

JDC RANCH MIXED USE DEVELOPMENT

SOUTH BASIN DRAINAGE REPORT

Project Number: 9872

Prepared For:

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EXECUTIVE SUMMARY

The JDC Ranch Mixed Use Development is bounded by single family subdivisions to the north, SR-134 (2600/2700 North) to the south, open agricultural fields on the west and a Drainage Slough on the east and is located within the county limits of Weber County, Utah. The development is a planned mixed use development consisting of a mixture of commercial space, townhomes, and single-family lots that covers approximately 260 total acres divided into three main drainage basins. This report will focus on the South Drainage Basin (Basin 'S') consisting of approximately 19 acres of the commercial zone and 17 acres of the residential zone for a total of 36 acres. The hydrology for the site has been analyzed utilizing the Rational Method for the 10-year storm for the storm drain conveyance system and the 100-year storm for the detention volume for the South Basin to allow a peak discharge from the site of 0.10 cfs/acre. An on-site storm drain collection system will be constructed to convey the runoff of the 10-year storm event to detention basins prior to discharging into the drainage slough located on the east side of the property. The combination of the storm drain conveyance system and the public streets allow the safe conveyance of the 100-year storm event to the detention basins near the east side of the site prior to discharge into the slough.

Ensign Engineering



Timothy Shaffer, P.E.
Assistant Project Manager

1.0 PROJECT OVERVIEW/LOCATION

This drainage study was prepared to determine the pipe sizes and detention volumes for the JDC Ranch Mixed Use Development South Basin (Basin 'S') located in Weber County, Utah. This project consists of approximately 36 acres surrounded by agricultural land on the north and west, a drainage slough on the east and SR-134 on the south. The completed JDC Ranch Mixed Use Development South Basin will consist of 2 commercial lots, 46 single-family lots, 16 townhomes, site amenities, and an open detention area on the east side of the site. This narrative will discuss the drainage hydrology and hydraulics for the proposed improvements.

2.0 EXISTING AND PROPOSED CONDITIONS

The site consists of farmland with irrigation piping and channels used to facilitate typical farming operations through the site. The vegetation is a mixture of pasture vegetation and invasive weeds.

Site improvements consist of single-family lots, townhomes, and commercial space with roadway and utility infrastructure to service said development. Stormwater runoff will be intercepted by the curb and gutter and inlet boxes, routed through various detention basins and ultimately discharged to the slough located on the east side of the development. The irrigation system on-site will be modified to continue in service until such time as the site is no longer in need of the water.

3.0 RUNOFF ANALYSIS

Rainfall intensity-duration-frequency (IDF) information was obtained from the NOAA Atlas 14 precipitation data server for the location of the site and is shown in Table 3-1.

TABLE 3-1 – INTENSITY-DURATION-FREQUENCY DATA

IDF Data (in/hr)*		Frequency (years)	
		10	100
Time (min)	5	3.34	6.62
	10	2.54	5.04
	15	2.10	4.16
	30	1.41	2.80
	60	0.87	1.74
	360	0.23	0.36
	720	0.15	0.22
	1440	0.09	0.12

The Rational method of runoff analysis has been used to calculate runoff volumes from the site. Because the site utilizes various forms of residential and commercial development, the site was divided into several drainage basins that would detain their respective sub-basins prior to discharging into the drainage slough on the east side of the project. As such, a runoff coefficient for each drainage basin was estimated based on the density (for residential) and the anticipated impervious area for typical commercial sites. The commercial sites were separated out and evaluated as their own detention area within this drainage basin. The area of each tributary basin and its respective runoff

coefficient are shown in Table 3-3. The base runoff coefficients that were used for each drainage basin are shown in Table 3-2.

TABLE 3-2 – RUNOFF COEFFICIENTS

Land Area Type	C-Value
Residential Area	0.45
Commercial Area	0.80
Open Space Area	0.15

The proposed drainage basins were analyzed and divided into sub-basins with each sub-basin contributing its runoff to its respective node in the storm drain system. Time of concentrations were calculated using the SCS TR-55 method and are shown for each sub-basin with the exception being for CATCH S-1, CATCH S-2, CATCH S-19, and CATCH S-39 which use an assumed time of concentration of 60 minutes to account for the typical time when peak detention occurs. Peak runoff for each sub-basin was calculated using the rational method, with the storm duration equal to the time of concentration. The 100-year storm was used for sub-basin detention calculations because as the storm frequency increases, the overflow for the pipe conveyance system would utilize the street to convey the remaining runoff toward the drainage slough. The Catchments for this project are identified in Table 3-4 and illustrated on Exhibit EX-A.

TABLE 3-3 – CATCHMENT FLOWS

Catchment #	Area (AC)	Coefficient C	Total Tc (min)	10-yr Rainfall Depth (in)	Runoff (cfs)	Destination Node
CATCH S-1	6.17	0.8000	60.00	0.870	4.29	S-223
CATCH S-10	0.29	0.4500	5.00	0.278	0.44	S-232
CATCH S-11	0.31	0.4500	5.00	0.278	0.47	S-231
CATCH S-12	0.24	0.4500	5.00	0.278	0.37	S-230
CATCH S-13	0.10	0.4500	8.80	0.387	0.12	S-229
CATCH S-14	0.10	0.4500	6.65	0.329	0.13	S-228
CATCH S-15	1.24	0.4500	5.97	0.310	1.73	S-215
CATCH S-16	0.30	0.4500	5.00	0.278	0.45	S-214
CATCH S-17	0.58	0.4500	5.00	0.278	0.87	S-211
CATCH S-18	0.17	0.4500	5.00	0.278	0.25	S-210
CATCH S-19	8.71	0.8000	60.00	0.870	6.06	S-209
CATCH S-2	4.12	0.8000	60.00	0.870	2.87	S-227
CATCH S-20	0.40	0.4500	5.00	0.278	0.61	S-207
CATCH S-21	0.27	0.4500	5.00	0.278	0.41	S-206
CATCH S-22	0.63	0.4500	34.68	0.736	0.36	S-243
CATCH S-23	0.13	0.1500	18.15	0.570	0.04	S-242
CATCH S-24	0.47	0.4500	5.00	0.278	0.70	S-241
CATCH S-25	0.29	0.4500	20.52	0.599	0.23	S-240
CATCH S-26	0.10	0.4500	17.07	0.552	0.09	S-239
CATCH S-27	0.72	0.4500	5.00	0.278	1.08	S-238
CATCH S-28	1.07	0.4500	28.37	0.688	0.70	S-236
CATCH S-29	0.50	0.4500	12.92	0.485	0.51	S-246
CATCH S-3	0.58	0.7500	5.00	0.278	1.46	S-222
CATCH S-30	0.43	0.4500	12.87	0.479	0.44	S-247
CATCH S-31	0.73	0.4500	24.25	0.646	0.53	S-235
CATCH S-32	0.47	0.4500	5.00	0.278	0.70	S-205
CATCH S-33	0.23	0.4500	5.00	0.278	0.35	S-256
CATCH S-34	0.69	0.4500	10.67	0.431	0.75	S-255
CATCH S-35	0.30	0.4500	7.98	0.365	0.37	S-253
CATCH S-36	0.58	0.4500	13.50	0.494	0.57	S-254
CATCH S-37	0.27	0.4500	8.95	0.392	0.32	S-249
CATCH S-38	0.33	0.4500	12.10	0.466	0.34	S-250
CATCH S-39	2.40	0.1500	60.00	0.870	0.31	S-204
CATCH S-4	0.74	0.7500	5.00	0.278	1.85	S-221
CATCH S-5	0.19	0.7500	5.00	0.278	0.48	S-226

TABLE 3-3 – CATCHMENT FLOWS CONTINUED...

Catchment #	Area (AC)	Coefficient C	Total Tc (min)	10-yr Rainfall Depth (in)	Runoff (cfs)	Destination Node
CATCH S-6	0.18	0.4500	5.00	0.278	0.27	S-225
CATCH S-7	0.51	0.4500	9.43	0.404	0.58	S-218
CATCH S-8	0.20	0.4500	5.00	0.278	0.30	S-217
CATCH S-9	0.28	0.4500	5.00	0.278	0.42	S-233

4.0 PIPE DESIGN

Due to the size of the system, a storm water model was used to determine the required pipe sizes throughout the site. The software used to model the storm collection system was Autodesk Storm and Sanitary Analysis. This software uses a variety of analysis options to calculate the combined flow through the storm drainage system. The Rational method is one of these analysis options and was selected.

Each catchment identified in Table 3-3 above was assigned to be captured by a drainage structure (node) as would be the case based on the grading of the surface for the site. As the storm scenario processes, the flows from all of the catchments eventually end up at the furthest downstream node to discharge into the slough. The peak flows through each node of the system can be found in Table 4-1 and node locations are shown on Exhibit EX-A.

TABLE 4-1 – Node Flows

Node ID	Tributary Catchment	Peak Flow
S-202	#N/A	3.15
S-203	#N/A	6.36
S-205	CATCH S-32	6.39
S-206	CATCH S-21	6.32
S-207	CATCH S-20	0.61
S-208	#N/A	6.32
S-210	CATCH S-18	3.48
S-211	CATCH S-17	0.87
S-212	#N/A	3.48
S-213	#N/A	3.57
S-214	CATCH S-16	3.98
S-215	CATCH S-15	1.73
S-216	#N/A	3.47
S-217	0	2.90
S-218	0	0.58
S-219	#N/A	2.45
S-220	#N/A	2.70
S-221	CATCH S-4	2.88
S-222	CATCH S-3	1.46
S-224	#N/A	0.58
S-225	CATCH S-9	0.53
S-226	CATCH S-5	0.47
S-228	CATCH S-14	1.43
S-229	CATCH S-13	0.18
S-230	CATCH S-12	1.41
S-231	CATCH S-11	0.47

Node ID	Tributary Catchment	Peak Flow
S-232	CATCH S-10	0.81
S-233	0	0.42
S-234	#N/A	2.85
S-235	CATCH S-31	2.03
S-236	CATCH S-28	1.63
S-237	#N/A	1.54
S-238	CATCH S-27	1.08
S-239	CATCH S-26	0.77
S-240	CATCH S-25	0.79
S-241	CATCH S-24	0.70
S-242	CATCH S-23	0.36
S-243	CATCH S-22	0.36
S-244	#N/A	0.89
S-245	#N/A	0.50
S-246	CATCH S-29	0.51
S-247	CATCH S-30	0.44
S-248	#N/A	1.60
S-249	CATCH S-37	0.56
S-250	CATCH S-38	0.34
S-251	#N/A	0.56
S-252	#N/A	1.12
S-253	CATCH S-35	0.69
S-254	CATCH S-36	0.57
S-255	CATCH S-34	1.69
S-256	CATCH S-33	0.35
S-301	#N/A	1.58

Pipe capacity was calculated using the Manning’s equation, using N-values respective to the pipe material – 0.011 for HDPE, and 0.013 for RCP. Pipes were designed such that the full flow capacity of the pipe was not exceeded for the 10-year storm event. The resultant sizing of the pipes can be found in Table 4-2.

JDC RANCH MIXED USE DEVELOPMENT SOUTH BASIN DRAINAGE REPORT

TABLE 4-2 – Pipe Flows & Capacity – 10-yr Storm

Pipe ID	From Node (inlet)	To Node (outlet)	Pipe Slope (%)	Pipe Diameter (in)	Manning's Roughness	Peak Flow (cfs)	Design Capacity (cfs)	% of Full Capacity
SD-S202	S-202	S-201	0.08	24.00	0.0130	3.15	10.12	31.13%
SD-S204	S-204	S-203	0.40	24.00	0.0130	3.92	14.30	27.41%
SD-S205	S-205	S-203	0.15	24.00	0.0130	6.36	10.12	62.85%
SD-S206	S-206	S-205	0.15	24.00	0.0130	6.32	10.12	62.45%
SD-S207	S-207	S-206	0.15	15.00	0.0130	0.55	2.89	19.03%
SD-S208	S-208	S-206	0.15	24.00	0.0130	6.32	10.12	62.45%
SD-S210	S-210	S-208	0.15	18.00	0.0130	3.22	4.70	68.51%
SD-S211	S-211	S-210	0.15	15.00	0.0130	0.80	2.89	27.68%
SD-S212	S-212	S-210	0.15	18.00	0.0130	3.34	4.70	71.06%
SD-S213	S-213	S-212	0.15	18.00	0.0130	3.48	4.70	74.04%
SD-S214	S-214	S-213	0.15	18.00	0.0130	3.57	4.70	75.96%
SD-S215	S-215	S-214	1.17	15.00	0.0130	1.71	6.99	24.46%
SD-S216	S-216	S-214	0.15	18.00	0.0130	2.73	4.70	58.09%
SD-S217	S-217	S-216	0.15	18.00	0.0130	2.73	4.70	58.09%
SD-S218	S-218	S-217	0.50	15.00	0.0130	0.57	4.58	12.45%
SD-S219	S-219	S-217	0.15	18.00	0.0130	2.31	4.70	49.15%
SD-S220	S-220	S-219	0.15	18.00	0.0130	2.45	4.70	52.13%
SD-S221	S-221	S-220	0.15	18.00	0.0130	2.70	4.70	57.45%
SD-S222	S-222	S-221	0.15	15.00	0.0130	1.08	2.89	37.37%
SD-S224	S-224	S-219	0.15	15.00	0.0130	0.44	2.89	15.22%
SD-S225	S-225	S-224	0.15	15.00	0.0130	0.42	2.89	14.53%
SD-S226	S-226	S-225	0.15	15.00	0.0130	0.41	2.89	14.19%
SD-S228	S-228	S-216	0.14	15.00	0.0130	1.00	2.89	34.60%
SD-S229	S-229	S-228	0.15	15.00	0.0130	0.18	2.89	6.23%
SD-S230	S-230	S-228	0.15	15.00	0.0130	1.25	2.89	43.25%
SD-S231	S-231	S-230	0.15	15.00	0.0130	0.42	2.89	14.53%
SD-S232	S-232	S-230	0.15	15.00	0.0130	0.67	2.89	23.18%
SD-S233	S-233	S-232	0.15	15.00	0.0130	0.38	2.89	13.15%
SD-S234	S-234	S-205	0.15	18.00	0.0130	2.85	4.70	60.64%
SD-S235	S-235	S-234	0.15	14.99	0.0130	1.85	2.89	64.01%
SD-S236	S-236	S-235	0.15	14.99	0.0110	1.54	3.41	45.16%
SD-S237	S-237	S-236	0.15	12.23	0.0110	1.47	1.98	74.24%
SD-S238	S-238	S-237	1.00	12.23	0.0110	1.05	4.43	23.70%
SD-S239	S-239	S-237	0.40	12.23	0.0110	0.77	2.80	27.50%
SD-S240	S-240	S-239	0.40	12.23	0.0110	0.74	2.80	26.43%
SD-S241	S-241	S-240	1.00	12.23	0.0110	0.69	4.43	15.58%
SD-S242	S-242	S-240	0.40	12.23	0.0110	0.36	2.80	12.86%
SD-S243	S-243	S-242	1.00	12.23	0.0110	0.36	4.43	8.13%

TABLE 4-2 – Pipe Flows & Capacity – 10-yr Storm Continued...

Pipe ID	From Node (inlet)	To Node (outlet)	Pipe Slope (%)	Pipe Diameter (in)	Manning's Roughness	Peak Flow (cfs)	Design Capacity (cfs)	% of Full Capacity
SD-S244	S-244	S-235	0.40	12.23	0.0110	0.74	2.80	26.43%
SD-S245	S-245	S-244	0.40	12.23	0.0110	0.49	2.80	17.50%
SD-S246	S-246	S-245	1.00	12.23	0.0110	0.50	4.43	11.29%
SD-S247	S-247	S-244	1.00	12.23	0.0110	0.41	4.43	9.26%
SD-S248	S-248	S-301	0.23	15.00	0.0130	1.58	3.13	50.48%
SD-S249	S-249	S-251	0.50	15.00	0.0130	0.56	4.57	12.25%
SD-S250	S-250	S-249	0.50	15.00	0.0130	0.33	4.57	7.22%
SD-S251	S-251	S-252	0.25	15.00	0.0130	0.44	3.21	13.71%
SD-S252	S-252	S-255	0.25	15.00	0.0130	1.08	3.26	33.13%
SD-S253	S-253	S-252	0.50	15.00	0.0130	0.70	4.57	15.32%
SD-S254	S-254	S-253	0.50	15.00	0.0130	0.57	4.57	12.47%
SD-S255	S-255	S-248	0.25	15.00	0.0130	1.59	3.23	49.23%
SD-S256	S-256	S-255	0.50	15.00	0.0130	0.33	4.57	7.22%
SD-S301	S-301	S-234	0.25	15.00	0.0130	1.55	3.23	47.99%

5.0 DETENTION

Storm water runoff generated by the proposed improvements for this site will be routed through a series of detention basins onsite prior to discharge into the slough. The commercial sites are anticipated to detain their respective storm runoff onsite and discharge a metered release equal to the required 0.10 cfs/acre rate. These basins are identified in Table 5-1 below along with their associated peak releases for each basin. These basins were sized to work in series to allow for the ultimate discharge into the slough at the required release rate of 0.10 cfs/acre.

TABLE 5-1 – DETENTION BASINS

Detention Basin ID	Tributary Catchments	Orifice Diameter Size (inches)	Orifice Location	100-year Release (cfs)	Volume Required (Cu. Ft.)	Volume Provided (Cu. Ft.)	100-YR HWL
S-204	Basin S	9.24	S-203	3.60	17,277	18,012	4240.00
S-209	Catch S-19	TBD*	S-209	6.49	To Be Determined (TBD) by Separate Report*		
S-223	Catch S-1	TBD*	S-223	0.60	TBD by Separate Report*		
S-227	Catch S-2	TBD*	S-227	0.39	TBD by Separate Report*		

*Final orifice size, detention volume and high-water line to be established by a future drainage report prepared in conjunction with the development of these parcels. These values are shown primarily to establish the anticipated release from the Catchment into the storm drain system for sizing.

As shown in Table 5-1, tributary areas for each basin were determined based on the location of each basin. These areas are shown on Exhibit EX-A attached along with the location of each basin. In instances where multiple detention basins are in series (i.e., at least one detention basin upstream from another) the overall discharge allowed through the downstream basin is adjusted to allow for a pass-through flow from the upstream basin.

The orifice size for the ultimate discharge from the overall basin identified was sized to provide the typical 0.10 cfs/acre release from the basin as noted above. This can be found in Table 5-1 above. The orifice sizes for the commercial parcels are planned to be sized by others in conjunction with the final design of those parcels. This report identifies the planned release from these basins for the purpose of sizing the conveyance piping to the outfall from the site.

Also identified in Table 5-1 is the high-waterline associated with the main south detention basin prior to the ultimate outfall from the structure. The overflow of this basin will consist of a baffle wall installed within the control box for the safe conveyance of storm events in excess of the 100-year event from the basin.

With this development, the detention basins fully function such that no changes will need to be made to the existing slough on the east side of the property. As a good-will gesture, the development will also be widening the slough through the east side of the site to add capacity through this area.

6.0 CONCLUSIONS

The drainage system as outlined will safely convey storm water to the existing drainage slough on the east property line. The 100-year storm will be contained by the proposed storm drainage network and routed through the proposed surface improvements and detention basins prior to discharging into the drainage slough on the east side of the property.

APPENDIX A – EXHIBITS

Basin 'S' Drainage Model Exhibit



BENCHMARK
NORTHWEST CORNER OF SECTION 27,
TOWNSHIP 7 NORTH, RANGE 2 WEST,
SALT LAKE BASE AND MERIDIAN
ELEV = 4231.00'



LAYTON
919 North 400 West
Layton, UT 84041
Phone: 801.547.1100

SANDY
Phone: 801.255.0529

TOOELE
Phone: 435.843.3590

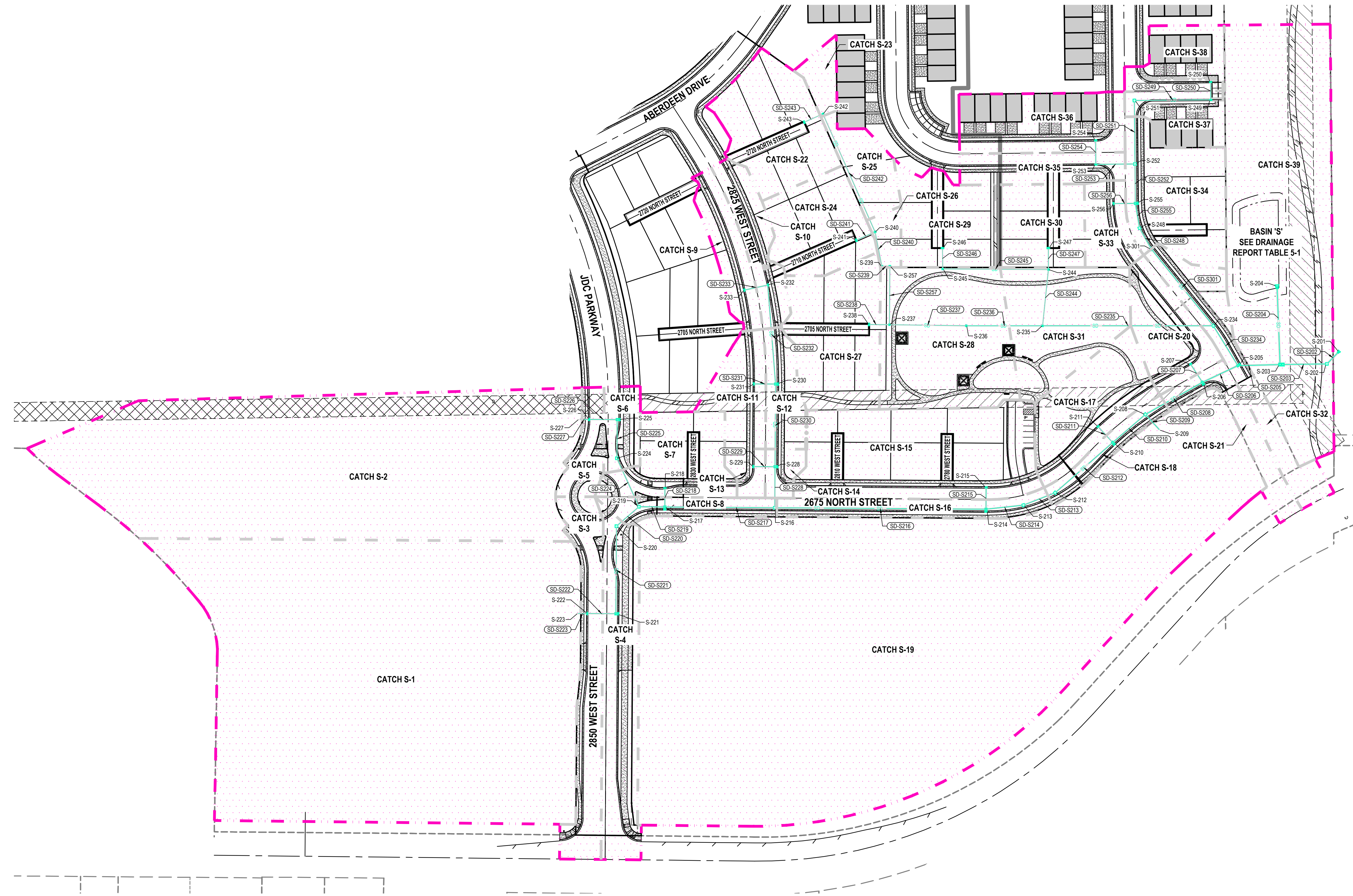
CEDAR CITY
Phone: 435.865.1453

RICHFIELD
Phone: 435.896.2983

WWW.ENSIGNENG.COM

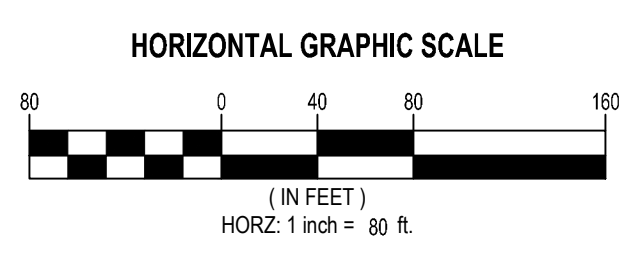
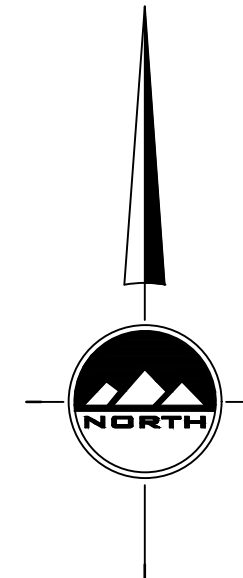
FOR:
NILSON HOMES
1740 COMBE RD, SUITE 2
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BASIN 'S'
SEE DRAINAGE
REPORT TABLE 5-1

**JDC RANCH MIXED USE DEVELOPMENT
SOUTH DRAINAGE BASIN (BASIN 'S')**
2800 WEST 2600 NORTH STREET
WEBER COUNTY, UTAH



**BASIN 'S' DRAINAGE
MODEL EXHIBIT**

PROJECT NUMBER: 9872
PRINT DATE: 2023-12-07
PROJECT MANAGER: TS
DESIGNED BY: CW

EX-A

APPENDIX B – STORM AND SANITARY SEWER ANALYSIS OUTPUT

10-year model output
100-year model output

Project Description

File Name 9872 South Rational - BASIN S.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method Rational
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Hydrodynamic
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods NO

Analysis Options

Start Analysis On 00:00:00 0:00:00
End Analysis On 00:00:00 0:00:00
Start Reporting On 00:00:00 0:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	39
Nodes.....	57
<i>Junctions</i>	52
<i>Outfalls</i>	1
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	4
Links.....	56
<i>Channels</i>	0
<i>Pipes</i>	52
<i>Pumps</i>	0
<i>Orifices</i>	4
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period..... 10 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	CATCH S-1	6.17	0.8000	0.87	0.70	4.29	4.29	0 01:00:00
2	CATCH S-10	0.29	0.4500	0.28	0.13	0.04	0.44	0 00:05:00
3	CATCH S-11	0.31	0.4500	0.28	0.13	0.04	0.47	0 00:05:00
4	CATCH S-12	0.24	0.4500	0.28	0.13	0.03	0.37	0 00:05:00
5	CATCH S-13	0.10	0.4500	0.39	0.17	0.02	0.12	0 00:08:48
6	CATCH S-14	0.10	0.4500	0.33	0.15	0.01	0.13	0 00:06:39
7	CATCH S-15	1.24	0.4500	0.31	0.14	0.17	1.73	0 00:05:58
8	CATCH S-16	0.30	0.4500	0.28	0.13	0.04	0.45	0 00:05:00
9	CATCH S-17	0.58	0.4500	0.28	0.13	0.07	0.87	0 00:05:00
10	CATCH S-18	0.17	0.4500	0.28	0.13	0.02	0.25	0 00:05:00
11	CATCH S-19	8.71	0.8000	0.87	0.70	6.06	6.06	0 01:00:00
12	CATCH S-2	4.12	0.8000	0.87	0.70	2.87	2.87	0 01:00:00
13	CATCH S-20	0.40	0.4500	0.28	0.13	0.05	0.61	0 00:05:00
14	CATCH S-21	0.27	0.4500	0.28	0.13	0.03	0.41	0 00:05:00
15	CATCH S-22	0.63	0.4500	0.74	0.33	0.21	0.36	0 00:34:41
16	CATCH S-23	0.13	0.1500	0.57	0.09	0.01	0.04	0 00:18:09
17	CATCH S-24	0.47	0.4500	0.28	0.13	0.06	0.70	0 00:05:00
18	CATCH S-25	0.29	0.4500	0.60	0.27	0.08	0.23	0 00:20:31
19	CATCH S-26	0.10	0.4500	0.55	0.25	0.02	0.09	0 00:17:04
20	CATCH S-27	0.72	0.4500	0.28	0.13	0.09	1.08	0 00:05:00
21	CATCH S-28	1.07	0.4500	0.69	0.31	0.33	0.70	0 00:28:22
22	CATCH S-29	0.50	0.4500	0.49	0.22	0.11	0.51	0 00:12:55
23	CATCH S-3	0.58	0.7500	0.28	0.21	0.12	1.46	0 00:05:00
24	CATCH S-30	0.43	0.4500	0.48	0.22	0.09	0.44	0 00:12:52
25	CATCH S-31	0.73	0.4500	0.65	0.29	0.21	0.53	0 00:24:15
26	CATCH S-32	0.47	0.4500	0.28	0.13	0.06	0.70	0 00:05:00
27	CATCH S-33	0.23	0.4500	0.28	0.13	0.03	0.35	0 00:05:00
28	CATCH S-34	0.69	0.4500	0.43	0.19	0.13	0.75	0 00:10:40
29	CATCH S-35	0.30	0.4500	0.37	0.16	0.05	0.37	0 00:07:59
30	CATCH S-36	0.58	0.4500	0.49	0.22	0.13	0.57	0 00:13:30
31	CATCH S-37	0.27	0.4500	0.39	0.18	0.05	0.32	0 00:08:57
32	CATCH S-38	0.33	0.4500	0.47	0.21	0.07	0.34	0 00:12:06
33	CATCH S-39	2.40	0.1500	0.87	0.13	0.31	0.31	0 01:00:00
34	CATCH S-4	0.74	0.7500	0.28	0.21	0.15	1.85	0 00:05:00
35	CATCH S-5	0.19	0.7500	0.28	0.21	0.04	0.48	0 00:05:00
36	CATCH S-6	0.18	0.4500	0.28	0.13	0.02	0.27	0 00:05:00
37	CATCH S-7	0.51	0.4500	0.40	0.18	0.09	0.58	0 00:09:26
38	CATCH S-8	0.20	0.4500	0.28	0.13	0.02	0.30	0 00:05:00
39	CATCH S-9	0.28	0.4500	0.28	0.13	0.03	0.42	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft ²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	S-202	Junction	4236.52	4241.50	4236.52	4241.50	0.00	3.29	4237.39	0.00	4.11	0 00:00	0.00	0.00
2	S-203	Junction	4236.58	4242.00	4236.58	4242.00	0.00	5.88	4239.44	0.00	2.56	0 00:00	0.00	0.00
3	S-205	Junction	4236.68	4241.17	4236.68	4241.17	0.00	5.96	4239.47	0.00	1.70	0 00:00	0.00	0.00
4	S-206	Junction	4236.78	4241.38	4236.78	4241.38	0.00	5.94	4239.51	0.00	1.88	0 00:00	0.00	0.00
5	S-207	Junction	4236.83	4241.25	4236.83	4241.25	0.00	0.61	4239.51	0.00	1.74	0 00:00	0.00	0.00
6	S-208	Junction	4236.93	4241.51	4236.93	4241.51	0.00	5.94	4239.58	0.00	1.94	0 00:00	0.00	0.00
7	S-210	Junction	4237.04	4241.04	4237.04	4241.04	0.00	3.48	4239.58	0.00	1.46	0 00:00	0.00	0.00
8	S-211	Junction	4237.09	4240.90	4237.09	4240.90	0.00	0.87	4239.58	0.00	1.32	0 00:00	0.00	0.00
9	S-212	Junction	4237.22	4241.75	4237.22	4241.75	0.00	3.48	4239.59	0.00	2.16	0 00:00	0.00	0.00
10	S-213	Junction	4237.30	4241.59	4237.30	4241.59	0.00	3.56	4239.60	0.00	1.99	0 00:00	0.00	0.00
11	S-214	Junction	4237.39	4241.26	4237.39	4241.26	0.00	3.98	4239.60	0.00	1.66	0 00:00	0.00	0.00
12	S-215	Junction	4238.54	4241.12	4238.54	4241.12	0.00	1.73	4239.60	0.00	1.52	0 00:00	0.00	0.00
13	S-216	Junction	4237.90	4242.58	4237.90	4242.58	0.00	3.47	4239.62	0.00	2.96	0 00:00	0.00	0.00
14	S-217	Junction	4238.16	4241.88	4238.16	4241.88	0.00	2.90	4239.63	0.00	2.25	0 00:00	0.00	0.00
15	S-218	Junction	4238.21	4241.68	4238.21	4241.68	0.00	0.58	4239.63	0.00	2.05	0 00:00	0.00	0.00
16	S-219	Junction	4238.22	4242.17	4238.22	4242.17	0.00	2.45	4239.64	0.00	2.53	0 00:00	0.00	0.00
17	S-220	Junction	4238.29	4242.26	4238.29	4242.26	0.00	2.70	4239.64	0.00	2.63	0 00:00	0.00	0.00
18	S-221	Junction	4238.50	4241.32	4238.50	4241.32	0.00	2.88	4239.64	0.00	1.68	0 00:00	0.00	0.00
19	S-222	Junction	4238.57	4241.18	4238.57	4241.18	0.00	1.46	4239.64	0.00	1.54	0 00:00	0.00	0.00
20	S-224	Junction	4238.35	4242.07	4238.35	4242.07	0.00	0.58	4239.64	0.00	2.43	0 00:00	0.00	0.00
21	S-225	Junction	4238.44	4241.61	4238.44	4241.61	0.00	0.53	4239.64	0.00	1.97	0 00:00	0.00	0.00
22	S-226	Junction	4238.51	4241.43	4238.51	4241.43	0.00	0.47	4239.64	0.00	1.79	0 00:00	0.00	0.00
23	S-228	Junction	4237.99	4241.46	4237.99	4241.46	0.00	1.43	4239.62	0.00	1.84	0 00:00	0.00	0.00
24	S-229	Junction	4238.04	4241.32	4238.04	4241.32	0.00	0.18	4239.62	0.00	1.70	0 00:00	0.00	0.00
25	S-230	Junction	4238.18	4241.16	4238.18	4241.16	0.00	1.41	4239.62	0.00	1.54	0 00:00	0.00	0.00
26	S-231	Junction	4238.23	4241.02	4238.23	4241.02	0.00	0.47	4239.62	0.00	1.40	0 00:00	0.00	0.00
27	S-232	Junction	4238.42	4241.12	4238.42	4241.12	0.00	0.81	4239.62	0.00	1.50	0 00:00	0.00	0.00
28	S-233	Junction	4238.48	4241.12	4238.48	4241.12	0.00	0.42	4239.62	0.00	1.50	0 00:00	0.00	0.00
29	S-234	Junction	4236.79	4241.52	4236.79	4241.52	0.00	2.66	4239.47	0.00	2.05	0 00:00	0.00	0.00
30	S-235	Junction	4237.20	4240.50	4237.20	4240.50	0.00	2.02	4239.47	0.00	1.03	0 00:00	0.00	0.00
31	S-236	Junction	4237.39	4240.50	4237.39	4240.50	0.00	1.63	4239.47	0.00	1.03	0 00:00	0.00	0.00
32	S-237	Junction	4237.59	4241.43	4237.59	4241.43	0.00	1.54	4239.48	0.00	1.95	0 00:00	0.00	0.00
33	S-238	Junction	4237.91	4241.73	4237.91	4241.73	0.00	1.08	4239.48	0.00	2.25	0 00:00	0.00	0.00
34	S-239	Junction	4237.95	4240.96	4237.95	4240.96	0.00	0.77	4239.48	0.00	1.48	0 00:00	0.00	0.00
35	S-240	Junction	4238.28	4241.29	4238.28	4241.29	0.00	0.79	4239.48	0.00	1.81	0 00:00	0.00	0.00
36	S-241	Junction	4238.61	4241.31	4238.61	4241.31	0.00	0.70	4239.48	0.00	1.83	0 00:00	0.00	0.00
37	S-242	Junction	4239.02	4242.33	4239.02	4242.33	0.00	0.36	4239.47	0.00	2.85	0 00:00	0.00	0.00
38	S-243	Junction	4239.35	4242.30	4239.35	4242.30	0.00	0.36	4239.57	0.00	2.73	0 00:00	0.00	0.00
39	S-244	Junction	4237.56	4242.05	4237.56	4242.05	0.00	0.89	4239.47	0.00	2.58	0 00:00	0.00	0.00
40	S-245	Junction	4238.24	4241.34	4238.24	4241.34	0.00	0.50	4239.47	0.00	1.87	0 00:00	0.00	0.00
41	S-246	Junction	4238.57	4241.42	4238.57	4241.42	0.00	0.51	4239.47	0.00	1.95	0 00:00	0.00	0.00
42	S-247	Junction	4237.91	4242.03	4237.91	4242.03	0.00	0.44	4239.47	0.00	2.56	0 00:00	0.00	0.00
43	S-248	Junction	4237.28	4241.89	4237.28	4241.89	0.00	1.58	4239.47	0.00	2.42	0 00:00	0.00	0.00
44	S-249	Junction	4238.40	4241.12	4238.40	4241.12	0.00	0.56	4239.47	0.00	1.65	0 00:00	0.00	0.00
45	S-250	Junction	4238.54	4241.12	4238.54	4241.12	0.00	0.34	4239.47	0.00	1.65	0 00:00	0.00	0.00
46	S-251	Junction	4237.79	4242.37	4237.79	4242.37	0.00	0.56	4239.47	0.00	2.90	0 00:00	0.00	0.00
47	S-252	Junction	4237.54	4242.04	4237.54	4242.04	0.00	1.11	4239.47	0.00	2.57	0 00:00	0.00	0.00
48	S-253	Junction	4238.31	4241.07	4238.31	4241.07	0.00	0.69	4239.47	0.00	1.60	0 00:00	0.00	0.00
49	S-254	Junction	4238.50	4241.07	4238.50	4241.07	0.00	0.57	4239.47	0.00	1.60	0 00:00	0.00	0.00
50	S-255	Junction	4237.38	4241.50	4237.38	4241.50	0.00	1.69	4239.47	0.00	2.03	0 00:00	0.00	0.00
51	S-256	Junction	4238.90	4241.50	4238.90	4241.50	0.00	0.35	4239.47	0.00	2.03	0 00:00	0.00	0.00
52	S-301	Junction	4237.19	4242.15	4237.19	4242.15	0.00	1.55	4239.47	0.00	2.68	0 00:00	0.00	0.00
53	S-201	Outfall	4236.50					3.29	4237.13					
54	S-204	Storage Node	4237.08	4240.42	4237.08		0.00	3.61	4239.44				0.00	0.00
55	S-209	Storage Node	4236.98	4240.28	4236.98		0.00	6.06	4240.28				0.04	10.00
56	S-223	Storage Node	4238.59	4240.12	4238.59		0.00	4.29	4240.12				3.29	100.00
57	S-227	Storage Node	4238.53	4240.66	4238.53		0.00	2.87	4240.66				2.13	93.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
1	SD-S202	Pipe	S-202	S-201	27.28	4236.52	4236.50	0.0800	24.000	0.0130	3.29	10.12	0.32	3.06	0.75	0.37	0.00	Calculated
2	SD-S204	Pipe	S-204	S-203	125.35	4237.08	4236.58	0.4000	24.000	0.0130	3.52	14.30	0.25	1.92	2.00	1.00	77.00	SURCHARGED
3	SD-S205	Pipe	S-205	S-203	67.26	4236.68	4236.58	0.1500	24.000	0.0130	5.88	10.12	0.58	2.32	2.00	1.00	132.00	SURCHARGED
4	SD-S206	Pipe	S-206	S-205	62.66	4236.78	4236.68	0.1500	24.000	0.0130	5.94	10.12	0.59	1.89	2.00	1.00	123.00	SURCHARGED
5	SD-S207	Pipe	S-207	S-206	34.57	4236.83	4236.78	0.1500	15.000	0.0130	0.55	2.89	0.19	1.50	1.25	1.00	199.00	SURCHARGED
6	SD-S208	Pipe	S-208	S-206	104.50	4236.93	4236.78	0.1500	24.000	0.0130	5.94	10.12	0.59	1.89	2.00	1.00	107.00	SURCHARGED
7	SD-S210	Pipe	S-210	S-208	68.83	4237.04	4236.93	0.1500	18.000	0.0130	3.22	4.70	0.69	2.44	1.50	1.00	155.00	SURCHARGED
8	SD-S211	Pipe	S-211	S-210	34.50	4237.09	4237.04	0.1500	15.000	0.0130	0.80	2.89	0.28	2.00	1.25	1.00	181.00	SURCHARGED
9	SD-S212	Pipe	S-212	S-210	121.97	4237.22	4237.04	0.1500	18.000	0.0130	3.34	4.70	0.71	2.25	1.50	1.00	133.00	SURCHARGED
10	SD-S213	Pipe	S-213	S-212	54.35	4237.30	4237.22	0.1500	18.000	0.0130	3.48	4.70	0.74	2.32	1.50	1.00	123.00	SURCHARGED
11	SD-S214	Pipe	S-214	S-213	60.16	4237.39	4237.30	0.1500	18.000	0.0130	3.56	4.70	0.76	2.30	1.50	1.00	113.00	SURCHARGED
12	SD-S215	Pipe	S-215	S-214	34.50	4238.54	4238.14	1.1700	15.000	0.0130	1.71	6.99	0.25	4.17	1.15	0.92	0.00	Calculated
13	SD-S216	Pipe	S-216	S-214	337.17	4237.90	4237.39	0.1500	18.000	0.0130	2.73	4.70	0.58	1.87	1.50	1.00	60.00	SURCHARGED
14	SD-S217	Pipe	S-217	S-216	175.50	4238.16	4237.90	0.1500	18.000	0.0130	2.73	4.70	0.58	3.04	1.49	0.99	0.00	Calculated
15	SD-S218	Pipe	S-218	S-217	29.90	4239.10	4238.95	0.5000	15.000	0.0130	0.57	4.58	0.13	2.35	0.61	0.48	0.00	Calculated
16	SD-S219	Pipe	S-219	S-217	41.32	4238.22	4238.16	0.1500	18.000	0.0130	2.31	4.70	0.49	1.93	1.44	0.96	0.00	Calculated
17	SD-S220	Pipe	S-220	S-219	47.53	4238.29	4238.22	0.1500	18.000	0.0130	2.45	4.70	0.52	2.41	1.38	0.92	0.00	Calculated
18	SD-S221	Pipe	S-221	S-220	139.77	4238.50	4238.29	0.1500	18.000	0.0130	2.70	4.70	0.57	2.38	1.24	0.83	0.00	Calculated
19	SD-S222	Pipe	S-222	S-221	45.50	4238.57	4238.50	0.1500	15.000	0.0130	1.08	2.89	0.37	1.53	1.10	0.88	0.00	Calculated
20	SD-S224	Pipe	S-224	S-219	84.98	4238.35	4238.22	0.1500	15.000	0.0130	0.44	2.89	0.15	0.79	1.25	1.00	28.00	SURCHARGED
21	SD-S225	Pipe	S-225	S-224	61.69	4238.44	4238.35	0.1500	15.000	0.0130	0.42	2.89	0.15	1.83	1.22	0.98	0.00	Calculated
22	SD-S226	Pipe	S-226	S-225	44.58	4238.51	4238.44	0.1500	15.000	0.0130	0.41	2.89	0.14	1.08	1.17	0.93	0.00	Calculated
23	SD-S228	Pipe	S-228	S-216	65.50	4237.99	4237.90	0.1400	15.000	0.0130	1.00	2.89	0.35	2.31	1.25	1.00	75.00	SURCHARGED
24	SD-S229	Pipe	S-229	S-228	34.50	4238.04	4237.99	0.1500	15.000	0.0130	0.18	2.89	0.06	0.53	1.25	1.00	70.00	SURCHARGED
25	SD-S230	Pipe	S-230	S-228	132.07	4238.18	4237.99	0.1500	15.000	0.0130	1.25	2.89	0.43	2.02	1.25	1.00	56.00	SURCHARGED
26	SD-S231	Pipe	S-231	S-230	34.50	4238.23	4238.18	0.1500	15.000	0.0130	0.42	2.89	0.14	1.39	1.25	1.00	49.00	SURCHARGED
27	SD-S232	Pipe	S-232	S-230	158.62	4238.42	4238.18	0.1500	15.000	0.0130	0.67	2.89	0.23	1.30	1.23	0.98	0.00	Calculated
28	SD-S233	Pipe	S-233	S-232	38.00	4238.48	4238.42	0.1500	15.000	0.0130	0.38	2.89	0.13	1.08	1.17	0.94	0.00	Calculated
29	SD-S234	Pipe	S-234	S-205	74.73	4236.79	4236.68	0.1500	18.000	0.0130	2.66	4.70	0.57	1.50	1.50	1.00	182.00	SURCHARGED
30	SD-S235	Pipe	S-235	S-234	272.66	4237.20	4236.79	0.1500	14.994	0.0130	1.76	2.89	0.61	1.72	1.25	1.00	170.00	SURCHARGED
31	SD-S236	Pipe	S-236	S-235	121.85	4237.39	4237.20	0.1500	14.994	0.0110	1.54	3.41	0.45	2.35	1.25	1.00	153.00	SURCHARGED
32	SD-S237	Pipe	S-237	S-236	132.56	4237.59	4237.39	0.1500	12.232	0.0110	1.47	1.98	0.74	2.35	1.02	1.00	156.00	SURCHARGED
33	SD-S238	Pipe	S-238	S-237	32.73	4237.91	4237.59	1.0000	12.232	0.0110	1.05	4.43	0.24	3.44	1.02	1.00	101.00	SURCHARGED
34	SD-S239	Pipe	S-239	S-237	92.27	4237.95	4237.59	0.4000	12.232	0.0110	0.77	2.80	0.28	1.54	1.02	1.00	96.00	SURCHARGED
35	SD-S240	Pipe	S-240	S-239	81.45	4238.28	4237.95	0.4000	12.232	0.0110	0.74	2.80	0.26	2.58	1.02	1.00	53.00	SURCHARGED
36	SD-S241	Pipe	S-241	S-240	32.87	4238.61	4238.28	1.0000	12.232	0.0110	0.69	4.43	0.16	3.13	0.94	0.93	0.00	Calculated
37	SD-S242	Pipe	S-242	S-240	186.00	4239.02	4238.28	0.4000	12.232	0.0110	0.36	2.80	0.13	1.50	0.73	0.72	0.00	Calculated
38	SD-S243	Pipe	S-243	S-242	32.73	4239.35	4239.02	1.0000	12.232	0.0110	0.36	4.43	0.08	2.56	0.28	0.28	0.00	Calculated
39	SD-S244	Pipe	S-244	S-235	90.30	4237.56	4237.20	0.4000	12.232	0.0110	0.73	2.80	0.26	1.48	1.02	1.00	158.00	SURCHARGED
40	SD-S245	Pipe	S-245	S-244	168.68	4238.24	4237.56	0.4000	12.232	0.0110	0.49	2.80	0.18	1.65	1.02	1.00	59.00	SURCHARGED
41	SD-S246	Pipe	S-246	S-245	33.33	4238.57	4238.24	1.0000	12.232	0.0110	0.50	4.43	0.11	2.81	0.96	0.94	0.00	Calculated
42	SD-S247	Pipe	S-247	S-244	34.33	4237.91	4237.56	1.0000	12.232	0.0110	0.41	4.43	0.09	2.46	1.02	1.00	102.00	SURCHARGED
43	SD-S248	Pipe	S-248	S-301	38.30	4237.28	4237.19	0.2300	15.000	0.0130	1.55	3.13	0.49	2.32	1.25	1.00	152.00	SURCHARGED
44	SD-S249	Pipe	S-249	S-251	122.00	4238.40	4237.79	0.5000	15.000	0.0130	0.56	4.57	0.12	2.07	1.16	0.93	0.00	Calculated
45	SD-S250	Pipe	S-250	S-249	28.00	4238.54	4238.40	0.5000	15.000	0.0130	0.33	4.57	0.07	1.68	1.00	0.80	0.00	Calculated
46	SD-S251	Pipe	S-251	S-252	101.44	4237.79	4237.54	0.2500	15.000	0.0130	0.43	3.21	0.13	0.84	1.25	1.00	87.00	SURCHARGED
47	SD-S252	Pipe	S-252	S-255	62.88	4237.54	4237.38	0.2500	15.000	0.0130	1.05	3.26	0.32	1.29	1.25	1.00	119.00	SURCHARGED

Link Summary

SN	Element ID	Element Type	From (Inlet Node)	To (Outlet Node)	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
48	SD-S253	Pipe	S-253	S-252	62.50	4238.31	4238.00	0.5000	15.000	0.0130	0.70	4.57	0.15	2.55	1.21	0.96	0.00	Calculated
49	SD-S254	Pipe	S-254	S-253	38.00	4238.50	4238.31	0.5000	15.000	0.0130	0.57	4.57	0.12	2.20	1.07	0.85	0.00	Calculated
50	SD-S255	Pipe	S-255	S-248	40.02	4237.38	4237.28	0.2500	15.000	0.0130	1.58	3.23	0.49	2.09	1.25	1.00	139.00	SURCHARGED
51	SD-S256	Pipe	S-256	S-255	38.00	4238.90	4238.71	0.5000	15.000	0.0130	0.33	4.57	0.07	2.08	0.67	0.53	0.00	Calculated
52	SD-S301	Pipe	S-301	S-234	157.66	4237.19	4236.79	0.2500	15.000	0.0130	1.51	3.23	0.47	1.92	1.25	1.00	170.00	SURCHARGED
53	SD-S203	Orifice	S-203	S-202		4236.58	4236.52		9.240		3.29							
54	SD-S209	Orifice	S-209	S-208		4236.98	4236.93		15.000		5.74							
55	SD-S223	Orifice	S-223	S-222		4238.59	4238.57		4.700		0.62							
56	SD-S227	Orifice	S-227	S-226		4238.53	4238.51		3.400		0.41							

