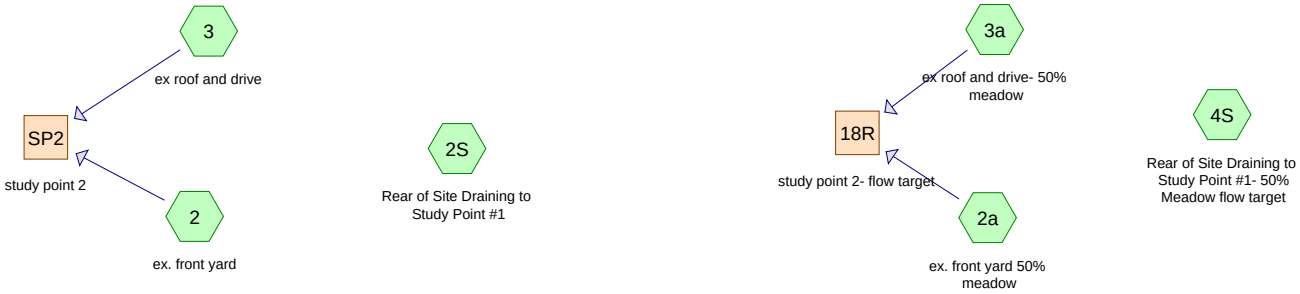


Subcat Reach Pond Link

Routing Diagram for 289 College Street Existing

Prepared by Civil Engineering Associates, Inc., Printed 2/18/2015

Summary for Subcatchment 2: ex. front yard

Runoff = 0.06 cfs @ 11.95 hrs, Volume= 0.003 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
	2,910	74	>75% Grass cover, Good, HSG C
*	145	98	ex walks
	3,055	75	Weighted Average
	2,910		95.25% Pervious Area
	145		4.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.64		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.30"
2.8	30	0.0600	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.9	35	Total			

Summary for Subcatchment 2a: ex. front yard 50% meadow

Runoff = 0.06 cfs @ 11.92 hrs, Volume= 0.003 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
	2,910	74	>75% Grass cover, Good, HSG C
*	73	98	ex walks
	73	71	Meadow, non-grazed, HSG C
	3,056	75	Weighted Average
	2,983		97.61% Pervious Area
	73		2.39% Impervious Area

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

Summary for Subcatchment 2S: Rear of Site Draining to Study Point #1

Runoff = 0.86 cfs @ 11.92 hrs, Volume= 0.038 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	11,264	98	Roof, parking, walkway, etc
	4,776	74	>75% Grass cover, Good, HSG C
	16,040	91	Weighted Average
	4,776		29.78% Pervious Area
	11,264		70.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0280	1.20		**Sheet Flow, access drive** Smooth surfaces n= 0.011 P2= 2.30"
1.0	184	0.0400	3.22		**Shallow Concentrated Flow, gravel parking** Unpaved Kv= 16.1 fps
0.2	40	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.0	284	Total			

Summary for Subcatchment 3: ex roof and drive

Runoff = 0.09 cfs @ 11.90 hrs, Volume= 0.004 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	1,190	98	Roof, parking, walkway, etc
	1,190		100.00% Impervious Area

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

Summary for Subcatchment 3a: ex roof and drive- 50% meadow

Runoff = 0.05 cfs @ 11.91 hrs, Volume= 0.002 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	595	98	Roof, parking, walkway, etc
	595	71	Meadow, non-grazed, HSG C
	1,190	85	Weighted Average
	595		50.00% Pervious Area
	595		50.00% Impervious Area

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

Summary for Subcatchment 4S: Rear of Site Draining to Study Point #1- 50% Meadow flow target

Runoff = 0.48 cfs @ 11.93 hrs, Volume= 0.021 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	5,632	98	Roof, parking, walkway, etc
	5,632	71	Meadow, non-grazed, HSG C
	4,776	74	>75% Grass cover, Good, HSG C
	16,040	81	Weighted Average
	10,408		64.89% Pervious Area
	5,632		35.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0280	1.20		**Sheet Flow, access drive** Smooth surfaces n= 0.011 P2= 2.30"
1.0	184	0.0400	3.22		**Shallow Concentrated Flow, gravel parking** Unpaved Kv= 16.1 fps
0.2	40	0.0600	3.67		**Shallow Concentrated Flow, grass** Grassed Waterway Kv= 15.0 fps
2.0	284	Total			

