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WHEN RECORDED, MAIL TO:
Utah Department of Transportation
Right of Way, Fourth Floor
Box 148420
Salt Lake City, UT 84114-8240

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GARY W. OTT
RECORDER, SALT LAKE COUNTY, UTAH
ANDERSON WHALEN & ASSOC
2010 N REDWOOD RD
SLC UT 84116
BY: CBP, DEPUTY - WI 147 P.

UTAH DEPARTMENT OF TRANSPORTATION DRAINAGE AGREEMENT

Salt Lake County Tax ID No. 27-24-326004 27-24-326005 27-24-40000

This Drainage Agreement made and entered into this 3 day of may 2016 between Utah Department of Transportation ("Department") and Miller Family Real Estate ("Permittee"), who owns the property described in Exhibit A.

RECITALS

The Permittee (property owner) desires to construct a drainage system and a drainage connection within the Department Right of Way subject to the requirements and conditions described in the Permit.

Department's Policy 08A-06 requires the Permittee to sign the Drainage Agreement as part of the permitting process for a drainage connection.

The parties agree as follows:

(1) **COMPLIANCE:** Permittee must comply with the conditions in the permit and applicable state and federal statutes, regulations and rules. The Department may perform inspection of Permittee's drainage system to monitor compliance with the Permit and with state and federal statutes, regulations, and rules. Permittee grants the Department access to the Permittee's property for inspection or to perform any repairs to prevent damage to the Department's Right of Way. The Department's inspection does not relieve the Permittee of its responsibilities in meeting the Permit conditions. The Permittee is responsible for the Department's inspection costs. Permittee's responsibilities include:

- a) Permittee is responsible for repairing and restoring any portion of the Department Right of Way and drainage systems located therein that may be damaged as a result of making the drainage connection or as the result of any subsequent drainage originating from the Permittee's property.
- b) Permittee must not increase its drainage discharge into the Department's drainage system without the written permission of the Department.
- c) A bonded contractor must apply for the required permit to install drainage systems in the Department Right of Way prior to the commencement of any such work.
- d) The Permittee is responsible to obtain environmental clearances, permits, or other approvals from any other local, state or federal agency that may have regulatory jurisdiction or oversight.

(2) MAINTENANCE: Permittee's drainage system must at all times be maintained, repaired, constructed, and operated by and at the expense of the Permittee. The drainage system will be serviced without access from any interstate highway or ramp. The Department may notify the Permittee of any maintenance requirements if the Permittee fails to maintain the drainage system. The Department reserves the right, without relieving the Permittee of its obligations, to reconstruct or make repairs to the drainage system, as it may consider necessary, and the Permittee must reimburse the Department for its cost if the Permittee fails to comply with the Department's written notification and complete the required maintenance.

(3) FUTURE IMPACTS: The Department has the right to change its drainage system for any future transportation project. If the Department's drainage system is reconstructed or modified, the Department reserves the right to hold the Permittee responsible for the cost to reconnect to the Department's drainage system. The Department is not responsible for any costs the Permittee incurs due to the drainage system being reconstructed or modified.

(4) LIABILITY: Pursuant to R930-7-6(2)(b), the Permittee is required to guarantee satisfactory performance under this Permit. The Department may proceed against Permittee to recover all expenses incurred by the Department, its employees, or contractors in repairing the sections of roadway damaged by the Permittee or its drainage system, including the failure to restore the Right of Way to Department standards. The Permittee will be liable for all costs the Department incurs under this agreement.

The Permittee will indemnify, defend, and hold harmless the Department, its employees, and the State of Utah from responsibility for any damage or liability arising from Permittee's construction, maintenance, repair, or any other related operation of the drainage system pursuant to the Permit issued under this agreement.

The Permittee will not hold the Department liable for damages resulting from any back-up or flow into the Permittee's drainage system or property. The Permittee accepts all risks associated with the connection to the Department's drainage system. The Permittee is responsible for all liability resulting from the discharge of pollutants into the Department's drainage system from its property or drainage system.

(5) CANCELLATION OF PERMIT: Any failure on the part of Permittee to comply with the terms and conditions set forth in the Permit or this Agreement may result in cancellation of the Permit. Failure of the Permittee to pay any sum of money for costs incurred by the Department in association with inspection, reconstruction, repair, or maintenance of the drainage system may also result in cancellation of the Permit. Non-compliance with either the Permit or Agreement may result in the Department removing the drainage system and restoring the highway and Right of Way at the sole expense of the Permittee. The Department will notify the Permittee in writing prior to any cancellation, setting forth the violations, and will provide the Permittee a reasonable time to correct the violations to the satisfaction of the Department. The Department may order the Permittee to remove its drainage system if the violations are not corrected.

(6) SUCCESSORS AND ASSIGNS: All covenants, obligations and agreements will be binding upon the parties, their successors and assigns and run with the land as described in Exhibit A until the drainage connection is removed from the Department's Right of Way.


(7) MISCELLANEOUS:

- a) Each party agrees to undertake and perform all further acts that are reasonably necessary to carry out the intent and purpose of the Agreement at the request of the other party.
- b) This Agreement does not create any type of agency relationship, joint venture, or partnership between the Department and Permittee.
- c) The failure of either party to insist upon strict compliance of any of the terms and conditions, or failure or delay by either party to exercise any rights or remedies provided in this Agreement, or by law, will not release either party from any obligations arising under this Agreement.

- d) This Agreement shall be deemed to be made under and shall be governed by the laws of the State of Utah in all respects. Each person signing this Agreement warrants that the person has full legal capacity, power and authority to execute this Agreement for and on behalf of the respective party and to bind such party.

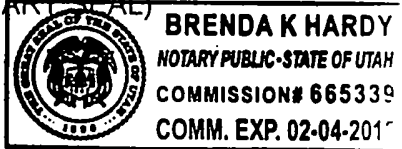
- e) If any portion of this Agreement is held to be invalid or unenforceable for any reason by a court of competent jurisdiction, such invalidity or unenforceability shall not affect any other provision, and this Agreement shall be construed as if such invalid or unenforceable provision had never been included.

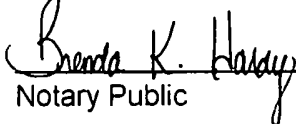
IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

CURRENT PROPERTY OWNER/PERMITTEE		
Name Printed:	Scott Bates	Signature: 

State of Utah)
County of Salt Lake)
On this 11 day of May, in the year 2016,
Scott Bates personally appeared before me and duly acknowledged to me that he/she executed this agreement as the current property owner of said property or was authorized to sign the agreement on behalf of the property owner. Witness my hand and official seal.

(NOTARY SEAL)

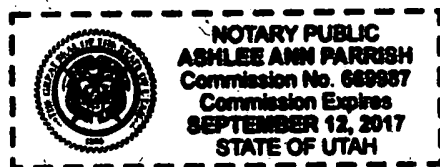



Notary Public

UTAH DEPARTMENT OF TRANSPORTATION – Region Permits Officer		
Name Printed:	Lynne Fidler	Signature: 

State of Utah)
County of SALT LAKE)
On this 21 day of July, in the year 2016,
Lynne Fidler personally appeared before me, who duly acknowledged to me that he/she executed this agreement pursuant to the authority delegated to him/her for the Utah Department of Transportation. Witness my hand and official seal.

(NOTARY SEAL)



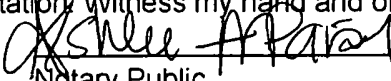

Notary Public

EXHIBIT A (Legal Description of Permittee's Property)

Miller Family 11400 South January 20, 2016
Overall Boundary
As Surveyed

A part of the Southeast Quarter of Section 24, Township 3 South, Range 1 West, Salt Lake Base and Meridian, U.S. Survey in Salt Lake County, Utah:

Beginning at a point on the Southerly Line of 11400 South Street as widened located 61.32 feet South 0°21'11" West along the Quarter Section Line from the Center of said Section 24; and running thence along said Southerly Line of 11400 South Street as widened the following seven courses: South 88°07'08" East 50.00 feet; South 84°34'00" East 107.90 feet; Easterly along the arc of an 8061.25 foot radius curve to the left a distance of 157.62 feet (Center bears North 1°22'29" East, Central Angle equals 1°07'13" and Long Chord bears South 89°11'07" East 157.62 feet) to a point of tangency; South 89°44'44" East 209.92 feet; South 2°37'54" East 19.29 feet; South 42°07'56" East 49.96 feet; and South 89°40'13" East 0.07 feet to the Westerly Line of Lone Peak Parkway; thence along said Westerly Line the following two courses: South 4°46'51" East 208.45 feet and South 3°42'42" East 369.59 feet to the Northwestern Line of the Salt Lake and Jordan Canal as it exists on the ground; thence along said Northwestern Line of the Canal the following six courses: South 20°40'59" West 93.59 feet; South 23°15'13" West 108.97 feet; South 32°32'50" West 29.31 feet; South 43°07'38" West 141.65 feet; South 45°04'06" West 98.61 feet; and South 38°07'17" West 81.40 feet; thence North 89°40'05" West 260.17 feet to the Easterly Line of Nate Way; thence North 0°21'11" East 2.01 feet along said Easterly Line; thence North 89°46'16" West 38.50 feet to the Quarter Section Line; thence North 89°46'25" West 21.50 feet; thence South 0°21'11" West 1.96 feet; thence North 89°48'12" West 570.32 feet to the Easterly Line of the Railroad Right-of-Way as widened; thence North 5°34'00" East 1114.07 feet along said Easterly Line to the Southerly Line of 11400 South Street as widened; thence South 88°07'18" East 226.66 feet along said Southerly Line; thence North 0°21'11" East 0.10 feet; thence along said Southerly Line of 11400 South Street the following three courses: South 88°07'16" East 46.39 feet; South 86°07'06" East 149.94 feet; and South 88°05'26" East 68.00 feet to the Quarter Section Line; thence North 0°21'11" East 6.03 feet along said Quarter Section Line to the point of beginning.

Contains 1,179,445 sq. ft.
or 27.076 acres

ALSO:

A part of the Southeast Quarter of Section 24, Township 3 South, Range 1 West, Salt Lake Base and Meridian, U.S. Survey in Salt Lake County, Utah:

Beginning at a point on the Southeasterly Line of the Salt Lake and Jordan Canal as it exists on the ground located 1156.95 feet South 0°21'11" West along the Quarter Section Line and 362.20 feet South 89°40'05" East from the Center of said Section 24; and running thence along said Southeasterly Line of the Canal the following five courses: North 38°07'17" East 26.22 feet; North 45°04'06" East 95.73 feet; North 43°07'38" East 148.87 feet; North 32°32'50" East 40.79 feet; and North 23°15'13" East 83.39 feet to the Westerly Line of Lone Peak Parkway; thence South 9°01'17" East 313.45 feet along said Westerly Line; thence North 89°40'05" West 289.75 feet to the point of beginning.

Contains 39,707 sq. ft.
or 0.912 acre

Total Area is 1,219,152 sq. ft.
or 27.988 acres

“EXHIBIT A”—Department Drainage Agreement (per UDOT Policy 08A-06)

EXHIBIT B

(include drainage plan showing state route, mile post and location of all drainage systems and drainage calculations)

“EXHIBIT B”—Department Drainage Agreement (per UDOT Policy 08A-06)

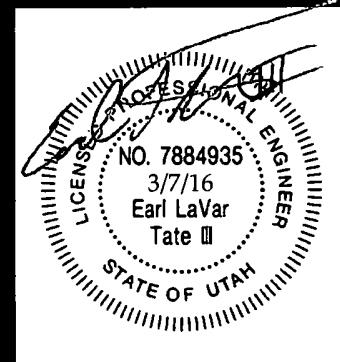
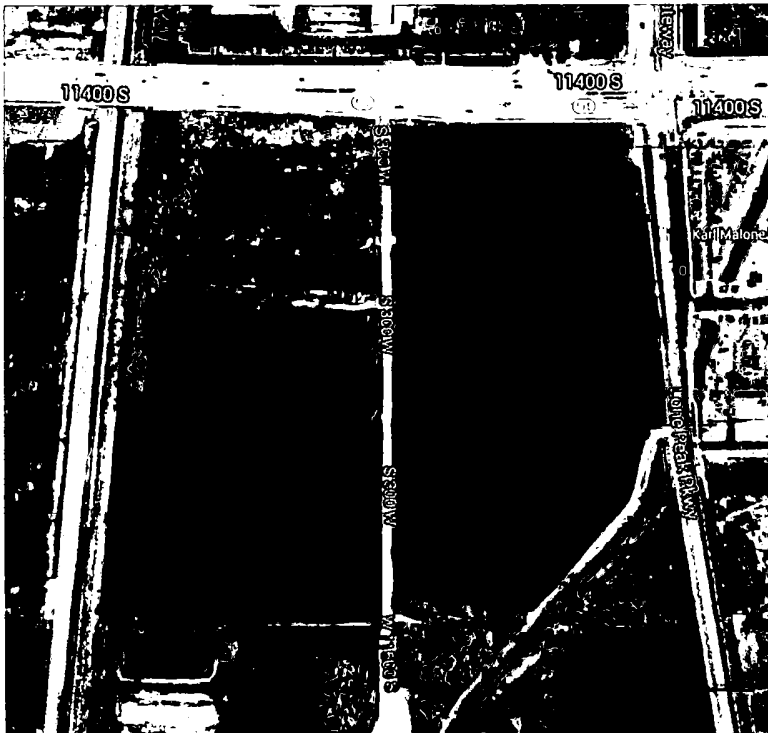


ANDERSON WAHLEN & ASSOCIATES

LHM @ LONE PEAK PARKWAY

11400 South & Lone Peak Parkway
Draper, Utah

STORM WATER ANALYSIS



Prepared For:

Miller Family Real Estate
9350 South 150 East Suite 1000
Sandy, Utah 84070
(801) 563-4100

Anderson, Wahlen & Associates, Inc.

2010 North Redwood Road

Salt Lake City, Utah 84116

Phone: (801) 521-8529

Fax: (801) 521-9551

AWA Job #: 15-078

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- I. Vicinity Map
- II. NOAA Precipitation Data
- III. USDA Web Soil Survey
- IV. 100-Year Flooding Flow Path Exhibit
- V. SSA Model
- VI. SSA Output Report

PROJECT DESCRIPTION

INTRODUCTION:

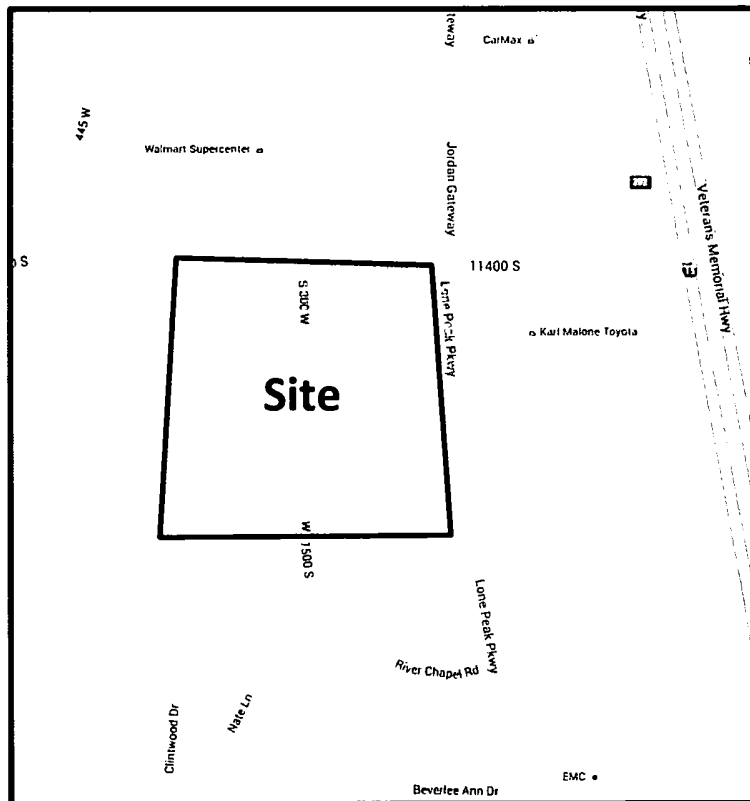
Miller Family Real Estate is proposing the construction of two car dealerships and an office building for Prestige Financial located on approximately 28.6 acres in Draper, Utah.

The purposes of this report are to:

- Determine the storm water runoff volume generated from a 10-year, 3 hour storm using the SCS method.
- Size and discuss the storm water conveyance system for the project.
- Discuss the emergency overflow path for stormwater generated by storms larger than the design storm.

LOCATION:

The site is located at the southwest corner of 11400 South Street and Lone Peak Parkway in Draper, UT. The site is bounded to the north by 11400 South, to the east by Lone Peak Parkway, undeveloped land to the south and the Union Pacific Railroad tracks to the west. A length of approximately 450 feet of the Salt Lake & Jordan Canal crosses the southeast corner of the site from the undeveloped land to Lone Peak Parkway.



EXISTING DRAINAGE:

The site slopes fairly uniformly from southeast to northwest with larger slopes located adjacent to the open channel length of canal. According to a Web Soil Survey, the soils are classified as hydrologic soil group C. Group C soils are defined as “soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.”¹

METHODOLOGY

ANALYSIS SOFTWARE

Autodesk’s *Storm and Sanitary Analysis 2015*[®] [SSA] will be used to determine the flows generated in post-development conditions, the sizing of two underground storage system and the sizing of a proposed detention basin. SSA was chosen as the primary software platform because the program was developed by Autodesk[®] and has the ability to work in unison with the design software *Civil 3D*[®]. SSA is also compatible with *HEC-1*, *HEC-HMS*, and the EPA’s *SWMM 5* program files.

DESIGN STORM & PRECIPITATION

The design storm for Draper urban areas is specified as the Farmer-Fletcher 10-year, 3-hour storm. Site specific rainfall depths were provided in the Draper Drainage Criteria Manual [DDCM] for urban areas and were utilized in the analysis. Rainfall depths of 0.93 inches and 1.79 inches were used respectfully for the 10-year and 100-year storms. The SCS method was used to determine the storage volume required for the site. The site was analyzed as a whole and divided into 52 respective subbasins per the proposed grading for the site. Each subbasins was assigned a SCS curve number based upon the developed conditions of the site. Times of concentration were calculated for each subbasin based upon sheet, shallow concentrated and channelized flows. Runoff will be detained onsite and discharged at 0.1 cfs/acre to a public storm drain located in the Union Pacific Railroad right-of-way at the northwest corner of the site.

¹ United States Department of Agriculture - Natural Resources Conservation Service. (2016, February 08). *Web Soil Survey*. Retrieved from Web Soil Survey: <http://websoilsurvey.sc.egov>

SSA MODEL CRITERIA & ASSUMPTIONS

Two drainage models were prepared to simulate the developed conditions of the site. The first model was used to design the storm water conveyance system. The second model was used to analyze the flooding effect of a 100-year, 3-hour storm.

SSA MODEL PARAMETERS:

- Hydrology Method SCS TR-55
- Time of Concentration SCS TR-55
- Link Routing Method Kinematic Wave
- Force Main Equation Hazen-Williams

ANALYSIS

Runoff from the 10-year 3-hour storm was analyzed in order to determine the impact on the storm water conveyance system. Pipes for the site were sized to convey the 10-year 3-hour storm per the DDCM. Three storage locations were also evaluated during the analysis. The first is an underground storage system designed for Dealership #2. The system consists of two underground, 72" corrugated metal pipes with a design capacity of 10,000 ft³. The second is a detention basin located near the north entrance of the site with a design capacity of 15,500 ft³. Lastly, an underground storage system that consists of three underground 96" corrugated metal pipes with a design capacity of 27,800 ft³.

Each detention system has been designed to maximize the available storage with the use of a downstream orifice plate. The Dealership #2 orifice plate has been sized at a 2.25" diameter to fully utilize the 10,000 cubic feet of storage. The storage capacity of the detention basin has been maximized with the use of a 3.25" diameter orifice. Lastly, a 6.125" diameter orifice has been designed to ensure that the discharge for the entire site does not exceed the 0.1 cfs/acre requirement outlined in the DDCM.

In the event that flows in excess of those anticipated during the 10 year storm impact the site, an overflow weir has been designed to maximize the discharge of the site. Any additional discharge will overtop the curb and gutter on the west edge of the site and flow westerly into an existing riprapped channel that flows north in the Union Pacific right-of-way as seen in subbasin exhibit Appendix-IV.

CONCLUSIONS

The completion of the analysis verified that the site's stormwater system is adequately sized to convey the required design storm without surcharging any of the pipes or detention areas. Detailed hydraulic calculations, along with pipeline design information such as flow, velocity, capacity can be found in the SSA output reports in Appendix-VI. Stormwater will be treated prior to entering the Ford/Prestige detention system and the detention basin using Contech® CDS hydrodynamic separators.

An emergency overflow will be provided by an existing riprapped channel in the Union Pacific right-of-way to convey flows in excess of the 10-year storm to the point of discharge for the projects stormwater.

REFERENCES

- Autodesk. (2015). *Autodesk Storm and Sanitary Analysis 2015*.
- Draper City. (2015). Development Standards. In *Sensitive Lands Overlay Zone* (pp. 9-16-050(B)(3)(b)). Draper.
- Federal Emergency Management Agency. (2016, February 17). *Flood Map Service Center*. Retrieved from FEMA: <http://msc.fema.gov>
- Hansen, Allen & Luce. (October, 2012). *City of Draper Drainage Design Criteria*. Midvale, Utah.
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- United States Department of Agriculture. (1986). *Technical Release-55: Urban Hydrology for Small Watersheds*. USDA.
- Urban Drainage and Flood Control District. (2013). *Urban Storm Drainage Criteria Manual*. Denver.

APPENDIX-II: NOAA PRECIPITATION DATA

APPENDIX-I: VICINITY



LHM @ Lone Peak Parkway: 11400 South Street & Lone Peak Parkway
Draper, Utah



NOAA Atlas 14, Volume 1, Version 5
Location name: Draper, Utah, US*
Latitude: 40.5427°, Longitude: -111.9011°
Elevation: 4401 ft*
* source: Google Maps



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitania, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

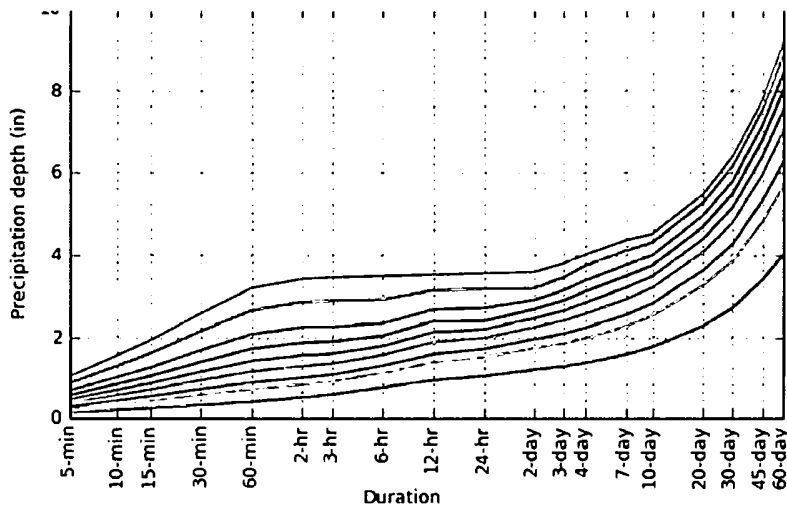
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.128 (0.112-0.148)	0.162 (0.142-0.187)	0.221 (0.194-0.256)	0.277 (0.239-0.322)	0.365 (0.308-0.429)	0.448 (0.367-0.531)	0.545 (0.432-0.654)	0.660 (0.502-0.807)	0.846 (0.608-1.06)	1.02 (0.697-1.31)
10-min	0.194 (0.170-0.225)	0.246 (0.216-0.284)	0.336 (0.295-0.390)	0.421 (0.364-0.489)	0.555 (0.468-0.652)	0.682 (0.558-0.808)	0.830 (0.657-0.996)	1.01 (0.764-1.23)	1.29 (0.925-1.62)	1.55 (1.06-1.99)
15-min	0.240 (0.211-0.278)	0.305 (0.268-0.352)	0.417 (0.365-0.483)	0.522 (0.451-0.607)	0.688 (0.580-0.809)	0.846 (0.692-1.00)	1.03 (0.814-1.24)	1.25 (0.947-1.52)	1.60 (1.15-2.00)	1.92 (1.32-2.46)
30-min	0.323 (0.284-0.374)	0.410 (0.361-0.474)	0.561 (0.492-0.651)	0.702 (0.607-0.817)	0.926 (0.781-1.09)	1.14 (0.931-1.35)	1.39 (1.10-1.66)	1.68 (1.28-2.05)	2.15 (1.55-2.70)	2.58 (1.77-3.32)
60-min	0.400 (0.351-0.463)	0.507 (0.446-0.587)	0.694 (0.609-0.805)	0.869 (0.751-1.01)	1.15 (0.967-1.35)	1.41 (1.15-1.67)	1.71 (1.36-2.06)	2.08 (1.58-2.54)	2.66 (1.91-3.34)	3.20 (2.19-4.10)
2-hr	0.500 (0.452-0.566)	0.625 (0.561-0.704)	0.813 (0.727-0.918)	0.992 (0.877-1.12)	1.28 (1.10-1.47)	1.55 (1.30-1.79)	1.87 (1.51-2.19)	2.25 (1.74-2.69)	2.86 (2.10-3.52)	3.42 (2.40-4.32)
3-hr	0.576 (0.526-0.642)	0.711 (0.648-0.790)	0.898 (0.813-0.998)	1.07 (0.962-1.19)	1.34 (1.18-1.51)	1.59 (1.37-1.80)	1.89 (1.58-2.21)	2.25 (1.82-2.71)	2.89 (2.20-3.56)	3.45 (2.51-4.36)
6-hr	0.747 (0.693-0.813)	0.917 (0.848-0.999)	1.12 (1.03-1.22)	1.29 (1.19-1.42)	1.56 (1.41-1.72)	1.78 (1.58-1.98)	2.04 (1.78-2.29)	2.34 (1.99-2.74)	2.92 (2.40-3.59)	3.49 (2.74-4.40)
12-hr	0.932 (0.862-1.01)	1.14 (1.05-1.24)	1.38 (1.27-1.51)	1.58 (1.45-1.73)	1.88 (1.71-2.08)	2.13 (1.90-2.37)	2.39 (2.10-2.70)	2.69 (2.31-3.07)	3.14 (2.62-3.68)	3.52 (2.86-4.45)
24-hr	1.04 (0.970-1.11)	1.27 (1.19-1.36)	1.51 (1.41-1.62)	1.71 (1.60-1.83)	1.98 (1.85-2.12)	2.19 (2.03-2.39)	2.40 (2.23-2.72)	2.71 (2.41-3.10)	3.17 (2.65-3.72)	3.55 (2.89-4.49)
2-day	1.20 (1.12-1.28)	1.46 (1.37-1.57)	1.73 (1.62-1.85)	1.95 (1.83-2.08)	2.25 (2.10-2.39)	2.47 (2.30-2.63)	2.69 (2.50-2.87)	2.91 (2.69-3.11)	3.19 (2.93-3.75)	3.59 (3.11-4.54)
3-day	1.28 (1.20-1.37)	1.56 (1.47-1.67)	1.85 (1.74-1.98)	2.09 (1.96-2.23)	2.41 (2.26-2.56)	2.65 (2.48-2.83)	2.90 (2.70-3.09)	3.15 (2.91-3.36)	3.47 (3.19-3.89)	3.80 (3.39-4.56)
4-day	1.37 (1.28-1.46)	1.67 (1.56-1.78)	1.97 (1.86-2.10)	2.23 (2.09-2.37)	2.57 (2.42-2.74)	2.84 (2.66-3.02)	3.11 (2.90-3.32)	3.38 (3.14-3.62)	3.74 (3.44-4.02)	4.01 (3.67-4.58)
7-day	1.58 (1.48-1.69)	1.92 (1.81-2.06)	2.27 (2.14-2.42)	2.55 (2.40-2.71)	2.92 (2.76-3.10)	3.21 (3.02-3.40)	3.49 (3.27-3.70)	3.76 (3.51-4.00)	4.11 (3.82-4.38)	4.37 (4.04-4.67)
10-day	1.76 (1.65-1.88)	2.15 (2.02-2.30)	2.52 (2.37-2.68)	2.82 (2.66-2.99)	3.20 (3.01-3.40)	3.48 (3.27-3.68)	3.75 (3.52-3.97)	4.00 (3.75-4.24)	4.30 (4.02-4.58)	4.51 (4.20-4.81)
20-day	2.28 (2.13-2.42)	2.78 (2.61-2.96)	3.26 (3.07-3.46)	3.62 (3.41-3.84)	4.07 (3.84-4.31)	4.39 (4.14-4.64)	4.69 (4.42-4.95)	4.96 (4.67-5.24)	5.27 (4.96-5.58)	5.47 (5.15-5.81)
30-day	2.72 (2.55-2.88)	3.31 (3.11-3.52)	3.86 (3.64-4.08)	4.27 (4.03-4.51)	4.79 (4.52-5.06)	5.15 (4.86-5.44)	5.49 (5.17-5.81)	5.80 (5.46-6.14)	6.16 (5.78-6.53)	6.39 (5.99-6.79)
45-day	3.39 (3.20-3.60)	4.12 (3.89-4.38)	4.79 (4.53-5.07)	5.31 (5.02-5.60)	5.94 (5.63-6.26)	6.38 (6.05-6.71)	6.78 (6.43-7.12)	7.13 (6.76-7.49)	7.51 (7.13-7.89)	7.73 (7.35-8.12)
60-day	4.00 (3.77-4.25)	4.87 (4.59-5.18)	5.66 (5.34-5.99)	6.26 (5.91-6.62)	7.00 (6.62-7.39)	7.51 (7.10-7.94)	7.99 (7.54-8.44)	8.40 (7.94-8.89)	8.86 (8.37-9.38)	9.13 (8.64-9.68)

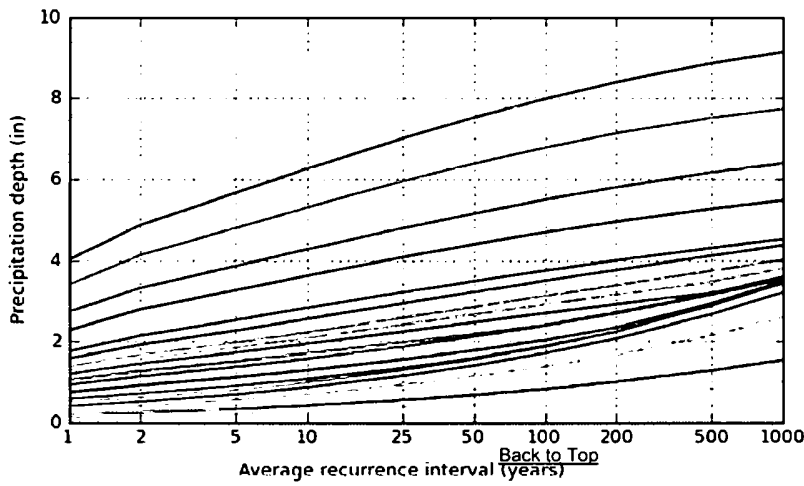
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

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PF graphical



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000

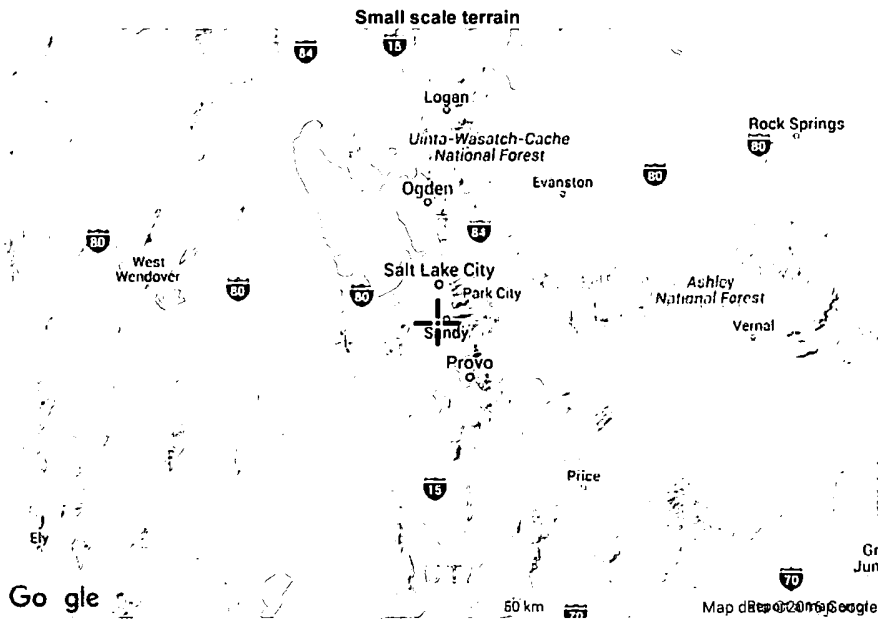


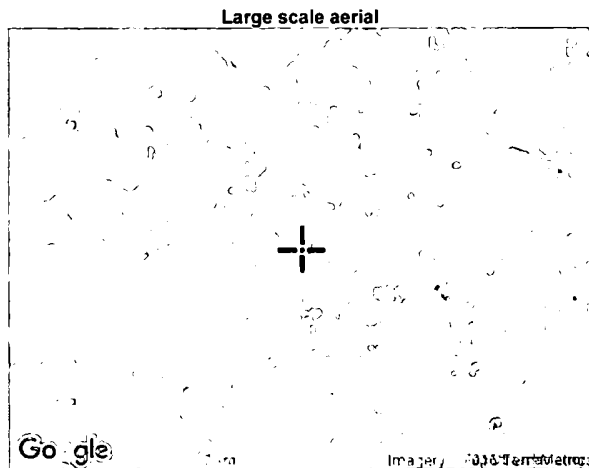
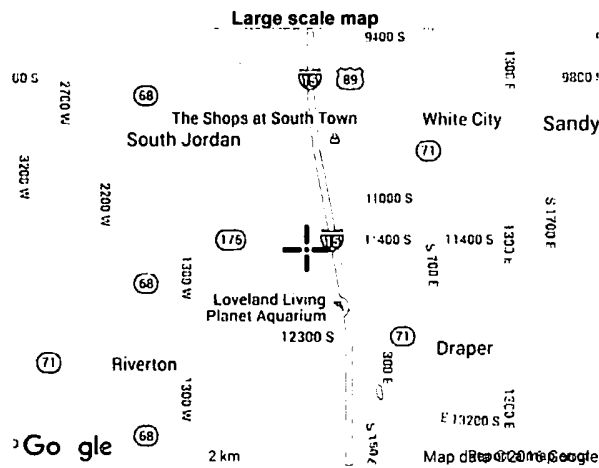
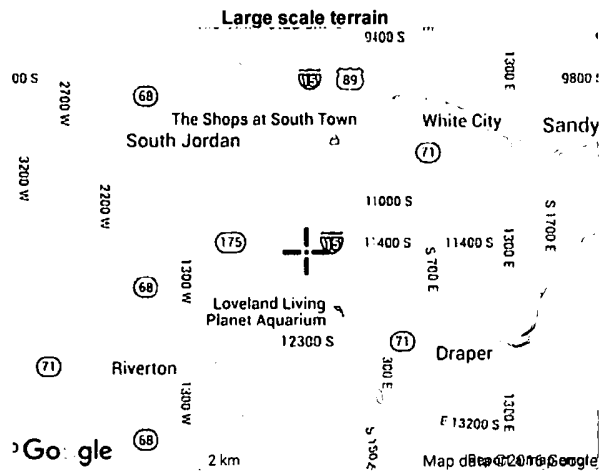
Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day

NOAA Atlas 14. Volume 1, Version 5

Maps & aeriels

Created (GMT): Fri Mar 4 20:28:31 2016





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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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Silver Spring, MD 20910

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APPENDIX-III: USDA WEB SOIL SURVEY

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>).

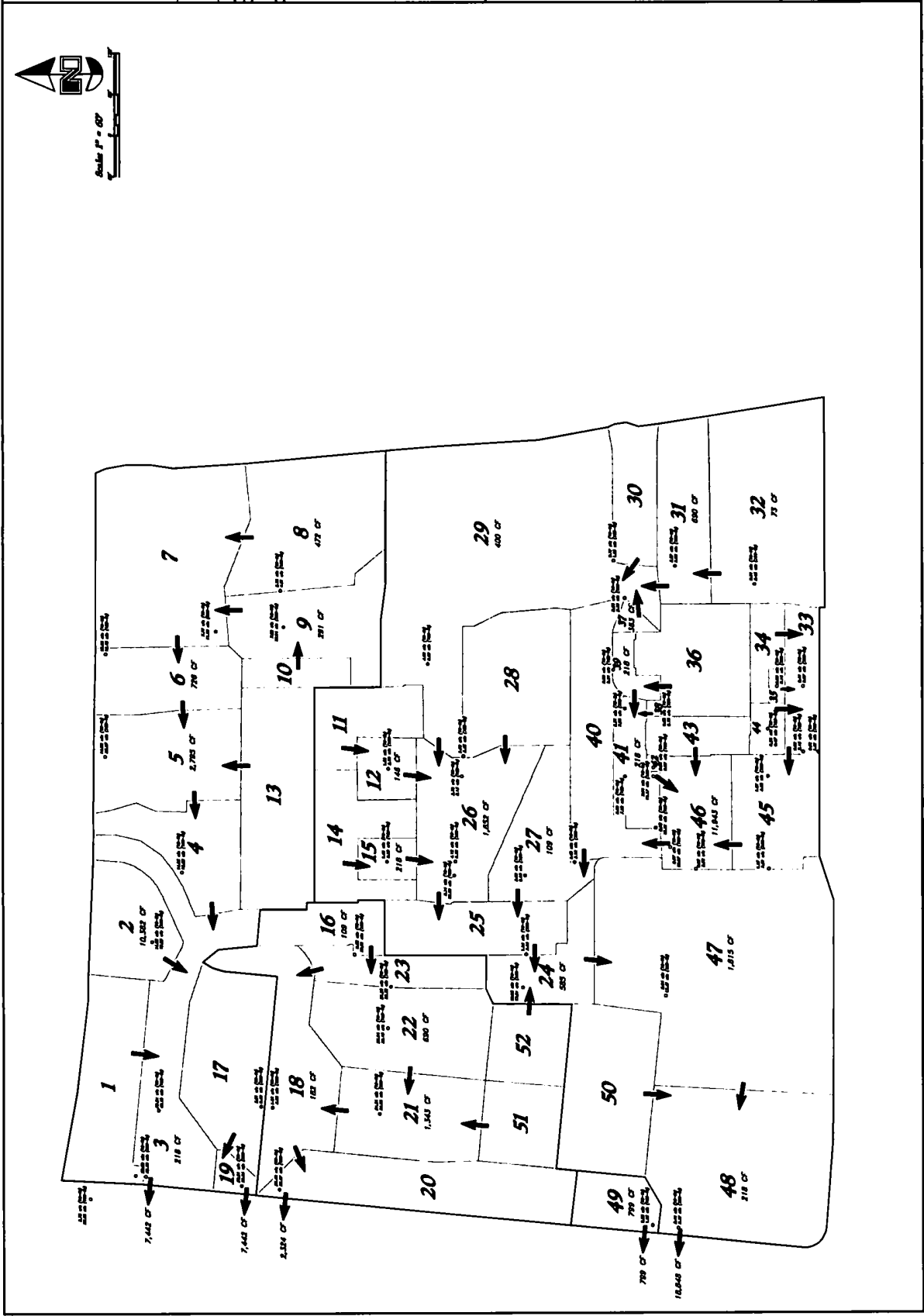
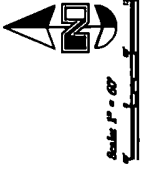
Engineering Properties—Salt Lake Area, Utah														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
BsA—Bramwell silty clay loam, 0 to 1 percent slopes														
Bramwell	85	C	0-2	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			2-8	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			8-22	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			22-35	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			35-47	Silty clay	CH	A-7-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	90-93-95	50-55-60	25-28-30
			47-72	Clay	CH	A-7-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	90-95-100	75-85-95	50-55-60	25-28-30

Engineering Properties—Salt Lake Area, Utah														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Tab—Taylorsville silty clay loam, 1 to 3 percent slopes														
Taylorsville	85	C	0-7	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			7-17	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			17-27	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			27-37	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			37-59	Silty clay loam	CL	A-6, A-7	0-0-0	0-0-0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20

Data Source Information

Soil Survey Area: Salt Lake Area, Utah
 Survey Area Data: Version 8, Sep 28, 2015

APPENDIX-IV: 100-YEAR FLOODING FLOW PATH EXHIBIT



APPENDIX-VI: SSA OUTPUT REPORT

Project Description

File Name 15-078_SSA.SPF
 Description W:\15-078 LHM Ford Draper (11400)\dwgs\15-078-UT.dwg

Project Options

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

Analysis Options

Start Analysis On Feb 22, 2016 00:00:00
 End Analysis On Feb 24, 2016 00:00:00
 Start Reporting On Feb 22, 2016 00:00:00
 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	1
Subbasins	52
Nodes	56
<i>Junctions</i>	52
<i>Outfalls</i>	1
<i>Flow Diversions</i>	0
<i>Inlets</i>	0
<i>Storage Nodes</i>	3
Links	55
<i>Channels</i>	0
<i>Pipes</i>	52
<i>Pumps</i>	0
<i>Orifices</i>	3
<i>Weirs</i>	0
<i>Outlets</i>	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	Rain Gage-01	Time Series	10-Yr 3-hr	Cumulative	inches				0.00	

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-01	0.63	74.00	0.93	0.01	0.01	0.01	0 00:09:30
2	Sub-02	0.43	74.00	0.93	0.01	0.01	0.01	0 00:11:34
3	Sub-03	0.85	98.00	0.93	0.72	0.61	1.91	0 00:04:10
4	Sub-04	0.48	98.00	0.93	0.72	0.35	1.19	0 00:01:52
5	Sub-05	0.69	98.00	0.93	0.72	0.50	1.58	0 00:03:43
6	Sub-06	0.46	98.00	0.93	0.72	0.33	1.09	0 00:03:15
7	Sub-07	1.27	98.00	0.93	0.72	0.92	2.70	0 00:05:13
8	Sub-08	0.90	98.00	0.93	0.72	0.65	2.17	0 00:02:48
9	Sub-09	0.60	98.00	0.93	0.72	0.43	1.50	0 00:01:20
10	Sub-10	0.16	98.00	0.93	0.72	0.11	0.40	0 00:01:16
11	Sub-11	0.35	98.00	0.93	0.72	0.25	0.86	0 00:01:48
12	Sub-12	0.18	98.00	0.93	0.72	0.13	0.46	0 00:01:21
13	Sub-13	0.80	98.00	0.93	0.72	0.58	1.94	0 00:02:36
14	Sub-14	0.45	98.00	0.93	0.72	0.33	1.11	0 00:01:40
15	Sub-15	0.12	98.00	0.93	0.72	0.09	0.30	0 00:01:15
16	Sub-16	0.27	98.00	0.93	0.72	0.20	0.67	0 00:01:17
17	Sub-17	0.78	98.00	0.93	0.72	0.57	1.88	0 00:02:46
18	Sub-18	0.68	98.00	0.93	0.72	0.49	1.67	0 00:02:08
19	Sub-19	0.07	98.00	0.93	0.72	0.05	0.18	0 00:01:09
20	Sub-20	0.73	98.00	0.93	0.72	0.53	1.46	0 00:06:14
21	Sub-21	0.61	98.00	0.93	0.72	0.44	1.45	0 00:02:57
22	Sub-22	0.71	98.00	0.93	0.72	0.51	1.69	0 00:03:03
23	Sub-23	0.29	98.00	0.93	0.72	0.21	0.69	0 00:03:18
24	Sub-24	0.35	98.00	0.93	0.72	0.25	0.86	0 00:01:37
25	Sub-25	0.48	98.00	0.93	0.72	0.34	1.15	0 00:02:33
26	Sub-26	0.71	98.00	0.93	0.72	0.52	1.63	0 00:03:49
27	Sub-27	0.48	98.00	0.93	0.72	0.35	1.13	0 00:03:15
28	Sub-28	0.72	98.00	0.93	0.72	0.52	1.59	0 00:04:27
29	Sub-29	1.95	98.00	0.93	0.72	1.41	4.30	0 00:04:31
30	Sub-30	0.32	98.00	0.93	0.72	0.23	0.78	0 00:02:28
31	Sub-31	0.52	98.00	0.93	0.72	0.37	1.20	0 00:03:38
32	Sub-32	1.13	98.00	0.93	0.72	0.81	2.57	0 00:03:52
33	Sub-33	0.26	98.00	0.93	0.72	0.19	0.61	0 00:02:46
34	Sub-34	0.14	98.00	0.93	0.72	0.10	0.35	0 00:01:26
35	Sub-35	0.03	98.00	0.93	0.72	0.02	0.06	0 00:01:00
36	Sub-36	0.56	98.00	0.93	0.72	0.41	1.37	0 00:02:31
37	Sub-37	0.04	98.00	0.93	0.72	0.03	0.10	0 00:01:00
38	Sub-38	0.02	98.00	0.93	0.71	0.01	0.05	0 00:01:00
39	Sub-39	0.10	98.00	0.93	0.72	0.07	0.26	0 00:01:00
40	Sub-40	0.63	98.00	0.93	0.72	0.46	1.40	0 00:04:29
41	Sub-41	0.24	98.00	0.93	0.72	0.17	0.61	0 00:01:36
42	Sub-42	0.01	98.00	0.93	0.71	0.01	0.03	0 00:01:00
43	Sub-43	0.20	98.00	0.93	0.72	0.14	0.49	0 00:01:37
44	Sub-44	0.09	98.00	0.93	0.72	0.06	0.23	0 00:01:00
45	Sub-45	0.49	98.00	0.93	0.72	0.35	1.18	0 00:02:25
46	Sub-46	0.40	98.00	0.93	0.72	0.29	0.98	0 00:02:30
47	Sub-47	2.38	98.00	0.93	0.72	1.72	5.27	0 00:04:28
48	Sub-48	1.32	98.00	0.93	0.72	0.96	2.93	0 00:04:31
49	Sub-49	0.22	98.00	0.93	0.72	0.16	0.53	0 00:02:21
50	Sub-50	0.73	98.00	0.93	0.72	0.53	1.74	0 00:03:12
51	Sub-51	0.32	98.00	0.93	0.72	0.23	0.77	0 00:02:49
52	Sub-52	0.31	98.00	0.93	0.72	0.23	0.74	0 00:03:05

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft ²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	6.45	Junction	4385.42	4388.38	4385.42	4388.38	0.00	3.51	4386.02	0.00	2.35	0 00:00	0.00	0.00
2	19.15	Junction	4388.22	4392.20	4388.68	4392.20	0.00	10.99	4389.44	0.00	2.76	0 00:00	0.00	0.00
3	93	Junction	4381.02	4387.96	4381.02	4387.96	0.00	29.55	4382.69	0.00	5.27	0 00:00	0.00	0.00
4	94	Junction	4381.72	4388.05	4381.72	4388.05	0.00	28.18	4383.39	0.00	4.65	0 00:00	0.00	0.00
5	96	Junction	4385.50	4388.37	4385.50	4388.37	0.00	1.66	4386.10	0.00	2.26	0 00:00	0.00	0.00
6	97	Junction	4382.00	4388.82	4382.00	4388.82	0.00	25.16	4383.73	0.00	5.08	0 00:00	0.00	0.00
7	98	Junction	4382.92	4388.95	4382.92	4388.95	0.00	24.06	4384.66	0.00	4.29	0 00:00	0.00	0.00
8	99	Junction	4383.86	4390.31	4383.86	4390.31	0.00	20.92	4387.15	0.00	3.16	0 00:00	0.00	0.00
9	100	Junction	4387.00	4393.63	4387.00	4393.63	0.00	8.65	4387.98	0.00	5.65	0 00:00	0.00	0.00
10	101	Junction	4386.45	4392.16	4386.88	4392.16	0.00	14.96	4388.17	0.00	3.99	0 00:00	0.00	0.00
11	105	Junction	4387.61	4390.39	4387.61	4390.39	0.00	4.97	4388.61	0.00	1.78	0 00:00	0.00	0.00
12	106	Junction	4387.80	4389.95	4387.80	4389.95	0.00	2.77	4388.50	0.00	1.45	0 00:00	0.00	0.00
13	109	Junction	4385.96	4390.67	4385.96	4390.67	0.00	9.42	4387.18	0.00	3.49	0 00:00	0.00	0.00
14	110	Junction	4384.83	4391.28	4384.83	4391.28	0.00	11.74	4387.59	0.00	3.70	0 00:00	0.00	0.00
15	112	Junction	4389.89	4394.06	4389.89	4394.06	0.00	8.14	4391.82	0.00	2.24	0 00:00	0.00	0.00
16	113	Junction	4390.77	4396.45	4390.77	4396.45	0.00	1.50	4392.26	0.00	4.19	0 00:00	0.00	0.00
17	114	Junction	4391.49	4394.91	4391.49	4394.91	0.00	4.08	4393.07	0.00	1.84	0 00:00	0.00	0.00
18	115	Junction	4390.50	4395.34	4390.50	4395.34	0.00	1.42	4391.05	0.00	4.29	0 00:00	0.00	0.00
19	116	Junction	4389.99	4394.17	4389.99	4394.17	0.00	4.12	4391.92	0.00	2.25	0 00:00	0.00	0.00
20	117	Junction	4391.17	4395.59	4391.17	4395.59	0.00	1.32	4391.69	0.00	3.90	0 00:00	0.00	0.00
21	118	Junction	4390.62	4395.90	4390.62	4395.90	0.00	2.75	4392.32	0.00	3.58	0 00:00	0.00	0.00
22	119	Junction	4390.42	4394.06	4390.42	4394.06	0.00	2.55	4392.08	0.00	1.97	0 00:00	0.00	0.00
23	120	Junction	4390.79	4396.66	4390.79	4396.66	0.00	1.49	4391.28	0.00	5.38	0 00:00	0.00	0.00
24	126	Junction	4405.35	4409.24	4405.35	4409.24	0.00	3.57	4406.95	0.00	2.29	0 00:00	0.00	0.00
25	128	Junction	4405.97	4408.91	4405.97	4408.91	0.00	2.51	4407.37	0.00	1.54	0 00:00	0.00	0.00
26	134	Junction	4403.45	4410.56	4403.45	4410.56	0.00	0.03	4404.53	0.00	6.03	0 00:00	0.00	0.00
27	134(1)	Junction	4403.59	4409.43	4403.59	4409.43	0.00	5.89	4405.36	0.00	4.07	0 00:00	0.00	0.00
28	135	Junction	4399.80	4404.33	4399.80	4404.33	0.00	1.17	4401.01	0.00	3.32	0 00:00	0.00	0.00
29	136	Junction	4399.81	4404.34	4399.81	4404.34	0.00	0.97	4401.00	0.00	3.34	0 00:00	0.00	0.00
30	144	Junction	4403.00	4406.53	4403.00	4406.53	0.00	8.00	4404.81	0.00	1.72	0 00:00	0.00	0.00
31	155	Junction	4383.55	4388.95	4383.55	4388.95	0.00	22.32	4385.19	0.00	3.75	0 00:00	0.00	0.00
32	171	Junction	4404.79	4408.79	4404.79	4408.79	0.00	0.61	4406.08	0.00	2.71	0 00:00	0.00	0.00
33	172	Junction	4388.84	4392.41	4388.84	4392.41	0.00	1.14	4390.07	0.00	2.34	0 00:00	0.00	0.00
34	175	Junction	4387.47	4392.20	4387.92	4392.20	0.00	14.03	4388.92	0.00	3.28	0 00:00	0.00	0.00
35	178	Junction	4391.10	4394.98	4391.10	4394.98	0.00	7.82	4392.18	0.00	2.80	0 00:00	0.00	0.00
36	179	Junction	4391.37	4395.81	4391.37	4395.81	0.00	2.15	4392.08	0.00	3.73	0 00:00	0.00	0.00
37	180	Junction	4405.20	4408.14	4405.20	4408.14	0.00	0.77	4406.32	0.00	1.82	0 00:00	0.00	0.00
38	181	Junction	4392.44	4405.06	4392.44	4405.06	0.00	9.97	4394.80	0.00	10.27	0 00:00	0.00	0.00
39	182	Junction	4396.24	4402.71	4396.24	4402.71	0.00	1.17	4396.71	0.00	6.00	0 00:00	0.00	0.00
40	185	Junction	4403.38	4410.29	4403.38	4410.29	0.00	7.54	4405.19	0.00	5.10	0 00:00	0.00	0.00
41	186	Junction	4378.03	4388.66	4378.03	4388.66	0.00	29.56	4381.50	0.00	7.16	0 00:00	0.00	0.00
42	199	Junction	4390.60	4393.04	4390.60	4393.04	0.00	7.77	4391.66	0.00	1.37	0 00:00	0.00	0.00
43	234	Junction	4405.02	4410.46	4405.02	4410.46	0.00	0.41	4406.27	0.00	4.18	0 00:00	0.00	0.00
44	235	Junction	4404.53	4410.45	4404.53	4410.45	0.00	0.99	4405.93	0.00	4.52	0 00:00	0.00	0.00
45	236	Junction	4404.22	4407.16	4404.22	4407.16	0.00	1.67	4405.71	0.00	1.45	0 00:00	0.00	0.00
46	237	Junction	4404.91	4408.45	4404.91	4408.45	0.00	5.68	4406.66	0.00	1.79	0 00:00	0.00	0.00
47	238	Junction	4404.08	4413.35	4404.08	4413.35	0.00	5.91	4405.86	0.00	7.50	0 00:00	0.00	0.00
48	239	Junction	4404.32	4410.46	4404.32	4410.46	0.00	0.05	4405.41	0.00	5.05	0 00:00	0.00	0.00
49	240	Junction	4404.21	4410.57	4404.21	4410.57	0.00	0.06	4406.33	0.00	4.24	0 00:00	0.00	0.00
50	241	Junction	4403.56	4410.30	4403.56	4410.30	0.00	0.23	4405.78	0.00	4.52	0 00:00	0.00	0.00
51	242	Junction	4404.38	4409.87	4404.38	4409.87	0.00	5.89	4406.15	0.00	3.72	0 00:00	0.00	0.00
52	Jun-01	Junction	4395.70	4404.00	4395.70	4404.00	0.00	2.06	4396.16	0.00	7.84	0 00:00	0.00	0.00
53	Outlet	Outfall	4376.68					2.75	4376.68					
54	Detention_Basin	Storage Node	4386.00	4391.00	4386.00		0.00	14.95	4389.95				0.00	0.00
55	Mercedes_Storage	Storage Node	4292.44	4298.44	4292.44		0.00	9.95	4298.05				0.00	0.00
56	Prestige_Storage	Storage Node	4378.00	4386.00	4378.00		0.00	29.93	4385.66				0.00	0.00

