

Area Listing (all nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
7,200	96	Gravel surface, HSG A (E)
18,615	96	Gravel surface, HSG C (1A, 2A, 3A, E)
90	96	Gravel surface, HSG D (E)
13,410	30	Meadow, non-grazed, HSG A (2A)
871,885	71	Meadow, non-grazed, HSG C (1A, 2A, 3A, E)
35,365	78	Meadow, non-grazed, HSG D (1A, 2A)
5,135	39	Pasture/grassland/range, Good, HSG A (1A)
7,500	98	Paved parking, HSG C (2A)
3,055	83	Paved roads w/open ditches, 50% imp, HSG A (1A)
1,430	92	Paved roads w/open ditches, 50% imp, HSG C (1A)
10,500	98	Water Surface, HSG A (1A, E)
6,800	98	Water Surface, HSG C (1A, E)
25,580	98	Water Surface, HSG D (1A, E)
110,345	30	Woods, Good, HSG A (1A, 2A, E)
1,398,385	70	Woods, Good, HSG C (1A, 2A, 3A, E)
456,725	77	Woods, Good, HSG D (1A, 2A, E)
70,765	77	Woods, Poor, HSG C (3A)
3,042,785	71	TOTAL AREA

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Soil Listing (all nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
149,645	HSG A	1A, 2A, E
0	HSG B	
2,375,380	HSG C	1A, 2A, 3A, E
517,760	HSG D	1A, 2A, E
0	Other	
3,042,785		TOTAL AREA

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Ground Covers (all nodes)

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
 7,200	0	18,615	90	0	25,905	Gravel surface
13,410	0	871,885	35,365	0	920,660	Meadow,
						non-grazed
5,135	0	0	0	0	5,135	Pasture/grassland
						/range, Good
0	0	7,500	0	0	7,500	Paved parking
3,055	0	1,430	0	0	4,485	Paved roads
						w/open ditches,
						50% imp
10,500	0	6,800	25,580	0	42,880	Water Surface
110,345	0	1,398,385	456,725	0	1,965,455	Woods, Good
0	0	70,765	0	0	70,765	Woods, Poor
149,645	0	2,375,380	517,760	0	3,042,785	TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node	In-Invert	Out-Invert	Length	Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	2P	534.25	526.00	30.0	0.2750	0.012	12.0	0.0	0.0
2	2P	534.00	526.00	302.0	0.0265	0.012	4.0	0.0	0.0
3	3P	546.25	545.00	30.0	0.0417	0.012	15.0	0.0	0.0
4	3P	546.00	545.00	30.0	0.0333	0.012	6.0	0.0	0.0

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Type III 24-hr 2 Year Rainfall=3.07"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1A: Post Dev Runoff Area=633,680 sf 3.74% Impervious Runoff Depth>0.72"

Flow Length=2,345' Tc=17.6 min CN=71 Runoff=8.60 cfs 37,985 cf

Subcatchment 2A: Post Dev Runoff Area=348,535 sf 2.15% Impervious Runoff Depth>0.72"

Flow Length=835' Tc=17.7 min CN=71 Runoff=4.70 cfs 20,891 cf

Subcatchment 3A: Post Dev Runoff Area=539,180 sf 0.00% Impervious Runoff Depth>0.77"

Flow Length=825' Tc=16.9 min CN=72 Runoff=8.03 cfs 34,410 cf

Subcatchment E: Pre-Development Runoff Area=1,521,390 sf 1.41% Impervious Runoff Depth>0.67"

Flow Length=3,145' Tc=34.6 min CN=70 Runoff=14.38 cfs 84,768 cf

Reach DP1.E: Pre Dev Inflow=14.38 cfs 84,768 cf

Outflow=14.38 cfs 84,768 cf

Reach DP1.P: Post Dev Inflow=13.36 cfs 89,312 cf

Outflow=13.36 cfs 89,312 cf

Pond 2P: Pond West Peak Elev=534.82' Storage=5,863 cf Inflow=4.70 cfs 20,891 cf

Outflow=2.43 cfs 18,604 cf

Pond 3P: Peak Elev=547.17' Storage=5,312 cf Inflow=8.03 cfs 34,410 cf

Outflow=6.35 cfs 33,047 cf

Link 4L: Post Dev delayed by 13.6 min Inflow=6.35 cfs 33,047 cf

Primary=6.33 cfs 32,789 cf

Link 5L: Post Dev delayed by 5.1 min Inflow=2.43 cfs 18,604 cf

Primary=2.42 cfs 18,538 cf

Total Runoff Area = 3,042,785 sf Runoff Volume = 178,053 cf Average Runoff Depth = 0.70" 98.27% Pervious = 2,990,163 sf 1.73% Impervious = 52,623 sf

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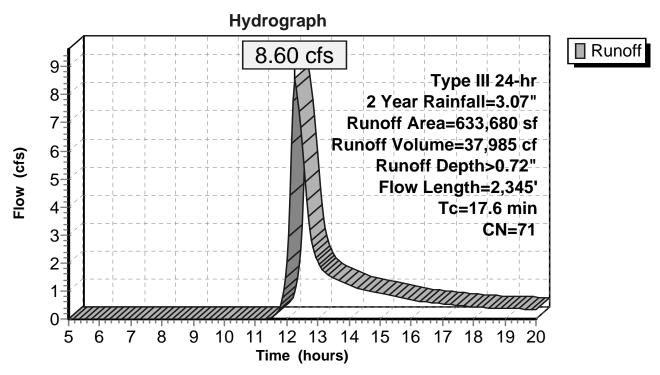
Summary for Subcatchment 1A: Post Dev

Runoff = 8.60 cfs @ 12.27 hrs, Volume= 37,985 cf, Depth> 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 Year Rainfall=3.07"

A	rea (sf)	CN E	Description							
	45,205	30 V	Woods, Good, HSG A							
	5,135	39 F	Pasture/grassland/range, Good, HSG A							
	5,250	98 V	Vater Surfa	ace, HSG A						
	3,055	83 F	Paved road	s w/open d	itches, 50% imp, HSG A					
	995	96	Fravel surfa	ace, HSG C						
2	15,820	70 V	Voods, Go	od, HSG C						
1	17,515	71 N	/leadow, no	on-grazed,	HSG C					
	3,400	98 V	Vater Surfa	ce, HSG C						
	1,430	92 F	Paved road	s w/open d	itches, 50% imp, HSG C					
2	08,025	77 V	Voods, Go	od, HSG D						
	15,060	78 N	/leadow, no	on-grazed,	HSG D					
	12,790	98 V	Vater Surfa	ce, HSG D)					
6	33,680	71 V	Veighted A	verage						
6	09,998	9	6.26% Per	vious Area						
	23,683	3	.74% Impe	ervious Area	a					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
4.6	25	0.0650	0.09		Sheet Flow,					
					Grass: Bermuda n= 0.410 P2= 3.07"					
3.3	385	0.0780	1.95		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.6	235	0.2300	2.40		Shallow Concentrated Flow,					
					Woodland Kv= 5.0 fps					
8.1	1,700		3.50		Direct Entry,					
17.6	2,345	Total								

Subcatchment 1A: Post Dev



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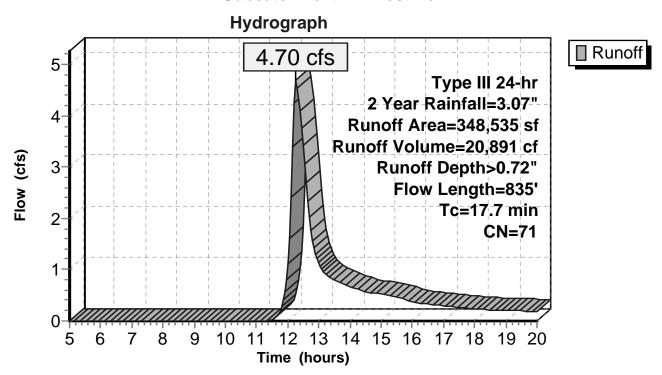
Summary for Subcatchment 2A: Post Dev

Runoff = 4.70 cfs @ 12.28 hrs, Volume= 20,891 cf, Depth> 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 Year Rainfall=3.07"

A	rea (sf)	CN E	Description							
	1,815	30 V	Woods, Good, HSG A							
	13,410	30 N	/leadow, no	on-grazed,	HSG A					
	9,940	96 C	Fravel surfa	ace, HSG C						
	10,130	70 V	Voods, Go	od, HSG C						
2	84,145			on-grazed,						
	7,500			ing, HSG C						
	1,290	77 V	Voods, Go	od, HSG D						
	20,305	78 N	∕leadow, no	on-grazed,	HSG D					
3	348,535	71 V	Veighted A	verage						
3	341,035	9	7.85% Per	vious Area						
	7,500	2	2.15% Impe	ervious Area	a					
_										
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
9.7	50	0.0400	0.09		Sheet Flow,					
					Grass: Bermuda					
8.0	785	0.0550	1.64		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
17.7	835	Total								

Subcatchment 2A: Post Dev



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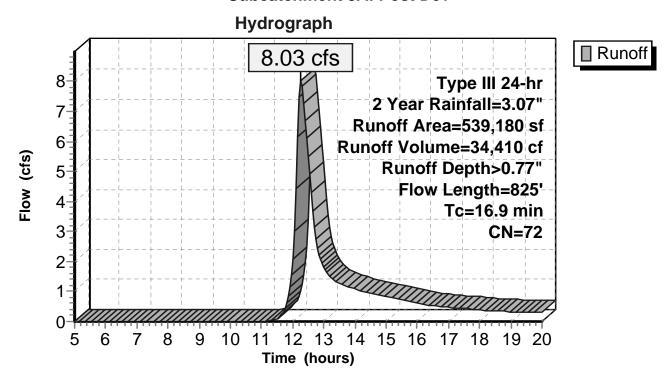
Summary for Subcatchment 3A: Post Dev

Runoff = 8.03 cfs @ 12.26 hrs, Volume= 34,410 cf, Depth> 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 Year Rainfall=3.07"

_	Α	rea (sf)	CN [Description								
		4,910	96 (Gravel surface, HSG C								
		13,940	70 \	Noods, Go	od, HSG C							
	4	49,565	71 N	Meadow, no	on-grazed,	HSG C						
_		70,765	77 \	Noods, Poo	or, HSG C							
	5	39,180	72 \	Veighted A	verage							
	5	39,180	1	100.00% Pe	ervious Are	a						
	Tc	Length	Slope	Velocity	Capacity	Description						
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
	9.7	50	0.0400	0.09		Sheet Flow,						
						Grass: Bermuda n= 0.410 P2= 3.07"						
	7.2	775	0.0650	1.78		Shallow Concentrated Flow,						
_						Short Grass Pasture Kv= 7.0 fps						
	16.9	825	Total									