Summary for Reach 18R: study point 2- flow target

Inflow Area = 0.097 ac, 15.73% Impervious, Inflow Depth = 0.55" for 1-Year event
Inflow = 0.10 cfs @ 11.91 hrs, Volume= 0.004 af
Outflow = 0.10 cfs @ 11.91 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: study point 2

Inflow Area = 0.097 ac, 31.45% Impervious, Inflow Depth = 0.84" for 1-Year event
Inflow = 0.13 cfs @ 11.92 hrs, Volume= 0.007 af
Outflow = 0.13 cfs @ 11.92 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2: ex. front yard

Runoff = 0.15 cfs @ 11.94 hrs, Volume= 0.006 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
	2,910	74	>75% Grass cover, Good, HSG C
*	145	98	ex walks
	3,055	75	Weighted Average
	2,910		95.25% Pervious Area
	145		4.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	5	0.0200	0.64		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.30"
2.8	30	0.0600	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.30"
2.9	35	Total			

Summary for Subcatchment 2a: ex. front yard 50% meadow

Runoff = 0.15 cfs @ 11.91 hrs, Volume= 0.006 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
	2,910	74	>75% Grass cover, Good, HSG C
*	73	98	ex walks
	73	71	Meadow, non-grazed, HSG C
	3,056	75	Weighted Average
	2,983		97.61% Pervious Area
	73		2.39% Impervious Area

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

Summary for Subcatchment 2S: Rear of Site Draining to Study Point #1

Runoff = 1.51 cfs @ 11.92 hrs, Volume= 0.069 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	11,264	98	Roof, parking, walkway, etc
	4,776	74	>75% Grass cover, Good, HSG C
	16,040	91	Weighted Average
	4,776		29.78% Pervious Area
	11,264		70.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0280	1.20		**Sheet Flow, access drive** Smooth surfaces n= 0.011 P2= 2.30"
1.0	184	0.0400	3.22		**Shallow Concentrated Flow, gravel parking** Unpaved Kv= 16.1 fps
0.2	40	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.0	284	Total			

Summary for Subcatchment 3: ex roof and drive

Runoff = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	1,190	98	Roof, parking, walkway, etc
	1,190		100.00% Impervious Area

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

Summary for Subcatchment 3a: ex roof and drive- 50% meadow

Runoff = 0.09 cfs @ 11.91 hrs, Volume= 0.004 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	595	98	Roof, parking, walkway, etc
	595	71	Meadow, non-grazed, HSG C
	1,190	85	Weighted Average
	595		50.00% Pervious Area
	595		50.00% Impervious Area

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

Summary for Subcatchment 4S: Rear of Site Draining to Study Point #1- 50% Meadow flow target

Runoff = 1.03 cfs @ 11.92 hrs, Volume= 0.045 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	5,632	98	Roof, parking, walkway, etc
	5,632	71	Meadow, non-grazed, HSG C
	4,776	74	>75% Grass cover, Good, HSG C
	16,040	81	Weighted Average
	10,408		64.89% Pervious Area
	5,632		35.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0280	1.20		**Sheet Flow, access drive** Smooth surfaces n= 0.011 P2= 2.30"
1.0	184	0.0400	3.22		**Shallow Concentrated Flow, gravel parking** Unpaved Kv= 16.1 fps
0.2	40	0.0600	3.67		**Shallow Concentrated Flow, grass** Grassed Waterway Kv= 15.0 fps
2.0	284	Total			

