Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.1150	0.10		**Sheet Flow, SHT Begins in forest** Woods: Dense underbrush n= 0.800 P2= 4.00"
2.3	113	0.1100	0.83		**Shallow Concentrated Flow, SCF** Forest w/Heavy Litter Kv= 2.5 fps
0.1	42	0.0200	5.47	32.81	**Channel Flow, OCF** Area= 6.0 sf Perim= 8.7' r= 0.69' n= 0.030 Earth, grassed & winding
19.0	255	Total			

Summary for Subcatchment SCVSBW4:

Check for non-erosive peak velocity 3.5 to 5.0 fps during 2-yr 24-hr event with 4.00 inch rain.

Imperv Parking Lot
use 2% cross slope

Dry swale

#% max longitudinal slope
#' wide floor?

see acad layout

Runoff = 0.90 cfs @ 11.97 hrs, Volume= 0.043 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	1,674	98	Paved parking 60x360
*	4,124	74	grassland, good
	5,798	81	Weighted Average
	4,124		Pervious Area
	1,674		Impervious Area

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

Summary for Reach RSWLN1:

Inflow Area = 0.528 ac, 16.30% Impervious, Inflow Depth = 1.60" for Q10 event
Inflow = 2.21 cfs @ 12.06 hrs, Volume= 0.071 af
Outflow = 2.19 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.04 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 2.9 min

Peak Storage= 158 cf @ 12.08 hrs, Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 152.06 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 220.0' Slope= 0.0227 '/'
Inlet Invert= 1,959.00', Outlet Invert= 1,954.00'

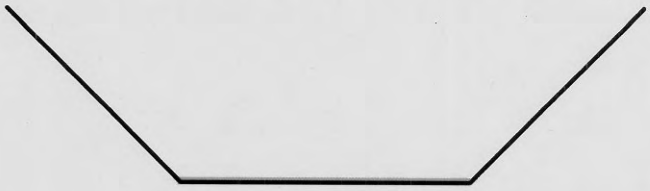
Summary for Reach STR1: STREAM

Inflow Area = 1.057 ac, 16.30% Impervious, Inflow Depth = 3.38" for Q10 event
Inflow = 4.71 cfs @ 12.06 hrs, Volume= 0.298 af
Outflow = 4.71 cfs @ 12.07 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 1.1 min

Peak Storage= 162 cf @ 12.07 hrs, Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 2,317.10 cfs

10.00' x 6.00' deep channel, n= 0.040 Mountain streams
Side Slope Z-value= 1.0 '/' Top Width= 22.00'
Length= 103.0' Slope= 0.0777 '/'
Inlet Invert= 1,950.00', Outlet Invert= 1,942.00'



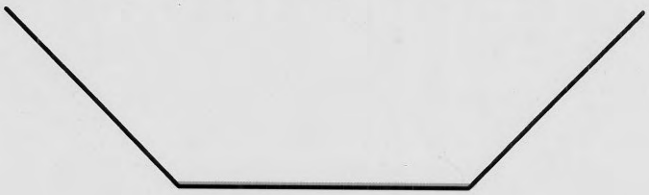
Summary for Reach STR2: TO CRYSTAL BROOK LINK

Inflow Area = 1.057 ac, 16.30% Impervious, Inflow Depth = 3.38" for Q10 event
Inflow = 4.71 cfs @ 12.07 hrs, Volume= 0.298 af
Outflow = 4.66 cfs @ 12.09 hrs, Volume= 0.298 af, Atten= 1%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 3.1 min

Peak Storage= 459 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 2,175.06 cfs

10.00' x 6.00' deep channel, n= 0.040
Side Slope Z-value= 1.0 '/' Top Width= 22.00'
Length= 282.0' Slope= 0.0684 '/'
Inlet Invert= 1,942.00', Outlet Invert= 1,922.70'