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 Capacity (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
1	{ Storm Drain } Pipe - (134) (Storm Drain)	175	101	202.90	4387.47	4386.45	0.5000	24.000	0.0130	13.96	16.04	0.87	5.83	1.38	0.72
2	{ Storm Drain } Pipe - (135) (Storm Drain)	19.15	175	150.52	4388.22	4387.47	0.5000	24.000	0.0130	10.98	15.97	0.69	5.51	1.18	0.61
3	{ Storm Drain } Pipe - (137) (Storm Drain)	199	19.15	165.15	4390.61	4388.22	1.4500	21.000	0.0130	7.74	19.06	0.41	7.54	0.75	0.44
4	{ Storm Drain } Pipe - (138) (Storm Drain)	179	110	53.72	4391.37	4391.10	0.5000	12.000	0.0130	2.10	2.52	0.83	3.64	0.70	0.70
5	{ Storm Drain } Pipe - (140) (Storm Drain)	172	110	110.00	4389.84	4387.35	0.5000	15.000	0.0130	1.13	14.53	0.08	7.02	0.24	0.19
6	{ Storm Drain } Pipe - (146) (Storm Drain)	93	186	15.00	4391.02	4390.50	3.4700	36.000	0.0130	29.56	124.19	0.24	14.40	0.93	0.33
7	{ Storm Drain } Pipe - (160) (Storm Drain)	178	199	99.30	4391.11	4390.60	0.5100	21.000	0.0130	7.77	11.34	0.68	5.11	1.04	0.61
8	{ Storm Drain } Pipe - (179) (Storm Drain)	234	235	96.28	4406.02	4405.54	0.5000	15.000	0.0130	0.40	4.58	0.69	2.33	0.25	0.20
9	{ Storm Drain } Pipe - (180) (Storm Drain)	235	236	62.62	4405.54	4405.22	0.5000	15.000	0.0130	0.99	4.56	0.22	2.98	0.39	0.32
10	{ Storm Drain } Pipe - (181) (Storm Drain)	236	185	168.01	4405.22	4404.14	0.6400	15.000	0.0130	1.65	5.19	0.32	3.81	0.48	0.39
11	{ Storm Drain } Pipe - (182) (Storm Drain)	171	235	22.29	4405.79	4405.53	1.1700	10.000	0.0130	0.61	2.37	0.26	3.62	0.29	0.35
12	{ Storm Drain } Pipe - (183) (Storm Drain)	134	185	12.92	4404.45	4404.38	0.5000	9.996	0.0130	0.03	1.55	0.02	1.13	0.08	0.10
13	{ Storm Drain } Pipe - (185) (Storm Drain)	238	134(1)	98.92	4404.84	4404.35	0.5000	18.000	0.0130	5.89	7.39	0.80	4.68	0.96	0.68
14	{ Storm Drain } Pipe - (186) (Storm Drain)	239	238	47.75	4405.32	4404.84	1.0100	10.000	0.0130	0.05	2.20	0.02	1.63	0.09	0.10
15	{ Storm Drain } Pipe - (187) (Storm Drain)	240	234	38.37	4406.21	4406.02	0.5000	10.000	0.0130	0.66	1.55	0.04	1.41	0.11	0.14
16	{ Storm Drain } Pipe - (188) (Storm Drain)	241	236	68.58	4405.56	4405.22	0.5000	10.000	0.0130	0.22	1.55	0.14	2.05	0.21	0.25
17	{ Storm Drain } Pipe - (189) (Storm Drain)	180	237	57.63	4405.97	4405.68	0.5000	15.000	0.0130	0.75	4.58	0.16	2.79	0.34	0.28
18	{ Storm Drain } Pipe - (190) (Storm Drain)	237	242	107.18	4405.68	4405.14	0.5000	18.000	0.0130	5.65	7.46	0.76	4.68	0.96	0.67
19	{ Storm Drain } Pipe - (191) (Storm Drain)	242	238	59.75	4405.14	4404.84	0.5000	18.000	0.0130	5.87	7.44	0.79	4.68	0.97	0.67
20	{ Storm Drain } Pipe - (192) (Storm Drain)	134(1)	185	41.75	4404.35	4404.14	0.5000	18.000	0.0130	5.86	7.45	0.79	4.68	0.94	0.67
21	{ Storm Drain } Pipe - (193) (Storm Drain)	185	144	75.36	4404.14	4403.76	0.5000	21.000	0.0130	7.51	11.25	0.67	5.02	0.98	0.60
22	{ Storm Drain } Pipe - (195) (Storm Drain)	144	181	33.14	4403.76	4394.43	28.1500	21.000	0.0130	8.00	84.07	0.10	22.05	0.35	0.21
23	{ Storm Drain } Pipe - (196) (Storm Drain)	182	126	143.43	4396.24	4395.70	0.3800	15.000	0.0130	1.14	3.96	0.29	2.84	0.46	0.36
24	{ Storm Drain } Pipe - (198) (Storm Drain)	128	126	119.60	4406.71	4406.12	0.4900	15.000	0.0130	2.46	4.54	0.54	3.82	0.65	0.52
25	{ Storm Drain } Pipe - (200) (Storm Drain)	126	237	87.49	4406.12	4405.68	0.5000	15.000	0.0130	3.56	4.58	0.78	4.16	0.82	0.66
26	{ Storm Drain } Pipe - (203) (Storm Drain)	181	119	128.70	4392.44	4292.44	77.7000	21.000	0.0130	9.95	139.67	0.07	33.64	0.31	0.18
27	{ Storm Drain } Pipe - (204) (Storm Drain)	120	119	75.18	4390.79	4390.42	0.5000	15.000	0.0130	1.47	4.57	0.32	3.34	0.49	0.39
28	{ Storm Drain } Pipe - (205) (Storm Drain)	119	112	104.03	4391.42	4390.90	0.5000	15.000	0.0130	2.54	4.57	0.56	3.85	0.66	0.53
29	{ Storm Drain } Pipe - (66) (Storm Drain)	94	93	141.02	4381.72	4381.02	0.5000	36.000	0.0130	28.08	46.99	0.60	6.96	1.55	0.56
30	{ Storm Drain } Pipe - (67) (Storm Drain)	6.45	94	119.46	4385.42	4381.72	3.1000	12.000	0.0130	3.43	6.27	0.55	8.25	0.53	0.53
31	{ Storm Drain } Pipe - (68) (Storm Drain)	96	6.45	16.80	4385.50	4385.42	0.4800	12.000	0.0130	1.65	2.48	0.67	3.35	0.60	0.60
32	{ Storm Drain } Pipe - (69) (Storm Drain)	97	94	55.67	4382.00	4381.72	0.5000	36.000	0.0130	25.12	47.30	0.53	6.80	1.43	0.52
33	{ Storm Drain } Pipe - (70) (Storm Drain)	98	97	184.32	4382.92	4382.00	0.5000	30.000	0.0130	23.97	28.98	0.83	6.65	1.60	0.69
34	{ Storm Drain } Pipe - (71) (Storm Drain)	99	155	60.44	4383.86	4383.55	0.5100	30.000	0.0130	20.85	29.38	0.71	6.50	1.47	0.62
35	{ Storm Drain } Pipe - (71) (Storm Drain)	155	98	126.00	4383.55	4382.92	1.1700	18.000	0.0130	8.67	11.35	0.76	7.08	0.95	0.65
36	{ Storm Drain } Pipe - (72) (Storm Drain)	100	99	71.04	4387.00	4386.17	1.5000	18.000	0.0130	8.67	11.35	0.76	7.08	0.95	0.65
37	{ Storm Drain } Pipe - (75) (Storm Drain)	106	105	37.98	4387.80	4387.61	0.5000	15.000	0.0130	2.72	4.57	0.60	3.90	0.70	0.56
38	{ Storm Drain } Pipe - (79) (Storm Drain)	109	110	220.40	4385.96	4384.83	0.5100	21.000	0.0130	9.34	11.35	0.82	5.34	1.17	0.69
39	{ Storm Drain } Pipe - (80) (Storm Drain)	110	99	194.29	4384.83	4383.86	0.5000	24.000	0.0130	11.68	15.98	0.73	5.60	1.21	0.64
40	{ Storm Drain } Pipe - (81) (Storm Drain)	112	100	186.51	4390.89	4387.00	2.0900	15.000	0.0130	8.07	9.33	0.86	8.63	0.87	0.72
41	{ Storm Drain } Pipe - (82) (1) (Storm Drain)	113	118	29.20	4391.77	4391.62	0.5000	15.000	0.0130	1.48	4.57	0.32	3.33	0.49	0.39
42	{ Storm Drain } Pipe - (82) (1) (Storm Drain)	118	116	125.09	4391.62	4390.99	0.5000	15.000	0.0130	2.73	4.57	0.60	3.95	0.69	0.56
43	{ Storm Drain } Pipe - (82) (1) (Storm Drain)	116	112	20.50	4390.99	4390.89	0.5000	15.000	0.0130	4.10	4.56	0.90	4.20	0.90	0.74
44	01	136	Jun-01	24.50	4400.82	4395.70	20.9000	10.000	0.0130	0.97	10.02	0.10	11.64	0.18	0.21
45	02	135	182	24.50	4400.81	4396.24	18.6500	10.000	0.0130	1.17	9.46	0.12	11.81	0.20	0.24
46	03	181	181	66.59	4395.70	4392.44	4.9000	96.000	0.0130	2.07	2018.07	0.00	6.45	0.19	0.02
47	04	115	116	100.83	4390.50	4389.99	0.5000	10.000	0.0110	1.39	1.83	0.76	3.76	0.54	0.65
48	05	117	118	108.97	4391.17	4390.62	0.5100	10.000	0.0110	1.29	1.84	0.70	3.72	0.51	0.62
49	06	186	186	5.00	4378.03	4378.00	0.5000	36.000	0.0150	29.96	40.87	0.72	6.30	1.74	0.63
50	08	101	178	84.77	4386.88	4386.00	1.0400	24.000	0.0150	14.95	20.00	0.61	6.99	1.21	0.64
51	09	114	178	219.00	4392.20	4391.11	0.5000	18.000	0.0150	3.95	6.42	0.61	3.89	0.84	0.56
52	11	105	109	336.08	4387.61	4385.96	0.4900	18.000	0.0150	4.77	6.38	0.75	4.09	0.95	0.64
53	Ford_Lincoln	Detention_Basin	Prestige_Storage		4386.00	4378.00		3.250		0.55					
54	Mercedes	Orifice	Mercedes_Storage		4292.44	4390.79		2.250		0.32					
55	Prestige	Orifice	Prestige_Storage		4378.00	4376.68		6.130		2.75					

Subbasin Hydrology

Subbasin : Sub-01

Input Data

Area (ac) 0.63
 Weighted Curve Number 74.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	0.63	C	74.00
Composite Area & Weighted CN	0.63		74.00

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 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

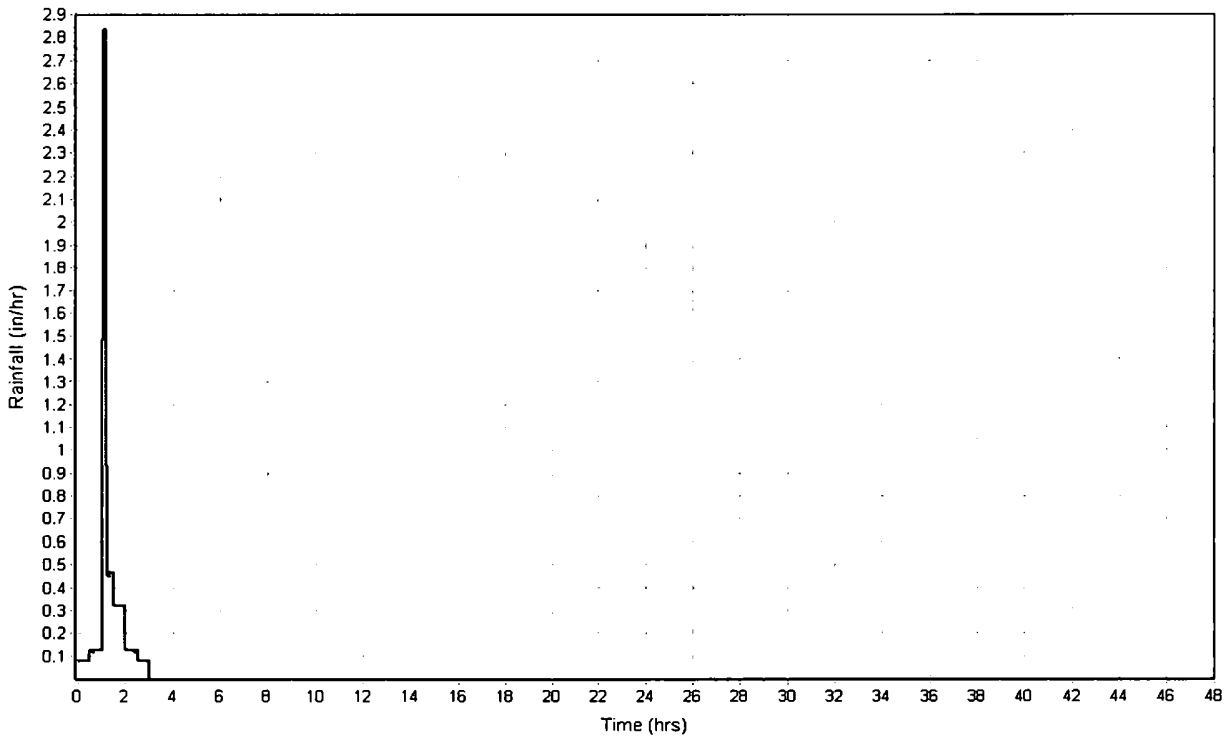
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.4	0.00	0.00
Flow Length (ft) :	79.20	0.00	0.00
Slope (%) :	25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.14	0.00	0.00
Computed Flow Time (min) :	9.51	0.00	0.00
Total TOC (min)	9.51		

Subbasin Runoff Results

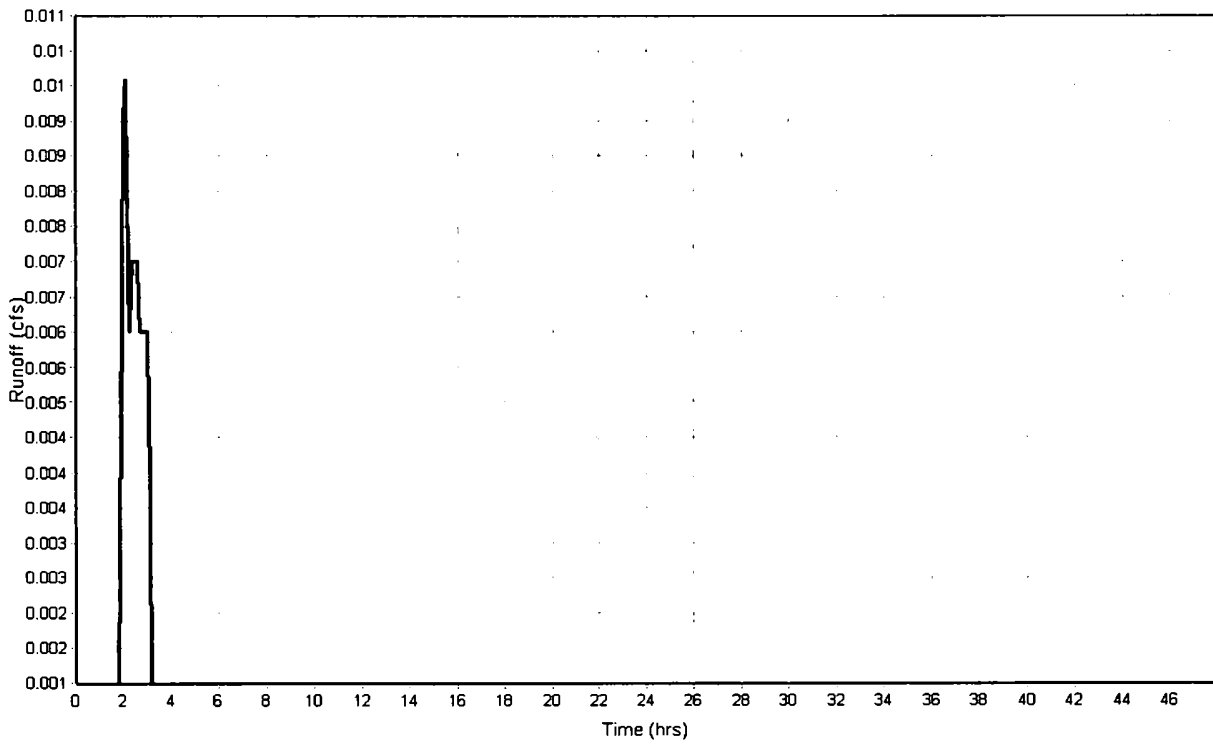
Total Rainfall (in)	0.93
Total Runoff (in)	0.01
Peak Runoff (cfs)	0.01
Weighted Curve Number	74.00
Time of Concentration (days hh:mm:ss)	0 00:09:31

Subbasin : Sub-01

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-02

Input Data

Area (ac) 0.43
 Weighted Curve Number 74.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	0.43	C	74.00
Composite Area & Weighted CN	0.43		74.00

Time of Concentration

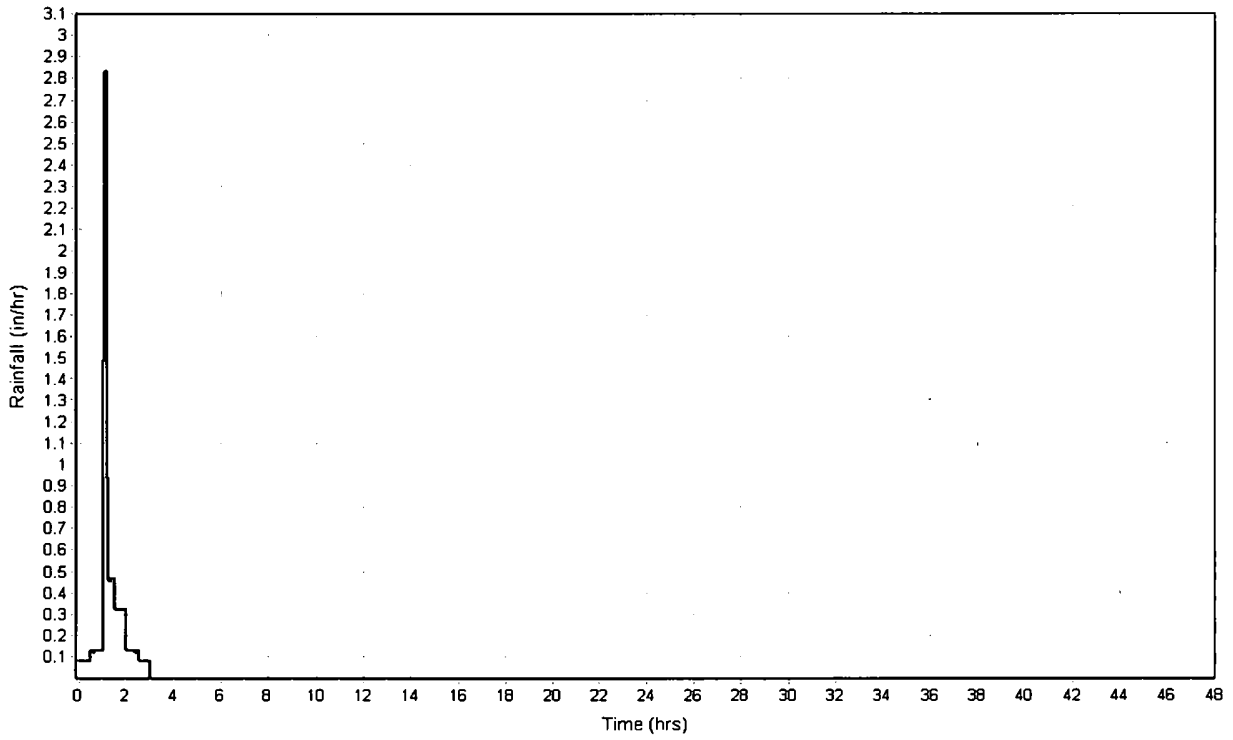
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.4	0.00	0.00
Flow Length (ft) :	101.26	0.00	0.00
Slope (%) :	25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.15	0.00	0.00
Computed Flow Time (min) :	11.57	0.00	0.00
Total TOC (min)	11.57		

Subbasin Runoff Results

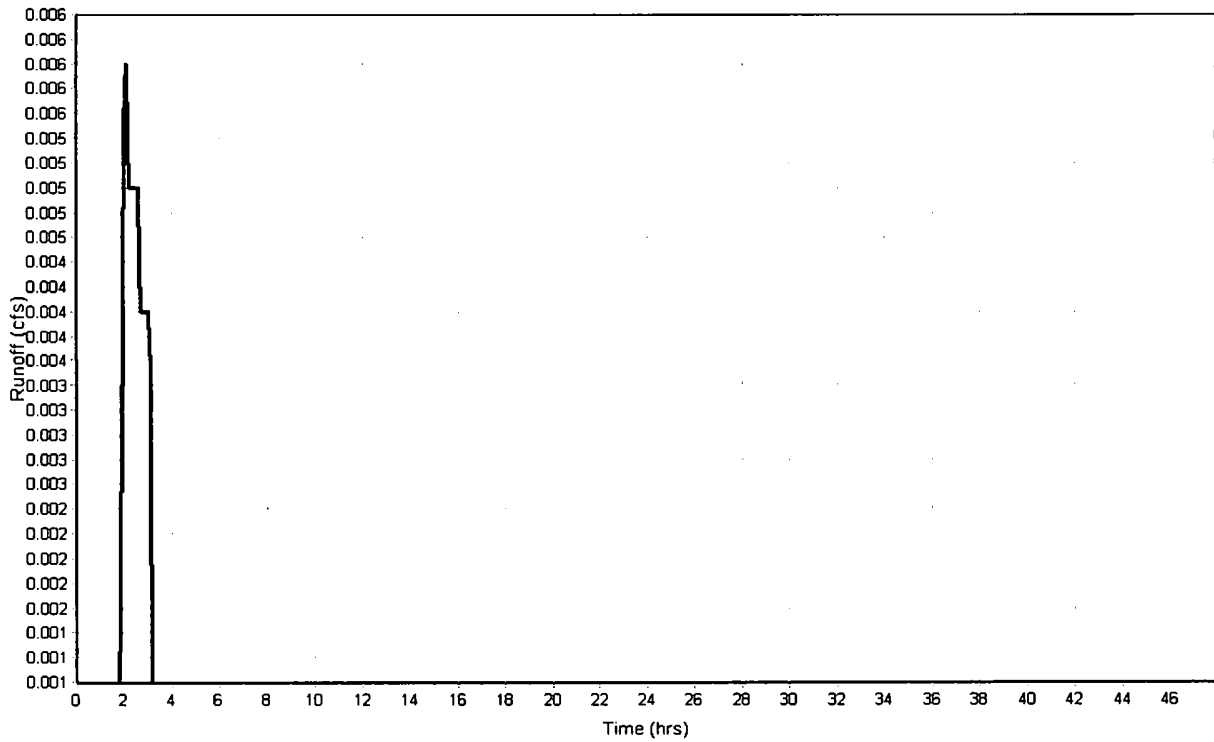
Total Rainfall (in) 0.93
 Total Runoff (in) 0.01
 Peak Runoff (cfs) 0.01
 Weighted Curve Number 74.00
 Time of Concentration (days hh:mm:ss) 0 00:11:34

Subbasin : Sub-02

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-03

Input Data

Area (ac) 0.85
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.85	C	98.00
Composite Area & Weighted CN	0.85		98.00

Time of Concentration

	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	2.75	0.00	0.00
2 yr, 24 hr Rainfall (in) :	4	0.00	0.00
Velocity (ft/sec) :	1.70	0.00	0.00
Computed Flow Time (min) :	2.94	0.00	0.00

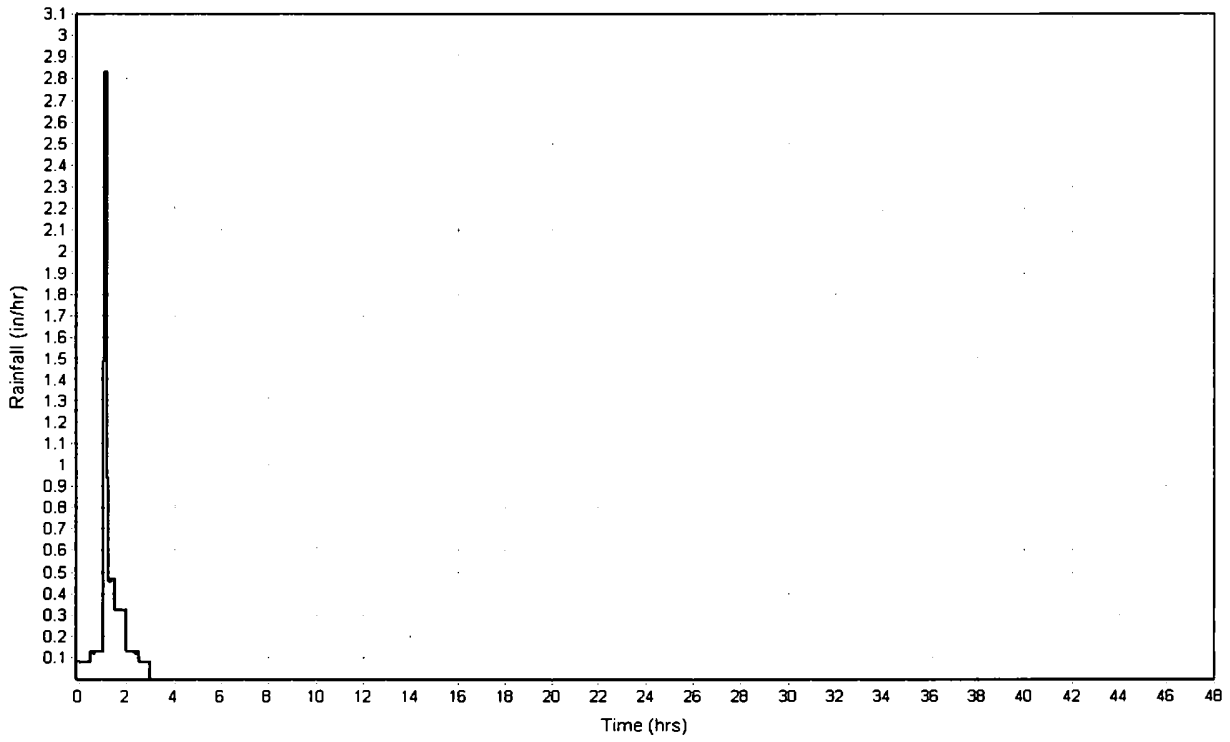
	Subarea	Subarea	Subarea
	A	B	C
Shallow Concentrated Flow Computations			
Flow Length (ft) :	250	0.00	0.00
Slope (%) :	2.75	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	3.37	0.00	0.00
Computed Flow Time (min) :	1.24	0.00	0.00
Total TOC (min) 4.18			

Subbasin Runoff Results

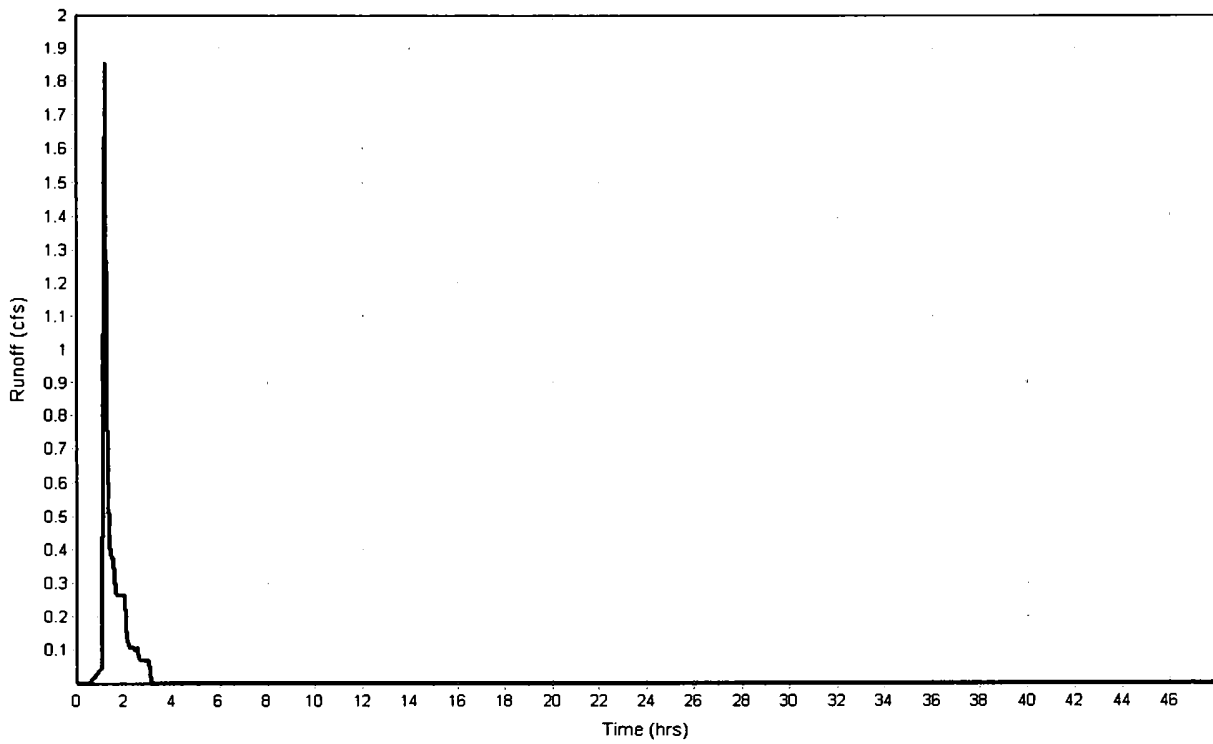
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.91
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:11

Subbasin : Sub-03

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-04

Input Data

Area (ac) 0.48
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.48	C	98.00
Composite Area & Weighted CN	0.48		98.00

Time of Concentration

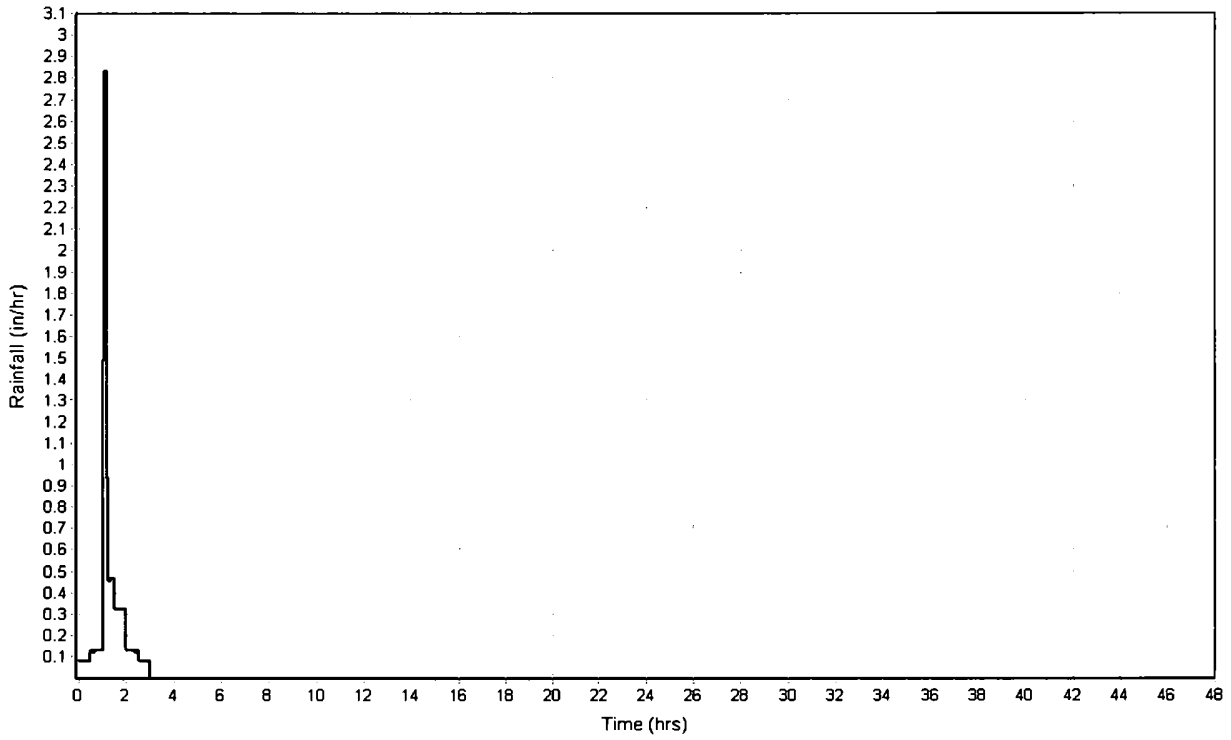
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	104.01	0.00	0.00
Slope (%) :	3.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.92	0.00	0.00
Computed Flow Time (min) :	1.88	0.00	0.00
Total TOC (min)1.88			

Subbasin Runoff Results

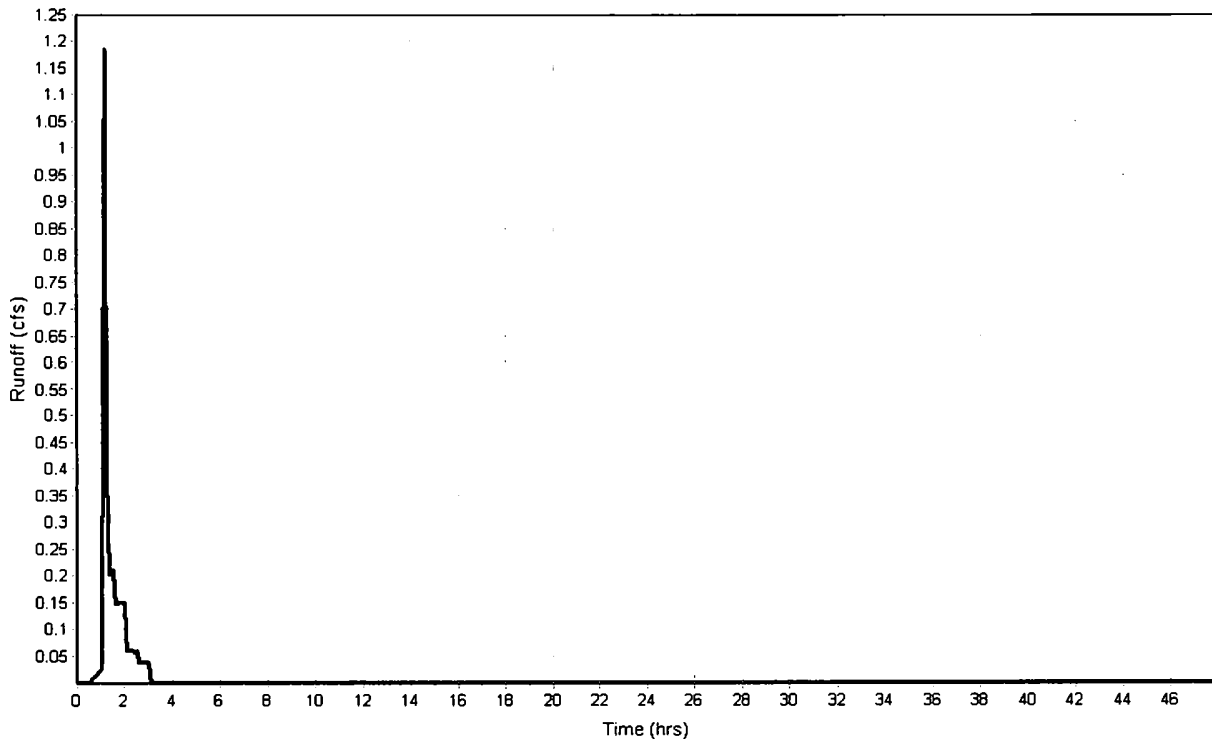
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.19
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:53

Subbasin : Sub-04

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-05

Input Data

Area (ac) 0.69
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.69	C	98.00
Composite Area & Weighted CN	0.69		98.00

Time of Concentration

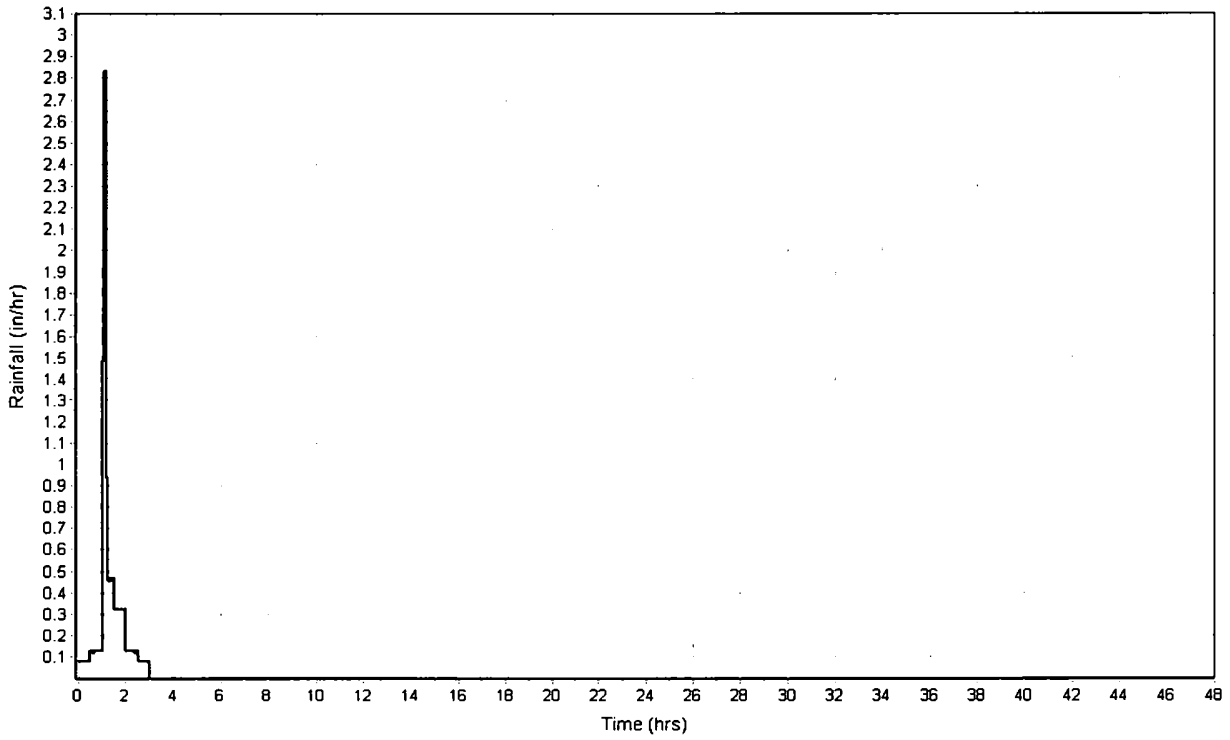
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	195.94	0.00	0.00
Slope (%) :	2.25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.88	0.00	0.00
Computed Flow Time (min) :	3.72	0.00	0.00
Total TOC (min)3.72			

Subbasin Runoff Results

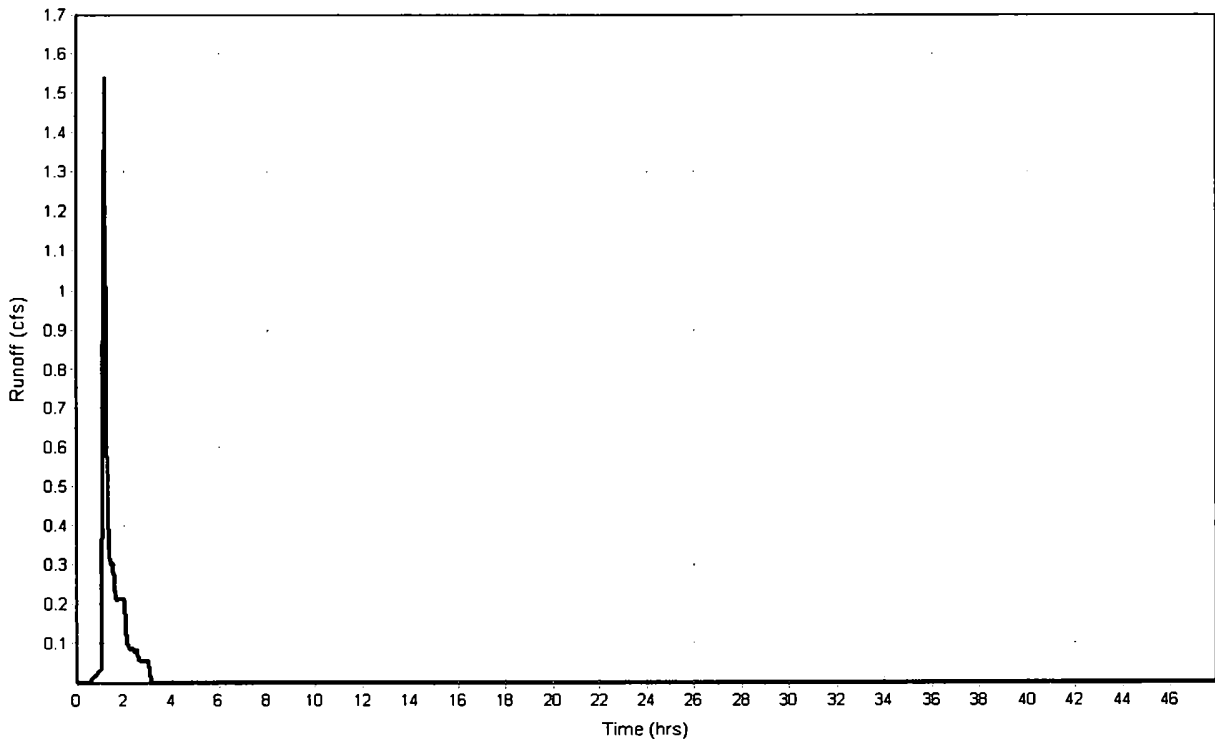
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.58
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:43

Subbasin : Sub-05

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-06

Input Data

Area (ac) 0.46
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.46	C	98.00
Composite Area & Weighted CN	0.46		98.00

Time of Concentration

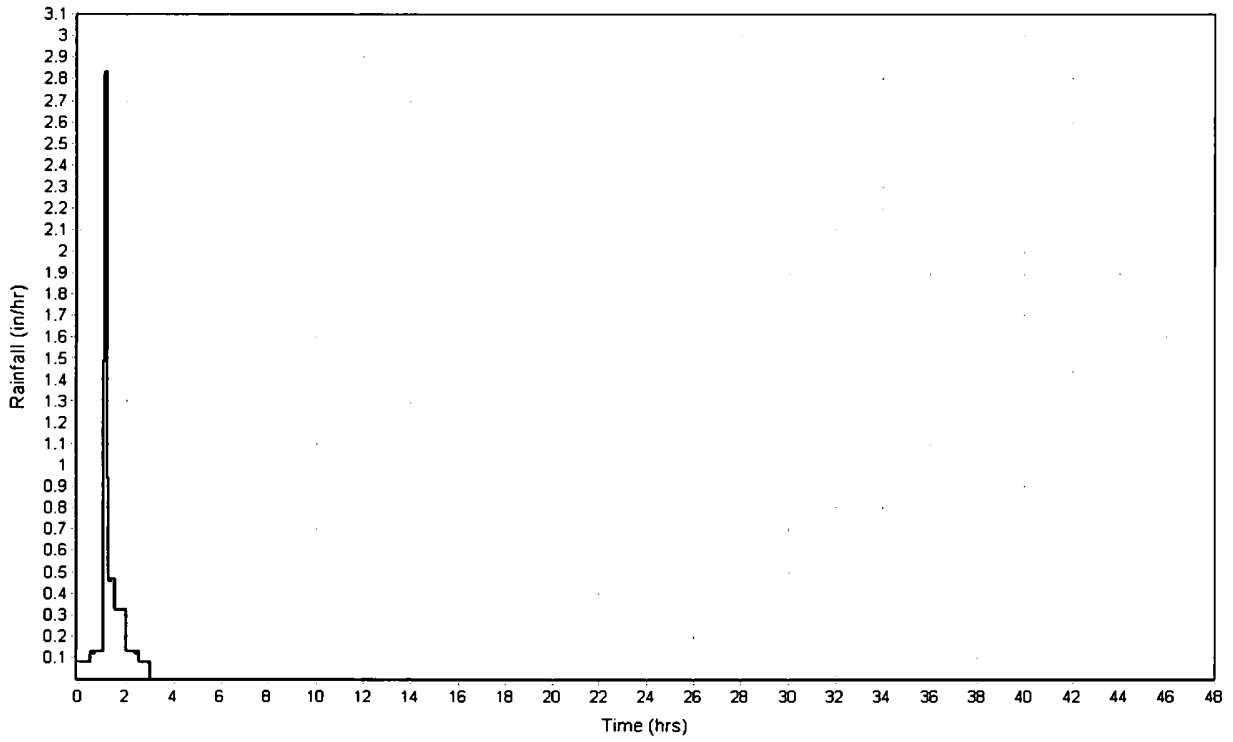
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	156.68	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.80	0.00	0.00
Computed Flow Time (min) :	3.26	0.00	0.00
Total TOC (min)3.26			

Subbasin Runoff Results

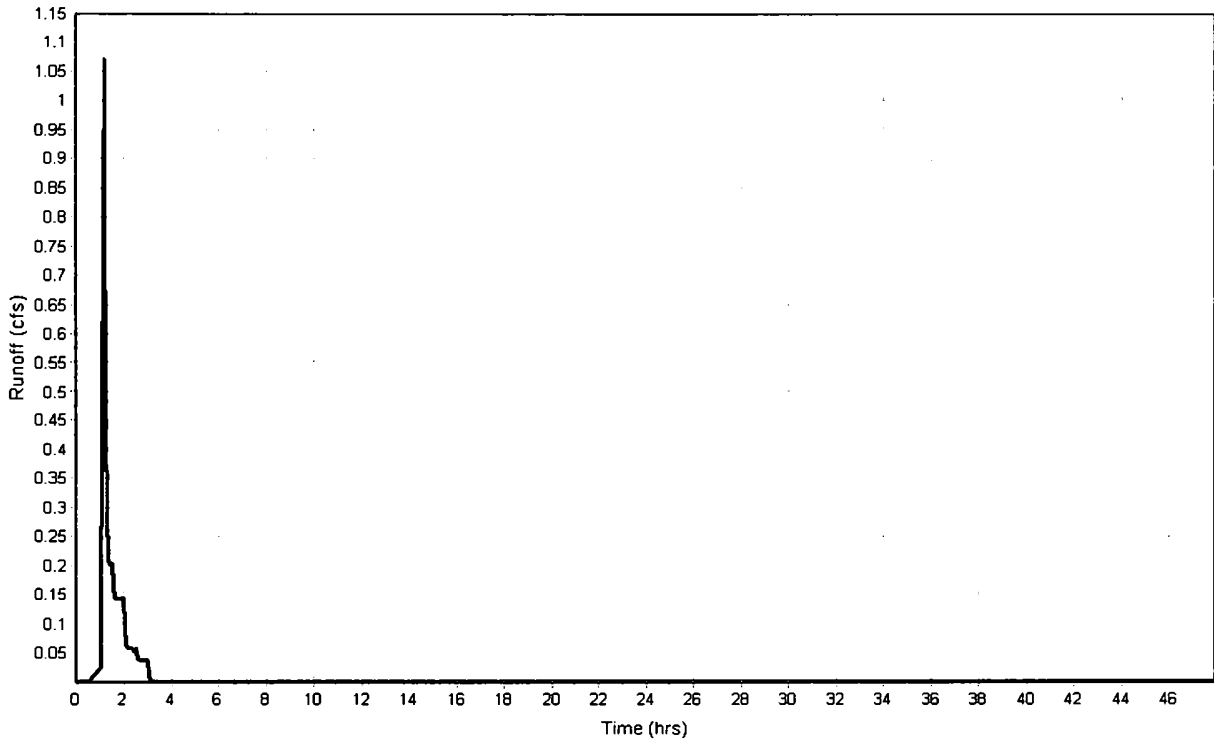
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.09
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:16

Subbasin : Sub-06

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-07

Input Data

Area (ac) 1.27
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.27	C	98.00
Composite Area & Weighted CN	1.27		98.00

Time of Concentration

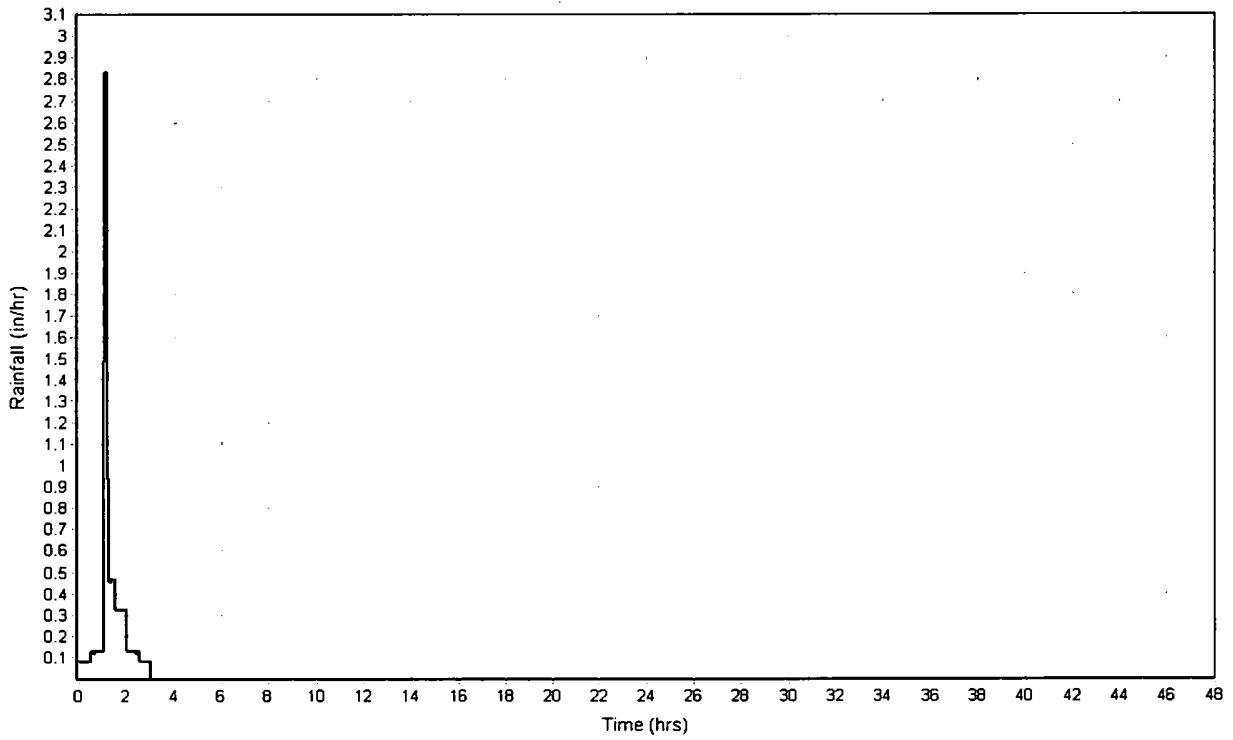
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	2.25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.96	0.00	0.00
Computed Flow Time (min) :	5.23	0.00	0.00
Total TOC (min)5.23			