Subcatchment 3A: Post Dev



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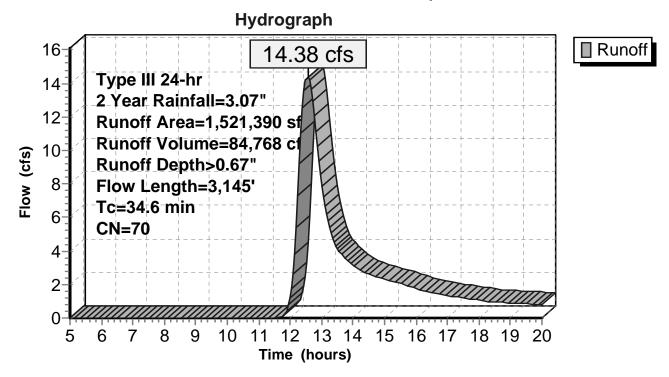
Summary for Subcatchment E: Pre-Development

Runoff = 14.38 cfs @ 12.55 hrs, Volume= 84,768 cf, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2 Year Rainfall=3.07"

Area	a (sf)	CN D	escription		
7	7,200	96 G	Gravel surfa	ace, HSG A	
63	3,325	30 V	Voods, Go	od, HSG A	
5	5,250			ace, HSG A	
2	2,770	96 G	Gravel surfa	ace, HSG C	
1,158	3,495	70 V	Voods, Go	od, HSG C	
20	0,660	71 N	1eadow, no	on-grazed, F	HSG C
3	3,400	98 V	Vater Surfa	ace, HSG C	
	90			ace, HSG D	
	7,410			od, HSG D	
	2,790			ace, HSG D	
•	1,390		Veighted A		
1,499		_		vious Area	
21	1,440	1	.41% Impe	ervious Area	
To I	o n ath	Clana	\/alaaitu	Consoitu	Description
Tc L (min)	ength. (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
		0.0700		(015)	Chaot Flaur
7.6	50	0.0700	0.11		Sheet Flow,
3.9	300	0.0670	1.29		Woods: Light underbrush n= 0.400 P2= 3.07" Shallow Concentrated Flow ,
3.9	300	0.0070	1.29		Woodland Kv= 5.0 fps
6.8	420	0.0430	1.04		Shallow Concentrated Flow,
0.0	720	0.0400	1.04		Woodland Kv= 5.0 fps
2.4	300	0.1670	2.04		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
4.9	175	0.0570	0.60		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
9.0	1,900		3.50		Direct Entry, Unquomonk Brook-Small Tributary
34.6	3,145	Total			

Subcatchment E: Pre-Development



Summary for Reach DP1.E: Pre Dev

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

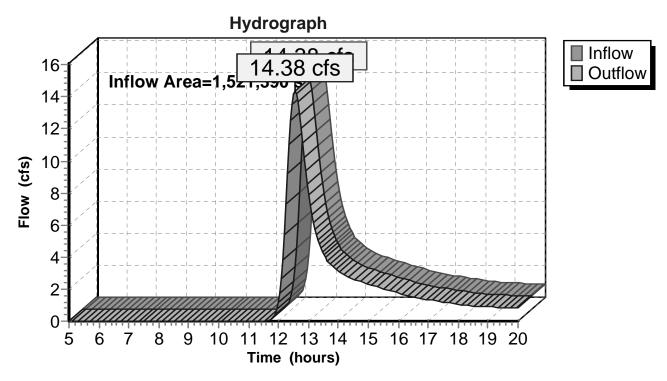
Inflow Area = 1,521,390 sf, 1.41% Impervious, Inflow Depth > 0.67" for 2 Year event

Inflow = 14.38 cfs @ 12.55 hrs, Volume= 84,768 cf

Outflow = 14.38 cfs @ 12.55 hrs, Volume= 84,768 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.E: Pre Dev



Summary for Reach DP1.P: Post Dev

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

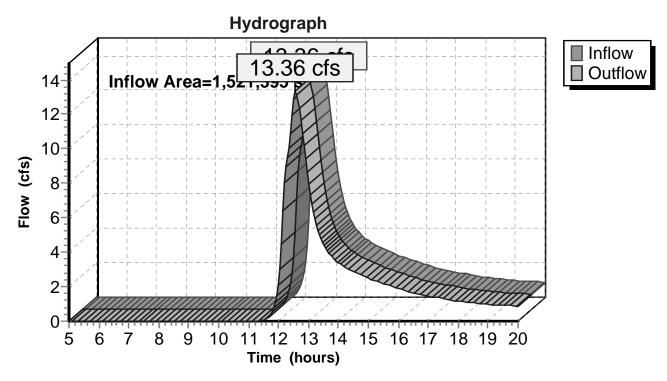
Inflow Area = 1,521,395 sf, 2.05% Impervious, Inflow Depth > 0.70" for 2 Year event

Inflow = 13.36 cfs @ 12.57 hrs, Volume= 89,312 cf

Outflow = 13.36 cfs @ 12.57 hrs, Volume= 89,312 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.P: Post Dev



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Summary for Pond 2P: Pond West

Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 0.72" for 2 Year event

Inflow = 4.70 cfs @ 12.28 hrs, Volume= 20,891 cf

Outflow = 2.43 cfs @ 12.64 hrs, Volume= 18,604 cf, Atten= 48%, Lag= 21.8 min

Primary = 2.43 cfs @ 12.64 hrs, Volume= 18,604 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 534.82' @ 12.64 hrs Surf.Area= 7,638 sf Storage= 5,863 cf

Plug-Flow detention time= 71.6 min calculated for 18,542 cf (89% of inflow)

Center-of-Mass det. time= 38.3 min (875.1 - 836.7)

Volume	Invert	Avail.Sto	rage	Storage Description
#1	534.00'	37,00)8 cf	40.00'W x 165.00'L x 4.00'H Prismatoid Z=3.0
Device	Routing	Invert	Outl	et Devices
#1	Primary	537.00'	Hea 2.50 Coe	long x 5.0' breadth Broad-Crested Rectangular Weir d (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 3.00 3.50 4.00 4.50 5.00 5.50 f. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	534.25'	L= 3 Inlet	80.0' CPP, mitered to conform to fill, Ke= 0.700 c/ Outlet Invert= 534.25' / 526.00' S= 0.2750 '/' Cc= 0.900 0.012, Flow Area= 0.79 sf
#3	Primary	534.00'	L= 3 Inlet	Round Culvert 602.0' CPP, mitered to conform to fill, Ke= 0.700 6 / Outlet Invert= 534.00' / 526.00' S= 0.0265 '/' Cc= 0.900 1.012, Flow Area= 0.09 sf

Primary OutFlow Max=2.42 cfs @ 12.64 hrs HW=534.82' (Free Discharge)

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

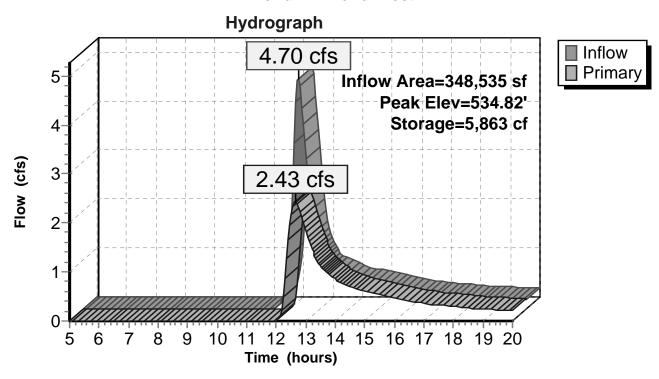
-2=Culvert (Inlet Controls 2.12 cfs @ 2.27 fps)

-3=Culvert (Inlet Controls 0.30 cfs @ 3.44 fps)

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Pond 2P: Pond West



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Summary for Pond 3P:

Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 0.77" for 2 Year event

Inflow = 8.03 cfs @ 12.26 hrs, Volume= 34,410 cf

Outflow = 6.35 cfs @ 12.43 hrs, Volume= 33,047 cf, Atten= 21%, Lag= 10.1 min

Primary = 6.35 cfs @ 12.43 hrs, Volume= 33,047 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 547.17' @ 12.43 hrs Surf.Area= 5,251 sf Storage= 5,312 cf

Plug-Flow detention time= 29.3 min calculated for 33,047 cf (96% of inflow)

Center-of-Mass det. time= 15.6 min (849.2 - 833.6)

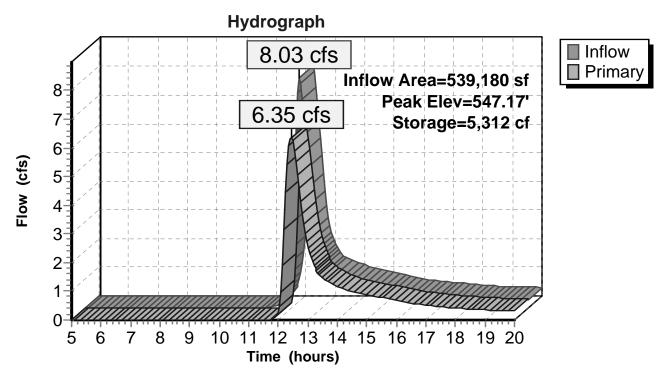
Volume	Inv	ert Avail.Sto	rage Sto	rage Desc	ription			
#1	546.0	00' 25,0	00 cf C u	stom Stag	je Data (Pri	smatic)Listed below (Recalc)		
Elevatio		Surf.Area	Inc.Sto		Cum.Store			
(fee		(sq-ft)	(cubic-fee		<u>ubic-feet)</u>			
546.0		3,850		0	0			
550.0	00	8,650	25,0	00	25,000			
Device	Routing	Invert	Outlet D	evices				
#1	Primary	549.00'	Head (fe 2.50 3.0 Coef. (E	et) 0.20 (0 3.50 4. nglish) 2.3	0.40 0.60 0 00 4.50 5.0 34 2.50 2.7	d-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 1.80 2.00 00 5.50 00 2.68 2.68 2.66 2.65 2.65 2.65 74 2.79 2.88		
#2	Primary	rimary 546.25'		15.0" Round Culvert X 2.00 L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.25' / 545.00' S= 0.0417 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf				
#3	Primary	mary 546.00'		und Culve CPP, mit utlet Invert	ert ered to conf	form to fill, Ke= 0.700 645.00' S= 0.0333 '/' Cc= 0.900		

Primary OutFlow Max=6.33 cfs @ 12.43 hrs HW=547.17' (Free Discharge)

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

-2=Culvert (Inlet Controls 5.53 cfs @ 2.87 fps)
-3=Culvert (Inlet Controls 0.80 cfs @ 4.06 fps)

Pond 3P:



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Summary for Link 4L: Post Dev

