction 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 344.41' @ 12.19 hrs Storage= 692 cf

Plug-Flow detention time= 188.6 min calculated for 0.022 af (59% of inflow)
 Center-of-Mass det. time= 84.7 min (890.9 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	342.30'	1,012 cf	Custom Stage Data Listed below

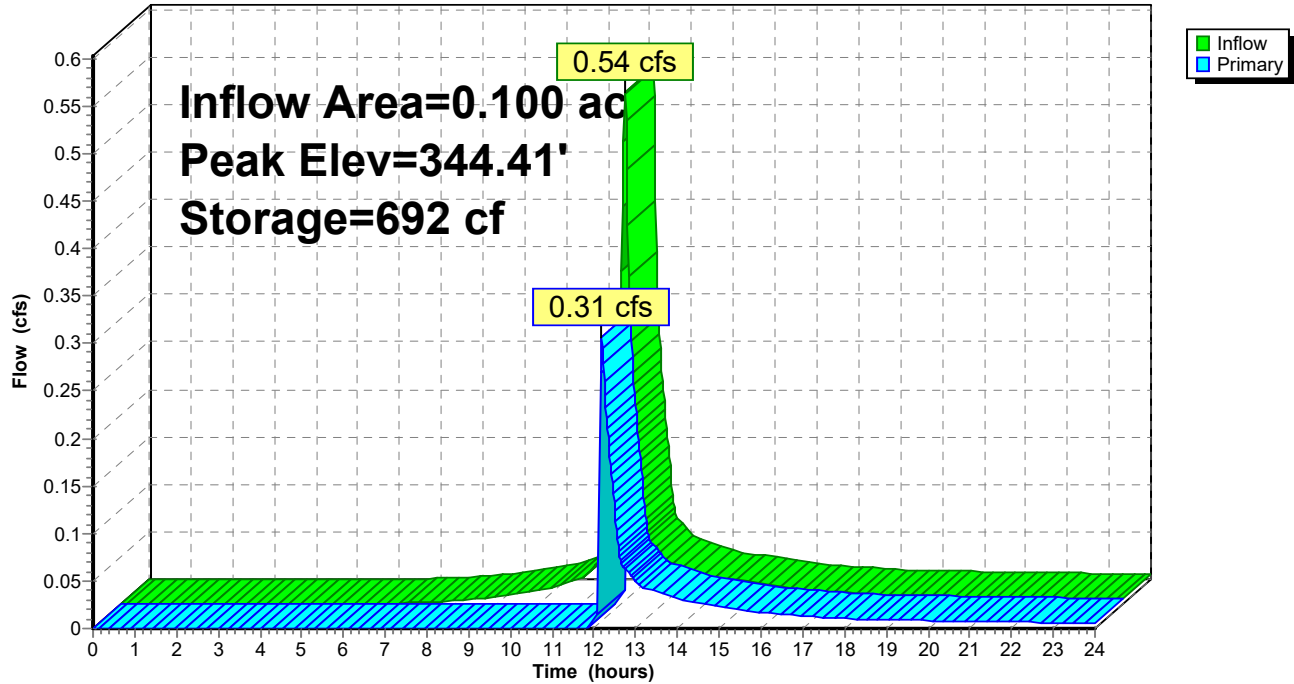
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.30	0	0
342.72	78	78
343.97	465	543
344.30	114	657
344.72	133	790
345.05	222	1,012

Device	Routing	Invert	Outlet Devices
#1	Primary	344.30'	3.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.30 cfs @ 12.19 hrs HW=344.41' TW=0.00' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 0.30 cfs @ 0.92 fps)

Pond P2: Porous 2

Hydrograph



Stage-Area-Storage for Pond P2: Porous 2

Elevation (feet)	Storage (cubic-feet)
342.30	0
342.40	19
342.50	37
342.60	56
342.70	74
342.80	108
342.90	145
343.00	182
343.10	219
343.20	257
343.30	294
343.40	331
343.50	368
343.60	405
343.70	443
343.80	480
343.90	517
344.00	553
344.10	588
344.20	622
344.30	657
344.40	689
344.50	720
344.60	752
344.70	784
344.80	844
344.90	911
345.00	978

Summary for Pond P3: Porous 3

Inflow Area = 0.131 ac, 21.55% Impervious, Inflow Depth > 4.77" for 25-Year event
 Inflow = 0.74 cfs @ 12.07 hrs, Volume= 0.052 af
 Outflow = 0.05 cfs @ 13.75 hrs, Volume= 0.015 af, Atten= 94%, Lag= 100.5 min
 Primary = 0.05 cfs @ 13.75 hrs, Volume= 0.015 af
 Routed to Link 4L : Junction 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 344.57' @ 13.75 hrs Storage= 1,628 cf

Plug-Flow detention time= 369.0 min calculated for 0.015 af (29% of inflow)
 Center-of-Mass det. time= 228.1 min (1,027.3 - 799.3)

Volume	Invert	Avail.Storage	Storage Description
#1	342.55'	2,990 cf	Custom Stage Data Listed below

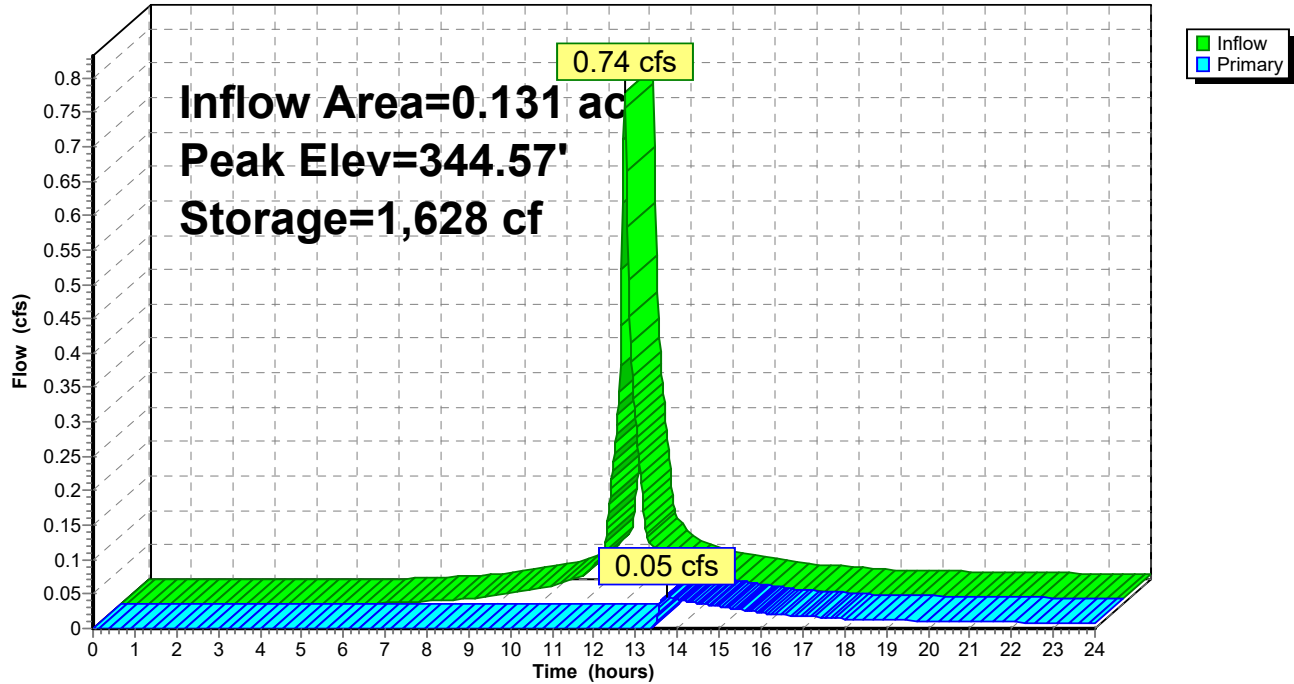
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.55	0	0
343.70	656	656
344.22	594	1,250
344.55	362	1,612
345.37	663	2,275
345.70	715	2,990