Summary for Pond CVSAW3: CB

Inflow Area =	0.640 ac,	5.79% Impervious,	Inflow Depth =	3.09"	for Q10 event
Inflow =	2.26 cfs @	12.12 hrs,	Volume=	0.165 af	
Outflow =	2.26 cfs @	12.12 hrs,	Volume=	0.165 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary =	2.26 cfs @	12.12 hrs,	Volume=	0.165 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,960.86' @ 12.12 hrs
Flood Elev= 1,963.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,956.50'	**12.0" x 42.0' long Culvert to CVSAW4** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 1,955.00' S= 0.0357 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	1,960.50'	**12.0" Horiz. Horizontal Grate** Limited to weir flow C= 0.600
#3	Primary	1,962.20'	**Spillover Weir, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 4.00 79.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,956.50' TW=1,941.50' (Dynamic Tailwater)
└─**3=Spillover Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=2.26 cfs @ 12.12 hrs HW=1,960.86' TW=1,959.67' (Dynamic Tailwater)
└─**1=Culvert to CVSAW4** (Passes 2.26 cfs of 4.11 cfs potential flow)
└─**2=Horizontal Grate** (Weir Controls 2.26 cfs @ 1.97 fps)

Summary for Pond CVSAW4: CB

Inflow =	2.26 cfs @	12.12 hrs,	Volume=	0.165 af	
Outflow =	2.26 cfs @	12.12 hrs,	Volume=	0.165 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.13 cfs @	12.12 hrs,	Volume=	0.082 af	
Secondary =	0.13 cfs @	12.16 hrs,	Volume=	0.083 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,959.67' @ 12.12 hrs
Flood Elev= 1,960.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,954.00'	**12.0" x 57.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 1,953.00' S= 0.0175 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	1,954.00'	**2.0" Vert. Vert WQv Orifice** C= 0.600
#3	Device 2	1,959.00'	**12.0" Horiz. Horiz Grate** Limited to weir flow C= 0.600
#4	Primary	1,959.50'	**Weir in Swale, C= 2.62** Head (feet) 0.00 0.50 Width (feet) 9.00 14.00

Primary OutFlow Max=2.13 cfs @ 12.12 hrs HW=1,959.67' TW=1,947.93' (Dynamic Tailwater)
└─**4=Weir in Swale** (Weir Controls 2.13 cfs @ 1.31 fps)

Secondary OutFlow Max=0.13 cfs @ 12.16 hrs HW=1,959.66' TW=1,958.09' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.13 cfs of 4.35 cfs potential flow)
└─**2=Vert WQv Orifice** (Orifice Controls 0.13 cfs @ 6.03 fps)
└─**3=Horiz Grate** (Passes 0.13 cfs of 3.07 cfs potential flow)

Summary for Pond CVSAW5: CB

Inflow Area = 0.133 ac, 28.87% Impervious, Inflow Depth = 11.35" for Q10 event
Inflow = 1.02 cfs @ 11.97 hrs, Volume= 0.126 af
Outflow = 1.02 cfs @ 11.97 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
Secondary = 1.02 cfs @ 11.97 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,958.21' @ 11.97 hrs
Flood Elev= 1,959.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,953.00'	**12.0" x 150.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 1,951.00' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	1,958.00'	**12.0" Horiz. Horiz Grate** Limited to weir flow C= 0.600

Secondary OutFlow Max=1.02 cfs @ 11.97 hrs HW=1,958.21' TW=1,943.14' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.02 cfs of 6.31 cfs potential flow)
└─**2=Horiz Grate** (Weir Controls 1.02 cfs @ 1.52 fps)

Summary for Pond CVSBW1: CB

Inflow Area = 0.528 ac, 16.30% Impervious, Inflow Depth = 3.38" for Q10 event
Inflow = 2.36 cfs @ 12.06 hrs, Volume= 0.149 af
Outflow = 2.36 cfs @ 12.06 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Primary = 2.21 cfs @ 12.06 hrs, Volume= 0.071 af
Secondary = 0.15 cfs @ 12.06 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,959.64' @ 12.06 hrs
Flood Elev= 1,960.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,959.00'	**12.0" x 100.0' long Culvert** Ke= 0.500 Outlet Invert= 1,952.00' S= 0.0700 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	1,959.00'	**2.8" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,959.50'	**In Channel Weir, C= 2.62** Head (feet) 0.00 0.50 Width (feet) 13.00 17.00

Primary OutFlow Max=2.21 cfs @ 12.06 hrs HW=1,959.64' TW=1,959.26' (Dynamic Tailwater)
└─**3=In Channel Weir** (Weir Controls 2.21 cfs @ 1.20 fps)

Secondary OutFlow Max=0.15 cfs @ 12.06 hrs HW=1,959.64' TW=1,947.60' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.15 cfs of 1.43 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 3.47 fps)