Subbasin Hydrology

Subbasin : CATCH S-1

Input Data

Area (ac) 6.17
 Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	6.17	-	0.8
Composite Area & Weighted Runoff Coeff.	6.17		0.8

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$$T_c = (0.007 * ((n * L_f)^{0.8}) / ((P^{0.5}) * (S_f^{0.4})))$$

Where :

- Tc = Time of Concentration (hr)
- n = Manning's roughness
- Lf = Flow Length (ft)
- P = 2 yr, 24 hr Rainfall (inches)
- Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

- V = 16.1345 * (Sf^{0.5}) (unpaved surface)
- V = 20.3282 * (Sf^{0.5}) (paved surface)
- V = 15.0 * (Sf^{0.5}) (grassed waterway surface)
- V = 10.0 * (Sf^{0.5}) (nearly bare & untilled surface)
- V = 9.0 * (Sf^{0.5}) (cultivated straight rows surface)
- V = 7.0 * (Sf^{0.5}) (short grass pasture surface)
- V = 5.0 * (Sf^{0.5}) (woodland surface)
- V = 2.5 * (Sf^{0.5}) (forest w/heavy litter surface)
- Tc = (Lf / V) / (3600 sec/hr)

Where:

- Tc = Time of Concentration (hr)
- Lf = Flow Length (ft)
- V = Velocity (ft/sec)
- Sf = Slope (ft/ft)

Channel Flow Equation :

$$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$$

$$R = A_q / W_p$$

$$T_c = (L_f / V) / (3600 \text{ sec/hr})$$

Where :

- Tc = Time of Concentration (hr)
- Lf = Flow Length (ft)
- R = Hydraulic Radius (ft)
- Aq = Flow Area (ft²)
- Wp = Wetted Perimeter (ft)
- V = Velocity (ft/sec)
- Sf = Slope (ft/ft)
- n = Manning's roughness

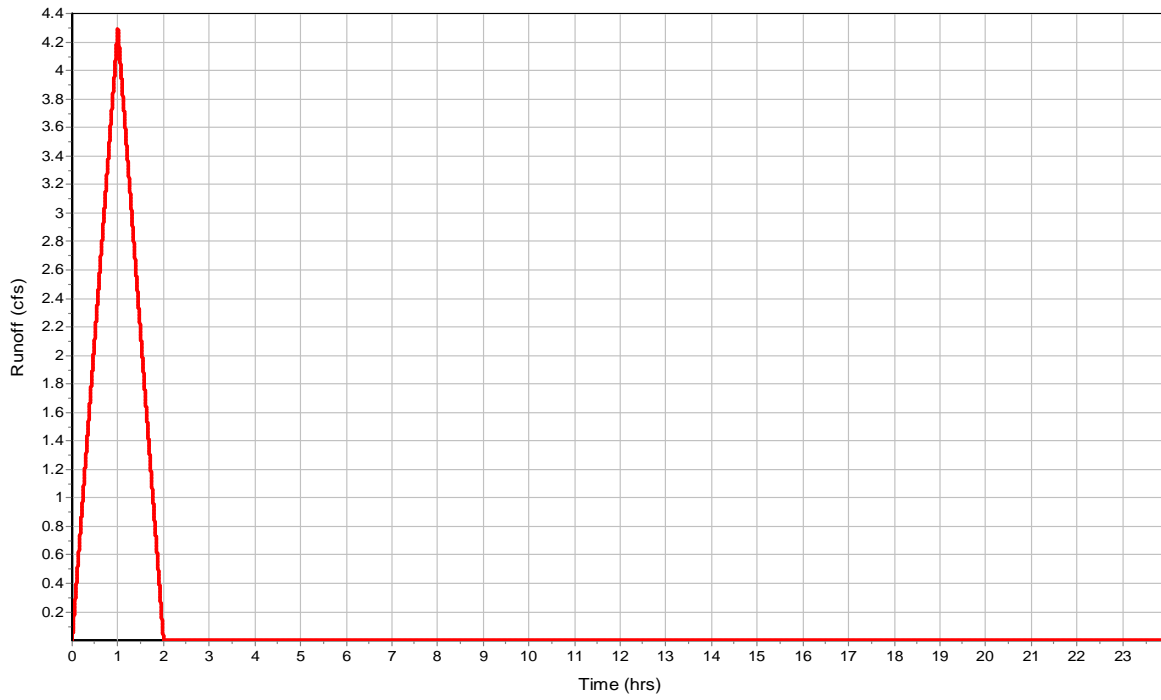
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 0.87
 Total Runoff (in) 0.7
 Peak Runoff (cfs) 4.29
 Rainfall Intensity 0.87
 Weighted Runoff Coefficient 0.8
 Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-1

Runoff Hydrograph



Subbasin : CATCH S-10

Input Data

Area (ac) 0.29
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.29	-	0.45
Composite Area & Weighted Runoff Coeff.	0.29		0.45

Time of Concentration

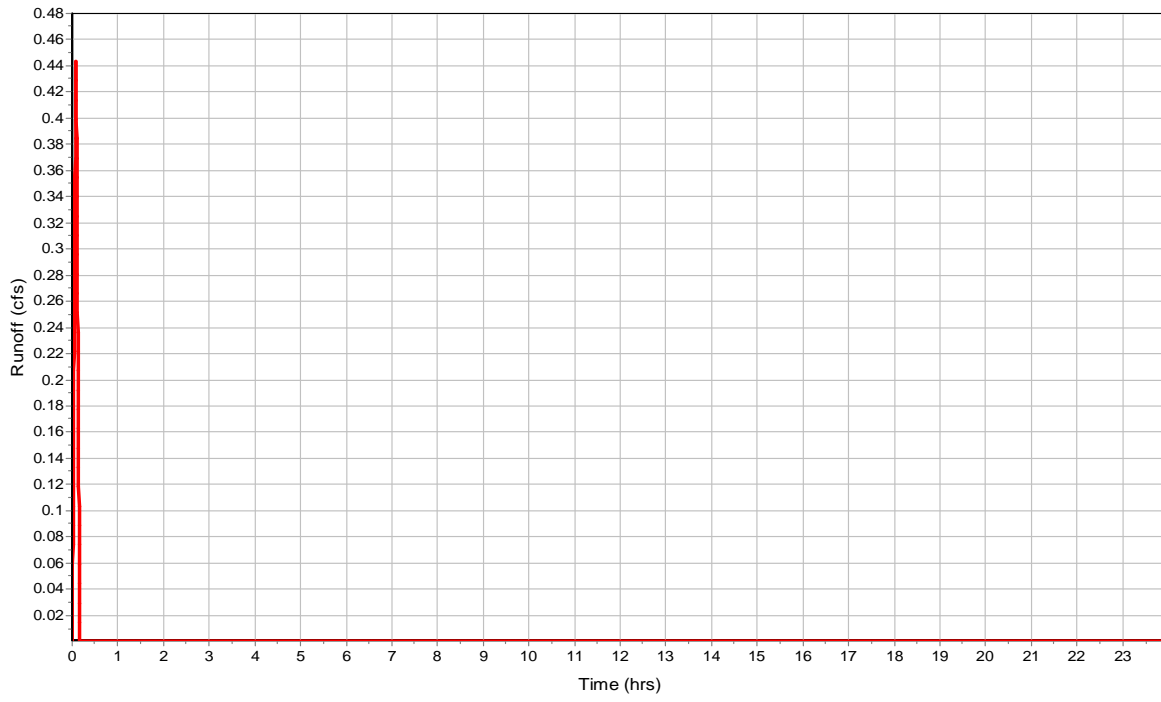
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.59365083	0	0
Slope (%) :	2.71244312	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	205.9698841	0	0
Slope (%) :	0.58346963	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.55	0	0
Computed Flow Time (min) :	2.21	0	0
Total TOC (min)2.54			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.44
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:02:32

Subbasin : CATCH S-10

Runoff Hydrograph



Subbasin : CATCH S-11

Input Data

Area (ac) 0.31
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.31	-	0.45
Composite Area & Weighted Runoff Coeff.	0.31		0.45

Time of Concentration

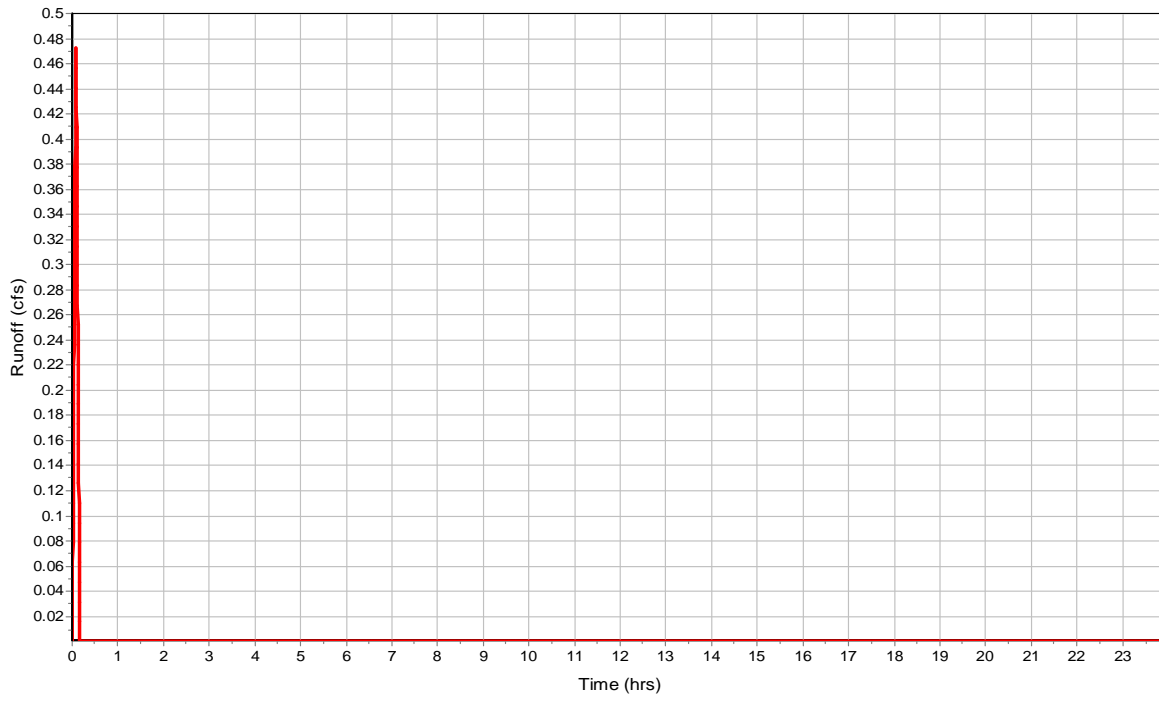
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	102.1057022	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	1.32	0	0
Total TOC (min)1.65			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.47
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:39

Subbasin : CATCH S-11

Runoff Hydrograph



Subbasin : CATCH S-12

Input Data

Area (ac) 0.24
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.24	-	0.45
Composite Area & Weighted Runoff Coeff.	0.24		0.45

Time of Concentration

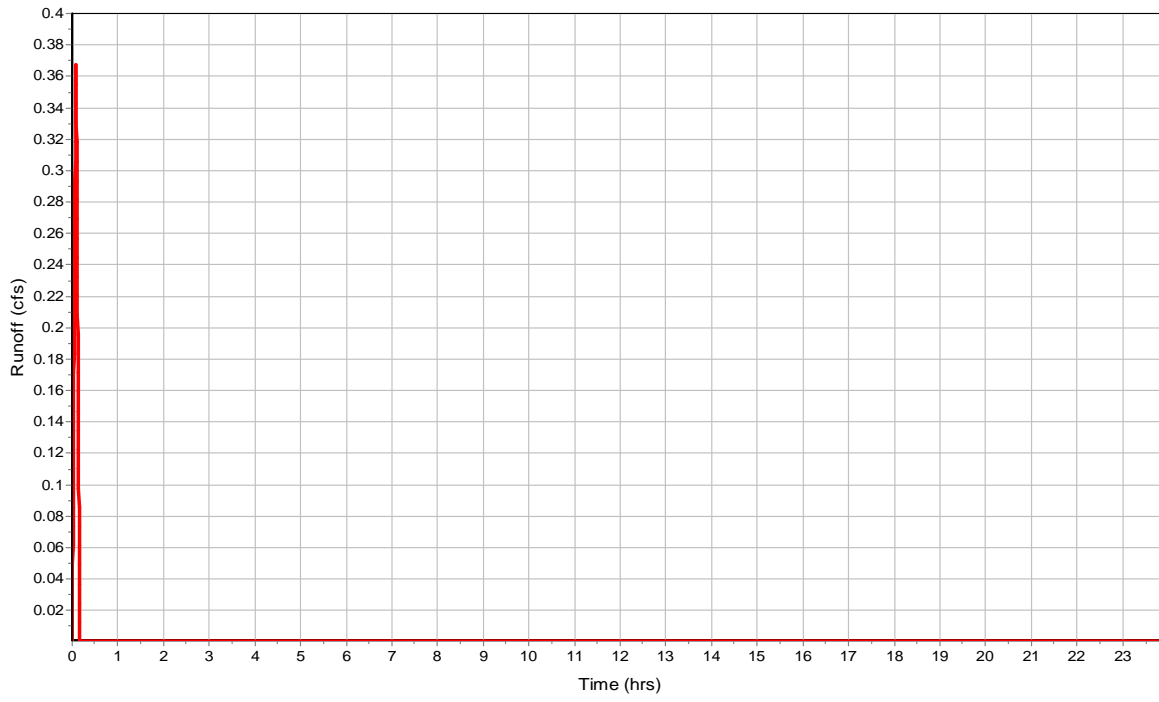
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	102.1057022	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	1.32	0	0
Total TOC (min)1.65			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.37
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:39

Subbasin : CATCH S-12

Runoff Hydrograph



Subbasin : CATCH S-13

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

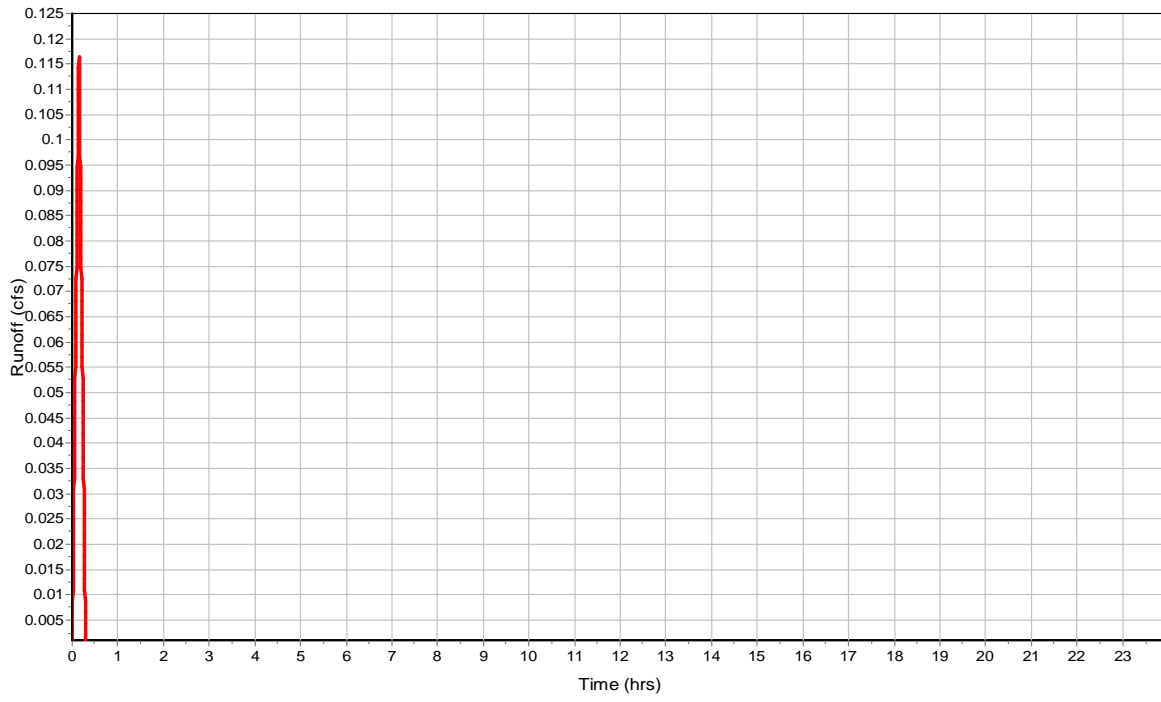
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	47.00111348	0	0
Slope (%) :	1.38729392	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	8.51	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	25.96630818	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	0.3	0	0
Total TOC (min)8.81			

Subbasin Runoff Results

Total Rainfall (in) 0.39
 Total Runoff (in) 0.17
 Peak Runoff (cfs) 0.12
 Rainfall Intensity 2.629
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:08:49

Subbasin : CATCH S-13

Runoff Hydrograph



Subbasin : CATCH S-14

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

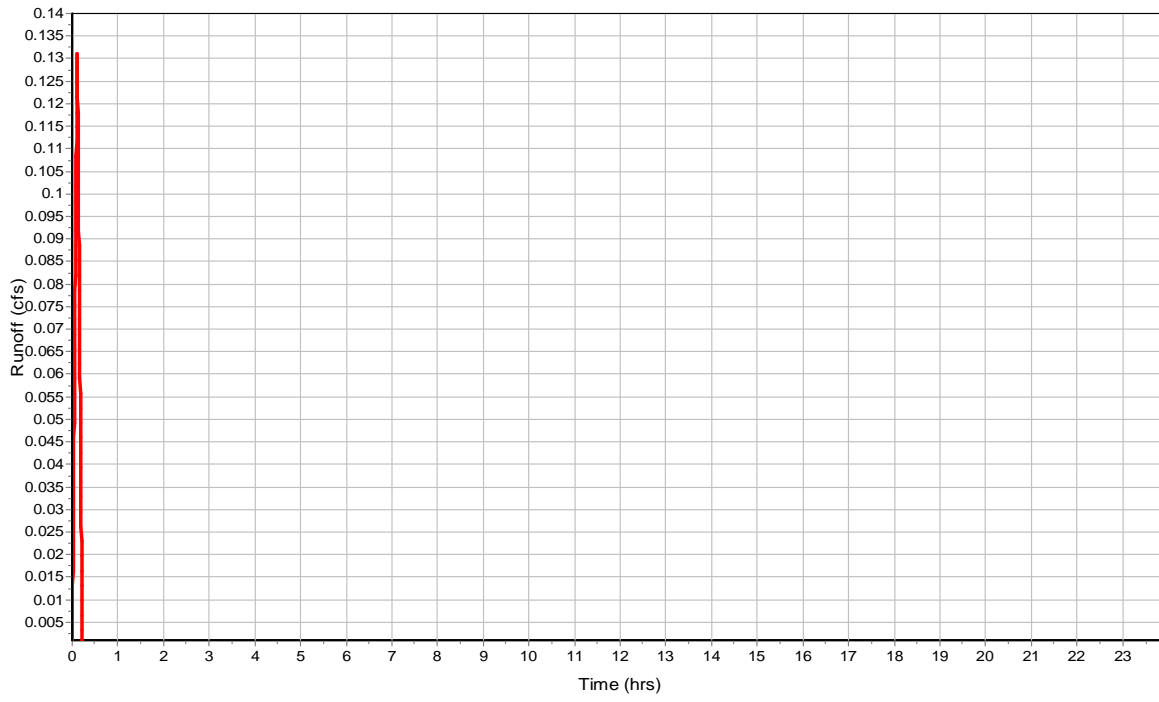
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	45.3163887	0	0
Slope (%) :	2.70352519	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	6.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	24.60570221	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.32	0	0
Total TOC (min)	6.65		

Subbasin Runoff Results

Total Rainfall (in) 0.33
 Total Runoff (in) 0.15
 Peak Runoff (cfs) 0.13
 Rainfall Intensity 2.961
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:06:39

Subbasin : CATCH S-14

Runoff Hydrograph



Subbasin : CATCH S-15

Input Data

Area (ac) 1.24
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.24	-	0.45
Composite Area & Weighted Runoff Coeff.	1.24		0.45

Time of Concentration

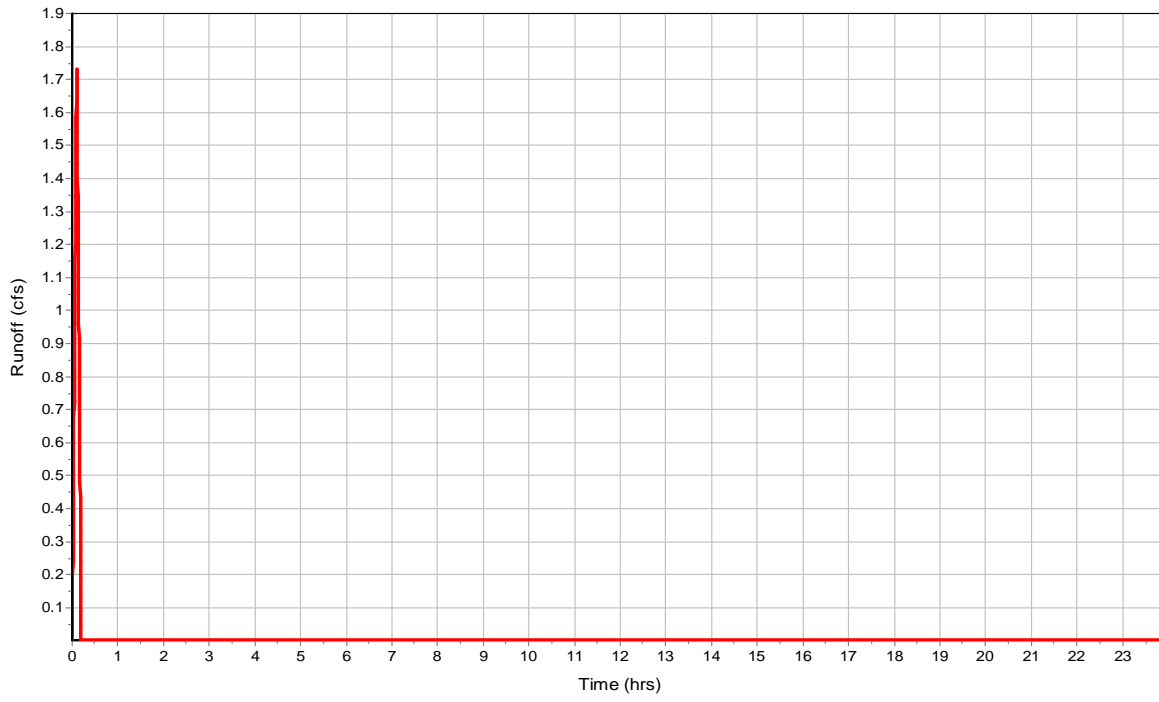
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.13	0	0
Flow Length (ft) :	20.17506685	0	0
Slope (%) :	2.67601058	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.17	0	0
Computed Flow Time (min) :	2.04	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	304.0076134	0	0
Slope (%) :	0.40047248	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	3.94	0	0
Total TOC (min)	5.98		

Subbasin Runoff Results

Total Rainfall (in) 0.31
 Total Runoff (in) 0.14
 Peak Runoff (cfs) 1.73
 Rainfall Intensity 3.097
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:05:59

Subbasin : CATCH S-15

Runoff Hydrograph



Subbasin : CATCH S-16

Input Data

Area (ac) 0.3
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.3	-	0.45
Composite Area & Weighted Runoff Coeff.	0.3		0.45

Time of Concentration

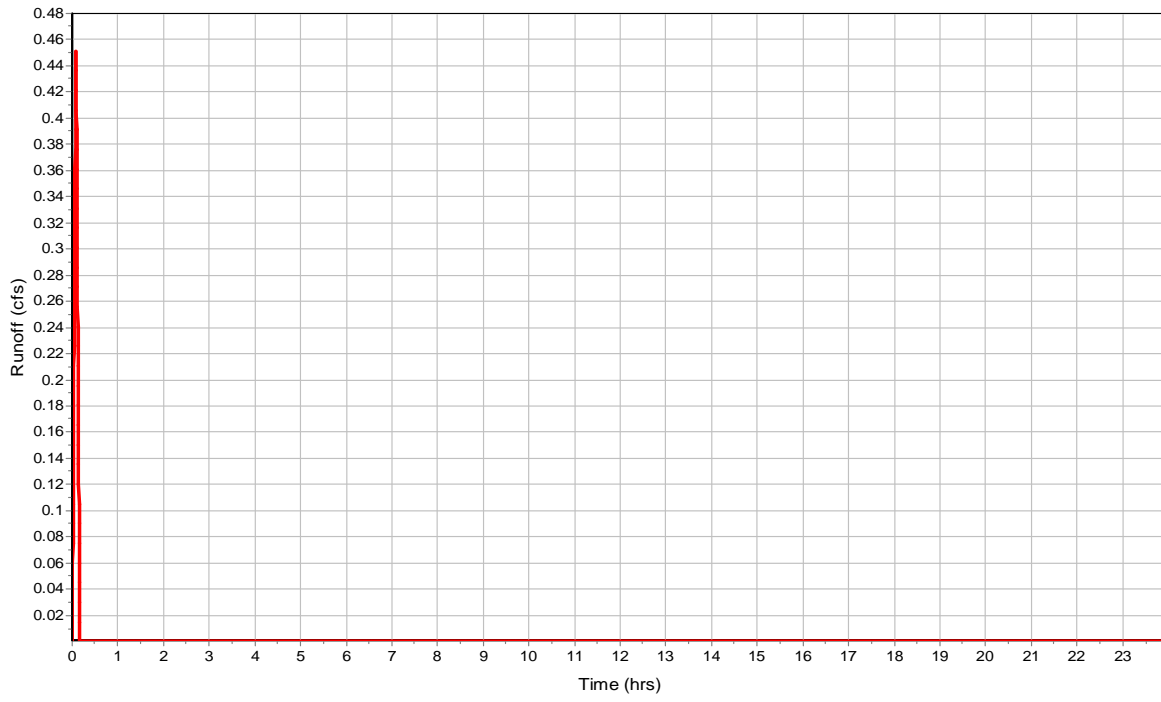
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	350.3467955	0	0
Slope (%) :	0.53147631	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.18	0	0
Computed Flow Time (min) :	4.96	0	0
Total TOC (min)	4.96		

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.45
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:04:58

Subbasin : CATCH S-16

Runoff Hydrograph



Subbasin : CATCH S-17

Input Data

Area (ac) 0.58
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.45
Composite Area & Weighted Runoff Coeff.	0.58		0.45

Time of Concentration

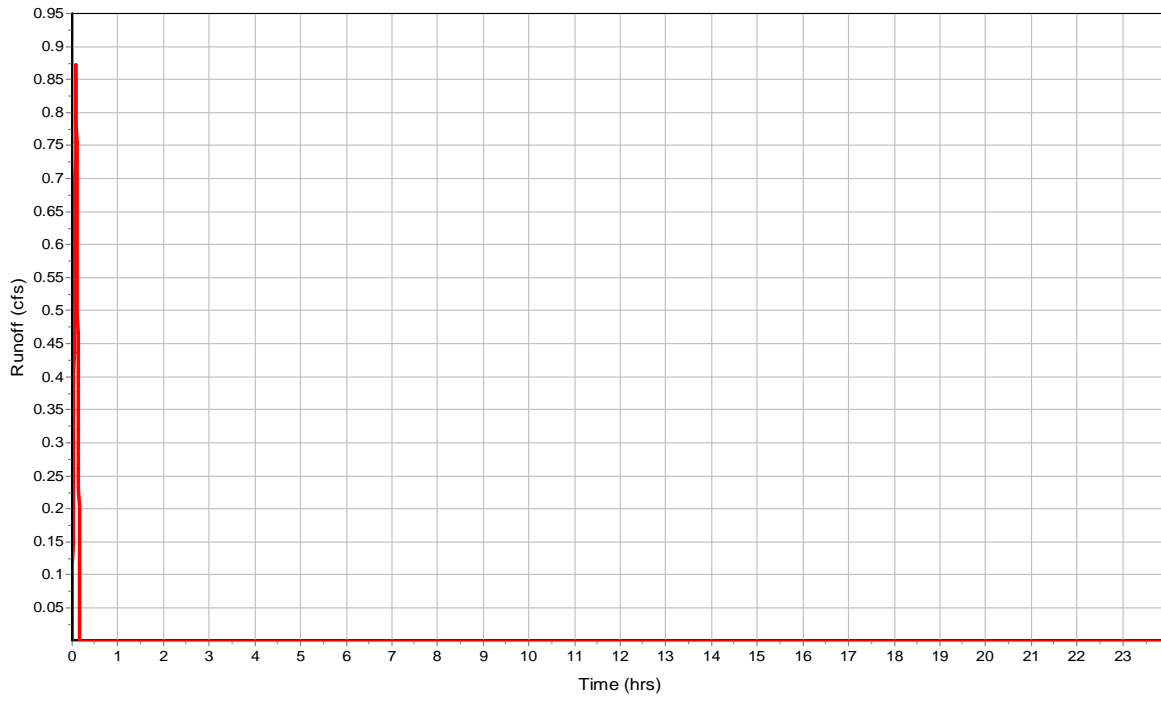
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	173.0247667	0	0
Slope (%) :	0.83852147	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.48	0	0
Computed Flow Time (min) :	1.95	0	0
Total TOC (min)	1.95		

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.87
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:57

Subbasin : CATCH S-17

Runoff Hydrograph



Subbasin : CATCH S-18

Input Data

Area (ac) 0.17
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.17	-	0.45
Composite Area & Weighted Runoff Coeff.	0.17		0.45

Time of Concentration

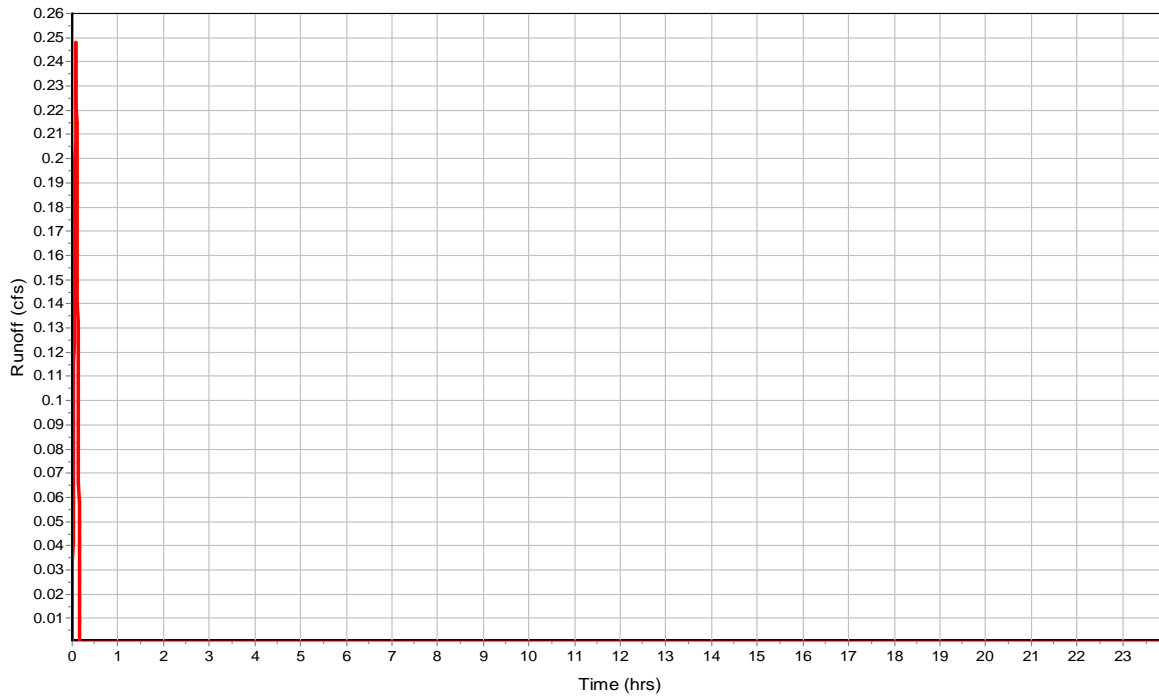
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.50766126	0	0
Slope (%) :	2.71034994	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	130.9394959	0	0
Slope (%) :	0.57483908	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.54	0	0
Computed Flow Time (min) :	1.42	0	0
Total TOC (min)1.74			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.25
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:44

Subbasin : CATCH S-18

Runoff Hydrograph



Subbasin : CATCH S-19

Input Data

Area (ac) 8.71
Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	8.71	-	0.8
Composite Area & Weighted Runoff Coeff.	8.71		0.8

Time of Concentration

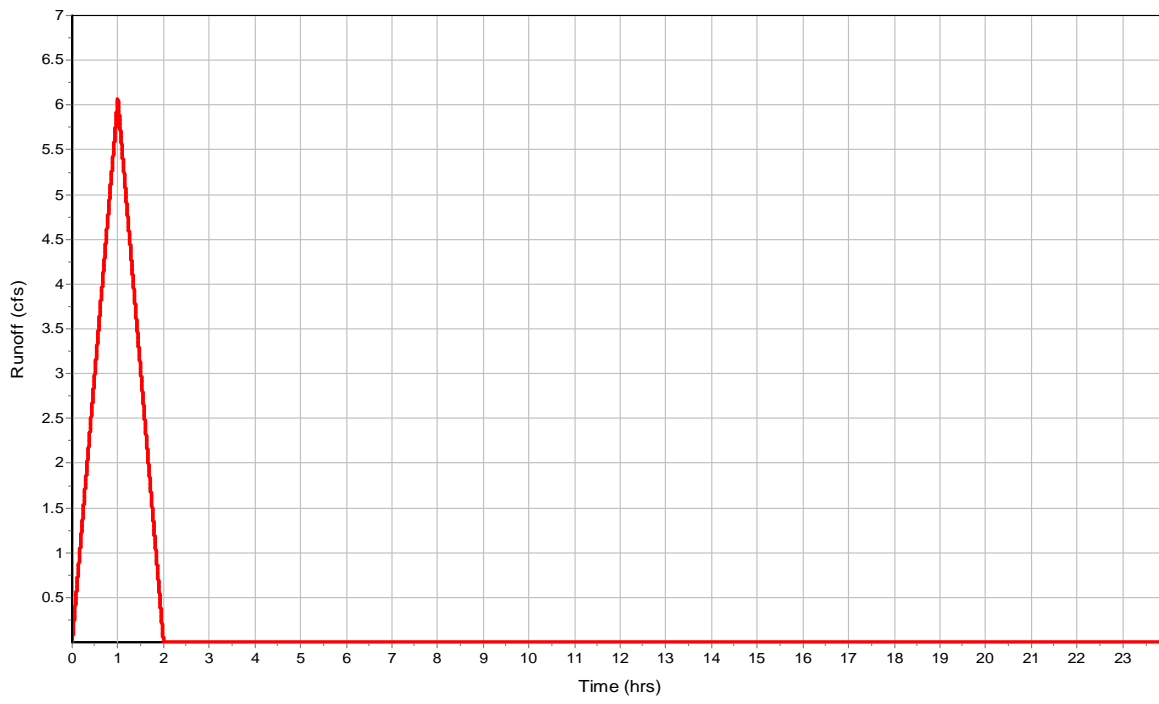
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 0.87
Total Runoff (in) 0.7
Peak Runoff (cfs) 6.06
Rainfall Intensity 0.87
Weighted Runoff Coefficient 0.8
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-19

Runoff Hydrograph



Subbasin : CATCH S-2

Input Data

Area (ac) 4.12
Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	4.12	-	0.8
Composite Area & Weighted Runoff Coeff.	4.12		0.8

Time of Concentration

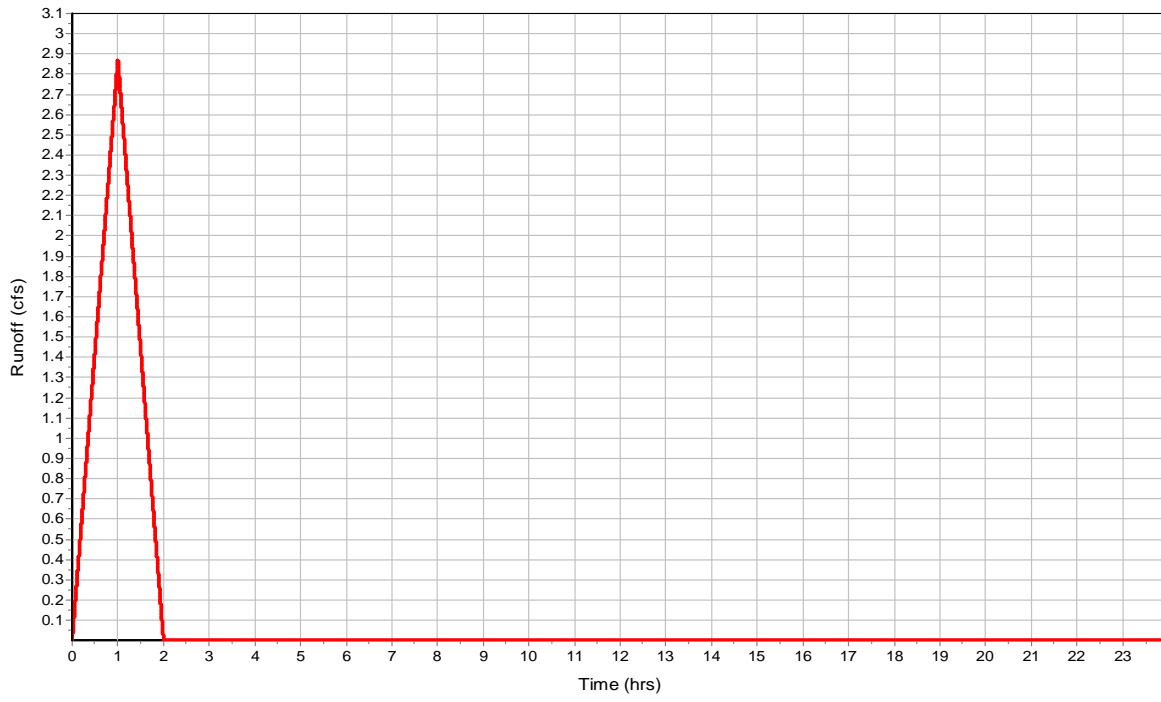
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 0.87
Total Runoff (in) 0.7
Peak Runoff (cfs) 2.87
Rainfall Intensity 0.87
Weighted Runoff Coefficient 0.8
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-2

Runoff Hydrograph



Subbasin : CATCH S-20

Input Data

Area (ac) 0.4
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.4	-	0.45
Composite Area & Weighted Runoff Coeff.	0.4		0.45

Time of Concentration

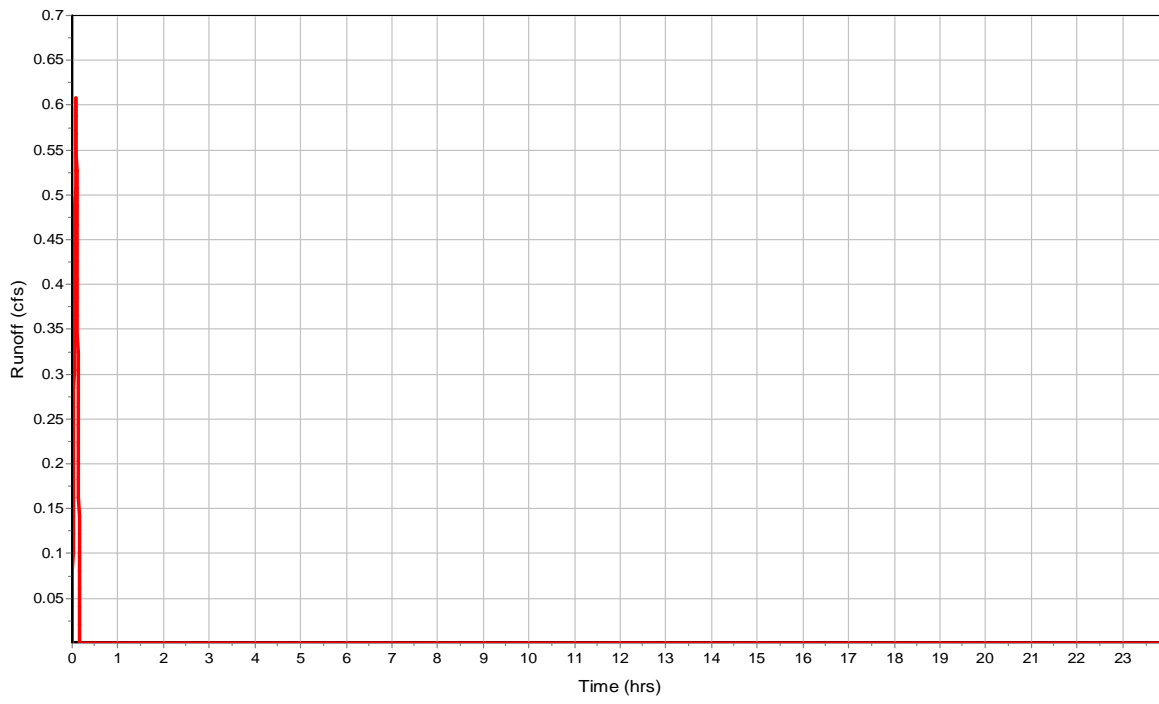
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	194.1324997	0	0
Slope (%) :	0.40795425	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.3	0	0
Computed Flow Time (min) :	2.49	0	0
Total TOC (min)2.81			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.61
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:02:49

Subbasin : CATCH S-20

Runoff Hydrograph



Subbasin : CATCH S-21

Input Data

Area (ac)	0.27
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.27	-	0.45
Composite Area & Weighted Runoff Coeff.	0.27		0.45

Time of Concentration

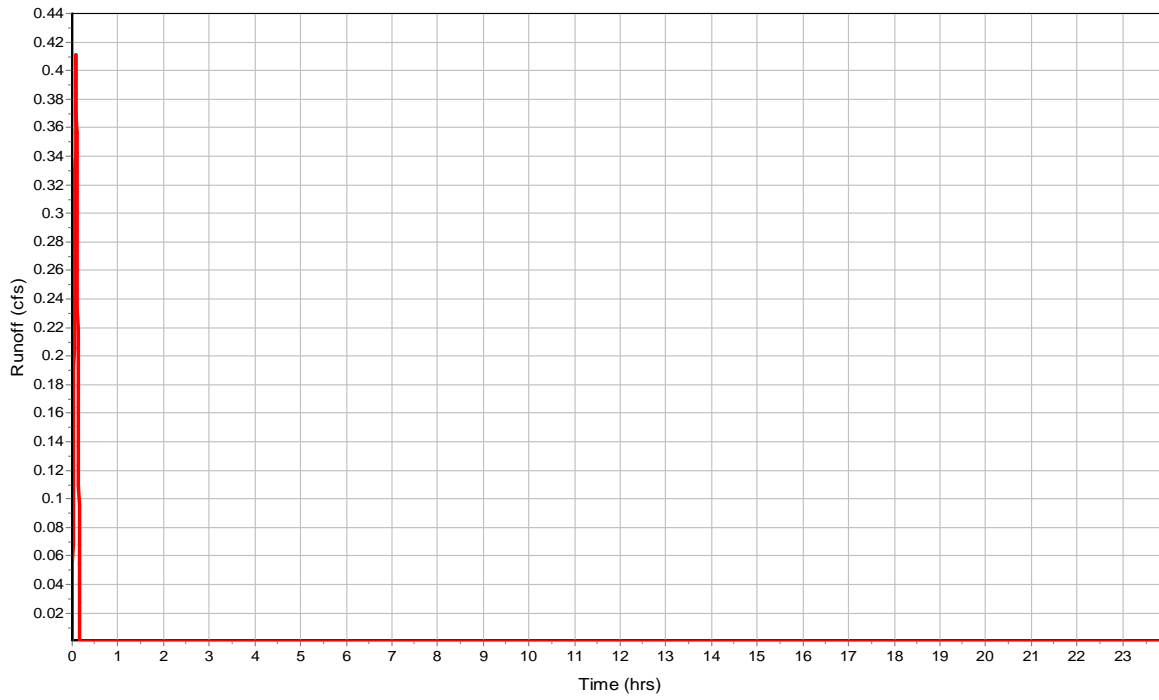
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.6469901	0	0
Slope (%) :	2.71559241	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	62.47956029	0	0
Slope (%) :	0.4283012	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.33	0	0
Computed Flow Time (min) :	0.78	0	0
Total TOC (min)	1.11		

Subbasin Runoff Results

Total Rainfall (in)	0.28
Total Runoff (in)	0.13
Peak Runoff (cfs)	0.41
Rainfall Intensity	3.34
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:01:07

Subbasin : CATCH S-21

Runoff Hydrograph



Subbasin : CATCH S-22

Input Data

Area (ac) 0.63
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.63	-	0.45
Composite Area & Weighted Runoff Coeff.	0.63		0.45

Time of Concentration

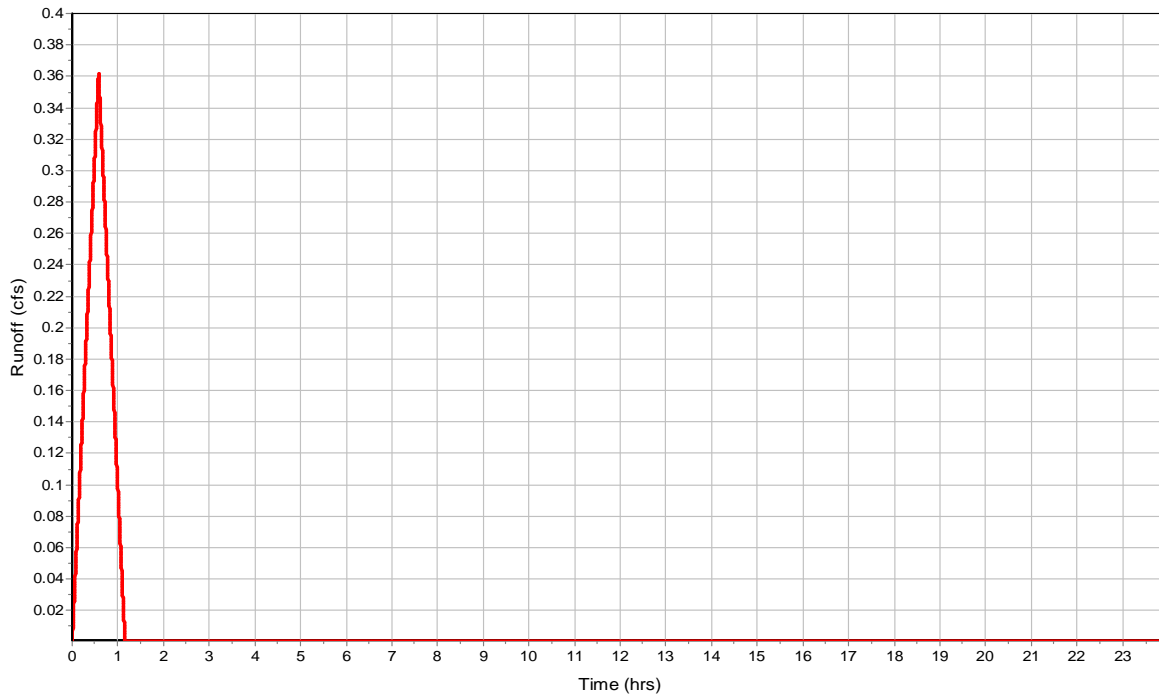
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	153.1338632	0	0
Slope (%) :	0.43927089	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.07	0	0
Computed Flow Time (min) :	34.69	0	0
Total TOC (min)	34.69		

Subbasin Runoff Results

Total Rainfall (in) 0.74
 Total Runoff (in) 0.33
 Peak Runoff (cfs) 0.36
 Rainfall Intensity 1.274
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:34:41

Subbasin : CATCH S-22

Runoff Hydrograph



Subbasin : CATCH S-23

Input Data

Area (ac) 0.13
 Weighted Runoff Coefficient 0.15

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.13	-	0.15
Composite Area & Weighted Runoff Coeff.	0.13		0.15