Device	Routing	Invert	Outlet Devices
#1	Primary	344.55'	6.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.05 cfs @ 13.75 hrs HW=344.57' TW=0.00' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 0.05 cfs @ 0.39 fps)

Pond P3: Porous 3

Hydrograph



Stage-Area-Storage for Pond P3: Porous 3

Elevation (feet)	Storage (cubic-feet)
342.55	0
342.65	57
342.75	114
342.85	171
342.95	228
343.05	285
343.15	342
343.25	399
343.35	456
343.45	513
343.55	570
343.65	627
343.75	713
343.85	827
343.95	942
344.05	1,056
344.15	1,170
344.25	1,283
344.35	1,393
344.45	1,502
344.55	1,612
344.65	1,693
344.75	1,774
344.85	1,855
344.95	1,935
345.05	2,016
345.15	2,097
345.25	2,178
345.35	2,259
345.45	2,448
345.55	2,665
345.65	2,882

Summary for Pond P4: Porous 4

Inflow Area = 0.101 ac, 8.08% Impervious, Inflow Depth > 4.32" for 25-Year event
 Inflow = 0.53 cfs @ 12.07 hrs, Volume= 0.036 af
 Outflow = 0.29 cfs @ 12.19 hrs, Volume= 0.022 af, Atten= 46%, Lag= 7.0 min
 Primary = 0.29 cfs @ 12.19 hrs, Volume= 0.022 af
 Routed to Link 4L : Junction 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 345.11' @ 12.19 hrs Storage= 666 cf

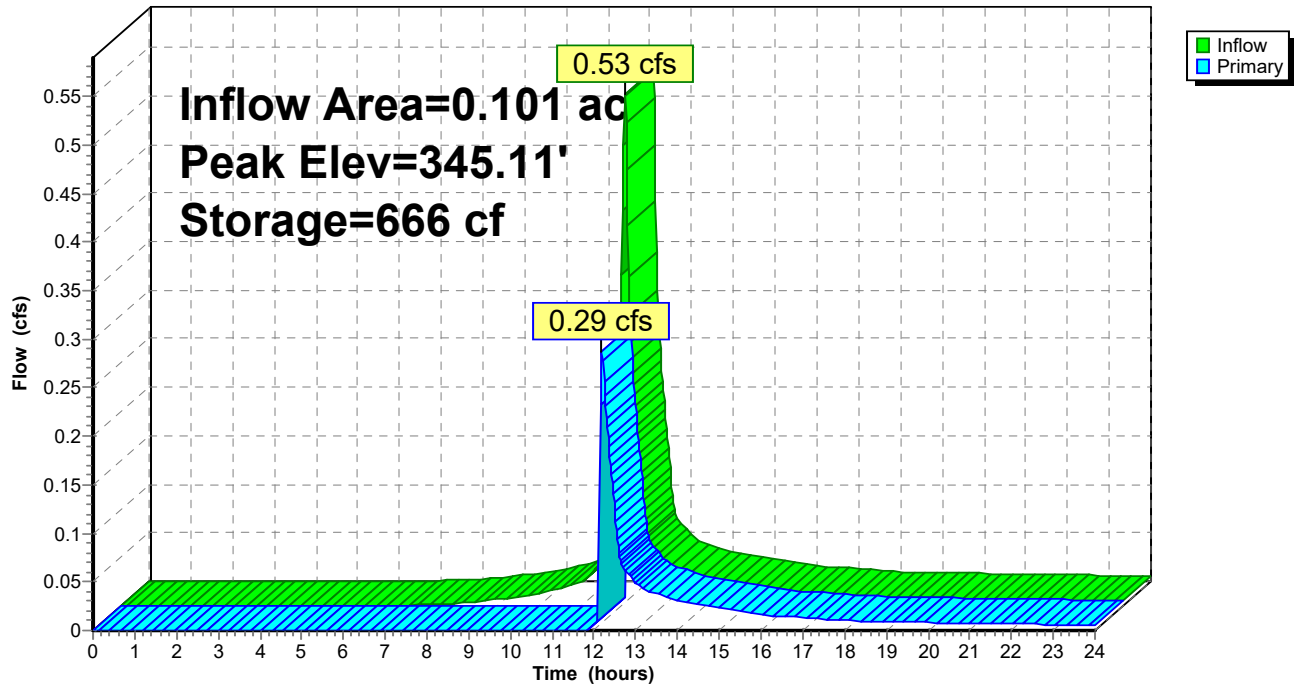
Plug-Flow detention time= 186.9 min calculated for 0.022 af (60% of inflow)
 Center-of-Mass det. time= 82.9 min (892.7 - 809.7)

Volume	Invert	Avail.Storage	Storage Description
#1	343.00'	977 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
343.00	0	0
343.70	136	136
344.67	376	512
345.00	119	631
345.37	122	753
345.70	224	977

Device	Routing	Invert	Outlet Devices
#1	Primary	345.00'	3.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.29 cfs @ 12.19 hrs HW=345.10' TW=0.00' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 0.29 cfs @ 0.91 fps)

Pond P4: Porous 4**Hydrograph**

Stage-Area-Storage for Pond P4: Porous 4

Elevation (feet)	Storage (cubic-feet)
343.00	0
343.10	19
343.20	39
343.30	58
343.40	78
343.50	97
343.60	117
343.70	136
343.80	175
343.90	214
344.00	252
344.10	291
344.20	330
344.30	369
344.40	407
344.50	446
344.60	485
344.70	523
344.80	559
344.90	595
345.00	631
345.10	664
345.20	697
345.30	730
345.40	773
345.50	841
345.60	909
345.70	977

Summary for Pond P5: Porous 5

Inflow Area = 0.301 ac, 6.53% Impervious, Inflow Depth > 4.50" for 25-Year event
 Inflow = 1.62 cfs @ 12.07 hrs, Volume= 0.113 af
 Outflow = 1.62 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.2 min
 Primary = 1.62 cfs @ 12.08 hrs, Volume= 0.092 af
 Routed to Link 5L : East

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 343.94' @ 12.08 hrs Storage= 944 cf

Plug-Flow detention time= 110.5 min calculated for 0.092 af (81% of inflow)
 Center-of-Mass det. time= 37.8 min (843.6 - 805.8)

