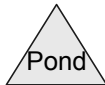


Reach



**Routing Diagram for 3727 Amherst HydroCAD Pr Conditions 12-30-16**  
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**3727 Amherst HydroCAD Pr Conditions 12-30-16** Type III 24-hr 2-Year Storm Rainfall=3.00"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Pond ES1B: Existing Subsurface Infiltration** Peak Elev=186.63' Storage=21 cf Inflow=0.27 cfs 0.034 af  
Discarded=0.08 cfs 0.011 af Primary=0.18 cfs 0.024 af Outflow=0.27 cfs 0.034 af

**Link P1A: Watershed P1A** Inflow=0.54 cfs 0.042 af  
Primary=0.54 cfs 0.042 af

**SubcatchmentP1A1: Pr. Watershed P1A1** Runoff Area=0.271 ac 56.46% Impervious Runoff Depth>0.81"  
Tc=6.0 min CN=72 Runoff=0.23 cfs 0.018 af

**SubcatchmentP1A2: Pr. Watershed P1A2** Runoff Area=0.115 ac 95.65% Impervious Runoff Depth>2.45"  
Tc=6.0 min CN=95 Runoff=0.31 cfs 0.023 af

**SubcatchmentP1B1: Pr. Watershed P1B1** Runoff Area=0.710 ac 47.89% Impervious Runoff Depth>0.58"  
Flow Length=400' Tc=18.3 min CN=67 Runoff=0.27 cfs 0.034 af

**SubcatchmentP1B2: Pr. Watershed P1B2** Runoff Area=0.340 ac 85.29% Impervious Runoff Depth>1.90"  
Tc=6.0 min CN=89 Runoff=0.75 cfs 0.054 af

**SubcatchmentP1B3: Pr. Watershed P1B3** Runoff Area=0.080 ac 100.00% Impervious Runoff Depth>2.77"  
Tc=0.0 min CN=98 Runoff=0.28 cfs 0.018 af

**SubcatchmentP1C1: Pr. Watershed P1C1** Runoff Area=0.200 ac 85.00% Impervious Runoff Depth>1.90"  
Tc=6.0 min CN=89 Runoff=0.44 cfs 0.032 af

**SubcatchmentP1C2: Pr. Watershed P1C2** Runoff Area=0.150 ac 100.00% Impervious Runoff Depth>2.77"  
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.035 af

**SubcatchmentP1D1: Pr. Watershed P1D1** Runoff Area=0.474 ac 94.51% Impervious Runoff Depth>2.45"  
Tc=6.0 min CN=95 Runoff=1.29 cfs 0.097 af

**SubcatchmentP1D2: Pr. Watershed P1D2** Runoff Area=1.500 ac 46.00% Impervious Runoff Depth>0.54"  
Flow Length=481' Tc=6.8 min CN=66 Runoff=0.71 cfs 0.068 af

**SubcatchmentP1D3: Pr. Watershed P1D3** Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>2.77"  
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

**SubcatchmentP1E: Pr. Watershed P1E** Runoff Area=0.640 ac 78.13% Impervious Runoff Depth>1.59"  
Tc=6.0 min CN=85 Runoff=1.19 cfs 0.085 af

**SubcatchmentP1F: Pr. Watershed P1F** Runoff Area=3.091 ac 55.90% Impervious Runoff Depth>0.85"  
Flow Length=477' Tc=10.2 min CN=73 Runoff=2.47 cfs 0.220 af

**SubcatchmentP1G1: Pr. Watershed P1G1** Runoff Area=0.590 ac 91.53% Impervious Runoff Depth>2.25"  
Tc=6.0 min CN=93 Runoff=1.52 cfs 0.111 af

**SubcatchmentP1G2: Pr. Watershed P1G2** Runoff Area=0.130 ac 100.00% Impervious Runoff Depth>2.77"  
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.030 af

**3727 Amherst HydroCAD Pr Conditions 12-30-16** Type III 24-hr 2-Year Storm Rainfall=3.00"

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**Link P1H: Watershed P1H** Inflow=0.00 cfs 0.001 af  
Primary=0.00 cfs 0.001 af

**SubcatchmentP1H1: Pr. Watershed P1H1** Runoff Area=0.145 ac 17.24% Impervious Runoff Depth>0.07"  
Tc=6.0 min CN=49 Runoff=0.00 cfs 0.001 af

**SubcatchmentP1H2: Pr. Watershed P1H2** Runoff Area=0.140 ac 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

**SubcatchmentP2: Pr. Watershed 2** Runoff Area=0.070 ac 0.00% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af

**Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)** Inflow=0.97 cfs 0.063 af  
Outflow=0.97 cfs 0.063 af

**Reach PR2: Reach 2 (Flow West Offsite)** Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af

**Pond S1B: Infiltration P1B** Peak Elev=183.86' Storage=0.011 af Inflow=0.94 cfs 0.096 af  
Discarded=0.18 cfs 0.075 af Primary=0.53 cfs 0.021 af Outflow=0.71 cfs 0.096 af

**Pond S1C: Infiltration P1C** Peak Elev=185.68' Storage=0.009 af Inflow=0.88 cfs 0.066 af  
Discarded=0.30 cfs 0.066 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.066 af

**Pond S1D: Infiltration P1D** Peak Elev=185.76' Storage=0.041 af Inflow=2.25 cfs 0.188 af  
Discarded=0.46 cfs 0.188 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.188 af

**Pond S1E: Infiltration P1E** Peak Elev=186.49' Storage=0.011 af Inflow=1.19 cfs 0.085 af  
Discarded=0.46 cfs 0.085 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.085 af

**Pond S1F: Infiltration P1F** Peak Elev=182.03' Storage=0.039 af Inflow=2.47 cfs 0.220 af  
Discarded=0.83 cfs 0.220 af Primary=0.00 cfs 0.000 af Outflow=0.83 cfs 0.220 af

**Pond S1G1: Infiltration P1G1** Peak Elev=177.02' Storage=0.031 af Inflow=1.52 cfs 0.111 af  
Discarded=0.25 cfs 0.111 af Primary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.111 af

**Pond S1G2: Infiltration P1G2** Peak Elev=180.52' Storage=0.001 af Inflow=0.38 cfs 0.030 af  
Discarded=0.25 cfs 0.030 af Primary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.030 af

**Summary for Pond ES1B: Existing Subsurface Infiltration**

Inflow Area = 0.710 ac, 47.89% Impervious, Inflow Depth > 0.58" for 2-Year Storm event  
 Inflow = 0.27 cfs @ 12.30 hrs, Volume= 0.034 af  
 Outflow = 0.27 cfs @ 12.33 hrs, Volume= 0.034 af, Atten= 1%, Lag= 1.7 min  
 Discarded = 0.08 cfs @ 12.33 hrs, Volume= 0.011 af  
 Primary = 0.18 cfs @ 12.33 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.63' @ 12.33 hrs Surf.Area= 2,065 sf Storage= 21 cf

Plug-Flow detention time= 1.3 min calculated for 0.034 af (100% of inflow)  
 Center-of-Mass det. time= 1.0 min ( 902.0 - 901.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.60'	1,853 cf	<b>34.75"W x 59.40"L x 3.50"H Field A</b> 7,225 cf Overall - 2,593 cf Embedded = 4,632 cf x 40.0% Voids
#2A	187.10'	2,593 cf	<b>ADS_StormTech SC-740</b> x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3	186.60'	42 cf	<b>12.0" Round Pipe Storage</b> L= 54.0' S= 0.0050 '/'
		4,488 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.60'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	186.60'	<b>2.0" x 2.0" Horiz. [ADDED] Catch Basin Overflow X 6.00 columns</b> X 12 rows C= 0.600 in 24.0" x 48.0" Grate Limited to weir flow at low heads

**Discarded OutFlow** Max=0.12 cfs @ 12.33 hrs HW=186.63' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.12 cfs)

**Primary OutFlow** Max=0.16 cfs @ 12.33 hrs HW=186.63' (Free Discharge)  
 ↑2=[ADDED] Catch Basin Overflow (Weir Controls 0.16 cfs @ 0.52 fps)

**Summary for Link P1A: Watershed P1A**

Inflow Area = 0.386 ac, 68.13% Impervious, Inflow Depth > 1.30" for 2-Year Storm event  
 Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.042 af  
 Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1A1: Pr. Watershed P1A1**

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.018 af, Depth> 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.116	98	Parking and Drives
* 0.037	98	Sidewalk
0.118	39	>75% Grass cover, Good, HSG A
0.271	72	Weighted Average
0.118		43.54% Pervious Area
0.153		56.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1A2: Pr. Watershed P1A2**

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.023 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.070	98	Parking and Drives
* 0.040	98	Sidewalk
0.005	39	>75% Grass cover, Good, HSG A
0.115	95	Weighted Average
0.005		4.35% Pervious Area
0.110		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1B1: Pr. Watershed P1B1**

Runoff = 0.27 cfs @ 12.30 hrs, Volume= 0.034 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-16** Type III 24-hr 2-Year Storm Rainfall=3.00"

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Area (ac)	CN	Description
* 0.210	98	Parking and Drives
* 0.040	98	Sidewalk
* 0.090	98	Roofs
0.370	39	>75% Grass cover, Good, HSG A
0.710	67	Weighted Average
0.370		52.11% Pervious Area
0.340		47.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0150	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.00"
0.1	13	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
1.3	196	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	91	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
18.3	400	Total			