Summary for Pond CVSBW2: HWALL

Inflow Area = 0.528 ac, 16.30% Impervious, Inflow Depth = 3.38" for Q10 event
Inflow = 2.36 cfs @ 12.06 hrs, Volume= 0.149 af
Outflow = 2.36 cfs @ 12.06 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Primary = 2.36 cfs @ 12.06 hrs, Volume= 0.149 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 1,961.02' @ 12.06 hrs
Flood Elev= 1,963.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,959.50'	**12.0" x 50.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 1,959.00' S= 0.0100 '/' Cc= 0.900 n= 0.025 Corrugated metal
#2	Secondary	1,962.00'	**Weirover to next subcat, C= 2.62** Head (feet) 0.00 1.00 Width (feet) 2.00 6.60

Primary OutFlow Max=2.36 cfs @ 12.06 hrs HW=1,961.02' TW=1,959.64' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.36 cfs @ 3.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,959.50' TW=1,956.50' (Dynamic Tailwater)
└─**2=Weirover to next subcat** (Controls 0.00 cfs)

Summary for Pond CVSBW3: CB

Inflow Area =	0.740 ac, 26.91% Impervious, Inflow Depth = 2.44" for Q10 event				
Inflow =	3.20 cfs @	12.01 hrs,	Volume=	0.150 af	
Outflow =	3.20 cfs @	12.01 hrs,	Volume=	0.150 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.98 cfs @	12.01 hrs,	Volume=	0.088 af	
Secondary =	0.23 cfs @	12.01 hrs,	Volume=	0.062 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,954.73' @ 12.01 hrs
Flood Elev= 1,956.00'

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,950.00'	**12.0" x 130.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 1,949.00' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	1,950.00'	**2.0" Vert. Vert WQv Orifice** C= 0.600
#3	Device 2	1,954.00'	**12.0" Horiz. Horiz Grate** Limited to weir flow C= 0.600
#4	Primary	1,954.50'	**Weir in Swale, C= 2.62** Head (feet) 0.00 0.50 Width (feet) 8.00 10.00

Primary OutFlow Max=2.98 cfs @ 12.01 hrs HW=1,954.73' TW=1,942.59' (Dynamic Tailwater)
└─**4=Weir in Swale** (Weir Controls 2.98 cfs @ 1.55 fps)

Secondary OutFlow Max=0.23 cfs @ 12.01 hrs HW=1,954.73' TW=1,947.75' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.23 cfs of 5.80 cfs potential flow)
  └─**2=Vert WQv Orifice** (Orifice Controls 0.23 cfs @ 10.38 fps)
    └─**3=Horiz Grate** (Passes 0.23 cfs of 3.23 cfs potential flow)

Summary for Pond DMH1: TO DMH2 LINK

Inflow Area =	4.891 ac, 31.62% Impervious, Inflow Depth > 3.70" for Q10 event				
Inflow =	3.64 cfs @	12.79 hrs,	Volume=	1.509 af	
Outflow =	3.64 cfs @	12.79 hrs,	Volume=	1.509 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.64 cfs @	12.79 hrs,	Volume=	1.509 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,933.55' @ 12.79 hrs
Flood Elev= 1,936.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,932.50'	**15.0" x 300.0' long Culvert** CPP, square edge headwall, Ke= 0.500

Outlet Invert= 1,930.50' S= 0.0067 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.64 cfs @ 12.79 hrs HW=1,933.55' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.64 cfs @ 4.44 fps)

Summary for Pond DRYDETA: Dry Detention Pond

Inflow Area =	4.891 ac, 31.62% Impervious, Inflow Depth > 3.70" for Q10 event				
Inflow =	4.12 cfs @	12.50 hrs, Volume=	1.509 af		
Outflow =	3.64 cfs @	12.79 hrs, Volume=	1.509 af, Atten= 12%, Lag= 17.5 min		
Primary =	3.64 cfs @	12.79 hrs, Volume=	1.509 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,941.39' @ 12.79 hrs Surf.Area= 1,611 sf Storage= 4,695 cf
Flood Elev= 1,946.85' Surf.Area= 4,059 sf Storage= 19,664 cf