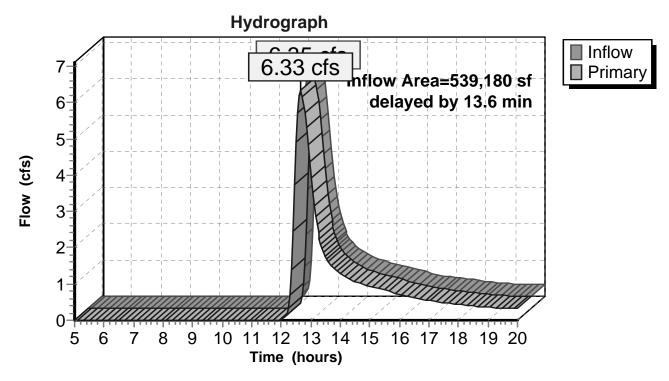
Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 0.74" for 2 Year event

Inflow = 6.35 cfs @ 12.43 hrs, Volume= 33,047 cf

Primary = 6.33 cfs @ 12.66 hrs, Volume= 32,789 cf, Atten= 0%, Lag= 13.8 min

Primary outflow = Inflow delayed by 13.6 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: Post Dev



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Summary for Link 5L: Post Dev

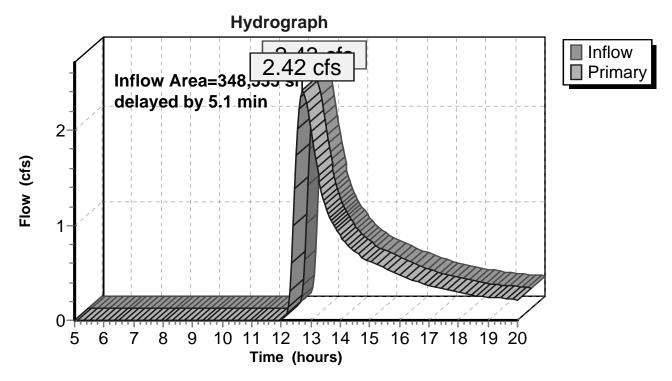
Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 0.64" for 2 Year event

Inflow = 2.43 cfs @ 12.64 hrs, Volume= 18,604 cf

Primary = 2.42 cfs @ 12.72 hrs, Volume= 18,538 cf, Atten= 0%, Lag= 5.1 min

Primary outflow = Inflow delayed by 5.1 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Post Dev



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Type III 24-hr 10 Year Rainfall=4.46"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1A: Post Dev Runoff Area=633,680 sf 3.74% Impervious Runoff Depth>1.57"

Flow Length=2,345' Tc=17.6 min CN=71 Runoff=20.12 cfs 82,926 cf

Subcatchment 2A: Post Dev Runoff Area=348,535 sf 2.15% Impervious Runoff Depth>1.57"

Flow Length=835' Tc=17.7 min CN=71 Runoff=11.04 cfs 45,609 cf

Subcatchment 3A: Post Dev Runoff Area=539,180 sf 0.00% Impervious Runoff Depth>1.64"

Flow Length=825' Tc=16.9 min CN=72 Runoff=18.22 cfs 73,730 cf

Subcatchment E: Pre-Development Runoff Area=1,521,390 sf 1.41% Impervious Runoff Depth>1.49"

Flow Length=3,145' Tc=34.6 min CN=70 Runoff=34.43 cfs 188,986 cf

Reach DP1.E: Pre Dev Inflow=34.43 cfs 188,986 cf

Outflow=34.43 cfs 188,986 cf

Reach DP1.P: Post Dev Inflow=30.82 cfs 197,236 cf

Outflow=30.82 cfs 197,236 cf

Pond 2P: Pond West Peak Elev=535.54' Storage=11,682 cf Inflow=11.04 cfs 45,609 cf

Outflow=6.29 cfs 42,829 cf

Pond 3P: Peak Elev=548.18' Storage=11,271 cf Inflow=18.22 cfs 73,730 cf

Outflow=13.09 cfs 72,051 cf

Link 4L: Post Dev delayed by 13.6 min Inflow=13.09 cfs 72,051 cf

Primary=13.07 cfs 71,594 cf

Link 5L: Post Dev delayed by 5.1 min Inflow=6.29 cfs 42,829 cf

Primary=6.28 cfs 42,716 cf

Total Runoff Area = 3,042,785 sf Runoff Volume = 391,251 cf Average Runoff Depth = 1.54" 98.27% Pervious = 2,990,163 sf 1.73% Impervious = 52,623 sf

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Summary for Subcatchment 1A: Post Dev

Runoff = 20.12 cfs @ 12.26 hrs, Volume= 82,926 cf, Depth> 1.57"

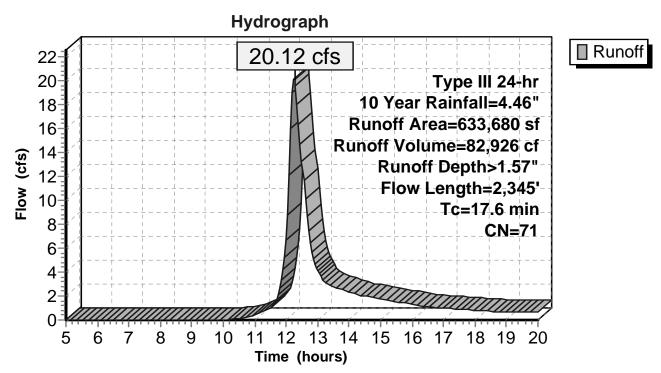
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 Year Rainfall=4.46"

A	rea (sf)	CN E	Description							
	45,205	30 V	Woods, Good, HSG A							
	5,135	39 F	Pasture/grassland/range, Good, HSG A							
	5,250	98 V	Vater Surfa	ace, HSG A						
	3,055	83 F	Paved road	s w/open d	itches, 50% imp, HSG A					
	995	96	Fravel surfa	ace, HSG C						
2	15,820	70 V	Voods, Go	od, HSG C						
1	17,515	71 N	/leadow, no	on-grazed,	HSG C					
	3,400	98 V	Vater Surfa	ce, HSG C						
	1,430	92 F	Paved road	s w/open d	itches, 50% imp, HSG C					
2	08,025	77 V	Voods, Go	od, HSG D						
	15,060	78 N	/leadow, no	on-grazed,	HSG D					
	12,790	98 V	Vater Surfa	ce, HSG D)					
6	33,680	71 V	Veighted A	verage						
6	09,998	9	6.26% Per	vious Area						
	23,683	3	.74% Impe	ervious Area	a					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
4.6	25	0.0650	0.09		Sheet Flow,					
					Grass: Bermuda n= 0.410 P2= 3.07"					
3.3	385	0.0780	1.95		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.6	235	0.2300	2.40		Shallow Concentrated Flow,					
					Woodland Kv= 5.0 fps					
8.1	1,700		3.50		Direct Entry,					
17.6	2,345	Total								

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Subcatchment 1A: Post Dev



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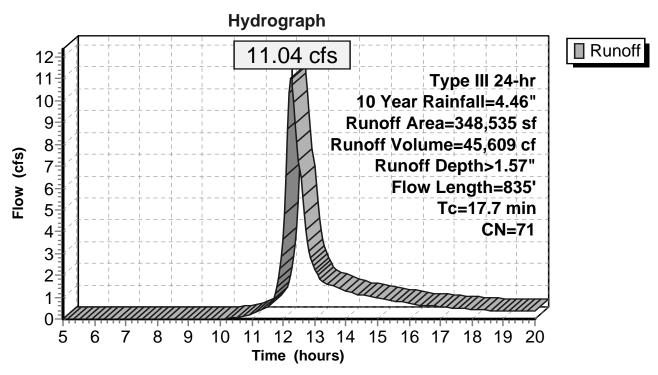
Summary for Subcatchment 2A: Post Dev

Runoff = 11.04 cfs @ 12.26 hrs, Volume= 45,609 cf, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 Year Rainfall=4.46"

Ar	ea (sf)	CN D	escription							
	1,815	30 V	Woods, Good, HSG A							
•	13,410	30 N	leadow, no	on-grazed,	HSG A					
	9,940	96 G	Gravel surfa	ace, HSG C						
•	10,130	70 V	Voods, Go	od, HSG C						
28	34,145			on-grazed,						
	7,500	98 F	aved park	ing, HSG C						
	1,290	77 V	Voods, Go	od, HSG D						
	20,305	78 N	1eadow, no	on-grazed,	HSG D					
34	48,535	71 V	Veighted A	verage						
34	41,035	9	7.85% Per	vious Area						
	7,500	2	15% Impe	ervious Area	a					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
9.7	50	0.0400	0.09		Sheet Flow,					
					Grass: Bermuda					
8.0	785	0.0550	1.64		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
17.7	835	Total								

Subcatchment 2A: Post Dev



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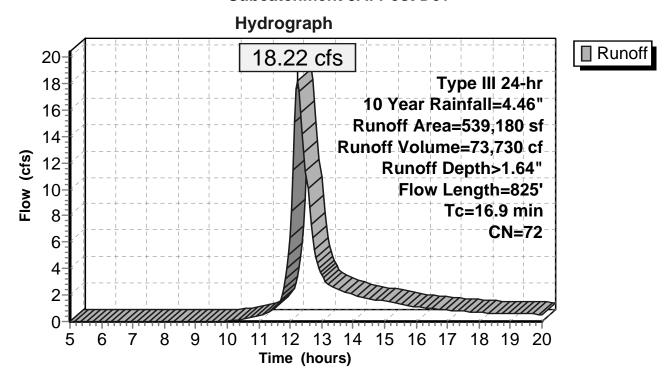
Summary for Subcatchment 3A: Post Dev

Runoff = 18.22 cfs @ 12.25 hrs, Volume= 73,730 cf, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 Year Rainfall=4.46"

_	Α	rea (sf)	CN [CN Description					
	4,910 96 Gravel surface, HSG (ace, HSG C				
13,940 70			70 \	Woods, Good, HSG C					
449,565 71 Me			Meadow, non-grazed, HSG C						
70,765 77 Woods, Poor, HSG C									
	539,180 72 Weighted Average				verage				
	539,180 100.00% Pervious Area				ervious Are	a			
	Tc	Length	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	9.7	50	0.0400	0.09		Sheet Flow,			
						Grass: Bermuda n= 0.410 P2= 3.07"			
	7.2	775	0.0650	1.78		Shallow Concentrated Flow,			
_						Short Grass Pasture Kv= 7.0 fps			
	16.9	825	Total						