Time of Concentration

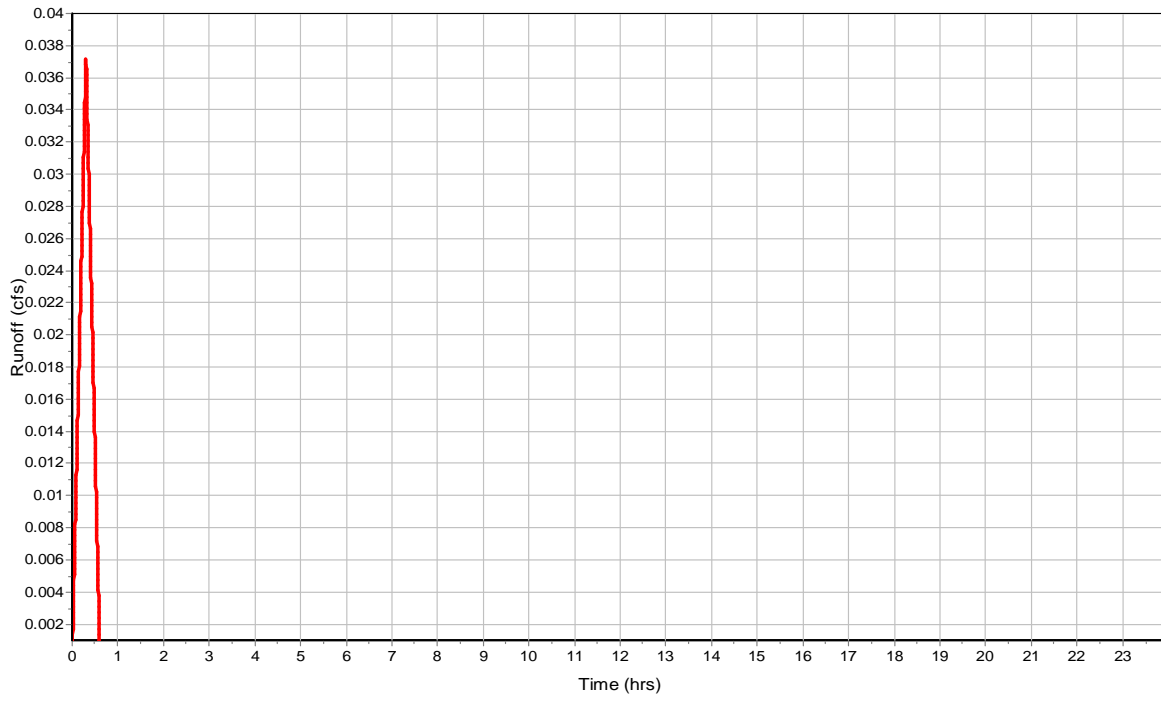
Sheet Flow Computations	Subarea		
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	145.5326238	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	18.16	0	0
Total TOC (min)	18.16		

Subbasin Runoff Results

Total Rainfall (in) 0.57
 Total Runoff (in) 0.09
 Peak Runoff (cfs) 0.04
 Rainfall Intensity 1.882
 Weighted Runoff Coefficient 0.15
 Time of Concentration (days hh:mm:ss) 0 00:18:10

Subbasin : CATCH S-23

Runoff Hydrograph



Subbasin : CATCH S-24

Input Data

Area (ac)	0.47
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.47	-	0.45
Composite Area & Weighted Runoff Coeff.	0.47		0.45

Time of Concentration

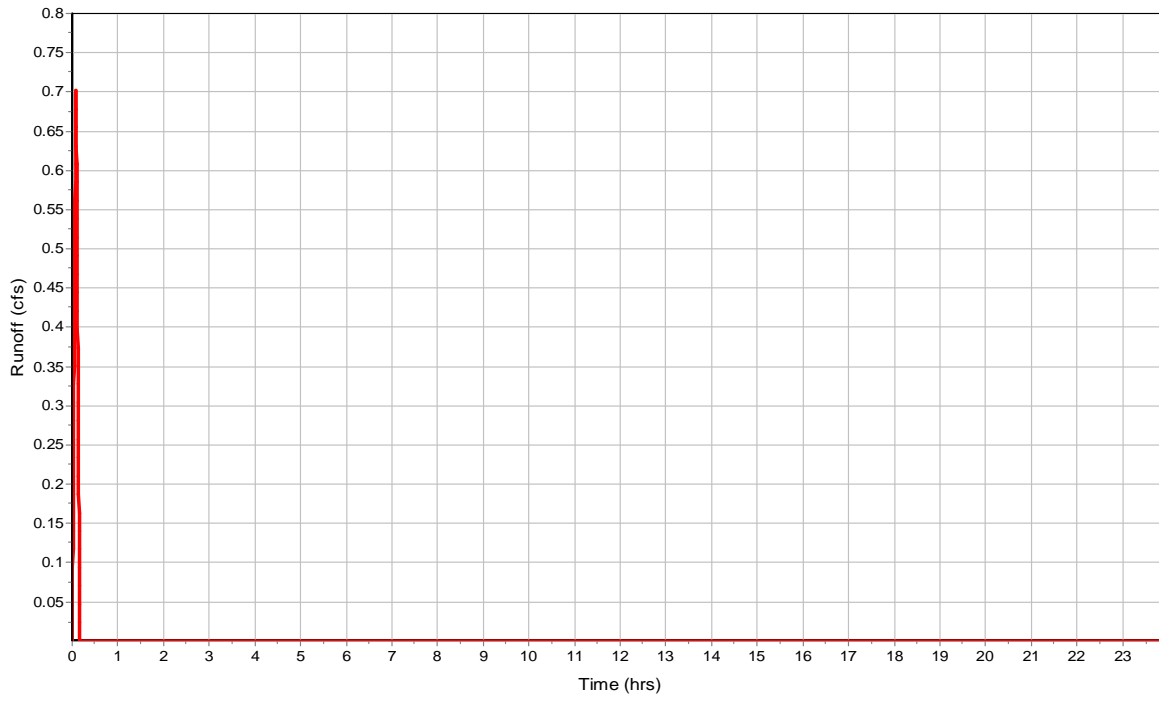
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	8.85765792	0	0
Slope (%) :	2.02098465	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.79	0	0
Computed Flow Time (min) :	0.19	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	124.8550359	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.45	0	0
Total TOC (min)	1.63		

Subbasin Runoff Results

Total Rainfall (in)	0.28
Total Runoff (in)	0.13
Peak Runoff (cfs)	0.7
Rainfall Intensity	3.34
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:01:38

Subbasin : CATCH S-24

Runoff Hydrograph



Subbasin : CATCH S-25

Input Data

Area (ac) 0.29
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.29	-	0.45
Composite Area & Weighted Runoff Coeff.	0.29		0.45

Time of Concentration

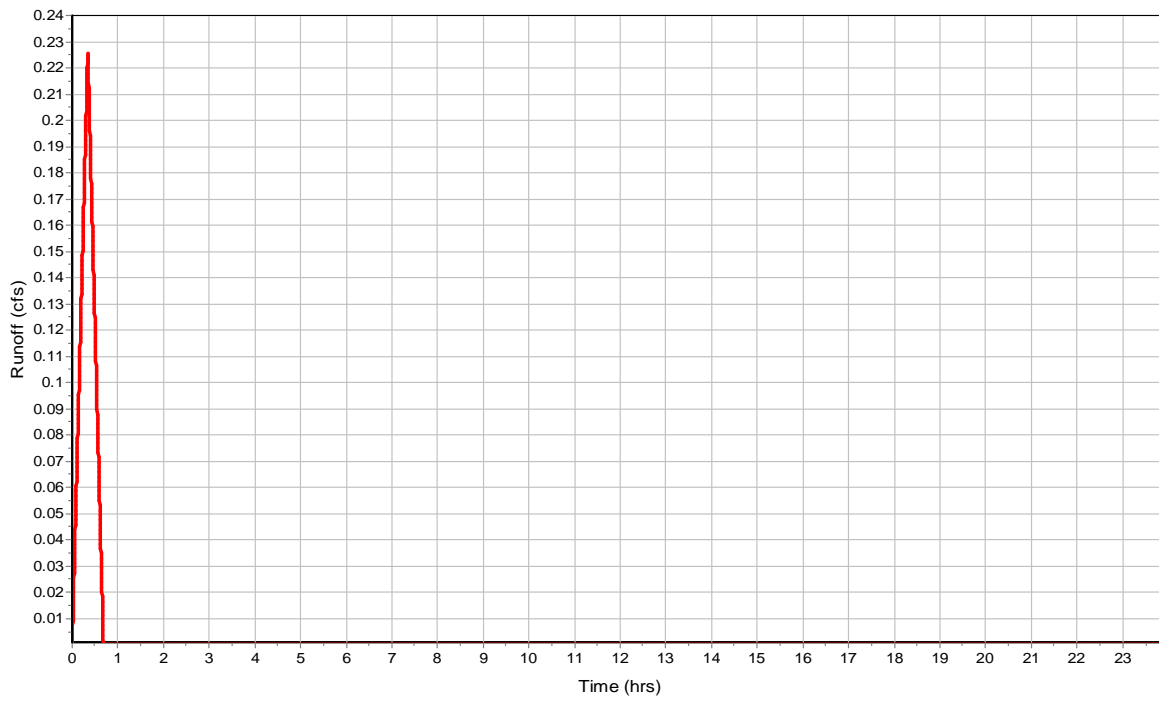
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	169.6434034	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	20.53	0	0
Total TOC (min)	20.53		

Subbasin Runoff Results

Total Rainfall (in) 0.6
 Total Runoff (in) 0.27
 Peak Runoff (cfs) 0.23
 Rainfall Intensity 1.753
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:20:32

Subbasin : CATCH S-25

Runoff Hydrograph



Subbasin : CATCH S-26

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

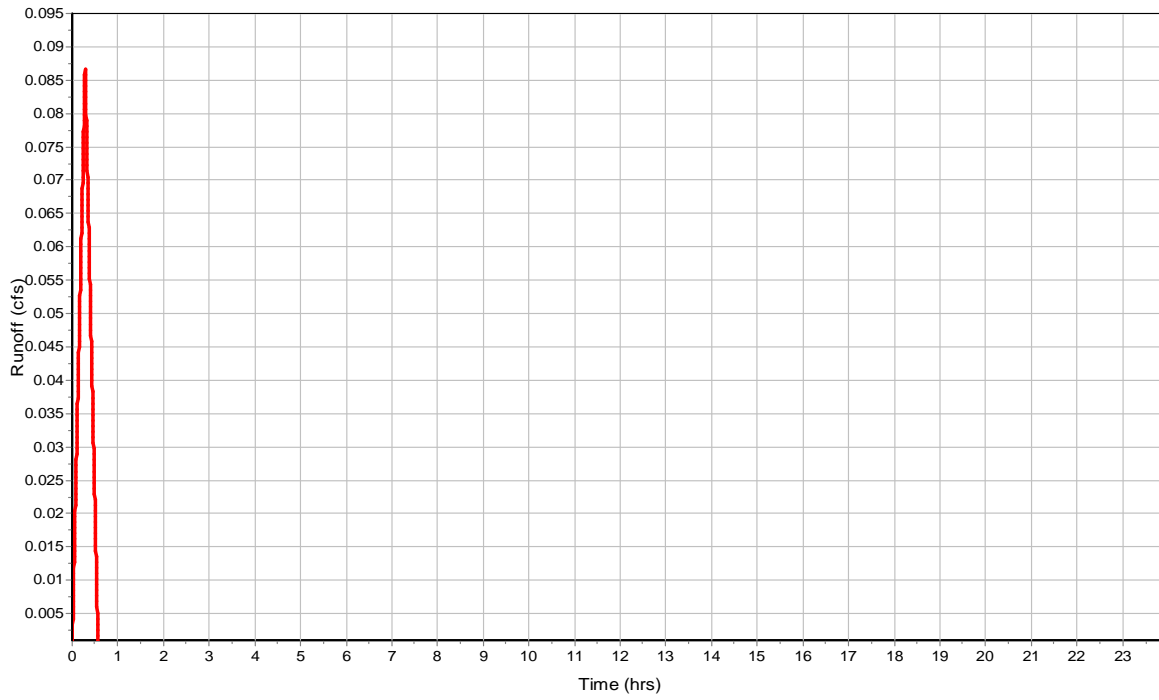
Sheet Flow Computations	Subarea		
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	134.7677904	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	17.08	0	0
Total TOC (min)	17.08		

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.09
 Rainfall Intensity 1.949
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:17:05

Subbasin : CATCH S-26

Runoff Hydrograph



Subbasin : CATCH S-27

Input Data

Area (ac) 0.72
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.72	-	0.45
Composite Area & Weighted Runoff Coeff.	0.72		0.45

Time of Concentration

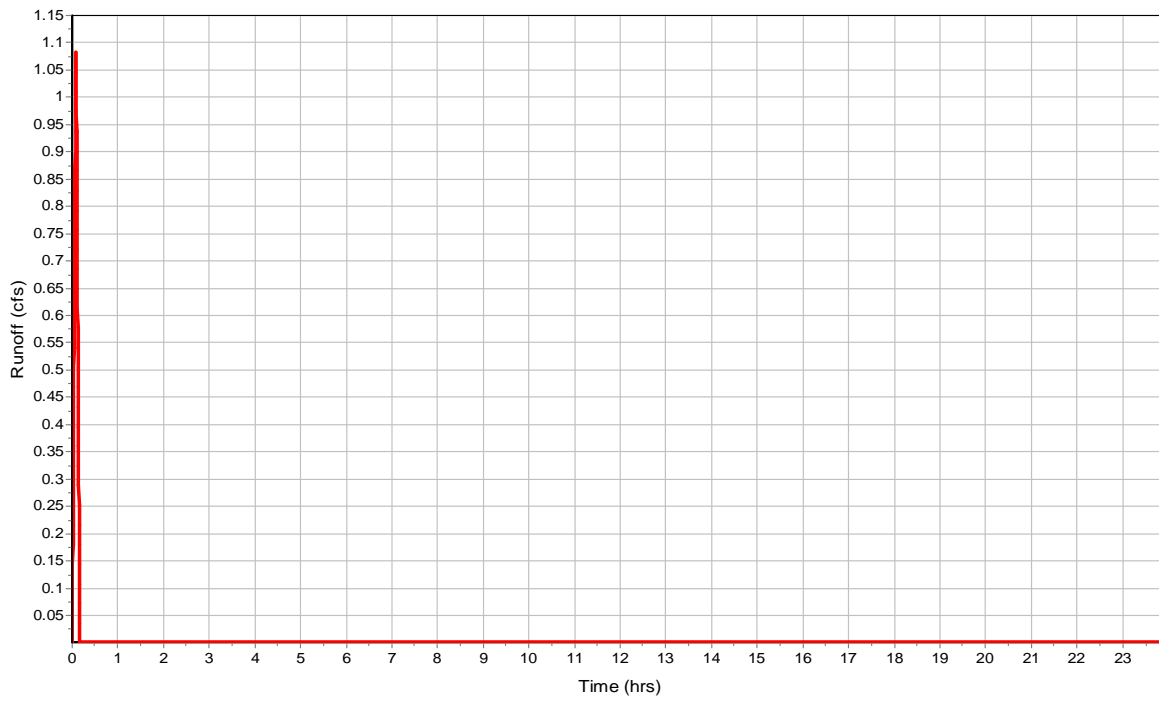
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	122.0569838	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.42	0	0
Total TOC (min)1.42			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 1.08
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:25

Subbasin : CATCH S-27

Runoff Hydrograph



Subbasin : CATCH S-28

Input Data

Area (ac)	1.07
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.07	-	0.45
Composite Area & Weighted Runoff Coeff.	1.07		0.45

Time of Concentration

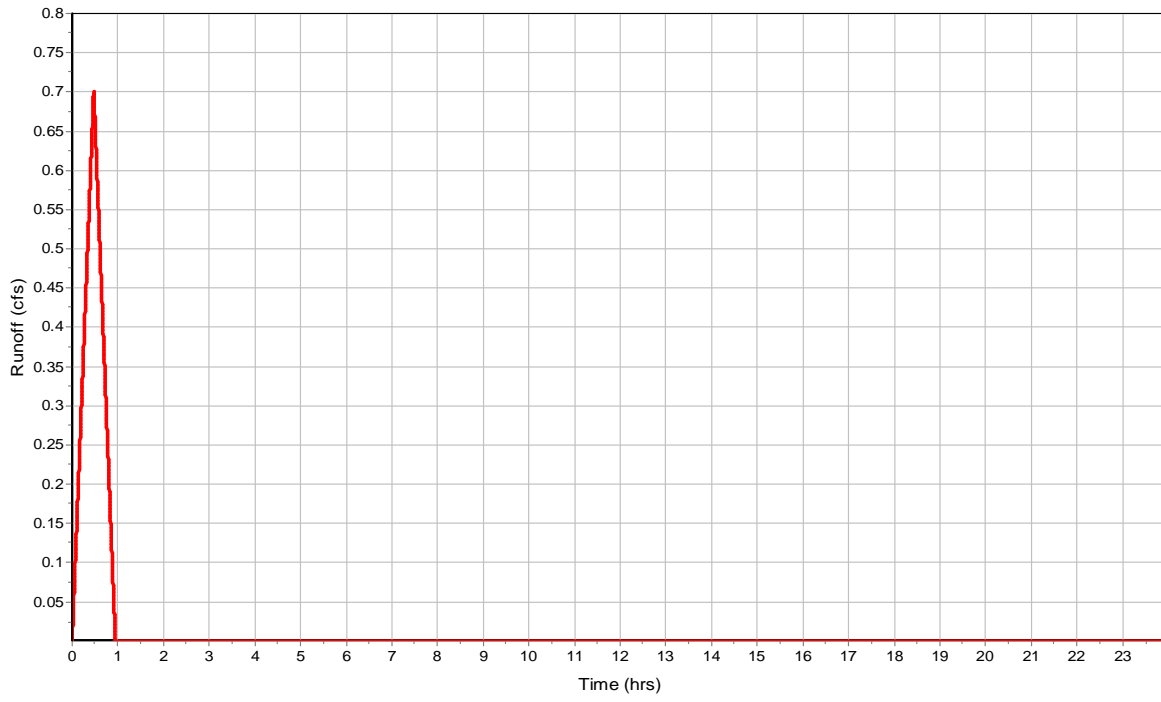
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	215.617529	0	0
Slope (%) :	1.44060253	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	28.37	0	0
Total TOC (min)	28.37		

Subbasin Runoff Results

Total Rainfall (in)	0.69
Total Runoff (in)	0.31
Peak Runoff (cfs)	0.7
Rainfall Intensity	1.456
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:28:22

Subbasin : CATCH S-28

Runoff Hydrograph



Subbasin : CATCH S-29

Input Data

Area (ac)	0.5
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.5	-	0.45
Composite Area & Weighted Runoff Coeff.	0.5		0.45

Time of Concentration

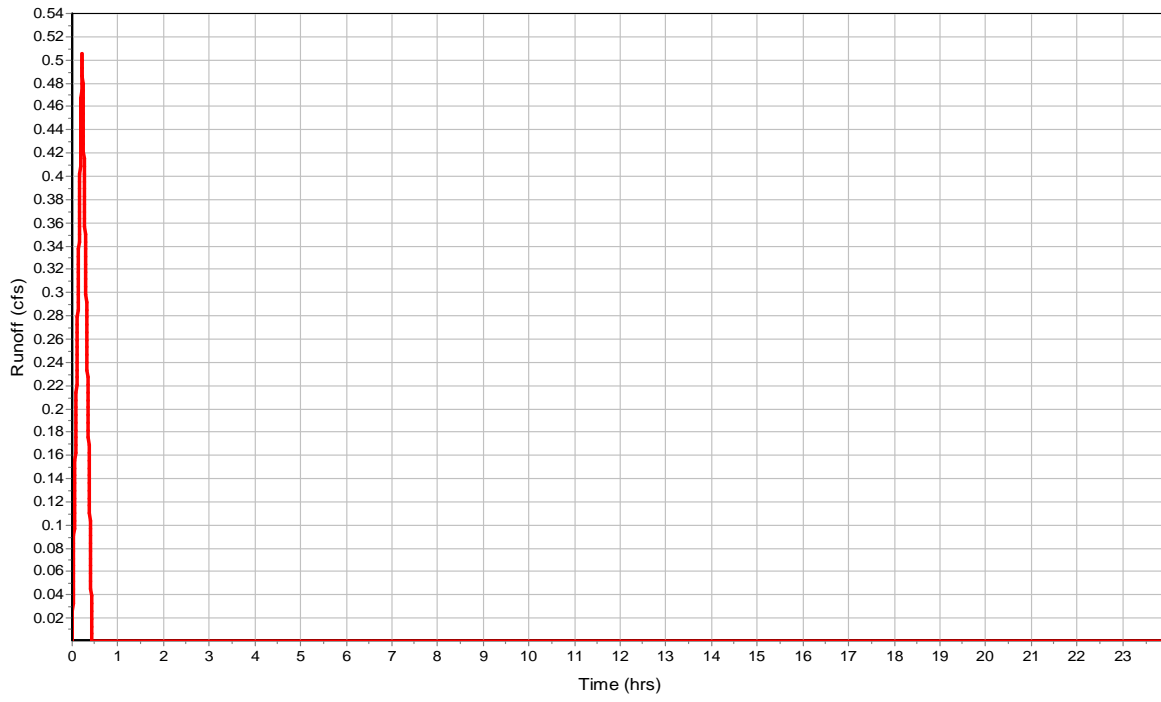
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	86.26065463	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	11.95	0	0
	Subarea		
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	82.98564634	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	0.96	0	0
Total TOC (min)	12.92		

Subbasin Runoff Results

Total Rainfall (in)	0.49
Total Runoff (in)	0.22
Peak Runoff (cfs)	0.51
Rainfall Intensity	2.237
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:12:55

Subbasin : CATCH S-29

Runoff Hydrograph



Subbasin : CATCH S-3

Input Data

Area (ac) 0.58
 Weighted Runoff Coefficient 0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.75
Composite Area & Weighted Runoff Coeff.	0.58		0.75

Time of Concentration

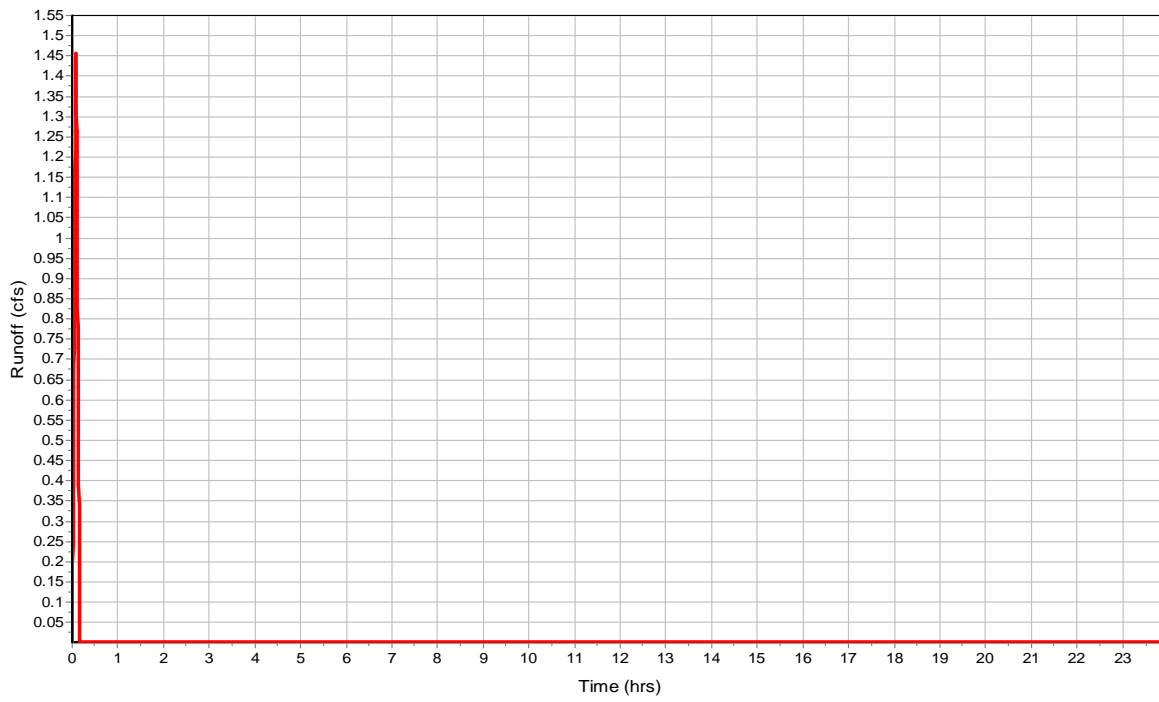
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	195.5443721	0	0
Slope (%) :	0.5641474	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.88	0	0
Computed Flow Time (min) :	3.7	0	0
Total TOC (min)3.70			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.21
 Peak Runoff (cfs) 1.46
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.75
 Time of Concentration (days hh:mm:ss) 0 00:03:42

Subbasin : CATCH S-3

Runoff Hydrograph



Subbasin : CATCH S-30

Input Data

Area (ac) 0.43
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.43	-	0.45
Composite Area & Weighted Runoff Coeff.	0.43		0.45

Time of Concentration

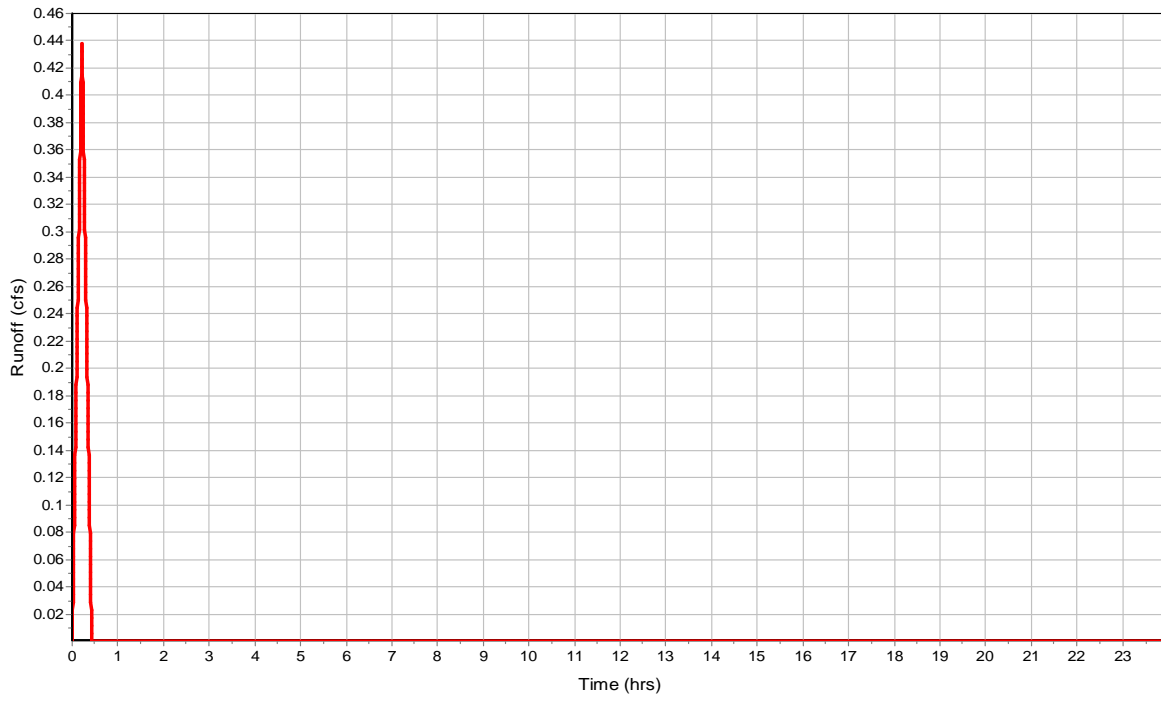
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	85.06737517	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	11.82	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	90.42843348	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.05	0	0
Total TOC (min)12.87			

Subbasin Runoff Results

Total Rainfall (in) 0.48
 Total Runoff (in) 0.22
 Peak Runoff (cfs) 0.44
 Rainfall Intensity 2.24
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:12:52

Subbasin : CATCH S-30

Runoff Hydrograph



Subbasin : CATCH S-31

Input Data

Area (ac) 0.73
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.73	-	0.45
Composite Area & Weighted Runoff Coeff.	0.73		0.45

Time of Concentration

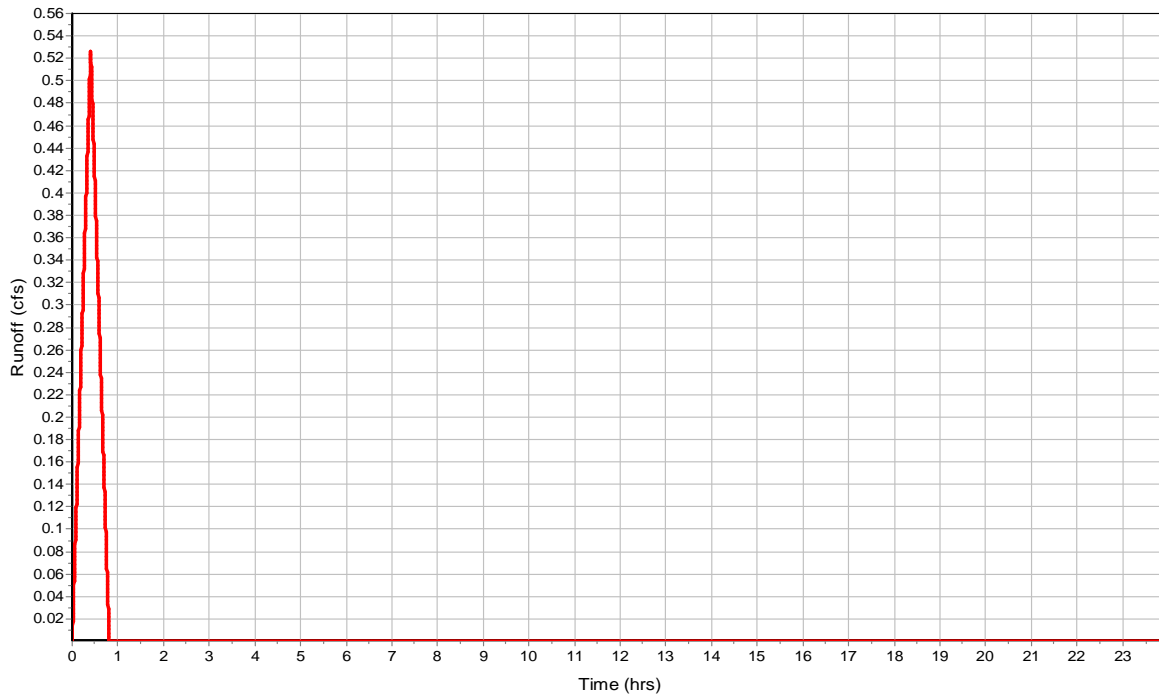
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	166.6923328	0	0
Slope (%) :	1.27270967	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	24.26	0	0
Total TOC (min)24.26			

Subbasin Runoff Results

Total Rainfall (in) 0.65
 Total Runoff (in) 0.29
 Peak Runoff (cfs) 0.53
 Rainfall Intensity 1.593
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:24:16

Subbasin : CATCH S-31

Runoff Hydrograph



Subbasin : CATCH S-32

Input Data

Area (ac)	0.47
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.47	-	0.45
Composite Area & Weighted Runoff Coeff.	0.47		0.45

Time of Concentration

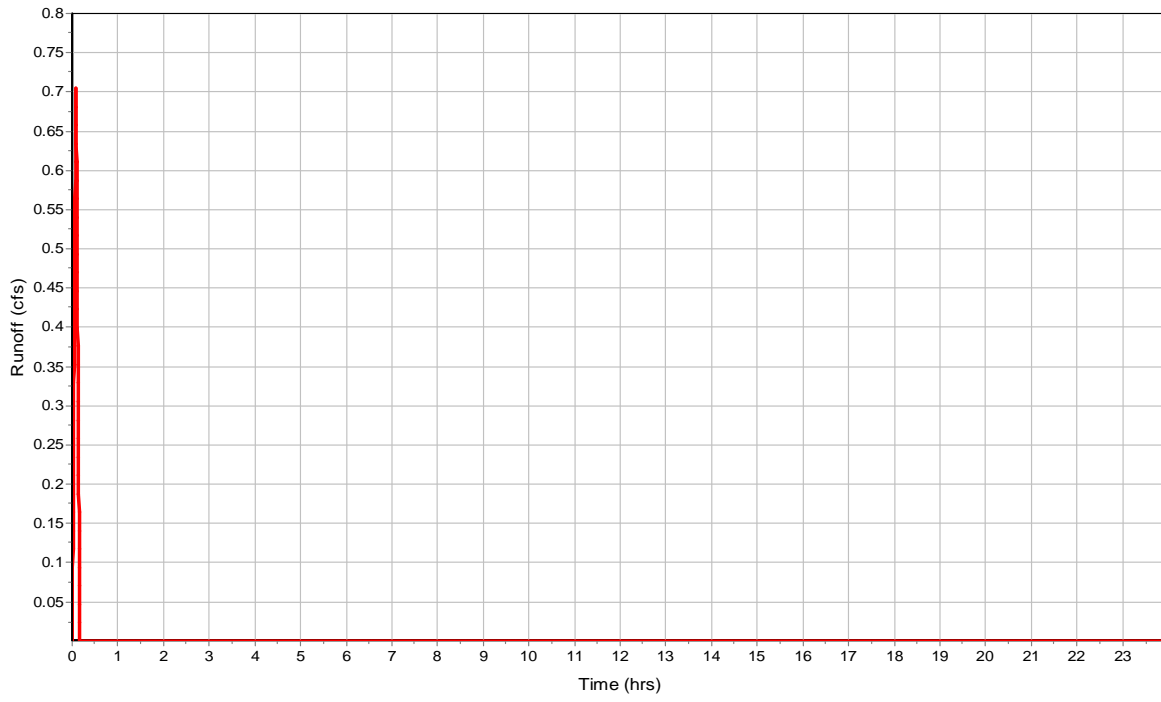
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.02264801	0	0
Slope (%) :	2.62711135	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.03	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	229.7073168	0	0
Slope (%) :	0.42967584	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.33	0	0
Computed Flow Time (min) :	2.87	0	0
Total TOC (min)	3.20		

Subbasin Runoff Results

Total Rainfall (in)	0.28
Total Runoff (in)	0.13
Peak Runoff (cfs)	0.7
Rainfall Intensity	3.34
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:03:12

Subbasin : CATCH S-32

Runoff Hydrograph



Subbasin : CATCH S-33

Input Data

Area (ac)	0.23
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.23	-	0.45
Composite Area & Weighted Runoff Coeff.	0.23		0.45

Time of Concentration

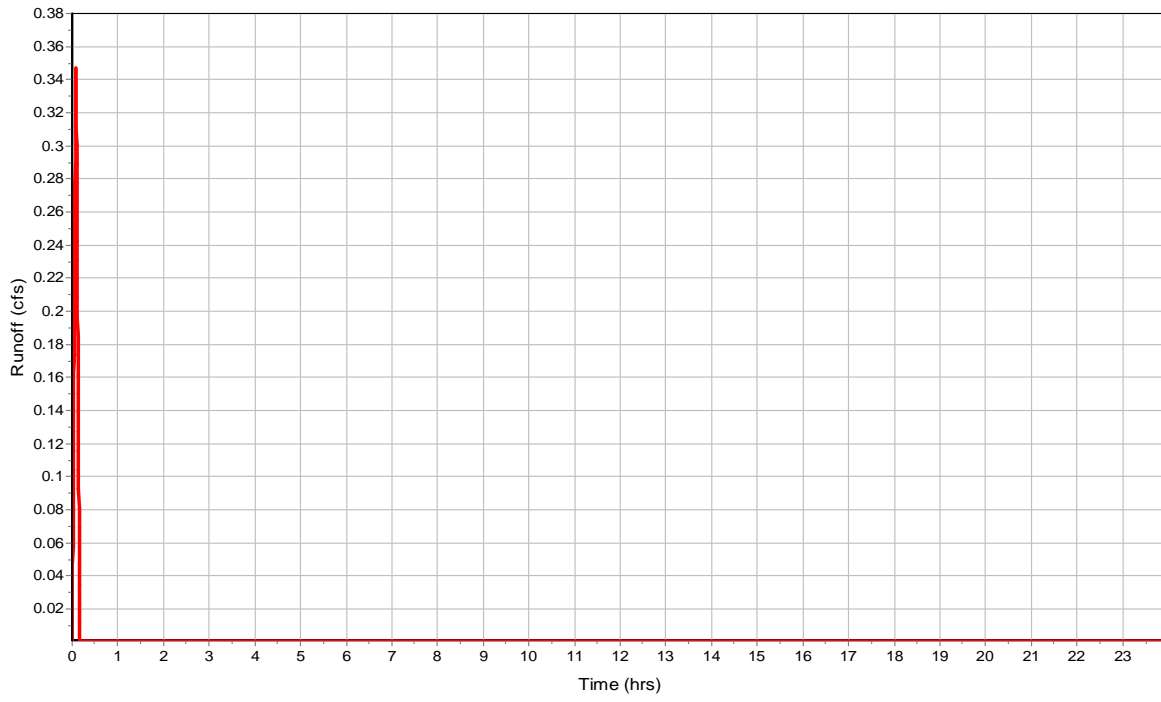
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.49839889	0	0
Slope (%) :	2.70984014	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	94.84424675	0	0
Slope (%) :	0.52060926	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.47	0	0
Computed Flow Time (min) :	1.08	0	0
Total TOC (min)	1.40		

Subbasin Runoff Results

Total Rainfall (in)	0.28
Total Runoff (in)	0.13
Peak Runoff (cfs)	0.35
Rainfall Intensity	3.34
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:01:24

Subbasin : CATCH S-33

Runoff Hydrograph



Subbasin : CATCH S-34

Input Data

Area (ac)	0.69
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.69	-	0.45
Composite Area & Weighted Runoff Coeff.	0.69		0.45

Time of Concentration

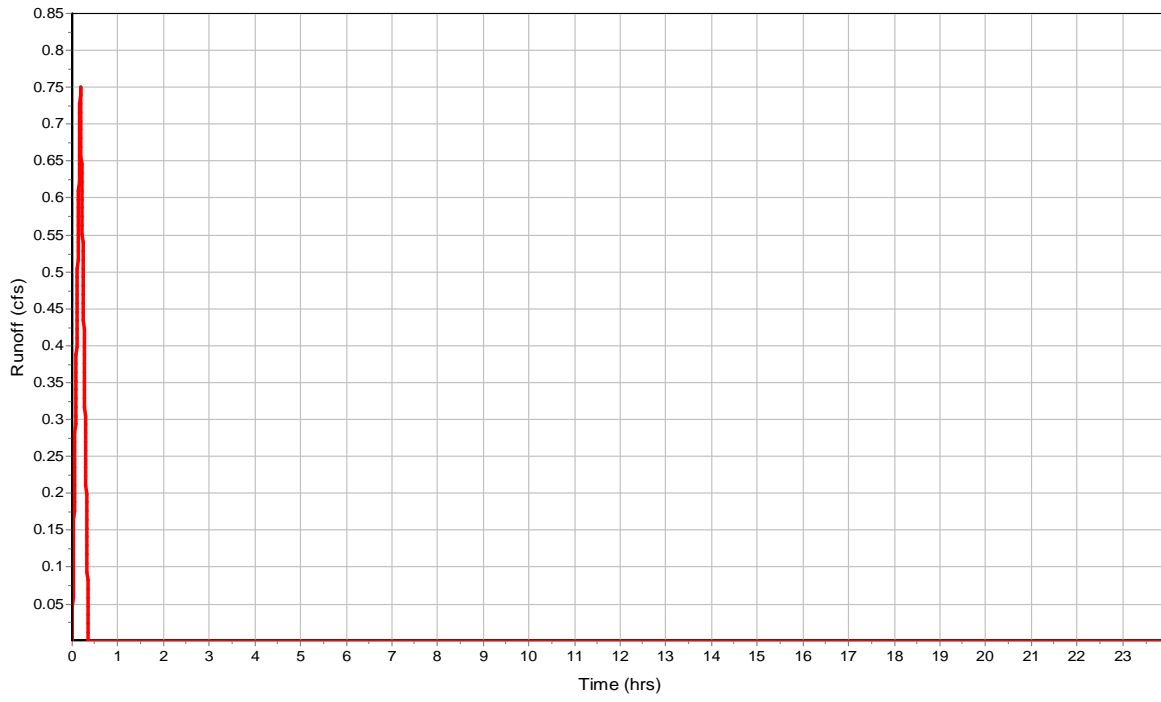
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	60.77247816	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	9.03	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	101.3402168	47.63539	0
Slope (%) :	0.5	0.708059	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	1.71	0
Computed Flow Time (min) :	1.18	0.46	0
Total TOC (min)	10.67		

Subbasin Runoff Results

Total Rainfall (in)	0.43
Total Runoff (in)	0.19
Peak Runoff (cfs)	0.75
Rainfall Intensity	2.425
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:10:40

Subbasin : CATCH S-34

Runoff Hydrograph



Subbasin : CATCH S-35

Input Data

Area (ac) 0.3
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.3	-	0.45
Composite Area & Weighted Runoff Coeff.	0.3		0.45

Time of Concentration

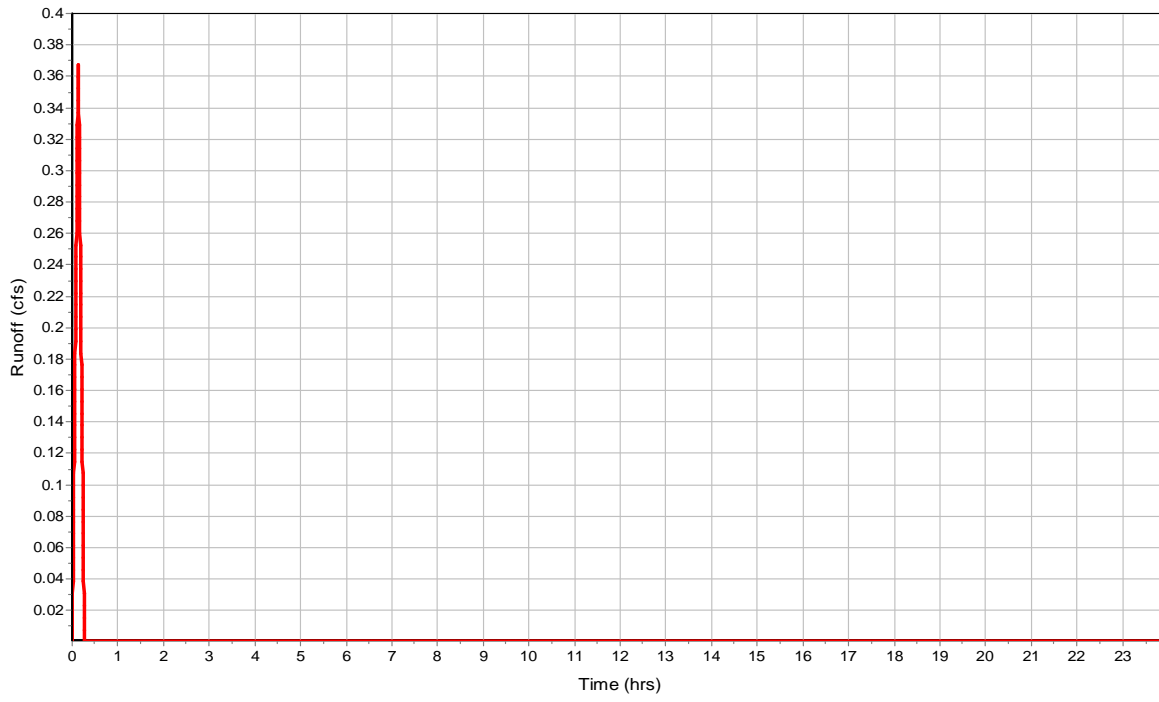
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	30.39539532	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	5.19	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	215.7235889	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.8	0	0
Total TOC (min)7.99			

Subbasin Runoff Results

Total Rainfall (in) 0.37
 Total Runoff (in) 0.16
 Peak Runoff (cfs) 0.37
 Rainfall Intensity 2.74
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:07:59

Subbasin : CATCH S-35

Runoff Hydrograph



Subbasin : CATCH S-36

Input Data

Area (ac)	0.58
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.45
Composite Area & Weighted Runoff Coeff.	0.58		0.45

Time of Concentration

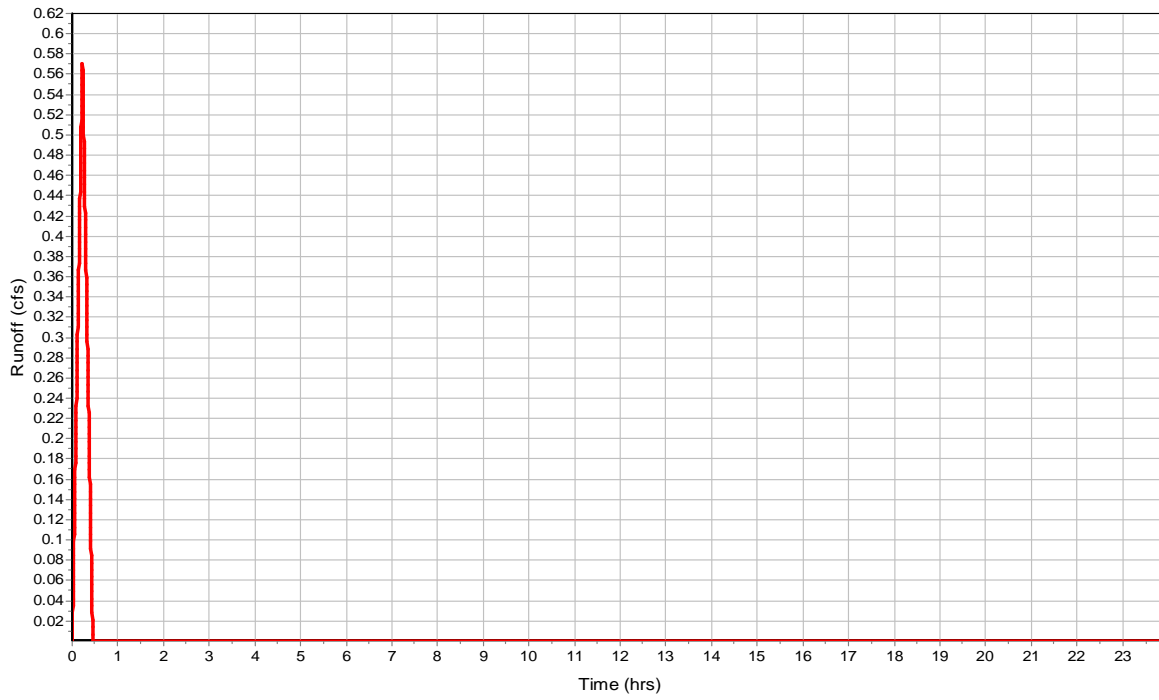
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	75.26347316	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	10.72	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	215.7235889	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.8	0	0
Total TOC (min)	13.51		

Subbasin Runoff Results

Total Rainfall (in)	0.49
Total Runoff (in)	0.22
Peak Runoff (cfs)	0.57
Rainfall Intensity	2.195
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:13:31

Subbasin : CATCH S-36

Runoff Hydrograph



Subbasin : CATCH S-37

Input Data

Area (ac)	0.27
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.27	-	0.45
Composite Area & Weighted Runoff Coeff.	0.27		0.45

Time of Concentration

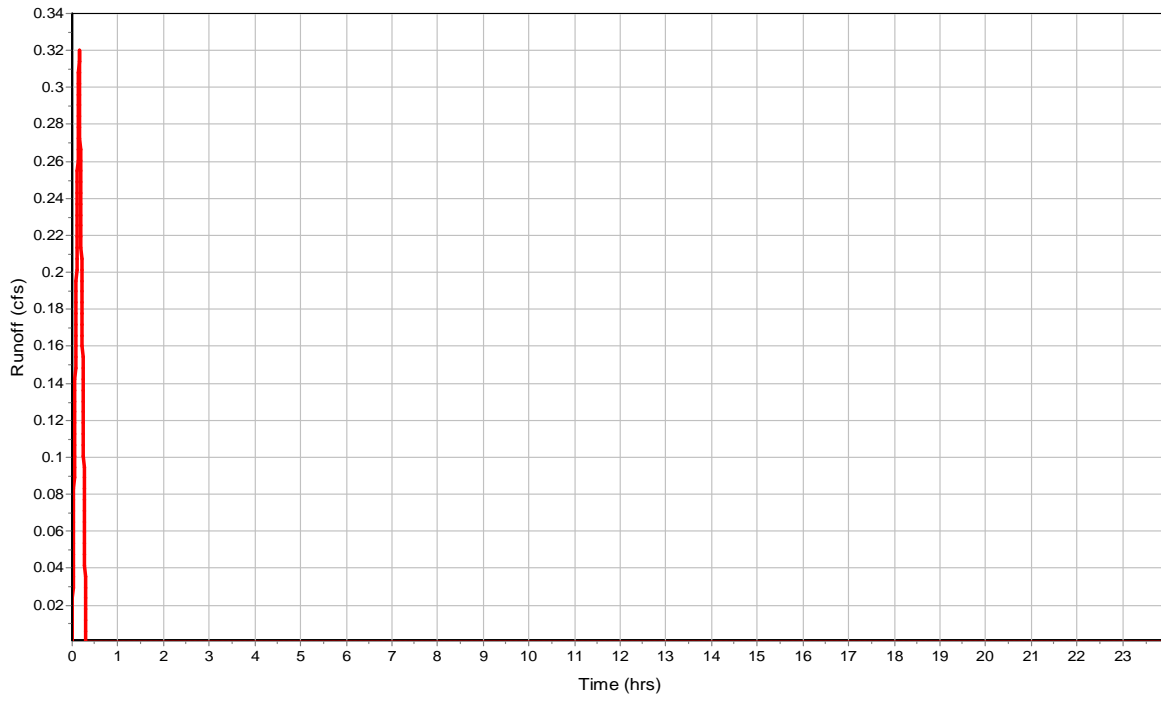
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0.013	0
Flow Length (ft) :	51.4781507	32.99491	0
Slope (%) :	2	2	0
2 yr, 24 hr Rainfall (in) :	3.6	3.6	0
Velocity (ft/sec) :	0.11	1.02	0
Computed Flow Time (min) :	7.91	0.54	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	39.77408513	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.52	0	0
Total TOC (min)	8.96		