Subbasin Runoff Results

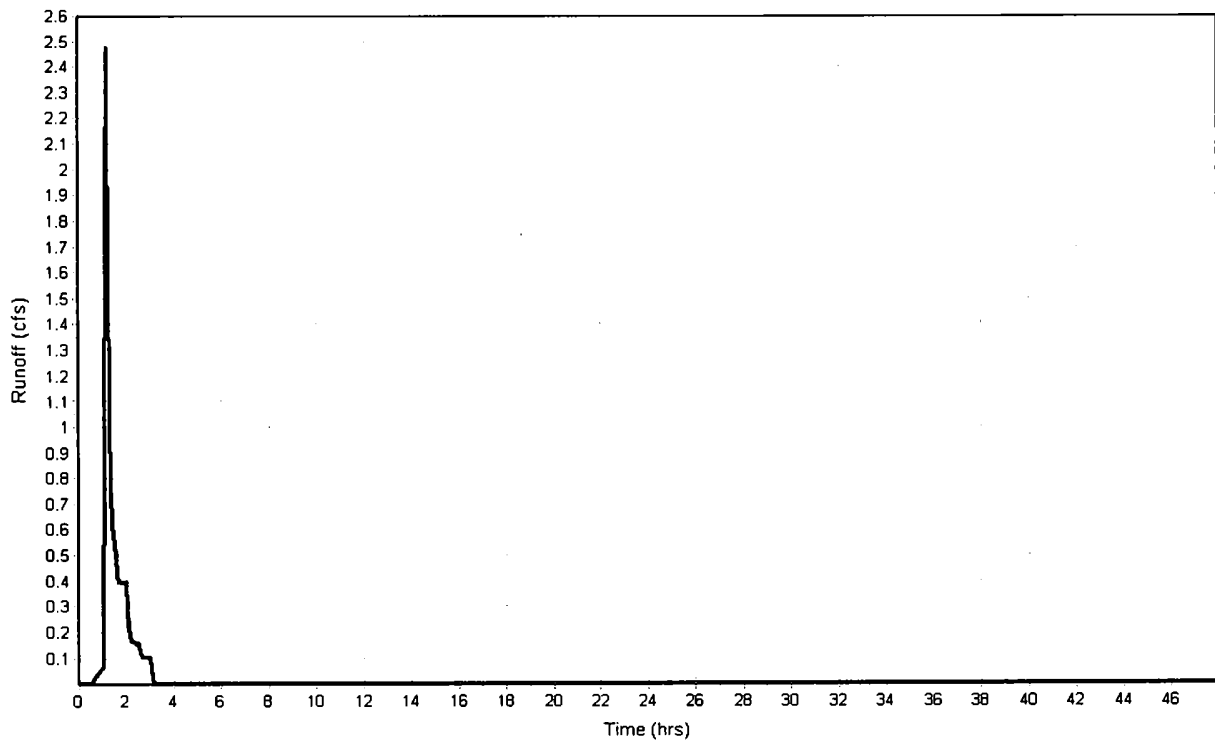
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 2.70
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:05:14

Subbasin : Sub-07

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-08

Input Data

Area (ac) 0.90
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.90	C	98.00
Composite Area & Weighted CN	0.90		98.00

Time of Concentration

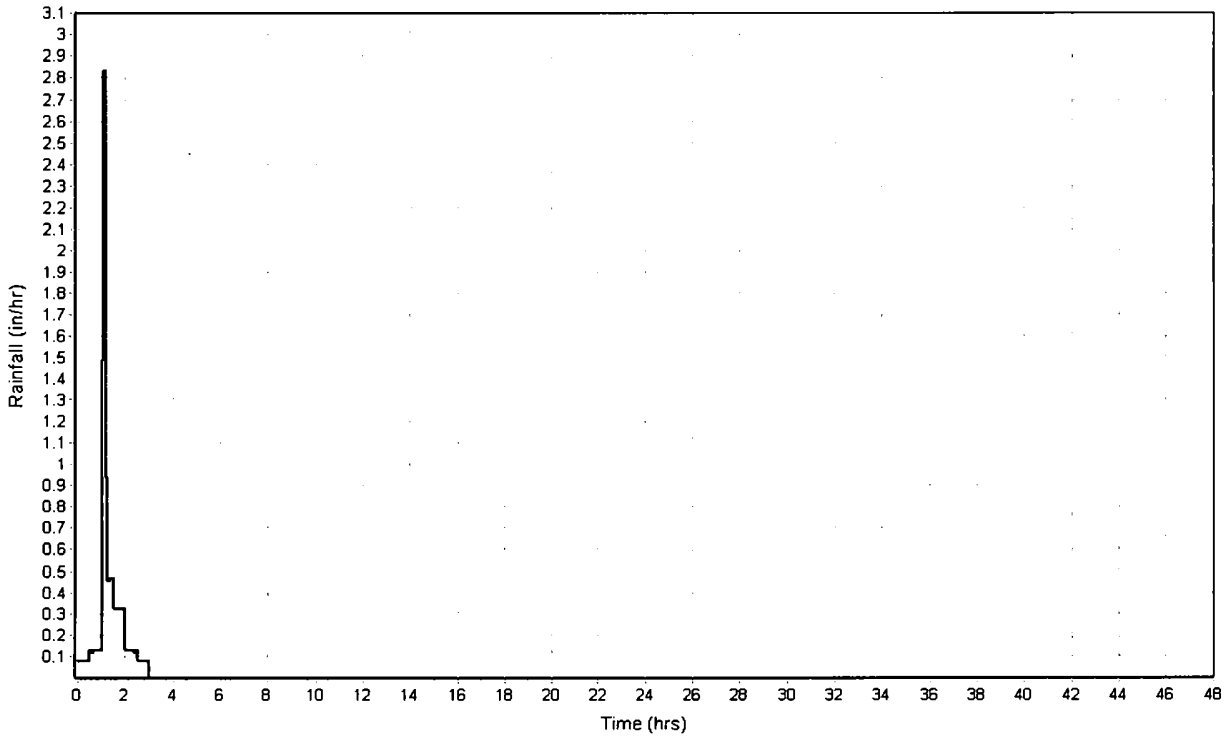
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	152.02	0.00	0.00
Slope (%) :	2.75	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.90	0.00	0.00
Computed Flow Time (min) :	2.80	0.00	0.00
Total TOC (min)	2.80		

Subbasin Runoff Results

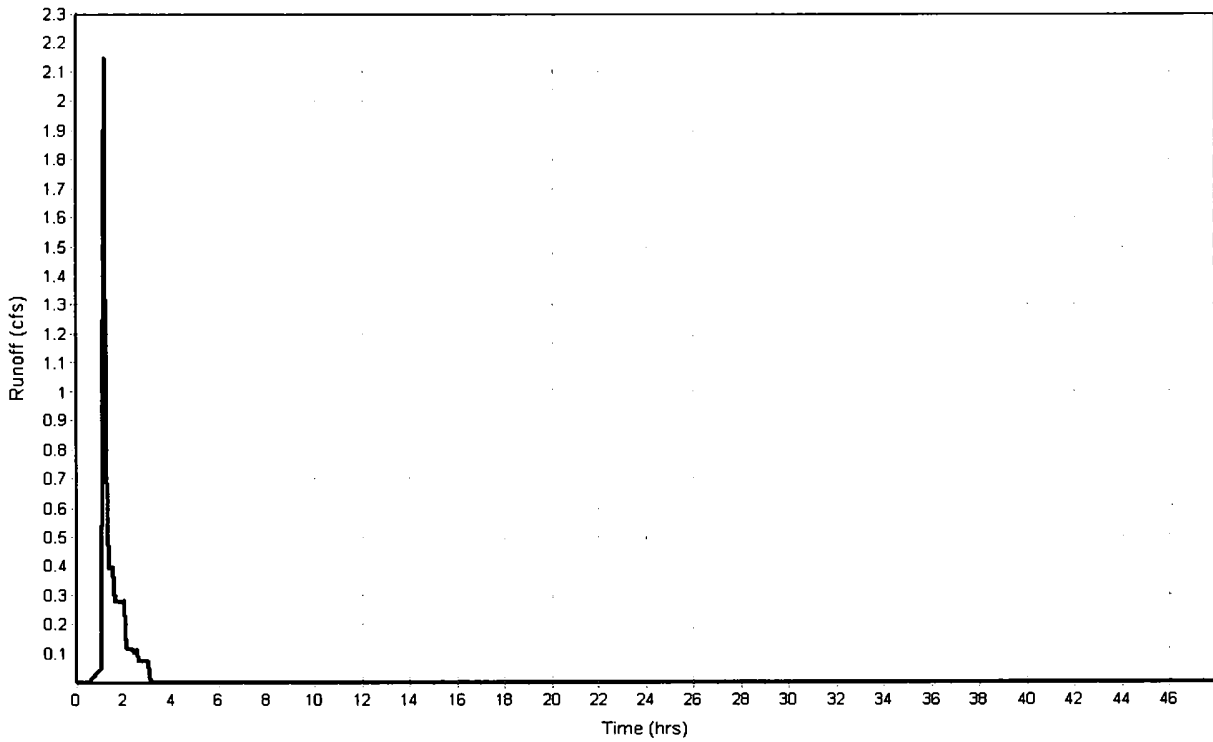
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 2.17
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:48

Subbasin : Sub-08

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-09

Input Data

Area (ac) 0.60
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.60	C	98.00
Composite Area & Weighted CN	0.60		98.00

Time of Concentration

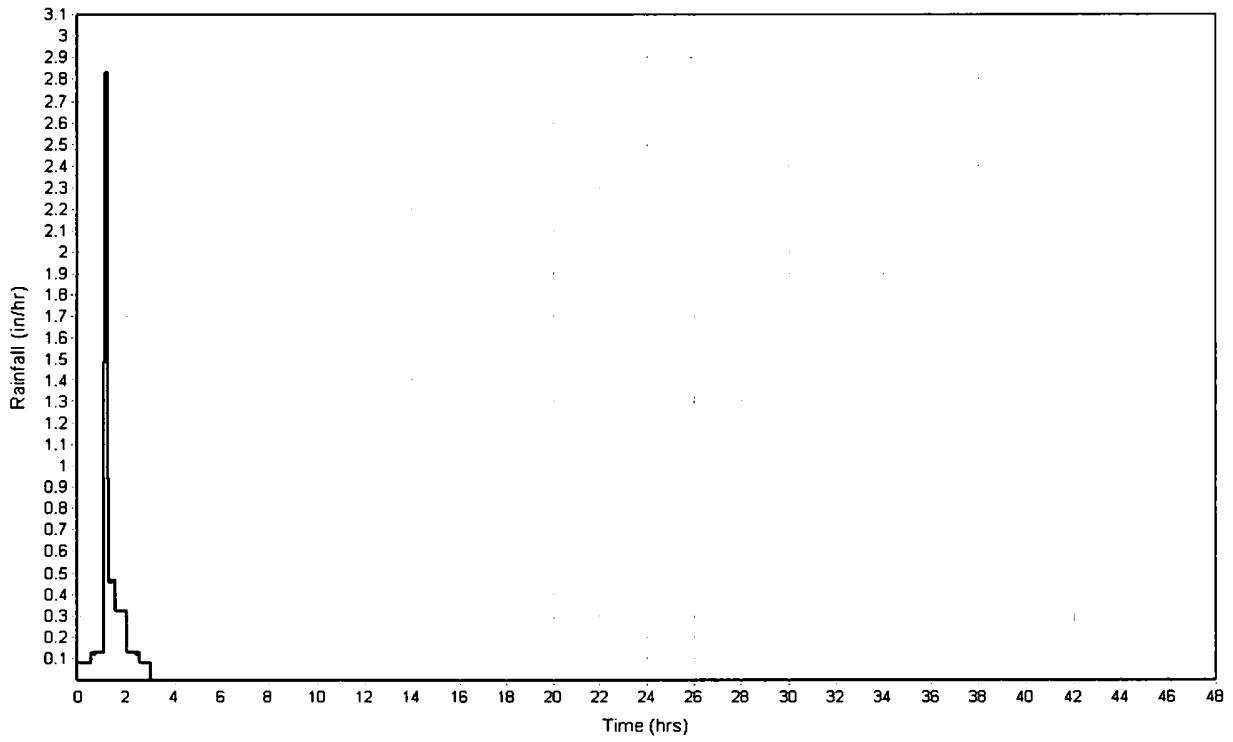
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	48.29	0.00	0.00
Slope (%) :	1.75	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.60	0.00	0.00
Computed Flow Time (min) :	1.34	0.00	0.00
Total TOC (min)	1.34		

Subbasin Runoff Results

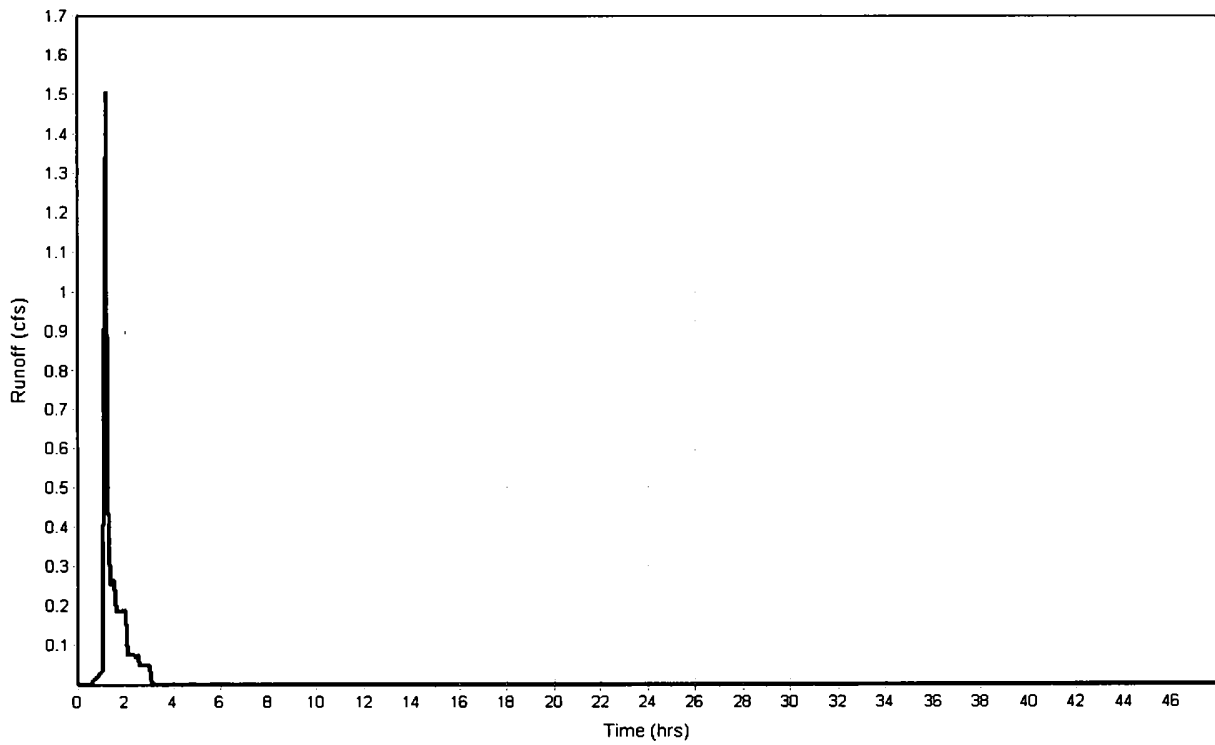
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.50
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:20

Subbasin : Sub-09

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-10

Input Data

Area (ac) 0.16
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.16	C	98.00
Composite Area & Weighted CN	0.16		98.00

Time of Concentration

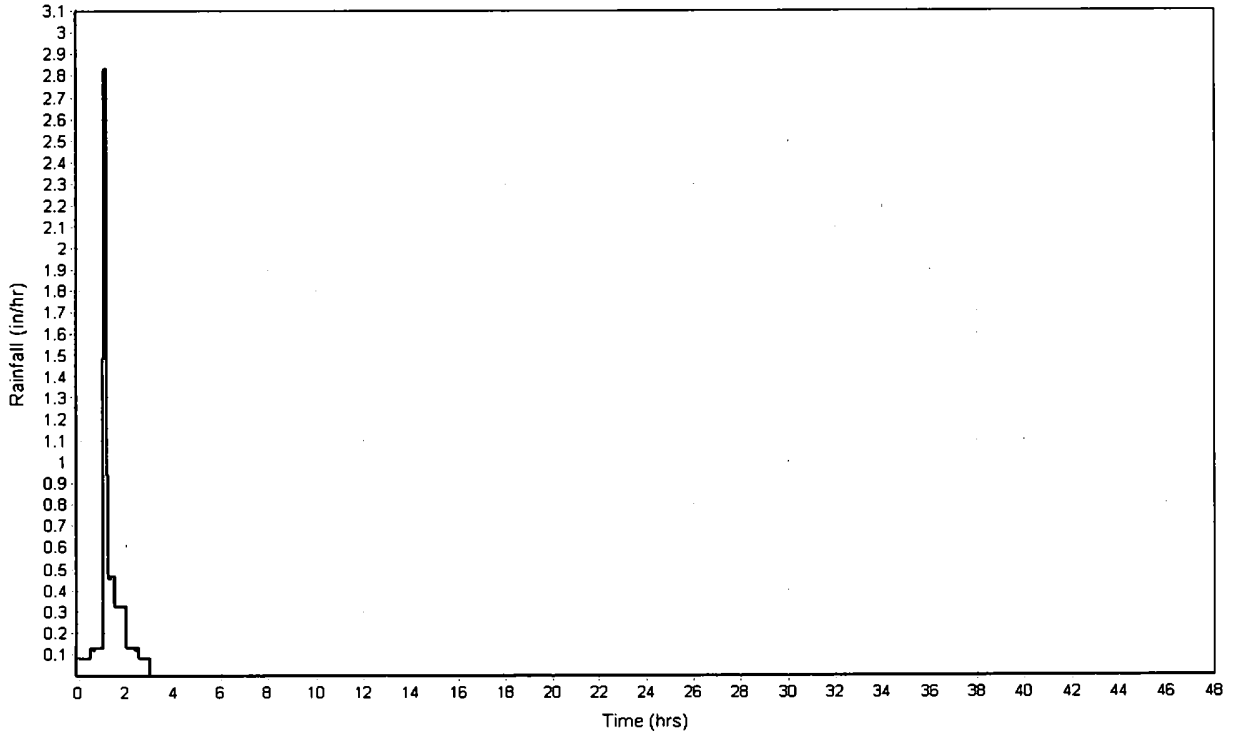
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	42.14	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.55	0.00	0.00
Computed Flow Time (min) :	1.28	0.00	0.00
Total TOC (min)	1.28		

Subbasin Runoff Results

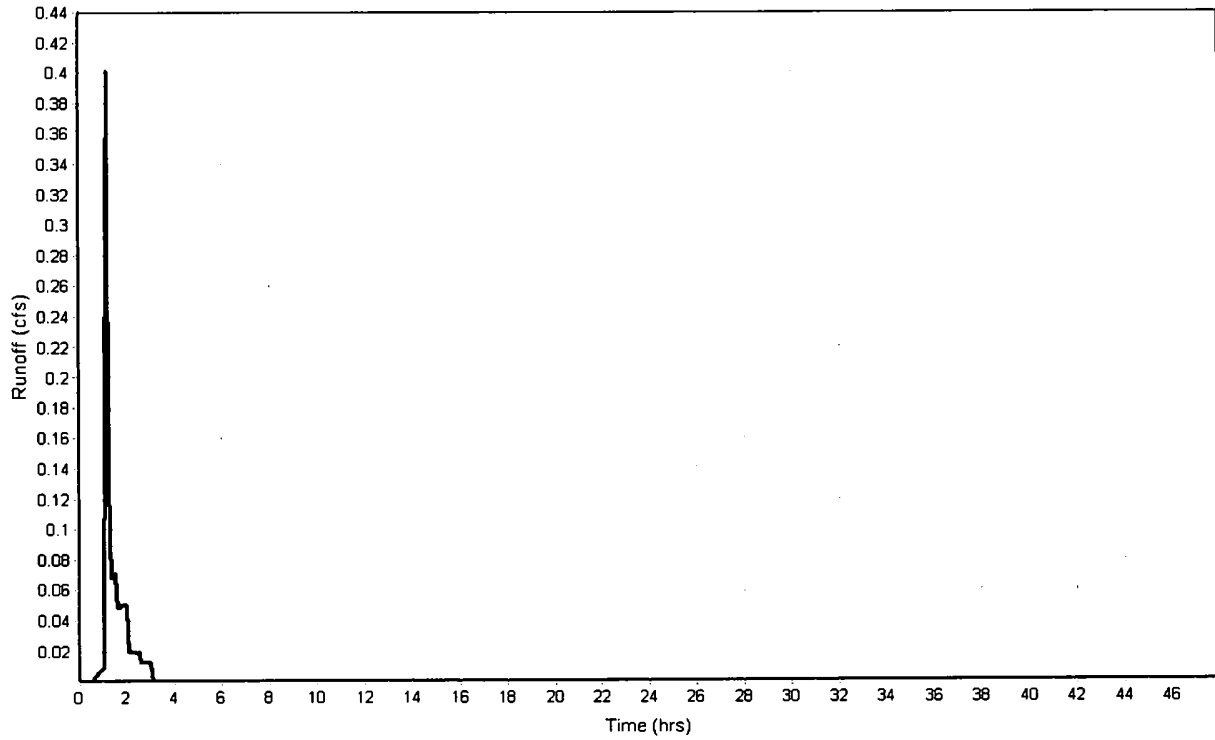
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.40
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:17

Subbasin : Sub-10

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-11

Input Data

Area (ac) 0.35
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.35	C	98.00
Composite Area & Weighted CN	0.35		98.00

Time of Concentration

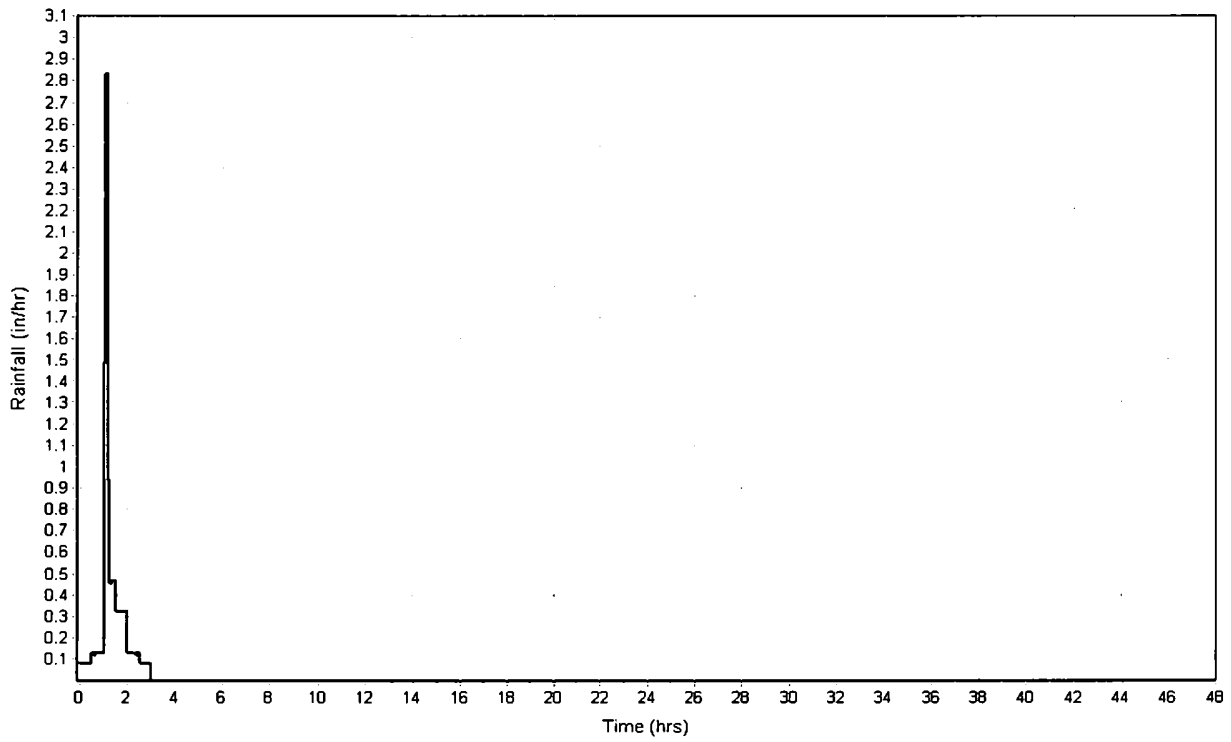
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	65.07	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.60	0.00	0.00
Computed Flow Time (min) :	1.81	0.00	0.00
Total TOC (min)	1.81		

Subbasin Runoff Results

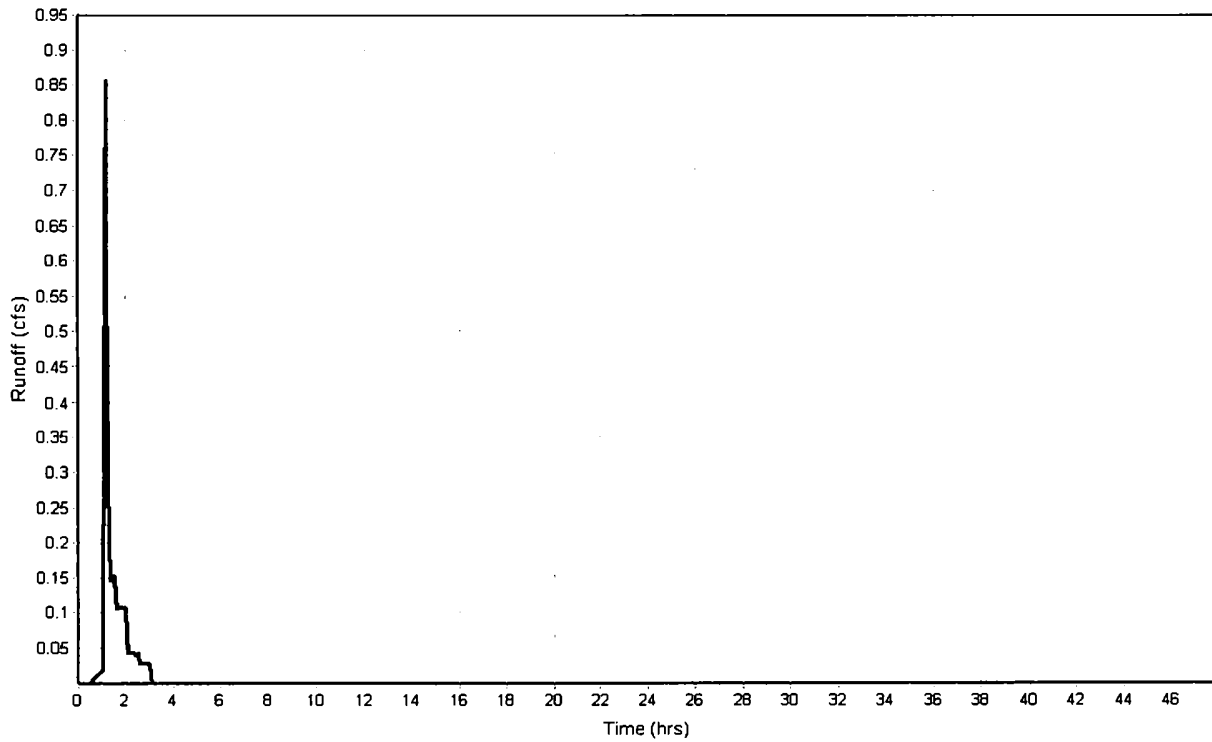
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.86
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:49

Subbasin : Sub-11

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-12

Input Data

Area (ac) 0.18
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.18	C	98.00
Composite Area & Weighted CN	0.18		98.00

Time of Concentration

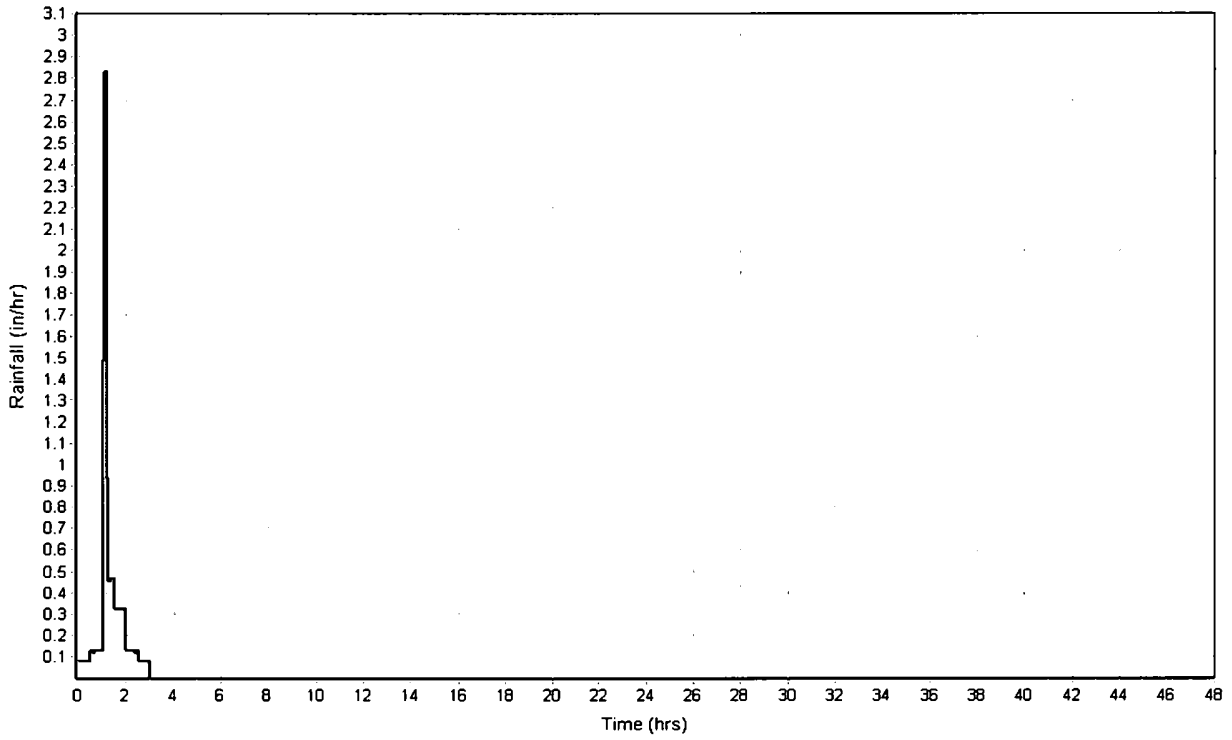
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	44.98	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.56	0.00	0.00
Computed Flow Time (min) :	1.35	0.00	0.00
Total TOC (min)1.35			

Subbasin Runoff Results

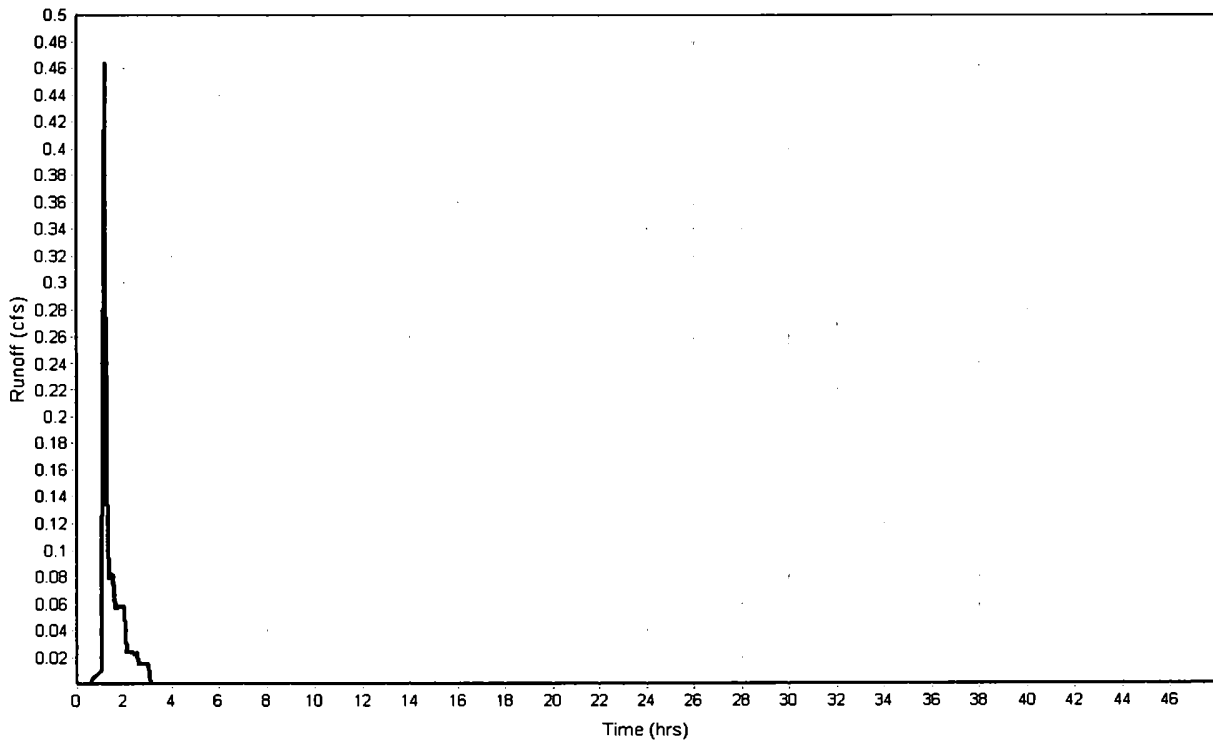
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.46
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:21

Subbasin : Sub-12

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-13

Input Data

Area (ac) 0.80
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.80	C	98.00
Composite Area & Weighted CN	0.80		98.00

Time of Concentration

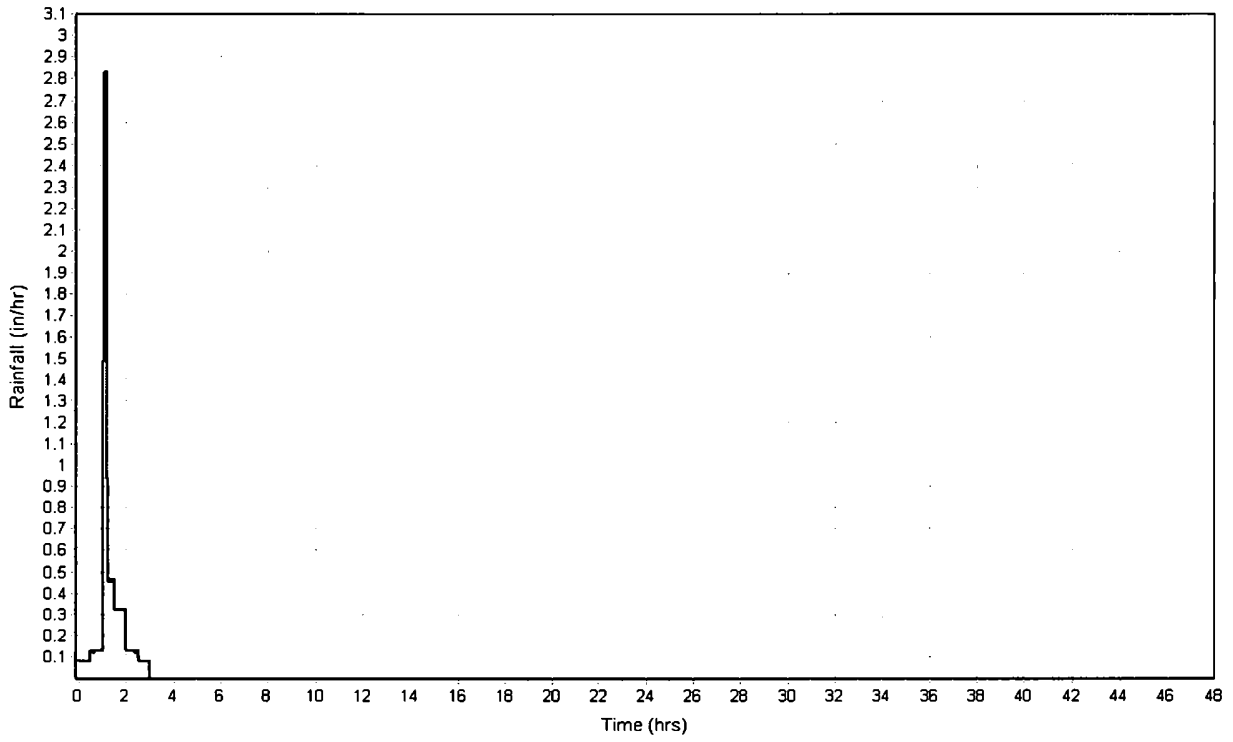
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	102.27	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.66	0.00	0.00
Computed Flow Time (min) :	2.60	0.00	0.00
Total TOC (min)	2.60		

Subbasin Runoff Results

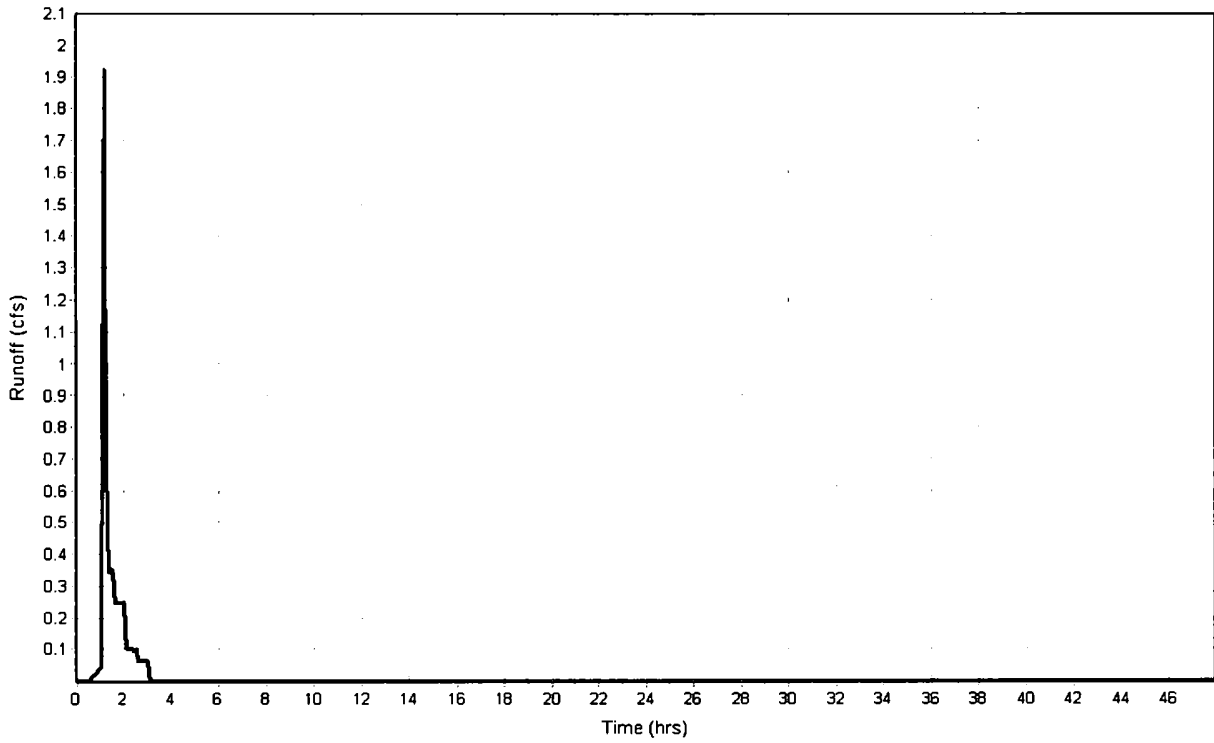
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.94
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:36

Subbasin : Sub-13

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-14

Input Data

Area (ac) 0.45
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.45	C	98.00
Composite Area & Weighted CN	0.45		98.00

Time of Concentration

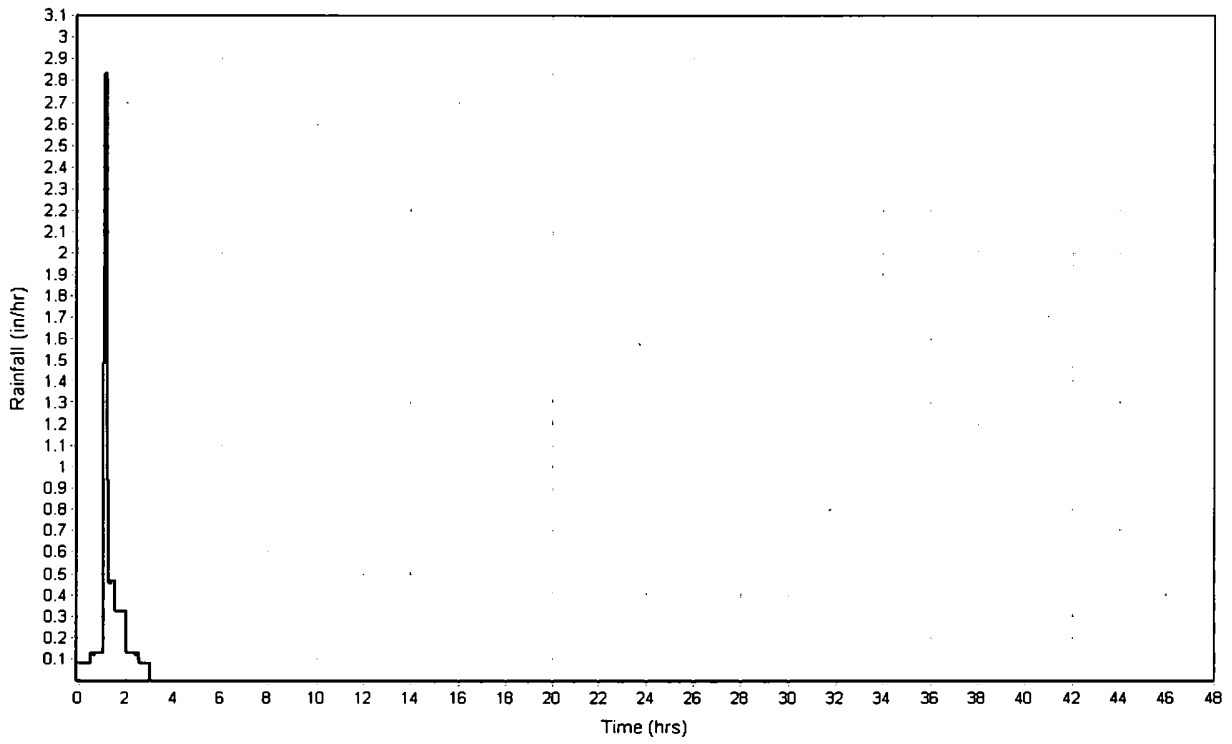
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	59.33	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.59	0.00	0.00
Computed Flow Time (min) :	1.68	0.00	0.00
Total TOC (min)1.68			

Subbasin Runoff Results

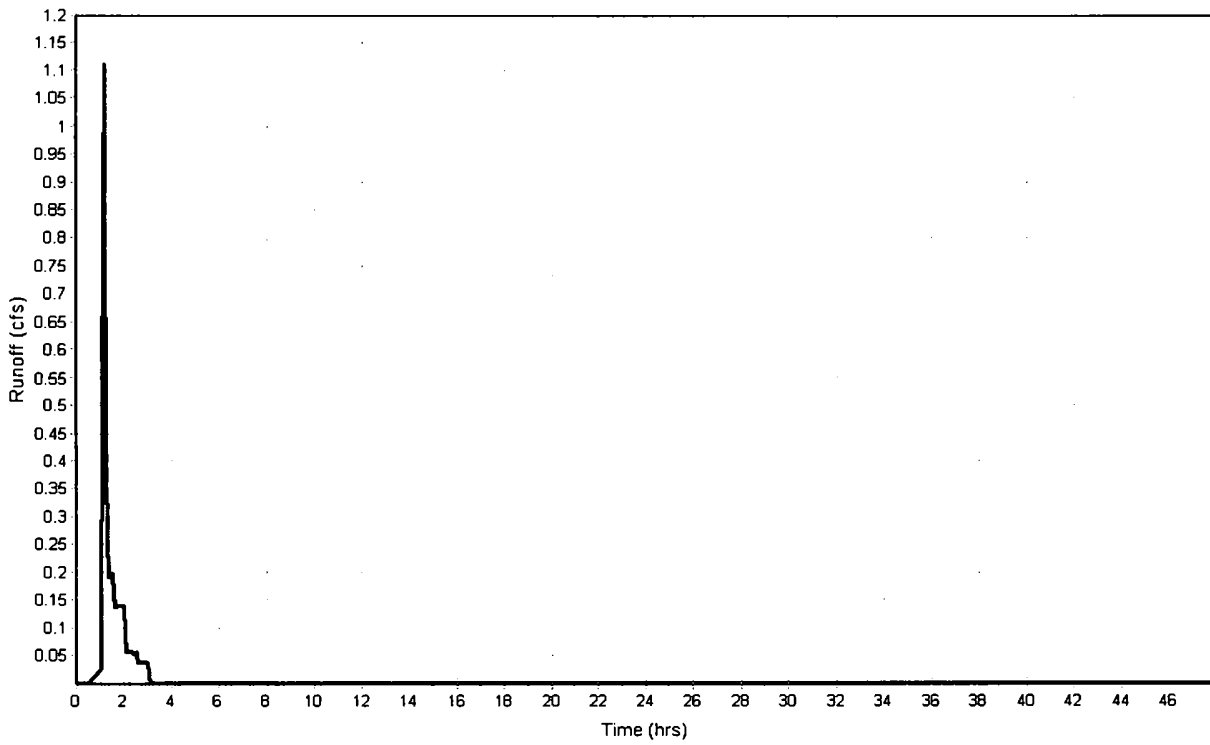
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.11
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:41

Subbasin : Sub-14

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-15

Input Data

Area (ac) 0.12
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.12	C	98.00
Composite Area & Weighted CN	0.12		98.00

Time of Concentration

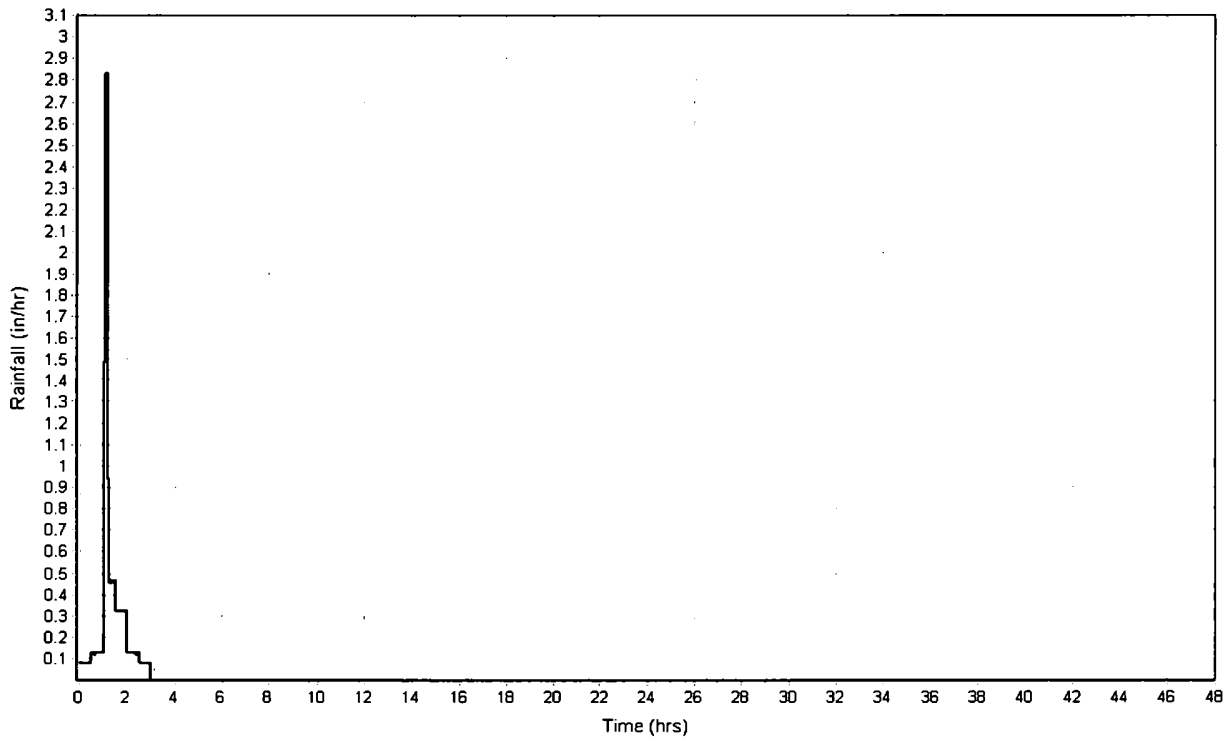
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	44.66	0.00	0.00
Slope (%) :	1.8	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.60	0.00	0.00
Computed Flow Time (min) :	1.25	0.00	0.00
Total TOC (min)	1.25		

Subbasin Runoff Results

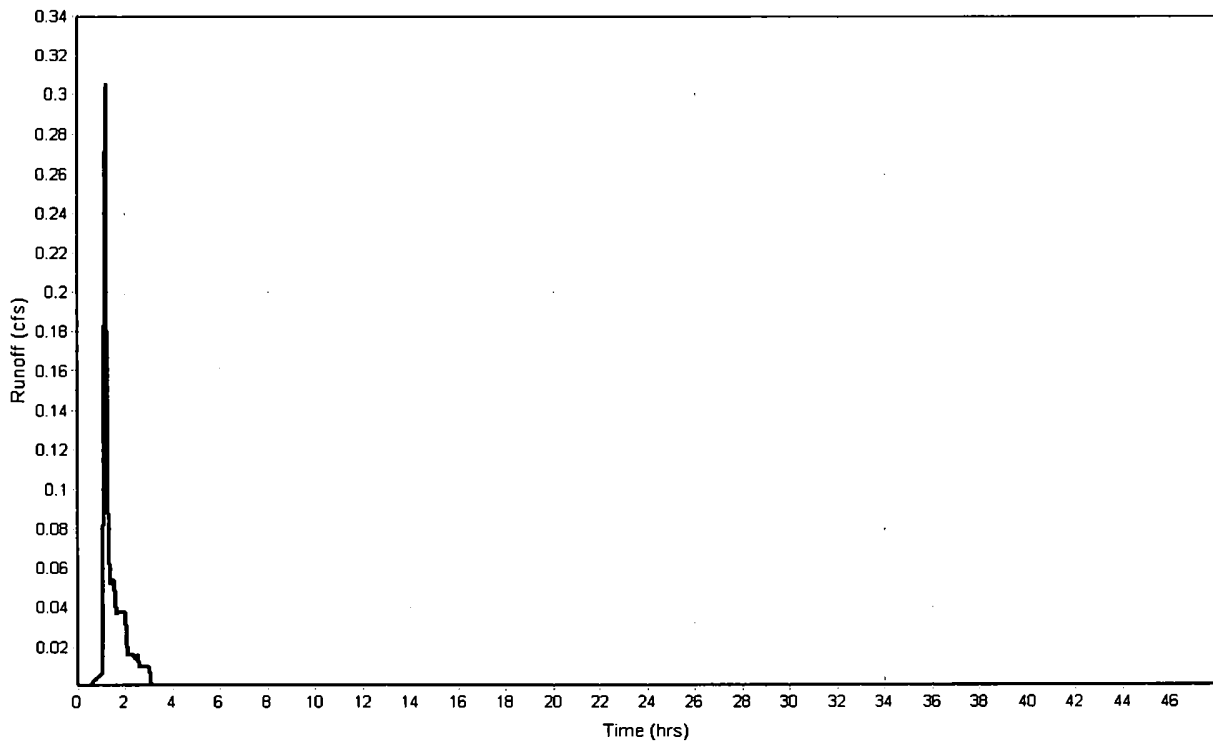
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.30
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:15

Subbasin : Sub-15

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-16

Input Data

Area (ac) 0.27
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.27	C	98.00
Composite Area & Weighted CN	0.27		98.00