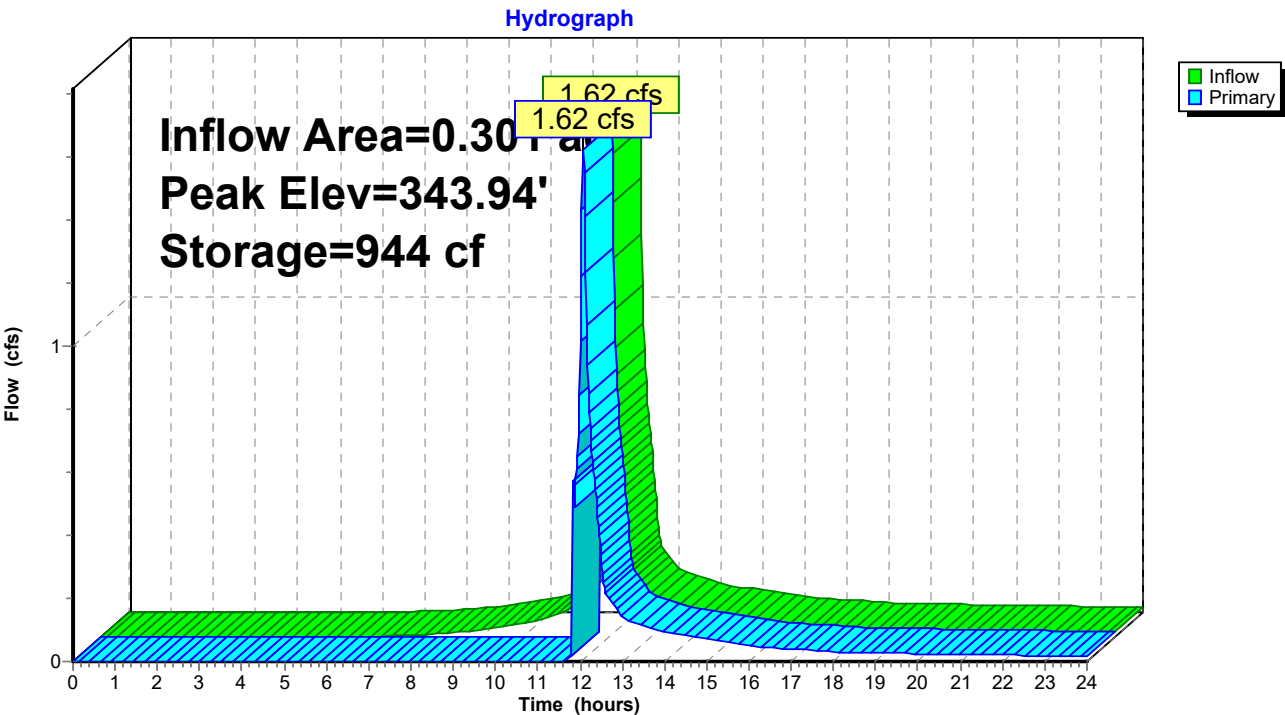
Volume	Invert	Avail.Storage	Storage Description
#1	341.90'	1,064 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.90	0	0
342.10	52	52
343.57	762	814
343.77	73	887
343.90	27	914
344.10	150	1,064

Device	Routing	Invert	Outlet Devices
#1	Primary	343.90'	72.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.62 cfs @ 12.08 hrs HW=343.94' TW=0.00' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 1.62 cfs @ 0.56 fps)

Pond P5: Porous 5



Stage-Area-Storage for Pond P5: Porous 5

Elevation (feet)	Storage (cubic-feet)
341.90	0
342.00	26
342.10	52
342.20	104
342.30	156
342.40	208
342.50	259
342.60	311
342.70	363
342.80	415
342.90	467
343.00	519
343.10	570
343.20	622
343.30	674
343.40	726
343.50	778
343.60	825
343.70	861
343.80	893
343.90	914
344.00	989
344.10	1,064

Summary for Pond P6: Porous 6

Inflow Area = 0.260 ac, 2.38% Impervious, Inflow Depth > 4.62" for 25-Year event
 Inflow = 1.44 cfs @ 12.07 hrs, Volume= 0.100 af
 Outflow = 1.17 cfs @ 12.14 hrs, Volume= 0.061 af, Atten= 18%, Lag= 4.1 min
 Primary = 1.17 cfs @ 12.14 hrs, Volume= 0.061 af
 Routed to Link 6L : West

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 343.05' @ 12.14 hrs Storage= 1,759 cf

Plug-Flow detention time= 183.2 min calculated for 0.061 af (61% of inflow)
 Center-of-Mass det. time= 80.4 min (883.4 - 803.0)

Volume	Invert	Avail.Storage	Storage Description
#1	341.00'	2,870 cf	Custom Stage Data Listed below

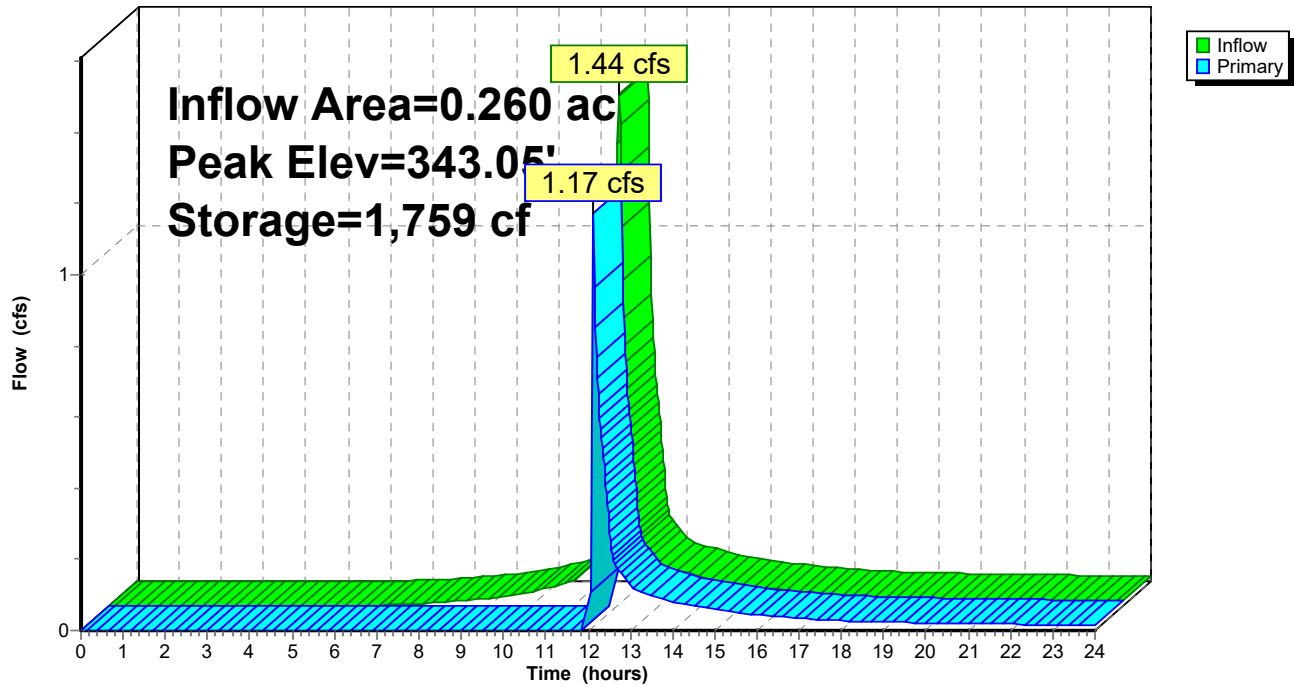
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.00	0	0
341.80	436	436
342.67	949	1,385
343.00	326	1,711
343.47	453	2,164
343.80	706	2,870

Device	Routing	Invert	Outlet Devices
#1	Primary	343.00'	38.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.15 cfs @ 12.14 hrs HW=343.05' TW=0.00' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 1.15 cfs @ 0.62 fps)

Pond P6: Porous 6

Hydrograph



Stage-Area-Storage for Pond P6: Porous 6

Elevation (feet)	Storage (cubic-feet)
341.00	0
341.10	55
341.20	109
341.30	164
341.40	218
341.50	272
341.60	327
341.70	381
341.80	436
341.90	545
342.00	654
342.10	763
342.20	872
342.30	981
342.40	1,090
342.50	1,200
342.60	1,309
342.70	1,415
342.80	1,513
342.90	1,612
343.00	1,711
343.10	1,807
343.20	1,904
343.30	2,000
343.40	2,097
343.50	2,228
343.60	2,442
343.70	2,656
343.80	2,870

Summary for Pond P7: Porous 7

Inflow Area = 0.261 ac, 7.35% Impervious, Inflow Depth > 3.73" for 25-Year event
 Inflow = 1.18 cfs @ 12.08 hrs, Volume= 0.081 af
 Outflow = 1.18 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.2 min
 Primary = 1.18 cfs @ 12.08 hrs, Volume= 0.071 af
 Routed to Link 6L : West

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 342.26' @ 12.08 hrs Storage= 474 cf

Plug-Flow detention time= 81.8 min calculated for 0.071 af (87% of inflow)
 Center-of-Mass det. time= 24.8 min (847.7 - 822.9)