Subbasin Runoff Results

Total Rainfall (in)	0.39
Total Runoff (in)	0.18
Peak Runoff (cfs)	0.32
Rainfall Intensity	2.611
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:08:58

Subbasin : CATCH S-37

Runoff Hydrograph



Subbasin : CATCH S-38

Input Data

Area (ac)	0.33
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.33	-	0.45
Composite Area & Weighted Runoff Coeff.	0.33		0.45

Time of Concentration

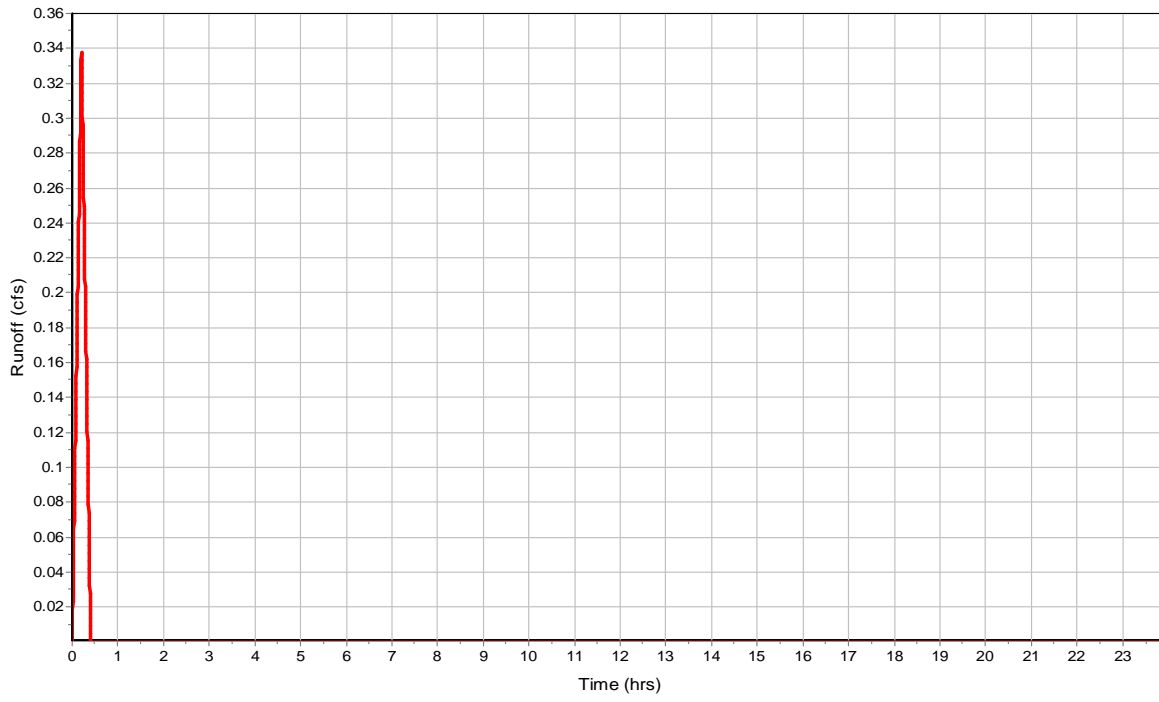
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0.013	0
Flow Length (ft) :	78.06711998	32.56391	0
Slope (%) :	2	2	0
2 yr, 24 hr Rainfall (in) :	3.6	3.6	0
Velocity (ft/sec) :	0.12	1.02	0
Computed Flow Time (min) :	11.04	0.53	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	41.70440923	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.54	0	0
Total TOC (min)	12.11		

Subbasin Runoff Results

Total Rainfall (in)	0.47
Total Runoff (in)	0.21
Peak Runoff (cfs)	0.34
Rainfall Intensity	2.299
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:12:07

Subbasin : CATCH S-38

Runoff Hydrograph



Subbasin : CATCH S-39

Input Data

Area (ac) 2.4
Weighted Runoff Coefficient 0.15

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	2.4	-	0.15
Composite Area & Weighted Runoff Coeff.	2.4		0.15

Time of Concentration

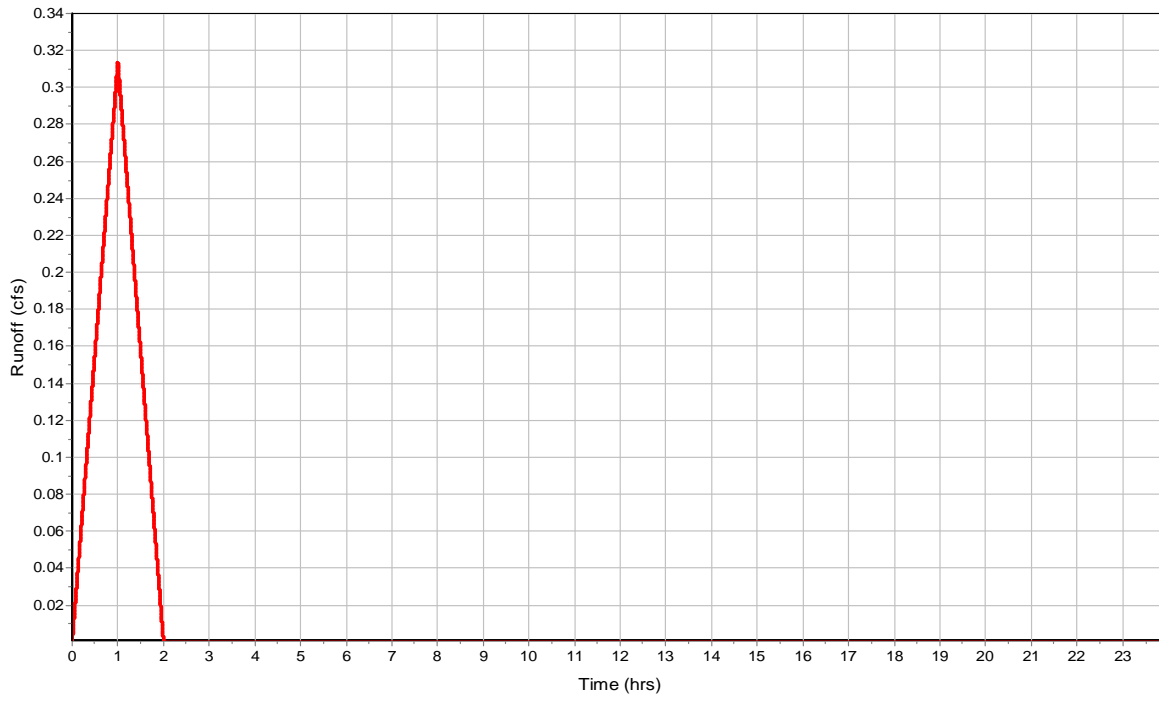
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 0.87
Total Runoff (in) 0.13
Peak Runoff (cfs) 0.31
Rainfall Intensity 0.87
Weighted Runoff Coefficient 0.15
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-39

Runoff Hydrograph



Subbasin : CATCH S-4

Input Data

Area (ac) 0.74
 Weighted Runoff Coefficient 0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.74	-	0.75
Composite Area & Weighted Runoff Coeff.	0.74		0.75

Time of Concentration

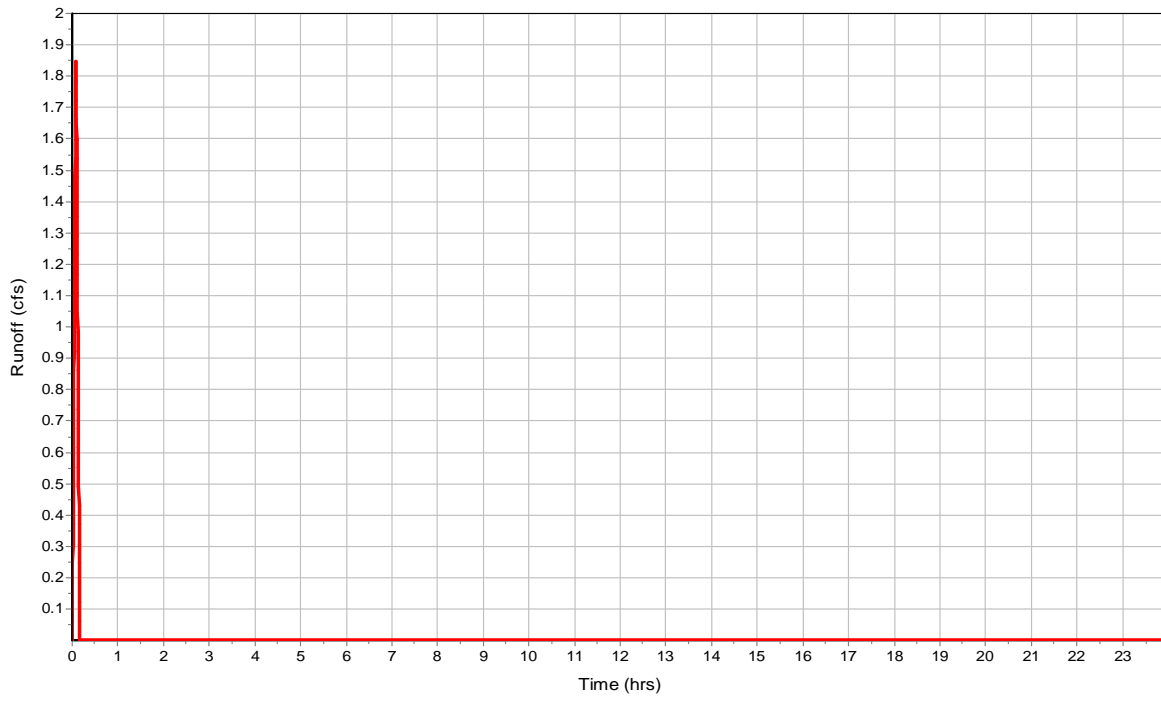
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	36.30902903	0	0
Slope (%) :	2.05714381	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.57	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	123.103895	0	0
Slope (%) :	0.61401483	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.59	0	0
Computed Flow Time (min) :	1.29	0	0
Total TOC (min)1.86			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.21
 Peak Runoff (cfs) 1.85
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.75
 Time of Concentration (days hh:mm:ss) 0 00:01:52

Subbasin : CATCH S-4

Runoff Hydrograph



Subbasin : CATCH S-5

Input Data

Area (ac) 0.19
 Weighted Runoff Coefficient 0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.19	-	0.75
Composite Area & Weighted Runoff Coeff.	0.19		0.75

Time of Concentration

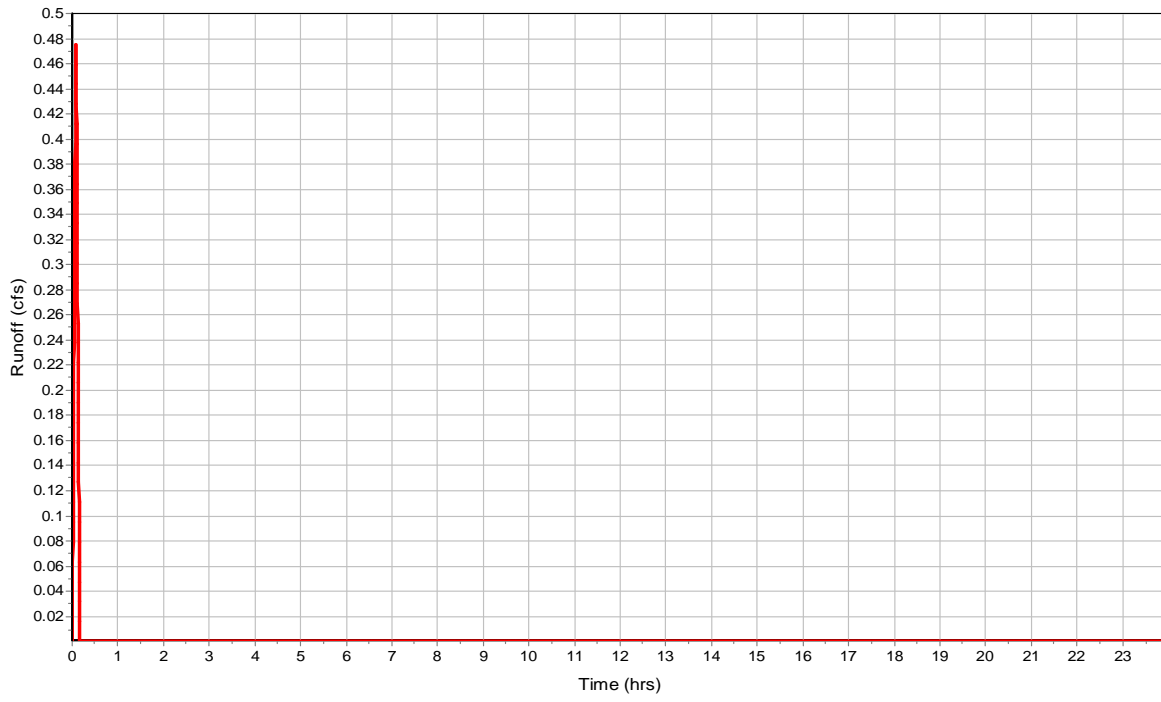
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	135.2546826	0	0
Slope (%) :	0.64366514	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.86	0	0
Computed Flow Time (min) :	2.62	0	0
Total TOC (min)2.62			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.21
 Peak Runoff (cfs) 0.48
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.75
 Time of Concentration (days hh:mm:ss) 0 00:02:37

Subbasin : CATCH S-5

Runoff Hydrograph



Subbasin : CATCH S-6

Input Data

Area (ac) 0.18
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.18	-	0.45
Composite Area & Weighted Runoff Coeff.	0.18		0.45

Time of Concentration

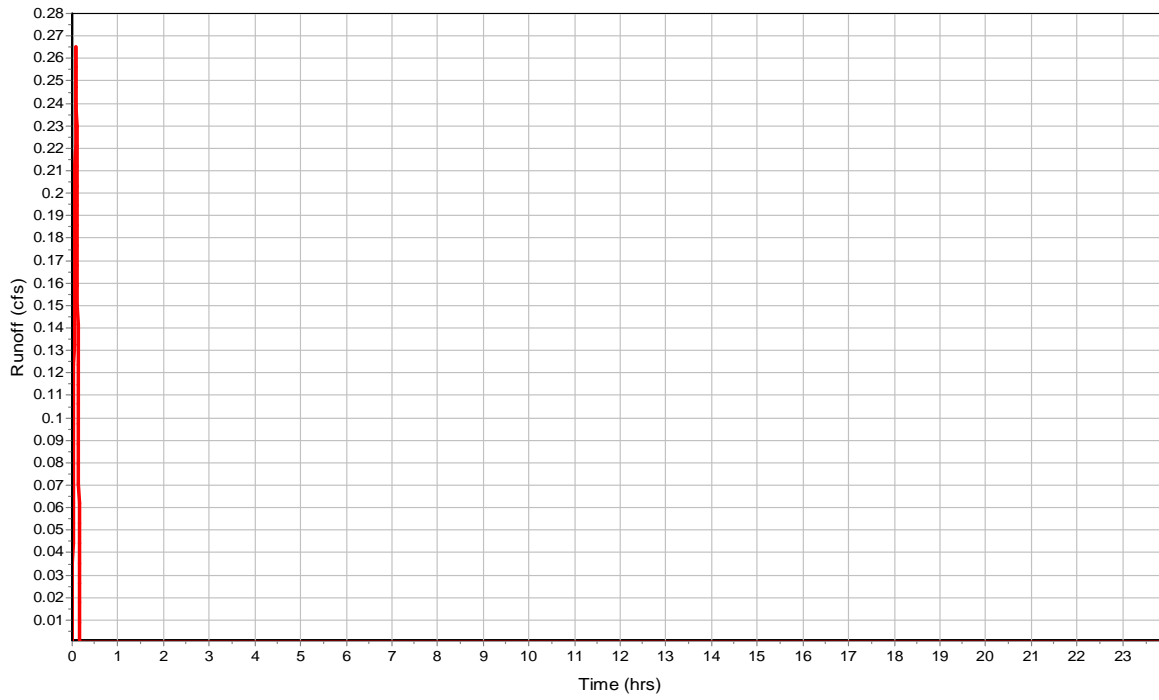
Sheet Flow Computations	Subarea A	Subarea B	Subarea C
	Manning's Roughness :	0.013	0
Flow Length (ft) :	78.81595552	0	0
Slope (%) :	1.0550971	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.94	0	0
Computed Flow Time (min) :	1.39	0	0
Total TOC (min)1.39			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.27
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:23

Subbasin : CATCH S-6

Runoff Hydrograph



Subbasin : CATCH S-7

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.51	-	0.45
Composite Area & Weighted Runoff Coeff.	0.51		0.45

Time of Concentration

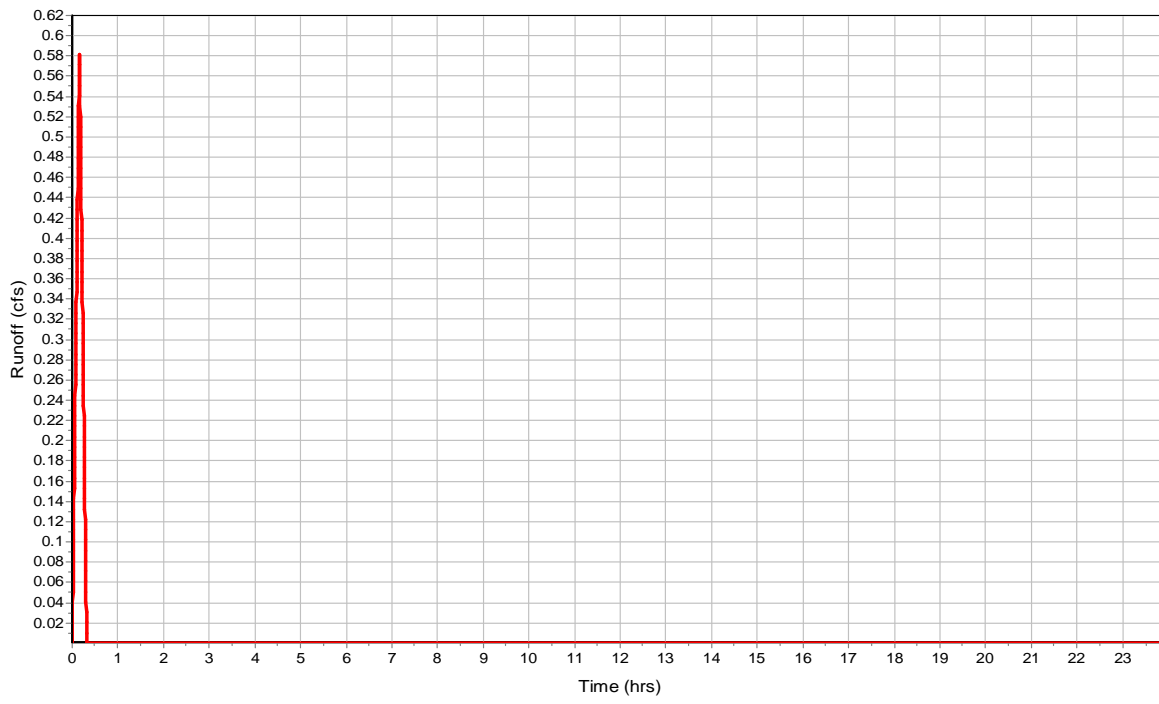
User-Defined TOC override (minutes): 9.436

Subbasin Runoff Results

Total Rainfall (in) 0.4
Total Runoff (in) 0.18
Peak Runoff (cfs) 0.58
Rainfall Intensity 2.554
Weighted Runoff Coefficient 0.45
Time of Concentration (days hh:mm:ss) 0 00:09:26

Subbasin : CATCH S-7

Runoff Hydrograph



Subbasin : CATCH S-8

Input Data

Area (ac)	0.2
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.2	-	0.45
Composite Area & Weighted Runoff Coeff.	0.2		0.45

Time of Concentration

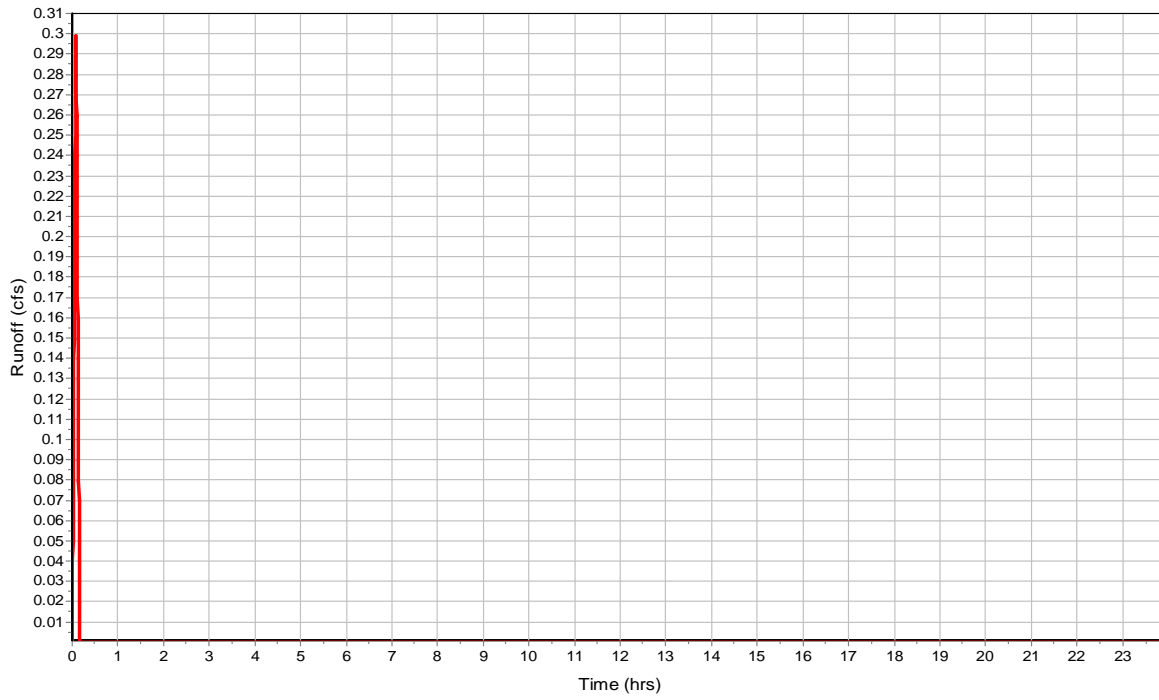
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	175.1552181	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.27	0	0
Total TOC (min)	2.59		

Subbasin Runoff Results

Total Rainfall (in)	0.28
Total Runoff (in)	0.13
Peak Runoff (cfs)	0.3
Rainfall Intensity	3.34
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:02:35

Subbasin : CATCH S-8

Runoff Hydrograph



Subbasin : CATCH S-9

Input Data

Area (ac) 0.28
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.28	-	0.45
Composite Area & Weighted Runoff Coeff.	0.28		0.45

Time of Concentration

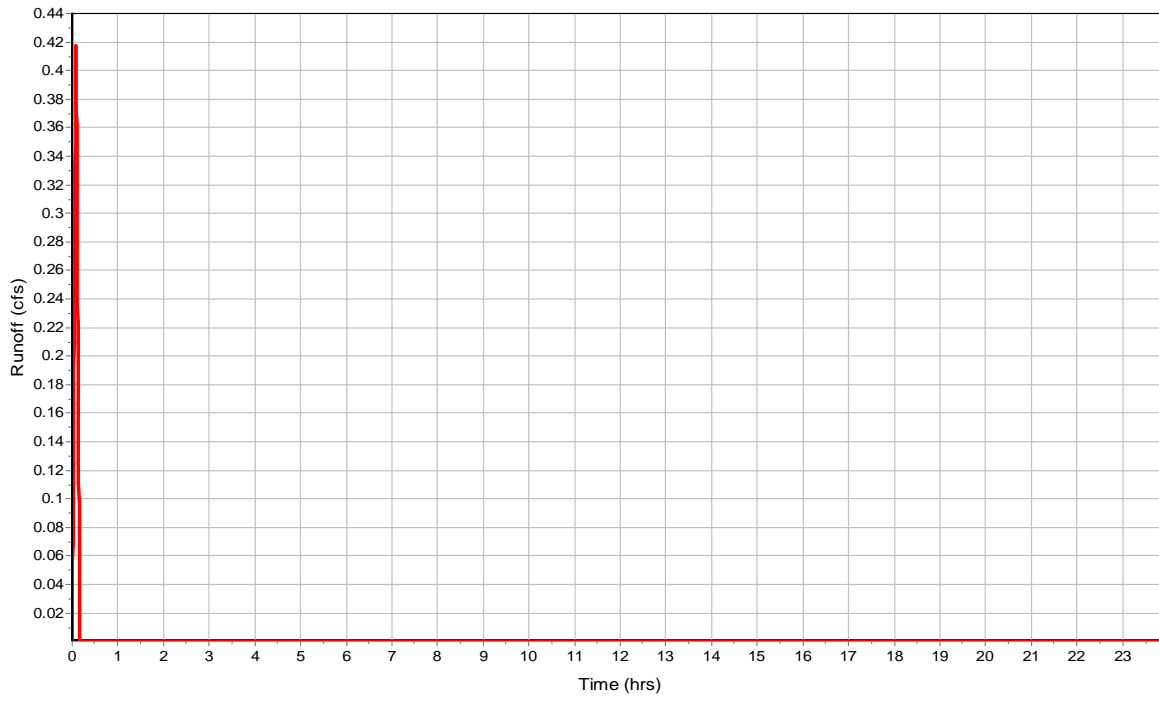
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.66826099	0	0
Slope (%) :	2.71441924	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	194.2259634	0	0
Slope (%) :	0.61749702	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.6	0	0
Computed Flow Time (min) :	2.03	0	0
Total TOC (min)2.35			

Subbasin Runoff Results

Total Rainfall (in) 0.28
 Total Runoff (in) 0.13
 Peak Runoff (cfs) 0.42
 Rainfall Intensity 3.34
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:02:21

Subbasin : CATCH S-9

Runoff Hydrograph



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft²)	Minimum Pipe Cover (in)
1	S-202	4236.52	4241.50	4.98	4236.52	0.00	4241.50	0.00	0.00	0.00
2	S-203	4236.58	4242.00	5.42	4236.58	0.00	4242.00	0.00	0.00	0.00
3	S-205	4236.68	4241.17	4.48	4236.68	0.00	4241.17	0.00	0.00	0.00
4	S-206	4236.78	4241.38	4.61	4236.78	0.00	4241.38	0.00	0.00	0.00
5	S-207	4236.83	4241.25	4.42	4236.83	0.00	4241.25	0.00	0.00	0.00
6	S-208	4236.93	4241.51	4.58	4236.93	0.00	4241.51	0.00	0.00	0.00
7	S-210	4237.04	4241.04	4.00	4237.04	0.00	4241.04	0.00	0.00	0.00
8	S-211	4237.09	4240.90	3.81	4237.09	0.00	4240.90	0.00	0.00	0.00
9	S-212	4237.22	4241.75	4.53	4237.22	0.00	4241.75	0.00	0.00	0.00
10	S-213	4237.30	4241.59	4.29	4237.30	0.00	4241.59	0.00	0.00	0.00
11	S-214	4237.39	4241.26	3.87	4237.39	0.00	4241.26	0.00	0.00	0.00
12	S-215	4238.54	4241.12	2.57	4238.54	0.00	4241.12	0.00	0.00	0.00
13	S-216	4237.90	4242.58	4.68	4237.90	0.00	4242.58	0.00	0.00	0.00
14	S-217	4238.16	4241.88	3.72	4238.16	0.00	4241.88	0.00	0.00	0.00
15	S-218	4238.21	4241.68	3.47	4238.21	0.00	4241.68	0.00	0.00	0.00
16	S-219	4238.22	4242.17	3.94	4238.22	0.00	4242.17	0.00	0.00	0.00
17	S-220	4238.29	4242.26	3.97	4238.29	0.00	4242.26	0.00	0.00	0.00
18	S-221	4238.50	4241.32	2.82	4238.50	0.00	4241.32	0.00	0.00	0.00
19	S-222	4238.57	4241.18	2.61	4238.57	0.00	4241.18	0.00	0.00	0.00
20	S-224	4238.35	4242.07	3.72	4238.35	0.00	4242.07	0.00	0.00	0.00
21	S-225	4238.44	4241.61	3.17	4238.44	0.00	4241.61	0.00	0.00	0.00
22	S-226	4238.51	4241.43	2.92	4238.51	0.00	4241.43	0.00	0.00	0.00
23	S-228	4237.99	4241.46	3.47	4237.99	0.00	4241.46	0.00	0.00	0.00
24	S-229	4238.04	4241.32	3.28	4238.04	0.00	4241.32	0.00	0.00	0.00
25	S-230	4238.18	4241.16	2.98	4238.18	0.00	4241.16	0.00	0.00	0.00
26	S-231	4238.23	4241.02	2.78	4238.23	0.00	4241.02	0.00	0.00	0.00
27	S-232	4238.42	4241.12	2.70	4238.42	0.00	4241.12	0.00	0.00	0.00
28	S-233	4238.48	4241.12	2.64	4238.48	0.00	4241.12	0.00	0.00	0.00
29	S-234	4236.79	4241.52	4.73	4236.79	0.00	4241.52	0.00	0.00	0.00
30	S-235	4237.20	4240.50	3.30	4237.20	0.00	4240.50	0.00	0.00	0.00
31	S-236	4237.39	4240.50	3.11	4237.39	0.00	4240.50	0.00	0.00	0.00
32	S-237	4237.59	4241.43	3.84	4237.59	0.00	4241.43	0.00	0.00	0.00
33	S-238	4237.91	4241.73	3.82	4237.91	0.00	4241.73	0.00	0.00	0.00
34	S-239	4237.95	4240.96	3.00	4237.95	0.00	4240.96	0.00	0.00	0.00
35	S-240	4238.28	4241.29	3.01	4238.28	0.00	4241.29	0.00	0.00	0.00
36	S-241	4238.61	4241.31	2.70	4238.61	0.00	4241.31	0.00	0.00	0.00
37	S-242	4239.02	4242.33	3.30	4239.02	0.00	4242.33	0.00	0.00	0.00
38	S-243	4239.35	4242.30	2.95	4239.35	0.00	4242.30	0.00	0.00	0.00
39	S-244	4237.56	4242.05	4.48	4237.56	0.00	4242.05	0.00	0.00	0.00
40	S-245	4238.24	4241.34	3.10	4238.24	0.00	4241.34	0.00	0.00	0.00
41	S-246	4238.57	4241.42	2.85	4238.57	0.00	4241.42	0.00	0.00	0.00
42	S-247	4237.91	4242.03	4.12	4237.91	0.00	4242.03	0.00	0.00	0.00
43	S-248	4237.28	4241.89	4.61	4237.28	0.00	4241.89	0.00	0.00	0.00
44	S-249	4238.40	4241.12	2.72	4238.40	0.00	4241.12	0.00	0.00	0.00
45	S-250	4238.54	4241.12	2.58	4238.54	0.00	4241.12	0.00	0.00	0.00
46	S-251	4237.79	4242.37	4.58	4237.79	0.00	4242.37	0.00	0.00	0.00
47	S-252	4237.54	4242.04	4.50	4237.54	0.00	4242.04	0.00	0.00	0.00
48	S-253	4238.31	4241.07	2.76	4238.31	0.00	4241.07	0.00	0.00	0.00
49	S-254	4238.50	4241.07	2.57	4238.50	0.00	4241.07	0.00	0.00	0.00
50	S-255	4237.38	4241.50	4.12	4237.38	0.00	4241.50	0.00	0.00	0.00
51	S-256	4238.90	4241.50	2.60	4238.90	0.00	4241.50	0.00	0.00	0.00
52	S-301	4237.19	4242.15	4.96	4237.19	0.00	4242.15	0.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	S-202	3.29	0.00	4237.39	0.87	0.00	4.11	4236.66	0.14	0 01:37	0 00:00	0.00	0.00
2	S-203	5.88	0.00	4239.44	2.86	0.00	2.56	4236.94	0.36	0 01:37	0 00:00	0.00	0.00
3	S-205	5.96	0.70	4239.47	2.79	0.00	1.70	4237.03	0.35	0 01:33	0 00:00	0.00	0.00
4	S-206	5.94	0.41	4239.51	2.73	0.00	1.88	4237.11	0.33	0 01:28	0 00:00	0.00	0.00
5	S-207	0.61	0.61	4239.51	2.68	0.00	1.74	4237.15	0.32	0 01:28	0 00:00	0.00	0.00
6	S-208	5.94	0.00	4239.58	2.65	0.00	1.94	4237.25	0.32	0 01:20	0 00:00	0.00	0.00
7	S-210	3.48	0.25	4239.58	2.54	0.00	1.46	4237.33	0.29	0 01:19	0 00:00	0.00	0.00
8	S-211	0.87	0.87	4239.58	2.49	0.00	1.32	4237.37	0.28	0 01:19	0 00:00	0.00	0.00
9	S-212	3.48	0.00	4239.59	2.37	0.00	2.16	4237.49	0.27	0 01:19	0 00:00	0.00	0.00
10	S-213	3.56	0.00	4239.60	2.30	0.00	1.99	4237.55	0.25	0 01:19	0 00:00	0.00	0.00
11	S-214	3.98	0.45	4239.60	2.21	0.00	1.66	4237.63	0.24	0 01:20	0 00:00	0.00	0.00
12	S-215	1.73	1.73	4239.60	1.06	0.00	1.52	4238.62	0.08	0 01:20	0 00:00	0.00	0.00
13	S-216	3.47	0.00	4239.62	1.72	0.00	2.96	4238.06	0.16	0 01:20	0 00:00	0.00	0.00
14	S-217	2.90	0.30	4239.63	1.47	0.00	2.25	4238.29	0.13	0 01:21	0 00:00	0.00	0.00
15	S-218	0.58	0.58	4239.63	1.42	0.00	2.05	4239.13	0.92	0 01:21	0 00:00	0.00	0.00
16	S-219	2.45	0.00	4239.64	1.42	0.00	2.53	4238.35	0.13	0 01:21	0 00:00	0.00	0.00
17	S-220	2.70	0.00	4239.64	1.35	0.00	2.63	4238.41	0.12	0 01:21	0 00:00	0.00	0.00
18	S-221	2.88	1.84	4239.64	1.14	0.00	1.68	4238.59	0.09	0 01:21	0 00:00	0.00	0.00
19	S-222	1.46	1.46	4239.64	1.07	0.00	1.54	4238.66	0.09	0 01:21	0 00:00	0.00	0.00
20	S-224	0.58	0.00	4239.64	1.29	0.00	2.43	4238.46	0.11	0 01:21	0 00:00	0.00	0.00
21	S-225	0.53	0.26	4239.64	1.20	0.00	1.97	4238.54	0.10	0 01:21	0 00:00	0.00	0.00
22	S-226	0.47	0.47	4239.64	1.13	0.00	1.79	4238.60	0.09	0 01:21	0 00:00	0.00	0.00
23	S-228	1.43	0.13	4239.62	1.63	0.00	1.84	4238.14	0.15	0 01:20	0 00:00	0.00	0.00
24	S-229	0.18	0.12	4239.62	1.58	0.00	1.70	4238.18	0.14	0 01:23	0 00:00	0.00	0.00
25	S-230	1.41	0.37	4239.62	1.44	0.00	1.54	4238.30	0.12	0 01:20	0 00:00	0.00	0.00
26	S-231	0.47	0.47	4239.62	1.39	0.00	1.40	4238.35	0.12	0 01:20	0 00:00	0.00	0.00
27	S-232	0.81	0.44	4239.62	1.20	0.00	1.50	4238.51	0.09	0 01:19	0 00:00	0.00	0.00
28	S-233	0.42	0.42	4239.62	1.14	0.00	1.50	4238.56	0.08	0 01:19	0 00:00	0.00	0.00
29	S-234	2.66	0.00	4239.47	2.68	0.00	2.05	4237.12	0.33	0 01:32	0 00:00	0.00	0.00
30	S-235	2.02	0.53	4239.47	2.27	0.00	1.03	4237.46	0.26	0 01:35	0 00:00	0.00	0.00
31	S-236	1.63	0.70	4239.47	2.08	0.00	1.03	4237.62	0.23	0 01:32	0 00:00	0.00	0.00
32	S-237	1.54	0.00	4239.48	1.89	0.00	1.95	4237.78	0.19	0 01:32	0 00:00	0.00	0.00
33	S-238	1.08	1.08	4239.48	1.57	0.00	2.25	4238.06	0.15	0 01:35	0 00:00	0.00	0.00
34	S-239	0.77	0.09	4239.48	1.53	0.00	1.48	4238.09	0.14	0 01:32	0 00:00	0.00	0.00
35	S-240	0.79	0.23	4239.48	1.20	0.00	1.81	4238.38	0.10	0 01:35	0 00:00	0.00	0.00
36	S-241	0.70	0.70	4239.48	0.87	0.00	1.83	4238.66	0.05	0 01:31	0 00:00	0.00	0.00
37	S-242	0.36	0.04	4239.47	0.45	0.00	2.85	4239.05	0.03	0 01:32	0 00:00	0.00	0.00
38	S-243	0.36	0.36	4239.57	0.22	0.00	2.73	4239.36	0.01	0 00:34	0 00:00	0.00	0.00
39	S-244	0.89	0.00	4239.47	1.91	0.00	2.58	4237.76	0.20	0 01:33	0 00:00	0.00	0.00
40	S-245	0.50	0.00	4239.47	1.23	0.00	1.87	4238.34	0.10	0 01:33	0 00:00	0.00	0.00
41	S-246	0.51	0.51	4239.47	0.90	0.00	1.95	4238.63	0.06	0 01:33	0 00:00	0.00	0.00
42	S-247	0.44	0.44	4239.47	1.56	0.00	2.56	4238.05	0.14	0 01:33	0 00:00	0.00	0.00
43	S-248	1.58	0.00	4239.47	2.19	0.00	2.42	4237.52	0.24	0 01:32	0 00:00	0.00	0.00
44	S-249	0.56	0.32	4239.47	1.07	0.00	1.65	4238.48	0.08	0 01:34	0 00:00	0.00	0.00
45	S-250	0.34	0.34	4239.47	0.93	0.00	1.65	4238.60	0.06	0 01:33	0 00:00	0.00	0.00
46	S-251	0.56	0.00	4239.47	1.68	0.00	2.90	4237.95	0.16	0 01:33	0 00:00	0.00	0.00
47	S-252	1.11	0.00	4239.47	1.93	0.00	2.57	4237.74	0.20	0 01:33	0 00:00	0.00	0.00
48	S-253	0.69	0.37	4239.47	1.16	0.00	1.60	4238.40	0.09	0 01:33	0 00:00	0.00	0.00
49	S-254	0.57	0.57	4239.47	0.97	0.00	1.60	4238.57	0.07	0 01:33	0 00:00	0.00	0.00
50	S-255	1.69	0.75	4239.47	2.09	0.00	2.03	4237.61	0.23	0 01:32	0 00:00	0.00	0.00
51	S-256	0.35	0.35	4239.47	0.57	0.00	2.03	4238.93	0.03	0 01:32	0 00:00	0.00	0.00
52	S-301	1.55	0.00	4239.47	2.28	0.00	2.68	4237.45	0.26	0 01:32	0 00:00	0.00	0.00

Pipe Input

SN Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1 SD-S202	27.28	4236.52	0.00	4236.50	0.00	0.02	0.0800	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
2 SD-S204	125.35	4237.08	0.00	4236.58	0.00	0.50	0.4000	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
3 SD-S205	67.26	4236.68	0.00	4236.58	0.00	0.10	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
4 SD-S206	62.66	4236.78	0.00	4236.68	0.00	0.09	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
5 SD-S207	34.57	4236.83	0.00	4236.78	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
6 SD-S208	104.50	4236.93	0.00	4236.78	0.00	0.16	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
7 SD-S210	68.83	4237.04	0.00	4236.93	0.00	0.10	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
8 SD-S211	34.50	4237.09	0.00	4237.04	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
9 SD-S212	121.97	4237.22	0.00	4237.04	0.00	0.18	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
10 SD-S213	54.35	4237.30	0.00	4237.22	0.00	0.08	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
11 SD-S214	60.16	4237.39	0.00	4237.30	0.00	0.09	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
12 SD-S215	34.50	4238.54	0.00	4238.14	0.75	0.40	1.1700	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
13 SD-S216	337.17	4237.90	0.00	4237.39	0.00	0.51	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
14 SD-S217	175.50	4238.16	0.00	4237.90	0.00	0.26	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
15 SD-S218	29.90	4239.10	0.89	4238.95	0.79	0.15	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
16 SD-S219	41.32	4238.22	0.00	4238.16	0.00	0.06	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
17 SD-S220	47.53	4238.29	0.00	4238.22	0.00	0.07	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
18 SD-S221	139.77	4238.50	0.00	4238.29	0.00	0.21	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
19 SD-S222	45.50	4238.57	0.00	4238.50	0.00	0.07	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
20 SD-S224	84.98	4238.35	0.00	4238.22	0.00	0.13	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
21 SD-S225	61.69	4238.44	0.00	4238.35	0.00	0.09	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
22 SD-S226	44.58	4238.51	0.00	4238.44	0.00	0.07	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
23 SD-S228	65.50	4237.99	0.00	4237.90	0.00	0.09	0.1400	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
24 SD-S229	34.50	4238.04	0.00	4237.99	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
25 SD-S230	132.07	4238.18	0.00	4237.99	0.00	0.20	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
26 SD-S231	34.50	4238.23	0.00	4238.18	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
27 SD-S232	158.62	4238.42	0.00	4238.18	0.00	0.24	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
28 SD-S233	38.00	4238.48	0.00	4238.42	0.00	0.06	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
29 SD-S234	74.73	4236.79	0.00	4236.68	0.00	0.11	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
30 SD-S235	272.66	4237.20	0.00	4236.79	0.00	0.41	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
31 SD-S236	121.85	4237.39	0.00	4237.20	0.00	0.18	0.1500	CIRCULAR	15.000	15.000	0.0110	0.5000	0.5000	0.0000	0.00	No	1
32 SD-S237	132.56	4237.59	0.00	4237.39	0.00	0.20	0.1500	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
33 SD-S238	32.73	4237.91	0.00	4237.59	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
34 SD-S239	92.27	4237.95	0.00	4237.59	0.00	0.37	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
35 SD-S240	81.45	4238.28	0.00	4237.95	0.00	0.33	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
36 SD-S241	32.87	4238.61	0.00	4238.28	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
37 SD-S242	186.00	4239.02	0.00	4238.28	0.00	0.74	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
38 SD-S243	32.73	4239.35	0.00	4239.02	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
39 SD-S244	90.30	4237.56	0.00	4237.20	0.00	0.36	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
40 SD-S245	168.68	4238.24	0.00	4237.56	0.00	0.67	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
41 SD-S246	33.33	4238.57	0.00	4238.24	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
42 SD-S247	34.33	4237.91	0.00	4237.56	0.00	0.34	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
43 SD-S248	38.30	4237.28	0.00	4237.19	0.00	0.09	0.2300	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
44 SD-S249	122.00	4238.40	0.00	4237.79	0.00	0.61	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
45 SD-S250	28.00	4238.54	0.00	4238.40	0.00	0.14	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
46 SD-S251	101.44	4237.79	0.00	4237.54	0.00	0.25	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
47 SD-S252	62.88	4237.54	0.00	4237.38	0.00	0.16	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
48 SD-S253	62.50	4238.31	0.00	4238.00	0.46	0.31	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
49 SD-S254	38.00	4238.50	0.00	4238.31	0.00	0.19	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
50 SD-S255	40.02	4237.38	0.00	4237.28	0.00	0.10	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
51 SD-S256	38.00	4238.90	0.00	4238.71	1.33	0.19	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
52 SD-S301	157.66	4237.19	0.00	4236.79	0.00	0.40	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1 SD-S202	3.29	0 01:37	10.12	0.32	3.06	0.15	0.75	0.37	0.00		Calculated
2 SD-S204	3.52	0 00:16	14.30	0.25	1.92	1.09	2.00	1.00	77.00		SURCHARGED
3 SD-S205	5.88	0 00:15	10.12	0.58	2.32	0.48	2.00	1.00	132.00		SURCHARGED
4 SD-S206	5.94	0 01:04	10.12	0.59	1.89	0.55	2.00	1.00	123.00		SURCHARGED
5 SD-S207	0.55	0 00:05	2.89	0.19	1.50	0.38	1.25	1.00	199.00		SURCHARGED
6 SD-S208	5.94	0 01:04	10.12	0.59	1.89	0.92	2.00	1.00	107.00		SURCHARGED
7 SD-S210	3.22	0 00:09	4.70	0.69	2.44	0.47	1.50	1.00	155.00		SURCHARGED
8 SD-S211	0.80	0 00:05	2.89	0.28	2.00	0.29	1.25	1.00	181.00		SURCHARGED
9 SD-S212	3.34	0 00:09	4.70	0.71	2.25	0.90	1.50	1.00	133.00		SURCHARGED
10 SD-S213	3.48	0 00:09	4.70	0.74	2.32	0.39	1.50	1.00	123.00		SURCHARGED
11 SD-S214	3.56	0 00:08	4.70	0.76	2.30	0.44	1.50	1.00	113.00		SURCHARGED
12 SD-S215	1.71	0 00:06	6.99	0.25	4.17	0.14	1.15	0.92	0.00		Calculated
13 SD-S216	2.73	0 00:08	4.70	0.58	1.87	3.01	1.50	1.00	60.00		SURCHARGED
14 SD-S217	2.73	0 00:07	4.70	0.58	3.04	0.96	1.49	0.99	0.00		Calculated
15 SD-S218	0.57	0 00:09	4.58	0.13	2.35	0.21	0.61	0.48	0.00		Calculated
16 SD-S219	2.31	0 00:07	4.70	0.49	1.93	0.36	1.44	0.96	0.00		Calculated
17 SD-S220	2.45	0 00:06	4.70	0.52	2.41	0.33	1.38	0.92	0.00		Calculated
18 SD-S221	2.70	0 00:05	4.70	0.57	2.38	0.98	1.24	0.83	0.00		Calculated
19 SD-S222	1.08	0 00:07	2.89	0.37	1.53	0.50	1.10	0.88	0.00		Calculated
20 SD-S224	0.44	0 00:11	2.89	0.15	0.79	1.79	1.25	1.00	28.00		SURCHARGED
21 SD-S225	0.42	0 00:20	2.89	0.15	1.83	0.56	1.22	0.98	0.00		Calculated
22 SD-S226	0.41	0 00:20	2.89	0.14	1.08	0.69	1.17	0.93	0.00		Calculated
23 SD-S228	1.00	0 00:06	2.89	0.35	2.31	0.47	1.25	1.00	75.00		SURCHARGED
24 SD-S229	0.18	0 00:09	2.89	0.06	0.53	1.08	1.25	1.00	70.00		SURCHARGED
25 SD-S230	1.25	0 00:06	2.89	0.43	2.02	1.09	1.25	1.00	56.00		SURCHARGED
26 SD-S231	0.42	0 00:05	2.89	0.14	1.39	0.41	1.25	1.00	49.00		SURCHARGED
27 SD-S232	0.67	0 00:06	2.89	0.23	1.30	2.03	1.23	0.98	0.00		Calculated
28 SD-S233	0.38	0 00:05	2.89	0.13	1.08	0.59	1.17	0.94	0.00		Calculated
29 SD-S234	2.66	0 00:15	4.70	0.57	1.50	0.83	1.50	1.00	182.00		SURCHARGED
30 SD-S235	1.76	0 00:22	2.89	0.61	1.72	2.64	1.25	1.00	170.00		SURCHARGED
31 SD-S236	1.54	0 00:07	3.41	0.45	2.35	0.86	1.25	1.00	153.00		SURCHARGED
32 SD-S237	1.47	0 00:06	1.98	0.74	2.35	0.94	1.02	1.00	156.00		SURCHARGED
33 SD-S238	1.05	0 00:05	4.43	0.24	3.44	0.16	1.02	1.00	101.00		SURCHARGED
34 SD-S239	0.77	0 00:06	2.80	0.28	1.54	1.00	1.02	1.00	96.00		SURCHARGED
35 SD-S240	0.74	0 00:06	2.80	0.26	2.58	0.53	1.02	1.00	53.00		SURCHARGED
36 SD-S241	0.69	0 00:05	4.43	0.16	3.13	0.18	0.94	0.93	0.00		Calculated
37 SD-S242	0.36	0 00:35	2.80	0.13	1.50	2.07	0.73	0.72	0.00		Calculated
38 SD-S243	0.36	0 00:34	4.43	0.08	2.56	0.21	0.28	0.28	0.00		Calculated
39 SD-S244	0.73	0 00:13	2.80	0.26	1.48	1.02	1.02	1.00	158.00		SURCHARGED
40 SD-S245	0.49	0 00:13	2.80	0.18	1.65	1.70	1.02	1.00	59.00		SURCHARGED
41 SD-S246	0.50	0 00:13	4.43	0.11	2.81	0.20	0.96	0.94	0.00		Calculated
42 SD-S247	0.41	0 00:13	4.43	0.09	2.46	0.23	1.02	1.00	102.00		SURCHARGED
43 SD-S248	1.55	0 00:13	3.13	0.49	2.32	0.28	1.25	1.00	152.00		SURCHARGED
44 SD-S249	0.56	0 00:10	4.57	0.12	2.07	0.98	1.16	0.93	0.00		Calculated
45 SD-S250	0.33	0 00:12	4.57	0.07	1.68	0.28	1.00	0.80	0.00		Calculated
46 SD-S251	0.43	0 00:13	3.21	0.13	0.84	2.01	1.25	1.00	87.00		SURCHARGED
47 SD-S252	1.05	0 00:14	3.26	0.32	1.29	0.81	1.25	1.00	119.00		SURCHARGED
48 SD-S253	0.70	0 00:12	4.57	0.15	2.55	0.41	1.21	0.96	0.00		Calculated
49 SD-S254	0.57	0 00:13	4.57	0.12	2.20	0.29	1.07	0.85	0.00		Calculated
50 SD-S255	1.58	0 00:09	3.23	0.49	2.09	0.32	1.25	1.00	139.00		SURCHARGED
51 SD-S256	0.33	0 00:05	4.57	0.07	2.08	0.30	0.67	0.53	0.00		Calculated
52 SD-S301	1.51	0 00:13	3.23	0.47	1.92	1.37	1.25	1.00	170.00		SURCHARGED