Summary for Reach 18R: study point 2- flow target

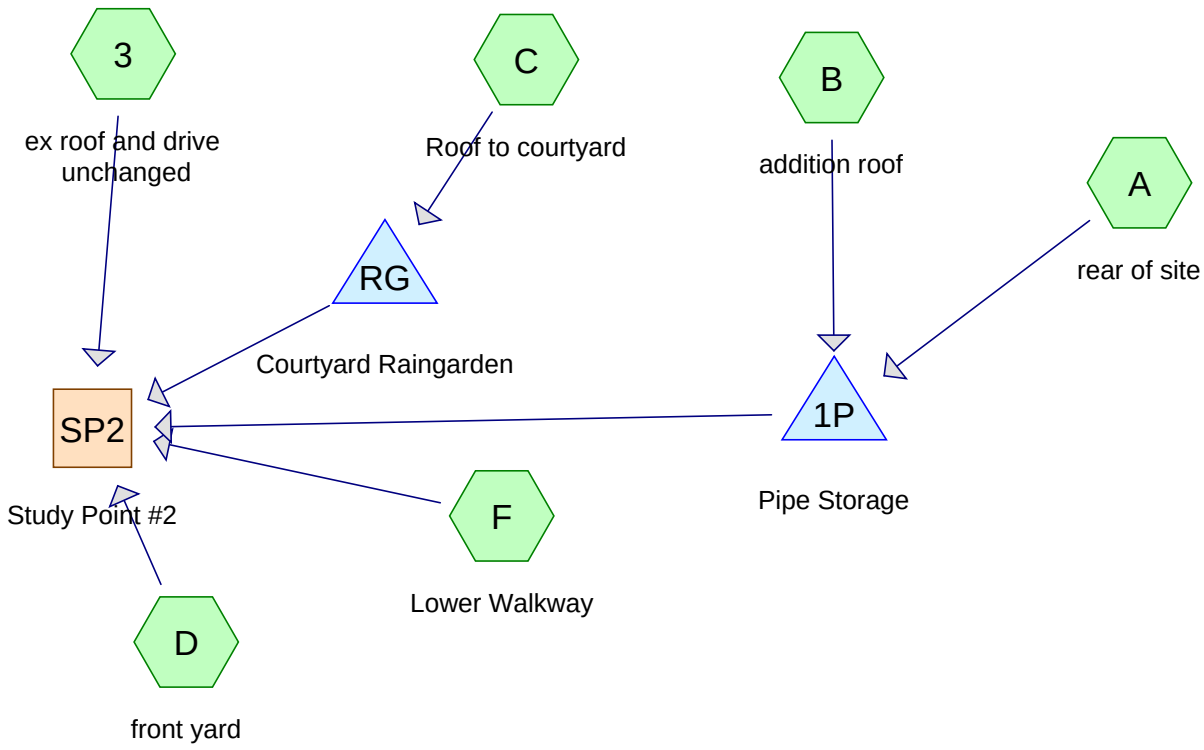
Inflow Area = 0.097 ac, 15.73% Impervious, Inflow Depth = 1.28" for 10-Year event
Inflow = 0.25 cfs @ 11.91 hrs, Volume= 0.010 af
Outflow = 0.25 cfs @ 11.91 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: study point 2

Inflow Area = 0.097 ac, 31.45% Impervious, Inflow Depth = 1.62" for 10-Year event
Inflow = 0.27 cfs @ 11.92 hrs, Volume= 0.013 af
Outflow = 0.27 cfs @ 11.92 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 289 College Street
Prepared by Civil Engineering Associates, Inc., Printed 2/18/2015

Summary for Subcatchment 3: ex roof and drive unchanged

Runoff = 0.09 cfs @ 11.90 hrs, Volume= 0.004 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	1,190	98	Roof, parking, walkway, etc
	1,190		100.00% Impervious Area

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

Summary for Subcatchment A: rear of site

Runoff = 0.66 cfs @ 11.90 hrs, Volume= 0.032 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	8,830	98	Roof, parking, walkway, etc minus pavers
	8,830		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0500	1.40		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.30"
0.3	85	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	125	Total			

Summary for Subcatchment B: addition roof

Runoff = 0.24 cfs @ 11.90 hrs, Volume= 0.011 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	3,200	98	Roof, parking, walkway, etc
	3,200		100.00% Impervious Area

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

Summary for Subcatchment C: Roof to courtyard

Runoff = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	2,030	98	new and ex rooftop
	700	74	>75% Grass cover, Good, HSG C
	2,730	92	Weighted Average
	700		25.64% Pervious Area
	2,030		74.36% Impervious Area

