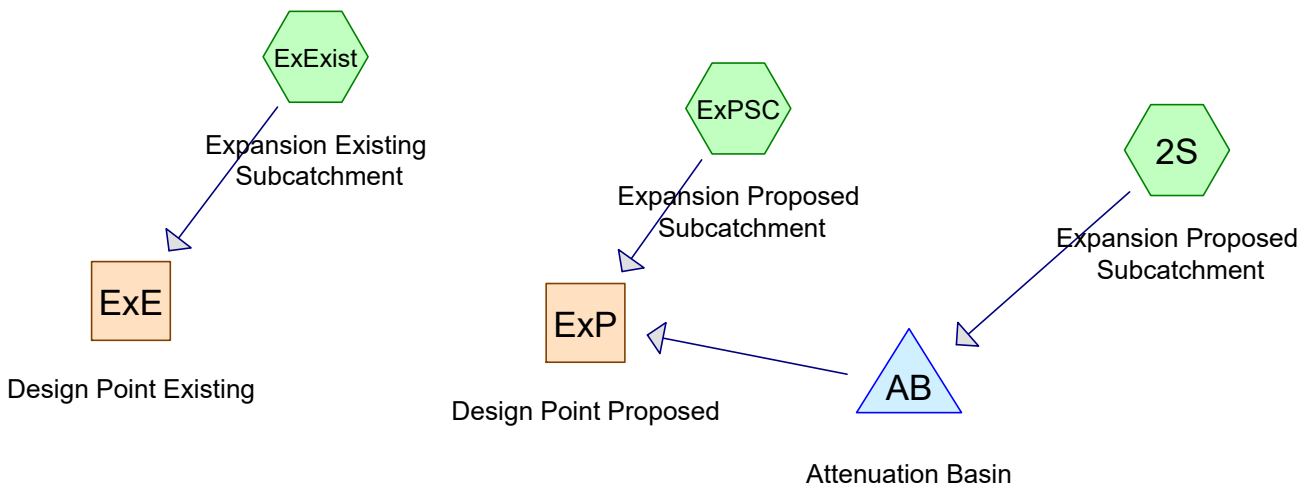


Routing Diagram for DuthieExpansion

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.048	98	Building, HSG C (ExpSC)
0.037	96	Gravel Parking, HSG C (2S)
0.074	96	Gravel parking, HSG C (ExpSC)
0.016	98	Rooftop, Good, HSG C (2S)
0.254	72	Woods/grass comb., Good, HSG C (2S, ExExist, ExpSC)
0.429	82	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	0.000	0.048	0.000	0.000	0.048	Building	ExPSC
0.000	0.000	0.037	0.000	0.000	0.037	Gravel Parking	2S
0.000	0.000	0.074	0.000	0.000	0.074	Gravel parking	ExPSC
0.000	0.000	0.016	0.000	0.000	0.016	Rooftop, Good	2S
0.000	0.000	0.254	0.000	0.000	0.254	Woods/grass comb., Good	2S, ExExist, ExPSC
0.000	0.000	0.429	0.000	0.000	0.429	TOTAL AREA	

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Type II 24-hr Rainfall=1.99"

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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

Subcatchment2S: Expansion Proposed Runoff Area=3,208 sf 21.82% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=90 Runoff=0.14 cfs 0.006 af

SubcatchmentExExist: Expansion Existing Runoff Area=9,351 sf 0.00% Impervious Runoff Depth>0.25"
Tc=6.0 min CN=72 Runoff=0.09 cfs 0.004 af

SubcatchmentExPSC: Expansion Proposed Runoff Area=6,143 sf 34.19% Impervious Runoff Depth>1.22"
Tc=6.0 min CN=93 Runoff=0.31 cfs 0.014 af

Reach ExE: Design Point Existing
Inflow=0.09 cfs 0.004 af
Outflow=0.09 cfs 0.004 af