**Summary for Subcatchment P1B2: Pr. Watershed P1B2**

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.210	98	Pavement and Drives
* 0.080	98	Sidewalk
0.050	39	>75% Grass cover, Good, HSG A
0.340	89	Weighted Average
0.050		14.71% Pervious Area
0.290		85.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1B3: Pr. Watershed P1B3**

Runoff = 0.28 cfs @ 12.00 hrs, Volume= 0.018 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.080	98	Roofs
0.080		100.00% Impervious Area

**Summary for Subcatchment P1C1: Pr. Watershed P1C1**

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.032 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.140	98	Parking and Drives
* 0.030	98	Sidewalk
0.030	39	>75% Grass cover, Good, HSG A
0.200	89	Weighted Average
0.030		15.00% Pervious Area
0.170		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1C2: Pr. Watershed P1C2**

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.035 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.150	98	Roofs
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1D1: Pr. Watershed P1D1**

Runoff = 1.29 cfs @ 12.08 hrs, Volume= 0.097 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-16 Type III 24-hr 2-Year Storm Rainfall=3.00"**

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Area (ac)	CN	Description
* 0.232	98	Parking and Drives
* 0.066	98	Sidewalk
* 0.150	98	Roofs
0.026	39	>75% Grass cover, Good, HSG A
0.474	95	Weighted Average
0.026		5.49% Pervious Area
0.448		94.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1D2: Pr. Watershed P1D2**

Runoff = 0.71 cfs @ 12.12 hrs, Volume= 0.068 af, Depth> 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.440	98	Parking and Drives
* 0.030	98	Sidewalk
* 0.220	98	Roofs
0.810	39	>75% Grass cover, Good, HSG A
1.500	66	Weighted Average
0.810		54.00% Pervious Area
0.690		46.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	19	0.0200	0.12		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.3	19	0.0260	1.06		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	63	0.0400	1.60		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
2.3	226	0.0100	1.61		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.1	18	0.1110	5.36		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	39	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	97	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
6.8	481	Total			



**Summary for Subcatchment P1D3: Pr. Watershed P1D3**

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.023 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.100	98	Roofs
0.100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1E: Pr. Watershed P1E**

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.085 af, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.170	98	Parking and Drives
* 0.070	98	Sidewalk
* 0.260	98	Roofs
0.140	39	>75% Grass cover, Good, HSG A
0.640	85	Weighted Average
0.140		21.87% Pervious Area
0.500		78.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1F: Pr. Watershed P1F**

Runoff = 2.47 cfs @ 12.16 hrs, Volume= 0.220 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-16 Type III 24-hr 2-Year Storm Rainfall=3.00"**

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Area (ac)	CN	Description
* 1.271	98	Parking and Drives
* 0.100	98	Sidewalk
* 0.357	98	Roofs
0.040	96	Gravel surface, HSG A
1.323	39	>75% Grass cover, Good, HSG A
3.091	73	Weighted Average
1.363		44.10% Pervious Area
1.728		55.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	51	0.1180	0.29		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.1	5	0.0200	0.73		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
5.6	44	0.0170	0.13		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.5	44	0.0070	1.35		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.1	333	0.0050	4.97	8.78	<b>Pipe Channel,</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
10.2	477	Total			

**Summary for Subcatchment P1G1: Pr. Watershed P1G1**

Runoff = 1.52 cfs @ 12.09 hrs, Volume= 0.111 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.267	98	Parking and Drives
* 0.087	98	Sidewalk
* 0.186	98	Roofs
0.050	39	>75% Grass cover, Good, HSG A
0.590	93	Weighted Average
0.050		8.47% Pervious Area
0.540		91.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1G2: Pr. Watershed P1G2**

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.130	98	Roofs
0.130		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Link P1H: Watershed P1H**

Inflow Area = 0.285 ac, 8.77% Impervious, Inflow Depth > 0.04" for 2-Year Storm event  
 Inflow = 0.00 cfs @ 14.70 hrs, Volume= 0.001 af  
 Primary = 0.00 cfs @ 14.70 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1H1: Pr. Watershed P1H1**

Runoff = 0.00 cfs @ 14.70 hrs, Volume= 0.001 af, Depth> 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
* 0.020	98	Parking and Drives
* 0.005	98	Sidewalk
0.120	39	>75% Grass cover, Good, HSG A
0.145	49	Weighted Average
0.120		82.76% Pervious Area
0.025		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1H2: Pr. Watershed P1H2**

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
0.140	39	>75% Grass cover, Good, HSG A
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P2: Pr. Watershed 2**

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (ac)	CN	Description
0.070	30	Woods, Good, HSG A
0.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)**

Inflow Area = 8.676 ac, 62.86% Impervious, Inflow Depth > 0.09" for 2-Year Storm event  
 Inflow = 0.97 cfs @ 12.13 hrs, Volume= 0.063 af  
 Outflow = 0.97 cfs @ 12.13 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Reach PR2: Reach 2 (Flow West Offsite)**

Inflow Area = 0.070 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year Storm event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Pond S1B: Infiltration P1B**

Inflow Area = 1.130 ac, 62.83% Impervious, Inflow Depth > 1.02" for 2-Year Storm event  
 Inflow = 0.94 cfs @ 12.08 hrs, Volume= 0.096 af  
 Outflow = 0.71 cfs @ 12.18 hrs, Volume= 0.096 af, Atten= 25%, Lag= 6.2 min  
 Discarded = 0.18 cfs @ 11.70 hrs, Volume= 0.075 af  
 Primary = 0.53 cfs @ 12.18 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**3727 Amherst HydroCAD Pr Conditions 12-30-16 Type III 24-hr 2-Year Storm Rainfall=3.00"**

Prepared by H. W. Moore Associates Inc.

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Peak Elev= 183.86' @ 12.18 hrs Surf.Area= 0.021 ac Storage= 0.011 af

Plug-Flow detention time= 7.8 min calculated for 0.096 af (100% of inflow)  
Center-of-Mass det. time= 7.6 min ( 831.0 - 823.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	183.00'	0.020 af	<b>30.00'W x 30.92'L x 3.50'H Field A</b> 0.075 af Overall - 0.026 af Embedded = 0.049 af x 40.0% Voids
#2A	183.50'	0.026 af	<b>ADS_StormTech SC-740</b> x 24 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.045 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	183.50'	<b>15.0" Round Culvert</b> L= 32.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 183.50' / 179.85' S= 0.1141 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	185.80'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	183.50'	<b>12.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	183.00'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.18 cfs @ 11.70 hrs HW=183.04' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=0.53 cfs @ 12.18 hrs HW=183.86' (Free Discharge)

↳ **1=Culvert** (Passes 0.53 cfs of 0.54 cfs potential flow)  
↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
↳ **3=Orifice/Grate** (Orifice Controls 0.53 cfs @ 2.05 fps)

**Summary for Pond S1C: Infiltration P1C**

Inflow Area = 0.350 ac, 91.43% Impervious, Inflow Depth > 2.27" for 2-Year Storm event  
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 0.066 af  
Outflow = 0.30 cfs @ 11.89 hrs, Volume= 0.066 af, Atten= 66%, Lag= 0.0 min  
Discarded = 0.30 cfs @ 11.89 hrs, Volume= 0.066 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Peak Elev= 185.68' @ 12.37 hrs Surf.Area= 0.036 ac Storage= 0.009 af

Plug-Flow detention time= 6.5 min calculated for 0.066 af (100% of inflow)  
Center-of-Mass det. time= 6.4 min ( 790.3 - 783.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	185.10'	0.033 af	<b>30.00'W x 52.28'L x 3.50'H Field A</b> 0.126 af Overall - 0.045 af Embedded = 0.081 af x 40.0% Voids
#2A	185.60'	0.045 af	<b>ADS_StormTech SC-740</b> x 42 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.60'	<b>15.0" Round Culvert</b> L= 45.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.60' / 180.69' S= 0.1091 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	188.10'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.60'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	185.10'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.30 cfs @ 11.89 hrs HW=185.14' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.30 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=185.10' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

### Summary for Pond S1D: Infiltration P1D

Inflow Area = 2.074 ac, 59.69% Impervious, Inflow Depth > 1.09" for 2-Year Storm event  
 Inflow = 2.25 cfs @ 12.10 hrs, Volume= 0.188 af  
 Outflow = 0.46 cfs @ 11.82 hrs, Volume= 0.188 af, Atten= 79%, Lag= 0.0 min  
 Discarded = 0.46 cfs @ 11.82 hrs, Volume= 0.188 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 185.76' @ 12.57 hrs Surf.Area= 0.056 ac Storage= 0.041 af

Plug-Flow detention time= 21.7 min calculated for 0.188 af (100% of inflow)  
 Center-of-Mass det. time= 21.5 min ( 842.3 - 820.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	184.60'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	185.10'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.10'	<b>18.0" Round Culvert</b> L= 35.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.10' / 180.76' S= 0.1240 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	187.60'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.10'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	184.60'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.46 cfs @ 11.82 hrs HW=184.64' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=184.60' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond S1E: Infiltration P1E**

Inflow Area = 0.640 ac, 78.13% Impervious, Inflow Depth > 1.59" for 2-Year Storm event  
 Inflow = 1.19 cfs @ 12.09 hrs, Volume= 0.085 af  
 Outflow = 0.46 cfs @ 11.97 hrs, Volume= 0.085 af, Atten= 61%, Lag= 0.0 min  
 Discarded = 0.46 cfs @ 11.97 hrs, Volume= 0.085 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.49' @ 12.35 hrs Surf.Area= 0.056 ac Storage= 0.011 af