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

Summary for Subcatchment D: front yard

Runoff = 0.06 cfs @ 11.95 hrs, Volume= 0.003 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
	2,786	74	>75% Grass cover, Good, HSG C
*	266	98	new and ex walks
	3,052	76	Weighted Average
	2,786		91.28% Pervious Area
	266		8.72% Impervious Area

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

Summary for Subcatchment F: Lower Walkway

Runoff = 0.02 cfs @ 11.89 hrs, Volume= 0.001 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.10"

	Area (sf)	CN	Description
*	200	98	sidewalk to drain
	200		100.00% Impervious Area

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

Summary for Reach SP2: Study Point #2

Inflow Area = 0.441 ac, 81.85% Impervious, Inflow Depth = 1.53" for 1-Year event
Inflow = 0.58 cfs @ 11.95 hrs, Volume= 0.056 af
Outflow = 0.58 cfs @ 11.95 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Pipe Storage

Inflow Area = 0.276 ac,100.00% Impervious, Inflow Depth = 1.87" for 1-Year event
Inflow = 0.90 cfs @ 11.90 hrs, Volume= 0.043 af
Outflow = 0.40 cfs @ 11.99 hrs, Volume= 0.043 af, Atten= 55%, Lag= 5.4 min
Primary = 0.40 cfs @ 11.99 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 228.68' @ 11.99 hrs Surf.Area= 122 sf Storage= 359 cf

Plug-Flow detention time= 6.0 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (763.7 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	283 cf	**36.0" D x 40.0'L Pipe Storage S= 0.0050 '/'**
#2	226.00'	98 cf	**5.00'D x 5.00'H Vertical Cone/Cylinder**
#3	226.25'	98 cf	**5.00'D x 5.00'H Vertical Cone/Cylinder**
		479 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	226.00'	**15.0" Round Culvert** L= 135.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.00' / 224.80' S= 0.0089 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	226.00'	**3.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	229.00'	**15.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.40 cfs @ 11.99 hrs HW=228.64' (Free Discharge)
└**1=Culvert** (Passes 0.40 cfs of 6.63 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.40 cfs @ 7.63 fps)
  └**3=Culvert** (Controls 0.00 cfs)

Summary for Pond RG: Courtyard Raingarden

Inflow Area = 0.063 ac, 74.36% Impervious, Inflow Depth = 1.33" for 1-Year event
Inflow = 0.16 cfs @ 11.90 hrs, Volume= 0.007 af
Outflow = 0.05 cfs @ 12.01 hrs, Volume= 0.005 af, Atten= 68%, Lag= 6.6 min
Primary = 0.05 cfs @ 12.01 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 229.86' @ 12.01 hrs Surf.Area= 175 sf Storage= 132 cf

Plug-Flow detention time= 143.8 min calculated for 0.005 af (78% of inflow)
Center-of-Mass det. time= 56.5 min (862.7 - 806.2)

Volume	Invert	Avail.Storage	Storage Description
#1	227.70'	263 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
227.70	175	0.0	0	0
231.50	175	35.0	233	233
232.00	175	35.0	31	263

Device	Routing	Invert	Outlet Devices
#1	Device 3	228.80'	**1.4" Vert. Orifice/Grate** C= 0.600
#2	Device 3	231.50'	**12.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	228.00'	**8.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 228.00' / 225.50' S= 0.0417 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.01 hrs HW=229.84' (Free Discharge)
└**3=Culvert** (Passes 0.05 cfs of 1.63 cfs potential flow)
  └**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 4.78 fps)
  └**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment 3: ex roof and drive unchanged

Runoff = 0.14 cfs @ 11.90 hrs, Volume= 0.007 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	1,190	98	Roof, parking, walkway, etc
	1,190		100.00% Impervious Area

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

Summary for Subcatchment A: rear of site

Runoff = 1.02 cfs @ 11.89 hrs, Volume= 0.050 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	8,830	98	Roof, parking, walkway, etc minus pavers
	8,830		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0500	1.40		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.30"
0.3	85	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	125	Total			