Subcatchment 3A: Post Dev



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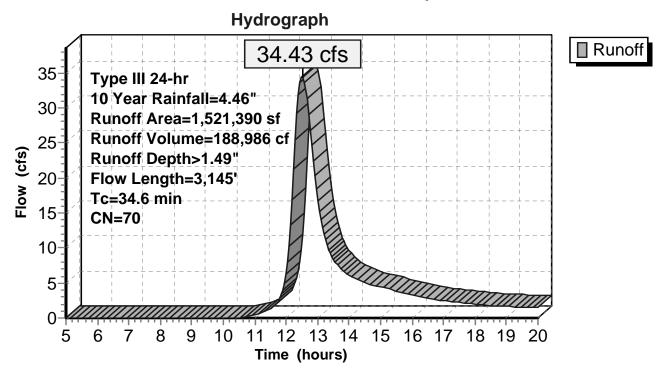
Summary for Subcatchment E: Pre-Development

Runoff = 34.43 cfs @ 12.51 hrs, Volume= 188,986 cf, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 10 Year Rainfall=4.46"

Are	ea (sf)	CN D	escription					
	7,200 96 Gravel surface, HSG A			ace, HSG A				
6	63,325 30 Woods, Good, HSG			od, HSG A				
:				Water Surface, HSG A				
2,770 96			Gravel surface, HSG C					
1,15	70 V	Woods, Good, HSG C						
20	0,660	71 N	Meadow, non-grazed, HSG C					
;	3,400	98 V	Water Surface, HSG C					
	90		Gravel surface, HSG D					
24		Woods, Good, HSG D						
1	12,790 98 Water Surface, HSG D			ace, HSG D				
1,52	1,521,390 70 Weighted Average							
	9,950	_		vious Area				
2	21,440 1.41% Impervious Area			ervious Area				
т		Olama.	\/alaa!ta	0	Description			
	Length	Slope	Velocity	Capacity	Description			
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)				
7.6	50	0.0700	0.11		Sheet Flow,			
2.0	200	0.0070	4.00		Woods: Light underbrush n= 0.400 P2= 3.07"			
3.9	300	0.0670	1.29		Shallow Concentrated Flow,			
6.0	420	0.0420	1.04		Woodland Kv= 5.0 fps			
6.8	420	0.0430	1.04		Shallow Concentrated Flow,			
2.4	300	0.1670	2.04		Woodland Kv= 5.0 fps Shallow Concentrated Flow,			
2.4	300	0.1070	2.04		Woodland Kv= 5.0 fps			
4.9	175	0.0570	0.60		Shallow Concentrated Flow,			
4.0	170	0.0070	0.00		Forest w/Heavy Litter Kv= 2.5 fps			
9.0	1,900		3.50		Direct Entry, Unquomonk Brook-Small Tributary			
34.6	3,145	Total						

Subcatchment E: Pre-Development



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Summary for Reach DP1.E: Pre Dev

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

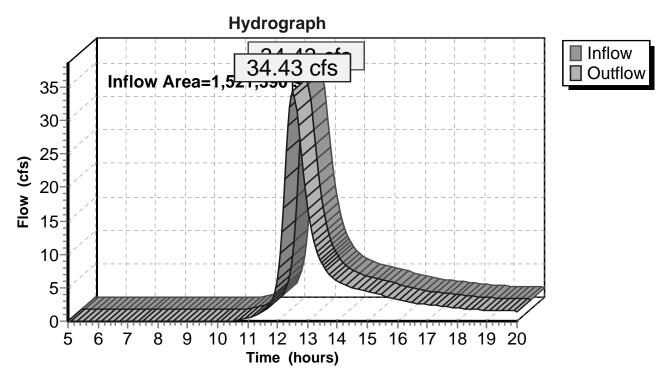
Inflow Area = 1,521,390 sf, 1.41% Impervious, Inflow Depth > 1.49" for 10 Year event

Inflow = 34.43 cfs @ 12.51 hrs, Volume= 188,986 cf

Outflow = 34.43 cfs @ 12.51 hrs, Volume= 188,986 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.E: Pre Dev



Summary for Reach DP1.P: Post Dev

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

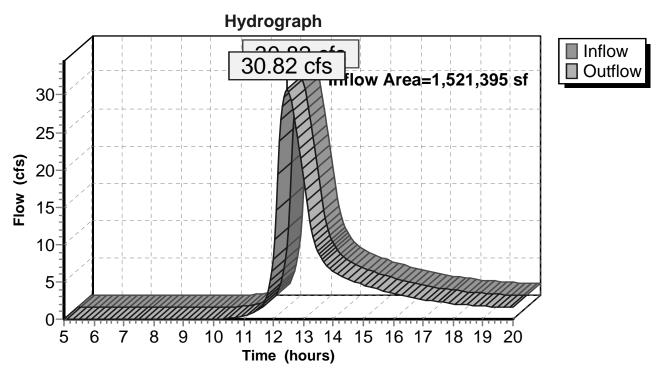
Inflow Area = 1,521,395 sf, 2.05% Impervious, Inflow Depth > 1.56" for 10 Year event

Inflow = 30.82 cfs @ 12.47 hrs, Volume= 197,236 cf

Outflow = 30.82 cfs @ 12.47 hrs, Volume= 197,236 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.P: Post Dev



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Summary for Pond 2P: Pond West

Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 1.57" for 10 Year event

Inflow = 11.04 cfs @ 12.26 hrs, Volume= 45,609 cf

Outflow = 6.29 cfs @ 12.56 hrs, Volume= 42,829 cf, Atten= 43%, Lag= 18.0 min

Primary = 6.29 cfs @ 12.56 hrs, Volume= 42,829 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 535.54' @ 12.56 hrs Surf.Area= 8,582 sf Storage= 11,682 cf

Plug-Flow detention time= 48.2 min calculated for 42,686 cf (94% of inflow)

Center-of-Mass det. time= 27.8 min (847.0 - 819.2)

Volume	Invert	Avail.Sto	rage	Storage Description
#1	534.00'	37,00	08 cf	40.00'W x 165.00'L x 4.00'H Prismatoid Z=3.0
Device	Routing	Invert	Outl	et Devices
#1	Primary	537.00'	Hea 2.50 Coe	long x 5.0' breadth Broad-Crested Rectangular Weir d (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 0 3.00 3.50 4.00 4.50 5.00 5.50 f. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	534.25'	L= 3 Inlet	80.0' CPP, mitered to conform to fill, Ke= 0.700 c/Outlet Invert= 534.25' / 526.00' S= 0.2750 '/' Cc= 0.900 0.012, Flow Area= 0.79 sf
#3	Primary	534.00'	L= 3 Inlet	Round Culvert 802.0' CPP, mitered to conform to fill, Ke= 0.700 2 / Outlet Invert= 534.00' / 526.00' S= 0.0265 '/' Cc= 0.900 0.012, Flow Area= 0.09 sf

Primary OutFlow Max=6.28 cfs @ 12.56 hrs HW=535.54' (Free Discharge)

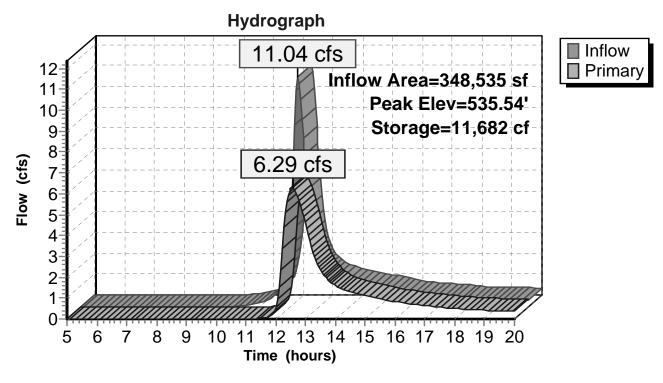
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

-2=Culvert (Inlet Controls 5.93 cfs @ 3.78 fps)

-3=Culvert (Barrel Controls 0.35 cfs @ 4.02 fps)

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Pond 2P: Pond West



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Summary for Pond 3P:

Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 1.64" for 10 Year event

Inflow = 18.22 cfs @ 12.25 hrs, Volume= 73,730 cf

Outflow = 13.09 cfs @ 12.44 hrs, Volume= 72,051 cf, Atten= 28%, Lag= 11.6 min

Primary = 13.09 cfs @ 12.44 hrs, Volume= 72,051 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 548.18' @ 12.44 hrs Surf.Area= 6,471 sf Storage= 11,271 cf

Plug-Flow detention time= 21.4 min calculated for 72,051 cf (98% of inflow)

Center-of-Mass det. time= 13.1 min (829.6 - 816.6)

Volume	Inv	ert Avail.Sto	orage Storage Description				
#1	546.0	00' 25,0	00 cf Custom Stage Data (Prismatic)Listed below (Recalc)				
Elevatio		Surf.Area (sq-ft)	Inc.Store Cum.Store (cubic-feet)				
546.0	00	3,850	0 0				
550.0	00	8,650	25,000 25,000				
Device	Routing	Invert	Outlet Devices				
#1	Primary	549.00'	8.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88				
#2 Primary		546.25'	15.0" Round Culvert X 2.00 L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.25' / 545.00' S= 0.0417 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf				
#3	Primary	546.00'	6.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.00' / 545.00' S= 0.0333 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf				

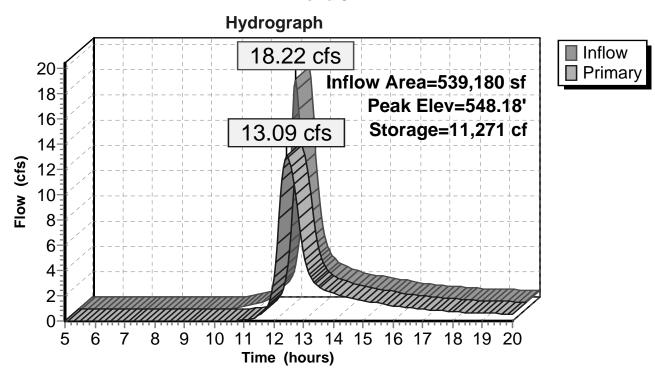
Primary OutFlow Max=13.08 cfs @ 12.44 hrs HW=548.18' (Free Discharge)

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

-2=Culvert (Inlet Controls 11.92 cfs @ 4.86 fps)

-3=Culvert (Inlet Controls 1.16 cfs @ 5.90 fps)

Pond 3P:



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Summary for Link 4L: Post Dev

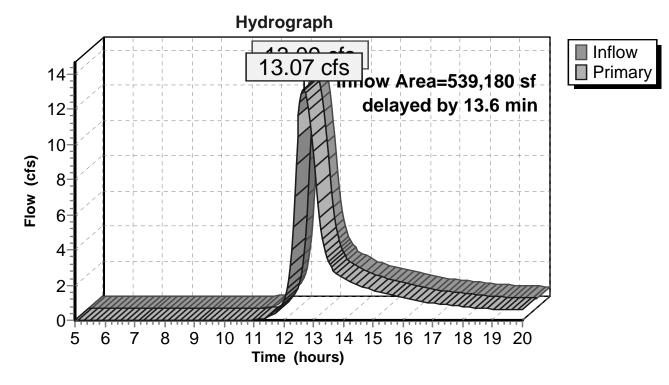
Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 1.60" for 10 Year event