Plug-Flow detention time= 5.3 min calculated for 0.085 af (100% of inflow)  
 Center-of-Mass det. time= 5.1 min ( 833.4 - 828.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.00'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	186.50'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	186.50'	<b>18.0" Round Culvert</b> L= 60.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 186.50' / 181.19' S= 0.0885 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	189.00'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	187.50'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

#4 Discarded 186.00' **8.270 in/hr Exfiltration over Surface area**

**Discarded OutFlow** Max=0.46 cfs @ 11.97 hrs HW=186.04' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=186.00' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond S1F: Infiltration P1F**

Inflow Area = 3.091 ac, 55.90% Impervious, Inflow Depth > 0.85" for 2-Year Storm event  
 Inflow = 2.47 cfs @ 12.16 hrs, Volume= 0.220 af  
 Outflow = 0.83 cfs @ 12.01 hrs, Volume= 0.220 af, Atten= 66%, Lag= 0.0 min  
 Discarded = 0.83 cfs @ 12.01 hrs, Volume= 0.220 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 182.03' @ 12.57 hrs Surf.Area= 0.100 ac Storage= 0.039 af

Plug-Flow detention time= 11.0 min calculated for 0.220 af (100% of inflow)  
 Center-of-Mass det. time= 10.8 min ( 882.8 - 872.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	181.30'	0.089 af	<b>30.00'W x 144.84'L x 3.50'H Field A</b> 0.349 af Overall - 0.127 af Embedded = 0.222 af x 40.0% Voids
#2A	181.80'	0.127 af	<b>ADS_StormTech SC-740</b> x 120 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.216 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	181.80'	<b>18.0" Round Culvert</b> L= 123.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 181.80' / 181.19' S= 0.0050 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	184.30'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	182.80'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	181.30'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.83 cfs @ 12.01 hrs HW=181.34' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.83 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=181.30' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)



**Summary for Pond S1G1: Infiltration P1G1**

Inflow Area = 0.720 ac, 93.06% Impervious, Inflow Depth > 1.85" for 2-Year Storm event  
 Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.111 af  
 Outflow = 0.26 cfs @ 12.55 hrs, Volume= 0.111 af, Atten= 83%, Lag= 28.0 min  
 Discarded = 0.25 cfs @ 11.69 hrs, Volume= 0.111 af  
 Primary = 0.00 cfs @ 12.55 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 177.02' @ 12.55 hrs Surf.Area= 0.030 ac Storage= 0.031 af

Plug-Flow detention time= 31.9 min calculated for 0.111 af (100% of inflow)  
 Center-of-Mass det. time= 31.7 min ( 826.0 - 794.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	175.50'	0.028 af	<b>34.75"W x 38.04'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	176.00'	0.037 af	<b>ADS_StormTech SC-740</b> x 35 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	176.00'	<b>15.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 176.00' / 175.85' S= 0.0030 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	178.50'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	177.00'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	175.50'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 11.69 hrs HW=175.54' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.55 hrs HW=177.02' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.00 cfs of 2.60 cfs potential flow)  
 ↳ ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ ↳ ↳ **3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.53 fps)

**Summary for Pond S1G2: Infiltration P1G2**

Inflow Area = 0.130 ac, 100.00% Impervious, Inflow Depth > 2.77" for 2-Year Storm event  
 Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.030 af  
 Outflow = 0.25 cfs @ 12.03 hrs, Volume= 0.030 af, Atten= 33%, Lag= 0.0 min  
 Discarded = 0.25 cfs @ 12.03 hrs, Volume= 0.030 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**3727 Amherst HydroCAD Pr Conditions 12-30-16** Type III 24-hr 2-Year Storm Rainfall=3.00"

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Peak Elev= 180.52' @ 12.17 hrs Surf.Area= 0.030 ac Storage= 0.001 af

Plug-Flow detention time= 1.6 min calculated for 0.030 af (100% of inflow)

Center-of-Mass det. time= 1.4 min ( 758.7 - 757.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	180.40'	0.028 af	<b>25.25'W x 52.28'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	180.90'	0.037 af	<b>ADS_StormTech SC-740</b> x 35 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	180.90'	<b>12.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 180.90' / 177.00' S= 0.0780 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	183.40'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	181.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	180.40'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 12.03 hrs HW=180.44' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=180.40' (Free Discharge)

↳ **1=Culvert** ( Controls 0.00 cfs)

↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Pond ES1B: Existing Subsurface Infiltration** Peak Elev=186.67' Storage=55 cf Inflow=0.80 cfs 0.086 af  
Discarded=0.12 cfs 0.023 af Primary=0.68 cfs 0.063 af Outflow=0.80 cfs 0.086 af

**Link P1A: Watershed P1A** Inflow=1.06 cfs 0.079 af  
Primary=1.06 cfs 0.079 af

**SubcatchmentP1A1: Pr. Watershed P1A1** Runoff Area=0.271 ac 56.46% Impervious Runoff Depth>1.82"  
Tc=6.0 min CN=72 Runoff=0.57 cfs 0.041 af

**SubcatchmentP1A2: Pr. Watershed P1A2** Runoff Area=0.115 ac 95.65% Impervious Runoff Depth>3.92"  
Tc=6.0 min CN=95 Runoff=0.49 cfs 0.038 af

**SubcatchmentP1B1: Pr. Watershed P1B1** Runoff Area=0.710 ac 47.89% Impervious Runoff Depth>1.46"  
Flow Length=400' Tc=18.3 min CN=67 Runoff=0.80 cfs 0.086 af

**SubcatchmentP1B2: Pr. Watershed P1B2** Runoff Area=0.340 ac 85.29% Impervious Runoff Depth>3.29"  
Tc=6.0 min CN=89 Runoff=1.28 cfs 0.093 af

**SubcatchmentP1B3: Pr. Watershed P1B3** Runoff Area=0.080 ac 100.00% Impervious Runoff Depth>4.26"  
Tc=0.0 min CN=98 Runoff=0.43 cfs 0.028 af

**SubcatchmentP1C1: Pr. Watershed P1C1** Runoff Area=0.200 ac 85.00% Impervious Runoff Depth>3.29"  
Tc=6.0 min CN=89 Runoff=0.76 cfs 0.055 af

**SubcatchmentP1C2: Pr. Watershed P1C2** Runoff Area=0.150 ac 100.00% Impervious Runoff Depth>4.26"  
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.053 af

**SubcatchmentP1D1: Pr. Watershed P1D1** Runoff Area=0.474 ac 94.51% Impervious Runoff Depth>3.92"  
Tc=6.0 min CN=95 Runoff=2.02 cfs 0.155 af

**SubcatchmentP1D2: Pr. Watershed P1D2** Runoff Area=1.500 ac 46.00% Impervious Runoff Depth>1.39"  
Flow Length=481' Tc=6.8 min CN=66 Runoff=2.24 cfs 0.174 af

**SubcatchmentP1D3: Pr. Watershed P1D3** Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>4.26"  
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

**SubcatchmentP1E: Pr. Watershed P1E** Runoff Area=0.640 ac 78.13% Impervious Runoff Depth>2.91"  
Tc=6.0 min CN=85 Runoff=2.17 cfs 0.155 af

**SubcatchmentP1F: Pr. Watershed P1F** Runoff Area=3.091 ac 55.90% Impervious Runoff Depth>1.89"  
Flow Length=477' Tc=10.2 min CN=73 Runoff=5.86 cfs 0.487 af

**SubcatchmentP1G1: Pr. Watershed P1G1** Runoff Area=0.590 ac 91.53% Impervious Runoff Depth>3.70"  
Tc=6.0 min CN=93 Runoff=2.43 cfs 0.182 af

**SubcatchmentP1G2: Pr. Watershed P1G2** Runoff Area=0.130 ac 100.00% Impervious Runoff Depth>4.26"  
Tc=6.0 min CN=98 Runoff=0.57 cfs 0.046 af

<b>Link P1H: Watershed P1H</b>	Inflow=0.03 cfs 0.007 af Primary=0.03 cfs 0.007 af
<b>SubcatchmentP1H1: Pr. Watershed P1H1</b>	Runoff Area=0.145 ac 17.24% Impervious Runoff Depth>0.45" Tc=6.0 min CN=49 Runoff=0.03 cfs 0.005 af
<b>SubcatchmentP1H2: Pr. Watershed P1H2</b>	Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>0.11" Tc=6.0 min CN=39 Runoff=0.00 cfs 0.001 af
<b>SubcatchmentP2: Pr. Watershed 2</b>	Runoff Area=0.070 ac 0.00% Impervious Runoff Depth=0.00" Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af
<b>Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)</b>	Inflow=3.72 cfs 0.292 af Outflow=3.72 cfs 0.292 af
<b>Reach PR2: Reach 2 (Flow West Offsite)</b>	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond S1B: Infiltration P1B</b>	Peak Elev=184.13' Storage=0.015 af Inflow=1.73 cfs 0.185 af Discarded=0.18 cfs 0.115 af Primary=1.41 cfs 0.070 af Outflow=1.59 cfs 0.185 af
<b>Pond S1C: Infiltration P1C</b>	Peak Elev=186.19' Storage=0.025 af Inflow=1.41 cfs 0.108 af Discarded=0.30 cfs 0.108 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.108 af
<b>Pond S1D: Infiltration P1D</b>	Peak Elev=186.93' Storage=0.089 af Inflow=4.65 cfs 0.365 af Discarded=0.46 cfs 0.300 af Primary=1.18 cfs 0.064 af Outflow=1.65 cfs 0.365 af
<b>Pond S1E: Infiltration P1E</b>	Peak Elev=187.07' Storage=0.037 af Inflow=2.17 cfs 0.155 af Discarded=0.46 cfs 0.155 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.155 af
<b>Pond S1F: Infiltration P1F</b>	Peak Elev=183.35' Storage=0.142 af Inflow=5.86 cfs 0.487 af Discarded=0.83 cfs 0.444 af Primary=0.77 cfs 0.043 af Outflow=1.60 cfs 0.487 af
<b>Pond S1G1: Infiltration P1G1</b>	Peak Elev=177.52' Storage=0.042 af Inflow=2.43 cfs 0.182 af Discarded=0.25 cfs 0.152 af Primary=0.88 cfs 0.030 af Outflow=1.14 cfs 0.182 af
<b>Pond S1G2: Infiltration P1G2</b>	Peak Elev=180.76' Storage=0.004 af Inflow=0.57 cfs 0.046 af Discarded=0.25 cfs 0.046 af Primary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.046 af