Time of Concentration

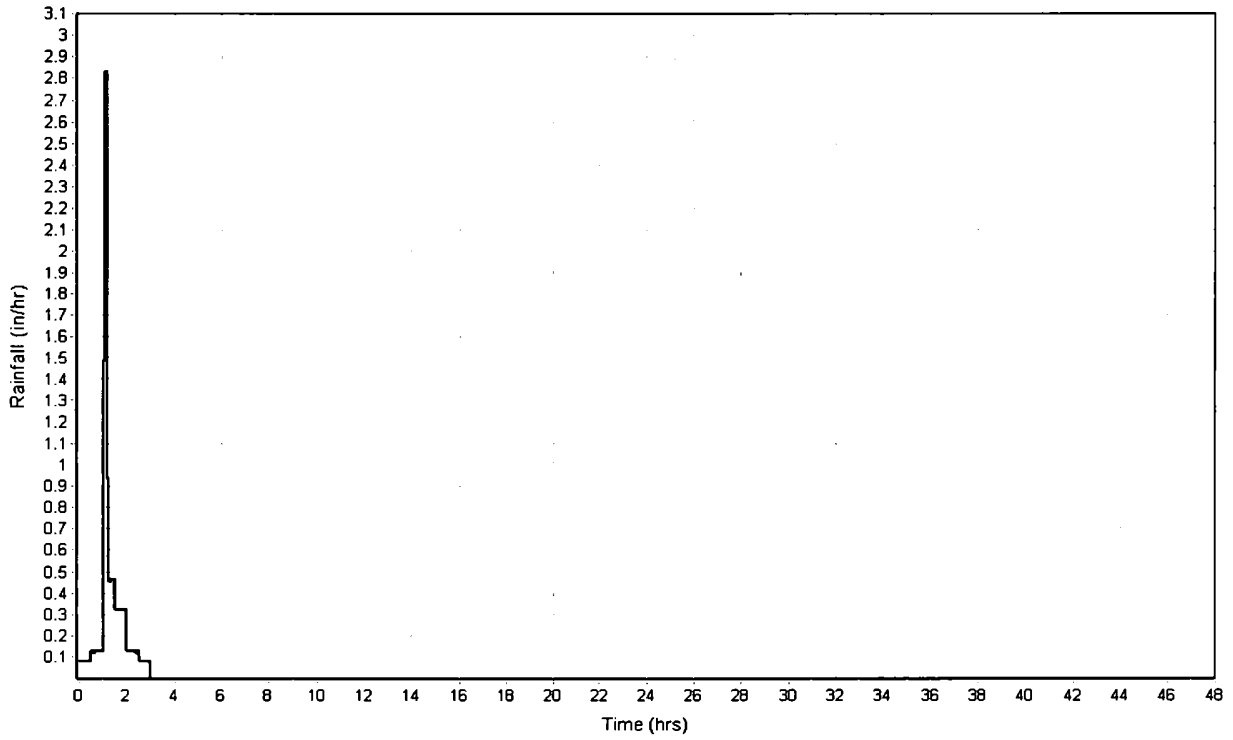
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	69.66	0.00	0.00
Slope (%) :	4	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.90	0.00	0.00
Computed Flow Time (min) :	1.29	0.00	0.00
Total TOC (min)	1.29		

Subbasin Runoff Results

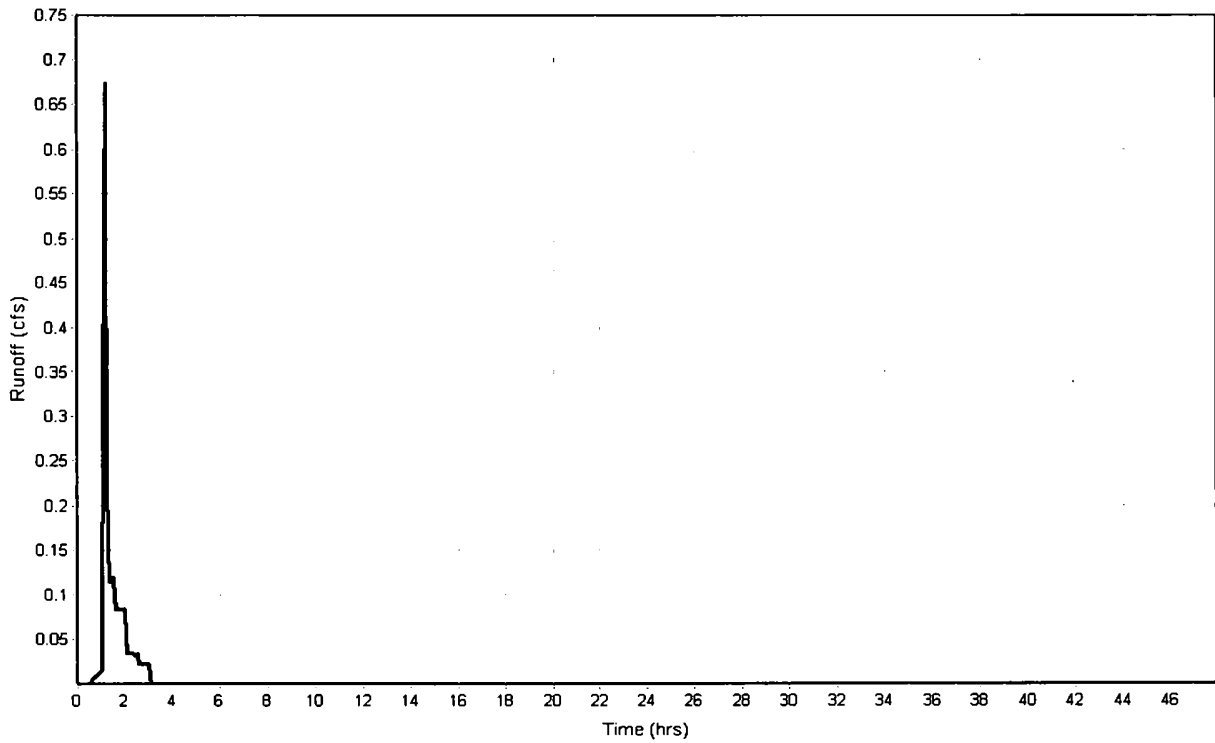
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.67
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:17

Subbasin : Sub-16

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-17

Input Data

Area (ac) 0.78
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.78	C	98.00
Composite Area & Weighted CN	0.78		98.00

Time of Concentration

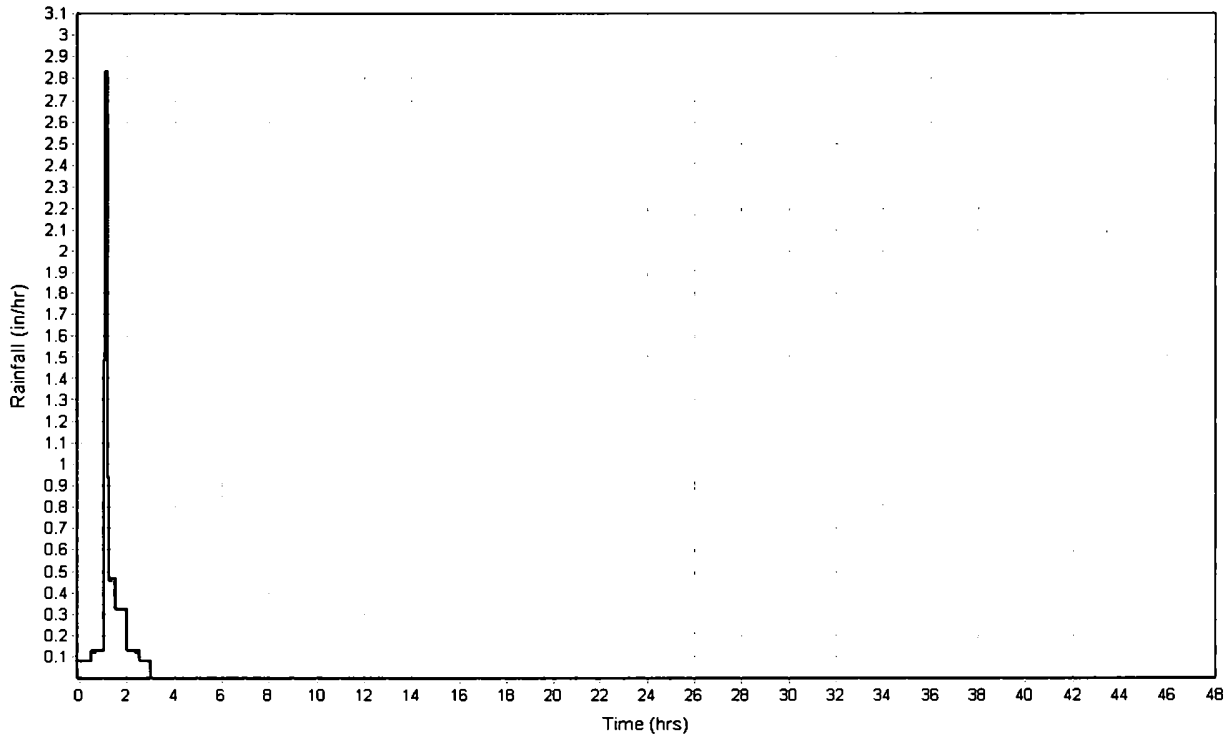
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	127.69	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.77	0.00	0.00
Computed Flow Time (min) :	2.77	0.00	0.00
Total TOC (min)	2.77		

Subbasin Runoff Results

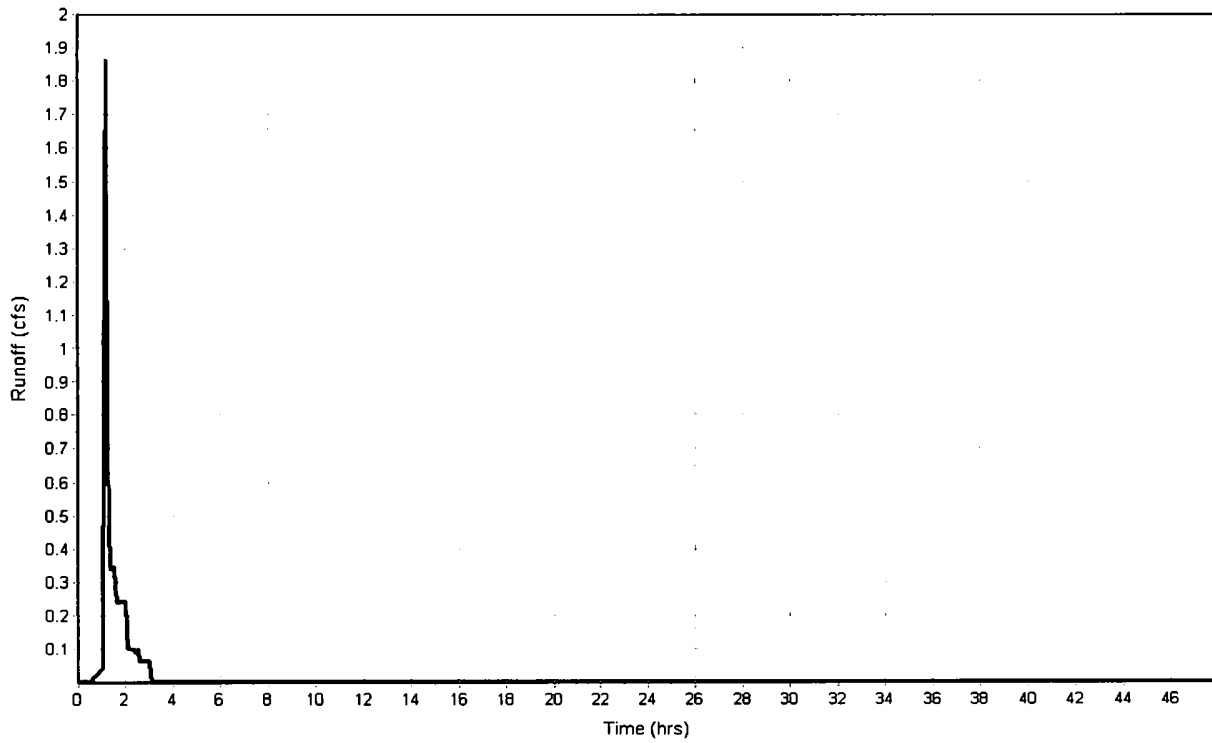
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.88
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:46

Subbasin : Sub-17

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-18

Input Data

Area (ac) 0.68
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.68	C	98.00
Composite Area & Weighted CN	0.68		98.00

Time of Concentration

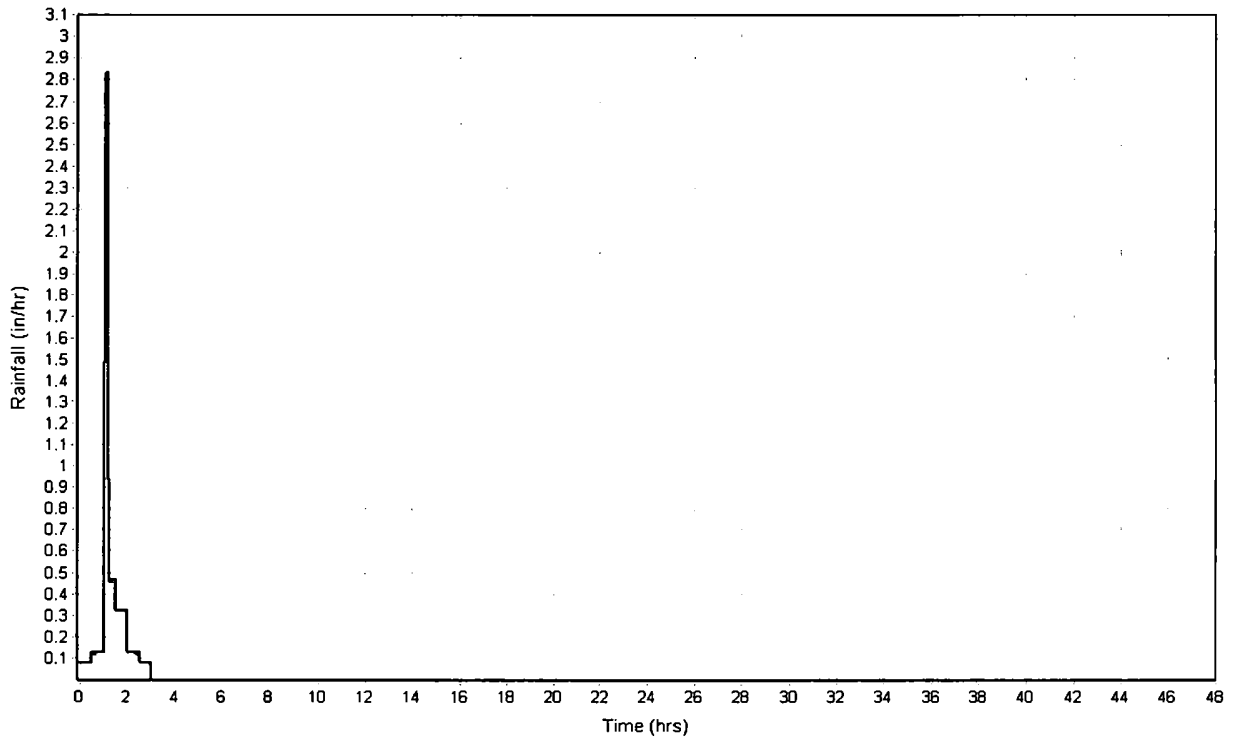
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	97.12	0.00	0.00
Slope (%) :	2.2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.76	0.00	0.00
Computed Flow Time (min) :	2.14	0.00	0.00
Total TOC (min)	2.14		

Subbasin Runoff Results

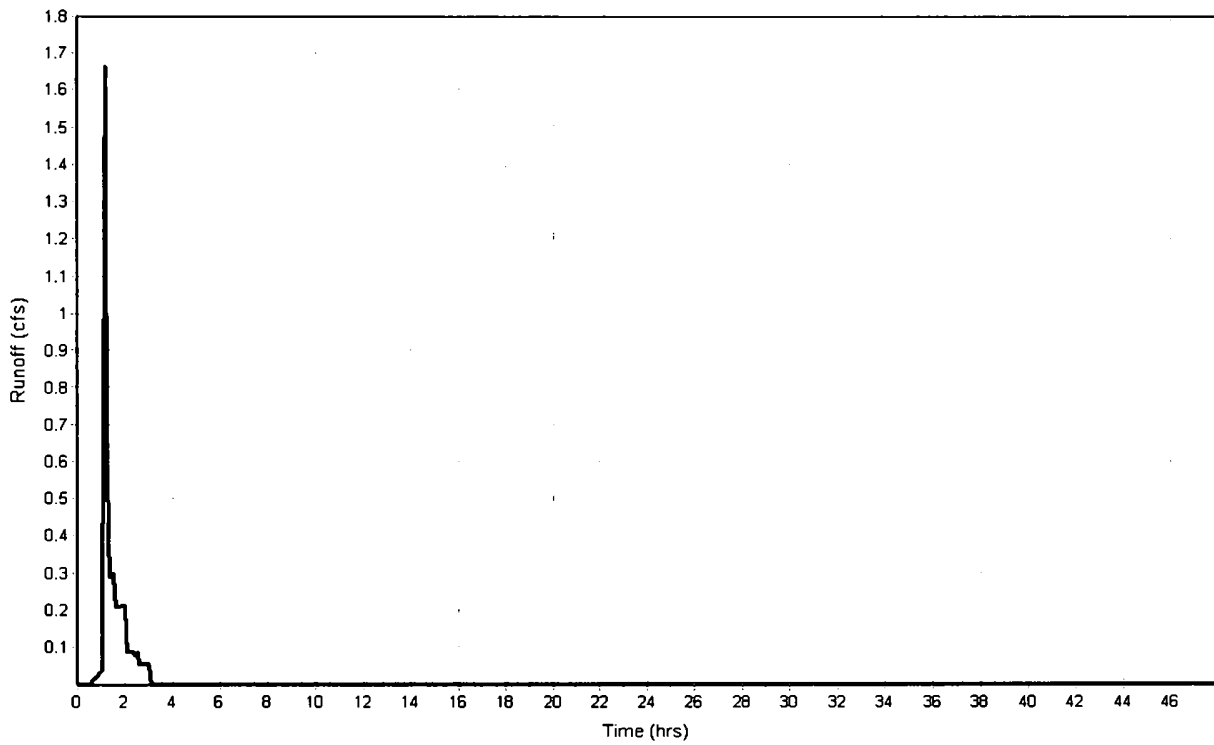
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.67
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:08

Subbasin : Sub-18

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-19

Input Data

Area (ac) 0.07
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.07	C	98.00
Composite Area & Weighted CN	0.07		98.00

Time of Concentration

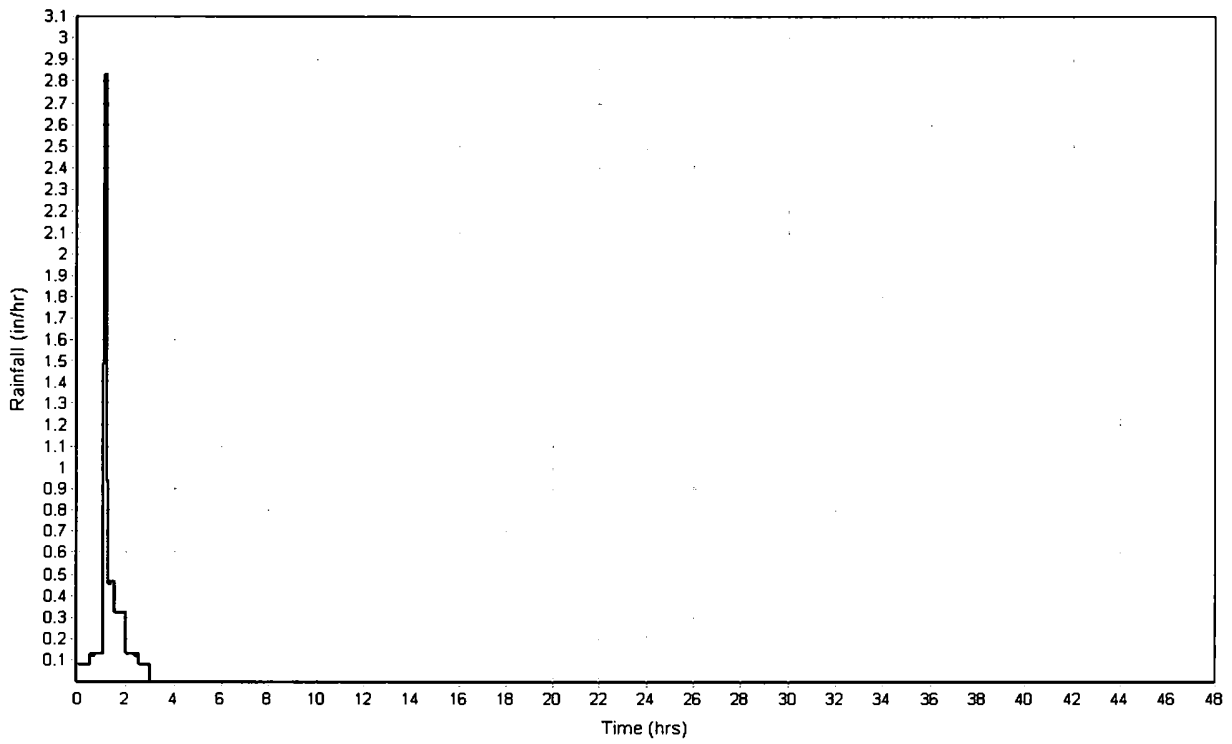
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	49.23	0.00	0.00
Slope (%) :	2.65	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.71	0.00	0.00
Computed Flow Time (min) :	1.15	0.00	0.00
Total TOC (min)	1.15		

Subbasin Runoff Results

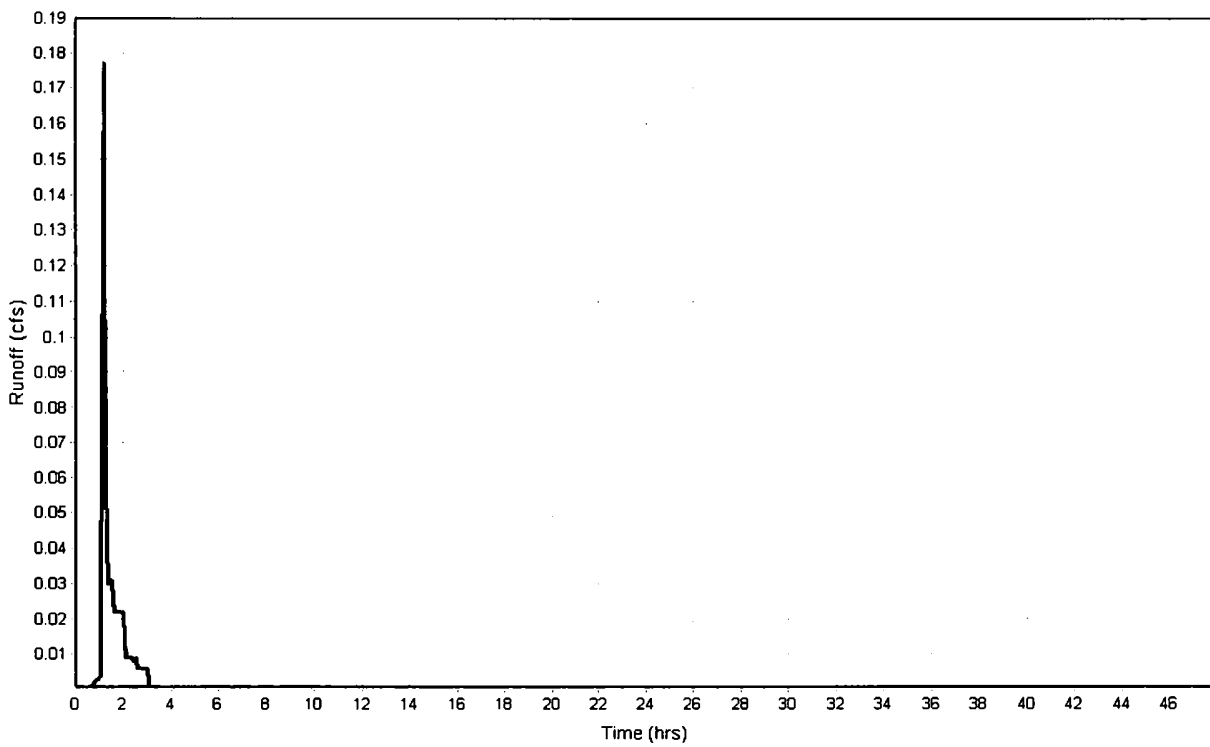
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.18
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:09

Subbasin : Sub-19

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-20

Input Data

Area (ac) 0.73
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.73	C	98.00
Composite Area & Weighted CN	0.73		98.00

Time of Concentration

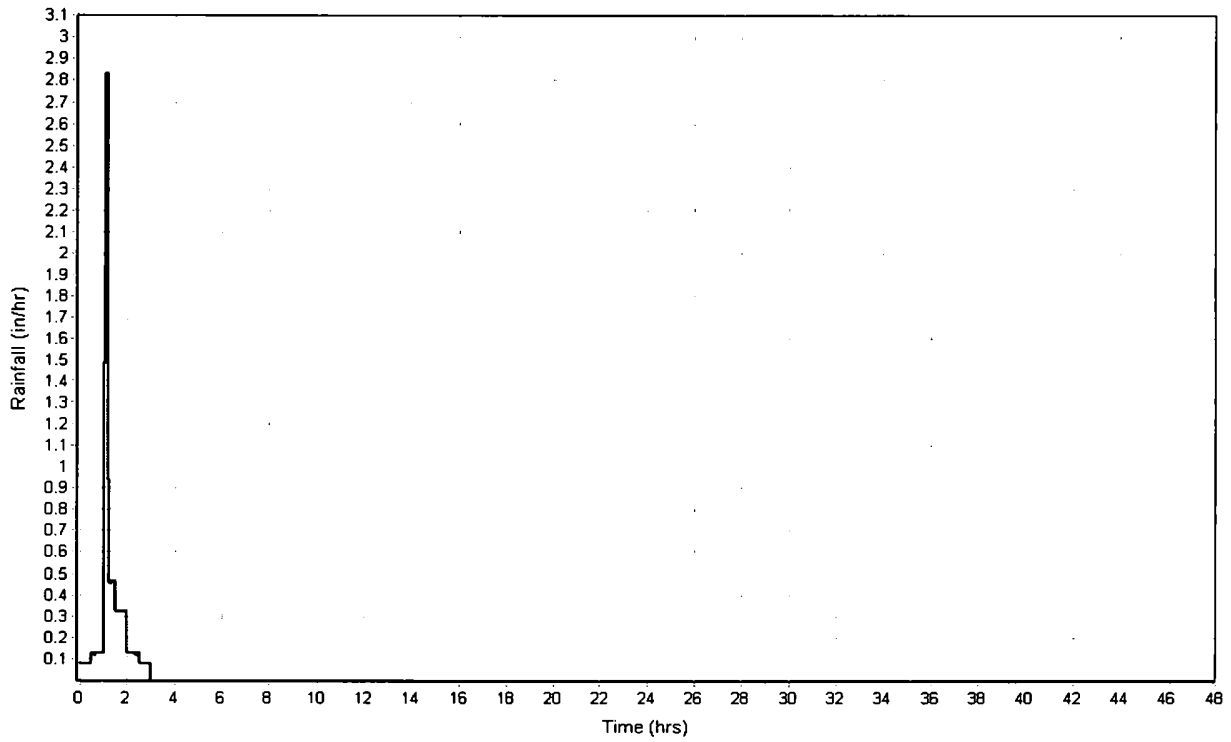
	Subarea		
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.91	0.00	0.00
Computed Flow Time (min) :	5.48	0.00	0.00
Shallow Concentrated Flow Computations			
Flow Length (ft) :	131	0.00	0.00
Slope (%) :	2	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	2.87	0.00	0.00
Computed Flow Time (min) :	0.76	0.00	0.00
Total TOC (min)	6.24		

Subbasin Runoff Results

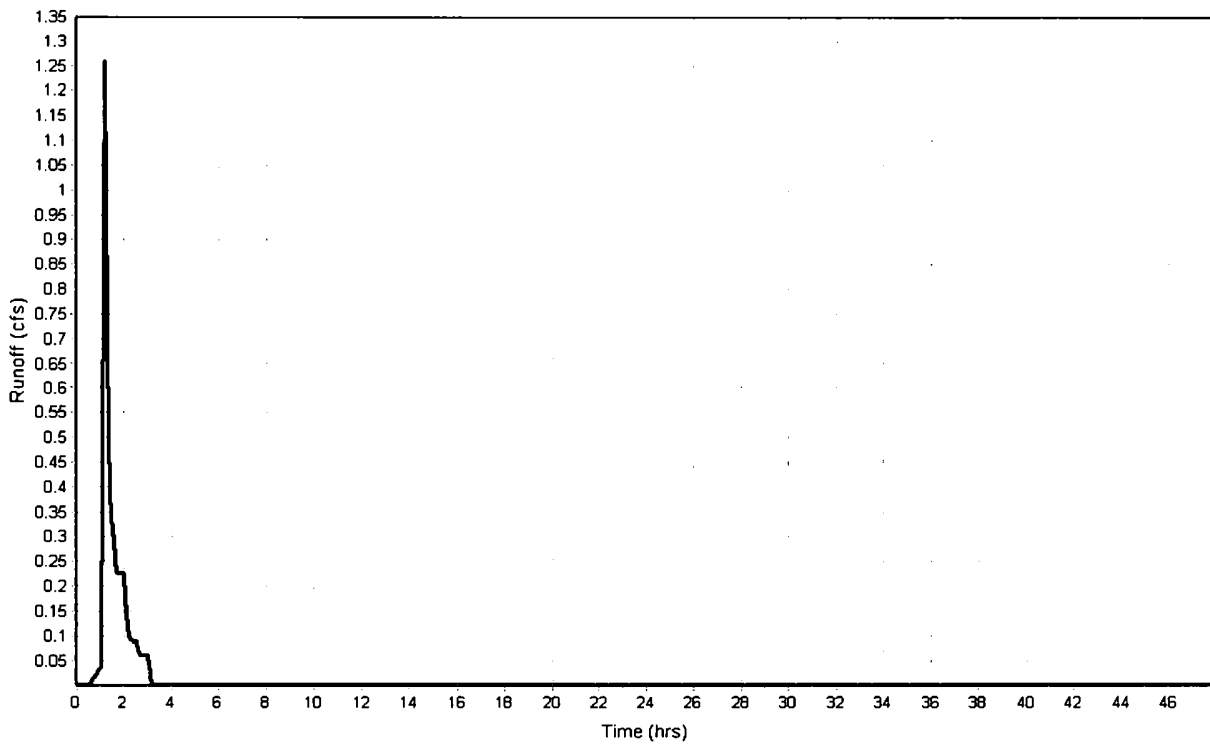
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.46
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:06:14

Subbasin : Sub-20

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-21

Input Data

Area (ac) 0.61
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.61	C	98.00
Composite Area & Weighted CN	0.61		98.00

Time of Concentration

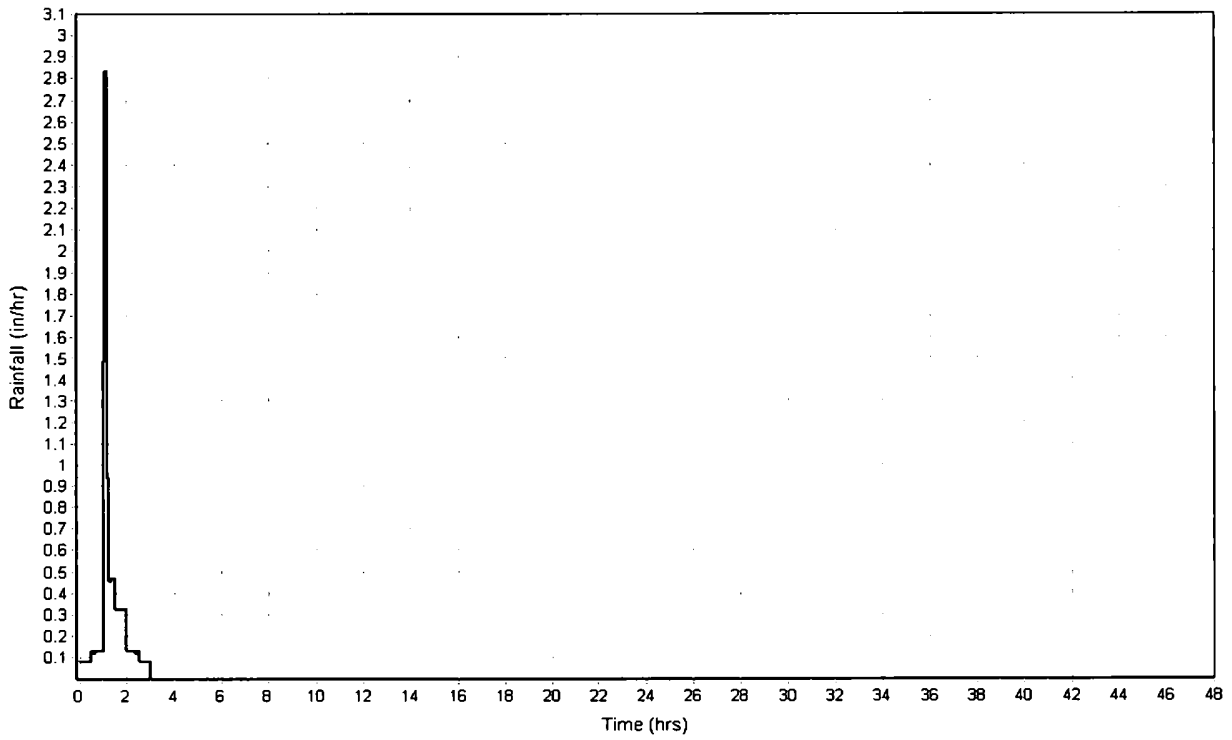
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	138.59	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.78	0.00	0.00
Computed Flow Time (min) :	2.95	0.00	0.00
Total TOC (min)	2.95		

Subbasin Runoff Results

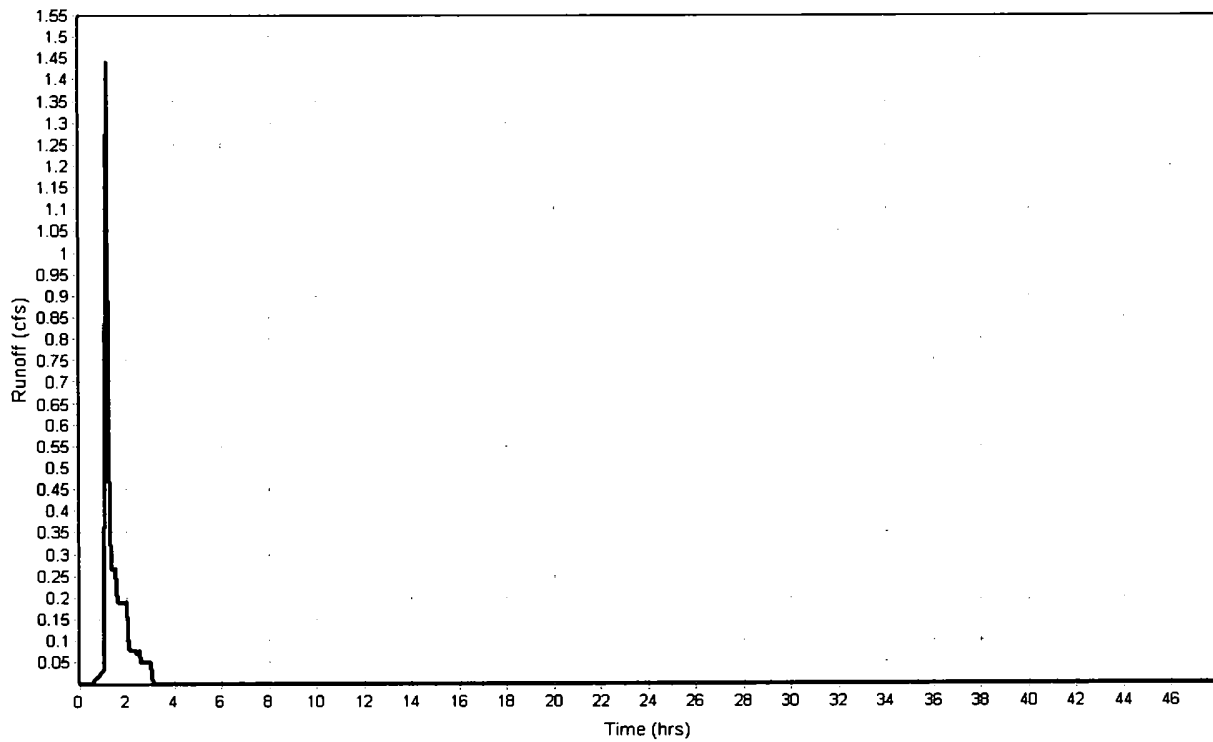
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.45
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:57

Subbasin : Sub-21

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-22

Input Data

Area (ac) 0.71
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.71	C	98.00
Composite Area & Weighted CN	0.71		98.00

Time of Concentration

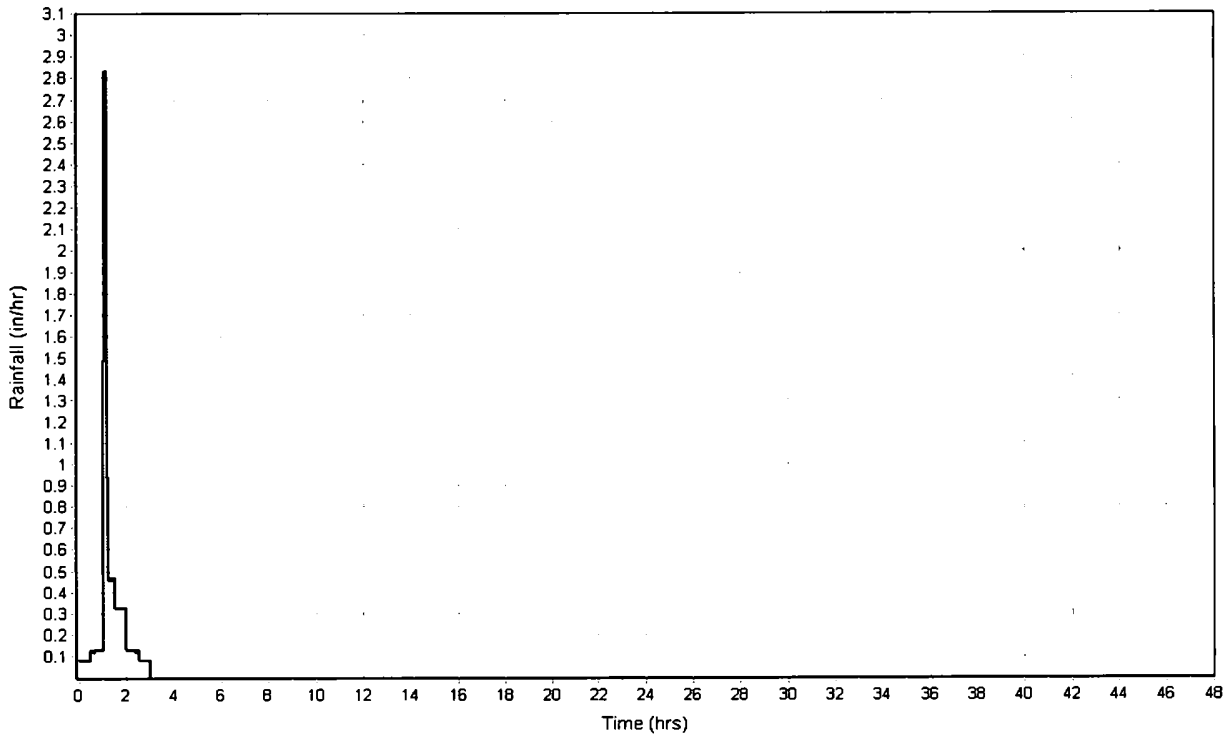
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	145.08	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.79	0.00	0.00
Computed Flow Time (min) :	3.06	0.00	0.00
Total TOC (min)	3.06		

Subbasin Runoff Results

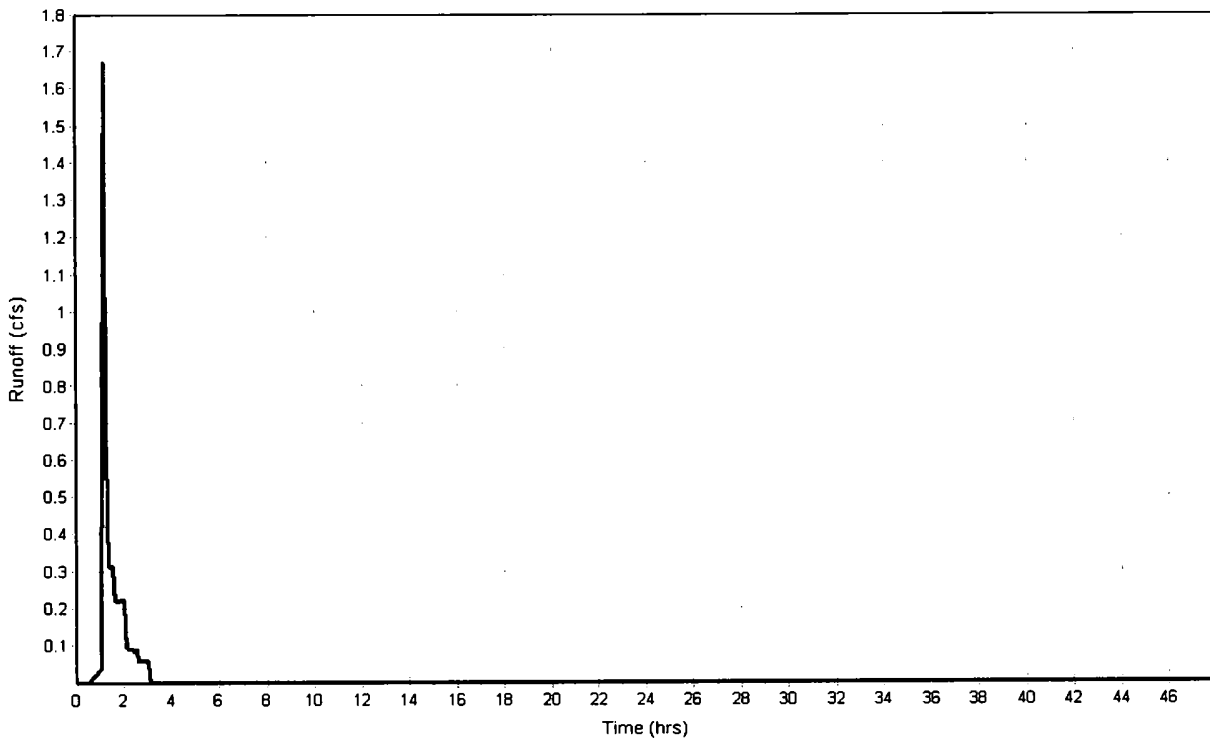
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.69
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:04

Subbasin : Sub-22

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-23

Input Data

Area (ac) 0.29
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.29	C	98.00
Composite Area & Weighted CN	0.29		98.00

Time of Concentration

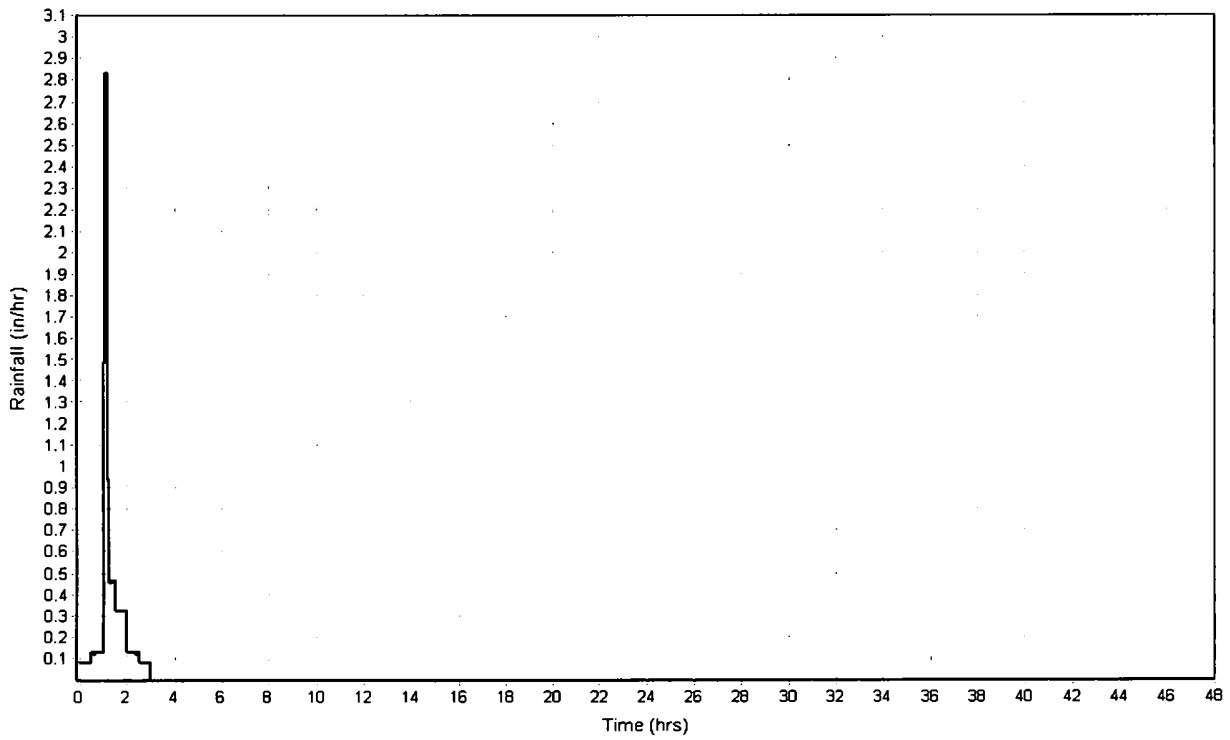
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	137.96	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.70	0.00	0.00
Computed Flow Time (min) :	3.30	0.00	0.00
Total TOC (min)	3.30		

Subbasin Runoff Results

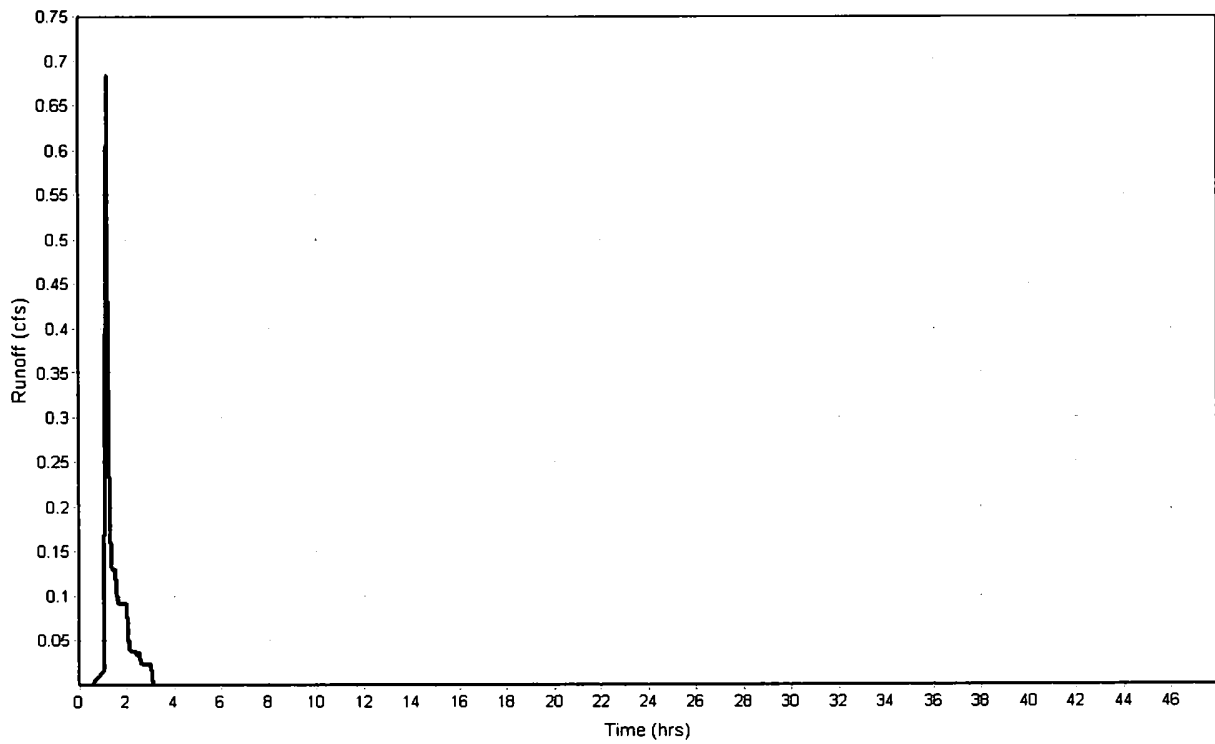
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.69
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:18

Subbasin : Sub-23

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-24

Input Data

Area (ac) 0.35
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.35	C	98.00
Composite Area & Weighted CN	0.35		98.00

Time of Concentration

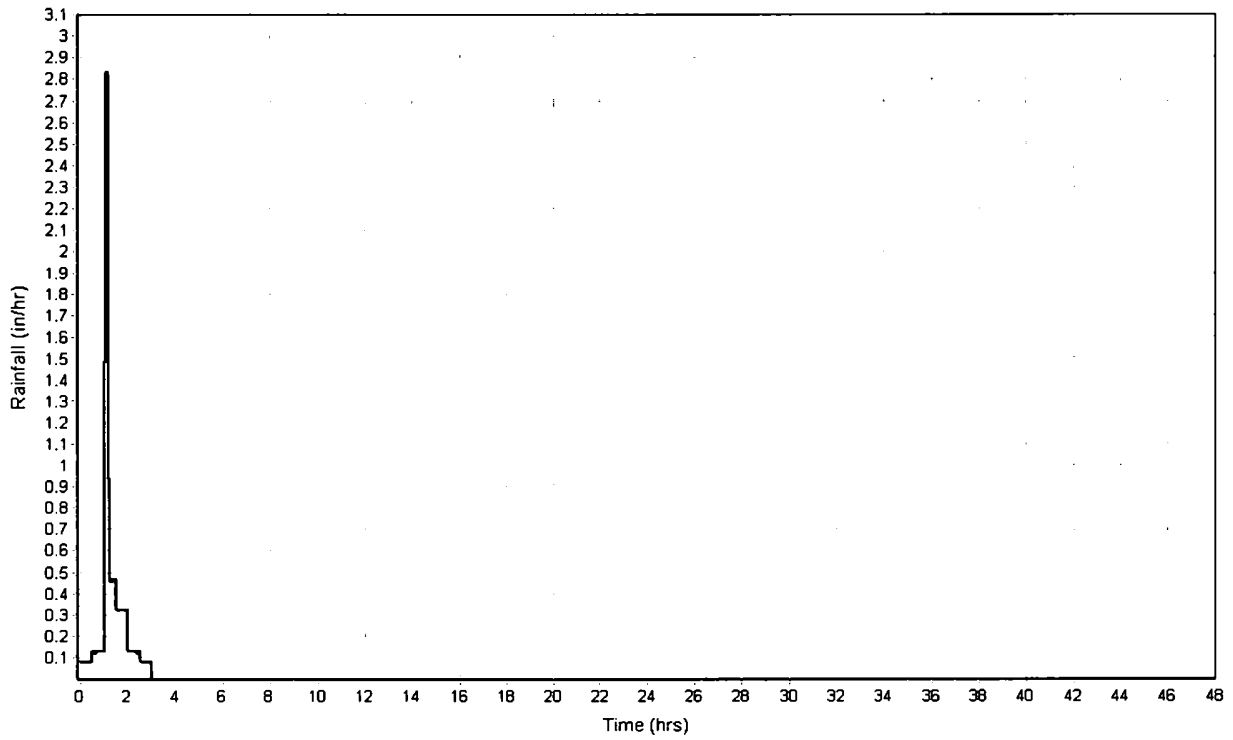
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	73.22	0.00	0.00
Slope (%) :	2.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.75	0.00	0.00
Computed Flow Time (min) :	1.62	0.00	0.00
Total TOC (min)1.62			

