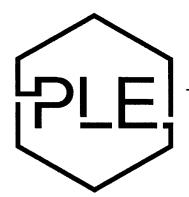
ABBY ROAD DEVELOPMENT DRAINAGE REPORT

LOCATED IN BRYANT, ARKANSAS

Prepared by:



PHILLIP LEWIS ENGINEERING

Structural + Civil Consultants

23620 Interstate 30 | Bryant, AR PH: 501-350-9840





PROJECT LOCATION MAP



PROJECT SUMMARY

The proposed project is for the construction of a new multi-use lease building Bryant, Arkansas.

The proposed development is for a 7,500 sq. ft. building and parking lot that will utilize curb/gutter and concrete/asphalt swales to direct stormwater to the designated detention basin.

The total development area is 34,280 sq. ft. (0.79 acres). A total area of 35,018 sq. ft. will be ultimately captured by the detention basin. Post-Devlopment conditions are split into two subcatchments, North and South. Both subcatchments are directed to and released into the detention basin in two locations.

Subcatchment Areas

	Pre-Development	North Subcatchment (Developed)	South Subcatchment (Developed)
Impervious Surface	16,008 sf	13,214 cf	10,570 sf
Pervious Surface	19,010 sf	3,559 sf	7,675 sf

A stormwater analysis was ran on the development using HydroCAD software. Stormwater calculations were setup and run for the 2, 5, 10, 25, 50, and 100-year storm event using the rational method.

The final release rate of the detention pond is controlled by a single 8" HDPE culvert, conforming to fill at the lowest elevation of the pond, and releasing to the existing storm drainage ditch on the west property line.

The results of the analysis for both pre-development and post-development, including the change in runoff volume and runoff rate, are shown below within the attached report.

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Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff

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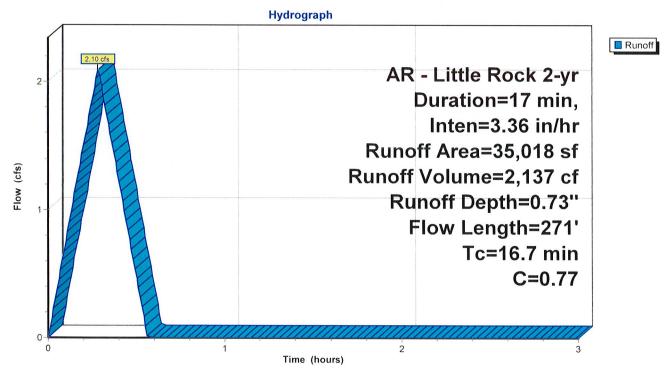
2.10 cfs @

0.28 hrs, Volume=

2,137 cf, Depth= 0.73"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 2-yr Duration=17 min, Inten=3.36 in/hr

A	rea (sf)	С	Description					
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B			
	4,305	0.98	Paved park	king, HSG E	3			
	11,703	0.96	Gravel surf	ace, HSG	В			
	35,018	0.77	Weighted A	Average				
	19,010		54.29% Pe	rvious Area	a			
	16,008		45.71% lm	pervious Ai	rea			
Tc	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property			
					Grass: Short n= 0.150 P2= 4.19"			
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel			
					Range n= 0.130 P2= 4.19"			
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass			
			***************************************		Grass: Short n= 0.150 P2= 4.19"			
16.7	271	Total						



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Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff

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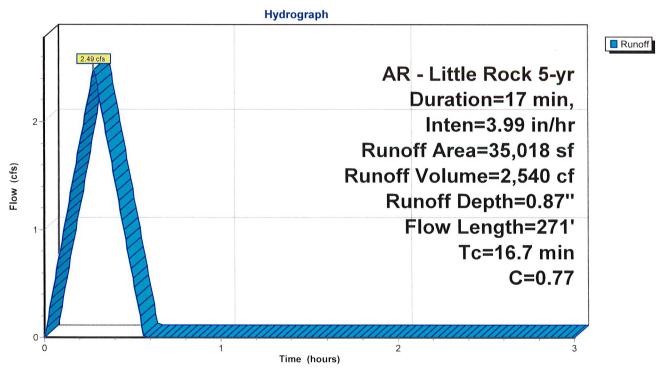
2.49 cfs @

0.28 hrs, Volume=

2,540 cf, Depth= 0.87"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 5-yr Duration=17 min, Inten=3.99 in/hr

	rea (sf)	С	Description					
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B			
	4,305	0.98	Paved park	king, HSG E	3			
	11,703	0.96	Gravel surf	ace, HSG I	В			
	35,018	0.77	Weighted A	Average				
	19,010		54.29% Pe	rvious Area	a			
	16,008	,	45.71% lm	pervious Ai	rea			
Tc	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property			
					Grass: Short n= 0.150 P2= 4.19"			
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel			
					Range n= 0.130 P2= 4.19"			
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass			
	WINDOWS			***************************************	Grass: Short n= 0.150 P2= 4.19"			
16.7	271	Total						



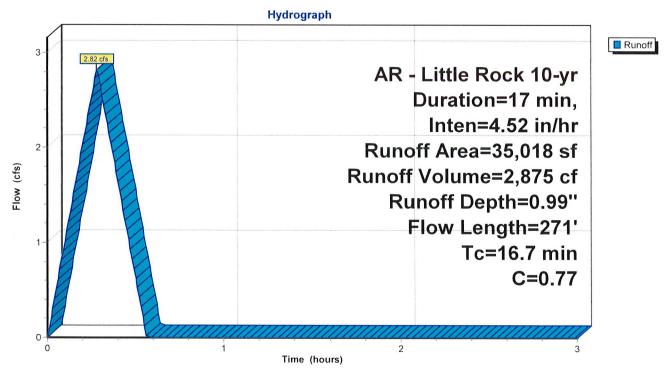
Page 6

Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff = 2.82 cfs @ 0.28 hrs, Volume= 2,875 cf, Depth= 0.99"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 10-yr Duration=17 min, Inten=4.52 in/hr

A	rea (sf)	C	Description	1	
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B
	4,305	0.98	Paved park	king, HSG E	3
	11,703	0.96	Gravel surf	ace, HSG I	В
	35,018	0.77	Weighted A	verage	
	19,010		54.29% Pe	rvious Area	a
	16,008		45.71% lm	pervious Ai	rea
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property
					Grass: Short n= 0.150 P2= 4.19"
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel
					Range n= 0.130 P2= 4.19"
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass
					Grass: Short n= 0.150 P2= 4.19"
16.7	271	Total			



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Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff

=

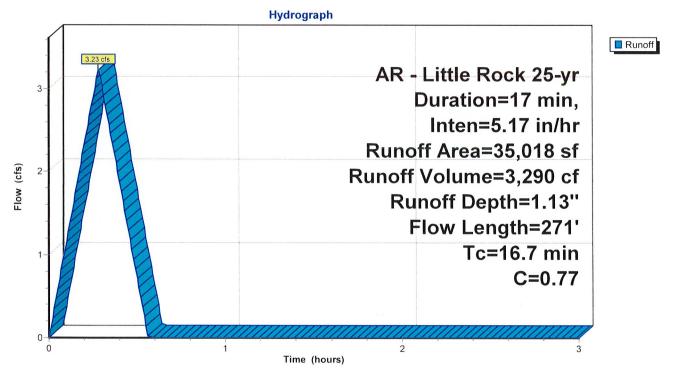
3.23 cfs @

0.28 hrs, Volume=

3,290 cf, Depth= 1.13"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 25-yr Duration=17 min, Inten=5.17 in/hr

A	rea (sf)	С	Description		
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B
	4,305	0.98	Paved park	ing, HSG E	3
	11,703	0.96	Gravel surf	ace, HSG I	В
	35,018	0.77	Weighted A	verage	
	19,010			rvious Area	a a constant of the constant o
	16,008		45.71% lm	pervious Ar	rea
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property
					Grass: Short n= 0.150 P2= 4.19"
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel
					Range n= 0.130 P2= 4.19"
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass
					Grass: Short n= 0.150 P2= 4.19"
16.7	271	Total			



Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff

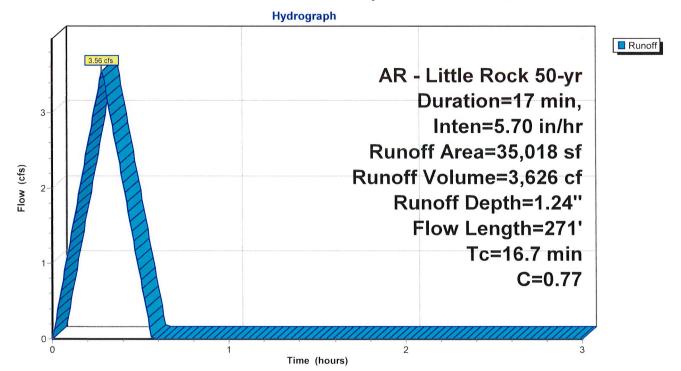
3.56 cfs @

0.28 hrs, Volume=

3,626 cf, Depth= 1.24"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 50-yr Duration=17 min, Inten=5.70 in/hr

A	rea (sf)	С	C Description					
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B			
	4,305	0.98	Paved park	king, HSG E	3			
	11,703	0.96	Gravel surf	ace, HSG I	В			
	35,018	0.77	Weighted A	Average				
	19,010		0	rvious Area	3			
	16,008		45.71% lm	pervious Ar	rea			
Tc	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property			
					Grass: Short n= 0.150 P2= 4.19"			
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel			
					Range n= 0.130 P2= 4.19"			
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass			
					Grass: Short n= 0.150 P2= 4.19"			
16.7	271	Total						



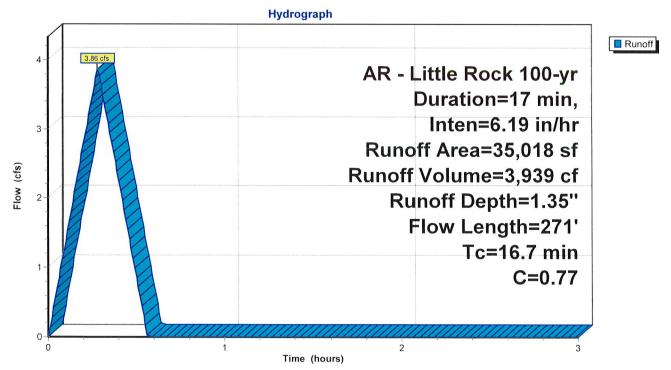
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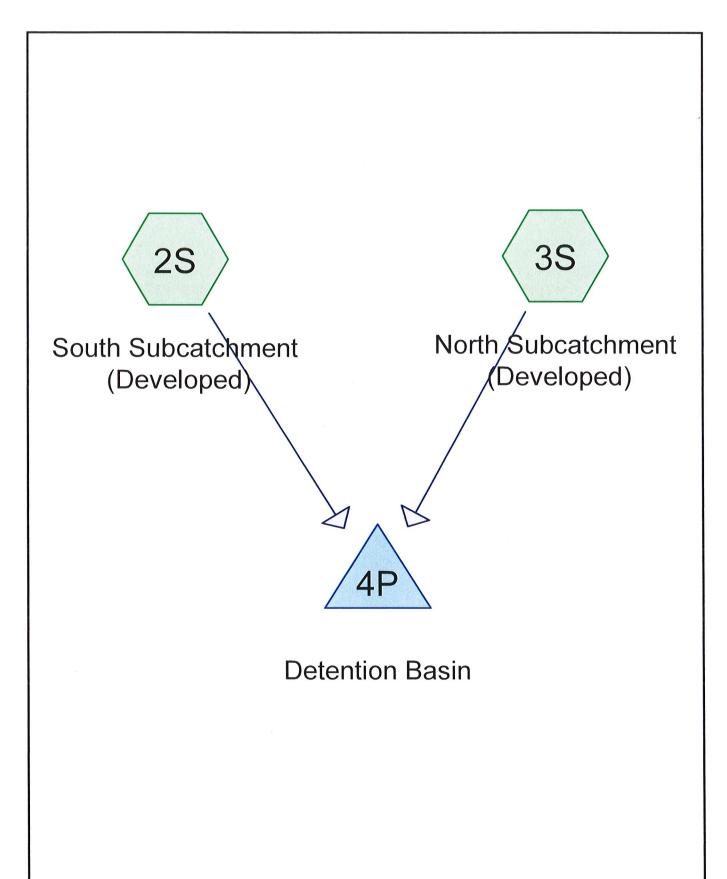
Summary for Subcatchment 1S: Pre-Development Subcatchment

Runoff = 3.86 cfs @ 0.28 hrs, Volume= 3,939 cf, Depth= 1.35"

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 100-yr Duration=17 min, Inten=6.19 in/hr

A	rea (sf)	С	Description	1	
	19,010	0.61	>75% Gras	s cover, G	ood, HSG B
	4,305			king, HSG E	
	11,703	0.96	Gravel surf	ace, HSG I	В
	35,018	0.77	Neighted A	Average	
	19,010		_	rvious Area	a
	16,008	4	45.71% lm	pervious Ar	rea
Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.5	11	0.3400	0.39		Sheet Flow, Sheet Flow from Adjacent Property
					Grass: Short n= 0.150 P2= 4.19"
8.0	140	0.0350	0.29		Sheet Flow, Sheet Flow across gravel
					Range n= 0.130 P2= 4.19"
8.2	120	0.0325	0.25		Sheet Flow, Sheet Flow across grass
					Grass: Short n= 0.150 P2= 4.19"
16.7	271	Total			













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Area Listing (selected nodes)

Area (sq-ft)	С	Description (subcatchment-numbers)
11,234	0.61	>75% Grass cover, Good, HSG B (2S, 3S)
16,284	0.98	Paved parking, HSG B (2S, 3S)
7,500	0.98	Roofs, HSG B (3S)
35,018	0.86	TOTAL AREA

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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment

Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=0.78" Flow Length=224' Tc=3.4 min C=0.82 Runoff=1.16 cfs 1,184 cf

Subcatchment 3S: North Subcatchment

Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=0.86" Flow Length=249' Tc=3.6 min C=0.90 Runoff=1.17 cfs 1,197 cf

Pond 4P: Detention Basin

Peak Elev=395.09' Storage=978 cf Inflow=2.34 cfs 2,381 cf 8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=1.76 cfs 2,350 cf

Total Runoff Area = 35,018 sf Runoff Volume = 2,381 cf Average Runoff Depth = 0.82" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.16 cfs @ 0.06 hrs, Volume=

1,184 cf, Depth= 0.78"

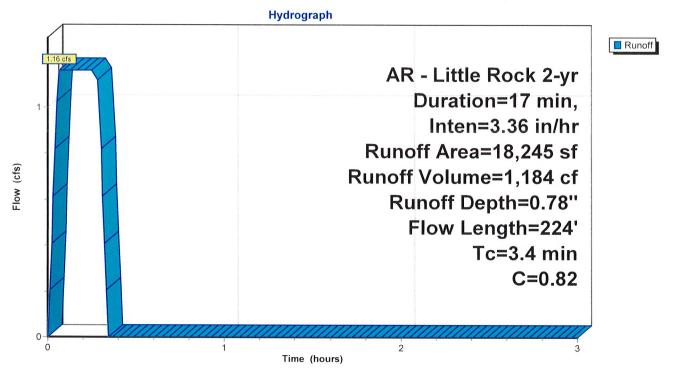
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 2-yr Duration=17 min, Inten=3.36 in/hr

Aı	rea (sf)	С	Description)		
•	7,675 10,570		>75% Gras Paved park		ood, HSG B 3	
	18,245 7,675 10,570		Weighted Average 42.07% Pervious Area 57.93% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	•	Capacity (cfs)	Description	
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property Grass: Short n= 0.150 P2= 4.19"	
0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter Smooth surfaces n= 0.011 P2= 4.19"	
0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South Parl Paved Kv= 20.3 fps	
0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parking a Paved Kv= 20.3 fps	
0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale Paved Kv= 20.3 fps	
3.4	224	Total				

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff =

1.17 cfs @

0.06 hrs, Volume=

1,197 cf, Depth= 0.86"

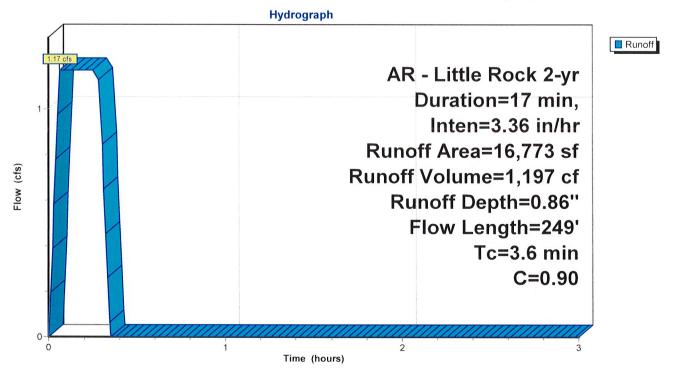
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 2-yr Duration=17 min, Inten=3.36 in/hr

	Α	rea (sf)	С	Description	1	
-		3,559	0.61	>75% Gras	ss cover, G	ood, HSG B
		5,714	0.98	Paved park	king, HSG E	3
_		7,500	0.98	Roofs, HS	G B	
		16,773	0.90	Weighted A		
		3,559			ervious Area	
		13,214		78.78% lm	pervious Ai	rea
	Тс	Length	Slope	· Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	•	(cfs)	Description
	1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property
						Grass: Short n= 0.150 P2= 4.19"
	1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter
						Smooth surfaces n= 0.011 P2= 4.19"
	0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Par
	0.7	0.4	0.0446	0.40		Paved Kv= 20.3 fps
	0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale
	0.5	68	0.0110	2.13		Paved Kv= 20.3 fps Shallow Concentrated Flow, Concrete Flume From North Parki
٠	0.5	00	0.0110	2.13		Paved Kv= 20.3 fps
-	3.6	249	Total			

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Subcatchment 3S: North Subcatchment (Developed)



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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 0.82" for 2-yr event

Inflow = 2.34 cfs @ 0.06 hrs, Volume= 2,381 cf

Outflow = 1.76 cfs @ 0.30 hrs, Volume= 2,350 cf, Atten= 25%, Lag= 14.3 min

Primary = 1.76 cfs @ 0.30 hrs, Volume= 2,350 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 395.09' @ 0.30 hrs Storage= 978 cf

Plug-Flow detention time= 7.2 min calculated for 2,342 cf (98% of inflow)

Center-of-Mass det. time= 7.3 min (17.5 - 10.3)

Volume	Invert	Avail.Storage	Storage Description
#1	393.50'	2,553 cf	Custom Stage Data Listed below

Elevation	Cum.Store
(feet)	(cubic-feet)
393.50	0
394.00	96
394.50	462
395.00	890
395.50	1,381
396.00	1,935
396.50	2,553

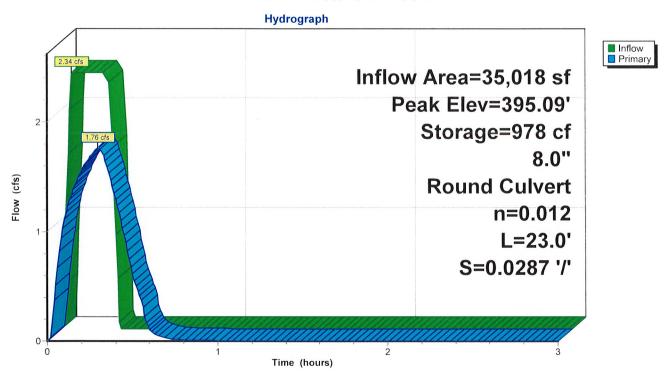
Jevice	Routing	invert	Outlet Devices
#1	Primary	393.66'	8.0" Round Culvert

L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

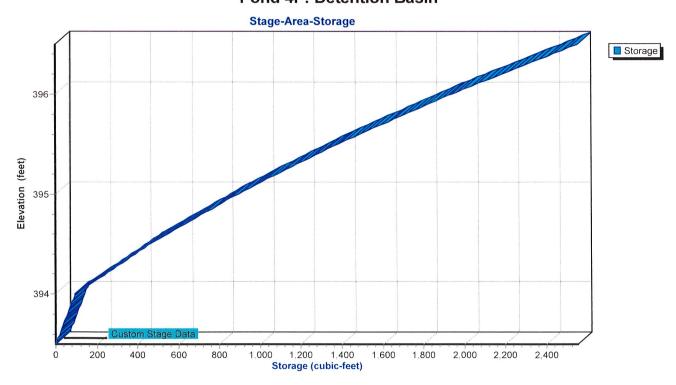
Primary OutFlow Max=1.76 cfs @ 0.30 hrs HW=395.09' (Free Discharge)
1=Culvert (Inlet Controls 1.76 cfs @ 5.04 fps)

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Pond 4P: Detention Basin



Pond 4P: Detention Basin



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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=0.93"

Flow Length=224' Tc=3.4 min C=0.82 Runoff=1.38 cfs 1,407 cf

Subcatchment 3S: North Subcatchment Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=1.02"

Flow Length=249' Tc=3.6 min C=0.90 Runoff=1.39 cfs 1,422 cf

Pond 4P: Detention Basin

Peak Elev=395.37' Storage=1,251 cf Inflow=2.78 cfs 2,829 cf
8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=1.97 cfs 2,798 cf

Total Runoff Area = 35,018 sf Runoff Volume = 2,829 cf Average Runoff Depth = 0.97" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff =

1.38 cfs @

0.06 hrs, Volume=

1,407 cf, Depth= 0.93"

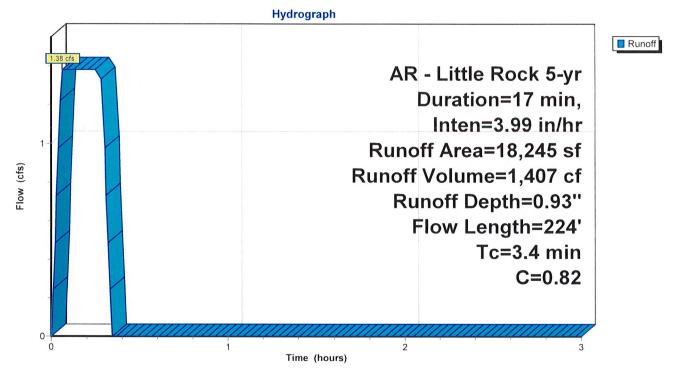
Routed to Pond 4P : Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 5-yr Duration=17 min, Inten=3.99 in/hr

					· ·		
Α	rea (sf)	С	Description	า			
	7,675	0.61	>75% Gras	5% Grass cover, Good, HSG B			
	10,570	0.98		king, HSG E	· ·		
·	18,245	0.82	Weighted /				
	7,675		_	rvious Area	a		
	10,570			pervious A			
	,						
Tc	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property		
					Grass: Short n= 0.150 P2= 4.19"		
0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter		
					Smooth surfaces n= 0.011 P2= 4.19"		
0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South P		
					Paved Kv= 20.3 fps		
0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parking		
					Paved Kv= 20.3 fps		
0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale		
					Paved Kv= 20.3 fps		
34	224	Total					

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.39 cfs @ 0.06 hrs, Volume=

1,422 cf, Depth= 1.02"

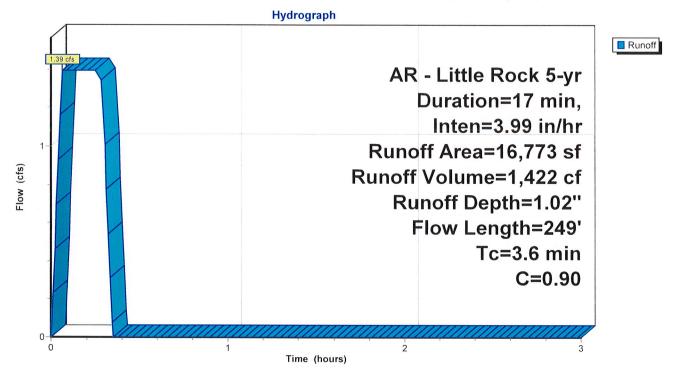
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 5-yr Duration=17 min, Inten=3.99 in/hr

A	rea (sf)	С	Description	1					
	3,559	0.61	>75% Gras	5% Grass cover, Good, HSG B					
	5,714	0.98	Paved park		3				
	7,500	0.98	Roofs, HS	G B					
	16,773	0.90	Weighted A	_					
	3,559		21.22% Pe						
	13,214		78.78% lm	pervious Ai	rea				
Tc	Longth	Slope	\/olooity	Canacity	Description				
(min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description				
1.1	25	0.2200		(013)	Sheet Flow, Sheet Flow from adjacent property				
1.1	20	0.2200	0.36		Grass: Short n= 0.150 P2= 4.19"				
1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter				
		0.00	· · · · ·		Smooth surfaces n= 0.011 P2= 4.19"				
0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Parl				
					Paved Kv= 20.3 fps				
0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale				
					Paved Kv= 20.3 fps				
0.5	68	0.0110	2.13		Shallow Concentrated Flow, Concrete Flume From North Parkii				
					Paved Kv= 20.3 fps				
3.6	249	Total							

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Subcatchment 3S: North Subcatchment (Developed)



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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 0.97" for 5-yr event Inflow = 2,829 cf

Outflow = 1.97 cfs @ 0.30 hrs, Volume= 2,798 cf, Atten= 29%, Lag= 14.4 min

Primary = 1.97 cfs @ 0.30 hrs, Volume= 2.798 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs Peak Elev= 395.37' @ 0.30 hrs Storage= 1,251 cf

Plug-Flow detention time= 8.0 min calculated for 2,789 cf (99% of inflow)

Center-of-Mass det. time= 8.1 min (18.3 - 10.3)

Volume	Invert	Avail.Storage	Storage Description
#1	393.50'	2,553 cf	Custom Stage Data Listed below
Elevation (feet)	Cum.St (cubic-fe		
393.50		0	
394.00		96	
394.50	4	462	
395.00	8	390	
395.50	1,3	381	
396.00	1,9	935	
396.50	2,5	553	

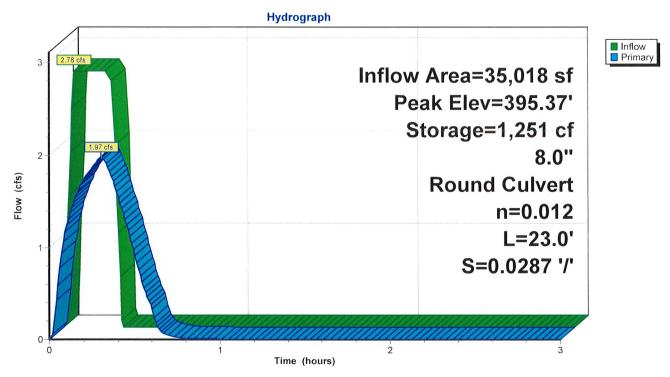
Device	Routing	Invert	Outlet Devices
#1	Primary	393.66'	8.0" Round Culvert

L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

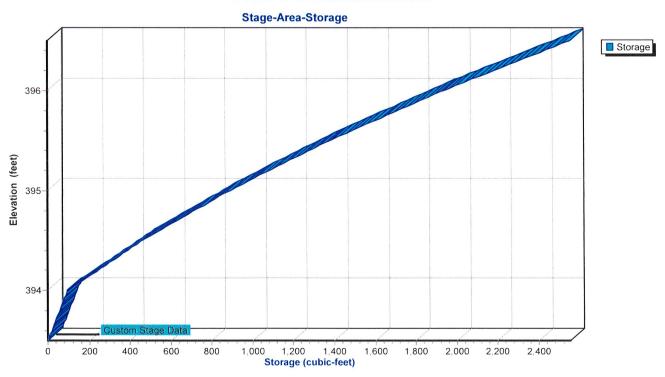
Primary OutFlow Max=1.97 cfs @ 0.30 hrs HW=395.37' (Free Discharge) 1=Culvert (Inlet Controls 1.97 cfs @ 5.64 fps)

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Pond 4P: Detention Basin



Pond 4P: Detention Basin



AR - Little Rock 10-yr Duration=17 min, Inten=4.52 in/hr

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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment

Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=1.05" Flow Length=224' Tc=3.4 min C=0.82 Runoff=1.56 cfs 1,593 cf

Subcatchment 3S: North Subcatchment

Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=1.15" Flow Length=249' Tc=3.6 min C=0.90 Runoff=1.58 cfs 1,610 cf

Pond 4P: Detention Basin

Peak Elev=395.60' Storage=1,489 cf Inflow=3.14 cfs 3,203 cf 8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=2.13 cfs 3,172 cf

Total Runoff Area = 35,018 sf Runoff Volume = 3,203 cf Average Runoff Depth = 1.10" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.56 cfs @ 0.06 hrs, Volume=

1,593 cf, Depth= 1.05"

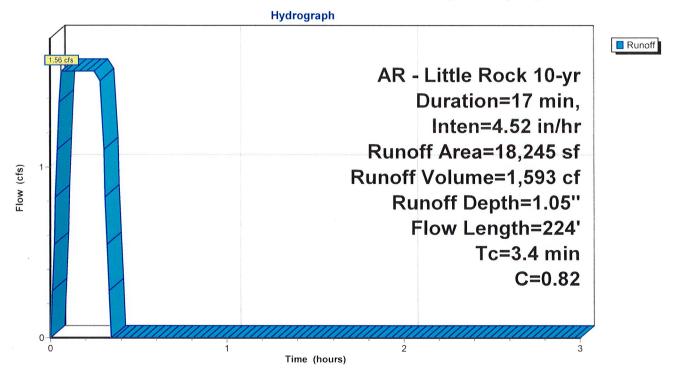
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 10-yr Duration=17 min, Inten=4.52 in/hr

A	rea (sf)	С	Description	1				
	7,675	0.61	>75% Gras	75% Grass cover, Good, HSG B				
	10,570	0.98		aved parking, HSG B				
	18,245	0.82	Weighted /					
	7,675		42.07% Pe					
	10,570		57.93% lm	pervious A	rea			
Тс	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	•	(cfs)				
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property			
					Grass: Short n= 0.150 P2= 4.19"			
0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter			
					Smooth surfaces n= 0.011 P2= 4.19"			
0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South Parl			
					Paved Kv= 20.3 fps			
0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parking a			
					Paved Kv= 20.3 fps			
0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale			
					Paved Kv= 20.3 fps			
3.4	224	Total						

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.58 cfs @ 0.06 hrs, Volume=

1,610 cf, Depth= 1.15"

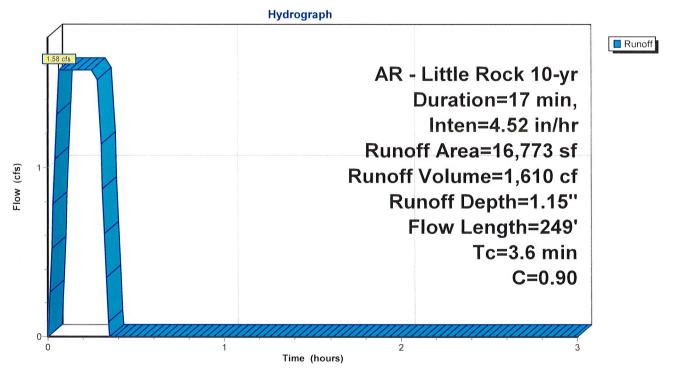
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 10-yr Duration=17 min, Inten=4.52 in/hr

	Α	rea (sf)	С	Description	1					
_		3,559	0.61	>75% Gras	5% Grass cover, Good, HSG B					
		5,714	0.98	Paved parl	ved parking, HSG B					
		7,500	0.98	Roofs, HS	G B					
		16,773	0.90	Weighted /	Average					
		3,559		21.22% Pe	rvious Area	a				
		13,214		78.78% lm	pervious A	rea				
	Tc	Length	Slope	,	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property				
						Grass: Short n= 0.150 P2= 4.19"				
	1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter				
						Smooth surfaces n= 0.011 P2= 4.19"				
	0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Par				
						Paved Kv= 20.3 fps				
	0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale				
						Paved Kv= 20.3 fps				
	0.5	68	0.0110	2.13		Shallow Concentrated Flow, Concrete Flume From North Parki				
_						Paved Kv= 20.3 fps				
	3.6	249	Total							

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Subcatchment 3S: North Subcatchment (Developed)



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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 1.10" for 10-yr event

Inflow = 3.14 cfs @ 0.06 hrs, Volume= 3,203 cf

Outflow = 2.13 cfs @ 0.30 hrs, Volume= 3,172 cf, Atten= 32%, Lag= 14.5 min

Primary = 2.13 cfs @ 0.30 hrs, Volume= 3,172 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 395.60' @ 0.30 hrs Storage= 1,489 cf

Plug-Flow detention time= 8.6 min calculated for 3,162 cf (99% of inflow)

Center-of-Mass det. time= 8.7 min (19.0 - 10.3)

<u>Volume</u>	Invert	Avail.Storage	Storage Description
#1	393.50'	2,553 cf	Custom Stage Data Listed below

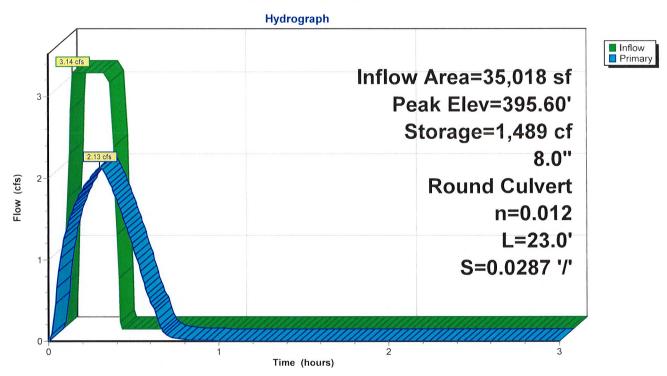
Elevation	Cum.Store
(feet)	(cubic-feet)
393.50	0
394.00	96
394.50	462
395.00	890
395.50	1,381
396.00	1,935
396.50	2,553

Jevice	Routing	invert	Outlet Devices
#1	Primary	393.66'	8.0" Round Culvert

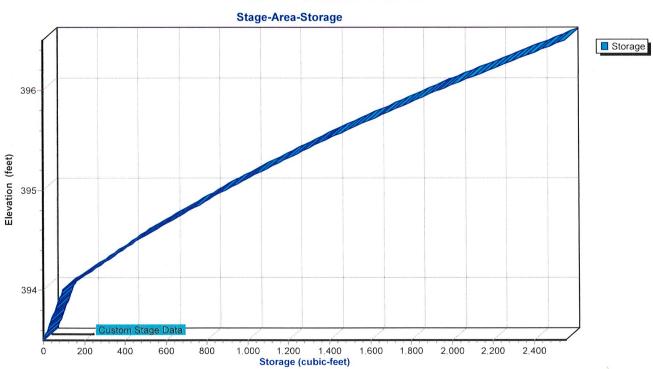
L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.13 cfs @ 0.30 hrs HW=395.60' (Free Discharge) 1=Culvert (Inlet Controls 2.13 cfs @ 6.10 fps)

Pond 4P: Detention Basin



Pond 4P: Detention Basin



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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment

Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=1.20" Flow Length=224' Tc=3.4 min C=0.82 Runoff=1.79 cfs 1,823 cf

Subcatchment 3S: North Subcatchment

Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=1.32" Flow Length=249' Tc=3.6 min C=0.90 Runoff=1.81 cfs 1,842 cf

Pond 4P: Detention Basin

Peak Elev=395.88' Storage=1,799 cf Inflow=3.60 cfs 3,666 cf 8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=2.31 cfs 3,635 cf

Total Runoff Area = 35,018 sf Runoff Volume = 3,666 cf Average Runoff Depth = 1.26" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.79 cfs @ 0.06 hrs, Volume=

1,823 cf, Depth= 1.20"

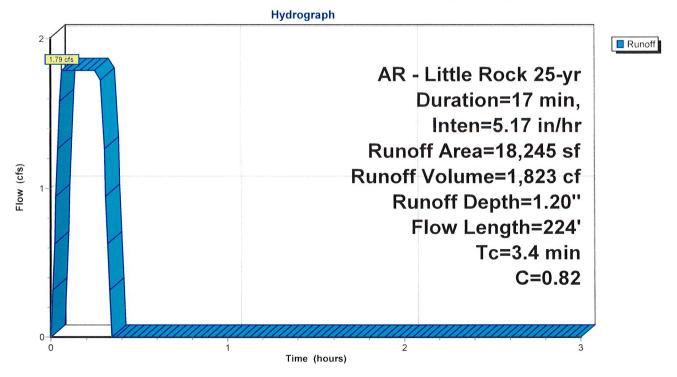
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 25-yr Duration=17 min, Inten=5.17 in/hr

Α	rea (sf)	С	Description	1			
	7,675	0.61	>75% Grass cover, Good, HSG B				
	10,570	0.98		king, HSG E	•		
	18,245	0.82	Weighted	Average			
	7,675		_	ervious Area	a		
	10,570		57.93% lm	pervious A	rea		
Тс	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	•	(cfs)	Description		
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property		
					Grass: Short n= 0.150 P2= 4.19"		
0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter		
					Smooth surfaces n= 0.011 P2= 4.19"		
0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South I		
					Paved Kv= 20.3 fps		
0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parkir		
					Paved Kv= 20.3 fps		
0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale		
					Paved Kv= 20.3 fps		
3.4	224	Total					

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff

1.81 cfs @ 0.06 hrs, Volume=

1,842 cf, Depth= 1.32"

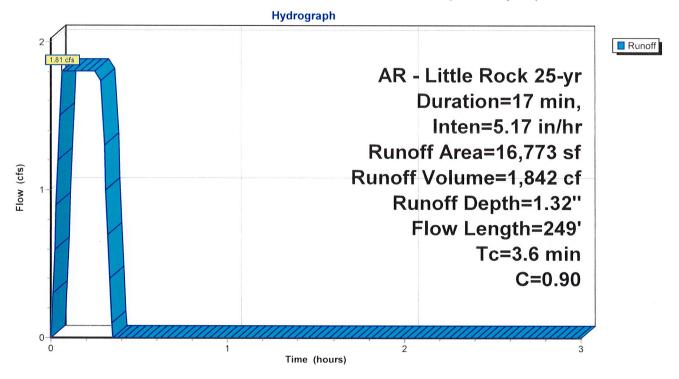
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 25-yr Duration=17 min, Inten=5.17 in/hr

	Α	rea (sf)	С	Description	1					
		3,559	0.61	>75% Gras	75% Grass cover, Good, HSG B					
		5,714	0.98	Paved parl	king, HSG E	3				
		7,500	0.98	Roofs, HS	G B					
		16,773	0.90	Weighted /	Average					
		3,559		21.22% Pe	rvious Area					
		13,214		78.78% lm	pervious Ar	rea				
			01							
,	Tc	Length	Slope	•	Capacity	Description				
	min)	(feet)	(ft/ft)		(cfs)					
	1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property				
						Grass: Short n= 0.150 P2= 4.19"				
	1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter				
						Smooth surfaces n= 0.011 P2= 4.19"				
	0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Parl				
		0.4	0.0446	0.40		Paved Kv= 20.3 fps				
	0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale				
	۰.		0.0446	0.40		Paved Kv= 20.3 fps				
	0.5	68	0.0110	2.13		Shallow Concentrated Flow, Concrete Flume From North Parkin				
						Paved Kv= 20.3 fps				
	3.6	249	Total							

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Subcatchment 3S: North Subcatchment (Developed)



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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 1.26" for 25-yr event

Inflow = 3.60 cfs @ 0.06 hrs, Volume= 3,666 cf

Outflow = 2.31 cfs @ 0.30 hrs, Volume= 3,635 cf, Atten= 36%, Lag= 14.7 min

Primary = 2.31 cfs @ 0.30 hrs, Volume= 3,635 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 395.88' @ 0.30 hrs Storage= 1,799 cf

Plug-Flow detention time= 9.7 min calculated for 3,635 cf (99% of inflow)

Center-of-Mass det. time= 9.5 min (19.8 - 10.3)

Volume	Invert A	vail.Storage	Storage Description
#1	393.50'	2,553 cf	Custom Stage Data Listed below
Elevation (feet)	Cum.Stor (cubic-fee		
393.50		0	
394.00	g	96	
394.50	46	32	
395.00	89	90	
395.50	1,38	31	
396.00	1,93	35	
396.50	2,55	53	

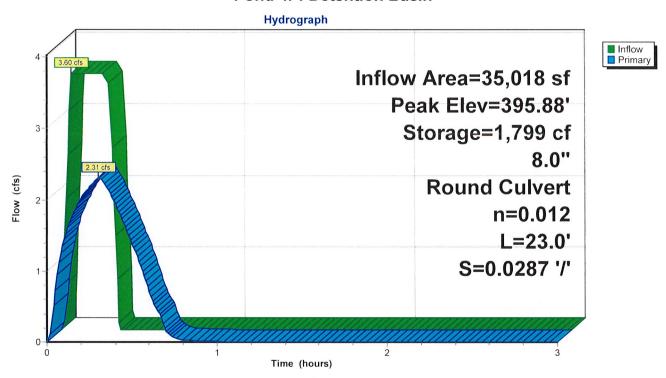
Device	Routing	Invert	Outlet Devices
#1	Primary	393,66'	8.0" Round Culvert

L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

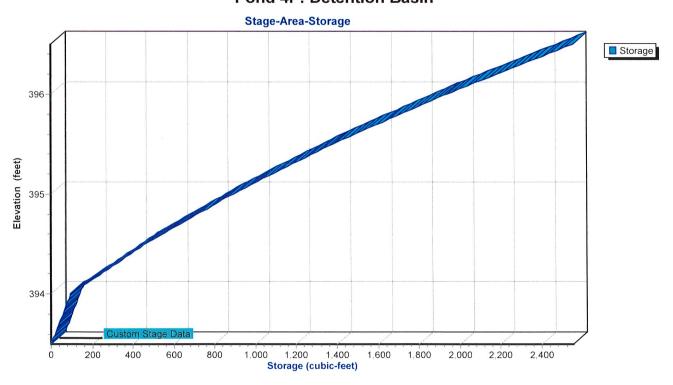
Primary OutFlow Max=2.31 cfs @ 0.30 hrs HW=395.87' (Free Discharge) 1=Culvert (Inlet Controls 2.31 cfs @ 6.60 fps)

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Pond 4P: Detention Basin



Pond 4P: Detention Basin



Abby Road

AR - Little Rock 50-yr Duration=17 min, Inten=5.70 in/hr

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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment

Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=1.32"

Flow Length=224' Tc=3.4 min C=0.82 Runoff=1.97 cfs 2,009 cf

Subcatchment 3S: North Subcatchment

Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=1.45" Flow Length=249' Tc=3.6 min C=0.90 Runoff=1.99 cfs 2,030 cf

Pond 4P: Detention Basin

Peak Elev=396.10' Storage=2,057 cf Inflow=3.96 cfs 4,040 cf

8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=2.44 cfs 4,009 cf

Total Runoff Area = 35,018 sf Runoff Volume = 4,040 cf Average Runoff Depth = 1.38" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.97 cfs @ 0.06 hrs, Volume=

2,009 cf, Depth= 1.32"

Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 50-yr Duration=17 min, Inten=5.70 in/hr

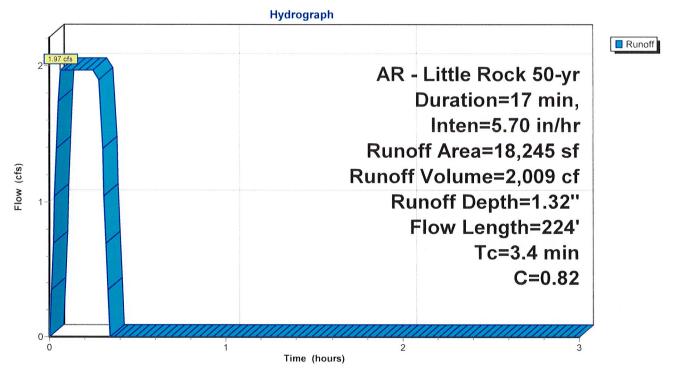
	Α	rea (sf)	С	Description	า	
		7,675	0.61	>75% Gras	ss cover, G	ood, HSG B
		10,570	0.98	Paved parl	king, HSG I	В
		18,245	0.82	Weighted /	Average	
		7,675		42.07% P€	ervious Area	a
		10,570		57.93% Im	pervious A	rea
	Тс	Longth	Slope	Volocity	Canacity	Description
	(min)	Length (feet)	Slope (ft/ft)	•		Description
_					(cfs)	
	1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property
						Grass: Short n= 0.150 P2= 4.19"
	0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter
						Smooth surfaces n= 0.011 P2= 4.19"
	0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South Par
						Paved Kv= 20.3 fps
	0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parking a
						Paved Kv= 20.3 fps
	0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale
_						Paved Kv= 20.3 fps
	3.4	224	Total			

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 1.99 cfs @ 0.06 hrs, Volume= 2,030 cf, Depth= 1.45"

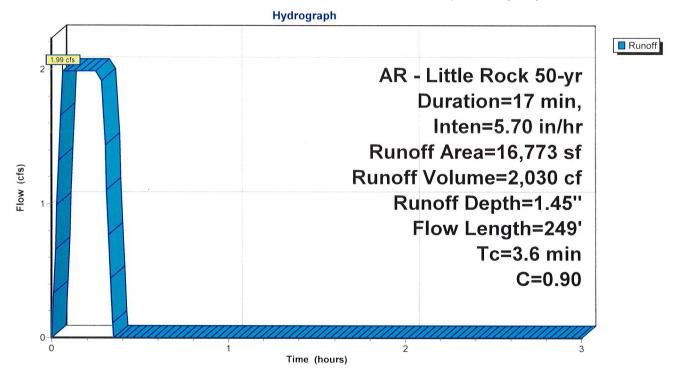
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 50-yr Duration=17 min, Inten=5.70 in/hr

A	rea (sf)	С	Description	1					
	3,559	0.61	>75% Gras	>75% Grass cover, Good, HSG B					
	5,714	0.98		king, HSG E					
	7,500	0.98	Roofs, HS	•					
	16,773	0.90	Weighted /	Average					
	3,559			rvious Area	3				
	13,214		78.78% Im	pervious Ai	rea				
Тс	Length	Slope	Velocity	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property				
					Grass: Short n= 0.150 P2= 4.19"				
1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter				
					Smooth surfaces n= 0.011 P2= 4.19"				
0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Parl				
					Paved Kv= 20.3 fps				
0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale				
					Paved Kv= 20.3 fps				
0.5	68	0.0110	2.13		Shallow Concentrated Flow, Concrete Flume From North Parkit				
					Paved Kv= 20.3 fps				
3.6	249	Total							

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Subcatchment 3S: North Subcatchment (Developed)



Volume

Invert

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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 1.38" for 50-yr event Inflow = 0.06 hrs, Volume= 3.96 cfs @ 4,040 cf Outflow = 2.44 cfs @ 0.31 hrs, Volume= 4,009 cf, Atten= 38%, Lag= 14.7 min Primary 2.44 cfs @ 0.31 hrs, Volume= 4,009 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs Peak Elev= 396.10' @ 0.31 hrs Storage= 2,057 cf

Plug-Flow detention time= 10.1 min calculated for 3,995 cf (99% of inflow) Center-of-Mass det. time= 10.1 min (20.4 - 10.3)

Avail.Storage Storage Description

#1	393.50'	2,553 cf	Custom Stage Data Listed below
Elevation (feet)	Cum.Store (cubic-feet)		
393.50	0		
394.00	96		
394.50	462		
395.00	890		
395.50	1,381		
396.00	1,935		
396.50	2,553		

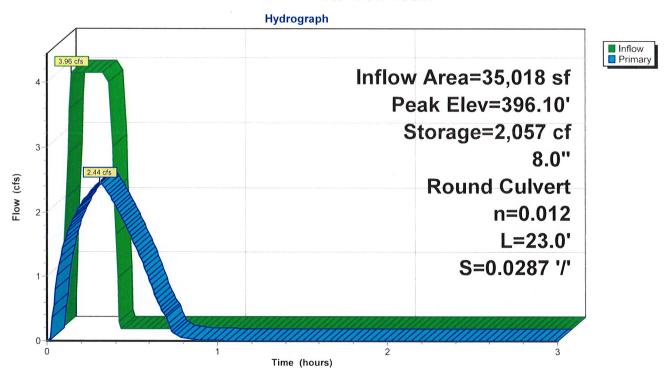
Device	Routing	Invert	Outlet Devices
#1	Primary	393 66'	8.0" Round Culvert

L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

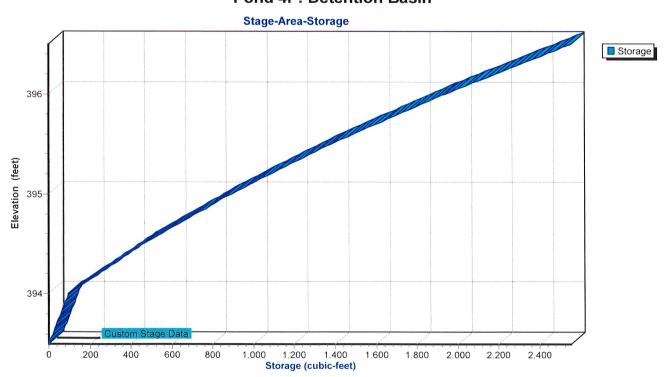
Primary OutFlow Max=2.44 cfs @ 0.31 hrs HW=396.10' (Free Discharge) 1=Culvert (Inlet Controls 2.44 cfs @ 6.98 fps)

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Pond 4P: Detention Basin



Pond 4P: Detention Basin



Abby Road

AR - Little Rock 100-yr Duration=17 min, Inten=6.19 in/hr

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Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: South Subcatchment

Runoff Area=18,245 sf 57.93% Impervious Runoff Depth=1.44" Flow Length=224' Tc=3.4 min C=0.82 Runoff=2.14 cfs 2,183 cf

Subcatchment 3S: North Subcatchment

Runoff Area=16,773 sf 78.78% Impervious Runoff Depth=1.58" Flow Length=249' Tc=3.6 min C=0.90 Runoff=2.16 cfs 2,205 cf

Pond 4P: Detention Basin

Peak Elev=396.30' Storage=2,306 cf Inflow=4.31 cfs 4,388 cf 8.0" Round Culvert n=0.012 L=23.0' S=0.0287 '/' Outflow=2.55 cfs 4,357 cf

Total Runoff Area = 35,018 sf Runoff Volume = 4,388 cf Average Runoff Depth = 1.50" 32.08% Pervious = 11,234 sf 67.92% Impervious = 23,784 sf

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Summary for Subcatchment 2S: South Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 2.14 cfs @ 0.06 hrs, Volume=

2,183 cf, Depth= 1.44"

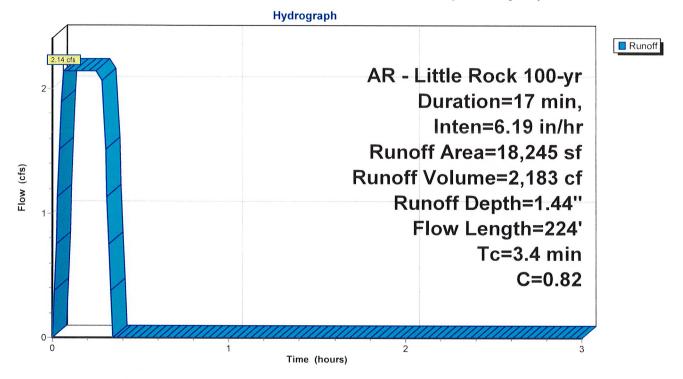
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 100-yr Duration=17 min, Inten=6.19 in/hr

	∖rea (sf)	С	Description	າ	
	7,675	0.61	>75% Gras	ss cover, G	ood, HSG B
	10,570	0.98		king, HSG E	·
	18,245	0.82	Weighted /		The state of the s
	7,675	•	_	ervious Area	a
	10,570			pervious Ai	
	1		• ,	P • • • • • • • • • • • • • • • • • • •	·
Tc	Length	Slope	e Velocity	Capacity	Description
(min)		(ft/ft)	•	(cfs)	
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property
					Grass: Short n= 0.150 P2= 4.19"
0.9	42	0.0060	0.82		Sheet Flow, Sheet Flow to Gutter
					Smooth surfaces n= 0.011 P2= 4.19"
0.3	25	0.0060	1.57		Shallow Concentrated Flow, Gutter Flow Building to South Parl
					Paved Kv= 20.3 fps
0.2	23	0.0100	2.03		Shallow Concentrated Flow, Gutter to Swale in South Parking a
					Paved Kv= 20.3 fps
0.9	109	0.0090	1.93		Shallow Concentrated Flow, South Parking Swale
					Paved Kv= 20.3 fps
3.4	224	Total			

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Subcatchment 2S: South Subcatchment (Developed)



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Summary for Subcatchment 3S: North Subcatchment (Developed)

[70] Warning: Tc<8dt requires smaller dt

Runoff = 2.16 cfs @ 0.06 hrs, Volume=

2,205 cf, Depth= 1.58"

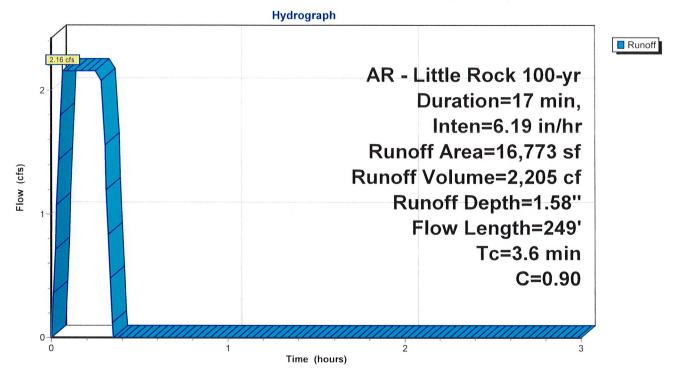
Routed to Pond 4P: Detention Basin

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs AR - Little Rock 100-yr Duration=17 min, Inten=6.19 in/hr

Α	rea (sf)	С	Description	า				
	3,559	0.61	>75% Gras	>75% Grass cover, Good, HSG B				
	5,714	0.98	Paved park	king, HSG E	3			
	7,500	0.98	Roofs, HS	G B				
	16,773	0.90	Weighted /	Average				
	3,559			rvious Area	3			
	13,214		78.78% lm	pervious Ar	rea			
Тс	Length	Slope		Capacity	Description			
 (min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
1.1	25	0.2200	0.38		Sheet Flow, Sheet Flow from adjacent property			
					Grass: Short n= 0.150 P2= 4.19"			
1.0	42	0.0040	0.70		Sheet Flow, Sheet Flow to Gutter			
					Smooth surfaces n= 0.011 P2= 4.19"			
0.3	30	0.0050	1.44		Shallow Concentrated Flow, Gutter From Building to North Parl			
0 7	0.4	0.0440	0.40		Paved Kv= 20.3 fps			
0.7	84	0.0110	2.13		Shallow Concentrated Flow, North Parking Swale			
0.5	00	0.0440	0.40		Paved Kv= 20.3 fps			
0.5	68	0.0110	2.13		Shallow Concentrated Flow, Concrete Flume From North Parkin			
 			1,-0		Paved Kv= 20.3 fps			
3.6	249	Total						

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Subcatchment 3S: North Subcatchment (Developed)



Prepared by Phillip Lewis Engineering

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Summary for Pond 4P: Detention Basin

Inflow Area = 35,018 sf, 67.92% Impervious, Inflow Depth = 1.50" for 100-yr event

Inflow = 4.31 cfs @ 0.06 hrs, Volume= 4,388 cf

Outflow = 2.55 cfs @ 0.31 hrs, Volume= 4,357 cf, Atten= 41%, Lag= 14.8 min

Primary = 2.55 cfs @ 0.31 hrs, Volume= 4,357 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 396.30' @ 0.31 hrs Storage= 2,306 cf

Plug-Flow detention time= 11.0 min calculated for 4,357 cf (99% of inflow)

Center-of-Mass det. time= 10.7 min (21.0 - 10.3)

Volume	Invert	Avail.Storage	Storage Description
#1	393.50'	2,553 cf	Custom Stage Data Listed below
Elevation (feet)	Cum.St (cubic-fe		
393.50		0	
394.00		96	
394.50	•	462	
395.00	:	890	
395.50	1,3	381	
396.00	1,9	935	
396.50	2,	553	

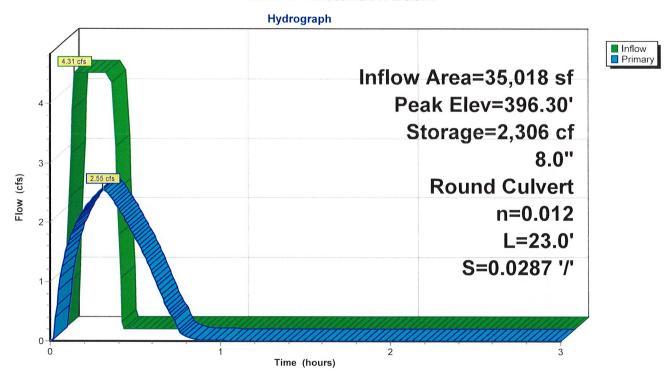
Device	Routing	Invert	Outlet Devices
#1	Primary	393 66'	8.0" Round Culvert

L= 23.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 393.66' / 393.00' S= 0.0287 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.55 cfs @ 0.31 hrs HW=396.30' (Free Discharge)
—1=Culvert (Inlet Controls 2.55 cfs @ 7.31 fps)

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Pond 4P: Detention Basin



Pond 4P: Detention Basin