**Summary for Pond ES1B: Existing Subsurface Infiltration**

Inflow Area = 0.710 ac, 47.89% Impervious, Inflow Depth > 1.46" for 10-Year Storm event  
 Inflow = 0.80 cfs @ 12.27 hrs, Volume= 0.086 af  
 Outflow = 0.80 cfs @ 12.29 hrs, Volume= 0.086 af, Atten= 0%, Lag= 1.3 min  
 Discarded = 0.12 cfs @ 12.29 hrs, Volume= 0.023 af  
 Primary = 0.68 cfs @ 12.29 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.67' @ 12.29 hrs Surf.Area= 2,069 sf Storage= 55 cf

Plug-Flow detention time= 1.3 min calculated for 0.086 af (100% of inflow)  
 Center-of-Mass det. time= 1.0 min ( 871.5 - 870.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.60'	1,853 cf	<b>34.75'W x 59.40'L x 3.50'H Field A</b> 7,225 cf Overall - 2,593 cf Embedded = 4,632 cf x 40.0% Voids
#2A	187.10'	2,593 cf	<b>ADS_StormTech SC-740 x 56 Inside #1</b> Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3	186.60'	42 cf	<b>12.0" Round Pipe Storage</b> L= 54.0' S= 0.0050 '/'
		4,488 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.60'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	186.60'	<b>2.0" x 2.0" Horiz. [ADDED] Catch Basin Overflow X 6.00 columns</b> X 12 rows C= 0.600 in 24.0" x 48.0" Grate Limited to weir flow at low heads

**Discarded OutFlow** Max=0.12 cfs @ 12.29 hrs HW=186.67' (Free Discharge)  
 ↑1=**Exfiltration** (Exfiltration Controls 0.12 cfs)

**Primary OutFlow** Max=0.68 cfs @ 12.29 hrs HW=186.67' (Free Discharge)  
 ↑2=**[ADDED] Catch Basin Overflow** (Weir Controls 0.68 cfs @ 0.84 fps)

**Summary for Link P1A: Watershed P1A**

Inflow Area = 0.386 ac, 68.13% Impervious, Inflow Depth > 2.44" for 10-Year Storm event  
 Inflow = 1.06 cfs @ 12.09 hrs, Volume= 0.079 af  
 Primary = 1.06 cfs @ 12.09 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1A1: Pr. Watershed P1A1**

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.116	98	Parking and Drives
* 0.037	98	Sidewalk
0.118	39	>75% Grass cover, Good, HSG A
0.271	72	Weighted Average
0.118		43.54% Pervious Area
0.153		56.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1A2: Pr. Watershed P1A2**

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.038 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.070	98	Parking and Drives
* 0.040	98	Sidewalk
0.005	39	>75% Grass cover, Good, HSG A
0.115	95	Weighted Average
0.005		4.35% Pervious Area
0.110		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1B1: Pr. Watershed P1B1**

Runoff = 0.80 cfs @ 12.27 hrs, Volume= 0.086 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.210	98	Parking and Drives
* 0.040	98	Sidewalk
* 0.090	98	Roofs
0.370	39	>75% Grass cover, Good, HSG A
0.710	67	Weighted Average
0.370		52.11% Pervious Area
0.340		47.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0150	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.00"
0.1	13	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
1.3	196	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	91	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
18.3	400	Total			

**Summary for Subcatchment P1B2: Pr. Watershed P1B2**

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.210	98	Pavement and Drives
* 0.080	98	Sidewalk
0.050	39	>75% Grass cover, Good, HSG A
0.340	89	Weighted Average
0.050		14.71% Pervious Area
0.290		85.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1B3: Pr. Watershed P1B3**

Runoff = 0.43 cfs @ 12.00 hrs, Volume= 0.028 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.080	98	Roofs
0.080		100.00% Impervious Area

**Summary for Subcatchment P1C1: Pr. Watershed P1C1**

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.055 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.140	98	Parking and Drives
* 0.030	98	Sidewalk
0.030	39	>75% Grass cover, Good, HSG A
0.200	89	Weighted Average
0.030		15.00% Pervious Area
0.170		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1C2: Pr. Watershed P1C2**

Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.053 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.150	98	Roofs
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1D1: Pr. Watershed P1D1**

Runoff = 2.02 cfs @ 12.08 hrs, Volume= 0.155 af, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"



Area (ac)	CN	Description
* 0.232	98	Parking and Drives
* 0.066	98	Sidewalk
* 0.150	98	Roofs
0.026	39	>75% Grass cover, Good, HSG A
0.474	95	Weighted Average
0.026		5.49% Pervious Area
0.448		94.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1D2: Pr. Watershed P1D2**

Runoff = 2.24 cfs @ 12.11 hrs, Volume= 0.174 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.440	98	Parking and Drives
* 0.030	98	Sidewalk
* 0.220	98	Roofs
0.810	39	>75% Grass cover, Good, HSG A
1.500	66	Weighted Average
0.810		54.00% Pervious Area
0.690		46.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	19	0.0200	0.12		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.3	19	0.0260	1.06		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	63	0.0400	1.60		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
2.3	226	0.0100	1.61		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.1	18	0.1110	5.36		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	39	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	97	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
6.8	481	Total			

**Summary for Subcatchment P1D3: Pr. Watershed P1D3**

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.100	98	Roofs
0.100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1E: Pr. Watershed P1E**

Runoff = 2.17 cfs @ 12.09 hrs, Volume= 0.155 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.170	98	Parking and Drives
* 0.070	98	Sidewalk
* 0.260	98	Roofs
0.140	39	>75% Grass cover, Good, HSG A
0.640	85	Weighted Average
0.140		21.87% Pervious Area
0.500		78.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1F: Pr. Watershed P1F**

Runoff = 5.86 cfs @ 12.15 hrs, Volume= 0.487 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 1.271	98	Parking and Drives
* 0.100	98	Sidewalk
* 0.357	98	Roofs
0.040	96	Gravel surface, HSG A
1.323	39	>75% Grass cover, Good, HSG A
3.091	73	Weighted Average
1.363		44.10% Pervious Area
1.728		55.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	51	0.1180	0.29		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.1	5	0.0200	0.73		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
5.6	44	0.0170	0.13		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.5	44	0.0070	1.35		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.1	333	0.0050	4.97	8.78	<b>Pipe Channel,</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
10.2	477	Total			

**Summary for Subcatchment P1G1: Pr. Watershed P1G1**

Runoff = 2.43 cfs @ 12.08 hrs, Volume= 0.182 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.267	98	Parking and Drives
* 0.087	98	Sidewalk
* 0.186	98	Roofs
0.050	39	>75% Grass cover, Good, HSG A
0.590	93	Weighted Average
0.050		8.47% Pervious Area
0.540		91.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1G2: Pr. Watershed P1G2**

Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.046 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.130	98	Roofs
0.130		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Link P1H: Watershed P1H**

Inflow Area = 0.285 ac, 8.77% Impervious, Inflow Depth > 0.29" for 10-Year Storm event  
 Inflow = 0.03 cfs @ 12.15 hrs, Volume= 0.007 af  
 Primary = 0.03 cfs @ 12.15 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1H1: Pr. Watershed P1H1**

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.005 af, Depth> 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
* 0.020	98	Parking and Drives
* 0.005	98	Sidewalk
0.120	39	>75% Grass cover, Good, HSG A
0.145	49	Weighted Average
0.120		82.76% Pervious Area
0.025		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1H2: Pr. Watershed P1H2**

Runoff = 0.00 cfs @ 14.70 hrs, Volume= 0.001 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.140	39	>75% Grass cover, Good, HSG A
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P2: Pr. Watershed 2**

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 10-Year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.070	30	Woods, Good, HSG A
0.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)**

Inflow Area = 8.676 ac, 62.86% Impervious, Inflow Depth > 0.40" for 10-Year Storm event  
 Inflow = 3.72 cfs @ 12.35 hrs, Volume= 0.292 af  
 Outflow = 3.72 cfs @ 12.35 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Reach PR2: Reach 2 (Flow West Offsite)**

Inflow Area = 0.070 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year Storm event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Pond S1B: Infiltration P1B**