Plug-Flow detention time= 90.3 min calculated for 1.509 af (100% of inflow)
Center-of-Mass det. time= 90.1 min (1,565.6 - 1,475.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,934.75'	23,579 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,590 cf Overall - 11 cf Embedded = 23,579 cf
#2	1,934.75'	11 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1
		23,590 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,934.75	11	0	0	11
1,935.75	11	11	11	24
1,935.76	250	1	12	263
1,947.76	4,575	23,578	23,590	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,934.75	11	0	0	11
1,935.75	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Primary	1,934.75'	**12.0" x 150.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 1,932.50' S= 0.0150 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	1,934.85'	**12.0" Vert. Vertical Internal Orifice** C= 1.000
#3	Device 2	1,935.00'	**2.0" Vert. VertOri from underdrain** C= 0.600
#4	Device 2	1,939.75'	**0.50' W x 1.75' H Vert. Slot Weir** C= 0.600
#5	Device 2	1,941.75'	**11.0" Horiz. Top Edge X 0.00** Limited to weir flow C= 0.600
#6	Primary	1,946.25'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=3.64 cfs @ 12.79 hrs HW=1,941.39' TW=1,933.55' (Dynamic Tailwater)
├─**1=Culvert** (Passes 3.64 cfs of 9.10 cfs potential flow)
│ └─**2=Vertical Internal Orifice** (Passes 3.64 cfs of 15.49 cfs potential flow)
│ ├─**3=VertOri from underdrain** (Orifice Controls 0.26 cfs @ 12.09 fps)
│ ├─**4=Slot Weir** (Orifice Controls 3.37 cfs @ 4.11 fps)
│ └─**5=Top Edge** (Controls 0.00 cfs)
└─**6=roadway overflow** (Controls 0.00 cfs)

Summary for Pond DRYDETB: Dry Detention Pond

Inflow Area =	3.497 ac, 28.33% Impervious, Inflow Depth = 3.36" for Q10 event				
Inflow =	6.83 cfs @	12.24 hrs, Volume=	0.980 af		
Outflow =	4.00 cfs @	12.49 hrs, Volume=	0.980 af, Atten= 41%, Lag= 14.9 min		
Primary =	4.00 cfs @	12.49 hrs, Volume=	0.980 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,946.23' @ 12.49 hrs Surf.Area= 2,011 sf Storage= 6,668 cf
Flood Elev= 1,950.60' Surf.Area= 4,059 sf Storage= 19,664 cf

Plug-Flow detention time= 87.0 min calculated for 0.980 af (100% of inflow)
Center-of-Mass det. time= 86.8 min (1,286.4 - 1,199.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,938.50'	23,579 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,590 cf Overall - 11 cf Embedded = 23,579 cf
#2	1,938.50'	11 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1
		23,590 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,938.50	11	0	0	11
1,939.50	11	11	11	24
1,939.51	250	1	12	263
1,951.51	4,575	23,578	23,590	5,029

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,938.50	11	0	0	11
1,939.50	11	11	11	24

Device	Routing	Invert	Outlet Devices
#1	Primary	1,938.50'	**12.0" x 135.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 1,937.00' S= 0.0111 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	1,938.60'	**12.0" Vert. Vertical Internal Orifice** C= 1.000
#3	Device 2	1,943.50'	**0.33' W x 1.75' H Vert. Slot Weir** C= 0.600
#4	Device 2	1,945.50'	**11.0" Horiz. Top Edge X 0.00** Limited to weir flow C= 0.600
#5	Device 2	1,938.75'	**2.0" Vert. VertOri from underdrain** C= 0.600
#6	Primary	1,950.00'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=4.00 cfs @ 12.49 hrs HW=1,946.23' TW=1,940.83' (Dynamic Tailwater)
- **1=Culvert** (Passes 4.00 cfs of 7.79 cfs potential flow)
  - **2=Vertical Internal Orifice** (Passes 4.00 cfs of 14.64 cfs potential flow)
    - **3=Slot Weir** (Orifice Controls 3.75 cfs @ 6.50 fps)
    - **4=Top Edge** (Controls 0.00 cfs)
    - **5=VertOri from underdrain** (Orifice Controls 0.24 cfs @ 11.19 fps)
- **6=roadway overflow** (Controls 0.00 cfs)