Volume	Invert	Avail.Storage	Storage Description
#1	340.10'	726 cf	Custom Stage Data Listed below

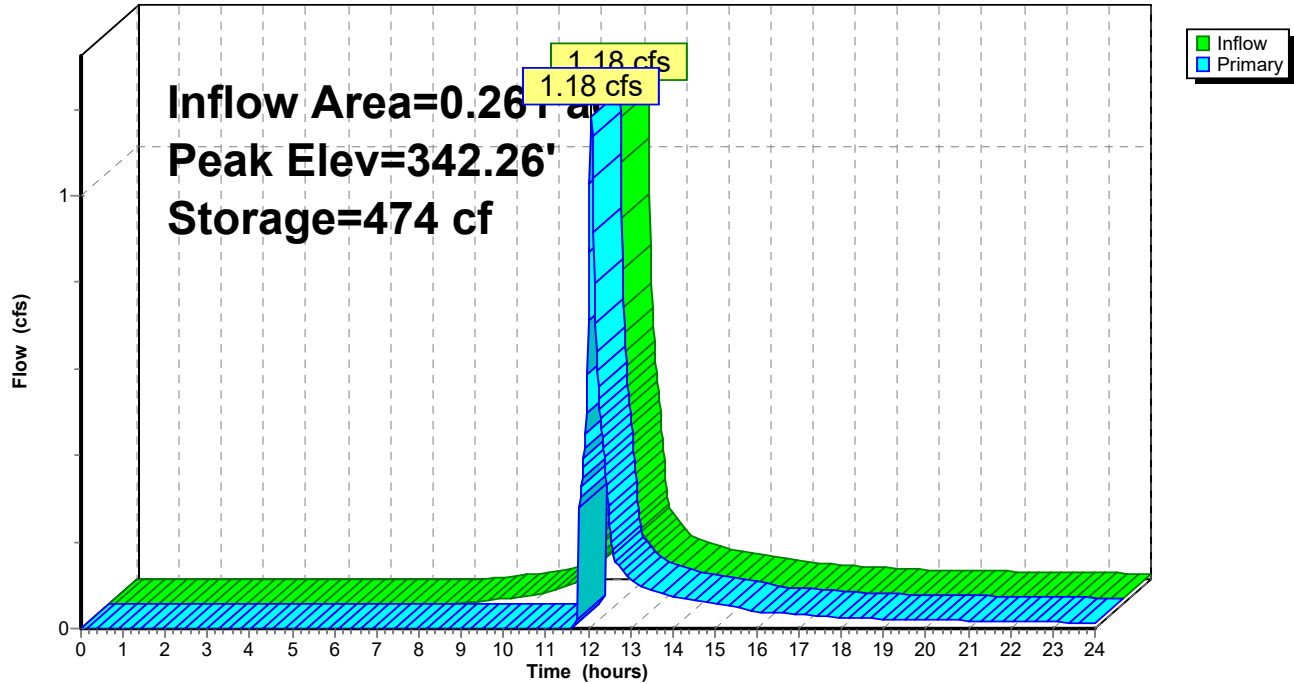
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.10	0	0
341.00	129	129
341.77	220	349
342.10	91	440
342.67	119	559
343.00	167	726

Device	Routing	Invert	Outlet Devices
#1	Primary	342.10'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 4.60 16.60 Height (feet) 0.20 0.00 0.20

Primary OutFlow Max=1.18 cfs @ 12.08 hrs HW=342.26' TW=0.00' (Dynamic Tailwater)
 ↑1=Asymmetrical Weir (Weir Controls 1.18 cfs @ 0.53 fps)

Pond P7: Porous 7

Hydrograph



Stage-Area-Storage for Pond P7: Porous 7

Elevation (feet)	Storage (cubic-feet)
340.10	0
340.20	14
340.30	29
340.40	43
340.50	57
340.60	72
340.70	86
340.80	100
340.90	115
341.00	129
341.10	158
341.20	186
341.30	215
341.40	243
341.50	272
341.60	300
341.70	329
341.80	357
341.90	385
342.00	412
342.10	440
342.20	461
342.30	482
342.40	503
342.50	524
342.60	544
342.70	574
342.80	625
342.90	675
343.00	726

Summary for Pond P8: Porous 8

Inflow Area = 0.114 ac, 15.40% Impervious, Inflow Depth > 4.75" for 25-Year event
 Inflow = 0.64 cfs @ 12.07 hrs, Volume= 0.045 af
 Outflow = 0.39 cfs @ 12.17 hrs, Volume= 0.040 af, Atten= 39%, Lag= 5.7 min
 Primary = 0.39 cfs @ 12.17 hrs, Volume= 0.040 af
 Routed to Pond 15P : P-2 Pr

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 345.42' @ 12.17 hrs Storage= 556 cf

Plug-Flow detention time= 97.7 min calculated for 0.040 af (89% of inflow)
 Center-of-Mass det. time= 45.7 min (845.5 - 799.8)

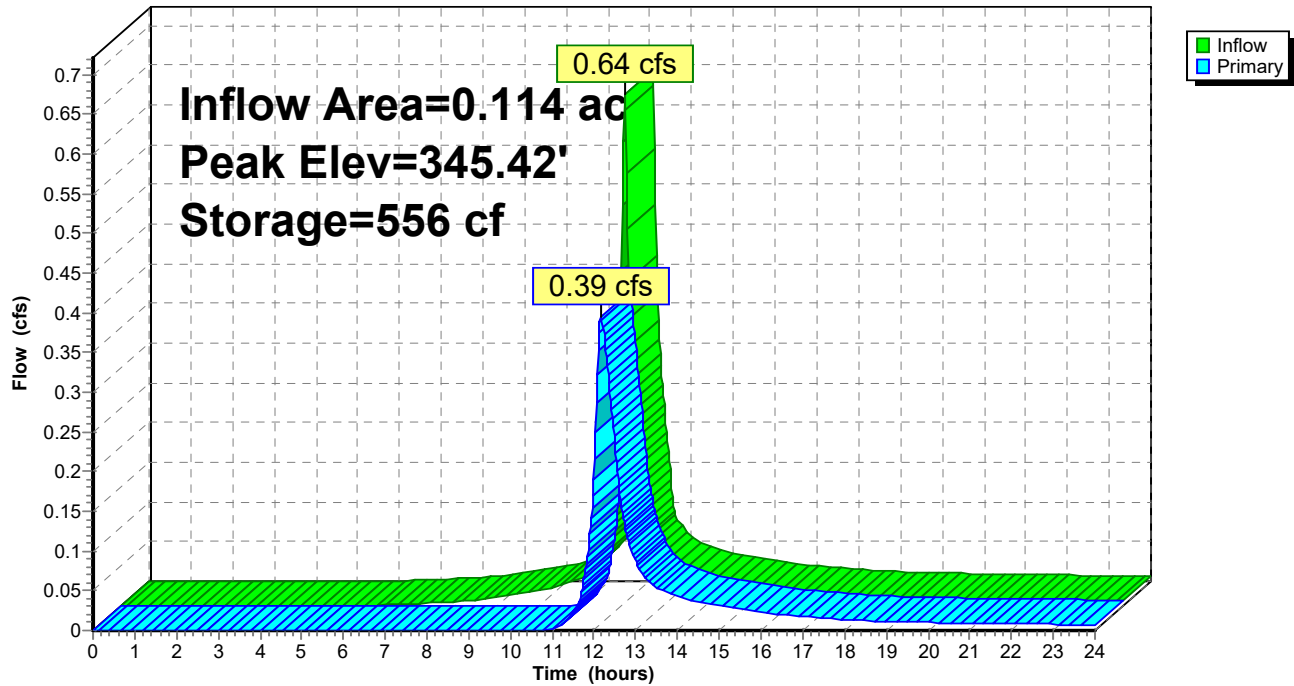
Volume	Invert	Avail.Storage	Storage Description
#1	344.80'	2,067 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
344.80	0	0
346.03	1,095	1,095
346.20	170	1,265
346.38	170	1,435
346.45	53	1,488
346.55	60	1,548
346.80	519	2,067