Inflow Area = 1.130 ac, 62.83% Impervious, Inflow Depth > 1.96" for 10-Year Storm event  
 Inflow = 1.73 cfs @ 12.08 hrs, Volume= 0.185 af  
 Outflow = 1.59 cfs @ 12.15 hrs, Volume= 0.185 af, Atten= 8%, Lag= 4.0 min  
 Discarded = 0.18 cfs @ 11.51 hrs, Volume= 0.115 af  
 Primary = 1.41 cfs @ 12.15 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 184.13' @ 12.15 hrs Surf.Area= 0.021 ac Storage= 0.015 af

Plug-Flow detention time= 8.0 min calculated for 0.185 af (100% of inflow)  
 Center-of-Mass det. time= 7.9 min ( 819.9 - 812.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	183.00'	0.020 af	<b>30.00'W x 30.92'L x 3.50'H Field A</b> 0.075 af Overall - 0.026 af Embedded = 0.049 af x 40.0% Voids
#2A	183.50'	0.026 af	<b>ADS_StormTech SC-740</b> x 24 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.045 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	183.50'	<b>15.0" Round Culvert</b> L= 32.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 183.50' / 179.85' S= 0.1141 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	185.80'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	183.50'	<b>12.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	183.00'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.18 cfs @ 11.51 hrs HW=183.04' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=1.41 cfs @ 12.15 hrs HW=184.13' (Free Discharge)  
 ↳ **1=Culvert** (Passes 1.41 cfs of 1.48 cfs potential flow)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.41 cfs @ 2.70 fps)

### Summary for Pond S1C: Infiltration P1C

Inflow Area = 0.350 ac, 91.43% Impervious, Inflow Depth > 3.71" for 10-Year Storm event  
 Inflow = 1.41 cfs @ 12.08 hrs, Volume= 0.108 af  
 Outflow = 0.30 cfs @ 11.74 hrs, Volume= 0.108 af, Atten= 79%, Lag= 0.0 min  
 Discarded = 0.30 cfs @ 11.74 hrs, Volume= 0.108 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.19' @ 12.50 hrs Surf.Area= 0.036 ac Storage= 0.025 af

Plug-Flow detention time= 18.6 min calculated for 0.108 af (100% of inflow)  
 Center-of-Mass det. time= 18.5 min ( 792.2 - 773.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	185.10'	0.033 af	<b>30.00'W x 52.28'L x 3.50'H Field A</b> 0.126 af Overall - 0.045 af Embedded = 0.081 af x 40.0% Voids
#2A	185.60'	0.045 af	<b>ADS_StormTech SC-740</b> x 42 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.60'	<b>15.0" Round Culvert</b> L= 45.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.60' / 180.69' S= 0.1091 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	188.10'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.60'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	185.10'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.30 cfs @ 11.74 hrs HW=185.14' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.30 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=185.10' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

### Summary for Pond S1D: Infiltration P1D

Inflow Area = 2.074 ac, 59.69% Impervious, Inflow Depth > 2.11" for 10-Year Storm event  
 Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.365 af  
 Outflow = 1.65 cfs @ 12.41 hrs, Volume= 0.365 af, Atten= 65%, Lag= 18.9 min  
 Discarded = 0.46 cfs @ 11.64 hrs, Volume= 0.300 af  
 Primary = 1.18 cfs @ 12.41 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.93' @ 12.41 hrs Surf.Area= 0.056 ac Storage= 0.089 af

Plug-Flow detention time= 38.3 min calculated for 0.364 af (100% of inflow)  
 Center-of-Mass det. time= 38.1 min ( 851.4 - 813.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	184.60'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	185.10'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.10'	<b>18.0" Round Culvert</b> L= 35.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.10' / 180.76' S= 0.1240 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	187.60'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.10'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	184.60'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.46 cfs @ 11.64 hrs HW=184.64' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=1.18 cfs @ 12.41 hrs HW=186.93' (Free Discharge)  
 ↳ **1=Culvert** (Passes 1.18 cfs of 7.80 cfs potential flow)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** (Orifice Controls 1.18 cfs @ 3.39 fps)

### Summary for Pond S1E: Infiltration P1E

Inflow Area =	0.640 ac, 78.13% Impervious, Inflow Depth > 2.91" for 10-Year Storm event
Inflow =	2.17 cfs @ 12.09 hrs, Volume= 0.155 af
Outflow =	0.46 cfs @ 11.77 hrs, Volume= 0.155 af, Atten= 79%, Lag= 0.0 min
Discarded =	0.46 cfs @ 11.77 hrs, Volume= 0.155 af
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 187.07' @ 12.51 hrs Surf.Area= 0.056 ac Storage= 0.037 af

Plug-Flow detention time= 19.7 min calculated for 0.155 af (100% of inflow)  
 Center-of-Mass det. time= 19.5 min ( 830.6 - 811.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.00'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	186.50'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	186.50'	<b>18.0" Round Culvert</b> L= 60.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 186.50' / 181.19' S= 0.0885 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	189.00'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	187.50'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600



#4 Discarded 186.00' **8.270 in/hr Exfiltration over Surface area**

**Discarded OutFlow** Max=0.46 cfs @ 11.77 hrs HW=186.04' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=186.00' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond S1F: Infiltration P1F**

Inflow Area = 3.091 ac, 55.90% Impervious, Inflow Depth > 1.89" for 10-Year Storm event  
 Inflow = 5.86 cfs @ 12.15 hrs, Volume= 0.487 af  
 Outflow = 1.60 cfs @ 12.59 hrs, Volume= 0.487 af, Atten= 73%, Lag= 26.5 min  
 Discarded = 0.83 cfs @ 11.77 hrs, Volume= 0.444 af  
 Primary = 0.77 cfs @ 12.59 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 183.35' @ 12.59 hrs Surf.Area= 0.100 ac Storage= 0.142 af

Plug-Flow detention time= 45.6 min calculated for 0.487 af (100% of inflow)  
 Center-of-Mass det. time= 45.4 min ( 893.3 - 847.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	181.30'	0.089 af	<b>30.00'W x 144.84'L x 3.50'H Field A</b> 0.349 af Overall - 0.127 af Embedded = 0.222 af x 40.0% Voids
#2A	181.80'	0.127 af	<b>ADS_StormTech SC-740</b> x 120 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.216 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	181.80'	<b>18.0" Round Culvert</b> L= 123.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 181.80' / 181.19' S= 0.0050 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	184.30'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	182.80'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	181.30'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.83 cfs @ 11.77 hrs HW=181.34' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.83 cfs)

**Primary OutFlow** Max=0.77 cfs @ 12.59 hrs HW=183.35' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.77 cfs of 6.70 cfs potential flow)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** (Orifice Controls 0.77 cfs @ 2.52 fps)

**Summary for Pond S1G1: Infiltration P1G1**

Inflow Area = 0.720 ac, 93.06% Impervious, Inflow Depth > 3.04" for 10-Year Storm event  
 Inflow = 2.43 cfs @ 12.08 hrs, Volume= 0.182 af  
 Outflow = 1.14 cfs @ 12.25 hrs, Volume= 0.182 af, Atten= 53%, Lag= 9.8 min  
 Discarded = 0.25 cfs @ 11.54 hrs, Volume= 0.152 af  
 Primary = 0.88 cfs @ 12.25 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 177.52' @ 12.25 hrs Surf.Area= 0.030 ac Storage= 0.042 af

Plug-Flow detention time= 31.3 min calculated for 0.182 af (100% of inflow)  
 Center-of-Mass det. time= 31.1 min ( 812.1 - 780.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	175.50'	0.028 af	<b>34.75"W x 38.04'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	176.00'	0.037 af	<b>ADS_StormTech SC-740</b> x 35 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	176.00'	<b>15.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 176.00' / 175.85' S= 0.0030 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	178.50'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	177.00'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	175.50'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 11.54 hrs HW=175.54' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=0.88 cfs @ 12.25 hrs HW=177.52' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.88 cfs of 4.46 cfs potential flow)  
 ↳ ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ ↳ ↳ **3=Orifice/Grate** (Orifice Controls 0.88 cfs @ 2.46 fps)

**Summary for Pond S1G2: Infiltration P1G2**

Inflow Area = 0.130 ac, 100.00% Impervious, Inflow Depth > 4.26" for 10-Year Storm event  
 Inflow = 0.57 cfs @ 12.08 hrs, Volume= 0.046 af  
 Outflow = 0.25 cfs @ 11.97 hrs, Volume= 0.046 af, Atten= 56%, Lag= 0.0 min  
 Discarded = 0.25 cfs @ 11.97 hrs, Volume= 0.046 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 180.76' @ 12.26 hrs Surf.Area= 0.030 ac Storage= 0.004 af

Plug-Flow detention time= 3.4 min calculated for 0.046 af (100% of inflow)  
 Center-of-Mass det. time= 3.3 min ( 752.6 - 749.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	180.40'	0.028 af	<b>25.25'W x 52.28'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	180.90'	0.037 af	<b>ADS_StormTech SC-740</b> x 35 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	180.90'	<b>12.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 180.90' / 177.00' S= 0.0780 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	183.40'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	181.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	180.40'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 11.97 hrs HW=180.44' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=180.40' (Free Discharge)  
 ↳ **1=Culvert** ( Controls 0.00 cfs)  
 ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ **3=Orifice/Grate** ( Controls 0.00 cfs)

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

Prepared by H. W. Moore Associates Inc.