Reach ExP: Design Point Proposed
Inflow=0.31 cfs 0.014 af
Outflow=0.31 cfs 0.014 af

Pond AB: Attenuation Basin Peak Elev=0.99' Storage=243 cf Inflow=0.14 cfs 0.006 af
Discarded=0.00 cfs 0.001 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Total Runoff Area = 0.429 ac Runoff Volume = 0.025 af Average Runoff Depth = 0.70"
85.03% Pervious = 0.365 ac 14.97% Impervious = 0.064 ac

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Summary for Subcatchment 2S: Expansion Proposed Subcatchment

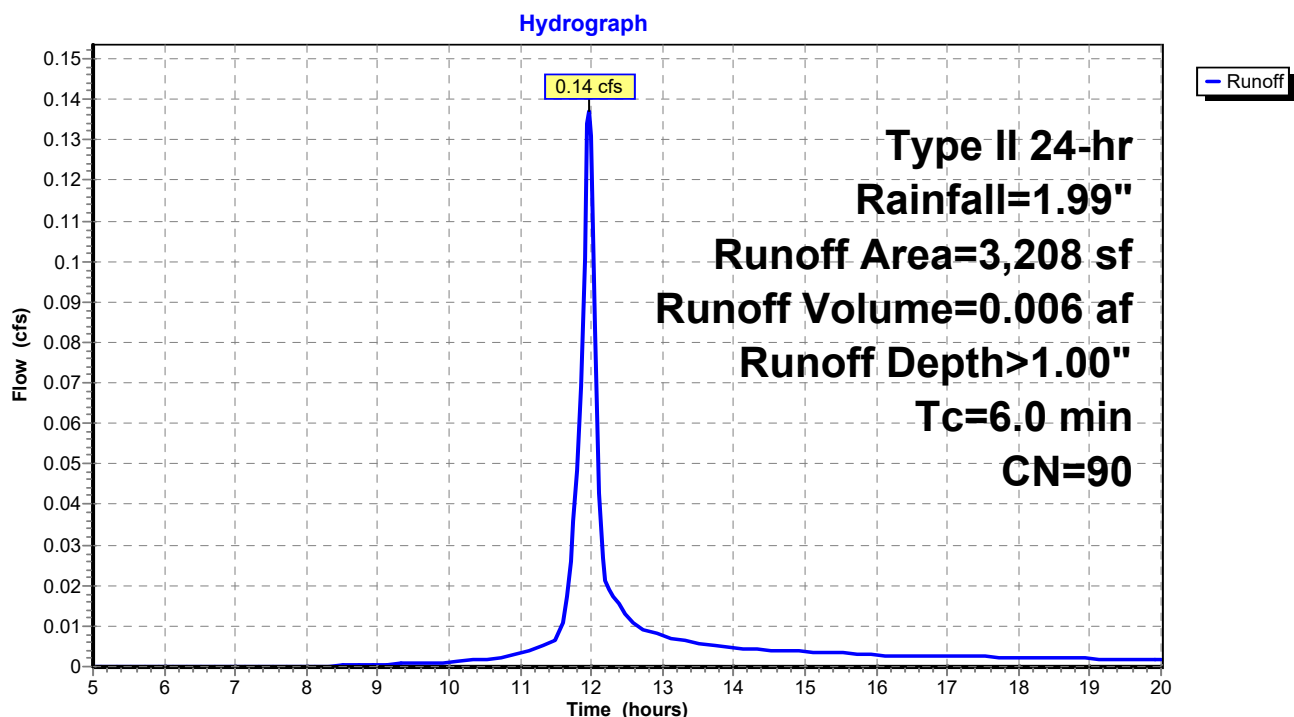
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.006 af, Depth> 1.00"

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 Rainfall=1.99"