Inflow = 13.09 cfs @ 12.44 hrs, Volume= 72,051 cf

Primary = 13.07 cfs @ 12.67 hrs, Volume= 71,594 cf, Atten= 0%, Lag= 13.7 min

Primary outflow = Inflow delayed by 13.6 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: Post Dev



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Summary for Link 5L: Post Dev

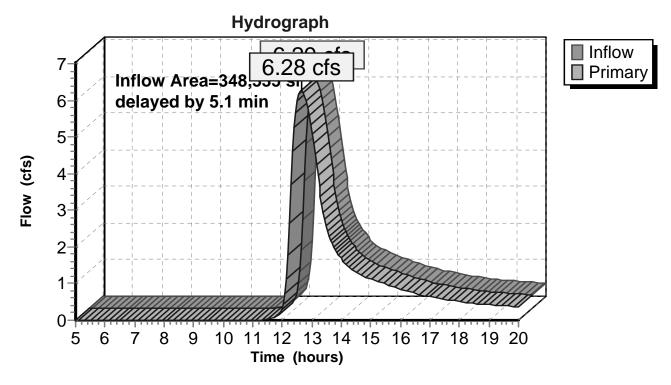
Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 1.47" for 10 Year event

Inflow = 6.29 cfs @ 12.56 hrs. Volume= 42.829 cf

Primary = 6.28 cfs @ 12.64 hrs, Volume= 42,716 cf, Atten= 0%, Lag= 5.1 min

Primary outflow = Inflow delayed by 5.1 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Post Dev



CEC-Williamsburg

Type III 24-hr 25 Year Rainfall=5.52"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1A: Post Dev Runoff Area=633,680 sf 3.74% Impervious Runoff Depth>2.32"

Flow Length=2,345' Tc=17.6 min CN=71 Runoff=30.06 cfs 122,433 cf

Subcatchment 2A: Post Dev Runoff Area=348,535 sf 2.15% Impervious Runoff Depth>2.32"

Flow Length=835' Tc=17.7 min CN=71 Runoff=16.50 cfs 67,338 cf

Subcatchment 3A: Post Dev Runoff Area=539,180 sf 0.00% Impervious Runoff Depth>2.40"

Flow Length=825' Tc=16.9 min CN=72 Runoff=26.96 cfs 108,024 cf

Subcatchment E: Pre-Development Runoff Area=1,521,390 sf 1.41% Impervious Runoff Depth>2.22"

Flow Length=3,145' Tc=34.6 min CN=70 Runoff=51.93 cfs 281,401 cf

Reach DP1.E: Pre Dev Inflow=51.93 cfs 281,401 cf

Outflow=51.93 cfs 281,401 cf

Reach DP1.P: Post Dev Inflow=43.42 cfs 292,076 cf

Outflow=43.42 cfs 292,076 cf

Pond 2P: Pond West Peak Elev=536.23' Storage=17,940 cf Inflow=16.50 cfs 67,338 cf

Outflow=8.49 cfs 64,263 cf

Pond 3P: Peak Elev=549.15' Storage=18,055 cf Inflow=26.96 cfs 108,024 cf

Outflow=18.19 cfs 106,144 cf

Link 4L: Post Dev delayed by 13.6 min Inflow=18.19 cfs 106,144 cf

Primary=18.09 cfs 105,531 cf

Link 5L: Post Dev delayed by 5.1 min Inflow=8.49 cfs 64,263 cf

Primary=8.49 cfs 64,112 cf

Total Runoff Area = 3,042,785 sf Runoff Volume = 579,196 cf Average Runoff Depth = 2.28" 98.27% Pervious = 2,990,163 sf 1.73% Impervious = 52,623 sf

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Summary for Subcatchment 1A: Post Dev

Runoff = 30.06 cfs @ 12.25 hrs, Volume= 122,433 cf, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 25 Year Rainfall=5.52"

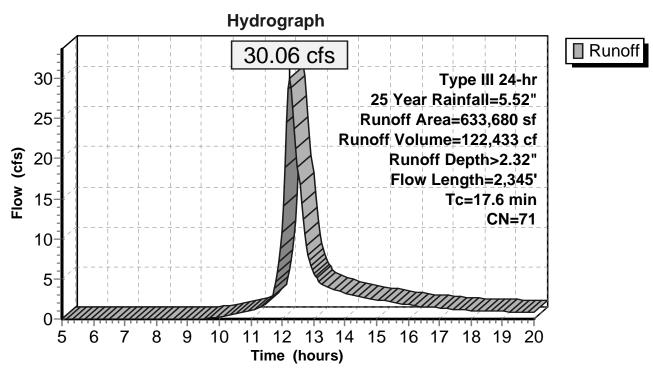
A	rea (sf)	CN E	Description							
	45,205	30 V	Woods, Good, HSG A							
	5,135	39 F	Pasture/grassland/range, Good, HSG A							
	5,250	98 V	Vater Surfa	ace, HSG A						
	3,055	83 F	Paved road	s w/open d	itches, 50% imp, HSG A					
	995	96	Fravel surfa	ace, HSG C						
2	15,820	70 V	Voods, Go	od, HSG C						
1	17,515	71 N	/leadow, no	on-grazed,	HSG C					
	3,400	98 V	Vater Surfa	ce, HSG C						
	1,430	92 F	Paved road	s w/open d	itches, 50% imp, HSG C					
2	08,025	77 V	Voods, Go	od, HSG D						
	15,060	78 N	/leadow, no	on-grazed,	HSG D					
	12,790	98 V	Vater Surfa	ce, HSG D)					
6	33,680	71 V	Veighted A	verage						
6	09,998	9	6.26% Per	vious Area						
	23,683	3	.74% Impe	ervious Area	a					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
4.6	25	0.0650	0.09		Sheet Flow,					
					Grass: Bermuda n= 0.410 P2= 3.07"					
3.3	385	0.0780	1.95		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.6	235	0.2300	2.40		Shallow Concentrated Flow,					
					Woodland Kv= 5.0 fps					
8.1	1,700		3.50		Direct Entry,					
17.6	2,345	Total								

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Subcatchment 1A: Post Dev



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Summary for Subcatchment 2A: Post Dev

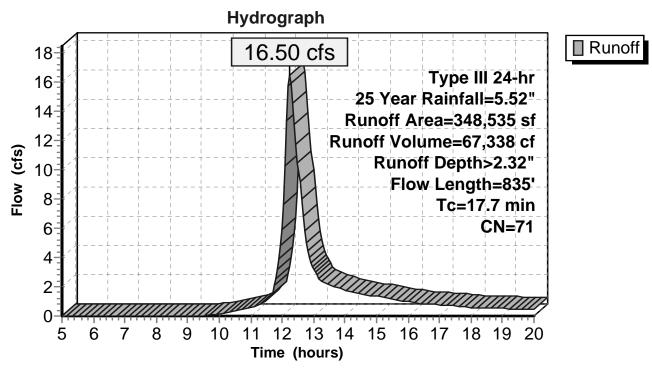
Runoff = 16.50 cfs @ 12.25 hrs, Volume= 67,338 cf, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 25 Year Rainfall=5.52"

A	rea (sf)	CN I	Description							
	1,815	30 \	Woods, Good, HSG A							
	13,410	30	Meadow, no	on-grazed,	HSG A					
	9,940	96 (Gravel surfa	ace, HSG C						
	10,130	70 \	Noods, Go	od, HSG C						
2	284,145	71 l	Meadow, no	on-grazed,	HSG C					
	7,500	98 I	Paved park	ing, HSG C						
	1,290	77 \	Noods, Go	od, HSG D						
	20,305	78 I	Meadow, no	on-grazed,	HSG D					
3	348,535	71 \	Weighted A	verage						
3	341,035	Ç	97.85% Per	vious Area						
	7,500		2.15% Impe	ervious Area	a					
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
9.7	50	0.0400	0.09		Sheet Flow,					
					Grass: Bermuda n= 0.410 P2= 3.07"					
8.0	785	0.0550	1.64		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
17.7	835	Total								

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Subcatchment 2A: Post Dev



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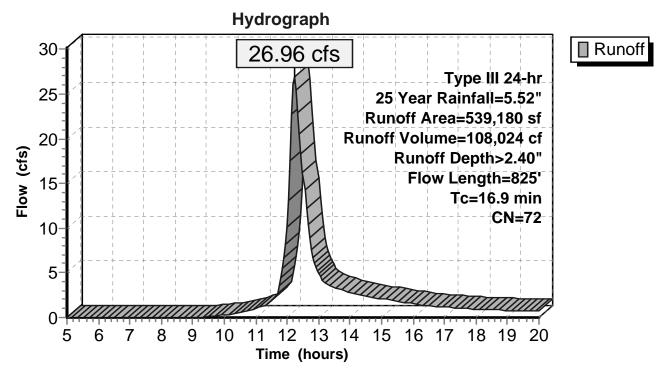
Summary for Subcatchment 3A: Post Dev

Runoff = 26.96 cfs @ 12.24 hrs, Volume= 108,024 cf, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 25 Year Rainfall=5.52"

_	Α	rea (sf)	CN [Description							
		4,910	96 (96 Gravel surface, HSG C							
		13,940	70 V	Noods, Go	od, HSG C						
	4	49,565	71 N	Meadow, no	on-grazed,	HSG C					
_		70,765	77 \	Noods, Poo	or, HSG C						
	5	39,180	72 \	Neighted A	verage						
	5	39,180	1	100.00% Pe	ervious Are	a					
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	9.7	50	0.0400	0.09		Sheet Flow,					
						Grass: Bermuda n= 0.410 P2= 3.07"					
	7.2	775	0.0650	1.78		Shallow Concentrated Flow,					
_						Short Grass Pasture Kv= 7.0 fps					
	16.9	825	Total								

Subcatchment 3A: Post Dev



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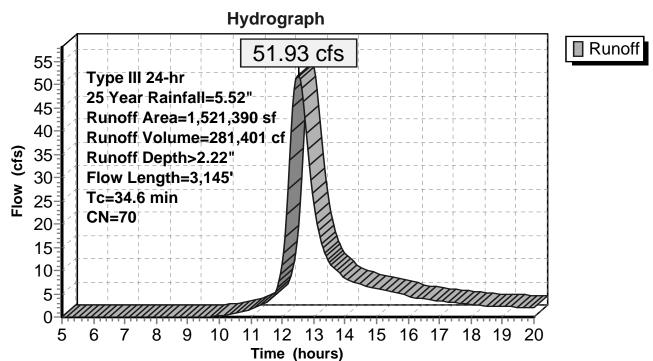
Summary for Subcatchment E: Pre-Development