Summary for Subcatchment B: addition roof

Runoff = 0.37 cfs @ 11.90 hrs, Volume= 0.018 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	3,200	98	Roof, parking, walkway, etc
	3,200		100.00% Impervious Area

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

Summary for Subcatchment C: Roof to courtyard

Runoff = 0.28 cfs @ 11.90 hrs, Volume= 0.012 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	2,030	98	new and ex rooftop
	700	74	>75% Grass cover, Good, HSG C
	2,730	92	Weighted Average
	700		25.64% Pervious Area
	2,030		74.36% Impervious Area

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

Summary for Subcatchment D: front yard

Runoff = 0.16 cfs @ 11.94 hrs, Volume= 0.007 af, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
	2,786	74	>75% Grass cover, Good, HSG C
*	266	98	new and ex walks
	3,052	76	Weighted Average
	2,786		91.28% Pervious Area
	266		8.72% Impervious Area

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

Summary for Subcatchment F: Lower Walkway

Runoff = 0.02 cfs @ 11.89 hrs, Volume= 0.001 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.20"

	Area (sf)	CN	Description
*	200	98	sidewalk to drain
	200		100.00% Impervious Area

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

Summary for Reach SP2: Study Point #2

Inflow Area = 0.441 ac, 81.85% Impervious, Inflow Depth = 2.55" for 10-Year event
Inflow = 1.72 cfs @ 11.92 hrs, Volume= 0.094 af
Outflow = 1.72 cfs @ 11.92 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Pipe Storage

Inflow Area = 0.276 ac,100.00% Impervious, Inflow Depth = 2.97" for 10-Year event
Inflow = 1.39 cfs @ 11.90 hrs, Volume= 0.068 af
Outflow = 1.35 cfs @ 11.92 hrs, Volume= 0.068 af, Atten= 3%, Lag= 1.3 min
Primary = 1.35 cfs @ 11.92 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 229.69' @ 11.92 hrs Surf.Area= 39 sf Storage= 423 cf

Plug-Flow detention time= 5.5 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 5.5 min (753.2 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	283 cf	**36.0" D x 40.0'L Pipe Storage S= 0.0050 '/'**
#2	226.00'	98 cf	**5.00'D x 5.00'H Vertical Cone/Cylinder**
#3	226.25'	98 cf	**5.00'D x 5.00'H Vertical Cone/Cylinder**
		479 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	226.00'	**15.0" Round Culvert** L= 135.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.00' / 224.80' S= 0.0089 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	226.00'	**3.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	229.00'	**15.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 229.00' / 229.00' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.23 cfs @ 11.92 hrs HW=229.56' (Free Discharge)
└**1=Culvert** (Passes 1.23 cfs of 8.00 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.47 cfs @ 8.92 fps)
  └**3=Culvert** (Barrel Controls 0.77 cfs @ 2.09 fps)

Summary for Pond RG: Courtyard Raingarden

Inflow Area = 0.063 ac, 74.36% Impervious, Inflow Depth = 2.35" for 10-Year event
Inflow = 0.28 cfs @ 11.90 hrs, Volume= 0.012 af
Outflow = 0.08 cfs @ 12.01 hrs, Volume= 0.011 af, Atten= 71%, Lag= 6.8 min
Primary = 0.08 cfs @ 12.01 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 231.34' @ 12.01 hrs Surf.Area= 175 sf Storage= 223 cf

Plug-Flow detention time= 109.6 min calculated for 0.011 af (87% of inflow)
Center-of-Mass det. time= 49.0 min (839.0 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	227.70'	263 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
227.70	175	0.0	0	0
231.50	175	35.0	233	233
232.00	175	35.0	31	263

Device	Routing	Invert	Outlet Devices
#1	Device 3	228.80'	**1.4" Vert. Orifice/Grate** C= 0.600
#2	Device 3	231.50'	**12.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	228.00'	**8.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 228.00' / 225.50' S= 0.0417 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.01 hrs HW=231.31' (Free Discharge)
└**3=Culvert** (Passes 0.08 cfs of 2.29 cfs potential flow)
  └**1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 7.54 fps)
  └**2=Orifice/Grate** (Controls 0.00 cfs)