	Area (sf)	CN	Description
*	1,610	96	Gravel Parking, HSG C
	898	72	Woods/grass comb., Good, HSG C
*	700	98	Rooftop, Good, HSG C
	3,208	90	Weighted Average
	2,508		78.18% Pervious Area
	700		21.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

Subcatchment 2S: Expansion Proposed Subcatchment



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Summary for Subcatchment ExExist: Expansion Existing Subcatchment

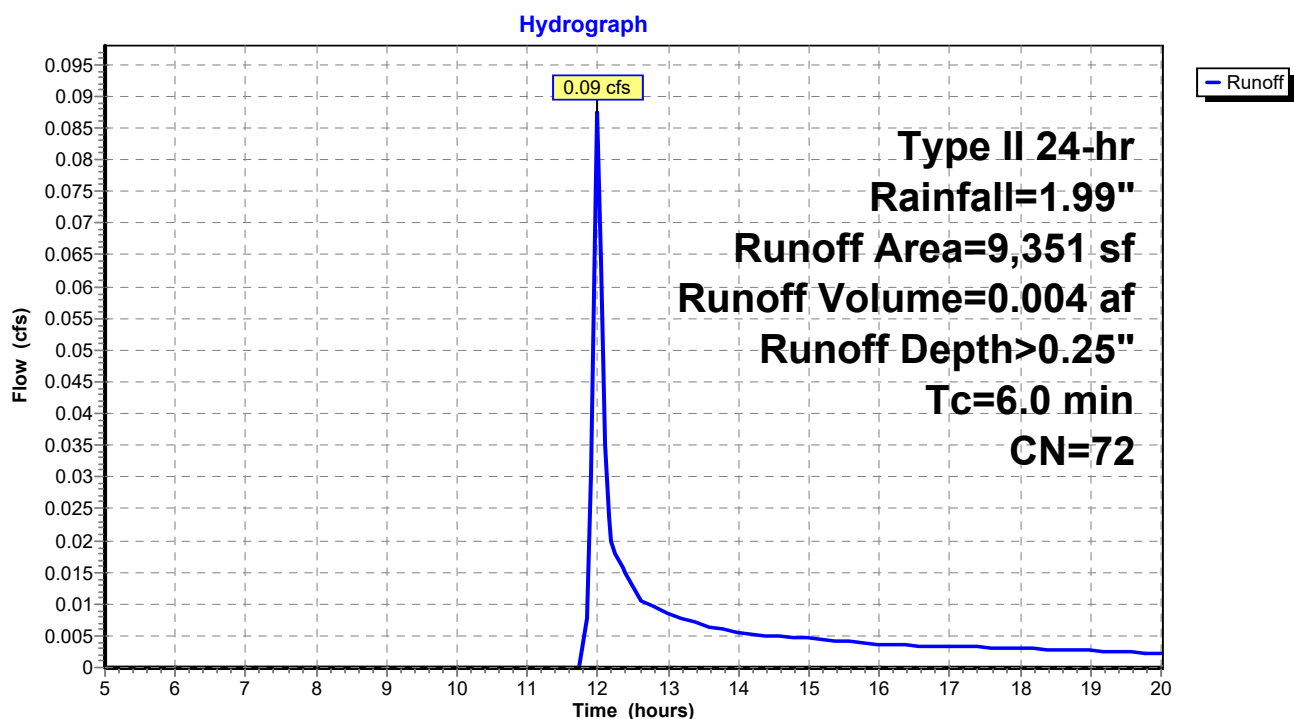
Runoff = 0.09 cfs @ 12.00 hrs, Volume= 0.004 af, Depth> 0.25"

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 Rainfall=1.99"

Area (sf)	CN	Description
9,351	72	Woods/grass comb., Good, HSG C
9,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

Subcatchment ExExist: Expansion Existing Subcatchment



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DuthieExpansion - 1 yr Rain Event

Type II 24-hr Rainfall=1.99"

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Summary for Subcatchment ExpSC: Expansion Proposed Subcatchment