Runoff = 51.93 cfs @ 12.50 hrs, Volume= 281,401 cf, Depth> 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 25 Year Rainfall=5.52"

Area	a (sf)	CN D	escription		
7	7,200	96 G	Gravel surfa	ace, HSG A	
63	3,325	30 V	Voods, Go	od, HSG A	
5	5,250			ace, HSG A	
2	2,770	96 G	Gravel surfa	ace, HSG C	
1,158	3,495	70 V	Voods, Go	od, HSG C	
20	0,660	71 N	1eadow, no	on-grazed, F	HSG C
3	3,400	98 V	Vater Surfa	ace, HSG C	
	90			ace, HSG D	
	7,410			od, HSG D	
	2,790			ace, HSG D	
•	1,390		Veighted A		
1,499		_		vious Area	
21	1,440	1	.41% Impe	ervious Area	
To I	o n ath	Clana	\/alaaitu	Consoitu	Description
Tc L (min)	ength. (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
		0.0700		(015)	Chaot Flaur
7.6	50	0.0700	0.11		Sheet Flow,
3.9	300	0.0670	1.29		Woods: Light underbrush n= 0.400 P2= 3.07" Shallow Concentrated Flow ,
3.9	300	0.0070	1.29		Woodland Kv= 5.0 fps
6.8	420	0.0430	1.04		Shallow Concentrated Flow,
0.0	720	0.0400	1.04		Woodland Kv= 5.0 fps
2.4	300	0.1670	2.04		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
4.9	175	0.0570	0.60		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
9.0	1,900		3.50		Direct Entry, Unquomonk Brook-Small Tributary
34.6	3,145	Total			

Subcatchment E: Pre-Development



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Summary for Reach DP1.E: Pre Dev

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

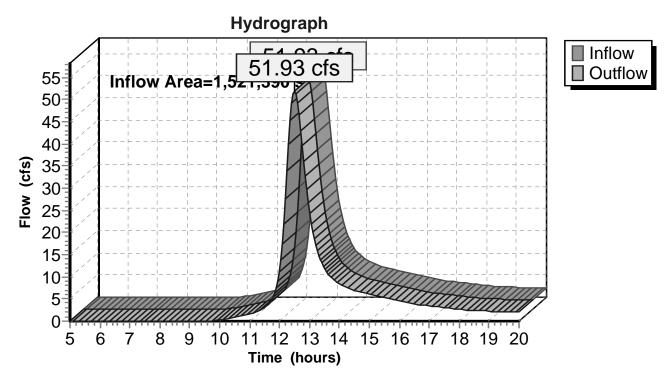
Inflow Area = 1,521,390 sf, 1.41% Impervious, Inflow Depth > 2.22" for 25 Year event

Inflow = 51.93 cfs @ 12.50 hrs, Volume= 281,401 cf

Outflow = 51.93 cfs @ 12.50 hrs, Volume= 281,401 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.E: Pre Dev



Summary for Reach DP1.P: Post Dev

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

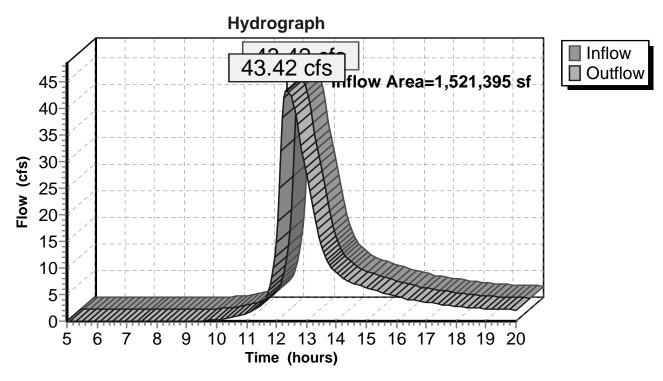
Inflow Area = 1,521,395 sf, 2.05% Impervious, Inflow Depth > 2.30" for 25 Year event

Inflow = 43.42 cfs @ 12.33 hrs, Volume= 292,076 cf

Outflow = 43.42 cfs @ 12.33 hrs, Volume= 292,076 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.P: Post Dev



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Summary for Pond 2P: Pond West

Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 2.32" for 25 Year event

Inflow = 16.50 cfs @ 12.25 hrs, Volume= 67,338 cf

Outflow = 8.49 cfs @ 12.58 hrs, Volume= 64,263 cf, Atten= 49%, Lag= 19.6 min

Primary = 8.49 cfs @ 12.58 hrs, Volume= 64,263 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 536.23' @ 12.58 hrs Surf.Area= 9,526 sf Storage= 17,940 cf

Plug-Flow detention time= 43.8 min calculated for 64,263 cf (95% of inflow)

Center-of-Mass det. time= 27.7 min (838.4 - 810.6)

Volume	Invert	Avail.Sto	rage	Storage Description		
#1	534.00'	37,00)8 cf	40.00'W x 165.00'L x 4.00'H Prismatoid Z=3.0		
Device	Routing	Invert	Outlet Devices			
#1	Primary	537.00'	8.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88			
#2	Primary	534.25'	L= 3 Inlet	80.0' CPP, mitered to conform to fill, Ke= 0.700 (CPP, mitered to conform to		
#3	Primary	534.00'	4.0" L= 3 Inlet	Round Culvert 602.0' CPP, mitered to conform to fill, Ke= 0.700 6 / Outlet Invert= 534.00' / 526.00' S= 0.0265 '/' Cc= 0.900 0.012, Flow Area= 0.09 sf		

Primary OutFlow Max=8.48 cfs @ 12.58 hrs HW=536.23' (Free Discharge)

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

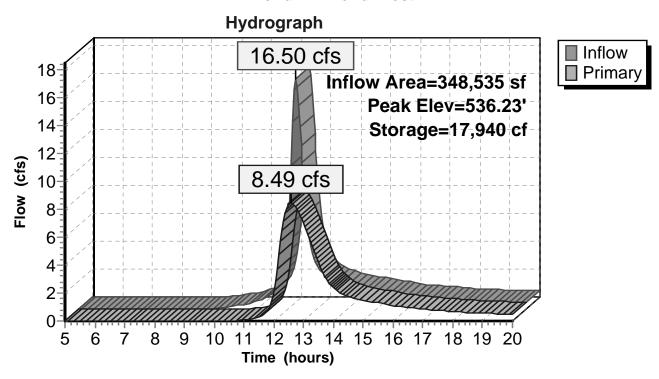
-2=Culvert (Inlet Controls 8.12 cfs @ 5.17 fps)

-3=Culvert (Barrel Controls 0.36 cfs @ 4.17 fps)

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Pond 2P: Pond West



Volume

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Summary for Pond 3P:

Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 2.40" for 25 Year event

Inflow = 26.96 cfs @ 12.24 hrs, Volume= 108,024 cf

Outflow = 18.19 cfs @ 12.46 hrs, Volume= 106,144 cf, Atten= 33%, Lag= 13.0 min

Primary = 18.19 cfs @ 12.46 hrs, Volume= 106,144 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 549.15' @ 12.46 hrs Surf.Area= 7,626 sf Storage= 18,055 cf

Plug-Flow detention time= 20.0 min calculated for 106,144 cf (98% of inflow)

Avail Storage Storage Description

Center-of-Mass det. time= 13.4 min (821.6 - 808.1)

Invert

volume	INV	ert Avaii.Sto	rage Storag	ge Description				
#1	546.0	00' 25,0	00 cf Custo	m Stage Data (P	rismatic)Listed below (Recalc)			
Elevation	on	Surf.Area	Inc.Store	Cum.Store				
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)				
546.0	00	3,850	0	0				
550.0	00	8,650	25,000	25,000				
Device	Routing	Invert	Outlet Device	ces				
#1	Primary	549.00'	Head (feet) 2.50 3.00 3 Coef. (Engli	0.20 0.40 0.60 3.50 4.00 4.50 5	70 2.68 2.68 2.66 2.65 2.65 2.65			
#2	Primary	546.25'	15.0" Round Culvert X 2.00 L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.25' / 545.00' S= 0.0417 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf					
#3	#3 Primary 546.00'		6.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.00' / 545.00' S= 0.0333 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf					

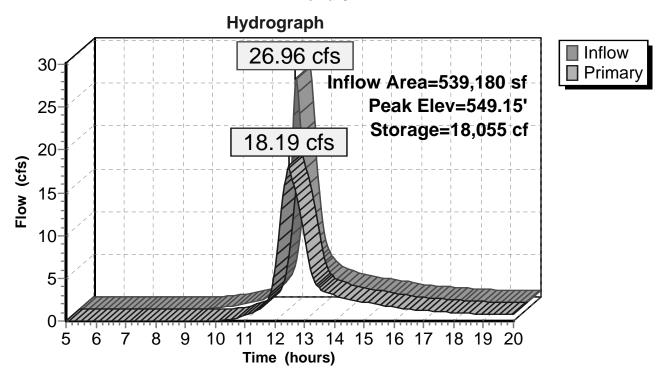
Primary OutFlow Max=18.14 cfs @ 12.46 hrs HW=549.14' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 1.02 cfs @ 0.89 fps)

-2=Culvert (Inlet Controls 15.70 cfs @ 6.40 fps)

-3=Culvert (Inlet Controls 1.42 cfs @ 7.23 fps)

Pond 3P:



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Summary for Link 4L: Post Dev

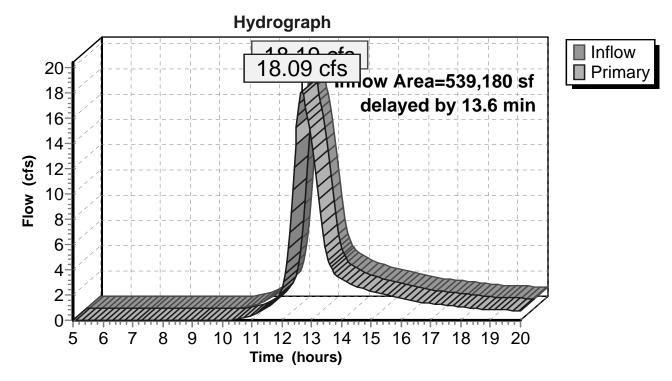
Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 2.36" for 25 Year event

Inflow = 18.19 cfs @ 12.46 hrs, Volume= 106,144 cf

Primary = 18.09 cfs @ 12.69 hrs, Volume= 105,531 cf, Atten= 1%, Lag= 13.7 min

Primary outflow = Inflow delayed by 13.6 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: Post Dev



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Summary for Link 5L: Post Dev

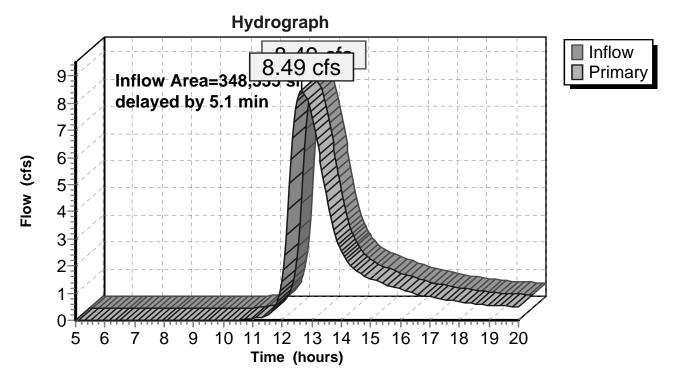
Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 2.21" for 25 Year event

Inflow = 8.49 cfs @ 12.58 hrs, Volume= 64,263 cf

Primary = 8.49 cfs @ 12.67 hrs, Volume= 64,112 cf, Atten= 0%, Lag= 5.1 min

Primary outflow = Inflow delayed by 5.1 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Post Dev



CEC-Williamsburg

Type III 24-hr 100 Year Rainfall=7.62"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1A: Post Dev Runoff Area=633,680 sf 3.74% Impervious Runoff Depth>3.95"

Flow Length=2,345' Tc=17.6 min CN=71 Runoff=51.29 cfs 208,566 cf

Subcatchment 2A: Post Dev Runoff Area=348,535 sf 2.15% Impervious Runoff Depth>3.95"

Flow Length=835' Tc=17.7 min CN=71 Runoff=28.15 cfs 114,711 cf

Subcatchment 3A: Post Dev Runoff Area=539,180 sf 0.00% Impervious Runoff Depth>4.06"

Flow Length=825' Tc=16.9 min CN=72 Runoff=45.47 cfs 182,373 cf

Subcatchment E: Pre-Development Runoff Area=1,521,390 sf 1.41% Impervious Runoff Depth>3.82"

Flow Length=3,145' Tc=34.6 min CN=70 Runoff=89.55 cfs 484,153 cf

Reach DP1.E: Pre Dev Inflow=89.55 cfs 484,153 cf

Outflow=89.55 cfs 484,153 cf

Reach DP1.P: Post Dev Inflow=83.09 cfs 498,714 cf

Outflow=83.09 cfs 498,714 cf

Pond 2P: Pond West Peak Elev=537.42' Storage=30,212 cf Inflow=28.15 cfs 114,711 cf

Outflow=16.71 cfs 111,155 cf

Pond 3P: Peak Elev=549.95' Storage=24,574 cf Inflow=45.47 cfs 182,373 cf

Outflow=39.76 cfs 180,145 cf

Link 4L: Post Dev delayed by 13.6 min Inflow=39.76 cfs 180,145 cf

Primary=39.54 cfs 179,220 cf

Link 5L: Post Dev delayed by 5.1 min Inflow=16.71 cfs 111,155 cf

Primary=16.62 cfs 110,928 cf

Total Runoff Area = 3,042,785 sf Runoff Volume = 989,803 cf Average Runoff Depth = 3.90" 98.27% Pervious = 2,990,163 sf 1.73% Impervious = 52,623 sf

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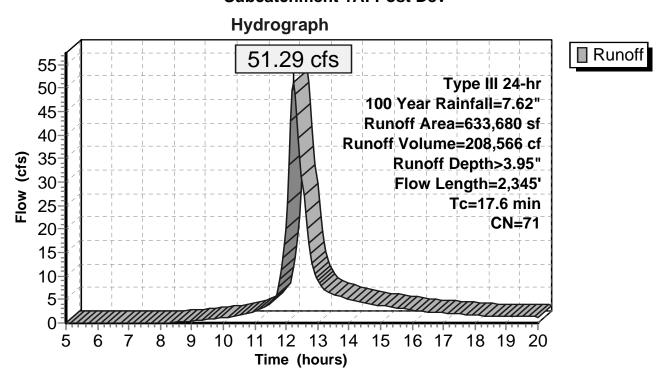
Summary for Subcatchment 1A: Post Dev

Runoff = 51.29 cfs @ 12.25 hrs, Volume= 208,566 cf, Depth> 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 Year Rainfall=7.62"

A	rea (sf)	CN E	Description							
	45,205	30 V	Woods, Good, HSG A							
	5,135	39 F	Pasture/grassland/range, Good, HSG A							
	5,250	98 V	Vater Surfa	ace, HSG A						
	3,055	83 F	Paved road	s w/open d	itches, 50% imp, HSG A					
	995	96	Fravel surfa	ace, HSG C						
2	15,820	70 V	Voods, Go	od, HSG C						
1	17,515	71 N	/leadow, no	on-grazed,	HSG C					
	3,400	98 V	Vater Surfa	ce, HSG C						
	1,430	92 F	Paved road	s w/open d	itches, 50% imp, HSG C					
2	08,025	77 V	Voods, Go	od, HSG D						
	15,060	78 N	/leadow, no	on-grazed,	HSG D					
	12,790	98 V	Vater Surfa	ce, HSG D)					
6	33,680	71 V	Veighted A	verage						
6	09,998	9	6.26% Per	vious Area						
	23,683	3	.74% Impe	ervious Area	a					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
4.6	25	0.0650	0.09		Sheet Flow,					
					Grass: Bermuda n= 0.410 P2= 3.07"					
3.3	385	0.0780	1.95		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.6	235	0.2300	2.40		Shallow Concentrated Flow,					
					Woodland Kv= 5.0 fps					
8.1	1,700		3.50		Direct Entry,					
17.6	2,345	Total								

Subcatchment 1A: Post Dev



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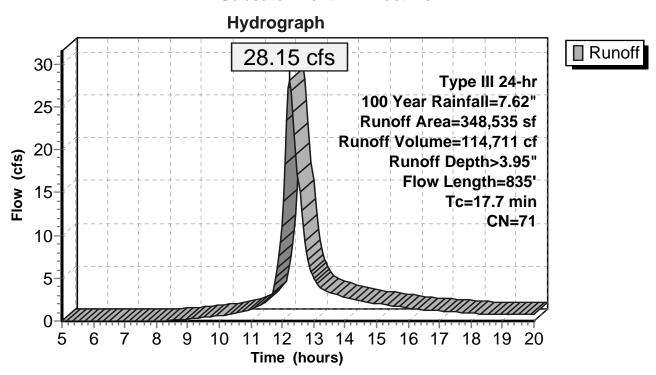
Summary for Subcatchment 2A: Post Dev

Runoff = 28.15 cfs @ 12.25 hrs, Volume= 114,711 cf, Depth> 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 Year Rainfall=7.62"

A	rea (sf)	CN I	Description								
	1,815	30 \	Woods, Good, HSG A								
	13,410	30 I	Meadow, no	on-grazed,	HSG A						
	9,940	96 (Gravel surfa	ace, HSG C							
	10,130	70 ١	Noods, Go	od, HSG C							
2	284,145	71 I	Meadow, no	on-grazed,	HSG C						
	7,500	98 I	Paved park	ing, HSG C							
	1,290	77 \	Noods, Go	od, HSG D							
	20,305	78 I	Meadow, no	on-grazed,	HSG D						
3	348,535	71 \	Weighted A	verage							
3	341,035	(97.85% Pei	rvious Area							
	7,500	2	2.15% Impe	ervious Area	a						
			-								
Tc	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
9.7	50	0.0400	0.09		Sheet Flow,						
					Grass: Bermuda n= 0.410 P2= 3.07"						
8.0	785	0.0550	1.64		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
17.7	835	Total			·						

Subcatchment 2A: Post Dev



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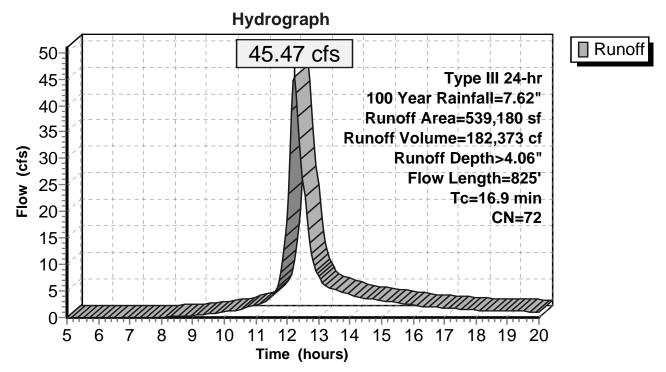
Summary for Subcatchment 3A: Post Dev

Runoff = 45.47 cfs @ 12.23 hrs, Volume= 182,373 cf, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 Year Rainfall=7.62"

_	Α	rea (sf)	CN [Description								
		4,910	96 (96 Gravel surface, HSG C								
		13,940	70 \	Noods, Go	od, HSG C							
	4	49,565	71 N	Meadow, no	on-grazed,	HSG C						
_		70,765	77 \	Noods, Poo	or, HSG C							
	5	39,180	72 \	Veighted A	verage							
	5	39,180	1	100.00% Pe	ervious Are	a						
	Tc	Length	Slope	Velocity	Capacity	Description						
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
	9.7	50	0.0400	0.09		Sheet Flow,						
						Grass: Bermuda n= 0.410 P2= 3.07"						
	7.2	775	0.0650	1.78		Shallow Concentrated Flow,						
_						Short Grass Pasture Kv= 7.0 fps						
	16.9	825	Total									

Subcatchment 3A: Post Dev



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Summary for Subcatchment E: Pre-Development

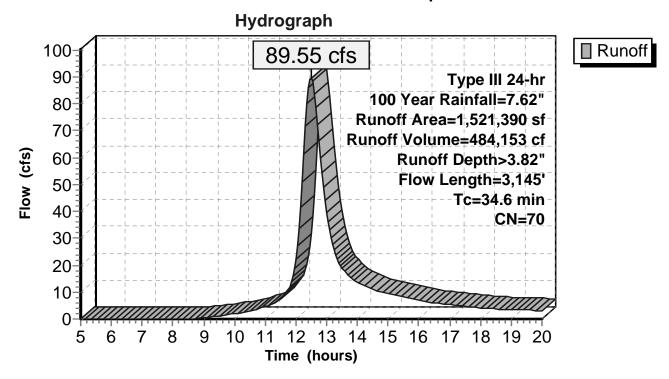
Runoff = 89.55 cfs @ 12.49 hrs, Volume= 484,153 cf, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 100 Year Rainfall=7.62"