Summary for Pond DS-A-E: Dry Swale SW Treatment

Inflow Area =	0.631 ac, 41.01% Impervious, Inflow Depth = 4.09" for Q10 event				
Inflow =	3.74 cfs @	12.03 hrs, Volume=	0.215 af		
Outflow =	0.16 cfs @	13.75 hrs, Volume=	0.205 af, Atten= 96%, Lag= 103.3 min		
Primary =	0.11 cfs @	13.75 hrs, Volume=	0.039 af		
Secondary =	0.05 cfs @	13.75 hrs, Volume=	0.166 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,943.93' @ 13.75 hrs Surf.Area= 4,368 sf Storage= 6,145 cf
Flood Elev= 1,945.75' Surf.Area= 7,900 sf Storage= 17,124 cf

Plug-Flow detention time= 1,116.4 min calculated for 0.205 af (95% of inflow)
Center-of-Mass det. time= 1,089.1 min (1,896.9 - 807.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,937.75'	17,124 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,089 cf Overall - 5,965 cf Embedded = 17,124 cf
#2	1,937.75'	0 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 5,965 cf Overall x 0.0% Voids
		17,124 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,937.75	1,495	0	0	1,495
1,941.74	1,495	5,965	5,965	2,112
1,941.75	1,495	15	5,980	2,114
1,945.75	7,900	17,109	23,089	8,599

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,937.75	1,495	0	0	1,495
1,941.74	1,495	5,965	5,965	2,112

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,941.25'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,940.75' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,941.75'	**1.1" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,942.00'	**1.0" Vert. Vertical Orifice X 4.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,943.75'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=0.11 cfs @ 13.75 hrs HW=1,943.93' TW=1,940.70' (Dynamic Tailwater)
└─**4=Rock Dam Custom Weir** (Weir Controls 0.11 cfs @ 1.28 fps)

Secondary OutFlow Max=0.05 cfs @ 13.75 hrs HW=1,943.93' TW=1,940.70' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.05 cfs of 1.16 cfs potential flow)
└─**2=Horizontal Orifice** (Orifice Controls 0.05 cfs @ 7.12 fps)
└─**3=Vertical Orifice** (Passes 0.05 cfs of 0.52 cfs potential flow)

Summary for Pond DS-A-W: Dry Swale SW Treatment

Inflow Area =	0.764 ac, 38.89% Impervious, Inflow Depth = 5.36" for Q10 event			
Inflow =	5.26 cfs @	11.98 hrs, Volume=	0.341 af	
Outflow =	0.29 cfs @	14.03 hrs, Volume=	0.324 af, Atten= 95%, Lag= 122.8 min	
Primary =	0.22 cfs @	14.03 hrs, Volume=	0.094 af	
Secondary =	0.07 cfs @	14.03 hrs, Volume=	0.230 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,943.99' @ 14.03 hrs Surf.Area= 5,269 sf Storage= 8,525 cf
Flood Elev= 1,945.75' Surf.Area= 8,175 sf Storage= 20,235 cf

Plug-Flow detention time= 969.8 min calculated for 0.324 af (95% of inflow)
Center-of-Mass det. time= 942.2 min (1,781.0 - 838.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,937.75'	20,235 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 30,130 cf Overall - 9,895 cf Embedded = 20,235 cf
#2	1,937.75'	0 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 9,895 cf Overall x 0.0% Voids
		20,235 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,937.75	2,480	0	0	2,480
1,941.74	2,480	9,895	9,895	3,275
1,941.75	2,480	25	9,920	3,277
1,945.75	8,175	20,210	30,130	9,081

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,937.75	2,480	0	0	2,480
1,941.74	2,480	9,895	9,895	3,275

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,941.25'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,940.75' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,941.75'	**1.3" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,942.00'	**1.0" Vert. Vertical Orifice/Grate X 4.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,943.75'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=0.22 cfs @ 14.03 hrs HW=1,943.99' TW=1,940.59' (Dynamic Tailwater)
└─**4=Rock Dam Custom Weir** (Weir Controls 0.22 cfs @ 1.48 fps)

Secondary OutFlow Max=0.07 cfs @ 14.03 hrs HW=1,943.99' TW=1,940.59' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.07 cfs of 1.18 cfs potential flow)
└─**2=Horizontal Orifice** (Orifice Controls 0.07 cfs @ 7.21 fps)
└─**3=Vertical Orifice/Grate** (Passes 0.07 cfs of 0.53 cfs potential flow)