Device	Routing	Invert	Outlet Devices
#1	Primary	345.00'	6.0" Round Culvert L= 21.0' Ke= 0.500 Inlet / Outlet Invert= 345.00' / 344.50' S= 0.0238 ' S Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Primary	346.50'	Asymmetrical Weir, C= 3.27 Offset (feet) 0.00 0.01 18.95 Height (feet) 1.30 0.00 1.30

Primary OutFlow Max=0.39 cfs @ 12.17 hrs HW=345.42' TW=340.19' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 0.39 cfs @ 2.22 fps)
 ↓ **2=Asymmetrical Weir** (Controls 0.00 cfs)

Pond P8: Porous 8**Hydrograph**

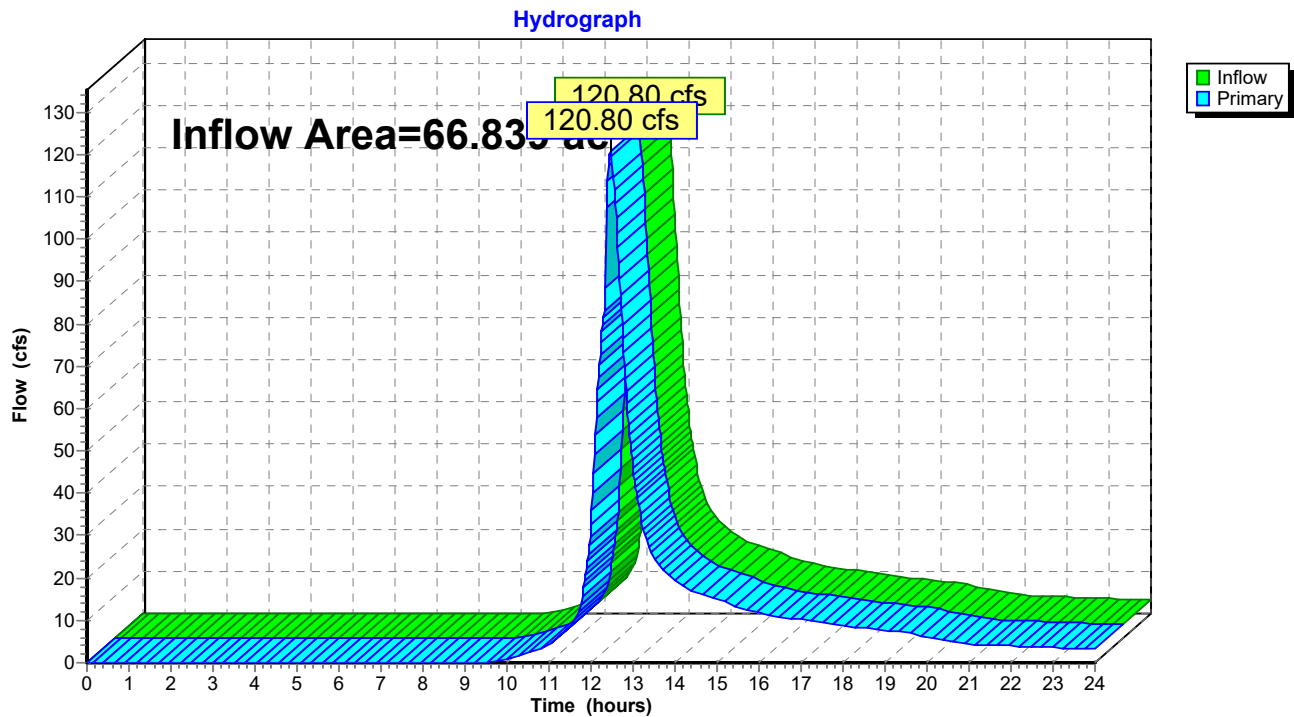
Stage-Area-Storage for Pond P8: Porous 8

Elevation (feet)	Storage (cubic-feet)
344.80	0
344.90	89
345.00	178
345.10	267
345.20	356
345.30	445
345.40	534
345.50	623
345.60	712
345.70	801
345.80	890
345.90	979
346.00	1,068
346.10	1,165
346.20	1,265
346.30	1,359
346.40	1,450
346.50	1,518
346.60	1,652
346.70	1,859
346.80	2,067
346.90	2,067
347.00	2,067
347.10	2,067
347.20	2,067
347.30	2,067
347.40	2,067
347.50	2,067
347.60	2,067
347.70	2,067
347.80	2,067

Summary for Link 1L: Out Existing

Inflow Area = 66.839 ac, 18.47% Impervious, Inflow Depth > 3.00" for 25-Year event
Inflow = 120.80 cfs @ 12.46 hrs, Volume= 16.734 af
Primary = 120.80 cfs @ 12.46 hrs, Volume= 16.734 af, Atten= 0%, Lag= 0.0 min

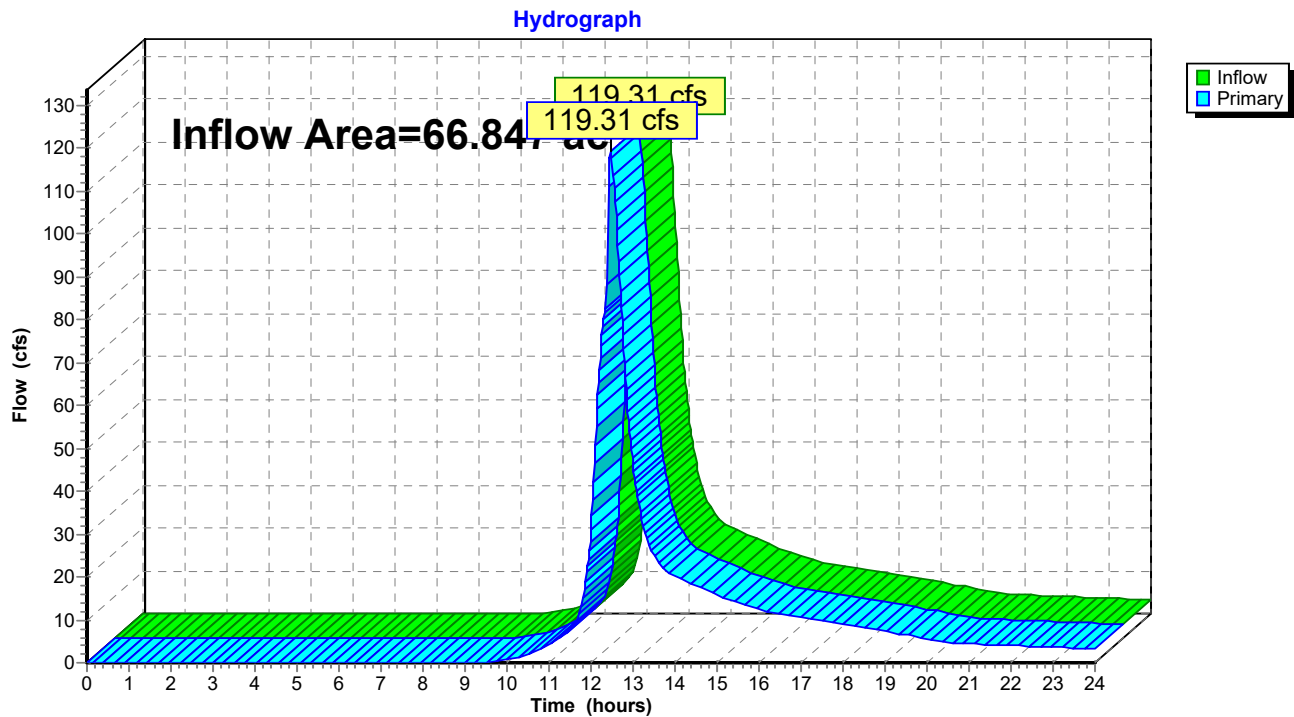
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 1L: Out Existing

