

Existing CB1A (Point of Analysis)









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## Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
	<del></del>	(Substitution Find in Dela)
0.060	39	>75% Grass cover, Good, HSG A (1S)
0.080	61	>75% Grass cover, Good, HSG B (2S)
0.831	98	Paved parking, HSG A (1S, 2S)
0.752	98	Paved parking, HSG B (2S)
0.444	98	Paved roads w/curbs & sewers, HSG B (3S)
0.503	98	Roofs, HSG B (1S)
2.670	96	TOTAL AREA

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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.891	HSG A	1S, 2S
1.779	HSG B	1S, 2S, 3S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.670		TOTAL AREA

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#### **Ground Covers (all nodes)**

_	SG-A cres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
C	0.060	0.080	0.000	0.000	0.000	0.140	>75% Grass cover, Good	1S,
								28
C	0.831	0.752	0.000	0.000	0.000	1.583	Paved parking	1S,
								2S
C	0.000	0.444	0.000	0.000	0.000	0.444	Paved roads w/curbs & sewers	3S
C	0.000	0.503	0.000	0.000	0.000	0.503	Roofs	1S
C	0.891	1.779	0.000	0.000	0.000	2.670	TOTAL AREA	

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### Pipe Listing (all nodes)

Li	ine#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
	1	1S	0.00	0.00	165.0	0.0420	0.017	15.0	0.0	0.0
	2	1S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0
	3	2S	0.00	0.00	52.0	0.0100	0.015	24.0	0.0	0.0
	4	3S	0.00	0.00	128.0	0.0470	0.017	15.0	0.0	0.0
	5	3S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0

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NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

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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 1S: Area 1 (East)

Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>1.81"

Flow Length=475' Tc=3.0 min CN=94 Runoff=2.21 cfs 0.120 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>1.98"

Flow Length=482' Tc=4.0 min CN=96 Runoff=4.02 cfs 0.235 af

Subcatchment 3S: Area 3 (Fair St.)

Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>2.14"

Flow Length=517' Tc=1.7 min CN=98 Runoff=1.44 cfs 0.079 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=7.55 cfs 0.434 af Primary=7.55 cfs 0.434 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.434 af Average Runoff Depth = 1.95" 5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac Prepared by Microsoft

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# **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

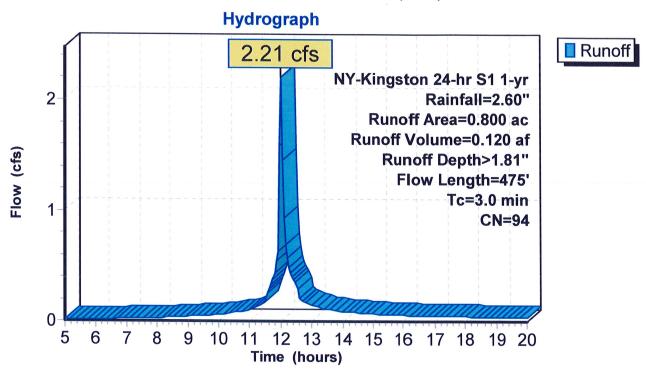
Runoff = 2.21 cfs @ 12.00 hrs, Volume=

0.120 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Are	a (ac	;) C	N Desc	cription						
	0.503	3 9	98 Roof	fs, HSG B						
	0.23	-	98 Pave	ed parking	, HSG A					
	0.060	0 3			over, Good	, HSG A				
	0.800 94 Weighted Average									
	0.060			% Perviou						
	0.740	0	92.5	0% Imper	ious Area					
_										
T <sub>i</sub>		ength	Slope	Velocity	Capacity	Description				
(min		(feet)	(ft/ft)	(ft/sec)	(cfs)					
2.	1	100	0.0050	0.79		Sheet Flow, Roof Flow				
•						Smooth surfaces n= 0.011 P2= 3.16"				
0.	1	37	0.2297	9.73		Shallow Concentrated Flow,				
0.4	_	405				Paved Kv= 20.3 fps				
0.3	3	165	0.0420	8.25	10.12	1				
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'				
0.4	=	470	0.0400			n= 0.017 Clay tile				
0.	)	173	0.0100	6.24	19.61	Pipe Channel,				
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'				
		475	<del></del>			n= 0.015				
3.0	J	475	Total							

## **Subcatchment 1S: Area 1 (East)**



### **Summary for Subcatchment 2S: Area 2 (West)**

[49] Hint: Tc<2dt may require smaller dt

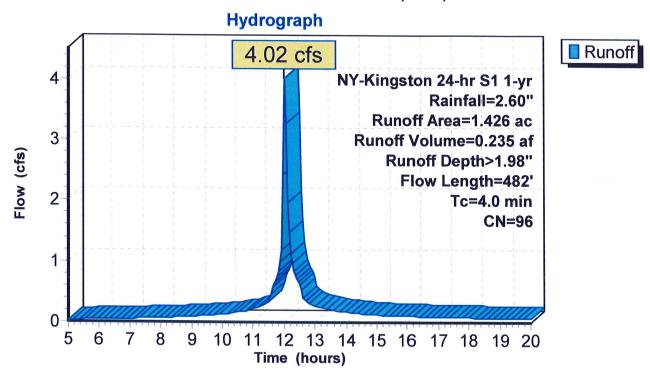
Runoff = 4.02 cfs @ 12.01 hrs, Volume=

0.235 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

_	Area	(ac) C	N Des	cription		
	0.	752 9	8 Pave	ed parking.	, HSG B	
	0.	594 9	8 Pave	ed parking	, HSG A	
_	0.	080 6	31 >75°	% Grass co	over, Good	, HSG B
	1.	426	6 Wei	ghted Aver	rage	
	0.	080	5.61	% Perviou	s Area	
	1.	346	94.3	9% Imperv	<i>r</i> ious Area	
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	1.7	50	0.3800	0.48		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.16"
	2.2	380	0.0210	2.94		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	0.1	52	0.0100	6.24	19.61	Pipe Channel, Pipe Flow (diam. and slope assumed)
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'
_						n= 0.015
	4.0	482	Total			

### Subcatchment 2S: Area 2 (West)



#### **Summary for Subcatchment 3S: Area 3 (Fair St.)**

[49] Hint: Tc<2dt may require smaller dt

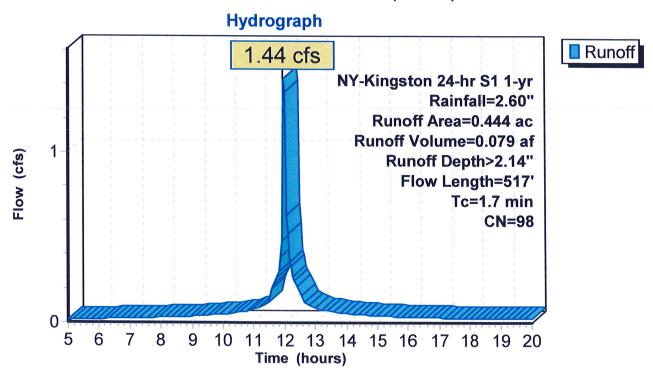
Runoff = 1.44 cfs @ 11.98 hrs, Volume=

0.079 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

	Area	(ac) C	N Desc	cription							
	0.444 98 Paved roads w/curbs & sewers, HSG B										
_	0.444 100.00% Impervious Area										
	Тс	Length	Slope	Velocity	Capacity	Description					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	0.6	100	0.1200	2.80		Sheet Flow,					
						Smooth surfaces n= 0.011 P2= 3.16"					
	0.4	116	0.0689	5.33		Shallow Concentrated Flow,					
	0.0	400	0.0470	0.70	40.74	Paved Kv= 20.3 fps					
	0.2	128	0.0470	8.73	10.71	Pipe Channel,					
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile					
	0.5	173	0.0100	6.24	19.61	Pipe Channel,					
			3.0.00	0.27	10.01	24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'					
						n= 0.015					
	1.7	517	Total								

#### **Subcatchment 3S: Area 3 (Fair St.)**



## **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

Inflow Area =

2.670 ac, 94.76% Impervious, Inflow Depth > 1.95" for 1-yr event

Inflow =

7.55 cfs @ 12.00 hrs, Volume=

0.434 af

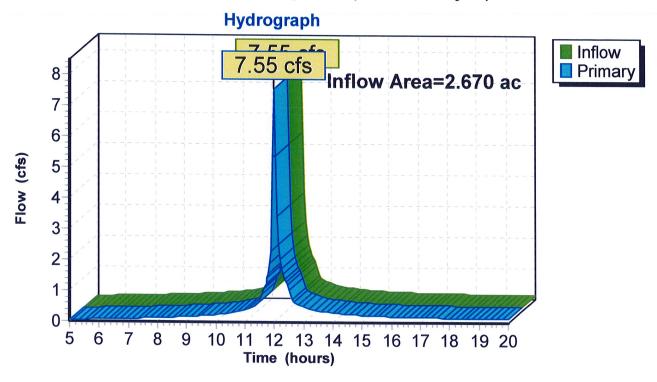
Primary =

7.55 cfs @ 12.00 hrs, Volume=

0.434 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



## PreDevelopmentStorm.revised2

NY-Kingston 24-hr S1 10-yr Rainfall=4.70" Printed 7/22/2019

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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 1S: Area 1 (East)

Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>3.66"

Flow Length=475' Tc=3.0 min CN=94 Runoff=3.89 cfs 0.244 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>3.83"

Flow Length=482' Tc=4.0 min CN=96 Runoff=6.82 cfs 0.455 af

Subcatchment 3S: Area 3 (Fair St.)

Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>3.97"

Flow Length=517' Tc=1.7 min CN=98 Runoff=2.35 cfs 0.147 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=12.87 cfs 0.845 af

Primary=12.87 cfs 0.845 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.845 af Average Runoff Depth = 3.80" 5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

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# Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

Runoff =

3.89 cfs @ 12.00 hrs, Volume=

0.244 af, Depth> 3.66"

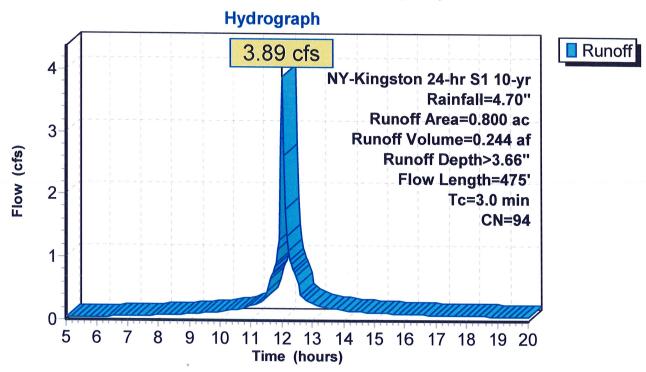
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

	a (ac)	_CN	N Des	cription				
	0.503	98	3 Root	fs, HSG B				
	0.237	98		Paved parking, HSG A				
	0.060	39	>759	% Grass c	over, Good	, HSG A		
0.800 94 Weighted Average								
	0.060			% Perviou				
	0.740		92.5	0% Imper	∕ious Area			
т.			01					
To (min)			Slope	Velocity	Capacity	Description		
(min			(ft/ft)	(ft/sec)	(cfs)			
2.1	1 1	00	0.0050	0.79		Sheet Flow, Roof Flow		
0.1		27	0.000=			Smooth surfaces n= 0.011 P2= 3.16"		
0.	١ ,	37	0.2297	9.73		Shallow Concentrated Flow,		
0.3	2 1/	e E	0.0400	0.05		Paved Kv= 20.3 fps		
0.0	יו	65	0.0420	8.25	10.12	Pipe Channel,		
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'		
0.5	· 1·	73	0.0100	6.04	40.04	n= 0.017 Clay tile		
0.0	, ,	, 5	0.0100	6.24	19.61	Pipe Channel,		
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'		
3.0	۱ ۷.	75	Total			n= 0.015		
5.0	4	, 5	Total					

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# Subcatchment 1S: Area 1 (East)



## **Summary for Subcatchment 2S: Area 2 (West)**

[49] Hint: Tc<2dt may require smaller dt

Runoff =

6.82 cfs @ 12.01 hrs, Volume=

0.455 af, Depth> 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

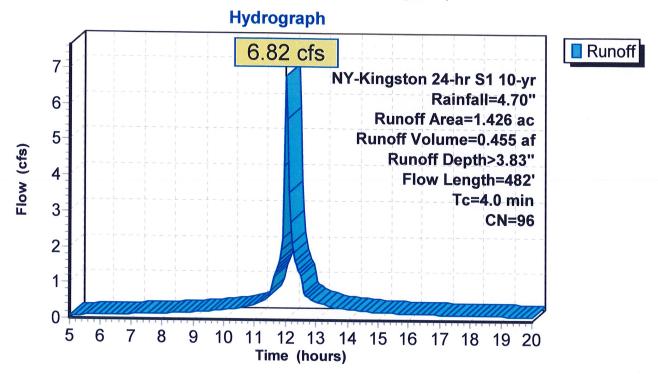
_	Area	(ac) C	N Des	cription		
	0.	752 9	8 Pave	ed parking	, HSG B	
	0.	594 9	8 Pave	ed parking	, HSG A	
_	0.	080 6	31 >75°	% Grass co	over, Good	, HSG B
	1.	426	6 Wei	ghted Aver	age	
	0.	080		% Perviou		
	1.	346	94.3	9% Imper	ious Area	
				•		
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
	1.7	50	0.3800	0.48		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.16"
	2.2	380	0.0210	2.94		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	0.1	52	0.0100	6.24	19.61	Pipe Channel, Pipe Flow (diam. and slope assumed)
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'
						n= 0.015
	4.0	482	Total			

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## Subcatchment 2S: Area 2 (West)



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## Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

Runoff =

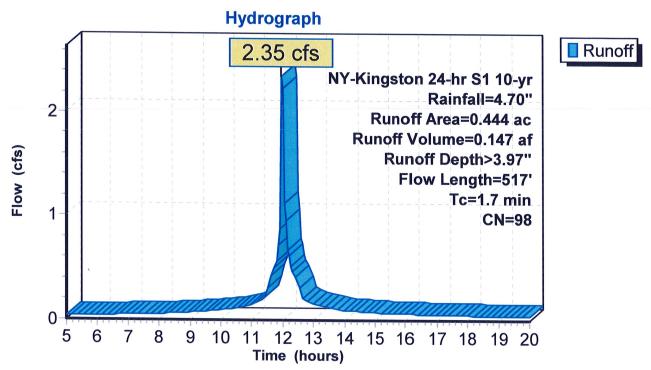
2.35 cfs @ 11.98 hrs, Volume=

0.147 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area	(ac) C	N Des	cription						
0.	0.444 98 Paved roads w/curbs & sewers, HSG B								
0.	444			rvious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
0.6	100	0.1200	2.80		Sheet Flow,				
0.4	116	0.0689	5.33		Smooth surfaces n= 0.011 P2= 3.16"  Shallow Concentrated Flow, Paved Kv= 20.3 fps				
0.2	128	0.0470	8.73	10.71	Pipe Channel,				
0.5	173	0.0100	6.24	19.61	15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile  Pipe Channel,				
		~			24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015				
1.7	517	Total							

## Subcatchment 3S: Area 3 (Fair St.)



#### **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

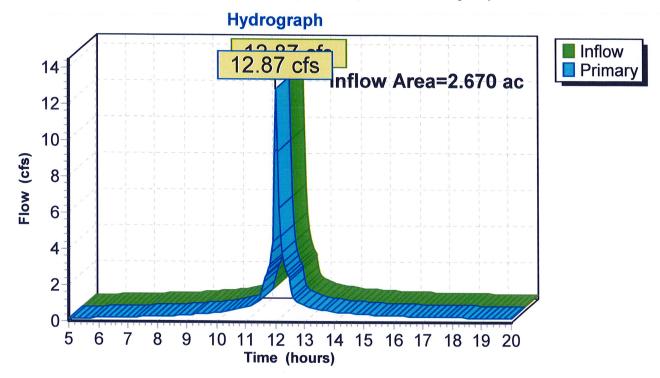
Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 3.80" for 10-yr event

Inflow = 12.87 cfs @ 12.00 hrs, Volume= 0.845 af

Primary = 12.87 cfs @ 12.00 hrs, Volume= 0.845 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



# PreDevelopmentStorm.revised2

NY-Kingston 24-hr S1 25-yr Rainfall=5.89" Printed 7/22/2019

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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 1S: Area 1 (East)

Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>4.70"

Flow Length=475' Tc=3.0 min CN=94 Runoff=4.79 cfs 0.313 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>4.86"

Flow Length=482' Tc=4.0 min CN=96 Runoff=8.33 cfs 0.578 af

Subcatchment 3S: Area 3 (Fair St.)

Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>4.99"

Flow Length=517' Tc=1.7 min CN=98 Runoff=2.85 cfs 0.185 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=15.75 cfs 1.075 af Primary=15.75 cfs 1.075 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.075 af 5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

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#### **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

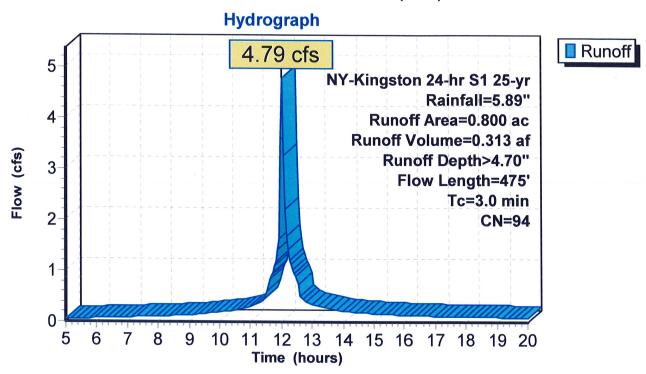
Runoff = 4.79 cfs @ 12.00 hrs, Volume=

0.313 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area	(ac) C	N Desc	cription						
C	).503	8 Roo	fs, HSG B						
C	).237	98 Pave	ed parking	, HSG A					
	0.060	39 >75°	% Grass co	over, Good	, HSG A				
C	0.800 94 Weighted Average								
C	0.060	7.50	% Perviou	s Area					
C	).740	92.5	0% Imperv	ious Area					
_									
Tc		Slope	Velocity	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
2.1	100	0.0050	0.79		Sheet Flow, Roof Flow				
					Smooth surfaces n= 0.011 P2= 3.16"				
0.1	37	0.2297	9.73		Shallow Concentrated Flow,				
					Paved Kv= 20.3 fps				
0.3	165	0.0420	8.25	10.12	,				
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'				
					n= 0.017 Clay tile				
0.5	173	0.0100	6.24	19.61	Pipe Channel,				
					24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'				
					n= 0.015				
3.0	475	Total							

## Subcatchment 1S: Area 1 (East)



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#### **Summary for Subcatchment 2S: Area 2 (West)**

[49] Hint: Tc<2dt may require smaller dt

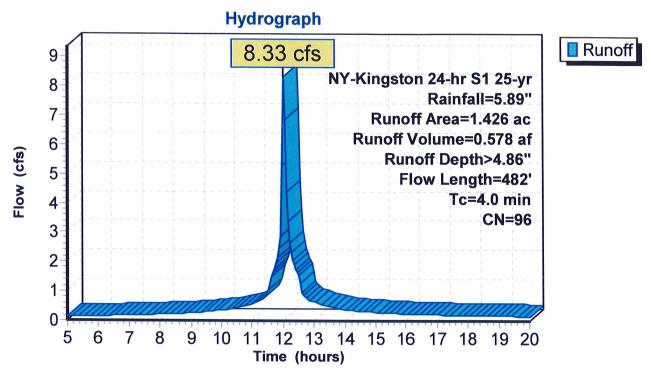
Runoff = 8.33 cfs @ 12.01 hrs, Volume=

0.578 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area	(ac) C	N Desc	cription			
0.	752	98 Pave	Paved parking, HSG B			
0.	594	98 Pave	ed parking,	HSG A		
 0.080 61 >7			% Grass co	over, Good,	HSG B	
1.	426	96 Weig	ghted Aver	age		
0.	080		% Perviou			
1.	346	94.3	9% Imperv	∕ious Area		
			·			
Тс	Length	Slope	Velocity	Capacity	Description	
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
1.7	50	0.3800	0.48		Sheet Flow,	
					Grass: Short n= 0.150 P2= 3.16"	
2.2	380	0.0210	2.94		Shallow Concentrated Flow,	
					Paved Kv= 20.3 fps	
0.1	52	0.0100	6.24	19.61	Pipe Channel, Pipe Flow (diam. and slope assumed)	
					24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'	
 	****				n= 0.015	
4.0	482	Total				

## Subcatchment 2S: Area 2 (West)



## Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

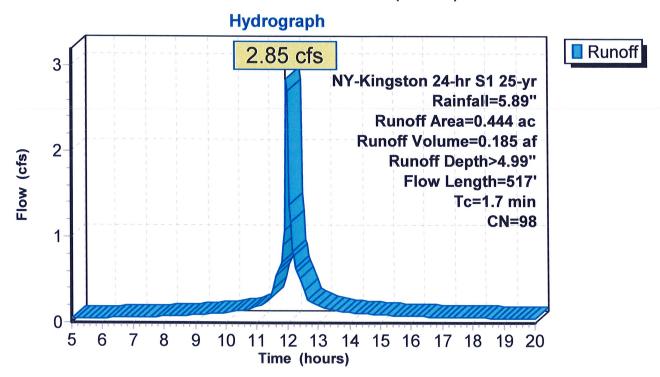
Runoff = 2.85 cfs @ 11.98 hrs, Volume=

0.185 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

_	Area	(ac) C	N Desc	cription		
	0.	444 9	8 Pave	ed roads w	/curbs & se	ewers, HSG B
	0.	444	100.	00% Impe	rvious Area	1
	_		01			
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.6	100	0.1200	2.80		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.16"
	0.4	116	0.0689	5.33		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	0.2	128	0.0470	8.73	10.71	Pipe Channel,
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
						n= 0.017 Clay tile
	0.5	173	0.0100	6.24	19.61	Pipe Channel,
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'
						n= 0.015
-	1.7	517	Total			

### **Subcatchment 3S: Area 3 (Fair St.)**



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# **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

Inflow Area =

2.670 ac, 94.76% Impervious, Inflow Depth > 4.83" for 25-yr event

Inflow

15.75 cfs @ 12.00 hrs, Volume=

. 1.075 af

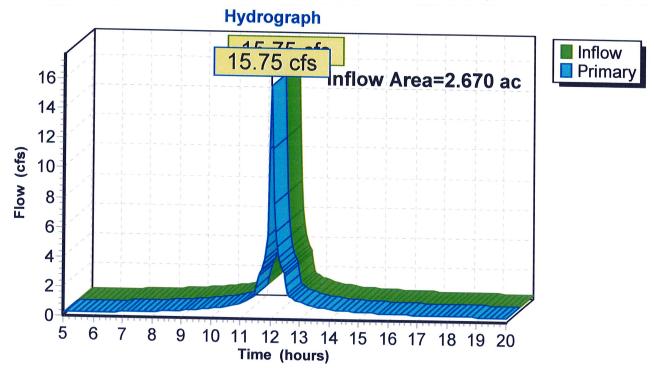
Primary =

15.75 cfs @ 12.00 hrs, Volume=

1.075 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



#### PreDevelopmentStorm.revised2

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NY-Kingston 24-hr S1 100-yr Rainfall=8.32" Printed 7/22/2019

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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 1S: Area 1 (East) Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>6.81"

Flow Length=475' Tc=3.0 min CN=94 Runoff=6.41 cfs 0.454 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>6.95"

Flow Length=482' Tc=4.0 min CN=96 Runoff=11.07 cfs 0.826 af

Subcatchment 3S: Area 3 (Fair St.) Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>7.05"

Flow Length=517' Tc=1.7 min CN=98 Runoff=3.75 cfs 0.261 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=20.95 cfs 1.541 af

Primary=20.95 cfs 1.541 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.541 af Average Runoff Depth = 6.92" 5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

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## **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

Runoff =

6.41 cfs @ 12.00 hrs, Volume=

0.454 af, Depth> 6.81"

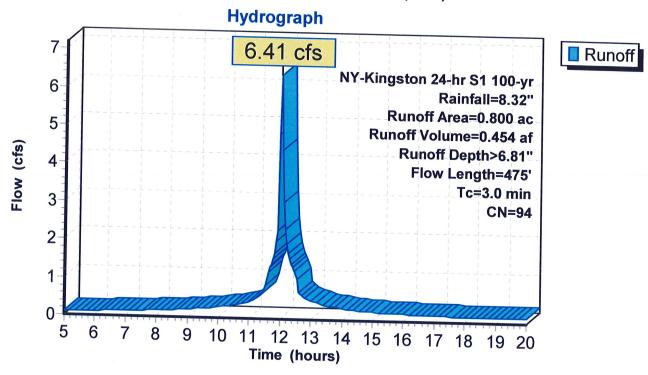
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area	(ac) C	N Desc	cription				
0.	503	98 Roof	fs, HSG B				
			ed parking,				
0.	0.060 39 >75% Grass cover, Good, HSG A						
0.800 94 Weighted Average							
	060		% Perviou				
0.	740	92.5	0% Imper	∕ious Area			
To	Longth	Clama	Mala altr.	0	D 1.0		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity	Description		
2.1				(cfs)			
۷.۱	100	0.0050	0.79		Sheet Flow, Roof Flow		
0.1	37	0.2297	9.73		Smooth surfaces n= 0.011 P2= 3.16"		
0.1	31	0.2231	9.13		Shallow Concentrated Flow, Paved Kv= 20.3 fps		
0.3	165	0.0420	8.25	10.12	Pipe Channel,		
		0.0120	0.20	10.12	15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'		
					n= 0.017 Clay tile		
0.5	173	0.0100	6.24	19.61	Pipe Channel,		
				, , , ,	24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'		
					n= 0.015		
3.0	475	Total					

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# Subcatchment 1S: Area 1 (East)



## Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 11.07 cfs @ 12.01 hrs, Volume=

0.826 af, Depth> 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

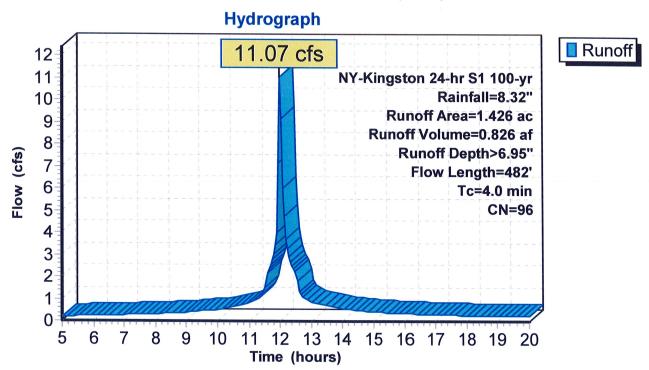
_	Area	(ac) C	N Desc	cription		·		
	0.752 98			Paved parking, HSG B				
	0.594 98			Paved parking, HSG A				
0.080 61 >75% Grass cover, Good, HSG B								
1.426 96 Weighted Average								
	0.	080	5.61	% Perviou	s Area			
	1.	346	94.3	9% Imperv	ious Area			
	Тс	Length	Slope	Velocity	Capacity	Description		
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	1.7	50	0.3800	0.48		Sheet Flow,		
						Grass: Short n= 0.150 P2= 3.16"		
	2.2	380	0.0210	2.94		Shallow Concentrated Flow,		
						Paved Kv= 20.3 fps		
	0.1	52	0.0100	6.24	19.61	Pipe Channel, Pipe Flow (diam. and slope assumed)		
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'		
_						n= 0.015		
	4.0	482	Total					

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## Subcatchment 2S: Area 2 (West)



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#### **Summary for Subcatchment 3S: Area 3 (Fair St.)**

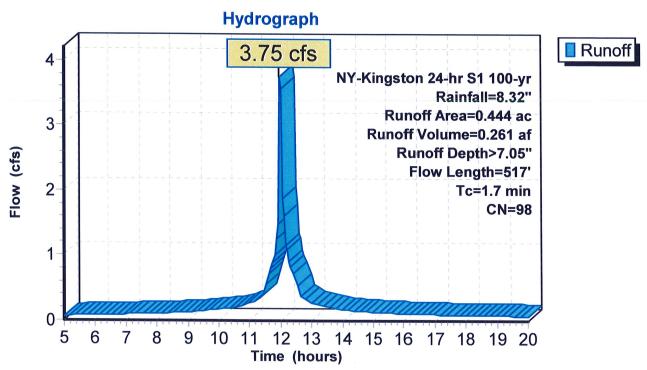
[49] Hint: Tc<2dt may require smaller dt

Runoff 3.75 cfs @ 11.98 hrs, Volume= 0.261 af, Depth> 7.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area	(ac) C	N Desc	cription					
0.	ewers, HSG B							
0.444 100.00% Impervious Area								
Tc	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
0.6	100	0.1200	2.80		Sheet Flow,			
					Smooth surfaces n= 0.011 P2= 3.16"			
0.4	116	0.0689	5.33		Shallow Concentrated Flow,			
					Paved Kv= 20.3 fps			
0.2	128	0.0470	8.73	10.71	Pipe Channel,			
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'			
					n= 0.017 Clay tile			
0.5	173	0.0100	6.24	19.61	Pipe Channel,			
					24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'			
		***************************************			n= 0.015			
1.7	517	Total						

## Subcatchment 3S: Area 3 (Fair St.)



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#### **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

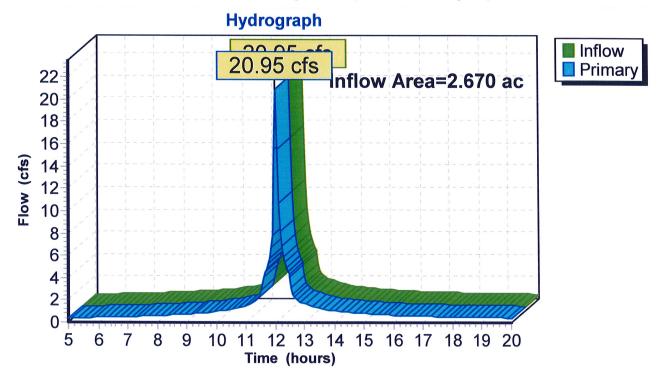
Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 6.92" for 100-yr event

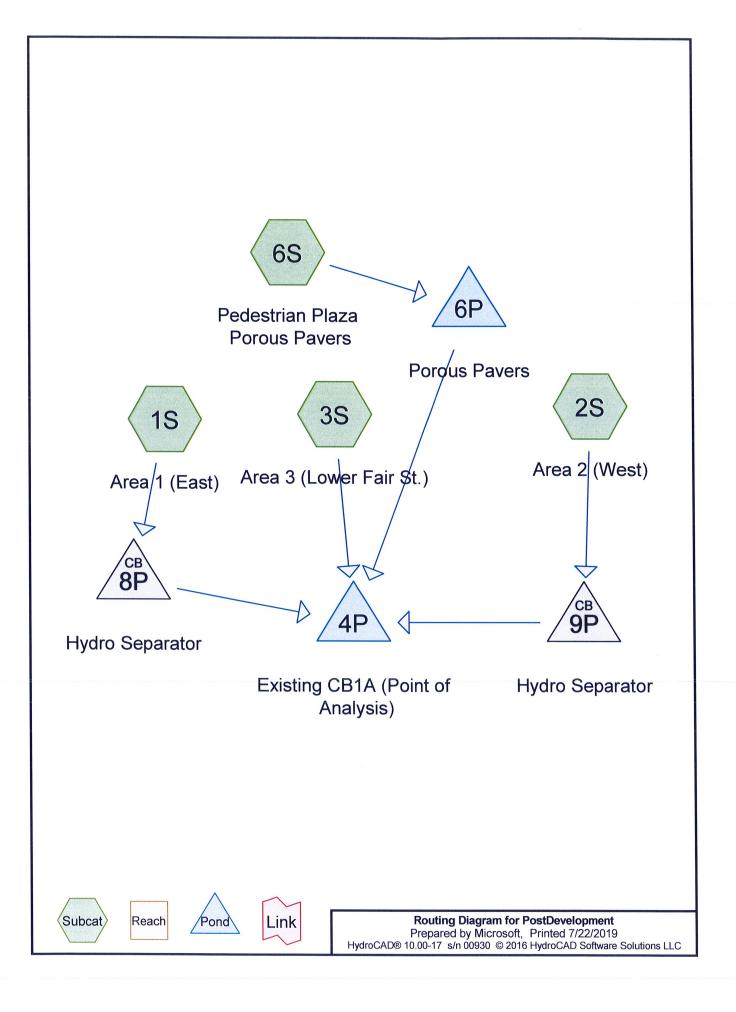
Inflow = 20.95 cfs @ 12.00 hrs, Volume= 1.541 af

Primary = 20.95 cfs @ 12.00 hrs, Volume= 1.541 af, Atten= 0%, Lag= 0.0 min

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

### Pond 4P: Existing CB1A (Point of Analysis)





## **Area Listing (all nodes)**

Area	CN	Description
(acres)		(subcatchment-numbers)
0.155	39	>75% Grass cover, Good, HSG A (1S)
0.080	61	>75% Grass cover, Good, HSG B (2S)
0.682	98	Paved parking, HSG A (1S, 2S)
0.298	98	Paved roads w/curbs & sewers, HSG B (3S)
0.200	40	Porous Pavers (6S)
1.255	98	Roofs, HSG B (1S, 2S)
2.670	89	TOTAL AREA

# Soil Listing (all nodes)

 Area (acres)	Soil Group	Subcatchment Numbers
0.837	HSG A	1S, 2S
1.633	HSG B	1S, 2S, 3S
0.000	HSG C	
0.000	HSG D	
0.200	Other	6S
2.670		TOTAL AREA

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# **Ground Covers (all nodes)**

 HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.155	0.080	0.000	0.000	0.000	0.235	>75% Grass cover, Good	1S,
							2S
0.682	0.000	0.000	0.000	0.000	0.682	Paved parking	1S,
							2S
0.000	0.298	0.000	0.000	0.000	0.298	Paved roads w/curbs & sewers	3S
0.000	0.000	0.000	0.000	0.200	0.200	Porous Pavers	6S
0.000	1.255	0.000	0.000	0.000	1.255	Roofs	1S,
							2S
0.837	1.633	0.000	0.000	0.200	2.670	TOTAL AREA	

# Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	30.0	0.0150	0.013	12.0	0.0	0.0
2	1S	0.00	0.00	101.0	0.0300	0.013	15.0	0.0	0.0
3	2S	0.00	0.00	30.0	0.0300	0.013	12.0	0.0	0.0
4	2S	0.00	0.00	241.0	0.0189	0.013	15.0	0.0	0.0
5	3S	0.00	0.00	128.0	0.0470	0.017	15.0	0.0	0.0
6	3S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0
7	6P	171.00	163.00	70.0	0.1143	0.010	8.0	0.0	0.0
8	6P	163.00	162.50	30.0	0.0167	0.013	12.0	0.0	0.0
9	6P	162.50	153.56	213.0	0.0420	0.017	15.0	0.0	0.0
10	6P	153.50	152.62	88.0	0.0100	0.015	24.0	0.0	0.0
11	8P	152.00	147.00	290.0	0.0172	0.015	15.0	0.0	0.0
12	9P	150.70	150.00	70.0	0.0100	0.013	15.0	0.0	0.0

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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 1S: Area 1 (East) Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>1.20"

Flow Length=231' Tc=2.4 min CN=86 Runoff=1.46 cfs 0.074 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>1.98"

Flow Length=371' Tc=2.8 min CN=96 Runoff=4.25 cfs 0.235 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>2.14"

Flow Length=371' Tc=1.3 min CN=98 Runoff=0.98 cfs 0.053 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth=0.00"

Tc=6.0 min CN=40 Runoff=0.00 cfs 0.000 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=6.63 cfs 0.362 af

Primary=6.63 cfs 0.362 af

Pond 6P: Porous Pavers

Peak Elev=175.00' Storage=0.000 af Inflow=0.00 cfs 0.000 af

Outflow=0.00 cfs 0.000 af

Pond 8P: Hydro Separator Peak Elev=152.58' Inflow=1.46 cfs 0.074 af

15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=1.46 cfs 0.074 af

Pond 9P: Hydro Separator Peak Elev=151.84' Inflow=4.25 cfs 0.235 af

15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=4.25 cfs 0.235 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.362 af Average Runoff Depth = 1.63" 16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

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## **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.46 cfs @ 11.99 hrs, Volume=

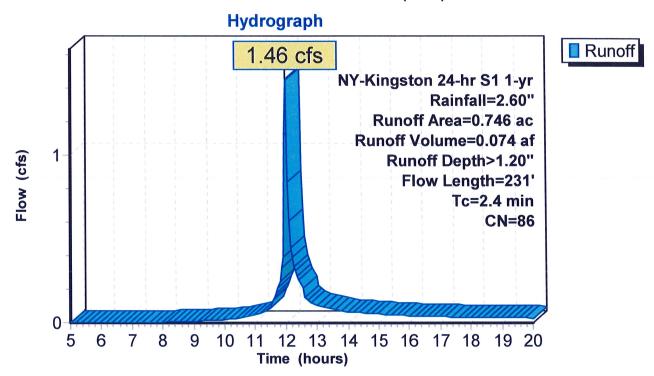
0.074 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

	Area (	(ac) (	ON Desc	cription		
	0.	503	98 Roo	fs, HSG B		
	0.	088	98 Pave	ed parking.	, HSG A	
	0.	155			over, Good.	, HSG A
	0.	746	86 Wei	ghted Aver	age	
	0.	155		8% Pervio	_	
	0.	591	79.2	2% Imperv	ious Area	
				•		
	Тс	Length	Slope	Velocity	Capacity	Description
(	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
	2.1	100	0.0050	0.79	, , , , , , , , , ,	Sheet Flow, Roof Flow
						Smooth surfaces n= 0.011 P2= 3.16"
	0.1	30	0.0150	5.56	4.36	Pipe Channel, Roof Drains
						12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
						n= 0.013 Corrugated PE, smooth interior
	0.2	101	0.0300	9.12	11.19	Pipe Channel, Garage Drains to Treatment
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
						n= 0.013 Corrugated PE, smooth interior
	2.4	231	Total			

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## **Subcatchment 1S: Area 1 (East)**



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## **Summary for Subcatchment 2S: Area 2 (West)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.25 cfs @ 11.99 hrs, Volume=

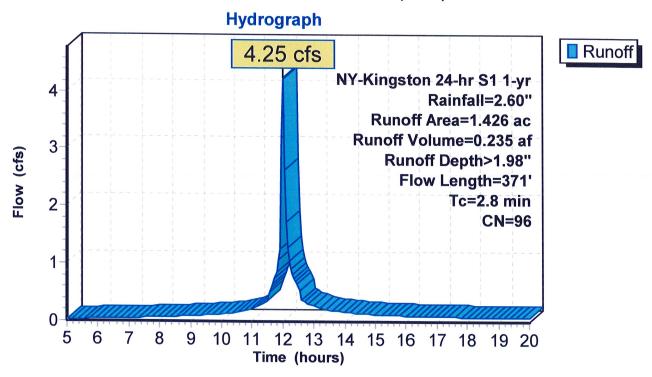
0.235 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

 Area	(ac) C	N Desc	cription		
0.752 98 Roofs, HSG B					
0.594 98		98 Pave	ed parking	HSG A	
0.	080			over, Good,	, HSG B
1.	426	96 Wei	hted Aver	age	
	080		% Perviou	•	
	346			ious Area	
Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
 2.1	100	0.0050	0.79	, , ,	Sheet Flow, Roof Flow
					Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.013 Corrugated PE, smooth interior
0.6	241	0.0189	7.24	8.88	Pipe Channel, Garage Drains to Treatment
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
2.8	371	Total			

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## Subcatchment 2S: Area 2 (West)



## Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

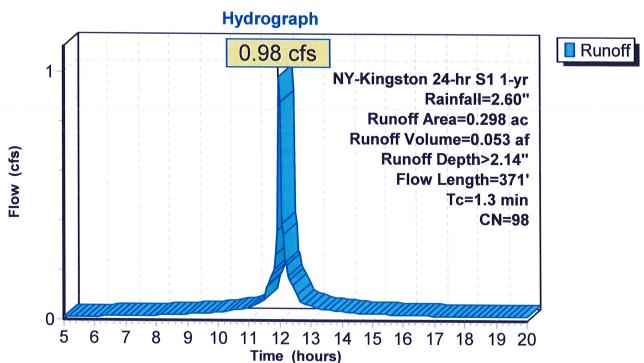
Runoff 0.98 cfs @ 11.97 hrs, Volume=

0.053 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

_	Area	(ac) C	N Desc	cription		
_	0.	298 9	8 Pave	ed roads w	/curbs & se	ewers, HSG B
	0.	298	100.	00% Impe	rvious Area	
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	0.5	50	0.0400	1.57		Sheet Flow,
	0.1	20	0.0650	5.18		Smooth surfaces n= 0.011 P2= 3.16"  Shallow Concentrated Flow, Flow to Existing CB  Paved Kv= 20.3 fps
	0.2	128	0.0470	8.73	10.71	Pipe Channel, Existing 15" Clay
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
	0.5	173	0.0100	6.24	19.61	Pipe Channel, Existing 24" to Analysis Point 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'
-	1.3	371	Total			n= 0.015

# **Subcatchment 3S: Area 3 (Lower Fair St.)**



#### **Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers**

[45] Hint: Runoff=Zero

Runoff

0.00 cfs @

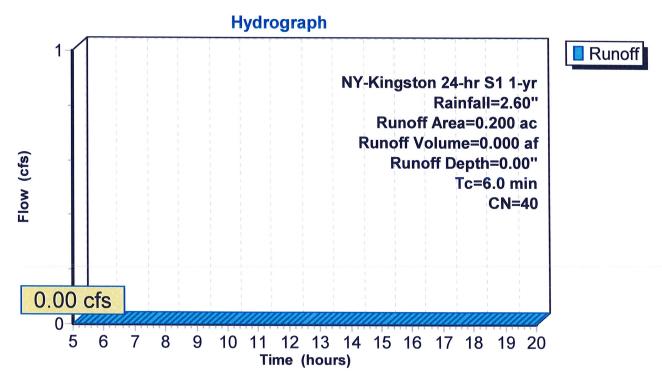
5.00 hrs, Volume=

0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

-	Area	(ac)	CN	Desc	cription		
*	0.	200	40	Poro	us Pavers		
	0.	200		100.	00% Pervi	ous Area	
_	Tc (min)	Leng (fe		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	6.0						Direct Entry, Extended Tc Due to Permeable Pavers

#### **Subcatchment 6S: Pedestrian Plaza Porous Pavers**



#### **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

Inflow Area =

2.670 ac, 83.71% Impervious, Inflow Depth > 1.63" for 1-yr event

Inflow =

6.63 cfs @ 11.99 hrs, Volume=

0.362 af

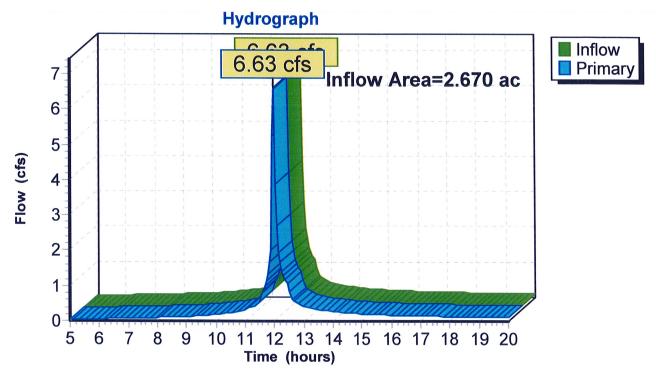
Primary =

6.63 cfs @ 11.99 hrs, Volume=

0.362 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



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## **Summary for Pond 6P: Porous Pavers**

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-yr event

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 175.00' @ 5.00 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Stora	ge Storage Description
#1	175.00'	0.233	af 40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0 0.582 af Overall x 40.0% Voids
Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	8.0" Round Culvert L= 70.0' Ke= 0.500
			Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900
"0	<b>5</b>	400.00	n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	12.0" Round Outlet Sewer L= 30.0' Ke= 0.500
			Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900
40	D : 0	400 501	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	<b>15.0"</b> Round <b>15"</b> City Sewers L= 213.0' Ke= 0.500
			Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900
			n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	24.0" Round 24" City Sewer to Analysis Point L= 88.0' Ke= 0.500
			Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900
			n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=175.00' (Free Discharge)

-1=Culvert (Passes 0.00 cfs of 3.22 cfs potential flow)

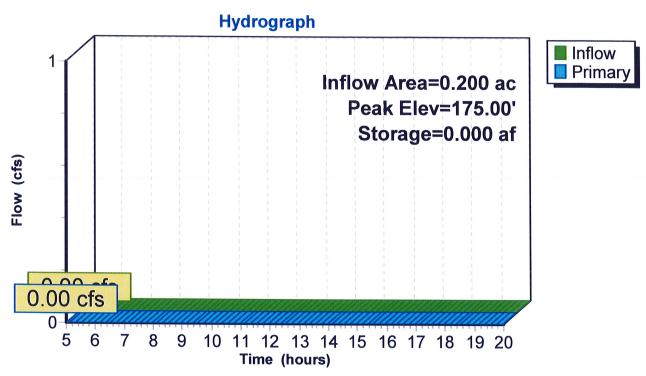
2=Outlet Sewer (Passes 0.00 cfs of 7.56 cfs potential flow)

3=15" City Sewers (Passes 0.00 cfs of 6.23 cfs potential flow)

T-4=24" City Sewer to Analysis Point (Passes 0.00 cfs of 29.31 cfs potential flow)

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**Pond 6P: Porous Pavers** 



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## **Summary for Pond 8P: Hydro Separator**

[57] Hint: Peaked at 152.58' (Flood elevation advised)

Inflow Area = 0.746 ac, 79.22% Impervious, Inflow Depth > 1.20" for 1-yr event

Inflow = 1.46 cfs @ 11.99 hrs, Volume= 0.074 af

Outflow = 1.46 cfs @ 11.99 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Primary = 1.46 cfs @ 11.99 hrs, Volume= 0.074 af

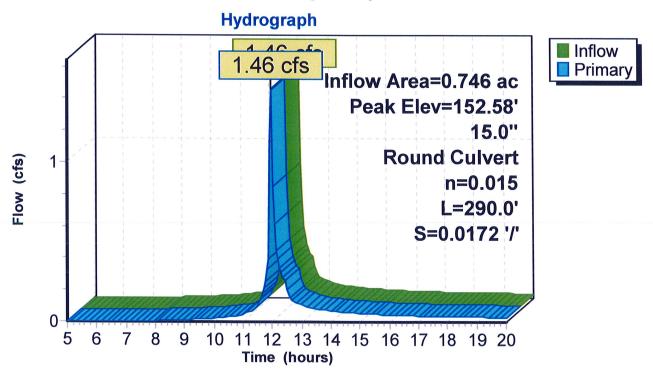
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 152.58' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	<b>15.0"</b> Round Outlet to Analysis Point L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015. Flow Area= 1.23 sf

Primary OutFlow Max=1.40 cfs @ 11.99 hrs HW=152.57' (Free Discharge) 1=Outlet to Analysis Point (Inlet Controls 1.40 cfs @ 2.57 fps)

### Pond 8P: Hydro Separator



## **Summary for Pond 9P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span [57] Hint: Peaked at 151.84' (Flood elevation advised)

Inflow Area = 1.426 ac, 94.39% Impervious, Inflow Depth > 1.98" for 1-yr event

Inflow = 4.25 cfs @ 11.99 hrs, Volume= 0.235 af

Outflow = 4.25 cfs @ 11.99 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

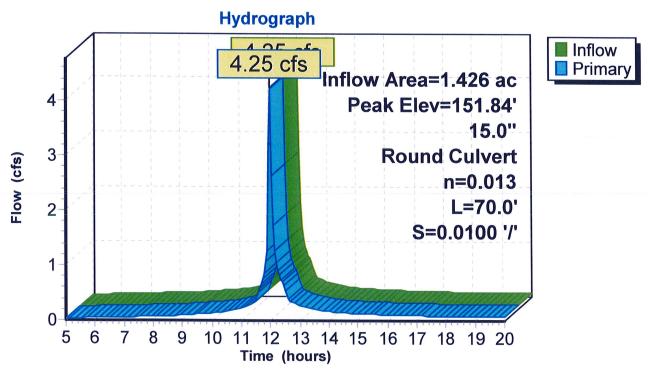
Primary = 4.25 cfs @ 11.99 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 151.84' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	15.0" Round Proposed Outlet to City Sewer
			L= 70.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900
			n= 0.013 Corrugated PE_smooth interior_Flow Area= 1.23 sf

Primary OutFlow Max=4.13 cfs @ 11.99 hrs HW=151.82' (Free Discharge)
1=Proposed Outlet to City Sewer (Barrel Controls 4.13 cfs @ 4.72 fps)

# Pond 9P: Hydro Separator



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NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

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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 1S: Area 1 (East)

Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>2.92"

Flow Length=231' Tc=2.4 min CN=86 Runoff=3.11 cfs 0.181 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>3.83"

Flow Length=371' Tc=2.8 min CN=96 Runoff=7.18 cfs 0.455 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>3.97"

Flow Length=371' Tc=1.3 min CN=98 Runoff=1.61 cfs 0.099 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>0.12"

Tc=6.0 min CN=40 Runoff=0.00 cfs 0.002 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=11.79 cfs 0.737 af

Primary=11.79 cfs 0.737 af

Pond 6P: Porous Pavers

Peak Elev=175.00' Storage=0.000 af Inflow=0.00 cfs 0.002 af

Outflow=0.00 cfs 0.002 af

Pond 8P: Hydro Separator

Peak Elev=152.91' Inflow=3.11 cfs 0.181 af

15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=3.11 cfs 0.181 af

Pond 9P: Hydro Separator

Peak Elev=152.91' Inflow=7.18 cfs 0.455 af

15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=7.18 cfs 0.455 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.737 af Average Runoff Depth = 3.31" 16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

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## **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

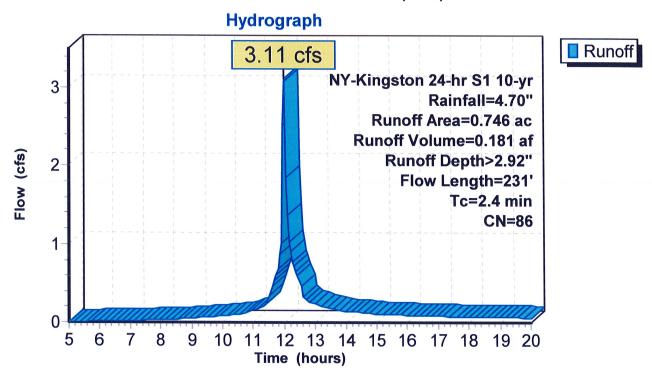
Runoff = 3.11 cfs @ 11.99 hrs, Volume=

0.181 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area	(ac)	CN Des	cription		
0	.503	98 Roo	fs, HSG B		
0	.088	98 Pave	ed parking	, HSG A	
0	.155			over, Good,	, HSG A
C	.746		ghted Avei		
Ċ	.155		8% Pervio	_	
C	.591	79.2	2% Imper	vious Area	
			•		
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
2.1	100	0.0050	0.79		Sheet Flow, Roof Flow
					Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	Pipe Channel, Roof Drains
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
2.4	23′	l Total			

## **Subcatchment 1S: Area 1 (East)**



# Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.18 cfs @ 11.99 hrs, Volume=

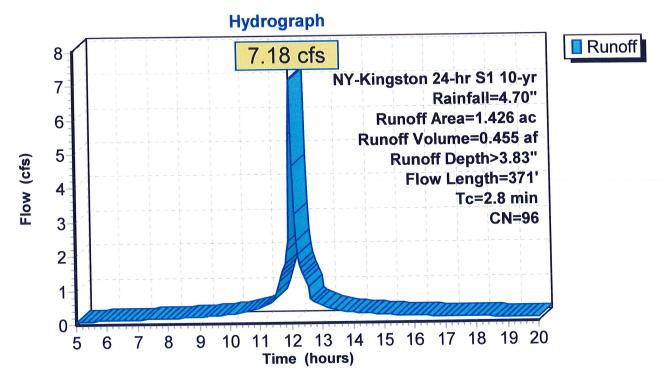
0.455 af, Depth> 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area	(ac)	CN Des	cription		
C	.752	98 Roo	fs, HSG B		
C	.594		ed parking	. HSG A	
C	080.0			over, Good	. HSG B
1	.426		ghted Aver		the state of the s
	0.080		% Perviou		
_	.346		39% Imper		
•		01.0	o /o imper	1000 / 1100	
Тс	Length	n Slope	Velocity	Capacity	Description
(min)	(feet	•	(ft/sec)	(cfs)	Description
2.1	100		0.79	(0.0)	Sheet Flow, Roof Flow
	100	0.0000	0.73		Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	Pipe Channel, Roof Drains
0.1	0(	0.0000	7.00	0.17	
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
0.6	24	0.0189	7.24	0 00	n= 0.013 Corrugated PE, smooth interior
0.0	24	0.0109	7.24	8.88	1
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
2.8	37 <sup>-</sup>	l Total			

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# Subcatchment 2S: Area 2 (West)



## **Summary for Subcatchment 3S: Area 3 (Lower Fair St.)**

[49] Hint: Tc<2dt may require smaller dt

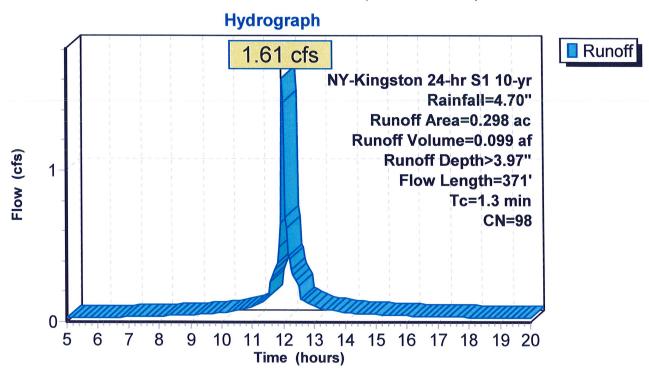
Runoff = 1.61 cfs @ 11.97 hrs, Volume=

0.099 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

_	Area	(ac) C	N Desc	cription					
	0.	298 9	8 Pave	ed roads w	/curbs & se	ewers, HSG B			
	0.	298	100.	00% Impe					
	Тс	Length	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	0.5	50	0.0400	1.57		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.16"			
	0.1	20	0.0650	5.18		Shallow Concentrated Flow, Flow to Existing CB			
						Paved Kv= 20.3 fps			
	0.2	128	0.0470	8.73	10.71	Pipe Channel, Existing 15" Clay			
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'			
						n= 0.017 Clay tile			
	0.5	173	0.0100	6.24	19.61	Pipe Channel, Existing 24" to Analysis Point			
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'			
-						n= 0.015			
	1.3	371	Total						

## **Subcatchment 3S: Area 3 (Lower Fair St.)**



# **Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers**

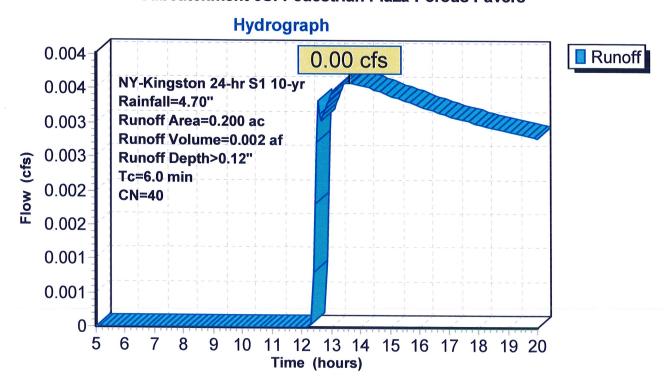
Runoff = 0.00 cfs @ 13.65 hrs, Volume=

0.002 af, Depth> 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

_	Area	(ac)	CN	Desc	cription		
*	0.	200	40	Poro	us Pavers		
	0.200 100.00% Pervious Area					ous Area	
	Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	6.0					(3.5)	Direct Entry, Extended Tc Due to Permeable Pavers

## **Subcatchment 6S: Pedestrian Plaza Porous Pavers**



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# **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

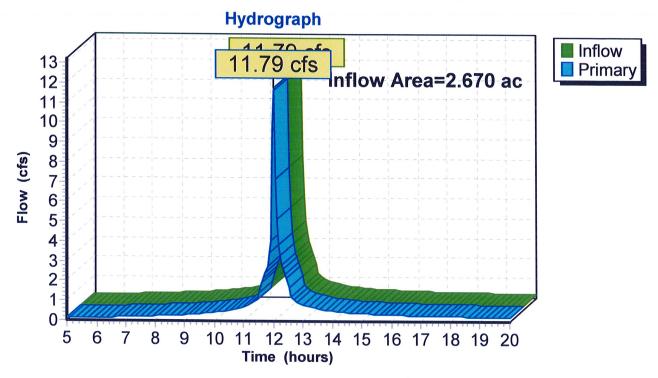
Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 3.31" for 10-yr event

Inflow = 11.79 cfs @ 11.99 hrs, Volume= 0.737 af

Primary = 11.79 cfs @ 11.99 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



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## **Summary for Pond 6P: Porous Pavers**

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 0.12" for 10-yr event

0.00 cfs @ 13.65 hrs, Volume= 0.002 af Inflow =

0.00 cfs @ 13.61 hrs, Volume= 0.00 cfs @ 13.61 hrs, Volume= Outflow 0.002 af, Atten= 0%, Lag= 0.0 min

Primary = 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 175.00' @ 13.61 hrs Surf Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.002 af (100% of inflow)

Center-of-Mass det. time= 0.3 min ( 964.9 - 964.7 )

Volume	Invert	Avail.Stora	ge Storage Description
#1	175.00'	0.233	af 40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0 0.582 af Overall x 40.0% Voids
Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	8.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900
#2	Device 1	163.00'	n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf  12.0" Round Outlet Sewer L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900
#3	Device 2	162.50'	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf 15.0" Round 15" City Sewers L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	24.0" Round 24" City Sewer to Analysis Point L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 13.61 hrs HW=175.00' (Free Discharge)

1=Culvert (Inlet Controls 3.22 cfs @ 9.22 fps)

-2=Outlet Sewer (Passes 3.22 cfs of 7.56 cfs potential flow)

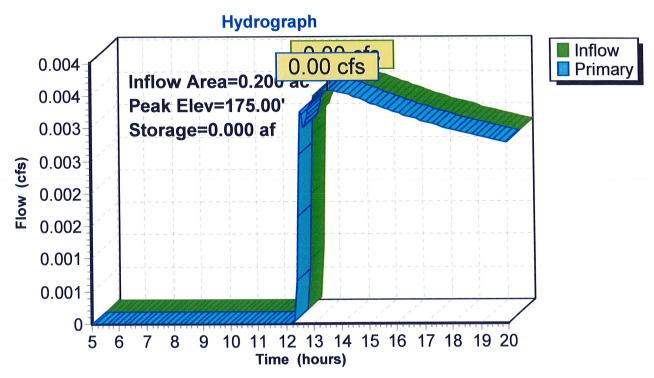
-3=15" City Sewers (Passes 3.22 cfs of 6.23 cfs potential flow)

-4=24" City Sewer to Analysis Point (Passes 3.22 cfs of 29.31 cfs potential flow)

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#### **Pond 6P: Porous Pavers**



### **Summary for Pond 8P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span

[57] Hint: Peaked at 152.91' (Flood elevation advised)

Inflow Area = 0.746 ac, 79.22% Impervious, Inflow Depth > 2.92" for 10-yr event

Inflow = 3.11 cfs @ 11.99 hrs, Volume= 0.181 af

Outflow = 3.11 cfs @ 11.99 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min

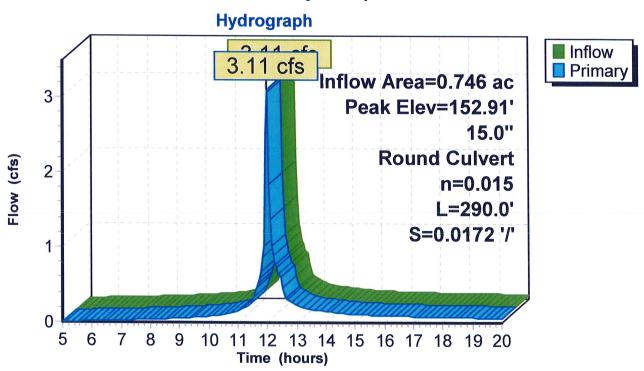
Primary = 3.11 cfs @ 11.99 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 152.91' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	<b>15.0"</b> Round Outlet to Analysis Point L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015. Flow Area= 1.23 sf

Primary OutFlow Max=2.98 cfs @ 11.99 hrs HW=152.89' (Free Discharge)
1=Outlet to Analysis Point (Inlet Controls 2.98 cfs @ 3.20 fps)

## Pond 8P: Hydro Separator



## **Summary for Pond 9P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span [57] Hint: Peaked at 152.91' (Flood elevation advised)

Inflow Area = 1.426 ac, 94.39% Impervious, Inflow Depth > 3.83" for 10-yr event

Inflow = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af

Outflow = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min

Primary = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af

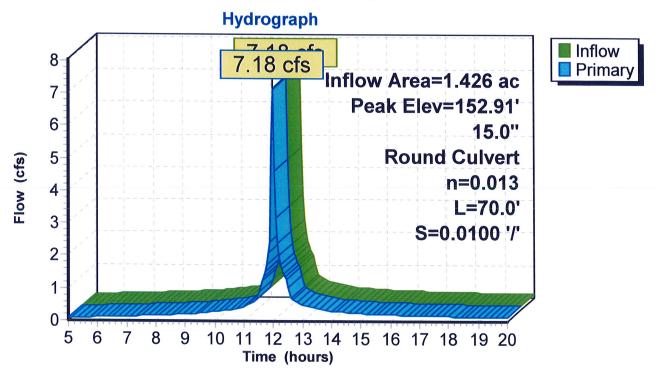
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 152.91' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices	
#1	Primary	150.70'	15.0" Round Proposed Outlet to City Sewer	
			L= 70.0' CPP, square edge headwall, Ke= 0.500	
			Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900	
			n= 0.013 Corrugated PE, smooth interior. Flow Area= 1.23 sf	

Primary OutFlow Max=6.98 cfs @ 11.99 hrs HW=152.82' (Free Discharge) 1=Proposed Outlet to City Sewer (Barrel Controls 6.98 cfs @ 5.69 fps)

## Pond 9P: Hydro Separator



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NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

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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 1S: Area 1 (East)

Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>3.94"

Flow Length=231' Tc=2.4 min CN=86 Runoff=4.02 cfs 0.245 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>4.86"

Flow Length=371' Tc=2.8 min CN=96 Runoff=8.76 cfs 0.578 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>4.99"

Flow Length=371' Tc=1.3 min CN=98 Runoff=1.95 cfs 0.124 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>0.36"

Tc=6.0 min CN=40 Runoff=0.02 cfs 0.006 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=14.60 cfs 0.953 af

Primary=14.60 cfs 0.953 af

**Pond 6P: Porous Pavers** 

Peak Elev=175.00' Storage=0.000 af Inflow=0.02 cfs 0.006 af

Outflow=0.02 cfs 0.006 af

Pond 8P: Hydro Separator

Peak Elev=153.09' Inflow=4.02 cfs 0.245 af

15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=4.02 cfs 0.245 af

Pond 9P: Hydro Separator

Peak Elev=153.72' Inflow=8.76 cfs 0.578 af

15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=8.76 cfs 0.578 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.953 af Average Runoff Depth = 4.28" 16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

#### **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

Runoff

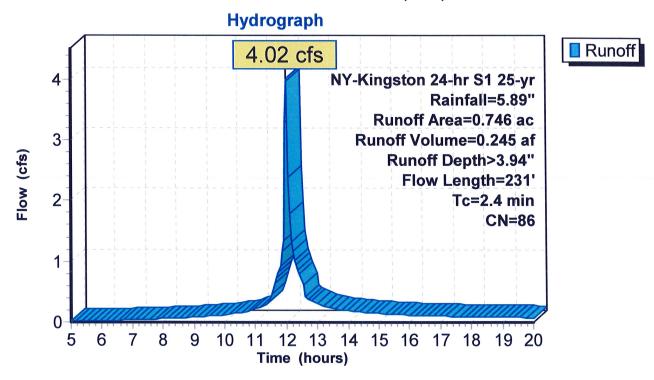
4.02 cfs @ 11.99 hrs, Volume= 0.245 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area	(ac) (	ON Desc	cription		
C	.503	98 Root	fs, HSG B		
C	.088	98 Pave	ed parking.	HSG A	
C	.155			over, Good	. HSG A
C	.746		ghted Aver		The state of the s
	.155		8% Pervio	•	
C	.591			ious Area	
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	•	(ft/sec)	(cfs)	2 3 3 3 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1
2.1	100		0.79	\	Sheet Flow, Roof Flow
		0.0000	0.70		Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	Pipe Channel, Roof Drains
•		0.0.00	0.00	1.00	12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	Pipe Channel, Garage Drains to Treatment
J. <b>_</b>		3.0000	0.12	11.10	15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
2.4	231	Total			ii o.oro oomagaaa i E, amootii iiitanoi

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## **Subcatchment 1S: Area 1 (East)**



# Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

Runoff

8.76 cfs @ 11.99 hrs, Volume=

0.578 af, Depth> 4.86"

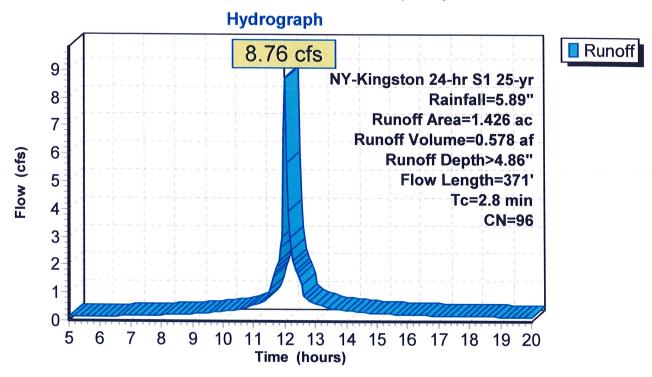
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

	Area	(ac) C	N Desc	cription		
	0.	752 9	8 Roof	s, HSG B		
	0.	594 9	8 Pave	ed parking,	HSG A	
	0.	080 6			over, Good,	, HSG B
	1.	426 9		ghted Aver		
	0.	080	•	% Perviou	•	
	1.	346	94.3	9% Imperv	ious Area	
	Тс	Length	Slope	Velocity	Capacity	Description
(	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.1	100	0.0050	0.79		Sheet Flow, Roof Flow
						Smooth surfaces n= 0.011 P2= 3.16"
	0.1	30	0.0300	7.86	6.17	Pipe Channel, Roof Drains
						12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
						n= 0.013 Corrugated PE, smooth interior
	0.6	241	0.0189	7.24	8.88	Pipe Channel, Garage Drains to Treatment
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
						n= 0.013 Corrugated PE, smooth interior
	2.8	371	Total			

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# Subcatchment 2S: Area 2 (West)



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### **Summary for Subcatchment 3S: Area 3 (Lower Fair St.)**

[49] Hint: Tc<2dt may require smaller dt

Runoff =

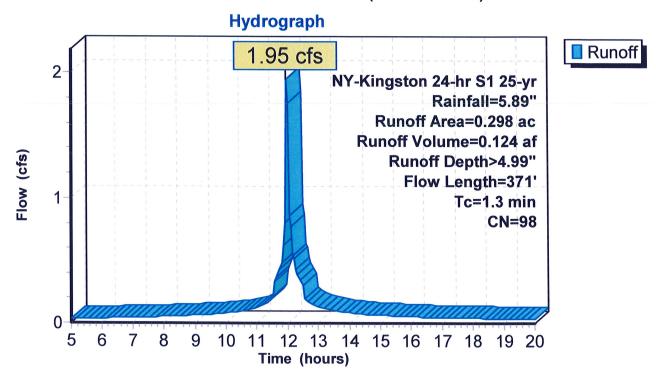
1.95 cfs @ 11.97 hrs, Volume=

0.124 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

_	Area	(ac) C	N Desc	cription					
	0.	298 9	8 Pave	ed roads w	/curbs & se	ewers, HSG B			
	0.	298	100.	100.00% Impervious Area					
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	0.5	50	0.0400	1.57		Sheet Flow,			
	0.1	20	0.0650	5.18		Smooth surfaces n= 0.011 P2= 3.16"  Shallow Concentrated Flow, Flow to Existing CB  Paved Kv= 20.3 fps			
	0.2	128	0.0470	8.73	10.71	•			
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile			
	0.5	173	0.0100	6.24	19.61	Pipe Channel, Existing 24" to Analysis Point 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'			
_	5					n= 0.015			
	1.3	371	Total						

# Subcatchment 3S: Area 3 (Lower Fair St.)



## **Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers**

Runoff

=

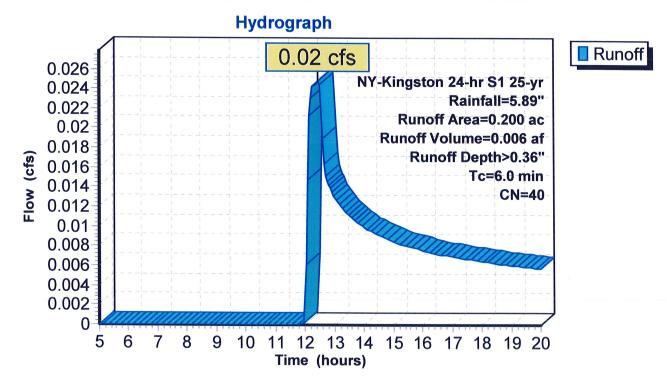
0.02 cfs @ 12.46 hrs, Volume=

0.006 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

-	Area	(ac)	CN	Desc	cription		
*	0.	200	40	Poro	us Pavers		
	0.	0.200 100.00% Pervious Area					
	Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	6.0	(100		(IUIL)	(IUSEC)	(013)	Direct Entry Extended Tc Due to Permeable Pavers

#### **Subcatchment 6S: Pedestrian Plaza Porous Pavers**



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### **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

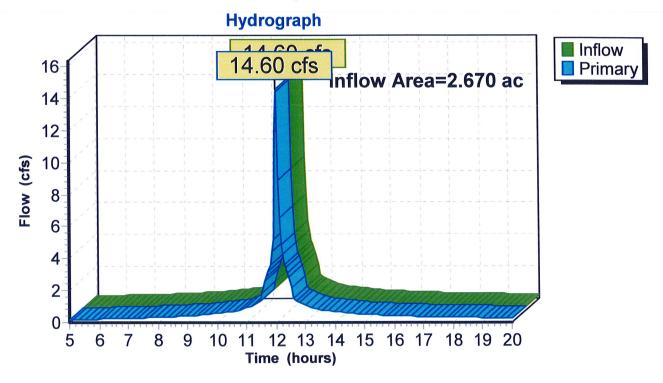
Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 4.28" for 25-yr event

Inflow = 14.60 cfs @ 11.99 hrs, Volume= 0.953 af

Primary = 14.60 cfs @ 11.99 hrs, Volume= 0.953 af, Atten= 0%, Lag= 0.0 min

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

**Pond 4P: Existing CB1A (Point of Analysis)** 



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#### **Summary for Pond 6P: Porous Pavers**

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 0.36" for 25-yr event

Inflow = 0.02 cfs @ 12.46 hrs, Volume= 0.006 af

Outflow = 0.02 cfs @ 12.50 hrs, Volume= 0.006 af, Atten= 0%, Lag= 2.7 min

Primary = 0.02 cfs @ 12.50 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 175.00' @ 12.50 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.006 af (100% of inflow)

Center-of-Mass det. time= 0.3 min ( 911.0 - 910.8 )

<u>Volume</u>	Invert	Avail.Stora	ge Storage Description
#1	175.00'	0.233	af 40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0 0.582 af Overall x 40.0% Voids
Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	8.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	<b>12.0"</b> Round Outlet Sewer L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	<b>15.0" Round 15" City Sewers</b> L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	<b>24.0"</b> Round <b>24"</b> City Sewer to Analysis Point L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 12.50 hrs HW=175.00' (Free Discharge)

1=Culvert (Inlet Controls 3.22 cfs @ 9.22 fps)

**2=Outlet Sewer** (Passes 3.22 cfs of 7.56 cfs potential flow)

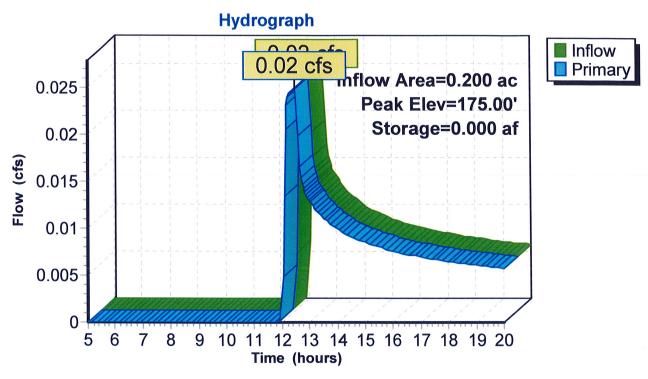
3=15" City Sewers (Passes 3.22 cfs of 6.23 cfs potential flow)

**4-24" City Sewer to Analysis Point** (Passes 3.22 cfs of 29.31 cfs potential flow)

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**Pond 6P: Porous Pavers** 



### **Summary for Pond 8P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span [57] Hint: Peaked at 153.09' (Flood elevation advised)

Inflow Area = 0.746 ac, 79.22% Impervious, Inflow Depth > 3.94" for 25-yr event

Inflow = 4.02 cfs @ 11.99 hrs, Volume= 0.245 af

Outflow = 4.02 cfs @ 11.99 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

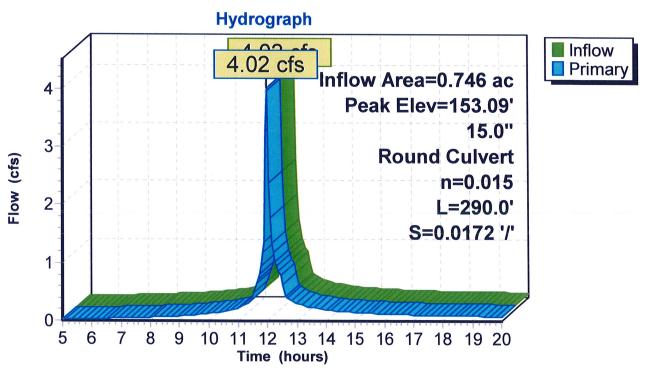
Primary = 4.02 cfs @ 11.99 hrs, Volume= 0.245 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 153.09' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	15.0" Round Outlet to Analysis Point L= 290.0' Ke= 0.500
			Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900
			n= 0.015, Flow Area= 1.23 sf

Primary OutFlow Max=3.84 cfs @ 11.99 hrs HW=153.05' (Free Discharge)
1=Outlet to Analysis Point (Inlet Controls 3.84 cfs @ 3.49 fps)

## Pond 8P: Hydro Separator



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### **Summary for Pond 9P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span [57] Hint: Peaked at 153.72' (Flood elevation advised)

Inflow Area = 1.426 ac, 94.39% Impervious, Inflow Depth > 4.86" for 25-yr event

Inflow = 8.76 cfs @ 11.99 hrs, Volume= 0.578 af

Outflow = 8.76 cfs @ 11.99 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.0 min

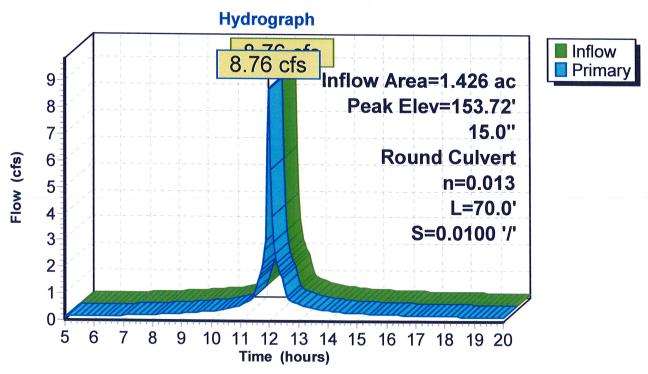
Primary = 8.76 cfs @ 11.99 hrs, Volume= 0.578 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 153.72' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	15.0" Round Proposed Outlet to City Sewer
			L= 70.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior. Flow Area= 1.23 sf

Primary OutFlow Max=8.53 cfs @ 11.99 hrs HW=153.60' (Free Discharge) 1=Proposed Outlet to City Sewer (Barrel Controls 8.53 cfs @ 6.95 fps)

### Pond 9P: Hydro Separator



### **PostDevelopment**

NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

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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 1S: Area 1 (East)

Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>6.06" Flow Length=231' Tc=2.4 min CN=86 Runoff=5.65 cfs 0.377 af

Subcatchment 2S: Area 2 (West)

Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>6.95" Flow Length=371' Tc=2.8 min CN=96 Runoff=11.62 cfs 0.826 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>7.05" Flow Length=371' Tc=1.3 min CN=98 Runoff=2.57 cfs 0.175 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>1.15"

Tc=6.0 min CN=40 Runoff=0.19 cfs 0.019 af

Pond 4P: Existing CB1A (Point of Analysis)

Inflow=19.78 cfs 1.397 af Primary=19.78 cfs 1.397 af

**Pond 6P: Porous Pavers** 

Peak Elev=175.00' Storage=0.000 af Inflow=0.19 cfs 0.019 af

Outflow=0.19 cfs 0.019 af

Pond 8P: Hydro Separator

Peak Elev=153.53' Inflow=5.65 cfs 0.377 af

15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=5.65 cfs 0.377 af

Pond 9P: Hydro Separator

Peak Elev=155.60' Inflow=11.62 cfs 0.826 af

15.0" Round Culvert n=0.013 L=70.0' S=0.0100'/ Outflow=11.62 cfs 0.826 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.397 af Average Runoff Depth = 6.28" 16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

# **Summary for Subcatchment 1S: Area 1 (East)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.65 cf

5.65 cfs @ 11.99 hrs, Volume=

0.377 af, Depth> 6.06"

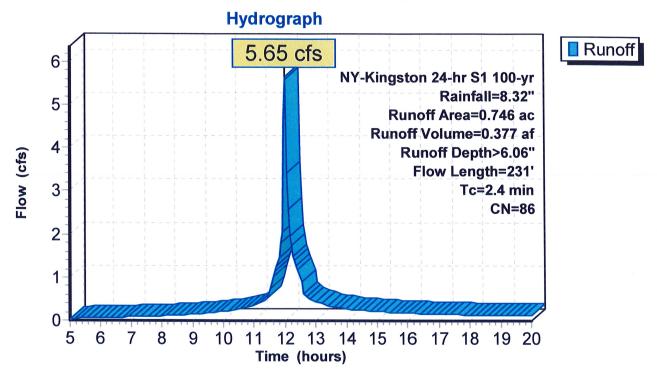
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Are	ea (ac	c) C	N Desc	cription		
	0.503 98 Roofs, HSG B			s, HSG B		
	0.08	8 9	8 Pave	ed parking	HSG A	
	0.15					HSG A
	0.155 39 >75% Grass cover, Good, F 0.746 86 Weighted Average					110071
	0.15			8% Pervio		
	0.59	71	79.2	2% Imper	nous Area	
т	- 1.	onath	Clone	Volonitu	Camaaik.	Description
		ength	Slope	Velocity	Capacity	Description
<u>(mir</u>		(feet)	(ft/ft)	(ft/sec)	(cfs)	
2.	.1	100	0.0050	0.79		Sheet Flow, Roof Flow
						Smooth surfaces n= 0.011 P2= 3.16"
0.	.1	30	0.0150	5.56	4.36	Pipe Channel, Roof Drains
						12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
						n= 0.013 Corrugated PE, smooth interior
٥	.2	101	0.0300	9.12	11.19	Pine Channel Carera Draine to Treatment
0.		101	0.0500	9.12	11.19	Pipe Channel, Garage Drains to Treatment
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
						n= 0.013 Corrugated PE, smooth interior
2.	.4	231	Total			

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# **Subcatchment 1S: Area 1 (East)**



#### **Summary for Subcatchment 2S: Area 2 (West)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 11.62 cfs

11.62 cfs @ 11.99 hrs, Volume=

0.826 af, Depth> 6.95"

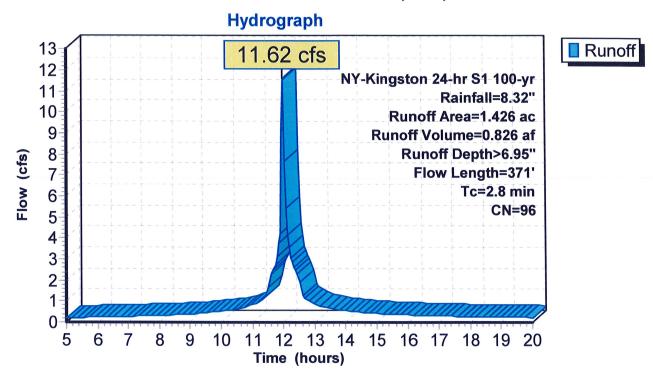
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area	(ac) (	ON Desc	cription				
0	.752	98 Roof	s, HSG B				
0	.594	98 Pave	ed parking,	HSG A			
0	.080.			over, Good	, HSG B		
1	1.426 96 Weighted Average						
C	.080.		% Perviou				
1	.346	94.3	9% Imperv	rious Area			
			•				
Tc	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
2.1	100	0.0050	0.79		Sheet Flow, Roof Flow		
					Smooth surfaces n= 0.011 P2= 3.16"		
0.1	30	0.0300	7.86	6.17	Pipe Channel, Roof Drains		
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'		
					n= 0.013 Corrugated PE, smooth interior		
0.6	241	0.0189	7.24	8.88	Pipe Channel, Garage Drains to Treatment		
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'		
					n= 0.013 Corrugated PE, smooth interior		
2.8	371	Total					

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### **Subcatchment 2S: Area 2 (West)**



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# Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

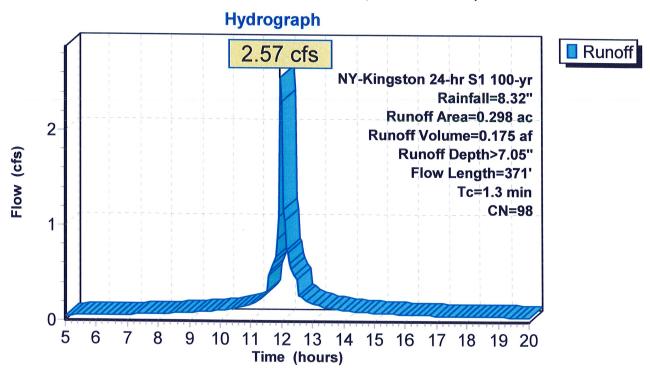
Runoff = 2.57 cfs @ 11.97 hrs, Volume=

0.175 af, Depth> 7.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

	Area	(ac) C	N Desc	cription		
	0.	298 9	8 Pave	ed roads w	/curbs & se	ewers, HSG B
0.298 100.00% Impervious Area						l
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	0.5	50	0.0400	1.57		Sheet Flow,
	0.1	20	0.0650	5.18		Smooth surfaces n= 0.011 P2= 3.16"  Shallow Concentrated Flow, Flow to Existing CB  Paved Kv= 20.3 fps
	0.2	128	0.0470	8.73	10.71	Pipe Channel, Existing 15" Clay
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
	0.5	173	0.0100	6.24	19.61	Pipe Channel, Existing 24" to Analysis Point
						24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
	1.3	371	Total			

# Subcatchment 3S: Area 3 (Lower Fair St.)



### **Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers**

Runoff

=

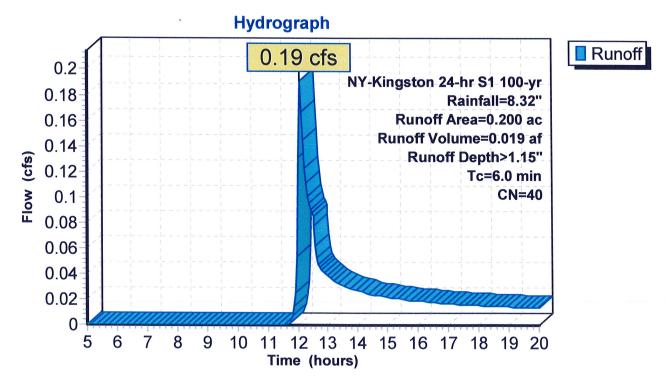
0.19 cfs @ 12.06 hrs, Volume=

0.019 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

_	Area	(ac)	CN	Desc	cription		
*	0.	200	40	Poro	us Pavers		
	0.	200		100.	00% Pervi	ous Area	
				Slope	•		Description
_	(min)	(fee	(t)	(ft/ft)	(ft/sec)	(cfs)	
	6.0						Direct Entry, Extended Tc Due to Permeable Pavers

#### **Subcatchment 6S: Pedestrian Plaza Porous Pavers**



# **Summary for Pond 4P: Existing CB1A (Point of Analysis)**

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

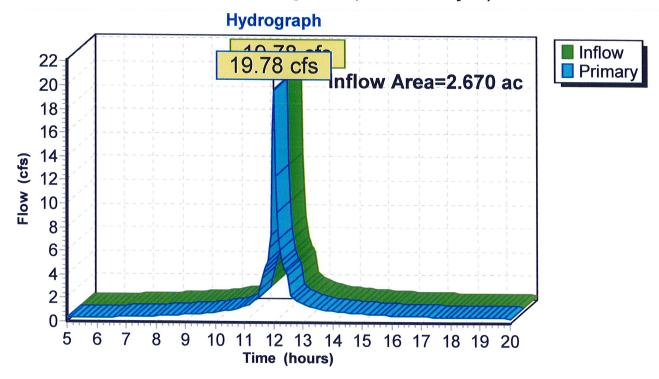
Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 6.28" for 100-yr event

Inflow = 19.78 cfs @ 11.99 hrs, Volume= 1.397 af

Primary = 19.78 cfs @ 11.99 hrs, Volume= 1.397 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



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### **Summary for Pond 6P: Porous Pavers**

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 1.15" for 100-yr event

Inflow = 0.19 cfs @ 12.06 hrs, Volume= 0.019 af

Outflow = 0.19 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 1%, Lag= 0.5 min

Primary = 0.19 cfs @ 12.07 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 175.00' @ 12.07 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.019 af (100% of inflow)

Center-of-Mass det. time= 0.3 min ( 868.3 - 867.9 )

Volume	Invert	Avail.Stora	ge Storage Description
#1	175.00'	0.233	af 40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0 0.582 af Overall x 40.0% Voids
Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	8.0" Round Culvert L= 70.0' Ke= 0.500
			Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	12.0" Round Outlet Sewer L= 30.0' Ke= 0.500
			Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900
40	D. 1. 0	400 501	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	
			Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900
	<b>D</b>	450 501	n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	<b>24.0"</b> Round <b>24"</b> City Sewer to Analysis Point L= 88.0' Ke= 0.500
			Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900
			n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 12.07 hrs HW=175.00' (Free Discharge)

1=Culvert (Inlet Controls 3.22 cfs @ 9.22 fps)

-2=Outlet Sewer (Passes 3.22 cfs of 7.57 cfs potential flow)

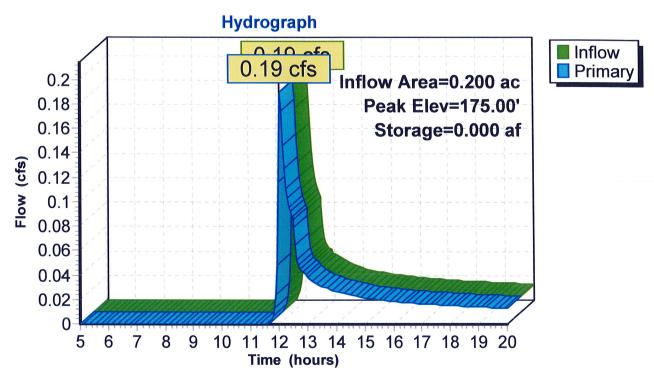
-3=15" City Sewers (Passes 3.22 cfs of 6.23 cfs potential flow)

T—4=24" City Sewer to Analysis Point (Passes 3.22 cfs of 29.31 cfs potential flow)

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#### **Pond 6P: Porous Pavers**



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## **Summary for Pond 8P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span

[57] Hint: Peaked at 153.53' (Flood elevation advised)

Inflow Area = 0.746 ac, 79.22% Impervious, Inflow Depth > 6.06" for 100-yr event

Inflow = 5.65 cfs @ 11.99 hrs, Volume= 0.377 af

Outflow = 5.65 cfs @ 11.99 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min

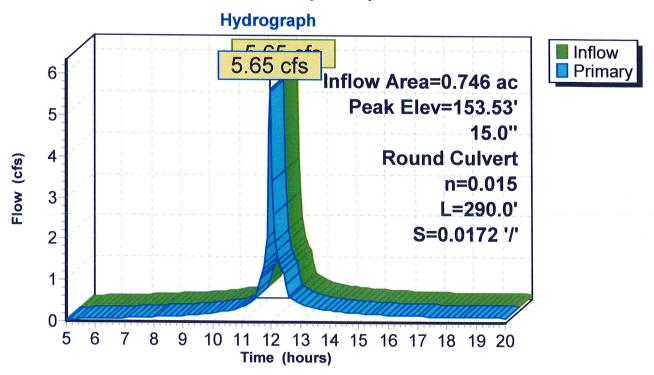
Primary = 5.65 cfs @ 11.99 hrs, Volume= 0.377 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Peak Elev= 153.53' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	15.0" Round Outlet to Analysis Point L= 290.0' Ke= 0.500
			Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900
			n= 0.015. Flow Area= 1.23 sf

Primary OutFlow Max=5.41 cfs @ 11.99 hrs HW=153.46' (Free Discharge)
1=Outlet to Analysis Point (Inlet Controls 5.41 cfs @ 4.41 fps)

### **Pond 8P: Hydro Separator**



### **Summary for Pond 9P: Hydro Separator**

[82] Warning: Early inflow requires earlier time span [57] Hint: Peaked at 155.60' (Flood elevation advised)

Inflow Area = 1.426 ac, 94.39% Impervious, Inflow Depth > 6.95" for 100-yr event

Inflow = 11.62 cfs @ 11.99 hrs, Volume= 0.826 af

Outflow 11.62 cfs @ 11.99 hrs, Volume= 0.826 af, Atten= 0%, Lag= 0.0 min

Primary 11.62 cfs @ 11.99 hrs, Volume= 0.826 af

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

Peak Elev= 155.60' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	15.0" Round Proposed Outlet to City Sewer
			L= 70.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior. Flow Area= 1.23 sf

**Primary OutFlow** Max=11.33 cfs @ 11.99 hrs HW=155.39' (Free Discharge) —1=Proposed Outlet to City Sewer (Barrel Controls 11.33 cfs @ 9.23 fps)

# Pond 9P: Hydro Separator