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Pond ES1B: Existing Subsurface Infiltration** Peak Elev=186.73' Storage=106 cf Inflow=1.91 cfs 0.195 af  
Discarded=0.12 cfs 0.042 af Primary=1.79 cfs 0.153 af Outflow=1.91 cfs 0.195 af

**Link P1A: Watershed P1A** Inflow=1.99 cfs 0.148 af  
Primary=1.99 cfs 0.148 af

**SubcatchmentP1A1: Pr. Watershed P1A1** Runoff Area=0.271 ac 56.46% Impervious Runoff Depth>3.82"  
Tc=6.0 min CN=72 Runoff=1.22 cfs 0.086 af

**SubcatchmentP1A2: Pr. Watershed P1A2** Runoff Area=0.115 ac 95.65% Impervious Runoff Depth>6.40"  
Tc=6.0 min CN=95 Runoff=0.78 cfs 0.061 af

**SubcatchmentP1B1: Pr. Watershed P1B1** Runoff Area=0.710 ac 47.89% Impervious Runoff Depth>3.29"  
Flow Length=400' Tc=18.3 min CN=67 Runoff=1.91 cfs 0.195 af

**SubcatchmentP1B2: Pr. Watershed P1B2** Runoff Area=0.340 ac 85.29% Impervious Runoff Depth>5.70"  
Tc=6.0 min CN=89 Runoff=2.16 cfs 0.162 af

**SubcatchmentP1B3: Pr. Watershed P1B3** Runoff Area=0.080 ac 100.00% Impervious Runoff Depth>6.76"  
Tc=0.0 min CN=98 Runoff=0.67 cfs 0.045 af

**SubcatchmentP1C1: Pr. Watershed P1C1** Runoff Area=0.200 ac 85.00% Impervious Runoff Depth>5.70"  
Tc=6.0 min CN=89 Runoff=1.27 cfs 0.095 af

**SubcatchmentP1C2: Pr. Watershed P1C2** Runoff Area=0.150 ac 100.00% Impervious Runoff Depth>6.76"  
Tc=6.0 min CN=98 Runoff=1.03 cfs 0.084 af

**SubcatchmentP1D1: Pr. Watershed P1D1** Runoff Area=0.474 ac 94.51% Impervious Runoff Depth>6.40"  
Tc=6.0 min CN=95 Runoff=3.21 cfs 0.253 af

**SubcatchmentP1D2: Pr. Watershed P1D2** Runoff Area=1.500 ac 46.00% Impervious Runoff Depth>3.20"  
Flow Length=481' Tc=6.8 min CN=66 Runoff=5.44 cfs 0.400 af

**SubcatchmentP1D3: Pr. Watershed P1D3** Runoff Area=0.100 ac 100.00% Impervious Runoff Depth>6.76"  
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.056 af

**SubcatchmentP1E: Pr. Watershed P1E** Runoff Area=0.640 ac 78.13% Impervious Runoff Depth>5.25"  
Tc=6.0 min CN=85 Runoff=3.83 cfs 0.280 af

**SubcatchmentP1F: Pr. Watershed P1F** Runoff Area=3.091 ac 55.90% Impervious Runoff Depth>3.93"  
Flow Length=477' Tc=10.2 min CN=73 Runoff=12.39 cfs 1.012 af

**SubcatchmentP1G1: Pr. Watershed P1G1** Runoff Area=0.590 ac 91.53% Impervious Runoff Depth>6.17"  
Tc=6.0 min CN=93 Runoff=3.93 cfs 0.303 af

**SubcatchmentP1G2: Pr. Watershed P1G2** Runoff Area=0.130 ac 100.00% Impervious Runoff Depth>6.76"  
Tc=6.0 min CN=98 Runoff=0.89 cfs 0.073 af

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

Prepared by H. W. Moore Associates Inc.

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<b>Link P1H: Watershed P1H</b>	Inflow=0.28 cfs 0.028 af Primary=0.28 cfs 0.028 af
<b>SubcatchmentP1H1: Pr. Watershed P1H1</b>	Runoff Area=0.145 ac 17.24% Impervious Runoff Depth>1.58" Tc=6.0 min CN=49 Runoff=0.23 cfs 0.019 af
<b>SubcatchmentP1H2: Pr. Watershed P1H2</b>	Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>0.77" Tc=6.0 min CN=39 Runoff=0.06 cfs 0.009 af
<b>SubcatchmentP2: Pr. Watershed 2</b>	Runoff Area=0.070 ac 0.00% Impervious Runoff Depth>0.21" Tc=6.0 min CN=30 Runoff=0.00 cfs 0.001 af
<b>Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)</b>	Inflow=20.26 cfs 1.129 af Outflow=20.26 cfs 1.129 af
<b>Reach PR2: Reach 2 (Flow West Offsite)</b>	Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
<b>Pond S1B: Infiltration P1B</b>	Peak Elev=184.60' Storage=0.023 af Inflow=3.37 cfs 0.360 af Discarded=0.18 cfs 0.167 af Primary=2.93 cfs 0.193 af Outflow=3.11 cfs 0.360 af
<b>Pond S1C: Infiltration P1C</b>	Peak Elev=187.07' Storage=0.049 af Inflow=2.30 cfs 0.179 af Discarded=0.30 cfs 0.168 af Primary=0.23 cfs 0.012 af Outflow=0.53 cfs 0.179 af
<b>Pond S1D: Infiltration P1D</b>	Peak Elev=188.07' Storage=0.119 af Inflow=9.28 cfs 0.709 af Discarded=0.46 cfs 0.431 af Primary=8.28 cfs 0.278 af Outflow=8.74 cfs 0.709 af
<b>Pond S1E: Infiltration P1E</b>	Peak Elev=188.18' Storage=0.084 af Inflow=3.83 cfs 0.280 af Discarded=0.46 cfs 0.257 af Primary=0.30 cfs 0.022 af Outflow=0.77 cfs 0.280 af
<b>Pond S1F: Infiltration P1F</b>	Peak Elev=184.78' Storage=0.215 af Inflow=12.39 cfs 1.012 af Discarded=0.83 cfs 0.656 af Primary=8.61 cfs 0.355 af Outflow=9.44 cfs 1.011 af
<b>Pond S1G1: Infiltration P1G1</b>	Peak Elev=178.31' Storage=0.056 af Inflow=3.93 cfs 0.303 af Discarded=0.25 cfs 0.210 af Primary=2.48 cfs 0.093 af Outflow=2.74 cfs 0.303 af
<b>Pond S1G2: Infiltration P1G2</b>	Peak Elev=181.14' Storage=0.012 af Inflow=0.89 cfs 0.073 af Discarded=0.25 cfs 0.073 af Primary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.073 af

**Summary for Pond ES1B: Existing Subsurface Infiltration**

Inflow Area = 0.710 ac, 47.89% Impervious, Inflow Depth > 3.29" for 100-Year Storm event  
 Inflow = 1.91 cfs @ 12.26 hrs, Volume= 0.195 af  
 Outflow = 1.91 cfs @ 12.27 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.6 min  
 Discarded = 0.12 cfs @ 12.27 hrs, Volume= 0.042 af  
 Primary = 1.79 cfs @ 12.27 hrs, Volume= 0.153 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 186.73' @ 12.27 hrs Surf.Area= 2,076 sf Storage= 106 cf

Plug-Flow detention time= 1.2 min calculated for 0.195 af (100% of inflow)  
 Center-of-Mass det. time= 1.0 min ( 847.4 - 846.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.60'	1,853 cf	<b>34.75"W x 59.40"L x 3.50"H Field A</b> 7,225 cf Overall - 2,593 cf Embedded = 4,632 cf x 40.0% Voids
#2A	187.10'	2,593 cf	<b>ADS_StormTech SC-740 x 56 Inside #1</b> Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
#3	186.60'	42 cf	<b>12.0" Round Pipe Storage</b> L= 54.0' S= 0.0050 '/'
		4,488 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	186.60'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	186.60'	<b>2.0" x 2.0" Horiz. [ADDED] Catch Basin Overflow X 6.00 columns</b> X 12 rows C= 0.600 in 24.0" x 48.0" Grate Limited to weir flow at low heads

**Discarded OutFlow** Max=0.12 cfs @ 12.27 hrs HW=186.73' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.12 cfs)

**Primary OutFlow** Max=1.78 cfs @ 12.27 hrs HW=186.73' (Free Discharge)  
 ↑2=[ADDED] Catch Basin Overflow (Weir Controls 1.78 cfs @ 1.17 fps)

**Summary for Link P1A: Watershed P1A**

Inflow Area = 0.386 ac, 68.13% Impervious, Inflow Depth > 4.59" for 100-Year Storm event  
 Inflow = 1.99 cfs @ 12.09 hrs, Volume= 0.148 af  
 Primary = 1.99 cfs @ 12.09 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1A1: Pr. Watershed P1A1**

Runoff = 1.22 cfs @ 12.09 hrs, Volume= 0.086 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.116	98	Parking and Drives
* 0.037	98	Sidewalk
0.118	39	>75% Grass cover, Good, HSG A
0.271	72	Weighted Average
0.118		43.54% Pervious Area
0.153		56.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1A2: Pr. Watershed P1A2**

Runoff = 0.78 cfs @ 12.08 hrs, Volume= 0.061 af, Depth> 6.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.070	98	Parking and Drives
* 0.040	98	Sidewalk
0.005	39	>75% Grass cover, Good, HSG A
0.115	95	Weighted Average
0.005		4.35% Pervious Area
0.110		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1B1: Pr. Watershed P1B1**