Subbasin Runoff Results

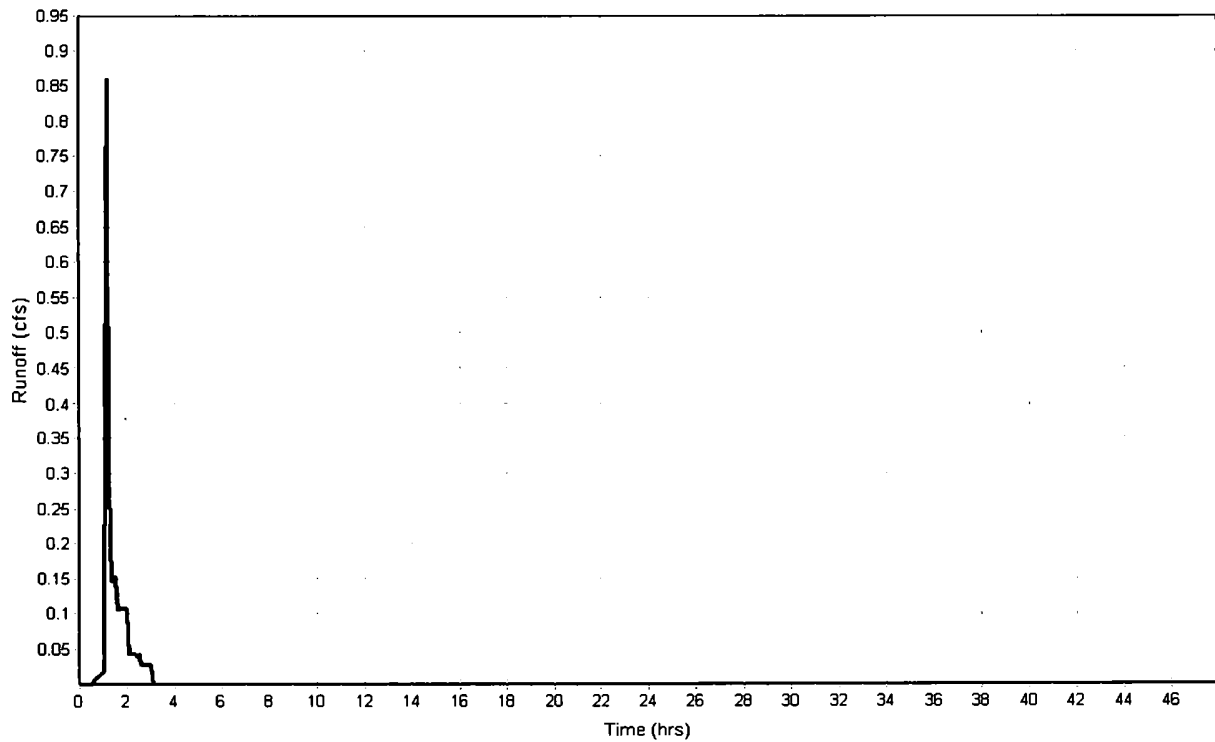
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.86
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:37

Subbasin : Sub-24

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-25

Input Data

Area (ac) 0.48
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.48	C	98.00
Composite Area & Weighted CN	0.48		98.00

Time of Concentration

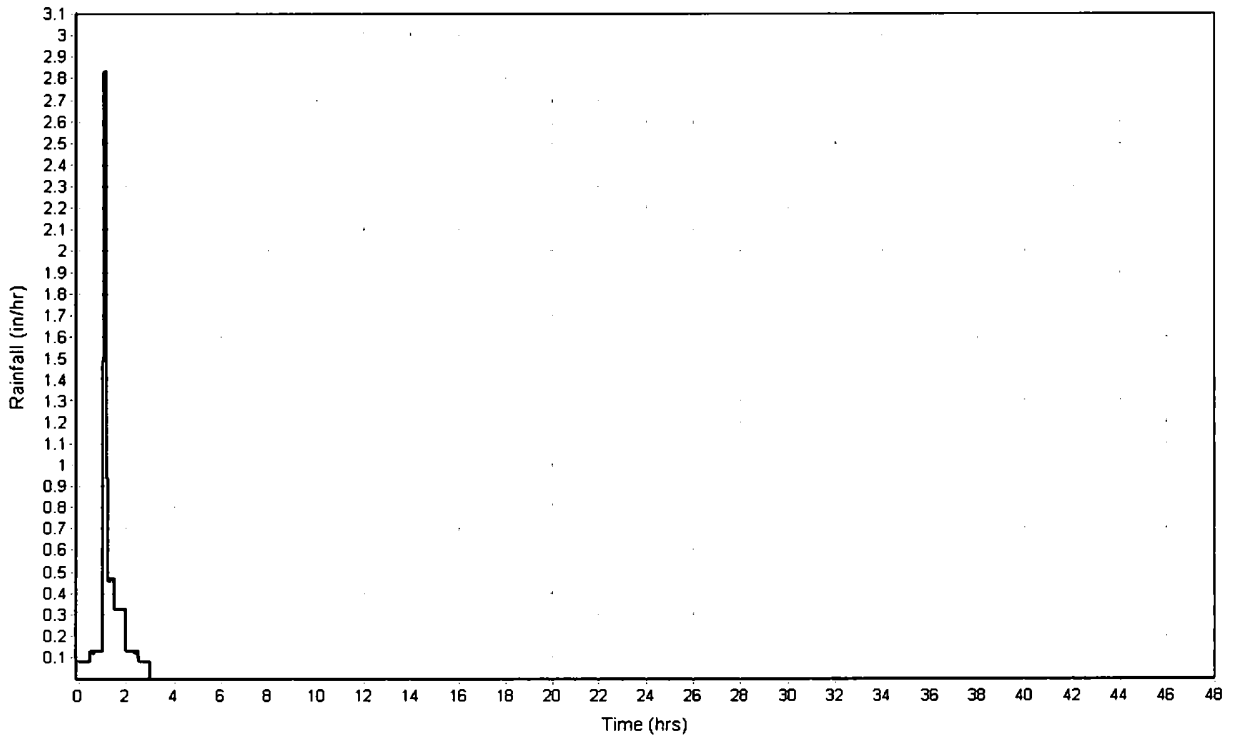
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	152.73	0.00	0.00
Slope (%) :	3.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.00	0.00	0.00
Computed Flow Time (min) :	2.55	0.00	0.00
Total TOC (min)	2.55		

Subbasin Runoff Results

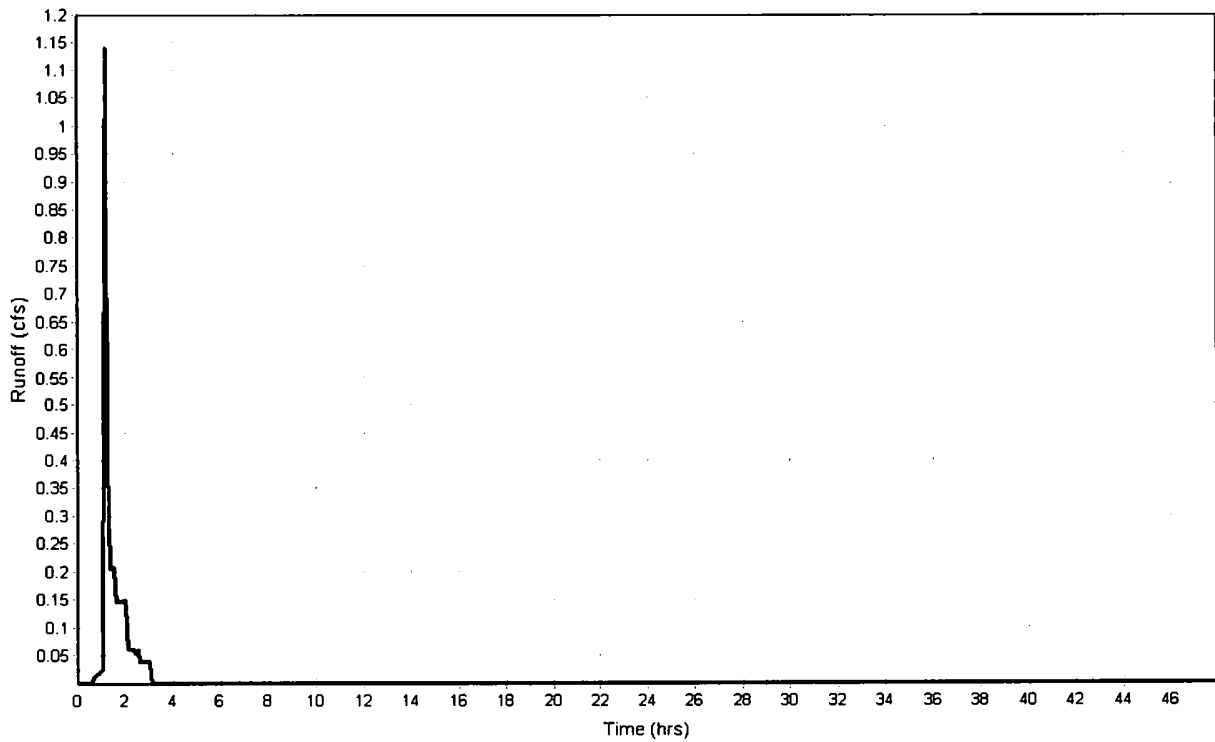
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.15
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:33

Subbasin : Sub-25

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-26

Input Data

Area (ac) 0.71
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.71	C	98.00
Composite Area & Weighted CN	0.71		98.00

Time of Concentration

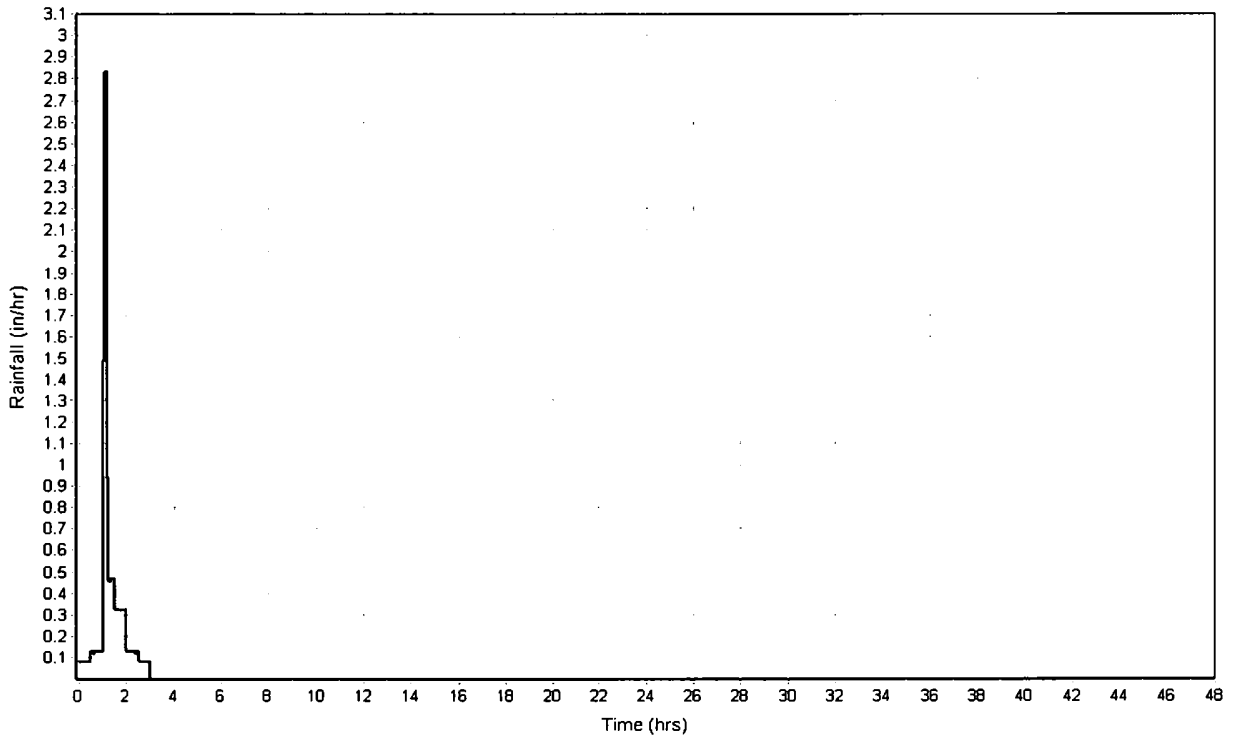
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	214.10	0.00	0.00
Slope (%) :	2.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.93	0.00	0.00
Computed Flow Time (min) :	3.83	0.00	0.00
Total TOC (min) 3.83			

Subbasin Runoff Results

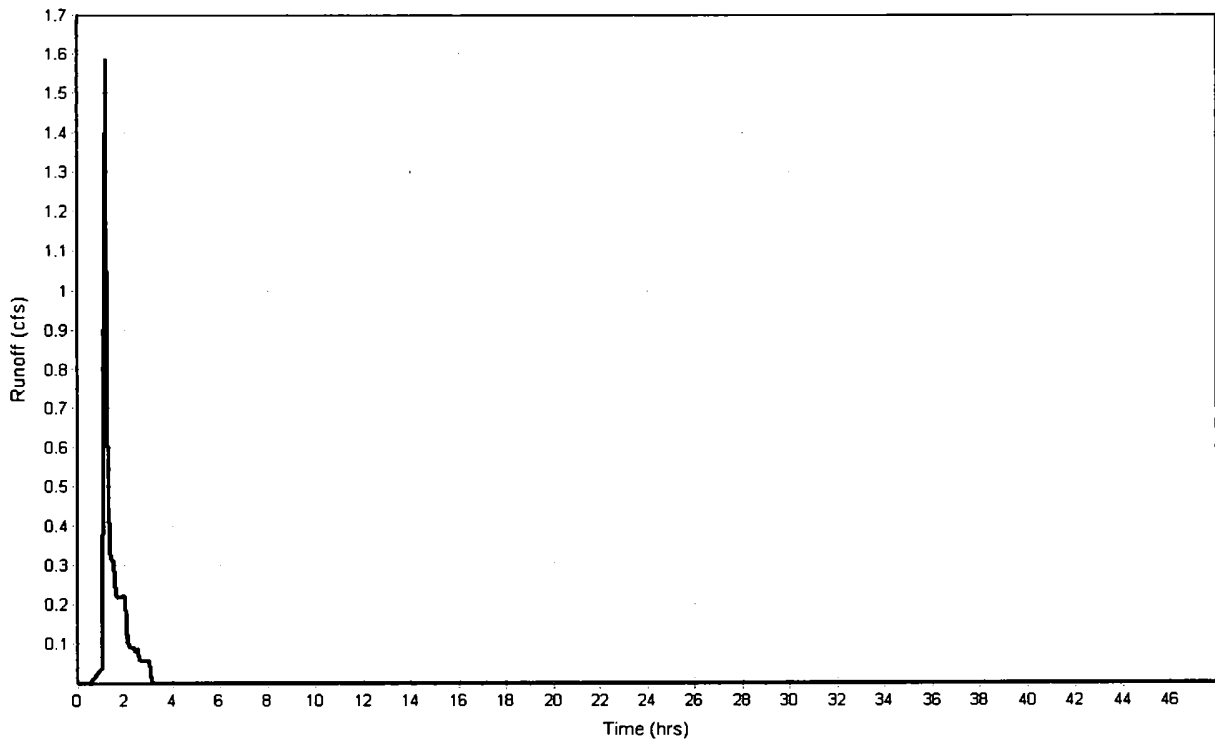
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.63
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:50

Subbasin : Sub-26

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-27

Input Data

Area (ac) 0.48
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.48	C	98.00
Composite Area & Weighted CN	0.48		98.00

Time of Concentration

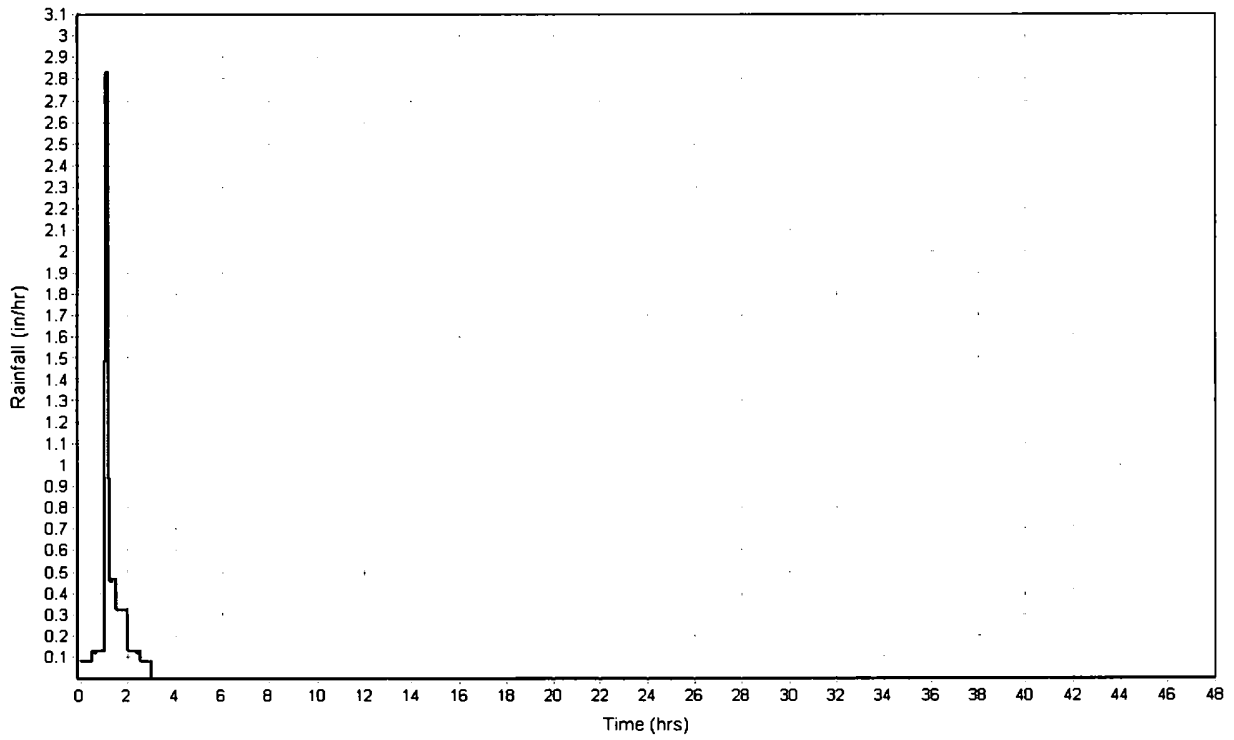
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	191.80	0.00	0.00
Slope (%) :	3.0	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.98	0.00	0.00
Computed Flow Time (min) :	3.26	0.00	0.00
Total TOC (min)	3.26		

Subbasin Runoff Results

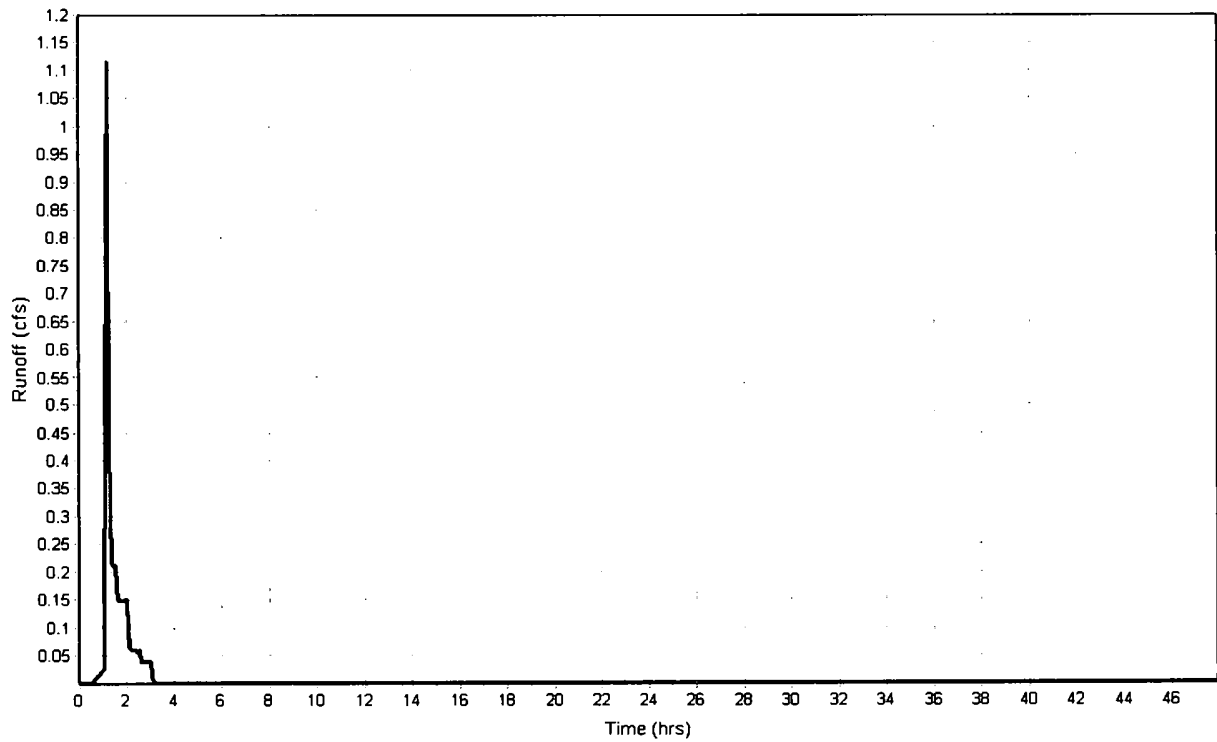
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.13
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:16

Subbasin : Sub-27

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-28

Input Data

Area (ac) 0.72
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.72	C	98.00
Composite Area & Weighted CN	0.72		98.00

Time of Concentration

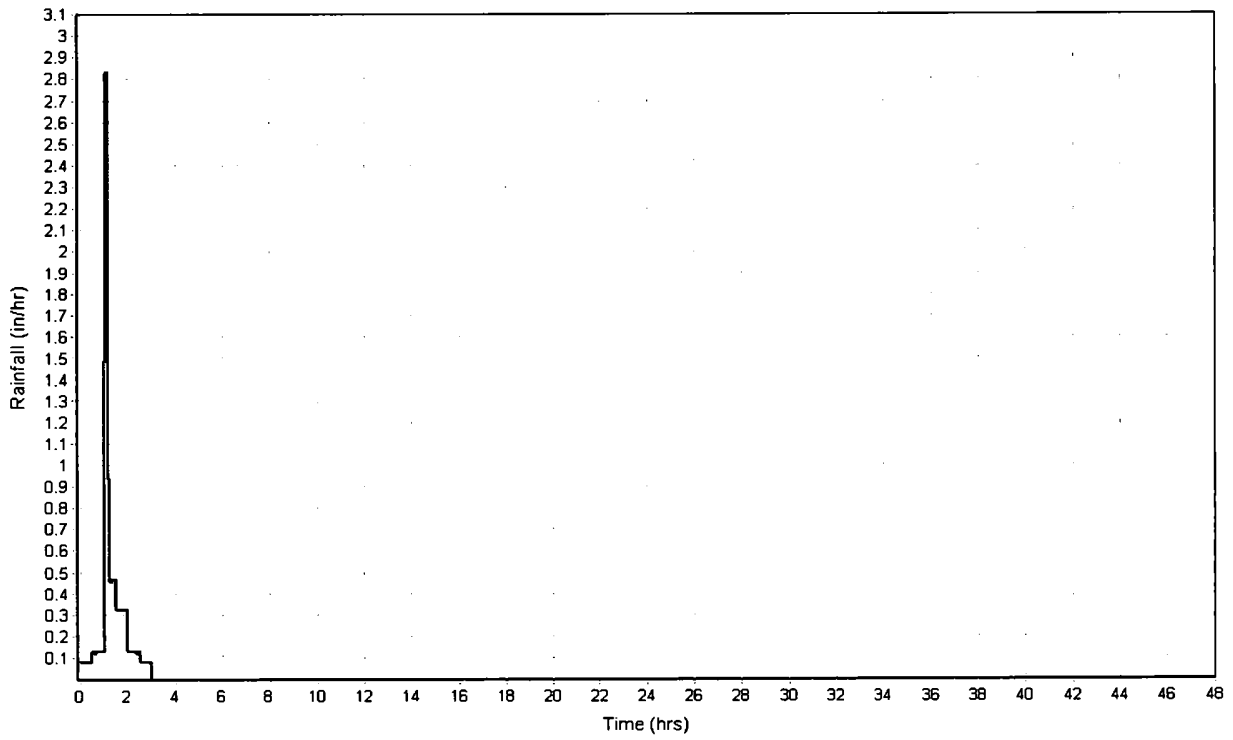
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	259.16	0.00	0.00
Slope (%) :	2.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.97	0.00	0.00
Computed Flow Time (min) :	4.46	0.00	0.00
Total TOC (min)	4.46		

Subbasin Runoff Results

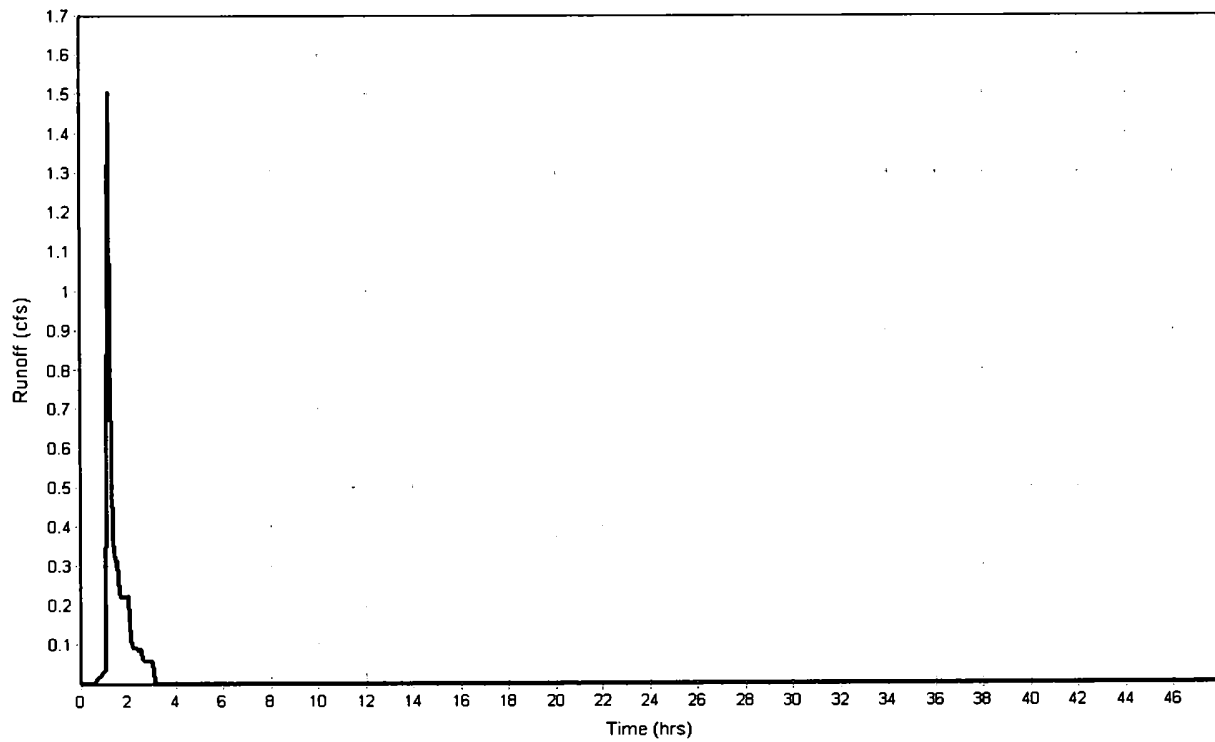
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.59
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:28

Subbasin : Sub-28

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-29

Input Data

Area (ac) 1.95
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.95	C	98.00
Composite Area & Weighted CN	1.95		98.00

Time of Concentration

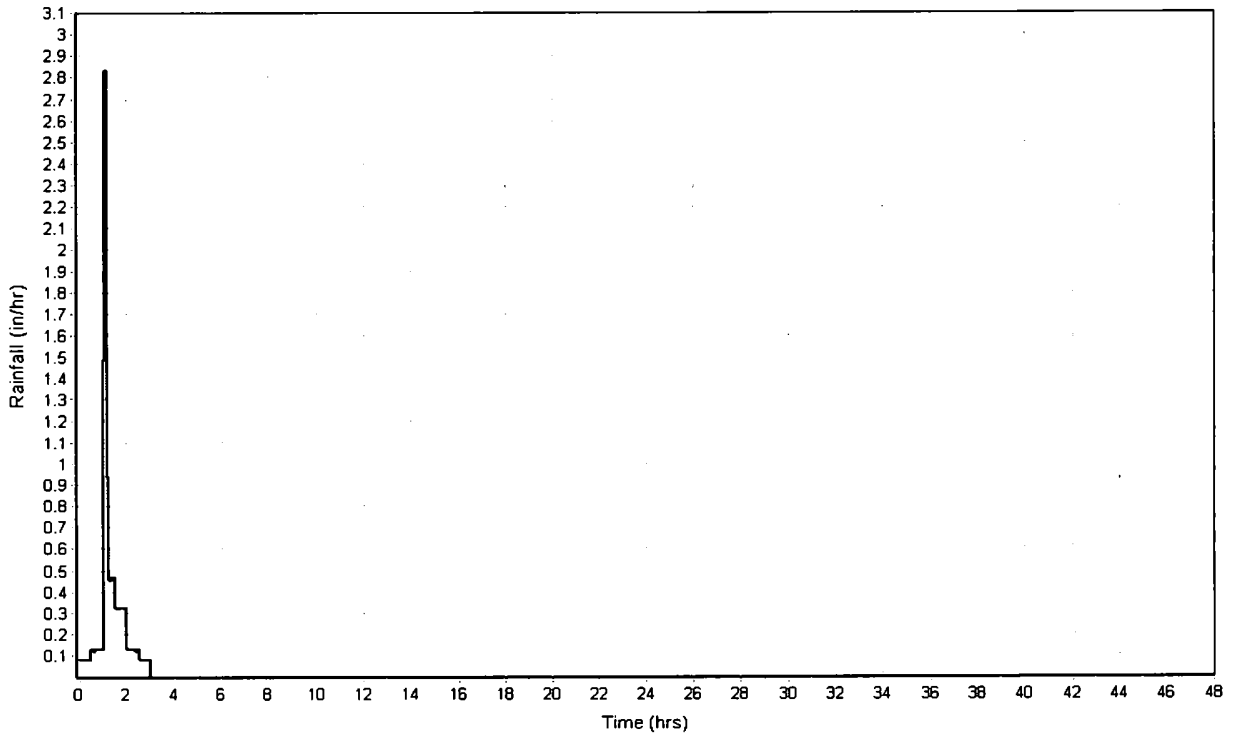
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	4	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.20	0.00	0.00
Computed Flow Time (min) :	4.15	0.00	0.00
Shallow Concentrated Flow Computations			
Flow Length (ft) :	92	0.00	0.00
Slope (%) :	4	0.00	0.00
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	4.07	0.00	0.00
Computed Flow Time (min) :	0.38	0.00	0.00
Total TOC (min)	4.53		

Subbasin Runoff Results

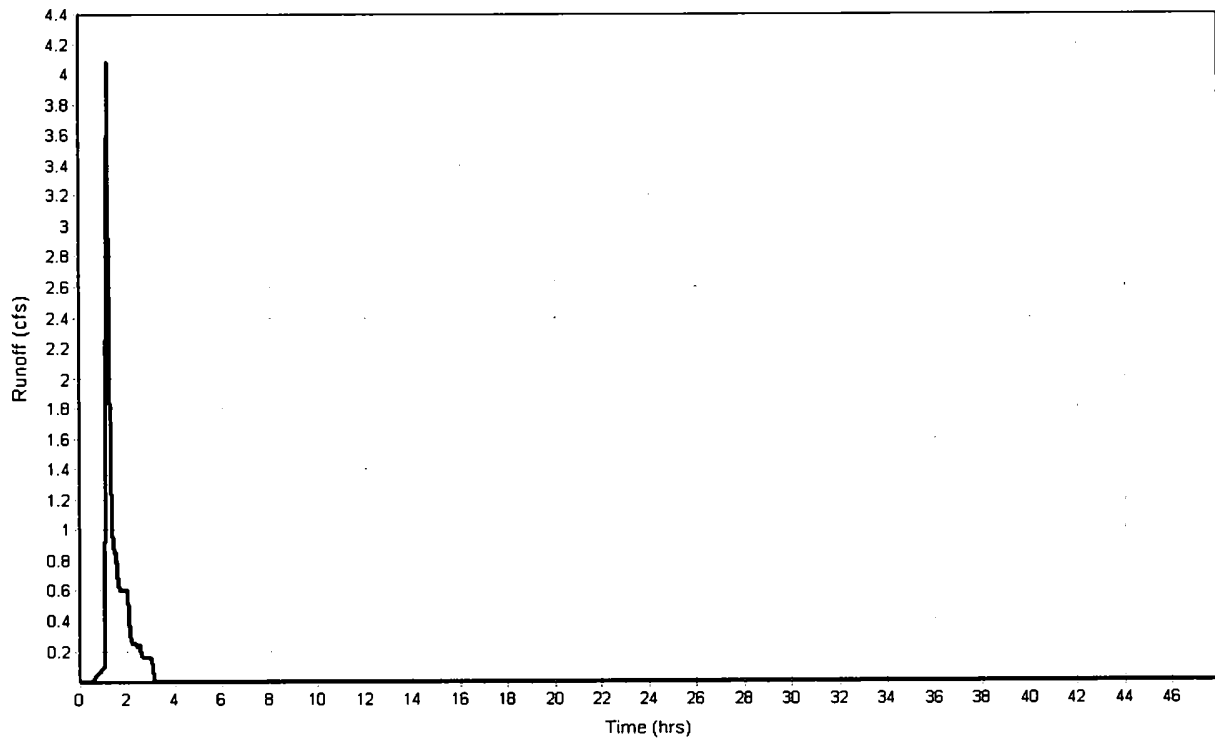
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 4.30
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:32

Subbasin : Sub-29

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-30

Input Data

Area (ac) 0.32
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.32	C	98.00
Composite Area & Weighted CN	0.32		98.00

Time of Concentration

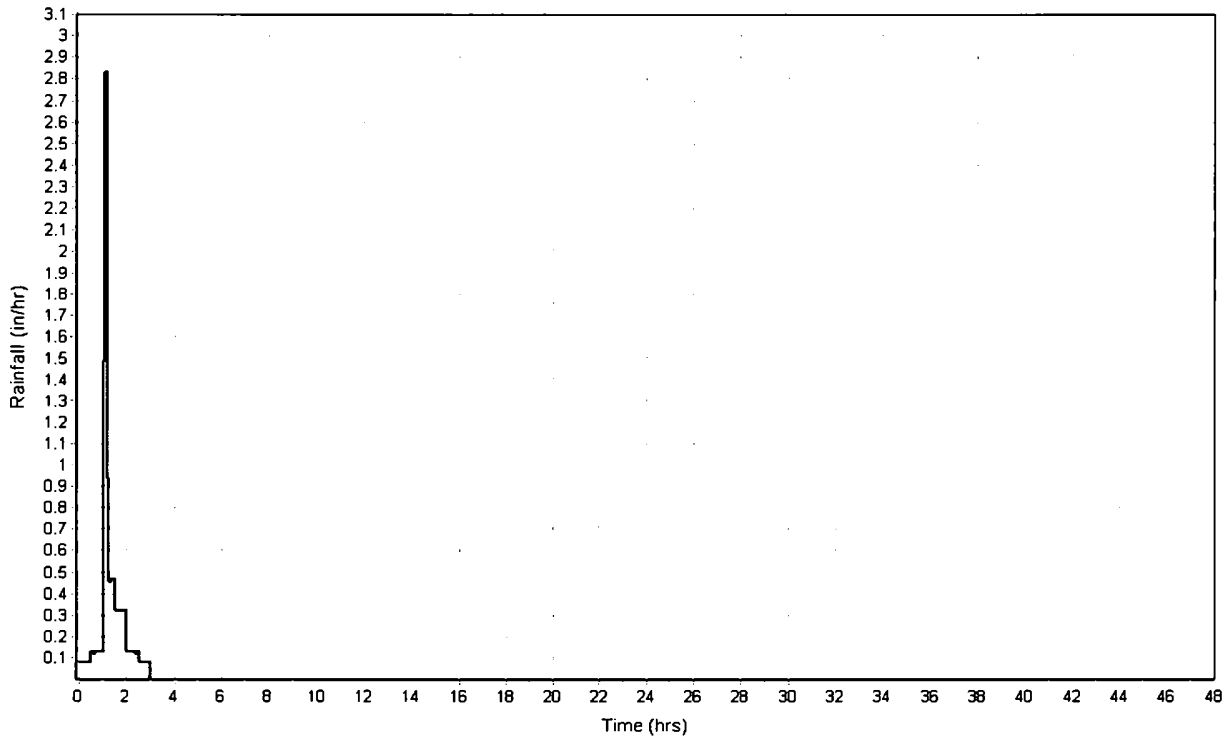
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	152.41	0.00	0.00
Slope (%) :	3.75	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.02	0.00	0.00
Computed Flow Time (min) :	2.48	0.00	0.00
Total TOC (min)	2.48		

Subbasin Runoff Results

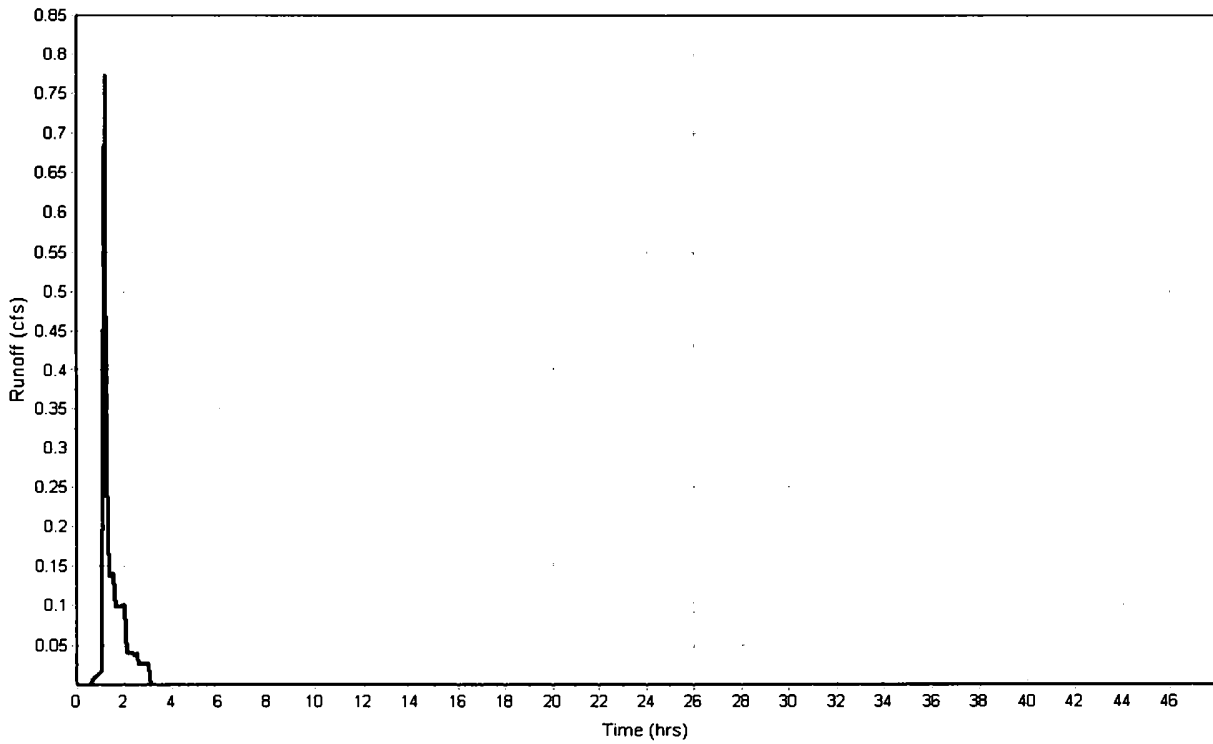
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.78
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:29

Subbasin : Sub-30

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-31

Input Data

Area (ac) 0.52
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.52	C	98.00
Composite Area & Weighted CN	0.52		98.00

Time of Concentration

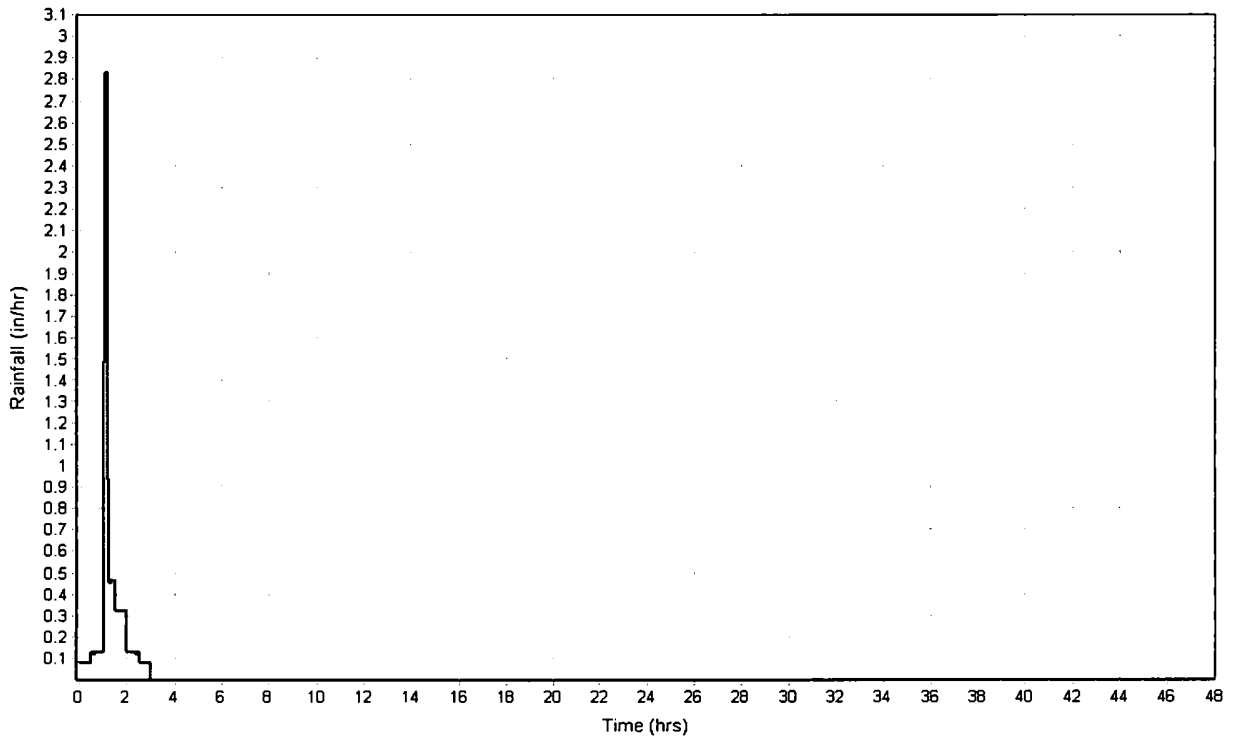
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	190.60	0.00	0.00
Slope (%) :	2.25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.87	0.00	0.00
Computed Flow Time (min) :	3.64	0.00	0.00
Total TOC (min)3.64			

Subbasin Runoff Results

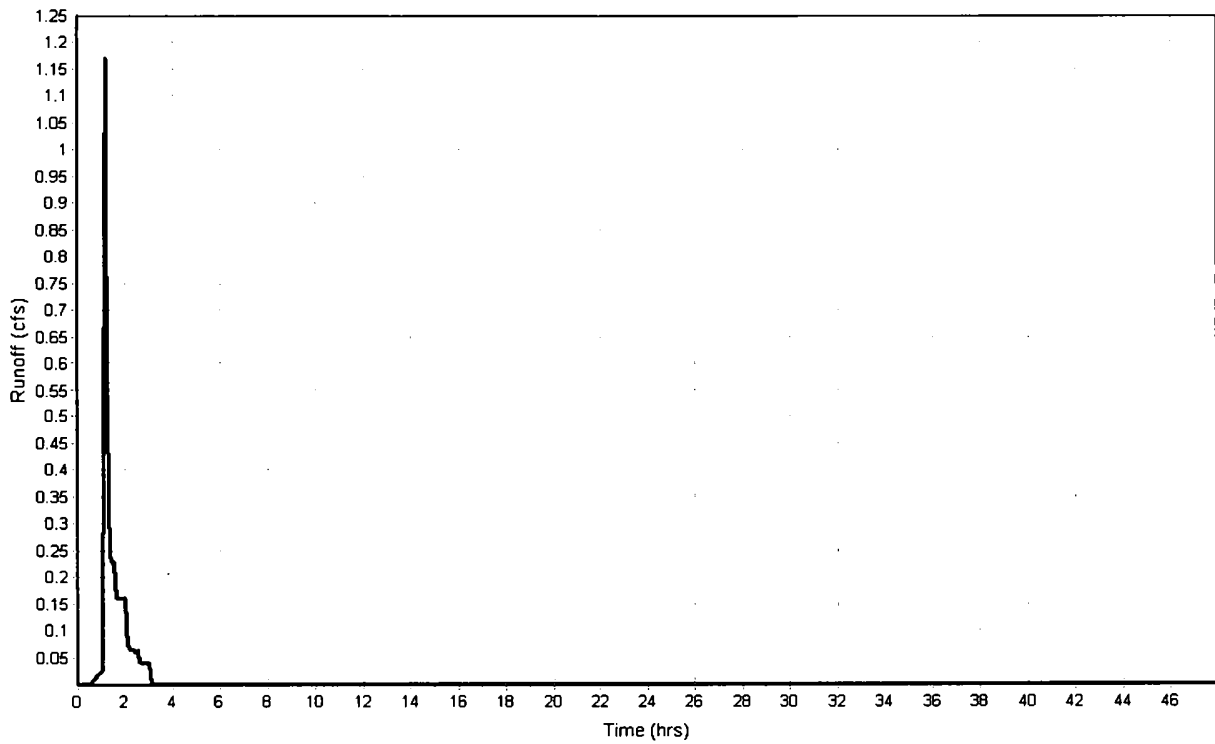
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.20
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:38

Subbasin : Sub-31

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-32

Input Data

Area (ac) 1.13
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.13	C	98.00
Composite Area & Weighted CN	1.13		98.00

Time of Concentration

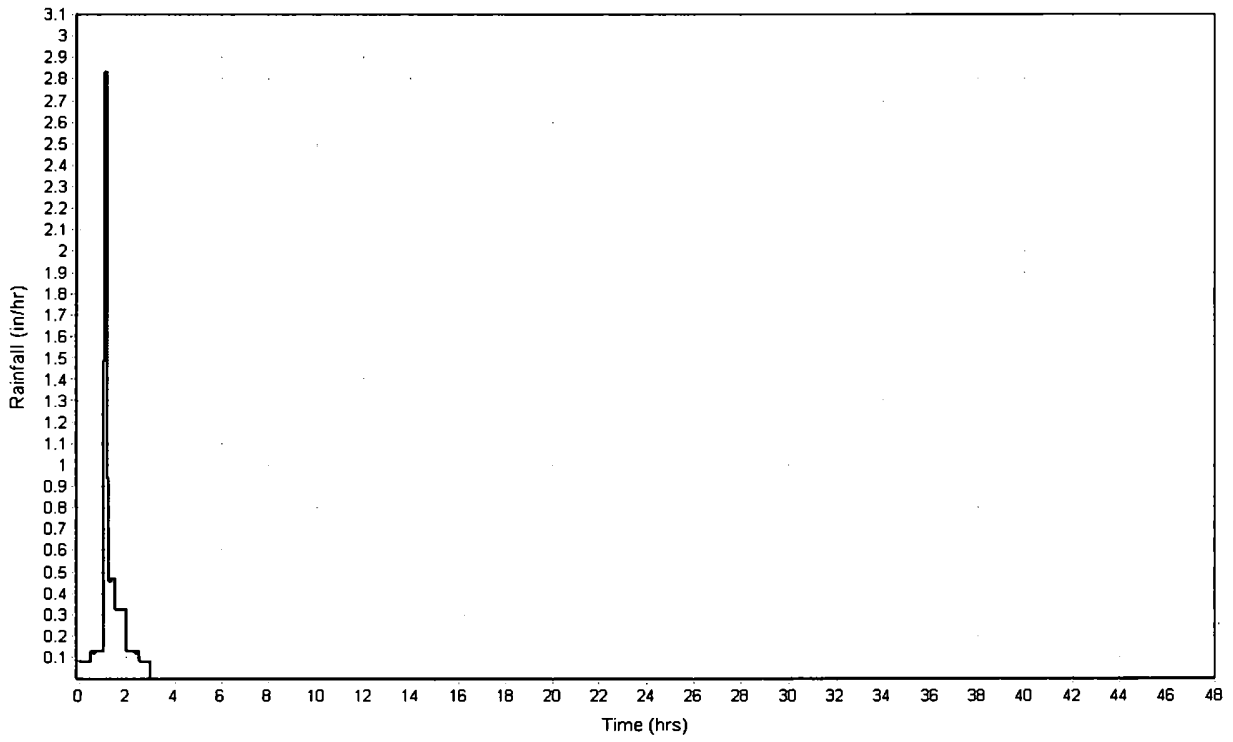
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	206.51	0.00	0.00
Slope (%) :	2.25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.89	0.00	0.00
Computed Flow Time (min) :	3.88	0.00	0.00
Total TOC (min)3.88			

Subbasin Runoff Results

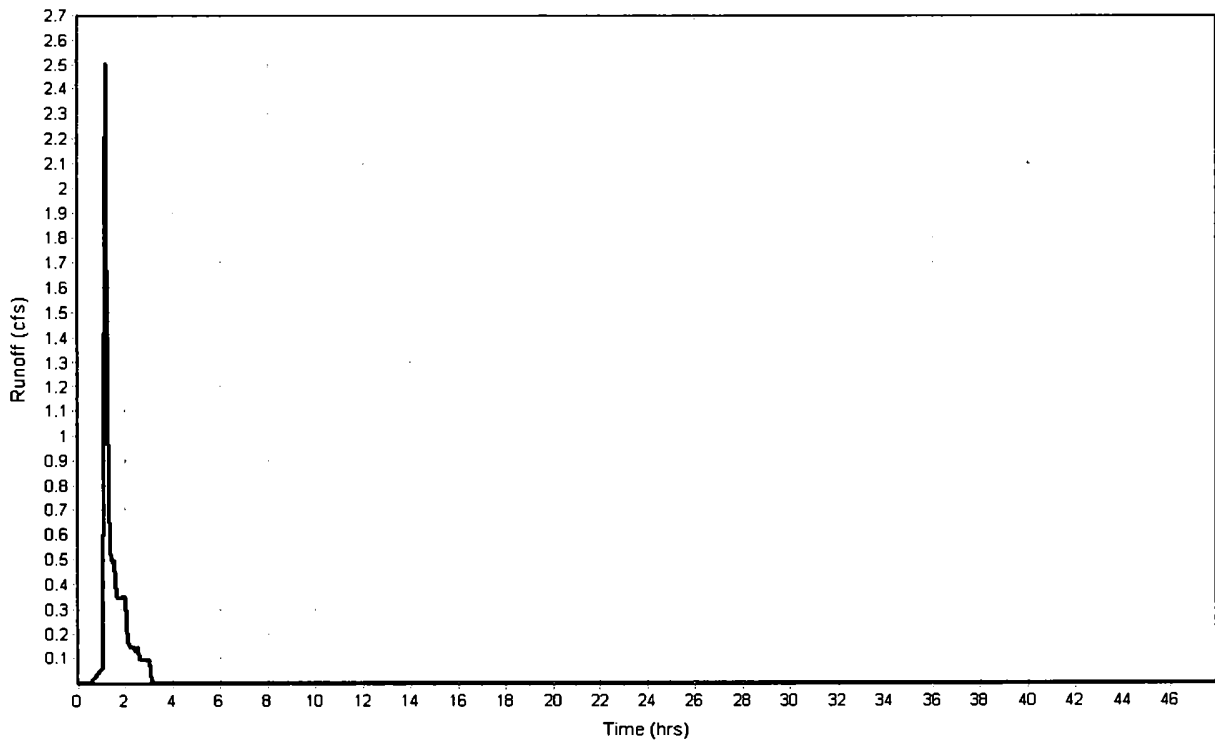
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 2.57
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:53

Subbasin : Sub-32

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-33

Input Data

Area (ac) 0.26
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.26	C	98.00
Composite Area & Weighted CN	0.26		98.00

Time of Concentration

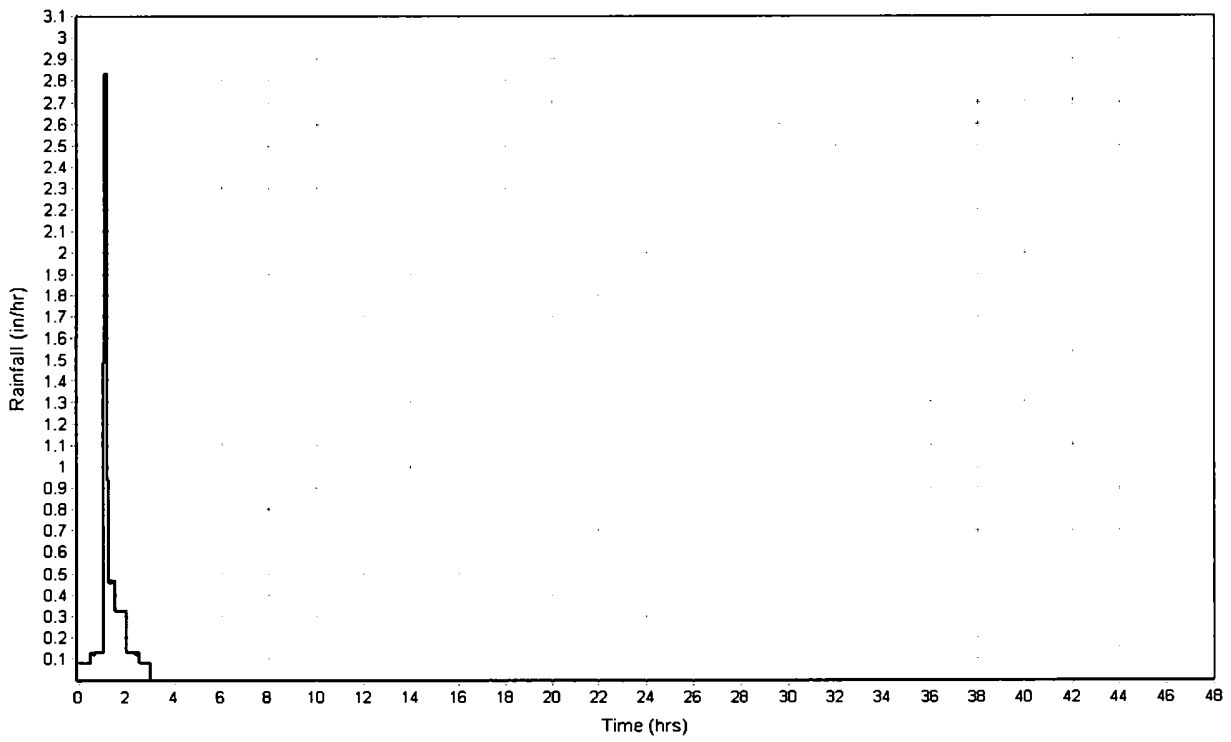
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	128.59	0.00	0.00
Slope (%) :	2.0	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.77	0.00	0.00
Computed Flow Time (min) :	2.78	0.00	0.00
Total TOC (min)	2.78		

Subbasin Runoff Results

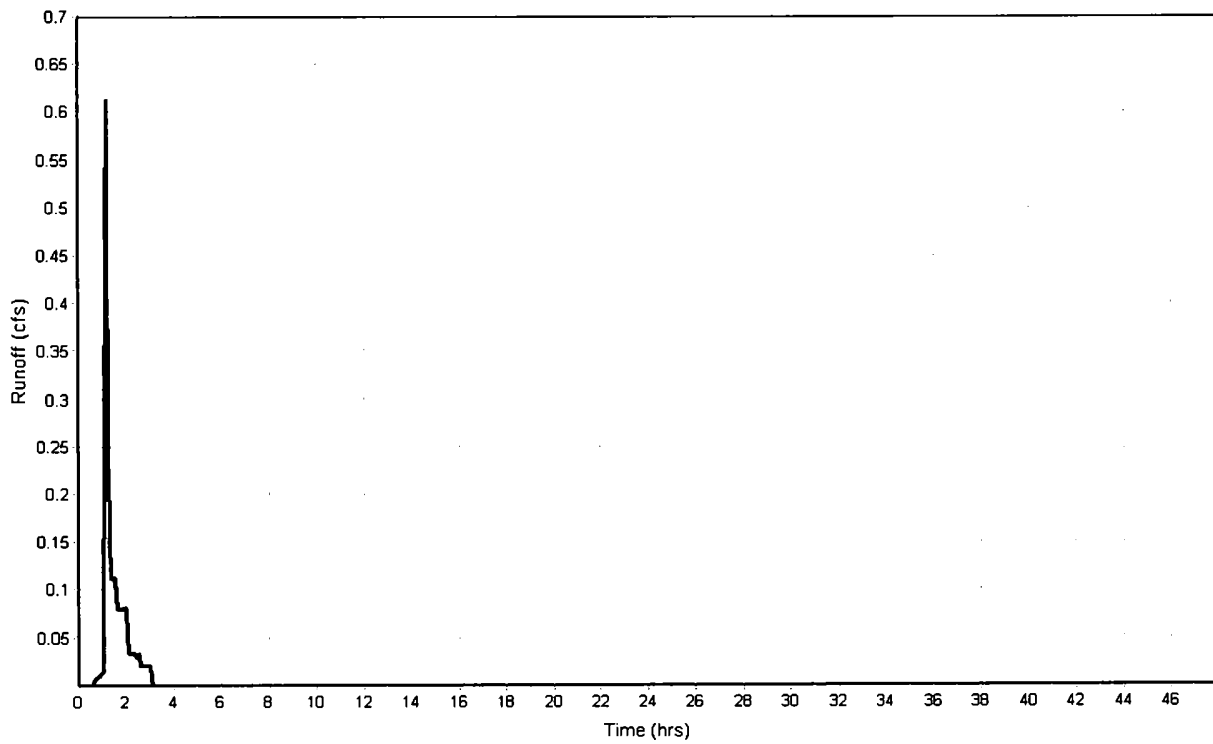
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.61
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:47

Subbasin : Sub-33

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-34

Input Data

Area (ac) 0.14
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.14	C	98.00
Composite Area & Weighted CN	0.14		98.00

Time of Concentration

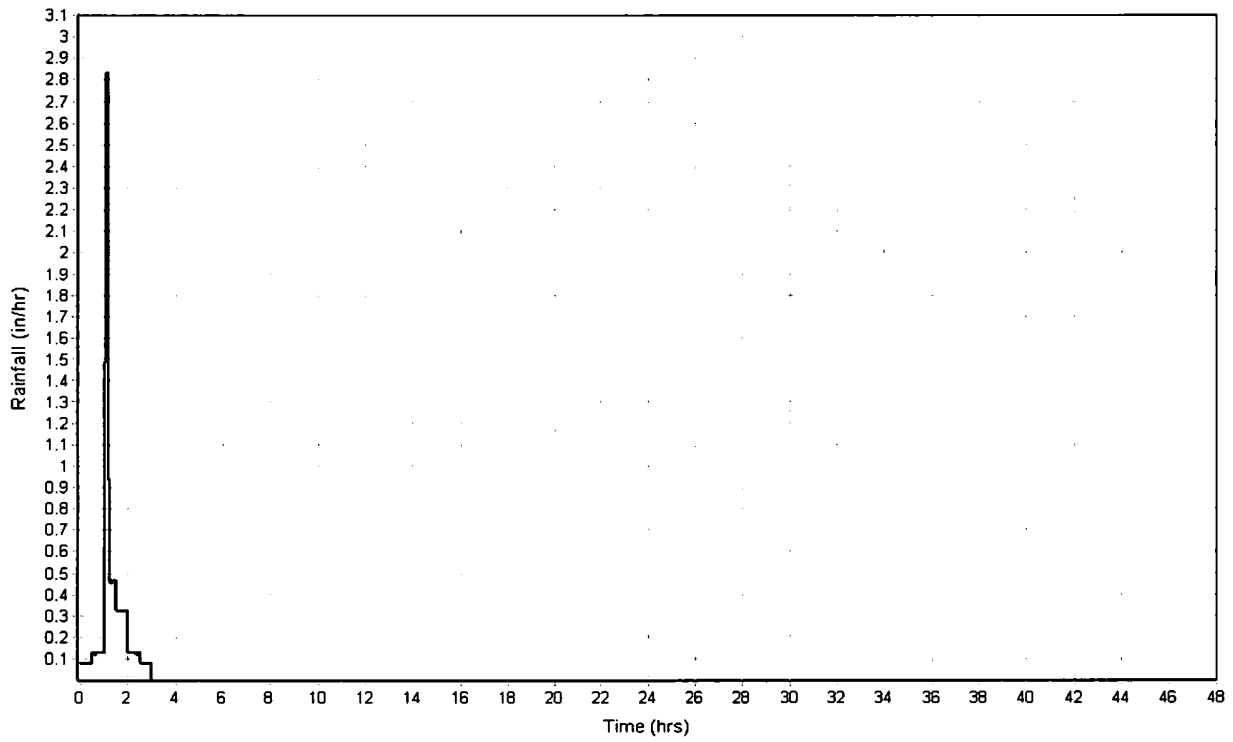
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	48.67	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.57	0.00	0.00
Computed Flow Time (min) :	1.44	0.00	0.00
Total TOC (min)	1.44		

Subbasin Runoff Results

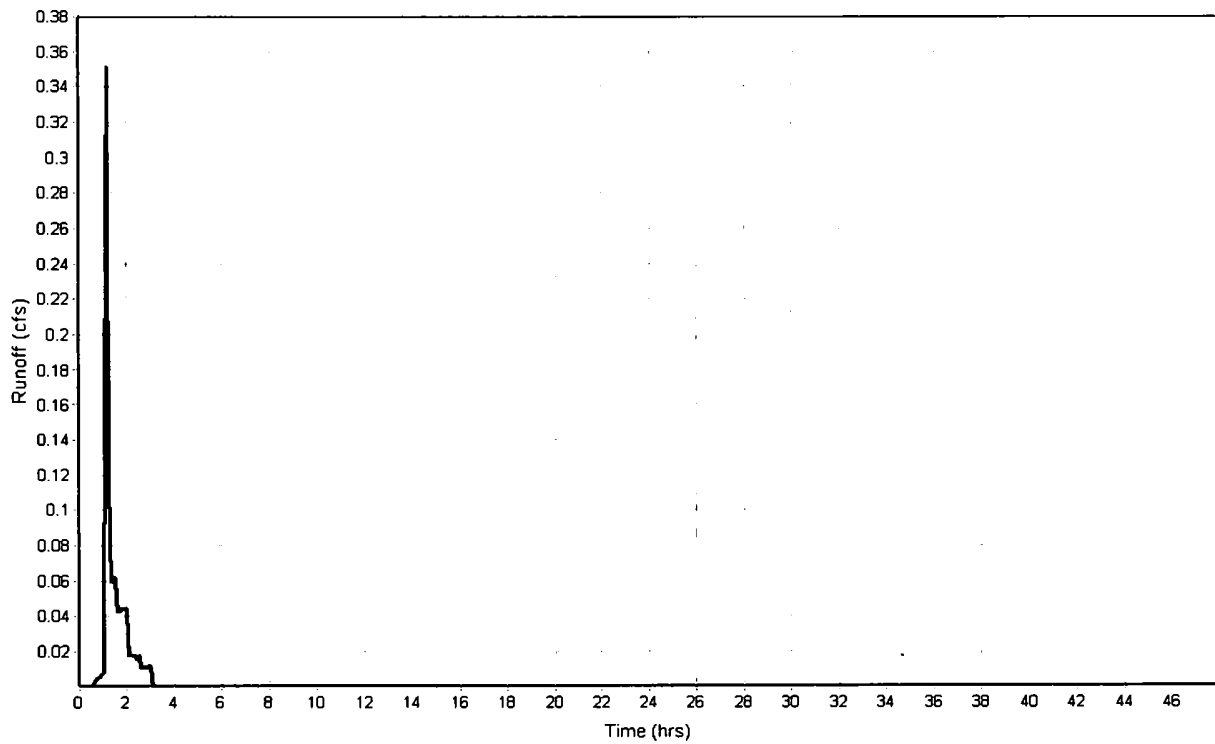
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.35
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:26

Subbasin : Sub-34

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-35

Input Data

Area (ac) 0.03
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.03	C	98.00
Composite Area & Weighted CN	0.03		98.00

Time of Concentration

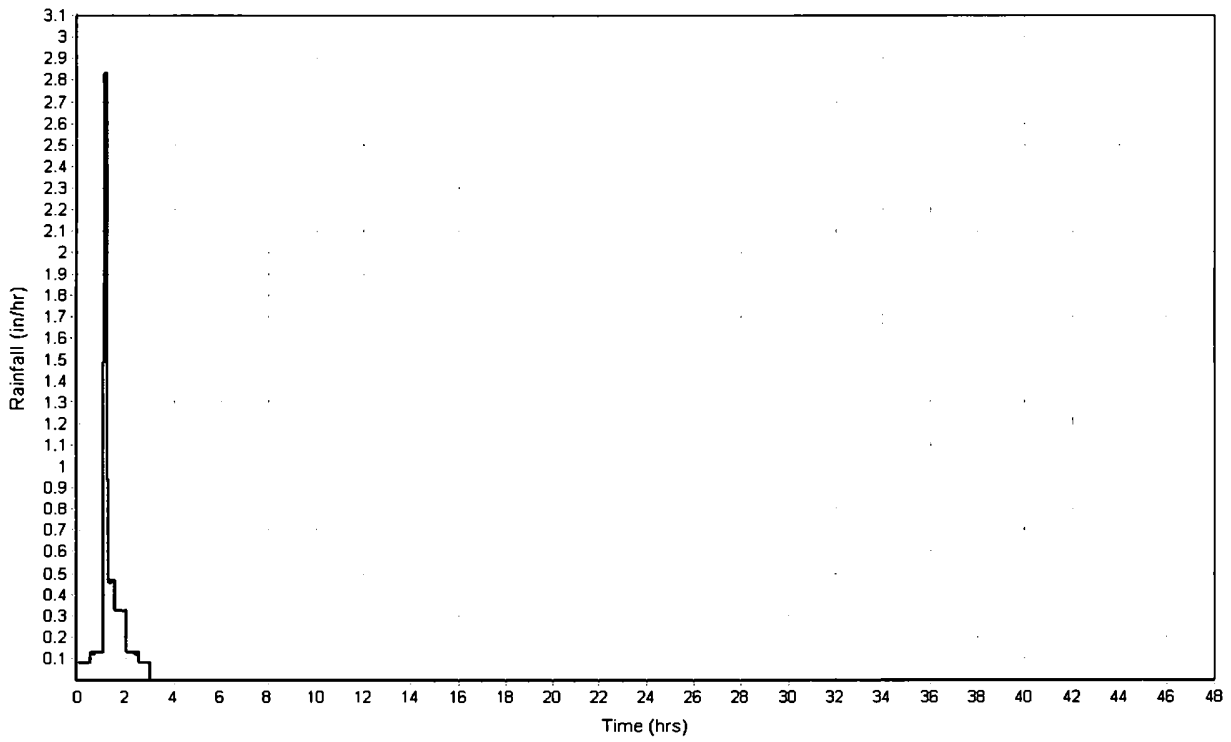
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	11.85	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.43	0.00	0.00
Computed Flow Time (min) :	0.46	0.00	0.00
Total TOC (min)0.46			

Subbasin Runoff Results

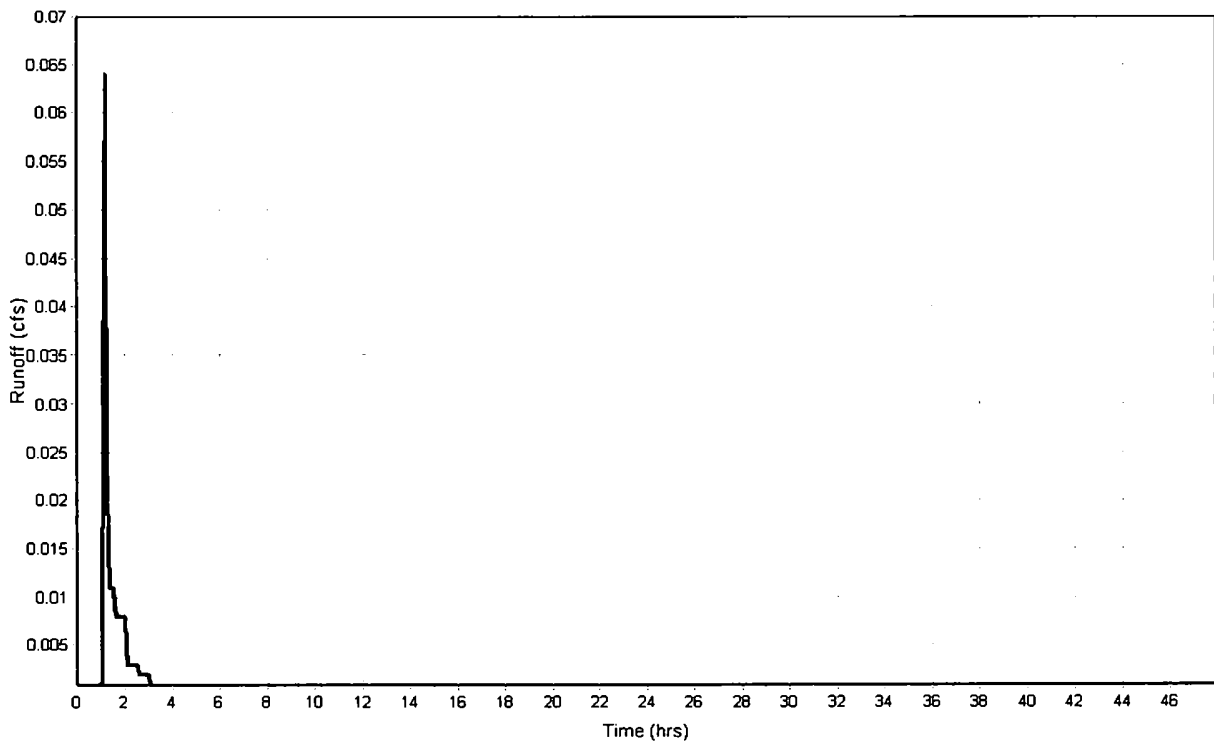
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.06
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:28

Subbasin : Sub-35

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-36

Input Data

Area (ac) 0.56
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.56	C	98.00
Composite Area & Weighted CN	0.56		98.00

Time of Concentration

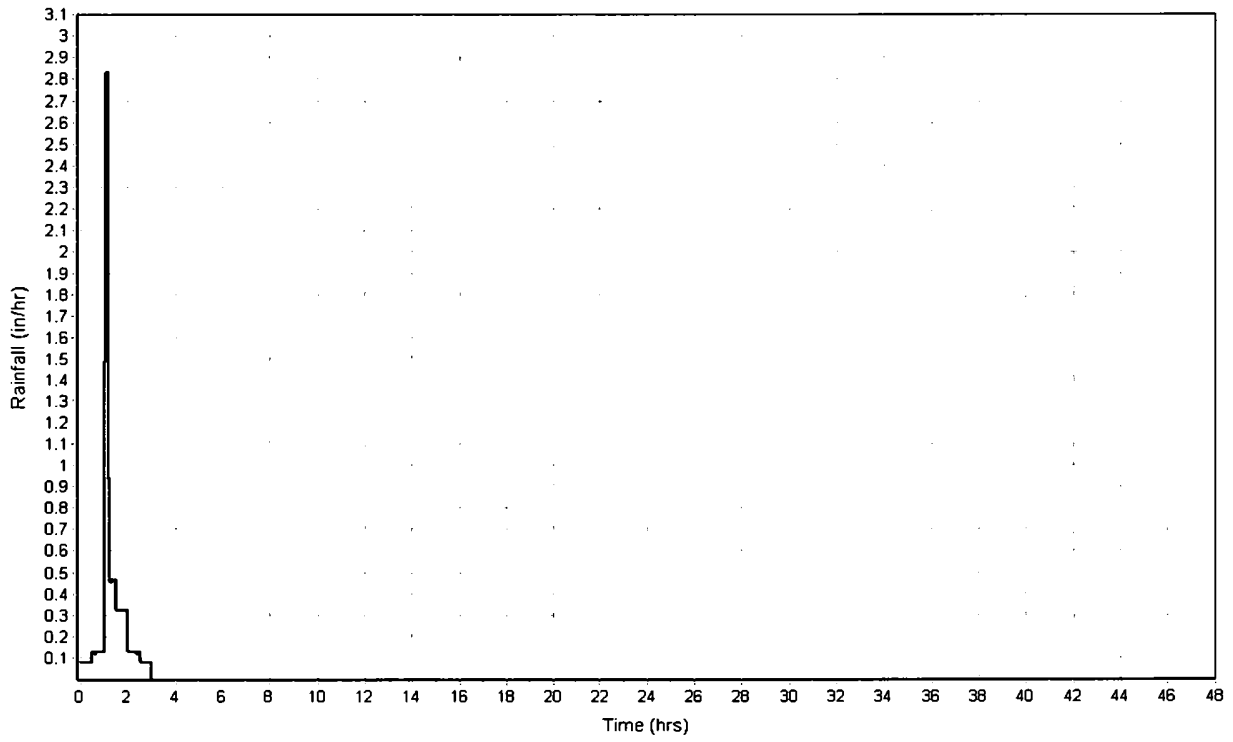
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	98.60	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.65	0.00	0.00
Computed Flow Time (min) :	2.52	0.00	0.00
Total TOC (min)	2.52		

Subbasin Runoff Results

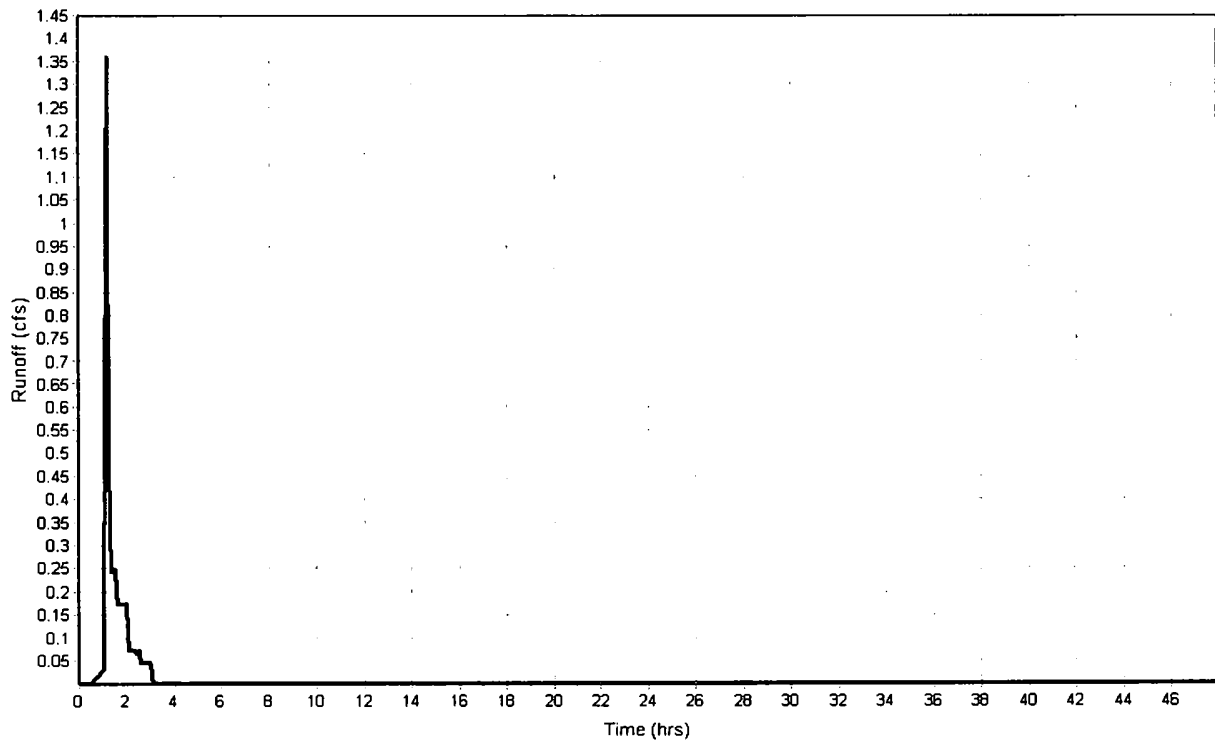
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.37
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:31

Subbasin : Sub-36

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-37

Input Data

Area (ac) 0.04
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.04	C	98.00
Composite Area & Weighted CN	0.04		98.00

Time of Concentration

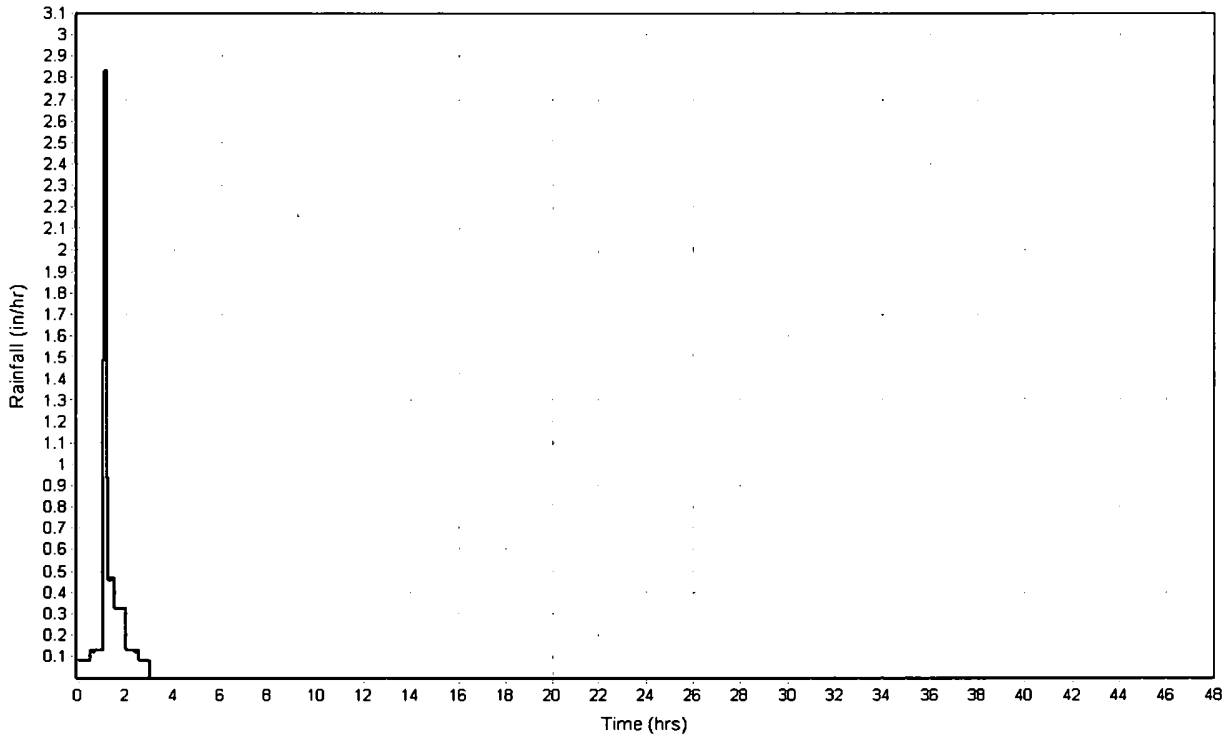
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	43.16	0.00	0.00
Slope (%) :	3.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.77	0.00	0.00
Computed Flow Time (min) :	0.93	0.00	0.00
Total TOC (min)0.93			

Subbasin Runoff Results

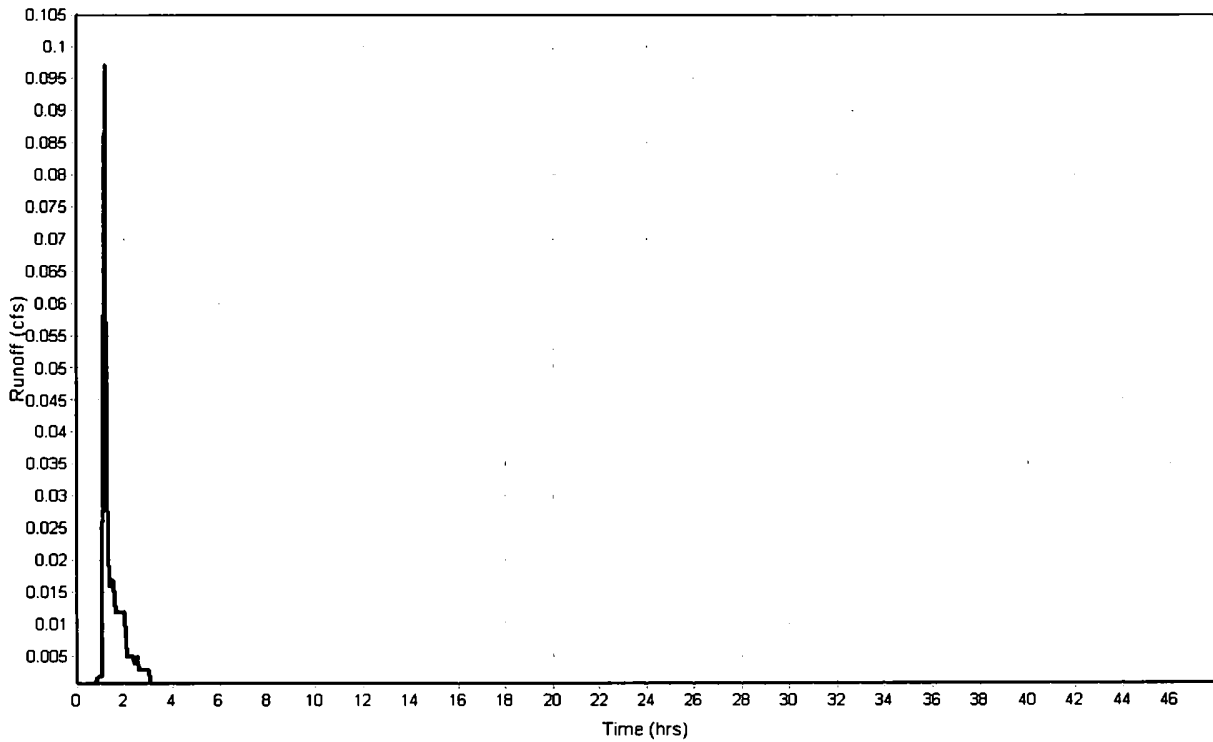
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.10
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:56

Subbasin : Sub-37

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-38

Input Data

Area (ac) 0.02
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.02	C	98.00
Composite Area & Weighted CN	0.02		98.00

Time of Concentration

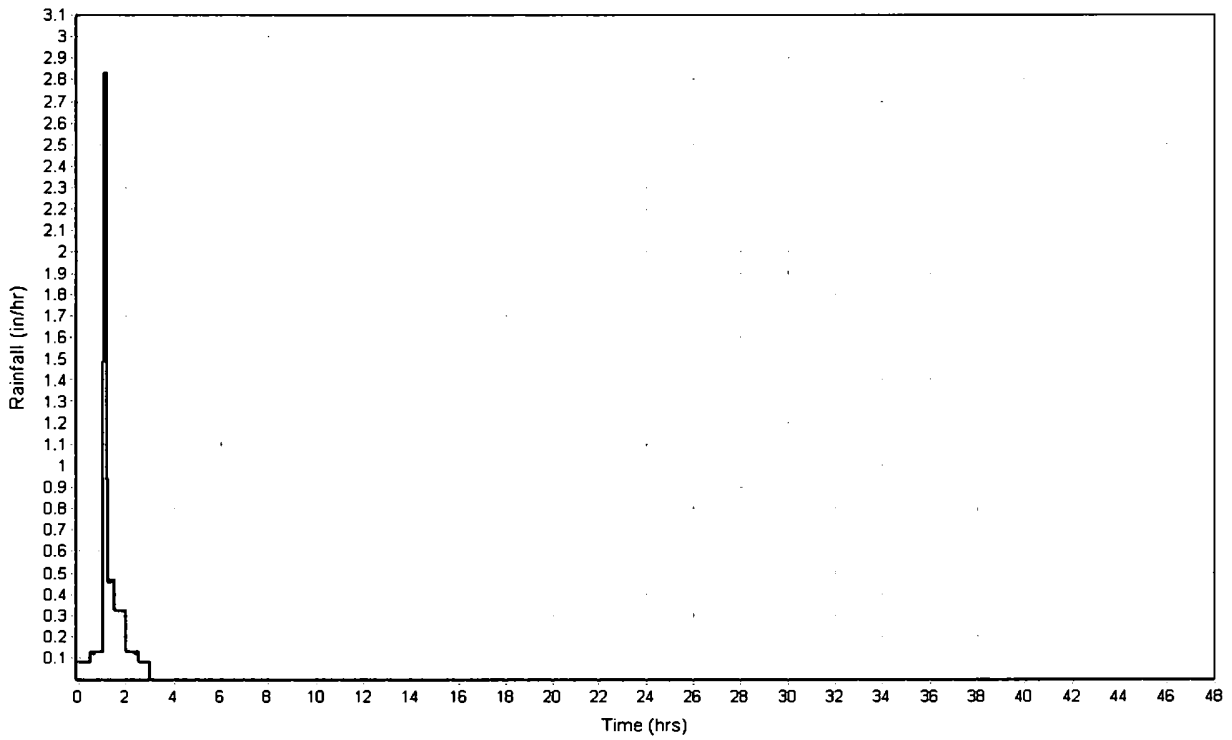
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	15.81	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.51	0.00	0.00
Computed Flow Time (min) :	0.52	0.00	0.00
Total TOC (min) 0.52			

Subbasin Runoff Results

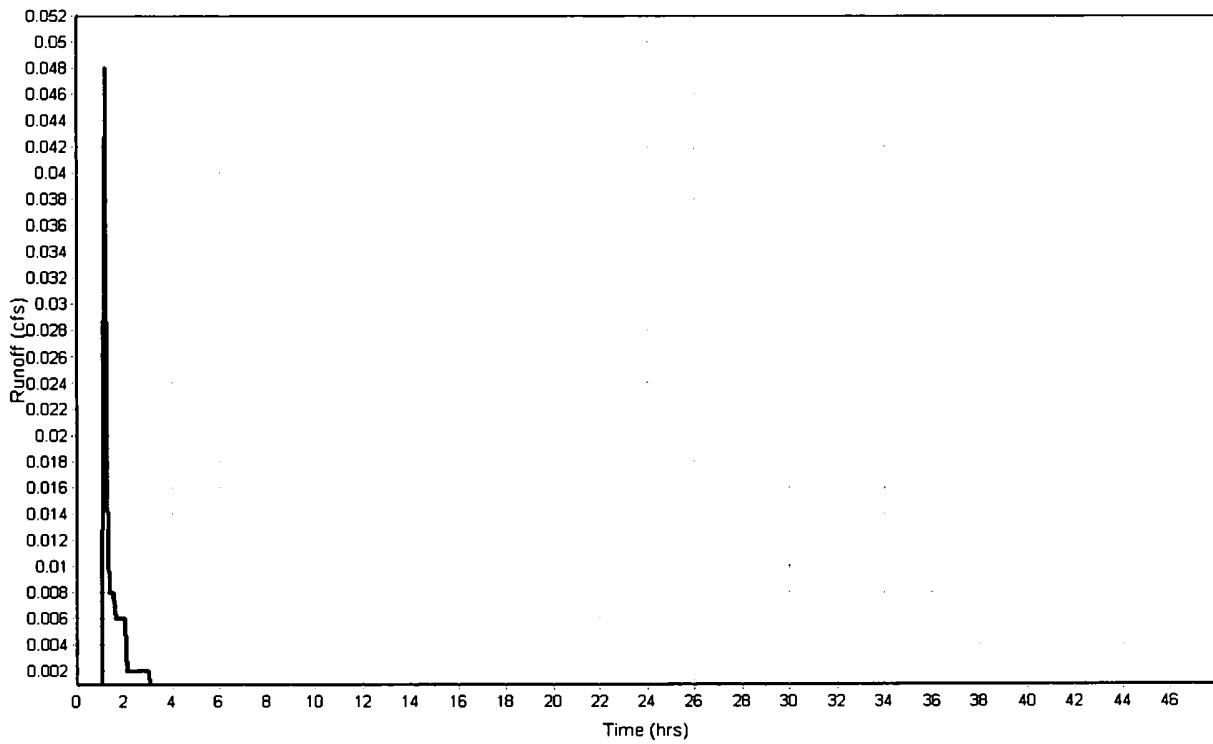
Total Rainfall (in) 0.93
 Total Runoff (in) 0.71
 Peak Runoff (cfs) 0.05
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:31

Subbasin : Sub-38

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-39

Input Data

Area (ac) 0.10
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.10	C	98.00
Composite Area & Weighted CN	0.10		98.00

Time of Concentration

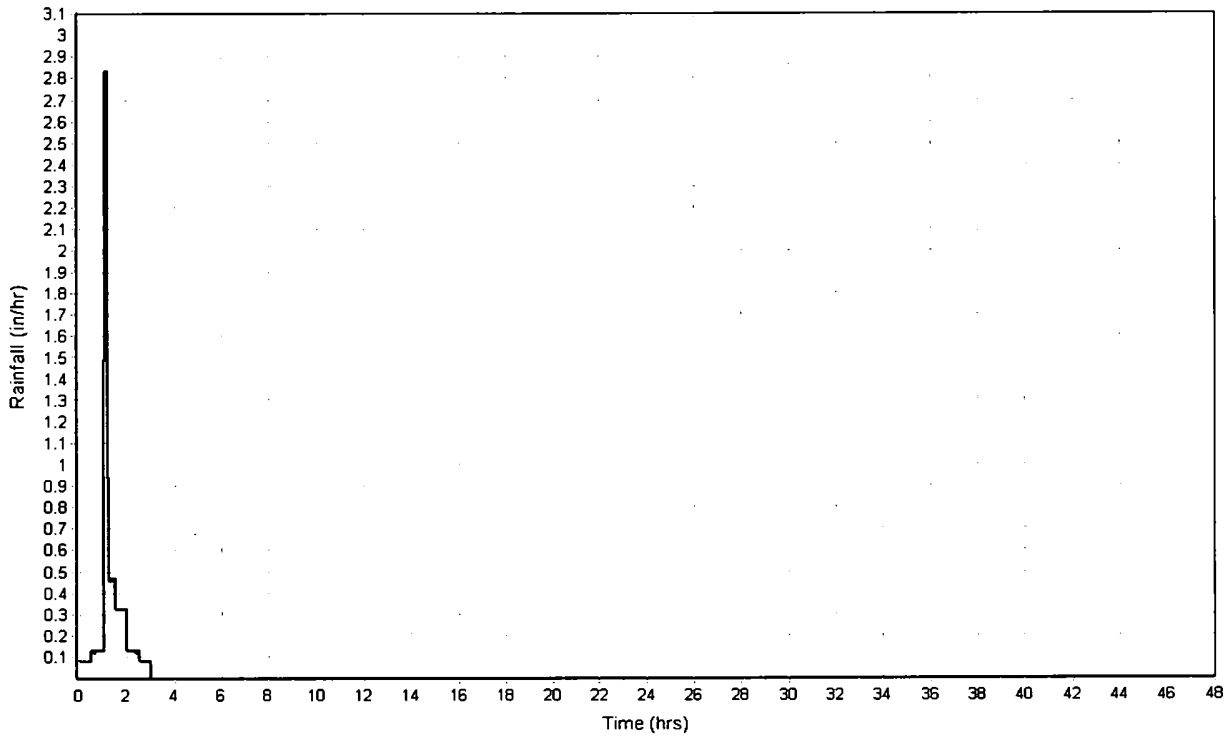
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	29.95	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.51	0.00	0.00
Computed Flow Time (min) :	0.97	0.00	0.00
Total TOC (min)	0.97		

Subbasin Runoff Results

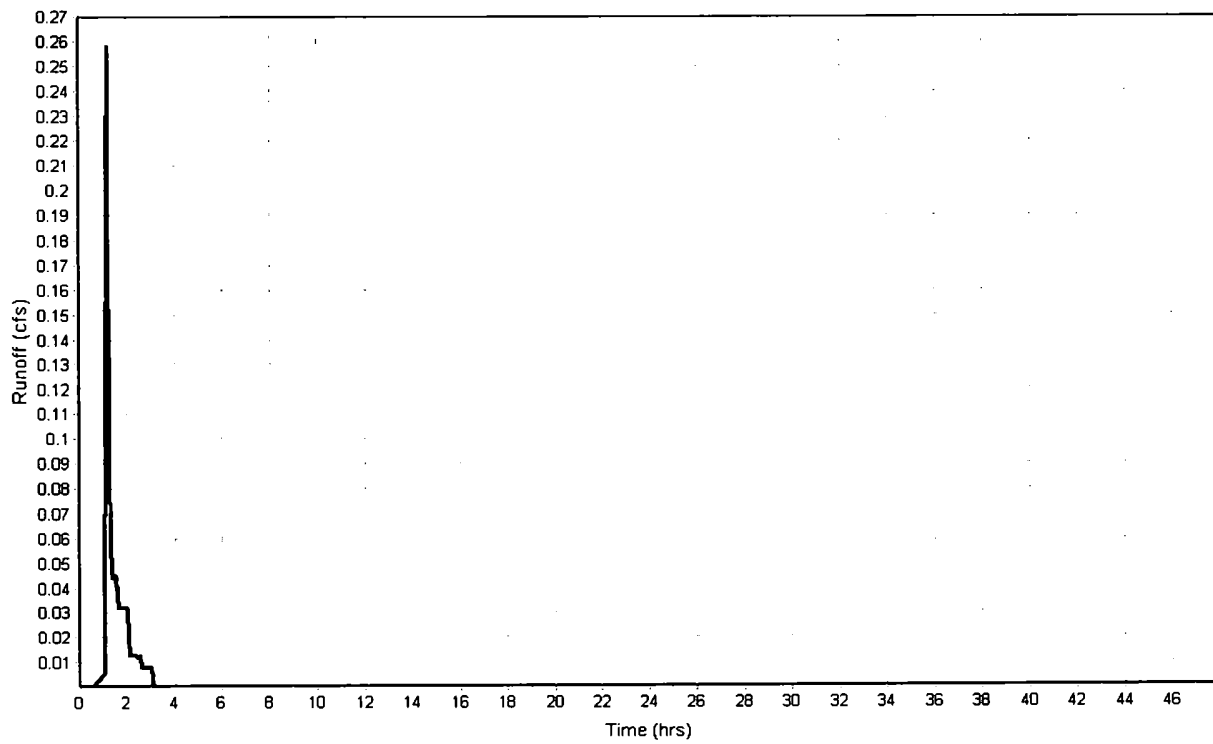
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.26
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:58

Subbasin : Sub-39

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-40

Input Data

Area (ac) 0.63
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.63	C	98.00
Composite Area & Weighted CN	0.63		98.00

Time of Concentration

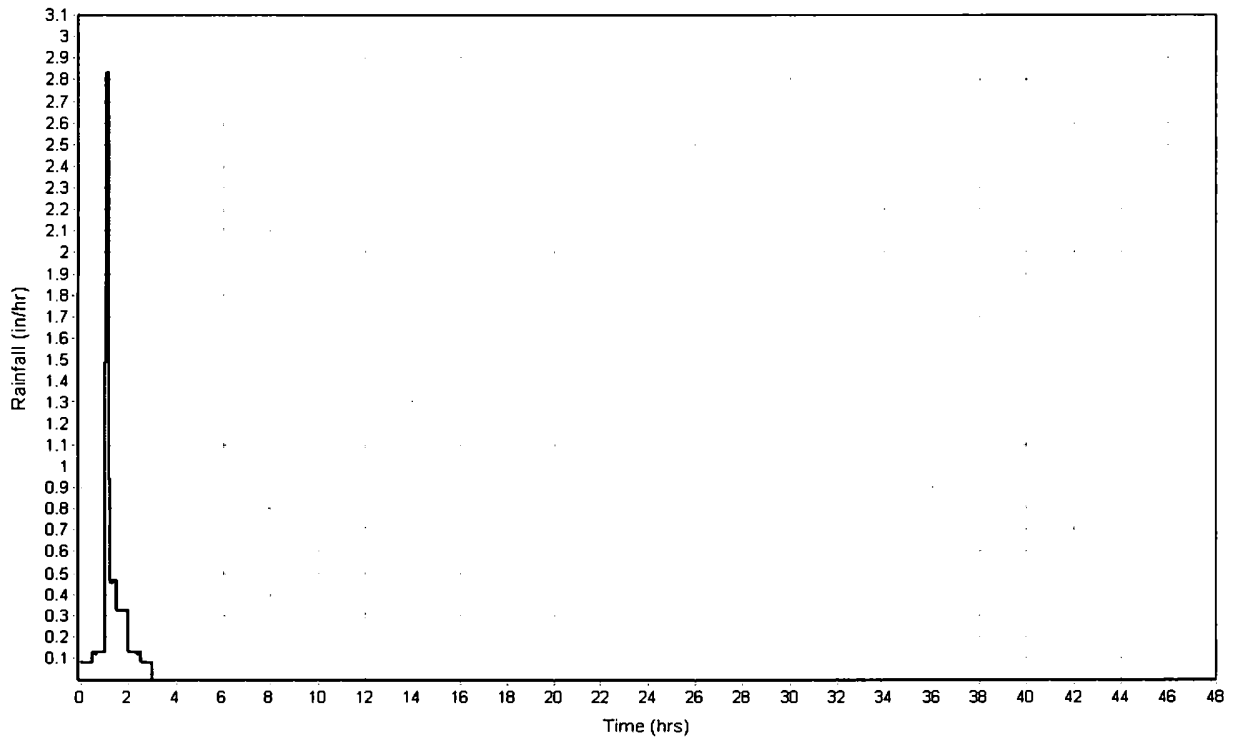
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	242.53	0.00	0.00
Slope (%) :	2.15	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.90	0.00	0.00
Computed Flow Time (min) :	4.49	0.00	0.00
Total TOC (min) 4.49			

Subbasin Runoff Results

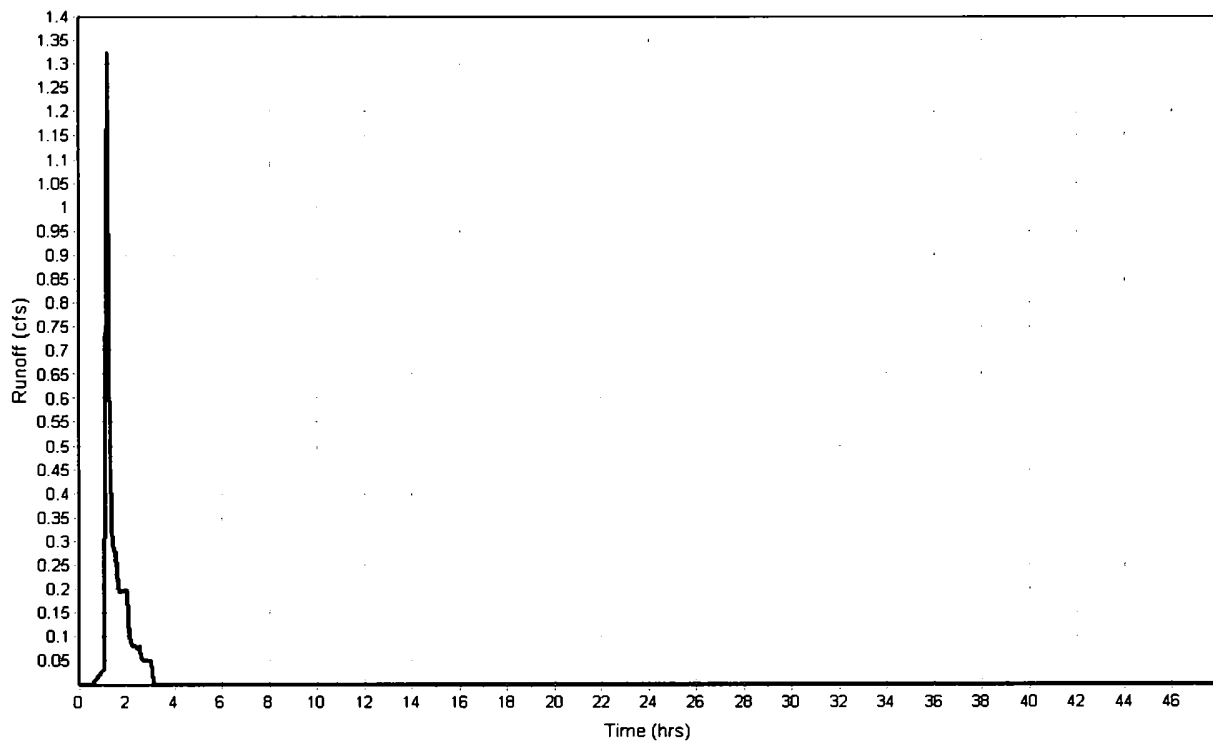
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.40
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:29

Subbasin : Sub-40

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-41

Input Data

Area (ac) 0.24
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.24	C	98.00
Composite Area & Weighted CN	0.24		98.00

Time of Concentration

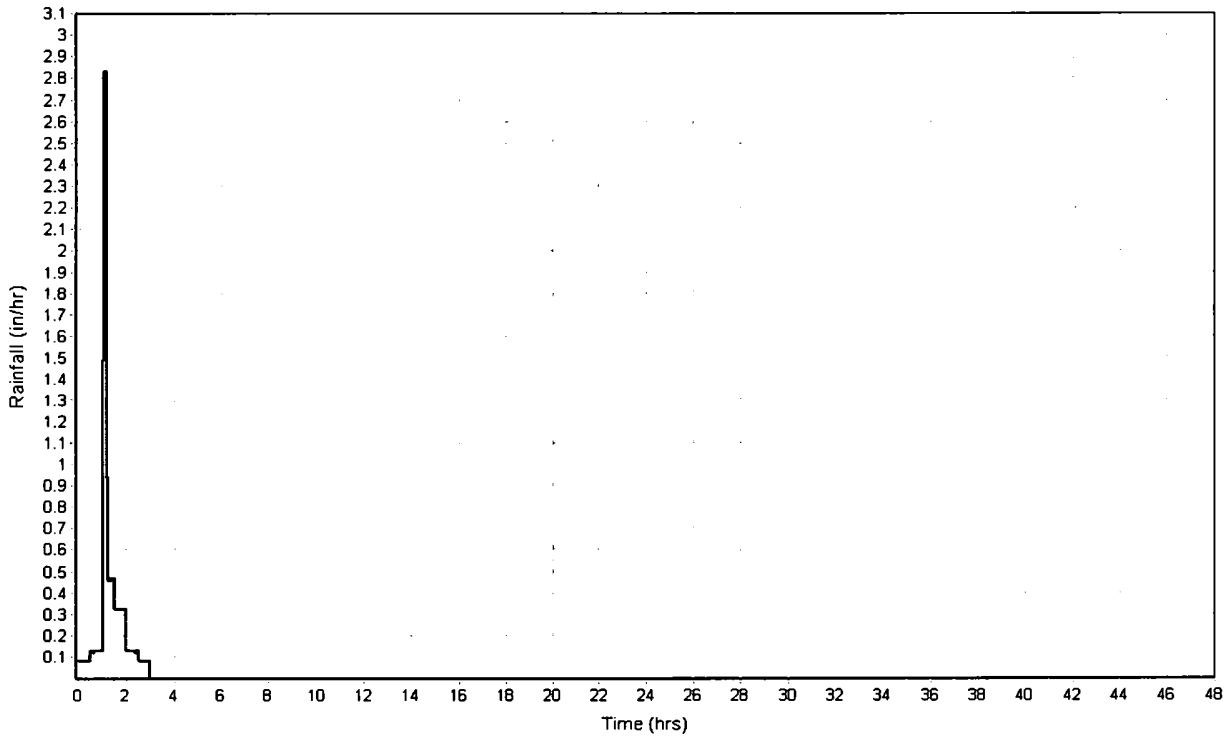
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	91.23	0.00	0.00
Slope (%) :	4	0.00	0.00
2 yr. 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.95	0.00	0.00
Computed Flow Time (min) :	1.60	0.00	0.00
Total TOC (min) 1.60			

Subbasin Runoff Results

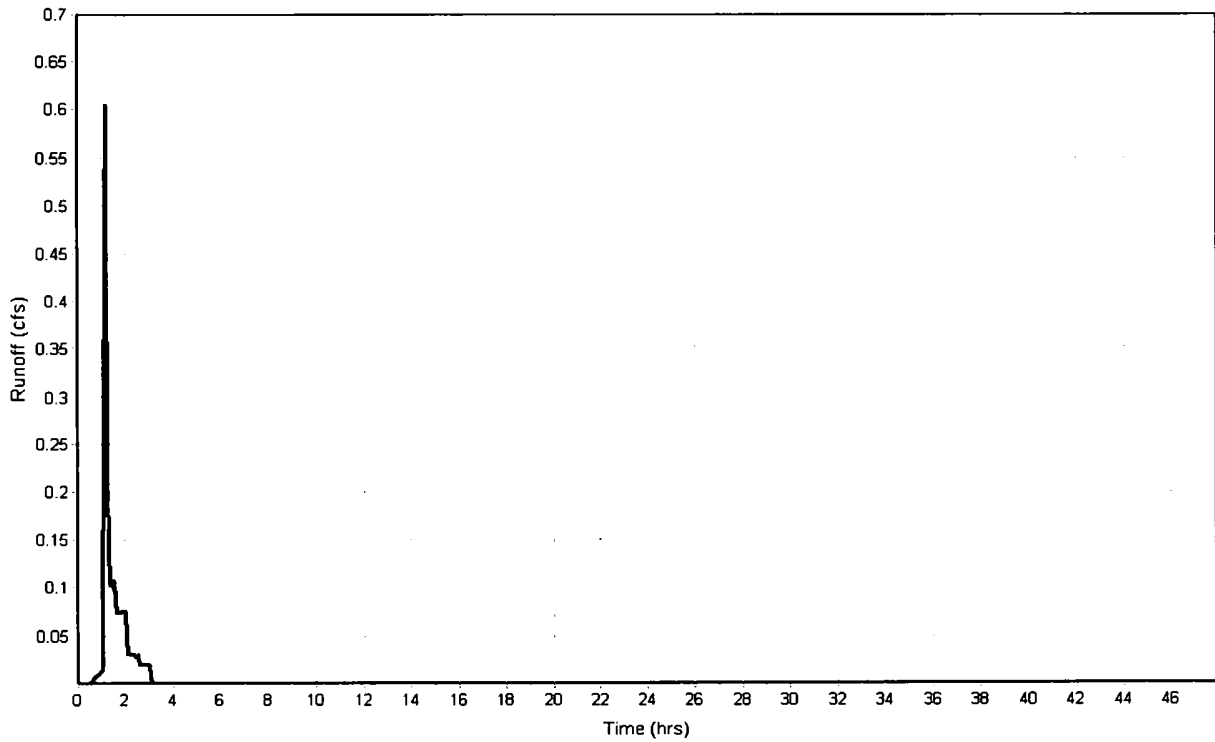
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.61
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:36