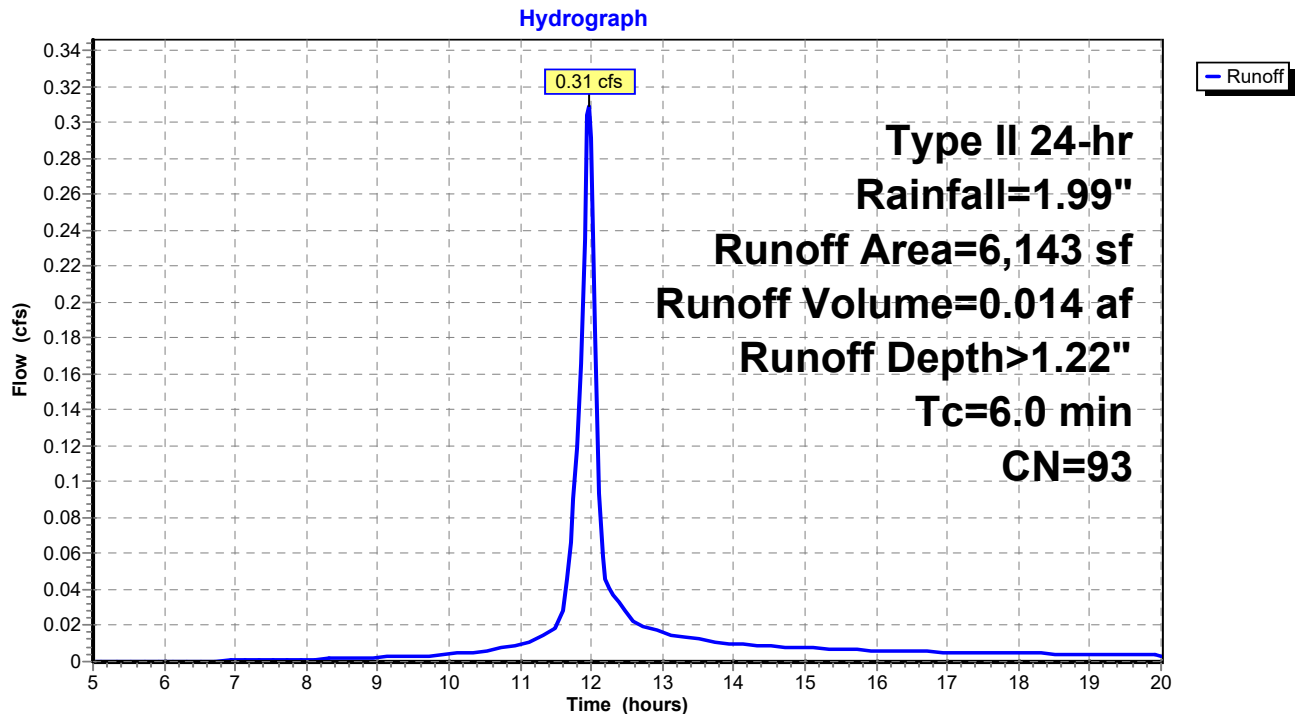
Runoff = 0.31 cfs @ 11.97 hrs, Volume= 0.014 af, Depth> 1.22"

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 Rainfall=1.99"

	Area (sf)	CN	Description
*	3,217	96	Gravel parking, HSG C
*	2,100	98	Building, HSG C
	826	72	Woods/grass comb., Good, HSG C
	6,143	93	Weighted Average
	4,043		65.81% Pervious Area
	2,100		34.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 6 Minute Minimum

Subcatchment ExpSC: Expansion Proposed Subcatchment



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Type II 24-hr Rainfall=1.99"

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Summary for Reach ExE: Design Point Existing

[40] Hint: Not Described (Outflow=Inflow)