Summary for Link 2L: Out Proposed

Inflow Area = 66.847 ac, 17.88% Impervious, Inflow Depth > 2.99" for 25-Year event
Inflow = 119.31 cfs @ 12.47 hrs, Volume= 16.641 af
Primary = 119.31 cfs @ 12.47 hrs, Volume= 16.641 af, Atten= 0%, Lag= 0.0 min

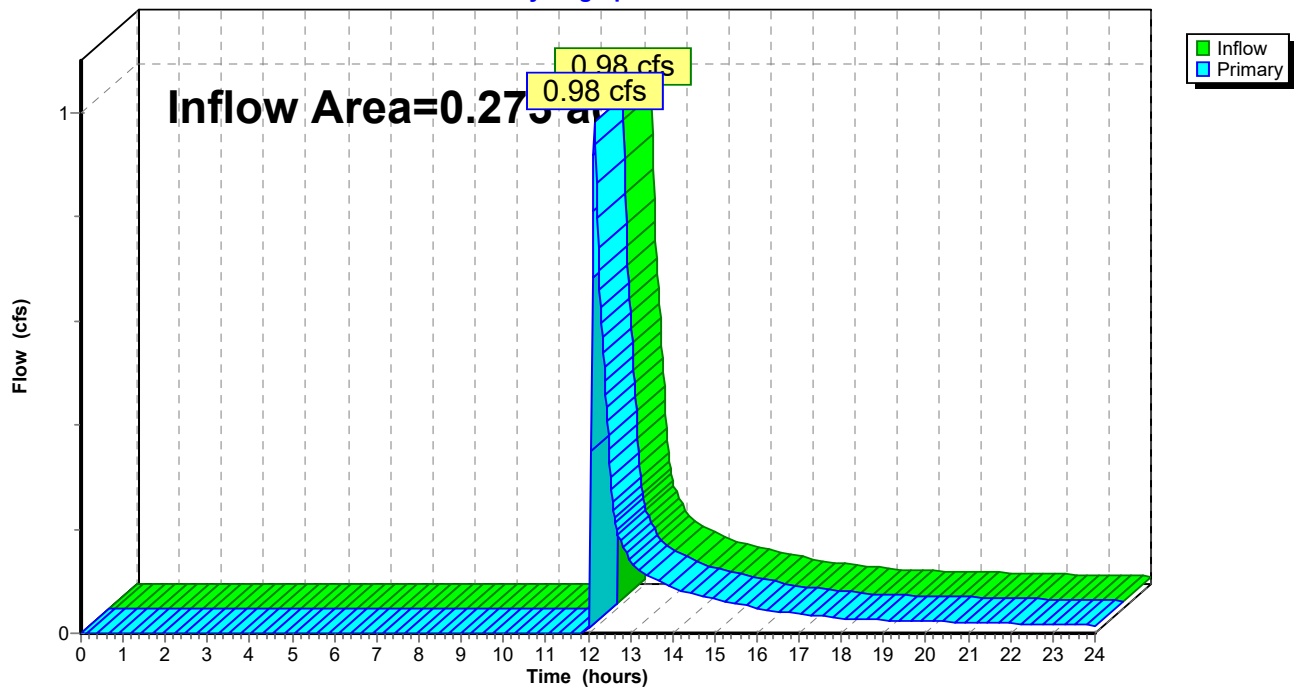
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 2L: Out Proposed

Summary for Link 3L: Junction 1

Inflow Area = 0.273 ac, 12.03% Impervious, Inflow Depth > 2.96" for 25-Year event
Inflow = 0.98 cfs @ 12.16 hrs, Volume= 0.067 af
Primary = 0.98 cfs @ 12.16 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : East

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 3L: Junction 1**Hydrograph**

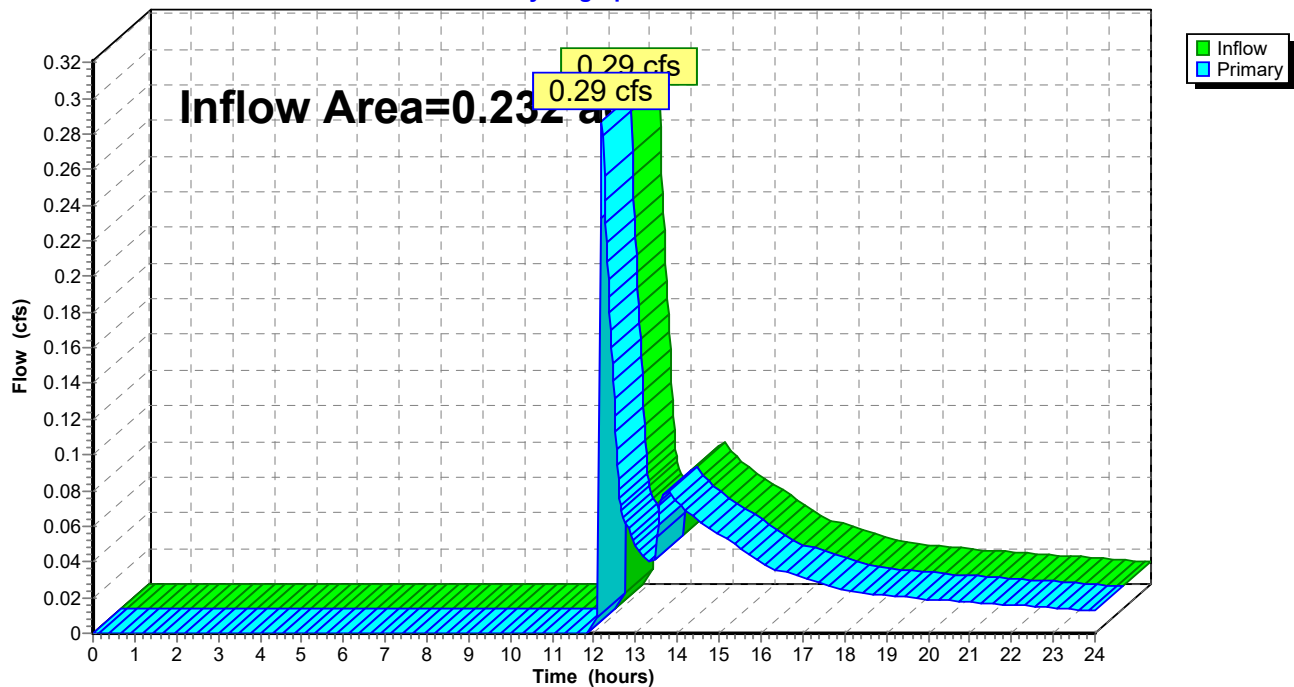
Summary for Link 4L: Junction 2

Inflow Area = 0.232 ac, 15.68% Impervious, Inflow Depth > 1.91" for 25-Year event
Inflow = 0.29 cfs @ 12.19 hrs, Volume= 0.037 af
Primary = 0.29 cfs @ 12.19 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : East