Subbasin : Sub-41

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-42

Input Data

Area (ac) 0.01
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.01	C	98.00
Composite Area & Weighted CN	0.01		98.00

Time of Concentration

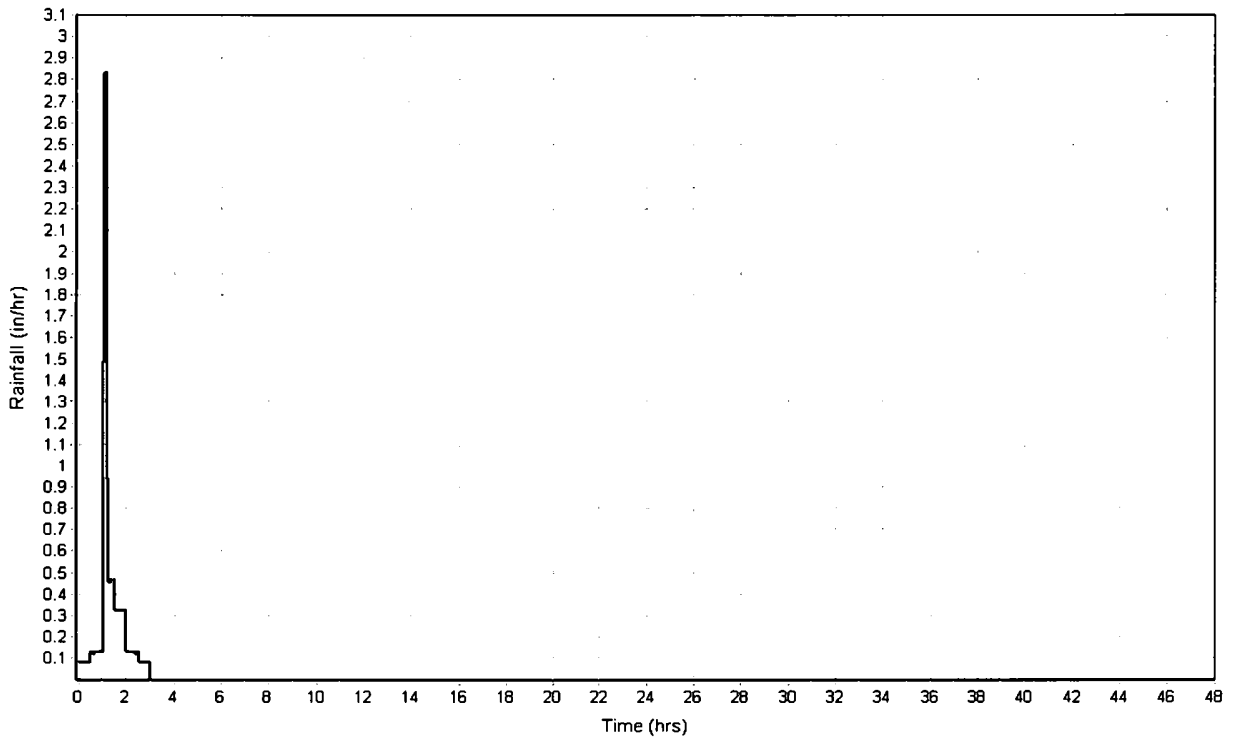
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	12.94	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.43	0.00	0.00
Computed Flow Time (min) :	0.50	0.00	0.00
Total TOC (min) 0.50			

Subbasin Runoff Results

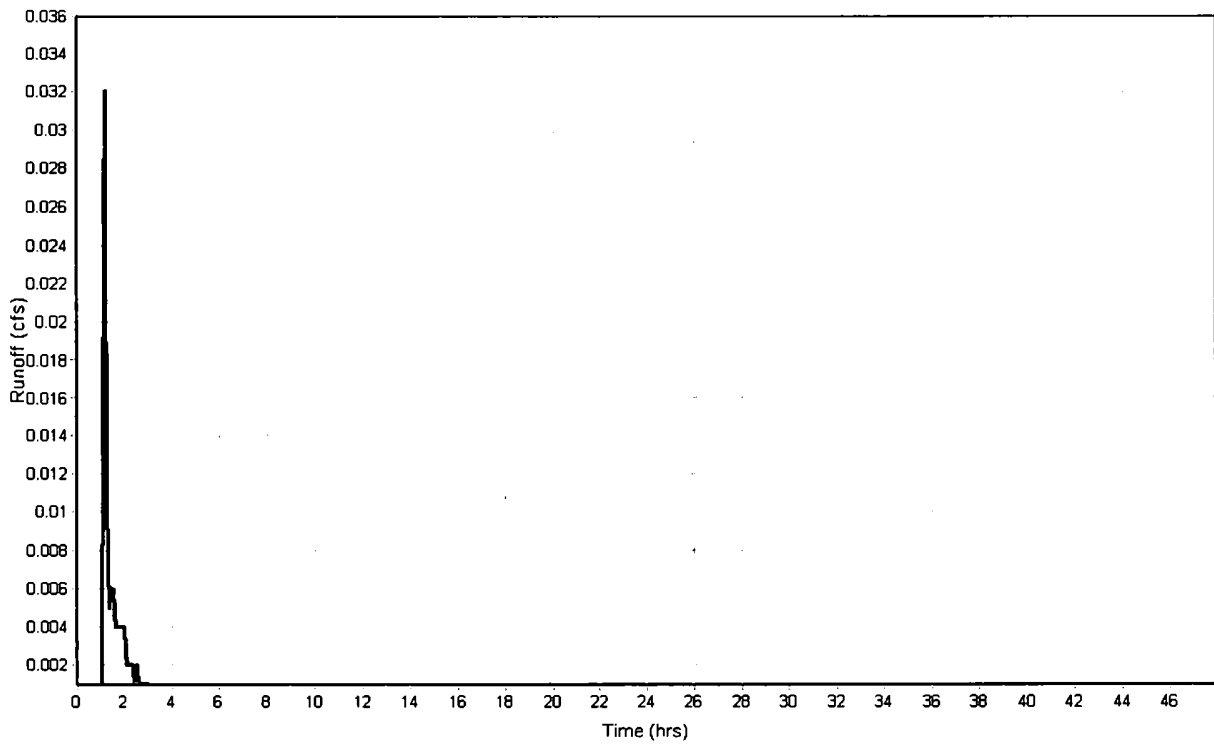
Total Rainfall (in) 0.93
 Total Runoff (in) 0.71
 Peak Runoff (cfs) 0.03
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:30

Subbasin : Sub-42

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-43

Input Data

Area (ac) 0.20
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.20	C	98.00
Composite Area & Weighted CN	0.20		98.00

Time of Concentration

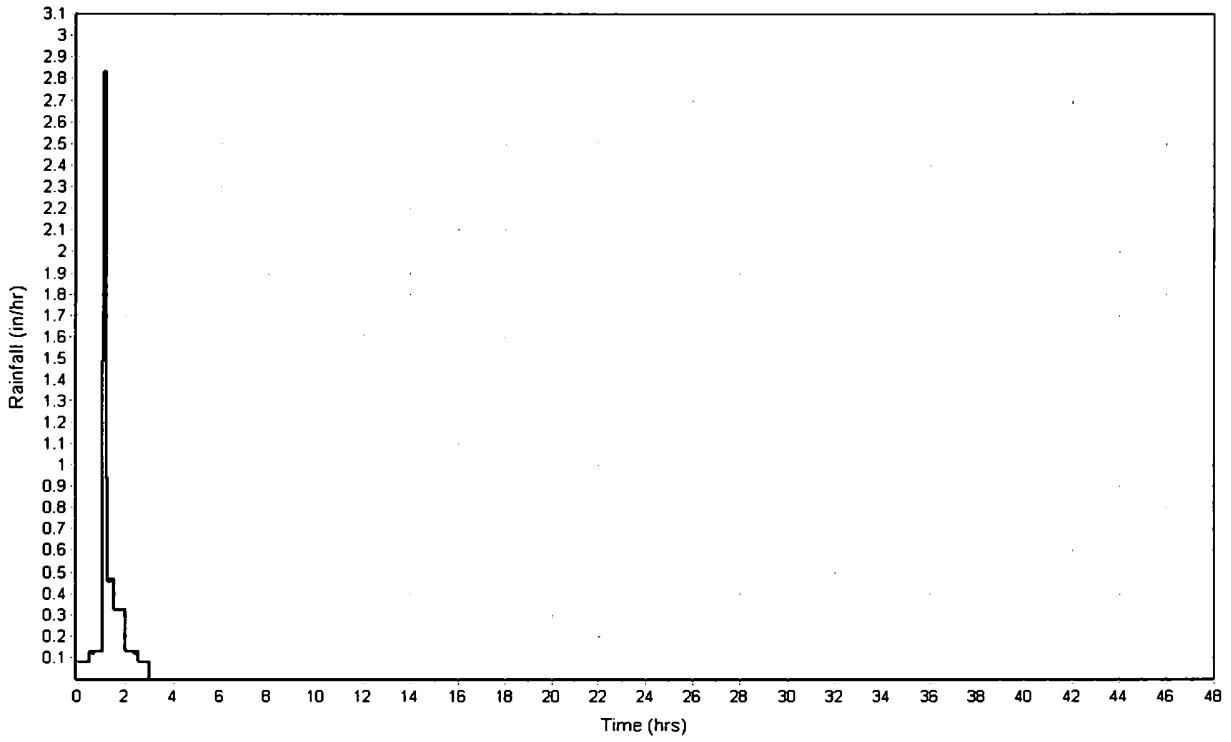
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	57.21	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.58	0.00	0.00
Computed Flow Time (min) :	1.63	0.00	0.00
Total TOC (min)	1.63		

Subbasin Runoff Results

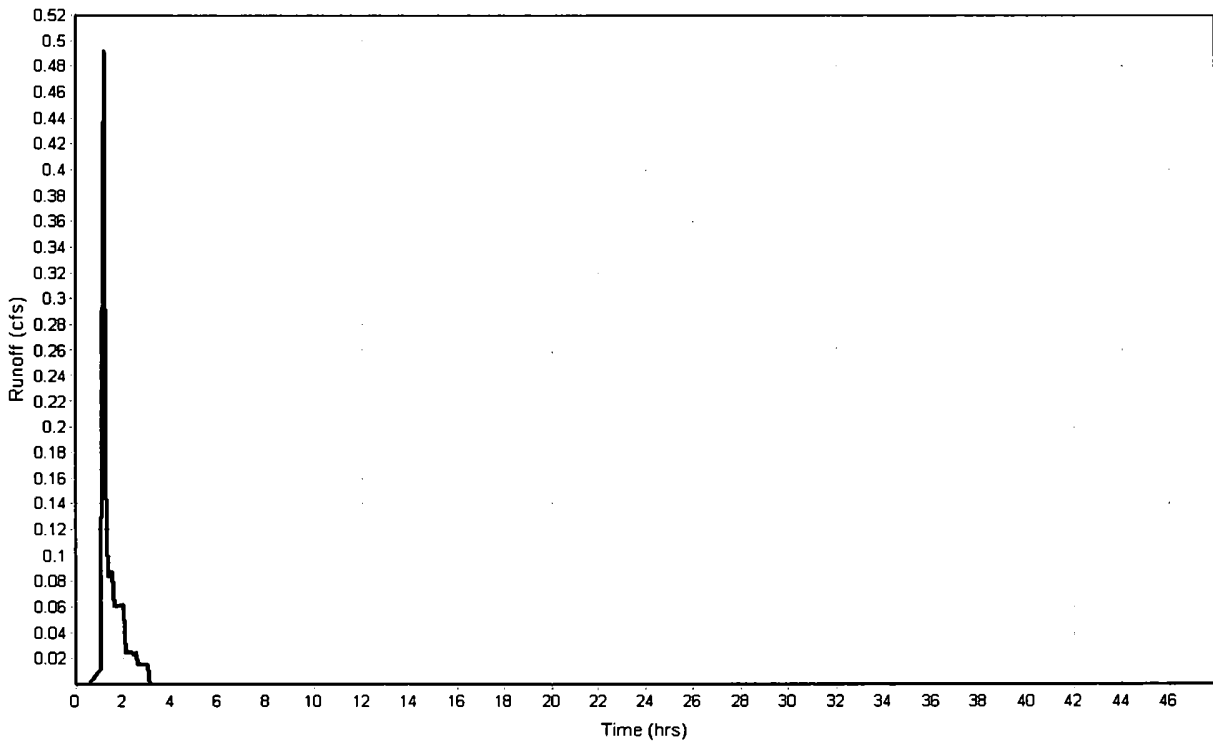
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.49
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:01:38

Subbasin : Sub-43

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-44

Input Data

Area (ac) 0.09
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.09	C	98.00
Composite Area & Weighted CN	0.09		98.00

Time of Concentration

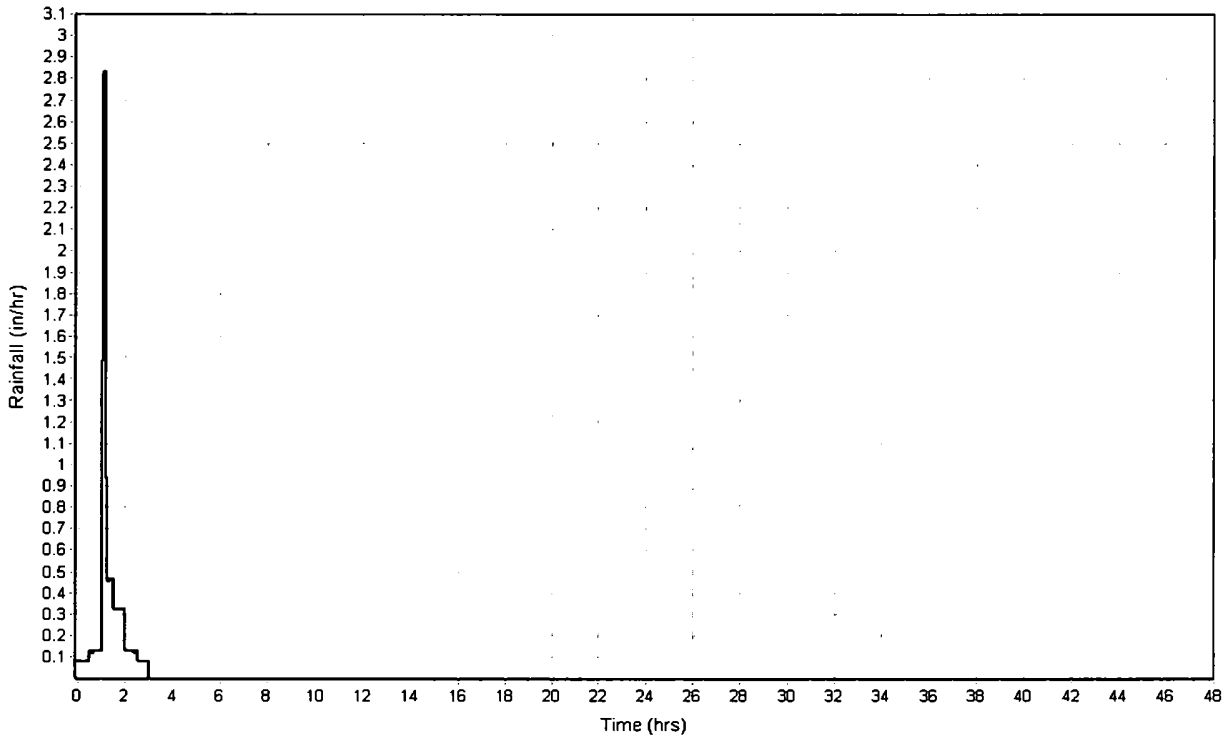
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	23.36	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.49	0.00	0.00
Computed Flow Time (min) :	0.80	0.00	0.00
Total TOC (min)0.80			

Subbasin Runoff Results

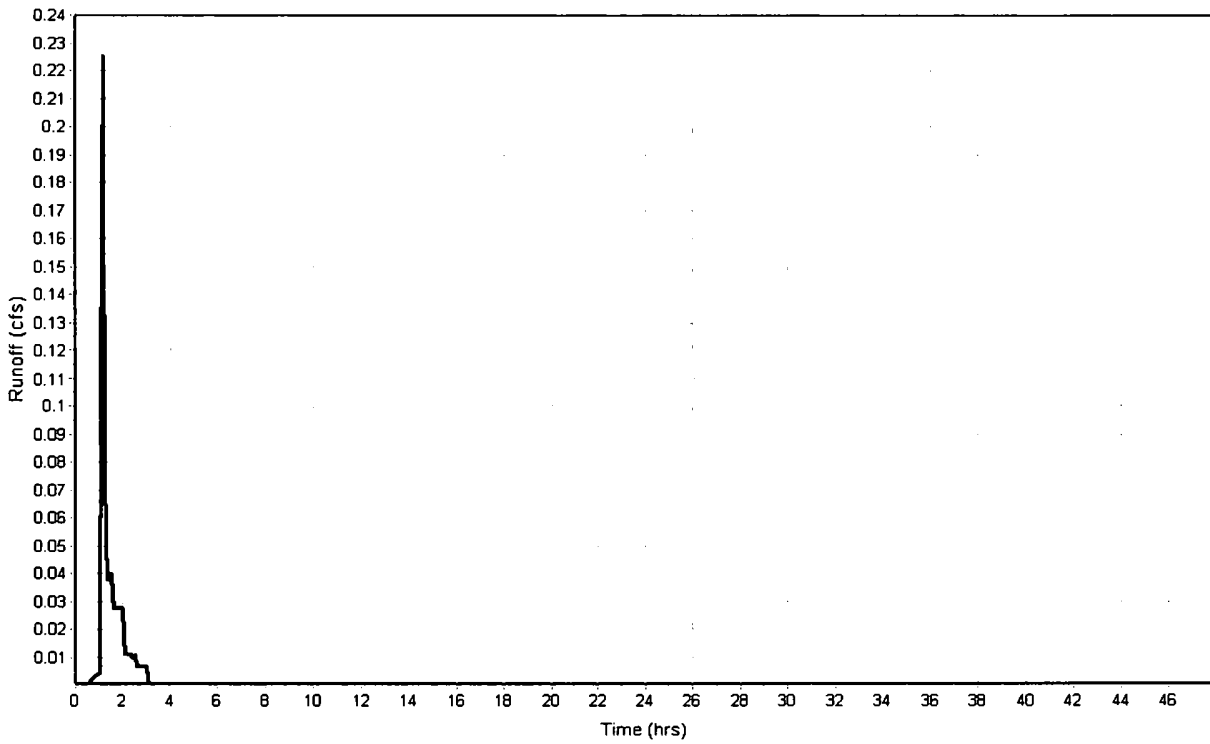
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.23
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:00:48

Subbasin : Sub-44

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-45

Input Data

Area (ac) 0.49
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.49	C	98.00
Composite Area & Weighted CN	0.49		98.00

Time of Concentration

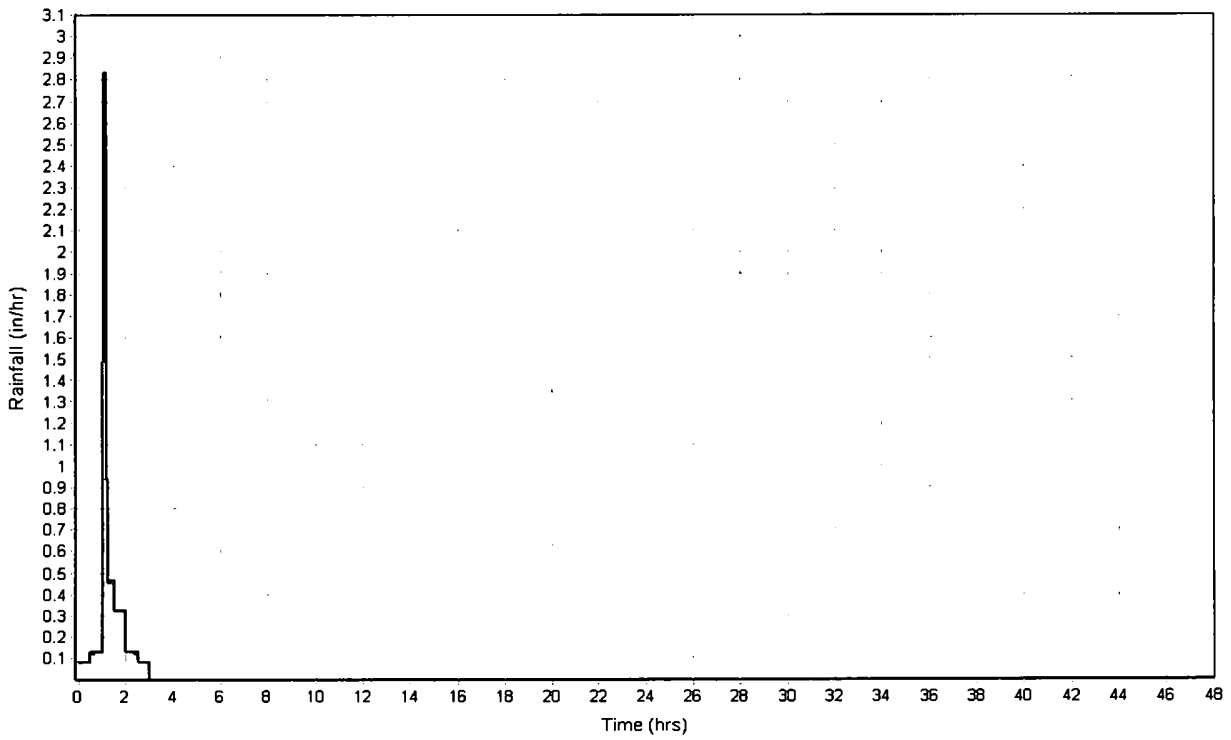
	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	153.31	0.00	0.00
Slope (%) :	4	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.05	0.00	0.00
Computed Flow Time (min) :	2.43	0.00	0.00
Total TOC (min)2.43			

Subbasin Runoff Results

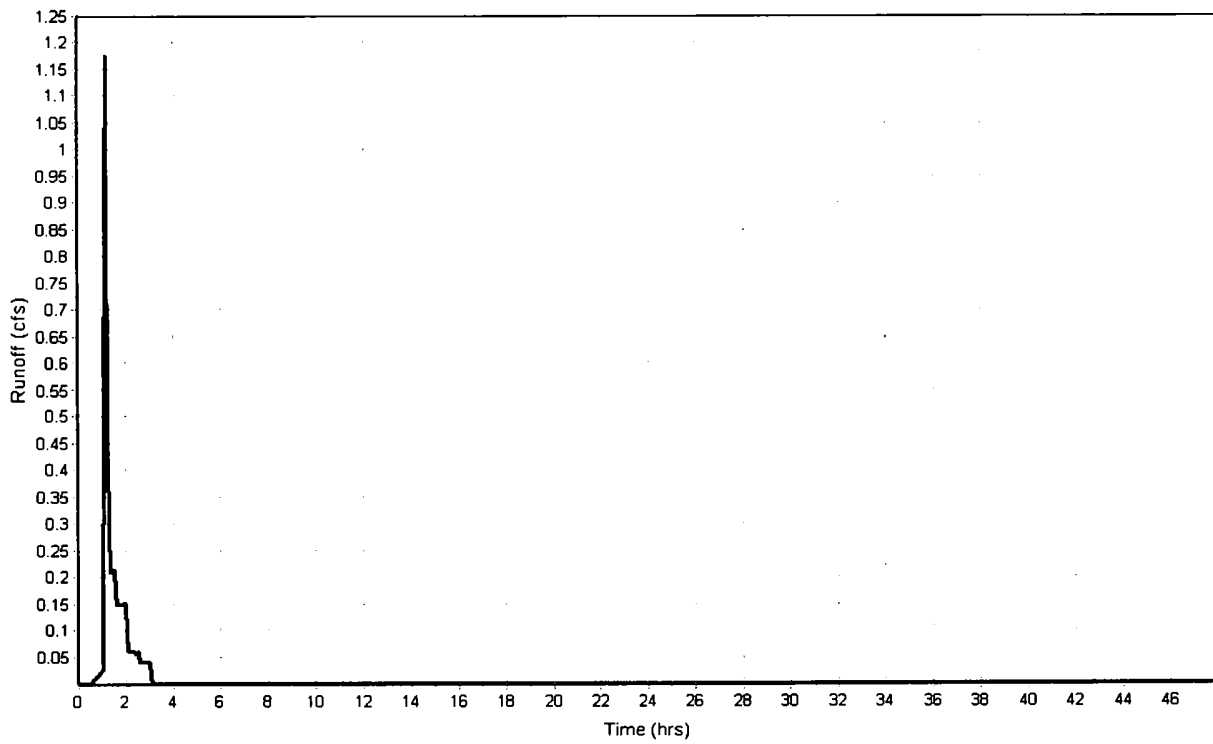
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.18
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:26

Subbasin : Sub-45

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-46

Input Data

Area (ac) 0.40
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.40	C	98.00
Composite Area & Weighted CN	0.40		98.00

Time of Concentration

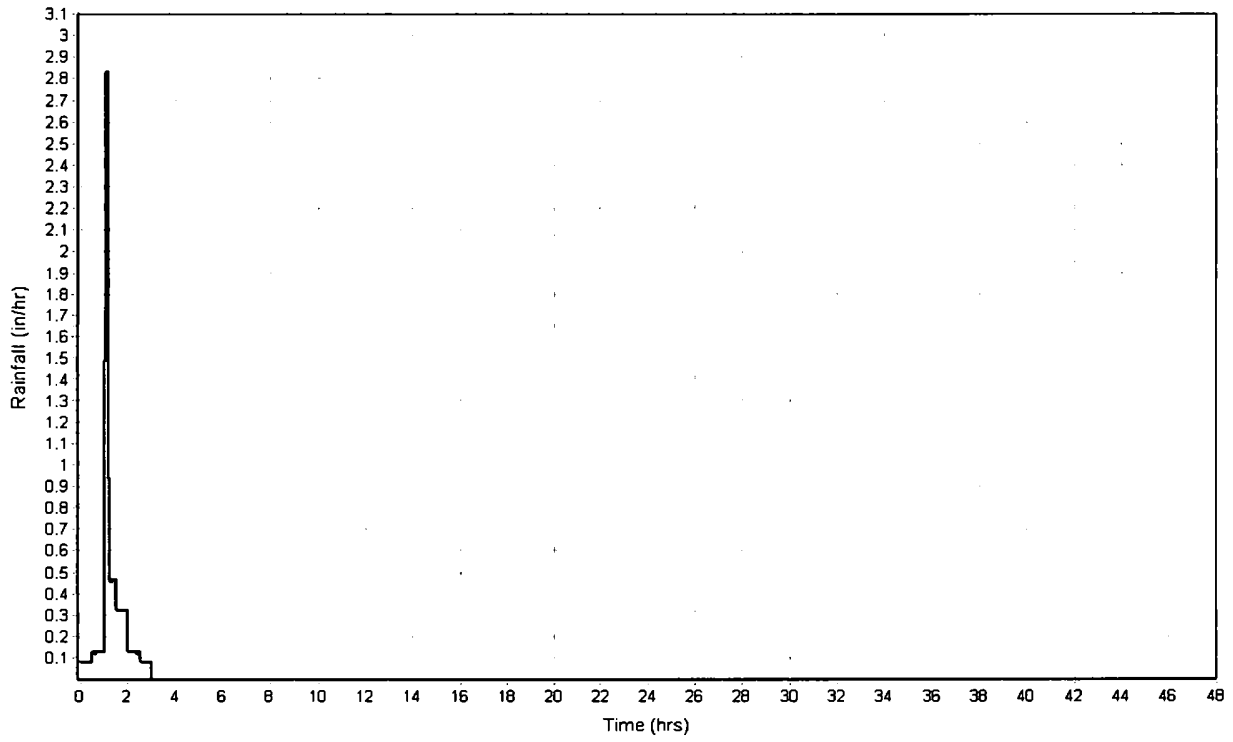
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	159.49	0.00	0.00
Slope (%) :	4	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.06	0.00	0.00
Computed Flow Time (min) :	2.51	0.00	0.00
Total TOC (min)	2.51		

Subbasin Runoff Results

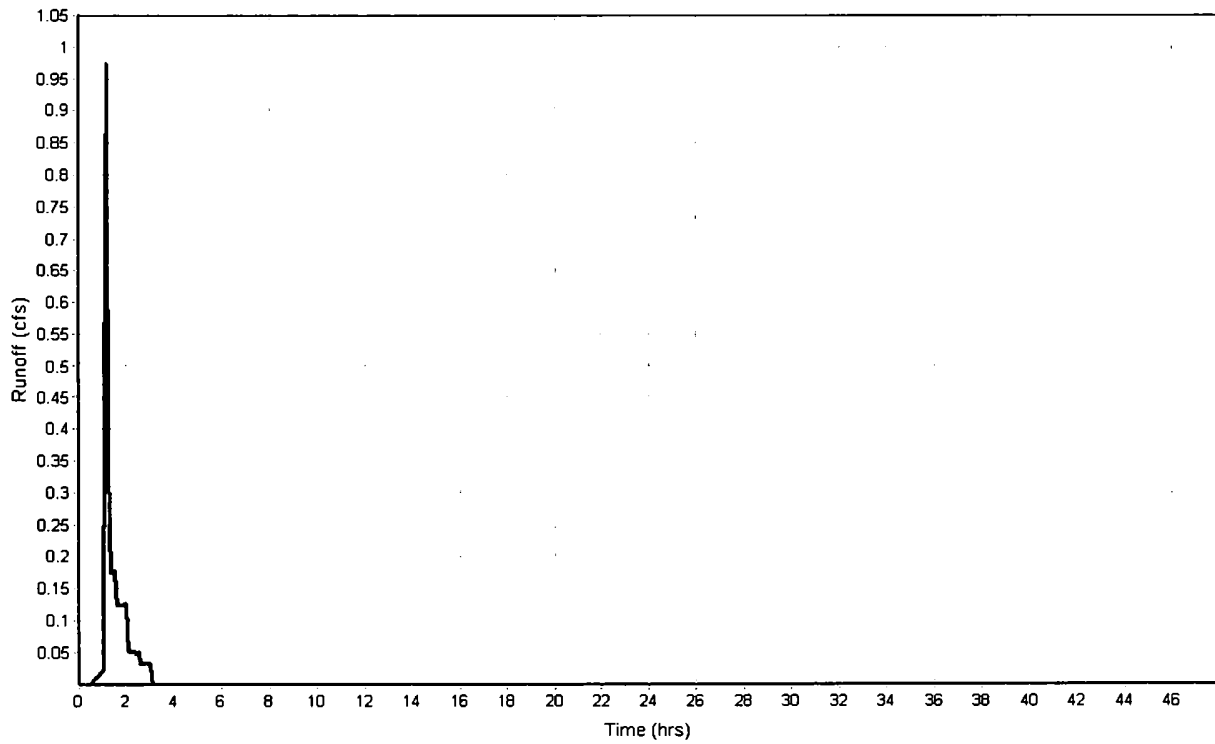
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.98
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:31

Subbasin : Sub-46

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-47

Input Data

Area (ac) 2.38
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	2.38	C	98.00
Composite Area & Weighted CN	2.38		98.00

Time of Concentration

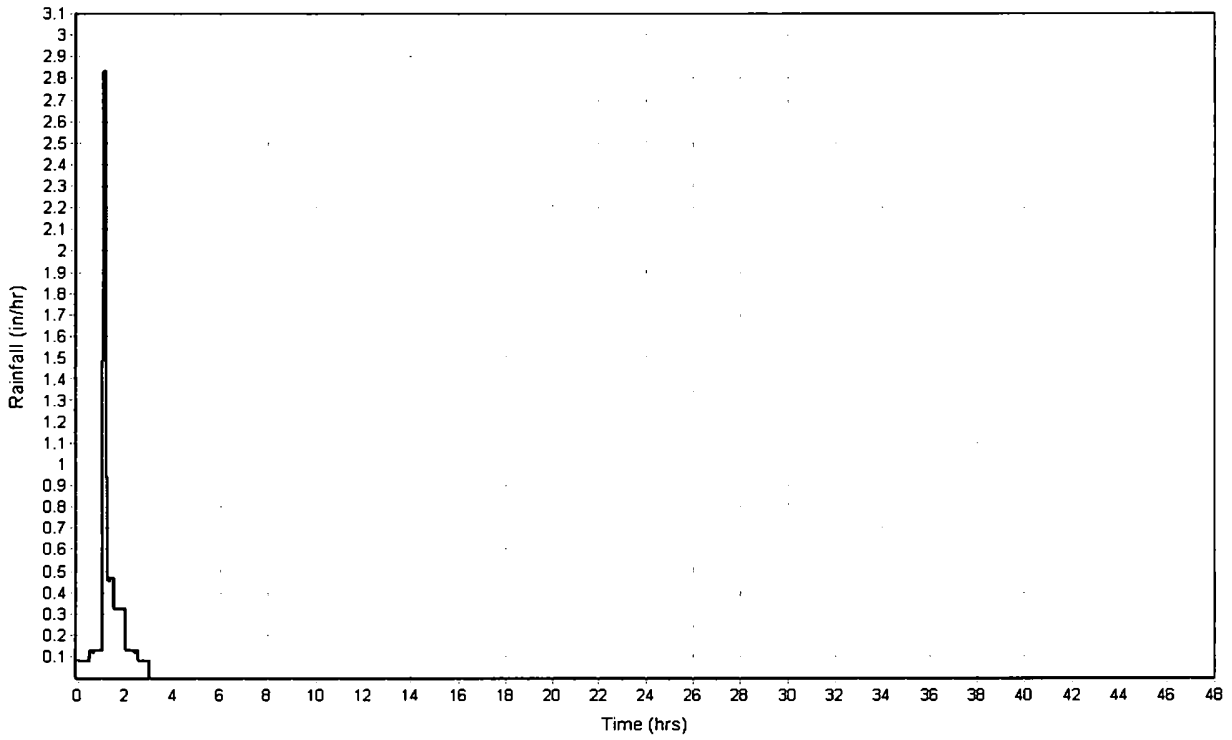
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	273.19	0.00	0.00
Slope (%) :	2.75	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	1.02	0.00	0.00
Computed Flow Time (min) :	4.48	0.00	0.00
Total TOC (min)	4.48		

Subbasin Runoff Results

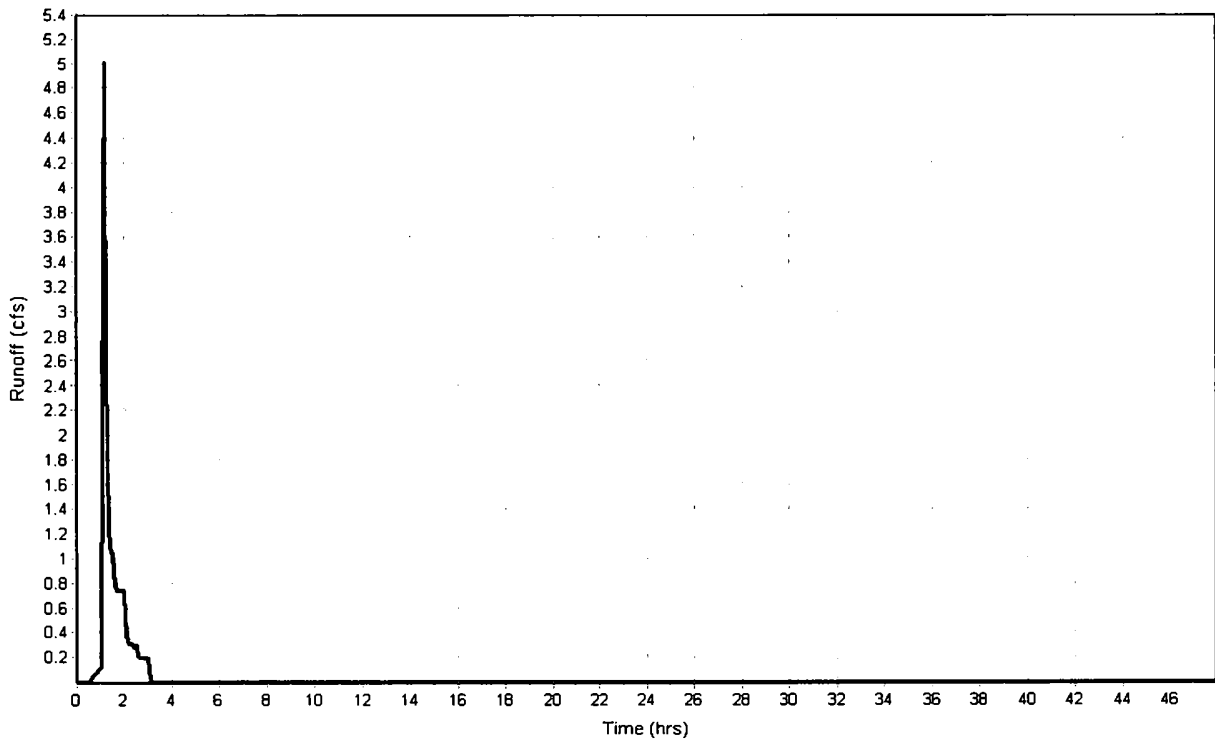
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 5.27
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:29

Subbasin : Sub-47

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-48

Input Data

Area (ac) 1.32
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	1.32	C	98.00
Composite Area & Weighted CN	1.32		98.00

Time of Concentration

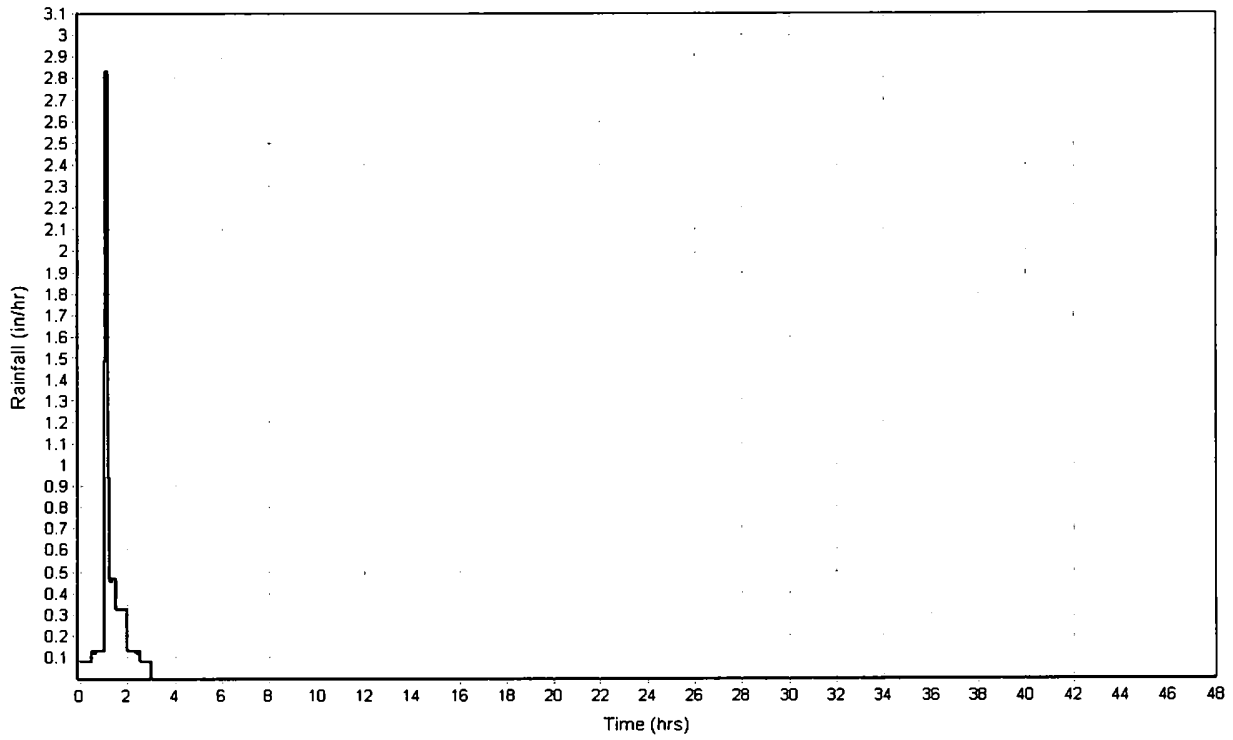
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	236.54	0.00	0.00
Slope (%) :	2.0	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.87	0.00	0.00
Computed Flow Time (min) :	4.53	0.00	0.00
Total TOC (min) 4.53			

Subbasin Runoff Results

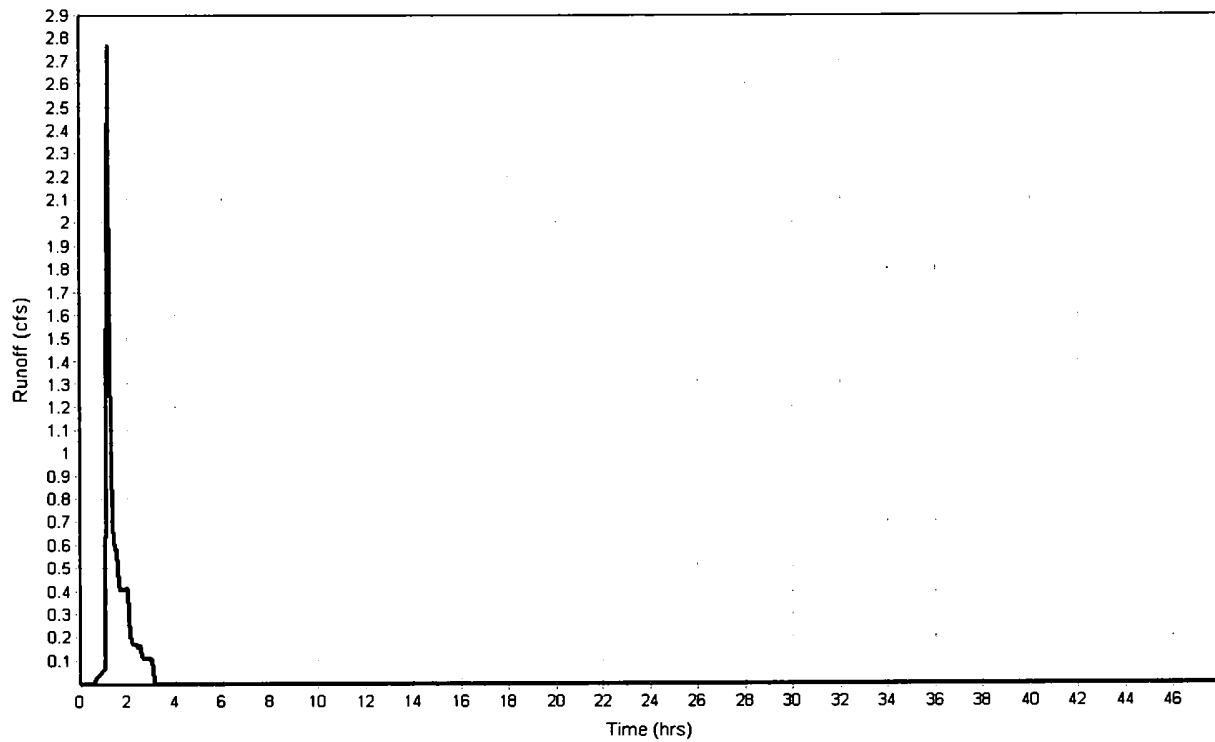
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 2.93
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:04:32

Subbasin : Sub-48

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-49

Input Data

Area (ac) 0.22
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.22	D	98.00
Composite Area & Weighted CN	0.22		98.00

Time of Concentration

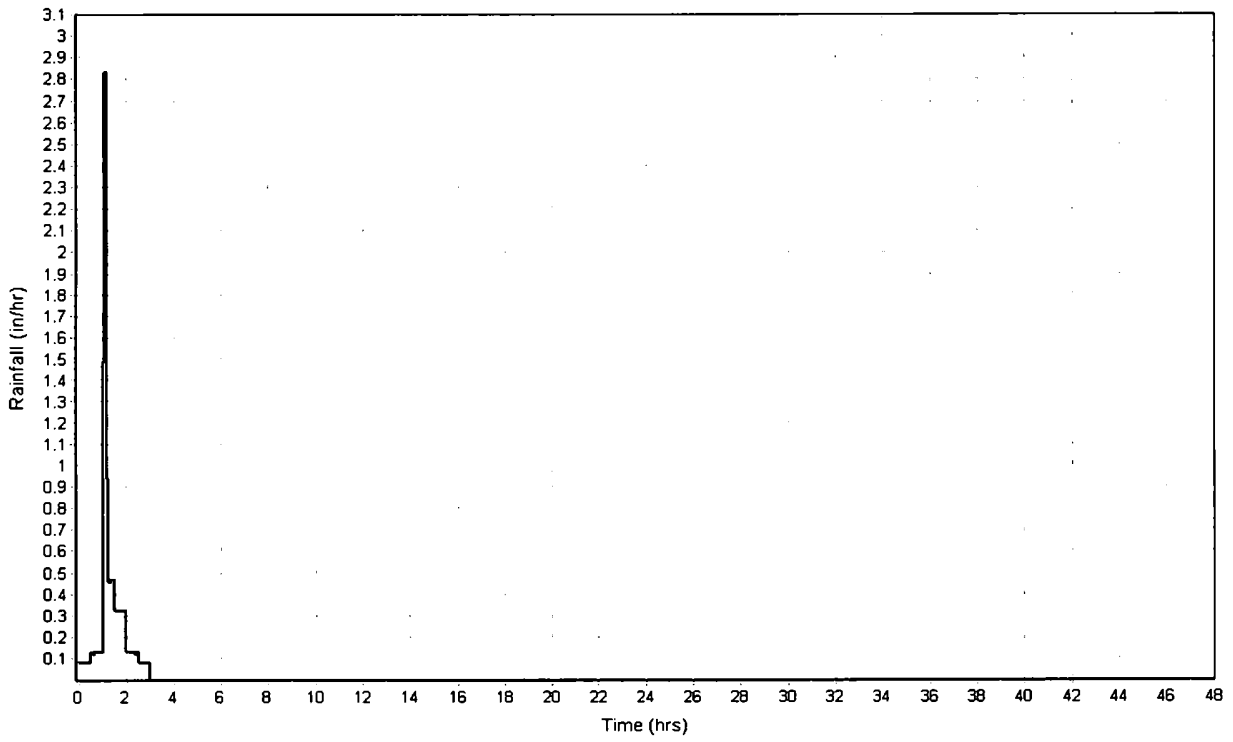
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	117.21	0.00	0.00
Slope (%) :	2.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.83	0.00	0.00
Computed Flow Time (min) :	2.36	0.00	0.00
Total TOC (min)	2.36		

Subbasin Runoff Results

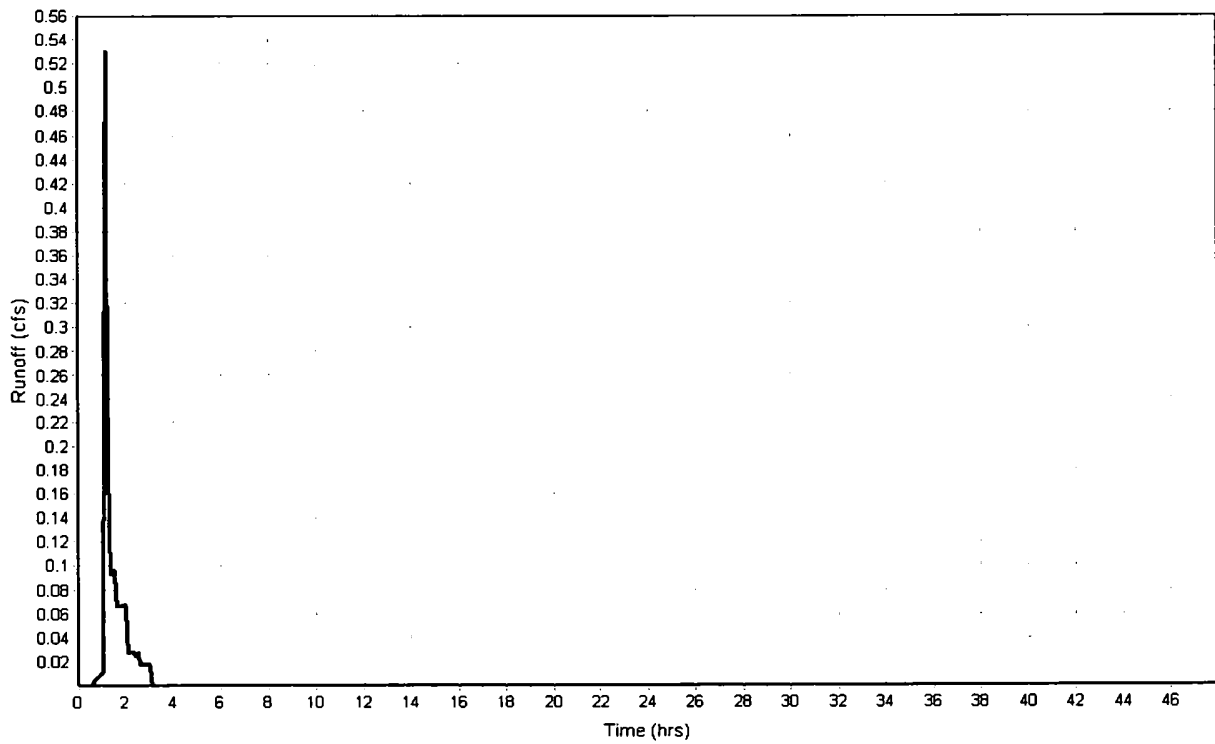
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.53
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:22

Subbasin : Sub-49

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-50

Input Data

Area (ac) 0.73
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.73	C	98.00
Composite Area & Weighted CN	0.73		98.00

Time of Concentration

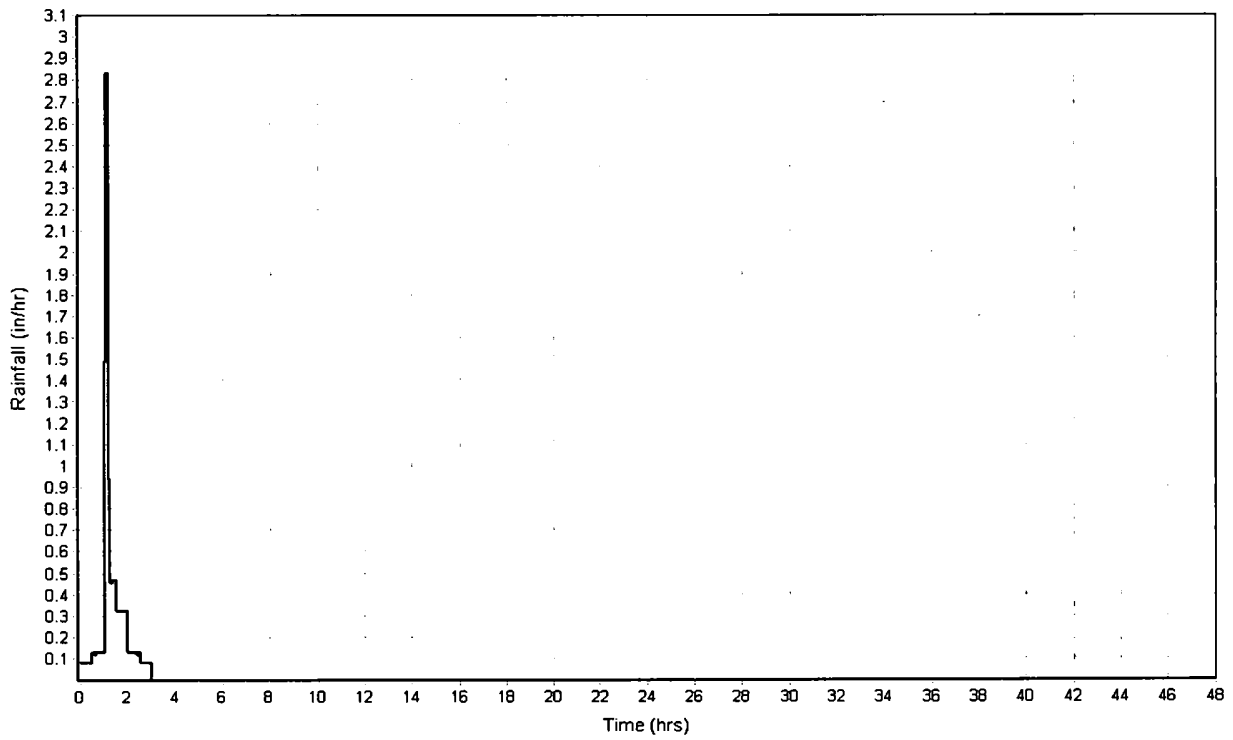
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	132.43	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.69	0.00	0.00
Computed Flow Time (min) :	3.20	0.00	0.00
Total TOC (min)	3.20		