Runoff = 1.91 cfs @ 12.26 hrs, Volume= 0.195 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

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Area (ac)	CN	Description
* 0.210	98	Parking and Drives
* 0.040	98	Sidewalk
* 0.090	98	Roofs
0.370	39	>75% Grass cover, Good, HSG A
0.710	67	Weighted Average
0.370		52.11% Pervious Area
0.340		47.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	100	0.0150	0.10		<b>Sheet Flow,</b> Grass: Dense n= 0.240 P2= 3.00"
0.1	13	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
1.3	196	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	91	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
18.3	400	Total			

**Summary for Subcatchment P1B2: Pr. Watershed P1B2**

Runoff = 2.16 cfs @ 12.08 hrs, Volume= 0.162 af, Depth> 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.210	98	Pavement and Drives
* 0.080	98	Sidewalk
0.050	39	>75% Grass cover, Good, HSG A
0.340	89	Weighted Average
0.050		14.71% Pervious Area
0.290		85.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1B3: Pr. Watershed P1B3**

Runoff = 0.67 cfs @ 12.00 hrs, Volume= 0.045 af, Depth> 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Storm Rainfall=7.00"



Area (ac)	CN	Description
* 0.080	98	Roofs
0.080		100.00% Impervious Area

**Summary for Subcatchment P1C1: Pr. Watershed P1C1**

Runoff = 1.27 cfs @ 12.08 hrs, Volume= 0.095 af, Depth> 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.140	98	Parking and Drives
* 0.030	98	Sidewalk
0.030	39	>75% Grass cover, Good, HSG A
0.200	89	Weighted Average
0.030		15.00% Pervious Area
0.170		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1C2: Pr. Watershed P1C2**

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 0.084 af, Depth> 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.150	98	Roofs
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/10 Hour Minimum

**Summary for Subcatchment P1D1: Pr. Watershed P1D1**

Runoff = 3.21 cfs @ 12.08 hrs, Volume= 0.253 af, Depth> 6.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

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Area (ac)	CN	Description
* 0.232	98	Parking and Drives
* 0.066	98	Sidewalk
* 0.150	98	Roofs
0.026	39	>75% Grass cover, Good, HSG A
0.474	95	Weighted Average
0.026		5.49% Pervious Area
0.448		94.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1D2: Pr. Watershed P1D2**

Runoff = 5.44 cfs @ 12.10 hrs, Volume= 0.400 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.440	98	Parking and Drives
* 0.030	98	Sidewalk
* 0.220	98	Roofs
0.810	39	>75% Grass cover, Good, HSG A
1.500	66	Weighted Average
0.810		54.00% Pervious Area
0.690		46.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	19	0.0200	0.12		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.3	19	0.0260	1.06		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
0.7	63	0.0400	1.60		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
2.3	226	0.0100	1.61		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.1	18	0.1110	5.36		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
0.3	39	0.0150	2.49		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
0.4	97	0.0050	3.79	2.98	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011

6.8 481 Total

**Summary for Subcatchment P1D3: Pr. Watershed P1D3**

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.056 af, Depth> 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.100	98	Roofs
0.100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1E: Pr. Watershed P1E**

Runoff = 3.83 cfs @ 12.09 hrs, Volume= 0.280 af, Depth> 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.170	98	Parking and Drives
* 0.070	98	Sidewalk
* 0.260	98	Roofs
0.140	39	>75% Grass cover, Good, HSG A
0.640	85	Weighted Average
0.140		21.87% Pervious Area
0.500		78.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1F: Pr. Watershed P1F**

Runoff = 12.39 cfs @ 12.14 hrs, Volume= 1.012 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

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Area (ac)	CN	Description
* 1.271	98	Parking and Drives
* 0.100	98	Sidewalk
* 0.357	98	Roofs
0.040	96	Gravel surface, HSG A
1.323	39	>75% Grass cover, Good, HSG A
3.091	73	Weighted Average
1.363		44.10% Pervious Area
1.728		55.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	51	0.1180	0.29		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.1	5	0.0200	0.73		<b>Sheet Flow,</b> Smooth surfaces n= 0.011 P2= 3.00"
5.6	44	0.0170	0.13		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.00"
0.5	44	0.0070	1.35		<b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
1.1	333	0.0050	4.97	8.78	<b>Pipe Channel,</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.011
10.2	477	Total			

**Summary for Subcatchment P1G1: Pr. Watershed P1G1**

Runoff = 3.93 cfs @ 12.08 hrs, Volume= 0.303 af, Depth> 6.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.267	98	Parking and Drives
* 0.087	98	Sidewalk
* 0.186	98	Roofs
0.050	39	>75% Grass cover, Good, HSG A
0.590	93	Weighted Average
0.050		8.47% Pervious Area
0.540		91.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1G2: Pr. Watershed P1G2**

Runoff = 0.89 cfs @ 12.08 hrs, Volume= 0.073 af, Depth> 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.130	98	Roofs
0.130		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Link P1H: Watershed P1H**

Inflow Area = 0.285 ac, 8.77% Impervious, Inflow Depth > 1.18" for 100-Year Storm event  
 Inflow = 0.28 cfs @ 12.11 hrs, Volume= 0.028 af  
 Primary = 0.28 cfs @ 12.11 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Subcatchment P1H1: Pr. Watershed P1H1**

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.019 af, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
* 0.020	98	Parking and Drives
* 0.005	98	Sidewalk
0.120	39	>75% Grass cover, Good, HSG A
0.145	49	Weighted Average
0.120		82.76% Pervious Area
0.025		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P1H2: Pr. Watershed P1H2**

Runoff = 0.06 cfs @ 12.14 hrs, Volume= 0.009 af, Depth> 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
0.140	39	>75% Grass cover, Good, HSG A
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Subcatchment P2: Pr. Watershed 2**

Runoff = 0.00 cfs @ 13.78 hrs, Volume= 0.001 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Type III 24-hr 100-Year Storm Rainfall=7.00"

Area (ac)	CN	Description
0.070	30	Woods, Good, HSG A
0.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, 1/10 Hour Minimum</b>

**Summary for Reach PR1: Reach 1 (Flow to Cowls Road 18" Culvert)**

Inflow Area = 8.676 ac, 62.86% Impervious, Inflow Depth > 1.56" for 100-Year Storm event  
 Inflow = 20.26 cfs @ 12.23 hrs, Volume= 1.129 af  
 Outflow = 20.26 cfs @ 12.23 hrs, Volume= 1.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Reach PR2: Reach 2 (Flow West Offsite)**

Inflow Area = 0.070 ac, 0.00% Impervious, Inflow Depth > 0.21" for 100-Year Storm event  
 Inflow = 0.00 cfs @ 13.78 hrs, Volume= 0.001 af  
 Outflow = 0.00 cfs @ 13.78 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**Summary for Pond S1B: Infiltration P1B**

Inflow Area = 1.130 ac, 62.83% Impervious, Inflow Depth > 3.82" for 100-Year Storm event  
 Inflow = 3.37 cfs @ 12.09 hrs, Volume= 0.360 af  
 Outflow = 3.11 cfs @ 12.18 hrs, Volume= 0.360 af, Atten= 8%, Lag= 5.3 min  
 Discarded = 0.18 cfs @ 10.62 hrs, Volume= 0.167 af  
 Primary = 2.93 cfs @ 12.18 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Peak Elev= 184.60' @ 12.18 hrs Surf.Area= 0.021 ac Storage= 0.023 af

Plug-Flow detention time= 8.1 min calculated for 0.360 af (100% of inflow)  
Center-of-Mass det. time= 7.9 min ( 807.0 - 799.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	183.00'	0.020 af	<b>30.00'W x 30.92'L x 3.50'H Field A</b> 0.075 af Overall - 0.026 af Embedded = 0.049 af x 40.0% Voids
#2A	183.50'	0.026 af	<b>ADS_StormTech SC-740</b> x 24 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.045 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	183.50'	<b>15.0" Round Culvert</b> L= 32.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 183.50' / 179.85' S= 0.1141 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	185.80'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	183.50'	<b>12.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	183.00'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.18 cfs @ 10.62 hrs HW=183.04' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=2.93 cfs @ 12.18 hrs HW=184.60' (Free Discharge)

↳ **1=Culvert** (Passes 2.93 cfs of 3.61 cfs potential flow)  
↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
↳ **3=Orifice/Grate** (Orifice Controls 2.93 cfs @ 3.73 fps)

**Summary for Pond S1C: Infiltration P1C**

Inflow Area = 0.350 ac, 91.43% Impervious, Inflow Depth > 6.15" for 100-Year Storm event  
Inflow = 2.30 cfs @ 12.08 hrs, Volume= 0.179 af  
Outflow = 0.53 cfs @ 12.48 hrs, Volume= 0.179 af, Atten= 77%, Lag= 23.6 min  
Discarded = 0.30 cfs @ 11.62 hrs, Volume= 0.168 af  
Primary = 0.23 cfs @ 12.48 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
Peak Elev= 187.07' @ 12.48 hrs Surf.Area= 0.036 ac Storage= 0.049 af