Storage Nodes

Storage Node : S-204

Input Data

Invert Elevation (ft)	4237.08
Max (Rim) Elevation (ft)	4240.42
Max (Rim) Offset (ft)	3.33
Initial Water Elevation (ft)	4237.08
Initial Water Depth (ft)	0.00
Ponded Area (ft ²)	0.00
Evaporation Loss	0.00

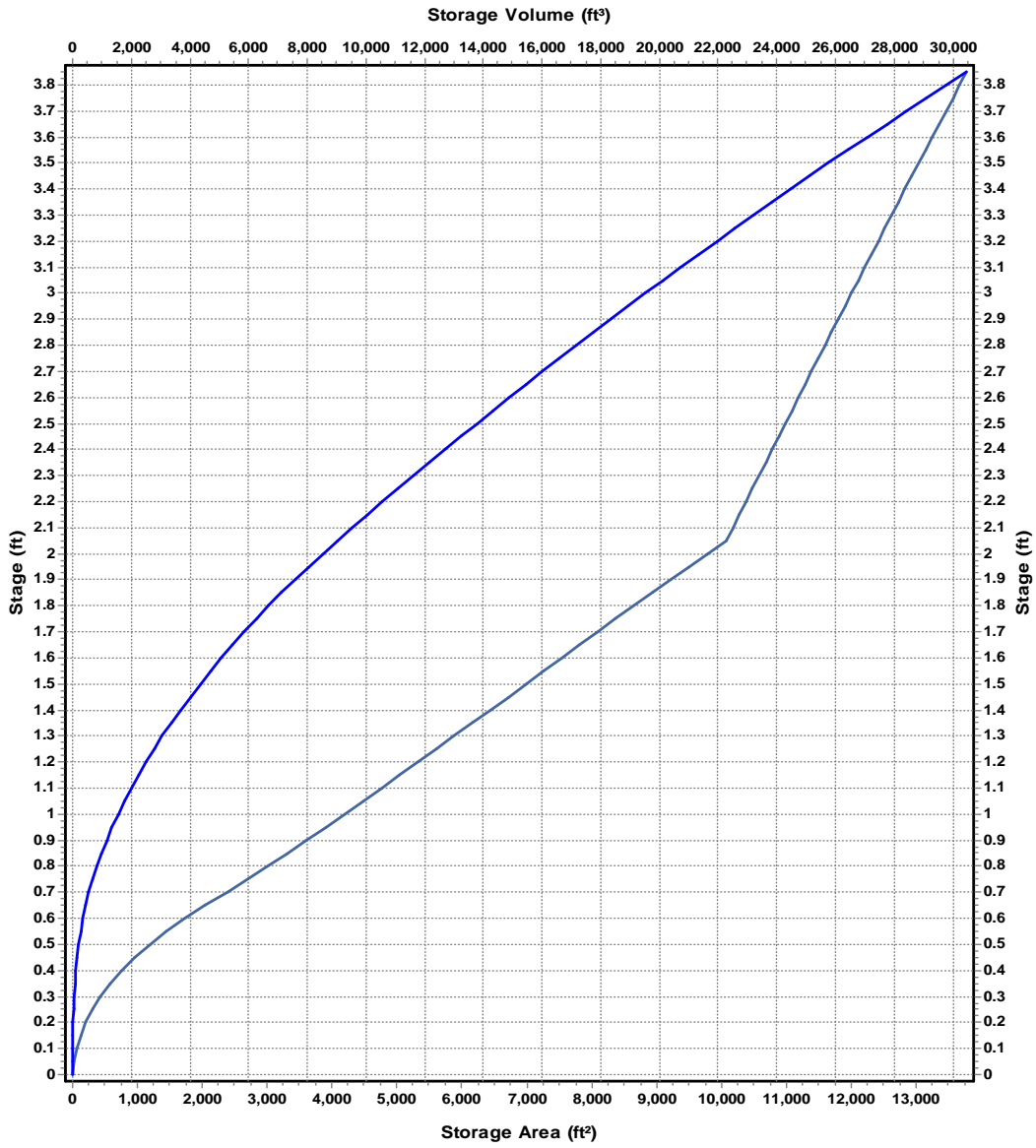
Storage Area Volume Curves

Storage Curve : DET-2

Stage (ft)	Storage Area (ft ²)	Storage Volume (ft ³)
0	8	0
0.05	30	0.95
0.1	71	3.48
0.15	131	8.53
0.2	212	17.11
0.25	314	30.26
0.3	439	49.09
0.35	588	74.77
0.4	763	108.55
0.45	965	151.75
0.5	1195	205.75
0.55	1453	271.95
0.6	1739	351.75
0.65	2054	446.58
0.7	2392	557.73
0.75	2706	685.18
0.8	3013	828.16
0.85	3314	986.34
0.9	3608	1159.39
0.95	3900	1347.09
1	4189	1549.32
1.05	4477	1765.97
1.1	4763	1996.97
1.15	5048	2242.25
1.2	5330	2501.7
1.25	5610	2775.2
1.3	5889	3062.68
1.35	6166	3364.06
1.4	6441	3679.24
1.45	6713	4008.09
1.5	6985	4350.54
1.55	7258	4706.62
1.6	7533	5076.4
1.65	7810	5459.98
1.7	8088	5857.43
1.75	8367	6268.81
1.8	8649	6694.21
1.85	8932	7133.74
1.9	9216	7587.44
1.95	9502	8055.39
2	9790	8537.69
2.05	10076	9034.34
2.1	10176	9540.64
2.15	10276	10051.94
2.2	10376	10568.24
2.25	10476	11089.54
2.3	10576	11615.84
2.35	10677	12147.17
2.4	10777	12683.52
2.45	10878	13224.9
2.5	10979	13771.33
2.55	11080	14322.81
2.6	11182	14879.36
2.65	11283	15440.99
2.7	11385	16007.69
2.75	11487	16579.49
2.8	11589	17156.39
2.85	11691	17738.39

2.9	11793	18325.49
2.95	11896	18917.72
3	11998	19515.07
3.05	12101	20117.54
3.1	12204	20725.17
3.15	12307	21337.95
3.2	12411	21955.9
3.25	12514	22579.03
3.3	12618	23207.33
3.35	12721	23840.81
3.4	12825	24479.46
3.45	12930	25123.34
3.5	13034	25772.44
3.55	13138	26426.74
3.6	13243	27086.27
3.65	13348	27751.05
3.7	13453	28421.08
3.75	13558	29096.36
3.8	13663	29776.89
3.85	13768	30462.67

Storage Area Volume Curves



— Storage Area — Storage Volume

Storage Node : S-204 (continued)

Output Summary Results

Peak Inflow (cfs)	3.61
Peak Lateral Inflow (cfs)	0.31
Peak Outflow (cfs)	2.16
Peak Exfiltration Flow Rate (cfm)	0
Max HGL Elevation Attained (ft)	4239.44
Max HGL Depth Attained (ft)	2.36
Average HGL Elevation Attained (ft)	4237.35
Average HGL Depth Attained (ft)	0.27
Time of Max HGL Occurrence (days hh:mm)	0 01:37
Total Exfiltration Volume (1000-ft ³)	0
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0

Storage Node : S-209

Input Data

Invert Elevation (ft) 4236.98
 Max (Rim) Elevation (ft) 4240.28
 Max (Rim) Offset (ft) 3.29
 Initial Water Elevation (ft) 4236.98
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S209	Side	CIRCULAR	No	15.00			4236.98	0.61

Output Summary Results

Peak Inflow (cfs) 6.06
 Peak Lateral Inflow (cfs) 6.06
 Peak Outflow (cfs) 5.74
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.28
 Max HGL Depth Attained (ft) 3.3
 Average HGL Elevation Attained (ft) 4237.31
 Average HGL Depth Attained (ft) 0.33
 Time of Max HGL Occurrence (days hh:mm) 0 00:58
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 0.04
 Total Time Flooded (min) 10
 Total Retention Time (sec) 0

Storage Node : S-223

Input Data

Invert Elevation (ft) 4238.59
 Max (Rim) Elevation (ft) 4240.12
 Max (Rim) Offset (ft) 1.52
 Initial Water Elevation (ft) 4238.59
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S223	Side	CIRCULAR	No	4.70			4238.59	0.61

Output Summary Results

Peak Inflow (cfs) 4.29
 Peak Lateral Inflow (cfs) 4.29
 Peak Outflow (cfs) 0.62
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.12
 Max HGL Depth Attained (ft) 1.53
 Average HGL Elevation Attained (ft) 4238.73
 Average HGL Depth Attained (ft) 0.14
 Time of Max HGL Occurrence (days hh:mm) 0 00:13
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 3.29
 Total Time Flooded (min) 100
 Total Retention Time (sec) 0

Storage Node : S-227

Input Data

Invert Elevation (ft) 4238.53
 Max (Rim) Elevation (ft) 4240.66
 Max (Rim) Offset (ft) 2.13
 Initial Water Elevation (ft) 4238.53
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S227	Side	CIRCULAR	No	3.40			4238.53	0.61

Output Summary Results

Peak Inflow (cfs) 2.87
 Peak Lateral Inflow (cfs) 2.87
 Peak Outflow (cfs) 0.41
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.66
 Max HGL Depth Attained (ft) 2.13
 Average HGL Elevation Attained (ft) 4238.72
 Average HGL Depth Attained (ft) 0.19
 Time of Max HGL Occurrence (days hh:mm) 0 00:20
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 2.13
 Total Time Flooded (min) 93
 Total Retention Time (sec) 0

Project Description

File Name 9872 South Rational - BASIN S - 100-yr.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method Rational
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Hydrodynamic
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods NO

Analysis Options

Start Analysis On 00:00:00 0:00:00
End Analysis On 00:00:00 0:00:00
Start Reporting On 00:00:00 0:00:00
Antecedent Dry Days 0 days
Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
Reporting Time Step 0 00:05:00 days hh:mm:ss
Routing Time Step 30 seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	39
Nodes.....	57
<i>Junctions</i>	52
<i>Outfalls</i>	1
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	4
Links.....	56
<i>Channels</i>	0
<i>Pipes</i>	52
<i>Pumps</i>	0
<i>Orifices</i>	4
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period..... 100 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	CATCH S-1	6.17	0.8000	1.74	1.39	8.58	8.58	0 01:00:00
2	CATCH S-10	0.29	0.4500	0.55	0.25	0.07	0.88	0 00:05:00
3	CATCH S-11	0.31	0.4500	0.55	0.25	0.08	0.94	0 00:05:00
4	CATCH S-12	0.24	0.4500	0.55	0.25	0.06	0.73	0 00:05:00
5	CATCH S-13	0.10	0.4500	0.77	0.35	0.03	0.23	0 00:08:48
6	CATCH S-14	0.10	0.4500	0.65	0.29	0.03	0.26	0 00:06:39
7	CATCH S-15	1.24	0.4500	0.61	0.28	0.34	3.43	0 00:05:58
8	CATCH S-16	0.30	0.4500	0.55	0.25	0.07	0.90	0 00:05:00
9	CATCH S-17	0.58	0.4500	0.55	0.25	0.14	1.73	0 00:05:00
10	CATCH S-18	0.17	0.4500	0.55	0.25	0.04	0.49	0 00:05:00
11	CATCH S-19	8.71	0.8000	1.74	1.39	12.13	12.13	0 01:00:00
12	CATCH S-2	4.12	0.8000	1.74	1.39	5.74	5.74	0 01:00:00
13	CATCH S-20	0.40	0.4500	0.55	0.25	0.10	1.21	0 00:05:00
14	CATCH S-21	0.27	0.4500	0.55	0.25	0.07	0.82	0 00:05:00
15	CATCH S-22	0.63	0.4500	1.46	0.66	0.42	0.72	0 00:34:41
16	CATCH S-23	0.13	0.1500	1.13	0.17	0.02	0.07	0 00:18:09
17	CATCH S-24	0.47	0.4500	0.55	0.25	0.12	1.39	0 00:05:00
18	CATCH S-25	0.29	0.4500	1.19	0.54	0.15	0.45	0 00:20:31
19	CATCH S-26	0.10	0.4500	1.09	0.49	0.05	0.17	0 00:17:04
20	CATCH S-27	0.72	0.4500	0.55	0.25	0.18	2.14	0 00:05:00
21	CATCH S-28	1.07	0.4500	1.37	0.61	0.66	1.39	0 00:28:22
22	CATCH S-29	0.50	0.4500	0.96	0.43	0.22	1.00	0 00:12:55
23	CATCH S-3	0.58	0.7500	0.55	0.41	0.24	2.89	0 00:05:00
24	CATCH S-30	0.43	0.4500	0.95	0.43	0.19	0.87	0 00:12:52
25	CATCH S-31	0.73	0.4500	1.28	0.58	0.42	1.05	0 00:24:15
26	CATCH S-32	0.47	0.4500	0.55	0.25	0.12	1.40	0 00:05:00
27	CATCH S-33	0.23	0.4500	0.55	0.25	0.06	0.69	0 00:05:00
28	CATCH S-34	0.69	0.4500	0.85	0.38	0.26	1.49	0 00:10:40
29	CATCH S-35	0.30	0.4500	0.72	0.33	0.10	0.73	0 00:07:59
30	CATCH S-36	0.58	0.4500	0.98	0.44	0.25	1.13	0 00:13:30
31	CATCH S-37	0.27	0.4500	0.78	0.35	0.10	0.63	0 00:08:57
32	CATCH S-38	0.33	0.4500	0.92	0.42	0.14	0.67	0 00:12:06
33	CATCH S-39	2.40	0.1500	1.74	0.26	0.63	0.63	0 01:00:00
34	CATCH S-4	0.74	0.7500	0.55	0.41	0.31	3.66	0 00:05:00
35	CATCH S-5	0.19	0.7500	0.55	0.41	0.08	0.94	0 00:05:00
36	CATCH S-6	0.18	0.4500	0.55	0.25	0.04	0.53	0 00:05:00
37	CATCH S-7	0.51	0.4500	0.80	0.36	0.18	1.15	0 00:09:26
38	CATCH S-8	0.20	0.4500	0.55	0.25	0.05	0.59	0 00:05:00
39	CATCH S-9	0.28	0.4500	0.55	0.25	0.07	0.83	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft ²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	S-202	Junction	4236.52	4241.50	4236.52	4241.50	0.00	3.60	4237.43	0.00	4.07	0 00:00	0.00	0.00
2	S-203	Junction	4236.58	4242.00	4236.58	4242.00	0.00	12.25	4239.89	0.00	2.11	0 00:00	0.00	0.00
3	S-205	Junction	4236.68	4241.17	4236.68	4241.17	0.00	12.36	4239.91	0.00	1.26	0 00:00	0.00	0.00
4	S-206	Junction	4236.78	4241.38	4236.78	4241.38	0.00	8.08	4239.94	0.00	1.44	0 00:00	0.00	0.00
5	S-207	Junction	4236.83	4241.25	4236.83	4241.25	0.00	1.21	4239.94	0.00	1.31	0 00:00	0.00	0.00
6	S-208	Junction	4236.93	4241.51	4236.93	4241.51	0.00	7.81	4239.99	0.00	1.52	0 00:00	0.00	0.00
7	S-210	Junction	4237.04	4241.04	4237.04	4241.04	0.00	7.51	4239.99	0.00	1.05	0 00:00	0.00	0.00
8	S-211	Junction	4237.09	4240.90	4237.09	4240.90	0.00	1.73	4239.99	0.00	0.91	0 00:00	0.00	0.00
9	S-212	Junction	4237.22	4241.75	4237.22	4241.75	0.00	7.15	4239.99	0.00	1.76	0 00:00	0.00	0.00
10	S-213	Junction	4237.30	4241.59	4237.30	4241.59	0.00	7.56	4239.99	0.00	1.59	0 00:00	0.00	0.00
11	S-214	Junction	4237.39	4241.26	4237.39	4241.26	0.00	8.93	4239.99	0.00	1.27	0 00:00	0.00	0.00
12	S-215	Junction	4238.54	4241.12	4238.54	4241.12	0.00	3.43	4239.99	0.00	1.12	0 00:00	0.00	0.00
13	S-216	Junction	4237.90	4242.58	4237.90	4242.58	0.00	7.80	4240.00	0.00	2.59	0 00:00	0.00	0.00
14	S-217	Junction	4238.16	4241.88	4238.16	4241.88	0.00	6.57	4240.00	0.00	1.88	0 00:00	0.00	0.00
15	S-218	Junction	4238.21	4241.68	4238.21	4241.68	0.00	1.15	4240.00	0.00	1.68	0 00:00	0.00	0.00
16	S-219	Junction	4238.22	4242.17	4238.22	4242.17	0.00	5.69	4240.00	0.00	2.17	0 00:00	0.00	0.00
17	S-220	Junction	4238.29	4242.26	4238.29	4242.26	0.00	5.77	4240.00	0.00	2.27	0 00:00	0.00	0.00
18	S-221	Junction	4238.50	4241.32	4238.50	4241.32	0.00	6.16	4240.00	0.00	1.32	0 00:00	0.00	0.00
19	S-222	Junction	4238.57	4241.18	4238.57	4241.18	0.00	2.89	4240.00	0.00	1.18	0 00:00	0.00	0.00
20	S-224	Junction	4238.35	4242.07	4238.35	4242.07	0.00	0.90	4240.00	0.00	2.07	0 00:00	0.00	0.00
21	S-225	Junction	4238.44	4241.61	4238.44	4241.61	0.00	1.11	4240.00	0.00	1.61	0 00:00	0.00	0.00
22	S-226	Junction	4238.51	4241.43	4238.51	4241.43	0.00	0.94	4240.00	0.00	1.43	0 00:00	0.00	0.00
23	S-228	Junction	4237.99	4241.46	4237.99	4241.46	0.00	2.84	4240.00	0.00	1.46	0 00:00	0.00	0.00
24	S-229	Junction	4238.04	4241.32	4238.04	4241.32	0.00	0.34	4240.00	0.00	1.32	0 00:00	0.00	0.00
25	S-230	Junction	4238.18	4241.16	4238.18	4241.16	0.00	2.87	4240.00	0.00	1.16	0 00:00	0.00	0.00
26	S-231	Junction	4238.23	4241.02	4238.23	4241.02	0.00	0.94	4240.00	0.00	1.02	0 00:00	0.00	0.00
27	S-232	Junction	4238.42	4241.12	4238.42	4241.12	0.00	1.61	4240.00	0.00	1.12	0 00:00	0.00	0.00
28	S-233	Junction	4238.48	4241.12	4238.48	4241.12	0.00	0.83	4240.00	0.00	1.12	0 00:00	0.00	0.00
29	S-234	Junction	4236.79	4241.52	4236.79	4241.52	0.00	6.51	4239.91	0.00	1.62	0 00:00	0.00	0.00
30	S-235	Junction	4237.20	4240.50	4237.20	4240.50	0.00	3.72	4239.91	0.00	0.59	0 00:00	0.00	0.00
31	S-236	Junction	4237.39	4240.50	4237.39	4240.50	0.00	3.19	4239.91	0.00	0.59	0 00:00	0.00	0.00
32	S-237	Junction	4237.59	4241.43	4237.59	4241.43	0.00	3.04	4239.91	0.00	1.52	0 00:00	0.00	0.00
33	S-238	Junction	4237.91	4241.73	4237.91	4241.73	0.00	2.14	4239.91	0.00	1.82	0 00:00	0.00	0.00
34	S-239	Junction	4237.95	4240.96	4237.95	4240.96	0.00	1.43	4239.91	0.00	1.05	0 00:00	0.00	0.00
35	S-240	Junction	4238.28	4241.29	4238.28	4241.29	0.00	1.58	4239.91	0.00	1.38	0 00:00	0.00	0.00
36	S-241	Junction	4238.61	4241.31	4238.61	4241.31	0.00	1.39	4239.91	0.00	1.39	0 00:00	0.00	0.00
37	S-242	Junction	4239.02	4242.33	4239.02	4242.33	0.00	0.72	4239.91	0.00	2.42	0 00:00	0.00	0.00
38	S-243	Junction	4239.35	4242.30	4239.35	4242.30	0.00	0.72	4239.91	0.00	2.39	0 00:00	0.00	0.00
39	S-244	Junction	4237.56	4242.05	4237.56	4242.05	0.00	1.72	4239.91	0.00	2.14	0 00:00	0.00	0.00
40	S-245	Junction	4238.24	4241.34	4238.24	4241.34	0.00	0.98	4239.91	0.00	1.43	0 00:00	0.00	0.00
41	S-246	Junction	4238.57	4241.42	4238.57	4241.42	0.00	1.00	4239.91	0.00	1.52	0 00:00	0.00	0.00
42	S-247	Junction	4237.91	4242.03	4237.91	4242.03	0.00	0.87	4239.91	0.00	2.12	0 00:00	0.00	0.00
43	S-248	Junction	4237.28	4241.89	4237.28	4241.89	0.00	3.12	4239.91	0.00	1.98	0 00:00	0.00	0.00
44	S-249	Junction	4238.40	4241.12	4238.40	4241.12	0.00	1.12	4239.91	0.00	1.21	0 00:00	0.00	0.00
45	S-250	Junction	4238.54	4241.12	4238.54	4241.12	0.00	0.67	4239.91	0.00	1.21	0 00:00	0.00	0.00
46	S-251	Junction	4237.79	4242.37	4237.79	4242.37	0.00	1.04	4239.91	0.00	2.46	0 00:00	0.00	0.00
47	S-252	Junction	4237.54	4242.04	4237.54	4242.04	0.00	2.12	4239.91	0.00	2.14	0 00:00	0.00	0.00
48	S-253	Junction	4238.31	4241.07	4238.31	4241.07	0.00	1.38	4239.91	0.00	1.17	0 00:00	0.00	0.00
49	S-254	Junction	4238.50	4241.07	4238.50	4241.07	0.00	1.13	4239.91	0.00	1.17	0 00:00	0.00	0.00
50	S-255	Junction	4237.38	4241.50	4237.38	4241.50	0.00	3.22	4239.91	0.00	1.59	0 00:00	0.00	0.00
51	S-256	Junction	4238.90	4241.50	4238.90	4241.50	0.00	0.69	4239.91	0.00	1.59	0 00:00	0.00	0.00
52	S-301	Junction	4237.19	4242.15	4237.19	4242.15	0.00	3.12	4239.91	0.00	2.24	0 00:00	0.00	0.00
53	S-201	Outfall	4236.50					3.60	4237.16					
54	S-204	Storage Node	4237.08	4240.42	4237.08		0.00	9.47	4239.89				0.00	0.00
55	S-209	Storage Node	4236.98	4240.28	4236.98		0.00	12.13	4240.28				5.30	74.00
56	S-223	Storage Node	4238.59	4240.12	4238.59		0.00	8.58	4240.12				7.83	111.00
57	S-227	Storage Node	4238.53	4240.66	4238.53		0.00	5.74	4240.66				5.06	105.00

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Reported Surcharged (min)	Reported Condition
1	SD-S202	Pipe	S-202	S-201	27.28	4236.52	4236.50	0.0800	24.000	0.0130	3.60	10.12	0.36	3.14	0.79	0.39	0.00	Calculated
2	SD-S204	Pipe	S-204	S-203	125.35	4237.08	4236.58	0.4000	36.000	0.0130	9.32	42.16	0.22	2.72	2.91	0.97	0.00	Calculated
3	SD-S205	Pipe	S-205	S-203	67.26	4236.68	4236.58	0.1500	30.000	0.0130	12.25	18.34	0.67	2.87	2.50	1.00	138.00	SURCHARGED
4	SD-S206	Pipe	S-206	S-205	62.66	4236.78	4236.68	0.1500	24.000	0.0130	7.88	10.12	0.78	2.56	2.00	1.00	189.00	SURCHARGED
5	SD-S207	Pipe	S-207	S-206	34.57	4236.83	4236.78	0.1500	18.000	0.0130	1.05	4.70	0.22	1.70	1.50	1.00	229.00	SURCHARGED
6	SD-S208	Pipe	S-208	S-206	104.50	4236.93	4236.78	0.1500	24.000	0.0130	7.70	10.12	0.76	2.45	2.00	1.00	177.00	SURCHARGED
7	SD-S210	Pipe	S-210	S-208	68.83	4237.04	4236.93	0.1500	24.000	0.0130	6.91	10.12	0.68	2.44	2.00	1.00	169.00	SURCHARGED
8	SD-S211	Pipe	S-211	S-210	34.50	4237.09	4237.04	0.1500	15.000	0.0130	1.64	2.89	0.57	2.41	1.25	1.00	229.00	SURCHARGED
9	SD-S212	Pipe	S-212	S-210	121.97	4237.22	4237.04	0.1500	24.000	0.0130	6.60	10.12	0.65	2.31	2.00	1.00	140.00	SURCHARGED
10	SD-S213	Pipe	S-213	S-212	54.35	4237.30	4237.22	0.1500	24.000	0.0130	7.15	10.12	0.71	2.61	2.00	1.00	130.00	SURCHARGED
11	SD-S214	Pipe	S-214	S-213	60.16	4237.39	4237.30	0.1500	24.000	0.0130	7.56	10.12	0.75	2.68	2.00	1.00	121.00	SURCHARGED
12	SD-S215	Pipe	S-215	S-214	34.50	4238.54	4238.14	1.1700	15.000	0.0130	3.40	6.99	0.49	4.87	1.25	1.00	70.00	SURCHARGED
13	SD-S216	Pipe	S-216	S-214	337.17	4237.90	4237.39	0.1500	24.000	0.0130	5.62	10.12	0.56	2.12	2.00	1.00	48.00	SURCHARGED
14	SD-S217	Pipe	S-217	S-216	175.50	4238.16	4237.90	0.1500	24.000	0.0130	6.21	10.12	0.61	3.42	1.92	0.96	0.00	Calculated
15	SD-S218	Pipe	S-218	S-217	29.90	4239.10	4238.95	0.5000	15.000	0.0130	1.15	4.58	0.25	2.35	0.97	0.78	0.00	Calculated
16	SD-S219	Pipe	S-219	S-217	41.32	4238.22	4238.16	0.1500	24.000	0.0130	5.42	10.12	0.54	2.48	1.81	0.90	0.00	Calculated
17	SD-S220	Pipe	S-220	S-219	47.53	4238.29	4238.22	0.1500	24.000	0.0130	5.11	10.12	0.50	2.70	1.74	0.87	0.00	Calculated
18	SD-S221	Pipe	S-221	S-220	139.77	4238.50	4238.29	0.1500	24.000	0.0130	5.77	10.12	0.57	2.68	1.60	0.80	0.00	Calculated
19	SD-S222	Pipe	S-222	S-221	45.50	4238.57	4238.50	0.1500	15.000	0.0130	2.52	2.89	0.87	2.05	1.25	1.00	69.00	SURCHARGED
20	SD-S224	Pipe	S-224	S-219	84.98	4238.35	4238.22	0.1500	15.000	0.0130	0.90	2.89	0.31	0.83	1.25	1.00	103.00	SURCHARGED
21	SD-S225	Pipe	S-225	S-224	61.69	4238.44	4238.35	0.1500	15.000	0.0130	0.90	2.89	0.31	2.12	1.25	1.00	86.00	SURCHARGED
22	SD-S226	Pipe	S-226	S-225	44.58	4238.51	4238.44	0.1500	15.000	0.0130	0.61	2.89	0.21	1.13	1.25	1.00	77.00	SURCHARGED
23	SD-S228	Pipe	S-228	S-216	65.50	4237.99	4237.90	0.1400	24.000	0.0130	1.63	10.12	0.16	2.56	2.00	1.00	10.00	SURCHARGED
24	SD-S229	Pipe	S-229	S-228	34.50	4238.04	4237.99	0.1500	15.000	0.0130	0.29	2.89	0.10	0.64	1.25	1.00	137.00	SURCHARGED
25	SD-S230	Pipe	S-230	S-228	132.07	4238.18	4237.99	0.1500	18.000	0.0130	2.57	4.70	0.55	2.43	1.50	1.00	88.00	SURCHARGED
26	SD-S231	Pipe	S-231	S-230	34.50	4238.23	4238.18	0.1500	15.000	0.0130	0.86	2.89	0.30	1.78	1.25	1.00	113.00	SURCHARGED
27	SD-S232	Pipe	S-232	S-230	158.62	4238.42	4238.18	0.1500	15.000	0.0130	1.40	2.89	0.48	1.52	1.25	1.00	89.00	SURCHARGED
28	SD-S233	Pipe	S-233	S-232	38.00	4238.48	4238.42	0.1500	15.000	0.0130	0.74	2.89	0.26	1.26	1.25	1.00	81.00	SURCHARGED
29	SD-S234	Pipe	S-234	S-205	74.73	4236.79	4236.68	0.1500	24.000	0.0130	6.50	10.12	0.64	2.07	2.00	1.00	187.00	SURCHARGED
30	SD-S235	Pipe	S-235	S-234	272.66	4237.20	4236.79	0.1500	24.000	0.0130	3.69	10.12	0.36	1.84	2.00	1.00	140.00	SURCHARGED
31	SD-S236	Pipe	S-236	S-235	121.85	4237.39	4237.20	0.1500	14.994	0.0110	3.07	3.41	0.90	3.03	1.25	1.00	202.00	SURCHARGED
32	SD-S237	Pipe	S-237	S-236	132.56	4237.59	4237.39	0.1500	14.994	0.0110	2.89	3.41	0.85	2.63	1.25	1.00	183.00	SURCHARGED
33	SD-S238	Pipe	S-238	S-237	32.73	4237.91	4237.59	1.0000	12.232	0.0110	2.04	4.43	0.46	3.95	1.02	1.00	174.00	SURCHARGED
34	SD-S239	Pipe	S-239	S-237	92.27	4237.95	4237.59	0.4000	12.232	0.0110	1.36	2.80	0.49	1.76	1.02	1.00	170.00	SURCHARGED
35	SD-S240	Pipe	S-240	S-239	81.45	4238.28	4237.95	0.4000	12.232	0.0110	1.37	2.80	0.49	2.84	1.02	1.00	140.00	SURCHARGED
36	SD-S241	Pipe	S-241	S-240	32.87	4238.61	4238.28	1.0000	12.232	0.0110	1.38	4.43	0.31	3.56	1.02	1.00	100.00	SURCHARGED
37	SD-S242	Pipe	S-242	S-240	186.00	4239.02	4238.28	0.4000	12.232	0.0110	0.70	2.80	0.25	1.10	0.95	0.93	0.00	Calculated
38	SD-S243	Pipe	S-243	S-242	32.73	4239.35	4239.02	1.0000	12.232	0.0110	0.71	4.43	0.16	2.32	0.72	0.71	0.00	Calculated
39	SD-S244	Pipe	S-244	S-235	90.30	4237.56	4237.20	0.4000	12.232	0.0110	1.73	2.80	0.62	2.12	1.02	1.00	207.00	SURCHARGED
40	SD-S245	Pipe	S-245	S-244	168.68	4238.24	4237.56	0.4000	12.232	0.0110	0.93	2.80	0.33	1.91	1.02	1.00	137.00	SURCHARGED
41	SD-S246	Pipe	S-246	S-245	33.33	4238.57	4238.24	1.0000	12.232	0.0110	0.98	4.43	0.22	3.01	1.02	1.00	88.00	SURCHARGED
42	SD-S247	Pipe	S-247	S-244	34.33	4237.91	4237.56	1.0000	12.232	0.0110	0.87	4.43	0.20	2.83	1.02	1.00	176.00	SURCHARGED
43	SD-S248	Pipe	S-248	S-301	38.30	4237.28	4237.19	0.2300	18.000	0.0130	3.12	5.09	0.61	2.59	1.50	1.00	190.00	SURCHARGED
44	SD-S249	Pipe	S-249	S-251	122.00	4238.40	4237.79	0.5000	18.000	0.0130	1.04	7.43	0.14	2.32	1.50	1.00	8.00	SURCHARGED
45	SD-S250	Pipe	S-250	S-249	28.00	4238.54	4238.40	0.5000	15.000	0.0130	0.62	4.57	0.14	1.67	1.25	1.00	53.00	SURCHARGED
46	SD-S251	Pipe	S-251	S-252	101.44	4237.79	4237.54	0.2500	15.000	0.0130	0.84	3.21	0.26	0.78	1.25	1.00	167.00	SURCHARGED
47	SD-S252	Pipe	S-252	S-255	62.88	4237.54	4237.38	0.2500	15.000	0.0130	2.11	3.26	0.65	1.72	1.25	1.00	189.00	SURCHARGED

Link Summary

SN	Element ID	Element Type	From (Inlet Node)	To (Outlet Node)	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Reported (min)	Surcharged Condition
48	SD-S253	Pipe	S-253	S-252	62.50	4238.31	4238.00	0.5000	15.000	0.0130	1.37	4.57	0.30	2.86	1.25	1.00	93.00	SURCHARGED
49	SD-S254	Pipe	S-254	S-253	38.00	4238.50	4238.31	0.5000	15.000	0.0130	1.11	4.57	0.24	1.70	1.25	1.00	62.00	SURCHARGED
50	SD-S255	Pipe	S-255	S-248	40.02	4237.38	4237.28	0.2500	18.000	0.0130	3.12	5.25	0.59	2.35	1.50	1.00	182.00	SURCHARGED
51	SD-S256	Pipe	S-256	S-255	38.00	4238.90	4238.71	0.5000	15.000	0.0130	0.67	4.57	0.15	2.47	1.10	0.88	0.00	Calculated
52	SD-S301	Pipe	S-301	S-234	157.66	4237.19	4236.79	0.2500	18.000	0.0130	3.12	5.26	0.59	2.19	1.50	1.00	198.00	SURCHARGED
53	SD-S203	Orifice	S-203	S-202		4236.58	4236.52		9.240		3.60							
54	SD-S209	Orifice	S-209	S-208		4236.98	4236.93		15.000		5.65							
55	SD-S223	Orifice	S-223	S-222		4238.59	4238.57		4.700		0.58							
56	SD-S227	Orifice	S-227	S-226		4238.53	4238.51		3.400		0.38							

Subbasin Hydrology

Subbasin : CATCH S-1

Input Data

Area (ac) 6.17
 Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	6.17	-	0.8
Composite Area & Weighted Runoff Coeff.	6.17		0.8

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$$T_c = (0.007 * ((n * L_f)^{0.8}) / ((P^{0.5}) * (S_f^{0.4}))$$

Where :

T_c = Time of Concentration (hr)
 n = Manning's roughness
 L_f = Flow Length (ft)
 P = 2 yr, 24 hr Rainfall (inches)
 S_f = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (S_f^{0.5}) (unpaved surface)
 V = 20.3282 * (S_f^{0.5}) (paved surface)
 V = 15.0 * (S_f^{0.5}) (grassed waterway surface)
 V = 10.0 * (S_f^{0.5}) (nearly bare & untilled surface)
 V = 9.0 * (S_f^{0.5}) (cultivated straight rows surface)
 V = 7.0 * (S_f^{0.5}) (short grass pasture surface)
 V = 5.0 * (S_f^{0.5}) (woodland surface)
 V = 2.5 * (S_f^{0.5}) (forest w/heavy litter surface)
 T_c = (L_f / V) / (3600 sec/hr)

Where:

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)

Channel Flow Equation :

$$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$$

$$R = A_q / W_p$$

$$T_c = (L_f / V) / (3600 \text{ sec/hr})$$

Where :

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 R = Hydraulic Radius (ft)
 A_q = Flow Area (ft²)
 W_p = Wetted Perimeter (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)
 n = Manning's roughness

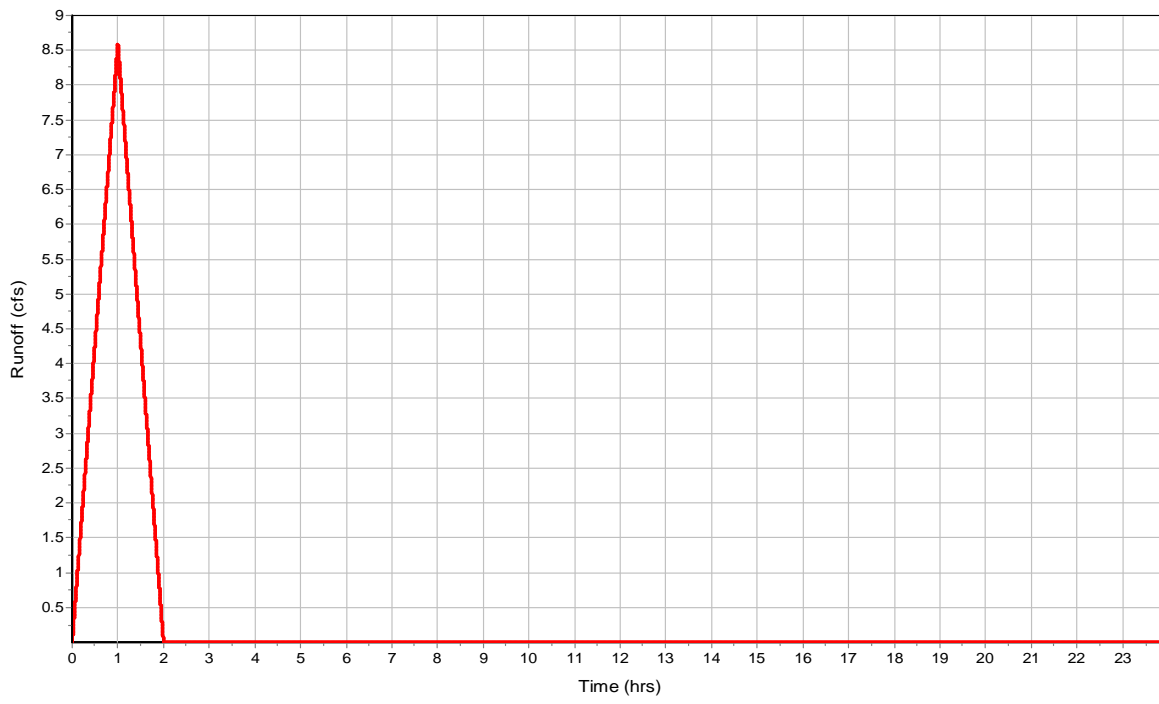
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 1.74
 Total Runoff (in) 1.39
 Peak Runoff (cfs) 8.58
 Rainfall Intensity 1.74
 Weighted Runoff Coefficient 0.8
 Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-1

Runoff Hydrograph



Subbasin : CATCH S-10

Input Data

Area (ac) 0.29
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.29	-	0.45
Composite Area & Weighted Runoff Coeff.	0.29		0.45

Time of Concentration

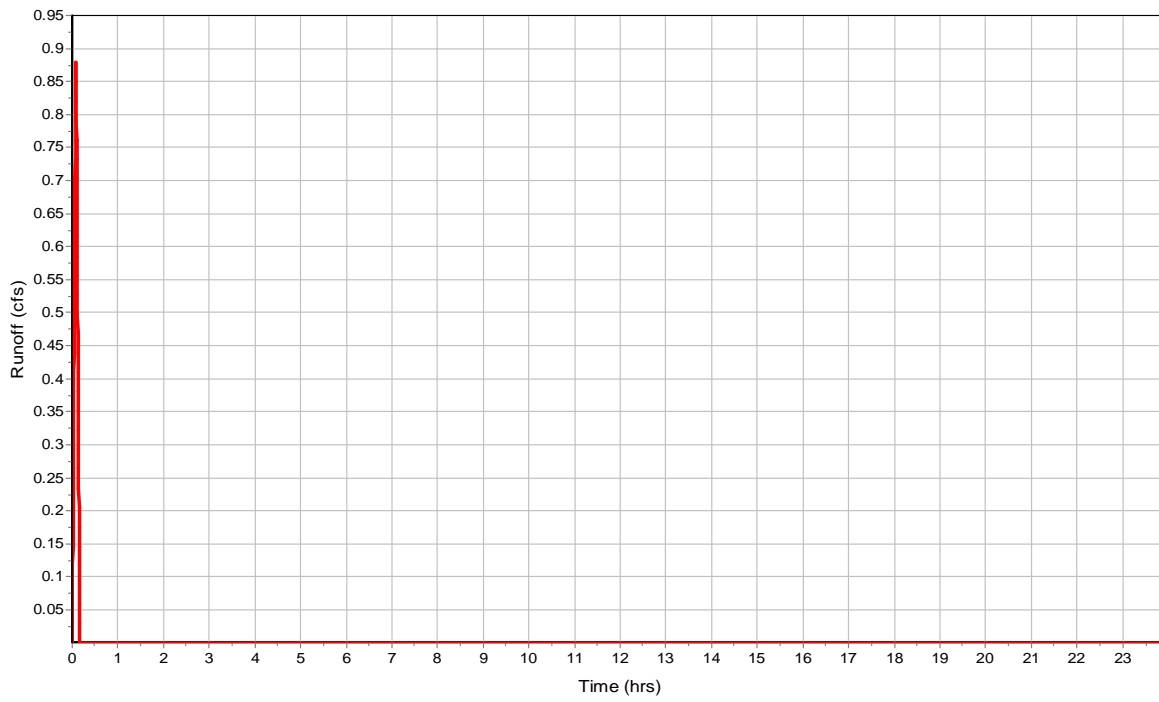
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	205.9365083	0	0
Slope (%) :	2.71244312	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	205.9698841	0	0
Slope (%) :	0.58346963	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.55	0	0
Computed Flow Time (min) :	2.21	0	0
Total TOC (min)2.54			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.88
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:02:32

Subbasin : CATCH S-10

Runoff Hydrograph



Subbasin : CATCH S-11

Input Data

Area (ac) 0.31
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.31	-	0.45
Composite Area & Weighted Runoff Coeff.	0.31		0.45

Time of Concentration

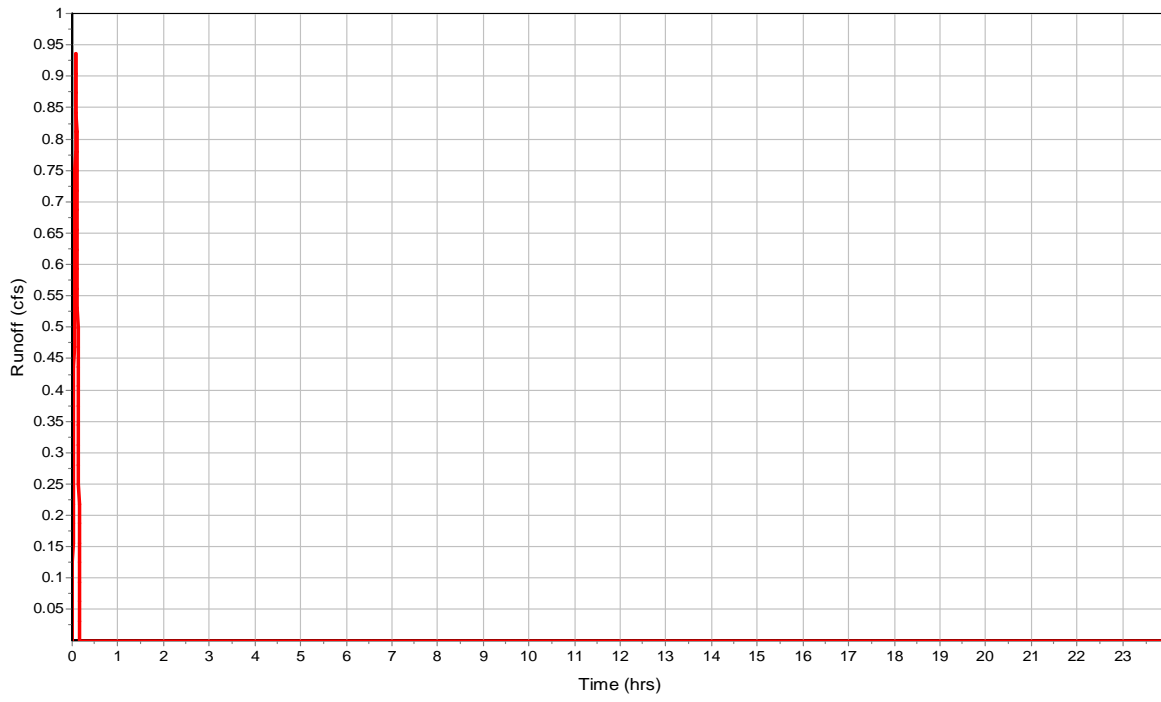
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	102.1057022	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	1.32	0	0
Total TOC (min)1.65			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.94
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:39

Subbasin : CATCH S-11

Runoff Hydrograph



Subbasin : CATCH S-12

Input Data

Area (ac) 0.24
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.24	-	0.45
Composite Area & Weighted Runoff Coeff.	0.24		0.45

Time of Concentration

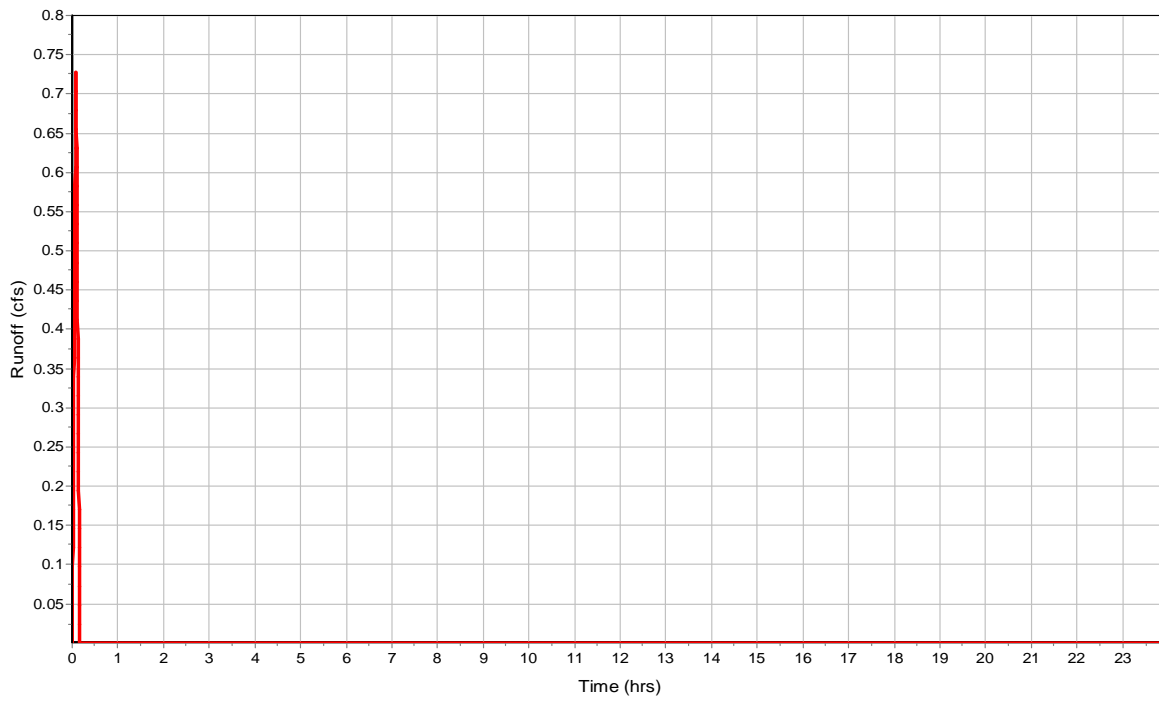
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	102.1057022	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	1.32	0	0
Total TOC (min)1.65			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.73
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:39

Subbasin : CATCH S-12

Runoff Hydrograph



Subbasin : CATCH S-13

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

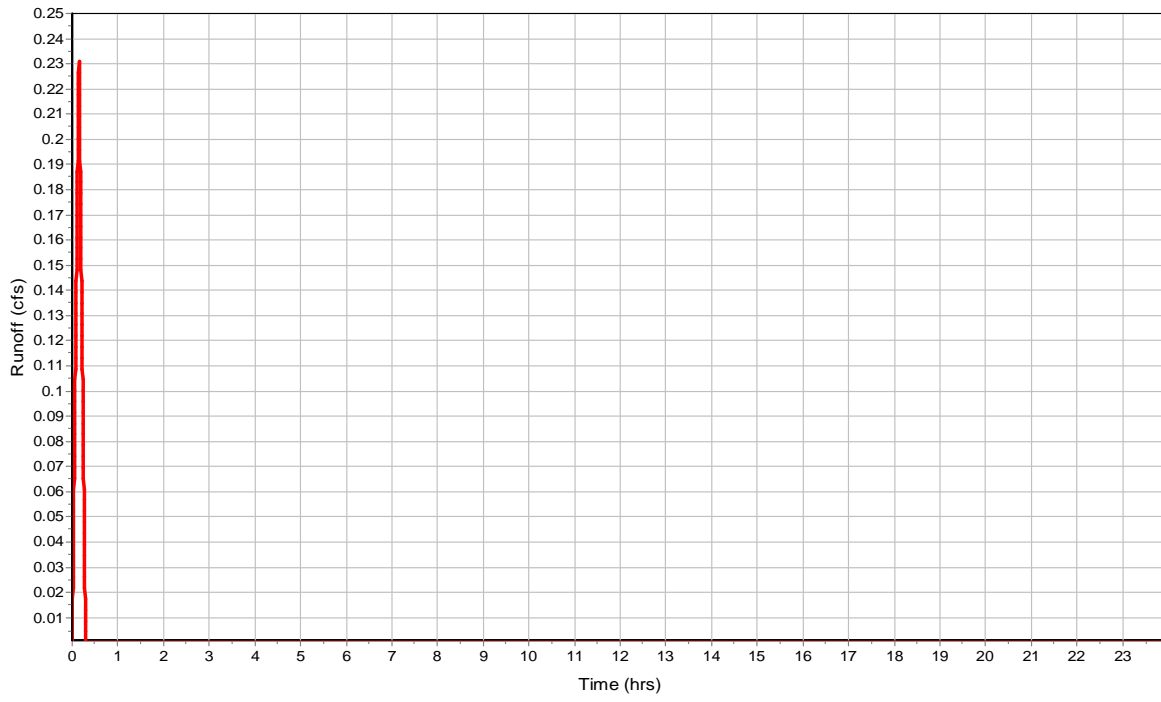
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	47.00111348	0	0
Slope (%) :	1.38729392	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	8.51	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	25.96630818	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	0.3	0	0
Total TOC (min)	8.81		

Subbasin Runoff Results

Total Rainfall (in) 0.77
 Total Runoff (in) 0.35
 Peak Runoff (cfs) 0.23
 Rainfall Intensity 5.21
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:08:49

Subbasin : CATCH S-13

Runoff Hydrograph



Subbasin : CATCH S-14

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

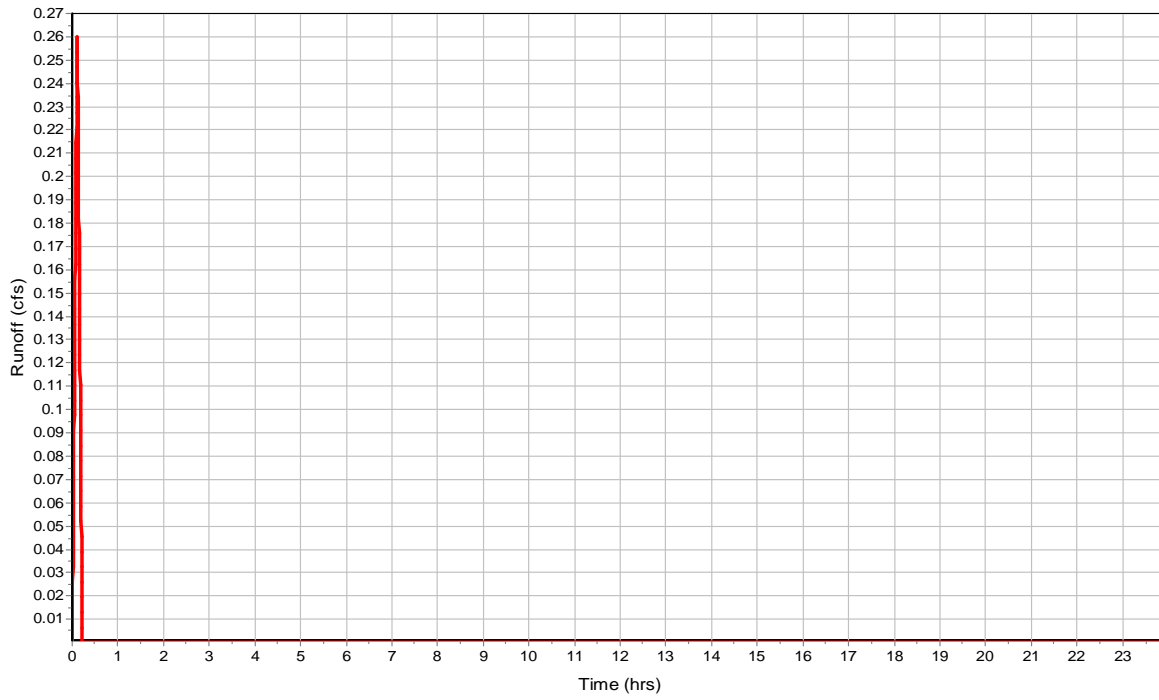
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	45.3163887	0	0
Slope (%) :	2.70352519	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	6.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	24.60570221	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.32	0	0
Total TOC (min)	6.65		

Subbasin Runoff Results

Total Rainfall (in) 0.65
 Total Runoff (in) 0.29
 Peak Runoff (cfs) 0.26
 Rainfall Intensity 5.868
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:06:39

Subbasin : CATCH S-14

Runoff Hydrograph



Subbasin : CATCH S-15

Input Data

Area (ac) 1.24
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.24	-	0.45
Composite Area & Weighted Runoff Coeff.	1.24		0.45

Time of Concentration

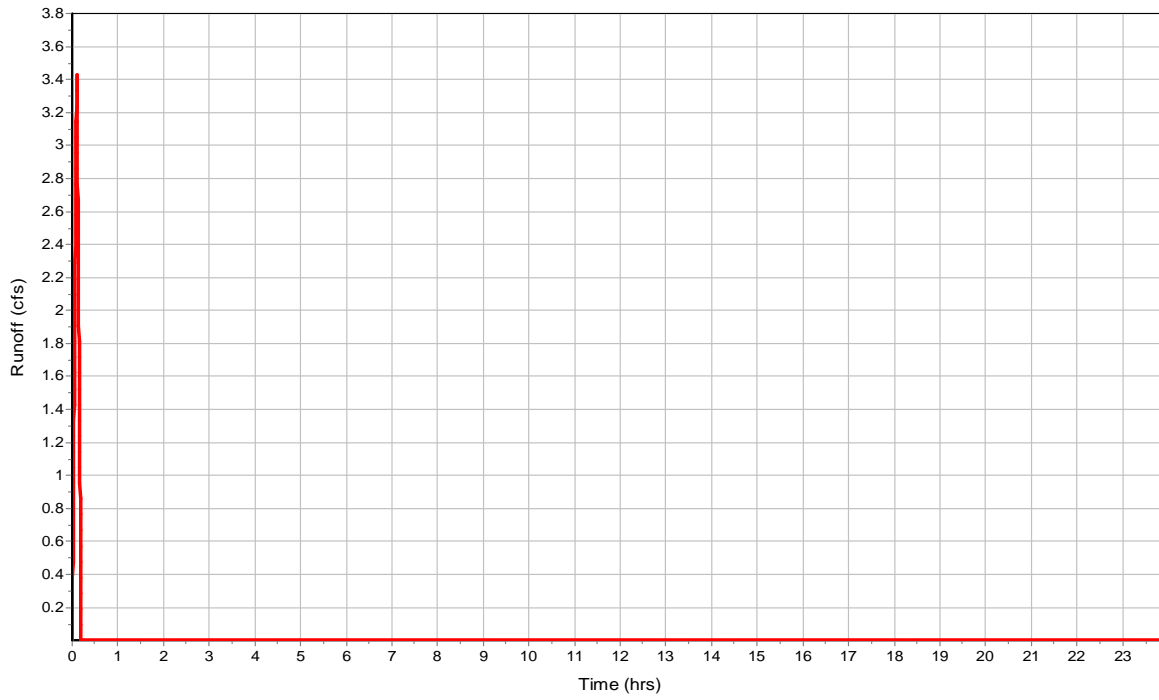
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.13	0	0
Flow Length (ft) :	20.17506685	0	0
Slope (%) :	2.67601058	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.17	0	0
Computed Flow Time (min) :	2.04	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	304.0076134	0	0
Slope (%) :	0.40047248	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	3.94	0	0
Total TOC (min)	5.98		

Subbasin Runoff Results

Total Rainfall (in) 0.61
 Total Runoff (in) 0.28
 Peak Runoff (cfs) 3.43
 Rainfall Intensity 6.137
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:05:59

Subbasin : CATCH S-15

Runoff Hydrograph



Subbasin : CATCH S-16

Input Data

Area (ac) 0.3
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.3	-	0.45
Composite Area & Weighted Runoff Coeff.	0.3		0.45

Time of Concentration

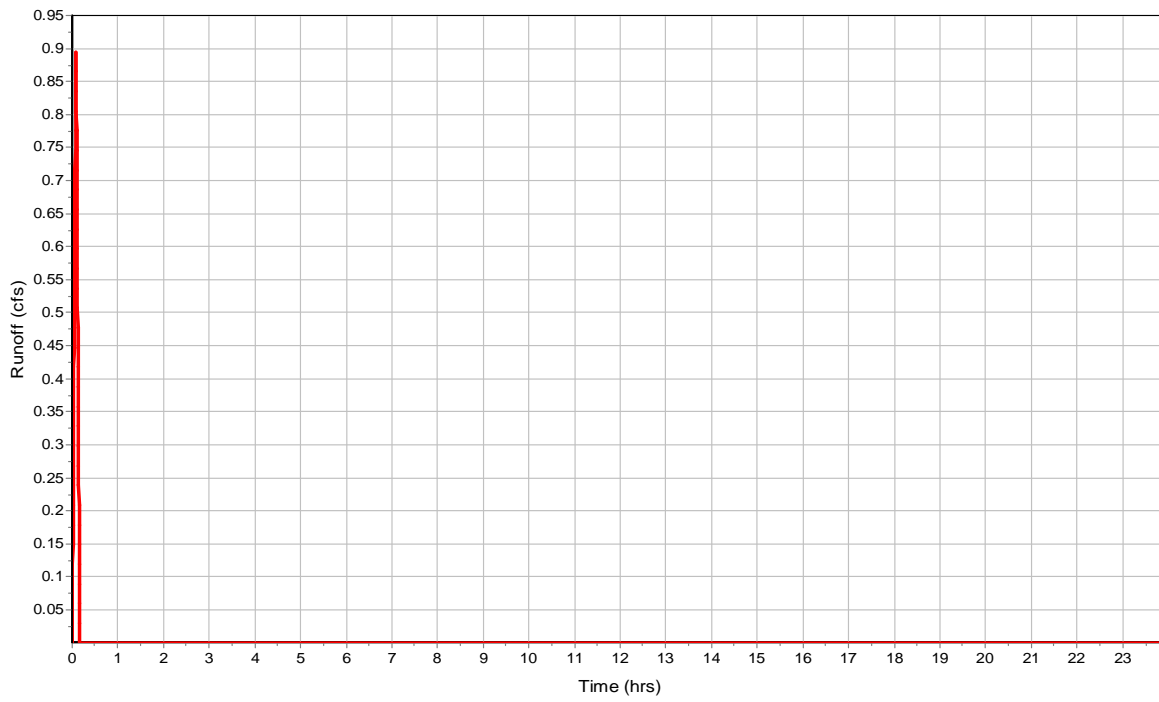
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	350.3467955	0	0
Slope (%) :	0.53147631	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.18	0	0
Computed Flow Time (min) :	4.96	0	0
Total TOC (min)	4.96		

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.9
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:04:58

Subbasin : CATCH S-16

Runoff Hydrograph



Subbasin : CATCH S-17

Input Data

Area (ac) 0.58
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.45
Composite Area & Weighted Runoff Coeff.	0.58		0.45

Time of Concentration

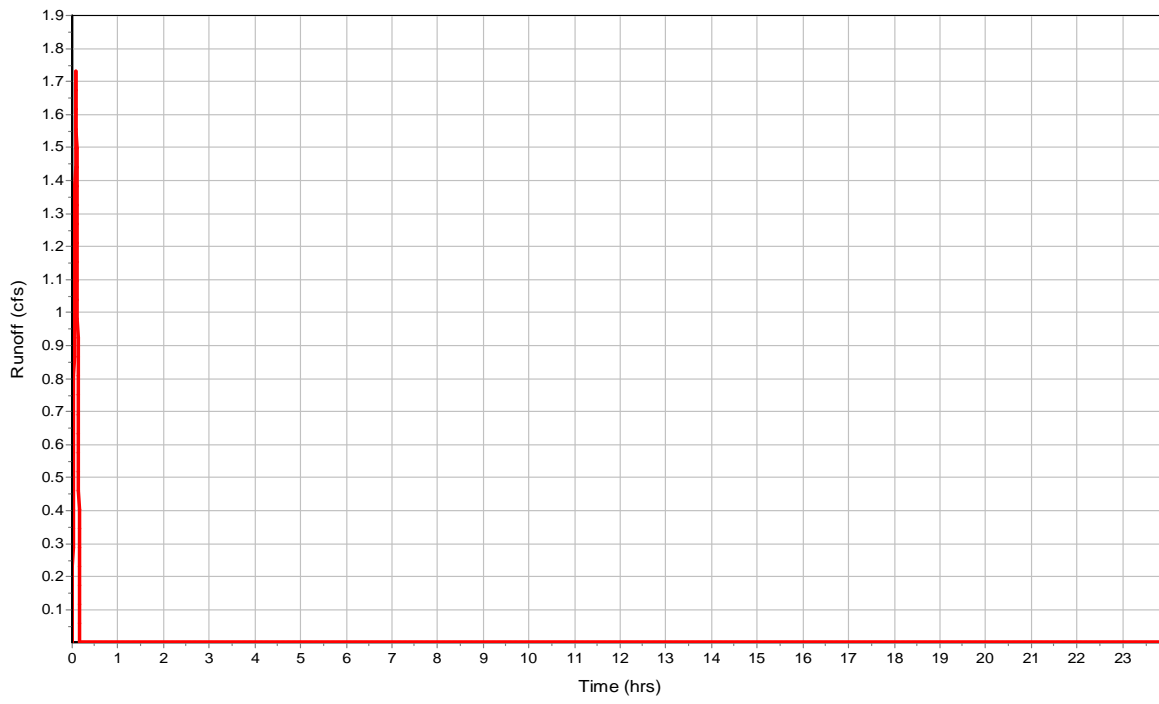
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	173.0247667	0	0
Slope (%) :	0.83852147	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.48	0	0
Computed Flow Time (min) :	1.95	0	0
Total TOC (min)	1.95		

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 1.73
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:57

Subbasin : CATCH S-17

Runoff Hydrograph



Subbasin : CATCH S-18

Input Data

Area (ac) 0.17
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.17	-	0.45
Composite Area & Weighted Runoff Coeff.	0.17		0.45

Time of Concentration

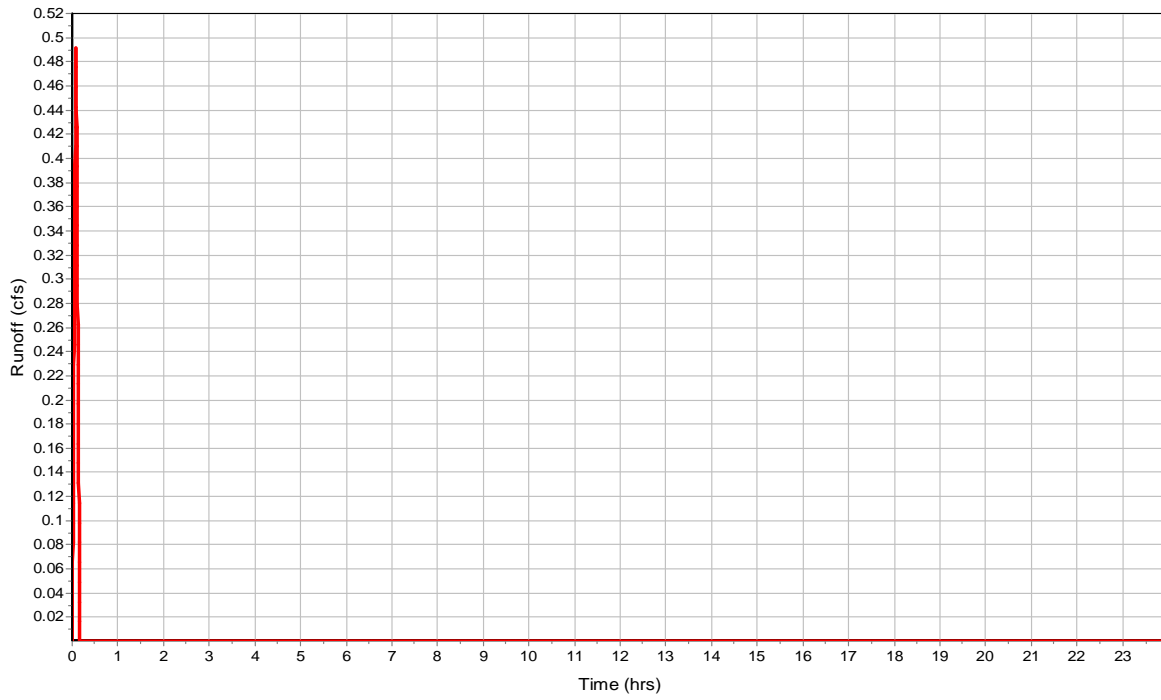
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.50766126	0	0
Slope (%) :	2.71034994	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	130.9394959	0	0
Slope (%) :	0.57483908	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.54	0	0
Computed Flow Time (min) :	1.42	0	0
Total TOC (min)	1.74		

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.49
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:44

Subbasin : CATCH S-18

Runoff Hydrograph



Subbasin : CATCH S-19

Input Data

Area (ac) 8.71
Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	8.71	-	0.8
Composite Area & Weighted Runoff Coeff.	8.71		0.8

Time of Concentration

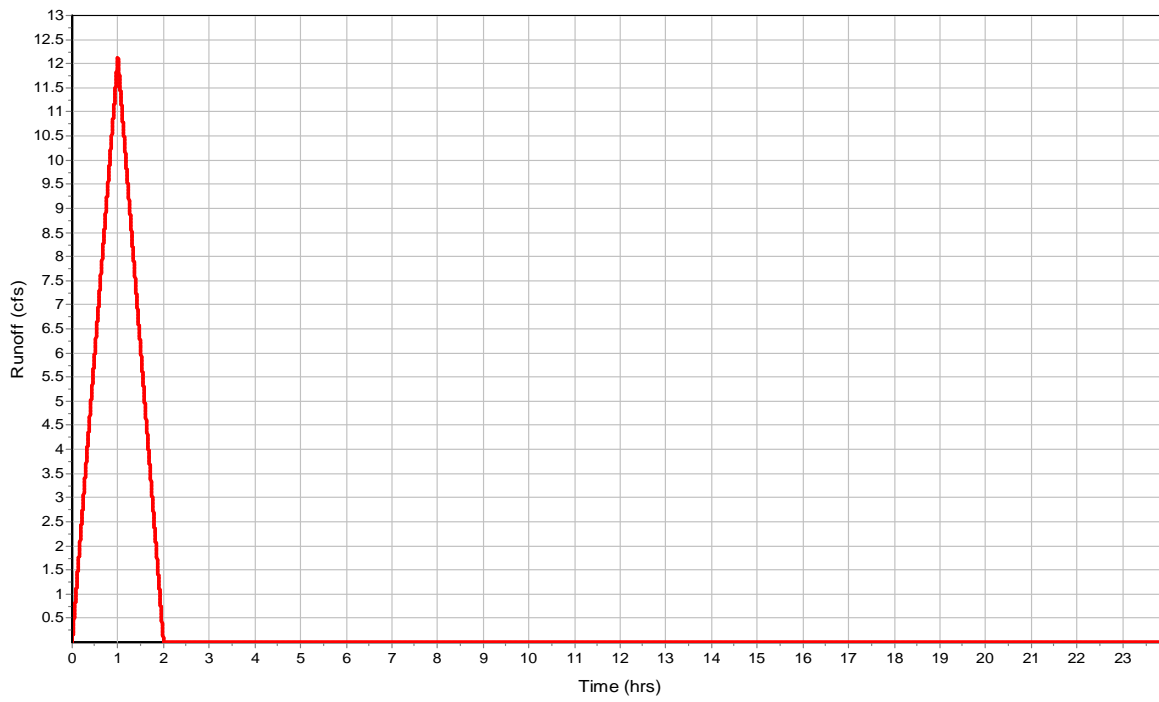
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 1.74
Total Runoff (in) 1.39
Peak Runoff (cfs) 12.13
Rainfall Intensity 1.74
Weighted Runoff Coefficient 0.8
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-19

Runoff Hydrograph



Subbasin : CATCH S-2

Input Data

Area (ac) 4.12
Weighted Runoff Coefficient 0.8

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	4.12	-	0.8
Composite Area & Weighted Runoff Coeff.	4.12		0.8

Time of Concentration

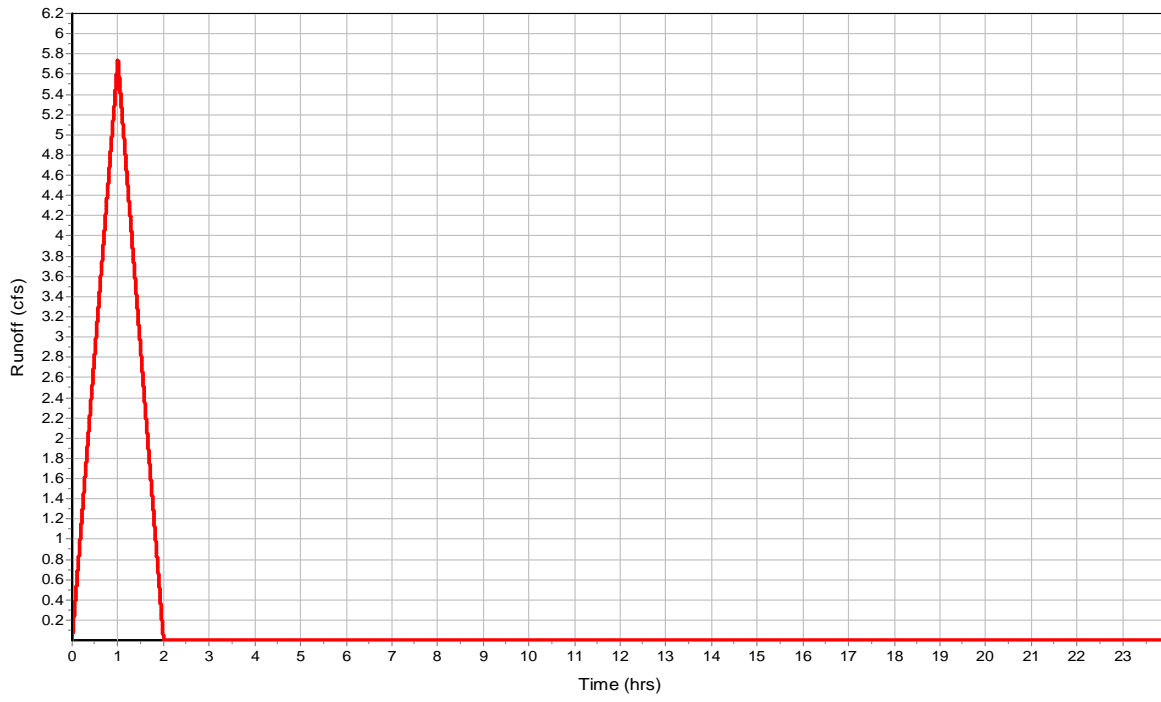
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 1.74
Total Runoff (in) 1.39
Peak Runoff (cfs) 5.74
Rainfall Intensity 1.74
Weighted Runoff Coefficient 0.8
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-2

Runoff Hydrograph



Subbasin : CATCH S-20

Input Data

Area (ac)	0.4
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.4	-	0.45
Composite Area & Weighted Runoff Coeff.	0.4		0.45

Time of Concentration

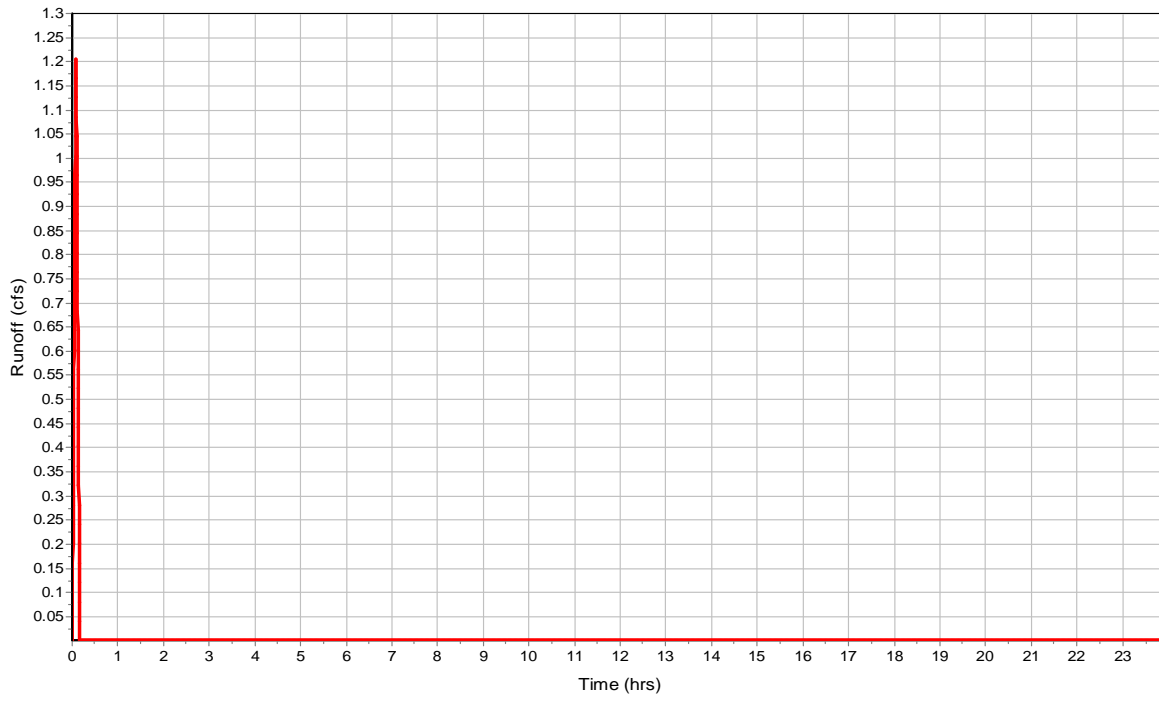
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	194.1324997	0	0
Slope (%) :	0.40795425	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.3	0	0
Computed Flow Time (min) :	2.49	0	0
Total TOC (min)	2.81		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	1.21
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:02:49

Subbasin : CATCH S-20

Runoff Hydrograph



Subbasin : CATCH S-21

Input Data

Area (ac)	0.27
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.27	-	0.45
Composite Area & Weighted Runoff Coeff.	0.27		0.45

Time of Concentration

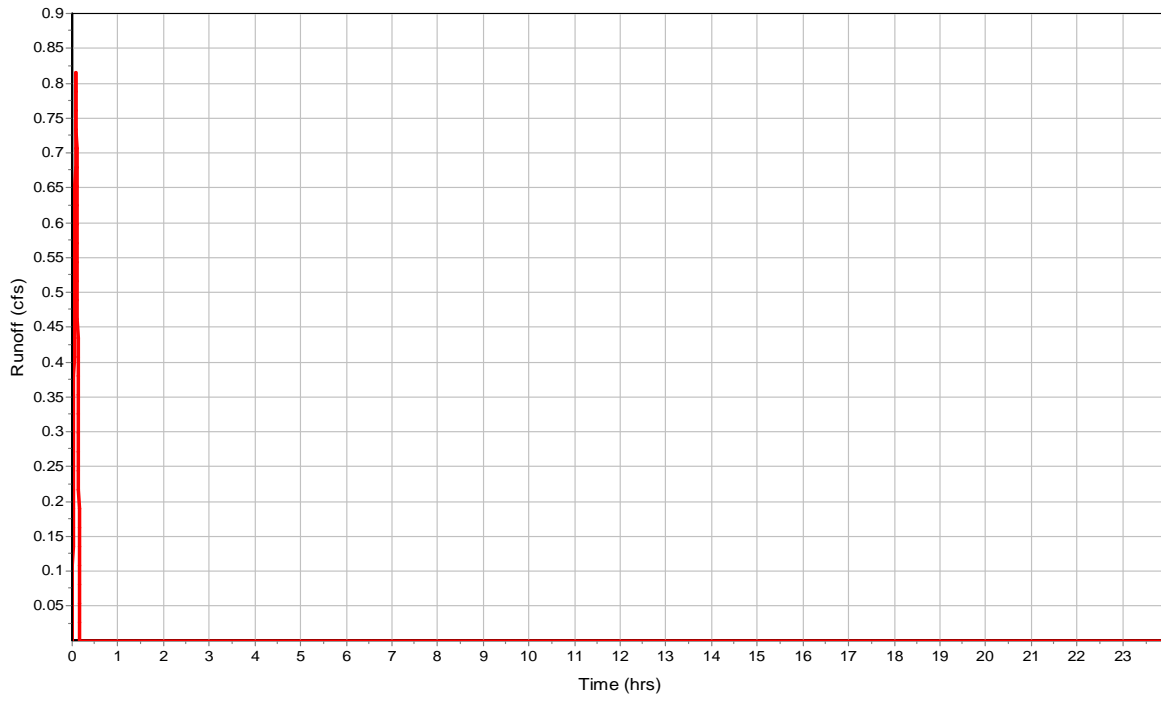
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.6469901	0	0
Slope (%) :	2.71559241	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	62.47956029	0	0
Slope (%) :	0.4283012	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.33	0	0
Computed Flow Time (min) :	0.78	0	0
Total TOC (min)	1.11		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	0.82
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:01:07

Subbasin : CATCH S-21

Runoff Hydrograph



Subbasin : CATCH S-22

Input Data

Area (ac) 0.63
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.63	-	0.45
Composite Area & Weighted Runoff Coeff.	0.63		0.45

Time of Concentration

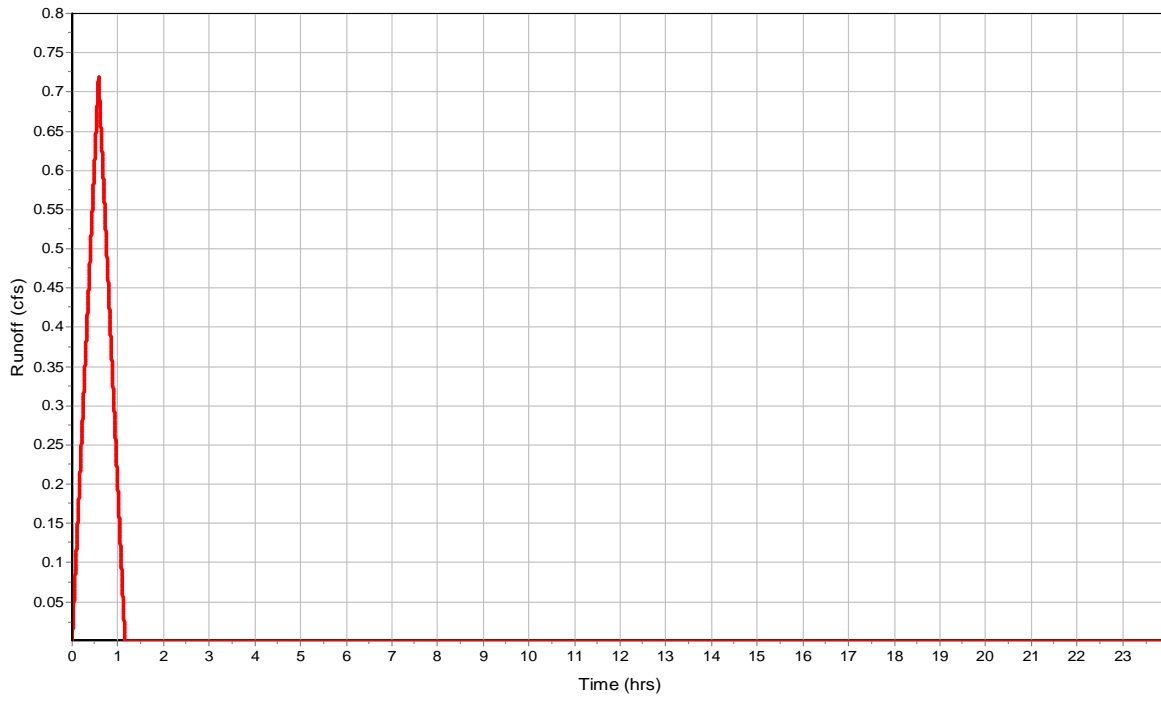
Sheet Flow Computations	Subarea		
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	153.1338632	0	0
Slope (%) :	0.43927089	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.07	0	0
Computed Flow Time (min) :	34.69	0	0
Total TOC (min)	34.69		

Subbasin Runoff Results

Total Rainfall (in) 1.46
 Total Runoff (in) 0.66
 Peak Runoff (cfs) 0.72
 Rainfall Intensity 2.534
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:34:41

Subbasin : CATCH S-22

Runoff Hydrograph



Subbasin : CATCH S-23

Input Data

Area (ac) 0.13
 Weighted Runoff Coefficient 0.15

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.13	-	0.15
Composite Area & Weighted Runoff Coeff.	0.13		0.15

Time of Concentration

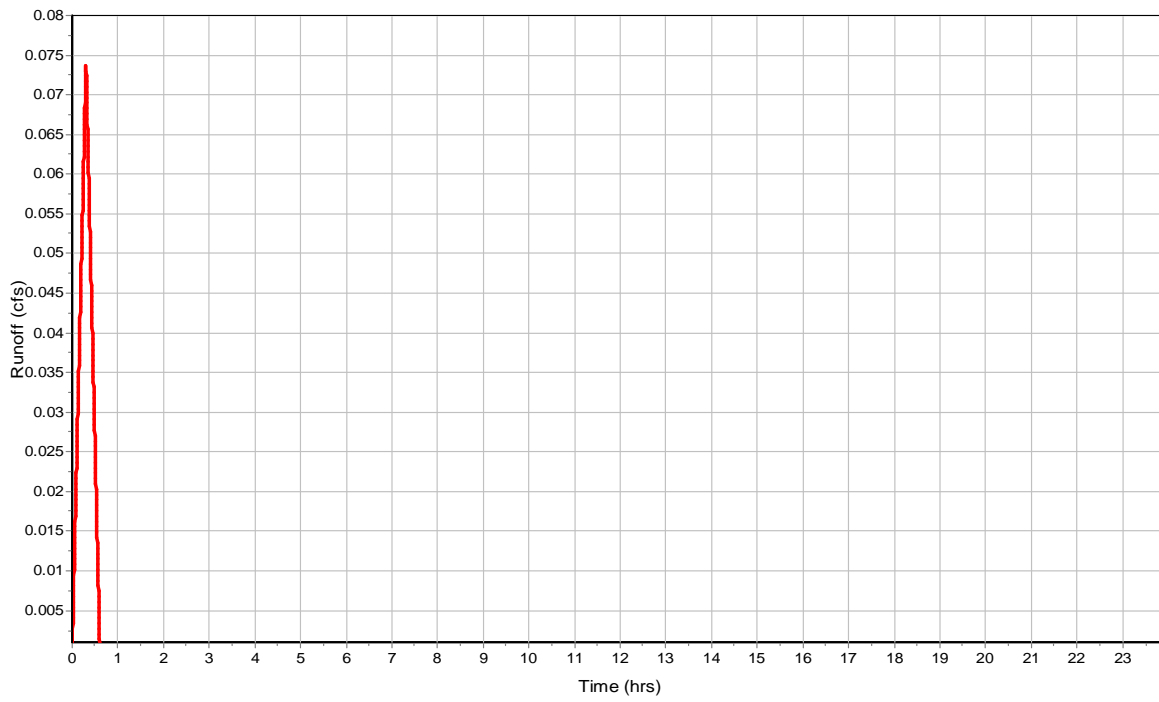
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	145.5326238	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	18.16	0	0
Total TOC (min)	18.16		

Subbasin Runoff Results

Total Rainfall (in) 1.13
 Total Runoff (in) 0.17
 Peak Runoff (cfs) 0.07
 Rainfall Intensity 3.73
 Weighted Runoff Coefficient 0.15
 Time of Concentration (days hh:mm:ss) 0 00:18:10

Subbasin : CATCH S-23

Runoff Hydrograph



Subbasin : CATCH S-24

Input Data

Area (ac)	0.47
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.47	-	0.45
Composite Area & Weighted Runoff Coeff.	0.47		0.45

Time of Concentration

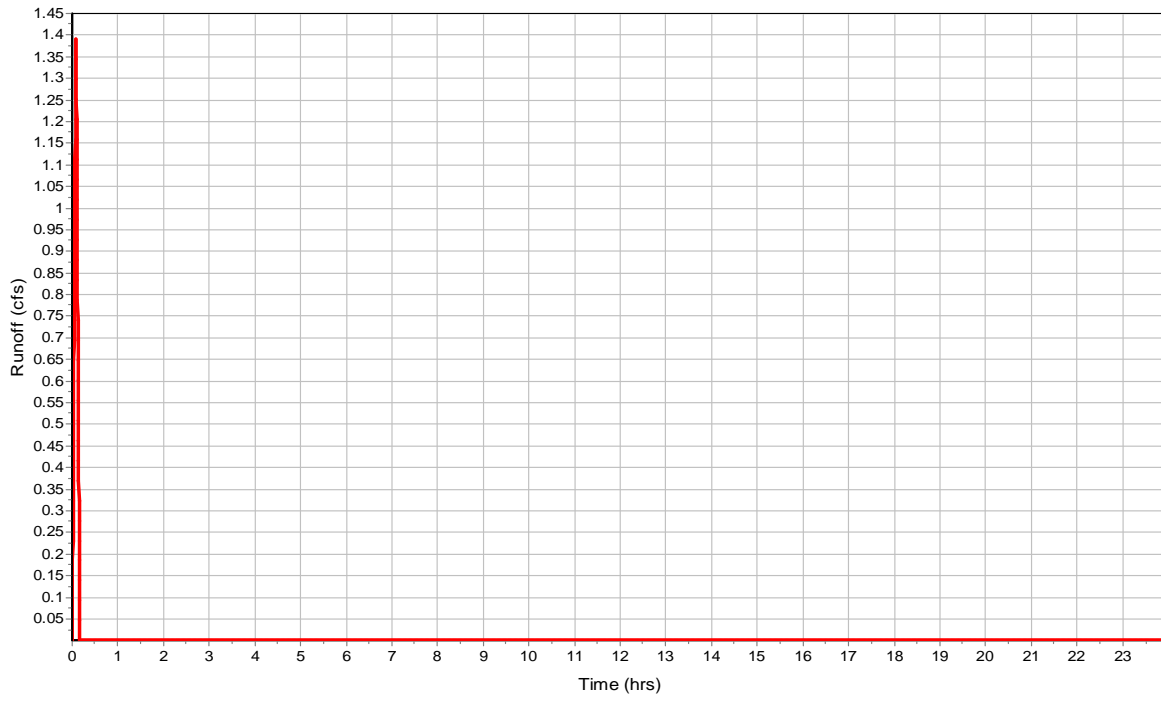
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	8.85765792	0	0
Slope (%) :	2.02098465	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.79	0	0
Computed Flow Time (min) :	0.19	0	0
	Subarea		
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	124.8550359	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.45	0	0
Total TOC (min)	1.63		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	1.39
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:01:38

Subbasin : CATCH S-24

Runoff Hydrograph



Subbasin : CATCH S-25

Input Data

Area (ac) 0.29
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.29	-	0.45
Composite Area & Weighted Runoff Coeff.	0.29		0.45

Time of Concentration

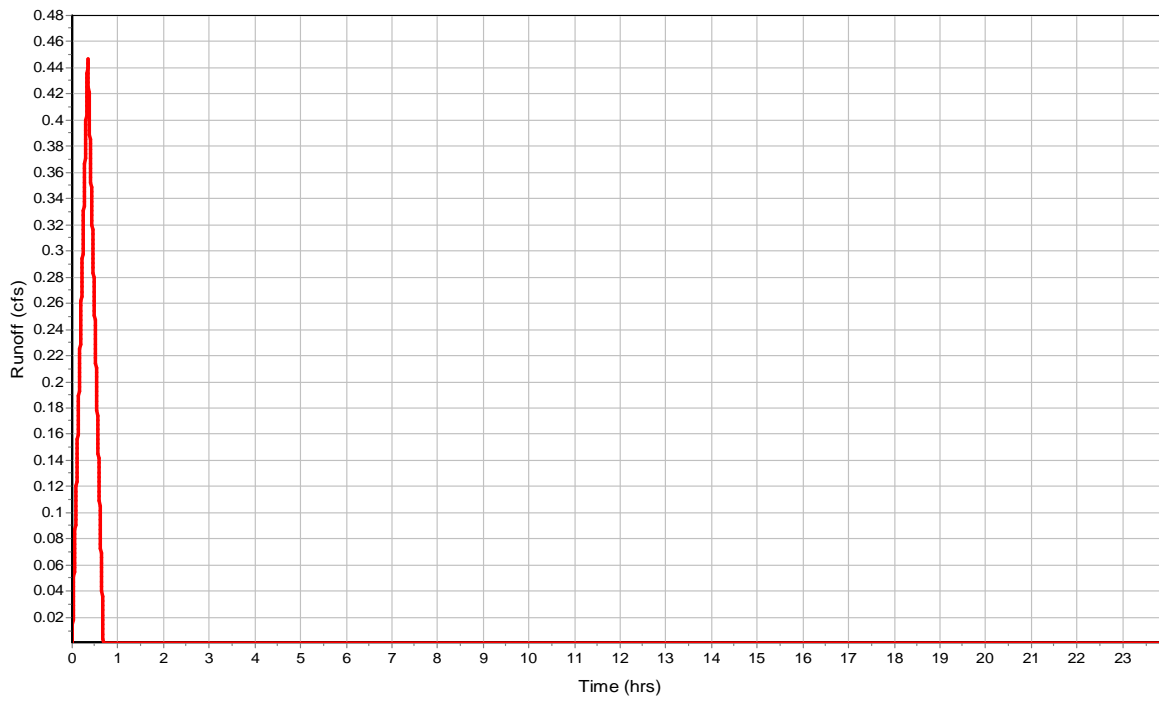
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	169.6434034	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	20.53	0	0
Total TOC (min)	20.53		

Subbasin Runoff Results

Total Rainfall (in) 1.19
 Total Runoff (in) 0.54
 Peak Runoff (cfs) 0.45
 Rainfall Intensity 3.477
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:20:32

Subbasin : CATCH S-25

Runoff Hydrograph



Subbasin : CATCH S-26

Input Data

Area (ac) 0.1
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.1	-	0.45
Composite Area & Weighted Runoff Coeff.	0.1		0.45

Time of Concentration

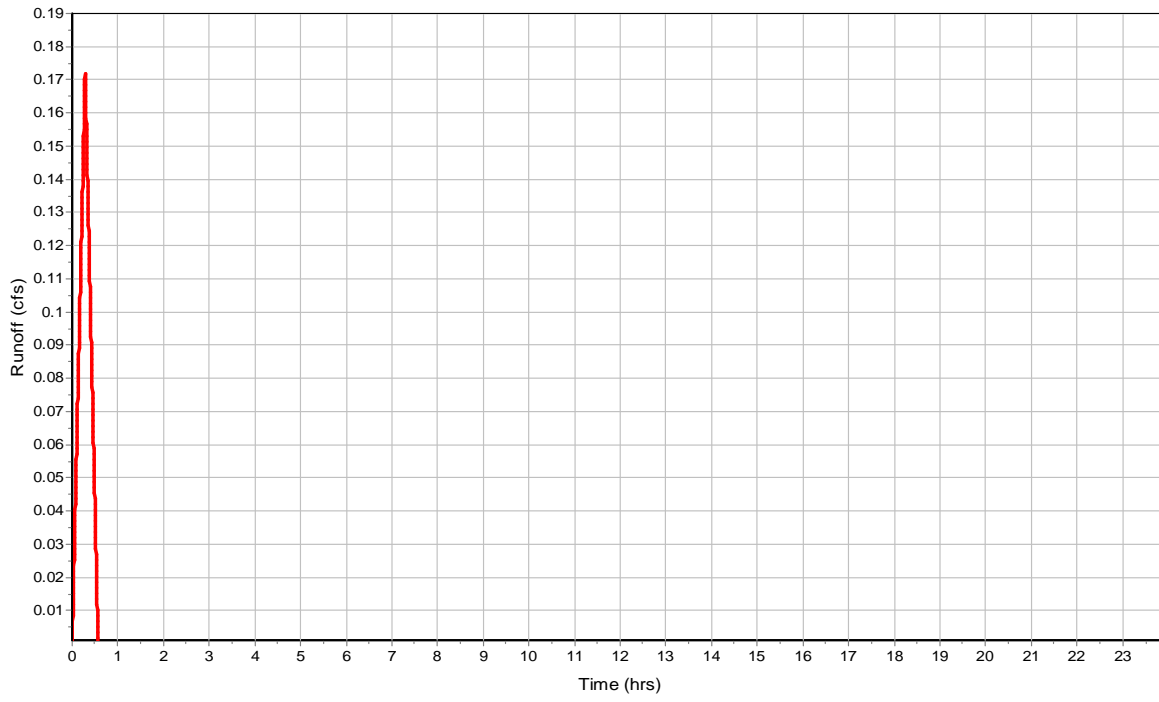
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	134.7677904	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	17.08	0	0
Total TOC (min)	17.08		

Subbasin Runoff Results

Total Rainfall (in) 1.09
 Total Runoff (in) 0.49
 Peak Runoff (cfs) 0.17
 Rainfall Intensity 3.863
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:17:05

Subbasin : CATCH S-26

Runoff Hydrograph



Subbasin : CATCH S-27

Input Data

Area (ac) 0.72
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.72	-	0.45
Composite Area & Weighted Runoff Coeff.	0.72		0.45

Time of Concentration

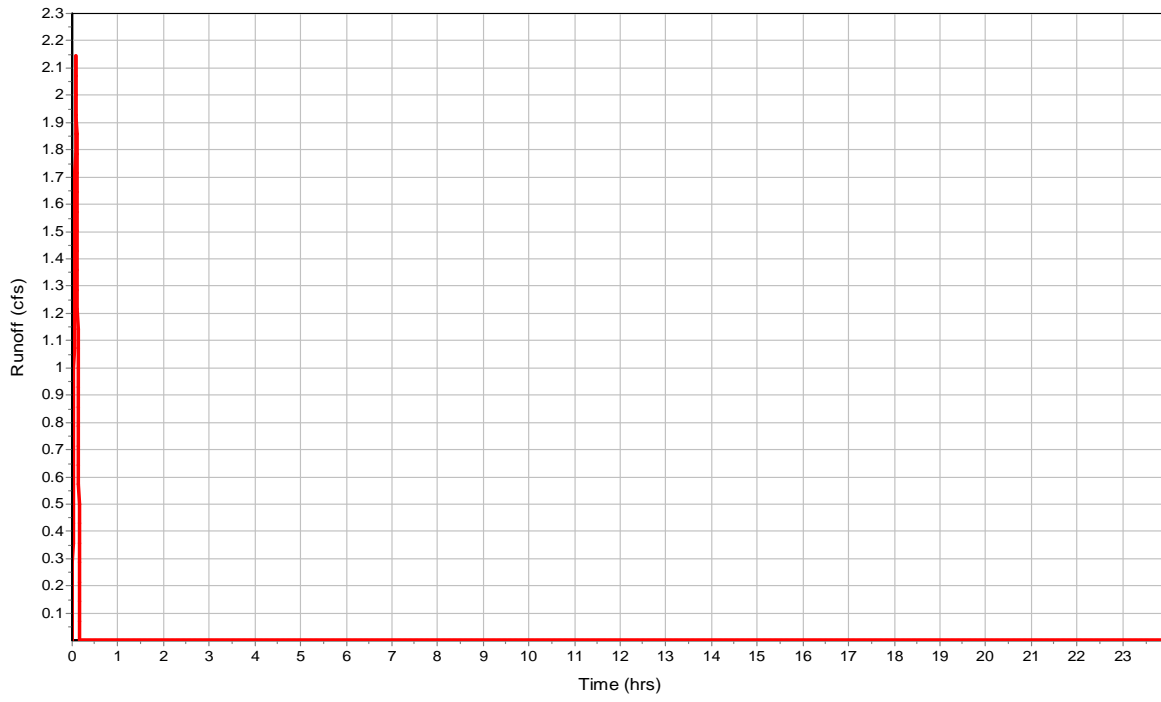
Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	122.0569838	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.42	0	0
Total TOC (min)1.42			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 2.14
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:25

Subbasin : CATCH S-27

Runoff Hydrograph



Subbasin : CATCH S-28

Input Data

Area (ac)	1.07
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.07	-	0.45
Composite Area & Weighted Runoff Coeff.	1.07		0.45

Time of Concentration

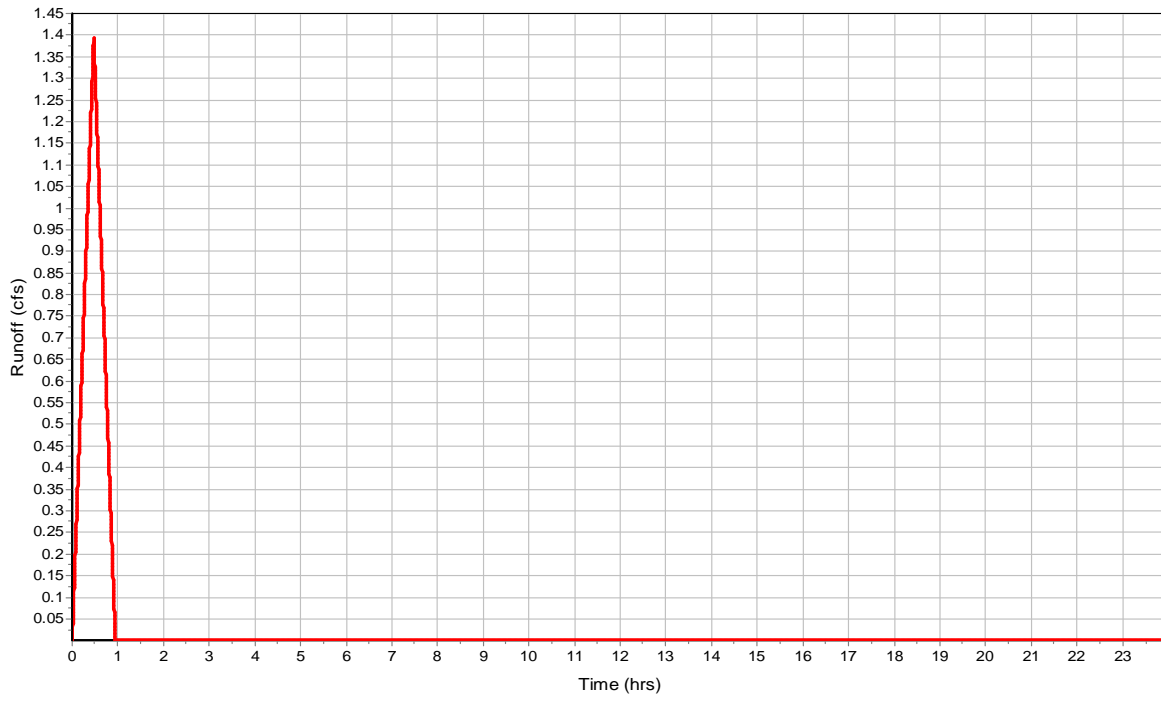
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	215.617529	0	0
Slope (%) :	1.44060253	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.13	0	0
Computed Flow Time (min) :	28.37	0	0
Total TOC (min)	28.37		

Subbasin Runoff Results

Total Rainfall (in)	1.37
Total Runoff (in)	0.61
Peak Runoff (cfs)	1.39
Rainfall Intensity	2.891
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:28:22

Subbasin : CATCH S-28

Runoff Hydrograph



Subbasin : CATCH S-29

Input Data

Area (ac) 0.5
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.5	-	0.45
Composite Area & Weighted Runoff Coeff.	0.5		0.45

Time of Concentration

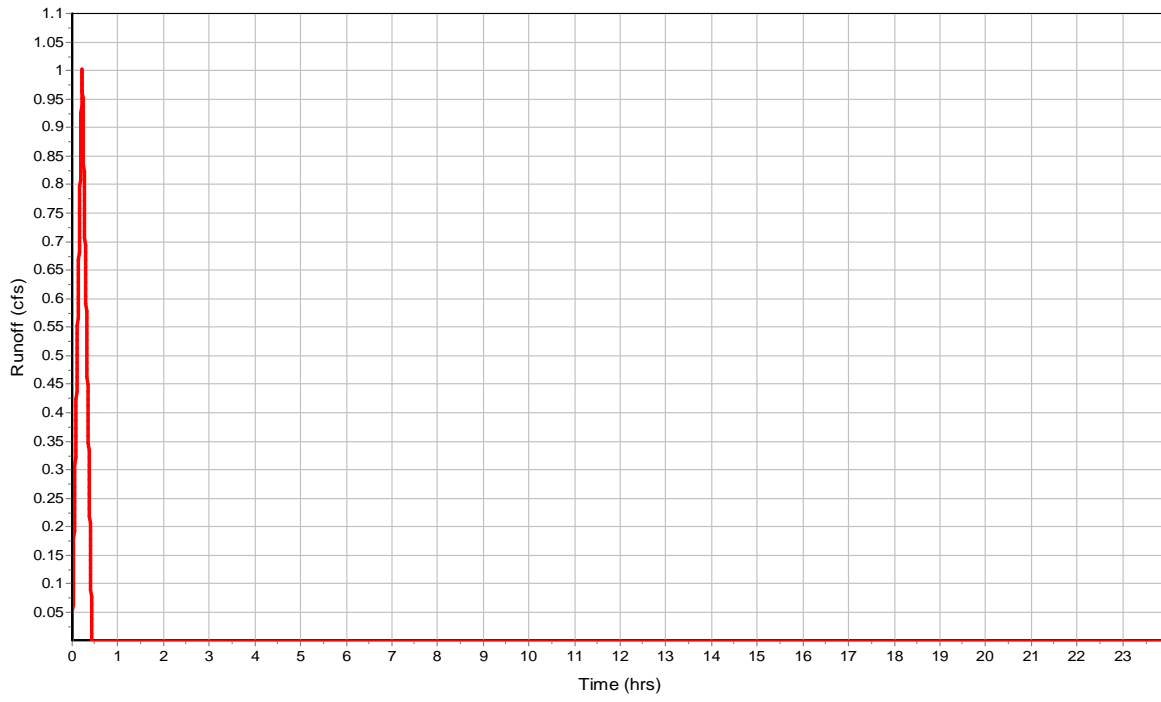
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	86.26065463	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	11.95	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	82.98564634	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	0.96	0	0
Total TOC (min)12.92			

Subbasin Runoff Results

Total Rainfall (in) 0.96
 Total Runoff (in) 0.43
 Peak Runoff (cfs) 1
 Rainfall Intensity 4.431
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:12:55

Subbasin : CATCH S-29

Runoff Hydrograph



Subbasin : CATCH S-3

Input Data

Area (ac) 0.58
 Weighted Runoff Coefficient 0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.75
Composite Area & Weighted Runoff Coeff.	0.58		0.75

Time of Concentration

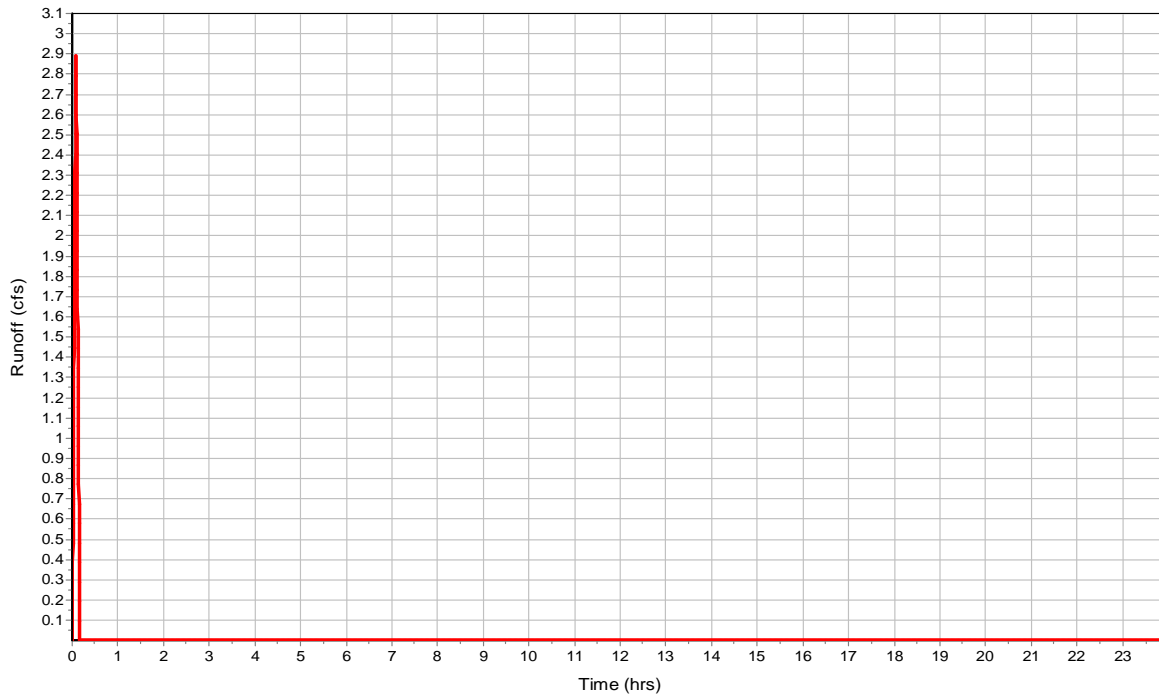
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	195.5443721	0	0
Slope (%) :	0.5641474	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.88	0	0
Computed Flow Time (min) :	3.7	0	0
Total TOC (min)3.70			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.41
 Peak Runoff (cfs) 2.89
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.75
 Time of Concentration (days hh:mm:ss) 0 00:03:42

Subbasin : CATCH S-3

Runoff Hydrograph



Subbasin : CATCH S-30

Input Data

Area (ac)	0.43
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.43	-	0.45
Composite Area & Weighted Runoff Coeff.	0.43		0.45

Time of Concentration

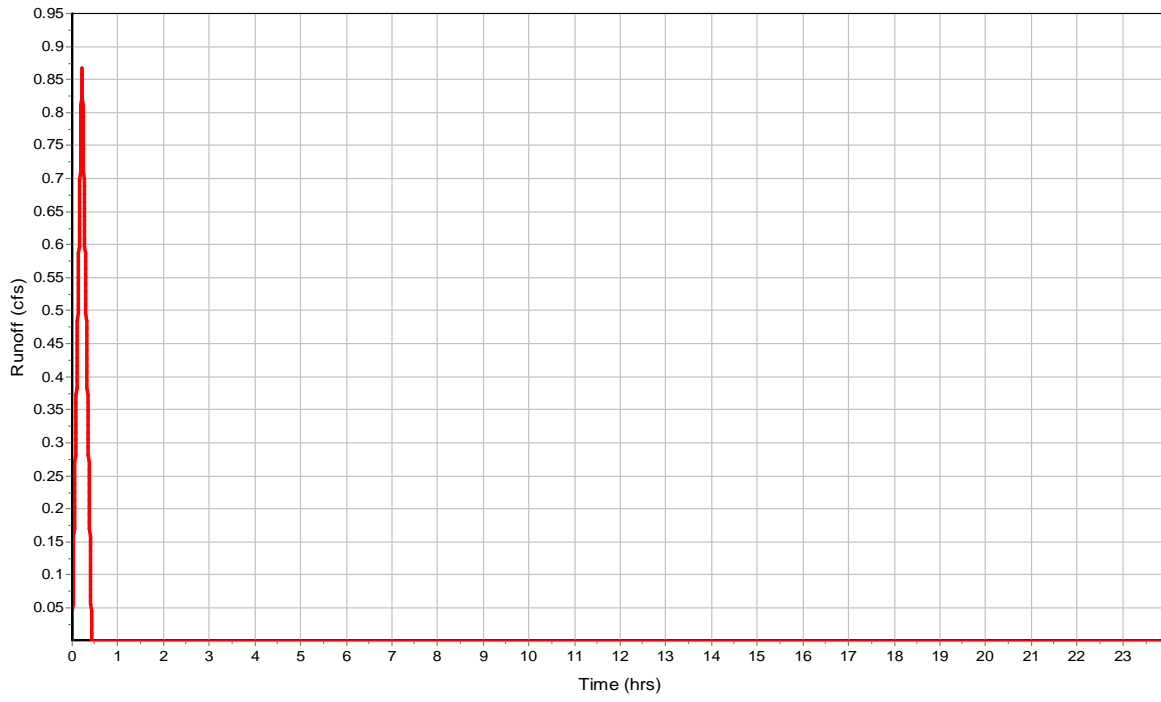
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	85.06737517	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	11.82	0	0
	Subarea		
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	90.42843348	0	0
Slope (%) :	0.5	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	0	0
Computed Flow Time (min) :	1.05	0	0
Total TOC (min)	12.87		

Subbasin Runoff Results

Total Rainfall (in)	0.95
Total Runoff (in)	0.43
Peak Runoff (cfs)	0.87
Rainfall Intensity	4.438
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:12:52

Subbasin : CATCH S-30

Runoff Hydrograph



Subbasin : CATCH S-31

Input Data

Area (ac) 0.73
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.73	-	0.45
Composite Area & Weighted Runoff Coeff.	0.73		0.45

Time of Concentration

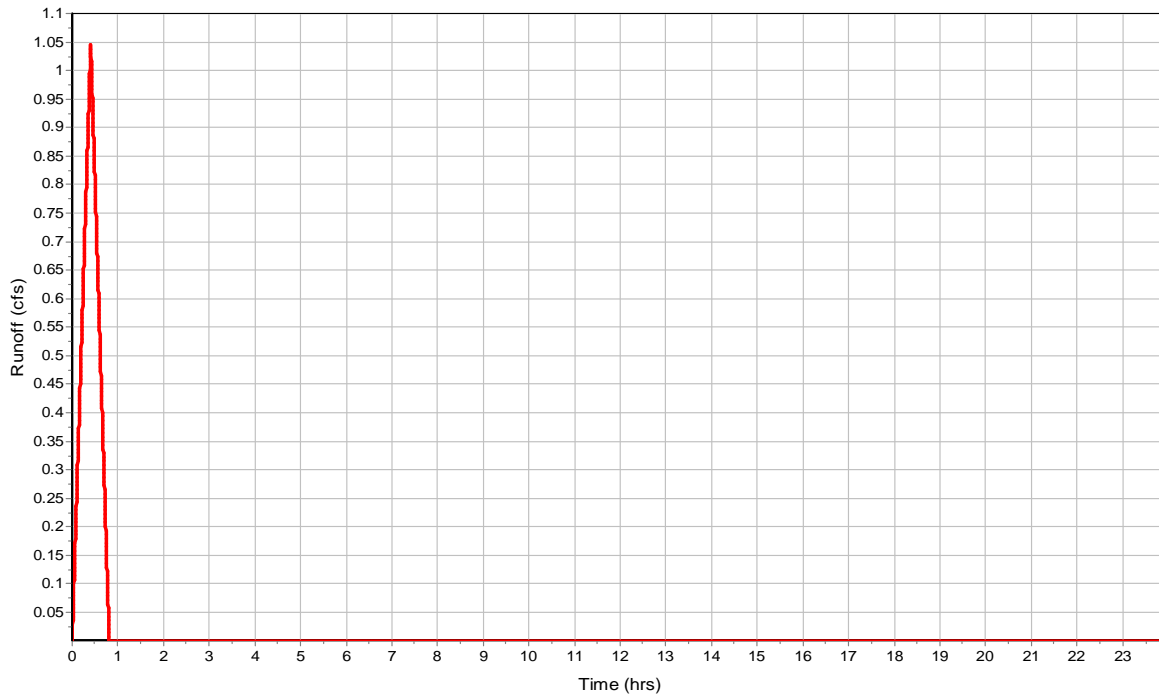
Sheet Flow Computations	Subarea		
	A	B	C
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	166.6923328	0	0
Slope (%) :	1.27270967	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	24.26	0	0
Total TOC (min)	24.26		

Subbasin Runoff Results

Total Rainfall (in) 1.28
 Total Runoff (in) 0.58
 Peak Runoff (cfs) 1.05
 Rainfall Intensity 3.161
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:24:16

Subbasin : CATCH S-31

Runoff Hydrograph



Subbasin : CATCH S-32

Input Data

Area (ac)	0.47
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.47	-	0.45
Composite Area & Weighted Runoff Coeff.	0.47		0.45

Time of Concentration

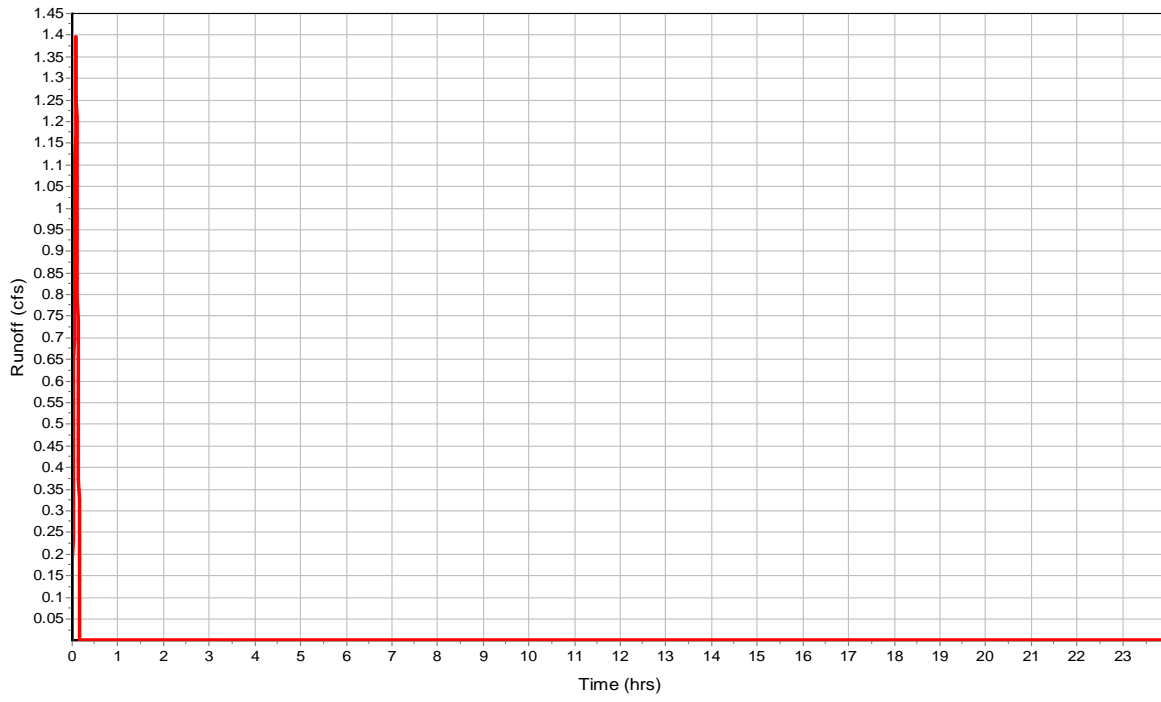
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.02264801	0	0
Slope (%) :	2.62711135	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.03	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	229.7073168	0	0
Slope (%) :	0.42967584	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.33	0	0
Computed Flow Time (min) :	2.87	0	0
Total TOC (min)	3.20		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	1.4
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:03:12

Subbasin : CATCH S-32

Runoff Hydrograph



Subbasin : CATCH S-33

Input Data

Area (ac) 0.23
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.23	-	0.45
Composite Area & Weighted Runoff Coeff.	0.23		0.45

Time of Concentration

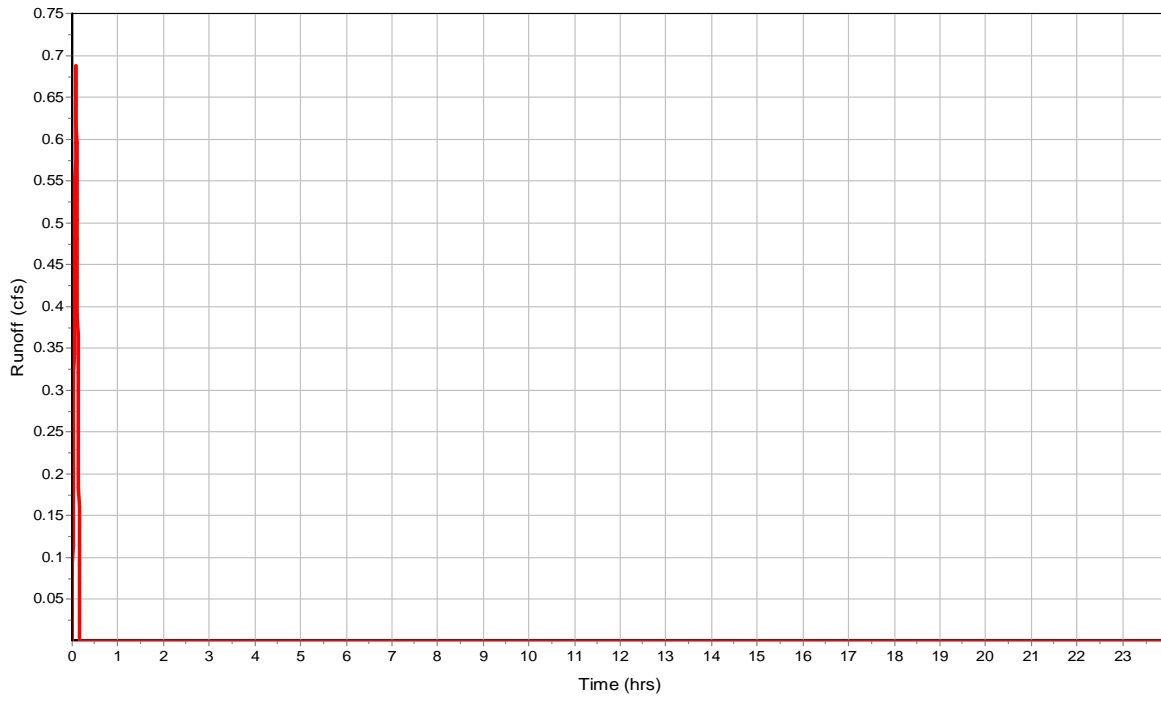
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.49839889	0	0
Slope (%) :	2.70984014	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	94.84424675	0	0
Slope (%) :	0.52060926	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.47	0	0
Computed Flow Time (min) :	1.08	0	0
Total TOC (min)1.40			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.69
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:24

Subbasin : CATCH S-33

Runoff Hydrograph



Subbasin : CATCH S-34

Input Data

Area (ac)	0.69
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.69	-	0.45
Composite Area & Weighted Runoff Coeff.	0.69		0.45

Time of Concentration

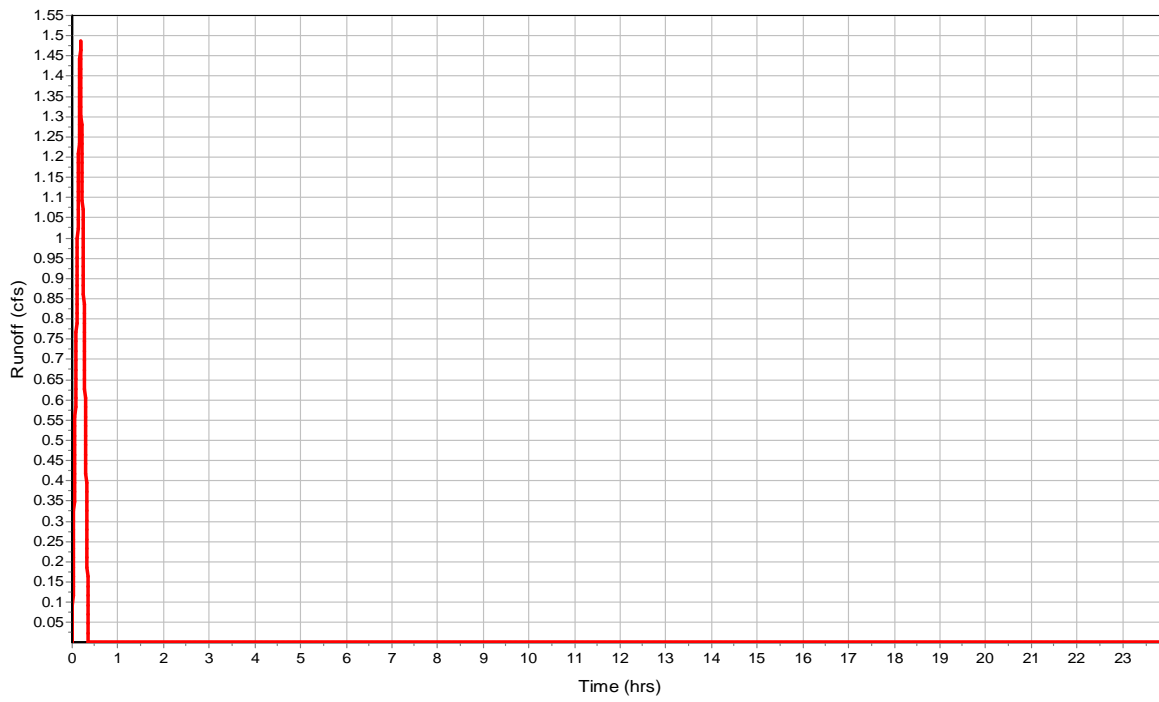
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	60.77247816	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	9.03	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	101.3402168	47.63539	0
Slope (%) :	0.5	0.708059	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.44	1.71	0
Computed Flow Time (min) :	1.18	0.46	0
Total TOC (min)	10.67		

Subbasin Runoff Results

Total Rainfall (in)	0.85
Total Runoff (in)	0.38
Peak Runoff (cfs)	1.49
Rainfall Intensity	4.805
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:10:40

Subbasin : CATCH S-34

Runoff Hydrograph



Subbasin : CATCH S-35

Input Data

Area (ac) 0.3
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.3	-	0.45
Composite Area & Weighted Runoff Coeff.	0.3		0.45

Time of Concentration

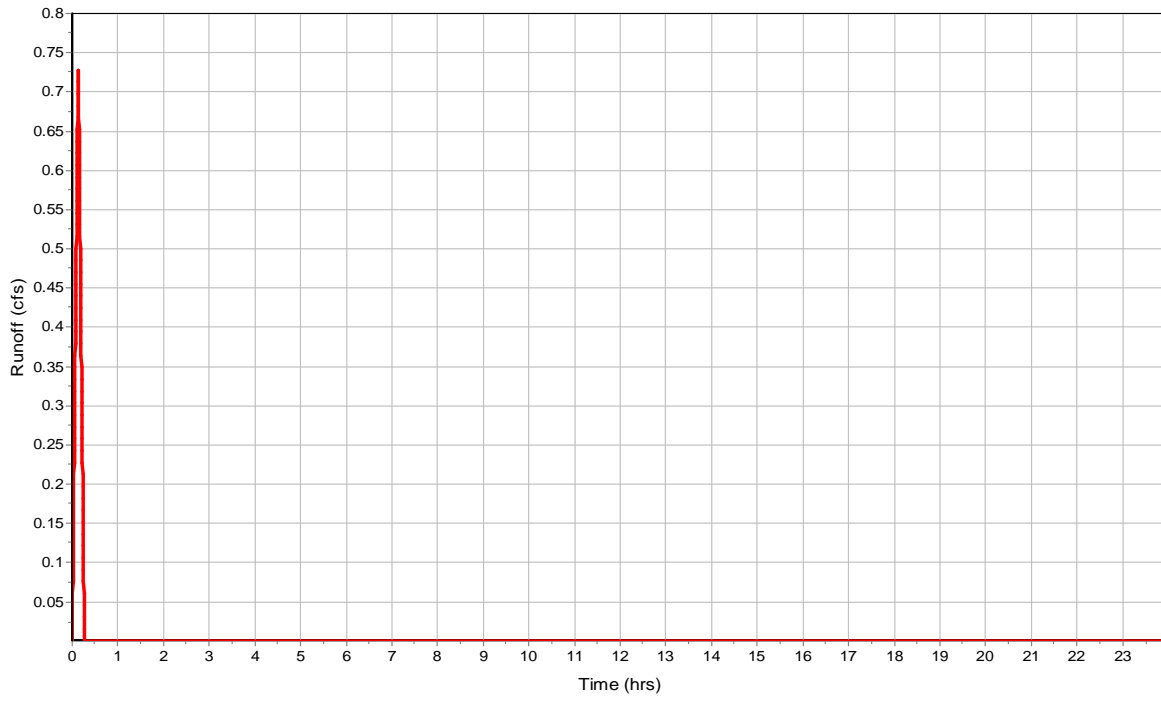
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	30.39539532	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	5.19	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	215.7235889	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.8	0	0
Total TOC (min)7.99			

Subbasin Runoff Results

Total Rainfall (in) 0.72
 Total Runoff (in) 0.33
 Peak Runoff (cfs) 0.73
 Rainfall Intensity 5.43
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:07:59

Subbasin : CATCH S-35

Runoff Hydrograph



Subbasin : CATCH S-36

Input Data

Area (ac)	0.58
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.58	-	0.45
Composite Area & Weighted Runoff Coeff.	0.58		0.45

Time of Concentration

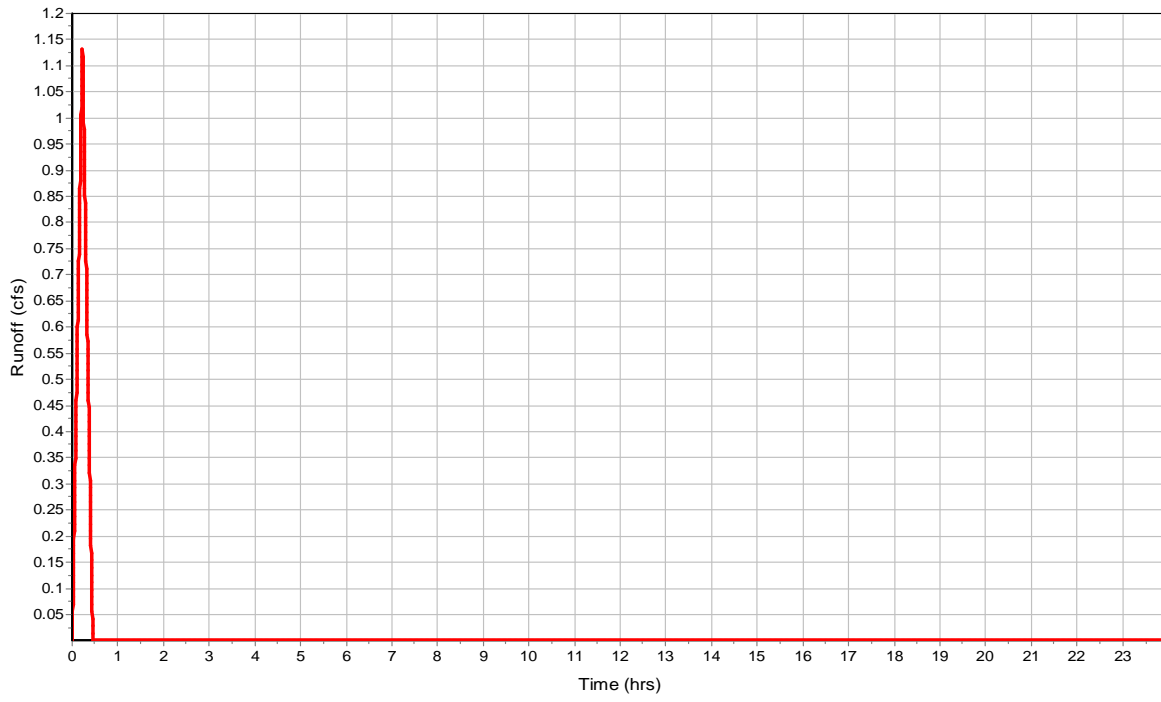
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0	0
Flow Length (ft) :	75.26347316	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.12	0	0
Computed Flow Time (min) :	10.72	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	215.7235889	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.8	0	0
Total TOC (min)	13.51		

Subbasin Runoff Results

Total Rainfall (in)	0.98
Total Runoff (in)	0.44
Peak Runoff (cfs)	1.13
Rainfall Intensity	4.348
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:13:31

Subbasin : CATCH S-36

Runoff Hydrograph



Subbasin : CATCH S-37

Input Data

Area (ac)	0.27
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.27	-	0.45
Composite Area & Weighted Runoff Coeff.	0.27		0.45

Time of Concentration

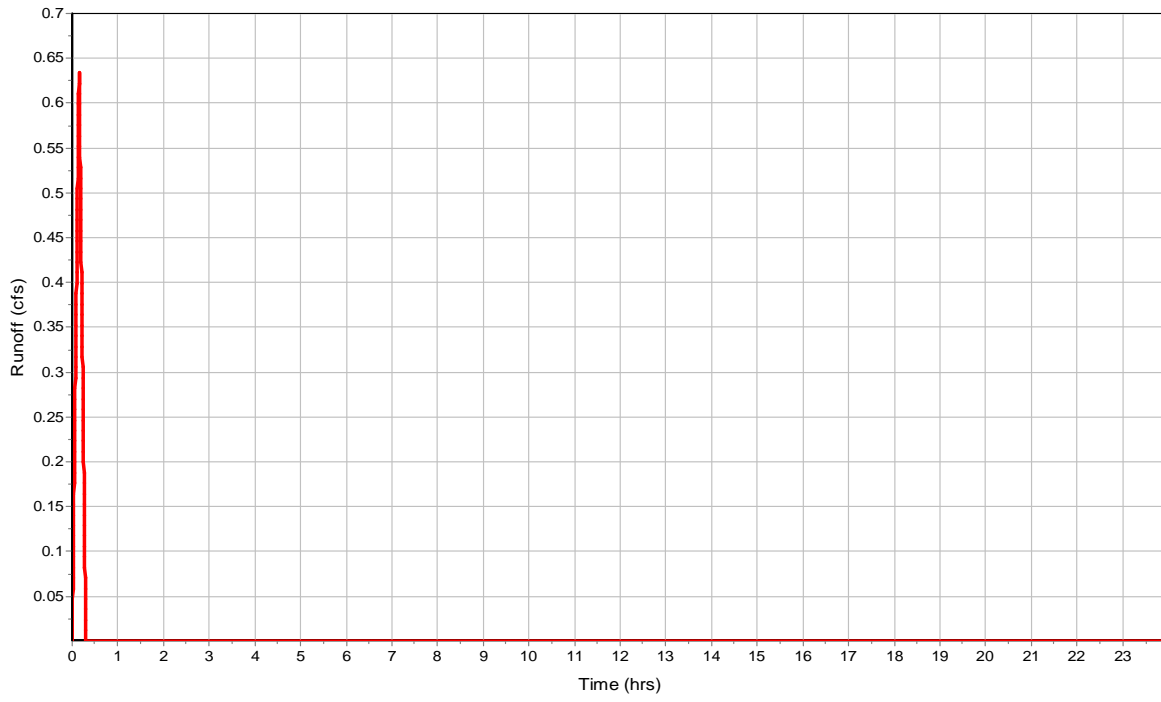
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.24	0.013	0
Flow Length (ft) :	51.4781507	32.99491	0
Slope (%) :	2	2	0
2 yr, 24 hr Rainfall (in) :	3.6	3.6	0
Velocity (ft/sec) :	0.11	1.02	0
Computed Flow Time (min) :	7.91	0.54	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	39.77408513	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.52	0	0
Total TOC (min)	8.96		

Subbasin Runoff Results

Total Rainfall (in)	0.78
Total Runoff (in)	0.35
Peak Runoff (cfs)	0.63
Rainfall Intensity	5.173
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:08:58

Subbasin : CATCH S-37

Runoff Hydrograph



Subbasin : CATCH S-38

Input Data

Area (ac) 0.33
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.33	-	0.45
Composite Area & Weighted Runoff Coeff.	0.33		0.45

Time of Concentration

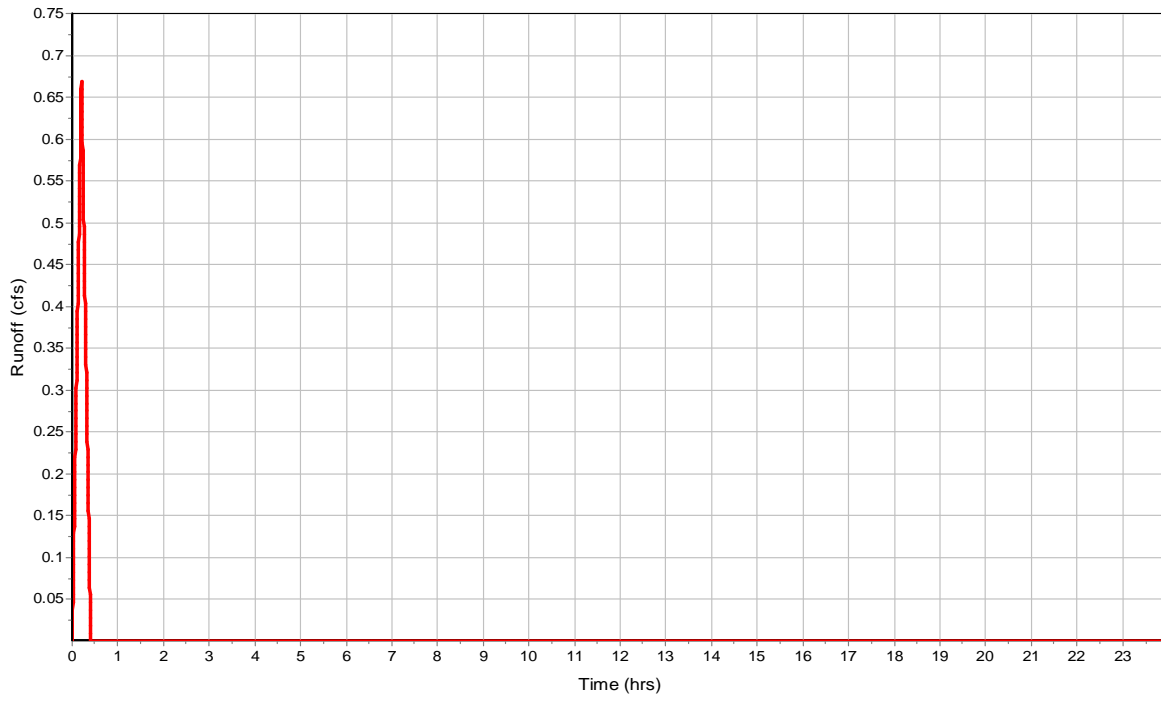
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.24	0.013	0
Flow Length (ft) :	78.06711998	32.56391	0
Slope (%) :	2	2	0
2 yr, 24 hr Rainfall (in) :	3.6	3.6	0
Velocity (ft/sec) :	0.12	1.02	0
Computed Flow Time (min) :	11.04	0.53	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	41.70440923	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	0.54	0	0
Total TOC (min)12.11			

Subbasin Runoff Results

Total Rainfall (in) 0.92
 Total Runoff (in) 0.42
 Peak Runoff (cfs) 0.67
 Rainfall Intensity 4.554
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:12:07

Subbasin : CATCH S-38

Runoff Hydrograph



Subbasin : CATCH S-39

Input Data

Area (ac) 2.4
Weighted Runoff Coefficient 0.15

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	2.4	-	0.15
Composite Area & Weighted Runoff Coeff.	2.4		0.15

Time of Concentration

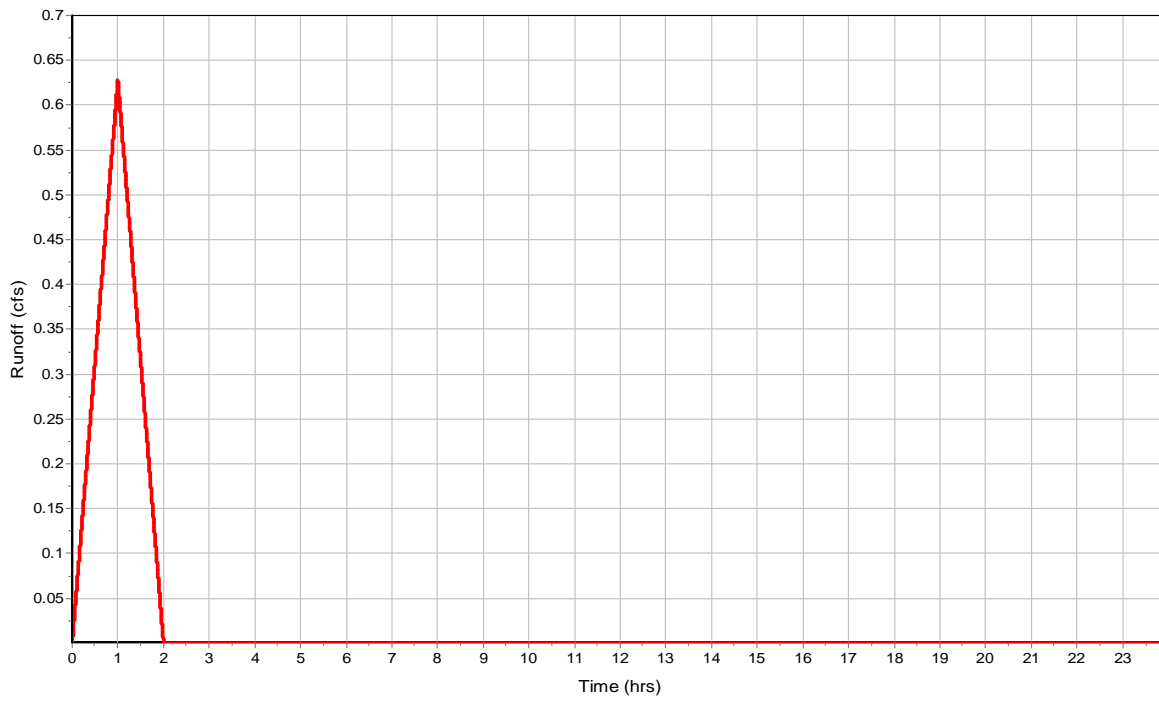
User-Defined TOC override (minutes): 60

Subbasin Runoff Results

Total Rainfall (in) 1.74
Total Runoff (in) 0.26
Peak Runoff (cfs) 0.63
Rainfall Intensity 1.74
Weighted Runoff Coefficient 0.15
Time of Concentration (days hh:mm:ss) 0 01:00:00

Subbasin : CATCH S-39

Runoff Hydrograph



Subbasin : CATCH S-4

Input Data

Area (ac)	0.74
Weighted Runoff Coefficient	0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.74	-	0.75
Composite Area & Weighted Runoff Coeff.	0.74		0.75

Time of Concentration

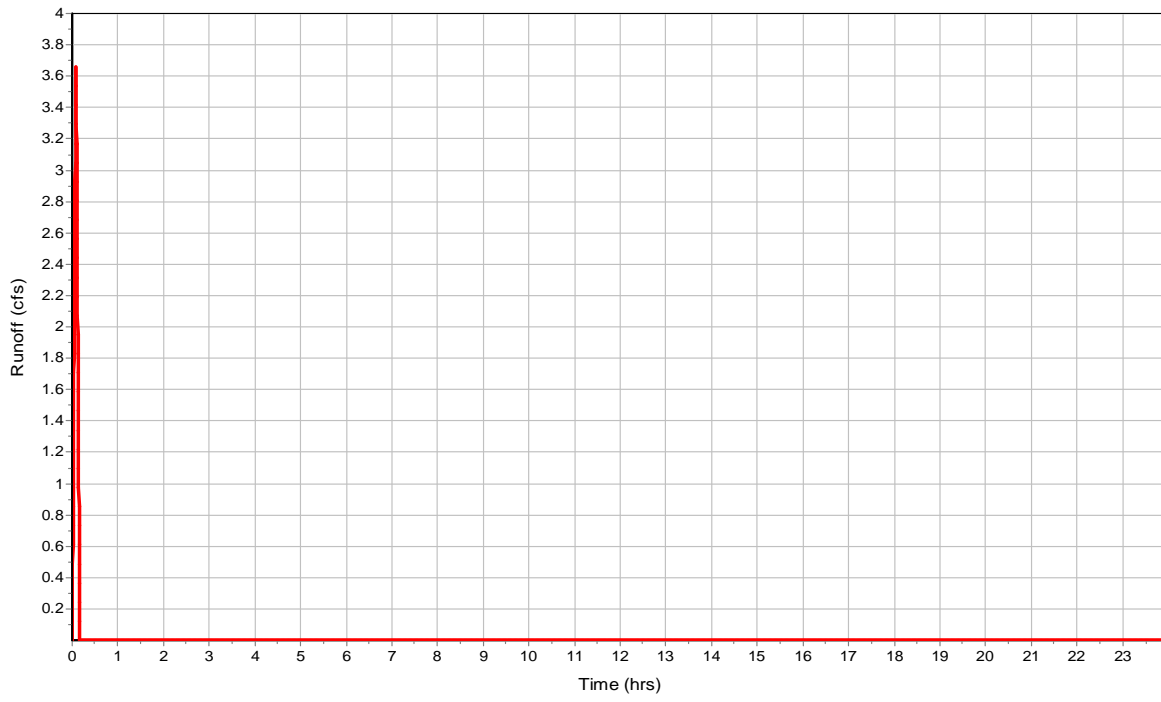
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	36.30902903	0	0
Slope (%) :	2.05714381	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.57	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	123.103895	0	0
Slope (%) :	0.61401483	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.59	0	0
Computed Flow Time (min) :	1.29	0	0
Total TOC (min)	1.86		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.41
Peak Runoff (cfs)	3.66
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.75
Time of Concentration (days hh:mm:ss)	0 00:01:52

Subbasin : CATCH S-4

Runoff Hydrograph



Subbasin : CATCH S-5

Input Data

Area (ac) 0.19
 Weighted Runoff Coefficient 0.75

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.19	-	0.75
Composite Area & Weighted Runoff Coeff.	0.19		0.75

Time of Concentration

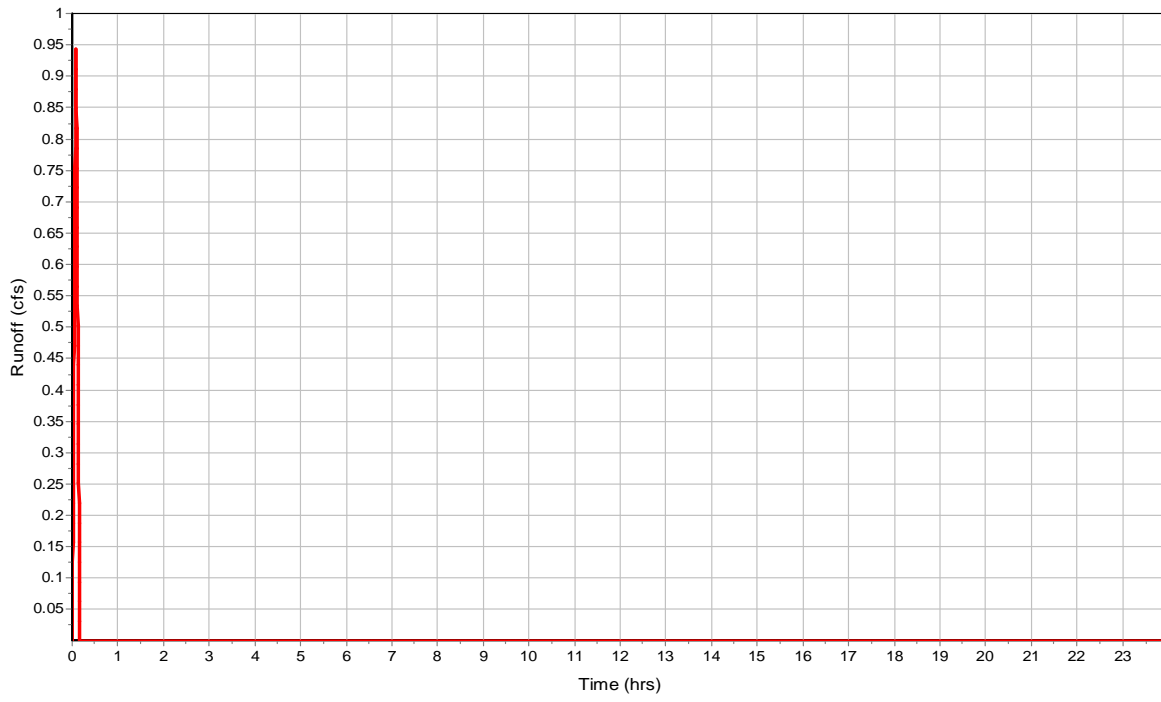
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	135.2546826	0	0
Slope (%) :	0.64366514	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.86	0	0
Computed Flow Time (min) :	2.62	0	0
Total TOC (min)2.62			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.41
 Peak Runoff (cfs) 0.94
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.75
 Time of Concentration (days hh:mm:ss) 0 00:02:37