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 4L: Junction 2

Hydrograph



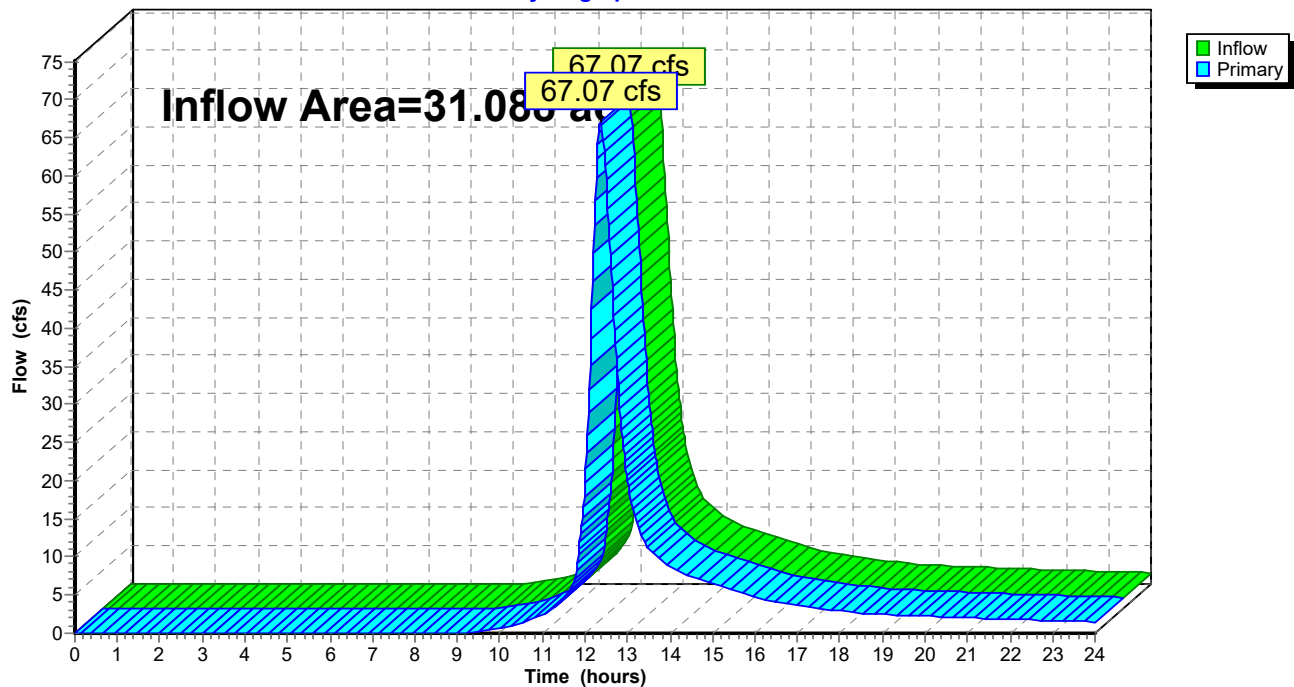
Summary for Link 5L: East

Inflow Area = 31.088 ac, 23.45% Impervious, Inflow Depth > 3.08" for 25-Year event
Inflow = 67.07 cfs @ 12.37 hrs, Volume= 7.992 af
Primary = 67.07 cfs @ 12.37 hrs, Volume= 7.992 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : Out Proposed

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 5L: East

Hydrograph



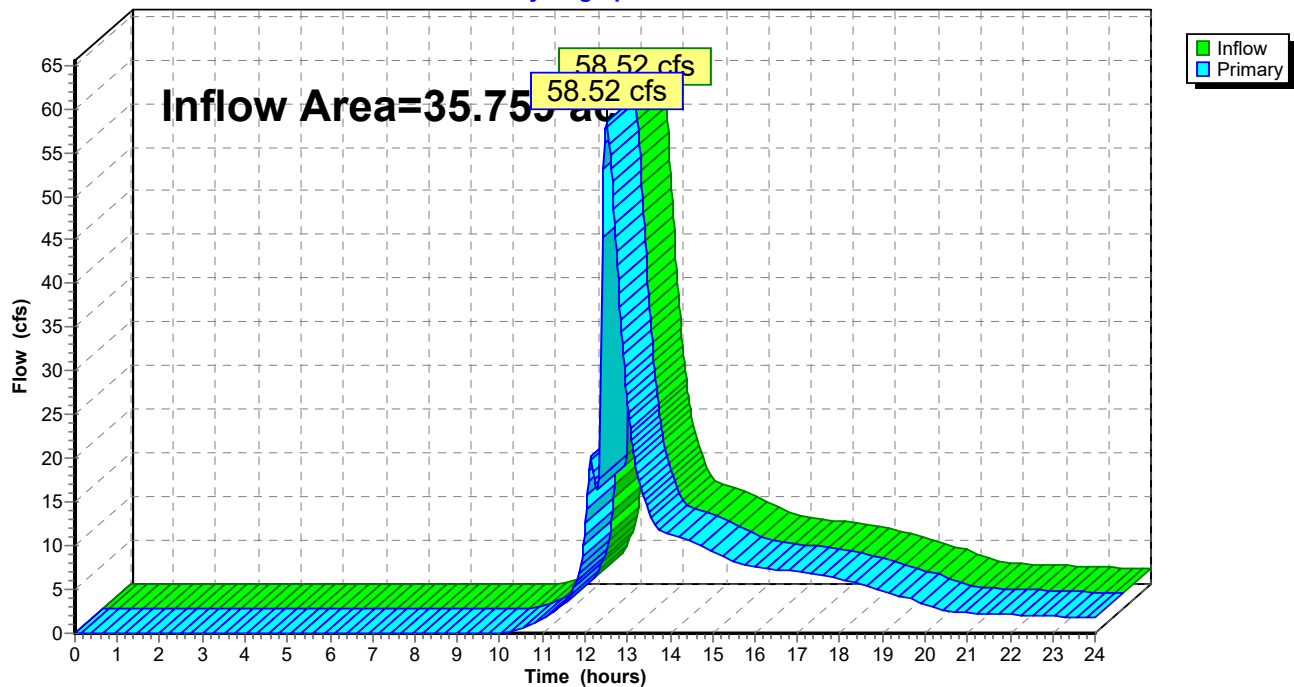
Summary for Link 6L: West

Inflow Area = 35.759 ac, 13.03% Impervious, Inflow Depth > 2.90" for 25-Year event
Inflow = 58.52 cfs @ 12.51 hrs, Volume= 8.649 af
Primary = 58.52 cfs @ 12.51 hrs, Volume= 8.649 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : Out Proposed