Subbasin Runoff Results

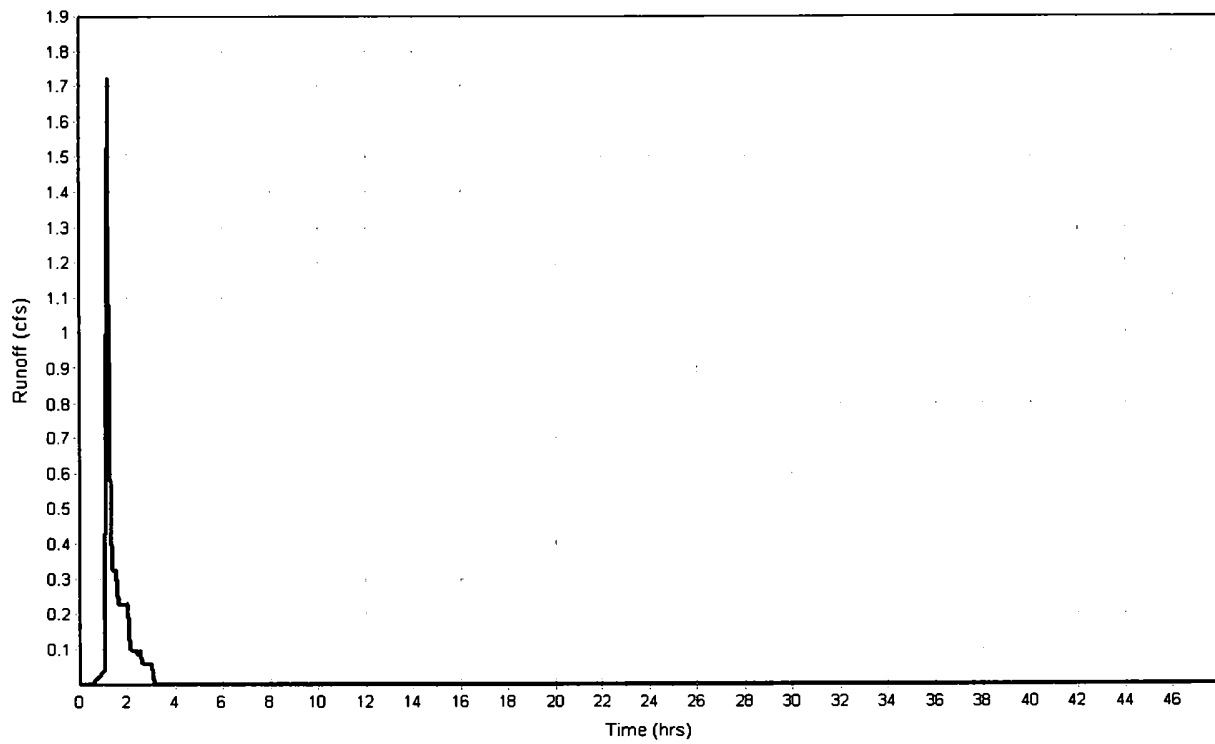
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 1.74
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:12

Subbasin : Sub-50

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-51

Input Data

Area (ac) 0.32
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.32	C	98.00
Composite Area & Weighted CN	0.32		98.00

Time of Concentration

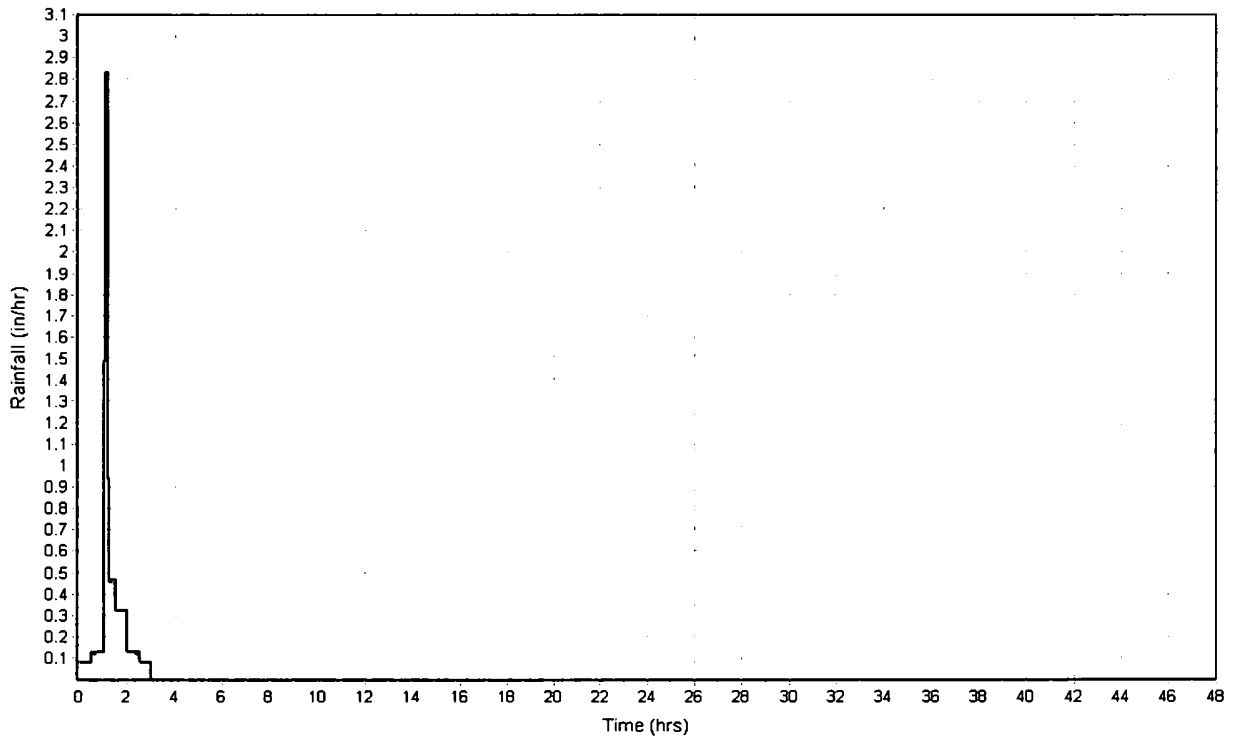
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	113.73	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.67	0.00	0.00
Computed Flow Time (min) :	2.83	0.00	0.00
Total TOC (min)	2.83		

Subbasin Runoff Results

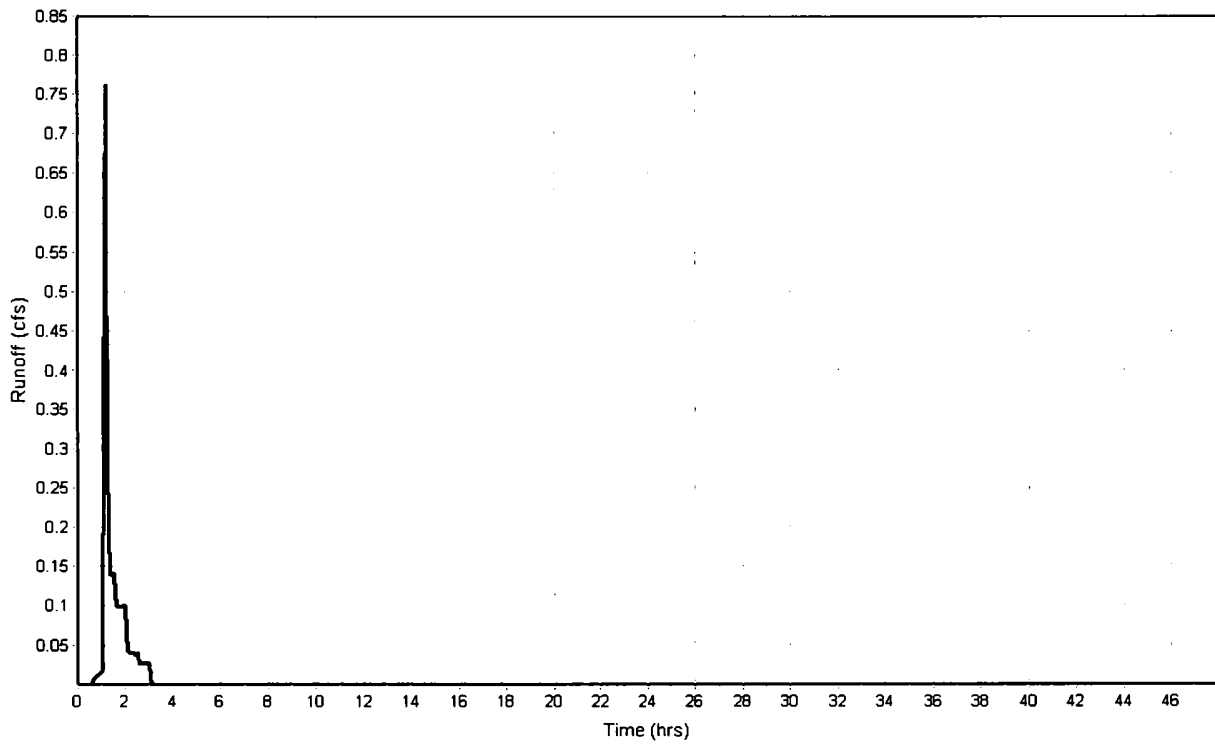
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.77
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:02:50

Subbasin : Sub-51

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-52

Input Data

Area (ac) 0.31
 Weighted Curve Number 98.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
Paved parking & roofs	0.31	C	98.00
Composite Area & Weighted CN	0.31		98.00

Time of Concentration

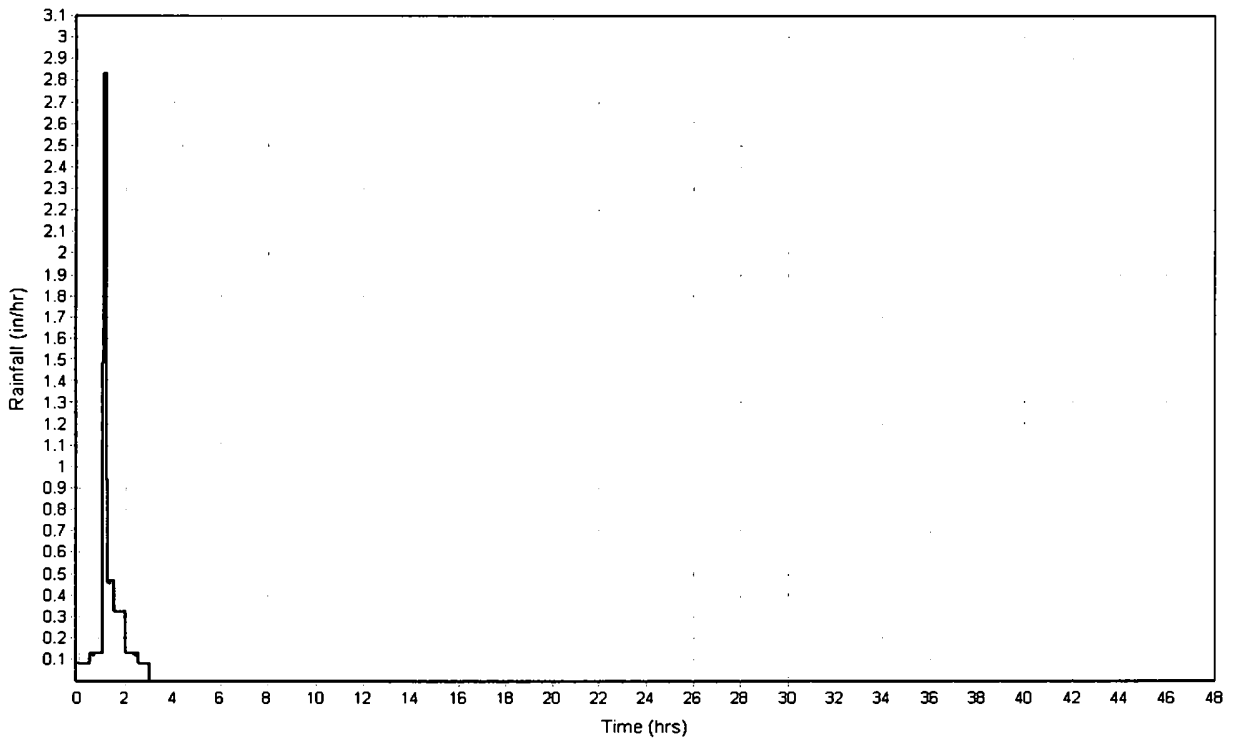
Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.015	0.00	0.00
Flow Length (ft) :	127.14	0.00	0.00
Slope (%) :	1.5	0.00	0.00
2 yr. 24 hr Rainfall (in) :	1.49	0.00	0.00
Velocity (ft/sec) :	0.68	0.00	0.00
Computed Flow Time (min) :	3.09	0.00	0.00
Total TOC (min)3.09			

Subbasin Runoff Results

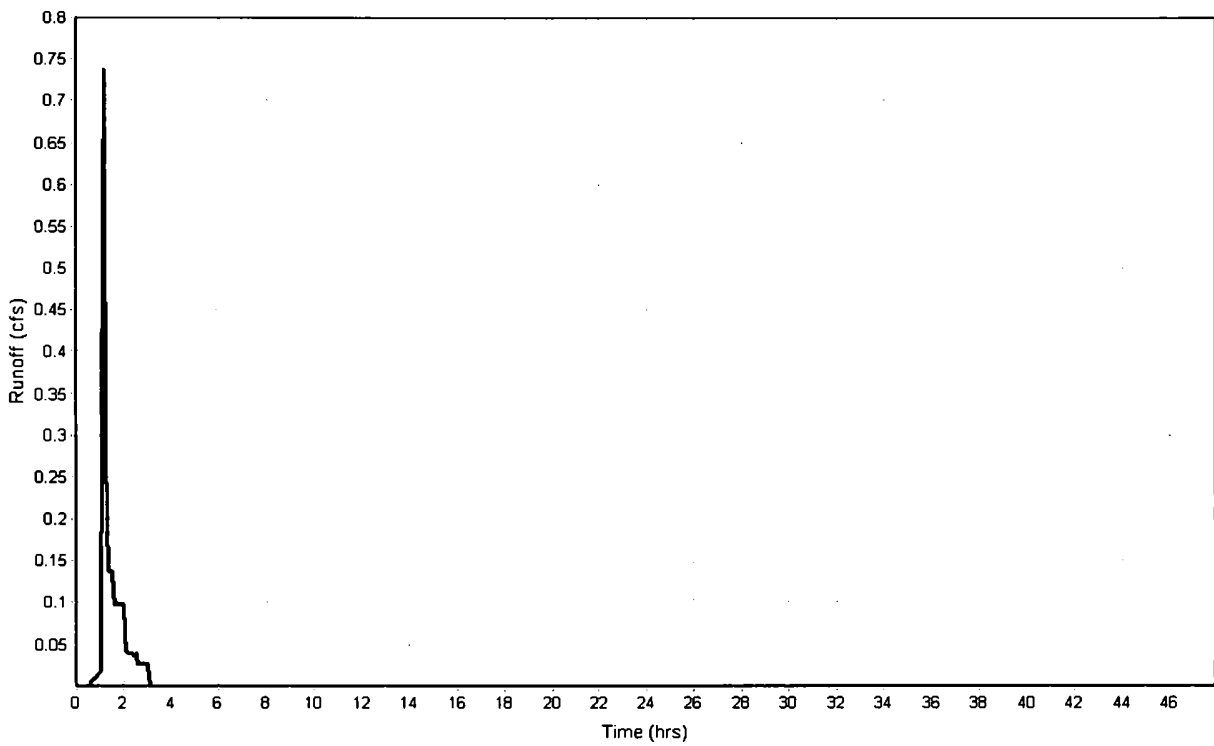
Total Rainfall (in) 0.93
 Total Runoff (in) 0.72
 Peak Runoff (cfs) 0.74
 Weighted Curve Number 98.00
 Time of Concentration (days hh:mm:ss) 0 00:03:05

Subbasin : Sub-52

Rainfall Intensity Graph



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 (ft ²)	Minimum Pipe Cover (in)
1 6.45	4385.42	4388.38	2.96	4385.42	0.00	4388.38	0.00	0.00	0.00
2 19.15	4388.22	4392.20	3.98	4388.68	0.46	4392.20	0.00	0.00	0.00
3 93	4381.02	4387.96	6.94	4381.02	0.00	4387.96	0.00	0.00	0.00
4 94	4381.72	4388.05	6.33	4381.72	0.00	4388.05	0.00	0.00	0.00
5 96	4385.50	4388.37	2.87	4385.50	0.00	4388.37	0.00	0.00	0.00
6 97	4382.00	4388.82	6.82	4382.00	0.00	4388.82	0.00	0.00	0.00
7 98	4382.92	4388.95	6.03	4382.92	0.00	4388.95	0.00	0.00	0.00
8 99	4383.86	4390.31	6.45	4383.86	0.00	4390.31	0.00	0.00	0.00
9 100	4387.00	4393.63	6.63	4387.00	0.00	4393.63	0.00	0.00	0.00
10 101	4386.45	4392.16	5.71	4386.88	0.43	4392.16	0.00	0.00	0.00
11 105	4387.61	4390.39	2.78	4387.61	0.00	4390.39	0.00	0.00	0.00
12 106	4387.80	4389.95	2.15	4387.80	0.00	4389.95	0.00	0.00	0.00
13 109	4385.96	4390.67	4.71	4385.96	0.00	4390.67	0.00	0.00	0.00
14 110	4384.83	4391.28	6.45	4384.83	0.00	4391.28	0.00	0.00	0.00
15 112	4389.89	4394.06	4.17	4389.89	0.00	4394.06	0.00	0.00	0.00
16 113	4390.77	4396.45	5.69	4390.77	0.00	4396.45	0.00	0.00	0.00
17 114	4391.49	4394.91	3.42	4391.49	0.00	4394.91	0.00	0.00	0.00
18 115	4390.50	4395.34	4.84	4390.50	0.00	4395.34	0.00	0.00	0.00
19 116	4389.99	4394.17	4.18	4389.99	0.00	4394.17	0.00	0.00	0.00
20 117	4391.17	4395.59	4.42	4391.17	0.00	4395.59	0.00	0.00	0.00
21 118	4390.62	4395.90	5.28	4390.62	0.00	4395.90	0.00	0.00	0.00
22 119	4390.42	4394.06	3.64	4390.42	0.00	4394.06	0.00	0.00	0.00
23 120	4390.79	4396.66	5.87	4390.79	0.00	4396.66	0.00	0.00	0.00
24 126	4405.35	4409.24	3.89	4405.35	0.00	4409.24	0.00	0.00	0.00
25 128	4405.97	4408.91	2.94	4405.97	0.00	4408.91	0.00	0.00	0.00
26 134	4403.45	4410.56	7.12	4403.45	0.00	4410.56	0.00	0.00	0.00
27 134(1)	4403.59	4409.43	5.84	4403.59	0.00	4409.43	0.00	0.00	0.00
28 135	4399.80	4404.33	4.53	4399.80	0.00	4404.33	0.00	0.00	0.00
29 136	4399.81	4404.34	4.53	4399.81	0.00	4404.34	0.00	0.00	0.00
30 144	4403.00	4406.53	3.53	4403.00	0.00	4406.53	0.00	0.00	0.00
31 155	4383.55	4388.95	5.40	4383.55	0.00	4388.95	0.00	0.00	0.00
32 171	4404.79	4408.79	4.00	4404.79	0.00	4408.79	0.00	0.00	0.00
33 172	4388.84	4392.41	3.58	4388.84	0.00	4392.41	0.00	0.00	0.00
34 175	4387.47	4392.20	4.73	4387.92	0.45	4392.20	0.00	0.00	0.00
35 178	4391.10	4394.98	3.88	4391.10	0.00	4394.98	0.00	0.00	0.00
36 179	4391.37	4395.81	4.44	4391.37	0.00	4395.81	0.00	0.00	0.00
37 180	4405.20	4408.14	2.94	4405.20	0.00	4408.14	0.00	0.00	0.00
38 181	4392.44	4405.06	12.62	4392.44	0.00	4405.06	0.00	0.00	0.00
39 182	4396.24	4402.71	6.47	4396.24	0.00	4402.71	0.00	0.00	0.00
40 185	4403.38	4410.29	6.91	4403.38	0.00	4410.29	0.00	0.00	0.00
41 186	4378.03	4388.66	10.64	4378.03	0.00	4388.66	0.00	0.00	0.00
42 199	4390.60	4393.04	2.43	4390.60	0.00	4393.04	0.00	0.00	0.00
43 234	4405.02	4410.46	5.44	4405.02	0.00	4410.46	0.00	0.00	0.00
44 235	4404.53	4410.45	5.92	4404.53	0.00	4410.45	0.00	0.00	0.00
45 236	4404.22	4407.16	2.94	4404.22	0.00	4407.16	0.00	0.00	0.00
46 237	4404.91	4408.45	3.54	4404.91	0.00	4408.45	0.00	0.00	0.00
47 238	4404.08	4413.35	9.27	4404.08	0.00	4413.35	0.00	0.00	0.00
48 239	4404.32	4410.46	6.14	4404.32	0.00	4410.46	0.00	0.00	0.00
49 240	4404.21	4410.57	6.36	4404.21	0.00	4410.57	0.00	0.00	0.00
50 241	4403.56	4410.30	6.74	4403.56	0.00	4410.30	0.00	0.00	0.00
51 242	4404.38	4409.87	5.49	4404.38	0.00	4409.87	0.00	0.00	0.00
52 Jun-01	4395.70	4404.00	8.30	4395.70	0.00	4404.00	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 Surge Depth Attained (ft)	Min Freeboard (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 6.45	3.51	1.86	4386.02	0.60	0.00	2.35	4385.43	0.01	0 01:15	0 00:00	0.00	0.00
2 19.15	10.99	3.55	4389.44	1.22	0.00	2.76	4388.24	0.02	0 01:16	0 00:00	0.00	0.00
3 93	29.55	1.86	4382.69	1.67	0.00	5.27	4381.09	0.07	0 01:17	0 00:00	0.00	0.00
4 94	28.18	0.18	4383.39	1.67	0.00	4.65	4381.79	0.07	0 01:16	0 00:00	0.00	0.00
5 96	1.66	1.66	4386.10	0.60	0.00	2.26	4385.51	0.01	0 01:15	0 00:00	0.00	0.00
6 97	25.16	1.26	4383.73	1.73	0.00	5.08	4382.07	0.07	0 01:16	0 00:00	0.00	0.00
7 98	24.06	2.20	4384.66	1.74	0.00	4.29	4382.99	0.07	0 01:16	0 00:00	0.00	0.00
8 99	20.92	0.68	4387.15	3.29	0.00	3.16	4386.23	2.37	0 01:16	0 00:00	0.00	0.00
9 100	8.65	0.67	4387.98	0.98	0.00	5.65	4387.06	0.06	0 01:16	0 00:00	0.00	0.00
10 101	14.96	1.19	4388.17	1.72	0.00	3.99	4386.90	0.45	0 01:16	0 00:00	0.00	0.00
11 105	4.97	2.25	4388.61	1.00	0.00	1.78	4387.63	0.02	0 01:15	0 00:00	0.00	0.00
12 106	2.77	2.77	4388.50	0.70	0.00	1.45	4387.81	0.01	0 01:15	0 00:00	0.00	0.00
13 109	9.42	5.01	4387.18	1.22	0.00	3.49	4385.98	0.02	0 01:15	0 00:00	0.00	0.00
14 110	11.74	1.60	4387.59	2.76	0.00	3.70	4387.35	2.52	0 01:15	0 00:00	0.00	0.00
15 112	8.14	1.58	4391.82	1.93	0.00	2.24	4390.96	1.07	0 01:15	0 00:00	0.00	0.00
16 113	1.50	1.50	4392.26	1.49	0.00	4.19	4391.77	1.00	0 01:15	0 00:00	0.00	0.00
17 114	4.08	4.08	4393.07	1.58	0.00	1.84	4392.21	0.72	0 01:15	0 00:00	0.00	0.00
18 115	1.42	1.42	4391.05	0.55	0.00	4.29	4390.50	0.00	0 01:15	0 00:00	0.00	0.00
19 116	4.12	0.00	4391.92	1.93	0.00	2.25	4391.01	1.02	0 01:15	0 00:00	0.00	0.00
20 117	1.32	1.32	4391.69	0.52	0.00	3.90	4391.18	0.01	0 01:15	0 00:00	0.00	0.00
21 118	2.75	0.00	4392.32	1.70	0.00	3.58	4391.63	1.01	0 01:15	0 00:00	0.00	0.00
22 119	2.55	1.12	4392.08	1.66	0.00	1.97	4391.48	1.06	0 01:15	0 00:00	0.00	0.00
23 120	1.49	1.32	4391.28	0.49	0.00	5.38	4390.86	0.07	0 01:15	0 00:00	0.00	0.00
24 126	3.57	1.17	4406.95	1.60	0.00	2.29	4406.13	0.78	0 01:15	0 00:00	0.00	0.00
25 128	2.51	2.51	4407.37	1.40	0.00	1.54	4406.72	0.75	0 01:15	0 00:00	0.00	0.00
26 134	0.03	0.03	4404.53	1.08	0.00	6.03	4404.45	1.00	0 01:15	0 00:00	0.00	0.00
27 134(1)	5.89	0.00	4405.36	1.77	0.00	4.07	4404.37	0.78	0 01:16	0 00:00	0.00	0.00
28 135	1.17	1.17	4401.01	1.21	0.00	3.32	4400.81	1.01	0 01:15	0 00:00	0.00	0.00
29 136	0.97	0.97	4401.00	1.19	0.00	3.34	4400.82	1.01	0 01:15	0 00:00	0.00	0.00
30 144	8.00	0.60	4404.81	1.81	0.00	1.72	4403.78	0.78	0 01:16	0 00:00	0.00	0.00
31 155	22.32	1.67	4385.19	1.64	0.00	3.75	4383.62	0.07	0 01:16	0 00:00	0.00	0.00
32 171	0.61	0.61	4406.08	1.29	0.00	2.71	4405.80	1.01	0 01:15	0 00:00	0.00	0.00
33 172	1.14	1.14	4390.07	1.23	0.00	2.34	4389.84	1.00	0 01:15	0 00:00	0.00	0.00
34 175	14.03	3.46	4388.92	1.45	0.00	3.28	4387.49	0.02	0 01:16	0 00:00	0.00	0.00
35 178	7.82	1.90	4392.18	1.08	0.00	2.80	4391.13	0.03	0 01:15	0 00:00	0.00	0.00
36 179	2.15	2.15	4392.08	0.71	0.00	3.73	4391.38	0.01	0 01:15	0 00:00	0.00	0.00
37 180	0.77	0.77	4406.32	1.12	0.00	1.82	4405.98	0.78	0 01:15	0 00:00	0.00	0.00
38 181	9.97	0.00	4394.80	2.36	0.00	10.27	4394.44	2.00	0 01:16	0 00:00	0.00	0.00
39 182	1.17	0.00	4396.71	0.47	0.00	6.00	4396.25	0.01	0 01:15	0 00:00	0.00	0.00
40 185	7.54	0.00	4405.19	1.81	0.00	5.10	4404.39	1.01	0 01:16	0 00:00	0.00	0.00
41 186	29.56	0.00	4381.50	3.48	0.00	7.16	4380.54	2.52	0 01:17	0 00:00	0.00	0.00
42 199	7.77	0.00	4391.66	1.06	0.00	1.37	4390.63	0.03	0 01:15	0 00:00	0.00	0.00
43 234	0.41	0.35	4406.27	1.25	0.00	4.18	4406.03	1.01	0 01:15	0 00:00	0.00	0.00
44 235	0.99	0.00	4405.93	1.40	0.00	4.52	4405.54	1.01	0 01:15	0 00:00	0.00	0.00
45 236	1.67	0.49	4405.71	1.49	0.00	1.45	4405.23	1.01	0 01:15	0 00:00	0.00	0.00
46 237	5.68	1.46	4406.66	1.75	0.00	1.79	4405.69	0.78	0 01:15	0 00:00	0.00	0.00
47 238	5.91	0.00	4405.86	1.78	0.00	7.50	4404.86	0.78	0 01:16	0 00:00	0.00	0.00
48 239	0.05	0.05	4405.41	1.09	0.00	5.05	4405.32	1.00	0 01:15	0 00:00	0.00	0.00
49 240	0.06	0.06	4406.33	2.12	0.00	4.24	4406.21	2.00	0 01:15	0 00:00	0.00	0.00
50 241	0.23	0.23	4405.78	2.22	0.00	4.52	4405.57	2.01	0 01:15	0 00:00	0.00	0.00
51 242	5.89	0.26	4406.15	1.77	0.00	3.72	4405.16	0.78	0 01:15	0 00:00	0.00	0.00
52 Jun-01	2.06	0.00	4396.16	0.46	0.00	7.84	4395.71	0.01	0 01:15	0 00:00	0.00	0.00

Pipe Input

SN Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Offset (ft)	Outlet Invert Elevation (ft)	Outlet Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses
1 (Storm Drain),Pipe - (134) (Storm Drain)	202.90	4387.47	0.00	4386.45	0.00	1.02	0.5000	CIRCULAR	24.000	24.000	0.0130	0.5000
2 (Storm Drain),Pipe - (135) (Storm Drain)	150.52	4388.22	0.00	4387.47	0.00	0.75	0.5000	CIRCULAR	24.000	24.000	0.0130	0.5000
3 (Storm Drain),Pipe - (137) (Storm Drain)	165.15	4390.61	0.01	4388.22	0.00	2.39	1.4500	CIRCULAR	21.000	21.000	0.0130	0.5000
4 (Storm Drain),Pipe - (138) (Storm Drain)	53.72	4391.37	0.00	4391.10	0.00	0.27	0.5000	CIRCULAR	12.000	12.000	0.0130	0.5000
5 (Storm Drain),Pipe - (140) (Storm Drain)	49.10	4389.84	1.00	4387.35	2.52	2.48	5.0600	CIRCULAR	15.000	15.000	0.0130	0.5000
6 (Storm Drain),Pipe - (146) (Storm Drain)	15.00	4381.02	0.00	4380.50	2.48	0.52	3.4700	CIRCULAR	36.000	36.000	0.0130	0.5000
7 (Storm Drain),Pipe - (160) (Storm Drain)	99.30	4391.11	0.01	4390.60	0.00	0.51	0.5100	CIRCULAR	21.000	21.000	0.0130	0.5000
8 (Storm Drain),Pipe - (179) (Storm Drain)	96.28	4406.02	1.00	4405.54	1.00	0.49	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
9 (Storm Drain),Pipe - (180) (Storm Drain)	62.62	4405.54	1.00	4405.22	1.00	0.31	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
10 (Storm Drain),Pipe - (181) (Storm Drain)	168.01	4405.22	1.00	4404.14	0.76	1.08	0.6400	CIRCULAR	15.000	15.000	0.0130	0.5000
11 (Storm Drain),Pipe - (182) (Storm Drain)	22.29	4405.79	1.00	4405.53	1.00	0.26	1.1700	CIRCULAR	9.960	9.960	0.0130	0.5000
12 (Storm Drain),Pipe - (183) (Storm Drain)	12.92	4404.45	1.00	4404.38	1.00	0.06	0.5000	CIRCULAR	9.960	9.960	0.0130	0.5000
13 (Storm Drain),Pipe - (185) (Storm Drain)	98.92	4404.84	0.76	4404.35	0.76	0.49	0.5000	CIRCULAR	18.000	18.000	0.0130	0.5000
14 (Storm Drain),Pipe - (186) (Storm Drain)	47.75	4405.32	1.00	4404.84	0.76	0.48	1.0100	CIRCULAR	9.960	9.960	0.0130	0.5000
15 (Storm Drain),Pipe - (187) (Storm Drain)	38.37	4406.21	2.00	4406.02	1.00	0.19	0.5000	CIRCULAR	9.960	9.960	0.0130	0.5000
16 (Storm Drain),Pipe - (188) (Storm Drain)	68.58	4405.56	2.00	4405.22	1.00	0.34	0.5000	CIRCULAR	9.960	9.960	0.0130	0.5000
17 (Storm Drain),Pipe - (189) (Storm Drain)	57.63	4405.97	0.77	4405.68	0.77	0.29	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
18 (Storm Drain),Pipe - (190) (Storm Drain)	107.18	4405.68	0.77	4405.14	0.76	0.54	0.5000	CIRCULAR	18.000	18.000	0.0130	0.5000
19 (Storm Drain),Pipe - (191) (Storm Drain)	59.75	4405.14	0.76	4404.84	0.76	0.30	0.5000	CIRCULAR	18.000	18.000	0.0130	0.5000
20 (Storm Drain),Pipe - (192) (Storm Drain)	41.75	4404.35	0.76	4404.14	0.76	0.21	0.5000	CIRCULAR	18.000	18.000	0.0130	0.5000
21 (Storm Drain),Pipe - (193) (Storm Drain)	75.36	4404.14	0.76	4403.76	0.76	0.38	0.5000	CIRCULAR	21.000	21.000	0.0130	0.5000
22 (Storm Drain),Pipe - (195) (Storm Drain)	33.14	4403.76	0.76	4394.43	1.99	9.33	28.1500	CIRCULAR	21.000	21.000	0.0130	0.5000
23 (Storm Drain),Pipe - (196) (Storm Drain)	143.43	4396.24	0.00	4395.70	0.00	0.54	0.3800	CIRCULAR	15.000	15.000	0.0130	0.5000
24 (Storm Drain),Pipe - (198) (Storm Drain)	119.60	4406.71	0.74	4406.12	0.77	0.59	0.4900	CIRCULAR	15.000	15.000	0.0130	0.5000
25 (Storm Drain),Pipe - (200) (Storm Drain)	87.49	4406.12	0.77	4405.68	0.77	0.44	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
26 (Storm Drain),Pipe - (203) (Storm Drain)	128.70	4392.44	0.00	4292.44	0.00	100.00	77.7000	CIRCULAR	21.000	21.000	0.0130	0.5000
27 (Storm Drain),Pipe - (204) (Storm Drain)	75.18	4390.79	0.00	4390.42	0.00	0.38	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
28 (Storm Drain),Pipe - (205) (Storm Drain)	104.03	4391.42	1.00	4390.90	1.00	0.52	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
29 (Storm Drain),Pipe - (66) (Storm Drain)	141.02	4381.72	0.00	4381.02	0.00	0.70	0.5000	CIRCULAR	36.000	36.000	0.0130	0.5000
30 (Storm Drain),Pipe - (67) (Storm Drain)	119.46	4385.42	0.00	4381.72	0.00	3.70	3.1000	CIRCULAR	12.000	12.000	0.0130	0.5000
31 (Storm Drain),Pipe - (68) (Storm Drain)	16.80	4385.50	0.00	4385.42	0.00	0.08	0.4800	CIRCULAR	12.000	12.000	0.0130	0.5000
32 (Storm Drain),Pipe - (69) (Storm Drain)	55.67	4382.00	0.00	4381.72	0.00	0.28	0.5000	CIRCULAR	36.000	36.000	0.0130	0.5000
33 (Storm Drain),Pipe - (70) (Storm Drain)	184.32	4382.92	0.00	4382.00	0.00	0.92	0.5000	CIRCULAR	30.000	30.000	0.0130	0.5000
34 (Storm Drain),Pipe - (71) (1) (Storm Drain)	60.44	4383.86	0.00	4383.55	0.00	0.31	0.5100	CIRCULAR	30.000	30.000	0.0130	0.5000
35 (Storm Drain),Pipe - (71) (Storm Drain)	126.00	4383.55	0.00	4382.92	0.00	0.63	0.5000	CIRCULAR	30.000	30.000	0.0130	0.5000
36 (Storm Drain),Pipe - (72) (Storm Drain)	71.04	4387.00	0.00	4386.17	2.31	0.83	1.1700	CIRCULAR	18.000	18.000	0.0130	0.5000
37 (Storm Drain),Pipe - (75) (Storm Drain)	37.98	4387.80	0.00	4387.61	0.00	0.19	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
38 (Storm Drain),Pipe - (79) (Storm Drain)	220.40	4385.96	0.00	4384.83	0.00	1.13	0.5100	CIRCULAR	21.000	21.000	0.0130	0.5000
39 (Storm Drain),Pipe - (80) (Storm Drain)	194.29	4384.83	0.00	4383.86	0.00	0.97	0.5000	CIRCULAR	24.000	24.000	0.0130	0.5000
40 (Storm Drain),Pipe - (81) (Storm Drain)	186.51	4390.89	1.00	4387.00	0.00	3.89	2.0900	CIRCULAR	15.000	15.000	0.0130	0.5000
41 (Storm Drain),Pipe - (82) (1) (1) (Storm Drain)	29.20	4391.77	1.00	4391.62	1.00	0.15	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
42 (Storm Drain),Pipe - (82) (1) (Storm Drain)	125.09	4391.62	1.00	4390.99	1.00	0.63	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
43 (Storm Drain),Pipe - (82) (Storm Drain)	20.50	4390.99	1.00	4390.89	1.00	0.10	0.5000	CIRCULAR	15.000	15.000	0.0130	0.5000
44 01	24.50	4400.82	1.01	4395.70	0.00	5.12	20.9000	CIRCULAR	9.960	9.960	0.0130	0.5000
45 02	24.50	4400.81	1.01	4396.24	0.00	4.57	18.6500	CIRCULAR	9.960	9.960	0.0130	0.5000
46 03	66.59	4395.70	0.00	4392.44	0.00	3.26	4.9000	CIRCULAR	96.000	96.000	0.0130	0.5000
47 04	100.83	4390.50	0.00	4389.99	0.00	0.50	0.5000	CIRCULAR	9.960	9.960	0.0110	0.5000
48 05	108.97	4391.17	0.00	4390.62	0.00	0.55	0.5100	CIRCULAR	9.960	9.960	0.0110	0.5000
49 06	5.00	4378.03	0.00	4378.00	0.00	0.02	0.5000	CIRCULAR	36.000	36.000	0.0150	0.5000
50 08	84.77	4386.88	0.43	4386.00	0.00	0.88	1.0400	CIRCULAR	24.000	24.000	0.0150	0.5000
51 09	219.00	4392.20	0.71	4391.11	0.01	1.09	0.5000	CIRCULAR	18.000	18.000	0.0150	0.5000
52 11	336.08	4387.61	0.00	4385.96	0.00	1.65	0.4900	CIRCULAR	18.000	18.000	0.0150	0.5000

Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/Total Depth Ratio	Total Time Surcharged	Froude Number	Reported Condition
	(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)		
1 (Storm Drain).Pipe - (134) (Storm Drain)	13.96	0 01:16	16.04	0.87	5.83	0.58	1.38	0.72	0.00		Calculated
2 (Storm Drain).Pipe - (135) (Storm Drain)	10.98	0 01:16	15.97	0.69	5.51	0.46	1.18	0.61	0.00		Calculated
3 (Storm Drain).Pipe - (137) (Storm Drain)	7.74	0 01:16	19.06	0.41	7.54	0.37	0.75	0.44	0.00		Calculated
4 (Storm Drain).Pipe - (138) (Storm Drain)	2.10	0 01:15	2.52	0.83	3.64	0.25	0.70	0.70	0.00		Calculated
5 (Storm Drain).Pipe - (140) (Storm Drain)	1.13	0 01:15	14.53	0.08	7.02	0.12	0.24	0.19	0.00		Calculated
6 (Storm Drain).Pipe - (146) (Storm Drain)	29.56	0 01:17	124.19	0.24	14.40	0.02	0.93	0.33	0.00		Calculated
7 (Storm Drain).Pipe - (160) (Storm Drain)	7.77	0 01:15	11.34	0.68	5.11	0.32	1.04	0.61	0.00		Calculated
8 (Storm Drain).Pipe - (179) (Storm Drain)	0.40	0 01:15	4.58	0.09	2.33	0.69	0.25	0.20	0.00		Calculated
9 (Storm Drain).Pipe - (189) (Storm Drain)	0.99	0 01:15	4.56	0.22	2.98	0.35	0.39	0.32	0.00		Calculated
10 (Storm Drain).Pipe - (181) (Storm Drain)	1.65	0 01:16	5.19	0.32	3.81	0.73	0.48	0.39	0.00		Calculated
11 (Storm Drain).Pipe - (182) (Storm Drain)	0.61	0 01:15	2.37	0.26	3.62	0.10	0.29	0.35	0.00		Calculated
12 (Storm Drain).Pipe - (183) (Storm Drain)	0.03	0 01:15	1.55	0.02	1.13	0.19	0.08	0.10	0.00		Calculated
13 (Storm Drain).Pipe - (185) (Storm Drain)	5.89	0 01:16	7.39	0.80	4.68	0.35	0.96	0.68	0.00		Calculated
14 (Storm Drain).Pipe - (186) (Storm Drain)	0.05	0 01:15	2.20	0.02	1.63	0.49	0.09	0.10	0.00		Calculated
15 (Storm Drain).Pipe - (187) (Storm Drain)	0.06	0 01:15	1.55	0.04	1.41	0.45	0.11	0.14	0.00		Calculated
16 (Storm Drain).Pipe - (188) (Storm Drain)	0.22	0 01:15	1.55	0.14	2.05	0.56	0.21	0.25	0.00		Calculated
17 (Storm Drain).Pipe - (189) (Storm Drain)	0.75	0 01:15	4.58	0.16	2.79	0.34	0.34	0.28	0.00		Calculated
18 (Storm Drain).Pipe - (190) (Storm Drain)	5.65	0 01:15	7.46	0.76	4.68	0.38	0.96	0.65	0.00		Calculated
19 (Storm Drain).Pipe - (191) (Storm Drain)	5.87	0 01:16	7.44	0.79	4.68	0.21	0.97	0.67	0.00		Calculated
20 (Storm Drain).Pipe - (192) (Storm Drain)	5.86	0 01:16	7.45	0.79	4.68	0.15	0.94	0.67	0.00		Calculated
21 (Storm Drain).Pipe - (193) (Storm Drain)	7.51	0 01:16	11.25	0.67	5.02	0.25	0.98	0.60	0.00		Calculated
22 (Storm Drain).Pipe - (195) (Storm Drain)	8.00	0 01:16	84.07	0.10	22.05	0.03	0.35	0.21	0.00		Calculated
23 (Storm Drain).Pipe - (196) (Storm Drain)	1.14	0 01:15	3.96	0.29	2.84	0.84	0.46	0.36	0.00		Calculated
24 (Storm Drain).Pipe - (198) (Storm Drain)	2.46	0 01:15	4.54	0.54	3.82	0.52	0.65	0.52	0.00		Calculated
25 (Storm Drain).Pipe - (200) (Storm Drain)	3.56	0 01:15	4.58	0.78	4.16	0.35	0.82	0.66	0.00		Calculated
26 (Storm Drain).Pipe - (203) (Storm Drain)	9.95	0 01:16	139.67	0.07	33.64	0.06	0.31	0.18	0.00		Calculated
27 (Storm Drain).Pipe - (204) (Storm Drain)	1.47	0 01:15	4.57	0.32	3.34	0.38	0.49	0.39	0.00		Calculated
28 (Storm Drain).Pipe - (205) (Storm Drain)	2.54	0 01:15	4.57	0.56	3.85	0.45	0.66	0.53	0.00		Calculated
29 (Storm Drain).Pipe - (66) (Storm Drain)	28.08	0 01:17	46.99	0.60	6.96	0.34	1.55	0.56	0.00		Calculated
30 (Storm Drain).Pipe - (67) (Storm Drain)	3.43	0 01:15	6.27	0.55	8.25	0.24	0.53	0.53	0.00		Calculated
31 (Storm Drain).Pipe - (68) (Storm Drain)	1.65	0 01:15	2.46	0.67	3.35	0.08	0.60	0.60	0.00		Calculated
32 (Storm Drain).Pipe - (69) (Storm Drain)	25.12	0 01:17	47.30	0.53	6.80	0.14	1.43	0.52	0.00		Calculated
33 (Storm Drain).Pipe - (70) (Storm Drain)	23.97	0 01:16	28.98	0.83	6.65	0.46	1.60	0.69	0.00		Calculated
34 (Storm Drain).Pipe - (71) (1) (Storm Drain)	20.85	0 01:16	29.38	0.71	6.50	0.15	1.47	0.62	0.00		Calculated
35 (Storm Drain).Pipe - (71) (Storm Drain)	22.26	0 01:16	29.00	0.77	6.54	0.32	1.54	0.66	0.00		Calculated
36 (Storm Drain).Pipe - (72) (Storm Drain)	8.67	0 01:16	11.35	0.76	7.08	0.17	0.95	0.65	0.00		Calculated
37 (Storm Drain).Pipe - (75) (Storm Drain)	2.72	0 01:15	4.57	0.60	3.90	0.16	0.70	0.56	0.00		Calculated
38 (Storm Drain).Pipe - (79) (Storm Drain)	9.34	0 01:16	11.35	0.82	5.34	0.69	1.17	0.69	0.00		Calculated
39 (Storm Drain).Pipe - (80) (Storm Drain)	11.68	0 01:16	15.98	0.73	5.60	0.58	1.21	0.64	0.00		Calculated
40 (Storm Drain).Pipe - (81) (Storm Drain)	8.07	0 01:16	9.33	0.86	8.63	0.36	0.87	0.72	0.00		Calculated
41 (Storm Drain).Pipe - (82) (1) (1) (Storm Drain)	1.48	0 01:15	4.57	0.32	3.33	0.15	0.49	0.39	0.00		Calculated
42 (Storm Drain).Pipe - (82) (1) (Storm Drain)	2.73	0 01:15	4.57	0.60	3.95	0.53	0.69	0.56	0.00		Calculated
43 (Storm Drain).Pipe - (82) (Storm Drain)	4.10	0 01:15	4.56	0.90	4.20	0.08	0.90	0.74	0.00		Calculated
44 01	0.97	0 01:15	10.02	0.10	11.64	0.04	0.18	0.21	0.00		Calculated
45 02	1.17	0 01:15	9.46	0.12	11.81	0.03	0.20	0.24	0.00		Calculated
46 03	2.07	0 01:15	2018.07	0.00	6.45	0.17	0.19	0.02	0.00		Calculated
47 04	1.39	0 01:15	1.83	0.76	3.76	0.45	0.54	0.65	0.00		Calculated
48 05	1.29	0 01:15	1.84	0.70	3.72	0.49	0.51	0.62	0.00		Calculated
49 06	29.56	0 01:17	40.87	0.72	6.30	0.01	1.74	0.63	0.00		Calculated
50 08	14.95	0 01:16	20.00	0.75	6.99	0.20	1.21	0.64	0.00		Calculated
51 09	3.95	0 01:15	6.42	0.61	3.89	0.94	0.84	0.56	0.00		Calculated
52 11	4.77	0 01:16	6.38	0.75	4.09	1.37	0.95	0.64	0.00		Calculated

Storage Nodes

Storage Node : Detention_Basin

Input Data

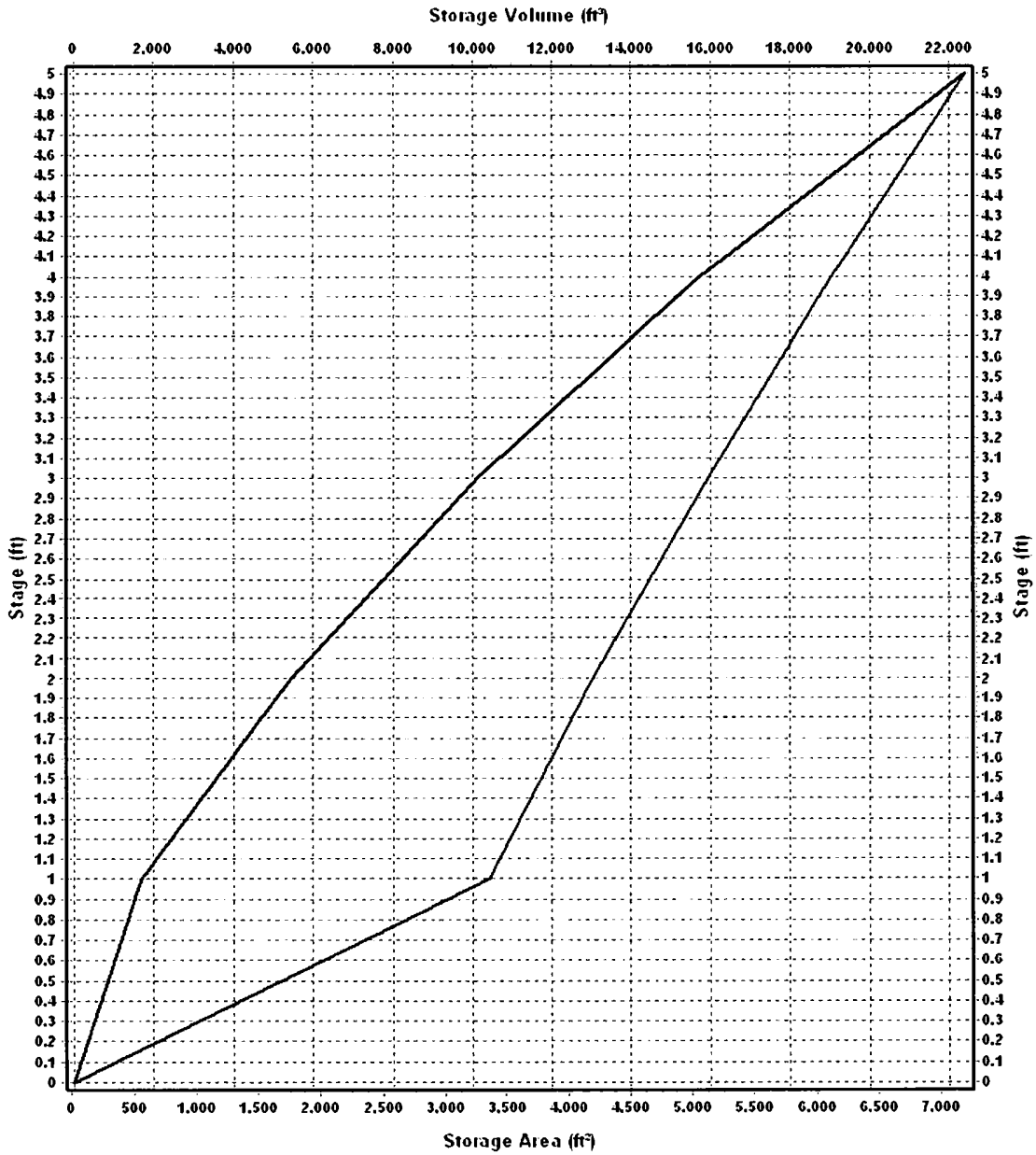
Invert Elevation (ft) 4386.00
Max (Rim) Elevation (ft) 4391.00
Max (Rim) Offset (ft) 5.00
Initial Water Elevation (ft) 4386.00
Initial Water Depth (ft) 0.00
Ponded Area (ft²) 0.00
Evaporation Loss 0.00

Storage Area Volume Curves

Storage Curve : C3D_Stage_Storage

Stage (ft)	Storage Area (ft ²)	Storage Volume (ft ³)
0	19.81	0.000
1	3357.60	1688.71
2	4193.23	5464.13
3	5124.52	10123.00
4	6116.85	15743.69
5	7192.45	22398.34

Storage Area Volume Curves



— Storage Area — Storage Volume

Storage Node : Detention_Basin (continued)

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 Ford_Lincoln	Side	CIRCULAR	No	3.25			4386.00	0.61

Output Summary Results

Peak Inflow (cfs)	14.95
Peak Lateral Inflow (cfs)	0.01
Peak Outflow (cfs)	0.55
Peak Exfiltration Flow Rate (cfm)	0.00
Max HGL Elevation Attained (ft)	4389.95
Max HGL Depth Attained (ft)	3.95
Average HGL Elevation Attained (ft)	4386.64
Average HGL Depth Attained (ft)	0.64
Time of Max HGL Occurrence (days hh:mm)	0 03:07
Total Exfiltration Volume (1000-ft ³)	0.000
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0.00