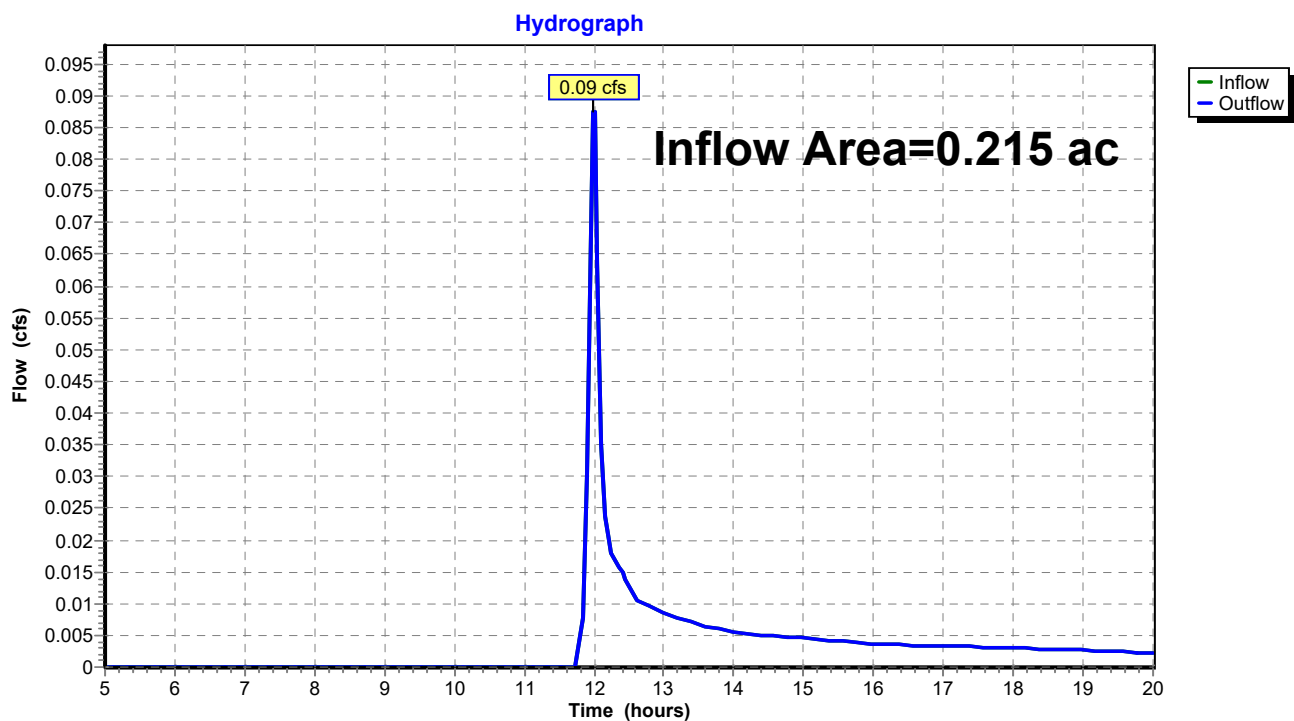
Inflow Area = 0.215 ac, 0.00% Impervious, Inflow Depth > 0.25"

Inflow = 0.09 cfs @ 12.00 hrs, Volume= 0.004 af

Outflow = 0.09 cfs @ 12.00 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach ExE: Design Point Existing



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Type II 24-hr Rainfall=1.99"

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Summary for Reach ExP: Design Point Proposed

[40] Hint: Not Described (Outflow=Inflow)