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 6L: West

Hydrograph



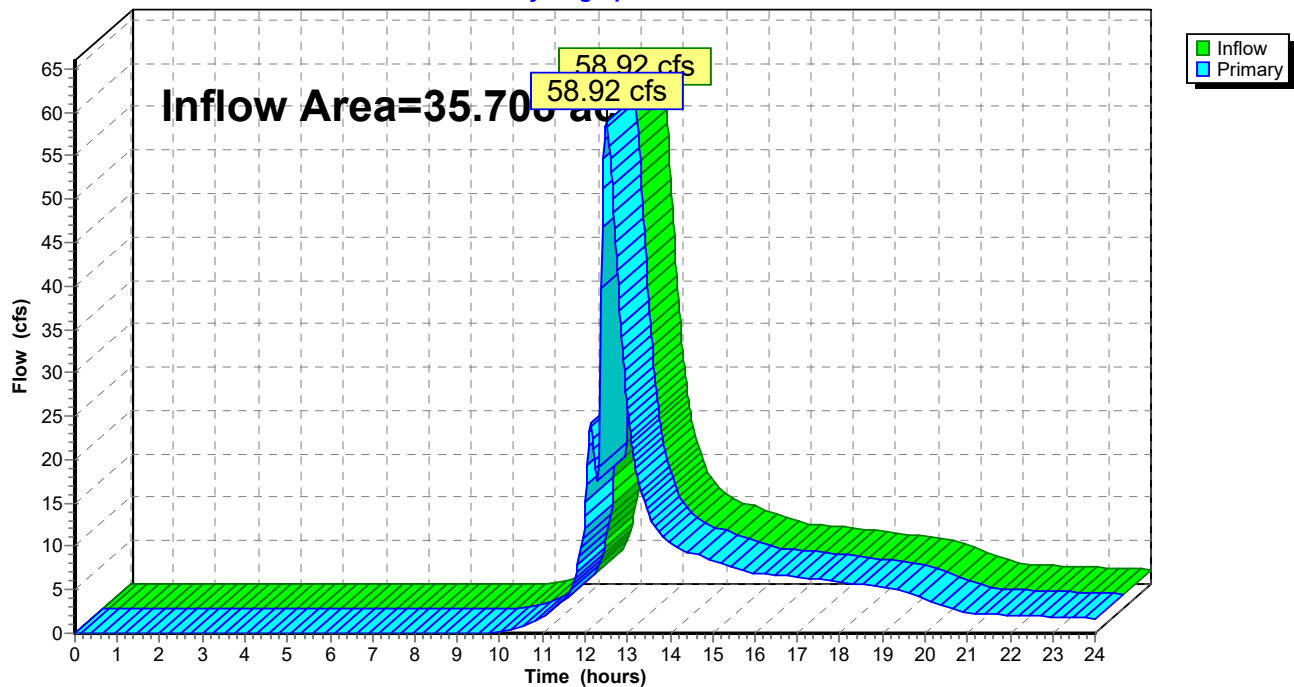
Summary for Link 9L: West Ex

Inflow Area = 35.708 ac, 13.89% Impervious, Inflow Depth > 2.93" for 25-Year event
Inflow = 58.92 cfs @ 12.51 hrs, Volume= 8.720 af
Primary = 58.92 cfs @ 12.51 hrs, Volume= 8.720 af, Atten= 0%, Lag= 0.0 min
Routed to Link 1L : Out Existing

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Link 9L: West Ex

Hydrograph



Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1C: W-3 Ex	Runoff Area=5.922 ac 13.05% Impervious Runoff Depth>4.38" Flow Length=331' Tc=8.7 min CN=65.8 Runoff=27.70 cfs 2.162 af
Subcatchment2C: East Basin	Runoff Area=31.131 ac 23.71% Impervious Runoff Depth>4.59" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=101.19 cfs 11.906 af
Subcatchment3C: Porous 6	Runoff Area=11,337 sf 2.38% Impervious Runoff Depth>6.35" Tc=5.0 min CN=82.2 Runoff=1.95 cfs 0.138 af
Subcatchment4C: Porous 7	Runoff Area=11,373 sf 7.35% Impervious Runoff Depth>5.35" Tc=5.0 min CN=73.9 Runoff=1.69 cfs 0.116 af
Subcatchment5C: Porous 8	Runoff Area=4,967 sf 15.40% Impervious Runoff Depth>6.49" Tc=5.0 min CN=83.4 Runoff=0.87 cfs 0.062 af
Subcatchment7C: East Bypass	Runoff Area=30.282 ac 23.78% Impervious Runoff Depth>4.59" Flow Length=499' Tc=26.1 min CN=67.7 Runoff=98.43 cfs 11.582 af
Subcatchment7S: W-2 Ex	Runoff Area=0.832 ac 16.11% Impervious Runoff Depth>4.53" Flow Length=322' Tc=7.1 min CN=67.0 Runoff=4.25 cfs 0.314 af
Subcatchment8C: Porous 1	Runoff Area=7,524 sf 9.04% Impervious Runoff Depth>6.53" Tc=5.0 min CN=83.7 Runoff=1.32 cfs 0.094 af
Subcatchment8S: W-1 Ex	Runoff Area=28.954 ac 14.00% Impervious Runoff Depth>4.42" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=90.27 cfs 10.673 af
Subcatchment9C: Porous 2	Runoff Area=4,365 sf 17.18% Impervious Runoff Depth>6.19" Tc=5.0 min CN=80.9 Runoff=0.74 cfs 0.052 af
Subcatchment10C: Porous 3	Runoff Area=5,707 sf 21.55% Impervious Runoff Depth>6.51" Tc=5.0 min CN=83.6 Runoff=1.00 cfs 0.071 af
Subcatchment11C: Porous 4	Runoff Area=4,406 sf 8.08% Impervious Runoff Depth>6.02" Tc=5.0 min CN=79.5 Runoff=0.73 cfs 0.051 af
Subcatchment12C: Porous 5	Runoff Area=13,103 sf 6.53% Impervious Runoff Depth>6.21" Tc=5.0 min CN=81.1 Runoff=2.21 cfs 0.156 af
Subcatchment12S: W-3 Pr	Runoff Area=3.733 ac 9.24% Impervious Runoff Depth>4.22" Flow Length=331' Tc=8.7 min CN=64.4 Runoff=16.78 cfs 1.311 af
Subcatchment13S: W-2 Pr	Runoff Area=2.477 ac 8.56% Impervious Runoff Depth>4.19" Flow Length=322' Tc=7.1 min CN=64.2 Runoff=11.69 cfs 0.866 af
Subcatchment14S: W-1 Pr	Runoff Area=28.914 ac 14.05% Impervious Runoff Depth>4.42" Flow Length=985' Tc=26.4 min CN=66.3 Runoff=90.15 cfs 10.658 af

Pond 10P: P-2 Ex	Peak Elev=343.14' Storage=8,343 cf Inflow=87.72 cfs 10.935 af Outflow=87.67 cfs 10.924 af
Pond 11P: P-1 Ex	Peak Elev=344.27' Storage=65,232 cf Inflow=90.27 cfs 10.673 af Outflow=86.34 cfs 10.621 af
Pond 15P: P-2 Pr	Peak Elev=342.05' Storage=18,477 cf Inflow=90.57 cfs 11.529 af Outflow=90.51 cfs 11.496 af
Pond 16P: P-1 Pr	Peak Elev=344.26' Storage=64,934 cf Inflow=90.15 cfs 10.658 af Outflow=86.28 cfs 10.607 af
Pond P1: Porous 1	Peak Elev=344.91' Storage=1,179 cf Inflow=1.32 cfs 0.094 af Outflow=1.30 cfs 0.070 af
Pond P2: Porous 2	Peak Elev=344.49' Storage=718 cf Inflow=0.74 cfs 0.052 af Outflow=0.72 cfs 0.037 af
Pond P3: Porous 3	Peak Elev=344.62' Storage=1,672 cf Inflow=1.00 cfs 0.071 af Outflow=0.34 cfs 0.034 af
Pond P4: Porous 4	Peak Elev=345.19' Storage=694 cf Inflow=0.73 cfs 0.051 af Outflow=0.70 cfs 0.036 af
Pond P5: Porous 5	Peak Elev=343.95' Storage=951 cf Inflow=2.21 cfs 0.156 af Outflow=2.21 cfs 0.135 af
Pond P6: Porous 6	Peak Elev=343.07' Storage=1,778 cf Inflow=1.95 cfs 0.138 af Outflow=1.94 cfs 0.098 af
Pond P7: Porous 7	Peak Elev=342.29' Storage=479 cf Inflow=1.69 cfs 0.116 af Outflow=1.69 cfs 0.106 af
Pond P8: Porous 8	Peak Elev=345.55' Storage=665 cf Inflow=0.87 cfs 0.062 af Outflow=0.52 cfs 0.056 af
Link 1L: Out Existing	Inflow=197.40 cfs 24.993 af Primary=197.40 cfs 24.993 af
Link 2L: Out Proposed	Inflow=195.99 cfs 24.905 af Primary=195.99 cfs 24.905 af
Link 3L: Junction 1	Inflow=2.01 cfs 0.107 af Primary=2.01 cfs 0.107 af
Link 4L: Junction 2	Inflow=0.70 cfs 0.070 af Primary=0.70 cfs 0.070 af
Link 5L: East	Inflow=100.42 cfs 11.893 af Primary=100.42 cfs 11.893 af
Link 6L: West	Inflow=97.91 cfs 13.012 af Primary=97.91 cfs 13.012 af

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Type III 24-hr 100-Year Rainfall=8.49"

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Page 203

Link 9L: West Ex

Inflow=98.21 cfs 13.087 af

Primary=98.21 cfs 13.087 af

Total Runoff Area = 133.686 ac Runoff Volume = 50.210 af Average Runoff Depth = 4.51"
81.83% Pervious = 109.392 ac 18.17% Impervious = 24.294 ac