Subbasin : CATCH S-5

Runoff Hydrograph



Subbasin : CATCH S-6

Input Data

Area (ac) 0.18
 Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.18	-	0.45
Composite Area & Weighted Runoff Coeff.	0.18		0.45

Time of Concentration

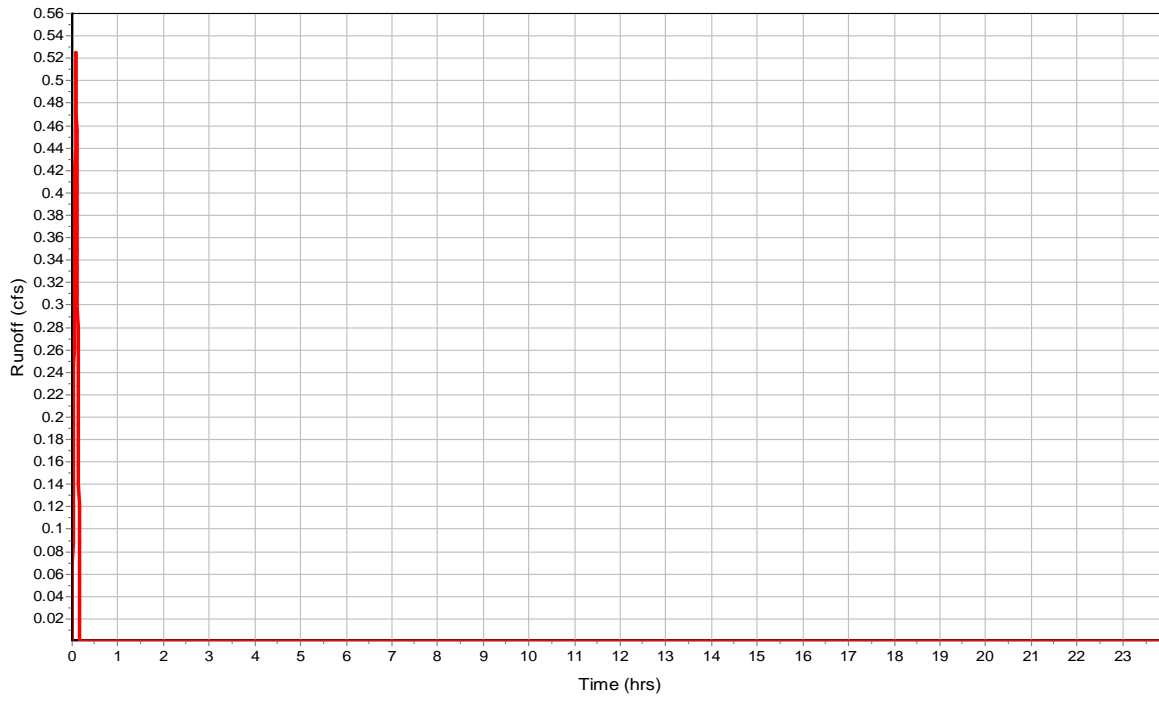
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	78.81595552	0	0
Slope (%) :	1.0550971	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	0.94	0	0
Computed Flow Time (min) :	1.39	0	0
Total TOC (min)1.39			

Subbasin Runoff Results

Total Rainfall (in) 0.55
 Total Runoff (in) 0.25
 Peak Runoff (cfs) 0.53
 Rainfall Intensity 6.62
 Weighted Runoff Coefficient 0.45
 Time of Concentration (days hh:mm:ss) 0 00:01:23

Subbasin : CATCH S-6

Runoff Hydrograph



Subbasin : CATCH S-7

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.51	-	0.45
Composite Area & Weighted Runoff Coeff.	0.51		0.45

Time of Concentration

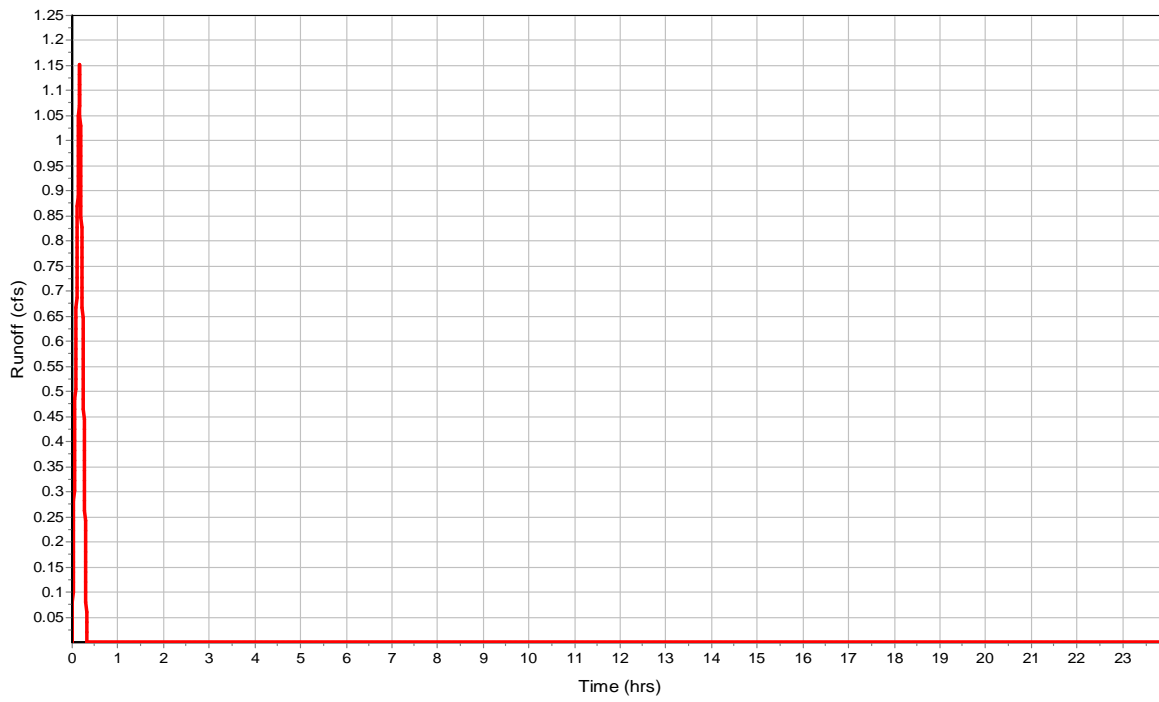
User-Defined TOC override (minutes): 9.436

Subbasin Runoff Results

Total Rainfall (in) 0.8
Total Runoff (in) 0.36
Peak Runoff (cfs) 1.15
Rainfall Intensity 5.061
Weighted Runoff Coefficient 0.45
Time of Concentration (days hh:mm:ss) 0 00:09:26

Subbasin : CATCH S-7

Runoff Hydrograph



Subbasin : CATCH S-8

Input Data

Area (ac)	0.2
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.2	-	0.45
Composite Area & Weighted Runoff Coeff.	0.2		0.45

Time of Concentration

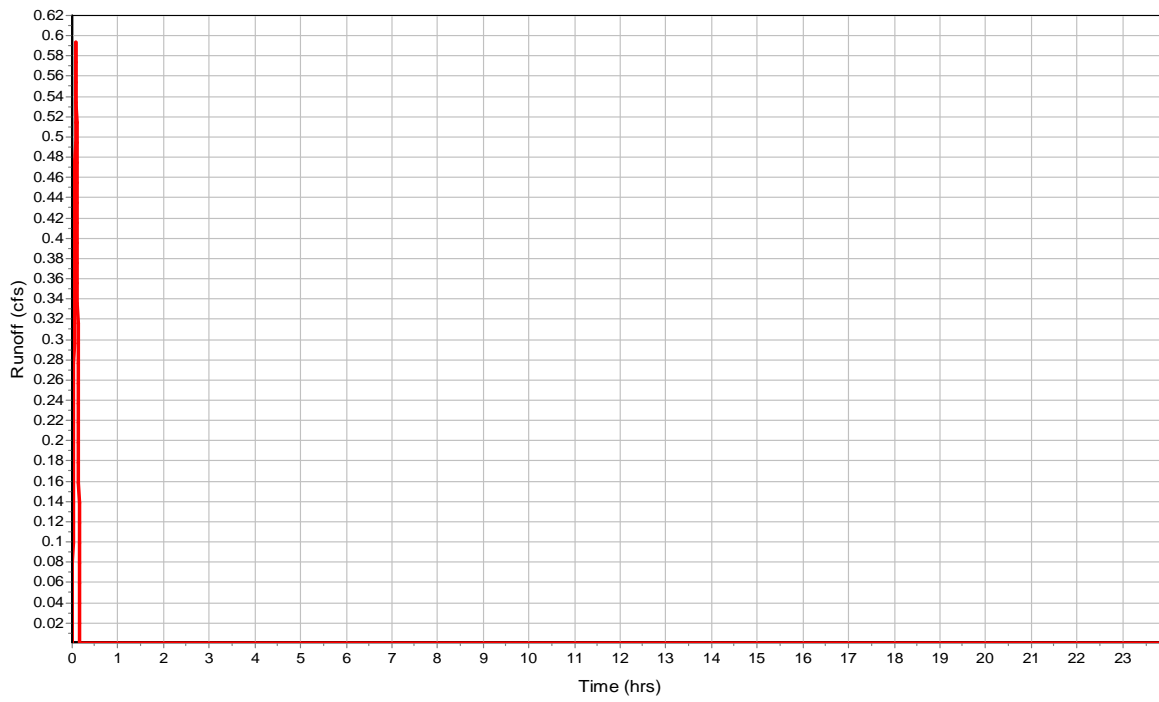
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.19157739	0	0
Slope (%) :	2.6812632	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.04	0	0
Computed Flow Time (min) :	0.32	0	0
Shallow Concentrated Flow Computations			
Flow Length (ft) :	175.1552181	0	0
Slope (%) :	0.4	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.29	0	0
Computed Flow Time (min) :	2.27	0	0
Total TOC (min)	2.59		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	0.59
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:02:35

Subbasin : CATCH S-8

Runoff Hydrograph



Subbasin : CATCH S-9

Input Data

Area (ac)	0.28
Weighted Runoff Coefficient	0.45

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.28	-	0.45
Composite Area & Weighted Runoff Coeff.	0.28		0.45

Time of Concentration

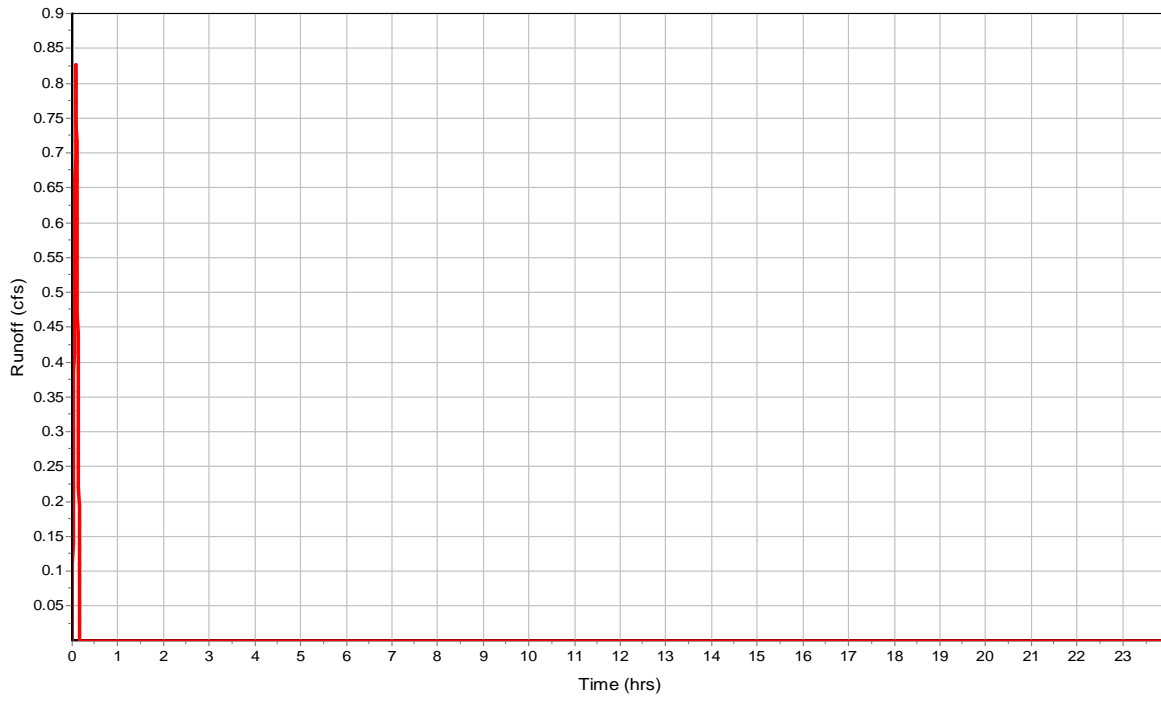
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.013	0	0
Flow Length (ft) :	20.66826099	0	0
Slope (%) :	2.71441924	0	0
2 yr, 24 hr Rainfall (in) :	3.6	0	0
Velocity (ft/sec) :	1.05	0	0
Computed Flow Time (min) :	0.33	0	0
	Subarea		
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	194.2259634	0	0
Slope (%) :	0.61749702	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.6	0	0
Computed Flow Time (min) :	2.03	0	0
Total TOC (min)	2.35		

Subbasin Runoff Results

Total Rainfall (in)	0.55
Total Runoff (in)	0.25
Peak Runoff (cfs)	0.83
Rainfall Intensity	6.62
Weighted Runoff Coefficient	0.45
Time of Concentration (days hh:mm:ss)	0 00:02:21

Subbasin : CATCH S-9

Runoff Hydrograph



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft²)	Minimum Pipe Cover (in)
1	S-202	4236.52	4241.50	4.98	4236.52	0.00	4241.50	0.00	0.00	0.00
2	S-203	4236.58	4242.00	5.42	4236.58	0.00	4242.00	0.00	0.00	0.00
3	S-205	4236.68	4241.17	4.48	4236.68	0.00	4241.17	0.00	0.00	0.00
4	S-206	4236.78	4241.38	4.61	4236.78	0.00	4241.38	0.00	0.00	0.00
5	S-207	4236.83	4241.25	4.42	4236.83	0.00	4241.25	0.00	0.00	0.00
6	S-208	4236.93	4241.51	4.58	4236.93	0.00	4241.51	0.00	0.00	0.00
7	S-210	4237.04	4241.04	4.00	4237.04	0.00	4241.04	0.00	0.00	0.00
8	S-211	4237.09	4240.90	3.81	4237.09	0.00	4240.90	0.00	0.00	0.00
9	S-212	4237.22	4241.75	4.53	4237.22	0.00	4241.75	0.00	0.00	0.00
10	S-213	4237.30	4241.59	4.29	4237.30	0.00	4241.59	0.00	0.00	0.00
11	S-214	4237.39	4241.26	3.87	4237.39	0.00	4241.26	0.00	0.00	0.00
12	S-215	4238.54	4241.12	2.57	4238.54	0.00	4241.12	0.00	0.00	0.00
13	S-216	4237.90	4242.58	4.68	4237.90	0.00	4242.58	0.00	0.00	0.00
14	S-217	4238.16	4241.88	3.72	4238.16	0.00	4241.88	0.00	0.00	0.00
15	S-218	4238.21	4241.68	3.47	4238.21	0.00	4241.68	0.00	0.00	0.00
16	S-219	4238.22	4242.17	3.94	4238.22	0.00	4242.17	0.00	0.00	0.00
17	S-220	4238.29	4242.26	3.97	4238.29	0.00	4242.26	0.00	0.00	0.00
18	S-221	4238.50	4241.32	2.82	4238.50	0.00	4241.32	0.00	0.00	0.00
19	S-222	4238.57	4241.18	2.61	4238.57	0.00	4241.18	0.00	0.00	0.00
20	S-224	4238.35	4242.07	3.72	4238.35	0.00	4242.07	0.00	0.00	0.00
21	S-225	4238.44	4241.61	3.17	4238.44	0.00	4241.61	0.00	0.00	0.00
22	S-226	4238.51	4241.43	2.92	4238.51	0.00	4241.43	0.00	0.00	0.00
23	S-228	4237.99	4241.46	3.47	4237.99	0.00	4241.46	0.00	0.00	0.00
24	S-229	4238.04	4241.32	3.28	4238.04	0.00	4241.32	0.00	0.00	0.00
25	S-230	4238.18	4241.16	2.98	4238.18	0.00	4241.16	0.00	0.00	0.00
26	S-231	4238.23	4241.02	2.78	4238.23	0.00	4241.02	0.00	0.00	0.00
27	S-232	4238.42	4241.12	2.70	4238.42	0.00	4241.12	0.00	0.00	0.00
28	S-233	4238.48	4241.12	2.64	4238.48	0.00	4241.12	0.00	0.00	0.00
29	S-234	4236.79	4241.52	4.73	4236.79	0.00	4241.52	0.00	0.00	0.00
30	S-235	4237.20	4240.50	3.30	4237.20	0.00	4240.50	0.00	0.00	0.00
31	S-236	4237.39	4240.50	3.11	4237.39	0.00	4240.50	0.00	0.00	0.00
32	S-237	4237.59	4241.43	3.84	4237.59	0.00	4241.43	0.00	0.00	0.00
33	S-238	4237.91	4241.73	3.82	4237.91	0.00	4241.73	0.00	0.00	0.00
34	S-239	4237.95	4240.96	3.00	4237.95	0.00	4240.96	0.00	0.00	0.00
35	S-240	4238.28	4241.29	3.01	4238.28	0.00	4241.29	0.00	0.00	0.00
36	S-241	4238.61	4241.31	2.70	4238.61	0.00	4241.31	0.00	0.00	0.00
37	S-242	4239.02	4242.33	3.30	4239.02	0.00	4242.33	0.00	0.00	0.00
38	S-243	4239.35	4242.30	2.95	4239.35	0.00	4242.30	0.00	0.00	0.00
39	S-244	4237.56	4242.05	4.48	4237.56	0.00	4242.05	0.00	0.00	0.00
40	S-245	4238.24	4241.34	3.10	4238.24	0.00	4241.34	0.00	0.00	0.00
41	S-246	4238.57	4241.42	2.85	4238.57	0.00	4241.42	0.00	0.00	0.00
42	S-247	4237.91	4242.03	4.12	4237.91	0.00	4242.03	0.00	0.00	0.00
43	S-248	4237.28	4241.89	4.61	4237.28	0.00	4241.89	0.00	0.00	0.00
44	S-249	4238.40	4241.12	2.72	4238.40	0.00	4241.12	0.00	0.00	0.00
45	S-250	4238.54	4241.12	2.58	4238.54	0.00	4241.12	0.00	0.00	0.00
46	S-251	4237.79	4242.37	4.58	4237.79	0.00	4242.37	0.00	0.00	0.00
47	S-252	4237.54	4242.04	4.50	4237.54	0.00	4242.04	0.00	0.00	0.00
48	S-253	4238.31	4241.07	2.76	4238.31	0.00	4241.07	0.00	0.00	0.00
49	S-254	4238.50	4241.07	2.57	4238.50	0.00	4241.07	0.00	0.00	0.00
50	S-255	4237.38	4241.50	4.12	4237.38	0.00	4241.50	0.00	0.00	0.00
51	S-256	4238.90	4241.50	2.60	4238.90	0.00	4241.50	0.00	0.00	0.00
52	S-301	4237.19	4242.15	4.96	4237.19	0.00	4242.15	0.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	S-202	3.60	0.00	4237.43	0.91	0.00	4.07	4236.70	0.18	0 01:46	0 00:00	0.00	0.00
2	S-203	12.25	0.00	4239.89	3.31	0.00	2.11	4237.08	0.50	0 01:46	0 00:00	0.00	0.00
3	S-205	12.36	1.40	4239.91	3.23	0.00	1.26	4237.16	0.48	0 01:44	0 00:00	0.00	0.00
4	S-206	8.08	0.81	4239.94	3.16	0.00	1.44	4237.24	0.46	0 01:44	0 00:00	0.00	0.00
5	S-207	1.21	1.21	4239.94	3.11	0.00	1.31	4237.28	0.45	0 01:44	0 00:00	0.00	0.00
6	S-208	7.81	0.00	4239.99	3.06	0.00	1.52	4237.37	0.44	0 01:44	0 00:00	0.00	0.00
7	S-210	7.51	0.49	4239.99	2.95	0.00	1.05	4237.45	0.41	0 01:44	0 00:00	0.00	0.00
8	S-211	1.73	1.73	4239.99	2.90	0.00	0.91	4237.49	0.40	0 01:44	0 00:00	0.00	0.00
9	S-212	7.15	0.00	4239.99	2.77	0.00	1.76	4237.60	0.38	0 01:44	0 00:00	0.00	0.00
10	S-213	7.56	0.00	4239.99	2.69	0.00	1.59	4237.66	0.36	0 01:44	0 00:00	0.00	0.00
11	S-214	8.93	0.89	4239.99	2.60	0.00	1.27	4237.74	0.35	0 01:44	0 00:00	0.00	0.00
12	S-215	3.43	3.43	4239.99	1.45	0.00	1.12	4238.68	0.14	0 01:44	0 00:00	0.00	0.00
13	S-216	7.80	0.00	4240.00	2.10	0.00	2.59	4238.15	0.25	0 01:44	0 00:00	0.00	0.00
14	S-217	6.57	0.59	4240.00	1.84	0.00	1.88	4238.36	0.20	0 01:44	0 00:00	0.00	0.00
15	S-218	1.15	1.15	4240.00	1.79	0.00	1.68	4239.17	0.96	0 01:44	0 00:00	0.00	0.00
16	S-219	5.69	0.00	4240.00	1.78	0.00	2.17	4238.42	0.20	0 01:44	0 00:00	0.00	0.00
17	S-220	5.77	0.00	4240.00	1.71	0.00	2.27	4238.48	0.19	0 01:45	0 00:00	0.00	0.00
18	S-221	6.16	3.66	4240.00	1.50	0.00	1.32	4238.65	0.15	0 01:45	0 00:00	0.00	0.00
19	S-222	2.89	2.89	4240.00	1.43	0.00	1.18	4238.71	0.14	0 01:45	0 00:00	0.00	0.00
20	S-224	0.90	0.00	4240.00	1.65	0.00	2.07	4238.52	0.17	0 01:44	0 00:00	0.00	0.00
21	S-225	1.11	0.53	4240.00	1.56	0.00	1.61	4238.60	0.16	0 01:44	0 00:00	0.00	0.00
22	S-226	0.94	0.94	4240.00	1.49	0.00	1.43	4238.66	0.15	0 01:44	0 00:00	0.00	0.00
23	S-228	2.84	0.26	4240.00	2.01	0.00	1.46	4238.22	0.23	0 01:44	0 00:00	0.00	0.00
24	S-229	0.34	0.23	4240.00	1.96	0.00	1.32	4238.26	0.22	0 01:43	0 00:00	0.00	0.00
25	S-230	2.87	0.73	4240.00	1.82	0.00	1.16	4238.38	0.20	0 01:44	0 00:00	0.00	0.00
26	S-231	0.94	0.94	4240.00	1.77	0.00	1.02	4238.42	0.19	0 01:44	0 00:00	0.00	0.00
27	S-232	1.61	0.88	4240.00	1.58	0.00	1.12	4238.58	0.16	0 01:43	0 00:00	0.00	0.00
28	S-233	0.83	0.83	4240.00	1.52	0.00	1.12	4238.63	0.15	0 01:43	0 00:00	0.00	0.00
29	S-234	6.51	0.00	4239.91	3.12	0.00	1.62	4237.25	0.46	0 01:44	0 00:00	0.00	0.00
30	S-235	3.72	1.04	4239.91	2.71	0.00	0.59	4237.57	0.37	0 01:44	0 00:00	0.00	0.00
31	S-236	3.19	1.39	4239.91	2.52	0.00	0.59	4237.72	0.33	0 01:45	0 00:00	0.00	0.00
32	S-237	3.04	0.00	4239.91	2.32	0.00	1.52	4237.88	0.29	0 01:46	0 00:00	0.00	0.00
33	S-238	2.14	2.14	4239.91	2.00	0.00	1.82	4238.15	0.24	0 01:45	0 00:00	0.00	0.00
34	S-239	1.43	0.17	4239.91	1.96	0.00	1.05	4238.18	0.23	0 01:45	0 00:00	0.00	0.00
35	S-240	1.58	0.45	4239.91	1.63	0.00	1.38	4238.45	0.17	0 01:46	0 00:00	0.00	0.00
36	S-241	1.39	1.39	4239.91	1.30	0.00	1.39	4238.73	0.12	0 01:45	0 00:00	0.00	0.00
37	S-242	0.72	0.07	4239.91	0.89	0.00	2.42	4239.09	0.07	0 01:46	0 00:00	0.00	0.00
38	S-243	0.72	0.72	4239.91	0.56	0.00	2.39	4239.39	0.04	0 01:46	0 00:00	0.00	0.00
39	S-244	1.72	0.00	4239.91	2.35	0.00	2.14	4237.86	0.30	0 01:45	0 00:00	0.00	0.00
40	S-245	0.98	0.00	4239.91	1.67	0.00	1.43	4238.42	0.18	0 01:45	0 00:00	0.00	0.00
41	S-246	1.00	1.00	4239.91	1.34	0.00	1.52	4238.70	0.13	0 01:45	0 00:00	0.00	0.00
42	S-247	0.87	0.87	4239.91	2.00	0.00	2.12	4238.14	0.23	0 01:45	0 00:00	0.00	0.00
43	S-248	3.12	0.00	4239.91	2.63	0.00	1.98	4237.63	0.35	0 01:44	0 00:00	0.00	0.00
44	S-249	1.12	0.63	4239.91	1.51	0.00	1.21	4238.55	0.15	0 01:44	0 00:00	0.00	0.00
45	S-250	0.67	0.67	4239.91	1.37	0.00	1.21	4238.67	0.13	0 01:44	0 00:00	0.00	0.00
46	S-251	1.04	0.00	4239.91	2.12	0.00	2.46	4238.05	0.26	0 01:44	0 00:00	0.00	0.00
47	S-252	2.12	0.00	4239.91	2.37	0.00	2.14	4237.84	0.30	0 01:44	0 00:00	0.00	0.00
48	S-253	1.38	0.73	4239.91	1.60	0.00	1.17	4238.48	0.17	0 01:44	0 00:00	0.00	0.00
49	S-254	1.13	1.13	4239.91	1.41	0.00	1.17	4238.64	0.14	0 01:44	0 00:00	0.00	0.00
50	S-255	3.22	1.49	4239.91	2.53	0.00	1.59	4237.71	0.33	0 01:44	0 00:00	0.00	0.00
51	S-256	0.69	0.69	4239.91	1.01	0.00	1.59	4238.98	0.08	0 01:44	0 00:00	0.00	0.00
52	S-301	3.12	0.00	4239.91	2.72	0.00	2.24	4237.56	0.37	0 01:44	0 00:00	0.00	0.00

Pipe Input

SN Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1 SD-S202	27.28	4236.52	0.00	4236.50	0.00	0.02	0.0800	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
2 SD-S204	125.35	4237.08	0.00	4236.58	0.00	0.50	0.4000	CIRCULAR	36.000	36.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
3 SD-S205	67.26	4236.68	0.00	4236.58	0.00	0.10	0.1500	CIRCULAR	30.000	30.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
4 SD-S206	62.66	4236.78	0.00	4236.68	0.00	0.09	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
5 SD-S207	34.57	4236.83	0.00	4236.78	0.00	0.05	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
6 SD-S208	104.50	4236.93	0.00	4236.78	0.00	0.16	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
7 SD-S210	68.83	4237.04	0.00	4236.93	0.00	0.10	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
8 SD-S211	34.50	4237.09	0.00	4237.04	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
9 SD-S212	121.97	4237.22	0.00	4237.04	0.00	0.18	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
10 SD-S213	54.35	4237.30	0.00	4237.22	0.00	0.08	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
11 SD-S214	60.16	4237.39	0.00	4237.30	0.00	0.09	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
12 SD-S215	34.50	4238.54	0.00	4238.14	0.75	0.40	1.1700	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
13 SD-S216	337.17	4237.90	0.00	4237.39	0.00	0.51	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
14 SD-S217	175.50	4238.16	0.00	4237.90	0.00	0.26	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
15 SD-S218	29.90	4239.10	0.89	4238.95	0.79	0.15	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
16 SD-S219	41.32	4238.22	0.00	4238.16	0.00	0.06	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
17 SD-S220	47.53	4238.29	0.00	4238.22	0.00	0.07	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
18 SD-S221	139.77	4238.50	0.00	4238.29	0.00	0.21	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
19 SD-S222	45.50	4238.57	0.00	4238.50	0.00	0.07	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
20 SD-S224	84.98	4238.35	0.00	4238.22	0.00	0.13	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
21 SD-S225	61.69	4238.44	0.00	4238.35	0.00	0.09	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
22 SD-S226	44.58	4238.51	0.00	4238.44	0.00	0.07	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
23 SD-S228	65.50	4237.99	0.00	4237.90	0.00	0.09	0.1400	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
24 SD-S229	34.50	4238.04	0.00	4237.99	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
25 SD-S230	132.07	4238.18	0.00	4237.99	0.00	0.20	0.1500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
26 SD-S231	34.50	4238.23	0.00	4238.18	0.00	0.05	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
27 SD-S232	158.62	4238.42	0.00	4238.18	0.00	0.24	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
28 SD-S233	38.00	4238.48	0.00	4238.42	0.00	0.06	0.1500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
29 SD-S234	74.73	4236.79	0.00	4236.68	0.00	0.11	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
30 SD-S235	272.66	4237.20	0.00	4236.79	0.00	0.41	0.1500	CIRCULAR	24.000	24.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
31 SD-S236	121.85	4237.39	0.00	4237.20	0.00	0.18	0.1500	CIRCULAR	15.000	15.000	0.0110	0.5000	0.5000	0.0000	0.00	No	1
32 SD-S237	132.56	4237.59	0.00	4237.39	0.00	0.20	0.1500	CIRCULAR	15.000	15.000	0.0110	0.5000	0.5000	0.0000	0.00	No	1
33 SD-S238	32.73	4237.91	0.00	4237.59	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
34 SD-S239	92.27	4237.95	0.00	4237.59	0.00	0.37	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
35 SD-S240	81.45	4238.28	0.00	4237.95	0.00	0.33	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
36 SD-S241	32.87	4238.61	0.00	4238.28	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
37 SD-S242	186.00	4239.02	0.00	4238.28	0.00	0.74	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
38 SD-S243	32.73	4239.35	0.00	4239.02	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
39 SD-S244	90.30	4237.56	0.00	4237.20	0.00	0.36	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
40 SD-S245	168.68	4238.24	0.00	4237.56	0.00	0.67	0.4000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
41 SD-S246	33.33	4238.57	0.00	4238.24	0.00	0.33	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
42 SD-S247	34.33	4237.91	0.00	4237.56	0.00	0.34	1.0000	CIRCULAR	12.240	12.240	0.0110	0.5000	0.5000	0.0000	0.00	No	1
43 SD-S248	38.30	4237.28	0.00	4237.19	0.00	0.09	0.2300	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
44 SD-S249	122.00	4238.40	0.00	4237.79	0.00	0.61	0.5000	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
45 SD-S250	28.00	4238.54	0.00	4238.40	0.00	0.14	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
46 SD-S251	101.44	4237.79	0.00	4237.54	0.00	0.25	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
47 SD-S252	62.88	4237.54	0.00	4237.38	0.00	0.16	0.2500	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
48 SD-S253	62.50	4238.31	0.00	4238.00	0.46	0.31	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
49 SD-S254	38.00	4238.50	0.00	4238.31	0.00	0.19	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
50 SD-S255	40.02	4237.38	0.00	4237.28	0.00	0.10	0.2500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
51 SD-S256	38.00	4238.90	0.00	4238.71	1.33	0.19	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1
52 SD-S301	157.66	4237.19	0.00	4236.79	0.00	0.40	0.2500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results

SN Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1 SD-S202	3.60	0 01:46	10.12	0.36	3.14	0.14	0.79	0.39	0.00		Calculated
2 SD-S204	9.32	0 00:14	42.16	0.22	2.72	0.77	2.91	0.97	0.00		Calculated
3 SD-S205	12.25	0 00:14	18.34	0.67	2.87	0.39	2.50	1.00	138.00		SURCHARGED
4 SD-S206	7.88	0 00:09	10.12	0.78	2.56	0.41	2.00	1.00	189.00		SURCHARGED
5 SD-S207	1.05	0 00:05	4.70	0.22	1.70	0.34	1.50	1.00	229.00		SURCHARGED
6 SD-S208	7.70	0 00:09	10.12	0.76	2.45	0.71	2.00	1.00	177.00		SURCHARGED
7 SD-S210	6.91	0 00:08	10.12	0.68	2.44	0.47	2.00	1.00	169.00		SURCHARGED
8 SD-S211	1.64	0 00:05	2.89	0.57	2.41	0.24	1.25	1.00	229.00		SURCHARGED
9 SD-S212	6.60	0 00:08	10.12	0.65	2.31	0.88	2.00	1.00	140.00		SURCHARGED
10 SD-S213	7.15	0 00:07	10.12	0.71	2.61	0.35	2.00	1.00	130.00		SURCHARGED
11 SD-S214	7.56	0 00:07	10.12	0.75	2.68	0.37	2.00	1.00	121.00		SURCHARGED
12 SD-S215	3.40	0 00:06	6.99	0.49	4.87	0.12	1.25	1.00	70.00		SURCHARGED
13 SD-S216	5.62	0 00:07	10.12	0.56	2.12	2.65	2.00	1.00	48.00		SURCHARGED
14 SD-S217	6.21	0 00:06	10.12	0.61	3.42	0.86	1.92	0.96	0.00		Calculated
15 SD-S218	1.15	0 00:09	4.58	0.25	2.35	0.21	0.97	0.78	0.00		Calculated
16 SD-S219	5.42	0 00:06	10.12	0.54	2.48	0.28	1.81	0.90	0.00		Calculated
17 SD-S220	5.11	0 00:05	10.12	0.50	2.70	0.29	1.74	0.87	0.00		Calculated
18 SD-S221	5.77	0 00:05	10.12	0.57	2.68	0.87	1.60	0.80	0.00		Calculated
19 SD-S222	2.52	0 00:05	2.89	0.87	2.05	0.37	1.25	1.00	69.00		SURCHARGED
20 SD-S224	0.90	0 00:06	2.89	0.31	0.83	1.71	1.25	1.00	103.00		SURCHARGED
21 SD-S225	0.90	0 00:06	2.89	0.31	2.12	0.49	1.25	1.00	86.00		SURCHARGED
22 SD-S226	0.61	0 00:04	2.89	0.21	1.13	0.66	1.25	1.00	77.00		SURCHARGED
23 SD-S228	1.63	0 00:05	10.12	0.16	2.56	0.43	2.00	1.00	10.00		SURCHARGED
24 SD-S229	0.29	0 00:07	2.89	0.10	0.64	0.90	1.25	1.00	137.00		SURCHARGED
25 SD-S230	2.57	0 00:05	4.70	0.55	2.43	0.91	1.50	1.00	88.00		SURCHARGED
26 SD-S231	0.86	0 00:05	2.89	0.30	1.78	0.32	1.25	1.00	113.00		SURCHARGED
27 SD-S232	1.40	0 00:05	2.89	0.48	1.52	1.74	1.25	1.00	89.00		SURCHARGED
28 SD-S233	0.74	0 00:05	2.89	0.26	1.26	0.50	1.25	1.00	81.00		SURCHARGED
29 SD-S234	6.50	0 00:14	10.12	0.64	2.07	0.60	2.00	1.00	187.00		SURCHARGED
30 SD-S235	3.69	0 00:16	10.12	0.36	1.84	2.47	2.00	1.00	140.00		SURCHARGED
31 SD-S236	3.07	0 00:06	3.41	0.90	3.03	0.67	1.25	1.00	202.00		SURCHARGED
32 SD-S237	2.89	0 00:06	3.41	0.85	2.63	0.84	1.25	1.00	183.00		SURCHARGED
33 SD-S238	2.04	0 00:05	4.43	0.46	3.95	0.14	1.02	1.00	174.00		SURCHARGED
34 SD-S239	1.36	0 00:07	2.80	0.49	1.76	0.87	1.02	1.00	170.00		SURCHARGED
35 SD-S240	1.37	0 00:05	2.80	0.49	2.84	0.48	1.02	1.00	140.00		SURCHARGED
36 SD-S241	1.38	0 00:05	4.43	0.31	3.56	0.15	1.02	1.00	100.00		SURCHARGED
37 SD-S242	0.70	0 00:36	2.80	0.25	1.10	2.82	0.95	0.93	0.00		Calculated
38 SD-S243	0.71	0 00:34	4.43	0.16	2.32	0.24	0.72	0.71	0.00		Calculated
39 SD-S244	1.73	0 00:14	2.80	0.62	2.12	0.71	1.02	1.00	207.00		SURCHARGED
40 SD-S245	0.93	0 00:14	2.80	0.33	1.91	1.47	1.02	1.00	137.00		SURCHARGED
41 SD-S246	0.98	0 00:14	4.43	0.22	3.01	0.18	1.02	1.00	88.00		SURCHARGED
42 SD-S247	0.87	0 00:13	4.43	0.20	2.83	0.20	1.02	1.00	176.00		SURCHARGED
43 SD-S248	3.12	0 00:13	5.09	0.61	2.59	0.25	1.50	1.00	190.00		SURCHARGED
44 SD-S249	1.04	0 00:08	7.43	0.14	2.32	0.88	1.50	1.00	8.00		SURCHARGED
45 SD-S250	0.62	0 00:12	4.57	0.14	1.67	0.28	1.25	1.00	53.00		SURCHARGED
46 SD-S251	0.84	0 00:13	3.21	0.26	0.78	2.17	1.25	1.00	167.00		SURCHARGED
47 SD-S252	2.11	0 00:13	3.26	0.65	1.72	0.61	1.25	1.00	189.00		SURCHARGED
48 SD-S253	1.37	0 00:08	4.57	0.30	2.86	0.36	1.25	1.00	93.00		SURCHARGED
49 SD-S254	1.11	0 00:13	4.57	0.24	1.70	0.37	1.25	1.00	62.00		SURCHARGED
50 SD-S255	3.12	0 00:13	5.25	0.59	2.35	0.28	1.50	1.00	182.00		SURCHARGED
51 SD-S256	0.67	0 00:05	4.57	0.15	2.47	0.26	1.10	0.88	0.00		Calculated
52 SD-S301	3.12	0 00:13	5.26	0.59	2.19	1.20	1.50	1.00	198.00		SURCHARGED

Storage Nodes

Storage Node : S-204

Input Data

Invert Elevation (ft)	4237.08
Max (Rim) Elevation (ft)	4240.42
Max (Rim) Offset (ft)	3.33
Initial Water Elevation (ft)	4237.08
Initial Water Depth (ft)	0.00
Ponded Area (ft ²)	0.00
Evaporation Loss	0.00

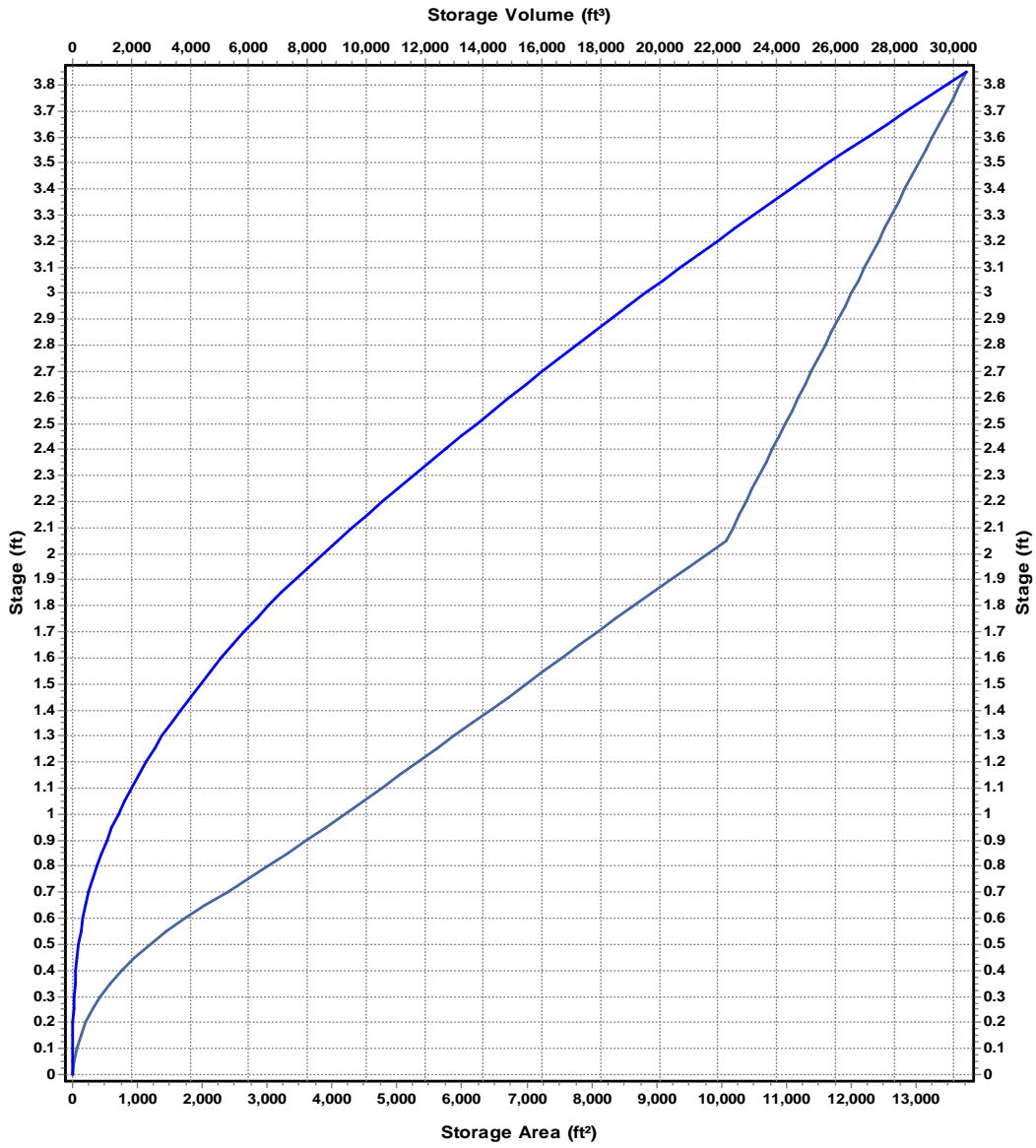
Storage Area Volume Curves

Storage Curve : DET-2

Stage (ft)	Storage Area (ft ²)	Storage Volume (ft ³)
0	8	0
0.05	30	0.95
0.1	71	3.48
0.15	131	8.53
0.2	212	17.11
0.25	314	30.26
0.3	439	49.09
0.35	588	74.77
0.4	763	108.55
0.45	965	151.75
0.5	1195	205.75
0.55	1453	271.95
0.6	1739	351.75
0.65	2054	446.58
0.7	2392	557.73
0.75	2706	685.18
0.8	3013	828.16
0.85	3314	986.34
0.9	3608	1159.39
0.95	3900	1347.09
1	4189	1549.32
1.05	4477	1765.97
1.1	4763	1996.97
1.15	5048	2242.25
1.2	5330	2501.7
1.25	5610	2775.2
1.3	5889	3062.68
1.35	6166	3364.06
1.4	6441	3679.24
1.45	6713	4008.09
1.5	6985	4350.54
1.55	7258	4706.62
1.6	7533	5076.4
1.65	7810	5459.98
1.7	8088	5857.43
1.75	8367	6268.81
1.8	8649	6694.21
1.85	8932	7133.74
1.9	9216	7587.44
1.95	9502	8055.39
2	9790	8537.69
2.05	10076	9034.34
2.1	10176	9540.64
2.15	10276	10051.94
2.2	10376	10568.24
2.25	10476	11089.54
2.3	10576	11615.84
2.35	10677	12147.17
2.4	10777	12683.52
2.45	10878	13224.9
2.5	10979	13771.33
2.55	11080	14322.81
2.6	11182	14879.36
2.65	11283	15440.99
2.7	11385	16007.69
2.75	11487	16579.49
2.8	11589	17156.39
2.85	11691	17738.39

2.9	11793	18325.49
2.95	11896	18917.72
3	11998	19515.07
3.05	12101	20117.54
3.1	12204	20725.17
3.15	12307	21337.95
3.2	12411	21955.9
3.25	12514	22579.03
3.3	12618	23207.33
3.35	12721	23840.81
3.4	12825	24479.46
3.45	12930	25123.34
3.5	13034	25772.44
3.55	13138	26426.74
3.6	13243	27086.27
3.65	13348	27751.05
3.7	13453	28421.08
3.75	13558	29096.36
3.8	13663	29776.89
3.85	13768	30462.67

Storage Area Volume Curves



— Storage Area — Storage Volume

Storage Node : S-204 (continued)

Output Summary Results

Peak Inflow (cfs)	9.47
Peak Lateral Inflow (cfs)	0.63
Peak Outflow (cfs)	2.73
Peak Exfiltration Flow Rate (cfm)	0
Max HGL Elevation Attained (ft)	4239.89
Max HGL Depth Attained (ft)	2.81
Average HGL Elevation Attained (ft)	4237.47
Average HGL Depth Attained (ft)	0.39
Time of Max HGL Occurrence (days hh:mm)	0 01:46
Total Exfiltration Volume (1000-ft ³)	0
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0

Storage Node : S-209

Input Data

Invert Elevation (ft) 4236.98
 Max (Rim) Elevation (ft) 4240.28
 Max (Rim) Offset (ft) 3.29
 Initial Water Elevation (ft) 4236.98
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S209	Side	CIRCULAR	No	15.00			4236.98	0.61

Output Summary Results

Peak Inflow (cfs) 12.13
 Peak Lateral Inflow (cfs) 12.13
 Peak Outflow (cfs) 5.65
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.28
 Max HGL Depth Attained (ft) 3.3
 Average HGL Elevation Attained (ft) 4237.44
 Average HGL Depth Attained (ft) 0.46
 Time of Max HGL Occurrence (days hh:mm) 0 00:29
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 5.3
 Total Time Flooded (min) 74
 Total Retention Time (sec) 0

Storage Node : S-223

Input Data

Invert Elevation (ft) 4238.59
 Max (Rim) Elevation (ft) 4240.12
 Max (Rim) Offset (ft) 1.52
 Initial Water Elevation (ft) 4238.59
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S223	Side	CIRCULAR	No	4.70			4238.59	0.61

Output Summary Results

Peak Inflow (cfs) 8.58
 Peak Lateral Inflow (cfs) 8.58
 Peak Outflow (cfs) 0.58
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.12
 Max HGL Depth Attained (ft) 1.53
 Average HGL Elevation Attained (ft) 4238.76
 Average HGL Depth Attained (ft) 0.17
 Time of Max HGL Occurrence (days hh:mm) 0 00:07
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 7.83
 Total Time Flooded (min) 111
 Total Retention Time (sec) 0

Storage Node : S-227

Input Data

Invert Elevation (ft) 4238.53
 Max (Rim) Elevation (ft) 4240.66
 Max (Rim) Offset (ft) 2.13
 Initial Water Elevation (ft) 4238.53
 Initial Water Depth (ft) 0.00
 Ponded Area (ft²) 0.00
 Evaporation Loss 0.00

Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	SD-S227	Side	CIRCULAR	No	3.40			4238.53	0.61

Output Summary Results

Peak Inflow (cfs) 5.74
 Peak Lateral Inflow (cfs) 5.74
 Peak Outflow (cfs) 0.38
 Peak Exfiltration Flow Rate (cfm) 0
 Max HGL Elevation Attained (ft) 4240.66
 Max HGL Depth Attained (ft) 2.13
 Average HGL Elevation Attained (ft) 4238.75
 Average HGL Depth Attained (ft) 0.22
 Time of Max HGL Occurrence (days hh:mm) 0 00:12
 Total Exfiltration Volume (1000-ft³) 0
 Total Flooded Volume (ac-in) 5.06
 Total Time Flooded (min) 105
 Total Retention Time (sec) 0