Area	a (sf)	CN D	escription		
7	7,200	96 G	Gravel surfa	ace, HSG A	
63	3,325	30 V	Voods, Go	od, HSG A	
5	5,250			ace, HSG A	
2	2,770	96 G	Gravel surfa	ace, HSG C	
1,158	3,495	70 V	Voods, Go	od, HSG C	
20	0,660	71 N	1eadow, no	on-grazed, F	HSG C
3	3,400	98 V	Vater Surfa	ace, HSG C	
	90			ace, HSG D	
	7,410			od, HSG D	
	2,790			ace, HSG D	
•	1,390		Veighted A		
1,499		_		vious Area	
21	1,440	1	.41% Impe	ervious Area	
To I	o n ath	Clana	\/alaaitu	Consoitu	Description
Tc L (min)	ength. (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
		0.0700		(015)	Chaot Flaur
7.6	50	0.0700	0.11		Sheet Flow,
3.9	300	0.0670	1.29		Woods: Light underbrush n= 0.400 P2= 3.07" Shallow Concentrated Flow ,
3.9	300	0.0070	1.29		Woodland Kv= 5.0 fps
6.8	420	0.0430	1.04		Shallow Concentrated Flow,
0.0	720	0.0400	1.04		Woodland Kv= 5.0 fps
2.4	300	0.1670	2.04		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
4.9	175	0.0570	0.60		Shallow Concentrated Flow,
					Forest w/Heavy Litter Kv= 2.5 fps
9.0	1,900		3.50		Direct Entry, Unquomonk Brook-Small Tributary
34.6	3,145	Total			

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Subcatchment E: Pre-Development



Summary for Reach DP1.E: Pre Dev

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

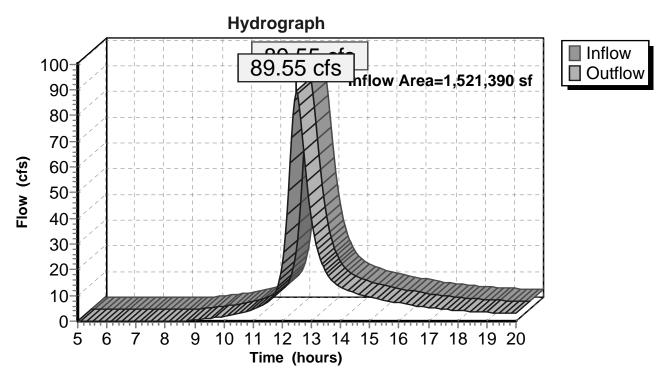
Inflow Area = 1,521,390 sf, 1.41% Impervious, Inflow Depth > 3.82" for 100 Year event

Inflow = 89.55 cfs @ 12.49 hrs, Volume= 484,153 cf

Outflow = 89.55 cfs @ 12.49 hrs, Volume= 484,153 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.E: Pre Dev



Summary for Reach DP1.P: Post Dev

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

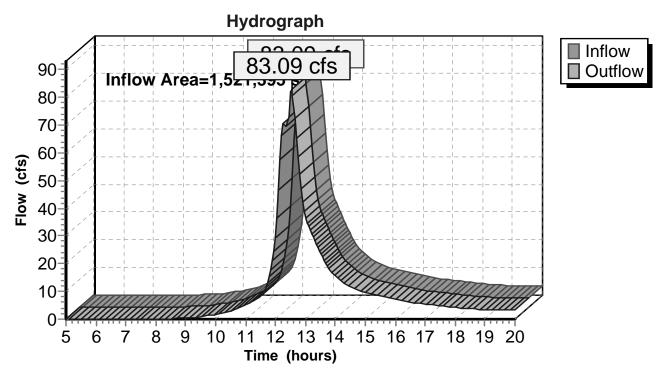
Inflow Area = 1,521,395 sf, 2.05% Impervious, Inflow Depth > 3.93" for 100 Year event

Inflow = 83.09 cfs @ 12.53 hrs, Volume= 498,714 cf

Outflow = 83.09 cfs @ 12.53 hrs, Volume= 498,714 cf, Atten= 0%, Lag= 0.0 min

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

Reach DP1.P: Post Dev



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Summary for Pond 2P: Pond West

Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 3.95" for 100 Year event

Inflow = 28.15 cfs @ 12.25 hrs, Volume= 114,711 cf

Outflow = 16.71 cfs @ 12.51 hrs, Volume= 111,155 cf, Atten= 41%, Lag= 16.0 min

Primary = 16.71 cfs @ 12.51 hrs, Volume= 111,155 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 537.42' @ 12.51 hrs Surf.Area= 11,223 sf Storage= 30,212 cf

Plug-Flow detention time= 40.1 min calculated for 111,155 cf (97% of inflow)

Center-of-Mass det. time= 28.6 min (827.4 - 798.7)

Volume	Invert	Avail.Sto	rage Storage Description	
#1	534.00'	37,00)8 cf	40.00'W x 165.00'L x 4.00'H Prismatoid Z=3.0
Device	Routing	Invert	Outl	et Devices
#1	Primary	537.00'	Hea 2.50 Coe	long x 5.0' breadth Broad-Crested Rectangular Weir d (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 3.00 3.50 4.00 4.50 5.00 5.50 f. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	534.25'	L= 3 Inlet	80.0' CPP, mitered to conform to fill, Ke= 0.700 c/ Outlet Invert= 534.25' / 526.00' S= 0.2750 '/' Cc= 0.900 0.012, Flow Area= 0.79 sf
#3	Primary	534.00'	4.0" Round Culvert L= 302.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 534.00' / 526.00' S= 0.0265 '/' Cc= 0.900 n= 0.012, Flow Area= 0.09 sf	

Primary OutFlow Max=16.62 cfs @ 12.51 hrs HW=537.41' (Free Discharge)

T-1=Broad-Crested Rectangular Weir (Weir Controls 5.34 cfs @ 1.62 fps)

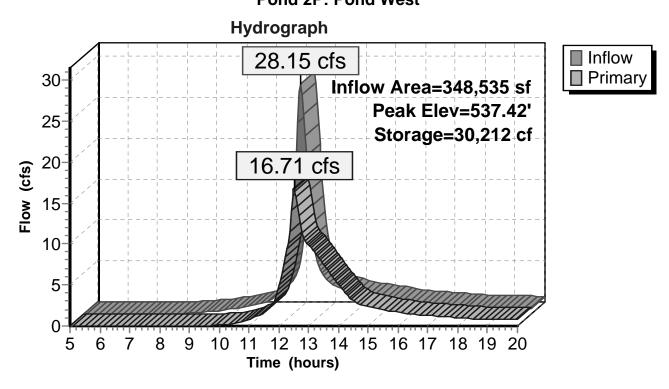
-2=Culvert (Inlet Controls 10.89 cfs @ 6.93 fps)

-3=Culvert (Barrel Controls 0.39 cfs @ 4.41 fps)

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Pond 2P: Pond West



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Summary for Pond 3P:

Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 4.06" for 100 Year event

Inflow = 45.47 cfs @ 12.23 hrs, Volume= 182,373 cf

Outflow = 39.76 cfs @ 12.34 hrs, Volume= 180,145 cf, Atten= 13%, Lag= 6.0 min

Primary = 39.76 cfs @ 12.34 hrs, Volume= 180,145 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 549.95' @ 12.34 hrs Surf.Area= 8,591 sf Storage= 24,574 cf

Plug-Flow detention time= 16.6 min calculated for 179,546 cf (98% of inflow)

Center-of-Mass det. time= 11.9 min (808.3 - 796.4)

Volume	Inve	rt Avail.Sto	rage Storage	e Description			
#1	546.0	0' 25,00	00 cf Custor	O cf Custom Stage Data (Prismatic)Listed below (Recalc)			
Elevatio (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
546.0	0	3,850	0	0			
550.0	0	8,650	25,000	25,000			
Device	Routing	Invert	Outlet Device	es			
#1	<u> </u>		8.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88				
#2	2 Primary 546.25'		15.0" Round Culvert X 2.00 L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.25' / 545.00' S= 0.0417 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf				
#3	Primary 546.00'		6.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 546.00' / 545.00' S= 0.0333 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf				

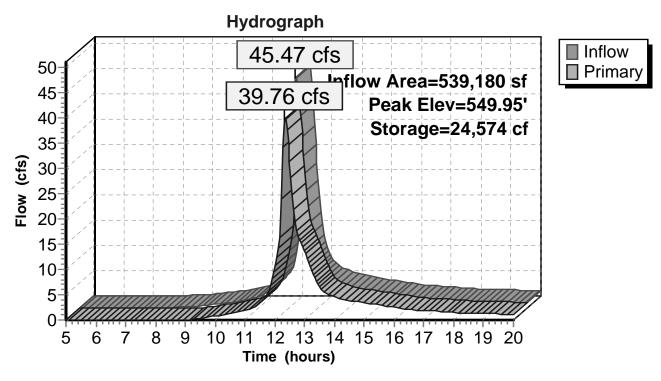
Primary OutFlow Max=39.49 cfs @ 12.34 hrs HW=549.94' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 19.62 cfs @ 2.60 fps)

-2=Culvert (Inlet Controls 18.26 cfs @ 7.44 fps)

-3=Culvert (Inlet Controls 1.60 cfs @ 8.16 fps)

Pond 3P:



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Summary for Link 4L: Post Dev

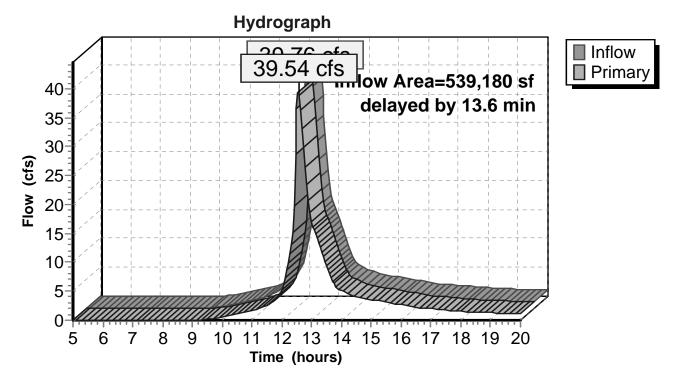
Inflow Area = 539,180 sf, 0.00% Impervious, Inflow Depth > 4.01" for 100 Year event

Inflow = 39.76 cfs @ 12.34 hrs, Volume= 180,145 cf

Primary = 39.54 cfs @ 12.57 hrs, Volume= 179,220 cf, Atten= 1%, Lag= 13.8 min

Primary outflow = Inflow delayed by 13.6 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: Post Dev



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Summary for Link 5L: Post Dev

Inflow Area = 348,535 sf, 2.15% Impervious, Inflow Depth > 3.83" for 100 Year event

Inflow = 16.71 cfs @ 12.51 hrs, Volume= 111,155 cf

Primary = 16.62 cfs @ 12.60 hrs, Volume= 110,928 cf, Atten= 1%, Lag= 5.3 min

Primary outflow = Inflow delayed by 5.1 min, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Post Dev