Plug-Flow detention time= 34.8 min calculated for 0.179 af (100% of inflow)  
Center-of-Mass det. time= 34.6 min ( 798.3 - 763.7 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	185.10'	0.033 af	<b>30.00'W x 52.28'L x 3.50'H Field A</b> 0.126 af Overall - 0.045 af Embedded = 0.081 af x 40.0% Voids
#2A	185.60'	0.045 af	<b>ADS_StormTech SC-740</b> x 42 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.60'	<b>15.0" Round Culvert</b> L= 45.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.60' / 180.69' S= 0.1091 ' / Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	188.10'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.60'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	185.10'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.30 cfs @ 11.62 hrs HW=185.14' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.30 cfs)

**Primary OutFlow** Max=0.23 cfs @ 12.48 hrs HW=187.07' (Free Discharge)

↳ **1=Culvert** (Passes 0.23 cfs of 4.78 cfs potential flow)

↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

↳ **3=Orifice/Grate** (Orifice Controls 0.23 cfs @ 2.64 fps)

**Summary for Pond S1D: Infiltration P1D**

Inflow Area =	2.074 ac, 59.69% Impervious, Inflow Depth > 4.10" for 100-Year Storm event
Inflow =	9.28 cfs @ 12.09 hrs, Volume= 0.709 af
Outflow =	8.74 cfs @ 12.12 hrs, Volume= 0.709 af, Atten= 6%, Lag= 1.9 min
Discarded =	0.46 cfs @ 11.12 hrs, Volume= 0.431 af
Primary =	8.28 cfs @ 12.12 hrs, Volume= 0.278 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 188.07' @ 12.12 hrs Surf.Area= 0.056 ac Storage= 0.119 af

Plug-Flow detention time= 34.1 min calculated for 0.709 af (100% of inflow)

Center-of-Mass det. time= 34.0 min ( 837.2 - 803.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	184.60'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	185.10'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage



Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	185.10'	<b>18.0" Round Culvert</b> L= 35.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 185.10' / 180.76' S= 0.1240 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	187.60'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	186.10'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	184.60'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.46 cfs @ 11.12 hrs HW=184.64' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=8.23 cfs @ 12.12 hrs HW=188.06' (Free Discharge)  
 ↳ **1=Culvert** (Passes 8.23 cfs of 11.17 cfs potential flow)  
 ↳ **2=Sharp-Crested Rectangular Weir** (Weir Controls 6.09 cfs @ 2.23 fps)  
 ↳ **3=Orifice/Grate** (Orifice Controls 2.15 cfs @ 6.15 fps)

**Summary for Pond S1E: Infiltration P1E**

Inflow Area =	0.640 ac, 78.13% Impervious, Inflow Depth > 5.25" for 100-Year Storm event
Inflow =	3.83 cfs @ 12.09 hrs, Volume= 0.280 af
Outflow =	0.77 cfs @ 12.52 hrs, Volume= 0.280 af, Atten= 80%, Lag= 26.0 min
Discarded =	0.46 cfs @ 11.62 hrs, Volume= 0.257 af
Primary =	0.30 cfs @ 12.52 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 188.18' @ 12.52 hrs Surf.Area= 0.056 ac Storage= 0.084 af

Plug-Flow detention time= 41.8 min calculated for 0.280 af (100% of inflow)  
 Center-of-Mass det. time= 41.7 min ( 836.2 - 794.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	186.00'	0.050 af	<b>30.00'W x 80.76'L x 3.50'H Field A</b> 0.195 af Overall - 0.070 af Embedded = 0.125 af x 40.0% Voids
#2A	186.50'	0.070 af	<b>ADS_StormTech SC-740</b> x 66 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	186.50'	<b>18.0" Round Culvert</b> L= 60.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 186.50' / 181.19' S= 0.0885 '/ Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	189.00'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	187.50'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600

#4 Discarded 186.00' **8.270 in/hr Exfiltration over Surface area**

**Discarded OutFlow** Max=0.46 cfs @ 11.62 hrs HW=186.04' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.46 cfs)

**Primary OutFlow** Max=0.30 cfs @ 12.52 hrs HW=188.18' (Free Discharge)  
 ↳ **1=Culvert** (Passes 0.30 cfs of 7.25 cfs potential flow)  
 ↳ ↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↳ ↳ ↳ **3=Orifice/Grate** (Orifice Controls 0.30 cfs @ 3.46 fps)

**Summary for Pond S1F: Infiltration P1F**

Inflow Area = 3.091 ac, 55.90% Impervious, Inflow Depth > 3.93" for 100-Year Storm event  
 Inflow = 12.39 cfs @ 12.14 hrs, Volume= 1.012 af  
 Outflow = 9.44 cfs @ 12.24 hrs, Volume= 1.011 af, Atten= 24%, Lag= 5.9 min  
 Discarded = 0.83 cfs @ 11.39 hrs, Volume= 0.656 af  
 Primary = 8.61 cfs @ 12.24 hrs, Volume= 0.355 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 184.78' @ 12.24 hrs Surf.Area= 0.100 ac Storage= 0.215 af

Plug-Flow detention time= 41.2 min calculated for 1.011 af (100% of inflow)  
 Center-of-Mass det. time= 41.0 min ( 867.9 - 826.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	181.30'	0.089 af	<b>30.00'W x 144.84'L x 3.50'H Field A</b> 0.349 af Overall - 0.127 af Embedded = 0.222 af x 40.0% Voids
#2A	181.80'	0.127 af	<b>ADS_StormTech SC-740</b> x 120 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 6 rows
		0.216 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	181.80'	<b>18.0" Round Culvert</b> L= 123.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 181.80' / 181.19' S= 0.0050 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf
#2	Device 1	184.30'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	182.80'	<b>8.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	181.30'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.83 cfs @ 11.39 hrs HW=181.34' (Free Discharge)  
 ↳ **4=Exfiltration** (Exfiltration Controls 0.83 cfs)

**Primary OutFlow** Max=8.61 cfs @ 12.24 hrs HW=184.78' (Free Discharge)  
 ↳ **1=Culvert** (Passes 8.61 cfs of 11.21 cfs potential flow)  
 ↳ ↳ **2=Sharp-Crested Rectangular Weir** (Weir Controls 6.45 cfs @ 2.27 fps)  
 ↳ ↳ ↳ **3=Orifice/Grate** (Orifice Controls 2.16 cfs @ 6.18 fps)

**Summary for Pond S1G1: Infiltration P1G1**

Inflow Area = 0.720 ac, 93.06% Impervious, Inflow Depth > 5.05" for 100-Year Storm event  
 Inflow = 3.93 cfs @ 12.08 hrs, Volume= 0.303 af  
 Outflow = 2.74 cfs @ 12.16 hrs, Volume= 0.303 af, Atten= 30%, Lag= 4.8 min  
 Discarded = 0.25 cfs @ 10.93 hrs, Volume= 0.210 af  
 Primary = 2.48 cfs @ 12.16 hrs, Volume= 0.093 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs  
 Peak Elev= 178.31' @ 12.16 hrs Surf.Area= 0.030 ac Storage= 0.056 af

Plug-Flow detention time= 28.6 min calculated for 0.303 af (100% of inflow)  
 Center-of-Mass det. time= 28.5 min ( 796.7 - 768.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	175.50'	0.028 af	<b>34.75"W x 38.04'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	176.00'	0.037 af	<b>ADS_StormTech SC-740 x 35 Inside #1</b> Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	176.00'	<b>15.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 176.00' / 175.85' S= 0.0030 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	178.50'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	177.00'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	175.50'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 10.93 hrs HW=175.54' (Free Discharge)  
 ↑**4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=2.48 cfs @ 12.16 hrs HW=178.31' (Free Discharge)  
 ↑**1=Culvert** (Passes 2.48 cfs of 6.77 cfs potential flow)  
 ↑**2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)  
 ↑**3=Orifice/Grate** (Orifice Controls 2.48 cfs @ 4.55 fps)

**Summary for Pond S1G2: Infiltration P1G2**

Inflow Area = 0.130 ac, 100.00% Impervious, Inflow Depth > 6.76" for 100-Year Storm event  
 Inflow = 0.89 cfs @ 12.08 hrs, Volume= 0.073 af  
 Outflow = 0.25 cfs @ 11.80 hrs, Volume= 0.073 af, Atten= 72%, Lag= 0.0 min  
 Discarded = 0.25 cfs @ 11.80 hrs, Volume= 0.073 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

**3727 Amherst HydroCAD Pr Conditions 12-30-Type III 24-hr 100-Year Storm Rainfall=7.00"**

Prepared by H. W. Moore Associates Inc.

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Peak Elev= 181.14' @ 12.41 hrs Surf.Area= 0.030 ac Storage= 0.012 af

Plug-Flow detention time= 9.3 min calculated for 0.073 af (100% of inflow)  
Center-of-Mass det. time= 9.2 min ( 751.6 - 742.4 )

Volume	Invert	Avail.Storage	Storage Description
#1A	180.40'	0.028 af	<b>25.25'W x 52.28'L x 3.50'H Field A</b> 0.106 af Overall - 0.037 af Embedded = 0.069 af x 40.0% Voids
#2A	180.90'	0.037 af	<b>ADS_StormTech SC-740</b> x 35 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		0.065 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	180.90'	<b>12.0" Round Culvert</b> L= 50.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 180.90' / 177.00' S= 0.0780 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	183.40'	<b>6.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Device 1	181.90'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Discarded	180.40'	<b>8.270 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.25 cfs @ 11.80 hrs HW=180.44' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.25 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=180.40' (Free Discharge)

↳ **1=Culvert** ( Controls 0.00 cfs)

↳ **2=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

↳ **3=Orifice/Grate** ( Controls 0.00 cfs)