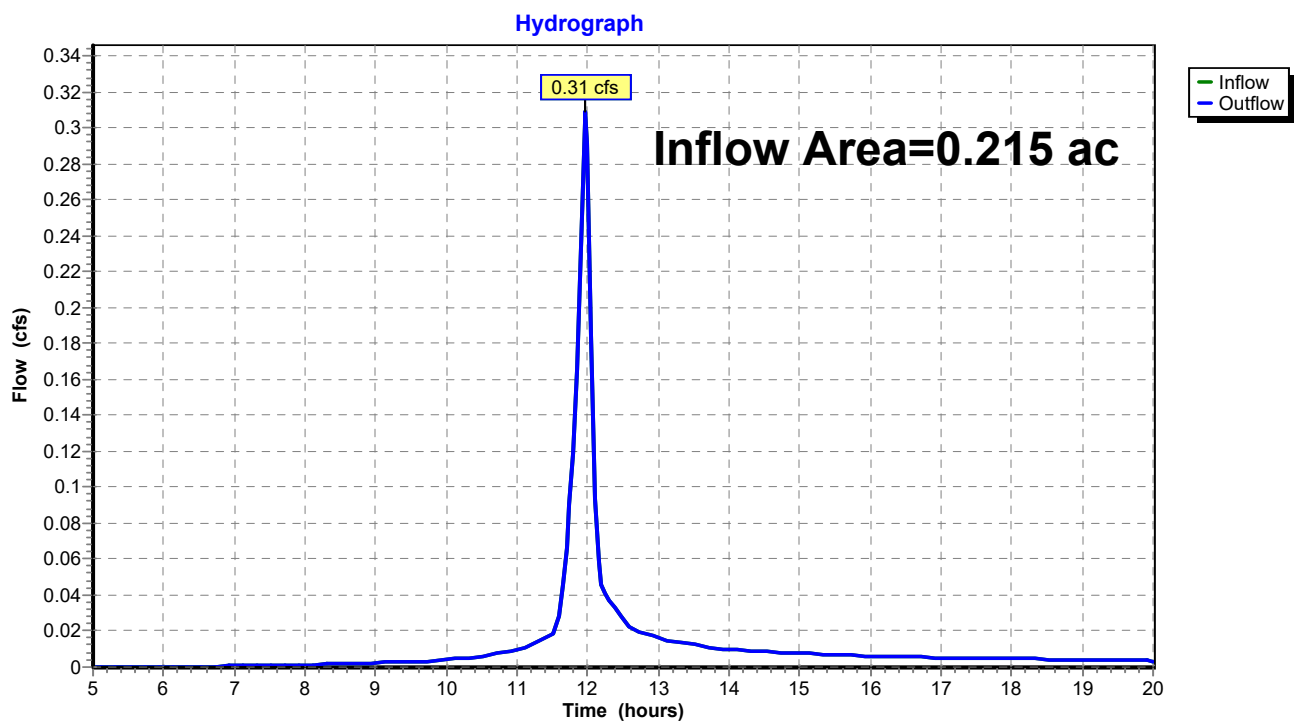
Inflow Area = 0.215 ac, 29.94% Impervious, Inflow Depth > 0.80"

Inflow = 0.31 cfs @ 11.97 hrs, Volume= 0.014 af

Outflow = 0.31 cfs @ 11.97 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach ExP: Design Point Proposed



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Type II 24-hr Rainfall=1.99"

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Summary for Pond AB: Attenuation Basin

Inflow Area = 0.074 ac, 21.82% Impervious, Inflow Depth > 1.00"
Inflow = 0.14 cfs @ 11.97 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 99%, Lag= 481.8 min
Discarded = 0.00 cfs @ 20.00 hrs, Volume= 0.001 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= 0.99' @ 20.00 hrs Surf.Area= 349 sf Storage= 243 cf

Plug-Flow detention time= 270.5 min calculated for 0.001 af (9% of inflow)

Center-of-Mass det. time= 141.5 min (924.3 - 782.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	870 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	140	0	0
1.00	350	245	245
2.00	600	475	720
2.50	0	150	870

Device	Routing	Invert	Outlet Devices
#1	Primary	1.90'	2.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 20.00 hrs HW=0.99' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type II 24-hr Rainfall=1.99"

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Pond AB: Attenuation Basin

Hydrograph