Summary for Pond DS-B-E: Dry Swale SW Treatment

Inflow Area =	0.940 ac, 41.63% Impervious, Inflow Depth = 4.92" for Q10 event			
Inflow =	6.62 cfs @	11.98 hrs, Volume=	0.385 af	
Outflow =	1.67 cfs @	12.15 hrs, Volume=	0.373 af, Atten= 75%, Lag= 10.3 min	
Primary =	1.58 cfs @	12.15 hrs, Volume=	0.158 af	
Secondary =	0.09 cfs @	12.15 hrs, Volume=	0.215 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,948.04' @ 12.15 hrs Surf.Area= 4,453 sf Storage= 7,870 cf
Flood Elev= 1,949.50' Surf.Area= 6,400 sf Storage= 15,766 cf

Plug-Flow detention time= 500.1 min calculated for 0.373 af (97% of inflow)
Center-of-Mass det. time= 481.3 min (1,287.1 - 805.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,941.50'	15,766 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 23,395 cf Overall - 7,629 cf Embedded = 15,766 cf
#2	1,941.50'	0 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 7,629 cf Overall x 0.0% Voids
		15,766 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,941.50	1,912	0	0	1,912
1,945.49	1,912	7,629	7,629	2,610
1,945.50	1,912	19	7,648	2,612
1,949.50	6,400	15,747	23,395	7,207

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,941.50	1,912	0	0	1,912
1,945.49	1,912	7,629	7,629	2,610

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,945.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,944.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,945.50'	**1.5" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,945.75'	**1.0" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,947.50'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=1.58 cfs @ 12.15 hrs HW=1,948.04' TW=1,944.41' (Dynamic Tailwater)
└─**4=Rock Dam Custom Weir** (Weir Controls 1.58 cfs @ 2.19 fps)

Secondary OutFlow Max=0.09 cfs @ 12.15 hrs HW=1,948.04' TW=1,944.41' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.09 cfs of 1.25 cfs potential flow)
└─**2=Horizontal Orifice** (Orifice Controls 0.09 cfs @ 7.67 fps)
└─**3=Vertical Orifice** (Passes 0.09 cfs of 0.43 cfs potential flow)

Summary for Pond DS-B-W: Dry Swale SW Treatment

Inflow Area =	1.818 ac, 22.04% Impervious, Inflow Depth = 3.51" for Q10 event			
Inflow =	7.38 cfs @ 12.11 hrs, Volume=	0.531 af		
Outflow =	4.44 cfs @ 12.27 hrs, Volume=	0.519 af, Atten= 40%, Lag= 9.7 min		
Primary =	4.37 cfs @ 12.27 hrs, Volume=	0.325 af		
Secondary =	0.07 cfs @ 12.27 hrs, Volume=	0.194 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,948.31' @ 12.27 hrs Surf.Area= 4,615 sf Storage= 8,784 cf
Flood Elev= 1,949.50' Surf.Area= 6,175 sf Storage= 15,199 cf

Plug-Flow detention time= 407.8 min calculated for 0.519 af (98% of inflow)
Center-of-Mass det. time= 394.3 min (1,217.8 - 823.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,941.50'	15,199 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) 22,541 cf Overall - 7,342 cf Embedded = 15,199 cf
#2	1,941.50'	0 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc) Inside #1 7,342 cf Overall x 0.0% Voids
		15,199 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,941.50	1,840	0	0	1,840
1,945.49	1,840	7,342	7,342	2,525
1,945.50	1,840	18	7,360	2,526
1,949.50	6,175	15,181	22,541	6,969

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,941.50	1,840	0	0	1,840
1,945.49	1,840	7,342	7,342	2,525

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,945.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,944.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,945.50'	**1.3" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,945.75'	**1.0" Vert. Vertical Orifice/Grate X 4.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,947.50'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=4.37 cfs @ 12.27 hrs HW=1,948.31' TW=1,945.58' (Dynamic Tailwater)
└─**4=Rock Dam Custom Weir** (Weir Controls 4.37 cfs @ 2.69 fps)

Secondary OutFlow Max=0.07 cfs @ 12.27 hrs HW=1,948.31' TW=1,945.56' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.07 cfs of 1.24 cfs potential flow)
└─**2=Horizontal Orifice** (Orifice Controls 0.07 cfs @ 7.97 fps)
└─**3=Vertical Orifice/Grate** (Passes 0.07 cfs of 0.61 cfs potential flow)

Summary for Link N/A1: PLOT CORNER MARKER

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link N/A2: PLOT CORNER MARKER

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs