Appendix H
Drainage Study

ALLARD ENGINEERING
civil engineering land surveying land planning

Hacienda at Fairview Valley
Specific Plan
Conceptual Drainage Report

September 1, 2008
Revised December 8, 2008
Revised April 9, 2009
Revised June 2, 2009

Prepared For:
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Job Number 226.05.01

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Discussion

Introduction

Hacienda at Fairview Valley is located within the Fairview Valley between the Fairview Mountains and the Granite Mountain Range. The site is comprised of approximately 1,557 acres east of the Town of Apple Valley in the County of San Bernardino. The Fairview and Granite Mountains that border along the site's northwestern, southern and south western portions of the site boundary have steep slopes and rocky terrain. The site is bisected by Fairview Creek which flows in a westerly direction out of Fairview Valley. Three ephemeral streams are tributary to Fairview Creek according to USGS Quadrangle Maps.

Four natural springs can be found throughout the valley, including Isabella, Quail, Amaral and Horse Springs. Groundwater is anticipated to be available at depths of 230 feet. Due to the reliance on groundwater to meet the needs of downstream property owners, recharge will be addressed through the retention and subsequent infiltration of small storm events.

The project and the entire watershed are in Zone D of the Federal Emergency Management Agency's Flood Insurance Rate Map. Zone D designates unmapped areas.

The project is located in the Apple Valley East Master Plan of Drainage (AVEMDP). The MPD was prepared in the late 1980s to serve as a planning tool for storm drain facilities in the area east of Apple Valley Dry Lake. A copy of the AVEMDP is included in this report. Fairview Creek is identified as Line E-01 on the AVEMDP.

The Specific Plan is the initial entitlement process and document for the overall project site. The Specific Plan will establish proposed land uses, including residential, commercial and recreational areas and establish approximate alignments of the major roads and drainage facilities. Subsequent entitlement processes include master tentative tract maps, also called "A" maps, (which will propose detailed alignments of significant roads and drainage facilities and refine the boundaries of the planning areas), tentative tract maps for each residential planning area and site plans for commercial and recreational planning areas. Prior to construction within the project boundaries, additional drainage studies will be required. Some will be done for the tentative maps and site plans, and others will be done for the final construction plans.

Purpose

The study was prepared to address several different concerns.

1. Since the drainage courses downstream from the project are unimproved, an increased potential of flooding may occur to downstream properties due to an increase of storm water runoff created by the project. County of San Bernardino drainage policy requires that the project mitigate the increase in runoff so that there will not be an increased threat of flooding to downstream properties. Onsite detention basins are proposed to address this concern. Preliminary basin sizes are established within this report.

2. Since the project is surrounded on three sides by the Fairview and Granite Mountains, large areas drain through the site. If the drainage from these offsite areas together with the onsite drainage area is allowed to drain directly into Fairview Creek, large channels and underground storm drain systems would

be necessary to convey the storm water safely through the project. Onsite detention basins are proposed to reduce peak storm water runoff rates to reduce the size of proposed onsite drainage facilities.

3. This report provides preliminary sizes of detention basins and major channels to assist the project planners with the site design process. Since this report is a preliminary planning tool, recommendations for future drainage studies are included.

4. This project proposes to use portions of the major drainage courses for recreational purposes, such as designated multi-use trails. In addition, the drainage facilities that will be constructed by this project will need ongoing maintenance This report establishes preliminary cross sections of the major channels and locations for onsite detention basins to assist discussions between the developer and the County regarding the joint use of the drainage facilities and ongoing maintenance requirements.

5. This report compares its results to the MDP and makes recommendations for future action steps to address differences in the two studies.

Project Description

Hacienda at Fairview Valley is a proposed Specific Plan that will allow up to 3,114 residential units (including up to 2,815 active adult units and up to 299 single family detached units), 15 acres of commercial uses, recreational parks and natural open space. The development has been separated into four Villages. The entire site is tributary to Fairview Creek. Fairview Creek crosses Cahuilla Road approximately 500 feet east of Laguna Seca Drive. The majority of the site (Villages B, C and D) and its tributary runoff drain into Fairview Creek upstream of Cahuilla Road. A small portion of the site (Village A) and its tributary water drain to Fairview Creek downstream from Cahuilla Road.

Nine detention basins have been proposed to detain developed flow rates to below existing levels. Some of the detention basins will have dead storage available to store debris from upstream undeveloped land. In most cases basin volume will not exceed 50 acre feet. The basins that will exceed 50 acre-feet volume will be designed such that they will not be defined as dams by the State Division of safety of Dams. Three regional detention basins are proposed in the project (Basins D-1, D-2 and B-2) and will reduce flow rates and the size of downstream drainage facilities. The remaining basins will reduce developed flow rates to or below predeveloped levels (See Preliminary Drainage Concept Exhibit).

The Preliminary Drainage Concept Exhibit (see Drainage Plan in back pocket) depicts the preliminary drainage concept for the site. Flood protection will be assured through a system of levees, ditches, pipes, channels and basins. It is anticipated that offsite runoff will be collected and detained in onsite detention basins. The possibility also exists for debris collection and retention to occur offsite. The potential locations are shown on the enclosed Drainage Plan. Debris and small storm events will be retained in the retention portion of the basins. Larger storm events will exceed the retention storage and be released at a reduced rate from the existing condition. Implementation of the drainage plan will mitigate the effect on downstream property owners of increased runoff due to development. This concept is an

expansion of the current Apple Valley Master Drainage Plan which proposes one large detention basin downstream of this project.

Methodology

Hydrographs were applied to Fairview Creek at its intersection with Cahuilla Road. Additional hydrographs were applied to Village A separately and compared to the pre-developed hydrographs for the same areas.

Criteria

The criteria utilized in this report are set forth by the San Bernardino County Hydrology Manual. AES and Civil Cad software were used to perform computations. In addition, this report proposes to reduce the developed condition peak storm water runoff in accordance with the County detention basin policy. For this study, only the 100 year storm event is analyzed.

Since the site currently drains to Cahuilla Road in two separate watersheds, the pre-developed and developed condition 100 year event peak flow rates are determined for each watershed. In both pre-developed and developed conditions, the vast majority of the watershed is not within the boundary of the project. If the basin policy were to be used across the entire watershed (16.3 square miles) the intent of the policy (to provide a high confidence level that the impact of the development does not increase flooding potential to downstream properties) would be greatly skewed. Therefore, modifications to the County policy are in order. These include the following:

1. For the offsite watershed areas, the antecedent moisture conditions (AMC) for the soils in both the pre-developed and developed conditions will be AMC II. However, in accordance with County basin policy, the onsite watershed areas will be AMC II for the pre-developed hydrology analysis and AMC III for the developed hydrology analysis.

2. For the offsite watershed areas, the rainfall intensity in both the pre-developed and developed conditions will be for a 100 year storm. However, in accordance with County basin policy, the onsite watershed areas use a 25 year rainfall intensity for the pre-developed hydrology analysis and a 100 year rainfall intensity for the developed hydrology analysis.

3. The County basin policy requires the developed condition peak flow rate to be no more than 90 % of the pre-developed condition peak flow rate. The entire watershed is approximately 10,205 acres of which the site is approximately 1,557 acres. So, the project is 15.3 % of the watershed. Applying 90 % to the 15.3 % portion of the watershed and 100 % to the remaining 84.7 % of the watershed, an effective reduction to the entire pre-developed condition peak flow rate is 98.5 %.

Results

The following table provides the peak flow rates at the crossing of the two watersheds with Cahuilla Road.

	Westerly Watershed	Fairview Creek Watershed	**Both Watersheds Combined**
Pre-Developed Condition Peak Flow Rate	1,205 cfs	10,926 cfs	12,131 cfs
Reduced Pre-Developed Condition Peak Flow Rate (See Note 3 above)	1,187 cfs	10, 762 cfs	**11,949 cfs**
Developed Condition Peak Flow Rate	351 cfs	10,760 cfs	**11,111 cfs**

The developed condition flow rate is 838 cfs less than the required maximum allowable flow rate. The developed condition flow rate is 93.0 % of the pre-developed condition flow rate.

As previously stated, the Specific Plan is tributary to Line E-01 of the AVEMDP. Line E-01 is Fairview Creek. The AVEMDP estimated a 100 year storm event peak runoff at a location of Fairview Creek just downstream of Cahuilla Road of 8548 cfs. The reach in question is approximately the location where this study indicates a pre-developed 100 year storm event peak flow rate of 12,131 cfs, an increase of 25%.

In some cases, pipes that will convey water to Fairview Creek will have velocity that could be erosive to the creek. In these cases, energy dissipating structures will be used to reduce the storm flow to non-erosive velocities.

In this study, channel velocities were estimated to be up to 13 feet per second. These estimates were used in the routing calculations to determine the time offset of the hydrographs. In subsequent studies prepared during the County's tentative tract map and/or final tract map application process, more consideration shall be given to erosive velocities in the channels and ways of reducing the velocities.

Recommendations

As discussed above, peak storm water runoff released from the project's drainage facilities at Cahuilla Road must not exceed a certain percentage less than the peak runoff of the predeveloped condition. In addition, the characteristic of the developed runoff as compared to the predeveloped condition must not increase the chance of flooding and erosion to downstream properties. This requirement also applies to Fairview Creek where it exits the project downstream of Basin C-1. For example, the width and velocity of developed runoff must not exceed that of the predeveloped runoff and the outfall facilities must be within the project boundary or public right of way. In subsequent project drainage studies, prepared during the County's tentative tract map and/or final tract map application process, the predeveloped and developed characteristics shall be studied. This type of analysis is commonly done with the use of the hydraulic computer program known as "HEC-RAS".

Due to the higher estimate of runoff as compared the AVEMDP, consideration should be given to studying Line E-01 and perhaps the entire MDP. Since individual tract maps are required to establish building setbacks and drainage easements prior to construction, higher flow rates may warrant wider setbacks and easements. In addition County basin policy states "basin capacity and outlet size shall be such that 100 year peak outflow rate is no greater than the downstream facilities design capacity" (Detention Basin Design Criteria for San Bernardino county section IIB). This policy applies to basins that are used to reduce the size of a master planned downstream facility. No portion of Line E-01 has been constructed nor designed, so as of this time the project need not adhere to this policy. Instead, the project must mitigate downstream impacts due to increased flows generated by the development as discussed above (Detention Basin Design Criteria for San Bernardino county section IIA).

Since multiple detention basins will be used in the project, subsequent drainage studies, prepared during the County's tentative tract map and/or final tract map application process, shall address the timing of peak flow rates from the basins to ensure downstream flow rates are not increased (Detention Basin Design Criteria for San Bernardino county section IIA). This will be especially necessary as phased project construction will require evaluation of basin performance in various stages of construction. In some scenarios, temporary basins might be necessary or permanent upstream basins might be constructed in advance of a subsequent phase.

This study proposes collecting runoff within improved drainage facilities and routing the facilities through the development. The major facilities include channels, large underground conduits and detention basins. The single largest underground drainage facilities is a reinforced concrete box conduit (RCB) that starts as the outlet for Basin D-1 and ends downstream where Fairview Creek crosses the project at Node 105 as shown on the Developed Condition Routing Map. Future studies will consider shorten the RCB by ending it at Fairview Creek where Pioneer Road will terminate (as shown on the Routing Map).

Summary

The project, as proposed will successfully mitigate the impact to downstream properties due to increased development runoff. This report considers only the 100 year storm event. In subsequent studies, prepared during the County's tentative tract map and/or final tract map application process, additional detailed analysis will be necessary. These studies shall analyze 100, 25, 10 and 2 year event storms and their impact to downstream properties. The impact of these studies only affects the basin design and not system functionality.

Proposed channel sections are included in this report that allow for recreational uses, such as designated multi-use trails, during dry weather and minor storms. These sections were determined using simple normal depth means and are preliminary. At the tentative tract map stage, detailed hydraulic analysis of the proposed channels, including HEC-RAS calculations shall be provided. In final design, hydraulic analysis of the proposed storm drain systems, including Water Surface Pressure Gradient calculations (WSPG) and hydraulic analysis of the project's streets shall be provided.

Water Quality

This section describes the existing Hacienda at Fairview Valley project site conditions related to water quality (specifically storm water runoff and water supply). The project's potential impacts in these areas are discussed and mitigation measures are provided for impacts determined to be significant.

The Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The EPA has delegated responsibility for implementation of portions of the CWA to the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) for water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program.

Responsibility for the protection of water quality in California rests with the SWRCB and the nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The project is located within the jurisdiction of the Lahontan RWQCB (LRWQCB). The LRWQCB implements a number of federal and state laws, the most important of which are the state Porter-Cologne Water Quality Control Act and the federal CWA.

The Porter-Cologne Water Quality Control Act §13000 directs each RWQCB to develop a Basin Plan for all areas within its region. The Basin Plan is the basis for each RWQCB's regulatory programs. The proposed project site is located within the purview of the LRWQCB (Region 6V), and must comply with applicable elements of the region's Basin Plan, as well as the Porter-Cologne Water Quality Control Act, and the federal CWA.

The NPDES permit system was established in the CWA to regulate both point source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint source discharges (diffuse runoff of water from adjacent land uses) to surface water of the United States. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements, with two exceptions: (1) nonpoint source discharges caused by general construction activities of over one acre; and (2) storm water discharges in municipal storm water systems either as part of a combined system or as a separate system in which runoff is carried through a developed conveyance system to specific discharge locations.

Point Source Discharges – for point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge through the establishment of Waste Discharge Requirements.

Nonpoint Source Discharges Caused by General Construction and Operations Activities – one of the primary objectives of the regulations for nonpoint source discharges is the reduction of pollutants in urban storm water discharge through the use of structural and nonstructural Best Management Practices (BMPs). The Environmental Protection Agency

(EPA) implemented the NPDES storm water program in two phases. Phase I addressed large dischargers and construction activities that affect five acres or greater, while Phase II, which was implemented in 1999, addressed smaller dischargers and construction activities that affect one or more acres. The regulations require that storm water and non-storm water runoff associated with a construction activity, which discharges either directly to surface waters or indirectly through municipal storm drain systems, must be regulated by an NPDES permit.

Typical construction BMPs include, but are not necessarily limited to the following:

- Scheduling or limiting activities to certain times of the year
- Prohibiting certain construction practices
- Implementing equipment maintenance schedules and procedures; implementing a monitoring program
- Other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils
- Storing materials and equipment to ensure that spills or leaks do not enter the storm drain system or surface waters
- Developing and implementing a spill prevention and cleanup plan
- Installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains
- Using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water

Typical operational BMPs include, but are not necessarily limited to the following:

- Controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets
- Cleaning parking lots on a regular basis
- Incorporating peak-flow reduction and infiltration features (such as grass swales, infiltration trenches, and grass filter strips) into landscaping
- Implementing educational programs
- Utilizing dead storage in detention basis for groundwater infiltration

The San Bernardino County Flood Control District has recently revised its Water Quality Management Plan (WQMP). The Model WQMP Guidance document supersedes the "Guidelines for New Development and Redevelopment," dated June 2000. The purpose of the new WQMP is to guide the Permittees that have land-use planning and development authority in the development and implementation of a program to minimize the detrimental effects of urbanization on the beneficial uses of receiving waters, including effects caused by increased pollutant loads and changes in hydrology.

The RWQCB administers the NPDES permit program regulating storm water from construction activities for projects greater that one acre in size. The main compliance requirement of the NPDES permits is the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The purpose of a SWPPP is to identify potential on-site pollutants, and then identify and implement appropriate measures to reduce or eliminate discharge of pollutants to surface water from storm water and non-storm water discharges. Storm water BMPs to be implemented during construction and grading, as well as post-construction BMPs, will be outlined in the SWPPP prepared for the proposed project prior to disturbing the ground. The project will be required to obtain coverage under the General NPDES Permit for construction activities prior to site disturbance, and will need to meet San Bernardino County's requirements for new development that are specified in its WQMP. Examples of construction BMPs include: detention basins for capture and containment of sediments, use of silt fencing, sandbags, gravel bags or straw bales to control runoff, and identification of emergency procedures in case of hazardous materials spills.

Pursuant to San Bernardino County Flood Control District's permit the project's WQMP would be required to:

- Incorporate and implement Site Design BMPs. Justification is required for any Site Design BMPs not incorporated into the Project.

- Incorporate and implement all Source Control BMPs, unless not applicable to the project due to project characteristics. Justification is required for any Source Control BMP not incorporated into the project.

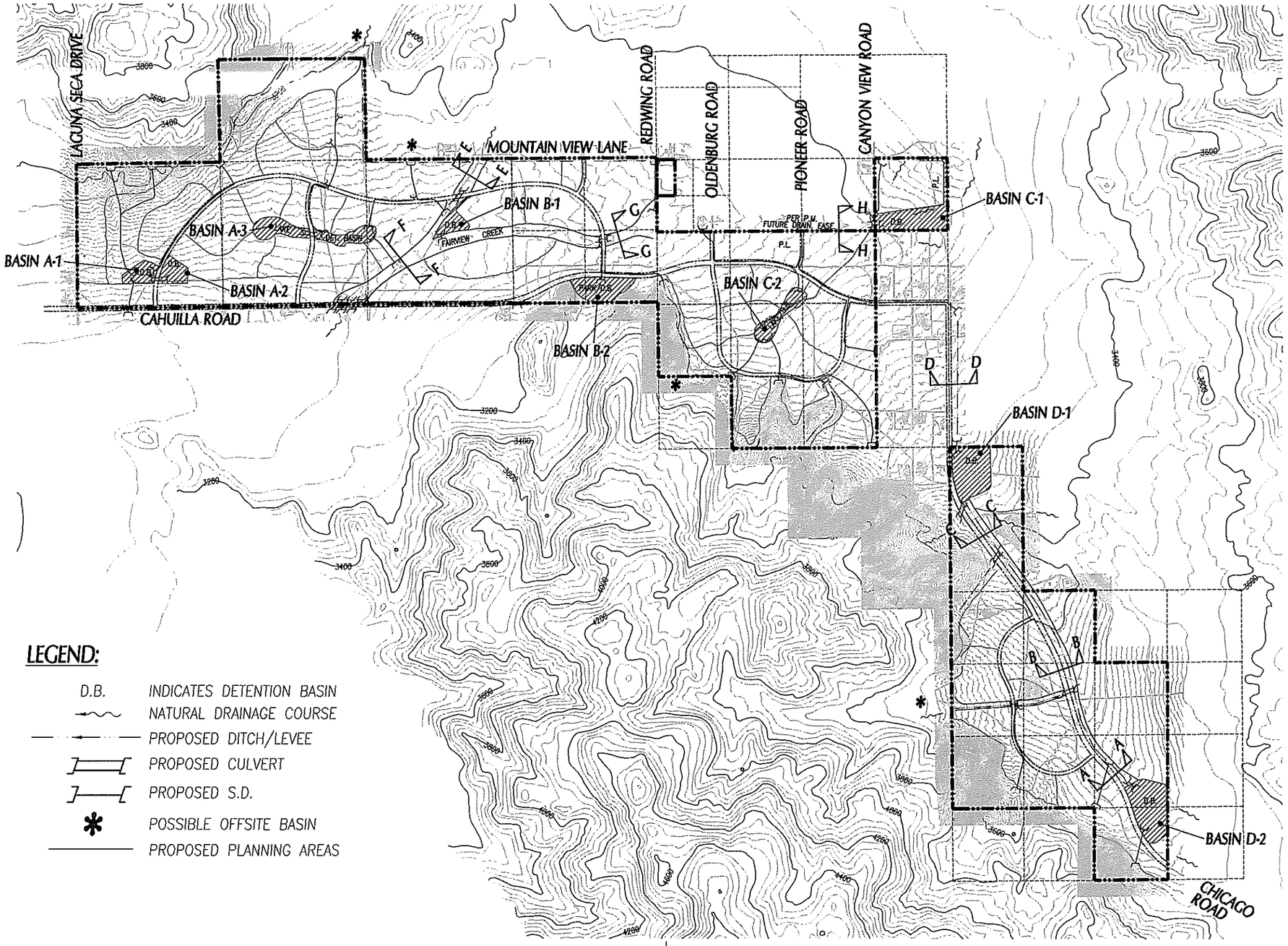
- Either incorporate and implement Treatment Control BMPs, by including a selection of such BMPs into the project design; or participate in or contribute to an approved regional-based treatment program. Site Design and Source Control BMPs are required for projects participating in regional-based treatment programs.

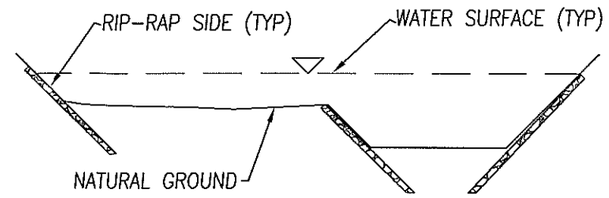
- The combination of Site Design, Source Control, and/or Treatment Control BMPs or Regional-based treatment program must address all identified pollutants and hydrologic conditions of concern.

The discharge of any pollutant to an impaired water body on the Clean Water Act Section 303(D) list shall require an offset (e.g., no net loading) for any additional loading to ensure no further degradation of the impaired water body. The receiving body of water for the project is Apple Valley Dry Lake. The Lake is not a listed CWA Section 303(d) body of water. This means that the Lake has not been identified as a body of water that has impaired water quality.

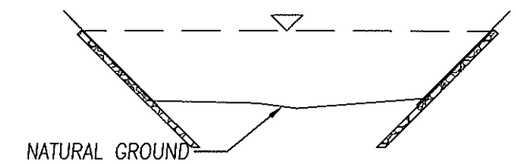
Alternative Construction Techniques

Hacienda at Fairview Valley will utilize non-traditional construction techniques throughout the drainage system. The purpose of this is to achieve a lower impact development. Fairview Creek may utilize soil cement or armorflexing to be more visually compatible with the desert environment. Where traditional rip-rap is used, it may be covered with soil and planted. The use of concrete lining should be minimized. Cast in place construction will be allowed to use materials closer to the project site.





SECTIONS A-A TO G-G
OPTION 1
NTS



SECTIONS A-A TO G-G
OPTION 2
NTS

LEGEND:

D.B.	INDICATES DETENTION BASIN
	NATURAL DRAINAGE COURSE
	PROPOSED DITCH/LEVEE
	PROPOSED CULVERT
	PROPOSED S.D.
*	POSSIBLE OFFSITE BASIN
	PROPOSED PLANNING AREAS

GRAPHIC SCALE

0 2000 4000

(IN FEET)
1 inch = 2000 ft.

HACIENDA AT FAIRVIEW VALLEY
PRELIMINARY DRAINAGE CONCEPT

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STRATA EQUITY GROUP, INC.

APRIL 8, 2009

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civil engineering land surveying land planning

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Appendix A

Pre-Developed Condition Hydrology

September 1, 2008
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Revised April 9, 2009
Revised June 2, 2009

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Hydrograph Routing – Complex Model

Unit Hydrograph – Single Area Model

Hydrology Maps
Routing Exhibit (used for single area rational method hydrology)

Discussion

Discussion

Introduction

Hacienda at Fairview Valley is comprised of approximately 1,560 acres, east of the Town of Apple Valley in the County of San Bernardino. The boundaries of the study area are the Sidewinder Mountains to the north, the Granite Mountains to the east and south and the Fairview Mountains to the west. The areas vegetation consists of poor grass coverage with mixed shrubs, typical of a desert environment.

Hacienda at Fairview Valley is a proposed residential development that will include some commercial land use along with parks, open space and recreational facilities. Land use density will range from 1 dwelling unit per 2 acres to 6 dwelling units per acre.

Drainage in the area is characterized by steep drainage courses in the mountains that disperse and transition into milder sloped alluvial fans that convey runoff to Fairview Creek. Hydrologic soil type B is dominant in the valley areas and hydrologic soil type D is dominant in the mountainous areas. Fairview Creek meanders through Fairview Valley and is the most significant drainage course in the valley. Ultimately, Apple Valley Dry Lake is 6 miles to the west and serves as the receiving body of water.

The Master Plan of Drainage for Apple Valley includes Fairview Valley. Line E-01 of the Master Plan will receive runoff from Fairview Creek. The Master Plan proposes a regional detention basin be constructed in Fairview Creek east of Laguna Seca Drive and south of the project. Line E-01 will convey runoff from the proposed detention basin to the Apple Valley Dry Lake Bed. Presently no master planned facilities exist upstream or downstream of the site. A copy of the Master Plan of Drainage is included in this report (See Hydrology Reference Material).

This report analyzes the Fairview Valley watershed runoff for the purpose of establishing the benchmark flow rates that will be used to judge the effectiveness of the projects drainage systems to mitigate increased runoff. Appendix B of this report will analyze the projects drainage concept. The proposed concept includes a series of detention basins, flood channels and storm drains. One key goal of the drainage concept will be to mitigate the threat of increased runoff on downstream properties. The County of San Bernardino has established policies for mitigating increased runoff in their Detention Basin Design Guidelines.

Methodology

Rational methods and Unit hydrographs were applied to quantify flow rates. Due to the complexity of the drainage matrix, multiple rational methods were necessary in order to account for the entire watershed. In cases where confluencing upstream exceeded the hydrology software's ability to simulate the hydrology, files were executed and then later entered as user defined data information at the node in question. In cases where watersheds exceeded 640 acres unit hydrographs were applied to quantify the peak flow rate using the time of concentration from the rational methods.

Criteria

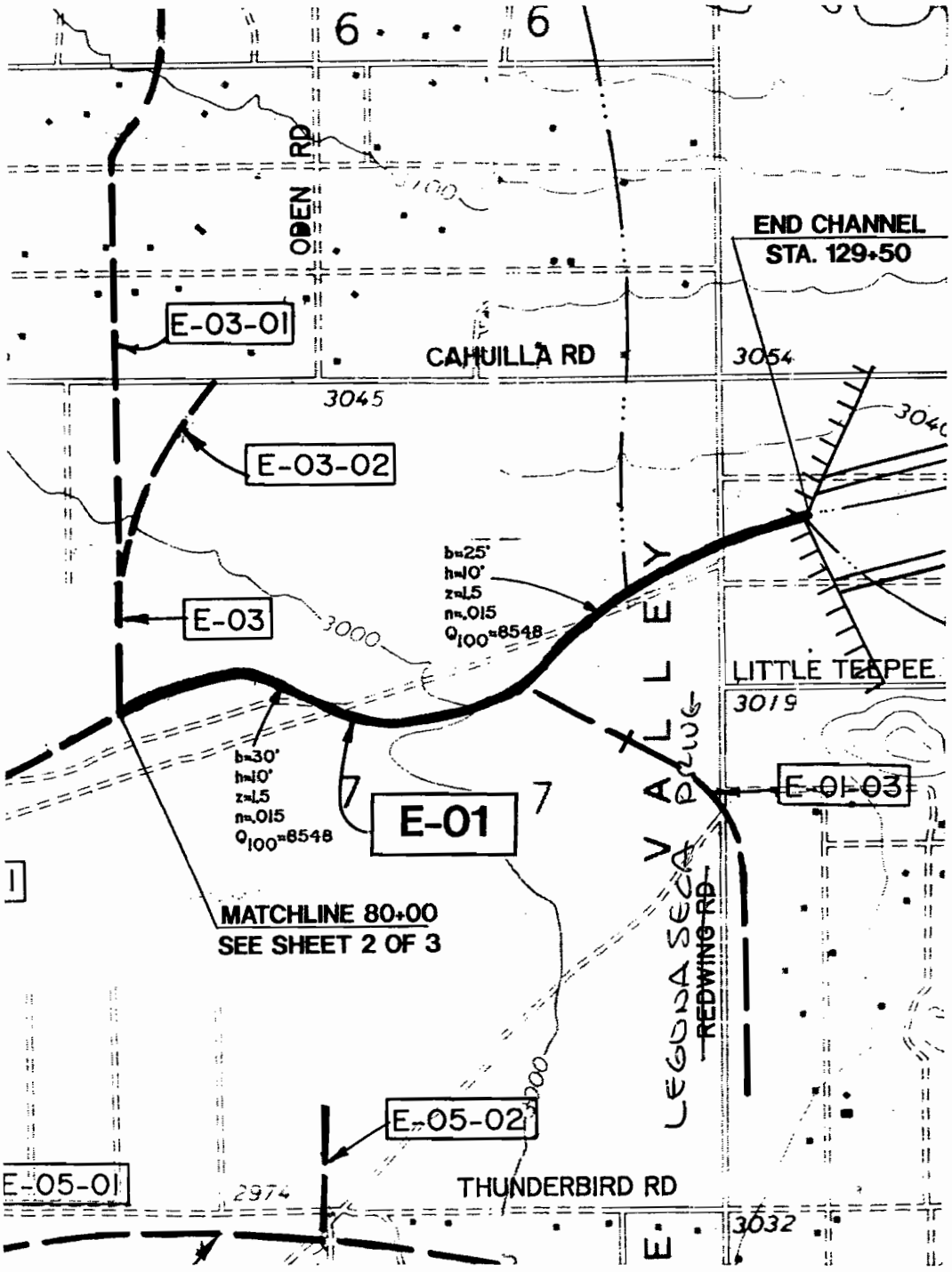
The criteria utilized in this report are set forth by the San Bernardino County Hydrology Manual. AES and Civil Cad software were used to perform computations.

Results

For the pre-developed condition Unit Hydrograph analysis demonstrates that at the point where Fairview Creek crosses Cahuilla Road (Node 36) 10,926 cfs will be produced by 9,725 acres of tributary area. Furthermore, the 480 acres that lie tributary to Cahuilla Road west of Fairview Creek (Nodes 876, 895, 915) will produce 1,205 cfs. The combined flow rate for both watersheds is 12,131 cfs. See the main report for comparison of pre- and post- developed conditions flow rates.

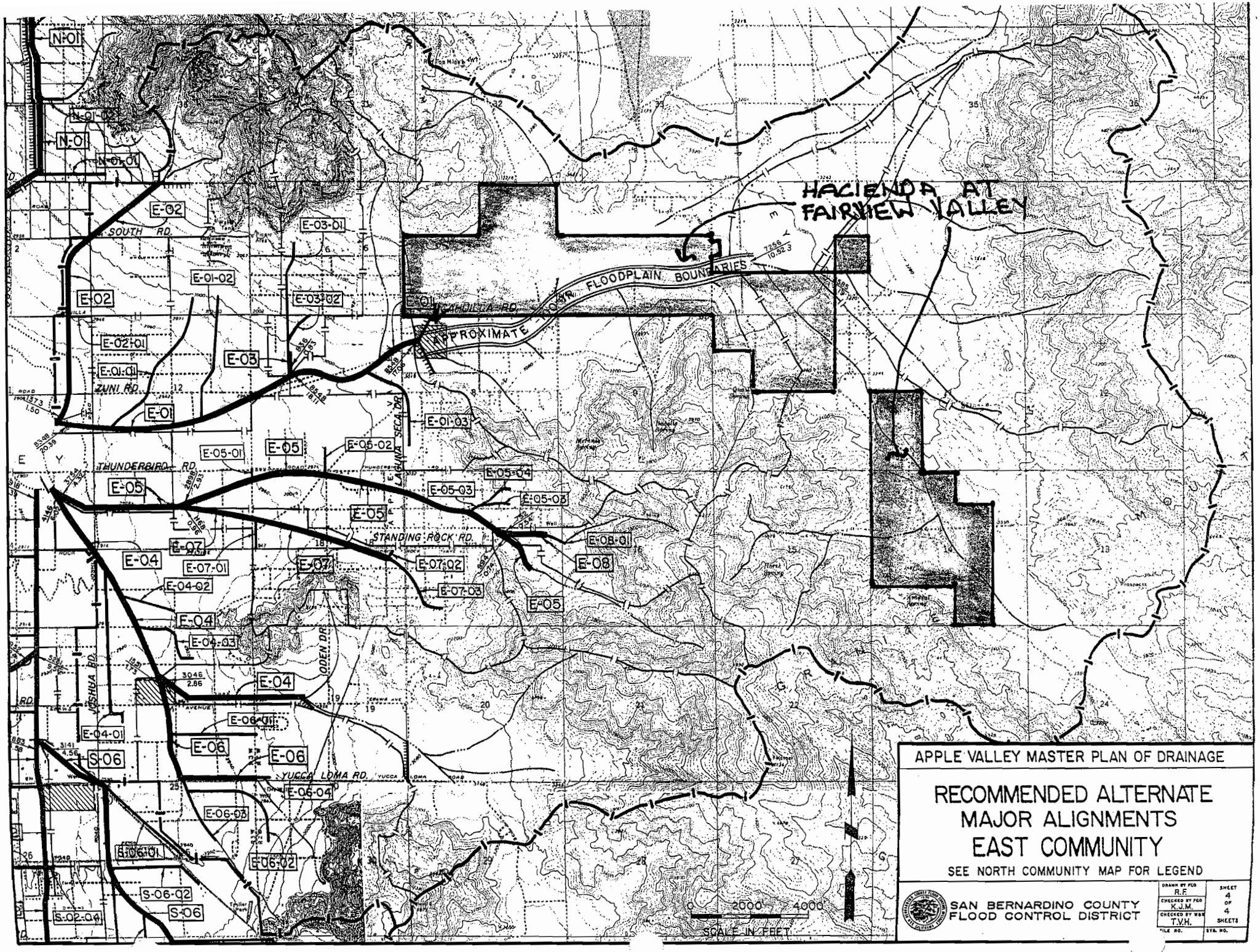
Reference
Material

Hydrology Reference Material



LEGEND			
	WATERSHED BOUNDARY	.....	DRY LAKE H.W.L.
	PROPOSED FACILITY	TTTTT	LEVEE
	FACILITY SHOWN ELSEWHERE	—···—	N.D.C.

APPLE VALLEY MASTER PLAN OF DRAINAGE	COMPREHENSIVE STORM DRAIN PLAN LINE E-01 SHEET 3 OF 3	SCALE 1"=1000' WILLIAMSON & SCHMID



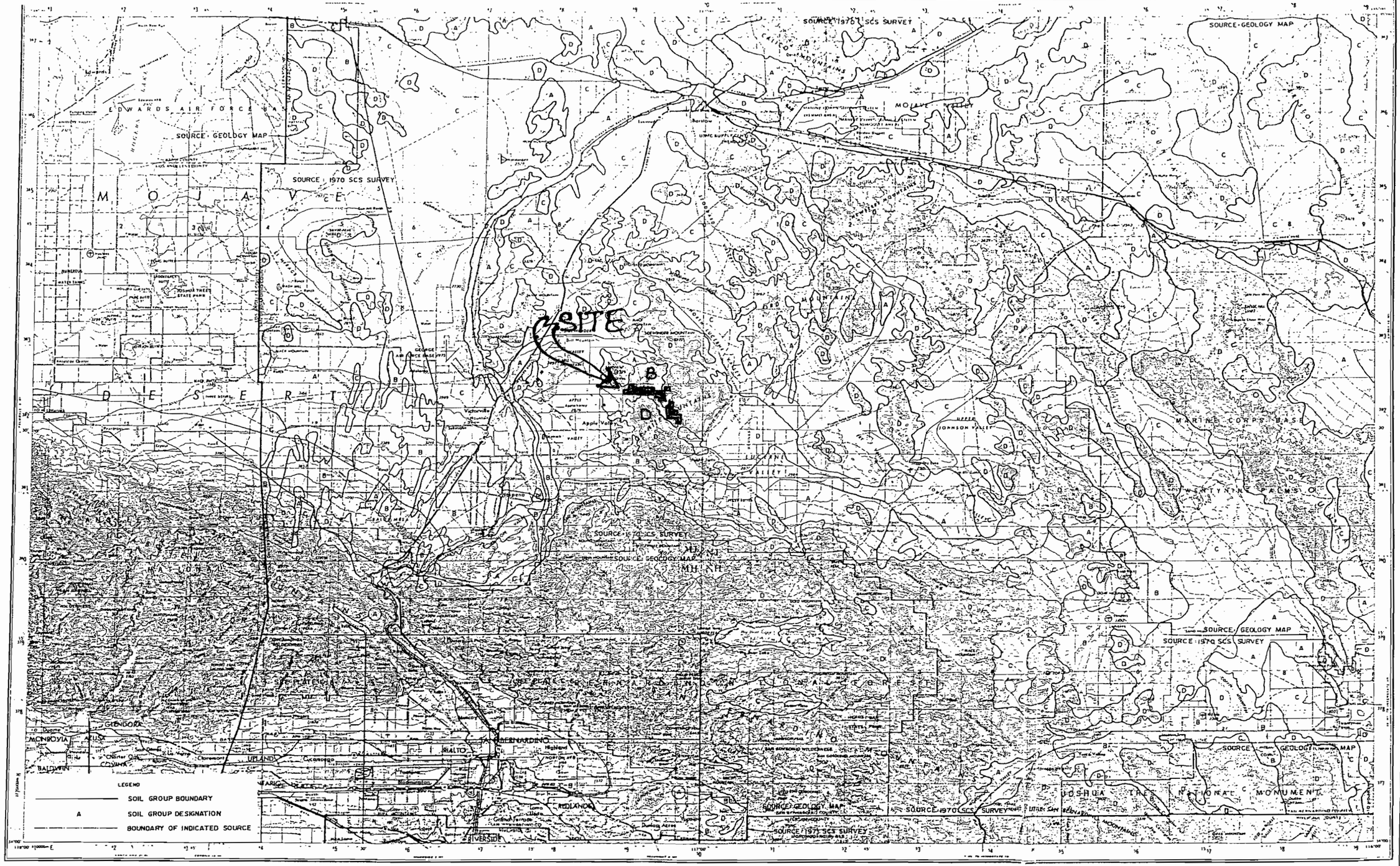
APPLE VALLEY MASTER PLAN OF DRAINAGE

RECOMMENDED ALTERNATE MAJOR ALIGNMENTS EAST COMMUNITY

SEE NORTH COMMUNITY MAP FOR LEGEND

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

DRAWN BY FCD	SHEET
R.F.	4
CHECKED BY FCD	OF
K.J.M.	4
CHECKED BY W&H	SHEETS
T.V.H.	
FILE NO.	SYS. NO.



INDEX MAP

Scale 1:250,000

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION

BASE MAP REPRODUCED FROM U.S.G.S. "SAN BERNARDINO" TOPOGRAPHIC MAP

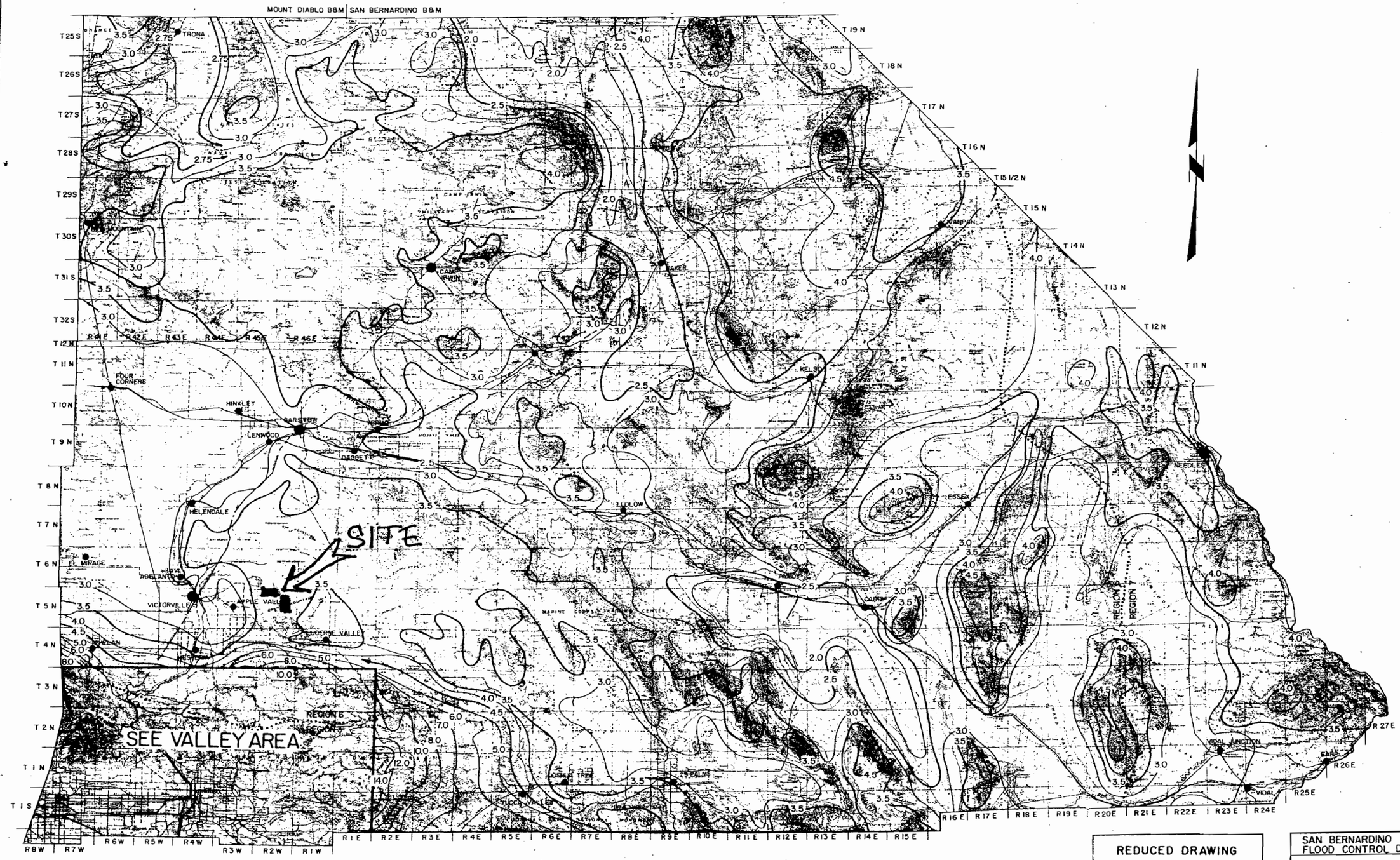
SCALE REDUCED BY 1/2

LOCATION DIAGRAM

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOILS GROUP MAP FOR SOUTHCENTRAL AREA



REDUCED DRAWING

0 1 2 3

3 INCHES ON ORIGINAL

LEGEND:

3.5 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

DESERT AREA

ISOHYETALS

X, -100 YEAR 24 HOUR

BASED ON U.S.DC., NO.AA ATLAS 2, 1973

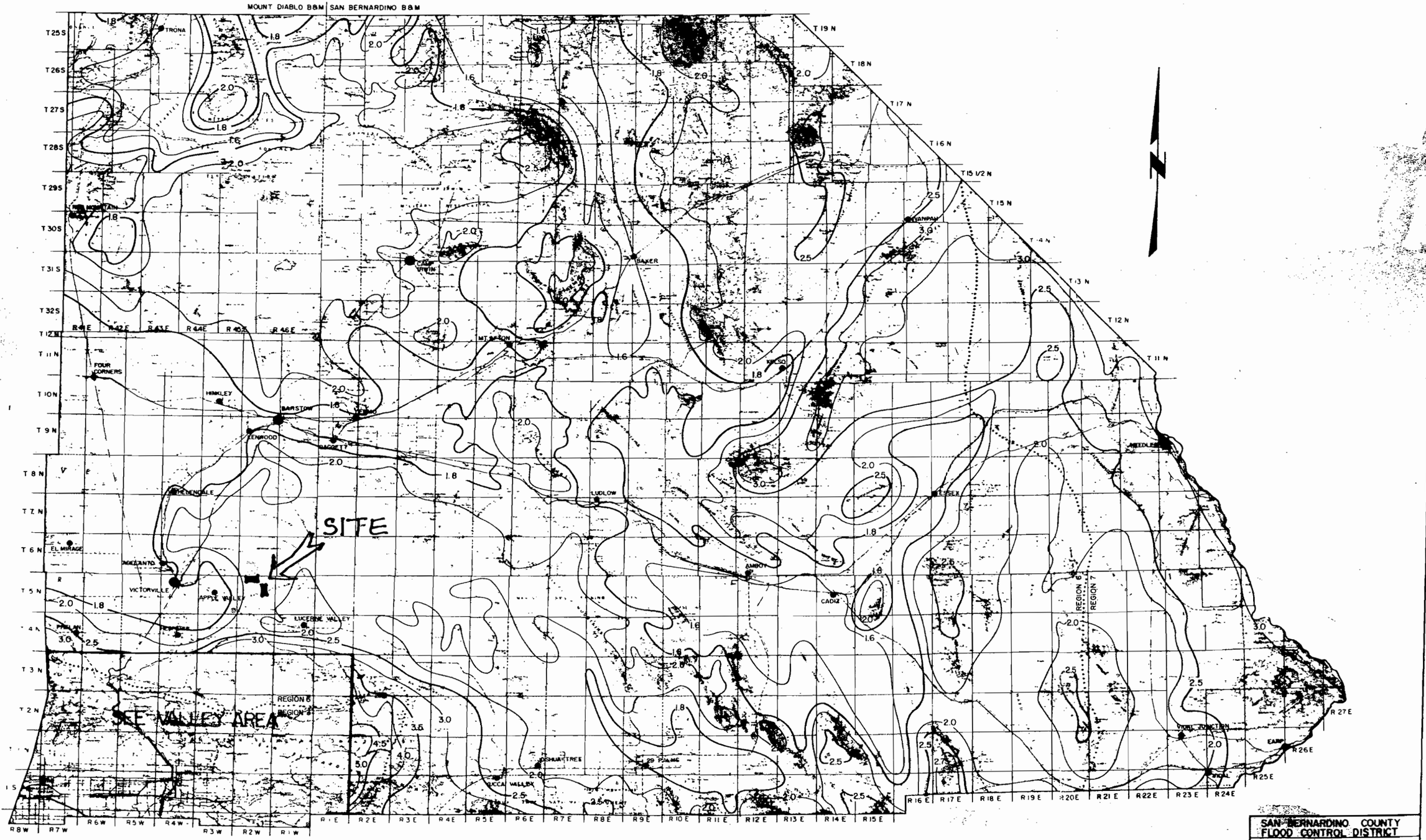
APPROVED BY _____ FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	DRWG. NO.
1982	1" = 6MI	WRD-1	12 of 12

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

FIGURE B-12



SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

REDUCED DRAWING

0 1 2 3

3 INCHES ON ORIGINAL

LEGEND:

2.0 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

DESERT AREA

ISOHYETALS

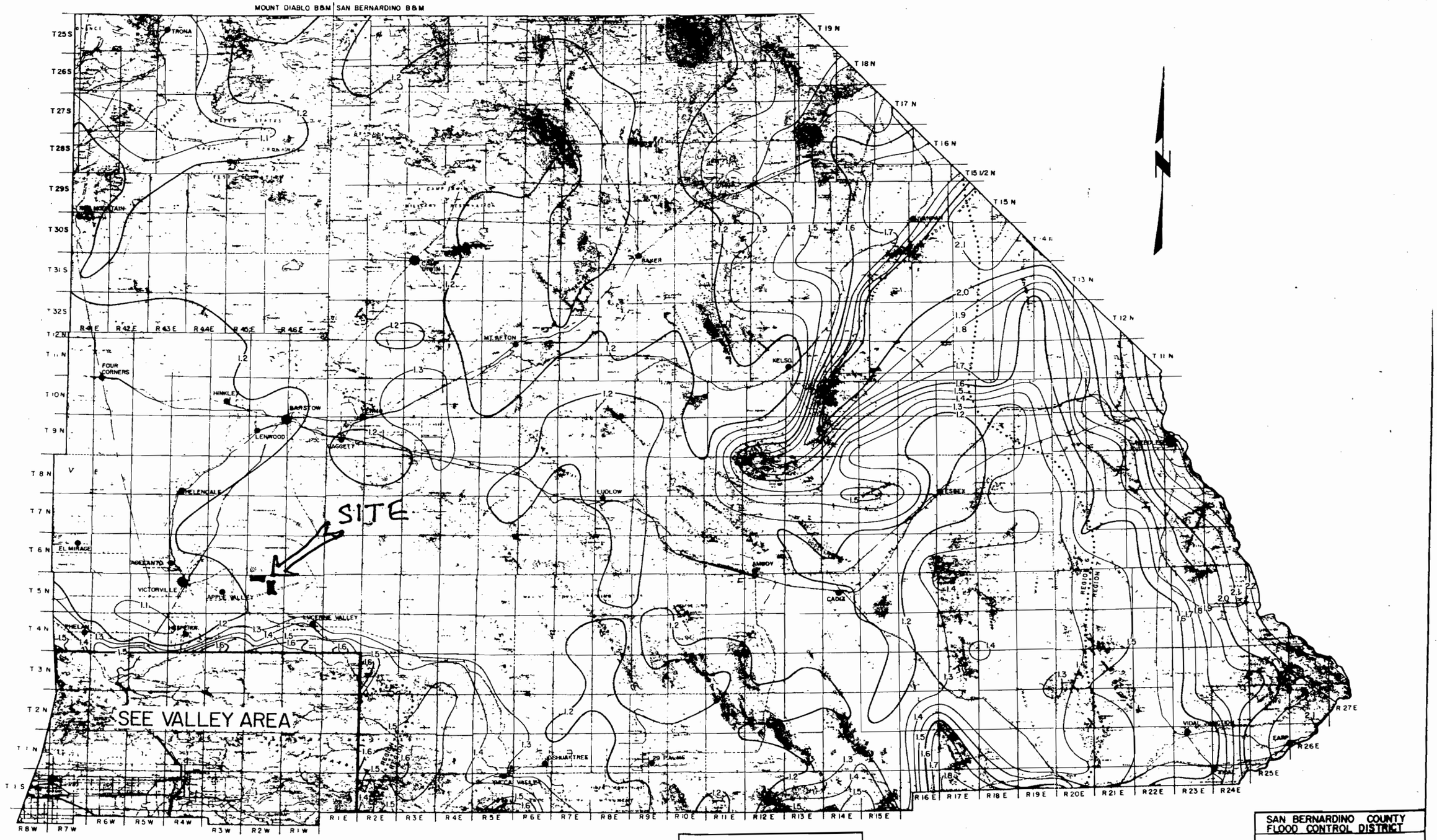
X_3 - 100 YEAR 6 HOUR

BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973

APPROVED BY: _____ FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	DRWG. NO.
1982	1" = 6 MI.	WRD-1	11 of 12

FIGURE B-11



REDUCED DRAWING

0 1 2 3

3 INCHES ON ORIGINAL

LEGEND:

1.2 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

DESERT AREA

ISOHYETALS

Y_{100}-100 YEAR 1 HOUR

BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973

APPROVED BY

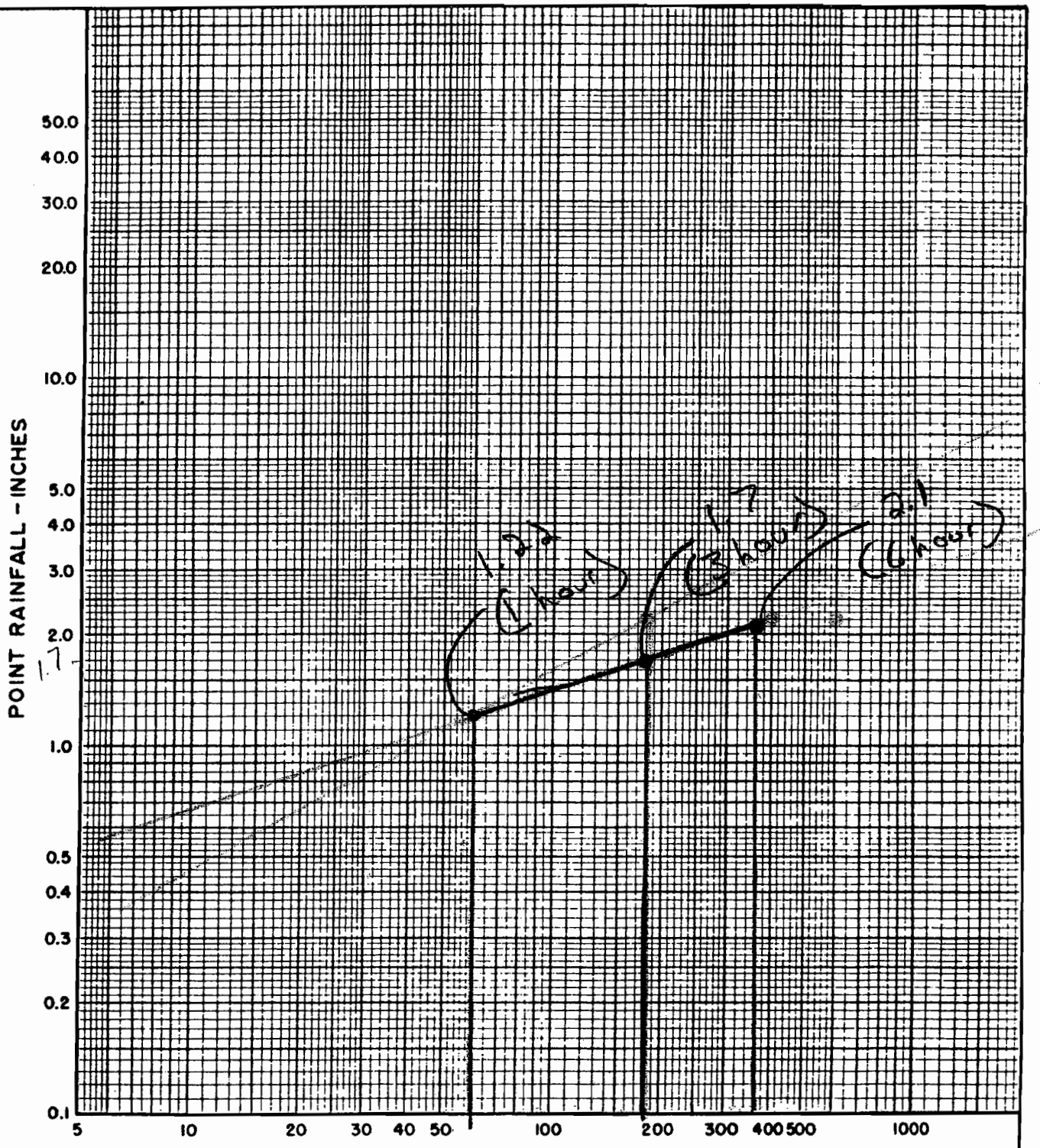
FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	SHEET NO.
1982	1" = 6 MI.		10 of 15

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

FIGURE B-10



STORM DURATION - MINUTES

PROJECT LOCATION _____

NOTES _____

_____

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

AREA - AVERAGED
MASS RAINFALL
PLOTTING SHEET

Precipitation Table

Storm Event	Precipitation (Inches)
1 hour	1.22
3 hour	1.7
6 hour	2.1
24 hour	3.6

Rat. Method
WS 1

```
**************************************************************************
```

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
(c) Copyright 1983-2006 Advanced Engineering Software (aes)
Ver. 13.0 Release Date: 06/01/2006 License ID 1400

Analysis prepared by:

Allard Engineering
8253 Sierra Avenue
Fontana Ca. 92335

```
 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED #1                                                           *
* EXISTING CONDITION                                                     *
* 100-YEAR STORM EVENT                                                   *
 ************************************************************************
```

FILE NAME: HAC-1.DAT
TIME/DATE OF STUDY: 11:01 05/11/2009

```
==========================================================================
```

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

```
==========================================================================
```

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF-WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP	HIKE	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

```
**************************************************************************
```

FLOW PROCESS FROM NODE 990.00 TO NODE 991.00 IS CODE = 21

```
--------------------------------------------------------------------------
```

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4883.00  DOWNSTREAM(FEET) =   4680.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.446
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.890
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.45
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.05
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     33.05

**************************************************************************
 FLOW PROCESS FROM NODE    991.00 TO NODE    992.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4680.00  DOWNSTREAM(FEET) =   4340.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1198.00   CHANNEL SLOPE =  0.2838
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1910 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.05
 FLOW VELOCITY(FEET/SEC) =   7.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.55   Tc(MIN.) =  13.99
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    992.00 =  2198.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    992.00 TO NODE    992.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  13.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.380
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   56.92
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      85.38

**************************************************************************
 FLOW PROCESS FROM NODE    992.00 TO NODE    993.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4340.00  DOWNSTREAM(FEET) =   3920.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1088.00   CHANNEL SLOPE =  0.3860
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2116 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     85.38
 FLOW VELOCITY(FEET/SEC) =  11.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.60   Tc(MIN.) =  15.59
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    993.00 =  3286.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    993.00 TO NODE    993.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.133
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       33.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   33.80      SUBAREA RUNOFF(CFS) =   88.69
 EFFECTIVE AREA(ACRES) =     63.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     63.80       PEAK FLOW RATE(CFS) =     167.40

****************************************************************************
 FLOW PROCESS FROM NODE    993.00 TO NODE    814.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3700.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1379.00   CHANNEL SLOPE =  0.1595
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1398 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    167.40
 FLOW VELOCITY(FEET/SEC) =  11.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.00   Tc(MIN.) =  17.59
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    814.00 =  4665.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    814.00 TO NODE    814.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.880
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       38.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    38.80      SUBAREA RUNOFF(CFS) =    92.96
 EFFECTIVE AREA(ACRES) =    102.60    AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    102.60       PEAK FLOW RATE(CFS) =     245.82

****************************************************************************
 FLOW PROCESS FROM NODE    814.00 TO NODE    814.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.59
 RAINFALL INTENSITY(INCH/HR) =   2.88
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   102.60
 TOTAL STREAM AREA(ACRES) =   102.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    245.82

****************************************************************************
 FLOW PROCESS FROM NODE    810.00 TO NODE    811.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4280.00  DOWNSTREAM(FEET) =   3960.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.450
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.146
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.45
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.36
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.36

****************************************************************************
 FLOW PROCESS FROM NODE    811.00 TO NODE    812.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   705.00    CHANNEL SLOPE =  0.1135
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1101 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.36
 FLOW VELOCITY(FEET/SEC) =   6.09 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  12.38
 LONGEST FLOWPATH FROM NODE    810.00 TO NODE    812.00 =  1705.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    812.00 TO NODE    812.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.38
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.683
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   62.37
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      93.55

****************************************************************************
 FLOW PROCESS FROM NODE    812.00 TO NODE    813.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   742.00   CHANNEL SLOPE =  0.1617
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1409 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.55
 FLOW VELOCITY(FEET/SEC) =   9.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.30   Tc(MIN.) =  13.68
 LONGEST FLOWPATH FROM NODE    810.00 TO NODE    813.00 =  2447.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    813.00 TO NODE    813.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.435
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.60      SUBAREA RUNOFF(CFS) =  111.74
 EFFECTIVE AREA(ACRES) =     68.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     68.60       PEAK FLOW RATE(CFS) =     198.59

****************************************************************************
 FLOW PROCESS FROM NODE    813.00 TO NODE    814.00 IS CODE =  53
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3700.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   900.00   CHANNEL SLOPE =  0.0667
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0667 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    198.59
FLOW VELOCITY(FEET/SEC) =   8.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.78   Tc(MIN.) =  15.46
LONGEST FLOWPATH FROM NODE    810.00 TO NODE    814.00 =  3347.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    814.00 TO NODE    814.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  15.46
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.152
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D       50.60      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   50.60      SUBAREA RUNOFF(CFS) =  133.63
EFFECTIVE AREA(ACRES) =    119.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    119.20       PEAK FLOW RATE(CFS) =     314.81

****************************************************************************
FLOW PROCESS FROM NODE    814.00 TO NODE    814.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  15.46
RAINFALL INTENSITY(INCH/HR) =   3.15
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =   119.20
TOTAL STREAM AREA(ACRES) =   119.20
PEAK FLOW RATE(CFS) AT CONFLUENCE =    314.81

** CONFLUENCE DATA **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    245.82  17.59    2.880  0.22( 0.22) 1.00   102.6      990.00
    2    314.81  15.46    3.152  0.22( 0.22) 1.00   119.2      810.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1    552.97  15.46     3.152   0.22( 0.22) 1.00    209.4      810.00
    2    531.42  17.59     2.880   0.22( 0.22) 1.00    221.8      990.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    552.97    Tc(MIN.) =    15.46
 EFFECTIVE AREA(ACRES) =   209.38   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    221.80
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    814.00 =  4665.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    814.00 TO NODE    815.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1630.00   CHANNEL SLOPE =  0.0675
 CHANNEL FLOW THRU SUBAREA(CFS) =    552.97
 FLOW VELOCITY(FEET/SEC) =  21.01 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  16.75
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    815.00 =  6295.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    815.00 TO NODE    815.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.980
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       67.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   67.40      SUBAREA RUNOFF(CFS) =  157.72
 EFFECTIVE AREA(ACRES) =    276.78   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    289.20       PEAK FLOW RATE(CFS) =     678.21

****************************************************************************
 FLOW PROCESS FROM NODE    815.00 TO NODE    816.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3510.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1468.00   CHANNEL SLOPE =  0.0545
 CHANNEL FLOW THRU SUBAREA(CFS) =    678.21
 FLOW VELOCITY(FEET/SEC) =  20.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.21   Tc(MIN.) =  17.96
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    816.00 =  7763.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     816.00 TO NODE     816.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.96
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.838
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B      123.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  123.30      SUBAREA RUNOFF(CFS) =  272.73
 EFFECTIVE AREA(ACRES) =    400.08   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    412.50       PEAK FLOW RATE(CFS) =     915.48

****************************************************************************
 FLOW PROCESS FROM NODE     816.00 TO NODE     817.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3510.00  DOWNSTREAM(FEET) =   3410.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2413.00   CHANNEL SLOPE =  0.0414
 CHANNEL FLOW THRU SUBAREA(CFS) =    915.48
 FLOW VELOCITY(FEET/SEC) =  19.39 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.07   Tc(MIN.) =  20.04
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    817.00 = 10176.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     817.00 TO NODE     817.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.629
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B      125.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  125.60      SUBAREA RUNOFF(CFS) =  254.20
 EFFECTIVE AREA(ACRES) =    525.68   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    538.10       PEAK FLOW RATE(CFS) =    1094.42

****************************************************************************
 FLOW PROCESS FROM NODE     817.00 TO NODE     818.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
```

```
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3410.00  DOWNSTREAM(FEET) =   3280.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3803.00   CHANNEL SLOPE =  0.0342
 CHANNEL FLOW THRU SUBAREA(CFS) =   1094.42
 FLOW VELOCITY(FEET/SEC) =  18.66 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.40   Tc(MIN.) =  23.44
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    818.00 = 13979.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    818.00 TO NODE    818.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.44
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.356
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      125.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  125.60      SUBAREA RUNOFF(CFS) =  223.35
 EFFECTIVE AREA(ACRES) =    651.28   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    663.70       PEAK FLOW RATE(CFS) =    1188.69

****************************************************************************
 FLOW PROCESS FROM NODE    818.00 TO NODE    819.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3180.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  4100.00   CHANNEL SLOPE =  0.0244
 CHANNEL FLOW THRU SUBAREA(CFS) =   1188.69
 FLOW VELOCITY(FEET/SEC) =  16.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.22   Tc(MIN.) =  27.65
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    819.00 = 18079.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    819.00 TO NODE    819.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  27.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.098
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      124.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  124.60      SUBAREA RUNOFF(CFS) =  192.67
 EFFECTIVE AREA(ACRES) =    775.88   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =    788.30       PEAK FLOW RATE(CFS) =    1230.29

****************************************************************************
 FLOW PROCESS FROM NODE    819.00 TO NODE    820.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3180.00  DOWNSTREAM(FEET) =   3120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2846.00   CHANNEL SLOPE =  0.0211
 CHANNEL FLOW THRU SUBAREA(CFS) =   1230.29
 FLOW VELOCITY(FEET/SEC) =  15.23 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.11   Tc(MIN.) =  30.77
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE    820.00 = 20925.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    820.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  30.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.947
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      123.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  123.90      SUBAREA RUNOFF(CFS) =  174.75
 EFFECTIVE AREA(ACRES) =    899.78   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    912.20       PEAK FLOW RATE(CFS) =    1299.58

****************************************************************************
 FLOW PROCESS FROM NODE    820.00 TO NODE     34.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3120.00  DOWNSTREAM(FEET) =   3105.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1644.00   CHANNEL SLOPE =  0.0091
 CHANNEL FLOW THRU SUBAREA(CFS) =   1299.58
 FLOW VELOCITY(FEET/SEC) =  10.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.69   Tc(MIN.) =  33.45
 LONGEST FLOWPATH FROM NODE    990.00 TO NODE     34.00 = 22569.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  33.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.836
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B      216.50      0.38     1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  216.50      SUBAREA RUNOFF(CFS) =  283.77
 EFFECTIVE AREA(ACRES) =   1116.28   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1128.70       PEAK FLOW RATE(CFS) =    1493.63
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =   1128.70  TC(MIN.) =     33.45
 EFFECTIVE AREA(ACRES) =   1116.28  AREA-AVERAGED Fm(INCH/HR)=  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =   1493.63

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1493.63  33.45    1.836  0.35( 0.35) 1.00  1116.3     810.00
     2   1421.84  35.90    1.748  0.35( 0.35) 1.00  1128.7     990.00
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Rat. Method
WS 2

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
       (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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          Ver. 13.0  Release Date: 06/01/2006  License ID 1400

                          Analysis prepared by:

                            Allard Engineering
                            8253 Sierra Avenue
                            Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED #2                                                            *
* EXISTING CONDITION                                                      *
* 100 YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-2.DAT
  TIME/DATE OF STUDY: 11:31 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    410.00 TO NODE    411.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4883.00  DOWNSTREAM(FEET) =   4720.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.960
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.773
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     31.99
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     31.99

****************************************************************************
 FLOW PROCESS FROM NODE    411.00 TO NODE    412.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4720.00  DOWNSTREAM(FEET) =   4600.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   709.00   CHANNEL SLOPE =  0.1693
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1446 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     31.99
 FLOW VELOCITY(FEET/SEC) =   6.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.75   Tc(MIN.) =  13.71
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    412.00 =  1709.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    412.00 TO NODE    412.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.429
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.40     SUBAREA RUNOFF(CFS) =   58.95
 EFFECTIVE AREA(ACRES) =    30.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.40      PEAK FLOW RATE(CFS) =     87.85

****************************************************************************
 FLOW PROCESS FROM NODE    412.00 TO NODE    413.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   676.00   CHANNEL SLOPE =  0.4438
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2193 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     87.85
 FLOW VELOCITY(FEET/SEC) =  11.64 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.97   Tc(MIN.) =  14.68
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    413.00 =  2385.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    413.00 TO NODE    413.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       39.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   39.60      SUBAREA RUNOFF(CFS) =  108.74
 EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     192.21

****************************************************************************
 FLOW PROCESS FROM NODE    413.00 TO NODE    414.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4300.00  DOWNSTREAM(FEET) =   4080.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   936.00   CHANNEL SLOPE =  0.2350
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1750 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    192.21
 FLOW VELOCITY(FEET/SEC) =  13.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.16   Tc(MIN.) =  15.83
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    414.00 =  3321.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    414.00 TO NODE    414.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.100
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       80.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    80.00      SUBAREA RUNOFF(CFS) =  207.50
 EFFECTIVE AREA(ACRES) =    150.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    150.00       PEAK FLOW RATE(CFS) =     389.07

****************************************************************************
 FLOW PROCESS FROM NODE    414.00 TO NODE    415.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3700.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2088.00   CHANNEL SLOPE =  0.1820
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1510 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    389.07
 FLOW VELOCITY(FEET/SEC) =  15.85 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.19   Tc(MIN.) =  18.03
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    415.00 =  5409.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    415.00 TO NODE    415.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.831
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D      160.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  160.00      SUBAREA RUNOFF(CFS) =  376.23
 EFFECTIVE AREA(ACRES) =    310.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    310.00       PEAK FLOW RATE(CFS) =     728.95

****************************************************************************
 FLOW PROCESS FROM NODE    415.00 TO NODE    416.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  4181.00   CHANNEL SLOPE =  0.0718
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0718 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    728.95
 FLOW VELOCITY(FEET/SEC) =  13.47 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.17   Tc(MIN.) =  23.20
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    416.00 =  9590.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    416.00 TO NODE    416.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  23.20
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.372
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D      141.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =  141.00      SUBAREA RUNOFF(CFS) =  273.41
  EFFECTIVE AREA(ACRES) =    451.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    451.00       PEAK FLOW RATE(CFS) =     874.51

********************************************************************************
  FLOW PROCESS FROM NODE    416.00 TO NODE    416.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  23.20
  RAINFALL INTENSITY(INCH/HR) =   2.37
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   451.00
  TOTAL STREAM AREA(ACRES) =   451.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    874.51

********************************************************************************
  FLOW PROCESS FROM NODE    670.00 TO NODE    671.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   991.00
  ELEVATION DATA: UPSTREAM(FEET) =   4560.00  DOWNSTREAM(FEET) =   4160.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.940
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.294
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        8.10      0.22      1.000    89    9.94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     29.72
  TOTAL AREA(ACRES) =      8.10   PEAK FLOW RATE(CFS) =     29.72

********************************************************************************
  FLOW PROCESS FROM NODE    671.00 TO NODE    672.00 IS CODE =  53
--------------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
ELEVATION DATA: UPSTREAM(FEET) =   4160.00  DOWNSTREAM(FEET) =   3760.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   936.00   CHANNEL SLOPE =  0.4274
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .2173 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     29.72
FLOW VELOCITY(FEET/SEC) =   8.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  11.87
LONGEST FLOWPATH FROM NODE    670.00 TO NODE    672.00 =  1927.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    672.00 TO NODE    672.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  11.87
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.792
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       15.00      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   15.00      SUBAREA RUNOFF(CFS) =   48.25
EFFECTIVE AREA(ACRES) =    23.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    23.10       PEAK FLOW RATE(CFS) =      74.31

****************************************************************************
FLOW PROCESS FROM NODE    672.00 TO NODE    673.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3560.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   797.00   CHANNEL SLOPE =  0.2509
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1803 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     74.31
FLOW VELOCITY(FEET/SEC) =   9.98 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.33   Tc(MIN.) =  13.20
LONGEST FLOWPATH FROM NODE    670.00 TO NODE    673.00 =  2724.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    673.00 TO NODE    673.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  13.20
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.521
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
```

```
"GRASS"                    D       15.80      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   15.80      SUBAREA RUNOFF(CFS) =   46.96
EFFECTIVE AREA(ACRES) =     38.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     38.90       PEAK FLOW RATE(CFS) =     115.62

****************************************************************************
FLOW PROCESS FROM NODE    673.00 TO NODE    416.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3400.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1614.00   CHANNEL SLOPE =  0.0991
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0991 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    115.62
FLOW VELOCITY(FEET/SEC) =   8.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   3.14   Tc(MIN.) =  16.34
LONGEST FLOWPATH FROM NODE    670.00 TO NODE    416.00 =  4338.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    416.00 TO NODE    416.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  16.34
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.033
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)   (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D       27.30      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   27.30      SUBAREA RUNOFF(CFS) =   69.15
EFFECTIVE AREA(ACRES) =     66.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     66.20       PEAK FLOW RATE(CFS) =     167.69

****************************************************************************
FLOW PROCESS FROM NODE    416.00 TO NODE    416.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  16.34
RAINFALL INTENSITY(INCH/HR) =   3.03
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    66.20
TOTAL STREAM AREA(ACRES) =    66.20
```

```
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    167.69

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     874.51  23.20     2.372   0.22( 0.22) 1.00    451.0      410.00
     2     167.69  16.34     3.033   0.22( 0.22) 1.00     66.2      670.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     972.22  16.34     3.033   0.22( 0.22) 1.00    383.8      670.00
     2    1002.88  23.20     2.372   0.22( 0.22) 1.00    517.2      410.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   1002.88    Tc(MIN.) =    23.20
 EFFECTIVE AREA(ACRES) =   517.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    517.20
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    416.00 =  9590.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    416.00 TO NODE    417.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3400.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1178.00   CHANNEL SLOPE =  0.0340
 CHANNEL FLOW THRU SUBAREA(CFS) =   1002.88
 FLOW VELOCITY(FEET/SEC) =  18.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  24.29
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    417.00 = 10768.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    417.00 TO NODE    417.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.29
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.298
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       16.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.70      SUBAREA RUNOFF(CFS) =   28.82
 EFFECTIVE AREA(ACRES) =    533.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    533.90       PEAK FLOW RATE(CFS) =    1002.88
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    417.00 TO NODE    417.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    650.00 TO NODE    651.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4690.00  DOWNSTREAM(FEET) =   4540.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.160
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.729
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        8.30      0.22      1.000    89   12.16
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     26.23
 TOTAL AREA(ACRES) =      8.30   PEAK FLOW RATE(CFS) =     26.23

****************************************************************************
 FLOW PROCESS FROM NODE    651.00 TO NODE    652.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4540.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1318.00   CHANNEL SLOPE =  0.4401
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2188 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     26.23
 FLOW VELOCITY(FEET/SEC) =   7.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.83   Tc(MIN.) =  14.99
 LONGEST FLOWPATH FROM NODE    650.00 TO NODE    652.00 =  2318.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    652.00 TO NODE    652.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.222
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       15.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   15.70      SUBAREA RUNOFF(CFS) =   42.44
 EFFECTIVE AREA(ACRES) =     24.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     24.00       PEAK FLOW RATE(CFS) =      64.88

****************************************************************************
 FLOW PROCESS FROM NODE    652.00 TO NODE    653.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3500.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1782.00   CHANNEL SLOPE =  0.2581
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1827 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     64.88
 FLOW VELOCITY(FEET/SEC) =   9.61 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.09   Tc(MIN.) =  18.08
 LONGEST FLOWPATH FROM NODE    650.00 TO NODE    653.00 =  4100.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    653.00 TO NODE    653.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.825
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.00      SUBAREA RUNOFF(CFS) =   42.24
 EFFECTIVE AREA(ACRES) =     42.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     42.00       PEAK FLOW RATE(CFS) =      98.56

****************************************************************************
 FLOW PROCESS FROM NODE    653.00 TO NODE    653.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.08
 RAINFALL INTENSITY(INCH/HR) =   2.83
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    42.00
 TOTAL STREAM AREA(ACRES) =    42.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     98.56

****************************************************************************
 FLOW PROCESS FROM NODE    630.00 TO NODE    631.00 IS CODE =  21
```

```
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4640.00  DOWNSTREAM(FEET) =   4400.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.069
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.983
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        4.80      0.22      1.000    89   11.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     16.26
  TOTAL AREA(ACRES) =      4.80   PEAK FLOW RATE(CFS) =     16.26

****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1001.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4000.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   927.00   CHANNEL SLOPE =  0.4315
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .2178 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     16.26
  FLOW VELOCITY(FEET/SEC) =   6.62 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.34   Tc(MIN.) =  13.40
  LONGEST FLOWPATH FROM NODE    630.00 TO NODE   1001.00 =  1927.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1001.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.40
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.483
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D        9.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     9.00      SUBAREA RUNOFF(CFS) =   26.45
  EFFECTIVE AREA(ACRES) =     13.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     13.80       PEAK FLOW RATE(CFS) =      40.55

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1002.00 IS CODE =  53
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4000.00 DOWNSTREAM(FEET) =   3720.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  855.00   CHANNEL SLOPE =  0.3275
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2013 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     40.55
 FLOW VELOCITY(FEET/SEC) =   8.62 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.65   Tc(MIN.) =  15.06
 LONGEST FLOWPATH FROM NODE    630.00 TO NODE   1002.00 =  2782.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1002.00 TO NODE   1002.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.211
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       14.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   14.50      SUBAREA RUNOFF(CFS) =   39.06
 EFFECTIVE AREA(ACRES) =     28.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.30       PEAK FLOW RATE(CFS) =      76.23

****************************************************************************
 FLOW PROCESS FROM NODE   1002.00 TO NODE    653.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3720.00  DOWNSTREAM(FEET) =   3500.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1178.00   CHANNEL SLOPE =  0.1868
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1534 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     76.23
 FLOW VELOCITY(FEET/SEC) =   9.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.11   Tc(MIN.) =  17.17
 LONGEST FLOWPATH FROM NODE    630.00 TO NODE    653.00 =  3960.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    653.00 TO NODE    653.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.17
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.929
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
```

```
"GRASS"                    D       19.70      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   48.06
EFFECTIVE AREA(ACRES) =     48.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     48.00       PEAK FLOW RATE(CFS) =     117.11

****************************************************************************
FLOW PROCESS FROM NODE    653.00 TO NODE    653.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  17.17
RAINFALL INTENSITY(INCH/HR) =   2.93
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    48.00
TOTAL STREAM AREA(ACRES) =    48.00
PEAK FLOW RATE(CFS) AT CONFLUENCE =    117.11

** CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1      98.56  18.08     2.825   0.22( 0.22) 1.00     42.0      650.00
    2     117.11  17.17     2.929   0.22( 0.22) 1.00     48.0      630.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     214.44  17.17     2.929   0.22( 0.22) 1.00     87.9      630.00
    2     211.19  18.08     2.825   0.22( 0.22) 1.00     90.0      650.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =    214.44    Tc(MIN.) =    17.17
EFFECTIVE AREA(ACRES) =    87.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     90.00
LONGEST FLOWPATH FROM NODE    650.00 TO NODE    653.00 =  4100.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    653.00 TO NODE    417.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3500.00  DOWNSTREAM(FEET) =   3360.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1829.00   CHANNEL SLOPE =  0.0765
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0765 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =    214.44
 FLOW VELOCITY(FEET/SEC) =   9.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.29   Tc(MIN.) =  20.46
 LONGEST FLOWPATH FROM NODE    650.00 TO NODE    417.00 =  5929.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    417.00 TO NODE    417.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.590
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B       20.40      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.40      SUBAREA RUNOFF(CFS) =   39.92
 EFFECTIVE AREA(ACRES) =    108.30   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    110.40       PEAK FLOW RATE(CFS) =     227.59

****************************************************************************
 FLOW PROCESS FROM NODE    417.00 TO NODE    417.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    227.59  20.46    2.590  0.26( 0.26) 1.00   108.3     630.00
     2    224.26  21.39    2.512  0.25( 0.25) 1.00   110.4     650.00
 LONGEST FLOWPATH FROM NODE    650.00 TO NODE    417.00 =  5929.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    972.22  17.44    2.898  0.22( 0.22) 1.00   400.5     670.00
     2   1002.88  24.29    2.298  0.22( 0.22) 1.00   533.9     410.00
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    417.00 = 10768.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1191.64  17.44    2.898  0.23( 0.23) 1.00   492.8     670.00
     2   1213.36  20.46    2.590  0.23( 0.23) 1.00   567.8     630.00
     3   1214.16  21.39    2.512  0.23( 0.23) 1.00   587.8     650.00
     4   1205.88  24.29    2.298  0.23( 0.23) 1.00   644.3     410.00
   TOTAL AREA(ACRES) =    644.30

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     1214.16  Tc(MIN.) =   21.388
 EFFECTIVE AREA(ACRES) =    587.84  AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =    644.30
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    417.00 = 10768.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    417.00 TO NODE    418.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1119.00   CHANNEL SLOPE =  0.0357
 CHANNEL FLOW THRU SUBAREA(CFS) =   1214.16
 FLOW VELOCITY(FEET/SEC) =  19.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.94   Tc(MIN.) =  22.33
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    418.00 = 11887.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    418.00 TO NODE    418.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.437
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       31.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.60      SUBAREA RUNOFF(CFS) =   58.49
 EFFECTIVE AREA(ACRES) =    619.44   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    675.90       PEAK FLOW RATE(CFS) =    1226.23

****************************************************************************
 FLOW PROCESS FROM NODE    418.00 TO NODE    419.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3320.00  DOWNSTREAM(FEET) =   3300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   816.00   CHANNEL SLOPE =  0.0245
 CHANNEL FLOW THRU SUBAREA(CFS) =   1226.23
 FLOW VELOCITY(FEET/SEC) =  16.40 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  23.16
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    419.00 = 12703.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.375
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       40.90       0.38       1.000     80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.90      SUBAREA RUNOFF(CFS) =   73.45
 EFFECTIVE AREA(ACRES) =    660.34   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    716.80       PEAK FLOW RATE(CFS) =    1265.46

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1249.99  19.22     2.707   0.25( 0.25) 1.00    565.3     670.00
     2   1265.99  22.24     2.444   0.25( 0.25) 1.00    640.3     630.00
     3   1265.46  23.16     2.375   0.25( 0.25) 1.00    660.3     650.00
     4   1253.52  26.07     2.187   0.24( 0.24) 1.00    716.8     410.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) =   1265.99  Tc(MIN.) =  22.24
 AREA-AVERAGED Fm(INCH/HR) =  0.25  AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  1.00  EFFECTIVE AREA(ACRES) =    640.27

****************************************************************************
 FLOW PROCESS FROM NODE    419.00 TO NODE    420.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3300.00  DOWNSTREAM(FEET) =   3270.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   708.00   CHANNEL SLOPE =  0.0424
 CHANNEL FLOW THRU SUBAREA(CFS) =   1265.99
 FLOW VELOCITY(FEET/SEC) =  21.80 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.54   Tc(MIN.) =  22.78
 LONGEST FLOWPATH FROM NODE    410.00 TO NODE    420.00 = 13411.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    420.00 TO NODE    420.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.78
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.403
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       52.60       0.38       1.000     80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   52.60      SUBAREA RUNOFF(CFS) =   95.77
 EFFECTIVE AREA(ACRES) =    692.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    769.40       PEAK FLOW RATE(CFS) =    1338.25
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    769.40  TC(MIN.) =     22.78
 EFFECTIVE AREA(ACRES) =    692.87  AREA-AVERAGED Fm(INCH/HR)=  0.26
```

AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 1338.25

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1331.03	19.76	2.654	0.26(0.26)	1.00	617.9	670.00
2	1338.25	22.78	2.403	0.26(0.26)	1.00	692.9	630.00
3	1335.46	23.70	2.337	0.26(0.26)	1.00	712.9	650.00
4	1317.36	26.61	2.156	0.25(0.25)	1.00	769.4	410.00

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
       (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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         Ver. 13.0  Release Date: 06/01/2006  License ID 1400

                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED #3                                                          *
* EXISTING CONDITION                                                    *
* 100-YEAR EVENT                                                        *
 ************************************************************************

  FILE NAME: HAC-3.DAT
  TIME/DATE OF STUDY: 08:41 05/12/2009
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    510.00 TO NODE    511.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   780.00
 ELEVATION DATA: UPSTREAM(FEET) =   4240.00  DOWNSTREAM(FEET) =   4160.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.879
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.791
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        7.70      0.22      1.000    89   11.88
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.76
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.76

****************************************************************************
 FLOW PROCESS FROM NODE    511.00 TO NODE    512.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4160.00  DOWNSTREAM(FEET) =   4140.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   320.00   CHANNEL SLOPE =  0.0625
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0625 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.76
 FLOW VELOCITY(FEET/SEC) =   4.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.31   Tc(MIN.) =  13.19
 LONGEST FLOWPATH FROM NODE    510.00 TO NODE    512.00 =  1100.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    512.00 TO NODE    512.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.523
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       15.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   15.20      SUBAREA RUNOFF(CFS) =   45.22
 EFFECTIVE AREA(ACRES) =     22.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     22.90       PEAK FLOW RATE(CFS) =      68.12

****************************************************************************
 FLOW PROCESS FROM NODE    512.00 TO NODE    513.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4140.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   885.00   CHANNEL SLOPE =  0.2034
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1617 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     68.12
 FLOW VELOCITY(FEET/SEC) =   9.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.61   Tc(MIN.) =  14.79
 LONGEST FLOWPATH FROM NODE    510.00 TO NODE    513.00 =  1985.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.251
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       12.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.90      SUBAREA RUNOFF(CFS) =   35.21
 EFFECTIVE AREA(ACRES) =     35.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     35.80       PEAK FLOW RATE(CFS) =      97.72

****************************************************************************
 FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.79
 RAINFALL INTENSITY(INCH/HR) =   3.25
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    35.80
 TOTAL STREAM AREA(ACRES) =    35.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     97.72

****************************************************************************
 FLOW PROCESS FROM NODE    530.00 TO NODE    531.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   514.00
 ELEVATION DATA: UPSTREAM(FEET) =   4420.00  DOWNSTREAM(FEET) =   4280.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.270
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.884
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       10.00      0.22      1.000    89    8.27
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     42.00
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     42.00

****************************************************************************
 FLOW PROCESS FROM NODE    531.00 TO NODE    513.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4280.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1090.00   CHANNEL SLOPE =  0.2936
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1934 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     42.00
 FLOW VELOCITY(FEET/SEC) =   8.55 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.12   Tc(MIN.) =  10.39
 LONGEST FLOWPATH FROM NODE    530.00 TO NODE    513.00 =  1604.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.162
 SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       13.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   13.80      SUBAREA RUNOFF(CFS) =   48.98
 EFFECTIVE AREA(ACRES) =     23.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     23.80       PEAK FLOW RATE(CFS) =      84.48

****************************************************************************
 FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  10.39
 RAINFALL INTENSITY(INCH/HR) =   4.16
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    23.80
```

```
 TOTAL STREAM AREA(ACRES) =    23.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     84.48

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1      97.72  14.79    3.251  0.22( 0.22) 1.00    35.8      510.00
     2      84.48  10.39    4.162  0.22( 0.22) 1.00    23.8      530.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     173.76  10.39    4.162  0.22( 0.22) 1.00    49.0      530.00
     2     162.69  14.79    3.251  0.22( 0.22) 1.00    59.6      510.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    173.76    Tc(MIN.) =    10.39
 EFFECTIVE AREA(ACRES) =    48.95   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     59.60
 LONGEST FLOWPATH FROM NODE    510.00 TO NODE    513.00 =  1985.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    513.00 TO NODE    514.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.1429
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1302 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    173.76
 FLOW VELOCITY(FEET/SEC) =  11.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  11.22
 LONGEST FLOWPATH FROM NODE    510.00 TO NODE    514.00 =  2545.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    514.00 TO NODE    514.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.944
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       12.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.10      SUBAREA RUNOFF(CFS) =   40.58
 EFFECTIVE AREA(ACRES) =     61.05   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =     71.70       PEAK FLOW RATE(CFS) =     204.75

****************************************************************************
 FLOW PROCESS FROM NODE    514.00 TO NODE    514.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  11.22
 RAINFALL INTENSITY(INCH/HR) =   3.94
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    61.05
 TOTAL STREAM AREA(ACRES) =    71.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    204.75

****************************************************************************
 FLOW PROCESS FROM NODE    550.00 TO NODE    551.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4640.00  DOWNSTREAM(FEET) =   4520.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.715
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.614
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        5.60      0.22      1.000    89   12.72
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     17.12
 TOTAL AREA(ACRES) =      5.60   PEAK FLOW RATE(CFS) =     17.12

****************************************************************************
 FLOW PROCESS FROM NODE    551.00 TO NODE    552.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4520.00  DOWNSTREAM(FEET) =   4360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   757.00   CHANNEL SLOPE =  0.2114
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1657 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     17.12
 FLOW VELOCITY(FEET/SEC) =   5.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.15   Tc(MIN.) =  14.86
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    552.00 =  1757.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    552.00 TO NODE    552.00 IS CODE =  81
```

```
------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
 MAINLINE Tc(MIN) =  14.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.240
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D        6.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.40      SUBAREA RUNOFF(CFS) =   17.41
 EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     12.00       PEAK FLOW RATE(CFS) =      32.64

************************************************************************
 FLOW PROCESS FROM NODE     552.00 TO NODE     514.00 IS CODE =  53
------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4360.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1307.00   CHANNEL SLOPE =  0.3673
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2083 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.64
 FLOW VELOCITY(FEET/SEC) =   8.16 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.67   Tc(MIN.) =  17.54
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE     514.00 =  3064.00 FEET.

************************************************************************
 FLOW PROCESS FROM NODE     514.00 TO NODE     514.00 IS CODE =  81
------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
 MAINLINE Tc(MIN) =  17.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.886
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D        9.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     9.70      SUBAREA RUNOFF(CFS) =   23.29
 EFFECTIVE AREA(ACRES) =     21.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.70       PEAK FLOW RATE(CFS) =      52.11

************************************************************************
 FLOW PROCESS FROM NODE     514.00 TO NODE     514.00 IS CODE =   1
------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
========================================================================
```

```
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.54
 RAINFALL INTENSITY(INCH/HR) =   2.89
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    21.70
 TOTAL STREAM AREA(ACRES) =    21.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     52.11

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     204.75  11.22     3.944  0.22( 0.22) 1.00    61.1      530.00
     1     187.69  15.64     3.127  0.22( 0.22) 1.00    71.7      510.00
     2      52.11  17.54     2.886  0.22( 0.22) 1.00    21.7      550.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     251.33  11.22     3.944  0.22( 0.22) 1.00    74.9      530.00
     2     238.36  15.64     3.127  0.22( 0.22) 1.00    91.1      510.00
     3     224.29  17.54     2.886  0.22( 0.22) 1.00    93.4      550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    251.33    Tc(MIN.) =    11.22
 EFFECTIVE AREA(ACRES) =    74.94   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     93.40
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    514.00 =  3064.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    514.00 TO NODE    515.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   498.00   CHANNEL SLOPE =  0.1606
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1403 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    251.33
 FLOW VELOCITY(FEET/SEC) =  13.21 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.63   Tc(MIN.) =  11.85
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    515.00 =  3562.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    515.00 TO NODE    515.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.797
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       10.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   10.70      SUBAREA RUNOFF(CFS) =   34.46
 EFFECTIVE AREA(ACRES) =     85.64   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    104.10       PEAK FLOW RATE(CFS) =     275.85

****************************************************************************
 FLOW PROCESS FROM NODE    515.00 TO NODE    515.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  11.85
 RAINFALL INTENSITY(INCH/HR) =   3.80
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    85.64
 TOTAL STREAM AREA(ACRES) =   104.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    275.85

****************************************************************************
 FLOW PROCESS FROM NODE    570.00 TO NODE    571.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4740.00  DOWNSTREAM(FEET) =   4540.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.480
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.882
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        8.20      0.22      1.000    89   11.48
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     27.04
 TOTAL AREA(ACRES) =      8.20   PEAK FLOW RATE(CFS) =     27.04

****************************************************************************
 FLOW PROCESS FROM NODE    571.00 TO NODE    572.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4540.00  DOWNSTREAM(FEET) =   4200.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1084.00   CHANNEL SLOPE =  0.3137
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1984 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     27.04
 FLOW VELOCITY(FEET/SEC) =   7.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.42   Tc(MIN.) =  13.90
 LONGEST FLOWPATH FROM NODE    570.00 TO NODE    572.00 =  2084.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    572.00 TO NODE    572.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.397
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       12.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.70      SUBAREA RUNOFF(CFS) =   36.33
 EFFECTIVE AREA(ACRES) =     20.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     20.90       PEAK FLOW RATE(CFS) =      59.79

****************************************************************************
 FLOW PROCESS FROM NODE    572.00 TO NODE    515.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1367.00   CHANNEL SLOPE =  0.2926
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1932 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     59.79
 FLOW VELOCITY(FEET/SEC) =   9.61 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.37   Tc(MIN.) =  16.27
 LONGEST FLOWPATH FROM NODE    570.00 TO NODE    515.00 =  3451.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    515.00 TO NODE    515.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.042
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       22.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   22.40      SUBAREA RUNOFF(CFS) =   56.93
```

```
 EFFECTIVE AREA(ACRES) =     43.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     43.30       PEAK FLOW RATE(CFS) =     110.05

****************************************************************************
 FLOW PROCESS FROM NODE    515.00 TO NODE    515.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.27
 RAINFALL INTENSITY(INCH/HR) =   3.04
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    43.30
 TOTAL STREAM AREA(ACRES) =    43.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    110.05

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    275.85  11.85    3.797  0.22( 0.22) 1.00    85.6      530.00
     1    258.45  16.28    3.040  0.22( 0.22) 1.00   101.8      510.00
     1    243.16  18.19    2.813  0.22( 0.22) 1.00   104.1      550.00
     2    110.05  16.27    3.042  0.22( 0.22) 1.00    43.3      570.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    377.46  11.85    3.797  0.22( 0.22) 1.00   117.2      530.00
     2    368.56  16.27    3.042  0.22( 0.22) 1.00   145.0      570.00
     3    368.43  16.28    3.040  0.22( 0.22) 1.00   145.1      510.00
     4    344.30  18.19    2.813  0.22( 0.22) 1.00   147.4      550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    377.46    Tc(MIN.) =    11.85
 EFFECTIVE AREA(ACRES) =   117.19   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    147.40
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    515.00 =  3562.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    515.00 TO NODE    516.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3740.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   501.00   CHANNEL SLOPE =  0.1198
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1148 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     377.46
 FLOW VELOCITY(FEET/SEC) =  13.69 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.61   Tc(MIN.) =  12.46
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    516.00 =  4063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    516.00 TO NODE    516.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.666
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       13.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   13.20      SUBAREA RUNOFF(CFS) =   40.96
 EFFECTIVE AREA(ACRES) =    130.39   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    160.60       PEAK FLOW RATE(CFS) =     404.60

****************************************************************************
 FLOW PROCESS FROM NODE    516.00 TO NODE    516.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.46
 RAINFALL INTENSITY(INCH/HR) =   3.67
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   130.39
 TOTAL STREAM AREA(ACRES) =   160.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    404.60

****************************************************************************
 FLOW PROCESS FROM NODE    590.00 TO NODE    591.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4824.00  DOWNSTREAM(FEET) =   4570.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.944
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.014
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.80      0.22      1.000    89   10.94
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.49
 TOTAL AREA(ACRES) =      9.80   PEAK FLOW RATE(CFS) =     33.49

****************************************************************************
 FLOW PROCESS FROM NODE    591.00 TO NODE    592.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4570.00  DOWNSTREAM(FEET) =   4400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   735.00   CHANNEL SLOPE =  0.2313
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1738 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.49
 FLOW VELOCITY(FEET/SEC) =   7.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.63   Tc(MIN.) =  12.57
 LONGEST FLOWPATH FROM NODE    590.00 TO NODE    592.00 =  1735.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    592.00 TO NODE    592.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.643
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       13.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   13.40      SUBAREA RUNOFF(CFS) =   41.30
 EFFECTIVE AREA(ACRES) =     23.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     23.20       PEAK FLOW RATE(CFS) =      71.51

****************************************************************************
 FLOW PROCESS FROM NODE    592.00 TO NODE    593.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4080.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.4295
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2175 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     71.51
 FLOW VELOCITY(FEET/SEC) =  10.83 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.15   Tc(MIN.) =  13.72
 LONGEST FLOWPATH FROM NODE    590.00 TO NODE    593.00 =  2480.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    593.00 TO NODE    593.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  13.72
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.427
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       12.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.60      SUBAREA RUNOFF(CFS) =   36.39
 EFFECTIVE AREA(ACRES) =     35.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     35.80       PEAK FLOW RATE(CFS) =     103.39

********************************************************************************
 FLOW PROCESS FROM NODE    593.00 TO NODE    516.00 IS CODE =  53
--------------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3740.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1159.00   CHANNEL SLOPE =  0.2934
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1933 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.39
 FLOW VELOCITY(FEET/SEC) =  11.54 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.67   Tc(MIN.) =  15.40
 LONGEST FLOWPATH FROM NODE    590.00 TO NODE    516.00 =  3639.00 FEET.

********************************************************************************
 FLOW PROCESS FROM NODE    516.00 TO NODE    516.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  15.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.161
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       14.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   14.70      SUBAREA RUNOFF(CFS) =   38.94
 EFFECTIVE AREA(ACRES) =     50.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     50.50       PEAK FLOW RATE(CFS) =     133.78

********************************************************************************
 FLOW PROCESS FROM NODE    516.00 TO NODE    516.00 IS CODE =   1
--------------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
 TOTAL NUMBER OF STREAMS =  2
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.40
 RAINFALL INTENSITY(INCH/HR) =   3.16
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    50.50
 TOTAL STREAM AREA(ACRES) =    50.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    133.78

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     404.60  12.46     3.666   0.22( 0.22) 1.00    130.4     530.00
     1     390.99  16.88     2.964   0.22( 0.22) 1.00    158.2     570.00
     1     390.86  16.90     2.962   0.22( 0.22) 1.00    158.3     510.00
     1     365.57  18.82     2.747   0.22( 0.22) 1.00    160.6     550.00
     2     133.78  15.40     3.161   0.22( 0.22) 1.00     50.5     590.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     531.44  12.46     3.666   0.22( 0.22) 1.00    171.3     530.00
     2     529.34  15.40     3.161   0.22( 0.22) 1.00    199.4     590.00
     3     515.79  16.88     2.964   0.22( 0.22) 1.00    208.7     570.00
     4     515.59  16.90     2.962   0.22( 0.22) 1.00    208.8     510.00
     5     480.52  18.82     2.747   0.22( 0.22) 1.00    211.1     550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    531.44    Tc(MIN.) =    12.46
 EFFECTIVE AREA(ACRES) =   171.27   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    211.10
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    516.00 =  4063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    516.00 TO NODE    517.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3740.00  DOWNSTREAM(FEET) =   3680.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   520.00   CHANNEL SLOPE =  0.1154
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1115 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    531.44
 FLOW VELOCITY(FEET/SEC) =  15.12 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.57   Tc(MIN.) =  13.04
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    517.00 =  4583.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    517.00 TO NODE    517.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
 MAINLINE Tc(MIN) =  13.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.552
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D        9.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     9.20      SUBAREA RUNOFF(CFS) =    27.61
 EFFECTIVE AREA(ACRES) =    180.47   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    220.30       PEAK FLOW RATE(CFS) =     541.53

****************************************************************************
 FLOW PROCESS FROM NODE     517.00 TO NODE     517.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.04
 RAINFALL INTENSITY(INCH/HR) =   3.55
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   180.47
 TOTAL STREAM AREA(ACRES) =   220.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    541.53

****************************************************************************
 FLOW PROCESS FROM NODE     610.00 TO NODE     611.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   623.00
 ELEVATION DATA: UPSTREAM(FEET) =   4690.00  DOWNSTREAM(FEET) =   4600.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.139
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.235
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                      D        9.80      0.22      1.000    89   10.14
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.43
 TOTAL AREA(ACRES) =      9.80   PEAK FLOW RATE(CFS) =     35.43

****************************************************************************
 FLOW PROCESS FROM NODE     611.00 TO NODE     612.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
```

```
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1425.00   CHANNEL SLOPE =  0.2807
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1902 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.43
 FLOW VELOCITY(FEET/SEC) =   8.01 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.96   Tc(MIN.) =  13.10
 LONGEST FLOWPATH FROM NODE    610.00 TO NODE    612.00 =  2048.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    612.00 TO NODE    612.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.539
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   58.88
 EFFECTIVE AREA(ACRES) =     29.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.50       PEAK FLOW RATE(CFS) =      88.17

****************************************************************************
 FLOW PROCESS FROM NODE    612.00 TO NODE    517.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3680.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1561.00   CHANNEL SLOPE =  0.3331
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2023 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     88.17
 FLOW VELOCITY(FEET/SEC) =  11.19 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.32   Tc(MIN.) =  15.43
 LONGEST FLOWPATH FROM NODE    610.00 TO NODE    517.00 =  3609.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    517.00 TO NODE    517.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.157
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       25.60      0.22      1.000    89
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.60      SUBAREA RUNOFF(CFS) =   67.71
 EFFECTIVE AREA(ACRES) =     55.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     55.10       PEAK FLOW RATE(CFS) =     145.74

****************************************************************************
 FLOW PROCESS FROM NODE    517.00 TO NODE    517.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.43
 RAINFALL INTENSITY(INCH/HR) =   3.16
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    55.10
 TOTAL STREAM AREA(ACRES) =    55.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    145.74

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    541.53  13.04     3.552   0.22( 0.22) 1.00    180.5     530.00
     1    537.47  15.97     3.082   0.22( 0.22) 1.00    208.6     590.00
     1    524.97  17.46     2.895   0.22( 0.22) 1.00    217.9     570.00
     1    524.77  17.47     2.893   0.22( 0.22) 1.00    218.0     510.00
     1    489.76  19.41     2.688   0.22( 0.22) 1.00    220.3     550.00
     2    145.74  15.43     3.157   0.22( 0.22) 1.00     55.1     610.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    681.23  13.04     3.552   0.22( 0.22) 1.00    227.0     530.00
     2    683.96  15.43     3.157   0.22( 0.22) 1.00    258.5     610.00
     3    679.47  15.97     3.082   0.22( 0.22) 1.00    263.7     590.00
     4    657.71  17.46     2.895   0.22( 0.22) 1.00    273.0     570.00
     5    657.43  17.47     2.893   0.22( 0.22) 1.00    273.1     510.00
     6    612.26  19.41     2.688   0.22( 0.22) 1.00    275.4     550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    683.96    Tc(MIN.) =    15.43
 EFFECTIVE AREA(ACRES) =   258.47   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    275.40
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    517.00 =  4583.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    517.00 TO NODE    518.00 IS CODE =  52
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3600.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1065.00   CHANNEL SLOPE =  0.0751
 CHANNEL FLOW THRU SUBAREA(CFS) =    683.96
 FLOW VELOCITY(FEET/SEC) =  23.74 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.75   Tc(MIN.) =  16.18
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    518.00 =  5648.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    518.00 TO NODE    518.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.18
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.054
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       25.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.50      SUBAREA RUNOFF(CFS) =   61.37
 EFFECTIVE AREA(ACRES) =    283.97   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    300.90       PEAK FLOW RATE(CFS) =     721.08

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    723.08  13.78     3.416  0.23( 0.23) 1.00   252.5     530.00
     2    721.08  16.18     3.054  0.23( 0.23) 1.00   284.0     610.00
     3    716.14  16.72     2.984  0.23( 0.23) 1.00   289.2     590.00
     4    692.66  18.22     2.810  0.23( 0.23) 1.00   298.5     570.00
     5    692.36  18.23     2.809  0.23( 0.23) 1.00   298.6     510.00
     6    645.55  20.18     2.616  0.23( 0.23) 1.00   300.9     550.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) =    723.08  Tc(MIN.) =  13.78
 AREA-AVERAGED Fm(INCH/HR) =  0.23  AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  1.00  EFFECTIVE AREA(ACRES) =    252.53

****************************************************************************
 FLOW PROCESS FROM NODE    518.00 TO NODE    519.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3445.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1811.00   CHANNEL SLOPE =  0.0856
 CHANNEL FLOW THRU SUBAREA(CFS) =    723.08
 FLOW VELOCITY(FEET/SEC) =  25.80 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.17   Tc(MIN.) =  14.95
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    519.00 =  7459.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     519.00 TO NODE     519.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.227
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B       25.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.60      SUBAREA RUNOFF(CFS) =   65.58
 EFFECTIVE AREA(ACRES) =    278.13   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    326.50       PEAK FLOW RATE(CFS) =     745.63

****************************************************************************
 FLOW PROCESS FROM NODE     519.00 TO NODE     520.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3445.00  DOWNSTREAM(FEET) =   3330.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1534.00   CHANNEL SLOPE =  0.0750
 CHANNEL FLOW THRU SUBAREA(CFS) =    745.63
 FLOW VELOCITY(FEET/SEC) =  24.39 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.05   Tc(MIN.) =  16.00
 LONGEST FLOWPATH FROM NODE     550.00 TO NODE     520.00 =  8993.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     520.00 TO NODE     520.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.077
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B       24.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   24.60      SUBAREA RUNOFF(CFS) =   59.71
 EFFECTIVE AREA(ACRES) =    302.73   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    351.10       PEAK FLOW RATE(CFS) =     767.93

****************************************************************************
 FLOW PROCESS FROM NODE     520.00 TO NODE     520.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =  16.00
 RAINFALL INTENSITY(INCH/HR) =   3.08
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   302.73
 TOTAL STREAM AREA(ACRES) =   351.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    767.93

****************************************************************************
 FLOW PROCESS FROM NODE    630.00 TO NODE    631.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4640.00  DOWNSTREAM(FEET) =   4400.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.069
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.983
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        3.90      0.22      1.000    89   11.07
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     13.21
 TOTAL AREA(ACRES) =      3.90   PEAK FLOW RATE(CFS) =     13.21

****************************************************************************
 FLOW PROCESS FROM NODE    631.00 TO NODE    632.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4080.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   750.00   CHANNEL SLOPE =  0.4267
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2172 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     13.21
 FLOW VELOCITY(FEET/SEC) =   6.16 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.03   Tc(MIN.) =  13.10
 LONGEST FLOWPATH FROM NODE    630.00 TO NODE    632.00 =  1750.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    632.00 TO NODE    632.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.540
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
```

```
"GRASS"                    D        6.50      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =     6.50      SUBAREA RUNOFF(CFS) =    19.44
EFFECTIVE AREA(ACRES) =     10.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     10.40       PEAK FLOW RATE(CFS) =      31.10

****************************************************************************
FLOW PROCESS FROM NODE    632.00 TO NODE    633.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3760.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1000.00   CHANNEL SLOPE =  0.3200
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .2000 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     31.10
FLOW VELOCITY(FEET/SEC) =   7.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.12   Tc(MIN.) =  15.22
LONGEST FLOWPATH FROM NODE    630.00 TO NODE    633.00 =  2750.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    633.00 TO NODE    633.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  15.22
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.188
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D       13.00      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   13.00      SUBAREA RUNOFF(CFS) =    34.74
EFFECTIVE AREA(ACRES) =     23.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     23.40       PEAK FLOW RATE(CFS) =      62.54

****************************************************************************
FLOW PROCESS FROM NODE    633.00 TO NODE    634.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3560.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   887.00   CHANNEL SLOPE =  0.2255
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1718 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     62.54
FLOW VELOCITY(FEET/SEC) =   9.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.61   Tc(MIN.) =  16.82
LONGEST FLOWPATH FROM NODE    630.00 TO NODE    634.00 =  3637.00 FEET.
```

```
**************************************************************************
 FLOW PROCESS FROM NODE     634.00 TO NODE     634.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  16.82
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.971
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.40      SUBAREA RUNOFF(CFS) =   50.55
 EFFECTIVE AREA(ACRES) =     43.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     43.80       PEAK FLOW RATE(CFS) =     108.54

**************************************************************************
 FLOW PROCESS FROM NODE     634.00 TO NODE     520.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3330.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2259.00   CHANNEL SLOPE =  0.1018
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =    108.54
 FLOW VELOCITY(FEET/SEC) =  15.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.45   Tc(MIN.) =  19.27
 LONGEST FLOWPATH FROM NODE    630.00 TO NODE    520.00 =  5896.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     520.00 TO NODE     520.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  19.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.702
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       26.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   26.40      SUBAREA RUNOFF(CFS) =   55.17
 EFFECTIVE AREA(ACRES) =     70.20   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.20       PEAK FLOW RATE(CFS) =     153.08

**************************************************************************
 FLOW PROCESS FROM NODE     520.00 TO NODE     520.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
```

```
==========================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.27
 RAINFALL INTENSITY(INCH/HR) =   2.70
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    70.20
 TOTAL STREAM AREA(ACRES) =    70.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    153.08

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1    767.93  16.00     3.077  0.26( 0.26) 1.00    302.7     530.00
     1    762.79  18.40     2.791  0.25( 0.25) 1.00    334.2     610.00
     1    757.45  18.94     2.734  0.25( 0.25) 1.00    339.4     590.00
     1    733.42  20.47     2.590  0.25( 0.25) 1.00    348.7     570.00
     1    733.12  20.48     2.589  0.25( 0.25) 1.00    348.8     510.00
     1    686.40  22.49     2.425  0.25( 0.25) 1.00    351.1     550.00
     2    153.08  19.27     2.702  0.28( 0.28) 1.00     70.2     630.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1    914.75  16.00     3.077  0.26( 0.26) 1.00    361.0     530.00
     2    914.31  18.40     2.791  0.26( 0.26) 1.00    401.2     610.00
     3    909.96  18.94     2.734  0.26( 0.26) 1.00    408.4     590.00
     4    905.40  19.27     2.702  0.26( 0.26) 1.00    411.5     630.00
     5    879.44  20.47     2.590  0.26( 0.26) 1.00    418.9     570.00
     6    879.06  20.48     2.589  0.26( 0.26) 1.00    419.0     510.00
     7    822.00  22.49     2.425  0.26( 0.26) 1.00    421.3     550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    914.75    Tc(MIN.) =    16.00
 EFFECTIVE AREA(ACRES) =   361.03   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    421.30
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    520.00 =  8993.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    520.00 TO NODE    420.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3330.00  DOWNSTREAM(FEET) =   3270.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1458.00   CHANNEL SLOPE =  0.0412
 CHANNEL FLOW THRU SUBAREA(CFS) =    914.75
 FLOW VELOCITY(FEET/SEC) =  19.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  17.26
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    420.00 = 10451.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     420.00 TO NODE     420.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.26
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.918
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       85.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   85.20      SUBAREA RUNOFF(CFS) =  194.64
 EFFECTIVE AREA(ACRES) =    446.23   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    506.50       PEAK FLOW RATE(CFS) =    1057.79

****************************************************************************
 FLOW PROCESS FROM NODE     420.00 TO NODE     420.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.26
 RAINFALL INTENSITY(INCH/HR) =   2.92
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   446.23
 TOTAL STREAM AREA(ACRES) =   506.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1057.79

****************************************************************************
 FLOW PROCESS FROM NODE     420.00 TO NODE     420.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  22.78   RAINFALL INTENSITY(INCH/HR) =  2.40
 EFFECTIVE AREA(ACRES) =   692.87
 TOTAL AREA(ACRES) =   769.40        PEAK FLOW RATE(CFS) =   1338.25
 AREA-AVERAGED Fm(INCH/HR) =   0.26  AREA-AVERAGED Fp(INCH/HR) =   0.26
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE     420.00 TO NODE     420.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =  22.78
 RAINFALL INTENSITY(INCH/HR) =   2.40
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   692.87
 TOTAL STREAM AREA(ACRES) =   769.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1338.25

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    1057.79  17.26     2.918   0.28( 0.28) 1.00    446.2     530.00
     1    1043.88  19.65     2.665   0.28( 0.28) 1.00    486.4     610.00
     1    1036.93  20.20     2.614   0.28( 0.28) 1.00    493.6     590.00
     1    1030.66  20.53     2.584   0.28( 0.28) 1.00    496.7     630.00
     1    1000.26  21.74     2.483   0.28( 0.28) 1.00    504.1     570.00
     1     999.82  21.76     2.482   0.28( 0.28) 1.00    504.2     510.00
     1     936.08  23.79     2.331   0.28( 0.28) 1.00    506.5     550.00
     2    1338.25  22.78     2.403   0.26( 0.26) 1.00    692.9     420.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    2315.52  17.26     2.918   0.27( 0.27) 1.00    971.2     530.00
     2    2339.42  19.65     2.665   0.27( 0.27) 1.00   1084.2     610.00
     3    2340.49  20.20     2.614   0.27( 0.27) 1.00   1108.1     590.00
     4    2338.88  20.53     2.584   0.27( 0.27) 1.00   1121.2     630.00
     5    2325.06  21.74     2.483   0.27( 0.27) 1.00   1165.4     570.00
     6    2324.82  21.76     2.482   0.27( 0.27) 1.00   1165.9     510.00
     7    2305.96  22.78     2.403   0.27( 0.27) 1.00   1198.2     420.00
     8    2229.54  23.79     2.331   0.27( 0.27) 1.00   1199.4     550.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   2340.49    Tc(MIN.) =    20.20
 EFFECTIVE AREA(ACRES) =  1108.12   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1275.90
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    420.00 = 10451.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    420.00 TO NODE    421.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3270.00  DOWNSTREAM(FEET) =   3230.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1765.00   CHANNEL SLOPE =  0.0227
 CHANNEL FLOW THRU SUBAREA(CFS) =   2340.49
 FLOW VELOCITY(FEET/SEC) =  19.54 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.51   Tc(MIN.) =  21.71
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    421.00 = 12216.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     421.00 TO NODE     421.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.485
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       54.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   54.00      SUBAREA RUNOFF(CFS) =  102.32
 EFFECTIVE AREA(ACRES) =   1162.12   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1329.90       PEAK FLOW RATE(CFS) =    2340.49
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     421.00 TO NODE     395.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3230.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1494.00   CHANNEL SLOPE =  0.0234
 CHANNEL FLOW THRU SUBAREA(CFS) =   2340.49
 FLOW VELOCITY(FEET/SEC) =  19.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =  22.96
 LONGEST FLOWPATH FROM NODE    550.00 TO NODE    395.00 = 13710.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.96
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.390
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       34.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   34.80      SUBAREA RUNOFF(CFS) =   62.94
 EFFECTIVE AREA(ACRES) =   1196.92   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1364.70       PEAK FLOW RATE(CFS) =    2340.49
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =   1364.70  TC(MIN.) =     22.96
 EFFECTIVE AREA(ACRES) =   1196.92  AREA-AVERAGED Fm(INCH/HR)=  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =   2340.49
```

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2315.52	20.03	2.630	0.28(0.28)	1.00	1060.0	530.00
2	2339.42	22.41	2.430	0.28(0.28)	1.00	1173.0	610.00
3	2340.49	22.96	2.390	0.28(0.28)	1.00	1196.9	590.00
4	2338.88	23.29	2.366	0.28(0.28)	1.00	1210.0	630.00
5	2325.06	24.51	2.283	0.28(0.28)	1.00	1254.2	570.00
6	2324.82	24.52	2.282	0.28(0.28)	1.00	1254.7	510.00
7	2305.96	25.55	2.217	0.28(0.28)	1.00	1287.0	420.00
8	2229.54	26.59	2.156	0.28(0.28)	1.00	1288.2	550.00

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

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                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED #4                                                            *
* EXISTING CONDITION                                                      *
* 100-YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-4.DAT
  TIME/DATE OF STUDY: 13:06 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    330.00 TO NODE    390.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4600.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.337
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.917
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.34
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.29
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     33.29

**************************************************************************
 FLOW PROCESS FROM NODE    390.00 TO NODE    391.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   811.00   CHANNEL SLOPE =  0.4932
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2243 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.29
 FLOW VELOCITY(FEET/SEC) =   8.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  12.92
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    391.00 =  1811.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    391.00 TO NODE    391.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  12.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.574
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   60.40
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      90.60

**************************************************************************
 FLOW PROCESS FROM NODE    391.00 TO NODE    392.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3940.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1300.00   CHANNEL SLOPE =  0.2000
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1600 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     90.60
 FLOW VELOCITY(FEET/SEC) =  10.05 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.16   Tc(MIN.) =  15.08
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    392.00 =  3111.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    392.00 TO NODE    392.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.208
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       40.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.20      SUBAREA RUNOFF(CFS) =  108.17
 EFFECTIVE AREA(ACRES) =     70.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.20       PEAK FLOW RATE(CFS) =     188.89

****************************************************************************
 FLOW PROCESS FROM NODE    392.00 TO NODE    393.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2226.00   CHANNEL SLOPE =  0.1258
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1189 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    188.89
 FLOW VELOCITY(FEET/SEC) =  11.06 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.36   Tc(MIN.) =  18.43
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    393.00 =  5337.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    393.00 TO NODE    393.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.787
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       80.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   80.50      SUBAREA RUNOFF(CFS) =  186.12
 EFFECTIVE AREA(ACRES) =    150.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    150.70       PEAK FLOW RATE(CFS) =     348.42

****************************************************************************
 FLOW PROCESS FROM NODE    393.00 TO NODE    394.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3310.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  5655.00   CHANNEL SLOPE =  0.0619
 CHANNEL FLOW THRU SUBAREA(CFS) =    348.42
 FLOW VELOCITY(FEET/SEC) =  17.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.43   Tc(MIN.) =  23.86
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    394.00 = 10992.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.326
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      160.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  160.00      SUBAREA RUNOFF(CFS) =  280.26
 EFFECTIVE AREA(ACRES) =    310.70   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    310.70       PEAK FLOW RATE(CFS) =     566.21

****************************************************************************
 FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  23.86
 RAINFALL INTENSITY(INCH/HR) =   2.33
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   310.70
 TOTAL STREAM AREA(ACRES) =   310.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    566.21

****************************************************************************
 FLOW PROCESS FROM NODE    330.00 TO NODE    430.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
 ============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4660.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.112
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.739
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        4.50      0.22      1.000    89   12.11
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     14.26
  TOTAL AREA(ACRES) =      4.50   PEAK FLOW RATE(CFS) =     14.26

 ****************************************************************************
  FLOW PROCESS FROM NODE    430.00 TO NODE    431.00 IS CODE =  53
 ----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
 ============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4660.00  DOWNSTREAM(FEET) =   4540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   819.00   CHANNEL SLOPE =  0.1465
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1327 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     14.26
  FLOW VELOCITY(FEET/SEC) =   4.94 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.76   Tc(MIN.) =  14.87
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    431.00 =  1819.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE    431.00 TO NODE    431.00 IS CODE =  81
 ----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ============================================================================
  MAINLINE Tc(MIN) =  14.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.239
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D        9.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     9.00      SUBAREA RUNOFF(CFS) =    24.47
  EFFECTIVE AREA(ACRES) =     13.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     13.50       PEAK FLOW RATE(CFS) =      36.70

 ****************************************************************************
  FLOW PROCESS FROM NODE    431.00 TO NODE    432.00 IS CODE =  53
 ----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
```

```
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4540.00  DOWNSTREAM(FEET) =   4200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   975.00   CHANNEL SLOPE =  0.3487
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2050 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.70
 FLOW VELOCITY(FEET/SEC) =   8.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  16.80
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    432.00 =  2794.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    432.00 TO NODE    432.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.973
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.00      SUBAREA RUNOFF(CFS) =   44.64
 EFFECTIVE AREA(ACRES) =     31.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     31.50       PEAK FLOW RATE(CFS) =      78.12

****************************************************************************
 FLOW PROCESS FROM NODE    432.00 TO NODE    433.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   967.00   CHANNEL SLOPE =  0.2482
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1794 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     78.12
 FLOW VELOCITY(FEET/SEC) =  10.12 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  18.40
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    433.00 =  3761.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    433.00 TO NODE    433.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.791
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       36.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.00      SUBAREA RUNOFF(CFS) =   83.36
 EFFECTIVE AREA(ACRES) =     67.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.50       PEAK FLOW RATE(CFS) =     156.31

****************************************************************************
 FLOW PROCESS FROM NODE    433.00 TO NODE    434.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3520.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3158.00   CHANNEL SLOPE =  0.1393
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1279 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    156.31
 FLOW VELOCITY(FEET/SEC) =  10.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.89   Tc(MIN.) =  23.28
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    434.00 =  6919.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    434.00 TO NODE    434.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.367
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       61.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   61.00      SUBAREA RUNOFF(CFS) =  117.96
 EFFECTIVE AREA(ACRES) =    128.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    128.50       PEAK FLOW RATE(CFS) =     248.49

****************************************************************************
 FLOW PROCESS FROM NODE    434.00 TO NODE    394.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3520.00  DOWNSTREAM(FEET) =   3310.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3584.00   CHANNEL SLOPE =  0.0586
 CHANNEL FLOW THRU SUBAREA(CFS) =    248.49
 FLOW VELOCITY(FEET/SEC) =  15.19 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.93   Tc(MIN.) =  27.22
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    394.00 = 10503.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==========================================================================
  MAINLINE Tc(MIN) =  27.22
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.122
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       60.00      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   60.00      SUBAREA RUNOFF(CFS) =   94.05
  EFFECTIVE AREA(ACRES) =    188.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    188.50       PEAK FLOW RATE(CFS) =     314.21

**************************************************************************
  FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  27.22
  RAINFALL INTENSITY(INCH/HR) =   2.12
  AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   188.50
  TOTAL STREAM AREA(ACRES) =   188.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    314.21

**************************************************************************
  FLOW PROCESS FROM NODE    450.00 TO NODE    451.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4540.00  DOWNSTREAM(FEET) =   4400.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.329
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.693
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        6.10      0.22      1.000    89   12.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     19.08
  TOTAL AREA(ACRES) =      6.10   PEAK FLOW RATE(CFS) =     19.08

**************************************************************************
  FLOW PROCESS FROM NODE    451.00 TO NODE    452.00 IS CODE =  53
--------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
```

```
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   785.00   CHANNEL SLOPE =  0.4586
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2209 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     19.08
 FLOW VELOCITY(FEET/SEC) =   7.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.86   Tc(MIN.) =  14.19
 LONGEST FLOWPATH FROM NODE    450.00 TO NODE    452.00 =  1785.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    452.00 TO NODE    452.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  14.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.347
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       11.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.90      SUBAREA RUNOFF(CFS) =   33.51
 EFFECTIVE AREA(ACRES) =     18.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     18.00       PEAK FLOW RATE(CFS) =      50.69

****************************************************************************
 FLOW PROCESS FROM NODE    452.00 TO NODE    453.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4040.00  DOWNSTREAM(FEET) =   3820.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   997.00   CHANNEL SLOPE =  0.2207
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1702 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     50.69
 FLOW VELOCITY(FEET/SEC) =   8.54 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.95   Tc(MIN.) =  16.14
 LONGEST FLOWPATH FROM NODE    450.00 TO NODE    453.00 =  2782.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    453.00 TO NODE    453.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  16.14
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.059
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       22.40      0.22      1.000    89
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   22.40      SUBAREA RUNOFF(CFS) =   57.28
 EFFECTIVE AREA(ACRES) =     40.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     40.40       PEAK FLOW RATE(CFS) =     103.30

****************************************************************************
 FLOW PROCESS FROM NODE    453.00 TO NODE    454.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3600.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1350.00   CHANNEL SLOPE =  0.1630
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1415 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.30
 FLOW VELOCITY(FEET/SEC) =   9.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.28   Tc(MIN.) =  18.42
 LONGEST FLOWPATH FROM NODE    450.00 TO NODE    454.00 =  4132.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    454.00 TO NODE    454.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.789
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       44.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.00      SUBAREA RUNOFF(CFS) =  101.80
 EFFECTIVE AREA(ACRES) =     84.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     84.40       PEAK FLOW RATE(CFS) =     195.27

****************************************************************************
 FLOW PROCESS FROM NODE    454.00 TO NODE    394.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3310.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  4275.00   CHANNEL SLOPE =  0.0678
 CHANNEL FLOW THRU SUBAREA(CFS) =    195.27
 FLOW VELOCITY(FEET/SEC) =  15.16 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.70   Tc(MIN.) =  23.12
 LONGEST FLOWPATH FROM NODE    450.00 TO NODE    394.00 =  8407.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  23.12
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.379
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       87.50      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   87.50      SUBAREA RUNOFF(CFS) =  157.39
  EFFECTIVE AREA(ACRES) =    171.90   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    171.90       PEAK FLOW RATE(CFS) =     321.51

********************************************************************************
  FLOW PROCESS FROM NODE    394.00 TO NODE    394.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =  23.12
  RAINFALL INTENSITY(INCH/HR) =   2.38
  AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   171.90
  TOTAL STREAM AREA(ACRES) =   171.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    321.51

  ** CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    566.21  23.86    2.326  0.30( 0.30) 1.00   310.7     330.00
      2    314.21  27.22    2.122  0.27( 0.27) 1.00   188.5     330.00
      3    321.51  23.12    2.379  0.30( 0.30) 1.00   171.9     450.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1   1188.08  23.12    2.379  0.29( 0.29) 1.00   633.0     450.00
      2   1185.55  23.86    2.326  0.29( 0.29) 1.00   647.9     330.00
      3   1104.98  27.22    2.122  0.29( 0.29) 1.00   671.1     330.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   1188.08    Tc(MIN.) =    23.12
  EFFECTIVE AREA(ACRES) =   632.99   AREA-AVERAGED Fm(INCH/HR) =  0.29
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    671.10
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    394.00 = 10992.00 FEET.
```

```
**************************************************************************
 FLOW PROCESS FROM NODE     394.00 TO NODE     395.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3310.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3927.00   CHANNEL SLOPE =  0.0293
 CHANNEL FLOW THRU SUBAREA(CFS) =   1188.08
 FLOW VELOCITY(FEET/SEC) =  17.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.69   Tc(MIN.) =  26.80
 LONGEST FLOWPATH FROM NODE     330.00 TO NODE     395.00 = 14919.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  26.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.144
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       76.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   76.40      SUBAREA RUNOFF(CFS) =  121.32
 EFFECTIVE AREA(ACRES) =    709.39   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    747.50       PEAK FLOW RATE(CFS) =    1188.08
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =  10
--------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==========================================================================
==========================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    747.50  TC(MIN.) =     26.80
 EFFECTIVE AREA(ACRES) =    709.39  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =   1188.08

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)         (ACRES)     NODE
     1   1188.08  26.80     2.144  0.30( 0.30) 1.00    709.4      450.00
     2   1185.55  27.55     2.104  0.30( 0.30) 1.00    724.3      330.00
     3   1104.98  30.99     1.937  0.30( 0.30) 1.00    747.5      330.00
==========================================================================
==========================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED #5                                                            *
* EXISTING CONDITION                                                      *
* 100-YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-5.DAT
  TIME/DATE OF STUDY: 13:40 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     470.00 TO NODE     471.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   755.00
 ELEVATION DATA: UPSTREAM(FEET) =   4285.00  DOWNSTREAM(FEET) =   4200.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.509
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.876
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.51
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.92
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     32.92

**************************************************************************
 FLOW PROCESS FROM NODE    471.00 TO NODE    472.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   4060.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   748.00   CHANNEL SLOPE =  0.1872
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1536 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.92
 FLOW VELOCITY(FEET/SEC) =   7.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.77   Tc(MIN.) =  13.28
 LONGEST FLOWPATH FROM NODE    470.00 TO NODE    472.00 =  1503.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    472.00 TO NODE    472.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  13.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.505
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   59.17
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      88.76

**************************************************************************
 FLOW PROCESS FROM NODE    472.00 TO NODE    473.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4060.00  DOWNSTREAM(FEET) =   3940.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   855.00   CHANNEL SLOPE =  0.1404
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1286 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     88.76
 FLOW VELOCITY(FEET/SEC) =   8.94 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  14.88
 LONGEST FLOWPATH FROM NODE    470.00 TO NODE    473.00 =  2358.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    473.00 TO NODE    473.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.238
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       40.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  108.73
 EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     190.27

****************************************************************************
 FLOW PROCESS FROM NODE    473.00 TO NODE    474.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1308.00   CHANNEL SLOPE =  0.1376
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1267 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    190.27
 FLOW VELOCITY(FEET/SEC) =  11.45 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.90   Tc(MIN.) =  16.78
 LONGEST FLOWPATH FROM NODE    470.00 TO NODE    474.00 =  3666.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    474.00 TO NODE    474.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.78
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.976
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       79.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    79.40      SUBAREA RUNOFF(CFS) =  197.11
 EFFECTIVE AREA(ACRES) =    149.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    149.40       PEAK FLOW RATE(CFS) =     370.89

****************************************************************************
 FLOW PROCESS FROM NODE    474.00 TO NODE    475.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  5203.00   CHANNEL SLOPE =  0.0884
 CHANNEL FLOW THRU SUBAREA(CFS) =    370.89
 FLOW VELOCITY(FEET/SEC) =  21.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.10   Tc(MIN.) =  20.88
 LONGEST FLOWPATH FROM NODE    470.00 TO NODE    475.00 =  8869.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    475.00 TO NODE    475.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.554
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    D      101.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  101.00      SUBAREA RUNOFF(CFS) =  212.37
 EFFECTIVE AREA(ACRES) =    250.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    250.40       PEAK FLOW RATE(CFS) =     526.52

****************************************************************************
 FLOW PROCESS FROM NODE    475.00 TO NODE    475.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  20.88
 RAINFALL INTENSITY(INCH/HR) =   2.55
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   250.40
 TOTAL STREAM AREA(ACRES) =   250.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    526.52

****************************************************************************
 FLOW PROCESS FROM NODE    490.00 TO NODE    491.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4160.00  DOWNSTREAM(FEET) =   3920.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.069
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.983
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        8.90      0.22      1.000    89   11.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     30.16
  TOTAL AREA(ACRES) =      8.90   PEAK FLOW RATE(CFS) =     30.16

********************************************************************************
  FLOW PROCESS FROM NODE    491.00 TO NODE    492.00 IS CODE =  53
--------------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3680.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   757.00   CHANNEL SLOPE =  0.3170
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1993 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     30.16
  FLOW VELOCITY(FEET/SEC) =   7.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.62   Tc(MIN.) =  12.69
  LONGEST FLOWPATH FROM NODE    490.00 TO NODE    492.00 =  1757.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE    492.00 TO NODE    492.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  12.69
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.619
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D       16.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   16.00      SUBAREA RUNOFF(CFS) =   48.97
  EFFECTIVE AREA(ACRES) =     24.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     24.90       PEAK FLOW RATE(CFS) =      76.21

********************************************************************************
  FLOW PROCESS FROM NODE    492.00 TO NODE    493.00 IS CODE =  53
--------------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
```

```
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3520.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1157.00   CHANNEL SLOPE =  0.1383
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1272 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     76.21
 FLOW VELOCITY(FEET/SEC) =   8.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.28   Tc(MIN.) =  14.97
 LONGEST FLOWPATH FROM NODE    490.00 TO NODE    493.00 =  2914.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    493.00 TO NODE    493.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.97
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.224
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       31.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.20      SUBAREA RUNOFF(CFS) =   84.40
 EFFECTIVE AREA(ACRES) =     56.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     56.10       PEAK FLOW RATE(CFS) =     151.75

****************************************************************************
 FLOW PROCESS FROM NODE    493.00 TO NODE    494.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3520.00  DOWNSTREAM(FEET) =   3400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1065.00   CHANNEL SLOPE =  0.1127
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =    151.75
 FLOW VELOCITY(FEET/SEC) =  17.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.04   Tc(MIN.) =  16.02
 LONGEST FLOWPATH FROM NODE    490.00 TO NODE    494.00 =  3979.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    494.00 TO NODE    494.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.075
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       62.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   62.00      SUBAREA RUNOFF(CFS) =  150.40
 EFFECTIVE AREA(ACRES) =    118.10   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    118.10       PEAK FLOW RATE(CFS) =     294.67

****************************************************************************
 FLOW PROCESS FROM NODE    494.00 TO NODE    475.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3400.00  DOWNSTREAM(FEET) =   3300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1604.00   CHANNEL SLOPE =  0.0623
 CHANNEL FLOW THRU SUBAREA(CFS) =    294.67
 FLOW VELOCITY(FEET/SEC) =  16.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.62   Tc(MIN.) =  17.63
 LONGEST FLOWPATH FROM NODE    490.00 TO NODE    475.00 =  5583.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    475.00 TO NODE    475.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.63
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.875
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       76.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   76.10      SUBAREA RUNOFF(CFS) =  170.89
 EFFECTIVE AREA(ACRES) =    194.20   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    194.20       PEAK FLOW RATE(CFS) =     444.26

****************************************************************************
 FLOW PROCESS FROM NODE    475.00 TO NODE    475.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.63
 RAINFALL INTENSITY(INCH/HR) =   2.88
 AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   194.20
 TOTAL STREAM AREA(ACRES) =   194.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    444.26

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)         (ACRES)     NODE
```

```
    1    526.52  20.88    2.554  0.22( 0.22) 1.00   250.4      470.00
    2    444.26  17.63    2.875  0.33( 0.33) 1.00   194.2      490.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)     NODE
      1    949.97  17.63    2.875  0.27( 0.27) 1.00   405.7      490.00
      2    914.73  20.88    2.554  0.27( 0.27) 1.00   444.6      470.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    949.97    Tc(MIN.) =    17.63
  EFFECTIVE AREA(ACRES) =   405.67   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    444.60
  LONGEST FLOWPATH FROM NODE    470.00 TO NODE    475.00 =  8869.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    475.00 TO NODE    476.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3300.00  DOWNSTREAM(FEET) =   3220.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2117.00   CHANNEL SLOPE =  0.0378
  CHANNEL FLOW THRU SUBAREA(CFS) =    949.97
  FLOW VELOCITY(FEET/SEC) =  18.74 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.88   Tc(MIN.) =  19.52
  LONGEST FLOWPATH FROM NODE    470.00 TO NODE    476.00 = 10986.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    476.00 TO NODE    476.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.52
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.678
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       86.90      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   86.90      SUBAREA RUNOFF(CFS) =  179.72
  EFFECTIVE AREA(ACRES) =    492.57   AREA-AVERAGED Fm(INCH/HR) =  0.29
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    531.50       PEAK FLOW RATE(CFS) =    1057.71

****************************************************************************
  FLOW PROCESS FROM NODE    476.00 TO NODE    395.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3220.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1572.00   CHANNEL SLOPE =  0.0159
 CHANNEL FLOW THRU SUBAREA(CFS) =   1057.71
 FLOW VELOCITY(FEET/SEC) =  12.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.08   Tc(MIN.) =  21.60
 LONGEST FLOWPATH FROM NODE    470.00 TO NODE    395.00 = 12558.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    395.00 TO NODE    395.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.60
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.495
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       38.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.20      SUBAREA RUNOFF(CFS) =   72.70
 EFFECTIVE AREA(ACRES) =    530.77   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    569.70       PEAK FLOW RATE(CFS) =    1057.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    569.70  TC(MIN.) =     21.60
 EFFECTIVE AREA(ACRES) =    530.77  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =   1057.71

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1057.71  21.60    2.495  0.30( 0.30) 1.00   530.8      490.00
     2   1012.29  24.90    2.258  0.29( 0.29) 1.00   569.7      470.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
```

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
(c) Copyright 1983-2006 Advanced Engineering Software (aes)
Ver. 13.0 Release Date: 06/01/2006 License ID 1400

Analysis prepared by:

Allard Engineering
8253 Sierra Avenue
Fontana Ca. 92335

```
************************** DESCRIPTION OF STUDY **************************
* Ultimate Combined Ratioanl Method for Hacienda at Fairview Valley      *
* Existing Condition                                                     *
* 100-Year Storm                                                         *
**************************************************************************
```

WATERSHED 6

FILE NAME: HAC-6.DAT
TIME/DATE OF STUDY: 09:11 05/12/2009

```
==========================================================================
```

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

```
==========================================================================
```

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF-WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

```
**************************************************************************
```

FLOW PROCESS FROM NODE 330.00 TO NODE 331.00 IS CODE = 21

```
--------------------------------------------------------------------------
```

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4680.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.456
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.667
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        5.60      0.22      1.000    89   12.46
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     17.38
 TOTAL AREA(ACRES) =      5.60   PEAK FLOW RATE(CFS) =     17.38

**************************************************************************
 FLOW PROCESS FROM NODE    331.00 TO NODE    332.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4680.00  DOWNSTREAM(FEET) =   4400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   792.00   CHANNEL SLOPE =  0.3535
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2059 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     17.38
 FLOW VELOCITY(FEET/SEC) =   6.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =  14.46
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    332.00 =  1792.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    332.00 TO NODE    332.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  14.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.303
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       11.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.20      SUBAREA RUNOFF(CFS) =   31.09
 EFFECTIVE AREA(ACRES) =     16.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     16.80       PEAK FLOW RATE(CFS) =      46.64

**************************************************************************
 FLOW PROCESS FROM NODE    332.00 TO NODE    333.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.2632
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1844 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     46.64
 FLOW VELOCITY(FEET/SEC) =   8.64 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.47   Tc(MIN.) =  15.93
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    333.00 =  2552.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    333.00 TO NODE    333.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.93
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.087
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       23.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   23.30      SUBAREA RUNOFF(CFS) =   60.16
 EFFECTIVE AREA(ACRES) =     40.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     40.10       PEAK FLOW RATE(CFS) =     103.54

****************************************************************************
 FLOW PROCESS FROM NODE    333.00 TO NODE    334.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3940.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   958.00   CHANNEL SLOPE =  0.2714
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1871 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.54
 FLOW VELOCITY(FEET/SEC) =  11.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  17.33
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    334.00 =  3510.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    334.00 TO NODE    334.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.910
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       29.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   29.70      SUBAREA RUNOFF(CFS) =   71.94
 EFFECTIVE AREA(ACRES) =     69.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     69.80       PEAK FLOW RATE(CFS) =     169.08

****************************************************************************
 FLOW PROCESS FROM NODE    334.00 TO NODE    335.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3700.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1192.00   CHANNEL SLOPE =  0.2013
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1607 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    169.08
 FLOW VELOCITY(FEET/SEC) =  12.39 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.60   Tc(MIN.) =  18.94
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    335.00 =  4702.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    335.00 TO NODE    335.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.94
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.735
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       44.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.70      SUBAREA RUNOFF(CFS) =  101.25
 EFFECTIVE AREA(ACRES) =    114.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    114.50       PEAK FLOW RATE(CFS) =     259.36

****************************************************************************
 FLOW PROCESS FROM NODE    335.00 TO NODE    336.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3690.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   287.00   CHANNEL SLOPE =  0.0348
 CHANNEL FLOW THRU SUBAREA(CFS) =    259.36
 FLOW VELOCITY(FEET/SEC) =  11.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.40   Tc(MIN.) =  19.34
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    336.00 =  4989.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    336.00 TO NODE    336.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  19.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.695
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       20.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   41.67
 EFFECTIVE AREA(ACRES) =    134.50   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    134.50       PEAK FLOW RATE(CFS) =     296.90

****************************************************************************
 FLOW PROCESS FROM NODE    336.00 TO NODE    337.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3690.00  DOWNSTREAM(FEET) =   3650.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   820.00   CHANNEL SLOPE =  0.0488
 CHANNEL FLOW THRU SUBAREA(CFS) =    296.90
 FLOW VELOCITY(FEET/SEC) =  14.66 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =  20.27
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    337.00 =  5809.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    337.00 TO NODE    337.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.607
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       40.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =   80.19
 EFFECTIVE AREA(ACRES) =    174.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    174.50       PEAK FLOW RATE(CFS) =     366.51

****************************************************************************
 FLOW PROCESS FROM NODE    337.00 TO NODE    338.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3650.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1510.00   CHANNEL SLOPE =  0.0596
 CHANNEL FLOW THRU SUBAREA(CFS) =    366.51
 FLOW VELOCITY(FEET/SEC) =  17.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  21.73
```

```
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    338.00 =  7319.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    338.00 TO NODE    338.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.73
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.484
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       77.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   77.80      SUBAREA RUNOFF(CFS) =  147.33
 EFFECTIVE AREA(ACRES) =    252.30   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    252.30       PEAK FLOW RATE(CFS) =     494.47

****************************************************************************
 FLOW PROCESS FROM NODE    338.00 TO NODE    338.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  21.73
 RAINFALL INTENSITY(INCH/HR) =   2.48
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   252.30
 TOTAL STREAM AREA(ACRES) =   252.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    494.47

****************************************************************************
 FLOW PROCESS FROM NODE    350.00 TO NODE    350.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3720.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.959
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.567
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    D       10.00      0.22      1.000    89   12.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     30.14
```

```
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     30.14

****************************************************************************
 FLOW PROCESS FROM NODE    351.00 TO NODE    352.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3720.00  DOWNSTREAM(FEET) =   3640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   917.00   CHANNEL SLOPE =  0.0872
 CHANNEL FLOW THRU SUBAREA(CFS) =     30.14
 FLOW VELOCITY(FEET/SEC) =   9.90 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.54   Tc(MIN.) =  14.50
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    352.00 =  1917.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    352.00 TO NODE    352.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.297
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       19.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.60      SUBAREA RUNOFF(CFS) =   51.45
 EFFECTIVE AREA(ACRES) =     29.60   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.60       PEAK FLOW RATE(CFS) =      79.16

****************************************************************************
 FLOW PROCESS FROM NODE    352.00 TO NODE    338.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1234.00   CHANNEL SLOPE =  0.0648
 CHANNEL FLOW THRU SUBAREA(CFS) =     79.16
 FLOW VELOCITY(FEET/SEC) =  11.27 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.82   Tc(MIN.) =  16.33
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    338.00 =  3151.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    338.00 TO NODE    338.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.034
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B        24.10      0.38     1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   24.10      SUBAREA RUNOFF(CFS) =   57.57
  EFFECTIVE AREA(ACRES) =     53.70   AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     53.70       PEAK FLOW RATE(CFS) =     129.74

****************************************************************************
  FLOW PROCESS FROM NODE    338.00 TO NODE    338.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.33
  RAINFALL INTENSITY(INCH/HR) =   3.03
  AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    53.70
  TOTAL STREAM AREA(ACRES) =    53.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    129.74

  ** CONFLUENCE DATA **
   STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR)  (INCH/HR)          (ACRES)     NODE
      1    494.47  21.73     2.484  0.31( 0.31) 1.00    252.3      330.00
      2    129.74  16.33     3.034  0.35( 0.35) 1.00     53.7      350.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR)  (INCH/HR)          (ACRES)     NODE
      1    595.16  16.33     3.034  0.32( 0.32) 1.00    243.3      350.00
      2    597.62  21.73     2.484  0.31( 0.31) 1.00    306.0      330.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    597.62    Tc(MIN.) =    21.73
  EFFECTIVE AREA(ACRES) =   306.00   AREA-AVERAGED Fm(INCH/HR) =  0.31
  AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    306.00
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    338.00 =  7319.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    338.00 TO NODE    339.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3500.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1490.00   CHANNEL SLOPE =  0.0403
  CHANNEL FLOW THRU SUBAREA(CFS) =    597.62
```

```
 FLOW VELOCITY(FEET/SEC) =  16.64 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.49   Tc(MIN.) =  23.22
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    339.00 =  8809.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    339.00 TO NODE    339.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.371
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       37.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   37.80      SUBAREA RUNOFF(CFS) =   67.74
 EFFECTIVE AREA(ACRES) =    343.80   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    343.80       PEAK FLOW RATE(CFS) =     634.27

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    639.81  17.82    2.854  0.32( 0.32) 1.00   281.1      350.00
     2    634.27  23.22    2.371  0.32( 0.32) 1.00   343.8      330.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) =    639.81  Tc(MIN.) =  17.82
 AREA-AVERAGED Fm(INCH/HR) =  0.32  AREA-AVERAGED Fp(INCH/HR) =  0.32
 AREA-AVERAGED Ap =  1.00  EFFECTIVE AREA(ACRES) =    281.09

****************************************************************************
 FLOW PROCESS FROM NODE    339.00 TO NODE    340.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3500.00  DOWNSTREAM(FEET) =   3420.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1890.00   CHANNEL SLOPE =  0.0423
 CHANNEL FLOW THRU SUBAREA(CFS) =    639.81
 FLOW VELOCITY(FEET/SEC) =  17.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.81   Tc(MIN.) =  19.63
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE    340.00 = 10699.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    340.00 TO NODE    340.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.63
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.667
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
"DESERT BRUSH"   (50.0%)   B       39.50      0.38     1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   39.50      SUBAREA RUNOFF(CFS) =   81.31
EFFECTIVE AREA(ACRES) =    320.59   AREA-AVERAGED Fm(INCH/HR) =  0.33
AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    383.30       PEAK FLOW RATE(CFS) =     673.95

****************************************************************************
FLOW PROCESS FROM NODE    340.00 TO NODE    341.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3420.00  DOWNSTREAM(FEET) =   3340.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1447.00   CHANNEL SLOPE =  0.0553
CHANNEL FLOW THRU SUBAREA(CFS) =    673.95
FLOW VELOCITY(FEET/SEC) =  20.27 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.19   Tc(MIN.) =  20.82
LONGEST FLOWPATH FROM NODE    330.00 TO NODE    341.00 = 12146.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    341.00 TO NODE    341.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  20.82
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.560
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)   B       16.20      0.38     1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   16.20      SUBAREA RUNOFF(CFS) =   31.78
EFFECTIVE AREA(ACRES) =    336.79   AREA-AVERAGED Fm(INCH/HR) =  0.33
AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    399.50       PEAK FLOW RATE(CFS) =     674.67

****************************************************************************
FLOW PROCESS FROM NODE    341.00 TO NODE    342.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3340.00  DOWNSTREAM(FEET) =   3315.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   891.00   CHANNEL SLOPE =  0.0281
CHANNEL FLOW THRU SUBAREA(CFS) =    674.67
FLOW VELOCITY(FEET/SEC) =  14.45 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  21.84
LONGEST FLOWPATH FROM NODE    330.00 TO NODE    342.00 = 13037.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    342.00 TO NODE    342.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==============================================================================
  MAINLINE Tc(MIN) =  21.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.475
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       18.80      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   18.80      SUBAREA RUNOFF(CFS) =   35.44
  EFFECTIVE AREA(ACRES) =    355.59   AREA-AVERAGED Fm(INCH/HR) =  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    418.30       PEAK FLOW RATE(CFS) =     684.37

****************************************************************************
  FLOW PROCESS FROM NODE    342.00 TO NODE    342.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  21.84
  RAINFALL INTENSITY(INCH/HR) =   2.47
  AREA-AVERAGED Fm(INCH/HR) =  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.34
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   355.59
  TOTAL STREAM AREA(ACRES) =   418.30
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    684.37

****************************************************************************
  FLOW PROCESS FROM NODE   1050.00 TO NODE   1051.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3530.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   28.106
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.074
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B        6.40      0.38      1.000    80   28.11
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      9.76
  TOTAL AREA(ACRES) =      6.40   PEAK FLOW RATE(CFS) =      9.76

****************************************************************************
  FLOW PROCESS FROM NODE   1051.00 TO NODE   1052.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3530.00  DOWNSTREAM(FEET) =   3420.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1067.00   CHANNEL SLOPE =  0.1031
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =      9.76
 FLOW VELOCITY(FEET/SEC) =   7.85 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.26   Tc(MIN.) =  30.37
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE   1052.00 =  2067.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1052.00 TO NODE   1052.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  30.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.965
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp        Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       12.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.80      SUBAREA RUNOFF(CFS) =   18.26
 EFFECTIVE AREA(ACRES) =     19.20   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     19.20       PEAK FLOW RATE(CFS) =      27.39

****************************************************************************
 FLOW PROCESS FROM NODE   1052.00 TO NODE   1053.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3420.00  DOWNSTREAM(FEET) =   3347.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1125.00   CHANNEL SLOPE =  0.0649
 CHANNEL FLOW THRU SUBAREA(CFS) =     27.39
 FLOW VELOCITY(FEET/SEC) =   8.32 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.25   Tc(MIN.) =  32.62
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE   1053.00 =  3192.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1053.00 TO NODE   1053.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  32.62
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.869
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp        Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       27.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   27.10      SUBAREA RUNOFF(CFS) =   36.31
```

```
 EFFECTIVE AREA(ACRES) =     46.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     46.30       PEAK FLOW RATE(CFS) =      62.04

****************************************************************************
 FLOW PROCESS FROM NODE   1053.00 TO NODE    342.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3347.00  DOWNSTREAM(FEET) =   3315.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1502.00   CHANNEL SLOPE =  0.0213
 CHANNEL FLOW THRU SUBAREA(CFS) =     62.04
 FLOW VELOCITY(FEET/SEC) =   6.01 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.16   Tc(MIN.) =  36.79
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE    342.00 =  4694.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    342.00 TO NODE    342.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  36.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.718
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       17.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.60      SUBAREA RUNOFF(CFS) =   21.20
 EFFECTIVE AREA(ACRES) =     63.90   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     63.90       PEAK FLOW RATE(CFS) =      76.96

****************************************************************************
 FLOW PROCESS FROM NODE    342.00 TO NODE    342.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  36.79
 RAINFALL INTENSITY(INCH/HR) =   1.72
 AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    63.90
 TOTAL STREAM AREA(ACRES) =    63.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     76.96

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     684.37  21.84     2.475   0.34( 0.34) 1.00    355.6     350.00
```

```
    1    672.96  27.26    2.119  0.33( 0.33) 1.00   418.3     330.00
    2     76.96  36.79    1.718  0.38( 0.38) 1.00    63.9    1050.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    755.90  21.84    2.475  0.34( 0.34) 1.00   393.5     350.00
      2    747.09  27.26    2.119  0.34( 0.34) 1.00   465.7     330.00
      3    598.92  36.79    1.718  0.34( 0.34) 1.00   482.2    1050.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    755.90    Tc(MIN.) =    21.84
  EFFECTIVE AREA(ACRES) =   393.53   AREA-AVERAGED Fm(INCH/HR) =  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    482.20
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    342.00 = 13037.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    342.00 TO NODE    343.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3315.00  DOWNSTREAM(FEET) =   3280.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1447.00   CHANNEL SLOPE =  0.0242
  CHANNEL FLOW THRU SUBAREA(CFS) =    755.90
  FLOW VELOCITY(FEET/SEC) =  13.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.73   Tc(MIN.) =  23.58
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    343.00 = 14484.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    343.00 TO NODE    343.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  23.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.346
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       35.90      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   35.90      SUBAREA RUNOFF(CFS) =   63.52
  EFFECTIVE AREA(ACRES) =    429.43   AREA-AVERAGED Fm(INCH/HR) =  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    518.10       PEAK FLOW RATE(CFS) =     773.81

****************************************************************************
  FLOW PROCESS FROM NODE    343.00 TO NODE    395.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3195.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3019.00   CHANNEL SLOPE =  0.0282
  CHANNEL FLOW THRU SUBAREA(CFS) =    773.81
  FLOW VELOCITY(FEET/SEC) =  15.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.33   Tc(MIN.) =  26.90
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    395.00 = 17503.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    395.00 TO NODE    395.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  26.90
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.139
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       68.90      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   68.90      SUBAREA RUNOFF(CFS) =  109.07
  EFFECTIVE AREA(ACRES) =    498.33   AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    587.00       PEAK FLOW RATE(CFS) =     802.88

****************************************************************************
  FLOW PROCESS FROM NODE    395.00 TO NODE    395.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  26.90
  RAINFALL INTENSITY(INCH/HR) =   2.14
  AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   498.33
  TOTAL STREAM AREA(ACRES) =   587.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    802.88

****************************************************************************
  FLOW PROCESS FROM NODE    395.00 TO NODE    395.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN.) =  26.80   RAINFALL INTENSITY(INCH/HR) =  2.14
  EFFECTIVE AREA(ACRES) =   709.39
  TOTAL AREA(ACRES) =   747.50        PEAK FLOW RATE(CFS) =   1188.08
  AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
  AREA-AVERAGED Ap =  1.00
  NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
        CONFLUENCE ANALYSES.
```

```
**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  26.80
 RAINFALL INTENSITY(INCH/HR) =   2.14
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   709.39
 TOTAL STREAM AREA(ACRES) =   747.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1188.08

**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =   7
--------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  21.60   RAINFALL INTENSITY(INCH/HR) =  2.49
 EFFECTIVE AREA(ACRES) =   530.77
 TOTAL AREA(ACRES) =   569.70        PEAK FLOW RATE(CFS) =   1057.71
 AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  21.60
 RAINFALL INTENSITY(INCH/HR) =   2.49
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   530.77
 TOTAL STREAM AREA(ACRES) =   569.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1057.71

**************************************************************************
 FLOW PROCESS FROM NODE     395.00 TO NODE     395.00 IS CODE =   7
--------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  22.69   RAINFALL INTENSITY(INCH/HR) =  2.41
 EFFECTIVE AREA(ACRES) =  1196.92
 TOTAL AREA(ACRES) =  1364.70        PEAK FLOW RATE(CFS) =   2340.49
 AREA-AVERAGED Fm(INCH/HR) =   0.28  AREA-AVERAGED Fp(INCH/HR) =   0.28
 AREA-AVERAGED Ap =  1.00
```

```
  NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
        CONFLUENCE ANALYSES.

****************************************************************************
  FLOW PROCESS FROM NODE    395.00 TO NODE    395.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
  TIME OF CONCENTRATION(MIN.) =  22.69
  RAINFALL INTENSITY(INCH/HR) =   2.41
  AREA-AVERAGED Fm(INCH/HR) =  0.28
  AREA-AVERAGED Fp(INCH/HR) =  0.28
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =  1196.92
  TOTAL STREAM AREA(ACRES) =  1364.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   2340.49

  ** CONFLUENCE DATA **
   STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
      1    802.88  26.90    2.139  0.35( 0.35) 1.00   498.3     350.00
      1    788.44  32.34    1.880  0.34( 0.34) 1.00   570.5     330.00
      1    641.44  42.24    1.560  0.35( 0.35) 1.00   587.0    1050.00
      2   1188.08  26.80    2.145  0.30( 0.30) 1.00   709.4     395.00
      3   1057.71  21.60    2.494  0.30( 0.30) 1.00   530.8     395.00
      4   2340.49  22.69    2.410  0.28( 0.28) 1.00  1196.9     395.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  4 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
      1   5285.75  21.60    2.494  0.30( 0.30) 1.00  2642.0     395.00
      2   5291.00  22.69    2.410  0.30( 0.30) 1.00  2748.6     395.00
      3   4928.84  26.80    2.145  0.30( 0.30) 1.00  2933.5     395.00
      4   4916.46  26.90    2.139  0.30( 0.30) 1.00  2935.4     350.00
      5   4326.67  32.34    1.880  0.30( 0.30) 1.00  3007.5     330.00
      6   3466.47  42.24    1.560  0.30( 0.30) 1.00  3024.1    1050.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   5291.00    Tc(MIN.) =    22.69
  EFFECTIVE AREA(ACRES) =  2748.57   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   3268.90
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    395.00 = 17503.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    395.00 TO NODE     30.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3195.00  DOWNSTREAM(FEET) =   3170.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2514.00   CHANNEL SLOPE =  0.0099
 CHANNEL FLOW THRU SUBAREA(CFS) =   5291.00
 FLOW VELOCITY(FEET/SEC) =  17.01 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.46   Tc(MIN.) =  25.15
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     30.00 = 20017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.242
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       51.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   51.60      SUBAREA RUNOFF(CFS) =   86.48
 EFFECTIVE AREA(ACRES) =   2800.17   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   3320.50       PEAK FLOW RATE(CFS) =    5291.00
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  25.15
 RAINFALL INTENSITY(INCH/HR) =   2.24
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  2800.17
 TOTAL STREAM AREA(ACRES) =  3320.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   5291.00

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  25.79   RAINFALL INTENSITY(INCH/HR) =  2.20
 EFFECTIVE AREA(ACRES) =  2665.07
 TOTAL AREA(ACRES) =  3011.20        PEAK FLOW RATE(CFS) =   5143.87
 AREA-AVERAGED Fm(INCH/HR) =   0.31  AREA-AVERAGED Fp(INCH/HR) =   0.31
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE      30.00 TO NODE      30.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  25.79
 RAINFALL INTENSITY(INCH/HR) =   2.20
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  2665.07
 TOTAL STREAM AREA(ACRES) =  3011.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   5143.87

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
     1    5285.75  24.06    2.313  0.30( 0.30) 1.00  2693.6     395.00
     1    5291.00  25.15    2.242  0.30( 0.30) 1.00  2800.2     395.00
     1    4928.84  29.32    2.014  0.30( 0.30) 1.00  2985.1     395.00
     1    4916.46  29.43    2.009  0.30( 0.30) 1.00  2987.0     350.00
     1    4326.67  34.98    1.780  0.30( 0.30) 1.00  3059.1     330.00
     1    3466.47  45.08    1.490  0.30( 0.30) 1.00  3075.7    1050.00
     2    5143.87  25.79    2.203  0.31( 0.31) 1.00  2665.1      30.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
     1   10362.86  24.06    2.313  0.30( 0.30) 1.00  5180.3     395.00
     2   10410.93  25.15    2.242  0.30( 0.30) 1.00  5399.4     395.00
     3   10379.54  25.79    2.203  0.31( 0.31) 1.00  5493.5      30.00
     4    9558.26  29.32    2.014  0.31( 0.31) 1.00  5650.2     395.00
     5    9532.07  29.43    2.009  0.31( 0.31) 1.00  5652.1     350.00
     6    8320.73  34.98    1.780  0.31( 0.31) 1.00  5724.2     330.00
     7    6673.57  45.08    1.490  0.31( 0.31) 1.00  5740.8    1050.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  10410.93    Tc(MIN.) =    25.15
 EFFECTIVE AREA(ACRES) =  5399.41   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   6331.70
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE      30.00 = 20017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      30.00 TO NODE      31.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3160.00  DOWNSTREAM(FEET) =   3147.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   885.00   CHANNEL SLOPE =  0.0147
 CHANNEL FLOW THRU SUBAREA(CFS) =  10410.93
```

```
 FLOW VELOCITY(FEET/SEC) =  26.01 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.57   Tc(MIN.) =  25.72
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     31.00 = 20902.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.72
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.207
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       22.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   22.30      SUBAREA RUNOFF(CFS) =   36.68
 EFFECTIVE AREA(ACRES) =   5421.71   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   6354.00       PEAK FLOW RATE(CFS) =   10410.93
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  25.72
 RAINFALL INTENSITY(INCH/HR) =   2.21
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  5421.71
 TOTAL STREAM AREA(ACRES) =  6354.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =  10410.93

****************************************************************************
 FLOW PROCESS FROM NODE    690.00 TO NODE    691.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3430.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   20.371
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.599
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        4.40      0.38      1.000    80   20.37
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      8.79
 TOTAL AREA(ACRES) =      4.40   PEAK FLOW RATE(CFS) =      8.79

****************************************************************************
 FLOW PROCESS FROM NODE    691.00 TO NODE    692.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3430.00  DOWNSTREAM(FEET) =   3390.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1066.00   CHANNEL SLOPE =  0.0375
 CHANNEL FLOW THRU SUBAREA(CFS) =      8.79
 FLOW VELOCITY(FEET/SEC) =   4.69 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.79   Tc(MIN.) =  24.16
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE    692.00 =  2066.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    692.00 TO NODE    692.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.306
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        7.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    7.90      SUBAREA RUNOFF(CFS) =    13.69
 EFFECTIVE AREA(ACRES) =     12.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     12.30       PEAK FLOW RATE(CFS) =      21.32

****************************************************************************
 FLOW PROCESS FROM NODE    692.00 TO NODE    693.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3390.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   831.00   CHANNEL SLOPE =  0.0361
 CHANNEL FLOW THRU SUBAREA(CFS) =     21.32
 FLOW VELOCITY(FEET/SEC) =   5.79 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.39   Tc(MIN.) =  26.55
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE    693.00 =  2897.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    693.00 TO NODE    693.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.159
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       15.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   24.49
 EFFECTIVE AREA(ACRES) =     27.60   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.60       PEAK FLOW RATE(CFS) =      44.18

****************************************************************************
 FLOW PROCESS FROM NODE    693.00 TO NODE    694.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3310.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1320.00   CHANNEL SLOPE =  0.0379
 CHANNEL FLOW THRU SUBAREA(CFS) =     44.18
 FLOW VELOCITY(FEET/SEC) =   7.27 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.03   Tc(MIN.) =  29.58
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE    694.00 =  4217.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    694.00 TO NODE    694.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.58
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.002
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       31.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.70      SUBAREA RUNOFF(CFS) =   46.26
 EFFECTIVE AREA(ACRES) =     59.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     59.30       PEAK FLOW RATE(CFS) =      86.54

****************************************************************************
 FLOW PROCESS FROM NODE    694.00 TO NODE    695.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3310.00  DOWNSTREAM(FEET) =   3260.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1756.00   CHANNEL SLOPE =  0.0285
 CHANNEL FLOW THRU SUBAREA(CFS) =     86.54
 FLOW VELOCITY(FEET/SEC) =   7.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.82   Tc(MIN.) =  33.39
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE    695.00 =  5973.00 FEET.
```

```
**************************************************************************
 FLOW PROCESS FROM NODE     695.00 TO NODE     695.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  33.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.839
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B       60.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   60.80      SUBAREA RUNOFF(CFS) =   79.82
 EFFECTIVE AREA(ACRES) =    120.10   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    120.10       PEAK FLOW RATE(CFS) =     157.66

**************************************************************************
 FLOW PROCESS FROM NODE     695.00 TO NODE     696.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3260.00  DOWNSTREAM(FEET) =   3200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1932.00   CHANNEL SLOPE =  0.0311
 CHANNEL FLOW THRU SUBAREA(CFS) =    157.66
 FLOW VELOCITY(FEET/SEC) =   9.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.35   Tc(MIN.) =  36.75
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE    696.00 =  7905.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     696.00 TO NODE     696.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  36.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.720
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"    (50.0%)    B      107.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  107.20      SUBAREA RUNOFF(CFS) =  129.24
 EFFECTIVE AREA(ACRES) =    227.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    227.30       PEAK FLOW RATE(CFS) =     274.03

**************************************************************************
 FLOW PROCESS FROM NODE     696.00 TO NODE      31.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3200.00  DOWNSTREAM(FEET) =   3155.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2644.00   CHANNEL SLOPE =  0.0170
 CHANNEL FLOW THRU SUBAREA(CFS) =    274.03
 FLOW VELOCITY(FEET/SEC) =   8.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.22   Tc(MIN.) =  41.97
 LONGEST FLOWPATH FROM NODE    690.00 TO NODE     31.00 = 10549.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  41.97
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.567
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      175.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  175.00      SUBAREA RUNOFF(CFS) =  186.93
 EFFECTIVE AREA(ACRES) =    402.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    402.30       PEAK FLOW RATE(CFS) =     429.72

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  41.97
 RAINFALL INTENSITY(INCH/HR) =   1.57
 AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   402.30
 TOTAL STREAM AREA(ACRES) =   402.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    429.72

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1  10362.86  24.63    2.275  0.31( 0.31) 1.00  5202.6     395.00
     1  10410.93  25.72    2.207  0.31( 0.31) 1.00  5421.7     395.00
     1  10379.54  26.36    2.170  0.31( 0.31) 1.00  5515.8      30.00
     1   9558.26  29.91    1.986  0.31( 0.31) 1.00  5672.5     395.00
     1   9532.07  30.01    1.981  0.31( 0.31) 1.00  5674.4     350.00
     1   8320.73  35.59    1.759  0.31( 0.31) 1.00  5746.5     330.00
     1   6673.57  45.74    1.475  0.31( 0.31) 1.00  5763.0    1050.00
     2    429.72  41.97    1.567  0.38( 0.38) 1.00   402.3     690.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1  10765.60  24.63     2.275   0.31( 0.31) 1.00   5438.7     395.00
     2  10816.41  25.72     2.207   0.31( 0.31) 1.00   5668.3     395.00
     3  10786.54  26.36     2.170   0.31( 0.31) 1.00   5768.5      30.00
     4   9972.69  29.91     1.986   0.31( 0.31) 1.00   5959.1     395.00
     5   9946.70  30.01     1.981   0.31( 0.31) 1.00   5962.1     350.00
     6   8743.98  35.59     1.759   0.31( 0.31) 1.00   6087.7     330.00
     7   7715.11  41.97     1.567   0.31( 0.31) 1.00   6159.2     690.00
     8   7070.14  45.74     1.475   0.31( 0.31) 1.00   6165.3    1050.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  10816.41    Tc(MIN.) =    25.72
 EFFECTIVE AREA(ACRES) =  5668.26   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   6756.30
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     31.00 = 20902.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3155.00  DOWNSTREAM(FEET) =   3145.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   701.00   CHANNEL SLOPE =  0.0143
 CHANNEL FLOW THRU SUBAREA(CFS) =  10816.41
 FLOW VELOCITY(FEET/SEC) =  25.97 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.45   Tc(MIN.) =  26.17
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     32.00 = 21603.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.17
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.181
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       43.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   43.00      SUBAREA RUNOFF(CFS) =   69.69
 EFFECTIVE AREA(ACRES) =   5711.26   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   6799.30       PEAK FLOW RATE(CFS) =   10816.41
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
```

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================================================================================
****************************************************************************
 FLOW PROCESS FROM NODE    710.00 TO NODE    711.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
 ELEVATION DATA: UPSTREAM(FEET) =   4240.00  DOWNSTREAM(FEET) =   4080.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.061
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.258
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     B       10.00      0.42      1.000    78   10.06
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     34.58
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     34.58

****************************************************************************
 FLOW PROCESS FROM NODE    711.00 TO NODE    712.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   850.00   CHANNEL SLOPE =  0.3294
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2016 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     34.58
 FLOW VELOCITY(FEET/SEC) =   8.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.73   Tc(MIN.) =  11.79
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    712.00 =  1595.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    712.00 TO NODE    712.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   64.66
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      95.21
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     712.00 TO NODE     713.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3500.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1605.00   CHANNEL SLOPE =  0.1869
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1535 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     95.21
 FLOW VELOCITY(FEET/SEC) =  10.00 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.67   Tc(MIN.) =  14.47
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    713.00 =  3200.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     713.00 TO NODE     713.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.302
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  111.03
 EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     192.53

****************************************************************************
 FLOW PROCESS FROM NODE     713.00 TO NODE     714.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3500.00  DOWNSTREAM(FEET) =   3320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1561.00   CHANNEL SLOPE =  0.1153
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1115 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    192.53
 FLOW VELOCITY(FEET/SEC) =  10.78 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.41   Tc(MIN.) =  16.88
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    714.00 =  4761.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     714.00 TO NODE     714.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.964
```

```
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D       43.40      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   43.40      SUBAREA RUNOFF(CFS) =  107.26
  EFFECTIVE AREA(ACRES) =    113.40   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    113.40       PEAK FLOW RATE(CFS) =     278.49

****************************************************************************
  FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.88
  RAINFALL INTENSITY(INCH/HR) =   2.96
  AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.24
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   113.40
  TOTAL STREAM AREA(ACRES) =   113.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    278.49

****************************************************************************
  FLOW PROCESS FROM NODE   1130.00 TO NODE   1131.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   536.00
  ELEVATION DATA: UPSTREAM(FEET) =   3930.00  DOWNSTREAM(FEET) =   3740.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.978
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.009
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D       10.00      0.22      1.000    89    7.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     43.12
  TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     43.12

****************************************************************************
  FLOW PROCESS FROM NODE   1131.00 TO NODE   1132.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3740.00  DOWNSTREAM(FEET) =   3540.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =    664.00   CHANNEL SLOPE =  0.3012
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1953 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      43.12
 FLOW VELOCITY(FEET/SEC) =   8.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =   9.26
 LONGEST FLOWPATH FROM NODE   1130.00 TO NODE   1132.00 =  1200.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1132.00 TO NODE   1132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.26
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.514
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   76.18
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =     114.84

****************************************************************************
 FLOW PROCESS FROM NODE   1132.00 TO NODE    714.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1691.00   CHANNEL SLOPE =  0.1301
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1217 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    114.84
 FLOW VELOCITY(FEET/SEC) =   9.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.97   Tc(MIN.) =  12.23
 LONGEST FLOWPATH FROM NODE   1130.00 TO NODE    714.00 =  2891.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.23
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.715
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       31.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.70      SUBAREA RUNOFF(CFS) =   99.76
```

```
 EFFECTIVE AREA(ACRES) =     61.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     61.40       PEAK FLOW RATE(CFS) =     193.23

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.23
 RAINFALL INTENSITY(INCH/HR) =   3.71
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    61.40
 TOTAL STREAM AREA(ACRES) =    61.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    193.23

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    278.49  16.88    2.964  0.24( 0.24) 1.00   113.4     710.00
     2    193.23  12.23    3.715  0.22( 0.22) 1.00    61.4    1130.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    450.45  12.23    3.715  0.23( 0.23) 1.00   143.5    1130.00
     2    430.24  16.88    2.964  0.23( 0.23) 1.00   174.8     710.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    450.45    Tc(MIN.) =    12.23
 EFFECTIVE AREA(ACRES) =   143.54   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    174.80
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    714.00 =  4761.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    715.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3320.00  DOWNSTREAM(FEET) =   3215.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1800.00   CHANNEL SLOPE =  0.0583
 CHANNEL FLOW THRU SUBAREA(CFS) =    450.45
 FLOW VELOCITY(FEET/SEC) =  18.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =  13.87
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    715.00 =  6561.00 FEET.

****************************************************************************
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```
 FLOW PROCESS FROM NODE     715.00 TO NODE     715.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.401
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       49.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   49.80      SUBAREA RUNOFF(CFS) =  135.42
 EFFECTIVE AREA(ACRES) =    193.34   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    224.60       PEAK FLOW RATE(CFS) =     545.40

****************************************************************************
 FLOW PROCESS FROM NODE     715.00 TO NODE     715.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.87
 RAINFALL INTENSITY(INCH/HR) =   3.40
 AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   193.34
 TOTAL STREAM AREA(ACRES) =   224.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    545.40

****************************************************************************
 FLOW PROCESS FROM NODE     730.00 TO NODE     731.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   970.00
 ELEVATION DATA: UPSTREAM(FEET) =   3870.00  DOWNSTREAM(FEET) =   3640.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.962
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.010
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.70      0.22      1.000    89   10.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.10
 TOTAL AREA(ACRES) =      9.70   PEAK FLOW RATE(CFS) =     33.10

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     731.00 TO NODE     732.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   874.00   CHANNEL SLOPE =  0.3204
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2001 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.10
 FLOW VELOCITY(FEET/SEC) =   8.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.81   Tc(MIN.) =  12.77
 LONGEST FLOWPATH FROM NODE     730.00 TO NODE     732.00 =  1844.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     732.00 TO NODE     732.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.603
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   60.92
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =      90.47

****************************************************************************
 FLOW PROCESS FROM NODE     732.00 TO NODE     733.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3220.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1050.00   CHANNEL SLOPE =  0.1333
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1239 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     90.47
 FLOW VELOCITY(FEET/SEC) =   8.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.98   Tc(MIN.) =  14.76
 LONGEST FLOWPATH FROM NODE     730.00 TO NODE     733.00 =  2894.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     733.00 TO NODE     733.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.76
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.257
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL POOR COVER
  "GRASS"                    D       28.00       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   28.00      SUBAREA RUNOFF(CFS) =   76.58
  EFFECTIVE AREA(ACRES) =     57.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     57.70       PEAK FLOW RATE(CFS) =     157.81

****************************************************************************
  FLOW PROCESS FROM NODE    733.00 TO NODE    715.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3220.00  DOWNSTREAM(FEET) =   3215.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   358.00   CHANNEL SLOPE =  0.0140
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0140 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =    157.81
  FLOW VELOCITY(FEET/SEC) =   3.57 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.67   Tc(MIN.) =  16.43
  LONGEST FLOWPATH FROM NODE    730.00 TO NODE    715.00 =  3252.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    715.00 TO NODE    715.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.43
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.021
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                    D       25.70       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   25.70      SUBAREA RUNOFF(CFS) =   64.84
  EFFECTIVE AREA(ACRES) =     83.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     83.40       PEAK FLOW RATE(CFS) =     210.41

****************************************************************************
  FLOW PROCESS FROM NODE    715.00 TO NODE    715.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.43
  RAINFALL INTENSITY(INCH/HR) =   3.02
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
```

```
 EFFECTIVE STREAM AREA(ACRES) =    83.40
 TOTAL STREAM AREA(ACRES) =    83.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    210.41

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     545.40  13.87     3.401   0.27( 0.27) 1.00    193.3     1130.00
     1     507.89  18.54     2.775   0.26( 0.26) 1.00    224.6      710.00
     2     210.41  16.43     3.021   0.22( 0.22) 1.00     83.4      730.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     747.12  13.87     3.401   0.25( 0.25) 1.00    263.7     1130.00
     2     735.28  16.43     3.021   0.25( 0.25) 1.00    293.8      730.00
     3     699.85  18.54     2.775   0.25( 0.25) 1.00    308.0      710.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    747.12    Tc(MIN.) =    13.87
 EFFECTIVE AREA(ACRES) =   263.75   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    308.00
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    715.00 =  6561.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    715.00 TO NODE    716.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3215.00  DOWNSTREAM(FEET) =   3175.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1355.00   CHANNEL SLOPE =  0.0295
 CHANNEL FLOW THRU SUBAREA(CFS) =    747.12
 FLOW VELOCITY(FEET/SEC) =  15.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.47   Tc(MIN.) =  15.34
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    716.00 =  7916.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    716.00 TO NODE    716.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.169
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       47.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   47.40      SUBAREA RUNOFF(CFS) =  118.99
 EFFECTIVE AREA(ACRES) =    311.15   AREA-AVERAGED Fm(INCH/HR) =  0.27
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    355.40       PEAK FLOW RATE(CFS) =     810.96

****************************************************************************
 FLOW PROCESS FROM NODE    716.00 TO NODE     32.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3175.00  DOWNSTREAM(FEET) =   3140.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1418.00   CHANNEL SLOPE =  0.0247
 CHANNEL FLOW THRU SUBAREA(CFS) =    810.96
 FLOW VELOCITY(FEET/SEC) =  14.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =  16.99
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE     32.00 =  9334.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.951
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       42.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.20      SUBAREA RUNOFF(CFS) =   97.66
 EFFECTIVE AREA(ACRES) =    353.35   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    397.60       PEAK FLOW RATE(CFS) =     847.61

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
     1     847.61  16.99     2.951  0.29( 0.29) 1.00    353.3     1130.00
     2     825.34  19.57     2.673  0.28( 0.28) 1.00    383.4      730.00
     3     788.62  21.73     2.484  0.28( 0.28) 1.00    397.6      710.00
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE     32.00 =  9334.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
     1   10765.60  25.08     2.247  0.31( 0.31) 1.00   5481.7     395.00
     2   10816.41  26.17     2.181  0.31( 0.31) 1.00   5711.3     395.00
     3   10786.54  26.81     2.144  0.31( 0.31) 1.00   5811.5      30.00
     4    9972.69  30.37     1.965  0.31( 0.31) 1.00   6002.1     395.00
     5    9946.70  30.48     1.960  0.31( 0.31) 1.00   6005.1     350.00
```

```
     6   8743.98  36.07    1.742  0.31( 0.31) 1.00  6130.7     330.00
     7   7715.11  42.47    1.554  0.31( 0.31) 1.00  6202.2     690.00
     8   7070.14  46.26    1.464  0.31( 0.31) 1.00  6208.3    1050.00
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     32.00 = 21603.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1  10789.96  16.99    2.951  0.31( 0.31) 1.00  4065.5    1130.00
      2  11072.35  19.57    2.673  0.31( 0.31) 1.00  4659.6     730.00
      3  11258.17  21.73    2.484  0.31( 0.31) 1.00  5147.3     710.00
      4  11469.38  25.08    2.247  0.31( 0.31) 1.00  5879.3     395.00
      5  11496.65  26.17    2.181  0.31( 0.31) 1.00  6108.9     395.00
      6  11453.74  26.81    2.144  0.31( 0.31) 1.00  6209.1      30.00
      7  10575.73  30.37    1.965  0.31( 0.31) 1.00  6399.7     395.00
      8  10548.02  30.48    1.960  0.31( 0.31) 1.00  6402.7     350.00
      9   9267.22  36.07    1.742  0.31( 0.31) 1.00  6528.3     330.00
     10   8171.00  42.47    1.554  0.31( 0.31) 1.00  6599.8     690.00
     11   7493.78  46.26    1.464  0.31( 0.31) 1.00  6605.9    1050.00
    TOTAL AREA(ACRES) =   7196.90

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    11496.65  Tc(MIN.) =   26.170
  EFFECTIVE AREA(ACRES) =   6108.86  AREA-AVERAGED Fm(INCH/HR) =  0.31
  AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   7196.90
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     32.00 = 21603.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     33.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3140.00  DOWNSTREAM(FEET) =   3127.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1258.00   CHANNEL SLOPE =  0.0103
  CHANNEL FLOW THRU SUBAREA(CFS) =  11496.65
  FLOW VELOCITY(FEET/SEC) =  22.57 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =  27.10
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     33.00 = 22861.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  27.10
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.128
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       44.60      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   44.60      SUBAREA RUNOFF(CFS) =   70.17
  EFFECTIVE AREA(ACRES) =   6153.46   AREA-AVERAGED Fm(INCH/HR) =  0.31
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 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   7241.50       PEAK FLOW RATE(CFS) =   11496.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  27.10
 RAINFALL INTENSITY(INCH/HR) =   2.13
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  6153.46
 TOTAL STREAM AREA(ACRES) =  7241.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =  11496.65

****************************************************************************
 FLOW PROCESS FROM NODE    730.00 TO NODE    750.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   682.00
 ELEVATION DATA: UPSTREAM(FEET) =   3870.00  DOWNSTREAM(FEET) =   3560.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.359
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.848
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
    . LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       10.00      0.22      1.000    89    8.36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     41.67
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     41.67

****************************************************************************
 FLOW PROCESS FROM NODE    750.00 TO NODE    751.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   428.00   CHANNEL SLOPE =  0.1869
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1535 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     41.67
 FLOW VELOCITY(FEET/SEC) =   7.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.94   Tc(MIN.) =   9.30
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE    751.00 =  1110.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     751.00 TO NODE     751.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.500
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       11.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.20      SUBAREA RUNOFF(CFS) =   43.16
 EFFECTIVE AREA(ACRES) =     21.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.20       PEAK FLOW RATE(CFS) =      81.70

****************************************************************************
 FLOW PROCESS FROM NODE     751.00 TO NODE     752.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1139.00   CHANNEL SLOPE =  0.2458
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1786 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     81.70
 FLOW VELOCITY(FEET/SEC) =  10.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.85   Tc(MIN.) =  11.15
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE    752.00 =  2249.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     752.00 TO NODE     752.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.963
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   67.40
 EFFECTIVE AREA(ACRES) =     41.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     41.20       PEAK FLOW RATE(CFS) =     138.85

****************************************************************************
 FLOW PROCESS FROM NODE     752.00 TO NODE     753.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3200.00  DOWNSTREAM(FEET) =   3148.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1143.00   CHANNEL SLOPE =  0.0455
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0455 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =    138.85
  FLOW VELOCITY(FEET/SEC) =   6.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.09   Tc(MIN.) =  14.23
  LONGEST FLOWPATH FROM NODE    730.00 TO NODE    753.00 =  3392.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    753.00 TO NODE    753.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.23
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.340
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                    D       41.40      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   41.40      SUBAREA RUNOFF(CFS) =  116.32
  EFFECTIVE AREA(ACRES) =     82.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     82.60       PEAK FLOW RATE(CFS) =     232.08

****************************************************************************
  FLOW PROCESS FROM NODE    753.00 TO NODE     33.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3148.00  DOWNSTREAM(FEET) =   3127.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1136.00   CHANNEL SLOPE =  0.0185
  CHANNEL FLOW THRU SUBAREA(CFS) =    232.08
  FLOW VELOCITY(FEET/SEC) =   8.35 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.27   Tc(MIN.) =  16.50
  LONGEST FLOWPATH FROM NODE    730.00 TO NODE     33.00 =  4528.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.012
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B       33.20      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    33.20      SUBAREA RUNOFF(CFS) =    78.63
 EFFECTIVE AREA(ACRES) =    115.80   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    115.80       PEAK FLOW RATE(CFS) =     286.31

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.50
 RAINFALL INTENSITY(INCH/HR) =   3.01
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   115.80
 TOTAL STREAM AREA(ACRES) =   115.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    286.31

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   10789.96  17.93     2.841   0.31( 0.31) 1.00   4110.1    1130.00
     1   11072.35  20.51     2.587   0.31( 0.31) 1.00   4704.2     730.00
     1   11258.17  22.67     2.411   0.31( 0.31) 1.00   5191.9     710.00
     1   11469.38  26.01     2.190   0.31( 0.31) 1.00   5923.9     395.00
     1   11496.65  27.10     2.128   0.31( 0.31) 1.00   6153.5     395.00
     1   11453.74  27.74     2.094   0.31( 0.31) 1.00   6253.7      30.00
     1   10575.73  31.32     1.923   0.31( 0.31) 1.00   6444.3     395.00
     1   10548.02  31.43     1.918   0.31( 0.31) 1.00   6447.3     350.00
     1    9267.22  37.07     1.709   0.31( 0.31) 1.00   6572.9     330.00
     1    8171.00  43.52     1.528   0.31( 0.31) 1.00   6644.4     690.00
     1    7493.78  47.33     1.440   0.31( 0.31) 1.00   6650.5    1050.00
     2     286.31  16.50     3.012   0.26( 0.26) 1.00    115.8     730.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   10882.44  16.50     3.012   0.31( 0.31) 1.00   3897.4     730.00
     2   11058.49  17.93     2.841   0.31( 0.31) 1.00   4225.9    1130.00
     3   11314.37  20.51     2.587   0.31( 0.31) 1.00   4820.0     730.00
     4   11481.92  22.67     2.411   0.31( 0.31) 1.00   5307.7     710.00
     5   11670.06  26.01     2.190   0.31( 0.31) 1.00   6039.7     395.00
     6   11690.88  27.10     2.128   0.31( 0.31) 1.00   6269.3     395.00
     7   11644.38  27.74     2.094   0.31( 0.31) 1.00   6369.5      30.00
     8   10748.57  31.32     1.923   0.31( 0.31) 1.00   6560.1     395.00
     9   10720.37  31.43     1.918   0.31( 0.31) 1.00   6563.1     350.00
    10    9417.76  37.07     1.709   0.31( 0.31) 1.00   6688.7     330.00
    11    8302.65  43.52     1.528   0.31( 0.31) 1.00   6760.2     690.00
    12    7616.32  47.33     1.440   0.31( 0.31) 1.00   6766.3    1050.00
```

```
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  11690.88     Tc(MIN.) =     27.10
 EFFECTIVE AREA(ACRES) =  6269.26   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   7357.30
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE      33.00 = 22861.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      33.00 TO NODE      34.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3127.00  DOWNSTREAM(FEET) =   3102.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2342.00   CHANNEL SLOPE =  0.0107
 CHANNEL FLOW THRU SUBAREA(CFS) =  11690.88
 FLOW VELOCITY(FEET/SEC) =  23.07 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.69   Tc(MIN.) =  28.79
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE      34.00 = 25203.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      34.00 TO NODE      34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  28.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.040
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       49.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   49.00      SUBAREA RUNOFF(CFS) =   73.20
 EFFECTIVE AREA(ACRES) =   6318.26   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   7406.30       PEAK FLOW RATE(CFS) =   11690.88
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE      34.00 TO NODE      34.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     770.00 TO NODE     771.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   894.00
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3840.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.893
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.580
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   12.89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     30.25
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     30.25

****************************************************************************
 FLOW PROCESS FROM NODE    771.00 TO NODE    772.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3840.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   470.00   CHANNEL SLOPE =  0.1702
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1451 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     30.25
 FLOW VELOCITY(FEET/SEC) =   6.64 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.18   Tc(MIN.) =  14.07
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    772.00 =  1364.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    772.00 TO NODE    772.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.367
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       10.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   10.60     SUBAREA RUNOFF(CFS) =   30.04
 EFFECTIVE AREA(ACRES) =    20.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     20.60      PEAK FLOW RATE(CFS) =      58.38

****************************************************************************
 FLOW PROCESS FROM NODE    772.00 TO NODE    773.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   620.00   CHANNEL SLOPE =  0.3226
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2005 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     58.38
 FLOW VELOCITY(FEET/SEC) =   9.71 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 TRAVEL TIME(MIN.) =   1.06   Tc(MIN.) =  15.14
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    773.00 =  1984.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    773.00 TO NODE    773.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.14
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.199
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   53.66
 EFFECTIVE AREA(ACRES) =     40.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     40.60       PEAK FLOW RATE(CFS) =     108.94

****************************************************************************
 FLOW PROCESS FROM NODE    773.00 TO NODE    774.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   620.00   CHANNEL SLOPE =  0.1290
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1210 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    108.94
 FLOW VELOCITY(FEET/SEC) =   9.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  16.25
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    774.00 =  2604.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    774.00 TO NODE    774.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.044
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       39.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   39.60      SUBAREA RUNOFF(CFS) =  100.73
 EFFECTIVE AREA(ACRES) =     80.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     80.20       PEAK FLOW RATE(CFS) =     204.00

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    774.00 TO NODE    774.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.25
 RAINFALL INTENSITY(INCH/HR) =   3.04
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    80.20
 TOTAL STREAM AREA(ACRES) =    80.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    204.00

****************************************************************************
 FLOW PROCESS FROM NODE    790.00 TO NODE    791.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   888.00
 ELEVATION DATA: UPSTREAM(FEET) =   3870.00  DOWNSTREAM(FEET) =   3740.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.652
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.842
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       10.00      0.22      1.000    89   11.65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.62
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     32.62

****************************************************************************
 FLOW PROCESS FROM NODE    791.00 TO NODE    792.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3740.00  DOWNSTREAM(FEET) =   3700.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   592.00   CHANNEL SLOPE =  0.0676
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0676 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.62
 FLOW VELOCITY(FEET/SEC) =   4.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.12   Tc(MIN.) =  13.78
 LONGEST FLOWPATH FROM NODE    790.00 TO NODE    792.00 =  1480.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    792.00 TO NODE    792.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  13.78
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.417
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       14.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   14.40      SUBAREA RUNOFF(CFS) =   41.46
 EFFECTIVE AREA(ACRES) =     24.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     24.40       PEAK FLOW RATE(CFS) =      70.25

****************************************************************************
 FLOW PROCESS FROM NODE    792.00 TO NODE    774.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   755.00   CHANNEL SLOPE =  0.2914
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1928 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     70.25
 FLOW VELOCITY(FEET/SEC) =  10.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.24   Tc(MIN.) =  15.02
 LONGEST FLOWPATH FROM NODE    790.00 TO NODE    774.00 =  2235.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    774.00 TO NODE    774.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.217
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       25.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.40      SUBAREA RUNOFF(CFS) =   68.55
 EFFECTIVE AREA(ACRES) =     49.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     49.80       PEAK FLOW RATE(CFS) =     134.41

****************************************************************************
 FLOW PROCESS FROM NODE    774.00 TO NODE    774.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.02
```

```
 RAINFALL INTENSITY(INCH/HR) =   3.22
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    49.80
 TOTAL STREAM AREA(ACRES) =    49.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    134.41

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     204.00  16.25     3.044  0.22( 0.22) 1.00    80.2      770.00
     2     134.41  15.02     3.217  0.22( 0.22) 1.00    49.8      790.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     334.47  15.02     3.217  0.22( 0.22) 1.00   123.9      790.00
     2     330.68  16.25     3.044  0.22( 0.22) 1.00   130.0      770.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    334.47    Tc(MIN.) =    15.02
 EFFECTIVE AREA(ACRES) =   123.93   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    130.00
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    774.00 =  2604.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    774.00 TO NODE    775.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   769.00   CHANNEL SLOPE =  0.1560
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1380 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    334.47
 FLOW VELOCITY(FEET/SEC) =  14.41 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.89   Tc(MIN.) =  15.91
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    775.00 =  3373.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    775.00 TO NODE    775.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.91
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.090
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       28.20      0.22      1.000    89
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```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   28.20      SUBAREA RUNOFF(CFS) =   72.89
 EFFECTIVE AREA(ACRES) =    152.13   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    158.20       PEAK FLOW RATE(CFS) =     393.20

****************************************************************************
 FLOW PROCESS FROM NODE    775.00 TO NODE    776.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3280.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   848.00   CHANNEL SLOPE =  0.0943
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0943 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    393.20
 FLOW VELOCITY(FEET/SEC) =  12.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.12   Tc(MIN.) =  17.03
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    776.00 =  4221.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    776.00 TO NODE    776.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.946
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       36.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.70      SUBAREA RUNOFF(CFS) =   90.10
 EFFECTIVE AREA(ACRES) =    188.83   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    194.90       PEAK FLOW RATE(CFS) =     463.56

****************************************************************************
 FLOW PROCESS FROM NODE    776.00 TO NODE    777.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3190.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1026.00   CHANNEL SLOPE =  0.0877
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0877 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    463.56
 FLOW VELOCITY(FEET/SEC) =  12.81 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.33   Tc(MIN.) =  18.37
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    777.00 =  5247.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    777.00 TO NODE    777.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.794
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       28.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   28.20      SUBAREA RUNOFF(CFS) =   65.38
 EFFECTIVE AREA(ACRES) =    217.03   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    223.10       PEAK FLOW RATE(CFS) =     503.19

****************************************************************************
 FLOW PROCESS FROM NODE    777.00 TO NODE    778.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3190.00  DOWNSTREAM(FEET) =   3115.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1466.00   CHANNEL SLOPE =  0.0512
 CHANNEL FLOW THRU SUBAREA(CFS) =    503.19
 FLOW VELOCITY(FEET/SEC) =  17.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.38   Tc(MIN.) =  19.74
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE    778.00 =  6713.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    778.00 TO NODE    778.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.74
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.656
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       45.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   45.30      SUBAREA RUNOFF(CFS) =   92.81
 EFFECTIVE AREA(ACRES) =    262.33   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    268.40       PEAK FLOW RATE(CFS) =     569.07

****************************************************************************
 FLOW PROCESS FROM NODE    778.00 TO NODE     34.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3115.00  DOWNSTREAM(FEET) =   3102.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1326.00   CHANNEL SLOPE =  0.0098
 CHANNEL FLOW THRU SUBAREA(CFS) =    569.07
 FLOW VELOCITY(FEET/SEC) =   8.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.73   Tc(MIN.) =  22.48
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE     34.00 =  8039.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.426
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       83.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   83.70      SUBAREA RUNOFF(CFS) =  154.11
 EFFECTIVE AREA(ACRES) =    346.03   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    352.10       PEAK FLOW RATE(CFS) =     668.74

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  22.48
 RAINFALL INTENSITY(INCH/HR) =   2.43
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   346.03
 TOTAL STREAM AREA(ACRES) =   352.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    668.74

+--------------------------------------------------------------------------+
|                                                                          |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  33.45   RAINFALL INTENSITY(INCH/HR) =  1.84
 EFFECTIVE AREA(ACRES) =  1116.28
 TOTAL AREA(ACRES) =  1128.70        PEAK FLOW RATE(CFS) =   1493.63
 AREA-AVERAGED Fm(INCH/HR) =   0.35  AREA-AVERAGED Fp(INCH/HR) =   0.35
```

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 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  33.45
 RAINFALL INTENSITY(INCH/HR) =   1.84
 AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  1116.28
 TOTAL STREAM AREA(ACRES) =  1128.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1493.63

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1    668.74  22.48    2.426  0.28( 0.28) 1.00   346.0     790.00
     1    651.54  23.76    2.333  0.28( 0.28) 1.00   352.1     770.00
     2   1493.63  33.45    1.836  0.35( 0.35) 1.00  1116.3      34.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1   2070.27  22.48    2.426  0.33( 0.33) 1.00  1096.1     790.00
     2   2067.07  23.76    2.333  0.33( 0.33) 1.00  1145.0     770.00
     3   1987.70  33.45    1.836  0.33( 0.33) 1.00  1468.4      34.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   2070.27    Tc(MIN.) =    22.48
 EFFECTIVE AREA(ACRES) =  1096.12   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1480.80
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE     34.00 =  8039.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1   2070.27  22.48    2.426  0.33( 0.33) 1.00  1096.1     790.00
     2   2067.07  23.76    2.333  0.33( 0.33) 1.00  1145.0     770.00
     3   1987.70  33.45    1.836  0.33( 0.33) 1.00  1468.4      34.00
```

```
 LONGEST FLOWPATH FROM NODE    770.00 TO NODE     34.00 =  8039.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1   10882.44  18.24     2.808  0.31( 0.31) 1.00  3946.4     730.00
     2   11058.49  19.66     2.664  0.31( 0.31) 1.00  4274.9    1130.00
     3   11314.37  22.22     2.446  0.31( 0.31) 1.00  4869.0     730.00
     4   11481.92  24.37     2.292  0.31( 0.31) 1.00  5356.7     710.00
     5   11670.06  27.71     2.095  0.31( 0.31) 1.00  6088.7     395.00
     6   11690.88  28.79     2.040  0.31( 0.31) 1.00  6318.3     395.00
     7   11644.38  29.43     2.009  0.31( 0.31) 1.00  6418.5      30.00
     8   10748.57  33.07     1.851  0.31( 0.31) 1.00  6609.1     395.00
     9   10720.37  33.18     1.847  0.31( 0.31) 1.00  6612.1     350.00
    10    9417.76  38.89     1.653  0.31( 0.31) 1.00  6737.7     330.00
    11    8302.65  45.42     1.483  0.31( 0.31) 1.00  6809.2     690.00
    12    7616.32  49.29     1.400  0.31( 0.31) 1.00  6815.3    1050.00
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     34.00 = 25203.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1   12868.12  18.24     2.808  0.31( 0.31) 1.00  4835.7     730.00
     2   13074.99  19.66     2.664  0.31( 0.31) 1.00  5233.6    1130.00
     3   13380.06  22.22     2.446  0.31( 0.31) 1.00  5952.5     730.00
     4   13404.78  22.48     2.426  0.31( 0.31) 1.00  6023.7     790.00
     5   13501.33  23.76     2.333  0.31( 0.31) 1.00  6362.9     770.00
     6   13543.97  24.37     2.292  0.31( 0.31) 1.00  6522.1     710.00
     7   13704.81  27.71     2.095  0.31( 0.31) 1.00  7365.4     395.00
     8   13716.74  28.79     2.040  0.31( 0.31) 1.00  7631.2     395.00
     9   13664.98  29.43     2.009  0.31( 0.31) 1.00  7752.8      30.00
    10   12739.42  33.07     1.851  0.31( 0.31) 1.00  8064.7     395.00
    11   12710.32  33.18     1.847  0.31( 0.31) 1.00  8071.3     350.00
    12   12645.56  33.45     1.836  0.31( 0.31) 1.00  8086.5      34.00
    13   11162.33  38.89     1.653  0.31( 0.31) 1.00  8206.0     330.00
    14    9822.56  45.42     1.483  0.31( 0.31) 1.00  8277.6     690.00
    15    9027.16  49.29     1.400  0.31( 0.31) 1.00  8283.7    1050.00
  TOTAL AREA(ACRES) =   8887.10

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    13716.74  Tc(MIN.) =   28.791
 EFFECTIVE AREA(ACRES) =   7631.17  AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   8887.10
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     34.00 = 25203.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     35.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3102.00  DOWNSTREAM(FEET) =   3085.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1365.00   CHANNEL SLOPE =  0.0125
 CHANNEL FLOW THRU SUBAREA(CFS) =  13716.74
 FLOW VELOCITY(FEET/SEC) =  26.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.86   Tc(MIN.) =  29.66
```

```
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     35.00 = 26568.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     35.00 TO NODE     35.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.66
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.998
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      159.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  159.50      SUBAREA RUNOFF(CFS) =  232.26
 EFFECTIVE AREA(ACRES) =   7790.67   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   9046.60       PEAK FLOW RATE(CFS) =   13716.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     35.00 TO NODE     36.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3085.00  DOWNSTREAM(FEET) =   3070.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1400.00   CHANNEL SLOPE =  0.0107
 CHANNEL FLOW THRU SUBAREA(CFS) =  13716.74
 FLOW VELOCITY(FEET/SEC) =  24.40 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.96   Tc(MIN.) =  30.61
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     36.00 = 27968.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     36.00 TO NODE     36.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  30.61
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.954
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       39.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   39.20      SUBAREA RUNOFF(CFS) =   55.53
 EFFECTIVE AREA(ACRES) =   7829.87   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   9085.80       PEAK FLOW RATE(CFS) =   13716.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     36.00 TO NODE     36.00 IS CODE =  10
```

```
------------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
==============================================================================

******************************************************************************
 FLOW PROCESS FROM NODE   1200.00 TO NODE   1201.00 IS CODE =  21
------------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   669.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3940.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.432
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.455
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    9.43
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.13
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     38.13

******************************************************************************
 FLOW PROCESS FROM NODE   1201.00 TO NODE   1202.00 IS CODE =  53
------------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3820.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   522.00   CHANNEL SLOPE =  0.2299
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1733 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.13
 FLOW VELOCITY(FEET/SEC) =   7.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  10.54
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1202.00 =  1191.00 FEET.

******************************************************************************
 FLOW PROCESS FROM NODE   1202.00 TO NODE   1202.00 IS CODE =  81
------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN) =  10.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.121
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   70.26
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     105.39

****************************************************************************
 FLOW PROCESS FROM NODE   1202.00 TO NODE   1203.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   795.00   CHANNEL SLOPE =  0.2013
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1606 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    105.39
 FLOW VELOCITY(FEET/SEC) =  10.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =  11.79
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1203.00 =  1986.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1203.00 TO NODE   1203.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       42.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.00      SUBAREA RUNOFF(CFS) =  135.77
 EFFECTIVE AREA(ACRES) =     72.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     72.00       PEAK FLOW RATE(CFS) =     232.75

****************************************************************************
 FLOW PROCESS FROM NODE   1203.00 TO NODE   1204.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3620.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   884.00   CHANNEL SLOPE =  0.0452
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0452 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    232.75
 FLOW VELOCITY(FEET/SEC) =   7.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =  13.81
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1204.00 =  2870.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1204.00 TO NODE   1204.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  13.81
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.412
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       65.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   65.50      SUBAREA RUNOFF(CFS) =  188.27
 EFFECTIVE AREA(ACRES) =    137.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    137.50       PEAK FLOW RATE(CFS) =     395.22

****************************************************************************
 FLOW PROCESS FROM NODE   1204.00 TO NODE   1205.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3620.00  DOWNSTREAM(FEET) =   3390.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2304.00   CHANNEL SLOPE =  0.0998
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0998 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    395.22
 FLOW VELOCITY(FEET/SEC) =  12.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.96   Tc(MIN.) =  16.77
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1205.00 =  5174.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.978
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       80.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   80.70      SUBAREA RUNOFF(CFS) =  200.43
 EFFECTIVE AREA(ACRES) =    218.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    218.20       PEAK FLOW RATE(CFS) =     541.94

****************************************************************************
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.77
 RAINFALL INTENSITY(INCH/HR) =   2.98
```

```
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   218.20
 TOTAL STREAM AREA(ACRES) =   218.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    541.94

****************************************************************************
 FLOW PROCESS FROM NODE   1220.00 TO NODE   1221.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   750.00
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3760.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.101
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.246
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        7.50      0.22      1.000    89   10.10
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     27.19
 TOTAL AREA(ACRES) =      7.50   PEAK FLOW RATE(CFS) =     27.19

****************************************************************************
 FLOW PROCESS FROM NODE   1221.00 TO NODE   1222.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   407.00   CHANNEL SLOPE =  0.4914
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2241 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     27.19
 FLOW VELOCITY(FEET/SEC) =   7.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.85   Tc(MIN.) =  10.95
 LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1222.00 =  1157.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1222.00 TO NODE   1222.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.012
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   68.30
 EFFECTIVE AREA(ACRES) =     27.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.50       PEAK FLOW RATE(CFS) =      93.91

****************************************************************************
 FLOW PROCESS FROM NODE   1222.00 TO NODE   1223.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   837.00   CHANNEL SLOPE =  0.0956
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0956 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.91
 FLOW VELOCITY(FEET/SEC) =   7.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.78   Tc(MIN.) =  12.73
 LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1223.00 =  1994.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1223.00 TO NODE   1223.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.73
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       40.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  122.18
 EFFECTIVE AREA(ACRES) =     67.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.50       PEAK FLOW RATE(CFS) =     206.17

****************************************************************************
 FLOW PROCESS FROM NODE   1223.00 TO NODE   1205.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3390.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1515.00   CHANNEL SLOPE =  0.0594
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0594 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    206.17
 FLOW VELOCITY(FEET/SEC) =   8.05 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.14   Tc(MIN.) =  15.87
 LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1205.00 =  3509.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =  81
```

```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.096
  SUBAREA LOSS RATE DATA(AMC - II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D       52.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   52.00      SUBAREA RUNOFF(CFS) =  134.67
  EFFECTIVE AREA(ACRES) =    119.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    119.50       PEAK FLOW RATE(CFS) =     309.49

****************************************************************************
  FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.87
  RAINFALL INTENSITY(INCH/HR) =   3.10
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   119.50
  TOTAL STREAM AREA(ACRES) =   119.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    309.49

  ** CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    541.94  16.77    2.978  0.22( 0.22) 1.00   218.2    1200.00
      2    309.49  15.87    3.096  0.22( 0.22) 1.00   119.5    1220.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    844.08  15.87    3.096  0.22( 0.22) 1.00   325.9    1220.00
      2    838.73  16.77    2.978  0.22( 0.22) 1.00   337.7    1200.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    844.08    Tc(MIN.) =    15.87
  EFFECTIVE AREA(ACRES) =   325.91   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    337.70
  LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1205.00 =  5174.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1206.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3390.00  DOWNSTREAM(FEET) =   3325.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1327.00   CHANNEL SLOPE =  0.0490
 CHANNEL FLOW THRU SUBAREA(CFS) =    844.08
 FLOW VELOCITY(FEET/SEC) =  20.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.08   Tc(MIN.) =  16.94
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1206.00 =  6501.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1206.00 TO NODE   1206.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.94
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.956
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    D       20.00      0.22      1.000    89
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       21.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   41.20      SUBAREA RUNOFF(CFS) =   98.45
 EFFECTIVE AREA(ACRES) =    367.11   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    378.90       PEAK FLOW RATE(CFS) =     901.71

****************************************************************************
 FLOW PROCESS FROM NODE   1206.00 TO NODE   1207.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3325.00  DOWNSTREAM(FEET) =   3183.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2615.00   CHANNEL SLOPE =  0.0543
 CHANNEL FLOW THRU SUBAREA(CFS) =    901.71
 FLOW VELOCITY(FEET/SEC) =  22.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.97   Tc(MIN.) =  18.92
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1207.00 =  9116.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1207.00 TO NODE   1207.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.737
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
  "DESERT BRUSH"    (50.0%)    D        40.00       0.22      1.000     89
  NATURAL DESERT COVER
  "DESERT BRUSH"    (50.0%)    B        82.80       0.38      1.000     80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =  122.80      SUBAREA RUNOFF(CFS) =  266.33
  EFFECTIVE AREA(ACRES) =    489.91   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    501.70       PEAK FLOW RATE(CFS) =    1095.52

****************************************************************************
  FLOW PROCESS FROM NODE   1207.00 TO NODE   1208.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3183.00  DOWNSTREAM(FEET) =   3130.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1897.00   CHANNEL SLOPE =  0.0279
  CHANNEL FLOW THRU SUBAREA(CFS) =   1095.52
  FLOW VELOCITY(FEET/SEC) =  16.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.87   Tc(MIN.) =  20.79
  LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1208.00 = 11013.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1208.00 TO NODE   1208.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  20.79
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.562
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"    (50.0%)    B        45.20       0.38      1.000     80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   45.20      SUBAREA RUNOFF(CFS) =   88.76
  EFFECTIVE AREA(ACRES) =    535.11   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    546.90       PEAK FLOW RATE(CFS) =    1107.10

****************************************************************************
  FLOW PROCESS FROM NODE   1208.00 TO NODE     36.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3130.00  DOWNSTREAM(FEET) =   3070.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2788.00   CHANNEL SLOPE =  0.0215
  CHANNEL FLOW THRU SUBAREA(CFS) =   1107.10
  FLOW VELOCITY(FEET/SEC) =  14.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.13   Tc(MIN.) =  23.92
  LONGEST FLOWPATH FROM NODE   1200.00 TO NODE     36.00 = 13801.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     36.00 TO NODE     36.00 IS CODE =  81
```

```
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  23.92
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.323
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       92.40      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   92.40      SUBAREA RUNOFF(CFS) =  161.55
  EFFECTIVE AREA(ACRES) =    627.51   AREA-AVERAGED Fm(INCH/HR) =  0.28
  AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    639.30       PEAK FLOW RATE(CFS) =    1153.41

+----------------------------------------------------------------------------+
|                                                                            |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

******************************************************************************
  FLOW PROCESS FROM NODE     36.00 TO NODE     36.00 IS CODE =  11
------------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
      1    1153.41  23.92     2.323  0.28( 0.28) 1.00    627.5     1220.00
      2    1140.42  24.85     2.261  0.28( 0.28) 1.00    639.3     1200.00
  LONGEST FLOWPATH FROM NODE   1200.00 TO NODE      36.00 = 13801.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
      1   12868.12  20.10     2.624  0.31( 0.31) 1.00   5034.4     730.00
      2   13074.99  21.51     2.502  0.31( 0.31) 1.00   5432.3    1130.00
      3   13380.06  24.05     2.313  0.31( 0.31) 1.00   6151.2     730.00
      4   13404.78  24.31     2.296  0.31( 0.31) 1.00   6222.4     790.00
      5   13501.33  25.59     2.215  0.31( 0.31) 1.00   6561.6     770.00
      6   13543.97  26.20     2.179  0.31( 0.31) 1.00   6720.8     710.00
      7   13704.81  29.53     2.004  0.31( 0.31) 1.00   7564.1     395.00
      8   13716.74  30.61     1.954  0.31( 0.31) 1.00   7829.9     395.00
      9   13664.98  31.26     1.926  0.31( 0.31) 1.00   7951.5      30.00
     10   12739.42  34.93     1.782  0.31( 0.31) 1.00   8263.4     395.00
     11   12710.32  35.04     1.778  0.31( 0.31) 1.00   8270.0     350.00
     12   12645.56  35.32     1.768  0.31( 0.31) 1.00   8285.2      34.00
     13   11162.33  40.85     1.597  0.31( 0.31) 1.00   8404.7     330.00
     14    9822.56  47.46     1.438  0.32( 0.32) 1.00   8476.3     690.00
     15    9027.16  51.39     1.360  0.32( 0.32) 1.00   8482.4    1050.00
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE      36.00 = 27968.00 FEET.

  ** PEAK FLOW RATE TABLE **
```

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13980.10	20.10	2.624	0.31(0.31)	1.00	5561.7	730.00
2	14203.27	21.51	2.502	0.31(0.31)	1.00	5996.7	1130.00
3	14516.84	23.92	2.323	0.31(0.31)	1.00	6739.5	1220.00
4	14531.54	24.05	2.313	0.31(0.31)	1.00	6780.4	730.00
5	14552.67	24.31	2.296	0.31(0.31)	1.00	6855.0	790.00
6	14585.74	24.85	2.261	0.31(0.31)	1.00	7004.2	1200.00
7	14615.26	25.59	2.215	0.31(0.31)	1.00	7200.9	770.00
8	14637.04	26.20	2.179	0.31(0.31)	1.00	7360.1	710.00
9	14697.24	29.53	2.004	0.31(0.31)	1.00	8203.4	395.00
10	14680.40	30.61	1.954	0.31(0.31)	1.00	8469.2	395.00
11	14612.38	31.26	1.926	0.31(0.31)	1.00	8590.8	30.00
12	13603.81	34.93	1.782	0.31(0.31)	1.00	8902.7	395.00
13	13572.45	35.04	1.778	0.31(0.31)	1.00	8909.3	350.00
14	13502.04	35.32	1.768	0.31(0.31)	1.00	8924.5	34.00
15	11920.42	40.85	1.597	0.31(0.31)	1.00	9044.0	330.00
16	10489.08	47.46	1.438	0.31(0.31)	1.00	9115.6	690.00
17	9648.85	51.39	1.360	0.31(0.31)	1.00	9121.7	1050.00

TOTAL AREA(ACRES) = 9725.10

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 14697.24 Tc(MIN.) = 29.527
EFFECTIVE AREA(ACRES) = 8203.41 AREA-AVERAGED Fm(INCH/HR) = 0.31
AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9725.10
LONGEST FLOWPATH FROM NODE 330.00 TO NODE 36.00 = 27968.00 FEET.

==========

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9725.10 TC(MIN.) = 29.53
EFFECTIVE AREA(ACRES) = 8203.41 AREA-AVERAGED Fm(INCH/HR)= 0.31
AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 14697.24

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13980.10	20.10	2.624	0.31(0.31)	1.00	5561.7	730.00
2	14203.27	21.51	2.502	0.31(0.31)	1.00	5996.7	1130.00
3	14516.84	23.92	2.323	0.31(0.31)	1.00	6739.5	1220.00
4	14531.54	24.05	2.313	0.31(0.31)	1.00	6780.4	730.00
5	14552.67	24.31	2.296	0.31(0.31)	1.00	6855.0	790.00
6	14585.74	24.85	2.261	0.31(0.31)	1.00	7004.2	1200.00
7	14615.26	25.59	2.215	0.31(0.31)	1.00	7200.9	770.00
8	14637.04	26.20	2.179	0.31(0.31)	1.00	7360.1	710.00
9	14697.24	29.53	2.004	0.31(0.31)	1.00	8203.4	395.00
10	14680.40	30.61	1.954	0.31(0.31)	1.00	8469.2	395.00
11	14612.38	31.26	1.926	0.31(0.31)	1.00	8590.8	30.00
12	13603.81	34.93	1.782	0.31(0.31)	1.00	8902.7	395.00
13	13572.45	35.04	1.778	0.31(0.31)	1.00	8909.3	350.00
14	13502.04	35.32	1.768	0.31(0.31)	1.00	8924.5	34.00
15	11920.42	40.85	1.597	0.31(0.31)	1.00	9044.0	330.00
16	10489.08	47.46	1.438	0.31(0.31)	1.00	9115.6	690.00
17	9648.85	51.39	1.360	0.31(0.31)	1.00	9121.7	1050.00

==========

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END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED #7                                                          *
* EXISTING CONDITION                                                    *
* 100-YEAR EVENT                                                        *
 ************************************************************************

  FILE NAME: HAC-7.DAT
  TIME/DATE OF STUDY: 14:38 05/11/2009
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-   CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:   MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     330.00 TO NODE      11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.869
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.584
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.30      0.22      1.000    89   12.87
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     28.17
 TOTAL AREA(ACRES) =      9.30   PEAK FLOW RATE(CFS) =     28.17

**************************************************************************
 FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4700.00  DOWNSTREAM(FEET) =   4120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2357.00   CHANNEL SLOPE =  0.2461
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1787 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.17
 FLOW VELOCITY(FEET/SEC) =   7.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.46   Tc(MIN.) =  18.33
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  18.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.798
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       19.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.50      SUBAREA RUNOFF(CFS) =   45.28
 EFFECTIVE AREA(ACRES) =     28.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.80       PEAK FLOW RATE(CFS) =      66.88

**************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  2
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.33
 RAINFALL INTENSITY(INCH/HR) =   2.80
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    28.80
 TOTAL STREAM AREA(ACRES) =    28.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     66.88

****************************************************************************
 FLOW PROCESS FROM NODE    980.00 TO NODE    981.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4760.00  DOWNSTREAM(FEET) =   4600.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.004
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.763
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        7.70      0.22      1.000    89   12.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.57
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.57

****************************************************************************
 FLOW PROCESS FROM NODE    981.00 TO NODE    982.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   831.00   CHANNEL SLOPE =  0.2407
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1769 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.57
 FLOW VELOCITY(FEET/SEC) =   6.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.02   Tc(MIN.) =  14.03
 LONGEST FLOWPATH FROM NODE    980.00 TO NODE    982.00 =  1831.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    982.00 TO NODE    982.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.374
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "GRASS"                    D       13.30      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   13.30      SUBAREA RUNOFF(CFS) =   37.78
 EFFECTIVE AREA(ACRES) =     21.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.00       PEAK FLOW RATE(CFS) =      59.65

****************************************************************************
 FLOW PROCESS FROM NODE    982.00 TO NODE     12.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1175.00   CHANNEL SLOPE =  0.2383
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1761 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     59.65
 FLOW VELOCITY(FEET/SEC) =   9.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =  16.16
 LONGEST FLOWPATH FROM NODE    980.00 TO NODE     12.00 =  3006.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.055
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       18.10      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.10      SUBAREA RUNOFF(CFS) =   46.22
 EFFECTIVE AREA(ACRES) =     39.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     39.10       PEAK FLOW RATE(CFS) =      99.85

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.16
 RAINFALL INTENSITY(INCH/HR) =   3.06
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    39.10
```

```
 TOTAL STREAM AREA(ACRES) =    39.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     99.85

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1      66.88  18.33    2.798  0.22( 0.22) 1.00    28.8      330.00
     2      99.85  16.16    3.055  0.22( 0.22) 1.00    39.1      980.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1     164.71  16.16    3.055  0.22( 0.22) 1.00    64.5      980.00
     2     157.67  18.33    2.798  0.22( 0.22) 1.00    67.9      330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    164.71    Tc(MIN.) =    16.16
 EFFECTIVE AREA(ACRES) =    64.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.90
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4120.00  DOWNSTREAM(FEET) =   3860.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   994.00   CHANNEL SLOPE =  0.2616
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1839 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    164.71
 FLOW VELOCITY(FEET/SEC) =  13.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  17.43
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     13.00 =  4351.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.899
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =   92.41
 EFFECTIVE AREA(ACRES) =    102.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =    106.20       PEAK FLOW RATE(CFS) =     248.04

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3860.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1295.00   CHANNEL SLOPE =  0.0463
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0463 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    248.04
 FLOW VELOCITY(FEET/SEC) =   7.56 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.86   Tc(MIN.) =  20.28
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     14.00 =  5646.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.607
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       77.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   77.30      SUBAREA RUNOFF(CFS) =  166.19
 EFFECTIVE AREA(ACRES) =    180.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    183.50       PEAK FLOW RATE(CFS) =     387.20

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1140.00   CHANNEL SLOPE =  0.0351
 CHANNEL FLOW THRU SUBAREA(CFS) =    387.20
 FLOW VELOCITY(FEET/SEC) =  13.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  21.69
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     15.00 =  6786.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.487
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       85.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   85.60      SUBAREA RUNOFF(CFS) =  162.35
 EFFECTIVE AREA(ACRES) =    265.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    269.10       PEAK FLOW RATE(CFS) =     530.19

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3720.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1402.00   CHANNEL SLOPE =  0.0285
 CHANNEL FLOW THRU SUBAREA(CFS) =    530.19
 FLOW VELOCITY(FEET/SEC) =  13.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.73   Tc(MIN.) =  23.42
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     16.00 =  8188.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     16.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.357
 SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       80.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   80.10      SUBAREA RUNOFF(CFS) =  142.52
 EFFECTIVE AREA(ACRES) =    345.80   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    349.20       PEAK FLOW RATE(CFS) =     641.53

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3720.00  DOWNSTREAM(FEET) =   3528.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3510.00   CHANNEL SLOPE =  0.0547
 CHANNEL FLOW THRU SUBAREA(CFS) =    641.53
 FLOW VELOCITY(FEET/SEC) =  19.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.95   Tc(MIN.) =  26.37
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.169
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       70.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   70.90      SUBAREA RUNOFF(CFS) =  114.17
 EFFECTIVE AREA(ACRES) =    416.70   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    420.10       PEAK FLOW RATE(CFS) =     697.28

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     70.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   851.00
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4000.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.643
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.094
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.40      0.22      1.000    89   10.64
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.79
 TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     32.79

****************************************************************************
 FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4000.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   687.00   CHANNEL SLOPE =  0.3493
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2051 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.79
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 FLOW VELOCITY(FEET/SEC) =   8.11 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  12.06
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     72.00 =  1538.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.752
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.60      SUBAREA RUNOFF(CFS) =   59.16
 EFFECTIVE AREA(ACRES) =     28.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.00       PEAK FLOW RATE(CFS) =      89.05

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     73.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   727.00   CHANNEL SLOPE =  0.1651
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1425 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     89.05
 FLOW VELOCITY(FEET/SEC) =   9.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  13.34
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     73.00 =  2265.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     73.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.495
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       36.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.20      SUBAREA RUNOFF(CFS) =  106.77
 EFFECTIVE AREA(ACRES) =     64.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.20       PEAK FLOW RATE(CFS) =      189.35
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1254.00   CHANNEL SLOPE =  0.0797
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0797 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    189.35
 FLOW VELOCITY(FEET/SEC) =   9.06 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.31   Tc(MIN.) =  15.65
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.126
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       42.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.10      SUBAREA RUNOFF(CFS) =  110.18
 EFFECTIVE AREA(ACRES) =    106.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    106.30       PEAK FLOW RATE(CFS) =     278.21

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.65
 RAINFALL INTENSITY(INCH/HR) =   3.13
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   106.30
 TOTAL STREAM AREA(ACRES) =   106.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    278.21

****************************************************************************
 FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   600.00
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```
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3880.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.692
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.139
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     44.29
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     44.29

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     52.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   420.00   CHANNEL SLOPE =  0.2857
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1914 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     44.29
 FLOW VELOCITY(FEET/SEC) =   8.66 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.81   Tc(MIN.) =   8.50
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     52.00 =  1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     51.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.791
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   82.32
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     123.48

****************************************************************************
 FLOW PROCESS FROM NODE     52.00 TO NODE     53.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.1508
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 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1354 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     123.48
 FLOW VELOCITY(FEET/SEC) =  10.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.83   Tc(MIN.) =  10.33
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     53.00 =  2147.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     53.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.179
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  142.96
 EFFECTIVE AREA(ACRES) =     70.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.10       PEAK FLOW RATE(CFS) =     249.91

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.0444
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0444 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    249.91
 FLOW VELOCITY(FEET/SEC) =   7.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.53   Tc(MIN.) =  12.87
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     54.00 =  3274.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  121.50
 EFFECTIVE AREA(ACRES) =    110.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
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 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    110.20       PEAK FLOW RATE(CFS) =     333.91

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.87
 RAINFALL INTENSITY(INCH/HR) =   3.58
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   110.20
 TOTAL STREAM AREA(ACRES) =   110.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    333.91

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    278.21  15.65    3.126  0.22( 0.22) 1.00   106.3       70.00
     2    333.91  12.87    3.585  0.22( 0.22) 1.00   110.2       50.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    598.77  12.87    3.585  0.22( 0.22) 1.00   197.6       50.00
     2    566.62  15.65    3.126  0.22( 0.22) 1.00   216.5       70.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    598.77    Tc(MIN.) =    12.87
 EFFECTIVE AREA(ACRES) =   197.61   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    216.50
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     34.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3550.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   410.00   CHANNEL SLOPE =  0.0244
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0244 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    598.77
 FLOW VELOCITY(FEET/SEC) =   7.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =  13.80
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.414
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B        9.60      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     9.60      SUBAREA RUNOFF(CFS) =    25.90
 EFFECTIVE AREA(ACRES) =   207.21    AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    226.10       PEAK FLOW RATE(CFS) =     598.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.80
 RAINFALL INTENSITY(INCH/HR) =   3.41
 AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   207.21
 TOTAL STREAM AREA(ACRES) =   226.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    598.77

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   689.00
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3620.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.376
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.473
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    9.38
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.30
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     38.30
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3620.00  DOWNSTREAM(FEET) =   3570.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   622.00   CHANNEL SLOPE =  0.0804
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.30
 FLOW VELOCITY(FEET/SEC) =  10.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  10.40
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =  1311.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.162
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       20.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   68.07
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     103.56

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     33.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3570.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.0115
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.56
 FLOW VELOCITY(FEET/SEC) =   5.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.82   Tc(MIN.) =  13.22
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =  2181.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.518
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
"DESERT BRUSH"   (50.0%)    B        32.10      0.38      1.000     80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   32.10      SUBAREA RUNOFF(CFS) =   90.66
EFFECTIVE AREA(ACRES) =     62.10   AREA-AVERAGED Fm(INCH/HR) =  0.35
AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     62.10       PEAK FLOW RATE(CFS) =     176.85

****************************************************************************
FLOW PROCESS FROM NODE     33.00 TO NODE     34.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3540.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1253.00   CHANNEL SLOPE =  0.0160
CHANNEL FLOW THRU SUBAREA(CFS) =    176.85
FLOW VELOCITY(FEET/SEC) =   7.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.93   Tc(MIN.) =  16.14
LONGEST FLOWPATH FROM NODE     30.00 TO NODE     34.00 =  3434.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  16.14
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.058
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)    B        31.40      0.38      1.000     80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   31.40      SUBAREA RUNOFF(CFS) =   75.69
EFFECTIVE AREA(ACRES) =     93.50   AREA-AVERAGED Fm(INCH/HR) =  0.36
AREA-AVERAGED Fp(INCH/HR) =  0.36  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     93.50       PEAK FLOW RATE(CFS) =     226.83

****************************************************************************
FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  16.14
RAINFALL INTENSITY(INCH/HR) =   3.06
AREA-AVERAGED Fm(INCH/HR) =  0.36
AREA-AVERAGED Fp(INCH/HR) =  0.36
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    93.50
TOTAL STREAM AREA(ACRES) =    93.50
PEAK FLOW RATE(CFS) AT CONFLUENCE =    226.83
```

```
** CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
    1     598.77  13.80     3.414   0.23( 0.23) 1.00    207.2      50.00
    1     566.62  16.59     3.000   0.23( 0.23) 1.00    226.1      70.00
    2     226.83  16.14     3.058   0.36( 0.36) 1.00     93.5      30.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
    1     818.19  13.80     3.414   0.26( 0.26) 1.00    287.1      50.00
    2     798.61  16.14     3.058   0.27( 0.27) 1.00    316.6      30.00
    3     788.56  16.59     3.000   0.27( 0.27) 1.00    319.6      70.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    818.19    Tc(MIN.) =    13.80
 EFFECTIVE AREA(ACRES) =   287.12   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    319.60
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3528.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   571.00   CHANNEL SLOPE =  0.0210
 CHANNEL FLOW THRU SUBAREA(CFS) =    818.19
 FLOW VELOCITY(FEET/SEC) =  13.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.72   Tc(MIN.) =  14.51
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     17.00 =  4500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.295
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       44.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.20      SUBAREA RUNOFF(CFS) =  115.97
 EFFECTIVE AREA(ACRES) =    331.32   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    363.80       PEAK FLOW RATE(CFS) =     899.04

****************************************************************************
```

```
 FLOW PROCESS FROM NODE      17.00 TO NODE      17.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     899.04  14.51     3.295  0.28( 0.28) 1.00   331.3       50.00
     2     871.98  16.86     2.966  0.28( 0.28) 1.00   360.8       30.00
     3     861.66  17.32     2.912  0.28( 0.28) 1.00   363.8       70.00
 LONGEST FLOWPATH FROM NODE      70.00 TO NODE      17.00 =  4500.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     697.28  26.37     2.169  0.31( 0.31) 1.00   416.7       980.00
     2     655.41  28.73     2.043  0.31( 0.31) 1.00   420.1       330.00
 LONGEST FLOWPATH FROM NODE     330.00 TO NODE      17.00 = 11698.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    1515.14  14.51     3.295  0.29( 0.29) 1.00   560.6       50.00
     2    1509.07  16.86     2.966  0.29( 0.29) 1.00   627.3       30.00
     3    1502.43  17.32     2.912  0.29( 0.29) 1.00   637.4       70.00
     4    1315.84  26.37     2.169  0.30( 0.30) 1.00   780.5       980.00
     5    1232.53  28.73     2.043  0.30( 0.30) 1.00   783.9       330.00
   TOTAL AREA(ACRES) =     783.90

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     1515.14  Tc(MIN.) =   14.510
 EFFECTIVE AREA(ACRES) =    560.63  AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    783.90
 LONGEST FLOWPATH FROM NODE     330.00 TO NODE      17.00 = 11698.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      17.00 TO NODE      18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3528.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1001.00   CHANNEL SLOPE =  0.0230
 CHANNEL FLOW THRU SUBAREA(CFS) =   1515.14
 FLOW VELOCITY(FEET/SEC) =  17.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.98   Tc(MIN.) =  15.49
 LONGEST FLOWPATH FROM NODE     330.00 TO NODE      18.00 = 12699.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      18.00 TO NODE      18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.148
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       59.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   59.20      SUBAREA RUNOFF(CFS) =  147.48
 EFFECTIVE AREA(ACRES) =    619.83   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    843.10       PEAK FLOW RATE(CFS) =    1588.29

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.49
 RAINFALL INTENSITY(INCH/HR) =   3.15
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   619.83
 TOTAL STREAM AREA(ACRES) =   843.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1588.29

****************************************************************************
 FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   996.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3800.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.561
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.116
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.08
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.08

****************************************************************************
 FLOW PROCESS FROM NODE     91.00 TO NODE     92.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3560.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =   658.00   CHANNEL SLOPE =  0.3647
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2078 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.08
 FLOW VELOCITY(FEET/SEC) =   8.35 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.31   Tc(MIN.) =  11.87
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     92.00 =  1654.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     92.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.792
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   64.33
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      96.49

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     93.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3515.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   535.00   CHANNEL SLOPE =  0.0841
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0841 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     96.49
 FLOW VELOCITY(FEET/SEC) =   7.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.20   Tc(MIN.) =  13.07
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     93.00 =  2189.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.545
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       30.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   30.50      SUBAREA RUNOFF(CFS) =   91.32
```

```
 EFFECTIVE AREA(ACRES) =     60.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     60.50       PEAK FLOW RATE(CFS) =     181.15

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3515.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   875.00   CHANNEL SLOPE =  0.0114
 CHANNEL FLOW THRU SUBAREA(CFS) =    181.15
 FLOW VELOCITY(FEET/SEC) =   6.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.40   Tc(MIN.) =  15.47
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     18.00 =  3064.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.151
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       38.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.10      SUBAREA RUNOFF(CFS) =   95.00
 EFFECTIVE AREA(ACRES) =     98.60   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     98.60       PEAK FLOW RATE(CFS) =     254.68

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.47
 RAINFALL INTENSITY(INCH/HR) =   3.15
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    98.60
 TOTAL STREAM AREA(ACRES) =    98.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    254.68

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)         (ACRES)     NODE
     1    1588.29  15.49     3.148  0.30( 0.30) 1.00    619.8       50.00
```

```
    1   1575.75  17.84    2.851  0.30( 0.30) 1.00   686.5      30.00
    1   1568.15  18.30    2.801  0.30( 0.30) 1.00   696.6      70.00
    1   1367.93  27.39    2.112  0.30( 0.30) 1.00   839.7     980.00
    1   1282.72  29.78    1.992  0.30( 0.30) 1.00   843.1     330.00
    2    254.68  15.47    3.151  0.28( 0.28) 1.00    98.6      90.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
      1   1842.54  15.47    3.151  0.30( 0.30) 1.00   717.7      90.00
      2   1842.74  15.49    3.148  0.30( 0.30) 1.00   718.4      50.00
      3   1803.85  17.84    2.851  0.30( 0.30) 1.00   785.1      30.00
      4   1791.84  18.30    2.801  0.30( 0.30) 1.00   795.2      70.00
      5   1530.45  27.39    2.112  0.30( 0.30) 1.00   938.3     980.00
      6   1434.60  29.78    1.992  0.30( 0.30) 1.00   941.7     330.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   1842.74    Tc(MIN.) =    15.49
  EFFECTIVE AREA(ACRES) =   718.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    941.70
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     18.00 = 12699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3505.00  DOWNSTREAM(FEET) =   3480.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   935.00   CHANNEL SLOPE =  0.0267
  CHANNEL FLOW THRU SUBAREA(CFS) =   1842.74
  FLOW VELOCITY(FEET/SEC) =  19.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.80   Tc(MIN.) =  16.29
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     19.00 = 13634.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.29
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.040
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       34.00      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   34.00     SUBAREA RUNOFF(CFS) =   81.38
  EFFECTIVE AREA(ACRES) =    752.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    975.70      PEAK FLOW RATE(CFS) =    1854.03
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   834.00   CHANNEL SLOPE =  0.0240
 CHANNEL FLOW THRU SUBAREA(CFS) =   1854.03
 FLOW VELOCITY(FEET/SEC) =  18.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.75   Tc(MIN.) =  17.03
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     20.00 = 14468.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.946
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       23.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   23.00      SUBAREA RUNOFF(CFS) =   53.11
 EFFECTIVE AREA(ACRES) =    775.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    998.70       PEAK FLOW RATE(CFS) =    1854.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.03
 RAINFALL INTENSITY(INCH/HR) =   2.95
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   775.43
 TOTAL STREAM AREA(ACRES) =   998.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1854.03

****************************************************************************
 FLOW PROCESS FROM NODE     70.00 TO NODE    130.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   990.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4010.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =  11.788
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.811
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.34
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     32.34

****************************************************************************
 FLOW PROCESS FROM NODE    130.00 TO NODE    131.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4010.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   553.00   CHANNEL SLOPE =  0.0904
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0904 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.34
 FLOW VELOCITY(FEET/SEC) =   5.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =  13.51
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    131.00 =  1543.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    131.00 TO NODE    131.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.465
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00     SUBAREA RUNOFF(CFS) =   58.44
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00      PEAK FLOW RATE(CFS) =      87.66

****************************************************************************
 FLOW PROCESS FROM NODE    131.00 TO NODE    132.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   548.00   CHANNEL SLOPE =  0.1460
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1323 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      87.66
 FLOW VELOCITY(FEET/SEC) =   9.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  14.52
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    132.00 =  2091.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.294
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =  106.03
 EFFECTIVE AREA(ACRES) =     68.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     68.30       PEAK FLOW RATE(CFS) =     189.07

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    133.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1920.00   CHANNEL SLOPE =  0.1667
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1433 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    189.07
 FLOW VELOCITY(FEET/SEC) =  12.15 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.63   Tc(MIN.) =  17.15
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    133.00 =  4011.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    133.00 TO NODE    133.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.931
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       32.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   32.20      SUBAREA RUNOFF(CFS) =   78.62
 EFFECTIVE AREA(ACRES) =    100.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    100.50       PEAK FLOW RATE(CFS) =     245.39

****************************************************************************
 FLOW PROCESS FROM NODE    133.00 TO NODE     20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1835.00   CHANNEL SLOPE =  0.0545
 CHANNEL FLOW THRU SUBAREA(CFS) =    245.39
 FLOW VELOCITY(FEET/SEC) =  14.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.10   Tc(MIN.) =  19.25
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     20.00 =  5846.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.704
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       31.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.50      SUBAREA RUNOFF(CFS) =   65.88
 EFFECTIVE AREA(ACRES) =    132.00   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    132.00       PEAK FLOW RATE(CFS) =     290.72

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.25
 RAINFALL INTENSITY(INCH/HR) =   2.70
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   132.00
 TOTAL STREAM AREA(ACRES) =   132.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    290.72

****************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   897.00
 ELEVATION DATA: UPSTREAM(FEET) =   3840.00  DOWNSTREAM(FEET) =   3760.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.372
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.905
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       10.00      0.38      1.000    80   17.37
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.73
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     22.73

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1006.00   CHANNEL SLOPE =  0.0994
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.73
 FLOW VELOCITY(FEET/SEC) =   9.78 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.71   Tc(MIN.) =  19.09
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =  1903.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.720
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       20.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   42.12
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      63.18

****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   988.00   CHANNEL SLOPE =  0.1012
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =      63.18
 FLOW VELOCITY(FEET/SEC) =  13.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  20.34
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    113.00 =  2891.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.601
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       34.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   34.10      SUBAREA RUNOFF(CFS) =   68.17
 EFFECTIVE AREA(ACRES) =     64.10   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.10       PEAK FLOW RATE(CFS) =     128.14

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    114.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1217.00   CHANNEL SLOPE =  0.0657
 CHANNEL FLOW THRU SUBAREA(CFS) =    128.14
 FLOW VELOCITY(FEET/SEC) =  13.12 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.55   Tc(MIN.) =  21.89
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    114.00 =  4108.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.471
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       19.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.80      SUBAREA RUNOFF(CFS) =   37.26
 EFFECTIVE AREA(ACRES) =     83.90   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     83.90       PEAK FLOW RATE(CFS) =     157.90

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     114.00 TO NODE      20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   469.00   CHANNEL SLOPE =  0.0426
 CHANNEL FLOW THRU SUBAREA(CFS) =    157.90
 FLOW VELOCITY(FEET/SEC) =  11.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  22.58
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE      20.00 =  4577.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      20.00 TO NODE      20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.58
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.418
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        3.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     3.80      SUBAREA RUNOFF(CFS) =     6.97
 EFFECTIVE AREA(ACRES) =     87.70   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     87.70       PEAK FLOW RATE(CFS) =     160.83

****************************************************************************
 FLOW PROCESS FROM NODE      20.00 TO NODE      20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  22.58
 RAINFALL INTENSITY(INCH/HR) =   2.42
 AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    87.70
 TOTAL STREAM AREA(ACRES) =    87.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    160.83

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    1853.84  17.01     2.948   0.30( 0.30) 1.00    774.7      90.00
     1    1854.03  17.03     2.946   0.30( 0.30) 1.00    775.4      50.00
     1    1815.87  19.40     2.689   0.30( 0.30) 1.00    842.1      30.00
     1    1804.05  19.85     2.646   0.30( 0.30) 1.00    852.2      70.00
     1    1544.54  29.03     2.028   0.30( 0.30) 1.00    995.3     980.00
     1    1450.03  31.46     1.917   0.30( 0.30) 1.00    998.7     330.00
```

```
    2    290.72  19.25    2.704  0.26( 0.26) 1.00   132.0      70.00
    3    160.83  22.58    2.418  0.38( 0.38) 1.00    87.7     110.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
      1   2289.11  17.01    2.948  0.30( 0.30) 1.00   957.4      90.00
      2   2289.41  17.03    2.946  0.30( 0.30) 1.00   958.4      50.00
      3   2265.32  19.25    2.704  0.30( 0.30) 1.00  1044.6      70.00
      4   2261.41  19.40    2.689  0.30( 0.30) 1.00  1049.4      30.00
      5   2245.11  19.85    2.646  0.30( 0.30) 1.00  1061.3      70.00
      6   2149.71  22.58    2.418  0.30( 0.30) 1.00  1114.5     110.00
      7   1885.02  29.03    2.028  0.30( 0.30) 1.00  1215.0     980.00
      8   1768.64  31.46    1.917  0.30( 0.30) 1.00  1218.4     330.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   2289.41    Tc(MIN.) =    17.03
  EFFECTIVE AREA(ACRES) =   958.36   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   1218.40
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     20.00 = 14468.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3460.00  DOWNSTREAM(FEET) =   3435.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1549.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =   2289.41
  FLOW VELOCITY(FEET/SEC) =  16.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.58   Tc(MIN.) =  18.61
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     21.00 = 16017.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.61
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.768
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       69.10      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   69.10      SUBAREA RUNOFF(CFS) =  148.54
  EFFECTIVE AREA(ACRES) =   1027.46   AREA-AVERAGED Fm(INCH/HR) =  0.31
  AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   1287.50       PEAK FLOW RATE(CFS) =    2289.41
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
```

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1287.50 TC(MIN.) = 18.61
EFFECTIVE AREA(ACRES) = 1027.46 AREA-AVERAGED Fm(INCH/HR)= 0.31
AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 2289.41

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2289.11	18.59	2.770	0.31(0.31)	1.00	1026.5	90.00
2	2289.41	18.61	2.768	0.31(0.31)	1.00	1027.5	50.00
3	2265.32	20.83	2.558	0.31(0.31)	1.00	1113.7	70.00
4	2261.41	20.98	2.545	0.31(0.31)	1.00	1118.5	30.00
5	2245.11	21.44	2.507	0.31(0.31)	1.00	1130.4	70.00
6	2149.71	24.20	2.304	0.31(0.31)	1.00	1183.6	110.00
7	1896.21	30.72	1.949	0.31(0.31)	1.00	1284.1	980.00
8	1783.04	33.17	1.847	0.31(0.31)	1.00	1287.5	330.00

END OF RATIONAL METHOD ANALYSIS

Rat. Method
WS 7

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

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                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED #7                                                            *
* EXISTING CONDITION                                                      *
* 100-YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-7.DAT
  TIME/DATE OF STUDY: 14:45 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     330.00 TO NODE      11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.869
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.584
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.30      0.22      1.000    89   12.87
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     28.17
 TOTAL AREA(ACRES) =      9.30   PEAK FLOW RATE(CFS) =     28.17

****************************************************************************
 FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4700.00  DOWNSTREAM(FEET) =   4120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2357.00   CHANNEL SLOPE =  0.2461
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1787 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.17
 FLOW VELOCITY(FEET/SEC) =   7.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.46   Tc(MIN.) =  18.33
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.798
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       19.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.50      SUBAREA RUNOFF(CFS) =   45.28
 EFFECTIVE AREA(ACRES) =     28.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.80       PEAK FLOW RATE(CFS) =      66.88

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.33
 RAINFALL INTENSITY(INCH/HR) =   2.80
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    28.80
 TOTAL STREAM AREA(ACRES) =    28.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     66.88

****************************************************************************
 FLOW PROCESS FROM NODE    980.00 TO NODE    981.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4760.00  DOWNSTREAM(FEET) =   4600.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.004
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.763
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        7.70      0.22      1.000    89   12.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.57
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.57

****************************************************************************
 FLOW PROCESS FROM NODE    981.00 TO NODE    982.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   831.00   CHANNEL SLOPE =  0.2407
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1769 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.57
 FLOW VELOCITY(FEET/SEC) =   6.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.02   Tc(MIN.) =  14.03
 LONGEST FLOWPATH FROM NODE    980.00 TO NODE    982.00 =  1831.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    982.00 TO NODE    982.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.374
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL POOR COVER
  "GRASS"                    D       13.30      0.22     1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   13.30      SUBAREA RUNOFF(CFS) =   37.78
  EFFECTIVE AREA(ACRES) =     21.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     21.00       PEAK FLOW RATE(CFS) =      59.65

****************************************************************************
  FLOW PROCESS FROM NODE    982.00 TO NODE     12.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4120.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1175.00   CHANNEL SLOPE =  0.2383
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1761 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     59.65
  FLOW VELOCITY(FEET/SEC) =   9.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =  16.16
  LONGEST FLOWPATH FROM NODE    980.00 TO NODE     12.00 =  3006.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.055
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                    D       18.10      0.22     1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   18.10      SUBAREA RUNOFF(CFS) =   46.22
  EFFECTIVE AREA(ACRES) =     39.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     39.10       PEAK FLOW RATE(CFS) =      99.85

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.16
  RAINFALL INTENSITY(INCH/HR) =   3.06
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    39.10
```

```
 TOTAL STREAM AREA(ACRES) =    39.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    99.85

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1     66.88  18.33    2.798  0.22( 0.22) 1.00    28.8      330.00
     2     99.85  16.16    3.055  0.22( 0.22) 1.00    39.1      980.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1    164.71  16.16    3.055  0.22( 0.22) 1.00    64.5      980.00
     2    157.67  18.33    2.798  0.22( 0.22) 1.00    67.9      330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   164.71    Tc(MIN.) =   16.16
 EFFECTIVE AREA(ACRES) =   64.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    67.90
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4120.00  DOWNSTREAM(FEET) =   3860.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   994.00   CHANNEL SLOPE =  0.2616
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1839 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    164.71
 FLOW VELOCITY(FEET/SEC) =  13.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  17.43
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     13.00 =  4351.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.899
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       38.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =   92.41
 EFFECTIVE AREA(ACRES) =   102.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =    106.20       PEAK FLOW RATE(CFS) =     248.04

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3860.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1295.00   CHANNEL SLOPE =  0.0463
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0463 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    248.04
 FLOW VELOCITY(FEET/SEC) =   7.56 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.86   Tc(MIN.) =  20.28
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     14.00 =  5646.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.607
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       77.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   77.30      SUBAREA RUNOFF(CFS) =  166.19
 EFFECTIVE AREA(ACRES) =    180.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    183.50       PEAK FLOW RATE(CFS) =     387.20

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1140.00   CHANNEL SLOPE =  0.0351
 CHANNEL FLOW THRU SUBAREA(CFS) =    387.20
 FLOW VELOCITY(FEET/SEC) =  13.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  21.69
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     15.00 =  6786.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.487
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       85.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   85.60     SUBAREA RUNOFF(CFS) =  162.35
 EFFECTIVE AREA(ACRES) =    265.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    269.10       PEAK FLOW RATE(CFS) =     530.19

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3720.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1402.00   CHANNEL SLOPE =  0.0285
 CHANNEL FLOW THRU SUBAREA(CFS) =    530.19
 FLOW VELOCITY(FEET/SEC) =  13.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.73   Tc(MIN.) =  23.42
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     16.00 =  8188.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     16.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.357
 SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       80.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   80.10     SUBAREA RUNOFF(CFS) =  142.52
 EFFECTIVE AREA(ACRES) =    345.80   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    349.20       PEAK FLOW RATE(CFS) =     641.53

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3720.00  DOWNSTREAM(FEET) =   3528.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3510.00   CHANNEL SLOPE =  0.0547
 CHANNEL FLOW THRU SUBAREA(CFS) =    641.53
 FLOW VELOCITY(FEET/SEC) =  19.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.95   Tc(MIN.) =  26.37
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.169
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       70.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   70.90      SUBAREA RUNOFF(CFS) =  114.17
 EFFECTIVE AREA(ACRES) =    416.70   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    420.10       PEAK FLOW RATE(CFS) =     697.28

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     70.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   851.00
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4000.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.643
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.094
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.40      0.22      1.000    89   10.64
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.79
 TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     32.79

****************************************************************************
 FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4000.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   687.00   CHANNEL SLOPE =  0.3493
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2051 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.79
```

```
 FLOW VELOCITY(FEET/SEC) =   8.11 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  12.06
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     72.00 =  1538.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.752
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.60      SUBAREA RUNOFF(CFS) =   59.16
 EFFECTIVE AREA(ACRES) =     28.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.00       PEAK FLOW RATE(CFS) =      89.05

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     73.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   727.00   CHANNEL SLOPE =  0.1651
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1425 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     89.05
 FLOW VELOCITY(FEET/SEC) =   9.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  13.34
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     73.00 =  2265.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     73.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.495
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       36.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.20      SUBAREA RUNOFF(CFS) =  106.77
 EFFECTIVE AREA(ACRES) =     64.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.20       PEAK FLOW RATE(CFS) =     189.35
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1254.00   CHANNEL SLOPE =  0.0797
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0797 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    189.35
 FLOW VELOCITY(FEET/SEC) =   9.06 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.31   Tc(MIN.) =  15.65
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.126
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       42.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.10      SUBAREA RUNOFF(CFS) =  110.18
 EFFECTIVE AREA(ACRES) =    106.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    106.30       PEAK FLOW RATE(CFS) =     278.21

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.65
 RAINFALL INTENSITY(INCH/HR) =   3.13
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   106.30
 TOTAL STREAM AREA(ACRES) =   106.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    278.21

****************************************************************************
 FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   600.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3880.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.692
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.139
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     44.29
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     44.29

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     52.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   420.00   CHANNEL SLOPE =  0.2857
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1914 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     44.29
 FLOW VELOCITY(FEET/SEC) =   8.66 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.81   Tc(MIN.) =   8.50
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     52.00 =  1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     51.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.791
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   82.32
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     123.48

****************************************************************************
 FLOW PROCESS FROM NODE     52.00 TO NODE     53.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.1508
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 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1354 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    123.48
 FLOW VELOCITY(FEET/SEC) =  10.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.83   Tc(MIN.) =  10.33
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     53.00 =  2147.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     53.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.179
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  142.96
 EFFECTIVE AREA(ACRES) =     70.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.10       PEAK FLOW RATE(CFS) =     249.91

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.0444
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0444 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    249.91
 FLOW VELOCITY(FEET/SEC) =   7.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.53   Tc(MIN.) =  12.87
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     54.00 =  3274.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  121.50
 EFFECTIVE AREA(ACRES) =    110.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    110.20       PEAK FLOW RATE(CFS) =     333.91

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.87
 RAINFALL INTENSITY(INCH/HR) =   3.58
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   110.20
 TOTAL STREAM AREA(ACRES) =   110.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    333.91

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     278.21  15.65    3.126  0.22( 0.22) 1.00   106.3      70.00
     2     333.91  12.87    3.585  0.22( 0.22) 1.00   110.2      50.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     598.77  12.87    3.585  0.22( 0.22) 1.00   197.6      50.00
     2     566.62  15.65    3.126  0.22( 0.22) 1.00   216.5      70.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    598.77    Tc(MIN.) =    12.87
 EFFECTIVE AREA(ACRES) =   197.61   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    216.50
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     34.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3550.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   410.00   CHANNEL SLOPE =  0.0244
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0244 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    598.77
 FLOW VELOCITY(FEET/SEC) =   7.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =  13.80
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE      34.00 TO NODE      34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.414
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B        9.60      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     9.60      SUBAREA RUNOFF(CFS) =    25.90
 EFFECTIVE AREA(ACRES) =    207.21   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    226.10       PEAK FLOW RATE(CFS) =     598.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE      34.00 TO NODE      34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.80
 RAINFALL INTENSITY(INCH/HR) =   3.41
 AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   207.21
 TOTAL STREAM AREA(ACRES) =   226.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    598.77

****************************************************************************
 FLOW PROCESS FROM NODE      30.00 TO NODE      31.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   689.00
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3620.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.376
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.473
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    9.38
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.30
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     38.30
```

```
**************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3620.00  DOWNSTREAM(FEET) =   3570.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   622.00   CHANNEL SLOPE =  0.0804
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.30
 FLOW VELOCITY(FEET/SEC) =  10.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  10.40
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =  1311.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  10.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.162
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       20.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   68.07
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     103.56

**************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     33.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3570.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.0115
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.56
 FLOW VELOCITY(FEET/SEC) =   5.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.82   Tc(MIN.) =  13.22
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =  2181.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  13.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.518
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
  "DESERT BRUSH"   (50.0%)   B        32.10      0.38      1.000     80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    32.10      SUBAREA RUNOFF(CFS) =    90.66
  EFFECTIVE AREA(ACRES) =     62.10   AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     62.10       PEAK FLOW RATE(CFS) =     176.85

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     34.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1253.00   CHANNEL SLOPE =  0.0160
  CHANNEL FLOW THRU SUBAREA(CFS) =   176.85
  FLOW VELOCITY(FEET/SEC) =   7.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.93   Tc(MIN.) =  16.14
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     34.00 =  3434.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.14
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.058
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B        31.40      0.38      1.000     80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    31.40      SUBAREA RUNOFF(CFS) =    75.69
  EFFECTIVE AREA(ACRES) =     93.50   AREA-AVERAGED Fm(INCH/HR) =  0.36
  AREA-AVERAGED Fp(INCH/HR) =  0.36  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     93.50       PEAK FLOW RATE(CFS) =     226.83

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.14
  RAINFALL INTENSITY(INCH/HR) =   3.06
  AREA-AVERAGED Fm(INCH/HR) =  0.36
  AREA-AVERAGED Fp(INCH/HR) =  0.36
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    93.50
  TOTAL STREAM AREA(ACRES) =    93.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    226.83
```

```
** CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     598.77  13.80     3.414   0.23( 0.23) 1.00    207.2       50.00
    1     566.62  16.59     3.000   0.23( 0.23) 1.00    226.1       70.00
    2     226.83  16.14     3.058   0.36( 0.36) 1.00     93.5       30.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     818.19  13.80     3.414   0.26( 0.26) 1.00    287.1       50.00
    2     798.61  16.14     3.058   0.27( 0.27) 1.00    316.6       30.00
    3     788.56  16.59     3.000   0.27( 0.27) 1.00    319.6       70.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    818.19    Tc(MIN.) =    13.80
 EFFECTIVE AREA(ACRES) =   287.12   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    319.60
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3528.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   571.00   CHANNEL SLOPE =  0.0210
 CHANNEL FLOW THRU SUBAREA(CFS) =    818.19
 FLOW VELOCITY(FEET/SEC) =  13.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.72   Tc(MIN.) =  14.51
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     17.00 =  4500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.295
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       44.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.20      SUBAREA RUNOFF(CFS) =  115.97
 EFFECTIVE AREA(ACRES) =    331.32   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    363.80       PEAK FLOW RATE(CFS) =     899.04

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```
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     899.04  14.51     3.295  0.28( 0.28) 1.00   331.3      50.00
     2     871.98  16.86     2.966  0.28( 0.28) 1.00   360.8      30.00
     3     861.66  17.32     2.912  0.28( 0.28) 1.00   363.8      70.00
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     17.00 =  4500.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     697.28  26.37     2.169  0.31( 0.31) 1.00   416.7     980.00
     2     655.41  28.73     2.043  0.31( 0.31) 1.00   420.1     330.00
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1    1515.14  14.51     3.295  0.29( 0.29) 1.00   560.6      50.00
     2    1509.07  16.86     2.966  0.29( 0.29) 1.00   627.3      30.00
     3    1502.43  17.32     2.912  0.29( 0.29) 1.00   637.4      70.00
     4    1315.84  26.37     2.169  0.30( 0.30) 1.00   780.5     980.00
     5    1232.53  28.73     2.043  0.30( 0.30) 1.00   783.9     330.00
   TOTAL AREA(ACRES) =    783.90

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     1515.14  Tc(MIN.) =   14.510
 EFFECTIVE AREA(ACRES) =    560.63  AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    783.90
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3528.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1001.00   CHANNEL SLOPE =  0.0230
 CHANNEL FLOW THRU SUBAREA(CFS) =   1515.14
 FLOW VELOCITY(FEET/SEC) =  17.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.98   Tc(MIN.) =  15.49
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     18.00 = 12699.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.148
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       59.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   59.20      SUBAREA RUNOFF(CFS) =  147.48
 EFFECTIVE AREA(ACRES) =    619.83   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    843.10       PEAK FLOW RATE(CFS) =    1588.29

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.49
 RAINFALL INTENSITY(INCH/HR) =   3.15
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   619.83
 TOTAL STREAM AREA(ACRES) =   843.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1588.29

****************************************************************************
 FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   996.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3800.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.561
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.116
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.08
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.08

****************************************************************************
 FLOW PROCESS FROM NODE     91.00 TO NODE     92.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3560.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =   658.00   CHANNEL SLOPE =  0.3647
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2078 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.08
 FLOW VELOCITY(FEET/SEC) =   8.35 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.31   Tc(MIN.) =  11.87
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     92.00 =  1654.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     92.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.792
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   64.33
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      96.49

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     93.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3515.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   535.00   CHANNEL SLOPE =  0.0841
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0841 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     96.49
 FLOW VELOCITY(FEET/SEC) =   7.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.20   Tc(MIN.) =  13.07
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     93.00 =  2189.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.545
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       30.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   30.50      SUBAREA RUNOFF(CFS) =   91.32
```

```
 EFFECTIVE AREA(ACRES) =     60.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     60.50       PEAK FLOW RATE(CFS) =     181.15

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3515.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   875.00   CHANNEL SLOPE =  0.0114
 CHANNEL FLOW THRU SUBAREA(CFS) =    181.15
 FLOW VELOCITY(FEET/SEC) =   6.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.40   Tc(MIN.) =  15.47
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     18.00 =  3064.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.151
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       38.10      0.38     1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.10      SUBAREA RUNOFF(CFS) =   95.00
 EFFECTIVE AREA(ACRES) =     98.60   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     98.60       PEAK FLOW RATE(CFS) =     254.68

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.47
 RAINFALL INTENSITY(INCH/HR) =   3.15
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    98.60
 TOTAL STREAM AREA(ACRES) =    98.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    254.68

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1588.29  15.49    3.148  0.30( 0.30) 1.00   619.8       50.00
```

```
    1   1575.75  17.84    2.851  0.30( 0.30) 1.00    686.5      30.00
    1   1568.15  18.30    2.801  0.30( 0.30) 1.00    696.6      70.00
    1   1367.93  27.39    2.112  0.30( 0.30) 1.00    839.7     980.00
    1   1282.72  29.78    1.992  0.30( 0.30) 1.00    843.1     330.00
    2    254.68  15.47    3.151  0.28( 0.28) 1.00     98.6      90.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
      1   1842.54  15.47    3.151  0.30( 0.30) 1.00    717.7      90.00
      2   1842.74  15.49    3.148  0.30( 0.30) 1.00    718.4      50.00
      3   1803.85  17.84    2.851  0.30( 0.30) 1.00    785.1      30.00
      4   1791.84  18.30    2.801  0.30( 0.30) 1.00    795.2      70.00
      5   1530.45  27.39    2.112  0.30( 0.30) 1.00    938.3     980.00
      6   1434.60  29.78    1.992  0.30( 0.30) 1.00    941.7     330.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   1842.74    Tc(MIN.) =    15.49
  EFFECTIVE AREA(ACRES) =   718.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    941.70
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     18.00 = 12699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3505.00  DOWNSTREAM(FEET) =   3480.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   935.00   CHANNEL SLOPE =  0.0267
  CHANNEL FLOW THRU SUBAREA(CFS) =   1842.74
  FLOW VELOCITY(FEET/SEC) =  19.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.80   Tc(MIN.) =  16.29
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE     19.00 = 13634.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.29
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.040
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       34.00      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   34.00      SUBAREA RUNOFF(CFS) =   81.38
  EFFECTIVE AREA(ACRES) =    752.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    975.70       PEAK FLOW RATE(CFS) =    1854.03
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   834.00   CHANNEL SLOPE =  0.0240
 CHANNEL FLOW THRU SUBAREA(CFS) =   1854.03
 FLOW VELOCITY(FEET/SEC) =  18.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.75   Tc(MIN.) =  17.03
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     20.00 = 14468.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.946
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       23.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   23.00      SUBAREA RUNOFF(CFS) =   53.11
 EFFECTIVE AREA(ACRES) =    775.43   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    998.70       PEAK FLOW RATE(CFS) =    1854.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.03
 RAINFALL INTENSITY(INCH/HR) =   2.95
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   775.43
 TOTAL STREAM AREA(ACRES) =   998.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1854.03

****************************************************************************
 FLOW PROCESS FROM NODE     70.00 TO NODE    130.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   990.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4010.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.788
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.811
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.34
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     32.34

****************************************************************************
 FLOW PROCESS FROM NODE    130.00 TO NODE    131.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4010.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   553.00   CHANNEL SLOPE =  0.0904
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0904 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.34
 FLOW VELOCITY(FEET/SEC) =   5.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =  13.51
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    131.00 =  1543.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    131.00 TO NODE    131.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.465
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   58.44
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      87.66

****************************************************************************
 FLOW PROCESS FROM NODE    131.00 TO NODE    132.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   548.00   CHANNEL SLOPE =  0.1460
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1323 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     87.66
 FLOW VELOCITY(FEET/SEC) =   9.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  14.52
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    132.00 =  2091.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.294
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =  106.03
 EFFECTIVE AREA(ACRES) =     68.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     68.30       PEAK FLOW RATE(CFS) =     189.07

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    133.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1920.00   CHANNEL SLOPE =  0.1667
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1433 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    189.07
 FLOW VELOCITY(FEET/SEC) =  12.15 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.63   Tc(MIN.) =  17.15
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    133.00 =  4011.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    133.00 TO NODE    133.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.931
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       32.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   32.20      SUBAREA RUNOFF(CFS) =   78.62
 EFFECTIVE AREA(ACRES) =    100.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    100.50       PEAK FLOW RATE(CFS) =     245.39

****************************************************************************
 FLOW PROCESS FROM NODE    133.00 TO NODE     20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1835.00   CHANNEL SLOPE =  0.0545
 CHANNEL FLOW THRU SUBAREA(CFS) =    245.39
 FLOW VELOCITY(FEET/SEC) =  14.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.10   Tc(MIN.) =  19.25
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     20.00 =  5846.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.704
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       31.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.50      SUBAREA RUNOFF(CFS) =   65.88
 EFFECTIVE AREA(ACRES) =    132.00   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    132.00       PEAK FLOW RATE(CFS) =     290.72

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.25
 RAINFALL INTENSITY(INCH/HR) =   2.70
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   132.00
 TOTAL STREAM AREA(ACRES) =   132.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    290.72

****************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   897.00
 ELEVATION DATA: UPSTREAM(FEET) =   3840.00  DOWNSTREAM(FEET) =   3760.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.372
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.905
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       10.00      0.38      1.000    80   17.37
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.73
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     22.73

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1006.00   CHANNEL SLOPE =  0.0994
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.73
 FLOW VELOCITY(FEET/SEC) =   9.78 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.71   Tc(MIN.) =  19.09
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =  1903.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.720
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       20.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   42.12
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      63.18

****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   988.00   CHANNEL SLOPE =  0.1012
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =      63.18
 FLOW VELOCITY(FEET/SEC) =  13.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  20.34
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    113.00 =  2891.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.601
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       34.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   34.10      SUBAREA RUNOFF(CFS) =   68.17
 EFFECTIVE AREA(ACRES) =     64.10   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.10       PEAK FLOW RATE(CFS) =     128.14

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    114.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1217.00   CHANNEL SLOPE =  0.0657
 CHANNEL FLOW THRU SUBAREA(CFS) =    128.14
 FLOW VELOCITY(FEET/SEC) =  13.12 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.55   Tc(MIN.) =  21.89
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    114.00 =  4108.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.471
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       19.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.80      SUBAREA RUNOFF(CFS) =   37.26
 EFFECTIVE AREA(ACRES) =     83.90   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     83.90       PEAK FLOW RATE(CFS) =     157.90

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     114.00 TO NODE      20.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3460.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   469.00   CHANNEL SLOPE =  0.0426
 CHANNEL FLOW THRU SUBAREA(CFS) =    157.90
 FLOW VELOCITY(FEET/SEC) =  11.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  22.58
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE      20.00 =  4577.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      20.00 TO NODE      20.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.58
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.418
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        3.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     3.80      SUBAREA RUNOFF(CFS) =     6.97
 EFFECTIVE AREA(ACRES) =     87.70   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     87.70       PEAK FLOW RATE(CFS) =     160.83

****************************************************************************
 FLOW PROCESS FROM NODE      20.00 TO NODE      20.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  22.58
 RAINFALL INTENSITY(INCH/HR) =   2.42
 AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    87.70
 TOTAL STREAM AREA(ACRES) =    87.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    160.83

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1853.84  17.01     2.948  0.30( 0.30) 1.00    774.7      90.00
     1   1854.03  17.03     2.946  0.30( 0.30) 1.00    775.4      50.00
     1   1815.87  19.40     2.689  0.30( 0.30) 1.00    842.1      30.00
     1   1804.05  19.85     2.646  0.30( 0.30) 1.00    852.2      70.00
     1   1544.54  29.03     2.028  0.30( 0.30) 1.00    995.3     980.00
     1   1450.03  31.46     1.917  0.30( 0.30) 1.00    998.7     330.00
```

```
    2    290.72  19.25    2.704  0.26( 0.26) 1.00   132.0      70.00
    3    160.83  22.58    2.418  0.38( 0.38) 1.00    87.7     110.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1   2289.11  17.01    2.948  0.30( 0.30) 1.00   957.4      90.00
     2   2289.41  17.03    2.946  0.30( 0.30) 1.00   958.4      50.00
     3   2265.32  19.25    2.704  0.30( 0.30) 1.00  1044.6      70.00
     4   2261.41  19.40    2.689  0.30( 0.30) 1.00  1049.4      30.00
     5   2245.11  19.85    2.646  0.30( 0.30) 1.00  1061.3      70.00
     6   2149.71  22.58    2.418  0.30( 0.30) 1.00  1114.5     110.00
     7   1885.02  29.03    2.028  0.30( 0.30) 1.00  1215.0     980.00
     8   1768.64  31.46    1.917  0.30( 0.30) 1.00  1218.4     330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   2289.41    Tc(MIN.) =    17.03
 EFFECTIVE AREA(ACRES) =   958.36   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1218.40
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     20.00 = 14468.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3460.00  DOWNSTREAM(FEET) =   3435.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1549.00   CHANNEL SLOPE =  0.0161
 CHANNEL FLOW THRU SUBAREA(CFS) =   2289.41
 FLOW VELOCITY(FEET/SEC) =  16.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.58   Tc(MIN.) =  18.61
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     21.00 = 16017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.61
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.768
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       69.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   69.10      SUBAREA RUNOFF(CFS) =  148.54
 EFFECTIVE AREA(ACRES) =   1027.46   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1287.50      PEAK FLOW RATE(CFS) =    2289.41
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
```

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1287.50 TC(MIN.) = 18.61
EFFECTIVE AREA(ACRES) = 1027.46 AREA-AVERAGED Fm(INCH/HR)= 0.31
AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 2289.41

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2289.11	18.59	2.770	0.31(0.31)	1.00	1026.5	90.00
2	2289.41	18.61	2.768	0.31(0.31)	1.00	1027.5	50.00
3	2265.32	20.83	2.558	0.31(0.31)	1.00	1113.7	70.00
4	2261.41	20.98	2.545	0.31(0.31)	1.00	1118.5	30.00
5	2245.11	21.44	2.507	0.31(0.31)	1.00	1130.4	70.00
6	2149.71	24.20	2.304	0.31(0.31)	1.00	1183.6	110.00
7	1896.21	30.72	1.949	0.31(0.31)	1.00	1284.1	980.00
8	1783.04	33.17	1.847	0.31(0.31)	1.00	1287.5	330.00

END OF RATIONAL METHOD ANALYSIS

Rat. Method
WS 8

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

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 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED 7,8 TO NODE 30      WATERSHED # 8                             *
* EXISTING CONDITION                                                      *
* 100-YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-8.DAT
  TIME/DATE OF STUDY: 15:41 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    230.00 TO NODE    231.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
 ELEVATION DATA: UPSTREAM(FEET) =   4440.00  DOWNSTREAM(FEET) =   4200.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.705
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.712
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        9.40      0.22      1.000    89    8.70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.02
 TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     38.02

**************************************************************************
 FLOW PROCESS FROM NODE    231.00 TO NODE    232.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   4080.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   406.00   CHANNEL SLOPE =  0.2956
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1939 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.02
 FLOW VELOCITY(FEET/SEC) =   8.28 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =   9.52
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    232.00 =  1076.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    232.00 TO NODE    232.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =   9.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.425
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   74.60
 EFFECTIVE AREA(ACRES) =     29.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.10       PEAK FLOW RATE(CFS) =     110.19

**************************************************************************
 FLOW PROCESS FROM NODE    232.00 TO NODE    233.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   547.00   CHANNEL SLOPE =  0.2194
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1697 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    110.19
 FLOW VELOCITY(FEET/SEC) =  11.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  10.35
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    233.00 =  1623.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    233.00 TO NODE    233.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.175
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.50      SUBAREA RUNOFF(CFS) =  137.12
 EFFECTIVE AREA(ACRES) =     67.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.60       PEAK FLOW RATE(CFS) =     240.76

****************************************************************************
 FLOW PROCESS FROM NODE    233.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1440.00   CHANNEL SLOPE =  0.1389
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1276 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    240.76
 FLOW VELOCITY(FEET/SEC) =  12.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  12.28
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    234.00 =  3063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.704
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       47.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    47.80      SUBAREA RUNOFF(CFS) =  149.95
 EFFECTIVE AREA(ACRES) =    115.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    115.40       PEAK FLOW RATE(CFS) =     362.02

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.28
 RAINFALL INTENSITY(INCH/HR) =   3.70
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   115.40
 TOTAL STREAM AREA(ACRES) =   115.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    362.02

****************************************************************************
 FLOW PROCESS FROM NODE    250.00 TO NODE    251.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   915.00
 ELEVATION DATA: UPSTREAM(FEET) =   4190.00  DOWNSTREAM(FEET) =   4020.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.244
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.939
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.60      0.22      1.000    89   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.15
 TOTAL AREA(ACRES) =      9.60   PEAK FLOW RATE(CFS) =     32.15

****************************************************************************
 FLOW PROCESS FROM NODE    251.00 TO NODE    252.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4020.00  DOWNSTREAM(FEET) =   3920.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   443.00   CHANNEL SLOPE =  0.2257
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1719 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.15
 FLOW VELOCITY(FEET/SEC) =   7.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.00   Tc(MIN.) =  12.25
 LONGEST FLOWPATH FROM NODE    250.00 TO NODE    252.00 =  1358.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    252.00 TO NODE    252.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.711
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       19.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.20      SUBAREA RUNOFF(CFS) =   60.36
 EFFECTIVE AREA(ACRES) =     28.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.80       PEAK FLOW RATE(CFS) =      90.54

****************************************************************************
 FLOW PROCESS FROM NODE    252.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1495.00   CHANNEL SLOPE =  0.1070
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1053 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     90.54
 FLOW VELOCITY(FEET/SEC) =   8.15 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.06   Tc(MIN.) =  15.30
 LONGEST FLOWPATH FROM NODE    250.00 TO NODE    234.00 =  2853.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.175
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       35.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   35.40      SUBAREA RUNOFF(CFS) =   94.20
 EFFECTIVE AREA(ACRES) =     64.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.20       PEAK FLOW RATE(CFS) =     170.84

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
```

```
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.30
  RAINFALL INTENSITY(INCH/HR) =   3.17
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    64.20
  TOTAL STREAM AREA(ACRES) =    64.20
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    170.84

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    271.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   700.00
  ELEVATION DATA: UPSTREAM(FEET) =   4040.00  DOWNSTREAM(FEET) =   3860.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.466
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.444
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        9.40      0.22      1.000    89    9.47
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     35.75
  TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     35.75

****************************************************************************
  FLOW PROCESS FROM NODE    271.00 TO NODE    272.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3860.00  DOWNSTREAM(FEET) =   3800.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   442.00   CHANNEL SLOPE =  0.1357
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1255 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     35.75
  FLOW VELOCITY(FEET/SEC) =   6.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.13   Tc(MIN.) =  10.59
  LONGEST FLOWPATH FROM NODE    270.00 TO NODE    272.00 =  1142.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    272.00 TO NODE    272.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.107
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       17.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.40      SUBAREA RUNOFF(CFS) =   60.90
 EFFECTIVE AREA(ACRES) =     26.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    26.80       PEAK FLOW RATE(CFS) =      93.80

****************************************************************************
 FLOW PROCESS FROM NODE    272.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1133.00   CHANNEL SLOPE =  0.0353
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0353 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.80
 FLOW VELOCITY(FEET/SEC) =   4.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.96   Tc(MIN.) =  14.55
 LONGEST FLOWPATH FROM NODE    270.00 TO NODE    234.00 =  2275.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.289
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       31.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.30      SUBAREA RUNOFF(CFS) =   86.51
 EFFECTIVE AREA(ACRES) =     58.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.10       PEAK FLOW RATE(CFS) =     160.58

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.55
 RAINFALL INTENSITY(INCH/HR) =   3.29
 AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    58.10
 TOTAL STREAM AREA(ACRES) =    58.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    160.58

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     362.02  12.28    3.704  0.22( 0.22) 1.00   115.4     230.00
     2     170.84  15.30    3.175  0.22( 0.22) 1.00    64.2     250.00
     3     160.58  14.55    3.289  0.22( 0.22) 1.00    58.1     270.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     677.45  12.28    3.704  0.22( 0.22) 1.00   215.9     230.00
     2     648.23  14.55    3.289  0.22( 0.22) 1.00   234.5     270.00
     3     632.53  15.30    3.175  0.22( 0.22) 1.00   237.7     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    677.45    Tc(MIN.) =    12.28
 EFFECTIVE AREA(ACRES) =   215.95   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    237.70
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    234.00 =  3063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    235.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.1136
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1102 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    677.45
 FLOW VELOCITY(FEET/SEC) =  16.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.90   Tc(MIN.) =  13.18
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    235.00 =  3943.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    235.00 TO NODE    235.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.18
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.525
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       44.00      0.22      1.000    89
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.00     SUBAREA RUNOFF(CFS) =  130.95
 EFFECTIVE AREA(ACRES) =    259.95   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    281.70      PEAK FLOW RATE(CFS) =     773.62

****************************************************************************
 FLOW PROCESS FROM NODE    235.00 TO NODE    212.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1140.00   CHANNEL SLOPE =  0.0614
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0614 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    773.62
 FLOW VELOCITY(FEET/SEC) =  12.71 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.49   Tc(MIN.) =  14.67
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    212.00 =  5083.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.80     SUBAREA RUNOFF(CFS) =  112.05
 EFFECTIVE AREA(ACRES) =    300.75   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    322.50      PEAK FLOW RATE(CFS) =     825.93

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.67
 RAINFALL INTENSITY(INCH/HR) =   3.27
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   300.75
 TOTAL STREAM AREA(ACRES) =   322.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    825.93
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   822.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3820.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.542
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.419
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.60      0.22      1.000    89    9.54
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     36.30
 TOTAL AREA(ACRES) =      9.60   PEAK FLOW RATE(CFS) =     36.30

****************************************************************************
 FLOW PROCESS FROM NODE    211.00 TO NODE    212.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.1840
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1520 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.30
 FLOW VELOCITY(FEET/SEC) =   7.22 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.89   Tc(MIN.) =  12.43
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    212.00 =  2072.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.673
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.90      SUBAREA RUNOFF(CFS) =   58.77
 EFFECTIVE AREA(ACRES) =     28.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.50       PEAK FLOW RATE(CFS) =      88.61

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.43
 RAINFALL INTENSITY(INCH/HR) =   3.67
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    28.50
 TOTAL STREAM AREA(ACRES) =    28.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     88.61

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     825.93  14.67     3.269   0.22( 0.22) 1.00    300.7     230.00
     1     785.61  16.98     2.951   0.22( 0.22) 1.00    319.3     270.00
     1     767.09  17.76     2.861   0.22( 0.22) 1.00    322.5     250.00
     2      88.61  12.43     3.673   0.22( 0.22) 1.00     28.5     210.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     880.54  12.43     3.673   0.22( 0.22) 1.00    283.2     210.00
     2     904.20  14.67     3.269   0.22( 0.22) 1.00    329.2     230.00
     3     855.73  16.98     2.951   0.22( 0.22) 1.00    347.8     270.00
     4     834.88  17.76     2.861   0.22( 0.22) 1.00    351.0     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    904.20    Tc(MIN.) =    14.67
 EFFECTIVE AREA(ACRES) =   329.25   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    351.00
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    212.00 =  5083.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    194.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   530.00   CHANNEL SLOPE =  0.0566
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0566 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    904.20
 FLOW VELOCITY(FEET/SEC) =  12.85 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  15.36
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    194.00 =  5613.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     194.00 TO NODE     194.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.166
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    18.60     SUBAREA RUNOFF(CFS) =    49.35
 EFFECTIVE AREA(ACRES) =    347.85   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    369.60       PEAK FLOW RATE(CFS) =     923.01

****************************************************************************
 FLOW PROCESS FROM NODE     194.00 TO NODE     194.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.36
 RAINFALL INTENSITY(INCH/HR) =   3.17
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   347.85
 TOTAL STREAM AREA(ACRES) =   369.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    923.01

****************************************************************************
 FLOW PROCESS FROM NODE     190.00 TO NODE     191.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   533.00
 ELEVATION DATA: UPSTREAM(FEET) =   4800.00  DOWNSTREAM(FEET) =   4480.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.164
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.401
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.16
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     46.64
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     46.64
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    191.00 TO NODE    192.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4640.00  DOWNSTREAM(FEET) =   4480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   594.00   CHANNEL SLOPE =  0.2694
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1865 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     46.64
 FLOW VELOCITY(FEET/SEC) =   8.69 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =   8.30
 LONGEST FLOWPATH FROM NODE    190.00 TO NODE    192.00 =  1127.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    192.00 TO NODE    192.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.871
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   83.75
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     125.63

****************************************************************************
 FLOW PROCESS FROM NODE    192.00 TO NODE    193.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4480.00  DOWNSTREAM(FEET) =   4280.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1187.00   CHANNEL SLOPE =  0.1685
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1442 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    125.63
 FLOW VELOCITY(FEET/SEC) =  10.63 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.86   Tc(MIN.) =  10.16
 LONGEST FLOWPATH FROM NODE    190.00 TO NODE    193.00 =  2314.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    193.00 TO NODE    193.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.228
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       39.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   39.00      SUBAREA RUNOFF(CFS) =  140.75
 EFFECTIVE AREA(ACRES) =     69.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     69.00       PEAK FLOW RATE(CFS) =     249.03

****************************************************************************
 FLOW PROCESS FROM NODE    193.00 TO NODE    194.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4280.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2282.00   CHANNEL SLOPE =  0.3155
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1989 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    249.03
 FLOW VELOCITY(FEET/SEC) =  15.68 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.43   Tc(MIN.) =  12.59
 LONGEST FLOWPATH FROM NODE    190.00 TO NODE    194.00 =  4596.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.640
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       80.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   80.00      SUBAREA RUNOFF(CFS) =  246.38
 EFFECTIVE AREA(ACRES) =    149.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    149.00       PEAK FLOW RATE(CFS) =     458.88

****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.59
 RAINFALL INTENSITY(INCH/HR) =   3.64
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   149.00
 TOTAL STREAM AREA(ACRES) =   149.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    458.88

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     901.17  13.12     3.536   0.22( 0.22) 1.00    301.8     210.00
     1     923.01  15.36     3.166   0.22( 0.22) 1.00    347.8     230.00
     1     874.35  17.68     2.869   0.22( 0.22) 1.00    366.4     270.00
     1     853.51  18.46     2.784   0.22( 0.22) 1.00    369.6     250.00
     2     458.88  12.59     3.640   0.22( 0.22) 1.00    149.0     190.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    1350.59  12.59     3.640   0.22( 0.22) 1.00    438.5     190.00
     2    1346.09  13.12     3.536   0.22( 0.22) 1.00    450.8     210.00
     3    1318.38  15.36     3.166   0.22( 0.22) 1.00    496.8     230.00
     4    1229.88  17.68     2.869   0.22( 0.22) 1.00    515.4     270.00
     5    1197.59  18.46     2.784   0.22( 0.22) 1.00    518.6     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  1350.59    Tc(MIN.) =    12.59
 EFFECTIVE AREA(ACRES) =   438.54   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   518.60
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    194.00 =  5613.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    173.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3510.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1215.00   CHANNEL SLOPE =  0.0412
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0412 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =   1350.59
 FLOW VELOCITY(FEET/SEC) =  12.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.62   Tc(MIN.) =  14.20
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    173.00 =  6828.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    173.00 TO NODE    173.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.345
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL POOR COVER
  "GRASS"                    D       26.10       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   26.10      SUBAREA RUNOFF(CFS) =   73.45
  EFFECTIVE AREA(ACRES) =    464.64   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    544.70       PEAK FLOW RATE(CFS) =    1350.59
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    173.00 TO NODE    173.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  14.20
  RAINFALL INTENSITY(INCH/HR) =   3.34
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   464.64
  TOTAL STREAM AREA(ACRES) =   544.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1350.59

****************************************************************************
  FLOW PROCESS FROM NODE    170.00 TO NODE    171.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4320.00  DOWNSTREAM(FEET) =   4000.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.450
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.146
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    D        9.40      0.22      1.000    89   10.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     33.23
  TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     33.23

****************************************************************************
  FLOW PROCESS FROM NODE    171.00 TO NODE    172.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4000.00  DOWNSTREAM(FEET) =   3680.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1000.00   CHANNEL SLOPE =  0.3200
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2000 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      33.23
 FLOW VELOCITY(FEET/SEC) =   8.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.07   Tc(MIN.) =  12.52
 LONGEST FLOWPATH FROM NODE    170.00 TO NODE    172.00 =  2000.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    172.00 TO NODE    172.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.653
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       17.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.20      SUBAREA RUNOFF(CFS) =   53.18
 EFFECTIVE AREA(ACRES) =     26.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     26.60       PEAK FLOW RATE(CFS) =      82.24

****************************************************************************
 FLOW PROCESS FROM NODE    172.00 TO NODE    173.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3510.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1050.00   CHANNEL SLOPE =  0.1619
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1410 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      82.24
 FLOW VELOCITY(FEET/SEC) =   9.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.92   Tc(MIN.) =  14.44
 LONGEST FLOWPATH FROM NODE    170.00 TO NODE    173.00 =  3050.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    173.00 TO NODE    173.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.44
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.307
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       29.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   29.80      SUBAREA RUNOFF(CFS) =   82.84
 EFFECTIVE AREA(ACRES) =     56.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     56.40       PEAK FLOW RATE(CFS) =     156.78

****************************************************************************
 FLOW PROCESS FROM NODE    173.00 TO NODE    173.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.44
 RAINFALL INTENSITY(INCH/HR) =   3.31
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    56.40
 TOTAL STREAM AREA(ACRES) =    56.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    156.78

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1350.59  14.20     3.345   0.22( 0.22) 1.00    464.6     190.00
     1   1346.09  14.74     3.259   0.22( 0.22) 1.00    476.9     210.00
     1   1318.38  16.99     2.951   0.22( 0.22) 1.00    522.9     230.00
     1   1229.88  19.35     2.694   0.22( 0.22) 1.00    541.5     270.00
     1   1197.59  20.15     2.619   0.22( 0.22) 1.00    544.7     250.00
     2    156.78  14.44     3.307   0.22( 0.22) 1.00     56.4     170.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1506.72  14.20     3.345   0.22( 0.22) 1.00    520.1     190.00
     2   1505.39  14.44     3.307   0.22( 0.22) 1.00    526.4     170.00
     3   1500.47  14.74     3.259   0.22( 0.22) 1.00    533.3     210.00
     4   1457.08  16.99     2.951   0.22( 0.22) 1.00    579.3     230.00
     5   1355.55  19.35     2.694   0.22( 0.22) 1.00    597.9     270.00
     6   1319.46  20.15     2.619   0.22( 0.22) 1.00    601.1     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   1506.72    Tc(MIN.) =    14.20
 EFFECTIVE AREA(ACRES) =   520.13   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    601.10
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    173.00 =  6828.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    173.00 TO NODE    174.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3510.00  DOWNSTREAM(FEET) =   3468.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =   788.00   CHANNEL SLOPE =  0.0533
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0533 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =   1506.72
 FLOW VELOCITY(FEET/SEC) =  14.79 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.89   Tc(MIN.) =  15.09
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    174.00 =  7616.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    174.00 TO NODE    174.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.206
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     C       32.10      0.27      1.000    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   32.10      SUBAREA RUNOFF(CFS) =   84.75
 EFFECTIVE AREA(ACRES) =    552.23   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    633.20       PEAK FLOW RATE(CFS) =    1506.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    174.00 TO NODE     21.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3468.00  DOWNSTREAM(FEET) =   3435.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1692.00   CHANNEL SLOPE =  0.0195
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0195 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =   1506.72
 FLOW VELOCITY(FEET/SEC) =   8.94 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.15   Tc(MIN.) =  18.25
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     21.00 =  9308.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.807
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B       41.20      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   41.20      SUBAREA RUNOFF(CFS) =   88.66
 EFFECTIVE AREA(ACRES) =    593.43   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    674.40       PEAK FLOW RATE(CFS) =    1506.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.25
 RAINFALL INTENSITY(INCH/HR) =   2.81
 AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   593.43
 TOTAL STREAM AREA(ACRES) =   674.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1506.72

****************************************************************************
 FLOW PROCESS FROM NODE    150.00 TO NODE    151.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4580.00  DOWNSTREAM(FEET) =   4180.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.994
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.278
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.20      0.22      1.000    89    9.99
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.62
 TOTAL AREA(ACRES) =      9.20   PEAK FLOW RATE(CFS) =     33.62

****************************************************************************
 FLOW PROCESS FROM NODE    151.00 TO NODE    152.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   3980.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   509.00   CHANNEL SLOPE =  0.3929
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2128 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.62
 FLOW VELOCITY(FEET/SEC) =   8.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  11.01
```

```
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    152.00 =  1509.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    152.00 TO NODE    152.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.01
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.997
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       18.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.40      SUBAREA RUNOFF(CFS) =   62.58
 EFFECTIVE AREA(ACRES) =     27.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.60       PEAK FLOW RATE(CFS) =      93.87

****************************************************************************
 FLOW PROCESS FROM NODE    152.00 TO NODE    153.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3980.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   675.00   CHANNEL SLOPE =  0.2667
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1856 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.87
 FLOW VELOCITY(FEET/SEC) =  10.95 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  12.04
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    153.00 =  2184.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    153.00 TO NODE    153.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.755
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       36.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.70      SUBAREA RUNOFF(CFS) =  116.83
 EFFECTIVE AREA(ACRES) =     64.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.30       PEAK FLOW RATE(CFS) =     204.69

****************************************************************************
 FLOW PROCESS FROM NODE    153.00 TO NODE    154.00 IS CODE =  53
```

```
------------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3640.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1055.00   CHANNEL SLOPE =  0.1517
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1358 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =    204.69
  FLOW VELOCITY(FEET/SEC) =  12.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  13.49
  LONGEST FLOWPATH FROM NODE    150.00 TO NODE    154.00 =  3239.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    154.00 TO NODE    154.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.468
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     D       71.20      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   71.20      SUBAREA RUNOFF(CFS) =  208.26
  EFFECTIVE AREA(ACRES) =    135.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    135.50       PEAK FLOW RATE(CFS) =     396.34

****************************************************************************
  FLOW PROCESS FROM NODE    154.00 TO NODE    155.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3520.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1205.00   CHANNEL SLOPE =  0.0996
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0996 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =    396.34
  FLOW VELOCITY(FEET/SEC) =  12.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.55   Tc(MIN.) =  15.04
  LONGEST FLOWPATH FROM NODE    150.00 TO NODE    155.00 =  4444.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.04
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.214
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "GRASS"                    D       81.70      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   81.70      SUBAREA RUNOFF(CFS) =  220.28
 EFFECTIVE AREA(ACRES) =    217.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    217.20       PEAK FLOW RATE(CFS) =     585.61

****************************************************************************
 FLOW PROCESS FROM NODE    155.00 TO NODE     21.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3520.00  DOWNSTREAM(FEET) =   3435.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2100.00   CHANNEL SLOPE =  0.0405
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0405 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    585.61
 FLOW VELOCITY(FEET/SEC) =   9.41 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.72   Tc(MIN.) =  18.76
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE     21.00 =  6544.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.76
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.753
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    B       75.70      0.42     1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   75.70      SUBAREA RUNOFF(CFS) =  159.22
 EFFECTIVE AREA(ACRES) =    292.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    292.90       PEAK FLOW RATE(CFS) =     654.75

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.76
 RAINFALL INTENSITY(INCH/HR) =   2.75
 AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   292.90
 TOTAL STREAM AREA(ACRES) =   292.90
```

```
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     654.75

+---------------------------------------------------------------------------+
|                                                                           |
|                                                                           |
|                                                                           |
+---------------------------------------------------------------------------+

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  18.61   RAINFALL INTENSITY(INCH/HR) =  2.77
 EFFECTIVE AREA(ACRES) =  1027.46
 TOTAL AREA(ACRES) =  1287.50         PEAK FLOW RATE(CFS) =   2289.41
 AREA-AVERAGED Fm(INCH/HR) =   0.33  AREA-AVERAGED Fp(INCH/HR) =   0.33
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.61
 RAINFALL INTENSITY(INCH/HR) =  2.77
 AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  1027.46
 TOTAL STREAM AREA(ACRES) =  1287.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   2289.41

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    1506.72  18.25     2.807   0.23( 0.23) 1.00    593.4     190.00
     1    1505.39  18.48     2.782   0.23( 0.23) 1.00    599.7     170.00
     1    1500.47  18.79     2.750   0.23( 0.23) 1.00    606.6     210.00
     1    1457.08  21.08     2.537   0.23( 0.23) 1.00    652.6     230.00
     1    1355.55  23.54     2.349   0.23( 0.23) 1.00    671.2     270.00
     1    1320.38  24.37     2.292   0.23( 0.23) 1.00    674.4     250.00
     2     654.75  18.76     2.753   0.27( 0.27) 1.00    292.9     150.00
     3    2289.41  18.61     2.768   0.33( 0.33) 1.00   1027.5      21.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
```

```
    1   4437.51  18.25    2.807  0.29( 0.29) 1.00  1885.7     190.00
    2   4444.11  18.48    2.782  0.29( 0.29) 1.00  1908.7     170.00
    3   4446.30  18.61    2.768  0.29( 0.29) 1.00  1920.6      21.00
    4   4430.47  18.76    2.753  0.29( 0.29) 1.00  1926.4     150.00
    5   4426.85  18.79    2.750  0.29( 0.29) 1.00  1927.0     210.00
    6   4127.43  21.08    2.537  0.29( 0.29) 1.00  1973.0     230.00
    7   3799.04  23.54    2.349  0.29( 0.29) 1.00  1991.6     270.00
    8   3696.08  24.37    2.292  0.29( 0.29) 1.00  1994.8     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   4446.30    Tc(MIN.) =    18.61
 EFFECTIVE AREA(ACRES) =  1920.63   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2254.80
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     21.00 =  9308.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3435.00  DOWNSTREAM(FEET) =   3420.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   921.00   CHANNEL SLOPE =  0.0163
 CHANNEL FLOW THRU SUBAREA(CFS) =   4446.30
 FLOW VELOCITY(FEET/SEC) =  20.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.75   Tc(MIN.) =  19.36
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     22.00 = 10229.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.693
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       76.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   76.40      SUBAREA RUNOFF(CFS) =  159.06
 EFFECTIVE AREA(ACRES) =   1997.03   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2331.20      PEAK FLOW RATE(CFS) =    4446.30
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     22.00 TO NODE     23.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3420.00  DOWNSTREAM(FEET) =   3375.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1072.00   CHANNEL SLOPE =  0.0420
```

```
 NOTE: FLOW VELOCITY OF 30 FPS WAS ASSUMED IN TRAVEL TIME ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =   4446.30
 FLOW VELOCITY(FEET/SEC) =  30.00 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.60   Tc(MIN.) =  19.95
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     23.00 = 11301.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     23.00 TO NODE     23.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.637
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       97.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   97.00      SUBAREA RUNOFF(CFS) =  197.01
 EFFECTIVE AREA(ACRES) =   2094.03   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2428.20       PEAK FLOW RATE(CFS) =    4446.30
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3375.00  DOWNSTREAM(FEET) =   3347.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1072.00   CHANNEL SLOPE =  0.0261
 CHANNEL FLOW THRU SUBAREA(CFS) =   4446.30
 FLOW VELOCITY(FEET/SEC) =  26.00 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  20.64
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     24.00 = 12373.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.64
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.575
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       57.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   57.60      SUBAREA RUNOFF(CFS) =  113.78
 EFFECTIVE AREA(ACRES) =   2151.63   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2485.80       PEAK FLOW RATE(CFS) =    4446.30
```

```
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  20.64
  RAINFALL INTENSITY(INCH/HR) =   2.57
  AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =  2151.63
  TOTAL STREAM AREA(ACRES) =  2485.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   4446.30

****************************************************************************
  FLOW PROCESS FROM NODE    310.00 TO NODE    311.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3680.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.733
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.070
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     B        5.10      0.42      1.000    78   10.73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     16.77
  TOTAL AREA(ACRES) =      5.10   PEAK FLOW RATE(CFS) =     16.77

****************************************************************************
  FLOW PROCESS FROM NODE    311.00 TO NODE    312.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3440.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1273.00   CHANNEL SLOPE =  0.1885
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1543 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     16.77
  FLOW VELOCITY(FEET/SEC) =   5.62 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.77   Tc(MIN.) =  14.51
  LONGEST FLOWPATH FROM NODE    310.00 TO NODE    312.00 =  2273.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    312.00 TO NODE    312.00 IS CODE =  81
```

```
------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN) =  14.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.296
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       16.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.60      SUBAREA RUNOFF(CFS) =   45.99
 EFFECTIVE AREA(ACRES) =     21.70   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.70       PEAK FLOW RATE(CFS) =      59.21

****************************************************************************
 FLOW PROCESS FROM NODE    312.00 TO NODE     24.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3440.00  DOWNSTREAM(FEET) =   3365.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1072.00   CHANNEL SLOPE =  0.0700
 CHANNEL FLOW THRU SUBAREA(CFS) =     59.21
 FLOW VELOCITY(FEET/SEC) =  10.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.66   Tc(MIN.) =  16.17
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE     24.00 =  3345.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.17
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.055
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       36.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.20      SUBAREA RUNOFF(CFS) =   87.15
 EFFECTIVE AREA(ACRES) =     57.90   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     57.90       PEAK FLOW RATE(CFS) =     141.65

****************************************************************************
 FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =  16.17
 RAINFALL INTENSITY(INCH/HR) =   3.06
 AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    57.90
 TOTAL STREAM AREA(ACRES) =    57.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    141.65

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   4437.51  20.28     2.607   0.30( 0.30) 1.00   2116.7     190.00
     1   4444.11  20.51     2.586   0.30( 0.30) 1.00   2139.7     170.00
     1   4446.30  20.64     2.575   0.30( 0.30) 1.00   2151.6      21.00
     1   4430.47  20.79     2.562   0.30( 0.30) 1.00   2157.4     150.00
     1   4426.85  20.82     2.559   0.30( 0.30) 1.00   2158.0     210.00
     1   4127.43  23.14     2.377   0.30( 0.30) 1.00   2204.0     230.00
     1   3828.88  25.64     2.212   0.30( 0.30) 1.00   2222.6     270.00
     1   3735.15  26.49     2.162   0.30( 0.30) 1.00   2225.8     250.00
     2    141.65  16.17     3.055   0.34( 0.34) 1.00     57.9     310.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   4366.82  16.17     3.055   0.30( 0.30) 1.00   1745.5     310.00
     2   4555.81  20.28     2.607   0.30( 0.30) 1.00   2174.6     190.00
     3   4561.33  20.51     2.586   0.30( 0.30) 1.00   2197.6     170.00
     4   4562.93  20.64     2.575   0.30( 0.30) 1.00   2209.5      21.00
     5   4546.42  20.79     2.562   0.30( 0.30) 1.00   2215.3     150.00
     6   4542.68  20.82     2.559   0.30( 0.30) 1.00   2215.9     210.00
     7   4233.73  23.14     2.377   0.30( 0.30) 1.00   2261.9     230.00
     8   3926.59  25.64     2.212   0.30( 0.30) 1.00   2280.5     270.00
     9   3830.29  26.49     2.162   0.30( 0.30) 1.00   2283.7     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   4562.93    Tc(MIN.) =    20.64
 EFFECTIVE AREA(ACRES) =  2209.53   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2543.70
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     24.00 = 12373.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     24.00 TO NODE     25.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3365.00  DOWNSTREAM(FEET) =   3340.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1001.00   CHANNEL SLOPE =  0.0250
 CHANNEL FLOW THRU SUBAREA(CFS) =   4562.93
 FLOW VELOCITY(FEET/SEC) =  25.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.65   Tc(MIN.) =  21.29
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     25.00 = 13374.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.29
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.520
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       15.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   29.46
 EFFECTIVE AREA(ACRES) =   2224.83   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2559.00       PEAK FLOW RATE(CFS) =    4562.93
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  21.29
 RAINFALL INTENSITY(INCH/HR) =   2.52
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  2224.83
 TOTAL STREAM AREA(ACRES) =  2559.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   4562.93

****************************************************************************
 FLOW PROCESS FROM NODE    310.00 TO NODE    320.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.893
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.028
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        6.60      0.22      1.000    89   10.89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.63
```

```
 TOTAL AREA(ACRES) =      6.60   PEAK FLOW RATE(CFS) =     22.63

****************************************************************************
 FLOW PROCESS FROM NODE    320.00 TO NODE    321.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3490.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   960.00   CHANNEL SLOPE =  0.2188
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1694 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.63
 FLOW VELOCITY(FEET/SEC) =   6.51 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.46   Tc(MIN.) =  13.35
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    321.00 =  1960.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    321.00 TO NODE    321.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.493
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       11.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.00      SUBAREA RUNOFF(CFS) =   32.42
 EFFECTIVE AREA(ACRES) =     17.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     17.60       PEAK FLOW RATE(CFS) =      51.88

****************************************************************************
 FLOW PROCESS FROM NODE    321.00 TO NODE     25.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3490.00  DOWNSTREAM(FEET) =   3340.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1788.00   CHANNEL SLOPE =  0.0839
 CHANNEL FLOW THRU SUBAREA(CFS) =     51.88
 FLOW VELOCITY(FEET/SEC) =  11.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.63   Tc(MIN.) =  15.98
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE     25.00 =  3748.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       15.90      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   15.90     SUBAREA RUNOFF(CFS) =   38.64
  EFFECTIVE AREA(ACRES) =    33.50   AREA-AVERAGED Fm(INCH/HR) =  0.29
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     33.50      PEAK FLOW RATE(CFS) =      83.97

****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.98
  RAINFALL INTENSITY(INCH/HR) =   3.08
  AREA-AVERAGED Fm(INCH/HR) =  0.29
  AREA-AVERAGED Fp(INCH/HR) =  0.29
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    33.50
  TOTAL STREAM AREA(ACRES) =    33.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     83.97

****************************************************************************
  FLOW PROCESS FROM NODE    290.00 TO NODE    291.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   955.00
  ELEVATION DATA: UPSTREAM(FEET) =   4175.00  DOWNSTREAM(FEET) =   3880.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.332
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.180
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D       10.00      0.22      1.000    89   10.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     35.65
  TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.65

****************************************************************************
  FLOW PROCESS FROM NODE    291.00 TO NODE    292.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3600.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   810.00   CHANNEL SLOPE =  0.3457
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2045 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      35.65
 FLOW VELOCITY(FEET/SEC) =   8.32 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.62   Tc(MIN.) =  11.95
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE    292.00 =  1765.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    292.00 TO NODE    292.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.774
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   63.05
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =      95.05

****************************************************************************
 FLOW PROCESS FROM NODE    292.00 TO NODE    293.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.1379
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =     95.05
 FLOW VELOCITY(FEET/SEC) =  14.78 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.98   Tc(MIN.) =  12.93
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE    293.00 =  2635.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    293.00 TO NODE    293.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.93
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.571
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       25.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.90      SUBAREA RUNOFF(CFS) =   74.39
 EFFECTIVE AREA(ACRES) =     55.60   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =     55.60       PEAK FLOW RATE(CFS) =     164.03

****************************************************************************
 FLOW PROCESS FROM NODE    293.00 TO NODE    294.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1087.00   CHANNEL SLOPE =  0.1104
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =    164.03
 FLOW VELOCITY(FEET/SEC) =  17.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.04   Tc(MIN.) =  13.97
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE    294.00 =  3722.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    294.00 TO NODE    294.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.97
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.383
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       29.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   29.10      SUBAREA RUNOFF(CFS) =   78.66
 EFFECTIVE AREA(ACRES) =     84.70   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     84.70       PEAK FLOW RATE(CFS) =     233.28

****************************************************************************
 FLOW PROCESS FROM NODE    294.00 TO NODE     25.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3340.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   440.00   CHANNEL SLOPE =  0.0455
 CHANNEL FLOW THRU SUBAREA(CFS) =    233.28
 FLOW VELOCITY(FEET/SEC) =  13.12 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.56   Tc(MIN.) =  14.53
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE     25.00 =  4162.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.292
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       16.50       0.38       1.000     80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.50      SUBAREA RUNOFF(CFS) =   43.24
 EFFECTIVE AREA(ACRES) =    101.20   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    101.20       PEAK FLOW RATE(CFS) =     269.54

****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     25.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.53
 RAINFALL INTENSITY(INCH/HR) =   3.29
 AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   101.20
 TOTAL STREAM AREA(ACRES) =   101.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    269.54

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   4366.82  16.83     2.971   0.30( 0.30) 1.00   1760.8     310.00
     1   4555.81  20.93     2.550   0.30( 0.30) 1.00   2189.9     190.00
     1   4561.33  21.16     2.530   0.30( 0.30) 1.00   2212.9     170.00
     1   4562.93  21.29     2.520   0.30( 0.30) 1.00   2224.8      21.00
     1   4546.42  21.44     2.507   0.30( 0.30) 1.00   2230.6     150.00
     1   4542.68  21.47     2.505   0.30( 0.30) 1.00   2231.2     210.00
     1   4233.73  23.81     2.330   0.30( 0.30) 1.00   2277.2     230.00
     1   3926.59  26.33     2.172   0.30( 0.30) 1.00   2295.8     270.00
     1   3830.29  27.18     2.124   0.30( 0.30) 1.00   2299.0     250.00
     2     83.97  15.98     3.080   0.29( 0.29) 1.00     33.5     310.00
     3    269.54  14.53     3.292   0.33( 0.33) 1.00    101.2     290.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   4576.81  14.53     3.292   0.30( 0.30) 1.00   1652.3     290.00
     2   4651.23  15.98     3.080   0.30( 0.30) 1.00   1806.9     310.00
     3   4687.79  16.83     2.971   0.30( 0.30) 1.00   1895.5     310.00
     4   4825.79  20.93     2.550   0.30( 0.30) 1.00   2324.6     190.00
     5   4828.90  21.16     2.530   0.30( 0.30) 1.00   2347.6     170.00
     6   4829.21  21.29     2.520   0.30( 0.30) 1.00   2359.5      21.00
     7   4811.17  21.44     2.507   0.30( 0.30) 1.00   2365.3     150.00
     8   4807.17  21.47     2.505   0.30( 0.30) 1.00   2365.9     210.00
     9   4476.99  23.81     2.330   0.30( 0.30) 1.00   2411.9     230.00
```

```
    10   4150.68   26.33    2.172  0.30( 0.30) 1.00   2430.5      270.00
    11   4048.57   27.18    2.124  0.30( 0.30) 1.00   2433.7      250.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   4829.21    Tc(MIN.) =    21.29
  EFFECTIVE AREA(ACRES) =  2359.53   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   2693.70
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE     25.00 = 13374.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     26.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3340.00  DOWNSTREAM(FEET) =   3280.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2222.00   CHANNEL SLOPE =  0.0270
  CHANNEL FLOW THRU SUBAREA(CFS) =   4829.21
  FLOW VELOCITY(FEET/SEC) =  27.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.36   Tc(MIN.) =  22.65
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE     26.00 = 15596.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     26.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.65
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.413
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       38.10      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   38.10      SUBAREA RUNOFF(CFS) =   69.70
  EFFECTIVE AREA(ACRES) =   2397.63   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =   2731.80       PEAK FLOW RATE(CFS) =    4829.21
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     27.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3265.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1080.00   CHANNEL SLOPE =  0.0139
  CHANNEL FLOW THRU SUBAREA(CFS) =   4829.21
  FLOW VELOCITY(FEET/SEC) =  19.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.92   Tc(MIN.) =  23.58
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE     27.00 = 16676.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     27.00 TO NODE     27.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.58
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.346
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       11.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.90      SUBAREA RUNOFF(CFS) =   21.06
 EFFECTIVE AREA(ACRES) =   2409.53   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2743.70       PEAK FLOW RATE(CFS) =    4829.21
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     27.00 TO NODE     28.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3265.00  DOWNSTREAM(FEET) =   3225.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1305.00   CHANNEL SLOPE =  0.0307
 CHANNEL FLOW THRU SUBAREA(CFS) =   4829.21
 FLOW VELOCITY(FEET/SEC) =  28.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.75   Tc(MIN.) =  24.33
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     28.00 = 17981.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     28.00 TO NODE     28.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.295
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       18.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.50      SUBAREA RUNOFF(CFS) =   31.89
 EFFECTIVE AREA(ACRES) =   2428.03   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2762.20       PEAK FLOW RATE(CFS) =    4829.21
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     28.00 TO NODE     28.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
```

```
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  24.33
 RAINFALL INTENSITY(INCH/HR) =   2.30
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  2428.03
 TOTAL STREAM AREA(ACRES) =  2762.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   4829.21

****************************************************************************
 FLOW PROCESS FROM NODE    370.00 TO NODE    371.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   777.00
 ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3400.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.867
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.316
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D         9.90      0.22      1.000    89    9.87
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     36.52
 TOTAL AREA(ACRES) =      9.90   PEAK FLOW RATE(CFS) =     36.52

****************************************************************************
 FLOW PROCESS FROM NODE    371.00 TO NODE    372.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3400.00  DOWNSTREAM(FEET) =   3300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   653.00   CHANNEL SLOPE =  0.1531
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1366 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.52
 FLOW VELOCITY(FEET/SEC) =   6.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  11.45
 LONGEST FLOWPATH FROM NODE    370.00 TO NODE    372.00 =  1430.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    372.00 TO NODE    372.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.889
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE                GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL POOR COVER
  "GRASS"                      D       20.00       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   66.07
  EFFECTIVE AREA(ACRES) =     29.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     29.90       PEAK FLOW RATE(CFS) =      98.77

****************************************************************************
  FLOW PROCESS FROM NODE    372.00 TO NODE    373.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3300.00  DOWNSTREAM(FEET) =   3260.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   756.00   CHANNEL SLOPE =  0.0529
  CHANNEL FLOW THRU SUBAREA(CFS) =     98.77
  FLOW VELOCITY(FEET/SEC) =  10.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.16   Tc(MIN.) =  12.61
  LONGEST FLOWPATH FROM NODE    370.00 TO NODE    373.00 =  2186.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    373.00 TO NODE    373.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.61
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.635
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    D       32.30       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   32.30      SUBAREA RUNOFF(CFS) =   99.33
  EFFECTIVE AREA(ACRES) =     62.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     62.20       PEAK FLOW RATE(CFS) =     191.28

****************************************************************************
  FLOW PROCESS FROM NODE    373.00 TO NODE    374.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3260.00  DOWNSTREAM(FEET) =   3230.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   823.00   CHANNEL SLOPE =  0.0365
  CHANNEL FLOW THRU SUBAREA(CFS) =    191.28
  FLOW VELOCITY(FEET/SEC) =  11.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.24   Tc(MIN.) =  13.85
  LONGEST FLOWPATH FROM NODE    370.00 TO NODE    374.00 =  3009.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    374.00 TO NODE    374.00 IS CODE =  81
```

```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.404
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       57.60      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   57.60      SUBAREA RUNOFF(CFS) =  156.75
  EFFECTIVE AREA(ACRES) =    119.80   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    119.80       PEAK FLOW RATE(CFS) =     335.08

****************************************************************************
  FLOW PROCESS FROM NODE    374.00 TO NODE     28.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3230.00  DOWNSTREAM(FEET) =   3225.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1180.00   CHANNEL SLOPE =  0.0042
  CHANNEL FLOW THRU SUBAREA(CFS) =    335.08
  FLOW VELOCITY(FEET/SEC) =   4.49 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.38   Tc(MIN.) =  18.24
  LONGEST FLOWPATH FROM NODE    370.00 TO NODE     28.00 =  4189.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     28.00 TO NODE     28.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.24
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.808
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       56.90      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   56.90      SUBAREA RUNOFF(CFS) =  124.34
  EFFECTIVE AREA(ACRES) =    176.70   AREA-AVERAGED Fm(INCH/HR) =  0.32
  AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    176.70       PEAK FLOW RATE(CFS) =     395.19

****************************************************************************
  FLOW PROCESS FROM NODE     28.00 TO NODE     28.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =  18.24
 RAINFALL INTENSITY(INCH/HR) =   2.81
 AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   176.70
 TOTAL STREAM AREA(ACRES) =   176.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    395.19

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1   4576.81  17.62     2.876  0.31( 0.31) 1.00  1720.8     290.00
     1   4651.23  19.06     2.723  0.31( 0.31) 1.00  1875.4     310.00
     1   4687.79  19.89     2.642  0.31( 0.31) 1.00  1964.0     310.00
     1   4825.79  23.97     2.319  0.31( 0.31) 1.00  2393.1     190.00
     1   4828.90  24.20     2.304  0.31( 0.31) 1.00  2416.1     170.00
     1   4829.21  24.33     2.295  0.31( 0.31) 1.00  2428.0      21.00
     1   4811.17  24.48     2.285  0.31( 0.31) 1.00  2433.8     150.00
     1   4807.17  24.51     2.283  0.31( 0.31) 1.00  2434.4     210.00
     1   4476.99  26.93     2.138  0.30( 0.30) 1.00  2480.4     230.00
     1   4150.68  29.52     2.004  0.30( 0.30) 1.00  2499.0     270.00
     1   4048.57  30.40     1.964  0.30( 0.30) 1.00  2502.2     250.00
     2    395.19  18.24     2.808  0.32( 0.32) 1.00   176.7     370.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1   4969.17  17.62     2.876  0.31( 0.31) 1.00  1891.6     290.00
     2   5003.87  18.24     2.808  0.31( 0.31) 1.00  1963.7     370.00
     3   5032.90  19.06     2.723  0.31( 0.31) 1.00  2052.1     310.00
     4   5056.60  19.89     2.642  0.31( 0.31) 1.00  2140.7     310.00
     5   5143.26  23.97     2.319  0.31( 0.31) 1.00  2569.8     190.00
     6   5143.87  24.20     2.304  0.31( 0.31) 1.00  2592.8     170.00
     7   5142.83  24.33     2.295  0.31( 0.31) 1.00  2604.7      21.00
     8   5123.16  24.48     2.285  0.31( 0.31) 1.00  2610.5     150.00
     9   5118.87  24.51     2.283  0.31( 0.31) 1.00  2611.1     210.00
    10   4765.58  26.93     2.138  0.30( 0.30) 1.00  2657.1     230.00
    11   4418.04  29.52     2.004  0.30( 0.30) 1.00  2675.7     270.00
    12   4309.47  30.40     1.964  0.30( 0.30) 1.00  2678.9     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   5143.87    Tc(MIN.) =    24.20
 EFFECTIVE AREA(ACRES) =  2592.77   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2938.90
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     28.00 = 17981.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     28.00 TO NODE     29.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3225.00  DOWNSTREAM(FEET) =   3190.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.0402
 NOTE: FLOW VELOCITY OF 30 FPS WAS ASSUMED IN TRAVEL TIME ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =   5143.87
 FLOW VELOCITY(FEET/SEC) =  30.00 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.48   Tc(MIN.) =  24.68
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     29.00 = 18851.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     29.00 TO NODE     29.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.272
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       32.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   32.60      SUBAREA RUNOFF(CFS) =   55.51
 EFFECTIVE AREA(ACRES) =   2625.37   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   2971.50       PEAK FLOW RATE(CFS) =    5143.87
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     29.00 TO NODE     30.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3190.00  DOWNSTREAM(FEET) =   3160.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1553.00   CHANNEL SLOPE =  0.0193
 CHANNEL FLOW THRU SUBAREA(CFS) =   5143.87
 FLOW VELOCITY(FEET/SEC) =  23.49 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.10   Tc(MIN.) =  25.79
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE     30.00 = 20404.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.203
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       39.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   39.70      SUBAREA RUNOFF(CFS) =   65.15
 EFFECTIVE AREA(ACRES) =   2665.07   AREA-AVERAGED Fm(INCH/HR) =  0.31
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   3011.20       PEAK FLOW RATE(CFS) =    5143.87
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =   3011.20  TC(MIN.) =     25.79
 EFFECTIVE AREA(ACRES) =   2665.07  AREA-AVERAGED Fm(INCH/HR)=  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =   5143.87

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   4969.17  19.22    2.706  0.31( 0.31) 1.00  1963.9     290.00
     2   5003.87  19.83    2.648  0.31( 0.31) 1.00  2036.0     370.00
     3   5032.90  20.65    2.574  0.31( 0.31) 1.00  2124.4     310.00
     4   5056.60  21.49    2.504  0.31( 0.31) 1.00  2213.0     310.00
     5   5143.26  25.55    2.218  0.31( 0.31) 1.00  2642.1     190.00
     6   5143.87  25.79    2.203  0.31( 0.31) 1.00  2665.1     170.00
     7   5142.83  25.91    2.196  0.31( 0.31) 1.00  2677.0      21.00
     8   5123.16  26.07    2.187  0.31( 0.31) 1.00  2682.8     150.00
     9   5118.87  26.10    2.185  0.31( 0.31) 1.00  2683.4     210.00
    10   4765.58  28.54    2.052  0.31( 0.31) 1.00  2729.4     230.00
    11   4418.04  31.17    1.930  0.31( 0.31) 1.00  2748.0     270.00
    12   4309.47  32.05    1.892  0.31( 0.31) 1.00  2751.2     250.00
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Rat. Method
Western W.S.

```
**************************************************************************
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                        Analysis prepared by:

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 ************************* DESCRIPTION OF STUDY *************************
* WESTERN RATIONAL METHOD FOR FAIRVIEW VALLEY                            *
* EXISTING CONDITION                                                     *
* 100-YEAR STORM                                                         *
 ************************************************************************

  FILE NAME: HAC-WEST.DAT
  TIME/DATE OF STUDY: 09:57 05/11/2009
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     890.00 TO NODE     891.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   965.00
 ELEVATION DATA: UPSTREAM(FEET) =   3685.00  DOWNSTREAM(FEET) =   3215.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.472
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.442
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        3.80      0.22      1.000    89    9.47
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     14.44
 TOTAL AREA(ACRES) =      3.80   PEAK FLOW RATE(CFS) =     14.44

****************************************************************************
 FLOW PROCESS FROM NODE    891.00 TO NODE    892.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3215.00  DOWNSTREAM(FEET) =   3201.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   212.00   CHANNEL SLOPE =  0.0660
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0660 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     14.44
 FLOW VELOCITY(FEET/SEC) =   3.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  10.48
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    892.00 =  1177.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    892.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.138
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        0.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    2.82
 EFFECTIVE AREA(ACRES) =      4.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.60       PEAK FLOW RATE(CFS) =      16.23

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    892.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  10.48
 RAINFALL INTENSITY(INCH/HR) =   4.14
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =     4.60
 TOTAL STREAM AREA(ACRES) =     4.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.23

****************************************************************************
 FLOW PROCESS FROM NODE    1070.00 TO NODE     892.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
 ELEVATION DATA: UPSTREAM(FEET) =   3440.00  DOWNSTREAM(FEET) =   3201.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.835
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.326
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        2.40      0.22      1.000    89    9.83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      8.87
 TOTAL AREA(ACRES) =      2.40   PEAK FLOW RATE(CFS) =      8.87

****************************************************************************
 FLOW PROCESS FROM NODE     892.00 TO NODE     892.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   9.83
 RAINFALL INTENSITY(INCH/HR) =   4.33
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =     2.40
 TOTAL STREAM AREA(ACRES) =     2.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.87

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR) (INCH/HR)          (ACRES)     NODE
     1     16.23  10.48     4.138  0.22( 0.22) 1.00      4.6      890.00
     2      8.87   9.83     4.326  0.22( 0.22) 1.00      2.4     1070.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
    1     24.83    9.83     4.326  0.22( 0.22) 1.00      6.7    1070.00
    2     24.69   10.48     4.138  0.22( 0.22) 1.00      7.0     890.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     24.83    Tc(MIN.) =     9.83
 EFFECTIVE AREA(ACRES) =     6.72   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      7.00
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    892.00 =  1177.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    893.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3201.00  DOWNSTREAM(FEET) =   3117.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1307.00   CHANNEL SLOPE =  0.0643
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.83
 FLOW VELOCITY(FEET/SEC) =   8.06 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.70   Tc(MIN.) =  12.54
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    893.00 =  2484.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.650
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/     * SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B        6.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    6.20      SUBAREA RUNOFF(CFS) =   18.25
 EFFECTIVE AREA(ACRES) =     12.92   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     13.20       PEAK FLOW RATE(CFS) =      38.99

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.54
 RAINFALL INTENSITY(INCH/HR) =   3.65
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
```

```
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    12.92
 TOTAL STREAM AREA(ACRES) =    13.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     38.99

****************************************************************************
 FLOW PROCESS FROM NODE    890.00 TO NODE    910.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   905.00
 ELEVATION DATA: UPSTREAM(FEET) =   3685.00  DOWNSTREAM(FEET) =   3220.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.134
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.556
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        2.60      0.22      1.000    89    9.13
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     10.15
 TOTAL AREA(ACRES) =      2.60   PEAK FLOW RATE(CFS) =     10.15

****************************************************************************
 FLOW PROCESS FROM NODE    910.00 TO NODE    911.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3220.00  DOWNSTREAM(FEET) =   3163.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   850.00   CHANNEL SLOPE =  0.0671
 CHANNEL FLOW THRU SUBAREA(CFS) =     10.15
 FLOW VELOCITY(FEET/SEC) =   6.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.18   Tc(MIN.) =  11.31
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    911.00 =  1755.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    911.00 TO NODE    911.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.922
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B        5.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.60      SUBAREA RUNOFF(CFS) =   17.85
 EFFECTIVE AREA(ACRES) =      8.20   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =      8.20       PEAK FLOW RATE(CFS) =     26.52

****************************************************************************
 FLOW PROCESS FROM NODE    911.00 TO NODE    893.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3163.00  DOWNSTREAM(FEET) =   3117.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   775.00   CHANNEL SLOPE =  0.0594
 CHANNEL FLOW THRU SUBAREA(CFS) =     26.52
 FLOW VELOCITY(FEET/SEC) =   7.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =  12.95
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    893.00 =  2530.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.568
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        3.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     3.10      SUBAREA RUNOFF(CFS) =     8.89
 EFFECTIVE AREA(ACRES) =    11.30   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     11.30       PEAK FLOW RATE(CFS) =     32.80

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.95
 RAINFALL INTENSITY(INCH/HR) =   3.57
 AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    11.30
 TOTAL STREAM AREA(ACRES) =    11.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     32.80

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1     38.99  12.54     3.650   0.30( 0.30) 1.00     12.9     1070.00
     1     38.36  13.19     3.523   0.29( 0.29) 1.00     13.2      890.00
     2     32.80  12.95     3.568   0.34( 0.34) 1.00     11.3      890.00
```

```
 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     71.55   12.54     3.650   0.32( 0.32) 1.00     23.9     1070.00
     2     71.39   12.95     3.568   0.32( 0.32) 1.00     24.4      890.00
     3     70.70   13.19     3.523   0.32( 0.32) 1.00     24.5      890.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     71.55    Tc(MIN.) =    12.54
 EFFECTIVE AREA(ACRES) =    23.85   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     24.50
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    893.00 =  2530.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    894.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3117.00  DOWNSTREAM(FEET) =   3067.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   987.00   CHANNEL SLOPE =  0.0507
 CHANNEL FLOW THRU SUBAREA(CFS) =     71.55
 FLOW VELOCITY(FEET/SEC) =   9.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.70   Tc(MIN.) =  14.24
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    894.00 =  3517.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    894.00 TO NODE    894.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.339
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        2.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    2.70      SUBAREA RUNOFF(CFS) =    7.19
 EFFECTIVE AREA(ACRES) =     26.55   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.20       PEAK FLOW RATE(CFS) =      72.07

****************************************************************************
 FLOW PROCESS FROM NODE    894.00 TO NODE    894.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =  14.24
 RAINFALL INTENSITY(INCH/HR) =   3.34
 AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    26.55
 TOTAL STREAM AREA(ACRES) =    27.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     72.07

****************************************************************************
 FLOW PROCESS FROM NODE    901.00 TO NODE    902.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   928.00
 ELEVATION DATA: UPSTREAM(FEET) =   3238.00  DOWNSTREAM(FEET) =   3154.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.558
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.884
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B        3.50      0.38      1.000    80   17.56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      7.89
 TOTAL AREA(ACRES) =      3.50   PEAK FLOW RATE(CFS) =      7.89

****************************************************************************
 FLOW PROCESS FROM NODE    902.00 TO NODE    903.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3154.00  DOWNSTREAM(FEET) =   3100.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   697.00   CHANNEL SLOPE =  0.0775
 CHANNEL FLOW THRU SUBAREA(CFS) =      7.89
 FLOW VELOCITY(FEET/SEC) =   6.55 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.77   Tc(MIN.) =  19.33
 LONGEST FLOWPATH FROM NODE    901.00 TO NODE    903.00 =  1625.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    903.00 TO NODE    903.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.696
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B        6.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     6.30      SUBAREA RUNOFF(CFS) =    13.13
  EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.38
  AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      20.43

****************************************************************************
  FLOW PROCESS FROM NODE    903.00 TO NODE    894.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3100.00  DOWNSTREAM(FEET) =   3067.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   697.00   CHANNEL SLOPE =  0.0473
  CHANNEL FLOW THRU SUBAREA(CFS) =     20.43
  FLOW VELOCITY(FEET/SEC) =   6.56 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.77   Tc(MIN.) =  21.10
  LONGEST FLOWPATH FROM NODE    901.00 TO NODE    894.00 =  2322.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    894.00 TO NODE    894.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  21.10
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.535
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B        5.00      0.38      1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     5.00      SUBAREA RUNOFF(CFS) =     9.70
  EFFECTIVE AREA(ACRES) =     14.80   AREA-AVERAGED Fm(INCH/HR) =  0.38
  AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     14.80       PEAK FLOW RATE(CFS) =      28.71

****************************************************************************
  FLOW PROCESS FROM NODE    894.00 TO NODE    894.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  21.10
  RAINFALL INTENSITY(INCH/HR) =   2.54
  AREA-AVERAGED Fm(INCH/HR) =  0.38
  AREA-AVERAGED Fp(INCH/HR) =  0.38
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    14.80
  TOTAL STREAM AREA(ACRES) =    14.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     28.71

  ** CONFLUENCE DATA **
   STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
```

```
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
    1      72.07   14.24     3.339  0.32( 0.32) 1.00     26.6    1070.00
    1      71.92   14.65     3.272  0.32( 0.32) 1.00     27.1     890.00
    1      71.30   14.90     3.235  0.32( 0.32) 1.00     27.2     890.00
    2      28.71   21.10     2.535  0.38( 0.38) 1.00     14.8     901.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)     NODE
    1     98.66   14.24     3.339  0.34( 0.34) 1.00     36.5    1070.00
    2     98.68   14.65     3.272  0.34( 0.34) 1.00     37.4     890.00
    3     98.15   14.90     3.235  0.34( 0.34) 1.00     37.6     890.00
    4     82.87   21.10     2.535  0.34( 0.34) 1.00     42.0     901.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     98.68    Tc(MIN.) =    14.65
 EFFECTIVE AREA(ACRES) =    37.38   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    42.00
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    894.00 =  3517.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    894.00 TO NODE    884.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3067.00  DOWNSTREAM(FEET) =   3047.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   601.00   CHANNEL SLOPE =  0.0333
 CHANNEL FLOW THRU SUBAREA(CFS) =     98.68
 FLOW VELOCITY(FEET/SEC) =   8.62 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.16   Tc(MIN.) =  15.82
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    884.00 =  4118.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.82
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.102
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       12.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.20      SUBAREA RUNOFF(CFS) =   29.89
 EFFECTIVE AREA(ACRES) =     49.58   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     54.20       PEAK FLOW RATE(CFS) =     122.85

 ** PEAK FLOW RATE TABLE **
```

```
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae       HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     123.33  15.40     3.161   0.35( 0.35) 1.00     48.7     1070.00
    2     122.85  15.82     3.102   0.35( 0.35) 1.00     49.6      890.00
    3     122.05  16.06     3.069   0.35( 0.35) 1.00     49.8      890.00
    4     101.75  22.33     2.437   0.35( 0.35) 1.00     54.2      901.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) =    123.33  Tc(MIN.) =  15.40
 AREA-AVERAGED Fm(INCH/HR) =  0.35  AREA-AVERAGED Fp(INCH/HR) =  0.35
 AREA-AVERAGED Ap =  1.00  EFFECTIVE AREA(ACRES) =     48.74

****************************************************************************
 FLOW PROCESS FROM NODE     884.00 TO NODE     884.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.40
 RAINFALL INTENSITY(INCH/HR) =   3.16
 AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    48.74
 TOTAL STREAM AREA(ACRES) =    54.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    123.33

****************************************************************************
 FLOW PROCESS FROM NODE     880.00 TO NODE     881.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   941.00
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3260.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.454
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.448
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        3.40      0.22      1.000    89    9.45
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     12.94
 TOTAL AREA(ACRES) =      3.40   PEAK FLOW RATE(CFS) =     12.94

****************************************************************************
 FLOW PROCESS FROM NODE     881.00 TO NODE     882.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3260.00  DOWNSTREAM(FEET) =   3175.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   873.00   CHANNEL SLOPE =  0.0974
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```
 CHANNEL FLOW THRU SUBAREA(CFS) =     12.94
 FLOW VELOCITY(FEET/SEC) =   8.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.75   Tc(MIN.) =  11.20
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    882.00 =  1814.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    882.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.950
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        6.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    6.40      SUBAREA RUNOFF(CFS) =   20.56
 EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      31.98

****************************************************************************
 FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3175.00  DOWNSTREAM(FEET) =   3085.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1530.00   CHANNEL SLOPE =  0.0588
 CHANNEL FLOW THRU SUBAREA(CFS) =     31.98
 FLOW VELOCITY(FEET/SEC) =   8.27 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.08   Tc(MIN.) =  14.28
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    883.00 =  3344.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.332
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       11.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.80      SUBAREA RUNOFF(CFS) =   31.35
 EFFECTIVE AREA(ACRES) =     21.60   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.60       PEAK FLOW RATE(CFS) =      57.88

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     883.00 TO NODE     884.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3085.00  DOWNSTREAM(FEET) =   3074.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1041.00   CHANNEL SLOPE =  0.0106
 CHANNEL FLOW THRU SUBAREA(CFS) =     57.88
 FLOW VELOCITY(FEET/SEC) =   4.15 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.18   Tc(MIN.) =  18.46
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    884.00 =  4385.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     884.00 TO NODE     884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.784
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       12.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.80      SUBAREA RUNOFF(CFS) =   27.69
 EFFECTIVE AREA(ACRES) =     34.40   AREA-AVERAGED Fm(INCH/HR) =  0.36
 AREA-AVERAGED Fp(INCH/HR) =  0.36  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     34.40       PEAK FLOW RATE(CFS) =      74.92

****************************************************************************
 FLOW PROCESS FROM NODE     884.00 TO NODE     884.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.46
 RAINFALL INTENSITY(INCH/HR) =   2.78
 AREA-AVERAGED Fm(INCH/HR) =  0.36
 AREA-AVERAGED Fp(INCH/HR) =  0.36
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    34.40
 TOTAL STREAM AREA(ACRES) =    34.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     74.92

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    123.33  15.40    3.161  0.35( 0.35) 1.00    48.7     1070.00
     1    122.85  15.82    3.102  0.35( 0.35) 1.00    49.6      890.00
     1    122.05  16.06    3.069  0.35( 0.35) 1.00    49.8      890.00
     1    101.75  22.33    2.437  0.35( 0.35) 1.00    54.2      901.00
     2     74.92  18.46    2.784  0.36( 0.36) 1.00    34.4      880.00
```

```
 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    195.55  15.40     3.161   0.35( 0.35) 1.00     77.4     1070.00
     2    195.47  15.82     3.102   0.35( 0.35) 1.00     79.0      890.00
     3    194.90  16.06     3.069   0.35( 0.35) 1.00     79.8      890.00
     4    189.18  18.46     2.784   0.36( 0.36) 1.00     85.9      880.00
     5    165.94  22.33     2.437   0.36( 0.36) 1.00     88.6      901.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    195.55    Tc(MIN.) =    15.40
 EFFECTIVE AREA(ACRES) =    77.43   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     88.60
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    884.00 =  4385.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    840.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   993.00
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.023
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.995
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        6.60      0.22      1.000    89   11.02
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.43
 TOTAL AREA(ACRES) =      6.60   PEAK FLOW RATE(CFS) =     22.43

****************************************************************************
 FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3425.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   642.00   CHANNEL SLOPE =  0.4283
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2174 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
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```
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.43
 FLOW VELOCITY(FEET/SEC) =   7.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  12.48
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    841.00 =  1635.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    841.00 TO NODE    841.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       12.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.80      SUBAREA RUNOFF(CFS) =   39.68
 EFFECTIVE AREA(ACRES) =     19.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     19.40       PEAK FLOW RATE(CFS) =      60.14

****************************************************************************
 FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3425.00  DOWNSTREAM(FEET) =   3210.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   768.00   CHANNEL SLOPE =  0.2799
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1900 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     60.14
 FLOW VELOCITY(FEET/SEC) =   9.55 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.34   Tc(MIN.) =  13.82
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    842.00 =  2403.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    842.00 TO NODE    842.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.82
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.410
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       11.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.50      SUBAREA RUNOFF(CFS) =   33.04
 EFFECTIVE AREA(ACRES) =     30.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.90       PEAK FLOW RATE(CFS) =      88.77
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     842.00 TO NODE     843.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3210.00  DOWNSTREAM(FEET) =   3140.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1095.00   CHANNEL SLOPE =  0.0639
 CHANNEL FLOW THRU SUBAREA(CFS) =     88.77
 FLOW VELOCITY(FEET/SEC) =  11.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.58   Tc(MIN.) =  15.39
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE     843.00 =  3498.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     843.00 TO NODE     843.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.162
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        7.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     7.70      SUBAREA RUNOFF(CFS) =    19.28
 EFFECTIVE AREA(ACRES) =     38.60   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     38.60       PEAK FLOW RATE(CFS) =     101.14

****************************************************************************
 FLOW PROCESS FROM NODE     843.00 TO NODE     844.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3140.00  DOWNSTREAM(FEET) =   3050.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1865.00   CHANNEL SLOPE =  0.0483
 CHANNEL FLOW THRU SUBAREA(CFS) =    101.14
 FLOW VELOCITY(FEET/SEC) =  10.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.97   Tc(MIN.) =  18.36
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE     844.00 =  5363.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     844.00 TO NODE     844.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.794
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/     * SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
"DESERT BRUSH"   (50.0%)    B        18.80      0.38      1.000     80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   18.80      SUBAREA RUNOFF(CFS) =   40.85
EFFECTIVE AREA(ACRES) =    57.40   AREA-AVERAGED Fm(INCH/HR) =  0.29
AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     57.40      PEAK FLOW RATE(CFS) =     129.23

****************************************************************************
 FLOW PROCESS FROM NODE    844.00 TO NODE    844.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.794
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        30.00      0.38      1.000     80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   30.00      SUBAREA RUNOFF(CFS) =   65.19
 EFFECTIVE AREA(ACRES) =    87.40   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     87.40      PEAK FLOW RATE(CFS) =     194.42

****************************************************************************
 FLOW PROCESS FROM NODE    844.00 TO NODE    844.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    850.00 TO NODE    851.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3846.00  DOWNSTREAM(FEET) =   3660.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.648
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.843
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        3.60      0.22      1.000     89   11.65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     11.75
 TOTAL AREA(ACRES) =      3.60   PEAK FLOW RATE(CFS) =     11.75

****************************************************************************
 FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  53
```

```
------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3383.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   653.00   CHANNEL SLOPE =  0.4242
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2169 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     11.75
 FLOW VELOCITY(FEET/SEC) =   5.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.84   Tc(MIN.) =  13.49
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =  1653.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    852.00 TO NODE    852.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.469
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        6.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.20      SUBAREA RUNOFF(CFS) =   18.14
 EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      28.67

****************************************************************************
 FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3383.00  DOWNSTREAM(FEET) =   3185.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   959.00   CHANNEL SLOPE =  0.2065
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1632 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.67
 FLOW VELOCITY(FEET/SEC) =   6.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.31   Tc(MIN.) =  15.80
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =  2612.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    853.00 TO NODE    853.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.105
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL POOR COVER
  "GRASS"                    D       12.80      0.22     1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   12.80      SUBAREA RUNOFF(CFS) =   33.26
  EFFECTIVE AREA(ACRES) =     22.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     22.60       PEAK FLOW RATE(CFS) =      58.72

****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    854.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3185.00  DOWNSTREAM(FEET) =   3131.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1356.00   CHANNEL SLOPE =  0.0398
  CHANNEL FLOW THRU SUBAREA(CFS) =     58.72
  FLOW VELOCITY(FEET/SEC) =   8.09 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.79   Tc(MIN.) =  18.59
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    854.00 =  3968.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    854.00 TO NODE    854.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.771
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B       23.40      0.38     1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   23.40      SUBAREA RUNOFF(CFS) =   50.35
  EFFECTIVE AREA(ACRES) =     46.00   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     46.00       PEAK FLOW RATE(CFS) =     102.27

****************************************************************************
  FLOW PROCESS FROM NODE    854.00 TO NODE    855.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3131.00  DOWNSTREAM(FEET) =   3097.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1350.00   CHANNEL SLOPE =  0.0252
  CHANNEL FLOW THRU SUBAREA(CFS) =    102.27
  FLOW VELOCITY(FEET/SEC) =   7.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.97   Tc(MIN.) =  21.56
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    855.00 =  5318.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    855.00 TO NODE    855.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  21.56
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.498
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       11.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.70      SUBAREA RUNOFF(CFS) =   22.30
 EFFECTIVE AREA(ACRES) =     57.70   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     57.70       PEAK FLOW RATE(CFS) =     113.28

********************************************************************************
 FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  52
--------------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3097.00  DOWNSTREAM(FEET) =   3065.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1376.00   CHANNEL SLOPE =  0.0233
 CHANNEL FLOW THRU SUBAREA(CFS) =    113.28
 FLOW VELOCITY(FEET/SEC) =   7.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.05   Tc(MIN.) =  24.61
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    856.00 =  6694.00 FEET.

********************************************************************************
 FLOW PROCESS FROM NODE    856.00 TO NODE    856.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  24.61
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.277
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        3.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =    5.97
 EFFECTIVE AREA(ACRES) =     61.20   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     61.20       PEAK FLOW RATE(CFS) =     113.28
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
 FLOW PROCESS FROM NODE    856.00 TO NODE    856.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  24.61
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.277
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)    B       17.30      0.38      1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   17.30      SUBAREA RUNOFF(CFS) =   29.53
EFFECTIVE AREA(ACRES) =     78.50   AREA-AVERAGED Fm(INCH/HR) =  0.33
AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     78.50       PEAK FLOW RATE(CFS) =     137.30

****************************************************************************
FLOW PROCESS FROM NODE    856.00 TO NODE    856.00 IS CODE =  10
----------------------------------------------------------------------------
>>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE    870.00 TO NODE    871.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   927.00
ELEVATION DATA: UPSTREAM(FEET) =   3642.00  DOWNSTREAM(FEET) =   3332.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.049
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.262
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
NATURAL POOR COVER
"GRASS"                     D        6.20      0.22      1.000    89   10.05
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =     22.56
TOTAL AREA(ACRES) =      6.20   PEAK FLOW RATE(CFS) =     22.56

****************************************************************************
FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3332.00  DOWNSTREAM(FEET) =   3195.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   552.00   CHANNEL SLOPE =  0.2482
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1794 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     22.56
FLOW VELOCITY(FEET/SEC) =   6.70 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.37   Tc(MIN.) =  11.42
LONGEST FLOWPATH FROM NODE    870.00 TO NODE    872.00 =  1479.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    872.00 TO NODE    872.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  11.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.896
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D        5.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.00      SUBAREA RUNOFF(CFS) =   16.55
 EFFECTIVE AREA(ACRES) =     11.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     11.20       PEAK FLOW RATE(CFS) =      37.07

********************************************************************************
 FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  52
--------------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3195.00  DOWNSTREAM(FEET) =   3160.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   248.00   CHANNEL SLOPE =  0.1411
 NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =     37.07
 FLOW VELOCITY(FEET/SEC) =  11.24 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =  11.79
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    873.00 =  1727.00 FEET.

********************************************************************************
 FLOW PROCESS FROM NODE    873.00 TO NODE    873.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  11.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER   *
 "DESERT BRUSH"   (50.0%)   B        0.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     0.50      SUBAREA RUNOFF(CFS) =    1.54
 EFFECTIVE AREA(ACRES) =     11.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     11.70       PEAK FLOW RATE(CFS) =      37.76

********************************************************************************
 FLOW PROCESS FROM NODE    873.00 TO NODE    874.00 IS CODE =  52
--------------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3160.00  DOWNSTREAM(FEET) =   3139.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   358.00   CHANNEL SLOPE =  0.0587
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     37.76
 FLOW VELOCITY(FEET/SEC) =   8.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  12.48
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    874.00 =  2085.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    874.00 TO NODE    874.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.662
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        2.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    2.50      SUBAREA RUNOFF(CFS) =    7.38
 EFFECTIVE AREA(ACRES) =     14.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     14.20       PEAK FLOW RATE(CFS) =      43.57

****************************************************************************
 FLOW PROCESS FROM NODE    874.00 TO NODE    875.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3139.00  DOWNSTREAM(FEET) =   3109.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   549.00   CHANNEL SLOPE =  0.0546
 CHANNEL FLOW THRU SUBAREA(CFS) =     43.57
 FLOW VELOCITY(FEET/SEC) =   8.70 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.05   Tc(MIN.) =  13.53
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    875.00 =  2634.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    875.00 TO NODE    875.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.460
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        5.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    5.70      SUBAREA RUNOFF(CFS) =   15.80
 EFFECTIVE AREA(ACRES) =     19.90   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     19.90       PEAK FLOW RATE(CFS) =      56.80

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     875.00 TO NODE     875.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.53
 RAINFALL INTENSITY(INCH/HR) =   3.46
 AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    19.90
 TOTAL STREAM AREA(ACRES) =    19.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     56.80

****************************************************************************
 FLOW PROCESS FROM NODE    1090.00 TO NODE    1091.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   227.00
 ELEVATION DATA: UPSTREAM(FEET) =   3710.00  DOWNSTREAM(FEET) =   3240.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.947
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        2.10      0.22      1.000    89    5.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     12.72
 TOTAL AREA(ACRES) =    2.10   PEAK FLOW RATE(CFS) =     12.72

****************************************************************************
 FLOW PROCESS FROM NODE    1091.00 TO NODE    1092.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3240.00  DOWNSTREAM(FEET) =   3170.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   227.00   CHANNEL SLOPE =  0.3084
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1971 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     12.72
 FLOW VELOCITY(FEET/SEC) =   5.80 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.65   Tc(MIN.) =   5.65
 LONGEST FLOWPATH FROM NODE    1090.00 TO NODE    1092.00 =    454.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    1092.00 TO NODE    1092.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =   5.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.375
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D        2.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     2.10      SUBAREA RUNOFF(CFS) =    11.64
 EFFECTIVE AREA(ACRES) =      4.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.20       PEAK FLOW RATE(CFS) =      23.27

****************************************************************************
 FLOW PROCESS FROM NODE   1092.00 TO NODE   1093.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3170.00  DOWNSTREAM(FEET) =   3145.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   468.00   CHANNEL SLOPE =  0.0534
 CHANNEL FLOW THRU SUBAREA(CFS) =     23.27
 FLOW VELOCITY(FEET/SEC) =   7.22 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.08   Tc(MIN.) =   6.73
 LONGEST FLOWPATH FROM NODE   1090.00 TO NODE   1093.00 =   922.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1093.00 TO NODE   1093.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   6.73
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.640
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B        5.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.20      SUBAREA RUNOFF(CFS) =    24.62
 EFFECTIVE AREA(ACRES) =      9.40   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.40       PEAK FLOW RATE(CFS) =      45.11

****************************************************************************
 FLOW PROCESS FROM NODE   1093.00 TO NODE   1094.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3145.00  DOWNSTREAM(FEET) =   3119.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   550.00   CHANNEL SLOPE =  0.0473
 CHANNEL FLOW THRU SUBAREA(CFS) =     45.11
 FLOW VELOCITY(FEET/SEC) =   8.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.12   Tc(MIN.) =   7.86
```

```
 LONGEST FLOWPATH FROM NODE   1090.00 TO NODE   1094.00 =  1472.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1094.00 TO NODE   1094.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   7.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.064
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B         5.00      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.00      SUBAREA RUNOFF(CFS) =   21.08
 EFFECTIVE AREA(ACRES) =     14.40   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     14.40       PEAK FLOW RATE(CFS) =     61.31

****************************************************************************
 FLOW PROCESS FROM NODE   1094.00 TO NODE    875.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3119.00  DOWNSTREAM(FEET) =   3109.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   272.00   CHANNEL SLOPE =  0.0368
 CHANNEL FLOW THRU SUBAREA(CFS) =     61.31
 FLOW VELOCITY(FEET/SEC) =   7.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.58   Tc(MIN.) =   8.43
 LONGEST FLOWPATH FROM NODE   1090.00 TO NODE    875.00 =  1744.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    875.00 TO NODE    875.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.819
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B         5.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.40      SUBAREA RUNOFF(CFS) =   21.57
 EFFECTIVE AREA(ACRES) =     19.80   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     19.80       PEAK FLOW RATE(CFS) =     79.71

****************************************************************************
 FLOW PROCESS FROM NODE    875.00 TO NODE    875.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   8.43
  RAINFALL INTENSITY(INCH/HR) =   4.82
  AREA-AVERAGED Fm(INCH/HR) =  0.35
  AREA-AVERAGED Fp(INCH/HR) =  0.35
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    19.80
  TOTAL STREAM AREA(ACRES) =    19.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     79.71

  ** CONFLUENCE DATA **
   STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
      1     56.80   13.53     3.460   0.29( 0.29) 1.00     19.9     870.00
      2     79.71    8.43     4.819   0.35( 0.35) 1.00     19.8    1090.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
      1    130.26    8.43     4.819   0.32( 0.32) 1.00     32.2    1090.00
      2    112.30   13.53     3.460   0.32( 0.32) 1.00     39.7     870.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    130.26    Tc(MIN.) =     8.43
  EFFECTIVE AREA(ACRES) =    32.20   AREA-AVERAGED Fm(INCH/HR) =  0.32
  AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     39.70
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    875.00 =  2634.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    875.00 TO NODE    876.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3109.00  DOWNSTREAM(FEET) =   3071.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1124.00   CHANNEL SLOPE =  0.0338
  CHANNEL FLOW THRU SUBAREA(CFS) =    130.26
  FLOW VELOCITY(FEET/SEC) =   9.45 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.98   Tc(MIN.) =  10.41
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    876.00 =  3758.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    876.00 TO NODE    876.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.41
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.157
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B        8.00       0.38       1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     8.00      SUBAREA RUNOFF(CFS) =    27.19
  EFFECTIVE AREA(ACRES) =     40.20   AREA-AVERAGED Fm(INCH/HR) =  0.33
  AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     47.70       PEAK FLOW RATE(CFS) =     138.27

****************************************************************************
  FLOW PROCESS FROM NODE    876.00 TO NODE    877.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3071.00  DOWNSTREAM(FEET) =   3057.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   635.00   CHANNEL SLOPE =  0.0220
  CHANNEL FLOW THRU SUBAREA(CFS) =    138.27
  FLOW VELOCITY(FEET/SEC) =   7.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.36   Tc(MIN.) =  11.77
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    877.00 =  4393.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.77
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.814
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B        0.60       0.38       1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     0.60      SUBAREA RUNOFF(CFS) =     1.85
  EFFECTIVE AREA(ACRES) =     40.80   AREA-AVERAGED Fm(INCH/HR) =  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     48.30       PEAK FLOW RATE(CFS) =     138.27
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.77
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.814
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B       25.20       0.38       1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    25.20      SUBAREA RUNOFF(CFS) =    77.89
 EFFECTIVE AREA(ACRES) =     66.00   AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     73.50       PEAK FLOW RATE(CFS) =     205.62

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  11.77
 RAINFALL INTENSITY(INCH/HR) =   3.81
 AREA-AVERAGED Fm(INCH/HR) =  0.35
 AREA-AVERAGED Fp(INCH/HR) =  0.35
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    66.00
 TOTAL STREAM AREA(ACRES) =    73.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    205.62

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    831.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   991.00
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3785.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.015
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.761
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        7.70      0.22      1.000    89   12.02
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.55
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.55

****************************************************************************
 FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3785.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1167.00   CHANNEL SLOPE =  0.3642
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2077 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.55
 FLOW VELOCITY(FEET/SEC) =   7.41 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.62   Tc(MIN.) =  14.64
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    832.00 =  2158.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     832.00 TO NODE     832.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.64
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.275
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       15.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    15.20      SUBAREA RUNOFF(CFS) =    41.82
 EFFECTIVE AREA(ACRES) =     22.90    AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     22.90       PEAK FLOW RATE(CFS) =       63.00

****************************************************************************
 FLOW PROCESS FROM NODE     832.00 TO NODE     833.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3205.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   580.00   CHANNEL SLOPE =  0.2672
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1857 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     63.00
 FLOW VELOCITY(FEET/SEC) =   9.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  15.65
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    833.00 =  2738.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     833.00 TO NODE     833.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.126
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       12.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    12.70      SUBAREA RUNOFF(CFS) =    33.23
 EFFECTIVE AREA(ACRES) =     35.60    AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     35.60       PEAK FLOW RATE(CFS) =       93.16

****************************************************************************
 FLOW PROCESS FROM NODE     833.00 TO NODE     834.00 IS CODE =  53
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3205.00  DOWNSTREAM(FEET) =   3165.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   577.00   CHANNEL SLOPE =  0.0693
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0693 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     93.16
FLOW VELOCITY(FEET/SEC) =   6.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.44   Tc(MIN.) =  17.09
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    834.00 =  3315.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    834.00 TO NODE    834.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  17.09
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.939
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D        9.60      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =     9.60      SUBAREA RUNOFF(CFS) =   23.51
EFFECTIVE AREA(ACRES) =     45.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     45.20       PEAK FLOW RATE(CFS) =     110.68

****************************************************************************
FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3165.00  DOWNSTREAM(FEET) =   3109.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1270.00   CHANNEL SLOPE =  0.0441
CHANNEL FLOW THRU SUBAREA(CFS) =    110.68
FLOW VELOCITY(FEET/SEC) =  10.28 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.06   Tc(MIN.) =  19.15
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    835.00 =  4585.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    835.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  19.15
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.714
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)    B        4.80      0.38      1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     4.80      SUBAREA RUNOFF(CFS) =    10.08
 EFFECTIVE AREA(ACRES) =     50.00    AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     50.00       PEAK FLOW RATE(CFS) =     111.61

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE    836.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3109.00  DOWNSTREAM(FEET) =   3061.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1856.00   CHANNEL SLOPE =  0.0259
 CHANNEL FLOW THRU SUBAREA(CFS) =    111.61
 FLOW VELOCITY(FEET/SEC) =   7.89 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.92   Tc(MIN.) =  23.07
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    836.00 =  6441.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    836.00 TO NODE    836.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.382
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       13.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    13.30      SUBAREA RUNOFF(CFS) =    23.96
 EFFECTIVE AREA(ACRES) =     63.30    AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     63.30       PEAK FLOW RATE(CFS) =     120.64

****************************************************************************
 FLOW PROCESS FROM NODE    836.00 TO NODE    877.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3061.00  DOWNSTREAM(FEET) =   3057.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   576.00   CHANNEL SLOPE =  0.0069
 CHANNEL FLOW THRU SUBAREA(CFS) =    120.64
 FLOW VELOCITY(FEET/SEC) =   4.19 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.29   Tc(MIN.) =  25.36
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  25.36
 RAINFALL INTENSITY(INCH/HR) =   2.23
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    63.30
 TOTAL STREAM AREA(ACRES) =    63.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    120.64

****************************************************************************
 FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3655.00  DOWNSTREAM(FEET) =   3221.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.832
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.327
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        4.00      0.22     1.000    89    9.83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     14.79
 TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     14.79

****************************************************************************
 FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3221.00  DOWNSTREAM(FEET) =   3155.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   923.00   CHANNEL SLOPE =  0.0715
 CHANNEL FLOW THRU SUBAREA(CFS) =     14.79
 FLOW VELOCITY(FEET/SEC) =   7.39 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.08   Tc(MIN.) =  11.91
 LONGEST FLOWPATH FROM NODE    860.00 TO NODE    862.00 =  1923.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    862.00 TO NODE    862.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.91
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.783
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B        6.90      0.38     1.000    80
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.90      SUBAREA RUNOFF(CFS) =    21.13
 EFFECTIVE AREA(ACRES) =     10.90   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  0.32  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     10.90       PEAK FLOW RATE(CFS) =      33.97

****************************************************************************
 FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3155.00  DOWNSTREAM(FEET) =   3105.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1231.00   CHANNEL SLOPE =  0.0406
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.97
 FLOW VELOCITY(FEET/SEC) =   6.99 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.94   Tc(MIN.) =  14.85
 LONGEST FLOWPATH FROM NODE    860.00 TO NODE    863.00 =  3154.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    863.00 TO NODE    863.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.242
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       20.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    20.50      SUBAREA RUNOFF(CFS) =    52.81
 EFFECTIVE AREA(ACRES) =     31.40   AREA-AVERAGED Fm(INCH/HR) =  0.36
 AREA-AVERAGED Fp(INCH/HR) =  0.36  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     31.40       PEAK FLOW RATE(CFS) =      81.48

****************************************************************************
 FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3105.00  DOWNSTREAM(FEET) =   3061.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1865.00   CHANNEL SLOPE =  0.0236
 CHANNEL FLOW THRU SUBAREA(CFS) =     81.48
 FLOW VELOCITY(FEET/SEC) =   6.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.53   Tc(MIN.) =  19.38
 LONGEST FLOWPATH FROM NODE    860.00 TO NODE    864.00 =  5019.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  19.38
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.691
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       30.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  30.20      SUBAREA RUNOFF(CFS) =   62.81
 EFFECTIVE AREA(ACRES) =     61.60   AREA-AVERAGED Fm(INCH/HR) =  0.37
 AREA-AVERAGED Fp(INCH/HR) =  0.37  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     61.60       PEAK FLOW RATE(CFS) =     128.70

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    877.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3061.00  DOWNSTREAM(FEET) =   3057.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.0054
 CHANNEL FLOW THRU SUBAREA(CFS) =    128.70
 FLOW VELOCITY(FEET/SEC) =   3.75 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.31   Tc(MIN.) =  22.69
 LONGEST FLOWPATH FROM NODE    860.00 TO NODE    877.00 =  5764.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  22.69
 RAINFALL INTENSITY(INCH/HR) =   2.41
 AREA-AVERAGED Fm(INCH/HR) =  0.37
 AREA-AVERAGED Fp(INCH/HR) =  0.37
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    61.60
 TOTAL STREAM AREA(ACRES) =    61.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    128.70

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     205.62  11.77     3.814  0.35( 0.35) 1.00    66.0     1090.00
     1     172.01  17.03     2.946  0.35( 0.35) 1.00    73.5      870.00
     2     120.64  25.36     2.229  0.26( 0.26) 1.00    63.3      830.00
     3     128.70  22.69     2.410  0.37( 0.37) 1.00    61.6      860.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
```

```
 NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)     NODE
    1    419.57   11.77     3.814  0.34( 0.34) 1.00    127.3    1090.00
    2    404.54   17.03     2.946  0.33( 0.33) 1.00    162.2     870.00
    3    385.89   22.69     2.410  0.33( 0.33) 1.00    191.7     860.00
    4    362.50   25.36     2.229  0.33( 0.33) 1.00    198.4     830.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  419.57    Tc(MIN.) =    11.77
 EFFECTIVE AREA(ACRES) =   127.35   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    198.40
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    419.57   11.77     3.814  0.34( 0.34) 1.00    127.3    1090.00
    2    404.54   17.03     2.946  0.33( 0.33) 1.00    162.2     870.00
    3    385.89   22.69     2.410  0.33( 0.33) 1.00    191.7     860.00
    4    362.50   25.36     2.229  0.33( 0.33) 1.00    198.4     830.00
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    195.55   15.40     3.161  0.35( 0.35) 1.00     77.4    1070.00
    2    195.47   15.82     3.102  0.35( 0.35) 1.00     79.0     890.00
    3    194.90   16.06     3.069  0.35( 0.35) 1.00     79.8     890.00
    4    189.18   18.46     2.784  0.36( 0.36) 1.00     85.9     880.00
    5    165.94   22.33     2.437  0.36( 0.36) 1.00     88.6     901.00
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    877.00 =  4385.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    603.89   11.77     3.814  0.34( 0.34) 1.00    186.5    1090.00
    2    604.74   15.40     3.161  0.34( 0.34) 1.00    228.9    1070.00
    3    603.47   15.82     3.102  0.34( 0.34) 1.00    233.2     890.00
    4    602.21   16.06     3.069  0.34( 0.34) 1.00    235.6     890.00
    5    597.14   17.03     2.946  0.34( 0.34) 1.00    244.5     870.00
    6    588.98   18.46     2.784  0.34( 0.34) 1.00    255.6     880.00
    7    553.03   22.33     2.437  0.34( 0.34) 1.00    278.4     901.00
    8    549.64   22.69     2.410  0.34( 0.34) 1.00    280.3     860.00
    9    511.84   25.36     2.229  0.34( 0.34) 1.00    287.0     830.00
  TOTAL AREA(ACRES) =    287.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      604.74  Tc(MIN.) =   15.401
 EFFECTIVE AREA(ACRES) =    228.86  AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    287.00
```

```
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1     603.89  11.77     3.814  0.34( 0.34) 1.00   186.5    1090.00
     2     604.74  15.40     3.161  0.34( 0.34) 1.00   228.9    1070.00
     3     603.47  15.82     3.102  0.34( 0.34) 1.00   233.2     890.00
     4     602.21  16.06     3.069  0.34( 0.34) 1.00   235.6     890.00
     5     597.14  17.03     2.946  0.34( 0.34) 1.00   244.5     870.00
     6     588.98  18.46     2.784  0.34( 0.34) 1.00   255.6     880.00
     7     553.03  22.33     2.437  0.34( 0.34) 1.00   278.4     901.00
     8     549.64  22.69     2.410  0.34( 0.34) 1.00   280.3     860.00
     9     511.84  25.36     2.229  0.34( 0.34) 1.00   287.0     830.00
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1     194.42  18.36     2.794  0.32( 0.32) 1.00    87.4     830.00
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  5363.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1     779.98  11.77     3.814  0.34( 0.34) 1.00   242.6    1090.00
     2     791.95  15.40     3.161  0.34( 0.34) 1.00   302.2    1070.00
     3     791.78  15.82     3.102  0.34( 0.34) 1.00   308.5     890.00
     4     791.15  16.06     3.069  0.34( 0.34) 1.00   312.0     890.00
     5     788.48  17.03     2.946  0.34( 0.34) 1.00   325.5     870.00
     6     783.97  18.36     2.794  0.33( 0.33) 1.00   342.3     830.00
     7     782.56  18.46     2.784  0.33( 0.33) 1.00   343.0     880.00
     8     719.36  22.33     2.437  0.33( 0.33) 1.00   365.8     901.00
     9     713.81  22.69     2.410  0.33( 0.33) 1.00   367.7     860.00
    10     661.80  25.36     2.229  0.33( 0.33) 1.00   374.4     830.00
   TOTAL AREA(ACRES) =    374.40

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     791.95  Tc(MIN.) =   15.401
 EFFECTIVE AREA(ACRES) =   302.16  AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    374.40
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    877.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
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```
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae       HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     779.98  11.77     3.814   0.34( 0.34) 1.00    242.6     1090.00
    2     791.95  15.40     3.161   0.34( 0.34) 1.00    302.2     1070.00
    3     791.78  15.82     3.102   0.34( 0.34) 1.00    308.5      890.00
    4     791.15  16.06     3.069   0.34( 0.34) 1.00    312.0      890.00
    5     788.48  17.03     2.946   0.34( 0.34) 1.00    325.5      870.00
    6     783.97  18.36     2.794   0.33( 0.33) 1.00    342.3      830.00
    7     782.56  18.46     2.784   0.33( 0.33) 1.00    343.0      880.00
    8     719.36  22.33     2.437   0.33( 0.33) 1.00    365.8      901.00
    9     713.81  22.69     2.410   0.33( 0.33) 1.00    367.7      860.00
   10     661.80  25.36     2.229   0.33( 0.33) 1.00    374.4      830.00
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

** MEMORY BANK #  3 CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae       HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     137.30  24.61     2.277   0.33( 0.33) 1.00     78.5      850.00
LONGEST FLOWPATH FROM NODE    850.00 TO NODE    877.00 =  6694.00 FEET.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae       HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     897.65  11.77     3.814   0.34( 0.34) 1.00    280.1     1090.00
    2     916.97  15.40     3.161   0.34( 0.34) 1.00    351.3     1070.00
    3     917.52  15.82     3.102   0.34( 0.34) 1.00    359.0      890.00
    4     917.30  16.06     3.069   0.34( 0.34) 1.00    363.2      890.00
    5     916.21  17.03     2.946   0.33( 0.33) 1.00    379.8      870.00
    6     913.72  18.36     2.794   0.33( 0.33) 1.00    400.8      830.00
    7     912.47  18.46     2.784   0.33( 0.33) 1.00    401.9      880.00
    8     854.22  22.33     2.437   0.33( 0.33) 1.00    437.1      901.00
    9     849.08  22.69     2.410   0.33( 0.33) 1.00    440.1      860.00
   10     813.80  24.61     2.277   0.33( 0.33) 1.00    451.0      850.00
   11     795.73  25.36     2.229   0.33( 0.33) 1.00    452.9      830.00
  TOTAL AREA(ACRES) =    452.90

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      917.52  Tc(MIN.) =   15.816
EFFECTIVE AREA(ACRES) =    358.96  AREA-AVERAGED Fm(INCH/HR) =  0.34
AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    452.90
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    877.00 =  7017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1100.00 TO NODE   1101.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   990.00
 ELEVATION DATA: UPSTREAM(FEET) =   3810.00  DOWNSTREAM(FEET) =   3685.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.536
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.651
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
```

```
     LAND USE              *  GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN   (MIN.)
  NATURAL POOR COVER
  "GRASS"                      D        7.30       0.22       1.000     89    12.54
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      22.55
  TOTAL AREA(ACRES) =       7.30   PEAK FLOW RATE(CFS) =      22.55

****************************************************************************
  FLOW PROCESS FROM NODE   1101.00 TO NODE   1102.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3685.00  DOWNSTREAM(FEET) =   3260.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1447.00   CHANNEL SLOPE =  0.2937
  NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =      22.55
  FLOW VELOCITY(FEET/SEC) =   9.79 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.46   Tc(MIN.) =  15.00
  LONGEST FLOWPATH FROM NODE   1100.00 TO NODE   1102.00 =  2437.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1102.00 TO NODE   1102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.220
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)   B        5.10       0.38       1.000     80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     5.10      SUBAREA RUNOFF(CFS) =    13.03
  EFFECTIVE AREA(ACRES) =     12.40   AREA-AVERAGED Fm(INCH/HR) =  0.28
  AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      12.40       PEAK FLOW RATE(CFS) =      32.75

****************************************************************************
  FLOW PROCESS FROM NODE   1102.00 TO NODE   1103.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3260.00  DOWNSTREAM(FEET) =   3054.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2072.00   CHANNEL SLOPE =  0.0994
  CHANNEL FLOW THRU SUBAREA(CFS) =      32.75
  FLOW VELOCITY(FEET/SEC) =  10.82 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.19   Tc(MIN.) =  18.19
  LONGEST FLOWPATH FROM NODE   1100.00 TO NODE   1103.00 =  4509.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1103.00 TO NODE   1103.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  18.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.813
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       15.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   33.50
 EFFECTIVE AREA(ACRES) =     27.70   AREA-AVERAGED Fm(INCH/HR) =  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.70       PEAK FLOW RATE(CFS) =      61.72
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =     27.70  TC(MIN.) =     18.19
 EFFECTIVE AREA(ACRES) =     27.70  AREA-AVERAGED Fm(INCH/HR)=  0.34
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =     61.72
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Unit Hydrographs

Predeveloped East Loss Calculations

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	5070.00	100.00	89.	0.218	0.680
2	4655.00	100.00	80.	0.380	0.477

TOTAL AREA (Acres) = 9725.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.296

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.417

```
**************************************************************************

          F L O O D    R O U T I N G    A N A L Y S I S
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Hacienda at Fairview Creek                                              *
* Pre-Developed Condition - Fairview Creek at Cahuilla Road               *
* 100 YEAR Event                                                         *
 **************************************************************************

  FILE NAME: HAC-PRE.DAT
  TIME/DATE OF STUDY: 15:29 05/14/2009


**************************************************************************
  FLOW PROCESS FROM NODE      0.00 TO NODE      1.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =    9725.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.394 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.296
         LOW LOSS FRACTION = 0.417
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.676
          30-MINUTE FACTOR = 0.681
           1-HOUR FACTOR = 0.683
           3-HOUR FACTOR = 0.943
           6-HOUR FACTOR = 0.970
```

WATERSHED

FAIRVIEW CREEK

24-HOUR FACTOR = 0.981

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 21.167

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.073	1262.301
2	4.950	4559.887
3	12.798	9229.624
4	29.991	20220.686
5	46.823	19796.488
6	57.855	12974.716
7	65.097	8518.078
8	70.554	6418.019
9	74.845	5047.231
10	78.366	4140.934
11	81.202	3335.386
12	83.584	2801.776
13	85.700	2488.140
14	87.560	2187.633
15	89.109	1821.424
16	90.367	1480.376
17	91.540	1378.801
18	92.577	1219.493
19	93.529	1119.650
20	94.334	946.766
21	95.053	846.267
22	95.727	792.016
23	96.282	653.750
24	96.821	633.238
25	97.235	486.627
26	97.615	447.765
27	97.909	345.544
28	98.121	248.958
29	98.341	259.375
30	98.593	295.833
31	98.847	298.875
32	99.101	298.659
33	99.355	298.659
34	99.609	298.659
35	99.863	298.659
36	100.000	161.425

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0020	0.0028
2	0.0049	0.0020	0.0028
3	0.0049	0.0020	0.0029
4	0.0049	0.0021	0.0029
5	0.0049	0.0021	0.0029
6	0.0049	0.0021	0.0029
7	0.0050	0.0021	0.0029
8	0.0050	0.0021	0.0029
9	0.0050	0.0021	0.0029
10	0.0050	0.0021	0.0029
11	0.0050	0.0021	0.0029
12	0.0050	0.0021	0.0029
13	0.0051	0.0021	0.0030
14	0.0051	0.0021	0.0030
15	0.0051	0.0021	0.0030
16	0.0051	0.0021	0.0030
17	0.0051	0.0021	0.0030
18	0.0052	0.0021	0.0030
19	0.0052	0.0022	0.0030
20	0.0052	0.0022	0.0030
21	0.0052	0.0022	0.0030
22	0.0052	0.0022	0.0030
23	0.0052	0.0022	0.0031
24	0.0053	0.0022	0.0031
25	0.0053	0.0022	0.0031
26	0.0053	0.0022	0.0031
27	0.0053	0.0022	0.0031
28	0.0053	0.0022	0.0031
29	0.0054	0.0022	0.0031
30	0.0054	0.0022	0.0031
31	0.0054	0.0023	0.0031
32	0.0054	0.0023	0.0032
33	0.0054	0.0023	0.0032
34	0.0055	0.0023	0.0032
35	0.0055	0.0023	0.0032
36	0.0055	0.0023	0.0032
37	0.0055	0.0023	0.0032
38	0.0055	0.0023	0.0032
39	0.0056	0.0023	0.0032
40	0.0056	0.0023	0.0033
41	0.0056	0.0023	0.0033
42	0.0056	0.0023	0.0033
43	0.0057	0.0024	0.0033
44	0.0057	0.0024	0.0033
45	0.0057	0.0024	0.0033
46	0.0057	0.0024	0.0033
47	0.0058	0.0024	0.0034
48	0.0058	0.0024	0.0034
49	0.0058	0.0024	0.0034
50	0.0058	0.0024	0.0034
51	0.0058	0.0024	0.0034

52	0.0059	0.0024	0.0034
53	0.0059	0.0025	0.0034
54	0.0059	0.0025	0.0034
55	0.0060	0.0025	0.0035
56	0.0060	0.0025	0.0035
57	0.0060	0.0025	0.0035
58	0.0060	0.0025	0.0035
59	0.0061	0.0025	0.0035
60	0.0061	0.0025	0.0035
61	0.0061	0.0025	0.0036
62	0.0061	0.0026	0.0036
63	0.0062	0.0026	0.0036
64	0.0062	0.0026	0.0036
65	0.0062	0.0026	0.0036
66	0.0062	0.0026	0.0036
67	0.0063	0.0026	0.0037
68	0.0063	0.0026	0.0037
69	0.0063	0.0026	0.0037
70	0.0064	0.0027	0.0037
71	0.0064	0.0027	0.0037
72	0.0064	0.0027	0.0038
73	0.0065	0.0027	0.0038
74	0.0065	0.0027	0.0038
75	0.0065	0.0027	0.0038
76	0.0066	0.0027	0.0038
77	0.0066	0.0028	0.0039
78	0.0066	0.0028	0.0039
79	0.0067	0.0028	0.0039
80	0.0067	0.0028	0.0039
81	0.0068	0.0028	0.0039
82	0.0068	0.0028	0.0040
83	0.0068	0.0028	0.0040
84	0.0069	0.0029	0.0040
85	0.0069	0.0029	0.0040
86	0.0069	0.0029	0.0040
87	0.0070	0.0029	0.0041
88	0.0070	0.0029	0.0041
89	0.0071	0.0029	0.0041
90	0.0071	0.0030	0.0041
91	0.0071	0.0030	0.0042
92	0.0072	0.0030	0.0042
93	0.0072	0.0030	0.0042
94	0.0073	0.0030	0.0042
95	0.0073	0.0031	0.0043
96	0.0074	0.0031	0.0043
97	0.0074	0.0031	0.0043
98	0.0074	0.0031	0.0043
99	0.0075	0.0031	0.0044
100	0.0075	0.0031	0.0044
101	0.0076	0.0032	0.0044
102	0.0076	0.0032	0.0045
103	0.0077	0.0032	0.0045
104	0.0077	0.0032	0.0045
105	0.0078	0.0033	0.0046
106	0.0078	0.0033	0.0046
107	0.0079	0.0033	0.0046
108	0.0080	0.0033	0.0046

109	0.0080	0.0034	0.0047
110	0.0081	0.0034	0.0047
111	0.0082	0.0034	0.0048
112	0.0082	0.0034	0.0048
113	0.0083	0.0035	0.0048
114	0.0083	0.0035	0.0049
115	0.0084	0.0035	0.0049
116	0.0084	0.0035	0.0049
117	0.0085	0.0036	0.0050
118	0.0086	0.0036	0.0050
119	0.0087	0.0036	0.0051
120	0.0087	0.0036	0.0051
121	0.0088	0.0037	0.0051
122	0.0089	0.0037	0.0052
123	0.0090	0.0037	0.0052
124	0.0090	0.0038	0.0053
125	0.0091	0.0038	0.0053
126	0.0092	0.0038	0.0054
127	0.0093	0.0039	0.0054
128	0.0094	0.0039	0.0055
129	0.0095	0.0040	0.0055
130	0.0095	0.0040	0.0056
131	0.0097	0.0040	0.0056
132	0.0097	0.0041	0.0057
133	0.0099	0.0041	0.0057
134	0.0099	0.0041	0.0058
135	0.0101	0.0042	0.0059
136	0.0101	0.0042	0.0059
137	0.0103	0.0043	0.0060
138	0.0103	0.0043	0.0060
139	0.0105	0.0044	0.0061
140	0.0106	0.0044	0.0062
141	0.0107	0.0045	0.0063
142	0.0108	0.0045	0.0063
143	0.0110	0.0046	0.0064
144	0.0111	0.0046	0.0065
145	0.0098	0.0041	0.0057
146	0.0099	0.0041	0.0058
147	0.0101	0.0042	0.0059
148	0.0102	0.0043	0.0060
149	0.0104	0.0043	0.0061
150	0.0105	0.0044	0.0061
151	0.0108	0.0045	0.0063
152	0.0109	0.0045	0.0063
153	0.0111	0.0046	0.0065
154	0.0112	0.0047	0.0065
155	0.0115	0.0048	0.0067
156	0.0116	0.0048	0.0068
157	0.0119	0.0050	0.0069
158	0.0121	0.0050	0.0070
159	0.0124	0.0052	0.0072
160	0.0125	0.0052	0.0073
161	0.0129	0.0054	0.0075
162	0.0130	0.0054	0.0076
163	0.0134	0.0056	0.0078
164	0.0136	0.0057	0.0079
165	0.0141	0.0059	0.0082

166	0.0143	0.0060	0.0083
167	0.0148	0.0062	0.0086
168	0.0150	0.0063	0.0088
169	0.0267	0.0111	0.0156
170	0.0270	0.0113	0.0157
171	0.0276	0.0115	0.0161
172	0.0280	0.0117	0.0163
173	0.0287	0.0120	0.0168
174	0.0292	0.0122	0.0170
175	0.0300	0.0125	0.0175
176	0.0305	0.0127	0.0178
177	0.0315	0.0131	0.0184
178	0.0321	0.0134	0.0187
179	0.0333	0.0139	0.0194
180	0.0340	0.0142	0.0198
181	0.0355	0.0148	0.0207
182	0.0364	0.0152	0.0212
183	0.0383	0.0160	0.0223
184	0.0394	0.0164	0.0230
185	0.0178	0.0074	0.0104
186	0.0191	0.0079	0.0111
187	0.0223	0.0093	0.0130
188	0.0246	0.0102	0.0143
189	0.0380	0.0158	0.0221
190	0.0437	0.0182	0.0255
191	0.0660	0.0247	0.0414
192	0.0957	0.0247	0.0710
193	0.4057	0.0247	0.3811
194	0.0521	0.0217	0.0304
195	0.0273	0.0114	0.0159
196	0.0205	0.0086	0.0120
197	0.0407	0.0170	0.0237
198	0.0373	0.0155	0.0217
199	0.0347	0.0145	0.0202
200	0.0327	0.0136	0.0190
201	0.0310	0.0129	0.0181
202	0.0296	0.0123	0.0172
203	0.0284	0.0118	0.0165
204	0.0273	0.0114	0.0159
205	0.0153	0.0064	0.0089
206	0.0145	0.0061	0.0085
207	0.0138	0.0058	0.0081
208	0.0132	0.0055	0.0077
209	0.0127	0.0053	0.0074
210	0.0122	0.0051	0.0071
211	0.0118	0.0049	0.0069
212	0.0114	0.0047	0.0066
213	0.0110	0.0046	0.0064
214	0.0106	0.0044	0.0062
215	0.0103	0.0043	0.0060
216	0.0100	0.0042	0.0058
217	0.0112	0.0047	0.0065
218	0.0109	0.0046	0.0064
219	0.0107	0.0044	0.0062
220	0.0104	0.0043	0.0061
221	0.0102	0.0043	0.0059
222	0.0100	0.0042	0.0058

223	0.0098	0.0041	0.0057
224	0.0096	0.0040	0.0056
225	0.0094	0.0039	0.0055
226	0.0092	0.0039	0.0054
227	0.0091	0.0038	0.0053
228	0.0089	0.0037	0.0052
229	0.0088	0.0037	0.0051
230	0.0086	0.0036	0.0050
231	0.0085	0.0035	0.0050
232	0.0084	0.0035	0.0049
233	0.0082	0.0034	0.0048
234	0.0081	0.0034	0.0047
235	0.0080	0.0033	0.0047
236	0.0079	0.0033	0.0046
237	0.0078	0.0032	0.0045
238	0.0077	0.0032	0.0045
239	0.0076	0.0032	0.0044
240	0.0075	0.0031	0.0044
241	0.0074	0.0031	0.0043
242	0.0073	0.0030	0.0043
243	0.0072	0.0030	0.0042
244	0.0071	0.0030	0.0041
245	0.0070	0.0029	0.0041
246	0.0070	0.0029	0.0041
247	0.0069	0.0029	0.0040
248	0.0068	0.0028	0.0040
249	0.0067	0.0028	0.0039
250	0.0067	0.0028	0.0039
251	0.0066	0.0027	0.0038
252	0.0065	0.0027	0.0038
253	0.0065	0.0027	0.0038
254	0.0064	0.0027	0.0037
255	0.0063	0.0026	0.0037
256	0.0063	0.0026	0.0037
257	0.0062	0.0026	0.0036
258	0.0062	0.0026	0.0036
259	0.0061	0.0025	0.0036
260	0.0060	0.0025	0.0035
261	0.0060	0.0025	0.0035
262	0.0059	0.0025	0.0035
263	0.0059	0.0025	0.0034
264	0.0058	0.0024	0.0034
265	0.0058	0.0024	0.0034
266	0.0057	0.0024	0.0033
267	0.0057	0.0024	0.0033
268	0.0056	0.0024	0.0033
269	0.0056	0.0023	0.0033
270	0.0056	0.0023	0.0032
271	0.0055	0.0023	0.0032
272	0.0055	0.0023	0.0032
273	0.0054	0.0023	0.0032
274	0.0054	0.0022	0.0031
275	0.0053	0.0022	0.0031
276	0.0053	0.0022	0.0031
277	0.0053	0.0022	0.0031
278	0.0052	0.0022	0.0031
279	0.0052	0.0022	0.0030

280	0.0052	0.0022	0.0030
281	0.0051	0.0021	0.0030
282	0.0051	0.0021	0.0030
283	0.0051	0.0021	0.0029
284	0.0050	0.0021	0.0029
285	0.0050	0.0021	0.0029
286	0.0050	0.0021	0.0029
287	0.0049	0.0021	0.0029
288	0.0049	0.0020	0.0029

TOTAL STORM RAINFALL(INCHES) = 3.53
TOTAL SOIL-LOSS(INCHES) = 1.31
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.22

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1062.1066
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 1800.0619

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2750.0	5500.0	8250.0	11000.0
0.083	0.0247	3.59	Q	.	.	.	.
0.167	0.1387	16.56	Q	.	.	.	.
0.250	0.4337	42.83	Q	.	.	.	.
0.333	1.1253	100.42	Q	.	.	.	.
0.417	2.2063	156.96	Q	.	.	.	.
0.500	3.5446	194.32	Q	.	.	.	.
0.583	5.0538	219.13	Q	.	.	.	.
0.667	6.6933	238.07	Q	.	.	.	.
0.750	8.4369	253.16	Q	.	.	.	.
0.833	10.2671	265.75	Q	.	.	.	.
0.917	12.1684	276.07	VQ	.	.	.	.
1.000	14.1307	284.94	VQ	.	.	.	.
1.083	16.1481	292.93	VQ	.	.	.	.
1.167	18.2150	300.11	VQ	.	.	.	.
1.250	20.3242	306.26	VQ	.	.	.	.
1.333	22.4695	311.49	VQ	.	.	.	.
1.417	24.6488	316.43	VQ	.	.	.	.
1.500	26.8592	320.96	VQ	.	.	.	.
1.583	29.0990	325.21	VQ	.	.	.	.
1.667	31.3649	329.01	VQ	.	.	.	.
1.750	33.6550	332.52	VQ	.	.	.	.
1.833	35.9684	335.91	VQ	.	.	.	.
1.917	38.3025	338.91	VQ	.	.	.	.
2.000	40.6572	341.89	VQ	.	.	.	.
2.083	43.0294	344.45	VQ	.	.	.	.
2.167	45.4187	346.93	.Q	.	.	.	.
2.250	47.8231	349.12	.Q	.	.	.	.
2.333	50.2409	351.06	.Q	.	.	.	.
2.417	52.6723	353.03	.Q	.	.	.	.
2.500	55.1181	355.14	.Q	.	.	.	.
2.583	57.5785	357.25	.Q	.	.	.	.
2.667	60.0537	359.39	.Q	.	.	.	.
2.750	62.5436	361.53	.Q	.	.	.	.
2.833	65.0484	363.71	.Q	.	.	.	.
2.917	67.5682	365.88	.Q	.	.	.	.
3.000	70.1006	367.69	.Q	.	.	.	.
3.083	72.6422	369.05	.Q	.	.	.	.
3.167	75.1934	370.44	.Q	.	.	.	.
3.250	77.7542	371.82	.Q	.	.	.	.
3.333	80.3246	373.23	.Q	.	.	.	.
3.417	82.9048	374.64	.Q	.	.	.	.
3.500	85.4949	376.08	.Q	.	.	.	.
3.583	88.0949	377.52	.Q	.	.	.	.
3.667	90.7050	378.99	.QV	.	.	.	.
3.750	93.3252	380.46	.QV	.	.	.	.

3.833	95.9558	381.96	.QV	.	.	.	.
3.917	98.5967	383.46	.QV	.	.	.	.
4.000	101.2482	384.99	.QV	.	.	.	.
4.083	103.9102	386.52	.QV	.	.	.	.
4.167	106.5830	388.09	.QV	.	.	.	.
4.250	109.2665	389.65	.QV	.	.	.	.
4.333	111.9611	391.26	.QV	.	.	.	.
4.417	114.6667	392.85	.QV	.	.	.	.
4.500	117.3836	394.49	.QV	.	.	.	.
4.583	120.1117	396.12	.QV	.	.	.	.
4.667	122.8514	397.80	.QV	.	.	.	.
4.750	125.6026	399.47	.QV	.	.	.	.
4.833	128.3655	401.18	.QV	.	.	.	.
4.917	131.1402	402.89	.QV	.	.	.	.
5.000	133.9270	404.64	.QV	.	.	.	.
5.083	136.7258	406.39	.Q V	.	.	.	.
5.167	139.5370	408.18	.Q V	.	.	.	.
5.250	142.3605	409.97	.Q V	.	.	.	.
5.333	145.1966	411.81	.Q V	.	.	.	.
5.417	148.0454	413.64	.Q V	.	.	.	.
5.500	150.9071	415.52	.Q V	.	.	.	.
5.583	153.7817	417.39	.Q V	.	.	.	.
5.667	156.6696	419.32	.Q V	.	.	.	.
5.750	159.5706	421.24	.Q V	.	.	.	.
5.833	162.4853	423.21	.Q V	.	.	.	.
5.917	165.4136	425.18	.Q V	.	.	.	.
6.000	168.3558	427.21	.Q V	.	.	.	.
6.083	171.3119	429.22	.Q V	.	.	.	.
6.167	174.2823	431.30	.Q V	.	.	.	.
6.250	177.2669	433.37	.Q V	.	.	.	.
6.333	180.2663	435.51	.Q V	.	.	.	.
6.417	183.2803	437.63	.Q V	.	.	.	.
6.500	186.3093	439.82	.Q V	.	.	.	.
6.583	189.3533	442.00	.Q V	.	.	.	.
6.667	192.4129	444.24	.Q V	.	.	.	.
6.750	195.4878	446.48	.Q V	.	.	.	.
6.833	198.5787	448.79	.Q V	.	.	.	.
6.917	201.6854	451.09	.Q V	.	.	.	.
7.000	204.8084	453.47	.Q V	.	.	.	.
7.083	207.9478	455.83	.Q V	.	.	.	.
7.167	211.1039	458.27	.Q V	.	.	.	.
7.250	214.2768	460.71	.Q V	.	.	.	.
7.333	217.4671	463.22	.Q V	.	.	.	.
7.417	220.6745	465.73	.Q V	.	.	.	.
7.500	223.8998	468.31	.Q V	.	.	.	.
7.583	227.1429	470.89	.Q V	.	.	.	.
7.667	230.4042	473.55	.Q V	.	.	.	.
7.750	233.6839	476.21	.Q V	.	.	.	.
7.833	236.9825	478.95	.Q V	.	.	.	.
7.917	240.2999	481.69	.Q V	.	.	.	.
8.000	243.6368	484.52	.Q V	.	.	.	.
8.083	246.9932	487.35	.Q V	.	.	.	.
8.167	250.3697	490.27	.Q V	.	.	.	.
8.250	253.7663	493.19	.Q V	.	.	.	.
8.333	257.1836	496.20	.Q V	.	.	.	.
8.417	260.6217	499.21	.Q V	.	.	.	.
8.500	264.0812	502.32	.Q V	.	.	.	.

8.583	267.5621	505.43	.Q	V	.	.	.	.
8.667	271.0652	508.65	.Q	V	.	.	.	.
8.750	274.5905	511.87	.Q	V	.	.	.	.
8.833	278.1387	515.20	.Q	V	.	.	.	.
8.917	281.7098	518.53	.Q	V	.	.	.	.
9.000	285.3047	521.98	.Q	V	.	.	.	.
9.083	288.9234	525.43	.Q	V	.	.	.	.
9.167	292.5666	529.00	.Q	V	.	.	.	.
9.250	296.2345	532.57	.Q	V	.	.	.	.
9.333	299.9279	536.28	.Q	V	.	.	.	.
9.417	303.6468	539.99	.Q	V	.	.	.	.
9.500	307.3922	543.83	.Q	V	.	.	.	.
9.583	311.1641	547.68	.Q	V	.	.	.	.
9.667	314.9635	551.67	. Q	V	.	.	.	.
9.750	318.7904	555.68	. Q	V	.	.	.	.
9.833	322.6460	559.83	. Q	V	.	.	.	.
9.917	326.5302	563.99	. Q	V	.	.	.	.
10.000	330.4442	568.31	. Q	V	.	.	.	.
10.083	334.3880	572.64	. Q	V	.	.	.	.
10.167	338.3628	577.14	. Q	V	.	.	.	.
10.250	342.3688	581.66	. Q	V	.	.	.	.
10.333	346.4070	586.35	. Q	V	.	.	.	.
10.417	350.4778	591.07	. Q	V	.	.	.	.
10.500	354.5822	595.97	. Q	V	.	.	.	.
10.583	358.7206	600.89	. Q	V	.	.	.	.
10.667	362.8943	606.01	. Q	V	.	.	.	.
10.750	367.1034	611.17	. Q	V	.	.	.	.
10.833	371.3495	616.53	. Q	V	.	.	.	.
10.917	375.6327	621.92	. Q	V	.	.	.	.
11.000	379.9546	627.54	. Q	V	.	.	.	.
11.083	384.3155	633.20	. Q	V	.	.	.	.
11.167	388.7169	639.10	. Q	V	.	.	.	.
11.250	393.1594	645.04	. Q	V	.	.	.	.
11.333	397.6445	651.24	. Q	V	.	.	.	.
11.417	402.1727	657.50	. Q	V	.	.	.	.
11.500	406.7459	664.02	. Q	V.	.	.	.	.
11.583	411.3644	670.61	. Q	V.	.	.	.	.
11.667	416.0304	677.50	. Q	V.	.	.	.	.
11.750	420.7443	684.46	. Q	V.	.	.	.	.
11.833	425.5083	691.73	. Q	V.	.	.	.	.
11.917	430.3230	699.09	. Q	V.	.	.	.	.
12.000	435.1907	706.80	. Q	V.	.	.	.	.
12.083	440.1049	713.54	. Q	V.	.	.	.	.
12.167	445.0491	717.90	. Q	V.	.	.	.	.
12.250	449.9972	718.45	. Q	V.	.	.	.	.
12.333	454.8883	710.19	. Q	V	.	.	.	.
12.417	459.7253	702.34	. Q	V	.	.	.	.
12.500	464.5499	700.52	. Q	V	.	.	.	.
12.583	469.3882	702.52	. Q	V	.	.	.	.
12.667	474.2553	706.72	. Q	V	.	.	.	.
12.750	479.1603	712.20	. Q	V	.	.	.	.
12.833	484.1118	718.95	. Q	V	.	.	.	.
12.917	489.1157	726.56	. Q	V	.	.	.	.
13.000	494.1790	735.19	. Q	V	.	.	.	.
13.083	499.3051	744.31	. Q	.V	.	.	.	.
13.167	504.5001	754.33	. Q	.V	.	.	.	.
13.250	509.7682	764.92	. Q	.V	.	.	.	.

13.333	515.1162	776.54	. Q .V . . .
13.417	520.5471	788.56	. Q .V . . .
13.500	526.0674	801.56	. Q .V . . .
13.583	531.6806	815.03	. Q .V . . .
13.667	537.3942	829.61	. Q .V . . .
13.750	543.2120	844.74	. Q . V . . .
13.833	549.1420	861.03	. Q . V . . .
13.917	555.1889	878.01	. Q . V . . .
14.000	561.3618	896.31	. Q . V . . .
14.083	567.7228	923.61	. Q . V . . .
14.167	574.4297	973.84	. Q . V . . .
14.250	581.6978	1055.33	. Q . V . . .
14.333	590.0314	1210.03	. Q . V . . .
14.417	599.4205	1363.30	. Q . V . . .
14.500	609.5776	1474.81	. Q . V . . .
14.583	620.3139	1558.91	. Q . V . . .
14.667	631.5543	1632.11	. Q . V . . .
14.750	643.2492	1698.09	. Q . V . . .
14.833	655.3802	1761.42	. Q . V . . .
14.917	667.9259	1821.64	. Q . V . . .
15.000	680.8909	1882.52	. Q . V . . .
15.083	694.2814	1944.29	. Q . V . . .
15.167	708.1196	2009.31	. Q . V . . .
15.250	722.4160	2075.83	. Q . V . . .
15.333	737.2037	2147.18	. Q . V . . .
15.417	752.3942	2205.67	. Q . V . . .
15.500	767.7270	2226.32	. Q . V . . .
15.583	782.7967	2188.12	. Q . V . . .
15.667	796.6177	2006.82	. Q . V . . .
15.750	809.3430	1847.71	. Q . V . . .
15.833	821.8957	1822.65	. Q . V . . .
15.917	835.1439	1923.64	. Q . V . . .
16.000	850.4446	2221.67	. Q . V . . .
16.083	871.8702	3110.99	. .Q V. . .
16.167	905.1791	4836.46	. . Q V . .
16.250	954.0658	7098.34	. . .V Q . .
16.333	1029.3104	10925.52	. . . V . Q.
16.417	1101.0013	10409.53	. . . V . Q .
16.500	1153.4103	7609.79	. . . V Q . .
16.583	1192.9321	5738.58	. . Q V . .
16.667	1226.9070	4933.16	. . Q . V . .
16.750	1257.5336	4446.98	. . Q . V . .
16.833	1285.5454	4067.32	. . Q . V . .
16.917	1311.0240	3699.50	. . Q . V. .
17.000	1334.6246	3426.81	. . Q . V. .
17.083	1356.8134	3221.80	. .Q . V .
17.167	1377.4722	2999.65	. Q . V .
17.250	1396.2708	2729.55	. Q. . .V .
17.333	1412.8571	2408.34	. Q . . .V .
17.417	1427.8708	2180.00	. Q . . .V .
17.500	1441.5308	1983.42	. Q . . . V .
17.583	1454.1785	1836.44	. Q . . . V .
17.667	1465.7745	1683.75	. Q . . . V .
17.750	1476.5786	1568.74	. Q . . . V .
17.833	1486.7462	1476.34	. Q . . . V .
17.917	1496.1487	1365.24	. Q . . . V .
18.000	1505.0706	1295.45	. Q . . . V .

18.083	1513.2727	1190.95	.	Q	.	.	. V	.
18.167	1521.0454	1128.60	.	Q	.	.	. V	.
18.250	1528.3060	1054.24	.	Q	.	.	. V	.
18.333	1535.2104	1002.53	.	Q	.	.	. V	.
18.417	1542.0477	992.78	.	Q	.	.	. V	.
18.500	1548.8569	988.69	.	Q	.	.	. V	.
18.583	1555.5355	969.73	.	Q	.	.	. V	.
18.667	1562.0612	947.53	.	Q	.	.	. V	.
18.750	1568.4290	924.61	.	Q	.	.	. V	.
18.833	1574.6289	900.24	.	Q	.	.	. V	.
18.917	1580.6241	870.52	.	Q	.	.	. V	.
19.000	1586.0929	794.05	.	Q	.	.	. V	.
19.083	1591.0321	717.18	.	Q	.	.	. V	.
19.167	1595.8505	699.62	.	Q	.	.	. V	.
19.250	1600.5747	685.96	.	Q	.	.	. V	.
19.333	1605.2046	672.27	.	Q	.	.	. V	.
19.417	1609.7317	657.34	.	Q	.	.	. V	.
19.500	1614.1605	643.06	.	Q	.	.	. V	.
19.583	1618.4962	629.55	.	Q	.	.	. V	.
19.667	1622.7430	616.64	.	Q	.	.	. V	.
19.750	1626.9050	604.31	.	Q	.	.	. V	.
19.833	1630.9858	592.53	.	Q	.	.	. V	.
19.917	1634.9884	581.17	.	Q	.	.	. V	.
20.000	1638.9220	571.16	.	Q	.	.	. V	.
20.083	1642.7960	562.52	.	Q	.	.	. V	.
20.167	1646.6132	554.24	.	Q	.	.	. V	.
20.250	1650.3752	546.25	.	Q	.	.	. V	.
20.333	1654.0840	538.51	.	Q	.	.	. V	.
20.417	1657.7417	531.10	.	Q	.	.	. V	.
20.500	1661.3507	524.02	.	Q	.	.	. V	.
20.583	1664.9128	517.22	.	Q	.	.	. V	.
20.667	1668.4298	510.67	.	Q	.	.	. V	.
20.750	1671.9033	504.36	.	Q	.	.	. V	.
20.833	1675.3350	498.27	.	Q	.	.	. V	.
20.917	1678.7262	492.40	.	Q	.	.	. V	.
21.000	1682.0775	486.62	.	Q	.	.	. V	.
21.083	1685.3894	480.89	.	Q	.	.	. V	.
21.167	1688.6631	475.34	.	Q	.	.	. V	.
21.250	1691.8998	469.97	.	Q	.	.	. V	.
21.333	1695.1006	464.75	.	Q	.	.	. V	.
21.417	1698.2665	459.69	.	Q	.	.	. V	.
21.500	1701.3986	454.78	.	Q	.	.	. V	.
21.583	1704.4978	450.01	.	Q	.	.	. V	.
21.667	1707.5652	445.38	.	Q	.	.	. V	.
21.750	1710.6014	440.87	.	Q	.	.	. V	.
21.833	1713.6075	436.48	.	Q	.	.	. V	.
21.917	1716.5842	432.21	.	Q	.	.	. V	.
22.000	1719.5322	428.05	.	Q	.	.	. V	.
22.083	1722.4523	424.00	.	Q	.	.	. V	.
22.167	1725.3451	420.05	.	Q	.	.	. V	.
22.250	1728.2114	416.19	.	Q	.	.	. V	.
22.333	1731.0519	412.44	.	Q	.	.	. V	.
22.417	1733.8671	408.77	.	Q	.	.	. V	.
22.500	1736.6576	405.19	.	Q	.	.	. V	.
22.583	1739.4241	401.69	.	Q	.	.	. V	.
22.667	1742.1670	398.27	.	Q	.	.	. V	.
22.750	1744.8868	394.93	.	Q	.	.	. V	.

22.833	1747.5842	391.66	.Q	.	.	.	V .
22.917	1750.2596	388.46	.Q	.	.	.	V .
23.000	1752.9135	385.34	.Q	.	.	.	V .
23.083	1755.5463	382.28	.Q	.	.	.	V.
23.167	1758.1584	379.29	.Q	.	.	.	V.
23.250	1760.7504	376.35	.Q	.	.	.	V.
23.333	1763.3225	373.48	.Q	.	.	.	V.
23.417	1765.8752	370.66	.Q	.	.	.	V.
23.500	1768.4091	367.91	.Q	.	.	.	V.
23.583	1770.9242	365.21	.Q	.	.	.	V.
23.667	1773.4211	362.56	.Q	.	.	.	V.
23.750	1775.9001	359.96	.Q	.	.	.	V.
23.833	1778.3617	357.41	.Q	.	.	.	V.
23.917	1780.8059	354.91	.Q	.	.	.	V.
24.000	1783.2333	352.45	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	235.0
20%	100.0
30%	55.0
40%	40.0
50%	25.0
60%	20.0
70%	10.0
80%	10.0
90%	10.0

END OF FLOODSCx ROUTING ANALYSIS

Predeveloped West Loss Calculations

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURV NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	154.00	100.00	89.	0.218	0.680
2	326.00	100.00	80.	0.380	0.477

TOTAL AREA (Acres) = 480.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.328

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.458

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**************************************************************************

          F L O O D    R O U T I N G    A N A L Y S I S
        USING COUNTY HYDROLOGY MANUAL OF SAN BERNARDINO(1986)
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Western Watershed Tributary to Cahuilla Road                            *
* Predeveloped Condition                                                  *
* 100 Year Storm Event                                                    *
 **************************************************************************

  FILE NAME: HAC-PRE2.DAT
  TIME/DATE OF STUDY: 16:40 05/14/2009

**************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     480.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.211 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.328
         LOW LOSS FRACTION = 0.458
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.998
```

WESTERLY WATERSHED

24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 39.513

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.695	156.446
2	18.148	897.068
3	48.440	1758.437
4	65.134	969.084
5	74.387	537.128
6	80.540	357.158
7	84.930	254.888
8	88.342	198.057
9	90.801	142.734
10	92.797	115.892
11	94.403	93.212
12	95.690	74.728
13	96.723	59.933
14	97.501	45.147
15	98.029	30.697
16	98.451	24.458
17	98.924	27.443
18	99.385	26.783
19	99.754	21.424
20	99.938	10.712
21	100.000	3.571

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0022	0.0026
2	0.0049	0.0022	0.0026
3	0.0049	0.0022	0.0027
4	0.0049	0.0022	0.0027
5	0.0049	0.0023	0.0027
6	0.0049	0.0023	0.0027
7	0.0050	0.0023	0.0027
8	0.0050	0.0023	0.0027
9	0.0050	0.0023	0.0027
10	0.0050	0.0023	0.0027
11	0.0050	0.0023	0.0027
12	0.0050	0.0023	0.0027
13	0.0051	0.0023	0.0027
14	0.0051	0.0023	0.0027
15	0.0051	0.0023	0.0028
16	0.0051	0.0023	0.0028
17	0.0051	0.0024	0.0028
18	0.0051	0.0024	0.0028
19	0.0052	0.0024	0.0028
20	0.0052	0.0024	0.0028
21	0.0052	0.0024	0.0028
22	0.0052	0.0024	0.0028
23	0.0052	0.0024	0.0028
24	0.0053	0.0024	0.0028
25	0.0053	0.0024	0.0029
26	0.0053	0.0024	0.0029
27	0.0053	0.0024	0.0029
28	0.0053	0.0024	0.0029
29	0.0054	0.0025	0.0029
30	0.0054	0.0025	0.0029
31	0.0054	0.0025	0.0029
32	0.0054	0.0025	0.0029
33	0.0054	0.0025	0.0029
34	0.0055	0.0025	0.0030
35	0.0055	0.0025	0.0030
36	0.0055	0.0025	0.0030
37	0.0055	0.0025	0.0030
38	0.0055	0.0025	0.0030
39	0.0056	0.0026	0.0030
40	0.0056	0.0026	0.0030
41	0.0056	0.0026	0.0030
42	0.0056	0.0026	0.0031
43	0.0057	0.0026	0.0031
44	0.0057	0.0026	0.0031
45	0.0057	0.0026	0.0031
46	0.0057	0.0026	0.0031
47	0.0058	0.0026	0.0031
48	0.0058	0.0026	0.0031
49	0.0058	0.0027	0.0031
50	0.0058	0.0027	0.0032
51	0.0059	0.0027	0.0032

52	0.0059	0.0027	0.0032
53	0.0059	0.0027	0.0032
54	0.0059	0.0027	0.0032
55	0.0060	0.0027	0.0032
56	0.0060	0.0027	0.0032
57	0.0060	0.0028	0.0033
58	0.0060	0.0028	0.0033
59	0.0061	0.0028	0.0033
60	0.0061	0.0028	0.0033
61	0.0061	0.0028	0.0033
62	0.0061	0.0028	0.0033
63	0.0062	0.0028	0.0033
64	0.0062	0.0028	0.0034
65	0.0062	0.0029	0.0034
66	0.0063	0.0029	0.0034
67	0.0063	0.0029	0.0034
68	0.0063	0.0029	0.0034
69	0.0064	0.0029	0.0034
70	0.0064	0.0029	0.0035
71	0.0064	0.0029	0.0035
72	0.0064	0.0030	0.0035
73	0.0065	0.0030	0.0035
74	0.0065	0.0030	0.0035
75	0.0066	0.0030	0.0036
76	0.0066	0.0030	0.0036
77	0.0066	0.0030	0.0036
78	0.0066	0.0030	0.0036
79	0.0067	0.0031	0.0036
80	0.0067	0.0031	0.0036
81	0.0068	0.0031	0.0037
82	0.0068	0.0031	0.0037
83	0.0068	0.0031	0.0037
84	0.0069	0.0031	0.0037
85	0.0069	0.0032	0.0038
86	0.0069	0.0032	0.0038
87	0.0070	0.0032	0.0038
88	0.0070	0.0032	0.0038
89	0.0071	0.0032	0.0038
90	0.0071	0.0033	0.0039
91	0.0072	0.0033	0.0039
92	0.0072	0.0033	0.0039
93	0.0073	0.0033	0.0039
94	0.0073	0.0033	0.0039
95	0.0073	0.0034	0.0040
96	0.0074	0.0034	0.0040
97	0.0074	0.0034	0.0040
98	0.0075	0.0034	0.0040
99	0.0075	0.0035	0.0041
100	0.0076	0.0035	0.0041
101	0.0076	0.0035	0.0041
102	0.0077	0.0035	0.0042
103	0.0077	0.0035	0.0042
104	0.0078	0.0036	0.0042
105	0.0078	0.0036	0.0043
106	0.0079	0.0036	0.0043
107	0.0080	0.0036	0.0043
108	0.0080	0.0037	0.0043

109	0.0081	0.0037	0.0044
110	0.0081	0.0037	0.0044
111	0.0082	0.0038	0.0044
112	0.0082	0.0038	0.0045
113	0.0083	0.0038	0.0045
114	0.0084	0.0038	0.0045
115	0.0084	0.0039	0.0046
116	0.0085	0.0039	0.0046
117	0.0086	0.0039	0.0047
118	0.0086	0.0040	0.0047
119	0.0087	0.0040	0.0047
120	0.0088	0.0040	0.0048
121	0.0089	0.0041	0.0048
122	0.0089	0.0041	0.0048
123	0.0090	0.0041	0.0049
124	0.0091	0.0042	0.0049
125	0.0092	0.0042	0.0050
126	0.0092	0.0042	0.0050
127	0.0094	0.0043	0.0051
128	0.0094	0.0043	0.0051
129	0.0095	0.0044	0.0052
130	0.0096	0.0044	0.0052
131	0.0097	0.0045	0.0053
132	0.0098	0.0045	0.0053
133	0.0099	0.0045	0.0054
134	0.0100	0.0046	0.0054
135	0.0101	0.0046	0.0055
136	0.0102	0.0047	0.0055
137	0.0104	0.0047	0.0056
138	0.0104	0.0048	0.0057
139	0.0106	0.0048	0.0057
140	0.0107	0.0049	0.0058
141	0.0108	0.0050	0.0059
142	0.0109	0.0050	0.0059
143	0.0111	0.0051	0.0060
144	0.0112	0.0051	0.0061
145	0.0090	0.0041	0.0049
146	0.0091	0.0042	0.0049
147	0.0093	0.0042	0.0050
148	0.0094	0.0043	0.0051
149	0.0096	0.0044	0.0052
150	0.0097	0.0044	0.0052
151	0.0099	0.0045	0.0053
152	0.0100	0.0046	0.0054
153	0.0102	0.0047	0.0055
154	0.0103	0.0047	0.0056
155	0.0106	0.0048	0.0057
156	0.0107	0.0049	0.0058
157	0.0110	0.0050	0.0060
158	0.0111	0.0051	0.0060
159	0.0114	0.0052	0.0062
160	0.0116	0.0053	0.0063
161	0.0119	0.0055	0.0065
162	0.0121	0.0055	0.0066
163	0.0125	0.0057	0.0068
164	0.0127	0.0058	0.0069
165	0.0131	0.0060	0.0071

166	0.0133	0.0061	0.0072
167	0.0138	0.0063	0.0075
168	0.0141	0.0064	0.0076
169	0.0151	0.0069	0.0082
170	0.0154	0.0071	0.0084
171	0.0161	0.0074	0.0087
172	0.0164	0.0075	0.0089
173	0.0172	0.0079	0.0093
174	0.0176	0.0081	0.0095
175	0.0185	0.0085	0.0100
176	0.0190	0.0087	0.0103
177	0.0201	0.0092	0.0109
178	0.0207	0.0095	0.0112
179	0.0220	0.0101	0.0119
180	0.0228	0.0104	0.0124
181	0.0245	0.0112	0.0133
182	0.0255	0.0117	0.0138
183	0.0279	0.0128	0.0151
184	0.0293	0.0134	0.0159
185	0.0251	0.0115	0.0136
186	0.0269	0.0123	0.0146
187	0.0315	0.0144	0.0171
188	0.0347	0.0159	0.0188
189	0.0539	0.0247	0.0292
190	0.0621	0.0273	0.0348
191	0.0941	0.0273	0.0667
192	0.1366	0.0273	0.1093
193	0.5871	0.0273	0.5598
194	0.0741	0.0273	0.0467
195	0.0387	0.0177	0.0210
196	0.0290	0.0133	0.0157
197	0.0309	0.0141	0.0167
198	0.0266	0.0122	0.0144
199	0.0236	0.0108	0.0128
200	0.0213	0.0098	0.0116
201	0.0195	0.0089	0.0106
202	0.0180	0.0083	0.0098
203	0.0168	0.0077	0.0091
204	0.0158	0.0072	0.0085
205	0.0143	0.0066	0.0078
206	0.0136	0.0062	0.0073
207	0.0129	0.0059	0.0070
208	0.0123	0.0056	0.0067
209	0.0118	0.0054	0.0064
210	0.0113	0.0052	0.0061
211	0.0108	0.0050	0.0059
212	0.0105	0.0048	0.0057
213	0.0101	0.0046	0.0055
214	0.0098	0.0045	0.0053
215	0.0095	0.0043	0.0051
216	0.0092	0.0042	0.0050
217	0.0113	0.0052	0.0061
218	0.0110	0.0050	0.0060
219	0.0108	0.0049	0.0058
220	0.0105	0.0048	0.0057
221	0.0103	0.0047	0.0056
222	0.0101	0.0046	0.0055

223	0.0099	0.0045	0.0053
224	0.0097	0.0044	0.0052
225	0.0095	0.0043	0.0051
226	0.0093	0.0043	0.0050
227	0.0091	0.0042	0.0050
228	0.0090	0.0041	0.0049
229	0.0088	0.0040	0.0048
230	0.0087	0.0040	0.0047
231	0.0085	0.0039	0.0046
232	0.0084	0.0038	0.0046
233	0.0083	0.0038	0.0045
234	0.0082	0.0037	0.0044
235	0.0080	0.0037	0.0044
236	0.0079	0.0036	0.0043
237	0.0078	0.0036	0.0042
238	0.0077	0.0035	0.0042
239	0.0076	0.0035	0.0041
240	0.0075	0.0034	0.0041
241	0.0074	0.0034	0.0040
242	0.0073	0.0034	0.0040
243	0.0072	0.0033	0.0039
244	0.0071	0.0033	0.0039
245	0.0071	0.0032	0.0038
246	0.0070	0.0032	0.0038
247	0.0069	0.0032	0.0037
248	0.0068	0.0031	0.0037
249	0.0067	0.0031	0.0037
250	0.0067	0.0031	0.0036
251	0.0066	0.0030	0.0036
252	0.0065	0.0030	0.0035
253	0.0065	0.0030	0.0035
254	0.0064	0.0029	0.0035
255	0.0063	0.0029	0.0034
256	0.0063	0.0029	0.0034
257	0.0062	0.0028	0.0034
258	0.0062	0.0028	0.0033
259	0.0061	0.0028	0.0033
260	0.0060	0.0028	0.0033
261	0.0060	0.0027	0.0032
262	0.0059	0.0027	0.0032
263	0.0059	0.0027	0.0032
264	0.0058	0.0027	0.0032
265	0.0058	0.0027	0.0031
266	0.0057	0.0026	0.0031
267	0.0057	0.0026	0.0031
268	0.0056	0.0026	0.0031
269	0.0056	0.0026	0.0030
270	0.0056	0.0025	0.0030
271	0.0055	0.0025	0.0030
272	0.0055	0.0025	0.0030
273	0.0054	0.0025	0.0029
274	0.0054	0.0025	0.0029
275	0.0053	0.0024	0.0029
276	0.0053	0.0024	0.0029
277	0.0053	0.0024	0.0029
278	0.0052	0.0024	0.0028
279	0.0052	0.0024	0.0028

280	0.0052	0.0024	0.0028
281	0.0051	0.0023	0.0028
282	0.0051	0.0023	0.0028
283	0.0051	0.0023	0.0027
284	0.0050	0.0023	0.0027
285	0.0050	0.0023	0.0027
286	0.0050	0.0023	0.0027
287	0.0049	0.0023	0.0027
288	0.0049	0.0022	0.0026

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 1.35
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.25

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 53.8775
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 89.9372

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	325.0	650.0	975.0	1300.0
0.083	0.0028	0.41	Q	.	.	.	.
0.167	0.0220	2.78	Q	.	.	.	.
0.250	0.0731	7.42	Q	.	.	.	.
0.333	0.1420	10.00	Q	.	.	.	.
0.417	0.2209	11.45	Q	.	.	.	.
0.500	0.3064	12.43	Q	.	.	.	.
0.583	0.3969	13.14	Q	.	.	.	.
0.667	0.4913	13.70	Q	.	.	.	.
0.750	0.5886	14.13	Q	.	.	.	.
0.833	0.6883	14.48	Q	.	.	.	.
0.917	0.7901	14.77	Q	.	.	.	.
1.000	0.8935	15.02	Q	.	.	.	.
1.083	0.9984	15.23	Q	.	.	.	.
1.167	1.1044	15.40	Q	.	.	.	.
1.250	1.2113	15.53	Q	.	.	.	.
1.333	1.3191	15.64	Q	.	.	.	.
1.417	1.4277	15.77	Q	.	.	.	.
1.500	1.5372	15.89	Q	.	.	.	.
1.583	1.6474	16.01	Q	.	.	.	.
1.667	1.7582	16.09	Q	.	.	.	.
1.750	1.8695	16.16	Q	.	.	.	.
1.833	1.9811	16.21	Q	.	.	.	.
1.917	2.0932	16.27	Q	.	.	.	.
2.000	2.2056	16.33	Q	.	.	.	.
2.083	2.3185	16.39	QV	.	.	.	.
2.167	2.4317	16.44	QV	.	.	.	.
2.250	2.5454	16.50	QV	.	.	.	.
2.333	2.6594	16.56	QV	.	.	.	.
2.417	2.7739	16.62	QV	.	.	.	.
2.500	2.8888	16.68	QV	.	.	.	.
2.583	3.0041	16.75	QV	.	.	.	.
2.667	3.1199	16.81	QV	.	.	.	.
2.750	3.2361	16.87	QV	.	.	.	.
2.833	3.3527	16.93	QV	.	.	.	.
2.917	3.4698	17.00	QV	.	.	.	.
3.000	3.5873	17.06	QV	.	.	.	.
3.083	3.7052	17.13	QV	.	.	.	.
3.167	3.8236	17.19	QV	.	.	.	.
3.250	3.9425	17.26	QV	.	.	.	.
3.333	4.0618	17.33	QV	.	.	.	.
3.417	4.1816	17.40	QV	.	.	.	.
3.500	4.3019	17.46	QV	.	.	.	.
3.583	4.4226	17.53	QV	.	.	.	.
3.667	4.5439	17.60	Q V	.	.	.	.
3.750	4.6656	17.67	Q V	.	.	.	.

3.833	4.7878	17.74	Q	V	.	.	.	.
3.917	4.9105	17.82	Q	V	.	.	.	.
4.000	5.0337	17.89	Q	V	.	.	.	.
4.083	5.1575	17.97	Q	V	.	.	.	.
4.167	5.2817	18.04	Q	V	.	.	.	.
4.250	5.4065	18.12	Q	V	.	.	.	.
4.333	5.5318	18.19	Q	V	.	.	.	.
4.417	5.6576	18.27	Q	V	.	.	.	.
4.500	5.7839	18.35	Q	V	.	.	.	.
4.583	5.9109	18.43	Q	V	.	.	.	.
4.667	6.0383	18.51	Q	V	.	.	.	.
4.750	6.1663	18.59	Q	V	.	.	.	.
4.833	6.2949	18.67	Q	V	.	.	.	.
4.917	6.4241	18.75	Q	V	.	.	.	.
5.000	6.5538	18.84	Q	V	.	.	.	.
5.083	6.6841	18.92	Q	V	.	.	.	.
5.167	6.8150	19.01	Q	V	.	.	.	.
5.250	6.9465	19.09	Q	V	.	.	.	.
5.333	7.0786	19.18	Q	V	.	.	.	.
5.417	7.2113	19.27	Q	V	.	.	.	.
5.500	7.3446	19.36	Q	V	.	.	.	.
5.583	7.4786	19.45	Q	V	.	.	.	.
5.667	7.6132	19.54	Q	V	.	.	.	.
5.750	7.7485	19.64	Q	V	.	.	.	.
5.833	7.8844	19.73	Q	V	.	.	.	.
5.917	8.0209	19.83	Q	V	.	.	.	.
6.000	8.1581	19.92	Q	V	.	.	.	.
6.083	8.2961	20.02	Q	V	.	.	.	.
6.167	8.4346	20.12	Q	V	.	.	.	.
6.250	8.5739	20.23	Q	V	.	.	.	.
6.333	8.7139	20.33	Q	V	.	.	.	.
6.417	8.8546	20.43	Q	V	.	.	.	.
6.500	8.9961	20.53	Q	V	.	.	.	.
6.583	9.1382	20.64	Q	V	.	.	.	.
6.667	9.2811	20.75	Q	V	.	.	.	.
6.750	9.4248	20.86	Q	V	.	.	.	.
6.833	9.5692	20.97	Q	V	.	.	.	.
6.917	9.7145	21.09	Q	V	.	.	.	.
7.000	9.8604	21.20	Q	V	.	.	.	.
7.083	10.0072	21.32	Q	V	.	.	.	.
7.167	10.1548	21.43	Q	V	.	.	.	.
7.250	10.3033	21.55	Q	V	.	.	.	.
7.333	10.4525	21.67	Q	V	.	.	.	.
7.417	10.6026	21.80	Q	V	.	.	.	.
7.500	10.7536	21.92	Q	V	.	.	.	.
7.583	10.9054	22.05	Q	V	.	.	.	.
7.667	11.0582	22.17	Q	V	.	.	.	.
7.750	11.2118	22.31	Q	V	.	.	.	.
7.833	11.3663	22.44	Q	V	.	.	.	.
7.917	11.5218	22.58	Q	V	.	.	.	.
8.000	11.6782	22.71	Q	V	.	.	.	.
8.083	11.8356	22.85	Q	V	.	.	.	.
8.167	11.9939	22.99	Q	V	.	.	.	.
8.250	12.1533	23.14	Q	V	.	.	.	.
8.333	12.3136	23.28	Q	V	.	.	.	.
8.417	12.4750	23.43	Q	V	.	.	.	.
8.500	12.6374	23.58	Q	V	.	.	.	.

8.583	12.8009	23.74	Q	V	.	.	.	.
8.667	12.9654	23.89	Q	V	.	.	.	.
8.750	13.1310	24.05	Q	V	.	.	.	.
8.833	13.2978	24.21	Q	V	.	.	.	.
8.917	13.4657	24.38	Q	V	.	.	.	.
9.000	13.6348	24.55	Q	V	.	.	.	.
9.083	13.8050	24.72	Q	V	.	.	.	.
9.167	13.9764	24.89	Q	V	.	.	.	.
9.250	14.1491	25.07	Q	V	.	.	.	.
9.333	14.3230	25.25	Q	V	.	.	.	.
9.417	14.4982	25.44	Q	V	.	.	.	.
9.500	14.6746	25.62	Q	V	.	.	.	.
9.583	14.8524	25.82	Q	V	.	.	.	.
9.667	15.0316	26.01	Q	V	.	.	.	.
9.750	15.2121	26.21	Q	V	.	.	.	.
9.833	15.3940	26.41	Q	V	.	.	.	.
9.917	15.5774	26.62	Q	V	.	.	.	.
10.000	15.7622	26.83	Q	V	.	.	.	.
10.083	15.9485	27.05	Q	V	.	.	.	.
10.167	16.1363	27.27	Q	V	.	.	.	.
10.250	16.3257	27.50	Q	V	.	.	.	.
10.333	16.5167	27.73	Q	V	.	.	.	.
10.417	16.7093	27.97	Q	V	.	.	.	.
10.500	16.9036	28.21	Q	V	.	.	.	.
10.583	17.0996	28.46	Q	V	.	.	.	.
10.667	17.2973	28.71	Q	V	.	.	.	.
10.750	17.4968	28.97	Q	V	.	.	.	.
10.833	17.6982	29.23	Q	V	.	.	.	.
10.917	17.9014	29.51	Q	V	.	.	.	.
11.000	18.1066	29.79	Q	V	.	.	.	.
11.083	18.3137	30.08	Q	V	.	.	.	.
11.167	18.5228	30.37	Q	V	.	.	.	.
11.250	18.7341	30.67	Q	V	.	.	.	.
11.333	18.9474	30.98	Q	V	.	.	.	.
11.417	19.1630	31.30	Q	V	.	.	.	.
11.500	19.3808	31.62	Q	V	.	.	.	.
11.583	19.6009	31.96	Q	V	.	.	.	.
11.667	19.8234	32.30	Q	V	.	.	.	.
11.750	20.0483	32.66	.Q	V	.	.	.	.
11.833	20.2757	33.02	.Q	V	.	.	.	.
11.917	20.5058	33.41	.Q	V	.	.	.	.
12.000	20.7385	33.79	.Q	V	.	.	.	.
12.083	20.9726	33.99	.Q	V	.	.	.	.
12.167	21.2015	33.23	.Q	V	.	.	.	.
12.250	21.4176	31.38	Q	V	.	.	.	.
12.333	21.6279	30.53	Q	V	.	.	.	.
12.417	21.8364	30.27	Q	V	.	.	.	.
12.500	22.0446	30.23	Q	V	.	.	.	.
12.583	22.2537	30.36	Q	V	.	.	.	.
12.667	22.4642	30.56	Q	V	.	.	.	.
12.750	22.6767	30.86	Q	V	.	.	.	.
12.833	22.8916	31.20	Q	V	.	.	.	.
12.917	23.1092	31.61	Q	V	.	.	.	.
13.000	23.3299	32.03	Q	V	.	.	.	.
13.083	23.5539	32.53	.Q	V	.	.	.	.
13.167	23.7815	33.04	.Q	V	.	.	.	.
13.250	24.0131	33.63	.Q	V	.	.	.	.

13.333	24.2487	34.22	.Q V . . .
13.417	24.4889	34.87	.Q V . . .
13.500	24.7335	35.52	.Q .V . . .
13.583	24.9832	36.25	.Q .V . . .
13.667	25.2380	37.00	.Q .V . . .
13.750	25.4985	37.83	.Q .V . . .
13.833	25.7649	38.68	.Q .V . . .
13.917	26.0377	39.61	.Q .V . . .
14.000	26.3171	40.56	.Q .V . . .
14.083	26.6040	41.67	.Q .V . . .
14.167	26.9002	43.01	.Q .V . . .
14.250	27.2083	44.74	.Q . V . . .
14.333	27.5270	46.27	.Q . V . . .
14.417	27.8564	47.83	.Q . V . . .
14.500	28.1964	49.38	.Q . V . . .
14.583	28.5483	51.09	.Q . V . . .
14.667	28.9122	52.84	.Q . V . . .
14.750	29.2897	54.82	.Q . V . . .
14.833	29.6815	56.88	.Q . V . . .
14.917	30.0894	59.24	.Q . V. . . .
15.000	30.5146	61.73	.Q . V . . .
15.083	30.9596	64.62	.Q . V . . .
15.167	31.4261	67.73	. Q . V . . .
15.250	31.9179	71.41	. Q . V . . .
15.333	32.4374	75.43	. Q . V . . .
15.417	32.9862	79.68	. Q . V . . .
15.500	33.5474	81.49	. Q . V . . .
15.583	34.1054	81.02	. Q . V . . .
15.667	34.6877	84.56	. Q . V . . .
15.750	35.3279	92.96	. Q . V . . .
15.833	36.0797	109.15	. Q . V . . .
15.917	37.0497	140.85	. Q . V . . .
16.000	38.4143	198.13	. Q . V . . .
16.083	41.0001	375.47	. .Q V . . .
16.167	46.5990	812.96	. . V Q . .
16.250	54.8964	1204.78	. . . V . Q .
16.333	60.0867	753.62	. . . Q V . .
16.417	63.3577	474.96	. . Q . V . .
16.500	65.7422	346.22	. Q . V. . .
16.583	67.6244	273.30	. Q . V . .
16.667	69.1834	226.37	. Q . V . .
16.750	70.4500	183.91	. Q . .V . .
16.833	71.5386	158.06	. Q . .V . .
16.917	72.4783	136.44	. Q . . V . .
17.000	73.2937	118.40	. Q . . V . .
17.083	74.0045	103.20	. Q . . V . .
17.167	74.6170	88.93	. Q . . . V . .
17.250	75.1410	76.09	. Q . . . V . .
17.333	75.6150	68.83	. Q . . . V . .
17.417	76.0742	66.67	. Q . . . V . .
17.500	76.5052	62.59	.Q . . . V . .
17.583	76.8906	55.95	.Q . . . V . .
17.667	77.2146	47.06	.Q . . . V . .
17.750	77.4946	40.65	.Q . . . V . .
17.833	77.7478	36.77	.Q . . . V . .
17.917	77.9894	35.09	.Q . . . V . .
18.000	78.2212	33.65	.Q . . . V . .

18.083	78.4454	32.56	.Q	.	.	.	V	.
18.167	78.6696	32.54	.Q	.	.	.	V	.
18.250	78.9019	33.74	.Q	.	.	.	V	.
18.333	79.1360	33.98	.Q	.	.	.	V	.
18.417	79.3682	33.73	.Q	.	.	.	V	.
18.500	79.5976	33.30	.Q	.	.	.	V	.
18.583	79.8234	32.79	.Q	.	.	.	V	.
18.667	80.0457	32.27	Q	.	.	.	V	.
18.750	80.2642	31.72	Q	.	.	.	V	.
18.833	80.4789	31.18	Q	.	.	.	V	.
18.917	80.6900	30.65	Q	.	.	.	V	.
19.000	80.8975	30.13	Q	.	.	.	V	.
19.083	81.1014	29.62	Q	.	.	.	V	.
19.167	81.3020	29.12	Q	.	.	.	V	.
19.250	81.4991	28.62	Q	.	.	.	V	.
19.333	81.6930	28.15	Q	.	.	.	V	.
19.417	81.8837	27.70	Q	.	.	.	V	.
19.500	82.0716	27.27	Q	.	.	.	V	.
19.583	82.2565	26.86	Q	.	.	.	V	.
19.667	82.4387	26.45	Q	.	.	.	V	.
19.750	82.6180	26.04	Q	.	.	.	V	.
19.833	82.7947	25.65	Q	.	.	.	V	.
19.917	82.9688	25.28	Q	.	.	.	V	.
20.000	83.1404	24.91	Q	.	.	.	V	.
20.083	83.3096	24.57	Q	.	.	.	V	.
20.167	83.4764	24.23	Q	.	.	.	V	.
20.250	83.6411	23.91	Q	.	.	.	V	.
20.333	83.8036	23.60	Q	.	.	.	V	.
20.417	83.9640	23.29	Q	.	.	.	V	.
20.500	84.1225	23.00	Q	.	.	.	V	.
20.583	84.2789	22.72	Q	.	.	.	V	.
20.667	84.4335	22.45	Q	.	.	.	V	.
20.750	84.5863	22.18	Q	.	.	.	V	.
20.833	84.7373	21.93	Q	.	.	.	V	.
20.917	84.8866	21.68	Q	.	.	.	V	.
21.000	85.0342	21.44	Q	.	.	.	V	.
21.083	85.1802	21.20	Q	.	.	.	V	.
21.167	85.3247	20.97	Q	.	.	.	V	.
21.250	85.4676	20.75	Q	.	.	.	V	.
21.333	85.6090	20.54	Q	.	.	.	V	.
21.417	85.7490	20.33	Q	.	.	.	V	.
21.500	85.8876	20.12	Q	.	.	.	V	.
21.583	86.0248	19.92	Q	.	.	.	V	.
21.667	86.1607	19.73	Q	.	.	.	V	.
21.750	86.2953	19.54	Q	.	.	.	V	.
21.833	86.4286	19.36	Q	.	.	.	V	.
21.917	86.5607	19.18	Q	.	.	.	V	.
22.000	86.6916	19.00	Q	.	.	.	V	.
22.083	86.8213	18.83	Q	.	.	.	V	.
22.167	86.9499	18.67	Q	.	.	.	V	.
22.250	87.0773	18.50	Q	.	.	.	V	.
22.333	87.2036	18.34	Q	.	.	.	V	.
22.417	87.3289	18.19	Q	.	.	.	V	.
22.500	87.4531	18.04	Q	.	.	.	V	.
22.583	87.5763	17.89	Q	.	.	.	V	.
22.667	87.6985	17.74	Q	.	.	.	V	.
22.750	87.8197	17.60	Q	.	.	.	V	.

22.833	87.9399	17.46	Q	.	.	.	V.
22.917	88.0592	17.32	Q	.	.	.	V.
23.000	88.1776	17.19	Q	.	.	.	V.
23.083	88.2951	17.06	Q	.	.	.	V.
23.167	88.4117	16.93	Q	.	.	.	V.
23.250	88.5274	16.80	Q	.	.	.	V.
23.333	88.6423	16.68	Q	.	.	.	V.
23.417	88.7563	16.56	Q	.	.	.	V.
23.500	88.8695	16.44	Q	.	.	.	V.
23.583	88.9819	16.32	Q	.	.	.	V.
23.667	89.0935	16.21	Q	.	.	.	V.
23.750	89.2044	16.09	Q	.	.	.	V.
23.833	89.3145	15.98	Q	.	.	.	V.
23.917	89.4238	15.88	Q	.	.	.	V.
24.000	89.5324	15.77	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	65.0
20%	35.0
30%	25.0
40%	15.0
50%	15.0
60%	15.0
70%	5.0
80%	5.0
90%	5.0

END OF FLOODSCx ROUTING ANALYSIS

PROJECT BOUNDARY

WESTERN WATERSHED AREA = 480 ACRES (0.75 SQ. MI.)

FAIRVIEW CREEK

FAIRVIEW CREEK WATERSHED AREA = 9725 ACRES (15.20 SQ. MI.)

2

3
1205 CFS

1
10,926 CFS

0

LEGEND

123 — NODE NUMBER

NATURAL DRAINAGE COURSE

SUBAREA BOUNDARY

SCALE 1"= 2000'

1000' 0 1000' 2000' 3000'

PREPARED FOR:

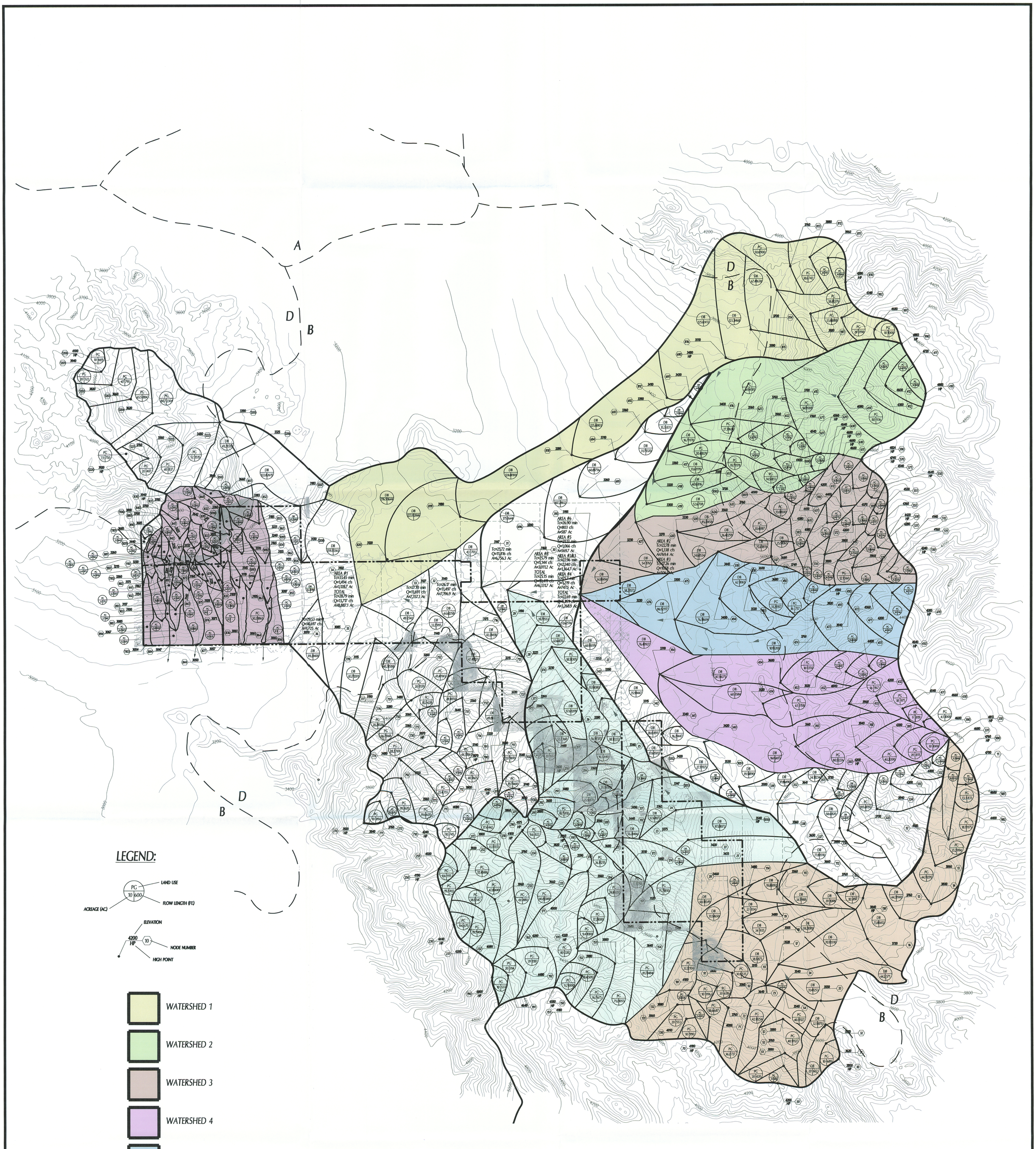
STRATA EQUITY GROUP, INC.

HACIENDA
AT
FAIRVIEW VALLEY
EXISTING CONDITION HYDROGRAPH EXHIBIT

Prepared By:
ALLARD ENGINEERING
Civil Engineering - Land Surveying - Land Planning
8253 Sierra Avenue
Fontana, California 92335
(909) 356-1815 Fax (909) 356-1795

PLOT DATE: June 04, 2009 dmiller48

Filename: M:\Proj\22605 Granite Valley\Woodcock\entitlement\AHV\Pre-Unit Hyd Exhibit.dwg



PREPARED FOR:

STRATA EQUITY GROUP, INC.

HACIENDA
AT
FAIRVIEW VALLEY
EXISTING CONDITION HYDROLOGY MAP

Prepared By:
ALLARD ENGINEERING
Civil Engineering - Land Surveying - Land Planning
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(909) 356-1815 Fax (909) 356-1795

PLOT DATE: June 03, 2009 drafter48

Filename: M:\Dwg\12605 Granite Valley\Hacienda\entitlement\HH\Pre-Developed Watershed Map.dwg

ALLARD ENGINEERING
civil engineering land surveying land planning

Hacienda at Fairview Valley
Specific Plan
Conceptual Drainage Report

Appendix B

Developed Condition Hydrology

September 1, 2008
Revised December 8, 2008
Revised April 9, 2009
Revised June 2, 2009

Prepared For:
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4370 La Jolla Village Drive, Suite 960
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Prepared under the supervision of:

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Hacienda at Fairview Valley Specific Plan
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Conceptual Drainage Report

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- Purpose
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- Criteria
- Results
- Recommendations
- Summary
- Water Quality

Maps
- Preliminary Drainage Concept

Appendix A – Preliminary Predeveloped Condition Hydrology

Discussion
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- Results

Hydrology Reference Material

Rational Method Hydrology
- Watershed 1
- Watershed 2
- Watershed 3
- Watershed 4
- Watershed 5
- Watershed 6
- Watershed 7
- Watershed 8
- Westerly Watershed

Unit Hydrograph
- Soil Group Summary
- Lag Time Calculations
- Loss Rate and Low Loss Fraction Calcs

Unit Hydrograph
Fairview Creek Watershed
Westerly Watershed

Hydrology Maps
Predeveloped Condition Rational Method Exhibit
Existing Condition Unit Hydrograph Exhibit

Appendix B – Preliminary Developed Condition Hydrology

Discussion
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Hydrology Reference Material

Rational Method Hydrology
Watershed A
Watershed B
Watershed C
Watershed D
Watershed E
Watershed F
Watershed G

WSPG – Detention Basin Outlets
Detention Basins A-1 and A-2
Detention Basin A-3
Detention Basin B-1
Detention Basin B-2
Detention Basin C-1
Detention Basin C-2
Detention Basin D-1
Detention Basin D-2

Unit Hydrograph Calculations
Soil Group and Land Use Inventory Summary
Land Use Pervious Percentages and SCS Numbers
Loss Rates and Low Loss Fraction Calculations
Lag Time Calculations

Hydrograph Routing – Summary Version
Fairview Creek Watershed (only)

Hydrograph Routing – Detailed Version
Fairview Creek Watershed
Westerly Watershed

Channel Normal Depth Calculations

Hydrology Maps
Preliminary Drainage Concept Exhibit
Developed Condition Rational Method Exhibit
Routing Exhibit
Preliminary Basin Plans

Appendix C – Calibration of Complex Watershed Model

Discussion
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Methodology
Results

Rational Method Hydrology – Single Area Model

Unit Hydrograph Calculations
Soil Group and Land Use Inventory Summary
Land Use Pervious Percentages and SCS Numbers
Loss Rates and Low Loss Fraction Calculations
Lag Time Calculations

Hydrograph Routing – Complex Model

Unit Hydrograph – Single Area Model

Hydrology Maps
Routing Exhibit (used for single area rational method hydrology)

Discussion

Discussion

Introduction

Hacienda at Fairview Valley is comprised of approximately 1,560 acres, east of the Town of Apple Valley in the County of San Bernardino. The boundaries of the study area are the Sidewinder Mountains to the north, the Granite Mountains to the east and south and the Fairview Mountains to the west. The areas vegetation consists of poor grass coverage with mixed shrubs, typical of a desert environment.

Hacienda at Fairview Valley is a proposed residential development that will include some commercial land use along with parks, open space and recreational facilities. Land use density will range from 1 dwelling unit per 2 acres to 6 dwelling units per acre.

Drainage in the area is characterized by steep drainage courses in the mountains that disperse and transition into milder sloped alluvial fans that convey runoff to Fairview Creek. Hydrologic soil type B is dominant in the valley areas and hydrologic soil type D is dominant in the mountainous areas. Fairview Creek meanders through Fairview Valley and is the most significant drainage course in the valley. Ultimately, Apple Valley Dry Lake is 6 miles to the west and serves as the receiving body of water.

The Master Plan of Drainage for Apple Valley includes Fairview Valley. Line E-01 of the Master Plan will receive runoff from Fairview Creek. The Master Plan proposes a regional detention basin be constructed in Fairview Creek east of Laguna Seca Drive and south of the project. Line E-01 will convey runoff from the proposed detention basin to the Apple Valley Dry Lake Bed. Presently no master planned facilities exist upstream or downstream of the site. A copy of the Master Plan of Drainage is included in this report (See Hydrology Reference Material).

This report analyzes the developed watershed runoff for the purpose of comparing developed condition peak flow rates to predeveloped condition flow rates. Appendix A of this report will analyze the predeveloped condition flow rates. The proposed concept includes a series of detention basins, flood channels and storm drains. One key goal of the drainage concept will be to mitigate the threat of increased runoff on downstream properties. The County of San Bernardino has established policies for mitigating increased runoff in their Detention Basin Design Guidelines. The main report compares flow rates and recommends further studies as the entitlement process for the Specific Plan continues.

Methodology

Rational methods and unit hydrographs with routing calculations were applied to quantify flow rates. Due to the complexity of the drainage matrix, multiple rational methods were necessary in order to account for the entire watershed. In cases where confluencing upstream exceeded the hydrology software's ability to simulate the hydrology, files were executed and then later entered as user defined data information at the node in question.

In cases where watersheds exceeded 640 acres unit hydrographs were applied to quantify the peak flow rate using the time of concentration from the rational methods.

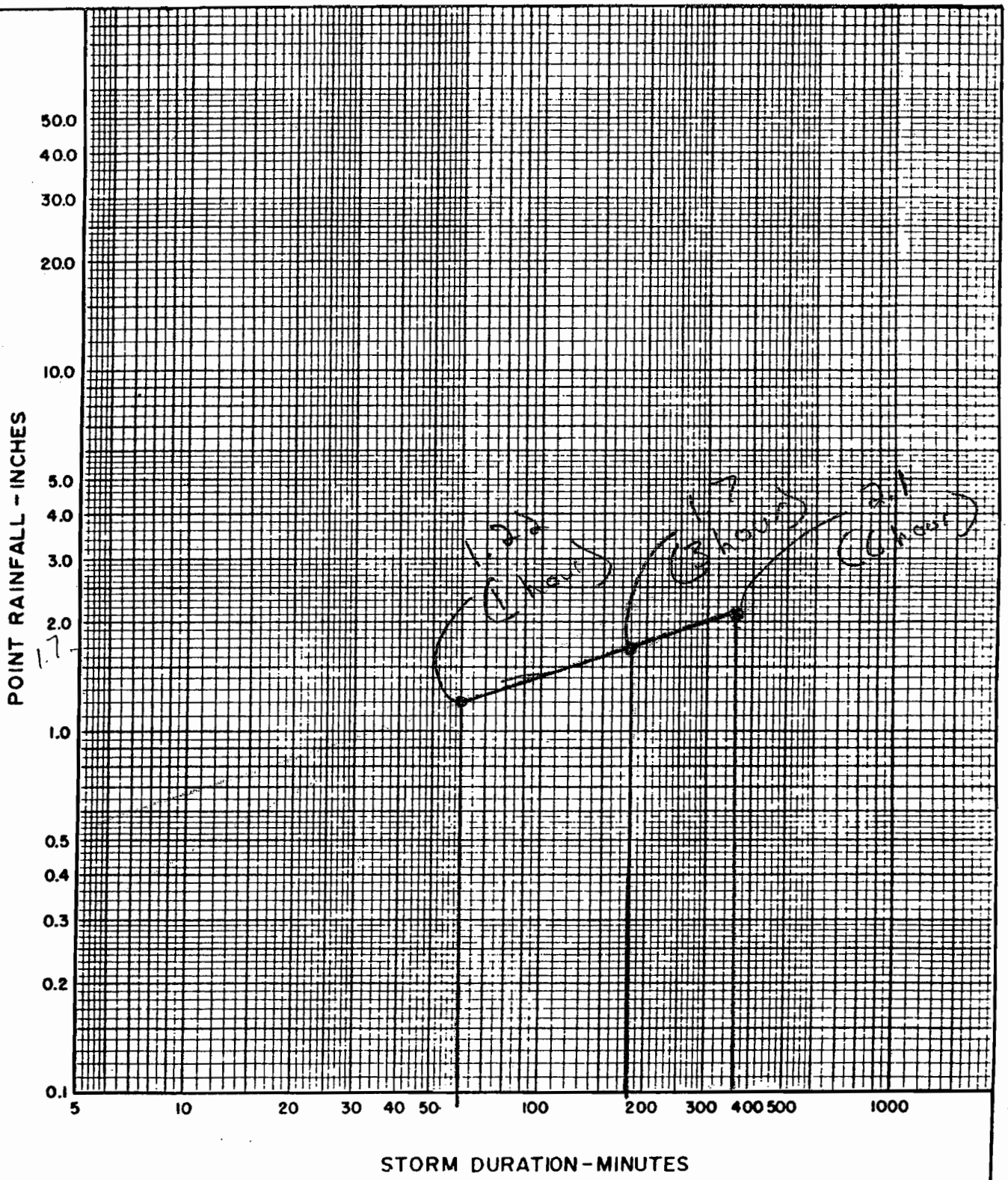
Criteria

The criteria utilized in this report are set forth by the San Bernardino County Hydrology Manual. AES and Civil Cad software were used to perform computations.

Results

For the developed condition routing analysis demonstrates that at the point where Fairview Creek crosses Cahuilla Road (Node 111 of the Routing Map) 10,760 cfs will be produced by 9,738 acres of tributary area. Furthermore, the 467 acres that lie tributary to Cahuilla Road west of Fairview Creek (Node 121 of the Routing Map) will produce 351 cfs. The developed condition combined flow rate for both watersheds is 11,111 cfs. See the main report for comparison of pre- and post- developed conditions flow rates.

Hydrology
Reference Mat'l.



PROJECT LOCATION _____

NOTES _____

_____

SAN BERNARDINO COUNTY

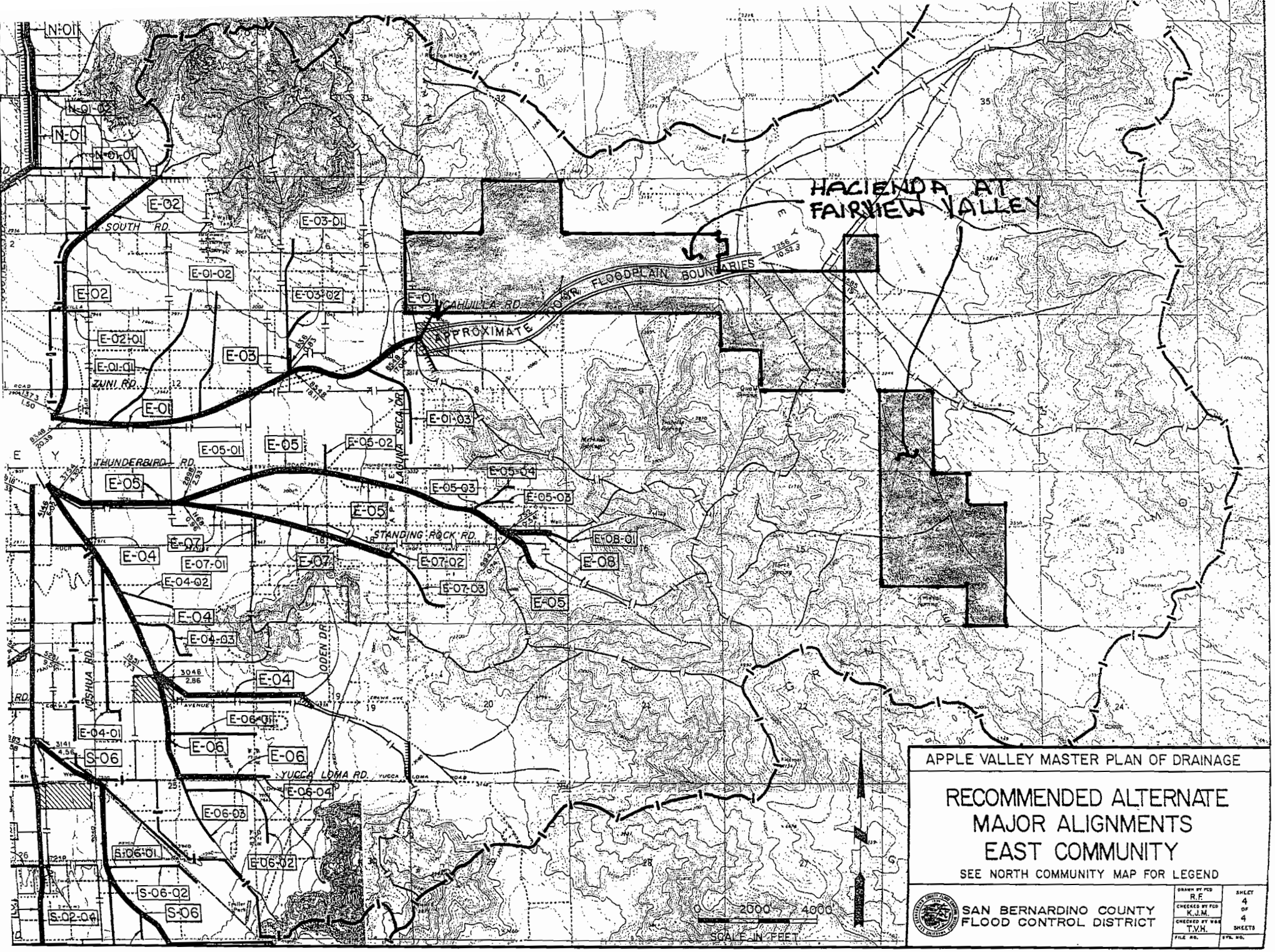
HYDROLOGY MANUAL

AREA - AVERAGED
MASS RAINFALL
PLOTTING SHEET

Precipitation Table

Storm Event	Precipitation (Inches)
1 hour	1.22
3 hour	1.7
6 hour	2.1
24 hour	3.6

Hydrology Reference Material



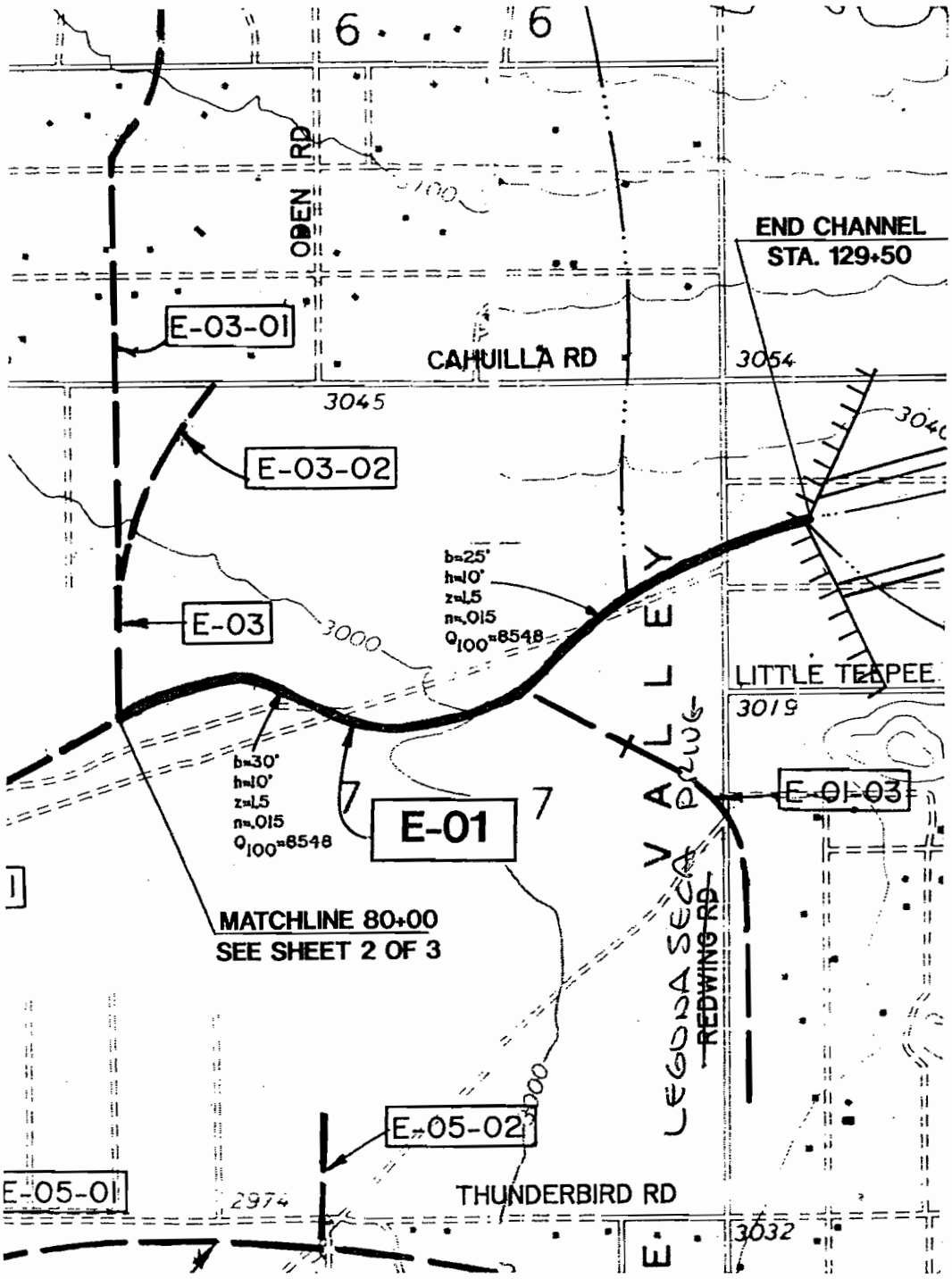
APPLE VALLEY MASTER PLAN OF DRAINAGE

RECOMMENDED ALTERNATE MAJOR ALIGNMENTS EAST COMMUNITY

SEE NORTH COMMUNITY MAP FOR LEGEND

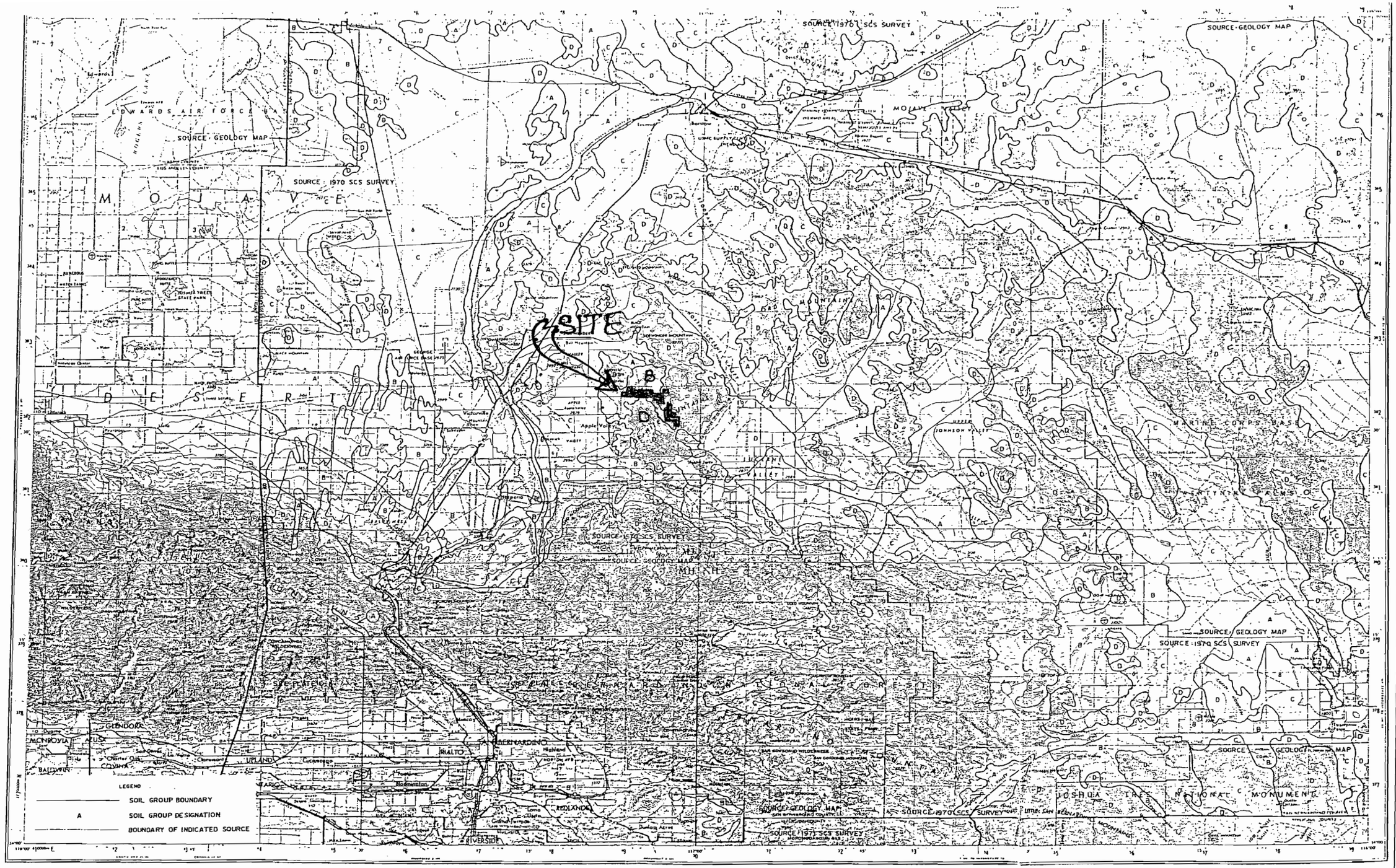
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

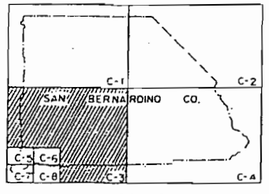
DRAWN BY FCD	R.F.
CHECKED BY FCD	K.J.M.
CHECKED BY W&H	T.V.H.
FILE NO.	
SHEET	4 OF 4 SHEETS
SYS. NO.	



LEGEND			
	WATERSHED BOUNDARY	.....	DRY LAKE H.W.L.
	PROPOSED FACILITY	TTTTT	LEVEE
	FACILITY SHOWN ELSEWHERE	—··—	N.D.C.

APPLE VALLEY MASTER PLAN OF DRAINAGE	COMPREHENSIVE STORM DRAIN PLAN LINE E-01 SHEET 3 OF 3	SCALE 1"=1000' WILLIAMSON & SCHMID





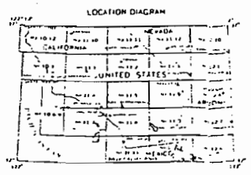
INDEX MAP

Scale 1:250,000

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION

BASE MAP REPRODUCED FROM U.S.G.S. "SAN BERNARDINO" TOPOGRAPHIC MAP

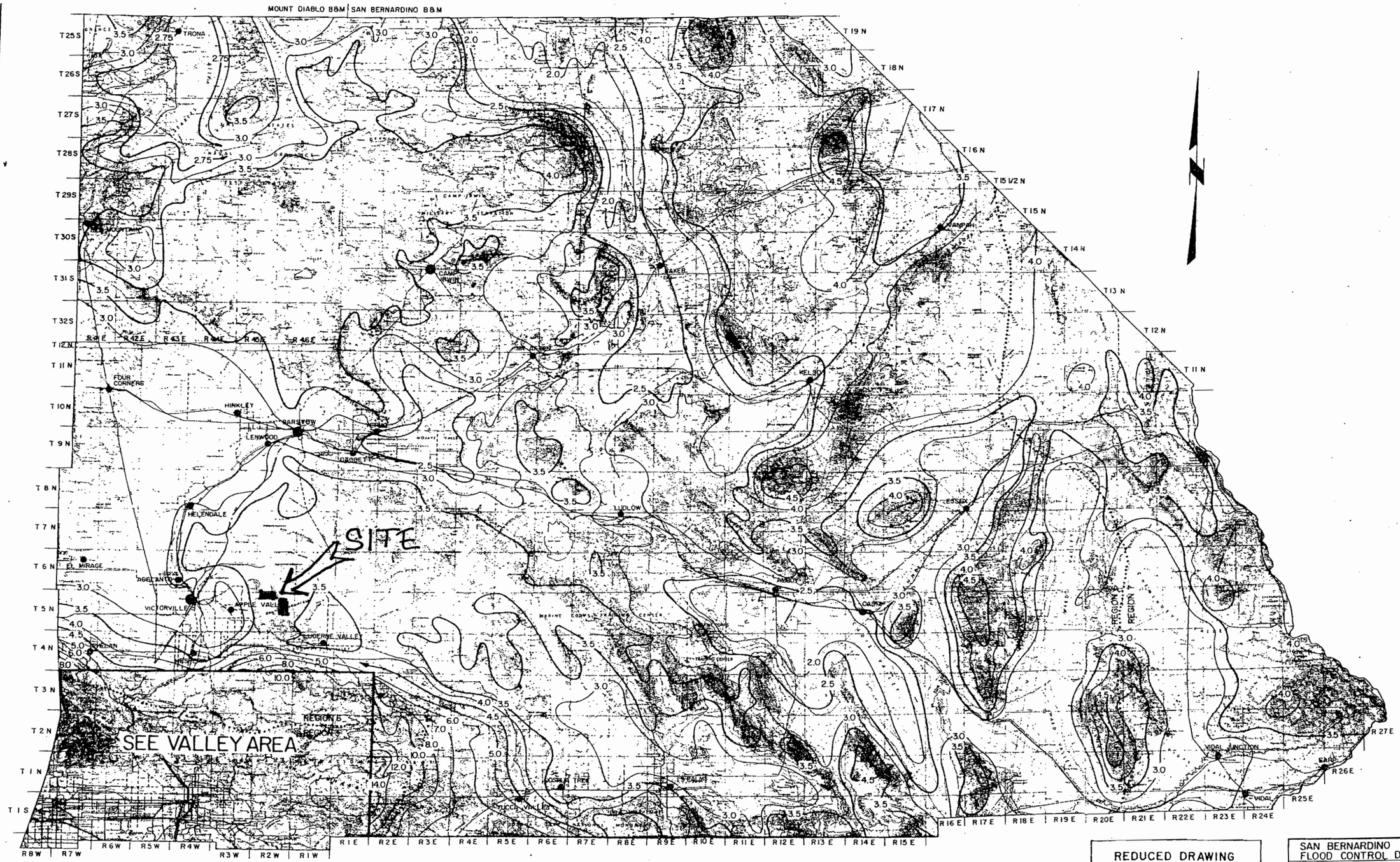
SCALE REDUCED BY 1/2



SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOILS GROUP MAP FOR SOUTHCENTRAL AREA



REDUCED DRAWING
0 1 2 3
3 INCHES ON ORIGINAL

LEGEND:
3.5 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

DESERT AREA
ISOHYETALS
X_4 -100 YEAR 24 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973

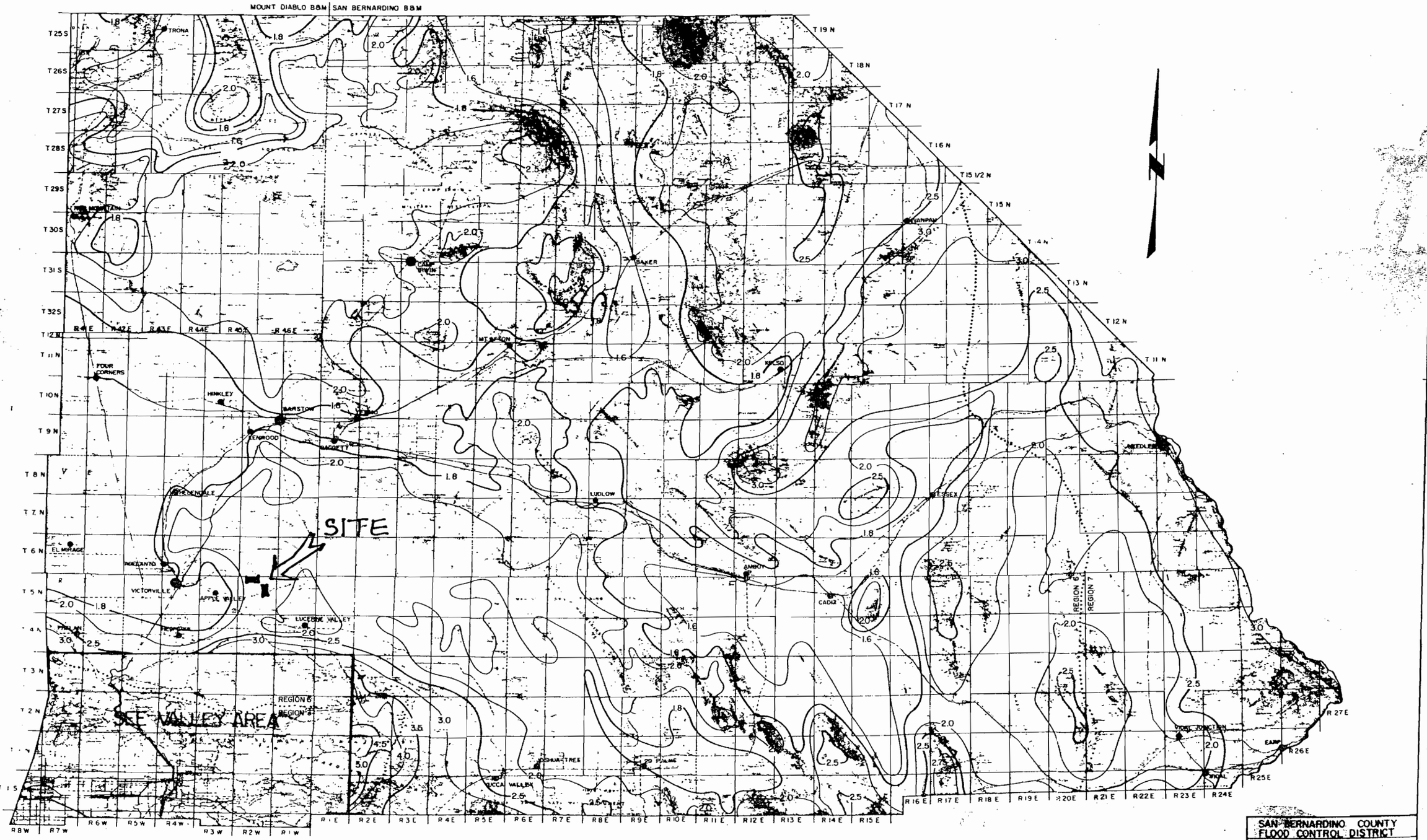
APPROVED BY _____ FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
1982	1" = 6Mi.	WRD-1	12 of 12

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

FIGURE B-12



SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

REDUCED DRAWING

0 1 2 3

3 INCHES ON ORIGINAL

LEGEND:

2.0 ISOLINES PRECIPITATION (INCHES)

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

DESERT AREA

ISOHYETALS

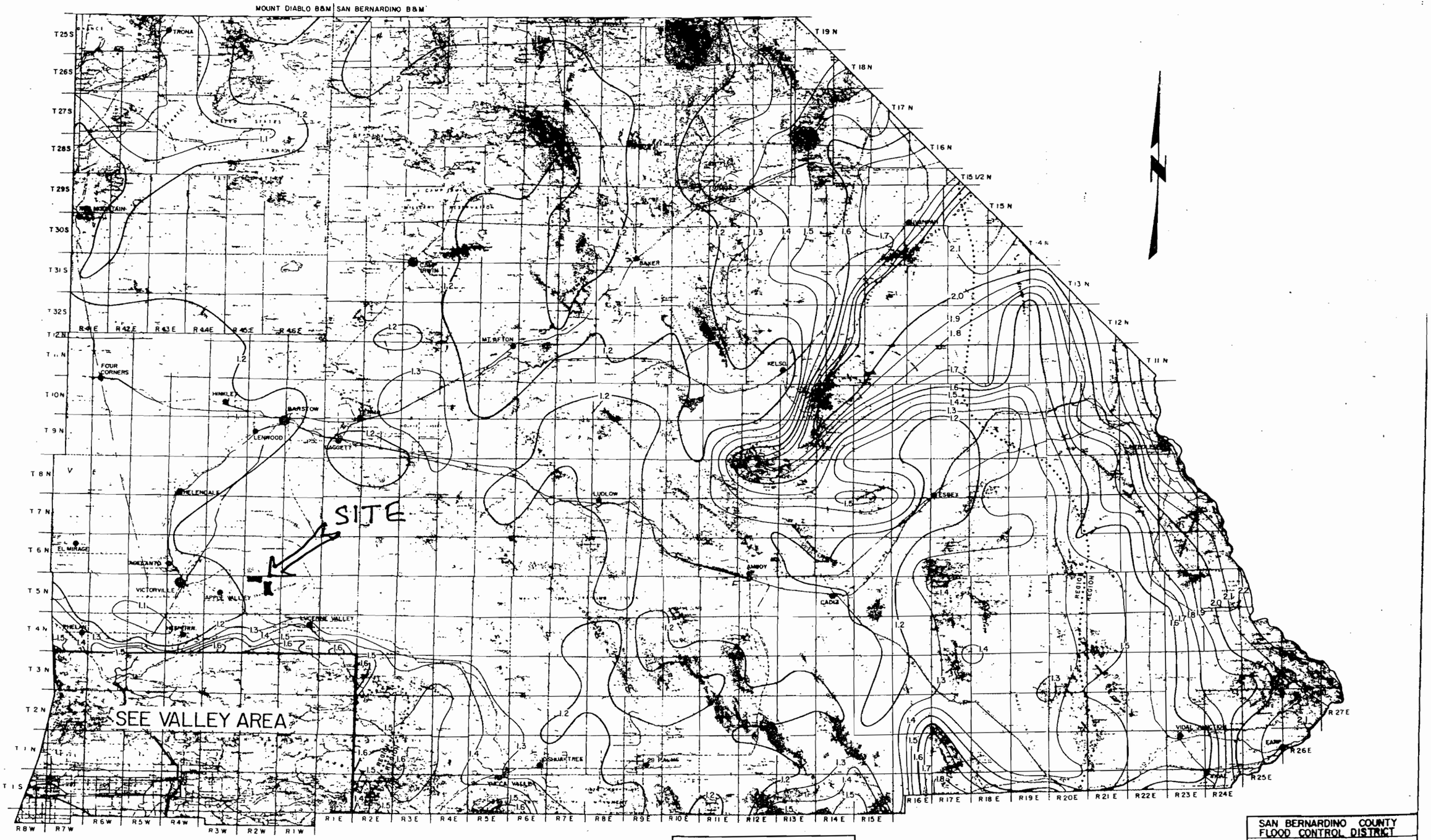
X_3 -100 YEAR 6 HOUR

BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973

APPROVED BY _____ FLOOD CONTROL ENGINEER

DATE	SCALE	FILE NO.	DRWG. NO.
1982	1" = 6 MI.	WRD-1	11 of 12

FIGURE B-11



SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

FIGURE B-10

Watershed A
Combined Offsite (AMC 2) and Onsite (AMC 3)

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
       (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
     (c) Copyright 1983-2006 Advanced Engineering Software (aes)
         Ver. 13.0  Release Date: 06/01/2006  License ID 1400

                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED A - DEVELOPED CONDITION                                      *
* OFFSITE AREA USING AMC II                                              *
* 100 YEAR STORM EVENT                                                   *
 ************************************************************************

  FILE NAME: HAC-AOFF.DAT
  TIME/DATE OF STUDY: 09:19 05/11/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-   CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:   MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     850.00 TO NODE     851.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3846.00  DOWNSTREAM(FEET) =   3660.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.648
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.843
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        3.60      0.22      1.000    89   11.65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     11.75
 TOTAL AREA(ACRES) =      3.60   PEAK FLOW RATE(CFS) =     11.75

****************************************************************************
 FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3383.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   653.00   CHANNEL SLOPE =  0.4242
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2169 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     11.75
 FLOW VELOCITY(FEET/SEC) =   5.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.84   Tc(MIN.) =  13.49
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =  1653.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    852.00 TO NODE    852.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.469
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        6.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.20      SUBAREA RUNOFF(CFS) =    18.14
 EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      28.67

****************************************************************************
 FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3383.00  DOWNSTREAM(FEET) =   3180.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   508.00   CHANNEL SLOPE =  0.3996
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2139 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.67
 FLOW VELOCITY(FEET/SEC) =   7.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.07   Tc(MIN.) =  14.55
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =  2161.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    853.00 TO NODE    853.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.288
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       10.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   30.12
 EFFECTIVE AREA(ACRES) =     20.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     20.70       PEAK FLOW RATE(CFS) =      57.20

****************************************************************************
 FLOW PROCESS FROM NODE    853.00 TO NODE    833.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3180.00  DOWNSTREAM(FEET) =   3170.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1077.00   CHANNEL SLOPE =  0.0093
 CHANNEL FLOW THRU SUBAREA(CFS) =     57.20
 FLOW VELOCITY(FEET/SEC) =   3.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.63   Tc(MIN.) =  19.18
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    833.00 =  3238.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    833.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.18
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.710
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D        9.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    9.00      SUBAREA RUNOFF(CFS) =   20.19
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =      66.62

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    833.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.18
 RAINFALL INTENSITY(INCH/HR) =   2.71
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    29.70
 TOTAL STREAM AREA(ACRES) =    29.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     66.62

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    831.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   991.00
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3785.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.015
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.761
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        7.70      0.22      1.000    89   12.02
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.55
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.55

****************************************************************************
 FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3785.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1167.00   CHANNEL SLOPE =  0.3642
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2077 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.55
 FLOW VELOCITY(FEET/SEC) =   7.41 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.62   Tc(MIN.) =  14.64
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    832.00 =  2158.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    832.00 TO NODE    832.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.64
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.275
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       15.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   15.20      SUBAREA RUNOFF(CFS) =   41.82
 EFFECTIVE AREA(ACRES) =     22.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     22.90       PEAK FLOW RATE(CFS) =      63.00

****************************************************************************
 FLOW PROCESS FROM NODE    832.00 TO NODE    833.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3170.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   580.00   CHANNEL SLOPE =  0.3276
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2013 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     63.00
 FLOW VELOCITY(FEET/SEC) =   9.98 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.97   Tc(MIN.) =  15.61
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    833.00 =  2738.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    833.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.61
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.131
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       12.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.70      SUBAREA RUNOFF(CFS) =   33.30
 EFFECTIVE AREA(ACRES) =     35.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     35.60       PEAK FLOW RATE(CFS) =      93.34

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    833.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
```

```
==========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.61
  RAINFALL INTENSITY(INCH/HR) =   3.13
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    35.60
  TOTAL STREAM AREA(ACRES) =    35.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     93.34

  ** CONFLUENCE DATA **
   STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1     66.62  19.18    2.710  0.22( 0.22) 1.00    29.7     850.00
      2     93.34  15.61    3.131  0.22( 0.22) 1.00    35.6     830.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    156.70  15.61    3.131  0.22( 0.22) 1.00    59.8     830.00
      2    146.47  19.18    2.710  0.22( 0.22) 1.00    65.3     850.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    156.70    Tc(MIN.) =    15.61
  EFFECTIVE AREA(ACRES) =    59.76   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     65.30
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    833.00 =  3238.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3170.00  DOWNSTREAM(FEET) =   3160.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   610.00   CHANNEL SLOPE =  0.0164
  CHANNEL FLOW THRU SUBAREA(CFS) =    156.70
  FLOW VELOCITY(FEET/SEC) =   6.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.46   Tc(MIN.) =  17.07
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    834.00 =  3848.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    834.00 TO NODE    834.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  17.07
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.941
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "GRASS"                      D        8.10      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     8.10      SUBAREA RUNOFF(CFS) =    19.85
 EFFECTIVE AREA(ACRES) =     67.86   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     73.40       PEAK FLOW RATE(CFS) =     166.33

****************************************************************************
 FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3160.00  DOWNSTREAM(FEET) =   3148.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   540.00   CHANNEL SLOPE =  0.0222
 CHANNEL FLOW THRU SUBAREA(CFS) =    166.33
 FLOW VELOCITY(FEET/SEC) =   8.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  18.16
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    835.00 =  4388.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.817
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D        8.50      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     8.50      SUBAREA RUNOFF(CFS) =    19.88
 EFFECTIVE AREA(ACRES) =     76.36   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     81.90       PEAK FLOW RATE(CFS) =     178.60

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.817
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D        5.60      0.22     1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     5.60      SUBAREA RUNOFF(CFS) =    13.10
 EFFECTIVE AREA(ACRES) =     81.96   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     87.50       PEAK FLOW RATE(CFS) =     191.69

****************************************************************************
 FLOW PROCESS FROM NODE    870.00 TO NODE    871.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   927.00
 ELEVATION DATA: UPSTREAM(FEET) =   3642.00  DOWNSTREAM(FEET) =   3332.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.049
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.262
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        6.20      0.22      1.000    89   10.05
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.56
 TOTAL AREA(ACRES) =      6.20   PEAK FLOW RATE(CFS) =     22.56

****************************************************************************
 FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3332.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   594.00   CHANNEL SLOPE =  0.2306
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1735 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.56
 FLOW VELOCITY(FEET/SEC) =   6.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.50   Tc(MIN.) =  11.55
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    872.00 =  1521.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    872.00 TO NODE    872.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.865
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        6.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.60      SUBAREA RUNOFF(CFS) =   21.67
 EFFECTIVE AREA(ACRES) =     12.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =     12.80       PEAK FLOW RATE(CFS) =      42.02

****************************************************************************
 FLOW PROCESS FROM NODE    872.00 TO NODE    843.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3195.00  DOWNSTREAM(FEET) =   3185.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   300.00   CHANNEL SLOPE =  0.0333
 CHANNEL FLOW THRU SUBAREA(CFS) =     42.02
 FLOW VELOCITY(FEET/SEC) =   6.72 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.74   Tc(MIN.) =  12.30
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    843.00 =  1821.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    843.00 TO NODE    843.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.30
 RAINFALL INTENSITY(INCH/HR) =   3.70
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    12.80
 TOTAL STREAM AREA(ACRES) =    12.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.02

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    840.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   993.00
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.023
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.995
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        6.60      0.22      1.000    89   11.02
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     22.43
 TOTAL AREA(ACRES) =      6.60   PEAK FLOW RATE(CFS) =     22.43

****************************************************************************
 FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
```

```
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3425.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   642.00   CHANNEL SLOPE =  0.4283
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2174 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     22.43
 FLOW VELOCITY(FEET/SEC) =   7.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  12.48
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    841.00 =  1635.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    841.00 TO NODE    841.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       12.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.80      SUBAREA RUNOFF(CFS) =   39.68
 EFFECTIVE AREA(ACRES) =     19.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     19.40       PEAK FLOW RATE(CFS) =      60.14

****************************************************************************
 FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3425.00  DOWNSTREAM(FEET) =   3210.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   768.00   CHANNEL SLOPE =  0.2799
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1900 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     60.14
 FLOW VELOCITY(FEET/SEC) =   9.55 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.34   Tc(MIN.) =  13.82
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    842.00 =  2403.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    842.00 TO NODE    842.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.82
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.410
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       11.50      0.22      1.000    89
```

```
 FLOW VELOCITY(FEET/SEC) =   3.49 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  10.49
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    892.00 =  1178.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    892.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.136
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        0.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    2.82
 EFFECTIVE AREA(ACRES) =      4.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.60       PEAK FLOW RATE(CFS) =      16.22

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    892.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.136
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D        2.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    2.50      SUBAREA RUNOFF(CFS) =    8.82
 EFFECTIVE AREA(ACRES) =      7.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      7.10       PEAK FLOW RATE(CFS) =      25.04

****************************************************************************
 FLOW PROCESS FROM NODE    892.00 TO NODE    893.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3201.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   300.00   CHANNEL SLOPE =  0.0200
 CHANNEL FLOW THRU SUBAREA(CFS) =     25.04
 FLOW VELOCITY(FEET/SEC) =   4.50 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  11.60
 LONGEST FLOWPATH FROM NODE    890.00 TO NODE    893.00 =  1478.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =   1
```

```
------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  11.60
  RAINFALL INTENSITY(INCH/HR) =   3.85
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =     7.10
  TOTAL STREAM AREA(ACRES) =     7.10
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     25.04

****************************************************************************
  FLOW PROCESS FROM NODE    890.00 TO NODE    910.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   905.00
  ELEVATION DATA: UPSTREAM(FEET) =   3685.00  DOWNSTREAM(FEET) =   3220.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.134
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.556
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        2.60      0.22      1.000    89    9.13
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     10.15
  TOTAL AREA(ACRES) =      2.60   PEAK FLOW RATE(CFS) =     10.15

****************************************************************************
  FLOW PROCESS FROM NODE    910.00 TO NODE    893.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3220.00  DOWNSTREAM(FEET) =   3195.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   358.00   CHANNEL SLOPE =  0.0698
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .0698 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     10.15
  FLOW VELOCITY(FEET/SEC) =   3.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.86   Tc(MIN.) =  11.00
  LONGEST FLOWPATH FROM NODE    890.00 TO NODE    893.00 =  1263.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.00
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.001
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D        2.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     2.80      SUBAREA RUNOFF(CFS) =     9.53
 EFFECTIVE AREA(ACRES) =      5.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      5.40       PEAK FLOW RATE(CFS) =      18.39

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  11.00
 RAINFALL INTENSITY(INCH/HR) =   4.00
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =     5.40
 TOTAL STREAM AREA(ACRES) =     5.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.39

****************************************************************************
 FLOW PROCESS FROM NODE    880.00 TO NODE    881.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   941.00
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3260.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.454
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.448
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        3.40      0.22      1.000    89    9.45
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     12.94
 TOTAL AREA(ACRES) =      3.40   PEAK FLOW RATE(CFS) =     12.94

****************************************************************************
 FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3260.00  DOWNSTREAM(FEET) =   3200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   873.00   CHANNEL SLOPE =  0.0687
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0687 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     12.94
 FLOW VELOCITY(FEET/SEC) =   3.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.22   Tc(MIN.) =  13.68
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    882.00 =  1814.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    882.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.434
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D        4.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =   11.87
 EFFECTIVE AREA(ACRES) =      7.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      7.50       PEAK FLOW RATE(CFS) =      21.71

****************************************************************************
 FLOW PROCESS FROM NODE    882.00 TO NODE    893.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3200.00  DOWNSTREAM(FEET) =   3195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   400.00   CHANNEL SLOPE =  0.0125
 CHANNEL FLOW THRU SUBAREA(CFS) =     21.71
 FLOW VELOCITY(FEET/SEC) =   3.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.95   Tc(MIN.) =  15.63
 LONGEST FLOWPATH FROM NODE    880.00 TO NODE    893.00 =  2214.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    893.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.63
 RAINFALL INTENSITY(INCH/HR) =   3.13
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =     7.50
 TOTAL STREAM AREA(ACRES) =     7.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.71
```

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25.04	11.60	3.855	0.22(0.22)	1.00	7.1	890.00
2	18.39	11.00	4.001	0.22(0.22)	1.00	5.4	890.00
3	21.71	15.63	3.129	0.22(0.22)	1.00	7.5	880.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 3 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	62.94	11.00	4.001	0.22(0.22)	1.00	17.4	890.00
2	62.84	11.60	3.855	0.22(0.22)	1.00	18.1	890.00
3	55.90	15.63	3.129	0.22(0.22)	1.00	20.0	880.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 62.94 Tc(MIN.) = 11.00
EFFECTIVE AREA(ACRES) = 17.41 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 20.00
LONGEST FLOWPATH FROM NODE 880.00 TO NODE 893.00 = 2214.00 FEET.

==========

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 20.00 TC(MIN.) = 11.00
EFFECTIVE AREA(ACRES) = 17.41 AREA-AVERAGED Fm(INCH/HR)= 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 62.94

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	62.94	11.00	4.001	0.22(0.22)	1.00	17.4	890.00
2	62.84	11.60	3.855	0.22(0.22)	1.00	18.1	890.00
3	55.90	15.63	3.129	0.22(0.22)	1.00	20.0	880.00

==========

==========

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

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 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED A - DEVELOPED CONDITION                                      *
* ONSITE AREA USING AMC III                                              *
* 100 YEAR STORM EVENT                                                   *
 ************************************************************************

  FILE NAME: HAC-AON.DAT
  TIME/DATE OF STUDY: 09:42 05/11/2009
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0313 0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE   1110.00 TO NODE   1111.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   972.00
 ELEVATION DATA: UPSTREAM(FEET) =   3100.00  DOWNSTREAM(FEET) =   3095.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.489
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.892
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        7.80      0.45      0.500    76   17.49
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA RUNOFF(CFS) =     18.71
 TOTAL AREA(ACRES) =      7.80   PEAK FLOW RATE(CFS) =     18.71

**************************************************************************
 FLOW PROCESS FROM NODE   1111.00 TO NODE   1112.00 IS CODE =  52
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3095.00  DOWNSTREAM(FEET) =   3091.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1240.00   CHANNEL SLOPE =  0.0032
 CHANNEL FLOW THRU SUBAREA(CFS) =     18.71
 FLOW VELOCITY(FEET/SEC) =   1.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =  12.36   Tc(MIN.) =  29.85
 LONGEST FLOWPATH FROM NODE   1110.00 TO NODE   1112.00 =  2212.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE   1112.00 TO NODE   1112.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  29.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.989
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       12.60      0.45      0.500    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA AREA(ACRES) =   12.60      SUBAREA RUNOFF(CFS) =   19.99
 EFFECTIVE AREA(ACRES) =     20.40   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.50
 TOTAL AREA(ACRES) =     20.40       PEAK FLOW RATE(CFS) =      32.36

**************************************************************************
 FLOW PROCESS FROM NODE   1112.00 TO NODE   1113.00 IS CODE =  31
--------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3091.00  DOWNSTREAM(FEET) =  3088.00
 FLOW LENGTH(FEET) =  1299.00   MANNING'S N =  0.013
```

```
 DEPTH OF FLOW IN  39.0 INCH PIPE IS  27.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.10
 ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     32.36
 PIPE TRAVEL TIME(MIN.) =   4.24    Tc(MIN.) =  34.09
 LONGEST FLOWPATH FROM NODE   1110.00 TO NODE   1113.00 =  3511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1113.00 TO NODE   1113.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  34.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.812
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        B       20.00      0.45      0.500    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   28.55
 EFFECTIVE AREA(ACRES) =     40.40   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.50
 TOTAL AREA(ACRES) =     40.40       PEAK FLOW RATE(CFS) =      57.67

****************************************************************************
 FLOW PROCESS FROM NODE   1113.00 TO NODE   1113.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  34.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.812
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"          B       18.80      0.45      0.900    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.900
 SUBAREA AREA(ACRES) =   18.80      SUBAREA RUNOFF(CFS) =   23.78
 EFFECTIVE AREA(ACRES) =     59.20   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.63
 TOTAL AREA(ACRES) =     59.20       PEAK FLOW RATE(CFS) =      81.45

****************************************************************************
 FLOW PROCESS FROM NODE   1113.00 TO NODE   1114.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3088.00  DOWNSTREAM(FEET) =  3086.00
 FLOW LENGTH(FEET) =  1271.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  57.0 INCH PIPE IS  44.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.49
 ESTIMATED PIPE DIAMETER(INCH) =  57.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     81.45
```

```
 PIPE TRAVEL TIME(MIN.) =   3.86    Tc(MIN.) =  37.95
 LONGEST FLOWPATH FROM NODE   1110.00 TO NODE   1114.00 =  4782.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1114.00 TO NODE   1114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  37.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.681
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       24.80      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   24.80      SUBAREA RUNOFF(CFS) =   31.47
 EFFECTIVE AREA(ACRES) =     84.00   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.62
 TOTAL AREA(ACRES) =     84.00       PEAK FLOW RATE(CFS) =     105.94

****************************************************************************
 FLOW PROCESS FROM NODE   1114.00 TO NODE   1114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  37.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.681
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"          B       14.20      0.45      0.900    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.900
 SUBAREA AREA(ACRES) =   14.20      SUBAREA RUNOFF(CFS) =   16.29
 EFFECTIVE AREA(ACRES) =     98.20   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.66
 TOTAL AREA(ACRES) =     98.20       PEAK FLOW RATE(CFS) =     122.22

****************************************************************************
 FLOW PROCESS FROM NODE   1114.00 TO NODE   1115.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3086.00  DOWNSTREAM(FEET) =  3085.00
 FLOW LENGTH(FEET) =   350.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  60.0 INCH PIPE IS  45.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.64
 ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    122.22
 PIPE TRAVEL TIME(MIN.) =   0.76    Tc(MIN.) =  38.72
 LONGEST FLOWPATH FROM NODE   1110.00 TO NODE   1115.00 =  5132.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE   1115.00 TO NODE   1115.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  38.72
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.658
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B        5.10      0.14      1.000    93
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.14
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    5.10      SUBAREA RUNOFF(CFS) =    6.97
 EFFECTIVE AREA(ACRES) =    103.30   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.43  AREA-AVERAGED Ap =  0.68
 TOTAL AREA(ACRES) =    103.30       PEAK FLOW RATE(CFS) =     127.13

****************************************************************************
 FLOW PROCESS FROM NODE   1115.00 TO NODE   1115.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  38.72
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.658
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B        6.30      0.14      1.000    93
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.14
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    6.30      SUBAREA RUNOFF(CFS) =    8.61
 EFFECTIVE AREA(ACRES) =    109.60   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.41  AREA-AVERAGED Ap =  0.70
 TOTAL AREA(ACRES) =    109.60       PEAK FLOW RATE(CFS) =     135.74

****************************************************************************
 FLOW PROCESS FROM NODE   1115.00 TO NODE   1115.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  38.72
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.658
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       23.00      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   23.00      SUBAREA RUNOFF(CFS) =   28.70
 EFFECTIVE AREA(ACRES) =    132.60   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.41  AREA-AVERAGED Ap =  0.68
 TOTAL AREA(ACRES) =    132.60       PEAK FLOW RATE(CFS) =     164.44

****************************************************************************
```

```
 FLOW PROCESS FROM NODE   1115.00 TO NODE   1115.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE   1120.00 TO NODE   1121.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   664.00
 ELEVATION DATA: UPSTREAM(FEET) =   3170.00  DOWNSTREAM(FEET) =   3160.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.829
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.592
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       10.00      0.45      0.600    76   12.83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =     29.89
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     29.89

****************************************************************************
 FLOW PROCESS FROM NODE   1121.00 TO NODE   1122.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3160.00  DOWNSTREAM(FEET) =   3115.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1368.00   CHANNEL SLOPE =  0.0329
 CHANNEL FLOW THRU SUBAREA(CFS) =     29.89
 FLOW VELOCITY(FEET/SEC) =   6.07 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.76   Tc(MIN.) =  16.59
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE   1122.00 =  2032.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1122.00 TO NODE   1122.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.001
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       21.50      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   21.50      SUBAREA RUNOFF(CFS) =   52.82
 EFFECTIVE AREA(ACRES) =     31.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.60
```

```
 TOTAL AREA(ACRES) =     31.50       PEAK FLOW RATE(CFS) =      77.38

****************************************************************************
 FLOW PROCESS FROM NODE   1122.00 TO NODE   1122.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.001
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B        8.40      0.45      0.600    76
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       11.40      0.45      0.500    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.542
 SUBAREA AREA(ACRES) =   19.80      SUBAREA RUNOFF(CFS) =   49.10
 EFFECTIVE AREA(ACRES) =     51.30   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.45  AREA-AVERAGED Ap =  0.58
 TOTAL AREA(ACRES) =     51.30       PEAK FLOW RATE(CFS) =     126.49

****************************************************************************
 FLOW PROCESS FROM NODE   1122.00 TO NODE   1122.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.59
 RAINFALL INTENSITY(INCH/HR) =   3.00
 AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.45
 AREA-AVERAGED Ap =  0.58
 EFFECTIVE STREAM AREA(ACRES) =    51.30
 TOTAL STREAM AREA(ACRES) =    51.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    126.49

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    835.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  18.16   RAINFALL INTENSITY(INCH/HR) =  2.82
 EFFECTIVE AREA(ACRES) =    81.96
 TOTAL AREA(ACRES) =    87.50       PEAK FLOW RATE(CFS) =    191.69
 AREA-AVERAGED Fm(INCH/HR) =   0.22  AREA-AVERAGED Fp(INCH/HR) =   0.22
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE   1122.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3148.00  DOWNSTREAM(FEET) =  3115.00
  FLOW LENGTH(FEET) =   500.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  27.61
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =   191.69
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =  18.46
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE   1122.00 =   500.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE  1122.00 TO NODE   1122.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  18.46
  RAINFALL INTENSITY(INCH/HR) =   2.78
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    81.96
  TOTAL STREAM AREA(ACRES) =    87.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    191.69

  ** CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    126.49  16.59     3.001  0.45( 0.26) 0.58    51.3     1120.00
      2    191.69  18.46     2.784  0.22( 0.22) 1.00    82.0      830.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    313.27  16.59     3.001  0.29( 0.24) 0.83   124.9     1120.00
      2    308.17  18.46     2.784  0.28( 0.24) 0.84   133.3      830.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    313.27    Tc(MIN.) =    16.59
  EFFECTIVE AREA(ACRES) =   124.94   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.83
  TOTAL AREA(ACRES) =    138.80
  LONGEST FLOWPATH FROM NODE   1120.00 TO NODE   1122.00 =  2032.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1122.00 TO NODE   1122.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.001
```

```
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        B        5.90      0.45      0.500    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   14.73
 EFFECTIVE AREA(ACRES) =    130.84   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.81
 TOTAL AREA(ACRES) =    144.70       PEAK FLOW RATE(CFS) =     325.51

****************************************************************************
 FLOW PROCESS FROM NODE   1122.00 TO NODE   1122.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.001
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       21.10      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   21.10      SUBAREA RUNOFF(CFS) =   51.83
 EFFECTIVE AREA(ACRES) =    151.94   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  0.78
 TOTAL AREA(ACRES) =    165.80       PEAK FLOW RATE(CFS) =     377.34

****************************************************************************
 FLOW PROCESS FROM NODE   1122.00 TO NODE   1123.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3115.00  DOWNSTREAM(FEET) =  3085.00
 FLOW LENGTH(FEET) =  2200.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  69.0 INCH PIPE IS  51.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  18.26
 ESTIMATED PIPE DIAMETER(INCH) =  69.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    377.34
 PIPE TRAVEL TIME(MIN.) =   2.01    Tc(MIN.) =  18.60
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE   1123.00 =  4232.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1123.00 TO NODE   1123.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    880.00 TO NODE    893.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
```

```
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  11.00   RAINFALL INTENSITY(INCH/HR) =  4.00
 EFFECTIVE AREA(ACRES) =    17.41
 TOTAL AREA(ACRES) =    20.00        PEAK FLOW RATE(CFS) =     62.94
 AREA-AVERAGED Fm(INCH/HR) =   0.22  AREA-AVERAGED Fp(INCH/HR) =   0.22
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    893.00 TO NODE    883.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3195.00  DOWNSTREAM(FEET) =  3160.00
 FLOW LENGTH(FEET) =   900.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  17.44
 ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     62.94
 PIPE TRAVEL TIME(MIN.) =   0.86    Tc(MIN.) =  11.86
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE    883.00 =  5132.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    883.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  11.86
 RAINFALL INTENSITY(INCH/HR) =   3.79
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    17.41
 TOTAL STREAM AREA(ACRES) =    20.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     62.94

****************************************************************************
 FLOW PROCESS FROM NODE    830.00 TO NODE    843.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  12.30   RAINFALL INTENSITY(INCH/HR) =  3.70
 EFFECTIVE AREA(ACRES) =    37.00
 TOTAL AREA(ACRES) =    46.30        PEAK FLOW RATE(CFS) =    123.85
 AREA-AVERAGED Fm(INCH/HR) =   0.22  AREA-AVERAGED Fp(INCH/HR) =   0.22
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    843.00 TO NODE    883.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
ELEVATION DATA: UPSTREAM(FEET) =  3185.00  DOWNSTREAM(FEET) =  3160.00
FLOW LENGTH(FEET) =  1350.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  42.0 INCH PIPE IS  32.8 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =  15.37
ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =    123.85
PIPE TRAVEL TIME(MIN.) =   1.46    Tc(MIN.) =  13.76
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    883.00 =  1850.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    883.00 TO NODE    883.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  13.76
RAINFALL INTENSITY(INCH/HR) =   3.42
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    37.00
TOTAL STREAM AREA(ACRES) =    46.30
PEAK FLOW RATE(CFS) AT CONFLUENCE =    123.85

** CONFLUENCE DATA **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1     62.94  11.86    3.795  0.22( 0.22) 1.00    17.4    1120.00
    2    123.85  13.76    3.419  0.22( 0.22) 1.00    37.0     830.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    182.19  11.86    3.795  0.22( 0.22) 1.00    49.3    1120.00
    2    180.18  13.76    3.419  0.22( 0.22) 1.00    54.4     830.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =    182.19    Tc(MIN.) =    11.86
EFFECTIVE AREA(ACRES) =    49.29   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     66.30
LONGEST FLOWPATH FROM NODE   1120.00 TO NODE    883.00 =  5132.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    883.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  11.86
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.795
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "1 DWELLING/ACRE"           B       35.00      0.45      0.800    76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       42.50      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.690
 SUBAREA AREA(ACRES) =   77.50      SUBAREA RUNOFF(CFS) =  242.94
 EFFECTIVE AREA(ACRES) =    126.79   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  0.81
 TOTAL AREA(ACRES) =    143.80       PEAK FLOW RATE(CFS) =     401.53

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3160.00  DOWNSTREAM(FEET) =  3085.00
 FLOW LENGTH(FEET) =  1200.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  54.0 INCH PIPE IS  38.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  32.98
 ESTIMATED PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    401.53
 PIPE TRAVEL TIME(MIN.) =   0.61    Tc(MIN.) =  12.47
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE    884.00 =  6332.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.665
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                  B       18.80      0.45      0.100    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =   18.80      SUBAREA RUNOFF(CFS) =   61.24
 EFFECTIVE AREA(ACRES) =    145.59   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.34  AREA-AVERAGED Ap =  0.72
 TOTAL AREA(ACRES) =    162.60       PEAK FLOW RATE(CFS) =     447.92

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.665
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
 NATURAL POOR COVER
 "GRASS"                     B        6.30       0.14       1.000    93
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.14
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     6.30    SUBAREA RUNOFF(CFS) =    19.99
 EFFECTIVE AREA(ACRES) =    151.89   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  0.73
 TOTAL AREA(ACRES) =    168.90       PEAK FLOW RATE(CFS) =     467.90

****************************************************************************
 FLOW PROCESS FROM NODE     884.00 TO NODE     884.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     467.90  12.47     3.665  0.33( 0.24) 0.73   151.9     1120.00
     2     434.33  14.39     3.315  0.33( 0.24) 0.74   157.0      830.00
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE     884.00 =  6332.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     164.44  38.72     1.658  0.41( 0.28) 0.68   132.6     1110.00
 LONGEST FLOWPATH FROM NODE   1110.00 TO NODE     884.00 =  5132.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     597.97  12.47     3.665  0.35( 0.25) 0.72   194.6     1120.00
     2     568.93  14.39     3.315  0.35( 0.25) 0.72   206.3      830.00
     3     364.61  38.72     1.658  0.36( 0.26) 0.71   289.6     1110.00
   TOTAL AREA(ACRES) =    301.50

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      597.97  Tc(MIN.) =   12.466
 EFFECTIVE AREA(ACRES) =    194.59  AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  0.72
 TOTAL AREA(ACRES) =    301.50
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE     884.00 =  6332.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     884.00 TO NODE     884.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     597.97  12.47     3.665  0.35( 0.25) 0.72   194.6     1120.00
     2     568.93  14.39     3.315  0.35( 0.25) 0.72   206.3      830.00
     3     364.61  38.72     1.658  0.36( 0.26) 0.71   289.6     1110.00
 LONGEST FLOWPATH FROM NODE   1120.00 TO NODE     884.00 =  6332.00 FEET.
```

Watershed B

Combined Offsite (AMC 2) and Onsite (AMC 3)

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
       (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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         Ver. 13.0  Release Date: 06/01/2006  License ID 1400

                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Watershed B - Developed Condition                                       *
* Offsite area using AMC II                                               *
* by: BKA                                                                 *
 *************************************************************************

  FILE NAME: HAC-BOFF.DAT
  TIME/DATE OF STUDY: 10:31 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-   CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:   MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  =======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67     2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE   1200.00 TO NODE   1201.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   669.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3940.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.432
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.455
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    9.43
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.13
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     38.13

****************************************************************************
 FLOW PROCESS FROM NODE   1201.00 TO NODE   1202.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3940.00  DOWNSTREAM(FEET) =   3820.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   522.00   CHANNEL SLOPE =  0.2299
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1733 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.13
 FLOW VELOCITY(FEET/SEC) =   7.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  10.54
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1202.00 =  1191.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1202.00 TO NODE   1202.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.121
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   70.26
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     105.39

****************************************************************************
 FLOW PROCESS FROM NODE   1202.00 TO NODE   1203.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   795.00   CHANNEL SLOPE =  0.2013
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1606 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    105.39
 FLOW VELOCITY(FEET/SEC) =  10.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =  11.79
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1203.00 =  1986.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1203.00 TO NODE   1203.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       42.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.00      SUBAREA RUNOFF(CFS) =  135.77
 EFFECTIVE AREA(ACRES) =     72.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     72.00       PEAK FLOW RATE(CFS) =     232.75

****************************************************************************
 FLOW PROCESS FROM NODE   1203.00 TO NODE   1204.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3620.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   884.00   CHANNEL SLOPE =  0.0452
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0452 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    232.75
 FLOW VELOCITY(FEET/SEC) =   7.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =  13.81
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1204.00 =  2870.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1204.00 TO NODE   1204.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.81
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.412
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       65.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    65.50      SUBAREA RUNOFF(CFS) =  188.27
 EFFECTIVE AREA(ACRES) =    137.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    137.50       PEAK FLOW RATE(CFS) =     395.22

****************************************************************************
 FLOW PROCESS FROM NODE   1204.00 TO NODE   1205.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3620.00  DOWNSTREAM(FEET) =   3390.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2304.00   CHANNEL SLOPE =  0.0998
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0998 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    395.22
 FLOW VELOCITY(FEET/SEC) =  12.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.96   Tc(MIN.) =  16.77
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1205.00 =  5174.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.978
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       80.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   80.70      SUBAREA RUNOFF(CFS) =  200.43
 EFFECTIVE AREA(ACRES) =    218.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    218.20       PEAK FLOW RATE(CFS) =     541.94

****************************************************************************
 FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.77
 RAINFALL INTENSITY(INCH/HR) =   2.98
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   218.20
 TOTAL STREAM AREA(ACRES) =   218.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    541.94

****************************************************************************
 FLOW PROCESS FROM NODE   1220.00 TO NODE   1221.00 IS CODE =  21
```

```
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   750.00
  ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.101
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.246
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    D        7.50      0.22      1.000    89   10.10
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     27.19
  TOTAL AREA(ACRES) =      7.50   PEAK FLOW RATE(CFS) =     27.19

****************************************************************************
  FLOW PROCESS FROM NODE   1221.00 TO NODE   1222.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   407.00   CHANNEL SLOPE =  0.4914
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .2241 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     27.19
  FLOW VELOCITY(FEET/SEC) =   7.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.85   Tc(MIN.) =  10.95
  LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1222.00 =  1157.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1222.00 TO NODE   1222.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.95
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.012
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                    D       20.00      0.22      1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   68.30
  EFFECTIVE AREA(ACRES) =     27.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     27.50       PEAK FLOW RATE(CFS) =      93.91

****************************************************************************
  FLOW PROCESS FROM NODE   1222.00 TO NODE   1223.00 IS CODE =  53
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   837.00   CHANNEL SLOPE =  0.0956
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0956 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     93.91
FLOW VELOCITY(FEET/SEC) =   7.86 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.78   Tc(MIN.) =  12.73
LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1223.00 =  1994.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   1223.00 TO NODE   1223.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  12.73
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.612
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       40.00      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  122.18
EFFECTIVE AREA(ACRES) =     67.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     67.50       PEAK FLOW RATE(CFS) =     206.17

****************************************************************************
FLOW PROCESS FROM NODE   1223.00 TO NODE   1205.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3390.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1515.00   CHANNEL SLOPE =  0.0594
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0594 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    206.17
FLOW VELOCITY(FEET/SEC) =   8.05 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   3.14   Tc(MIN.) =  15.87
LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1205.00 =  3509.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  15.87
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.096
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
```

```
"GRASS"                    D       52.00      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =    52.00      SUBAREA RUNOFF(CFS) =  134.67
EFFECTIVE AREA(ACRES) =    119.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    119.50       PEAK FLOW RATE(CFS) =     309.49

****************************************************************************
FLOW PROCESS FROM NODE   1205.00 TO NODE   1205.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  15.87
RAINFALL INTENSITY(INCH/HR) =   3.10
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =   119.50
TOTAL STREAM AREA(ACRES) =   119.50
PEAK FLOW RATE(CFS) AT CONFLUENCE =    309.49

** CONFLUENCE DATA **
 STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
    1     541.94  16.77    2.978  0.22( 0.22) 1.00   218.2    1200.00
    2     309.49  15.87    3.096  0.22( 0.22) 1.00   119.5    1220.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)     NODE
    1     844.08  15.87    3.096  0.22( 0.22) 1.00   325.9    1220.00
    2     838.73  16.77    2.978  0.22( 0.22) 1.00   337.7    1200.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =    844.08    Tc(MIN.) =    15.87
EFFECTIVE AREA(ACRES) =   325.91   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    337.70
LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1205.00 =  5174.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   1205.00 TO NODE   1206.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3390.00  DOWNSTREAM(FEET) =   3325.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1327.00   CHANNEL SLOPE =  0.0490
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0490 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =    844.08
 FLOW VELOCITY(FEET/SEC) =  11.69 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.89   Tc(MIN.) =  17.76
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1206.00 =  6501.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1206.00 TO NODE   1206.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.76
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.861
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D       20.00      0.22      1.000    89
 NATURAL POOR COVER
 "GRASS"                   B       21.20      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.32
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   41.20      SUBAREA RUNOFF(CFS) =   94.22
 EFFECTIVE AREA(ACRES) =    367.11   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    378.90       PEAK FLOW RATE(CFS) =     869.42

****************************************************************************
 FLOW PROCESS FROM NODE   1206.00 TO NODE   1207.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3325.00  DOWNSTREAM(FEET) =   3183.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2615.00   CHANNEL SLOPE =  0.0543
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0543 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    869.42
 FLOW VELOCITY(FEET/SEC) =  12.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.51   Tc(MIN.) =  21.27
 LONGEST FLOWPATH FROM NODE   1200.00 TO NODE   1207.00 =  9116.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1207.00 TO NODE   1207.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.522
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                   D       40.00      0.22      1.000    89
 NATURAL POOR COVER
 "GRASS"                   B       82.80      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.35
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =  122.80      SUBAREA RUNOFF(CFS) =  239.85
 EFFECTIVE AREA(ACRES) =    489.91   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    501.70       PEAK FLOW RATE(CFS) =     997.24

****************************************************************************
 FLOW PROCESS FROM NODE   1207.00 TO NODE   1207.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.522
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D        5.00      0.22      1.000    89
 NATURAL POOR COVER
 "GRASS"                    B       11.90      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.36
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.90      SUBAREA RUNOFF(CFS) =   32.92
 EFFECTIVE AREA(ACRES) =    506.81   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    518.60       PEAK FLOW RATE(CFS) =    1030.16

+--------------------------------------------------------------------------+
| Carry hydrology onsite data at Node 1207 to the onsite developed area    |
| Rational method to use AMC III.                                          |
| The onsite file name is: HAC-Bon                                         |
+--------------------------------------------------------------------------+
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    518.60  TC(MIN.) =     21.27
 EFFECTIVE AREA(ACRES) =    506.81  AREA-AVERAGED Fm(INCH/HR)=  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =   1030.16

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1030.16  21.27    2.522  0.26( 0.26) 1.00   506.8    1220.00
     2   1020.31  22.18    2.448  0.26( 0.26) 1.00   518.6    1200.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Watershed B                                                             *
* Developed Condition - Onsite area using AMC III                         *
* by: BKA                                                                 *
 *************************************************************************

  FILE NAME: HAC-BON.DAT
  TIME/DATE OF STUDY: 10:59 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE   1207.00 TO NODE   1207.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
```

```
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  21.27   RAINFALL INTENSITY(INCH/HR) =  2.52
 EFFECTIVE AREA(ACRES) =   506.81
 TOTAL AREA(ACRES) =   518.60        PEAK FLOW RATE(CFS) =   1030.16
 AREA-AVERAGED Fm(INCH/HR) =   0.26  AREA-AVERAGED Fp(INCH/HR) =   0.26
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE   1207.00 TO NODE   1208.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3183.00  DOWNSTREAM(FEET) =  3154.00
 FLOW LENGTH(FEET) =  1318.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  90.0 INCH PIPE IS  72.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  27.09
 ESTIMATED PIPE DIAMETER(INCH) =  90.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =   1030.16
 PIPE TRAVEL TIME(MIN.) =   0.81    Tc(MIN.) =  22.08
 LONGEST FLOWPATH FROM NODE   1207.00 TO NODE   1208.00 =  1318.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1208.00 TO NODE   1208.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.456
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       24.50      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   24.50      SUBAREA RUNOFF(CFS) =   48.18
 EFFECTIVE AREA(ACRES) =    531.31   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =    543.10       PEAK FLOW RATE(CFS) =    1049.91

****************************************************************************
 FLOW PROCESS FROM NODE   1208.00 TO NODE   1209.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3154.00  DOWNSTREAM(FEET) =  3140.00
 FLOW LENGTH(FEET) =   600.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  90.0 INCH PIPE IS  71.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  27.89
 ESTIMATED PIPE DIAMETER(INCH) =  90.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =   1049.91
 PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =  22.44
 LONGEST FLOWPATH FROM NODE   1207.00 TO NODE   1209.00 =  1918.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE   1209.00 TO NODE   1209.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.44
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.429
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       11.60      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA AREA(ACRES) =   11.60      SUBAREA RUNOFF(CFS) =   22.52
 EFFECTIVE AREA(ACRES) =    542.91   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =    554.70       PEAK FLOW RATE(CFS) =    1059.26

****************************************************************************
 FLOW PROCESS FROM NODE   1209.00 TO NODE   1210.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3140.00  DOWNSTREAM(FEET) =  3119.00
 FLOW LENGTH(FEET) =   900.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  90.0 INCH PIPE IS  72.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  27.90
 ESTIMATED PIPE DIAMETER(INCH) =  90.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =   1059.26
 PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =  22.98
 LONGEST FLOWPATH FROM NODE   1207.00 TO NODE   1210.00 =  2818.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1210.00 TO NODE   1210.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.389
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        B       12.10      0.45      0.500    76
 PUBLIC PARK                 B        2.30      0.45      0.850    76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       45.10      0.45      0.600    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.589
 SUBAREA AREA(ACRES) =   59.50      SUBAREA RUNOFF(CFS) =  113.65
 EFFECTIVE AREA(ACRES) =    602.41   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  0.94
 TOTAL AREA(ACRES) =    614.20       PEAK FLOW RATE(CFS) =    1153.41
```

```
****************************************************************************
 FLOW PROCESS FROM NODE   1210.00 TO NODE   1211.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3119.00  DOWNSTREAM(FEET) =  3101.00
 FLOW LENGTH(FEET) =  1285.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN 102.0 INCH PIPE IS  82.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  23.50
 ESTIMATED PIPE DIAMETER(INCH) = 102.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =   1153.41
 PIPE TRAVEL TIME(MIN.) =   0.91    Tc(MIN.) =  23.89
 LONGEST FLOWPATH FROM NODE   1207.00 TO NODE   1211.00 =  4103.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1211.00 TO NODE   1211.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.325
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       15.20      0.45      0.500    76
 PUBLIC PARK                B        9.10      0.45      0.850    76
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       11.00      0.45      0.500    76
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       10.40      0.45      0.500    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.570
 SUBAREA AREA(ACRES) =   45.70      SUBAREA RUNOFF(CFS) =   85.02
 EFFECTIVE AREA(ACRES) =    648.11   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.91
 TOTAL AREA(ACRES) =    659.90       PEAK FLOW RATE(CFS) =    1203.64

+----------------------------------------------------------------------------+
| The following area is the lake/detention basin                             |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
 FLOW PROCESS FROM NODE   1211.00 TO NODE   1212.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.325
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 B       12.30      0.45      0.100    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    12.30      SUBAREA RUNOFF(CFS) =    25.23
 EFFECTIVE AREA(ACRES) =    660.41   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.89
 TOTAL AREA(ACRES) =    672.20       PEAK FLOW RATE(CFS) =    1228.88
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    672.20  TC(MIN.) =     23.89
 EFFECTIVE AREA(ACRES) =    660.41  AREA-AVERAGED Fm(INCH/HR)=  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap = 0.895
 PEAK FLOW RATE(CFS)    =   1228.88
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Watershed C
Onsite (AMC 3)

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Watershed C                                                             *
* Developed Condition                                                     *
* ~~Offsite AMC 2~~ Onsite AMC 3                                          *
 **************************************************************************

  FILE NAME: HAC-D2C.DAT
  TIME/DATE OF STUDY: 15:32 01/16/2008
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      0.00 TO NODE      1.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   700.00
 ELEVATION DATA: UPSTREAM(FEET) =   3152.00  DOWNSTREAM(FEET) =   3141.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.357
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.167
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 ".4 DWELLING/ACRE"         B        4.80      0.45       0.90    76   15.36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.90
 SUBAREA RUNOFF(CFS) =     11.92
 TOTAL AREA(ACRES) =      4.80   PEAK FLOW RATE(CFS) =     11.92

**************************************************************************
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  31
--------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3141.00  DOWNSTREAM(FEET) =  3101.00
 FLOW LENGTH(FEET) =  3735.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.13
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     11.92
 PIPE TRAVEL TIME(MIN.) =   8.73    Tc(MIN.) =  24.09
 LONGEST FLOWPATH FROM NODE      0.00 TO NODE      2.00 =  4435.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  24.09
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.311
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"         B       39.20      0.45       0.90    76
 RESIDENTIAL
 ".4 DWELLING/ACRE"         B       21.50      0.45       0.90    76
 RESIDENTIAL
 ".4 DWELLING/ACRE"         B       17.60      0.45       0.90    76
 RESIDENTIAL
 "1 DWELLING/ACRE"          B       16.00      0.45       0.80    76
 NATURAL POOR COVER
 "GRASS"                    B        2.40      0.14       1.00    93
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.44
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
 SUBAREA AREA(ACRES) =   96.70      SUBAREA RUNOFF(CFS) =  166.93
 EFFECTIVE AREA(ACRES) =    101.50   AREA-AVERAGED Fm(INCH/HR) =  0.39
 AREA-AVERAGED Fp(INCH/HR) =  0.44  AREA-AVERAGED Ap =  0.89
```

```
 TOTAL AREA(ACRES) =    101.50       PEAK FLOW RATE(CFS) =     175.16
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    101.50  TC(MIN.) =     24.09
 EFFECTIVE AREA(ACRES) =    101.50  AREA-AVERAGED Fm(INCH/HR)=  0.39
 AREA-AVERAGED Fp(INCH/HR) =  0.44  AREA-AVERAGED Ap =  0.89
 PEAK FLOW RATE(CFS)    =    175.16
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Watershed D
Combined Offsite (AMC 2) and Onsite (AMC 3)

```
**************************************************************************
```

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Ver. 13.0 Release Date: 06/01/2006 License ID 1400

Analysis prepared by:

Allard Engineering
8253 Sierra Avenue
Fontana Ca. 92335

```
 ************************** DESCRIPTION OF STUDY **************************
* Watershed D Offsite - AMC II                                           *
* Existing Condition                                                     *
* 100 Year Storm Event                                                   *
 ************************************************************************
```

FILE NAME: HAC-D-D.DAT
TIME/DATE OF STUDY: 13:13 05/12/2009

```
==========================================================================
```

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

```
==========================================================================
```

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF-WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

```
**************************************************************************
```

FLOW PROCESS FROM NODE 730.00 TO NODE 731.00 IS CODE = 21

```
--------------------------------------------------------------------------
```

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   970.00
 ELEVATION DATA: UPSTREAM(FEET) =   3870.00  DOWNSTREAM(FEET) =   3640.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.962
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.010
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.70      0.22      1.000    89   10.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.10
 TOTAL AREA(ACRES) =      9.70   PEAK FLOW RATE(CFS) =     33.10

****************************************************************************
 FLOW PROCESS FROM NODE    731.00 TO NODE    732.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3360.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   874.00   CHANNEL SLOPE =  0.3204
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2001 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.10
 FLOW VELOCITY(FEET/SEC) =   8.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.81   Tc(MIN.) =  12.77
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE    732.00 =  1844.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    732.00 TO NODE    732.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.603
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   60.92
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =      90.47

****************************************************************************
 FLOW PROCESS FROM NODE    732.00 TO NODE    733.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
ELEVATION DATA: UPSTREAM(FEET) =   3360.00  DOWNSTREAM(FEET) =   3290.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1090.00   CHANNEL SLOPE =  0.0642
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0642 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =      90.47
FLOW VELOCITY(FEET/SEC) =   6.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.86   Tc(MIN.) =  15.63
LONGEST FLOWPATH FROM NODE    730.00 TO NODE    733.00 =  2934.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    733.00 TO NODE    733.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  15.63
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.128
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       49.00      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   49.00      SUBAREA RUNOFF(CFS) =  128.33
EFFECTIVE AREA(ACRES) =     78.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     78.70       PEAK FLOW RATE(CFS) =     206.12
                                                  753
****************************************************************************
FLOW PROCESS FROM NODE    733.00 TO NODE    734.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =  3290.00  DOWNSTREAM(FEET) =  3140.00
FLOW LENGTH(FEET) =  2355.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  42.0 INCH PIPE IS  29.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =  28.13
ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =    206.12
PIPE TRAVEL TIME(MIN.) =   1.40    Tc(MIN.) =  17.03
LONGEST FLOWPATH FROM NODE    730.00 TO NODE    734.00 =  5289.00 FEET.
                          753                 753
****************************************************************************
FLOW PROCESS FROM NODE    734.00 TO NODE    734.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  17.03
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.946
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       30.30      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    30.30      SUBAREA RUNOFF(CFS) =    74.40
 EFFECTIVE AREA(ACRES) =    109.00    AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    109.00       PEAK FLOW RATE(CFS) =     267.65

****************************************************************************
 FLOW PROCESS FROM NODE     734.00 TO NODE     734.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  17.03
 RAINFALL INTENSITY(INCH/HR) =   2.95
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   109.00
 TOTAL STREAM AREA(ACRES) =   109.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    267.65

****************************************************************************
 FLOW PROCESS FROM NODE     730.00 TO NODE     750.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   682.00
 ELEVATION DATA: UPSTREAM(FEET) =   3870.00  DOWNSTREAM(FEET) =   3560.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.359
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.848
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       10.00      0.22      1.000    89    8.36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =    41.67
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     41.67

****************************************************************************
 FLOW PROCESS FROM NODE     750.00 TO NODE     751.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   428.00   CHANNEL SLOPE =  0.1869
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1535 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     41.67
 FLOW VELOCITY(FEET/SEC) =   7.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.94   Tc(MIN.) =   9.30
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE     751.00 =  1110.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     751.00 TO NODE     751.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.500
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       11.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.20      SUBAREA RUNOFF(CFS) =   43.16
 EFFECTIVE AREA(ACRES) =     21.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     21.20       PEAK FLOW RATE(CFS) =      81.70

****************************************************************************
 FLOW PROCESS FROM NODE     751.00 TO NODE     752.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1139.00   CHANNEL SLOPE =  0.2458
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1786 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     81.70
 FLOW VELOCITY(FEET/SEC) =  10.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.85   Tc(MIN.) =  11.15
 LONGEST FLOWPATH FROM NODE     730.00 TO NODE     752.00 =  2249.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     752.00 TO NODE     752.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.963
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   67.40
 EFFECTIVE AREA(ACRES) =     41.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     41.20       PEAK FLOW RATE(CFS) =     138.85

****************************************************************************
 FLOW PROCESS FROM NODE     752.00 TO NODE     753.00 IS CODE =  52
----------------------------------------------------------------------------
```

```
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3200.00  DOWNSTREAM(FEET) =   3140.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1440.00   CHANNEL SLOPE =  0.0417
 CHANNEL FLOW THRU SUBAREA(CFS) =    138.85
 FLOW VELOCITY(FEET/SEC) =  10.70 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.24   Tc(MIN.) =  13.39
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE    753.00 =  3689.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    753.00 TO NODE    753.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.486
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    D       55.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   55.60      SUBAREA RUNOFF(CFS) =  163.51
 EFFECTIVE AREA(ACRES) =     96.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     96.80       PEAK FLOW RATE(CFS) =     284.67

****************************************************************************
 FLOW PROCESS FROM NODE    753.00 TO NODE    753.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.39
 RAINFALL INTENSITY(INCH/HR) =   3.49
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    96.80
 TOTAL STREAM AREA(ACRES) =    96.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    284.67

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     267.65  17.03     2.946   0.22( 0.22)  1.00    109.0      730.00
     2     284.67  13.39     3.486   0.22( 0.22)  1.00     96.8      730.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
```

```
 NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)     NODE
    1    536.80   13.39     3.486  0.22( 0.22) 1.00   182.5     730.00
    2    505.35   17.03     2.946  0.22( 0.22) 1.00   205.8     730.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    536.80    Tc(MIN.) =    13.39
 EFFECTIVE AREA(ACRES) =   182.54   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    205.80
 LONGEST FLOWPATH FROM NODE    730.00 TO NODE    753.00 =  5289.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    205.80  TC(MIN.) =     13.39
 EFFECTIVE AREA(ACRES) =    182.54  AREA-AVERAGED Fm(INCH/HR)=  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =    536.80

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    536.80   13.39     3.486  0.22( 0.22) 1.00   182.5     730.00
    2    505.35   17.03     2.946  0.22( 0.22) 1.00   205.8     730.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
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Ver. 13.0 Release Date: 06/01/2006 License ID 1400

Analysis prepared by:

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```
 ************************** DESCRIPTION OF STUDY **************************
* Watershed D                                                            *
* Developed Condition                                                    *
* ~~Offsite AMC 2~~ Onsite AMC 3                                         *
 **************************************************************************

  FILE NAME: HAC-D2D.DAT
  TIME/DATE OF STUDY: 13:25 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-   CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:   MANNING
     WIDTH   CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE   FACTOR
NO.    (FT)      (FT)    SIDE / SIDE/ WAY    (FT)    (FT)   (FT)  (FT)     (n)
===  =====  =========  ================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0313  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    730.00 TO NODE    753.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
```

```
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  13.39   RAINFALL INTENSITY(INCH/HR) =  3.49
 EFFECTIVE AREA(ACRES) =   182.54
 TOTAL AREA(ACRES) =   205.80        PEAK FLOW RATE(CFS) =    536.80
 AREA-AVERAGED Fm(INCH/HR) =   0.22  AREA-AVERAGED Fp(INCH/HR) =   0.22
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    753.00 TO NODE    753.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.486
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       10.70      0.45      0.600    76
 RESIDENTIAL
 "1 DWELLING/ACRE"          B       15.10      0.45      0.800    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.717
 SUBAREA AREA(ACRES) =   25.80      SUBAREA RUNOFF(CFS) =   73.42
 EFFECTIVE AREA(ACRES) =    208.34   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =    231.60       PEAK FLOW RATE(CFS) =     609.97

****************************************************************************
 FLOW PROCESS FROM NODE    753.00 TO NODE    753.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.486
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       28.80      0.45      0.500    76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       11.30      0.45      0.600    76
 PUBLIC PARK                B        4.00      0.45      0.850    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.557
 SUBAREA AREA(ACRES) =   44.10      SUBAREA RUNOFF(CFS) =  128.36
 EFFECTIVE AREA(ACRES) =    252.44   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.89
 TOTAL AREA(ACRES) =    275.70       PEAK FLOW RATE(CFS) =     738.32
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    275.70  TC(MIN.) =     13.39
 EFFECTIVE AREA(ACRES) =    252.44  AREA-AVERAGED Fm(INCH/HR)=  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.894
 PEAK FLOW RATE(CFS)   =    738.32
```

END OF RATIONAL METHOD ANALYSIS

Watershed E
Combined Offsite (AMC 2) and Onsite (AMC 3)

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Watershed E                                                             *
* Offsite AMC 2                                                           *
* 100 Year Storm Event                                                    *
 *************************************************************************

  FILE NAME: HAC-D-E.DAT
  TIME/DATE OF STUDY: 13:43 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     710.00 TO NODE     711.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
 ELEVATION DATA: UPSTREAM(FEET) =   4240.00  DOWNSTREAM(FEET) =   4080.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.061
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.258
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       10.00      0.22      1.000    89   10.06
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     36.36
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     36.36

****************************************************************************
 FLOW PROCESS FROM NODE    711.00 TO NODE    712.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   850.00   CHANNEL SLOPE =  0.3294
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2016 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.36
 FLOW VELOCITY(FEET/SEC) =   8.32 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.70   Tc(MIN.) =  11.76
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    712.00 =  1595.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    712.00 TO NODE    712.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.76
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.817
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   64.78
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      97.17

****************************************************************************
 FLOW PROCESS FROM NODE    712.00 TO NODE    713.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3500.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1605.00   CHANNEL SLOPE =  0.1869
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1535 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     97.17
 FLOW VELOCITY(FEET/SEC) =  10.07 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.66   Tc(MIN.) =  14.42
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    713.00 =  3200.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    713.00 TO NODE    713.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.310
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  111.30
 EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     194.78

****************************************************************************
 FLOW PROCESS FROM NODE    713.00 TO NODE    714.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3500.00  DOWNSTREAM(FEET) =   3320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1361.00   CHANNEL SLOPE =  0.1323
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1232 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    194.78
 FLOW VELOCITY(FEET/SEC) =  11.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.99   Tc(MIN.) =  16.41
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    714.00 =  4561.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.41
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.023
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       43.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =    43.50      SUBAREA RUNOFF(CFS) =  109.81
 EFFECTIVE AREA(ACRES) =     113.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     113.50       PEAK FLOW RATE(CFS) =     286.51

****************************************************************************
 FLOW PROCESS FROM NODE     714.00 TO NODE     714.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.41
 RAINFALL INTENSITY(INCH/HR) =   3.02
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   113.50
 TOTAL STREAM AREA(ACRES) =   113.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    286.51

****************************************************************************
 FLOW PROCESS FROM NODE    1130.00 TO NODE    1131.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   536.00
 ELEVATION DATA: UPSTREAM(FEET) =   3930.00  DOWNSTREAM(FEET) =   3740.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.978
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.009
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     43.12
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     43.12

****************************************************************************
 FLOW PROCESS FROM NODE    1131.00 TO NODE    1132.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3740.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   664.00   CHANNEL SLOPE =  0.3012
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1953 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     43.12
 FLOW VELOCITY(FEET/SEC) =   8.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =   9.26
 LONGEST FLOWPATH FROM NODE   1130.00 TO NODE   1132.00 =  1200.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE   1132.00 TO NODE   1132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.26
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.514
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   76.18
 EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =     114.84

****************************************************************************
 FLOW PROCESS FROM NODE   1132.00 TO NODE    714.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1691.00   CHANNEL SLOPE =  0.1301
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1217 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    114.84
 FLOW VELOCITY(FEET/SEC) =   9.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.97   Tc(MIN.) =  12.23
 LONGEST FLOWPATH FROM NODE   1130.00 TO NODE    714.00 =  2891.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.23
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.715
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       32.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   32.80      SUBAREA RUNOFF(CFS) =  103.23
 EFFECTIVE AREA(ACRES) =     62.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     62.50       PEAK FLOW RATE(CFS) =     196.69

****************************************************************************
 FLOW PROCESS FROM NODE    714.00 TO NODE    714.00 IS CODE =   1
----------------------------------------------------------------------------
```

```
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  12.23
RAINFALL INTENSITY(INCH/HR) =   3.71
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    62.50
TOTAL STREAM AREA(ACRES) =    62.50
PEAK FLOW RATE(CFS) AT CONFLUENCE =    196.69

** CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     286.51  16.41     3.023   0.22( 0.22) 1.00    113.5      710.00
    2     196.69  12.23     3.715   0.22( 0.22) 1.00     62.5     1130.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
    1     462.78  12.23     3.715   0.22( 0.22) 1.00    147.0     1130.00
    2     444.28  16.41     3.023   0.22( 0.22) 1.00    176.0      710.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =    462.78    Tc(MIN.) =    12.23
EFFECTIVE AREA(ACRES) =   147.05   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    176.00
LONGEST FLOWPATH FROM NODE    710.00 TO NODE    714.00 =  4561.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    714.00 TO NODE    715.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3320.00  DOWNSTREAM(FEET) =   3222.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1370.00   CHANNEL SLOPE =  0.0715
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .0715 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    462.78
FLOW VELOCITY(FEET/SEC) =  11.56 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.97   Tc(MIN.) =  14.20
LONGEST FLOWPATH FROM NODE    710.00 TO NODE    715.00 =  5931.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    715.00 TO NODE    715.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
```

```
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  14.20
  RAINFALL INTENSITY(INCH/HR) =   3.35
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   147.05
  TOTAL STREAM AREA(ACRES) =   176.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    462.78

****************************************************************************
  FLOW PROCESS FROM NODE    716.00 TO NODE    717.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  2285.00
  ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3235.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   18.099
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.823
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D       24.20      0.22      1.000    89   18.10
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     56.74
  TOTAL AREA(ACRES) =     24.20   PEAK FLOW RATE(CFS) =     56.74

****************************************************************************
  FLOW PROCESS FROM NODE    717.00 TO NODE    715.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3235.00  DOWNSTREAM(FEET) =  3222.00
  FLOW LENGTH(FEET) =   840.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.91
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     56.74
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =  19.27
  LONGEST FLOWPATH FROM NODE    716.00 TO NODE    715.00 =  3125.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    715.00 TO NODE    715.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  19.27
  RAINFALL INTENSITY(INCH/HR) =   2.70
```

```
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    24.20
 TOTAL STREAM AREA(ACRES) =    24.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     56.74

 ** CONFLUENCE DATA **
  STREAM     Q     Tc    Intensity    Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    462.78  14.20     3.345  0.22( 0.22) 1.00   147.0    1130.00
     1    444.28  18.42     2.789  0.22( 0.22) 1.00   176.0     710.00
     2     56.74  19.27     2.701  0.22( 0.22) 1.00    24.2     716.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc    Intensity    Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    515.42  14.20     3.345  0.22( 0.22) 1.00   164.9    1130.00
     2    500.40  18.42     2.789  0.22( 0.22) 1.00   199.1     710.00
     3    485.89  19.27     2.701  0.22( 0.22) 1.00   200.2     716.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    515.42    Tc(MIN.) =    14.20
 EFFECTIVE AREA(ACRES) =   164.88   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    200.20
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    715.00 =  5931.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    715.00 TO NODE    720.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3222.00  DOWNSTREAM(FEET) =  3189.00
 FLOW LENGTH(FEET) =   810.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  63.0 INCH PIPE IS  47.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  29.72
 ESTIMATED PIPE DIAMETER(INCH) =  63.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    515.42
 PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =  14.66
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    720.00 =  6741.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.66
 RAINFALL INTENSITY(INCH/HR) =   3.27
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   164.88
 TOTAL STREAM AREA(ACRES) =   200.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    515.42

****************************************************************************
 FLOW PROCESS FROM NODE    718.00 TO NODE    719.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  2040.00
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3225.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.217
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.187
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D       18.80      0.22      1.000    89   15.22
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     50.24
 TOTAL AREA(ACRES) =     18.80   PEAK FLOW RATE(CFS) =     50.24

****************************************************************************
 FLOW PROCESS FROM NODE    719.00 TO NODE    720.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3225.00  DOWNSTREAM(FEET) =  3189.00
 FLOW LENGTH(FEET) =   800.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  17.44
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     50.24
 PIPE TRAVEL TIME(MIN.) =   0.76    Tc(MIN.) =  15.98
 LONGEST FLOWPATH FROM NODE    718.00 TO NODE    720.00 =  2840.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.98
 RAINFALL INTENSITY(INCH/HR) =   3.08
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    18.80
 TOTAL STREAM AREA(ACRES) =    18.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     50.24
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     25.00 TO NODE     26.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1980.00
 ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3280.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   23.259
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.368
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"  (50.0%)    B       33.90      0.38      1.000    80   23.26
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     60.66
 TOTAL AREA(ACRES) =     33.90   PEAK FLOW RATE(CFS) =     60.66

****************************************************************************
 FLOW PROCESS FROM NODE     26.00 TO NODE     27.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3243.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1160.00   CHANNEL SLOPE =  0.0319
 CHANNEL FLOW THRU SUBAREA(CFS) =     60.66
 FLOW VELOCITY(FEET/SEC) =   7.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.64   Tc(MIN.) =  25.90
 LONGEST FLOWPATH FROM NODE     25.00 TO NODE     27.00 =  3140.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     27.00 TO NODE     27.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.196
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       36.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.40     SUBAREA RUNOFF(CFS) =   59.51
 EFFECTIVE AREA(ACRES) =    70.30   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.30      PEAK FLOW RATE(CFS) =     114.92

****************************************************************************
 FLOW PROCESS FROM NODE     27.00 TO NODE    720.00 IS CODE =  52
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3243.00  DOWNSTREAM(FEET) =   3189.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1975.00   CHANNEL SLOPE =  0.0273
  CHANNEL FLOW THRU SUBAREA(CFS) =    114.92
  FLOW VELOCITY(FEET/SEC) =   8.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.02   Tc(MIN.) =  29.93
  LONGEST FLOWPATH FROM NODE     25.00 TO NODE    720.00 =  5115.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =  29.93
  RAINFALL INTENSITY(INCH/HR) =   1.99
  AREA-AVERAGED Fm(INCH/HR) =  0.38
  AREA-AVERAGED Fp(INCH/HR) =  0.38
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    70.30
  TOTAL STREAM AREA(ACRES) =    70.30
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    114.92

****************************************************************************
  FLOW PROCESS FROM NODE    369.00 TO NODE    370.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   940.00
  ELEVATION DATA: UPSTREAM(FEET) =   4040.00  DOWNSTREAM(FEET) =   3600.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.448
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.450
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    D        7.20      0.22      1.000    89    9.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     27.42
  TOTAL AREA(ACRES) =      7.20   PEAK FLOW RATE(CFS) =     27.42

****************************************************************************
  FLOW PROCESS FROM NODE    370.00 TO NODE    371.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3400.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   975.00   CHANNEL SLOPE =  0.2051
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1626 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     27.42
 FLOW VELOCITY(FEET/SEC) =   6.80 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.39   Tc(MIN.) =  11.84
 LONGEST FLOWPATH FROM NODE    369.00 TO NODE    371.00 =  1915.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    371.00 TO NODE    371.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.84
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.800
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.50      SUBAREA RUNOFF(CFS) =   59.64
 EFFECTIVE AREA(ACRES) =     25.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     25.70       PEAK FLOW RATE(CFS) =      82.85

****************************************************************************
 FLOW PROCESS FROM NODE    371.00 TO NODE    372.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3400.00  DOWNSTREAM(FEET) =   3280.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   935.00   CHANNEL SLOPE =  0.1283
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1206 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     82.85
 FLOW VELOCITY(FEET/SEC) =   8.46 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.84   Tc(MIN.) =  13.68
 LONGEST FLOWPATH FROM NODE    369.00 TO NODE    372.00 =  2850.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    372.00 TO NODE    372.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.434
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       44.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.00      SUBAREA RUNOFF(CFS) =  127.37
 EFFECTIVE AREA(ACRES) =     69.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     69.70       PEAK FLOW RATE(CFS) =     201.76

****************************************************************************
 FLOW PROCESS FROM NODE    372.00 TO NODE    720.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3280.00  DOWNSTREAM(FEET) =   3189.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2925.00   CHANNEL SLOPE =  0.0311
 CHANNEL FLOW THRU SUBAREA(CFS) =    201.76
 FLOW VELOCITY(FEET/SEC) =  10.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.70   Tc(MIN.) =  18.38
 LONGEST FLOWPATH FROM NODE    369.00 TO NODE    720.00 =  5775.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.38
 RAINFALL INTENSITY(INCH/HR) =   2.79
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    69.70
 TOTAL STREAM AREA(ACRES) =    69.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    201.76

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
     1    515.42  14.66     3.272   0.22( 0.22) 1.00   164.9    1130.00
     1    500.40  18.87     2.742   0.22( 0.22) 1.00   199.1     710.00
     1    485.89  19.74     2.656   0.22( 0.22) 1.00   200.2     716.00
     2     50.24  15.98     3.080   0.22( 0.22) 1.00    18.8     718.00
     3    114.92  29.93     1.985   0.38( 0.38) 1.00    70.3      25.00
     4    201.76  18.38     2.793   0.22( 0.22) 1.00    69.7     369.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  4 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
     1    856.86  14.66     3.272   0.24( 0.24) 1.00   272.1    1130.00
     2    859.16  15.98     3.080   0.24( 0.24) 1.00   292.6     718.00
     3    855.27  18.38     2.793   0.24( 0.24) 1.00   326.8     369.00
     4    849.05  18.87     2.742   0.24( 0.24) 1.00   332.0     710.00
     5    827.27  19.74     2.656   0.24( 0.24) 1.00   335.1     716.00
     6    636.60  29.93     1.985   0.25( 0.25) 1.00   359.0      25.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
 PEAK FLOW RATE(CFS) =    859.16    Tc(MIN.) =    15.98
 EFFECTIVE AREA(ACRES) =   292.60   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    359.00
 LONGEST FLOWPATH FROM NODE    710.00 TO NODE    720.00 =  6741.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    359.00  TC(MIN.) =     15.98
 EFFECTIVE AREA(ACRES) =     292.60  AREA-AVERAGED Fm(INCH/HR)=  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =    859.16

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1    856.86  14.66    3.272  0.24( 0.24) 1.00   272.1    1130.00
     2    859.16  15.98    3.080  0.24( 0.24) 1.00   292.6     718.00
     3    855.27  18.38    2.793  0.24( 0.24) 1.00   326.8     369.00
     4    849.05  18.87    2.742  0.24( 0.24) 1.00   332.0     710.00
     5    827.27  19.74    2.656  0.24( 0.24) 1.00   335.1     716.00
     6    636.60  29.93    1.985  0.25( 0.25) 1.00   359.0      25.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                            Allard Engineering
                            8253 Sierra Avenue
                            Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Watershed E                                                             *
* ~~Offsite AMC 2~~ Onsite AMC 3                                          *
* 100 Year Storm Event                                                    *
 **************************************************************************

  FILE NAME: HAC-D2E.DAT
  TIME/DATE OF STUDY: 14:05 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    710.00 TO NODE    720.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
```

```
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  15.98   RAINFALL INTENSITY(INCH/HR) =  3.08
 EFFECTIVE AREA(ACRES) =   292.60
 TOTAL AREA(ACRES) =   359.00        PEAK FLOW RATE(CFS) =    859.16
 AREA-AVERAGED Fm(INCH/HR) =   0.24  AREA-AVERAGED Fp(INCH/HR) =   0.24
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "1 DWELLING/ACRE"          B       43.40      0.45      0.800    76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       40.00      0.45      0.600    76
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       23.00      0.18      0.500    91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.41
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.660
 SUBAREA AREA(ACRES) =  106.40      SUBAREA RUNOFF(CFS) =  269.20
 EFFECTIVE AREA(ACRES) =    399.00   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.91
 TOTAL AREA(ACRES) =    465.40       PEAK FLOW RATE(CFS) =    1017.10

****************************************************************************
 FLOW PROCESS FROM NODE    720.00 TO NODE    720.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 PUBLIC PARK                B        6.70      0.45      0.850    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
 SUBAREA AREA(ACRES) =    6.70      SUBAREA RUNOFF(CFS) =   16.26
 EFFECTIVE AREA(ACRES) =    405.70   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  0.91
 TOTAL AREA(ACRES) =    472.10       PEAK FLOW RATE(CFS) =    1033.36
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    472.10  TC(MIN.) =     15.98
 EFFECTIVE AREA(ACRES) =    405.70  AREA-AVERAGED Fm(INCH/HR)=  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap = 0.908
 PEAK FLOW RATE(CFS)    =   1033.36
============================================================================
============================================================================
```

END OF RATIONAL METHOD ANALYSIS

Watershed F
(Offsite AMC 2)

```
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED F                                                           *
* DEVELOPED CONDITION                                                   *
* 100-YEAR EVENT                                                        *
 ************************************************************************

  FILE NAME: HAC-8.DAT
  TIME/DATE OF STUDY: 16:03 05/12/2009
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:   MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)     SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    230.00 TO NODE    231.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
 ELEVATION DATA: UPSTREAM(FEET) =   4440.00  DOWNSTREAM(FEET) =   4200.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.705
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.712
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.40      0.22      1.000    89    8.70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.02
 TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     38.02

****************************************************************************
 FLOW PROCESS FROM NODE    231.00 TO NODE    232.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   4080.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   406.00   CHANNEL SLOPE =  0.2956
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1939 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.02
 FLOW VELOCITY(FEET/SEC) =   8.28 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =   9.52
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    232.00 =  1076.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    232.00 TO NODE    232.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.425
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       19.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   74.60
 EFFECTIVE AREA(ACRES) =     29.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.10       PEAK FLOW RATE(CFS) =     110.19

****************************************************************************
 FLOW PROCESS FROM NODE    232.00 TO NODE    233.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4080.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   547.00   CHANNEL SLOPE =  0.2194
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1697 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    110.19
 FLOW VELOCITY(FEET/SEC) =  11.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  10.35
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    233.00 =  1623.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    233.00 TO NODE    233.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.175
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.50      SUBAREA RUNOFF(CFS) =  137.12
 EFFECTIVE AREA(ACRES) =     67.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.60       PEAK FLOW RATE(CFS) =     240.76

****************************************************************************
 FLOW PROCESS FROM NODE    233.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1440.00   CHANNEL SLOPE =  0.1389
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1276 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    240.76
 FLOW VELOCITY(FEET/SEC) =  12.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  12.28
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    234.00 =  3063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.704
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       47.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   47.80      SUBAREA RUNOFF(CFS) =  149.95
 EFFECTIVE AREA(ACRES) =    115.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    115.40       PEAK FLOW RATE(CFS) =     362.02

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.28
 RAINFALL INTENSITY(INCH/HR) =   3.70
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   115.40
 TOTAL STREAM AREA(ACRES) =   115.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    362.02

****************************************************************************
 FLOW PROCESS FROM NODE    250.00 TO NODE    251.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   915.00
 ELEVATION DATA: UPSTREAM(FEET) =   4190.00  DOWNSTREAM(FEET) =   4020.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.244
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.939
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.60      0.22      1.000    89   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.15
 TOTAL AREA(ACRES) =      9.60   PEAK FLOW RATE(CFS) =     32.15

****************************************************************************
 FLOW PROCESS FROM NODE    251.00 TO NODE    252.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4020.00  DOWNSTREAM(FEET) =   3920.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   443.00   CHANNEL SLOPE =  0.2257
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1719 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.15
 FLOW VELOCITY(FEET/SEC) =   7.37 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.00   Tc(MIN.) =  12.25
 LONGEST FLOWPATH FROM NODE    250.00 TO NODE    252.00 =  1358.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    252.00 TO NODE    252.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.711
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       19.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.20      SUBAREA RUNOFF(CFS) =   60.36
 EFFECTIVE AREA(ACRES) =     28.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.80       PEAK FLOW RATE(CFS) =      90.54

****************************************************************************
 FLOW PROCESS FROM NODE    252.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1495.00   CHANNEL SLOPE =  0.1070
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1053 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     90.54
 FLOW VELOCITY(FEET/SEC) =   8.15 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.06   Tc(MIN.) =  15.30
 LONGEST FLOWPATH FROM NODE    250.00 TO NODE    234.00 =  2853.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.175
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       35.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   35.40      SUBAREA RUNOFF(CFS) =   94.20
 EFFECTIVE AREA(ACRES) =     64.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.20       PEAK FLOW RATE(CFS) =     170.84

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
```

```
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.30
  RAINFALL INTENSITY(INCH/HR) =   3.17
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    64.20
  TOTAL STREAM AREA(ACRES) =    64.20
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    170.84

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    271.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   700.00
  ELEVATION DATA: UPSTREAM(FEET) =   4040.00  DOWNSTREAM(FEET) =   3860.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.466
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.444
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                     D        9.40      0.22      1.000    89    9.47
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     35.75
  TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     35.75

****************************************************************************
  FLOW PROCESS FROM NODE    271.00 TO NODE    272.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3860.00  DOWNSTREAM(FEET) =   3800.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   442.00   CHANNEL SLOPE =  0.1357
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1255 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     35.75
  FLOW VELOCITY(FEET/SEC) =   6.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.13   Tc(MIN.) =  10.59
  LONGEST FLOWPATH FROM NODE    270.00 TO NODE    272.00 =  1142.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    272.00 TO NODE    272.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.107
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       17.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.40      SUBAREA RUNOFF(CFS) =   60.90
 EFFECTIVE AREA(ACRES) =     26.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     26.80       PEAK FLOW RATE(CFS) =      93.80

****************************************************************************
 FLOW PROCESS FROM NODE    272.00 TO NODE    234.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1133.00   CHANNEL SLOPE =  0.0353
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0353 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.80
 FLOW VELOCITY(FEET/SEC) =   4.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.96   Tc(MIN.) =  14.55
 LONGEST FLOWPATH FROM NODE    270.00 TO NODE    234.00 =  2275.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.289
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       31.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   31.30      SUBAREA RUNOFF(CFS) =   86.51
 EFFECTIVE AREA(ACRES) =     58.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.10       PEAK FLOW RATE(CFS) =     160.58

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    234.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.55
 RAINFALL INTENSITY(INCH/HR) =   3.29
 AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    58.10
 TOTAL STREAM AREA(ACRES) =    58.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    160.58

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     362.02  12.28    3.704  0.22( 0.22) 1.00   115.4     230.00
     2     170.84  15.30    3.175  0.22( 0.22) 1.00    64.2     250.00
     3     160.58  14.55    3.289  0.22( 0.22) 1.00    58.1     270.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     677.45  12.28    3.704  0.22( 0.22) 1.00   215.9     230.00
     2     648.23  14.55    3.289  0.22( 0.22) 1.00   234.5     270.00
     3     632.53  15.30    3.175  0.22( 0.22) 1.00   237.7     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    677.45    Tc(MIN.) =    12.28
 EFFECTIVE AREA(ACRES) =   215.95   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    237.70
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    234.00 =  3063.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    234.00 TO NODE    235.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.1136
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1102 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    677.45
 FLOW VELOCITY(FEET/SEC) =  16.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.90   Tc(MIN.) =  13.18
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    235.00 =  3943.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    235.00 TO NODE    235.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.18
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.525
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       44.00      0.22      1.000    89
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.00      SUBAREA RUNOFF(CFS) =  130.95
 EFFECTIVE AREA(ACRES) =    259.95   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    281.70       PEAK FLOW RATE(CFS) =     773.62

****************************************************************************
 FLOW PROCESS FROM NODE    235.00 TO NODE    212.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1140.00   CHANNEL SLOPE =  0.0614
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0614 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    773.62
 FLOW VELOCITY(FEET/SEC) =  12.71 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.49   Tc(MIN.) =  14.67
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    212.00 =  5083.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.80      SUBAREA RUNOFF(CFS) =  112.05
 EFFECTIVE AREA(ACRES) =    300.75   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    322.50       PEAK FLOW RATE(CFS) =     825.93

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  14.67
 RAINFALL INTENSITY(INCH/HR) =   3.27
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   300.75
 TOTAL STREAM AREA(ACRES) =   322.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    825.93
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   822.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3820.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.542
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.419
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.60      0.22      1.000    89    9.54
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     36.30
 TOTAL AREA(ACRES) =      9.60   PEAK FLOW RATE(CFS) =     36.30

****************************************************************************
 FLOW PROCESS FROM NODE    211.00 TO NODE    212.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.1840
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1520 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.30
 FLOW VELOCITY(FEET/SEC) =   7.22 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.89   Tc(MIN.) =  12.43
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    212.00 =  2072.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.673
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       18.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.90      SUBAREA RUNOFF(CFS) =   58.77
 EFFECTIVE AREA(ACRES) =     28.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.50       PEAK FLOW RATE(CFS) =      88.61

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     212.00 TO NODE     212.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.43
 RAINFALL INTENSITY(INCH/HR) =   3.67
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    28.50
 TOTAL STREAM AREA(ACRES) =    28.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     88.61

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    825.93  14.67     3.269   0.22( 0.22) 1.00    300.7     230.00
     1    785.61  16.98     2.951   0.22( 0.22) 1.00    319.3     270.00
     1    767.09  17.76     2.861   0.22( 0.22) 1.00    322.5     250.00
     2     88.61  12.43     3.673   0.22( 0.22) 1.00     28.5     210.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    880.54  12.43     3.673   0.22( 0.22) 1.00    283.2     210.00
     2    904.20  14.67     3.269   0.22( 0.22) 1.00    329.2     230.00
     3    855.73  16.98     2.951   0.22( 0.22) 1.00    347.8     270.00
     4    834.88  17.76     2.861   0.22( 0.22) 1.00    351.0     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    904.20    Tc(MIN.) =    14.67
 EFFECTIVE AREA(ACRES) =   329.25   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    351.00
 LONGEST FLOWPATH FROM NODE     230.00 TO NODE     212.00 =  5083.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     212.00 TO NODE     194.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   530.00   CHANNEL SLOPE =  0.0566
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0566 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    904.20
 FLOW VELOCITY(FEET/SEC) =  12.85 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.69   Tc(MIN.) =  15.36
 LONGEST FLOWPATH FROM NODE     230.00 TO NODE     194.00 =  5613.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.166
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.60      SUBAREA RUNOFF(CFS) =   49.35
 EFFECTIVE AREA(ACRES) =    347.85   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    369.60       PEAK FLOW RATE(CFS) =     923.01

****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.36
 RAINFALL INTENSITY(INCH/HR) =   3.17
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   347.85
 TOTAL STREAM AREA(ACRES) =   369.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    923.01

****************************************************************************
 FLOW PROCESS FROM NODE    190.00 TO NODE    191.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   533.00
 ELEVATION DATA: UPSTREAM(FEET) =   4800.00  DOWNSTREAM(FEET) =   4480.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.164
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.401
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.16
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     46.64
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     46.64
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    191.00 TO NODE    192.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4640.00  DOWNSTREAM(FEET) =   4480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   594.00   CHANNEL SLOPE =  0.2694
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1865 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     46.64
 FLOW VELOCITY(FEET/SEC) =   8.69 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =   8.30
 LONGEST FLOWPATH FROM NODE    190.00 TO NODE    192.00 =  1127.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    192.00 TO NODE    192.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.871
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   83.75
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     125.63

****************************************************************************
 FLOW PROCESS FROM NODE    192.00 TO NODE    193.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4480.00  DOWNSTREAM(FEET) =   4280.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1187.00   CHANNEL SLOPE =  0.1685
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1442 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    125.63
 FLOW VELOCITY(FEET/SEC) =  10.63 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.86   Tc(MIN.) =  10.16
 LONGEST FLOWPATH FROM NODE    190.00 TO NODE    193.00 =  2314.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    193.00 TO NODE    193.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.228
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D       39.00      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   39.00      SUBAREA RUNOFF(CFS) =  140.75
EFFECTIVE AREA(ACRES) =     69.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     69.00       PEAK FLOW RATE(CFS) =     249.03

****************************************************************************
FLOW PROCESS FROM NODE    193.00 TO NODE    194.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   4280.00  DOWNSTREAM(FEET) =   3560.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  2282.00   CHANNEL SLOPE =  0.3155
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1989 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    249.03
FLOW VELOCITY(FEET/SEC) =  15.68 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.43   Tc(MIN.) =  12.59
LONGEST FLOWPATH FROM NODE    190.00 TO NODE    194.00 =  4596.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  12.59
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.640
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                     D       80.00      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   80.00      SUBAREA RUNOFF(CFS) =  246.38
EFFECTIVE AREA(ACRES) =    149.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    149.00       PEAK FLOW RATE(CFS) =     458.88

****************************************************************************
FLOW PROCESS FROM NODE    194.00 TO NODE    194.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  12.59
RAINFALL INTENSITY(INCH/HR) =   3.64
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   149.00
 TOTAL STREAM AREA(ACRES) =   149.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    458.88

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    901.17  13.12    3.536  0.22( 0.22) 1.00   301.8      210.00
     1    923.01  15.36    3.166  0.22( 0.22) 1.00   347.8      230.00
     1    874.35  17.68    2.869  0.22( 0.22) 1.00   366.4      270.00
     1    853.51  18.46    2.784  0.22( 0.22) 1.00   369.6      250.00
     2    458.88  12.59    3.640  0.22( 0.22) 1.00   149.0      190.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1350.59  12.59    3.640  0.22( 0.22) 1.00   438.5      190.00
     2   1346.09  13.12    3.536  0.22( 0.22) 1.00   450.8      210.00
     3   1318.38  15.36    3.166  0.22( 0.22) 1.00   496.8      230.00
     4   1229.88  17.68    2.869  0.22( 0.22) 1.00   515.4      270.00
     5   1197.59  18.46    2.784  0.22( 0.22) 1.00   518.6      250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  1350.59    Tc(MIN.) =    12.59
 EFFECTIVE AREA(ACRES) =   438.54   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    518.60
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    194.00 =  5613.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    194.00 TO NODE    195.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3487.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1170.00   CHANNEL SLOPE =  0.0624
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0624 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =   1350.59
 FLOW VELOCITY(FEET/SEC) =  15.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  13.85
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    195.00 =  6783.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    195.00 TO NODE    195.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.404
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
```

```
     LAND USE              GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL POOR COVER
  "GRASS"                    D       30.10       0.22       1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   30.10      SUBAREA RUNOFF(CFS) =   86.31
  EFFECTIVE AREA(ACRES) =    468.64   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    548.70       PEAK FLOW RATE(CFS) =    1350.59
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    195.00 TO NODE    195.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  13.85
  RAINFALL INTENSITY(INCH/HR) =   3.40
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   468.64
  TOTAL STREAM AREA(ACRES) =   548.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1350.59

****************************************************************************
  FLOW PROCESS FROM NODE    170.00 TO NODE    171.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
  ELEVATION DATA: UPSTREAM(FEET) =   4320.00  DOWNSTREAM(FEET) =   4000.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.450
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.146
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    D        9.40      0.22      1.000    89   10.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     33.23
  TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     33.23

****************************************************************************
  FLOW PROCESS FROM NODE    171.00 TO NODE    172.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4000.00  DOWNSTREAM(FEET) =   3680.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =     1.00   CHANNEL SLOPE = *******
```

```
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2300 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.23
 FLOW VELOCITY(FEET/SEC) =   8.62 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.00   Tc(MIN.) =  10.45
 LONGEST FLOWPATH FROM NODE    170.00 TO NODE    172.00 =  1001.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    172.00 TO NODE    172.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.146
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       17.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.20      SUBAREA RUNOFF(CFS) =   60.80
 EFFECTIVE AREA(ACRES) =     26.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     26.60       PEAK FLOW RATE(CFS) =      94.03

****************************************************************************
 FLOW PROCESS FROM NODE    172.00 TO NODE    195.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3487.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1050.00   CHANNEL SLOPE =  0.1838
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1519 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     94.03
 FLOW VELOCITY(FEET/SEC) =   9.91 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.77   Tc(MIN.) =  12.22
 LONGEST FLOWPATH FROM NODE    170.00 TO NODE    195.00 =  2051.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    195.00 TO NODE    195.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.717
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    C       29.70      0.27      1.000    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   29.70      SUBAREA RUNOFF(CFS) =   92.08
 EFFECTIVE AREA(ACRES) =     56.30   AREA-AVERAGED Fm(INCH/HR) =  0.25
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     56.30       PEAK FLOW RATE(CFS) =     175.84

****************************************************************************
 FLOW PROCESS FROM NODE    195.00 TO NODE    195.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.22
 RAINFALL INTENSITY(INCH/HR) =   3.72
 AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    56.30
 TOTAL STREAM AREA(ACRES) =    56.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    175.84

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1350.59  13.85     3.404   0.22( 0.22) 1.00    468.6     190.00
     1   1346.09  14.39     3.315   0.22( 0.22) 1.00    480.9     210.00
     1   1318.38  16.64     2.995   0.22( 0.22) 1.00    526.9     230.00
     1   1233.25  18.99     2.730   0.22( 0.22) 1.00    545.5     270.00
     1   1202.42  19.78     2.653   0.22( 0.22) 1.00    548.7     250.00
     2    175.84  12.22     3.717   0.25( 0.25) 1.00     56.3     170.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1483.99  12.22     3.717   0.22( 0.22) 1.00    469.7     170.00
     2   1510.58  13.85     3.404   0.22( 0.22) 1.00    524.9     190.00
     3   1501.58  14.39     3.315   0.22( 0.22) 1.00    537.2     210.00
     4   1457.62  16.64     2.995   0.22( 0.22) 1.00    583.2     230.00
     5   1359.08  18.99     2.730   0.22( 0.22) 1.00    601.8     270.00
     6   1324.35  19.78     2.653   0.22( 0.22) 1.00    605.0     250.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   1510.58    Tc(MIN.) =    13.85
 EFFECTIVE AREA(ACRES) =   524.94   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    605.00
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    195.00 =  6783.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    195.00 TO NODE    196.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3487.00  DOWNSTREAM(FEET) =   3442.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1245.00   CHANNEL SLOPE =  0.0361
 CHANNEL FLOW THRU SUBAREA(CFS) =   1510.58
 FLOW VELOCITY(FEET/SEC) =  21.34 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.97   Tc(MIN.) =  14.82
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    196.00 =  8028.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    196.00 TO NODE    196.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    150.00 TO NODE    151.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4580.00  DOWNSTREAM(FEET) =   4180.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.994
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.278
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        9.20      0.22      1.000    89    9.99
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.62
 TOTAL AREA(ACRES) =      9.20   PEAK FLOW RATE(CFS) =     33.62

****************************************************************************
 FLOW PROCESS FROM NODE    151.00 TO NODE    152.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   3980.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   509.00   CHANNEL SLOPE =  0.3929
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2128 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.62
 FLOW VELOCITY(FEET/SEC) =   8.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  11.01
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    152.00 =  1509.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    152.00 TO NODE    152.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.01
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.997
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       18.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.40      SUBAREA RUNOFF(CFS) =   62.58
 EFFECTIVE AREA(ACRES) =     27.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.60       PEAK FLOW RATE(CFS) =      93.87

****************************************************************************
 FLOW PROCESS FROM NODE    152.00 TO NODE    153.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3980.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   675.00   CHANNEL SLOPE =  0.2667
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1856 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     93.87
 FLOW VELOCITY(FEET/SEC) =  10.95 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  12.04
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    153.00 =  2184.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    153.00 TO NODE    153.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.755
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       36.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.70      SUBAREA RUNOFF(CFS) =  116.83
 EFFECTIVE AREA(ACRES) =     64.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.30       PEAK FLOW RATE(CFS) =     204.69

****************************************************************************
 FLOW PROCESS FROM NODE    153.00 TO NODE    154.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1055.00   CHANNEL SLOPE =  0.1517
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1358 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    204.69
 FLOW VELOCITY(FEET/SEC) =  12.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  13.49
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    154.00 =  3239.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    154.00 TO NODE    154.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.49
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.468
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       71.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   71.20      SUBAREA RUNOFF(CFS) =  208.26
 EFFECTIVE AREA(ACRES) =    135.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    135.50       PEAK FLOW RATE(CFS) =     396.34

****************************************************************************
 FLOW PROCESS FROM NODE    154.00 TO NODE    155.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3514.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1210.00   CHANNEL SLOPE =  0.1041
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1031 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    396.34
 FLOW VELOCITY(FEET/SEC) =  13.18 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =  15.02
 LONGEST FLOWPATH FROM NODE    150.00 TO NODE    155.00 =  4449.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.217
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       65.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   65.40      SUBAREA RUNOFF(CFS) =  176.51
 EFFECTIVE AREA(ACRES) =    200.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    200.90       PEAK FLOW RATE(CFS) =     542.21

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     155.00 TO NODE     155.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.02
 RAINFALL INTENSITY(INCH/HR) =   3.22
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   200.90
 TOTAL STREAM AREA(ACRES) =   200.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    542.21

****************************************************************************
 FLOW PROCESS FROM NODE      70.00 TO NODE     130.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   990.00
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4010.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.788
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.811
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   11.79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.34
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     32.34

****************************************************************************
 FLOW PROCESS FROM NODE     130.00 TO NODE     131.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4010.00  DOWNSTREAM(FEET) =   3960.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   553.00   CHANNEL SLOPE =  0.0904
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0904 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.34
 FLOW VELOCITY(FEET/SEC) =   5.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =  13.51
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     131.00 =  1543.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     131.00 TO NODE     131.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  13.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.465
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   58.44
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      87.66

****************************************************************************
 FLOW PROCESS FROM NODE    131.00 TO NODE    132.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3880.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   548.00   CHANNEL SLOPE =  0.1460
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1323 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     87.66
 FLOW VELOCITY(FEET/SEC) =   9.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  14.52
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    132.00 =  2091.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.294
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       38.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =  106.03
 EFFECTIVE AREA(ACRES) =     68.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     68.30       PEAK FLOW RATE(CFS) =     189.07

****************************************************************************
 FLOW PROCESS FROM NODE    132.00 TO NODE    155.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3514.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2680.00   CHANNEL SLOPE =  0.1366
 SLOPE ADJUSTMENT CURVE USED:
```

```
 EFFECTIVE SLOPE = .1260 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     189.07
 FLOW VELOCITY(FEET/SEC) =  11.39 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.92   Tc(MIN.) =  18.44
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     155.00 =  4771.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.44
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.786
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       55.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   55.70      SUBAREA RUNOFF(CFS) =  128.75
 EFFECTIVE AREA(ACRES) =    124.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    124.00       PEAK FLOW RATE(CFS) =     286.62

****************************************************************************
 FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.44
 RAINFALL INTENSITY(INCH/HR) =   2.79
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   124.00
 TOTAL STREAM AREA(ACRES) =   124.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    286.62

 ** CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    542.21  15.02    3.217  0.22( 0.22) 1.00   200.9     150.00
     2    286.62  18.44    2.786  0.22( 0.22) 1.00   124.0      70.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    814.78  15.02    3.217  0.22( 0.22) 1.00   301.9     150.00
     2    751.00  18.44    2.786  0.22( 0.22) 1.00   324.9      70.00
```

```
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    814.78    Tc(MIN.) =    15.02
 EFFECTIVE AREA(ACRES) =   301.89   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    324.90
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    155.00 =  4771.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    155.00 TO NODE    196.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3514.00  DOWNSTREAM(FEET) =  3442.00
 FLOW LENGTH(FEET) =  1550.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  72.0 INCH PIPE IS  55.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  34.82
 ESTIMATED PIPE DIAMETER(INCH) =  72.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    814.78
 PIPE TRAVEL TIME(MIN.) =   0.74    Tc(MIN.) =  15.76
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    196.00 =  6321.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    196.00 TO NODE    196.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1     814.78  15.76     3.110  0.22( 0.22) 1.00   301.9     150.00
     2     751.00  19.20     2.708  0.22( 0.22) 1.00   324.9      70.00
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE    196.00 =  6321.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1    1483.99  13.20     3.522  0.22( 0.22) 1.00   469.7     170.00
     2    1510.58  14.82     3.246  0.22( 0.22) 1.00   524.9     190.00
     3    1501.58  15.36     3.166  0.22( 0.22) 1.00   537.2     210.00
     4    1457.62  17.62     2.876  0.22( 0.22) 1.00   583.2     230.00
     5    1359.08  20.00     2.633  0.22( 0.22) 1.00   601.8     270.00
     6    1324.35  20.79     2.562  0.22( 0.22) 1.00   605.0     250.00
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    196.00 =  8028.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1    2263.31  13.20     3.522  0.22( 0.22) 1.00   722.4     170.00
     2    2313.07  14.82     3.246  0.22( 0.22) 1.00   808.9     190.00
     3    2311.19  15.36     3.166  0.22( 0.22) 1.00   831.4     210.00
     4    2308.58  15.76     3.110  0.22( 0.22) 1.00   847.2     150.00
     5    2237.93  17.62     2.876  0.22( 0.22) 1.00   897.6     230.00
     6    2142.99  19.20     2.708  0.22( 0.22) 1.00   920.5      70.00
     7    2087.26  20.00     2.633  0.22( 0.22) 1.00   926.7     270.00
     8    2031.04  20.79     2.562  0.22( 0.22) 1.00   929.9     250.00
```

```
    TOTAL AREA(ACRES) =    929.90

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     2313.07  Tc(MIN.) =   14.825
  EFFECTIVE AREA(ACRES) =    808.92  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    929.90
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE    196.00 =  8028.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    196.00 TO NODE    197.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3442.00  DOWNSTREAM(FEET) =   3423.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   800.00   CHANNEL SLOPE =  0.0237
  CHANNEL FLOW THRU SUBAREA(CFS) =   2313.07
  FLOW VELOCITY(FEET/SEC) =  19.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.67   Tc(MIN.) =  15.49
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE    197.00 =  8828.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    197.00 TO NODE    198.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3423.00  DOWNSTREAM(FEET) =  3418.00
  FLOW LENGTH(FEET) =   215.00   MANNING'S N =  0.015
  DEPTH OF FLOW IN 126.0 INCH PIPE IS 101.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  31.09
  ESTIMATED PIPE DIAMETER(INCH) = 126.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =   2313.07
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =  15.61
  LONGEST FLOWPATH FROM NODE    230.00 TO NODE    198.00 =  9043.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    198.00 TO NODE    198.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.61
  RAINFALL INTENSITY(INCH/HR) =   3.13
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   808.92
  TOTAL STREAM AREA(ACRES) =   929.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   2313.07

****************************************************************************
  FLOW PROCESS FROM NODE    133.00 TO NODE    134.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   850.00
 ELEVATION DATA: UPSTREAM(FEET) =   4060.00  DOWNSTREAM(FEET) =   3820.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.041
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.264
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                      D        5.80      0.22      1.000    89   10.04
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     21.12
 TOTAL AREA(ACRES) =      5.80   PEAK FLOW RATE(CFS) =     21.12

****************************************************************************
 FLOW PROCESS FROM NODE    134.00 TO NODE    135.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3820.00  DOWNSTREAM(FEET) =   3463.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1500.00   CHANNEL SLOPE =  0.2380
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1760 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     21.12
 FLOW VELOCITY(FEET/SEC) =   6.49 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.85   Tc(MIN.) =  13.89
 LONGEST FLOWPATH FROM NODE    133.00 TO NODE    135.00 =  2350.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    135.00 TO NODE    135.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.397
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       33.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   33.70      SUBAREA RUNOFF(CFS) =   96.41
 EFFECTIVE AREA(ACRES) =     39.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     39.50       PEAK FLOW RATE(CFS) =     113.01

****************************************************************************
 FLOW PROCESS FROM NODE    135.00 TO NODE    136.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3463.00  DOWNSTREAM(FEET) =  3447.00
 FLOW LENGTH(FEET) =   770.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  42.0 INCH PIPE IS  29.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  15.96
 ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    113.01
 PIPE TRAVEL TIME(MIN.) =   0.80    Tc(MIN.) =  14.70
 LONGEST FLOWPATH FROM NODE    133.00 TO NODE    136.00 =  3120.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    136.00 TO NODE    198.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3447.00  DOWNSTREAM(FEET) =   3418.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1505.00   CHANNEL SLOPE =  0.0193
 CHANNEL FLOW THRU SUBAREA(CFS) =    113.01
 FLOW VELOCITY(FEET/SEC) =   6.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.67   Tc(MIN.) =  18.37
 LONGEST FLOWPATH FROM NODE    133.00 TO NODE    198.00 =  4625.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    198.00 TO NODE    198.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.37
 RAINFALL INTENSITY(INCH/HR) =   2.79
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    39.50
 TOTAL STREAM AREA(ACRES) =    39.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    113.01

****************************************************************************
 FLOW PROCESS FROM NODE    115.00 TO NODE    116.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   920.00
 ELEVATION DATA: UPSTREAM(FEET) =   3920.00  DOWNSTREAM(FEET) =   3830.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.811
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.595
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   12.81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     30.40
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     30.40

****************************************************************************
 FLOW PROCESS FROM NODE    116.00 TO NODE    117.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3830.00  DOWNSTREAM(FEET) =   3755.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1050.00   CHANNEL SLOPE =  0.0714
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0714 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     30.40
 FLOW VELOCITY(FEET/SEC) =   4.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.75   Tc(MIN.) =  16.56
 LONGEST FLOWPATH FROM NODE    115.00 TO NODE    117.00 =  1970.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    117.00 TO NODE    117.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.56
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.004
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       17.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   17.20      SUBAREA RUNOFF(CFS) =   43.13
 EFFECTIVE AREA(ACRES) =     27.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     27.20       PEAK FLOW RATE(CFS) =      68.20

****************************************************************************
 FLOW PROCESS FROM NODE    117.00 TO NODE    118.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3755.00  DOWNSTREAM(FEET) =   3650.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1240.00   CHANNEL SLOPE =  0.0847
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0847 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     68.20
 FLOW VELOCITY(FEET/SEC) =   6.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.11   Tc(MIN.) =  19.67
 LONGEST FLOWPATH FROM NODE    115.00 TO NODE    118.00 =  3210.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    118.00 TO NODE    118.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==========================================================================
 MAINLINE Tc(MIN) =  19.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       16.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.00      SUBAREA RUNOFF(CFS) =   35.21
 EFFECTIVE AREA(ACRES) =     43.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     43.20       PEAK FLOW RATE(CFS) =      95.07

**************************************************************************
 FLOW PROCESS FROM NODE    118.00 TO NODE    118.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  19.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       23.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   23.10      SUBAREA RUNOFF(CFS) =   50.83
 EFFECTIVE AREA(ACRES) =     66.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     66.30       PEAK FLOW RATE(CFS) =     145.90

**************************************************************************
 FLOW PROCESS FROM NODE    118.00 TO NODE    119.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3650.00  DOWNSTREAM(FEET) =   3492.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2510.00   CHANNEL SLOPE =  0.0629
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0629 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    145.90
 FLOW VELOCITY(FEET/SEC) =   7.38 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.67   Tc(MIN.) =  25.34
 LONGEST FLOWPATH FROM NODE    115.00 TO NODE    119.00 =  5720.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE    119.00 TO NODE    119.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  25.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.231
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       31.60      0.22      1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   31.60     SUBAREA RUNOFF(CFS) =   57.24
EFFECTIVE AREA(ACRES) =    97.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    97.90      PEAK FLOW RATE(CFS) =    177.35

****************************************************************************
FLOW PROCESS FROM NODE    119.00 TO NODE    198.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3492.00  DOWNSTREAM(FEET) =   3418.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1705.00   CHANNEL SLOPE =  0.0434
CHANNEL FLOW THRU SUBAREA(CFS) =    177.35
FLOW VELOCITY(FEET/SEC) =  11.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.41   Tc(MIN.) =  27.75
LONGEST FLOWPATH FROM NODE    115.00 TO NODE    198.00 =  7425.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    198.00 TO NODE    198.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  4
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
TIME OF CONCENTRATION(MIN.) =  27.75
RAINFALL INTENSITY(INCH/HR) =   2.09
AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    97.90
TOTAL STREAM AREA(ACRES) =    97.90
PEAK FLOW RATE(CFS) AT CONFLUENCE =    177.35

****************************************************************************
FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3760.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.480
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.882
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
NATURAL POOR COVER
"GRASS"                    D       10.10      0.22      1.000    89   11.48
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     33.31
 TOTAL AREA(ACRES) =     10.10   PEAK FLOW RATE(CFS) =     33.31

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.882
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.50      SUBAREA RUNOFF(CFS) =   61.01
 EFFECTIVE AREA(ACRES) =     28.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.60       PEAK FLOW RATE(CFS) =      94.32

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3660.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1006.00   CHANNEL SLOPE =  0.0994
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0994 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     94.32
 FLOW VELOCITY(FEET/SEC) =   8.02 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.09   Tc(MIN.) =  13.57
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =  2006.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.454
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       18.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.50      SUBAREA RUNOFF(CFS) =   53.87
 EFFECTIVE AREA(ACRES) =     47.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     47.10       PEAK FLOW RATE(CFS) =     137.16
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3660.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   988.00   CHANNEL SLOPE =  0.1012
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1009 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    137.16
 FLOW VELOCITY(FEET/SEC) =   9.16 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.80   Tc(MIN.) =  15.37
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    113.00 =  2994.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.166
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       33.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   33.40      SUBAREA RUNOFF(CFS) =   88.60
 EFFECTIVE AREA(ACRES) =     80.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     80.50       PEAK FLOW RATE(CFS) =     213.55

****************************************************************************
 FLOW PROCESS FROM NODE    113.00 TO NODE    120.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3485.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1092.00   CHANNEL SLOPE =  0.0687
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0687 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    213.55
 FLOW VELOCITY(FEET/SEC) =   8.76 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.08   Tc(MIN.) =  17.45
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    120.00 =  4086.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    120.00 TO NODE    120.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.897
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       21.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   21.80      SUBAREA RUNOFF(CFS) =   52.55
 EFFECTIVE AREA(ACRES) =    102.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    102.30       PEAK FLOW RATE(CFS) =     246.61

****************************************************************************
 FLOW PROCESS FROM NODE    120.00 TO NODE    120.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.897
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.30      SUBAREA RUNOFF(CFS) =   48.94
 EFFECTIVE AREA(ACRES) =    122.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    122.60       PEAK FLOW RATE(CFS) =     295.55

****************************************************************************
 FLOW PROCESS FROM NODE    120.00 TO NODE    198.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3485.00  DOWNSTREAM(FEET) =   3418.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1875.00   CHANNEL SLOPE =  0.0357
 CHANNEL FLOW THRU SUBAREA(CFS) =    295.55
 FLOW VELOCITY(FEET/SEC) =  12.53 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.49   Tc(MIN.) =  19.94
 LONGEST FLOWPATH FROM NODE    110.00 TO NODE    198.00 =  5961.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    198.00 TO NODE    198.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  4
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.94
 RAINFALL INTENSITY(INCH/HR) =   2.64
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
```

```
 EFFECTIVE STREAM AREA(ACRES) =   122.60
 TOTAL STREAM AREA(ACRES) =   122.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    295.55

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   2263.31  13.99     3.381   0.22( 0.22) 1.00    722.4     170.00
     1   2313.07  15.61     3.131   0.22( 0.22) 1.00    808.9     190.00
     1   2311.19  16.15     3.058   0.22( 0.22) 1.00    831.4     210.00
     1   2308.58  16.55     3.006   0.22( 0.22) 1.00    847.2     150.00
     1   2237.93  18.41     2.789   0.22( 0.22) 1.00    897.6     230.00
     1   2142.99  20.00     2.632   0.22( 0.22) 1.00    920.5      70.00
     1   2087.26  20.80     2.561   0.22( 0.22) 1.00    926.7     270.00
     1   2031.04  21.61     2.493   0.22( 0.22) 1.00    929.9     250.00
     2    113.01  18.37     2.794   0.22( 0.22) 1.00     39.5     133.00
     3    177.35  27.75     2.093   0.22( 0.22) 1.00     97.9     115.00
     4    295.55  19.94     2.638   0.22( 0.22) 1.00    122.6     110.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  4 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   2790.74  13.99     3.381   0.22( 0.22) 1.00    887.8     170.00
     2   2855.17  15.61     3.131   0.22( 0.22) 1.00    993.5     190.00
     3   2857.83  16.15     3.058   0.22( 0.22) 1.00   1022.4     210.00
     4   2858.52  16.55     3.006   0.22( 0.22) 1.00   1042.9     150.00
     5   2803.71  18.37     2.794   0.22( 0.22) 1.00   1113.6     133.00
     6   2802.07  18.41     2.789   0.22( 0.22) 1.00   1115.2     230.00
     7   2712.96  19.94     2.638   0.22( 0.22) 1.00   1152.1     110.00
     8   2708.31  20.00     2.632   0.22( 0.22) 1.00   1153.2      70.00
     9   2642.28  20.80     2.561   0.22( 0.22) 1.00   1162.2     270.00
    10   2576.35  21.61     2.493   0.22( 0.22) 1.00   1168.3     250.00
    11   2162.17  27.75     2.093   0.22( 0.22) 1.00   1189.9     115.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =  2858.52    Tc(MIN.) =    16.55
 EFFECTIVE AREA(ACRES) =  1042.92   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1189.90
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    198.00 =  9043.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    198.00 TO NODE    199.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3418.00  DOWNSTREAM(FEET) =   3353.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2880.00   CHANNEL SLOPE =  0.0226
 CHANNEL FLOW THRU SUBAREA(CFS) =   2858.52
 FLOW VELOCITY(FEET/SEC) =  20.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.30   Tc(MIN.) =  18.85
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    199.00 = 11923.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    199.00 TO NODE    199.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.744
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       25.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.80      SUBAREA RUNOFF(CFS) =   58.65
 EFFECTIVE AREA(ACRES) =   1068.72   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1215.70       PEAK FLOW RATE(CFS) =    2858.52
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    199.00 TO NODE    199.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.744
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       84.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   84.60      SUBAREA RUNOFF(CFS) =  192.32
 EFFECTIVE AREA(ACRES) =   1153.32   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1300.30       PEAK FLOW RATE(CFS) =    2858.52
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    199.00 TO NODE    199.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.85
 RAINFALL INTENSITY(INCH/HR) =   2.74
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  1153.32
 TOTAL STREAM AREA(ACRES) =  1300.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   2858.52

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     310.00 TO NODE     311.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3680.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.733
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.070
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        5.10      0.22      1.000    89   10.73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      17.68
 TOTAL AREA(ACRES) =       5.10   PEAK FLOW RATE(CFS) =      17.68

****************************************************************************
 FLOW PROCESS FROM NODE     311.00 TO NODE     312.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3680.00  DOWNSTREAM(FEET) =   3430.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1290.00   CHANNEL SLOPE =  0.1938
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1569 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      17.68
 FLOW VELOCITY(FEET/SEC) =   5.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.72   Tc(MIN.) =  14.46
 LONGEST FLOWPATH FROM NODE     310.00 TO NODE     312.00 =  2290.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     312.00 TO NODE     312.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.304
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       30.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   30.30      SUBAREA RUNOFF(CFS) =   84.15
 EFFECTIVE AREA(ACRES) =     35.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     35.40       PEAK FLOW RATE(CFS) =      98.31

****************************************************************************
 FLOW PROCESS FROM NODE     312.00 TO NODE     313.00 IS CODE =  52
```

```
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3430.00  DOWNSTREAM(FEET) =   3362.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1190.00   CHANNEL SLOPE =  0.0571
 CHANNEL FLOW THRU SUBAREA(CFS) =     98.31
 FLOW VELOCITY(FEET/SEC) =  11.29 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.76   Tc(MIN.) =  16.21
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    313.00 =  3480.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    313.00 TO NODE    313.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.21
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.049
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D        4.30      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    4.30      SUBAREA RUNOFF(CFS) =   10.96
 EFFECTIVE AREA(ACRES) =     39.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     39.70       PEAK FLOW RATE(CFS) =     101.15

****************************************************************************
 FLOW PROCESS FROM NODE    313.00 TO NODE    199.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3362.00  DOWNSTREAM(FEET) =  3353.00
 FLOW LENGTH(FEET) =   195.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  33.0 INCH PIPE IS  25.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  20.63
 ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    101.15
 PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =  16.37
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    199.00 =  3675.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    199.00 TO NODE    199.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.37
 RAINFALL INTENSITY(INCH/HR) =   3.03
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
```

```
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    39.70
TOTAL STREAM AREA(ACRES) =    39.70
PEAK FLOW RATE(CFS) AT CONFLUENCE =    101.15

** CONFLUENCE DATA **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1   2790.74  16.31    3.037  0.22( 0.22) 1.00   998.2     170.00
    1   2855.17  17.91    2.843  0.22( 0.22) 1.00  1103.9     190.00
    1   2857.83  18.45    2.785  0.22( 0.22) 1.00  1132.8     210.00
    1   2858.52  18.85    2.744  0.22( 0.22) 1.00  1153.3     150.00
    1   2803.71  20.69    2.571  0.22( 0.22) 1.00  1224.0     133.00
    1   2802.07  20.73    2.567  0.22( 0.22) 1.00  1225.6     230.00
    1   2712.96  22.28    2.440  0.22( 0.22) 1.00  1262.5     110.00
    1   2708.31  22.35    2.435  0.22( 0.22) 1.00  1263.6      70.00
    1   2642.28  23.17    2.375  0.22( 0.22) 1.00  1272.6     270.00
    1   2576.35  24.00    2.317  0.22( 0.22) 1.00  1278.7     250.00
    1   2162.17  30.28    1.969  0.22( 0.22) 1.00  1300.3     115.00
    2    101.15  16.37    3.028  0.22( 0.22) 1.00    39.7     310.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
 NUMBER   (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1   2891.79  16.31    3.037  0.22( 0.22) 1.00  1037.8     170.00
    2   2894.46  16.37    3.028  0.22( 0.22) 1.00  1042.2     310.00
    3   2949.66  17.91    2.843  0.22( 0.22) 1.00  1143.6     190.00
    4   2950.23  18.45    2.785  0.22( 0.22) 1.00  1172.5     210.00
    5   2949.43  18.85    2.744  0.22( 0.22) 1.00  1193.0     150.00
    6   2888.39  20.69    2.571  0.22( 0.22) 1.00  1263.7     133.00
    7   2886.61  20.73    2.567  0.22( 0.22) 1.00  1265.3     230.00
    8   2792.94  22.28    2.440  0.22( 0.22) 1.00  1302.2     110.00
    9   2788.12  22.35    2.435  0.22( 0.22) 1.00  1303.3      70.00
   10   2719.91  23.17    2.375  0.22( 0.22) 1.00  1312.3     270.00
   11   2651.90  24.00    2.317  0.22( 0.22) 1.00  1318.4     250.00
   12   2225.20  30.28    1.969  0.22( 0.22) 1.00  1340.0     115.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =  2950.23   Tc(MIN.) =   18.45
EFFECTIVE AREA(ACRES) =  1172.49   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =  1340.00
LONGEST FLOWPATH FROM NODE   230.00 TO NODE   199.00 = 11923.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   199.00 TO NODE   200.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3353.00  DOWNSTREAM(FEET) =  3325.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1110.00   CHANNEL SLOPE =  0.0252
 CHANNEL FLOW THRU SUBAREA(CFS) =  2950.23
 FLOW VELOCITY(FEET/SEC) =  22.27 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 TRAVEL TIME(MIN.) =    0.83    Tc(MIN.) =  19.28
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    200.00 = 13033.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    200.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    290.00 TO NODE    291.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   955.00
 ELEVATION DATA: UPSTREAM(FEET) =   4175.00  DOWNSTREAM(FEET) =   3880.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.332
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.180
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.33
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.65
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.65

****************************************************************************
 FLOW PROCESS FROM NODE    291.00 TO NODE    292.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3600.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   810.00   CHANNEL SLOPE =  0.3457
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2045 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.65
 FLOW VELOCITY(FEET/SEC) =   8.32 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.62   Tc(MIN.) =  11.95
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE    292.00 =  1765.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    292.00 TO NODE    292.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.774
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
```

```
"GRASS"                    D       19.70      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   63.05
EFFECTIVE AREA(ACRES) =     29.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     29.70       PEAK FLOW RATE(CFS) =      95.05

****************************************************************************
FLOW PROCESS FROM NODE    292.00 TO NODE    293.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3600.00  DOWNSTREAM(FEET) =   3480.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.1379
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1270 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =     95.05
FLOW VELOCITY(FEET/SEC) =   9.09 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  13.55
LONGEST FLOWPATH FROM NODE    290.00 TO NODE    293.00 =  2635.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    293.00 TO NODE    293.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  13.55
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.457
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL POOR COVER
"GRASS"                    D       25.90      0.22     1.000    89
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   25.90      SUBAREA RUNOFF(CFS) =   75.51
EFFECTIVE AREA(ACRES) =     55.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     55.60       PEAK FLOW RATE(CFS) =     162.09

****************************************************************************
FLOW PROCESS FROM NODE    293.00 TO NODE    294.00 IS CODE =  53
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3480.00  DOWNSTREAM(FEET) =   3350.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1185.00   CHANNEL SLOPE =  0.1097
SLOPE ADJUSTMENT CURVE USED:
EFFECTIVE SLOPE = .1073 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
CHANNEL FLOW THRU SUBAREA(CFS) =    162.09
FLOW VELOCITY(FEET/SEC) =   9.98 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   1.98   Tc(MIN.) =  15.53
LONGEST FLOWPATH FROM NODE    290.00 TO NODE    294.00 =  3820.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    294.00 TO NODE    294.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.143
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       29.40      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   29.40      SUBAREA RUNOFF(CFS) =   77.39
 EFFECTIVE AREA(ACRES) =     85.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     85.00       PEAK FLOW RATE(CFS) =     223.74

****************************************************************************
 FLOW PROCESS FROM NODE    294.00 TO NODE    295.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3350.00  DOWNSTREAM(FEET) =   3337.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   310.00   CHANNEL SLOPE =  0.0419
 CHANNEL FLOW THRU SUBAREA(CFS) =    223.74
 FLOW VELOCITY(FEET/SEC) =  12.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.42   Tc(MIN.) =  15.94
 LONGEST FLOWPATH FROM NODE    290.00 TO NODE    295.00 =  4130.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    295.00 TO NODE    295.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.94
 RAINFALL INTENSITY(INCH/HR) =   3.09
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    85.00
 TOTAL STREAM AREA(ACRES) =    85.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    223.74

****************************************************************************
 FLOW PROCESS FROM NODE    310.00 TO NODE    320.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3960.00  DOWNSTREAM(FEET) =   3700.00
```

```
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.893
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.028
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        6.60      0.22      1.000    89   10.89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      22.63
 TOTAL AREA(ACRES) =       6.60   PEAK FLOW RATE(CFS) =      22.63

****************************************************************************
 FLOW PROCESS FROM NODE    320.00 TO NODE    321.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3700.00  DOWNSTREAM(FEET) =   3515.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   960.00   CHANNEL SLOPE =  0.1927
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1564 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =      22.63
 FLOW VELOCITY(FEET/SEC) =   6.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.56   Tc(MIN.) =  13.45
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    321.00 =  1960.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    321.00 TO NODE    321.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.475
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       11.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.00      SUBAREA RUNOFF(CFS) =   32.24
 EFFECTIVE AREA(ACRES) =     17.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     17.60       PEAK FLOW RATE(CFS) =      51.59

****************************************************************************
 FLOW PROCESS FROM NODE    321.00 TO NODE    322.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3515.00  DOWNSTREAM(FEET) =   3370.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   965.00   CHANNEL SLOPE =  0.1503
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1351 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     51.59
 FLOW VELOCITY(FEET/SEC) =   7.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.10   Tc(MIN.) =  15.55
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    322.00 =  2925.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    322.00 TO NODE    322.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.139
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       11.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   11.70      SUBAREA RUNOFF(CFS) =   30.76
 EFFECTIVE AREA(ACRES) =     29.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     29.30       PEAK FLOW RATE(CFS) =      77.03

****************************************************************************
 FLOW PROCESS FROM NODE    322.00 TO NODE    295.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3370.00  DOWNSTREAM(FEET) =   3332.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   595.00   CHANNEL SLOPE =  0.0639
 CHANNEL FLOW THRU SUBAREA(CFS) =     77.03
 FLOW VELOCITY(FEET/SEC) =  11.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.89   Tc(MIN.) =  16.45
 LONGEST FLOWPATH FROM NODE    310.00 TO NODE    295.00 =  3520.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    295.00 TO NODE    295.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.45
 RAINFALL INTENSITY(INCH/HR) =   3.02
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    29.30
 TOTAL STREAM AREA(ACRES) =    29.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     77.03

 ** CONFLUENCE DATA **
  STREAM     Q     Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
```

```
    1    223.74  15.94    3.085  0.22( 0.22) 1.00     85.0      290.00
    2     77.03  16.45    3.019  0.22( 0.22) 1.00     29.3      310.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    300.19  15.94    3.085  0.22( 0.22) 1.00   113.4      290.00
      2    295.59  16.45    3.019  0.22( 0.22) 1.00   114.3      310.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =    300.19    Tc(MIN.) =    15.94
  EFFECTIVE AREA(ACRES) =   113.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    114.30
  LONGEST FLOWPATH FROM NODE    290.00 TO NODE    295.00 =  4130.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    295.00 TO NODE    200.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3337.00  DOWNSTREAM(FEET) =  3325.00
  FLOW LENGTH(FEET) =   270.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  51.0 INCH PIPE IS  37.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.89
  ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =    300.19
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =  16.11
  LONGEST FLOWPATH FROM NODE    290.00 TO NODE    200.00 =  4400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    300.19  16.11    3.063  0.22( 0.22) 1.00   113.4      290.00
      2    295.59  16.61    2.997  0.22( 0.22) 1.00   114.3      310.00
  LONGEST FLOWPATH FROM NODE    290.00 TO NODE    200.00 =  4400.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1   2891.79  17.14    2.932  0.22( 0.22) 1.00  1037.8      170.00
      2   2894.46  17.21    2.925  0.22( 0.22) 1.00  1042.2      310.00
      3   2949.66  18.74    2.755  0.22( 0.22) 1.00  1143.6      190.00
      4   2950.23  19.28    2.701  0.22( 0.22) 1.00  1172.5      210.00
      5   2949.43  19.68    2.662  0.22( 0.22) 1.00  1193.0      150.00
      6   2888.39  21.52    2.501  0.22( 0.22) 1.00  1263.7      133.00
      7   2886.61  21.57    2.497  0.22( 0.22) 1.00  1265.3      230.00
```

```
     8   2792.94  23.13    2.378  0.22( 0.22) 1.00  1302.2     110.00
     9   2788.12  23.20    2.373  0.22( 0.22) 1.00  1303.3      70.00
    10   2719.91  24.02    2.315  0.22( 0.22) 1.00  1312.3     270.00
    11   2651.90  24.86    2.261  0.22( 0.22) 1.00  1318.4     250.00
    12   2225.20  31.19    1.929  0.22( 0.22) 1.00  1340.0     115.00
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    200.00 = 13033.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
     1   3148.27  16.11    3.063  0.22( 0.22) 1.00  1088.6     290.00
     2   3165.27  16.61    2.997  0.22( 0.22) 1.00  1119.9     310.00
     3   3180.44  17.14    2.932  0.22( 0.22) 1.00  1152.1     170.00
     4   3182.30  17.21    2.925  0.22( 0.22) 1.00  1156.5     310.00
     5   3219.42  18.74    2.755  0.22( 0.22) 1.00  1257.9     190.00
     6   3214.28  19.28    2.701  0.22( 0.22) 1.00  1286.8     210.00
     7   3209.38  19.68    2.662  0.22( 0.22) 1.00  1307.3     150.00
     8   3131.14  21.52    2.501  0.22( 0.22) 1.00  1378.0     133.00
     9   3128.97  21.57    2.497  0.22( 0.22) 1.00  1379.6     230.00
    10   3022.61  23.13    2.378  0.22( 0.22) 1.00  1416.5     110.00
    11   3017.29  23.20    2.373  0.22( 0.22) 1.00  1417.6      70.00
    12   2942.97  24.02    2.315  0.22( 0.22) 1.00  1426.6     270.00
    13   2869.14  24.86    2.261  0.22( 0.22) 1.00  1432.7     250.00
    14   2407.13  31.19    1.929  0.22( 0.22) 1.00  1454.3     115.00
  TOTAL AREA(ACRES) =   1454.30

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     3219.42  Tc(MIN.) =   18.745
 EFFECTIVE AREA(ACRES) =   1257.92  AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =   1454.30
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    200.00 = 13033.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3370.00  DOWNSTREAM(FEET) =   3325.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   860.00   CHANNEL SLOPE =  0.0523
 NOTE: FLOW VELOCITY OF 30 FPS WAS ASSUMED IN TRAVEL TIME ESTIMATION
 CHANNEL FLOW THRU SUBAREA(CFS) =   3219.42
 FLOW VELOCITY(FEET/SEC) =  30.00 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.48   Tc(MIN.) =  19.22
 LONGEST FLOWPATH FROM NODE    230.00 TO NODE    201.00 = 13893.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  19.22
 RAINFALL INTENSITY(INCH/HR) =   2.71
 AREA-AVERAGED Fm(INCH/HR) =  0.22
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```
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =  1257.92
 TOTAL STREAM AREA(ACRES) =  1454.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   3219.42

****************************************************************************
 FLOW PROCESS FROM NODE   1050.00 TO NODE   1051.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3530.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   20.901
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.552
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        6.40      0.22      1.000    89   20.90
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     13.45
 TOTAL AREA(ACRES) =      6.40   PEAK FLOW RATE(CFS) =     13.45

****************************************************************************
 FLOW PROCESS FROM NODE   1051.00 TO NODE   1052.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3530.00  DOWNSTREAM(FEET) =   3420.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1070.00   CHANNEL SLOPE =  0.1028
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1021 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     13.45
 FLOW VELOCITY(FEET/SEC) =   4.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   4.19   Tc(MIN.) =  25.10
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE   1052.00 =  2070.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1052.00 TO NODE   1052.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.246
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                    D       13.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
```

```
 SUBAREA AREA(ACRES) =   13.60      SUBAREA RUNOFF(CFS) =   24.82
 EFFECTIVE AREA(ACRES) =     20.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     20.00       PEAK FLOW RATE(CFS) =      36.50

****************************************************************************
 FLOW PROCESS FROM NODE   1052.00 TO NODE   1053.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3420.00  DOWNSTREAM(FEET) =   3347.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1125.00  CHANNEL SLOPE =  0.0649
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0649 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     36.50
 FLOW VELOCITY(FEET/SEC) =   4.73 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.97   Tc(MIN.) =  29.06
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE   1053.00 =  3195.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1053.00 TO NODE   1053.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.026
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       29.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   29.70      SUBAREA RUNOFF(CFS) =   48.34
 EFFECTIVE AREA(ACRES) =     49.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     49.70       PEAK FLOW RATE(CFS) =      80.89

****************************************************************************
 FLOW PROCESS FROM NODE   1053.00 TO NODE   1053.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.026
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       12.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   12.20      SUBAREA RUNOFF(CFS) =   19.86
 EFFECTIVE AREA(ACRES) =     61.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     61.90       PEAK FLOW RATE(CFS) =     100.75
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    1053.00 TO NODE    1053.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.026
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       12.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    12.20      SUBAREA RUNOFF(CFS) =    19.86
 EFFECTIVE AREA(ACRES) =     74.10    AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     74.10       PEAK FLOW RATE(CFS) =     120.60

****************************************************************************
 FLOW PROCESS FROM NODE    1053.00 TO NODE     201.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3347.00  DOWNSTREAM(FEET) =   3315.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1575.00   CHANNEL SLOPE =  0.0203
 CHANNEL FLOW THRU SUBAREA(CFS) =    120.60
 FLOW VELOCITY(FEET/SEC) =   7.16 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.67   Tc(MIN.) =  32.73
 LONGEST FLOWPATH FROM NODE   1050.00 TO NODE    201.00 =  4770.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     201.00 TO NODE     201.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  32.73
 RAINFALL INTENSITY(INCH/HR) =   1.86
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    74.10
 TOTAL STREAM AREA(ACRES) =    74.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    120.60

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1    3148.27  16.59     3.001   0.22( 0.22) 1.00   1088.6     290.00
     1    3165.27  17.09     2.938   0.22( 0.22) 1.00   1119.9     310.00
     1    3180.44  17.62     2.876   0.22( 0.22) 1.00   1152.1     170.00
     1    3182.30  17.69     2.869   0.22( 0.22) 1.00   1156.5     310.00
```

1	3219.42	19.22	2.706	0.22(0.22)	1.00	1257.9	190.00
1	3214.28	19.76	2.655	0.22(0.22)	1.00	1286.8	210.00
1	3209.38	20.16	2.618	0.22(0.22)	1.00	1307.3	150.00
1	3131.14	22.00	2.462	0.22(0.22)	1.00	1378.0	133.00
1	3128.97	22.05	2.459	0.22(0.22)	1.00	1379.6	230.00
1	3022.61	23.61	2.344	0.22(0.22)	1.00	1416.5	110.00
1	3017.29	23.67	2.339	0.22(0.22)	1.00	1417.6	70.00
1	2942.97	24.50	2.284	0.22(0.22)	1.00	1426.6	270.00
1	2869.14	25.34	2.231	0.22(0.22)	1.00	1432.7	250.00
1	2407.13	31.67	1.908	0.22(0.22)	1.00	1454.3	115.00
2	120.60	32.73	1.865	0.22(0.22)	1.00	74.1	1050.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	3251.56	16.59	3.001	0.22(0.22)	1.00	1126.1	290.00
2	3269.32	17.09	2.938	0.22(0.22)	1.00	1158.6	310.00
3	3285.26	17.62	2.876	0.22(0.22)	1.00	1192.0	170.00
4	3287.21	17.69	2.869	0.22(0.22)	1.00	1196.5	310.00
5	3326.46	19.22	2.706	0.22(0.22)	1.00	1301.4	190.00
6	3322.02	19.76	2.655	0.22(0.22)	1.00	1331.5	210.00
7	3317.63	20.16	2.618	0.22(0.22)	1.00	1353.0	150.00
8	3241.64	22.00	2.462	0.22(0.22)	1.00	1427.8	133.00
9	3239.52	22.05	2.459	0.22(0.22)	1.00	1429.5	230.00
10	3134.92	23.61	2.344	0.22(0.22)	1.00	1469.9	110.00
11	3129.67	23.67	2.339	0.22(0.22)	1.00	1471.2	70.00
12	3056.23	24.50	2.284	0.22(0.22)	1.00	1482.1	270.00
13	2983.25	25.34	2.231	0.22(0.22)	1.00	1490.0	250.00
14	2526.91	31.67	1.908	0.22(0.22)	1.00	1526.0	115.00
15	2465.73	32.73	1.865	0.22(0.22)	1.00	1528.4	1050.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3326.46 Tc(MIN.) = 19.22
EFFECTIVE AREA(ACRES) = 1301.45 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1528.40
LONGEST FLOWPATH FROM NODE 230.00 TO NODE 201.00 = 13893.00 FEET.

==========

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1528.40 TC(MIN.) = 19.22
EFFECTIVE AREA(ACRES) = 1301.45 AREA-AVERAGED Fm(INCH/HR)= 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 3326.46

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	3251.56	16.59	3.001	0.22(0.22)	1.00	1126.1	290.00
2	3269.32	17.09	2.938	0.22(0.22)	1.00	1158.6	310.00
3	3285.26	17.62	2.876	0.22(0.22)	1.00	1192.0	170.00
4	3287.21	17.69	2.869	0.22(0.22)	1.00	1196.5	310.00
5	3326.46	19.22	2.706	0.22(0.22)	1.00	1301.4	190.00
6	3322.02	19.76	2.655	0.22(0.22)	1.00	1331.5	210.00
7	3317.63	20.16	2.618	0.22(0.22)	1.00	1353.0	150.00

8	3241.64	22.00	2.462	0.22(0.22)	1.00	1427.8	133.00
9	3239.52	22.05	2.459	0.22(0.22)	1.00	1429.5	230.00
10	3134.92	23.61	2.344	0.22(0.22)	1.00	1469.9	110.00
11	3129.67	23.67	2.339	0.22(0.22)	1.00	1471.2	70.00
12	3056.23	24.50	2.284	0.22(0.22)	1.00	1482.1	270.00
13	2983.25	25.34	2.231	0.22(0.22)	1.00	1490.0	250.00
14	2526.91	31.67	1.908	0.22(0.22)	1.00	1526.0	115.00
15	2465.73	32.73	1.865	0.22(0.22)	1.00	1528.4	1050.00

END OF RATIONAL METHOD ANALYSIS

Watershed G
(Offsite AMC 2)

```
**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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         Ver. 13.0  Release Date: 06/01/2006  License ID 1400

                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Watershed E6                                                            *
* EXISTING CONDITION                                                      *
* 100-YEAR EVENT                                                          *
 **************************************************************************

  FILE NAME: HAC-7.DAT
  TIME/DATE OF STUDY: 16:24 05/12/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ==================  ======  ===== ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     330.00 TO NODE      11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4813.00  DOWNSTREAM(FEET) =   4700.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.869
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.584
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.30      0.22      1.000    89   12.87
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     28.17
 TOTAL AREA(ACRES) =      9.30   PEAK FLOW RATE(CFS) =     28.17

**************************************************************************
 FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  53
--------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4700.00  DOWNSTREAM(FEET) =   4120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2357.00   CHANNEL SLOPE =  0.2461
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1787 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.17
 FLOW VELOCITY(FEET/SEC) =   7.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   5.46   Tc(MIN.) =  18.33
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  18.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.798
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       19.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.50      SUBAREA RUNOFF(CFS) =   45.28
 EFFECTIVE AREA(ACRES) =     28.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.80       PEAK FLOW RATE(CFS) =      66.88

**************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  2
```

```
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  18.33
 RAINFALL INTENSITY(INCH/HR) =   2.80
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    28.80
 TOTAL STREAM AREA(ACRES) =    28.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     66.88

****************************************************************************
 FLOW PROCESS FROM NODE    980.00 TO NODE    981.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1000.00
 ELEVATION DATA: UPSTREAM(FEET) =   4760.00  DOWNSTREAM(FEET) =   4600.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.004
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.763
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                   D        7.70      0.22      1.000    89   12.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     24.57
 TOTAL AREA(ACRES) =      7.70   PEAK FLOW RATE(CFS) =     24.57

****************************************************************************
 FLOW PROCESS FROM NODE    981.00 TO NODE    982.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4600.00  DOWNSTREAM(FEET) =   4400.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   831.00   CHANNEL SLOPE =  0.2407
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1769 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     24.57
 FLOW VELOCITY(FEET/SEC) =   6.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.02   Tc(MIN.) =  14.03
 LONGEST FLOWPATH FROM NODE    980.00 TO NODE    982.00 =  1831.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    982.00 TO NODE    982.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.374
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL POOR COVER
  "GRASS"                    D       13.30      0.22     1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   13.30      SUBAREA RUNOFF(CFS) =   37.78
  EFFECTIVE AREA(ACRES) =     21.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     21.00       PEAK FLOW RATE(CFS) =      59.65

****************************************************************************
  FLOW PROCESS FROM NODE    982.00 TO NODE     12.00 IS CODE =  53
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   4400.00  DOWNSTREAM(FEET) =   4120.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1175.00   CHANNEL SLOPE =  0.2383
  SLOPE ADJUSTMENT CURVE USED:
  EFFECTIVE SLOPE = .1761 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  CHANNEL FLOW THRU SUBAREA(CFS) =     59.65
  FLOW VELOCITY(FEET/SEC) =   9.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =  16.16
  LONGEST FLOWPATH FROM NODE    980.00 TO NODE     12.00 =  3006.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.055
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                    D       18.10      0.22     1.000    89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   18.10      SUBAREA RUNOFF(CFS) =   46.22
  EFFECTIVE AREA(ACRES) =     39.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     39.10       PEAK FLOW RATE(CFS) =      99.85

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  16.16
  RAINFALL INTENSITY(INCH/HR) =   3.06
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =    39.10
```

```
 TOTAL STREAM AREA(ACRES) =    39.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     99.85

 ** CONFLUENCE DATA **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1      66.88  18.33     2.798   0.22( 0.22) 1.00     28.8      330.00
     2      99.85  16.16     3.055   0.22( 0.22) 1.00     39.1      980.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc    Intensity    Fp(Fm)      Ap    Ae      HEADWATER
  NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)     NODE
     1     164.71  16.16     3.055   0.22( 0.22) 1.00     64.5      980.00
     2     157.67  18.33     2.798   0.22( 0.22) 1.00     67.9      330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    164.71    Tc(MIN.) =    16.16
 EFFECTIVE AREA(ACRES) =    64.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     67.90
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     12.00 =  3357.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4120.00  DOWNSTREAM(FEET) =   3860.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   994.00   CHANNEL SLOPE =  0.2616
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1839 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    164.71
 FLOW VELOCITY(FEET/SEC) =  13.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.26   Tc(MIN.) =  17.43
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     13.00 =  4351.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.899
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       35.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   35.20      SUBAREA RUNOFF(CFS) =   84.93
 EFFECTIVE AREA(ACRES) =     99.70   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
```

```
 TOTAL AREA(ACRES) =    103.10       PEAK FLOW RATE(CFS) =     240.56

****************************************************************************
 FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3860.00  DOWNSTREAM(FEET) =   3800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1295.00   CHANNEL SLOPE =  0.0463
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0463 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    240.56
 FLOW VELOCITY(FEET/SEC) =   7.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.88   Tc(MIN.) =  20.31
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     14.00 =  5646.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.604
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       44.70      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.70      SUBAREA RUNOFF(CFS) =   96.00
 EFFECTIVE AREA(ACRES) =    144.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    147.80       PEAK FLOW RATE(CFS) =     310.11

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1140.00   CHANNEL SLOPE =  0.0351
 CHANNEL FLOW THRU SUBAREA(CFS) =    310.11
 FLOW VELOCITY(FEET/SEC) =  12.60 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.51   Tc(MIN.) =  21.82
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     15.00 =  6786.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.82
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.477
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       44.30      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.30      SUBAREA RUNOFF(CFS) =   83.60
 EFFECTIVE AREA(ACRES) =    188.70   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    192.10       PEAK FLOW RATE(CFS) =     377.16

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3720.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1402.00   CHANNEL SLOPE =  0.0285
 CHANNEL FLOW THRU SUBAREA(CFS) =    377.16
 FLOW VELOCITY(FEET/SEC) =  12.09 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.93   Tc(MIN.) =  23.75
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     16.00 =  8188.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     16.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.334
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       73.80      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   73.80      SUBAREA RUNOFF(CFS) =  129.78
 EFFECTIVE AREA(ACRES) =    262.50   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    265.90       PEAK FLOW RATE(CFS) =     482.67

****************************************************************************
 FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3720.00  DOWNSTREAM(FEET) =   3528.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  3510.00   CHANNEL SLOPE =  0.0547
 CHANNEL FLOW THRU SUBAREA(CFS) =    482.67
 FLOW VELOCITY(FEET/SEC) =  18.11 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.23   Tc(MIN.) =  26.98
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

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```
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.135
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       70.90      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   70.90      SUBAREA RUNOFF(CFS) =  111.96
 EFFECTIVE AREA(ACRES) =    333.40   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    336.80       PEAK FLOW RATE(CFS) =     547.55

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     70.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   851.00
 ELEVATION DATA: UPSTREAM(FEET) =   4180.00  DOWNSTREAM(FEET) =   4000.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.643
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.094
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D        9.40      0.22      1.000    89   10.64
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     32.79
 TOTAL AREA(ACRES) =      9.40   PEAK FLOW RATE(CFS) =     32.79

****************************************************************************
 FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   4000.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   687.00   CHANNEL SLOPE =  0.3493
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2051 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     32.79
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 FLOW VELOCITY(FEET/SEC) =   8.11 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.41   Tc(MIN.) =  12.06
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     72.00 =  1538.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.752
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       18.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   18.60      SUBAREA RUNOFF(CFS) =   59.16
 EFFECTIVE AREA(ACRES) =     28.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     28.00       PEAK FLOW RATE(CFS) =      89.05

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     73.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3640.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   727.00   CHANNEL SLOPE =  0.1651
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1425 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     89.05
 FLOW VELOCITY(FEET/SEC) =   9.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  13.34
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     73.00 =  2265.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     73.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.495
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                      D       36.20      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   36.20      SUBAREA RUNOFF(CFS) =  106.77
 EFFECTIVE AREA(ACRES) =     64.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     64.20       PEAK FLOW RATE(CFS) =     189.35
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     73.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3640.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1254.00   CHANNEL SLOPE =  0.0797
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0797 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    189.35
 FLOW VELOCITY(FEET/SEC) =   9.06 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.31   Tc(MIN.) =  15.65
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.126
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       42.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   42.10      SUBAREA RUNOFF(CFS) =  110.18
 EFFECTIVE AREA(ACRES) =    106.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    106.30       PEAK FLOW RATE(CFS) =     278.21

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.65
 RAINFALL INTENSITY(INCH/HR) =   3.13
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   106.30
 TOTAL STREAM AREA(ACRES) =   106.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    278.21

****************************************************************************
 FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   600.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   4200.00  DOWNSTREAM(FEET) =   3880.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.692
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.139
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL) CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    7.69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     44.29
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     44.29

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     52.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3880.00  DOWNSTREAM(FEET) =   3760.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   420.00   CHANNEL SLOPE =  0.2857
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1914 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     44.29
 FLOW VELOCITY(FEET/SEC) =   8.66 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.81   Tc(MIN.) =   8.50
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     52.00 =  1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     51.00 TO NODE     51.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   8.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.791
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   82.32
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     123.48

****************************************************************************
 FLOW PROCESS FROM NODE     52.00 TO NODE     53.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3760.00  DOWNSTREAM(FEET) =   3590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.1508
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 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1354 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    123.48
 FLOW VELOCITY(FEET/SEC) =  10.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.83   Tc(MIN.) =  10.33
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     53.00 =  2147.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     53.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.179
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  142.96
 EFFECTIVE AREA(ACRES) =     70.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     70.10       PEAK FLOW RATE(CFS) =     249.91

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     54.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3590.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1127.00   CHANNEL SLOPE =  0.0444
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0444 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    249.91
 FLOW VELOCITY(FEET/SEC) =   7.42 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.53   Tc(MIN.) =  12.87
 LONGEST FLOWPATH FROM NODE     50.00 TO NODE     54.00 =  3274.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       40.10      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   40.10      SUBAREA RUNOFF(CFS) =  121.50
 EFFECTIVE AREA(ACRES) =    110.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
```

```
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    110.20       PEAK FLOW RATE(CFS) =     333.91

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     54.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  12.87
 RAINFALL INTENSITY(INCH/HR) =   3.58
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   110.20
 TOTAL STREAM AREA(ACRES) =   110.20
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    333.91

 ** CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     278.21  15.65    3.126  0.22( 0.22) 1.00   106.3      70.00
     2     333.91  12.87    3.585  0.22( 0.22) 1.00   110.2      50.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1     598.77  12.87    3.585  0.22( 0.22) 1.00   197.6      50.00
     2     566.62  15.65    3.126  0.22( 0.22) 1.00   216.5      70.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =    598.77    Tc(MIN.) =    12.87
 EFFECTIVE AREA(ACRES) =   197.61   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    216.50
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     54.00 =  3519.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     34.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3550.00  DOWNSTREAM(FEET) =   3540.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   410.00   CHANNEL SLOPE =  0.0244
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0244 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =    598.77
 FLOW VELOCITY(FEET/SEC) =   7.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =  13.80
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.414
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     B        9.60      0.42      1.000    78
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =     9.60      SUBAREA RUNOFF(CFS) =    25.90
 EFFECTIVE AREA(ACRES) =    207.21   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    226.10       PEAK FLOW RATE(CFS) =     598.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.80
 RAINFALL INTENSITY(INCH/HR) =   3.41
 AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   207.21
 TOTAL STREAM AREA(ACRES) =   226.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    598.77

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   689.00
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3620.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.376
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.473
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89    9.38
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     38.30
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     38.30
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3620.00  DOWNSTREAM(FEET) =   3570.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   622.00   CHANNEL SLOPE =  0.0804
 CHANNEL FLOW THRU SUBAREA(CFS) =     38.30
 FLOW VELOCITY(FEET/SEC) =  10.17 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  10.40
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =  1311.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.162
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       20.00      0.38     1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   68.07
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.33
 AREA-AVERAGED Fp(INCH/HR) =  0.33  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =     103.56

****************************************************************************
 FLOW PROCESS FROM NODE     32.00 TO NODE     33.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3570.00  DOWNSTREAM(FEET) =   3560.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   870.00   CHANNEL SLOPE =  0.0115
 CHANNEL FLOW THRU SUBAREA(CFS) =    103.56
 FLOW VELOCITY(FEET/SEC) =   5.14 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.82   Tc(MIN.) =  13.22
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =  2181.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.518
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
```

```
"DESERT BRUSH"   (50.0%)   B        32.10      0.38     1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   32.10      SUBAREA RUNOFF(CFS) =   90.66
EFFECTIVE AREA(ACRES) =     62.10   AREA-AVERAGED Fm(INCH/HR) =  0.35
AREA-AVERAGED Fp(INCH/HR) =  0.35  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     62.10       PEAK FLOW RATE(CFS) =     176.85

****************************************************************************
FLOW PROCESS FROM NODE     33.00 TO NODE     34.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3540.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  1253.00   CHANNEL SLOPE =  0.0160
CHANNEL FLOW THRU SUBAREA(CFS) =    176.85
FLOW VELOCITY(FEET/SEC) =   7.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   2.93   Tc(MIN.) =  16.14
LONGEST FLOWPATH FROM NODE     30.00 TO NODE     34.00 =  3434.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  16.14
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.058
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)   B        31.40      0.38     1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   31.40      SUBAREA RUNOFF(CFS) =   75.69
EFFECTIVE AREA(ACRES) =     93.50   AREA-AVERAGED Fm(INCH/HR) =  0.36
AREA-AVERAGED Fp(INCH/HR) =  0.36  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =     93.50       PEAK FLOW RATE(CFS) =     226.83

****************************************************************************
FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =  16.14
RAINFALL INTENSITY(INCH/HR) =   3.06
AREA-AVERAGED Fm(INCH/HR) =  0.36
AREA-AVERAGED Fp(INCH/HR) =  0.36
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =    93.50
TOTAL STREAM AREA(ACRES) =    93.50
PEAK FLOW RATE(CFS) AT CONFLUENCE =    226.83
```

```
** CONFLUENCE DATA **
 STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
    1     598.77  13.80     3.414   0.23( 0.23) 1.00    207.2      50.00
    1     566.62  16.59     3.000   0.23( 0.23) 1.00    226.1      70.00
    2     226.83  16.14     3.058   0.36( 0.36) 1.00     93.5      30.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
    1     818.19  13.80     3.414   0.26( 0.26) 1.00    287.1      50.00
    2     798.61  16.14     3.058   0.27( 0.27) 1.00    316.6      30.00
    3     788.56  16.59     3.000   0.27( 0.27) 1.00    319.6      70.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =    818.19    Tc(MIN.) =    13.80
EFFECTIVE AREA(ACRES) =   287.12   AREA-AVERAGED Fm(INCH/HR) =  0.26
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    319.60
LONGEST FLOWPATH FROM NODE     70.00 TO NODE     34.00 =  3929.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     34.00 TO NODE     17.00 IS CODE =  52
----------------------------------------------------------------------------
>>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   3540.00  DOWNSTREAM(FEET) =   3528.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   571.00   CHANNEL SLOPE =  0.0210
CHANNEL FLOW THRU SUBAREA(CFS) =    818.19
FLOW VELOCITY(FEET/SEC) =  13.31 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) =   0.72   Tc(MIN.) =  14.51
LONGEST FLOWPATH FROM NODE     70.00 TO NODE     17.00 =  4500.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  14.51
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.295
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL DESERT COVER
"DESERT BRUSH"   (50.0%)    B       44.20      0.38      1.000    80
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =   44.20      SUBAREA RUNOFF(CFS) =  115.97
EFFECTIVE AREA(ACRES) =    331.32   AREA-AVERAGED Fm(INCH/HR) =  0.28
AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =    363.80       PEAK FLOW RATE(CFS) =     899.04

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     899.04  14.51     3.295  0.28( 0.28) 1.00   331.3       50.00
     2     871.98  16.86     2.966  0.28( 0.28) 1.00   360.8       30.00
     3     861.66  17.32     2.912  0.28( 0.28) 1.00   363.8       70.00
 LONGEST FLOWPATH FROM NODE     70.00 TO NODE     17.00 =  4500.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1     547.55  26.98     2.135  0.31( 0.31) 1.00   333.4      980.00
     2     516.47  29.35     2.013  0.31( 0.31) 1.00   336.8      330.00
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1    1380.80  14.51     3.295  0.29( 0.29) 1.00   510.6       50.00
     2    1370.15  16.86     2.966  0.29( 0.29) 1.00   569.2       30.00
     3    1362.71  17.32     2.912  0.29( 0.29) 1.00   577.8       70.00
     4    1154.76  26.98     2.135  0.29( 0.29) 1.00   697.2      980.00
     5    1083.77  29.35     2.013  0.29( 0.29) 1.00   700.6      330.00
   TOTAL AREA(ACRES) =    700.60

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     1380.80  Tc(MIN.) =   14.510
 EFFECTIVE AREA(ACRES) =    510.62  AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    700.60
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     17.00 = 11698.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3528.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1001.00   CHANNEL SLOPE =  0.0230
 CHANNEL FLOW THRU SUBAREA(CFS) =   1380.80
 FLOW VELOCITY(FEET/SEC) =  16.52 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  15.52
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     18.00 = 12699.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.144
```

```
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       59.20      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   59.20      SUBAREA RUNOFF(CFS) =  147.25
 EFFECTIVE AREA(ACRES) =    569.82   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    759.80       PEAK FLOW RATE(CFS) =    1458.36

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.52
 RAINFALL INTENSITY(INCH/HR) =   3.14
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   569.82
 TOTAL STREAM AREA(ACRES) =   759.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1458.36

****************************************************************************
 FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   996.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3800.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.561
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.116
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.08
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.08

****************************************************************************
 FLOW PROCESS FROM NODE     91.00 TO NODE     92.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3560.00
```

```
 CHANNEL LENGTH THRU SUBAREA(FEET) =   658.00   CHANNEL SLOPE =  0.3647
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .2078 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.08
 FLOW VELOCITY(FEET/SEC) =   8.35 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.31   Tc(MIN.) =  11.87
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     92.00 =  1654.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     92.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.792
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       20.00      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   64.33
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.00       PEAK FLOW RATE(CFS) =      96.49

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     93.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3560.00  DOWNSTREAM(FEET) =   3515.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   535.00   CHANNEL SLOPE =  0.0841
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .0841 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     96.49
 FLOW VELOCITY(FEET/SEC) =   7.44 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.20   Tc(MIN.) =  13.07
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     93.00 =  2189.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.545
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       30.50      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   30.50      SUBAREA RUNOFF(CFS) =   91.32
```

```
 EFFECTIVE AREA(ACRES) =     60.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     60.50       PEAK FLOW RATE(CFS) =    181.15

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     18.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3515.00  DOWNSTREAM(FEET) =   3505.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   875.00   CHANNEL SLOPE =  0.0114
 CHANNEL FLOW THRU SUBAREA(CFS) =    181.15
 FLOW VELOCITY(FEET/SEC) =   6.08 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.40   Tc(MIN.) =  15.47
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     18.00 =  3064.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.47
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.151
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       38.10      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   38.10      SUBAREA RUNOFF(CFS) =   95.00
 EFFECTIVE AREA(ACRES) =     98.60   AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     98.60       PEAK FLOW RATE(CFS) =     254.68

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.47
 RAINFALL INTENSITY(INCH/HR) =   3.15
 AREA-AVERAGED Fm(INCH/HR) =  0.28
 AREA-AVERAGED Fp(INCH/HR) =  0.28
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    98.60
 TOTAL STREAM AREA(ACRES) =    98.60
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    254.68

 ** CONFLUENCE DATA **
  STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
     1   1458.36  15.52    3.144  0.30( 0.30) 1.00   569.8       50.00
```

```
    1   1440.85  17.88    2.848  0.30( 0.30) 1.00   628.4      30.00
    1   1432.38  18.33    2.798  0.30( 0.30) 1.00   637.0      70.00
    1   1209.17  28.05    2.077  0.30( 0.30) 1.00   756.4     980.00
    1   1135.96  30.44    1.962  0.30( 0.30) 1.00   759.8     330.00
    2    254.68  15.47    3.151  0.28( 0.28) 1.00    98.6      90.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)        (ACRES)    NODE
    1   1712.00  15.47    3.151  0.30( 0.30) 1.00   666.6      90.00
    2   1712.42  15.52    3.144  0.30( 0.30) 1.00   668.4      50.00
    3   1668.63  17.88    2.848  0.30( 0.30) 1.00   727.0      30.00
    4   1655.78  18.33    2.798  0.30( 0.30) 1.00   735.6      70.00
    5   1368.61  28.05    2.077  0.30( 0.30) 1.00   855.0     980.00
    6   1285.15  30.44    1.962  0.30( 0.30) 1.00   858.4     330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   1712.42    Tc(MIN.) =    15.52
 EFFECTIVE AREA(ACRES) =   668.42   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    858.40
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     18.00 = 12699.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3505.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   935.00   CHANNEL SLOPE =  0.0267
 CHANNEL FLOW THRU SUBAREA(CFS) =   1712.42
 FLOW VELOCITY(FEET/SEC) =  19.13 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.81   Tc(MIN.) =  16.34
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     19.00 = 13634.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.34
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.033
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       44.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.70      SUBAREA RUNOFF(CFS) =  106.73
 EFFECTIVE AREA(ACRES) =    713.12   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    903.10       PEAK FLOW RATE(CFS) =    1752.63
```

```
****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  16.34
 RAINFALL INTENSITY(INCH/HR) =   3.03
 AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =   713.12
 TOTAL STREAM AREA(ACRES) =   903.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =   1752.63

****************************************************************************
 FLOW PROCESS FROM NODE     95.00 TO NODE     96.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   860.00
 ELEVATION DATA: UPSTREAM(FEET) =   4040.00  DOWNSTREAM(FEET) =   3770.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.876
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.314
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                    D        3.70      0.22      1.000    89    9.88
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     13.64
 TOTAL AREA(ACRES) =      3.70   PEAK FLOW RATE(CFS) =     13.64

****************************************************************************
 FLOW PROCESS FROM NODE     96.00 TO NODE     97.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3770.00  DOWNSTREAM(FEET) =   3515.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   920.00   CHANNEL SLOPE =  0.2772
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1891 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     13.64
 FLOW VELOCITY(FEET/SEC) =   5.81 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.64   Tc(MIN.) =  12.51
 LONGEST FLOWPATH FROM NODE     95.00 TO NODE     97.00 =  1780.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     97.00 TO NODE     97.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  12.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.655
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       16.90      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   16.90      SUBAREA RUNOFF(CFS) =   52.28
 EFFECTIVE AREA(ACRES) =     20.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     20.60       PEAK FLOW RATE(CFS) =      63.72

****************************************************************************
 FLOW PROCESS FROM NODE     97.00 TO NODE     19.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3515.00  DOWNSTREAM(FEET) =   3480.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1365.00   CHANNEL SLOPE =  0.0256
 CHANNEL FLOW THRU SUBAREA(CFS) =     63.72
 FLOW VELOCITY(FEET/SEC) =   6.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.42   Tc(MIN.) =  15.94
 LONGEST FLOWPATH FROM NODE     95.00 TO NODE     19.00 =  3145.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.94
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.086
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       25.50      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   25.50      SUBAREA RUNOFF(CFS) =   62.11
 EFFECTIVE AREA(ACRES) =     46.10   AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     46.10       PEAK FLOW RATE(CFS) =     115.28

****************************************************************************
 FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =  15.94
 RAINFALL INTENSITY(INCH/HR) =   3.09
```

```
 AREA-AVERAGED Fm(INCH/HR) =  0.31
 AREA-AVERAGED Fp(INCH/HR) =  0.31
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    46.10
 TOTAL STREAM AREA(ACRES) =    46.10
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    115.28

****************************************************************************
 FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   996.00
 ELEVATION DATA: UPSTREAM(FEET) =   4100.00  DOWNSTREAM(FEET) =   3800.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.561
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.116
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "GRASS"                     D       10.00      0.22      1.000    89   10.56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =     35.08
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     35.08

****************************************************************************
 FLOW PROCESS FROM NODE     91.00 TO NODE     92.00 IS CODE =  53
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL MOUNTAIN CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3800.00  DOWNSTREAM(FEET) =   3535.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   915.00   CHANNEL SLOPE =  0.2896
 SLOPE ADJUSTMENT CURVE USED:
 EFFECTIVE SLOPE = .1924  (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 CHANNEL FLOW THRU SUBAREA(CFS) =     35.08
 FLOW VELOCITY(FEET/SEC) =   8.03 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   1.90   Tc(MIN.) =  12.46
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     92.00 =  1911.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     92.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.666
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "GRASS"                     D       21.60      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
```

```
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   21.60      SUBAREA RUNOFF(CFS) =   67.03
 EFFECTIVE AREA(ACRES) =     31.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     31.60       PEAK FLOW RATE(CFS) =      98.07

****************************************************************************
 FLOW PROCESS FROM NODE     92.00 TO NODE     93.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3535.00  DOWNSTREAM(FEET) =   3500.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   350.00   CHANNEL SLOPE =  0.1000
 CHANNEL FLOW THRU SUBAREA(CFS) =     98.07
 FLOW VELOCITY(FEET/SEC) =  14.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   0.39   Tc(MIN.) =  12.85
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     93.00 =  2261.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.85
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.588
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    D       13.80      0.22      1.000    89
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   13.80      SUBAREA RUNOFF(CFS) =   41.85
 EFFECTIVE AREA(ACRES) =     45.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     45.40       PEAK FLOW RATE(CFS) =     137.69

****************************************************************************
 FLOW PROCESS FROM NODE     93.00 TO NODE     94.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3500.00  DOWNSTREAM(FEET) =  3478.00
 FLOW LENGTH(FEET) =   640.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  19.92
 ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    137.69
 PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =  13.39
 LONGEST FLOWPATH FROM NODE     90.00 TO NODE     94.00 =  2901.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     94.00 TO NODE     19.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =  13.39
 RAINFALL INTENSITY(INCH/HR) =   3.49
 AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22
 AREA-AVERAGED Ap =  1.00
 EFFECTIVE STREAM AREA(ACRES) =    45.40
 TOTAL STREAM AREA(ACRES) =    45.40
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    137.69

 ** CONFLUENCE DATA **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1752.29  16.29     3.039   0.30( 0.30) 1.00    711.3      90.00
     1   1752.63  16.34     3.033   0.30( 0.30) 1.00    713.1      50.00
     1   1706.66  18.70     2.759   0.30( 0.30) 1.00    771.7      30.00
     1   1693.51  19.15     2.713   0.30( 0.30) 1.00    780.3      70.00
     1   1401.02  28.93     2.033   0.30( 0.30) 1.00    899.7     980.00
     1   1316.75  31.33     1.922   0.30( 0.30) 1.00    903.1     330.00
     2    115.28  15.94     3.086   0.31( 0.31) 1.00     46.1      95.00
     3    137.69  13.39     3.487   0.22( 0.22) 1.00     45.4      90.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  3 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1924.05  13.39     3.487   0.30( 0.30) 1.00    668.8      90.00
     2   1979.87  15.94     3.086   0.30( 0.30) 1.00    787.5      95.00
     3   1984.48  16.29     3.039   0.30( 0.30) 1.00    802.8      90.00
     4   1984.29  16.34     3.033   0.30( 0.30) 1.00    804.6      50.00
     5   1915.44  18.70     2.759   0.30( 0.30) 1.00    863.2      30.00
     6   1898.42  19.15     2.713   0.30( 0.30) 1.00    871.8      70.00
     7   1549.05  28.93     2.033   0.30( 0.30) 1.00    991.2     980.00
     8   1455.54  31.33     1.922   0.30( 0.30) 1.00    994.6     330.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =   1984.48    Tc(MIN.) =    16.29
 EFFECTIVE AREA(ACRES) =   802.82   AREA-AVERAGED Fm(INCH/HR) =  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    994.60
 LONGEST FLOWPATH FROM NODE    330.00 TO NODE     19.00 = 13634.00 FEET.
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    994.60  TC(MIN.) =     16.29
 EFFECTIVE AREA(ACRES) =    802.82  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =   1984.48

 ** PEAK FLOW RATE TABLE **
  STREAM     Q      Tc    Intensity   Fp(Fm)      Ap   Ae      HEADWATER
  NUMBER   (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)          (ACRES)    NODE
     1   1924.05  13.39     3.487   0.30( 0.30) 1.00    668.8      90.00
```

2	1979.87	15.94	3.086	0.30(0.30)	1.00	787.5	95.00
3	1984.48	16.29	3.039	0.30(0.30)	1.00	802.8	90.00
4	1984.29	16.34	3.033	0.30(0.30)	1.00	804.6	50.00
5	1915.44	18.70	2.759	0.30(0.30)	1.00	863.2	30.00
6	1898.42	19.15	2.713	0.30(0.30)	1.00	871.8	70.00
7	1549.05	28.93	2.033	0.30(0.30)	1.00	991.2	980.00
8	1455.54	31.33	1.922	0.30(0.30)	1.00	994.6	330.00

END OF RATIONAL METHOD ANALYSIS

Watershed H
Onsite (AMC 3)

```
**************************************************************************
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* WATERSHED H - DEVELOPED CONDITION                                       *
* ONSITE USING AMC III                                                    *
* 100 YEAR STORM EVENT                                                    *
 **************************************************************************

  FILE NAME: HAC-HON.DAT
  TIME/DATE OF STUDY: 13:17 05/26/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====== =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE   1220.00 TO NODE   1221.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==========================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   630.00
 ELEVATION DATA: UPSTREAM(FEET) =   3150.00  DOWNSTREAM(FEET) =   3137.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.795
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.809
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       10.00      0.45      0.600    76   11.80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =     31.84
 TOTAL AREA(ACRES) =     10.00   PEAK FLOW RATE(CFS) =     31.84

**************************************************************************
 FLOW PROCESS FROM NODE   1221.00 TO NODE   1222.00 IS CODE =  31
--------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3137.00  DOWNSTREAM(FEET) =  3120.00
 FLOW LENGTH(FEET) =  1250.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.79
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     31.84
 PIPE TRAVEL TIME(MIN.) =   2.13    Tc(MIN.) =  13.92
 LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1222.00 =  1880.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE   1221.00 TO NODE   1222.00 IS CODE =  81
--------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 MAINLINE Tc(MIN) =  13.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.392
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B        4.00      0.45      0.600    76
 RESIDENTIAL
 "1 DWELLING/ACRE"           B       13.50      0.45      0.800    76
 NATURAL POOR COVER
 "GRASS"                     D        2.50      0.00      1.000    98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.785
 SUBAREA AREA(ACRES) =   20.00     SUBAREA RUNOFF(CFS) =   55.68
 EFFECTIVE AREA(ACRES) =     30.00   AREA-AVERAGED Fm(INCH/HR) =  0.29
 AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.72
 TOTAL AREA(ACRES) =     30.00      PEAK FLOW RATE(CFS) =     83.77

**************************************************************************
 FLOW PROCESS FROM NODE   1222.00 TO NODE   1223.00 IS CODE =  31
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3120.00  DOWNSTREAM(FEET) =  3100.00
  FLOW LENGTH(FEET) =  1470.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  29.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.49
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     83.77
  PIPE TRAVEL TIME(MIN.) =   1.96    Tc(MIN.) =  15.89
  LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1223.00 =  3350.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1222.00 TO NODE   1223.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.89
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.093
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL POOR COVER
  "GRASS"                     B         2.20      0.14      1.000    93
  RESIDENTIAL
  "1 DWELLING/ACRE"           B        16.80      0.45      0.800    76
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B        21.00      0.45      0.600    76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.43
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.706
  SUBAREA AREA(ACRES) =   40.00      SUBAREA RUNOFF(CFS) =  100.47
  EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.42  AREA-AVERAGED Ap =  0.71
  TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     176.17

****************************************************************************
  FLOW PROCESS FROM NODE   1223.00 TO NODE   1224.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  3100.00  DOWNSTREAM(FEET) =  3084.00
  FLOW LENGTH(FEET) =  1797.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  57.0 INCH PIPE IS  41.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.92
  ESTIMATED PIPE DIAMETER(INCH) =  57.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =    176.17
  PIPE TRAVEL TIME(MIN.) =   2.32    Tc(MIN.) =  18.20
  LONGEST FLOWPATH FROM NODE   1220.00 TO NODE   1224.00 =  5147.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1223.00 TO NODE   1224.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.20
```

```
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.812
SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"3-4 DWELLINGS/ACRE"        B        7.10      0.45      0.600    76
RESIDENTIAL
"1 DWELLING/ACRE"           B       22.10      0.45      0.800    76
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.45
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.751
SUBAREA AREA(ACRES) =   29.20      SUBAREA RUNOFF(CFS) =   64.96
EFFECTIVE AREA(ACRES) =     99.20   AREA-AVERAGED Fm(INCH/HR) =  0.31
AREA-AVERAGED Fp(INCH/HR) =  0.43  AREA-AVERAGED Ap =  0.72
TOTAL AREA(ACRES) =     99.20       PEAK FLOW RATE(CFS) =     223.41
================================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)      =     99.20  TC(MIN.) =     18.20
EFFECTIVE AREA(ACRES) =     99.20  AREA-AVERAGED Fm(INCH/HR)=  0.31
AREA-AVERAGED Fp(INCH/HR) =  0.43  AREA-AVERAGED Ap = 0.725
PEAK FLOW RATE(CFS)    =    223.41
================================================================================
================================================================================
END OF RATIONAL METHOD ANALYSIS
```

Watershed I
Offsite (AMC 2)

```
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************* DESCRIPTION OF STUDY *************************
* WATERSHED I - DEVELOPED CONDITION                                      *
* OFFSITE AREA USING AMC II                                              *
* 100 YEAR STORM EVENT                                                   *
 ************************************************************************

  FILE NAME: HAC-IOFF.DAT
  TIME/DATE OF STUDY: 11:15 05/27/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ======= ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    778.00 TO NODE    778.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
```

```
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  19.74   RAINFALL INTENSITY(INCH/HR) =  2.66
 EFFECTIVE AREA(ACRES) =   262.30
 TOTAL AREA(ACRES) =   268.40        PEAK FLOW RATE(CFS) =    569.07
 AREA-AVERAGED Fm(INCH/HR) =   0.38  AREA-AVERAGED Fp(INCH/HR) =   0.38
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    778.00 TO NODE   1230.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3115.00  DOWNSTREAM(FEET) =  3107.00
 FLOW LENGTH(FEET) =   830.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  84.0 INCH PIPE IS  65.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  17.60
 ESTIMATED PIPE DIAMETER(INCH) =  84.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    569.07
 PIPE TRAVEL TIME(MIN.) =   0.79    Tc(MIN.) =  20.53
 LONGEST FLOWPATH FROM NODE    778.00 TO NODE   1230.00 =   830.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1230.00 TO NODE   1230.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  20.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       44.60      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   44.60      SUBAREA RUNOFF(CFS) =   88.51
 EFFECTIVE AREA(ACRES) =    306.90   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    313.00       PEAK FLOW RATE(CFS) =     609.03

****************************************************************************
 FLOW PROCESS FROM NODE   1230.00 TO NODE   1231.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3107.00  DOWNSTREAM(FEET) =  3093.00
 FLOW LENGTH(FEET) =   780.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  78.0 INCH PIPE IS  58.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  22.77
 ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    609.03
 PIPE TRAVEL TIME(MIN.) =   0.57    Tc(MIN.) =  21.10
 LONGEST FLOWPATH FROM NODE    778.00 TO NODE   1231.00 =  1610.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE   1231.00 TO NODE   1231.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.536
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       27.70      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   27.70      SUBAREA RUNOFF(CFS) =   53.74
 EFFECTIVE AREA(ACRES) =    334.60   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    340.70       PEAK FLOW RATE(CFS) =     649.19

****************************************************************************
 FLOW PROCESS FROM NODE   1231.00 TO NODE   1232.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  3093.00  DOWNSTREAM(FEET) =  3078.00
 FLOW LENGTH(FEET) =   690.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  75.0 INCH PIPE IS  60.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  24.54
 ESTIMATED PIPE DIAMETER(INCH) =  75.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =    649.19
 PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =  21.57
 LONGEST FLOWPATH FROM NODE    778.00 TO NODE   1232.00 =  2300.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1232.00 TO NODE   1232.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.497
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)   B       19.40      0.38      1.000    80
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   19.40      SUBAREA RUNOFF(CFS) =   36.96
 EFFECTIVE AREA(ACRES) =    354.00   AREA-AVERAGED Fm(INCH/HR) =  0.38
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    360.10       PEAK FLOW RATE(CFS) =     674.51
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =    360.10  TC(MIN.) =     21.57
 EFFECTIVE AREA(ACRES) =    354.00  AREA-AVERAGED Fm(INCH/HR)=  0.38
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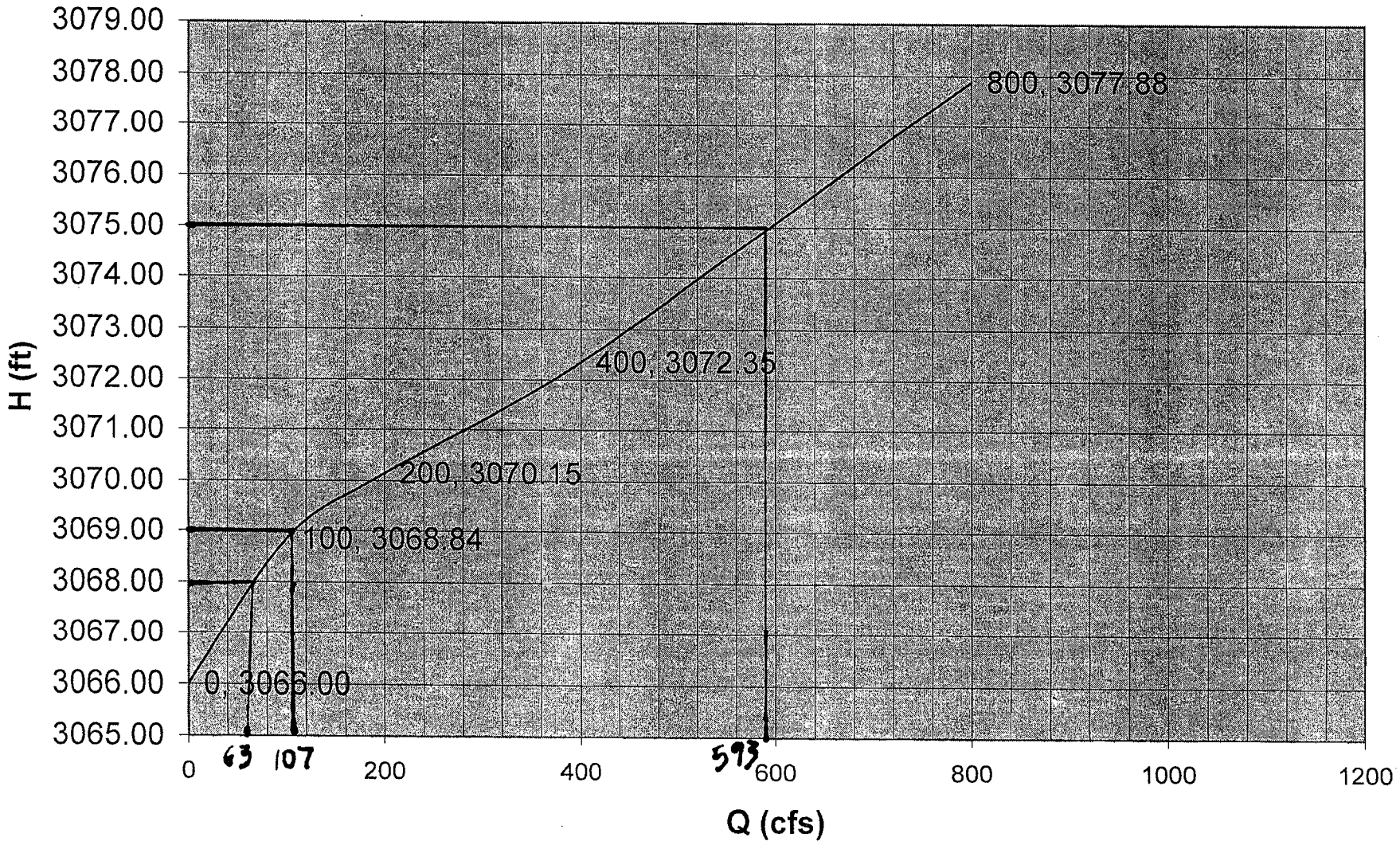
 AREA-AVERAGED Fp(INCH/HR) =  0.38  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)    =    674.51
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

WSPG-Detention
Basin Outlets

WSPG
Detention Basin Outlets

Detention Basins A-1 and A-2

Basins A1/A2
Q vs H
2-6' Pipes



W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3046.000	.460	3046.460	10.00	10.05	1.57	3048.03	.00	.82	3.19	6.000	.000	.00	1 .0
405.901	.0392					.0392	15.92	.46	3.17	.46	.013	.00	.00	PIPE
1405.901	3061.918	.460	3062.378	10.00	10.05	1.57	3063.95	.00	.82	3.19	6.000	.000	.00	1 .0
51.077	.0392					.0369	1.89	.46	3.17	.46	.013	.00	.00	PIPE
1456.979	3063.921	.473	3064.394	10.00	9.62	1.44	3065.83	.00	.82	3.23	6.000	.000	.00	1 .0
16.844	.0392					.0324	.55	.47	2.99	.46	.013	.00	.00	PIPE
1473.822	3064.581	.489	3065.070	10.00	9.17	1.31	3066.38	.00	.82	3.28	6.000	.000	.00	1 .0
9.396	.0392					.0283	.27	.49	2.81	.46	.013	.00	.00	PIPE
1483.218	3064.950	.505	3065.455	10.00	8.75	1.19	3066.64	.00	.82	3.33	6.000	.000	.00	1 .0
6.255	.0392					.0247	.15	.51	2.63	.46	.013	.00	.00	PIPE
1489.474	3065.195	.522	3065.717	10.00	8.34	1.08	3066.80	.00	.82	3.38	6.000	.000	.00	1 .0
4.588	.0392					.0215	.10	.52	2.47	.46	.013	.00	.00	PIPE
1494.061	3065.375	.539	3065.914	10.00	7.95	.98	3066.90	.00	.82	3.43	6.000	.000	.00	1 .0
3.533	.0392					.0188	.07	.54	2.31	.46	.013	.00	.00	PIPE
1497.594	3065.513	.556	3066.070	10.00	7.58	.89	3066.96	.00	.82	3.48	6.000	.000	.00	1 .0
2.719	.0392					.0164	.04	.56	2.17	.46	.013	.00	.00	PIPE
1500.314	3065.620	.575	3066.195	10.00	7.23	.81	3067.01	.00	.82	3.53	6.000	.000	.00	1 .0
2.197	.0392					.0143	.03	.58	2.04	.46	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1502.510	3065.706	.594	3066.300	10.00	6.89	.74	3067.04	.00	.82	3.58	6.000	.000	.00	1 .0
1.796	.0392					.0125	.02	.59	1.91	.46	.013	.00	.00	PIPE
1504.306	3065.777	.613	3066.390	10.00	6.57	.67	3067.06	.00	.82	3.63	6.000	.000	.00	1 .0
1.410	.0392					.0109	.02	.61	1.79	.46	.013	.00	.00	PIPE
1505.716	3065.832	.634	3066.466	10.00	6.27	.61	3067.08	.00	.82	3.69	6.000	.000	.00	1 .0
1.158	.0392					.0095	.01	.63	1.68	.46	.013	.00	.00	PIPE
1506.874	3065.877	.655	3066.532	10.00	5.97	.55	3067.09	.00	.82	3.74	6.000	.000	.00	1 .0
.950	.0392					.0083	.01	.66	1.57	.46	.013	.00	.00	PIPE
1507.823	3065.915	.676	3066.591	10.00	5.70	.50	3067.09	.00	.82	3.79	6.000	.000	.00	1 .0
.713	.0392					.0072	.01	.68	1.48	.46	.013	.00	.00	PIPE
1508.536	3065.942	.699	3066.642	10.00	5.43	.46	3067.10	.00	.82	3.85	6.000	.000	.00	1 .0
.566	.0392					.0063	.00	.70	1.38	.46	.013	.00	.00	PIPE
1509.102	3065.965	.722	3066.687	10.00	5.18	.42	3067.10	.00	.82	3.90	6.000	.000	.00	1 .0
.411	.0392					.0055	.00	.72	1.30	.46	.013	.00	.00	PIPE
1509.513	3065.981	.746	3066.727	10.00	4.94	.38	3067.11	.00	.82	3.96	6.000	.000	.00	1 .0
.273	.0392					.0048	.00	.75	1.22	.46	.013	.00	.00	PIPE
1509.786	3065.991	.771	3066.762	10.00	4.71	.34	3067.11	.00	.82	4.02	6.000	.000	.00	1 .0
.179	.0392					.0042	.00	.77	1.14	.46	.013	.00	.00	PIPE

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1509.965	3065.999	.796	3066.795	10.00	4.49	.31	3067.11	.00	.82	4.07	6.000	.000	.00	1 .0
.035	.0392				.0036	.00	.80	1.07	.46	.013	.00	.00		PIPE
1510.000	3066.000	.824	3066.824	10.00	4.27	.28	3067.11	.00	.82	4.13	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1510.000	3066.000	1.229	3067.229	10.00	.41	.00	3067.23	.00	.20	20.00	10.000	20.000	.00	0 .0

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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3046.000	.994	3046.994	50.00	16.29	4.12	3051.11	.00	1.88	4.46	6.000	.000	.00	1 .0
225.111	.0392					.0392	8.83	.99	3.46	.99	.013	.00	.00	PIPE
1225.110	3054.828	.994	3055.822	50.00	16.29	4.12	3059.94	.00	1.88	4.46	6.000	.000	.00	1 .0
137.010	.0392					.0370	5.07	.99	3.46	.99	.013	.00	.00	PIPE
1362.120	3060.201	1.023	3061.224	50.00	15.61	3.78	3065.01	.00	1.88	4.51	6.000	.000	.00	1 .0
46.484	.0392					.0325	1.51	1.02	3.27	.99	.013	.00	.00	PIPE
1408.604	3062.024	1.057	3063.081	50.00	14.88	3.44	3066.52	.00	1.88	4.57	6.000	.000	.00	1 .0
25.651	.0392					.0284	.73	1.06	3.06	.99	.013	.00	.00	PIPE
1434.255	3063.030	1.093	3064.123	50.00	14.19	3.13	3067.25	.00	1.88	4.63	6.000	.000	.00	1 .0
17.199	.0392					.0248	.43	1.09	2.87	.99	.013	.00	.00	PIPE
1451.454	3063.704	1.130	3064.834	50.00	13.53	2.84	3067.68	.00	1.88	4.69	6.000	.000	.00	1 .0
12.584	.0392					.0217	.27	1.13	2.69	.99	.013	.00	.00	PIPE
1464.039	3064.198	1.168	3065.366	50.00	12.90	2.58	3067.95	.00	1.88	4.75	6.000	.000	.00	1 .0
9.624	.0392					.0190	.18	1.17	2.52	.99	.013	.00	.00	PIPE
1473.663	3064.575	1.208	3065.783	50.00	12.30	2.35	3068.13	.00	1.88	4.81	6.000	.000	.00	1 .0
7.621	.0392					.0166	.13	1.21	2.36	.99	.013	.00	.00	PIPE
1481.284	3064.874	1.249	3066.123	50.00	11.73	2.14	3068.26	.00	1.88	4.87	6.000	.000	.00	1 .0
6.152	.0392					.0145	.09	1.25	2.21	.99	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1487.436	3065.115	1.291	3066.406	50.00	11.18	1.94	3068.35	.00	1.88	4.93	6.000	.000	.00	1 .0
4.989	.0392					.0127	.06	1.29	2.07	.99	.013	.00	.00	PIPE
1492.425	3065.311	1.335	3066.646	50.00	10.66	1.77	3068.41	.00	1.88	4.99	6.000	.000	.00	1 .0
4.066	.0392					.0111	.04	1.34	1.94	.99	.013	.00	.00	PIPE
1496.491	3065.470	1.381	3066.851	50.00	10.17	1.60	3068.46	.00	1.88	5.05	6.000	.000	.00	1 .0
3.347	.0392					.0097	.03	1.38	1.82	.99	.013	.00	.00	PIPE
1499.839	3065.601	1.428	3067.029	50.00	9.69	1.46	3068.49	.00	1.88	5.11	6.000	.000	.00	1 .0
2.719	.0392					.0085	.02	1.43	1.70	.99	.013	.00	.00	PIPE
1502.557	3065.708	1.477	3067.185	50.00	9.24	1.33	3068.51	.00	1.88	5.17	6.000	.000	.00	1 .0
2.186	.0392					.0074	.02	1.48	1.59	.99	.013	.00	.00	PIPE
1504.744	3065.794	1.528	3067.322	50.00	8.81	1.21	3068.53	.00	1.88	5.23	6.000	.000	.00	1 .0
1.759	.0392					.0065	.01	1.53	1.49	.99	.013	.00	.00	PIPE
1506.503	3065.863	1.580	3067.443	50.00	8.40	1.10	3068.54	.00	1.88	5.29	6.000	.000	.00	1 .0
1.330	.0392					.0057	.01	1.58	1.40	.99	.013	.00	.00	PIPE
1507.833	3065.915	1.635	3067.550	50.00	8.01	1.00	3068.55	.00	1.88	5.34	6.000	.000	.00	1 .0
.980	.0392					.0050	.00	1.64	1.31	.99	.013	.00	.00	PIPE
1508.813	3065.953	1.692	3067.646	50.00	7.64	.91	3068.55	.00	1.88	5.40	6.000	.000	.00	1 .0
.669	.0392					.0043	.00	1.69	1.22	.99	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1509.483	3065.980	1.751	3067.731	50.00	7.28	.82	3068.55	.00	1.88	5.46	6.000	.000	.00	1 .0
.391	.0392					.0038	.00	1.75	1.14	.99	.013	.00	.00	PIPE
1509.874	3065.995	1.812	3067.807	50.00	6.94	.75	3068.56	.00	1.88	5.51	6.000	.000	.00	1 .0
.126	.0392					.0033	.00	1.81	1.07	.99	.013	.00	.00	PIPE
1510.000	3066.000	1.877	3067.877	50.00	6.62	.68	3068.56	.00	1.88	5.56	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1510.000	3066.000	2.841	3068.841	50.00	.88	.01	3068.85	.00	.58	20.00	10.000	20.000	.00	0 .0

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WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3046.000	1.399	3047.398	100.00	19.97	6.19	3053.59	.00	2.69	5.07	6.000	.000	.00	1 .0
67.378	.0392					.0392	2.64	1.40	3.54	1.40	.013	.00	.00	PIPE
1067.379	3048.642	1.399	3050.041	100.00	19.97	6.19	3056.23	.00	2.69	5.07	6.000	.000	.00	1 .0
208.801	.0392					.0372	7.77	1.40	3.54	1.40	.013	.00	.00	PIPE
1276.180	3056.830	1.437	3058.267	100.00	19.21	5.73	3064.00	.00	2.69	5.12	6.000	.000	.00	1 .0
75.191	.0392					.0330	2.48	1.44	3.36	1.40	.013	.00	.00	PIPE
1351.371	3059.779	1.487	3061.266	100.00	18.31	5.21	3066.47	.00	2.69	5.18	6.000	.000	.00	1 .0
40.653	.0392					.0288	1.17	1.49	3.14	1.40	.013	.00	.00	PIPE
1392.024	3061.373	1.538	3062.911	100.00	17.46	4.73	3067.65	.00	2.69	5.24	6.000	.000	.00	1 .0
26.948	.0392					.0252	.68	1.54	2.94	1.40	.013	.00	.00	PIPE
1418.972	3062.430	1.591	3064.021	100.00	16.65	4.30	3068.32	.00	2.69	5.30	6.000	.000	.00	1 .0
19.596	.0392					.0221	.43	1.59	2.76	1.40	.013	.00	.00	PIPE
1438.568	3063.198	1.646	3064.844	100.00	15.87	3.91	3068.76	.00	2.69	5.35	6.000	.000	.00	1 .0
14.996	.0392					.0193	.29	1.65	2.58	1.40	.013	.00	.00	PIPE
1453.564	3063.787	1.703	3065.490	100.00	15.14	3.56	3069.05	.00	2.69	5.41	6.000	.000	.00	1 .0
11.840	.0392					.0169	.20	1.70	2.41	1.40	.013	.00	.00	PIPE
1465.404	3064.251	1.762	3066.013	100.00	14.43	3.23	3069.25	.00	2.69	5.47	6.000	.000	.00	1 .0
9.494	.0392					.0148	.14	1.76	2.26	1.40	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1474.898	3064.623	1.824	3066.448	100.00	13.76	2.94	3069.39	.00	2.69	5.52	6.000	.000	.00	1 .0
7.736	.0392					.0129	.10	1.82	2.11	1.40	.013	.00	.00	PIPE
1482.634	3064.927	1.888	3066.815	100.00	13.12	2.67	3069.49	.00	2.69	5.57	6.000	.000	.00	1 .0
6.347	.0392					.0113	.07	1.89	1.98	1.40	.013	.00	.00	PIPE
1488.981	3065.176	1.954	3067.130	100.00	12.51	2.43	3069.56	.00	2.69	5.62	6.000	.000	.00	1 .0
5.185	.0392					.0099	.05	1.95	1.85	1.40	.013	.00	.00	PIPE
1494.166	3065.379	2.023	3067.402	100.00	11.93	2.21	3069.61	.00	2.69	5.67	6.000	.000	.00	1 .0
4.220	.0392					.0087	.04	2.02	1.73	1.40	.013	.00	.00	PIPE
1498.386	3065.544	2.095	3067.640	100.00	11.37	2.01	3069.65	.00	2.69	5.72	6.000	.000	.00	1 .0
3.404	.0392					.0076	.03	2.10	1.62	1.40	.013	.00	.00	PIPE
1501.790	3065.678	2.170	3067.848	100.00	10.84	1.83	3069.67	.00	2.69	5.77	6.000	.000	.00	1 .0
2.703	.0392					.0067	.02	2.17	1.51	1.40	.013	.00	.00	PIPE
1504.493	3065.784	2.248	3068.032	100.00	10.34	1.66	3069.69	.00	2.69	5.81	6.000	.000	.00	1 .0
2.094	.0392					.0059	.01	2.25	1.41	1.40	.013	.00	.00	PIPE
1506.588	3065.866	2.329	3068.195	100.00	9.86	1.51	3069.70	.00	2.69	5.85	6.000	.000	.00	1 .0
1.560	.0392					.0051	.01	2.33	1.32	1.40	.013	.00	.00	PIPE
1508.147	3065.927	2.413	3068.340	100.00	9.40	1.37	3069.71	.00	2.69	5.88	6.000	.000	.00	1 .0
1.057	.0392					.0045	.00	2.41	1.23	1.40	.013	.00	.00	PIPE

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1509.204	3065.969	2.501	3068.470	100.00	8.96	1.25	3069.72	.00	2.69	5.92	6.000	.000	.00	1 .0
.605	.0392					.0040	.00	2.50	1.15	1.40	.013	.00	.00	PIPE
1509.809	3065.992	2.593	3068.585	100.00	8.54	1.13	3069.72	.00	2.69	5.94	6.000	.000	.00	1 .0
.191	.0392					.0035	.00	2.59	1.07	1.40	.013	.00	.00	PIPE
1510.000	3066.000	2.690	3068.690	100.00	8.14	1.03	3069.72	.00	2.69	5.97	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1510.000	3066.000	4.154	3070.154	100.00	1.20	.02	3070.18	.00	.92	20.00	10.000	20.000	.00	0 .0

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3046.000	2.012	3048.012	200.00	24.04	8.97	3056.99	.00	3.86	5.67	6.000	.000	.00	1 .0
167.710	.0392					.0365	6.12	2.01	3.50	1.99	.013	.00	.00	PIPE
1167.710	3052.577	2.054	3054.631	200.00	23.37	8.48	3063.11	.00	3.86	5.69	6.000	.000	.00	1 .0
109.916	.0392					.0329	3.61	2.05	3.36	1.99	.013	.00	.00	PIPE
1277.626	3056.887	2.127	3059.014	200.00	22.28	7.71	3066.72	.00	3.86	5.74	6.000	.000	.00	1 .0
60.035	.0392					.0288	1.73	2.13	3.14	1.99	.013	.00	.00	PIPE
1337.660	3059.241	2.203	3061.445	200.00	21.24	7.01	3068.45	.00	3.86	5.78	6.000	.000	.00	1 .0
39.987	.0392					.0253	1.01	2.20	2.93	1.99	.013	.00	.00	PIPE
1377.647	3060.810	2.282	3063.092	200.00	20.25	6.37	3069.46	.00	3.86	5.83	6.000	.000	.00	1 .0
29.085	.0392					.0222	.64	2.28	2.74	1.99	.013	.00	.00	PIPE
1406.732	3061.950	2.365	3064.315	200.00	19.31	5.79	3070.11	.00	3.86	5.86	6.000	.000	.00	1 .0
22.279	.0392					.0194	.43	2.37	2.56	1.99	.013	.00	.00	PIPE
1429.011	3062.824	2.451	3065.275	200.00	18.41	5.26	3070.54	.00	3.86	5.90	6.000	.000	.00	1 .0
17.591	.0392					.0171	.30	2.45	2.39	1.99	.013	.00	.00	PIPE
1446.603	3063.514	2.540	3066.054	200.00	17.55	4.79	3070.84	.00	3.86	5.93	6.000	.000	.00	1 .0
14.079	.0392					.0150	.21	2.54	2.23	1.99	.013	.00	.00	PIPE
1460.682	3064.066	2.634	3066.700	200.00	16.74	4.35	3071.05	.00	3.86	5.96	6.000	.000	.00	1 .0
11.424	.0392					.0132	.15	2.63	2.08	1.99	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT or "N"	Base Wt I.D. or X-Fall	ZL ZR	No Wth Prs/Pip Type Ch
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp				
1472.106	3064.514	2.732	3067.246	200.00	15.96	3.95	3071.20	.00	3.86	5.98	6.000	.000	.00	1 .0
9.320	.0392					.0116	.11	2.73	1.94	1.99	.013	.00	.00	PIPE
1481.426	3064.879	2.834	3067.713	200.00	15.22	3.60	3071.31	.00	3.86	5.99	6.000	.000	.00	1 .0
7.574	.0392					.0102	.08	2.83	1.81	1.99	.013	.00	.00	PIPE
1489.000	3065.177	2.941	3068.118	200.00	14.51	3.27	3071.39	.00	3.86	6.00	6.000	.000	.00	1 .0
6.121	.0392					.0090	.05	2.94	1.69	1.99	.013	.00	.00	PIPE
1495.121	3065.417	3.053	3068.469	200.00	13.83	2.97	3071.44	.00	3.86	6.00	6.000	.000	.00	1 .0
4.858	.0392					.0079	.04	3.05	1.57	1.99	.013	.00	.00	PIPE
1499.979	3065.607	3.171	3068.778	200.00	13.19	2.70	3071.48	.00	3.86	5.99	6.000	.000	.00	1 .0
3.801	.0392					.0070	.03	3.17	1.46	1.99	.013	.00	.00	PIPE
1503.779	3065.756	3.294	3069.050	200.00	12.58	2.46	3071.51	.00	3.86	5.97	6.000	.000	.00	1 .0
2.789	.0392					.0062	.02	3.29	1.36	1.99	.013	.00	.00	PIPE
1506.569	3065.865	3.425	3069.290	200.00	11.99	2.23	3071.52	.00	3.86	5.94	6.000	.000	.00	1 .0
1.952	.0392					.0054	.01	3.43	1.26	1.99	.013	.00	.00	PIPE
1508.521	3065.942	3.562	3069.504	200.00	11.43	2.03	3071.53	.00	3.86	5.89	6.000	.000	.00	1 .0
1.119	.0392					.0048	.01	3.56	1.17	1.99	.013	.00	.00	PIPE
1509.639	3065.986	3.708	3069.694	200.00	10.90	1.84	3071.54	.00	3.86	5.83	6.000	.000	.00	1 .0
.361	.0392					.0043	.00	3.71	1.08	1.99	.013	.00	.00	PIPE

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time: 3:36:42

Detention Basin Outlet A-1
6' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1510.000	3066.000	3.864	3069.864	200.00	10.39	1.68	3071.54	.00	3.86	5.75	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1510.000	3066.000	6.353	3072.353	200.00	1.57	.04	3072.39	.00	1.46	20.00	10.000	20.000	.00	0 .0

W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time: 3:36:42

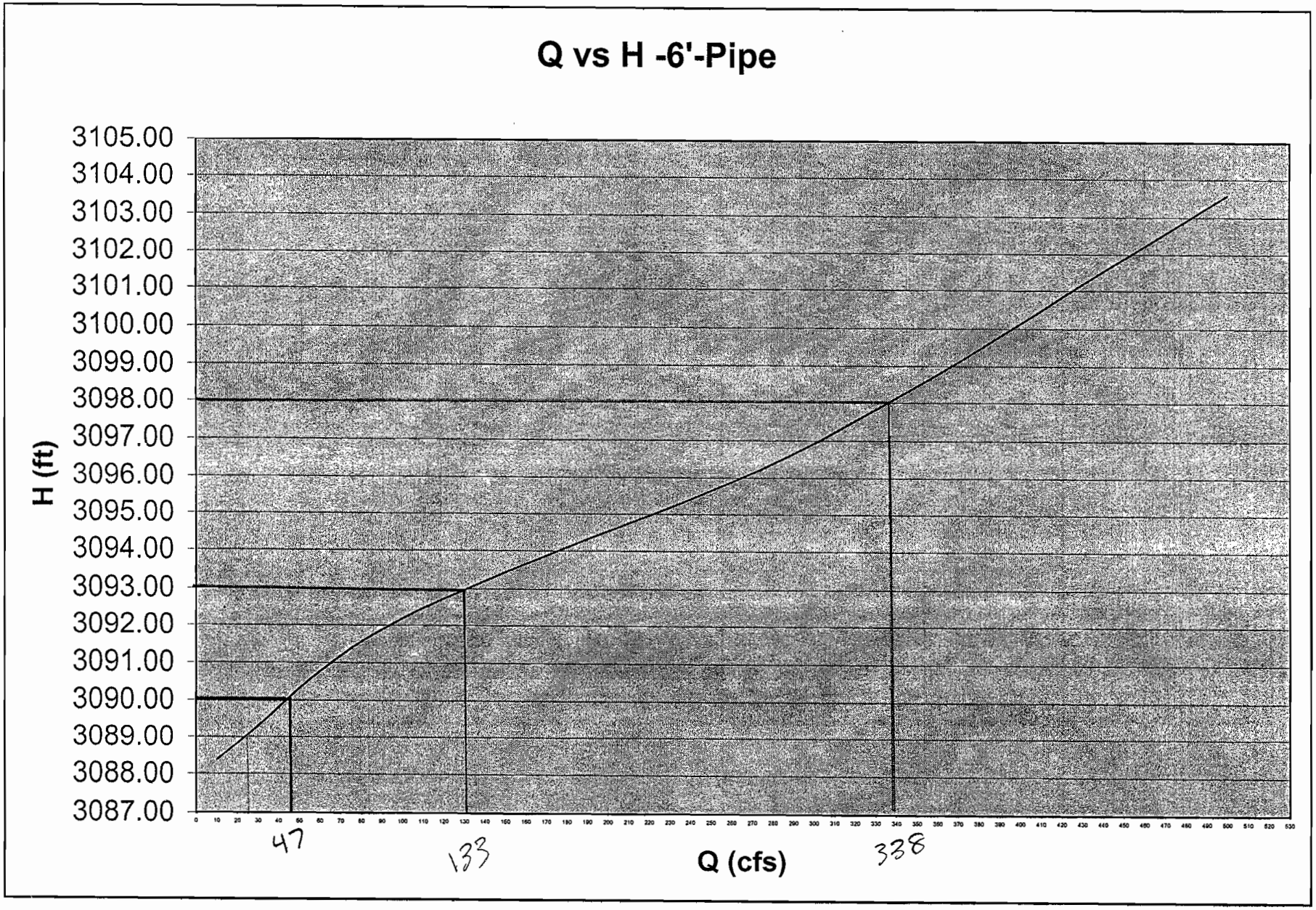
Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3046.000	3.002	3049.002	400.00	28.27	12.41	3061.41	.00	5.33	6.00	6.000	.000	.00	1 .0
52.836	.0392					.0351	1.86	3.00	3.24	2.92	.013	.00	.00	PIPE
1052.836	3048.072	3.025	3051.097	400.00	27.99	12.16	3063.26	.00	5.33	6.00	6.000	.000	.00	1 .0
149.257	.0392					.0326	4.86	3.03	3.20	2.92	.013	.00	.00	PIPE
1202.093	3053.926	3.142	3057.068	400.00	26.68	11.06	3068.12	.00	5.33	5.99	6.000	.000	.00	1 .0
84.246	.0392					.0287	2.42	3.14	2.97	2.92	.013	.00	.00	PIPE
1286.339	3057.229	3.264	3060.493	400.00	25.44	10.05	3070.54	.00	5.33	5.98	6.000	.000	.00	1 .0
56.610	.0392					.0254	1.44	3.26	2.76	2.92	.013	.00	.00	PIPE
1342.949	3059.449	3.393	3062.842	400.00	24.26	9.14	3071.98	.00	5.33	5.95	6.000	.000	.00	1 .0
41.356	.0392					.0224	.93	3.39	2.57	2.92	.013	.00	.00	PIPE
1384.305	3061.071	3.528	3064.599	400.00	23.13	8.31	3072.91	.00	5.33	5.91	6.000	.000	.00	1 .0
31.485	.0392					.0198	.62	3.53	2.38	2.92	.013	.00	.00	PIPE
1415.790	3062.306	3.672	3065.978	400.00	22.05	7.55	3073.53	.00	5.33	5.85	6.000	.000	.00	1 .0
24.661	.0392					.0175	.43	3.67	2.21	2.92	.013	.00	.00	PIPE
1440.452	3063.273	3.824	3067.097	400.00	21.03	6.86	3073.96	.00	5.33	5.77	6.000	.000	.00	1 .0
19.497	.0392					.0156	.30	3.82	2.04	2.92	.013	.00	.00	PIPE
1459.948	3064.037	3.987	3068.024	400.00	20.05	6.24	3074.27	.00	5.33	5.67	6.000	.000	.00	1 .0
15.503	.0392					.0138	.21	3.99	1.88	2.92	.013	.00	.00	PIPE

Detention Basin Outlet A-1
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1475.451	3064.645	4.161	3068.806	400.00	19.11	5.67	3074.48	.00	5.33	5.53	6.000	.000	.00	1 .0
12.235	.0392					.0123	.15	4.16	1.73	2.92	.013	.00	.00	PIPE
1487.686	3065.125	4.348	3069.473	400.00	18.23	5.16	3074.63	.00	5.33	5.36	6.000	.000	.00	1 .0
9.403	.0392					.0110	.10	4.35	1.59	2.92	.013	.00	.00	PIPE
1497.089	3065.494	4.552	3070.046	400.00	17.38	4.69	3074.73	.00	5.33	5.13	6.000	.000	.00	1 .0
6.873	.0392					.0099	.07	4.55	1.45	2.92	.013	.00	.00	PIPE
1503.962	3065.763	4.777	3070.540	400.00	16.57	4.26	3074.80	.00	5.33	4.83	6.000	.000	.00	1 .0
4.385	.0392					.0090	.04	4.78	1.31	2.92	.013	.00	.00	PIPE
1508.347	3065.935	5.032	3070.967	400.00	15.80	3.88	3074.84	.00	5.33	4.41	6.000	.000	.00	1 .0
1.653	.0392					.0083	.01	5.03	1.16	2.92	.013	.00	.00	PIPE
1510.000	3066.000	5.334	3071.334	400.00	15.06	3.52	3074.86	.00	5.33	3.77	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1510.000	3066.000	11.879	3077.879	400.00	1.68	.04	3077.92	.00	2.32	20.00	10.000	20.000	.00	0 .0

Detention Basin A-3


Q vs H -6'-Pipe
H (ft)
3105.00
3104.00
3103.00
3102.00
3101.00
3100.00
3099.00
3098.00
3097.00
3096.00
3095.00
3094.00
3093.00
3092.00
3091.00
3090.00
3089.00
3088.00
3087.00
47
133
338
Q (cfs)

```
T1 Detention Basin Outlet A-3                                                  0
T2 6'
T3
SO   1000.0003065.000  1                          3065.000
R    2330.0003088.000  1      .013                                .000    .000
0
WE   2330.0003088.000  2      .500
SH   2330.0003088.000  2                          3088.000
CD   1  4   1    .000   6.000     .000  .000  .000   .00
CD   2  2   0    .000  10.000   40.000  .000  .000   .00
Q             1.000   .0
Q            10.000   .0
Q           100.000   .0
Q           300.000   .0
Q           500.000   .0
```

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3065.000	.189	3065.189	1.00	3.75	.22	3065.41	.00	.26	2.10	6.000	.000	.00	1 .0
1304.485	.0173					.0173	22.60	.19	1.85	.19	.013	.00	.00	PIPE
2304.485	3087.559	.189	3087.748	1.00	3.75	.22	3087.97	.00	.26	2.10	6.000	.000	.00	1 .0
13.684	.0173					.0167	.23	.19	1.85	.19	.013	.00	.00	PIPE
2318.168	3087.795	.192	3087.988	1.00	3.65	.21	3088.19	.00	.26	2.11	6.000	.000	.00	1 .0
5.161	.0173					.0150	.08	.19	1.79	.19	.013	.00	.00	PIPE
2323.329	3087.885	.199	3088.084	1.00	3.48	.19	3088.27	.00	.26	2.15	6.000	.000	.00	1 .0
2.641	.0173					.0131	.03	.20	1.68	.19	.013	.00	.00	PIPE
2325.970	3087.930	.205	3088.135	1.00	3.32	.17	3088.31	.00	.26	2.18	6.000	.000	.00	1 .0
1.453	.0173					.0114	.02	.21	1.57	.19	.013	.00	.00	PIPE
2327.423	3087.956	.212	3088.168	1.00	3.17	.16	3088.32	.00	.26	2.22	6.000	.000	.00	1 .0
.972	.0173					.0099	.01	.21	1.48	.19	.013	.00	.00	PIPE
2328.396	3087.972	.219	3088.191	1.00	3.02	.14	3088.33	.00	.26	2.25	6.000	.000	.00	1 .0
.679	.0173					.0087	.01	.22	1.39	.19	.013	.00	.00	PIPE
2329.075	3087.984	.226	3088.210	1.00	2.88	.13	3088.34	.00	.26	2.29	6.000	.000	.00	1 .0
.481	.0173					.0076	.00	.23	1.30	.19	.013	.00	.00	PIPE
2329.556	3087.992	.233	3088.226	1.00	2.74	.12	3088.34	.00	.26	2.32	6.000	.000	.00	1 .0
.245	.0173					.0066	.00	.23	1.22	.19	.013	.00	.00	PIPE

Detention Basin Outlet A-3
6'

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2329.802	3087.997	.241	3088.238	1.00	2.62	.11	3088.34	.00	.26	2.36	6.000	.000	.00	1 .0
.144	.0173					.0057	.00	.24	1.14	.19	.013	.00	.00	PIPE
2329.945	3087.999	.249	3088.248	1.00	2.49	.10	3088.34	.00	.26	2.39	6.000	.000	.00	1 .0
.055	.0173					.0050	.00	.25	1.07	.19	.013	.00	.00	PIPE
2330.000	3088.000	.258	3088.258	1.00	2.36	.09	3088.34	.00	.26	2.44	6.000	.000	.00	1 .0
WALL	ENTRANCE													
2330.000	3088.000	.384	3088.384	1.00	.07	.00	3088.38	.00	.03	40.00	10.000	40.000	.00	0 .0

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3065.000	.558	3065.559	10.00	7.55	.89	3066.44	.00	.82	3.49	6.000	.000	.00	1 .0
1224.655	.0173					.0173	21.19	.56	2.16	.56	.013	.00	.00	PIPE
2224.655	3086.179	.558	3086.737	10.00	7.55	.89	3087.62	.00	.82	3.49	6.000	.000	.00	1 .0
56.840	.0173					.0163	.93	.56	2.16	.56	.013	.00	.00	PIPE
2281.495	3087.162	.575	3087.737	10.00	7.23	.81	3088.55	.00	.82	3.53	6.000	.000	.00	1 .0
18.213	.0173					.0143	.26	.58	2.04	.56	.013	.00	.00	PIPE
2299.708	3087.477	.594	3088.071	10.00	6.89	.74	3088.81	.00	.82	3.58	6.000	.000	.00	1 .0
9.944	.0173					.0125	.12	.59	1.91	.56	.013	.00	.00	PIPE
2309.651	3087.648	.613	3088.261	10.00	6.57	.67	3088.93	.00	.82	3.63	6.000	.000	.00	1 .0
6.223	.0173					.0109	.07	.61	1.79	.56	.013	.00	.00	PIPE
2315.874	3087.756	.634	3088.390	10.00	6.27	.61	3089.00	.00	.82	3.69	6.000	.000	.00	1 .0
4.411	.0173					.0095	.04	.63	1.68	.56	.013	.00	.00	PIPE
2320.284	3087.832	.655	3088.487	10.00	5.97	.55	3089.04	.00	.82	3.74	6.000	.000	.00	1 .0
3.259	.0173					.0083	.03	.66	1.57	.56	.013	.00	.00	PIPE
2323.543	3087.889	.676	3088.565	10.00	5.70	.50	3089.07	.00	.82	3.79	6.000	.000	.00	1 .0
2.264	.0173					.0072	.02	.68	1.48	.56	.013	.00	.00	PIPE
2325.807	3087.928	.699	3088.627	10.00	5.43	.46	3089.08	.00	.82	3.85	6.000	.000	.00	1 .0
1.696	.0173					.0063	.01	.70	1.38	.56	.013	.00	.00	PIPE

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2327.503	3087.957	.722	3088.679	10.00	5.18	.42	3089.10	.00	.82	3.90	6.000	.000	.00	1 .0
1.175	.0173					.0055	.01	.72	1.30	.56	.013	.00	.00	PIPE
2328.678	3087.977	.746	3088.723	10.00	4.94	.38	3089.10	.00	.82	3.96	6.000	.000	.00	1 .0
.753	.0173					.0048	.00	.75	1.22	.56	.013	.00	.00	PIPE
2329.431	3087.990	.771	3088.761	10.00	4.71	.34	3089.11	.00	.82	4.02	6.000	.000	.00	1 .0
.479	.0173					.0042	.00	.77	1.14	.56	.013	.00	.00	PIPE
2329.910	3087.999	.796	3088.795	10.00	4.49	.31	3089.11	.00	.82	4.07	6.000	.000	.00	1 .0
.090	.0173					.0036	.00	.80	1.07	.56	.013	.00	.00	PIPE
2330.000	3088.000	.824	3088.824	10.00	4.27	.28	3089.11	.00	.82	4.13	6.000	.000	.00	1 .0
WALL	ENTRANCE													
2330.000	3088.000	1.233	3089.233	10.00	.20	.00	3089.23	.00	.12	40.00	10.000	40.000	.00	0 .0

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3065.000	1.721	3066.721	100.00	14.92	3.45	3070.18	.00	2.69	5.43	6.000	.000	.00	1 .0
854.724	.0173					.0173	14.78	1.72	2.37	1.72	.013	.00	.00	PIPE
1854.724	3079.781	1.721	3081.502	100.00	14.92	3.45	3084.96	.00	2.69	5.43	6.000	.000	.00	1 .0
235.971	.0173					.0165	3.90	1.72	2.37	1.72	.013	.00	.00	PIPE
2090.696	3083.862	1.762	3085.624	100.00	14.43	3.23	3088.86	.00	2.69	5.47	6.000	.000	.00	1 .0
92.400	.0173					.0148	1.37	1.76	2.26	1.72	.013	.00	.00	PIPE
2183.096	3085.460	1.824	3087.284	100.00	13.76	2.94	3090.22	.00	2.69	5.52	6.000	.000	.00	1 .0
46.735	.0173					.0129	.60	1.82	2.11	1.72	.013	.00	.00	PIPE
2229.831	3086.268	1.888	3088.156	100.00	13.12	2.67	3090.83	.00	2.69	5.57	6.000	.000	.00	1 .0
29.699	.0173					.0113	.34	1.89	1.98	1.72	.013	.00	.00	PIPE
2259.531	3086.781	1.954	3088.736	100.00	12.51	2.43	3091.17	.00	2.69	5.62	6.000	.000	.00	1 .0
20.620	.0173					.0099	.20	1.95	1.85	1.72	.013	.00	.00	PIPE
2280.150	3087.138	2.023	3089.161	100.00	11.93	2.21	3091.37	.00	2.69	5.67	6.000	.000	.00	1 .0
14.986	.0173					.0087	.13	2.02	1.73	1.72	.013	.00	.00	PIPE
2295.136	3087.397	2.095	3089.492	100.00	11.37	2.01	3091.50	.00	2.69	5.72	6.000	.000	.00	1 .0
11.123	.0173					.0076	.08	2.10	1.62	1.72	.013	.00	.00	PIPE
2306.259	3087.590	2.170	3089.760	100.00	10.84	1.83	3091.58	.00	2.69	5.77	6.000	.000	.00	1 .0
8.291	.0173					.0067	.06	2.17	1.51	1.72	.013	.00	.00	PIPE

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2314.549	3087.733	2.248	3089.981	100.00	10.34	1.66	3091.64	.00	2.69	5.81	6.000	.000	.00	1 .0
6.112	.0173					.0059	.04	2.25	1.41	1.72	.013	.00	.00	PIPE
2320.661	3087.839	2.329	3090.168	100.00	9.86	1.51	3091.68	.00	2.69	5.85	6.000	.000	.00	1 .0
4.374	.0173					.0051	.02	2.33	1.32	1.72	.013	.00	.00	PIPE
2325.035	3087.914	2.413	3090.327	100.00	9.40	1.37	3091.70	.00	2.69	5.88	6.000	.000	.00	1 .0
2.870	.0173					.0045	.01	2.41	1.23	1.72	.013	.00	.00	PIPE
2327.905	3087.964	2.501	3090.465	100.00	8.96	1.25	3091.71	.00	2.69	5.92	6.000	.000	.00	1 .0
1.601	.0173					.0040	.01	2.50	1.15	1.72	.013	.00	.00	PIPE
2329.506	3087.991	2.593	3090.584	100.00	8.54	1.13	3091.72	.00	2.69	5.94	6.000	.000	.00	1 .0
.494	.0173					.0035	.00	2.59	1.07	1.72	.013	.00	.00	PIPE
2330.000	3088.000	2.690	3090.690	100.00	8.14	1.03	3091.72	.00	2.69	5.97	6.000	.000	.00	1 .0
WALL	ENTRANCE													
2330.000	3088.000	4.188	3092.188	100.00	.60	.01	3092.19	.00	.58	40.00	10.000	40.000	.00	0 .0

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-19-2008 Time: 8:57: 1

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3065.000	3.136	3068.136	300.00	20.06	6.25	3074.39	.00	4.73	5.99	6.000	.000	.00	1 .0
523.849	.0173					.0173	9.06	3.14	2.24	3.14	.013	.00	.00	PIPE
1523.849	3074.059	3.136	3077.195	300.00	20.06	6.25	3083.45	.00	4.73	5.99	6.000	.000	.00	1 .0
437.404	.0173					.0164	7.18	3.14	2.24	3.14	.013	.00	.00	PIPE
1961.253	3081.624	3.239	3084.863	300.00	19.26	5.76	3090.62	.00	4.73	5.98	6.000	.000	.00	1 .0
147.981	.0173					.0146	2.16	3.24	2.10	3.14	.013	.00	.00	PIPE
2109.234	3084.183	3.367	3087.550	300.00	18.37	5.24	3092.79	.00	4.73	5.95	6.000	.000	.00	1 .0
78.077	.0173					.0129	1.01	3.37	1.95	3.14	.013	.00	.00	PIPE
2187.312	3085.533	3.501	3089.034	300.00	17.51	4.76	3093.80	.00	4.73	5.92	6.000	.000	.00	1 .0
49.487	.0173					.0114	.56	3.50	1.81	3.14	.013	.00	.00	PIPE
2236.798	3086.388	3.643	3090.031	300.00	16.70	4.33	3094.36	.00	4.73	5.86	6.000	.000	.00	1 .0
33.889	.0173					.0101	.34	3.64	1.68	3.14	.013	.00	.00	PIPE
2270.687	3086.974	3.793	3090.768	300.00	15.92	3.94	3094.70	.00	4.73	5.79	6.000	.000	.00	1 .0
23.625	.0173					.0090	.21	3.79	1.55	3.14	.013	.00	.00	PIPE
2294.312	3087.383	3.954	3091.337	300.00	15.18	3.58	3094.91	.00	4.73	5.69	6.000	.000	.00	1 .0
16.540	.0173					.0080	.13	3.95	1.44	3.14	.013	.00	.00	PIPE
2310.852	3087.669	4.125	3091.794	300.00	14.47	3.25	3095.05	.00	4.73	5.56	6.000	.000	.00	1 .0
10.858	.0173					.0071	.08	4.13	1.32	3.14	.013	.00	.00	PIPE

Detention Basin Outlet A-3
6'

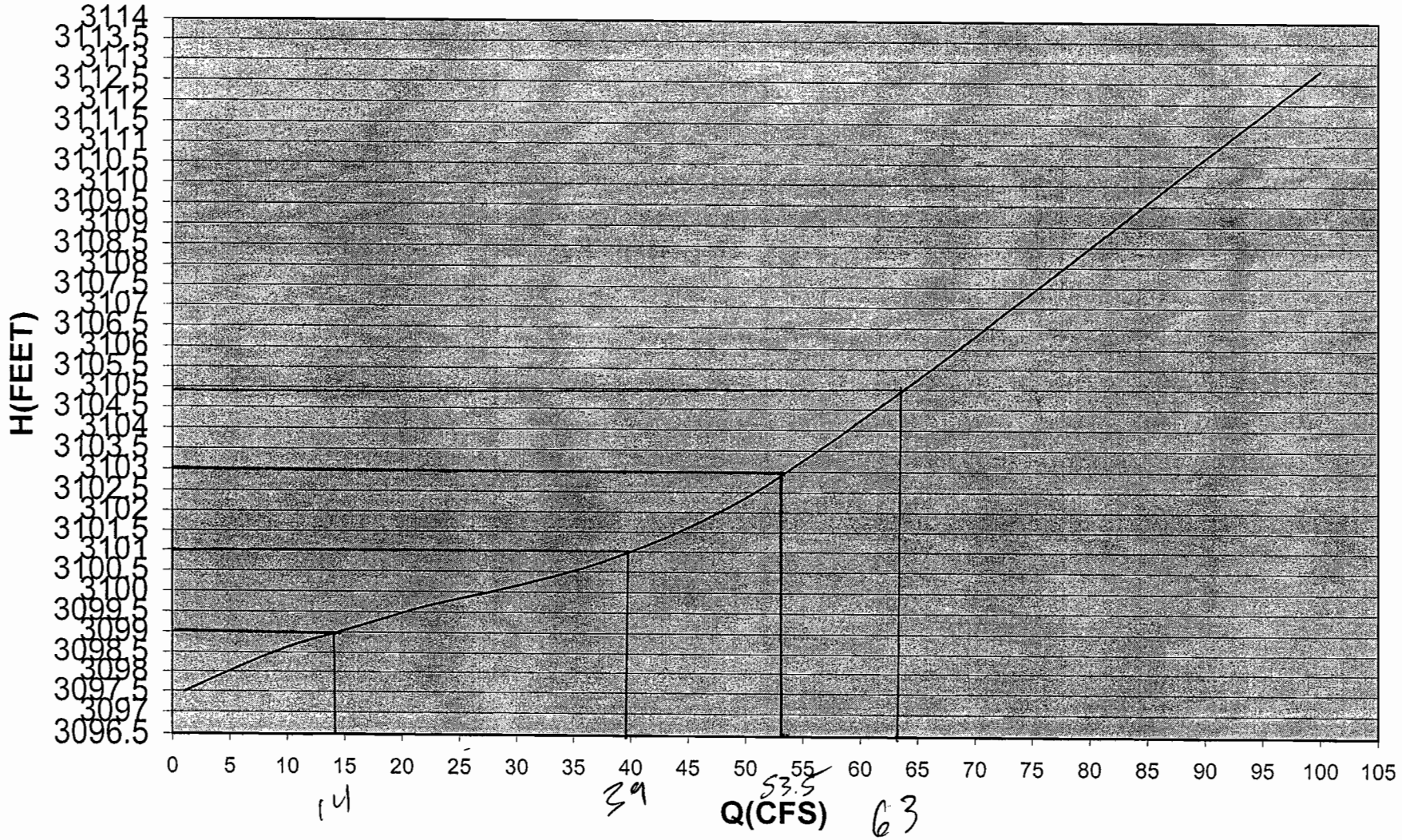
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2321.709	3087.857	4.310	3092.167	300.00	13.80	2.96	3095.12	.00	4.73	5.40	6.000	.000	.00	1 .0
6.285	.0173					.0063	.04	4.31	1.21	3.14	.013	.00	.00	PIPE
2327.995	3087.965	4.510	3092.475	300.00	13.16	2.69	3095.16	.00	4.73	5.18	6.000	.000	.00	1 .0
2.005	.0173					.0057	.01	4.51	1.11	3.14	.013	.00	.00	PIPE
2330.000	3088.000	4.732	3092.732	300.00	12.54	2.44	3095.17	.00	4.73	4.90	6.000	.000	.00	1 .0
WALL	ENTRANCE													
2330.000	3088.000	8.923	3096.923	300.00	.84	.01	3096.93	.00	1.20	40.00	10.000	40.000	.00	0 .0

Detention Basin Outlet A-3
6'

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3065.000	4.441	3069.441	500.00	22.28	7.71	3077.15	.00	5.67	5.26	6.000	.000	.00	1 .0
268.537	.0173					.0173	4.64	4.44	1.90	4.44	.013	.00	.00	PIPE
1268.537	3069.644	4.441	3074.085	500.00	22.28	7.71	3081.80	.00	5.67	5.26	6.000	.000	.00	1 .0
561.981	.0173					.0169	9.51	4.44	1.90	4.44	.013	.00	.00	PIPE
1830.518	3079.362	4.523	3083.885	500.00	21.87	7.42	3091.31	.00	5.67	5.17	6.000	.000	.00	1 .0
292.884	.0173					.0157	4.61	4.52	1.83	4.44	.013	.00	.00	PIPE
2123.402	3084.427	4.745	3089.172	500.00	20.85	6.75	3095.92	.00	5.67	4.88	6.000	.000	.00	1 .0
119.690	.0173					.0142	1.71	4.75	1.66	4.44	.013	.00	.00	PIPE
2243.092	3086.497	4.994	3091.491	500.00	19.88	6.14	3097.63	.00	5.67	4.48	6.000	.000	.00	1 .0
62.316	.0173					.0130	.81	4.99	1.48	4.44	.013	.00	.00	PIPE
2305.408	3087.575	5.287	3092.862	500.00	18.95	5.58	3098.44	.00	5.67	3.88	6.000	.000	.00	1 .0
24.592	.0173					.0123	.30	5.29	1.28	4.44	.013	.00	.00	PIPE
2330.000	3088.000	5.672	3093.672	500.00	18.07	5.07	3098.74	.00	5.67	2.73	6.000	.000	.00	1 .0
WALL	ENTRANCE													
2330.000	3088.000	15.579	3103.579	500.00	.80	.01	3103.59	.00	1.69	40.00	10.000	40.000	.00	0 .0

Detention Basin B-~~2~~ 1

30" Pipe Q VS H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3113
3112.5
3112
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3110
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3098
3097.5
3097
3096.5
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14
39
53.5
63
Q(CFS)

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T1 DETENTION BASIN ~~B2~~ B1                                                    0
T2 30" PIPE
T3
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0
WE   1070.0003097.000  2      .500
SH   1070.0003097.000  2                          3097.000
CD   1  4   1    .000   2.500     .000  .000  .000   .00
CD   2  2   0    .000  13.000   30.000  .000  .000   .00
Q             1.000   .0
Q            10.000   .0
Q            20.000   .0
Q            50.000   .0
Q           100.000   .0
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DETENTION BASIN ~~B2~~ B1
30" PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3096.500	.292	3096.792	1.00	3.12	.15	3096.94	.00	.32	1.61	2.500	.000	.00	1 .0
51.120	.0071					.0071	.37	.29	1.23	.29	.013	.00	.00	PIPE
1051.121	3096.865	.292	3097.157	1.00	3.12	.15	3097.31	.00	.32	1.61	2.500	.000	.00	1 .0
9.378	.0071					.0071	.07	.29	1.23	.29	.013	.00	.00	PIPE
1060.498	3096.932	.293	3097.225	1.00	3.10	.15	3097.37	.00	.32	1.61	2.500	.000	.00	1 .0
7.806	.0071					.0066	.05	.29	1.22	.29	.013	.00	.00	PIPE
1068.305	3096.988	.302	3097.290	1.00	2.96	.14	3097.43	.00	.32	1.63	2.500	.000	.00	1 .0
1.643	.0071					.0057	.01	.30	1.14	.29	.013	.00	.00	PIPE
1069.948	3097.000	.312	3097.312	1.00	2.82	.12	3097.44	.00	.32	1.65	2.500	.000	.00	1 .0
.052	.0071					.0050	.00	.31	1.07	.29	.013	.00	.00	PIPE
1070.000	3097.000	.324	3097.324	1.00	2.68	.11	3097.44	.00	.32	1.68	2.500	.000	.00	1 .0
WALL	ENTRANCE													
1070.000	3097.000	.485	3097.485	1.00	.07	.00	3097.49	.00	.03	30.00	13.000	30.000	.00	0 .0

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WATER SURFACE PROFILE LISTING Date: 3-14-2008 Time:12:10: 5

DETENTION BASIN B2
30" PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3096.500	.919	3097.420	10.00	6.11	.58	3098.00	.00	1.06	2.41	2.500	.000	.00	1 .0
6.816	.0071					.0071	.05	.92	1.31	.92	.013	.00	.00	PIPE
1006.816	3096.549	.919	3097.468	10.00	6.11	.58	3098.05	.00	1.06	2.41	2.500	.000	.00	1 .0
45.587	.0071					.0068	.31	.92	1.31	.92	.013	.00	.00	PIPE
1052.403	3096.875	.948	3097.823	10.00	5.86	.53	3098.36	.00	1.06	2.43	2.500	.000	.00	1 .0
12.321	.0071					.0060	.07	.95	1.23	.92	.013	.00	.00	PIPE
1064.724	3096.962	.982	3097.945	10.00	5.58	.48	3098.43	.00	1.06	2.44	2.500	.000	.00	1 .0
4.215	.0071					.0052	.02	.98	1.15	.92	.013	.00	.00	PIPE
1068.939	3096.992	1.018	3098.010	10.00	5.32	.44	3098.45	.00	1.06	2.46	2.500	.000	.00	1 .0
1.061	.0071					.0046	.00	1.02	1.07	.92	.013	.00	.00	PIPE
1070.000	3097.000	1.056	3098.056	10.00	5.07	.40	3098.46	.00	1.06	2.47	2.500	.000	.00	1 .0
WALL	ENTRANCE													
1070.000	3097.000	1.639	3098.639	10.00	.20	.00	3098.64	.00	.15	30.00	13.000	30.000	.00	0 .0

DETENTION BASIN B2
30" PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3096.500	1.363	3097.863	20.00	7.31	.83	3098.69	.00	1.52	2.49	2.500	.000	.00	1 .0
53.151	.0071					.0068	.36	1.36	1.23	1.36	.013	.00	.00	PIPE
1053.151	3096.880	1.401	3098.281	20.00	7.06	.77	3099.05	.00	1.52	2.48	2.500	.000	.00	1 .0

14.249	.0071					.0061	.09	1.40	1.16	1.36	.013	.00	.00	PIPE					
1067.400	3096.981	1.457	3098.438	20.00	6.73	.70	3099.14	.00	1.52	2.47	2.500	.000	.00	1	.0				
2.600	.0071					.0054	.01	1.46	1.08	1.36	.013	.00	.00	PIPE					
1070.000	3097.000	1.518	3098.518	20.00	6.41	.64	3099.16	.00	1.52	2.44	2.500	.000	.00	1	.0				
WALL	ENTRANCE																		
1070.000	3097.000	2.477	3099.477	20.00	.27	.00	3099.48	.00	.24	30.00	13.000	30.000	.00	0	.0				

DETENTION BASIN B2
30" PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3096.500	2.300	3098.800	50.00	10.58	1.74	3100.54	.00	2.30	1.36	2.500	.000	.00	1 .0
11.371	.0071					.0135	.15	2.30	1.00	2.50	.013	.00	.00	PIPE
1011.371	3096.581	2.500	3099.081	50.00	10.19	1.61	3100.69	.00	2.30	.00	2.500	.000	.00	1 .0
58.629	.0071					.0145	.85	2.50	.00	2.50	.013	.00	.00	PIPE
1070.000	3097.000	2.953	3099.952	50.00	10.19	1.61	3101.56	.00	2.30	.00	2.500	.000	.00	1 .0
WALL	ENTRANCE													
1070.000	3097.000	5.368	3102.368	50.00	.31	.00	3102.37	.00	.44	30.00	13.000	30.000	.00	0 .0

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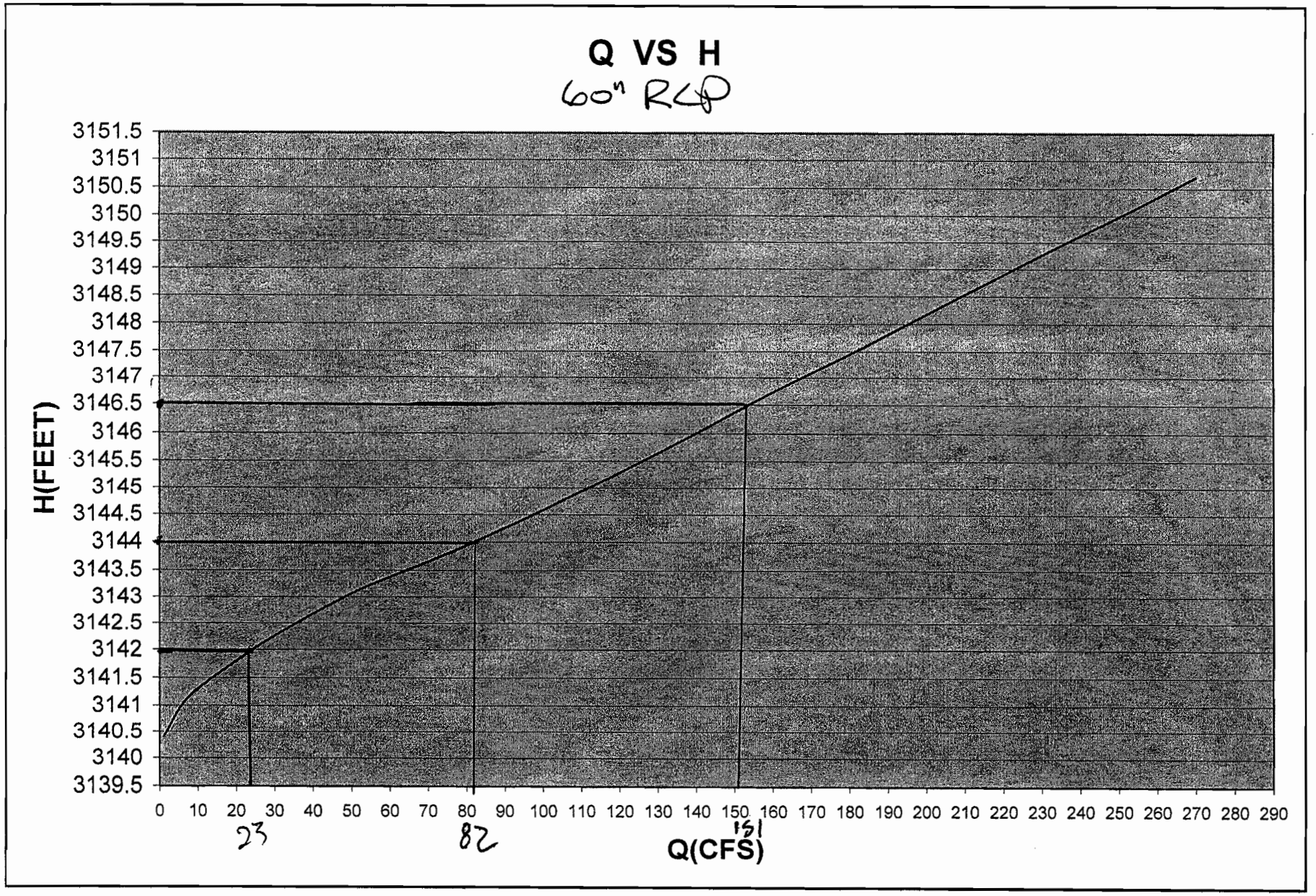
WATER SURFACE PROFILE LISTING Date: 3-14-2008 Time:12:10: 5
DETENTION BASIN B2
30" PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3096.500	2.486	3098.986	100.00	20.39	6.45	3105.44	.00	2.49	.38	2.500	.000	.00	1 .0
.099	.0071					.0560	.01	2.49	1.00	2.50	.013	.00	.00	PIPE
1000.099	3096.501	2.500	3099.001	100.00	20.37	6.44	3105.45	.00	2.49	.00	2.500	.000	.00	1 .0
69.901	.0071					.0579	4.04	2.50	.00	2.50	.013	.00	.00	PIPE
1070.000	3097.000	6.156	3103.156	100.00	20.37	6.44	3109.60	.00	2.49	.00	2.500	.000	.00	1 .0
WALL	ENTRANCE													
1070.000	3097.000	15.822	3112.822	100.00	.21	.00	3112.82	.00	.70	30.00	13.000	30.000	.00	0 .0

Detention Basin B-~~3~~2


Q VS H
60" RCP
H(FEET)
3151.5
3151
3150.5
3150
3149.5
3149
3148.5
3148
3147.5
3147
3146.5
3146
3145.5
3145
3144.5
3144
3143.5
3143
3142.5
3142
3141.5
3141
3140.5
3140
3139.5
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290
23
82
151
Q(CFS)

```
T1 DETENTION BASIN B2                                                    0
T2 60" PIPE
T3
SO   1000.0003130.800  1                          3130.800
R    1126.0003132.600  1      .013                              160.428    .000
0
R    1630.0003140.000  1      .013                                 .000    .000
0
WE   1630.0003140.000  2      .500
SH   1630.0003140.000  2                          3140.000
CD   1  4   1    .000   5.000     .000  .000  .000   .00
CD   2  2   0    .000   6.500  500.000  .000  .000   .00
Q             1.000   .0
Q            10.000   .0
Q            50.000   .0
Q           100.000   .0
Q           270.000   .0
```

DETENTION BASIN ~~B3~~ B2
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3130.800	.207	3131.007	1.00	3.60	.20	3131.21	.02	.27	1.99	5.000	.000	.00	1 .0
113.401	.0143					.0143	1.62	.22	1.70	.21	.013	.00	.00	PIPE
1113.401	3132.420	.207	3132.627	1.00	3.60	.20	3132.83	.02	.27	1.99	5.000	.000	.00	1 .0
12.599	.0143					.0145	.18	.22	1.70	.21	.013	.00	.00	PIPE
1126.000	3132.600	.206	3132.806	1.00	3.64	.21	3133.01	.00	.27	1.99	5.000	.000	.00	1 .0
477.392	.0147					.0147	7.01	.21	1.72	.21	.013	.00	.00	PIPE
1603.392	3139.609	.206	3139.815	1.00	3.64	.21	3140.02	.00	.27	1.99	5.000	.000	.00	1 .0
13.496	.0147					.0143	.19	.21	1.72	.21	.013	.00	.00	PIPE
1616.888	3139.808	.208	3140.016	1.00	3.57	.20	3140.21	.00	.27	2.00	5.000	.000	.00	1 .0
6.464	.0147					.0130	.08	.21	1.68	.21	.013	.00	.00	PIPE
1623.352	3139.903	.215	3140.118	1.00	3.40	.18	3140.30	.00	.27	2.03	5.000	.000	.00	1 .0
2.781	.0147					.0113	.03	.22	1.57	.21	.013	.00	.00	PIPE
1626.133	3139.943	.222	3140.166	1.00	3.24	.16	3140.33	.00	.27	2.06	5.000	.000	.00	1 .0
1.631	.0147					.0099	.02	.22	1.48	.21	.013	.00	.00	PIPE
1627.764	3139.967	.229	3140.196	1.00	3.09	.15	3140.34	.00	.27	2.09	5.000	.000	.00	1 .0
.905	.0147					.0086	.01	.23	1.39	.21	.013	.00	.00	PIPE
1628.669	3139.980	.237	3140.218	1.00	2.95	.13	3140.35	.00	.27	2.13	5.000	.000	.00	1 .0
.734	.0147					.0075	.01	.24	1.30	.21	.013	.00	.00	PIPE

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1629.404	3139.991	.244	3140.235	1.00	2.81	.12	3140.36	.00	.27	2.15	5.000	.000	.00	1 .0
.388	.0147				.0065	.00	.24	1.22	.21	.013	.00	.00		PIPE
1629.791	3139.997	.252	3140.249	1.00	2.68	.11	3140.36	.00	.27	2.19	5.000	.000	.00	1 .0
.127	.0147				.0057	.00	.25	1.14	.21	.013	.00	.00		PIPE
1629.919	3139.999	.261	3140.260	1.00	2.56	.10	3140.36	.00	.27	2.22	5.000	.000	.00	1 .0
.081	.0147				.0049	.00	.26	1.07	.21	.013	.00	.00		PIPE
1630.000	3140.000	.271	3140.271	1.00	2.42	.09	3140.36	.00	.27	2.26	5.000	.000	.00	1 .0
WALL	ENTRANCE													
1630.000	3140.000	.403	3140.403	1.00	.00	.00	3140.40	.00	.00	500.00	6.500	500.000	.00	0 .0

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3130.800	.614	3131.414	10.00	7.24	.81	3132.23	.12	.87	3.28	5.000	.000	.00	1 .0
68.497	.0143					.0143	.98	.73	1.97	.61	.013	.00	.00	PIPE
1068.497	3131.779	.614	3132.393	10.00	7.24	.81	3133.21	.12	.87	3.28	5.000	.000	.00	1 .0
57.503	.0143					.0145	.83	.73	1.97	.61	.013	.00	.00	PIPE
1126.000	3132.600	.610	3133.210	10.00	7.31	.83	3134.04	.00	.87	3.27	5.000	.000	.00	1 .0
386.260	.0147					.0147	5.67	.61	1.99	.61	.013	.00	.00	PIPE
1512.260	3138.271	.610	3138.882	10.00	7.31	.83	3139.71	.00	.87	3.27	5.000	.000	.00	1 .0
60.106	.0147					.0141	.85	.61	1.99	.61	.013	.00	.00	PIPE
1572.366	3139.154	.622	3139.776	10.00	7.10	.78	3140.56	.00	.87	3.30	5.000	.000	.00	1 .0
24.459	.0147					.0126	.31	.62	1.91	.61	.013	.00	.00	PIPE
1596.825	3139.513	.643	3140.156	10.00	6.77	.71	3140.87	.00	.87	3.35	5.000	.000	.00	1 .0
11.939	.0147					.0110	.13	.64	1.79	.61	.013	.00	.00	PIPE
1608.764	3139.688	.664	3140.352	10.00	6.45	.65	3141.00	.00	.87	3.39	5.000	.000	.00	1 .0
7.266	.0147					.0096	.07	.66	1.68	.61	.013	.00	.00	PIPE
1616.031	3139.795	.686	3140.481	10.00	6.15	.59	3141.07	.00	.87	3.44	5.000	.000	.00	1 .0
4.843	.0147					.0084	.04	.69	1.58	.61	.013	.00	.00	PIPE
1620.873	3139.866	.709	3140.575	10.00	5.87	.53	3141.11	.00	.87	3.49	5.000	.000	.00	1 .0
3.343	.0147					.0073	.02	.71	1.48	.61	.013	.00	.00	PIPE

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / ZL	Height/Dia.-FT / Base Wt or I.D.	No Wth Prs/Pip / Type Ch
1624.217	3139.915	.733	3140.648	10.00	5.59	.49	3141.13	.00	.87	3.54	5.000	.000 .00 1 .0
2.434	.0147					.0064	.02	.73	1.39	.61	.013	.00 .00 PIPE
1626.651	3139.951	.757	3140.708	10.00	5.33	.44	3141.15	.00	.87	3.58	5.000	.000 .00 1 .0
1.555	.0147					.0056	.01	.76	1.30	.61	.013	.00 .00 PIPE
1628.206	3139.974	.783	3140.757	10.00	5.08	.40	3141.16	.00	.87	3.63	5.000	.000 .00 1 .0
1.070	.0147					.0049	.01	.78	1.22	.61	.013	.00 .00 PIPE
1629.276	3139.989	.809	3140.798	10.00	4.85	.36	3141.16	.00	.87	3.68	5.000	.000 .00 1 .0
.592	.0147					.0043	.00	.81	1.14	.61	.013	.00 .00 PIPE
1629.868	3139.998	.836	3140.834	10.00	4.62	.33	3141.17	.00	.87	3.73	5.000	.000 .00 1 .0
.132	.0147					.0037	.00	.84	1.07	.61	.013	.00 .00 PIPE
1630.000	3140.000	.866	3140.866	10.00	4.40	.30	3141.17	.00	.87	3.78	5.000	.000 .00 1 .0
WALL	ENTRANCE											
1630.000	3140.000	1.301	3141.301	10.00	.02	.00	3141.30	.00	.02	500.00	6.500	500.000 .00 0 .0

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3130.800	1.354	3132.154	50.00	11.64	2.10	3134.26	.42	1.98	4.44	5.000	.000	.00	1 .0
126.000	.0143					.0145	1.83	1.77	2.09	1.36	.013	.00	.00	PIPE
1126.000	3132.600	1.346	3133.945	50.00	11.74	2.14	3136.09	.00	1.98	4.44	5.000	.000	.00	1 .0
95.489	.0147					.0147	1.40	1.35	2.11	1.35	.013	.00	.00	PIPE
1221.489	3134.002	1.346	3135.347	50.00	11.74	2.14	3137.49	.00	1.98	4.44	5.000	.000	.00	1 .0
162.167	.0147					.0146	2.36	1.35	2.11	1.35	.013	.00	.00	PIPE
1383.656	3136.383	1.351	3137.734	50.00	11.67	2.12	3139.85	.00	1.98	4.44	5.000	.000	.00	1 .0
126.402	.0147					.0135	1.71	1.35	2.09	1.35	.013	.00	.00	PIPE
1510.058	3138.239	1.398	3139.637	50.00	11.13	1.92	3141.56	.00	1.98	4.49	5.000	.000	.00	1 .0
44.647	.0147					.0118	.53	1.40	1.96	1.35	.013	.00	.00	PIPE
1554.705	3138.894	1.446	3140.340	50.00	10.61	1.75	3142.09	.00	1.98	4.53	5.000	.000	.00	1 .0
24.998	.0147					.0104	.26	1.45	1.83	1.35	.013	.00	.00	PIPE
1579.703	3139.261	1.497	3140.758	50.00	10.12	1.59	3142.35	.00	1.98	4.58	5.000	.000	.00	1 .0
16.493	.0147					.0091	.15	1.50	1.72	1.35	.013	.00	.00	PIPE
1596.196	3139.503	1.549	3141.052	50.00	9.65	1.45	3142.50	.00	1.98	4.62	5.000	.000	.00	1 .0
11.336	.0147					.0079	.09	1.55	1.61	1.35	.013	.00	.00	PIPE
1607.532	3139.670	1.604	3141.274	50.00	9.20	1.31	3142.59	.00	1.98	4.67	5.000	.000	.00	1 .0
8.213	.0147					.0070	.06	1.60	1.50	1.35	.013	.00	.00	PIPE

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1615.745	3139.791	1.660	3141.451	50.00	8.77	1.19	3142.64	.00	1.98	4.71	5.000	.000	.00	1 .0
5.773	.0147					.0061	.04	1.66	1.40	1.35	.013	.00	.00	PIPE
1621.518	3139.875	1.719	3141.594	50.00	8.36	1.09	3142.68	.00	1.98	4.75	5.000	.000	.00	1 .0
4.036	.0147					.0053	.02	1.72	1.31	1.35	.013	.00	.00	PIPE
1625.554	3139.935	1.780	3141.715	50.00	7.97	.99	3142.70	.00	1.98	4.79	5.000	.000	.00	1 .0
2.573	.0147					.0047	.01	1.78	1.23	1.35	.013	.00	.00	PIPE
1628.127	3139.972	1.844	3141.816	50.00	7.60	.90	3142.71	.00	1.98	4.82	5.000	.000	.00	1 .0
1.472	.0147					.0041	.01	1.84	1.15	1.35	.013	.00	.00	PIPE
1629.599	3139.994	1.910	3141.904	50.00	7.25	.82	3142.72	.00	1.98	4.86	5.000	.000	.00	1 .0
.401	.0147					.0036	.00	1.91	1.07	1.35	.013	.00	.00	PIPE
1630.000	3140.000	1.981	3141.981	50.00	6.91	.74	3142.72	.00	1.98	4.89	5.000	.000	.00	1 .0
WALL	ENTRANCE													
1630.000	3140.000	3.062	3143.062	50.00	.03	.00	3143.06	.00	.07	500.00	6.500	500.000	.00	0 .0

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WATER SURFACE PROFILE LISTING

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DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3130.800	1.944	3132.744	100.00	14.16	3.11	3135.86	.67	2.85	4.87	5.000	.000	.00	1 .0
126.000	.0143					.0145	1.83	2.62	2.07	1.95	.013	.00	.00	PIPE
1126.000	3132.600	1.935	3134.535	100.00	14.26	3.16	3137.69	.00	2.85	4.87	5.000	.000	.00	1 .0
235.911	.0147					.0143	3.36	1.93	2.09	1.93	.013	.00	.00	PIPE
1361.911	3136.064	1.965	3138.029	100.00	13.96	3.03	3141.05	.00	2.85	4.88	5.000	.000	.00	1 .0
120.826	.0147					.0130	1.57	1.97	2.03	1.93	.013	.00	.00	PIPE
1482.737	3137.838	2.036	3139.874	100.00	13.31	2.75	3142.62	.00	2.85	4.91	5.000	.000	.00	1 .0
53.430	.0147					.0114	.61	2.04	1.90	1.93	.013	.00	.00	PIPE
1536.168	3138.622	2.111	3140.733	100.00	12.69	2.50	3143.23	.00	2.85	4.94	5.000	.000	.00	1 .0
32.219	.0147					.0100	.32	2.11	1.77	1.93	.013	.00	.00	PIPE
1568.386	3139.095	2.188	3141.283	100.00	12.10	2.27	3143.56	.00	2.85	4.96	5.000	.000	.00	1 .0
21.359	.0147					.0088	.19	2.19	1.65	1.93	.013	.00	.00	PIPE
1589.745	3139.409	2.269	3141.678	100.00	11.54	2.07	3143.74	.00	2.85	4.98	5.000	.000	.00	1 .0
14.807	.0147					.0077	.11	2.27	1.54	1.93	.013	.00	.00	PIPE
1604.553	3139.626	2.354	3141.980	100.00	11.00	1.88	3143.86	.00	2.85	4.99	5.000	.000	.00	1 .0
10.381	.0147					.0068	.07	2.35	1.44	1.93	.013	.00	.00	PIPE
1614.934	3139.779	2.443	3142.222	100.00	10.49	1.71	3143.93	.00	2.85	5.00	5.000	.000	.00	1 .0
7.161	.0147					.0060	.04	2.44	1.34	1.93	.013	.00	.00	PIPE

DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1622.095	3139.884	2.536	3142.420	100.00	10.00	1.55	3143.97	.00	2.85	5.00	5.000	.000	.00	1 .0
4.586	.0147					.0053	.02	2.54	1.25	1.93	.013	.00	.00	PIPE
1626.681	3139.951	2.634	3142.585	100.00	9.53	1.41	3144.00	.00	2.85	4.99	5.000	.000	.00	1 .0
2.522	.0147					.0047	.01	2.63	1.16	1.93	.013	.00	.00	PIPE
1629.203	3139.988	2.737	3142.725	100.00	9.09	1.28	3144.01	.00	2.85	4.98	5.000	.000	.00	1 .0
.797	.0147					.0041	.00	2.74	1.08	1.93	.013	.00	.00	PIPE
1630.000	3140.000	2.846	3142.846	100.00	8.66	1.17	3144.01	.00	2.85	4.95	5.000	.000	.00	1 .0
WALL	ENTRANCE													
1630.000	3140.000	4.583	3144.583	100.00	.04	.00	3144.58	.00	.11	500.00	6.500	500.000	.00	0 .0

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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-14-2008 Time: 3:50:36

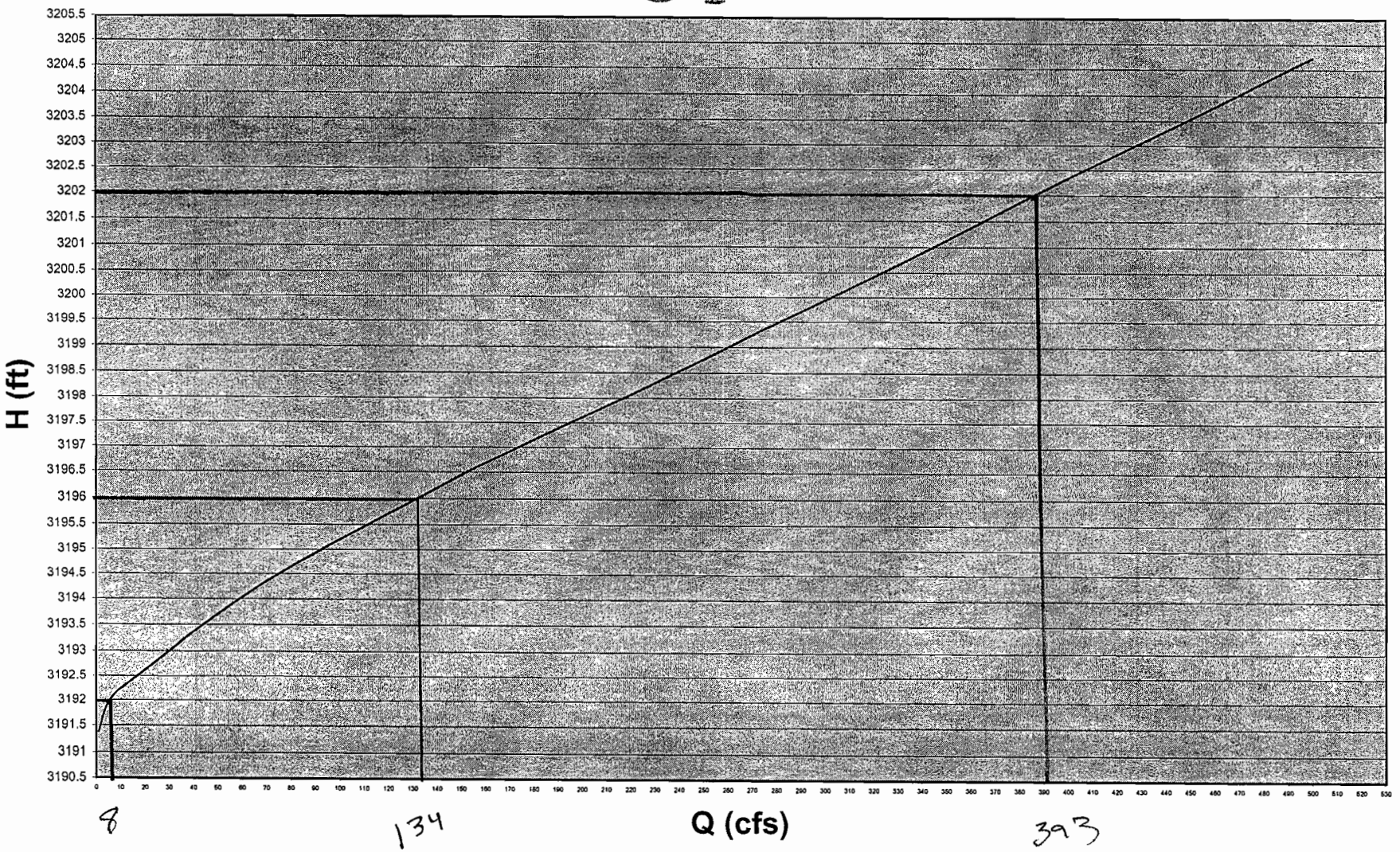
DETENTION BASIN B3
60" PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3130.800	3.589	3134.389	270.00	17.90	4.97	3139.36	.99	4.54	4.50	5.000	.000	.00	1 .0
126.000	.0143					.0144	1.82	4.58	1.72	3.60	.013	.00	.00	PIPE
1126.000	3132.600	3.581	3136.181	270.00	17.94	5.00	3141.18	.00	4.54	4.51	5.000	.000	.00	1 .0
257.268	.0147					.0140	3.60	3.58	1.73	3.56	.013	.00	.00	PIPE
1383.268	3136.377	3.675	3140.052	270.00	17.45	4.73	3144.78	.00	4.54	4.41	5.000	.000	.00	1 .0
140.190	.0147					.0129	1.80	3.68	1.64	3.56	.013	.00	.00	PIPE
1523.458	3138.436	3.850	3142.286	270.00	16.64	4.30	3146.59	.00	4.54	4.21	5.000	.000	.00	1 .0
63.670	.0147					.0116	.74	3.85	1.49	3.56	.013	.00	.00	PIPE
1587.127	3139.370	4.044	3143.415	270.00	15.87	3.91	3147.32	.00	4.54	3.93	5.000	.000	.00	1 .0
32.139	.0147					.0105	.34	4.04	1.34	3.56	.013	.00	.00	PIPE
1619.266	3139.842	4.266	3144.108	270.00	15.13	3.55	3147.66	.00	4.54	3.54	5.000	.000	.00	1 .0
10.734	.0147					.0097	.10	4.27	1.19	3.56	.013	.00	.00	PIPE
1630.000	3140.000	4.537	3144.537	270.00	14.42	3.23	3147.77	.00	4.54	2.90	5.000	.000	.00	1 .0
WALL	ENTRANCE													
1630.000	3140.000	10.705	3150.705	270.00	.05	.00	3150.71	.00	.21	500.00	6.500	500.000	.00	0 .0

Detention Basin C-1

Q vs H - 6' Pipe

C-1



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T1 Detention Basin C-1                                                                  0
T2 6 ' Pipe
T3
SO   1000.0003190.200  1                                3190.200
R    1100.0003191.000  1       .013                                          .000    .000
0
WE   1100.0003191.000  2       .500
SH   1100.0003191.000  2                                3191.000
CD   1  4   1    .000   6.000     .000  .000  .000   .00
CD   2  2   0    .000  11.000  100.000  .000  .000   .00
Q             1.000   .0
Q            10.000   .0
Q           100.000   .0
Q           300.000   .0
Q           500.000   .0
```

Detention Basin C-1
6 ' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3190.200	.227	3190.427	1.00	2.87	.13	3190.55	.00	.26	2.29	6.000	.000	.00	1 .0
87.657	.0080					.0080	.70	.23	1.30	.23	.013	.00	.00	PIPE
1087.657	3190.901	.227	3191.128	1.00	2.87	.13	3191.26	.00	.26	2.29	6.000	.000	.00	1 .0
9.526	.0080					.0075	.07	.23	1.30	.23	.013	.00	.00	PIPE
1097.183	3190.978	.233	3191.211	1.00	2.74	.12	3191.33	.00	.26	2.32	6.000	.000	.00	1 .0
1.856	.0080					.0066	.01	.23	1.22	.23	.013	.00	.00	PIPE
1099.039	3190.992	.241	3191.234	1.00	2.62	.11	3191.34	.00	.26	2.36	6.000	.000	.00	1 .0
.736	.0080					.0057	.00	.24	1.14	.23	.013	.00	.00	PIPE
1099.775	3190.998	.249	3191.247	1.00	2.49	.10	3191.34	.00	.26	2.39	6.000	.000	.00	1 .0
.225	.0080					.0050	.00	.25	1.07	.23	.013	.00	.00	PIPE
1100.000	3191.000	.258	3191.258	1.00	2.36	.09	3191.34	.00	.26	2.44	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1100.000	3191.000	.384	3191.384	1.00	.03	.00	3191.38	.00	.01	100.00	11.000	100.000	.00	0 .0

Detention Basin C-1
6 ' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3190.200	.672	3190.872	10.00	5.76	.52	3191.39	.00	.82	3.78	6.000	.000	.00	1 .0
49.240	.0080					.0078	.39	.67	1.50	.67	.013	.00	.00	PIPE
1049.240	3190.594	.676	3191.270	10.00	5.70	.50	3191.77	.00	.82	3.79	6.000	.000	.00	1 .0
29.349	.0080					.0072	.21	.68	1.48	.67	.013	.00	.00	PIPE
1078.589	3190.829	.699	3191.528	10.00	5.43	.46	3191.99	.00	.82	3.85	6.000	.000	.00	1 .0
10.993	.0080					.0063	.07	.70	1.38	.67	.013	.00	.00	PIPE
1089.583	3190.917	.722	3191.639	10.00	5.18	.42	3192.06	.00	.82	3.90	6.000	.000	.00	1 .0
5.544	.0080					.0055	.03	.72	1.30	.67	.013	.00	.00	PIPE
1095.127	3190.961	.746	3191.707	10.00	4.94	.38	3192.09	.00	.82	3.96	6.000	.000	.00	1 .0
2.942	.0080					.0048	.01	.75	1.22	.67	.013	.00	.00	PIPE
1098.069	3190.985	.771	3191.756	10.00	4.71	.34	3192.10	.00	.82	4.02	6.000	.000	.00	1 .0
1.649	.0080					.0042	.01	.77	1.14	.67	.013	.00	.00	PIPE
1099.718	3190.998	.796	3191.794	10.00	4.49	.31	3192.11	.00	.82	4.07	6.000	.000	.00	1 .0
.282	.0080					.0036	.00	.80	1.07	.67	.013	.00	.00	PIPE
1100.000	3191.000	.824	3191.824	10.00	4.27	.28	3192.11	.00	.82	4.13	6.000	.000	.00	1 .0
WALL ENTRANCE														
1100.000	3191.000	1.234	3192.234	10.00	.08	.00	3192.23	.00	.07	100.00	11.000	100.000	.00	0 .0

W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-18-2008 Time: 5:13:52

Detention Basin C-1
6 ' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3190.200	2.204	3192.404	100.00	10.62	1.75	3194.15	.00	2.69	5.78	6.000	.000	.00	1 .0
31.372	.0080					.0065	.20	2.20	1.47	2.10	.013	.00	.00	PIPE
1031.372	3190.451	2.248	3192.699	100.00	10.34	1.66	3194.36	.00	2.69	5.81	6.000	.000	.00	1 .0
32.700	.0080					.0059	.19	2.25	1.41	2.10	.013	.00	.00	PIPE
1064.073	3190.712	2.329	3193.042	100.00	9.86	1.51	3194.55	.00	2.69	5.85	6.000	.000	.00	1 .0
18.608	.0080					.0051	.10	2.33	1.32	2.10	.013	.00	.00	PIPE
1082.680	3190.861	2.413	3193.274	100.00	9.40	1.37	3194.65	.00	2.69	5.88	6.000	.000	.00	1 .0
10.522	.0080					.0045	.05	2.41	1.23	2.10	.013	.00	.00	PIPE
1093.202	3190.946	2.501	3193.447	100.00	8.96	1.25	3194.69	.00	2.69	5.92	6.000	.000	.00	1 .0
5.287	.0080					.0040	.02	2.50	1.15	2.10	.013	.00	.00	PIPE
1098.489	3190.988	2.593	3193.581	100.00	8.54	1.13	3194.71	.00	2.69	5.94	6.000	.000	.00	1 .0
1.511	.0080					.0035	.01	2.59	1.07	2.10	.013	.00	.00	PIPE
1100.000	3191.000	2.690	3193.690	100.00	8.14	1.03	3194.72	.00	2.69	5.97	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1100.000	3191.000	4.197	3195.197	100.00	.24	.00	3195.20	.00	.31	100.00	11.000	100.000	.00	0 .0

W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-18-2008 Time: 5:13:52

Detention Basin C-1
6 ' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	3190.200	4.212	3194.412	300.00	14.15	3.11	3197.52	.00	4.73	5.49	6.000	.000	.00	1 .0
48.221	.0080					.0069	.33	4.21	1.27	4.03	.013	.00	.00	PIPE
1048.221	3190.586	4.310	3194.896	300.00	13.80	2.96	3197.85	.00	4.73	5.40	6.000	.000	.00	1 .0
41.661	.0080					.0063	.26	4.31	1.21	4.03	.013	.00	.00	PIPE
1089.882	3190.919	4.510	3195.429	300.00	13.16	2.69	3198.12	.00	4.73	5.18	6.000	.000	.00	1 .0
10.118	.0080					.0057	.06	4.51	1.11	4.03	.013	.00	.00	PIPE
1100.000	3191.000	4.732	3195.732	300.00	12.54	2.44	3198.17	.00	4.73	4.90	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1100.000	3191.000	8.941	3199.941	300.00	.34	.00	3199.94	.00	.65	100.00	11.000	100.000	.00	0 .0

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 3-18-2008 Time: 5:13:52

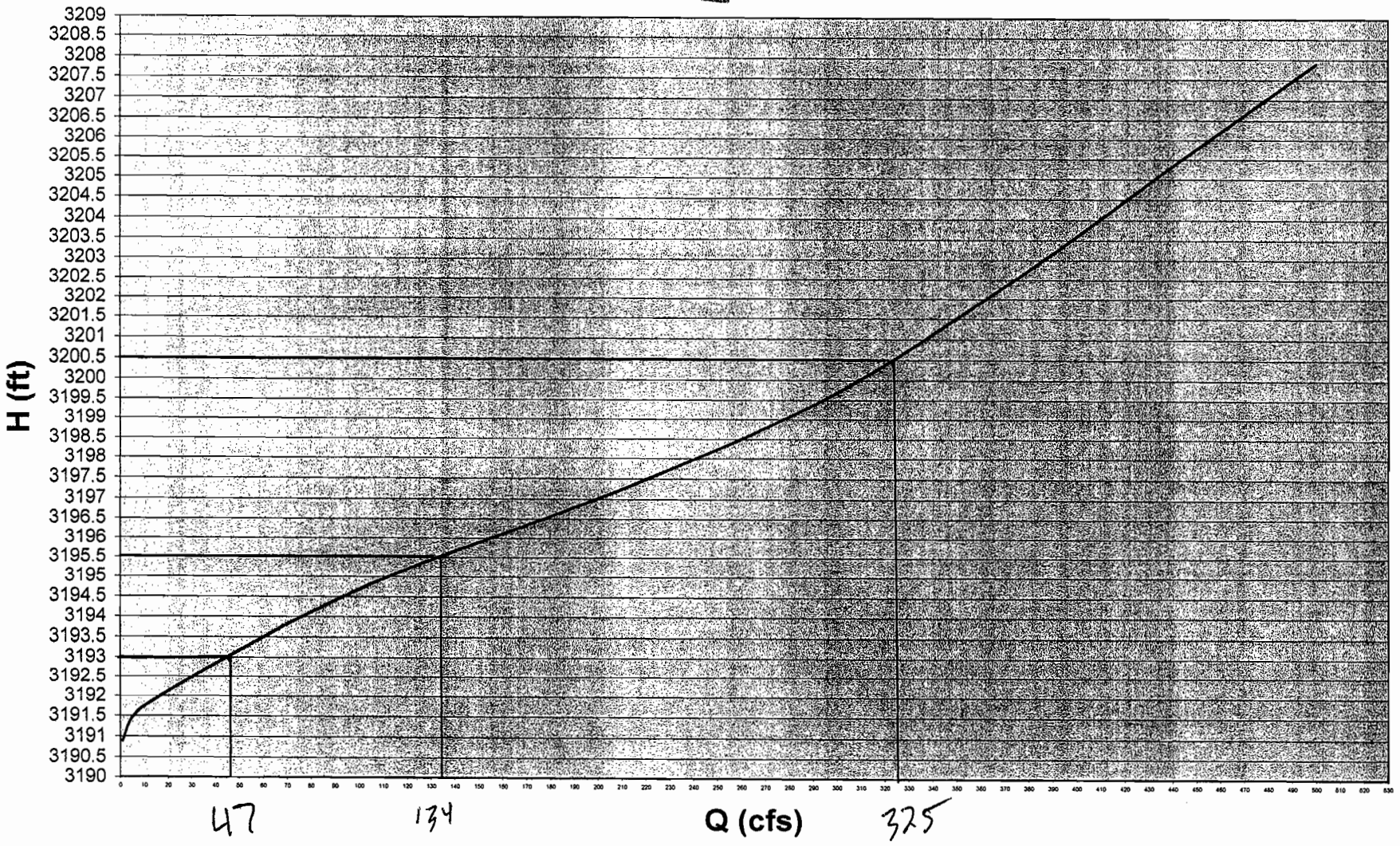
Detention Basin C-1
6 ' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3190.200	5.672	3195.872	500.00	18.07	5.07	3200.94	.00	5.67	2.73	6.000	.000	.00	1 .0
23.956	.0080					.0128	.31	5.67	1.00	6.00	.013	.00	.00	PIPE
1023.956	3190.392	6.000	3196.392	500.00	17.68	4.86	3201.25	.00	5.67	.00	6.000	.000	.00	1 .0
76.044	.0080					.0137	1.04	6.00	.00	6.00	.013	.00	.00	PIPE
1100.000	3191.000	6.452	3197.452	500.00	17.68	4.86	3202.31	.00	5.67	.00	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1100.000	3191.000	13.733	3204.733	500.00	.36	.00	3204.73	.00	.92	100.00	11.000	100.000	.00	0 .0

Detention Basin C-2

Q vs H - 6' Pipe

C-2



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T1 Detention Basin C-2                                                    0
T2 6' Pipe
T3
SO   1000.0003188.900  1                        3188.900
R    1420.0003190.500  1      .013                              .000    .000
0
WE   1420.0003190.500  2      .500
SH   1420.0003190.500  2                        3190.500
CD   1  4   1    .000   6.000     .000  .000  .000   .00
CD   2  2   0    .000  10.000   30.000  .000  .000   .00
Q             1.000   .0
Q            10.000   .0
Q           100.000   .0
Q           300.000   .0
Q           500.000   .0
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W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-18-2008 Time:12:45:50

Detention Basin D-2
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type Ch	Height/Dia.-FT / No Wth Prs/Pip	Base Wt or I.D. / ZL
1000.000	3188.900	.258	3189.158	1.00	2.36	.09	3189.24	.00	.26	2.44	6.000	.000 / .00
.002	.0038					.0043	.00	.26	1.00	.27	.013	1 .0 PIPE
1000.002	3188.900	.266	3189.166	1.00	2.25	.08	3189.24	.00	.26	2.47	6.000	.000 / .00
20.962	.0038					.0039	.08	.27	.94	.27	.013	1 .0 PIPE
1020.965	3188.980	.270	3189.250	1.00	2.22	.08	3189.33	.00	.26	2.49	6.000	.000 / .00
399.035	.0038					.0037	1.48	.27	.92	.27	.013	1 .0 PIPE
1420.000	3190.500	.270	3190.770	1.00	2.22	.08	3190.85	.00	.26	2.49	6.000	.000 / .00
WALL	ENTRANCE											1 .0
1420.000	3190.500	.385	3190.885	1.00	.09	.00	3190.88	.00	.03	30.00	10.000	30.000 / .00
												0 .0

Detention Basin D-2
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	3188.900	.802	3189.701	10.00	4.45	.31	3190.01	.00	.82	4.08	6.000	.000	.00	1 .0
413.510	.0038					.0038	1.58	.80	1.06	.80	.013	.00	.00	PIPE
1413.510	3190.475	.802	3191.277	10.00	4.45	.31	3191.58	.00	.82	4.08	6.000	.000	.00	1 .0
6.490	.0038					.0036	.02	.80	1.06	.80	.013	.00	.00	PIPE
1420.000	3190.500	.824	3191.324	10.00	4.27	.28	3191.61	.00	.82	4.13	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1420.000	3190.500	1.232	3191.732	10.00	.27	.00	3191.73	.00	.15	30.00	10.000	30.000	.00	0 .0

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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 3-18-2008 Time:12:45:50

Detention Basin D-2
6' Pipe

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	3188.900	2.574	3191.474	100.00	8.63	1.16	3192.63	.00	2.69	5.94	6.000	.000	.00	1 .0
328.464	.0038				.0038	1.25	2.57	1.09	2.57	.013	.00	.00	PIPE	
1328.464	3190.151	2.574	3192.725	100.00	8.63	1.16	3193.88	.00	2.69	5.94	6.000	.000	.00	1 .0
70.613	.0038				.0038	.27	2.57	1.09	2.57	.013	.00	.00	PIPE	
1399.078	3190.420	2.593	3193.013	100.00	8.54	1.13	3194.15	.00	2.69	5.94	6.000	.000	.00	1 .0
20.922	.0038				.0035	.07	2.59	1.07	2.57	.013	.00	.00	PIPE	
1420.000	3190.500	2.690	3193.190	100.00	8.14	1.03	3194.22	.00	2.69	5.97	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1420.000	3190.500	4.179	3194.679	100.00	.80	.01	3194.69	.00	.70	30.00	10.000	30.000	.00	0 .0

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 3-18-2008 Time:12:45:50

Detention Basin D-2
6' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1000.000	3188.900	4.732	3193.632	300.00	12.54	2.44	3196.07	.00	4.73	4.90	6.000	.000	.00	1 .0
19.190	.0038					.0052	.10	4.73	1.00	6.00	.013	.00	.00	PIPE
1019.190	3188.973	4.980	3193.953	300.00	11.96	2.22	3196.17	.00	4.73	4.51	6.000	.000	.00	1 .0
96.081	.0038					.0047	.45	4.98	.89	6.00	.013	.00	.00	PIPE
1115.271	3189.339	5.269	3194.608	300.00	11.40	2.02	3196.63	.00	4.73	3.92	6.000	.000	.00	1 .0
304.729	.0038					.0044	1.35	5.27	.78	6.00	.013	.00	.00	PIPE
1420.000	3190.500	5.641	3196.141	300.00	10.88	1.84	3197.98	.00	4.73	2.85	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1420.000	3190.500	9.192	3199.692	300.00	1.09	.02	3199.71	.00	1.46	30.00	10.000	30.000	.00	0 .0

Program Package Serial Number: 1382

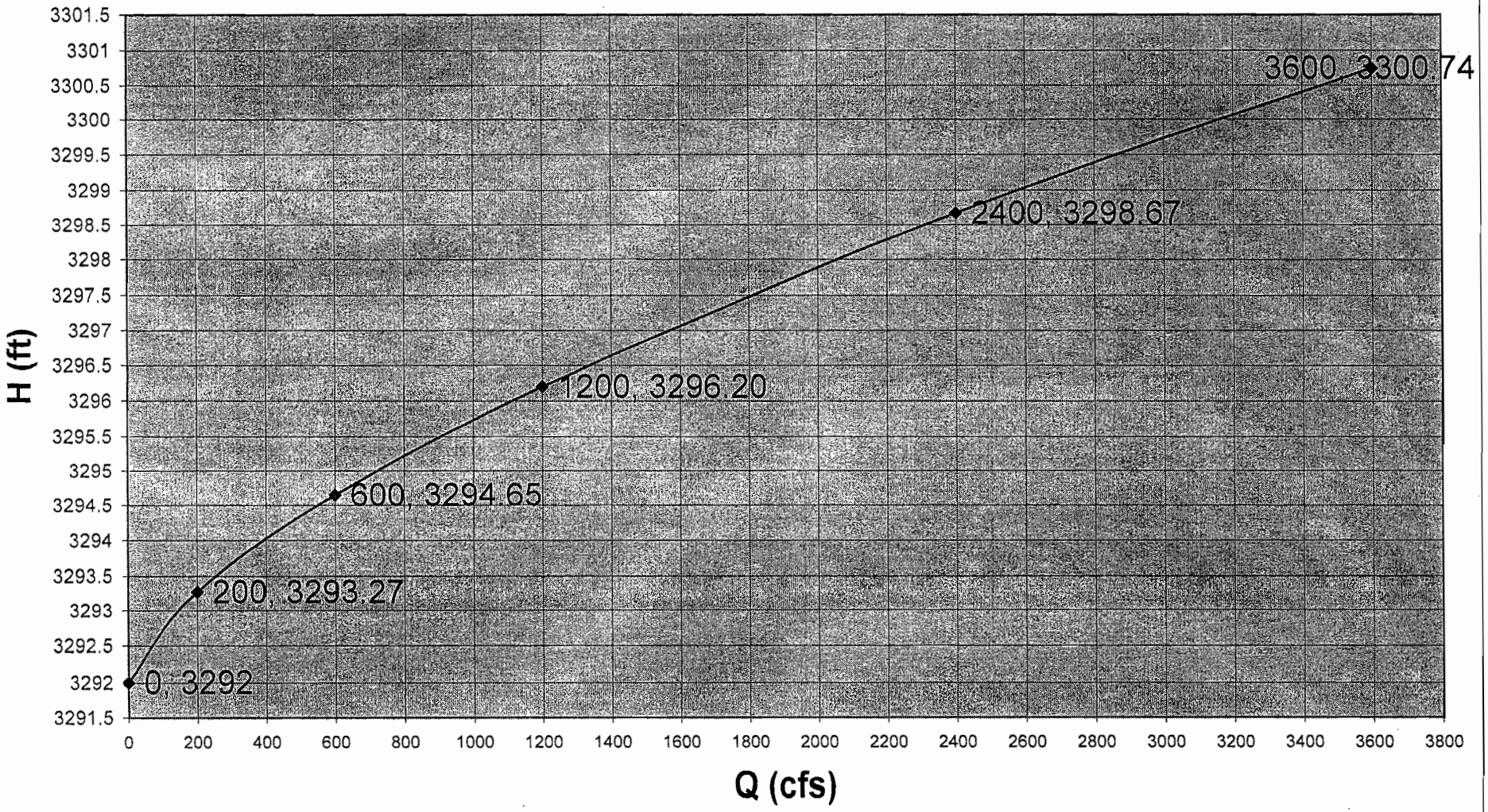
WATER SURFACE PROFILE LISTING Date: 3-18-2008 Time:12:45:50

Detention Basin D-2
6' Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT or "N"	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3188.900	5.672	3194.572	500.00	18.07	5.07	3199.64	.00	5.67	2.73	6.000	.000	.00	1 .0
12.735	.0038					.0128	.16	5.67	1.00	6.00	.013	.00	.00	PIPE
1012.735	3188.948	6.000	3194.948	500.00	17.68	4.86	3199.80	.00	5.67	.00	6.000	.000	.00	1 .0
407.265	.0038					.0137	5.58	6.00	.00	6.00	.013	.00	.00	PIPE
1420.000	3190.500	10.125	3200.625	500.00	17.68	4.86	3205.48	.00	5.67	.00	6.000	.000	.00	1 .0
WALL	ENTRANCE													
1420.000	3190.500	17.388	3207.888	500.00	.96	.01	3207.90	.00	2.05	30.00	10.000	30.000	.00	0 .0

Detention Basin D-1

Q vs H
4 - 6' x 12' RCB with 4-6' x 14' Wall Entrance
Basin D-1



W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:10: 7: 8

Detention Basin ~~D2~~ D1

6' x 12' RCB with 8' x 14' wall entrance

by: DSH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3221.000	.474	3221.475	50.00	8.78	1.20	3222.67	.00	.81	12.00	6.000	12.000	.00	0 .0
2467.514	.0235					.0235	58.01	.47	2.25	.47	.015	.00	.00	RECTANG
3467.514	3279.003	.474	3279.478	50.00	8.78	1.20	3280.68	.00	.81	12.00	6.000	12.000	.00	0 .0
50.204	.0235					.0239	1.20	.47	2.25	.47	.015	.00	.00	RECTANG
3517.718	3280.184	.470	3280.654	50.00	8.86	1.22	3281.87	.00	.81	12.00	6.000	12.000	.00	0 .0
36.667	.0235					.0262	.96	.47	2.28	.47	.015	.00	.00	RECTANG
3554.385	3281.045	.448	3281.494	50.00	9.30	1.34	3282.84	.00	.81	12.00	6.000	12.000	.00	0 .0
15.935	.0235					.0306	.49	.45	2.45	.47	.015	.00	.00	RECTANG
3570.320	3281.420	.427	3281.847	50.00	9.75	1.48	3283.32	.00	.81	12.00	6.000	12.000	.00	0 .0
10.441	.0235					.0357	.37	.43	2.63	.47	.015	.00	.00	RECTANG
3580.761	3281.665	.407	3282.073	50.00	10.23	1.62	3283.70	.00	.81	12.00	6.000	12.000	.00	0 .0
7.872	.0235					.0417	.33	.41	2.82	.47	.015	.00	.00	RECTANG
3588.633	3281.850	.389	3282.239	50.00	10.72	1.79	3284.02	.00	.81	12.00	6.000	12.000	.00	0 .0
6.367	.0235					.0487	.31	.39	3.03	.47	.015	.00	.00	RECTANG
3595.000	3282.000	.370	3282.370	50.00	11.25	1.96	3284.33	.00	.81	12.00	6.000	12.000	.00	0 .0
101.784	.0525					.0525	5.34	.37	3.26	.37	.015	.00	.00	RECTANG
3696.784	3287.341	.370	3287.711	50.00	11.25	1.96	3289.68	.00	.81	12.00	6.000	12.000	.00	0 .0
42.581	.0525					.0500	2.13	.37	3.26	.37	.015	.00	.00	RECTANG

Detention Basin #2 01
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3739.365	3289.575	.382	3289.957	50.00	10.90	1.85	3291.80	.00	.81	12.00	6.000	12.000	.00	0 .0
17.635	.0525					.0440	.78	.38	3.11	.37	.015	.00	.00	RECTANG
3757.000	3290.500	.401	3290.901	50.00	10.40	1.68	3292.58	.00	.81	12.00	6.000	12.000	.00	0 .0
TRANS STR	.0763					.0211	.40	.40	2.89		.014	.00	.00	RECTANG
3776.000	3291.950	.605	3292.555	50.00	5.90	.54	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
.023	.0500					.0067	.00	.61	1.34	.33	.014	.00	.00	RECTANG
3776.023	3291.951	.606	3292.557	50.00	5.89	.54	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
.443	.0500					.0062	.00	.61	1.33	.33	.014	.00	.00	RECTANG
3776.466	3291.973	.636	3292.609	50.00	5.62	.49	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
.302	.0500					.0053	.00	.64	1.24	.33	.014	.00	.00	RECTANG
3776.768	3291.988	.667	3292.655	50.00	5.36	.45	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
.175	.0500					.0046	.00	.67	1.16	.33	.014	.00	.00	RECTANG
3776.942	3291.997	.699	3292.697	50.00	5.11	.40	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
.058	.0500					.0039	.00	.70	1.08	.33	.014	.00	.00	RECTANG
3777.000	3292.000	.735	3292.735	50.00	4.86	.37	3293.10	.00	.73	14.00	8.000	14.000	.00	0 .0
WALL	ENTRANCE													
3777.000	3292.000	1.273	3293.272	50.00	.08	.00	3293.27	.00	.07	500.00	8.000	500.000	.00	0 .0

W S P G W - CIVILDESIGN Version 14.03

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D1

6' x 12' RCB with 8' x 14' wall entrance

by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3221.000	.943	3221.943	150.00	13.25	2.73	3224.67	.00	1.69	12.00	6.000	12.000	.00	0 .0
2281.896	.0235					.0235	53.65	.94	2.41	.94	.015	.00	.00	RECTANG
3281.896	3274.640	.943	3275.583	150.00	13.25	2.73	3278.31	.00	1.69	12.00	6.000	12.000	.00	0 .0
119.698	.0235					.0238	2.84	.94	2.41	.94	.015	.00	.00	RECTANG
3401.594	3277.454	.937	3278.390	150.00	13.35	2.77	3281.16	.00	1.69	12.00	6.000	12.000	.00	0 .0
94.368	.0235					.0260	2.45	.94	2.43	.94	.015	.00	.00	RECTANG
3495.962	3279.672	.893	3280.565	150.00	14.00	3.04	3283.61	.00	1.69	12.00	6.000	12.000	.00	0 .0
39.250	.0235					.0302	1.19	.89	2.61	.94	.015	.00	.00	RECTANG
3535.212	3280.594	.852	3281.446	150.00	14.68	3.35	3284.79	.00	1.69	12.00	6.000	12.000	.00	0 .0
25.403	.0235					.0351	.89	.85	2.80	.94	.015	.00	.00	RECTANG
3560.615	3281.192	.812	3282.004	150.00	15.40	3.68	3285.68	.00	1.69	12.00	6.000	12.000	.00	0 .0
19.039	.0235					.0409	.78	.81	3.01	.94	.015	.00	.00	RECTANG
3579.654	3281.639	.774	3282.413	150.00	16.15	4.05	3286.46	.00	1.69	12.00	6.000	12.000	.00	0 .0
15.346	.0235					.0475	.73	.77	3.23	.94	.015	.00	.00	RECTANG
3595.000	3282.000	.738	3282.738	150.00	16.94	4.45	3287.19	.00	1.69	12.00	6.000	12.000	.00	0 .0
50.456	.0525					.0499	2.52	.74	3.47	.73	.015	.00	.00	RECTANG
3645.456	3284.647	.750	3285.398	150.00	16.66	4.31	3289.71	.00	1.69	12.00	6.000	12.000	.00	0 .0
48.508	.0525					.0451	2.19	.75	3.39	.73	.015	.00	.00	RECTANG

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3693.964	3287.193	.787	3287.979	150.00	15.89	3.92	3291.90	.00	1.69	12.00	6.000	12.000	.00	0 .0
23.253	.0525					.0388	.90	.79	3.16	.73	.015	.00	.00	RECTANG
3717.217	3288.413	.825	3289.238	150.00	15.15	3.56	3292.80	.00	1.69	12.00	6.000	12.000	.00	0 .0
14.838	.0525					.0334	.49	.83	2.94	.73	.015	.00	.00	RECTANG
3732.055	3289.191	.865	3290.057	150.00	14.44	3.24	3293.30	.00	1.69	12.00	6.000	12.000	.00	0 .0
10.604	.0525					.0287	.30	.87	2.74	.73	.015	.00	.00	RECTANG
3742.659	3289.748	.908	3290.655	150.00	13.77	2.94	3293.60	.00	1.69	12.00	6.000	12.000	.00	0 .0
8.037	.0525					.0247	.20	.91	2.55	.73	.015	.00	.00	RECTANG
3750.696	3290.169	.952	3291.121	150.00	13.13	2.68	3293.80	.00	1.69	12.00	6.000	12.000	.00	0 .0
6.304	.0525					.0212	.13	.95	2.37	.73	.015	.00	.00	RECTANG
3757.000	3290.500	.998	3291.499	150.00	12.52	2.43	3293.93	.00	1.69	12.00	6.000	12.000	.00	0 .0
TRANS STR	.0763					.0110	.21	1.00	2.21		.014	.00	.00	RECTANG
3776.000	3291.950	1.331	3293.281	150.00	8.05	1.01	3294.29	.00	1.53	14.00	8.000	14.000	.00	0 .0
.528	.0500					.0046	.00	1.33	1.23	.64	.014	.00	.00	RECTANG
3776.528	3291.976	1.388	3293.364	150.00	7.72	.93	3294.29	.00	1.53	14.00	8.000	14.000	.00	0 .0
.356	.0500					.0040	.00	1.39	1.15	.64	.014	.00	.00	RECTANG
3776.884	3291.994	1.456	3293.450	150.00	7.36	.84	3294.29	.00	1.53	14.00	8.000	14.000	.00	0 .0
.116	.0500					.0035	.00	1.46	1.07	.64	.014	.00	.00	RECTANG

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3777.000	3292.000	1.528	3293.528	150.00	7.01	.76	3294.29	.00	1.53	14.00	8.000	14.000	.00	0 .0
WALL	ENTRANCE													
3777.000	3292.000	2.646	3294.646	150.00	.11	.00	3294.65	.00	.14	500.00	8.000	500.000	.00	0 .0

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3221.000	1.472	3222.472	300.00	16.98	4.48	3226.95	.00	2.69	12.00	6.000	12.000	.00	0 .0
2148.048	.0235					.0235	50.50	1.47	2.47	1.47	.015	.00	.00	RECTANG
3148.048	3271.494	1.472	3272.966	300.00	16.98	4.48	3277.44	.00	2.69	12.00	6.000	12.000	.00	0 .0
205.128	.0235					.0243	4.98	1.47	2.47	1.47	.015	.00	.00	RECTANG
3353.176	3276.315	1.443	3277.758	300.00	17.33	4.66	3282.42	.00	2.69	12.00	6.000	12.000	.00	0 .0
114.188	.0235					.0270	3.08	1.44	2.54	1.47	.015	.00	.00	RECTANG
3467.364	3279.000	1.375	3280.375	300.00	18.18	5.13	3285.51	.00	2.69	12.00	6.000	12.000	.00	0 .0
57.766	.0235					.0313	1.81	1.38	2.73	1.47	.015	.00	.00	RECTANG
3525.130	3280.357	1.311	3281.669	300.00	19.06	5.64	3287.31	.00	2.69	12.00	6.000	12.000	.00	0 .0
39.496	.0235					.0363	1.43	1.31	2.93	1.47	.015	.00	.00	RECTANG
3564.626	3281.286	1.250	3282.536	300.00	19.99	6.21	3288.74	.00	2.69	12.00	6.000	12.000	.00	0 .0
30.374	.0235					.0420	1.28	1.25	3.15	1.47	.015	.00	.00	RECTANG
3595.000	3282.000	1.192	3283.192	300.00	20.97	6.83	3290.02	.00	2.69	12.00	6.000	12.000	.00	0 .0
32.210	.0525					.0436	1.40	1.19	3.38	1.14	.015	.00	.00	RECTANG
3627.210	3283.690	1.220	3284.910	300.00	20.49	6.52	3291.43	.00	2.69	12.00	6.000	12.000	.00	0 .0
39.999	.0525					.0391	1.57	1.22	3.27	1.14	.015	.00	.00	RECTANG
3667.208	3285.789	1.279	3287.068	300.00	19.54	5.93	3293.00	.00	2.69	12.00	6.000	12.000	.00	0 .0
25.473	.0525					.0338	.86	1.28	3.04	1.14	.015	.00	.00	RECTANG

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3692.682	3287.125	1.342	3288.467	300.00	18.63	5.39	3293.86	.00	2.69	12.00	6.000	12.000	.00	0 .0
18.195	.0525					.0291	.53	1.34	2.83	1.14	.015	.00	.00	RECTANG
3710.877	3288.080	1.407	3289.487	300.00	17.76	4.90	3294.39	.00	2.69	12.00	6.000	12.000	.00	0 .0
13.796	.0525					.0252	.35	1.41	2.64	1.14	.015	.00	.00	RECTANG
3724.674	3288.804	1.476	3290.280	300.00	16.94	4.45	3294.73	.00	2.69	12.00	6.000	12.000	.00	0 .0
10.832	.0525					.0217	.24	1.48	2.46	1.14	.015	.00	.00	RECTANG
3735.506	3289.372	1.548	3290.920	300.00	16.15	4.05	3294.97	.00	2.69	12.00	6.000	12.000	.00	0 .0
8.686	.0525					.0188	.16	1.55	2.29	1.14	.015	.00	.00	RECTANG
3744.192	3289.828	1.624	3291.452	300.00	15.40	3.68	3295.13	.00	2.69	12.00	6.000	12.000	.00	0 .0
7.051	.0525					.0162	.11	1.62	2.13	1.14	.015	.00	.00	RECTANG
3751.243	3290.198	1.703	3291.901	300.00	14.68	3.35	3295.25	.00	2.69	12.00	6.000	12.000	.00	0 .0
5.757	.0525					.0141	.08	1.70	1.98	1.14	.015	.00	.00	RECTANG
3757.000	3290.500	1.786	3292.286	300.00	14.00	3.04	3295.33	.00	2.69	12.00	6.000	12.000	.00	0 .0
TRANS STR	.0763					.0079	.15	1.79	1.85		.014	.00	.00	RECTANG
3776.000	3291.950	2.172	3294.122	300.00	9.87	1.51	3295.63	.00	2.43	14.00	8.000	14.000	.00	0 .0
.255	.0500					.0043	.00	2.17	1.18	.99	.014	.00	.00	RECTANG
3776.255	3291.963	2.204	3294.166	300.00	9.72	1.47	3295.63	.00	2.43	14.00	8.000	14.000	.00	0 .0
.562	.0500					.0039	.00	2.20	1.15	.99	.014	.00	.00	RECTANG

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3776.817	3291.991	2.311	3294.302	300.00	9.27	1.33	3295.64	.00	2.43	14.00	8.000	14.000	.00	0 .0
.183	.0500					.0034	.00	2.31	1.07	.99	.014	.00	.00	RECTANG
3777.000	3292.000	2.425	3294.425	300.00	8.84	1.21	3295.64	.00	2.43	14.00	8.000	14.000	.00	0 .0
WALL	ENTRANCE													
3777.000	3292.000	4.200	3296.200	300.00	.14	.00	3296.20	.00	.22	500.00	8.000	500.000	.00	0 .0

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3221.000	2.331	3223.331	600.00	21.45	7.15	3230.48	.00	4.27	12.00	6.000	12.000	.00	0 .0
1807.027	.0235					.0235	42.48	2.33	2.48	2.33	.015	.00	.00	RECTANG
2807.027	3263.478	2.331	3265.808	600.00	21.45	7.15	3272.95	.00	4.27	12.00	6.000	12.000	.00	0 .0
252.630	.0235					.0235	5.94	2.33	2.48	2.33	.015	.00	.00	RECTANG
3059.657	3269.416	2.330	3271.747	600.00	21.46	7.15	3278.89	.00	4.27	12.00	6.000	12.000	.00	0 .0
338.453	.0235					.0253	8.56	2.33	2.48	2.33	.015	.00	.00	RECTANG
3398.110	3277.372	2.222	3279.594	600.00	22.50	7.86	3287.46	.00	4.27	12.00	6.000	12.000	.00	0 .0
121.018	.0235					.0291	3.53	2.22	2.66	2.33	.015	.00	.00	RECTANG
3519.128	3280.217	2.119	3282.335	600.00	23.60	8.65	3290.98	.00	4.27	12.00	6.000	12.000	.00	0 .0
75.872	.0235					.0336	2.55	2.12	2.86	2.33	.015	.00	.00	RECTANG
3595.000	3282.000	2.020	3284.020	600.00	24.75	9.51	3293.53	.00	4.27	12.00	6.000	12.000	.00	0 .0
26.521	.0525					.0345	.92	2.02	3.07	1.78	.015	.00	.00	RECTANG
3621.521	3283.391	2.079	3285.471	600.00	24.05	8.98	3294.45	.00	4.27	12.00	6.000	12.000	.00	0 .0
33.013	.0525					.0308	1.02	2.08	2.94	1.78	.015	.00	.00	RECTANG
3654.535	3285.124	2.181	3287.304	600.00	22.93	8.16	3295.47	.00	4.27	12.00	6.000	12.000	.00	0 .0
24.704	.0525					.0267	.66	2.18	2.74	1.78	.015	.00	.00	RECTANG
3679.238	3286.420	2.287	3288.707	600.00	21.86	7.42	3296.13	.00	4.27	12.00	6.000	12.000	.00	0 .0
19.243	.0525					.0232	.45	2.29	2.55	1.78	.015	.00	.00	RECTANG

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3698.482	3287.429	2.399	3289.828	600.00	20.84	6.75	3296.57	.00	4.27	12.00	6.000	12.000	.00	0 .0
15.360	.0525					.0202	.31	2.40	2.37	1.78	.015	.00	.00	RECTANG
3713.842	3288.235	2.516	3290.751	600.00	19.87	6.13	3296.88	.00	4.27	12.00	6.000	12.000	.00	0 .0
12.442	.0525					.0175	.22	2.52	2.21	1.78	.015	.00	.00	RECTANG
3726.284	3288.888	2.639	3291.527	600.00	18.95	5.57	3297.10	.00	4.27	12.00	6.000	12.000	.00	0 .0
10.156	.0525					.0153	.15	2.64	2.06	1.78	.015	.00	.00	RECTANG
3736.440	3289.421	2.768	3292.189	600.00	18.07	5.07	3297.26	.00	4.27	12.00	6.000	12.000	.00	0 .0
8.308	.0525					.0133	.11	2.77	1.91	1.78	.015	.00	.00	RECTANG
3744.748	3289.857	2.903	3292.760	600.00	17.23	4.61	3297.37	.00	4.27	12.00	6.000	12.000	.00	0 .0
6.775	.0525					.0116	.08	2.90	1.78	1.78	.015	.00	.00	RECTANG
3751.523	3290.213	3.044	3293.257	600.00	16.42	4.19	3297.45	.00	4.27	12.00	6.000	12.000	.00	0 .0
5.477	.0525					.0101	.06	3.04	1.66	1.78	.015	.00	.00	RECTANG
3757.000	3290.500	3.193	3293.693	600.00	15.66	3.81	3297.50	.00	4.27	12.00	6.000	12.000	.00	0 .0
TRANS STR	.0763					.0062	.12	3.19	1.54		.014	.00	.00	RECTANG
3776.000	3291.950	3.525	3295.475	600.00	12.16	2.30	3297.77	.00	3.85	14.00	8.000	14.000	.00	0 .0
.709	.0500					.0040	.00	3.52	1.14	1.54	.014	.00	.00	RECTANG
3776.709	3291.985	3.669	3295.654	600.00	11.68	2.12	3297.77	.00	3.85	14.00	8.000	14.000	.00	0 .0
.291	.0500					.0035	.00	3.67	1.07	1.54	.014	.00	.00	RECTANG

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:10: 7: 8

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3777.000	3292.000	3.849	3295.849	600.00	11.13	1.93	3297.77	.00	3.85	14.00	8.000	14.000	.00	0 .0
WALL ENTRANCE														
3777.000	3292.000	6.667	3298.667	600.00	.18	.00	3298.67	.00	.35	500.00	8.000	500.000	.00	0 .0

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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:10: 7: 8

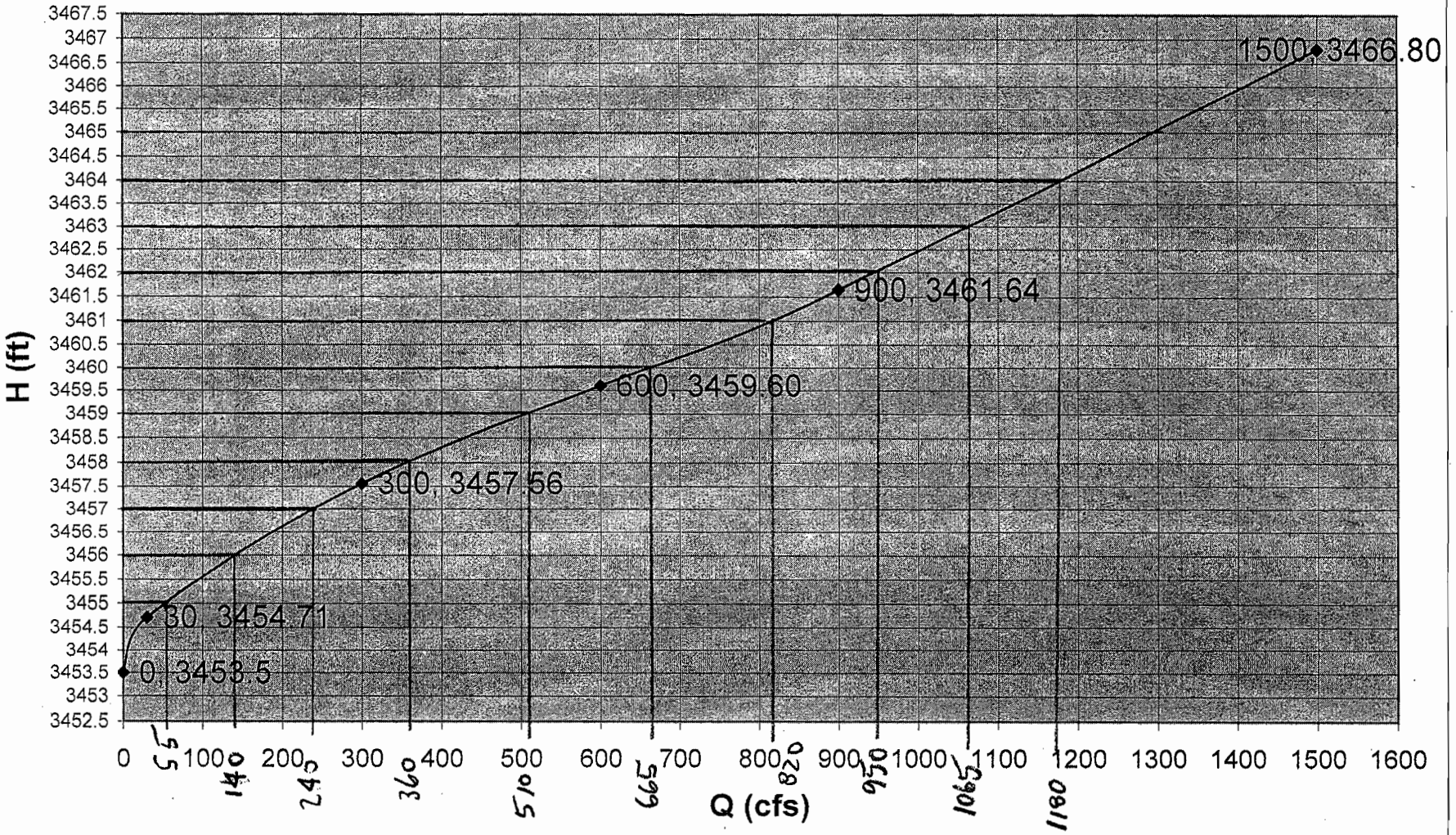
Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	3221.000	3.076	3224.076	900.00	24.38	9.23	3233.31	.00	5.59	12.00	6.000	12.000	.00	0 .0
1982.603	.0235				.0235	46.61		3.08	2.45	3.08	.015	.00	.00	RECTANG
2982.603	3267.604	3.076	3270.681	900.00	24.38	9.23	3279.91	.00	5.59	12.00	6.000	12.000	.00	0 .0
449.436	.0235				.0252	11.33		3.08	2.45	3.08	.015	.00	.00	RECTANG
3432.039	3278.169	2.936	3281.105	900.00	25.54	10.13	3291.24	.00	5.59	12.00	6.000	12.000	.00	0 .0
162.961	.0235				.0289	4.71		2.94	2.63	3.08	.015	.00	.00	RECTANG
3595.000	3282.000	2.800	3284.800	900.00	26.79	11.14	3295.94	.00	5.59	12.00	6.000	12.000	.00	0 .0
35.318	.0525				.0290	1.02		2.80	2.82	2.34	.015	.00	.00	RECTANG
3630.318	3283.853	2.928	3286.781	900.00	25.62	10.19	3296.97	.00	5.59	12.00	6.000	12.000	.00	0 .0
28.907	.0525				.0254	.73		2.93	2.64	2.34	.015	.00	.00	RECTANG
3659.226	3285.370	3.071	3288.441	900.00	24.42	9.26	3297.70	.00	5.59	12.00	6.000	12.000	.00	0 .0
22.802	.0525				.0221	.50		3.07	2.46	2.34	.015	.00	.00	RECTANG
3682.028	3286.566	3.221	3289.787	900.00	23.29	8.42	3298.21	.00	5.59	12.00	6.000	12.000	.00	0 .0
18.333	.0525				.0193	.35		3.22	2.29	2.34	.015	.00	.00	RECTANG
3700.361	3287.528	3.378	3290.906	900.00	22.20	7.65	3298.56	.00	5.59	12.00	6.000	12.000	.00	0 .0
14.903	.0525				.0168	.25		3.38	2.13	2.34	.015	.00	.00	RECTANG
3715.264	3288.310	3.543	3291.853	900.00	21.17	6.96	3298.81	.00	5.59	12.00	6.000	12.000	.00	0 .0
12.174	.0525				.0147	.18		3.54	1.98	2.34	.015	.00	.00	RECTANG

Detention Basin D2
6' x 12' RCB with 8' x 14' wall entrance
by: DSH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3727.438	3288.949	3.716	3292.665	900.00	20.18	6.33	3298.99	.00	5.59	12.00	6.000	12.000	.00	0 .0
9.940	.0525					.0129	.13	3.72	1.85	2.34	.015	.00	.00	RECTANG
3737.378	3289.470	3.897	3293.367	900.00	19.25	5.75	3299.12	.00	5.59	12.00	6.000	12.000	.00	0 .0
8.069	.0525					.0112	.09	3.90	1.72	2.34	.015	.00	.00	RECTANG
3745.447	3289.894	4.087	3293.981	900.00	18.35	5.23	3299.21	.00	5.59	12.00	6.000	12.000	.00	0 .0
6.470	.0525					.0098	.06	4.09	1.60	2.34	.015	.00	.00	RECTANG
3751.917	3290.233	4.287	3294.520	900.00	17.50	4.75	3299.27	.00	5.59	12.00	6.000	12.000	.00	0 .0
5.083	.0525					.0086	.04	4.29	1.49	2.34	.015	.00	.00	RECTANG
3757.000	3290.500	4.496	3294.996	900.00	16.68	4.32	3299.32	.00	5.59	12.00	6.000	12.000	.00	0 .0
TRANS STR	.0763					.0056	.11	4.50	1.39		.014	.00	.00	RECTANG
3776.000	3291.950	4.670	3296.620	900.00	13.76	2.94	3299.56	.00	5.04	14.00	8.000	14.000	.00	0 .0
.621	.0500					.0041	.00	4.67	1.12	2.01	.014	.00	.00	RECTANG
3776.621	3291.981	4.809	3296.790	900.00	13.37	2.78	3299.56	.00	5.04	14.00	8.000	14.000	.00	0 .0
.379	.0500					.0037	.00	4.81	1.07	2.01	.014	.00	.00	RECTANG
3777.000	3292.000	5.044	3297.044	900.00	12.74	2.52	3299.57	.00	5.04	14.00	8.000	14.000	.00	0 .0
WALL	ENTRANCE													
3777.000	3292.000	8.736	3300.736	900.00	.21	.00	3300.74	.00	.47	500.00	8.000	500.000	.00	0 .0

Q vs H
3 - 6.5 ft Pipes
Basin D-2



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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:11:32:10

DETENTION BASIN D2
6.5' PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	3451.500	.501	3452.002	10.00	8.48	1.12	3453.12	.00	.81	3.47	6.500	.000	.00	1 .0
26.039	.0260				.0239	.62	.50	2.57	.50	.013	.00	.00		PIPE
1026.039	3452.177	.511	3452.688	10.00	8.24	1.05	3453.74	.00	.81	3.50	6.500	.000	.00	1 .0
17.331	.0260				.0214	.37	.51	2.46	.50	.013	.00	.00		PIPE
1043.370	3452.627	.528	3453.155	10.00	7.85	.96	3454.11	.00	.81	3.55	6.500	.000	.00	1 .0
9.618	.0260				.0187	.18	.53	2.31	.50	.013	.00	.00		PIPE
1052.988	3452.876	.545	3453.422	10.00	7.49	.87	3454.29	.00	.81	3.60	6.500	.000	.00	1 .0
6.319	.0260				.0163	.10	.55	2.17	.50	.013	.00	.00		PIPE
1059.307	3453.041	.563	3453.604	10.00	7.14	.79	3454.40	.00	.81	3.66	6.500	.000	.00	1 .0
4.505	.0260				.0142	.06	.56	2.03	.50	.013	.00	.00		PIPE
1063.813	3453.157	.582	3453.740	10.00	6.81	.72	3454.46	.00	.81	3.71	6.500	.000	.00	1 .0
3.421	.0260				.0124	.04	.58	1.91	.50	.013	.00	.00		PIPE
1067.233	3453.246	.601	3453.847	10.00	6.49	.65	3454.50	.00	.81	3.77	6.500	.000	.00	1 .0
2.604	.0260				.0108	.03	.60	1.79	.50	.013	.00	.00		PIPE
1069.838	3453.314	.621	3453.935	10.00	6.19	.59	3454.53	.00	.81	3.82	6.500	.000	.00	1 .0
2.060	.0260				.0094	.02	.62	1.68	.50	.013	.00	.00		PIPE
1071.897	3453.367	.641	3454.009	10.00	5.90	.54	3454.55	.00	.81	3.88	6.500	.000	.00	1 .0
1.586	.0260				.0082	.01	.64	1.57	.50	.013	.00	.00		PIPE

DETENTION BASIN D2
6.5' PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1073.483	3453.409	.662	3454.071	10.00	5.63	.49	3454.56	.00	.81	3.93	6.500	.000	.00	1 .0
1.206	.0260				.0072	.01	.66	1.47	.50	.013	.00	.00		PIPE
1074.690	3453.440	.684	3454.124	10.00	5.36	.45	3454.57	.00	.81	3.99	6.500	.000	.00	1 .0
.894	.0260				.0063	.01	.68	1.38	.50	.013	.00	.00		PIPE
1075.583	3453.463	.707	3454.170	10.00	5.11	.41	3454.58	.00	.81	4.05	6.500	.000	.00	1 .0
.679	.0260				.0055	.00	.71	1.30	.50	.013	.00	.00		PIPE
1076.262	3453.481	.730	3454.211	10.00	4.88	.37	3454.58	.00	.81	4.10	6.500	.000	.00	1 .0
.404	.0260				.0048	.00	.73	1.22	.50	.013	.00	.00		PIPE
1076.666	3453.491	.755	3454.246	10.00	4.65	.34	3454.58	.00	.81	4.17	6.500	.000	.00	1 .0
.253	.0260				.0042	.00	.76	1.14	.50	.013	.00	.00		PIPE
1076.918	3453.498	.780	3454.278	10.00	4.43	.31	3454.58	.00	.81	4.22	6.500	.000	.00	1 .0
.082	.0260				.0036	.00	.78	1.07	.50	.013	.00	.00		PIPE
1077.000	3453.500	.807	3454.307	10.00	4.22	.28	3454.58	.00	.81	4.29	6.500	.000	.00	1 .0
WALL	ENTRANCE													
1077.000	3453.500	1.207	3454.707	10.00	.03	.00	3454.71	.00	.04	250.00	15.000	250.000	.00	0 .0

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Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:11:32:10

DETENTION BASIN D2
6.5' PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3451.500	1.733	3453.233	100.00	14.08	3.08	3456.31	.00	2.63	5.75	6.500	.000	.00	1 .0
17.803	.0260					.0141	.25	1.73	2.23	1.51	.013	.00	.00	PIPE
1017.803	3451.962	1.790	3453.752	100.00	13.45	2.81	3456.56	.00	2.63	5.81	6.500	.000	.00	1 .0
14.267	.0260					.0124	.18	1.79	2.10	1.51	.013	.00	.00	PIPE
1032.070	3452.333	1.852	3454.185	100.00	12.83	2.56	3456.74	.00	2.63	5.87	6.500	.000	.00	1 .0
11.135	.0260					.0109	.12	1.85	1.96	1.51	.013	.00	.00	PIPE
1043.205	3452.622	1.916	3454.538	100.00	12.23	2.32	3456.86	.00	2.63	5.93	6.500	.000	.00	1 .0
8.755	.0260					.0095	.08	1.92	1.84	1.51	.013	.00	.00	PIPE
1051.960	3452.850	1.983	3454.833	100.00	11.66	2.11	3456.94	.00	2.63	5.99	6.500	.000	.00	1 .0
6.911	.0260					.0083	.06	1.98	1.72	1.51	.013	.00	.00	PIPE
1058.871	3453.029	2.053	3455.082	100.00	11.12	1.92	3457.00	.00	2.63	6.04	6.500	.000	.00	1 .0
5.488	.0260					.0073	.04	2.05	1.61	1.51	.013	.00	.00	PIPE
1064.359	3453.172	2.125	3455.297	100.00	10.60	1.75	3457.04	.00	2.63	6.10	6.500	.000	.00	1 .0
4.271	.0260					.0064	.03	2.13	1.50	1.51	.013	.00	.00	PIPE
1068.630	3453.282	2.200	3455.483	100.00	10.11	1.59	3457.07	.00	2.63	6.15	6.500	.000	.00	1 .0
3.202	.0260					.0056	.02	2.20	1.40	1.51	.013	.00	.00	PIPE
1071.832	3453.366	2.279	3455.645	100.00	9.64	1.44	3457.09	.00	2.63	6.20	6.500	.000	.00	1 .0
2.379	.0260					.0049	.01	2.28	1.31	1.51	.013	.00	.00	PIPE

DETENTION BASIN D2
6.5' PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1074.211	3453.427	2.360	3455.788	100.00	9.19	1.31	3457.10	.00	2.63	6.25	6.500	.000	.00	1 .0
1.625	.0260					.0043	.01	2.36	1.23	1.51	.013	.00	.00	PIPE
1075.836	3453.470	2.444	3455.914	100.00	8.76	1.19	3457.11	.00	2.63	6.30	6.500	.000	.00	1 .0
.873	.0260					.0038	.00	2.44	1.15	1.51	.013	.00	.00	PIPE
1076.708	3453.492	2.533	3456.026	100.00	8.35	1.08	3457.11	.00	2.63	6.34	6.500	.000	.00	1 .0
.292	.0260					.0033	.00	2.53	1.07	1.51	.013	.00	.00	PIPE
1077.000	3453.500	2.626	3456.126	100.00	7.96	.98	3457.11	.00	2.63	6.38	6.500	.000	.00	1 .0
WALL	ENTRANCE													
1077.000	3453.500	4.064	3457.564	100.00	.10	.00	3457.56	.00	.17	250.00	15.000	250.000	.00	0 .0

DETENTION BASIN D2
6.5' PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type Ch	Height/Dia.-FT or I.D. / No Wth Prs/Pip
1000.000	3451.500	2.605	3454.105	200.00	16.09	4.02	3458.13	.00	3.77	6.37	6.500
18.505	.0260					.0120	.22	2.60	2.03	2.15	.013
1018.505	3451.980	2.695	3454.676	200.00	15.38	3.67	3458.35	.00	3.77	6.40	6.500
15.228	.0260					.0106	.16	2.70	1.90	2.15	.013
1033.733	3452.376	2.794	3455.170	200.00	14.66	3.34	3458.51	.00	3.77	6.44	6.500
12.003	.0260					.0093	.11	2.79	1.77	2.15	.013
1045.736	3452.688	2.897	3455.585	200.00	13.98	3.04	3458.62	.00	3.77	6.46	6.500
9.419	.0260					.0081	.08	2.90	1.66	2.15	.013
1055.155	3452.932	3.005	3455.938	200.00	13.33	2.76	3458.70	.00	3.77	6.48	6.500
7.328	.0260					.0072	.05	3.01	1.54	2.15	.013
1062.482	3453.123	3.118	3456.241	200.00	12.71	2.51	3458.75	.00	3.77	6.49	6.500
5.594	.0260					.0063	.04	3.12	1.44	2.15	.013
1068.076	3453.268	3.236	3456.504	200.00	12.12	2.28	3458.78	.00	3.77	6.50	6.500
4.079	.0260					.0056	.02	3.24	1.34	2.15	.013
1072.155	3453.374	3.360	3456.734	200.00	11.55	2.07	3458.81	.00	3.77	6.50	6.500
2.773	.0260					.0049	.01	3.36	1.25	2.15	.013
1074.927	3453.446	3.490	3456.936	200.00	11.02	1.88	3458.82	.00	3.77	6.48	6.500
1.585	.0260					.0043	.01	3.49	1.16	2.15	.013

DETENTION BASIN D2
6.5' PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1076.512	3453.487	3.627	3457.115	200.00	10.50	1.71	3458.83	.00	3.77	6.46	6.500	.000	.00	1 .0
.488	.0260					.0038	.00	3.63	1.08	2.15	.013	.00	.00	PIPE
1077.000	3453.500	3.773	3457.273	200.00	10.01	1.56	3458.83	.00	3.77	6.42	6.500	.000	.00	1 .0
WALL	ENTRANCE													
1077.000	3453.500	6.098	3459.598	200.00	.13	.00	3459.60	.00	.27	250.00	15.000	250.000	.00	0 .0

DETENTION BASIN D2
6.5' PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3451.500	3.325	3454.825	300.00	17.56	4.79	3459.61	.00	4.65	6.50	6.500	.000	.00	1 .0
7.410	.0260					.0119	.09	3.33	1.91	2.68	.013	.00	.00	PIPE
1007.409	3451.692	3.366	3455.058	300.00	17.29	4.64	3459.70	.00	4.65	6.50	6.500	.000	.00	1 .0
19.443	.0260					.0109	.21	3.37	1.86	2.68	.013	.00	.00	PIPE
1026.852	3452.197	3.496	3455.693	300.00	16.49	4.22	3459.92	.00	4.65	6.48	6.500	.000	.00	1 .0
15.064	.0260					.0097	.15	3.50	1.73	2.68	.013	.00	.00	PIPE
1041.916	3452.588	3.634	3456.222	300.00	15.72	3.84	3460.06	.00	4.65	6.45	6.500	.000	.00	1 .0
11.745	.0260					.0085	.10	3.63	1.61	2.68	.013	.00	.00	PIPE
1053.661	3452.894	3.778	3456.672	300.00	14.99	3.49	3460.16	.00	4.65	6.41	6.500	.000	.00	1 .0
8.906	.0260					.0075	.07	3.78	1.50	2.68	.013	.00	.00	PIPE
1062.567	3453.125	3.931	3457.056	300.00	14.29	3.17	3460.23	.00	4.65	6.36	6.500	.000	.00	1 .0
6.547	.0260					.0067	.04	3.93	1.39	2.68	.013	.00	.00	PIPE
1069.114	3453.295	4.093	3457.388	300.00	13.63	2.88	3460.27	.00	4.65	6.28	6.500	.000	.00	1 .0
4.445	.0260					.0059	.03	4.09	1.28	2.68	.013	.00	.00	PIPE
1073.559	3453.411	4.266	3457.677	300.00	12.99	2.62	3460.30	.00	4.65	6.17	6.500	.000	.00	1 .0
2.622	.0260					.0053	.01	4.27	1.18	2.68	.013	.00	.00	PIPE
1076.182	3453.479	4.450	3457.929	300.00	12.39	2.38	3460.31	.00	4.65	6.04	6.500	.000	.00	1 .0
.818	.0260					.0047	.00	4.45	1.09	2.68	.013	.00	.00	PIPE

Program Package Serial Number: 1382

WATER SURFACE PROFILE LISTING Date: 4- 8-2009 Time:11:32:10

DETENTION BASIN D2
6.5' PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1077.000	3453.500	4.650	3458.150	300.00	11.81	2.17	3460.32	.00	4.65	5.87	6.500	.000	.00	1 .0
WALL	ENTRANCE													
1077.000	3453.500	8.144	3461.644	300.00	.15	.00	3461.64	.00	.35	250.00	15.000	250.000	.00	0 .0

W S P G W - CIVILDESIGN Version 14.03
Program Package Serial Number: 1382
WATER SURFACE PROFILE LISTING

Date: 4- 8-2009 Time:11:32:10

DETENTION BASIN D2
6.5' PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3451.500	4.519	3456.019	500.00	20.30	6.40	3462.42	.00	5.82	5.98	6.500	.000	.00	1 .0
2.184	.0260					.0132	.03	4.52	1.76	3.60	.013	.00	.00	PIPE
1002.184	3451.557	4.532	3456.089	500.00	20.24	6.36	3462.45	.00	5.82	5.97	6.500	.000	.00	1 .0
27.523	.0260					.0124	.34	4.53	1.75	3.60	.013	.00	.00	PIPE
1029.707	3452.272	4.737	3457.009	500.00	19.30	5.78	3462.79	.00	5.82	5.78	6.500	.000	.00	1 .0
20.367	.0260					.0111	.23	4.74	1.61	3.60	.013	.00	.00	PIPE
1050.074	3452.801	4.960	3457.761	500.00	18.40	5.26	3463.02	.00	5.82	5.53	6.500	.000	.00	1 .0
14.393	.0260					.0100	.14	4.96	1.46	3.60	.013	.00	.00	PIPE
1064.467	3453.175	5.208	3458.383	500.00	17.54	4.78	3463.16	.00	5.82	5.19	6.500	.000	.00	1 .0
9.138	.0260					.0091	.08	5.21	1.32	3.60	.013	.00	.00	PIPE
1073.605	3453.412	5.488	3458.900	500.00	16.73	4.34	3463.24	.00	5.82	4.71	6.500	.000	.00	1 .0
3.395	.0260					.0083	.03	5.49	1.17	3.60	.013	.00	.00	PIPE
1077.000	3453.500	5.824	3459.324	500.00	15.95	3.95	3463.27	.00	5.82	3.97	6.500	.000	.00	1 .0
WALL	ENTRANCE													
1077.000	3453.500	13.301	3466.801	500.00	.15	.00	3466.80	.00	.50	250.00	15.000	250.000	.00	0 .0

Unit Hydrograph
Calcs.

Soil Group and Land Use Inventory

Developed Condition

Node #	100-101	102-102	103-103	104-104	105-105	106-107	107-107	108-108	109-109 (1184ac)	109-109 (101.5ac)	110-110	111-111 (99.3ac)	111-111 (360.1ac)	Total:
Soil Group "B"														
Desert Brush		322.8	235.0		468.0	190.0	400.0		979.0	2.4	100.0		96.3	2793.5
Vacant Grass-Fair				6.7										6.7
1 Acre Lots		103.7			76.0			28.8		16.0		66.5		291.0
2.5 Acre Lots							29.0			83.1				112.1
3-4 Du/Ac.		137.7									81.0	28.0		246.7
5-7 Du/Ac.		64.4		23.0							49.0			136.4
8-10 Du/Ac.				40.0				22.0						62.0
More than 10 Du/Ac.				43.4				15.1						58.5
Park								4.0			11.0			15.0
Commercial (lake)											12.0			12.0
Soil Group "D"														
Vacant Grass-Poor	994.6	1250.2	915.0	359.0		445.0	941.0	205.6	205.8		419.0	4.8	263.8	6003.8
Total:	994.6	1878.8	1150.0	472.1	544.0	635.0	1370.0	275.5	1184.8	101.5	672.0	99.3	360.1	**9737.7**

Soil Group and Land Use Inventory

Developed Condition - Westerly Watershed

Node #	120-121
Soil Group "B"	
Desert Brush	17.7
1 Acre Lots	35.0
2.5 Acre Lots	33.0
3-4 Du/Ac.	151.3
5-7 Du/Ac.	57.7
Commercial (lake)	18.8
Soil Group "D"	
Vacant Grass-Poor	153.8
Total:	467.3

Note: Area quantities are in Acres

Land Use Pervious Percentages and SCS Numbers

Soil Group "B"

Cover Type	Percent Pervious	AMC II #
Desert Brush	100	80
Grass-Fair	100	69
1 Acre Lot	80	56
2.5 Acre Lots	90	56
3-4 Du/ac.	60	56
5-7 Du/ac.	50	56
8-10 Du/ac.	40	56
More Than 10 du/ac.	20	56
Park (Grass-Fair)	85	69
Park (Residential)	85	56
Commercial (Lake)	0	56

Soil Group "D"

Cover Type	Percent Pervious	AMC II #
Grass-Poor	100	89

Loss Rate and Low Loss Fraction Calculation

Node: 100-101

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	994.60	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 994.60

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.079

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.065

Node: 102-102

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	322.80	100.00	80.(AMC II)	0.160	0.815
2	103.70	80.00	56.(AMC II)	0.423	0.507
3	137.70	60.00	56.(AMC II)	0.423	0.614
4	64.40	50.00	56.(AMC II)	0.423	0.667
5	322.80	100.00	89.(AMC II)	0.079	0.953

TOTAL AREA (Acres) = 1878.80

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.125

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.142

Node: 103-103

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	235.00	100.00	80.(AMC II)	0.160	0.815
2	915.00	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 1150.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.096

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.090

Node: 104.5-104.5

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	6.70	100.00	69.(AMC II)	0.272	0.608
2	23.70	50.00	56.(AMC II)	0.423	0.667
3	40.40	40.00	56.(AMC II)	0.423	0.721
4	43.40	20.00	56.(AMC II)	0.423	0.828
5	359.00	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 472.10

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.096

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.111

Node: 105-105

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	468.00	100.00	80.(AMC II)	0.079	0.935
2	76.00	80.00	56.(AMC II)	0.423	0.507

TOTAL AREA (Acres) = 544.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.115

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.125

Node: 106-107

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	190.00	100.00	80.(AMC II)	0.160	0.815
2	445.00	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 635.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.103

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.101

Node: 107-107

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	400.00	100.00	80.(AMC II)	0.160	0.815
2	29.00	90.00	56.(AMC II)	0.423	0.453
3	941.00	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 1370.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.109

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.110

Node: 108.5-108.5

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	28.80	80.00	56.(AMC II)	0.423	0.507
2	22.00	40.00	56.(AMC II)	0.423	0.721
3	15.10	20.00	56.(AMC II)	0.423	0.828
4	4.00	85.00	56.(AMC II)	0.423	0.480
5	205.50	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 275.50

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.118

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.139

Node: 109-109 (1184ac)

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	979.00	100.00	80.(AMC II)	0.160	0.815
2	205.80	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 1184.80

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.146

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.164

Node: 109-109 (101.5ac)

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	2.40	100.00	80.(AMC II)	0.160	0.815
2	16.00	80.00	56.(AMC II)	0.423	0.507
3	83.10	90.00	56.(AMC II)	0.423	0.453

TOTAL AREA (Acres) = 101.50

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.369

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.530

Node: 110-110

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	100.00	100.00	80.(AMC II)	0.160	0.815
2	81.00	90.00	56.(AMC II)	0.423	0.453
3	49.00	50.00	56.(AMC II)	0.423	0.667
4	11.00	85.00	56.(AMC II)	0.423	0.480
5	12.00	0.00	56.(AMC II)	0.423	0.935
6	419.00	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 672.00

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.140

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.168

Node: 111-111 (99.3ac)

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	66.50	80.00	56.(AMC II)	0.423	0.507
2	28.00	60.00	56.(AMC II)	0.423	0.614
3	4.80	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 99.30

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.302

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.442

Node: 111-111 (360.1 ac)

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm) AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	96.30	100.00	80.(AMC II)	0.160	0.815
2	263.80	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 360.10

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.101

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.097

Loss Rate and Low Loss Fraction Calculation

Node: 121-121

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	57.70	50.00	56.(AMC II)	0.423	0.667
2	33.00	90.00	56.(AMC II)	0.423	0.453
3	151.30	60.00	56.(AMC II)	0.423	0.614
4	17.70	100.00	80.(AMC II)	0.160	0.815
5	153.80	100.00	89.(AMC II)	0.079	0.935
6	35.00	80.00	56.(AMC II)	0.423	0.507
7	18.80	0.00	56.(AMC II)	0.423	0.935

TOTAL AREA (Acres) = 467.30

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.193

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.273

Lag Time Calculation

Routing Node	*Rational Method Node*	*Tc (Minutes)*	*Lag Time (Hours)*
100-101	19 D	16.29	0.217
102	201 D	19.22	0.256
103	394 P	22.05	0.294
104.5	720 D	15.98	0.213
105	32 P	26.17	0.349
106-107	395 P (area #5)	21.13	0.282
107	395 P (area #3)	22.96	0.306
108.5	753 D	13.39	0.179
109	34 P (area #1)	33.45	0.446
109	2 D	24.09	0.321
110	1212 D	23.89	0.319
111	1224 D	18.20	0.243
111	1232 D	21.57	0.288
121	884 D	12.47	0.166

**note Lag time = 0.8*Tc*
For Rational Method Nodes:
P = Node from predeveloped exhibit
D = Node from developed exhibit

Routing-Summary
Version

```
**************************************************************************

          F L O O D    R O U T I N G    A N A L Y S I S
        USING COUNTY HYDROLOGY MANUAL OF SAN BERNARDINO(1986)
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Hacienda at Fairview Valley                                             *
* Fairview Creek Tributary to Cahuilla Road - Developed Condition         *
* 100 YEAR STORM EVENT                                                    *
 *************************************************************************

  FILE NAME: FINALH.DAT
  TIME/DATE OF STUDY: 09:33 05/29/2009


                        ** INPUT SUMMARY **


**************************************************************************
  FLOW PROCESS FROM NODE     100.00 TO NODE     101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
==========================================================================
  WATERSHED AREA =      994.600 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =     0.217 HOURS
  DESERT(UNDEVELOPED) S-GRAPH SELECTED
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.079; LOW LOSS FRACTION = 0.065
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;     6-HOUR =  2.10; 24-HOUR =  3.60
  PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.956; 30-MINUTE = 0.956;  1-HOUR = 0.956
    3-HOUR = 0.993;     6-HOUR = 0.997; 24-HOUR = 0.998


**************************************************************************
  FLOW PROCESS FROM NODE     101.00 TO NODE     101.00 IS CODE = 3.1
--------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
==========================================================================
  ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
  THROUGH A FLOW-THROUGH DETENTION BASIN.
  SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
  DEAD STORAGE(AF) =       1.000
  SPECIFIED DEAD STORAGE(AF) FILLED =       1.000
  SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =       1.000
  DETENTION BASIN CONSTANT LOSS RATE(CFS) =     0.00
```

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	1.50	55.00	1.500
3	2.50	140.00	5.460
4	4.50	360.00	12.230
5	5.50	510.00	21.700
6	6.50	665.00	31.000
7	7.50	820.00	41.350
8	8.50	950.00	52.400
9	9.50	1065.00	58.800

==========

****
FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
==========

THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
ASSUMED REGULAR CHANNEL INFORMATION:
BASEWIDTH(FT) = 50.00 CHANNEL Z = 2.00
UPSTREAM ELEVATION(FT) = 3452.50; DOWNSTREAM ELEVATION(FT) = 3325.00
CHANNEL LENGTH(FT) = 6000.00 MANNING'S FACTOR = 0.030
CONSTANT LOSS RATE(CFS) = 0.00
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 9.000
==========

****
FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
==========
WATERSHED AREA = 1878.800 ACRES; BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.256 HOURS
"S"-CURVE PERCENTAGE(DECIMAL NOTATION):
VALLEY(DEVELOPED) = 0.160; FOOTHILL = 0.000; MOUNTAIN = 0.000
VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) = 0.840
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.125; LOW LOSS FRACTION = 0.142
SPECIFIED PEAK RAINFALL DEPTHS(INCH):
5-MINUTE = 0.60; 30-MINUTE = 1.03; 1-HOUR = 1.22
3-HOUR = 1.70; 6-HOUR = 2.10; 24-HOUR = 3.60
*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE = 0.979; 30-MINUTE = 0.979; 1-HOUR = 0.979
3-HOUR = 0.997; 6-HOUR = 0.999; 24-HOUR = 0.999

****
FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

```
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE = 3.1
--------------------------------------------------------------------------
 >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
==========================================================================
 ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
 THROUGH A FLOW-THROUGH DETENTION BASIN.
 SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 DEAD STORAGE(AF) =      1.000
 SPECIFIED DEAD STORAGE(AF) FILLED =      1.000
 SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      1.000
 DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

 BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

        INTERVAL    DEPTH      OUTFLOW     STORAGE
         NUMBER      (FT)       (CFS)       (AF)
            1        0.00         0.00      0.000
            2        1.00       175.00      0.120
            3        2.00       400.00      1.710
            4        3.00       730.00      7.890
            5        4.00      1140.00     17.340
            6        5.00      1575.00     27.130
            7        6.00      2040.00     38.100
            8        7.00      2585.00     48.500
            9        8.00      2900.00     58.800
           10        9.00      3100.00     69.100
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE = 5.1
--------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
==========================================================================

 THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
 AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
 ASSUMED REGULAR CHANNEL INFORMATION:
 BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
 UPSTREAM ELEVATION(FT) =    3292.00; DOWNSTREAM ELEVATION(FT) =    3225.00
 CHANNEL LENGTH(FT) =    2780.00      MANNING'S FACTOR = 0.015
 CONSTANT LOSS RATE(CFS) =    0.00
 USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  26.000
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
==========================================================================
 WATERSHED AREA =    1150.000 ACRES; BASEFLOW =   0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME =    0.294 HOURS
```

```
  DESERT(UNDEVELOPED) S-GRAPH SELECTED
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.096; LOW LOSS FRACTION = 0.090
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

  THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
  AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
  ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
  UPSTREAM ELEVATION(FT) =    3225.00; DOWNSTREAM ELEVATION(FT) =    3180.00
  CHANNEL LENGTH(FT) =    2600.00      MANNING'S FACTOR = 0.015
  CONSTANT LOSS RATE(CFS) =    0.00
  USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  25.000
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    104.50 TO NODE    104.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #2<<<<<
============================================================================
  WATERSHED AREA =     472.100 ACRES; BASEFLOW =   0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =    0.213 HOURS
  "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
  VALLEY(DEVELOPED) =  0.150; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.850
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.096; LOW LOSS FRACTION = 0.111
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999

****************************************************************************
  FLOW PROCESS FROM NODE    104.50 TO NODE    104.50 IS CODE = 3.1
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
```

```
==========================================================================
  ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
  THROUGH A FLOW-THROUGH DETENTION BASIN.
  SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
  DEAD STORAGE(AF) =      0.000
  SPECIFIED DEAD STORAGE(AF) FILLED =      0.000
  SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
  DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

  BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

         INTERVAL    DEPTH      OUTFLOW     STORAGE
          NUMBER      (FT)       (CFS)       (AF)
              1       0.00        0.00       0.000
              2       2.50       47.00       7.900
              3       5.00      134.00      19.830
              4      10.00      325.00      45.300
==========================================================================

**************************************************************************
  FLOW PROCESS FROM NODE    104.50 TO NODE    104.00 IS CODE =   4
--------------------------------------------------------------------------
  >>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<
==========================================================================
  MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
  STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
  VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
  EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
  OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET.
        UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
        (0.938)(DIAMETER):

  PIPELENGTH(FT) =     250.00     MANNINGS FACTOR = 0.015
  UPSTREAM ELEVATION(FT) =    3188.00; DOWNSTREAM ELEVATION(FT) =    3180.00
  PIPE DIAMETER(FT) =   6.00
==========================================================================

**************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
==========================================================================

**************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  11
--------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==========================================================================

**************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE = 5.1
--------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
```

```
==========================================================================

  THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
  AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
  ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
  UPSTREAM ELEVATION(FT) =    3180.00; DOWNSTREAM ELEVATION(FT) =    3140.00
  CHANNEL LENGTH(FT) =    3900.00      MANNING'S FACTOR = 0.015
  CONSTANT LOSS RATE(CFS) =    0.00
  USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  23.000
==========================================================================


**************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #3<<<<<
==========================================================================
  WATERSHED AREA =     635.000 ACRES; BASEFLOW =   0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =    0.282 HOURS
  DESERT(UNDEVELOPED) S-GRAPH SELECTED
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.103; LOW LOSS FRACTION = 0.101
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999


**************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE = 3.1
--------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #3<<<<<
==========================================================================
  ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 3
  THROUGH A FLOW-THROUGH DETENTION BASIN.
  SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
  DEAD STORAGE(AF) =      1.000
  SPECIFIED DEAD STORAGE(AF) FILLED =      1.000
  SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
  DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

  BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

         INTERVAL    DEPTH      OUTFLOW     STORAGE
          NUMBER      (FT)       (CFS)       (AF)
              1       0.00        0.00       0.000
              2       1.00        8.00       0.800
              3       5.00      134.00      12.400
              4      11.00      393.00      48.700
==========================================================================


**************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =   1
--------------------------------------------------------------------------
```

```
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #3<<<<<
================================================================================
  WATERSHED AREA =     1370.000 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =     0.306 HOURS
  "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
  VALLEY(DEVELOPED) =  0.000; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  1.000
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.115; LOW LOSS FRACTION = 0.990
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;     6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;     6-HOUR = 0.999; 24-HOUR = 0.999


********************************************************************************
  FLOW PROCESS FROM NODE     107.00 TO NODE     107.00 IS CODE =  11
--------------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 3 HYDROGRAPH<<<<<
================================================================================


********************************************************************************
  FLOW PROCESS FROM NODE     107.00 TO NODE     105.00 IS CODE = 5.1
--------------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #3 BY THE TRANSLATION METHOD<<<<<
================================================================================

  THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
  AND MOVES THE STREAM 3 RUNOFF HYDROGRAPH FORWARD IN TIME.
  ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) =    80.00      CHANNEL Z =  4.00
  UPSTREAM ELEVATION(FT) =     3191.00; DOWNSTREAM ELEVATION(FT) =     3140.00
  CHANNEL LENGTH(FT) =     3950.00       MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) =     0.00
  USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  10.000
================================================================================


********************************************************************************
  FLOW PROCESS FROM NODE     105.00 TO NODE     105.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #3<<<<<
================================================================================
  WATERSHED AREA =      544.000 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =     0.349 HOURS
  "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
  VALLEY(DEVELOPED) =  0.030; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.970
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.115; LOW LOSS FRACTION = 0.125
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;     6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;     6-HOUR = 0.999; 24-HOUR = 0.999
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     105.00 TO NODE     105.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>STREAM NUMBER 3 ADDED TO STREAM NUMBER 1<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     105.00 TO NODE     105.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     105.00 TO NODE     108.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

  THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
  AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
  ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) =   80.00      CHANNEL Z =  2.00
  UPSTREAM ELEVATION(FT) =    3140.00; DOWNSTREAM ELEVATION(FT) =    3125.00
  CHANNEL LENGTH(FT) =    1100.00       MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) =    0.00
  USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  12.000
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     108.50 TO NODE     108.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #4<<<<<
============================================================================
  WATERSHED AREA =     275.500 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =    0.179 HOURS
  "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
  VALLEY(DEVELOPED) =  0.110; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.890
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.118; LOW LOSS FRACTION = 0.139
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999

****************************************************************************
  FLOW PROCESS FROM NODE     108.50 TO NODE     108.50 IS CODE = 3.1
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #4<<<<<
============================================================================
```

```
 ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 4
 THROUGH A FLOW-THROUGH DETENTION BASIN.
 SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 DEAD STORAGE(AF) =      1.000
 SPECIFIED DEAD STORAGE(AF) FILLED =      1.000
 SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
 DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

 BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

        INTERVAL    DEPTH      OUTFLOW     STORAGE
         NUMBER      (FT)       (CFS)       (AF)
            1         0.00        0.00       0.000
            2         2.00       23.00      12.100
            3         4.00       82.00      28.400
            4         6.50      151.00      46.200
================================================================================

********************************************************************************
 FLOW PROCESS FROM NODE    108.50 TO NODE    108.00 IS CODE =   4
--------------------------------------------------------------------------------
 >>>>>MODEL PIPEFLOW ROUTING OF STREAM #4<<<<<
================================================================================
 MODEL PIPEFLOW ROUTING OF STREAM 4 WHERE
 STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
 VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
 EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
 OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET.
       UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
       (0.938)(DIAMETER):

 PIPELENGTH(FT) =     600.00     MANNINGS FACTOR = 0.013
 UPSTREAM ELEVATION(FT) =    3137.00; DOWNSTREAM ELEVATION(FT) =    3125.00
 PIPE DIAMETER(FT) =   5.00
================================================================================

********************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =   7
--------------------------------------------------------------------------------
 >>>>>STREAM NUMBER 4 ADDED TO STREAM NUMBER 1<<<<<
================================================================================

********************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  11
--------------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
================================================================================

********************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE = 5.1
--------------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
================================================================================
```

```
  THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
  AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
  ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) =   80.00      CHANNEL Z =  2.00
  UPSTREAM ELEVATION(FT) =    3125.00; DOWNSTREAM ELEVATION(FT) =    3082.00
  CHANNEL LENGTH(FT) =    3800.00      MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) =    0.00
  USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  14.000
==========================================================================


**************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
==========================================================================
  WATERSHED AREA =    1184.800 ACRES; BASEFLOW =   0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =    0.446 HOURS
  DESERT(UNDEVELOPED) S-GRAPH SELECTED
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.146; LOW LOSS FRACTION = 0.164
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999


**************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  11
--------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==========================================================================


**************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #5<<<<<
==========================================================================
  WATERSHED AREA =     101.500 ACRES; BASEFLOW =   0.000 CFS/SQUARE-MILE
  *USER ENTERED "LAG" TIME =    0.321 HOURS
  "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
  VALLEY(DEVELOPED) =  0.110; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.890
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.369; LOW LOSS FRACTION = 0.530
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
    3-HOUR = 0.997;    6-HOUR = 0.999; 24-HOUR = 0.999


**************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE = 3.1
```

```
>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #5<<<<<
ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 5
THROUGH A FLOW-THROUGH DETENTION BASIN.
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) =      1.000
SPECIFIED DEAD STORAGE(AF) FILLED =      1.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

        INTERVAL     DEPTH       OUTFLOW      STORAGE
         NUMBER      (FT)        (CFS)         (AF)
            1         0.00         0.00        0.000
            2         2.00        14.00        1.500
            3         4.00        39.00        7.910
            4         6.00        53.50       18.700
            5         8.00        63.00       34.500
```

```
**************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =   7
--------------------------------------------------------------------------
 >>>>>STREAM NUMBER 5 ADDED TO STREAM NUMBER 1<<<<<
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  11
--------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =   6
--------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 CLEARED AND SET TO ZERO<<<<<
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #2<<<<<
==========================================================================
 WATERSHED AREA =     672.000 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME =    0.319 HOURS
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
 VALLEY(DEVELOPED) =  0.070; FOOTHILL =  0.000; MOUNTAIN =  0.000
 VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.930
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.140; LOW LOSS FRACTION = 0.168
 SPECIFIED PEAK RAINFALL DEPTHS(INCH):
 5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
```

```
  3-HOUR =  1.70;     6-HOUR =  2.10; 24-HOUR =  3.60
 *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
  3-HOUR = 0.997;     6-HOUR = 0.999; 24-HOUR = 0.999


****************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE = 3.1
----------------------------------------------------------------------------
 >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
============================================================================
 ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
 THROUGH A FLOW-THROUGH DETENTION BASIN.
 SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 DEAD STORAGE(AF) =      2.000
 SPECIFIED DEAD STORAGE(AF) FILLED =      2.000
 SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
 DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00

 BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

         INTERVAL    DEPTH      OUTFLOW     STORAGE
          NUMBER      (FT)       (CFS)       (AF)
              1       0.00        0.00       0.000
              2       2.00       47.00      15.000
              3       5.00      133.00      42.000
              4      10.00      338.00      87.000
============================================================================


****************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    109.00 IS CODE =   4
----------------------------------------------------------------------------
 >>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<
============================================================================
 MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
 STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
 VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
 EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
 OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET.
       UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
       (0.938)(DIAMETER):

 PIPELENGTH(FT) =     500.00     MANNINGS FACTOR = 0.013
 UPSTREAM ELEVATION(FT) =    3088.00; DOWNSTREAM ELEVATION(FT) =    3082.00
 PIPE DIAMETER(FT) =   6.00
============================================================================


****************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================


****************************************************************************
```

```
 FLOW PROCESS FROM NODE     109.00 TO NODE     109.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     109.00 TO NODE     111.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

 THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
 AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.
 ASSUMED REGULAR CHANNEL INFORMATION:
 BASEWIDTH(FT) =  120.00      CHANNEL Z =  2.00
 UPSTREAM ELEVATION(FT) =     3082.00; DOWNSTREAM ELEVATION(FT) =     3070.00
 CHANNEL LENGTH(FT) =    1050.00       MANNING'S FACTOR = 0.030
 CONSTANT LOSS RATE(CFS) =     0.00
 USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  14.000
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     111.00 TO NODE     111.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
============================================================================
 WATERSHED AREA =       99.300 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME =     0.243 HOURS
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
 VALLEY(DEVELOPED) =  0.250; FOOTHILL =  0.000; MOUNTAIN =  0.000
 VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  0.750
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.302; LOW LOSS FRACTION = 0.442
 SPECIFIED PEAK RAINFALL DEPTHS(INCH):
 5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
   3-HOUR =  1.70;     6-HOUR =  2.10; 24-HOUR =  3.60
 *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE = 0.979; 30-MINUTE = 0.979;  1-HOUR = 0.979
   3-HOUR = 0.997;     6-HOUR = 0.999; 24-HOUR = 1.000

****************************************************************************
 FLOW PROCESS FROM NODE     111.00 TO NODE     111.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE     111.00 TO NODE     111.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS) ADDED TO STREAM #1<<<<<
============================================================================
 WATERSHED AREA =      360.100 ACRES; BASEFLOW =    0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME =     0.288 HOURS
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION):
```

```
  VALLEY(DEVELOPED) =  0.000; FOOTHILL =  0.000; MOUNTAIN =  0.000
  VALLEY(UNDEVELOPED)/DESERT = 0.000; DESERT(UNDEVELOPED) =  1.000
  MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.101; LOW LOSS FRACTION = 0.097
  SPECIFIED PEAK RAINFALL DEPTHS(INCH):
  5-MINUTE =  0.60; 30-MINUTE =  1.03;  1-HOUR =  1.22
    3-HOUR =  1.70;    6-HOUR =  2.10; 24-HOUR =  3.60
  PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE = 0.984; 30-MINUTE = 0.984;  1-HOUR = 0.984
    3-HOUR = 0.998;    6-HOUR = 0.999; 24-HOUR = 0.999


****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================
============================================================================
```

* AES FLOODSCx PROGRAM RESULTS SUMMARY *

INPUT FILENAME: [FINALH.DAT]

UPSTREAM NODE #	DOWNSTREAM NODE #	HYDROLOGIC/HYDRAULIC PROCESS		UPSTREAM PEAK (CFS)	DOWNSTREAM PEAK (CFS)	TIME(2) TO PEAK (HR)	MAX. STORAGE MODELED (AF)	FOOTNOTES
100.00	101.00	Subarea (UH) Added to	Stream #1	0.0	2641.9	16.250		
101.00	101.00	Flow-Through Basin:	Stream #1	2641.9	898.2	16.500	48.02	
101.00	102.00	Translation Routing:	Stream #1	898.2	895.6	16.667		
102.00	102.00	Subarea (UH) Added to	Stream #1	895.6	4824.2	16.250		
102.00	102.00	View:	Stream #1		4824.2	16.250	778.18	3
102.00	102.00	Flow-Through Basin:	Stream #1	4824.2	2947.3	16.500	62.18	
102.00	103.00	Translation Routing:	Stream #1	2947.3	2945.8	16.500		
103.00	103.00	Subarea (UH) Added to	Stream #1	2945.8	4996.3	16.333		
103.00	103.00	View:	Stream #1		4996.3	16.333	1097.42	3
103.00	104.00	Translation Routing:	Stream #1	4996.3	4720.6	16.333		
104.50	104.50	Subarea (UH) Added to	Stream #2	0.0	1288.5	16.250		
104.50	104.50	Flow-Through Basin:	Stream #2	1288.5	281.6	16.667	39.55	
104.50	104.00	Pipe Flow Routing:	Stream #2	281.6	281.6	16.667		
104.00	104.00	Stream #2 Added to:	Stream #1	4720.6	4976.6	16.417		
104.00	104.00	View:	Stream #1		4976.6	16.417	1225.78	3
104.00	105.00	Translation Routing:	Stream #1	4976.6	4966.1	16.417		
106.00	107.00	Subarea (UH) Added to	Stream #3	0.0	1348.4	16.250		
107.00	107.00	Flow-Through Basin:	Stream #3	1348.4	362.1	16.750	44.43	
107.00	107.00	Subarea (UH) Added to	Stream #3	362.1	3159.2	16.333		
107.00	107.00	View:	Stream #3		3159.2	16.333	338.51	3
107.00	105.00	Translation Routing:	Stream #3	3159.2	3030.9	16.417		
105.00	105.00	Subarea (UH) Added to	Stream #3	3030.9	3925.4	16.417		
105.00	105.00	Stream #3 Added to:	Stream #1	4966.1	8891.5	16.417		
105.00	105.00	View:	Stream #1		8891.5	16.417	1710.21	3
105.00	108.00	Translation Routing:	Stream #1	8891.5	8585.7	16.417		
108.50	108.50	Subarea (UH) Added to	Stream #4	0.0	767.3	16.250		
108.50	108.50	Flow-Through Basin:	Stream #4	767.3	104.6	16.833	34.24	
108.50	108.00	Pipe Flow Routing:	Stream #4	104.6	104.6	16.833		
108.00	108.00	Stream #4 Added to:	Stream #1	8585.7	8680.7	16.417		
108.00	108.00	View:	Stream #1		8680.7	16.417	1783.20	3
108.00	109.00	Translation Routing:	Stream #1	8680.7	8653.8	16.500		

109.00	109.00	Subarea (UH) Added to	Stream #1	8653.8	10278.7	16.500		
109.00	109.00	View:	Stream #1		10278.7	16.500	2089.53	3
109.00	109.00	Subarea (UH) Added to	Stream #5	0.0	191.4	16.333		
109.00	109.00	Flow-Through Basin:	Stream #5	191.4	31.9	16.917	6.09	
109.00	109.00	Stream #5 Added to:	Stream #1	10278.7	10307.2	16.500		
109.00	109.00	View:	Stream #1		10307.2	16.500	2106.80	3
110.00	110.00	Zero Out:	Stream #2	281.6	0.0			
110.00	110.00	Subarea (UH) Added to	Stream #2	0.0	1406.6	16.333		
110.00	110.00	Flow-Through Basin:	Stream #2	1406.6	254.1	17.083	68.64	

Notes: 1 = BASIN MODEL VOLUME EXCEEDED; 2 = TIME IS AT END OF 5-MINUTE UNIT INTERVAL
3 = RUNOFF ESTIMATES DO NOT EXTEND PAST 2 DAYS AFTER THE PEAK DAY OF THE DESIGN STORM

* AES FLOODSCx PROGRAM RESULTS SUMMARY *

INPUT FILENAME: [FINALH.DAT] Page: 2 of

UPSTREAM NODE #	DOWNSTREAM NODE #	HYDROLOGIC/HYDRAULIC PROCESS		UPSTREAM PEAK (CFS)	DOWNSTREAM PEAK (CFS)	TIME(2) TO PEAK (HR)	MAX. STORAGE MODELED (AF)	FOOTNOTES
110.00	109.00	Pipe Flow Routing:	Stream #2	254.1	254.1	17.083		
109.00	109.00	Stream #2 Added to:	Stream #1	10307.2	10522.7	16.500		
109.00	109.00	View:	Stream #1		10522.7	16.500	2280.05	3
109.00	111.00	Translation Routing:	Stream #1	10522.7	10300.1	16.500		
111.00	111.00	Subarea (UH) Added to	Stream #1	10300.1	10382.9	16.500		
111.00	111.00	View:	Stream #1		10382.9	16.500	2299.12	3
111.00	111.00	Subarea (UH) Added to	Stream #1	10382.9	10760.2	16.500		
111.00	111.00	View:	Stream #1		10760.2	16.500	2398.19	3

Notes: 1 = BASIN MODEL VOLUME EXCEEDED; 2 = TIME IS AT END OF 5-MINUTE UNIT INTERVAL
3 = RUNOFF ESTIMATES DO NOT EXTEND PAST 2 DAYS AFTER THE PEAK DAY OF THE DESIGN STORM

END OF FLOODSCx ROUTING ANALYSIS

Routing Detail Version

```
**************************************************************************

          F L O O D    R O U T I N G    A N A L Y S I S
        USING COUNTY HYDROLOGY MANUAL OF SAN BERNARDINO(1986)
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                        Analysis prepared by:

                          Allard Engineering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Hacienda at Fairview Valley                                             *
* Fairview Creek Tributary to Cahuilla Road - Developed Condition         *
* 100 YEAR STORM EVENT                                                    *
 *************************************************************************

  FILE NAME: FINALH.DAT
  TIME/DATE OF STUDY: 09:30 05/29/2009


**************************************************************************
  FLOW PROCESS FROM NODE     100.00 TO NODE     101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =      994.600 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.217 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.079
         LOW LOSS FRACTION = 0.065
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.956
          30-MINUTE FACTOR = 0.956
           1-HOUR FACTOR = 0.956
           3-HOUR FACTOR = 0.993
           6-HOUR FACTOR = 0.997
```

NODE 100→101 SUBAREA HYDROGRAPH

24-HOUR FACTOR = 0.998

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 38.402

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 25.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.577	309.923
2	16.915	1724.651
3	46.748	3588.475
4	63.979	2072.667
5	73.429	1136.589
6	79.741	759.310
7	84.203	536.723
8	87.720	423.007
9	90.263	305.903
10	92.305	245.640
11	93.976	201.018
12	95.303	159.577
13	96.381	129.626
14	97.232	102.353
15	97.852	74.659
16	98.258	48.770
17	98.704	53.627
18	99.164	55.425
19	99.610	53.627
20	100.000	46.872

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0003	0.0046
2	0.0049	0.0003	0.0046
3	0.0049	0.0003	0.0046
4	0.0049	0.0003	0.0046
5	0.0049	0.0003	0.0046
6	0.0049	0.0003	0.0046
7	0.0050	0.0003	0.0046
8	0.0050	0.0003	0.0047
9	0.0050	0.0003	0.0047
10	0.0050	0.0003	0.0047
11	0.0050	0.0003	0.0047
12	0.0050	0.0003	0.0047
13	0.0051	0.0003	0.0047
14	0.0051	0.0003	0.0047
15	0.0051	0.0003	0.0048
16	0.0051	0.0003	0.0048
17	0.0051	0.0003	0.0048
18	0.0051	0.0003	0.0048
19	0.0052	0.0003	0.0048
20	0.0052	0.0003	0.0048
21	0.0052	0.0003	0.0049
22	0.0052	0.0003	0.0049
23	0.0052	0.0003	0.0049
24	0.0053	0.0003	0.0049
25	0.0053	0.0003	0.0049
26	0.0053	0.0003	0.0050
27	0.0053	0.0003	0.0050
28	0.0053	0.0003	0.0050
29	0.0054	0.0003	0.0050
30	0.0054	0.0003	0.0050
31	0.0054	0.0004	0.0050
32	0.0054	0.0004	0.0051
33	0.0054	0.0004	0.0051
34	0.0055	0.0004	0.0051
35	0.0055	0.0004	0.0051
36	0.0055	0.0004	0.0051
37	0.0055	0.0004	0.0052
38	0.0055	0.0004	0.0052
39	0.0056	0.0004	0.0052
40	0.0056	0.0004	0.0052
41	0.0056	0.0004	0.0053
42	0.0056	0.0004	0.0053
43	0.0057	0.0004	0.0053
44	0.0057	0.0004	0.0053
45	0.0057	0.0004	0.0053
46	0.0057	0.0004	0.0054
47	0.0058	0.0004	0.0054
48	0.0058	0.0004	0.0054
49	0.0058	0.0004	0.0054
50	0.0058	0.0004	0.0054
51	0.0059	0.0004	0.0055

52	0.0059	0.0004	0.0055
53	0.0059	0.0004	0.0055
54	0.0059	0.0004	0.0055
55	0.0060	0.0004	0.0056
56	0.0060	0.0004	0.0056
57	0.0060	0.0004	0.0056
58	0.0060	0.0004	0.0056
59	0.0061	0.0004	0.0057
60	0.0061	0.0004	0.0057
61	0.0061	0.0004	0.0057
62	0.0061	0.0004	0.0057
63	0.0062	0.0004	0.0058
64	0.0062	0.0004	0.0058
65	0.0062	0.0004	0.0058
66	0.0063	0.0004	0.0059
67	0.0063	0.0004	0.0059
68	0.0063	0.0004	0.0059
69	0.0064	0.0004	0.0059
70	0.0064	0.0004	0.0060
71	0.0064	0.0004	0.0060
72	0.0064	0.0004	0.0060
73	0.0065	0.0004	0.0061
74	0.0065	0.0004	0.0061
75	0.0066	0.0004	0.0061
76	0.0066	0.0004	0.0062
77	0.0066	0.0004	0.0062
78	0.0066	0.0004	0.0062
79	0.0067	0.0004	0.0063
80	0.0067	0.0004	0.0063
81	0.0068	0.0004	0.0063
82	0.0068	0.0004	0.0064
83	0.0068	0.0004	0.0064
84	0.0069	0.0004	0.0064
85	0.0069	0.0004	0.0065
86	0.0069	0.0005	0.0065
87	0.0070	0.0005	0.0065
88	0.0070	0.0005	0.0066
89	0.0071	0.0005	0.0066
90	0.0071	0.0005	0.0066
91	0.0072	0.0005	0.0067
92	0.0072	0.0005	0.0067
93	0.0073	0.0005	0.0068
94	0.0073	0.0005	0.0068
95	0.0073	0.0005	0.0069
96	0.0074	0.0005	0.0069
97	0.0074	0.0005	0.0070
98	0.0075	0.0005	0.0070
99	0.0075	0.0005	0.0070
100	0.0076	0.0005	0.0071
101	0.0076	0.0005	0.0071
102	0.0077	0.0005	0.0072
103	0.0077	0.0005	0.0072
104	0.0078	0.0005	0.0073
105	0.0078	0.0005	0.0073
106	0.0079	0.0005	0.0074
107	0.0080	0.0005	0.0074
108	0.0080	0.0005	0.0075

109	0.0081	0.0005	0.0075
110	0.0081	0.0005	0.0076
111	0.0082	0.0005	0.0077
112	0.0082	0.0005	0.0077
113	0.0083	0.0005	0.0078
114	0.0084	0.0005	0.0078
115	0.0084	0.0005	0.0079
116	0.0085	0.0006	0.0079
117	0.0086	0.0006	0.0080
118	0.0086	0.0006	0.0081
119	0.0087	0.0006	0.0082
120	0.0088	0.0006	0.0082
121	0.0089	0.0006	0.0083
122	0.0089	0.0006	0.0083
123	0.0090	0.0006	0.0084
124	0.0091	0.0006	0.0085
125	0.0092	0.0006	0.0086
126	0.0092	0.0006	0.0086
127	0.0094	0.0006	0.0087
128	0.0094	0.0006	0.0088
129	0.0095	0.0006	0.0089
130	0.0096	0.0006	0.0090
131	0.0097	0.0006	0.0091
132	0.0098	0.0006	0.0092
133	0.0099	0.0006	0.0093
134	0.0100	0.0006	0.0093
135	0.0101	0.0007	0.0095
136	0.0102	0.0007	0.0095
137	0.0104	0.0007	0.0097
138	0.0104	0.0007	0.0097
139	0.0106	0.0007	0.0099
140	0.0107	0.0007	0.0100
141	0.0108	0.0007	0.0101
142	0.0109	0.0007	0.0102
143	0.0111	0.0007	0.0104
144	0.0112	0.0007	0.0105
145	0.0090	0.0006	0.0085
146	0.0091	0.0006	0.0085
147	0.0093	0.0006	0.0087
148	0.0094	0.0006	0.0088
149	0.0096	0.0006	0.0090
150	0.0097	0.0006	0.0091
151	0.0099	0.0006	0.0093
152	0.0100	0.0007	0.0094
153	0.0103	0.0007	0.0096
154	0.0104	0.0007	0.0097
155	0.0106	0.0007	0.0100
156	0.0108	0.0007	0.0101
157	0.0111	0.0007	0.0103
158	0.0112	0.0007	0.0105
159	0.0115	0.0007	0.0108
160	0.0117	0.0008	0.0109
161	0.0120	0.0008	0.0112
162	0.0122	0.0008	0.0114
163	0.0125	0.0008	0.0117
164	0.0127	0.0008	0.0119
165	0.0132	0.0009	0.0123

166	0.0134	0.0009	0.0125
167	0.0139	0.0009	0.0130
168	0.0141	0.0009	0.0132
169	0.0160	0.0010	0.0149
170	0.0163	0.0011	0.0152
171	0.0169	0.0011	0.0158
172	0.0173	0.0011	0.0162
173	0.0181	0.0012	0.0169
174	0.0185	0.0012	0.0173
175	0.0194	0.0013	0.0181
176	0.0199	0.0013	0.0186
177	0.0210	0.0014	0.0196
178	0.0216	0.0014	0.0202
179	0.0230	0.0015	0.0215
180	0.0238	0.0015	0.0222
181	0.0255	0.0017	0.0239
182	0.0265	0.0017	0.0248
183	0.0289	0.0019	0.0270
184	0.0303	0.0020	0.0283
185	0.0245	0.0016	0.0229
186	0.0263	0.0017	0.0246
187	0.0308	0.0020	0.0288
188	0.0339	0.0022	0.0317
189	0.0526	0.0034	0.0492
190	0.0606	0.0039	0.0567
191	0.0919	0.0060	0.0859
192	0.1334	0.0066	0.1268
193	0.5734	0.0066	0.5668
194	0.0723	0.0047	0.0676
195	0.0377	0.0025	0.0353
196	0.0283	0.0018	0.0265
197	0.0319	0.0021	0.0298
198	0.0277	0.0018	0.0259
199	0.0246	0.0016	0.0230
200	0.0223	0.0014	0.0208
201	0.0204	0.0013	0.0191
202	0.0189	0.0012	0.0177
203	0.0177	0.0011	0.0165
204	0.0166	0.0011	0.0155
205	0.0144	0.0009	0.0135
206	0.0136	0.0009	0.0127
207	0.0130	0.0008	0.0121
208	0.0124	0.0008	0.0116
209	0.0118	0.0008	0.0111
210	0.0113	0.0007	0.0106
211	0.0109	0.0007	0.0102
212	0.0105	0.0007	0.0098
213	0.0102	0.0007	0.0095
214	0.0098	0.0006	0.0092
215	0.0095	0.0006	0.0089
216	0.0092	0.0006	0.0086
217	0.0113	0.0007	0.0105
218	0.0110	0.0007	0.0103
219	0.0107	0.0007	0.0100
220	0.0105	0.0007	0.0098
221	0.0103	0.0007	0.0096
222	0.0101	0.0007	0.0094

223	0.0099	0.0006	0.0092
224	0.0097	0.0006	0.0090
225	0.0095	0.0006	0.0089
226	0.0093	0.0006	0.0087
227	0.0091	0.0006	0.0085
228	0.0090	0.0006	0.0084
229	0.0088	0.0006	0.0082
230	0.0087	0.0006	0.0081
231	0.0085	0.0006	0.0080
232	0.0084	0.0005	0.0079
233	0.0083	0.0005	0.0077
234	0.0082	0.0005	0.0076
235	0.0080	0.0005	0.0075
236	0.0079	0.0005	0.0074
237	0.0078	0.0005	0.0073
238	0.0077	0.0005	0.0072
239	0.0076	0.0005	0.0071
240	0.0075	0.0005	0.0070
241	0.0074	0.0005	0.0069
242	0.0073	0.0005	0.0068
243	0.0072	0.0005	0.0068
244	0.0071	0.0005	0.0067
245	0.0071	0.0005	0.0066
246	0.0070	0.0005	0.0065
247	0.0069	0.0004	0.0064
248	0.0068	0.0004	0.0064
249	0.0067	0.0004	0.0063
250	0.0067	0.0004	0.0062
251	0.0066	0.0004	0.0062
252	0.0065	0.0004	0.0061
253	0.0065	0.0004	0.0060
254	0.0064	0.0004	0.0060
255	0.0063	0.0004	0.0059
256	0.0063	0.0004	0.0059
257	0.0062	0.0004	0.0058
258	0.0062	0.0004	0.0058
259	0.0061	0.0004	0.0057
260	0.0060	0.0004	0.0057
261	0.0060	0.0004	0.0056
262	0.0059	0.0004	0.0056
263	0.0059	0.0004	0.0055
264	0.0058	0.0004	0.0055
265	0.0058	0.0004	0.0054
266	0.0057	0.0004	0.0054
267	0.0057	0.0004	0.0053
268	0.0056	0.0004	0.0053
269	0.0056	0.0004	0.0052
270	0.0056	0.0004	0.0052
271	0.0055	0.0004	0.0052
272	0.0055	0.0004	0.0051
273	0.0054	0.0004	0.0051
274	0.0054	0.0004	0.0050
275	0.0053	0.0003	0.0050
276	0.0053	0.0003	0.0050
277	0.0053	0.0003	0.0049
278	0.0052	0.0003	0.0049
279	0.0052	0.0003	0.0049

280	0.0052	0.0003	0.0048
281	0.0051	0.0003	0.0048
282	0.0051	0.0003	0.0048
283	0.0051	0.0003	0.0047
284	0.0050	0.0003	0.0047
285	0.0050	0.0003	0.0047
286	0.0050	0.0003	0.0046
287	0.0049	0.0003	0.0046
288	0.0049	0.0003	0.0046

TOTAL STORM RAINFALL(INCHES) = 3.59
TOTAL SOIL-LOSS(INCHES) = 0.20
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.39

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.6396
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 280.9990

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	675.0	1350.0	2025.0	2700.0
0.083	0.0097	1.41	Q	.	.	.	.
0.167	0.0735	9.26	Q	.	.	.	.
0.250	0.2499	25.62	Q	.	.	.	.
0.333	0.4918	35.12	Q	.	.	.	.
0.417	0.7701	40.41	Q	.	.	.	.
0.500	1.0730	43.99	Q	.	.	.	.
0.583	1.3938	46.57	Q	.	.	.	.
0.667	1.7288	48.65	Q	.	.	.	.
0.750	2.0746	50.20	Q	.	.	.	.
0.833	2.4291	51.48	Q	.	.	.	.
0.917	2.7911	52.57	Q	.	.	.	.
1.000	3.1593	53.46	Q	.	.	.	.
1.083	3.5328	54.23	Q	.	.	.	.
1.167	3.9108	54.88	Q	.	.	.	.
1.250	4.2924	55.40	Q	.	.	.	.
1.333	4.6767	55.81	Q	.	.	.	.
1.417	5.0641	56.25	Q	.	.	.	.
1.500	5.4545	56.69	Q	.	.	.	.
1.583	5.8480	57.13	Q	.	.	.	.
1.667	6.2442	57.54	Q	.	.	.	.
1.750	6.6419	57.74	Q	.	.	.	.
1.833	7.0409	57.94	QV	.	.	.	.
1.917	7.4414	58.15	QV	.	.	.	.
2.000	7.8432	58.35	QV	.	.	.	.
2.083	8.2466	58.56	QV	.	.	.	.
2.167	8.6513	58.76	QV	.	.	.	.
2.250	9.0575	58.98	QV	.	.	.	.
2.333	9.4651	59.19	QV	.	.	.	.
2.417	9.8743	59.41	QV	.	.	.	.
2.500	10.2849	59.62	QV	.	.	.	.
2.583	10.6970	59.85	QV	.	.	.	.
2.667	11.1107	60.06	QV	.	.	.	.
2.750	11.5259	60.29	QV	.	.	.	.
2.833	11.9427	60.51	QV	.	.	.	.
2.917	12.3610	60.75	QV	.	.	.	.
3.000	12.7809	60.97	QV	.	.	.	.
3.083	13.2025	61.21	QV	.	.	.	.
3.167	13.6256	61.44	QV	.	.	.	.
3.250	14.0504	61.68	Q V	.	.	.	.
3.333	14.4769	61.92	Q V	.	.	.	.
3.417	14.9050	62.16	Q V	.	.	.	.
3.500	15.3348	62.40	Q V	.	.	.	.
3.583	15.7663	62.66	Q V	.	.	.	.
3.667	16.1995	62.90	Q V	.	.	.	.
3.750	16.6345	63.16	Q V	.	.	.	.

3.833	17.0712	63.41	Q	V	.	.	.
3.917	17.5097	63.67	Q	V	.	.	.
4.000	17.9500	63.93	Q	V	.	.	.
4.083	18.3922	64.20	Q	V	.	.	.
4.167	18.8361	64.46	Q	V	.	.	.
4.250	19.2820	64.74	Q	V	.	.	.
4.333	19.7297	65.00	Q	V	.	.	.
4.417	20.1793	65.29	Q	V	.	.	.
4.500	20.6308	65.56	Q	V	.	.	.
4.583	21.0843	65.85	Q	V	.	.	.
4.667	21.5397	66.13	Q	V	.	.	.
4.750	21.9971	66.42	Q	V	.	.	.
4.833	22.4566	66.71	Q	V	.	.	.
4.917	22.9181	67.01	Q	V	.	.	.
5.000	23.3816	67.30	Q	V	.	.	.
5.083	23.8472	67.61	.Q	V	.	.	.
5.167	24.3149	67.91	.Q	V	.	.	.
5.250	24.7848	68.23	.Q	V	.	.	.
5.333	25.2568	68.53	.Q	V	.	.	.
5.417	25.7310	68.86	.Q	V	.	.	.
5.500	26.2074	69.17	.Q	V	.	.	.
5.583	26.6861	69.50	.Q	V	.	.	.
5.667	27.1670	69.83	.Q	V	.	.	.
5.750	27.6503	70.17	.Q	V	.	.	.
5.833	28.1358	70.50	.Q	V	.	.	.
5.917	28.6237	70.85	.Q	V	.	.	.
6.000	29.1140	71.19	.Q	V	.	.	.
6.083	29.6067	71.55	.Q	V	.	.	.
6.167	30.1018	71.89	.Q	V	.	.	.
6.250	30.5995	72.26	.Q	V	.	.	.
6.333	31.0996	72.62	.Q	V	.	.	.
6.417	31.6023	73.00	.Q	V	.	.	.
6.500	32.1076	73.36	.Q	V	.	.	.
6.583	32.6155	73.75	.Q	V	.	.	.
6.667	33.1261	74.13	.Q	V	.	.	.
6.750	33.6394	74.53	.Q	V	.	.	.
6.833	34.1553	74.92	.Q	V	.	.	.
6.917	34.6741	75.33	.Q	V	.	.	.
7.000	35.1956	75.73	.Q	V	.	.	.
7.083	35.7201	76.15	.Q	V	.	.	.
7.167	36.2473	76.56	.Q	V	.	.	.
7.250	36.7776	76.99	.Q	V	.	.	.
7.333	37.3108	77.42	.Q	V	.	.	.
7.417	37.8470	77.86	.Q	V	.	.	.
7.500	38.3863	78.30	.Q	V	.	.	.
7.583	38.9287	78.76	.Q	V	.	.	.
7.667	39.4743	79.21	.Q	V	.	.	.
7.750	40.0231	79.69	.Q	V	.	.	.
7.833	40.5751	80.15	.Q	V	.	.	.
7.917	41.1305	80.64	.Q	V	.	.	.
8.000	41.6891	81.12	.Q	V	.	.	.
8.083	42.2513	81.63	.Q	V	.	.	.
8.167	42.8169	82.12	.Q	V	.	.	.
8.250	43.3860	82.64	.Q	V	.	.	.
8.333	43.9587	83.15	.Q	V	.	.	.
8.417	44.5351	83.70	.Q	V	.	.	.
8.500	45.1152	84.22	.Q	V	.	.	.

8.583	45.6991	84.78	.Q	V	.	.	.	.
8.667	46.2868	85.33	.Q	V	.	.	.	.
8.750	46.8784	85.91	.Q	V	.	.	.	.
8.833	47.4740	86.48	.Q	V	.	.	.	.
8.917	48.0737	87.08	.Q	V	.	.	.	.
9.000	48.6775	87.66	.Q	V	.	.	.	.
9.083	49.2855	88.29	.Q	V	.	.	.	.
9.167	49.8977	88.89	.Q	V	.	.	.	.
9.250	50.5144	89.54	.Q	V	.	.	.	.
9.333	51.1354	90.17	.Q	V	.	.	.	.
9.417	51.7610	90.84	.Q	V	.	.	.	.
9.500	52.3912	91.50	.Q	V	.	.	.	.
9.583	53.0262	92.20	.Q	V	.	.	.	.
9.667	53.6659	92.88	.Q	V	.	.	.	.
9.750	54.3105	93.61	.Q	V	.	.	.	.
9.833	54.9601	94.32	.Q	V	.	.	.	.
9.917	55.6149	95.08	.Q	V	.	.	.	.
10.000	56.2748	95.82	.Q	V	.	.	.	.
10.083	56.9401	96.61	.Q	V	.	.	.	.
10.167	57.6108	97.38	.Q	V	.	.	.	.
10.250	58.2871	98.20	.Q	V	.	.	.	.
10.333	58.9690	99.01	.Q	V	.	.	.	.
10.417	59.6568	99.87	.Q	V	.	.	.	.
10.500	60.3504	100.71	.Q	V	.	.	.	.
10.583	61.0502	101.62	.Q	V	.	.	.	.
10.667	61.7562	102.50	.Q	V	.	.	.	.
10.750	62.4686	103.44	.Q	V	.	.	.	.
10.833	63.1874	104.37	.Q	V	.	.	.	.
10.917	63.9130	105.36	.Q	V	.	.	.	.
11.000	64.6454	106.34	.Q	V	.	.	.	.
11.083	65.3849	107.38	.Q	V	.	.	.	.
11.167	66.1314	108.40	.Q	V	.	.	.	.
11.250	66.8856	109.50	.Q	V	.	.	.	.
11.333	67.6471	110.58	.Q	V	.	.	.	.
11.417	68.4166	111.73	.Q	V	.	.	.	.
11.500	69.1940	112.87	.Q	V	.	.	.	.
11.583	69.9797	114.09	.Q	V	.	.	.	.
11.667	70.7738	115.30	.Q	V	.	.	.	.
11.750	71.5767	116.59	.Q	V	.	.	.	.
11.833	72.3884	117.86	.Q	V	.	.	.	.
11.917	73.2096	119.24	.Q	V	.	.	.	.
12.000	74.0401	120.59	.Q	V	.	.	.	.
12.083	74.8760	121.37	.Q	V	.	.	.	.
12.167	75.6959	119.05	.Q	V	.	.	.	.
12.250	76.4724	112.75	.Q	V	.	.	.	.
12.333	77.2279	109.70	.Q	V	.	.	.	.
12.417	77.9770	108.77	.Q	.V	.	.	.	.
12.500	78.7252	108.64	.Q	.V	.	.	.	.
12.583	79.4766	109.10	.Q	.V	.	.	.	.
12.667	80.2328	109.80	.Q	.V	.	.	.	.
12.750	80.9965	110.89	.Q	.V	.	.	.	.
12.833	81.7685	112.09	.Q	.V	.	.	.	.
12.917	82.5504	113.54	.Q	.V	.	.	.	.
13.000	83.3429	115.07	.Q	.V	.	.	.	.
13.083	84.1475	116.83	.Q	.V	.	.	.	.
13.167	84.9646	118.65	.Q	. V	.	.	.	.
13.250	85.7960	120.71	.Q	. V	.	.	.	.

13.333	86.6420	122.84	.Q . V . . .
13.417	87.5040	125.16	.Q . V . . .
13.500	88.3820	127.49	.Q . V . . .
13.583	89.2778	130.07	.Q . V . . .
13.667	90.1915	132.67	.Q . V . . .
13.750	91.1258	135.66	. Q . V . . .
13.833	92.0809	138.68	. Q . V . . .
13.917	93.0590	142.02	. Q . V . . .
14.000	94.0603	145.40	. Q . V . . .
14.083	95.0902	149.53	. Q . V . . .
14.167	96.1609	155.46	. Q . V . . .
14.250	97.2912	164.13	. Q . V . . .
14.333	98.4696	171.11	. Q . V . . .
14.417	99.6924	177.55	. Q . V . . .
14.500	100.9575	183.69	. Q . V . . .
14.583	102.2679	190.27	. Q . V . . .
14.667	103.6241	196.92	. Q . V . . .
14.750	105.0311	204.30	. Q . V . . .
14.833	106.4905	211.91	. Q . V . . .
14.917	108.0097	220.58	. Q . V . . .
15.000	109.5915	229.67	. Q . V . . .
15.083	111.2458	240.21	. Q . V . . .
15.167	112.9775	251.44	. Q . V . . .
15.250	114.8006	264.71	. Q . V . . .
15.333	116.7231	279.15	. Q . V . . .
15.417	118.7480	294.01	. Q . V . . .
15.500	120.8053	298.72	. Q . V . . .
15.583	122.8146	291.75	. Q . V . . .
15.667	124.8822	300.22	. Q . V . . .
15.750	127.1348	327.09	. Q . V . . .
15.833	129.7493	379.62	. Q . V . . .
15.917	133.0274	475.98	. Q . V . . .
16.000	137.2224	609.11	. Q. V. . .
16.083	143.8421	961.19	. . Q V . .
16.167	156.2260	1798.14	. . . V Q . .
16.250	174.4210	2641.91	. . . V . . Q.
16.333	186.7238	1786.37	. . . Q . . .
16.417	194.8409	1178.60	. . Q . V . .
16.500	200.9944	893.48	. . Q . V . .
16.583	206.0399	732.61	. . Q . V. .
16.667	210.3671	628.31	. . Q. . V. .
16.750	214.0085	528.74	. Q . . V .
16.833	217.1945	462.60	. Q . . V .
16.917	220.0145	409.46	. Q . . .V .
17.000	222.5096	362.29	. Q . . .V .
17.083	224.7399	323.85	. Q . . .V .
17.167	226.7234	287.99	. Q . . . V .
17.250	228.4650	252.89	. Q . . . V .
17.333	230.0107	224.43	. Q . . . V .
17.417	231.4814	213.54	. Q . . . V .
17.500	232.8784	202.86	. Q . . . V .
17.583	234.1869	189.99	. Q . . . V .
17.667	235.3845	173.89	. Q . . . V .
17.750	236.3591	141.50	. Q . . . V .
17.833	237.2778	133.41	.Q . . . V .
17.917	238.1553	127.41	.Q . . . V .
18.000	238.9973	122.26	.Q . . . V .

18.083	239.8102	118.03	.Q	.	.	.	V	.
18.167	240.6188	117.41	.Q	.	.	.	V	.
18.250	241.4536	121.22	.Q	.	.	.	V	.
18.333	242.2940	122.01	.Q	.	.	.	V	.
18.417	243.1273	121.01	.Q	.	.	.	V	.
18.500	243.9496	119.40	.Q	.	.	.	V	.
18.583	244.7590	117.51	.Q	.	.	.	V	.
18.667	245.5549	115.57	.Q	.	.	.	V	.
18.750	246.3373	113.60	.Q	.	.	.	V	.
18.833	247.1063	111.65	.Q	.	.	.	V	.
18.917	247.8620	109.74	.Q	.	.	.	V	.
19.000	248.6048	107.86	.Q	.	.	.	V	.
19.083	249.3350	106.02	.Q	.	.	.	V	.
19.167	250.0529	104.24	.Q	.	.	.	V	.
19.250	250.7588	102.49	.Q	.	.	.	V	.
19.333	251.4528	100.77	.Q	.	.	.	V	.
19.417	252.1357	99.15	.Q	.	.	.	V	.
19.500	252.8079	97.61	.Q	.	.	.	V	.
19.583	253.4700	96.13	.Q	.	.	.	V	.
19.667	254.1222	94.71	.Q	.	.	.	V	.
19.750	254.7645	93.25	.Q	.	.	.	V	.
19.833	255.3970	91.84	.Q	.	.	.	V	.
19.917	256.0202	90.49	.Q	.	.	.	V	.
20.000	256.6346	89.20	.Q	.	.	.	V	.
20.083	257.2403	87.95	.Q	.	.	.	V	.
20.167	257.8377	86.75	.Q	.	.	.	V	.
20.250	258.4271	85.58	.Q	.	.	.	V	.
20.333	259.0088	84.46	.Q	.	.	.	V	.
20.417	259.5830	83.38	.Q	.	.	.	V	.
20.500	260.1501	82.34	.Q	.	.	.	V	.
20.583	260.7102	81.32	.Q	.	.	.	V	.
20.667	261.2635	80.34	.Q	.	.	.	V	.
20.750	261.8103	79.40	.Q	.	.	.	V	.
20.833	262.3508	78.48	.Q	.	.	.	V	.
20.917	262.8851	77.58	.Q	.	.	.	V	.
21.000	263.4135	76.72	.Q	.	.	.	V	.
21.083	263.9360	75.88	.Q	.	.	.	V	.
21.167	264.4530	75.06	.Q	.	.	.	V	.
21.250	264.9645	74.27	.Q	.	.	.	V	.
21.333	265.4707	73.50	.Q	.	.	.	V	.
21.417	265.9717	72.75	.Q	.	.	.	V	.
21.500	266.4677	72.02	.Q	.	.	.	V	.
21.583	266.9587	71.30	.Q	.	.	.	V	.
21.667	267.4450	70.61	.Q	.	.	.	V	.
21.750	267.9267	69.93	.Q	.	.	.	V	.
21.833	268.4038	69.28	.Q	.	.	.	V	.
21.917	268.8765	68.63	.Q	.	.	.	V	.
22.000	269.3448	68.01	.Q	.	.	.	V	.
22.083	269.8090	67.39	Q	.	.	.	V	.
22.167	270.2690	66.80	Q	.	.	.	V	.
22.250	270.7250	66.21	Q	.	.	.	V	.
22.333	271.1771	65.64	Q	.	.	.	V	.
22.417	271.6253	65.08	Q	.	.	.	V	.
22.500	272.0698	64.54	Q	.	.	.	V	.
22.583	272.5106	64.01	Q	.	.	.	V	.
22.667	272.9478	63.48	Q	.	.	.	V	.
22.750	273.3815	62.97	Q	.	.	.	V	.

22.833	273.8118	62.47	Q	.	.	.	V .
22.917	274.2386	61.98	Q	.	.	.	V.
23.000	274.6622	61.50	Q	.	.	.	V.
23.083	275.0826	61.03	Q	.	.	.	V.
23.167	275.4998	60.57	Q	.	.	.	V.
23.250	275.9138	60.12	Q	.	.	.	V.
23.333	276.3248	59.68	Q	.	.	.	V.
23.417	276.7328	59.24	Q	.	.	.	V.
23.500	277.1379	58.82	Q	.	.	.	V.
23.583	277.5402	58.40	Q	.	.	.	V.
23.667	277.9395	57.99	Q	.	.	.	V.
23.750	278.3362	57.59	Q	.	.	.	V.
23.833	278.7300	57.19	Q	.	.	.	V.
23.917	279.1213	56.81	Q	.	.	.	V.
24.000	279.5099	56.42	Q	.	.	.	V.
24.083	279.8862	54.64	Q	.	.	.	V.
24.167	280.2061	46.45	Q	.	.	.	V.
24.250	280.4116	29.85	Q	.	.	.	V.
24.333	280.5510	20.24	Q	.	.	.	V.
24.417	280.6539	14.94	Q	.	.	.	V.
24.500	280.7324	11.40	Q	.	.	.	V.
24.583	280.7936	8.88	Q	.	.	.	V.
24.667	280.8411	6.90	Q	.	.	.	V.
24.750	280.8788	5.47	Q	.	.	.	V.
24.833	280.9085	4.32	Q	.	.	.	V.
24.917	280.9318	3.38	Q	.	.	.	V.
25.000	280.9499	2.63	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1505.0
10%	120.0
20%	50.0
30%	30.0
40%	20.0
50%	15.0
60%	15.0
70%	5.0
80%	5.0
90%	5.0

****
FLOW PROCESS FROM NODE 101.00 TO NODE 101.00 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
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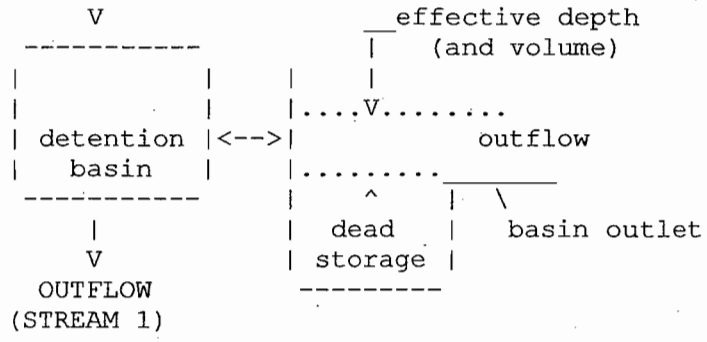
INFLOW
(STREAM 1)
|
|



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 1.000
SPECIFIED DEAD STORAGE(AF) FILLED = 1.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 1.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	1.50	55.00	1.500
3	2.50	140.00	5.460
4	4.50	360.00	12.230
5	5.50	510.00	21.700
6	6.50	665.00	31.000
7	7.50	820.00	41.350
8	8.50	950.00	52.400
9	9.50	1065.00	58.800

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
12.083	1.000	121.37	0.00	2.20	113.8	4.264
12.167	1.000	119.05	0.00	2.21	114.7	4.294
12.250	1.000	112.75	0.00	2.20	114.8	4.280
12.333	1.000	109.70	0.00	2.19	114.3	4.248
12.417	1.000	108.77	0.00	2.19	113.6	4.215
12.500	1.000	108.64	0.00	2.18	112.9	4.185
12.583	1.000	109.10	0.00	2.17	112.4	4.162
12.667	1.000	109.80	0.00	2.17	112.0	4.147
12.750	1.000	110.89	0.00	2.17	111.8	4.141
12.833	1.000	112.09	0.00	2.17	111.7	4.144

NODE 101 BASIN D-2

12.917	1.000	113.54	0.00	2.17	111.9	4.155
13.000	1.000	115.07	0.00	2.18	112.2	4.175
13.083	1.000	116.83	0.00	2.18	112.7	4.203
13.167	1.000	118.65	0.00	2.19	113.4	4.239
13.250	1.000	120.71	0.00	2.20	114.3	4.284
13.333	1.000	122.84	0.00	2.22	115.3	4.336
13.417	1.000	125.16	0.00	2.23	116.5	4.395
13.500	1.000	127.49	0.00	2.25	117.9	4.462
13.583	1.000	130.07	0.00	2.27	119.4	4.535
13.667	1.000	132.67	0.00	2.29	121.0	4.616
13.750	1.000	135.66	0.00	2.31	122.8	4.704
13.833	1.000	138.68	0.00	2.33	124.8	4.800
13.917	1.000	142.02	0.00	2.36	126.9	4.903
14.000	1.000	145.40	0.00	2.39	129.2	5.015
14.083	1.000	149.53	0.00	2.42	131.8	5.137
14.167	1.000	155.46	0.00	2.45	134.6	5.281
14.250	1.000	164.13	0.00	2.50	138.1	5.460
14.333	1.000	171.11	0.00	2.56	143.1	5.653
14.417	1.000	177.55	0.00	2.61	149.4	5.847
14.500	1.000	183.69	0.00	2.67	155.7	6.039
14.583	1.000	190.27	0.00	2.73	162.0	6.234
14.667	1.000	196.92	0.00	2.79	168.4	6.431
14.750	1.000	204.30	0.00	2.85	174.8	6.634
14.833	1.000	211.91	0.00	2.91	181.5	6.843
14.917	1.000	220.58	0.00	2.97	188.5	7.064
15.000	1.000	229.67	0.00	3.04	195.9	7.296
15.083	1.000	240.21	0.00	3.12	203.8	7.547
15.167	1.000	251.44	0.00	3.20	212.2	7.817
15.250	1.000	264.71	0.00	3.28	221.5	8.115
15.333	1.000	279.15	0.00	3.38	231.6	8.443
15.417	1.000	294.01	0.00	3.49	242.7	8.796
15.500	1.000	298.72	0.00	3.58	253.5	9.108
15.583	1.000	291.75	0.00	3.64	261.9	9.314
15.667	1.000	300.22	0.00	3.70	268.7	9.530
15.750	1.000	327.09	0.00	3.80	277.8	9.870
15.833	1.000	379.62	0.00	3.98	293.0	10.466
15.917	1.000	475.98	0.00	4.30	320.1	11.540
16.000	1.000	609.11	0.00	4.61	357.1	13.276
16.083	1.000	961.19	0.00	5.01	406.8	17.094
16.167	1.000	1798.14	0.00	5.96	509.1	25.971
16.250	1.000	2641.91	0.00	7.32	686.3	39.440
16.333	1.000	1786.37	0.00	7.92	833.1	46.005
16.417	1.000	1178.60	0.00	8.10	886.6	48.016
16.500	1.000	893.48	0.00	8.10	898.2	47.983
16.583	1.000	732.61	0.00	8.00	891.6	46.888
16.667	1.000	628.31	0.00	7.85	875.2	45.188
16.750	1.000	528.74	0.00	7.65	852.1	42.962
16.833	1.000	462.60	0.00	7.42	823.0	40.480
16.917	1.000	409.46	0.00	7.16	787.5	37.876
17.000	1.000	362.29	0.00	6.91	748.1	35.219
17.083	1.000	323.85	0.00	6.65	708.4	32.571
17.167	1.000	287.99	0.00	6.39	668.0	29.954
17.250	1.000	252.89	0.00	6.11	626.1	27.383
17.333	1.000	224.43	0.00	5.84	584.1	24.906
17.417	1.000	213.54	0.00	5.60	544.4	22.627
17.500	1.000	202.86	0.00	5.38	508.4	20.523
17.583	1.000	189.99	0.00	5.17	475.8	18.555

17.667	1.000	173.89	0.00	4.97	445.4	16.685
17.750	1.000	141.50	0.00	4.77	415.6	14.797
17.833	1.000	133.41	0.00	4.59	386.8	13.052
17.917	1.000	127.41	0.00	4.28	354.5	11.488
18.000	1.000	122.26	0.00	3.89	314.4	10.165
18.083	1.000	118.03	0.00	3.57	275.3	9.082
18.167	1.000	117.41	0.00	3.31	243.6	8.213
18.250	1.000	121.22	0.00	3.12	218.6	7.542
18.333	1.000	122.01	0.00	2.96	199.1	7.012
18.417	1.000	121.01	0.00	2.83	183.4	6.582
18.500	1.000	119.40	0.00	2.73	170.7	6.228
18.583	1.000	117.51	0.00	2.64	160.2	5.935
18.667	1.000	115.57	0.00	2.57	151.4	5.688
18.750	1.000	113.60	0.00	2.51	144.0	5.478
18.833	1.000	111.65	0.00	2.46	138.5	5.293
18.917	1.000	109.74	0.00	2.41	134.6	5.122
19.000	1.000	107.86	0.00	2.37	131.0	4.963
19.083	1.000	106.02	0.00	2.34	127.7	4.813
19.167	1.000	104.24	0.00	2.30	124.6	4.673
19.250	1.000	102.49	0.00	2.27	121.7	4.541
19.333	1.000	100.77	0.00	2.24	118.9	4.416
19.417	1.000	99.15	0.00	2.21	116.3	4.297
19.500	1.000	97.61	0.00	2.18	113.8	4.186
19.583	1.000	96.13	0.00	2.15	111.5	4.080
19.667	1.000	94.71	0.00	2.13	109.3	3.979
19.750	1.000	93.25	0.00	2.10	107.2	3.883
19.833	1.000	91.84	0.00	2.08	105.2	3.792
19.917	1.000	90.49	0.00	2.06	103.2	3.704
20.000	1.000	89.20	0.00	2.04	101.4	3.620
20.083	1.000	87.95	0.00	2.01	99.6	3.539
20.167	1.000	86.75	0.00	2.00	97.9	3.462
20.250	1.000	85.58	0.00	1.98	96.3	3.388
20.333	1.000	84.46	0.00	1.96	94.8	3.317
20.417	1.000	83.38	0.00	1.94	93.3	3.249
20.500	1.000	82.34	0.00	1.93	91.8	3.184
20.583	1.000	81.32	0.00	1.91	90.5	3.121
20.667	1.000	80.34	0.00	1.89	89.1	3.060
20.750	1.000	79.40	0.00	1.88	87.9	3.002
20.833	1.000	78.48	0.00	1.87	86.6	2.946
20.917	1.000	77.58	0.00	1.85	85.4	2.891
21.000	1.000	76.72	0.00	1.84	84.3	2.839
21.083	1.000	75.88	0.00	1.83	83.2	2.789
21.167	1.000	75.06	0.00	1.81	82.1	2.740
21.250	1.000	74.27	0.00	1.80	81.1	2.693
21.333	1.000	73.50	0.00	1.79	80.1	2.647
21.417	1.000	72.75	0.00	1.78	79.2	2.603
21.500	1.000	72.02	0.00	1.77	78.2	2.560
21.583	1.000	71.30	0.00	1.76	77.3	2.519
21.667	1.000	70.61	0.00	1.75	76.4	2.479
21.750	1.000	69.93	0.00	1.74	75.6	2.440
21.833	1.000	69.28	0.00	1.73	74.8	2.402
21.917	1.000	68.63	0.00	1.72	74.0	2.365
22.000	1.000	68.01	0.00	1.71	73.2	2.330
22.083	1.000	67.39	0.00	1.70	72.4	2.295
22.167	1.000	66.80	0.00	1.69	71.7	2.261
22.250	1.000	66.21	0.00	1.68	71.0	2.228
22.333	1.000	65.64	0.00	1.68	70.3	2.196

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        22.417        1.000    65.08     0.00      1.67     69.6      2.165
        22.500        1.000    64.54     0.00      1.66     68.9      2.135
        22.583        1.000    64.01     0.00      1.65     68.3      2.105
        22.667        1.000    63.48     0.00      1.65     67.7      2.076
        22.750        1.000    62.97     0.00      1.64     67.1      2.048
        22.833        1.000    62.47     0.00      1.63     66.5      2.020
        22.917        1.000    61.98     0.00      1.62     65.9      1.994
        23.000        1.000    61.50     0.00      1.62     65.3      1.967
        23.083        1.000    61.03     0.00      1.61     64.8      1.942
        23.167        1.000    60.57     0.00      1.61     64.2      1.917
        23.250        1.000    60.12     0.00      1.60     63.7      1.892
        23.333        1.000    59.68     0.00      1.59     63.2      1.868
        23.417        1.000    59.24     0.00      1.59     62.7      1.845
        23.500        1.000    58.82     0.00      1.58     62.2      1.822
        23.583        1.000    58.40     0.00      1.58     61.7      1.799
        23.667        1.000    57.99     0.00      1.57     61.2      1.777
        23.750        1.000    57.59     0.00      1.56     60.7      1.756
        23.833        1.000    57.19     0.00      1.56     60.3      1.735
        23.917        1.000    56.81     0.00      1.55     59.8      1.714
--------------------------------------------------------------------------------
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    280.999 AF
    BASIN  STORAGE =      1.000 AF (WITH      2.000 AF INITIALLY FILLED)
    OUTFLOW VOLUME =    281.999 AF
    LOSS    VOLUME =      0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE = 5.1
--------------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
================================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =    50.00      CHANNEL Z =  2.00
          UPSTREAM ELEVATION(FT) =     3452.50
          DOWNSTREAM ELEVATION(FT) =     3325.00
          CHANNEL LENGTH(FT) =     6000.00      MANNING'S FACTOR = 0.030
          CONSTANT LOSS RATE(CFS) =    0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                                (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (      898.2).......[  9.79]
          AVERAGED PEAK 15-MINUTE: (      892.1).......[  9.82]
          AVERAGED PEAK 30-MINUTE: (      872.8).......[  9.70]
          AVERAGED PEAK  1-HOUR:   (      804.8).......[  9.39]
          AVERAGED PEAK  3-HOUR:   (      513.2).......[  7.97]
          AVERAGED PEAK  6-HOUR:   (      332.2).......[  6.71]
          AVERAGED PEAK 24-HOUR:   (      141.0).......[  4.82]
        USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   9.000
        HYDROGRAPH TRANSLATION TIME
        = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
        = (    6000.00)/(  9.000) =    0.185 HRS
```

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	32.71	0.00	0.00
0.167	26.58	0.00	0.00
0.250	24.53	25.44	25.44
0.333	25.84	27.94	27.94
0.417	28.51	24.98	24.98
0.500	31.58	25.55	25.55
0.583	34.65	27.92	27.92
0.667	37.56	30.90	30.90
0.750	40.22	33.97	33.97
0.833	42.60	36.91	36.91
0.917	44.71	39.63	39.63
1.000	46.57	42.07	42.07
1.083	48.20	44.24	44.24
1.167	49.63	46.16	46.16
1.250	50.86	47.84	47.84
1.333	51.93	49.31	49.31
1.417	52.85	50.59	50.59
1.500	53.66	51.69	51.69
1.583	54.39	52.64	52.64
1.667	54.98	53.48	53.48
1.750	55.40	54.23	54.23
1.833	55.73	54.85	54.85
1.917	56.05	55.30	55.30
2.000	56.35	55.66	55.66
2.083	56.64	55.98	55.98
2.167	56.92	56.29	56.29
2.250	57.19	56.58	56.58
2.333	57.45	56.86	56.86
2.417	57.70	57.13	57.13
2.500	57.95	57.39	57.39
2.583	58.20	57.65	57.65
2.667	58.44	57.90	57.90
2.750	58.68	58.14	58.14
2.833	58.92	58.39	58.39
2.917	59.15	58.63	58.63
3.000	59.39	58.86	58.86
3.083	59.62	59.10	59.10
3.167	59.86	59.33	59.33
3.250	60.09	59.57	59.57
3.333	60.33	59.80	59.80
3.417	60.56	60.04	60.04
3.500	60.80	60.27	60.27
3.583	61.04	60.51	60.51
3.667	61.28	60.75	60.75
3.750	61.52	60.98	60.98
3.833	61.76	61.22	61.22
3.917	62.01	61.46	61.46
4.000	62.25	61.71	61.71
4.083	62.50	61.95	61.95
4.167	62.75	62.20	62.20
4.250	63.01	62.45	62.45
4.333	63.27	62.70	62.70

NODES 101 → 102 CHANNEL ROUTING

4.417	63.52	62.95	62.95
4.500	63.79	63.21	63.21
4.583	64.05	63.47	63.47
4.667	64.32	63.73	63.73
4.750	64.59	63.99	63.99
4.833	64.86	64.26	64.26
4.917	65.13	64.53	64.53
5.000	65.41	64.80	64.80
5.083	65.69	65.07	65.07
5.167	65.98	65.35	65.35
5.250	66.27	65.63	65.63
5.333	66.56	65.91	65.91
5.417	66.85	66.20	66.20
5.500	67.15	66.49	66.49
5.583	67.45	66.79	66.79
5.667	67.76	67.08	67.08
5.750	68.06	67.38	67.38
5.833	68.38	67.69	67.69
5.917	68.69	68.00	68.00
6.000	69.01	68.31	68.31
6.083	69.34	68.62	68.62
6.167	69.66	68.94	68.94
6.250	70.00	69.26	69.26
6.333	70.33	69.59	69.59
6.417	70.67	69.92	69.92
6.500	71.02	70.26	70.26
6.583	71.37	70.60	70.60
6.667	71.72	70.94	70.94
6.750	72.08	71.29	71.29
6.833	72.44	71.64	71.64
6.917	72.81	72.00	72.00
7.000	73.19	72.36	72.36
7.083	73.57	72.73	72.73
7.167	73.95	73.10	73.10
7.250	74.34	73.48	73.48
7.333	74.73	73.86	73.86
7.417	75.13	74.25	74.25
7.500	75.54	74.65	74.65
7.583	75.95	75.04	75.04
7.667	76.37	75.45	75.45
7.750	76.79	75.86	75.86
7.833	77.22	76.28	76.28
7.917	77.66	76.70	76.70
8.000	78.10	77.13	77.13
8.083	78.55	77.56	77.56
8.167	79.01	78.00	78.00
8.250	79.47	78.45	78.45
8.333	79.95	78.91	78.91
8.417	80.42	79.37	79.37
8.500	80.91	79.84	79.84
8.583	81.41	80.32	80.32
8.667	81.91	80.80	80.80
8.750	82.42	81.30	81.30
8.833	82.94	81.80	81.80
8.917	83.47	82.31	82.31
9.000	84.00	82.82	82.82
9.083	84.55	83.35	83.35

9.167	85.11	83.89	83.89
9.250	85.67	84.43	84.43
9.333	86.25	84.98	84.98
9.417	86.84	85.55	85.55
9.500	87.43	86.12	86.12
9.583	88.04	86.70	86.70
9.667	88.66	87.30	87.30
9.750	89.29	87.90	87.90
9.833	89.93	88.52	88.52
9.917	90.59	89.15	89.15
10.000	91.26	89.79	89.79
10.083	91.94	90.44	90.44
10.167	92.64	91.11	91.11
10.250	93.34	91.79	91.79
10.333	94.07	92.48	92.48
10.417	94.81	93.19	93.19
10.500	95.56	93.91	93.91
10.583	96.33	94.64	94.64
10.667	97.12	95.40	95.40
10.750	97.93	96.16	96.16
10.833	98.75	96.95	96.95
10.917	99.59	97.75	97.75
11.000	100.45	98.57	98.57
11.083	101.34	99.41	99.41
11.167	102.24	100.26	100.26
11.250	103.16	101.14	101.14
11.333	104.11	102.04	102.04
11.417	105.08	102.96	102.96
11.500	106.07	103.90	103.90
11.583	107.09	104.86	104.86
11.667	108.14	105.85	105.85
11.750	109.21	106.87	106.87
11.833	110.32	107.91	107.91
11.917	111.45	108.97	108.97
12.000	112.61	110.07	110.07
12.083	113.77	111.20	111.20
12.167	114.65	112.36	112.36
12.250	114.82	113.51	113.51
12.333	114.33	114.46	114.46
12.417	113.63	114.79	114.79
12.500	112.95	114.44	114.44
12.583	112.39	113.78	113.78
12.667	111.98	113.10	113.10
12.750	111.76	112.51	112.51
12.833	111.72	112.07	112.07
12.917	111.87	111.81	111.81
13.000	112.21	111.73	111.73
13.083	112.72	111.84	111.84
13.167	113.41	112.13	112.13
13.250	114.27	112.61	112.61
13.333	115.31	113.26	113.26
13.417	116.50	114.08	114.08
13.500	117.86	115.08	115.08
13.583	119.36	116.24	116.24
13.667	121.01	117.56	117.56
13.750	122.82	119.03	119.03
13.833	124.80	120.65	120.65

13.917	126.94	122.42	122.42
14.000	129.25	124.36	124.36
14.083	131.75	126.46	126.46
14.167	134.61	128.73	128.73
14.250	138.08	131.20	131.20
14.333	143.13	133.98	133.98
14.417	149.41	137.31	137.31
14.500	155.69	142.01	142.01
14.583	161.99	148.02	148.02
14.667	168.35	154.30	154.30
14.750	174.85	160.59	160.59
14.833	181.54	166.94	166.94
14.917	188.53	173.40	173.40
15.000	195.89	180.05	180.05
15.083	203.75	186.97	186.97
15.167	212.22	194.26	194.26
15.250	221.45	202.01	202.01
15.333	231.61	210.34	210.34
15.417	242.68	219.40	219.40
15.500	253.48	229.35	229.35
15.583	261.89	240.22	240.22
15.667	268.75	251.08	251.08
15.750	277.79	260.02	260.02
15.833	293.00	267.22	267.22
15.917	320.13	275.78	275.78
16.000	357.07	289.62	289.62
16.083	406.80	314.10	314.10
16.167	509.11	348.86	348.86
16.250	686.29	395.75	395.75
16.333	833.08	486.38	486.38
16.417	886.60	646.92	646.92
16.500	898.23	800.46	800.46
16.583	891.60	874.70	874.70
16.667	875.16	895.65	895.65
16.750	852.06	893.07	893.07
16.833	822.96	878.81	878.81
16.917	787.47	857.19	857.19
17.000	748.08	829.43	829.43
17.083	708.36	795.36	795.36
17.167	668.05	756.84	756.84
17.250	626.14	717.19	717.19
17.333	584.08	677.01	677.01
17.417	544.45	635.45	635.45
17.500	508.41	593.43	593.43
17.583	475.77	553.25	553.25
17.667	445.37	516.42	516.42
17.750	415.62	483.02	483.02
17.833	386.84	452.13	452.13
17.917	354.46	422.23	422.23
18.000	314.39	393.24	393.24
18.083	275.30	361.65	361.65
18.167	243.58	323.30	323.30
18.250	218.57	283.98	283.98
18.333	199.05	250.63	250.63
18.417	183.44	224.12	224.12
18.500	170.72	203.39	203.39
18.583	160.20	186.91	186.91

18.667	151.41	173.54	173.54
18.750	144.00	162.53	162.53
18.833	138.51	153.36	153.36
18.917	134.59	145.65	145.65
19.000	131.04	139.73	139.73
19.083	127.72	135.46	135.46
19.167	124.61	131.83	131.83
19.250	121.69	128.46	128.46
19.333	118.92	125.30	125.30
19.417	116.31	122.34	122.34
19.500	113.85	119.54	119.54
19.583	111.51	116.89	116.89
19.667	109.29	114.39	114.39
19.750	107.19	112.03	112.03
19.833	105.17	109.79	109.79
19.917	103.24	107.66	107.66
20.000	101.40	105.62	105.62
20.083	99.63	103.67	103.67
20.167	97.94	101.81	101.81
20.250	96.32	100.03	100.03
20.333	94.77	98.32	98.32
20.417	93.27	96.68	96.68
20.500	91.84	95.11	95.11
20.583	90.46	93.61	93.61
20.667	89.14	92.16	92.16
20.750	87.86	90.77	90.77
20.833	86.63	89.43	89.43
20.917	85.45	88.14	88.14
21.000	84.31	86.91	86.91
21.083	83.20	85.71	85.71
21.167	82.14	84.56	84.56
21.250	81.11	83.45	83.45
21.333	80.12	82.38	82.38
21.417	79.15	81.34	81.34
21.500	78.22	80.34	80.34
21.583	77.32	79.37	79.37
21.667	76.44	78.43	78.43
21.750	75.59	77.52	77.52
21.833	74.77	76.64	76.64
21.917	73.97	75.78	75.78
22.000	73.19	74.95	74.95
22.083	72.43	74.15	74.15
22.167	71.70	73.36	73.36
22.250	70.98	72.60	72.60
22.333	70.29	71.86	71.86
22.417	69.61	71.14	71.14
22.500	68.95	70.44	70.44
22.583	68.31	69.76	69.76
22.667	67.68	69.10	69.10
22.750	67.07	68.45	68.45
22.833	66.47	67.82	67.82
22.917	65.88	67.20	67.20
23.000	65.31	66.60	66.60
23.083	64.76	66.01	66.01
23.167	64.21	65.44	65.44
23.250	63.68	64.88	64.88
23.333	63.16	64.33	64.33

23.417	62.65	63.80	63.80
23.500	62.15	63.28	63.28
23.583	61.66	62.76	62.76
23.667	61.19	62.26	62.26
23.750	60.72	61.77	61.77
23.833	60.26	61.29	61.29
23.917	59.81	60.82	60.82
24.000	59.37	60.36	60.36
24.083	58.84	59.91	59.91
24.167	57.70	59.47	59.47
24.250	54.43	58.96	58.96
24.333	48.43	57.96	57.96
24.417	41.51	55.16	55.16
24.500	35.16	49.76	49.76
24.583	29.55	43.05	43.05
24.667	24.69	36.57	36.57
24.750	20.54	30.80	30.80
24.833	17.03	25.77	25.77
24.917	14.08	21.47	21.47
25.000	11.59	17.81	17.81
25.083	9.52	14.74	14.74
25.167	7.78	12.15	12.15
25.250	6.35	9.98	9.98
25.333	5.16	8.17	8.17
25.417	4.20	6.66	6.66
25.500	3.39	5.43	5.43
25.583	2.70	4.41	4.41
25.667	2.12	3.57	3.57
25.750	1.65	2.86	2.86
25.833	1.28	2.25	2.25
25.917	0.99	1.75	1.75
26.000	0.77	1.36	1.36
26.083	0.60	1.05	1.05
26.167	0.46	0.82	0.82
26.250	0.36	0.63	0.63
26.333	0.28	0.49	0.49
26.417	0.22	0.38	0.38
26.500	0.17	0.30	0.30
26.583	0.13	0.23	0.23
26.667	0.10	0.18	0.18
26.750	0.08	0.14	0.14
26.833	0.06	0.11	0.11
26.917	0.05	0.08	0.08
27.000	0.04	0.06	0.06
27.083	0.03	0.05	0.05
27.167	0.02	0.04	0.04
27.250	0.02	0.03	0.03
27.333	0.01	0.02	0.02
27.417	0.01	0.02	0.02
27.500	0.01	0.01	0.01
27.583	0.01	0.01	0.01
27.667	0.00	0.01	0.01
27.750	0.00	0.01	0.01
27.833	0.00	0.01	0.01
27.917	0.00	0.00	0.00
28.000	0.00	0.00	0.00

```
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =     281.999 AF
    OUTFLOW VOLUME =     281.999 AF
    LOSS    VOLUME =       0.000 AF

****************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     102.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     1878.800 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.256 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.160
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.840
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.125
         LOW LOSS FRACTION = 0.142
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.999
          24-HOUR FACTOR = 0.999

         UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  32.552

============================================================================
                    UNIT HYDROGRAPH DETERMINATION
----------------------------------------------------------------------------
     INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
      NUMBER          MEAN VALUES          ORDINATES(CFS)
```

NODE 102 SUBAREA HYDROGRAPH

1	2.012	457.247
2	11.517	2159.517
3	35.799	5517.325
4	57.208	4864.466
5	69.592	2813.990
6	77.266	1743.662
7	82.406	1167.953
8	85.964	808.268
9	88.703	622.431
10	90.859	489.896
11	92.511	375.249
12	93.903	316.380
13	95.062	263.318
14	95.999	213.037
15	96.785	178.396
16	97.451	151.370
17	97.956	114.768
18	98.317	82.086
19	98.599	64.130
20	98.922	73.405
21	99.251	74.552
22	99.574	73.405
23	99.897	73.406
24	100.000	23.482

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0007	0.0042
2	0.0049	0.0007	0.0042
3	0.0049	0.0007	0.0042
4	0.0049	0.0007	0.0042
5	0.0049	0.0007	0.0042
6	0.0049	0.0007	0.0042
7	0.0050	0.0007	0.0043
8	0.0050	0.0007	0.0043
9	0.0050	0.0007	0.0043
10	0.0050	0.0007	0.0043
11	0.0050	0.0007	0.0043
12	0.0050	0.0007	0.0043
13	0.0051	0.0007	0.0043
14	0.0051	0.0007	0.0043
15	0.0051	0.0007	0.0044
16	0.0051	0.0007	0.0044
17	0.0051	0.0007	0.0044
18	0.0051	0.0007	0.0044
19	0.0052	0.0007	0.0044
20	0.0052	0.0007	0.0044
21	0.0052	0.0007	0.0045
22	0.0052	0.0007	0.0045
23	0.0052	0.0007	0.0045
24	0.0052	0.0007	0.0045
25	0.0053	0.0007	0.0045
26	0.0053	0.0008	0.0045
27	0.0053	0.0008	0.0046
28	0.0053	0.0008	0.0046
29	0.0054	0.0008	0.0046
30	0.0054	0.0008	0.0046
31	0.0054	0.0008	0.0046
32	0.0054	0.0008	0.0046
33	0.0054	0.0008	0.0047
34	0.0054	0.0008	0.0047
35	0.0055	0.0008	0.0047
36	0.0055	0.0008	0.0047
37	0.0055	0.0008	0.0047
38	0.0055	0.0008	0.0047
39	0.0056	0.0008	0.0048
40	0.0056	0.0008	0.0048
41	0.0056	0.0008	0.0048
42	0.0056	0.0008	0.0048
43	0.0057	0.0008	0.0049
44	0.0057	0.0008	0.0049
45	0.0057	0.0008	0.0049
46	0.0057	0.0008	0.0049
47	0.0057	0.0008	0.0049
48	0.0058	0.0008	0.0049
49	0.0058	0.0008	0.0050
50	0.0058	0.0008	0.0050
51	0.0058	0.0008	0.0050

52	0.0059	0.0008	0.0050
53	0.0059	0.0008	0.0051
54	0.0059	0.0008	0.0051
55	0.0059	0.0008	0.0051
56	0.0060	0.0008	0.0051
57	0.0060	0.0009	0.0052
58	0.0060	0.0009	0.0052
59	0.0061	0.0009	0.0052
60	0.0061	0.0009	0.0052
61	0.0061	0.0009	0.0052
62	0.0061	0.0009	0.0053
63	0.0062	0.0009	0.0053
64	0.0062	0.0009	0.0053
65	0.0062	0.0009	0.0053
66	0.0063	0.0009	0.0054
67	0.0063	0.0009	0.0054
68	0.0063	0.0009	0.0054
69	0.0064	0.0009	0.0055
70	0.0064	0.0009	0.0055
71	0.0064	0.0009	0.0055
72	0.0064	0.0009	0.0055
73	0.0065	0.0009	0.0056
74	0.0065	0.0009	0.0056
75	0.0065	0.0009	0.0056
76	0.0066	0.0009	0.0056
77	0.0066	0.0009	0.0057
78	0.0066	0.0009	0.0057
79	0.0067	0.0009	0.0057
80	0.0067	0.0010	0.0058
81	0.0068	0.0010	0.0058
82	0.0068	0.0010	0.0058
83	0.0068	0.0010	0.0059
84	0.0069	0.0010	0.0059
85	0.0069	0.0010	0.0059
86	0.0069	0.0010	0.0060
87	0.0070	0.0010	0.0060
88	0.0070	0.0010	0.0060
89	0.0071	0.0010	0.0061
90	0.0071	0.0010	0.0061
91	0.0072	0.0010	0.0061
92	0.0072	0.0010	0.0062
93	0.0072	0.0010	0.0062
94	0.0073	0.0010	0.0062
95	0.0073	0.0010	0.0063
96	0.0074	0.0010	0.0063
97	0.0074	0.0011	0.0064
98	0.0075	0.0011	0.0064
99	0.0075	0.0011	0.0065
100	0.0076	0.0011	0.0065
101	0.0076	0.0011	0.0065
102	0.0077	0.0011	0.0066
103	0.0077	0.0011	0.0066
104	0.0078	0.0011	0.0067
105	0.0078	0.0011	0.0067
106	0.0079	0.0011	0.0068
107	0.0080	0.0011	0.0068
108	0.0080	0.0011	0.0069

109	0.0081	0.0011	0.0069
110	0.0081	0.0012	0.0070
111	0.0082	0.0012	0.0070
112	0.0082	0.0012	0.0071
113	0.0083	0.0012	0.0071
114	0.0084	0.0012	0.0072
115	0.0084	0.0012	0.0072
116	0.0085	0.0012	0.0073
117	0.0086	0.0012	0.0074
118	0.0086	0.0012	0.0074
119	0.0087	0.0012	0.0075
120	0.0088	0.0012	0.0075
121	0.0089	0.0013	0.0076
122	0.0089	0.0013	0.0077
123	0.0090	0.0013	0.0077
124	0.0091	0.0013	0.0078
125	0.0092	0.0013	0.0079
126	0.0092	0.0013	0.0079
127	0.0094	0.0013	0.0080
128	0.0094	0.0013	0.0081
129	0.0095	0.0014	0.0082
130	0.0096	0.0014	0.0082
131	0.0097	0.0014	0.0083
132	0.0098	0.0014	0.0084
133	0.0099	0.0014	0.0085
134	0.0100	0.0014	0.0086
135	0.0101	0.0014	0.0087
136	0.0102	0.0014	0.0088
137	0.0103	0.0015	0.0089
138	0.0104	0.0015	0.0089
139	0.0106	0.0015	0.0091
140	0.0107	0.0015	0.0091
141	0.0108	0.0015	0.0093
142	0.0109	0.0016	0.0094
143	0.0111	0.0016	0.0095
144	0.0112	0.0016	0.0096
145	0.0090	0.0013	0.0077
146	0.0091	0.0013	0.0078
147	0.0093	0.0013	0.0080
148	0.0094	0.0013	0.0080
149	0.0096	0.0014	0.0082
150	0.0097	0.0014	0.0083
151	0.0099	0.0014	0.0085
152	0.0100	0.0014	0.0086
153	0.0102	0.0015	0.0088
154	0.0104	0.0015	0.0089
155	0.0106	0.0015	0.0091
156	0.0107	0.0015	0.0092
157	0.0110	0.0016	0.0094
158	0.0112	0.0016	0.0096
159	0.0115	0.0016	0.0098
160	0.0116	0.0017	0.0100
161	0.0120	0.0017	0.0103
162	0.0121	0.0017	0.0104
163	0.0125	0.0018	0.0107
164	0.0127	0.0018	0.0109
165	0.0131	0.0019	0.0113

166	0.0134	0.0019	0.0115
167	0.0138	0.0020	0.0119
168	0.0141	0.0020	0.0121
169	0.0151	0.0022	0.0130
170	0.0154	0.0022	0.0132
171	0.0161	0.0023	0.0138
172	0.0164	0.0023	0.0141
173	0.0172	0.0024	0.0147
174	0.0176	0.0025	0.0151
175	0.0185	0.0026	0.0159
176	0.0190	0.0027	0.0163
177	0.0201	0.0028	0.0172
178	0.0207	0.0029	0.0177
179	0.0220	0.0031	0.0189
180	0.0228	0.0032	0.0195
181	0.0245	0.0035	0.0210
182	0.0255	0.0036	0.0219
183	0.0279	0.0040	0.0239
184	0.0293	0.0042	0.0251
185	0.0251	0.0036	0.0215
186	0.0269	0.0038	0.0231
187	0.0316	0.0045	0.0271
188	0.0347	0.0049	0.0298
189	0.0539	0.0077	0.0463
190	0.0621	0.0088	0.0533
191	0.0941	0.0104	0.0837
192	0.1367	0.0104	0.1263
193	0.5874	0.0104	0.5770
194	0.0741	0.0104	0.0637
195	0.0387	0.0055	0.0332
196	0.0290	0.0041	0.0249
197	0.0308	0.0044	0.0265
198	0.0266	0.0038	0.0229
199	0.0236	0.0034	0.0203
200	0.0213	0.0030	0.0183
201	0.0195	0.0028	0.0167
202	0.0180	0.0026	0.0155
203	0.0168	0.0024	0.0144
204	0.0158	0.0022	0.0135
205	0.0144	0.0020	0.0123
206	0.0136	0.0019	0.0117
207	0.0129	0.0018	0.0111
208	0.0123	0.0017	0.0106
209	0.0118	0.0017	0.0101
210	0.0113	0.0016	0.0097
211	0.0109	0.0015	0.0093
212	0.0105	0.0015	0.0090
213	0.0101	0.0014	0.0087
214	0.0098	0.0014	0.0084
215	0.0095	0.0013	0.0081
216	0.0092	0.0013	0.0079
217	0.0113	0.0016	0.0097
218	0.0110	0.0016	0.0094
219	0.0107	0.0015	0.0092
220	0.0105	0.0015	0.0090
221	0.0103	0.0015	0.0088
222	0.0101	0.0014	0.0086

223	0.0099	0.0014	0.0085
224	0.0097	0.0014	0.0083
225	0.0095	0.0013	0.0081
226	0.0093	0.0013	0.0080
227	0.0091	0.0013	0.0078
228	0.0090	0.0013	0.0077
229	0.0088	0.0013	0.0076
230	0.0087	0.0012	0.0074
231	0.0085	0.0012	0.0073
232	0.0084	0.0012	0.0072
233	0.0083	0.0012	0.0071
234	0.0081	0.0012	0.0070
235	0.0080	0.0011	0.0069
236	0.0079	0.0011	0.0068
237	0.0078	0.0011	0.0067
238	0.0077	0.0011	0.0066
239	0.0076	0.0011	0.0065
240	0.0075	0.0011	0.0064
241	0.0074	0.0011	0.0063
242	0.0073	0.0010	0.0063
243	0.0072	0.0010	0.0062
244	0.0071	0.0010	0.0061
245	0.0070	0.0010	0.0060
246	0.0070	0.0010	0.0060
247	0.0069	0.0010	0.0059
248	0.0068	0.0010	0.0058
249	0.0067	0.0010	0.0058
250	0.0067	0.0009	0.0057
251	0.0066	0.0009	0.0057
252	0.0065	0.0009	0.0056
253	0.0065	0.0009	0.0055
254	0.0064	0.0009	0.0055
255	0.0063	0.0009	0.0054
256	0.0063	0.0009	0.0054
257	0.0062	0.0009	0.0053
258	0.0062	0.0009	0.0053
259	0.0061	0.0009	0.0052
260	0.0060	0.0009	0.0052
261	0.0060	0.0008	0.0051
262	0.0059	0.0008	0.0051
263	0.0059	0.0008	0.0050
264	0.0058	0.0008	0.0050
265	0.0058	0.0008	0.0050
266	0.0057	0.0008	0.0049
267	0.0057	0.0008	0.0049
268	0.0056	0.0008	0.0048
269	0.0056	0.0008	0.0048
270	0.0055	0.0008	0.0048
271	0.0055	0.0008	0.0047
272	0.0055	0.0008	0.0047
273	0.0054	0.0008	0.0047
274	0.0054	0.0008	0.0046
275	0.0053	0.0008	0.0046
276	0.0053	0.0008	0.0045
277	0.0053	0.0007	0.0045
278	0.0052	0.0007	0.0045
279	0.0052	0.0007	0.0045

280	0.0052	0.0007	0.0044
281	0.0051	0.0007	0.0044
282	0.0051	0.0007	0.0044
283	0.0050	0.0007	0.0043
284	0.0050	0.0007	0.0043
285	0.0050	0.0007	0.0043
286	0.0049	0.0007	0.0042
287	0.0049	0.0007	0.0042
288	0.0049	0.0007	0.0042

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.43
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 66.6424
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 496.1775

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1125.0	2250.0	3375.0	4500.0
0.083	0.0131	1.91	Q	.	.	.	.
0.167	0.0883	10.92	Q	.	.	.	.
0.250	0.3221	33.95	Q	.	.	.	.
0.333	0.6963	54.33	Q	.	.	.	.
0.417	1.1525	66.23	Q	.	.	.	.
0.500	1.6601	73.71	Q	.	.	.	.
0.583	2.2030	78.82	Q	.	.	.	.
0.667	2.7708	82.44	Q	.	.	.	.
0.750	3.3583	85.31	Q	.	.	.	.
0.833	3.9618	87.63	Q	.	.	.	.
0.917	4.5781	89.49	Q	.	.	.	.
1.000	5.2055	91.10	Q	.	.	.	.
1.083	5.8425	92.50	Q	.	.	.	.
1.167	6.4878	93.69	Q	.	.	.	.
1.250	7.1404	94.76	Q	.	.	.	.
1.333	7.7995	95.70	Q	.	.	.	.
1.417	8.4642	96.51	Q	.	.	.	.
1.500	9.1334	97.18	Q	.	.	.	.
1.583	9.8069	97.78	Q	.	.	.	.
1.667	10.4847	98.42	Q	.	.	.	.
1.750	11.1671	99.08	Q	.	.	.	.
1.833	11.8539	99.73	Q	.	.	.	.
1.917	12.5453	100.39	QV	.	.	.	.
2.000	13.2398	100.84	QV	.	.	.	.
2.083	13.9367	101.20	QV	.	.	.	.
2.167	14.6361	101.55	QV	.	.	.	.
2.250	15.3381	101.92	QV	.	.	.	.
2.333	16.0425	102.29	QV	.	.	.	.
2.417	16.7495	102.66	QV	.	.	.	.
2.500	17.4591	103.03	QV	.	.	.	.
2.583	18.1714	103.42	QV	.	.	.	.
2.667	18.8862	103.80	QV	.	.	.	.
2.750	19.6038	104.19	QV	.	.	.	.
2.833	20.3239	104.57	QV	.	.	.	.
2.917	21.0469	104.97	QV	.	.	.	.
3.000	21.7725	105.36	QV	.	.	.	.
3.083	22.5010	105.77	QV	.	.	.	.
3.167	23.2322	106.17	QV	.	.	.	.
3.250	23.9662	106.59	QV	.	.	.	.
3.333	24.7031	107.00	QV	.	.	.	.
3.417	25.4429	107.42	Q V	.	.	.	.
3.500	26.1856	107.84	Q V	.	.	.	.
3.583	26.9312	108.27	Q V	.	.	.	.
3.667	27.6798	108.70	Q V	.	.	.	.
3.750	28.4314	109.14	Q V	.	.	.	.

3.833	29.1861	109.57	Q V	.	.	.	.
3.917	29.9438	110.02	Q V	.	.	.	.
4.000	30.7046	110.47	Q V	.	.	.	.
4.083	31.4686	110.93	Q V	.	.	.	.
4.167	32.2357	111.38	Q V	.	.	.	.
4.250	33.0061	111.86	Q V	.	.	.	.
4.333	33.7796	112.32	Q V	.	.	.	.
4.417	34.5565	112.80	.QV	.	.	.	.
4.500	35.3367	113.28	.QV	.	.	.	.
4.583	36.1202	113.77	.QV	.	.	.	.
4.667	36.9071	114.26	.QV	.	.	.	.
4.750	37.6975	114.76	.Q V	.	.	.	.
4.833	38.4913	115.26	.Q V	.	.	.	.
4.917	39.2886	115.78	.Q V	.	.	.	.
5.000	40.0895	116.29	.Q V	.	.	.	.
5.083	40.8940	116.81	.Q V	.	.	.	.
5.167	41.7021	117.34	.Q V	.	.	.	.
5.250	42.5139	117.88	.Q V	.	.	.	.
5.333	43.3294	118.41	.Q V	.	.	.	.
5.417	44.1487	118.96	.Q V	.	.	.	.
5.500	44.9718	119.51	.Q V	.	.	.	.
5.583	45.7988	120.08	.Q V	.	.	.	.
5.667	46.6296	120.64	.Q V	.	.	.	.
5.750	47.4645	121.22	.Q V	.	.	.	.
5.833	48.3033	121.80	.Q V	.	.	.	.
5.917	49.1463	122.39	.Q V	.	.	.	.
6.000	49.9933	122.98	.Q V	.	.	.	.
6.083	50.8445	123.60	.Q V	.	.	.	.
6.167	51.6999	124.20	.Q V	.	.	.	.
6.250	52.5596	124.83	.Q V	.	.	.	.
6.333	53.4236	125.45	.Q V	.	.	.	.
6.417	54.2920	126.10	.Q V	.	.	.	.
6.500	55.1649	126.74	.Q V	.	.	.	.
6.583	56.0423	127.40	.Q V	.	.	.	.
6.667	56.9242	128.06	.Q V	.	.	.	.
6.750	57.8109	128.74	.Q V	.	.	.	.
6.833	58.7022	129.41	.Q V	.	.	.	.
6.917	59.5983	130.12	.Q V	.	.	.	.
7.000	60.4992	130.81	.Q V	.	.	.	.
7.083	61.4050	131.53	.Q V	.	.	.	.
7.167	62.3158	132.24	.Q V	.	.	.	.
7.250	63.2317	132.99	.Q V	.	.	.	.
7.333	64.1526	133.72	.Q V	.	.	.	.
7.417	65.0788	134.49	.Q V	.	.	.	.
7.500	66.0103	135.24	.Q V	.	.	.	.
7.583	66.9471	136.03	.Q V	.	.	.	.
7.667	67.8894	136.81	.Q V	.	.	.	.
7.750	68.8372	137.62	.Q V	.	.	.	.
7.833	69.7906	138.43	.Q V	.	.	.	.
7.917	70.7497	139.27	.Q V	.	.	.	.
8.000	71.7146	140.10	.Q V	.	.	.	.
8.083	72.6854	140.96	.Q V	.	.	.	.
8.167	73.6622	141.82	.Q V	.	.	.	.
8.250	74.6451	142.72	.Q V	.	.	.	.
8.333	75.6341	143.60	.Q V	.	.	.	.
8.417	76.6294	144.53	.Q V	.	.	.	.
8.500	77.6311	145.45	.Q V	.	.	.	.

8.583	78.6394	146.40	.Q	V	.	.	.	.
8.667	79.6542	147.35	.Q	V	.	.	.	.
8.750	80.6758	148.34	.Q	V	.	.	.	.
8.833	81.7042	149.32	.Q	V	.	.	.	.
8.917	82.7396	150.34	.Q	V	.	.	.	.
9.000	83.7821	151.36	.Q	V	.	.	.	.
9.083	84.8318	152.43	.Q	V	.	.	.	.
9.167	85.8889	153.48	.Q	V	.	.	.	.
9.250	86.9535	154.59	.Q	V	.	.	.	.
9.333	88.0257	155.68	.Q	V	.	.	.	.
9.417	89.1058	156.82	.Q	V	.	.	.	.
9.500	90.1937	157.96	.Q	V	.	.	.	.
9.583	91.2898	159.15	.Q	V	.	.	.	.
9.667	92.3940	160.34	.Q	V	.	.	.	.
9.750	93.5068	161.58	.Q	V	.	.	.	.
9.833	94.6281	162.81	.Q	V	.	.	.	.
9.917	95.7583	164.10	.Q	V	.	.	.	.
10.000	96.8973	165.39	.Q	V	.	.	.	.
10.083	98.0456	166.73	.Q	V	.	.	.	.
10.167	99.2031	168.07	.Q	V	.	.	.	.
10.250	100.3702	169.47	.Q	V	.	.	.	.
10.333	101.5471	170.87	.Q	V	.	.	.	.
10.417	102.7340	172.34	.Q	V	.	.	.	.
10.500	103.9309	173.80	.Q	V	.	.	.	.
10.583	105.1385	175.34	.Q	V	.	.	.	.
10.667	106.3566	176.87	.Q	V	.	.	.	.
10.750	107.5858	178.47	.Q	V	.	.	.	.
10.833	108.8260	180.08	.Q	V	.	.	.	.
10.917	110.0778	181.77	.Q	V	.	.	.	.
11.000	111.3413	183.46	.Q	V	.	.	.	.
11.083	112.6170	185.23	.Q	V	.	.	.	.
11.167	113.9048	187.00	.Q	V	.	.	.	.
11.250	115.2055	188.86	.Q	V	.	.	.	.
11.333	116.5191	190.73	.Q	V	.	.	.	.
11.417	117.8462	192.69	.Q	V	.	.	.	.
11.500	119.1869	194.67	.Q	V	.	.	.	.
11.583	120.5419	196.74	.Q	V	.	.	.	.
11.667	121.9112	198.82	.Q	V	.	.	.	.
11.750	123.2956	201.02	.Q	V	.	.	.	.
11.833	124.6952	203.23	.Q	V		.	.	.
11.917	126.1109	205.55	.Q	V		.	.	.
12.000	127.5426	207.89	.Q	V		.	.	.
12.083	128.9850	209.44	.Q	V		.	.	.
12.167	130.4144	207.54	.Q	V		.	.	.
12.250	131.7845	198.94	.Q	V		.	.	.
12.333	133.1042	191.63	.Q	V		.	.	.
12.417	134.4028	188.56	.Q	V		.	.	.
12.500	135.6952	187.65	.Q	V		.	.	.
12.583	136.9903	188.05	.Q	.V		.	.	.
12.667	138.2934	189.21	.Q	.V		.	.	.
12.750	139.6082	190.90	.Q	.V		.	.	.
12.833	140.9367	192.90	.Q	.V		.	.	.
12.917	142.2819	195.33	.Q	.V		.	.	.
13.000	143.6450	197.92	.Q	.V		.	.	.
13.083	145.0281	200.83	.Q	.V		.	.	.
13.167	146.4324	203.91	.Q	.V		.	.	.
13.250	147.8601	207.30	.Q	.V		.	.	.

13.333	149.3121	210.82	.Q . V . . .
13.417	150.7907	214.70	.Q . V . . .
13.500	152.2971	218.74	.Q . V . . .
13.583	-153.8339	223.13	.Q . V . . .
13.667	155.4016	227.63	. Q . V . . .
13.750	157.0027	232.49	. Q . V . . .
13.833	158.6384	237.50	. Q . V . . .
13.917	160.3116	242.95	. Q . V . . .
14.000	162.0243	248.68	. Q . V . . .
14.083	163.7817	255.18	. Q . V . . .
14.167	165.5907	262.66	. Q . V . . .
14.250	167.4656	272.24	. Q . V . . .
14.333	169.4069	281.88	. Q . V . . .
14.417	171.4138	291.40	. Q . V . . .
14.500	173.4859	300.87	. Q . V . . .
14.583	175.6281	311.04	. Q . V . . .
14.667	177.8429	321.59	. Q . V . . .
14.750	180.1381	333.26	. Q . V . . .
14.833	182.5183	345.60	. Q . V . . .
14.917	184.9938	359.44	. Q . V . . .
15.000	187.5715	374.29	. Q . V . . .
15.083	190.2659	391.21	. Q . V . . .
15.167	193.0869	409.61	. Q . V . . .
15.250	196.0550	430.97	. Q . V . . .
15.333	199.1861	454.64	. Q . V . . .
15.417	202.4906	479.81	. Q . V . . .
15.500	205.9183	497.70	. Q . V . . .
15.583	209.3657	500.56	. Q . V . . .
15.667	212.8977	512.85	. Q . V . . .
15.750	216.7098	553.53	. Q . V . . .
15.833	221.0526	630.57	. Q . V . . .
15.917	226.4101	777.91	. Q . V . . .
16.000	233.2897	998.93	. Q . V . . .
16.083	244.0084	1556.35	. . Q V. . .
16.167	262.8376	2734.00	. . .V Q . .
16.250	293.3363	4428.42	. . . V . . Q.
16.333	320.3213	3918.21	. . . V . Q .
16.417	338.4577	2633.41	. . . Q V . .
16.500	351.3515	1872.18	. . Q . V . .
16.583	361.2860	1442.50	. . Q . V. .
16.667	369.2971	1163.20	. . Q . V. .
16.750	376.0934	986.83	. Q . . V .
16.833	381.9565	851.32	. Q . . V .
16.917	387.0339	737.23	. Q . . .V .
17.000	391.5730	659.08	. Q . . .V .
17.083	395.6408	590.64	. Q . . .V .
17.167	399.2803	528.44	. Q . . . V .
17.250	402.5637	476.75	. Q . . . V .
17.333	405.5451	432.90	. Q . . . V .
17.417	408.2236	388.93	. Q . . . V .
17.500	410.6447	351.54	. Q . . . V .
17.583	412.8907	326.12	. Q . . . V .
17.667	415.0669	315.99	. Q . . . V .
17.750	417.1526	302.84	. Q . . . V .
17.833	419.1350	287.85	. Q . . . V .
17.917	421.0050	271.52	. Q . . . V .
18.000	422.6072	232.64	. Q . . . V .

18.083	424.0566	210.45	.Q	.	.	.	V	.
18.167	425.4744	205.87	.Q	.	.	.	V	.
18.250	426.9185	209.67	.Q	.	.	.	V	.
18.333	428.3825	212.59	.Q	.	.	.	V	.
18.417	429.8411	211.78	.Q	.	.	.	V	.
18.500	431.2827	209.32	.Q	.	.	.	V	.
18.583	432.7023	206.13	.Q	.	.	.	V	.
18.667	434.0974	202.58	.Q	.	.	.	V	.
18.750	435.4678	198.98	.Q	.	.	.	V	.
18.833	436.8136	195.42	.Q	.	.	.	V	.
18.917	438.1351	191.88	.Q	.	.	.	V	.
19.000	439.4333	188.49	.Q	.	.	.	V	.
19.083	440.7089	185.22	.Q	.	.	.	V	.
19.167	441.9626	182.04	.Q	.	.	.	V	.
19.250	443.1952	178.97	.Q	.	.	.	V	.
19.333	444.4074	176.02	.Q	.	.	.	V	.
19.417	445.5998	173.14	.Q	.	.	.	V	.
19.500	446.7729	170.33	.Q	.	.	.	V	.
19.583	447.9273	167.63	.Q	.	.	.	V	.
19.667	449.0641	165.06	.Q	.	.	.	V	.
19.750	450.1840	162.61	.Q	.	.	.	V	.
19.833	451.2878	160.26	.Q	.	.	.	V	.
19.917	452.3760	158.02	.Q	.	.	.	V	.
20.000	453.4487	155.76	.Q	.	.	.	V	.
20.083	454.5062	153.54	.Q	.	.	.	V	.
20.167	455.5489	151.40	.Q	.	.	.	V	.
20.250	456.5774	149.34	.Q	.	.	.	V	.
20.333	457.5923	147.36	.Q	.	.	.	V	.
20.417	458.5939	145.44	.Q	.	.	.	V	.
20.500	459.5829	143.59	.Q	.	.	.	V	.
20.583	460.5594	141.80	.Q	.	.	.	V	.
20.667	461.5241	140.07	.Q	.	.	.	V	.
20.750	462.4772	138.39	.Q	.	.	.	V	.
20.833	463.4191	136.77	.Q	.	.	.	V	.
20.917	464.3502	135.19	.Q	.	.	.	V	.
21.000	465.2707	133.66	.Q	.	.	.	V	.
21.083	466.1811	132.18	.Q	.	.	.	V	.
21.167	467.0815	130.74	.Q	.	.	.	V	.
21.250	467.9723	129.34	.Q	.	.	.	V	.
21.333	468.8537	127.98	.Q	.	.	.	V	.
21.417	469.7260	126.66	.Q	.	.	.	V	.
21.500	470.5895	125.37	.Q	.	.	.	V	.
21.583	471.4443	124.12	.Q	.	.	.	V	.
21.667	472.2907	122.90	.Q	.	.	.	V	.
21.750	473.1289	121.71	.Q	.	.	.	V	.
21.833	473.9592	120.55	.Q	.	.	.	V	.
21.917	474.7817	119.42	.Q	.	.	.	V	.
22.000	475.5966	118.32	.Q	.	.	.	V	.
22.083	476.4040	117.24	.Q	.	.	.	V	.
22.167	477.2043	116.19	.Q	.	.	.	V	.
22.250	477.9974	115.17	.Q	.	.	.	V	.
22.333	478.7837	114.17	.Q	.	.	.	V	.
22.417	479.5633	113.19	.Q	.	.	.	V	.
22.500	480.3362	112.23	Q	.	.	.	V	.
22.583	481.1027	111.29	Q	.	.	.	V	.
22.667	481.8629	110.38	Q	.	.	.	V	.
22.750	482.6169	109.48	Q	.	.	.	V	.

22.833	483.3648	108.60	Q	.	.	.	V .
22.917	484.1069	107.75	Q	.	.	.	V.
23.000	484.8431	106.90	Q	.	.	.	V.
23.083	485.5737	106.08	Q	.	.	.	V.
23.167	486.2987	105.27	Q	.	.	.	V.
23.250	487.0183	104.48	Q	.	.	.	V.
23.333	487.7325	103.71	Q	.	.	.	V.
23.417	488.4415	102.94	Q	.	.	.	V.
23.500	489.1454	102.20	Q	.	.	.	V.
23.583	489.8442	101.47	Q	.	.	.	V.
23.667	490.5381	100.75	Q	.	.	.	V.
23.750	491.2271	100.04	Q	.	.	.	V.
23.833	491.9113	99.35	Q	.	.	.	V.
23.917	492.5909	98.67	Q	.	.	.	V.
24.000	493.2658	98.00	Q	.	.	.	V.
24.083	493.9232	95.45	Q	.	.	.	V.
24.167	494.5143	85.83	Q	.	.	.	V.
24.250	494.9434	62.30	Q	.	.	.	V.
24.333	495.2302	41.65	Q	.	.	.	V.
24.417	495.4345	29.66	Q	.	.	.	V.
24.500	495.5875	22.21	Q	.	.	.	V.
24.583	495.7060	17.20	Q	.	.	.	V.
24.667	495.8005	13.73	Q	.	.	.	V.
24.750	495.8766	11.04	Q	.	.	.	V.
24.833	495.9381	8.93	Q	.	.	.	V.
24.917	495.9884	7.31	Q	.	.	.	V.
25.000	496.0294	5.95	Q	.	.	.	V.
25.083	496.0625	4.81	Q	.	.	.	V.
25.167	496.0893	3.89	Q	.	.	.	V.
25.250	496.1108	3.12	Q	.	.	.	V.
25.333	496.1279	2.47	Q	.	.	.	V.
25.417	496.1415	1.98	Q	.	.	.	V.
25.500	496.1527	1.63	Q	.	.	.	V.
25.583	496.1620	1.35	Q	.	.	.	V.
25.667	496.1691	1.03	Q	.	.	.	V.
25.750	496.1740	0.72	Q	.	.	.	V.
25.833	496.1768	0.41	Q	.	.	.	V.
25.917	496.1775	0.10	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1555.0
10%	120.0
20%	50.0
30%	35.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 102.00 TO NODE 102.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1225.0	2450.0	3675.0	4900.0
0.083	0.0131	1.91	Q	.	.	.	.
0.167	0.0883	10.92	Q	.	.	.	.
0.250	0.4974	59.40	Q	.	.	.	.
0.333	1.0640	82.27	Q	.	.	.	.
0.417	1.6922	91.22	Q	.	.	.	.
0.500	2.3758	99.26	Q	.	.	.	.
0.583	3.1109	106.74	Q	.	.	.	.
0.667	3.8915	113.34	Q	.	.	.	.
0.750	4.7130	119.28	Q	.	.	.	.
0.833	5.5707	124.54	VQ	.	.	.	.
0.917	6.4599	129.11	VQ	.	.	.	.
1.000	7.3770	133.17	VQ	.	.	.	.
1.083	8.3188	136.74	VQ	.	.	.	.
1.167	9.2819	139.85	VQ	.	.	.	.
1.250	10.2640	142.60	VQ	.	.	.	.
1.333	11.2628	145.02	VQ	.	.	.	.
1.417	12.2758	147.10	VQ	.	.	.	.
1.500	13.3011	148.87	VQ	.	.	.	.
1.583	14.3371	150.43	VQ	.	.	.	.
1.667	15.3833	151.90	VQ	.	.	.	.
1.750	16.4391	153.31	VQ	.	.	.	.
1.833	17.5036	154.57	VQ	.	.	.	.
1.917	18.5759	155.69	VQ	.	.	.	.
2.000	19.6537	156.49	.Q	.	.	.	.
2.083	20.7362	157.18	.Q	.	.	.	.
2.167	21.8232	157.84	.Q	.	.	.	.
2.250	22.9148	158.50	.Q	.	.	.	.
2.333	24.0108	159.14	.Q	.	.	.	.
2.417	25.1113	159.79	.Q	.	.	.	.
2.500	26.2162	160.42	.Q	.	.	.	.
2.583	27.3254	161.06	.Q	.	.	.	.
2.667	28.4390	161.69	.Q	.	.	.	.
2.750	29.5570	162.33	.Q	.	.	.	.
2.833	30.6793	162.96	.Q	.	.	.	.
2.917	31.8060	163.60	.Q	.	.	.	.
3.000	32.9371	164.23	.Q	.	.	.	.
3.083	34.0725	164.87	.Q	.	.	.	.
3.167	35.2124	165.51	.Q	.	.	.	.
3.250	36.3567	166.15	.Q	.	.	.	.
3.333	37.5054	166.80	.Q	.	.	.	.
3.417	38.6587	167.46	.Q	.	.	.	.
3.500	39.8165	168.11	.QV	.	.	.	.
3.583	40.9789	168.78	.QV	.	.	.	.
3.667	42.1458	169.44	.QV	.	.	.	.
3.750	43.3175	170.12	.QV	.	.	.	.

NODE 102 VIEW STREAM 1 HYDROGRAPH

3.833	44.4938	170.80	.QV	.	.	.	.
3.917	45.6748	171.49	.QV	.	.	.	.
4.000	46.8606	172.18	.QV	.	.	.	.
4.083	48.0512	172.88	.QV	.	.	.	.
4.167	49.2467	173.58	.QV	.	.	.	.
4.250	50.4472	174.30	.QV	.	.	.	.
4.333	51.6525	175.02	.QV	.	.	.	.
4.417	52.8630	175.75	.QV	.	.	.	.
4.500	54.0784	176.49	.QV	.	.	.	.
4.583	55.2991	177.24	.QV	.	.	.	.
4.667	56.5249	177.99	.QV	.	.	.	.
4.750	57.7560	178.75	.QV	.	.	.	.
4.833	58.9923	179.52	.Q V	.	.	.	.
4.917	60.2340	180.30	.Q V	.	.	.	.
5.000	61.4812	181.08	.Q V	.	.	.	.
5.083	62.7338	181.89	.Q V	.	.	.	.
5.167	63.9920	182.69	.Q V	.	.	.	.
5.250	65.2558	183.51	.Q V	.	.	.	.
5.333	66.5253	184.32	.Q V	.	.	.	.
5.417	67.8005	185.17	.Q V	.	.	.	.
5.500	69.0815	186.00	.Q V	.	.	.	.
5.583	70.3685	186.86	.Q V	.	.	.	.
5.667	71.6613	187.72	.Q V	.	.	.	.
5.750	72.9603	188.61	.Q V	.	.	.	.
5.833	74.2653	189.48	.Q V	.	.	.	.
5.917	75.5765	190.39	.Q V	.	.	.	.
6.000	76.8939	191.29	.Q V	.	.	.	.
6.083	78.2177	192.22	.Q V	.	.	.	.
6.167	79.5479	193.14	.Q V	.	.	.	.
6.250	80.8847	194.09	.Q V	.	.	.	.
6.333	82.2280	195.04	.Q V	.	.	.	.
6.417	83.5780	196.02	.Q V	.	.	.	.
6.500	84.9347	197.00	.Q V	.	.	.	.
6.583	86.2983	198.00	.Q V	.	.	.	.
6.667	87.6688	199.00	.Q V	.	.	.	.
6.750	89.0464	200.03	.Q V	.	.	.	.
6.833	90.4311	201.06	.Q V	.	.	.	.
6.917	91.8231	202.12	.Q V	.	.	.	.
7.000	93.2224	203.17	.Q V	.	.	.	.
7.083	94.6292	204.26	.Q V	.	.	.	.
7.167	96.0434	205.35	.Q V	.	.	.	.
7.250	97.4654	206.47	.Q V	.	.	.	.
7.333	98.8950	207.59	.Q V	.	.	.	.
7.417	100.3326	208.74	.Q V	.	.	.	.
7.500	101.7781	209.89	.Q V	.	.	.	.
7.583	103.2318	211.08	.Q V	.	.	.	.
7.667	104.6937	212.26	.Q V	.	.	.	.
7.750	106.1639	213.48	.Q V	.	.	.	.
7.833	107.6426	214.71	.Q V	.	.	.	.
7.917	109.1300	215.97	.Q V	.	.	.	.
8.000	110.6261	217.23	.Q V	.	.	.	.
8.083	112.1311	218.53	.Q V	.	.	.	.
8.167	113.6451	219.83	.Q V	.	.	.	.
8.250	115.1683	221.17	.Q V	.	.	.	.
8.333	116.7007	222.51	.Q V	.	.	.	.
8.417	118.2427	223.90	.Q V	.	.	.	.
8.500	119.7943	225.29	.Q V	.	.	.	.

8.583	121.3557	226.72	.Q	V	.	.	.	.
8.667	122.9270	228.15	.Q	V	.	.	.	.
8.750	124.5085	229.63	.Q	V	.	.	.	.
8.833	126.1002	231.12	.Q	V	.	.	.	.
8.917	127.7025	232.65	.Q	V	.	.	.	.
9.000	129.3154	234.19	.Q	V	.	.	.	.
9.083	130.9391	235.78	.Q	V	.	.	.	.
9.167	132.5739	237.37	.Q	V	.	.	.	.
9.250	134.2200	239.01	.Q	V	.	.	.	.
9.333	135.8775	240.66	.Q	V	.	.	.	.
9.417	137.5467	242.37	.Q	V	.	.	.	.
9.500	139.2277	244.09	.Q	V	.	.	.	.
9.583	140.9210	245.86	. Q	V	.	.	.	.
9.667	142.6265	247.64	. Q	V	.	.	.	.
9.750	144.3447	249.48	. Q	V	.	.	.	.
9.833	146.0756	251.33	. Q	V	.	.	.	.
9.917	147.8198	253.25	. Q	V	.	.	.	.
10.000	149.5772	255.18	. Q	V	.	.	.	.
10.083	151.3483	257.17	. Q	V	.	.	.	.
10.167	153.1333	259.18	. Q	V	.	.	.	.
10.250	154.9326	261.26	. Q	V	.	.	.	.
10.333	156.7464	263.35	. Q	V	.	.	.	.
10.417	158.5750	265.52	. Q	V	.	.	.	.
10.500	160.4188	267.71	. Q	V	.	.	.	.
10.583	162.2782	269.98	. Q	V	.	.	.	.
10.667	164.1533	272.27	. Q	V	.	.	.	.
10.750	166.0447	274.64	. Q	V	.	.	.	.
10.833	167.9526	277.03	. Q	V	.	.	.	.
10.917	169.8777	279.52	. Q	V	.	.	.	.
11.000	171.8200	282.02	. Q	V	.	.	.	.
11.083	173.7802	284.63	. Q	V	.	.	.	.
11.167	175.7586	287.26	. Q	V	.	.	.	.
11.250	177.7559	290.00	. Q	V	.	.	.	.
11.333	179.7722	292.77	. Q	V	.	.	.	.
11.417	181.8083	295.65	. Q	V	.	.	.	.
11.500	183.8645	298.56	. Q	V	.	.	.	.
11.583	185.9417	301.60	. Q	V	.	.	.	.
11.667	188.0400	304.68	. Q	V	.	.	.	.
11.750	190.1604	307.88	. Q	V	.	.	.	.
11.833	192.3032	311.13	. Q	V	.	.	.	.
11.917	194.4694	314.52	. Q	V	.	.	.	.
12.000	196.6592	317.96	. Q	V	.	.	.	.
12.083	198.8674	320.63	. Q	V	.	.	.	.
12.167	201.0705	319.89	. Q	V	.	.	.	.
12.250	203.2224	312.45	. Q	V	.	.	.	.
12.333	205.3304	306.08	. Q	V	.	.	.	.
12.417	207.4196	303.34	. Q	V	.	.	.	.
12.500	209.5001	302.09	. Q	V	.	.	.	.
12.583	211.5789	301.84	. Q	V	.	.	.	.
12.667	213.6609	302.31	. Q	V	.	.	.	.
12.750	215.7505	303.42	. Q	.V	.	.	.	.
12.833	217.8509	304.98	. Q	.V	.	.	.	.
12.917	219.9661	307.13	. Q	.V	.	.	.	.
13.000	222.0987	309.65	. Q	.V	.	.	.	.
13.083	224.2520	312.67	. Q	.V	.	.	.	.
13.167	226.4286	316.04	. Q	.V	.	.	.	.
13.250	228.6318	319.91	. Q	.V	.	.	.	.

13.333	230.8638	324.08	. Q .V . . .
13.417	233.1281	328.78	. Q .V . . .
13.500	235.4271	333.81	. Q . V . . .
13.583	237.7644	339.37	. Q . V . . .
13.667	240.1416	345.18	. Q . V . . .
13.750	242.5626	351.52	. Q . V . . .
13.833	245.0292	358.15	. Q . V . . .
13.917	247.5455	365.37	. Q . V . . .
14.000	250.1146	373.04	. Q . V . . .
14.083	252.7430	381.64	. Q . V . . .
14.167	255.4385	391.39	. Q . V . . .
14.250	258.2170	403.44	. Q . V . . .
14.333	261.0810	415.85	. Q . V . . .
14.417	264.0336	428.71	. Q . V . . .
14.500	267.0837	442.88	. Q . V . . .
14.583	270.2453	459.06	. Q . V . . .
14.667	273.5228	475.89	. Q . V . . .
14.750	276.9240	493.85	. Q . V . . .
14.833	280.4539	512.54	. Q . V . . .
14.917	284.1236	532.85	. Q . V . . .
15.000	287.9414	554.34	. Q . V . . .
15.083	291.9234	578.18	. Q . V . . .
15.167	296.0822	603.87	. Q . V . . .
15.250	300.4416	632.98	. Q . V . . .
15.333	305.0213	664.97	. Q . V . . .
15.417	309.8368	699.21	. Q . V . . .
15.500	314.8440	727.05	. Q . V . . .
15.583	319.9458	740.78	. Q . V . . .
15.667	325.2070	763.93	. Q . V . . .
15.750	330.8099	813.54	. Q . V . . .
15.833	336.9931	897.79	. Q . V . . .
15.917	344.2499	1053.69	. Q . V . . .
16.000	353.1242	1288.55	. Q V . . .
16.083	366.0060	1870.45	. Q V . . .
16.167	387.2379	3082.86	. V. Q . .
16.250	420.4622	4824.16	. .V . . Q.
16.333	450.7968	4404.59	. . V . Q .
16.417	473.3886	3280.33	. . V Q . .
16.500	491.7952	2672.64	. .Q V . .
16.583	507.7539	2317.20	. Q . V . .
16.667	521.9333	2058.85	. Q . V . .
16.750	534.8802	1879.90	. Q . V . .
16.833	546.7958	1730.14	. Q . V . .
16.917	557.7767	1594.43	. Q . V . .
17.000	568.0281	1488.52	. Q . V. .
17.083	577.5736	1386.01	.Q . V. .
17.167	586.4254	1285.28	Q . V .
17.250	594.6481	1193.94	Q. . V .
17.333	602.2921	1109.91	Q. . V .
17.417	609.3470	1024.38	Q . . .V .
17.500	615.8551	944.97	Q . . .V .
17.583	621.9114	879.38	Q . . .V .
17.667	627.6442	832.40	Q . . . V .
17.750	633.0564	785.86	Q . . . V .
17.833	638.1527	739.98	Q . . . V .
17.917	642.9306	693.75	Q . . . V .
18.000	647.2410	625.88	Q . . . V .

18.083	651.1811	572.10	.	Q	.	.	.	V	.
18.167	654.8254	529.16	.	Q	.	.	.	V	.
18.250	658.2253	493.66	.	Q	.	.	.	V	.
18.333	661.4155	463.21	.	Q	.	.	.	V	.
18.417	664.4176	435.91	.	Q	.	.	.	V	.
18.500	667.2599	412.71	.	Q	.	.	.	V	.
18.583	669.9668	393.04	.	Q	.	.	.	V	.
18.667	672.5571	376.12	.	Q	.	.	.	V	.
18.750	675.0469	361.52	.	Q	.	.	.	V	.
18.833	677.4490	348.78	.	Q	.	.	.	V	.
18.917	679.7736	337.53	.	Q	.	.	.	V	.
19.000	682.0340	328.22	.	Q	.	.	.	V	.
19.083	684.2425	320.67	.	Q	.	.	.	V	.
19.167	686.4041	313.86	.	Q	.	.	.	V	.
19.250	688.5214	307.43	.	Q	.	.	.	V	.
19.333	690.5966	301.32	.	Q	.	.	.	V	.
19.417	692.6315	295.47	.	Q	.	.	.	V	.
19.500	694.6278	289.87	.	Q	.	.	.	V	.
19.583	696.5873	284.52	.	Q	.	.	.	V	.
19.667	698.5120	279.46	.	Q	.	.	.	V	.
19.750	700.4034	274.64	.	Q	.	.	.	V	.
19.833	702.2633	270.05	.	Q	.	.	.	V	.
19.917	704.0930	265.67	.	Q	.	.	.	V	.
20.000	705.8931	261.38	.	Q	.	.	.	V	.
20.083	707.6646	257.21	.	Q	.	.	.	V	.
20.167	709.4084	253.21	.	Q	.	.	.	V	.
20.250	711.1259	249.37	.	Q	.	.	.	V	.
20.333	712.8178	245.68	.	Q	.	.	.	V	.
20.417	714.4854	242.12	.	Q	.	.	.	V	.
20.500	716.1293	238.70	.	Q	.	.	.	V	.
20.583	717.7506	235.41	.	Q	.	.	.	V	.
20.667	719.3500	232.23	.	Q	.	.	.	V	.
20.750	720.9282	229.16	.	Q	.	.	.	V	.
20.833	722.4861	226.20	.	Q	.	.	.	V	.
20.917	724.0242	223.34	.	Q	.	.	.	V	.
21.000	725.5433	220.57	.	Q	.	.	.	V	.
21.083	727.0439	217.89	.	Q	.	.	.	V	.
21.167	728.5267	215.30	.	Q	.	.	.	V	.
21.250	729.9922	212.79	.	Q	.	.	.	V	.
21.333	731.4409	210.36	.	Q	.	.	.	V	.
21.417	732.8734	208.00	.	Q	.	.	.	V	.
21.500	734.2902	205.71	.	Q	.	.	.	V	.
21.583	735.6916	203.49	.	Q	.	.	.	V	.
21.667	737.0781	201.33	.	Q	.	.	.	V	.
21.750	738.4503	199.23	.	Q	.	.	.	V	.
21.833	739.8083	197.19	.	Q	.	.	.	V	.
21.917	741.1526	195.20	.	Q	.	.	.	V	.
22.000	742.4837	193.27	.	Q	.	.	.	V	.
22.083	743.8018	191.39	.	Q	.	.	.	V	.
22.167	745.1073	189.56	.	Q	.	.	.	V	.
22.250	746.4005	187.77	.	Q	.	.	.	V	.
22.333	747.6817	186.03	.	Q	.	.	.	V	.
22.417	748.9512	184.33	.	Q	.	.	.	V	.
22.500	750.2093	182.67	.	Q	.	.	.	V	.
22.583	751.4562	181.06	.	Q	.	.	.	V	.
22.667	752.6923	179.47	.	Q	.	.	.	V	.
22.750	753.9177	177.93	.	Q	.	.	.	V	.

22.833	755.1327	176.42	.Q	.	.	.	V .
22.917	756.3376	174.95	.Q	.	.	.	V .
23.000	757.5325	173.50	.Q	.	.	.	V .
23.083	758.7178	172.09	.Q	.	.	.	V .
23.167	759.8935	170.71	.Q	.	.	.	V.
23.250	761.0599	169.36	.Q	.	.	.	V.
23.333	762.2172	168.04	.Q	.	.	.	V.
23.417	763.3655	166.74	.Q	.	.	.	V.
23.500	764.5052	165.47	.Q	.	.	.	V.
23.583	765.6362	164.23	.Q	.	.	.	V.
23.667	766.7589	163.01	.Q	.	.	.	V.
23.750	767.8734	161.82	.Q	.	.	.	V.
23.833	768.9797	160.64	.Q	.	.	.	V.
23.917	770.0782	159.49	.Q	.	.	.	V.
24.000	771.1689	158.37	.Q	.	.	.	V.
24.083	772.2388	155.36	.Q	.	.	.	V.
24.167	773.2395	145.30	.Q	.	.	.	V.
24.250	774.0746	121.26	Q	.	.	.	V.
24.333	774.7606	99.61	Q	.	.	.	V.
24.417	775.3448	84.82	Q	.	.	.	V.
24.500	775.8405	71.97	Q	.	.	.	V.
24.583	776.2554	60.25	Q	.	.	.	V.
24.667	776.6018	50.30	Q	.	.	.	V.
24.750	776.8900	41.84	Q	.	.	.	V.
24.833	777.1290	34.70	Q	.	.	.	V.
24.917	777.3271	28.78	Q	.	.	.	V.
25.000	777.4908	23.76	Q	.	.	.	V.
25.083	777.6254	19.55	Q	.	.	.	V.
25.167	777.7358	16.04	Q	.	.	.	V.
25.250	777.8260	13.10	Q	.	.	.	V.
25.333	777.8994	10.64	Q	.	.	.	V.
25.417	777.9589	8.64	Q	.	.	.	V.
25.500	778.0074	7.05	Q	.	.	.	V.
25.583	778.0471	5.76	Q	.	.	.	V.
25.667	778.0788	4.60	Q	.	.	.	V.
25.750	778.1034	3.57	Q	.	.	.	V.
25.833	778.1217	2.66	Q	.	.	.	V.
25.917	778.1345	1.85	Q	.	.	.	V.
26.000	778.1438	1.36	Q	.	.	.	V.
26.083	778.1511	1.05	Q	.	.	.	V.
26.167	778.1567	0.82	Q	.	.	.	V.
26.250	778.1611	0.63	Q	.	.	.	V.
26.333	778.1645	0.49	Q	.	.	.	V.
26.417	778.1671	0.38	Q	.	.	.	V.
26.500	778.1691	0.30	Q	.	.	.	V.
26.583	778.1707	0.23	Q	.	.	.	V.
26.667	778.1719	0.18	Q	.	.	.	V.
26.750	778.1729	0.14	Q	.	.	.	V.
26.833	778.1736	0.11	Q	.	.	.	V.
26.917	778.1742	0.08	Q	.	.	.	V.
27.000	778.1746	0.06	Q	.	.	.	V.
27.083	778.1750	0.05	Q	.	.	.	V.
27.167	778.1752	0.04	Q	.	.	.	V.
27.250	778.1754	0.03	Q	.	.	.	V.
27.333	778.1756	0.02	Q	.	.	.	V.
27.417	778.1757	0.02	Q	.	.	.	V.
27.500	778.1758	0.01	Q	.	.	.	V.

```
 27.583    778.1759      0.01  Q          .          .          .          V.
 27.667    778.1760      0.01  Q          .          .          .          V.
--------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1660.0
10%	215.0
20%	95.0
30%	60.0
40%	35.0
50%	25.0
60%	20.0
70%	10.0
80%	10.0
90%	10.0

```
********************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     102.00 IS CODE = 3.1
--------------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
================================================================================
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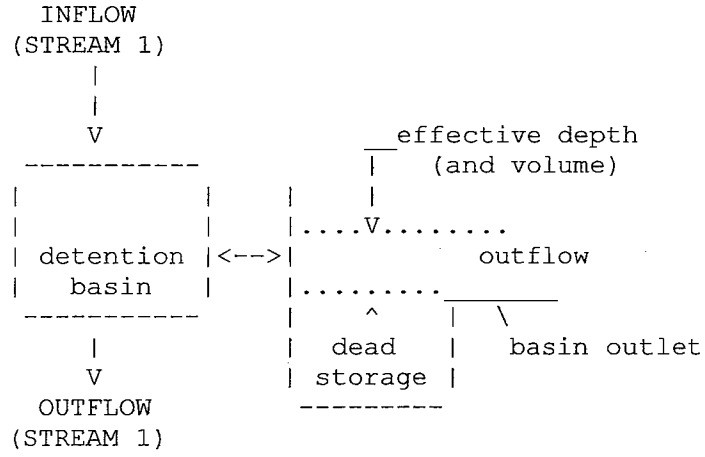

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
  DEAD STORAGE(AF) =   1.000
  SPECIFIED DEAD STORAGE(AF) FILLED =   1.000
  SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =   1.000
  DETENTION BASIN CONSTANT LOSS RATE(CFS) =   0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

NODE 102 BASIN D-1 ROUTING

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	1.00	175.00	0.120
3	2.00	400.00	1.710
4	3.00	730.00	7.890
5	4.00	1140.00	17.340
6	5.00	1575.00	27.130
7	6.00	2040.00	38.100
8	7.00	2585.00	48.500
9	8.00	2900.00	58.800
10	9.00	3100.00	69.100

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
12.083	1.000	320.63	0.00	1.64	317.6	1.138
12.167	1.000	319.89	0.00	1.64	319.4	1.142
12.250	1.000	312.45	0.00	1.62	317.3	1.109
12.333	1.000	306.08	0.00	1.60	312.0	1.068
12.417	1.000	303.34	0.00	1.58	307.2	1.041
12.500	1.000	302.09	0.00	1.57	304.3	1.026
12.583	1.000	301.84	0.00	1.57	302.8	1.020
12.667	1.000	302.31	0.00	1.57	302.3	1.020
12.750	1.000	303.42	0.00	1.57	302.7	1.025
12.833	1.000	304.98	0.00	1.57	303.7	1.034
12.917	1.000	307.13	0.00	1.58	305.2	1.047
13.000	1.000	309.65	0.00	1.59	307.3	1.063
13.083	1.000	312.67	0.00	1.61	309.8	1.083
13.167	1.000	316.04	0.00	1.62	312.8	1.105
13.250	1.000	319.91	0.00	1.64	316.2	1.131
13.333	1.000	324.08	0.00	1.65	320.0	1.159
13.417	1.000	328.78	0.00	1.67	324.2	1.190
13.500	1.000	333.81	0.00	1.69	328.9	1.224
13.583	1.000	339.37	0.00	1.72	333.9	1.262
13.667	1.000	345.18	0.00	1.74	339.4	1.302
13.750	1.000	351.52	0.00	1.77	345.3	1.345
13.833	1.000	358.15	0.00	1.80	351.5	1.390
13.917	1.000	365.37	0.00	1.83	358.2	1.439
14.000	1.000	373.04	0.00	1.86	365.4	1.492
14.083	1.000	381.64	0.00	1.90	373.2	1.550
14.167	1.000	391.39	0.00	1.94	381.9	1.615
14.250	1.000	403.44	0.00	1.99	392.1	1.693
14.333	1.000	415.85	0.00	2.01	401.1	1.795
14.417	1.000	428.71	0.00	2.04	408.3	1.936
14.500	1.000	442.88	0.00	2.07	416.8	2.115
14.583	1.000	459.06	0.00	2.10	427.4	2.333
14.667	1.000	475.89	0.00	2.14	439.9	2.581
14.750	1.000	493.85	0.00	2.19	453.9	2.856
14.833	1.000	512.54	0.00	2.23	469.2	3.155

14.917	1.000	532.85	0.00	2.29	485.8	3.479
15.000	1.000	554.34	0.00	2.34	503.8	3.827
15.083	1.000	578.18	0.00	2.40	523.2	4.206
15.167	1.000	603.87	0.00	2.47	544.2	4.617
15.250	1.000	632.98	0.00	2.54	567.3	5.069
15.333	1.000	664.97	0.00	2.62	592.7	5.567
15.417	1.000	699.21	0.00	2.71	620.4	6.110
15.500	1.000	727.05	0.00	2.80	649.2	6.645
15.583	1.000	740.78	0.00	2.87	675.5	7.095
15.667	1.000	763.93	0.00	2.94	699.4	7.539
15.750	1.000	813.54	0.00	3.03	726.1	8.141
15.833	1.000	897.79	0.00	3.13	761.3	9.081
15.917	1.000	1053.69	0.00	3.30	817.0	10.711
16.000	1.000	1288.55	0.00	3.58	909.1	13.325
16.083	1.000	1870.45	0.00	4.14	1084.0	18.741
16.167	1.000	3082.86	0.00	5.26	1449.3	29.991
16.250	1.000	4824.16	0.00	7.00	2140.0	48.477
16.333	1.000	4404.59	0.00	8.10	2752.2	59.857
16.417	1.000	3280.33	0.00	8.33	2943.1	62.180
16.500	1.000	2672.64	0.00	8.14	2947.3	60.289
16.583	1.000	2317.20	0.00	7.77	2878.1	56.425
16.667	1.000	2058.85	0.00	7.30	2754.2	51.637
16.750	1.000	1879.90	0.00	6.83	2587.5	46.764
16.833	1.000	1730.14	0.00	6.40	2377.2	42.307
16.917	1.000	1594.43	0.00	6.03	2158.7	38.421
17.000	1.000	1488.52	0.00	5.72	1983.0	35.015
17.083	1.000	1386.01	0.00	5.43	1842.6	31.871
17.167	1.000	1285.28	0.00	5.16	1713.5	28.922
17.250	1.000	1193.94	0.00	4.90	1591.9	26.181
17.333	1.000	1109.91	0.00	4.65	1476.7	23.655
17.417	1.000	1024.38	0.00	4.40	1368.0	21.288
17.500	1.000	944.97	0.00	4.18	1266.3	19.075
17.583	1.000	879.38	0.00	3.97	1172.4	17.057
17.667	1.000	832.40	0.00	3.78	1089.3	15.288
17.750	1.000	785.86	0.00	3.61	1016.5	13.699
17.833	1.000	739.98	0.00	3.46	950.6	12.249
17.917	1.000	693.75	0.00	3.32	889.8	10.899
18.000	1.000	625.88	0.00	3.17	830.0	9.493
18.083	1.000	572.10	0.00	3.03	770.0	8.130
18.167	1.000	529.16	0.00	2.84	708.6	6.894
18.250	1.000	493.66	0.00	2.67	648.4	5.828
18.333	1.000	463.21	0.00	2.52	595.6	4.917
18.417	1.000	435.91	0.00	2.39	550.2	4.130
18.500	1.000	412.71	0.00	2.28	511.1	3.452
18.583	1.000	393.04	0.00	2.19	477.5	2.870
18.667	1.000	376.12	0.00	2.11	448.6	2.371
18.750	1.000	361.52	0.00	2.04	423.8	1.942
18.833	1.000	348.78	0.00	1.93	398.4	1.600
18.917	1.000	337.53	0.00	1.79	369.1	1.383
19.000	1.000	328.22	0.00	1.72	345.3	1.265
19.083	1.000	320.67	0.00	1.67	331.7	1.189
19.167	1.000	313.86	0.00	1.64	322.2	1.132
19.250	1.000	307.43	0.00	1.61	314.6	1.082
19.333	1.000	301.32	0.00	1.58	307.9	1.037
19.417	1.000	295.47	0.00	1.55	301.7	0.994
19.500	1.000	289.87	0.00	1.52	295.8	0.953
19.583	1.000	284.52	0.00	1.50	290.2	0.914

19.667	1.000	279.46	0.00	1.48	284.8	0.878
19.750	1.000	274.64	0.00	1.45	279.7	0.843
19.833	1.000	270.05	0.00	1.43	274.9	0.809
19.917	1.000	265.67	0.00	1.41	270.3	0.777
20.000	1.000	261.38	0.00	1.39	265.9	0.747
20.083	1.000	257.21	0.00	1.38	261.6	0.717
20.167	1.000	253.21	0.00	1.36	257.4	0.688
20.250	1.000	249.37	0.00	1.34	253.4	0.660
20.333	1.000	245.68	0.00	1.32	249.5	0.633
20.417	1.000	242.12	0.00	1.31	245.8	0.608
20.500	1.000	238.70	0.00	1.29	242.3	0.583
20.583	1.000	235.41	0.00	1.28	238.9	0.559
20.667	1.000	232.23	0.00	1.26	235.6	0.536
20.750	1.000	229.16	0.00	1.25	232.4	0.514
20.833	1.000	226.20	0.00	1.23	229.3	0.493
20.917	1.000	223.34	0.00	1.22	226.3	0.472
21.000	1.000	220.57	0.00	1.21	223.5	0.452
21.083	1.000	217.89	0.00	1.20	220.7	0.433
21.167	1.000	215.30	0.00	1.19	218.0	0.415
21.250	1.000	212.79	0.00	1.17	215.4	0.397
21.333	1.000	210.36	0.00	1.16	212.9	0.379
21.417	1.000	208.00	0.00	1.15	210.5	0.362
21.500	1.000	205.71	0.00	1.14	208.1	0.346
21.583	1.000	203.49	0.00	1.13	205.8	0.330
21.667	1.000	201.33	0.00	1.12	203.6	0.314
21.750	1.000	199.23	0.00	1.11	201.4	0.299
21.833	1.000	197.19	0.00	1.10	199.3	0.285
21.917	1.000	195.20	0.00	1.09	197.3	0.270
22.000	1.000	193.27	0.00	1.09	195.3	0.256
22.083	1.000	191.39	0.00	1.08	193.3	0.243
22.167	1.000	189.56	0.00	1.07	191.5	0.230
22.250	1.000	187.77	0.00	1.06	189.6	0.217
22.333	1.000	186.03	0.00	1.05	187.8	0.205
22.417	1.000	184.33	0.00	1.05	186.1	0.192
22.500	1.000	182.67	0.00	1.04	184.4	0.180
22.583	1.000	181.06	0.00	1.03	182.7	0.169
22.667	1.000	179.47	0.00	1.02	181.1	0.158
22.750	1.000	177.93	0.00	1.02	179.5	0.147
22.833	1.000	176.42	0.00	1.01	178.0	0.136
22.917	1.000	174.95	0.00	1.00	176.5	0.125
23.000	1.000	173.50	0.00	0.99	174.4	0.119
23.083	1.000	172.09	0.00	0.98	172.3	0.118
23.167	1.000	170.71	0.00	0.97	170.8	0.117
23.250	1.000	169.36	0.00	0.96	169.5	0.116
23.333	1.000	168.04	0.00	0.96	168.2	0.115
23.417	1.000	166.74	0.00	0.95	166.9	0.114
23.500	1.000	165.47	0.00	0.94	165.6	0.113
23.583	1.000	164.23	0.00	0.94	164.4	0.112
23.667	1.000	163.01	0.00	0.93	163.1	0.111
23.750	1.000	161.82	0.00	0.92	161.9	0.111
23.833	1.000	160.64	0.00	0.92	160.8	0.110
23.917	1.000	159.49	0.00	0.91	159.6	0.109

PROCESS SUMMARY OF STORAGE:
  INFLOW VOLUME = 778.176 AF
  BASIN STORAGE = 1.000 AF (WITH 2.000 AF INITIALLY FILLED)
  OUTFLOW VOLUME = 779.195 AF

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 LOSS     VOLUME =       0.000 AF

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  FLOW PROCESS FROM NODE     102.00 TO NODE     103.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =    36.00      CHANNEL Z =  0.00
          UPSTREAM ELEVATION(FT) =     3292.00
          DOWNSTREAM ELEVATION(FT) =     3225.00
          CHANNEL LENGTH(FT) =     2780.00      MANNING'S FACTOR = 0.015
          CONSTANT LOSS RATE(CFS) =     0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                                (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (     2947.3).......[ 28.31]
          AVERAGED PEAK 15-MINUTE: (     2922.8).......[ 28.23]
          AVERAGED PEAK 30-MINUTE: (     2810.4).......[ 27.73]
          AVERAGED PEAK  1-HOUR:   (     2423.1).......[ 26.34]
          AVERAGED PEAK  3-HOUR:   (     1440.1).......[ 21.76]
          AVERAGED PEAK  6-HOUR:   (      927.6).......[ 18.25]
          AVERAGED PEAK 24-HOUR:   (      390.1).......[ 13.03]
        USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  26.000
        HYDROGRAPH TRANSLATION TIME
        = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
        = (  2780.00)/( 26.000) =    0.030 HRS

        TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                              OUTFLOW LESS
         MODEL          INFLOW      ROUTED       LOSS
          TIME       (STREAM 1)     FLOW      (STREAM 1)
         (HRS)         (CFS)         (CFS)       (CFS)
          0.083        149.76         96.39        96.39
          0.167          9.10         59.24        59.24
          0.250         52.56         37.07        37.07
          0.333         83.04         72.17        72.17
          0.417         89.22         87.01        87.01
          0.500         99.26         95.68        95.68
          0.583        105.50        103.27       103.27
          0.667        113.07        110.37       110.37
          0.750        118.47        116.55       116.55
          0.833        124.21        122.16       122.16
          0.917        128.58        127.02       127.02
          1.000        132.85        131.33       131.33
          1.083        136.36        135.11       135.11
          1.167        139.59        138.44       138.44
          1.250        142.32        141.35       141.35
          1.333        144.80        143.92       143.92
          1.417        146.90        146.15       146.15
          1.500        148.71        148.06       148.06
          1.583        150.27        149.72       149.72
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NODES 102→103 RCB ROUTING

1.667	151.76	151.23	151.23
1.750	153.17	152.67	152.67
1.833	154.46	154.00	154.00
1.917	155.58	155.18	155.18
2.000	156.43	156.13	156.13
2.083	157.11	156.87	156.87
2.167	157.78	157.54	157.54
2.250	158.43	158.20	158.20
2.333	159.08	158.85	158.85
2.417	159.72	159.50	159.50
2.500	160.36	160.14	160.14
2.583	161.00	160.77	160.77
2.667	161.63	161.41	161.41
2.750	162.27	162.04	162.04
2.833	162.90	162.67	162.67
2.917	163.53	163.31	163.31
3.000	164.17	163.94	163.94
3.083	164.80	164.58	164.58
3.167	165.44	165.22	165.22
3.250	166.09	165.86	165.86
3.333	166.74	166.51	166.51
3.417	167.39	167.16	167.16
3.500	168.05	167.81	167.81
3.583	168.71	168.47	168.47
3.667	169.38	169.14	169.14
3.750	170.05	169.81	169.81
3.833	170.73	170.49	170.49
3.917	171.42	171.17	171.17
4.000	172.11	171.86	171.86
4.083	172.81	172.56	172.56
4.167	173.52	173.26	173.26
4.250	174.23	173.98	173.98
4.333	174.86	174.63	174.63
4.417	175.33	175.16	175.16
4.500	175.85	175.66	175.66
4.583	176.51	176.28	176.28
4.667	177.23	176.98	176.98
4.750	177.98	177.71	177.71
4.833	178.74	178.47	178.47
4.917	179.50	179.23	179.23
5.000	180.28	180.01	180.01
5.083	181.07	180.79	180.79
5.167	181.87	181.58	181.58
5.250	182.67	182.38	182.38
5.333	183.49	183.20	183.20
5.417	184.31	184.02	184.02
5.500	185.15	184.85	184.85
5.583	185.99	185.69	185.69
5.667	186.84	186.54	186.54
5.750	187.71	187.40	187.40
5.833	188.58	188.27	188.27
5.917	189.47	189.15	189.15
6.000	190.37	190.05	190.05
6.083	191.28	190.95	190.95
6.167	192.20	191.87	191.87
6.250	193.13	192.80	192.80
6.333	194.07	193.74	193.74

6.417	195.03	194.69	194.69
6.500	196.00	195.65	195.65
6.583	196.98	196.63	196.63
6.667	197.98	197.62	197.62
6.750	198.98	198.62	198.62
6.833	200.01	199.64	199.64
6.917	201.04	200.67	200.67
7.000	202.09	201.72	201.72
7.083	203.16	202.78	202.78
7.167	204.24	203.85	203.85
7.250	205.33	204.94	204.94
7.333	206.44	206.05	206.05
7.417	207.57	207.17	207.17
7.500	208.71	208.31	208.31
7.583	209.87	209.46	209.46
7.667	211.05	210.63	210.63
7.750	212.24	211.82	211.82
7.833	213.46	213.02	213.02
7.917	214.69	214.25	214.25
8.000	215.94	215.49	215.49
8.083	217.21	216.76	216.76
8.167	218.50	218.04	218.04
8.250	219.81	219.34	219.34
8.333	221.14	220.67	220.67
8.417	222.49	222.01	222.01
8.500	223.87	223.38	223.38
8.583	225.27	224.77	224.77
8.667	226.69	226.18	226.18
8.750	228.13	227.62	227.62
8.833	229.60	229.08	229.08
8.917	231.10	230.56	230.56
9.000	232.62	232.08	232.08
9.083	234.17	233.61	233.61
9.167	235.74	235.18	235.18
9.250	237.35	236.78	236.78
9.333	238.98	238.40	238.40
9.417	240.64	240.05	240.05
9.500	242.34	241.73	241.73
9.583	244.06	243.45	243.45
9.667	245.82	245.20	245.20
9.750	247.62	246.98	246.98
9.833	249.45	248.79	248.79
9.917	251.31	250.65	250.65
10.000	253.21	252.53	252.53
10.083	255.15	254.46	254.46
10.167	257.13	256.43	256.43
10.250	259.16	258.44	258.44
10.333	261.22	260.48	260.48
10.417	263.33	262.58	262.58
10.500	265.48	264.72	264.72
10.583	267.69	266.90	266.90
10.667	269.94	269.14	269.14
10.750	272.24	271.42	271.42
10.833	274.59	273.76	273.76
10.917	277.00	276.15	276.15
11.000	279.47	278.59	278.59
11.083	282.00	281.10	281.10

11.167	284.58	283.66	283.66
11.250	287.24	286.29	286.29
11.333	289.95	288.99	288.99
11.417	292.74	291.75	291.75
11.500	295.60	294.58	294.58
11.583	298.54	297.49	297.49
11.667	301.55	300.48	300.48
11.750	304.65	303.55	303.55
11.833	307.83	306.70	306.70
11.917	311.11	309.94	309.94
12.000	314.47	313.27	313.27
12.083	317.64	316.51	316.51
12.167	319.36	318.74	318.74
12.250	317.27	318.01	318.01
12.333	312.03	313.89	313.89
12.417	307.23	308.94	308.94
12.500	304.28	305.33	305.33
12.583	302.76	303.30	303.30
12.667	302.31	302.47	302.47
12.750	302.67	302.54	302.54
12.833	303.67	303.31	303.31
12.917	305.23	304.68	304.68
13.000	307.30	306.56	306.56
13.083	309.83	308.93	308.93
13.167	312.79	311.74	311.74
13.250	316.19	314.98	314.98
13.333	319.99	318.64	318.64
13.417	324.21	322.71	322.71
13.500	328.85	327.20	327.20
13.583	333.92	332.12	332.12
13.667	339.40	337.45	337.45
13.750	345.26	343.17	343.17
13.833	351.53	349.30	349.30
13.917	358.23	355.85	355.85
14.000	365.42	362.86	362.86
14.083	373.23	370.45	370.45
14.167	381.94	378.83	378.83
14.250	392.08	388.46	388.46
14.333	401.07	397.87	397.87
14.417	408.29	405.72	405.72
14.500	416.83	413.79	413.79
14.583	427.44	423.66	423.66
14.667	439.88	435.44	435.44
14.750	453.85	448.87	448.87
14.833	469.18	463.72	463.72
14.917	485.80	479.88	479.88
15.000	503.76	497.36	497.36
15.083	523.17	516.25	516.25
15.167	544.25	536.74	536.74
15.250	567.29	559.08	559.08
15.333	592.67	583.62	583.62
15.417	620.44	610.54	610.54
15.500	649.24	638.97	638.97
15.583	675.54	666.17	666.17
15.667	699.40	690.90	690.90
15.750	726.09	716.58	716.58
15.833	761.30	748.75	748.75

15.917	817.05	797.18	797.18
16.000	909.09	876.29	876.29
16.083	1084.01	1021.67	1021.67
16.167	1449.27	1319.09	1319.09
16.250	2140.05	1893.84	1893.84
16.333	2752.17	2534.00	2534.00
16.417	2943.08	2875.04	2875.04
16.500	2947.27	2945.78	2945.78
16.583	2878.14	2902.78	2902.78
16.667	2754.16	2798.35	2798.35
16.750	2587.47	2646.88	2646.88
16.833	2377.24	2452.17	2452.17
16.917	2158.65	2236.56	2236.56
17.000	1983.04	2045.63	2045.63
17.083	1842.60	1892.66	1892.66
17.167	1713.46	1759.49	1759.49
17.250	1591.90	1635.22	1635.22
17.333	1476.72	1517.77	1517.77
17.417	1368.01	1406.76	1406.76
17.500	1266.27	1302.53	1302.53
17.583	1172.42	1205.87	1205.87
17.667	1089.34	1118.95	1118.95
17.750	1016.50	1042.46	1042.46
17.833	950.58	974.07	974.07
17.917	889.82	911.47	911.47
18.000	830.03	851.34	851.34
18.083	769.97	791.37	791.37
18.167	708.61	730.48	730.48
18.250	648.37	669.84	669.84
18.333	595.58	614.39	614.39
18.417	550.22	566.39	566.39
18.500	511.11	525.05	525.05
18.583	477.49	489.47	489.47
18.667	448.63	458.91	458.91
18.750	423.83	432.67	432.67
18.833	398.40	407.47	407.47
18.917	369.06	379.52	379.52
19.000	345.35	353.80	353.80
19.083	331.65	336.53	336.53
19.167	322.23	325.59	325.59
19.250	314.64	317.34	317.34
19.333	307.91	310.31	310.31
19.417	301.68	303.90	303.90
19.500	295.78	297.88	297.88
19.583	290.15	292.16	292.16
19.667	284.80	286.71	286.71
19.750	279.72	281.53	281.53
19.833	274.89	276.61	276.61
19.917	270.28	271.92	271.92
20.000	265.85	267.43	267.43
20.083	261.55	263.09	263.09
20.167	257.40	258.88	258.88
20.250	253.40	254.82	254.82
20.333	249.55	250.92	250.92
20.417	245.85	247.17	247.17
20.500	242.29	243.55	243.55
20.583	238.86	240.08	240.08

20.667	235.55	236.73	236.73
20.750	232.37	233.50	233.50
20.833	229.30	230.39	230.39
20.917	226.33	227.39	227.39
21.000	223.46	224.48	224.48
21.083	220.69	221.68	221.68
21.167	218.01	218.96	218.96
21.250	215.41	216.34	216.34
21.333	212.90	213.79	213.79
21.417	210.46	211.33	211.33
21.500	208.10	208.94	208.94
21.583	205.81	206.62	206.62
21.667	203.58	204.37	204.37
21.750	201.42	202.19	202.19
21.833	199.32	200.06	200.06
21.917	197.27	198.00	198.00
22.000	195.28	195.99	195.99
22.083	193.35	194.04	194.04
22.167	191.47	192.14	192.14
22.250	189.63	190.28	190.28
22.333	187.84	188.48	188.48
22.417	186.10	186.72	186.72
22.500	184.40	185.00	185.00
22.583	182.74	183.33	183.33
22.667	181.12	181.69	181.69
22.750	179.54	180.10	180.10
22.833	177.99	178.54	178.54
22.917	176.48	177.02	177.02
23.000	174.44	175.17	175.17
23.083	172.27	173.04	173.04
23.167	170.83	171.34	171.34
23.250	169.51	169.98	169.98
23.333	168.16	168.64	168.64
23.417	166.88	167.34	167.34
23.500	165.59	166.05	166.05
23.583	164.36	164.80	164.80
23.667	163.13	163.57	163.57
23.750	161.94	162.36	162.36
23.833	160.76	161.18	161.18
23.917	159.61	160.02	160.02
24.000	158.48	158.88	158.88
24.083	155.78	156.74	156.74
24.167	146.68	149.93	149.93
24.250	124.33	132.30	132.30
24.333	101.16	109.41	109.41
24.417	86.24	91.56	91.56
24.500	73.16	77.82	77.82
24.583	61.41	65.60	65.60
24.667	51.18	54.82	54.82
24.750	42.65	45.69	45.69
24.833	35.34	37.95	37.95
24.917	29.33	31.48	31.48
25.000	24.22	26.04	26.04
25.083	19.94	21.46	21.46
25.167	16.36	17.63	17.63
25.250	13.38	14.44	14.44
25.333	10.87	11.76	11.76

25.417	8.82	9.55	9.55
25.500	7.20	7.78	7.78
25.583	5.88	6.35	6.35
25.667	4.71	5.13	5.13
25.750	3.67	4.04	4.04
25.833	2.75	3.07	3.07
25.917	1.92	2.22	2.22
26.000	1.39	1.58	1.58
26.083	1.08	1.19	1.19
26.167	0.84	0.92	0.92
26.250	0.65	0.72	0.72
26.333	0.50	0.56	0.56
26.417	0.39	0.43	0.43
26.500	0.30	0.34	0.34
26.583	0.24	0.26	0.26
26.667	0.18	0.20	0.20
26.750	0.14	0.16	0.16
26.833	0.11	0.12	0.12
26.917	0.09	0.09	0.09
27.000	0.07	0.07	0.07
27.083	0.05	0.06	0.06
27.167	0.04	0.04	0.04
27.250	0.03	0.03	0.03
27.333	0.02	0.03	0.03
27.417	0.02	0.02	0.02
27.500	0.01	0.02	0.02
27.583	0.01	0.01	0.01
27.667	0.01	0.01	0.01
27.750	0.01	0.01	0.01
27.833	0.01	0.01	0.01
27.917	0.00	0.00	0.00
28.000	0.00	0.00	0.00
28.083	0.00	0.00	0.00
28.167	0.00	0.00	0.00
28.250	0.00	0.00	0.00
28.333	0.00	0.00	0.00
28.417	0.00	0.00	0.00
28.500	0.00	0.00	0.00
28.583	0.00	0.00	0.00

```
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =     779.195 AF
    OUTFLOW VOLUME =     779.195 AF
    LOSS    VOLUME =       0.000 AF


********************************************************************************
  FLOW PROCESS FROM NODE     103.00 TO NODE     103.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
================================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     1150.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.294 HOURS
```

NODE 103 SUBAREA HYDRO GRAPH

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 CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
 THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
 MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
DESERT(UNDEVELOPED) S-GRAPH SELECTED
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.096
LOW LOSS FRACTION = 0.090
*HYDROGRAPH MODEL #1 SPECIFIED*

SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
  5-MINUTE FACTOR = 0.979
 30-MINUTE FACTOR = 0.979
  1-HOUR FACTOR = 0.979
  3-HOUR FACTOR = 0.997
  6-HOUR FACTOR = 0.999
 24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME =  28.345
```

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.617	224.923
2	8.356	937.185
3	26.993	2591.986
4	49.088	3072.996
5	61.909	1783.139
6	69.846	1103.760
7	75.599	800.203
8	79.958	606.260
9	83.315	466.824
10	86.130	391.556
11	88.460	324.085
12	90.242	247.720
13	91.793	215.769
14	93.134	186.454
15	94.272	158.336
16	95.236	134.033
17	96.060	114.598
18	96.782	100.453
19	97.339	77.414
20	97.809	65.358
21	98.111	41.994
22	98.414	42.147

23	98.753	47.208
24	99.093	47.285
25	99.433	47.208
26	99.772	47.208
27	100.000	31.713

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0004	0.0044
2	0.0049	0.0004	0.0044
3	0.0049	0.0004	0.0045
4	0.0049	0.0004	0.0045
5	0.0049	0.0004	0.0045
6	0.0049	0.0004	0.0045
7	0.0050	0.0004	0.0045
8	0.0050	0.0004	0.0045
9	0.0050	0.0004	0.0045
10	0.0050	0.0004	0.0045
11	0.0050	0.0005	0.0046
12	0.0050	0.0005	0.0046
13	0.0051	0.0005	0.0046
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0047
18	0.0051	0.0005	0.0047
19	0.0052	0.0005	0.0047
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0048
24	0.0052	0.0005	0.0048
25	0.0053	0.0005	0.0048
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0049
30	0.0054	0.0005	0.0049
31	0.0054	0.0005	0.0049
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0054	0.0005	0.0050
35	0.0055	0.0005	0.0050
36	0.0055	0.0005	0.0050
37	0.0055	0.0005	0.0050
38	0.0055	0.0005	0.0050
39	0.0056	0.0005	0.0051
40	0.0056	0.0005	0.0051
41	0.0056	0.0005	0.0051
42	0.0056	0.0005	0.0051
43	0.0057	0.0005	0.0051
44	0.0057	0.0005	0.0052
45	0.0057	0.0005	0.0052
46	0.0057	0.0005	0.0052
47	0.0057	0.0005	0.0052
48	0.0058	0.0005	0.0052
49	0.0058	0.0005	0.0053
50	0.0058	0.0005	0.0053
51	0.0058	0.0005	0.0053

52	0.0059	0.0005	0.0053
53	0.0059	0.0005	0.0054
54	0.0059	0.0005	0.0054
55	0.0059	0.0005	0.0054
56	0.0060	0.0005	0.0054
57	0.0060	0.0005	0.0055
58	0.0060	0.0005	0.0055
59	0.0061	0.0005	0.0055
60	0.0061	0.0005	0.0055
61	0.0061	0.0006	0.0056
62	0.0061	0.0006	0.0056
63	0.0062	0.0006	0.0056
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0057
66	0.0063	0.0006	0.0057
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0058
70	0.0064	0.0006	0.0058
71	0.0064	0.0006	0.0058
72	0.0064	0.0006	0.0059
73	0.0065	0.0006	0.0059
74	0.0065	0.0006	0.0059
75	0.0065	0.0006	0.0060
76	0.0066	0.0006	0.0060
77	0.0066	0.0006	0.0060
78	0.0066	0.0006	0.0060
79	0.0067	0.0006	0.0061
80	0.0067	0.0006	0.0061
81	0.0068	0.0006	0.0062
82	0.0068	0.0006	0.0062
83	0.0068	0.0006	0.0062
84	0.0069	0.0006	0.0062
85	0.0069	0.0006	0.0063
86	0.0069	0.0006	0.0063
87	0.0070	0.0006	0.0064
88	0.0070	0.0006	0.0064
89	0.0071	0.0006	0.0064
90	0.0071	0.0006	0.0065
91	0.0072	0.0006	0.0065
92	0.0072	0.0006	0.0065
93	0.0072	0.0007	0.0066
94	0.0073	0.0007	0.0066
95	0.0073	0.0007	0.0067
96	0.0074	0.0007	0.0067
97	0.0074	0.0007	0.0068
98	0.0075	0.0007	0.0068
99	0.0075	0.0007	0.0069
100	0.0076	0.0007	0.0069
101	0.0076	0.0007	0.0069
102	0.0077	0.0007	0.0070
103	0.0077	0.0007	0.0070
104	0.0078	0.0007	0.0071
105	0.0078	0.0007	0.0071
106	0.0079	0.0007	0.0072
107	0.0080	0.0007	0.0072
108	0.0080	0.0007	0.0073

109	0.0081	0.0007	0.0073
110	0.0081	0.0007	0.0074
111	0.0082	0.0007	0.0075
112	0.0082	0.0007	0.0075
113	0.0083	0.0007	0.0076
114	0.0084	0.0008	0.0076
115	0.0084	0.0008	0.0077
116	0.0085	0.0008	0.0077
117	0.0086	0.0008	0.0078
118	0.0086	0.0008	0.0078
119	0.0087	0.0008	0.0079
120	0.0088	0.0008	0.0080
121	0.0089	0.0008	0.0081
122	0.0089	0.0008	0.0081
123	0.0090	0.0008	0.0082
124	0.0091	0.0008	0.0083
125	0.0092	0.0008	0.0084
126	0.0092	0.0008	0.0084
127	0.0094	0.0008	0.0085
128	0.0094	0.0008	0.0086
129	0.0095	0.0009	0.0087
130	0.0096	0.0009	0.0087
131	0.0097	0.0009	0.0088
132	0.0098	0.0009	0.0089
133	0.0099	0.0009	0.0090
134	0.0100	0.0009	0.0091
135	0.0101	0.0009	0.0092
136	0.0102	0.0009	0.0093
137	0.0103	0.0009	0.0094
138	0.0104	0.0009	0.0095
139	0.0106	0.0010	0.0096
140	0.0107	0.0010	0.0097
141	0.0108	0.0010	0.0099
142	0.0109	0.0010	0.0099
143	0.0111	0.0010	0.0101
144	0.0112	0.0010	0.0102
145	0.0090	0.0008	0.0082
146	0.0091	0.0008	0.0083
147	0.0093	0.0008	0.0084
148	0.0094	0.0008	0.0085
149	0.0096	0.0009	0.0087
150	0.0097	0.0009	0.0088
151	0.0099	0.0009	0.0090
152	0.0100	0.0009	0.0091
153	0.0102	0.0009	0.0093
154	0.0104	0.0009	0.0094
155	0.0106	0.0010	0.0097
156	0.0107	0.0010	0.0098
157	0.0110	0.0010	0.0100
158	0.0112	0.0010	0.0102
159	0.0115	0.0010	0.0104
160	0.0116	0.0010	0.0106
161	0.0120	0.0011	0.0109
162	0.0121	0.0011	0.0110
163	0.0125	0.0011	0.0114
164	0.0127	0.0011	0.0116
165	0.0131	0.0012	0.0119

166	0.0134	0.0012	0.0122
167	0.0138	0.0012	0.0126
168	0.0141	0.0013	0.0128
169	0.0151	0.0014	0.0138
170	0.0154	0.0014	0.0141
171	0.0161	0.0014	0.0146
172	0.0164	0.0015	0.0149
173	0.0172	0.0015	0.0156
174	0.0176	0.0016	0.0160
175	0.0185	0.0017	0.0168
176	0.0190	0.0017	0.0173
177	0.0201	0.0018	0.0183
178	0.0207	0.0019	0.0188
179	0.0220	0.0020	0.0200
180	0.0228	0.0021	0.0207
181	0.0245	0.0022	0.0223
182	0.0255	0.0023	0.0232
183	0.0279	0.0025	0.0254
184	0.0293	0.0026	0.0266
185	0.0251	0.0023	0.0228
186	0.0269	0.0024	0.0245
187	0.0316	0.0028	0.0287
188	0.0347	0.0031	0.0316
189	0.0539	0.0049	0.0491
190	0.0621	0.0056	0.0565
191	0.0941	0.0080	0.0861
192	0.1367	0.0080	0.1287
193	0.5874	0.0080	0.5794
194	0.0741	0.0067	0.0674
195	0.0387	0.0035	0.0352
196	0.0290	0.0026	0.0264
197	0.0308	0.0028	0.0281
198	0.0266	0.0024	0.0242
199	0.0236	0.0021	0.0215
200	0.0213	0.0019	0.0194
201	0.0195	0.0018	0.0177
202	0.0180	0.0016	0.0164
203	0.0168	0.0015	0.0153
204	0.0158	0.0014	0.0143
205	0.0144	0.0013	0.0131
206	0.0136	0.0012	0.0124
207	0.0129	0.0012	0.0118
208	0.0123	0.0011	0.0112
209	0.0118	0.0011	0.0107
210	0.0113	0.0010	0.0103
211	0.0109	0.0010	0.0099
212	0.0105	0.0009	0.0095
213	0.0101	0.0009	0.0092
214	0.0098	0.0009	0.0089
215	0.0095	0.0009	0.0086
216	0.0092	0.0008	0.0084
217	0.0113	0.0010	0.0103
218	0.0110	0.0010	0.0100
219	0.0107	0.0010	0.0098
220	0.0105	0.0009	0.0096
221	0.0103	0.0009	0.0093
222	0.0101	0.0009	0.0092

223	0.0099	0.0009	0.0090
224	0.0097	0.0009	0.0088
225	0.0095	0.0009	0.0086
226	0.0093	0.0008	0.0085
227	0.0091	0.0008	0.0083
228	0.0090	0.0008	0.0082
229	0.0088	0.0008	0.0080
230	0.0087	0.0008	0.0079
231	0.0085	0.0008	0.0078
232	0.0084	0.0008	0.0076
233	0.0083	0.0007	0.0075
234	0.0081	0.0007	0.0074
235	0.0080	0.0007	0.0073
236	0.0079	0.0007	0.0072
237	0.0078	0.0007	0.0071
238	0.0077	0.0007	0.0070
239	0.0076	0.0007	0.0069
240	0.0075	0.0007	0.0068
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0067
243	0.0072	0.0006	0.0066
244	0.0071	0.0006	0.0065
245	0.0070	0.0006	0.0064
246	0.0070	0.0006	0.0063
247	0.0069	0.0006	0.0063
248	0.0068	0.0006	0.0062
249	0.0067	0.0006	0.0061
250	0.0067	0.0006	0.0061
251	0.0066	0.0006	0.0060
252	0.0065	0.0006	0.0059
253	0.0065	0.0006	0.0059
254	0.0064	0.0006	0.0058
255	0.0063	0.0006	0.0058
256	0.0063	0.0006	0.0057
257	0.0062	0.0006	0.0057
258	0.0062	0.0006	0.0056
259	0.0061	0.0005	0.0055
260	0.0060	0.0005	0.0055
261	0.0060	0.0005	0.0054
262	0.0059	0.0005	0.0054
263	0.0059	0.0005	0.0054
264	0.0058	0.0005	0.0053
265	0.0058	0.0005	0.0053
266	0.0057	0.0005	0.0052
267	0.0057	0.0005	0.0052
268	0.0056	0.0005	0.0051
269	0.0056	0.0005	0.0051
270	0.0055	0.0005	0.0050
271	0.0055	0.0005	0.0050
272	0.0055	0.0005	0.0050
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0049
275	0.0053	0.0005	0.0049
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0048
278	0.0052	0.0005	0.0048
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0047
281	0.0051	0.0005	0.0047
282	0.0051	0.0005	0.0046
283	0.0050	0.0005	0.0046
284	0.0050	0.0005	0.0046
285	0.0050	0.0004	0.0045
286	0.0049	0.0004	0.0045
287	0.0049	0.0004	0.0045
288	0.0049	0.0004	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.27
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.32

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 26.2621
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 318.2284

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	625.0	1250.0	1875.0	2500.0
1.000	3.0938	56.76	Q	.	.	.	.
1.083	3.4926	57.90	Q	.	.	.	.
1.167	3.8984	58.92	Q	.	.	.	.
1.250	4.3104	59.82	Q	.	.	.	.
1.333	4.7278	60.61	Q	.	.	.	.
1.417	5.1501	61.32	Q	.	.	.	.
1.500	5.5770	61.98	Q	.	.	.	.
1.583	6.0076	62.53	VQ	.	.	.	.
1.667	6.4417	63.03	VQ	.	.	.	.
1.750	6.8787	63.44	VQ	.	.	.	.
1.833	7.3184	63.85	VQ	.	.	.	.
1.917	7.7610	64.28	VQ	.	.	.	.
2.000	8.2067	64.71	.Q	.	.	.	.
2.083	8.6554	65.15	.Q	.	.	.	.
2.167	9.1071	65.59	.Q	.	.	.	.
2.250	9.5614	65.96	.Q	.	.	.	.
2.333	10.0174	66.20	.Q	.	.	.	.
2.417	10.4749	66.44	.Q	.	.	.	.
2.500	10.9342	66.68	.Q	.	.	.	.
2.583	11.3951	66.93	.Q	.	.	.	.
2.667	11.8577	67.17	.Q	.	.	.	.
2.750	12.3221	67.42	.Q	.	.	.	.
2.833	12.7882	67.67	.Q	.	.	.	.
2.917	13.2560	67.93	.Q	.	.	.	.
3.000	13.7255	68.18	.Q	.	.	.	.
3.083	14.1969	68.44	.Q	.	.	.	.
3.167	14.6701	68.70	.Q	.	.	.	.
3.250	15.1450	68.97	.Q	.	.	.	.
3.333	15.6219	69.23	.Q	.	.	.	.
3.417	16.1005	69.50	.QV	.	.	.	.
3.500	16.5811	69.78	.QV	.	.	.	.
3.583	17.0635	70.05	.QV	.	.	.	.
3.667	17.5479	70.33	.QV	.	.	.	.
3.750	18.0342	70.61	.QV	.	.	.	.
3.833	18.5224	70.89	.QV	.	.	.	.
3.917	19.0126	71.18	.QV	.	.	.	.
4.000	19.5048	71.47	.QV	.	.	.	.
4.083	19.9991	71.76	.QV	.	.	.	.
4.167	20.4953	72.06	.QV	.	.	.	.
4.250	20.9937	72.36	.QV	.	.	.	.
4.333	21.4941	72.66	.QV	.	.	.	.
4.417	21.9966	72.97	.QV	.	.	.	.
4.500	22.5013	73.28	.QV	.	.	.	.
4.583	23.0081	73.59	.QV	.	.	.	.
4.667	23.5171	73.91	.QV	.	.	.	.

4.750	24.0283	74.23	.Q	V	.	.	.
4.833	24.5417	74.55	.Q	V	.	.	.
4.917	25.0574	74.88	.Q	V	.	.	.
5.000	25.5754	75.21	.Q	V	.	.	.
5.083	26.0957	75.55	.Q	V	.	.	.
5.167	26.6183	75.89	.Q	V	.	.	.
5.250	27.1433	76.23	.Q	V	.	.	.
5.333	27.6707	76.58	.Q	V	.	.	.
5.417	28.2005	76.93	.Q	V	.	.	.
5.500	28.7328	77.29	.Q	V	.	.	.
5.583	29.2675	77.65	.Q	V	.	.	.
5.667	29.8048	78.01	.Q	V	.	.	.
5.750	30.3446	78.38	.Q	V	.	.	.
5.833	30.8870	78.75	.Q	V	.	.	.
5.917	31.4320	79.13	.Q	V	.	.	.
6.000	31.9796	79.52	.Q	V	.	.	.
6.083	32.5299	79.91	.Q	V	.	.	.
6.167	33.0829	80.30	.Q	V	.	.	.
6.250	33.6387	80.70	.Q	V	.	.	.
6.333	34.1973	81.10	.Q	V	.	.	.
6.417	34.7586	81.51	.Q	V	.	.	.
6.500	35.3229	81.93	.Q	V	.	.	.
6.583	35.8900	82.35	.Q	V	.	.	.
6.667	36.4601	82.78	.Q	V	.	.	.
6.750	37.0331	83.21	.Q	V	.	.	.
6.833	37.6092	83.65	.Q	V	.	.	.
6.917	38.1883	84.09	.Q	V	.	.	.
7.000	38.7706	84.54	.Q	V	.	.	.
7.083	39.3560	85.00	.Q	V	.	.	.
7.167	39.9446	85.46	.Q	V	.	.	.
7.250	40.5364	85.93	.Q	V	.	.	.
7.333	41.1315	86.41	.Q	V	.	.	.
7.417	41.7299	86.89	.Q	V	.	.	.
7.500	42.3318	87.39	.Q	V	.	.	.
7.583	42.9370	87.89	.Q	V	.	.	.
7.667	43.5458	88.39	.Q	V	.	.	.
7.750	44.1581	88.91	.Q	V	.	.	.
7.833	44.7740	89.43	.Q	V	.	.	.
7.917	45.3936	89.96	.Q	V	.	.	.
8.000	46.0169	90.50	.Q	V	.	.	.
8.083	46.6439	91.05	.Q	V	.	.	.
8.167	47.2748	91.61	.Q	V	.	.	.
8.250	47.9096	92.17	.Q	V	.	.	.
8.333	48.5483	92.75	.Q	V	.	.	.
8.417	49.1911	93.33	.Q	V	.	.	.
8.500	49.8380	93.93	.Q	V	.	.	.
8.583	50.4890	94.53	.Q	V	.	.	.
8.667	51.1443	95.15	.Q	V	.	.	.
8.750	51.8039	95.77	.Q	V	.	.	.
8.833	52.4678	96.41	.Q	V	.	.	.
8.917	53.1362	97.05	.Q	V	.	.	.
9.000	53.8092	97.71	.Q	V	.	.	.
9.083	54.4868	98.39	.Q	V	.	.	.
9.167	55.1691	99.07	.Q	V	.	.	.
9.250	55.8562	99.77	.Q	V	.	.	.
9.333	56.5482	100.48	.Q	V	.	.	.
9.417	57.2452	101.20	.Q	V	.	.	.

9.500	57.9472	101.94	.Q	V	.	.	.
9.583	58.6544	102.69	.Q	V	.	.	.
9.667	59.3670	103.46	.Q	V	.	.	.
9.750	60.0848	104.24	.Q	V	.	.	.
9.833	60.8082	105.04	.Q	V	.	.	.
9.917	61.5372	105.85	.Q	V	.	.	.
10.000	62.2719	106.68	.Q	V	.	.	.
10.083	63.0125	107.53	.Q	V	.	.	.
10.167	63.7590	108.40	.Q	V	.	.	.
10.250	64.5116	109.28	.Q	V	.	.	.
10.333	65.2705	110.18	.Q	V	.	.	.
10.417	66.0357	111.11	.Q	V	.	.	.
10.500	66.8074	112.05	.Q	V	.	.	.
10.583	67.5857	113.02	.Q	V	.	.	.
10.667	68.3709	114.01	.Q	V	.	.	.
10.750	69.1631	115.02	.Q	V	.	.	.
10.833	69.9624	116.06	.Q	V	.	.	.
10.917	70.7690	117.12	.Q	V	.	.	.
11.000	71.5831	118.21	.Q	V	.	.	.
11.083	72.4049	119.32	.Q	V.	.	.	.
11.167	73.2345	120.46	.Q	V.	.	.	.
11.250	74.0722	121.64	.Q	V.	.	.	.
11.333	74.9182	122.84	.Q	V.	.	.	.
11.417	75.7727	124.07	.Q	V.	.	.	.
11.500	76.6360	125.34	. Q	V.	.	.	.
11.583	77.5082	126.65	. Q	V.	.	.	.
11.667	78.3897	127.99	. Q	V.	.	.	.
11.750	79.2806	129.36	. Q	V.	.	.	.
11.833	80.1813	130.78	. Q	V	.	.	.
11.917	81.0921	132.24	. Q	V	.	.	.
12.000	82.0132	133.75	. Q	V	.	.	.
12.083	82.9417	134.81	. Q	V	.	.	.
12.167	83.8672	134.39	. Q	V	.	.	.
12.250	84.7656	130.44	. Q	V	.	.	.
12.333	85.6299	125.49	. Q	V	.	.	.
12.417	86.4792	123.32	.Q	V	.	.	.
12.500	87.3238	122.64	.Q	V	.	.	.
12.583	88.1686	122.66	.Q	.V	.	.	.
12.667	89.0168	123.16	.Q	.V	.	.	.
12.750	89.8708	124.01	.Q	.V	.	.	.
12.833	90.7323	125.09	. Q	.V	.	.	.
12.917	91.6027	126.38	. Q	.V	.	.	.
13.000	92.4838	127.92	. Q	.V	.	.	.
13.083	93.3764	129.61	. Q	.V	.	.	.
13.167	94.2817	131.45	. Q	.V	.	.	.
13.250	95.2008	133.45	. Q	.V	.	.	.
13.333	96.1347	135.61	. Q	. V	.	.	.
13.417	97.0845	137.91	. Q	. V	.	.	.
13.500	98.0513	140.37	. Q	. V	.	.	.
13.583	99.0362	143.01	. Q	. V	.	.	.
13.667	100.0406	145.83	. Q	. V	.	.	.
13.750	101.0656	148.84	. Q	. V	.	.	.
13.833	102.1126	152.02	. Q	. V	.	.	.
13.917	103.1827	155.38	. Q	. V	.	.	.
14.000	104.2772	158.93	. Q	. V	.	.	.
14.083	105.3985	162.81	. Q	. V	.	.	.
14.167	106.5505	167.27	. Q	. V	.	.	.

14.250	107.7407	172.81	. Q . V . . .
14.333	108.9732	178.95	. Q . V . . .
14.417	110.2463	184.86	. Q . V . . .
14.500	111.5605	190.83	. Q . V . . .
14.583	112.9180	197.10	. Q . V . . .
14.667	114.3212	203.76	. Q . V . . .
14.750	115.7737	210.90	. Q . V . . .
14.833	117.2795	218.64	. Q . V . . .
14.917	118.8434	227.07	. Q . V . . .
15.000	120.4709	236.31	. Q . V . . .
15.083	122.1688	246.54	. Q . V . . .
15.167	123.9451	257.92	. Q . V . . .
15.250	125.8097	270.74	. Q . V . . .
15.333	127.7743	285.25	. Q . V . . .
15.417	129.8434	300.44	. Q . V . . .
15.500	132.0016	313.38	. Q . V . . .
15.583	134.1941	318.34	. Q . V . . .
15.667	136.4241	323.80	. Q . V . . .
15.750	138.8047	345.67	. Q . V . . .
15.833	141.4743	387.61	. Q . V . . .
15.917	144.6800	465.48	. Q . V . . .
16.000	148.7275	587.69	. Q. V . . .
16.083	154.7056	868.03	. . Q V. . .
16.167	164.4531	1415.33	. . . V Q . .
16.250	180.3428	2307.19	. . . . V . . Q .
16.333	197.3007	2462.27	. . . . V . . Q.
16.417	208.9257	1687.96	. . . . VQ . .
16.500	217.3030	1216.38	. . . Q. V . .
16.583	224.0384	977.99	. . . Q . V . .
16.667	229.7036	822.58	. . . Q . V . .
16.750	234.5405	702.33	. . .Q . V. .
16.833	238.8094	619.84	. . Q. . V .
16.917	242.5788	547.31	. . Q . . V .
17.000	245.8632	476.90	. . Q . . V .
17.083	248.8437	432.76	. . Q . . .V .
17.167	251.5543	393.59	. . Q . . .V .
17.250	254.0113	356.75	. . Q . . .V .
17.333	256.2417	323.85	. . Q . . . V .
17.417	258.2791	295.84	. . Q . . . V .
17.500	260.1539	272.22	. . Q . . . V .
17.583	261.8498	246.25	. . Q . . . V .
17.667	263.4153	227.31	. . Q . . . V .
17.750	264.8320	205.72	. . Q . . . V .
17.833	266.1921	197.48	. . Q . . . V .
17.917	267.5181	192.54	. . Q . . . V .
18.000	268.7934	185.17	. Q . . . V .
18.083	270.0183	177.85	. Q . . . V .
18.167	271.1957	170.97	. Q . . . V .
18.250	272.2958	159.73	. Q . . . V .
18.333	273.2836	143.43	. Q . . . V .
18.417	274.2569	141.32	. Q . . . V .
18.500	275.2151	139.13	. Q . . . V .
18.583	276.1569	136.75	. Q . . . V .
18.667	277.0808	134.15	. Q . . . V .
18.750	277.9870	131.58	. Q . . . V .
18.833	278.8762	129.12	. Q . . . V .
18.917	279.7491	126.74	. Q . . . V .

19.000	280.6058	124.40	.Q	.	.	.	V	.
19.083	281.4471	122.15	.Q	.	.	.	V	.
19.167	282.2736	120.01	.Q	.	.	.	V	.
19.250	283.0858	117.94	.Q	.	.	.	V	.
19.333	283.8845	115.97	.Q	.	.	.	V	.
19.417	284.6701	114.06	.Q	.	.	.	V	.
19.500	285.4430	112.23	.Q	.	.	.	V	.
19.583	286.2037	110.45	.Q	.	.	.	V	.
19.667	286.9525	108.73	.Q	.	.	.	V	.
19.750	287.6897	107.04	.Q	.	.	.	V	.
19.833	288.4158	105.43	.Q	.	.	.	V	.
19.917	289.1313	103.90	.Q	.	.	.	V	.
20.000	289.8367	102.43	.Q	.	.	.	V	.
20.083	290.5325	101.02	.Q	.	.	.	V	.
20.167	291.2190	99.68	.Q	.	.	.	V	.
20.250	291.8963	98.35	.Q	.	.	.	V	.
20.333	292.5644	97.00	.Q	.	.	.	V	.
20.417	293.2235	95.71	.Q	.	.	.	V	.
20.500	293.8740	94.46	.Q	.	.	.	V	.
20.583	294.5162	93.25	.Q	.	.	.	V	.
20.667	295.1504	92.08	.Q	.	.	.	V	.
20.750	295.7768	90.95	.Q	.	.	.	V	.
20.833	296.3956	89.86	.Q	.	.	.	V	.
20.917	297.0072	88.80	.Q	.	.	.	V	.
21.000	297.6117	87.77	.Q	.	.	.	V	.
21.083	298.2094	86.78	.Q	.	.	.	V	.
21.167	298.8004	85.81	.Q	.	.	.	V	.
21.250	299.3849	84.88	.Q	.	.	.	V	.
21.333	299.9632	83.97	.Q	.	.	.	V	.
21.417	300.5353	83.08	.Q	.	.	.	V	.
21.500	301.1016	82.22	.Q	.	.	.	V	.
21.583	301.6621	81.38	.Q	.	.	.	V	.
21.667	302.2169	80.57	.Q	.	.	.	V	.
21.750	302.7664	79.77	.Q	.	.	.	V	.
21.833	303.3105	79.00	.Q	.	.	.	V	.
21.917	303.8494	78.25	.Q	.	.	.	V	.
22.000	304.3832	77.51	.Q	.	.	.	V	.
22.083	304.9121	76.80	.Q	.	.	.	V	.
22.167	305.4362	76.10	.Q	.	.	.	V	.
22.250	305.9556	75.42	.Q	.	.	.	V	.
22.333	306.4704	74.75	.Q	.	.	.	V	.
22.417	306.9807	74.10	.Q	.	.	.	V	.
22.500	307.4866	73.46	.Q	.	.	.	V	.
22.583	307.9883	72.84	.Q	.	.	.	V	.
22.667	308.4857	72.23	.Q	.	.	.	V	.
22.750	308.9791	71.64	.Q	.	.	.	V	.
22.833	309.4685	71.05	.Q	.	.	.	V	.
22.917	309.9539	70.48	.Q	.	.	.	V	.
23.000	310.4355	69.93	.Q	.	.	.	V	.
23.083	310.9133	69.38	.Q	.	.	.	V	.
23.167	311.3875	68.85	.Q	.	.	.	V	.
23.250	311.8580	68.32	.Q	.	.	.	V	.
23.333	312.3250	67.81	.Q	.	.	.	V	.
23.417	312.7885	67.30	.Q	.	.	.	V	.
23.500	313.2486	66.81	.Q	.	.	.	V	.
23.583	313.7054	66.32	.Q	.	.	.	V	.
23.667	314.1589	65.85	.Q	.	.	.	V	.

23.750	314.6092	65.38	.Q	.	.	.	V.
23.833	315.0564	64.93	.Q	.	.	.	V.
23.917	315.5004	64.48	.Q	.	.	.	V.
24.000	315.9414	64.03	.Q	.	.	.	V.
24.083	316.3726	62.61	.Q	.	.	.	V.
24.167	316.7724	58.05	Q	.	.	.	V.
24.250	317.0908	46.23	Q	.	.	.	V.
24.333	317.3136	32.36	Q	.	.	.	V.
24.417	317.4808	24.27	Q	.	.	.	V.
24.500	317.6133	19.24	Q	.	.	.	V.
24.583	317.7205	15.58	Q	.	.	.	V.
24.667	317.8087	12.80	Q	.	.	.	V.
24.750	317.8820	10.65	Q	.	.	.	V.
24.833	317.9429	8.85	Q	.	.	.	V.
24.917	317.9936	7.36	Q	.	.	.	V.
25.000	318.0364	6.22	Q	.	.	.	V.
25.083	318.0724	5.22	Q	.	.	.	V.
25.167	318.1025	4.36	Q	.	.	.	V.
25.250	318.1275	3.64	Q	.	.	.	V.
25.333	318.1483	3.02	Q	.	.	.	V.
25.417	318.1655	2.49	Q	.	.	.	V.
25.500	318.1795	2.03	Q	.	.	.	V.
25.583	318.1911	1.68	Q	.	.	.	V.
25.667	318.2006	1.38	Q	.	.	.	V.
25.750	318.2088	1.19	Q	.	.	.	V.
25.833	318.2156	0.99	Q	.	.	.	V.
25.917	318.2209	0.78	Q	.	.	.	V.
26.000	318.2248	0.56	Q	.	.	.	V.
26.083	318.2272	0.35	Q	.	.	.	V.
26.167	318.2282	0.14	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1570.0
10%	155.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	10.0

NODE 103 VIEW STREAM 1 HYDROGRAPH

****
FLOW PROCESS FROM NODE 103.00 TO NODE 103.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)

(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1250.0	2500.0	3750.0	5000.0
1.000	11.0708	188.09	VQ	.	.	.	.
1.083	12.4001	193.01	VQ	.	.	.	.
1.167	13.7594	197.36	VQ	.	.	.	.
1.250	15.1448	201.16	VQ	.	.	.	.
1.333	16.5534	204.53	VQ	.	.	.	.
1.417	17.9823	207.47	VQ	.	.	.	.
1.500	19.4288	210.04	VQ	.	.	.	.
1.583	20.8906	212.25	VQ	.	.	.	.
1.667	22.3662	214.26	VQ	.	.	.	.
1.750	23.8546	216.10	VQ	.	.	.	.
1.833	25.3548	217.84	VQ	.	.	.	.
1.917	26.8663	219.46	VQ	.	.	.	.
2.000	28.3872	220.84	.Q	.	.	.	.
2.083	29.9163	222.02	.Q	.	.	.	.
2.167	31.4530	223.13	.Q	.	.	.	.
2.250	32.9968	224.16	.Q	.	.	.	.
2.333	34.5467	225.05	.Q	.	.	.	.
2.417	36.1028	225.94	.Q	.	.	.	.
2.500	37.6649	226.82	.Q	.	.	.	.
2.583	39.2330	227.70	.Q	.	.	.	.
2.667	40.8073	228.58	.Q	.	.	.	.
2.750	42.3876	229.46	.Q	.	.	.	.
2.833	43.9740	230.35	.Q	.	.	.	.
2.917	45.5665	231.23	.Q	.	.	.	.
3.000	47.1652	232.12	.Q	.	.	.	.
3.083	48.7700	233.02	.Q	.	.	.	.
3.167	50.3810	233.92	.Q	.	.	.	.
3.250	51.9982	234.83	.Q	.	.	.	.
3.333	53.6218	235.74	.Q	.	.	.	.
3.417	55.2517	236.66	.QV	.	.	.	.
3.500	56.8879	237.59	.QV	.	.	.	.
3.583	58.5307	238.52	.QV	.	.	.	.
3.667	60.1799	239.47	.QV	.	.	.	.
3.750	61.8357	240.42	.QV	.	.	.	.
3.833	63.4981	241.38	.QV	.	.	.	.
3.917	65.1672	242.35	.QV	.	.	.	.
4.000	66.8430	243.33	.QV	.	.	.	.
4.083	68.5257	244.32	.QV	.	.	.	.
4.167	70.2152	245.32	.QV	.	.	.	.
4.250	71.9117	246.33	.QV	.	.	.	.
4.333	73.6149	247.30	.QV	.	.	.	.
4.417	75.3237	248.13	.QV	.	.	.	.
4.500	77.0382	248.94	.QV	.	.	.	.
4.583	78.7590	249.87	.QV	.	.	.	.
4.667	80.4868	250.88	. Q	.	.	.	.
4.750	82.2220	251.94	. Q	.	.	.	.
4.833	83.9645	253.02	. QV	.	.	.	.
4.917	85.7146	254.11	. QV	.	.	.	.
5.000	87.4723	255.22	. QV	.	.	.	.
5.083	89.2377	256.34	. QV	.	.	.	.
5.167	91.0109	257.47	. QV	.	.	.	.
5.250	92.7919	258.61	. QV	.	.	.	.
5.333	94.5810	259.77	. QV	.	.	.	.

5.417	96.3782	260.95	. QV	.	.	.	.
5.500	98.1835	262.13	. QV	.	.	.	.
5.583	99.9971	263.33	. QV	.	.	.	.
5.667	101.8191	264.55	. QV	.	.	.	.
5.750	103.6495	265.78	. QV	.	.	.	.
5.833	105.4885	267.03	. QV	.	.	.	.
5.917	107.3363	268.29	. QV	.	.	.	.
6.000	109.1928	269.57	. QV	.	.	.	.
6.083	111.0582	270.86	. Q V	.	.	.	.
6.167	112.9326	272.17	. Q V	.	.	.	.
6.250	114.8162	273.49	. Q V	.	.	.	.
6.333	116.7090	274.84	. Q V	.	.	.	.
6.417	118.6112	276.20	. Q V	.	.	.	.
6.500	120.5229	277.58	. Q V	.	.	.	.
6.583	122.4443	278.98	. Q V	.	.	.	.
6.667	124.3754	280.40	. Q V	.	.	.	.
6.750	126.3164	281.83	. Q V	.	.	.	.
6.833	128.2674	283.29	. Q V	.	.	.	.
6.917	130.2285	284.76	. Q V	.	.	.	.
7.000	132.2000	286.26	. Q V	.	.	.	.
7.083	134.1820	287.78	. Q V	.	.	.	.
7.167	136.1745	289.31	. Q V	.	.	.	.
7.250	138.1777	290.87	. Q V	.	.	.	.
7.333	140.1919	292.46	. Q V	.	.	.	.
7.417	142.2171	294.06	. Q V	.	.	.	.
7.500	144.2536	295.69	. Q V	.	.	.	.
7.583	146.3014	297.34	. Q V	.	.	.	.
7.667	148.3608	299.02	. Q V	.	.	.	.
7.750	150.4319	300.72	. Q V	.	.	.	.
7.833	152.5149	302.45	. Q V	.	.	.	.
7.917	154.6100	304.21	. Q V	.	.	.	.
8.000	156.7174	305.99	. Q V	.	.	.	.
8.083	158.8373	307.80	. Q V	.	.	.	.
8.167	160.9698	309.65	. Q V	.	.	.	.
8.250	163.1152	311.51	. Q V	.	.	.	.
8.333	165.2737	313.41	. Q V	.	.	.	.
8.417	167.4455	315.34	. Q V	.	.	.	.
8.500	169.6308	317.30	. Q V	.	.	.	.
8.583	171.8298	319.30	. Q V	.	.	.	.
8.667	174.0428	321.33	. Q V	.	.	.	.
8.750	176.2700	323.39	. Q V	.	.	.	.
8.833	178.5116	325.49	. Q V	.	.	.	.
8.917	180.7680	327.62	. Q V	.	.	.	.
9.000	183.0393	329.79	. Q V	.	.	.	.
9.083	185.3258	332.00	. Q V	.	.	.	.
9.167	187.6278	334.25	. Q V	.	.	.	.
9.250	189.9456	336.54	. Q V	.	.	.	.
9.333	192.2794	338.88	. Q V	.	.	.	.
9.417	194.6296	341.25	. Q V	.	.	.	.
9.500	196.9965	343.67	. Q V	.	.	.	.
9.583	199.3804	346.14	. Q V	.	.	.	.
9.667	201.7816	348.65	. Q V	.	.	.	.
9.750	204.2004	351.22	. Q V	.	.	.	.
9.833	206.6373	353.83	. Q V	.	.	.	.
9.917	209.0925	356.50	. Q V	.	.	.	.
10.000	211.5664	359.22	. Q V	.	.	.	.
10.083	214.0594	361.99	. Q V	.	.	.	.

10.167	216.5720	364.82	. Q	V .	.	.	.	
10.250	219.1045	367.71	. Q	V .	.	.	.	
10.333	221.6573	370.67	. Q	V .	.	.	.	
10.417	224.2309	373.68	. Q	V .	.	.	.	
10.500	226.8257	376.77	. Q	V .	.	.	.	
10.583	229.4422	379.92	. Q	V .	.	.	.	
10.667	232.0810	383.15	. Q	V .	.	.	.	
10.750	234.7424	386.44	. Q	V .	.	.	.	
10.833	237.4271	389.81	. Q	V .	.	.	.	
10.917	240.1355	393.26	. Q	V .	.	.	.	
11.000	242.8683	396.80	. Q	V .	.	.	.	
11.083	245.6260	400.42	. Q	V .	.	.	.	
11.167	248.4092	404.13	. Q	V.	.	.	.	
11.250	251.2187	407.93	. Q	V.	.	.	.	
11.333	254.0549	411.83	. Q	V.	.	.	.	
11.417	256.9187	415.82	. Q	V.	.	.	.	
11.500	259.8108	419.93	. Q	V.	.	.	.	
11.583	262.7318	424.14	. Q	V.	.	.	.	
11.667	265.6827	428.47	. Q	V.	.	.	.	
11.750	268.6642	432.91	. Q	V.	.	.	.	
11.833	271.6772	437.48	. Q	V.	.	.	.	
11.917	274.7225	442.18	. Q	V	.	.	.	
12.000	277.8011	447.02	. Q	V	.	.	.	
12.083	280.9094	451.32	. Q	V	.	.	.	
12.167	284.0302	453.14	. Q	V	.	.	.	
12.250	287.1187	448.46	. Q	V	.	.	.	
12.333	290.1448	439.38	. Q	V	.	.	.	
12.417	293.1218	432.26	. Q	V	.	.	.	
12.500	296.0692	427.97	. Q	V	.	.	.	
12.583	299.0028	425.96	. Q	V	.	.	.	
12.667	301.9342	425.63	. Q	.V	.	.	.	
12.750	304.8719	426.55	. Q	.V	.	.	.	
12.833	307.8223	428.40	. Q	.V	.	.	.	
12.917	310.7910	431.06	. Q	.V	.	.	.	
13.000	313.7834	434.49	. Q	.V	.	.	.	
13.083	316.8036	438.54	. Q	.V	.	.	.	
13.167	319.8559	443.19	. Q	.V	.	.	.	
13.250	322.9442	448.43	. Q	.V	.	.	.	
13.333	326.0726	454.24	. Q	.V	.	.	.	
13.417	329.2449	460.62	. Q	. V	.	.	.	
13.500	332.4651	467.57	. Q	. V	.	.	.	
13.583	335.7374	475.13	. Q	. V	.	.	.	
13.667	339.0657	483.27	. Q	. V	.	.	.	
13.750	342.4542	492.01	. Q	. V	.	.	.	
13.833	345.9068	501.32	. Q	. V	.	.	.	
13.917	349.4276	511.22	. Q	. V	.	.	.	
14.000	353.0212	521.79	. Q	. V	.	.	.	
14.083	356.6938	533.26	. Q	. V	.	.	.	
14.167	360.4549	546.11	. Q	. V	.	.	.	
14.250	364.3204	561.27	. Q	. V	.	.	.	
14.333	368.2930	576.82	. Q	. V	.	.	.	
14.417	372.3603	590.57	. Q	. V	.	.	.	
14.500	376.5244	604.62	. Q	. V	.	.	.	
14.583	380.7996	620.76	. Q	. V	.	.	.	
14.667	385.2018	639.20	. Q	. V	.	.	.	
14.750	389.7456	659.77	. Q	. V	.	.	.	
14.833	394.4451	682.36	. Q	. V	.	.	.	

14.917	399.3139	706.95	. Q . V . . .
15.000	404.3667	733.67	. Q . V . . .
15.083	409.6201	762.79	. Q . V . . .
15.167	415.0930	794.66	. Q . V . . .
15.250	420.8080	829.82	. Q . V . . .
15.333	426.7919	868.88	. Q . V . . .
15.417	433.0659	910.98	. Q . V . . .
15.500	439.6248	952.35	. Q . V . . .
15.583	446.4052	984.51	. Q . V . . .
15.667	453.3934	1014.69	. Q . V . . .
15.750	460.7092	1062.25	. Q . V . . .
15.833	468.5354	1136.37	. Q. V . . .
15.917	477.2314	1262.66	. Q V . . .
16.000	487.3138	1463.97	. .Q V . . .
16.083	500.3283	1889.70	. . Q V . . .
16.167	519.1604	2734.42	. . V .Q . .
16.250	548.0931	4201.04	. . V. . Q .
16.333	582.5027	4996.27	. . .V . . Q.
16.417	613.9283	4562.99	. . . V . Q .
16.500	642.5933	4162.16	. . . V . Q .
16.583	669.3204	3880.77	. . . V .Q .
16.667	694.2579	3620.93	. . . V Q . .
16.750	717.3240	3349.21	. . . Q . .
16.833	738.4811	3072.01	. . . Q V . .
16.917	757.6538	2783.87	. . . Q V . .
17.000	775.0266	2522.53	. . Q V . .
17.083	791.0419	2325.42	. . Q . V . .
17.167	805.8702	2153.07	. . Q . V. .
17.250	819.5890	1991.98	. . Q . V. .
17.333	832.2723	1841.62	. . Q . V .
17.417	843.9982	1702.59	. . Q . V .
17.500	854.8436	1574.75	. . Q . .V .
17.583	864.8444	1452.12	. .Q . .V .
17.667	874.1161	1346.26	. Q . .V .
17.750	882.7124	1248.18	. Q. . . V .
17.833	890.7809	1171.55	. Q. . . V .
17.917	898.3844	1104.02	. Q . . . V .
18.000	905.5229	1036.51	. Q . . . V .
18.083	912.1979	969.22	. Q . . . V .
18.167	918.4062	901.45	. Q . . . V .
18.250	924.1195	829.56	. Q . . . V .
18.333	929.3387	757.82	. Q . . . V .
18.417	934.2127	707.71	. Q . . . V .
18.500	938.7869	664.18	. Q . . . V .
18.583	943.0997	626.22	. Q . . . V .
18.667	947.1841	593.06	. Q . . . V .
18.750	951.0702	564.25	. Q . . . V .
18.833	954.7657	536.59	. Q . . . V .
18.917	958.2523	506.26	. Q . . . V .
19.000	961.5457	478.20	. Q . . . V .
19.083	964.7047	458.69	. Q . . . V .
19.167	967.7736	445.59	. Q . . . V .
19.250	970.7714	435.29	. Q . . . V .
19.333	973.7072	426.28	. Q . . . V .
19.417	976.5858	417.96	. Q . . . V .
19.500	979.4102	410.11	. Q . . . V .
19.583	982.1830	402.61	. Q . . . V .

19.667	984.9064	395.44	. Q	.	.	.	V	.
19.750	987.5825	388.57	. Q	.	.	.	V	.
19.833	990.2136	382.04	. Q	.	.	.	V	.
19.917	992.8019	375.82	. Q	.	.	.	V	.
20.000	995.3492	369.86	. Q	.	.	.	V	.
20.083	997.8568	364.11	. Q	.	.	.	V	.
20.167	1000.3262	358.56	. Q	.	.	.	V	.
20.250	1002.7585	353.17	. Q	.	.	.	V	.
20.333	1005.1547	347.92	. Q	.	.	.	V	.
20.417	1007.5161	342.87	. Q	.	.	.	V	.
20.500	1009.8439	338.01	. Q	.	.	.	V	.
20.583	1012.1396	333.33	. Q	.	.	.	V	.
20.667	1014.4041	328.81	. Q	.	.	.	V	.
20.750	1016.6387	324.46	. Q	.	.	.	V	.
20.833	1018.8442	320.25	. Q	.	.	.	V	.
20.917	1021.0218	316.18	. Q	.	.	.	V	.
21.000	1023.1723	312.26	. Q	.	.	.	V	.
21.083	1025.2966	308.45	. Q	.	.	.	V	.
21.167	1027.3956	304.78	. Q	.	.	.	V	.
21.250	1029.4701	301.21	. Q	.	.	.	V	.
21.333	1031.5208	297.76	. Q	.	.	.	V	.
21.417	1033.5483	294.41	. Q	.	.	.	V	.
21.500	1035.5536	291.16	. Q	.	.	.	V	.
21.583	1037.5371	288.01	. Q	.	.	.	V	.
21.667	1039.4995	284.94	. Q	.	.	.	V	.
21.750	1041.4414	281.96	. Q	.	.	.	V	.
21.833	1043.3634	279.07	. Q	.	.	.	V	.
21.917	1045.2660	276.25	. Q	.	.	.	V	.
22.000	1047.1497	273.51	. Q	.	.	.	V	.
22.083	1049.0149	270.84	. Q	.	.	.	V	.
22.167	1050.8623	268.24	. Q	.	.	.	V	.
22.250	1052.6921	265.70	. Q	.	.	.	V	.
22.333	1054.5050	263.23	. Q	.	.	.	V	.
22.417	1056.3013	260.82	. Q	.	.	.	V	.
22.500	1058.0813	258.47	. Q	.	.	.	V	.
22.583	1059.8456	256.17	. Q	.	.	.	V	.
22.667	1061.5944	253.93	. Q	.	.	.	V	.
22.750	1063.3281	251.74	. Q	.	.	.	V	.
22.833	1065.0471	249.59	.Q	.	.	.	V	.
22.917	1066.7517	247.50	.Q	.	.	.	V	.
23.000	1068.4397	245.09	.Q	.	.	.	V	.
23.083	1070.1093	242.42	.Q	.	.	.	V	.
23.167	1071.7634	240.19	.Q	.	.	.	V	.
23.250	1073.4047	238.30	.Q	.	.	.	V	.
23.333	1075.0331	236.45	.Q	.	.	.	V	.
23.417	1076.6490	234.64	.Q	.	.	.	V	.
23.500	1078.2528	232.86	.Q	.	.	.	V	.
23.583	1079.8446	231.12	.Q	.	.	.	V	.
23.667	1081.4246	229.42	.Q	.	.	.	V	.
23.750	1082.9930	227.75	.Q	.	.	.	V	.
23.833	1084.5503	226.10	.Q	.	.	.	V	.
23.917	1086.0964	224.49	.Q	.	.	.	V	.
24.000	1087.6317	222.92	.Q	.	.	.	V	.
24.083	1089.1425	219.35	.Q	.	.	.	V	.
24.167	1090.5748	207.98	.Q	.	.	.	V	.
24.250	1091.8043	178.52	.Q	.	.	.	V	.
24.333	1092.7808	141.77	.Q	.	.	.	V	.

24.417	1093.5785	115.83	Q	.	.	.	V.
24.500	1094.2469	97.06	Q	.	.	.	V.
24.583	1094.8060	81.17	Q	.	.	.	V.
24.667	1095.2717	67.62	Q	.	.	.	V.
24.750	1095.6598	56.34	Q	.	.	.	V.
24.833	1095.9821	46.80	Q	.	.	.	V.
24.917	1096.2495	38.83	Q	.	.	.	V.
25.000	1096.4717	32.26	Q	.	.	.	V.
25.083	1096.6555	26.69	Q	.	.	.	V.
25.167	1096.8070	22.00	Q	.	.	.	V.
25.250	1096.9315	18.08	Q	.	.	.	V.
25.333	1097.0333	14.78	Q	.	.	.	V.
25.417	1097.1163	12.05	Q	.	.	.	V.
25.500	1097.1840	9.81	Q	.	.	.	V.
25.583	1097.2393	8.03	Q	.	.	.	V.
25.667	1097.2841	6.51	Q	.	.	.	V.
25.750	1097.3201	5.23	Q	.	.	.	V.
25.833	1097.3480	4.07	Q	.	.	.	V.
25.917	1097.3687	2.99	Q	.	.	.	V.
26.000	1097.3834	2.14	Q	.	.	.	V.
26.083	1097.3940	1.54	Q	.	.	.	V.
26.167	1097.4014	1.07	Q	.	.	.	V.
26.250	1097.4062	0.72	Q	.	.	.	V.
26.333	1097.4100	0.56	Q	.	.	.	V.
26.417	1097.4130	0.43	Q	.	.	.	V.
26.500	1097.4153	0.34	Q	.	.	.	V.
26.583	1097.4171	0.26	Q	.	.	.	V.
26.667	1097.4185	0.20	Q	.	.	.	V.
26.750	1097.4196	0.16	Q	.	.	.	V.
26.833	1097.4204	0.12	Q	.	.	.	V.
26.917	1097.4210	0.09	Q	.	.	.	V.
27.000	1097.4215	0.07	Q	.	.	.	V.
27.083	1097.4219	0.06	Q	.	.	.	V.
27.167	1097.4221	0.04	Q	.	.	.	V.
27.250	1097.4224	0.03	Q	.	.	.	V.
27.333	1097.4225	0.03	Q	.	.	.	V.
27.417	1097.4226	0.02	Q	.	.	.	V.
27.500	1097.4227	0.02	Q	.	.	.	V.
27.583	1097.4229	0.01	Q	.	.	.	V.
27.667	1097.4230	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1660.0
10%	310.0
20%	145.0
30%	90.0
40%	65.0
50%	55.0
60%	40.0
70%	30.0
80%	20.0

90% 10.0

****
FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
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THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) = 36.00 CHANNEL Z = 0.00
  UPSTREAM ELEVATION(FT) = 3225.00
  DOWNSTREAM ELEVATION(FT) = 3180.00
  CHANNEL LENGTH(FT) = 2600.00 MANNING'S FACTOR = 0.015
  CONSTANT LOSS RATE(CFS) = 0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                    (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
  AVERAGED PEAK 5-MINUTE: (4996.3).....[30.68]
  AVERAGED PEAK 15-MINUTE: (4586.8).....[29.77]
  AVERAGED PEAK 30-MINUTE: (4237.4).....[28.95]
  AVERAGED PEAK 1-HOUR: (3517.6).....[27.08]
  AVERAGED PEAK 3-HOUR: (2030.0).....[22.20]
  AVERAGED PEAK 6-HOUR: (1306.6).....[18.80]
  AVERAGED PEAK 24-HOUR: (549.8).....[13.62]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 25.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (2600.00)/(25.000) = 0.029 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	97.38	63.62	63.62
0.167	64.38	75.82	75.82
0.250	53.69	57.39	57.39
0.333	102.43	85.53	85.53
0.417	125.25	117.34	117.34
0.500	138.91	134.18	134.18
0.583	150.18	146.28	146.28
0.667	160.12	156.67	156.67
0.750	168.52	165.61	165.61
0.833	176.03	173.43	173.43
0.917	182.50	180.26	180.26
1.000	188.09	186.15	186.15
1.083	193.01	191.31	191.31
1.167	197.36	195.85	195.85
1.250	201.16	199.85	199.85
1.333	204.53	203.36	203.36
1.417	207.47	206.45	206.45
1.500	210.04	209.15	209.15
1.583	212.25	211.48	211.48

1.667	214.26	213.56	213.56
1.750	216.10	215.47	215.47
1.833	217.84	217.24	217.24
1.917	219.46	218.90	218.90
2.000	220.84	220.36	220.36
2.083	222.02	221.61	221.61
2.167	223.13	222.74	222.74
2.250	224.16	223.80	223.80
2.333	225.05	224.74	224.74
2.417	225.94	225.63	225.63
2.500	226.82	226.51	226.51
2.583	227.70	227.39	227.39
2.667	228.58	228.27	228.27
2.750	229.46	229.16	229.16
2.833	230.35	230.04	230.04
2.917	231.23	230.93	230.93
3.000	232.12	231.81	231.81
3.083	233.02	232.71	232.71
3.167	233.92	233.61	233.61
3.250	234.83	234.51	234.51
3.333	235.74	235.42	235.42
3.417	236.66	236.34	236.34
3.500	237.59	237.27	237.27
3.583	238.52	238.20	238.20
3.667	239.47	239.14	239.14
3.750	240.42	240.09	240.09
3.833	241.38	241.05	241.05
3.917	242.35	242.02	242.02
4.000	243.33	242.99	242.99
4.083	244.32	243.98	243.98
4.167	245.32	244.98	244.98
4.250	246.33	245.98	245.98
4.333	247.30	246.96	246.96
4.417	248.13	247.84	247.84
4.500	248.94	248.66	248.66
4.583	249.87	249.54	249.54
4.667	250.88	250.53	250.53
4.750	251.94	251.57	251.57
4.833	253.02	252.64	252.64
4.917	254.11	253.73	253.73
5.000	255.22	254.83	254.83
5.083	256.34	255.95	255.95
5.167	257.47	257.08	257.08
5.250	258.61	258.22	258.22
5.333	259.77	259.37	259.37
5.417	260.95	260.54	260.54
5.500	262.13	261.72	261.72
5.583	263.33	262.92	262.92
5.667	264.55	264.13	264.13
5.750	265.78	265.35	265.35
5.833	267.03	266.59	266.59
5.917	268.29	267.85	267.85
6.000	269.57	269.12	269.12
6.083	270.86	270.41	270.41
6.167	272.17	271.71	271.71
6.250	273.49	273.03	273.03
6.333	274.84	274.37	274.37

NODES 103 → 104 RLB ROUTING

6.417	276.20	275.73	275.73
6.500	277.58	277.10	277.10
6.583	278.98	278.49	278.49
6.667	280.40	279.90	279.90
6.750	281.83	281.33	281.33
6.833	283.29	282.78	282.78
6.917	284.76	284.25	284.25
7.000	286.26	285.74	285.74
7.083	287.78	287.25	287.25
7.167	289.31	288.78	288.78
7.250	290.87	290.33	290.33
7.333	292.46	291.91	291.91
7.417	294.06	293.51	293.51
7.500	295.69	295.13	295.13
7.583	297.34	296.77	296.77
7.667	299.02	298.44	298.44
7.750	300.72	300.13	300.13
7.833	302.45	301.86	301.86
7.917	304.21	303.60	303.60
8.000	305.99	305.38	305.38
8.083	307.80	307.18	307.18
8.167	309.65	309.01	309.01
8.250	311.51	310.87	310.87
8.333	313.41	312.75	312.75
8.417	315.34	314.67	314.67
8.500	317.30	316.62	316.62
8.583	319.30	318.61	318.61
8.667	321.33	320.62	320.62
8.750	323.39	322.67	322.67
8.833	325.49	324.76	324.76
8.917	327.62	326.88	326.88
9.000	329.79	329.04	329.04
9.083	332.00	331.23	331.23
9.167	334.25	333.47	333.47
9.250	336.54	335.75	335.75
9.333	338.88	338.07	338.07
9.417	341.25	340.43	340.43
9.500	343.67	342.83	342.83
9.583	346.14	345.28	345.28
9.667	348.65	347.78	347.78
9.750	351.22	350.33	350.33
9.833	353.83	352.92	352.92
9.917	356.50	355.57	355.57
10.000	359.22	358.27	358.27
10.083	361.99	361.03	361.03
10.167	364.82	363.84	363.84
10.250	367.71	366.71	366.71
10.333	370.67	369.64	369.64
10.417	373.68	372.64	372.64
10.500	376.77	375.70	375.70
10.583	379.92	378.83	378.83
10.667	383.15	382.03	382.03
10.750	386.44	385.30	385.30
10.833	389.81	388.64	388.64
10.917	393.26	392.07	392.07
11.000	396.80	395.57	395.57
11.083	400.42	399.16	399.16

11.167	404.13	402.84	402.84
11.250	407.93	406.61	406.61
11.333	411.83	410.47	410.47
11.417	415.82	414.44	414.44
11.500	419.93	418.50	418.50
11.583	424.14	422.68	422.68
11.667	428.47	426.97	426.97
11.750	432.91	431.37	431.37
11.833	437.48	435.90	435.90
11.917	442.18	440.55	440.55
12.000	447.02	445.34	445.34
12.083	451.32	449.83	449.83
12.167	453.14	452.51	452.51
12.250	448.46	450.08	450.08
12.333	439.38	442.53	442.53
12.417	432.26	434.73	434.73
12.500	427.97	429.46	429.46
12.583	425.96	426.66	426.66
12.667	425.63	425.74	425.74
12.750	426.55	426.23	426.23
12.833	428.40	427.76	427.76
12.917	431.06	430.14	430.14
13.000	434.49	433.30	433.30
13.083	438.54	437.13	437.13
13.167	443.19	441.58	441.58
13.250	448.43	446.61	446.61
13.333	454.24	452.23	452.23
13.417	460.62	458.41	458.41
13.500	467.57	465.16	465.16
13.583	475.13	472.51	472.51
13.667	483.27	480.45	480.45
13.750	492.01	488.98	488.98
13.833	501.32	498.09	498.09
13.917	511.22	507.79	507.79
14.000	521.79	518.13	518.13
14.083	533.26	529.29	529.29
14.167	546.11	541.65	541.65
14.250	561.27	556.01	556.01
14.333	576.82	571.43	571.43
14.417	590.57	585.81	585.81
14.500	604.62	599.75	599.75
14.583	620.76	615.16	615.16
14.667	639.20	632.80	632.80
14.750	659.77	652.64	652.64
14.833	682.36	674.53	674.53
14.917	706.95	698.43	698.43
15.000	733.67	724.41	724.41
15.083	762.79	752.70	752.70
15.167	794.66	783.61	783.61
15.250	829.82	817.63	817.63
15.333	868.88	855.33	855.33
15.417	910.98	896.39	896.39
15.500	952.35	938.01	938.01
15.583	984.51	973.36	973.36
15.667	1014.69	1004.23	1004.23
15.750	1062.25	1045.76	1045.76
15.833	1136.37	1110.67	1110.67

15.917	1262.66	1218.88	1218.88
16.000	1463.97	1394.18	1394.18
16.083	1889.70	1742.11	1742.11
16.167	2734.42	2441.58	2441.58
16.250	4201.04	3692.61	3692.61
16.333	4996.27	4720.59	4720.59
16.417	4562.99	4713.20	4713.20
16.500	4162.16	4301.11	4301.11
16.583	3880.77	3978.32	3978.32
16.667	3620.93	3711.01	3711.01
16.750	3349.21	3443.40	3443.40
16.833	3072.01	3168.11	3168.11
16.917	2783.87	2883.76	2883.76
17.000	2522.53	2613.12	2613.12
17.083	2325.42	2393.75	2393.75
17.167	2153.07	2212.82	2212.82
17.250	1991.98	2047.82	2047.82
17.333	1841.62	1893.74	1893.74
17.417	1702.59	1750.79	1750.79
17.500	1574.75	1619.07	1619.07
17.583	1452.12	1494.63	1494.63
17.667	1346.26	1382.96	1382.96
17.750	1248.18	1282.18	1282.18
17.833	1171.55	1198.12	1198.12
17.917	1104.02	1127.43	1127.43
18.000	1036.51	1059.91	1059.91
18.083	969.22	992.55	992.55
18.167	901.45	924.94	924.94
18.250	829.56	854.48	854.48
18.333	757.82	782.69	782.69
18.417	707.71	725.08	725.08
18.500	664.18	679.27	679.27
18.583	626.22	639.38	639.38
18.667	593.06	604.55	604.55
18.750	564.25	574.24	574.24
18.833	536.59	546.18	546.18
18.917	506.26	516.78	516.78
19.000	478.20	487.93	487.93
19.083	458.69	465.45	465.45
19.167	445.59	450.13	450.13
19.250	435.29	438.86	438.86
19.333	426.28	429.40	429.40
19.417	417.96	420.84	420.84
19.500	410.11	412.83	412.83
19.583	402.61	405.21	405.21
19.667	395.44	397.93	397.93
19.750	388.57	390.95	390.95
19.833	382.04	384.30	384.30
19.917	375.82	377.97	377.97
20.000	369.86	371.93	371.93
20.083	364.11	366.10	366.10
20.167	358.56	360.48	360.48
20.250	353.17	355.04	355.04
20.333	347.92	349.74	349.74
20.417	342.87	344.62	344.62
20.500	338.01	339.70	339.70
20.583	333.33	334.95	334.95

20.667	328.81	330.38	330.38
20.750	324.46	325.97	325.97
20.833	320.25	321.71	321.71
20.917	316.18	317.59	317.59
21.000	312.26	313.62	313.62
21.083	308.45	309.77	309.77
21.167	304.78	306.05	306.05
21.250	301.21	302.45	302.45
21.333	297.76	298.96	298.96
21.417	294.41	295.57	295.57
21.500	291.16	292.29	292.29
21.583	288.01	289.10	289.10
21.667	284.94	286.00	286.00
21.750	281.96	282.99	282.99
21.833	279.07	280.07	280.07
21.917	276.25	277.23	277.23
22.000	273.51	274.46	274.46
22.083	270.84	271.76	271.76
22.167	268.24	269.14	269.14
22.250	265.70	266.58	266.58
22.333	263.23	264.09	264.09
22.417	260.82	261.65	261.65
22.500	258.47	259.28	259.28
22.583	256.17	256.97	256.97
22.667	253.93	254.70	254.70
22.750	251.74	252.50	252.50
22.833	249.59	250.34	250.34
22.917	247.50	248.23	248.23
23.000	245.09	245.93	245.93
23.083	242.42	243.35	243.35
23.167	240.19	240.96	240.96
23.250	238.30	238.95	238.95
23.333	236.45	237.09	237.09
23.417	234.64	235.27	235.27
23.500	232.86	233.48	233.48
23.583	231.12	231.73	231.73
23.667	229.42	230.01	230.01
23.750	227.75	228.33	228.33
23.833	226.10	226.67	226.67
23.917	224.49	225.05	225.05
24.000	222.92	223.46	223.46
24.083	219.35	220.59	220.59
24.167	207.98	211.92	211.92
24.250	178.52	188.74	188.74
24.333	141.77	154.51	154.51
24.417	115.83	124.82	124.82
24.500	97.06	103.56	103.56
24.583	81.17	86.68	86.68
24.667	67.62	72.32	72.32
24.750	56.34	60.25	60.25
24.833	46.80	50.11	50.11
24.917	38.83	41.60	41.60
25.000	32.26	34.54	34.54
25.083	26.69	28.62	28.62
25.167	22.00	23.62	23.62
25.250	18.08	19.44	19.44
25.333	14.78	15.92	15.92

25.417	12.05	13.00	13.00
25.500	9.81	10.59	10.59
25.583	8.03	8.65	8.65
25.667	6.51	7.03	7.03
25.750	5.23	5.67	5.67
25.833	4.07	4.47	4.47
25.917	2.99	3.37	3.37
26.000	2.14	2.44	2.44
26.083	1.54	1.75	1.75
26.167	1.07	1.23	1.23
26.250	0.72	0.84	0.84
26.333	0.56	0.61	0.61
26.417	0.43	0.48	0.48
26.500	0.34	0.37	0.37
26.583	0.26	0.29	0.29
26.667	0.20	0.22	0.22
26.750	0.16	0.17	0.17
26.833	0.12	0.13	0.13
26.917	0.09	0.10	0.10
27.000	0.07	0.08	0.08
27.083	0.06	0.06	0.06
27.167	0.04	0.05	0.05
27.250	0.03	0.04	0.04
27.333	0.03	0.03	0.03
27.417	0.02	0.02	0.02
27.500	0.02	0.02	0.02
27.583	0.01	0.01	0.01
27.667	0.01	0.01	0.01
27.750	0.01	0.01	0.01
27.833	0.01	0.01	0.01
27.917	0.00	0.00	0.00
28.000	0.00	0.00	0.00
28.083	0.00	0.00	0.00
28.167	0.00	0.00	0.00
28.250	0.00	0.00	0.00
28.333	0.00	0.00	0.00
28.417	0.00	0.00	0.00
28.500	0.00	0.00	0.00
28.583	0.00	0.00	0.00

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1097.424 AF
OUTFLOW VOLUME = 1097.423 AF
LOSS VOLUME = 0.000 AF

FLOW PROCESS FROM NODE 104.50 TO NODE 104.50 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

(UNIT-HYDROGRAPH ADDED TO STREAM #2)

WATERSHED AREA = 472.100 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.213 HOURS

CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.150
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.850
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.096
LOW LOSS FRACTION = 0.111
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 39.124

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

SUBAREA HYDROGRAPH

NODE 104.5

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.675	152.756
2	17.854	866.589
3	47.767	1707.918
4	66.395	1063.547
5	76.488	576.263
6	82.675	353.213
7	86.730	231.536
8	89.775	173.873
9	91.968	125.208
10	93.719	99.962
11	95.119	79.901
12	96.225	63.146

13	97.116	50.913
14	97.796	38.798
15	98.277	27.440
16	98.624	19.852
17	99.020	22.570
18	99.417	22.691
19	99.767	19.970
20	99.942	9.985
21	100.000	3.328

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0043
2	0.0049	0.0005	0.0043
3	0.0049	0.0005	0.0043
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0044
6	0.0049	0.0005	0.0044
7	0.0050	0.0006	0.0044
8	0.0050	0.0006	0.0044
9	0.0050	0.0006	0.0044
10	0.0050	0.0006	0.0044
11	0.0050	0.0006	0.0045
12	0.0050	0.0006	0.0045
13	0.0051	0.0006	0.0045
14	0.0051	0.0006	0.0045
15	0.0051	0.0006	0.0045
16	0.0051	0.0006	0.0045
17	0.0051	0.0006	0.0046
18	0.0051	0.0006	0.0046
19	0.0052	0.0006	0.0046
20	0.0052	0.0006	0.0046
21	0.0052	0.0006	0.0046
22	0.0052	0.0006	0.0046
23	0.0052	0.0006	0.0047
24	0.0052	0.0006	0.0047
25	0.0053	0.0006	0.0047
26	0.0053	0.0006	0.0047
27	0.0053	0.0006	0.0047
28	0.0053	0.0006	0.0047
29	0.0054	0.0006	0.0048
30	0.0054	0.0006	0.0048
31	0.0054	0.0006	0.0048
32	0.0054	0.0006	0.0048
33	0.0054	0.0006	0.0048
34	0.0054	0.0006	0.0048
35	0.0055	0.0006	0.0049
36	0.0055	0.0006	0.0049
37	0.0055	0.0006	0.0049
38	0.0055	0.0006	0.0049
39	0.0056	0.0006	0.0049
40	0.0056	0.0006	0.0050
41	0.0056	0.0006	0.0050
42	0.0056	0.0006	0.0050
43	0.0057	0.0006	0.0050
44	0.0057	0.0006	0.0050
45	0.0057	0.0006	0.0051
46	0.0057	0.0006	0.0051
47	0.0057	0.0006	0.0051
48	0.0058	0.0006	0.0051
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0052
51	0.0058	0.0006	0.0052

52	0.0059	0.0007	0.0052
53	0.0059	0.0007	0.0052
54	0.0059	0.0007	0.0053
55	0.0059	0.0007	0.0053
56	0.0060	0.0007	0.0053
57	0.0060	0.0007	0.0053
58	0.0060	0.0007	0.0054
59	0.0061	0.0007	0.0054
60	0.0061	0.0007	0.0054
61	0.0061	0.0007	0.0054
62	0.0061	0.0007	0.0055
63	0.0062	0.0007	0.0055
64	0.0062	0.0007	0.0055
65	0.0062	0.0007	0.0055
66	0.0063	0.0007	0.0056
67	0.0063	0.0007	0.0056
68	0.0063	0.0007	0.0056
69	0.0064	0.0007	0.0056
70	0.0064	0.0007	0.0057
71	0.0064	0.0007	0.0057
72	0.0064	0.0007	0.0057
73	0.0065	0.0007	0.0058
74	0.0065	0.0007	0.0058
75	0.0065	0.0007	0.0058
76	0.0066	0.0007	0.0058
77	0.0066	0.0007	0.0059
78	0.0066	0.0007	0.0059
79	0.0067	0.0007	0.0059
80	0.0067	0.0007	0.0060
81	0.0068	0.0008	0.0060
82	0.0068	0.0008	0.0060
83	0.0068	0.0008	0.0061
84	0.0069	0.0008	0.0061
85	0.0069	0.0008	0.0061
86	0.0069	0.0008	0.0062
87	0.0070	0.0008	0.0062
88	0.0070	0.0008	0.0062
89	0.0071	0.0008	0.0063
90	0.0071	0.0008	0.0063
91	0.0072	0.0008	0.0064
92	0.0072	0.0008	0.0064
93	0.0072	0.0008	0.0064
94	0.0073	0.0008	0.0065
95	0.0073	0.0008	0.0065
96	0.0074	0.0008	0.0066
97	0.0074	0.0008	0.0066
98	0.0075	0.0008	0.0066
99	0.0075	0.0008	0.0067
100	0.0076	0.0008	0.0067
101	0.0076	0.0008	0.0068
102	0.0077	0.0009	0.0068
103	0.0077	0.0009	0.0069
104	0.0078	0.0009	0.0069
105	0.0078	0.0009	0.0070
106	0.0079	0.0009	0.0070
107	0.0080	0.0009	0.0071
108	0.0080	0.0009	0.0071

109	0.0081	0.0009	0.0072
110	0.0081	0.0009	0.0072
111	0.0082	0.0009	0.0073
112	0.0082	0.0009	0.0073
113	0.0083	0.0009	0.0074
114	0.0084	0.0009	0.0074
115	0.0084	0.0009	0.0075
116	0.0085	0.0009	0.0075
117	0.0086	0.0010	0.0076
118	0.0086	0.0010	0.0077
119	0.0087	0.0010	0.0078
120	0.0088	0.0010	0.0078
121	0.0089	0.0010	0.0079
122	0.0089	0.0010	0.0079
123	0.0090	0.0010	0.0080
124	0.0091	0.0010	0.0081
125	0.0092	0.0010	0.0082
126	0.0092	0.0010	0.0082
127	0.0094	0.0010	0.0083
128	0.0094	0.0010	0.0084
129	0.0095	0.0011	0.0085
130	0.0096	0.0011	0.0085
131	0.0097	0.0011	0.0086
132	0.0098	0.0011	0.0087
133	0.0099	0.0011	0.0088
134	0.0100	0.0011	0.0089
135	0.0101	0.0011	0.0090
136	0.0102	0.0011	0.0091
137	0.0103	0.0011	0.0092
138	0.0104	0.0012	0.0093
139	0.0106	0.0012	0.0094
140	0.0107	0.0012	0.0095
141	0.0108	0.0012	0.0096
142	0.0109	0.0012	0.0097
143	0.0111	0.0012	0.0099
144	0.0112	0.0012	0.0099
145	0.0090	0.0010	0.0080
146	0.0091	0.0010	0.0081
147	0.0093	0.0010	0.0083
148	0.0094	0.0010	0.0083
149	0.0096	0.0011	0.0085
150	0.0097	0.0011	0.0086
151	0.0099	0.0011	0.0088
152	0.0100	0.0011	0.0089
153	0.0102	0.0011	0.0091
154	0.0104	0.0011	0.0092
155	0.0106	0.0012	0.0094
156	0.0107	0.0012	0.0095
157	0.0110	0.0012	0.0098
158	0.0112	0.0012	0.0099
159	0.0115	0.0013	0.0102
160	0.0116	0.0013	0.0103
161	0.0120	0.0013	0.0106
162	0.0121	0.0013	0.0108
163	0.0125	0.0014	0.0111
164	0.0127	0.0014	0.0113
165	0.0131	0.0015	0.0117

166	0.0134	0.0015	0.0119
167	0.0138	0.0015	0.0123
168	0.0141	0.0016	0.0125
169	0.0151	0.0017	0.0135
170	0.0154	0.0017	0.0137
171	0.0161	0.0018	0.0143
172	0.0164	0.0018	0.0146
173	0.0172	0.0019	0.0153
174	0.0176	0.0020	0.0156
175	0.0185	0.0021	0.0164
176	0.0190	0.0021	0.0169
177	0.0201	0.0022	0.0178
178	0.0207	0.0023	0.0184
179	0.0220	0.0024	0.0196
180	0.0228	0.0025	0.0203
181	0.0245	0.0027	0.0218
182	0.0255	0.0028	0.0227
183	0.0279	0.0031	0.0248
184	0.0293	0.0032	0.0260
185	0.0251	0.0028	0.0223
186	0.0269	0.0030	0.0239
187	0.0316	0.0035	0.0281
188	0.0347	0.0039	0.0309
189	0.0539	0.0060	0.0479
190	0.0621	0.0069	0.0552
191	0.0941	0.0080	0.0861
192	0.1367	0.0080	0.1287
193	0.5874	0.0080	0.5794
194	0.0741	0.0080	0.0661
195	0.0387	0.0043	0.0344
196	0.0290	0.0032	0.0258
197	0.0308	0.0034	0.0274
198	0.0266	0.0030	0.0237
199	0.0236	0.0026	0.0210
200	0.0213	0.0024	0.0189
201	0.0195	0.0022	0.0173
202	0.0180	0.0020	0.0160
203	0.0168	0.0019	0.0149
204	0.0158	0.0017	0.0140
205	0.0144	0.0016	0.0128
206	0.0136	0.0015	0.0121
207	0.0129	0.0014	0.0115
208	0.0123	0.0014	0.0110
209	0.0118	0.0013	0.0105
210	0.0113	0.0013	0.0101
211	0.0109	0.0012	0.0097
212	0.0105	0.0012	0.0093
213	0.0101	0.0011	0.0090
214	0.0098	0.0011	0.0087
215	0.0095	0.0011	0.0084
216	0.0092	0.0010	0.0082
217	0.0113	0.0013	0.0100
218	0.0110	0.0012	0.0098
219	0.0107	0.0012	0.0096
220	0.0105	0.0012	0.0093
221	0.0103	0.0011	0.0091
222	0.0101	0.0011	0.0089

223	0.0099	0.0011	0.0088
224	0.0097	0.0011	0.0086
225	0.0095	0.0011	0.0084
226	0.0093	0.0010	0.0083
227	0.0091	0.0010	0.0081
228	0.0090	0.0010	0.0080
229	0.0088	0.0010	0.0078
230	0.0087	0.0010	0.0077
231	0.0085	0.0009	0.0076
232	0.0084	0.0009	0.0075
233	0.0083	0.0009	0.0074
234	0.0081	0.0009	0.0072
235	0.0080	0.0009	0.0071
236	0.0079	0.0009	0.0070
237	0.0078	0.0009	0.0069
238	0.0077	0.0009	0.0068
239	0.0076	0.0008	0.0068
240	0.0075	0.0008	0.0067
241	0.0074	0.0008	0.0066
242	0.0073	0.0008	0.0065
243	0.0072	0.0008	0.0064
244	0.0071	0.0008	0.0063
245	0.0070	0.0008	0.0063
246	0.0070	0.0008	0.0062
247	0.0069	0.0008	0.0061
248	0.0068	0.0008	0.0061
249	0.0067	0.0007	0.0060
250	0.0067	0.0007	0.0059
251	0.0066	0.0007	0.0059
252	0.0065	0.0007	0.0058
253	0.0065	0.0007	0.0057
254	0.0064	0.0007	0.0057
255	0.0063	0.0007	0.0056
256	0.0063	0.0007	0.0056
257	0.0062	0.0007	0.0055
258	0.0062	0.0007	0.0055
259	0.0061	0.0007	0.0054
260	0.0060	0.0007	0.0054
261	0.0060	0.0007	0.0053
262	0.0059	0.0007	0.0053
263	0.0059	0.0007	0.0052
264	0.0058	0.0006	0.0052
265	0.0058	0.0006	0.0051
266	0.0057	0.0006	0.0051
267	0.0057	0.0006	0.0051
268	0.0056	0.0006	0.0050
269	0.0056	0.0006	0.0050
270	0.0055	0.0006	0.0049
271	0.0055	0.0006	0.0049
272	0.0055	0.0006	0.0049
273	0.0054	0.0006	0.0048
274	0.0054	0.0006	0.0048
275	0.0053	0.0006	0.0047
276	0.0053	0.0006	0.0047
277	0.0053	0.0006	0.0047
278	0.0052	0.0006	0.0046
279	0.0052	0.0006	0.0046

280	0.0052	0.0006	0.0046
281	0.0051	0.0006	0.0045
282	0.0051	0.0006	0.0045
283	0.0050	0.0006	0.0045
284	0.0050	0.0006	0.0045
285	0.0050	0.0006	0.0044
286	0.0049	0.0005	0.0044
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0043

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.33
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.26

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 13.0675
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 128.3545

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	325.0	650.0	975.0	1300.0
0.083	0.0045	0.66	Q	.	.	.	.
0.167	0.0349	4.41	Q	.	.	.	.
0.250	0.1161	11.80	Q	.	.	.	.
0.333	0.2293	16.42	Q	.	.	.	.
0.417	0.3599	18.97	Q	.	.	.	.
0.500	0.5014	20.55	Q	.	.	.	.
0.583	0.6503	21.62	Q	.	.	.	.
0.667	0.8049	22.44	Q	.	.	.	.
0.750	0.9637	23.06	Q	.	.	.	.
0.833	1.1259	23.56	Q	.	.	.	.
0.917	1.2911	23.99	Q	.	.	.	.
1.000	1.4587	24.34	Q	.	.	.	.
1.083	1.6284	24.64	Q	.	.	.	.
1.167	1.7998	24.89	Q	.	.	.	.
1.250	1.9727	25.09	Q	.	.	.	.
1.333	2.1466	25.26	Q	.	.	.	.
1.417	2.3219	25.45	Q	.	.	.	.
1.500	2.4984	25.63	Q	.	.	.	.
1.583	2.6761	25.81	Q	.	.	.	.
1.667	2.8548	25.94	Q	.	.	.	.
1.750	3.0341	26.04	Q	.	.	.	.
1.833	3.2141	26.13	QV	.	.	.	.
1.917	3.3947	26.23	QV	.	.	.	.
2.000	3.5760	26.32	QV	.	.	.	.
2.083	3.7579	26.41	QV	.	.	.	.
2.167	3.9404	26.51	QV	.	.	.	.
2.250	4.1237	26.60	QV	.	.	.	.
2.333	4.3075	26.70	QV	.	.	.	.
2.417	4.4921	26.80	QV	.	.	.	.
2.500	4.6773	26.89	QV	.	.	.	.
2.583	4.8632	26.99	QV	.	.	.	.
2.667	5.0498	27.09	QV	.	.	.	.
2.750	5.2371	27.20	QV	.	.	.	.
2.833	5.4251	27.30	QV	.	.	.	.
2.917	5.6138	27.40	QV	.	.	.	.
3.000	5.8033	27.50	QV	.	.	.	.
3.083	5.9934	27.61	QV	.	.	.	.
3.167	6.1843	27.72	QV	.	.	.	.
3.250	6.3759	27.83	QV	.	.	.	.
3.333	6.5683	27.93	Q V	.	.	.	.
3.417	6.7615	28.04	Q V	.	.	.	.
3.500	6.9553	28.15	Q V	.	.	.	.
3.583	7.1500	28.27	Q V	.	.	.	.
3.667	7.3455	28.38	Q V	.	.	.	.
3.750	7.5417	28.49	Q V	.	.	.	.

3.833	7.7387	28.61	Q	V	.	.	.	.
3.917	7.9366	28.73	Q	V	.	.	.	.
4.000	8.1352	28.84	Q	V	.	.	.	.
4.083	8.3347	28.96	Q	V	.	.	.	.
4.167	8.5350	29.08	Q	V	.	.	.	.
4.250	8.7362	29.21	Q	V	.	.	.	.
4.333	8.9382	29.33	Q	V	.	.	.	.
4.417	9.1410	29.46	Q	V	.	.	.	.
4.500	9.3447	29.58	Q	V	.	.	.	.
4.583	9.5494	29.71	Q	V	.	.	.	.
4.667	9.7549	29.84	Q	V	.	.	.	.
4.750	9.9613	29.97	Q	V	.	.	.	.
4.833	10.1686	30.10	Q	V	.	.	.	.
4.917	10.3768	30.24	Q	V	.	.	.	.
5.000	10.5860	30.37	Q	V	.	.	.	.
5.083	10.7961	30.51	Q	V	.	.	.	.
5.167	11.0071	30.65	Q	V	.	.	.	.
5.250	11.2192	30.79	Q	V	.	.	.	.
5.333	11.4322	30.93	Q	V	.	.	.	.
5.417	11.6462	31.07	Q	V	.	.	.	.
5.500	11.8612	31.22	Q	V	.	.	.	.
5.583	12.0772	31.37	Q	V	.	.	.	.
5.667	12.2942	31.51	Q	V	.	.	.	.
5.750	12.5123	31.67	Q	V	.	.	.	.
5.833	12.7314	31.82	Q	V	.	.	.	.
5.917	12.9516	31.97	Q	V	.	.	.	.
6.000	13.1729	32.13	Q	V	.	.	.	.
6.083	13.3953	32.29	Q	V	.	.	.	.
6.167	13.6188	32.45	Q	V	.	.	.	.
6.250	13.8434	32.61	.Q	V	.	.	.	.
6.333	14.0691	32.78	.Q	V	.	.	.	.
6.417	14.2960	32.95	.Q	V	.	.	.	.
6.500	14.5241	33.11	.Q	V	.	.	.	.
6.583	14.7533	33.29	.Q	V	.	.	.	.
6.667	14.9838	33.46	.Q	V	.	.	.	.
6.750	15.2155	33.64	.Q	V	.	.	.	.
6.833	15.4484	33.82	.Q	V	.	.	.	.
6.917	15.6826	34.00	.Q	V	.	.	.	.
7.000	15.9180	34.18	.Q	V	.	.	.	.
7.083	16.1547	34.37	.Q	V	.	.	.	.
7.167	16.3928	34.56	.Q	V	.	.	.	.
7.250	16.6321	34.76	.Q	V	.	.	.	.
7.333	16.8728	34.95	.Q	V	.	.	.	.
7.417	17.1149	35.15	.Q	V	.	.	.	.
7.500	17.3584	35.35	.Q	V	.	.	.	.
7.583	17.6033	35.56	.Q	V	.	.	.	.
7.667	17.8496	35.76	.Q	V	.	.	.	.
7.750	18.0974	35.98	.Q	V	.	.	.	.
7.833	18.3466	36.19	.Q	V	.	.	.	.
7.917	18.5974	36.41	.Q	V	.	.	.	.
8.000	18.8496	36.63	.Q	V	.	.	.	.
8.083	19.1035	36.86	.Q	V	.	.	.	.
8.167	19.3588	37.08	.Q	V	.	.	.	.
8.250	19.6159	37.32	.Q	V	.	.	.	.
8.333	19.8745	37.55	.Q	V	.	.	.	.
8.417	20.1348	37.79	.Q	V	.	.	.	.
8.500	20.3967	38.03	.Q	V	.	.	.	.

8.583	20.6604	38.29	.Q	V	.	.	.	.
8.667	20.9258	38.54	.Q	V	.	.	.	.
8.750	21.1930	38.80	.Q	V	.	.	.	.
8.833	21.4620	39.06	.Q	V	.	.	.	.
8.917	21.7328	39.33	.Q	V	.	.	.	.
9.000	22.0055	39.59	.Q	V	.	.	.	.
9.083	22.2801	39.88	.Q	V	.	.	.	.
9.167	22.5567	40.15	.Q	V	.	.	.	.
9.250	22.8352	40.44	.Q	V	.	.	.	.
9.333	23.1157	40.73	.Q	V	.	.	.	.
9.417	23.3984	41.04	.Q	V	.	.	.	.
9.500	23.6830	41.33	.Q	V	.	.	.	.
9.583	23.9699	41.65	.Q	V	.	.	.	.
9.667	24.2589	41.96	.Q	V	.	.	.	.
9.750	24.5501	42.29	.Q	V	.	.	.	.
9.833	24.8436	42.61	.Q	V	.	.	.	.
9.917	25.1394	42.95	.Q	V	.	.	.	.
10.000	25.4376	43.29	.Q	V	.	.	.	.
10.083	25.7382	43.65	.Q	V	.	.	.	.
10.167	26.0412	44.00	.Q	V	.	.	.	.
10.250	26.3468	44.37	.Q	V	.	.	.	.
10.333	26.6550	44.74	.Q	V	.	.	.	.
10.417	26.9658	45.13	.Q	V	.	.	.	.
10.500	27.2792	45.52	.Q	V	.	.	.	.
10.583	27.5955	45.92	.Q	V	.	.	.	.
10.667	27.9146	46.33	.Q	V	.	.	.	.
10.750	28.2366	46.75	.Q	V	.	.	.	.
10.833	28.5615	47.18	.Q	V	.	.	.	.
10.917	28.8894	47.62	.Q	V	.	.	.	.
11.000	29.2205	48.07	.Q	V	.	.	.	.
11.083	29.5548	48.54	.Q	V	.	.	.	.
11.167	29.8923	49.01	.Q	V	.	.	.	.
11.250	30.2332	49.50	.Q	V	.	.	.	.
11.333	30.5775	49.99	.Q	V	.	.	.	.
11.417	30.9254	50.52	.Q	V	.	.	.	.
11.500	31.2769	51.04	.Q	V	.	.	.	.
11.583	31.6322	51.59	.Q	V	.	.	.	.
11.667	31.9913	52.14	.Q	V	.	.	.	.
11.750	32.3544	52.72	.Q	V	.	.	.	.
11.833	32.7215	53.31	.Q	V	.	.	.	.
11.917	33.0929	53.93	.Q	V	.	.	.	.
12.000	33.4686	54.54	.Q	V	.	.	.	.
12.083	33.8465	54.88	.Q	V	.	.	.	.
12.167	34.2165	53.72	.Q	V	.	.	.	.
12.250	34.5665	50.82	.Q	V	.	.	.	.
12.333	34.9056	49.25	.Q	V	.	.	.	.
12.417	35.2413	48.74	.Q	V	.	.	.	.
12.500	35.5766	48.69	.Q	.V	.	.	.	.
12.583	35.9136	48.94	.Q	.V	.	.	.	.
12.667	36.2532	49.31	.Q	.V	.	.	.	.
12.750	36.5964	49.83	.Q	.V	.	.	.	.
12.833	36.9436	50.42	.Q	.V	.	.	.	.
12.917	37.2956	51.10	.Q	.V	.	.	.	.
13.000	37.6525	51.83	.Q	.V	.	.	.	.
13.083	38.0150	52.64	.Q	.V	.	.	.	.
13.167	38.3834	53.49	.Q	.V	.	.	.	.
13.250	38.7584	54.44	.Q	. V	.	.	.	.

13.333	39.1401	55.42	.Q . V . . .
13.417	39.5291	56.48	.Q . V . . .
13.500	39.9254	57.55	.Q . V . . .
13.583	40.3299	58.73	.Q . V . . .
13.667	40.7428	59.95	.Q . V . . .
13.750	41.1649	61.30	.Q . V . . .
13.833	41.5966	62.68	.Q . V . . .
13.917	42.0387	64.19	.Q . V . . .
14.000	42.4914	65.74	. Q . V . . .
14.083	42.9564	67.52	. Q . V . . .
14.167	43.4362	69.67	. Q . V . . .
14.250	43.9348	72.39	. Q . V . . .
14.333	44.4507	74.90	. Q . V . . .
14.417	44.9839	77.43	. Q . V . . .
14.500	45.5345	79.94	. Q . V . . .
14.583	46.1040	82.69	. Q . V . . .
14.667	46.6931	85.54	. Q . V . . .
14.750	47.3041	88.72	. Q . V . . .
14.833	47.9382	92.07	. Q . V . . .
14.917	48.5985	95.88	. Q . V . . .
15.000	49.2868	99.93	. Q . V . . .
15.083	50.0072	104.61	. Q . V . . .
15.167	50.7626	109.68	. Q . V . . .
15.250	51.5589	115.63	. Q . V . . .
15.333	52.4005	122.20	. Q . V . . .
15.417	53.2896	129.09	. Q . V . . .
15.500	54.2003	132.24	. Q . V . . .
15.583	55.1072	131.69	. Q . V . . .
15.667	56.0498	136.86	. Q . V . . .
15.750	57.0839	150.14	. Q . V . . .
15.833	58.2964	176.06	. Q . V . . .
15.917	59.8268	222.23	. Q . V . . .
16.000	61.8212	289.59	. Q . V. . .
16.083	65.0441	467.96	. . Q V . .
16.167	71.2254	897.53	. . . V Q . .
16.250	80.0993	1288.48	. . . V . Q.
16.333	86.3210	903.40	. . . VQ . .
16.417	90.3304	582.16	. . Q . V . .
16.500	93.1983	416.42	. . Q . V. .
16.583	95.4368	325.03	. . Q . V. .
16.667	97.3071	271.56	. Q . . V .
16.750	98.8706	227.02	. Q . . V .
16.833	100.2296	197.32	. Q . . .V .
16.917	101.4208	172.97	. Q . . .V .
17.000	102.4709	152.48	. Q . . .V .
17.083	103.4063	135.82	. Q . . . V .
17.167	104.2357	120.43	. Q . . . V .
17.250	104.9700	106.62	. Q . . . V .
17.333	105.6346	96.49	. Q . . . V .
17.417	106.2710	92.41	. Q . . . V .
17.500	106.8725	87.33	. Q . . . V .
17.583	107.4285	80.73	. Q . . . V .
17.667	107.9174	70.99	. Q . . . V .
17.750	108.3558	63.66	.Q . . . V .
17.833	108.7611	58.85	.Q . . . V .
17.917	109.1485	56.25	.Q . . . V .
18.000	109.5204	54.00	.Q . . . V .

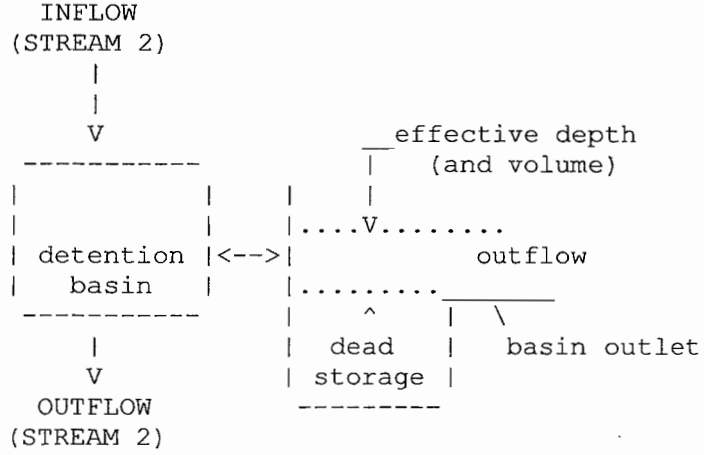
18.083	109.8804	52.28	.Q	.	.	.	V	.
18.167	110.2402	52.24	.Q	.	.	.	V	.
18.250	110.6129	54.11	.Q	.	.	.	V	.
18.333	110.9898	54.74	.Q	.	.	.	V	.
18.417	111.3647	54.43	.Q	.	.	.	V	.
18.500	111.7349	53.76	.Q	.	.	.	V	.
18.583	112.0993	52.91	.Q	.	.	.	V	.
18.667	112.4577	52.03	.Q	.	.	.	V	.
18.750	112.8097	51.12	.Q	.	.	.	V	.
18.833	113.1556	50.23	.Q	.	.	.	V	.
18.917	113.4955	49.35	.Q	.	.	.	V	.
19.000	113.8295	48.49	.Q	.	.	.	V	.
19.083	114.1577	47.66	.Q	.	.	.	V	.
19.167	114.4803	46.84	.Q	.	.	.	V	.
19.250	114.7975	46.05	.Q	.	.	.	V	.
19.333	115.1093	45.28	.Q	.	.	.	V	.
19.417	115.4161	44.55	.Q	.	.	.	V	.
19.500	115.7182	43.86	.Q	.	.	.	V	.
19.583	116.0157	43.19	.Q	.	.	.	V	.
19.667	116.3086	42.53	.Q	.	.	.	V	.
19.750	116.5970	41.89	.Q	.	.	.	V	.
19.833	116.8812	41.26	.Q	.	.	.	V	.
19.917	117.1612	40.66	.Q	.	.	.	V	.
20.000	117.4372	40.08	.Q	.	.	.	V	.
20.083	117.7094	39.52	.Q	.	.	.	V	.
20.167	117.9778	38.98	.Q	.	.	.	V	.
20.250	118.2427	38.46	.Q	.	.	.	V	.
20.333	118.5042	37.96	.Q	.	.	.	V	.
20.417	118.7623	37.48	.Q	.	.	.	V	.
20.500	119.0171	37.01	.Q	.	.	.	V	.
20.583	119.2689	36.56	.Q	.	.	.	V	.
20.667	119.5176	36.12	.Q	.	.	.	V	.
20.750	119.7635	35.69	.Q	.	.	.	V	.
20.833	120.0064	35.28	.Q	.	.	.	V	.
20.917	120.2467	34.88	.Q	.	.	.	V	.
21.000	120.4842	34.49	.Q	.	.	.	V	.
21.083	120.7192	34.12	.Q	.	.	.	V	.
21.167	120.9516	33.75	.Q	.	.	.	V	.
21.250	121.1816	33.40	.Q	.	.	.	V	.
21.333	121.4092	33.05	.Q	.	.	.	V	.
21.417	121.6345	32.71	.Q	.	.	.	V	.
21.500	121.8576	32.39	Q	.	.	.	V	.
21.583	122.0784	32.07	Q	.	.	.	V	.
21.667	122.2971	31.76	Q	.	.	.	V	.
21.750	122.5137	31.45	Q	.	.	.	V	.
21.833	122.7283	31.16	Q	.	.	.	V	.
21.917	122.9409	30.87	Q	.	.	.	V	.
22.000	123.1516	30.59	Q	.	.	.	V	.
22.083	123.3603	30.31	Q	.	.	.	V	.
22.167	123.5673	30.04	Q	.	.	.	V	.
22.250	123.7724	29.78	Q	.	.	.	V	.
22.333	123.9757	29.53	Q	.	.	.	V	.
22.417	124.1774	29.28	Q	.	.	.	V	.
22.500	124.3773	29.03	Q	.	.	.	V	.
22.583	124.5756	28.79	Q	.	.	.	V	.
22.667	124.7723	28.56	Q	.	.	.	V	.
22.750	124.9674	28.33	Q	.	.	.	V	.

22.833	125.1609	28.10	Q	.	.	.	V.
22.917	125.3530	27.88	Q	.	.	.	V.
23.000	125.5435	27.67	Q	.	.	.	V.
23.083	125.7326	27.46	Q	.	.	.	V.
23.167	125.9203	27.25	Q	.	.	.	V.
23.250	126.1066	27.05	Q	.	.	.	V.
23.333	126.2915	26.85	Q	.	.	.	V.
23.417	126.4750	26.65	Q	.	.	.	V.
23.500	126.6573	26.46	Q	.	.	.	V.
23.583	126.8382	26.27	Q	.	.	.	V.
23.667	127.0179	26.09	Q	.	.	.	V.
23.750	127.1964	25.91	Q	.	.	.	V.
23.833	127.3736	25.73	Q	.	.	.	V.
23.917	127.5496	25.56	Q	.	.	.	V.
24.000	127.7244	25.39	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	105.0
20%	45.0
30%	30.0
40%	20.0
50%	15.0
60%	15.0
70%	10.0
80%	5.0
90%	5.0

****
FLOW PROCESS FROM NODE 104.50 TO NODE 104.50 IS CODE = 3.1
>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 0.000
SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.50	47.00	7.900
3	5.00	134.00	19.830
4	10.00	325.00	45.300

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
1.083	0.000	24.64	0.00	0.42	7.6	1.331
1.167	0.000	24.89	0.00	0.46	8.3	1.445
1.250	0.000	25.09	0.00	0.49	8.9	1.557
1.333	0.000	25.26	0.00	0.53	9.6	1.665
1.417	0.000	25.45	0.00	0.56	10.2	1.770
1.500	0.000	25.63	0.00	0.59	10.8	1.871
1.583	0.000	25.81	0.00	0.62	11.4	1.970
1.667	0.000	25.94	0.00	0.65	12.0	2.066
1.750	0.000	26.04	0.00	0.68	12.6	2.159
1.833	0.000	26.13	0.00	0.71	13.1	2.249
1.917	0.000	26.23	0.00	0.74	13.6	2.336
2.000	0.000	26.32	0.00	0.77	14.1	2.419
2.083	0.000	26.41	0.00	0.79	14.6	2.501
2.167	0.000	26.51	0.00	0.82	15.1	2.579
2.250	0.000	26.60	0.00	0.84	15.6	2.655
2.333	0.000	26.70	0.00	0.86	16.0	2.729
2.417	0.000	26.80	0.00	0.89	16.4	2.800
2.500	0.000	26.89	0.00	0.91	16.9	2.869
2.583	0.000	26.99	0.00	0.93	17.3	2.936
2.667	0.000	27.09	0.00	0.95	17.7	3.001
2.750	0.000	27.20	0.00	0.97	18.0	3.064
2.833	0.000	27.30	0.00	0.99	18.4	3.125
2.917	0.000	27.40	0.00	1.01	18.8	3.185
3.000	0.000	27.50	0.00	1.03	19.1	3.242
3.083	0.000	27.61	0.00	1.04	19.5	3.299
3.167	0.000	27.72	0.00	1.06	19.8	3.353
3.250	0.000	27.83	0.00	1.08	20.1	3.406

NODE 104.5 BASIN C-2 ROUTING

3.333	0.000	27.93	0.00	1.09	20.4	3.458
3.417	0.000	28.04	0.00	1.11	20.7	3.508
3.500	0.000	28.15	0.00	1.13	21.0	3.558
3.583	0.000	28.27	0.00	1.14	21.3	3.606
3.667	0.000	28.38	0.00	1.16	21.6	3.652
3.750	0.000	28.49	0.00	1.17	21.9	3.698
3.833	0.000	28.61	0.00	1.18	22.1	3.743
3.917	0.000	28.73	0.00	1.20	22.4	3.786
4.000	0.000	28.84	0.00	1.21	22.7	3.829
4.083	0.000	28.96	0.00	1.22	22.9	3.871
4.167	0.000	29.08	0.00	1.24	23.1	3.911
4.250	0.000	29.21	0.00	1.25	23.4	3.951
4.333	0.000	29.33	0.00	1.26	23.6	3.991
4.417	0.000	29.46	0.00	1.28	23.9	4.029
4.500	0.000	29.58	0.00	1.29	24.1	4.067
4.583	0.000	29.71	0.00	1.30	24.3	4.104
4.667	0.000	29.84	0.00	1.31	24.5	4.141
4.750	0.000	29.97	0.00	1.32	24.7	4.177
4.833	0.000	30.10	0.00	1.33	25.0	4.212
4.917	0.000	30.24	0.00	1.34	25.2	4.247
5.000	0.000	30.37	0.00	1.35	25.4	4.282
5.083	0.000	30.51	0.00	1.37	25.6	4.316
5.167	0.000	30.65	0.00	1.38	25.8	4.349
5.250	0.000	30.79	0.00	1.39	26.0	4.382
5.333	0.000	30.93	0.00	1.40	26.2	4.415
5.417	0.000	31.07	0.00	1.41	26.4	4.448
5.500	0.000	31.22	0.00	1.42	26.6	4.480
5.583	0.000	31.37	0.00	1.43	26.7	4.512
5.667	0.000	31.51	0.00	1.44	26.9	4.543
5.750	0.000	31.67	0.00	1.45	27.1	4.574
5.833	0.000	31.82	0.00	1.46	27.3	4.605
5.917	0.000	31.97	0.00	1.47	27.5	4.636
6.000	0.000	32.13	0.00	1.48	27.7	4.667
6.083	0.000	32.29	0.00	1.49	27.9	4.697
6.167	0.000	32.45	0.00	1.50	28.0	4.728
6.250	0.000	32.61	0.00	1.51	28.2	4.758
6.333	0.000	32.78	0.00	1.52	28.4	4.788
6.417	0.000	32.95	0.00	1.52	28.6	4.818
6.500	0.000	33.11	0.00	1.53	28.8	4.848
6.583	0.000	33.29	0.00	1.54	28.9	4.878
6.667	0.000	33.46	0.00	1.55	29.1	4.908
6.750	0.000	33.64	0.00	1.56	29.3	4.938
6.833	0.000	33.82	0.00	1.57	29.5	4.968
6.917	0.000	34.00	0.00	1.58	29.6	4.998
7.000	0.000	34.18	0.00	1.59	29.8	5.028
7.083	0.000	34.37	0.00	1.60	30.0	5.058
7.167	0.000	34.56	0.00	1.61	30.2	5.089
7.250	0.000	34.76	0.00	1.62	30.4	5.119
7.333	0.000	34.95	0.00	1.63	30.5	5.149
7.417	0.000	35.15	0.00	1.64	30.7	5.180
7.500	0.000	35.35	0.00	1.65	30.9	5.210
7.583	0.000	35.56	0.00	1.66	31.1	5.241
7.667	0.000	35.76	0.00	1.67	31.3	5.272
7.750	0.000	35.98	0.00	1.68	31.5	5.303
7.833	0.000	36.19	0.00	1.69	31.6	5.334
7.917	0.000	36.41	0.00	1.70	31.8	5.366
8.000	0.000	36.63	0.00	1.71	32.0	5.398

8.083	0.000	36.86	0.00	1.72	32.2	5.430
8.167	0.000	37.08	0.00	1.73	32.4	5.462
8.250	0.000	37.32	0.00	1.74	32.6	5.494
8.333	0.000	37.55	0.00	1.75	32.8	5.527
8.417	0.000	37.79	0.00	1.76	33.0	5.560
8.500	0.000	38.03	0.00	1.77	33.2	5.594
8.583	0.000	38.29	0.00	1.78	33.4	5.628
8.667	0.000	38.54	0.00	1.79	33.6	5.662
8.750	0.000	38.80	0.00	1.80	33.8	5.696
8.833	0.000	39.06	0.00	1.81	34.0	5.731
8.917	0.000	39.33	0.00	1.82	34.2	5.766
9.000	0.000	39.59	0.00	1.84	34.4	5.802
9.083	0.000	39.88	0.00	1.85	34.6	5.838
9.167	0.000	40.15	0.00	1.86	34.8	5.875
9.250	0.000	40.44	0.00	1.87	35.1	5.912
9.333	0.000	40.73	0.00	1.88	35.3	5.949
9.417	0.000	41.04	0.00	1.89	35.5	5.988
9.500	0.000	41.33	0.00	1.91	35.7	6.026
9.583	0.000	41.65	0.00	1.92	36.0	6.065
9.667	0.000	41.96	0.00	1.93	36.2	6.105
9.750	0.000	42.29	0.00	1.94	36.4	6.145
9.833	0.000	42.61	0.00	1.96	36.7	6.186
9.917	0.000	42.95	0.00	1.97	36.9	6.228
10.000	0.000	43.29	0.00	1.98	37.2	6.270
10.083	0.000	43.65	0.00	2.00	37.4	6.312
10.167	0.000	44.00	0.00	2.01	37.7	6.356
10.250	0.000	44.37	0.00	2.03	37.9	6.400
10.333	0.000	44.74	0.00	2.04	38.2	6.445
10.417	0.000	45.13	0.00	2.05	38.5	6.491
10.500	0.000	45.52	0.00	2.07	38.8	6.538
10.583	0.000	45.92	0.00	2.08	39.0	6.585
10.667	0.000	46.33	0.00	2.10	39.3	6.633
10.750	0.000	46.75	0.00	2.11	39.6	6.682
10.833	0.000	47.18	0.00	2.13	39.9	6.733
10.917	0.000	47.62	0.00	2.15	40.2	6.784
11.000	0.000	48.07	0.00	2.16	40.5	6.836
11.083	0.000	48.54	0.00	2.18	40.8	6.889
11.167	0.000	49.01	0.00	2.20	41.1	6.943
11.250	0.000	49.50	0.00	2.21	41.5	6.998
11.333	0.000	49.99	0.00	2.23	41.8	7.055
11.417	0.000	50.52	0.00	2.25	42.1	7.112
11.500	0.000	51.04	0.00	2.27	42.5	7.171
11.583	0.000	51.59	0.00	2.29	42.8	7.231
11.667	0.000	52.14	0.00	2.31	43.2	7.293
11.750	0.000	52.72	0.00	2.33	43.6	7.356
11.833	0.000	53.31	0.00	2.35	44.0	7.420
11.917	0.000	53.93	0.00	2.37	44.3	7.486
12.000	0.000	54.54	0.00	2.39	44.7	7.554
12.083	0.000	54.88	0.00	2.41	45.1	7.621
12.167	0.000	53.72	0.00	2.43	45.5	7.677
12.250	0.000	50.82	0.00	2.44	45.8	7.712
12.333	0.000	49.25	0.00	2.45	46.0	7.735
12.417	0.000	48.74	0.00	2.45	46.1	7.753
12.500	0.000	48.69	0.00	2.46	46.2	7.770
12.583	0.000	48.94	0.00	2.46	46.3	7.789
12.667	0.000	49.31	0.00	2.47	46.4	7.809
12.750	0.000	49.83	0.00	2.48	46.5	7.832

12.833	0.000	50.42	0.00	2.49	46.7	7.857
12.917	0.000	51.10	0.00	2.50	46.8	7.887
13.000	0.000	51.83	0.00	2.50	47.0	7.920
13.083	0.000	52.64	0.00	2.51	47.3	7.957
13.167	0.000	53.49	0.00	2.52	47.6	7.998
13.250	0.000	54.44	0.00	2.53	47.9	8.043
13.333	0.000	55.42	0.00	2.54	48.2	8.092
13.417	0.000	56.48	0.00	2.55	48.6	8.147
13.500	0.000	57.55	0.00	2.56	49.0	8.205
13.583	0.000	58.73	0.00	2.58	49.5	8.269
13.667	0.000	59.95	0.00	2.59	49.9	8.338
13.750	0.000	61.30	0.00	2.61	50.5	8.413
13.833	0.000	62.68	0.00	2.62	51.0	8.493
13.917	0.000	64.19	0.00	2.64	51.6	8.579
14.000	0.000	65.74	0.00	2.66	52.3	8.672
14.083	0.000	67.52	0.00	2.68	53.0	8.772
14.167	0.000	69.67	0.00	2.71	53.8	8.882
14.250	0.000	72.39	0.00	2.73	54.6	9.004
14.333	0.000	74.90	0.00	2.76	55.5	9.137
14.417	0.000	77.43	0.00	2.79	56.5	9.281
14.500	0.000	79.94	0.00	2.82	57.6	9.435
14.583	0.000	82.69	0.00	2.86	58.8	9.600
14.667	0.000	85.54	0.00	2.89	60.0	9.775
14.750	0.000	88.72	0.00	2.93	61.4	9.964
14.833	0.000	92.07	0.00	2.97	62.8	10.165
14.917	0.000	95.88	0.00	3.02	64.3	10.383
15.000	0.000	99.93	0.00	3.07	66.0	10.617
15.083	0.000	104.61	0.00	3.12	67.7	10.871
15.167	0.000	109.68	0.00	3.18	69.7	11.146
15.250	0.000	115.63	0.00	3.24	71.8	11.448
15.333	0.000	122.20	0.00	3.31	74.1	11.780
15.417	0.000	129.09	0.00	3.39	76.6	12.141
15.500	0.000	132.24	0.00	3.47	79.3	12.506
15.583	0.000	131.69	0.00	3.54	81.8	12.849
15.667	0.000	136.86	0.00	3.61	84.4	13.210
15.750	0.000	150.14	0.00	3.70	87.3	13.643
15.833	0.000	176.06	0.00	3.83	91.0	14.229
15.917	0.000	222.23	0.00	4.01	96.3	15.096
16.000	0.000	289.59	0.00	4.28	104.1	16.373
16.083	0.000	467.96	0.00	4.78	117.6	18.786
16.167	0.000	897.53	0.00	5.81	145.7	23.964
16.250	0.000	1288.48	0.00	7.29	193.3	31.507
16.333	0.000	903.40	0.00	8.19	238.7	36.084
16.417	0.000	582.16	0.00	8.62	264.1	38.275
16.500	0.000	416.42	0.00	8.81	275.9	39.242
16.583	0.000	325.03	0.00	8.87	280.7	39.548
16.667	0.000	271.56	0.00	8.86	281.6	39.478
16.750	0.000	227.02	0.00	8.79	280.0	39.114
16.833	0.000	197.32	0.00	8.68	276.6	38.568
16.917	0.000	172.97	0.00	8.54	272.0	37.886
17.000	0.000	152.48	0.00	8.39	266.5	37.101
17.083	0.000	135.82	0.00	8.22	260.3	36.244
17.167	0.000	120.43	0.00	8.04	253.6	35.326
17.250	0.000	106.62	0.00	7.85	246.6	34.362
17.333	0.000	96.49	0.00	7.66	239.3	33.379
17.417	0.000	92.41	0.00	7.47	232.0	32.418
17.500	0.000	87.33	0.00	7.29	224.8	31.471

17.583	0.000	80.73	0.00	7.10	217.8	30.527
17.667	0.000	70.99	0.00	6.91	210.6	29.565
17.750	0.000	63.66	0.00	6.72	203.4	28.603
17.833	0.000	58.85	0.00	6.54	196.2	27.657
17.917	0.000	56.25	0.00	6.36	189.3	26.741
18.000	0.000	54.00	0.00	6.18	182.5	25.856
18.083	0.000	52.28	0.00	6.02	176.0	25.004
18.167	0.000	52.24	0.00	5.86	169.8	24.194
18.250	0.000	54.11	0.00	5.71	163.9	23.438
18.333	0.000	54.74	0.00	5.57	158.4	22.724
18.417	0.000	54.43	0.00	5.43	153.2	22.044
18.500	0.000	53.76	0.00	5.31	148.2	21.394
18.583	0.000	52.91	0.00	5.18	143.4	20.771
18.667	0.000	52.03	0.00	5.07	138.8	20.173
18.750	0.000	51.12	0.00	4.95	134.4	19.599
18.833	0.000	50.23	0.00	4.84	130.3	19.048
18.917	0.000	49.35	0.00	4.72	126.4	18.518
19.000	0.000	48.49	0.00	4.62	122.6	18.007
19.083	0.000	47.66	0.00	4.52	118.9	17.517
19.167	0.000	46.84	0.00	4.42	115.4	17.044
19.250	0.000	46.05	0.00	4.32	112.0	16.590
19.333	0.000	45.28	0.00	4.23	108.8	16.153
19.417	0.000	44.55	0.00	4.14	105.6	15.732
19.500	0.000	43.86	0.00	4.06	102.6	15.327
19.583	0.000	43.19	0.00	3.97	99.7	14.938
19.667	0.000	42.53	0.00	3.90	97.0	14.563
19.750	0.000	41.89	0.00	3.82	94.3	14.202
19.833	0.000	41.26	0.00	3.75	91.7	13.855
19.917	0.000	40.66	0.00	3.68	89.2	13.520
20.000	0.000	40.08	0.00	3.61	86.8	13.198
20.083	0.000	39.52	0.00	3.55	84.5	12.889
20.167	0.000	38.98	0.00	3.48	82.3	12.590
20.250	0.000	38.46	0.00	3.42	80.2	12.303
20.333	0.000	37.96	0.00	3.36	78.1	12.027
20.417	0.000	37.48	0.00	3.31	76.1	11.761
20.500	0.000	37.01	0.00	3.26	74.2	11.504
20.583	0.000	36.56	0.00	3.20	72.4	11.258
20.667	0.000	36.12	0.00	3.15	70.6	11.020
20.750	0.000	35.69	0.00	3.11	68.9	10.791
20.833	0.000	35.28	0.00	3.06	67.3	10.571
20.917	0.000	34.88	0.00	3.02	65.7	10.358
21.000	0.000	34.49	0.00	2.97	64.2	10.154
21.083	0.000	34.12	0.00	2.93	62.7	9.957
21.167	0.000	33.75	0.00	2.89	61.3	9.767
21.250	0.000	33.40	0.00	2.85	59.9	9.584
21.333	0.000	33.05	0.00	2.82	58.6	9.408
21.417	0.000	32.71	0.00	2.78	57.4	9.238
21.500	0.000	32.39	0.00	2.75	56.2	9.074
21.583	0.000	32.07	0.00	2.71	55.0	8.917
21.667	0.000	31.76	0.00	2.68	53.9	8.764
21.750	0.000	31.45	0.00	2.65	52.8	8.618
21.833	0.000	31.16	0.00	2.62	51.7	8.476
21.917	0.000	30.87	0.00	2.59	50.7	8.339
22.000	0.000	30.59	0.00	2.56	49.7	8.208
22.083	0.000	30.31	0.00	2.54	48.8	8.080
22.167	0.000	30.04	0.00	2.51	47.9	7.958
22.250	0.000	29.78	0.00	2.48	47.0	7.839

22.333	0.000	29.53	0.00	2.44	46.3	7.723
22.417	0.000	29.28	0.00	2.41	45.6	7.611
22.500	0.000	29.03	0.00	2.37	45.0	7.501
22.583	0.000	28.79	0.00	2.34	44.3	7.394
22.667	0.000	28.56	0.00	2.31	43.7	7.290
22.750	0.000	28.33	0.00	2.27	43.1	7.189
22.833	0.000	28.10	0.00	2.24	42.5	7.090
22.917	0.000	27.88	0.00	2.21	41.9	6.993
23.000	0.000	27.67	0.00	2.18	41.3	6.899
23.083	0.000	27.46	0.00	2.15	40.8	6.807
23.167	0.000	27.25	0.00	2.13	40.2	6.718
23.250	0.000	27.05	0.00	2.10	39.7	6.631
23.333	0.000	26.85	0.00	2.07	39.2	6.546
23.417	0.000	26.65	0.00	2.05	38.7	6.463
23.500	0.000	26.46	0.00	2.02	38.2	6.382
23.583	0.000	26.27	0.00	1.99	37.7	6.303
23.667	0.000	26.09	0.00	1.97	37.3	6.226
23.750	0.000	25.91	0.00	1.95	36.8	6.151
23.833	0.000	25.73	0.00	1.92	36.4	6.078
23.917	0.000	25.56	0.00	1.90	35.9	6.006

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----------------------------------------------------------------------------
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    128.354 AF
    BASIN  STORAGE =      0.000 AF (WITH      0.000 AF INITIALLY FILLED)
    OUTFLOW VOLUME =    128.354 AF
    LOSS    VOLUME =      0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE    104.50 TO NODE    104.00 IS CODE =   4
----------------------------------------------------------------------------
  >>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<
============================================================================


        MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
        STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
        VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
        EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
        OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
        UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
        (0.938)(DIAMETER):


        PIPELENGTH(FT) =      250.00     MANNINGS FACTOR = 0.015
        UPSTREAM ELEVATION(FT) =    3188.00
        DOWNSTREAM ELEVATION(FT) =    3180.00
        PIPE DIAMETER(FT) =   6.00


        NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

          TIME       INFLOW   VELOCITY   OUTFLOW    UPSTREAM
         (HRS)        (CFS)     (FPS)     (CFS)    PONDING(AF)
          0.083       0.01      0.50      0.00        0.000
          0.167       0.11      0.50      0.00        0.000
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0.250	0.44	0.50	0.05	0.000
0.333	0.98	0.50	0.22	0.000
0.417	1.66	0.61	0.62	0.000
0.500	2.38	0.88	1.82	0.000
0.583	3.13	1.15	3.74	0.000
0.667	3.89	1.43	3.89	0.000
0.750	4.65	1.71	4.65	0.000
0.833	5.40	1.99	5.40	0.000
0.917	6.14	2.26	6.14	0.000
1.000	6.86	2.52	6.86	0.000
1.083	7.57	2.78	7.57	0.000
1.167	8.26	3.04	8.26	0.000
1.250	8.93	3.28	8.93	0.000
1.333	9.58	3.52	9.58	0.000
1.417	10.22	3.76	10.22	0.000
1.500	10.83	3.98	10.83	0.000
1.583	11.43	4.20	11.43	0.000
1.667	12.01	4.42	12.01	0.000
1.750	12.57	4.62	12.57	0.000
1.833	13.11	4.82	13.11	0.000
1.917	13.64	5.02	13.64	0.000
2.000	14.14	5.20	14.14	0.000
2.083	14.64	5.38	14.64	0.000
2.167	15.11	5.56	15.11	0.000
2.250	15.57	5.73	15.57	0.000
2.333	16.01	5.89	16.01	0.000
2.417	16.45	6.05	16.45	0.000
2.500	16.86	6.20	16.86	0.000
2.583	17.27	6.35	17.27	0.000
2.667	17.66	6.50	17.66	0.000
2.750	18.04	6.64	18.04	0.000
2.833	18.41	6.77	18.41	0.000
2.917	18.77	6.90	18.77	0.000
3.000	19.12	7.03	19.12	0.000
3.083	19.46	7.16	19.46	0.000
3.167	19.79	7.28	19.79	0.000
3.250	20.11	7.40	20.11	0.000
3.333	20.42	7.51	20.42	0.000
3.417	20.72	7.62	20.72	0.000
3.500	21.02	7.73	21.02	0.000
3.583	21.31	7.84	21.31	0.000
3.667	21.59	7.94	21.59	0.000
3.750	21.86	8.04	21.86	0.000
3.833	22.13	8.14	22.13	0.000
3.917	22.40	8.24	22.40	0.000
4.000	22.65	8.33	22.65	0.000
4.083	22.90	8.42	22.90	0.000
4.167	23.15	8.51	23.15	0.000
4.250	23.39	8.60	23.39	0.000
4.333	23.63	8.69	23.63	0.000
4.417	23.86	8.78	23.86	0.000
4.500	24.08	8.86	24.08	0.000
4.583	24.31	8.94	24.31	0.000
4.667	24.53	9.02	24.53	0.000
4.750	24.74	9.10	24.74	0.000
4.833	24.96	9.18	24.96	0.000
4.917	25.16	9.26	25.16	0.000

NODE 104.5 → 104 PIPE ROUTING

5.000	25.37	9.33	25.37	0.000
5.083	25.57	9.41	25.57	0.000
5.167	25.78	9.48	25.78	0.000
5.250	25.97	9.55	25.97	0.000
5.333	26.17	9.63	26.17	0.000
5.417	26.36	9.70	26.36	0.000
5.500	26.56	9.77	26.56	0.000
5.583	26.75	9.84	26.75	0.000
5.667	26.93	9.91	26.93	0.000
5.750	27.12	9.98	27.12	0.000
5.833	27.31	10.04	27.31	0.000
5.917	27.49	10.11	27.49	0.000
6.000	27.67	10.18	27.67	0.000
6.083	27.86	10.25	27.86	0.000
6.167	28.04	10.31	28.04	0.000
6.250	28.22	10.38	28.22	0.000
6.333	28.40	10.45	28.40	0.000
6.417	28.58	10.51	28.58	0.000
6.500	28.76	10.58	28.76	0.000
6.583	28.93	10.64	28.93	0.000
6.667	29.11	10.71	29.11	0.000
6.750	29.29	10.77	29.29	0.000
6.833	29.47	10.84	29.47	0.000
6.917	29.65	10.91	29.65	0.000
7.000	29.83	10.97	29.83	0.000
7.083	30.00	11.04	30.00	0.000
7.167	30.18	11.10	30.18	0.000
7.250	30.36	11.17	30.36	0.000
7.333	30.54	11.23	30.54	0.000
7.417	30.72	11.30	30.72	0.000
7.500	30.91	11.37	30.91	0.000
7.583	31.09	11.44	31.09	0.000
7.667	31.27	11.50	31.27	0.000
7.750	31.46	11.57	31.46	0.000
7.833	31.64	11.64	31.64	0.000
7.917	31.83	11.71	31.83	0.000
8.000	32.02	11.78	32.02	0.000
8.083	32.21	11.85	32.21	0.000
8.167	32.40	11.92	32.40	0.000
8.250	32.59	11.99	32.59	0.000
8.333	32.79	12.06	32.79	0.000
8.417	32.98	12.09	32.97	0.000
8.500	33.18	12.10	33.17	0.000
8.583	33.38	12.12	33.37	0.000
8.667	33.58	12.13	33.57	0.000
8.750	33.79	12.15	33.78	0.000
8.833	33.99	12.17	33.98	0.000
8.917	34.20	12.18	34.19	0.000
9.000	34.41	12.20	34.40	0.000
9.083	34.63	12.22	34.62	0.000
9.167	34.84	12.23	34.83	0.000
9.250	35.06	12.25	35.05	0.000
9.333	35.28	12.27	35.27	0.000
9.417	35.51	12.28	35.50	0.000
9.500	35.74	12.30	35.72	0.000
9.583	35.97	12.32	35.96	0.000
9.667	36.20	12.34	36.19	0.000

9.750	36.44	12.36	36.43	0.000
9.833	36.68	12.38	36.67	0.000
9.917	36.93	12.39	36.91	0.000
10.000	37.18	12.41	37.16	0.000
10.083	37.43	12.43	37.41	0.000
10.167	37.68	12.45	37.67	0.000
10.250	37.95	12.47	37.93	0.000
10.333	38.21	12.49	38.20	0.000
10.417	38.48	12.52	38.47	0.000
10.500	38.76	12.54	38.74	0.000
10.583	39.04	12.56	39.02	0.000
10.667	39.32	12.58	39.31	0.000
10.750	39.61	12.60	39.60	0.000
10.833	39.91	12.63	39.89	0.000
10.917	40.21	12.65	40.19	0.000
11.000	40.51	12.67	40.50	0.000
11.083	40.83	12.70	40.81	0.000
11.167	41.14	12.72	41.13	0.000
11.250	41.47	12.75	41.45	0.000
11.333	41.80	12.77	41.79	0.000
11.417	42.14	12.80	42.13	0.000
11.500	42.49	12.83	42.47	0.000
11.583	42.84	12.86	42.83	0.000
11.667	43.21	12.88	43.19	0.000
11.750	43.58	12.91	43.56	0.000
11.833	43.95	12.94	43.94	0.000
11.917	44.34	12.97	44.32	0.000
12.000	44.74	13.00	44.72	0.000
12.083	45.14	13.03	45.12	0.000
12.167	45.51	13.06	45.49	0.000
12.250	45.78	13.08	45.77	0.000
12.333	45.95	13.10	45.94	0.000
12.417	46.07	13.11	46.07	0.000
12.500	46.18	13.11	46.17	0.000
12.583	46.28	13.12	46.28	0.000
12.667	46.40	13.13	46.39	0.000
12.750	46.53	13.14	46.52	0.000
12.833	46.67	13.15	46.66	0.000
12.917	46.83	13.17	46.83	0.000
13.000	47.03	13.18	47.02	0.000
13.083	47.28	13.20	47.27	0.000
13.167	47.56	13.22	47.55	0.000
13.250	47.88	13.25	47.86	0.000
13.333	48.22	13.27	48.21	0.000
13.417	48.60	13.30	48.58	0.000
13.500	49.01	13.34	48.99	0.000
13.583	49.46	13.37	49.44	0.000
13.667	49.94	13.41	49.92	0.000
13.750	50.47	13.45	50.44	0.000
13.833	51.03	13.49	51.01	0.000
13.917	51.64	13.54	51.61	0.000
14.000	52.29	13.59	52.26	0.000
14.083	52.99	13.64	52.96	0.000
14.167	53.76	13.70	53.73	0.000
14.250	54.61	13.77	54.57	0.000
14.333	55.54	13.84	55.50	0.000
14.417	56.55	13.92	56.51	0.000

14.500	57.63	14.01	57.59	0.000
14.583	58.79	14.10	58.75	0.000
14.667	60.03	14.19	59.99	0.000
14.750	61.36	14.30	61.31	0.000
14.833	62.78	14.41	62.73	0.000
14.917	64.31	14.53	64.25	0.000
15.000	65.96	14.65	65.90	0.000
15.083	67.74	14.76	67.66	0.000
15.167	69.67	14.87	69.59	0.000
15.250	71.77	15.00	71.69	0.000
15.333	74.08	15.14	73.99	0.000
15.417	76.61	15.29	76.51	0.000
15.500	79.26	15.45	79.16	0.000
15.583	81.84	15.60	81.74	0.000
15.667	84.41	15.76	84.32	0.000
15.750	87.30	15.93	87.20	0.000
15.833	91.02	16.16	90.89	0.000
15.917	96.32	16.47	96.14	0.000
16.000	104.13	16.86	103.86	0.000
16.083	117.59	17.48	117.13	0.000
16.167	145.70	18.64	144.79	0.000
16.250	193.28	20.31	191.87	0.000
16.333	238.73	21.39	237.36	0.000
16.417	264.11	21.97	263.39	0.000
16.500	275.95	22.18	275.60	0.000
16.583	280.72	22.27	280.58	0.000
16.667	281.60	22.28	281.58	0.000
16.750	279.98	22.25	280.02	0.000
16.833	276.56	22.19	276.66	0.000
16.917	271.96	22.11	272.10	0.000
17.000	266.46	22.01	266.62	0.000
17.083	260.30	21.89	260.48	0.000
17.167	253.65	21.74	253.83	0.000
17.250	246.59	21.57	246.79	0.000
17.333	239.29	21.40	239.50	0.000
17.417	232.00	21.23	232.21	0.000
17.500	224.84	21.07	225.06	0.000
17.583	217.75	20.91	217.97	0.000
17.667	210.61	20.74	210.83	0.000
17.750	203.40	20.58	203.62	0.000
17.833	196.24	20.41	196.46	0.000
17.917	189.26	20.17	189.45	0.000
18.000	182.50	19.94	182.70	0.000
18.083	175.99	19.72	176.18	0.000
18.167	169.76	19.51	169.95	0.000
18.250	163.89	19.31	164.07	0.000
18.333	158.38	19.11	158.55	0.000
18.417	153.16	18.92	153.32	0.000
18.500	148.17	18.73	148.32	0.000
18.583	143.39	18.56	143.55	0.000
18.667	138.82	18.39	138.96	0.000
18.750	134.45	18.23	134.59	0.000
18.833	130.31	18.07	130.44	0.000
18.917	126.36	17.89	126.49	0.000
19.000	122.57	17.71	122.69	0.000
19.083	118.92	17.54	119.04	0.000
19.167	115.41	17.38	115.52	0.000

19.250	112.03	17.23	112.14	0.000
19.333	108.78	17.08	108.89	0.000
19.417	105.65	16.93	105.76	0.000
19.500	102.64	16.80	102.74	0.000
19.583	99.74	16.66	99.85	0.000
19.667	96.96	16.51	97.05	0.000
19.750	94.27	16.35	94.36	0.000
19.833	91.69	16.20	91.78	0.000
19.917	89.21	16.05	89.29	0.000
20.000	86.81	15.90	86.90	0.000
20.083	84.51	15.76	84.59	0.000
20.167	82.29	15.63	82.37	0.000
20.250	80.16	15.50	80.24	0.000
20.333	78.10	15.38	78.18	0.000
20.417	76.12	15.26	76.20	0.000
20.500	74.22	15.15	74.29	0.000
20.583	72.38	15.03	72.46	0.000
20.667	70.62	14.93	70.69	0.000
20.750	68.92	14.83	68.99	0.000
20.833	67.28	14.73	67.35	0.000
20.917	65.70	14.63	65.77	0.000
21.000	64.18	14.52	64.24	0.000
21.083	62.72	14.40	62.77	0.000
21.167	61.31	14.29	61.36	0.000
21.250	59.95	14.19	60.00	0.000
21.333	58.64	14.08	58.69	0.000
21.417	57.38	13.99	57.43	0.000
21.500	56.16	13.89	56.21	0.000
21.583	54.99	13.80	55.04	0.000
21.667	53.86	13.71	53.91	0.000
21.750	52.77	13.63	52.81	0.000
21.833	51.72	13.55	51.76	0.000
21.917	50.70	13.47	50.75	0.000
22.000	49.72	13.39	49.77	0.000
22.083	48.78	13.32	48.82	0.000
22.167	47.87	13.25	47.91	0.000
22.250	47.03	13.18	47.07	0.000
22.333	46.29	13.12	46.33	0.000
22.417	45.61	13.07	45.65	0.000
22.500	44.95	13.02	44.98	0.000
22.583	44.31	12.97	44.34	0.000
22.667	43.68	12.92	43.71	0.000
22.750	43.07	12.87	43.10	0.000
22.833	42.47	12.83	42.50	0.000
22.917	41.89	12.78	41.92	0.000
23.000	41.33	12.74	41.35	0.000
23.083	40.77	12.69	40.80	0.000
23.167	40.23	12.65	40.26	0.000
23.250	39.71	12.61	39.73	0.000
23.333	39.20	12.57	39.22	0.000
23.417	38.70	12.53	38.72	0.000
23.500	38.21	12.49	38.23	0.000
23.583	37.73	12.46	37.76	0.000
23.667	37.27	12.42	37.29	0.000
23.750	36.82	12.39	36.84	0.000
23.833	36.38	12.35	36.40	0.000
23.917	35.95	12.32	35.97	0.000

24.000	35.52	12.29	35.55	0.000
24.083	35.10	12.25	35.12	0.000
24.167	34.60	12.21	34.63	0.000
24.250	33.89	12.16	33.93	0.000
24.333	32.96	12.09	33.01	0.000
24.417	31.93	11.74	31.94	0.000
24.500	30.86	11.35	30.86	0.000
24.583	29.77	10.95	29.77	0.000
24.667	28.70	10.56	28.70	0.000
24.750	27.64	10.17	27.64	0.000
24.833	26.60	9.78	26.60	0.000
24.917	25.59	9.41	25.59	0.000
25.000	24.60	9.05	24.60	0.000
25.083	23.65	8.70	23.65	0.000
25.167	22.73	8.36	22.73	0.000
25.250	21.83	8.03	21.83	0.000
25.333	20.97	7.71	20.97	0.000
25.417	20.14	7.41	20.14	0.000
25.500	19.34	7.11	19.34	0.000
25.583	18.57	6.83	18.57	0.000
25.667	17.82	6.56	17.82	0.000
25.750	17.11	6.29	17.11	0.000
25.833	16.42	6.04	16.42	0.000
25.917	15.76	5.80	15.76	0.000
26.000	15.13	5.57	15.13	0.000
26.083	14.52	5.34	14.52	0.000
26.167	13.94	5.13	13.94	0.000
26.250	13.38	4.92	13.38	0.000
26.333	12.84	4.72	12.84	0.000
26.417	12.33	4.53	12.33	0.000
26.500	11.83	4.35	11.83	0.000
26.583	11.36	4.18	11.36	0.000
26.667	10.90	4.01	10.90	0.000
26.750	10.46	3.85	10.46	0.000
26.833	10.04	3.69	10.04	0.000
26.917	9.64	3.55	9.64	0.000
27.000	9.25	3.40	9.25	0.000
27.083	8.88	3.27	8.88	0.000
27.167	8.52	3.14	8.52	0.000
27.250	8.18	3.01	8.18	0.000
27.333	7.85	2.89	7.85	0.000
27.417	7.54	2.77	7.54	0.000
27.500	7.24	2.66	7.24	0.000
27.583	6.95	2.55	6.95	0.000
27.667	6.67	2.45	6.67	0.000
27.750	6.40	2.35	6.40	0.000
27.833	6.14	2.26	6.14	0.000
27.917	5.90	2.17	5.90	0.000
28.000	5.66	2.08	5.66	0.000

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FLOW PROCESS FROM NODE 104.00 TO NODE 104.00 IS CODE = 7

>>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<

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 FLOW PROCESS FROM NODE     104.00 TO NODE     104.00 IS CODE =  11
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 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==================================================================================
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1250.0	2500.0	3750.0	5000.0
1.000	10.8517	193.01	VQ	.	.	.	.
1.083	12.2214	198.87	VQ	.	.	.	.
1.167	13.6271	204.11	VQ	.	.	.	.
1.250	15.0649	208.78	VQ	.	.	.	.
1.333	16.5315	212.94	VQ	.	.	.	.
1.417	18.0237	216.67	VQ	.	.	.	.
1.500	19.5387	219.98	VQ	.	.	.	.
1.583	21.0739	222.91	VQ	.	.	.	.
1.667	22.6275	225.57	VQ	.	.	.	.
1.750	24.1979	228.04	VQ	.	.	.	.
1.833	25.7844	230.35	VQ	.	.	.	.
1.917	27.3859	232.54	VQ	.	.	.	.
2.000	29.0009	234.51	VQ	.	.	.	.
2.083	30.6280	236.24	VQ	.	.	.	.
2.167	32.2661	237.85	.Q	.	.	.	.
2.250	33.9146	239.37	.Q	.	.	.	.
2.333	35.5728	240.76	.Q	.	.	.	.
2.417	37.2400	242.08	.Q	.	.	.	.
2.500	38.9161	243.38	.Q	.	.	.	.
2.583	40.6011	244.66	.Q	.	.	.	.
2.667	42.2948	245.93	.Q	.	.	.	.
2.750	43.9973	247.20	.Q	.	.	.	.
2.833	45.7084	248.45	.Q	.	.	.	.
2.917	47.4281	249.69	.Q	.	.	.	.
3.000	49.1562	250.93	.VQ	.	.	.	.
3.083	50.8929	252.16	.VQ	.	.	.	.
3.167	52.6380	253.39	.VQ	.	.	.	.
3.250	54.3916	254.62	.VQ	.	.	.	.
3.333	56.1536	255.84	.VQ	.	.	.	.
3.417	57.9240	257.06	.VQ	.	.	.	.
3.500	59.7028	258.28	.VQ	.	.	.	.
3.583	61.4901	259.51	. Q	.	.	.	.
3.667	63.2857	260.73	. Q	.	.	.	.
3.750	65.0898	261.95	. Q	.	.	.	.
3.833	66.9024	263.18	. Q	.	.	.	.
3.917	68.7234	264.41	. Q	.	.	.	.
4.000	70.5529	265.64	. Q	.	.	.	.
4.083	72.3909	266.88	. Q	.	.	.	.
4.167	74.2375	268.12	. Q	.	.	.	.
4.250	76.0927	269.37	. Q	.	.	.	.
4.333	77.9562	270.59	. Q	.	.	.	.
4.417	79.8274	271.70	. Q	.	.	.	.
4.500	81.7058	272.74	. Q	.	.	.	.
4.583	83.5918	273.85	. Q	.	.	.	.
4.667	85.4862	275.06	. Q	.	.	.	.

NODE 104 STREAM 2 ADDED TO STREAM 1

4.750	87.3892	276.32	. Q	.	.	.	.
4.833	89.3010	277.60	. Q	.	.	.	.
4.917	91.2218	278.90	. Q	.	.	.	.
5.000	93.1516	280.20	. QV	.	.	.	.
5.083	95.0904	281.52	. QV	.	.	.	.
5.167	97.0384	282.85	. QV	.	.	.	.
5.250	98.9957	284.19	. QV	.	.	.	.
5.333	100.9622	285.54	. QV	.	.	.	.
5.417	102.9381	286.90	. QV	.	.	.	.
5.500	104.9235	288.28	. QV	.	.	.	.
5.583	106.9184	289.66	. QV	.	.	.	.
5.667	108.9230	291.06	. QV	.	.	.	.
5.750	110.9373	292.48	. QV	.	.	.	.
5.833	112.9614	293.90	. QV	.	.	.	.
5.917	114.9954	295.34	. QV	.	.	.	.
6.000	117.0395	296.80	. QV	.	.	.	.
6.083	119.0937	298.27	. QV	.	.	.	.
6.167	121.1581	299.75	. QV	.	.	.	.
6.250	123.2328	301.25	. Q V	.	.	.	.
6.333	125.3180	302.77	. Q V	.	.	.	.
6.417	127.4138	304.31	. Q V	.	.	.	.
6.500	129.5202	305.86	. Q V	.	.	.	.
6.583	131.6375	307.43	. Q V	.	.	.	.
6.667	133.7657	309.02	. Q V	.	.	.	.
6.750	135.9050	310.62	. Q V	.	.	.	.
6.833	138.0555	312.25	. Q V	.	.	.	.
6.917	140.2173	313.90	. Q V	.	.	.	.
7.000	142.3907	315.57	. Q V	.	.	.	.
7.083	144.5756	317.25	. Q V	.	.	.	.
7.167	146.7723	318.96	. Q V	.	.	.	.
7.250	148.9810	320.70	. Q V	.	.	.	.
7.333	151.2017	322.45	. Q V	.	.	.	.
7.417	153.4347	324.23	. Q V	.	.	.	.
7.500	155.6801	326.03	. Q V	.	.	.	.
7.583	157.9381	327.86	. Q V	.	.	.	.
7.667	160.2089	329.71	. Q V	.	.	.	.
7.750	162.4926	331.59	. Q V	.	.	.	.
7.833	164.7894	333.50	. Q V	.	.	.	.
7.917	167.0995	335.43	. Q V	.	.	.	.
8.000	169.4232	337.39	. Q V	.	.	.	.
8.083	171.7605	339.38	. Q V	.	.	.	.
8.167	174.1118	341.41	. Q V	.	.	.	.
8.250	176.4772	343.46	. Q V	.	.	.	.
8.333	178.8570	345.54	. Q V	.	.	.	.
8.417	181.2513	347.65	. Q V	.	.	.	.
8.500	183.6603	349.79	. Q V	.	.	.	.
8.583	186.0844	351.98	. Q V	.	.	.	.
8.667	188.5237	354.20	. Q V	.	.	.	.
8.750	190.9786	356.45	. Q V	.	.	.	.
8.833	193.4493	358.74	. Q V	.	.	.	.
8.917	195.9360	361.07	. Q V	.	.	.	.
9.000	198.4390	363.44	. Q V	.	.	.	.
9.083	200.9586	365.85	. Q V	.	.	.	.
9.167	203.4952	368.30	. Q V	.	.	.	.
9.250	206.0489	370.80	. Q V	.	.	.	.
9.333	208.6201	373.34	. Q V	.	.	.	.
9.417	211.2091	375.92	. Q V	.	.	.	.

9.500	213.8162	378.56	.	Q	V	.	.	.
9.583	216.4418	381.24	.	Q	V	.	.	.
9.667	219.0863	383.97	.	Q	V	.	.	.
9.750	221.7499	386.75	.	Q	V	.	.	.
9.833	224.4330	389.59	.	Q	V	.	.	.
9.917	227.1361	392.49	.	Q	V	.	.	.
10.000	229.8595	395.43	.	Q	V	.	.	.
10.083	232.6036	398.44	.	Q	V	.	.	.
10.167	235.3688	401.51	.	Q	V	.	.	.
10.250	238.1556	404.64	.	Q	V	.	.	.
10.333	240.9644	407.84	.	Q	V	.	.	.
10.417	243.7958	411.11	.	Q	V	.	.	.
10.500	246.6500	414.44	.	Q	V	.	.	.
10.583	249.5278	417.85	.	Q	V	.	.	.
10.667	252.4296	421.33	.	Q	V	.	.	.
10.750	255.3558	424.89	.	Q	V	.	.	.
10.833	258.3072	428.53	.	Q	V	.	.	.
10.917	261.2841	432.26	.	Q	V	.	.	.
11.000	264.2874	436.07	.	Q	V	.	.	.
11.083	267.3175	439.97	.	Q	V	.	.	.
11.167	270.3752	443.97	.	Q	V	.	.	.
11.250	273.4610	448.06	.	Q	V	.	.	.
11.333	276.5757	452.26	.	Q	V	.	.	.
11.417	279.7201	456.56	.	Q	V	.	.	.
11.500	282.8949	460.98	.	Q	V	.	.	.
11.583	286.1009	465.51	.	Q	V	.	.	.
11.667	289.3388	470.15	.	Q	V	.	.	.
11.750	292.6097	474.93	.	Q	V	.	.	.
11.833	295.9144	479.83	.	Q	V	.	.	.
11.917	299.2538	484.88	.	Q	V	.	.	.
12.000	302.6288	490.06	.	Q	V	.	.	.
12.083	306.0376	494.95	.	Q	V	.	.	.
12.167	309.4673	498.00	.	Q	V	.	.	.
12.250	312.8822	495.85	.	Q	V	.	.	.
12.333	316.2464	488.47	.	Q	V	.	.	.
12.417	319.5576	480.79	.	Q	V	.	.	.
12.500	322.8333	475.63	.	Q	V	.	.	.
12.583	326.0905	472.94	.	Q	V	.	.	.
12.667	329.3421	472.14	.	Q	V	.	.	.
12.750	332.5980	472.75	.	Q	V	.	.	.
12.833	335.8654	474.42	.	Q	V	.	.	.
12.917	339.1502	476.97	.	Q	.V	.	.	.
13.000	342.4583	480.32	.	Q	.V	.	.	.
13.083	345.7943	484.40	.	Q	.V	.	.	.
13.167	349.1630	489.13	.	Q	.V	.	.	.
13.250	352.5685	494.47	.	Q	.V	.	.	.
13.333	356.0150	500.43	.	Q	.V	.	.	.
13.417	359.5066	506.99	.	Q	.V	.	.	.
13.500	363.0477	514.16	.	Q	.V	.	.	.
13.583	366.6424	521.95	.	Q	.V	.	.	.
13.667	370.2951	530.37	.	Q	. V	.	.	.
13.750	374.0102	539.43	.	Q	. V	.	.	.
13.833	377.7918	549.10	.	Q	. V	.	.	.
13.917	381.6445	559.40	.	Q	. V	.	.	.
14.000	385.5728	570.39	.	Q	. V	.	.	.
14.083	389.5828	582.25	.	Q	. V	.	.	.
14.167	393.6832	595.38	.	Q	. V	.	.	.

14.250	397.8883	610.58	. Q . V . . .
14.333	402.2060	626.93	. Q . V . . .
14.417	406.6296	642.31	. Q . V . . .
14.500	411.1568	657.34	. Q . V . . .
14.583	415.7980	673.91	. Q . V . . .
14.667	420.5693	692.79	. Q . V . . .
14.750	425.4863	713.95	. Q . V . . .
14.833	430.5638	737.26	. Q . V . . .
14.917	435.8164	762.68	. Q . V . . .
15.000	441.2593	790.30	. Q . V . . .
15.083	446.9092	820.36	. Q . V . . .
15.167	452.7852	853.20	. Q . V . . .
15.250	458.9100	889.32	. Q . V . . .
15.333	465.3103	929.33	. Q . V . . .
15.417	472.0107	972.90	. Q . V . . .
15.500	479.0161	1017.17	. Q . V . . .
15.583	486.2826	1055.11	. Q . V . . .
15.667	493.7795	1088.54	. Q . V . . .
15.750	501.5823	1132.97	. Q. V . . .
15.833	509.8575	1201.56	. Q. V . . .
15.917	518.9141	1315.01	. Q V . . .
16.000	529.2312	1498.04	. .Q V . . .
16.083	542.0359	1859.24	. . Q V . . .
16.167	559.8483	2586.37	. . V Q . . .
16.250	586.6009	3884.47	. . V. .Q .
16.333	620.7465	4957.95	. . V . . Q.
16.417	655.0206	4976.59	. . .V . . Q.
16.500	686.5406	4576.71	. . . V . Q .
16.583	715.8718	4258.90	. . . V . Q .
16.667	743.3690	3992.58	. . . V .Q .
16.750	769.0124	3723.43	. . . V Q. .
16.833	792.7367	3444.77	. . . V Q . .
16.917	814.4713	3155.85	. . . QV . .
17.000	834.3043	2879.75	. . . Q V . .
17.083	852.5841	2654.23	. . .Q V . .
17.167	869.5721	2466.65	. . Q. V . .
17.250	885.3752	2294.61	. . Q . V . .
17.333	900.0670	2133.24	. . Q . V. .
17.417	913.7240	1983.00	. . Q . V. .
17.500	926.4246	1844.12	. . Q . V .
17.583	938.2193	1712.60	. . Q . V .
17.667	949.1958	1593.79	. . Q . V .
17.750	959.4286	1485.80	. .Q . .V .
17.833	969.0331	1394.58	. .Q . .V .
17.917	978.1026	1316.88	. Q . .V .
18.000	986.6605	1242.61	. Q. . . V .
18.083	994.7096	1168.73	. Q. . . V .
18.167	1002.2501	1094.89	. Q . . . V .
18.250	1009.2650	1018.55	. Q . . . V .
18.333	1015.7473	941.24	. Q . . . V .
18.417	1021.7969	878.40	. Q . . . V .
18.500	1027.4966	827.59	. Q . . . V .
18.583	1032.8887	782.92	. Q . . . V .
18.667	1038.0093	743.52	. Q . . . V .
18.750	1042.8910	708.83	. Q . . . V .
18.833	1047.5509	676.62	. Q . . . V .
18.917	1051.9811	643.26	. Q . . . V .

19.000	1056.1864	610.62	.	Q	.	.	.	V	.
19.083	1060.2118	584.49	.	Q	.	.	.	V	.
19.167	1064.1075	565.66	.	Q	.	.	.	V	.
19.250	1067.9023	551.00	.	Q	.	.	.	V	.
19.333	1071.6096	538.29	.	Q	.	.	.	V	.
19.417	1075.2363	526.60	.	Q	.	.	.	V	.
19.500	1078.7871	515.58	.	Q	.	.	.	V	.
19.583	1082.2655	505.06	.	Q	.	.	.	V	.
19.667	1085.6744	494.98	.	Q	.	.	.	V	.
19.750	1089.0168	485.32	.	Q	.	.	.	V	.
19.833	1092.2957	476.08	.	Q	.	.	.	V	.
19.917	1095.5138	467.27	.	Q	.	.	.	V	.
20.000	1098.6737	458.82	.	Q	.	.	.	V	.
20.083	1101.7777	450.70	.	Q	.	.	.	V	.
20.167	1104.8276	442.85	.	Q	.	.	.	V	.
20.250	1107.8254	435.27	.	Q	.	.	.	V	.
20.333	1110.7726	427.92	.	Q	.	.	.	V	.
20.417	1113.6708	420.82	.	Q	.	.	.	V	.
20.500	1116.5220	413.99	.	Q	.	.	.	V	.
20.583	1119.3278	407.41	.	Q	.	.	.	V	.
20.667	1122.0900	401.07	.	Q	.	.	.	V	.
20.750	1124.8101	394.95	.	Q	.	.	.	V	.
20.833	1127.4895	389.05	.	Q	.	.	.	V	.
20.917	1130.1298	383.36	.	Q	.	.	.	V	.
21.000	1132.7321	377.86	.	Q	.	.	.	V	.
21.083	1135.2979	372.55	.	Q	.	.	.	V	.
21.167	1137.8282	367.41	.	Q	.	.	.	V	.
21.250	1140.3245	362.45	.	Q	.	.	.	V	.
21.333	1142.7876	357.65	.	Q	.	.	.	V	.
21.417	1145.2188	353.00	.	Q	.	.	.	V	.
21.500	1147.6189	348.50	.	Q	.	.	.	V	.
21.583	1149.9890	344.14	.	Q	.	.	.	V	.
21.667	1152.3300	339.91	.	Q	.	.	.	V	.
21.750	1154.6427	335.81	.	Q	.	.	.	V	.
21.833	1156.9281	331.83	.	Q	.	.	.	V	.
21.917	1159.1869	327.97	.	Q	.	.	.	V	.
22.000	1161.4198	324.22	.	Q	.	.	.	V	.
22.083	1163.6277	320.58	.	Q	.	.	.	V	.
22.167	1165.8112	317.05	.	Q	.	.	.	V	.
22.250	1167.9712	313.65	.	Q	.	.	.	V	.
22.333	1170.1090	310.41	.	Q	.	.	.	V	.
22.417	1172.2253	307.30	.	Q	.	.	.	V	.
22.500	1174.3208	304.27	.	Q	.	.	.	V	.
22.583	1176.3959	301.31	.	Q	.	.	.	V	.
22.667	1178.4510	298.42	.	Q	.	.	.	V	.
22.750	1180.4868	295.59	.	Q	.	.	.	V	.
22.833	1182.5037	292.84	.	Q	.	.	.	V	.
22.917	1184.5020	290.15	.	Q	.	.	.	V	.
23.000	1186.4805	287.28	.	Q	.	.	.	V	.
23.083	1188.4374	284.15	.	Q	.	.	.	V	.
23.167	1190.3741	281.22	.	Q	.	.	.	V	.
23.250	1192.2935	278.69	.	Q	.	.	.	V	.
23.333	1194.1964	276.31	.	Q	.	.	.	V	.
23.417	1196.0834	273.99	.	Q	.	.	.	V	.
23.500	1197.9547	271.71	.	Q	.	.	.	V	.
23.583	1199.8107	269.48	.	Q	.	.	.	V	.
23.667	1201.6516	267.30	.	Q	.	.	.	V	.

23.750	1203.4778	265.17	. Q	.	.	.	V.
23.833	1205.2896	263.07	. Q	.	.	.	V.
23.917	1207.0872	261.02	. Q	.	.	.	V.
24.000	1208.8710	259.01	. Q	.	.	.	V.
24.083	1210.6321	255.71	. Q	.	.	.	V.
24.167	1212.3301	246.55	.Q	.	.	.	V.
24.250	1213.8635	222.66	.Q	.	.	.	V.
24.333	1215.1550	187.53	.Q	.	.	.	V.
24.417	1216.2346	156.76	.Q	.	.	.	V.
24.500	1217.1604	134.42	.Q	.	.	.	V.
24.583	1217.9624	116.45	Q	.	.	.	V.
24.667	1218.6581	101.01	Q	.	.	.	V.
24.750	1219.2634	87.89	Q	.	.	.	V.
24.833	1219.7917	76.71	Q	.	.	.	V.
24.917	1220.2544	67.18	Q	.	.	.	V.
25.000	1220.6617	59.14	Q	.	.	.	V.
25.083	1221.0217	52.27	Q	.	.	.	V.
25.167	1221.3409	46.35	Q	.	.	.	V.
25.250	1221.6251	41.27	Q	.	.	.	V.
25.333	1221.8793	36.90	Q	.	.	.	V.
25.417	1222.1075	33.14	Q	.	.	.	V.
25.500	1222.3137	29.93	Q	.	.	.	V.
25.583	1222.5011	27.21	Q	.	.	.	V.
25.667	1222.6724	24.86	Q	.	.	.	V.
25.750	1222.8292	22.78	Q	.	.	.	V.
25.833	1222.9731	20.89	Q	.	.	.	V.
25.917	1223.1049	19.13	Q	.	.	.	V.
26.000	1223.2258	17.57	Q	.	.	.	V.
26.083	1223.3379	16.27	Q	.	.	.	V.
26.167	1223.4424	15.17	Q	.	.	.	V.
26.250	1223.5403	14.22	Q	.	.	.	V.
26.333	1223.6329	13.46	Q	.	.	.	V.
26.417	1223.7211	12.80	Q	.	.	.	V.
26.500	1223.8051	12.20	Q	.	.	.	V.
26.583	1223.8853	11.64	Q	.	.	.	V.
26.667	1223.9619	11.12	Q	.	.	.	V.
26.750	1224.0352	10.64	Q	.	.	.	V.
26.833	1224.1052	10.18	Q	.	.	.	V.
26.917	1224.1724	9.74	Q	.	.	.	V.
27.000	1224.2367	9.33	Q	.	.	.	V.
27.083	1224.2983	8.94	Q	.	.	.	V.
27.167	1224.3574	8.57	Q	.	.	.	V.
27.250	1224.4141	8.22	Q	.	.	.	V.
27.333	1224.4684	7.88	Q	.	.	.	V.
27.417	1224.5205	7.56	Q	.	.	.	V.
27.500	1224.5704	7.25	Q	.	.	.	V.
27.583	1224.6184	6.96	Q	.	.	.	V.
27.667	1224.6644	6.68	Q	.	.	.	V.
27.750	1224.7085	6.41	Q	.	.	.	V.
27.833	1224.7509	6.15	Q	.	.	.	V.
27.917	1224.7915	5.90	Q	.	.	.	V.
28.000	1224.8304	5.66	Q	.	.	.	V.
28.083	1224.8679	5.43	Q	.	.	.	V.
28.167	1224.9038	5.22	Q	.	.	.	V.
28.250	1224.9382	5.01	Q	.	.	.	V.
28.333	1224.9713	4.80	Q	.	.	.	V.
28.417	1225.0031	4.61	Q	.	.	.	V.

28.500	1225.0336	4.43	Q	.	.	.	V.
28.583	1225.0629	4.25	Q	.	.	.	V.
28.667	1225.0909	4.08	Q	.	.	.	V.
28.750	1225.1179	3.91	Q	.	.	.	V.
28.833	1225.1438	3.76	Q	.	.	.	V.
28.917	1225.1686	3.61	Q	.	.	.	V.
29.000	1225.1924	3.46	Q	.	.	.	V.
29.083	1225.2152	3.32	Q	.	.	.	V.
29.167	1225.2372	3.19	Q	.	.	.	V.
29.250	1225.2583	3.06	Q	.	.	.	V.
29.333	1225.2786	2.94	Q	.	.	.	V.
29.417	1225.2980	2.82	Q	.	.	.	V.
29.500	1225.3167	2.71	Q	.	.	.	V.
29.583	1225.3346	2.60	Q	.	.	.	V.
29.667	1225.3518	2.49	Q	.	.	.	V.
29.750	1225.3683	2.39	Q	.	.	.	V.
29.833	1225.3842	2.30	Q	.	.	.	V.
29.917	1225.3998	2.27	Q	.	.	.	V.
30.000	1225.4146	2.14	Q	.	.	.	V.
30.083	1225.4285	2.03	Q	.	.	.	V.
30.167	1225.4419	1.95	Q	.	.	.	V.
30.250	1225.4547	1.87	Q	.	.	.	V.
30.333	1225.4670	1.79	Q	.	.	.	V.
30.417	1225.4789	1.72	Q	.	.	.	V.
30.500	1225.4902	1.65	Q	.	.	.	V.
30.583	1225.5011	1.59	Q	.	.	.	V.
30.667	1225.5116	1.52	Q	.	.	.	V.
30.750	1225.5216	1.46	Q	.	.	.	V.
30.833	1225.5312	1.40	Q	.	.	.	V.
30.917	1225.5405	1.35	Q	.	.	.	V.
31.000	1225.5496	1.31	Q	.	.	.	V.
31.083	1225.5587	1.33	Q	.	.	.	V.
31.167	1225.5675	1.28	Q	.	.	.	V.
31.250	1225.5759	1.23	Q	.	.	.	V.
31.333	1225.5840	1.18	Q	.	.	.	V.
31.417	1225.5918	1.13	Q	.	.	.	V.
31.500	1225.5992	1.08	Q	.	.	.	V.
31.583	1225.6064	1.04	Q	.	.	.	V.
31.667	1225.6133	1.00	Q	.	.	.	V.
31.750	1225.6199	0.96	Q	.	.	.	V.
31.833	1225.6262	0.92	Q	.	.	.	V.
31.917	1225.6323	0.88	Q	.	.	.	V.
32.000	1225.6382	0.85	Q	.	.	.	V.
32.083	1225.6438	0.81	Q	.	.	.	V.
32.167	1225.6492	0.78	Q	.	.	.	V.
32.250	1225.6543	0.75	Q	.	.	.	V.
32.333	1225.6593	0.72	Q	.	.	.	V.
32.417	1225.6641	0.69	Q	.	.	.	V.
32.500	1225.6686	0.66	Q	.	.	.	V.
32.583	1225.6730	0.64	Q	.	.	.	V.
32.667	1225.6771	0.61	Q	.	.	.	V.
32.750	1225.6812	0.59	Q	.	.	.	V.
32.833	1225.6851	0.56	Q	.	.	.	V.
32.917	1225.6887	0.54	Q	.	.	.	V.
33.000	1225.6923	0.52	Q	.	.	.	V.
33.083	1225.6957	0.50	Q	.	.	.	V.
33.167	1225.6990	0.48	Q	.	.	.	V.

33.250	1225.7021	0.46	Q	.	.	.	V.
33.333	1225.7052	0.44	Q	.	.	.	V.
33.417	1225.7081	0.42	Q	.	.	.	V.
33.500	1225.7109	0.41	Q	.	.	.	V.
33.583	1225.7136	0.39	Q	.	.	.	V.
33.667	1225.7162	0.37	Q	.	.	.	V.
33.750	1225.7186	0.36	Q	.	.	.	V.
33.833	1225.7209	0.34	Q	.	.	.	V.
33.917	1225.7233	0.33	Q	.	.	.	V.
34.000	1225.7255	0.32	Q	.	.	.	V.
34.083	1225.7275	0.30	Q	.	.	.	V.
34.167	1225.7295	0.29	Q	.	.	.	V.
34.250	1225.7314	0.28	Q	.	.	.	V.
34.333	1225.7333	0.27	Q	.	.	.	V.
34.417	1225.7351	0.26	Q	.	.	.	V.
34.500	1225.7368	0.25	Q	.	.	.	V.
34.583	1225.7384	0.24	Q	.	.	.	V.
34.667	1225.7400	0.23	Q	.	.	.	V.
34.750	1225.7415	0.22	Q	.	.	.	V.
34.833	1225.7429	0.21	Q	.	.	.	V.
34.917	1225.7443	0.20	Q	.	.	.	V.
35.000	1225.7456	0.19	Q	.	.	.	V.
35.083	1225.7468	0.19	Q	.	.	.	V.
35.167	1225.7480	0.18	Q	.	.	.	V.
35.250	1225.7493	0.17	Q	.	.	.	V.
35.333	1225.7504	0.16	Q	.	.	.	V.
35.417	1225.7515	0.16	Q	.	.	.	V.
35.500	1225.7526	0.15	Q	.	.	.	V.
35.583	1225.7535	0.15	Q	.	.	.	V.
35.667	1225.7545	0.14	Q	.	.	.	V.
35.750	1225.7555	0.13	Q	.	.	.	V.
35.833	1225.7563	0.13	Q	.	.	.	V.
35.917	1225.7572	0.12	Q	.	.	.	V.
36.000	1225.7581	0.12	Q	.	.	.	V.
36.083	1225.7588	0.11	Q	.	.	.	V.
36.167	1225.7595	0.11	Q	.	.	.	V.
36.250	1225.7603	0.10	Q	.	.	.	V.
36.333	1225.7610	0.10	Q	.	.	.	V.
36.417	1225.7616	0.10	Q	.	.	.	V.
36.500	1225.7622	0.09	Q	.	.	.	V.
36.583	1225.7628	0.09	Q	.	.	.	V.
36.667	1225.7634	0.09	Q	.	.	.	V.
36.750	1225.7640	0.08	Q	.	.	.	V.
36.833	1225.7645	0.08	Q	.	.	.	V.
36.917	1225.7650	0.08	Q	.	.	.	V.
37.000	1225.7655	0.07	Q	.	.	.	V.
37.083	1225.7660	0.07	Q	.	.	.	V.
37.167	1225.7665	0.07	Q	.	.	.	V.
37.250	1225.7670	0.06	Q	.	.	.	V.
37.333	1225.7673	0.06	Q	.	.	.	V.
37.417	1225.7677	0.06	Q	.	.	.	V.
37.500	1225.7681	0.06	Q	.	.	.	V.
37.583	1225.7684	0.05	Q	.	.	.	V.
37.667	1225.7688	0.05	Q	.	.	.	V.
37.750	1225.7692	0.05	Q	.	.	.	V.
37.833	1225.7695	0.05	Q	.	.	.	V.
37.917	1225.7699	0.05	Q	.	.	.	V.

38.000	1225.7703	0.04	Q	.	.	.	V.
38.083	1225.7705	0.04	Q	.	.	.	V.
38.167	1225.7708	0.04	Q	.	.	.	V.
38.250	1225.7710	0.04	Q	.	.	.	V.
38.333	1225.7712	0.04	Q	.	.	.	V.
38.417	1225.7715	0.04	Q	.	.	.	V.
38.500	1225.7717	0.03	Q	.	.	.	V.
38.583	1225.7720	0.03	Q	.	.	.	V.
38.667	1225.7722	0.03	Q	.	.	.	V.
38.750	1225.7725	0.03	Q	.	.	.	V.
38.833	1225.7727	0.03	Q	.	.	.	V.
38.917	1225.7729	0.03	Q	.	.	.	V.
39.000	1225.7732	0.03	Q	.	.	.	V.
39.083	1225.7733	0.03	Q	.	.	.	V.
39.167	1225.7734	0.02	Q	.	.	.	V.
39.250	1225.7736	0.02	Q	.	.	.	V.
39.333	1225.7737	0.02	Q	.	.	.	V.
39.417	1225.7738	0.02	Q	.	.	.	V.
39.500	1225.7739	0.02	Q	.	.	.	V.
39.583	1225.7740	0.02	Q	.	.	.	V.
39.667	1225.7742	0.02	Q	.	.	.	V.
39.750	1225.7743	0.02	Q	.	.	.	V.
39.833	1225.7744	0.02	Q	.	.	.	V.
39.917	1225.7745	0.02	Q	.	.	.	V.
40.000	1225.7747	0.02	Q	.	.	.	V.
40.083	1225.7748	0.02	Q	.	.	.	V.
40.167	1225.7749	0.02	Q	.	.	.	V.
40.250	1225.7750	0.01	Q	.	.	.	V.
40.333	1225.7751	0.01	Q	.	.	.	V.
40.417	1225.7753	0.01	Q	.	.	.	V.
40.500	1225.7754	0.01	Q	.	.	.	V.
40.583	1225.7755	0.01	Q	.	.	.	V.
40.667	1225.7756	0.01	Q	.	.	.	V.
40.750	1225.7758	0.01	Q	.	.	.	V.
40.833	1225.7759	0.01	Q	.	.	.	V.
40.917	1225.7760	0.01	Q	.	.	.	V
41.000	1225.7761	0.01	Q	.	.	.	V
41.083	1225.7762	0.01	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2465.0
10%	385.0
20%	170.0
30%	105.0
40%	75.0
50%	60.0
60%	45.0
70%	35.0
80%	25.0
90%	15.0

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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
        UPSTREAM ELEVATION(FT) =    3180.00
        DOWNSTREAM ELEVATION(FT) =    3140.00
        CHANNEL LENGTH(FT) =    3900.00     MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                              (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
        AVERAGED PEAK  5-MINUTE: (    4976.6).......[ 25.85]
        AVERAGED PEAK 15-MINUTE: (    4837.1).......[ 25.56]
        AVERAGED PEAK 30-MINUTE: (    4441.2).......[ 24.84]
        AVERAGED PEAK  1-HOUR:   (    3757.6).......[ 23.47]
        AVERAGED PEAK  3-HOUR:   (    2220.1).......[ 19.48]
        AVERAGED PEAK  6-HOUR:   (    1443.4).......[ 16.58]
        AVERAGED PEAK 24-HOUR:   (     611.8).......[ 12.04]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  23.000
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (   3900.00)/( 23.000) =   0.047 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                              OUTFLOW LESS
       MODEL          INFLOW      ROUTED        LOSS
        TIME        (STREAM 1)     FLOW      (STREAM 1)
       (HRS)          (CFS)        (CFS)       (CFS)
        0.083          63.62        27.66        27.66
        0.167          75.82        68.93        68.93
        0.250          57.44        67.83        67.83
        0.333          85.75        69.75        69.75
        0.417         117.96        99.76        99.76
        0.500         135.99       125.80       125.80
        0.583         150.02       142.09       142.09
        0.667         160.57       154.61       154.61
        0.750         170.26       164.78       164.78
        0.833         178.83       173.98       173.98
        0.917         186.40       182.12       182.12
        1.000         193.01       189.27       189.27
        1.083         198.87       195.56       195.56
        1.167         204.11       201.15       201.15
        1.250         208.78       206.14       206.14
        1.333         212.94       210.59       210.59
        1.417         216.67       214.56       214.56
        1.500         219.98       218.11       218.11
        1.583         222.91       221.25       221.25
        1.667         225.57       224.07       224.07
        1.750         228.04       226.64       226.64
```

1.833	230.35	229.04	229.04
1.917	232.54	231.30	231.30
2.000	234.51	233.39	233.39
2.083	236.24	235.26	235.26
2.167	237.85	236.94	236.94
2.250	239.37	238.51	238.51
2.333	240.76	239.98	239.98
2.417	242.08	241.33	241.33
2.500	243.38	242.64	242.64
2.583	244.66	243.93	243.93
2.667	245.93	245.21	245.21
2.750	247.20	246.48	246.48
2.833	248.45	247.74	247.74
2.917	249.69	248.99	248.99
3.000	250.93	250.23	250.23
3.083	252.16	251.47	251.47
3.167	253.39	252.70	252.70
3.250	254.62	253.93	253.93
3.333	255.84	255.15	255.15
3.417	257.06	256.37	256.37
3.500	258.28	257.59	257.59
3.583	259.51	258.82	258.82
3.667	260.73	260.04	260.04
3.750	261.95	261.26	261.26
3.833	263.18	262.49	262.49
3.917	264.41	263.72	263.72
4.000	265.64	264.95	264.95
4.083	266.88	266.18	266.18
4.167	268.12	267.42	267.42
4.250	269.37	268.67	268.67
4.333	270.59	269.90	269.90
4.417	271.70	271.07	271.07
4.500	272.74	272.15	272.15
4.583	273.85	273.22	273.22
4.667	275.06	274.38	274.38
4.750	276.32	275.60	275.60
4.833	277.60	276.87	276.87
4.917	278.90	278.16	278.16
5.000	280.20	279.46	279.46
5.083	281.52	280.78	280.78
5.167	282.85	282.10	282.10
5.250	284.19	283.43	283.43
5.333	285.54	284.78	284.78
5.417	286.90	286.13	286.13
5.500	288.28	287.50	287.50
5.583	289.66	288.88	288.88
5.667	291.06	290.27	290.27
5.750	292.48	291.68	291.68
5.833	293.90	293.10	293.10
5.917	295.34	294.53	294.53
6.000	296.80	295.97	295.97
6.083	298.27	297.44	297.44
6.167	299.75	298.91	298.91
6.250	301.25	300.40	300.40
6.333	302.77	301.91	301.91
6.417	304.31	303.44	303.44
6.500	305.86	304.98	304.98

NODES 104 → 105 RCB ROUTING

6.583	307.43	306.54	306.54
6.667	309.02	308.12	308.12
6.750	310.62	309.72	309.72
6.833	312.25	311.33	311.33
6.917	313.90	312.97	312.97
7.000	315.57	314.62	314.62
7.083	317.25	316.30	316.30
7.167	318.96	318.00	318.00
7.250	320.70	319.72	319.72
7.333	322.45	321.46	321.46
7.417	324.23	323.23	323.23
7.500	326.03	325.01	325.01
7.583	327.86	326.83	326.83
7.667	329.71	328.67	328.67
7.750	331.59	330.53	330.53
7.833	333.50	332.42	332.42
7.917	335.43	334.34	334.34
8.000	337.39	336.29	336.29
8.083	339.38	338.26	338.26
8.167	341.41	340.26	340.26
8.250	343.46	342.30	342.30
8.333	345.54	344.36	344.36
8.417	347.65	346.46	346.46
8.500	349.79	348.58	348.58
8.583	351.98	350.74	350.74
8.667	354.20	352.94	352.94
8.750	356.45	355.18	355.18
8.833	358.74	357.45	357.45
8.917	361.07	359.75	359.75
9.000	363.44	362.10	362.10
9.083	365.85	364.49	364.49
9.167	368.30	366.92	366.92
9.250	370.80	369.39	369.39
9.333	373.34	371.90	371.90
9.417	375.92	374.46	374.46
9.500	378.56	377.07	377.07
9.583	381.24	379.72	379.72
9.667	383.97	382.43	382.43
9.750	386.75	385.18	385.18
9.833	389.59	387.99	387.99
9.917	392.49	390.85	390.85
10.000	395.43	393.77	393.77
10.083	398.44	396.74	396.74
10.167	401.51	399.78	399.78
10.250	404.64	402.87	402.87
10.333	407.84	406.03	406.03
10.417	411.11	409.26	409.26
10.500	414.44	412.56	412.56
10.583	417.85	415.92	415.92
10.667	421.33	419.36	419.36
10.750	424.89	422.88	422.88
10.833	428.53	426.48	426.48
10.917	432.26	430.15	430.15
11.000	436.07	433.92	433.92
11.083	439.97	437.77	437.77
11.167	443.97	441.71	441.71
11.250	448.06	445.75	445.75

11.333	452.26	449.89	449.89
11.417	456.56	454.13	454.13
11.500	460.98	458.48	458.48
11.583	465.51	462.95	462.95
11.667	470.15	467.53	467.53
11.750	474.93	472.23	472.23
11.833	479.83	477.06	477.06
11.917	484.88	482.03	482.03
12.000	490.06	487.13	487.13
12.083	494.95	492.19	492.19
12.167	498.00	496.28	496.28
12.250	495.85	497.06	497.06
12.333	488.47	492.64	492.64
12.417	480.79	485.13	485.13
12.500	475.63	478.55	478.55
12.583	472.94	474.46	474.46
12.667	472.14	472.59	472.59
12.750	472.75	472.40	472.40
12.833	474.42	473.48	473.48
12.917	476.97	475.53	475.53
13.000	480.32	478.43	478.43
13.083	484.40	482.10	482.10
13.167	489.13	486.46	486.46
13.250	494.47	491.45	491.45
13.333	500.43	497.06	497.06
13.417	506.99	503.28	503.28
13.500	514.16	510.11	510.11
13.583	521.95	517.55	517.55
13.667	530.37	525.61	525.61
13.750	539.43	534.31	534.31
13.833	549.10	543.63	543.63
13.917	559.40	553.58	553.58
14.000	570.39	564.18	564.18
14.083	582.25	575.55	575.55
14.167	595.38	587.96	587.96
14.250	610.58	601.99	601.99
14.333	626.93	617.69	617.69
14.417	642.31	633.62	633.62
14.500	657.34	648.85	648.85
14.583	673.91	664.54	664.54
14.667	692.79	682.12	682.12
14.750	713.95	701.99	701.99
14.833	737.26	724.08	724.08
14.917	762.68	748.31	748.31
15.000	790.30	774.69	774.69
15.083	820.36	803.37	803.37
15.167	853.20	834.64	834.64
15.250	889.32	868.90	868.90
15.333	929.33	906.71	906.71
15.417	972.90	948.27	948.27
15.500	1017.17	992.15	992.15
15.583	1055.11	1033.66	1033.66
15.667	1088.54	1069.64	1069.64
15.750	1132.97	1107.86	1107.86
15.833	1201.56	1162.79	1162.79
15.917	1315.01	1250.89	1250.89
16.000	1498.04	1394.59	1394.59

16.083	1859.24	1655.09	1655.09
16.167	2586.37	2175.39	2175.39
16.250	3884.47	3150.76	3150.76
16.333	4957.95	4351.20	4351.20
16.417	4976.59	4966.05	4966.05
16.500	4576.71	4802.73	4802.73
16.583	4258.90	4438.53	4438.53
16.667	3992.58	4143.11	4143.11
16.750	3723.43	3875.56	3875.56
16.833	3444.77	3602.27	3602.27
16.917	3155.85	3319.15	3319.15
17.000	2879.75	3035.81	3035.81
17.083	2654.23	2781.70	2781.70
17.167	2466.65	2572.67	2572.67
17.250	2294.61	2391.85	2391.85
17.333	2133.24	2224.45	2224.45
17.417	1983.00	2067.92	2067.92
17.500	1844.12	1922.62	1922.62
17.583	1712.60	1786.94	1786.94
17.667	1593.79	1660.94	1660.94
17.750	1485.80	1546.84	1546.84
17.833	1394.58	1446.14	1446.14
17.917	1316.88	1360.80	1360.80
18.000	1242.61	1284.59	1284.59
18.083	1168.73	1210.49	1210.49
18.167	1094.89	1136.62	1136.62
18.250	1018.55	1061.70	1061.70
18.333	941.24	984.94	984.94
18.417	878.40	913.92	913.92
18.500	827.59	856.31	856.31
18.583	782.92	808.17	808.17
18.667	743.52	765.79	765.79
18.750	708.83	728.43	728.43
18.833	676.62	694.82	694.82
18.917	643.26	662.12	662.12
19.000	610.62	629.07	629.07
19.083	584.49	599.26	599.26
19.167	565.66	576.30	576.30
19.250	551.00	559.29	559.29
19.333	538.29	545.47	545.47
19.417	526.60	533.21	533.21
19.500	515.58	521.81	521.81
19.583	505.06	511.00	511.00
19.667	494.98	500.67	500.67
19.750	485.32	490.78	490.78
19.833	476.08	481.30	481.30
19.917	467.27	472.25	472.25
20.000	458.82	463.59	463.59
20.083	450.70	455.29	455.29
20.167	442.85	447.29	447.29
20.250	435.27	439.56	439.56
20.333	427.92	432.08	432.08
20.417	420.82	424.83	424.83
20.500	413.99	417.85	417.85
20.583	407.41	411.13	411.13
20.667	401.07	404.65	404.65
20.750	394.95	398.41	398.41

20.833	389.05	392.39	392.39
20.917	383.36	386.58	386.58
21.000	377.86	380.97	380.97
21.083	372.55	375.55	375.55
21.167	367.41	370.31	370.31
21.250	362.45	365.26	365.26
21.333	357.65	360.36	360.36
21.417	353.00	355.63	355.63
21.500	348.50	351.04	351.04
21.583	344.14	346.60	346.60
21.667	339.91	342.30	342.30
21.750	335.81	338.13	338.13
21.833	331.83	334.08	334.08
21.917	327.97	330.15	330.15
22.000	324.22	326.34	326.34
22.083	320.58	322.64	322.64
22.167	317.05	319.05	319.05
22.250	313.65	315.57	315.57
22.333	310.41	312.24	312.24
22.417	307.30	309.06	309.06
22.500	304.27	305.98	305.98
22.583	301.31	302.98	302.98
22.667	298.42	300.05	300.05
22.750	295.59	297.19	297.19
22.833	292.84	294.40	294.40
22.917	290.15	291.67	291.67
23.000	287.28	288.90	288.90
23.083	284.15	285.92	285.92
23.167	281.22	282.88	282.88
23.250	278.69	280.12	280.12
23.333	276.31	277.66	277.66
23.417	273.99	275.30	275.30
23.500	271.71	273.00	273.00
23.583	269.48	270.74	270.74
23.667	267.30	268.54	268.54
23.750	265.17	266.37	266.37
23.833	263.07	264.26	264.26
23.917	261.02	262.18	262.18
24.000	259.01	260.15	260.15
24.083	255.71	257.58	257.58
24.167	246.55	251.73	251.73
24.250	222.66	236.16	236.16
24.333	187.53	207.39	207.39
24.417	156.76	174.15	174.15
24.500	134.42	147.05	147.05
24.583	116.45	126.61	126.61
24.667	101.01	109.74	109.74
24.750	87.89	95.31	95.31
24.833	76.71	83.03	83.03
24.917	67.18	72.57	72.57
25.000	59.14	63.69	63.69
25.083	52.27	56.15	56.15
25.167	46.35	49.70	49.70
25.250	41.27	44.14	44.14
25.333	36.90	39.37	39.37
25.417	33.14	35.26	35.26
25.500	29.93	31.74	31.74

25.583	27.21	28.75	28.75
25.667	24.86	26.19	26.19
25.750	22.78	23.96	23.96
25.833	20.89	21.96	21.96
25.917	19.13	20.12	20.12
26.000	17.57	18.45	18.45
26.083	16.27	17.01	17.01
26.167	15.17	15.80	15.80
26.250	14.22	14.76	14.76
26.333	13.46	13.89	13.89
26.417	12.80	13.17	13.17
26.500	12.20	12.54	12.54
26.583	11.64	11.96	11.96
26.667	11.12	11.42	11.42
26.750	10.64	10.91	10.91
26.833	10.18	10.44	10.44
26.917	9.74	9.99	9.99
27.000	9.33	9.57	9.57
27.083	8.94	9.16	9.16
27.167	8.57	8.78	8.78
27.250	8.22	8.42	8.42
27.333	7.88	8.07	8.07
27.417	7.56	7.74	7.74
27.500	7.25	7.43	7.43
27.583	6.96	7.13	7.13
27.667	6.68	6.84	6.84
27.750	6.41	6.56	6.56
27.833	6.15	6.29	6.29
27.917	5.90	6.04	6.04
28.000	5.66	5.80	5.80
28.083	5.43	5.56	5.56
28.167	5.22	5.34	5.34
28.250	5.01	5.12	5.12
28.333	4.80	4.92	4.92
28.417	4.61	4.72	4.72
28.500	4.43	4.53	4.53
28.583	4.25	4.35	4.35
28.667	4.08	4.17	4.17
28.750	3.91	4.01	4.01
28.833	3.76	3.84	3.84
28.917	3.61	3.69	3.69
29.000	3.46	3.54	3.54
29.083	3.32	3.40	3.40
29.167	3.19	3.26	3.26
29.250	3.06	3.13	3.13
29.333	2.94	3.01	3.01
29.417	2.82	2.89	2.89
29.500	2.71	2.77	2.77
29.583	2.60	2.66	2.66
29.667	2.49	2.55	2.55
29.750	2.39	2.45	2.45
29.833	2.30	2.35	2.35
29.917	2.27	2.28	2.28
30.000	2.14	2.21	2.21
30.083	2.03	2.09	2.09
30.167	1.95	1.99	1.99
30.250	1.87	1.91	1.91

30.333	1.79	1.84	1.84
30.417	1.72	1.76	1.76
30.500	1.65	1.69	1.69
30.583	1.59	1.62	1.62
30.667	1.52	1.56	1.56
30.750	1.46	1.50	1.50
30.833	1.40	1.44	1.44
30.917	1.35	1.38	1.38
31.000	1.31	1.33	1.33
31.083	1.33	1.32	1.32
31.167	1.28	1.31	1.31
31.250	1.23	1.25	1.25
31.333	1.18	1.20	1.20
31.417	1.13	1.16	1.16
31.500	1.08	1.11	1.11
31.583	1.04	1.06	1.06
31.667	1.00	1.02	1.02
31.750	0.96	0.98	0.98
31.833	0.92	0.94	0.94
31.917	0.88	0.90	0.90
32.000	0.85	0.87	0.87
32.083	0.81	0.83	0.83
32.167	0.78	0.80	0.80
32.250	0.75	0.77	0.77
32.333	0.72	0.74	0.74
32.417	0.69	0.71	0.71
32.500	0.66	0.68	0.68
32.583	0.64	0.65	0.65
32.667	0.61	0.63	0.63
32.750	0.59	0.60	0.60
32.833	0.56	0.58	0.58
32.917	0.54	0.55	0.55
33.000	0.52	0.53	0.53
33.083	0.50	0.51	0.51
33.167	0.48	0.49	0.49
33.250	0.46	0.47	0.47
33.333	0.44	0.45	0.45
33.417	0.42	0.43	0.43
33.500	0.41	0.41	0.41
33.583	0.39	0.40	0.40
33.667	0.37	0.38	0.38
33.750	0.36	0.37	0.37
33.833	0.34	0.35	0.35
33.917	0.33	0.34	0.34
34.000	0.32	0.32	0.32
34.083	0.30	0.31	0.31
34.167	0.29	0.30	0.30
34.250	0.28	0.29	0.29
34.333	0.27	0.28	0.28
34.417	0.26	0.26	0.26
34.500	0.25	0.25	0.25
34.583	0.24	0.24	0.24
34.667	0.23	0.23	0.23
34.750	0.22	0.22	0.22
34.833	0.21	0.22	0.22
34.917	0.20	0.21	0.21
35.000	0.19	0.20	0.20

```
          35.083          0.19          0.19          0.19
          35.167          0.18          0.18          0.18
          35.250          0.17          0.18          0.18
          35.333          0.16          0.17          0.17
          35.417          0.16          0.16          0.16
          35.500          0.15          0.16          0.16
          35.583          0.15          0.15          0.15
          35.667          0.14          0.14          0.14
          35.750          0.13          0.14          0.14
          35.833          0.13          0.13          0.13
          35.917          0.12          0.13          0.13
          36.000          0.12          0.12          0.12
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    1225.776 AF
    OUTFLOW VOLUME =    1225.777 AF
    LOSS    VOLUME =       0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE     106.00 TO NODE     107.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #3)

         WATERSHED AREA =      635.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.282 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.103
         LOW LOSS FRACTION = 0.101
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.999
          24-HOUR FACTOR = 0.999

         UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  29.551
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RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.722	132.226
2	9.114	567.671
3	29.690	1580.192
4	51.446	1670.738
5	63.648	937.017
6	71.355	591.849
7	76.927	427.924
8	81.102	320.673
9	84.376	251.391
10	87.137	211.994
11	89.310	166.937
12	91.028	131.907
13	92.525	114.955
14	93.821	99.575
15	94.869	80.414
16	95.803	71.745
17	96.577	59.421
18	97.209	48.534
19	97.723	39.479
20	98.063	26.100
21	98.372	23.785
22	98.724	27.033
23	99.079	27.226
24	99.431	27.033
25	99.783	27.033
26	100.000	16.681

NODES 106 & 107 SUBAREA HYDROGRAPH

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0044
2	0.0049	0.0005	0.0044
3	0.0049	0.0005	0.0044
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0044
6	0.0049	0.0005	0.0044
7	0.0050	0.0005	0.0045
8	0.0050	0.0005	0.0045
9	0.0050	0.0005	0.0045
10	0.0050	0.0005	0.0045
11	0.0050	0.0005	0.0045
12	0.0050	0.0005	0.0045
13	0.0051	0.0005	0.0045
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0046
18	0.0051	0.0005	0.0046
19	0.0052	0.0005	0.0046
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0047
24	0.0052	0.0005	0.0047
25	0.0053	0.0005	0.0047
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0048
30	0.0054	0.0005	0.0048
31	0.0054	0.0005	0.0048
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0054	0.0006	0.0049
35	0.0055	0.0006	0.0049
36	0.0055	0.0006	0.0049
37	0.0055	0.0006	0.0050
38	0.0055	0.0006	0.0050
39	0.0056	0.0006	0.0050
40	0.0056	0.0006	0.0050
41	0.0056	0.0006	0.0050
42	0.0056	0.0006	0.0051
43	0.0057	0.0006	0.0051
44	0.0057	0.0006	0.0051
45	0.0057	0.0006	0.0051
46	0.0057	0.0006	0.0051
47	0.0057	0.0006	0.0052
48	0.0058	0.0006	0.0052
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0052
51	0.0058	0.0006	0.0053

52	0.0059	0.0006	0.0053
53	0.0059	0.0006	0.0053
54	0.0059	0.0006	0.0053
55	0.0059	0.0006	0.0053
56	0.0060	0.0006	0.0054
57	0.0060	0.0006	0.0054
58	0.0060	0.0006	0.0054
59	0.0061	0.0006	0.0054
60	0.0061	0.0006	0.0055
61	0.0061	0.0006	0.0055
62	0.0061	0.0006	0.0055
63	0.0062	0.0006	0.0055
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0056
66	0.0063	0.0006	0.0056
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0057
70	0.0064	0.0006	0.0057
71	0.0064	0.0006	0.0058
72	0.0064	0.0007	0.0058
73	0.0065	0.0007	0.0058
74	0.0065	0.0007	0.0058
75	0.0065	0.0007	0.0059
76	0.0066	0.0007	0.0059
77	0.0066	0.0007	0.0059
78	0.0066	0.0007	0.0060
79	0.0067	0.0007	0.0060
80	0.0067	0.0007	0.0060
81	0.0068	0.0007	0.0061
82	0.0068	0.0007	0.0061
83	0.0068	0.0007	0.0061
84	0.0069	0.0007	0.0062
85	0.0069	0.0007	0.0062
86	0.0069	0.0007	0.0062
87	0.0070	0.0007	0.0063
88	0.0070	0.0007	0.0063
89	0.0071	0.0007	0.0064
90	0.0071	0.0007	0.0064
91	0.0072	0.0007	0.0064
92	0.0072	0.0007	0.0065
93	0.0072	0.0007	0.0065
94	0.0073	0.0007	0.0065
95	0.0073	0.0007	0.0066
96	0.0074	0.0007	0.0066
97	0.0074	0.0008	0.0067
98	0.0075	0.0008	0.0067
99	0.0075	0.0008	0.0068
100	0.0076	0.0008	0.0068
101	0.0076	0.0008	0.0069
102	0.0077	0.0008	0.0069
103	0.0077	0.0008	0.0070
104	0.0078	0.0008	0.0070
105	0.0078	0.0008	0.0070
106	0.0079	0.0008	0.0071
107	0.0080	0.0008	0.0071
108	0.0080	0.0008	0.0072

109	0.0081	0.0008	0.0073
110	0.0081	0.0008	0.0073
111	0.0082	0.0008	0.0074
112	0.0082	0.0008	0.0074
113	0.0083	0.0008	0.0075
114	0.0084	0.0008	0.0075
115	0.0084	0.0009	0.0076
116	0.0085	0.0009	0.0076
117	0.0086	0.0009	0.0077
118	0.0086	0.0009	0.0078
119	0.0087	0.0009	0.0078
120	0.0088	0.0009	0.0079
121	0.0089	0.0009	0.0080
122	0.0089	0.0009	0.0080
123	0.0090	0.0009	0.0081
124	0.0091	0.0009	0.0082
125	0.0092	0.0009	0.0083
126	0.0092	0.0009	0.0083
127	0.0094	0.0009	0.0084
128	0.0094	0.0010	0.0085
129	0.0095	0.0010	0.0086
130	0.0096	0.0010	0.0086
131	0.0097	0.0010	0.0087
132	0.0098	0.0010	0.0088
133	0.0099	0.0010	0.0089
134	0.0100	0.0010	0.0090
135	0.0101	0.0010	0.0091
136	0.0102	0.0010	0.0092
137	0.0103	0.0010	0.0093
138	0.0104	0.0011	0.0094
139	0.0106	0.0011	0.0095
140	0.0107	0.0011	0.0096
141	0.0108	0.0011	0.0097
142	0.0109	0.0011	0.0098
143	0.0111	0.0011	0.0100
144	0.0112	0.0011	0.0101
145	0.0090	0.0009	0.0081
146	0.0091	0.0009	0.0082
147	0.0093	0.0009	0.0083
148	0.0094	0.0009	0.0084
149	0.0096	0.0010	0.0086
150	0.0097	0.0010	0.0087
151	0.0099	0.0010	0.0089
152	0.0100	0.0010	0.0090
153	0.0102	0.0010	0.0092
154	0.0104	0.0010	0.0093
155	0.0106	0.0011	0.0095
156	0.0107	0.0011	0.0097
157	0.0110	0.0011	0.0099
158	0.0112	0.0011	0.0100
159	0.0115	0.0012	0.0103
160	0.0116	0.0012	0.0104
161	0.0120	0.0012	0.0108
162	0.0121	0.0012	0.0109
163	0.0125	0.0013	0.0112
164	0.0127	0.0013	0.0114
165	0.0131	0.0013	0.0118

166	0.0134	0.0013	0.0120
167	0.0138	0.0014	0.0124
168	0.0141	0.0014	0.0127
169	0.0151	0.0015	0.0136
170	0.0154	0.0016	0.0139
171	0.0161	0.0016	0.0145
172	0.0164	0.0017	0.0148
173	0.0172	0.0017	0.0154
174	0.0176	0.0018	0.0158
175	0.0185	0.0019	0.0166
176	0.0190	0.0019	0.0171
177	0.0201	0.0020	0.0180
178	0.0207	0.0021	0.0186
179	0.0220	0.0022	0.0198
180	0.0228	0.0023	0.0205
181	0.0245	0.0025	0.0220
182	0.0255	0.0026	0.0229
183	0.0279	0.0028	0.0251
184	0.0293	0.0030	0.0263
185	0.0251	0.0025	0.0226
186	0.0269	0.0027	0.0242
187	0.0316	0.0032	0.0284
188	0.0347	0.0035	0.0312
189	0.0539	0.0054	0.0485
190	0.0621	0.0063	0.0559
191	0.0941	0.0086	0.0855
192	0.1367	0.0086	0.1281
193	0.5874	0.0086	0.5788
194	0.0741	0.0075	0.0666
195	0.0387	0.0039	0.0348
196	0.0290	0.0029	0.0261
197	0.0308	0.0031	0.0277
198	0.0266	0.0027	0.0239
199	0.0236	0.0024	0.0212
200	0.0213	0.0022	0.0192
201	0.0195	0.0020	0.0175
202	0.0180	0.0018	0.0162
203	0.0168	0.0017	0.0151
204	0.0158	0.0016	0.0142
205	0.0144	0.0014	0.0129
206	0.0136	0.0014	0.0122
207	0.0129	0.0013	0.0116
208	0.0123	0.0012	0.0111
209	0.0118	0.0012	0.0106
210	0.0113	0.0011	0.0102
211	0.0109	0.0011	0.0098
212	0.0105	0.0011	0.0094
213	0.0101	0.0010	0.0091
214	0.0098	0.0010	0.0088
215	0.0095	0.0010	0.0085
216	0.0092	0.0009	0.0083
217	0.0113	0.0011	0.0101
218	0.0110	0.0011	0.0099
219	0.0107	0.0011	0.0097
220	0.0105	0.0011	0.0094
221	0.0103	0.0010	0.0092
222	0.0101	0.0010	0.0090

223	0.0099	0.0010	0.0089
224	0.0097	0.0010	0.0087
225	0.0095	0.0010	0.0085
226	0.0093	0.0009	0.0084
227	0.0091	0.0009	0.0082
228	0.0090	0.0009	0.0081
229	0.0088	0.0009	0.0079
230	0.0087	0.0009	0.0078
231	0.0085	0.0009	0.0077
232	0.0084	0.0008	0.0075
233	0.0083	0.0008	0.0074
234	0.0081	0.0008	0.0073
235	0.0080	0.0008	0.0072
236	0.0079	0.0008	0.0071
237	0.0078	0.0008	0.0070
238	0.0077	0.0008	0.0069
239	0.0076	0.0008	0.0068
240	0.0075	0.0008	0.0067
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0066
243	0.0072	0.0007	0.0065
244	0.0071	0.0007	0.0064
245	0.0070	0.0007	0.0063
246	0.0070	0.0007	0.0063
247	0.0069	0.0007	0.0062
248	0.0068	0.0007	0.0061
249	0.0067	0.0007	0.0061
250	0.0067	0.0007	0.0060
251	0.0066	0.0007	0.0059
252	0.0065	0.0007	0.0059
253	0.0065	0.0007	0.0058
254	0.0064	0.0006	0.0057
255	0.0063	0.0006	0.0057
256	0.0063	0.0006	0.0056
257	0.0062	0.0006	0.0056
258	0.0062	0.0006	0.0055
259	0.0061	0.0006	0.0055
260	0.0060	0.0006	0.0054
261	0.0060	0.0006	0.0054
262	0.0059	0.0006	0.0053
263	0.0059	0.0006	0.0053
264	0.0058	0.0006	0.0052
265	0.0058	0.0006	0.0052
266	0.0057	0.0006	0.0052
267	0.0057	0.0006	0.0051
268	0.0056	0.0006	0.0051
269	0.0056	0.0006	0.0050
270	0.0055	0.0006	0.0050
271	0.0055	0.0006	0.0049
272	0.0055	0.0006	0.0049
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0048
275	0.0053	0.0005	0.0048
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0047
278	0.0052	0.0005	0.0047
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0046
281	0.0051	0.0005	0.0046
282	0.0051	0.0005	0.0046
283	0.0050	0.0005	0.0045
284	0.0050	0.0005	0.0045
285	0.0050	0.0005	0.0045
286	0.0049	0.0005	0.0044
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.31
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.29

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.2110
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 174.0085

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	350.0	700.0	1050.0	1400.0
0.083	0.0040	0.58	Q	.	.	.	.
0.167	0.0250	3.06	Q	.	.	.	.
0.250	0.0937	9.97	Q	.	.	.	.
0.333	0.2129	17.30	Q	.	.	.	.
0.417	0.3606	21.45	Q	.	.	.	.
0.500	0.5265	24.10	Q	.	.	.	.
0.583	0.7059	26.05	Q	.	.	.	.
0.667	0.8955	27.53	Q	.	.	.	.
0.750	1.0933	28.72	Q	.	.	.	.
0.833	1.2981	29.74	Q	.	.	.	.
0.917	1.5086	30.57	Q	.	.	.	.
1.000	1.7238	31.24	Q	.	.	.	.
1.083	1.9431	31.85	Q	.	.	.	.
1.167	2.1662	32.39	Q	.	.	.	.
1.250	2.3925	32.85	Q	.	.	.	.
1.333	2.6216	33.27	Q	.	.	.	.
1.417	2.8533	33.65	Q	.	.	.	.
1.500	3.0873	33.97	Q	.	.	.	.
1.583	3.3233	34.26	Q	.	.	.	.
1.667	3.5608	34.49	Q	.	.	.	.
1.750	3.7999	34.72	Q	.	.	.	.
1.833	4.0407	34.96	Q	.	.	.	.
1.917	4.2831	35.20	VQ	.	.	.	.
2.000	4.5271	35.44	.Q	.	.	.	.
2.083	4.7729	35.68	.Q	.	.	.	.
2.167	5.0200	35.88	.Q	.	.	.	.
2.250	5.2680	36.01	.Q	.	.	.	.
2.333	5.5169	36.14	.Q	.	.	.	.
2.417	5.7667	36.27	.Q	.	.	.	.
2.500	6.0174	36.40	.Q	.	.	.	.
2.583	6.2690	36.54	.Q	.	.	.	.
2.667	6.5216	36.67	.Q	.	.	.	.
2.750	6.7751	36.81	.Q	.	.	.	.
2.833	7.0295	36.94	.Q	.	.	.	.
2.917	7.2849	37.08	.Q	.	.	.	.
3.000	7.5412	37.22	.Q	.	.	.	.
3.083	7.7986	37.36	.Q	.	.	.	.
3.167	8.0569	37.51	.Q	.	.	.	.
3.250	8.3162	37.65	.Q	.	.	.	.
3.333	8.5765	37.80	.Q	.	.	.	.
3.417	8.8378	37.94	.QV	.	.	.	.
3.500	9.1002	38.09	.QV	.	.	.	.
3.583	9.3635	38.24	.QV	.	.	.	.
3.667	9.6280	38.39	.QV	.	.	.	.
3.750	9.8935	38.55	.QV	.	.	.	.

3.833	10.1600	38.70	.QV	.	.	.	.
3.917	10.4277	38.86	.QV	.	.	.	.
4.000	10.6964	39.02	.QV	.	.	.	.
4.083	10.9662	39.18	.QV	.	.	.	.
4.167	11.2372	39.34	.QV	.	.	.	.
4.250	11.5092	39.51	.QV	.	.	.	.
4.333	11.7824	39.67	.QV	.	.	.	.
4.417	12.0568	39.84	.QV	.	.	.	.
4.500	12.3323	40.01	.QV	.	.	.	.
4.583	12.6090	40.18	.QV	.	.	.	.
4.667	12.8870	40.35	.QV	.	.	.	.
4.750	13.1661	40.53	.Q V	.	.	.	.
4.833	13.4464	40.70	.Q V	.	.	.	.
4.917	13.7280	40.88	.Q V	.	.	.	.
5.000	14.0108	41.06	.Q V	.	.	.	.
5.083	14.2949	41.25	.Q V	.	.	.	.
5.167	14.5802	41.43	.Q V	.	.	.	.
5.250	14.8669	41.62	.Q V	.	.	.	.
5.333	15.1548	41.81	.Q V	.	.	.	.
5.417	15.4441	42.00	.Q V	.	.	.	.
5.500	15.7347	42.20	.Q V	.	.	.	.
5.583	16.0267	42.40	.Q V	.	.	.	.
5.667	16.3201	42.60	.Q V	.	.	.	.
5.750	16.6148	42.80	.Q V	.	.	.	.
5.833	16.9110	43.00	.Q V	.	.	.	.
5.917	17.2086	43.21	.Q V	.	.	.	.
6.000	17.5076	43.42	.Q V	.	.	.	.
6.083	17.8081	43.63	.Q V	.	.	.	.
6.167	18.1101	43.85	.Q V	.	.	.	.
6.250	18.4135	44.07	.Q V	.	.	.	.
6.333	18.7185	44.29	.Q V	.	.	.	.
6.417	19.0251	44.51	.Q V	.	.	.	.
6.500	19.3332	44.74	.Q V	.	.	.	.
6.583	19.6429	44.97	.Q V	.	.	.	.
6.667	19.9542	45.20	.Q V	.	.	.	.
6.750	20.2671	45.44	.Q V	.	.	.	.
6.833	20.5817	45.68	.Q V	.	.	.	.
6.917	20.8980	45.92	.Q V	.	.	.	.
7.000	21.2159	46.17	.Q V	.	.	.	.
7.083	21.5356	46.42	.Q V	.	.	.	.
7.167	21.8570	46.67	.Q V	.	.	.	.
7.250	22.1802	46.93	.Q V	.	.	.	.
7.333	22.5052	47.19	.Q V	.	.	.	.
7.417	22.8321	47.46	.Q V	.	.	.	.
7.500	23.1607	47.72	.Q V	.	.	.	.
7.583	23.4913	48.00	.Q V	.	.	.	.
7.667	23.8238	48.27	.Q V	.	.	.	.
7.750	24.1582	48.56	.Q V	.	.	.	.
7.833	24.4945	48.84	.Q V	.	.	.	.
7.917	24.8329	49.13	.Q V	.	.	.	.
8.000	25.1733	49.43	.Q V	.	.	.	.
8.083	25.5158	49.73	.Q V	.	.	.	.
8.167	25.8604	50.03	.Q V	.	.	.	.
8.250	26.2071	50.34	.Q V	.	.	.	.
8.333	26.5560	50.66	.Q V	.	.	.	.
8.417	26.9070	50.98	.Q V	.	.	.	.
8.500	27.2603	51.30	.Q V	.	.	.	.

8.583	27.6159	51.63	.Q	V	.	.	.	.
8.667	27.9739	51.97	.Q	V	.	.	.	.
8.750	28.3341	52.31	.Q	V	.	.	.	.
8.833	28.6968	52.66	.Q	V	.	.	.	.
8.917	29.0619	53.02	.Q	V	.	.	.	.
9.000	29.4295	53.38	.Q	V	.	.	.	.
9.083	29.7997	53.74	.Q	V	.	.	.	.
9.167	30.1724	54.12	.Q	V	.	.	.	.
9.250	30.5477	54.50	.Q	V	.	.	.	.
9.333	30.9258	54.89	.Q	V	.	.	.	.
9.417	31.3065	55.28	.Q	V	.	.	.	.
9.500	31.6900	55.69	.Q	V	.	.	.	.
9.583	32.0764	56.10	.Q	V	.	.	.	.
9.667	32.4656	56.52	.Q	V	.	.	.	.
9.750	32.8578	56.95	.Q	V	.	.	.	.
9.833	33.2530	57.38	.Q	V	.	.	.	.
9.917	33.6513	57.83	.Q	V	.	.	.	.
10.000	34.0527	58.28	.Q	V	.	.	.	.
10.083	34.4573	58.75	.Q	V	.	.	.	.
10.167	34.8652	59.22	.Q	V	.	.	.	.
10.250	35.2764	59.71	.Q	V	.	.	.	.
10.333	35.6911	60.20	.Q	V	.	.	.	.
10.417	36.1092	60.71	.Q	V	.	.	.	.
10.500	36.5308	61.23	.Q	V	.	.	.	.
10.583	36.9562	61.76	.Q	V	.	.	.	.
10.667	37.3852	62.30	.Q	V	.	.	.	.
10.750	37.8181	62.86	.Q	V	.	.	.	.
10.833	38.2549	63.42	.Q	V	.	.	.	.
10.917	38.6957	64.00	.Q	V	.	.	.	.
11.000	39.1406	64.60	.Q	V	.	.	.	.
11.083	39.5897	65.21	.Q	V.	.	.	.	.
11.167	40.0431	65.84	.Q	V.	.	.	.	.
11.250	40.5010	66.48	.Q	V.	.	.	.	.
11.333	40.9634	67.14	.Q	V.	.	.	.	.
11.417	41.4304	67.82	.Q	V.	.	.	.	.
11.500	41.9023	68.51	.Q	V.	.	.	.	.
11.583	42.3790	69.23	.Q	V.	.	.	.	.
11.667	42.8609	69.96	.Q	V.	.	.	.	.
11.750	43.3479	70.72	. Q	V.	.	.	.	.
11.833	43.8403	71.49	. Q	V	.	.	.	.
11.917	44.3382	72.30	. Q	V	.	.	.	.
12.000	44.8418	73.12	. Q	V	.	.	.	.
12.083	45.3493	73.69	. Q	V	.	.	.	.
12.167	45.8545	73.36	. Q	V	.	.	.	.
12.250	46.3427	70.89	. Q	V	.	.	.	.
12.333	46.8127	68.24	.Q	V	.	.	.	.
12.417	47.2753	67.17	.Q	V	.	.	.	.
12.500	47.7356	66.84	.Q	V	.	.	.	.
12.583	48.1963	66.89	.Q	.V	.	.	.	.
12.667	48.6590	67.19	.Q	.V	.	.	.	.
12.750	49.1251	67.68	.Q	.V	.	.	.	.
12.833	49.5953	68.28	.Q	.V	.	.	.	.
12.917	50.0707	69.02	.Q	.V	.	.	.	.
13.000	50.5519	69.87	.Q	.V	.	.	.	.
13.083	51.0396	70.81	. Q	.V	.	.	.	.
13.167	51.5343	71.83	. Q	.V	.	.	.	.
13.250	52.0366	72.95	. Q	.V	.	.	.	.

13.333	52.5472	74.13	. Q . V . . .
13.417	53.0666	75.42	. Q . V . . .
13.500	53.5954	76.78	. Q . V . . .
13.583	54.1343	78.24	. Q . V . . .
13.667	54.6839	79.81	. Q . V . . .
13.750	55.2450	81.47	. Q . V . . .
13.833	55.8180	83.21	. Q . V . . .
13.917	56.4038	85.06	. Q . V . . .
14.000	57.0030	87.01	. Q . V . . .
14.083	57.6171	89.16	. Q . V . . .
14.167	58.2482	91.64	. Q . V . . .
14.250	58.9012	94.81	. Q . V . . .
14.333	59.5772	98.16	. Q . V . . .
14.417	60.2756	101.41	. Q . V . . .
14.500	60.9966	104.68	. Q . V . . .
14.583	61.7414	108.15	. Q . V . . .
14.667	62.5113	111.80	. Q . V . . .
14.750	63.3086	115.76	. Q . V . . .
14.833	64.1351	120.01	. Q . V . . .
14.917	64.9939	124.70	. Q . V . . .
15.000	65.8877	129.78	. Q . V . . .
15.083	66.8208	135.48	. Q . V . . .
15.167	67.7970	141.75	. Q . V . . .
15.250	68.8225	148.90	. Q . V . . .
15.333	69.9031	156.92	. Q . V . . .
15.417	71.0421	165.37	. Q . V . . .
15.500	72.2284	172.25	. Q . V . . .
15.583	73.4287	174.29	. Q . V . . .
15.667	74.6522	177.65	. Q . V . . .
15.750	75.9642	190.51	. Q . V . . .
15.833	77.4416	214.52	. Q . V . . .
15.917	79.2315	259.89	. Q . V . . .
16.000	81.4979	329.08	. Q. V . . .
16.083	84.8904	492.59	. . Q V. . .
16.167	90.5235	817.93	. . . V Q . .
16.250	99.8103	1348.44	. . . . V . . Q .
16.333	109.0470	1341.17	. . . . V . . Q .
16.417	115.2387	899.03	. . . . QV . . .
16.500	119.7426	653.96	. . . Q . V . . .
16.583	123.3662	526.15	. . Q . V . . .
16.667	126.4031	440.95	. . Q . V. . .
16.750	129.0100	378.53	. . Q . V. . .
16.833	131.3115	334.18	. . Q. . V . .
16.917	133.3141	290.77	. . Q . . V . .
17.000	135.0757	255.79	. . Q . . .V . .
17.083	136.6742	232.11	. . Q . . .V . .
17.167	138.1266	210.89	. . Q . . .V . .
17.250	139.4282	188.99	. . Q . . . V . .
17.333	140.6206	173.13	. . Q . . . V . .
17.417	141.7020	157.02	. . Q . . . V . .
17.500	142.6853	142.77	. . Q . . . V . .
17.583	143.5838	130.47	. . Q . . . . V .
17.667	144.3942	117.67	. . Q . . . . V .
17.750	145.1624	111.53	. . Q . . . . V .
17.833	145.9109	108.69	. . Q . . . . V .
17.917	146.6302	104.44	. Q . . . . V .
18.000	147.3176	99.80	. Q . . . . V .

18.083	147.9711	94.88	. Q	.	.	.	V	.
18.167	148.5618	85.78	. Q	.	.	.	V	.
18.250	149.0908	76.81	. Q	.	.	.	V	.
18.333	149.6213	77.03	. Q	.	.	.	V	.
18.417	150.1477	76.44	. Q	.	.	.	V	.
18.500	150.6667	75.35	. Q	.	.	.	V	.
18.583	151.1767	74.04	. Q	.	.	.	V	.
18.667	151.6773	72.70	. Q	.	.	.	V	.
18.750	152.1688	71.36	. Q	.	.	.	V	.
18.833	152.6513	70.07	. Q	.	.	.	V	.
18.917	153.1251	68.79	.Q	.	.	.	V	.
19.000	153.5902	67.54	.Q	.	.	.	V	.
19.083	154.0471	66.34	.Q	.	.	.	V	.
19.167	154.4961	65.19	.Q	.	.	.	V	.
19.250	154.9375	64.09	.Q	.	.	.	V	.
19.333	155.3716	63.03	.Q	.	.	.	V	.
19.417	155.7985	62.00	.Q	.	.	.	V	.
19.500	156.2187	61.00	.Q	.	.	.	V	.
19.583	156.6322	60.04	.Q	.	.	.	V	.
19.667	157.0391	59.09	.Q	.	.	.	V	.
19.750	157.4398	58.19	.Q	.	.	.	V	.
19.833	157.8347	57.33	.Q	.	.	.	V	.
19.917	158.2238	56.50	.Q	.	.	.	V	.
20.000	158.6075	55.72	.Q	.	.	.	V	.
20.083	158.9860	54.96	.Q	.	.	.	V	.
20.167	159.3594	54.21	.Q	.	.	.	V	.
20.250	159.7276	53.46	.Q	.	.	.	V	.
20.333	160.0907	52.73	.Q	.	.	.	V	.
20.417	160.4491	52.03	.Q	.	.	.	V	.
20.500	160.8028	51.36	.Q	.	.	.	V	.
20.583	161.1520	50.71	.Q	.	.	.	V	.
20.667	161.4969	50.07	.Q	.	.	.	V	.
20.750	161.8376	49.46	.Q	.	.	.	V	.
20.833	162.1741	48.87	.Q	.	.	.	V	.
20.917	162.5068	48.30	.Q	.	.	.	V	.
21.000	162.8356	47.75	.Q	.	.	.	V	.
21.083	163.1607	47.21	.Q	.	.	.	V	.
21.167	163.4823	46.68	.Q	.	.	.	V	.
21.250	163.8003	46.18	.Q	.	.	.	V	.
21.333	164.1149	45.69	.Q	.	.	.	V	.
21.417	164.4263	45.21	.Q	.	.	.	V	.
21.500	164.7344	44.74	.Q	.	.	.	V	.
21.583	165.0394	44.29	.Q	.	.	.	V	.
21.667	165.3413	43.84	.Q	.	.	.	V	.
21.750	165.6403	43.42	.Q	.	.	.	V	.
21.833	165.9364	43.00	.Q	.	.	.	V	.
21.917	166.2298	42.59	.Q	.	.	.	V	.
22.000	166.5203	42.19	.Q	.	.	.	V	.
22.083	166.8082	41.80	.Q	.	.	.	V	.
22.167	167.0935	41.42	.Q	.	.	.	V	.
22.250	167.3762	41.05	.Q	.	.	.	V	.
22.333	167.6564	40.69	.Q	.	.	.	V	.
22.417	167.9343	40.34	.Q	.	.	.	V	.
22.500	168.2097	39.99	.Q	.	.	.	V	.
22.583	168.4828	39.66	.Q	.	.	.	V	.
22.667	168.7536	39.33	.Q	.	.	.	V	.
22.750	169.0223	39.00	.Q	.	.	.	V	.

22.833	169.2887	38.69	.Q	.	.	.	V .
22.917	169.5530	38.38	.Q	.	.	.	V .
23.000	169.8152	38.07	.Q	.	.	.	V.
23.083	170.0754	37.78	.Q	.	.	.	V.
23.167	170.3336	37.49	.Q	.	.	.	V.
23.250	170.5898	37.20	.Q	.	.	.	V.
23.333	170.8441	36.92	.Q	.	.	.	V.
23.417	171.0965	36.65	.Q	.	.	.	V.
23.500	171.3471	36.38	.Q	.	.	.	V.
23.583	171.5959	36.12	.Q	.	.	.	V.
23.667	171.8428	35.86	.Q	.	.	.	V.
23.750	172.0881	35.61	.Q	.	.	.	V.
23.833	172.3316	35.36	.Q	.	.	.	V.
23.917	172.5734	35.12	.Q	.	.	.	V.
24.000	172.8136	34.88	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

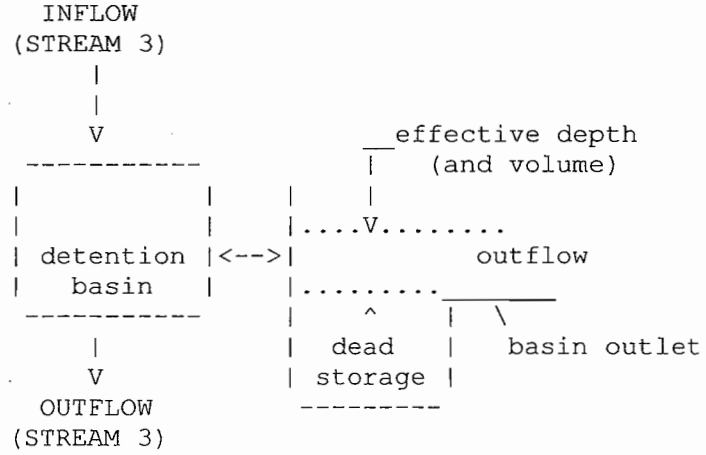
Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	150.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	20.0
70%	10.0
80%	10.0
90%	10.0

BASIN C-1 ROUTING

FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #3<<<<<

NODE 107



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 3
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 1.000
SPECIFIED DEAD STORAGE(AF) FILLED = 1.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	1.00	8.00	0.800
3	5.00	134.00	12.400
4	11.00	393.00	48.700

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.083	1.000	0.58	0.00	0.00	0.0	0.004
0.167	1.000	3.06	0.00	0.03	0.1	0.024
0.250	1.000	9.97	0.00	0.11	0.6	0.089
0.333	1.000	17.30	0.00	0.25	1.4	0.198
0.417	1.000	21.45	0.00	0.41	2.6	0.328
0.500	1.000	24.10	0.00	0.58	4.0	0.466
0.583	1.000	26.05	0.00	0.76	5.4	0.609
0.667	1.000	27.53	0.00	0.94	6.8	0.751
0.750	1.000	28.72	0.00	1.03	8.3	0.892
0.833	1.000	29.74	0.00	1.08	9.8	1.030
0.917	1.000	30.57	0.00	1.13	11.2	1.163
1.000	1.000	31.24	0.00	1.17	12.6	1.291
1.083	1.000	31.85	0.00	1.21	14.0	1.414
1.167	1.000	32.39	0.00	1.25	15.3	1.532
1.250	1.000	32.85	0.00	1.29	16.6	1.644
1.333	1.000	33.27	0.00	1.33	17.7	1.751
1.417	1.000	33.65	0.00	1.36	18.9	1.853
1.500	1.000	33.97	0.00	1.40	20.0	1.949
1.583	1.000	34.26	0.00	1.43	21.0	2.041
1.667	1.000	34.49	0.00	1.46	21.9	2.127
1.750	1.000	34.72	0.00	1.49	22.9	2.209
1.833	1.000	34.96	0.00	1.51	23.7	2.286
1.917	1.000	35.20	0.00	1.54	24.5	2.359
2.000	1.000	35.44	0.00	1.56	25.3	2.429
2.083	1.000	35.68	0.00	1.58	26.1	2.495
2.167	1.000	35.88	0.00	1.61	26.8	2.558
2.250	1.000	36.01	0.00	1.63	27.4	2.617

2.333	1.000	36.14	0.00	1.65	28.0	2.673
2.417	1.000	36.27	0.00	1.66	28.6	2.726
2.500	1.000	36.40	0.00	1.68	29.2	2.776
2.583	1.000	36.54	0.00	1.70	29.7	2.822
2.667	1.000	36.67	0.00	1.71	30.2	2.867
2.750	1.000	36.81	0.00	1.73	30.7	2.909
2.833	1.000	36.94	0.00	1.74	31.1	2.949
2.917	1.000	37.08	0.00	1.75	31.6	2.987
3.000	1.000	37.22	0.00	1.77	32.0	3.024
3.083	1.000	37.36	0.00	1.78	32.3	3.058
3.167	1.000	37.51	0.00	1.79	32.7	3.091
3.250	1.000	37.65	0.00	1.80	33.1	3.123
3.333	1.000	37.80	0.00	1.81	33.4	3.153
3.417	1.000	37.94	0.00	1.82	33.7	3.182
3.500	1.000	38.09	0.00	1.83	34.0	3.210
3.583	1.000	38.24	0.00	1.84	34.3	3.237
3.667	1.000	38.39	0.00	1.85	34.6	3.263
3.750	1.000	38.55	0.00	1.86	34.9	3.288
3.833	1.000	38.70	0.00	1.87	35.2	3.313
3.917	1.000	38.86	0.00	1.87	35.4	3.337
4.000	1.000	39.02	0.00	1.88	35.7	3.360
4.083	1.000	39.18	0.00	1.89	35.9	3.382
4.167	1.000	39.34	0.00	1.90	36.2	3.404
4.250	1.000	39.51	0.00	1.91	36.4	3.425
4.333	1.000	39.67	0.00	1.91	36.6	3.446
4.417	1.000	39.84	0.00	1.92	36.9	3.467
4.500	1.000	40.01	0.00	1.93	37.1	3.487
4.583	1.000	40.18	0.00	1.93	37.3	3.507
4.667	1.000	40.35	0.00	1.94	37.5	3.526
4.750	1.000	40.53	0.00	1.95	37.7	3.546
4.833	1.000	40.70	0.00	1.95	37.9	3.565
4.917	1.000	40.88	0.00	1.96	38.1	3.584
5.000	1.000	41.06	0.00	1.97	38.3	3.603
5.083	1.000	41.25	0.00	1.97	38.5	3.621
5.167	1.000	41.43	0.00	1.98	38.7	3.640
5.250	1.000	41.62	0.00	1.99	38.9	3.658
5.333	1.000	41.81	0.00	1.99	39.1	3.676
5.417	1.000	42.00	0.00	2.00	39.3	3.695
5.500	1.000	42.20	0.00	2.00	39.5	3.713
5.583	1.000	42.40	0.00	2.01	39.7	3.731
5.667	1.000	42.60	0.00	2.02	39.9	3.750
5.750	1.000	42.80	0.00	2.02	40.1	3.768
5.833	1.000	43.00	0.00	2.03	40.3	3.786
5.917	1.000	43.21	0.00	2.04	40.5	3.805
6.000	1.000	43.42	0.00	2.04	40.7	3.823
6.083	1.000	43.63	0.00	2.05	40.9	3.842
6.167	1.000	43.85	0.00	2.06	41.1	3.860
6.250	1.000	44.07	0.00	2.06	41.3	3.879
6.333	1.000	44.29	0.00	2.07	41.5	3.898
6.417	1.000	44.51	0.00	2.07	41.8	3.917
6.500	1.000	44.74	0.00	2.08	42.0	3.936
6.583	1.000	44.97	0.00	2.09	42.2	3.955
6.667	1.000	45.20	0.00	2.09	42.4	3.975
6.750	1.000	45.44	0.00	2.10	42.6	3.994
6.833	1.000	45.68	0.00	2.11	42.8	4.014
6.917	1.000	45.92	0.00	2.12	43.0	4.034
7.000	1.000	46.17	0.00	2.12	43.2	4.054

7.083	1.000	46.42	0.00	2.13	43.5	4.075
7.167	1.000	46.67	0.00	2.14	43.7	4.095
7.250	1.000	46.93	0.00	2.14	43.9	4.116
7.333	1.000	47.19	0.00	2.15	44.1	4.137
7.417	1.000	47.46	0.00	2.16	44.4	4.158
7.500	1.000	47.72	0.00	2.17	44.6	4.180
7.583	1.000	48.00	0.00	2.17	44.8	4.202
7.667	1.000	48.27	0.00	2.18	45.1	4.224
7.750	1.000	48.56	0.00	2.19	45.3	4.246
7.833	1.000	48.84	0.00	2.20	45.6	4.269
7.917	1.000	49.13	0.00	2.20	45.8	4.292
8.000	1.000	49.43	0.00	2.21	46.1	4.315
8.083	1.000	49.73	0.00	2.22	46.3	4.339
8.167	1.000	50.03	0.00	2.23	46.6	4.362
8.250	1.000	50.34	0.00	2.24	46.8	4.387
8.333	1.000	50.66	0.00	2.25	47.1	4.411
8.417	1.000	50.98	0.00	2.25	47.4	4.436
8.500	1.000	51.30	0.00	2.26	47.6	4.461
8.583	1.000	51.63	0.00	2.27	47.9	4.487
8.667	1.000	51.97	0.00	2.28	48.2	4.513
8.750	1.000	52.31	0.00	2.29	48.5	4.539
8.833	1.000	52.66	0.00	2.30	48.8	4.566
8.917	1.000	53.02	0.00	2.31	49.1	4.594
9.000	1.000	53.38	0.00	2.32	49.4	4.621
9.083	1.000	53.74	0.00	2.33	49.7	4.649
9.167	1.000	54.12	0.00	2.34	50.0	4.678
9.250	1.000	54.50	0.00	2.35	50.3	4.707
9.333	1.000	54.89	0.00	2.36	50.6	4.737
9.417	1.000	55.28	0.00	2.37	50.9	4.767
9.500	1.000	55.69	0.00	2.38	51.3	4.797
9.583	1.000	56.10	0.00	2.39	51.6	4.828
9.667	1.000	56.52	0.00	2.40	51.9	4.860
9.750	1.000	56.95	0.00	2.41	52.3	4.892
9.833	1.000	57.38	0.00	2.42	52.6	4.925
9.917	1.000	57.83	0.00	2.43	53.0	4.958
10.000	1.000	58.28	0.00	2.45	53.4	4.992
10.083	1.000	58.75	0.00	2.46	53.7	5.027
10.167	1.000	59.22	0.00	2.47	54.1	5.062
10.250	1.000	59.71	0.00	2.48	54.5	5.098
10.333	1.000	60.20	0.00	2.49	54.9	5.135
10.417	1.000	60.71	0.00	2.51	55.3	5.172
10.500	1.000	61.23	0.00	2.52	55.7	5.210
10.583	1.000	61.76	0.00	2.53	56.1	5.249
10.667	1.000	62.30	0.00	2.55	56.5	5.289
10.750	1.000	62.86	0.00	2.56	57.0	5.329
10.833	1.000	63.42	0.00	2.58	57.4	5.370
10.917	1.000	64.00	0.00	2.59	57.9	5.413
11.000	1.000	64.60	0.00	2.61	58.3	5.456
11.083	1.000	65.21	0.00	2.62	58.8	5.500
11.167	1.000	65.84	0.00	2.64	59.3	5.545
11.250	1.000	66.48	0.00	2.65	59.8	5.591
11.333	1.000	67.14	0.00	2.67	60.3	5.638
11.417	1.000	67.82	0.00	2.68	60.8	5.686
11.500	1.000	68.51	0.00	2.70	61.3	5.736
11.583	1.000	69.23	0.00	2.72	61.9	5.786
11.667	1.000	69.96	0.00	2.74	62.4	5.838
11.750	1.000	70.72	0.00	2.76	63.0	5.891

11.833	1.000	71.49	0.00	2.77	63.6	5.945
11.917	1.000	72.30	0.00	2.79	64.2	6.001
12.000	1.000	73.12	0.00	2.81	64.8	6.059
12.083	1.000	73.69	0.00	2.83	65.4	6.115
12.167	1.000	73.36	0.00	2.85	66.0	6.166
12.250	1.000	70.89	0.00	2.86	66.5	6.197
12.333	1.000	68.24	0.00	2.86	66.7	6.207
12.417	1.000	67.17	0.00	2.87	66.8	6.210
12.500	1.000	66.84	0.00	2.87	66.8	6.211
12.583	1.000	66.89	0.00	2.87	66.8	6.212
12.667	1.000	67.19	0.00	2.87	66.8	6.214
12.750	1.000	67.68	0.00	2.87	66.8	6.220
12.833	1.000	68.28	0.00	2.87	66.9	6.229
12.917	1.000	69.02	0.00	2.88	67.0	6.243
13.000	1.000	69.87	0.00	2.88	67.2	6.261
13.083	1.000	70.81	0.00	2.89	67.4	6.284
13.167	1.000	71.83	0.00	2.90	67.7	6.313
13.250	1.000	72.95	0.00	2.91	68.1	6.346
13.333	1.000	74.13	0.00	2.93	68.5	6.385
13.417	1.000	75.42	0.00	2.94	68.9	6.430
13.500	1.000	76.78	0.00	2.96	69.4	6.481
13.583	1.000	78.24	0.00	2.98	70.0	6.537
13.667	1.000	79.81	0.00	3.00	70.7	6.600
13.750	1.000	81.47	0.00	3.02	71.4	6.670
13.833	1.000	83.21	0.00	3.05	72.2	6.746
13.917	1.000	85.06	0.00	3.08	73.0	6.829
14.000	1.000	87.01	0.00	3.11	74.0	6.918
14.083	1.000	89.16	0.00	3.14	75.0	7.016
14.167	1.000	91.64	0.00	3.18	76.1	7.123
14.250	1.000	94.81	0.00	3.22	77.3	7.243
14.333	1.000	98.16	0.00	3.27	78.7	7.377
14.417	1.000	101.41	0.00	3.32	80.2	7.523
14.500	1.000	104.68	0.00	3.37	81.9	7.680
14.583	1.000	108.15	0.00	3.43	83.6	7.849
14.667	1.000	111.80	0.00	3.49	85.5	8.030
14.750	1.000	115.76	0.00	3.56	87.6	8.224
14.833	1.000	120.01	0.00	3.63	89.8	8.432
14.917	1.000	124.70	0.00	3.71	92.1	8.656
15.000	1.000	129.78	0.00	3.79	94.7	8.898
15.083	1.000	135.48	0.00	3.88	97.4	9.161
15.167	1.000	141.75	0.00	3.98	100.4	9.446
15.250	1.000	148.90	0.00	4.09	103.6	9.758
15.333	1.000	156.92	0.00	4.21	107.2	10.100
15.417	1.000	165.37	0.00	4.34	111.1	10.474
15.500	1.000	172.25	0.00	4.47	115.2	10.867
15.583	1.000	174.29	0.00	4.60	119.4	11.245
15.667	1.000	177.65	0.00	4.73	123.5	11.618
15.750	1.000	190.51	0.00	4.88	127.9	12.050
15.833	1.000	214.52	0.00	5.04	132.9	12.612
15.917	1.000	259.89	0.00	5.17	138.5	13.448
16.000	1.000	329.08	0.00	5.38	146.0	14.709
16.083	1.000	492.59	0.00	5.76	158.7	17.009
16.167	1.000	817.93	0.00	6.49	182.5	21.385
16.250	1.000	1348.44	0.00	7.76	225.7	29.118
16.333	1.000	1341.17	0.00	8.97	279.4	36.430
16.417	1.000	899.03	0.00	9.63	319.7	40.420
16.500	1.000	653.96	0.00	9.99	341.6	42.572

16.583	1.000	526.15	0.00	10.18	353.5	43.761
16.667	1.000	440.95	0.00	10.28	359.8	44.320
16.750	1.000	378.53	0.00	10.29	362.1	44.432
16.833	1.000	334.18	0.00	10.26	361.9	44.242
16.917	1.000	290.77	0.00	10.18	359.5	43.768
17.000	1.000	255.79	0.00	10.07	355.4	43.083
17.083	1.000	232.11	0.00	9.94	350.0	42.271
17.167	1.000	210.89	0.00	9.79	343.9	41.355
17.250	1.000	188.99	0.00	9.62	337.0	40.336
17.333	1.000	173.13	0.00	9.44	329.5	39.259
17.417	1.000	157.02	0.00	9.25	321.6	38.126
17.500	1.000	142.77	0.00	9.06	313.4	36.951
17.583	1.000	130.47	0.00	8.86	304.9	35.749
17.667	1.000	117.67	0.00	8.66	296.2	34.520
17.750	1.000	111.53	0.00	8.46	287.5	33.308
17.833	1.000	108.69	0.00	8.26	279.0	32.135
17.917	1.000	104.44	0.00	8.07	270.7	30.990
18.000	1.000	99.80	0.00	7.89	262.6	29.868
18.083	1.000	94.88	0.00	7.71	254.7	28.768
18.167	1.000	85.78	0.00	7.52	246.8	27.659
18.250	1.000	76.81	0.00	7.34	238.9	26.542
18.333	1.000	77.03	0.00	7.16	231.1	25.481
18.417	1.000	76.44	0.00	6.99	223.7	24.467
18.500	1.000	75.35	0.00	6.83	216.6	23.494
18.583	1.000	74.04	0.00	6.68	209.8	22.559
18.667	1.000	72.70	0.00	6.53	203.3	21.659
18.750	1.000	71.36	0.00	6.39	197.0	20.794
18.833	1.000	70.07	0.00	6.25	190.9	19.962
18.917	1.000	68.79	0.00	6.12	185.1	19.161
19.000	1.000	67.54	0.00	5.99	179.5	18.390
19.083	1.000	66.34	0.00	5.87	174.1	17.648
19.167	1.000	65.19	0.00	5.75	168.9	16.934
19.250	1.000	64.09	0.00	5.64	163.9	16.246
19.333	1.000	63.03	0.00	5.53	159.1	15.585
19.417	1.000	62.00	0.00	5.42	154.5	14.948
19.500	1.000	61.00	0.00	5.32	150.0	14.335
19.583	1.000	60.04	0.00	5.22	145.7	13.745
19.667	1.000	59.09	0.00	5.13	141.6	13.177
19.750	1.000	58.19	0.00	5.04	137.6	12.630
19.833	1.000	57.33	0.00	4.90	133.2	12.107
19.917	1.000	56.50	0.00	4.73	128.1	11.614
20.000	1.000	55.72	0.00	4.57	122.9	11.151
20.083	1.000	54.96	0.00	4.42	118.1	10.716
20.167	1.000	54.21	0.00	4.28	113.5	10.308
20.250	1.000	53.46	0.00	4.15	109.2	9.924
20.333	1.000	52.73	0.00	4.02	105.1	9.563
20.417	1.000	52.03	0.00	3.90	101.3	9.224
20.500	1.000	51.36	0.00	3.79	97.8	8.904
20.583	1.000	50.71	0.00	3.69	94.4	8.603
20.667	1.000	50.07	0.00	3.59	91.2	8.320
20.750	1.000	49.46	0.00	3.50	88.2	8.053
20.833	1.000	48.87	0.00	3.41	85.4	7.801
20.917	1.000	48.30	0.00	3.33	82.8	7.564
21.000	1.000	47.75	0.00	3.26	80.3	7.340
21.083	1.000	47.21	0.00	3.18	77.9	7.129
21.167	1.000	46.68	0.00	3.11	75.7	6.929
21.250	1.000	46.18	0.00	3.05	73.6	6.741

21.333	1.000	45.69	0.00	2.99	71.6	6.562
21.417	1.000	45.21	0.00	2.93	69.7	6.394
21.500	1.000	44.74	0.00	2.87	67.9	6.234
21.583	1.000	44.29	0.00	2.82	66.2	6.083
21.667	1.000	43.84	0.00	2.77	64.6	5.940
21.750	1.000	43.42	0.00	2.73	63.1	5.805
21.833	1.000	43.00	0.00	2.68	61.7	5.676
21.917	1.000	42.59	0.00	2.64	60.3	5.554
22.000	1.000	42.19	0.00	2.60	59.0	5.438
22.083	1.000	41.80	0.00	2.56	57.8	5.328
22.167	1.000	41.42	0.00	2.53	56.6	5.224
22.250	1.000	41.05	0.00	2.49	55.5	5.124
22.333	1.000	40.69	0.00	2.46	54.5	5.029
22.417	1.000	40.34	0.00	2.43	53.4	4.939
22.500	1.000	39.99	0.00	2.40	52.5	4.853
22.583	1.000	39.66	0.00	2.37	51.6	4.771
22.667	1.000	39.33	0.00	2.34	50.7	4.692
22.750	1.000	39.00	0.00	2.32	49.9	4.618
22.833	1.000	38.69	0.00	2.29	49.1	4.546
22.917	1.000	38.38	0.00	2.27	48.3	4.478
23.000	1.000	38.07	0.00	2.25	47.6	4.412
23.083	1.000	37.78	0.00	2.22	46.9	4.349
23.167	1.000	37.49	0.00	2.20	46.2	4.289
23.250	1.000	37.20	0.00	2.18	45.6	4.231
23.333	1.000	36.92	0.00	2.16	45.0	4.176
23.417	1.000	36.65	0.00	2.15	44.4	4.123
23.500	1.000	36.38	0.00	2.13	43.8	4.072
23.583	1.000	36.12	0.00	2.11	43.3	4.022
23.667	1.000	35.86	0.00	2.09	42.7	3.975
23.750	1.000	35.61	0.00	2.08	42.2	3.929
23.833	1.000	35.36	0.00	2.06	41.8	3.885
23.917	1.000	35.12	0.00	2.05	41.3	3.843

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 174.009 AF
BASIN STORAGE = 1.000 AF (WITH 1.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 174.008 AF
LOSS VOLUME = 0.000 AF

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FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #3)

WATERSHED AREA = 1370.000 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.306 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000

SUBAREA HYDROGRAPH NODE 107

MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.115
LOW LOSS FRACTION = 0.990
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 27.233

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.524	252.570
2	7.707	1024.381
3	24.533	2787.845
4	46.693	3671.496
5	60.162	2231.654
6	68.361	1358.444
7	74.294	982.957
8	78.803	747.046
9	82.278	575.721
10	85.131	472.818
11	87.574	404.665
12	89.491	317.594
13	91.061	260.171
14	92.444	229.193
15	93.662	201.697
16	94.652	164.076
17	95.553	149.341
18	96.291	122.261

19	96.955	109.926
20	97.459	83.535
21	97.878	69.538
22	98.155	45.820
23	98.453	49.361
24	98.780	54.136
25	99.106	54.138
26	99.433	54.136
27	99.760	54.136
28	100.000	39.780

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0048	0.0000
2	0.0049	0.0048	0.0000
3	0.0049	0.0048	0.0000
4	0.0049	0.0049	0.0000
5	0.0049	0.0049	0.0000
6	0.0049	0.0049	0.0000
7	0.0050	0.0049	0.0000
8	0.0050	0.0049	0.0000
9	0.0050	0.0049	0.0000
10	0.0050	0.0049	0.0000
11	0.0050	0.0050	0.0001
12	0.0050	0.0050	0.0001
13	0.0051	0.0050	0.0001
14	0.0051	0.0050	0.0001
15	0.0051	0.0050	0.0001
16	0.0051	0.0051	0.0001
17	0.0051	0.0051	0.0001
18	0.0051	0.0051	0.0001
19	0.0052	0.0051	0.0001
20	0.0052	0.0051	0.0001
21	0.0052	0.0051	0.0001
22	0.0052	0.0052	0.0001
23	0.0052	0.0052	0.0001
24	0.0052	0.0052	0.0001
25	0.0053	0.0052	0.0001
26	0.0053	0.0052	0.0001
27	0.0053	0.0053	0.0001
28	0.0053	0.0053	0.0001
29	0.0054	0.0053	0.0001
30	0.0054	0.0053	0.0001
31	0.0054	0.0053	0.0001
32	0.0054	0.0054	0.0001
33	0.0054	0.0054	0.0001
34	0.0054	0.0054	0.0001
35	0.0055	0.0054	0.0001
36	0.0055	0.0054	0.0001
37	0.0055	0.0055	0.0001
38	0.0055	0.0055	0.0001
39	0.0056	0.0055	0.0001
40	0.0056	0.0055	0.0001
41	0.0056	0.0056	0.0001
42	0.0056	0.0056	0.0001
43	0.0057	0.0056	0.0001
44	0.0057	0.0056	0.0001
45	0.0057	0.0056	0.0001
46	0.0057	0.0057	0.0001
47	0.0057	0.0057	0.0001
48	0.0058	0.0057	0.0001
49	0.0058	0.0057	0.0001
50	0.0058	0.0058	0.0001
51	0.0058	0.0058	0.0001

52	0.0059	0.0058	0.0001
53	0.0059	0.0058	0.0001
54	0.0059	0.0059	0.0001
55	0.0059	0.0059	0.0001
56	0.0060	0.0059	0.0001
57	0.0060	0.0059	0.0001
58	0.0060	0.0060	0.0001
59	0.0061	0.0060	0.0001
60	0.0061	0.0060	0.0001
61	0.0061	0.0061	0.0001
62	0.0061	0.0061	0.0001
63	0.0062	0.0061	0.0001
64	0.0062	0.0061	0.0001
65	0.0062	0.0062	0.0001
66	0.0063	0.0062	0.0001
67	0.0063	0.0062	0.0001
68	0.0063	0.0062	0.0001
69	0.0064	0.0063	0.0001
70	0.0064	0.0063	0.0001
71	0.0064	0.0064	0.0001
72	0.0064	0.0064	0.0001
73	0.0065	0.0064	0.0001
74	0.0065	0.0064	0.0001
75	0.0065	0.0065	0.0001
76	0.0066	0.0065	0.0001
77	0.0066	0.0066	0.0001
78	0.0066	0.0066	0.0001
79	0.0067	0.0066	0.0001
80	0.0067	0.0066	0.0001
81	0.0068	0.0067	0.0001
82	0.0068	0.0067	0.0001
83	0.0068	0.0068	0.0001
84	0.0069	0.0068	0.0001
85	0.0069	0.0068	0.0001
86	0.0069	0.0069	0.0001
87	0.0070	0.0069	0.0001
88	0.0070	0.0070	0.0001
89	0.0071	0.0070	0.0001
90	0.0071	0.0070	0.0001
91	0.0072	0.0071	0.0001
92	0.0072	0.0071	0.0001
93	0.0072	0.0072	0.0001
94	0.0073	0.0072	0.0001
95	0.0073	0.0073	0.0001
96	0.0074	0.0073	0.0001
97	0.0074	0.0074	0.0001
98	0.0075	0.0074	0.0001
99	0.0075	0.0075	0.0001
100	0.0076	0.0075	0.0001
101	0.0076	0.0076	0.0001
102	0.0077	0.0076	0.0001
103	0.0077	0.0077	0.0001
104	0.0078	0.0077	0.0001
105	0.0078	0.0078	0.0001
106	0.0079	0.0078	0.0001
107	0.0080	0.0079	0.0001
108	0.0080	0.0079	0.0001

109	0.0081	0.0080	0.0001
110	0.0081	0.0080	0.0001
111	0.0082	0.0081	0.0001
112	0.0082	0.0081	0.0001
113	0.0083	0.0082	0.0001
114	0.0084	0.0083	0.0001
115	0.0084	0.0084	0.0001
116	0.0085	0.0084	0.0001
117	0.0086	0.0085	0.0001
118	0.0086	0.0085	0.0001
119	0.0087	0.0086	0.0001
120	0.0088	0.0087	0.0001
121	0.0089	0.0088	0.0001
122	0.0089	0.0088	0.0001
123	0.0090	0.0089	0.0001
124	0.0091	0.0090	0.0001
125	0.0092	0.0091	0.0001
126	0.0092	0.0091	0.0001
127	0.0094	0.0093	0.0001
128	0.0094	0.0093	0.0001
129	0.0095	0.0094	0.0001
130	0.0096	0.0095	0.0001
131	0.0097	0.0096	0.0001
132	0.0098	0.0096	0.0002
133	0.0099	0.0096	0.0003
134	0.0100	0.0096	0.0004
135	0.0101	0.0096	0.0005
136	0.0102	0.0096	0.0006
137	0.0103	0.0096	0.0008
138	0.0104	0.0096	0.0008
139	0.0106	0.0096	0.0010
140	0.0107	0.0096	0.0011
141	0.0108	0.0096	0.0012
142	0.0109	0.0096	0.0013
143	0.0111	0.0096	0.0015
144	0.0112	0.0096	0.0016
145	0.0090	0.0089	0.0001
146	0.0091	0.0090	0.0001
147	0.0093	0.0092	0.0001
148	0.0094	0.0093	0.0001
149	0.0096	0.0095	0.0001
150	0.0097	0.0096	0.0001
151	0.0099	0.0096	0.0003
152	0.0100	0.0096	0.0004
153	0.0102	0.0096	0.0006
154	0.0104	0.0096	0.0008
155	0.0106	0.0096	0.0010
156	0.0107	0.0096	0.0012
157	0.0110	0.0096	0.0014
158	0.0112	0.0096	0.0016
159	0.0115	0.0096	0.0019
160	0.0116	0.0096	0.0020
161	0.0120	0.0096	0.0024
162	0.0121	0.0096	0.0026
163	0.0125	0.0096	0.0029
164	0.0127	0.0096	0.0031
165	0.0131	0.0096	0.0035

166	0.0134	0.0096	0.0038
167	0.0138	0.0096	0.0042
168	0.0141	0.0096	0.0045
169	0.0151	0.0096	0.0056
170	0.0154	0.0096	0.0059
171	0.0161	0.0096	0.0065
172	0.0164	0.0096	0.0068
173	0.0172	0.0096	0.0076
174	0.0176	0.0096	0.0080
175	0.0185	0.0096	0.0089
176	0.0190	0.0096	0.0094
177	0.0201	0.0096	0.0105
178	0.0207	0.0096	0.0111
179	0.0220	0.0096	0.0124
180	0.0228	0.0096	0.0132
181	0.0245	0.0096	0.0149
182	0.0255	0.0096	0.0159
183	0.0279	0.0096	0.0183
184	0.0293	0.0096	0.0197
185	0.0251	0.0096	0.0155
186	0.0269	0.0096	0.0173
187	0.0316	0.0096	0.0220
188	0.0347	0.0096	0.0252
189	0.0539	0.0096	0.0444
190	0.0621	0.0096	0.0526
191	0.0941	0.0096	0.0845
192	0.1367	0.0096	0.1271
193	0.5874	0.0096	0.5778
194	0.0741	0.0096	0.0645
195	0.0387	0.0096	0.0291
196	0.0290	0.0096	0.0194
197	0.0308	0.0096	0.0213
198	0.0266	0.0096	0.0171
199	0.0236	0.0096	0.0140
200	0.0213	0.0096	0.0117
201	0.0195	0.0096	0.0099
202	0.0180	0.0096	0.0084
203	0.0168	0.0096	0.0072
204	0.0158	0.0096	0.0062
205	0.0144	0.0096	0.0048
206	0.0136	0.0096	0.0040
207	0.0129	0.0096	0.0033
208	0.0123	0.0096	0.0027
209	0.0118	0.0096	0.0022
210	0.0113	0.0096	0.0017
211	0.0109	0.0096	0.0013
212	0.0105	0.0096	0.0009
213	0.0101	0.0096	0.0005
214	0.0098	0.0096	0.0002
215	0.0095	0.0094	0.0001
216	0.0092	0.0091	0.0001
217	0.0113	0.0096	0.0017
218	0.0110	0.0096	0.0014
219	0.0107	0.0096	0.0012
220	0.0105	0.0096	0.0009
221	0.0103	0.0096	0.0007
222	0.0101	0.0096	0.0005

223	0.0099	0.0096	0.0003
224	0.0097	0.0096	0.0001
225	0.0095	0.0094	0.0001
226	0.0093	0.0092	0.0001
227	0.0091	0.0090	0.0001
228	0.0090	0.0089	0.0001
229	0.0088	0.0087	0.0001
230	0.0087	0.0086	0.0001
231	0.0085	0.0084	0.0001
232	0.0084	0.0083	0.0001
233	0.0083	0.0082	0.0001
234	0.0081	0.0081	0.0001
235	0.0080	0.0079	0.0001
236	0.0079	0.0078	0.0001
237	0.0078	0.0077	0.0001
238	0.0077	0.0076	0.0001
239	0.0076	0.0075	0.0001
240	0.0075	0.0074	0.0001
241	0.0074	0.0073	0.0001
242	0.0073	0.0072	0.0001
243	0.0072	0.0071	0.0001
244	0.0071	0.0071	0.0001
245	0.0070	0.0070	0.0001
246	0.0070	0.0069	0.0001
247	0.0069	0.0068	0.0001
248	0.0068	0.0067	0.0001
249	0.0067	0.0067	0.0001
250	0.0067	0.0066	0.0001
251	0.0066	0.0065	0.0001
252	0.0065	0.0065	0.0001
253	0.0065	0.0064	0.0001
254	0.0064	0.0063	0.0001
255	0.0063	0.0063	0.0001
256	0.0063	0.0062	0.0001
257	0.0062	0.0061	0.0001
258	0.0062	0.0061	0.0001
259	0.0061	0.0060	0.0001
260	0.0060	0.0060	0.0001
261	0.0060	0.0059	0.0001
262	0.0059	0.0059	0.0001
263	0.0059	0.0058	0.0001
264	0.0058	0.0058	0.0001
265	0.0058	0.0057	0.0001
266	0.0057	0.0057	0.0001
267	0.0057	0.0056	0.0001
268	0.0056	0.0056	0.0001
269	0.0056	0.0055	0.0001
270	0.0055	0.0055	0.0001
271	0.0055	0.0054	0.0001
272	0.0055	0.0054	0.0001
273	0.0054	0.0054	0.0001
274	0.0054	0.0053	0.0001
275	0.0053	0.0053	0.0001
276	0.0053	0.0052	0.0001
277	0.0053	0.0052	0.0001
278	0.0052	0.0052	0.0001
279	0.0052	0.0051	0.0001

280	0.0052	0.0051	0.0001
281	0.0051	0.0051	0.0001
282	0.0051	0.0050	0.0001
283	0.0050	0.0050	0.0001
284	0.0050	0.0050	0.0001
285	0.0050	0.0049	0.0000
286	0.0049	0.0049	0.0000
287	0.0049	0.0049	0.0000
288	0.0049	0.0048	0.0000

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 2.15
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.44

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 245.9986
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 164.5056

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	725.0	1450.0	2175.0	2900.0
0.083	0.0001	0.01	Q	.	.	.	.
0.167	0.0005	0.06	Q	.	.	.	.
0.250	0.0019	0.20	Q	.	.	.	.
0.333	0.0045	0.38	Q	.	.	.	.
0.417	0.0078	0.49	Q	.	.	.	.
0.500	0.0116	0.55	Q	.	.	.	.
0.583	0.0158	0.60	Q	.	.	.	.
0.667	0.0202	0.64	Q	.	.	.	.
0.750	0.0248	0.67	Q	.	.	.	.
0.833	0.0296	0.70	Q	.	.	.	.
0.917	0.0346	0.72	Q	.	.	.	.
1.000	0.0397	0.74	Q	.	.	.	.
1.083	0.0448	0.75	Q	.	.	.	.
1.167	0.0501	0.77	Q	.	.	.	.
1.250	0.0555	0.78	Q	.	.	.	.
1.333	0.0609	0.79	Q	.	.	.	.
1.417	0.0664	0.80	Q	.	.	.	.
1.500	0.0719	0.81	Q	.	.	.	.
1.583	0.0776	0.81	Q	.	.	.	.
1.667	0.0832	0.82	Q	.	.	.	.
1.750	0.0889	0.83	Q	.	.	.	.
1.833	0.0947	0.83	Q	.	.	.	.
1.917	0.1004	0.84	Q	.	.	.	.
2.000	0.1062	0.84	Q	.	.	.	.
2.083	0.1121	0.85	Q	.	.	.	.
2.167	0.1180	0.86	Q	.	.	.	.
2.250	0.1239	0.86	Q	.	.	.	.
2.333	0.1299	0.87	Q	.	.	.	.
2.417	0.1359	0.87	Q	.	.	.	.
2.500	0.1419	0.87	Q	.	.	.	.
2.583	0.1479	0.88	Q	.	.	.	.
2.667	0.1540	0.88	Q	.	.	.	.
2.750	0.1600	0.88	Q	.	.	.	.
2.833	0.1661	0.89	Q	.	.	.	.
2.917	0.1722	0.89	Q	.	.	.	.
3.000	0.1784	0.89	Q	.	.	.	.
3.083	0.1846	0.90	Q	.	.	.	.
3.167	0.1907	0.90	Q	.	.	.	.
3.250	0.1970	0.90	Q	.	.	.	.
3.333	0.2032	0.91	Q	.	.	.	.
3.417	0.2095	0.91	Q	.	.	.	.
3.500	0.2157	0.91	Q	.	.	.	.
3.583	0.2221	0.92	Q	.	.	.	.
3.667	0.2284	0.92	Q	.	.	.	.
3.750	0.2348	0.92	Q	.	.	.	.

3.833	0.2411	0.93	Q	.	.	.	.
3.917	0.2475	0.93	Q	.	.	.	.
4.000	0.2540	0.93	Q	.	.	.	.
4.083	0.2605	0.94	Q	.	.	.	.
4.167	0.2669	0.94	Q	.	.	.	.
4.250	0.2735	0.95	Q	.	.	.	.
4.333	0.2800	0.95	Q	.	.	.	.
4.417	0.2866	0.95	Q	.	.	.	.
4.500	0.2932	0.96	Q	.	.	.	.
4.583	0.2998	0.96	Q	.	.	.	.
4.667	0.3065	0.97	Q	.	.	.	.
4.750	0.3132	0.97	Q	.	.	.	.
4.833	0.3199	0.98	Q	.	.	.	.
4.917	0.3266	0.98	Q	.	.	.	.
5.000	0.3334	0.98	Q	.	.	.	.
5.083	0.3402	0.99	Q	.	.	.	.
5.167	0.3470	0.99	Q	.	.	.	.
5.250	0.3539	1.00	Q	.	.	.	.
5.333	0.3608	1.00	Q	.	.	.	.
5.417	0.3677	1.01	Q	.	.	.	.
5.500	0.3747	1.01	Q	.	.	.	.
5.583	0.3817	1.02	Q	.	.	.	.
5.667	0.3887	1.02	Q	.	.	.	.
5.750	0.3958	1.03	Q	.	.	.	.
5.833	0.4029	1.03	Q	.	.	.	.
5.917	0.4100	1.03	Q	.	.	.	.
6.000	0.4171	1.04	Q	.	.	.	.
6.083	0.4243	1.05	Q	.	.	.	.
6.167	0.4316	1.05	Q	.	.	.	.
6.250	0.4388	1.06	Q	.	.	.	.
6.333	0.4462	1.06	Q	.	.	.	.
6.417	0.4535	1.07	Q	.	.	.	.
6.500	0.4609	1.07	Q	.	.	.	.
6.583	0.4683	1.08	Q	.	.	.	.
6.667	0.4757	1.08	Q	.	.	.	.
6.750	0.4832	1.09	Q	.	.	.	.
6.833	0.4908	1.09	Q	.	.	.	.
6.917	0.4983	1.10	Q	.	.	.	.
7.000	0.5060	1.11	Q	.	.	.	.
7.083	0.5136	1.11	Q	.	.	.	.
7.167	0.5213	1.12	Q	.	.	.	.
7.250	0.5291	1.12	Q	.	.	.	.
7.333	0.5368	1.13	Q	.	.	.	.
7.417	0.5447	1.14	Q	.	.	.	.
7.500	0.5525	1.14	Q	.	.	.	.
7.583	0.5604	1.15	Q	.	.	.	.
7.667	0.5684	1.16	Q	.	.	.	.
7.750	0.5764	1.16	Q	.	.	.	.
7.833	0.5845	1.17	Q	.	.	.	.
7.917	0.5926	1.18	Q	.	.	.	.
8.000	0.6007	1.18	Q	.	.	.	.
8.083	0.6089	1.19	Q	.	.	.	.
8.167	0.6172	1.20	Q	.	.	.	.
8.250	0.6255	1.21	Q	.	.	.	.
8.333	0.6338	1.21	Q	.	.	.	.
8.417	0.6422	1.22	Q	.	.	.	.
8.500	0.6507	1.23	Q	.	.	.	.

8.583	0.6592	1.24	Q	.	.	.	.
8.667	0.6678	1.24	Q	.	.	.	.
8.750	0.6764	1.25	Q	.	.	.	.
8.833	0.6851	1.26	Q	.	.	.	.
8.917	0.6938	1.27	Q	.	.	.	.
9.000	0.7026	1.28	Q	.	.	.	.
9.083	0.7115	1.29	Q	.	.	.	.
9.167	0.7204	1.30	Q	.	.	.	.
9.250	0.7294	1.30	Q	.	.	.	.
9.333	0.7384	1.31	Q	.	.	.	.
9.417	0.7475	1.32	Q	.	.	.	.
9.500	0.7567	1.33	Q	.	.	.	.
9.583	0.7659	1.34	Q	.	.	.	.
9.667	0.7752	1.35	Q	.	.	.	.
9.750	0.7846	1.36	Q	.	.	.	.
9.833	0.7941	1.37	Q	.	.	.	.
9.917	0.8036	1.38	Q	.	.	.	.
10.000	0.8132	1.39	Q	.	.	.	.
10.083	0.8229	1.41	Q	.	.	.	.
10.167	0.8327	1.42	Q	.	.	.	.
10.250	0.8425	1.43	Q	.	.	.	.
10.333	0.8524	1.44	Q	.	.	.	.
10.417	0.8624	1.45	Q	.	.	.	.
10.500	0.8725	1.46	Q	.	.	.	.
10.583	0.8827	1.48	Q	.	.	.	.
10.667	0.8929	1.49	Q	.	.	.	.
10.750	0.9033	1.50	Q	.	.	.	.
10.833	0.9137	1.52	Q	.	.	.	.
10.917	0.9243	1.54	Q	.	.	.	.
11.000	0.9354	1.61	Q	.	.	.	.
11.083	0.9481	1.84	Q	.	.	.	.
11.167	0.9641	2.33	Q	.	.	.	.
11.250	0.9857	3.14	Q	.	.	.	.
11.333	1.0145	4.18	Q	.	.	.	.
11.417	1.0515	5.37	Q	.	.	.	.
11.500	1.0976	6.69	Q	.	.	.	.
11.583	1.1533	8.10	Q	.	.	.	.
11.667	1.2195	9.62	Q	.	.	.	.
11.750	1.2967	11.20	Q	.	.	.	.
11.833	1.3855	12.89	Q	.	.	.	.
11.917	1.4864	14.65	Q	.	.	.	.
12.000	1.6000	16.49	Q	.	.	.	.
12.083	1.7238	17.97	Q	.	.	.	.
12.167	1.8492	18.21	Q	.	.	.	.
12.250	1.9550	15.37	Q	.	.	.	.
12.333	2.0293	10.78	Q	.	.	.	.
12.417	2.0852	8.13	Q	.	.	.	.
12.500	2.1310	6.65	Q	.	.	.	.
12.583	2.1702	5.69	Q	.	.	.	.
12.667	2.2060	5.19	Q	.	.	.	.
12.750	2.2432	5.40	Q	.	.	.	.
12.833	2.2866	6.31	Q	.	.	.	.
12.917	2.3392	7.63	Q	.	.	.	.
13.000	2.4036	9.36	Q	.	.	.	.
13.083	2.4818	11.36	Q	.	.	.	.
13.167	2.5756	13.62	Q	.	.	.	.
13.250	2.6864	16.08	Q	.	.	.	.

13.333	2.8159	18.80	Q . . . .
13.417	2.9653	21.70	Q . . . .
13.500	3.1364	24.84	Q . . . .
13.583	3.3304	28.17	Q . . . .
13.667	3.5493	31.78	Q . . . .
13.750	3.7944	35.59	Q . . . .
13.833	4.0678	39.70	Q . . . .
13.917	4.3710	44.03	QV . . . .
14.000	4.7061	48.65	QV . . . .
14.083	5.0756	53.66	QV . . . .
14.167	5.4848	59.42	QV . . . .
14.250	5.9421	66.40	QV . . . .
14.333	6.4538	74.30	.Q . . . .
14.417	7.0182	81.95	.Q . . . .
14.500	7.6360	89.71	.Q . . . .
14.583	8.3094	97.78	.QV . . . .
14.667	9.0424	106.43	.QV . . . .
14.750	9.8388	115.64	.QV . . . .
14.833	10.7044	125.68	.QV . . . .
14.917	11.6447	136.54	.QV . . . .
15.000	12.6676	148.52	. QV . . . .
15.083	13.7809	161.66	. QV . . . .
15.167	14.9957	176.38	. QV . . . .
15.250	16.3237	192.82	. QV . . . .
15.333	17.7808	211.57	. Q V . . . .
15.417	19.3722	231.07	. QV . . . .
15.500	21.0822	248.30	. Q V . . . .
15.583	22.8475	256.32	. Q V . . . .
15.667	24.6576	262.82	. Q V . . . .
15.750	26.6504	289.36	. Q V . . . .
15.833	29.0038	341.71	. Q V . . . .
15.917	32.0148	437.19	. QV . . . .
16.000	36.0800	590.27	. Q . . . .
16.083	42.4240	921.14	. V Q . . . .
16.167	53.0454	1542.24	. V .Q . . .
16.250	70.4583	2528.34	. V . . Q .
16.333	90.2917	2879.81	. .V . . Q.
16.417	104.0933	2003.99	. . V Q . .
16.500	113.7204	1397.86	. Q. V . .
16.583	121.2551	1094.04	. Q V. .
16.667	127.4503	899.53	. Q V .
16.750	132.6013	747.93	. Q . V .
16.833	137.0004	638.75	. Q . V .
16.917	140.8161	554.04	. Q . V .
17.000	144.0357	467.49	. Q . V .
17.083	146.8041	401.97	. Q . V .
17.167	149.2436	354.21	. Q . V .
17.250	151.3854	310.99	. Q . V .
17.333	153.2132	265.39	. Q . V .
17.417	154.8238	233.86	. Q . V .
17.500	156.1956	199.18	. Q . V .
17.583	157.3893	173.33	. Q . V .
17.667	158.3738	142.94	.Q . V .
17.750	159.2060	120.85	.Q . V .
17.833	159.8764	97.34	.Q . V .
17.917	160.4908	89.21	.Q . V.
18.000	161.0619	82.92	.Q . V.

18.083	161.5795	75.16	.Q	.	.	.	V.
18.167	162.0555	69.12	Q	.	.	.	V.
18.250	162.5033	65.01	Q	.	.	.	V.
18.333	162.8769	54.25	Q	.	.	.	V.
18.417	163.0850	30.21	Q	.	.	.	V.
18.500	163.2614	25.61	Q	.	.	.	V.
18.583	163.4131	22.03	Q	.	.	.	V.
18.667	163.5409	18.56	Q	.	.	.	V.
18.750	163.6443	15.01	Q	.	.	.	V.
18.833	163.7261	11.88	Q	.	.	.	V.
18.917	163.7910	9.43	Q	.	.	.	V.
19.000	163.8440	7.69	Q	.	.	.	V.
19.083	163.8880	6.39	Q	.	.	.	V.
19.167	163.9251	5.39	Q	.	.	.	V.
19.250	163.9569	4.61	Q	.	.	.	V.
19.333	163.9843	3.98	Q	.	.	.	V.
19.417	164.0083	3.49	Q	.	.	.	V.
19.500	164.0296	3.09	Q	.	.	.	V.
19.583	164.0486	2.76	Q	.	.	.	V.
19.667	164.0656	2.47	Q	.	.	.	V.
19.750	164.0809	2.22	Q	.	.	.	V.
19.833	164.0947	2.00	Q	.	.	.	V.
19.917	164.1074	1.84	Q	.	.	.	V.
20.000	164.1193	1.73	Q	.	.	.	V.
20.083	164.1308	1.67	Q	.	.	.	V.
20.167	164.1420	1.63	Q	.	.	.	V.
20.250	164.1531	1.61	Q	.	.	.	V.
20.333	164.1639	1.57	Q	.	.	.	V.
20.417	164.1740	1.47	Q	.	.	.	V.
20.500	164.1836	1.39	Q	.	.	.	V.
20.583	164.1926	1.32	Q	.	.	.	V.
20.667	164.2013	1.26	Q	.	.	.	V.
20.750	164.2097	1.22	Q	.	.	.	V.
20.833	164.2179	1.19	Q	.	.	.	V.
20.917	164.2259	1.17	Q	.	.	.	V.
21.000	164.2339	1.15	Q	.	.	.	V.
21.083	164.2417	1.14	Q	.	.	.	V.
21.167	164.2495	1.13	Q	.	.	.	V.
21.250	164.2571	1.11	Q	.	.	.	V.
21.333	164.2647	1.10	Q	.	.	.	V.
21.417	164.2722	1.09	Q	.	.	.	V.
21.500	164.2797	1.08	Q	.	.	.	V.
21.583	164.2870	1.07	Q	.	.	.	V.
21.667	164.2943	1.06	Q	.	.	.	V.
21.750	164.3015	1.05	Q	.	.	.	V.
21.833	164.3086	1.04	Q	.	.	.	V.
21.917	164.3157	1.03	Q	.	.	.	V.
22.000	164.3227	1.02	Q	.	.	.	V.
22.083	164.3297	1.01	Q	.	.	.	V.
22.167	164.3365	1.00	Q	.	.	.	V.
22.250	164.3434	0.99	Q	.	.	.	V.
22.333	164.3501	0.98	Q	.	.	.	V.
22.417	164.3568	0.97	Q	.	.	.	V.
22.500	164.3634	0.96	Q	.	.	.	V.
22.583	164.3700	0.96	Q	.	.	.	V.
22.667	164.3766	0.95	Q	.	.	.	V.
22.750	164.3830	0.94	Q	.	.	.	V.

22.833	164.3895	0.93	Q	.	.	.	V
22.917	164.3958	0.92	Q	.	.	.	V
23.000	164.4021	0.92	Q	.	.	.	V
23.083	164.4084	0.91	Q	.	.	.	V
23.167	164.4146	0.90	Q	.	.	.	V
23.250	164.4208	0.90	Q	.	.	.	V
23.333	164.4269	0.89	Q	.	.	.	V
23.417	164.4330	0.88	Q	.	.	.	V
23.500	164.4390	0.88	Q	.	.	.	V
23.583	164.4450	0.87	Q	.	.	.	V
23.667	164.4510	0.86	Q	.	.	.	V
23.750	164.4569	0.86	Q	.	.	.	V
23.833	164.4627	0.85	Q	.	.	.	V
23.917	164.4686	0.85	Q	.	.	.	V
24.000	164.4743	0.84	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	95.0
20%	55.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 3 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	800.0	1600.0	2400.0	320
0.083	0.0002	0.03	Q	.	.	.	
0.167	0.0016	0.20	Q	.	.	.	
0.250	0.0068	0.76	Q	.	.	.	
0.333	0.0193	1.81	Q	.	.	.	
0.417	0.0408	3.11	Q	.	.	.	
0.500	0.0719	4.52	Q	.	.	.	
0.583	0.1131	5.98	Q	.	.	.	
0.667	0.1643	7.44	Q	.	.	.	
0.750	0.2258	8.93	Q	.	.	.	
0.833	0.2978	10.45	Q	.	.	.	
0.917	0.3800	11.94	Q	.	.	.	

NODE 107 VIEW STREAM 3

1.000	0.4722	13.38	Q	.	.	.	.
1.083	0.5738	14.76	Q	.	.	.	.
1.167	0.6845	16.08	Q	.	.	.	.
1.250	0.8039	17.34	Q	.	.	.	.
1.333	0.9316	18.54	Q	.	.	.	.
1.417	1.0671	19.68	Q	.	.	.	.
1.500	1.2101	20.76	Q	.	.	.	.
1.583	1.3602	21.79	Q	.	.	.	.
1.667	1.5170	22.77	Q	.	.	.	.
1.750	1.6801	23.69	Q	.	.	.	.
1.833	1.8492	24.55	Q	.	.	.	.
1.917	2.0240	25.38	Q	.	.	.	.
2.000	2.2042	26.16	Q	.	.	.	.
2.083	2.3895	26.91	Q	.	.	.	.
2.167	2.5797	27.61	Q	.	.	.	.
2.250	2.7744	28.28	Q	.	.	.	.
2.333	2.9735	28.91	Q	.	.	.	.
2.417	3.1767	29.50	Q	.	.	.	.
2.500	3.3838	30.06	Q	.	.	.	.
2.583	3.5944	30.59	Q	.	.	.	.
2.667	3.8085	31.09	Q	.	.	.	.
2.750	4.0259	31.56	Q	.	.	.	.
2.833	4.2464	32.01	Q	.	.	.	.
2.917	4.4698	32.44	Q	.	.	.	.
3.000	4.6960	32.85	Q	.	.	.	.
3.083	4.9249	33.24	Q	.	.	.	.
3.167	5.1564	33.61	Q	.	.	.	.
3.250	5.3903	33.96	Q	.	.	.	.
3.333	5.6265	34.30	Q	.	.	.	.
3.417	5.8650	34.63	Q	.	.	.	.
3.500	6.1056	34.94	Q	.	.	.	.
3.583	6.3484	35.24	Q	.	.	.	.
3.667	6.5931	35.53	Q	.	.	.	.
3.750	6.8398	35.82	Q	.	.	.	.
3.833	7.0883	36.09	Q	.	.	.	.
3.917	7.3387	36.35	Q	.	.	.	.
4.000	7.5908	36.61	Q	.	.	.	.
4.083	7.8447	36.86	Q	.	.	.	.
4.167	8.1003	37.11	Q	.	.	.	.
4.250	8.3575	37.35	Q	.	.	.	.
4.333	8.6163	37.58	QV	.	.	.	.
4.417	8.8767	37.81	QV	.	.	.	.
4.500	9.1386	38.03	QV	.	.	.	.
4.583	9.4021	38.26	QV	.	.	.	.
4.667	9.6671	38.47	QV	.	.	.	.
4.750	9.9335	38.69	QV	.	.	.	.
4.833	10.2014	38.90	QV	.	.	.	.
4.917	10.4708	39.11	QV	.	.	.	.
5.000	10.7416	39.32	QV	.	.	.	.
5.083	11.0139	39.53	QV	.	.	.	.
5.167	11.2876	39.74	QV	.	.	.	.
5.250	11.5626	39.94	QV	.	.	.	.
5.333	11.8391	40.15	QV	.	.	.	.
5.417	12.1170	40.35	QV	.	.	.	.
5.500	12.3963	40.55	QV	.	.	.	.
5.583	12.6770	40.76	QV	.	.	.	.
5.667	12.9591	40.96	QV	.	.	.	.

5.750	13.2426	41.16	QV	.	.	.	.
5.833	13.5275	41.37	QV	.	.	.	.
5.917	13.8138	41.57	QV	.	.	.	.
6.000	14.1015	41.78	QV	.	.	.	.
6.083	14.3907	41.98	QV	.	.	.	.
6.167	14.6813	42.19	QV	.	.	.	.
6.250	14.9733	42.40	QV	.	.	.	.
6.333	15.2667	42.61	QV	.	.	.	.
6.417	15.5616	42.82	QV	.	.	.	.
6.500	15.8580	43.03	QV	.	.	.	.
6.583	16.1558	43.25	QV	.	.	.	.
6.667	16.4551	43.46	QV	.	.	.	.
6.750	16.7560	43.68	QV	.	.	.	.
6.833	17.0583	43.90	Q V	.	.	.	.
6.917	17.3622	44.12	Q V	.	.	.	.
7.000	17.6676	44.34	Q V	.	.	.	.
7.083	17.9745	44.57	Q V	.	.	.	.
7.167	18.2831	44.80	Q V	.	.	.	.
7.250	18.5932	45.03	Q V	.	.	.	.
7.333	18.9049	45.26	Q V	.	.	.	.
7.417	19.2183	45.50	Q V	.	.	.	.
7.500	19.5333	45.74	Q V	.	.	.	.
7.583	19.8500	45.98	Q V	.	.	.	.
7.667	20.1683	46.23	Q V	.	.	.	.
7.750	20.4884	46.47	Q V	.	.	.	.
7.833	20.8102	46.72	Q V	.	.	.	.
7.917	21.1337	46.98	Q V	.	.	.	.
8.000	21.4591	47.24	Q V	.	.	.	.
8.083	21.7862	47.50	Q V	.	.	.	.
8.167	22.1151	47.76	Q V	.	.	.	.
8.250	22.4459	48.03	Q V	.	.	.	.
8.333	22.7786	48.30	Q V	.	.	.	.
8.417	23.1132	48.58	Q V	.	.	.	.
8.500	23.4497	48.86	Q V	.	.	.	.
8.583	23.7881	49.14	Q V	.	.	.	.
8.667	24.1286	49.43	Q V	.	.	.	.
8.750	24.4711	49.73	Q V	.	.	.	.
8.833	24.8156	50.02	Q V	.	.	.	.
8.917	25.1622	50.33	Q V	.	.	.	.
9.000	25.5109	50.63	Q V	.	.	.	.
9.083	25.8618	50.95	Q V	.	.	.	.
9.167	26.2148	51.26	Q V	.	.	.	.
9.250	26.5701	51.58	Q V	.	.	.	.
9.333	26.9276	51.91	Q V	.	.	.	.
9.417	27.2874	52.25	Q V	.	.	.	.
9.500	27.6496	52.58	Q V	.	.	.	.
9.583	28.0141	52.93	Q V	.	.	.	.
9.667	28.3810	53.28	Q V	.	.	.	.
9.750	28.7504	53.64	Q V	.	.	.	.
9.833	29.1223	54.00	Q V	.	.	.	.
9.917	29.4967	54.37	Q V	.	.	.	.
10.000	29.8738	54.75	Q V	.	.	.	.
10.083	30.2535	55.13	Q V	.	.	.	.
10.167	30.6358	55.52	Q V	.	.	.	.
10.250	31.0209	55.92	Q V	.	.	.	.
10.333	31.4088	56.32	Q V	.	.	.	.
10.417	31.7996	56.74	Q V	.	.	.	.

10.500	32.1933	57.16	Q	V	.	.	.	.
10.583	32.5899	57.59	Q	V	.	.	.	.
10.667	32.9896	58.03	Q	V	.	.	.	.
10.750	33.3923	58.48	Q	V	.	.	.	.
10.833	33.7982	58.94	Q	V	.	.	.	.
10.917	34.2074	59.41	Q	V	.	.	.	.
11.000	34.6203	59.95	Q	V	.	.	.	.
11.083	35.0379	60.65	Q	V	.	.	.	.
11.167	35.4623	61.62	Q	V	.	.	.	.
11.250	35.8957	62.93	Q	V	.	.	.	.
11.333	36.3398	64.48	Q	V	.	.	.	.
11.417	36.7956	66.18	Q	V	.	.	.	.
11.500	37.2641	68.03	Q	V	.	.	.	.
11.583	37.7461	69.98	Q	V	.	.	.	.
11.667	38.2424	72.06	Q	V	.	.	.	.
11.750	38.7535	74.22	Q	V	.	.	.	.
11.833	39.2803	76.49	Q	V	.	.	.	.
11.917	39.8233	78.84	Q	V	.	.	.	.
12.000	40.3832	81.30	.Q	V	.	.	.	.
12.083	40.9576	83.40	.Q	V	.	.	.	.
12.167	41.5376	84.22	.Q	V	.	.	.	.
12.250	42.1011	81.83	.Q	V	.	.	.	.
12.333	42.6346	77.46	Q	V	.	.	.	.
12.417	43.1503	74.88	Q	V	.	.	.	.
12.500	43.6559	73.42	Q	V	.	.	.	.
12.583	44.1550	72.46	Q	V	.	.	.	.
12.667	44.6507	71.99	Q	V	.	.	.	.
12.750	45.1483	72.25	Q	V	.	.	.	.
12.833	45.6526	73.23	Q	V	.	.	.	.
12.917	46.1670	74.68	Q	V	.	.	.	.
13.000	46.6943	76.58	Q	V	.	.	.	.
13.083	47.2371	78.80	Q	V	.	.	.	.
13.167	47.7973	81.35	.Q	V	.	.	.	.
13.250	48.3768	84.14	.Q	V	.	.	.	.
13.333	48.9777	87.26	.Q	V	.	.	.	.
13.417	49.6018	90.61	.Q	V	.	.	.	.
13.500	50.2510	94.27	.Q	V	.	.	.	.
13.583	50.9272	98.19	.Q	V	.	.	.	.
13.667	51.6327	102.44	.Q	V	.	.	.	.
13.750	52.3694	106.97	.Q	V	.	.	.	.
13.833	53.1399	111.87	.Q	V	.	.	.	.
13.917	53.9461	117.06	.Q	V	.	.	.	.
14.000	54.7906	122.62	.Q	V	.	.	.	.
14.083	55.6766	128.65	.Q	V	.	.	.	.
14.167	56.6099	135.52	.Q	V	.	.	.	.
14.250	57.5998	143.73	.Q	V	.	.	.	.
14.333	58.6537	153.02	.Q	V	.	.	.	.
14.417	59.7706	162.18	. Q	V	.	.	.	.
14.500	60.9524	171.59	. Q	V	.	.	.	.
14.583	62.2019	181.43	. Q	V	.	.	.	.
14.667	63.5240	191.98	. Q	V	.	.	.	.
14.750	64.9236	203.22	. Q	V	.	.	.	.
14.833	66.4074	215.45	. Q	V	.	.	.	.
14.917	67.9822	228.66	. Q	V	.	.	.	.
15.000	69.6569	243.17	. Q	V	.	.	.	.
15.083	71.4410	259.05	. Q	V	.	.	.	.
15.167	73.3470	276.75	. Q	V	.	.	.	.

15.250	75.3885	296.43	. Q V . . . .
15.333	77.5836	318.73	. Q V. . . .
15.417	79.9399	342.12	. Q V. . . .
15.500	82.4434	363.52	. Q V. . . .
15.583	85.0310	375.72	. Q V . . .
15.667	87.6915	386.30	. Q V . . .
15.750	90.5649	417.21	. Q V . . .
15.833	93.8333	474.56	. Q .V . . .
15.917	97.7981	575.69	. Q .V . . .
16.000	102.8687	736.25	. Q. V . . .
16.083	110.3055	1079.83	. . Q . . .
16.167	122.1838	1724.73	. . V .Q . .
16.250	141.1510	2754.04	. . V . . Q .
16.333	162.9084	3159.18	. . V. . . Q.
16.417	178.9117	2323.68	. . .V Q. .
16.500	190.8915	1739.46	. . .QV . .
16.583	200.8609	1447.56	. . Q . V . .
16.667	209.5336	1259.29	. . Q . V . .
16.750	217.1788	1110.08	. . Q . V . .
16.833	224.0701	1000.62	. . Q . V . .
16.917	230.3617	913.54	. .Q . V . .
17.000	236.0288	822.86	. Q . V . .
17.083	241.2078	752.00	. Q. . V . .
17.167	246.0155	698.07	. Q . . V. .
17.250	250.4779	647.95	. Q . . V. .
17.333	254.5748	594.87	. Q . . V .
17.417	258.4002	555.46	. Q . . V .
17.500	261.9301	512.54	. Q . . V .
17.583	265.2237	478.22	. Q . . .V .
17.667	268.2481	439.15	. Q . . .V .
17.750	271.0604	408.35	. Q . . . V .
17.833	273.6523	376.33	. Q . . . V .
17.917	276.1311	359.93	. Q . . . V .
18.000	278.5110	345.56	. Q . . . V .
18.083	280.7829	329.87	. Q . . . V .
18.167	282.9588	315.95	. Q . . . V .
18.250	285.0518	303.90	. Q . . . V .
18.333	287.0172	285.37	. Q . . . V .
18.417	288.7660	253.93	. Q . . . V .
18.500	290.4343	242.24	. Q . . . V .
18.583	292.0310	231.85	. Q . . . V .
18.667	293.5588	221.83	. Q . . . V .
18.750	295.0188	211.99	. Q . . . V .
18.833	296.4155	202.80	. Q . . . V .
18.917	297.7552	194.53	. Q . . . V .
19.000	299.0443	187.18	. Q . . . V .
19.083	300.2873	180.48	. Q . . . V .
19.167	301.4876	174.29	. Q . . . V .
19.250	302.6481	168.51	. Q . . . V .
19.333	303.7711	163.06	. Q . . . V .
19.417	304.8589	157.94	.Q . . . V .
19.500	305.9131	153.08	.Q . . . V .
19.583	306.9356	148.46	.Q . . . V .
19.667	307.9277	144.04	.Q . . . V .
19.750	308.8906	139.82	.Q . . . V .
19.833	309.8220	135.23	.Q . . . V .
19.917	310.7172	129.98	.Q . . . V .

20.000	311.5759	124.68	.Q	.	.	.	V	.
20.083	312.4005	119.74	.Q	.	.	.	V	.
20.167	313.1934	115.12	.Q	.	.	.	V	.
20.250	313.9565	110.80	.Q	.	.	.	V	.
20.333	314.6914	106.72	.Q	.	.	.	V	.
20.417	315.3995	102.81	.Q	.	.	.	V	.
20.500	316.0824	99.15	.Q	.	.	.	V	.
20.583	316.7415	95.71	.Q	.	.	.	V	.
20.667	317.3785	92.48	.Q	.	.	.	V	.
20.750	317.9945	89.45	.Q	.	.	.	V	.
20.833	318.5909	86.60	.Q	.	.	.	V	.
20.917	319.1689	83.92	.Q	.	.	.	V	.
21.000	319.7296	81.41	.Q	.	.	.	V	.
21.083	320.2739	79.03	Q	.	.	.	V	.
21.167	320.8027	76.79	Q	.	.	.	V	.
21.250	321.3169	74.67	Q	.	.	.	V	.
21.333	321.8173	72.66	Q	.	.	.	V	.
21.417	322.3047	70.77	Q	.	.	.	V	.
21.500	322.7797	68.97	Q	.	.	.	V	.
21.583	323.2431	67.28	Q	.	.	.	V	.
21.667	323.6953	65.67	Q	.	.	.	V	.
21.750	324.1371	64.15	Q	.	.	.	V	.
21.833	324.5689	62.70	Q	.	.	.	V	.
21.917	324.9913	61.33	Q	.	.	.	V	.
22.000	325.4048	60.03	Q	.	.	.	V	.
22.083	325.8097	58.79	Q	.	.	.	V	.
22.167	326.2065	57.62	Q	.	.	.	V	.
22.250	326.5956	56.50	Q	.	.	.	V	.
22.333	326.9774	55.43	Q	.	.	.	V	.
22.417	327.3521	54.42	Q	.	.	.	V	.
22.500	327.7203	53.45	Q	.	.	.	V	.
22.583	328.0821	52.53	Q	.	.	.	V	.
22.667	328.4378	51.65	Q	.	.	.	V	.
22.750	328.7878	50.81	Q	.	.	.	V	.
22.833	329.1322	50.01	Q	.	.	.	V	.
22.917	329.4713	49.24	Q	.	.	.	V	.
23.000	329.8054	48.51	Q	.	.	.	V	.
23.083	330.1346	47.80	Q	.	.	.	V	.
23.167	330.4592	47.13	Q	.	.	.	V	.
23.250	330.7793	46.48	Q	.	.	.	V	.
23.333	331.0952	45.86	Q	.	.	.	V	.
23.417	331.4069	45.26	Q	.	.	.	V	.
23.500	331.7147	44.69	Q	.	.	.	V	.
23.583	332.0186	44.14	Q	.	.	.	V	.
23.667	332.3190	43.61	Q	.	.	.	V	.
23.750	332.6158	43.10	Q	.	.	.	V	.
23.833	332.9092	42.60	Q	.	.	.	V	.
23.917	333.1993	42.13	Q	.	.	.	V	.
24.000	333.4863	41.67	Q	.	.	.	V	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
==========	==========

0%	1445.0
10%	175.0
20%	80.0
30%	50.0
40%	30.0
50%	25.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

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****************************************************************************
  FLOW PROCESS FROM NODE     107.00 TO NODE     105.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #3 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 3 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =    80.00      CHANNEL Z =  4.00
          UPSTREAM ELEVATION(FT) =     3191.00
          DOWNSTREAM ELEVATION(FT) =    3140.00
          CHANNEL LENGTH(FT) =    3950.00      MANNING'S FACTOR = 0.030
          CONSTANT LOSS RATE(CFS) =     0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                                (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (    3159.2).......[ 11.01]
          AVERAGED PEAK 15-MINUTE: (    2745.6).......[ 10.43]
          AVERAGED PEAK 30-MINUTE: (    2191.4).......[  9.70]
          AVERAGED PEAK  1-HOUR:   (    1611.2).......[  8.69]
          AVERAGED PEAK  3-HOUR:   (     845.6).......[  6.84]
          AVERAGED PEAK  6-HOUR:   (     517.9).......[  5.71]
          AVERAGED PEAK 24-HOUR:   (     169.3).......[  3.70]
        USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  10.000
        HYDROGRAPH TRANSLATION TIME
        = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
        = (   3950.00)/( 10.000) =   0.110 HRS

        TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                              OUTFLOW LESS
         MODEL         INFLOW      ROUTED       LOSS
          TIME       (STREAM 3)     FLOW     (STREAM 3)
         (HRS)         (CFS)        (CFS)       (CFS)
          0.083          0.03         0.00        0.00
          0.167          0.20         0.02        0.02
          0.250          0.76         0.15        0.15
          0.333          1.81         0.58        0.58
          0.417          3.11         1.48        1.48
          0.500          4.52         2.70        2.70
          0.583          5.98         4.08        4.08
          0.667          7.44         5.52        5.52
          0.750          8.93         6.98        6.98
          0.833         10.45         8.46        8.46
```

NODES 107 → 105 CHANNEL ROUTING

0.917	11.94	9.97	9.97
1.000	13.38	11.47	11.47
1.083	14.76	12.92	12.92
1.167	16.08	14.32	14.32
1.250	17.34	15.66	15.66
1.333	18.54	16.94	16.94
1.417	19.68	18.16	18.16
1.500	20.76	19.32	19.32
1.583	21.79	20.42	20.42
1.667	22.77	21.47	21.47
1.750	23.69	22.46	22.46
1.833	24.55	23.40	23.40
1.917	25.38	24.28	24.28
2.000	26.16	25.12	25.12
2.083	26.91	25.91	25.91
2.167	27.61	26.67	26.67
2.250	28.28	27.39	27.39
2.333	28.91	28.07	28.07
2.417	29.50	28.71	28.71
2.500	30.06	29.31	29.31
2.583	30.59	29.88	29.88
2.667	31.09	30.42	30.42
2.750	31.56	30.93	30.93
2.833	32.01	31.41	31.41
2.917	32.44	31.87	31.87
3.000	32.85	32.31	32.31
3.083	33.24	32.72	32.72
3.167	33.61	33.11	33.11
3.250	33.96	33.49	33.49
3.333	34.30	33.85	33.85
3.417	34.63	34.19	34.19
3.500	34.94	34.52	34.52
3.583	35.24	34.84	34.84
3.667	35.53	35.15	35.15
3.750	35.82	35.44	35.44
3.833	36.09	35.73	35.73
3.917	36.35	36.00	36.00
4.000	36.61	36.27	36.27
4.083	36.86	36.53	36.53
4.167	37.11	36.78	36.78
4.250	37.35	37.03	37.03
4.333	37.58	37.27	37.27
4.417	37.81	37.51	37.51
4.500	38.03	37.74	37.74
4.583	38.26	37.96	37.96
4.667	38.47	38.19	38.19
4.750	38.69	38.41	38.41
4.833	38.90	38.62	38.62
4.917	39.11	38.84	38.84
5.000	39.32	39.05	39.05
5.083	39.53	39.26	39.26
5.167	39.74	39.46	39.46
5.250	39.94	39.67	39.67
5.333	40.15	39.88	39.88
5.417	40.35	40.08	40.08
5.500	40.55	40.29	40.29
5.583	40.76	40.49	40.49

5.667	40.96	40.69	40.69
5.750	41.16	40.90	40.90
5.833	41.37	41.10	41.10
5.917	41.57	41.30	41.30
6.000	41.78	41.51	41.51
6.083	41.98	41.71	41.71
6.167	42.19	41.92	41.92
6.250	42.40	42.13	42.13
6.333	42.61	42.33	42.33
6.417	42.82	42.54	42.54
6.500	43.03	42.75	42.75
6.583	43.25	42.96	42.96
6.667	43.46	43.18	43.18
6.750	43.68	43.39	43.39
6.833	43.90	43.61	43.61
6.917	44.12	43.83	43.83
7.000	44.34	44.05	44.05
7.083	44.57	44.27	44.27
7.167	44.80	44.50	44.50
7.250	45.03	44.73	44.73
7.333	45.26	44.96	44.96
7.417	45.50	45.19	45.19
7.500	45.74	45.43	45.43
7.583	45.98	45.66	45.66
7.667	46.23	45.90	45.90
7.750	46.47	46.15	46.15
7.833	46.72	46.40	46.40
7.917	46.98	46.65	46.65
8.000	47.24	46.90	46.90
8.083	47.50	47.16	47.16
8.167	47.76	47.42	47.42
8.250	48.03	47.68	47.68
8.333	48.30	47.95	47.95
8.417	48.58	48.22	48.22
8.500	48.86	48.49	48.49
8.583	49.14	48.77	48.77
8.667	49.43	49.05	49.05
8.750	49.73	49.34	49.34
8.833	50.02	49.63	49.63
8.917	50.33	49.93	49.93
9.000	50.63	50.23	50.23
9.083	50.95	50.54	50.54
9.167	51.26	50.85	50.85
9.250	51.58	51.16	51.16
9.333	51.91	51.48	51.48
9.417	52.25	51.81	51.81
9.500	52.58	52.14	52.14
9.583	52.93	52.48	52.48
9.667	53.28	52.82	52.82
9.750	53.64	53.17	53.17
9.833	54.00	53.52	53.52
9.917	54.37	53.88	53.88
10.000	54.75	54.25	54.25
10.083	55.13	54.63	54.63
10.167	55.52	55.01	55.01
10.250	55.92	55.40	55.40
10.333	56.32	55.79	55.79

10.417	56.74	56.20	56.20
10.500	57.16	56.61	56.61
10.583	57.59	57.03	57.03
10.667	58.03	57.45	57.45
10.750	58.48	57.89	57.89
10.833	58.94	58.34	58.34
10.917	59.41	58.79	58.79
11.000	59.95	59.26	59.26
11.083	60.65	59.78	59.78
11.167	61.62	60.43	60.43
11.250	62.93	61.31	61.31
11.333	64.48	62.51	62.51
11.417	66.18	63.99	63.99
11.500	68.03	65.64	65.64
11.583	69.98	67.45	67.45
11.667	72.06	69.37	69.37
11.750	74.22	71.40	71.40
11.833	76.49	73.53	73.53
11.917	78.84	75.77	75.77
12.000	81.30	78.10	78.10
12.083	83.40	80.52	80.52
12.167	84.22	82.74	82.74
12.250	81.83	83.96	83.96
12.333	77.46	82.58	82.58
12.417	74.88	78.84	78.84
12.500	73.42	75.69	75.69
12.583	72.46	73.88	73.88
12.667	71.99	72.77	72.77
12.750	72.25	72.14	72.14
12.833	73.23	72.16	72.16
12.917	74.68	72.92	72.92
13.000	76.58	74.22	74.22
13.083	78.80	75.98	75.98
13.167	81.35	78.10	78.10
13.250	84.14	80.54	80.54
13.333	87.26	83.26	83.26
13.417	90.61	86.27	86.27
13.500	94.27	89.55	89.55
13.583	98.19	93.11	93.11
13.667	102.44	96.95	96.95
13.750	106.97	101.09	101.09
13.833	111.87	105.53	105.53
13.917	117.06	110.32	110.32
14.000	122.62	115.42	115.42
14.083	128.65	120.86	120.86
14.167	135.52	126.74	126.74
14.250	143.73	133.34	133.34
14.333	153.02	141.13	141.13
14.417	162.18	150.08	150.08
14.500	171.59	159.28	159.28
14.583	181.43	168.61	168.61
14.667	191.98	178.32	178.32
14.750	203.22	188.64	188.64
14.833	215.45	199.66	199.66
14.917	228.66	211.58	211.58
15.000	243.17	224.47	224.47
15.083	259.05	238.57	238.57

15.167	276.75	254.02	254.02
15.250	296.43	271.14	271.14
15.333	318.73	290.20	290.20
15.417	342.12	311.67	311.67
15.500	363.52	334.72	334.72
15.583	375.72	356.74	356.74
15.667	386.30	371.86	371.86
15.750	417.21	382.95	382.95
15.833	474.56	407.43	407.43
15.917	575.69	456.40	456.40
16.000	736.25	543.67	543.67
16.083	1079.83	685.41	685.41
16.167	1724.73	971.03	971.03
16.250	2754.04	1520.51	1520.51
16.333	3159.18	2428.09	2428.09
16.417	2323.68	3030.88	3030.88
16.500	1739.46	2588.26	2588.26
16.583	1447.56	1924.46	1924.46
16.667	1259.29	1539.99	1539.99
16.750	1110.08	1318.90	1318.90
16.833	1000.62	1157.33	1157.33
16.917	913.54	1035.28	1035.28
17.000	822.86	941.12	941.12
17.083	752.00	851.57	851.57
17.167	698.07	774.43	774.43
17.250	647.95	715.15	715.15
17.333	594.87	663.82	663.82
17.417	555.46	611.68	611.68
17.500	512.54	567.94	567.94
17.583	478.22	526.13	526.13
17.667	439.15	489.09	489.09
17.750	408.35	451.52	451.52
17.833	376.33	418.10	418.10
17.917	359.93	386.47	386.47
18.000	345.56	365.13	365.13
18.083	329.87	350.11	350.11
18.167	315.95	334.84	334.84
18.250	303.90	320.36	320.36
18.333	285.37	307.71	307.71
18.417	253.93	291.24	291.24
18.500	242.24	263.88	263.88
18.583	231.85	245.94	245.94
18.667	221.83	235.14	235.14
18.750	211.99	225.01	225.01
18.833	202.80	215.11	215.11
18.917	194.53	205.71	205.71
19.000	187.18	197.15	197.15
19.083	180.48	189.51	189.51
19.167	174.29	182.60	182.60
19.250	168.51	176.25	176.25
19.333	163.06	170.34	170.34
19.417	157.94	164.78	164.78
19.500	153.08	159.56	159.56
19.583	148.46	154.62	154.62
19.667	144.04	149.93	149.93
19.750	139.82	145.44	145.44
19.833	135.23	141.16	141.16

19.917	129.98	136.68	136.68
20.000	124.68	131.64	131.64
20.083	119.74	126.36	126.36
20.167	115.12	121.30	121.30
20.250	110.80	116.59	116.59
20.333	106.72	112.17	112.17
20.417	102.81	108.01	108.01
20.500	99.15	104.05	104.05
20.583	95.71	100.31	100.31
20.667	92.48	96.80	96.80
20.750	89.45	93.50	93.50
20.833	86.60	90.41	90.41
20.917	83.92	87.50	87.50
21.000	81.41	84.77	84.77
21.083	79.03	82.20	82.20
21.167	76.79	79.78	79.78
21.250	74.67	77.50	77.50
21.333	72.66	75.34	75.34
21.417	70.77	73.30	73.30
21.500	68.97	71.37	71.37
21.583	67.28	69.54	69.54
21.667	65.67	67.81	67.81
21.750	64.15	66.18	66.18
21.833	62.70	64.63	64.63
21.917	61.33	63.16	63.16
22.000	60.03	61.76	61.76
22.083	58.79	60.44	60.44
22.167	57.62	59.18	59.18
22.250	56.50	57.99	57.99
22.333	55.43	56.85	56.85
22.417	54.42	55.77	55.77
22.500	53.45	54.74	54.74
22.583	52.53	53.76	53.76
22.667	51.65	52.82	52.82
22.750	50.81	51.93	51.93
22.833	50.01	51.08	51.08
22.917	49.24	50.26	50.26
23.000	48.51	49.49	49.49
23.083	47.80	48.74	48.74
23.167	47.13	48.03	48.03
23.250	46.48	47.34	47.34
23.333	45.86	46.69	46.69
23.417	45.26	46.06	46.06
23.500	44.69	45.45	45.45
23.583	44.14	44.87	44.87
23.667	43.61	44.31	44.31
23.750	43.10	43.78	43.78
23.833	42.60	43.26	43.26
23.917	42.13	42.76	42.76
24.000	41.67	42.28	42.28
24.083	41.19	41.81	41.81
24.167	40.58	41.34	41.34
24.250	39.58	40.78	40.78
24.333	38.07	39.90	39.90
24.417	36.31	38.55	38.55
24.500	34.46	36.86	36.86
24.583	32.59	35.04	35.04

24.667	30.74	33.18	33.18
24.750	28.94	31.33	31.33
24.833	27.20	29.51	29.51
24.917	25.52	27.75	27.75
25.000	23.92	26.05	26.05
25.083	22.39	24.43	24.43
25.167	20.94	22.88	22.88
25.250	19.57	21.40	21.40
25.333	18.27	20.00	20.00
25.417	17.04	18.68	18.68
25.500	15.89	17.43	17.43
25.583	14.80	16.25	16.25
25.667	13.78	15.14	15.14
25.750	12.83	14.10	14.10
25.833	11.94	13.13	13.13
25.917	11.10	12.22	12.22
26.000	10.32	11.37	11.37
26.083	9.58	10.57	10.57
26.167	8.89	9.82	9.82
26.250	8.25	9.11	9.11
26.333	7.68	8.45	8.45
26.417	7.17	7.86	7.86
26.500	6.69	7.33	7.33
26.583	6.25	6.84	6.84
26.667	5.83	6.39	6.39
26.750	5.44	5.96	5.96
26.833	5.08	5.56	5.56
26.917	4.74	5.19	5.19
27.000	4.43	4.85	4.85
27.083	4.13	4.53	4.53
27.167	3.86	4.22	4.22
27.250	3.60	3.94	3.94
27.333	3.36	3.68	3.68
27.417	3.14	3.44	3.44
27.500	2.93	3.21	3.21
27.583	2.73	2.99	2.99
27.667	2.55	2.79	2.79
27.750	2.38	2.61	2.61
27.833	2.22	2.43	2.43
27.917	2.07	2.27	2.27
28.000	1.94	2.12	2.12
28.083	1.81	1.98	1.98
28.167	1.69	1.85	1.85
28.250	1.57	1.72	1.72
28.333	1.47	1.61	1.61
28.417	1.37	1.50	1.50
28.500	1.28	1.40	1.40
28.583	1.20	1.31	1.31
28.667	1.12	1.22	1.22
28.750	1.04	1.14	1.14
28.833	0.97	1.06	1.06
28.917	0.91	0.99	0.99
29.000	0.85	0.93	0.93
29.083	0.79	0.87	0.87
29.167	0.74	0.81	0.81
29.250	0.69	0.75	0.75
29.333	0.64	0.70	0.70

29.417	0.60	0.66	0.66
29.500	0.56	0.61	0.61
29.583	0.52	0.57	0.57
29.667	0.49	0.53	0.53
29.750	0.46	0.50	0.50
29.833	0.43	0.47	0.47
29.917	0.40	0.43	0.43
30.000	0.37	0.41	0.41
30.083	0.35	0.38	0.38
30.167	0.32	0.35	0.35
30.250	0.30	0.33	0.33
30.333	0.28	0.31	0.31
30.417	0.26	0.29	0.29
30.500	0.25	0.27	0.27
30.583	0.23	0.25	0.25
30.667	0.21	0.23	0.23
30.750	0.20	0.22	0.22
30.833	0.19	0.20	0.20
30.917	0.17	0.19	0.19
31.000	0.16	0.18	0.18
31.083	0.15	0.17	0.17
31.167	0.14	0.15	0.15
31.250	0.13	0.14	0.14
31.333	0.12	0.13	0.13
31.417	0.11	0.13	0.13
31.500	0.11	0.12	0.12
31.583	0.10	0.11	0.11
31.667	0.09	0.10	0.10
31.750	0.09	0.10	0.10
31.833	0.08	0.09	0.09
31.917	0.08	0.08	0.08
32.000	0.07	0.08	0.08
32.083	0.07	0.07	0.07
32.167	0.06	0.07	0.07
32.250	0.06	0.06	0.06
32.333	0.05	0.06	0.06
32.417	0.05	0.06	0.06
32.500	0.05	0.05	0.05
32.583	0.04	0.05	0.05
32.667	0.04	0.04	0.04
32.750	0.04	0.04	0.04
32.833	0.04	0.04	0.04
32.917	0.03	0.04	0.04
33.000	0.03	0.03	0.03
33.083	0.03	0.03	0.03
33.167	0.03	0.03	0.03
33.250	0.03	0.03	0.03
33.333	0.02	0.03	0.03
33.417	0.02	0.02	0.02
33.500	0.02	0.02	0.02
33.583	0.02	0.02	0.02
33.667	0.02	0.02	0.02
33.750	0.02	0.02	0.02
33.833	0.02	0.02	0.02
33.917	0.01	0.02	0.02
34.000	0.01	0.01	0.01
34.083	0.01	0.01	0.01

```
          34.167         0.01         0.01         0.01
          34.250         0.01         0.01         0.01
          34.333         0.01         0.01         0.01
          34.417         0.01         0.01         0.01
          34.500         0.01         0.01         0.01
          34.583         0.01         0.01         0.01
          34.667         0.01         0.01         0.01
          34.750         0.01         0.01         0.01
          34.833         0.01         0.01         0.01
          34.917         0.01         0.01         0.01
          35.000         0.01         0.01         0.01
          35.083         0.01         0.01         0.01
          35.167         0.01         0.01         0.01
          35.250         0.00         0.01         0.01
          35.333         0.00         0.00         0.00
          35.417         0.00         0.00         0.00
          35.500         0.00         0.00         0.00
          35.583         0.00         0.00         0.00
          35.667         0.00         0.00         0.00
          35.750         0.00         0.00         0.00
          35.833         0.00         0.00         0.00
          35.917         0.00         0.00         0.00
          36.000         0.00         0.00         0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =     338.514 AF
    OUTFLOW VOLUME =     338.514 AF
    LOSS    VOLUME =       0.000 AF


********************************************************************************
  FLOW PROCESS FROM NODE     105.00 TO NODE     105.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
================================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #3)

         WATERSHED AREA =      544.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.349 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.030
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.970
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.115
         LOW LOSS FRACTION = 0.125
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
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NODE 105 SUBAREA HYDRO GRAPH

SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 23.878

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.272	83.679
2	6.098	317.493
3	17.457	747.352
4	38.218	1365.807
5	53.743	1021.443
6	63.490	641.228
7	70.150	438.147
8	75.177	330.759
9	79.125	259.730
10	82.215	203.296
11	84.756	167.150
12	86.980	146.346
13	88.852	123.146
14	90.322	96.699
15	91.636	86.474
16	92.784	75.517
17	93.819	68.089
18	94.672	56.115
19	95.457	51.667
20	96.126	43.989
21	96.728	39.588
22	97.226	32.802
23	97.643	27.436
24	97.974	21.746
25	98.206	15.242
26	98.455	16.401
27	98.732	18.259
28	99.010	18.281

29	99.288	18.291
30	99.566	18.280
31	99.844	18.281
32	100.000	10.265

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0006	0.0043
2	0.0049	0.0006	0.0043
3	0.0049	0.0006	0.0043
4	0.0049	0.0006	0.0043
5	0.0049	0.0006	0.0043
6	0.0049	0.0006	0.0043
7	0.0050	0.0006	0.0043
8	0.0050	0.0006	0.0043
9	0.0050	0.0006	0.0044
10	0.0050	0.0006	0.0044
11	0.0050	0.0006	0.0044
12	0.0050	0.0006	0.0044
13	0.0051	0.0006	0.0044
14	0.0051	0.0006	0.0044
15	0.0051	0.0006	0.0045
16	0.0051	0.0006	0.0045
17	0.0051	0.0006	0.0045
18	0.0051	0.0006	0.0045
19	0.0052	0.0006	0.0045
20	0.0052	0.0006	0.0045
21	0.0052	0.0006	0.0045
22	0.0052	0.0007	0.0046
23	0.0052	0.0007	0.0046
24	0.0052	0.0007	0.0046
25	0.0053	0.0007	0.0046
26	0.0053	0.0007	0.0046
27	0.0053	0.0007	0.0046
28	0.0053	0.0007	0.0047
29	0.0054	0.0007	0.0047
30	0.0054	0.0007	0.0047
31	0.0054	0.0007	0.0047
32	0.0054	0.0007	0.0047
33	0.0054	0.0007	0.0048
34	0.0054	0.0007	0.0048
35	0.0055	0.0007	0.0048
36	0.0055	0.0007	0.0048
37	0.0055	0.0007	0.0048
38	0.0055	0.0007	0.0048
39	0.0056	0.0007	0.0049
40	0.0056	0.0007	0.0049
41	0.0056	0.0007	0.0049
42	0.0056	0.0007	0.0049
43	0.0057	0.0007	0.0049
44	0.0057	0.0007	0.0050
45	0.0057	0.0007	0.0050
46	0.0057	0.0007	0.0050
47	0.0057	0.0007	0.0050
48	0.0058	0.0007	0.0050
49	0.0058	0.0007	0.0051
50	0.0058	0.0007	0.0051
51	0.0058	0.0007	0.0051

52	0.0059	0.0007	0.0051
53	0.0059	0.0007	0.0052
54	0.0059	0.0007	0.0052
55	0.0059	0.0007	0.0052
56	0.0060	0.0007	0.0052
57	0.0060	0.0008	0.0053
58	0.0060	0.0008	0.0053
59	0.0061	0.0008	0.0053
60	0.0061	0.0008	0.0053
61	0.0061	0.0008	0.0053
62	0.0061	0.0008	0.0054
63	0.0062	0.0008	0.0054
64	0.0062	0.0008	0.0054
65	0.0062	0.0008	0.0055
66	0.0063	0.0008	0.0055
67	0.0063	0.0008	0.0055
68	0.0063	0.0008	0.0055
69	0.0064	0.0008	0.0056
70	0.0064	0.0008	0.0056
71	0.0064	0.0008	0.0056
72	0.0064	0.0008	0.0056
73	0.0065	0.0008	0.0057
74	0.0065	0.0008	0.0057
75	0.0065	0.0008	0.0057
76	0.0066	0.0008	0.0058
77	0.0066	0.0008	0.0058
78	0.0066	0.0008	0.0058
79	0.0067	0.0008	0.0059
80	0.0067	0.0008	0.0059
81	0.0068	0.0008	0.0059
82	0.0068	0.0008	0.0059
83	0.0068	0.0009	0.0060
84	0.0069	0.0009	0.0060
85	0.0069	0.0009	0.0061
86	0.0069	0.0009	0.0061
87	0.0070	0.0009	0.0061
88	0.0070	0.0009	0.0061
89	0.0071	0.0009	0.0062
90	0.0071	0.0009	0.0062
91	0.0072	0.0009	0.0063
92	0.0072	0.0009	0.0063
93	0.0072	0.0009	0.0063
94	0.0073	0.0009	0.0064
95	0.0073	0.0009	0.0064
96	0.0074	0.0009	0.0064
97	0.0074	0.0009	0.0065
98	0.0075	0.0009	0.0065
99	0.0075	0.0009	0.0066
100	0.0076	0.0009	0.0066
101	0.0076	0.0010	0.0067
102	0.0077	0.0010	0.0067
103	0.0077	0.0010	0.0068
104	0.0078	0.0010	0.0068
105	0.0078	0.0010	0.0069
106	0.0079	0.0010	0.0069
107	0.0080	0.0010	0.0070
108	0.0080	0.0010	0.0070

109	0.0081	0.0010	0.0071
110	0.0081	0.0010	0.0071
111	0.0082	0.0010	0.0072
112	0.0082	0.0010	0.0072
113	0.0083	0.0010	0.0073
114	0.0084	0.0010	0.0073
115	0.0084	0.0011	0.0074
116	0.0085	0.0011	0.0074
117	0.0086	0.0011	0.0075
118	0.0086	0.0011	0.0075
119	0.0087	0.0011	0.0076
120	0.0088	0.0011	0.0077
121	0.0089	0.0011	0.0078
122	0.0089	0.0011	0.0078
123	0.0090	0.0011	0.0079
124	0.0091	0.0011	0.0079
125	0.0092	0.0011	0.0080
126	0.0092	0.0012	0.0081
127	0.0094	0.0012	0.0082
128	0.0094	0.0012	0.0082
129	0.0095	0.0012	0.0083
130	0.0096	0.0012	0.0084
131	0.0097	0.0012	0.0085
132	0.0098	0.0012	0.0086
133	0.0099	0.0012	0.0087
134	0.0100	0.0012	0.0087
135	0.0101	0.0013	0.0089
136	0.0102	0.0013	0.0089
137	0.0103	0.0013	0.0091
138	0.0104	0.0013	0.0091
139	0.0106	0.0013	0.0093
140	0.0107	0.0013	0.0093
141	0.0108	0.0014	0.0095
142	0.0109	0.0014	0.0096
143	0.0111	0.0014	0.0097
144	0.0112	0.0014	0.0098
145	0.0090	0.0011	0.0079
146	0.0091	0.0011	0.0080
147	0.0093	0.0012	0.0081
148	0.0094	0.0012	0.0082
149	0.0096	0.0012	0.0084
150	0.0097	0.0012	0.0085
151	0.0099	0.0012	0.0087
152	0.0100	0.0013	0.0088
153	0.0102	0.0013	0.0090
154	0.0104	0.0013	0.0091
155	0.0106	0.0013	0.0093
156	0.0107	0.0013	0.0094
157	0.0110	0.0014	0.0096
158	0.0112	0.0014	0.0098
159	0.0115	0.0014	0.0100
160	0.0116	0.0015	0.0102
161	0.0120	0.0015	0.0105
162	0.0121	0.0015	0.0106
163	0.0125	0.0016	0.0109
164	0.0127	0.0016	0.0111
165	0.0131	0.0016	0.0115

166	0.0134	0.0017	0.0117
167	0.0138	0.0017	0.0121
168	0.0141	0.0018	0.0123
169	0.0151	0.0019	0.0133
170	0.0154	0.0019	0.0135
171	0.0161	0.0020	0.0141
172	0.0164	0.0021	0.0144
173	0.0172	0.0021	0.0150
174	0.0176	0.0022	0.0154
175	0.0185	0.0023	0.0162
176	0.0190	0.0024	0.0166
177	0.0201	0.0025	0.0176
178	0.0207	0.0026	0.0181
179	0.0220	0.0028	0.0193
180	0.0228	0.0028	0.0199
181	0.0245	0.0031	0.0215
182	0.0255	0.0032	0.0223
183	0.0279	0.0035	0.0244
184	0.0293	0.0037	0.0256
185	0.0251	0.0031	0.0220
186	0.0269	0.0034	0.0236
187	0.0316	0.0039	0.0276
188	0.0347	0.0043	0.0304
189	0.0539	0.0067	0.0472
190	0.0621	0.0078	0.0544
191	0.0941	0.0096	0.0845
192	0.1367	0.0096	0.1271
193	0.5874	0.0096	0.5778
194	0.0741	0.0093	0.0649
195	0.0387	0.0048	0.0338
196	0.0290	0.0036	0.0254
197	0.0308	0.0039	0.0270
198	0.0266	0.0033	0.0233
199	0.0236	0.0030	0.0207
200	0.0213	0.0027	0.0186
201	0.0195	0.0024	0.0171
202	0.0180	0.0023	0.0158
203	0.0168	0.0021	0.0147
204	0.0158	0.0020	0.0138
205	0.0144	0.0018	0.0126
206	0.0136	0.0017	0.0119
207	0.0129	0.0016	0.0113
208	0.0123	0.0015	0.0108
209	0.0118	0.0015	0.0103
210	0.0113	0.0014	0.0099
211	0.0109	0.0014	0.0095
212	0.0105	0.0013	0.0092
213	0.0101	0.0013	0.0089
214	0.0098	0.0012	0.0086
215	0.0095	0.0012	0.0083
216	0.0092	0.0011	0.0080
217	0.0113	0.0014	0.0099
218	0.0110	0.0014	0.0096
219	0.0107	0.0013	0.0094
220	0.0105	0.0013	0.0092
221	0.0103	0.0013	0.0090
222	0.0101	0.0013	0.0088

223	0.0099	0.0012	0.0086
224	0.0097	0.0012	0.0084
225	0.0095	0.0012	0.0083
226	0.0093	0.0012	0.0081
227	0.0091	0.0011	0.0080
228	0.0090	0.0011	0.0078
229	0.0088	0.0011	0.0077
230	0.0087	0.0011	0.0076
231	0.0085	0.0011	0.0075
232	0.0084	0.0010	0.0073
233	0.0083	0.0010	0.0072
234	0.0081	0.0010	0.0071
235	0.0080	0.0010	0.0070
236	0.0079	0.0010	0.0069
237	0.0078	0.0010	0.0068
238	0.0077	0.0010	0.0067
239	0.0076	0.0009	0.0066
240	0.0075	0.0009	0.0066
241	0.0074	0.0009	0.0065
242	0.0073	0.0009	0.0064
243	0.0072	0.0009	0.0063
244	0.0071	0.0009	0.0062
245	0.0070	0.0009	0.0062
246	0.0070	0.0009	0.0061
247	0.0069	0.0009	0.0060
248	0.0068	0.0009	0.0060
249	0.0067	0.0008	0.0059
250	0.0067	0.0008	0.0058
251	0.0066	0.0008	0.0058
252	0.0065	0.0008	0.0057
253	0.0065	0.0008	0.0057
254	0.0064	0.0008	0.0056
255	0.0063	0.0008	0.0055
256	0.0063	0.0008	0.0055
257	0.0062	0.0008	0.0054
258	0.0062	0.0008	0.0054
259	0.0061	0.0008	0.0053
260	0.0060	0.0008	0.0053
261	0.0060	0.0007	0.0052
262	0.0059	0.0007	0.0052
263	0.0059	0.0007	0.0051
264	0.0058	0.0007	0.0051
265	0.0058	0.0007	0.0051
266	0.0057	0.0007	0.0050
267	0.0057	0.0007	0.0050
268	0.0056	0.0007	0.0049
269	0.0056	0.0007	0.0049
270	0.0055	0.0007	0.0049
271	0.0055	0.0007	0.0048
272	0.0055	0.0007	0.0048
273	0.0054	0.0007	0.0047
274	0.0054	0.0007	0.0047
275	0.0053	0.0007	0.0047
276	0.0053	0.0007	0.0046
277	0.0053	0.0007	0.0046
278	0.0052	0.0007	0.0046
279	0.0052	0.0006	0.0045

280	0.0052	0.0006	0.0045
281	0.0051	0.0006	0.0045
282	0.0051	0.0006	0.0044
283	0.0050	0.0006	0.0044
284	0.0050	0.0006	0.0044
285	0.0050	0.0006	0.0044
286	0.0049	0.0006	0.0043
287	0.0049	0.0006	0.0043
288	0.0049	0.0006	0.0043

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.38
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.22

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 17.0466
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 145.9149

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	300.0	600.0	900.0	1200.0
0.083	0.0025	0.36	Q	.	.	.	.
0.167	0.0142	1.71	Q	.	.	.	.
0.250	0.0479	4.89	Q	.	.	.	.
0.333	0.1217	10.71	Q	.	.	.	.
0.417	0.2255	15.09	Q	.	.	.	.
0.500	0.3486	17.86	Q	.	.	.	.
0.583	0.4848	19.78	Q	.	.	.	.
0.667	0.6311	21.25	Q	.	.	.	.
0.750	0.7856	22.42	Q	.	.	.	.
0.833	0.9465	23.36	Q	.	.	.	.
0.917	1.1128	24.15	Q	.	.	.	.
1.000	1.2839	24.85	Q	.	.	.	.
1.083	1.4592	25.46	Q	.	.	.	.
1.167	1.6379	25.95	Q	.	.	.	.
1.250	1.8198	26.41	Q	.	.	.	.
1.333	2.0045	26.82	Q	.	.	.	.
1.417	2.1918	27.19	Q	.	.	.	.
1.500	2.3814	27.53	Q	.	.	.	.
1.583	2.5731	27.84	Q	.	.	.	.
1.667	2.7668	28.12	Q	.	.	.	.
1.750	2.9623	28.39	Q	.	.	.	.
1.833	3.1594	28.63	Q	.	.	.	.
1.917	3.3580	28.84	Q	.	.	.	.
2.000	3.5580	29.04	Q	.	.	.	.
2.083	3.7591	29.20	QV	.	.	.	.
2.167	3.9614	29.38	QV	.	.	.	.
2.250	4.1650	29.56	QV	.	.	.	.
2.333	4.3698	29.74	QV	.	.	.	.
2.417	4.5759	29.93	QV	.	.	.	.
2.500	4.7833	30.11	.Q	.	.	.	.
2.583	4.9920	30.30	.Q	.	.	.	.
2.667	5.2017	30.45	.Q	.	.	.	.
2.750	5.4122	30.57	.Q	.	.	.	.
2.833	5.6235	30.68	.Q	.	.	.	.
2.917	5.8356	30.79	.Q	.	.	.	.
3.000	6.0485	30.91	.Q	.	.	.	.
3.083	6.2621	31.03	.Q	.	.	.	.
3.167	6.4766	31.14	.Q	.	.	.	.
3.250	6.6919	31.26	.Q	.	.	.	.
3.333	6.9081	31.38	.Q	.	.	.	.
3.417	7.1251	31.50	.Q	.	.	.	.
3.500	7.3429	31.63	.QV	.	.	.	.
3.583	7.5615	31.75	.QV	.	.	.	.
3.667	7.7811	31.88	.QV	.	.	.	.
3.750	8.0015	32.00	.QV	.	.	.	.

3.833	8.2228	32.13	.QV	.	.	.	.
3.917	8.4449	32.26	.QV	.	.	.	.
4.000	8.6680	32.39	.QV	.	.	.	.
4.083	8.8920	32.52	.QV	.	.	.	.
4.167	9.1169	32.66	.QV	.	.	.	.
4.250	9.3428	32.79	.QV	.	.	.	.
4.333	9.5695	32.93	.QV	.	.	.	.
4.417	9.7973	33.06	.QV	.	.	.	.
4.500	10.0259	33.21	.QV	.	.	.	.
4.583	10.2556	33.35	.QV	.	.	.	.
4.667	10.4862	33.49	.QV	.	.	.	.
4.750	10.7179	33.63	.QV	.	.	.	.
4.833	10.9505	33.78	.Q V	.	.	.	.
4.917	11.1842	33.93	.Q V	.	.	.	.
5.000	11.4189	34.08	.Q V	.	.	.	.
5.083	11.6546	34.23	.Q V	.	.	.	.
5.167	11.8914	34.38	.Q V	.	.	.	.
5.250	12.1292	34.53	.Q V	.	.	.	.
5.333	12.3681	34.69	.Q V	.	.	.	.
5.417	12.6081	34.85	.Q V	.	.	.	.
5.500	12.8493	35.01	.Q V	.	.	.	.
5.583	13.0915	35.17	.Q V	.	.	.	.
5.667	13.3348	35.34	.Q V	.	.	.	.
5.750	13.5794	35.50	.Q V	.	.	.	.
5.833	13.8250	35.67	.Q V	.	.	.	.
5.917	14.0719	35.84	.Q V	.	.	.	.
6.000	14.3199	36.02	.Q V	.	.	.	.
6.083	14.5691	36.19	.Q V	.	.	.	.
6.167	14.8196	36.37	.Q V	.	.	.	.
6.250	15.0713	36.54	.Q V	.	.	.	.
6.333	15.3242	36.73	.Q V	.	.	.	.
6.417	15.5784	36.91	.Q V	.	.	.	.
6.500	15.8339	37.10	.Q V	.	.	.	.
6.583	16.0907	37.29	.Q V	.	.	.	.
6.667	16.3489	37.48	.Q V	.	.	.	.
6.750	16.6083	37.67	.Q V	.	.	.	.
6.833	16.8692	37.87	.Q V	.	.	.	.
6.917	17.1314	38.07	.Q V	.	.	.	.
7.000	17.3950	38.27	.Q V	.	.	.	.
7.083	17.6600	38.48	.Q V	.	.	.	.
7.167	17.9264	38.69	.Q V	.	.	.	.
7.250	18.1943	38.90	.Q V	.	.	.	.
7.333	18.4637	39.11	.Q V	.	.	.	.
7.417	18.7346	39.33	.Q V	.	.	.	.
7.500	19.0070	39.55	.Q V	.	.	.	.
7.583	19.2809	39.78	.Q V	.	.	.	.
7.667	19.5564	40.01	.Q V	.	.	.	.
7.750	19.8335	40.23	.Q V	.	.	.	.
7.833	20.1122	40.47	.Q V	.	.	.	.
7.917	20.3926	40.71	.Q V	.	.	.	.
8.000	20.6746	40.95	.Q V	.	.	.	.
8.083	20.9583	41.19	.Q V	.	.	.	.
8.167	21.2438	41.45	.Q V	.	.	.	.
8.250	21.5310	41.70	.Q V	.	.	.	.
8.333	21.8199	41.96	.Q V	.	.	.	.
8.417	22.1107	42.22	.Q V	.	.	.	.
8.500	22.4033	42.49	.Q V	.	.	.	.

8.583	22.6978	42.76	.Q	V	.	.	.	.
8.667	22.9942	43.04	.Q	V	.	.	.	.
8.750	23.2925	43.31	.Q	V	.	.	.	.
8.833	23.5928	43.60	.Q	V	.	.	.	.
8.917	23.8950	43.89	.Q	V	.	.	.	.
9.000	24.1993	44.19	.Q	V	.	.	.	.
9.083	24.5057	44.49	.Q	V	.	.	.	.
9.167	24.8142	44.80	.Q	V	.	.	.	.
9.250	25.1248	45.10	.Q	V	.	.	.	.
9.333	25.4377	45.43	.Q	V	.	.	.	.
9.417	25.7527	45.75	.Q	V	.	.	.	.
9.500	26.0701	46.08	.Q	V	.	.	.	.
9.583	26.3897	46.41	.Q	V	.	.	.	.
9.667	26.7118	46.76	.Q	V	.	.	.	.
9.750	27.0362	47.10	.Q	V	.	.	.	.
9.833	27.3631	47.47	.Q	V	.	.	.	.
9.917	27.6925	47.83	.Q	V	.	.	.	.
10.000	28.0244	48.20	.Q	V	.	.	.	.
10.083	28.3590	48.58	.Q	V	.	.	.	.
10.167	28.6962	48.97	.Q	V	.	.	.	.
10.250	29.0362	49.36	.Q	V	.	.	.	.
10.333	29.3789	49.77	.Q	V	.	.	.	.
10.417	29.7245	50.18	.Q	V	.	.	.	.
10.500	30.0730	50.60	.Q	V	.	.	.	.
10.583	30.4244	51.03	.Q	V	.	.	.	.
10.667	30.7789	51.48	.Q	V	.	.	.	.
10.750	31.1365	51.92	.Q	V	.	.	.	.
10.833	31.4974	52.39	.Q	V	.	.	.	.
10.917	31.8614	52.86	.Q	V	.	.	.	.
11.000	32.2288	53.35	.Q	V	.	.	.	.
11.083	32.5996	53.84	.Q	V	.	.	.	.
11.167	32.9740	54.36	.Q	V.	.	.	.	.
11.250	33.3519	54.87	.Q	V.	.	.	.	.
11.333	33.7336	55.42	.Q	V.	.	.	.	.
11.417	34.1189	55.96	.Q	V.	.	.	.	.
11.500	34.5083	56.53	.Q	V.	.	.	.	.
11.583	34.9016	57.10	.Q	V.	.	.	.	.
11.667	35.2990	57.71	.Q	V.	.	.	.	.
11.750	35.7006	58.31	.Q	V.	.	.	.	.
11.833	36.1066	58.95	.Q	V.	.	.	.	.
11.917	36.5170	59.59	.Q	V	.	.	.	.
12.000	36.9321	60.27	. Q	V	.	.	.	.
12.083	37.3506	60.78	. Q	V	.	.	.	.
12.167	37.7696	60.84	. Q	V	.	.	.	.
12.250	38.1829	60.01	. Q	V	.	.	.	.
12.333	38.5819	57.93	.Q	V	.	.	.	.
12.417	38.9714	56.56	.Q	V	.	.	.	.
12.500	39.3570	56.00	.Q	V	.	.	.	.
12.583	39.7417	55.86	.Q	V	.	.	.	.
12.667	40.1273	55.98	.Q	.V	.	.	.	.
12.750	40.5148	56.26	.Q	.V	.	.	.	.
12.833	40.9053	56.70	.Q	.V	.	.	.	.
12.917	41.2994	57.23	.Q	.V	.	.	.	.
13.000	41.6979	57.86	.Q	.V	.	.	.	.
13.083	42.1011	58.54	.Q	.V	.	.	.	.
13.167	42.5098	59.34	.Q	.V	.	.	.	.
13.250	42.9243	60.18	. Q	.V	.	.	.	.

13.333	43.3452	61.12	. Q .V . . .
13.417	43.7728	62.09	. Q .V . . .
13.500	44.2078	63.16	. Q . V . . .
13.583	44.6505	64.28	. Q . V . . .
13.667	45.1016	65.50	. Q . V . . .
13.750	45.5614	66.76	. Q . V . . .
13.833	46.0307	68.14	. Q . V . . .
13.917	46.5099	69.58	. Q . V . . .
14.000	46.9999	71.15	. Q . V . . .
14.083	47.5015	72.83	. Q . V . . .
14.167	48.0164	74.76	. Q . V . . .
14.250	48.5464	76.95	. Q . V . . .
14.333	49.0945	79.59	. Q . V . . .
14.417	49.6605	82.18	. Q . V . . .
14.500	50.2447	84.82	. Q . V . . .
14.583	50.8473	87.50	. Q . V . . .
14.667	51.4700	90.41	. Q . V . . .
14.750	52.1137	93.47	. Q . V . . .
14.833	52.7807	96.85	. Q . V . . .
14.917	53.4723	100.43	. Q . V . . .
15.000	54.1916	104.44	. Q . V . . .
15.083	54.9406	108.75	. Q . V . . .
15.167	55.7234	113.66	. Q . V . . .
15.250	56.5430	119.01	. Q . V . . .
15.333	57.4054	125.22	. Q . V . . .
15.417	58.3116	131.58	. Q . V . . .
15.500	59.2599	137.69	. Q . V . . .
15.583	60.2382	142.05	. Q . V . . .
15.667	61.2316	144.25	. Q . V . . .
15.750	62.2733	151.25	. Q . V . . .
15.833	63.4205	166.57	. Q . V . . .
15.917	64.7516	193.29	. Q . V . . .
16.000	66.4135	241.30	. Q . V . . .
16.083	68.8000	346.53	.Q V . . .
16.167	72.5272	541.19	. QV. . .
16.250	78.1482	816.17	. .V Q . .
16.333	85.8031	1111.49	. . V . Q .
16.417	91.9639	894.54	. . V Q. .
16.500	96.4168	646.56	. .Q V . .
16.583	99.8548	499.19	. . Q . V . .
16.667	102.7153	415.35	. Q . V . .
16.750	105.1624	355.32	.Q . V . .
16.833	107.2708	306.13	Q . V. .
16.917	109.1325	270.33	Q. . V. .
17.000	110.8151	244.31	Q . V .
17.083	112.3229	218.93	Q . V .
17.167	113.6585	193.93	Q . .V .
17.250	114.8865	178.31	Q . .V .
17.333	116.0121	163.45	Q . .V .
17.417	117.0538	151.25	Q . . V .
17.500	118.0034	137.88	Q . . V .
17.583	118.8908	128.85	Q . . V .
17.667	119.7100	118.95	Q . . V .
17.750	120.4745	110.99	Q . . V .
17.833	121.1795	102.38	Q . . V .
17.917	121.8331	94.89	Q . . V .
18.000	122.4382	87.87	Q . . V .

18.083	123.0002	81.60	. Q	.	.	.	V	.
18.167	123.5521	80.13	. Q	.	.	.	V	.
18.250	124.1041	80.15	. Q	.	.	.	V	.
18.333	124.6586	80.52	. Q	.	.	.	V	.
18.417	125.2096	80.01	. Q	.	.	.	V	.
18.500	125.7504	78.52	. Q	.	.	.	V	.
18.583	126.2744	76.09	. Q	.	.	.	V	.
18.667	126.7530	69.49	. Q	.	.	.	V	.
18.750	127.1822	62.32	. Q	.	.	.	V	.
18.833	127.5997	60.63	. Q	.	.	.	V	.
18.917	128.0083	59.33	.Q	.	.	.	V	.
19.000	128.4086	58.12	.Q	.	.	.	V	.
19.083	128.8008	56.95	.Q	.	.	.	V	.
19.167	129.1853	55.83	.Q	.	.	.	V	.
19.250	129.5626	54.78	.Q	.	.	.	V	.
19.333	129.9330	53.79	.Q	.	.	.	V	.
19.417	130.2969	52.84	.Q	.	.	.	V	.
19.500	130.6546	51.94	.Q	.	.	.	V	.
19.583	131.0064	51.08	.Q	.	.	.	V	.
19.667	131.3526	50.26	.Q	.	.	.	V	.
19.750	131.6933	49.47	.Q	.	.	.	V	.
19.833	132.0287	48.71	.Q	.	.	.	V	.
19.917	132.3592	47.98	.Q	.	.	.	V	.
20.000	132.6847	47.27	.Q	.	.	.	V	.
20.083	133.0055	46.58	.Q	.	.	.	V	.
20.167	133.3217	45.92	.Q	.	.	.	V	.
20.250	133.6336	45.29	.Q	.	.	.	V	.
20.333	133.9413	44.68	.Q	.	.	.	V	.
20.417	134.2451	44.10	.Q	.	.	.	V	.
20.500	134.5450	43.55	.Q	.	.	.	V	.
20.583	134.8412	43.01	.Q	.	.	.	V	.
20.667	135.1337	42.48	.Q	.	.	.	V	.
20.750	135.4225	41.94	.Q	.	.	.	V	.
20.833	135.7078	41.42	.Q	.	.	.	V	.
20.917	135.9896	40.92	.Q	.	.	.	V	.
21.000	136.2681	40.43	.Q	.	.	.	V	.
21.083	136.5433	39.96	.Q	.	.	.	V	.
21.167	136.8154	39.51	.Q	.	.	.	V	.
21.250	137.0845	39.07	.Q	.	.	.	V	.
21.333	137.3506	38.64	.Q	.	.	.	V	.
21.417	137.6138	38.22	.Q	.	.	.	V	.
21.500	137.8743	37.82	.Q	.	.	.	V	.
21.583	138.1320	37.42	.Q	.	.	.	V	.
21.667	138.3871	37.04	.Q	.	.	.	V	.
21.750	138.6396	36.67	.Q	.	.	.	V	.
21.833	138.8897	36.31	.Q	.	.	.	V	.
21.917	139.1373	35.95	.Q	.	.	.	V	.
22.000	139.3825	35.61	.Q	.	.	.	V	.
22.083	139.6254	35.27	.Q	.	.	.	V	.
22.167	139.8661	34.95	.Q	.	.	.	V	.
22.250	140.1046	34.63	.Q	.	.	.	V	.
22.333	140.3409	34.32	.Q	.	.	.	V	.
22.417	140.5752	34.01	.Q	.	.	.	V	.
22.500	140.8074	33.71	.Q	.	.	.	V	.
22.583	141.0376	33.42	.Q	.	.	.	V	.
22.667	141.2658	33.14	.Q	.	.	.	V	.
22.750	141.4921	32.86	.Q	.	.	.	V	.

22.833	141.7166	32.59	.Q	.	.	.	V .
22.917	141.9392	32.33	.Q	.	.	.	V .
23.000	142.1600	32.07	.Q	.	.	.	V .
23.083	142.3791	31.81	.Q	.	.	.	V.
23.167	142.5965	31.56	.Q	.	.	.	V.
23.250	142.8122	31.32	.Q	.	.	.	V.
23.333	143.0263	31.08	.Q	.	.	.	V.
23.417	143.2387	30.85	.Q	.	.	.	V.
23.500	143.4496	30.62	.Q	.	.	.	V.
23.583	143.6589	30.39	.Q	.	.	.	V.
23.667	143.8667	30.17	.Q	.	.	.	V.
23.750	144.0730	29.95	Q	.	.	.	V.
23.833	144.2778	29.74	Q	.	.	.	V.
23.917	144.4812	29.53	Q	.	.	.	V.
24.000	144.6832	29.33	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	155.0
20%	65.0
30%	45.0
40%	30.0
50%	20.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 7
>>>>>STREAM NUMBER 3 ADDED TO STREAM NUMBER 1<<<<<

****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 11
>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2225.0	4450.0	6675.0	8900.0
0.083	0.1930	28.02	Q	.	.	.	.
0.167	0.6796	70.66	Q	.	.	.	.
0.250	1.1814	72.87	Q	.	.	.	.
0.333	1.7396	81.05	Q	.	.	.	.

NODE 105 ADD STREAM 3 TO STREAM 1

0.417	2.5407	116.32	Q	.	.	.	.
0.500	3.5487	146.36	Q	.	.	.	.
0.583	4.6916	165.95	Q	.	.	.	.
0.667	5.9407	181.37	Q	.	.	.	.
0.750	7.2780	194.18	Q	.	.	.	.
0.833	8.6954	205.80	Q	.	.	.	.
0.917	10.1846	216.23	Q	.	.	.	.
1.000	11.7383	225.59	VQ	.	.	.	.
1.083	13.3494	233.94	VQ	.	.	.	.
1.167	15.0121	241.42	VQ	.	.	.	.
1.250	16.7215	248.20	VQ	.	.	.	.
1.333	18.4731	254.34	VQ	.	.	.	.
1.417	20.2632	259.91	VQ	.	.	.	.
1.500	22.0879	264.95	VQ	.	.	.	.
1.583	23.9441	269.52	VQ	.	.	.	.
1.667	25.8288	273.66	VQ	.	.	.	.
1.750	27.7399	277.49	VQ	.	.	.	.
1.833	29.6756	281.06	VQ	.	.	.	.
1.917	31.6344	284.42	VQ	.	.	.	.
2.000	33.6148	287.55	VQ	.	.	.	.
2.083	35.6146	290.38	VQ	.	.	.	.
2.167	37.6324	292.99	VQ	.	.	.	.
2.250	39.6673	295.46	VQ	.	.	.	.
2.333	41.7182	297.79	VQ	.	.	.	.
2.417	43.7841	299.97	.Q	.	.	.	.
2.500	45.8644	302.07	.Q	.	.	.	.
2.583	47.9589	304.12	.Q	.	.	.	.
2.667	50.0669	306.09	.Q	.	.	.	.
2.750	52.1880	307.98	.Q	.	.	.	.
2.833	54.3219	309.84	.Q	.	.	.	.
2.917	56.4683	311.66	.Q	.	.	.	.
3.000	58.6270	313.45	.Q	.	.	.	.
3.083	60.7979	315.21	.Q	.	.	.	.
3.167	62.9808	316.96	.Q	.	.	.	.
3.250	65.1755	318.68	.Q	.	.	.	.
3.333	67.3820	320.38	.Q	.	.	.	.
3.417	69.6001	322.07	.Q	.	.	.	.
3.500	71.8298	323.75	.Q	.	.	.	.
3.583	74.0709	325.41	.Q	.	.	.	.
3.667	76.3234	327.06	.Q	.	.	.	.
3.750	78.5872	328.71	.Q	.	.	.	.
3.833	80.8623	330.35	.Q	.	.	.	.
3.917	83.1487	331.98	.Q	.	.	.	.
4.000	85.4462	333.61	.Q	.	.	.	.
4.083	87.7550	335.23	.QV	.	.	.	.
4.167	90.0750	336.86	.QV	.	.	.	.
4.250	92.4062	338.49	.QV	.	.	.	.
4.333	94.7485	340.10	.QV	.	.	.	.
4.417	97.1014	341.64	.QV	.	.	.	.
4.500	99.4643	343.09	.QV	.	.	.	.
4.583	101.8371	344.53	.QV	.	.	.	.
4.667	104.2204	346.05	.QV	.	.	.	.
4.750	106.6146	347.64	.QV	.	.	.	.
4.833	109.0201	349.28	.QV	.	.	.	.
4.917	111.4369	350.92	.QV	.	.	.	.
5.000	113.8652	352.59	.QV	.	.	.	.
5.083	116.3050	354.26	.QV	.	.	.	.

5.167	118.7564	355.95	.QV	.	.	.	.
5.250	121.2195	357.64	.QV	.	.	.	.
5.333	123.6943	359.35	.QV	.	.	.	.
5.417	126.1810	361.06	.QV	.	.	.	.
5.500	128.6796	362.80	.Q V	.	.	.	.
5.583	131.1902	364.54	.Q V	.	.	.	.
5.667	133.7130	366.30	.Q V	.	.	.	.
5.750	136.2479	368.08	.Q V	.	.	.	.
5.833	138.7952	369.87	.Q V	.	.	.	.
5.917	141.3549	371.67	.Q V	.	.	.	.
6.000	143.9272	373.50	.Q V	.	.	.	.
6.083	146.5122	375.34	.Q V	.	.	.	.
6.167	149.1100	377.20	.Q V	.	.	.	.
6.250	151.7207	379.07	.Q V	.	.	.	.
6.333	154.3445	380.97	.Q V	.	.	.	.
6.417	156.9815	382.89	.Q V	.	.	.	.
6.500	159.6318	384.83	.Q V	.	.	.	.
6.583	162.2957	386.79	.Q V	.	.	.	.
6.667	164.9732	388.78	.Q V	.	.	.	.
6.750	167.6646	390.78	.Q V	.	.	.	.
6.833	170.3699	392.82	.Q V	.	.	.	.
6.917	173.0894	394.87	.Q V	.	.	.	.
7.000	175.8232	396.95	.Q V	.	.	.	.
7.083	178.5715	399.05	.Q V	.	.	.	.
7.167	181.3345	401.19	.Q V	.	.	.	.
7.250	184.1123	403.34	.Q V	.	.	.	.
7.333	186.9052	405.53	.Q V	.	.	.	.
7.417	189.7134	407.75	.Q V	.	.	.	.
7.500	192.5370	409.99	.Q V	.	.	.	.
7.583	195.3763	412.27	.Q V	.	.	.	.
7.667	198.2316	414.58	.Q V	.	.	.	.
7.750	201.1028	416.91	.Q V	.	.	.	.
7.833	203.9905	419.29	.Q V	.	.	.	.
7.917	206.8947	421.69	.Q V	.	.	.	.
8.000	209.8157	424.14	.Q V	.	.	.	.
8.083	212.7538	426.61	.Q V	.	.	.	.
8.167	215.7092	429.13	.Q V	.	.	.	.
8.250	218.6822	431.68	.Q V	.	.	.	.
8.333	221.6730	434.27	.Q V	.	.	.	.
8.417	224.6819	436.89	.Q V	.	.	.	.
8.500	227.7092	439.56	.Q V	.	.	.	.
8.583	230.7552	442.27	.Q V	.	.	.	.
8.667	233.8201	445.03	. Q V	.	.	.	.
8.750	236.9044	447.83	. Q V	.	.	.	.
8.833	240.0082	450.68	. Q V	.	.	.	.
8.917	243.1320	453.57	. Q V	.	.	.	.
9.000	246.2761	456.52	. Q V	.	.	.	.
9.083	249.4407	459.51	. Q V	.	.	.	.
9.167	252.6264	462.56	. Q V	.	.	.	.
9.250	255.8334	465.65	. Q V	.	.	.	.
9.333	259.0621	468.81	. Q V	.	.	.	.
9.417	262.3129	472.02	. Q V	.	.	.	.
9.500	265.5862	475.29	. Q V	.	.	.	.
9.583	268.8824	478.61	. Q V	.	.	.	.
9.667	272.2020	482.00	. Q V	.	.	.	.
9.750	275.5454	485.45	. Q V	.	.	.	.
9.833	278.9130	488.98	. Q V	.	.	.	.

9.917	282.3053	492.56	. Q	V	.	.	.	.
10.000	285.7228	496.22	. Q	V	.	.	.	.
10.083	289.1660	499.95	. Q	V	.	.	.	.
10.167	292.6353	503.75	. Q	V	.	.	.	.
10.250	296.1314	507.63	. Q	V	.	.	.	.
10.333	299.6548	511.59	. Q	V	.	.	.	.
10.417	303.2060	515.63	. Q	V	.	.	.	.
10.500	306.7856	519.77	. Q	V	.	.	.	.
10.583	310.3943	523.98	. Q	V	.	.	.	.
10.667	314.0327	528.30	. Q	V	.	.	.	.
10.750	317.7014	532.70	. Q	V	.	.	.	.
10.833	321.4012	537.20	. Q	V	.	.	.	.
10.917	325.1326	541.80	. Q	V	.	.	.	.
11.000	328.8966	546.53	. Q	V	.	.	.	.
11.083	332.6940	551.39	. Q	V	.	.	.	.
11.167	336.5266	556.49	. Q	V	.	.	.	.
11.250	340.3967	561.94	. Q	V	.	.	.	.
11.333	344.3073	567.82	. Q	V	.	.	.	.
11.417	348.2610	574.08	. Q	V	.	.	.	.
11.500	352.2600	580.65	. Q	V	.	.	.	.
11.583	356.3061	587.49	. Q	V	.	.	.	.
11.667	360.4012	594.60	. Q	V	.	.	.	.
11.750	364.5468	601.94	. Q	V	.	.	.	.
11.833	368.7448	609.55	. Q	V	.	.	.	.
11.917	372.9967	617.39	. Q	V	.	.	.	.
12.000	377.3046	625.50	. Q	V	.	.	.	.
12.083	381.6674	633.49	. Q	V	.	.	.	.
12.167	386.0741	639.85	. Q	V.	.	.	.	.
12.250	390.4889	641.03	. Q	V.	.	.	.	.
12.333	394.8494	633.15	. Q	V.	.	.	.	.
12.417	399.1230	620.53	. Q	V.	.	.	.	.
12.500	403.3258	610.24	. Q	V.	.	.	.	.
12.583	407.4870	604.20	. Q	V.	.	.	.	.
12.667	411.6284	601.34	. Q	V.	.	.	.	.
12.750	415.7662	600.80	. Q	V.	.	.	.	.
12.833	419.9146	602.35	. Q	V.	.	.	.	.
12.917	424.0859	605.68	. Q	V.	.	.	.	.
13.000	428.2905	610.50	. Q	V	.	.	.	.
13.083	432.5371	616.61	. Q	V	.	.	.	.
13.167	436.8339	623.90	. Q	V	.	.	.	.
13.250	441.1877	632.18	. Q	V	.	.	.	.
13.333	445.6054	641.44	. Q	V	.	.	.	.
13.417	450.0933	651.64	. Q	V	.	.	.	.
13.500	454.6582	662.82	. Q	V	.	.	.	.
13.583	459.3065	674.94	. Q	V	.	.	.	.
13.667	464.0452	688.06	. Q	V	.	.	.	.
13.750	468.8810	702.16	. Q	V	.	.	.	.
13.833	473.8212	717.31	. Q	.V	.	.	.	.
13.917	478.8727	733.48	. Q	.V	.	.	.	.
14.000	484.0432	750.75	. Q	.V	.	.	.	.
14.083	489.3410	769.24	. Q	.V	.	.	.	.
14.167	494.7780	789.46	. Q	.V	.	.	.	.
14.250	500.3722	812.28	. Q	.V	.	.	.	.
14.333	506.1464	838.42	. Q	.V	.	.	.	.
14.417	512.1097	865.88	. Q	.V	.	.	.	.
14.500	518.2595	892.95	. Q	. V	.	.	.	.
14.583	524.6001	920.65	. Q	. V	.	.	.	.

14.667	531.1486	950.84	. Q . V . . .
14.750	537.9261	984.10	. Q . V . . .
14.833	544.9550	1020.59	. Q . V . . .
14.917	552.2574	1060.31	. Q . V . . .
15.000	559.8580	1103.61	. Q . V . . .
15.083	567.7830	1150.70	. Q . V . . .
15.167	576.0634	1202.32	. Q . V . . .
15.250	584.7346	1259.06	. Q . V . . .
15.333	593.8402	1322.13	. Q . V . . .
15.417	603.4237	1391.52	. Q . V . . .
15.500	613.5101	1464.55	. Q . V . . .
15.583	624.0642	1532.45	. Q . V . . .
15.667	634.9854	1585.75	. Q . V . . .
15.750	646.2943	1642.06	. Q . V . . .
15.833	658.2556	1736.79	. Q . V . . .
15.917	671.3450	1900.58	. Q . V . . .
16.000	686.3557	2179.55	. Q. V . . .
16.083	704.8613	2687.02	. . Q V . . .
16.167	730.2581	3687.61	. . QV . . .
16.250	768.0504	5487.45	. . V . Q . .
16.333	822.3946	7890.78	. . V. . Q .
16.417	883.6307	8891.48	. . V . . Q.
16.500	938.9857	8037.55	. . .V . Q .
16.583	986.2459	6862.18	. . . V Q .
16.667	1028.2462	6098.45	. . . V Q . .
16.750	1066.4679	5549.78	. . . Q . .
16.833	1101.3558	5065.73	. . . Q V . .
16.917	1133.2068	4624.76	. . Q V . .
17.000	1162.2787	4221.23	. . Q . V . .
17.083	1188.8090	3852.20	. . Q . V . .
17.167	1213.1963	3541.04	. . Q . V . .
17.250	1235.8224	3285.30	. . Q . V . .
17.333	1256.8397	3051.72	. . Q . V. .
17.417	1276.3359	2830.85	. . Q . V. .
17.500	1294.4381	2628.44	. .Q . V .
17.583	1311.2557	2441.93	. Q . V .
17.667	1326.8823	2268.98	. Q . .V .
17.750	1341.4095	2109.35	. Q. . .V .
17.833	1354.9537	1966.62	. Q . . .V .
17.917	1367.6407	1842.16	. Q . . .V .
18.000	1379.6077	1737.59	. Q . . . V .
18.083	1390.9176	1642.20	. Q . . . V .
18.167	1401.6035	1551.59	. Q . . . V .
18.250	1411.6738	1462.21	. Q . . . V .
18.333	1421.1310	1373.17	. Q . . . V .
18.417	1429.9819	1285.16	. Q . . . V .
18.500	1438.2375	1198.71	. Q . . . V .
18.583	1446.0212	1130.20	. Q . . . V .
18.667	1453.3933	1070.42	. Q . . . V .
18.750	1460.3889	1015.76	. Q . . . V .
18.833	1467.0732	970.56	. Q . . . V .
18.917	1473.4586	927.15	. Q . . . V .
19.000	1479.5491	884.34	. Q . . . V .
19.083	1485.3735	845.71	. Q . . . V .
19.167	1490.9846	814.73	. Q . . . V .
19.250	1496.4275	790.31	. Q . . . V .
19.333	1501.7278	769.60	. Q . . . V .

19.417	1506.8988	750.84	.	Q	.	.	.	V .
19.500	1511.9492	733.31	.	Q	.	.	.	V .
19.583	1516.8851	716.70	.	Q	.	.	.	V .
19.667	1521.7119	700.85	.	Q	.	.	.	V .
19.750	1526.4343	685.69	.	Q	.	.	.	V .
19.833	1531.0566	671.17	.	Q	.	.	.	V .
19.917	1535.5808	656.91	.	Q	.	.	.	V .
20.000	1540.0059	642.51	.	Q	.	.	.	V .
20.083	1544.3325	628.23	.	Q	.	.	.	V .
20.167	1548.5647	614.51	.	Q	.	.	.	V .
20.250	1552.7068	601.43	.	Q	.	.	.	V .
20.333	1556.7628	588.93	.	Q	.	.	.	V .
20.417	1560.7363	576.95	.	Q	.	.	.	V .
20.500	1564.6306	565.45	.	Q	.	.	.	V .
20.583	1568.4491	554.45	.	Q	.	.	.	V .
20.667	1572.1952	543.93	.	Q	.	.	.	V .
20.750	1575.8718	533.85	.	Q	.	.	.	V .
20.833	1579.4822	524.22	.	Q	.	.	.	V .
20.917	1583.0291	515.00	.	Q	.	.	.	V .
21.000	1586.5151	506.17	.	Q	.	.	.	V .
21.083	1589.9429	497.72	.	Q	.	.	.	V .
21.167	1593.3148	489.60	.	Q	.	.	.	V .
21.250	1596.6332	481.82	.	Q	.	.	.	V .
21.333	1599.9000	474.34	.	Q	.	.	.	V .
21.417	1603.1173	467.15	.	Q	.	.	.	V .
21.500	1606.2869	460.23	.	Q	.	.	.	V .
21.583	1609.4106	453.57	.	Q	.	.	.	V .
21.667	1612.4902	447.15	.	Q	.	.	.	V .
21.750	1615.5272	440.97	.	Q	.	.	.	V .
21.833	1618.5232	435.01	.	Q	.	.	.	V .
21.917	1621.4796	429.26	.	Q	.	.	.	V .
22.000	1624.3977	423.71	.	Q	.	.	.	V .
22.083	1627.2789	418.35	.	Q	.	.	.	V .
22.167	1630.1245	413.18	.	Q	.	.	.	V .
22.250	1632.9357	408.18	.	Q	.	.	.	V .
22.333	1635.7140	403.41	.	Q	.	.	.	V .
22.417	1638.4608	398.84	.	Q	.	.	.	V .
22.500	1641.1774	394.44	.	Q	.	.	.	V .
22.583	1643.8645	390.16	.	Q	.	.	.	V .
22.667	1646.5229	386.01	.	Q	.	.	.	V .
22.750	1649.1537	381.98	.	Q	.	.	.	V .
22.833	1651.7574	378.07	.	Q	.	.	.	V .
22.917	1654.3350	374.26	.	Q	.	.	.	V .
23.000	1656.8864	370.45	.	Q	.	.	.	V .
23.083	1659.4103	366.47	.	Q	.	.	.	V .
23.167	1661.9066	362.47	.	Q	.	.	.	V .
23.250	1664.3776	358.78	.	Q	.	.	.	V .
23.333	1666.8254	355.42	.	Q	.	.	.	V .
23.417	1669.2511	352.20	.	Q	.	.	.	V.
23.500	1671.6552	349.07	.	Q	.	.	.	V.
23.583	1674.0381	346.01	.	Q	.	.	.	V.
23.667	1676.4005	343.02	.	Q	.	.	.	V.
23.750	1678.7428	340.10	.	Q	.	.	.	V.
23.833	1681.0656	337.26	.	Q	.	.	.	V.
23.917	1683.3690	334.47	.	Q	.	.	.	V.
24.000	1685.6538	331.75	.	Q	.	.	.	V.
24.083	1687.9138	328.16	.	Q	.	.	.	V.

24.167	1690.1198	320.30	.Q	.	.	.	V.
24.250	1692.1915	300.82	.Q	.	.	.	V.
24.333	1694.0179	265.20	.Q	.	.	.	V.
24.417	1695.5756	226.16	.Q	.	.	.	V.
24.500	1696.9155	194.56	Q	.	.	.	V.
24.583	1698.0889	170.37	Q	.	.	.	V.
24.667	1699.1232	150.18	Q	.	.	.	V.
24.750	1700.0374	132.74	Q	.	.	.	V.
24.833	1700.8483	117.74	Q	.	.	.	V.
24.917	1701.5698	104.77	Q	.	.	.	V.
25.000	1702.2141	93.55	Q	.	.	.	V.
25.083	1702.7915	83.84	Q	.	.	.	V.
25.167	1703.3108	75.40	Q	.	.	.	V.
25.250	1703.7789	67.98	Q	.	.	.	V.
25.333	1704.2023	61.47	Q	.	.	.	V.
25.417	1704.5862	55.74	Q	.	.	.	V.
25.500	1704.9355	50.72	Q	.	.	.	V.
25.583	1705.2545	46.32	Q	.	.	.	V.
25.667	1705.5469	42.46	Q	.	.	.	V.
25.750	1705.8156	39.01	Q	.	.	.	V.
25.833	1706.0627	35.89	Q	.	.	.	V.
25.917	1706.2902	33.03	Q	.	.	.	V.
26.000	1706.4995	30.40	Q	.	.	.	V.
26.083	1706.6930	28.09	Q	.	.	.	V.
26.167	1706.8724	26.05	Q	.	.	.	V.
26.250	1707.0393	24.23	Q	.	.	.	V.
26.333	1707.1951	22.62	Q	.	.	.	V.
26.417	1707.3413	21.23	Q	.	.	.	V.
26.500	1707.4790	19.99	Q	.	.	.	V.
26.583	1707.6088	18.84	Q	.	.	.	V.
26.667	1707.7313	17.80	Q	.	.	.	V.
26.750	1707.8475	16.87	Q	.	.	.	V.
26.833	1707.9578	16.00	Q	.	.	.	V.
26.917	1708.0624	15.18	Q	.	.	.	V.
27.000	1708.1616	14.41	Q	.	.	.	V.
27.083	1708.2559	13.69	Q	.	.	.	V.
27.167	1708.3455	13.01	Q	.	.	.	V.
27.250	1708.4305	12.36	Q	.	.	.	V.
27.333	1708.5115	11.75	Q	.	.	.	V.
27.417	1708.5885	11.18	Q	.	.	.	V.
27.500	1708.6617	10.63	Q	.	.	.	V.
27.583	1708.7314	10.12	Q	.	.	.	V.
27.667	1708.7977	9.63	Q	.	.	.	V.
27.750	1708.8608	9.17	Q	.	.	.	V.
27.833	1708.9209	8.73	Q	.	.	.	V.
27.917	1708.9781	8.31	Q	.	.	.	V.
28.000	1709.0327	7.92	Q	.	.	.	V.
28.083	1709.0847	7.54	Q	.	.	.	V.
28.167	1709.1342	7.19	Q	.	.	.	V.
28.250	1709.1813	6.85	Q	.	.	.	V.
28.333	1709.2262	6.53	Q	.	.	.	V.
28.417	1709.2690	6.22	Q	.	.	.	V.
28.500	1709.3099	5.93	Q	.	.	.	V.
28.583	1709.3489	5.66	Q	.	.	.	V.
28.667	1709.3860	5.40	Q	.	.	.	V.
28.750	1709.4214	5.15	Q	.	.	.	V.
28.833	1709.4552	4.91	Q	.	.	.	V.

28.917	1709.4874	4.68	Q	.	.	.	V.
29.000	1709.5182	4.47	Q	.	.	.	V.
29.083	1709.5476	4.27	Q	.	.	.	V.
29.167	1709.5757	4.07	Q	.	.	.	V.
29.250	1709.6024	3.89	Q	.	.	.	V.
29.333	1709.6279	3.71	Q	.	.	.	V.
29.417	1709.6523	3.54	Q	.	.	.	V.
29.500	1709.6757	3.38	Q	.	.	.	V.
29.583	1709.6979	3.23	Q	.	.	.	V.
29.667	1709.7191	3.09	Q	.	.	.	V.
29.750	1709.7394	2.95	Q	.	.	.	V.
29.833	1709.7588	2.82	Q	.	.	.	V.
29.917	1709.7775	2.72	Q	.	.	.	V.
30.000	1709.7955	2.62	Q	.	.	.	V.
30.083	1709.8125	2.47	Q	.	.	.	V.
30.167	1709.8286	2.35	Q	.	.	.	V.
30.250	1709.8441	2.24	Q	.	.	.	V.
30.333	1709.8589	2.14	Q	.	.	.	V.
30.417	1709.8730	2.05	Q	.	.	.	V.
30.500	1709.8866	1.96	Q	.	.	.	V.
30.583	1709.8995	1.87	Q	.	.	.	V.
30.667	1709.9119	1.79	Q	.	.	.	V.
30.750	1709.9237	1.71	Q	.	.	.	V.
30.833	1709.9349	1.64	Q	.	.	.	V.
30.917	1709.9457	1.57	Q	.	.	.	V.
31.000	1709.9561	1.51	Q	.	.	.	V.
31.083	1709.9663	1.48	Q	.	.	.	V.
31.167	1709.9763	1.46	Q	.	.	.	V.
31.250	1709.9860	1.40	Q	.	.	.	V.
31.333	1709.9952	1.34	Q	.	.	.	V.
31.417	1710.0040	1.28	Q	.	.	.	V.
31.500	1710.0125	1.23	Q	.	.	.	V.
31.583	1710.0205	1.17	Q	.	.	.	V.
31.667	1710.0282	1.12	Q	.	.	.	V.
31.750	1710.0356	1.08	Q	.	.	.	V.
31.833	1710.0427	1.03	Q	.	.	.	V.
31.917	1710.0496	0.99	Q	.	.	.	V.
32.000	1710.0560	0.95	Q	.	.	.	V.
32.083	1710.0623	0.91	Q	.	.	.	V.
32.167	1710.0682	0.87	Q	.	.	.	V.
32.250	1710.0740	0.83	Q	.	.	.	V.
32.333	1710.0795	0.80	Q	.	.	.	V.
32.417	1710.0847	0.76	Q	.	.	.	V.
32.500	1710.0897	0.73	Q	.	.	.	V.
32.583	1710.0945	0.70	Q	.	.	.	V.
32.667	1710.0991	0.67	Q	.	.	.	V.
32.750	1710.1035	0.64	Q	.	.	.	V.
32.833	1710.1078	0.61	Q	.	.	.	V.
32.917	1710.1118	0.59	Q	.	.	.	V.
33.000	1710.1157	0.56	Q	.	.	.	V.
33.083	1710.1195	0.54	Q	.	.	.	V.
33.167	1710.1230	0.52	Q	.	.	.	V.
33.250	1710.1265	0.50	Q	.	.	.	V.
33.333	1710.1298	0.48	Q	.	.	.	V.
33.417	1710.1329	0.46	Q	.	.	.	V.
33.500	1710.1360	0.44	Q	.	.	.	V.
33.583	1710.1389	0.42	Q	.	.	.	V.

33.667	1710.1417	0.40	Q	.	.	.	V.
33.750	1710.1444	0.39	Q	.	.	.	V.
33.833	1710.1470	0.37	Q	.	.	.	V.
33.917	1710.1494	0.35	Q	.	.	.	V.
34.000	1710.1517	0.34	Q	.	.	.	V.
34.083	1710.1539	0.33	Q	.	.	.	V.
34.167	1710.1561	0.31	Q	.	.	.	V.
34.250	1710.1582	0.30	Q	.	.	.	V.
34.333	1710.1602	0.29	Q	.	.	.	V.
34.417	1710.1621	0.27	Q	.	.	.	V.
34.500	1710.1639	0.26	Q	.	.	.	V.
34.583	1710.1656	0.25	Q	.	.	.	V.
34.667	1710.1674	0.24	Q	.	.	.	V.
34.750	1710.1689	0.23	Q	.	.	.	V.
34.833	1710.1705	0.22	Q	.	.	.	V.
34.917	1710.1720	0.21	Q	.	.	.	V.
35.000	1710.1735	0.20	Q	.	.	.	V.
35.083	1710.1748	0.20	Q	.	.	.	V.
35.167	1710.1761	0.19	Q	.	.	.	V.
35.250	1710.1774	0.18	Q	.	.	.	V.
35.333	1710.1786	0.17	Q	.	.	.	V.
35.417	1710.1797	0.17	Q	.	.	.	V.
35.500	1710.1808	0.16	Q	.	.	.	V.
35.583	1710.1819	0.15	Q	.	.	.	V.
35.667	1710.1829	0.15	Q	.	.	.	V.
35.750	1710.1838	0.14	Q	.	.	.	V.
35.833	1710.1848	0.13	Q	.	.	.	V.
35.917	1710.1857	0.13	Q	.	.	.	V.
36.000	1710.1865	0.12	Q	.	.	.	V.
36.083	1710.1874	0.12	Q	.	.	.	V.
36.167	1710.1881	0.11	Q	.	.	.	V.
36.250	1710.1888	0.11	Q	.	.	.	V.
36.333	1710.1896	0.11	Q	.	.	.	V.
36.417	1710.1903	0.10	Q	.	.	.	V.
36.500	1710.1909	0.10	Q	.	.	.	V.
36.583	1710.1915	0.09	Q	.	.	.	V.
36.667	1710.1921	0.09	Q	.	.	.	V.
36.750	1710.1927	0.09	Q	.	.	.	V.
36.833	1710.1934	0.08	Q	.	.	.	V.
36.917	1710.1938	0.08	Q	.	.	.	V.
37.000	1710.1943	0.08	Q	.	.	.	V.
37.083	1710.1948	0.07	Q	.	.	.	V.
37.167	1710.1953	0.07	Q	.	.	.	V.
37.250	1710.1958	0.07	Q	.	.	.	V.
37.333	1710.1963	0.06	Q	.	.	.	V.
37.417	1710.1967	0.06	Q	.	.	.	V.
37.500	1710.1970	0.06	Q	.	.	.	V.
37.583	1710.1974	0.06	Q	.	.	.	V.
37.667	1710.1978	0.05	Q	.	.	.	V.
37.750	1710.1981	0.05	Q	.	.	.	V.
37.833	1710.1985	0.05	Q	.	.	.	V.
37.917	1710.1989	0.05	Q	.	.	.	V.
38.000	1710.1992	0.05	Q	.	.	.	V.
38.083	1710.1995	0.04	Q	.	.	.	V.
38.167	1710.1997	0.04	Q	.	.	.	V.
38.250	1710.2000	0.04	Q	.	.	.	V.
38.333	1710.2002	0.04	Q	.	.	.	V.

38.417	1710.2004	0.04	Q	.	.	.	V.
38.500	1710.2007	0.04	Q	.	.	.	V.
38.583	1710.2009	0.03	Q	.	.	.	V.
38.667	1710.2012	0.03	Q	.	.	.	V.
38.750	1710.2014	0.03	Q	.	.	.	V.
38.833	1710.2017	0.03	Q	.	.	.	V.
38.917	1710.2019	0.03	Q	.	.	.	V.
39.000	1710.2021	0.03	Q	.	.	.	V.
39.083	1710.2024	0.03	Q	.	.	.	V.
39.167	1710.2025	0.03	Q	.	.	.	V.
39.250	1710.2026	0.02	Q	.	.	.	V.
39.333	1710.2028	0.02	Q	.	.	.	V.
39.417	1710.2029	0.02	Q	.	.	.	V.
39.500	1710.2030	0.02	Q	.	.	.	V.
39.583	1710.2031	0.02	Q	.	.	.	V.
39.667	1710.2032	0.02	Q	.	.	.	V.
39.750	1710.2034	0.02	Q	.	.	.	V.
39.833	1710.2035	0.02	Q	.	.	.	V.
39.917	1710.2036	0.02	Q	.	.	.	V.
40.000	1710.2037	0.02	Q	.	.	.	V.
40.083	1710.2039	0.02	Q	.	.	.	V.
40.167	1710.2040	0.02	Q	.	.	.	V.
40.250	1710.2041	0.02	Q	.	.	.	V.
40.333	1710.2042	0.01	Q	.	.	.	V.
40.417	1710.2043	0.01	Q	.	.	.	V.
40.500	1710.2045	0.01	Q	.	.	.	V.
40.583	1710.2046	0.01	Q	.	.	.	V.
40.667	1710.2047	0.01	Q	.	.	.	V.
40.750	1710.2048	0.01	Q	.	.	.	V.
40.833	1710.2050	0.01	Q	.	.	.	V.
40.917	1710.2051	0.01	Q	.	.	.	V.
41.000	1710.2052	0.01	Q	.	.	.	V.
41.083	1710.2053	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2465.0
10%	270.0
20%	125.0
30%	85.0
40%	60.0
50%	45.0
60%	35.0
70%	20.0
80%	15.0
90%	10.0

****

FLOW PROCESS FROM NODE 105.00 TO NODE 108.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<

THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) = 80.00 CHANNEL Z = 2.00
  UPSTREAM ELEVATION(FT) = 3140.00
  DOWNSTREAM ELEVATION(FT) = 3125.00
  CHANNEL LENGTH(FT) = 1100.00 MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) = 0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
(FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
  AVERAGED PEAK 5-MINUTE: (8891.5).....[16.87]
  AVERAGED PEAK 15-MINUTE: (8273.3).....[16.48]
  AVERAGED PEAK 30-MINUTE: (7221.7).....[15.68]
  AVERAGED PEAK 1-HOUR: (5855.8).....[14.59]
  AVERAGED PEAK 3-HOUR: (3336.7).....[11.96]
  AVERAGED PEAK 6-HOUR: (2133.0).....[10.13]
  AVERAGED PEAK 24-HOUR: (853.8).....[7.14]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 12.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (1100.00)/(12.000) = 0.025 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	28.02	19.46	19.46
0.167	70.66	57.63	57.63
0.250	72.87	72.19	72.19
0.333	81.05	78.55	78.55
0.417	116.32	105.54	105.54
0.500	146.36	137.18	137.18
0.583	165.95	159.96	159.96
0.667	181.37	176.66	176.66
0.750	194.18	190.27	190.27
0.833	205.80	202.25	202.25
0.917	216.23	213.04	213.04
1.000	225.59	222.73	222.73
1.083	233.94	231.39	231.39
1.167	241.42	239.14	239.14
1.250	248.20	246.13	246.13
1.333	254.34	252.47	252.47
1.417	259.91	258.21	258.21
1.500	264.95	263.41	263.41
1.583	269.52	268.12	268.12
1.667	273.66	272.39	272.39
1.750	277.49	276.32	276.32
1.833	281.06	279.97	279.97
1.917	284.42	283.40	283.40
2.000	287.55	286.59	286.59
2.083	290.38	289.51	289.51
2.167	292.99	292.19	292.19

NODES 105 → 108 CHANNEL ROUTING 801 → 501

2.250	295.46	294.70	294.70
2.333	297.79	297.08	297.08
2.417	299.97	299.30	299.30
2.500	302.07	301.43	301.43
2.583	304.12	303.49	303.49
2.667	306.09	305.49	305.49
2.750	307.98	307.40	307.40
2.833	309.84	309.27	309.27
2.917	311.66	311.10	311.10
3.000	313.45	312.90	312.90
3.083	315.21	314.67	314.67
3.167	316.96	316.42	316.42
3.250	318.68	318.15	318.15
3.333	320.38	319.86	319.86
3.417	322.07	321.55	321.55
3.500	323.75	323.23	323.23
3.583	325.41	324.90	324.90
3.667	327.06	326.56	326.56
3.750	328.71	328.20	328.20
3.833	330.35	329.85	329.85
3.917	331.98	331.48	331.48
4.000	333.61	333.11	333.11
4.083	335.23	334.74	334.74
4.167	336.86	336.36	336.36
4.250	338.49	337.99	337.99
4.333	340.10	339.61	339.61
4.417	341.64	341.17	341.17
4.500	343.09	342.65	342.65
4.583	344.53	344.09	344.09
4.667	346.05	345.59	345.59
4.750	347.64	347.16	347.16
4.833	349.28	348.78	348.78
4.917	350.92	350.42	350.42
5.000	352.59	352.08	352.08
5.083	354.26	353.75	353.75
5.167	355.95	355.43	355.43
5.250	357.64	357.12	357.12
5.333	359.35	358.83	358.83
5.417	361.06	360.54	360.54
5.500	362.80	362.27	362.27
5.583	364.54	364.01	364.01
5.667	366.30	365.76	365.76
5.750	368.08	367.53	367.53
5.833	369.87	369.32	369.32
5.917	371.67	371.12	371.12
6.000	373.50	372.94	372.94
6.083	375.34	374.77	374.77
6.167	377.20	376.63	376.63
6.250	379.07	378.50	378.50
6.333	380.97	380.39	380.39
6.417	382.89	382.31	382.31
6.500	384.83	384.24	384.24
6.583	386.79	386.19	386.19
6.667	388.78	388.17	388.17
6.750	390.78	390.17	390.17
6.833	392.82	392.19	392.19
6.917	394.87	394.24	394.24

7.000	396.95	396.31	396.31
7.083	399.05	398.41	398.41
7.167	401.19	400.53	400.53
7.250	403.34	402.68	402.68
7.333	405.53	404.86	404.86
7.417	407.75	407.07	407.07
7.500	409.99	409.31	409.31
7.583	412.27	411.57	411.57
7.667	414.58	413.87	413.87
7.750	416.91	416.20	416.20
7.833	419.29	418.56	418.56
7.917	421.69	420.96	420.96
8.000	424.14	423.39	423.39
8.083	426.61	425.85	425.85
8.167	429.13	428.36	428.36
8.250	431.68	430.90	430.90
8.333	434.27	433.48	433.48
8.417	436.89	436.09	436.09
8.500	439.56	438.75	438.75
8.583	442.27	441.44	441.44
8.667	445.03	444.19	444.19
8.750	447.83	446.98	446.98
8.833	450.68	449.81	449.81
8.917	453.57	452.69	452.69
9.000	456.52	455.62	455.62
9.083	459.51	458.60	458.60
9.167	462.56	461.63	461.63
9.250	465.65	464.71	464.71
9.333	468.81	467.85	467.85
9.417	472.02	471.04	471.04
9.500	475.29	474.29	474.29
9.583	478.61	477.60	477.60
9.667	482.00	480.97	480.97
9.750	485.45	484.40	484.40
9.833	488.98	487.90	487.90
9.917	492.56	491.47	491.47
10.000	496.22	495.10	495.10
10.083	499.95	498.81	498.81
10.167	503.75	502.59	502.59
10.250	507.63	506.45	506.45
10.333	511.59	510.38	510.38
10.417	515.63	514.40	514.40
10.500	519.77	518.50	518.50
10.583	523.98	522.69	522.69
10.667	528.30	526.98	526.98
10.750	532.70	531.35	531.35
10.833	537.20	535.83	535.83
10.917	541.80	540.40	540.40
11.000	546.53	545.09	545.09
11.083	551.39	549.90	549.90
11.167	556.49	554.93	554.93
11.250	561.94	560.27	560.27
11.333	567.82	566.02	566.02
11.417	574.08	572.17	572.17
11.500	580.65	578.65	578.65
11.583	587.49	585.40	585.40
11.667	594.60	592.43	592.43

11.750	601.94	599.70	599.70
11.833	609.55	607.22	607.22
11.917	617.39	614.99	614.99
12.000	625.50	623.02	623.02
12.083	633.49	631.05	631.05
12.167	639.85	637.90	637.90
12.250	641.03	640.67	640.67
12.333	633.15	635.56	635.56
12.417	620.53	624.39	624.39
12.500	610.24	613.38	613.38
12.583	604.20	606.05	606.05
12.667	601.34	602.21	602.21
12.750	600.80	600.97	600.97
12.833	602.35	601.87	601.87
12.917	605.68	604.66	604.66
13.000	610.50	609.03	609.03
13.083	616.61	614.75	614.75
13.167	623.90	621.67	621.67
13.250	632.18	629.65	629.65
13.333	641.44	638.61	638.61
13.417	651.64	648.53	648.53
13.500	662.82	659.40	659.40
13.583	674.94	671.23	671.23
13.667	688.06	684.05	684.05
13.750	702.16	697.85	697.85
13.833	717.31	712.68	712.68
13.917	733.48	728.54	728.54
14.000	750.75	745.48	745.48
14.083	769.24	763.59	763.59
14.167	789.46	783.28	783.28
14.250	812.28	805.31	805.31
14.333	838.42	830.43	830.43
14.417	865.88	857.49	857.49
14.500	892.95	884.68	884.68
14.583	920.65	912.19	912.19
14.667	950.84	941.62	941.62
14.750	984.10	973.94	973.94
14.833	1020.59	1009.44	1009.44
14.917	1060.31	1048.18	1048.18
15.000	1103.61	1090.38	1090.38
15.083	1150.70	1136.31	1136.31
15.167	1202.32	1186.55	1186.55
15.250	1259.06	1241.72	1241.72
15.333	1322.13	1302.86	1302.86
15.417	1391.52	1370.32	1370.32
15.500	1464.55	1442.23	1442.23
15.583	1532.45	1511.70	1511.70
15.667	1585.75	1569.47	1569.47
15.750	1642.06	1624.86	1624.86
15.833	1736.79	1707.84	1707.84
15.917	1900.58	1850.53	1850.53
16.000	2179.55	2094.31	2094.31
16.083	2687.02	2531.96	2531.96
16.167	3687.61	3381.87	3381.87
16.250	5487.45	4937.49	4937.49
16.333	7890.78	7156.43	7156.43
16.417	8891.48	8585.71	8585.71

16.500	8037.55	8298.47	8298.47
16.583	6862.18	7221.32	7221.32
16.667	6098.45	6331.81	6331.81
16.750	5549.78	5717.43	5717.43
16.833	5065.73	5213.64	5213.64
16.917	4624.76	4759.50	4759.50
17.000	4221.23	4344.53	4344.53
17.083	3852.20	3964.96	3964.96
17.167	3541.04	3636.11	3636.11
17.250	3285.30	3363.44	3363.44
17.333	3051.72	3123.09	3123.09
17.417	2830.85	2898.34	2898.34
17.500	2628.44	2690.29	2690.29
17.583	2441.93	2498.92	2498.92
17.667	2268.98	2321.82	2321.82
17.750	2109.35	2158.13	2158.13
17.833	1966.62	2010.23	2010.23
17.917	1842.16	1880.19	1880.19
18.000	1737.59	1769.54	1769.54
18.083	1642.20	1671.35	1671.35
18.167	1551.59	1579.28	1579.28
18.250	1462.21	1489.52	1489.52
18.333	1373.17	1400.38	1400.38
18.417	1285.16	1312.05	1312.05
18.500	1198.71	1225.13	1225.13
18.583	1130.20	1151.13	1151.13
18.667	1070.42	1088.68	1088.68
18.750	1015.76	1032.46	1032.46
18.833	970.56	984.37	984.37
18.917	927.15	940.42	940.42
19.000	884.34	897.42	897.42
19.083	845.71	857.51	857.51
19.167	814.73	824.19	824.19
19.250	790.31	797.77	797.77
19.333	769.60	775.93	775.93
19.417	750.84	756.57	756.57
19.500	733.31	738.67	738.67
19.583	716.70	721.78	721.78
19.667	700.85	705.70	705.70
19.750	685.69	690.32	690.32
19.833	671.17	675.60	675.60
19.917	656.91	661.27	661.27
20.000	642.51	646.91	646.91
20.083	628.23	632.59	632.59
20.167	614.51	618.70	618.70
20.250	601.43	605.43	605.43
20.333	588.93	592.75	592.75
20.417	576.95	580.61	580.61
20.500	565.45	568.96	568.96
20.583	554.45	557.81	557.81
20.667	543.93	547.14	547.14
20.750	533.85	536.93	536.93
20.833	524.22	527.16	527.16
20.917	515.00	517.82	517.82
21.000	506.17	508.87	508.87
21.083	497.72	500.30	500.30
21.167	489.60	492.08	492.08

21.250	481.82	484.20	484.20
21.333	474.34	476.62	476.62
21.417	467.15	469.34	469.34
21.500	460.23	462.34	462.34
21.583	453.57	455.60	455.60
21.667	447.15	449.11	449.11
21.750	440.97	442.86	442.86
21.833	435.01	436.83	436.83
21.917	429.26	431.02	431.02
22.000	423.71	425.41	425.41
22.083	418.35	419.99	419.99
22.167	413.18	414.76	414.76
22.250	408.18	409.71	409.71
22.333	403.41	404.87	404.87
22.417	398.84	400.24	400.24
22.500	394.44	395.78	395.78
22.583	390.16	391.47	391.47
22.667	386.01	387.28	387.28
22.750	381.98	383.22	383.22
22.833	378.07	379.26	379.26
22.917	374.26	375.42	375.42
23.000	370.45	371.62	371.62
23.083	366.47	367.69	367.69
23.167	362.47	363.69	363.69
23.250	358.78	359.91	359.91
23.333	355.42	356.45	356.45
23.417	352.20	353.19	353.19
23.500	349.07	350.03	350.03
23.583	346.01	346.94	346.94
23.667	343.02	343.93	343.93
23.750	340.10	340.99	340.99
23.833	337.26	338.13	338.13
23.917	334.47	335.32	335.32
24.000	331.75	332.58	332.58
24.083	328.16	329.26	329.26
24.167	320.30	322.70	322.70
24.250	300.82	306.77	306.77
24.333	265.20	276.08	276.08
24.417	226.16	238.09	238.09
24.500	194.56	204.22	204.22
24.583	170.37	177.76	177.76
24.667	150.18	156.35	156.35
24.750	132.74	138.07	138.07
24.833	117.74	122.32	122.32
24.917	104.77	108.74	108.74
25.000	93.55	96.98	96.98
25.083	83.84	86.80	86.80
25.167	75.40	77.97	77.97
25.250	67.98	70.25	70.25
25.333	61.47	63.46	63.46
25.417	55.74	57.49	57.49
25.500	50.72	52.25	52.25
25.583	46.32	47.66	47.66
25.667	42.46	43.64	43.64
25.750	39.01	40.06	40.06
25.833	35.89	36.84	36.84
25.917	33.03	33.90	33.90

26.000	30.40	31.20	31.20
26.083	28.09	28.80	28.80
26.167	26.05	26.67	26.67
26.250	24.23	24.79	24.79
26.333	22.62	23.11	23.11
26.417	21.23	21.66	21.66
26.500	19.99	20.37	20.37
26.583	18.84	19.20	19.20
26.667	17.80	18.12	18.12
26.750	16.87	17.16	17.16
26.833	16.00	16.27	16.27
26.917	15.18	15.43	15.43
27.000	14.41	14.65	14.65
27.083	13.69	13.91	13.91
27.167	13.01	13.22	13.22
27.250	12.36	12.56	12.56
27.333	11.75	11.94	11.94
27.417	11.18	11.35	11.35
27.500	10.63	10.80	10.80
27.583	10.12	10.28	10.28
27.667	9.63	9.78	9.78
27.750	9.17	9.31	9.31
27.833	8.73	8.86	8.86
27.917	8.31	8.44	8.44
28.000	7.92	8.04	8.04
28.083	7.54	7.66	7.66
28.167	7.19	7.30	7.30
28.250	6.85	6.95	6.95
28.333	6.53	6.63	6.63
28.417	6.22	6.32	6.32
28.500	5.93	6.02	6.02
28.583	5.66	5.74	5.74
28.667	5.40	5.48	5.48
28.750	5.15	5.22	5.22
28.833	4.91	4.98	4.98
28.917	4.68	4.75	4.75
29.000	4.47	4.54	4.54
29.083	4.27	4.33	4.33
29.167	4.07	4.13	4.13
29.250	3.89	3.94	3.94
29.333	3.71	3.76	3.76
29.417	3.54	3.59	3.59
29.500	3.38	3.43	3.43
29.583	3.23	3.28	3.28
29.667	3.09	3.13	3.13
29.750	2.95	2.99	2.99
29.833	2.82	2.86	2.86
29.917	2.72	2.75	2.75
30.000	2.62	2.65	2.65
30.083	2.47	2.52	2.52
30.167	2.35	2.38	2.38
30.250	2.24	2.27	2.27
30.333	2.14	2.17	2.17
30.417	2.05	2.08	2.08
30.500	1.96	1.99	1.99
30.583	1.87	1.90	1.90
30.667	1.79	1.82	1.82

30.750	1.71	1.74	1.74
30.833	1.64	1.66	1.66
30.917	1.57	1.59	1.59
31.000	1.51	1.53	1.53
31.083	1.48	1.49	1.49
31.167	1.46	1.47	1.47
31.250	1.40	1.42	1.42
31.333	1.34	1.36	1.36
31.417	1.28	1.30	1.30
31.500	1.23	1.24	1.24
31.583	1.17	1.19	1.19
31.667	1.12	1.14	1.14
31.750	1.08	1.09	1.09
31.833	1.03	1.04	1.04
31.917	0.99	1.00	1.00
32.000	0.95	0.96	0.96
32.083	0.91	0.92	0.92
32.167	0.87	0.88	0.88
32.250	0.83	0.84	0.84
32.333	0.80	0.81	0.81
32.417	0.76	0.77	0.77
32.500	0.73	0.74	0.74
32.583	0.70	0.71	0.71
32.667	0.67	0.68	0.68
32.750	0.64	0.65	0.65
32.833	0.61	0.62	0.62
32.917	0.59	0.60	0.60
33.000	0.56	0.57	0.57
33.083	0.54	0.55	0.55
33.167	0.52	0.53	0.53
33.250	0.50	0.50	0.50
33.333	0.48	0.48	0.48
33.417	0.46	0.46	0.46
33.500	0.44	0.44	0.44
33.583	0.42	0.42	0.42
33.667	0.40	0.41	0.41
33.750	0.39	0.39	0.39
33.833	0.37	0.37	0.37
33.917	0.35	0.36	0.36
34.000	0.34	0.34	0.34
34.083	0.33	0.33	0.33
34.167	0.31	0.32	0.32
34.250	0.30	0.30	0.30
34.333	0.29	0.29	0.29
34.417	0.27	0.28	0.28
34.500	0.26	0.27	0.27
34.583	0.25	0.26	0.26
34.667	0.24	0.25	0.25
34.750	0.23	0.24	0.24
34.833	0.22	0.23	0.23
34.917	0.21	0.22	0.22
35.000	0.20	0.21	0.21
35.083	0.20	0.20	0.20
35.167	0.19	0.19	0.19
35.250	0.18	0.18	0.18
35.333	0.17	0.18	0.18
35.417	0.17	0.17	0.17

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        35.500          0.16          0.16          0.16
        35.583          0.15          0.15          0.15
        35.667          0.15          0.15          0.15
        35.750          0.14          0.14          0.14
        35.833          0.13          0.14          0.14
        35.917          0.13          0.13          0.13
        36.000          0.12          0.13          0.13
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =   1710.206 AF
    OUTFLOW VOLUME =   1710.205 AF
    LOSS    VOLUME =      0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE    108.50 TO NODE    108.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

     (UNIT-HYDROGRAPH ADDED TO STREAM #4)

        WATERSHED AREA =     275.500 ACRES
        BASEFLOW =   0.000 CFS/SQUARE-MILE
        *USER ENTERED "LAG" TIME =    0.179 HOURS
         CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
         THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
         MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
        VALLEY(DEVELOPED):
                 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.110
        FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        VALLEY(UNDEVELOPED)/DESERT:
                 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.890
        MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.118
        LOW LOSS FRACTION = 0.139
        *HYDROGRAPH MODEL #1 SPECIFIED*

        SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
        SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
        SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
        SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
        SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
        SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

        *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
          5-MINUTE FACTOR = 0.979
         30-MINUTE FACTOR = 0.979
          1-HOUR FACTOR = 0.979
          3-HOUR FACTOR = 0.997
          6-HOUR FACTOR = 0.999
         24-HOUR FACTOR = 0.999

        UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
        UNIT INTERVAL PERCENTAGE OF LAG-TIME =  46.555
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NODE 108.5 SUBAREA HYDROGRAPH

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	3.560	118.617
2	26.375	760.142
3	57.757	1045.612
4	72.976	507.057
5	81.248	275.617
6	86.330	169.332
7	89.917	119.519
8	92.410	83.064
9	94.360	64.962
10	95.832	49.025
11	96.971	37.968
12	97.802	27.684
13	98.327	17.481
14	98.791	15.476
15	99.289	16.568
16	99.715	14.223
17	99.929	7.111
18	100.000	2.371

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0007	0.0042
2	0.0049	0.0007	0.0042
3	0.0049	0.0007	0.0042
4	0.0049	0.0007	0.0042
5	0.0049	0.0007	0.0042
6	0.0049	0.0007	0.0042
7	0.0050	0.0007	0.0043
8	0.0050	0.0007	0.0043
9	0.0050	0.0007	0.0043
10	0.0050	0.0007	0.0043
11	0.0050	0.0007	0.0043
12	0.0050	0.0007	0.0043
13	0.0051	0.0007	0.0044
14	0.0051	0.0007	0.0044
15	0.0051	0.0007	0.0044
16	0.0051	0.0007	0.0044
17	0.0051	0.0007	0.0044
18	0.0051	0.0007	0.0044
19	0.0052	0.0007	0.0044
20	0.0052	0.0007	0.0045
21	0.0052	0.0007	0.0045
22	0.0052	0.0007	0.0045
23	0.0052	0.0007	0.0045
24	0.0052	0.0007	0.0045
25	0.0053	0.0007	0.0045
26	0.0053	0.0007	0.0046
27	0.0053	0.0007	0.0046
28	0.0053	0.0007	0.0046
29	0.0054	0.0007	0.0046
30	0.0054	0.0007	0.0046
31	0.0054	0.0007	0.0046
32	0.0054	0.0008	0.0047
33	0.0054	0.0008	0.0047
34	0.0054	0.0008	0.0047
35	0.0055	0.0008	0.0047
36	0.0055	0.0008	0.0047
37	0.0055	0.0008	0.0048
38	0.0055	0.0008	0.0048
39	0.0056	0.0008	0.0048
40	0.0056	0.0008	0.0048
41	0.0056	0.0008	0.0048
42	0.0056	0.0008	0.0048
43	0.0057	0.0008	0.0049
44	0.0057	0.0008	0.0049
45	0.0057	0.0008	0.0049
46	0.0057	0.0008	0.0049
47	0.0057	0.0008	0.0049
48	0.0058	0.0008	0.0050
49	0.0058	0.0008	0.0050
50	0.0058	0.0008	0.0050
51	0.0058	0.0008	0.0050

52	0.0059	0.0008	0.0050
53	0.0059	0.0008	0.0051
54	0.0059	0.0008	0.0051
55	0.0059	0.0008	0.0051
56	0.0060	0.0008	0.0051
57	0.0060	0.0008	0.0052
58	0.0060	0.0008	0.0052
59	0.0061	0.0008	0.0052
60	0.0061	0.0008	0.0052
61	0.0061	0.0008	0.0053
62	0.0061	0.0009	0.0053
63	0.0062	0.0009	0.0053
64	0.0062	0.0009	0.0053
65	0.0062	0.0009	0.0054
66	0.0063	0.0009	0.0054
67	0.0063	0.0009	0.0054
68	0.0063	0.0009	0.0054
69	0.0064	0.0009	0.0055
70	0.0064	0.0009	0.0055
71	0.0064	0.0009	0.0055
72	0.0064	0.0009	0.0055
73	0.0065	0.0009	0.0056
74	0.0065	0.0009	0.0056
75	0.0065	0.0009	0.0056
76	0.0066	0.0009	0.0057
77	0.0066	0.0009	0.0057
78	0.0066	0.0009	0.0057
79	0.0067	0.0009	0.0058
80	0.0067	0.0009	0.0058
81	0.0068	0.0009	0.0058
82	0.0068	0.0009	0.0058
83	0.0068	0.0010	0.0059
84	0.0069	0.0010	0.0059
85	0.0069	0.0010	0.0060
86	0.0069	0.0010	0.0060
87	0.0070	0.0010	0.0060
88	0.0070	0.0010	0.0060
89	0.0071	0.0010	0.0061
90	0.0071	0.0010	0.0061
91	0.0072	0.0010	0.0062
92	0.0072	0.0010	0.0062
93	0.0072	0.0010	0.0062
94	0.0073	0.0010	0.0063
95	0.0073	0.0010	0.0063
96	0.0074	0.0010	0.0063
97	0.0074	0.0010	0.0064
98	0.0075	0.0010	0.0064
99	0.0075	0.0010	0.0065
100	0.0076	0.0011	0.0065
101	0.0076	0.0011	0.0066
102	0.0077	0.0011	0.0066
103	0.0077	0.0011	0.0067
104	0.0078	0.0011	0.0067
105	0.0078	0.0011	0.0067
106	0.0079	0.0011	0.0068
107	0.0080	0.0011	0.0068
108	0.0080	0.0011	0.0069

109	0.0081	0.0011	0.0069
110	0.0081	0.0011	0.0070
111	0.0082	0.0011	0.0070
112	0.0082	0.0011	0.0071
113	0.0083	0.0012	0.0072
114	0.0084	0.0012	0.0072
115	0.0084	0.0012	0.0073
116	0.0085	0.0012	0.0073
117	0.0086	0.0012	0.0074
118	0.0086	0.0012	0.0074
119	0.0087	0.0012	0.0075
120	0.0088	0.0012	0.0075
121	0.0089	0.0012	0.0076
122	0.0089	0.0012	0.0077
123	0.0090	0.0013	0.0078
124	0.0091	0.0013	0.0078
125	0.0092	0.0013	0.0079
126	0.0092	0.0013	0.0080
127	0.0094	0.0013	0.0081
128	0.0094	0.0013	0.0081
129	0.0095	0.0013	0.0082
130	0.0096	0.0013	0.0083
131	0.0097	0.0014	0.0084
132	0.0098	0.0014	0.0084
133	0.0099	0.0014	0.0085
134	0.0100	0.0014	0.0086
135	0.0101	0.0014	0.0087
136	0.0102	0.0014	0.0088
137	0.0103	0.0014	0.0089
138	0.0104	0.0014	0.0090
139	0.0106	0.0015	0.0091
140	0.0107	0.0015	0.0092
141	0.0108	0.0015	0.0093
142	0.0109	0.0015	0.0094
143	0.0111	0.0015	0.0096
144	0.0112	0.0016	0.0096
145	0.0090	0.0013	0.0078
146	0.0091	0.0013	0.0078
147	0.0093	0.0013	0.0080
148	0.0094	0.0013	0.0081
149	0.0096	0.0013	0.0082
150	0.0097	0.0013	0.0083
151	0.0099	0.0014	0.0085
152	0.0100	0.0014	0.0086
153	0.0102	0.0014	0.0088
154	0.0104	0.0014	0.0089
155	0.0106	0.0015	0.0091
156	0.0107	0.0015	0.0092
157	0.0110	0.0015	0.0095
158	0.0112	0.0016	0.0096
159	0.0115	0.0016	0.0099
160	0.0116	0.0016	0.0100
161	0.0120	0.0017	0.0103
162	0.0121	0.0017	0.0104
163	0.0125	0.0017	0.0108
164	0.0127	0.0018	0.0109
165	0.0131	0.0018	0.0113

166	0.0134	0.0019	0.0115
167	0.0138	0.0019	0.0119
168	0.0141	0.0020	0.0121
169	0.0151	0.0021	0.0130
170	0.0154	0.0021	0.0133
171	0.0161	0.0022	0.0138
172	0.0164	0.0023	0.0141
173	0.0172	0.0024	0.0148
174	0.0176	0.0024	0.0151
175	0.0185	0.0026	0.0159
176	0.0190	0.0026	0.0163
177	0.0201	0.0028	0.0173
178	0.0207	0.0029	0.0178
179	0.0220	0.0031	0.0190
180	0.0228	0.0032	0.0196
181	0.0245	0.0034	0.0211
182	0.0255	0.0035	0.0220
183	0.0279	0.0039	0.0240
184	0.0293	0.0041	0.0252
185	0.0251	0.0035	0.0216
186	0.0269	0.0037	0.0232
187	0.0316	0.0044	0.0272
188	0.0347	0.0048	0.0299
189	0.0539	0.0075	0.0464
190	0.0621	0.0086	0.0535
191	0.0941	0.0098	0.0843
192	0.1367	0.0098	0.1268
193	0.5874	0.0098	0.5776
194	0.0741	0.0098	0.0643
195	0.0387	0.0054	0.0333
196	0.0290	0.0040	0.0250
197	0.0308	0.0043	0.0266
198	0.0266	0.0037	0.0229
199	0.0236	0.0033	0.0203
200	0.0213	0.0030	0.0184
201	0.0195	0.0027	0.0168
202	0.0180	0.0025	0.0155
203	0.0168	0.0023	0.0145
204	0.0158	0.0022	0.0136
205	0.0144	0.0020	0.0124
206	0.0136	0.0019	0.0117
207	0.0129	0.0018	0.0111
208	0.0123	0.0017	0.0106
209	0.0118	0.0016	0.0101
210	0.0113	0.0016	0.0097
211	0.0109	0.0015	0.0094
212	0.0105	0.0015	0.0090
213	0.0101	0.0014	0.0087
214	0.0098	0.0014	0.0084
215	0.0095	0.0013	0.0082
216	0.0092	0.0013	0.0079
217	0.0113	0.0016	0.0097
218	0.0110	0.0015	0.0095
219	0.0107	0.0015	0.0093
220	0.0105	0.0015	0.0090
221	0.0103	0.0014	0.0088
222	0.0101	0.0014	0.0087

223	0.0099	0.0014	0.0085
224	0.0097	0.0013	0.0083
225	0.0095	0.0013	0.0082
226	0.0093	0.0013	0.0080
227	0.0091	0.0013	0.0079
228	0.0090	0.0012	0.0077
229	0.0088	0.0012	0.0076
230	0.0087	0.0012	0.0075
231	0.0085	0.0012	0.0073
232	0.0084	0.0012	0.0072
233	0.0083	0.0011	0.0071
234	0.0081	0.0011	0.0070
235	0.0080	0.0011	0.0069
236	0.0079	0.0011	0.0068
237	0.0078	0.0011	0.0067
238	0.0077	0.0011	0.0066
239	0.0076	0.0011	0.0065
240	0.0075	0.0010	0.0065
241	0.0074	0.0010	0.0064
242	0.0073	0.0010	0.0063
243	0.0072	0.0010	0.0062
244	0.0071	0.0010	0.0061
245	0.0070	0.0010	0.0061
246	0.0070	0.0010	0.0060
247	0.0069	0.0010	0.0059
248	0.0068	0.0009	0.0059
249	0.0067	0.0009	0.0058
250	0.0067	0.0009	0.0057
251	0.0066	0.0009	0.0057
252	0.0065	0.0009	0.0056
253	0.0065	0.0009	0.0056
254	0.0064	0.0009	0.0055
255	0.0063	0.0009	0.0055
256	0.0063	0.0009	0.0054
257	0.0062	0.0009	0.0053
258	0.0062	0.0009	0.0053
259	0.0061	0.0008	0.0052
260	0.0060	0.0008	0.0052
261	0.0060	0.0008	0.0052
262	0.0059	0.0008	0.0051
263	0.0059	0.0008	0.0051
264	0.0058	0.0008	0.0050
265	0.0058	0.0008	0.0050
266	0.0057	0.0008	0.0049
267	0.0057	0.0008	0.0049
268	0.0056	0.0008	0.0049
269	0.0056	0.0008	0.0048
270	0.0055	0.0008	0.0048
271	0.0055	0.0008	0.0047
272	0.0055	0.0008	0.0047
273	0.0054	0.0008	0.0047
274	0.0054	0.0007	0.0046
275	0.0053	0.0007	0.0046
276	0.0053	0.0007	0.0046
277	0.0053	0.0007	0.0045
278	0.0052	0.0007	0.0045
279	0.0052	0.0007	0.0045

280	0.0052	0.0007	0.0044
281	0.0051	0.0007	0.0044
282	0.0051	0.0007	0.0044
283	0.0050	0.0007	0.0043
284	0.0050	0.0007	0.0043
285	0.0050	0.0007	0.0043
286	0.0049	0.0007	0.0043
287	0.0049	0.0007	0.0042
288	0.0049	0.0007	0.0042

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.42
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.18

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 9.5324
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 72.9972

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	200.0	400.0	600.0	800.0
0.083	0.0034	0.50	Q	.	.	.	.
0.167	0.0288	3.68	Q	.	.	.	.
0.250	0.0843	8.06	Q	.	.	.	.
0.333	0.1546	10.21	Q	.	.	.	.
0.417	0.2331	11.39	Q	.	.	.	.
0.500	0.3167	12.14	Q	.	.	.	.
0.583	0.4040	12.68	Q	.	.	.	.
0.667	0.4940	13.07	Q	.	.	.	.
0.750	0.5862	13.38	Q	.	.	.	.
0.833	0.6800	13.63	Q	.	.	.	.
0.917	0.7753	13.84	Q	.	.	.	.
1.000	0.8717	14.00	Q	.	.	.	.
1.083	0.9689	14.12	Q	.	.	.	.
1.167	1.0669	14.23	Q	.	.	.	.
1.250	1.1657	14.35	Q	.	.	.	.
1.333	1.2653	14.45	Q	.	.	.	.
1.417	1.3654	14.53	Q	.	.	.	.
1.500	1.4659	14.59	Q	.	.	.	.
1.583	1.5667	14.64	Q	.	.	.	.
1.667	1.6680	14.69	Q	.	.	.	.
1.750	1.7695	14.75	Q	.	.	.	.
1.833	1.8714	14.80	QV	.	.	.	.
1.917	1.9737	14.85	QV	.	.	.	.
2.000	2.0763	14.90	QV	.	.	.	.
2.083	2.1793	14.96	QV	.	.	.	.
2.167	2.2827	15.01	QV	.	.	.	.
2.250	2.3865	15.06	QV	.	.	.	.
2.333	2.4906	15.12	QV	.	.	.	.
2.417	2.5951	15.17	QV	.	.	.	.
2.500	2.7000	15.23	QV	.	.	.	.
2.583	2.8053	15.29	QV	.	.	.	.
2.667	2.9109	15.34	QV	.	.	.	.
2.750	3.0170	15.40	QV	.	.	.	.
2.833	3.1235	15.46	QV	.	.	.	.
2.917	3.2303	15.52	QV	.	.	.	.
3.000	3.3376	15.58	QV	.	.	.	.
3.083	3.4453	15.64	QV	.	.	.	.
3.167	3.5534	15.70	QV	.	.	.	.
3.250	3.6620	15.76	Q V	.	.	.	.
3.333	3.7709	15.82	Q V	.	.	.	.
3.417	3.8803	15.88	Q V	.	.	.	.
3.500	3.9901	15.95	Q V	.	.	.	.
3.583	4.1004	16.01	Q V	.	.	.	.
3.667	4.2111	16.07	Q V	.	.	.	.
3.750	4.3222	16.14	Q V	.	.	.	.

3.833	4.4338	16.20	Q	V	.	.	.	.
3.917	4.5459	16.27	Q	V	.	.	.	.
4.000	4.6584	16.34	Q	V	.	.	.	.
4.083	4.7714	16.41	Q	V	.	.	.	.
4.167	4.8848	16.47	Q	V	.	.	.	.
4.250	4.9988	16.54	Q	V	.	.	.	.
4.333	5.1132	16.61	Q	V	.	.	.	.
4.417	5.2281	16.69	Q	V	.	.	.	.
4.500	5.3435	16.76	Q	V	.	.	.	.
4.583	5.4594	16.83	Q	V	.	.	.	.
4.667	5.5758	16.90	Q	V	.	.	.	.
4.750	5.6928	16.98	Q	V	.	.	.	.
4.833	5.8102	17.05	Q	V	.	.	.	.
4.917	5.9282	17.13	Q	V	.	.	.	.
5.000	6.0467	17.21	Q	V	.	.	.	.
5.083	6.1657	17.28	Q	V	.	.	.	.
5.167	6.2853	17.36	Q	V	.	.	.	.
5.250	6.4054	17.44	Q	V	.	.	.	.
5.333	6.5261	17.52	Q	V	.	.	.	.
5.417	6.6473	17.61	Q	V	.	.	.	.
5.500	6.7692	17.69	Q	V	.	.	.	.
5.583	6.8915	17.77	Q	V	.	.	.	.
5.667	7.0145	17.86	Q	V	.	.	.	.
5.750	7.1381	17.94	Q	V	.	.	.	.
5.833	7.2623	18.03	Q	V	.	.	.	.
5.917	7.3870	18.12	Q	V	.	.	.	.
6.000	7.5124	18.21	Q	V	.	.	.	.
6.083	7.6384	18.30	Q	V	.	.	.	.
6.167	7.7651	18.39	Q	V	.	.	.	.
6.250	7.8923	18.48	Q	V	.	.	.	.
6.333	8.0203	18.58	Q	V	.	.	.	.
6.417	8.1489	18.67	Q	V	.	.	.	.
6.500	8.2781	18.77	Q	V	.	.	.	.
6.583	8.4080	18.87	Q	V	.	.	.	.
6.667	8.5387	18.96	Q	V	.	.	.	.
6.750	8.6700	19.07	Q	V	.	.	.	.
6.833	8.8020	19.17	Q	V	.	.	.	.
6.917	8.9347	19.27	Q	V	.	.	.	.
7.000	9.0681	19.38	Q	V	.	.	.	.
7.083	9.2023	19.48	Q	V	.	.	.	.
7.167	9.3373	19.59	Q	V	.	.	.	.
7.250	9.4729	19.70	Q	V	.	.	.	.
7.333	9.6094	19.81	Q	V	.	.	.	.
7.417	9.7466	19.93	Q	V	.	.	.	.
7.500	9.8846	20.04	.Q	V	.	.	.	.
7.583	10.0235	20.16	.Q	V	.	.	.	.
7.667	10.1631	20.28	.Q	V	.	.	.	.
7.750	10.3036	20.40	.Q	V	.	.	.	.
7.833	10.4449	20.52	.Q	V	.	.	.	.
7.917	10.5871	20.64	.Q	V	.	.	.	.
8.000	10.7301	20.77	.Q	V	.	.	.	.
8.083	10.8740	20.90	.Q	V	.	.	.	.
8.167	11.0188	21.03	.Q	V	.	.	.	.
8.250	11.1646	21.16	.Q	V	.	.	.	.
8.333	11.3112	21.29	.Q	V	.	.	.	.
8.417	11.4588	21.43	.Q	V	.	.	.	.
8.500	11.6074	21.57	.Q	V	.	.	.	.

8.583	11.7569	21.71	.Q	V	.	.	.	.
8.667	11.9074	21.86	.Q	V	.	.	.	.
8.750	12.0590	22.00	.Q	V	.	.	.	.
8.833	12.2116	22.15	.Q	V	.	.	.	.
8.917	12.3652	22.31	.Q	V	.	.	.	.
9.000	12.5199	22.46	.Q	V	.	.	.	.
9.083	12.6756	22.62	.Q	V	.	.	.	.
9.167	12.8325	22.78	.Q	V	.	.	.	.
9.250	12.9905	22.94	.Q	V	.	.	.	.
9.333	13.1497	23.11	.Q	V	.	.	.	.
9.417	13.3100	23.28	.Q	V	.	.	.	.
9.500	13.4715	23.45	.Q	V	.	.	.	.
9.583	13.6343	23.63	.Q	V	.	.	.	.
9.667	13.7983	23.81	.Q	V	.	.	.	.
9.750	13.9635	24.00	.Q	V	.	.	.	.
9.833	14.1301	24.18	.Q	V	.	.	.	.
9.917	14.2980	24.38	.Q	V	.	.	.	.
10.000	14.4672	24.57	.Q	V	.	.	.	.
10.083	14.6378	24.77	.Q	V	.	.	.	.
10.167	14.8098	24.98	.Q	V	.	.	.	.
10.250	14.9833	25.19	.Q	V	.	.	.	.
10.333	15.1582	25.40	.Q	V	.	.	.	.
10.417	15.3346	25.62	.Q	V	.	.	.	.
10.500	15.5126	25.84	.Q	V	.	.	.	.
10.583	15.6922	26.07	.Q	V	.	.	.	.
10.667	15.8733	26.31	.Q	V	.	.	.	.
10.750	16.0562	26.55	.Q	V	.	.	.	.
10.833	16.2407	26.79	.Q	V	.	.	.	.
10.917	16.4269	27.05	.Q	V	.	.	.	.
11.000	16.6150	27.30	.Q	V	.	.	.	.
11.083	16.8048	27.57	.Q	V	.	.	.	.
11.167	16.9966	27.84	.Q	V	.	.	.	.
11.250	17.1902	28.12	.Q	V	.	.	.	.
11.333	17.3859	28.40	.Q	V	.	.	.	.
11.417	17.5835	28.70	.Q	V	.	.	.	.
11.500	17.7833	29.00	.Q	V	.	.	.	.
11.583	17.9852	29.32	.Q	V	.	.	.	.
11.667	18.1893	29.63	.Q	V	.	.	.	.
11.750	18.3956	29.97	.Q	V	.	.	.	.
11.833	18.6043	30.30	.Q	V	.	.	.	.
11.917	18.8155	30.66	.Q	V	.	.	.	.
12.000	19.0291	31.01	.Q	V	.	.	.	.
12.083	19.2436	31.15	.Q	V	.	.	.	.
12.167	19.4500	29.98	.Q	V	.	.	.	.
12.250	19.6445	28.24	.Q	V	.	.	.	.
12.333	19.8345	27.59	.Q	V	.	.	.	.
12.417	20.0234	27.42	.Q	V	.	.	.	.
12.500	20.2127	27.48	.Q	.V	.	.	.	.
12.583	20.4031	27.66	.Q	.V	.	.	.	.
12.667	20.5954	27.91	.Q	.V	.	.	.	.
12.750	20.7898	28.23	.Q	.V	.	.	.	.
12.833	20.9867	28.59	.Q	.V	.	.	.	.
12.917	21.1864	29.00	.Q	.V	.	.	.	.
13.000	21.3892	29.44	.Q	.V	.	.	.	.
13.083	21.5953	29.93	.Q	.V	.	.	.	.
13.167	21.8050	30.44	.Q	.V	.	.	.	.
13.250	22.0184	30.99	.Q	. V	.	.	.	.

13.333	22.2357	31.55	.Q . V . . .
13.417	22.4573	32.17	.Q . V . . .
13.500	22.6833	32.82	.Q . V . . .
13.583	22.9141	33.52	.Q . V . . .
13.667	23.1500	34.24	.Q . V . . .
13.750	23.3912	35.02	.Q . V . . .
13.833	23.6379	35.83	.Q . V . . .
13.917	23.8907	36.70	.Q . V . . .
14.000	24.1497	37.61	.Q . V . . .
14.083	24.4158	38.64	.Q . V . . .
14.167	24.6914	40.01	. Q . V . . .
14.250	24.9779	41.60	. Q . V . . .
14.333	25.2741	43.02	. Q . V . . .
14.417	25.5802	44.45	. Q . V . . .
14.500	25.8965	45.92	. Q . V . . .
14.583	26.2236	47.50	. Q . V . . .
14.667	26.5622	49.18	. Q . V . . .
14.750	26.9136	51.02	. Q . V . . .
14.833	27.2787	53.01	. Q . V . . .
14.917	27.6590	55.22	. Q . V . . .
15.000	28.0560	57.65	. Q . V . . .
15.083	28.4718	60.37	. Q . V . . .
15.167	28.9086	63.42	. Q . V . . .
15.250	29.3694	66.91	. Q . V . . .
15.333	29.8578	70.91	. Q . V . . .
15.417	30.3730	74.81	. Q . V . . .
15.500	30.8921	75.37	. Q . V . . .
15.583	31.4087	75.02	. Q . V . . .
15.667	31.9547	79.28	. Q . V . . .
15.750	32.5611	88.05	. Q . V . . .
15.833	33.2960	106.70	. Q . V . . .
15.917	34.2308	135.73	. Q . V . . .
16.000	35.4813	181.57	. Q. V. . .
16.083	37.6078	308.77	. . Q V . .
16.167	42.1265	656.12	. . . V . Q .
16.250	47.4113	767.35	. . . V . Q .
16.333	50.5397	454.24	. . . Q V . .
16.417	52.5545	292.56	. . Q . V . .
16.500	54.0210	212.93	. Q . V. .
16.583	55.2082	172.37	. Q . . V .
16.667	56.1780	140.82	. Q . . V .
16.750	57.0071	120.38	. Q . . .V .
16.833	57.7169	103.06	. Q . . .V .
16.917	58.3340	89.60	. Q . . .V .
17.000	58.8699	77.82	. Q . . . V .
17.083	59.3344	67.44	. Q . . . V .
17.167	59.7601	61.81	. Q . . . V .
17.250	60.1594	57.98	. Q . . . V .
17.333	60.5228	52.77	. Q . . . V .
17.417	60.8374	45.67	. Q . . . V .
17.500	61.1153	40.36	. Q . . . V .
17.583	61.3694	36.89	.Q . . . V .
17.667	61.6107	35.04	.Q . . . V .
17.750	61.8410	33.45	.Q . . . V .
17.833	62.0616	32.02	.Q . . . V .
17.917	62.2733	30.75	.Q . . . V .
18.000	62.4772	29.60	.Q . . . V .

18.083	62.6755	28.80	.Q	.	.	.	V	.
18.167	62.8779	29.38	.Q	.	.	.	V	.
18.250	63.0887	30.61	.Q	.	.	.	V	.
18.333	63.3007	30.78	.Q	.	.	.	V	.
18.417	63.5110	30.54	.Q	.	.	.	V	.
18.500	63.7185	30.13	.Q	.	.	.	V	.
18.583	63.9227	29.66	.Q	.	.	.	V	.
18.667	64.1235	29.15	.Q	.	.	.	V	.
18.750	64.3209	28.65	.Q	.	.	.	V	.
18.833	64.5147	28.15	.Q	.	.	.	V	.
18.917	64.7052	27.66	.Q	.	.	.	V	.
19.000	64.8924	27.18	.Q	.	.	.	V	.
19.083	65.0763	26.70	.Q	.	.	.	V	.
19.167	65.2570	26.24	.Q	.	.	.	V	.
19.250	65.4348	25.81	.Q	.	.	.	V	.
19.333	65.6096	25.39	.Q	.	.	.	V	.
19.417	65.7817	24.98	.Q	.	.	.	V	.
19.500	65.9510	24.58	.Q	.	.	.	V	.
19.583	66.1176	24.19	.Q	.	.	.	V	.
19.667	66.2816	23.82	.Q	.	.	.	V	.
19.750	66.4431	23.46	.Q	.	.	.	V	.
19.833	66.6023	23.11	.Q	.	.	.	V	.
19.917	66.7592	22.78	.Q	.	.	.	V	.
20.000	66.9139	22.46	.Q	.	.	.	V	.
20.083	67.0664	22.15	.Q	.	.	.	V	.
20.167	67.2169	21.85	.Q	.	.	.	V	.
20.250	67.3655	21.57	.Q	.	.	.	V	.
20.333	67.5121	21.29	.Q	.	.	.	V	.
20.417	67.6569	21.02	.Q	.	.	.	V	.
20.500	67.7999	20.76	.Q	.	.	.	V	.
20.583	67.9411	20.51	.Q	.	.	.	V	.
20.667	68.0807	20.27	.Q	.	.	.	V	.
20.750	68.2187	20.03	.Q	.	.	.	V	.
20.833	68.3551	19.81	Q	.	.	.	V	.
20.917	68.4900	19.58	Q	.	.	.	V	.
21.000	68.6234	19.37	Q	.	.	.	V	.
21.083	68.7554	19.16	Q	.	.	.	V	.
21.167	68.8859	18.96	Q	.	.	.	V	.
21.250	69.0151	18.76	Q	.	.	.	V	.
21.333	69.1430	18.57	Q	.	.	.	V	.
21.417	69.2696	18.38	Q	.	.	.	V	.
21.500	69.3949	18.20	Q	.	.	.	V	.
21.583	69.5190	18.02	Q	.	.	.	V	.
21.667	69.6420	17.85	Q	.	.	.	V	.
21.750	69.7637	17.68	Q	.	.	.	V	.
21.833	69.8843	17.51	Q	.	.	.	V	.
21.917	70.0038	17.35	Q	.	.	.	V	.
22.000	70.1223	17.20	Q	.	.	.	V	.
22.083	70.2397	17.04	Q	.	.	.	V	.
22.167	70.3560	16.89	Q	.	.	.	V	.
22.250	70.4714	16.75	Q	.	.	.	V	.
22.333	70.5857	16.61	Q	.	.	.	V	.
22.417	70.6991	16.47	Q	.	.	.	V	.
22.500	70.8116	16.33	Q	.	.	.	V	.
22.583	70.9232	16.20	Q	.	.	.	V	.
22.667	71.0338	16.07	Q	.	.	.	V	.
22.750	71.1436	15.94	Q	.	.	.	V	.

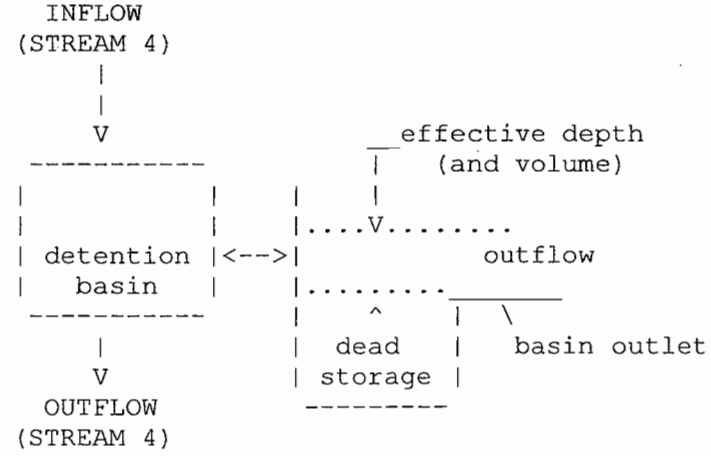
22.833	71.2525	15.81	Q	.	.	.	V.
22.917	71.3605	15.69	Q	.	.	.	V.
23.000	71.4677	15.57	Q	.	.	.	V.
23.083	71.5742	15.45	Q	.	.	.	V.
23.167	71.6798	15.34	Q	.	.	.	V.
23.250	71.7846	15.22	Q	.	.	.	V.
23.333	71.8887	15.11	Q	.	.	.	V.
23.417	71.9920	15.00	Q	.	.	.	V.
23.500	72.0946	14.90	Q	.	.	.	V.
23.583	72.1965	14.79	Q	.	.	.	V.
23.667	72.2976	14.69	Q	.	.	.	V.
23.750	72.3981	14.59	Q	.	.	.	V.
23.833	72.4978	14.49	Q	.	.	.	V.
23.917	72.5969	14.39	Q	.	.	.	V.
24.000	72.6954	14.29	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	85.0
20%	40.0
30%	25.0
40%	20.0
50%	15.0
60%	10.0
70%	10.0
80%	10.0
90%	5.0

FLOW PROCESS FROM NODE 108.50 TO NODE 108.50 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #4<<<<<



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 4
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 1.000
SPECIFIED DEAD STORAGE(AF) FILLED = 1.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	23.00	12.100
3	4.00	82.00	28.400
4	6.50	151.00	46.200

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.083	1.000	0.50	0.00	0.00	0.0	0.003
0.167	1.000	3.68	0.00	0.00	0.0	0.029
0.250	1.000	8.06	0.00	0.01	0.1	0.083
0.333	1.000	10.21	0.00	0.03	0.2	0.152
0.417	1.000	11.39	0.00	0.04	0.4	0.228
0.500	1.000	12.14	0.00	0.05	0.5	0.308
0.583	1.000	12.68	0.00	0.06	0.7	0.391
0.667	1.000	13.07	0.00	0.08	0.8	0.475
0.750	1.000	13.38	0.00	0.09	1.0	0.561
0.833	1.000	13.63	0.00	0.11	1.1	0.647
0.917	1.000	13.84	0.00	0.12	1.3	0.733
1.000	1.000	14.00	0.00	0.14	1.5	0.819
1.083	1.000	14.12	0.00	0.15	1.6	0.905
1.167	1.000	14.23	0.00	0.16	1.8	0.991
1.250	1.000	14.35	0.00	0.18	2.0	1.076
1.333	1.000	14.45	0.00	0.19	2.1	1.161
1.417	1.000	14.53	0.00	0.21	2.3	1.245
1.500	1.000	14.59	0.00	0.22	2.4	1.329
1.583	1.000	14.64	0.00	0.23	2.6	1.412
1.667	1.000	14.69	0.00	0.25	2.8	1.494
1.750	1.000	14.75	0.00	0.26	2.9	1.575
1.833	1.000	14.80	0.00	0.27	3.1	1.656
1.917	1.000	14.85	0.00	0.29	3.2	1.736
2.000	1.000	14.90	0.00	0.30	3.4	1.816
2.083	1.000	14.96	0.00	0.31	3.5	1.894
2.167	1.000	15.01	0.00	0.33	3.7	1.972
2.250	1.000	15.06	0.00	0.34	3.8	2.050

NODE 108.5 BASIN B-2 ROUTING

2.333	1.000	15.12	0.00	0.35	4.0	2.127
2.417	1.000	15.17	0.00	0.36	4.1	2.203
2.500	1.000	15.23	0.00	0.38	4.3	2.278
2.583	1.000	15.29	0.00	0.39	4.4	2.353
2.667	1.000	15.34	0.00	0.40	4.5	2.428
2.750	1.000	15.40	0.00	0.41	4.7	2.501
2.833	1.000	15.46	0.00	0.43	4.8	2.575
2.917	1.000	15.52	0.00	0.44	5.0	2.647
3.000	1.000	15.58	0.00	0.45	5.1	2.720
3.083	1.000	15.64	0.00	0.46	5.2	2.791
3.167	1.000	15.70	0.00	0.47	5.4	2.862
3.250	1.000	15.76	0.00	0.48	5.5	2.933
3.333	1.000	15.82	0.00	0.50	5.6	3.003
3.417	1.000	15.88	0.00	0.51	5.8	3.073
3.500	1.000	15.95	0.00	0.52	5.9	3.142
3.583	1.000	16.01	0.00	0.53	6.0	3.210
3.667	1.000	16.07	0.00	0.54	6.2	3.279
3.750	1.000	16.14	0.00	0.55	6.3	3.346
3.833	1.000	16.20	0.00	0.56	6.4	3.414
3.917	1.000	16.27	0.00	0.58	6.6	3.481
4.000	1.000	16.34	0.00	0.59	6.7	3.547
4.083	1.000	16.41	0.00	0.60	6.8	3.613
4.167	1.000	16.47	0.00	0.61	6.9	3.679
4.250	1.000	16.54	0.00	0.62	7.1	3.744
4.333	1.000	16.61	0.00	0.63	7.2	3.809
4.417	1.000	16.69	0.00	0.64	7.3	3.874
4.500	1.000	16.76	0.00	0.65	7.4	3.938
4.583	1.000	16.83	0.00	0.66	7.5	4.002
4.667	1.000	16.90	0.00	0.67	7.7	4.066
4.750	1.000	16.98	0.00	0.68	7.8	4.129
4.833	1.000	17.05	0.00	0.69	7.9	4.192
4.917	1.000	17.13	0.00	0.70	8.0	4.255
5.000	1.000	17.21	0.00	0.71	8.1	4.317
5.083	1.000	17.28	0.00	0.72	8.3	4.379
5.167	1.000	17.36	0.00	0.73	8.4	4.441
5.250	1.000	17.44	0.00	0.74	8.5	4.503
5.333	1.000	17.52	0.00	0.75	8.6	4.564
5.417	1.000	17.61	0.00	0.76	8.7	4.625
5.500	1.000	17.69	0.00	0.77	8.8	4.686
5.583	1.000	17.77	0.00	0.78	9.0	4.747
5.667	1.000	17.86	0.00	0.79	9.1	4.807
5.750	1.000	17.94	0.00	0.80	9.2	4.867
5.833	1.000	18.03	0.00	0.81	9.3	4.927
5.917	1.000	18.12	0.00	0.82	9.4	4.987
6.000	1.000	18.21	0.00	0.83	9.5	5.047
6.083	1.000	18.30	0.00	0.84	9.7	5.107
6.167	1.000	18.39	0.00	0.85	9.8	5.166
6.250	1.000	18.48	0.00	0.86	9.9	5.225
6.333	1.000	18.58	0.00	0.87	10.0	5.284
6.417	1.000	18.67	0.00	0.88	10.1	5.343
6.500	1.000	18.77	0.00	0.89	10.2	5.402
6.583	1.000	18.87	0.00	0.90	10.3	5.461
6.667	1.000	18.96	0.00	0.91	10.4	5.520
6.750	1.000	19.07	0.00	0.92	10.5	5.578
6.833	1.000	19.17	0.00	0.93	10.7	5.637
6.917	1.000	19.27	0.00	0.94	10.8	5.696
7.000	1.000	19.38	0.00	0.95	10.9	5.754

7.083	1.000	19.48	0.00	0.96	11.0	5.813
7.167	1.000	19.59	0.00	0.97	11.1	5.871
7.250	1.000	19.70	0.00	0.98	11.2	5.930
7.333	1.000	19.81	0.00	0.99	11.3	5.988
7.417	1.000	19.93	0.00	1.00	11.4	6.046
7.500	1.000	20.04	0.00	1.01	11.5	6.105
7.583	1.000	20.16	0.00	1.02	11.7	6.163
7.667	1.000	20.28	0.00	1.03	11.8	6.222
7.750	1.000	20.40	0.00	1.04	11.9	6.281
7.833	1.000	20.52	0.00	1.05	12.0	6.339
7.917	1.000	20.64	0.00	1.06	12.1	6.398
8.000	1.000	20.77	0.00	1.07	12.2	6.457
8.083	1.000	20.90	0.00	1.08	12.3	6.516
8.167	1.000	21.03	0.00	1.09	12.4	6.575
8.250	1.000	21.16	0.00	1.10	12.6	6.634
8.333	1.000	21.29	0.00	1.11	12.7	6.694
8.417	1.000	21.43	0.00	1.12	12.8	6.753
8.500	1.000	21.57	0.00	1.13	12.9	6.813
8.583	1.000	21.71	0.00	1.14	13.0	6.873
8.667	1.000	21.86	0.00	1.15	13.1	6.933
8.750	1.000	22.00	0.00	1.16	13.2	6.994
8.833	1.000	22.15	0.00	1.17	13.4	7.054
8.917	1.000	22.31	0.00	1.18	13.5	7.115
9.000	1.000	22.46	0.00	1.19	13.6	7.176
9.083	1.000	22.62	0.00	1.20	13.7	7.238
9.167	1.000	22.78	0.00	1.21	13.8	7.299
9.250	1.000	22.94	0.00	1.22	13.9	7.361
9.333	1.000	23.11	0.00	1.23	14.1	7.424
9.417	1.000	23.28	0.00	1.24	14.2	7.487
9.500	1.000	23.45	0.00	1.25	14.3	7.550
9.583	1.000	23.63	0.00	1.26	14.4	7.613
9.667	1.000	23.81	0.00	1.27	14.5	7.677
9.750	1.000	24.00	0.00	1.28	14.7	7.741
9.833	1.000	24.18	0.00	1.29	14.8	7.806
9.917	1.000	24.38	0.00	1.30	14.9	7.871
10.000	1.000	24.57	0.00	1.31	15.0	7.937
10.083	1.000	24.77	0.00	1.32	15.2	8.004
10.167	1.000	24.98	0.00	1.33	15.3	8.070
10.250	1.000	25.19	0.00	1.35	15.4	8.138
10.333	1.000	25.40	0.00	1.36	15.5	8.206
10.417	1.000	25.62	0.00	1.37	15.7	8.274
10.500	1.000	25.84	0.00	1.38	15.8	8.343
10.583	1.000	26.07	0.00	1.39	15.9	8.413
10.667	1.000	26.31	0.00	1.40	16.1	8.484
10.750	1.000	26.55	0.00	1.41	16.2	8.555
10.833	1.000	26.79	0.00	1.43	16.3	8.627
10.917	1.000	27.05	0.00	1.44	16.5	8.700
11.000	1.000	27.30	0.00	1.45	16.6	8.774
11.083	1.000	27.57	0.00	1.46	16.7	8.848
11.167	1.000	27.84	0.00	1.47	16.9	8.924
11.250	1.000	28.12	0.00	1.49	17.0	9.000
11.333	1.000	28.40	0.00	1.50	17.2	9.077
11.417	1.000	28.70	0.00	1.51	17.3	9.156
11.500	1.000	29.00	0.00	1.53	17.5	9.235
11.583	1.000	29.32	0.00	1.54	17.6	9.315
11.667	1.000	29.63	0.00	1.55	17.8	9.397
11.750	1.000	29.97	0.00	1.57	17.9	9.480

11.833	1.000	30.30	0.00	1.58	18.1	9.564
11.917	1.000	30.66	0.00	1.59	18.3	9.649
12.000	1.000	31.01	0.00	1.61	18.4	9.736
12.083	1.000	31.15	0.00	1.62	18.6	9.822
12.167	1.000	29.98	0.00	1.64	18.7	9.900
12.250	1.000	28.24	0.00	1.65	18.9	9.964
12.333	1.000	27.59	0.00	1.66	19.0	10.023
12.417	1.000	27.42	0.00	1.67	19.1	10.081
12.500	1.000	27.48	0.00	1.68	19.2	10.138
12.583	1.000	27.66	0.00	1.69	19.3	10.195
12.667	1.000	27.91	0.00	1.69	19.4	10.253
12.750	1.000	28.23	0.00	1.70	19.5	10.313
12.833	1.000	28.59	0.00	1.71	19.7	10.375
12.917	1.000	29.00	0.00	1.73	19.8	10.438
13.000	1.000	29.44	0.00	1.74	19.9	10.504
13.083	1.000	29.93	0.00	1.75	20.0	10.572
13.167	1.000	30.44	0.00	1.76	20.2	10.643
13.250	1.000	30.99	0.00	1.77	20.3	10.717
13.333	1.000	31.55	0.00	1.78	20.4	10.793
13.417	1.000	32.17	0.00	1.80	20.6	10.873
13.500	1.000	32.82	0.00	1.81	20.7	10.956
13.583	1.000	33.52	0.00	1.83	20.9	11.043
13.667	1.000	34.24	0.00	1.84	21.1	11.133
13.750	1.000	35.02	0.00	1.86	21.3	11.228
13.833	1.000	35.83	0.00	1.87	21.4	11.327
13.917	1.000	36.70	0.00	1.89	21.6	11.431
14.000	1.000	37.61	0.00	1.91	21.8	11.540
14.083	1.000	38.64	0.00	1.93	22.0	11.654
14.167	1.000	40.01	0.00	1.95	22.3	11.776
14.250	1.000	41.60	0.00	1.97	22.5	11.908
14.333	1.000	43.02	0.00	1.99	22.8	12.047
14.417	1.000	44.45	0.00	2.01	23.1	12.194
14.500	1.000	45.92	0.00	2.03	23.6	12.348
14.583	1.000	47.50	0.00	2.05	24.2	12.508
14.667	1.000	49.18	0.00	2.07	24.8	12.676
14.750	1.000	51.02	0.00	2.09	25.4	12.853
14.833	1.000	53.01	0.00	2.12	26.1	13.038
14.917	1.000	55.22	0.00	2.14	26.8	13.234
15.000	1.000	57.65	0.00	2.16	27.5	13.442
15.083	1.000	60.37	0.00	2.19	28.3	13.663
15.167	1.000	63.42	0.00	2.22	29.1	13.900
15.250	1.000	66.91	0.00	2.25	30.0	14.154
15.333	1.000	70.91	0.00	2.29	30.9	14.429
15.417	1.000	74.81	0.00	2.32	32.0	14.725
15.500	1.000	75.37	0.00	2.36	33.0	15.016
15.583	1.000	75.02	0.00	2.39	34.1	15.298
15.667	1.000	79.28	0.00	2.43	35.1	15.602
15.750	1.000	88.05	0.00	2.47	36.3	15.958
15.833	1.000	106.70	0.00	2.53	37.8	16.433
15.917	1.000	135.73	0.00	2.61	39.9	17.093
16.000	1.000	181.57	0.00	2.73	42.8	18.049
16.083	1.000	308.77	0.00	2.95	47.8	19.846
16.167	1.000	656.12	0.00	3.46	58.5	23.962
16.250	1.000	767.35	0.00	4.05	74.6	28.733
16.333	1.000	454.24	0.00	4.40	88.2	31.254
16.417	1.000	292.56	0.00	4.59	95.7	32.610
16.500	1.000	212.93	0.00	4.70	99.8	33.389

16.583	1.000	172.37	0.00	4.77	102.3	33.872
16.667	1.000	140.82	0.00	4.80	103.7	34.127
16.750	1.000	120.38	0.00	4.82	104.4	34.237
16.833	1.000	103.06	0.00	4.82	104.6	34.227
16.917	1.000	89.60	0.00	4.80	104.4	34.125
17.000	1.000	77.82	0.00	4.78	103.8	33.945
17.083	1.000	67.44	0.00	4.74	103.0	33.700
17.167	1.000	61.81	0.00	4.71	102.0	33.424
17.250	1.000	57.98	0.00	4.66	100.9	33.128
17.333	1.000	52.77	0.00	4.62	99.7	32.805
17.417	1.000	45.67	0.00	4.57	98.4	32.442
17.500	1.000	40.36	0.00	4.51	96.9	32.052
17.583	1.000	36.89	0.00	4.46	95.4	31.650
17.667	1.000	35.04	0.00	4.40	93.8	31.245
17.750	1.000	33.45	0.00	4.34	92.2	30.840
17.833	1.000	32.02	0.00	4.29	90.7	30.436
17.917	1.000	30.75	0.00	4.23	89.1	30.034
18.000	1.000	29.60	0.00	4.17	87.6	29.635
18.083	1.000	28.80	0.00	4.12	86.0	29.241
18.167	1.000	29.38	0.00	4.06	84.5	28.861
18.250	1.000	30.61	0.00	4.01	83.1	28.499
18.333	1.000	30.78	0.00	3.97	81.7	28.149
18.417	1.000	30.54	0.00	3.93	80.5	27.805
18.500	1.000	30.13	0.00	3.89	79.2	27.466
18.583	1.000	29.66	0.00	3.84	78.0	27.133
18.667	1.000	29.15	0.00	3.80	76.8	26.805
18.750	1.000	28.65	0.00	3.76	75.6	26.481
18.833	1.000	28.15	0.00	3.73	74.5	26.162
18.917	1.000	27.66	0.00	3.69	73.3	25.848
19.000	1.000	27.18	0.00	3.65	72.2	25.538
19.083	1.000	26.70	0.00	3.61	71.1	25.232
19.167	1.000	26.24	0.00	3.57	70.0	24.931
19.250	1.000	25.81	0.00	3.54	68.9	24.634
19.333	1.000	25.39	0.00	3.50	67.8	24.342
19.417	1.000	24.98	0.00	3.47	66.8	24.054
19.500	1.000	24.58	0.00	3.43	65.8	23.770
19.583	1.000	24.19	0.00	3.40	64.7	23.491
19.667	1.000	23.82	0.00	3.36	63.7	23.216
19.750	1.000	23.46	0.00	3.33	62.7	22.945
19.833	1.000	23.11	0.00	3.30	61.8	22.679
19.917	1.000	22.78	0.00	3.27	60.8	22.417
20.000	1.000	22.46	0.00	3.23	59.9	22.159
20.083	1.000	22.15	0.00	3.20	59.0	21.906
20.167	1.000	21.85	0.00	3.17	58.0	21.657
20.250	1.000	21.57	0.00	3.14	57.1	21.412
20.333	1.000	21.29	0.00	3.11	56.3	21.171
20.417	1.000	21.02	0.00	3.08	55.4	20.934
20.500	1.000	20.76	0.00	3.06	54.6	20.701
20.583	1.000	20.51	0.00	3.03	53.7	20.473
20.667	1.000	20.27	0.00	3.00	52.9	20.248
20.750	1.000	20.03	0.00	2.97	52.1	20.027
20.833	1.000	19.81	0.00	2.95	51.3	19.810
20.917	1.000	19.58	0.00	2.92	50.5	19.597
21.000	1.000	19.37	0.00	2.89	49.8	19.388
21.083	1.000	19.16	0.00	2.87	49.0	19.182
21.167	1.000	18.96	0.00	2.84	48.3	18.980
21.250	1.000	18.76	0.00	2.82	47.5	18.782

21.333	1.000	18.57	0.00	2.80	46.8	18.587
21.417	1.000	18.38	0.00	2.77	46.1	18.396
21.500	1.000	18.20	0.00	2.75	45.5	18.209
21.583	1.000	18.02	0.00	2.73	44.8	18.024
21.667	1.000	17.85	0.00	2.70	44.1	17.843
21.750	1.000	17.68	0.00	2.68	43.5	17.666
21.833	1.000	17.51	0.00	2.66	42.8	17.491
21.917	1.000	17.35	0.00	2.64	42.2	17.320
22.000	1.000	17.20	0.00	2.62	41.6	17.152
22.083	1.000	17.04	0.00	2.60	41.0	16.987
22.167	1.000	16.89	0.00	2.58	40.4	16.826
22.250	1.000	16.75	0.00	2.56	39.8	16.667
22.333	1.000	16.61	0.00	2.54	39.2	16.511
22.417	1.000	16.47	0.00	2.52	38.7	16.358
22.500	1.000	16.33	0.00	2.50	38.1	16.207
22.583	1.000	16.20	0.00	2.49	37.6	16.060
22.667	1.000	16.07	0.00	2.47	37.1	15.915
22.750	1.000	15.94	0.00	2.45	36.6	15.773
22.833	1.000	15.81	0.00	2.43	36.0	15.634
22.917	1.000	15.69	0.00	2.42	35.5	15.497
23.000	1.000	15.57	0.00	2.40	35.1	15.363
23.083	1.000	15.45	0.00	2.38	34.6	15.231
23.167	1.000	15.34	0.00	2.37	34.1	15.102
23.250	1.000	15.22	0.00	2.35	33.6	14.975
23.333	1.000	15.11	0.00	2.34	33.2	14.851
23.417	1.000	15.00	0.00	2.32	32.7	14.729
23.500	1.000	14.90	0.00	2.31	32.3	14.609
23.583	1.000	14.79	0.00	2.29	31.9	14.491
23.667	1.000	14.69	0.00	2.28	31.4	14.376
23.750	1.000	14.59	0.00	2.27	31.0	14.263
23.833	1.000	14.49	0.00	2.25	30.6	14.151
23.917	1.000	14.39	0.00	2.24	30.2	14.042

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 72.997 AF
BASIN STORAGE = 1.000 AF (WITH 1.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 72.997 AF
LOSS VOLUME = 0.000 AF

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FLOW PROCESS FROM NODE 108.50 TO NODE 108.00 IS CODE = 4

>>>>>MODEL PIPEFLOW ROUTING OF STREAM #4<<<<<

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MODEL PIPEFLOW ROUTING OF STREAM 4 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 600.00 MANNINGS FACTOR = 0.013

UPSTREAM ELEVATION(FT) = 3137.00
DOWNSTREAM ELEVATION(FT) = 3125.00
PIPE DIAMETER(FT) = 5.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
0.083	0.00	0.50	0.00	0.000
0.167	0.03	0.50	0.00	0.000
0.250	0.11	0.50	0.00	0.000
0.333	0.22	0.50	0.00	0.000
0.417	0.36	0.50	0.00	0.000
0.500	0.51	0.50	0.03	0.000
0.583	0.66	0.50	0.11	0.000
0.667	0.82	0.50	0.22	0.000
0.750	0.98	0.52	0.36	0.000
0.833	1.15	0.61	0.51	0.000
0.917	1.31	0.69	0.66	0.000
1.000	1.48	0.78	0.99	0.000
1.083	1.64	0.87	1.79	0.000
1.167	1.80	0.95	2.14	0.000
1.250	1.96	1.04	1.97	0.000
1.333	2.13	1.13	2.28	0.000
1.417	2.29	1.21	2.46	0.000
1.500	2.45	1.30	2.45	0.000
1.583	2.60	1.38	2.61	0.000
1.667	2.76	1.46	2.76	0.000
1.750	2.92	1.55	2.92	0.000
1.833	3.07	1.63	3.07	0.000
1.917	3.22	1.71	3.23	0.000
2.000	3.38	1.79	3.38	0.000
2.083	3.53	1.87	3.53	0.000
2.167	3.67	1.95	3.68	0.000
2.250	3.82	2.02	3.87	0.000
2.333	3.97	2.10	4.07	0.000
2.417	4.11	2.18	4.11	0.000
2.500	4.26	2.26	4.26	0.000
2.583	4.40	2.33	4.40	0.000
2.667	4.54	2.41	4.54	0.000
2.750	4.68	2.48	4.68	0.000
2.833	4.82	2.56	4.82	0.000
2.917	4.96	2.63	4.96	0.000
3.000	5.10	2.70	5.10	0.000
3.083	5.24	2.77	5.24	0.000
3.167	5.37	2.85	5.37	0.000
3.250	5.51	2.92	5.51	0.000
3.333	5.64	2.99	5.64	0.000
3.417	5.77	3.06	5.77	0.000
3.500	5.91	3.13	5.91	0.000
3.583	6.04	3.20	6.04	0.000
3.667	6.17	3.27	6.17	0.000
3.750	6.30	3.34	6.30	0.000
3.833	6.42	3.40	6.42	0.000
3.917	6.55	3.47	6.55	0.000

NODES 100 & 108 PIPE ROUTING

4.000	6.68	3.54	6.68	0.000
4.083	6.81	3.60	6.81	0.000
4.167	6.93	3.67	6.93	0.000
4.250	7.06	3.74	7.06	0.000
4.333	7.18	3.80	7.18	0.000
4.417	7.30	3.87	7.30	0.000
4.500	7.42	3.93	7.42	0.000
4.583	7.55	4.00	7.55	0.000
4.667	7.67	4.06	7.67	0.000
4.750	7.79	4.13	7.79	0.000
4.833	7.91	4.19	7.91	0.000
4.917	8.03	4.25	8.03	0.000
5.000	8.15	4.32	8.15	0.000
5.083	8.27	4.38	8.27	0.000
5.167	8.38	4.44	8.38	0.000
5.250	8.50	4.50	8.50	0.000
5.333	8.62	4.56	8.62	0.000
5.417	8.73	4.63	8.73	0.000
5.500	8.85	4.69	8.85	0.000
5.583	8.96	4.75	8.96	0.000
5.667	9.08	4.81	9.08	0.000
5.750	9.19	4.87	9.19	0.000
5.833	9.31	4.93	9.31	0.000
5.917	9.42	4.99	9.42	0.000
6.000	9.54	5.05	9.54	0.000
6.083	9.65	5.11	9.65	0.000
6.167	9.76	5.17	9.76	0.000
6.250	9.88	5.23	9.88	0.000
6.333	9.99	5.29	9.99	0.000
6.417	10.10	5.35	10.10	0.000
6.500	10.21	5.41	10.21	0.000
6.583	10.32	5.47	10.32	0.000
6.667	10.44	5.53	10.44	0.000
6.750	10.55	5.59	10.55	0.000
6.833	10.66	5.65	10.66	0.000
6.917	10.77	5.70	10.77	0.000
7.000	10.88	5.76	10.88	0.000
7.083	10.99	5.82	10.99	0.000
7.167	11.10	5.88	11.10	0.000
7.250	11.22	5.94	11.22	0.000
7.333	11.33	6.00	11.33	0.000
7.417	11.44	6.06	11.44	0.000
7.500	11.55	6.12	11.55	0.000
7.583	11.66	6.18	11.66	0.000
7.667	11.77	6.23	11.77	0.000
7.750	11.88	6.29	11.88	0.000
7.833	11.99	6.35	11.99	0.000
7.917	12.11	6.41	12.11	0.000
8.000	12.22	6.47	12.22	0.000
8.083	12.33	6.53	12.33	0.000
8.167	12.44	6.59	12.44	0.000
8.250	12.55	6.65	12.55	0.000
8.333	12.67	6.71	12.67	0.000
8.417	12.78	6.77	12.78	0.000
8.500	12.89	6.83	12.89	0.000
8.583	13.01	6.89	13.01	0.000
8.667	13.12	6.95	13.12	0.000

8.750	13.24	7.01	13.24	0.000
8.833	13.35	7.07	13.35	0.000
8.917	13.47	7.13	13.47	0.000
9.000	13.58	7.19	13.58	0.000
9.083	13.70	7.26	13.70	0.000
9.167	13.82	7.32	13.82	0.000
9.250	13.93	7.38	13.93	0.000
9.333	14.05	7.44	14.05	0.000
9.417	14.17	7.51	14.17	0.000
9.500	14.29	7.57	14.29	0.000
9.583	14.41	7.63	14.41	0.000
9.667	14.53	7.70	14.53	0.000
9.750	14.65	7.76	14.65	0.000
9.833	14.78	7.83	14.78	0.000
9.917	14.90	7.89	14.90	0.000
10.000	15.02	7.96	15.02	0.000
10.083	15.15	8.02	15.15	0.000
10.167	15.28	8.09	15.28	0.000
10.250	15.40	8.16	15.40	0.000
10.333	15.53	8.23	15.53	0.000
10.417	15.66	8.30	15.66	0.000
10.500	15.79	8.37	15.79	0.000
10.583	15.93	8.44	15.93	0.000
10.667	16.06	8.51	16.06	0.000
10.750	16.19	8.58	16.19	0.000
10.833	16.33	8.65	16.33	0.000
10.917	16.47	8.72	16.47	0.000
11.000	16.61	8.80	16.61	0.000
11.083	16.75	8.87	16.75	0.000
11.167	16.89	8.95	16.89	0.000
11.250	17.03	9.02	17.03	0.000
11.333	17.18	9.10	17.18	0.000
11.417	17.33	9.18	17.33	0.000
11.500	17.48	9.26	17.48	0.000
11.583	17.63	9.34	17.63	0.000
11.667	17.78	9.42	17.78	0.000
11.750	17.94	9.50	17.94	0.000
11.833	18.10	9.59	18.10	0.000
11.917	18.26	9.67	18.26	0.000
12.000	18.42	9.76	18.42	0.000
12.083	18.59	9.77	18.56	0.000
12.167	18.74	9.79	18.72	0.000
12.250	18.88	9.81	18.86	0.000
12.333	19.00	9.82	18.98	0.000
12.417	19.11	9.83	19.09	0.000
12.500	19.22	9.84	19.20	0.000
12.583	19.32	9.86	19.31	0.000
12.667	19.43	9.87	19.42	0.000
12.750	19.55	9.88	19.53	0.000
12.833	19.66	9.89	19.64	0.000
12.917	19.78	9.91	19.76	0.000
13.000	19.90	9.92	19.88	0.000
13.083	20.03	9.94	20.01	0.000
13.167	20.16	9.95	20.14	0.000
13.250	20.30	9.97	20.28	0.000
13.333	20.44	9.98	20.42	0.000
13.417	20.59	10.00	20.57	0.000

13.500	20.75	10.02	20.72	0.000
13.583	20.91	10.03	20.88	0.000
13.667	21.08	10.05	21.05	0.000
13.750	21.25	10.07	21.23	0.000
13.833	21.44	10.09	21.41	0.000
13.917	21.63	10.11	21.60	0.000
14.000	21.83	10.14	21.80	0.000
14.083	22.04	10.16	22.01	0.000
14.167	22.27	10.19	22.24	0.000
14.250	22.51	10.21	22.47	0.000
14.333	22.77	10.24	22.73	0.000
14.417	23.12	10.28	23.07	0.000
14.500	23.62	10.34	23.55	0.000
14.583	24.19	10.40	24.11	0.000
14.667	24.78	10.47	24.70	0.000
14.750	25.41	10.54	25.32	0.000
14.833	26.06	10.61	25.97	0.000
14.917	26.75	10.69	26.66	0.000
15.000	27.48	10.77	27.38	0.000
15.083	28.26	10.86	28.16	0.000
15.167	29.09	10.95	28.98	0.000
15.250	29.97	11.05	29.86	0.000
15.333	30.93	11.16	30.81	0.000
15.417	31.97	11.27	31.84	0.000
15.500	33.03	11.39	32.90	0.000
15.583	34.07	11.51	33.94	0.000
15.667	35.13	11.63	35.00	0.000
15.750	36.32	11.76	36.19	0.000
15.833	37.82	11.90	37.65	0.000
15.917	39.88	12.08	39.63	0.000
16.000	42.80	12.34	42.46	0.000
16.083	47.79	12.77	47.24	0.000
16.167	58.49	13.63	57.39	0.000
16.250	74.61	14.68	73.03	0.000
16.333	88.18	15.40	86.89	0.000
16.417	95.69	15.78	95.02	0.000
16.500	99.83	15.99	99.46	0.000
16.583	102.27	16.11	102.06	0.000
16.667	103.71	16.18	103.58	0.000
16.750	104.41	16.21	104.35	0.000
16.833	104.61	16.22	104.59	0.000
16.917	104.39	16.21	104.41	0.000
17.000	103.84	16.18	103.89	0.000
17.083	103.02	16.14	103.09	0.000
17.167	102.01	16.09	102.10	0.000
17.250	100.90	16.04	101.00	0.000
17.333	99.70	15.98	99.81	0.000
17.417	98.37	15.92	98.49	0.000
17.500	96.91	15.84	97.04	0.000
17.583	95.38	15.77	95.51	0.000
17.667	93.81	15.69	93.95	0.000
17.750	92.24	15.62	92.38	0.000
17.833	90.67	15.53	90.81	0.000
17.917	89.11	15.45	89.25	0.000
18.000	87.56	15.37	87.70	0.000
18.083	86.02	15.29	86.16	0.000
18.167	84.52	15.21	84.66	0.000

18.250	83.09	15.13	83.22	0.000
18.333	81.74	15.06	81.86	0.000
18.417	80.47	14.99	80.59	0.000
18.500	79.23	14.93	79.35	0.000
18.583	78.02	14.86	78.14	0.000
18.667	76.82	14.80	76.94	0.000
18.750	75.64	14.74	75.76	0.000
18.833	74.48	14.68	74.59	0.000
18.917	73.33	14.61	73.44	0.000
19.000	72.20	14.54	72.30	0.000
19.083	71.09	14.46	71.19	0.000
19.167	69.99	14.39	70.09	0.000
19.250	68.91	14.32	69.01	0.000
19.333	67.84	14.25	67.94	0.000
19.417	66.79	14.18	66.89	0.000
19.500	65.75	14.11	65.86	0.000
19.583	64.74	14.04	64.84	0.000
19.667	63.73	13.97	63.83	0.000
19.750	62.75	13.91	62.85	0.000
19.833	61.77	13.84	61.87	0.000
19.917	60.82	13.78	60.92	0.000
20.000	59.88	13.72	59.97	0.000
20.083	58.95	13.66	59.05	0.000
20.167	58.04	13.60	58.14	0.000
20.250	57.15	13.54	57.24	0.000
20.333	56.27	13.48	56.36	0.000
20.417	55.40	13.42	55.50	0.000
20.500	54.55	13.35	54.64	0.000
20.583	53.72	13.28	53.80	0.000
20.667	52.90	13.21	52.98	0.000
20.750	52.09	13.14	52.17	0.000
20.833	51.30	13.07	51.38	0.000
20.917	50.52	13.00	50.60	0.000
21.000	49.76	12.94	49.84	0.000
21.083	49.01	12.87	49.09	0.000
21.167	48.27	12.81	48.35	0.000
21.250	47.55	12.75	47.62	0.000
21.333	46.83	12.68	46.91	0.000
21.417	46.14	12.62	46.21	0.000
21.500	45.45	12.56	45.53	0.000
21.583	44.78	12.51	44.85	0.000
21.667	44.12	12.45	44.19	0.000
21.750	43.47	12.39	43.54	0.000
21.833	42.83	12.34	42.90	0.000
21.917	42.21	12.28	42.28	0.000
22.000	41.59	12.23	41.66	0.000
22.083	40.99	12.18	41.06	0.000
22.167	40.40	12.13	40.47	0.000
22.250	39.82	12.08	39.89	0.000
22.333	39.25	12.03	39.32	0.000
22.417	38.69	11.98	38.76	0.000
22.500	38.14	11.93	38.21	0.000
22.583	37.60	11.88	37.67	0.000
22.667	37.07	11.84	37.14	0.000
22.750	36.55	11.79	36.61	0.000
22.833	36.04	11.73	36.10	0.000
22.917	35.54	11.67	35.60	0.000

23.000	35.05	11.62	35.11	0.000
23.083	34.57	11.57	34.63	0.000
23.167	34.10	11.51	34.16	0.000
23.250	33.64	11.46	33.69	0.000
23.333	33.18	11.41	33.24	0.000
23.417	32.74	11.36	32.79	0.000
23.500	32.30	11.31	32.35	0.000
23.583	31.87	11.26	31.92	0.000
23.667	31.45	11.21	31.50	0.000
23.750	31.03	11.17	31.08	0.000
23.833	30.63	11.12	30.68	0.000
23.917	30.23	11.08	30.28	0.000
24.000	29.84	11.03	29.89	0.000
24.083	29.45	10.99	29.50	0.000
24.167	29.02	10.94	29.07	0.000
24.250	28.51	10.89	28.57	0.000
24.333	27.93	10.82	28.00	0.000
24.417	27.32	10.75	27.40	0.000
24.500	26.70	10.68	26.79	0.000
24.583	26.09	10.61	26.17	0.000
24.667	25.48	10.55	25.56	0.000
24.750	24.87	10.48	24.96	0.000
24.833	24.28	10.41	24.36	0.000
24.917	23.69	10.35	23.78	0.000
25.000	23.16	10.29	23.23	0.000
25.083	22.76	10.24	22.82	0.000
25.167	22.47	10.21	22.51	0.000
25.250	22.18	10.18	22.22	0.000
25.333	21.89	10.14	21.94	0.000
25.417	21.61	10.11	21.65	0.000
25.500	21.33	10.08	21.37	0.000
25.583	21.05	10.05	21.09	0.000
25.667	20.78	10.02	20.82	0.000
25.750	20.51	9.99	20.55	0.000
25.833	20.24	9.96	20.28	0.000
25.917	19.98	9.93	20.02	0.000
26.000	19.72	9.90	19.76	0.000
26.083	19.46	9.87	19.50	0.000
26.167	19.21	9.84	19.25	0.000
26.250	18.96	9.82	19.00	0.000
26.333	18.71	9.79	18.75	0.000
26.417	18.47	9.76	18.51	0.000
26.500	18.23	9.65	18.24	0.000
26.583	17.99	9.53	17.99	0.000
26.667	17.76	9.40	17.76	0.000
26.750	17.53	9.28	17.53	0.000
26.833	17.30	9.16	17.30	0.000
26.917	17.07	9.04	17.07	0.000
27.000	16.85	8.93	16.85	0.000
27.083	16.63	8.81	16.63	0.000
27.167	16.41	8.69	16.41	0.000
27.250	16.20	8.58	16.20	0.000
27.333	15.99	8.47	15.99	0.000
27.417	15.78	8.36	15.78	0.000
27.500	15.58	8.25	15.58	0.000
27.583	15.37	8.14	15.37	0.000
27.667	15.17	8.04	15.17	0.000

27.750	14.98	7.93	14.98	0.000
27.833	14.78	7.83	14.78	0.000
27.917	14.59	7.73	14.59	0.000
28.000	14.40	7.63	14.40	0.000

****
FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 7

>>>>>STREAM NUMBER 4 ADDED TO STREAM NUMBER 1<<<<<
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****
FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2175.0	4350.0	6525.0	8700.0
0.083	0.1340	19.46	Q	.	.	.	.
0.167	0.5309	57.63	Q	.	.	.	.
0.250	1.0281	72.19	Q	.	.	.	.
0.333	1.5690	78.55	Q	.	.	.	.
0.417	2.2959	105.55	Q	.	.	.	.
0.500	3.2409	137.21	Q	.	.	.	.
0.583	4.3433	160.07	Q	.	.	.	.
0.667	5.5615	176.88	Q	.	.	.	.
0.750	6.8744	190.63	Q	.	.	.	.
0.833	8.2708	202.76	Q	.	.	.	.
0.917	9.7427	213.71	Q	.	.	.	.
1.000	11.2834	223.72	VQ	.	.	.	.
1.083	12.8893	233.18	VQ	.	.	.	.
1.167	14.5510	241.27	VQ	.	.	.	.
1.250	16.2596	248.10	VQ	.	.	.	.
1.333	18.0141	254.75	VQ	.	.	.	.
1.417	19.8093	260.67	VQ	.	.	.	.
1.500	21.6403	265.86	VQ	.	.	.	.
1.583	23.5049	270.73	VQ	.	.	.	.
1.667	25.3999	275.16	VQ	.	.	.	.
1.750	27.3230	279.24	VQ	.	.	.	.
1.833	29.2723	283.04	VQ	.	.	.	.
1.917	31.2463	286.62	VQ	.	.	.	.
2.000	33.2433	289.97	VQ	.	.	.	.
2.083	35.2615	293.04	VQ	.	.	.	.
2.167	37.2992	295.87	VQ	.	.	.	.
2.250	39.3555	298.58	VQ	.	.	.	.
2.333	41.4295	301.15	VQ	.	.	.	.
2.417	43.5191	303.42	VQ	.	.	.	.
2.500	45.6244	305.68	.Q	.	.	.	.
2.583	47.7449	307.89	.Q	.	.	.	.
2.667	49.8801	310.03	.Q	.	.	.	.
2.750	52.0294	312.09	.Q	.	.	.	.

NODE 108 ADD STREAM 4 TO STREAM 1

2.833	54.1926	314.09	.Q	.	.	.	.
2.917	56.3693	316.06	.Q	.	.	.	.
3.000	58.5594	318.00	.Q	.	.	.	.
3.083	60.7627	319.91	.Q	.	.	.	.
3.167	62.9789	321.80	.Q	.	.	.	.
3.250	65.2079	323.66	.Q	.	.	.	.
3.333	67.4497	325.50	.Q	.	.	.	.
3.417	69.7040	327.33	.Q	.	.	.	.
3.500	71.9708	329.14	.Q	.	.	.	.
3.583	74.2500	330.94	.Q	.	.	.	.
3.667	76.5415	332.72	.Q	.	.	.	.
3.750	78.8452	334.50	.Q	.	.	.	.
3.833	81.1612	336.27	.Q	.	.	.	.
3.917	83.4892	338.03	.Q	.	.	.	.
4.000	85.8294	339.79	.Q	.	.	.	.
4.083	88.1816	341.54	.Q	.	.	.	.
4.167	90.5459	343.30	.QV	.	.	.	.
4.250	92.9222	345.05	.QV	.	.	.	.
4.333	95.3106	346.79	.QV	.	.	.	.
4.417	97.7105	348.47	.QV	.	.	.	.
4.500	100.1215	350.07	.QV	.	.	.	.
4.583	102.5433	351.64	.QV	.	.	.	.
4.667	104.9761	353.26	.QV	.	.	.	.
4.750	107.4207	354.94	.QV	.	.	.	.
4.833	109.8772	356.68	.QV	.	.	.	.
4.917	112.3458	358.45	.QV	.	.	.	.
5.000	114.8267	360.23	.QV	.	.	.	.
5.083	117.3199	362.01	.QV	.	.	.	.
5.167	119.8255	363.81	.QV	.	.	.	.
5.250	122.3436	365.62	.QV	.	.	.	.
5.333	124.8742	367.44	.QV	.	.	.	.
5.417	127.4174	369.27	.QV	.	.	.	.
5.500	129.9733	371.12	.QV	.	.	.	.
5.583	132.5420	372.97	.QV	.	.	.	.
5.667	135.1236	374.84	.Q V	.	.	.	.
5.750	137.7181	376.73	.Q V	.	.	.	.
5.833	140.3257	378.63	.Q V	.	.	.	.
5.917	142.9465	380.54	.Q V	.	.	.	.
6.000	145.5807	382.48	.Q V	.	.	.	.
6.083	148.2282	384.42	.Q V	.	.	.	.
6.167	150.8893	386.39	.Q V	.	.	.	.
6.250	153.5641	388.38	.Q V	.	.	.	.
6.333	156.2527	390.38	.Q V	.	.	.	.
6.417	158.9552	392.41	.Q V	.	.	.	.
6.500	161.6718	394.45	.Q V	.	.	.	.
6.583	164.4026	396.52	.Q V	.	.	.	.
6.667	167.1479	398.61	.Q V	.	.	.	.
6.750	169.9076	400.72	.Q V	.	.	.	.
6.833	172.6821	402.85	.Q V	.	.	.	.
6.917	175.4715	405.01	.Q V	.	.	.	.
7.000	178.2758	407.20	.Q V	.	.	.	.
7.083	181.0954	409.40	.Q V	.	.	.	.
7.167	183.9304	411.64	.Q V	.	.	.	.
7.250	186.7809	413.90	.Q V	.	.	.	.
7.333	189.6472	416.19	.Q V	.	.	.	.
7.417	192.5295	418.51	.Q V	.	.	.	.
7.500	195.4280	420.86	.Q V	.	.	.	.

7.583	198.3428	423.23	.Q	V	.	.	.
7.667	201.2742	425.64	.Q	V	.	.	.
7.750	204.2224	428.08	.Q	V	.	.	.
7.833	207.1877	430.56	.Q	V	.	.	.
7.917	210.1702	433.06	.Q	V	.	.	.
8.000	213.1703	435.61	. Q	V	.	.	.
8.083	216.1881	438.18	. Q	V	.	.	.
8.167	219.2239	440.80	. Q	V	.	.	.
8.250	222.2780	443.45	. Q	V	.	.	.
8.333	225.3506	446.14	. Q	V	.	.	.
8.417	228.4420	448.87	. Q	V	.	.	.
8.500	231.5524	451.64	. Q	V	.	.	.
8.583	234.6823	454.45	. Q	V	.	.	.
8.667	237.8318	457.31	. Q	V	.	.	.
8.750	241.0013	460.21	. Q	V	.	.	.
8.833	244.1911	463.16	. Q	V	.	.	.
8.917	247.4015	466.16	. Q	V	.	.	.
9.000	250.6329	469.20	. Q	V	.	.	.
9.083	253.8857	472.29	. Q	V	.	.	.
9.167	257.1601	475.44	. Q	V	.	.	.
9.250	260.4565	478.64	. Q	V	.	.	.
9.333	263.7753	481.90	. Q	V	.	.	.
9.417	267.1170	485.21	. Q	V	.	.	.
9.500	270.4818	488.58	. Q	V	.	.	.
9.583	273.8703	492.01	. Q	V	.	.	.
9.667	277.2829	495.50	. Q	V	.	.	.
9.750	280.7199	499.05	. Q	V	.	.	.
9.833	284.1819	502.68	. Q	V	.	.	.
9.917	287.6692	506.37	. Q	V	.	.	.
10.000	291.1825	510.13	. Q	V	.	.	.
10.083	294.7221	513.96	. Q	V	.	.	.
10.167	298.2887	517.87	. Q	V	.	.	.
10.250	301.8827	521.85	. Q	V	.	.	.
10.333	305.5047	525.92	. Q	V	.	.	.
10.417	309.1553	530.06	. Q	V	.	.	.
10.500	312.8351	534.30	. Q	V	.	.	.
10.583	316.5446	538.62	. Q	V	.	.	.
10.667	320.2845	543.04	. Q	V	.	.	.
10.750	324.0555	547.55	. Q	V	.	.	.
10.833	327.8582	552.16	. Q	V	.	.	.
10.917	331.6934	556.87	. Q	V	.	.	.
11.000	335.5618	561.69	. Q	V	.	.	.
11.083	339.4643	566.65	. Q	V	.	.	.
11.167	343.4025	571.82	. Q	V	.	.	.
11.250	347.3785	577.31	. Q	V	.	.	.
11.333	351.3950	583.20	. Q	V	.	.	.
11.417	355.4549	589.49	. Q	V	.	.	.
11.500	359.5604	596.12	. Q	V	.	.	.
11.583	363.7136	603.04	. Q	V	.	.	.
11.667	367.9161	610.21	. Q	V	.	.	.
11.750	372.1699	617.64	. Q	V	.	.	.
11.833	376.4765	625.32	. Q	V	.	.	.
11.917	380.8377	633.25	. Q	V	.	.	.
12.000	385.2554	641.44	. Q	V	.	.	.
12.083	389.7293	649.61	. Q	V	.	.	.
12.167	394.2515	656.62	. Q	V	.	.	.
12.250	398.7936	659.53	. Q	V	.	.	.

12.333	403.3015	654.54	. Q V. . . .
12.417	407.7332	643.48	. Q V. . . .
12.500	412.0898	632.58	. Q V. . . .
12.583	416.3966	625.35	. Q V. . . .
12.667	420.6778	621.63	. Q V. . . .
12.750	424.9512	620.50	. Q V. . . .
12.833	429.2316	621.52	. Q V. . . .
12.917	433.5321	624.42	. Q V. . . .
13.000	437.8634	628.91	. Q V. . . .
13.083	442.2350	634.76	. Q V. . . .
13.167	446.6552	641.81	. Q V . . .
13.250	451.1313	649.93	. Q V . . .
13.333	455.6701	659.03	. Q V . . .
13.417	460.2782	669.09	. Q V . . .
13.500	464.9622	680.13	. Q V . . .
13.583	469.7289	692.12	. Q V . . .
13.667	474.5850	705.10	. Q V . . .
13.750	479.5373	719.08	. Q V . . .
13.833	484.5930	734.09	. Q V . . .
13.917	489.7593	750.14	. Q V . . .
14.000	495.0435	767.28	. Q .V . . .
14.083	500.4540	785.60	. Q .V . . .
14.167	506.0017	805.52	. Q .V . . .
14.250	511.7026	827.78	. Q .V . . .
14.333	517.5784	853.16	. Q .V . . .
14.417	523.6428	880.55	. Q .V . . .
14.500	529.8978	908.23	. Q .V . . .
14.583	536.3461	936.29	. Q . V . . .
14.667	543.0012	966.31	. Q . V . . .
14.750	549.8831	999.25	. Q . V . . .
14.833	557.0140	1035.41	. Q . V . . .
14.917	564.4164	1074.83	. Q . V . . .
15.000	572.1145	1117.76	. Q . V . . .
15.083	580.1342	1164.47	. Q . V . . .
15.167	588.5056	1215.53	. Q . V . . .
15.250	597.2631	1271.58	. Q . V . . .
15.333	606.4481	1333.67	. Q . V . . .
15.417	616.1049	1402.16	. Q . V . . .
15.500	626.2642	1475.13	. Q . V . . .
15.583	636.9091	1545.65	. Q . V . . .
15.667	647.9592	1604.47	. Q . V . . .
15.750	659.3989	1661.04	. Q . V . . .
15.833	671.4201	1745.49	. Q . V . . .
15.917	684.4377	1890.16	. Q . V . . .
16.000	699.1538	2136.78	. Q. V . . .
16.083	716.9169	2579.20	. .Q V . . .
16.167	740.6033	3439.26	. . QV . . .
16.250	775.1110	5010.53	. . V . Q . .
16.333	824.9962	7243.32	. . V . . Q .
16.417	884.7808	8680.73	. . V. . . Q.
16.500	942.6178	8397.94	. . .V . . Q .
16.583	993.0543	7323.39	. . . V . Q .
16.667	1037.3752	6435.40	. . . V Q. .
16.750	1077.4702	5821.78	. . . V Q . .
16.833	1114.0972	5318.23	. . . Q . .
16.917	1147.5952	4863.91	. . . Q V . .
17.000	1178.2317	4448.42	. . Q V . .

17.083	1206.2485	4068.05	. . Q . V . .
17.167	1231.9938	3738.21	. . Q . V . .
17.250	1255.8535	3464.44	. . Q . V . .
17.333	1278.0498	3222.90	. . Q . V . .
17.417	1298.6891	2996.82	. . Q . V. .
17.500	1317.8856	2787.33	. . Q . V. .
17.583	1335.7535	2594.43	. .Q . V. .
17.667	1352.3911	2415.78	. .Q . V .
17.750	1367.8905	2250.51	. Q . V .
17.833	1382.3605	2101.05	. Q. . .V .
17.917	1395.9241	1969.44	. Q. . .V .
18.000	1408.7150	1857.24	. Q . . .V .
18.083	1420.8191	1757.51	. Q . . .V .
18.167	1432.2787	1663.94	. Q . . . V .
18.250	1443.1102	1572.74	. Q . . . V .
18.333	1453.3185	1482.24	. Q . . . V .
18.417	1462.9097	1392.64	. Q . . . V .
18.500	1471.8937	1304.48	. Q . . . V .
18.583	1480.3597	1229.27	. Q . . . V .
18.667	1488.3875	1165.62	. Q . . . V .
18.750	1496.0198	1108.22	. Q . . . V .
18.833	1503.3129	1058.97	. Q . . . V .
18.917	1510.2954	1013.86	. Q . . . V .
19.000	1516.9740	969.73	. Q . . . V .
19.083	1523.3700	928.70	. Q . . . V .
19.167	1529.5289	894.29	. Q . . . V .
19.250	1535.4985	866.78	. Q . . . V .
19.333	1541.3103	843.87	. Q . . . V .
19.417	1546.9816	823.46	. Q . . . V .
19.500	1552.5223	804.52	. Q . . . V .
19.583	1557.9398	786.61	. Q . . . V .
19.667	1563.2396	769.53	. Q . . . V .
19.750	1568.4268	753.17	. Q . . . V .
19.833	1573.5059	737.48	. Q . . . V .
19.917	1578.4796	722.18	. Q . . . V .
20.000	1583.3480	706.88	. Q . . . V .
20.083	1588.1113	691.64	. Q . . . V .
20.167	1592.7727	676.84	. Q . . . V .
20.250	1597.3365	662.67	. Q . . . V .
20.333	1601.8070	649.11	. Q . . . V .
20.417	1606.1879	636.10	. Q . . . V .
20.500	1610.4827	623.60	. Q . . . V .
20.583	1614.6948	611.61	. Q . . . V .
20.667	1618.8279	600.12	. Q . . . V .
20.750	1622.8850	589.10	. Q . . . V .
20.833	1626.8695	578.54	. Q . . . V .
20.917	1630.7842	568.42	. Q . . . V .
21.000	1634.6321	558.71	. Q . . . V .
21.083	1638.4158	549.38	. Q . . . V .
21.167	1642.1377	540.43	. Q . . . V .
21.250	1645.8004	531.82	. Q . . . V .
21.333	1649.4060	523.53	. Q . . . V .
21.417	1652.9567	515.55	. Q . . . V .
21.500	1656.4543	507.87	. Q . . . V .
21.583	1659.9010	500.45	. Q . . . V .
21.667	1663.2985	493.30	. Q . . . V .
21.750	1666.6483	486.40	. Q . . . V .

21.833	1669.9523	479.74	. Q	.	.	.	V	.
21.917	1673.2119	473.30	. Q	.	.	.	V	.
22.000	1676.4287	467.07	. Q	.	.	.	V	.
22.083	1679.6040	461.05	. Q	.	.	.	V	.
22.167	1682.7391	455.22	. Q	.	.	.	V	.
22.250	1685.8356	449.59	. Q	.	.	.	V	.
22.333	1688.8947	444.18	. Q	.	.	.	V	.
22.417	1691.9180	438.99	. Q	.	.	.	V	.
22.500	1694.9069	433.99	.Q	.	.	.	V	.
22.583	1697.8623	429.14	.Q	.	.	.	V	.
22.667	1700.7853	424.42	.Q	.	.	.	V	.
22.750	1703.6766	419.83	.Q	.	.	.	V	.
22.833	1706.5372	415.37	.Q	.	.	.	V	.
22.917	1709.3679	411.02	.Q	.	.	.	V	.
23.000	1712.1691	406.73	.Q	.	.	.	V	.
23.083	1714.9398	402.32	.Q	.	.	.	V	.
23.167	1717.6798	397.84	.Q	.	.	.	V	.
23.250	1720.3905	393.60	.Q	.	.	.	V	.
23.333	1723.0743	389.69	.Q	.	.	.	V	.
23.417	1725.7325	385.98	.Q	.	.	.	V	.
23.500	1728.3660	382.38	.Q	.	.	.	V	.
23.583	1730.9752	378.86	.Q	.	.	.	V	.
23.667	1733.5608	375.43	.Q	.	.	.	V	.
23.750	1736.1233	372.08	.Q	.	.	.	V	.
23.833	1738.6632	368.80	.Q	.	.	.	V	.
23.917	1741.1812	365.60	.Q	.	.	.	V	.
24.000	1743.6775	362.47	.Q	.	.	.	V	.
24.083	1746.1482	358.75	.Q	.	.	.	V	.
24.167	1748.5709	351.78	.Q	.	.	.	V	.
24.250	1750.8805	335.34	.Q	.	.	.	V	.
24.333	1752.9747	304.09	.Q	.	.	.	V	.
24.417	1754.8032	265.49	.Q	.	.	.	V	.
24.500	1756.3942	231.00	.Q	.	.	.	V	.
24.583	1757.7987	203.93	Q	.	.	.	V	.
24.667	1759.0515	181.91	Q	.	.	.	V	.
24.750	1760.1743	163.02	Q	.	.	.	V	.
24.833	1761.1846	146.69	Q	.	.	.	V	.
24.917	1762.0972	132.51	Q	.	.	.	V	.
25.000	1762.9250	120.21	Q	.	.	.	V	.
25.083	1763.6801	109.63	Q	.	.	.	V	.
25.167	1764.3721	100.49	Q	.	.	.	V	.
25.250	1765.0089	92.47	Q	.	.	.	V	.
25.333	1765.5970	85.40	Q	.	.	.	V	.
25.417	1766.1421	79.14	Q	.	.	.	V	.
25.500	1766.6492	73.62	Q	.	.	.	V	.
25.583	1767.1227	68.76	Q	.	.	.	V	.
25.667	1767.5665	64.45	Q	.	.	.	V	.
25.750	1767.9839	60.61	Q	.	.	.	V	.
25.833	1768.3773	57.12	Q	.	.	.	V	.
25.917	1768.7487	53.92	Q	.	.	.	V	.
26.000	1769.0996	50.96	Q	.	.	.	V	.
26.083	1769.4323	48.30	Q	.	.	.	V	.
26.167	1769.7485	45.92	Q	.	.	.	V	.
26.250	1770.0500	43.78	Q	.	.	.	V	.
26.333	1770.3384	41.86	Q	.	.	.	V	.
26.417	1770.6150	40.16	Q	.	.	.	V	.
26.500	1770.8809	38.61	Q	.	.	.	V	.

26.583	1771.1370	37.19	Q	.	.	.	V.
26.667	1771.3840	35.88	Q	.	.	.	V.
26.750	1771.6229	34.68	Q	.	.	.	V.
26.833	1771.8541	33.56	Q	.	.	.	V.
26.917	1772.0780	32.50	Q	.	.	.	V.
27.000	1772.2949	31.50	Q	.	.	.	V.
27.083	1772.5052	30.54	Q	.	.	.	V.
27.167	1772.7094	29.63	Q	.	.	.	V.
27.250	1772.9075	28.76	Q	.	.	.	V.
27.333	1773.0999	27.93	Q	.	.	.	V.
27.417	1773.2867	27.14	Q	.	.	.	V.
27.500	1773.4684	26.38	Q	.	.	.	V.
27.583	1773.6450	25.65	Q	.	.	.	V.
27.667	1773.8169	24.95	Q	.	.	.	V.
27.750	1773.9841	24.29	Q	.	.	.	V.
27.833	1774.1470	23.65	Q	.	.	.	V.
27.917	1774.3055	23.03	Q	.	.	.	V.
28.000	1774.4601	22.44	Q	.	.	.	V.
28.083	1774.6107	21.87	Q	.	.	.	V.
28.167	1774.7576	21.32	Q	.	.	.	V.
28.250	1774.9008	20.80	Q	.	.	.	V.
28.333	1775.0405	20.29	Q	.	.	.	V.
28.417	1775.1769	19.80	Q	.	.	.	V.
28.500	1775.3101	19.33	Q	.	.	.	V.
28.583	1775.4401	18.88	Q	.	.	.	V.
28.667	1775.5671	18.44	Q	.	.	.	V.
28.750	1775.6913	18.02	Q	.	.	.	V.
28.833	1775.8126	17.62	Q	.	.	.	V.
28.917	1775.9313	17.22	Q	.	.	.	V.
29.000	1776.0472	16.84	Q	.	.	.	V.
29.083	1776.1608	16.48	Q	.	.	.	V.
29.167	1776.2717	16.12	Q	.	.	.	V.
29.250	1776.3804	15.78	Q	.	.	.	V.
29.333	1776.4867	15.44	Q	.	.	.	V.
29.417	1776.5908	15.12	Q	.	.	.	V.
29.500	1776.6929	14.81	Q	.	.	.	V.
29.583	1776.7928	14.51	Q	.	.	.	V.
29.667	1776.8907	14.21	Q	.	.	.	V.
29.750	1776.9867	13.93	Q	.	.	.	V.
29.833	1777.0807	13.65	Q	.	.	.	V.
29.917	1777.1730	13.40	Q	.	.	.	V.
30.000	1777.2637	13.17	Q	.	.	.	V.
30.083	1777.3525	12.90	Q	.	.	.	V.
30.167	1777.4396	12.63	Q	.	.	.	V.
30.250	1777.5249	12.39	Q	.	.	.	V.
30.333	1777.6086	12.16	Q	.	.	.	V.
30.417	1777.6908	11.93	Q	.	.	.	V.
30.500	1777.7715	11.71	Q	.	.	.	V.
30.583	1777.8507	11.50	Q	.	.	.	V.
30.667	1777.9285	11.29	Q	.	.	.	V.
30.750	1778.0048	11.09	Q	.	.	.	V.
30.833	1778.0797	10.89	Q	.	.	.	V.
30.917	1778.1534	10.70	Q	.	.	.	V.
31.000	1778.2258	10.52	Q	.	.	.	V.
31.083	1778.2972	10.36	Q	.	.	.	V.
31.167	1778.3677	10.23	Q	.	.	.	V.
31.250	1778.4370	10.06	Q	.	.	.	V.

31.333	1778.5051	9.89	Q	.	.	.	V.
31.417	1778.5720	9.72	Q	.	.	.	V.
31.500	1778.6378	9.55	Q	.	.	.	V.
31.583	1778.7025	9.39	Q	.	.	.	V.
31.667	1778.7661	9.23	Q	.	.	.	V.
31.750	1778.8286	9.08	Q	.	.	.	V.
31.833	1778.8901	8.93	Q	.	.	.	V.
31.917	1778.9507	8.78	Q	.	.	.	V.
32.000	1779.0101	8.64	Q	.	.	.	V.
32.083	1779.0687	8.50	Q	.	.	.	V.
32.167	1779.1263	8.36	Q	.	.	.	V.
32.250	1779.1830	8.23	Q	.	.	.	V.
32.333	1779.2388	8.10	Q	.	.	.	V.
32.417	1779.2937	7.97	Q	.	.	.	V.
32.500	1779.3477	7.84	Q	.	.	.	V.
32.583	1779.4008	7.72	Q	.	.	.	V.
32.667	1779.4531	7.60	Q	.	.	.	V.
32.750	1779.5046	7.48	Q	.	.	.	V.
32.833	1779.5553	7.36	Q	.	.	.	V.
32.917	1779.6052	7.25	Q	.	.	.	V.
33.000	1779.6544	7.14	Q	.	.	.	V.
33.083	1779.7029	7.03	Q	.	.	.	V.
33.167	1779.7505	6.92	Q	.	.	.	V.
33.250	1779.7975	6.82	Q	.	.	.	V.
33.333	1779.8438	6.71	Q	.	.	.	V.
33.417	1779.8893	6.61	Q	.	.	.	V.
33.500	1779.9341	6.51	Q	.	.	.	V.
33.583	1779.9783	6.42	Q	.	.	.	V.
33.667	1780.0219	6.32	Q	.	.	.	V.
33.750	1780.0647	6.23	Q	.	.	.	V.
33.833	1780.1069	6.13	Q	.	.	.	V.
33.917	1780.1486	6.04	Q	.	.	.	V.
34.000	1780.1896	5.95	Q	.	.	.	V.
34.083	1780.2300	5.87	Q	.	.	.	V.
34.167	1780.2698	5.78	Q	.	.	.	V.
34.250	1780.3090	5.70	Q	.	.	.	V.
34.333	1780.3477	5.62	Q	.	.	.	V.
34.417	1780.3857	5.53	Q	.	.	.	V.
34.500	1780.4233	5.45	Q	.	.	.	V.
34.583	1780.4603	5.38	Q	.	.	.	V.
34.667	1780.4968	5.30	Q	.	.	.	V.
34.750	1780.5328	5.22	Q	.	.	.	V.
34.833	1780.5682	5.15	Q	.	.	.	V.
34.917	1780.6031	5.07	Q	.	.	.	V.
35.000	1780.6376	5.00	Q	.	.	.	V.
35.083	1780.6715	4.93	Q	.	.	.	V.
35.167	1780.7050	4.86	Q	.	.	.	V.
35.250	1780.7379	4.79	Q	.	.	.	V.
35.333	1780.7705	4.73	Q	.	.	.	V.
35.417	1780.8026	4.66	Q	.	.	.	V.
35.500	1780.8342	4.59	Q	.	.	.	V.
35.583	1780.8655	4.53	Q	.	.	.	V.
35.667	1780.8962	4.47	Q	.	.	.	V.
35.750	1780.9266	4.40	Q	.	.	.	V.
35.833	1780.9565	4.34	Q	.	.	.	V.
35.917	1780.9861	4.28	Q	.	.	.	V.
36.000	1781.0151	4.22	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2165.0
10%	290.0
20%	140.0
30%	85.0
40%	60.0
50%	50.0
60%	35.0
70%	25.0
80%	20.0
90%	10.0

FLOW PROCESS FROM NODE 108.00 TO NODE 109.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<

THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

ASSUMED REGULAR CHANNEL INFORMATION:
BASEWIDTH(FT) = 80.00 CHANNEL Z = 2.00
UPSTREAM ELEVATION(FT) = 3125.00
DOWNSTREAM ELEVATION(FT) = 3082.00
CHANNEL LENGTH(FT) = 3800.00 MANNING'S FACTOR = 0.030
CONSTANT LOSS RATE(CFS) = 0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
(FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
AVERAGED PEAK 5-MINUTE: (8680.7).....[15.76]
AVERAGED PEAK 15-MINUTE: (8134.0).....[15.38]
AVERAGED PEAK 30-MINUTE: (7317.1).....[14.85]
AVERAGED PEAK 1-HOUR: (5945.8).....[13.83]
AVERAGED PEAK 3-HOUR: (3415.7).....[11.32]
AVERAGED PEAK 6-HOUR: (2196.0).....[9.67]
AVERAGED PEAK 24-HOUR: (884.1).....[6.87]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 14.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (3800.00)/(14.000) = 0.075 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	19.46	1.85	1.85
0.167	57.63	23.09	23.09

CHANNEL ROUTING
108 → 109
NODES

0.250	72.19	59.01	59.01
0.333	78.55	72.80	72.80
0.417	105.55	81.12	81.12
0.500	137.21	108.56	108.56
0.583	160.07	139.39	139.39
0.667	176.88	161.67	161.67
0.750	190.63	178.19	178.19
0.833	202.76	191.78	191.78
0.917	213.71	203.80	203.80
1.000	223.72	214.66	214.66
1.083	233.18	224.62	224.62
1.167	241.27	233.95	233.95
1.250	248.10	241.92	241.92
1.333	254.75	248.73	248.73
1.417	260.67	255.31	255.31
1.500	265.86	261.17	261.17
1.583	270.73	266.32	266.32
1.667	275.16	271.15	271.15
1.750	279.24	275.54	275.54
1.833	283.04	279.60	279.60
1.917	286.62	283.38	283.38
2.000	289.97	286.94	286.94
2.083	293.04	290.26	290.26
2.167	295.87	293.31	293.31
2.250	298.58	296.13	296.13
2.333	301.15	298.82	298.82
2.417	303.42	301.36	301.36
2.500	305.68	303.63	303.63
2.583	307.89	305.89	305.89
2.667	310.03	308.10	308.10
2.750	312.09	310.23	310.23
2.833	314.09	312.28	312.28
2.917	316.06	314.28	314.28
3.000	318.00	316.25	316.25
3.083	319.91	318.18	318.18
3.167	321.80	320.09	320.09
3.250	323.66	321.97	321.97
3.333	325.50	323.83	323.83
3.417	327.33	325.68	325.68
3.500	329.14	327.50	327.50
3.583	330.94	329.31	329.31
3.667	332.72	331.11	331.11
3.750	334.50	332.89	332.89
3.833	336.27	334.67	334.67
3.917	338.03	336.44	336.44
4.000	339.79	338.20	338.20
4.083	341.54	339.96	339.96
4.167	343.30	341.71	341.71
4.250	345.05	343.46	343.46
4.333	346.79	345.21	345.21
4.417	348.47	346.95	346.95
4.500	350.07	348.62	348.62
4.583	351.64	350.22	350.22
4.667	353.26	351.79	351.79
4.750	354.94	353.42	353.42
4.833	356.68	355.11	355.11
4.917	358.45	356.85	356.85

5.000	360.23	358.62	358.62
5.083	362.01	360.40	360.40
5.167	363.81	362.19	362.19
5.250	365.62	363.99	363.99
5.333	367.44	365.80	365.80
5.417	369.27	367.62	367.62
5.500	371.12	369.45	369.45
5.583	372.97	371.29	371.29
5.667	374.84	373.15	373.15
5.750	376.73	375.02	375.02
5.833	378.63	376.91	376.91
5.917	380.54	378.81	378.81
6.000	382.48	380.73	380.73
6.083	384.42	382.66	382.66
6.167	386.39	384.61	384.61
6.250	388.38	386.58	386.58
6.333	390.38	388.57	388.57
6.417	392.41	390.57	390.57
6.500	394.45	392.60	392.60
6.583	396.52	394.65	394.65
6.667	398.61	396.72	396.72
6.750	400.72	398.81	398.81
6.833	402.85	400.92	400.92
6.917	405.01	403.06	403.06
7.000	407.20	405.22	405.22
7.083	409.40	407.41	407.41
7.167	411.64	409.62	409.62
7.250	413.90	411.85	411.85
7.333	416.19	414.12	414.12
7.417	418.51	416.41	416.41
7.500	420.86	418.73	418.73
7.583	423.23	421.08	421.08
7.667	425.64	423.46	423.46
7.750	428.08	425.87	425.87
7.833	430.56	428.32	428.32
7.917	433.06	430.79	430.79
8.000	435.61	433.30	433.30
8.083	438.18	435.85	435.85
8.167	440.80	438.43	438.43
8.250	443.45	441.05	441.05
8.333	446.14	443.71	443.71
8.417	448.87	446.40	446.40
8.500	451.64	449.14	449.14
8.583	454.45	451.91	451.91
8.667	457.31	454.72	454.72
8.750	460.21	457.59	457.59
8.833	463.16	460.49	460.49
8.917	466.16	463.45	463.45
9.000	469.20	466.45	466.45
9.083	472.29	469.50	469.50
9.167	475.44	472.59	472.59
9.250	478.64	475.75	475.75
9.333	481.90	478.95	478.95
9.417	485.21	482.21	482.21
9.500	488.58	485.53	485.53
9.583	492.01	488.91	488.91
9.667	495.50	492.34	492.34

9.750	499.05	495.84	495.84
9.833	502.68	499.40	499.40
9.917	506.37	503.03	503.03
10.000	510.13	506.72	506.72
10.083	513.96	510.49	510.49
10.167	517.87	514.33	514.33
10.250	521.85	518.25	518.25
10.333	525.92	522.24	522.24
10.417	530.06	526.31	526.31
10.500	534.30	530.47	530.47
10.583	538.62	534.71	534.71
10.667	543.04	539.04	539.04
10.750	547.55	543.47	543.47
10.833	552.16	547.98	547.98
10.917	556.87	552.61	552.61
11.000	561.69	557.33	557.33
11.083	566.65	562.17	562.17
11.167	571.82	567.15	567.15
11.250	577.31	572.35	572.35
11.333	583.20	577.87	577.87
11.417	589.49	583.80	583.80
11.500	596.12	590.13	590.13
11.583	603.04	596.78	596.78
11.667	610.21	603.72	603.72
11.750	617.64	610.92	610.92
11.833	625.32	618.37	618.37
11.917	633.25	626.08	626.08
12.000	641.44	634.03	634.03
12.083	649.61	642.22	642.22
12.167	656.62	650.28	650.28
12.250	659.53	656.90	656.90
12.333	654.54	659.05	659.05
12.417	643.48	653.48	653.48
12.500	632.58	642.44	642.44
12.583	625.35	631.90	631.90
12.667	621.63	625.00	625.00
12.750	620.50	621.52	621.52
12.833	621.52	620.59	620.59
12.917	624.42	621.79	621.79
13.000	628.91	624.85	624.85
13.083	634.76	629.47	629.47
13.167	641.81	635.43	635.43
13.250	649.93	642.59	642.59
13.333	659.03	650.79	650.79
13.417	669.09	659.99	659.99
13.500	680.13	670.14	670.14
13.583	692.12	681.27	681.27
13.667	705.10	693.35	693.35
13.750	719.08	706.43	706.43
13.833	734.09	720.51	720.51
13.917	750.14	735.62	735.62
14.000	767.28	751.77	751.77
14.083	785.60	769.02	769.02
14.167	805.52	787.50	787.50
14.250	827.78	807.64	807.64
14.333	853.16	830.20	830.20
14.417	880.55	855.77	855.77

14.500	908.23	883.19	883.19
14.583	936.29	910.90	910.90
14.667	966.31	939.15	939.15
14.750	999.25	969.45	969.45
14.833	1035.41	1002.70	1002.70
14.917	1074.83	1039.17	1039.17
15.000	1117.76	1078.92	1078.92
15.083	1164.47	1122.21	1122.21
15.167	1215.53	1169.33	1169.33
15.250	1271.58	1220.86	1220.86
15.333	1333.67	1277.50	1277.50
15.417	1402.16	1340.19	1340.19
15.500	1475.13	1409.11	1409.11
15.583	1545.65	1481.85	1481.85
15.667	1604.47	1551.25	1551.25
15.750	1661.04	1609.86	1609.86
15.833	1745.49	1669.09	1669.09
15.917	1890.16	1759.27	1759.27
16.000	2136.78	1913.65	1913.65
16.083	2579.20	2178.91	2178.91
16.167	3439.26	2661.11	2661.11
16.250	5010.53	3588.91	3588.91
16.333	7243.32	5223.17	5223.17
16.417	8680.73	7380.22	7380.22
16.500	8397.94	8653.79	8653.79
16.583	7323.39	8295.60	8295.60
16.667	6435.40	7238.82	7238.82
16.750	5821.78	6376.96	6376.96
16.833	5318.23	5773.83	5773.83
16.917	4863.91	5274.96	5274.96
17.000	4448.42	4824.34	4824.34
17.083	4068.05	4412.20	4412.20
17.167	3738.21	4036.64	4036.64
17.250	3464.44	3712.14	3712.14
17.333	3222.90	3441.44	3441.44
17.417	2996.82	3201.37	3201.37
17.500	2787.33	2976.87	2976.87
17.583	2594.43	2768.96	2768.96
17.667	2415.78	2577.41	2577.41
17.750	2250.51	2400.04	2400.04
17.833	2101.05	2236.28	2236.28
17.917	1969.44	2088.51	2088.51
18.000	1857.24	1958.75	1958.75
18.083	1757.51	1847.74	1847.74
18.167	1663.94	1748.60	1748.60
18.250	1572.74	1655.25	1655.25
18.333	1482.24	1564.12	1564.12
18.417	1392.64	1473.71	1473.71
18.500	1304.48	1384.25	1384.25
18.583	1229.27	1297.31	1297.31
18.667	1165.62	1223.21	1223.21
18.750	1108.22	1160.15	1160.15
18.833	1058.97	1103.53	1103.53
18.917	1013.86	1054.67	1054.67
19.000	969.73	1009.66	1009.66
19.083	928.70	965.82	965.82
19.167	894.29	925.42	925.42

19.250	866.78	891.67	891.67
19.333	843.87	864.60	864.60
19.417	823.46	841.93	841.93
19.500	804.52	821.66	821.66
19.583	786.61	802.82	802.82
19.667	769.53	784.99	784.99
19.750	753.17	767.97	767.97
19.833	737.48	751.67	751.67
19.917	722.18	736.02	736.02
20.000	706.88	720.73	720.73
20.083	691.64	705.43	705.43
20.167	676.84	690.23	690.23
20.250	662.67	675.49	675.49
20.333	649.11	661.38	661.38
20.417	636.10	647.87	647.87
20.500	623.60	634.91	634.91
20.583	611.61	622.46	622.46
20.667	600.12	610.51	610.51
20.750	589.10	599.07	599.07
20.833	578.54	588.10	588.10
20.917	568.42	577.58	577.58
21.000	558.71	567.49	567.49
21.083	549.38	557.82	557.82
21.167	540.43	548.53	548.53
21.250	531.82	539.61	539.61
21.333	523.53	531.03	531.03
21.417	515.55	522.77	522.77
21.500	507.87	514.82	514.82
21.583	500.45	507.16	507.16
21.667	493.30	499.77	499.77
21.750	486.40	492.65	492.65
21.833	479.74	485.77	485.77
21.917	473.30	479.12	479.12
22.000	467.07	472.70	472.70
22.083	461.05	466.50	466.50
22.167	455.22	460.50	460.50
22.250	449.59	454.69	454.69
22.333	444.18	449.08	449.08
22.417	438.99	443.69	443.69
22.500	433.99	438.52	438.52
22.583	429.14	433.53	433.53
22.667	424.42	428.69	428.69
22.750	419.83	423.98	423.98
22.833	415.37	419.40	419.40
22.917	411.02	414.95	414.95
23.000	406.73	410.61	410.61
23.083	402.32	406.31	406.31
23.167	397.84	401.89	401.89
23.250	393.60	397.44	397.44
23.333	389.69	393.23	393.23
23.417	385.98	389.33	389.33
23.500	382.38	385.63	385.63
23.583	378.86	382.04	382.04
23.667	375.43	378.53	378.53
23.750	372.08	375.11	375.11
23.833	368.80	371.77	371.77
23.917	365.60	368.50	368.50

24.000	362.47	365.30	365.30
24.083	358.75	362.12	362.12
24.167	351.78	358.09	358.09
24.250	335.34	350.21	350.21
24.333	304.09	332.37	332.37
24.417	265.49	300.41	300.41
24.500	231.00	262.20	262.20
24.583	203.93	228.42	228.42
24.667	181.91	201.84	201.84
24.750	163.02	180.11	180.11
24.833	146.69	161.47	161.47
24.917	132.51	145.34	145.34
25.000	120.21	131.34	131.34
25.083	109.63	119.20	119.20
25.167	100.49	108.76	108.76
25.250	92.47	99.73	99.73
25.333	85.40	91.80	91.80
25.417	79.14	84.80	84.80
25.500	73.62	78.62	78.62
25.583	68.76	73.16	73.16
25.667	64.45	68.35	68.35
25.750	60.61	64.09	64.09
25.833	57.12	60.28	60.28
25.917	53.92	56.82	56.82
26.000	50.96	53.64	53.64
26.083	48.30	50.71	50.71
26.167	45.92	48.07	48.07
26.250	43.78	45.72	45.72
26.333	41.86	43.60	43.60
26.417	40.16	41.70	41.70
26.500	38.61	40.02	40.02
26.583	37.19	38.47	38.47
26.667	35.88	37.06	37.06
26.750	34.68	35.76	35.76
26.833	33.56	34.58	34.58
26.917	32.50	33.46	33.46
27.000	31.50	32.41	32.41
27.083	30.54	31.41	31.41
27.167	29.63	30.45	30.45
27.250	28.76	29.55	29.55
27.333	27.93	28.68	28.68
27.417	27.14	27.85	27.85
27.500	26.38	27.06	27.06
27.583	25.65	26.31	26.31
27.667	24.95	25.58	25.58
27.750	24.29	24.89	24.89
27.833	23.65	24.23	24.23
27.917	23.03	23.59	23.59
28.000	22.44	22.97	22.97
28.083	21.87	22.38	22.38
28.167	21.32	21.82	21.82
28.250	20.80	21.27	21.27
28.333	20.29	20.75	20.75
28.417	19.80	20.25	20.25
28.500	19.33	19.76	19.76
28.583	18.88	19.29	19.29
28.667	18.44	18.84	18.84

28.750	18.02	18.40	18.40
28.833	17.62	17.98	17.98
28.917	17.22	17.58	17.58
29.000	16.84	17.19	17.19
29.083	16.48	16.81	16.81
29.167	16.12	16.44	16.44
29.250	15.78	16.09	16.09
29.333	15.44	15.75	15.75
29.417	15.12	15.41	15.41
29.500	14.81	15.09	15.09
29.583	14.51	14.78	14.78
29.667	14.21	14.48	14.48
29.750	13.93	14.19	14.19
29.833	13.65	13.90	13.90
29.917	13.40	13.63	13.63
30.000	13.17	13.38	13.38
30.083	12.90	13.14	13.14
30.167	12.63	12.87	12.87
30.250	12.39	12.61	12.61
30.333	12.16	12.36	12.36
30.417	11.93	12.13	12.13
30.500	11.71	11.91	11.91
30.583	11.50	11.69	11.69
30.667	11.29	11.48	11.48
30.750	11.09	11.27	11.27
30.833	10.89	11.07	11.07
30.917	10.70	10.87	10.87
31.000	10.52	10.68	10.68
31.083	10.36	10.50	10.50
31.167	10.23	10.35	10.35
31.250	10.06	10.21	10.21
31.333	9.89	10.04	10.04
31.417	9.72	9.87	9.87
31.500	9.55	9.70	9.70
31.583	9.39	9.54	9.54
31.667	9.23	9.38	9.38
31.750	9.08	9.22	9.22
31.833	8.93	9.07	9.07
31.917	8.78	8.92	8.92
32.000	8.64	8.77	8.77
32.083	8.50	8.63	8.63
32.167	8.36	8.49	8.49
32.250	8.23	8.35	8.35
32.333	8.10	8.22	8.22
32.417	7.97	8.08	8.08
32.500	7.84	7.96	7.96
32.583	7.72	7.83	7.83
32.667	7.60	7.71	7.71
32.750	7.48	7.59	7.59
32.833	7.36	7.47	7.47
32.917	7.25	7.35	7.35
33.000	7.14	7.24	7.24
33.083	7.03	7.13	7.13
33.167	6.92	7.02	7.02
33.250	6.82	6.91	6.91
33.333	6.71	6.81	6.81
33.417	6.61	6.70	6.70

33.500	6.51	6.60	6.60
33.583	6.42	6.50	6.50
33.667	6.32	6.41	6.41
33.750	6.23	6.31	6.31
33.833	6.13	6.22	6.22
33.917	6.04	6.13	6.13
34.000	5.95	6.03	6.03
34.083	5.87	5.95	5.95
34.167	5.78	5.86	5.86
34.250	5.70	5.77	5.77
34.333	5.62	5.69	5.69
34.417	5.53	5.61	5.61
34.500	5.45	5.53	5.53
34.583	5.38	5.45	5.45
34.667	5.30	5.37	5.37
34.750	5.22	5.29	5.29
34.833	5.15	5.22	5.22
34.917	5.07	5.14	5.14
35.000	5.00	5.07	5.07
35.083	4.93	5.00	5.00
35.167	4.86	4.93	4.93
35.250	4.79	4.86	4.86
35.333	4.73	4.79	4.79
35.417	4.66	4.72	4.72
35.500	4.59	4.65	4.65
35.583	4.53	4.59	4.59
35.667	4.47	4.52	4.52
35.750	4.40	4.46	4.46
35.833	4.34	4.40	4.40
35.917	4.28	4.34	4.34
36.000	4.22	4.28	4.28

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1783.201 AF
OUTFLOW VOLUME = 1783.201 AF
LOSS VOLUME = 0.000 AF

FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 1184.800 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.446 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
DESERT(UNDEVELOPED) S-GRAPH SELECTED
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.146
LOW LOSS FRACTION = 0.164
HYDROGRAPH MODEL #1 SPECIFIED

NODE 109 SUBAREA HYDROGRAPH

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 18.685

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.904	129.532
2	4.036	448.781
3	9.693	810.600
4	21.893	1748.007
5	38.870	2432.635
6	51.299	1780.918
7	59.872	1228.331
8	65.838	854.867
9	70.582	679.811
10	74.411	548.571
11	77.630	461.306
12	80.263	377.299
13	82.524	323.913
14	84.499	283.030
15	86.297	257.629
16	87.869	225.223
17	89.197	190.318
18	90.305	158.751
19	91.352	149.989
20	92.289	134.262
21	93.153	123.852
22	93.943	113.144
23	94.594	93.267
24	95.229	91.006
25	95.802	82.065
26	96.288	69.677

27	96.769	68.959
28	97.149	54.400
29	97.485	48.228
30	97.798	44.785
31	97.999	28.787
32	98.186	26.781
33	98.387	28.878
34	98.611	32.112
35	98.836	32.112
36	99.060	32.143
37	99.284	32.112
38	99.508	32.112
39	99.732	32.112
40	99.956	32.112
41	100.000	6.256

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0008	0.0041
2	0.0049	0.0008	0.0041
3	0.0049	0.0008	0.0041
4	0.0049	0.0008	0.0041
5	0.0049	0.0008	0.0041
6	0.0049	0.0008	0.0041
7	0.0050	0.0008	0.0041
8	0.0050	0.0008	0.0042
9	0.0050	0.0008	0.0042
10	0.0050	0.0008	0.0042
11	0.0050	0.0008	0.0042
12	0.0050	0.0008	0.0042
13	0.0051	0.0008	0.0042
14	0.0051	0.0008	0.0042
15	0.0051	0.0008	0.0043
16	0.0051	0.0008	0.0043
17	0.0051	0.0008	0.0043
18	0.0051	0.0008	0.0043
19	0.0052	0.0008	0.0043
20	0.0052	0.0008	0.0043
21	0.0052	0.0009	0.0043
22	0.0052	0.0009	0.0044
23	0.0052	0.0009	0.0044
24	0.0052	0.0009	0.0044
25	0.0053	0.0009	0.0044
26	0.0053	0.0009	0.0044
27	0.0053	0.0009	0.0044
28	0.0053	0.0009	0.0045
29	0.0054	0.0009	0.0045
30	0.0054	0.0009	0.0045
31	0.0054	0.0009	0.0045
32	0.0054	0.0009	0.0045
33	0.0054	0.0009	0.0045
34	0.0054	0.0009	0.0046
35	0.0055	0.0009	0.0046
36	0.0055	0.0009	0.0046
37	0.0055	0.0009	0.0046
38	0.0055	0.0009	0.0046
39	0.0056	0.0009	0.0047
40	0.0056	0.0009	0.0047
41	0.0056	0.0009	0.0047
42	0.0056	0.0009	0.0047
43	0.0057	0.0009	0.0047
44	0.0057	0.0009	0.0047
45	0.0057	0.0009	0.0048
46	0.0057	0.0009	0.0048
47	0.0057	0.0009	0.0048
48	0.0058	0.0009	0.0048
49	0.0058	0.0010	0.0048
50	0.0058	0.0010	0.0049
51	0.0058	0.0010	0.0049

52	0.0059	0.0010	0.0049
53	0.0059	0.0010	0.0049
54	0.0059	0.0010	0.0049
55	0.0059	0.0010	0.0050
56	0.0060	0.0010	0.0050
57	0.0060	0.0010	0.0050
58	0.0060	0.0010	0.0050
59	0.0061	0.0010	0.0051
60	0.0061	0.0010	0.0051
61	0.0061	0.0010	0.0051
62	0.0061	0.0010	0.0051
63	0.0062	0.0010	0.0052
64	0.0062	0.0010	0.0052
65	0.0062	0.0010	0.0052
66	0.0063	0.0010	0.0052
67	0.0063	0.0010	0.0053
68	0.0063	0.0010	0.0053
69	0.0064	0.0010	0.0053
70	0.0064	0.0010	0.0053
71	0.0064	0.0011	0.0054
72	0.0064	0.0011	0.0054
73	0.0065	0.0011	0.0054
74	0.0065	0.0011	0.0054
75	0.0065	0.0011	0.0055
76	0.0066	0.0011	0.0055
77	0.0066	0.0011	0.0055
78	0.0066	0.0011	0.0056
79	0.0067	0.0011	0.0056
80	0.0067	0.0011	0.0056
81	0.0068	0.0011	0.0057
82	0.0068	0.0011	0.0057
83	0.0068	0.0011	0.0057
84	0.0069	0.0011	0.0057
85	0.0069	0.0011	0.0058
86	0.0069	0.0011	0.0058
87	0.0070	0.0011	0.0058
88	0.0070	0.0012	0.0059
89	0.0071	0.0012	0.0059
90	0.0071	0.0012	0.0059
91	0.0072	0.0012	0.0060
92	0.0072	0.0012	0.0060
93	0.0072	0.0012	0.0061
94	0.0073	0.0012	0.0061
95	0.0073	0.0012	0.0061
96	0.0074	0.0012	0.0062
97	0.0074	0.0012	0.0062
98	0.0075	0.0012	0.0062
99	0.0075	0.0012	0.0063
100	0.0076	0.0012	0.0063
101	0.0076	0.0013	0.0064
102	0.0077	0.0013	0.0064
103	0.0077	0.0013	0.0065
104	0.0078	0.0013	0.0065
105	0.0078	0.0013	0.0066
106	0.0079	0.0013	0.0066
107	0.0080	0.0013	0.0066
108	0.0080	0.0013	0.0067

109	0.0081	0.0013	0.0067
110	0.0081	0.0013	0.0068
111	0.0082	0.0013	0.0068
112	0.0082	0.0013	0.0069
113	0.0083	0.0014	0.0069
114	0.0084	0.0014	0.0070
115	0.0084	0.0014	0.0071
116	0.0085	0.0014	0.0071
117	0.0086	0.0014	0.0072
118	0.0086	0.0014	0.0072
119	0.0087	0.0014	0.0073
120	0.0088	0.0014	0.0073
121	0.0089	0.0015	0.0074
122	0.0089	0.0015	0.0075
123	0.0090	0.0015	0.0075
124	0.0091	0.0015	0.0076
125	0.0092	0.0015	0.0077
126	0.0092	0.0015	0.0077
127	0.0094	0.0015	0.0078
128	0.0094	0.0015	0.0079
129	0.0095	0.0016	0.0080
130	0.0096	0.0016	0.0080
131	0.0097	0.0016	0.0081
132	0.0098	0.0016	0.0082
133	0.0099	0.0016	0.0083
134	0.0100	0.0016	0.0083
135	0.0101	0.0017	0.0085
136	0.0102	0.0017	0.0085
137	0.0103	0.0017	0.0087
138	0.0104	0.0017	0.0087
139	0.0106	0.0017	0.0088
140	0.0107	0.0017	0.0089
141	0.0108	0.0018	0.0091
142	0.0109	0.0018	0.0091
143	0.0111	0.0018	0.0093
144	0.0112	0.0018	0.0094
145	0.0090	0.0015	0.0075
146	0.0091	0.0015	0.0076
147	0.0093	0.0015	0.0078
148	0.0094	0.0015	0.0078
149	0.0096	0.0016	0.0080
150	0.0097	0.0016	0.0081
151	0.0099	0.0016	0.0083
152	0.0100	0.0016	0.0084
153	0.0102	0.0017	0.0086
154	0.0104	0.0017	0.0087
155	0.0106	0.0017	0.0089
156	0.0107	0.0018	0.0090
157	0.0110	0.0018	0.0092
158	0.0112	0.0018	0.0093
159	0.0115	0.0019	0.0096
160	0.0116	0.0019	0.0097
161	0.0120	0.0020	0.0100
162	0.0121	0.0020	0.0101
163	0.0125	0.0021	0.0105
164	0.0127	0.0021	0.0106
165	0.0131	0.0022	0.0110

166	0.0134	0.0022	0.0112
167	0.0138	0.0023	0.0116
168	0.0141	0.0023	0.0118
169	0.0151	0.0025	0.0127
170	0.0154	0.0025	0.0129
171	0.0161	0.0026	0.0134
172	0.0164	0.0027	0.0137
173	0.0172	0.0028	0.0144
174	0.0176	0.0029	0.0147
175	0.0185	0.0030	0.0155
176	0.0190	0.0031	0.0159
177	0.0201	0.0033	0.0168
178	0.0207	0.0034	0.0173
179	0.0220	0.0036	0.0184
180	0.0228	0.0037	0.0190
181	0.0245	0.0040	0.0205
182	0.0255	0.0042	0.0213
183	0.0279	0.0046	0.0233
184	0.0293	0.0048	0.0245
185	0.0251	0.0041	0.0210
186	0.0269	0.0044	0.0225
187	0.0316	0.0052	0.0264
188	0.0347	0.0057	0.0290
189	0.0539	0.0088	0.0451
190	0.0621	0.0102	0.0519
191	0.0941	0.0122	0.0819
192	0.1367	0.0122	0.1245
193	0.5874	0.0122	0.5752
194	0.0741	0.0122	0.0620
195	0.0387	0.0063	0.0323
196	0.0290	0.0048	0.0243
197	0.0308	0.0051	0.0258
198	0.0266	0.0044	0.0223
199	0.0236	0.0039	0.0197
200	0.0213	0.0035	0.0178
201	0.0195	0.0032	0.0163
202	0.0180	0.0030	0.0151
203	0.0168	0.0028	0.0140
204	0.0158	0.0026	0.0132
205	0.0144	0.0024	0.0120
206	0.0136	0.0022	0.0114
207	0.0129	0.0021	0.0108
208	0.0123	0.0020	0.0103
209	0.0118	0.0019	0.0099
210	0.0113	0.0019	0.0095
211	0.0109	0.0018	0.0091
212	0.0105	0.0017	0.0088
213	0.0101	0.0017	0.0085
214	0.0098	0.0016	0.0082
215	0.0095	0.0016	0.0079
216	0.0092	0.0015	0.0077
217	0.0113	0.0019	0.0094
218	0.0110	0.0018	0.0092
219	0.0107	0.0018	0.0090
220	0.0105	0.0017	0.0088
221	0.0103	0.0017	0.0086
222	0.0101	0.0016	0.0084

223	0.0099	0.0016	0.0082
224	0.0097	0.0016	0.0081
225	0.0095	0.0016	0.0079
226	0.0093	0.0015	0.0078
227	0.0091	0.0015	0.0076
228	0.0090	0.0015	0.0075
229	0.0088	0.0014	0.0074
230	0.0087	0.0014	0.0072
231	0.0085	0.0014	0.0071
232	0.0084	0.0014	0.0070
233	0.0083	0.0014	0.0069
234	0.0081	0.0013	0.0068
235	0.0080	0.0013	0.0067
236	0.0079	0.0013	0.0066
237	0.0078	0.0013	0.0065
238	0.0077	0.0013	0.0064
239	0.0076	0.0012	0.0063
240	0.0075	0.0012	0.0063
241	0.0074	0.0012	0.0062
242	0.0073	0.0012	0.0061
243	0.0072	0.0012	0.0060
244	0.0071	0.0012	0.0060
245	0.0070	0.0012	0.0059
246	0.0070	0.0011	0.0058
247	0.0069	0.0011	0.0058
248	0.0068	0.0011	0.0057
249	0.0067	0.0011	0.0056
250	0.0067	0.0011	0.0056
251	0.0066	0.0011	0.0055
252	0.0065	0.0011	0.0055
253	0.0065	0.0011	0.0054
254	0.0064	0.0010	0.0053
255	0.0063	0.0010	0.0053
256	0.0063	0.0010	0.0052
257	0.0062	0.0010	0.0052
258	0.0062	0.0010	0.0051
259	0.0061	0.0010	0.0051
260	0.0060	0.0010	0.0050
261	0.0060	0.0010	0.0050
262	0.0059	0.0010	0.0050
263	0.0059	0.0010	0.0049
264	0.0058	0.0010	0.0049
265	0.0058	0.0009	0.0048
266	0.0057	0.0009	0.0048
267	0.0057	0.0009	0.0048
268	0.0056	0.0009	0.0047
269	0.0056	0.0009	0.0047
270	0.0055	0.0009	0.0046
271	0.0055	0.0009	0.0046
272	0.0055	0.0009	0.0046
273	0.0054	0.0009	0.0045
274	0.0054	0.0009	0.0045
275	0.0053	0.0009	0.0045
276	0.0053	0.0009	0.0044
277	0.0053	0.0009	0.0044
278	0.0052	0.0009	0.0044
279	0.0052	0.0009	0.0043

280	0.0052	0.0008	0.0043
281	0.0051	0.0008	0.0043
282	0.0051	0.0008	0.0042
283	0.0050	0.0008	0.0042
284	0.0050	0.0008	0.0042
285	0.0050	0.0008	0.0042
286	0.0049	0.0008	0.0041
287	0.0049	0.0008	0.0041
288	0.0049	0.0008	0.0041

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.49
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.10

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 48.5894
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 306.3369

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	525.0	1050.0	1575.0	2100.0
0.083	0.0036	0.53	Q	.	.	.	.
0.167	0.0198	2.35	Q	.	.	.	.
0.250	0.0587	5.65	Q	.	.	.	.
0.333	0.1467	12.77	Q	.	.	.	.
0.417	0.3029	22.69	Q	.	.	.	.
0.500	0.5095	29.99	Q	.	.	.	.
0.583	0.7511	35.08	Q	.	.	.	.
0.667	1.0174	38.66	Q	.	.	.	.
0.750	1.3035	41.55	Q	.	.	.	.
0.833	1.6059	43.91	Q	.	.	.	.
0.917	1.9223	45.93	Q	.	.	.	.
1.000	2.2502	47.61	Q	.	.	.	.
1.083	2.5882	49.09	Q	.	.	.	.
1.167	2.9353	50.40	Q	.	.	.	.
1.250	3.2908	51.61	Q	.	.	.	.
1.333	3.6537	52.70	VQ	.	.	.	.
1.417	4.0232	53.65	VQ	.	.	.	.
1.500	4.3984	54.48	VQ	.	.	.	.
1.583	4.7791	55.27	VQ	.	.	.	.
1.667	5.1648	56.00	VQ	.	.	.	.
1.750	5.5552	56.70	VQ	.	.	.	.
1.833	5.9502	57.35	VQ	.	.	.	.
1.917	6.3492	57.93	VQ	.	.	.	.
2.000	6.7521	58.50	VQ	.	.	.	.
2.083	7.1587	59.04	VQ	.	.	.	.
2.167	7.5687	59.53	VQ	.	.	.	.
2.250	7.9821	60.02	.Q	.	.	.	.
2.333	8.3985	60.46	.Q	.	.	.	.
2.417	8.8177	60.87	.Q	.	.	.	.
2.500	9.2396	61.27	.Q	.	.	.	.
2.583	9.6639	61.61	.Q	.	.	.	.
2.667	10.0905	61.94	.Q	.	.	.	.
2.750	10.5194	62.28	.Q	.	.	.	.
2.833	10.9509	62.64	.Q	.	.	.	.
2.917	11.3848	63.01	.Q	.	.	.	.
3.000	11.8212	63.37	.Q	.	.	.	.
3.083	12.2602	63.74	.Q	.	.	.	.
3.167	12.7017	64.11	.Q	.	.	.	.
3.250	13.1458	64.48	.Q	.	.	.	.
3.333	13.5925	64.86	.Q	.	.	.	.
3.417	14.0410	65.13	.Q	.	.	.	.
3.500	14.4913	65.38	.Q	.	.	.	.
3.583	14.9434	65.64	.Q	.	.	.	.
3.667	15.3972	65.89	.QV	.	.	.	.
3.750	15.8528	66.15	.QV	.	.	.	.

3.833	16.3102	66.41	.QV	.	.	.	.
3.917	16.7694	66.68	.QV	.	.	.	.
4.000	17.2304	66.94	.QV	.	.	.	.
4.083	17.6933	67.21	.QV	.	.	.	.
4.167	18.1581	67.49	.QV	.	.	.	.
4.250	18.6248	67.76	.QV	.	.	.	.
4.333	19.0934	68.04	.QV	.	.	.	.
4.417	19.5640	68.32	.QV	.	.	.	.
4.500	20.0365	68.61	.QV	.	.	.	.
4.583	20.5110	68.90	.QV	.	.	.	.
4.667	20.9875	69.19	.QV	.	.	.	.
4.750	21.4660	69.48	.QV	.	.	.	.
4.833	21.9466	69.78	.QV	.	.	.	.
4.917	22.4293	70.08	.QV	.	.	.	.
5.000	22.9141	70.39	.QV	.	.	.	.
5.083	23.4010	70.70	.Q V	.	.	.	.
5.167	23.8900	71.01	.Q V	.	.	.	.
5.250	24.3812	71.33	.Q V	.	.	.	.
5.333	24.8747	71.64	.Q V	.	.	.	.
5.417	25.3703	71.97	.Q V	.	.	.	.
5.500	25.8682	72.29	.Q V	.	.	.	.
5.583	26.3684	72.63	.Q V	.	.	.	.
5.667	26.8709	72.96	.Q V	.	.	.	.
5.750	27.3757	73.30	.Q V	.	.	.	.
5.833	27.8829	73.64	.Q V	.	.	.	.
5.917	28.3925	73.99	.Q V	.	.	.	.
6.000	28.9045	74.34	.Q V	.	.	.	.
6.083	29.4189	74.70	.Q V	.	.	.	.
6.167	29.9359	75.06	.Q V	.	.	.	.
6.250	30.4554	75.43	.Q V	.	.	.	.
6.333	30.9774	75.80	.Q V	.	.	.	.
6.417	31.5020	76.17	.Q V	.	.	.	.
6.500	32.0292	76.55	.Q V	.	.	.	.
6.583	32.5591	76.94	.Q V	.	.	.	.
6.667	33.0917	77.33	.Q V	.	.	.	.
6.750	33.6270	77.73	.Q V	.	.	.	.
6.833	34.1650	78.13	.Q V	.	.	.	.
6.917	34.7059	78.53	.Q V	.	.	.	.
7.000	35.2496	78.95	.Q V	.	.	.	.
7.083	35.7962	79.36	.Q V	.	.	.	.
7.167	36.3457	79.79	.Q V	.	.	.	.
7.250	36.8982	80.22	.Q V	.	.	.	.
7.333	37.4536	80.65	.Q V	.	.	.	.
7.417	38.0121	81.10	.Q V	.	.	.	.
7.500	38.5737	81.55	.Q V	.	.	.	.
7.583	39.1385	82.00	.Q V	.	.	.	.
7.667	39.7064	82.46	.Q V	.	.	.	.
7.750	40.2776	82.93	.Q V	.	.	.	.
7.833	40.8521	83.41	.Q V	.	.	.	.
7.917	41.4298	83.90	.Q V	.	.	.	.
8.000	42.0110	84.39	.Q V	.	.	.	.
8.083	42.5956	84.89	.Q V	.	.	.	.
8.167	43.1837	85.39	.Q V	.	.	.	.
8.250	43.7754	85.91	.Q V	.	.	.	.
8.333	44.3706	86.43	.Q V	.	.	.	.
8.417	44.9695	86.96	.Q V	.	.	.	.
8.500	45.5722	87.50	.Q V	.	.	.	.

8.583	46.1786	88.05	.Q	V	.	.	.
8.667	46.7889	88.61	.Q	V	.	.	.
8.750	47.4031	89.18	.Q	V	.	.	.
8.833	48.0213	89.76	.Q	V	.	.	.
8.917	48.6435	90.35	.Q	V	.	.	.
9.000	49.2698	90.94	.Q	V	.	.	.
9.083	49.9004	91.56	.Q	V	.	.	.
9.167	50.5352	92.17	.Q	V	.	.	.
9.250	51.1743	92.81	.Q	V	.	.	.
9.333	51.8179	93.45	.Q	V	.	.	.
9.417	52.4660	94.11	.Q	V	.	.	.
9.500	53.1187	94.77	.Q	V	.	.	.
9.583	53.7761	95.45	.Q	V	.	.	.
9.667	54.4382	96.14	.Q	V	.	.	.
9.750	55.1053	96.85	.Q	V	.	.	.
9.833	55.7772	97.57	.Q	V	.	.	.
9.917	56.4543	98.31	.Q	V	.	.	.
10.000	57.1365	99.05	.Q	V	.	.	.
10.083	57.8239	99.82	.Q	V	.	.	.
10.167	58.5168	100.60	.Q	V	.	.	.
10.250	59.2151	101.40	.Q	V	.	.	.
10.333	59.9190	102.21	.Q	V	.	.	.
10.417	60.6287	103.04	.Q	V	.	.	.
10.500	61.3442	103.89	.Q	V	.	.	.
10.583	62.0657	104.76	.Q	V	.	.	.
10.667	62.7933	105.65	. Q	V	.	.	.
10.750	63.5272	106.56	. Q	V	.	.	.
10.833	64.2675	107.49	. Q	V	.	.	.
10.917	65.0143	108.44	. Q	V	.	.	.
11.000	65.7678	109.41	. Q	V	.	.	.
11.083	66.5282	110.41	. Q	V	.	.	.
11.167	67.2956	111.43	. Q	V	.	.	.
11.250	68.0703	112.48	. Q	V	.	.	.
11.333	68.8523	113.55	. Q	V	.	.	.
11.417	69.6420	114.66	. Q	V.	.	.	.
11.500	70.4394	115.78	. Q	V.	.	.	.
11.583	71.2448	116.95	. Q	V.	.	.	.
11.667	72.0584	118.14	. Q	V.	.	.	.
11.750	72.8805	119.37	. Q	V.	.	.	.
11.833	73.7112	120.62	. Q	V.	.	.	.
11.917	74.5509	121.92	. Q	V.	.	.	.
12.000	75.3997	123.25	. Q	V.	.	.	.
12.083	76.2562	124.37	. Q	V.	.	.	.
12.167	77.1163	124.89	. Q	V	.	.	.
12.250	77.9754	124.74	. Q	V	.	.	.
12.333	78.8209	122.76	. Q	V	.	.	.
12.417	79.6437	119.47	. Q	V	.	.	.
12.500	80.4528	117.48	. Q	V	.	.	.
12.583	81.2559	116.61	. Q	V	.	.	.
12.667	82.0583	116.52	. Q	V	.	.	.
12.750	82.8629	116.83	. Q	V	.	.	.
12.833	83.6717	117.43	. Q	V	.	.	.
12.917	84.4863	118.28	. Q	.V	.	.	.
13.000	85.3083	119.35	. Q	.V	.	.	.
13.083	86.1389	120.60	. Q	.V	.	.	.
13.167	86.9790	121.99	. Q	.V	.	.	.
13.250	87.8297	123.52	. Q	.V	.	.	.

13.333	88.6919	125.19	. Q .V . . .
13.417	89.5668	127.04	. Q .V . . .
13.500	90.4554	129.03	. Q .V . . .
13.583	91.3587	131.15	. Q .V . . .
13.667	92.2775	133.41	. Q . V . . .
13.750	93.2130	135.84	. Q . V . . .
13.833	94.1662	138.40	. Q . V . . .
13.917	95.1384	141.16	. Q . V . . .
14.000	96.1306	144.07	. Q . V . . .
14.083	97.1447	147.25	. Q . V . . .
14.167	98.1831	150.77	. Q . V . . .
14.250	99.2483	154.68	. Q . V . . .
14.333	100.3450	159.23	. Q . V . . .
14.417	101.4771	164.39	. Q . V . . .
14.500	102.6448	169.55	. Q . V . . .
14.583	103.8492	174.88	. Q . V . . .
14.667	105.0916	180.40	. Q . V . . .
14.750	106.3746	186.29	. Q . V . . .
14.833	107.7008	192.56	. Q . V . . .
14.917	109.0739	199.38	. Q . V . . .
15.000	110.4978	206.74	. Q . V . . .
15.083	111.9776	214.87	. Q . V . . .
15.167	113.5187	223.78	. Q . V . . .
15.250	115.1286	233.75	. Q . V . . .
15.333	116.8152	244.89	. Q . V . . .
15.417	118.5838	256.81	. Q . V . . .
15.500	120.4331	268.51	. Q . V . . .
15.583	122.3631	280.25	. Q . V . . .
15.667	124.3523	288.83	. Q . V . . .
15.750	126.4044	297.97	. Q . V . . .
15.833	128.6013	318.99	. Q . V . . .
15.917	131.0578	356.68	. Q . V . . .
16.000	133.9909	425.88	. Q . V . . .
16.083	138.0601	590.84	. .Q V . . .
16.167	144.0360	867.71	. . Q V . . .
16.250	152.1977	1185.08	. . V. Q . .
16.333	164.0944	1727.39	. . .V . Q .
16.417	178.0989	2033.46	. . . V . Q .
16.500	189.2900	1624.94	. . . V Q .
16.583	197.8921	1249.03	. . . Q V . .
16.667	204.6934	987.54	. . Q . V . .
16.750	210.5239	846.59	. . Q . V . .
16.833	215.6012	737.23	. . Q . V . .
16.917	220.1102	654.71	. . Q . V . .
17.000	224.1001	579.34	. .Q . V. .
17.083	227.7081	523.87	. Q. . V. .
17.167	231.0032	478.45	. Q. . V .
17.250	234.0532	442.86	. Q . . V .
17.333	236.8426	405.02	. Q . . V .
17.417	239.3759	367.85	. Q . . .V .
17.500	241.6870	335.56	. Q . . .V .
17.583	243.8661	316.40	. Q . . .V .
17.667	245.9028	295.74	. Q . . . V .
17.750	247.8200	278.38	. Q . . . V .
17.833	249.6209	261.49	. Q . . . V .
17.917	251.2856	241.73	. Q . . . V .
18.000	252.8769	231.05	. Q . . . V .

18.083	254.3786	218.06	. Q . . . V .
18.167	255.7885	204.72	. Q . . . V .
18.250	257.1497	197.65	. Q . . . V .
18.333	258.4344	186.54	. Q . . . V .
18.417	259.6825	181.23	. Q . . . V .
18.500	260.8962	176.23	. Q . . . V .
18.583	262.0339	165.19	. Q . . . V .
18.667	263.1443	161.24	. Q . . . V .
18.750	264.2455	159.88	. Q . . . V .
18.833	265.3408	159.04	. Q . . . V .
18.917	266.4180	156.41	. Q . . . V .
19.000	267.4763	153.66	. Q . . . V .
19.083	268.5129	150.52	. Q . . . V .
19.167	269.5268	147.22	. Q . . . V .
19.250	270.5129	143.18	. Q . . . V .
19.333	271.4628	137.92	. Q . . . V .
19.417	272.2946	120.78	. Q . . . V .
19.500	273.0806	114.13	. Q . . . V .
19.583	273.8488	111.54	. Q . . . V .
19.667	274.6022	109.40	. Q . . . V .
19.750	275.3413	107.32	. Q . . . V .
19.833	276.0670	105.37	. Q . . . V .
19.917	276.7801	103.54	.Q . . . V .
20.000	277.4814	101.83	.Q . . . V .
20.083	278.1714	100.20	.Q . . . V .
20.167	278.8509	98.65	.Q . . . V .
20.250	279.5201	97.18	.Q . . . V .
20.333	280.1796	95.75	.Q . . . V .
20.417	280.8297	94.40	.Q . . . V .
20.500	281.4709	93.10	.Q . . . V .
20.583	282.1033	91.82	.Q . . . V .
20.667	282.7272	90.60	.Q . . . V .
20.750	283.3431	89.42	.Q . . . V .
20.833	283.9512	88.30	.Q . . . V .
20.917	284.5520	87.23	.Q . . . V .
21.000	285.1455	86.19	.Q . . . V .
21.083	285.7322	85.19	.Q . . . V .
21.167	286.3122	84.22	.Q . . . V .
21.250	286.8858	83.29	.Q . . . V .
21.333	287.4532	82.39	.Q . . . V .
21.417	288.0143	81.46	.Q . . . V .
21.500	288.5690	80.55	.Q . . . V .
21.583	289.1177	79.67	.Q . . . V .
21.667	289.6606	78.82	.Q . . . V .
21.750	290.1977	77.99	.Q . . . V .
21.833	290.7292	77.18	.Q . . . V .
21.917	291.2554	76.40	.Q . . . V .
22.000	291.7763	75.64	.Q . . . V .
22.083	292.2921	74.89	.Q . . . V .
22.167	292.8029	74.17	.Q . . . V .
22.250	293.3088	73.47	.Q . . . V .
22.333	293.8101	72.78	.Q . . . V .
22.417	294.3067	72.11	.Q . . . V .
22.500	294.7988	71.46	.Q . . . V .
22.583	295.2865	70.82	.Q . . . V .
22.667	295.7700	70.20	.Q . . . V .
22.750	296.2492	69.59	.Q . . . V .

22.833	296.7244	68.99	.Q	.	.	.	V .
22.917	297.1955	68.41	.Q	.	.	.	V .
23.000	297.6628	67.84	.Q	.	.	.	V .
23.083	298.1262	67.29	.Q	.	.	.	V .
23.167	298.5859	66.74	.Q	.	.	.	V .
23.250	299.0419	66.21	.Q	.	.	.	V.
23.333	299.4943	65.69	.Q	.	.	.	V.
23.417	299.9432	65.18	.Q	.	.	.	V.
23.500	300.3887	64.68	.Q	.	.	.	V.
23.583	300.8308	64.19	.Q	.	.	.	V.
23.667	301.2696	63.71	.Q	.	.	.	V.
23.750	301.7052	63.24	.Q	.	.	.	V.
23.833	302.1376	62.78	.Q	.	.	.	V.
23.917	302.5669	62.33	.Q	.	.	.	V.
24.000	302.9931	61.89	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	195.0
20%	80.0
30%	50.0
40%	40.0
50%	25.0
60%	20.0
70%	15.0
80%	10.0
90%	5.0

FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2575.0	5150.0	7725.0	10300.0
0.083	0.0164	2.38	Q	.	.	.	.
0.167	0.1916	25.44	Q	.	.	.	.
0.250	0.6370	64.67	Q	.	.	.	.
0.333	1.2263	85.57	Q	.	.	.	.
0.417	1.9412	103.81	Q	.	.	.	.
0.500	2.8954	138.55	Q	.	.	.	.
0.583	4.0970	174.47	Q	.	.	.	.
0.667	5.4767	200.33	Q	.	.	.	.
0.750	6.9901	219.74	Q	.	.	.	.
0.833	8.6134	235.70	Q	.	.	.	.
0.917	10.3333	249.73	Q	.	.	.	.

NODE 109 VIEW STREAM 1

1.000	12.1396	262.28	VQ	.	.	.	.
1.083	14.0246	273.70	VQ	.	.	.	.
1.167	15.9829	284.35	VQ	.	.	.	.
1.250	18.0045	293.53	VQ	.	.	.	.
1.333	20.0805	301.43	VQ	.	.	.	.
1.417	22.2083	308.96	VQ	.	.	.	.
1.500	24.3821	315.64	VQ	.	.	.	.
1.583	26.5970	321.59	VQ	.	.	.	.
1.667	28.8501	327.15	VQ	.	.	.	.
1.750	31.1383	332.24	VQ	.	.	.	.
1.833	33.4589	336.95	VQ	.	.	.	.
1.917	35.8095	341.32	VQ	.	.	.	.
2.000	38.1886	345.44	VQ	.	.	.	.
2.083	40.5943	349.30	VQ	.	.	.	.
2.167	43.0243	352.84	VQ	.	.	.	.
2.250	45.4771	356.15	VQ	.	.	.	.
2.333	47.9515	359.28	VQ	.	.	.	.
2.417	50.4462	362.23	VQ	.	.	.	.
2.500	52.9593	364.90	.Q	.	.	.	.
2.583	55.4903	367.50	.Q	.	.	.	.
2.667	58.0387	370.04	.Q	.	.	.	.
2.750	60.6042	372.51	.Q	.	.	.	.
2.833	63.1863	374.92	.Q	.	.	.	.
2.917	65.7847	377.29	.Q	.	.	.	.
3.000	68.3992	379.62	.Q	.	.	.	.
3.083	71.0295	381.92	.Q	.	.	.	.
3.167	73.6755	384.20	.Q	.	.	.	.
3.250	76.3370	386.45	.Q	.	.	.	.
3.333	79.0139	388.69	.Q	.	.	.	.
3.417	81.7054	390.81	.Q	.	.	.	.
3.500	84.4113	392.88	.Q	.	.	.	.
3.583	87.1313	394.95	.Q	.	.	.	.
3.667	89.8654	397.00	.Q	.	.	.	.
3.750	92.6137	399.05	.Q	.	.	.	.
3.833	95.3760	401.08	.Q	.	.	.	.
3.917	98.1523	403.12	.Q	.	.	.	.
4.000	100.9425	405.14	.Q	.	.	.	.
4.083	103.7467	407.17	.Q	.	.	.	.
4.167	106.5649	409.20	.QV	.	.	.	.
4.250	109.3970	411.23	.QV	.	.	.	.
4.333	112.2431	413.25	.QV	.	.	.	.
4.417	115.1031	415.27	.QV	.	.	.	.
4.500	117.9766	417.23	.QV	.	.	.	.
4.583	120.8631	419.12	.QV	.	.	.	.
4.667	123.7625	420.98	.QV	.	.	.	.
4.750	126.6750	422.90	.QV	.	.	.	.
4.833	129.6012	424.89	.QV	.	.	.	.
4.917	132.5416	426.94	.QV	.	.	.	.
5.000	135.4962	429.01	.QV	.	.	.	.
5.083	138.4651	431.10	.QV	.	.	.	.
5.167	141.4486	433.19	.QV	.	.	.	.
5.250	144.4466	435.31	.QV	.	.	.	.
5.333	147.4593	437.44	.QV	.	.	.	.
5.417	150.4867	439.58	.QV	.	.	.	.
5.500	153.5290	441.74	.QV	.	.	.	.
5.583	156.5863	443.92	.QV	.	.	.	.
5.667	159.6587	446.11	.Q V	.	.	.	.

5.750	162.7463	448.32	.Q V	.	.	.	.
5.833	165.8493	450.55	.Q V	.	.	.	.
5.917	168.9678	452.80	.Q V	.	.	.	.
6.000	172.1019	455.07	.Q V	.	.	.	.
6.083	175.2518	457.36	.Q V	.	.	.	.
6.167	178.4176	459.67	.Q V	.	.	.	.
6.250	181.5994	462.01	.Q V	.	.	.	.
6.333	184.7975	464.36	.Q V	.	.	.	.
6.417	188.0121	466.75	.Q V	.	.	.	.
6.500	191.2431	469.15	.Q V	.	.	.	.
6.583	194.4910	471.59	.Q V	.	.	.	.
6.667	197.7558	474.05	.Q V	.	.	.	.
6.750	201.0377	476.53	.Q V	.	.	.	.
6.833	204.3369	479.05	.Q V	.	.	.	.
6.917	207.6537	481.59	.Q V	.	.	.	.
7.000	210.9881	484.16	.Q V	.	.	.	.
7.083	214.3406	486.77	.Q V	.	.	.	.
7.167	217.7111	489.40	.Q V	.	.	.	.
7.250	221.1000	492.07	.Q V	.	.	.	.
7.333	224.5076	494.77	.Q V	.	.	.	.
7.417	227.9339	497.51	.Q V	.	.	.	.
7.500	231.3793	500.28	.Q V	.	.	.	.
7.583	234.8441	503.08	.Q V	.	.	.	.
7.667	238.3284	505.93	.Q V	.	.	.	.
7.750	241.8326	508.81	.Q V	.	.	.	.
7.833	245.3569	511.73	.Q V	.	.	.	.
7.917	248.9016	514.69	.Q V	.	.	.	.
8.000	252.4670	517.69	. Q V	.	.	.	.
8.083	256.0533	520.74	. Q V	.	.	.	.
8.167	259.6609	523.82	. Q V	.	.	.	.
8.250	263.2901	526.96	. Q V	.	.	.	.
8.333	266.9412	530.14	. Q V	.	.	.	.
8.417	270.6146	533.37	. Q V	.	.	.	.
8.500	274.3104	536.64	. Q V	.	.	.	.
8.583	278.0292	539.96	. Q V	.	.	.	.
8.667	281.7711	543.33	. Q V	.	.	.	.
8.750	285.5368	546.77	. Q V	.	.	.	.
8.833	289.3264	550.25	. Q V	.	.	.	.
8.917	293.1404	553.79	. Q V	.	.	.	.
9.000	296.9792	557.39	. Q V	.	.	.	.
9.083	300.8432	561.05	. Q V	.	.	.	.
9.167	304.7328	564.77	. Q V	.	.	.	.
9.250	308.6484	568.55	. Q V	.	.	.	.
9.333	312.5906	572.40	. Q V	.	.	.	.
9.417	316.5597	576.32	. Q V	.	.	.	.
9.500	320.5563	580.30	. Q V	.	.	.	.
9.583	324.5808	584.36	. Q V	.	.	.	.
9.667	328.6337	588.48	. Q V	.	.	.	.
9.750	332.7155	592.69	. Q V	.	.	.	.
9.833	336.8269	596.97	. Q V	.	.	.	.
9.917	340.9683	601.34	. Q V	.	.	.	.
10.000	345.1404	605.78	. Q V	.	.	.	.
10.083	349.3436	610.31	. Q V	.	.	.	.
10.167	353.5786	614.93	. Q V	.	.	.	.
10.250	357.8462	619.64	. Q V	.	.	.	.
10.333	362.1468	624.45	. Q V	.	.	.	.
10.417	366.4812	629.36	. Q V	.	.	.	.

10.500	370.8500	634.36	. Q	V .	.	.	.
10.583	375.2541	639.47	. Q	V .	.	.	.
10.667	379.6941	644.69	. Q	V .	.	.	.
10.750	384.1709	650.03	. Q	V .	.	.	.
10.833	388.6851	655.47	. Q	V .	.	.	.
10.917	393.2378	661.05	. Q	V .	.	.	.
11.000	397.8297	666.74	. Q	V .	.	.	.
11.083	402.4617	672.58	. Q	V .	.	.	.
11.167	407.1351	678.57	. Q	V .	.	.	.
11.250	411.8515	684.83	. Q	V .	.	.	.
11.333	416.6134	691.42	. Q	V .	.	.	.
11.417	421.4237	698.46	. Q	V .	.	.	.
11.500	426.2853	705.91	. Q	V .	.	.	.
11.583	431.2008	713.73	. Q	V .	.	.	.
11.667	436.1722	721.85	. Q	V .	.	.	.
11.750	441.2018	730.29	. Q	V .	.	.	.
11.833	446.2912	738.99	. Q	V .	.	.	.
11.917	451.4427	748.00	. Q	V .	.	.	.
12.000	456.6581	757.28	. Q	V .	.	.	.
12.083	461.9377	766.59	. Q	V .	.	.	.
12.167	467.2763	775.16	. Q	V .	.	.	.
12.250	472.6595	781.64	. Q	V.	.	.	.
12.333	478.0439	781.81	. Q	V.	.	.	.
12.417	483.3673	772.96	. Q	V.	.	.	.
12.500	488.6009	759.92	. Q	V.	.	.	.
12.583	493.7559	748.51	. Q	V.	.	.	.
12.667	498.8628	741.52	. Q	V.	.	.	.
12.750	503.9478	738.35	. Q	V.	.	.	.
12.833	509.0306	738.03	. Q	V.	.	.	.
12.917	514.1276	740.08	. Q	V.	.	.	.
13.000	519.2529	744.20	. Q	V.	.	.	.
13.083	524.4186	750.07	. Q	V	.	.	.
13.167	529.6350	757.42	. Q	V	.	.	.
13.250	534.9113	766.11	. Q	V	.	.	.
13.333	540.2555	775.98	. Q	V	.	.	.
13.417	545.6758	787.02	. Q	V	.	.	.
13.500	551.1797	799.17	. Q	V	.	.	.
13.583	556.7749	812.42	. Q	V	.	.	.
13.667	562.4689	826.77	. Q	V	.	.	.
13.750	568.2696	842.27	. Q	V	.	.	.
13.833	574.1849	858.90	. Q	V	.	.	.
13.917	580.2233	876.78	. Q	.V	.	.	.
14.000	586.3931	895.85	. Q	.V	.	.	.
14.083	592.7035	916.28	. Q	.V	.	.	.
14.167	599.1654	938.27	. Q	.V	.	.	.
14.250	605.7929	962.31	. Q	.V	.	.	.
14.333	612.6072	989.43	. Q	.V	.	.	.
14.417	619.6331	1020.16	. Q	.V	.	.	.
14.500	626.8834	1052.74	. Q	. V	.	.	.
14.583	634.3612	1085.78	. Q	. V	.	.	.
14.667	642.0716	1119.55	. Q	. V	.	.	.
14.750	650.0312	1155.74	. Q	. V	.	.	.
14.833	658.2631	1195.26	. Q	. V	.	.	.
14.917	666.7930	1238.54	. Q	. V	.	.	.
15.000	675.6474	1285.67	. Q	. V	.	.	.
15.083	684.8559	1337.08	. Q	. V	.	.	.
15.167	694.4503	1393.11	. Q	. V	.	.	.

15.250	704.4683	1454.62	. Q . V . . .
15.333	714.9531	1522.38	. Q . V . . .
15.417	725.9517	1597.01	. Q . V . . .
15.500	737.5056	1677.61	. Q . V . . .
15.583	749.6412	1762.10	. Q . V . . .
15.667	762.3139	1840.08	. Q . V . . .
15.750	775.4532	1907.83	. Q . V . . .
15.833	789.1452	1988.07	. Q . V . . .
15.917	803.7178	2115.95	. Q . V . . .
16.000	819.8303	2339.53	. Q. V . . .
16.083	838.9058	2769.75	. Q V . . .
16.167	863.2089	3528.82	. . Q V . . .
16.250	896.0876	4773.98	. . VQ . . .
16.333	943.9565	6950.57	. . V . Q . .
16.417	1008.7890	9413.67	. . V. . Q .
16.500	1079.5792	10278.73	. . V . Q.
16.583	1145.3136	9544.63	. . .V . Q .
16.667	1201.9690	8226.36	. . . V .Q .
16.750	1251.7179	7223.55	. . . V Q . .
16.833	1296.5598	6511.06	. . . VQ . .
16.917	1337.3977	5929.67	. . . Q V . .
17.000	1374.6132	5403.68	. . Q V . .
17.083	1408.6082	4936.07	. . Q. V . .
17.167	1439.7039	4515.09	. . Q . V . .
17.250	1468.3196	4155.00	. . Q . V . .
17.333	1494.8103	3846.45	. . Q . V . .
17.417	1519.3917	3569.21	. . Q . V. .
17.500	1542.2046	3312.43	. . Q . V. .
17.583	1563.4536	3085.36	. .Q . V. .
17.667	1583.2412	2873.15	. .Q . V .
17.750	1601.6876	2678.41	. Q . V .
17.833	1618.8899	2497.76	. Q. . V .
17.917	1634.9384	2330.24	. Q. . .V .
18.000	1650.0197	2189.80	. Q . . .V .
18.083	1664.2469	2065.80	. Q . . .V .
18.167	1677.6996	1953.31	. Q . . . V .
18.250	1690.4606	1852.90	. Q . . . V .
18.333	1702.5175	1750.65	. Q . . . V .
18.417	1713.9152	1654.94	. Q . . . V .
18.500	1724.6622	1560.47	. Q . . . V .
18.583	1734.7346	1462.51	. Q . . . V .
18.667	1744.2694	1384.44	. Q . . . V .
18.750	1753.3606	1320.03	. Q . . . V .
18.833	1762.0560	1262.57	. Q . . . V .
18.917	1770.3969	1211.08	. Q . . . V .
19.000	1778.4087	1163.32	. Q . . . V .
19.083	1786.0970	1116.34	. Q . . . V .
19.167	1793.4844	1072.64	. Q . . . V .
19.250	1800.6115	1034.85	. Q . . . V .
19.333	1807.5159	1002.52	. Q . . . V .
19.417	1814.1461	962.70	. Q . . . V .
19.500	1820.5909	935.79	. Q . . . V .
19.583	1826.8882	914.36	. Q . . . V .
19.667	1833.0479	894.38	. Q . . . V .
19.750	1839.0760	875.29	. Q . . . V .
19.833	1844.9785	857.05	. Q . . . V .
19.917	1850.7606	839.56	. Q . . . V .

20.000	1856.4255	822.55	.	Q	.	.	.	V	.
20.083	1861.9740	805.64	.	Q	.	.	.	V	.
20.167	1867.4071	788.88	.	Q	.	.	.	V	.
20.250	1872.7285	772.67	.	Q	.	.	.	V	.
20.333	1877.9429	757.13	.	Q	.	.	.	V	.
20.417	1883.0549	742.27	.	Q	.	.	.	V	.
20.500	1888.0687	728.01	.	Q	.	.	.	V	.
20.583	1892.9880	714.28	.	Q	.	.	.	V	.
20.667	1897.8167	701.11	.	Q	.	.	.	V	.
20.750	1902.5583	688.49	.	Q	.	.	.	V	.
20.833	1907.2168	676.40	.	Q	.	.	.	V	.
20.917	1911.7953	664.80	.	Q	.	.	.	V	.
21.000	1916.2972	653.68	.	Q	.	.	.	V	.
21.083	1920.7257	643.00	.	Q	.	.	.	V	.
21.167	1925.0835	632.75	.	Q	.	.	.	V	.
21.250	1929.3734	622.90	.	Q	.	.	.	V	.
21.333	1933.5980	613.42	.	Q	.	.	.	V	.
21.417	1937.7594	604.24	.	Q	.	.	.	V	.
21.500	1941.8597	595.38	.	Q	.	.	.	V	.
21.583	1945.9012	586.83	.	Q	.	.	.	V	.
21.667	1949.8860	578.59	.	Q	.	.	.	V	.
21.750	1953.8160	570.64	.	Q	.	.	.	V	.
21.833	1957.6931	562.95	.	Q	.	.	.	V	.
21.917	1961.5190	555.52	.	Q	.	.	.	V	.
22.000	1965.2955	548.34	.	Q	.	.	.	V	.
22.083	1969.0242	541.39	.	Q	.	.	.	V	.
22.167	1972.7064	534.67	.	Q	.	.	.	V	.
22.250	1976.3439	528.15	.	Q	.	.	.	V	.
22.333	1979.9380	521.86	.	Q	.	.	.	V	.
22.417	1983.4904	515.80	.	Q	.	.	.	V	.
22.500	1987.0026	509.97	.	Q	.	.	.	V	.
22.583	1990.4760	504.34	.	Q	.	.	.	V	.
22.667	1993.9117	498.88	.	Q	.	.	.	V	.
22.750	1997.3110	493.57	.	Q	.	.	.	V	.
22.833	2000.6747	488.40	.	Q	.	.	.	V	.
22.917	2004.0037	483.36	.	Q	.	.	.	V	.
23.000	2007.2988	478.46	.	Q	.	.	.	V	.
23.083	2010.5605	473.59	.	Q	.	.	.	V	.
23.167	2013.7881	468.63	.	Q	.	.	.	V	.
23.250	2016.9813	463.65	.	Q	.	.	.	V	.
23.333	2020.1420	458.92	.	Q	.	.	.	V	.
23.417	2023.2722	454.52	.	Q	.	.	.	V	.
23.500	2026.3735	450.32	.	Q	.	.	.	V	.
23.583	2029.4468	446.24	.	Q	.	.	.	V	.
23.667	2032.4926	442.25	.	Q	.	.	.	V	.
23.750	2035.5115	438.36	.	Q	.	.	.	V	.
23.833	2038.5043	434.55	.	Q	.	.	.	V	.
23.917	2041.4714	430.83	.	Q	.	.	.	V	.
24.000	2044.4136	427.19	.	Q	.	.	.	V	.
24.083	2047.3271	423.04	.	Q	.	.	.	V	.
24.167	2050.1975	416.77	.	Q	.	.	.	V	.
24.250	2052.9883	405.20	.	Q	.	.	.	V	.
24.333	2055.6047	379.89	.	Q	.	.	.	V	.
24.417	2057.9309	337.75	.	Q	.	.	.	V	.
24.500	2059.9424	292.07	.	Q	.	.	.	V	.
24.583	2061.6855	253.10	Q	.	.	.	.	V	.
24.667	2063.2205	222.87	Q	.	.	.	.	V	.

24.750	2064.5857	198.24	Q	.	.	.	V.
24.833	2065.8064	177.25	Q	.	.	.	V.
24.917	2066.9023	159.14	Q	.	.	.	V.
25.000	2067.8909	143.52	Q	.	.	.	V.
25.083	2068.7861	129.98	Q	.	.	.	V.
25.167	2069.6008	118.31	Q	.	.	.	V.
25.250	2070.3457	108.17	Q	.	.	.	V.
25.333	2071.0293	99.27	Q	.	.	.	V.
25.417	2071.6592	91.45	Q	.	.	.	V.
25.500	2072.2417	84.57	Q	.	.	.	V.
25.583	2072.7822	78.47	Q	.	.	.	V.
25.667	2073.2854	73.07	Q	.	.	.	V.
25.750	2073.7556	68.28	Q	.	.	.	V.
25.833	2074.1963	63.98	Q	.	.	.	V.
25.917	2074.6104	60.12	Q	.	.	.	V.
26.000	2074.9998	56.55	Q	.	.	.	V.
26.083	2075.3667	53.26	Q	.	.	.	V.
26.167	2075.7134	50.33	Q	.	.	.	V.
26.250	2076.0417	47.68	Q	.	.	.	V.
26.333	2076.3540	45.33	Q	.	.	.	V.
26.417	2076.6516	43.22	Q	.	.	.	V.
26.500	2076.9363	41.34	Q	.	.	.	V.
26.583	2077.2095	39.68	Q	.	.	.	V.
26.667	2077.4722	38.15	Q	.	.	.	V.
26.750	2077.7251	36.73	Q	.	.	.	V.
26.833	2077.9690	35.40	Q	.	.	.	V.
26.917	2078.2041	34.15	Q	.	.	.	V.
27.000	2078.4312	32.96	Q	.	.	.	V.
27.083	2078.6504	31.83	Q	.	.	.	V.
27.167	2078.8621	30.74	Q	.	.	.	V.
27.250	2079.0667	29.70	Q	.	.	.	V.
27.333	2079.2644	28.71	Q	.	.	.	V.
27.417	2079.4563	27.85	Q	.	.	.	V.
27.500	2079.6426	27.06	Q	.	.	.	V.
27.583	2079.8237	26.31	Q	.	.	.	V.
27.667	2080.0000	25.58	Q	.	.	.	V.
27.750	2080.1714	24.89	Q	.	.	.	V.
27.833	2080.3381	24.23	Q	.	.	.	V.
27.917	2080.5005	23.59	Q	.	.	.	V.
28.000	2080.6587	22.97	Q	.	.	.	V.
28.083	2080.8127	22.38	Q	.	.	.	V.
28.167	2080.9629	21.82	Q	.	.	.	V.
28.250	2081.1094	21.27	Q	.	.	.	V.
28.333	2081.2522	20.75	Q	.	.	.	V.
28.417	2081.3916	20.25	Q	.	.	.	V.
28.500	2081.5276	19.76	Q	.	.	.	V.
28.583	2081.6604	19.29	Q	.	.	.	V.
28.667	2081.7900	18.84	Q	.	.	.	V.
28.750	2081.9167	18.40	Q	.	.	.	V.
28.833	2082.0405	17.98	Q	.	.	.	V.
28.917	2082.1616	17.58	Q	.	.	.	V.
29.000	2082.2800	17.19	Q	.	.	.	V.
29.083	2082.3958	16.81	Q	.	.	.	V.
29.167	2082.5090	16.44	Q	.	.	.	V.
29.250	2082.6199	16.09	Q	.	.	.	V.
29.333	2082.7283	15.75	Q	.	.	.	V.
29.417	2082.8345	15.41	Q	.	.	.	V.

29.500	2082.9385	15.09	Q	.	.	.	V.
29.583	2083.0403	14.78	Q	.	.	.	V.
29.667	2083.1399	14.48	Q	.	.	.	V.
29.750	2083.2375	14.19	Q	.	.	.	V.
29.833	2083.3333	13.90	Q	.	.	.	V.
29.917	2083.4272	13.63	Q	.	.	.	V.
30.000	2083.5195	13.38	Q	.	.	.	V.
30.083	2083.6101	13.14	Q	.	.	.	V.
30.167	2083.6987	12.87	Q	.	.	.	V.
30.250	2083.7856	12.61	Q	.	.	.	V.
30.333	2083.8708	12.36	Q	.	.	.	V.
30.417	2083.9543	12.13	Q	.	.	.	V.
30.500	2084.0364	11.91	Q	.	.	.	V.
30.583	2084.1169	11.69	Q	.	.	.	V.
30.667	2084.1960	11.48	Q	.	.	.	V.
30.750	2084.2737	11.27	Q	.	.	.	V.
30.833	2084.3499	11.07	Q	.	.	.	V.
30.917	2084.4248	10.87	Q	.	.	.	V.
31.000	2084.4983	10.68	Q	.	.	.	V.
31.083	2084.5706	10.50	Q	.	.	.	V.
31.167	2084.6418	10.35	Q	.	.	.	V.
31.250	2084.7122	10.21	Q	.	.	.	V.
31.333	2084.7812	10.04	Q	.	.	.	V.
31.417	2084.8491	9.87	Q	.	.	.	V.
31.500	2084.9160	9.70	Q	.	.	.	V.
31.583	2084.9817	9.54	Q	.	.	.	V.
31.667	2085.0464	9.38	Q	.	.	.	V.
31.750	2085.1099	9.22	Q	.	.	.	V.
31.833	2085.1724	9.07	Q	.	.	.	V.
31.917	2085.2339	8.92	Q	.	.	.	V.
32.000	2085.2942	8.77	Q	.	.	.	V.
32.083	2085.3535	8.63	Q	.	.	.	V.
32.167	2085.4119	8.49	Q	.	.	.	V.
32.250	2085.4695	8.35	Q	.	.	.	V.
32.333	2085.5261	8.22	Q	.	.	.	V.
32.417	2085.5818	8.08	Q	.	.	.	V.
32.500	2085.6365	7.96	Q	.	.	.	V.
32.583	2085.6904	7.83	Q	.	.	.	V.
32.667	2085.7434	7.71	Q	.	.	.	V.
32.750	2085.7957	7.59	Q	.	.	.	V.
32.833	2085.8472	7.47	Q	.	.	.	V.
32.917	2085.8977	7.35	Q	.	.	.	V.
33.000	2085.9475	7.24	Q	.	.	.	V.
33.083	2085.9966	7.13	Q	.	.	.	V.
33.167	2086.0449	7.02	Q	.	.	.	V.
33.250	2086.0925	6.91	Q	.	.	.	V.
33.333	2086.1394	6.81	Q	.	.	.	V.
33.417	2086.1855	6.70	Q	.	.	.	V.
33.500	2086.2310	6.60	Q	.	.	.	V.
33.583	2086.2756	6.50	Q	.	.	.	V.
33.667	2086.3198	6.41	Q	.	.	.	V.
33.750	2086.3633	6.31	Q	.	.	.	V.
33.833	2086.4060	6.22	Q	.	.	.	V.
33.917	2086.4482	6.13	Q	.	.	.	V.
34.000	2086.4897	6.03	Q	.	.	.	V.
34.083	2086.5308	5.95	Q	.	.	.	V.
34.167	2086.5710	5.86	Q	.	.	.	V.

34.250	2086.6108	5.77	Q	.	.	.	V.
34.333	2086.6501	5.69	Q	.	.	.	V.
34.417	2086.6887	5.61	Q	.	.	.	V.
34.500	2086.7268	5.53	Q	.	.	.	V.
34.583	2086.7644	5.45	Q	.	.	.	V.
34.667	2086.8013	5.37	Q	.	.	.	V.
34.750	2086.8376	5.29	Q	.	.	.	V.
34.833	2086.8735	5.22	Q	.	.	.	V.
34.917	2086.9089	5.14	Q	.	.	.	V.
35.000	2086.9438	5.07	Q	.	.	.	V.
35.083	2086.9783	5.00	Q	.	.	.	V.
35.167	2087.0122	4.93	Q	.	.	.	V.
35.250	2087.0457	4.86	Q	.	.	.	V.
35.333	2087.0786	4.79	Q	.	.	.	V.
35.417	2087.1111	4.72	Q	.	.	.	V.
35.500	2087.1431	4.65	Q	.	.	.	V.
35.583	2087.1746	4.59	Q	.	.	.	V.
35.667	2087.2058	4.52	Q	.	.	.	V.
35.750	2087.2366	4.46	Q	.	.	.	V.
35.833	2087.2668	4.40	Q	.	.	.	V.
35.917	2087.2966	4.34	Q	.	.	.	V.
36.000	2087.3262	4.28	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2165.0
10%	290.0
20%	135.0
30%	90.0
40%	65.0
50%	45.0
60%	35.0
70%	25.0
80%	20.0
90%	15.0

FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

(UNIT-HYDROGRAPH ADDED TO STREAM #5)

WATERSHED AREA = 101.500 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.321 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):

NODE 109 SUBAREA HYDROGRAPH

"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.110
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.890
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.369
LOW LOSS FRACTION = 0.530
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 25.961

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 1.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.439	17.659
2	7.139	69.978
3	21.822	180.226
4	43.478	265.838
5	58.482	184.177
6	67.912	115.754
7	74.449	80.235
8	79.188	58.177
9	82.740	43.601
10	85.487	33.725
11	87.784	28.187
12	89.705	23.586
13	91.205	18.417
14	92.514	16.058
15	93.639	13.812
16	94.624	12.095

17	95.429	9.879
18	96.173	9.140
19	96.784	7.500
20	97.335	6.753
21	97.757	5.181
22	98.111	4.353
23	98.345	2.875
24	98.595	3.059
25	98.872	3.401
26	99.149	3.403
27	99.426	3.401
28	99.703	3.401
29	99.980	3.401
30	100.000	0.243

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0026	0.0023
2	0.0049	0.0026	0.0023
3	0.0049	0.0026	0.0023
4	0.0049	0.0026	0.0023
5	0.0049	0.0026	0.0023
6	0.0049	0.0026	0.0023
7	0.0050	0.0026	0.0023
8	0.0050	0.0026	0.0023
9	0.0050	0.0026	0.0023
10	0.0050	0.0026	0.0023
11	0.0050	0.0027	0.0024
12	0.0050	0.0027	0.0024
13	0.0051	0.0027	0.0024
14	0.0051	0.0027	0.0024
15	0.0051	0.0027	0.0024
16	0.0051	0.0027	0.0024
17	0.0051	0.0027	0.0024
18	0.0051	0.0027	0.0024
19	0.0052	0.0027	0.0024
20	0.0052	0.0027	0.0024
21	0.0052	0.0028	0.0024
22	0.0052	0.0028	0.0024
23	0.0052	0.0028	0.0025
24	0.0052	0.0028	0.0025
25	0.0053	0.0028	0.0025
26	0.0053	0.0028	0.0025
27	0.0053	0.0028	0.0025
28	0.0053	0.0028	0.0025
29	0.0054	0.0028	0.0025
30	0.0054	0.0028	0.0025
31	0.0054	0.0029	0.0025
32	0.0054	0.0029	0.0025
33	0.0054	0.0029	0.0026
34	0.0054	0.0029	0.0026
35	0.0055	0.0029	0.0026
36	0.0055	0.0029	0.0026
37	0.0055	0.0029	0.0026
38	0.0055	0.0029	0.0026
39	0.0056	0.0029	0.0026
40	0.0056	0.0030	0.0026
41	0.0056	0.0030	0.0026
42	0.0056	0.0030	0.0026
43	0.0057	0.0030	0.0027
44	0.0057	0.0030	0.0027
45	0.0057	0.0030	0.0027
46	0.0057	0.0030	0.0027
47	0.0057	0.0030	0.0027
48	0.0058	0.0031	0.0027
49	0.0058	0.0031	0.0027
50	0.0058	0.0031	0.0027
51	0.0058	0.0031	0.0027

52	0.0059	0.0031	0.0028
53	0.0059	0.0031	0.0028
54	0.0059	0.0031	0.0028
55	0.0059	0.0032	0.0028
56	0.0060	0.0032	0.0028
57	0.0060	0.0032	0.0028
58	0.0060	0.0032	0.0028
59	0.0061	0.0032	0.0028
60	0.0061	0.0032	0.0029
61	0.0061	0.0032	0.0029
62	0.0061	0.0033	0.0029
63	0.0062	0.0033	0.0029
64	0.0062	0.0033	0.0029
65	0.0062	0.0033	0.0029
66	0.0063	0.0033	0.0029
67	0.0063	0.0033	0.0030
68	0.0063	0.0033	0.0030
69	0.0064	0.0034	0.0030
70	0.0064	0.0034	0.0030
71	0.0064	0.0034	0.0030
72	0.0064	0.0034	0.0030
73	0.0065	0.0034	0.0030
74	0.0065	0.0034	0.0031
75	0.0065	0.0035	0.0031
76	0.0066	0.0035	0.0031
77	0.0066	0.0035	0.0031
78	0.0066	0.0035	0.0031
79	0.0067	0.0035	0.0031
80	0.0067	0.0036	0.0032
81	0.0068	0.0036	0.0032
82	0.0068	0.0036	0.0032
83	0.0068	0.0036	0.0032
84	0.0069	0.0036	0.0032
85	0.0069	0.0037	0.0032
86	0.0069	0.0037	0.0033
87	0.0070	0.0037	0.0033
88	0.0070	0.0037	0.0033
89	0.0071	0.0038	0.0033
90	0.0071	0.0038	0.0033
91	0.0072	0.0038	0.0034
92	0.0072	0.0038	0.0034
93	0.0072	0.0038	0.0034
94	0.0073	0.0039	0.0034
95	0.0073	0.0039	0.0034
96	0.0074	0.0039	0.0035
97	0.0074	0.0039	0.0035
98	0.0075	0.0040	0.0035
99	0.0075	0.0040	0.0035
100	0.0076	0.0040	0.0036
101	0.0076	0.0040	0.0036
102	0.0077	0.0041	0.0036
103	0.0077	0.0041	0.0036
104	0.0078	0.0041	0.0037
105	0.0078	0.0042	0.0037
106	0.0079	0.0042	0.0037
107	0.0080	0.0042	0.0037
108	0.0080	0.0042	0.0038

109	0.0081	0.0043	0.0038
110	0.0081	0.0043	0.0038
111	0.0082	0.0043	0.0038
112	0.0082	0.0044	0.0039
113	0.0083	0.0044	0.0039
114	0.0084	0.0044	0.0039
115	0.0084	0.0045	0.0040
116	0.0085	0.0045	0.0040
117	0.0086	0.0045	0.0040
118	0.0086	0.0046	0.0041
119	0.0087	0.0046	0.0041
120	0.0088	0.0046	0.0041
121	0.0089	0.0047	0.0042
122	0.0089	0.0047	0.0042
123	0.0090	0.0048	0.0042
124	0.0091	0.0048	0.0043
125	0.0092	0.0049	0.0043
126	0.0092	0.0049	0.0043
127	0.0094	0.0050	0.0044
128	0.0094	0.0050	0.0044
129	0.0095	0.0051	0.0045
130	0.0096	0.0051	0.0045
131	0.0097	0.0052	0.0046
132	0.0098	0.0052	0.0046
133	0.0099	0.0053	0.0047
134	0.0100	0.0053	0.0047
135	0.0101	0.0054	0.0048
136	0.0102	0.0054	0.0048
137	0.0103	0.0055	0.0049
138	0.0104	0.0055	0.0049
139	0.0106	0.0056	0.0050
140	0.0107	0.0057	0.0050
141	0.0108	0.0057	0.0051
142	0.0109	0.0058	0.0051
143	0.0111	0.0059	0.0052
144	0.0112	0.0059	0.0053
145	0.0090	0.0048	0.0042
146	0.0091	0.0048	0.0043
147	0.0093	0.0049	0.0044
148	0.0094	0.0050	0.0044
149	0.0096	0.0051	0.0045
150	0.0097	0.0051	0.0045
151	0.0099	0.0052	0.0046
152	0.0100	0.0053	0.0047
153	0.0102	0.0054	0.0048
154	0.0104	0.0055	0.0049
155	0.0106	0.0056	0.0050
156	0.0107	0.0057	0.0050
157	0.0110	0.0058	0.0052
158	0.0112	0.0059	0.0052
159	0.0115	0.0061	0.0054
160	0.0116	0.0062	0.0055
161	0.0120	0.0063	0.0056
162	0.0121	0.0064	0.0057
163	0.0125	0.0066	0.0059
164	0.0127	0.0067	0.0060
165	0.0131	0.0070	0.0062

166	0.0134	0.0071	0.0063
167	0.0138	0.0073	0.0065
168	0.0141	0.0075	0.0066
169	0.0151	0.0080	0.0071
170	0.0154	0.0082	0.0073
171	0.0161	0.0085	0.0076
172	0.0164	0.0087	0.0077
173	0.0172	0.0091	0.0081
174	0.0176	0.0093	0.0083
175	0.0185	0.0098	0.0087
176	0.0190	0.0101	0.0089
177	0.0201	0.0106	0.0094
178	0.0207	0.0110	0.0097
179	0.0220	0.0117	0.0103
180	0.0228	0.0121	0.0107
181	0.0245	0.0130	0.0115
182	0.0255	0.0135	0.0120
183	0.0279	0.0148	0.0131
184	0.0293	0.0155	0.0138
185	0.0251	0.0133	0.0118
186	0.0269	0.0143	0.0127
187	0.0316	0.0167	0.0148
188	0.0347	0.0184	0.0163
189	0.0539	0.0286	0.0254
190	0.0621	0.0307	0.0314
191	0.0941	0.0307	0.0634
192	0.1367	0.0307	0.1059
193	0.5874	0.0307	0.5567
194	0.0741	0.0307	0.0434
195	0.0387	0.0205	0.0182
196	0.0290	0.0154	0.0136
197	0.0308	0.0163	0.0145
198	0.0266	0.0141	0.0125
199	0.0236	0.0125	0.0111
200	0.0213	0.0113	0.0100
201	0.0195	0.0103	0.0092
202	0.0180	0.0096	0.0085
203	0.0168	0.0089	0.0079
204	0.0158	0.0083	0.0074
205	0.0144	0.0076	0.0067
206	0.0136	0.0072	0.0064
207	0.0129	0.0068	0.0061
208	0.0123	0.0065	0.0058
209	0.0118	0.0062	0.0055
210	0.0113	0.0060	0.0053
211	0.0109	0.0058	0.0051
212	0.0105	0.0056	0.0049
213	0.0101	0.0054	0.0048
214	0.0098	0.0052	0.0046
215	0.0095	0.0050	0.0045
216	0.0092	0.0049	0.0043
217	0.0113	0.0060	0.0053
218	0.0110	0.0058	0.0052
219	0.0107	0.0057	0.0051
220	0.0105	0.0056	0.0049
221	0.0103	0.0054	0.0048
222	0.0101	0.0053	0.0047

223	0.0099	0.0052	0.0046
224	0.0097	0.0051	0.0045
225	0.0095	0.0050	0.0045
226	0.0093	0.0049	0.0044
227	0.0091	0.0048	0.0043
228	0.0090	0.0048	0.0042
229	0.0088	0.0047	0.0041
230	0.0087	0.0046	0.0041
231	0.0085	0.0045	0.0040
232	0.0084	0.0045	0.0039
233	0.0083	0.0044	0.0039
234	0.0081	0.0043	0.0038
235	0.0080	0.0043	0.0038
236	0.0079	0.0042	0.0037
237	0.0078	0.0041	0.0037
238	0.0077	0.0041	0.0036
239	0.0076	0.0040	0.0036
240	0.0075	0.0040	0.0035
241	0.0074	0.0039	0.0035
242	0.0073	0.0039	0.0034
243	0.0072	0.0038	0.0034
244	0.0071	0.0038	0.0034
245	0.0070	0.0037	0.0033
246	0.0070	0.0037	0.0033
247	0.0069	0.0037	0.0032
248	0.0068	0.0036	0.0032
249	0.0067	0.0036	0.0032
250	0.0067	0.0035	0.0031
251	0.0066	0.0035	0.0031
252	0.0065	0.0035	0.0031
253	0.0065	0.0034	0.0030
254	0.0064	0.0034	0.0030
255	0.0063	0.0034	0.0030
256	0.0063	0.0033	0.0029
257	0.0062	0.0033	0.0029
258	0.0062	0.0033	0.0029
259	0.0061	0.0032	0.0029
260	0.0060	0.0032	0.0028
261	0.0060	0.0032	0.0028
262	0.0059	0.0031	0.0028
263	0.0059	0.0031	0.0028
264	0.0058	0.0031	0.0027
265	0.0058	0.0031	0.0027
266	0.0057	0.0030	0.0027
267	0.0057	0.0030	0.0027
268	0.0056	0.0030	0.0026
269	0.0056	0.0030	0.0026
270	0.0055	0.0029	0.0026
271	0.0055	0.0029	0.0026
272	0.0055	0.0029	0.0026
273	0.0054	0.0029	0.0025
274	0.0054	0.0029	0.0025
275	0.0053	0.0028	0.0025
276	0.0053	0.0028	0.0025
277	0.0053	0.0028	0.0025
278	0.0052	0.0028	0.0025
279	0.0052	0.0027	0.0024

280	0.0052	0.0027	0.0024
281	0.0051	0.0027	0.0024
282	0.0051	0.0027	0.0024
283	0.0050	0.0027	0.0024
284	0.0050	0.0027	0.0024
285	0.0050	0.0026	0.0023
286	0.0049	0.0026	0.0023
287	0.0049	0.0026	0.0023
288	0.0049	0.0026	0.0023

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 1.55
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.04

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 13.1442
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 17.2664

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
1.000	0.1367	2.57	Q	.	.	.	.
1.083	0.1548	2.62	Q	.	.	.	.
1.167	0.1731	2.67	Q	.	.	.	.
1.250	0.1918	2.71	Q	.	.	.	.
1.333	0.2107	2.74	Q	.	.	.	.
1.417	0.2298	2.78	Q	.	.	.	.
1.500	0.2491	2.81	Q	.	.	.	.
1.583	0.2686	2.83	Q	.	.	.	.
1.667	0.2883	2.86	Q	.	.	.	.
1.750	0.3081	2.88	Q	.	.	.	.
1.833	0.3281	2.90	Q	.	.	.	.
1.917	0.3482	2.92	Q	.	.	.	.
2.000	0.3684	2.93	Q	.	.	.	.
2.083	0.3887	2.95	Q	.	.	.	.
2.167	0.4091	2.97	Q	.	.	.	.
2.250	0.4297	2.99	Q	.	.	.	.
2.333	0.4504	3.01	QV	.	.	.	.
2.417	0.4713	3.02	QV	.	.	.	.
2.500	0.4922	3.04	QV	.	.	.	.
2.583	0.5132	3.05	QV	.	.	.	.
2.667	0.5342	3.06	QV	.	.	.	.
2.750	0.5554	3.07	QV	.	.	.	.
2.833	0.5766	3.08	QV	.	.	.	.
2.917	0.5979	3.09	QV	.	.	.	.
3.000	0.6193	3.10	QV	.	.	.	.
3.083	0.6407	3.12	QV	.	.	.	.
3.167	0.6623	3.13	QV	.	.	.	.
3.250	0.6839	3.14	QV	.	.	.	.
3.333	0.7056	3.15	QV	.	.	.	.
3.417	0.7274	3.16	QV	.	.	.	.
3.500	0.7493	3.18	QV	.	.	.	.
3.583	0.7713	3.19	QV	.	.	.	.
3.667	0.7933	3.20	QV	.	.	.	.
3.750	0.8155	3.21	QV	.	.	.	.
3.833	0.8377	3.23	QV	.	.	.	.
3.917	0.8600	3.24	QV	.	.	.	.
4.000	0.8824	3.25	Q V	.	.	.	.
4.083	0.9049	3.27	Q V	.	.	.	.
4.167	0.9275	3.28	Q V	.	.	.	.
4.250	0.9502	3.29	Q V	.	.	.	.
4.333	0.9730	3.31	Q V	.	.	.	.
4.417	0.9959	3.32	Q V	.	.	.	.
4.500	1.0188	3.34	Q V	.	.	.	.
4.583	1.0419	3.35	Q V	.	.	.	.
4.667	1.0651	3.36	Q V	.	.	.	.

4.750	1.0884	3.38	Q	V	.	.	.	.
4.833	1.1117	3.39	Q	V	.	.	.	.
4.917	1.1352	3.41	Q	V	.	.	.	.
5.000	1.1588	3.42	Q	V	.	.	.	.
5.083	1.1825	3.44	Q	V	.	.	.	.
5.167	1.2063	3.45	Q	V	.	.	.	.
5.250	1.2302	3.47	Q	V	.	.	.	.
5.333	1.2542	3.49	Q	V	.	.	.	.
5.417	1.2783	3.50	Q	V	.	.	.	.
5.500	1.3025	3.52	Q	V	.	.	.	.
5.583	1.3269	3.53	Q	V	.	.	.	.
5.667	1.3513	3.55	Q	V	.	.	.	.
5.750	1.3759	3.57	Q	V	.	.	.	.
5.833	1.4006	3.59	Q	V	.	.	.	.
5.917	1.4254	3.60	Q	V	.	.	.	.
6.000	1.4503	3.62	Q	V	.	.	.	.
6.083	1.4754	3.64	Q	V	.	.	.	.
6.167	1.5006	3.66	Q	V	.	.	.	.
6.250	1.5259	3.67	Q	V	.	.	.	.
6.333	1.5513	3.69	Q	V	.	.	.	.
6.417	1.5768	3.71	Q	V	.	.	.	.
6.500	1.6025	3.73	Q	V	.	.	.	.
6.583	1.6283	3.75	Q	V	.	.	.	.
6.667	1.6543	3.77	Q	V	.	.	.	.
6.750	1.6804	3.79	Q	V	.	.	.	.
6.833	1.7066	3.81	Q	V	.	.	.	.
6.917	1.7330	3.83	Q	V	.	.	.	.
7.000	1.7595	3.85	Q	V	.	.	.	.
7.083	1.7861	3.87	Q	V	.	.	.	.
7.167	1.8129	3.89	Q	V	.	.	.	.
7.250	1.8398	3.91	Q	V	.	.	.	.
7.333	1.8669	3.93	Q	V	.	.	.	.
7.417	1.8941	3.95	Q	V	.	.	.	.
7.500	1.9215	3.98	Q	V	.	.	.	.
7.583	1.9491	4.00	Q	V	.	.	.	.
7.667	1.9768	4.02	Q	V	.	.	.	.
7.750	2.0046	4.05	Q	V	.	.	.	.
7.833	2.0327	4.07	Q	V	.	.	.	.
7.917	2.0609	4.09	Q	V	.	.	.	.
8.000	2.0892	4.12	Q	V	.	.	.	.
8.083	2.1178	4.14	Q	V	.	.	.	.
8.167	2.1465	4.17	Q	V	.	.	.	.
8.250	2.1754	4.19	Q	V	.	.	.	.
8.333	2.2044	4.22	Q	V	.	.	.	.
8.417	2.2337	4.25	Q	V	.	.	.	.
8.500	2.2631	4.27	Q	V	.	.	.	.
8.583	2.2927	4.30	Q	V	.	.	.	.
8.667	2.3225	4.33	Q	V	.	.	.	.
8.750	2.3526	4.36	Q	V	.	.	.	.
8.833	2.3828	4.39	Q	V	.	.	.	.
8.917	2.4132	4.42	Q	V	.	.	.	.
9.000	2.4438	4.45	Q	V	.	.	.	.
9.083	2.4746	4.48	Q	V	.	.	.	.
9.167	2.5057	4.51	Q	V	.	.	.	.
9.250	2.5369	4.54	Q	V	.	.	.	.
9.333	2.5684	4.57	Q	V	.	.	.	.
9.417	2.6001	4.60	Q	V	.	.	.	.

9.500	2.6320	4.64	Q	V	.	.	.	.
9.583	2.6642	4.67	Q	V	.	.	.	.
9.667	2.6966	4.71	Q	V	.	.	.	.
9.750	2.7293	4.74	Q	V	.	.	.	.
9.833	2.7622	4.78	Q	V	.	.	.	.
9.917	2.7953	4.81	Q	V	.	.	.	.
10.000	2.8288	4.85	Q	V	.	.	.	.
10.083	2.8624	4.89	Q	V	.	.	.	.
10.167	2.8964	4.93	Q	V	.	.	.	.
10.250	2.9306	4.97	Q	V	.	.	.	.
10.333	2.9651	5.01	.Q	V	.	.	.	.
10.417	2.9999	5.05	.Q	V	.	.	.	.
10.500	3.0350	5.10	.Q	V	.	.	.	.
10.583	3.0704	5.14	.Q	V	.	.	.	.
10.667	3.1061	5.18	.Q	V	.	.	.	.
10.750	3.1421	5.23	.Q	V	.	.	.	.
10.833	3.1785	5.28	.Q	V	.	.	.	.
10.917	3.2152	5.32	.Q	V	.	.	.	.
11.000	3.2522	5.37	.Q	V	.	.	.	.
11.083	3.2895	5.42	.Q	V	.	.	.	.
11.167	3.3272	5.48	.Q	V	.	.	.	.
11.250	3.3653	5.53	.Q	V	.	.	.	.
11.333	3.4038	5.58	.Q	V	.	.	.	.
11.417	3.4426	5.64	.Q	V	.	.	.	.
11.500	3.4819	5.70	.Q	V	.	.	.	.
11.583	3.5215	5.76	.Q	V	.	.	.	.
11.667	3.5616	5.82	.Q	V	.	.	.	.
11.750	3.6021	5.88	.Q	V	.	.	.	.
11.833	3.6430	5.94	.Q	V	.	.	.	.
11.917	3.6844	6.01	.Q	V	.	.	.	.
12.000	3.7262	6.08	.Q	V	.	.	.	.
12.083	3.7684	6.13	.Q	V	.	.	.	.
12.167	3.8106	6.12	.Q	V	.	.	.	.
12.250	3.8519	6.00	.Q	V	.	.	.	.
12.333	3.8917	5.78	.Q	V.	.	.	.	.
12.417	3.9306	5.65	.Q	V.	.	.	.	.
12.500	3.9691	5.60	.Q	V.	.	.	.	.
12.583	4.0076	5.58	.Q	V.	.	.	.	.
12.667	4.0461	5.60	.Q	V.	.	.	.	.
12.750	4.0850	5.64	.Q	V.	.	.	.	.
12.833	4.1241	5.69	.Q	V.	.	.	.	.
12.917	4.1637	5.74	.Q	V.	.	.	.	.
13.000	4.2037	5.81	.Q	V.	.	.	.	.
13.083	4.2443	5.89	.Q	V.	.	.	.	.
13.167	4.2854	5.97	.Q	V.	.	.	.	.
13.250	4.3271	6.06	.Q	V	.	.	.	.
13.333	4.3696	6.16	.Q	V	.	.	.	.
13.417	4.4127	6.26	.Q	V	.	.	.	.
13.500	4.4566	6.37	.Q	V	.	.	.	.
13.583	4.5013	6.49	.Q	V	.	.	.	.
13.667	4.5469	6.62	.Q	V	.	.	.	.
13.750	4.5934	6.75	.Q	V	.	.	.	.
13.833	4.6408	6.89	.Q	V	.	.	.	.
13.917	4.6893	7.04	.Q	V	.	.	.	.
14.000	4.7390	7.21	.Q	V	.	.	.	.
14.083	4.7898	7.38	.Q	.V	.	.	.	.
14.167	4.8420	7.58	.Q	.V	.	.	.	.

14.250	4.8958	7.82	.Q V . . .
14.333	4.9515	8.09	.Q V . . .
14.417	5.0091	8.35	.Q V . . .
14.500	5.0685	8.63	.Q V . . .
14.583	5.1298	8.91	.Q V . . .
14.667	5.1933	9.21	.Q . V . . .
14.750	5.2589	9.53	.Q . V . . .
14.833	5.3269	9.87	.Q . V . . .
14.917	5.3975	10.25	. Q . V . . .
15.000	5.4709	10.66	. Q . V . . .
15.083	5.5474	11.11	. Q . V . . .
15.167	5.6275	11.62	. Q . V . . .
15.250	5.7114	12.19	. Q . V . . .
15.333	5.7998	12.83	. Q . V . . .
15.417	5.8928	13.50	. Q . V . . .
15.500	5.9900	14.11	. Q . V . . .
15.583	6.0896	14.47	. Q . V . . .
15.667	6.1909	14.70	. Q . V . . .
15.750	6.2978	15.52	. Q . V . . .
15.833	6.4167	17.27	. Q . V . . .
15.917	6.5599	20.80	. Q . V . . .
16.000	6.7521	27.90	. Q . V . . .
16.083	7.0847	48.29	. Q. V . . .
16.167	7.7005	89.41	. . Q . . .
16.250	8.7552	153.15	. . V Q .
16.333	10.0731	191.35	. . . V . Q .
16.417	11.0473	141.47	. . . V Q . .
16.500	11.7194	97.59	. . Q. V . .
16.583	12.2216	72.92	. . Q V . .
16.667	12.6167	57.36	. .Q V. .
16.750	12.9377	46.61	. Q. V. .
16.833	13.2061	38.97	. Q . V .
16.917	13.4399	33.95	. Q . .V .
17.000	13.6447	29.73	. Q . .V .
17.083	13.8208	25.58	. Q . . V .
17.167	13.9796	23.05	. Q . . V .
17.250	14.1225	20.75	. Q . . V .
17.333	14.2520	18.81	. Q . . V .
17.417	14.3675	16.78	. Q . . V .
17.500	14.4747	15.57	. Q . . V .
17.583	14.5712	14.01	. Q . . V .
17.667	14.6602	12.92	. Q . . V .
17.750	14.7395	11.51	. Q . . V .
17.833	14.8121	10.55	. Q . . V .
17.917	14.8770	9.43	.Q . . V .
18.000	14.9405	9.21	.Q . . V .
18.083	15.0034	9.13	.Q . . V .
18.167	15.0649	8.93	.Q . . V .
18.250	15.1258	8.84	.Q . . V .
18.333	15.1861	8.76	.Q . . V .
18.417	15.2443	8.45	.Q . . V .
18.500	15.2901	6.65	.Q . . V .
18.583	15.3337	6.33	.Q . . V .
18.667	15.3764	6.20	.Q . . V .
18.750	15.4182	6.08	.Q . . V .
18.833	15.4592	5.95	.Q . . V .
18.917	15.4994	5.83	.Q . . V .

19.000	15.5388	5.72	.Q	.	.	.	V .
19.083	15.5775	5.61	.Q	.	.	.	V .
19.167	15.6154	5.51	.Q	.	.	.	V .
19.250	15.6527	5.41	.Q	.	.	.	V .
19.333	15.6893	5.32	.Q	.	.	.	V .
19.417	15.7254	5.23	.Q	.	.	.	V .
19.500	15.7608	5.14	.Q	.	.	.	V .
19.583	15.7956	5.06	.Q	.	.	.	V .
19.667	15.8300	4.98	Q	.	.	.	V .
19.750	15.8637	4.90	Q	.	.	.	V .
19.833	15.8970	4.83	Q	.	.	.	V .
19.917	15.9298	4.76	Q	.	.	.	V .
20.000	15.9621	4.69	Q	.	.	.	V .
20.083	15.9939	4.62	Q	.	.	.	V .
20.167	16.0253	4.56	Q	.	.	.	V .
20.250	16.0563	4.50	Q	.	.	.	V .
20.333	16.0868	4.44	Q	.	.	.	V .
20.417	16.1170	4.38	Q	.	.	.	V .
20.500	16.1468	4.33	Q	.	.	.	V .
20.583	16.1762	4.27	Q	.	.	.	V .
20.667	16.2053	4.22	Q	.	.	.	V .
20.750	16.2339	4.16	Q	.	.	.	V .
20.833	16.2623	4.11	Q	.	.	.	V .
20.917	16.2903	4.06	Q	.	.	.	V .
21.000	16.3179	4.02	Q	.	.	.	V .
21.083	16.3453	3.97	Q	.	.	.	V .
21.167	16.3723	3.93	Q	.	.	.	V .
21.250	16.3991	3.88	Q	.	.	.	V .
21.333	16.4255	3.84	Q	.	.	.	V .
21.417	16.4517	3.80	Q	.	.	.	V .
21.500	16.4776	3.76	Q	.	.	.	V .
21.583	16.5033	3.72	Q	.	.	.	V .
21.667	16.5286	3.69	Q	.	.	.	V .
21.750	16.5538	3.65	Q	.	.	.	V .
21.833	16.5787	3.61	Q	.	.	.	V .
21.917	16.6033	3.58	Q	.	.	.	V .
22.000	16.6277	3.54	Q	.	.	.	V .
22.083	16.6519	3.51	Q	.	.	.	V .
22.167	16.6759	3.48	Q	.	.	.	V .
22.250	16.6996	3.45	Q	.	.	.	V .
22.333	16.7231	3.42	Q	.	.	.	V .
22.417	16.7465	3.39	Q	.	.	.	V .
22.500	16.7696	3.36	Q	.	.	.	V .
22.583	16.7925	3.33	Q	.	.	.	V .
22.667	16.8153	3.30	Q	.	.	.	V .
22.750	16.8378	3.27	Q	.	.	.	V.
22.833	16.8602	3.25	Q	.	.	.	V.
22.917	16.8824	3.22	Q	.	.	.	V.
23.000	16.9044	3.20	Q	.	.	.	V.
23.083	16.9262	3.17	Q	.	.	.	V.
23.167	16.9479	3.15	Q	.	.	.	V.
23.250	16.9694	3.12	Q	.	.	.	V.
23.333	16.9907	3.10	Q	.	.	.	V.
23.417	17.0119	3.08	Q	.	.	.	V.
23.500	17.0329	3.05	Q	.	.	.	V.
23.583	17.0538	3.03	Q	.	.	.	V.
23.667	17.0745	3.01	Q	.	.	.	V.

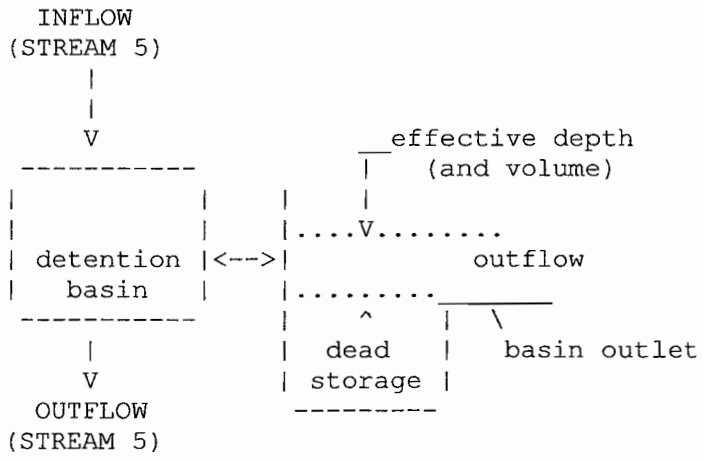
23.750	17.0951	2.99	Q	.	.	.	V.
23.833	17.1155	2.97	Q	.	.	.	V.
23.917	17.1358	2.95	Q	.	.	.	V.
24.000	17.1560	2.93	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	85.0
20%	50.0
30%	30.0
40%	25.0
50%	20.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #5<<<<<



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 5
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 1.000
SPECIFIED DEAD STORAGE(AF) FILLED = 1.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

NODE 109 BASIN B-1 ROUTING

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	14.00	1.500
3	4.00	39.00	7.910
4	6.00	53.50	18.700
5	8.00	63.00	34.500

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.083	1.000	0.04	0.00	0.00	0.0	0.000
0.167	1.000	0.20	0.00	0.00	0.0	0.002
0.250	1.000	0.61	0.00	0.01	0.0	0.006
0.333	1.000	1.22	0.00	0.02	0.1	0.013
0.417	1.000	1.65	0.00	0.03	0.2	0.024
0.500	1.000	1.92	0.00	0.05	0.3	0.035
0.583	1.000	2.10	0.00	0.06	0.4	0.047
0.667	1.000	2.24	0.00	0.08	0.5	0.059
0.750	1.000	2.35	0.00	0.09	0.6	0.071
0.833	1.000	2.44	0.00	0.11	0.7	0.083
0.917	1.000	2.51	0.00	0.13	0.8	0.094
1.000	1.000	2.57	0.00	0.14	0.9	0.106
1.083	1.000	2.62	0.00	0.16	1.0	0.116
1.167	1.000	2.67	0.00	0.17	1.1	0.127
1.250	1.000	2.71	0.00	0.18	1.2	0.137
1.333	1.000	2.74	0.00	0.20	1.3	0.147
1.417	1.000	2.78	0.00	0.21	1.4	0.156
1.500	1.000	2.81	0.00	0.22	1.5	0.165
1.583	1.000	2.83	0.00	0.23	1.6	0.174
1.667	1.000	2.86	0.00	0.24	1.7	0.182
1.750	1.000	2.88	0.00	0.25	1.7	0.190
1.833	1.000	2.90	0.00	0.26	1.8	0.197
1.917	1.000	2.92	0.00	0.27	1.9	0.205
2.000	1.000	2.93	0.00	0.28	1.9	0.211
2.083	1.000	2.95	0.00	0.29	2.0	0.218
2.167	1.000	2.97	0.00	0.30	2.1	0.224
2.250	1.000	2.99	0.00	0.31	2.1	0.230
2.333	1.000	3.01	0.00	0.31	2.2	0.236
2.417	1.000	3.02	0.00	0.32	2.2	0.241
2.500	1.000	3.04	0.00	0.33	2.3	0.247
2.583	1.000	3.05	0.00	0.34	2.3	0.252
2.667	1.000	3.06	0.00	0.34	2.4	0.256
2.750	1.000	3.07	0.00	0.35	2.4	0.261
2.833	1.000	3.08	0.00	0.35	2.5	0.265
2.917	1.000	3.09	0.00	0.36	2.5	0.269
3.000	1.000	3.10	0.00	0.36	2.5	0.273
3.083	1.000	3.12	0.00	0.37	2.6	0.277

3.167	1.000	3.13	0.00	0.37	2.6	0.281
3.250	1.000	3.14	0.00	0.38	2.6	0.284
3.333	1.000	3.15	0.00	0.38	2.7	0.287
3.417	1.000	3.16	0.00	0.39	2.7	0.291
3.500	1.000	3.18	0.00	0.39	2.7	0.294
3.583	1.000	3.19	0.00	0.40	2.8	0.297
3.667	1.000	3.20	0.00	0.40	2.8	0.300
3.750	1.000	3.21	0.00	0.40	2.8	0.302
3.833	1.000	3.23	0.00	0.41	2.8	0.305
3.917	1.000	3.24	0.00	0.41	2.9	0.308
4.000	1.000	3.25	0.00	0.41	2.9	0.310
4.083	1.000	3.27	0.00	0.42	2.9	0.313
4.167	1.000	3.28	0.00	0.42	2.9	0.315
4.250	1.000	3.29	0.00	0.42	3.0	0.318
4.333	1.000	3.31	0.00	0.43	3.0	0.320
4.417	1.000	3.32	0.00	0.43	3.0	0.322
4.500	1.000	3.34	0.00	0.43	3.0	0.324
4.583	1.000	3.35	0.00	0.44	3.0	0.326
4.667	1.000	3.36	0.00	0.44	3.1	0.329
4.750	1.000	3.38	0.00	0.44	3.1	0.331
4.833	1.000	3.39	0.00	0.44	3.1	0.333
4.917	1.000	3.41	0.00	0.45	3.1	0.335
5.000	1.000	3.42	0.00	0.45	3.1	0.337
5.083	1.000	3.44	0.00	0.45	3.2	0.339
5.167	1.000	3.45	0.00	0.45	3.2	0.341
5.250	1.000	3.47	0.00	0.46	3.2	0.343
5.333	1.000	3.49	0.00	0.46	3.2	0.345
5.417	1.000	3.50	0.00	0.46	3.2	0.346
5.500	1.000	3.52	0.00	0.46	3.2	0.348
5.583	1.000	3.53	0.00	0.47	3.3	0.350
5.667	1.000	3.55	0.00	0.47	3.3	0.352
5.750	1.000	3.57	0.00	0.47	3.3	0.354
5.833	1.000	3.59	0.00	0.47	3.3	0.356
5.917	1.000	3.60	0.00	0.48	3.3	0.358
6.000	1.000	3.62	0.00	0.48	3.3	0.360
6.083	1.000	3.64	0.00	0.48	3.4	0.362
6.167	1.000	3.66	0.00	0.48	3.4	0.363
6.250	1.000	3.67	0.00	0.49	3.4	0.365
6.333	1.000	3.69	0.00	0.49	3.4	0.367
6.417	1.000	3.71	0.00	0.49	3.4	0.369
6.500	1.000	3.73	0.00	0.49	3.5	0.371
6.583	1.000	3.75	0.00	0.50	3.5	0.373
6.667	1.000	3.77	0.00	0.50	3.5	0.375
6.750	1.000	3.79	0.00	0.50	3.5	0.377
6.833	1.000	3.81	0.00	0.50	3.5	0.379
6.917	1.000	3.83	0.00	0.51	3.5	0.381
7.000	1.000	3.85	0.00	0.51	3.6	0.383
7.083	1.000	3.87	0.00	0.51	3.6	0.385
7.167	1.000	3.89	0.00	0.52	3.6	0.387
7.250	1.000	3.91	0.00	0.52	3.6	0.389
7.333	1.000	3.93	0.00	0.52	3.6	0.391
7.417	1.000	3.95	0.00	0.52	3.7	0.393
7.500	1.000	3.98	0.00	0.53	3.7	0.395
7.583	1.000	4.00	0.00	0.53	3.7	0.397
7.667	1.000	4.02	0.00	0.53	3.7	0.399
7.750	1.000	4.05	0.00	0.53	3.7	0.401
7.833	1.000	4.07	0.00	0.54	3.8	0.403

7.917	1.000	4.09	0.00	0.54	3.8	0.406
8.000	1.000	4.12	0.00	0.54	3.8	0.408
8.083	1.000	4.14	0.00	0.55	3.8	0.410
8.167	1.000	4.17	0.00	0.55	3.8	0.412
8.250	1.000	4.19	0.00	0.55	3.9	0.415
8.333	1.000	4.22	0.00	0.56	3.9	0.417
8.417	1.000	4.25	0.00	0.56	3.9	0.419
8.500	1.000	4.27	0.00	0.56	3.9	0.422
8.583	1.000	4.30	0.00	0.57	3.9	0.424
8.667	1.000	4.33	0.00	0.57	4.0	0.427
8.750	1.000	4.36	0.00	0.57	4.0	0.429
8.833	1.000	4.39	0.00	0.58	4.0	0.432
8.917	1.000	4.42	0.00	0.58	4.0	0.434
9.000	1.000	4.45	0.00	0.58	4.1	0.437
9.083	1.000	4.48	0.00	0.59	4.1	0.440
9.167	1.000	4.51	0.00	0.59	4.1	0.442
9.250	1.000	4.54	0.00	0.59	4.1	0.445
9.333	1.000	4.57	0.00	0.60	4.2	0.448
9.417	1.000	4.60	0.00	0.60	4.2	0.451
9.500	1.000	4.64	0.00	0.60	4.2	0.453
9.583	1.000	4.67	0.00	0.61	4.2	0.456
9.667	1.000	4.71	0.00	0.61	4.3	0.459
9.750	1.000	4.74	0.00	0.62	4.3	0.462
9.833	1.000	4.78	0.00	0.62	4.3	0.465
9.917	1.000	4.81	0.00	0.62	4.4	0.469
10.000	1.000	4.85	0.00	0.63	4.4	0.472
10.083	1.000	4.89	0.00	0.63	4.4	0.475
10.167	1.000	4.93	0.00	0.64	4.4	0.478
10.250	1.000	4.97	0.00	0.64	4.5	0.482
10.333	1.000	5.01	0.00	0.65	4.5	0.485
10.417	1.000	5.05	0.00	0.65	4.5	0.489
10.500	1.000	5.10	0.00	0.66	4.6	0.492
10.583	1.000	5.14	0.00	0.66	4.6	0.496
10.667	1.000	5.18	0.00	0.67	4.6	0.500
10.750	1.000	5.23	0.00	0.67	4.7	0.503
10.833	1.000	5.28	0.00	0.68	4.7	0.507
10.917	1.000	5.32	0.00	0.68	4.8	0.511
11.000	1.000	5.37	0.00	0.69	4.8	0.515
11.083	1.000	5.42	0.00	0.69	4.8	0.519
11.167	1.000	5.48	0.00	0.70	4.9	0.524
11.250	1.000	5.53	0.00	0.70	4.9	0.528
11.333	1.000	5.58	0.00	0.71	4.9	0.532
11.417	1.000	5.64	0.00	0.72	5.0	0.537
11.500	1.000	5.70	0.00	0.72	5.0	0.541
11.583	1.000	5.76	0.00	0.73	5.1	0.546
11.667	1.000	5.82	0.00	0.73	5.1	0.551
11.750	1.000	5.88	0.00	0.74	5.2	0.556
11.833	1.000	5.94	0.00	0.75	5.2	0.561
11.917	1.000	6.01	0.00	0.75	5.3	0.566
12.000	1.000	6.08	0.00	0.76	5.3	0.571
12.083	1.000	6.13	0.00	0.77	5.4	0.577
12.167	1.000	6.12	0.00	0.78	5.4	0.582
12.250	1.000	6.00	0.00	0.78	5.4	0.585
12.333	1.000	5.78	0.00	0.78	5.5	0.587
12.417	1.000	5.65	0.00	0.78	5.5	0.588
12.500	1.000	5.60	0.00	0.79	5.5	0.589
12.583	1.000	5.58	0.00	0.79	5.5	0.590

12.667	1.000	5.60	0.00	0.79	5.5	0.590
12.750	1.000	5.64	0.00	0.79	5.5	0.591
12.833	1.000	5.69	0.00	0.79	5.5	0.592
12.917	1.000	5.74	0.00	0.79	5.5	0.594
13.000	1.000	5.81	0.00	0.79	5.6	0.596
13.083	1.000	5.89	0.00	0.80	5.6	0.598
13.167	1.000	5.97	0.00	0.80	5.6	0.600
13.250	1.000	6.06	0.00	0.80	5.6	0.603
13.333	1.000	6.16	0.00	0.81	5.6	0.607
13.417	1.000	6.26	0.00	0.81	5.7	0.611
13.500	1.000	6.37	0.00	0.82	5.7	0.615
13.583	1.000	6.49	0.00	0.83	5.8	0.620
13.667	1.000	6.62	0.00	0.83	5.8	0.626
13.750	1.000	6.75	0.00	0.84	5.9	0.632
13.833	1.000	6.89	0.00	0.85	5.9	0.639
13.917	1.000	7.04	0.00	0.86	6.0	0.646
14.000	1.000	7.21	0.00	0.87	6.1	0.654
14.083	1.000	7.38	0.00	0.88	6.1	0.662
14.167	1.000	7.58	0.00	0.90	6.2	0.672
14.250	1.000	7.82	0.00	0.91	6.3	0.682
14.333	1.000	8.09	0.00	0.92	6.4	0.693
14.417	1.000	8.35	0.00	0.94	6.5	0.706
14.500	1.000	8.63	0.00	0.96	6.7	0.720
14.583	1.000	8.91	0.00	0.98	6.8	0.734
14.667	1.000	9.21	0.00	1.00	6.9	0.750
14.750	1.000	9.53	0.00	1.02	7.1	0.767
14.833	1.000	9.87	0.00	1.05	7.2	0.785
14.917	1.000	10.25	0.00	1.07	7.4	0.804
15.000	1.000	10.66	0.00	1.10	7.6	0.825
15.083	1.000	11.11	0.00	1.13	7.8	0.848
15.167	1.000	11.62	0.00	1.16	8.0	0.873
15.250	1.000	12.19	0.00	1.20	8.3	0.900
15.333	1.000	12.83	0.00	1.24	8.5	0.930
15.417	1.000	13.50	0.00	1.28	8.8	0.962
15.500	1.000	14.11	0.00	1.33	9.1	0.996
15.583	1.000	14.47	0.00	1.37	9.5	1.030
15.667	1.000	14.70	0.00	1.42	9.8	1.064
15.750	1.000	15.52	0.00	1.47	10.1	1.102
15.833	1.000	17.27	0.00	1.53	10.5	1.148
15.917	1.000	20.80	0.00	1.62	11.0	1.216
16.000	1.000	27.90	0.00	1.77	11.9	1.326
16.083	1.000	48.29	0.00	2.02	13.3	1.567
16.167	1.000	89.41	0.00	2.18	15.3	2.078
16.250	1.000	153.15	0.00	2.47	18.1	3.008
16.333	1.000	191.35	0.00	2.83	22.2	4.173
16.417	1.000	141.47	0.00	3.08	26.0	4.969
16.500	1.000	97.59	0.00	3.23	28.5	5.445
16.583	1.000	72.92	0.00	3.32	30.0	5.741
16.667	1.000	57.36	0.00	3.38	30.9	5.923
16.750	1.000	46.61	0.00	3.41	31.5	6.027
16.833	1.000	38.97	0.00	3.43	31.8	6.077
16.917	1.000	33.95	0.00	3.43	31.9	6.091
17.000	1.000	29.73	0.00	3.43	31.9	6.076
17.083	1.000	25.58	0.00	3.41	31.8	6.034
17.167	1.000	23.05	0.00	3.40	31.6	5.975
17.250	1.000	20.75	0.00	3.37	31.3	5.902
17.333	1.000	18.81	0.00	3.35	31.0	5.818

17.417	1.000	16.78	0.00	3.32	30.7	5.723
17.500	1.000	15.57	0.00	3.29	30.3	5.622
17.583	1.000	14.01	0.00	3.25	29.9	5.512
17.667	1.000	12.92	0.00	3.22	29.4	5.399
17.750	1.000	11.51	0.00	3.18	29.0	5.278
17.833	1.000	10.55	0.00	3.14	28.5	5.155
17.917	1.000	9.43	0.00	3.10	28.0	5.027
18.000	1.000	9.21	0.00	3.06	27.5	4.901
18.083	1.000	9.13	0.00	3.02	27.0	4.778
18.167	1.000	8.93	0.00	2.98	26.5	4.656
18.250	1.000	8.84	0.00	2.95	26.1	4.538
18.333	1.000	8.76	0.00	2.91	25.6	4.421
18.417	1.000	8.45	0.00	2.88	25.2	4.306
18.500	1.000	6.65	0.00	2.84	24.7	4.182
18.583	1.000	6.33	0.00	2.80	24.2	4.059
18.667	1.000	6.20	0.00	2.76	23.7	3.938
18.750	1.000	6.08	0.00	2.72	23.3	3.819
18.833	1.000	5.95	0.00	2.69	22.8	3.703
18.917	1.000	5.83	0.00	2.65	22.4	3.589
19.000	1.000	5.72	0.00	2.62	21.9	3.478
19.083	1.000	5.61	0.00	2.58	21.5	3.368
19.167	1.000	5.51	0.00	2.55	21.1	3.261
19.250	1.000	5.41	0.00	2.52	20.7	3.156
19.333	1.000	5.32	0.00	2.48	20.3	3.053
19.417	1.000	5.23	0.00	2.45	19.9	2.952
19.500	1.000	5.14	0.00	2.42	19.5	2.854
19.583	1.000	5.06	0.00	2.39	19.1	2.757
19.667	1.000	4.98	0.00	2.36	18.7	2.663
19.750	1.000	4.90	0.00	2.33	18.4	2.570
19.833	1.000	4.83	0.00	2.31	18.0	2.479
19.917	1.000	4.76	0.00	2.28	17.6	2.390
20.000	1.000	4.69	0.00	2.25	17.3	2.304
20.083	1.000	4.62	0.00	2.22	17.0	2.219
20.167	1.000	4.56	0.00	2.20	16.6	2.135
20.250	1.000	4.50	0.00	2.17	16.3	2.054
20.333	1.000	4.44	0.00	2.15	16.0	1.974
20.417	1.000	4.38	0.00	2.12	15.7	1.896
20.500	1.000	4.33	0.00	2.10	15.4	1.820
20.583	1.000	4.27	0.00	2.08	15.1	1.746
20.667	1.000	4.22	0.00	2.05	14.8	1.673
20.750	1.000	4.16	0.00	2.03	14.5	1.601
20.833	1.000	4.11	0.00	2.01	14.3	1.531
20.917	1.000	4.06	0.00	1.95	13.9	1.464
21.000	1.000	4.02	0.00	1.87	13.4	1.399
21.083	1.000	3.97	0.00	1.78	12.8	1.339
21.167	1.000	3.93	0.00	1.71	12.2	1.281
21.250	1.000	3.88	0.00	1.64	11.7	1.228
21.333	1.000	3.84	0.00	1.57	11.2	1.177
21.417	1.000	3.80	0.00	1.51	10.8	1.129
21.500	1.000	3.76	0.00	1.44	10.3	1.084
21.583	1.000	3.72	0.00	1.39	9.9	1.041
21.667	1.000	3.69	0.00	1.33	9.5	1.001
21.750	1.000	3.65	0.00	1.28	9.2	0.963
21.833	1.000	3.61	0.00	1.24	8.8	0.927
21.917	1.000	3.58	0.00	1.19	8.5	0.893
22.000	1.000	3.54	0.00	1.15	8.2	0.861
22.083	1.000	3.51	0.00	1.11	7.9	0.831

22.167	1.000	3.48	0.00	1.07	7.6	0.802
22.250	1.000	3.45	0.00	1.03	7.4	0.775
22.333	1.000	3.42	0.00	1.00	7.1	0.750
22.417	1.000	3.39	0.00	0.97	6.9	0.726
22.500	1.000	3.36	0.00	0.94	6.7	0.703
22.583	1.000	3.33	0.00	0.91	6.5	0.681
22.667	1.000	3.30	0.00	0.88	6.3	0.661
22.750	1.000	3.27	0.00	0.86	6.1	0.642
22.833	1.000	3.25	0.00	0.83	5.9	0.623
22.917	1.000	3.22	0.00	0.81	5.7	0.606
23.000	1.000	3.20	0.00	0.79	5.6	0.590
23.083	1.000	3.17	0.00	0.77	5.4	0.574
23.167	1.000	3.15	0.00	0.75	5.3	0.559
23.250	1.000	3.12	0.00	0.73	5.2	0.545
23.333	1.000	3.10	0.00	0.71	5.0	0.532
23.417	1.000	3.08	0.00	0.69	4.9	0.519
23.500	1.000	3.05	0.00	0.68	4.8	0.507
23.583	1.000	3.03	0.00	0.66	4.7	0.496
23.667	1.000	3.01	0.00	0.65	4.6	0.485
23.750	1.000	2.99	0.00	0.63	4.5	0.475
23.833	1.000	2.97	0.00	0.62	4.4	0.465
23.917	1.000	2.95	0.00	0.61	4.3	0.456

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 17.266 AF
BASIN STORAGE = 1.000 AF (WITH 1.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 17.266 AF
LOSS VOLUME = 0.000 AF

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 7
>>>>>STREAM NUMBER 5 ADDED TO STREAM NUMBER 1<<<<<

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 11
>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2600.0	5200.0	7800.0	10400.0
0.083	0.0164	2.38	Q	.	.	.	.
0.167	0.1917	25.45	Q	.	.	.	.
0.250	0.6373	64.70	Q	.	.	.	.
0.333	1.2272	85.66	Q	.	.	.	.
0.417	1.9433	103.98	Q	.	.	.	.
0.500	2.8994	138.83	Q	.	.	.	.
0.583	4.1036	174.85	Q	.	.	.	.
0.667	5.4867	200.83	Q	.	.	.	.
0.750	7.0043	220.35	Q	.	.	.	.

ADD STREAM 5 TO STREAM 1 AT NODE 109

0.833	8.6324	236.41	Q	.	.	.	.
0.917	10.3580	250.56	Q	.	.	.	.
1.000	12.1708	263.21	VQ	.	.	.	.
1.083	14.0629	274.74	VQ	.	.	.	.
1.167	16.0291	285.48	VQ	.	.	.	.
1.250	18.0591	294.77	VQ	.	.	.	.
1.333	20.1442	302.76	VQ	.	.	.	.
1.417	22.2818	310.38	VQ	.	.	.	.
1.500	24.4660	317.14	VQ	.	.	.	.
1.583	26.6917	323.18	VQ	.	.	.	.
1.667	28.9563	328.81	VQ	.	.	.	.
1.750	31.2564	333.98	VQ	.	.	.	.
1.833	33.5895	338.76	VQ	.	.	.	.
1.917	35.9530	343.19	VQ	.	.	.	.
2.000	38.3455	347.38	VQ	.	.	.	.
2.083	40.7650	351.31	VQ	.	.	.	.
2.167	43.2092	354.90	VQ	.	.	.	.
2.250	45.6766	358.27	VQ	.	.	.	.
2.333	48.1660	361.45	VQ	.	.	.	.
2.417	50.6760	364.46	VQ	.	.	.	.
2.500	53.2048	367.18	.Q	.	.	.	.
2.583	55.7518	369.83	.Q	.	.	.	.
2.667	58.3166	372.41	.Q	.	.	.	.
2.750	60.8987	374.93	.Q	.	.	.	.
2.833	63.4977	377.38	.Q	.	.	.	.
2.917	66.1133	379.78	.Q	.	.	.	.
3.000	68.7452	382.15	.Q	.	.	.	.
3.083	71.3932	384.49	.Q	.	.	.	.
3.167	74.0571	386.80	.Q	.	.	.	.
3.250	76.7368	389.09	.Q	.	.	.	.
3.333	79.4321	391.36	.Q	.	.	.	.
3.417	82.1422	393.51	.Q	.	.	.	.
3.500	84.8668	395.61	.Q	.	.	.	.
3.583	87.6058	397.70	.Q	.	.	.	.
3.667	90.3591	399.78	.Q	.	.	.	.
3.750	93.1267	401.86	.Q	.	.	.	.
3.833	95.9085	403.92	.Q	.	.	.	.
3.917	98.7045	405.98	.Q	.	.	.	.
4.000	101.5146	408.03	.Q	.	.	.	.
4.083	104.3388	410.08	.Q	.	.	.	.
4.167	107.1772	412.13	.QV	.	.	.	.
4.250	110.0296	414.18	.QV	.	.	.	.
4.333	112.8962	416.23	.QV	.	.	.	.
4.417	115.7769	418.27	.QV	.	.	.	.
4.500	118.6711	420.25	.QV	.	.	.	.
4.583	121.5786	422.16	.QV	.	.	.	.
4.667	124.4989	424.04	.QV	.	.	.	.
4.750	127.4327	425.98	.QV	.	.	.	.
4.833	130.3802	427.99	.QV	.	.	.	.
4.917	133.3420	430.05	.QV	.	.	.	.
5.000	136.3182	432.14	.QV	.	.	.	.
5.083	139.3089	434.25	.QV	.	.	.	.
5.167	142.3142	436.37	.QV	.	.	.	.
5.250	145.3341	438.50	.QV	.	.	.	.
5.333	148.3689	440.65	.QV	.	.	.	.
5.417	151.4185	442.81	.QV	.	.	.	.
5.500	154.4832	444.99	.QV	.	.	.	.

5.583	157.5629	447.18	.QV	.	.	.	.
5.667	160.6579	449.39	.Q V	.	.	.	.
5.750	163.7682	451.62	.Q V	.	.	.	.
5.833	166.8940	453.87	.Q V	.	.	.	.
5.917	170.0355	456.13	.Q V	.	.	.	.
6.000	173.1926	458.42	.Q V	.	.	.	.
6.083	176.3657	460.73	.Q V	.	.	.	.
6.167	179.5547	463.06	.Q V	.	.	.	.
6.250	182.7600	465.41	.Q V	.	.	.	.
6.333	185.9817	467.78	.Q V	.	.	.	.
6.417	189.2198	470.18	.Q V	.	.	.	.
6.500	192.4747	472.61	.Q V	.	.	.	.
6.583	195.7465	475.06	.Q V	.	.	.	.
6.667	199.0353	477.53	.Q V	.	.	.	.
6.750	202.3414	480.04	.Q V	.	.	.	.
6.833	205.6649	482.57	.Q V	.	.	.	.
6.917	209.0060	485.14	.Q V	.	.	.	.
7.000	212.3650	487.73	.Q V	.	.	.	.
7.083	215.7421	490.35	.Q V	.	.	.	.
7.167	219.1374	493.00	.Q V	.	.	.	.
7.250	222.5513	495.69	.Q V	.	.	.	.
7.333	225.9838	498.41	.Q V	.	.	.	.
7.417	229.4353	501.16	.Q V	.	.	.	.
7.500	232.9061	503.95	.Q V	.	.	.	.
7.583	236.3963	506.78	.Q V	.	.	.	.
7.667	239.9062	509.64	.Q V	.	.	.	.
7.750	243.4361	512.54	.Q V	.	.	.	.
7.833	246.9863	515.48	.Q V	.	.	.	.
7.917	250.5569	518.46	.Q V	.	.	.	.
8.000	254.1484	521.48	. Q V	.	.	.	.
8.083	257.7611	524.55	. Q V	.	.	.	.
8.167	261.3951	527.66	. Q V	.	.	.	.
8.250	265.0509	530.82	. Q V	.	.	.	.
8.333	268.7287	534.02	. Q V	.	.	.	.
8.417	272.4289	537.27	. Q V	.	.	.	.
8.500	276.1518	540.56	. Q V	.	.	.	.
8.583	279.8977	543.91	. Q V	.	.	.	.
8.667	283.6671	547.30	. Q V	.	.	.	.
8.750	287.4602	550.76	. Q V	.	.	.	.
8.833	291.2774	554.27	. Q V	.	.	.	.
8.917	295.1193	557.84	. Q V	.	.	.	.
9.000	298.9861	561.46	. Q V	.	.	.	.
9.083	302.8782	565.14	. Q V	.	.	.	.
9.167	306.7961	568.88	. Q V	.	.	.	.
9.250	310.7403	572.70	. Q V	.	.	.	.
9.333	314.7112	576.57	. Q V	.	.	.	.
9.417	318.7092	580.51	. Q V	.	.	.	.
9.500	322.7348	584.52	. Q V	.	.	.	.
9.583	326.7885	588.60	. Q V	.	.	.	.
9.667	330.8709	592.76	. Q V	.	.	.	.
9.750	334.9824	596.99	. Q V	.	.	.	.
9.833	339.1236	601.30	. Q V	.	.	.	.
9.917	343.2950	605.70	. Q V	.	.	.	.
10.000	347.4973	610.17	. Q V	.	.	.	.
10.083	351.7310	614.73	. Q V	.	.	.	.
10.167	355.9966	619.38	. Q V	.	.	.	.
10.250	360.2950	624.13	. Q V	.	.	.	.

10.333	364.6267	628.96	. Q	V .	.	.	.
10.417	368.9924	633.90	. Q	V .	.	.	.
10.500	373.3927	638.93	. Q	V .	.	.	.
10.583	377.8286	644.08	. Q	V .	.	.	.
10.667	382.3005	649.33	. Q	V .	.	.	.
10.750	386.8095	654.71	. Q	V .	.	.	.
10.833	391.3563	660.19	. Q	V .	.	.	.
10.917	395.9417	665.80	. Q	V .	.	.	.
11.000	400.5665	671.53	. Q	V .	.	.	.
11.083	405.2318	677.40	. Q	V .	.	.	.
11.167	409.9388	683.44	. Q	V .	.	.	.
11.250	414.6890	689.73	. Q	V .	.	.	.
11.333	419.4849	696.37	. Q	V .	.	.	.
11.417	424.3296	703.45	. Q	V .	.	.	.
11.500	429.2259	710.94	. Q	V .	.	.	.
11.583	434.1763	718.80	. Q	V .	.	.	.
11.667	439.1830	726.97	. Q	V .	.	.	.
11.750	444.2480	735.45	. Q	V .	.	.	.
11.833	449.3734	744.20	. Q	V .	.	.	.
11.917	454.5611	753.26	. Q	V .	.	.	.
12.000	459.8131	762.59	. Q	V .	.	.	.
12.083	465.1295	771.94	. Q	V .	.	.	.
12.167	470.5054	780.57	. Q	V .	.	.	.
12.250	475.9261	787.08	. Q	V.	.	.	.
12.333	481.3481	787.29	. Q	V.	.	.	.
12.417	486.7093	778.44	. Q	V.	.	.	.
12.500	491.9807	765.41	. Q	V.	.	.	.
12.583	497.1736	754.01	. Q	V.	.	.	.
12.667	502.3185	747.02	. Q	V.	.	.	.
12.750	507.4415	743.86	. Q	V.	.	.	.
12.833	512.5623	743.55	. Q	V.	.	.	.
12.917	517.6974	745.61	. Q	V.	.	.	.
13.000	522.8610	749.75	. Q	V.	.	.	.
13.083	528.0651	755.64	. Q	V	.	.	.
13.167	533.3199	763.01	. Q	V	.	.	.
13.250	538.6349	771.73	. Q	V	.	.	.
13.333	544.0181	781.63	. Q	V	.	.	.
13.417	549.4775	792.71	. Q	V	.	.	.
13.500	555.0208	804.89	. Q	V	.	.	.
13.583	560.6558	818.19	. Q	V	.	.	.
13.667	566.3898	832.58	. Q	V	.	.	.
13.750	572.2310	848.14	. Q	V	.	.	.
13.833	578.1872	864.83	. Q	V	.	.	.
13.917	584.2669	882.78	. Q	.V	.	.	.
14.000	590.4784	901.91	. Q	.V	.	.	.
14.083	596.8311	922.42	. Q	.V	.	.	.
14.167	603.3359	944.49	. Q	.V	.	.	.
14.250	610.0069	968.63	. Q	.V	.	.	.
14.333	616.8654	995.85	. Q	.V	.	.	.
14.417	623.9362	1026.69	. Q	.V	.	.	.
14.500	631.2323	1059.39	. Q	.V	.	.	.
14.583	638.7568	1092.56	. Q	. V	.	.	.
14.667	646.5149	1126.47	. Q	. V	.	.	.
14.750	654.5233	1162.82	. Q	. V	.	.	.
14.833	662.8050	1202.50	. Q	. V	.	.	.
14.917	671.3860	1245.96	. Q	. V	.	.	.
15.000	680.2928	1293.27	. Q	. V	.	.	.

15.083	689.5552	1344.89	. Q . V . . .
15.167	699.2049	1401.14	. Q . V . . .
15.250	709.2799	1462.89	. Q . V . . .
15.333	719.8234	1530.92	. Q . V . . .
15.417	730.8829	1605.83	. Q . V . . .
15.500	742.4996	1686.75	. Q . V . . .
15.583	754.7004	1771.55	. Q . V . . .
15.667	767.4404	1849.85	. Q . V . . .
15.750	780.6494	1917.94	. Q . V . . .
15.833	794.4136	1998.57	. Q . V . . .
15.917	809.0623	2126.98	. Q . V . . .
16.000	825.2564	2351.39	. Q. V . . .
16.083	844.4236	2783.07	. Q V . . .
16.167	868.8318	3544.08	. Q V . . .
16.250	901.8350	4792.05	. VQ . . .
16.333	949.8564	6972.72	. V . Q . .
16.417	1014.8678	9439.65	. V. . Q .
16.500	1085.8540	10307.19	. V . Q.
16.583	1151.7947	9574.59	. .V . Q .
16.667	1208.6628	8257.25	. . V .Q .
16.750	1258.6284	7255.00	. . V Q . .
16.833	1303.6891	6542.81	. . VQ . .
16.917	1344.7466	5961.54	. . Q V . .
17.000	1382.1815	5435.56	. . Q V . .
17.083	1416.3953	4967.83	. . Q. V . .
17.167	1447.7084	4546.66	. . Q . V . .
17.250	1476.5397	4186.31	. . Q . V . .
17.333	1503.2439	3877.46	. . Q . V . .
17.417	1528.0364	3599.87	. . Q . V. .
17.500	1551.0577	3342.71	. . Q . V. .
17.583	1572.5125	3115.22	. .Q . V. .
17.667	1592.5027	2902.58	. .Q . V .
17.750	1611.1486	2707.39	. Q . V .
17.833	1628.5470	2526.26	. Q. . V .
17.917	1644.7883	2358.24	. Q. . .V .
18.000	1660.0591	2217.31	. Q . . .V .
18.083	1674.4725	2092.82	. Q . . .V .
18.167	1688.1079	1979.86	. Q . . . V .
18.250	1701.0486	1878.98	. Q . . . V .
18.333	1713.2819	1776.28	. Q . . . V .
18.417	1724.8529	1680.11	. Q . . . V .
18.500	1735.7700	1585.17	. Q . . . V .
18.583	1746.0092	1486.73	. Q . . . V .
18.667	1755.7074	1408.19	. Q . . . V .
18.750	1764.9589	1343.31	. Q . . . V .
18.833	1773.8114	1285.39	. Q . . . V .
18.917	1782.3063	1233.45	. Q . . . V .
19.000	1790.4691	1185.25	. Q . . . V .
19.083	1798.3055	1137.84	. Q . . . V .
19.167	1805.8380	1093.72	. Q . . . V .
19.250	1813.1074	1055.51	. Q . . . V .
19.333	1820.1514	1022.78	. Q . . . V .
19.417	1826.9183	982.57	. Q . . . V .
19.500	1833.4973	955.26	. Q . . . V .
19.583	1839.9260	933.45	. Q . . . V .
19.667	1846.2146	913.10	. Q . . . V .
19.750	1852.3691	893.64	. Q . . . V .

19.833	1858.3956	875.04	. Q	.	.	. V	.
19.917	1864.2992	857.20	. Q	.	.	. V	.
20.000	1870.0834	839.86	. Q	.	.	. V	.
20.083	1875.7487	822.60	. Q	.	.	. V	.
20.167	1881.2963	805.52	. Q	.	.	. V	.
20.250	1886.7301	788.99	. Q	.	.	. V	.
20.333	1892.0547	773.14	. Q	.	.	. V	.
20.417	1897.2749	757.97	. Q	.	.	. V	.
20.500	1902.3948	743.41	. Q	.	.	. V	.
20.583	1907.4181	729.38	. Q	.	.	. V	.
20.667	1912.3488	715.93	. Q	.	.	. V	.
20.750	1917.1906	703.03	. Q	.	.	. V	.
20.833	1921.9471	690.66	. Q	.	.	. V	.
20.917	1926.6213	678.69	. Q	.	.	. V	.
21.000	1931.2153	667.04	. Q	.	.	. V	.
21.083	1935.7317	655.78	. Q	.	.	. V	.
21.167	1940.1737	644.98	. Q	.	.	. V	.
21.250	1944.5443	634.61	. Q	.	.	. V	.
21.333	1948.8462	624.64	. Q	.	.	. V	.
21.417	1953.0817	614.99	. Q	.	.	. V	.
21.500	1957.2532	605.70	. Q	.	.	. V	.
21.583	1961.3630	596.75	. Q	.	.	. V	.
21.667	1965.4135	588.12	. Q	.	.	. V	.
21.750	1969.4066	579.80	. Q	.	.	. V	.
21.833	1973.3444	571.77	. Q	.	.	. V	.
21.917	1977.2288	564.02	. Q	.	.	. V	.
22.000	1981.0616	556.53	. Q	.	.	. V	.
22.083	1984.8446	549.29	. Q	.	.	. V	.
22.167	1988.5793	542.29	. Q	.	.	. V	.
22.250	1992.2675	535.52	. Q	.	.	. V	.
22.333	1995.9105	528.98	. Q	.	.	. V	.
22.417	1999.5103	522.68	. Q	.	.	. V	.
22.500	2003.0684	516.64	.Q	.	.	. V	.
22.583	2006.5863	510.81	.Q	.	.	. V	.
22.667	2010.0653	505.15	.Q	.	.	. V	.
22.750	2013.5065	499.65	.Q	.	.	. V	.
22.833	2016.9108	494.30	.Q	.	.	. V	.
22.917	2020.2792	489.10	.Q	.	.	. V	.
23.000	2023.6128	484.04	.Q	.	.	. V	.
23.083	2026.9119	479.03	.Q	.	.	. V	.
23.167	2030.1758	473.92	.Q	.	.	. V	.
23.250	2033.4045	468.81	.Q	.	.	. V	.
23.333	2036.5997	463.95	.Q	.	.	. V	.
23.417	2039.7638	459.42	.Q	.	.	. V	.
23.500	2042.8982	455.11	.Q	.	.	. V	.
23.583	2046.0037	450.92	.Q	.	.	. V	.
23.667	2049.0811	446.83	.Q	.	.	. V	.
23.750	2052.1309	442.84	.Q	.	.	. V	.
23.833	2055.1538	438.94	.Q	.	.	. V.	
23.917	2058.1506	435.13	.Q	.	.	. V.	
24.000	2061.1218	431.40	.Q	.	.	. V.	
24.083	2064.0637	427.17	.Q	.	.	. V.	
24.167	2066.9619	420.82	.Q	.	.	. V.	
24.250	2069.7798	409.15	.Q	.	.	. V.	
24.333	2072.4224	383.72	.Q	.	.	. V.	
24.417	2074.7737	341.43	.Q	.	.	. V.	
24.500	2076.8093	295.58	.Q	.	.	. V.	

24.583	2078.5754	256.45	Q	.	.	.	V.
24.667	2080.1323	226.05	Q	.	.	.	V.
24.750	2081.5183	201.26	Q	.	.	.	V.
24.833	2082.7588	180.11	Q	.	.	.	V.
24.917	2083.8733	161.84	Q	.	.	.	V.
25.000	2084.8794	146.07	Q	.	.	.	V.
25.083	2085.7913	132.39	Q	.	.	.	V.
25.167	2086.6218	120.59	Q	.	.	.	V.
25.250	2087.3816	110.32	Q	.	.	.	V.
25.333	2088.0791	101.29	Q	.	.	.	V.
25.417	2088.7222	93.36	Q	.	.	.	V.
25.500	2089.3169	86.37	Q	.	.	.	V.
25.583	2089.8689	80.16	Q	.	.	.	V.
25.667	2090.3831	74.66	Q	.	.	.	V.
25.750	2090.8635	69.78	Q	.	.	.	V.
25.833	2091.3140	65.39	Q	.	.	.	V.
25.917	2091.7371	61.44	Q	.	.	.	V.
26.000	2092.1350	57.79	Q	.	.	.	V.
26.083	2092.5098	54.43	Q	.	.	.	V.
26.167	2092.8640	51.42	Q	.	.	.	V.
26.250	2093.1995	48.71	Q	.	.	.	V.
26.333	2093.5183	46.30	Q	.	.	.	V.
26.417	2093.8223	44.13	Q	.	.	.	V.
26.500	2094.1128	42.19	Q	.	.	.	V.
26.583	2094.3916	40.47	Q	.	.	.	V.
26.667	2094.6594	38.90	Q	.	.	.	V.
26.750	2094.9172	37.43	Q	.	.	.	V.
26.833	2095.1655	36.06	Q	.	.	.	V.
26.917	2095.4050	34.77	Q	.	.	.	V.
27.000	2095.6360	33.54	Q	.	.	.	V.
27.083	2095.8589	32.37	Q	.	.	.	V.
27.167	2096.0742	31.25	Q	.	.	.	V.
27.250	2096.2820	30.18	Q	.	.	.	V.
27.333	2096.4827	29.15	Q	.	.	.	V.
27.417	2096.6775	28.27	Q	.	.	.	V.
27.500	2096.8667	27.46	Q	.	.	.	V.
27.583	2097.0505	26.68	Q	.	.	.	V.
27.667	2097.2290	25.93	Q	.	.	.	V.
27.750	2097.4026	25.21	Q	.	.	.	V.
27.833	2097.5715	24.53	Q	.	.	.	V.
27.917	2097.7358	23.87	Q	.	.	.	V.
28.000	2097.8960	23.24	Q	.	.	.	V.
28.083	2098.0520	22.64	Q	.	.	.	V.
28.167	2098.2039	22.05	Q	.	.	.	V.
28.250	2098.3518	21.49	Q	.	.	.	V.
28.333	2098.4961	20.96	Q	.	.	.	V.
28.417	2098.6370	20.44	Q	.	.	.	V.
28.500	2098.7744	19.94	Q	.	.	.	V.
28.583	2098.9084	19.46	Q	.	.	.	V.
28.667	2099.0393	19.00	Q	.	.	.	V.
28.750	2099.1670	18.55	Q	.	.	.	V.
28.833	2099.2917	18.12	Q	.	.	.	V.
28.917	2099.4138	17.71	Q	.	.	.	V.
29.000	2099.5330	17.31	Q	.	.	.	V.
29.083	2099.6494	16.92	Q	.	.	.	V.
29.167	2099.7634	16.55	Q	.	.	.	V.
29.250	2099.8750	16.19	Q	.	.	.	V.

29.333	2099.9841	15.84	Q	.	.	.	V.
29.417	2100.0908	15.50	Q	.	.	.	V.
29.500	2100.1953	15.18	Q	.	.	.	V.
29.583	2100.2976	14.86	Q	.	.	.	V.
29.667	2100.3979	14.55	Q	.	.	.	V.
29.750	2100.4961	14.26	Q	.	.	.	V.
29.833	2100.5923	13.97	Q	.	.	.	V.
29.917	2100.6865	13.69	Q	.	.	.	V.
30.000	2100.7791	13.44	Q	.	.	.	V.
30.083	2100.8699	13.19	Q	.	.	.	V.
30.167	2100.9590	12.92	Q	.	.	.	V.
30.250	2101.0461	12.65	Q	.	.	.	V.
30.333	2101.1316	12.41	Q	.	.	.	V.
30.417	2101.2153	12.18	Q	.	.	.	V.
30.500	2101.2976	11.95	Q	.	.	.	V.
30.583	2101.3784	11.73	Q	.	.	.	V.
30.667	2101.4578	11.51	Q	.	.	.	V.
30.750	2101.5356	11.30	Q	.	.	.	V.
30.833	2101.6121	11.10	Q	.	.	.	V.
30.917	2101.6870	10.90	Q	.	.	.	V.
31.000	2101.7607	10.71	Q	.	.	.	V.
31.083	2101.8333	10.53	Q	.	.	.	V.
31.167	2101.9048	10.37	Q	.	.	.	V.
31.250	2101.9753	10.23	Q	.	.	.	V.
31.333	2102.0447	10.06	Q	.	.	.	V.
31.417	2102.1128	9.89	Q	.	.	.	V.
31.500	2102.1797	9.72	Q	.	.	.	V.
31.583	2102.2456	9.55	Q	.	.	.	V.
31.667	2102.3103	9.39	Q	.	.	.	V.
31.750	2102.3740	9.24	Q	.	.	.	V.
31.833	2102.4365	9.08	Q	.	.	.	V.
31.917	2102.4980	8.93	Q	.	.	.	V.
32.000	2102.5586	8.78	Q	.	.	.	V.
32.083	2102.6182	8.64	Q	.	.	.	V.
32.167	2102.6768	8.50	Q	.	.	.	V.
32.250	2102.7344	8.36	Q	.	.	.	V.
32.333	2102.7910	8.22	Q	.	.	.	V.
32.417	2102.8467	8.09	Q	.	.	.	V.
32.500	2102.9016	7.96	Q	.	.	.	V.
32.583	2102.9556	7.84	Q	.	.	.	V.
32.667	2103.0088	7.71	Q	.	.	.	V.
32.750	2103.0610	7.59	Q	.	.	.	V.
32.833	2103.1125	7.47	Q	.	.	.	V.
32.917	2103.1633	7.36	Q	.	.	.	V.
33.000	2103.2131	7.24	Q	.	.	.	V.
33.083	2103.2622	7.13	Q	.	.	.	V.
33.167	2103.3105	7.02	Q	.	.	.	V.
33.250	2103.3582	6.92	Q	.	.	.	V.
33.333	2103.4050	6.81	Q	.	.	.	V.
33.417	2103.4512	6.71	Q	.	.	.	V.
33.500	2103.4966	6.61	Q	.	.	.	V.
33.583	2103.5415	6.51	Q	.	.	.	V.
33.667	2103.5857	6.41	Q	.	.	.	V.
33.750	2103.6292	6.31	Q	.	.	.	V.
33.833	2103.6719	6.22	Q	.	.	.	V.
33.917	2103.7141	6.13	Q	.	.	.	V.
34.000	2103.7556	6.04	Q	.	.	.	V.

34.083	2103.7966	5.95	Q	.	.	.	V.
34.167	2103.8369	5.86	Q	.	.	.	V.
34.250	2103.8767	5.78	Q	.	.	.	V.
34.333	2103.9160	5.69	Q	.	.	.	V.
34.417	2103.9546	5.61	Q	.	.	.	V.
34.500	2103.9927	5.53	Q	.	.	.	V.
34.583	2104.0303	5.45	Q	.	.	.	V.
34.667	2104.0671	5.37	Q	.	.	.	V.
34.750	2104.1035	5.29	Q	.	.	.	V.
34.833	2104.1394	5.22	Q	.	.	.	V.
34.917	2104.1748	5.14	Q	.	.	.	V.
35.000	2104.2097	5.07	Q	.	.	.	V.
35.083	2104.2441	5.00	Q	.	.	.	V.
35.167	2104.2781	4.93	Q	.	.	.	V.
35.250	2104.3115	4.86	Q	.	.	.	V.
35.333	2104.3445	4.79	Q	.	.	.	V.
35.417	2104.3770	4.72	Q	.	.	.	V.
35.500	2104.4089	4.65	Q	.	.	.	V.
35.583	2104.4404	4.59	Q	.	.	.	V.
35.667	2104.4717	4.52	Q	.	.	.	V.
35.750	2104.5024	4.46	Q	.	.	.	V.
35.833	2104.5327	4.40	Q	.	.	.	V.
35.917	2104.5625	4.34	Q	.	.	.	V.
36.000	2104.5920	4.28	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2165.0
10%	290.0
20%	135.0
30%	90.0
40%	65.0
50%	45.0
60%	35.0
70%	25.0
80%	20.0
90%	15.0

HYDROGRAPH SUBAREA 110 NODE

****
FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 6

>>>>>STREAM NUMBER 2 CLEARED AND SET TO ZERO<<<<<
==========

****
FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
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(UNIT-HYDROGRAPH ADDED TO STREAM #2)

   WATERSHED AREA =     672.000 ACRES
   BASEFLOW =   0.000 CFS/SQUARE-MILE
   *USER ENTERED "LAG" TIME =    0.319 HOURS
    CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
    THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
    MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
   VALLEY(DEVELOPED):
            "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.070
   FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
   MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
   VALLEY(UNDEVELOPED)/DESERT:
            "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
   DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.930
   MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.140
   LOW LOSS FRACTION = 0.168
   *HYDROGRAPH MODEL #1 SPECIFIED*

   SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
   SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
   SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
   SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
   SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
   SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

   *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
     5-MINUTE FACTOR = 0.979
    30-MINUTE FACTOR = 0.979
     1-HOUR FACTOR = 0.979
     3-HOUR FACTOR = 0.997
     6-HOUR FACTOR = 0.999
    24-HOUR FACTOR = 0.999

   UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
   UNIT INTERVAL PERCENTAGE OF LAG-TIME =  26.123


   RUNOFF HYDROGRAPH LISTING LIMITS:
   MODEL TIME(HOURS) FOR BEGINNING OF RESULTS =   1.00
   MODEL TIME(HOURS) FOR END OF RESULTS =  24.00
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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.445	117.475
2	7.184	466.359
3	22.145	1215.870
4	43.970	1773.722
5	58.599	1188.894
6	67.662	736.594
7	74.028	517.329

8	78.717	381.067
9	82.271	288.842
10	85.066	227.134
11	87.436	192.647
12	89.403	159.872
13	90.935	124.495
14	92.286	109.794
15	93.453	94.821
16	94.470	82.695
17	95.308	68.098
18	96.076	62.385
19	96.713	51.751
20	97.272	45.489
21	97.712	35.702
22	98.062	28.458
23	98.305	19.778
24	98.574	21.847
25	98.866	23.688
26	99.157	23.689
27	99.449	23.689
28	99.740	23.688
29	100.000	21.129

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0008	0.0040
2	0.0049	0.0008	0.0041
3	0.0049	0.0008	0.0041
4	0.0049	0.0008	0.0041
5	0.0049	0.0008	0.0041
6	0.0049	0.0008	0.0041
7	0.0050	0.0008	0.0041
8	0.0050	0.0008	0.0041
9	0.0050	0.0008	0.0042
10	0.0050	0.0008	0.0042
11	0.0050	0.0008	0.0042
12	0.0050	0.0008	0.0042
13	0.0051	0.0008	0.0042
14	0.0051	0.0009	0.0042
15	0.0051	0.0009	0.0042
16	0.0051	0.0009	0.0042
17	0.0051	0.0009	0.0043
18	0.0051	0.0009	0.0043
19	0.0052	0.0009	0.0043
20	0.0052	0.0009	0.0043
21	0.0052	0.0009	0.0043
22	0.0052	0.0009	0.0043
23	0.0052	0.0009	0.0044
24	0.0052	0.0009	0.0044
25	0.0053	0.0009	0.0044
26	0.0053	0.0009	0.0044
27	0.0053	0.0009	0.0044
28	0.0053	0.0009	0.0044
29	0.0054	0.0009	0.0045
30	0.0054	0.0009	0.0045
31	0.0054	0.0009	0.0045
32	0.0054	0.0009	0.0045
33	0.0054	0.0009	0.0045
34	0.0054	0.0009	0.0045
35	0.0055	0.0009	0.0046
36	0.0055	0.0009	0.0046
37	0.0055	0.0009	0.0046
38	0.0055	0.0009	0.0046
39	0.0056	0.0009	0.0046
40	0.0056	0.0009	0.0046
41	0.0056	0.0009	0.0047
42	0.0056	0.0009	0.0047
43	0.0057	0.0009	0.0047
44	0.0057	0.0010	0.0047
45	0.0057	0.0010	0.0047
46	0.0057	0.0010	0.0048
47	0.0057	0.0010	0.0048
48	0.0058	0.0010	0.0048
49	0.0058	0.0010	0.0048
50	0.0058	0.0010	0.0048
51	0.0058	0.0010	0.0049

52	0.0059	0.0010	0.0049
53	0.0059	0.0010	0.0049
54	0.0059	0.0010	0.0049
55	0.0059	0.0010	0.0050
56	0.0060	0.0010	0.0050
57	0.0060	0.0010	0.0050
58	0.0060	0.0010	0.0050
59	0.0061	0.0010	0.0050
60	0.0061	0.0010	0.0051
61	0.0061	0.0010	0.0051
62	0.0061	0.0010	0.0051
63	0.0062	0.0010	0.0051
64	0.0062	0.0010	0.0052
65	0.0062	0.0010	0.0052
66	0.0063	0.0011	0.0052
67	0.0063	0.0011	0.0052
68	0.0063	0.0011	0.0053
69	0.0064	0.0011	0.0053
70	0.0064	0.0011	0.0053
71	0.0064	0.0011	0.0053
72	0.0064	0.0011	0.0054
73	0.0065	0.0011	0.0054
74	0.0065	0.0011	0.0054
75	0.0065	0.0011	0.0054
76	0.0066	0.0011	0.0055
77	0.0066	0.0011	0.0055
78	0.0066	0.0011	0.0055
79	0.0067	0.0011	0.0056
80	0.0067	0.0011	0.0056
81	0.0068	0.0011	0.0056
82	0.0068	0.0011	0.0056
83	0.0068	0.0011	0.0057
84	0.0069	0.0012	0.0057
85	0.0069	0.0012	0.0058
86	0.0069	0.0012	0.0058
87	0.0070	0.0012	0.0058
88	0.0070	0.0012	0.0058
89	0.0071	0.0012	0.0059
90	0.0071	0.0012	0.0059
91	0.0072	0.0012	0.0060
92	0.0072	0.0012	0.0060
93	0.0072	0.0012	0.0060
94	0.0073	0.0012	0.0061
95	0.0073	0.0012	0.0061
96	0.0074	0.0012	0.0061
97	0.0074	0.0012	0.0062
98	0.0075	0.0013	0.0062
99	0.0075	0.0013	0.0063
100	0.0076	0.0013	0.0063
101	0.0076	0.0013	0.0063
102	0.0077	0.0013	0.0064
103	0.0077	0.0013	0.0064
104	0.0078	0.0013	0.0065
105	0.0078	0.0013	0.0065
106	0.0079	0.0013	0.0066
107	0.0080	0.0013	0.0066
108	0.0080	0.0013	0.0066

109	0.0081	0.0014	0.0067
110	0.0081	0.0014	0.0067
111	0.0082	0.0014	0.0068
112	0.0082	0.0014	0.0068
113	0.0083	0.0014	0.0069
114	0.0084	0.0014	0.0070
115	0.0084	0.0014	0.0070
116	0.0085	0.0014	0.0071
117	0.0086	0.0014	0.0071
118	0.0086	0.0014	0.0072
119	0.0087	0.0015	0.0073
120	0.0088	0.0015	0.0073
121	0.0089	0.0015	0.0074
122	0.0089	0.0015	0.0074
123	0.0090	0.0015	0.0075
124	0.0091	0.0015	0.0076
125	0.0092	0.0015	0.0076
126	0.0092	0.0016	0.0077
127	0.0094	0.0016	0.0078
128	0.0094	0.0016	0.0078
129	0.0095	0.0016	0.0079
130	0.0096	0.0016	0.0080
131	0.0097	0.0016	0.0081
132	0.0098	0.0016	0.0081
133	0.0099	0.0017	0.0083
134	0.0100	0.0017	0.0083
135	0.0101	0.0017	0.0084
136	0.0102	0.0017	0.0085
137	0.0103	0.0017	0.0086
138	0.0104	0.0018	0.0087
139	0.0106	0.0018	0.0088
140	0.0107	0.0018	0.0089
141	0.0108	0.0018	0.0090
142	0.0109	0.0018	0.0091
143	0.0111	0.0019	0.0092
144	0.0112	0.0019	0.0093
145	0.0090	0.0015	0.0075
146	0.0091	0.0015	0.0076
147	0.0093	0.0016	0.0077
148	0.0094	0.0016	0.0078
149	0.0096	0.0016	0.0080
150	0.0097	0.0016	0.0081
151	0.0099	0.0017	0.0082
152	0.0100	0.0017	0.0083
153	0.0102	0.0017	0.0085
154	0.0104	0.0017	0.0086
155	0.0106	0.0018	0.0088
156	0.0107	0.0018	0.0089
157	0.0110	0.0019	0.0092
158	0.0112	0.0019	0.0093
159	0.0115	0.0019	0.0095
160	0.0116	0.0020	0.0097
161	0.0120	0.0020	0.0100
162	0.0121	0.0020	0.0101
163	0.0125	0.0021	0.0104
164	0.0127	0.0021	0.0106
165	0.0131	0.0022	0.0109

166	0.0134	0.0022	0.0111
167	0.0138	0.0023	0.0115
168	0.0141	0.0024	0.0117
169	0.0151	0.0025	0.0126
170	0.0154	0.0026	0.0128
171	0.0161	0.0027	0.0134
172	0.0164	0.0028	0.0137
173	0.0172	0.0029	0.0143
174	0.0176	0.0030	0.0146
175	0.0185	0.0031	0.0154
176	0.0190	0.0032	0.0158
177	0.0201	0.0034	0.0167
178	0.0207	0.0035	0.0172
179	0.0220	0.0037	0.0183
180	0.0228	0.0038	0.0190
181	0.0245	0.0041	0.0204
182	0.0255	0.0043	0.0212
183	0.0279	0.0047	0.0232
184	0.0293	0.0049	0.0244
185	0.0251	0.0042	0.0209
186	0.0269	0.0045	0.0224
187	0.0316	0.0053	0.0263
188	0.0347	0.0058	0.0289
189	0.0539	0.0091	0.0449
190	0.0621	0.0104	0.0517
191	0.0941	0.0117	0.0824
192	0.1367	0.0117	0.1250
193	0.5874	0.0117	0.5757
194	0.0741	0.0117	0.0624
195	0.0387	0.0065	0.0322
196	0.0290	0.0049	0.0241
197	0.0308	0.0052	0.0257
198	0.0266	0.0045	0.0222
199	0.0236	0.0040	0.0196
200	0.0213	0.0036	0.0177
201	0.0195	0.0033	0.0162
202	0.0180	0.0030	0.0150
203	0.0168	0.0028	0.0140
204	0.0158	0.0026	0.0131
205	0.0144	0.0024	0.0119
206	0.0136	0.0023	0.0113
207	0.0129	0.0022	0.0107
208	0.0123	0.0021	0.0103
209	0.0118	0.0020	0.0098
210	0.0113	0.0019	0.0094
211	0.0109	0.0018	0.0090
212	0.0105	0.0018	0.0087
213	0.0101	0.0017	0.0084
214	0.0098	0.0016	0.0081
215	0.0095	0.0016	0.0079
216	0.0092	0.0015	0.0076
217	0.0113	0.0019	0.0094
218	0.0110	0.0018	0.0092
219	0.0107	0.0018	0.0089
220	0.0105	0.0018	0.0087
221	0.0103	0.0017	0.0085
222	0.0101	0.0017	0.0084

223	0.0099	0.0017	0.0082
224	0.0097	0.0016	0.0080
225	0.0095	0.0016	0.0079
226	0.0093	0.0016	0.0077
227	0.0091	0.0015	0.0076
228	0.0090	0.0015	0.0075
229	0.0088	0.0015	0.0073
230	0.0087	0.0015	0.0072
231	0.0085	0.0014	0.0071
232	0.0084	0.0014	0.0070
233	0.0083	0.0014	0.0069
234	0.0081	0.0014	0.0068
235	0.0080	0.0013	0.0067
236	0.0079	0.0013	0.0066
237	0.0078	0.0013	0.0065
238	0.0077	0.0013	0.0064
239	0.0076	0.0013	0.0063
240	0.0075	0.0013	0.0062
241	0.0074	0.0012	0.0062
242	0.0073	0.0012	0.0061
243	0.0072	0.0012	0.0060
244	0.0071	0.0012	0.0059
245	0.0070	0.0012	0.0059
246	0.0070	0.0012	0.0058
247	0.0069	0.0012	0.0057
248	0.0068	0.0011	0.0057
249	0.0067	0.0011	0.0056
250	0.0067	0.0011	0.0055
251	0.0066	0.0011	0.0055
252	0.0065	0.0011	0.0054
253	0.0065	0.0011	0.0054
254	0.0064	0.0011	0.0053
255	0.0063	0.0011	0.0053
256	0.0063	0.0011	0.0052
257	0.0062	0.0010	0.0052
258	0.0062	0.0010	0.0051
259	0.0061	0.0010	0.0051
260	0.0060	0.0010	0.0050
261	0.0060	0.0010	0.0050
262	0.0059	0.0010	0.0049
263	0.0059	0.0010	0.0049
264	0.0058	0.0010	0.0049
265	0.0058	0.0010	0.0048
266	0.0057	0.0010	0.0048
267	0.0057	0.0010	0.0047
268	0.0056	0.0009	0.0047
269	0.0056	0.0009	0.0047
270	0.0055	0.0009	0.0046
271	0.0055	0.0009	0.0046
272	0.0055	0.0009	0.0045
273	0.0054	0.0009	0.0045
274	0.0054	0.0009	0.0045
275	0.0053	0.0009	0.0044
276	0.0053	0.0009	0.0044
277	0.0053	0.0009	0.0044
278	0.0052	0.0009	0.0043
279	0.0052	0.0009	0.0043

280	0.0052	0.0009	0.0043
281	0.0051	0.0009	0.0043
282	0.0051	0.0009	0.0042
283	0.0050	0.0008	0.0042
284	0.0050	0.0008	0.0042
285	0.0050	0.0008	0.0041
286	0.0049	0.0008	0.0041
287	0.0049	0.0008	0.0041
288	0.0049	0.0008	0.0041

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.50
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.10

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 28.0535
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 173.2553

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	375.0	750.0	1125.0	1500.0
1.000	1.5984	30.02	Q	.	.	.	.
1.083	1.8093	30.63	Q	.	.	.	.
1.167	2.0240	31.17	Q	.	.	.	.
1.250	2.2421	31.66	Q	.	.	.	.
1.333	2.4632	32.10	Q	.	.	.	.
1.417	2.6869	32.48	Q	.	.	.	.
1.500	2.9131	32.85	Q	.	.	.	.
1.583	3.1416	33.17	Q	.	.	.	.
1.667	3.3720	33.47	Q	.	.	.	.
1.750	3.6043	33.73	Q	.	.	.	.
1.833	3.8382	33.96	Q	.	.	.	.
1.917	4.0734	34.16	Q	.	.	.	.
2.000	4.3101	34.37	Q	.	.	.	.
2.083	4.5483	34.58	QV	.	.	.	.
2.167	4.7880	34.80	QV	.	.	.	.
2.250	5.0292	35.02	QV	.	.	.	.
2.333	5.2719	35.24	QV	.	.	.	.
2.417	5.5161	35.45	QV	.	.	.	.
2.500	5.7612	35.58	QV	.	.	.	.
2.583	6.0071	35.71	QV	.	.	.	.
2.667	6.2540	35.85	QV	.	.	.	.
2.750	6.5018	35.98	QV	.	.	.	.
2.833	6.7505	36.11	QV	.	.	.	.
2.917	7.0001	36.25	QV	.	.	.	.
3.000	7.2507	36.38	QV	.	.	.	.
3.083	7.5022	36.52	QV	.	.	.	.
3.167	7.7547	36.66	QV	.	.	.	.
3.250	8.0081	36.80	QV	.	.	.	.
3.333	8.2626	36.94	QV	.	.	.	.
3.417	8.5180	37.09	QV	.	.	.	.
3.500	8.7744	37.23	Q V	.	.	.	.
3.583	9.0318	37.38	Q V	.	.	.	.
3.667	9.2903	37.53	.QV	.	.	.	.
3.750	9.5497	37.67	.QV	.	.	.	.
3.833	9.8102	37.83	.QV	.	.	.	.
3.917	10.0718	37.98	.QV	.	.	.	.
4.000	10.3344	38.13	.QV	.	.	.	.
4.083	10.5981	38.29	.QV	.	.	.	.
4.167	10.8629	38.45	.QV	.	.	.	.
4.250	11.1288	38.61	.QV	.	.	.	.
4.333	11.3958	38.77	.QV	.	.	.	.
4.417	11.6639	38.93	.QV	.	.	.	.
4.500	11.9332	39.10	.QV	.	.	.	.
4.583	12.2036	39.26	.QV	.	.	.	.
4.667	12.4751	39.43	.QV	.	.	.	.

4.750	12.7479	39.60	.QV	.	.	.	.
4.833	13.0218	39.77	.Q V	.	.	.	.
4.917	13.2969	39.95	.Q V	.	.	.	.
5.000	13.5733	40.13	.Q V	.	.	.	.
5.083	13.8509	40.30	.Q V	.	.	.	.
5.167	14.1297	40.49	.Q V	.	.	.	.
5.250	14.4098	40.67	.Q V	.	.	.	.
5.333	14.6911	40.85	.Q V	.	.	.	.
5.417	14.9738	41.04	.Q V	.	.	.	.
5.500	15.2577	41.23	.Q V	.	.	.	.
5.583	15.5430	41.42	.Q V	.	.	.	.
5.667	15.8296	41.62	.Q V	.	.	.	.
5.750	16.1175	41.81	.Q V	.	.	.	.
5.833	16.4069	42.01	.Q V	.	.	.	.
5.917	16.6976	42.21	.Q V	.	.	.	.
6.000	16.9897	42.42	.Q V	.	.	.	.
6.083	17.2833	42.62	.Q V	.	.	.	.
6.167	17.5783	42.83	.Q V	.	.	.	.
6.250	17.8747	43.04	.Q V	.	.	.	.
6.333	18.1727	43.26	.Q V	.	.	.	.
6.417	18.4721	43.48	.Q V	.	.	.	.
6.500	18.7731	43.70	.Q V	.	.	.	.
6.583	19.0756	43.92	.Q V	.	.	.	.
6.667	19.3796	44.15	.Q V	.	.	.	.
6.750	19.6853	44.38	.Q V	.	.	.	.
6.833	19.9926	44.61	.Q V	.	.	.	.
6.917	20.3014	44.85	.Q V	.	.	.	.
7.000	20.6120	45.09	.Q V	.	.	.	.
7.083	20.9242	45.33	.Q V	.	.	.	.
7.167	21.2381	45.58	.Q V	.	.	.	.
7.250	21.5537	45.83	.Q V	.	.	.	.
7.333	21.8711	46.09	.Q V	.	.	.	.
7.417	22.1903	46.34	.Q V	.	.	.	.
7.500	22.5113	46.60	.Q V	.	.	.	.
7.583	22.8340	46.87	.Q V	.	.	.	.
7.667	23.1587	47.14	.Q V	.	.	.	.
7.750	23.4852	47.41	.Q V	.	.	.	.
7.833	23.8137	47.69	.Q V	.	.	.	.
7.917	24.1441	47.97	.Q V	.	.	.	.
8.000	24.4764	48.26	.Q V	.	.	.	.
8.083	24.8108	48.55	.Q V	.	.	.	.
8.167	25.1472	48.85	.Q V	.	.	.	.
8.250	25.4857	49.15	.Q V	.	.	.	.
8.333	25.8263	49.45	.Q V	.	.	.	.
8.417	26.1690	49.76	.Q V	.	.	.	.
8.500	26.5139	50.08	.Q V	.	.	.	.
8.583	26.8610	50.40	.Q V	.	.	.	.
8.667	27.2104	50.73	.Q V	.	.	.	.
8.750	27.5620	51.06	.Q V	.	.	.	.
8.833	27.9160	51.40	.Q V	.	.	.	.
8.917	28.2724	51.74	.Q V	.	.	.	.
9.000	28.6312	52.10	.Q V	.	.	.	.
9.083	28.9924	52.45	.Q V	.	.	.	.
9.167	29.3561	52.82	.Q V	.	.	.	.
9.250	29.7224	53.18	.Q V	.	.	.	.
9.333	30.0913	53.56	.Q V	.	.	.	.
9.417	30.4628	53.94	.Q V	.	.	.	.

9.500	30.8371	54.34	.Q	V	.	.	.
9.583	31.2140	54.74	.Q	V	.	.	.
9.667	31.5938	55.15	.Q	V	.	.	.
9.750	31.9764	55.56	.Q	V	.	.	.
9.833	32.3620	55.98	.Q	V	.	.	.
9.917	32.7505	56.41	.Q	V	.	.	.
10.000	33.1421	56.86	.Q	V	.	.	.
10.083	33.5368	57.30	.Q	V	.	.	.
10.167	33.9346	57.77	.Q	V	.	.	.
10.250	34.3357	58.23	.Q	V	.	.	.
10.333	34.7401	58.72	.Q	V	.	.	.
10.417	35.1478	59.20	.Q	V	.	.	.
10.500	35.5590	59.71	.Q	V	.	.	.
10.583	35.9738	60.22	.Q	V	.	.	.
10.667	36.3921	60.75	.Q	V	.	.	.
10.750	36.8142	61.28	.Q	V	.	.	.
10.833	37.2401	61.83	.Q	V	.	.	.
10.917	37.6698	62.39	.Q	V	.	.	.
11.000	38.1035	62.97	.Q	V	.	.	.
11.083	38.5412	63.56	.Q	V	.	.	.
11.167	38.9832	64.17	.Q	V.	.	.	.
11.250	39.4294	64.79	.Q	V.	.	.	.
11.333	39.8800	65.43	.Q	V.	.	.	.
11.417	40.3351	66.08	.Q	V.	.	.	.
11.500	40.7949	66.76	.Q	V.	.	.	.
11.583	41.2594	67.45	.Q	V.	.	.	.
11.667	41.7288	68.16	.Q	V.	.	.	.
11.750	42.2032	68.89	.Q	V.	.	.	.
11.833	42.6829	69.64	.Q	V.	.	.	.
11.917	43.1678	70.41	.Q	V.	.	.	.
12.000	43.6582	71.21	.Q	V	.	.	.
12.083	44.1527	71.80	.Q	V	.	.	.
12.167	44.6467	71.73	.Q	V	.	.	.
12.250	45.1301	70.20	.Q	V	.	.	.
12.333	45.5957	67.59	.Q	V	.	.	.
12.417	46.0511	66.13	.Q	V	.	.	.
12.500	46.5029	65.59	.Q	V	.	.	.
12.583	46.9539	65.49	.Q	V	.	.	.
12.667	47.4064	65.70	.Q	V	.	.	.
12.750	47.8617	66.11	.Q	.V	.	.	.
12.833	48.3210	66.69	.Q	.V	.	.	.
12.917	48.7849	67.36	.Q	.V	.	.	.
13.000	49.2542	68.14	.Q	.V	.	.	.
13.083	49.7296	69.03	.Q	.V	.	.	.
13.167	50.2117	70.00	.Q	.V	.	.	.
13.250	50.7010	71.05	.Q	.V	.	.	.
13.333	51.1981	72.18	.Q	.V	.	.	.
13.417	51.7036	73.39	.Q	.V	.	.	.
13.500	52.2179	74.69	.Q	. V	.	.	.
13.583	52.7417	76.05	. Q	. V	.	.	.
13.667	53.2757	77.53	. Q	. V	.	.	.
13.750	53.8203	79.09	. Q	. V	.	.	.
13.833	54.3766	80.76	. Q	. V	.	.	.
13.917	54.9450	82.53	. Q	. V	.	.	.
14.000	55.5264	84.43	. Q	. V	.	.	.
14.083	56.1219	86.46	. Q	. V	.	.	.
14.167	56.7334	88.79	. Q	. V	.	.	.

14.250	57.3639	91.56	. Q . V . . .
14.333	58.0165	94.76	. Q . V . . .
14.417	58.6905	97.86	. Q . V . . .
14.500	59.3865	101.06	. Q . V . . .
14.583	60.1051	104.34	. Q . V . . .
14.667	60.8479	107.86	. Q . V . . .
14.750	61.6164	111.59	. Q . V . . .
14.833	62.4130	115.66	. Q . V . . .
14.917	63.2396	120.03	. Q . V . . .
15.000	64.0997	124.89	. Q . V . . .
15.083	64.9963	130.18	. Q . V . . .
15.167	65.9339	136.14	. Q . V . . .
15.250	66.9169	142.74	. Q . V . . .
15.333	67.9522	150.32	. Q . V . . .
15.417	69.0415	158.16	. Q . V . . .
15.500	70.1799	165.30	. Q . V . . .
15.583	71.3458	169.29	. Q . V . . .
15.667	72.5300	171.95	. Q . V . . .
15.750	73.7820	181.79	. Q . V . . .
15.833	75.1732	202.00	. Q . V . . .
15.917	76.8185	238.90	. Q . V . . .
16.000	78.8985	302.01	. Q . V . . .
16.083	81.9853	448.21	. Q V . . .
16.167	86.9988	727.95	. QV . . .
16.250	94.9958	1161.17	. .V Q .
16.333	104.6830	1406.57	. V . Q .
16.417	111.9005	1047.99	. V Q . .
16.500	117.0484	747.47	. Q. V . .
16.583	121.0652	583.23	. Q . V . .
16.667	124.3631	478.86	. Q . V . .
16.750	127.1382	402.94	. Q . V. .
16.833	129.5293	347.19	. Q. . V. .
16.917	131.6539	308.49	. Q . . V .
17.000	133.5380	273.57	. Q . . V .
17.083	135.1933	240.35	. Q . . .V .
17.167	136.7041	219.36	. Q . . .V .
17.250	138.0799	199.78	. Q . . .V .
17.333	139.3371	182.54	. Q . . . V .
17.417	140.4773	165.56	. Q . . . V .
17.500	141.5373	153.90	. Q . . . V .
17.583	142.5067	140.76	. Q . . . V .
17.667	143.4044	130.34	. Q . . . V .
17.750	144.2237	118.97	. Q . . . V .
17.833	144.9799	109.80	. Q . . . V .
17.917	145.6770	101.21	. Q . . . V .
18.000	146.3560	98.60	. Q . . . V .
18.083	147.0204	96.47	. Q . . . V .
18.167	147.6677	93.99	. Q . . . V .
18.250	148.3075	92.89	. Q . . . V .
18.333	148.9433	92.32	. Q . . . V .
18.417	149.5541	88.70	. Q . . . V .
18.500	150.0782	76.10	. Q . . . V .
18.583	150.5886	74.11	.Q . . . V .
18.667	151.0888	72.62	.Q . . . V .
18.750	151.5793	71.22	.Q . . . V .
18.833	152.0597	69.76	.Q . . . V .
18.917	152.5307	68.39	.Q . . . V .

19.000	152.9927	67.08	.Q	.	.	.	V	.
19.083	153.4460	65.82	.Q	.	.	.	V	.
19.167	153.8910	64.62	.Q	.	.	.	V	.
19.250	154.3281	63.47	.Q	.	.	.	V	.
19.333	154.7576	62.37	.Q	.	.	.	V	.
19.417	155.1799	61.31	.Q	.	.	.	V	.
19.500	155.5953	60.31	.Q	.	.	.	V	.
19.583	156.0040	59.35	.Q	.	.	.	V	.
19.667	156.4063	58.42	.Q	.	.	.	V	.
19.750	156.8024	57.51	.Q	.	.	.	V	.
19.833	157.1925	56.64	.Q	.	.	.	V	.
19.917	157.5767	55.79	.Q	.	.	.	V	.
20.000	157.9553	54.98	.Q	.	.	.	V	.
20.083	158.3286	54.20	.Q	.	.	.	V	.
20.167	158.6968	53.46	.Q	.	.	.	V	.
20.250	159.0601	52.75	.Q	.	.	.	V	.
20.333	159.4187	52.07	.Q	.	.	.	V	.
20.417	159.7728	51.40	.Q	.	.	.	V	.
20.500	160.1221	50.73	.Q	.	.	.	V	.
20.583	160.4669	50.07	.Q	.	.	.	V	.
20.667	160.8074	49.44	.Q	.	.	.	V	.
20.750	161.1437	48.82	.Q	.	.	.	V	.
20.833	161.4758	48.23	.Q	.	.	.	V	.
20.917	161.8040	47.66	.Q	.	.	.	V	.
21.000	162.1284	47.10	.Q	.	.	.	V	.
21.083	162.4491	46.56	.Q	.	.	.	V	.
21.167	162.7662	46.04	.Q	.	.	.	V	.
21.250	163.0798	45.53	.Q	.	.	.	V	.
21.333	163.3900	45.04	.Q	.	.	.	V	.
21.417	163.6970	44.56	.Q	.	.	.	V	.
21.500	164.0007	44.10	.Q	.	.	.	V	.
21.583	164.3013	43.65	.Q	.	.	.	V	.
21.667	164.5988	43.21	.Q	.	.	.	V	.
21.750	164.8934	42.78	.Q	.	.	.	V	.
21.833	165.1852	42.36	.Q	.	.	.	V	.
21.917	165.4741	41.95	.Q	.	.	.	V	.
22.000	165.7603	41.56	.Q	.	.	.	V	.
22.083	166.0439	41.17	.Q	.	.	.	V	.
22.167	166.3248	40.79	.Q	.	.	.	V	.
22.250	166.6032	40.43	.Q	.	.	.	V	.
22.333	166.8792	40.07	.Q	.	.	.	V	.
22.417	167.1527	39.71	.Q	.	.	.	V	.
22.500	167.4238	39.37	.Q	.	.	.	V	.
22.583	167.6927	39.04	.Q	.	.	.	V	.
22.667	167.9593	38.71	.Q	.	.	.	V	.
22.750	168.2236	38.39	.Q	.	.	.	V	.
22.833	168.4859	38.07	.Q	.	.	.	V	.
22.917	168.7460	37.77	.Q	.	.	.	V	.
23.000	169.0040	37.47	Q	.	.	.	V	.
23.083	169.2600	37.17	Q	.	.	.	V	.
23.167	169.5140	36.88	Q	.	.	.	V	.
23.250	169.7661	36.60	Q	.	.	.	V	.
23.333	170.0163	36.33	Q	.	.	.	V	.
23.417	170.2646	36.05	Q	.	.	.	V	.
23.500	170.5110	35.79	Q	.	.	.	V	.
23.583	170.7557	35.53	Q	.	.	.	V	.
23.667	170.9986	35.27	Q	.	.	.	V	.

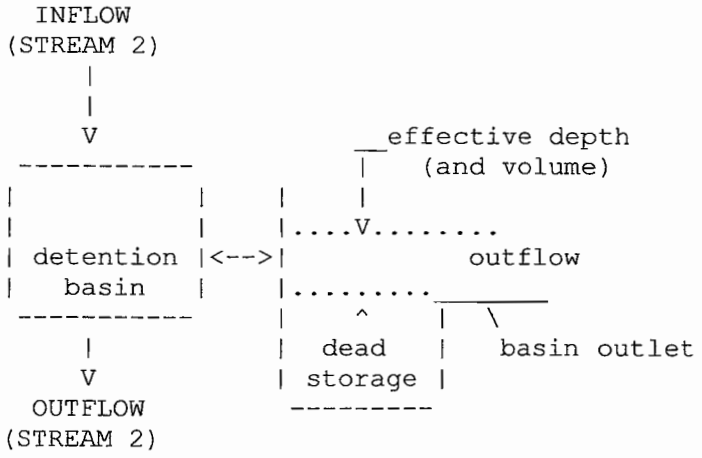
23.750	171.2398	35.02	Q	.	.	.	V.
23.833	171.4793	34.77	Q	.	.	.	V.
23.917	171.7171	34.53	Q	.	.	.	V.
24.000	171.9533	34.30	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	145.0
20%	60.0
30%	40.0
40%	30.0
50%	25.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<



ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 2.000
SPECIFIED DEAD STORAGE(AF) FILLED = 2.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

NODE 110 BASIN A-3 ROUTING

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	47.00	15.000
3	5.00	133.00	42.000
4	10.00	338.00	87.000

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time; MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.083	2.000	0.48	0.00	0.00	0.0	0.003
0.167	2.000	2.36	0.00	0.00	0.0	0.019
0.250	2.000	7.28	0.00	0.01	0.1	0.068
0.333	2.000	14.48	0.00	0.02	0.4	0.166
0.417	2.000	19.33	0.00	0.04	0.7	0.294
0.500	2.000	22.37	0.00	0.06	1.1	0.440
0.583	2.000	24.53	0.00	0.08	1.6	0.598
0.667	2.000	26.15	0.00	0.10	2.1	0.763
0.750	2.000	27.40	0.00	0.12	2.7	0.933
0.833	2.000	28.41	0.00	0.15	3.2	1.107
0.917	2.000	29.28	0.00	0.17	3.7	1.283
1.000	2.000	30.02	0.00	0.19	4.3	1.460
1.083	2.000	30.63	0.00	0.22	4.9	1.638
1.167	2.000	31.17	0.00	0.24	5.4	1.815
1.250	2.000	31.66	0.00	0.27	6.0	1.992
1.333	2.000	32.10	0.00	0.29	6.5	2.168
1.417	2.000	32.48	0.00	0.31	7.1	2.343
1.500	2.000	32.85	0.00	0.34	7.6	2.517
1.583	2.000	33.17	0.00	0.36	8.2	2.689
1.667	2.000	33.47	0.00	0.38	8.7	2.860
1.750	2.000	33.73	0.00	0.40	9.2	3.029
1.833	2.000	33.96	0.00	0.43	9.8	3.195
1.917	2.000	34.16	0.00	0.45	10.3	3.360
2.000	2.000	34.37	0.00	0.47	10.8	3.522
2.083	2.000	34.58	0.00	0.49	11.3	3.683
2.167	2.000	34.80	0.00	0.51	11.8	3.841
2.250	2.000	35.02	0.00	0.53	12.3	3.998
2.333	2.000	35.24	0.00	0.55	12.8	4.153
2.417	2.000	35.45	0.00	0.57	13.3	4.306
2.500	2.000	35.58	0.00	0.59	13.7	4.456
2.583	2.000	35.71	0.00	0.61	14.2	4.604
2.667	2.000	35.85	0.00	0.63	14.7	4.750
2.750	2.000	35.98	0.00	0.65	15.1	4.894
2.833	2.000	36.11	0.00	0.67	15.6	5.036
2.917	2.000	36.25	0.00	0.69	16.0	5.175
3.000	2.000	36.38	0.00	0.71	16.4	5.312
3.083	2.000	36.52	0.00	0.73	16.9	5.448
3.167	2.000	36.66	0.00	0.74	17.3	5.581

3.250	2.000	36.80	0.00	0.76	17.7	5.713
3.333	2.000	36.94	0.00	0.78	18.1	5.843
3.417	2.000	37.09	0.00	0.80	18.5	5.971
3.500	2.000	37.23	0.00	0.81	18.9	6.097
3.583	2.000	37.38	0.00	0.83	19.3	6.221
3.667	2.000	37.53	0.00	0.85	19.7	6.344
3.750	2.000	37.67	0.00	0.86	20.1	6.466
3.833	2.000	37.83	0.00	0.88	20.4	6.585
3.917	2.000	37.98	0.00	0.89	20.8	6.703
4.000	2.000	38.13	0.00	0.91	21.2	6.820
4.083	2.000	38.29	0.00	0.92	21.6	6.935
4.167	2.000	38.45	0.00	0.94	21.9	7.049
4.250	2.000	38.61	0.00	0.95	22.3	7.162
4.333	2.000	38.77	0.00	0.97	22.6	7.273
4.417	2.000	38.93	0.00	0.98	23.0	7.383
4.500	2.000	39.10	0.00	1.00	23.3	7.492
4.583	2.000	39.26	0.00	1.01	23.6	7.599
4.667	2.000	39.43	0.00	1.03	24.0	7.706
4.750	2.000	39.60	0.00	1.04	24.3	7.811
4.833	2.000	39.77	0.00	1.06	24.6	7.915
4.917	2.000	39.95	0.00	1.07	25.0	8.019
5.000	2.000	40.13	0.00	1.08	25.3	8.121
5.083	2.000	40.30	0.00	1.10	25.6	8.222
5.167	2.000	40.49	0.00	1.11	25.9	8.322
5.250	2.000	40.67	0.00	1.12	26.2	8.422
5.333	2.000	40.85	0.00	1.14	26.5	8.520
5.417	2.000	41.04	0.00	1.15	26.9	8.618
5.500	2.000	41.23	0.00	1.16	27.2	8.715
5.583	2.000	41.42	0.00	1.17	27.5	8.811
5.667	2.000	41.62	0.00	1.19	27.8	8.907
5.750	2.000	41.81	0.00	1.20	28.1	9.001
5.833	2.000	42.01	0.00	1.21	28.4	9.095
5.917	2.000	42.21	0.00	1.23	28.6	9.189
6.000	2.000	42.42	0.00	1.24	28.9	9.282
6.083	2.000	42.62	0.00	1.25	29.2	9.374
6.167	2.000	42.83	0.00	1.26	29.5	9.466
6.250	2.000	43.04	0.00	1.27	29.8	9.557
6.333	2.000	43.26	0.00	1.29	30.1	9.648
6.417	2.000	43.48	0.00	1.30	30.4	9.738
6.500	2.000	43.70	0.00	1.31	30.7	9.828
6.583	2.000	43.92	0.00	1.32	30.9	9.917
6.667	2.000	44.15	0.00	1.33	31.2	10.006
6.750	2.000	44.38	0.00	1.35	31.5	10.095
6.833	2.000	44.61	0.00	1.36	31.8	10.184
6.917	2.000	44.85	0.00	1.37	32.0	10.272
7.000	2.000	45.09	0.00	1.38	32.3	10.360
7.083	2.000	45.33	0.00	1.39	32.6	10.447
7.167	2.000	45.58	0.00	1.40	32.9	10.535
7.250	2.000	45.83	0.00	1.42	33.1	10.622
7.333	2.000	46.09	0.00	1.43	33.4	10.709
7.417	2.000	46.34	0.00	1.44	33.7	10.797
7.500	2.000	46.60	0.00	1.45	34.0	10.884
7.583	2.000	46.87	0.00	1.46	34.2	10.971
7.667	2.000	47.14	0.00	1.47	34.5	11.058
7.750	2.000	47.41	0.00	1.49	34.8	11.145
7.833	2.000	47.69	0.00	1.50	35.1	11.232
7.917	2.000	47.97	0.00	1.51	35.3	11.319

8.000	2.000	48.26	0.00	1.52	35.6	11.406
8.083	2.000	48.55	0.00	1.53	35.9	11.493
8.167	2.000	48.85	0.00	1.54	36.1	11.581
8.250	2.000	49.15	0.00	1.56	36.4	11.668
8.333	2.000	49.45	0.00	1.57	36.7	11.756
8.417	2.000	49.76	0.00	1.58	37.0	11.844
8.500	2.000	50.08	0.00	1.59	37.2	11.932
8.583	2.000	50.40	0.00	1.60	37.5	12.021
8.667	2.000	50.73	0.00	1.61	37.8	12.110
8.750	2.000	51.06	0.00	1.63	38.1	12.199
8.833	2.000	51.40	0.00	1.64	38.4	12.289
8.917	2.000	51.74	0.00	1.65	38.6	12.379
9.000	2.000	52.10	0.00	1.66	38.9	12.470
9.083	2.000	52.45	0.00	1.67	39.2	12.561
9.167	2.000	52.82	0.00	1.69	39.5	12.653
9.250	2.000	53.18	0.00	1.70	39.8	12.745
9.333	2.000	53.56	0.00	1.71	40.1	12.838
9.417	2.000	53.94	0.00	1.72	40.4	12.932
9.500	2.000	54.34	0.00	1.74	40.7	13.026
9.583	2.000	54.74	0.00	1.75	41.0	13.121
9.667	2.000	55.15	0.00	1.76	41.3	13.216
9.750	2.000	55.56	0.00	1.78	41.6	13.313
9.833	2.000	55.98	0.00	1.79	41.9	13.410
9.917	2.000	56.41	0.00	1.80	42.2	13.508
10.000	2.000	56.86	0.00	1.81	42.5	13.607
10.083	2.000	57.30	0.00	1.83	42.8	13.707
10.167	2.000	57.77	0.00	1.84	43.1	13.808
10.250	2.000	58.23	0.00	1.85	43.4	13.910
10.333	2.000	58.72	0.00	1.87	43.7	14.013
10.417	2.000	59.20	0.00	1.88	44.1	14.117
10.500	2.000	59.71	0.00	1.90	44.4	14.223
10.583	2.000	60.22	0.00	1.91	44.7	14.329
10.667	2.000	60.75	0.00	1.92	45.1	14.437
10.750	2.000	61.28	0.00	1.94	45.4	14.547
10.833	2.000	61.83	0.00	1.95	45.8	14.657
10.917	2.000	62.39	0.00	1.97	46.1	14.770
11.000	2.000	62.97	0.00	1.98	46.5	14.883
11.083	2.000	63.56	0.00	2.00	46.8	14.999
11.167	2.000	64.17	0.00	2.01	47.2	15.116
11.250	2.000	64.79	0.00	2.03	47.6	15.234
11.333	2.000	65.43	0.00	2.04	47.9	15.355
11.417	2.000	66.08	0.00	2.05	48.3	15.477
11.500	2.000	66.76	0.00	2.07	48.7	15.601
11.583	2.000	67.45	0.00	2.08	49.1	15.728
11.667	2.000	68.16	0.00	2.10	49.5	15.856
11.750	2.000	68.89	0.00	2.11	49.9	15.986
11.833	2.000	69.64	0.00	2.12	50.4	16.119
11.917	2.000	70.41	0.00	2.14	50.8	16.254
12.000	2.000	71.21	0.00	2.15	51.2	16.392
12.083	2.000	71.80	0.00	2.17	51.7	16.531
12.167	2.000	71.73	0.00	2.19	52.1	16.666
12.250	2.000	70.20	0.00	2.20	52.5	16.788
12.333	2.000	67.59	0.00	2.21	52.9	16.889
12.417	2.000	66.13	0.00	2.22	53.2	16.979
12.500	2.000	65.59	0.00	2.23	53.4	17.063
12.583	2.000	65.49	0.00	2.24	53.7	17.144
12.667	2.000	65.70	0.00	2.25	54.0	17.225

12.750	2.000	66.11	0.00	2.26	54.2	17.307
12.833	2.000	66.69	0.00	2.27	54.5	17.391
12.917	2.000	67.36	0.00	2.28	54.8	17.477
13.000	2.000	68.14	0.00	2.29	55.0	17.568
13.083	2.000	69.03	0.00	2.30	55.3	17.662
13.167	2.000	70.00	0.00	2.31	55.6	17.761
13.250	2.000	71.05	0.00	2.32	56.0	17.865
13.333	2.000	72.18	0.00	2.33	56.3	17.974
13.417	2.000	73.39	0.00	2.34	56.7	18.090
13.500	2.000	74.69	0.00	2.36	57.0	18.211
13.583	2.000	76.05	0.00	2.37	57.4	18.339
13.667	2.000	77.53	0.00	2.39	57.9	18.475
13.750	2.000	79.09	0.00	2.40	58.3	18.618
13.833	2.000	80.76	0.00	2.42	58.8	18.770
13.917	2.000	82.53	0.00	2.44	59.3	18.930
14.000	2.000	84.43	0.00	2.46	59.8	19.100
14.083	2.000	86.46	0.00	2.48	60.3	19.279
14.167	2.000	88.79	0.00	2.50	60.9	19.471
14.250	2.000	91.56	0.00	2.52	61.6	19.678
14.333	2.000	94.76	0.00	2.54	62.3	19.902
14.417	2.000	97.86	0.00	2.57	63.0	20.142
14.500	2.000	101.06	0.00	2.60	63.8	20.398
14.583	2.000	104.34	0.00	2.63	64.6	20.672
14.667	2.000	107.86	0.00	2.66	65.5	20.963
14.750	2.000	111.59	0.00	2.70	66.5	21.274
14.833	2.000	115.66	0.00	2.73	67.5	21.606
14.917	2.000	120.03	0.00	2.77	68.6	21.960
15.000	2.000	124.89	0.00	2.82	69.8	22.339
15.083	2.000	130.18	0.00	2.86	71.0	22.747
15.167	2.000	136.14	0.00	2.91	72.4	23.186
15.250	2.000	142.74	0.00	2.96	73.8	23.660
15.333	2.000	150.32	0.00	3.02	75.4	24.176
15.417	2.000	158.16	0.00	3.08	77.1	24.735
15.500	2.000	165.30	0.00	3.15	79.0	25.329
15.583	2.000	169.29	0.00	3.22	80.9	25.938
15.667	2.000	171.95	0.00	3.28	82.8	26.552
15.750	2.000	181.79	0.00	3.36	84.9	27.220
15.833	2.000	202.00	0.00	3.45	87.2	28.010
15.917	2.000	238.90	0.00	3.56	90.1	29.035
16.000	2.000	302.01	0.00	3.72	94.0	30.468
16.083	2.000	448.21	0.00	3.99	100.1	32.866
16.167	2.000	727.95	0.00	4.46	110.7	37.117
16.250	2.000	1161.17	0.00	5.25	130.3	44.217
16.333	2.000	1406.57	0.00	6.20	162.6	52.784
16.417	2.000	1047.99	0.00	6.85	195.5	58.655
16.500	2.000	747.47	0.00	7.26	217.2	62.307
16.583	2.000	583.23	0.00	7.53	231.0	64.733
16.667	2.000	478.86	0.00	7.71	240.3	66.376
16.750	2.000	402.94	0.00	7.83	246.5	67.453
16.833	2.000	347.19	0.00	7.90	250.5	68.119
16.917	2.000	308.49	0.00	7.94	252.9	68.502
17.000	2.000	273.57	0.00	7.96	254.0	68.637
17.083	2.000	240.35	0.00	7.95	254.1	68.542
17.167	2.000	219.36	0.00	7.92	253.4	68.308
17.250	2.000	199.78	0.00	7.88	252.0	67.948
17.333	2.000	182.54	0.00	7.83	250.1	67.482
17.417	2.000	165.56	0.00	7.77	247.8	66.916

17.500	2.000	153.90	0.00	7.70	245.1	66.288
17.583	2.000	140.76	0.00	7.62	242.1	65.590
17.667	2.000	130.34	0.00	7.54	238.8	64.844
17.750	2.000	118.97	0.00	7.45	235.2	64.043
17.833	2.000	109.80	0.00	7.36	231.5	63.205
17.917	2.000	101.21	0.00	7.26	227.6	62.334
18.000	2.000	98.60	0.00	7.16	223.7	61.473
18.083	2.000	96.47	0.00	7.07	219.8	60.624
18.167	2.000	93.99	0.00	6.98	215.9	59.784
18.250	2.000	92.89	0.00	6.88	212.1	58.962
18.333	2.000	92.32	0.00	6.80	208.5	58.163
18.417	2.000	88.70	0.00	6.71	204.8	57.363
18.500	2.000	76.10	0.00	6.61	201.0	56.503
18.583	2.000	74.11	0.00	6.52	197.1	55.655
18.667	2.000	72.62	0.00	6.42	193.3	54.824
18.750	2.000	71.22	0.00	6.33	189.6	54.009
18.833	2.000	69.76	0.00	6.25	185.9	53.209
18.917	2.000	68.39	0.00	6.16	182.3	52.425
19.000	2.000	67.08	0.00	6.07	178.7	51.656
19.083	2.000	65.82	0.00	5.99	175.3	50.902
19.167	2.000	64.62	0.00	5.91	171.9	50.163
19.250	2.000	63.47	0.00	5.83	168.5	49.440
19.333	2.000	62.37	0.00	5.75	165.3	48.731
19.417	2.000	61.31	0.00	5.67	162.1	48.037
19.500	2.000	60.31	0.00	5.60	159.0	47.358
19.583	2.000	59.35	0.00	5.52	155.9	46.693
19.667	2.000	58.42	0.00	5.45	152.9	46.042
19.750	2.000	57.51	0.00	5.38	150.0	45.405
19.833	2.000	56.64	0.00	5.31	147.1	44.782
19.917	2.000	55.79	0.00	5.24	144.3	44.173
20.000	2.000	54.98	0.00	5.18	141.5	43.577
20.083	2.000	54.20	0.00	5.11	138.9	42.994
20.167	2.000	53.46	0.00	5.05	136.2	42.424
20.250	2.000	52.75	0.00	4.99	133.8	41.866
20.333	2.000	52.07	0.00	4.92	131.7	41.317
20.417	2.000	51.40	0.00	4.86	130.0	40.776
20.500	2.000	50.73	0.00	4.80	128.3	40.242
20.583	2.000	50.07	0.00	4.75	126.6	39.716
20.667	2.000	49.44	0.00	4.69	124.9	39.196
20.750	2.000	48.82	0.00	4.63	123.3	38.683
20.833	2.000	48.23	0.00	4.58	121.6	38.178
20.917	2.000	47.66	0.00	4.52	120.0	37.679
21.000	2.000	47.10	0.00	4.47	118.5	37.188
21.083	2.000	46.56	0.00	4.41	116.9	36.704
21.167	2.000	46.04	0.00	4.36	115.4	36.226
21.250	2.000	45.53	0.00	4.31	113.9	35.756
21.333	2.000	45.04	0.00	4.25	112.4	35.292
21.417	2.000	44.56	0.00	4.20	110.9	34.835
21.500	2.000	44.10	0.00	4.15	109.5	34.385
21.583	2.000	43.65	0.00	4.10	108.0	33.941
21.667	2.000	43.21	0.00	4.06	106.6	33.504
21.750	2.000	42.78	0.00	4.01	105.3	33.074
21.833	2.000	42.36	0.00	3.96	103.9	32.650
21.917	2.000	41.95	0.00	3.91	102.6	32.233
22.000	2.000	41.56	0.00	3.87	101.2	31.822
22.083	2.000	41.17	0.00	3.82	99.9	31.417
22.167	2.000	40.79	0.00	3.78	98.7	31.019

22.250	2.000	40.43	0.00	3.74	97.4	30.626
22.333	2.000	40.07	0.00	3.69	96.2	30.240
22.417	2.000	39.71	0.00	3.65	94.9	29.860
22.500	2.000	39.37	0.00	3.61	93.7	29.485
22.583	2.000	39.04	0.00	3.57	92.6	29.117
22.667	2.000	38.71	0.00	3.53	91.4	28.754
22.750	2.000	38.39	0.00	3.49	90.2	28.397
22.833	2.000	38.07	0.00	3.45	89.1	28.045
22.917	2.000	37.77	0.00	3.41	88.0	27.699
23.000	2.000	37.47	0.00	3.37	86.9	27.359
23.083	2.000	37.17	0.00	3.34	85.8	27.024
23.167	2.000	36.88	0.00	3.30	84.8	26.694
23.250	2.000	36.60	0.00	3.26	83.7	26.369
23.333	2.000	36.33	0.00	3.23	82.7	26.050
23.417	2.000	36.05	0.00	3.19	81.7	25.736
23.500	2.000	35.79	0.00	3.16	80.7	25.426
23.583	2.000	35.53	0.00	3.12	79.7	25.122
23.667	2.000	35.27	0.00	3.09	78.8	24.822
23.750	2.000	35.02	0.00	3.06	77.8	24.528
23.833	2.000	34.77	0.00	3.03	76.9	24.238
23.917	2.000	34.53	0.00	2.99	76.0	23.952

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 173.255 AF
BASIN STORAGE = 2.000 AF (WITH 2.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 173.255 AF
LOSS VOLUME = 0.000 AF

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FLOW PROCESS FROM NODE 110.00 TO NODE 109.00 IS CODE = 4

>>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<

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MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 500.00 MANNINGS FACTOR = 0.013
UPSTREAM ELEVATION(FT) = 3088.00
DOWNSTREAM ELEVATION(FT) = 3082.00
PIPE DIAMETER(FT) = 6.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
0.083	0.01	0.50	0.00	0.000

Node 109 to 110 Pipe Routing

0.167	0.04	0.50	0.00	0.000
0.250	0.14	0.50	0.00	0.000
0.333	0.37	0.50	0.00	0.000
0.417	0.72	0.50	0.03	0.000
0.500	1.15	0.50	0.10	0.000
0.583	1.63	0.60	0.29	0.000
0.667	2.13	0.78	0.60	0.000
0.750	2.66	0.98	1.35	0.000
0.833	3.20	1.18	4.31	0.000
0.917	3.74	1.38	4.00	0.000
1.000	4.30	1.58	4.29	0.000
1.083	4.85	1.79	5.17	0.000
1.167	5.41	1.99	5.64	0.000
1.250	5.96	2.19	5.96	0.000
1.333	6.52	2.40	6.52	0.000
1.417	7.07	2.60	7.07	0.000
1.500	7.61	2.80	7.61	0.000
1.583	8.16	3.00	8.16	0.000
1.667	8.69	3.20	8.69	0.000
1.750	9.23	3.39	9.23	0.000
1.833	9.75	3.59	9.75	0.000
1.917	10.27	3.78	10.27	0.000
2.000	10.78	3.97	10.78	0.000
2.083	11.29	4.15	11.29	0.000
2.167	11.79	4.34	11.79	0.000
2.250	12.28	4.52	12.28	0.000
2.333	12.77	4.70	12.77	0.000
2.417	13.25	4.87	13.25	0.000
2.500	13.73	5.05	13.73	0.000
2.583	14.19	5.22	14.19	0.000
2.667	14.66	5.39	14.66	0.000
2.750	15.11	5.56	15.11	0.000
2.833	15.56	5.72	15.56	0.000
2.917	16.00	5.88	16.00	0.000
3.000	16.43	6.04	16.43	0.000
3.083	16.86	6.20	16.86	0.000
3.167	17.28	6.36	17.28	0.000
3.250	17.69	6.51	17.69	0.000
3.333	18.10	6.66	18.10	0.000
3.417	18.51	6.81	18.51	0.000
3.500	18.91	6.95	18.91	0.000
3.583	19.30	7.10	19.30	0.000
3.667	19.69	7.24	19.69	0.000
3.750	20.07	7.38	20.07	0.000
3.833	20.45	7.52	20.45	0.000
3.917	20.82	7.66	20.82	0.000
4.000	21.19	7.79	21.19	0.000
4.083	21.55	7.93	21.55	0.000
4.167	21.91	8.06	21.91	0.000
4.250	22.26	8.19	22.26	0.000
4.333	22.61	8.32	22.61	0.000
4.417	22.96	8.45	22.96	0.000
4.500	23.30	8.54	23.29	0.000
4.583	23.64	8.57	23.59	0.000
4.667	23.98	8.59	23.93	0.000
4.750	24.31	8.62	24.26	0.000
4.833	24.64	8.64	24.59	0.000

4.917	24.96	8.67	24.91	0.000
5.000	25.29	8.70	25.24	0.000
5.083	25.60	8.72	25.56	0.000
5.167	25.92	8.74	25.87	0.000
5.250	26.23	8.77	26.19	0.000
5.333	26.54	8.79	26.50	0.000
5.417	26.85	8.82	26.81	0.000
5.500	27.16	8.84	27.11	0.000
5.583	27.46	8.86	27.41	0.000
5.667	27.76	8.89	27.72	0.000
5.750	28.06	8.91	28.01	0.000
5.833	28.35	8.93	28.31	0.000
5.917	28.65	8.96	28.60	0.000
6.000	28.94	8.98	28.90	0.000
6.083	29.23	9.00	29.19	0.000
6.167	29.52	9.02	29.48	0.000
6.250	29.80	9.05	29.76	0.000
6.333	30.09	9.07	30.05	0.000
6.417	30.37	9.09	30.33	0.000
6.500	30.65	9.11	30.61	0.000
6.583	30.93	9.13	30.90	0.000
6.667	31.21	9.16	31.18	0.000
6.750	31.49	9.18	31.45	0.000
6.833	31.77	9.20	31.73	0.000
6.917	32.05	9.22	32.01	0.000
7.000	32.32	9.24	32.29	0.000
7.083	32.60	9.26	32.56	0.000
7.167	32.87	9.29	32.84	0.000
7.250	33.15	9.31	33.11	0.000
7.333	33.42	9.33	33.38	0.000
7.417	33.69	9.35	33.66	0.000
7.500	33.97	9.37	33.93	0.000
7.583	34.24	9.39	34.20	0.000
7.667	34.51	9.41	34.48	0.000
7.750	34.78	9.43	34.75	0.000
7.833	35.06	9.46	35.02	0.000
7.917	35.33	9.48	35.29	0.000
8.000	35.60	9.50	35.57	0.000
8.083	35.87	9.52	35.84	0.000
8.167	36.15	9.54	36.11	0.000
8.250	36.42	9.56	36.39	0.000
8.333	36.70	9.58	36.66	0.000
8.417	36.97	9.60	36.94	0.000
8.500	37.25	9.63	37.22	0.000
8.583	37.53	9.65	37.49	0.000
8.667	37.81	9.67	37.77	0.000
8.750	38.09	9.69	38.05	0.000
8.833	38.37	9.71	38.33	0.000
8.917	38.65	9.73	38.61	0.000
9.000	38.93	9.76	38.90	0.000
9.083	39.22	9.78	39.18	0.000
9.167	39.50	9.80	39.47	0.000
9.250	39.79	9.82	39.76	0.000
9.333	40.08	9.85	40.05	0.000
9.417	40.37	9.87	40.34	0.000
9.500	40.67	9.89	40.63	0.000
9.583	40.96	9.91	40.93	0.000

9.667	41.26	9.94	41.23	0.000
9.750	41.56	9.96	41.53	0.000
9.833	41.86	9.99	41.83	0.000
9.917	42.17	10.01	42.14	0.000
10.000	42.48	10.03	42.45	0.000
10.083	42.79	10.06	42.76	0.000
10.167	43.11	10.08	43.07	0.000
10.250	43.42	10.11	43.39	0.000
10.333	43.75	10.13	43.71	0.000
10.417	44.07	10.16	44.04	0.000
10.500	44.40	10.18	44.36	0.000
10.583	44.73	10.21	44.70	0.000
10.667	45.07	10.23	45.03	0.000
10.750	45.41	10.26	45.37	0.000
10.833	45.75	10.29	45.72	0.000
10.917	46.10	10.31	46.07	0.000
11.000	46.46	10.34	46.42	0.000
11.083	46.81	10.36	46.77	0.000
11.167	47.18	10.39	47.14	0.000
11.250	47.56	10.41	47.51	0.000
11.333	47.94	10.43	47.89	0.000
11.417	48.32	10.45	48.28	0.000
11.500	48.72	10.48	48.67	0.000
11.583	49.12	10.50	49.07	0.000
11.667	49.52	10.53	49.48	0.000
11.750	49.93	10.55	49.89	0.000
11.833	50.35	10.58	50.31	0.000
11.917	50.78	10.60	50.73	0.000
12.000	51.22	10.63	51.17	0.000
12.083	51.66	10.65	51.61	0.000
12.167	52.09	10.68	52.04	0.000
12.250	52.50	10.70	52.46	0.000
12.333	52.86	10.73	52.82	0.000
12.417	53.16	10.74	53.13	0.000
12.500	53.44	10.76	53.41	0.000
12.583	53.70	10.78	53.67	0.000
12.667	53.96	10.79	53.93	0.000
12.750	54.22	10.81	54.19	0.000
12.833	54.48	10.82	54.45	0.000
12.917	54.75	10.84	54.72	0.000
13.000	55.04	10.86	55.00	0.000
13.083	55.33	10.87	55.30	0.000
13.167	55.64	10.89	55.60	0.000
13.250	55.96	10.91	55.93	0.000
13.333	56.30	10.93	56.26	0.000
13.417	56.66	10.95	56.62	0.000
13.500	57.03	10.98	56.99	0.000
13.583	57.43	11.00	57.39	0.000
13.667	57.85	11.03	57.81	0.000
13.750	58.30	11.05	58.25	0.000
13.833	58.77	11.08	58.72	0.000
13.917	59.26	11.11	59.21	0.000
14.000	59.79	11.14	59.73	0.000
14.083	60.34	11.18	60.29	0.000
14.167	60.94	11.21	60.88	0.000
14.250	61.57	11.25	61.51	0.000
14.333	62.26	11.29	62.19	0.000

14.417	62.99	11.34	62.92	0.000
14.500	63.79	11.38	63.71	0.000
14.583	64.63	11.43	64.55	0.000
14.667	65.53	11.49	65.44	0.000
14.750	66.49	11.55	66.40	0.000
14.833	67.51	11.61	67.42	0.000
14.917	68.60	11.67	68.50	0.000
15.000	69.77	11.74	69.66	0.000
15.083	71.03	11.80	70.90	0.000
15.167	72.37	11.86	72.24	0.000
15.250	73.83	11.93	73.68	0.000
15.333	75.41	12.00	75.25	0.000
15.417	77.12	12.08	76.95	0.000
15.500	78.95	12.16	78.78	0.000
15.583	80.87	12.25	80.69	0.000
15.667	82.82	12.34	82.63	0.000
15.750	84.86	12.43	84.67	0.000
15.833	87.18	12.54	86.97	0.000
15.917	90.07	12.67	89.81	0.000
16.000	93.99	12.84	93.63	0.000
16.083	100.09	13.07	99.52	0.000
16.167	110.68	13.46	109.73	0.000
16.250	130.27	14.14	128.62	0.000
16.333	162.61	14.97	159.87	0.000
16.417	195.50	15.68	192.83	0.000
16.500	217.19	16.10	215.48	0.000
16.583	231.04	16.39	230.03	0.000
16.667	240.30	16.56	239.61	0.000
16.750	246.50	16.67	246.04	0.000
16.833	250.47	16.74	250.18	0.000
16.917	252.86	16.78	252.69	0.000
17.000	254.04	16.80	253.95	0.000
17.083	254.13	16.80	254.12	0.000
17.167	253.38	16.79	253.43	0.000
17.250	252.03	16.76	252.13	0.000
17.333	250.15	16.73	250.28	0.000
17.417	247.80	16.69	247.97	0.000
17.500	245.08	16.64	245.28	0.000
17.583	242.06	16.59	242.28	0.000
17.667	238.77	16.53	239.01	0.000
17.750	235.24	16.47	235.51	0.000
17.833	231.51	16.40	231.79	0.000
17.917	227.62	16.32	227.89	0.000
18.000	223.67	16.23	223.96	0.000
18.083	219.77	16.15	220.06	0.000
18.167	215.93	16.07	216.21	0.000
18.250	212.14	15.99	212.43	0.000
18.333	208.45	15.91	208.73	0.000
18.417	204.81	15.85	205.10	0.000
18.500	201.03	15.78	201.34	0.000
18.583	197.14	15.71	197.46	0.000
18.667	193.31	15.64	193.63	0.000
18.750	189.56	15.58	189.88	0.000
18.833	185.89	15.51	186.20	0.000
18.917	182.28	15.43	182.56	0.000
19.000	178.74	15.35	179.02	0.000
19.083	175.27	15.27	175.55	0.000

19.167	171.87	15.19	172.14	0.000
19.250	168.54	15.11	168.81	0.000
19.333	165.28	15.03	165.55	0.000
19.417	162.08	14.96	162.35	0.000
19.500	158.95	14.89	159.22	0.000
19.583	155.89	14.82	156.15	0.000
19.667	152.90	14.75	153.15	0.000
19.750	149.96	14.68	150.22	0.000
19.833	147.09	14.62	147.35	0.000
19.917	144.29	14.56	144.54	0.000
20.000	141.54	14.49	141.79	0.000
20.083	138.85	14.43	139.09	0.000
20.167	136.23	14.34	136.43	0.000
20.250	133.75	14.26	133.95	0.000
20.333	131.70	14.19	131.86	0.000
20.417	129.96	14.13	130.10	0.000
20.500	128.25	14.07	128.39	0.000
20.583	126.56	14.01	126.70	0.000
20.667	124.90	13.95	125.03	0.000
20.750	123.25	13.90	123.39	0.000
20.833	121.63	13.84	121.77	0.000
20.917	120.03	13.79	120.17	0.000
21.000	118.46	13.74	118.59	0.000
21.083	116.90	13.68	117.04	0.000
21.167	115.37	13.63	115.50	0.000
21.250	113.86	13.57	113.99	0.000
21.333	112.37	13.52	112.50	0.000
21.417	110.91	13.47	111.03	0.000
21.500	109.46	13.41	109.59	0.000
21.583	108.04	13.36	108.16	0.000
21.667	106.64	13.31	106.76	0.000
21.750	105.25	13.26	105.38	0.000
21.833	103.89	13.21	104.02	0.000
21.917	102.56	13.16	102.68	0.000
22.000	101.24	13.11	101.36	0.000
22.083	99.94	13.06	100.06	0.000
22.167	98.66	13.01	98.78	0.000
22.250	97.40	12.97	97.51	0.000
22.333	96.16	12.92	96.27	0.000
22.417	94.94	12.88	95.05	0.000
22.500	93.73	12.83	93.85	0.000
22.583	92.55	12.79	92.66	0.000
22.667	91.39	12.73	91.49	0.000
22.750	90.24	12.68	90.34	0.000
22.833	89.11	12.63	89.21	0.000
22.917	88.00	12.58	88.10	0.000
23.000	86.91	12.53	87.01	0.000
23.083	85.83	12.48	85.93	0.000
23.167	84.77	12.43	84.87	0.000
23.250	83.73	12.38	83.83	0.000
23.333	82.71	12.34	82.80	0.000
23.417	81.70	12.29	81.79	0.000
23.500	80.70	12.24	80.80	0.000
23.583	79.73	12.20	79.82	0.000
23.667	78.76	12.15	78.86	0.000
23.750	77.82	12.11	77.91	0.000
23.833	76.89	12.07	76.98	0.000

23.917	75.97	12.03	76.06	0.000
24.000	75.07	11.98	75.16	0.000
24.083	74.18	11.94	74.26	0.000
24.167	73.27	11.90	73.36	0.000
24.250	72.31	11.86	72.41	0.000
24.333	71.23	11.81	71.34	0.000
24.417	70.05	11.75	70.17	0.000
24.500	68.80	11.68	68.92	0.000
24.583	67.52	11.61	67.64	0.000
24.667	66.23	11.53	66.35	0.000
24.750	64.94	11.45	65.06	0.000
24.833	63.65	11.38	63.78	0.000
24.917	62.37	11.30	62.50	0.000
25.000	61.11	11.22	61.23	0.000
25.083	59.85	11.15	59.98	0.000
25.167	58.62	11.07	58.74	0.000
25.250	57.40	11.00	57.52	0.000
25.333	56.20	10.93	56.32	0.000
25.417	55.01	10.86	55.14	0.000
25.500	53.85	10.79	53.98	0.000
25.583	52.71	10.72	52.83	0.000
25.667	51.59	10.65	51.71	0.000
25.750	50.49	10.58	50.61	0.000
25.833	49.41	10.52	49.53	0.000
25.917	48.35	10.46	48.47	0.000
26.000	47.31	10.39	47.43	0.000
26.083	46.31	10.33	46.42	0.000
26.167	45.32	10.25	45.43	0.000
26.250	44.36	10.18	44.46	0.000
26.333	43.42	10.11	43.52	0.000
26.417	42.49	10.03	42.59	0.000
26.500	41.58	9.96	41.69	0.000
26.583	40.70	9.89	40.80	0.000
26.667	39.83	9.83	39.93	0.000
26.750	38.98	9.76	39.08	0.000
26.833	38.14	9.70	38.24	0.000
26.917	37.33	9.63	37.43	0.000
27.000	36.53	9.57	36.63	0.000
27.083	35.75	9.51	35.85	0.000
27.167	34.99	9.45	35.09	0.000
27.250	34.24	9.39	34.34	0.000
27.333	33.51	9.34	33.61	0.000
27.417	32.80	9.28	32.89	0.000
27.500	32.10	9.23	32.19	0.000
27.583	31.41	9.17	31.50	0.000
27.667	30.74	9.12	30.83	0.000
27.750	30.08	9.07	30.17	0.000
27.833	29.44	9.02	29.53	0.000
27.917	28.81	8.97	28.90	0.000
28.000	28.20	8.92	28.28	0.000
28.083	27.60	8.87	27.68	0.000
28.167	27.01	8.83	27.09	0.000
28.250	26.43	8.78	26.51	0.000
28.333	25.87	8.74	25.95	0.000
28.417	25.31	8.70	25.40	0.000
28.500	24.77	8.66	24.85	0.000
28.583	24.24	8.61	24.32	0.000

28.667	23.73	8.57	23.81	0.000
28.750	23.22	8.53	23.30	0.000
28.833	22.72	8.36	22.73	0.000
28.917	22.24	8.18	22.24	0.000
29.000	21.76	8.01	21.76	0.000
29.083	21.30	7.83	21.30	0.000
29.167	20.85	7.67	20.85	0.000
29.250	20.40	7.50	20.40	0.000
29.333	19.96	7.34	19.96	0.000
29.417	19.54	7.19	19.54	0.000
29.500	19.12	7.03	19.12	0.000
29.583	18.71	6.88	18.71	0.000
29.667	18.31	6.74	18.31	0.000
29.750	17.92	6.59	17.92	0.000
29.833	17.54	6.45	17.54	0.000
29.917	17.17	6.31	17.17	0.000
30.000	16.80	6.18	16.80	0.000

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 7

>>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
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FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2650.0	5300.0	7950.0	10600.0
0.083	0.0164	2.38	Q	.	.	.	.
0.167	0.1917	25.45	Q	.	.	.	.
0.250	0.6373	64.70	Q	.	.	.	.
0.333	1.2272	85.66	Q	.	.	.	.
0.417	1.9435	104.01	Q	.	.	.	.
0.500	2.9003	138.93	Q	.	.	.	.
0.583	4.1065	175.14	Q	.	.	.	.
0.667	5.4938	201.43	Q	.	.	.	.
0.750	7.0206	221.70	Q	.	.	.	.
0.833	8.6785	240.72	Q	.	.	.	.
0.917	10.4317	254.56	Q	.	.	.	.
1.000	12.2740	267.50	VQ	.	.	.	.
1.083	14.2017	279.91	VQ	.	.	.	.
1.167	16.2067	291.13	VQ	.	.	.	.
1.250	18.2779	300.73	VQ	.	.	.	.
1.333	20.4079	309.27	VQ	.	.	.	.
1.417	22.5941	317.44	VQ	.	.	.	.
1.500	24.8307	324.76	VQ	.	.	.	.
1.583	27.1127	331.33	VQ	.	.	.	.
1.667	29.4371	337.51	VQ	.	.	.	.

1.750	31.8008	343.21	VQ	.	.	.	.
1.833	34.2010	348.51	VQ	.	.	.	.
1.917	36.6353	353.46	VQ	.	.	.	.
2.000	39.1020	358.17	VQ	.	.	.	.
2.083	41.5992	362.60	VQ	.	.	.	.
2.167	44.1247	366.69	VQ	.	.	.	.
2.250	46.6767	370.55	VQ	.	.	.	.
2.333	49.2539	374.22	VQ	.	.	.	.
2.417	51.8552	377.71	VQ	.	.	.	.
2.500	54.4785	380.90	VQ	.	.	.	.
2.583	57.1233	384.02	.Q	.	.	.	.
2.667	59.7890	387.06	.Q	.	.	.	.
2.750	62.4752	390.03	.Q	.	.	.	.
2.833	65.1814	392.93	.Q	.	.	.	.
2.917	67.9071	395.78	.Q	.	.	.	.
3.000	70.6522	398.58	.Q	.	.	.	.
3.083	73.4163	401.35	.Q	.	.	.	.
3.167	76.1992	404.08	.Q	.	.	.	.
3.250	79.0007	406.78	.Q	.	.	.	.
3.333	81.8207	409.46	.Q	.	.	.	.
3.417	84.6583	412.01	.Q	.	.	.	.
3.500	87.5131	414.52	.Q	.	.	.	.
3.583	90.3850	417.00	.Q	.	.	.	.
3.667	93.2739	419.47	.Q	.	.	.	.
3.750	96.1797	421.92	.Q	.	.	.	.
3.833	99.1023	424.36	.Q	.	.	.	.
3.917	102.0417	426.80	.Q	.	.	.	.
4.000	104.9977	429.22	.Q	.	.	.	.
4.083	107.9704	431.63	.Q	.	.	.	.
4.167	110.9596	434.04	.Q	.	.	.	.
4.250	113.9654	436.44	.Q	.	.	.	.
4.333	116.9878	438.84	.QV	.	.	.	.
4.417	120.0265	441.23	.QV	.	.	.	.
4.500	123.0812	443.54	.QV	.	.	.	.
4.583	126.1511	445.75	.QV	.	.	.	.
4.667	129.2363	447.97	.QV	.	.	.	.
4.750	132.3371	450.24	.QV	.	.	.	.
4.833	135.4540	452.58	.QV	.	.	.	.
4.917	138.5873	454.97	.QV	.	.	.	.
5.000	141.7373	457.38	.QV	.	.	.	.
5.083	144.9040	459.80	.QV	.	.	.	.
5.167	148.0875	462.24	.QV	.	.	.	.
5.250	151.2878	464.69	.QV	.	.	.	.
5.333	154.5050	467.14	.QV	.	.	.	.
5.417	157.7393	469.62	.QV	.	.	.	.
5.500	160.9906	472.10	.QV	.	.	.	.
5.583	164.2592	474.59	.QV	.	.	.	.
5.667	167.5450	477.10	.QV	.	.	.	.
5.750	170.8483	479.63	.QV	.	.	.	.
5.833	174.1691	482.17	.Q V	.	.	.	.
5.917	177.5075	484.74	.Q V	.	.	.	.
6.000	180.8636	487.31	.Q V	.	.	.	.
6.083	184.2377	489.91	.Q V	.	.	.	.
6.167	187.6298	492.53	.Q V	.	.	.	.
6.250	191.0401	495.17	.Q V	.	.	.	.
6.333	194.4687	497.83	.Q V	.	.	.	.
6.417	197.9158	500.52	.Q V	.	.	.	.

NODE 109 STREAM 2 ADDED TO STREAM 1

6.500	201.3815	503.22	.Q V	.	.	.	.
6.583	204.8660	505.96	.Q V	.	.	.	.
6.667	208.3695	508.71	.Q V	.	.	.	.
6.750	211.8922	511.50	.Q V	.	.	.	.
6.833	215.4343	514.31	.Q V	.	.	.	.
6.917	218.9959	517.15	.Q V	.	.	.	.
7.000	222.5772	520.01	.Q V	.	.	.	.
7.083	226.1786	522.91	.Q V	.	.	.	.
7.167	229.8000	525.84	.Q V	.	.	.	.
7.250	233.4419	528.80	.Q V	.	.	.	.
7.333	237.1044	531.79	. Q V	.	.	.	.
7.417	240.7877	534.82	. Q V	.	.	.	.
7.500	244.4921	537.88	. Q V	.	.	.	.
7.583	248.2179	540.98	. Q V	.	.	.	.
7.667	251.9652	544.12	. Q V	.	.	.	.
7.750	255.7345	547.29	. Q V	.	.	.	.
7.833	259.5258	550.50	. Q V	.	.	.	.
7.917	263.3396	553.76	. Q V	.	.	.	.
8.000	267.1760	557.05	. Q V	.	.	.	.
8.083	271.0355	560.39	. Q V	.	.	.	.
8.167	274.9182	563.78	. Q V	.	.	.	.
8.250	278.8246	567.21	. Q V	.	.	.	.
8.333	282.7550	570.68	. Q V	.	.	.	.
8.417	286.7096	574.21	. Q V	.	.	.	.
8.500	290.6888	577.78	. Q V	.	.	.	.
8.583	294.6929	581.40	. Q V	.	.	.	.
8.667	298.7224	585.08	. Q V	.	.	.	.
8.750	302.7776	588.81	. Q V	.	.	.	.
8.833	306.8588	592.60	. Q V	.	.	.	.
8.917	310.9666	596.45	. Q V	.	.	.	.
9.000	315.1013	600.35	. Q V	.	.	.	.
9.083	319.2633	604.32	. Q V	.	.	.	.
9.167	323.4531	608.35	. Q V	.	.	.	.
9.250	327.6711	612.45	. Q V	.	.	.	.
9.333	331.9177	616.61	. Q V	.	.	.	.
9.417	336.1935	620.85	. Q V	.	.	.	.
9.500	340.4990	625.15	. Q V	.	.	.	.
9.583	344.8346	629.53	. Q V	.	.	.	.
9.667	349.2009	633.98	. Q V	.	.	.	.
9.750	353.5984	638.52	. Q V	.	.	.	.
9.833	358.0276	643.13	. Q V	.	.	.	.
9.917	362.4893	647.83	. Q V	.	.	.	.
10.000	366.9839	652.61	. Q V	.	.	.	.
10.083	371.5120	657.49	. Q V	.	.	.	.
10.167	376.0743	662.45	. Q V	.	.	.	.
10.250	380.6715	667.51	. Q V	.	.	.	.
10.333	385.3043	672.67	. Q V	.	.	.	.
10.417	389.9732	677.94	. Q V	.	.	.	.
10.500	394.6791	683.30	. Q V	.	.	.	.
10.583	399.4228	688.78	. Q V	.	.	.	.
10.667	404.2049	694.36	. Q V	.	.	.	.
10.750	409.0264	700.08	. Q V	.	.	.	.
10.833	413.8880	705.90	. Q V	.	.	.	.
10.917	418.7906	711.86	. Q V	.	.	.	.
11.000	423.7352	717.95	. Q V	.	.	.	.
11.083	428.7226	724.18	. Q V	.	.	.	.
11.167	433.7542	730.58	. Q V	.	.	.	.

11.250	438.8316	737.25	. Q	V	.	.	.	.
11.333	443.9574	744.26	. Q	V	.	.	.	.
11.417	449.1346	751.73	. Q	V	.	.	.	.
11.500	454.3661	759.61	. Q	V	.	.	.	.
11.583	459.6544	767.87	. Q	V	.	.	.	.
11.667	465.0019	776.45	. Q	V	.	.	.	.
11.750	470.4106	785.34	. Q	V	.	.	.	.
11.833	475.8824	794.51	. Q	V	.	.	.	.
11.917	481.4195	803.99	. Q	V	.	.	.	.
12.000	487.0239	813.75	. Q	V	.	.	.	.
12.083	492.6957	823.55	. Q	V	.	.	.	.
12.167	498.4300	832.61	. Q	V	.	.	.	.
12.250	504.2119	839.54	. Q	V	.	.	.	.
12.333	509.9977	840.10	. Q	V	.	.	.	.
12.417	515.7248	831.57	. Q	V	.	.	.	.
12.500	521.3640	818.82	. Q	V	.	.	.	.
12.583	526.9266	807.68	. Q	V	.	.	.	.
12.667	532.4428	800.95	. Q	V	.	.	.	.
12.750	537.9390	798.05	. Q	V	.	.	.	.
12.833	543.4349	798.00	. Q	V	.	.	.	.
12.917	548.9469	800.34	. Q	V	.	.	.	.
13.000	554.4893	804.75	. Q	V	.	.	.	.
13.083	560.0742	810.93	. Q	V	.	.	.	.
13.167	565.7120	818.61	. Q	V	.	.	.	.
13.250	571.4121	827.65	. Q	V	.	.	.	.
13.333	577.1827	837.90	. Q	V	.	.	.	.
13.417	583.0321	849.33	. Q	V	.	.	.	.
13.500	588.9680	861.89	. Q	V	.	.	.	.
13.583	594.9981	875.58	. Q	V	.	.	.	.
13.667	601.1303	890.39	. Q	V	.	.	.	.
13.750	607.3726	906.39	. Q	V	.	.	.	.
13.833	613.7332	923.55	. Q	V	.	.	.	.
13.917	620.2206	941.99	. Q	V	.	.	.	.
14.000	626.8435	961.64	. Q	V	.	.	.	.
14.083	633.6115	982.71	. Q	V	.	.	.	.
14.167	640.5355	1005.37	. Q	V	.	.	.	.
14.250	647.6301	1030.14	. Q	V	.	.	.	.
14.333	654.9168	1058.03	. Q	V	.	.	.	.
14.417	662.4210	1089.61	. Q	V	.	.	.	.
14.500	670.1559	1123.10	. Q	V	.	.	.	.
14.583	678.1250	1157.11	. Q	V	.	.	.	.
14.667	686.3338	1191.92	. Q	V	.	.	.	.
14.750	694.7995	1229.22	. Q	V	.	.	.	.
14.833	703.5455	1269.91	. Q	V	.	.	.	.
14.917	712.5983	1314.46	. Q	V	.	.	.	.
15.000	721.9849	1362.94	. Q	V	.	.	.	.
15.083	731.7355	1415.78	. Q	V	.	.	.	.
15.167	741.8827	1473.38	. Q	V	.	.	.	.
15.250	752.4651	1536.58	. Q	V	.	.	.	.
15.333	763.5269	1606.17	. Q	V	.	.	.	.
15.417	775.1163	1682.78	. Q	V	.	.	.	.
15.500	787.2756	1765.52	. Q	V	.	.	.	.
15.583	800.0320	1852.24	. Q	V	.	.	.	.
15.667	813.3412	1932.49	. Q	V	.	.	.	.
15.750	827.1332	2002.61	. Q	V	.	.	.	.
15.833	841.4965	2085.54	. Q	V	.	.	.	.
15.917	856.7637	2216.80	. Q	V	.	.	.	.

16.000	873.6027	2445.03	. Q. V . . .
16.083	893.4553	2882.59	. Q V . . .
16.167	918.6193	3653.81	. . Q V . . .
16.250	952.5082	4920.67	. . V Q . . .
16.333	1001.6307	7132.59	. . V . Q . .
16.417	1067.9701	9632.48	. . V . . Q .
16.500	1140.4403	10522.67	. . V . . Q.
16.583	1207.9652	9804.62	. . .V . Q .
16.667	1266.4835	8496.86	. . . V . Q .
16.750	1318.1436	7501.04	. . . V Q . .
16.833	1364.9272	6792.99	. . . V Q . .
16.917	1407.7250	6214.23	. . . QV . .
17.000	1446.9089	5689.51	. . .Q V . .
17.083	1482.8728	5221.96	. . Q. V . .
17.167	1515.9313	4800.10	. . Q . V . .
17.250	1546.4990	4438.43	. . Q . V . .
17.333	1574.9270	4127.74	. . Q . V . .
17.417	1601.4272	3847.84	. . Q . V . .
17.500	1626.1378	3587.98	. . Q . V . .
17.583	1649.2611	3357.50	. . Q . V . .
17.667	1670.8975	3141.59	. .Q . V. .
17.750	1691.1653	2942.89	. .Q . V. .
17.833	1710.1602	2758.05	. Q . V .
17.917	1727.9711	2586.14	. Q. . V .
18.000	1744.7842	2441.27	. Q. . V .
18.083	1760.7131	2312.88	. Q . . V .
18.167	1775.8376	2196.07	. Q . . .V .
18.250	1790.2412	2091.40	. Q . . .V .
18.333	1803.9121	1985.01	. Q . . .V .
18.417	1816.8956	1885.21	. Q . . .V .
18.500	1829.1995	1786.51	. Q . . . V .
18.583	1840.7986	1684.18	. Q . . . V .
18.667	1851.8304	1601.82	. Q . . . V .
18.750	1862.3895	1533.19	. Q . . . V .
18.833	1872.5244	1471.59	. Q . . . V .
18.917	1882.2766	1416.02	. Q . . . V .
19.000	1891.6724	1364.26	. Q . . . V .
19.083	1900.7178	1313.39	. Q . . . V .
19.167	1909.4358	1265.86	. Q . . . V .
19.250	1917.8678	1224.32	. Q . . . V .
19.333	1926.0519	1188.32	. Q . . . V .
19.417	1933.9370	1144.91	. Q . . . V .
19.500	1941.6124	1114.48	. Q . . . V .
19.583	1949.1166	1089.60	. Q . . . V .
19.667	1956.4600	1066.26	. Q . . . V .
19.750	1963.6490	1043.86	. Q . . . V .
19.833	1970.6903	1022.39	. Q . . . V .
19.917	1977.5894	1001.74	. Q . . . V .
20.000	1984.3500	981.64	. Q . . . V .
20.083	1990.9733	961.70	. Q . . . V .
20.167	1997.4606	941.95	. Q . . . V .
20.250	2003.8169	922.93	. Q . . . V .
20.333	2010.0497	905.00	. Q . . . V .
20.417	2016.1659	888.07	. Q . . . V .
20.500	2022.1700	871.80	. Q . . . V .
20.583	2028.0659	856.08	. Q . . . V .
20.667	2033.8577	840.96	. Q . . . V .

20.750	2039.5492	826.42	.	Q	.	.	.	V .
20.833	2045.1444	812.43	.	Q	.	.	.	V .
20.917	2050.6462	798.86	.	Q	.	.	.	V .
21.000	2056.0569	785.63	.	Q	.	.	.	V .
21.083	2061.3794	772.82	.	Q	.	.	.	V .
21.167	2066.6169	760.48	.	Q	.	.	.	V .
21.250	2071.7725	748.59	.	Q	.	.	.	V .
21.333	2076.8491	737.13	.	Q	.	.	.	V .
21.417	2081.8494	726.03	.	Q	.	.	.	V .
21.500	2086.7756	715.29	.	Q	.	.	.	V .
21.583	2091.6304	704.91	.	Q	.	.	.	V .
21.667	2096.4160	694.88	.	Q	.	.	.	V .
21.750	2101.1348	685.18	.	Q	.	.	.	V .
21.833	2105.7888	675.78	.	Q	.	.	.	V .
21.917	2110.3804	666.69	.	Q	.	.	.	V .
22.000	2114.9111	657.88	.	Q	.	.	.	V .
22.083	2119.3833	649.34	.	Q	.	.	.	V .
22.167	2123.7983	641.06	.	Q	.	.	.	V .
22.250	2128.1580	633.03	.	Q	.	.	.	V .
22.333	2132.4641	625.25	.	Q	.	.	.	V .
22.417	2136.7185	617.74	.	Q	.	.	.	V .
22.500	2140.9229	610.49	.	Q	.	.	.	V .
22.583	2145.0789	603.47	.	Q	.	.	.	V .
22.667	2149.1880	596.64	.	Q	.	.	.	V .
22.750	2153.2512	589.99	.	Q	.	.	.	V .
22.833	2157.2700	583.51	.	Q	.	.	.	V .
22.917	2161.2451	577.20	.	Q	.	.	.	V .
23.000	2165.1780	571.05	.	Q	.	.	.	V .
23.083	2169.0688	564.96	.	Q	.	.	.	V .
23.167	2172.9172	558.79	.	Q	.	.	.	V .
23.250	2176.7234	552.64	.	Q	.	.	.	V .
23.333	2180.4888	546.75	.	Q	.	.	.	V .
23.417	2184.2161	541.21	.	Q	.	.	.	V .
23.500	2187.9070	535.91	.	Q	.	.	.	V .
23.583	2191.5623	530.74	.	Q	.	.	.	V .
23.667	2195.1826	525.68	.	Q	.	.	.	V .
23.750	2198.7690	520.74	.	Q	.	.	.	V .
23.833	2202.3223	515.91	.	Q	.	.	.	V .
23.917	2205.8428	511.19	.	Q	.	.	.	V .
24.000	2209.3315	506.56	.	Q	.	.	.	V .
24.083	2212.7849	501.44	.	Q	.	.	.	V .
24.167	2216.1885	494.18	.	Q	.	.	.	V .
24.250	2219.5049	481.56	.	Q	.	.	.	V .
24.333	2222.6389	455.06	.	Q	.	.	.	V .
24.417	2225.4736	411.59	.	Q	.	.	.	V.
24.500	2227.9839	364.50	.	Q	.	.	.	V.
24.583	2230.2158	324.09	.	Q	.	.	.	V.
24.667	2232.2297	292.41	.	Q	.	.	.	V.
24.750	2234.0640	266.32	.	Q	.	.	.	V.
24.833	2235.7437	243.89	Q	.	.	.	.	V.
24.917	2237.2886	224.34	Q	.	.	.	.	V.
25.000	2238.7163	207.30	Q	.	.	.	.	V.
25.083	2240.0413	192.37	Q	.	.	.	.	V.
25.167	2241.2764	179.33	Q	.	.	.	.	V.
25.250	2242.4324	167.84	Q	.	.	.	.	V.
25.333	2243.5178	157.62	Q	.	.	.	.	V.
25.417	2244.5405	148.50	Q	.	.	.	.	V.

25.500	2245.5071	140.35	Q	.	.	.	V.
25.583	2246.4231	132.99	Q	.	.	.	V.
25.667	2247.2935	126.38	Q	.	.	.	V.
25.750	2248.1226	120.39	Q	.	.	.	V.
25.833	2248.9141	114.92	Q	.	.	.	V.
25.917	2249.6711	109.91	Q	.	.	.	V.
26.000	2250.3958	105.22	Q	.	.	.	V.
26.083	2251.0903	100.85	Q	.	.	.	V.
26.167	2251.7573	96.85	Q	.	.	.	V.
26.250	2252.3989	93.17	Q	.	.	.	V.
26.333	2253.0176	89.82	Q	.	.	.	V.
26.417	2253.6147	86.72	Q	.	.	.	V.
26.500	2254.1924	83.88	Q	.	.	.	V.
26.583	2254.7522	81.27	Q	.	.	.	V.
26.667	2255.2952	78.82	Q	.	.	.	V.
26.750	2255.8220	76.50	Q	.	.	.	V.
26.833	2256.3337	74.30	Q	.	.	.	V.
26.917	2256.8311	72.20	Q	.	.	.	V.
27.000	2257.3145	70.17	Q	.	.	.	V.
27.083	2257.7842	68.22	Q	.	.	.	V.
27.167	2258.2410	66.34	Q	.	.	.	V.
27.250	2258.6853	64.52	Q	.	.	.	V.
27.333	2259.1174	62.76	Q	.	.	.	V.
27.417	2259.5386	61.16	Q	.	.	.	V.
27.500	2259.9495	59.65	Q	.	.	.	V.
27.583	2260.3501	58.18	Q	.	.	.	V.
27.667	2260.7410	56.76	Q	.	.	.	V.
27.750	2261.1223	55.39	Q	.	.	.	V.
27.833	2261.4946	54.06	Q	.	.	.	V.
27.917	2261.8582	52.77	Q	.	.	.	V.
28.000	2262.2131	51.53	Q	.	.	.	V.
28.083	2262.5596	50.32	Q	.	.	.	V.
28.167	2262.8979	49.15	Q	.	.	.	V.
28.250	2263.2285	48.01	Q	.	.	.	V.
28.333	2263.5515	46.91	Q	.	.	.	V.
28.417	2263.8672	45.84	Q	.	.	.	V.
28.500	2264.1758	44.80	Q	.	.	.	V.
28.583	2264.4773	43.79	Q	.	.	.	V.
28.667	2264.7722	42.81	Q	.	.	.	V.
28.750	2265.0605	41.85	Q	.	.	.	V.
28.833	2265.3418	40.85	Q	.	.	.	V.
28.917	2265.6169	39.95	Q	.	.	.	V.
29.000	2265.8860	39.07	Q	.	.	.	V.
29.083	2266.1492	38.22	Q	.	.	.	V.
29.167	2266.4067	37.40	Q	.	.	.	V.
29.250	2266.6587	36.59	Q	.	.	.	V.
29.333	2266.9053	35.81	Q	.	.	.	V.
29.417	2267.1467	35.04	Q	.	.	.	V.
29.500	2267.3831	34.30	Q	.	.	.	V.
29.583	2267.6143	33.57	Q	.	.	.	V.
29.667	2267.8406	32.87	Q	.	.	.	V.
29.750	2268.0623	32.18	Q	.	.	.	V.
29.833	2268.2793	31.51	Q	.	.	.	V.
29.917	2268.4917	30.86	Q	.	.	.	V.
30.000	2268.7000	30.24	Q	.	.	.	V.
30.083	2268.9041	29.64	Q	.	.	.	V.
30.167	2269.1038	29.01	Q	.	.	.	V.

30.250	2269.2993	28.40	Q	.	.	.	V.
30.333	2269.4910	27.82	Q	.	.	.	V.
30.417	2269.6787	27.26	Q	.	.	.	V.
30.500	2269.8625	26.71	Q	.	.	.	V.
30.583	2270.0427	26.17	Q	.	.	.	V.
30.667	2270.2192	25.65	Q	.	.	.	V.
30.750	2270.3923	25.14	Q	.	.	.	V.
30.833	2270.5620	24.64	Q	.	.	.	V.
30.917	2270.7283	24.15	Q	.	.	.	V.
31.000	2270.8914	23.67	Q	.	.	.	V.
31.083	2271.0513	23.22	Q	.	.	.	V.
31.167	2271.2083	22.79	Q	.	.	.	V.
31.250	2271.3623	22.39	Q	.	.	.	V.
31.333	2271.5134	21.96	Q	.	.	.	V.
31.417	2271.6616	21.53	Q	.	.	.	V.
31.500	2271.8071	21.11	Q	.	.	.	V.
31.583	2271.9497	20.70	Q	.	.	.	V.
31.667	2272.0896	20.30	Q	.	.	.	V.
31.750	2272.2268	19.91	Q	.	.	.	V.
31.833	2272.3613	19.53	Q	.	.	.	V.
31.917	2272.4932	19.16	Q	.	.	.	V.
32.000	2272.6226	18.79	Q	.	.	.	V.
32.083	2272.7495	18.43	Q	.	.	.	V.
32.167	2272.8740	18.08	Q	.	.	.	V.
32.250	2272.9961	17.74	Q	.	.	.	V.
32.333	2273.1160	17.41	Q	.	.	.	V.
32.417	2273.2336	17.08	Q	.	.	.	V.
32.500	2273.3491	16.76	Q	.	.	.	V.
32.583	2273.4624	16.44	Q	.	.	.	V.
32.667	2273.5735	16.14	Q	.	.	.	V.
32.750	2273.6826	15.83	Q	.	.	.	V.
32.833	2273.7896	15.54	Q	.	.	.	V.
32.917	2273.8945	15.25	Q	.	.	.	V.
33.000	2273.9976	14.97	Q	.	.	.	V.
33.083	2274.0986	14.69	Q	.	.	.	V.
33.167	2274.1980	14.42	Q	.	.	.	V.
33.250	2274.2954	14.16	Q	.	.	.	V.
33.333	2274.3911	13.90	Q	.	.	.	V.
33.417	2274.4851	13.64	Q	.	.	.	V.
33.500	2274.5774	13.39	Q	.	.	.	V.
33.583	2274.6680	13.15	Q	.	.	.	V.
33.667	2274.7568	12.91	Q	.	.	.	V.
33.750	2274.8442	12.68	Q	.	.	.	V.
33.833	2274.9299	12.45	Q	.	.	.	V.
33.917	2275.0142	12.22	Q	.	.	.	V.
34.000	2275.0969	12.00	Q	.	.	.	V.
34.083	2275.1780	11.78	Q	.	.	.	V.
34.167	2275.2576	11.57	Q	.	.	.	V.
34.250	2275.3359	11.36	Q	.	.	.	V.
34.333	2275.4128	11.16	Q	.	.	.	V.
34.417	2275.4883	10.96	Q	.	.	.	V.
34.500	2275.5625	10.77	Q	.	.	.	V.
34.583	2275.6353	10.57	Q	.	.	.	V.
34.667	2275.7068	10.39	Q	.	.	.	V.
34.750	2275.7771	10.20	Q	.	.	.	V.
34.833	2275.8462	10.02	Q	.	.	.	V.
34.917	2275.9141	9.84	Q	.	.	.	V.

35.000	2275.9807	9.67	Q	.	.	.	V.
35.083	2276.0464	9.53	Q	.	.	.	V.
35.167	2276.1111	9.40	Q	.	.	.	V.
35.250	2276.1743	9.17	Q	.	.	.	V.
35.333	2276.2363	9.01	Q	.	.	.	V.
35.417	2276.2974	8.85	Q	.	.	.	V.
35.500	2276.3572	8.70	Q	.	.	.	V.
35.583	2276.4160	8.54	Q	.	.	.	V.
35.667	2276.4739	8.40	Q	.	.	.	V.
35.750	2276.5308	8.25	Q	.	.	.	V.
35.833	2276.5867	8.11	Q	.	.	.	V.
35.917	2276.6416	7.97	Q	.	.	.	V.
36.000	2276.6956	7.83	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	2165.0
10%	325.0
20%	140.0
30%	90.0
40%	65.0
50%	45.0
60%	35.0
70%	25.0
80%	20.0
90%	15.0

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****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    111.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =  120.00     CHANNEL Z =  2.00
          UPSTREAM ELEVATION(FT) =    3082.00
          DOWNSTREAM ELEVATION(FT) =    3070.00
          CHANNEL LENGTH(FT) =    1050.00     MANNING'S FACTOR = 0.030
          CONSTANT LOSS RATE(CFS) =    0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                               (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (   10522.7).......[ 15.15]
          AVERAGED PEAK 15-MINUTE: (    9986.6).......[ 14.84]
          AVERAGED PEAK 30-MINUTE: (    8848.4).......[ 14.23]
          AVERAGED PEAK  1-HOUR:   (    7227.5).......[ 13.19]
          AVERAGED PEAK  3-HOUR:   (    4202.4).......[ 10.78]
          AVERAGED PEAK  6-HOUR:   (    2737.6).......[  9.19]
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AVERAGED PEAK 24-HOUR: (1122.8).....[6.55]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 14.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (1050.00)/(14.000) = 0.021 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	2.38	1.79	1.79
0.167	25.45	19.68	19.68
0.250	64.70	54.89	54.89
0.333	85.66	80.42	80.42
0.417	104.01	99.42	99.42
0.500	138.93	130.20	130.20
0.583	175.14	166.09	166.09
0.667	201.43	194.86	194.86
0.750	221.70	216.63	216.63
0.833	240.72	235.97	235.97
0.917	254.56	251.10	251.10
1.000	267.50	264.27	264.27
1.083	279.91	276.81	276.81
1.167	291.13	288.32	288.32
1.250	300.73	298.33	298.33
1.333	309.27	307.14	307.14
1.417	317.44	315.40	315.40
1.500	324.76	322.93	322.93
1.583	331.33	329.69	329.69
1.667	337.51	335.96	335.96
1.750	343.21	341.78	341.78
1.833	348.51	347.19	347.19
1.917	353.46	352.23	352.23
2.000	358.17	356.99	356.99
2.083	362.60	361.49	361.49
2.167	366.69	365.67	365.67
2.250	370.55	369.59	369.59
2.333	374.22	373.30	373.30
2.417	377.71	376.84	376.84
2.500	380.90	380.11	380.11
2.583	384.02	383.24	383.24
2.667	387.06	386.30	386.30
2.750	390.03	389.29	389.29
2.833	392.93	392.21	392.21
2.917	395.78	395.07	395.07
3.000	398.58	397.88	397.88
3.083	401.35	400.66	400.66
3.167	404.08	403.40	403.40
3.250	406.78	406.11	406.11
3.333	409.46	408.79	408.79
3.417	412.01	411.38	411.38
3.500	414.52	413.89	413.89
3.583	417.00	416.38	416.38
3.667	419.47	418.85	418.85
3.750	421.92	421.31	421.31
3.833	424.36	423.75	423.75

NODES 109 → 111 CHANNEL ROUTING

3.917	426.80	426.19	426.19
4.000	429.22	428.61	428.61
4.083	431.63	431.03	431.03
4.167	434.04	433.44	433.44
4.250	436.44	435.84	435.84
4.333	438.84	438.24	438.24
4.417	441.23	440.63	440.63
4.500	443.54	442.96	442.96
4.583	445.75	445.20	445.20
4.667	447.97	447.41	447.41
4.750	450.24	449.67	449.67
4.833	452.58	451.99	451.99
4.917	454.97	454.37	454.37
5.000	457.38	456.77	456.77
5.083	459.80	459.20	459.20
5.167	462.24	461.63	461.63
5.250	464.69	464.08	464.08
5.333	467.14	466.53	466.53
5.417	469.62	469.00	469.00
5.500	472.10	471.48	471.48
5.583	474.59	473.97	473.97
5.667	477.10	476.48	476.48
5.750	479.63	479.00	479.00
5.833	482.17	481.54	481.54
5.917	484.74	484.10	484.10
6.000	487.31	486.67	486.67
6.083	489.91	489.26	489.26
6.167	492.53	491.88	491.88
6.250	495.17	494.51	494.51
6.333	497.83	497.17	497.17
6.417	500.52	499.84	499.84
6.500	503.22	502.54	502.54
6.583	505.96	505.27	505.27
6.667	508.71	508.02	508.02
6.750	511.50	510.80	510.80
6.833	514.31	513.60	513.60
6.917	517.15	516.44	516.44
7.000	520.01	519.30	519.30
7.083	522.91	522.19	522.19
7.167	525.84	525.11	525.11
7.250	528.80	528.06	528.06
7.333	531.79	531.04	531.04
7.417	534.82	534.06	534.06
7.500	537.88	537.12	537.12
7.583	540.98	540.21	540.21
7.667	544.12	543.33	543.33
7.750	547.29	546.50	546.50
7.833	550.50	549.70	549.70
7.917	553.76	552.94	552.94
8.000	557.05	556.23	556.23
8.083	560.39	559.56	559.56
8.167	563.78	562.93	562.93
8.250	567.21	566.35	566.35
8.333	570.68	569.81	569.81
8.417	574.21	573.33	573.33
8.500	577.78	576.89	576.89
8.583	581.40	580.50	580.50

8.667	585.08	584.16	584.16
8.750	588.81	587.88	587.88
8.833	592.60	591.65	591.65
8.917	596.45	595.49	595.49
9.000	600.35	599.38	599.38
9.083	604.32	603.33	603.33
9.167	608.35	607.34	607.34
9.250	612.45	611.43	611.43
9.333	616.61	615.57	615.57
9.417	620.85	619.79	619.79
9.500	625.15	624.08	624.08
9.583	629.53	628.44	628.44
9.667	633.98	632.87	632.87
9.750	638.52	637.38	637.38
9.833	643.13	641.98	641.98
9.917	647.83	646.66	646.66
10.000	652.61	651.42	651.42
10.083	657.49	656.27	656.27
10.167	662.45	661.21	661.21
10.250	667.51	666.25	666.25
10.333	672.67	671.38	671.38
10.417	677.94	676.62	676.62
10.500	683.30	681.96	681.96
10.583	688.78	687.41	687.41
10.667	694.36	692.97	692.97
10.750	700.08	698.65	698.65
10.833	705.90	704.45	704.45
10.917	711.86	710.37	710.37
11.000	717.95	716.42	716.42
11.083	724.18	722.62	722.62
11.167	730.58	728.98	728.98
11.250	737.25	735.58	735.58
11.333	744.26	742.51	742.51
11.417	751.73	749.86	749.86
11.500	759.61	757.64	757.64
11.583	767.87	765.81	765.81
11.667	776.45	774.30	774.30
11.750	785.34	783.11	783.11
11.833	794.51	792.22	792.22
11.917	803.99	801.62	801.62
12.000	813.75	811.31	811.31
12.083	823.55	821.10	821.10
12.167	832.61	830.35	830.35
12.250	839.54	837.81	837.81
12.333	840.10	839.96	839.96
12.417	831.57	833.70	833.70
12.500	818.82	822.01	822.01
12.583	807.68	810.47	810.47
12.667	800.95	802.64	802.64
12.750	798.05	798.78	798.78
12.833	798.00	798.01	798.01
12.917	800.34	799.75	799.75
13.000	804.75	803.65	803.65
13.083	810.93	809.39	809.39
13.167	818.61	816.69	816.69
13.250	827.65	825.39	825.39
13.333	837.90	835.34	835.34

13.417	849.33	846.47	846.47
13.500	861.89	858.75	858.75
13.583	875.58	872.16	872.16
13.667	890.39	886.69	886.69
13.750	906.39	902.39	902.39
13.833	923.55	919.26	919.26
13.917	941.99	937.38	937.38
14.000	961.64	956.73	956.73
14.083	982.71	977.44	977.44
14.167	1005.37	999.70	999.70
14.250	1030.14	1023.94	1023.94
14.333	1058.03	1051.06	1051.06
14.417	1089.61	1081.72	1081.72
14.500	1123.10	1114.73	1114.73
14.583	1157.11	1148.61	1148.61
14.667	1191.92	1183.22	1183.22
14.750	1229.22	1219.89	1219.89
14.833	1269.91	1259.74	1259.74
14.917	1314.46	1303.33	1303.33
15.000	1362.94	1350.82	1350.82
15.083	1415.78	1402.57	1402.57
15.167	1473.38	1458.98	1458.98
15.250	1536.58	1520.78	1520.78
15.333	1606.17	1588.77	1588.77
15.417	1682.78	1663.63	1663.63
15.500	1765.52	1744.84	1744.84
15.583	1852.24	1830.56	1830.56
15.667	1932.49	1912.43	1912.43
15.750	2002.61	1985.08	1985.08
15.833	2085.54	2064.81	2064.81
15.917	2216.80	2183.98	2183.98
16.000	2445.03	2387.97	2387.97
16.083	2882.59	2773.20	2773.20
16.167	3653.81	3461.01	3461.01
16.250	4920.67	4603.96	4603.96
16.333	7132.59	6579.61	6579.61
16.417	9632.48	9007.50	9007.50
16.500	10522.67	10300.12	10300.12
16.583	9804.62	9984.13	9984.13
16.667	8496.86	8823.80	8823.80
16.750	7501.04	7749.99	7749.99
16.833	6792.99	6970.00	6970.00
16.917	6214.23	6358.92	6358.92
17.000	5689.51	5820.69	5820.69
17.083	5221.96	5338.84	5338.84
17.167	4800.10	4905.56	4905.56
17.250	4438.43	4528.85	4528.85
17.333	4127.74	4205.42	4205.42
17.417	3847.84	3917.81	3917.81
17.500	3587.98	3652.95	3652.95
17.583	3357.50	3415.12	3415.12
17.667	3141.59	3195.57	3195.57
17.750	2942.89	2992.57	2992.57
17.833	2758.05	2804.26	2804.26
17.917	2586.14	2629.12	2629.12
18.000	2441.27	2477.48	2477.48
18.083	2312.88	2344.98	2344.98

18.167	2196.07	2225.28	2225.28
18.250	2091.40	2117.57	2117.57
18.333	1985.01	2011.61	2011.61
18.417	1885.21	1910.16	1910.16
18.500	1786.51	1811.18	1811.18
18.583	1684.18	1709.77	1709.77
18.667	1601.82	1622.41	1622.41
18.750	1533.19	1550.34	1550.34
18.833	1471.59	1486.99	1486.99
18.917	1416.02	1429.91	1429.91
19.000	1364.26	1377.20	1377.20
19.083	1313.39	1326.11	1326.11
19.167	1265.86	1277.74	1277.74
19.250	1224.32	1234.71	1234.71
19.333	1188.32	1197.32	1197.32
19.417	1144.91	1155.77	1155.77
19.500	1114.48	1122.09	1122.09
19.583	1089.60	1095.82	1095.82
19.667	1066.26	1072.09	1072.09
19.750	1043.86	1049.46	1049.46
19.833	1022.39	1027.76	1027.76
19.917	1001.74	1006.90	1006.90
20.000	981.64	986.67	986.67
20.083	961.70	966.68	966.68
20.167	941.95	946.89	946.89
20.250	922.93	927.69	927.69
20.333	905.00	909.48	909.48
20.417	888.07	892.30	892.30
20.500	871.80	875.87	875.87
20.583	856.08	860.01	860.01
20.667	840.96	844.74	844.74
20.750	826.42	830.05	830.05
20.833	812.43	815.92	815.92
20.917	798.86	802.25	802.25
21.000	785.63	788.94	788.94
21.083	772.82	776.02	776.02
21.167	760.48	763.56	763.56
21.250	748.59	751.56	751.56
21.333	737.13	740.00	740.00
21.417	726.03	728.80	728.80
21.500	715.29	717.97	717.97
21.583	704.91	707.51	707.51
21.667	694.88	697.39	697.39
21.750	685.18	687.60	687.60
21.833	675.78	678.13	678.13
21.917	666.69	668.96	668.96
22.000	657.88	660.08	660.08
22.083	649.34	651.48	651.48
22.167	641.06	643.13	643.13
22.250	633.03	635.04	635.04
22.333	625.25	627.20	627.20
22.417	617.74	619.61	619.61
22.500	610.49	612.30	612.30
22.583	603.47	605.22	605.22
22.667	596.64	598.34	598.34
22.750	589.99	591.65	591.65
22.833	583.51	585.13	585.13

22.917	577.20	578.78	578.78
23.000	571.05	572.58	572.58
23.083	564.96	566.48	566.48
23.167	558.79	560.33	560.33
23.250	552.64	554.18	554.18
23.333	546.75	548.22	548.22
23.417	541.21	542.60	542.60
23.500	535.91	537.23	537.23
23.583	530.74	532.03	532.03
23.667	525.68	526.95	526.95
23.750	520.74	521.98	521.98
23.833	515.91	517.12	517.12
23.917	511.19	512.37	512.37
24.000	506.56	507.72	507.72
24.083	501.44	502.72	502.72
24.167	494.18	496.00	496.00
24.250	481.56	484.71	484.71
24.333	455.06	461.69	461.69
24.417	411.59	422.46	422.46
24.500	364.50	376.27	376.27
24.583	324.09	334.19	334.19
24.667	292.41	300.33	300.33
24.750	266.32	272.84	272.84
24.833	243.89	249.50	249.50
24.917	224.34	229.23	229.23
25.000	207.30	211.56	211.56
25.083	192.37	196.11	196.11
25.167	179.33	182.59	182.59
25.250	167.84	170.71	170.71
25.333	157.62	160.17	160.17
25.417	148.50	150.78	150.78
25.500	140.35	142.39	142.39
25.583	132.99	134.83	134.83
25.667	126.38	128.03	128.03
25.750	120.39	121.89	121.89
25.833	114.92	116.29	116.29
25.917	109.91	111.16	111.16
26.000	105.22	106.40	106.40
26.083	100.85	101.95	101.95
26.167	96.85	97.85	97.85
26.250	93.17	94.09	94.09
26.333	89.82	90.65	90.65
26.417	86.72	87.50	87.50
26.500	83.88	84.59	84.59
26.583	81.27	81.92	81.92
26.667	78.82	79.43	79.43
26.750	76.50	77.08	77.08
26.833	74.30	74.85	74.85
26.917	72.20	72.72	72.72
27.000	70.17	70.68	70.68
27.083	68.22	68.71	68.71
27.167	66.34	66.81	66.81
27.250	64.52	64.97	64.97
27.333	62.76	63.20	63.20
27.417	61.16	61.56	61.56
27.500	59.65	60.03	60.03
27.583	58.18	58.55	58.55

27.667	56.76	57.12	57.12
27.750	55.39	55.73	55.73
27.833	54.06	54.39	54.39
27.917	52.77	53.09	53.09
28.000	51.53	51.84	51.84
28.083	50.32	50.62	50.62
28.167	49.15	49.44	49.44
28.250	48.01	48.29	48.29
28.333	46.91	47.18	47.18
28.417	45.84	46.10	46.10
28.500	44.80	45.06	45.06
28.583	43.79	44.04	44.04
28.667	42.81	43.05	43.05
28.750	41.85	42.09	42.09
28.833	40.85	41.10	41.10
28.917	39.95	40.18	40.18
29.000	39.07	39.29	39.29
29.083	38.22	38.44	38.44
29.167	37.40	37.60	37.60
29.250	36.59	36.79	36.79
29.333	35.81	36.00	36.00
29.417	35.04	35.23	35.23
29.500	34.30	34.48	34.48
29.583	33.57	33.75	33.75
29.667	32.87	33.04	33.04
29.750	32.18	32.35	32.35
29.833	31.51	31.68	31.68
29.917	30.86	31.02	31.02
30.000	30.24	30.39	30.39
30.083	29.64	29.79	29.79
30.167	29.01	29.17	29.17
30.250	28.40	28.55	28.55
30.333	27.82	27.96	27.96
30.417	27.26	27.40	27.40
30.500	26.71	26.84	26.84
30.583	26.17	26.30	26.30
30.667	25.65	25.78	25.78
30.750	25.14	25.26	25.26
30.833	24.64	24.76	24.76
30.917	24.15	24.27	24.27
31.000	23.67	23.79	23.79
31.083	23.22	23.33	23.33
31.167	22.79	22.90	22.90
31.250	22.39	22.49	22.49
31.333	21.96	22.07	22.07
31.417	21.53	21.64	21.64
31.500	21.11	21.22	21.22
31.583	20.70	20.81	20.81
31.667	20.30	20.40	20.40
31.750	19.91	20.01	20.01
31.833	19.53	19.63	19.63
31.917	19.16	19.25	19.25
32.000	18.79	18.88	18.88
32.083	18.43	18.52	18.52
32.167	18.08	18.17	18.17
32.250	17.74	17.83	17.83
32.333	17.41	17.49	17.49

32.417	17.08	17.16	17.16
32.500	16.76	16.84	16.84
32.583	16.44	16.52	16.52
32.667	16.14	16.21	16.21
32.750	15.83	15.91	15.91
32.833	15.54	15.61	15.61
32.917	15.25	15.32	15.32
33.000	14.97	15.04	15.04
33.083	14.69	14.76	14.76
33.167	14.42	14.49	14.49
33.250	14.16	14.22	14.22
33.333	13.90	13.96	13.96
33.417	13.64	13.71	13.71
33.500	13.39	13.46	13.46
33.583	13.15	13.21	13.21
33.667	12.91	12.97	12.97
33.750	12.68	12.73	12.73
33.833	12.45	12.50	12.50
33.917	12.22	12.28	12.28
34.000	12.00	12.06	12.06
34.083	11.78	11.84	11.84
34.167	11.57	11.63	11.63
34.250	11.36	11.42	11.42
34.333	11.16	11.21	11.21
34.417	10.96	11.01	11.01
34.500	10.77	10.82	10.82
34.583	10.57	10.62	10.62
34.667	10.39	10.43	10.43
34.750	10.20	10.25	10.25
34.833	10.02	10.07	10.07
34.917	9.84	9.89	9.89
35.000	9.67	9.71	9.71
35.083	9.53	9.56	9.56
35.167	9.40	9.43	9.43
35.250	9.17	9.23	9.23
35.333	9.01	9.05	9.05
35.417	8.85	8.89	8.89
35.500	8.70	8.73	8.73
35.583	8.54	8.58	8.58
35.667	8.40	8.43	8.43
35.750	8.25	8.29	8.29
35.833	8.11	8.14	8.14
35.917	7.97	8.00	8.00
36.000	7.83	7.86	7.86

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 2280.055 AF
OUTFLOW VOLUME = 2280.058 AF
LOSS VOLUME = 0.000 AF

FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 99.300 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.243 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.250
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.750
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.302
LOW LOSS FRACTION = 0.442
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 1.000

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 34.294

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 1.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

SUBAREA HYDROGRAPH NODE 111

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.189	26.286
2	13.155	131.688
3	39.060	311.104
4	60.582	258.461
5	73.041	149.618
6	80.463	89.130
7	85.188	56.746

8	88.335	37.785
9	90.763	29.164
10	92.577	21.787
11	94.035	17.503
12	95.225	14.291
13	96.156	11.183
14	96.951	9.549
15	97.603	7.831
16	98.101	5.976
17	98.469	4.417
18	98.733	3.168
19	99.035	3.632
20	99.344	3.706
21	99.646	3.632
22	99.948	3.632
23	100.000	0.620

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0022	0.0027
2	0.0049	0.0022	0.0027
3	0.0049	0.0022	0.0027
4	0.0049	0.0022	0.0027
5	0.0049	0.0022	0.0028
6	0.0049	0.0022	0.0028
7	0.0050	0.0022	0.0028
8	0.0050	0.0022	0.0028
9	0.0050	0.0022	0.0028
10	0.0050	0.0022	0.0028
11	0.0050	0.0022	0.0028
12	0.0050	0.0022	0.0028
13	0.0051	0.0022	0.0028
14	0.0051	0.0022	0.0028
15	0.0051	0.0023	0.0028
16	0.0051	0.0023	0.0029
17	0.0051	0.0023	0.0029
18	0.0052	0.0023	0.0029
19	0.0052	0.0023	0.0029
20	0.0052	0.0023	0.0029
21	0.0052	0.0023	0.0029
22	0.0052	0.0023	0.0029
23	0.0052	0.0023	0.0029
24	0.0053	0.0023	0.0029
25	0.0053	0.0023	0.0030
26	0.0053	0.0023	0.0030
27	0.0053	0.0024	0.0030
28	0.0053	0.0024	0.0030
29	0.0054	0.0024	0.0030
30	0.0054	0.0024	0.0030
31	0.0054	0.0024	0.0030
32	0.0054	0.0024	0.0030
33	0.0054	0.0024	0.0030
34	0.0055	0.0024	0.0030
35	0.0055	0.0024	0.0031
36	0.0055	0.0024	0.0031
37	0.0055	0.0024	0.0031
38	0.0055	0.0025	0.0031
39	0.0056	0.0025	0.0031
40	0.0056	0.0025	0.0031
41	0.0056	0.0025	0.0031
42	0.0056	0.0025	0.0031
43	0.0057	0.0025	0.0032
44	0.0057	0.0025	0.0032
45	0.0057	0.0025	0.0032
46	0.0057	0.0025	0.0032
47	0.0058	0.0025	0.0032
48	0.0058	0.0026	0.0032
49	0.0058	0.0026	0.0032
50	0.0058	0.0026	0.0033
51	0.0059	0.0026	0.0033

52	0.0059	0.0026	0.0033
53	0.0059	0.0026	0.0033
54	0.0059	0.0026	0.0033
55	0.0060	0.0026	0.0033
56	0.0060	0.0026	0.0033
57	0.0060	0.0027	0.0034
58	0.0060	0.0027	0.0034
59	0.0061	0.0027	0.0034
60	0.0061	0.0027	0.0034
61	0.0061	0.0027	0.0034
62	0.0061	0.0027	0.0034
63	0.0062	0.0027	0.0035
64	0.0062	0.0027	0.0035
65	0.0062	0.0028	0.0035
66	0.0063	0.0028	0.0035
67	0.0063	0.0028	0.0035
68	0.0063	0.0028	0.0035
69	0.0064	0.0028	0.0036
70	0.0064	0.0028	0.0036
71	0.0064	0.0028	0.0036
72	0.0065	0.0029	0.0036
73	0.0065	0.0029	0.0036
74	0.0065	0.0029	0.0036
75	0.0066	0.0029	0.0037
76	0.0066	0.0029	0.0037
77	0.0066	0.0029	0.0037
78	0.0067	0.0029	0.0037
79	0.0067	0.0030	0.0037
80	0.0067	0.0030	0.0038
81	0.0068	0.0030	0.0038
82	0.0068	0.0030	0.0038
83	0.0069	0.0030	0.0038
84	0.0069	0.0030	0.0038
85	0.0069	0.0031	0.0039
86	0.0070	0.0031	0.0039
87	0.0070	0.0031	0.0039
88	0.0070	0.0031	0.0039
89	0.0071	0.0031	0.0040
90	0.0071	0.0031	0.0040
91	0.0072	0.0032	0.0040
92	0.0072	0.0032	0.0040
93	0.0073	0.0032	0.0041
94	0.0073	0.0032	0.0041
95	0.0074	0.0033	0.0041
96	0.0074	0.0033	0.0041
97	0.0074	0.0033	0.0042
98	0.0075	0.0033	0.0042
99	0.0075	0.0033	0.0042
100	0.0076	0.0033	0.0042
101	0.0076	0.0034	0.0043
102	0.0077	0.0034	0.0043
103	0.0077	0.0034	0.0043
104	0.0078	0.0034	0.0043
105	0.0079	0.0035	0.0044
106	0.0079	0.0035	0.0044
107	0.0080	0.0035	0.0044
108	0.0080	0.0035	0.0045

109	0.0081	0.0036	0.0045
110	0.0081	0.0036	0.0045
111	0.0082	0.0036	0.0046
112	0.0082	0.0036	0.0046
113	0.0083	0.0037	0.0046
114	0.0084	0.0037	0.0047
115	0.0085	0.0037	0.0047
116	0.0085	0.0038	0.0047
117	0.0086	0.0038	0.0048
118	0.0086	0.0038	0.0048
119	0.0087	0.0039	0.0049
120	0.0088	0.0039	0.0049
121	0.0089	0.0039	0.0050
122	0.0089	0.0039	0.0050
123	0.0090	0.0040	0.0050
124	0.0091	0.0040	0.0051
125	0.0092	0.0041	0.0051
126	0.0093	0.0041	0.0052
127	0.0094	0.0041	0.0052
128	0.0094	0.0042	0.0053
129	0.0096	0.0042	0.0053
130	0.0096	0.0042	0.0054
131	0.0097	0.0043	0.0054
132	0.0098	0.0043	0.0055
133	0.0099	0.0044	0.0055
134	0.0100	0.0044	0.0056
135	0.0101	0.0045	0.0057
136	0.0102	0.0045	0.0057
137	0.0104	0.0046	0.0058
138	0.0104	0.0046	0.0058
139	0.0106	0.0047	0.0059
140	0.0107	0.0047	0.0060
141	0.0108	0.0048	0.0061
142	0.0109	0.0048	0.0061
143	0.0111	0.0049	0.0062
144	0.0112	0.0050	0.0063
145	0.0090	0.0040	0.0050
146	0.0091	0.0040	0.0051
147	0.0093	0.0041	0.0052
148	0.0094	0.0041	0.0052
149	0.0096	0.0042	0.0053
150	0.0097	0.0043	0.0054
151	0.0099	0.0044	0.0055
152	0.0100	0.0044	0.0056
153	0.0102	0.0045	0.0057
154	0.0104	0.0046	0.0058
155	0.0106	0.0047	0.0059
156	0.0107	0.0047	0.0060
157	0.0110	0.0049	0.0061
158	0.0112	0.0049	0.0062
159	0.0115	0.0051	0.0064
160	0.0116	0.0051	0.0065
161	0.0120	0.0053	0.0067
162	0.0121	0.0054	0.0068
163	0.0125	0.0055	0.0070
164	0.0127	0.0056	0.0071
165	0.0131	0.0058	0.0073

166	0.0134	0.0059	0.0075
167	0.0138	0.0061	0.0077
168	0.0141	0.0062	0.0079
169	0.0151	0.0067	0.0084
170	0.0154	0.0068	0.0086
171	0.0161	0.0071	0.0090
172	0.0164	0.0073	0.0092
173	0.0172	0.0076	0.0096
174	0.0176	0.0078	0.0098
175	0.0185	0.0082	0.0103
176	0.0190	0.0084	0.0106
177	0.0201	0.0089	0.0112
178	0.0207	0.0091	0.0115
179	0.0220	0.0097	0.0123
180	0.0228	0.0101	0.0127
181	0.0245	0.0108	0.0137
182	0.0255	0.0113	0.0142
183	0.0279	0.0123	0.0156
184	0.0293	0.0129	0.0163
185	0.0251	0.0111	0.0140
186	0.0269	0.0119	0.0150
187	0.0316	0.0139	0.0176
188	0.0347	0.0154	0.0194
189	0.0539	0.0238	0.0301
190	0.0621	0.0252	0.0370
191	0.0941	0.0252	0.0689
192	0.1367	0.0252	0.1115
193	0.5874	0.0252	0.5622
194	0.0741	0.0252	0.0489
195	0.0387	0.0171	0.0216
196	0.0290	0.0128	0.0162
197	0.0308	0.0136	0.0172
198	0.0266	0.0118	0.0149
199	0.0236	0.0104	0.0132
200	0.0213	0.0094	0.0119
201	0.0195	0.0086	0.0109
202	0.0180	0.0080	0.0101
203	0.0168	0.0074	0.0094
204	0.0158	0.0070	0.0088
205	0.0144	0.0063	0.0080
206	0.0136	0.0060	0.0076
207	0.0129	0.0057	0.0072
208	0.0123	0.0054	0.0069
209	0.0118	0.0052	0.0066
210	0.0113	0.0050	0.0063
211	0.0109	0.0048	0.0061
212	0.0105	0.0046	0.0058
213	0.0101	0.0045	0.0056
214	0.0098	0.0043	0.0055
215	0.0095	0.0042	0.0053
216	0.0092	0.0041	0.0051
217	0.0113	0.0050	0.0063
218	0.0110	0.0049	0.0062
219	0.0108	0.0048	0.0060
220	0.0105	0.0047	0.0059
221	0.0103	0.0045	0.0057
222	0.0101	0.0045	0.0056

223	0.0099	0.0044	0.0055
224	0.0097	0.0043	0.0054
225	0.0095	0.0042	0.0053
226	0.0093	0.0041	0.0052
227	0.0091	0.0040	0.0051
228	0.0090	0.0040	0.0050
229	0.0088	0.0039	0.0049
230	0.0087	0.0038	0.0048
231	0.0085	0.0038	0.0048
232	0.0084	0.0037	0.0047
233	0.0083	0.0037	0.0046
234	0.0082	0.0036	0.0046
235	0.0080	0.0036	0.0045
236	0.0079	0.0035	0.0044
237	0.0078	0.0035	0.0044
238	0.0077	0.0034	0.0043
239	0.0076	0.0034	0.0042
240	0.0075	0.0033	0.0042
241	0.0074	0.0033	0.0041
242	0.0073	0.0032	0.0041
243	0.0072	0.0032	0.0040
244	0.0071	0.0032	0.0040
245	0.0071	0.0031	0.0039
246	0.0070	0.0031	0.0039
247	0.0069	0.0031	0.0039
248	0.0068	0.0030	0.0038
249	0.0068	0.0030	0.0038
250	0.0067	0.0030	0.0037
251	0.0066	0.0029	0.0037
252	0.0065	0.0029	0.0036
253	0.0065	0.0029	0.0036
254	0.0064	0.0028	0.0036
255	0.0063	0.0028	0.0035
256	0.0063	0.0028	0.0035
257	0.0062	0.0028	0.0035
258	0.0062	0.0027	0.0034
259	0.0061	0.0027	0.0034
260	0.0061	0.0027	0.0034
261	0.0060	0.0027	0.0033
262	0.0059	0.0026	0.0033
263	0.0059	0.0026	0.0033
264	0.0058	0.0026	0.0033
265	0.0058	0.0026	0.0032
266	0.0057	0.0025	0.0032
267	0.0057	0.0025	0.0032
268	0.0057	0.0025	0.0032
269	0.0056	0.0025	0.0031
270	0.0056	0.0025	0.0031
271	0.0055	0.0024	0.0031
272	0.0055	0.0024	0.0031
273	0.0054	0.0024	0.0030
274	0.0054	0.0024	0.0030
275	0.0054	0.0024	0.0030
276	0.0053	0.0023	0.0030
277	0.0053	0.0023	0.0029
278	0.0052	0.0023	0.0029
279	0.0052	0.0023	0.0029

280	0.0052	0.0023	0.0029
281	0.0051	0.0023	0.0029
282	0.0051	0.0023	0.0028
283	0.0051	0.0022	0.0028
284	0.0050	0.0022	0.0028
285	0.0050	0.0022	0.0028
286	0.0050	0.0022	0.0028
287	0.0049	0.0022	0.0027
288	0.0049	0.0022	0.0027

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 1.30
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.30

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 10.7163
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 19.0609

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	75.0	150.0	225.0	300.0
1.000	0.1855	3.19	Q	.	.	.	.
1.083	0.2078	3.23	Q	.	.	.	.
1.167	0.2302	3.26	Q	.	.	.	.
1.250	0.2529	3.30	Q	.	.	.	.
1.333	0.2758	3.32	Q	.	.	.	.
1.417	0.2988	3.35	Q	.	.	.	.
1.500	0.3220	3.37	Q	.	.	.	.
1.583	0.3454	3.39	Q	.	.	.	.
1.667	0.3688	3.41	Q	.	.	.	.
1.750	0.3925	3.43	Q	.	.	.	.
1.833	0.4162	3.45	Q	.	.	.	.
1.917	0.4401	3.47	Q	.	.	.	.
2.000	0.4641	3.48	Q	.	.	.	.
2.083	0.4881	3.49	QV	.	.	.	.
2.167	0.5122	3.50	QV	.	.	.	.
2.250	0.5365	3.52	QV	.	.	.	.
2.333	0.5608	3.53	QV	.	.	.	.
2.417	0.5852	3.54	QV	.	.	.	.
2.500	0.6096	3.55	QV	.	.	.	.
2.583	0.6342	3.57	QV	.	.	.	.
2.667	0.6589	3.58	QV	.	.	.	.
2.750	0.6836	3.59	QV	.	.	.	.
2.833	0.7085	3.61	QV	.	.	.	.
2.917	0.7334	3.62	QV	.	.	.	.
3.000	0.7584	3.63	QV	.	.	.	.
3.083	0.7836	3.65	QV	.	.	.	.
3.167	0.8088	3.66	QV	.	.	.	.
3.250	0.8341	3.68	QV	.	.	.	.
3.333	0.8595	3.69	QV	.	.	.	.
3.417	0.8851	3.71	QV	.	.	.	.
3.500	0.9107	3.72	QV	.	.	.	.
3.583	0.9364	3.74	QV	.	.	.	.
3.667	0.9622	3.75	Q V	.	.	.	.
3.750	0.9882	3.77	Q V	.	.	.	.
3.833	1.0142	3.78	Q V	.	.	.	.
3.917	1.0403	3.80	Q V	.	.	.	.
4.000	1.0666	3.81	Q V	.	.	.	.
4.083	1.0930	3.83	Q V	.	.	.	.
4.167	1.1194	3.84	Q V	.	.	.	.
4.250	1.1460	3.86	Q V	.	.	.	.
4.333	1.1727	3.88	Q V	.	.	.	.
4.417	1.1995	3.89	Q V	.	.	.	.
4.500	1.2264	3.91	Q V	.	.	.	.
4.583	1.2534	3.93	Q V	.	.	.	.
4.667	1.2806	3.94	Q V	.	.	.	.

4.750	1.3079	3.96	Q	V	.	.	.	.
4.833	1.3352	3.98	Q	V	.	.	.	.
4.917	1.3628	3.99	Q	V	.	.	.	.
5.000	1.3904	4.01	Q	V	.	.	.	.
5.083	1.4181	4.03	Q	V	.	.	.	.
5.167	1.4460	4.05	Q	V	.	.	.	.
5.250	1.4740	4.07	Q	V	.	.	.	.
5.333	1.5022	4.09	Q	V	.	.	.	.
5.417	1.5304	4.10	Q	V	.	.	.	.
5.500	1.5588	4.12	Q	V	.	.	.	.
5.583	1.5874	4.14	Q	V	.	.	.	.
5.667	1.6160	4.16	Q	V	.	.	.	.
5.750	1.6449	4.18	Q	V	.	.	.	.
5.833	1.6738	4.20	Q	V	.	.	.	.
5.917	1.7029	4.22	Q	V	.	.	.	.
6.000	1.7321	4.24	Q	V	.	.	.	.
6.083	1.7615	4.26	Q	V	.	.	.	.
6.167	1.7910	4.29	Q	V	.	.	.	.
6.250	1.8207	4.31	Q	V	.	.	.	.
6.333	1.8505	4.33	Q	V	.	.	.	.
6.417	1.8804	4.35	Q	V	.	.	.	.
6.500	1.9106	4.37	Q	V	.	.	.	.
6.583	1.9408	4.40	Q	V	.	.	.	.
6.667	1.9713	4.42	Q	V	.	.	.	.
6.750	2.0019	4.44	Q	V	.	.	.	.
6.833	2.0326	4.47	Q	V	.	.	.	.
6.917	2.0635	4.49	Q	V	.	.	.	.
7.000	2.0946	4.51	Q	V	.	.	.	.
7.083	2.1259	4.54	Q	V	.	.	.	.
7.167	2.1573	4.56	Q	V	.	.	.	.
7.250	2.1889	4.59	Q	V	.	.	.	.
7.333	2.2207	4.61	Q	V	.	.	.	.
7.417	2.2527	4.64	Q	V	.	.	.	.
7.500	2.2848	4.67	Q	V	.	.	.	.
7.583	2.3171	4.69	Q	V	.	.	.	.
7.667	2.3497	4.72	Q	V	.	.	.	.
7.750	2.3824	4.75	Q	V	.	.	.	.
7.833	2.4153	4.78	Q	V	.	.	.	.
7.917	2.4484	4.81	Q	V	.	.	.	.
8.000	2.4817	4.84	Q	V	.	.	.	.
8.083	2.5152	4.87	Q	V	.	.	.	.
8.167	2.5489	4.89	Q	V	.	.	.	.
8.250	2.5828	4.93	Q	V	.	.	.	.
8.333	2.6170	4.96	Q	V	.	.	.	.
8.417	2.6513	4.99	Q	V	.	.	.	.
8.500	2.6859	5.02	Q	V	.	.	.	.
8.583	2.7207	5.05	Q	V	.	.	.	.
8.667	2.7557	5.09	Q	V	.	.	.	.
8.750	2.7910	5.12	Q	V	.	.	.	.
8.833	2.8265	5.15	Q	V	.	.	.	.
8.917	2.8622	5.19	Q	V	.	.	.	.
9.000	2.8982	5.22	Q	V	.	.	.	.
9.083	2.9344	5.26	Q	V	.	.	.	.
9.167	2.9709	5.30	Q	V	.	.	.	.
9.250	3.0077	5.34	Q	V	.	.	.	.
9.333	3.0447	5.37	Q	V	.	.	.	.
9.417	3.0820	5.41	Q	V	.	.	.	.

9.500	3.1195	5.45	Q	V	.	.	.	.
9.583	3.1574	5.49	Q	V	.	.	.	.
9.667	3.1955	5.54	Q	V	.	.	.	.
9.750	3.2339	5.58	Q	V	.	.	.	.
9.833	3.2726	5.62	Q	V	.	.	.	.
9.917	3.3116	5.67	Q	V	.	.	.	.
10.000	3.3510	5.71	Q	V	.	.	.	.
10.083	3.3906	5.76	Q	V	.	.	.	.
10.167	3.4306	5.80	Q	V	.	.	.	.
10.250	3.4709	5.85	Q	V	.	.	.	.
10.333	3.5115	5.90	Q	V	.	.	.	.
10.417	3.5525	5.95	Q	V	.	.	.	.
10.500	3.5938	6.00	Q	V	.	.	.	.
10.583	3.6355	6.05	Q	V	.	.	.	.
10.667	3.6776	6.11	Q	V	.	.	.	.
10.750	3.7200	6.16	Q	V	.	.	.	.
10.833	3.7629	6.22	Q	V	.	.	.	.
10.917	3.8061	6.28	Q	V	.	.	.	.
11.000	3.8497	6.34	Q	V	.	.	.	.
11.083	3.8938	6.40	Q	V	.	.	.	.
11.167	3.9383	6.46	Q	V	.	.	.	.
11.250	3.9832	6.52	Q	V	.	.	.	.
11.333	4.0286	6.59	Q	V	.	.	.	.
11.417	4.0744	6.66	Q	V	.	.	.	.
11.500	4.1207	6.72	Q	V	.	.	.	.
11.583	4.1675	6.80	Q	V	.	.	.	.
11.667	4.2148	6.87	Q	V	.	.	.	.
11.750	4.2626	6.94	Q	V	.	.	.	.
11.833	4.3110	7.02	Q	V.	.	.	.	.
11.917	4.3599	7.10	Q	V.	.	.	.	.
12.000	4.4094	7.18	Q	V.	.	.	.	.
12.083	4.4592	7.23	Q	V.	.	.	.	.
12.167	4.5084	7.14	Q	V.	.	.	.	.
12.250	4.5554	6.82	Q	V.	.	.	.	.
12.333	4.6006	6.57	Q	V.	.	.	.	.
12.417	4.6451	6.46	Q	V.	.	.	.	.
12.500	4.6894	6.43	Q	V.	.	.	.	.
12.583	4.7338	6.45	Q	V.	.	.	.	.
12.667	4.7786	6.50	Q	V	.	.	.	.
12.750	4.8237	6.56	Q	V	.	.	.	.
12.833	4.8694	6.64	Q	V	.	.	.	.
12.917	4.9158	6.72	Q	V	.	.	.	.
13.000	4.9627	6.82	Q	V	.	.	.	.
13.083	5.0104	6.92	Q	V	.	.	.	.
13.167	5.0588	7.03	Q	V	.	.	.	.
13.250	5.1080	7.15	Q	V	.	.	.	.
13.333	5.1581	7.28	Q	V	.	.	.	.
13.417	5.2092	7.41	Q	V	.	.	.	.
13.500	5.2612	7.56	.Q	.V	.	.	.	.
13.583	5.3143	7.71	.Q	.V	.	.	.	.
13.667	5.3685	7.86	.Q	.V	.	.	.	.
13.750	5.4238	8.03	.Q	.V	.	.	.	.
13.833	5.4804	8.21	.Q	.V	.	.	.	.
13.917	5.5382	8.40	.Q	.V	.	.	.	.
14.000	5.5975	8.61	.Q	.V	.	.	.	.
14.083	5.6583	8.83	.Q	.V	.	.	.	.
14.167	5.7210	9.10	.Q	. V	.	.	.	.

14.250	5.7860	9.44	.Q . V . . .
14.333	5.8533	9.77	.Q . V . . .
14.417	5.9229	10.11	.Q . V . . .
14.500	5.9948	10.44	.Q . V . . .
14.583	6.0691	10.79	.Q . V . . .
14.667	6.1460	11.16	.Q . V . . .
14.750	6.2256	11.57	.Q . V . . .
14.833	6.3083	12.00	.Q . V . . .
14.917	6.3943	12.49	.Q . V . . .
15.000	6.4838	13.01	.Q . V . . .
15.083	6.5775	13.60	.Q . V . . .
15.167	6.6756	14.25	.Q . V . . .
15.250	6.7790	15.00	. Q . V . . .
15.333	6.8880	15.84	. Q . V . . .
15.417	7.0032	16.72	. Q . V . . .
15.500	7.1223	17.30	. Q . V . . .
15.583	7.2419	17.36	. Q . V . . .
15.667	7.3646	17.82	. Q . V . . .
15.750	7.4975	19.30	. Q . V . . .
15.833	7.6506	22.23	. Q . V . . .
15.917	7.8451	28.24	. Q . V . . .
16.000	8.1140	39.04	. Q . V . . .
16.083	8.5973	70.18	. Q. V . . .
16.167	9.5599	139.77	. . Q V . . .
16.250	11.1360	228.86	. . . V Q . .
16.333	12.4588	192.07	. . . QV . . .
16.417	13.3124	123.93	. . Q . V . . .
16.500	13.8824	82.77	.Q . . V. . .
16.583	14.2958	60.02	. Q . . V . .
16.667	14.6142	46.23	. Q . . V . .
16.750	14.8795	38.52	. Q . . .V . .
16.833	15.1013	32.20	. Q . . .V . .
16.917	15.2932	27.87	. Q . . . V . .
17.000	15.4615	24.43	. Q . . . V . .
17.083	15.6086	21.36	. Q . . . V . .
17.167	15.7406	19.17	. Q . . . V . .
17.250	15.8582	17.07	. Q . . . V . .
17.333	15.9619	15.06	. Q . . . V . .
17.417	16.0543	13.42	.Q . . . V . .
17.500	16.1381	12.16	.Q . . . V . .
17.583	16.2196	11.84	.Q . . . V . .
17.667	16.2979	11.37	.Q . . . V . .
17.750	16.3720	10.77	.Q . . . V . .
17.833	16.4415	10.09	.Q . . . V . .
17.917	16.4970	8.06	.Q . . . V . .
18.000	16.5474	7.33	Q . . . V . .
18.083	16.5960	7.05	Q . . . V . .
18.167	16.6440	6.97	Q . . . V . .
18.250	16.6932	7.14	Q . . . V . .
18.333	16.7431	7.26	Q . . . V . .
18.417	16.7930	7.24	Q . . . V . .
18.500	16.8424	7.17	Q . . . V . .
18.583	16.8910	7.06	Q . . . V . .
18.667	16.9387	6.94	Q . . . V . .
18.750	16.9857	6.81	Q . . . V . .
18.833	17.0318	6.69	Q . . . V . .
18.917	17.0770	6.57	Q . . . V . .

19.000	17.1215	6.46	Q	.	.	.	V .
19.083	17.1652	6.34	Q	.	.	.	V .
19.167	17.2081	6.23	Q	.	.	.	V .
19.250	17.2503	6.13	Q	.	.	.	V .
19.333	17.2918	6.03	Q	.	.	.	V .
19.417	17.3327	5.93	Q	.	.	.	V .
19.500	17.3729	5.83	Q	.	.	.	V .
19.583	17.4124	5.74	Q	.	.	.	V .
19.667	17.4514	5.66	Q	.	.	.	V .
19.750	17.4897	5.57	Q	.	.	.	V .
19.833	17.5276	5.49	Q	.	.	.	V .
19.917	17.5648	5.41	Q	.	.	.	V .
20.000	17.6016	5.33	Q	.	.	.	V .
20.083	17.6378	5.26	Q	.	.	.	V .
20.167	17.6735	5.19	Q	.	.	.	V .
20.250	17.7088	5.12	Q	.	.	.	V .
20.333	17.7436	5.05	Q	.	.	.	V .
20.417	17.7779	4.99	Q	.	.	.	V .
20.500	17.8118	4.92	Q	.	.	.	V .
20.583	17.8453	4.86	Q	.	.	.	V .
20.667	17.8784	4.80	Q	.	.	.	V .
20.750	17.9111	4.75	Q	.	.	.	V .
20.833	17.9434	4.69	Q	.	.	.	V .
20.917	17.9753	4.64	Q	.	.	.	V .
21.000	18.0069	4.59	Q	.	.	.	V .
21.083	18.0381	4.53	Q	.	.	.	V .
21.167	18.0690	4.49	Q	.	.	.	V .
21.250	18.0996	4.44	Q	.	.	.	V .
21.333	18.1298	4.39	Q	.	.	.	V .
21.417	18.1598	4.35	Q	.	.	.	V .
21.500	18.1894	4.30	Q	.	.	.	V .
21.583	18.2187	4.26	Q	.	.	.	V .
21.667	18.2478	4.22	Q	.	.	.	V .
21.750	18.2766	4.18	Q	.	.	.	V .
21.833	18.3051	4.14	Q	.	.	.	V .
21.917	18.3333	4.10	Q	.	.	.	V .
22.000	18.3613	4.06	Q	.	.	.	V .
22.083	18.3890	4.03	Q	.	.	.	V .
22.167	18.4165	3.99	Q	.	.	.	V .
22.250	18.4438	3.96	Q	.	.	.	V .
22.333	18.4708	3.92	Q	.	.	.	V .
22.417	18.4975	3.89	Q	.	.	.	V .
22.500	18.5241	3.86	Q	.	.	.	V .
22.583	18.5504	3.82	Q	.	.	.	V .
22.667	18.5765	3.79	Q	.	.	.	V .
22.750	18.6024	3.76	Q	.	.	.	V.
22.833	18.6281	3.73	Q	.	.	.	V.
22.917	18.6536	3.70	Q	.	.	.	V.
23.000	18.6789	3.67	Q	.	.	.	V.
23.083	18.7040	3.65	Q	.	.	.	V.
23.167	18.7290	3.62	Q	.	.	.	V.
23.250	18.7537	3.59	Q	.	.	.	V.
23.333	18.7782	3.56	Q	.	.	.	V.
23.417	18.8026	3.54	Q	.	.	.	V.
23.500	18.8268	3.51	Q	.	.	.	V.
23.583	18.8508	3.49	Q	.	.	.	V.
23.667	18.8747	3.46	Q	.	.	.	V.

23.750	18.8983	3.44	Q	.	.	.	V.
23.833	18.9219	3.42	Q	.	.	.	V.
23.917	18.9452	3.39	Q	.	.	.	V.
24.000	18.9684	3.37	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	70.0
20%	40.0
30%	30.0
40%	20.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2600.0	5200.0	7800.0	10400.0
0.083	0.0128	1.86	Q	.	.	.	.
0.167	0.1513	20.11	Q	.	.	.	.
0.250	0.5381	56.16	Q	.	.	.	.
0.333	1.1056	82.40	Q	.	.	.	.
0.417	1.8068	101.82	Q	.	.	.	.
0.500	2.7217	132.84	Q	.	.	.	.
0.583	3.8849	168.89	Q	.	.	.	.
0.667	5.2470	197.78	Q	.	.	.	.
0.750	6.7597	219.64	Q	.	.	.	.
0.833	8.4060	239.05	Q	.	.	.	.
0.917	10.1570	254.24	Q	.	.	.	.
1.000	11.9989	267.45	VQ	.	.	.	.
1.083	13.9276	280.04	VQ	.	.	.	.
1.167	15.9357	291.59	VQ	.	.	.	.
1.250	18.0130	301.63	VQ	.	.	.	.
1.333	20.1512	310.46	VQ	.	.	.	.
1.417	22.3464	318.75	VQ	.	.	.	.
1.500	24.5936	326.29	VQ	.	.	.	.
1.583	26.8875	333.08	VQ	.	.	.	.
1.667	29.2248	339.37	VQ	.	.	.	.
1.750	31.6023	345.21	VQ	.	.	.	.
1.833	34.0172	350.64	VQ	.	.	.	.

1.917	36.4668	355.69	VQ	.	.	.	.
2.000	38.9494	360.47	VQ	.	.	.	.
2.083	41.4630	364.98	VQ	.	.	.	.
2.167	44.0055	369.17	VQ	.	.	.	.
2.250	46.5751	373.10	VQ	.	.	.	.
2.333	49.1704	376.83	VQ	.	.	.	.
2.417	51.7901	380.38	VQ	.	.	.	.
2.500	54.4324	383.66	VQ	.	.	.	.
2.583	57.0963	386.81	VQ	.	.	.	.
2.667	59.7815	389.88	.Q	.	.	.	.
2.750	62.4873	392.89	.Q	.	.	.	.
2.833	65.2133	395.82	.Q	.	.	.	.
2.917	67.9591	398.69	.Q	.	.	.	.
3.000	70.7243	401.51	.Q	.	.	.	.
3.083	73.5088	404.30	.Q	.	.	.	.
3.167	76.3122	407.06	.Q	.	.	.	.
3.250	79.1344	409.79	.Q	.	.	.	.
3.333	81.9752	412.48	.Q	.	.	.	.
3.417	84.8339	415.08	.Q	.	.	.	.
3.500	87.7101	417.61	.Q	.	.	.	.
3.583	90.6034	420.12	.Q	.	.	.	.
3.667	93.5139	422.60	.Q	.	.	.	.
3.750	96.4414	425.08	.Q	.	.	.	.
3.833	99.3859	427.53	.Q	.	.	.	.
3.917	102.3472	429.98	.Q	.	.	.	.
4.000	105.3253	432.42	.Q	.	.	.	.
4.083	108.3202	434.85	.Q	.	.	.	.
4.167	111.3317	437.28	.Q	.	.	.	.
4.250	114.3600	439.70	.Q	.	.	.	.
4.333	117.4048	442.12	.QV	.	.	.	.
4.417	120.4663	444.52	.QV	.	.	.	.
4.500	123.5439	446.87	.QV	.	.	.	.
4.583	126.6370	449.12	.QV	.	.	.	.
4.667	129.7455	451.35	.QV	.	.	.	.
4.750	132.8697	453.63	.QV	.	.	.	.
4.833	136.0100	455.97	.QV	.	.	.	.
4.917	139.1667	458.36	.QV	.	.	.	.
5.000	142.3402	460.79	.QV	.	.	.	.
5.083	145.5305	463.23	.QV	.	.	.	.
5.167	148.7376	465.68	.QV	.	.	.	.
5.250	151.9617	468.14	.QV	.	.	.	.
5.333	155.2029	470.61	.QV	.	.	.	.
5.417	158.4612	473.10	.QV	.	.	.	.
5.500	161.7366	475.60	.QV	.	.	.	.
5.583	165.0294	478.11	.QV	.	.	.	.
5.667	168.3396	480.64	.QV	.	.	.	.
5.750	171.6673	483.18	.QV	.	.	.	.
5.833	175.0127	485.74	.Q V	.	.	.	.
5.917	178.3758	488.32	.Q V	.	.	.	.
6.000	181.7567	490.91	.Q V	.	.	.	.
6.083	185.1557	493.53	.Q V	.	.	.	.
6.167	188.5728	496.16	.Q V	.	.	.	.
6.250	192.0082	498.82	.Q V	.	.	.	.
6.333	195.4620	501.49	.Q V	.	.	.	.
6.417	198.9344	504.20	.Q V	.	.	.	.
6.500	202.4256	506.92	.Q V	.	.	.	.
6.583	205.9357	509.67	.Q V	.	.	.	.

NODE 111 VIEW STREAM 1

6.667	209.4649	512.44	.Q V	.	.	.	.
6.750	213.0134	515.24	.Q V	.	.	.	.
6.833	216.5813	518.07	.Q V	.	.	.	.
6.917	220.1690	520.93	. QV	.	.	.	.
7.000	223.7765	523.81	. QV	.	.	.	.
7.083	227.4041	526.73	. QV	.	.	.	.
7.167	231.0520	529.67	. Q V	.	.	.	.
7.250	234.7203	532.65	. Q V	.	.	.	.
7.333	238.4094	535.66	. Q V	.	.	.	.
7.417	242.1195	538.70	. Q V	.	.	.	.
7.500	245.8508	541.78	. Q V	.	.	.	.
7.583	249.6036	544.90	. Q V	.	.	.	.
7.667	253.3781	548.05	. Q V	.	.	.	.
7.750	257.1745	551.25	. Q V	.	.	.	.
7.833	260.9933	554.48	. Q V	.	.	.	.
7.917	264.8345	557.75	. Q V	.	.	.	.
8.000	268.6986	561.06	. Q V	.	.	.	.
8.083	272.5858	564.42	. Q V	.	.	.	.
8.167	276.4964	567.83	. Q V	.	.	.	.
8.250	280.4308	571.28	. Q V	.	.	.	.
8.333	284.3893	574.77	. Q V	.	.	.	.
8.417	288.3722	578.32	. Q V	.	.	.	.
8.500	292.3798	581.91	. Q V	.	.	.	.
8.583	296.4125	585.55	. Q V	.	.	.	.
8.667	300.4707	589.24	. Q V	.	.	.	.
8.750	304.5547	593.00	. Q V	.	.	.	.
8.833	308.6649	596.81	. Q V	.	.	.	.
8.917	312.8018	600.68	. Q V	.	.	.	.
9.000	316.9658	604.60	. Q V	.	.	.	.
9.083	321.1572	608.59	. Q V	.	.	.	.
9.167	325.3765	612.64	. Q V	.	.	.	.
9.250	329.6241	616.76	. Q V	.	.	.	.
9.333	333.9006	620.95	. Q V	.	.	.	.
9.417	338.2065	625.20	. Q V	.	.	.	.
9.500	342.5421	629.53	. Q V	.	.	.	.
9.583	346.9080	633.93	. Q V	.	.	.	.
9.667	351.3047	638.40	. Q V	.	.	.	.
9.750	355.7328	642.96	. Q V	.	.	.	.
9.833	360.1929	647.60	. Q V	.	.	.	.
9.917	364.6855	652.32	. Q V	.	.	.	.
10.000	369.2111	657.13	. Q V	.	.	.	.
10.083	373.7705	662.03	. Q V	.	.	.	.
10.167	378.3643	667.01	. Q V	.	.	.	.
10.250	382.9931	672.10	. Q V	.	.	.	.
10.333	387.6575	677.28	. Q V	.	.	.	.
10.417	392.3584	682.57	. Q V	.	.	.	.
10.500	397.0964	687.96	. Q V	.	.	.	.
10.583	401.8723	693.46	. Q V	.	.	.	.
10.667	406.6869	699.08	. Q V	.	.	.	.
10.750	411.5410	704.81	. Q V	.	.	.	.
10.833	416.4354	710.67	. Q V	.	.	.	.
10.917	421.3710	716.65	. Q V	.	.	.	.
11.000	426.3487	722.76	. Q V	.	.	.	.
11.083	431.3695	729.02	. Q V	.	.	.	.
11.167	436.4345	735.44	. Q V	.	.	.	.
11.250	441.5454	742.10	. Q V	.	.	.	.
11.333	446.7044	749.10	. Q V	.	.	.	.

11.417	451.9146	756.52	. Q V . . . .
11.500	457.1788	764.36	. Q V . . . .
11.583	462.4998	772.61	. Q V . . . .
11.667	467.8798	781.17	. Q V . . . .
11.750	473.3210	790.06	. Q V . . . .
11.833	478.8254	799.24	. Q V . . . .
11.917	484.3951	808.72	. Q V . . . .
12.000	490.0321	818.50	. Q V . . . .
12.083	495.7369	828.34	. Q V . . . .
12.167	501.5048	837.49	. Q V . . . .
12.250	507.3218	844.63	. Q V . . . .
12.333	513.1519	846.53	. Q V . . . .
12.417	518.9381	840.16	. Q V. . . .
12.500	524.6436	828.44	. Q V. . . .
12.583	530.2698	816.92	. Q V. . . .
12.667	535.8423	809.13	. Q V. . . .
12.750	541.3887	805.34	. Q V. . . .
12.833	546.9304	804.65	. Q V. . . .
12.917	552.4847	806.48	. Q V. . . .
13.000	558.0664	810.47	. Q V. . . .
13.083	563.6884	816.31	. Q V. . . .
13.167	569.3614	823.73	. Q V. . . .
13.250	575.0952	832.55	. Q V . . .
13.333	580.8983	842.61	. Q V . . .
13.417	586.7790	853.88	. Q V . . .
13.500	592.7452	866.30	. Q V . . .
13.583	598.8049	879.87	. Q V . . .
13.667	604.9658	894.56	. Q V . . .
13.750	611.2359	910.42	. Q V . . .
13.833	617.6234	927.47	. Q V . . .
13.917	624.1371	945.78	. Q V . . .
14.000	630.7854	965.34	. Q V . . .
14.083	637.5779	986.27	. Q .V . . .
14.167	644.5256	1008.80	. Q .V . . .
14.250	651.6426	1033.38	. Q .V . . .
14.333	658.9486	1060.83	. Q .V . . .
14.417	666.4680	1091.82	. Q .V . . .
14.500	674.2171	1125.17	. Q .V . . .
14.583	682.2020	1159.40	. Q .V . . .
14.667	690.4277	1194.38	. Q . V . . .
14.750	698.9088	1231.46	. Q . V . . .
14.833	707.6674	1271.74	. Q . V . . .
14.917	716.7294	1315.81	. Q . V . . .
15.000	726.1221	1363.82	. Q . V . . .
15.083	735.8754	1416.17	. Q . V . . .
15.167	746.0215	1473.23	. Q . V . . .
15.250	756.5985	1535.78	. Q . V . . .
15.333	767.6495	1604.61	. Q . V . . .
15.417	779.2222	1680.35	. Q . V . . .
15.500	791.3582	1762.14	. Q . V . . .
15.583	804.0848	1847.92	. Q . V . . .
15.667	817.3785	1930.25	. Q . V . . .
15.750	831.1828	2004.38	. Q . V . . .
15.833	845.5563	2087.04	. Q . V . . .
15.917	860.7920	2212.22	. Q . V . . .
16.000	877.5070	2427.01	. Q. V . . .
16.083	897.0894	2843.38	. Q V . . .

16.167	921.8881	3600.77	. . Q V . . . .
16.250	955.1720	4832.82	. . V Q . . . .
16.333	1001.8089	6771.68	. . V . Q . . .
16.417	1064.6976	9131.44	. . V . . . Q .
16.500	1136.2052	10382.89	. . V. . . . Q.
16.583	1205.3799	10044.16	. . V . . . Q .
16.667	1266.4683	8870.03	. . . V . . Q .
16.750	1320.1082	7788.52	. . . V . Q. .
16.833	1368.3326	7002.20	. . . V Q . . .
16.917	1412.3188	6386.79	. . . Q . . . .
17.000	1452.5745	5845.12	. . . Q V . . .
17.083	1489.4905	5360.20	. . Q . V . . .
17.167	1523.4073	4924.73	. . Q . . V . .
17.250	1554.7153	4545.92	. . Q . . V . .
17.333	1583.7820	4220.48	. . Q . . V . .
17.417	1610.8566	3931.23	. . Q . . V . .
17.500	1636.0984	3665.11	. . Q . . V . .
17.583	1659.7001	3426.96	. . Q . . V . .
17.667	1681.7864	3206.94	. . Q . . V. .
17.750	1702.4705	3003.33	. .Q . . V. .
17.833	1721.8530	2814.35	. . Q . . V. .
17.917	1740.0154	2637.17	. . Q . . V .
18.000	1757.1284	2484.81	. . Q. . . V .
18.083	1773.3270	2352.03	. . Q. . . V .
18.167	1788.7006	2232.24	. . Q . . . .V .
18.250	1803.3335	2124.71	. . Q . . . .V .
18.333	1817.2375	2018.86	. . Q . . . .V .
18.417	1830.4427	1917.40	. . Q . . . .V .
18.500	1842.9658	1818.35	. . Q . . . . V .
18.583	1854.7897	1716.82	. . Q . . . . V .
18.667	1866.0111	1629.35	. . Q . . . . V .
18.750	1876.7354	1557.16	. . Q . . . . V .
18.833	1887.0223	1493.68	. . Q . . . . V .
18.917	1896.9154	1436.48	. . Q . . . . V .
19.000	1906.4447	1383.66	. . Q . . . . V .
19.083	1915.6213	1332.45	. . Q . . . . V .
19.167	1924.4641	1283.98	. Q . . . . V .
19.250	1933.0098	1240.84	. Q . . . . V .
19.333	1941.2972	1203.35	. Q . . . . V .
19.417	1949.2979	1161.69	. Q . . . . V .
19.500	1957.0659	1127.92	. Q . . . . V .
19.583	1964.6525	1101.56	. Q . . . . V .
19.667	1972.0750	1077.75	. Q . . . . V .
19.750	1979.3411	1055.03	. Q . . . . V .
19.833	1986.4572	1033.25	. Q . . . . V .
19.917	1993.4290	1012.31	. Q . . . . V .
20.000	2000.2609	992.00	. Q . . . . V .
20.083	2006.9547	971.94	. Q . . . . V .
20.167	2013.5117	952.08	. Q . . . . V .
20.250	2019.9360	932.81	. Q . . . . V .
20.333	2026.2345	914.53	. Q . . . . V .
20.417	2032.4142	897.29	. Q . . . . V .
20.500	2038.4802	880.79	. Q . . . . V .
20.583	2044.4366	864.87	. Q . . . . V .
20.667	2050.2876	849.54	. Q . . . . V .
20.750	2056.0369	834.80	. Q . . . . V .
20.833	2061.6885	820.61	. Q . . . . V .

20.917	2067.2456	806.89	. Q	.	.	.	V .
21.000	2072.7107	793.52	. Q	.	.	.	V .
21.083	2078.0864	780.55	. Q	.	.	.	V .
21.167	2083.3760	768.05	. Q	.	.	.	V .
21.250	2088.5825	756.00	. Q	.	.	.	V .
21.333	2093.7092	744.39	. Q	.	.	.	V .
21.417	2098.7585	733.15	. Q	.	.	.	V .
21.500	2103.7329	722.28	. Q	.	.	.	V .
21.583	2108.6348	711.77	. Q	.	.	.	V .
21.667	2113.4668	701.61	. Q	.	.	.	V .
21.750	2118.2312	691.78	. Q	.	.	.	V .
21.833	2122.9299	682.27	. Q	.	.	.	V .
21.917	2127.5654	673.07	. Q	.	.	.	V .
22.000	2132.1394	664.15	. Q	.	.	.	V .
22.083	2136.6538	655.50	. Q	.	.	.	V .
22.167	2141.1106	647.12	. Q	.	.	.	V .
22.250	2145.5115	638.99	. Q	.	.	.	V .
22.333	2149.8579	631.12	. Q	.	.	.	V .
22.417	2154.1521	623.50	. Q	.	.	.	V .
22.500	2158.3955	616.16	. Q	.	.	.	V .
22.583	2162.5901	609.05	. Q	.	.	.	V .
22.667	2166.7371	602.14	. Q	.	.	.	V .
22.750	2170.8376	595.41	. Q	.	.	.	V .
22.833	2174.8931	588.86	. Q	.	.	.	V .
22.917	2178.9045	582.48	. Q	.	.	.	V .
23.000	2182.8733	576.26	. Q	.	.	.	V .
23.083	2186.7998	570.12	. Q	.	.	.	V .
23.167	2190.6838	563.95	. Q	.	.	.	V .
23.250	2194.5251	557.77	. Q	.	.	.	V .
23.333	2198.3252	551.78	. Q	.	.	.	V .
23.417	2202.0864	546.13	. Q	.	.	.	V .
23.500	2205.8105	540.75	. Q	.	.	.	V .
23.583	2209.4988	535.52	. Q	.	.	.	V .
23.667	2213.1519	530.41	. Q	.	.	.	V .
23.750	2216.7705	525.42	. Q	.	.	.	V .
23.833	2220.3555	520.54	. Q	.	.	.	V .
23.917	2223.9075	515.76	.Q	.	.	.	V .
24.000	2227.4272	511.09	.Q	.	.	.	V .
24.083	2230.9121	505.99	.Q	.	.	.	V .
24.167	2234.3479	498.89	.Q	.	.	.	V .
24.250	2237.7002	486.75	.Q	.	.	.	V .
24.333	2240.8889	463.00	.Q	.	.	.	V .
24.417	2243.8047	423.36	.Q	.	.	.	V.
24.500	2246.4006	376.93	.Q	.	.	.	V.
24.583	2248.7056	334.69	.Q	.	.	.	V.
24.667	2250.7766	300.72	.Q	.	.	.	V.
24.750	2252.6580	273.15	.Q	.	.	.	V.
24.833	2254.3779	249.74	Q	.	.	.	V.
24.917	2255.9580	229.43	Q	.	.	.	V.
25.000	2257.4163	211.72	Q	.	.	.	V.
25.083	2258.7678	196.23	Q	.	.	.	V.
25.167	2260.0261	182.69	Q	.	.	.	V.
25.250	2261.2024	170.79	Q	.	.	.	V.
25.333	2262.3059	160.23	Q	.	.	.	V.
25.417	2263.3447	150.83	Q	.	.	.	V.
25.500	2264.3257	142.43	Q	.	.	.	V.
25.583	2265.2544	134.87	Q	.	.	.	V.

25.667	2266.1362	128.05	Q	.	.	.	V.
25.750	2266.9758	121.90	Q	.	.	.	V.
25.833	2267.7766	116.29	Q	.	.	.	V.
25.917	2268.5422	111.16	Q	.	.	.	V.
26.000	2269.2749	106.40	Q	.	.	.	V.
26.083	2269.9771	101.95	Q	.	.	.	V.
26.167	2270.6509	97.85	Q	.	.	.	V.
26.250	2271.2988	94.09	Q	.	.	.	V.
26.333	2271.9231	90.65	Q	.	.	.	V.
26.417	2272.5256	87.50	Q	.	.	.	V.
26.500	2273.1082	84.59	Q	.	.	.	V.
26.583	2273.6724	81.92	Q	.	.	.	V.
26.667	2274.2195	79.43	Q	.	.	.	V.
26.750	2274.7502	77.08	Q	.	.	.	V.
26.833	2275.2659	74.85	Q	.	.	.	V.
26.917	2275.7668	72.72	Q	.	.	.	V.
27.000	2276.2537	70.68	Q	.	.	.	V.
27.083	2276.7268	68.71	Q	.	.	.	V.
27.167	2277.1870	66.81	Q	.	.	.	V.
27.250	2277.6345	64.97	Q	.	.	.	V.
27.333	2278.0698	63.20	Q	.	.	.	V.
27.417	2278.4939	61.56	Q	.	.	.	V.
27.500	2278.9072	60.03	Q	.	.	.	V.
27.583	2279.3105	58.55	Q	.	.	.	V.
27.667	2279.7039	57.12	Q	.	.	.	V.
27.750	2280.0876	55.73	Q	.	.	.	V.
27.833	2280.4622	54.39	Q	.	.	.	V.
27.917	2280.8279	53.09	Q	.	.	.	V.
28.000	2281.1848	51.84	Q	.	.	.	V.
28.083	2281.5334	50.62	Q	.	.	.	V.
28.167	2281.8740	49.44	Q	.	.	.	V.
28.250	2282.2065	48.29	Q	.	.	.	V.
28.333	2282.5315	47.18	Q	.	.	.	V.
28.417	2282.8491	46.10	Q	.	.	.	V.
28.500	2283.1594	45.06	Q	.	.	.	V.
28.583	2283.4626	44.04	Q	.	.	.	V.
28.667	2283.7590	43.05	Q	.	.	.	V.
28.750	2284.0488	42.09	Q	.	.	.	V.
28.833	2284.3318	41.10	Q	.	.	.	V.
28.917	2284.6084	40.18	Q	.	.	.	V.
29.000	2284.8789	39.29	Q	.	.	.	V.
29.083	2285.1436	38.44	Q	.	.	.	V.
29.167	2285.4026	37.60	Q	.	.	.	V.
29.250	2285.6560	36.79	Q	.	.	.	V.
29.333	2285.9041	36.00	Q	.	.	.	V.
29.417	2286.1467	35.23	Q	.	.	.	V.
29.500	2286.3843	34.48	Q	.	.	.	V.
29.583	2286.6167	33.75	Q	.	.	.	V.
29.667	2286.8442	33.04	Q	.	.	.	V.
29.750	2287.0671	32.35	Q	.	.	.	V.
29.833	2287.2854	31.68	Q	.	.	.	V.
29.917	2287.4990	31.02	Q	.	.	.	V.
30.000	2287.7083	30.39	Q	.	.	.	V.
30.083	2287.9133	29.79	Q	.	.	.	V.
30.167	2288.1143	29.17	Q	.	.	.	V.
30.250	2288.3108	28.55	Q	.	.	.	V.
30.333	2288.5034	27.96	Q	.	.	.	V.

30.417	2288.6921	27.40	Q	.	.	.	V.
30.500	2288.8770	26.84	Q	.	.	.	V.
30.583	2289.0581	26.30	Q	.	.	.	V.
30.667	2289.2356	25.78	Q	.	.	.	V.
30.750	2289.4097	25.26	Q	.	.	.	V.
30.833	2289.5801	24.76	Q	.	.	.	V.
30.917	2289.7473	24.27	Q	.	.	.	V.
31.000	2289.9111	23.79	Q	.	.	.	V.
31.083	2290.0718	23.33	Q	.	.	.	V.
31.167	2290.2295	22.90	Q	.	.	.	V.
31.250	2290.3843	22.49	Q	.	.	.	V.
31.333	2290.5361	22.07	Q	.	.	.	V.
31.417	2290.6851	21.64	Q	.	.	.	V.
31.500	2290.8313	21.22	Q	.	.	.	V.
31.583	2290.9746	20.81	Q	.	.	.	V.
31.667	2291.1152	20.40	Q	.	.	.	V.
31.750	2291.2529	20.01	Q	.	.	.	V.
31.833	2291.3882	19.63	Q	.	.	.	V.
31.917	2291.5208	19.25	Q	.	.	.	V.
32.000	2291.6509	18.88	Q	.	.	.	V.
32.083	2291.7786	18.52	Q	.	.	.	V.
32.167	2291.9038	18.17	Q	.	.	.	V.
32.250	2292.0266	17.83	Q	.	.	.	V.
32.333	2292.1470	17.49	Q	.	.	.	V.
32.417	2292.2651	17.16	Q	.	.	.	V.
32.500	2292.3811	16.84	Q	.	.	.	V.
32.583	2292.4949	16.52	Q	.	.	.	V.
32.667	2292.6064	16.21	Q	.	.	.	V.
32.750	2292.7161	15.91	Q	.	.	.	V.
32.833	2292.8235	15.61	Q	.	.	.	V.
32.917	2292.9290	15.32	Q	.	.	.	V.
33.000	2293.0325	15.04	Q	.	.	.	V.
33.083	2293.1340	14.76	Q	.	.	.	V.
33.167	2293.2339	14.49	Q	.	.	.	V.
33.250	2293.3318	14.22	Q	.	.	.	V.
33.333	2293.4280	13.96	Q	.	.	.	V.
33.417	2293.5225	13.71	Q	.	.	.	V.
33.500	2293.6152	13.46	Q	.	.	.	V.
33.583	2293.7063	13.21	Q	.	.	.	V.
33.667	2293.7957	12.97	Q	.	.	.	V.
33.750	2293.8833	12.73	Q	.	.	.	V.
33.833	2293.9695	12.50	Q	.	.	.	V.
33.917	2294.0540	12.28	Q	.	.	.	V.
34.000	2294.1370	12.06	Q	.	.	.	V.
34.083	2294.2185	11.84	Q	.	.	.	V.
34.167	2294.2986	11.63	Q	.	.	.	V.
34.250	2294.3772	11.42	Q	.	.	.	V.
34.333	2294.4543	11.21	Q	.	.	.	V.
34.417	2294.5303	11.01	Q	.	.	.	V.
34.500	2294.6047	10.82	Q	.	.	.	V.
34.583	2294.6780	10.62	Q	.	.	.	V.
34.667	2294.7498	10.43	Q	.	.	.	V.
34.750	2294.8203	10.25	Q	.	.	.	V.
34.833	2294.8896	10.07	Q	.	.	.	V.
34.917	2294.9578	9.89	Q	.	.	.	V.
35.000	2295.0247	9.71	Q	.	.	.	V.
35.083	2295.0906	9.56	Q	.	.	.	V.

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 35.167   2295.1555      9.43  Q          .          .          .          V.
 35.250   2295.2190      9.23  Q          .          .          .          V.
 35.333   2295.2812      9.05  Q          .          .          .          V.
 35.417   2295.3425      8.89  Q          .          .          .          V.
 35.500   2295.4026      8.73  Q          .          .          .          V.
 35.583   2295.4617      8.58  Q          .          .          .          V.
 35.667   2295.5198      8.43  Q          .          .          .          V.
 35.750   2295.5769      8.29  Q          .          .          .          V.
 35.833   2295.6331      8.14  Q          .          .          .          V.
 35.917   2295.6882      8.00  Q          .          .          .          V.
 36.000   2295.7424      7.86  Q          .          .          .          V.
--------------------------------------------------------------------------------
  TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
  (Note: 100% of Peak Flow Rate estimate assumed to have
  an instantaneous time duration)

  Percentile of Estimated          Duration
      Peak Flow Rate               (minutes)
  ======================           =========
            0%                      2165.0
           10%                       330.0
           20%                       150.0
           30%                        95.0
           40%                        70.0
           50%                        50.0
           60%                        40.0
           70%                        25.0
           80%                        20.0
           90%                        10.0

****************************************************************************
  FLOW PROCESS FROM NODE     111.00 TO NODE     111.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

     (UNIT-HYDROGRAPH ADDED TO STREAM #1)

       WATERSHED AREA =      360.100 ACRES
       BASEFLOW =    0.000 CFS/SQUARE-MILE
       *USER ENTERED "LAG" TIME =     0.288 HOURS
        CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
        THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
        MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
       VALLEY(DEVELOPED):
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       VALLEY(UNDEVELOPED)/DESERT:
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  1.000
       MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.101
       LOW LOSS FRACTION = 0.097
       *HYDROGRAPH MODEL #1 SPECIFIED*

       SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
```

SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.984
30-MINUTE FACTOR = 0.984
1-HOUR FACTOR = 0.984
3-HOUR FACTOR = 0.998
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 28.935

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.668	72.639
2	8.720	307.125
3	28.312	853.198
4	50.275	956.474
5	62.776	544.416
6	70.597	340.633
7	76.266	246.854
8	80.528	185.639
9	83.840	144.217
10	86.632	121.589
11	88.890	98.338
12	90.631	75.824
13	92.160	66.579
14	93.483	57.622
15	94.565	47.119
16	95.526	41.833
17	96.313	34.302
18	97.006	30.151
19	97.535	23.070
20	97.942	17.726
21	98.234	12.687
22	98.565	14.440
23	98.912	15.121
24	99.260	15.121
25	99.607	15.121
26	99.954	15.121
27	100.000	1.998

NODE 111 SUBAREA HYDROGRAPH

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0044
2	0.0049	0.0005	0.0044
3	0.0049	0.0005	0.0044
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0045
6	0.0049	0.0005	0.0045
7	0.0050	0.0005	0.0045
8	0.0050	0.0005	0.0045
9	0.0050	0.0005	0.0045
10	0.0050	0.0005	0.0045
11	0.0050	0.0005	0.0045
12	0.0050	0.0005	0.0046
13	0.0051	0.0005	0.0046
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0046
18	0.0051	0.0005	0.0046
19	0.0052	0.0005	0.0047
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0047
24	0.0053	0.0005	0.0047
25	0.0053	0.0005	0.0048
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0048
30	0.0054	0.0005	0.0049
31	0.0054	0.0005	0.0049
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0055	0.0005	0.0049
35	0.0055	0.0005	0.0050
36	0.0055	0.0005	0.0050
37	0.0055	0.0005	0.0050
38	0.0055	0.0005	0.0050
39	0.0056	0.0005	0.0050
40	0.0056	0.0005	0.0050
41	0.0056	0.0005	0.0051
42	0.0056	0.0005	0.0051
43	0.0057	0.0005	0.0051
44	0.0057	0.0006	0.0051
45	0.0057	0.0006	0.0052
46	0.0057	0.0006	0.0052
47	0.0058	0.0006	0.0052
48	0.0058	0.0006	0.0052
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0053
51	0.0059	0.0006	0.0053

52	0.0059	0.0006	0.0053
53	0.0059	0.0006	0.0053
54	0.0059	0.0006	0.0053
55	0.0060	0.0006	0.0054
56	0.0060	0.0006	0.0054
57	0.0060	0.0006	0.0054
58	0.0060	0.0006	0.0054
59	0.0061	0.0006	0.0055
60	0.0061	0.0006	0.0055
61	0.0061	0.0006	0.0055
62	0.0061	0.0006	0.0055
63	0.0062	0.0006	0.0056
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0056
66	0.0063	0.0006	0.0056
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0057
70	0.0064	0.0006	0.0058
71	0.0064	0.0006	0.0058
72	0.0064	0.0006	0.0058
73	0.0065	0.0006	0.0059
74	0.0065	0.0006	0.0059
75	0.0066	0.0006	0.0059
76	0.0066	0.0006	0.0059
77	0.0066	0.0006	0.0060
78	0.0066	0.0006	0.0060
79	0.0067	0.0006	0.0060
80	0.0067	0.0007	0.0061
81	0.0068	0.0007	0.0061
82	0.0068	0.0007	0.0061
83	0.0068	0.0007	0.0062
84	0.0069	0.0007	0.0062
85	0.0069	0.0007	0.0062
86	0.0069	0.0007	0.0063
87	0.0070	0.0007	0.0063
88	0.0070	0.0007	0.0063
89	0.0071	0.0007	0.0064
90	0.0071	0.0007	0.0064
91	0.0072	0.0007	0.0065
92	0.0072	0.0007	0.0065
93	0.0073	0.0007	0.0066
94	0.0073	0.0007	0.0066
95	0.0073	0.0007	0.0066
96	0.0074	0.0007	0.0067
97	0.0074	0.0007	0.0067
98	0.0075	0.0007	0.0067
99	0.0075	0.0007	0.0068
100	0.0076	0.0007	0.0068
101	0.0076	0.0007	0.0069
102	0.0077	0.0007	0.0069
103	0.0077	0.0008	0.0070
104	0.0078	0.0008	0.0070
105	0.0078	0.0008	0.0071
106	0.0079	0.0008	0.0071
107	0.0080	0.0008	0.0072
108	0.0080	0.0008	0.0072

109	0.0081	0.0008	0.0073
110	0.0081	0.0008	0.0073
111	0.0082	0.0008	0.0074
112	0.0082	0.0008	0.0074
113	0.0083	0.0008	0.0075
114	0.0084	0.0008	0.0076
115	0.0084	0.0008	0.0076
116	0.0085	0.0008	0.0077
117	0.0086	0.0008	0.0078
118	0.0086	0.0008	0.0078
119	0.0087	0.0008	0.0079
120	0.0088	0.0009	0.0079
121	0.0089	0.0009	0.0080
122	0.0089	0.0009	0.0081
123	0.0090	0.0009	0.0082
124	0.0091	0.0009	0.0082
125	0.0092	0.0009	0.0083
126	0.0092	0.0009	0.0084
127	0.0094	0.0009	0.0085
128	0.0094	0.0009	0.0085
129	0.0095	0.0009	0.0086
130	0.0096	0.0009	0.0087
131	0.0097	0.0009	0.0088
132	0.0098	0.0009	0.0088
133	0.0099	0.0010	0.0090
134	0.0100	0.0010	0.0090
135	0.0101	0.0010	0.0092
136	0.0102	0.0010	0.0092
137	0.0104	0.0010	0.0094
138	0.0104	0.0010	0.0094
139	0.0106	0.0010	0.0096
140	0.0107	0.0010	0.0096
141	0.0108	0.0011	0.0098
142	0.0109	0.0011	0.0099
143	0.0111	0.0011	0.0100
144	0.0112	0.0011	0.0101
145	0.0090	0.0009	0.0081
146	0.0091	0.0009	0.0082
147	0.0092	0.0009	0.0083
148	0.0093	0.0009	0.0084
149	0.0095	0.0009	0.0086
150	0.0096	0.0009	0.0087
151	0.0099	0.0010	0.0089
152	0.0100	0.0010	0.0090
153	0.0102	0.0010	0.0092
154	0.0103	0.0010	0.0093
155	0.0106	0.0010	0.0095
156	0.0107	0.0010	0.0097
157	0.0110	0.0011	0.0099
158	0.0111	0.0011	0.0100
159	0.0114	0.0011	0.0103
160	0.0116	0.0011	0.0105
161	0.0119	0.0012	0.0108
162	0.0121	0.0012	0.0109
163	0.0125	0.0012	0.0113
164	0.0127	0.0012	0.0114
165	0.0131	0.0013	0.0118

166	0.0133	0.0013	0.0120
167	0.0138	0.0013	0.0124
168	0.0140	0.0014	0.0127
169	0.0150	0.0015	0.0135
170	0.0153	0.0015	0.0138
171	0.0159	0.0015	0.0144
172	0.0162	0.0016	0.0147
173	0.0170	0.0016	0.0153
174	0.0174	0.0017	0.0157
175	0.0183	0.0018	0.0165
176	0.0188	0.0018	0.0169
177	0.0199	0.0019	0.0179
178	0.0205	0.0020	0.0185
179	0.0218	0.0021	0.0197
180	0.0226	0.0022	0.0204
181	0.0243	0.0024	0.0219
182	0.0253	0.0025	0.0228
183	0.0276	0.0027	0.0250
184	0.0290	0.0028	0.0262
185	0.0252	0.0024	0.0228
186	0.0271	0.0026	0.0244
187	0.0317	0.0031	0.0286
188	0.0349	0.0034	0.0315
189	0.0542	0.0053	0.0489
190	0.0624	0.0061	0.0564
191	0.0946	0.0084	0.0862
192	0.1374	0.0084	0.1289
193	0.5904	0.0084	0.5819
194	0.0745	0.0072	0.0673
195	0.0389	0.0038	0.0351
196	0.0292	0.0028	0.0263
197	0.0306	0.0030	0.0276
198	0.0264	0.0026	0.0238
199	0.0234	0.0023	0.0211
200	0.0211	0.0020	0.0191
201	0.0193	0.0019	0.0174
202	0.0178	0.0017	0.0161
203	0.0166	0.0016	0.0150
204	0.0156	0.0015	0.0141
205	0.0143	0.0014	0.0129
206	0.0135	0.0013	0.0122
207	0.0129	0.0012	0.0116
208	0.0123	0.0012	0.0111
209	0.0117	0.0011	0.0106
210	0.0113	0.0011	0.0102
211	0.0108	0.0011	0.0098
212	0.0104	0.0010	0.0094
213	0.0101	0.0010	0.0091
214	0.0097	0.0009	0.0088
215	0.0094	0.0009	0.0085
216	0.0092	0.0009	0.0083
217	0.0113	0.0011	0.0102
218	0.0110	0.0011	0.0099
219	0.0108	0.0010	0.0097
220	0.0105	0.0010	0.0095
221	0.0103	0.0010	0.0093
222	0.0101	0.0010	0.0091

223	0.0099	0.0010	0.0089
224	0.0097	0.0009	0.0087
225	0.0095	0.0009	0.0086
226	0.0093	0.0009	0.0084
227	0.0091	0.0009	0.0083
228	0.0090	0.0009	0.0081
229	0.0088	0.0009	0.0080
230	0.0087	0.0008	0.0078
231	0.0085	0.0008	0.0077
232	0.0084	0.0008	0.0076
233	0.0083	0.0008	0.0075
234	0.0082	0.0008	0.0074
235	0.0080	0.0008	0.0073
236	0.0079	0.0008	0.0072
237	0.0078	0.0008	0.0071
238	0.0077	0.0007	0.0070
239	0.0076	0.0007	0.0069
240	0.0075	0.0007	0.0068
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0066
243	0.0072	0.0007	0.0065
244	0.0071	0.0007	0.0064
245	0.0071	0.0007	0.0064
246	0.0070	0.0007	0.0063
247	0.0069	0.0007	0.0062
248	0.0068	0.0007	0.0062
249	0.0067	0.0007	0.0061
250	0.0067	0.0006	0.0060
251	0.0066	0.0006	0.0060
252	0.0065	0.0006	0.0059
253	0.0065	0.0006	0.0058
254	0.0064	0.0006	0.0058
255	0.0063	0.0006	0.0057
256	0.0063	0.0006	0.0057
257	0.0062	0.0006	0.0056
258	0.0062	0.0006	0.0056
259	0.0061	0.0006	0.0055
260	0.0060	0.0006	0.0055
261	0.0060	0.0006	0.0054
262	0.0059	0.0006	0.0054
263	0.0059	0.0006	0.0053
264	0.0058	0.0006	0.0053
265	0.0058	0.0006	0.0052
266	0.0057	0.0006	0.0052
267	0.0057	0.0006	0.0051
268	0.0056	0.0005	0.0051
269	0.0056	0.0005	0.0051
270	0.0056	0.0005	0.0050
271	0.0055	0.0005	0.0050
272	0.0055	0.0005	0.0049
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0049
275	0.0053	0.0005	0.0048
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0048
278	0.0052	0.0005	0.0047
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0047
281	0.0051	0.0005	0.0046
282	0.0051	0.0005	0.0046
283	0.0051	0.0005	0.0046
284	0.0050	0.0005	0.0045
285	0.0050	0.0005	0.0045
286	0.0050	0.0005	0.0045
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.29
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.30

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 8.8355
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 99.0652

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	200.0	400.0	600.0	800.0
0.083	0.0022	0.32	Q	.	.	.	.
0.167	0.0137	1.67	Q	.	.	.	.
0.250	0.0510	5.42	Q	.	.	.	.
0.333	0.1174	9.64	Q	.	.	.	.
0.417	0.2005	12.06	Q	.	.	.	.
0.500	0.2941	13.60	Q	.	.	.	.
0.583	0.3955	14.72	Q	.	.	.	.
0.667	0.5029	15.59	Q	.	.	.	.
0.750	0.6150	16.27	Q	.	.	.	.
0.833	0.7311	16.86	Q	.	.	.	.
0.917	0.8505	17.35	Q	.	.	.	.
1.000	0.9727	17.74	Q	.	.	.	.
1.083	1.0972	18.09	Q	.	.	.	.
1.167	1.2240	18.40	Q	.	.	.	.
1.250	1.3525	18.67	Q	.	.	.	.
1.333	1.4828	18.92	Q	.	.	.	.
1.417	1.6146	19.13	Q	.	.	.	.
1.500	1.7477	19.33	Q	.	.	.	.
1.583	1.8820	19.50	Q	.	.	.	.
1.667	2.0172	19.64	Q	.	.	.	.
1.750	2.1533	19.76	Q	.	.	.	.
1.833	2.2904	19.90	Q	.	.	.	.
1.917	2.4283	20.03	VQ	.	.	.	.
2.000	2.5672	20.17	.Q	.	.	.	.
2.083	2.7071	20.31	.Q	.	.	.	.
2.167	2.8479	20.45	.Q	.	.	.	.
2.250	2.9893	20.53	.Q	.	.	.	.
2.333	3.1312	20.60	.Q	.	.	.	.
2.417	3.2736	20.68	.Q	.	.	.	.
2.500	3.4165	20.75	.Q	.	.	.	.
2.583	3.5599	20.83	.Q	.	.	.	.
2.667	3.7039	20.90	.Q	.	.	.	.
2.750	3.8484	20.98	.Q	.	.	.	.
2.833	3.9934	21.06	.Q	.	.	.	.
2.917	4.1390	21.14	.Q	.	.	.	.
3.000	4.2851	21.22	.Q	.	.	.	.
3.083	4.4318	21.30	.Q	.	.	.	.
3.167	4.5790	21.38	.Q	.	.	.	.
3.250	4.7268	21.46	.Q	.	.	.	.
3.333	4.8752	21.54	.Q	.	.	.	.
3.417	5.0242	21.63	.QV	.	.	.	.
3.500	5.1737	21.71	.QV	.	.	.	.
3.583	5.3239	21.80	.QV	.	.	.	.
3.667	5.4746	21.89	.QV	.	.	.	.
3.750	5.6259	21.97	.QV	.	.	.	.

3.833	5.7778	22.06	.QV	.	.	.	.
3.917	5.9304	22.15	.QV	.	.	.	.
4.000	6.0836	22.24	.QV	.	.	.	.
4.083	6.2374	22.33	.QV	.	.	.	.
4.167	6.3918	22.42	.QV	.	.	.	.
4.250	6.5469	22.52	.QV	.	.	.	.
4.333	6.7026	22.61	.QV	.	.	.	.
4.417	6.8590	22.71	.QV	.	.	.	.
4.500	7.0160	22.80	.QV	.	.	.	.
4.583	7.1738	22.90	.QV	.	.	.	.
4.667	7.3322	23.00	.QV	.	.	.	.
4.750	7.4912	23.10	.Q V	.	.	.	.
4.833	7.6510	23.20	.Q V	.	.	.	.
4.917	7.8115	23.30	.Q V	.	.	.	.
5.000	7.9727	23.40	.Q V	.	.	.	.
5.083	8.1346	23.51	.Q V	.	.	.	.
5.167	8.2972	23.61	.Q V	.	.	.	.
5.250	8.4606	23.72	.Q V	.	.	.	.
5.333	8.6247	23.83	.Q V	.	.	.	.
5.417	8.7896	23.94	.Q V	.	.	.	.
5.500	8.9552	24.05	.Q V	.	.	.	.
5.583	9.1216	24.16	.Q V	.	.	.	.
5.667	9.2888	24.28	.Q V	.	.	.	.
5.750	9.4568	24.39	.Q V	.	.	.	.
5.833	9.6256	24.51	.Q V	.	.	.	.
5.917	9.7952	24.63	.Q V	.	.	.	.
6.000	9.9656	24.75	.Q V	.	.	.	.
6.083	10.1369	24.87	.Q V	.	.	.	.
6.167	10.3090	24.99	.Q V	.	.	.	.
6.250	10.4819	25.11	.Q V	.	.	.	.
6.333	10.6557	25.24	.Q V	.	.	.	.
6.417	10.8304	25.37	.Q V	.	.	.	.
6.500	11.0060	25.50	.Q V	.	.	.	.
6.583	11.1825	25.63	.Q V	.	.	.	.
6.667	11.3599	25.76	.Q V	.	.	.	.
6.750	11.5383	25.89	.Q V	.	.	.	.
6.833	11.7175	26.03	.Q V	.	.	.	.
6.917	11.8978	26.17	.Q V	.	.	.	.
7.000	12.0789	26.31	.Q V	.	.	.	.
7.083	12.2611	26.45	.Q V	.	.	.	.
7.167	12.4443	26.60	.Q V	.	.	.	.
7.250	12.6285	26.74	.Q V	.	.	.	.
7.333	12.8136	26.89	.Q V	.	.	.	.
7.417	12.9999	27.04	.Q V	.	.	.	.
7.500	13.1872	27.19	.Q V	.	.	.	.
7.583	13.3755	27.35	.Q V	.	.	.	.
7.667	13.5650	27.51	.Q V	.	.	.	.
7.750	13.7555	27.67	.Q V	.	.	.	.
7.833	13.9472	27.83	.Q V	.	.	.	.
7.917	14.1400	28.00	.Q V	.	.	.	.
8.000	14.3340	28.16	.Q V	.	.	.	.
8.083	14.5291	28.33	.Q V	.	.	.	.
8.167	14.7255	28.51	.Q V	.	.	.	.
8.250	14.9230	28.68	.Q V	.	.	.	.
8.333	15.1218	28.86	.Q V	.	.	.	.
8.417	15.3218	29.05	.Q V	.	.	.	.
8.500	15.5232	29.23	.Q V	.	.	.	.

13.333	29.9159	42.04	. Q . V . . .
13.417	30.2104	42.76	. Q . V . . .
13.500	30.5101	43.52	. Q . V . . .
13.583	30.8156	44.35	. Q . V . . .
13.667	31.1271	45.23	. Q . V . . .
13.750	31.4450	46.17	. Q . V . . .
13.833	31.7698	47.16	. Q . V . . .
13.917	32.1017	48.20	. Q . V . . .
14.000	32.4413	49.31	. Q . V . . .
14.083	32.7892	50.51	. Q . V . . .
14.167	33.1464	51.86	. Q . V . . .
14.250	33.5150	53.52	. Q . V . . .
14.333	33.8959	55.31	. Q . V . . .
14.417	34.2890	57.08	. Q . V . . .
14.500	34.6946	58.89	. Q . V . . .
14.583	35.1134	60.81	. Q . V . . .
14.667	35.5463	62.85	. Q . V . . .
14.750	35.9944	65.06	. Q . V . . .
14.833	36.4589	67.45	. Q . V . . .
14.917	36.9415	70.07	. Q . V . . .
15.000	37.4438	72.93	. Q . V . . .
15.083	37.9681	76.12	. Q . V . . .
15.167	38.5166	79.65	. Q . V . . .
15.250	39.0928	83.66	. Q . V . . .
15.333	39.7001	88.18	. Q . V . . .
15.417	40.3402	92.95	. Q . V . . .
15.500	41.0082	97.00	. Q . V . . .
15.583	41.6875	98.63	. Q . V . . .
15.667	42.3813	100.74	. Q . V . . .
15.750	43.1252	108.01	. Q . V . . .
15.833	43.9621	121.53	. Q . V . . .
15.917	44.9727	146.74	. Q . V . . .
16.000	46.2517	185.70	. Q. V . . .
16.083	48.1549	276.36	. . Q V. . .
16.167	51.2886	455.01	. . V Q . .
16.250	56.4304	746.58	. . . V . . Q .
16.333	61.7334	770.01	. . . V . . Q .
16.417	65.3227	521.16	. . . Q . .
16.500	67.9209	377.26	. . Q . V . .
16.583	70.0089	303.18	. . Q . V . .
16.667	71.7579	253.96	. . Q . V . .
16.750	73.2536	217.17	. Q . V. .
16.833	74.5738	191.69	. Q. . V .
16.917	75.7302	167.92	. Q . . V .
17.000	76.7398	146.59	. Q . . V .
17.083	77.6570	133.18	. Q . . .V .
17.167	78.4906	121.03	. Q . . .V .
17.250	79.2399	108.80	. Q . . .V .
17.333	79.9267	99.72	. Q . . . V .
17.417	80.5489	90.35	. Q . . . V .
17.500	81.1215	83.15	. Q . . . V .
17.583	81.6391	75.16	. Q . . . V .
17.667	82.1124	68.71	. Q . . . V .
17.750	82.5480	63.26	. Q . . . V .
17.833	82.9726	61.64	. Q . . . V .
17.917	83.3829	59.58	. Q . . . V .
18.000	83.7769	57.21	. Q . . . V .

8.583	15.7258	29.42	.Q	V	.	.	.	.
8.667	15.9297	29.61	.Q	V	.	.	.	.
8.750	16.1350	29.81	.Q	V	.	.	.	.
8.833	16.3416	30.00	.Q	V	.	.	.	.
8.917	16.5496	30.21	.Q	V	.	.	.	.
9.000	16.7591	30.41	.Q	V	.	.	.	.
9.083	16.9699	30.62	.Q	V	.	.	.	.
9.167	17.1823	30.83	.Q	V	.	.	.	.
9.250	17.3961	31.05	.Q	V	.	.	.	.
9.333	17.6115	31.27	.Q	V	.	.	.	.
9.417	17.8284	31.50	.Q	V	.	.	.	.
9.500	18.0469	31.73	.Q	V	.	.	.	.
9.583	18.2670	31.96	.Q	V	.	.	.	.
9.667	18.4888	32.20	.Q	V	.	.	.	.
9.750	18.7122	32.44	.Q	V	.	.	.	.
9.833	18.9373	32.69	.Q	V	.	.	.	.
9.917	19.1642	32.94	.Q	V	.	.	.	.
10.000	19.3929	33.20	.Q	V	.	.	.	.
10.083	19.6234	33.47	.Q	V	.	.	.	.
10.167	19.8557	33.74	.Q	V	.	.	.	.
10.250	20.0899	34.01	.Q	V	.	.	.	.
10.333	20.3261	34.29	.Q	V	.	.	.	.
10.417	20.5643	34.58	.Q	V	.	.	.	.
10.500	20.8045	34.88	.Q	V	.	.	.	.
10.583	21.0467	35.18	.Q	V	.	.	.	.
10.667	21.2911	35.48	.Q	V	.	.	.	.
10.750	21.5377	35.80	.Q	V	.	.	.	.
10.833	21.7865	36.12	.Q	V	.	.	.	.
10.917	22.0375	36.45	.Q	V	.	.	.	.
11.000	22.2909	36.79	.Q	V.	.	.	.	.
11.083	22.5467	37.14	.Q	V.	.	.	.	.
11.167	22.8049	37.50	.Q	V.	.	.	.	.
11.250	23.0657	37.86	.Q	V.	.	.	.	.
11.333	23.3290	38.24	.Q	V.	.	.	.	.
11.417	23.5950	38.62	.Q	V.	.	.	.	.
11.500	23.8637	39.02	.Q	V.	.	.	.	.
11.583	24.1352	39.42	.Q	V.	.	.	.	.
11.667	24.4096	39.84	.Q	V.	.	.	.	.
11.750	24.6869	40.27	. Q	V.	.	.	.	.
11.833	24.9673	40.71	. Q	V	.	.	.	.
11.917	25.2508	41.17	. Q	V	.	.	.	.
12.000	25.5375	41.63	. Q	V	.	.	.	.
12.083	25.8265	41.96	. Q	V	.	.	.	.
12.167	26.1143	41.79	. Q	V	.	.	.	.
12.250	26.3928	40.44	. Q	V	.	.	.	.
12.333	26.6606	38.88	.Q	V	.	.	.	.
12.417	26.9237	38.21	.Q	V	.	.	.	.
12.500	27.1854	38.00	.Q	V	.	.	.	.
12.583	27.4472	38.00	.Q	.V	.	.	.	.
12.667	27.7100	38.16	.Q	.V	.	.	.	.
12.750	27.9746	38.42	.Q	.V	.	.	.	.
12.833	28.2415	38.76	.Q	.V	.	.	.	.
12.917	28.5113	39.16	.Q	.V	.	.	.	.
13.000	28.7843	39.64	.Q	.V	.	.	.	.
13.083	29.0609	40.17	. Q	.V	.	.	.	.
13.167	29.3415	40.74	. Q	.V	.	.	.	.
13.250	29.6264	41.37	. Q	.V	.	.	.	.

18.083	84.1537	54.72	.	Q	.	.	.	V	.	
18.167	84.5137	52.26	.	Q	.	.	.	V	.	
18.250	84.8242	45.08	.	Q	.	.	.	V	.	
18.333	85.1275	44.05	.	Q	.	.	.	V	.	
18.417	85.4281	43.65	.	Q	.	.	.	V	.	
18.500	85.7246	43.04	.	Q	.	.	.	V	.	
18.583	86.0158	42.29	.	Q	.	.	.	V	.	
18.667	86.3018	41.52	.	Q	.	.	.	V	.	
18.750	86.5824	40.75	.	Q	.	.	.	V	.	
18.833	86.8580	40.01	.	Q	.	.	.	V	.	
18.917	87.1285	39.28	.	Q	.	.	.	V	.	
19.000	87.3941	38.57	.	Q	.	.	.	V	.	
19.083	87.6550	37.88	.	Q	.	.	.	V	.	
19.167	87.9114	37.23	.	Q	.	.	.	V	.	
19.250	88.1634	36.59	.	Q	.	.	.	V	.	
19.333	88.4113	35.99	.	Q	.	.	.	V	.	
19.417	88.6551	35.40	.	Q	.	.	.	V	.	
19.500	88.8950	34.83	.	Q	.	.	.	V	.	
19.583	89.1311	34.28	.	Q	.	.	.	V	.	
19.667	89.3635	33.75	.	Q	.	.	.	V	.	
19.750	89.5923	33.22	.	Q	.	.	.	V	.	
19.833	89.8177	32.73	.	Q	.	.	.	V	.	
19.917	90.0399	32.26	.	Q	.	.	.	V	.	
20.000	90.2589	31.81	.	Q	.	.	.	V	.	
20.083	90.4750	31.37	.	Q	.	.	.	V	.	
20.167	90.6882	30.96	.	Q	.	.	.	V	.	
20.250	90.8985	30.53	.	Q	.	.	.	V	.	
20.333	91.1059	30.12	.	Q	.	.	.	V	.	
20.417	91.3106	29.72	.	Q	.	.	.	V	.	
20.500	91.5126	29.33	.	Q	.	.	.	V	.	
20.583	91.7120	28.95	.	Q	.	.	.	V	.	
20.667	91.9089	28.59	.	Q	.	.	.	V	.	
20.750	92.1034	28.24	.	Q	.	.	.	V	.	
20.833	92.2956	27.91	.	Q	.	.	.	V	.	
20.917	92.4856	27.58	.	Q	.	.	.	V	.	
21.000	92.6733	27.26	.	Q	.	.	.	V	.	
21.083	92.8589	26.95	.	Q	.	.	.	V	.	
21.167	93.0425	26.65	.	Q	.	.	.	V	.	
21.250	93.2241	26.36	.	Q	.	.	.	V	.	
21.333	93.4037	26.08	.	Q	.	.	.	V	.	
21.417	93.5815	25.81	.	Q	.	.	.	V	.	
21.500	93.7574	25.54	.	Q	.	.	.	V	.	
21.583	93.9315	25.28	.	Q	.	.	.	V	.	
21.667	94.1039	25.03	.	Q	.	.	.	V	.	
21.750	94.2745	24.78	.	Q	.	.	.	V	.	
21.833	94.4436	24.54	.	Q	.	.	.	V	.	
21.917	94.6110	24.31	.	Q	.	.	.	V	.	
22.000	94.7769	24.08	.	Q	.	.	.	V	.	
22.083	94.9412	23.86	.	Q	.	.	.	V	.	
22.167	95.1040	23.64	.	Q	.	.	.	V	.	
22.250	95.2654	23.43	.	Q	.	.	.	V	.	
22.333	95.4254	23.23	.	Q	.	.	.	V	.	
22.417	95.5840	23.02	.	Q	.	.	.	V	.	
22.500	95.7412	22.83	.	Q	.	.	.	V	.	
22.583	95.8971	22.63	.	Q	.	.	.	V	.	
22.667	96.0516	22.45	.	Q	.	.	.	V	.	
22.750	96.2050	22.26	.	Q	.	.	.	V	.	

22.833	96.3570	22.08	.Q	.	.	.	V .
22.917	96.5079	21.90	.Q	.	.	.	V .
23.000	96.6575	21.73	.Q	.	.	.	V.
23.083	96.8060	21.56	.Q	.	.	.	V.
23.167	96.9534	21.40	.Q	.	.	.	V.
23.250	97.0996	21.23	.Q	.	.	.	V.
23.333	97.2448	21.07	.Q	.	.	.	V.
23.417	97.3888	20.92	.Q	.	.	.	V.
23.500	97.5318	20.76	.Q	.	.	.	V.
23.583	97.6738	20.61	.Q	.	.	.	V.
23.667	97.8148	20.47	.Q	.	.	.	V.
23.750	97.9547	20.32	.Q	.	.	.	V.
23.833	98.0937	20.18	.Q	.	.	.	V.
23.917	98.2318	20.04	.Q	.	.	.	V.
24.000	98.3688	19.90	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	145.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	10.0

****
FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2700.0	5400.0	8100.0	10800.0
0.083	0.0150	2.18	Q	.	.	.	.
0.167	0.1650	21.78	Q	.	.	.	.
0.250	0.5892	61.59	Q	.	.	.	.
0.333	1.2231	92.04	Q	.	.	.	.
0.417	2.0073	113.88	Q	.	.	.	.
0.500	3.0159	146.44	Q	.	.	.	.
0.583	4.2805	183.62	Q	.	.	.	.
0.667	5.7499	213.36	Q	.	.	.	.
0.750	7.3747	235.91	Q	.	.	.	.
0.833	9.1371	255.90	Q	.	.	.	.
0.917	11.0075	271.58	VQ	.	.	.	.

1.000	12.9716	285.19	VQ	.	.	.	.
1.083	15.0248	298.12	VQ	.	.	.	.
1.167	17.1597	309.99	VQ	.	.	.	.
1.250	19.3656	320.30	VQ	.	.	.	.
1.333	21.6340	329.38	VQ	.	.	.	.
1.417	23.9610	337.88	VQ	.	.	.	.
1.500	26.3413	345.62	VQ	.	.	.	.
1.583	28.7695	352.57	VQ	.	.	.	.
1.667	31.2420	359.01	VQ	.	.	.	.
1.750	33.7556	364.98	VQ	.	.	.	.
1.833	36.3075	370.53	VQ	.	.	.	.
1.917	38.8952	375.72	VQ	.	.	.	.
2.000	41.5167	380.64	VQ	.	.	.	.
2.083	44.1701	385.29	VQ	.	.	.	.
2.167	46.8535	389.62	VQ	.	.	.	.
2.250	49.5644	393.63	VQ	.	.	.	.
2.333	52.3015	397.43	VQ	.	.	.	.
2.417	55.0636	401.05	VQ	.	.	.	.
2.500	57.8488	404.41	VQ	.	.	.	.
2.583	60.6562	407.64	.Q	.	.	.	.
2.667	63.4854	410.79	.Q	.	.	.	.
2.750	66.3357	413.87	.Q	.	.	.	.
2.833	69.2067	416.87	.Q	.	.	.	.
2.917	72.0981	419.83	.Q	.	.	.	.
3.000	75.0095	422.73	.Q	.	.	.	.
3.083	77.9406	425.60	.Q	.	.	.	.
3.167	80.8913	428.44	.Q	.	.	.	.
3.250	83.8613	431.25	.Q	.	.	.	.
3.333	86.8505	434.03	.Q	.	.	.	.
3.417	89.8581	436.71	.Q	.	.	.	.
3.500	92.8838	439.33	.Q	.	.	.	.
3.583	95.9273	441.92	.Q	.	.	.	.
3.667	98.9885	444.49	.Q	.	.	.	.
3.750	102.0673	447.05	.Q	.	.	.	.
3.833	105.1637	449.60	.Q	.	.	.	.
3.917	108.2776	452.13	.Q	.	.	.	.
4.000	111.4089	454.66	.Q	.	.	.	.
4.083	114.5576	457.19	.Q	.	.	.	.
4.167	117.7235	459.70	.Q	.	.	.	.
4.250	120.9069	462.22	.QV	.	.	.	.
4.333	124.1075	464.73	.QV	.	.	.	.
4.417	127.3253	467.23	.QV	.	.	.	.
4.500	130.5600	469.67	.QV	.	.	.	.
4.583	133.8108	472.02	.QV	.	.	.	.
4.667	137.0777	474.35	.QV	.	.	.	.
4.750	140.3610	476.73	.QV	.	.	.	.
4.833	143.6610	479.17	.QV	.	.	.	.
4.917	146.9783	481.67	.QV	.	.	.	.
5.000	150.3129	484.19	.QV	.	.	.	.
5.083	153.6651	486.74	.QV	.	.	.	.
5.167	157.0349	489.29	.QV	.	.	.	.
5.250	160.4224	491.86	.QV	.	.	.	.
5.333	163.8277	494.45	.QV	.	.	.	.
5.417	167.2508	497.04	.QV	.	.	.	.
5.500	170.6919	499.65	.QV	.	.	.	.
5.583	174.1511	502.28	.QV	.	.	.	.
5.667	177.6285	504.92	.QV	.	.	.	.

NODE 111 VIEW STREAM 1

5.750	181.1242	507.58	.Q V	.	.	.	.
5.833	184.6383	510.25	.Q V	.	.	.	.
5.917	188.1710	512.95	.Q V	.	.	.	.
6.000	191.7224	515.66	.Q V	.	.	.	.
6.083	195.2926	518.39	.Q V	.	.	.	.
6.167	198.8818	521.15	.Q V	.	.	.	.
6.250	202.4901	523.93	.Q V	.	.	.	.
6.333	206.1178	526.73	.Q V	.	.	.	.
6.417	209.7649	529.56	.Q V	.	.	.	.
6.500	213.4316	532.41	.Q V	.	.	.	.
6.583	217.1182	535.29	.Q V	.	.	.	.
6.667	220.8248	538.20	.Q V	.	.	.	.
6.750	224.5517	541.14	. QV	.	.	.	.
6.833	228.2989	544.10	. QV	.	.	.	.
6.917	232.0668	547.09	. QV	.	.	.	.
7.000	235.8555	550.12	. QV	.	.	.	.
7.083	239.6652	553.18	. QV	.	.	.	.
7.167	243.4963	556.27	. Q V	.	.	.	.
7.250	247.3488	559.39	. Q V	.	.	.	.
7.333	251.2231	562.55	. Q V	.	.	.	.
7.417	255.1195	565.75	. Q V	.	.	.	.
7.500	259.0381	568.98	. Q V	.	.	.	.
7.583	262.9792	572.25	. Q V	.	.	.	.
7.667	266.9431	575.56	. Q V	.	.	.	.
7.750	270.9301	578.92	. Q V	.	.	.	.
7.833	274.9405	582.31	. Q V	.	.	.	.
7.917	278.9746	585.75	. Q V	.	.	.	.
8.000	283.0326	589.23	. Q V	.	.	.	.
8.083	287.1150	592.76	. Q V	.	.	.	.
8.167	291.2220	596.33	. Q V	.	.	.	.
8.250	295.3539	599.96	. Q V	.	.	.	.
8.333	299.5112	603.63	. Q V	.	.	.	.
8.417	303.6941	607.36	. Q V	.	.	.	.
8.500	307.9030	611.14	. Q V	.	.	.	.
8.583	312.1384	614.97	. Q V	.	.	.	.
8.667	316.4005	618.85	. Q V	.	.	.	.
8.750	320.6897	622.80	. Q V	.	.	.	.
8.833	325.0066	626.81	. Q V	.	.	.	.
8.917	329.3515	630.88	. Q V	.	.	.	.
9.000	333.7249	635.01	. Q V	.	.	.	.
9.083	338.1271	639.21	. Q V	.	.	.	.
9.167	342.5588	643.48	. Q V	.	.	.	.
9.250	347.0203	647.81	. Q V	.	.	.	.
9.333	351.5121	652.22	. Q V	.	.	.	.
9.417	356.0349	656.70	. Q V	.	.	.	.
9.500	360.5890	661.25	. Q V	.	.	.	.
9.583	365.1750	665.89	. Q V	.	.	.	.
9.667	369.7935	670.60	. Q V	.	.	.	.
9.750	374.4450	675.40	. Q V	.	.	.	.
9.833	379.1302	680.29	. Q V	.	.	.	.
9.917	383.8496	685.27	. Q V	.	.	.	.
10.000	388.6040	690.33	. Q V	.	.	.	.
10.083	393.3939	695.49	. Q V	.	.	.	.
10.167	398.2199	700.75	. Q V	.	.	.	.
10.250	403.0830	706.11	. Q V	.	.	.	.
10.333	407.9836	711.57	. Q V	.	.	.	.
10.417	412.9227	717.15	. Q V	.	.	.	.

10.500	417.9008	722.83	. Q	V	.	.	.
10.583	422.9190	728.64	. Q	V	.	.	.
10.667	427.9780	734.56	. Q	V	.	.	.
10.750	433.0786	740.61	. Q	V	.	.	.
10.833	438.2218	746.79	. Q	V	.	.	.
10.917	443.4085	753.10	. Q	V	.	.	.
11.000	448.6396	759.55	. Q	V	.	.	.
11.083	453.9161	766.16	. Q	V	.	.	.
11.167	459.2393	772.93	. Q	V	.	.	.
11.250	464.6110	779.97	. Q	V	.	.	.
11.333	470.0334	787.33	. Q	V	.	.	.
11.417	475.5096	795.14	. Q	V	.	.	.
11.500	481.0425	803.38	. Q	V	.	.	.
11.583	486.6349	812.03	. Q	V	.	.	.
11.667	492.2893	821.01	. Q	V	.	.	.
11.750	498.0078	830.33	. Q	V	.	.	.
11.833	503.7926	839.95	. Q	V	.	.	.
11.917	509.6458	849.89	. Q	V	.	.	.
12.000	515.5695	860.13	. Q	V	.	.	.
12.083	521.5633	870.30	. Q	V	.	.	.
12.167	527.6190	879.28	. Q	V	.	.	.
12.250	533.7145	885.07	. Q	V	.	.	.
12.333	539.8123	885.41	. Q	V.	.	.	.
12.417	545.8617	878.37	. Q	V.	.	.	.
12.500	551.8289	866.44	. Q	V.	.	.	.
12.583	557.7167	854.92	. Q	V.	.	.	.
12.667	563.5521	847.29	. Q	V.	.	.	.
12.750	569.3631	843.76	. Q	V.	.	.	.
12.833	575.1717	843.41	. Q	V.	.	.	.
12.917	580.9957	845.64	. Q	V.	.	.	.
13.000	586.8504	850.11	. Q	V.	.	.	.
13.083	592.7490	856.48	. Q	V.	.	.	.
13.167	598.7026	864.47	. Q	V.	.	.	.
13.250	604.7213	873.91	. Q	V	.	.	.
13.333	610.8139	884.65	. Q	V	.	.	.
13.417	616.9891	896.64	. Q	V	.	.	.
13.500	623.2552	909.83	. Q	V	.	.	.
13.583	629.6203	924.22	. Q	V	.	.	.
13.667	636.0927	939.78	. Q	V	.	.	.
13.750	642.6807	956.59	. Q	V	.	.	.
13.833	649.3930	974.63	. Q	V	.	.	.
13.917	656.2386	993.98	. Q	V	.	.	.
14.000	663.2266	1014.64	. Q	.V	.	.	.
14.083	670.3669	1036.78	. Q	.V	.	.	.
14.167	677.6718	1060.67	. Q	.V	.	.	.
14.250	685.1574	1086.90	. Q	.V	.	.	.
14.333	692.8444	1116.15	. Q	.V	.	.	.
14.417	700.7569	1148.90	. Q	.V	.	.	.
14.500	708.9116	1184.06	. Q	.V	.	.	.
14.583	717.3152	1220.21	. Q	.V	.	.	.
14.667	725.9739	1257.23	. Q	. V	.	.	.
14.750	734.9031	1296.52	. Q	. V	.	.	.
14.833	744.1262	1339.19	. Q	. V	.	.	.
14.917	753.6708	1385.88	. Q	. V	.	.	.
15.000	763.5658	1436.76	. Q	. V	.	.	.
15.083	773.8433	1492.29	. Q	. V	.	.	.
15.167	784.5381	1552.88	. Q	. V	.	.	.

15.250	795.6912	1619.43	. Q . V . . .
15.333	807.3495	1692.79	. Q . V . . .
15.417	819.5623	1773.30	. Q . V . . .
15.500	832.3663	1859.14	. Q . V . . .
15.583	845.7722	1946.54	. Q . V . . .
15.667	859.7598	2030.99	. Q . V . . .
15.750	874.3079	2112.39	. Q . V . . .
15.833	889.5184	2208.57	. Q . V . . .
15.917	905.7646	2358.96	. Q . V . . .
16.000	923.7585	2612.71	. Q. V . . .
16.083	945.2443	3119.73	. .Q V . . .
16.167	973.1766	4055.78	. . QV . . .
16.250	1011.6023	5579.40	. . V Q . .
16.333	1063.5424	7541.69	. . V . Q . .
16.417	1130.0203	9652.60	. . V . . Q .
16.500	1204.1260	10760.16	. . V . . Q.
16.583	1275.3885	10347.33	. . .V . . Q .
16.667	1338.2260	9123.98	. . . V . Q .
16.750	1393.3616	8005.69	. . . V Q. .
16.833	1442.9062	7193.89	. . . V Q . .
16.917	1488.0488	6554.71	. . . Q . .
17.000	1529.3141	5991.71	. . . Q V . .
17.083	1567.1473	5493.38	. . Q V . .
17.167	1601.8977	5045.76	. . Q . V . .
17.250	1633.9550	4654.72	. . Q . V . .
17.333	1663.7084	4320.19	. . Q . V . .
17.417	1691.4052	4021.58	. . Q . V . .
17.500	1717.2196	3748.25	. . Q . V . .
17.583	1741.3389	3502.12	. . Q . V. .
17.667	1763.8984	3275.65	. . Q . V. .
17.750	1785.0182	3066.60	. .Q . V. .
17.833	1804.8252	2875.98	. Q . V .
17.917	1823.3978	2696.75	. Q. . V .
18.000	1840.9048	2542.02	. Q. . V .
18.083	1857.4802	2406.75	. Q . . V .
18.167	1873.2137	2284.51	. Q . . .V .
18.250	1888.1572	2169.79	. Q . . .V .
18.333	1902.3646	2062.91	. Q . . .V .
18.417	1915.8705	1961.05	. Q . . .V .
18.500	1928.6899	1861.39	. Q . . . V .
18.583	1940.8051	1759.12	. Q . . . V .
18.667	1952.3124	1670.87	. Q . . . V .
18.750	1963.3173	1597.91	. Q . . . V .
18.833	1973.8799	1533.69	. Q . . . V .
18.917	1984.0436	1475.76	. Q . . . V .
19.000	1993.8385	1422.22	. Q . . . V .
19.083	2003.2760	1370.33	. Q . . . V .
19.167	2012.3752	1321.21	. Q . . . V .
19.250	2021.1730	1277.43	. Q . . . V .
19.333	2029.7084	1239.34	. Q . . . V .
19.417	2037.9529	1197.09	. Q . . . V .
19.500	2045.9608	1162.75	. Q . . . V .
19.583	2053.7834	1135.85	. Q . . . V .
19.667	2061.4385	1111.49	. Q . . . V .
19.750	2068.9333	1088.26	. Q . . . V .
19.833	2076.2749	1065.98	. Q . . . V .
19.917	2083.4690	1044.57	. Q . . . V .

20.000	2090.5200	1023.81	.	Q	.	.	. V	.
20.083	2097.4299	1003.32	.	Q	.	.	. V	.
20.167	2104.2002	983.04	.	Q	.	.	. V	.
20.250	2110.8347	963.34	.	Q	.	.	. V	.
20.333	2117.3406	944.65	.	Q	.	.	. V	.
20.417	2123.7249	927.00	.	Q	.	.	. V	.
20.500	2129.9929	910.12	.	Q	.	.	. V	.
20.583	2136.1487	893.83	.	Q	.	.	. V	.
20.667	2142.1965	878.14	.	Q	.	.	. V	.
20.750	2148.1404	863.04	.	Q	.	.	. V	.
20.833	2153.9841	848.52	.	Q	.	.	. V	.
20.917	2159.7312	834.47	.	Q	.	.	. V	.
21.000	2165.3840	820.78	.	Q	.	.	. V	.
21.083	2170.9453	807.51	.	Q	.	.	. V	.
21.167	2176.4185	794.70	.	Q	.	.	. V	.
21.250	2181.8066	782.37	.	Q	.	.	. V	.
21.333	2187.1130	770.47	.	Q	.	.	. V	.
21.417	2192.3401	758.96	.	Q	.	.	. V	.
21.500	2197.4902	747.82	.	Q	.	.	. V	.
21.583	2202.5664	737.05	.	Q	.	.	. V	.
21.667	2207.5708	726.64	.	Q	.	.	. V	.
21.750	2212.5059	716.56	.	Q	.	.	. V	.
21.833	2217.3738	706.82	.	Q	.	.	. V	.
21.917	2222.1768	697.38	.	Q	.	.	. V	.
22.000	2226.9167	688.23	.	Q	.	.	. V	.
22.083	2231.5955	679.37	.	Q	.	.	. V	.
22.167	2236.2151	670.77	.	Q	.	.	. V	.
22.250	2240.7773	662.43	.	Q	.	.	. V	.
22.333	2245.2839	654.34	.	Q	.	.	. V	.
22.417	2249.7366	646.53	.	Q	.	.	. V	.
22.500	2254.1372	638.98	.	Q	.	.	. V	.
22.583	2258.4875	631.68	.	Q	.	.	. V	.
22.667	2262.7891	624.58	.	Q	.	.	. V	.
22.750	2267.0430	617.67	.	Q	.	.	. V	.
22.833	2271.2505	610.94	.	Q	.	.	. V	.
22.917	2275.4128	604.39	.	Q	.	.	. V	.
23.000	2279.5312	597.99	.	Q	.	.	. V	.
23.083	2283.6062	591.68	.	Q	.	.	. V	.
23.167	2287.6375	585.35	.	Q	.	.	. V	.
23.250	2291.6250	579.00	.	Q	.	.	. V	.
23.333	2295.5703	572.86	.	Q	.	.	. V	.
23.417	2299.4756	567.05	.	Q	.	.	. V	.
23.500	2303.3428	561.51	.	Q	.	.	. V	.
23.583	2307.1729	556.13	.	Q	.	.	. V	.
23.667	2310.9668	550.88	.	Q	.	.	. V	.
23.750	2314.7253	545.74	.	Q	.	.	. V	.
23.833	2318.4492	540.72	.	Q	.	.	. V	.
23.917	2322.1394	535.80	.	Q	.	.	. V	.
24.000	2325.7964	530.99	.	Q	.	.	. V	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
==========	=========

0%	1445.0
10%	335.0
20%	150.0
30%	95.0
40%	70.0
50%	55.0
60%	40.0
70%	30.0
80%	20.0
90%	10.0

END OF FLOODSCx ROUTING ANALYSIS

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**************************************************************************

          F L O O D   R O U T I N G   A N A L Y S I S
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                      Analysis prepared by:

                        Allard Engineering
                        8253 Sierra Avenue
                        Fontana Ca. 92335

 ************************** DESCRIPTION OF STUDY **************************
* Hacienda Hydrograph Routing A1 & A2                                    *
* Developed Condition                                                    *
* 100 Year Storm Event                                                   *
 ************************************************************************

  FILE NAME: A1A2.DAT
  TIME/DATE OF STUDY: 14:49 05/28/2009

**************************************************************************
  FLOW PROCESS FROM NODE     120.00 TO NODE     121.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =      467.300 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.166 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.250
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.750
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.193
         LOW LOSS FRACTION = 0.273
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60
```

WESTERLY WATERSHED SUBAREA HYDROGRAPH
NODES 120 → 121

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 50.201

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	4.113	232.442
2	30.536	1493.287
3	62.653	1815.055
4	77.928	863.239
5	85.443	424.687
6	89.715	241.448
7	92.556	160.580
8	94.580	114.381
9	96.093	85.473
10	97.224	63.960
11	98.041	46.127
12	98.555	29.063
13	98.973	23.605
14	99.424	25.504
15	99.770	19.535
16	99.942	9.767
17	100.000	3.256

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0013	0.0035
2	0.0049	0.0013	0.0035
3	0.0049	0.0013	0.0036
4	0.0049	0.0013	0.0036
5	0.0049	0.0013	0.0036
6	0.0049	0.0013	0.0036
7	0.0050	0.0014	0.0036
8	0.0050	0.0014	0.0036
9	0.0050	0.0014	0.0036
10	0.0050	0.0014	0.0036
11	0.0050	0.0014	0.0037
12	0.0050	0.0014	0.0037
13	0.0051	0.0014	0.0037
14	0.0051	0.0014	0.0037
15	0.0051	0.0014	0.0037
16	0.0051	0.0014	0.0037
17	0.0051	0.0014	0.0037
18	0.0051	0.0014	0.0037
19	0.0052	0.0014	0.0038
20	0.0052	0.0014	0.0038
21	0.0052	0.0014	0.0038
22	0.0052	0.0014	0.0038
23	0.0052	0.0014	0.0038
24	0.0052	0.0014	0.0038
25	0.0053	0.0014	0.0038
26	0.0053	0.0014	0.0038
27	0.0053	0.0015	0.0039
28	0.0053	0.0015	0.0039
29	0.0054	0.0015	0.0039
30	0.0054	0.0015	0.0039
31	0.0054	0.0015	0.0039
32	0.0054	0.0015	0.0039
33	0.0054	0.0015	0.0040
34	0.0054	0.0015	0.0040
35	0.0055	0.0015	0.0040
36	0.0055	0.0015	0.0040
37	0.0055	0.0015	0.0040
38	0.0055	0.0015	0.0040
39	0.0056	0.0015	0.0040
40	0.0056	0.0015	0.0041
41	0.0056	0.0015	0.0041
42	0.0056	0.0015	0.0041
43	0.0057	0.0015	0.0041
44	0.0057	0.0015	0.0041
45	0.0057	0.0016	0.0041
46	0.0057	0.0016	0.0042
47	0.0057	0.0016	0.0042
48	0.0058	0.0016	0.0042
49	0.0058	0.0016	0.0042
50	0.0058	0.0016	0.0042
51	0.0058	0.0016	0.0043

52	0.0059	0.0016	0.0043
53	0.0059	0.0016	0.0043
54	0.0059	0.0016	0.0043
55	0.0059	0.0016	0.0043
56	0.0060	0.0016	0.0043
57	0.0060	0.0016	0.0044
58	0.0060	0.0016	0.0044
59	0.0061	0.0017	0.0044
60	0.0061	0.0017	0.0044
61	0.0061	0.0017	0.0044
62	0.0061	0.0017	0.0045
63	0.0062	0.0017	0.0045
64	0.0062	0.0017	0.0045
65	0.0062	0.0017	0.0045
66	0.0063	0.0017	0.0045
67	0.0063	0.0017	0.0046
68	0.0063	0.0017	0.0046
69	0.0064	0.0017	0.0046
70	0.0064	0.0017	0.0046
71	0.0064	0.0018	0.0047
72	0.0064	0.0018	0.0047
73	0.0065	0.0018	0.0047
74	0.0065	0.0018	0.0047
75	0.0065	0.0018	0.0048
76	0.0066	0.0018	0.0048
77	0.0066	0.0018	0.0048
78	0.0066	0.0018	0.0048
79	0.0067	0.0018	0.0049
80	0.0067	0.0018	0.0049
81	0.0068	0.0018	0.0049
82	0.0068	0.0019	0.0049
83	0.0068	0.0019	0.0050
84	0.0069	0.0019	0.0050
85	0.0069	0.0019	0.0050
86	0.0069	0.0019	0.0050
87	0.0070	0.0019	0.0051
88	0.0070	0.0019	0.0051
89	0.0071	0.0019	0.0051
90	0.0071	0.0019	0.0052
91	0.0072	0.0020	0.0052
92	0.0072	0.0020	0.0052
93	0.0072	0.0020	0.0053
94	0.0073	0.0020	0.0053
95	0.0073	0.0020	0.0053
96	0.0074	0.0020	0.0054
97	0.0074	0.0020	0.0054
98	0.0075	0.0020	0.0054
99	0.0075	0.0021	0.0055
100	0.0076	0.0021	0.0055
101	0.0076	0.0021	0.0055
102	0.0077	0.0021	0.0056
103	0.0077	0.0021	0.0056
104	0.0078	0.0021	0.0056
105	0.0078	0.0021	0.0057
106	0.0079	0.0022	0.0057
107	0.0080	0.0022	0.0058
108	0.0080	0.0022	0.0058

109	0.0081	0.0022	0.0059
110	0.0081	0.0022	0.0059
111	0.0082	0.0022	0.0060
112	0.0082	0.0022	0.0060
113	0.0083	0.0023	0.0060
114	0.0084	0.0023	0.0061
115	0.0084	0.0023	0.0061
116	0.0085	0.0023	0.0062
117	0.0086	0.0023	0.0062
118	0.0086	0.0024	0.0063
119	0.0087	0.0024	0.0063
120	0.0088	0.0024	0.0064
121	0.0089	0.0024	0.0064
122	0.0089	0.0024	0.0065
123	0.0090	0.0025	0.0066
124	0.0091	0.0025	0.0066
125	0.0092	0.0025	0.0067
126	0.0092	0.0025	0.0067
127	0.0094	0.0026	0.0068
128	0.0094	0.0026	0.0068
129	0.0095	0.0026	0.0069
130	0.0096	0.0026	0.0070
131	0.0097	0.0027	0.0071
132	0.0098	0.0027	0.0071
133	0.0099	0.0027	0.0072
134	0.0100	0.0027	0.0073
135	0.0101	0.0028	0.0074
136	0.0102	0.0028	0.0074
137	0.0103	0.0028	0.0075
138	0.0104	0.0028	0.0076
139	0.0106	0.0029	0.0077
140	0.0107	0.0029	0.0078
141	0.0108	0.0030	0.0079
142	0.0109	0.0030	0.0079
143	0.0111	0.0030	0.0081
144	0.0112	0.0031	0.0081
145	0.0090	0.0025	0.0066
146	0.0091	0.0025	0.0066
147	0.0093	0.0025	0.0067
148	0.0094	0.0026	0.0068
149	0.0096	0.0026	0.0070
150	0.0097	0.0026	0.0070
151	0.0099	0.0027	0.0072
152	0.0100	0.0027	0.0073
153	0.0102	0.0028	0.0074
154	0.0104	0.0028	0.0075
155	0.0106	0.0029	0.0077
156	0.0107	0.0029	0.0078
157	0.0110	0.0030	0.0080
158	0.0112	0.0030	0.0081
159	0.0115	0.0031	0.0083
160	0.0116	0.0032	0.0084
161	0.0120	0.0033	0.0087
162	0.0121	0.0033	0.0088
163	0.0125	0.0034	0.0091
164	0.0127	0.0035	0.0092
165	0.0131	0.0036	0.0095

166	0.0134	0.0036	0.0097
167	0.0138	0.0038	0.0101
168	0.0141	0.0038	0.0102
169	0.0151	0.0041	0.0110
170	0.0154	0.0042	0.0112
171	0.0161	0.0044	0.0117
172	0.0164	0.0045	0.0119
173	0.0172	0.0047	0.0125
174	0.0176	0.0048	0.0128
175	0.0185	0.0050	0.0134
176	0.0190	0.0052	0.0138
177	0.0201	0.0055	0.0146
178	0.0207	0.0056	0.0150
179	0.0220	0.0060	0.0160
180	0.0228	0.0062	0.0166
181	0.0245	0.0067	0.0178
182	0.0255	0.0070	0.0186
183	0.0279	0.0076	0.0203
184	0.0293	0.0080	0.0213
185	0.0251	0.0069	0.0183
186	0.0269	0.0074	0.0196
187	0.0316	0.0086	0.0229
188	0.0347	0.0095	0.0253
189	0.0539	0.0147	0.0392
190	0.0621	0.0161	0.0461
191	0.0941	0.0161	0.0780
192	0.1367	0.0161	0.1206
193	0.5874	0.0161	0.5713
194	0.0741	0.0161	0.0580
195	0.0387	0.0106	0.0281
196	0.0290	0.0079	0.0211
197	0.0308	0.0084	0.0224
198	0.0266	0.0073	0.0194
199	0.0236	0.0064	0.0172
200	0.0213	0.0058	0.0155
201	0.0195	0.0053	0.0142
202	0.0180	0.0049	0.0131
203	0.0168	0.0046	0.0122
204	0.0158	0.0043	0.0115
205	0.0144	0.0039	0.0104
206	0.0136	0.0037	0.0099
207	0.0129	0.0035	0.0094
208	0.0123	0.0034	0.0090
209	0.0118	0.0032	0.0086
210	0.0113	0.0031	0.0082
211	0.0109	0.0030	0.0079
212	0.0105	0.0029	0.0076
213	0.0101	0.0028	0.0074
214	0.0098	0.0027	0.0071
215	0.0095	0.0026	0.0069
216	0.0092	0.0025	0.0067
217	0.0113	0.0031	0.0082
218	0.0110	0.0030	0.0080
219	0.0107	0.0029	0.0078
220	0.0105	0.0029	0.0076
221	0.0103	0.0028	0.0075
222	0.0101	0.0027	0.0073

223	0.0099	0.0027	0.0072
224	0.0097	0.0026	0.0070
225	0.0095	0.0026	0.0069
226	0.0093	0.0025	0.0068
227	0.0091	0.0025	0.0066
228	0.0090	0.0024	0.0065
229	0.0088	0.0024	0.0064
230	0.0087	0.0024	0.0063
231	0.0085	0.0023	0.0062
232	0.0084	0.0023	0.0061
233	0.0083	0.0023	0.0060
234	0.0081	0.0022	0.0059
235	0.0080	0.0022	0.0058
236	0.0079	0.0022	0.0058
237	0.0078	0.0021	0.0057
238	0.0077	0.0021	0.0056
239	0.0076	0.0021	0.0055
240	0.0075	0.0020	0.0054
241	0.0074	0.0020	0.0054
242	0.0073	0.0020	0.0053
243	0.0072	0.0020	0.0052
244	0.0071	0.0019	0.0052
245	0.0070	0.0019	0.0051
246	0.0070	0.0019	0.0051
247	0.0069	0.0019	0.0050
248	0.0068	0.0019	0.0050
249	0.0067	0.0018	0.0049
250	0.0067	0.0018	0.0048
251	0.0066	0.0018	0.0048
252	0.0065	0.0018	0.0047
253	0.0065	0.0018	0.0047
254	0.0064	0.0017	0.0046
255	0.0063	0.0017	0.0046
256	0.0063	0.0017	0.0046
257	0.0062	0.0017	0.0045
258	0.0062	0.0017	0.0045
259	0.0061	0.0017	0.0044
260	0.0060	0.0016	0.0044
261	0.0060	0.0016	0.0044
262	0.0059	0.0016	0.0043
263	0.0059	0.0016	0.0043
264	0.0058	0.0016	0.0042
265	0.0058	0.0016	0.0042
266	0.0057	0.0016	0.0042
267	0.0057	0.0016	0.0041
268	0.0056	0.0015	0.0041
269	0.0056	0.0015	0.0041
270	0.0055	0.0015	0.0040
271	0.0055	0.0015	0.0040
272	0.0055	0.0015	0.0040
273	0.0054	0.0015	0.0039
274	0.0054	0.0015	0.0039
275	0.0053	0.0015	0.0039
276	0.0053	0.0014	0.0039
277	0.0053	0.0014	0.0038
278	0.0052	0.0014	0.0038
279	0.0052	0.0014	0.0038

280	0.0052	0.0014	0.0037
281	0.0051	0.0014	0.0037
282	0.0051	0.0014	0.0037
283	0.0050	0.0014	0.0037
284	0.0050	0.0014	0.0036
285	0.0050	0.0014	0.0036
286	0.0049	0.0013	0.0036
287	0.0049	0.0013	0.0036
288	0.0049	0.0013	0.0035

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.80
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.79

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 31.2185
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 108.7751

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	325.0	650.0	975.0	1300.0
0.083	0.0057	0.82	Q	.	.	.	.
0.167	0.0477	6.10	Q	.	.	.	.
0.250	0.1339	12.53	Q	.	.	.	.
0.333	0.2415	15.62	Q	.	.	.	.
0.417	0.3597	17.17	Q	.	.	.	.
0.500	0.4842	18.07	Q	.	.	.	.
0.583	0.6130	18.70	Q	.	.	.	.
0.667	0.7450	19.16	Q	.	.	.	.
0.750	0.8795	19.53	Q	.	.	.	.
0.833	1.0160	19.82	Q	.	.	.	.
0.917	1.1540	20.05	Q	.	.	.	.
1.000	1.2933	20.22	Q	.	.	.	.
1.083	1.4336	20.37	Q	.	.	.	.
1.167	1.5749	20.53	Q	.	.	.	.
1.250	1.7173	20.67	Q	.	.	.	.
1.333	1.8603	20.77	Q	.	.	.	.
1.417	2.0039	20.85	Q	.	.	.	.
1.500	2.1480	20.92	Q	.	.	.	.
1.583	2.2927	21.00	Q	.	.	.	.
1.667	2.4378	21.07	Q	.	.	.	.
1.750	2.5834	21.14	Q	.	.	.	.
1.833	2.7295	21.22	QV	.	.	.	.
1.917	2.8762	21.29	QV	.	.	.	.
2.000	3.0233	21.37	QV	.	.	.	.
2.083	3.1710	21.45	QV	.	.	.	.
2.167	3.3193	21.52	QV	.	.	.	.
2.250	3.4680	21.60	QV	.	.	.	.
2.333	3.6173	21.68	QV	.	.	.	.
2.417	3.7672	21.76	QV	.	.	.	.
2.500	3.9176	21.84	QV	.	.	.	.
2.583	4.0686	21.92	QV	.	.	.	.
2.667	4.2201	22.00	QV	.	.	.	.
2.750	4.3722	22.09	QV	.	.	.	.
2.833	4.5249	22.17	QV	.	.	.	.
2.917	4.6781	22.25	QV	.	.	.	.
3.000	4.8320	22.34	QV	.	.	.	.
3.083	4.9864	22.42	QV	.	.	.	.
3.167	5.1415	22.51	QV	.	.	.	.
3.250	5.2971	22.60	QV	.	.	.	.
3.333	5.4533	22.69	Q V	.	.	.	.
3.417	5.6102	22.78	Q V	.	.	.	.
3.500	5.7677	22.87	Q V	.	.	.	.
3.583	5.9258	22.96	Q V	.	.	.	.
3.667	6.0846	23.05	Q V	.	.	.	.
3.750	6.2440	23.14	Q V	.	.	.	.

3.833	6.4040	23.24	Q	V	.	.	.	.
3.917	6.5647	23.33	Q	V	.	.	.	.
4.000	6.7261	23.43	Q	V	.	.	.	.
4.083	6.8881	23.53	Q	V	.	.	.	.
4.167	7.0509	23.63	Q	V	.	.	.	.
4.250	7.2143	23.73	Q	V	.	.	.	.
4.333	7.3784	23.83	Q	V	.	.	.	.
4.417	7.5432	23.93	Q	V	.	.	.	.
4.500	7.7087	24.03	Q	V	.	.	.	.
4.583	7.8750	24.14	Q	V	.	.	.	.
4.667	8.0419	24.24	Q	V	.	.	.	.
4.750	8.2096	24.35	Q	V	.	.	.	.
4.833	8.3781	24.46	Q	V	.	.	.	.
4.917	8.5473	24.57	Q	V	.	.	.	.
5.000	8.7173	24.68	Q	V	.	.	.	.
5.083	8.8880	24.79	Q	V	.	.	.	.
5.167	9.0595	24.90	Q	V	.	.	.	.
5.250	9.2318	25.02	Q	V	.	.	.	.
5.333	9.4049	25.13	Q	V	.	.	.	.
5.417	9.5788	25.25	Q	V	.	.	.	.
5.500	9.7536	25.37	Q	V	.	.	.	.
5.583	9.9291	25.49	Q	V	.	.	.	.
5.667	10.1055	25.61	Q	V	.	.	.	.
5.750	10.2828	25.74	Q	V	.	.	.	.
5.833	10.4609	25.86	Q	V	.	.	.	.
5.917	10.6399	25.99	Q	V	.	.	.	.
6.000	10.8198	26.12	Q	V	.	.	.	.
6.083	11.0005	26.25	Q	V	.	.	.	.
6.167	11.1822	26.38	Q	V	.	.	.	.
6.250	11.3648	26.51	Q	V	.	.	.	.
6.333	11.5483	26.65	Q	V	.	.	.	.
6.417	11.7328	26.79	Q	V	.	.	.	.
6.500	11.9183	26.92	Q	V	.	.	.	.
6.583	12.1047	27.07	Q	V	.	.	.	.
6.667	12.2920	27.21	Q	V	.	.	.	.
6.750	12.4804	27.35	Q	V	.	.	.	.
6.833	12.6698	27.50	Q	V	.	.	.	.
6.917	12.8603	27.65	Q	V	.	.	.	.
7.000	13.0517	27.80	Q	V	.	.	.	.
7.083	13.2443	27.95	Q	V	.	.	.	.
7.167	13.4379	28.11	Q	V	.	.	.	.
7.250	13.6325	28.27	Q	V	.	.	.	.
7.333	13.8283	28.43	Q	V	.	.	.	.
7.417	14.0252	28.59	Q	V	.	.	.	.
7.500	14.2233	28.76	Q	V	.	.	.	.
7.583	14.4225	28.92	Q	V	.	.	.	.
7.667	14.6229	29.10	Q	V	.	.	.	.
7.750	14.8245	29.27	Q	V	.	.	.	.
7.833	15.0272	29.44	Q	V	.	.	.	.
7.917	15.2313	29.62	Q	V	.	.	.	.
8.000	15.4365	29.81	Q	V	.	.	.	.
8.083	15.6431	29.99	Q	V	.	.	.	.
8.167	15.8509	30.18	Q	V	.	.	.	.
8.250	16.0600	30.37	Q	V	.	.	.	.
8.333	16.2705	30.56	Q	V	.	.	.	.
8.417	16.4824	30.76	Q	V	.	.	.	.
8.500	16.6956	30.96	Q	V	.	.	.	.

8.583	16.9102	31.16	Q	V	.	.	.	.
8.667	17.1263	31.37	Q	V	.	.	.	.
8.750	17.3438	31.58	Q	V	.	.	.	.
8.833	17.5628	31.80	Q	V	.	.	.	.
8.917	17.7833	32.02	Q	V	.	.	.	.
9.000	18.0053	32.24	Q	V	.	.	.	.
9.083	18.2289	32.47	Q	V	.	.	.	.
9.167	18.4541	32.70	.Q	V	.	.	.	.
9.250	18.6810	32.94	.Q	V	.	.	.	.
9.333	18.9095	33.18	.Q	V	.	.	.	.
9.417	19.1396	33.42	.Q	V	.	.	.	.
9.500	19.3715	33.67	.Q	V	.	.	.	.
9.583	19.6052	33.93	.Q	V	.	.	.	.
9.667	19.8406	34.19	.Q	V	.	.	.	.
9.750	20.0779	34.45	.Q	V	.	.	.	.
9.833	20.3171	34.72	.Q	V	.	.	.	.
9.917	20.5581	35.00	.Q	V	.	.	.	.
10.000	20.8011	35.28	.Q	V	.	.	.	.
10.083	21.0461	35.57	.Q	V	.	.	.	.
10.167	21.2931	35.87	.Q	V	.	.	.	.
10.250	21.5422	36.17	.Q	V	.	.	.	.
10.333	21.7935	36.48	.Q	V	.	.	.	.
10.417	22.0469	36.79	.Q	V	.	.	.	.
10.500	22.3025	37.12	.Q	V	.	.	.	.
10.583	22.5604	37.45	.Q	V	.	.	.	.
10.667	22.8206	37.79	.Q	V	.	.	.	.
10.750	23.0832	38.13	.Q	V	.	.	.	.
10.833	23.3483	38.49	.Q	V	.	.	.	.
10.917	23.6158	38.85	.Q	V	.	.	.	.
11.000	23.8860	39.22	.Q	V	.	.	.	.
11.083	24.1588	39.61	.Q	V	.	.	.	.
11.167	24.4342	40.00	.Q	V	.	.	.	.
11.250	24.7125	40.40	.Q	V.		.	.	.
11.333	24.9936	40.82	.Q	V.		.	.	.
11.417	25.2776	41.24	.Q	V.		----------	.	.
11.500	25.5647	41.68	.Q	V.		----------	.	.
11.583	25.8548	42.13	.Q	V.		.	.	.
11.667	26.1481	42.59	.Q	V.		.	.	.
11.750	26.4448	43.07	.Q	V.		.	.	.
11.833	26.7448	43.56	.Q	V.		.	.	.
11.917	27.0482	44.06	.Q	V.		.	.	.
12.000	27.3553	44.59	.Q	V		.	.	.
12.083	27.6633	44.72	.Q	V		.	.	.
12.167	27.9575	42.71	.Q	V		.	.	.
12.250	28.2340	40.15	.Q	V		.	.	.
12.333	28.5041	39.22	.Q	V		.	.	.
12.417	28.7730	39.05	.Q	V		.	.	.
12.500	29.0432	39.22	.Q	V		.	.	.
12.583	29.3155	39.54	.Q	V		.	.	.
12.667	29.5908	39.97	.Q	V		.	.	.
12.750	29.8695	40.47	.Q	V		.	.	.
12.833	30.1520	41.03	.Q	.V		.	.	.
12.917	30.4388	41.65	.Q	.V		.	.	.
13.000	30.7303	42.33	.Q	.V		.	.	.
13.083	31.0268	43.04	.Q	.V		.	.	.
13.167	31.3284	43.79	.Q	.V		.	.	.
13.250	31.6354	44.59	.Q	.V		.	.	.

13.333	31.9484	45.44	.Q .V . . .
13.417	32.2676	46.34	.Q .V . . .
13.500	32.5934	47.31	.Q .V . . .
13.583	32.9261	48.31	.Q . V . . .
13.667	33.2661	49.38	.Q . V . . .
13.750	33.6139	50.49	.Q . V . . .
13.833	33.9698	51.68	.Q . V . . .
13.917	34.3344	52.94	.Q . V . . .
14.000	34.7082	54.28	.Q . V . . .
14.083	35.0924	55.78	.Q . V . . .
14.167	35.4908	57.86	.Q . V . . .
14.250	35.9052	60.16	.Q . V . . .
14.333	36.3339	62.25	.Q . V . . .
14.417	36.7767	64.29	.Q . V . . .
14.500	37.2343	66.45	. Q . V . . .
14.583	37.7076	68.72	. Q . V . . .
14.667	38.1979	71.20	. Q . V . . .
14.750	38.7066	73.86	. Q . V . . .
14.833	39.2355	76.80	. Q . V . . .
14.917	39.7865	80.01	. Q . V . . .
15.000	40.3624	83.61	. Q . V . . .
15.083	40.9655	87.58	. Q . V . . .
15.167	41.6000	92.12	. Q . V . . .
15.250	42.2696	97.23	. Q . V . . .
15.333	42.9803	103.20	. Q . V . . .
15.417	43.7295	108.78	. Q . V . . .
15.500	44.4791	108.85	. Q . V . . .
15.583	45.2253	108.35	. Q . V . . .
15.667	46.0173	115.00	. Q . V . . .
15.750	46.9024	128.52	. Q . V . . .
15.833	47.9939	158.48	. Q . V . . .
15.917	49.4069	205.16	. Q . V . . .
16.000	51.3989	289.25	. Q . V . . .
16.083	55.0399	528.67	. . Q V . . .
16.167	63.2658	1194.40	. . . V . Q .
16.250	72.1769	1293.89	. . . V . Q.
16.333	77.2320	734.00	. . . Q V . .
16.417	80.2319	435.58	. . Q . V. .
16.500	82.3069	301.30	. Q. . V .
16.583	83.9401	237.14	. Q . . V .
16.667	85.2799	194.53	. Q . . .V .
16.750	86.4082	163.83	. Q . . .V .
16.833	87.3696	139.60	. Q . . . V .
16.917	88.1930	119.56	. Q . . . V .
17.000	88.8982	102.39	. Q . . . V .
17.083	89.5362	92.64	. Q . . . V .
17.167	90.1336	86.73	. Q . . . V .
17.250	90.6655	77.24	. Q . . . V .
17.333	91.1261	66.87	. Q . . . V .
17.417	91.5337	59.19	.Q . . . V .
17.500	91.9068	54.17	.Q . . . V .
17.583	92.2606	51.38	.Q . . . V .
17.667	92.5980	48.99	.Q . . . V .
17.750	92.9208	46.86	.Q . . . V .
17.833	93.2304	44.96	.Q . . . V .
17.917	93.5282	43.24	.Q . . . V .
18.000	93.8153	41.69	.Q . . . V .

18.083	94.0954	40.67	.Q	.	.	.	V	.
18.167	94.3842	41.92	.Q	.	.	.	V	.
18.250	94.6858	43.80	.Q	.	.	.	V	.
18.333	94.9895	44.09	.Q	.	.	.	V	.
18.417	95.2904	43.70	.Q	.	.	.	V	.
18.500	95.5870	43.06	.Q	.	.	.	V	.
18.583	95.8787	42.34	.Q	.	.	.	V	.
18.667	96.1652	41.60	.Q	.	.	.	V	.
18.750	96.4466	40.86	.Q	.	.	.	V	.
18.833	96.7230	40.13	.Q	.	.	.	V	.
18.917	96.9944	39.41	.Q	.	.	.	V	.
19.000	97.2610	38.71	.Q	.	.	.	V	.
19.083	97.5229	38.03	.Q	.	.	.	V	.
19.167	97.7803	37.38	.Q	.	.	.	V	.
19.250	98.0335	36.76	.Q	.	.	.	V	.
19.333	98.2825	36.15	.Q	.	.	.	V	.
19.417	98.5274	35.56	.Q	.	.	.	V	.
19.500	98.7683	34.99	.Q	.	.	.	V	.
19.583	99.0055	34.44	.Q	.	.	.	V	.
19.667	99.2391	33.91	.Q	.	.	.	V	.
19.750	99.4691	33.40	.Q	.	.	.	V	.
19.833	99.6958	32.92	.Q	.	.	.	V	.
19.917	99.9193	32.45	Q	.	.	.	V	.
20.000	100.1397	32.00	Q	.	.	.	V	.
20.083	100.3571	31.56	Q	.	.	.	V	.
20.167	100.5716	31.14	Q	.	.	.	V	.
20.250	100.7833	30.74	Q	.	.	.	V	.
20.333	100.9923	30.35	Q	.	.	.	V	.
20.417	101.1987	29.97	Q	.	.	.	V	.
20.500	101.4026	29.60	Q	.	.	.	V	.
20.583	101.6040	29.25	Q	.	.	.	V	.
20.667	101.8031	28.91	Q	.	.	.	V	.
20.750	101.9998	28.57	Q	.	.	.	V	.
20.833	102.1944	28.25	Q	.	.	.	V	.
20.917	102.3868	27.93	Q	.	.	.	V	.
21.000	102.5771	27.63	Q	.	.	.	V	.
21.083	102.7653	27.33	Q	.	.	.	V	.
21.167	102.9516	27.05	Q	.	.	.	V	.
21.250	103.1359	26.77	Q	.	.	.	V	.
21.333	103.3184	26.49	Q	.	.	.	V	.
21.417	103.4990	26.23	Q	.	.	.	V	.
21.500	103.6779	25.97	Q	.	.	.	V	.
21.583	103.8550	25.72	Q	.	.	.	V	.
21.667	104.0305	25.47	Q	.	.	.	V	.
21.750	104.2043	25.23	Q	.	.	.	V	.
21.833	104.3764	25.00	Q	.	.	.	V	.
21.917	104.5471	24.77	Q	.	.	.	V	.
22.000	104.7161	24.55	Q	.	.	.	V	.
22.083	104.8837	24.33	Q	.	.	.	V	.
22.167	105.0498	24.12	Q	.	.	.	V	.
22.250	105.2145	23.91	Q	.	.	.	V	.
22.333	105.3778	23.71	Q	.	.	.	V	.
22.417	105.5398	23.51	Q	.	.	.	V	.
22.500	105.7004	23.32	Q	.	.	.	V	.
22.583	105.8597	23.13	Q	.	.	.	V	.
22.667	106.0177	22.94	Q	.	.	.	V	.
22.750	106.1744	22.76	Q	.	.	.	V	.

22.833	106.3300	22.58	Q	.	.	.	V.
22.917	106.4843	22.41	Q	.	.	.	V.
23.000	106.6374	22.24	Q	.	.	.	V.
23.083	106.7894	22.07	Q	.	.	.	V.
23.167	106.9403	21.91	Q	.	.	.	V.
23.250	107.0901	21.74	Q	.	.	.	V.
23.333	107.2387	21.59	Q	.	.	.	V.
23.417	107.3863	21.43	Q	.	.	.	V.
23.500	107.5329	21.28	Q	.	.	.	V.
23.583	107.6784	21.13	Q	.	.	.	V.
23.667	107.8229	20.98	Q	.	.	.	V.
23.750	107.9664	20.84	Q	.	.	.	V.
23.833	108.1090	20.70	Q	.	.	.	V.
23.917	108.2506	20.56	Q	.	.	.	V.
24.000	108.3912	20.42	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	65.0
20%	35.0
30%	25.0
40%	20.0
50%	15.0
60%	10.0
70%	10.0
80%	10.0
90%	10.0

****
FLOW PROCESS FROM NODE 121.00 TO NODE 121.00 IS CODE = 3.1

>>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
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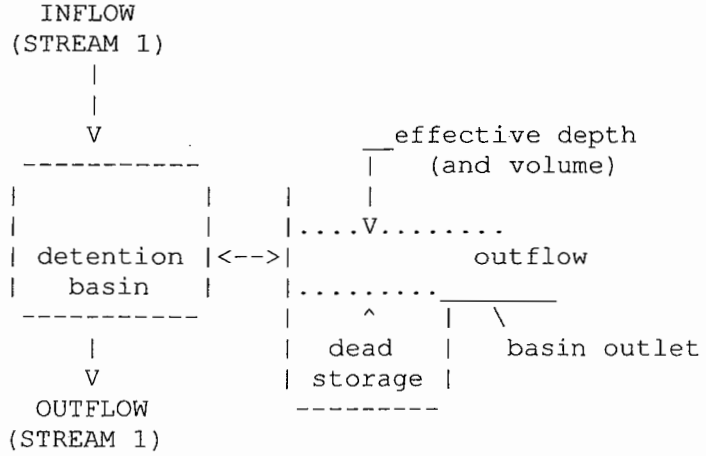

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 2.000
SPECIFIED DEAD STORAGE(AF) FILLED = 2.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.00

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	63.00	4.680
3	3.00	107.00	9.580
4	9.00	593.00	49.220

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(5-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.083	2.000	0.82	0.00	0.00	0.0	0.005
0.167	2.000	6.10	0.00	0.02	0.3	0.045
0.250	2.000	12.53	0.00	0.05	1.1	0.124
0.333	2.000	15.62	0.00	0.09	2.3	0.215
0.417	2.000	17.17	0.00	0.13	3.5	0.309
0.500	2.000	18.07	0.00	0.17	4.8	0.401
0.583	2.000	18.70	0.00	0.21	6.0	0.488
0.667	2.000	19.16	0.00	0.24	7.1	0.571
0.750	2.000	19.53	0.00	0.28	8.2	0.649
0.833	2.000	19.82	0.00	0.31	9.2	0.722
0.917	2.000	20.05	0.00	0.34	10.2	0.790
1.000	2.000	20.22	0.00	0.36	11.1	0.853
1.083	2.000	20.37	0.00	0.39	11.9	0.912
1.167	2.000	20.53	0.00	0.41	12.6	0.966
1.250	2.000	20.67	0.00	0.43	13.3	1.016
1.333	2.000	20.77	0.00	0.45	14.0	1.063
1.417	2.000	20.85	0.00	0.47	14.6	1.106
1.500	2.000	20.92	0.00	0.49	15.2	1.146
1.583	2.000	21.00	0.00	0.51	15.7	1.183
1.667	2.000	21.07	0.00	0.52	16.1	1.216
1.750	2.000	21.14	0.00	0.53	16.6	1.248
1.833	2.000	21.22	0.00	0.55	17.0	1.277
1.917	2.000	21.29	0.00	0.56	17.4	1.304
2.000	2.000	21.37	0.00	0.57	17.7	1.329
2.083	2.000	21.45	0.00	0.58	18.0	1.352
2.167	2.000	21.52	0.00	0.59	18.4	1.374
2.250	2.000	21.60	0.00	0.60	18.6	1.395

NODE 121 BASIN A-1/A-2 ROUTING

2.333	2.000	21.68	0.00	0.60	18.9	1.414
2.417	2.000	21.76	0.00	0.61	19.2	1.432
2.500	2.000	21.84	0.00	0.62	19.4	1.449
2.583	2.000	21.92	0.00	0.63	19.6	1.465
2.667	2.000	22.00	0.00	0.63	19.8	1.480
2.750	2.000	22.09	0.00	0.64	20.0	1.494
2.833	2.000	22.17	0.00	0.64	20.2	1.507
2.917	2.000	22.25	0.00	0.65	20.4	1.520
3.000	2.000	22.34	0.00	0.65	20.5	1.533
3.083	2.000	22.42	0.00	0.66	20.7	1.544
3.167	2.000	22.51	0.00	0.66	20.9	1.556
3.250	2.000	22.60	0.00	0.67	21.0	1.567
3.333	2.000	22.69	0.00	0.67	21.2	1.577
3.417	2.000	22.78	0.00	0.68	21.3	1.587
3.500	2.000	22.87	0.00	0.68	21.4	1.597
3.583	2.000	22.96	0.00	0.69	21.6	1.607
3.667	2.000	23.05	0.00	0.69	21.7	1.616
3.750	2.000	23.14	0.00	0.69	21.8	1.625
3.833	2.000	23.24	0.00	0.70	21.9	1.634
3.917	2.000	23.33	0.00	0.70	22.1	1.643
4.000	2.000	23.43	0.00	0.71	22.2	1.652
4.083	2.000	23.53	0.00	0.71	22.3	1.660
4.167	2.000	23.63	0.00	0.71	22.4	1.669
4.250	2.000	23.73	0.00	0.72	22.5	1.677
4.333	2.000	23.83	0.00	0.72	22.6	1.685
4.417	2.000	23.93	0.00	0.72	22.7	1.693
4.500	2.000	24.03	0.00	0.73	22.9	1.702
4.583	2.000	24.14	0.00	0.73	23.0	1.710
4.667	2.000	24.24	0.00	0.73	23.1	1.718
4.750	2.000	24.35	0.00	0.74	23.2	1.726
4.833	2.000	24.46	0.00	0.74	23.3	1.734
4.917	2.000	24.57	0.00	0.74	23.4	1.742
5.000	2.000	24.68	0.00	0.75	23.5	1.750
5.083	2.000	24.79	0.00	0.75	23.6	1.758
5.167	2.000	24.90	0.00	0.75	23.7	1.766
5.250	2.000	25.02	0.00	0.76	23.8	1.774
5.333	2.000	25.13	0.00	0.76	23.9	1.783
5.417	2.000	25.25	0.00	0.77	24.1	1.791
5.500	2.000	25.37	0.00	0.77	24.2	1.799
5.583	2.000	25.49	0.00	0.77	24.3	1.808
5.667	2.000	25.61	0.00	0.78	24.4	1.816
5.750	2.000	25.74	0.00	0.78	24.5	1.825
5.833	2.000	25.86	0.00	0.78	24.6	1.833
5.917	2.000	25.99	0.00	0.79	24.7	1.842
6.000	2.000	26.12	0.00	0.79	24.9	1.850
6.083	2.000	26.25	0.00	0.79	25.0	1.859
6.167	2.000	26.38	0.00	0.80	25.1	1.868
6.250	2.000	26.51	0.00	0.80	25.2	1.877
6.333	2.000	26.65	0.00	0.81	25.3	1.886
6.417	2.000	26.79	0.00	0.81	25.5	1.895
6.500	2.000	26.92	0.00	0.81	25.6	1.905
6.583	2.000	27.07	0.00	0.82	25.7	1.914
6.667	2.000	27.21	0.00	0.82	25.8	1.924
6.750	2.000	27.35	0.00	0.83	26.0	1.933
6.833	2.000	27.50	0.00	0.83	26.1	1.943
6.917	2.000	27.65	0.00	0.83	26.2	1.953
7.000	2.000	27.80	0.00	0.84	26.4	1.963

7.083	2.000	27.95	0.00	0.84	26.5	1.973
7.167	2.000	28.11	0.00	0.85	26.6	1.983
7.250	2.000	28.27	0.00	0.85	26.8	1.993
7.333	2.000	28.43	0.00	0.86	26.9	2.004
7.417	2.000	28.59	0.00	0.86	27.0	2.015
7.500	2.000	28.76	0.00	0.87	27.2	2.025
7.583	2.000	28.92	0.00	0.87	27.3	2.036
7.667	2.000	29.10	0.00	0.87	27.5	2.047
7.750	2.000	29.27	0.00	0.88	27.6	2.059
7.833	2.000	29.44	0.00	0.88	27.8	2.070
7.917	2.000	29.62	0.00	0.89	27.9	2.082
8.000	2.000	29.81	0.00	0.89	28.1	2.093
8.083	2.000	29.99	0.00	0.90	28.3	2.105
8.167	2.000	30.18	0.00	0.90	28.4	2.117
8.250	2.000	30.37	0.00	0.91	28.6	2.130
8.333	2.000	30.56	0.00	0.92	28.8	2.142
8.417	2.000	30.76	0.00	0.92	28.9	2.155
8.500	2.000	30.96	0.00	0.93	29.1	2.168
8.583	2.000	31.16	0.00	0.93	29.3	2.181
8.667	2.000	31.37	0.00	0.94	29.4	2.194
8.750	2.000	31.58	0.00	0.94	29.6	2.207
8.833	2.000	31.80	0.00	0.95	29.8	2.221
8.917	2.000	32.02	0.00	0.96	30.0	2.235
9.000	2.000	32.24	0.00	0.96	30.2	2.249
9.083	2.000	32.47	0.00	0.97	30.4	2.264
9.167	2.000	32.70	0.00	0.97	30.6	2.278
9.250	2.000	32.94	0.00	0.98	30.8	2.293
9.333	2.000	33.18	0.00	0.99	31.0	2.308
9.417	2.000	33.42	0.00	0.99	31.2	2.324
9.500	2.000	33.67	0.00	1.00	31.4	2.340
9.583	2.000	33.93	0.00	1.01	31.6	2.356
9.667	2.000	34.19	0.00	1.01	31.8	2.372
9.750	2.000	34.45	0.00	1.02	32.0	2.389
9.833	2.000	34.72	0.00	1.03	32.3	2.405
9.917	2.000	35.00	0.00	1.04	32.5	2.423
10.000	2.000	35.28	0.00	1.04	32.7	2.440
10.083	2.000	35.57	0.00	1.05	33.0	2.458
10.167	2.000	35.87	0.00	1.06	33.2	2.476
10.250	2.000	36.17	0.00	1.07	33.5	2.495
10.333	2.000	36.48	0.00	1.07	33.7	2.514
10.417	2.000	36.79	0.00	1.08	34.0	2.534
10.500	2.000	37.12	0.00	1.09	34.2	2.553
10.583	2.000	37.45	0.00	1.10	34.5	2.574
10.667	2.000	37.79	0.00	1.11	34.8	2.594
10.750	2.000	38.13	0.00	1.12	35.1	2.615
10.833	2.000	38.49	0.00	1.13	35.4	2.637
10.917	2.000	38.85	0.00	1.14	35.6	2.659
11.000	2.000	39.22	0.00	1.15	35.9	2.682
11.083	2.000	39.61	0.00	1.16	36.3	2.705
11.167	2.000	40.00	0.00	1.17	36.6	2.728
11.250	2.000	40.40	0.00	1.18	36.9	2.753
11.333	2.000	40.82	0.00	1.19	37.2	2.777
11.417	2.000	41.24	0.00	1.20	37.6	2.803
11.500	2.000	41.68	0.00	1.21	37.9	2.829
11.583	2.000	42.13	0.00	1.22	38.3	2.855
11.667	2.000	42.59	0.00	1.23	38.6	2.883
11.750	2.000	43.07	0.00	1.24	39.0	2.911

11.833	2.000	43.56	0.00	1.26	39.4	2.940
11.917	2.000	44.06	0.00	1.27	39.8	2.969
12.000	2.000	44.59	0.00	1.28	40.2	3.000
12.083	2.000	44.72	0.00	1.29	40.6	3.028
12.167	2.000	42.71	0.00	1.30	40.8	3.041
12.250	2.000	40.15	0.00	1.30	40.9	3.036
12.333	2.000	39.22	0.00	1.29	40.8	3.025
12.417	2.000	39.05	0.00	1.29	40.6	3.014
12.500	2.000	39.22	0.00	1.28	40.5	3.005
12.583	2.000	39.54	0.00	1.28	40.4	2.999
12.667	2.000	39.97	0.00	1.28	40.4	2.996
12.750	2.000	40.47	0.00	1.28	40.3	2.997
12.833	2.000	41.03	0.00	1.28	40.4	3.002
12.917	2.000	41.65	0.00	1.29	40.5	3.010
13.000	2.000	42.33	0.00	1.29	40.6	3.022
13.083	2.000	43.04	0.00	1.30	40.8	3.037
13.167	2.000	43.79	0.00	1.31	41.0	3.056
13.250	2.000	44.59	0.00	1.32	41.3	3.079
13.333	2.000	45.44	0.00	1.33	41.6	3.105
13.417	2.000	46.34	0.00	1.34	42.0	3.135
13.500	2.000	47.31	0.00	1.35	42.4	3.169
13.583	2.000	48.31	0.00	1.37	42.9	3.206
13.667	2.000	49.38	0.00	1.39	43.4	3.247
13.750	2.000	50.49	0.00	1.41	44.0	3.292
13.833	2.000	51.68	0.00	1.43	44.6	3.340
13.917	2.000	52.94	0.00	1.45	45.3	3.393
14.000	2.000	54.28	0.00	1.47	46.1	3.449
14.083	2.000	55.78	0.00	1.50	46.8	3.511
14.167	2.000	57.86	0.00	1.53	47.7	3.581
14.250	2.000	60.16	0.00	1.56	48.7	3.659
14.333	2.000	62.25	0.00	1.60	49.8	3.745
14.417	2.000	64.29	0.00	1.64	51.0	3.836
14.500	2.000	66.45	0.00	1.68	52.3	3.934
14.583	2.000	68.72	0.00	1.73	53.7	4.037
14.667	2.000	71.20	0.00	1.77	55.1	4.148
14.750	2.000	73.86	0.00	1.82	56.6	4.267
14.833	2.000	76.80	0.00	1.88	58.3	4.394
14.917	2.000	80.01	0.00	1.94	60.1	4.532
15.000	2.000	83.61	0.00	2.00	62.0	4.680
15.083	2.000	87.58	0.00	2.03	63.7	4.845
15.167	2.000	92.12	0.00	2.07	65.3	5.029
15.250	2.000	97.23	0.00	2.11	67.1	5.237
15.333	2.000	103.20	0.00	2.16	69.1	5.472
15.417	2.000	108.78	0.00	2.21	71.3	5.730
15.500	2.000	108.85	0.00	2.26	73.5	5.974
15.583	2.000	108.35	0.00	2.31	75.6	6.199
15.667	2.000	115.00	0.00	2.36	77.8	6.455
15.750	2.000	128.52	0.00	2.43	80.4	6.786
15.833	2.000	158.48	0.00	2.53	84.2	7.298
15.917	2.000	205.16	0.00	2.70	90.1	8.091
16.000	2.000	289.25	0.00	2.96	99.5	9.397
16.083	2.000	528.67	0.00	3.40	122.2	12.197
16.167	2.000	1194.40	0.00	4.45	181.8	19.170
16.250	2.000	1293.89	0.00	5.52	267.9	26.236
16.333	2.000	734.00	0.00	5.94	328.3	29.030
16.417	2.000	435.58	0.00	6.03	349.1	29.626
16.500	2.000	301.30	0.00	5.98	350.7	29.286

16.583	2.000	237.14	0.00	5.87	344.1	28.549
16.667	2.000	194.53	0.00	5.73	333.7	27.591
16.750	2.000	163.83	0.00	5.56	321.2	26.507
16.833	2.000	139.60	0.00	5.39	307.4	25.351
16.917	2.000	119.56	0.00	5.21	293.0	24.156
17.000	2.000	102.39	0.00	5.02	278.3	22.945
17.083	2.000	92.64	0.00	4.84	263.6	21.767
17.167	2.000	86.73	0.00	4.67	249.5	20.646
17.250	2.000	77.24	0.00	4.51	236.0	19.553
17.333	2.000	66.87	0.00	4.35	222.7	18.480
17.417	2.000	59.19	0.00	4.19	209.8	17.443
17.500	2.000	54.17	0.00	4.04	197.4	16.457
17.583	2.000	51.38	0.00	3.90	185.6	15.532
17.667	2.000	48.99	0.00	3.77	174.7	14.666
17.750	2.000	46.86	0.00	3.65	164.4	13.857
17.833	2.000	44.96	0.00	3.53	154.8	13.100
17.917	2.000	43.24	0.00	3.43	145.8	12.394
18.000	2.000	41.69	0.00	3.33	137.5	11.734
18.083	2.000	40.67	0.00	3.23	129.7	11.121
18.167	2.000	41.92	0.00	3.15	122.5	10.567
18.250	2.000	43.80	0.00	3.07	116.0	10.069
18.333	2.000	44.09	0.00	3.01	110.2	9.614
18.417	2.000	43.70	0.00	2.92	105.4	9.188
18.500	2.000	43.06	0.00	2.84	101.7	8.785
18.583	2.000	42.34	0.00	2.76	98.1	8.401
18.667	2.000	41.60	0.00	2.68	94.8	8.034
18.750	2.000	40.86	0.00	2.61	91.6	7.685
18.833	2.000	40.13	0.00	2.55	88.5	7.352
18.917	2.000	39.41	0.00	2.48	85.6	7.034
19.000	2.000	38.71	0.00	2.42	82.8	6.731
19.083	2.000	38.03	0.00	2.36	80.1	6.441
19.167	2.000	37.38	0.00	2.30	77.6	6.164
19.250	2.000	36.76	0.00	2.25	75.1	5.900
19.333	2.000	36.15	0.00	2.20	72.8	5.647
19.417	2.000	35.56	0.00	2.15	70.6	5.406
19.500	2.000	34.99	0.00	2.10	68.5	5.175
19.583	2.000	34.44	0.00	2.06	66.5	4.955
19.667	2.000	33.91	0.00	2.01	64.5	4.744
19.750	2.000	33.40	0.00	1.94	62.4	4.544
19.833	2.000	32.92	0.00	1.86	59.9	4.358
19.917	2.000	32.45	0.00	1.79	57.5	4.186
20.000	2.000	32.00	0.00	1.72	55.3	4.026
20.083	2.000	31.56	0.00	1.66	53.2	3.877
20.167	2.000	31.14	0.00	1.60	51.3	3.738
20.250	2.000	30.74	0.00	1.54	49.5	3.609
20.333	2.000	30.35	0.00	1.49	47.8	3.489
20.417	2.000	29.97	0.00	1.44	46.2	3.377
20.500	2.000	29.60	0.00	1.40	44.8	3.273
20.583	2.000	29.25	0.00	1.36	43.4	3.175
20.667	2.000	28.91	0.00	1.32	42.1	3.084
20.750	2.000	28.57	0.00	1.28	40.9	2.999
20.833	2.000	28.25	0.00	1.25	39.8	2.919
20.917	2.000	27.93	0.00	1.22	38.8	2.845
21.000	2.000	27.63	0.00	1.19	37.8	2.774
21.083	2.000	27.33	0.00	1.16	36.9	2.708
21.167	2.000	27.05	0.00	1.13	36.0	2.647
21.250	2.000	26.77	0.00	1.11	35.2	2.588

21.333	2.000	26.49	0.00	1.08	34.5	2.533
21.417	2.000	26.23	0.00	1.06	33.8	2.481
21.500	2.000	25.97	0.00	1.04	33.1	2.433
21.583	2.000	25.72	0.00	1.02	32.4	2.386
21.667	2.000	25.47	0.00	1.00	31.8	2.342
21.750	2.000	25.23	0.00	0.98	31.3	2.301
21.833	2.000	25.00	0.00	0.97	30.7	2.262
21.917	2.000	24.77	0.00	0.95	30.2	2.224
22.000	2.000	24.55	0.00	0.94	29.7	2.189
22.083	2.000	24.33	0.00	0.92	29.2	2.155
22.167	2.000	24.12	0.00	0.91	28.8	2.123
22.250	2.000	23.91	0.00	0.89	28.4	2.092
22.333	2.000	23.71	0.00	0.88	28.0	2.063
22.417	2.000	23.51	0.00	0.87	27.6	2.035
22.500	2.000	23.32	0.00	0.86	27.2	2.008
22.583	2.000	23.13	0.00	0.85	26.9	1.982
22.667	2.000	22.94	0.00	0.84	26.5	1.958
22.750	2.000	22.76	0.00	0.83	26.2	1.934
22.833	2.000	22.58	0.00	0.82	25.9	1.911
22.917	2.000	22.41	0.00	0.81	25.6	1.889
23.000	2.000	22.24	0.00	0.80	25.3	1.868
23.083	2.000	22.07	0.00	0.79	25.0	1.848
23.167	2.000	21.91	0.00	0.78	24.7	1.829
23.250	2.000	21.74	0.00	0.77	24.5	1.810
23.333	2.000	21.59	0.00	0.77	24.2	1.791
23.417	2.000	21.43	0.00	0.76	24.0	1.774
23.500	2.000	21.28	0.00	0.75	23.8	1.757
23.583	2.000	21.13	0.00	0.74	23.5	1.740
23.667	2.000	20.98	0.00	0.74	23.3	1.724
23.750	2.000	20.84	0.00	0.73	23.1	1.708
23.833	2.000	20.70	0.00	0.72	22.9	1.693
23.917	2.000	20.56	0.00	0.72	22.7	1.679

PROCESS SUMMARY OF STORAGE:

INFLOW VOLUME = 108.775 AF

BASIN STORAGE = 2.000 AF (WITH 2.000 AF INITIALLY FILLED)

OUTFLOW VOLUME = 108.775 AF

LOSS VOLUME = 0.000 AF

END OF FLOODSCx ROUTING ANALYSIS

Channel Caculations

Hydraulic Calculations

Composite Channel
1236 CFS - A
60' Base Subchannel 3.0' Deep

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* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	4.00
2	4.50	2.50
3	180.50	2.50
4	188.00	0.00
5	248.00	0.00
6	260.00	4.00

SUBCHANNEL SLOPE(FEET/FEET) = 0.025000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

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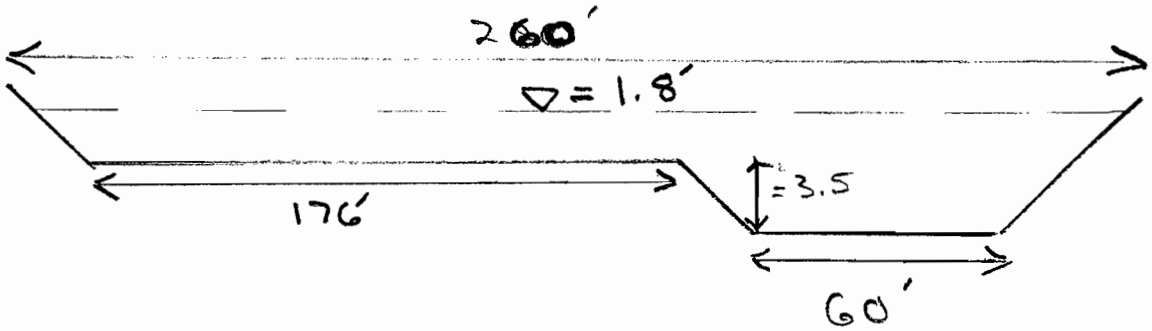
SUBCHANNEL FLOW(CFS) = 1238.7
SUBCHANNEL FLOW AREA(SQUARE FEET) = 114.89
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 10.782
SUBCHANNEL FROUDE NUMBER = 1.489
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 70.56
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 1.63

TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 1236.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 1238.75
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 1.76
NOTE: WATER SURFACE IS BELOW EXTREME LEFT AND RIGHT BANK ELEVATIONS.

::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>



1 Channel – Alternative to Box
Rip Rap Sides 3:1
Toe Down Depth 8 ft (straight) 12 ft (curved)
1236 CFS

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>>>>CHANNEL INPUT INFORMATION<<<<

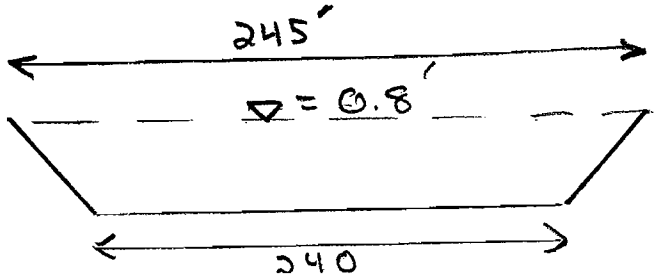
CHANNEL Z1(HORIZONTAL/VERTICAL) = 3.00
Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.025000
UNIFORM FLOW(CFS) = 1236.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 0.78
FLOW TOP-WIDTH(FEET) = 244.66
FLOW AREA(SQUARE FEET) = 188.12
HYDRAULIC DEPTH(FEET) = 0.77
FLOW AVERAGE VELOCITY(FEET/SEC.) = 6.57
UNIFORM FROUDE NUMBER = 1.320
PRESSURE + MOMENTUM(POUNDS) = 20279.18
AVERAGED VELOCITY HEAD(FEET) = 0.670
SPECIFIC ENERGY(FEET) = 1.447

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 245.60
CRITICAL FLOW AREA(SQUARE FEET) = 226.63
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 0.92
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 5.45
CRITICAL DEPTH(FEET) = 0.93
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 19637.73
AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) = 0.462
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 1.395



Composite Channel
5095 CFS
60' Base Subchannel 3.0' Deep

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* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	4.50
2	4.50	3.00
3	177.50	3.00
4	186.50	0.00
5	246.50	0.00
6	260.00	4.50

SUBCHANNEL SLOPE(FEET/FEET) = 0.030000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

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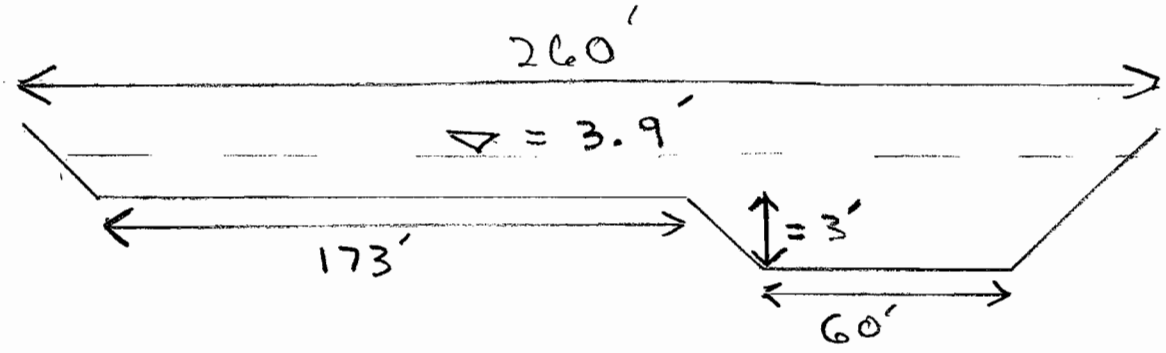
SUBCHANNEL FLOW(CFS) = 5095.1
SUBCHANNEL FLOW AREA(SQUARE FEET) = 425.08
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 11.986
SUBCHANNEL FROUDE NUMBER = 1.640
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 256.16
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 1.66

TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 5095.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 5095.11
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 3.86

NOTE: WATER SURFACE IS BELOW EXTREME
LEFT AND RIGHT BANK ELEVATIONS.

::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>



1 Channel – Alternative to Box
Rip Rap Sides 3:1 - B
Toe Down Depth 10 ft (straight) 15 ft (curved)
5095 CFS

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>>>>CHANNEL INPUT INFORMATION<<<<

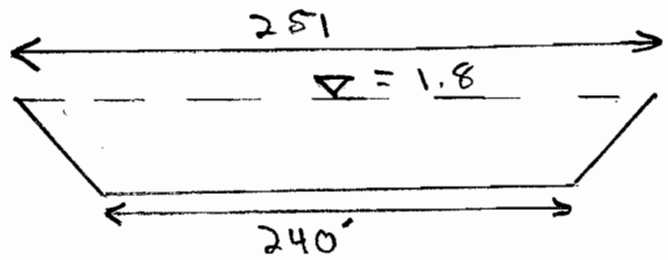
CHANNEL Z1(HORIZONTAL/VERTICAL) = 3.00
Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.025000
UNIFORM FLOW(CFS) = 5095.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 1.81
FLOW TOP-WIDTH(FEET) = 250.88
FLOW AREA(SQUARE FEET) = 445.20
HYDRAULIC DEPTH(FEET) = 1.77
FLOW AVERAGE VELOCITY(FEET/SEC.) = 11.44
UNIFORM FROUDE NUMBER = 1.514
PRESSURE + MOMENTUM(POUNDS) = 138004.09
AVERAGED VELOCITY HEAD(FEET) = 2.034
SPECIFIC ENERGY(FEET) = 3.848

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 254.31
CRITICAL FLOW AREA(SQUARE FEET) = 589.56
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 2.32
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 8.64
CRITICAL DEPTH(FEET) = 2.39
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 128781.27
AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) = 1.160
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 3.545



Composite Channel
8875 CFS -D
60' Base Subchannel 5.5' Deep

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* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	8.00
2	7.50	5.50
3	161.00	5.50
4	177.50	0.00
5	237.50	0.00
6	260.00	8.00

SUBCHANNEL SLOPE(FEET/FEET) = 0.012000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

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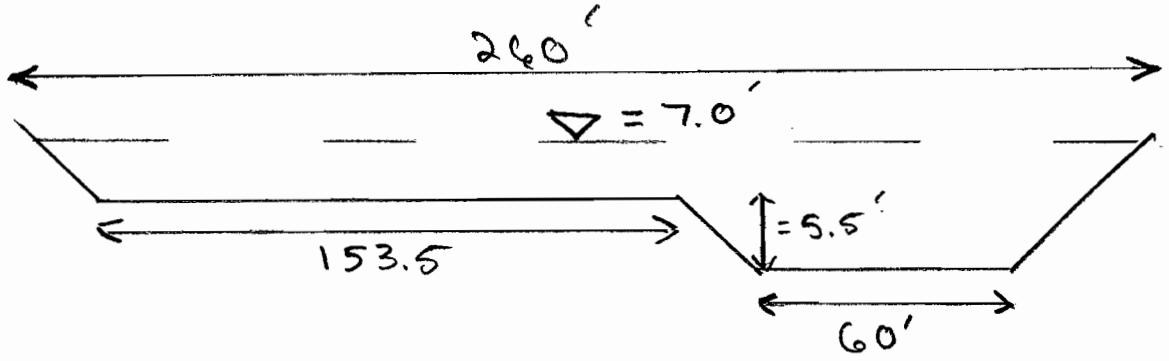
SUBCHANNEL FLOW(CFS) = 8889.4
SUBCHANNEL FLOW AREA(SQUARE FEET) = 779.97
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 11.397
SUBCHANNEL FROUDE NUMBER = 1.146
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 253.90
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 3.07

TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 8875.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 8889.42
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 6.95
NOTE: WATER SURFACE IS BELOW EXTREME LEFT AND RIGHT BANK ELEVATIONS.

::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>



1 Channel
Rip Rap Sides 3:1
Toe Down Depth 10 ft (straight) 15ft (curved)
8875 CFS

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>>>>CHANNEL INPUT INFORMATION<<<<

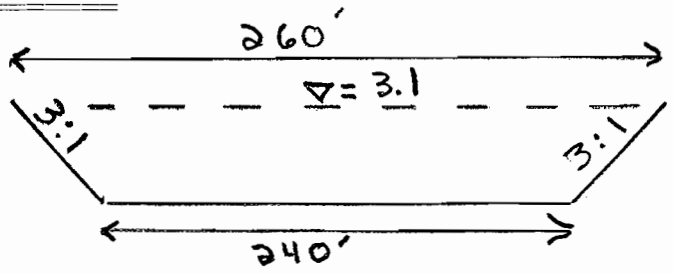
CHANNEL Z1(HORIZONTAL/VERTICAL) = 3.00
Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.012000
UNIFORM FLOW(CFS) = 8875.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 3.14
FLOW TOP-WIDTH(FEET) = 258.85
FLOW AREA(SQUARE FEET) = 783.54
HYDRAULIC DEPTH(FEET) = 3.03
FLOW AVERAGE VELOCITY(FEET/SEC.) = 11.33
UNIFORM FROUDE NUMBER = 1.147
PRESSURE + MOMENTUM(POUNDS) = 270635.50
AVERAGED VELOCITY HEAD(FEET) = 1.992
SPECIFIC ENERGY(FEET) = 5.134

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 260.64
CRITICAL FLOW AREA(SQUARE FEET) = 860.89
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 3.30
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 10.31
CRITICAL DEPTH(FEET) = 3.44
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 268410.38
AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) = 1.650
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 5.089



Composite Channel
1973 CFS - E
60' Base Subchannel 2.5' Deep

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* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	4.00
2	4.50	2.50
3	180.50	2.50
4	188.00	0.00
5	248.00	0.00
6	260.00	4.00

SUBCHANNEL SLOPE(FEET/FEET) = 0.010000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

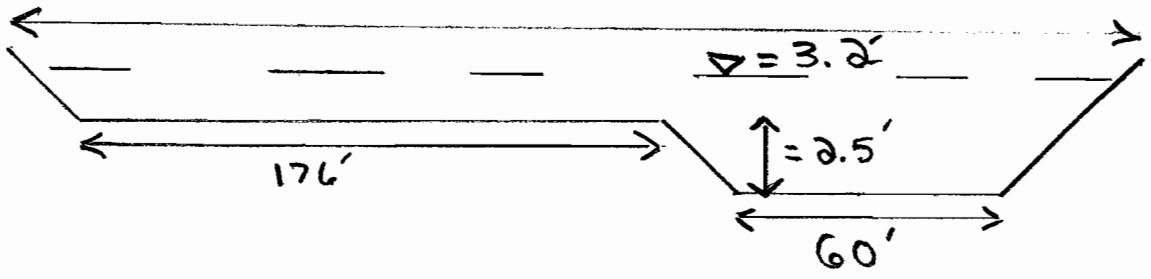
.....

SUBCHANNEL FLOW(CFS) = 1992.4
SUBCHANNEL FLOW AREA(SQUARE FEET) = 335.72
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 5.935
SUBCHANNEL FROUDE NUMBER = 0.911
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 254.96
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 1.32

TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 1973.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 1992.39
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 3.16
NOTE: WATER SURFACE IS BELOW EXTREME LEFT AND RIGHT BANK ELEVATIONS.

::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>



1 Channel
Rip Rap Sides 3:1
Toe Down Depth 6 ft (straight) 9ft (curved)
1973 CFS

****

>>>>CHANNEL INPUT INFORMATION<<<<

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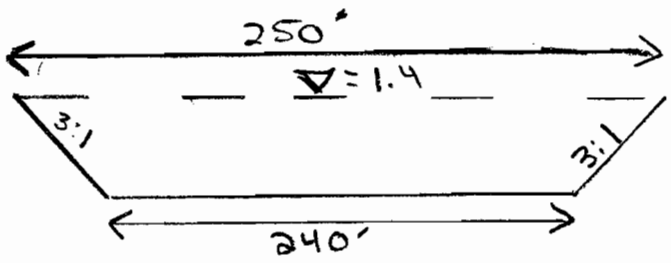
Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.010000
UNIFORM FLOW(CFS) = 1973.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 1.35
FLOW TOP-WIDTH(FEET) = 248.11
FLOW AREA(SQUARE FEET) = 330.04
HYDRAULIC DEPTH(FEET) = 1.33
FLOW AVERAGE VELOCITY(FEET/SEC.) = 5.98
UNIFORM FROUDE NUMBER = 0.913
PRESSURE + MOMENTUM(POUNDS) = 36704.74
AVERAGED VELOCITY HEAD(FEET) = 0.555
SPECIFIC ENERGY(FEET) = 1.907

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 247.65
CRITICAL FLOW AREA(SQUARE FEET) = 310.72
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 1.25
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 6.35
CRITICAL DEPTH(FEET) = 1.27
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 36567.77
AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) = 0.626
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 1.900



1 Channel – Alternative to Box
Rip Rap Sides 3:1 – F
Toe Down Depth 8 ft (straight) 12 ft (curved)
3382 CFS

****

>>>>CHANNEL INPUT INFORMATION<<<<

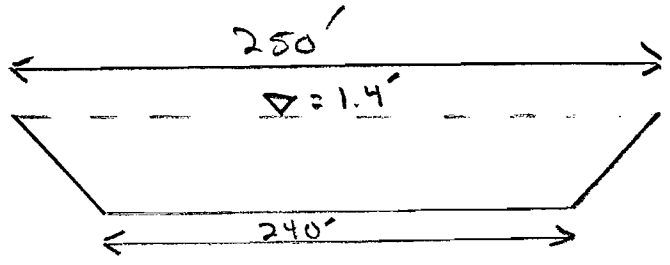
CHANNEL Z1(HORIZONTAL/VERTICAL) = 3.00
Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.027000
UNIFORM FLOW(CFS) = 3382.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 1.39
FLOW TOP-WIDTH(FEET) = 248.32
FLOW AREA(SQUARE FEET) = 338.56
HYDRAULIC DEPTH(FEET) = 1.36
FLOW AVERAGE VELOCITY(FEET/SEC.) = 9.99
UNIFORM FROUDE NUMBER = 1.508
PRESSURE + MOMENTUM(POUNDS) = 80033.33
AVERAGED VELOCITY HEAD(FEET) = 1.549
SPECIFIC ENERGY(FEET) = 2.936

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 250.92
CRITICAL FLOW AREA(SQUARE FEET) = 446.82
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 1.78
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 7.57
CRITICAL DEPTH(FEET) = 1.82
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 74795.67
AVERAGED CRITICAL FLOW VELOCITY HEAD(FEET) = 0.890
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 2.710



Composite Channel
3382 CFS
60' Base Subchannel 3.0' Deep

---

* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	4.50
2	4.50	3.00
3	177.50	3.00
4	186.50	0.00
5	246.50	0.00
6	260.00	4.50

SUBCHANNEL SLOPE(FEET/FEET) = 0.027000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

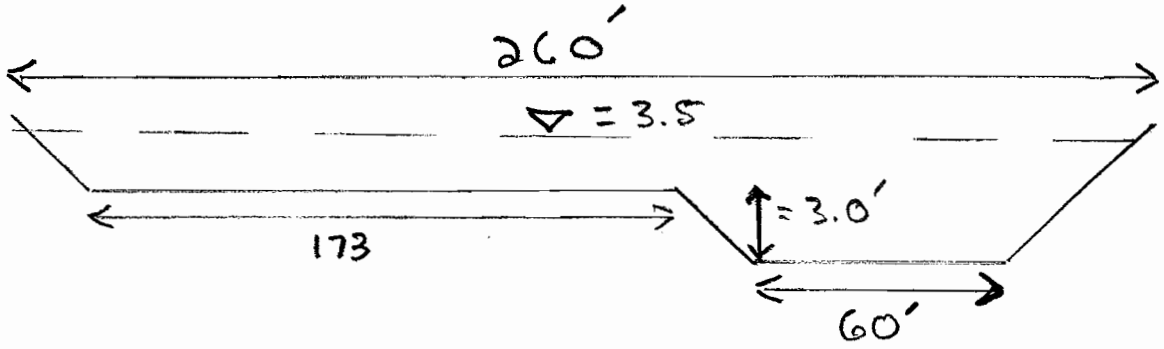
.....

SUBCHANNEL FLOW(CFS) = 3405.2
SUBCHANNEL FLOW AREA(SQUARE FEET) = 343.41
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 9.916
SUBCHANNEL FROUDE NUMBER = 1.504
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 254.24
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 1.35

TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 3382.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 3405.19
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 3.54
NOTE: WATER SURFACE IS BELOW EXTREME LEFT AND RIGHT BANK ELEVATIONS.

::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>



1 Channel
Rip Rap Sides 3:1 -6
Toe Down Depth 10 ft (straight) 15ft (curved)
10184 CFS

****

>>>>CHANNEL INPUT INFORMATION<<<<

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Z2(HORIZONTAL/VERTICAL) = 3.00
BASEWIDTH(FEET) = 240.00
CONSTANT CHANNEL SLOPE(FEET/FEET) = 0.012000
UNIFORM FLOW(CFS) = 10184.00
MANNINGS FRICTION FACTOR = 0.0300

NORMAL-DEPTH FLOW INFORMATION:

>>>>> NORMAL DEPTH(FEET) = 3.41
FLOW TOP-WIDTH(FEET) = 260.45
FLOW AREA(SQUARE FEET) = 852.88
HYDRAULIC DEPTH(FEET) = 3.27
FLOW AVERAGE VELOCITY(FEET/SEC.) = 11.94
UNIFORM FROUDE NUMBER = 1.163
PRESSURE + MOMENTUM(POUNDS) = 325118.66
AVERAGED VELOCITY HEAD(FEET) = 2.214
SPECIFIC ENERGY(FEET) = 5.622

CRITICAL-DEPTH FLOW INFORMATION:

CRITICAL FLOW TOP-WIDTH(FEET) = 262.58
CRITICAL FLOW AREA(SQUARE FEET) = 945.72
CRITICAL FLOW HYDRAULIC DEPTH(FEET) = 3.60
CRITICAL FLOW AVERAGE VELOCITY(FEET/SEC.) = 10.77
CRITICAL DEPTH(FEET) = 3.76
CRITICAL FLOW PRESSURE + MOMENTUM(POUNDS) = 321904.69
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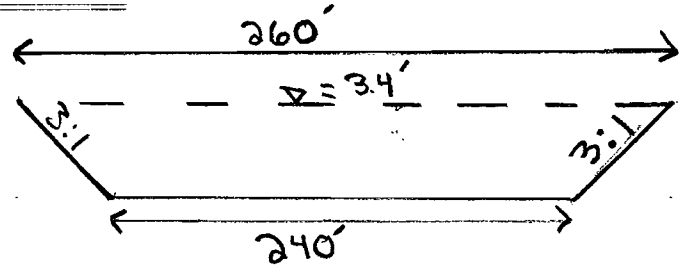
CRITICAL FLOW SPECIFIC ENERGY(FEET) = 5.564



Composite Channel
10184 CFS
60' Base Subchannel 6' Deep

---

* ENTERED INFORMATION FOR SUBCHANNEL NUMBER 1 :

NODE NUMBER	"X" COORDINATE	"Y" COORDINATE
1	0.00	8.50
2	7.50	6.00
3	156.50	6.00
4	174.50	0.00
5	234.50	0.00
6	260.00	8.50

SUBCHANNEL SLOPE(FEET/FEET) = 0.012000
SUBCHANNEL MANNINGS FRICTION FACTOR = 0.030000

.....

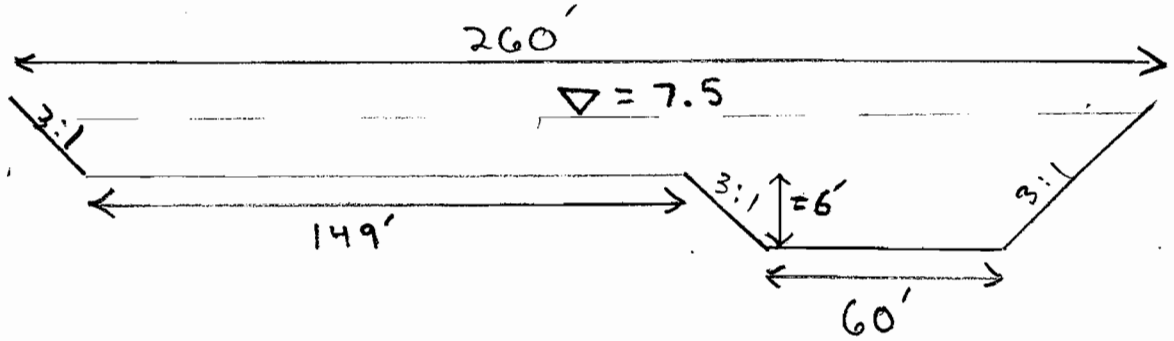
SUBCHANNEL FLOW(CFS) = 10196.9
SUBCHANNEL FLOW AREA(SQUARE FEET) = 847.35
SUBCHANNEL FLOW VELOCITY(FEET/SEC.) = 12.034
SUBCHANNEL FROUDE NUMBER = 1.161
SUBCHANNEL FLOW TOP-WIDTH(FEET) = 254.12
SUBCHANNEL HYDRAULIC DEPTH(FEET) = 3.33

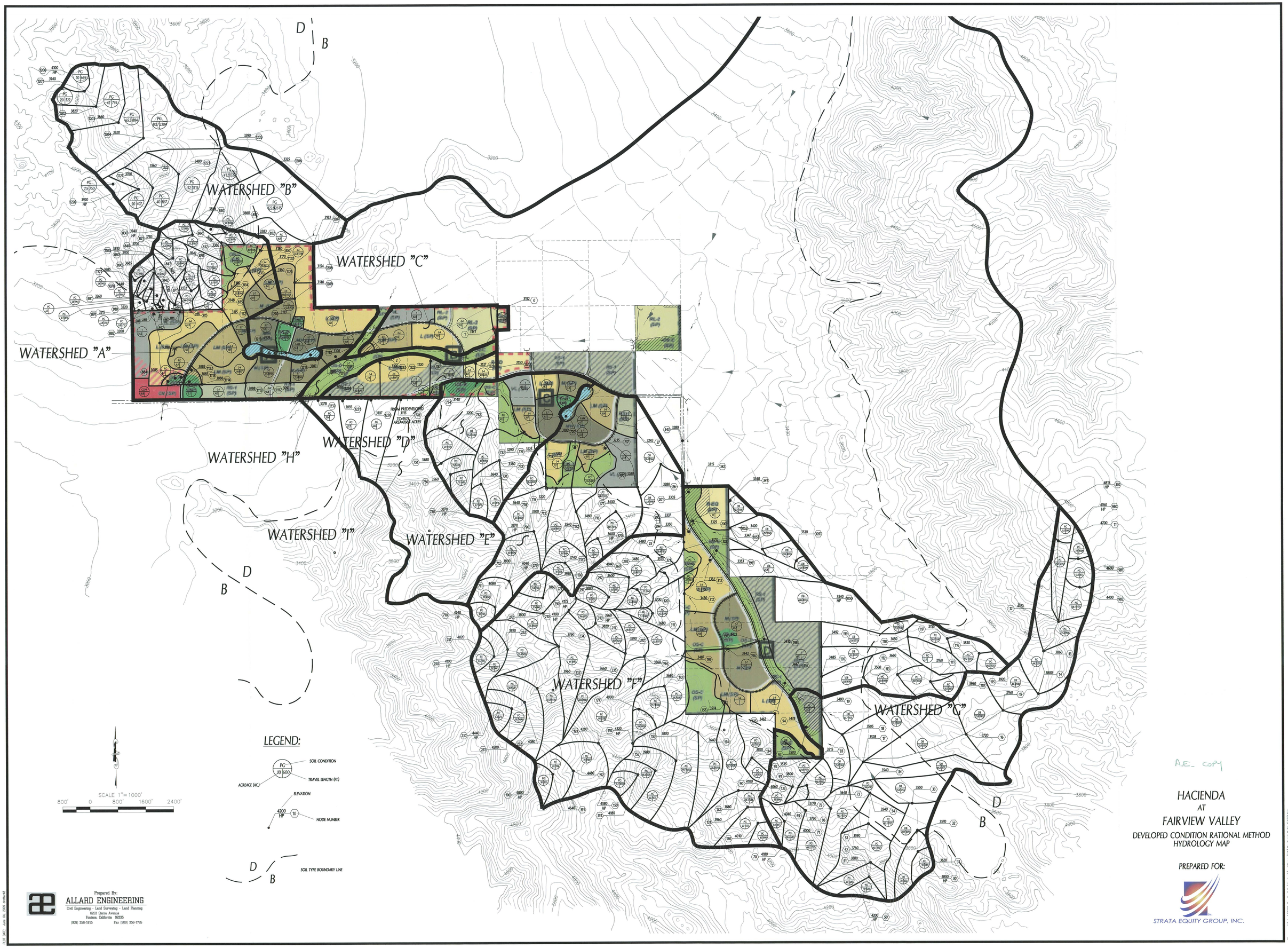
TOTAL IRREGULAR CHANNEL FLOW(CFS) WANTED = 10184.00
COMPUTED IRREGULAR CHANNEL FLOW(CFS) = 10196.90
ESTIMATED IRREGULAR CHANNEL NORMAL DEPTH WATER SURFACE ELEVATION..... 7.52

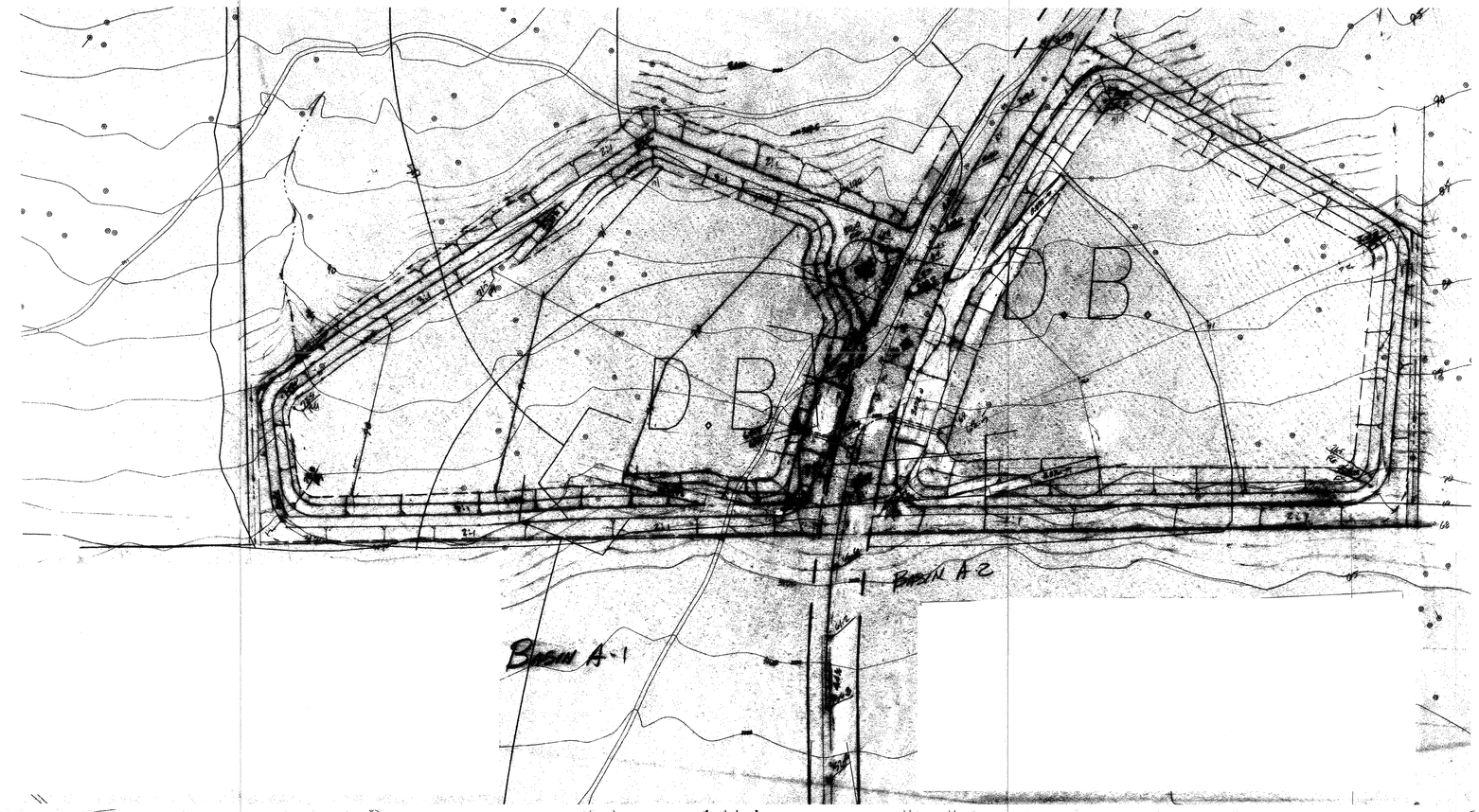
NOTE: WATER SURFACE IS BELOW EXTREME
LEFT AND RIGHT BANK ELEVATIONS.

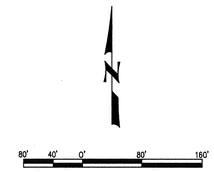
::::::::::::::::::::::::::::::::::Results Options::::::::::::::::::::::::::::::::::

1= PRINT current results or (Press RETURN to continue) ==>

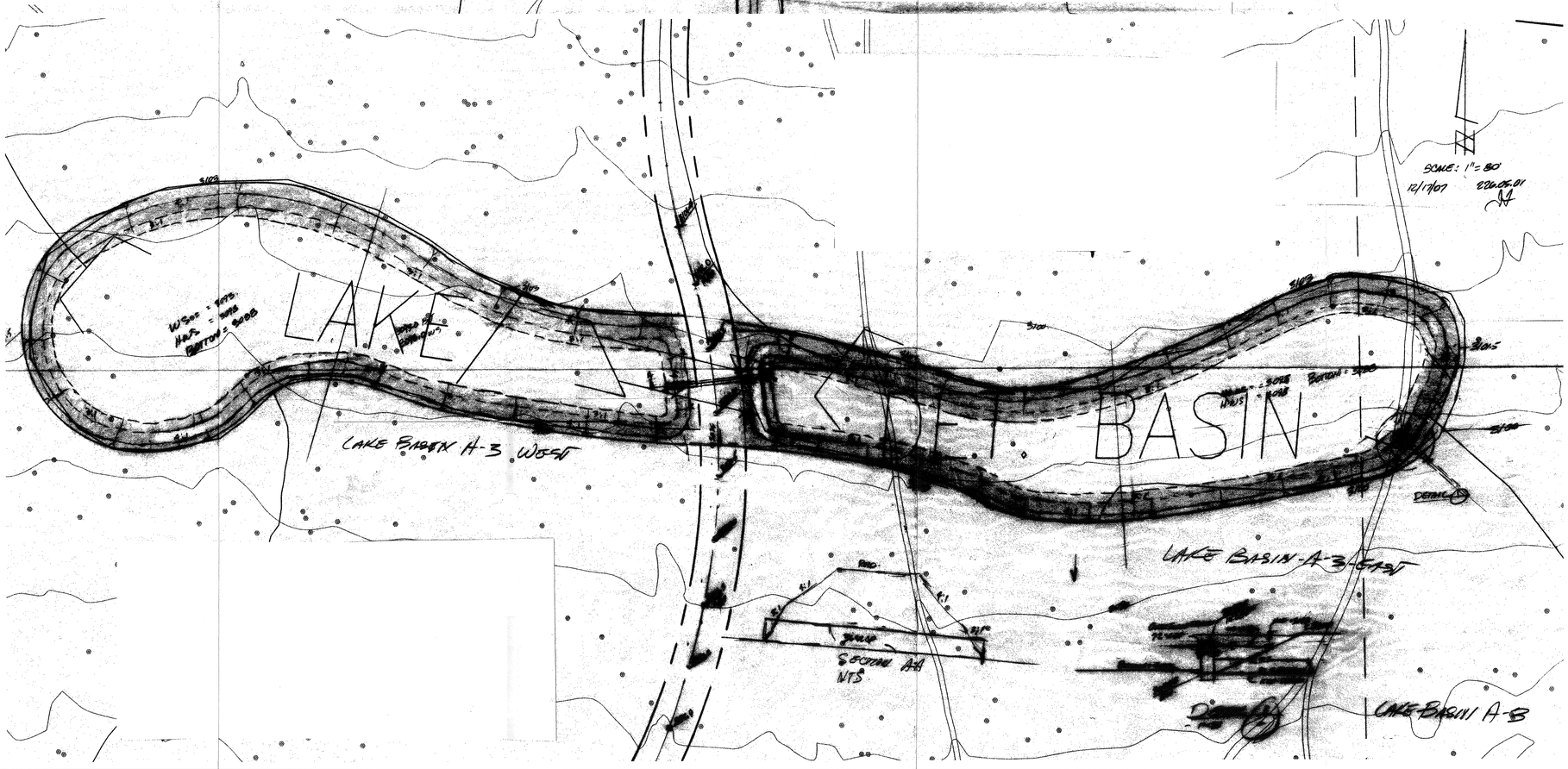



WATERSHED "A"
WATERSHED "B"
WATERSHED "C"
WATERSHED "D"
WATERSHED "E"
WATERSHED "F"
WATERSHED "G"
WATERSHED "H"
WATERSHED "I"
D
B
LEGEND:
SOIL CONDITION
TRAVEL LENGTH (FT.)
ACREAGE (AC)
ELEVATION
NODE NUMBER
SOIL TYPE BOUNDARY LINE
SCALE 1"=1000'
800' 0 800' 1600' 2400'
Prepared By:
ALLARD ENGINEERING
Civil Engineering - Land Surveying - Land Planning
8253 Sierra Avenue
Fontana, California 92335
(909) 356-1815 Fax (909) 356-1795
A.E. COPY
HACIENDA
AT
FAIRVIEW VALLEY
DEVELOPED CONDITION RATIONAL METHOD
HYDROLOGY MAP
PREPARED FOR:
STRATA EQUITY GROUP, INC.





BASIN A-1/A-2



BASIN A-3

HACIENDA AT FAIRVIEW VALLEY SPECIFIC PLAN
PRELIMINARY DETENTION BASIN PLANS

Prepared By:
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Civil Engineering - Land Surveying - Land Planning
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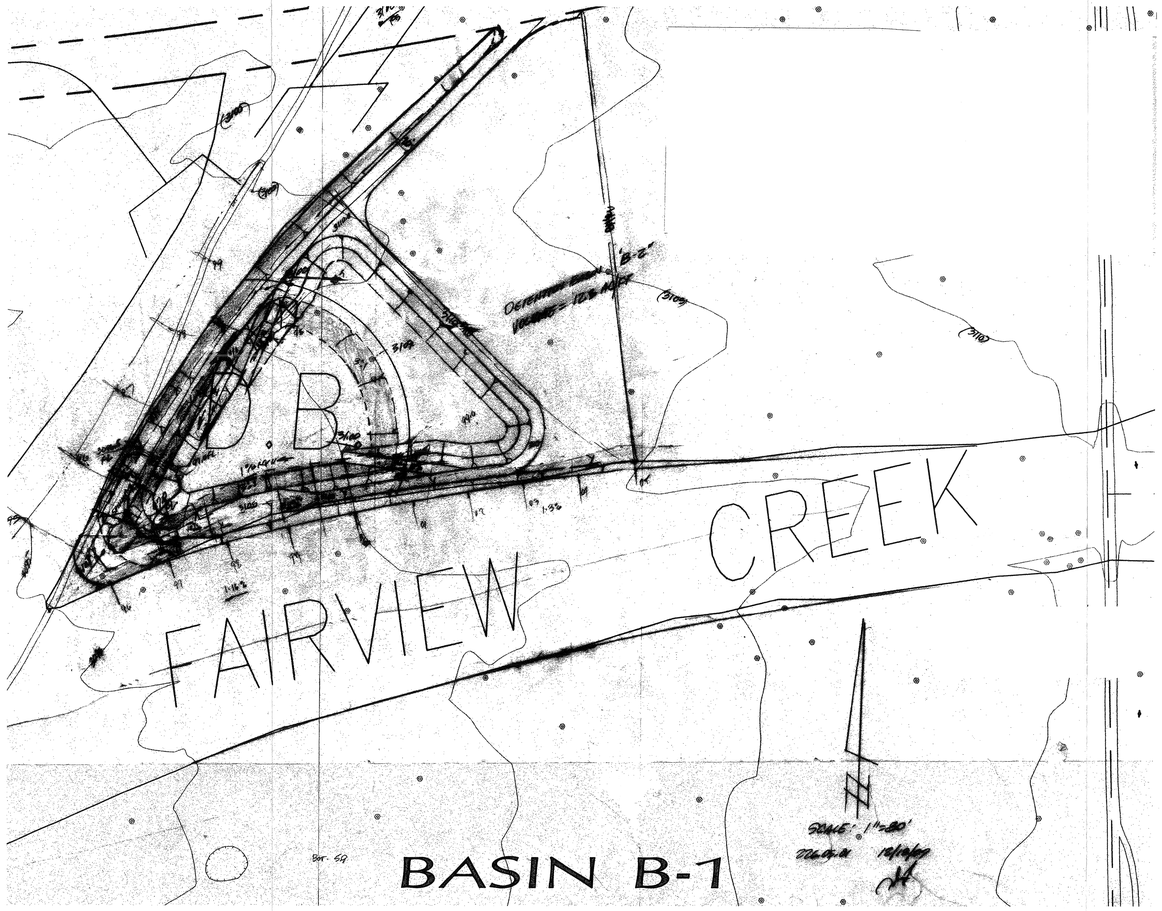
(909) 356-1815 Fax (909) 356-1795

STRATA EQUITY GROUP, INC.

PLOT DATE: May 29, 2009 reynoldallard

Filename: M:\dwg\22605 Granite Valley\Hacienda\entitlement\Exhibits\Basins.dwg



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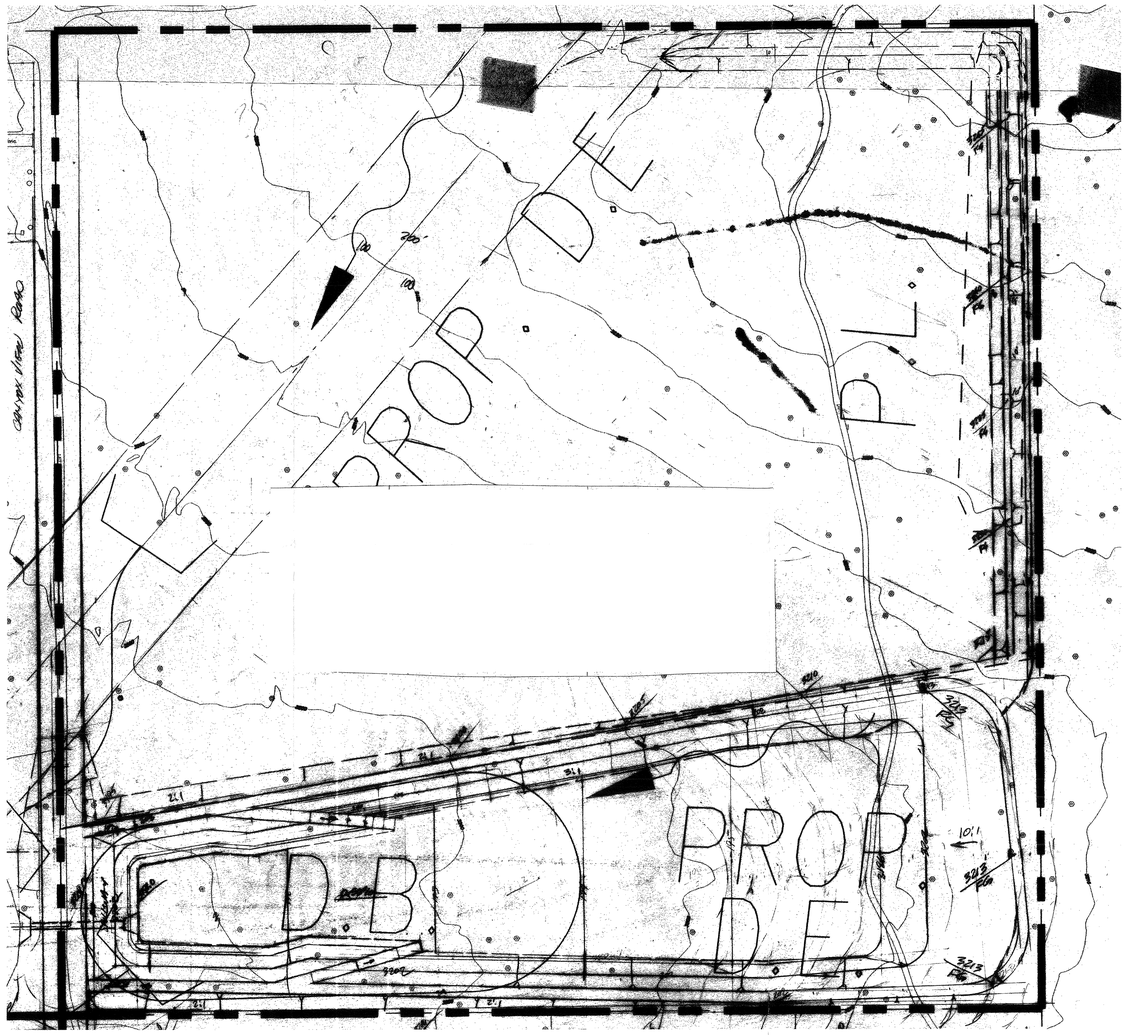
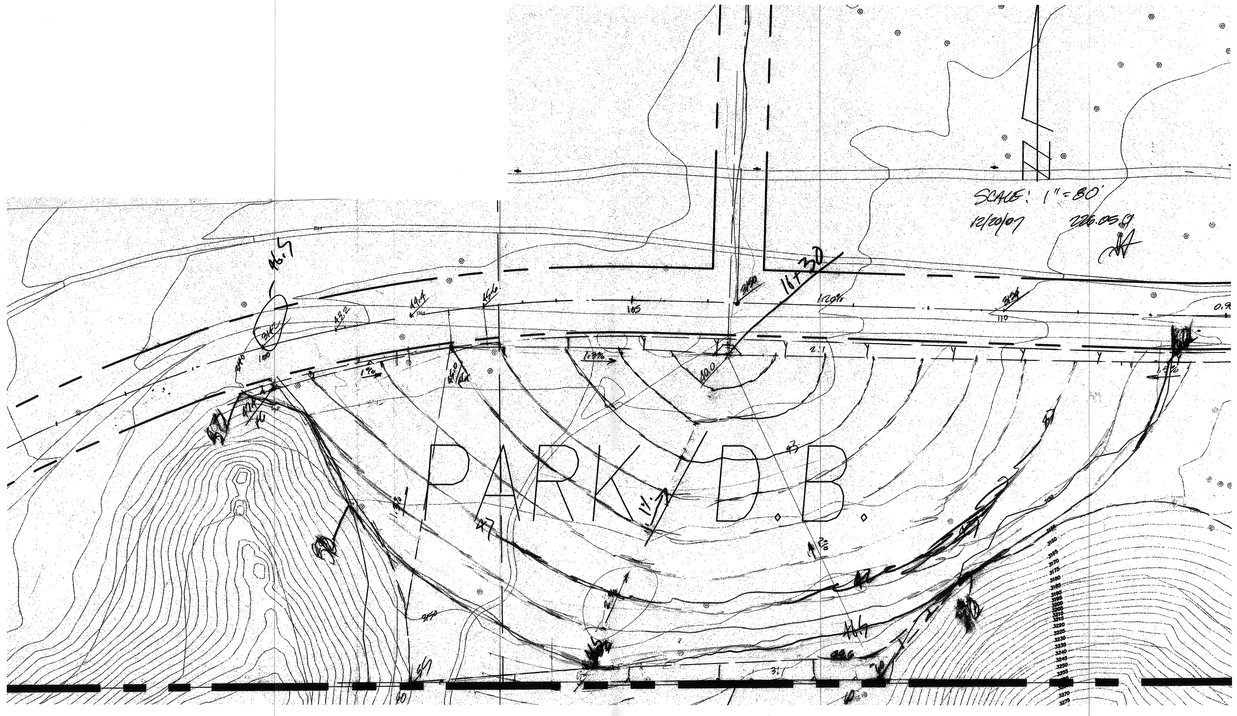
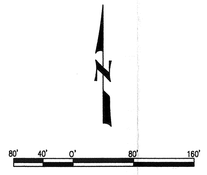


BASIN C-1



BASIN B-2



HACIENDA AT FAIRVIEW VALLEY SPECIFIC PLAN
PRELIMINARY DETENTION BASIN PLANS

Prepared By:
ALLARD ENGINEERING
Civil Engineering - Land Surveying - Land Planning
8253 Sierra Avenue
Fontana, California 92335
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STRATA EQUITY GROUP, INC.

PLOT DATE: May 29, 2009 reynoldsford

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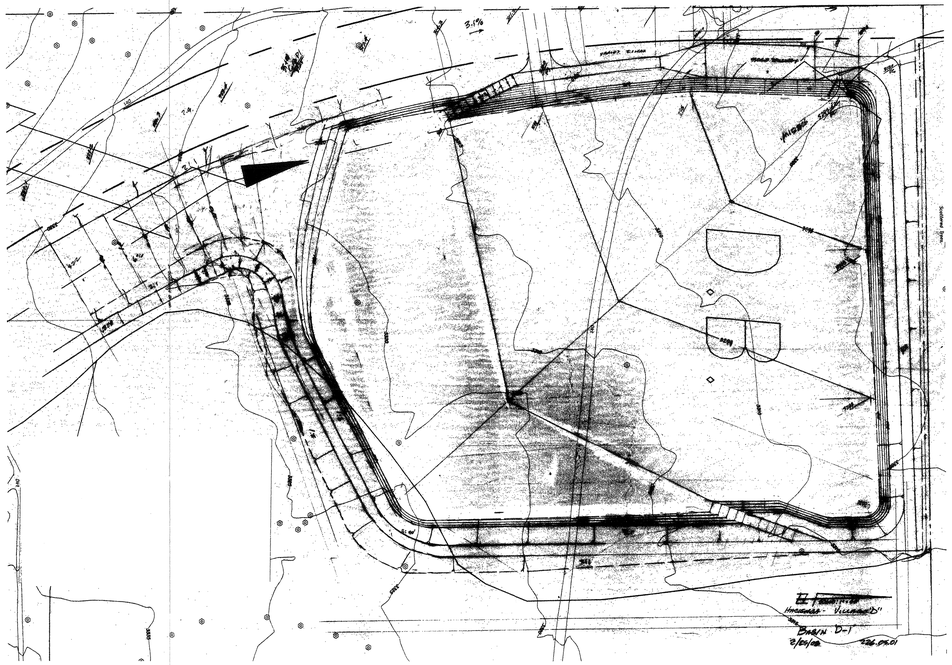
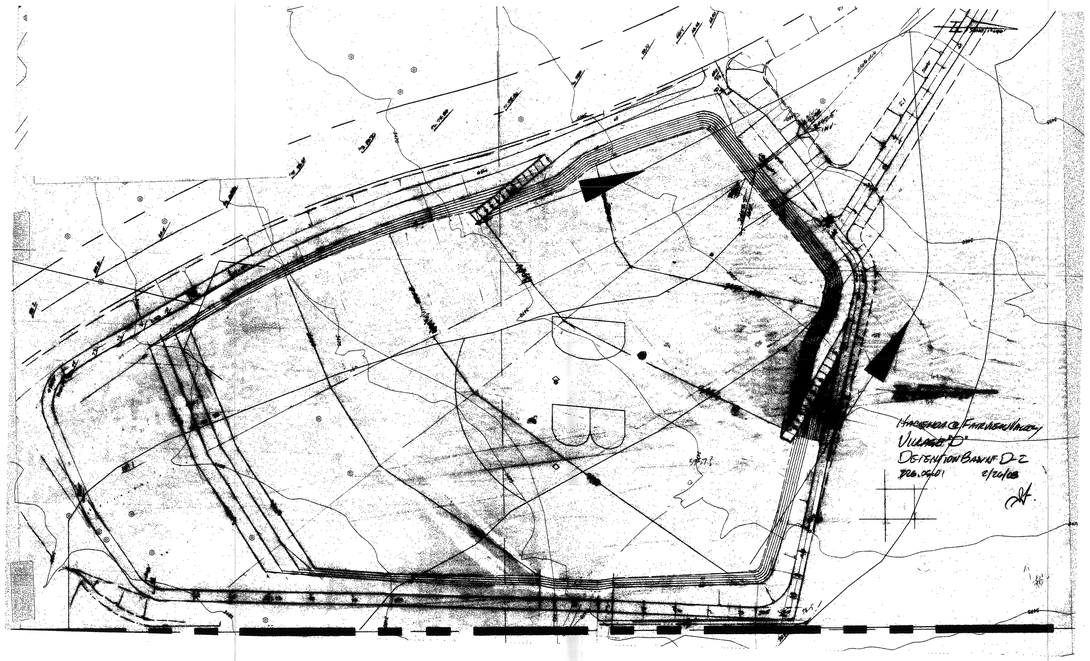


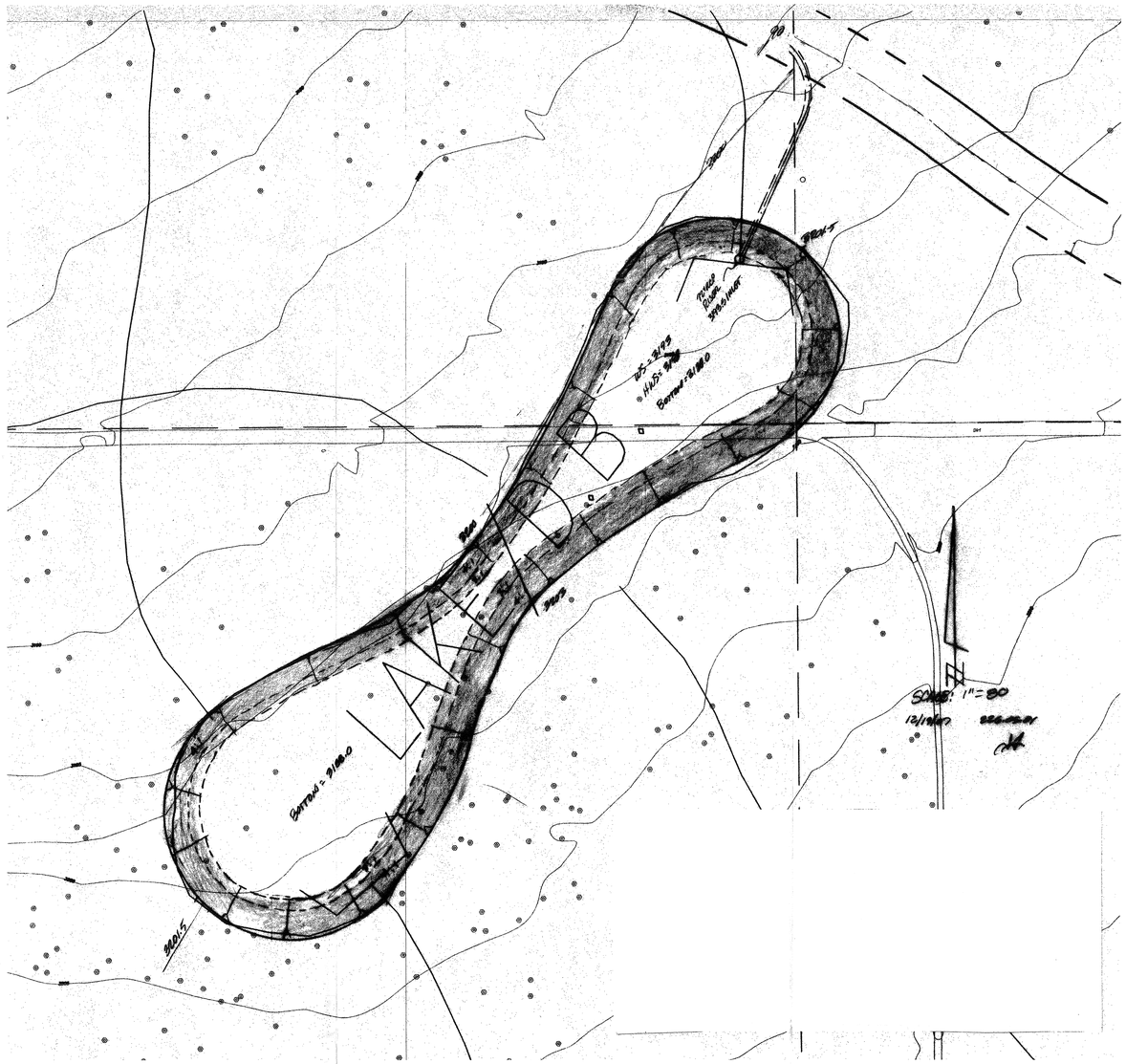
80' 40' 0' 80' 160'

BASIN D-1



80' 40' 0' 80' 160'

BASIN D-2



BASIN C-2

80' 40' 0' 80' 160'

HACIENDA AT FAIRVIEW VALLEY SPECIFIC PLAN
PRELIMINARY DETENTION BASIN PLANS

Prepared By:
ALLARD ENGINEERING
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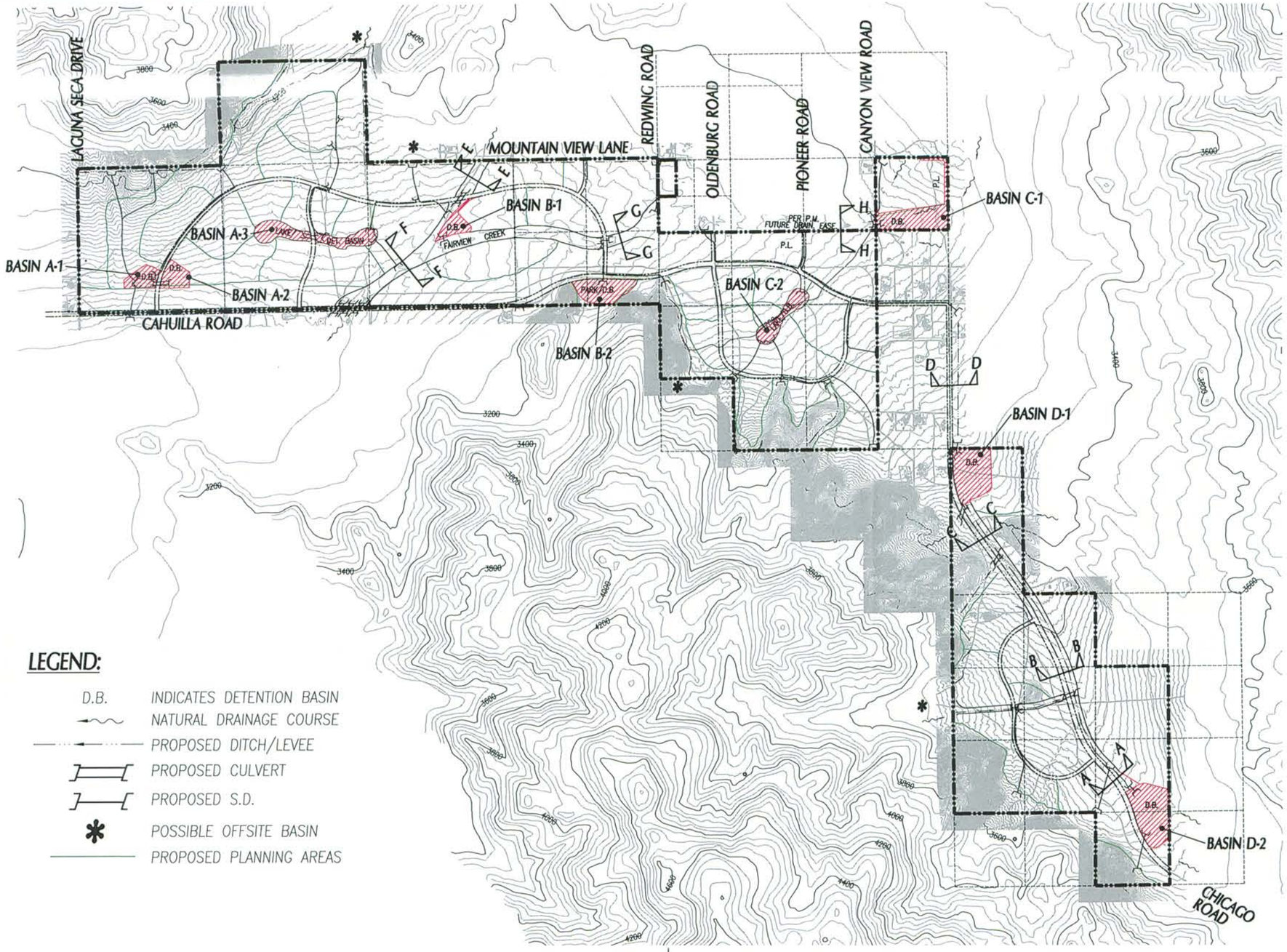
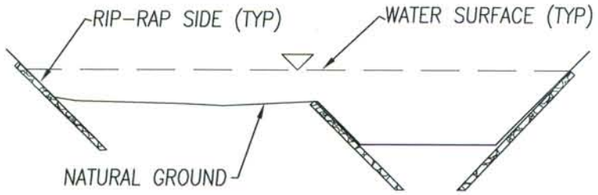
STRATA EQUITY GROUP, INC.

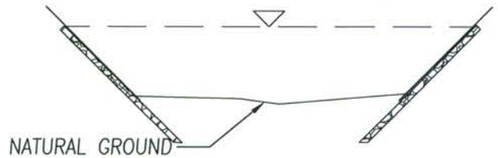
SHEET 3 OF 3

PLOT DATE: May 29, 2009 reynoldsford
Filename: M:\Dwg\22605 Granite Valley\Hacienda\entitlement\Exhibits\Basins.dwg





SECTIONS A-A TO G-G
OPTION 1
NTS



SECTIONS A-A TO G-G
OPTION 2
NTS

LEGEND:

- D.B. — INDICATES DETENTION BASIN
- NATURAL DRAINAGE COURSE
- PROPOSED DITCH/LEVEE
- PROPOSED CULVERT
- PROPOSED S.D.
- * — POSSIBLE OFFSITE BASIN
- PROPOSED PLANNING AREAS

GRAPHIC SCALE
0 2000 4000
(IN FEET)
1 inch = 2000 ft.

HACIENDA AT FAIRVIEW VALLEY
PRELIMINARY DRAINAGE CONCEPT

APRIL 8, 2009

Prepared By:
ALLARD ENGINEERING
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8253 Sierra Avenue
Fontana, California 92335
(909) 356-1815 Fax (909) 356-1795

STRATA EQUITY GROUP, INC.

672.2 AC

120

110

467.3 AC

1184.8 AC

109

108

544 AC

105

104

107

1370 AC

106

635 AC

103

WESTERN WATERSHED

LAGUNA SECA DRIVE

BASIN A-3

BASIN B-1

POINER ROAD

STREAM #5

101.5 AC

BASIN C-2

STREAM #3

BASIN C-1

STREAM #1

99.3 AC

STREAM #1

PIONEER ROAD

STREAM #1

CAHUILLA ROAD

BASIN A-1

BASIN A-2

STREAM #2

121

111

FAIRVIEW CREEK

360.1 AC

STREAM #2

108.5

BASIN B-2

275.5 AC

STREAM #2

104.5

CHICAGO ROAD

STREAM #1

102

BASIN D-1

FAIRVIEW CREEK WATERSHED

100

472.1 AC

1150 AC

STREAM #1

101

1878.8 AC

BASIN D-2

994.6 AC

LEGEND

123	FLOOD ROUTING NODE NUMBER
	NATURAL DRAINAGE COURSE
	SUBAREA BOUNDARY
544 AC	SUBAREA ACREAGE
	DETENTION BASIN

SCALE 1" = 2000'

1000' 0 1000' 2000' 3000'

PREPARED FOR:

STRATA EQUITY GROUP, INC.

HACIENDA AT FAIRVIEW VALLEY

DEVELOPED CONDITION FLOOD ROUTING EXHIBIT

Prepared By:
ALLARD ENGINEERING
Civil Engineering - Land Surveying - Land Planning
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Fontana, California 92335
(909) 356-1815 Fax (909) 356-1795

PLOT DATE: June 04, 2009 drafter45

Filename: M:\Proj\27205 Conte Valley (Hacienda)\entitlement\HYD\Post Routing Exhibit.dwg

ALLARD ENGINEERING
civil engineering land surveying land planning

Hacienda at Fairview Valley
Specific Plan
Conceptual Drainage Report

Appendix C

Calibration of Complex Watershed

September 1, 2008
Revised December 8, 2008
Revised April 9, 2009
Revised June 2, 2009

Prepared For:
Strata Equity Group
4370 La Jolla Village Drive, Suite 960
San Diego, CA 92122
Phone (858) 546-0900
Fax (858) 546-8725

Job Number 226.05.01

Prepared under the supervision of:

_____

Raymond J. Allard, P.E. RCE 36052 Exp. 06-30-10

8253 Sierra Avenue Fontana, CA 92335 (909) 356-1815 * (909) 356-1795

Hacienda at Fairview Valley Specific Plan
Table of Contents

Conceptual Drainage Report

Discussion
- Introduction
- Purpose
- Project Description
- Methodology
- Criteria
- Results
- Recommendations
- Summary
- Water Quality

Maps
- Preliminary Drainage Concept

Appendix A – Preliminary Predeveloped Condition Hydrology

Discussion
- Introduction
- Methodology
- Criteria
- Results

Hydrology Reference Material

Rational Method Hydrology
- Watershed 1
- Watershed 2
- Watershed 3
- Watershed 4
- Watershed 5
- Watershed 6
- Watershed 7
- Watershed 8
- Westerly Watershed

Unit Hydrograph
- Soil Group Summary
- Lag Time Calculations
- Loss Rate and Low Loss Fraction Calcs

Unit Hydrograph
Fairview Creek Watershed
Westerly Watershed

Hydrology Maps
Predeveloped Condition Rational Method Exhibit
Existing Condition Unit Hydrograph Exhibit

Appendix B – Preliminary Developed Condition Hydrology

Discussion
Introduction
Methodology
Criteria
Results

Hydrology Reference Material

Rational Method Hydrology
Watershed A
Watershed B
Watershed C
Watershed D
Watershed E
Watershed F
Watershed G

WSPG – Detention Basin Outlets
Detention Basins A-1 and A-2
Detention Basin A-3
Detention Basin B-1
Detention Basin B-2
Detention Basin C-1
Detention Basin C-2
Detention Basin D-1
Detention Basin D-2

Unit Hydrograph Calculations
Soil Group and Land Use Inventory Summary
Land Use Pervious Percentages and SCS Numbers
Loss Rates and Low Loss Fraction Calculations
Lag Time Calculations

Hydrograph Routing – Summary Version
Fairview Creek Watershed (only)

Hydrograph Routing – Detailed Version
Fairview Creek Watershed
Westerly Watershed

Channel Normal Depth Calculations

Hydrology Maps
Preliminary Drainage Concept Exhibit
Developed Condition Rational Method Exhibit
Routing Exhibit
Preliminary Basin Plans

Appendix C – Calibration of Complex Watershed Model

Discussion
Introduction
Methodology
Results

Rational Method Hydrology – Single Area Model

Unit Hydrograph Calculations
Soil Group and Land Use Inventory Summary
Land Use Pervious Percentages and SCS Numbers
Loss Rates and Low Loss Fraction Calculations
Lag Time Calculations

Hydrograph Routing – Complex Model

Unit Hydrograph – Single Area Model

Hydrology Maps
Routing Exhibit (used for single area rational method hydrology)

Discussion

Discussion

Introduction

Hacienda at Fairview Valley Specific Plan is a proposed 1,560 acre residential development that will include some commercial land use along with parks, open space and recreational facilities. Land use density will range from 1 dwelling unit per acre to 6.5 dwelling units per acre.

Detention basins will be constructed onsite in order to ensure that developed peak flow rates do not exceed the predeveloped peak flow rate. Offsite runoff will be conveyed through the site via drainage channels and storm drain pipes. Onsite runoff will be collected in streets and will be conveyed to detention basin to mitigate for higher peak flow rates.

A preliminary hydrology report dated June 3, 2009 determined that the detention basins as proposed, will mitigate the increased peak runoff in a 100 year event storm caused by the project. The developed condition analysis of the Fairview Creek portion of the project in the report included multiple sub-area hydrographs. The predeveloped condition for the Fairview Creek portion of the project was analyzed with only one subarea.

There is some concern that the comparison of a multiple area developed condition to a single area predeveloped condition may be unreliable. The Orange County Hydrology manual suggests a method for comparing complex watershed models to a single area model.

Methodology

Section K.5 of the Orange County Hydrology Manual reads:

> When a complex watershed model (e.g., a "link-node" schematic involving subareas linked by channel routing) is to be used, a single area runoff hydrograph model is also to be developed for comparison purposes. Should detention basins be planned, the complex model without the basins (i.e., "free-draining") is to be compared to a single subarea model.
>
> Should the peak flow rate from the free-draining complex model be greater than the single area runoff hydrograph model, then the complex model peak flow rate is to be used as the design flow rate. The use of a higher flow rate for design purposes aids in accommodating for the increased uncertainty in the complex model.
>
> Should the peak flow rate from the free-draining complex model be less than the single area runoff hydrograph model, then the design storm for the complex model is to be modified by uniformly increasing the rainfall used in the design storm until the peak flow rate values match between the two models.

The complex developed condition Fairview Creek watershed analysis found in the project hydrology report dated June 3, 2009 was modified to exclude detention facilities so as to be "free-draining". The modified analysis is included herein. A single subarea model of the Fairview Valley portion of the project was prepared. In order to establish the parameters for input into the computer program, calculations derived from parameters in the multiple-subarea model was prepared. The parameter calculations and the results for the single subarea analysis are included herein.

Results

The peak flow rate for the single-subarea watershed model was less that the multiple-subarea model flow rate. Therefore, the complex watershed model in the Drainage Report does not need any additional adjustment and the flow rate is an adequate design flow.

100 Year Event Peak Flow Rates	
Single-subarea Model	Multiple-subarea Model
11,781 cfs	15,336 cfs

Rational Method Hydrology

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**************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
       (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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                        Analysis prepared by:

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 ************************** DESCRIPTION OF STUDY **************************
* Hacienda at Fairview Valley                                             *
* Fairview Creek Tributary to Cahuilla Road-Developed Condition           *
* 100 YEAR STORM EVENT Calibration Rational Method                        *
 *************************************************************************

  FILE NAME: CALIB.DAT
  TIME/DATE OF STUDY: 17:44 06/01/2009
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.2200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-   CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)      (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
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 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =  16.29   RAINFALL INTENSITY(INCH/HR) =  3.04
 EFFECTIVE AREA(ACRES) =   802.82
 TOTAL AREA(ACRES) =   994.60        PEAK FLOW RATE(CFS) =   1984.48
 AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3452.50  DOWNSTREAM(FEET) =   3325.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  6000.00   CHANNEL SLOPE =  0.0213
 CHANNEL BASE(FEET) =   50.00   "Z" FACTOR =   2.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1984.48
 FLOW VELOCITY(FEET/SEC.) =  13.08   FLOW DEPTH(FEET) =   2.73
 TRAVEL TIME(MIN.) =   7.64   Tc(MIN.) =  23.93
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =  6000.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  23.93
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.322
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      322.80      0.12      1.000    94
 RESIDENTIAL
 "1 DWELLING/ACRE"           B      103.70      0.45      0.800    76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B      137.70      0.45      0.600    76
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        B       64.40      0.45      0.500    76
 NATURAL POOR COVER
 "GRASS"                     D     1250.20      0.00      1.000    98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.07
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.943
 SUBAREA AREA(ACRES) = 1878.80      SUBAREA RUNOFF(CFS) = 3810.22
 EFFECTIVE AREA(ACRES) =   2681.62   AREA-AVERAGED Fm(INCH/HR) =  0.14
 AREA-AVERAGED Fp(INCH/HR) =  0.14  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   2873.40       PEAK FLOW RATE(CFS) =    5270.86

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
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 ELEVATION DATA: UPSTREAM(FEET) =   3292.00  DOWNSTREAM(FEET) =   3225.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2780.00   CHANNEL SLOPE =  0.0241
 CHANNEL BASE(FEET) =   36.00   "Z" FACTOR =   0.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   5270.86
 FLOW VELOCITY(FEET/SEC.) =  34.85   FLOW DEPTH(FEET) =   4.20
 TRAVEL TIME(MIN.) =   1.33   Tc(MIN.) =  25.26
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =  8780.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  25.26
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.235
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      235.00      0.12      1.000    94
 NATURAL POOR COVER
 "GRASS"                     D      915.00      0.00      1.000    98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.02
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) = 1150.00      SUBAREA RUNOFF(CFS) = 2288.18
 EFFECTIVE AREA(ACRES) =   3831.62   AREA-AVERAGED Fm(INCH/HR) =  0.10
 AREA-AVERAGED Fp(INCH/HR) =  0.11  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   4023.40       PEAK FLOW RATE(CFS) =    7350.97

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3225.00  DOWNSTREAM(FEET) =   3180.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2600.00   CHANNEL SLOPE =  0.0173
 CHANNEL BASE(FEET) =   36.00   "Z" FACTOR =   0.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   7350.97
 FLOW VELOCITY(FEET/SEC.) =  35.01   FLOW DEPTH(FEET) =   5.83
 TRAVEL TIME(MIN.) =   1.24   Tc(MIN.) =  26.50
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 = 11380.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.50 TO NODE    104.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.162
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        6.70      0.27      1.000    86
```

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  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        23.00      0.45      0.500     76
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"       B        40.00      0.45      0.400     76
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        B        43.40      0.45      0.200     76
  NATURAL POOR COVER
  "GRASS"                     D       359.00      0.00      1.000     98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.05
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.851
  SUBAREA AREA(ACRES) =  472.10      SUBAREA RUNOFF(CFS) =  902.14
  EFFECTIVE AREA(ACRES) =   4303.72   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   4495.50       PEAK FLOW RATE(CFS) =    7999.31

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3180.00  DOWNSTREAM(FEET) =   3140.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3900.00   CHANNEL SLOPE =  0.0103
  CHANNEL BASE(FEET) =   36.00   "Z" FACTOR =   0.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   7999.31
  FLOW VELOCITY(FEET/SEC.) =  30.20   FLOW DEPTH(FEET) =   7.36
  TRAVEL TIME(MIN.) =   2.15   Tc(MIN.) =  28.65
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 = 15280.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    105.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  28.65
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.047
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (50.0%)    B     1058.00      0.12      1.000     94
  RESIDENTIAL
  "1 DWELLING/ACRE"           B       76.00      0.45      0.800     76
  RESIDENTIAL
  "2 DWELLINGS/ACRE"          B       29.00      0.45      0.700     76
  NATURAL POOR COVER
  "GRASS"                     D     1386.00      0.00      1.000     98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.06
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.991
  SUBAREA AREA(ACRES) = 2549.00      SUBAREA RUNOFF(CFS) = 4548.16
  EFFECTIVE AREA(ACRES) =   6852.72   AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   7044.50       PEAK FLOW RATE(CFS) =   12102.05

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    108.00 IS CODE =  51
```

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----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3140.00  DOWNSTREAM(FEET) =   3125.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1100.00   CHANNEL SLOPE =  0.0136
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =  12102.05
  FLOW VELOCITY(FEET/SEC.) =  18.74   FLOW DEPTH(FEET) =   6.89
  TRAVEL TIME(MIN.) =   0.98   Tc(MIN.) =  29.63
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 = 16380.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    108.50 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  29.63
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.999
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "1 DWELLING/ACRE"          B       28.80      0.45      0.800    76
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      B       22.00      0.45      0.400    76
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       15.10      0.45      0.200    76
  PUBLIC PARK                B        4.00      0.45      0.850    76
  NATURAL POOR COVER
  "GRASS"                    D      205.60      0.00      1.000    98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.07
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.885
  SUBAREA AREA(ACRES) =  275.50      SUBAREA RUNOFF(CFS) =  480.14
  EFFECTIVE AREA(ACRES) =   7128.22   AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   7320.00       PEAK FLOW RATE(CFS) =   12288.98

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   3125.00  DOWNSTREAM(FEET) =   3082.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3800.00   CHANNEL SLOPE =  0.0113
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =  12288.98
  FLOW VELOCITY(FEET/SEC.) =  17.70   FLOW DEPTH(FEET) =   7.33
  TRAVEL TIME(MIN.) =   3.58   Tc(MIN.) =  33.21
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 = 20180.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  33.21
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.846
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    C        2.40      0.03      1.000    97
 RESIDENTIAL
 "1 DWELLING/ACRE"           B       16.00      0.45      0.800    76
 RESIDENTIAL
 "2 DWELLINGS/ACRE"          B       83.10      0.45      0.700    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.44
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.723
 SUBAREA AREA(ACRES) =  101.50      SUBAREA RUNOFF(CFS) =  139.67
 EFFECTIVE AREA(ACRES) =   7229.72   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   7421.50       PEAK FLOW RATE(CFS) =   12288.98
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  33.21
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.846
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      979.00      0.12      1.000    94
 NATURAL POOR COVER
 "GRASS"                     D      205.80      0.00      1.000    98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) = 1184.80      SUBAREA RUNOFF(CFS) = 1862.51
 EFFECTIVE AREA(ACRES) =   8414.52   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   8606.30       PEAK FLOW RATE(CFS) =   13307.28

********************************************************************************
 FLOW PROCESS FROM NODE    110.00 TO NODE    109.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  33.21
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.846
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B      100.00      0.12      1.000    94
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       81.00      0.45      0.600    76
 RESIDENTIAL
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"5-7 DWELLINGS/ACRE"       B       49.00      0.45      0.500     76
PUBLIC PARK                B       11.00      0.45      0.850     76
COMMERCIAL                 A       12.00      0.80      0.100     52
NATURAL POOR COVER
"GRASS"                    D      419.00      0.00      1.000     98
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.08
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.897
SUBAREA AREA(ACRES) =  672.00      SUBAREA RUNOFF(CFS) = 1071.16
EFFECTIVE AREA(ACRES) =   9086.52   AREA-AVERAGED Fm(INCH/HR) =  0.09
AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.96
TOTAL AREA(ACRES) =   9278.30       PEAK FLOW RATE(CFS) =   14378.44

****************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    111.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   3082.00 DOWNSTREAM(FEET) =   3070.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1050.00   CHANNEL SLOPE =  0.0114
 CHANNEL BASE(FEET) =  120.00   "Z" FACTOR =   2.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =  14378.44
 FLOW VELOCITY(FEET/SEC.) =  16.93   FLOW DEPTH(FEET) =   6.40
 TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  34.24
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    111.00 = 21230.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  34.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.807
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "1 DWELLING/ACRE"           B       66.50      0.45      0.800     76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B       28.00      0.45      0.600     76
 NATURAL POOR COVER
 "GRASS"                     D        4.80      0.00      1.000     98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.42
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.753
 SUBAREA AREA(ACRES) =   99.30      SUBAREA RUNOFF(CFS) =  132.98
 EFFECTIVE AREA(ACRES) =   9185.82   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   9377.60       PEAK FLOW RATE(CFS) =   14378.44
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  34.24
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.807
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL DESERT COVER
 "DESERT BRUSH"   (50.0%)    B       96.30      0.12      1.000    94
 NATURAL POOR COVER
 "GRASS"                     D      263.80      0.00      1.000    98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.03
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =  360.10      SUBAREA RUNOFF(CFS) =  575.11
 EFFECTIVE AREA(ACRES) =   9545.92   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   9737.70       PEAK FLOW RATE(CFS) =   14766.07
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =   9737.70  TC(MIN.) =     34.24
 EFFECTIVE AREA(ACRES) =   9545.92  AREA-AVERAGED Fm(INCH/HR)=  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.09  AREA-AVERAGED Ap = 0.963
 PEAK FLOW RATE(CFS)   =  14766.07
================================================================================
================================================================================
 END OF RATIONAL METHOD ANALYSIS
```

U.H. Calculations

Soil Group and Land Use Inventory

Developed Condition

Node #	100-101	102-102	103-103	104-104	105-105	106-107	107-107	108-108	109-109 (1184ac)	109-109 (101.5ac)	110-110	111-111 (99.3ac)	111-111 (360.1ac)	Total:
Soil Group "B"														
Desert Brush		322.8	235.0		468.0	190.0	400.0		979.0	2.4	100.0		96.3	2793.5
Vacant Grass-Fair				6.7										6.7
1 Acre Lots		103.7			76.0			28.8		16.0		66.5		291.0
2.5 Acre Lots							29.0			83.1				112.1
3-4 Du/Ac.		137.7									81.0	28.0		246.7
5-7 Du/Ac.		64.4		23.0							49.0			136.4
8-10 Du/Ac.				40.0				22.0						62.0
More than 10 Du/Ac.				43.4				15.1						58.5
Park								4.0			11.0			15.0
Commercial (lake)											12.0			12.0
Soil Group "D"														
Vacant Grass-Poor	994.6	1250.2	915.0	359.0		445.0	941.0	205.6	205.8		419.0	4.8	263.8	6003.8
Total:	994.6	1878.8	1150.0	472.1	544.0	635.0	1370.0	275.5	1184.8	101.5	672.0	99.3	360.1	**9737.7**

Soil Group and Land Use Inventory

Developed Condition - Westerly Watershed

Node #	120-121
Soil Group "B"	
Desert Brush	17.7
1 Acre Lots	35.0
2.5 Acre Lots	33.0
3-4 Du/Ac.	151.3
5-7 Du/Ac.	57.7
Commercial (lake)	18.8
Soil Group "D"	
Vacant Grass-Poor	153.8
Total:	467.3

Note: Area quantities are in Acres

Land Use Pervious Percentages and SCS Numbers

Soil Group "B"

Cover Type	Percent Pervious	AMC II #
Desert Brush	100	80
Grass-Fair	100	69
1 Acre Lot	80	56
2.5 Acre Lots	90	56
3-4 Du/ac.	60	56
5-7 Du/ac.	50	56
8-10 Du/ac.	40	56
More Than 10 du/ac.	20	56
Park (Grass-Fair)	85	69
Park (Residential)	85	56
Commercial (Lake)	0	56

Soil Group "D"

Cover Type	Percent Pervious	AMC II #
Grass-Poor	100	89

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

Allard Enginering
8253 Sierra Avenue
Fontana Ca. 92335

Problem Descriptions:
Calibration Model for all Watersheds

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 3.60 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	2793.50	100.00	80.(AMC II)	0.160	0.815
2	6.70	100.00	69.(AMC II)	0.272	0.608
3	291.00	80.00	56.(AMC II)	0.423	0.507
4	112.10	90.00	56.(AMC II)	0.423	0.453
5	246.70	60.00	56.(AMC II)	0.423	0.614
6	136.40	50.00	56.(AMC II)	0.423	0.667
7	62.00	40.00	56.(AMC II)	0.423	0.721
8	58.50	20.00	56.(AMC II)	0.423	0.828
9	4.00	85.00	69.(AMC II)	0.272	0.657
10	11.00	85.00	56.(AMC II)	0.423	0.480
11	12.00	0.00	56.(AMC II)	0.423	0.935
12	6003.80	100.00	89.(AMC II)	0.079	0.935

TOTAL AREA (Acres) = 9737.70

AREA-AVERAGED LOSS RATE, $\overline{Fm}$ (in./hr.) = 0.121

AREA-AVERAGED LOW LOSS FRACTION, $\overline{Y}$ = 0.133

Lag Time Calculation

Routing Node	*Rational Method Node*	*Tc (Minutes)*	*Lag Time (Hours)*
100-101	19 D	16.29	0.217
102	201 D	19.22	0.256
103	394 P	22.05	0.294
104.5	720 D	15.98	0.213
105	32 P	26.17	0.349
106-107	395 P (area #5)	21.13	0.282
107	395 P (area #3)	22.96	0.306
108.5	753 D	13.39	0.179
109	34 P (area #1)	33.45	0.446
109	2 D	24.09	0.321
110	1212 D	23.89	0.319
111	1224 D	18.20	0.243
111	1232 D	21.57	0.288
121	884 D	12.47	0.166

**note Lag time = 0.8*Tc*
For Rational Method Nodes:
P = Node from predeveloped exhibit
D = Node from developed exhibit

Lag Time Calculation

Single Area Model

Routing Node	*Rational Method Node*	*Tc (Minutes)*	*Lag Time (Hours)*
100-111	100-111	34.24	0.46

**note Lag time = 0.8*Tc*

Routing
Complex Model

```
**************************************************************************

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                        Analysis prepared by:

                          Allard Enginering
                          8253 Sierra Avenue
                          Fontana Ca. 92335

 ************************* DESCRIPTION OF STUDY *************************
* Hacienda at Fairview Valley                                            *
* Fairview Creek Tributary to Cahuilla Road - Developed Condition        *
* 100 YEAR STORM EVENT, MULTIPLE CALIBRATION by: RRA                     *
 ************************************************************************

  FILE NAME: CALIBFIN.DAT
  TIME/DATE OF STUDY: 10:06 06/01/2009

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     994.600 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.217 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.079
         LOW LOSS FRACTION = 0.065
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.956
          30-MINUTE FACTOR = 0.956
           1-HOUR FACTOR = 0.956
           3-HOUR FACTOR = 0.993
           6-HOUR FACTOR = 0.997
```

24-HOUR FACTOR = 0.998

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 38.402

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 25.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.577	309.923
2	16.915	1724.651
3	46.748	3588.475
4	63.979	2072.667
5	73.429	1136.589
6	79.741	759.310
7	84.203	536.723
8	87.720	423.007
9	90.263	305.903
10	92.305	245.640
11	93.976	201.018
12	95.303	159.577
13	96.381	129.626
14	97.232	102.353
15	97.852	74.659
16	98.258	48.770
17	98.704	53.627
18	99.164	55.425
19	99.610	53.627
20	100.000	46.872

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0003	0.0046
2	0.0049	0.0003	0.0046
3	0.0049	0.0003	0.0046
4	0.0049	0.0003	0.0046
5	0.0049	0.0003	0.0046
6	0.0049	0.0003	0.0046
7	0.0050	0.0003	0.0046
8	0.0050	0.0003	0.0047
9	0.0050	0.0003	0.0047
10	0.0050	0.0003	0.0047
11	0.0050	0.0003	0.0047
12	0.0050	0.0003	0.0047
13	0.0051	0.0003	0.0047
14	0.0051	0.0003	0.0047
15	0.0051	0.0003	0.0048
16	0.0051	0.0003	0.0048
17	0.0051	0.0003	0.0048
18	0.0051	0.0003	0.0048
19	0.0052	0.0003	0.0048
20	0.0052	0.0003	0.0048
21	0.0052	0.0003	0.0049
22	0.0052	0.0003	0.0049
23	0.0052	0.0003	0.0049
24	0.0053	0.0003	0.0049
25	0.0053	0.0003	0.0049
26	0.0053	0.0003	0.0050
27	0.0053	0.0003	0.0050
28	0.0053	0.0003	0.0050
29	0.0054	0.0003	0.0050
30	0.0054	0.0003	0.0050
31	0.0054	0.0004	0.0050
32	0.0054	0.0004	0.0051
33	0.0054	0.0004	0.0051
34	0.0055	0.0004	0.0051
35	0.0055	0.0004	0.0051
36	0.0055	0.0004	0.0051
37	0.0055	0.0004	0.0052
38	0.0055	0.0004	0.0052
39	0.0056	0.0004	0.0052
40	0.0056	0.0004	0.0052
41	0.0056	0.0004	0.0053
42	0.0056	0.0004	0.0053
43	0.0057	0.0004	0.0053
44	0.0057	0.0004	0.0053
45	0.0057	0.0004	0.0053
46	0.0057	0.0004	0.0054
47	0.0058	0.0004	0.0054
48	0.0058	0.0004	0.0054
49	0.0058	0.0004	0.0054
50	0.0058	0.0004	0.0054
51	0.0059	0.0004	0.0055

52	0.0059	0.0004	0.0055
53	0.0059	0.0004	0.0055
54	0.0059	0.0004	0.0055
55	0.0060	0.0004	0.0056
56	0.0060	0.0004	0.0056
57	0.0060	0.0004	0.0056
58	0.0060	0.0004	0.0056
59	0.0061	0.0004	0.0057
60	0.0061	0.0004	0.0057
61	0.0061	0.0004	0.0057
62	0.0061	0.0004	0.0057
63	0.0062	0.0004	0.0058
64	0.0062	0.0004	0.0058
65	0.0062	0.0004	0.0058
66	0.0063	0.0004	0.0059
67	0.0063	0.0004	0.0059
68	0.0063	0.0004	0.0059
69	0.0064	0.0004	0.0059
70	0.0064	0.0004	0.0060
71	0.0064	0.0004	0.0060
72	0.0064	0.0004	0.0060
73	0.0065	0.0004	0.0061
74	0.0065	0.0004	0.0061
75	0.0066	0.0004	0.0061
76	0.0066	0.0004	0.0062
77	0.0066	0.0004	0.0062
78	0.0066	0.0004	0.0062
79	0.0067	0.0004	0.0063
80	0.0067	0.0004	0.0063
81	0.0068	0.0004	0.0063
82	0.0068	0.0004	0.0064
83	0.0068	0.0004	0.0064
84	0.0069	0.0004	0.0064
85	0.0069	0.0004	0.0065
86	0.0069	0.0005	0.0065
87	0.0070	0.0005	0.0065
88	0.0070	0.0005	0.0066
89	0.0071	0.0005	0.0066
90	0.0071	0.0005	0.0066
91	0.0072	0.0005	0.0067
92	0.0072	0.0005	0.0067
93	0.0073	0.0005	0.0068
94	0.0073	0.0005	0.0068
95	0.0073	0.0005	0.0069
96	0.0074	0.0005	0.0069
97	0.0074	0.0005	0.0070
98	0.0075	0.0005	0.0070
99	0.0075	0.0005	0.0070
100	0.0076	0.0005	0.0071
101	0.0076	0.0005	0.0071
102	0.0077	0.0005	0.0072
103	0.0077	0.0005	0.0072
104	0.0078	0.0005	0.0073
105	0.0078	0.0005	0.0073
106	0.0079	0.0005	0.0074
107	0.0080	0.0005	0.0074
108	0.0080	0.0005	0.0075

109	0.0081	0.0005	0.0075
110	0.0081	0.0005	0.0076
111	0.0082	0.0005	0.0077
112	0.0082	0.0005	0.0077
113	0.0083	0.0005	0.0078
114	0.0084	0.0005	0.0078
115	0.0084	0.0005	0.0079
116	0.0085	0.0006	0.0079
117	0.0086	0.0006	0.0080
118	0.0086	0.0006	0.0081
119	0.0087	0.0006	0.0082
120	0.0088	0.0006	0.0082
121	0.0089	0.0006	0.0083
122	0.0089	0.0006	0.0083
123	0.0090	0.0006	0.0084
124	0.0091	0.0006	0.0085
125	0.0092	0.0006	0.0086
126	0.0092	0.0006	0.0086
127	0.0094	0.0006	0.0087
128	0.0094	0.0006	0.0088
129	0.0095	0.0006	0.0089
130	0.0096	0.0006	0.0090
131	0.0097	0.0006	0.0091
132	0.0098	0.0006	0.0092
133	0.0099	0.0006	0.0093
134	0.0100	0.0006	0.0093
135	0.0101	0.0007	0.0095
136	0.0102	0.0007	0.0095
137	0.0104	0.0007	0.0097
138	0.0104	0.0007	0.0097
139	0.0106	0.0007	0.0099
140	0.0107	0.0007	0.0100
141	0.0108	0.0007	0.0101
142	0.0109	0.0007	0.0102
143	0.0111	0.0007	0.0104
144	0.0112	0.0007	0.0105
145	0.0090	0.0006	0.0085
146	0.0091	0.0006	0.0085
147	0.0093	0.0006	0.0087
148	0.0094	0.0006	0.0088
149	0.0096	0.0006	0.0090
150	0.0097	0.0006	0.0091
151	0.0099	0.0006	0.0093
152	0.0100	0.0007	0.0094
153	0.0103	0.0007	0.0096
154	0.0104	0.0007	0.0097
155	0.0106	0.0007	0.0100
156	0.0108	0.0007	0.0101
157	0.0111	0.0007	0.0103
158	0.0112	0.0007	0.0105
159	0.0115	0.0007	0.0108
160	0.0117	0.0008	0.0109
161	0.0120	0.0008	0.0112
162	0.0122	0.0008	0.0114
163	0.0125	0.0008	0.0117
164	0.0127	0.0008	0.0119
165	0.0132	0.0009	0.0123

166	0.0134	0.0009	0.0125
167	0.0139	0.0009	0.0130
168	0.0141	0.0009	0.0132
169	0.0160	0.0010	0.0149
170	0.0163	0.0011	0.0152
171	0.0169	0.0011	0.0158
172	0.0173	0.0011	0.0162
173	0.0181	0.0012	0.0169
174	0.0185	0.0012	0.0173
175	0.0194	0.0013	0.0181
176	0.0199	0.0013	0.0186
177	0.0210	0.0014	0.0196
178	0.0216	0.0014	0.0202
179	0.0230	0.0015	0.0215
180	0.0238	0.0015	0.0222
181	0.0255	0.0017	0.0239
182	0.0265	0.0017	0.0248
183	0.0289	0.0019	0.0270
184	0.0303	0.0020	0.0283
185	0.0245	0.0016	0.0229
186	0.0263	0.0017	0.0246
187	0.0308	0.0020	0.0288
188	0.0339	0.0022	0.0317
189	0.0526	0.0034	0.0492
190	0.0606	0.0039	0.0567
191	0.0919	0.0060	0.0859
192	0.1334	0.0066	0.1268
193	0.5734	0.0066	0.5668
194	0.0723	0.0047	0.0676
195	0.0377	0.0025	0.0353
196	0.0283	0.0018	0.0265
197	0.0319	0.0021	0.0298
198	0.0277	0.0018	0.0259
199	0.0246	0.0016	0.0230
200	0.0223	0.0014	0.0208
201	0.0204	0.0013	0.0191
202	0.0189	0.0012	0.0177
203	0.0177	0.0011	0.0165
204	0.0166	0.0011	0.0155
205	0.0144	0.0009	0.0135
206	0.0136	0.0009	0.0127
207	0.0130	0.0008	0.0121
208	0.0124	0.0008	0.0116
209	0.0118	0.0008	0.0111
210	0.0113	0.0007	0.0106
211	0.0109	0.0007	0.0102
212	0.0105	0.0007	0.0098
213	0.0102	0.0007	0.0095
214	0.0098	0.0006	0.0092
215	0.0095	0.0006	0.0089
216	0.0092	0.0006	0.0086
217	0.0113	0.0007	0.0105
218	0.0110	0.0007	0.0103
219	0.0107	0.0007	0.0100
220	0.0105	0.0007	0.0098
221	0.0103	0.0007	0.0096
222	0.0101	0.0007	0.0094

223	0.0099	0.0006	0.0092
224	0.0097	0.0006	0.0090
225	0.0095	0.0006	0.0089
226	0.0093	0.0006	0.0087
227	0.0091	0.0006	0.0085
228	0.0090	0.0006	0.0084
229	0.0088	0.0006	0.0082
230	0.0087	0.0006	0.0081
231	0.0085	0.0006	0.0080
232	0.0084	0.0005	0.0079
233	0.0083	0.0005	0.0077
234	0.0082	0.0005	0.0076
235	0.0080	0.0005	0.0075
236	0.0079	0.0005	0.0074
237	0.0078	0.0005	0.0073
238	0.0077	0.0005	0.0072
239	0.0076	0.0005	0.0071
240	0.0075	0.0005	0.0070
241	0.0074	0.0005	0.0069
242	0.0073	0.0005	0.0068
243	0.0072	0.0005	0.0068
244	0.0071	0.0005	0.0067
245	0.0071	0.0005	0.0066
246	0.0070	0.0005	0.0065
247	0.0069	0.0004	0.0064
248	0.0068	0.0004	0.0064
249	0.0067	0.0004	0.0063
250	0.0067	0.0004	0.0062
251	0.0066	0.0004	0.0062
252	0.0065	0.0004	0.0061
253	0.0065	0.0004	0.0060
254	0.0064	0.0004	0.0060
255	0.0063	0.0004	0.0059
256	0.0063	0.0004	0.0059
257	0.0062	0.0004	0.0058
258	0.0062	0.0004	0.0058
259	0.0061	0.0004	0.0057
260	0.0060	0.0004	0.0057
261	0.0060	0.0004	0.0056
262	0.0059	0.0004	0.0056
263	0.0059	0.0004	0.0055
264	0.0058	0.0004	0.0055
265	0.0058	0.0004	0.0054
266	0.0057	0.0004	0.0054
267	0.0057	0.0004	0.0053
268	0.0056	0.0004	0.0053
269	0.0056	0.0004	0.0052
270	0.0056	0.0004	0.0052
271	0.0055	0.0004	0.0052
272	0.0055	0.0004	0.0051
273	0.0054	0.0004	0.0051
274	0.0054	0.0004	0.0050
275	0.0053	0.0003	0.0050
276	0.0053	0.0003	0.0050
277	0.0053	0.0003	0.0049
278	0.0052	0.0003	0.0049
279	0.0052	0.0003	0.0049

280	0.0052	0.0003	0.0048
281	0.0051	0.0003	0.0048
282	0.0051	0.0003	0.0048
283	0.0051	0.0003	0.0047
284	0.0050	0.0003	0.0047
285	0.0050	0.0003	0.0047
286	0.0050	0.0003	0.0046
287	0.0049	0.0003	0.0046
288	0.0049	0.0003	0.0046

TOTAL STORM RAINFALL(INCHES) = 3.59
TOTAL SOIL-LOSS(INCHES) = 0.20
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.39

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.6396
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 280.9990

---

2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	675.0	1350.0	2025.0	2700.0
0.083	0.0097	1.41	Q	.	.	.	.
0.167	0.0735	9.26	Q	.	.	.	.
0.250	0.2499	25.62	Q	.	.	.	.
0.333	0.4918	35.12	Q	.	.	.	.
0.417	0.7701	40.41	Q	.	.	.	.
0.500	1.0730	43.99	Q	.	.	.	.
0.583	1.3938	46.57	Q	.	.	.	.
0.667	1.7288	48.65	Q	.	.	.	.
0.750	2.0746	50.20	Q	.	.	.	.
0.833	2.4291	51.48	Q	.	.	.	.
0.917	2.7911	52.57	Q	.	.	.	.
1.000	3.1593	53.46	Q	.	.	.	.
1.083	3.5328	54.23	Q	.	.	.	.
1.167	3.9108	54.88	Q	.	.	.	.
1.250	4.2924	55.40	Q	.	.	.	.
1.333	4.6767	55.81	Q	.	.	.	.
1.417	5.0641	56.25	Q	.	.	.	.
1.500	5.4545	56.69	Q	.	.	.	.
1.583	5.8480	57.13	Q	.	.	.	.
1.667	6.2442	57.54	Q	.	.	.	.
1.750	6.6419	57.74	Q	.	.	.	.
1.833	7.0409	57.94	QV	.	.	.	.
1.917	7.4414	58.15	QV	.	.	.	.
2.000	7.8432	58.35	QV	.	.	.	.
2.083	8.2466	58.56	QV	.	.	.	.
2.167	8.6513	58.76	QV	.	.	.	.
2.250	9.0575	58.98	QV	.	.	.	.
2.333	9.4651	59.19	QV	.	.	.	.
2.417	9.8743	59.41	QV	.	.	.	.
2.500	10.2849	59.62	QV	.	.	.	.
2.583	10.6970	59.85	QV	.	.	.	.
2.667	11.1107	60.06	QV	.	.	.	.
2.750	11.5259	60.29	QV	.	.	.	.
2.833	11.9427	60.51	QV	.	.	.	.
2.917	12.3610	60.75	QV	.	.	.	.
3.000	12.7809	60.97	QV	.	.	.	.
3.083	13.2025	61.21	QV	.	.	.	.
3.167	13.6256	61.44	QV	.	.	.	.
3.250	14.0504	61.68	Q V	.	.	.	.
3.333	14.4769	61.92	Q V	.	.	.	.
3.417	14.9050	62.16	Q V	.	.	.	.
3.500	15.3348	62.40	Q V	.	.	.	.
3.583	15.7663	62.66	Q V	.	.	.	.
3.667	16.1995	62.90	Q V	.	.	.	.
3.750	16.6345	63.16	Q V	.	.	.	.

3.833	17.0712	63.41	Q V	.	.	.	.
3.917	17.5097	63.67	Q V	.	.	.	.
4.000	17.9500	63.93	Q V	.	.	.	.
4.083	18.3922	64.20	Q V	.	.	.	.
4.167	18.8361	64.46	Q V	.	.	.	.
4.250	19.2820	64.74	Q V	.	.	.	.
4.333	19.7297	65.00	Q V	.	.	.	.
4.417	20.1793	65.29	Q V	.	.	.	.
4.500	20.6308	65.56	Q V	.	.	.	.
4.583	21.0843	65.85	Q V	.	.	.	.
4.667	21.5397	66.13	Q V	.	.	.	.
4.750	21.9971	66.42	Q V	.	.	.	.
4.833	22.4566	66.71	Q V	.	.	.	.
4.917	22.9181	67.01	Q V	.	.	.	.
5.000	23.3816	67.30	Q V	.	.	.	.
5.083	23.8472	67.61	.Q V	.	.	.	.
5.167	24.3149	67.91	.Q V	.	.	.	.
5.250	24.7848	68.23	.Q V	.	.	.	.
5.333	25.2568	68.53	.Q V	.	.	.	.
5.417	25.7310	68.86	.Q V	.	.	.	.
5.500	26.2074	69.17	.Q V	.	.	.	.
5.583	26.6861	69.50	.Q V	.	.	.	.
5.667	27.1670	69.83	.Q V	.	.	.	.
5.750	27.6503	70.17	.Q V	.	.	.	.
5.833	28.1358	70.50	.Q V	.	.	.	.
5.917	28.6237	70.85	.Q V	.	.	.	.
6.000	29.1140	71.19	.Q V	.	.	.	.
6.083	29.6067	71.55	.Q V	.	.	.	.
6.167	30.1018	71.89	.Q V	.	.	.	.
6.250	30.5995	72.26	.Q V	.	.	.	.
6.333	31.0996	72.62	.Q V	.	.	.	.
6.417	31.6023	73.00	.Q V	.	.	.	.
6.500	32.1076	73.36	.Q V	.	.	.	.
6.583	32.6155	73.75	.Q V	.	.	.	.
6.667	33.1261	74.13	.Q V	.	.	.	.
6.750	33.6394	74.53	.Q V	.	.	.	.
6.833	34.1553	74.92	.Q V	.	.	.	.
6.917	34.6741	75.33	.Q V	.	.	.	.
7.000	35.1956	75.73	.Q V	.	.	.	.
7.083	35.7201	76.15	.Q V	.	.	.	.
7.167	36.2473	76.56	.Q V	.	.	.	.
7.250	36.7776	76.99	.Q V	.	.	.	.
7.333	37.3108	77.42	.Q V	.	.	.	.
7.417	37.8470	77.86	.Q V	.	.	.	.
7.500	38.3863	78.30	.Q V	.	.	.	.
7.583	38.9287	78.76	.Q V	.	.	.	.
7.667	39.4743	79.21	.Q V	.	.	.	.
7.750	40.0231	79.69	.Q V	.	.	.	.
7.833	40.5751	80.15	.Q V	.	.	.	.
7.917	41.1305	80.64	.Q V	.	.	.	.
8.000	41.6891	81.12	.Q V	.	.	.	.
8.083	42.2513	81.63	.Q V	.	.	.	.
8.167	42.8169	82.12	.Q V	.	.	.	.
8.250	43.3860	82.64	.Q V	.	.	.	.
8.333	43.9587	83.15	.Q V	.	.	.	.
8.417	44.5351	83.70	.Q V	.	.	.	.
8.500	45.1152	84.22	.Q V	.	.	.	.

8.583	45.6991	84.78	.Q	V	.	.	.	.
8.667	46.2868	85.33	.Q	V	.	.	.	.
8.750	46.8784	85.91	.Q	V	.	.	.	.
8.833	47.4740	86.48	.Q	V	.	.	.	.
8.917	48.0737	87.08	.Q	V	.	.	.	.
9.000	48.6775	87.66	.Q	V	.	.	.	.
9.083	49.2855	88.29	.Q	V	.	.	.	.
9.167	49.8977	88.89	.Q	V	.	.	.	.
9.250	50.5144	89.54	.Q	V	.	.	.	.
9.333	51.1354	90.17	.Q	V	.	.	.	.
9.417	51.7610	90.84	.Q	V	.	.	.	.
9.500	52.3912	91.50	.Q	V	.	.	.	.
9.583	53.0262	92.20	.Q	V	.	.	.	.
9.667	53.6659	92.88	.Q	V	.	.	.	.
9.750	54.3105	93.61	.Q	V	.	.	.	.
9.833	54.9601	94.32	.Q	V	.	.	.	.
9.917	55.6149	95.08	.Q	V	.	.	.	.
10.000	56.2748	95.82	.Q	V	.	.	.	.
10.083	56.9401	96.61	.Q	V	.	.	.	.
10.167	57.6108	97.38	.Q	V	.	.	.	.
10.250	58.2871	98.20	.Q	V	.	.	.	.
10.333	58.9690	99.01	.Q	V	.	.	.	.
10.417	59.6568	99.87	.Q	V	.	.	.	.
10.500	60.3504	100.71	.Q	V	.	.	.	.
10.583	61.0502	101.62	.Q	V	.	.	.	.
10.667	61.7562	102.50	.Q	V	.	.	.	.
10.750	62.4686	103.44	.Q	V	.	.	.	.
10.833	63.1874	104.37	.Q	V	.	.	.	.
10.917	63.9130	105.36	.Q	V	.	.	.	.
11.000	64.6454	106.34	.Q	V	.	.	.	.
11.083	65.3849	107.38	.Q	V	.	.	.	.
11.167	66.1314	108.40	.Q	V	.	.	.	.
11.250	66.8856	109.50	.Q	V	.	.	.	.
11.333	67.6471	110.58	.Q	V	.	.	.	.
11.417	68.4166	111.73	.Q	V	.	.	.	.
11.500	69.1940	112.87	.Q	V	.	.	.	.
11.583	69.9797	114.09	.Q	V	.	.	.	.
11.667	70.7738	115.30	.Q	V	.	.	.	.
11.750	71.5767	116.59	.Q	V	.	.	.	.
11.833	72.3884	117.86	.Q	V	.	.	.	.
11.917	73.2096	119.24	.Q	V	.	.	.	.
12.000	74.0401	120.59	.Q	V	.	.	.	.
12.083	74.8760	121.37	.Q	V	.	.	.	.
12.167	75.6959	119.05	.Q	V	.	.	.	.
12.250	76.4724	112.75	.Q	V	.	.	.	.
12.333	77.2279	109.70	.Q	V	.	.	.	.
12.417	77.9770	108.77	.Q	.V	.	.	.	.
12.500	78.7252	108.64	.Q	.V	.	.	.	.
12.583	79.4766	109.10	.Q	.V	.	.	.	.
12.667	80.2328	109.80	.Q	.V	.	.	.	.
12.750	80.9965	110.89	.Q	.V	.	.	.	.
12.833	81.7685	112.09	.Q	.V	.	.	.	.
12.917	82.5504	113.54	.Q	.V	.	.	.	.
13.000	83.3429	115.07	.Q	.V	.	.	.	.
13.083	84.1475	116.83	.Q	.V	.	.	.	.
13.167	84.9646	118.65	.Q	. V	.	.	.	.
13.250	85.7960	120.71	.Q	. V	.	.	.	.

13.333	86.6420	122.84	.Q . V . . .
13.417	87.5040	125.16	.Q . V . . .
13.500	88.3820	127.49	.Q . V . . .
13.583	89.2778	130.07	.Q . V . . .
13.667	90.1915	132.67	.Q . V . . .
13.750	91.1258	135.66	. Q . V . . .
13.833	92.0809	138.68	. Q . V . . .
13.917	93.0590	142.02	. Q . V . . .
14.000	94.0603	145.40	. Q . V . . .
14.083	95.0902	149.53	. Q . V . . .
14.167	96.1609	155.46	. Q . V . . .
14.250	97.2912	164.13	. Q . V . . .
14.333	98.4696	171.11	. Q . V . . .
14.417	99.6924	177.55	. Q . V . . .
14.500	100.9575	183.69	. Q . V . . .
14.583	102.2679	190.27	. Q . V . . .
14.667	103.6241	196.92	. Q . V . . .
14.750	105.0311	204.30	. Q . V . . .
14.833	106.4905	211.91	. Q . V . . .
14.917	108.0097	220.58	. Q . V . . .
15.000	109.5915	229.67	. Q . V . . .
15.083	111.2458	240.21	. Q . V . . .
15.167	112.9775	251.44	. Q . V . . .
15.250	114.8006	264.71	. Q . V . . .
15.333	116.7231	279.15	. Q . V . . .
15.417	118.7480	294.01	. Q . V . . .
15.500	120.8053	298.72	. Q . V . . .
15.583	122.8146	291.75	. Q . V . . .
15.667	124.8822	300.22	. Q . V . . .
15.750	127.1348	327.09	. Q . V . . .
15.833	129.7493	379.62	. Q . V . . .
15.917	133.0274	475.98	. Q . V . . .
16.000	137.2224	609.11	. Q. V. . .
16.083	143.8421	961.19	. . Q V . .
16.167	156.2260	1798.14	. . . V Q . .
16.250	174.4210	2641.91	. . . V . . Q.
16.333	186.7238	1786.37	. . . Q . .
16.417	194.8409	1178.60	. . Q . V . .
16.500	200.9944	893.48	. . Q . V . .
16.583	206.0399	732.61	. Q . V. .
16.667	210.3671	628.31	. Q. . V. .
16.750	214.0085	528.74	. Q . . V .
16.833	217.1945	462.60	. Q . . V .
16.917	220.0145	409.46	. Q . . .V .
17.000	222.5096	362.29	. Q . . .V .
17.083	224.7399	323.85	. Q . . .V .
17.167	226.7234	287.99	. Q . . . V .
17.250	228.4650	252.89	. Q . . . V .
17.333	230.0107	224.43	. Q . . . V .
17.417	231.4814	213.54	. Q . . . V .
17.500	232.8784	202.86	. Q . . . V .
17.583	234.1869	189.99	. Q . . . V .
17.667	235.3845	173.89	. Q . . . V .
17.750	236.3591	141.50	. Q . . . V .
17.833	237.2778	133.41	.Q . . . V .
17.917	238.1553	127.41	.Q . . . V .
18.000	238.9973	122.26	.Q . . . V .

18.083	239.8102	118.03	.Q	.	.	.	V	.
18.167	240.6188	117.41	.Q	.	.	.	V	.
18.250	241.4536	121.22	.Q	.	.	.	V	.
18.333	242.2940	122.01	.Q	.	.	.	V	.
18.417	243.1273	121.01	.Q	.	.	.	V	.
18.500	243.9496	119.40	.Q	.	.	.	V	.
18.583	244.7590	117.51	.Q	.	.	.	V	.
18.667	245.5549	115.57	.Q	.	.	.	V	.
18.750	246.3373	113.60	.Q	.	.	.	V	.
18.833	247.1063	111.65	.Q	.	.	.	V	.
18.917	247.8620	109.74	.Q	.	.	.	V	.
19.000	248.6048	107.86	.Q	.	.	.	V	.
19.083	249.3350	106.02	.Q	.	.	.	V	.
19.167	250.0529	104.24	.Q	.	.	.	V	.
19.250	250.7588	102.49	.Q	.	.	.	V	.
19.333	251.4528	100.77	.Q	.	.	.	V	.
19.417	252.1357	99.15	.Q	.	.	.	V	.
19.500	252.8079	97.61	.Q	.	.	.	V	.
19.583	253.4700	96.13	.Q	.	.	.	V	.
19.667	254.1222	94.71	.Q	.	.	.	V	.
19.750	254.7645	93.25	.Q	.	.	.	V	.
19.833	255.3970	91.84	.Q	.	.	.	V	.
19.917	256.0202	90.49	.Q	.	.	.	V	.
20.000	256.6346	89.20	.Q	.	.	.	V	.
20.083	257.2403	87.95	.Q	.	.	.	V	.
20.167	257.8377	86.75	.Q	.	.	.	V	.
20.250	258.4271	85.58	.Q	.	.	.	V	.
20.333	259.0088	84.46	.Q	.	.	.	V	.
20.417	259.5830	83.38	.Q	.	.	.	V	.
20.500	260.1501	82.34	.Q	.	.	.	V	.
20.583	260.7102	81.32	.Q	.	.	.	V	.
20.667	261.2635	80.34	.Q	.	.	.	V	.
20.750	261.8103	79.40	.Q	.	.	.	V	.
20.833	262.3508	78.48	.Q	.	.	.	V	.
20.917	262.8851	77.58	.Q	.	.	.	V	.
21.000	263.4135	76.72	.Q	.	.	.	V	.
21.083	263.9360	75.88	.Q	.	.	.	V	.
21.167	264.4530	75.06	.Q	.	.	.	V	.
21.250	264.9645	74.27	.Q	.	.	.	V	.
21.333	265.4707	73.50	.Q	.	.	.	V	.
21.417	265.9717	72.75	.Q	.	.	.	V	.
21.500	266.4677	72.02	.Q	.	.	.	V	.
21.583	266.9587	71.30	.Q	.	.	.	V	.
21.667	267.4450	70.61	.Q	.	.	.	V	.
21.750	267.9267	69.93	.Q	.	.	.	V	.
21.833	268.4038	69.28	.Q	.	.	.	V	.
21.917	268.8765	68.63	.Q	.	.	.	V	.
22.000	269.3448	68.01	.Q	.	.	.	V	.
22.083	269.8090	67.39	Q	.	.	.	V	.
22.167	270.2690	66.80	Q	.	.	.	V	.
22.250	270.7250	66.21	Q	.	.	.	V	.
22.333	271.1771	65.64	Q	.	.	.	V	.
22.417	271.6253	65.08	Q	.	.	.	V	.
22.500	272.0698	64.54	Q	.	.	.	V	.
22.583	272.5106	64.01	Q	.	.	.	V	.
22.667	272.9478	63.48	Q	.	.	.	V	.
22.750	273.3815	62.97	Q	.	.	.	V	.

22.833	273.8118	62.47	Q	.	.	.	V .
22.917	274.2386	61.98	Q	.	.	.	V.
23.000	274.6622	61.50	Q	.	.	.	V.
23.083	275.0826	61.03	Q	.	.	.	V.
23.167	275.4998	60.57	Q	.	.	.	V.
23.250	275.9138	60.12	Q	.	.	.	V.
23.333	276.3248	59.68	Q	.	.	.	V.
23.417	276.7328	59.24	Q	.	.	.	V.
23.500	277.1379	58.82	Q	.	.	.	V.
23.583	277.5402	58.40	Q	.	.	.	V.
23.667	277.9395	57.99	Q	.	.	.	V.
23.750	278.3362	57.59	Q	.	.	.	V.
23.833	278.7300	57.19	Q	.	.	.	V.
23.917	279.1213	56.81	Q	.	.	.	V.
24.000	279.5099	56.42	Q	.	.	.	V.
24.083	279.8862	54.64	Q	.	.	.	V.
24.167	280.2061	46.45	Q	.	.	.	V.
24.250	280.4116	29.85	Q	.	.	.	V.
24.333	280.5510	20.24	Q	.	.	.	V.
24.417	280.6539	14.94	Q	.	.	.	V.
24.500	280.7324	11.40	Q	.	.	.	V.
24.583	280.7936	8.88	Q	.	.	.	V.
24.667	280.8411	6.90	Q	.	.	.	V.
24.750	280.8788	5.47	Q	.	.	.	V.
24.833	280.9085	4.32	Q	.	.	.	V.
24.917	280.9318	3.38	Q	.	.	.	V.
25.000	280.9499	2.63	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1505.0
10%	120.0
20%	50.0
30%	30.0
40%	20.0
50%	15.0
60%	15.0
70%	5.0
80%	5.0
90%	5.0

****
FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
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THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

ASSUMED REGULAR CHANNEL INFORMATION:

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  BASEWIDTH(FT) =   50.00      CHANNEL Z =  2.00
  UPSTREAM ELEVATION(FT) =    3452.50
  DOWNSTREAM ELEVATION(FT) =    3325.00
  CHANNEL LENGTH(FT) =    6000.00     MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) =    0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                        (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
  AVERAGED PEAK  5-MINUTE: (    2641.9).......[ 14.42]
  AVERAGED PEAK 15-MINUTE: (    2075.5).......[ 13.25]
  AVERAGED PEAK 30-MINUTE: (    1543.3).......[ 11.96]
  AVERAGED PEAK  1-HOUR:   (    1058.1).......[ 10.44]
  AVERAGED PEAK  3-HOUR:   (     532.1).......[  8.05]
  AVERAGED PEAK  6-HOUR:   (     333.4).......[  6.74]
  AVERAGED PEAK 24-HOUR:   (     141.2).......[  4.83]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   9.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
= (   6000.00)/(  9.000) =   0.185 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:
```

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	1.41	0.00	0.00
0.167	9.26	0.00	0.00
0.250	25.62	1.10	1.10
0.333	35.12	7.52	7.52
0.417	40.41	21.98	21.98
0.500	43.99	33.01	33.01
0.583	46.57	39.23	39.23
0.667	48.65	43.19	43.19
0.750	50.20	46.00	46.00
0.833	51.48	48.19	48.19
0.917	52.57	49.85	49.85
1.000	53.46	51.19	51.19
1.083	54.23	52.32	52.32
1.167	54.88	53.26	53.26
1.250	55.40	54.06	54.06
1.333	55.81	54.73	54.73
1.417	56.25	55.29	55.29
1.500	56.69	55.72	55.72
1.583	57.13	56.15	56.15
1.667	57.54	56.59	56.59
1.750	57.74	57.03	57.03
1.833	57.94	57.45	57.45
1.917	58.15	57.70	57.70
2.000	58.35	57.90	57.90
2.083	58.56	58.10	58.10
2.167	58.76	58.30	58.30
2.250	58.98	58.51	58.51
2.333	59.19	58.72	58.72
2.417	59.41	58.93	58.93
2.500	59.62	59.14	59.14
2.583	59.85	59.36	59.36
2.667	60.06	59.57	59.57

2.750	60.29	59.80	59.80
2.833	60.51	60.01	60.01
2.917	60.75	60.24	60.24
3.000	60.97	60.46	60.46
3.083	61.21	60.69	60.69
3.167	61.44	60.92	60.92
3.250	61.68	61.16	61.16
3.333	61.92	61.39	61.39
3.417	62.16	61.63	61.63
3.500	62.40	61.86	61.86
3.583	62.66	62.11	62.11
3.667	62.90	62.35	62.35
3.750	63.16	62.60	62.60
3.833	63.41	62.85	62.85
3.917	63.67	63.10	63.10
4.000	63.93	63.35	63.35
4.083	64.20	63.62	63.62
4.167	64.46	63.87	63.87
4.250	64.74	64.14	64.14
4.333	65.00	64.40	64.40
4.417	65.29	64.68	64.68
4.500	65.56	64.95	64.95
4.583	65.85	65.22	65.22
4.667	66.13	65.50	65.50
4.750	66.42	65.78	65.78
4.833	66.71	66.06	66.06
4.917	67.01	66.36	66.36
5.000	67.30	66.64	66.64
5.083	67.61	66.94	66.94
5.167	67.91	67.24	67.24
5.250	68.23	67.54	67.54
5.333	68.53	67.84	67.84
5.417	68.86	68.16	68.16
5.500	69.17	68.47	68.47
5.583	69.50	68.79	68.79
5.667	69.83	69.10	69.10
5.750	70.17	69.43	69.43
5.833	70.50	69.76	69.76
5.917	70.85	70.09	70.09
6.000	71.19	70.42	70.42
6.083	71.55	70.77	70.77
6.167	71.89	71.11	71.11
6.250	72.26	71.47	71.47
6.333	72.62	71.82	71.82
6.417	73.00	72.18	72.18
6.500	73.36	72.54	72.54
6.583	73.75	72.91	72.91
6.667	74.13	73.28	73.28
6.750	74.53	73.67	73.67
6.833	74.92	74.05	74.05
6.917	75.33	74.44	74.44
7.000	75.73	74.83	74.83
7.083	76.15	75.24	75.24
7.167	76.56	75.64	75.64
7.250	76.99	76.05	76.05
7.333	77.42	76.47	76.47
7.417	77.86	76.90	76.90

7.500	78.30	77.32	77.32
7.583	78.76	77.77	77.77
7.667	79.21	78.20	78.20
7.750	79.69	78.66	78.66
7.833	80.15	79.11	79.11
7.917	80.64	79.58	79.58
8.000	81.12	80.05	80.05
8.083	81.63	80.53	80.53
8.167	82.12	81.01	81.01
8.250	82.64	81.51	81.51
8.333	83.15	82.01	82.01
8.417	83.70	82.53	82.53
8.500	84.22	83.04	83.04
8.583	84.78	83.58	83.58
8.667	85.33	84.11	84.11
8.750	85.91	84.66	84.66
8.833	86.48	85.21	85.21
8.917	87.08	85.78	85.78
9.000	87.66	86.35	86.35
9.083	88.29	86.94	86.94
9.167	88.89	87.53	87.53
9.250	89.54	88.15	88.15
9.333	90.17	88.76	88.76
9.417	90.84	89.40	89.40
9.500	91.50	90.03	90.03
9.583	92.20	90.69	90.69
9.667	92.88	91.35	91.35
9.750	93.61	92.04	92.04
9.833	94.32	92.73	92.73
9.917	95.08	93.45	93.45
10.000	95.82	94.16	94.16
10.083	96.61	94.91	94.91
10.167	97.38	95.65	95.65
10.250	98.20	96.43	96.43
10.333	99.01	97.21	97.21
10.417	99.87	98.02	98.02
10.500	100.71	98.83	98.83
10.583	101.62	99.68	99.68
10.667	102.50	100.53	100.53
10.750	103.44	101.42	101.42
10.833	104.37	102.30	102.30
10.917	105.36	103.23	103.23
11.000	106.34	104.16	104.16
11.083	107.38	105.14	105.14
11.167	108.40	106.12	106.12
11.250	109.50	107.15	107.15
11.333	110.58	108.17	108.17
11.417	111.73	109.25	109.25
11.500	112.87	110.34	110.34
11.583	114.09	111.48	111.48
11.667	115.30	112.62	112.62
11.750	116.59	113.82	113.82
11.833	117.86	115.03	115.03
11.917	119.24	116.30	116.30
12.000	120.59	117.58	117.58
12.083	121.37	118.93	118.93
12.167	119.05	120.29	120.29

12.250	112.75	121.20	121.20
12.333	109.70	119.56	119.56
12.417	108.77	114.15	114.15
12.500	108.64	110.38	110.38
12.583	109.10	108.98	108.98
12.667	109.80	108.67	108.67
12.750	110.89	109.00	109.00
12.833	112.09	109.65	109.65
12.917	113.54	110.64	110.64
13.000	115.07	111.82	111.82
13.083	116.83	113.22	113.22
13.167	118.65	114.73	114.73
13.250	120.71	116.44	116.44
13.333	122.84	118.24	118.24
13.417	125.16	120.25	120.25
13.500	127.49	122.36	122.36
13.583	130.07	124.65	124.65
13.667	132.67	126.97	126.97
13.750	135.66	129.50	129.50
13.833	138.68	132.10	132.10
13.917	142.02	135.00	135.00
14.000	145.40	138.01	138.01
14.083	149.53	141.27	141.27
14.167	155.46	144.65	144.65
14.250	164.13	148.62	148.62
14.333	171.11	154.14	154.14
14.417	177.55	162.20	162.20
14.500	183.69	169.56	169.56
14.583	190.27	176.12	176.12
14.667	196.92	182.33	182.33
14.750	204.30	188.81	188.81
14.833	211.91	195.44	195.44
14.917	220.58	202.66	202.66
15.000	229.67	210.22	210.22
15.083	240.21	218.66	218.66
15.167	251.44	227.65	227.65
15.250	264.71	237.87	237.87
15.333	279.15	248.94	248.94
15.417	294.01	261.76	261.76
15.500	298.72	275.94	275.94
15.583	291.75	290.71	290.71
15.667	300.22	297.67	297.67
15.750	327.09	293.30	293.30
15.833	379.62	298.34	298.34
15.917	475.98	321.12	321.12
16.000	609.11	367.95	367.95
16.083	961.19	454.56	454.56
16.167	1798.14	579.52	579.52
16.250	2641.91	882.95	882.95
16.333	1786.37	1612.15	1612.15
16.417	1178.60	2454.40	2454.40
16.500	893.48	1976.49	1976.49
16.583	732.61	1313.66	1313.66
16.667	628.31	956.84	956.84
16.750	528.74	768.36	768.36
16.833	462.60	651.49	651.49
16.917	409.46	550.87	550.87

17.000	362.29	477.30	477.30
17.083	323.85	421.27	421.27
17.167	287.99	372.77	372.77
17.250	252.89	332.39	332.39
17.333	224.43	295.96	295.96
17.417	213.54	260.69	260.69
17.500	202.86	230.76	230.76
17.583	189.99	215.96	215.96
17.667	173.89	205.23	205.23
17.750	141.50	192.85	192.85
17.833	133.41	177.47	177.47
17.917	127.41	148.70	148.70
18.000	122.26	135.21	135.21
18.083	118.03	128.74	128.74
18.167	117.41	123.40	123.40
18.250	121.22	118.97	118.97
18.333	122.01	117.55	117.55
18.417	121.01	120.37	120.37
18.500	119.40	121.84	121.84
18.583	117.51	121.23	121.23
18.667	115.57	119.76	119.76
18.750	113.60	117.93	117.93
18.833	111.65	116.01	116.01
18.917	109.74	114.04	114.04
19.000	107.86	112.08	112.08
19.083	106.02	110.16	110.16
19.167	104.24	108.27	108.27
19.250	102.49	106.43	106.43
19.333	100.77	104.64	104.64
19.417	99.15	102.88	102.88
19.500	97.61	101.15	101.15
19.583	96.13	99.51	99.51
19.667	94.71	97.95	97.95
19.750	93.25	96.46	96.46
19.833	91.84	95.03	95.03
19.917	90.49	93.57	93.57
20.000	89.20	92.16	92.16
20.083	87.95	90.79	90.79
20.167	86.75	89.49	89.49
20.250	85.58	88.23	88.23
20.333	84.46	87.01	87.01
20.417	83.38	85.84	85.84
20.500	82.34	84.71	84.71
20.583	81.32	83.62	83.62
20.667	80.34	82.57	82.57
20.750	79.40	81.55	81.55
20.833	78.48	80.56	80.56
20.917	77.58	79.61	79.61
21.000	76.72	78.68	78.68
21.083	75.88	77.78	77.78
21.167	75.06	76.91	76.91
21.250	74.27	76.07	76.07
21.333	73.50	75.24	75.24
21.417	72.75	74.45	74.45
21.500	72.02	73.67	73.67
21.583	71.30	72.91	72.91
21.667	70.61	72.18	72.18

21.750	69.93	71.46	71.46
21.833	69.28	70.77	70.77
21.917	68.63	70.09	70.09
22.000	68.01	69.42	69.42
22.083	67.39	68.78	68.78
22.167	66.80	68.14	68.14
22.250	66.21	67.53	67.53
22.333	65.64	66.93	66.93
22.417	65.08	66.34	66.34
22.500	64.54	65.77	65.77
22.583	64.01	65.21	65.21
22.667	63.48	64.66	64.66
22.750	62.97	64.12	64.12
22.833	62.47	63.60	63.60
22.917	61.98	63.09	63.09
23.000	61.50	62.58	62.58
23.083	61.03	62.09	62.09
23.167	60.57	61.61	61.61
23.250	60.12	61.14	61.14
23.333	59.68	60.67	60.67
23.417	59.24	60.22	60.22
23.500	58.82	59.78	59.78
23.583	58.40	59.34	59.34
23.667	57.99	58.91	58.91
23.750	57.59	58.49	58.49
23.833	57.19	58.08	58.08
23.917	56.81	57.68	57.68
24.000	56.42	57.28	57.28
24.083	54.64	56.89	56.89
24.167	46.45	56.51	56.51
24.250	29.85	55.04	55.04
24.333	20.24	48.27	48.27
24.417	14.94	33.54	33.54
24.500	11.40	22.37	22.37
24.583	8.88	16.12	16.12
24.667	6.90	12.18	12.18
24.750	5.47	9.44	9.44
24.833	4.32	7.34	7.34
24.917	3.38	5.79	5.79
25.000	2.63	4.57	4.57
25.083	2.02	3.59	3.59
25.167	1.55	2.80	2.80
25.250	1.20	2.16	2.16
25.333	0.97	1.65	1.65
25.417	0.72	1.27	1.27
25.500	0.46	1.02	1.02
25.583	0.21	0.77	0.77
25.667	0.00	0.52	0.52
25.750	0.00	0.27	0.27
25.833	0.00	0.05	0.05
25.917	0.00	0.00	0.00

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 280.999 AF
OUTFLOW VOLUME = 280.999 AF
LOSS VOLUME = 0.000 AF

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 FLOW PROCESS FROM NODE     102.00 TO NODE     102.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

     (UNIT-HYDROGRAPH ADDED TO STREAM #1)

        WATERSHED AREA =     1878.800 ACRES
        BASEFLOW =    0.000 CFS/SQUARE-MILE
        *USER ENTERED "LAG" TIME =     0.256 HOURS
         CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
         THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
         MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
        VALLEY(DEVELOPED):
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.160
        FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        VALLEY(UNDEVELOPED)/DESERT:
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.840
        MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.125
        LOW LOSS FRACTION = 0.142
        *HYDROGRAPH MODEL #1 SPECIFIED*

        SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
        SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
        SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
        SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
        SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
        SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

        *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
          5-MINUTE FACTOR = 0.979
         30-MINUTE FACTOR = 0.979
          1-HOUR FACTOR = 0.979
          3-HOUR FACTOR = 0.997
          6-HOUR FACTOR = 0.999
         24-HOUR FACTOR = 0.999

        UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
        UNIT INTERVAL PERCENTAGE OF LAG-TIME =  32.552


============================================================================
                    UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                2.012               457.247
        2               11.517              2159.517
        3               35.799              5517.325
        4               57.208              4864.466
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5	69.592	2813.990
6	77.266	1743.662
7	82.406	1167.953
8	85.964	808.268
9	88.703	622.431
10	90.859	489.896
11	92.511	375.249
12	93.903	316.380
13	95.062	263.318
14	95.999	213.037
15	96.785	178.396
16	97.451	151.370
17	97.956	114.768
18	98.317	82.086
19	98.599	64.130
20	98.922	73.405
21	99.251	74.552
22	99.574	73.405
23	99.897	73.406
24	100.000	23.482

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0007	0.0042
2	0.0049	0.0007	0.0042
3	0.0049	0.0007	0.0042
4	0.0049	0.0007	0.0042
5	0.0049	0.0007	0.0042
6	0.0049	0.0007	0.0042
7	0.0050	0.0007	0.0043
8	0.0050	0.0007	0.0043
9	0.0050	0.0007	0.0043
10	0.0050	0.0007	0.0043
11	0.0050	0.0007	0.0043
12	0.0050	0.0007	0.0043
13	0.0051	0.0007	0.0043
14	0.0051	0.0007	0.0043
15	0.0051	0.0007	0.0044
16	0.0051	0.0007	0.0044
17	0.0051	0.0007	0.0044
18	0.0051	0.0007	0.0044
19	0.0052	0.0007	0.0044
20	0.0052	0.0007	0.0044
21	0.0052	0.0007	0.0045
22	0.0052	0.0007	0.0045
23	0.0052	0.0007	0.0045
24	0.0052	0.0007	0.0045
25	0.0053	0.0007	0.0045
26	0.0053	0.0008	0.0045
27	0.0053	0.0008	0.0046
28	0.0053	0.0008	0.0046
29	0.0054	0.0008	0.0046
30	0.0054	0.0008	0.0046
31	0.0054	0.0008	0.0046
32	0.0054	0.0008	0.0046
33	0.0054	0.0008	0.0047
34	0.0054	0.0008	0.0047
35	0.0055	0.0008	0.0047
36	0.0055	0.0008	0.0047
37	0.0055	0.0008	0.0047
38	0.0055	0.0008	0.0047
39	0.0056	0.0008	0.0048
40	0.0056	0.0008	0.0048
41	0.0056	0.0008	0.0048
42	0.0056	0.0008	0.0048
43	0.0057	0.0008	0.0049
44	0.0057	0.0008	0.0049
45	0.0057	0.0008	0.0049
46	0.0057	0.0008	0.0049
47	0.0057	0.0008	0.0049
48	0.0058	0.0008	0.0049
49	0.0058	0.0008	0.0050
50	0.0058	0.0008	0.0050
51	0.0058	0.0008	0.0050

52	0.0059	0.0008	0.0050
53	0.0059	0.0008	0.0051
54	0.0059	0.0008	0.0051
55	0.0059	0.0008	0.0051
56	0.0060	0.0008	0.0051
57	0.0060	0.0009	0.0052
58	0.0060	0.0009	0.0052
59	0.0061	0.0009	0.0052
60	0.0061	0.0009	0.0052
61	0.0061	0.0009	0.0052
62	0.0061	0.0009	0.0053
63	0.0062	0.0009	0.0053
64	0.0062	0.0009	0.0053
65	0.0062	0.0009	0.0053
66	0.0063	0.0009	0.0054
67	0.0063	0.0009	0.0054
68	0.0063	0.0009	0.0054
69	0.0064	0.0009	0.0055
70	0.0064	0.0009	0.0055
71	0.0064	0.0009	0.0055
72	0.0064	0.0009	0.0055
73	0.0065	0.0009	0.0056
74	0.0065	0.0009	0.0056
75	0.0065	0.0009	0.0056
76	0.0066	0.0009	0.0056
77	0.0066	0.0009	0.0057
78	0.0066	0.0009	0.0057
79	0.0067	0.0009	0.0057
80	0.0067	0.0010	0.0058
81	0.0068	0.0010	0.0058
82	0.0068	0.0010	0.0058
83	0.0068	0.0010	0.0059
84	0.0069	0.0010	0.0059
85	0.0069	0.0010	0.0059
86	0.0069	0.0010	0.0060
87	0.0070	0.0010	0.0060
88	0.0070	0.0010	0.0060
89	0.0071	0.0010	0.0061
90	0.0071	0.0010	0.0061
91	0.0072	0.0010	0.0061
92	0.0072	0.0010	0.0062
93	0.0072	0.0010	0.0062
94	0.0073	0.0010	0.0062
95	0.0073	0.0010	0.0063
96	0.0074	0.0010	0.0063
97	0.0074	0.0011	0.0064
98	0.0075	0.0011	0.0064
99	0.0075	0.0011	0.0065
100	0.0076	0.0011	0.0065
101	0.0076	0.0011	0.0065
102	0.0077	0.0011	0.0066
103	0.0077	0.0011	0.0066
104	0.0078	0.0011	0.0067
105	0.0078	0.0011	0.0067
106	0.0079	0.0011	0.0068
107	0.0080	0.0011	0.0068
108	0.0080	0.0011	0.0069

109	0.0081	0.0011	0.0069
110	0.0081	0.0012	0.0070
111	0.0082	0.0012	0.0070
112	0.0082	0.0012	0.0071
113	0.0083	0.0012	0.0071
114	0.0084	0.0012	0.0072
115	0.0084	0.0012	0.0072
116	0.0085	0.0012	0.0073
117	0.0086	0.0012	0.0074
118	0.0086	0.0012	0.0074
119	0.0087	0.0012	0.0075
120	0.0088	0.0012	0.0075
121	0.0089	0.0013	0.0076
122	0.0089	0.0013	0.0077
123	0.0090	0.0013	0.0077
124	0.0091	0.0013	0.0078
125	0.0092	0.0013	0.0079
126	0.0092	0.0013	0.0079
127	0.0094	0.0013	0.0080
128	0.0094	0.0013	0.0081
129	0.0095	0.0014	0.0082
130	0.0096	0.0014	0.0082
131	0.0097	0.0014	0.0083
132	0.0098	0.0014	0.0084
133	0.0099	0.0014	0.0085
134	0.0100	0.0014	0.0086
135	0.0101	0.0014	0.0087
136	0.0102	0.0014	0.0088
137	0.0103	0.0015	0.0089
138	0.0104	0.0015	0.0089
139	0.0106	0.0015	0.0091
140	0.0107	0.0015	0.0091
141	0.0108	0.0015	0.0093
142	0.0109	0.0016	0.0094
143	0.0111	0.0016	0.0095
144	0.0112	0.0016	0.0096
145	0.0090	0.0013	0.0077
146	0.0091	0.0013	0.0078
147	0.0093	0.0013	0.0080
148	0.0094	0.0013	0.0080
149	0.0096	0.0014	0.0082
150	0.0097	0.0014	0.0083
151	0.0099	0.0014	0.0085
152	0.0100	0.0014	0.0086
153	0.0102	0.0015	0.0088
154	0.0104	0.0015	0.0089
155	0.0106	0.0015	0.0091
156	0.0107	0.0015	0.0092
157	0.0110	0.0016	0.0094
158	0.0112	0.0016	0.0096
159	0.0115	0.0016	0.0098
160	0.0116	0.0017	0.0100
161	0.0120	0.0017	0.0103
162	0.0121	0.0017	0.0104
163	0.0125	0.0018	0.0107
164	0.0127	0.0018	0.0109
165	0.0131	0.0019	0.0113

166	0.0134	0.0019	0.0115
167	0.0138	0.0020	0.0119
168	0.0141	0.0020	0.0121
169	0.0151	0.0022	0.0130
170	0.0154	0.0022	0.0132
171	0.0161	0.0023	0.0138
172	0.0164	0.0023	0.0141
173	0.0172	0.0024	0.0147
174	0.0176	0.0025	0.0151
175	0.0185	0.0026	0.0159
176	0.0190	0.0027	0.0163
177	0.0201	0.0028	0.0172
178	0.0207	0.0029	0.0177
179	0.0220	0.0031	0.0189
180	0.0228	0.0032	0.0195
181	0.0245	0.0035	0.0210
182	0.0255	0.0036	0.0219
183	0.0279	0.0040	0.0239
184	0.0293	0.0042	0.0251
185	0.0251	0.0036	0.0215
186	0.0269	0.0038	0.0231
187	0.0316	0.0045	0.0271
188	0.0347	0.0049	0.0298
189	0.0539	0.0077	0.0463
190	0.0621	0.0088	0.0533
191	0.0941	0.0104	0.0837
192	0.1367	0.0104	0.1263
193	0.5874	0.0104	0.5770
194	0.0741	0.0104	0.0637
195	0.0387	0.0055	0.0332
196	0.0290	0.0041	0.0249
197	0.0308	0.0044	0.0265
198	0.0266	0.0038	0.0229
199	0.0236	0.0034	0.0203
200	0.0213	0.0030	0.0183
201	0.0195	0.0028	0.0167
202	0.0180	0.0026	0.0155
203	0.0168	0.0024	0.0144
204	0.0158	0.0022	0.0135
205	0.0144	0.0020	0.0123
206	0.0136	0.0019	0.0117
207	0.0129	0.0018	0.0111
208	0.0123	0.0017	0.0106
209	0.0118	0.0017	0.0101
210	0.0113	0.0016	0.0097
211	0.0109	0.0015	0.0093
212	0.0105	0.0015	0.0090
213	0.0101	0.0014	0.0087
214	0.0098	0.0014	0.0084
215	0.0095	0.0013	0.0081
216	0.0092	0.0013	0.0079
217	0.0113	0.0016	0.0097
218	0.0110	0.0016	0.0094
219	0.0107	0.0015	0.0092
220	0.0105	0.0015	0.0090
221	0.0103	0.0015	0.0088
222	0.0101	0.0014	0.0086

223	0.0099	0.0014	0.0085
224	0.0097	0.0014	0.0083
225	0.0095	0.0013	0.0081
226	0.0093	0.0013	0.0080
227	0.0091	0.0013	0.0078
228	0.0090	0.0013	0.0077
229	0.0088	0.0013	0.0076
230	0.0087	0.0012	0.0074
231	0.0085	0.0012	0.0073
232	0.0084	0.0012	0.0072
233	0.0083	0.0012	0.0071
234	0.0081	0.0012	0.0070
235	0.0080	0.0011	0.0069
236	0.0079	0.0011	0.0068
237	0.0078	0.0011	0.0067
238	0.0077	0.0011	0.0066
239	0.0076	0.0011	0.0065
240	0.0075	0.0011	0.0064
241	0.0074	0.0011	0.0063
242	0.0073	0.0010	0.0063
243	0.0072	0.0010	0.0062
244	0.0071	0.0010	0.0061
245	0.0070	0.0010	0.0060
246	0.0070	0.0010	0.0060
247	0.0069	0.0010	0.0059
248	0.0068	0.0010	0.0058
249	0.0067	0.0010	0.0058
250	0.0067	0.0009	0.0057
251	0.0066	0.0009	0.0057
252	0.0065	0.0009	0.0056
253	0.0065	0.0009	0.0055
254	0.0064	0.0009	0.0055
255	0.0063	0.0009	0.0054
256	0.0063	0.0009	0.0054
257	0.0062	0.0009	0.0053
258	0.0062	0.0009	0.0053
259	0.0061	0.0009	0.0052
260	0.0060	0.0009	0.0052
261	0.0060	0.0008	0.0051
262	0.0059	0.0008	0.0051
263	0.0059	0.0008	0.0050
264	0.0058	0.0008	0.0050
265	0.0058	0.0008	0.0050
266	0.0057	0.0008	0.0049
267	0.0057	0.0008	0.0049
268	0.0056	0.0008	0.0048
269	0.0056	0.0008	0.0048
270	0.0055	0.0008	0.0048
271	0.0055	0.0008	0.0047
272	0.0055	0.0008	0.0047
273	0.0054	0.0008	0.0047
274	0.0054	0.0008	0.0046
275	0.0053	0.0008	0.0046
276	0.0053	0.0008	0.0045
277	0.0053	0.0007	0.0045
278	0.0052	0.0007	0.0045
279	0.0052	0.0007	0.0045

280	0.0052	0.0007	0.0044
281	0.0051	0.0007	0.0044
282	0.0051	0.0007	0.0044
283	0.0050	0.0007	0.0043
284	0.0050	0.0007	0.0043
285	0.0050	0.0007	0.0043
286	0.0049	0.0007	0.0042
287	0.0049	0.0007	0.0042
288	0.0049	0.0007	0.0042

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.43
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.17

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 66.6424
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 496.1775

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1125.0	2250.0	3375.0	4500.0
0.083	0.0131	1.91	Q	.	.	.	.
0.167	0.0883	10.92	Q	.	.	.	.
0.250	0.3221	33.95	Q	.	.	.	.
0.333	0.6963	54.33	Q	.	.	.	.
0.417	1.1525	66.23	Q	.	.	.	.
0.500	1.6601	73.71	Q	.	.	.	.
0.583	2.2030	78.82	Q	.	.	.	.
0.667	2.7708	82.44	Q	.	.	.	.
0.750	3.3583	85.31	Q	.	.	.	.
0.833	3.9618	87.63	Q	.	.	.	.
0.917	4.5781	89.49	Q	.	.	.	.
1.000	5.2055	91.10	Q	.	.	.	.
1.083	5.8425	92.50	Q	.	.	.	.
1.167	6.4878	93.69	Q	.	.	.	.
1.250	7.1404	94.76	Q	.	.	.	.
1.333	7.7995	95.70	Q	.	.	.	.
1.417	8.4642	96.51	Q	.	.	.	.
1.500	9.1334	97.18	Q	.	.	.	.
1.583	9.8069	97.78	Q	.	.	.	.
1.667	10.4847	98.42	Q	.	.	.	.
1.750	11.1671	99.08	Q	.	.	.	.
1.833	11.8539	99.73	Q	.	.	.	.
1.917	12.5453	100.39	QV	.	.	.	.
2.000	13.2398	100.84	QV	.	.	.	.
2.083	13.9367	101.20	QV	.	.	.	.
2.167	14.6361	101.55	QV	.	.	.	.
2.250	15.3381	101.92	QV	.	.	.	.
2.333	16.0425	102.29	QV	.	.	.	.
2.417	16.7495	102.66	QV	.	.	.	.
2.500	17.4591	103.03	QV	.	.	.	.
2.583	18.1714	103.42	QV	.	.	.	.
2.667	18.8862	103.80	QV	.	.	.	.
2.750	19.6038	104.19	QV	.	.	.	.
2.833	20.3239	104.57	QV	.	.	.	.
2.917	21.0469	104.97	QV	.	.	.	.
3.000	21.7725	105.36	QV	.	.	.	.
3.083	22.5010	105.77	QV	.	.	.	.
3.167	23.2322	106.17	QV	.	.	.	.
3.250	23.9662	106.59	QV	.	.	.	.
3.333	24.7031	107.00	QV	.	.	.	.
3.417	25.4429	107.42	Q V	.	.	.	.
3.500	26.1856	107.84	Q V	.	.	.	.
3.583	26.9312	108.27	Q V	.	.	.	.
3.667	27.6798	108.70	Q V	.	.	.	.
3.750	28.4314	109.14	Q V	.	.	.	.

3.833	29.1861	109.57	Q V	.	.	.	.
3.917	29.9438	110.02	Q V	.	.	.	.
4.000	30.7046	110.47	Q V	.	.	.	.
4.083	31.4686	110.93	Q V	.	.	.	.
4.167	32.2357	111.38	Q V	.	.	.	.
4.250	33.0061	111.86	Q V	.	.	.	.
4.333	33.7796	112.32	Q V	.	.	.	.
4.417	34.5565	112.80	.QV	.	.	.	.
4.500	35.3367	113.28	.QV	.	.	.	.
4.583	36.1202	113.77	.QV	.	.	.	.
4.667	36.9071	114.26	.QV	.	.	.	.
4.750	37.6975	114.76	.Q V	.	.	.	.
4.833	38.4913	115.26	.Q V	.	.	.	.
4.917	39.2886	115.78	.Q V	.	.	.	.
5.000	40.0895	116.29	.Q V	.	.	.	.
5.083	40.8940	116.81	.Q V	.	.	.	.
5.167	41.7021	117.34	.Q V	.	.	.	.
5.250	42.5139	117.88	.Q V	.	.	.	.
5.333	43.3294	118.41	.Q V	.	.	.	.
5.417	44.1487	118.96	.Q V	.	.	.	.
5.500	44.9718	119.51	.Q V	.	.	.	.
5.583	45.7988	120.08	.Q V	.	.	.	.
5.667	46.6296	120.64	.Q V	.	.	.	.
5.750	47.4645	121.22	.Q V	.	.	.	.
5.833	48.3033	121.80	.Q V	.	.	.	.
5.917	49.1463	122.39	.Q V	.	.	.	.
6.000	49.9933	122.98	.Q V	.	.	.	.
6.083	50.8445	123.60	.Q V	.	.	.	.
6.167	51.6999	124.20	.Q V	.	.	.	.
6.250	52.5596	124.83	.Q V	.	.	.	.
6.333	53.4236	125.45	.Q V	.	.	.	.
6.417	54.2920	126.10	.Q V	.	.	.	.
6.500	55.1649	126.74	.Q V	.	.	.	.
6.583	56.0423	127.40	.Q V	.	.	.	.
6.667	56.9242	128.06	.Q V	.	.	.	.
6.750	57.8109	128.74	.Q V	.	.	.	.
6.833	58.7022	129.41	.Q V	.	.	.	.
6.917	59.5983	130.12	.Q V	.	.	.	.
7.000	60.4992	130.81	.Q V	.	.	.	.
7.083	61.4050	131.53	.Q V	.	.	.	.
7.167	62.3158	132.24	.Q V	.	.	.	.
7.250	63.2317	132.99	.Q V	.	.	.	.
7.333	64.1526	133.72	.Q V	.	.	.	.
7.417	65.0788	134.49	.Q V	.	.	.	.
7.500	66.0103	135.24	.Q V	.	.	.	.
7.583	66.9471	136.03	.Q V	.	.	.	.
7.667	67.8894	136.81	.Q V	.	.	.	.
7.750	68.8372	137.62	.Q V	.	.	.	.
7.833	69.7906	138.43	.Q V	.	.	.	.
7.917	70.7497	139.27	.Q V	.	.	.	.
8.000	71.7146	140.10	.Q V	.	.	.	.
8.083	72.6854	140.96	.Q V	.	.	.	.
8.167	73.6622	141.82	.Q V	.	.	.	.
8.250	74.6451	142.72	.Q V	.	.	.	.
8.333	75.6341	143.60	.Q V	.	.	.	.
8.417	76.6294	144.53	.Q V	.	.	.	.
8.500	77.6311	145.45	.Q V	.	.	.	.

8.583	78.6394	146.40	.Q	V	.	.	.	.
8.667	79.6542	147.35	.Q	V	.	.	.	.
8.750	80.6758	148.34	.Q	V	.	.	.	.
8.833	81.7042	149.32	.Q	V	.	.	.	.
8.917	82.7396	150.34	.Q	V	.	.	.	.
9.000	83.7821	151.36	.Q	V	.	.	.	.
9.083	84.8318	152.43	.Q	V	.	.	.	.
9.167	85.8889	153.48	.Q	V	.	.	.	.
9.250	86.9535	154.59	.Q	V	.	.	.	.
9.333	88.0257	155.68	.Q	V	.	.	.	.
9.417	89.1058	156.82	.Q	V	.	.	.	.
9.500	90.1937	157.96	.Q	V	.	.	.	.
9.583	91.2898	159.15	.Q	V	.	.	.	.
9.667	92.3940	160.34	.Q	V	.	.	.	.
9.750	93.5068	161.58	.Q	V	.	.	.	.
9.833	94.6281	162.81	.Q	V	.	.	.	.
9.917	95.7583	164.10	.Q	V	.	.	.	.
10.000	96.8973	165.39	.Q	V	.	.	.	.
10.083	98.0456	166.73	.Q	V	.	.	.	.
10.167	99.2031	168.07	.Q	V	.	.	.	.
10.250	100.3702	169.47	.Q	V	.	.	.	.
10.333	101.5471	170.87	.Q	V	.	.	.	.
10.417	102.7340	172.34	.Q	V	.	.	.	.
10.500	103.9309	173.80	.Q	V	.	.	.	.
10.583	105.1385	175.34	.Q	V	.	.	.	.
10.667	106.3566	176.87	.Q	V	.	.	.	.
10.750	107.5858	178.47	.Q	V	.	.	.	.
10.833	108.8260	180.08	.Q	V	.	.	.	.
10.917	110.0778	181.77	.Q	V	.	.	.	.
11.000	111.3413	183.46	.Q	V	.	.	.	.
11.083	112.6170	185.23	.Q	V	.	.	.	.
11.167	113.9048	187.00	.Q	V	.	.	.	.
11.250	115.2055	188.86	.Q	V	.	.	.	.
11.333	116.5191	190.73	.Q	V	.	.	.	.
11.417	117.8462	192.69	.Q	V	.	.	.	.
11.500	119.1869	194.67	.Q	V	.	.	.	.
11.583	120.5419	196.74	.Q	V	.	.	.	.
11.667	121.9112	198.82	.Q	V	.	.	.	.
11.750	123.2956	201.02	.Q	V	.	.	.	.
11.833	124.6952	203.23	.Q	V	.	.	.	.
11.917	126.1109	205.55	.Q	V	.	.	.	.
12.000	127.5426	207.89	.Q	V	.	.	.	.
12.083	128.9850	209.44	.Q	V	.	.	.	.
12.167	130.4144	207.54	.Q	V	.	.	.	.
12.250	131.7845	198.94	.Q	V	.	.	.	.
12.333	133.1042	191.63	.Q	V	.	.	.	.
12.417	134.4028	188.56	.Q	V	.	.	.	.
12.500	135.6952	187.65	.Q	V	.	.	.	.
12.583	136.9903	188.05	.Q	.V	.	.	.	.
12.667	138.2934	189.21	.Q	.V	.	.	.	.
12.750	139.6082	190.90	.Q	.V	.	.	.	.
12.833	140.9367	192.90	.Q	.V	.	.	.	.
12.917	142.2819	195.33	.Q	.V	.	.	.	.
13.000	143.6450	197.92	.Q	.V	.	.	.	.
13.083	145.0281	200.83	.Q	.V	.	.	.	.
13.167	146.4324	203.91	.Q	.V	.	.	.	.
13.250	147.8601	207.30	.Q	.V	.	.	.	.

13.333	149.3121	210.82	.Q . V . . .
13.417	150.7907	214.70	.Q . V . . .
13.500	152.2971	218.74	.Q . V . . .
13.583	153.8339	223.13	.Q . V . . .
13.667	155.4016	227.63	. Q . V . . .
13.750	157.0027	232.49	. Q . V . . .
13.833	158.6384	237.50	. Q . V . . .
13.917	160.3116	242.95	. Q . V . . .
14.000	162.0243	248.68	. Q . V . . .
14.083	163.7817	255.18	. Q . V . . .
14.167	165.5907	262.66	. Q . V . . .
14.250	167.4656	272.24	. Q . V . . .
14.333	169.4069	281.88	. Q . V . . .
14.417	171.4138	291.40	. Q . V . . .
14.500	173.4859	300.87	. Q . V . . .
14.583	175.6281	311.04	. Q . V . . .
14.667	177.8429	321.59	. Q . V . . .
14.750	180.1381	333.26	. Q . V . . .
14.833	182.5183	345.60	. Q . V . . .
14.917	184.9938	359.44	. Q . V . . .
15.000	187.5715	374.29	. Q . V . . .
15.083	190.2659	391.21	. Q . V . . .
15.167	193.0869	409.61	. Q . V . . .
15.250	196.0550	430.97	. Q . V . . .
15.333	199.1861	454.64	. Q . V . . .
15.417	202.4906	479.81	. Q . V . . .
15.500	205.9183	497.70	. Q . V . . .
15.583	209.3657	500.56	. Q . V . . .
15.667	212.8977	512.85	. Q . V . . .
15.750	216.7098	553.53	. Q . V . . .
15.833	221.0526	630.57	. Q . V . . .
15.917	226.4101	777.91	. Q . V . . .
16.000	233.2897	998.93	. Q . V . . .
16.083	244.0084	1556.35	. . Q V. . .
16.167	262.8376	2734.00	. . .V Q . .
16.250	293.3363	4428.42	. . . V . . Q.
16.333	320.3213	3918.21	. . . V . Q .
16.417	338.4577	2633.41	. . . Q V . .
16.500	351.3515	1872.18	. . Q . V . .
16.583	361.2860	1442.50	. . Q . V. .
16.667	369.2971	1163.20	. . Q . V. .
16.750	376.0934	986.83	. Q . . V .
16.833	381.9565	851.32	. Q . . V .
16.917	387.0339	737.23	. Q . . .V .
17.000	391.5730	659.08	. Q . . .V .
17.083	395.6408	590.64	. Q . . .V .
17.167	399.2803	528.44	. Q . . . V .
17.250	402.5637	476.75	. Q . . . V .
17.333	405.5451	432.90	. Q . . . V .
17.417	408.2236	388.93	. Q . . . V .
17.500	410.6447	351.54	. Q . . . V .
17.583	412.8907	326.12	. Q . . . V .
17.667	415.0669	315.99	. Q . . . V .
17.750	417.1526	302.84	. Q . . . V .
17.833	419.1350	287.85	. Q . . . V .
17.917	421.0050	271.52	. Q . . . V .
18.000	422.6072	232.64	. Q . . . V .

18.083	424.0566	210.45	.Q	.	.	.	V	.	
18.167	425.4744	205.87	.Q	.	.	.	V	.	
18.250	426.9185	209.67	.Q	.	.	.	V	.	
18.333	428.3825	212.59	.Q	.	.	.	V	.	
18.417	429.8411	211.78	.Q	.	.	.	V	.	
18.500	431.2827	209.32	.Q	.	.	.	V	.	
18.583	432.7023	206.13	.Q	.	.	.	V	.	
18.667	434.0974	202.58	.Q	.	.	.	V	.	
18.750	435.4678	198.98	.Q	.	.	.	V	.	
18.833	436.8136	195.42	.Q	.	.	.	V	.	
18.917	438.1351	191.88	.Q	.	.	.	V	.	
19.000	439.4333	188.49	.Q	.	.	.	V	.	
19.083	440.7089	185.22	.Q	.	.	.	V	.	
19.167	441.9626	182.04	.Q	.	.	.	V	.	
19.250	443.1952	178.97	.Q	.	.	.	V	.	
19.333	444.4074	176.02	.Q	.	.	.	V	.	
19.417	445.5998	173.14	.Q	.	.	.	V	.	
19.500	446.7729	170.33	.Q	.	.	.	V	.	
19.583	447.9273	167.63	.Q	.	.	.	V	.	
19.667	449.0641	165.06	.Q	.	.	.	V	.	
19.750	450.1840	162.61	.Q	.	.	.	V	.	
19.833	451.2878	160.26	.Q	.	.	.	V	.	
19.917	452.3760	158.02	.Q	.	.	.	V	.	
20.000	453.4487	155.76	.Q	.	.	.	V	.	
20.083	454.5062	153.54	.Q	.	.	.	V	.	
20.167	455.5489	151.40	.Q	.	.	.	V	.	
20.250	456.5774	149.34	.Q	.	.	.	V	.	
20.333	457.5923	147.36	.Q	.	.	.	V	.	
20.417	458.5939	145.44	.Q	.	.	.	V	.	
20.500	459.5829	143.59	.Q	.	.	.	V	.	
20.583	460.5594	141.80	.Q	.	.	.	V	.	
20.667	461.5241	140.07	.Q	.	.	.	V	.	
20.750	462.4772	138.39	.Q	.	.	.	V	.	
20.833	463.4191	136.77	.Q	.	.	.	V	.	
20.917	464.3502	135.19	.Q	.	.	.	V	.	
21.000	465.2707	133.66	.Q	.	.	.	V	.	
21.083	466.1811	132.18	.Q	.	.	.	V	.	
21.167	467.0815	130.74	.Q	.	.	.	V	.	
21.250	467.9723	129.34	.Q	.	.	.	V	.	
21.333	468.8537	127.98	.Q	.	.	.	V	.	
21.417	469.7260	126.66	.Q	.	.	.	V	.	
21.500	470.5895	125.37	.Q	.	.	.	V	.	
21.583	471.4443	124.12	.Q	.	.	.	V	.	
21.667	472.2907	122.90	.Q	.	.	.	V	.	
21.750	473.1289	121.71	.Q	.	.	.	V	.	
21.833	473.9592	120.55	.Q	.	.	.	V	.	
21.917	474.7817	119.42	.Q	.	.	.	V	.	
22.000	475.5966	118.32	.Q	.	.	.	V	.	
22.083	476.4040	117.24	.Q	.	.	.	V	.	
22.167	477.2043	116.19	.Q	.	.	.	V	.	
22.250	477.9974	115.17	.Q	.	.	.	V	.	
22.333	478.7837	114.17	.Q	.	.	.	V	.	
22.417	479.5633	113.19	.Q	.	.	.	V	.	
22.500	480.3362	112.23	Q	.	.	.	V	.	
22.583	481.1027	111.29	Q	.	.	.	V	.	
22.667	481.8629	110.38	Q	.	.	.	V	.	
22.750	482.6169	109.48	Q	.	.	.	V	.	

22.833	483.3648	108.60	Q	.	.	.	V .
22.917	484.1069	107.75	Q	.	.	.	V.
23.000	484.8431	106.90	Q	.	.	.	V.
23.083	485.5737	106.08	Q	.	.	.	V.
23.167	486.2987	105.27	Q	.	.	.	V.
23.250	487.0183	104.48	Q	.	.	.	V.
23.333	487.7325	103.71	Q	.	.	.	V.
23.417	488.4415	102.94	Q	.	.	.	V.
23.500	489.1454	102.20	Q	.	.	.	V.
23.583	489.8442	101.47	Q	.	.	.	V.
23.667	490.5381	100.75	Q	.	.	.	V.
23.750	491.2271	100.04	Q	.	.	.	V.
23.833	491.9113	99.35	Q	.	.	.	V.
23.917	492.5909	98.67	Q	.	.	.	V.
24.000	493.2658	98.00	Q	.	.	.	V.
24.083	493.9232	95.45	Q	.	.	.	V.
24.167	494.5143	85.83	Q	.	.	.	V.
24.250	494.9434	62.30	Q	.	.	.	V.
24.333	495.2302	41.65	Q	.	.	.	V.
24.417	495.4345	29.66	Q	.	.	.	V.
24.500	495.5875	22.21	Q	.	.	.	V.
24.583	495.7060	17.20	Q	.	.	.	V.
24.667	495.8005	13.73	Q	.	.	.	V.
24.750	495.8766	11.04	Q	.	.	.	V.
24.833	495.9381	8.93	Q	.	.	.	V.
24.917	495.9884	7.31	Q	.	.	.	V.
25.000	496.0294	5.95	Q	.	.	.	V.
25.083	496.0625	4.81	Q	.	.	.	V.
25.167	496.0893	3.89	Q	.	.	.	V.
25.250	496.1108	3.12	Q	.	.	.	V.
25.333	496.1279	2.47	Q	.	.	.	V.
25.417	496.1415	1.98	Q	.	.	.	V.
25.500	496.1527	1.63	Q	.	.	.	V.
25.583	496.1620	1.35	Q	.	.	.	V.
25.667	496.1691	1.03	Q	.	.	.	V.
25.750	496.1740	0.72	Q	.	.	.	V.
25.833	496.1768	0.41	Q	.	.	.	V.
25.917	496.1775	0.10	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1555.0
10%	120.0
20%	50.0
30%	35.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

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****************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     102.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1400.0	2800.0	4200.0	5600.0
0.083	0.0131	1.91	Q	.	.	.	.
0.167	0.0883	10.92	Q	.	.	.	.
0.250	0.3297	35.05	Q	.	.	.	.
0.333	0.7556	61.85	Q	.	.	.	.
0.417	1.3632	88.22	Q	.	.	.	.
0.500	2.0982	106.72	Q	.	.	.	.
0.583	2.9112	118.05	Q	.	.	.	.
0.667	3.7765	125.63	Q	.	.	.	.
0.750	4.6808	131.31	Q	.	.	.	.
0.833	5.6162	135.81	Q	.	.	.	.
0.917	6.5758	139.34	Q	.	.	.	.
1.000	7.5558	142.29	VQ	.	.	.	.
1.083	8.5532	144.83	VQ	.	.	.	.
1.167	9.5653	146.96	VQ	.	.	.	.
1.250	10.5902	148.82	VQ	.	.	.	.
1.333	11.6263	150.44	VQ	.	.	.	.
1.417	12.6717	151.80	VQ	.	.	.	.
1.500	13.7248	152.90	VQ	.	.	.	.
1.583	14.7849	153.93	VQ	.	.	.	.
1.667	15.8525	155.01	VQ	.	.	.	.
1.750	16.9276	156.11	VQ	.	.	.	.
1.833	18.0101	157.17	VQ	.	.	.	.
1.917	19.0988	158.08	VQ	.	.	.	.
2.000	20.1920	158.73	.Q	.	.	.	.
2.083	21.2891	159.30	.Q	.	.	.	.
2.167	22.3901	159.86	.Q	.	.	.	.
2.250	23.4950	160.44	.Q	.	.	.	.
2.333	24.6038	161.01	.Q	.	.	.	.
2.417	25.7167	161.59	.Q	.	.	.	.
2.500	26.8337	162.18	.Q	.	.	.	.
2.583	27.9547	162.78	.Q	.	.	.	.
2.667	29.0798	163.37	.Q	.	.	.	.
2.750	30.2092	163.98	.Q	.	.	.	.
2.833	31.3427	164.59	.Q	.	.	.	.
2.917	32.4805	165.21	.Q	.	.	.	.
3.000	33.6226	165.83	.Q	.	.	.	.
3.083	34.7690	166.46	.Q	.	.	.	.
3.167	35.9198	167.09	.Q	.	.	.	.
3.250	37.0750	167.74	.Q	.	.	.	.
3.333	38.2347	168.38	.Q	.	.	.	.
3.417	39.3989	169.05	.QV	.	.	.	.
3.500	40.5677	169.70	.QV	.	.	.	.
3.583	41.7411	170.38	.QV	.	.	.	.
3.667	42.9191	171.05	.QV	.	.	.	.
3.750	44.1018	171.74	.QV	.	.	.	.

3.833	45.2893	172.42	.QV	.	.	.	.
3.917	46.4816	173.13	.QV	.	.	.	.
4.000	47.6788	173.82	.QV	.	.	.	.
4.083	48.8809	174.54	.QV	.	.	.	.
4.167	50.0879	175.26	.QV	.	.	.	.
4.250	51.3000	176.00	.QV	.	.	.	.
4.333	52.5171	176.72	.QV	.	.	.	.
4.417	53.7394	177.48	.QV	.	.	.	.
4.500	54.9668	178.22	.QV	.	.	.	.
4.583	56.1996	178.99	.QV	.	.	.	.
4.667	57.4376	179.76	.QV	.	.	.	.
4.750	58.6810	180.54	.Q V	.	.	.	.
4.833	59.9298	181.33	.Q V	.	.	.	.
4.917	61.1841	182.13	.Q V	.	.	.	.
5.000	62.4440	182.93	.Q V	.	.	.	.
5.083	63.7095	183.76	.Q V	.	.	.	.
5.167	64.9807	184.57	.Q V	.	.	.	.
5.250	66.2577	185.42	.Q V	.	.	.	.
5.333	67.5404	186.25	.Q V	.	.	.	.
5.417	68.8291	187.12	.Q V	.	.	.	.
5.500	70.1237	187.98	.Q V	.	.	.	.
5.583	71.4244	188.86	.Q V	.	.	.	.
5.667	72.7312	189.74	.Q V	.	.	.	.
5.750	74.0442	190.65	.Q V	.	.	.	.
5.833	75.3635	191.55	.Q V	.	.	.	.
5.917	76.6891	192.49	.Q V	.	.	.	.
6.000	78.0211	193.41	.Q V	.	.	.	.
6.083	79.3597	194.37	.Q V	.	.	.	.
6.167	80.7049	195.31	.Q V	.	.	.	.
6.250	82.0568	196.30	.Q V	.	.	.	.
6.333	83.4154	197.27	.Q V	.	.	.	.
6.417	84.7809	198.28	.Q V	.	.	.	.
6.500	86.1534	199.28	.Q V	.	.	.	.
6.583	87.5329	200.31	.Q V	.	.	.	.
6.667	88.9196	201.34	.Q V	.	.	.	.
6.750	90.3135	202.40	.Q V	.	.	.	.
6.833	91.7148	203.46	.Q V	.	.	.	.
6.917	93.1236	204.56	.Q V	.	.	.	.
7.000	94.5398	205.64	.Q V	.	.	.	.
7.083	95.9638	206.77	.Q V	.	.	.	.
7.167	97.3955	207.88	.Q V	.	.	.	.
7.250	98.8352	209.04	.Q V	.	.	.	.
7.333	100.2828	210.19	.Q V	.	.	.	.
7.417	101.7386	211.38	.Q V	.	.	.	.
7.500	103.2026	212.57	.Q V	.	.	.	.
7.583	104.6750	213.80	.Q V	.	.	.	.
7.667	106.1558	215.02	.Q V	.	.	.	.
7.750	107.6454	216.28	.Q V	.	.	.	.
7.833	109.1436	217.54	.Q V	.	.	.	.
7.917	110.6508	218.85	.Q V	.	.	.	.
8.000	112.1670	220.15	.Q V	.	.	.	.
8.083	113.6924	221.50	.Q V	.	.	.	.
8.167	115.2271	222.84	.Q V	.	.	.	.
8.250	116.7714	224.23	.Q V	.	.	.	.
8.333	118.3252	225.61	.Q V	.	.	.	.
8.417	119.8890	227.05	.Q V	.	.	.	.
8.500	121.4626	228.49	.Q V	.	.	.	.

8.583	123.0464	229.98	.Q	V	.	.	.	.
8.667	124.6405	231.46	.Q	V	.	.	.	.
8.750	126.2451	233.00	.Q	V	.	.	.	.
8.833	127.8604	234.53	.Q	V	.	.	.	.
8.917	129.4866	236.13	.Q	V	.	.	.	.
9.000	131.1237	237.71	.Q	V	.	.	.	.
9.083	132.7722	239.37	.Q	V	.	.	.	.
9.167	134.4321	241.02	.Q	V	.	.	.	.
9.250	136.1039	242.73	.Q	V	.	.	.	.
9.333	137.7873	244.44	.Q	V	.	.	.	.
9.417	139.4831	246.22	.Q	V	.	.	.	.
9.500	141.1910	248.00	.Q	V	.	.	.	.
9.583	142.9118	249.85	.Q	V	.	.	.	.
9.667	144.6452	251.69	.Q	V	.	.	.	.
9.750	146.3919	253.62	.Q	V	.	.	.	.
9.833	148.1518	255.54	.Q	V	.	.	.	.
9.917	149.9256	257.55	.Q	V	.	.	.	.
10.000	151.7131	259.55	.Q	V	.	.	.	.
10.083	153.5150	261.64	.Q	V	.	.	.	.
10.167	155.3313	263.72	.Q	V	.	.	.	.
10.250	157.1625	265.90	.Q	V	.	.	.	.
10.333	159.0088	268.08	.Q	V	.	.	.	.
10.417	160.8708	270.36	.Q	V	.	.	.	.
10.500	162.7484	272.63	.Q	V	.	.	.	.
10.583	164.6424	275.02	.Q	V	.	.	.	.
10.667	166.5529	277.40	.Q	V	.	.	.	.
10.750	168.4805	279.89	.Q	V	.	.	.	.
10.833	170.4253	282.39	. Q	V	.	.	.	.
10.917	172.3881	285.00	. Q	V	.	.	.	.
11.000	174.3690	287.62	. Q	V	.	.	.	.
11.083	176.3687	290.37	. Q	V	.	.	.	.
11.167	178.3875	293.12	. Q	V	.	.	.	.
11.250	180.4261	296.01	. Q	V	.	.	.	.
11.333	182.4846	298.90	. Q	V	.	.	.	.
11.417	184.5642	301.95	. Q	V	.	.	.	.
11.500	186.6647	305.00	. Q	V	.	.	.	.
11.583	188.7875	308.22	. Q	V	.	.	.	.
11.667	190.9324	311.44	. Q	V	.	.	.	.
11.750	193.1007	314.84	. Q	V	.	.	.	.
11.833	195.2925	318.25	. Q	V	.	.	.	.
11.917	197.5091	321.85	. Q	V	.	.	.	.
12.000	199.7507	325.47	. Q	V	.	.	.	.
12.083	202.0122	328.37	. Q	V	.	.	.	.
12.167	204.2699	327.83	. Q	V	.	.	.	.
12.250	206.4747	320.14	. Q	V	.	.	.	.
12.333	208.6179	311.19	. Q	V	.	.	.	.
12.417	210.7027	302.71	. Q	V	.	.	.	.
12.500	212.7552	298.03	. Q	V	.	.	.	.
12.583	214.8009	297.03	. Q	.V	.	.	.	.
12.667	216.8524	297.87	. Q	.V	.	.	.	.
12.750	218.9178	299.90	. Q	.V	.	.	.	.
12.833	221.0015	302.55	. Q	.V	.	.	.	.
12.917	223.1087	305.97	. Q	.V	.	.	.	.
13.000	225.2419	309.74	. Q	.V	.	.	.	.
13.083	227.4048	314.04	. Q	.V	.	.	.	.
13.167	229.5992	318.63	. Q	.V	.	.	.	.
13.250	231.8288	323.74	. Q	.V	.	.	.	.

13.333	234.0951	329.06	. Q . V . . .
13.417	236.4019	334.95	. Q . V . . .
13.500	238.7511	341.10	. Q . V . . .
13.583	241.1462	347.78	. Q . V . . .
13.667	243.5884	354.60	. Q . V . . .
13.750	246.0814	361.99	. Q . V . . .
13.833	248.6269	369.60	. Q . V . . .
13.917	251.2298	377.95	. Q . V . . .
14.000	253.8930	386.69	. Q . V . . .
14.083	256.6233	396.45	. Q . V . . .
14.167	259.4284	407.30	. Q . V . . .
14.250	262.3269	420.86	. Q . V . . .
14.333	265.3298	436.02	. Q . V . . .
14.417	268.4538	453.60	. Q . V . . .
14.500	271.6936	470.43	. Q . V . . .
14.583	275.0487	487.16	. Q . V . . .
14.667	278.5193	503.92	. Q . V . . .
14.750	282.1148	522.07	. Q . V . . .
14.833	285.8410	541.04	. Q . V . . .
14.917	289.7122	562.10	. Q . V . . .
15.000	293.7377	584.51	. Q . V . . .
15.083	297.9379	609.87	. Q . V . . .
15.167	302.3268	637.26	. Q . V . . .
15.250	306.9331	668.84	. Q . V . . .
15.333	311.7787	703.58	. Q . V . . .
15.417	316.8860	741.58	. Q . V . . .
15.500	322.2141	773.64	. Q . V . . .
15.583	327.6636	791.27	. Q . V . . .
15.667	333.2457	810.52	. Q . V . . .
15.750	339.0778	846.83	. Q . V . . .
15.833	345.4752	928.90	. Q . V . . .
15.917	353.0443	1099.02	. Q . V . . .
16.000	362.4580	1366.88	. Q. V . . .
16.083	376.3073	2010.91	. . Q V. . .
16.167	399.1277	3313.53	. . V Q . .
16.250	435.7074	5311.37	. . . V . Q .
16.333	473.7953	5530.36	. . . V . Q.
16.417	508.8353	5087.81	. . . V . Q .
16.500	535.3412	3848.67	. . . Q . .
16.583	554.3231	2756.16	. . Q. V . .
16.667	568.9239	2120.04	. . Q . V. .
16.750	581.0119	1755.18	. Q . V. .
16.833	591.3618	1502.81	. Q . V .
16.917	600.2330	1288.10	. Q. . V .
17.000	608.0594	1136.39	. Q . . .V .
17.083	615.0284	1011.91	. Q . . .V .
17.167	621.2352	901.22	. Q . . .V .
17.250	626.8077	809.14	. Q . . . V .
17.333	631.8275	728.86	. Q . . . V .
17.417	636.3014	649.62	. Q . . . V .
17.500	640.3117	582.30	. Q . . . V .
17.583	644.0450	542.08	. Q . . . V .
17.667	647.6347	521.22	. Q . . . V .
17.750	651.0485	495.68	. Q . . . V .
17.833	654.2532	465.32	. Q . . . V .
17.917	657.1473	420.23	. Q . . . V .
18.000	659.6807	367.85	. Q . . . V .

18.083	662.0167	339.19	. Q	.	.	.	V	.
18.167	664.2844	329.27	. Q	.	.	.	V	.
18.250	666.5478	328.64	. Q	.	.	.	V	.
18.333	668.8214	330.13	. Q	.	.	.	V	.
18.417	671.1089	332.15	. Q	.	.	.	V	.
18.500	673.3896	331.16	. Q	.	.	.	V	.
18.583	675.6442	327.36	. Q	.	.	.	V	.
18.667	677.8641	322.33	. Q	.	.	.	V	.
18.750	680.0467	316.92	. Q	.	.	.	V	.
18.833	682.1915	311.42	. Q	.	.	.	V	.
18.917	684.2984	305.92	. Q	.	.	.	V	.
19.000	686.3685	300.57	. Q	.	.	.	V	.
19.083	688.4028	295.38	. Q	.	.	.	V	.
19.167	690.4022	290.31	. Q	.	.	.	V	.
19.250	692.3677	285.40	. Q	.	.	.	V	.
19.333	694.3006	280.65	. Q	.	.	.	V	.
19.417	696.2015	276.01	.Q	.	.	.	V	.
19.500	698.0713	271.49	.Q	.	.	.	V	.
19.583	699.9111	267.14	.Q	.	.	.	V	.
19.667	701.7225	263.01	.Q	.	.	.	V	.
19.750	703.5067	259.07	.Q	.	.	.	V	.
19.833	705.2649	255.29	.Q	.	.	.	V	.
19.917	706.9976	251.59	.Q	.	.	.	V	.
20.000	708.7050	247.91	.Q	.	.	.	V	.
20.083	710.3878	244.33	.Q	.	.	.	V	.
20.167	712.0468	240.89	.Q	.	.	.	V	.
20.250	713.6829	237.57	.Q	.	.	.	V	.
20.333	715.2971	234.37	.Q	.	.	.	V	.
20.417	716.8900	231.28	.Q	.	.	.	V	.
20.500	718.4623	228.30	.Q	.	.	.	V	.
20.583	720.0148	225.42	.Q	.	.	.	V	.
20.667	721.5481	222.64	.Q	.	.	.	V	.
20.750	723.0628	219.94	.Q	.	.	.	V	.
20.833	724.5596	217.33	.Q	.	.	.	V	.
20.917	726.0389	214.80	.Q	.	.	.	V	.
21.000	727.5013	212.34	.Q	.	.	.	V	.
21.083	728.9473	209.96	.Q	.	.	.	V	.
21.167	730.3774	207.65	.Q	.	.	.	V	.
21.250	731.7921	205.41	.Q	.	.	.	V	.
21.333	733.1918	203.23	.Q	.	.	.	V	.
21.417	734.5768	201.11	.Q	.	.	.	V	.
21.500	735.9476	199.04	.Q	.	.	.	V	.
21.583	737.3046	197.03	.Q	.	.	.	V	.
21.667	738.6481	195.08	.Q	.	.	.	V	.
21.750	739.9785	193.17	.Q	.	.	.	V	.
21.833	741.2961	191.32	.Q	.	.	.	V	.
21.917	742.6013	189.51	.Q	.	.	.	V	.
22.000	743.8943	187.74	.Q	.	.	.	V	.
22.083	745.1754	186.02	.Q	.	.	.	V	.
22.167	746.4449	184.34	.Q	.	.	.	V	.
22.250	747.7032	182.70	.Q	.	.	.	V	.
22.333	748.9504	181.10	.Q	.	.	.	V	.
22.417	750.1868	179.53	.Q	.	.	.	V	.
22.500	751.4127	178.00	.Q	.	.	.	V	.
22.583	752.6283	176.50	.Q	.	.	.	V	.
22.667	753.8338	175.04	.Q	.	.	.	V	.
22.750	755.0294	173.61	.Q	.	.	.	V	.

22.833	756.2154	172.20	.Q	.	.	.	V .
22.917	757.3919	170.83	.Q	.	.	.	V .
23.000	758.5591	169.49	.Q	.	.	.	V.
23.083	759.7173	168.17	.Q	.	.	.	V.
23.167	760.8667	166.88	.Q	.	.	.	V.
23.250	762.0073	165.62	.Q	.	.	.	V.
23.333	763.1394	164.38	.Q	.	.	.	V.
23.417	764.2631	163.17	.Q	.	.	.	V.
23.500	765.3787	161.97	.Q	.	.	.	V.
23.583	766.4861	160.81	.Q	.	.	.	V.
23.667	767.5858	159.66	.Q	.	.	.	V.
23.750	768.6776	158.54	.Q	.	.	.	V.
23.833	769.7618	157.43	.Q	.	.	.	V.
23.917	770.8386	156.35	.Q	.	.	.	V.
24.000	771.9081	155.28	.Q	.	.	.	V.
24.083	772.9572	152.34	.Q	.	.	.	V.
24.167	773.9375	142.34	.Q	.	.	.	V.
24.250	774.7456	117.34	Q	.	.	.	V.
24.333	775.3649	89.92	Q	.	.	.	V.
24.417	775.8002	63.20	Q	.	.	.	V.
24.500	776.1072	44.59	Q	.	.	.	V.
24.583	776.3367	33.32	Q	.	.	.	V.
24.667	776.5152	25.91	Q	.	.	.	V.
24.750	776.6563	20.49	Q	.	.	.	V.
24.833	776.7684	16.28	Q	.	.	.	V.
24.917	776.8586	13.10	Q	.	.	.	V.
25.000	776.9310	10.52	Q	.	.	.	V.
25.083	776.9888	8.40	Q	.	.	.	V.
25.167	777.0349	6.69	Q	.	.	.	V.
25.250	777.0713	5.28	Q	.	.	.	V.
25.333	777.0997	4.12	Q	.	.	.	V.
25.417	777.1221	3.25	Q	.	.	.	V.
25.500	777.1403	2.64	Q	.	.	.	V.
25.583	777.1548	2.12	Q	.	.	.	V.
25.667	777.1655	1.55	Q	.	.	.	V.
25.750	777.1723	0.99	Q	.	.	.	V.
25.833	777.1754	0.45	Q	.	.	.	V.
25.917	777.1761	0.10	Q	.	.	.	V.
26.000	777.1761	0.00	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1555.0
10%	160.0
20%	65.0
30%	45.0
40%	30.0
50%	25.0
60%	20.0
70%	15.0
80%	15.0
90%	15.0

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****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
        UPSTREAM ELEVATION(FT) =    3292.00
        DOWNSTREAM ELEVATION(FT) =    3225.00
        CHANNEL LENGTH(FT) =    2780.00     MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                             (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
        AVERAGED PEAK  5-MINUTE: (    5530.4).......[ 35.39]
        AVERAGED PEAK 15-MINUTE: (    5309.8).......[ 34.96]
        AVERAGED PEAK 30-MINUTE: (    4308.0).......[ 32.47]
        AVERAGED PEAK  1-HOUR:   (    2991.0).......[ 28.43]
        AVERAGED PEAK  3-HOUR:   (    1488.8).......[ 21.95]
        AVERAGED PEAK  6-HOUR:   (     930.1).......[ 18.30]
        AVERAGED PEAK 24-HOUR:   (     390.5).......[ 13.04]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  26.000
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (   2780.00)/( 26.000) =   0.030 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                          OUTFLOW LESS
       MODEL        INFLOW     ROUTED      LOSS
        TIME      (STREAM 1)    FLOW     (STREAM 1)
       (HRS)        (CFS)       (CFS)      (CFS)
        0.083         1.91        1.23       1.23
        0.167        10.92        7.71       7.71
        0.250        35.05       26.45      26.45
        0.333        61.85       52.30      52.30
        0.417        88.22       78.82      78.82
        0.500       106.72      100.13     100.13
        0.583       118.05      114.01     114.01
        0.667       125.63      122.93     122.93
        0.750       131.31      129.29     129.29
        0.833       135.81      134.21     134.21
        0.917       139.34      138.08     138.08
        1.000       142.29      141.24     141.24
        1.083       144.83      143.92     143.92
        1.167       146.96      146.20     146.20
        1.250       148.82      148.16     148.16
        1.333       150.44      149.86     149.86
        1.417       151.80      151.31     151.31
        1.500       152.90      152.51     152.51
        1.583       153.93      153.56     153.56
        1.667       155.01      154.63     154.63
```

1.750	156.11	155.72	155.72
1.833	157.17	156.80	156.80
1.917	158.08	157.76	157.76
2.000	158.73	158.50	158.50
2.083	159.30	159.10	159.10
2.167	159.86	159.66	159.66
2.250	160.44	160.23	160.23
2.333	161.01	160.80	160.80
2.417	161.59	161.38	161.38
2.500	162.18	161.97	161.97
2.583	162.78	162.56	162.56
2.667	163.37	163.16	163.16
2.750	163.98	163.76	163.76
2.833	164.59	164.37	164.37
2.917	165.21	164.99	164.99
3.000	165.83	165.61	165.61
3.083	166.46	166.24	166.24
3.167	167.09	166.87	166.87
3.250	167.74	167.51	167.51
3.333	168.38	168.15	168.15
3.417	169.05	168.81	168.81
3.500	169.70	169.47	169.47
3.583	170.38	170.14	170.14
3.667	171.05	170.81	170.81
3.750	171.74	171.49	171.49
3.833	172.42	172.18	172.18
3.917	173.13	172.87	172.87
4.000	173.82	173.57	173.57
4.083	174.54	174.29	174.29
4.167	175.26	175.00	175.00
4.250	176.00	175.73	175.73
4.333	176.72	176.46	176.46
4.417	177.48	177.21	177.21
4.500	178.22	177.96	177.96
4.583	178.99	178.72	178.72
4.667	179.76	179.48	179.48
4.750	180.54	180.26	180.26
4.833	181.33	181.05	181.05
4.917	182.13	181.84	181.84
5.000	182.93	182.65	182.65
5.083	183.76	183.46	183.46
5.167	184.57	184.28	184.28
5.250	185.42	185.12	185.12
5.333	186.25	185.96	185.96
5.417	187.12	186.81	186.81
5.500	187.98	187.67	187.67
5.583	188.86	188.55	188.55
5.667	189.74	189.43	189.43
5.750	190.65	190.33	190.33
5.833	191.55	191.23	191.23
5.917	192.49	192.15	192.15
6.000	193.41	193.08	193.08
6.083	194.37	194.03	194.03
6.167	195.31	194.98	194.98
6.250	196.30	195.95	195.95
6.333	197.27	196.92	196.92
6.417	198.28	197.92	197.92

6.500	199.28	198.92	198.92
6.583	200.31	199.94	199.94
6.667	201.34	200.97	200.97
6.750	202.40	202.03	202.03
6.833	203.46	203.08	203.08
6.917	204.56	204.17	204.17
7.000	205.64	205.25	205.25
7.083	206.77	206.36	206.36
7.167	207.88	207.48	207.48
7.250	209.04	208.63	208.63
7.333	210.19	209.78	209.78
7.417	211.38	210.96	210.96
7.500	212.57	212.15	212.15
7.583	213.80	213.36	213.36
7.667	215.02	214.58	214.58
7.750	216.28	215.83	215.83
7.833	217.54	217.09	217.09
7.917	218.85	218.38	218.38
8.000	220.15	219.68	219.68
8.083	221.50	221.02	221.02
8.167	222.84	222.36	222.36
8.250	224.23	223.73	223.73
8.333	225.61	225.12	225.12
8.417	227.05	226.54	226.54
8.500	228.49	227.98	227.98
8.583	229.98	229.44	229.44
8.667	231.46	230.93	230.93
8.750	233.00	232.45	232.45
8.833	234.53	233.98	233.98
8.917	236.13	235.56	235.56
9.000	237.71	237.15	237.15
9.083	239.37	238.78	238.78
9.167	241.02	240.43	240.43
9.250	242.73	242.12	242.12
9.333	244.44	243.83	243.83
9.417	246.22	245.59	245.59
9.500	248.00	247.36	247.36
9.583	249.85	249.19	249.19
9.667	251.69	251.04	251.04
9.750	253.62	252.93	252.93
9.833	255.54	254.86	254.86
9.917	257.55	256.83	256.83
10.000	259.55	258.83	258.83
10.083	261.64	260.89	260.89
10.167	263.72	262.98	262.98
10.250	265.90	265.12	265.12
10.333	268.08	267.30	267.30
10.417	270.36	269.54	269.54
10.500	272.63	271.82	271.82
10.583	275.02	274.17	274.17
10.667	277.40	276.55	276.55
10.750	279.89	279.00	279.00
10.833	282.39	281.50	281.50
10.917	285.00	284.07	284.07
11.000	287.62	286.69	286.69
11.083	290.37	289.39	289.39
11.167	293.12	292.14	292.14

11.250	296.01	294.98	294.98
11.333	298.90	297.87	297.87
11.417	301.95	300.86	300.86
11.500	305.00	303.91	303.91
11.583	308.22	307.07	307.07
11.667	311.44	310.29	310.29
11.750	314.84	313.63	313.63
11.833	318.25	317.04	317.04
11.917	321.85	320.57	320.57
12.000	325.47	324.18	324.18
12.083	328.37	327.34	327.34
12.167	327.83	328.02	328.02
12.250	320.14	322.88	322.88
12.333	311.19	314.38	314.38
12.417	302.71	305.73	305.73
12.500	298.03	299.70	299.70
12.583	297.03	297.39	297.39
12.667	297.87	297.57	297.57
12.750	299.90	299.18	299.18
12.833	302.55	301.61	301.61
12.917	305.97	304.75	304.75
13.000	309.74	308.40	308.40
13.083	314.04	312.51	312.51
13.167	318.63	317.00	317.00
13.250	323.74	321.92	321.92
13.333	329.06	327.17	327.17
13.417	334.95	332.85	332.85
13.500	341.10	338.91	338.91
13.583	347.78	345.40	345.40
13.667	354.60	352.17	352.17
13.750	361.99	359.35	359.35
13.833	369.60	366.89	366.89
13.917	377.95	374.97	374.97
14.000	386.69	383.57	383.57
14.083	396.45	392.97	392.97
14.167	407.30	403.43	403.43
14.250	420.86	416.02	416.02
14.333	436.02	430.61	430.61
14.417	453.60	447.33	447.33
14.500	470.43	464.43	464.43
14.583	487.16	481.20	481.20
14.667	503.92	497.95	497.95
14.750	522.07	515.60	515.60
14.833	541.04	534.28	534.28
14.917	562.10	554.60	554.60
15.000	584.51	576.52	576.52
15.083	609.87	600.83	600.83
15.167	637.26	627.50	627.50
15.250	668.84	657.59	657.59
15.333	703.58	691.20	691.20
15.417	741.58	728.03	728.03
15.500	773.64	762.21	762.21
15.583	791.27	784.99	784.99
15.667	810.52	803.66	803.66
15.750	846.83	833.89	833.89
15.833	928.90	899.65	899.65
15.917	1099.02	1038.39	1038.39

16.000	1366.88	1271.41	1271.41
16.083	2010.91	1781.37	1781.37
16.167	3313.53	2849.26	2849.26
16.250	5311.37	4599.32	4599.32
16.333	5530.36	5452.31	5452.31
16.417	5087.81	5245.54	5245.54
16.500	3848.67	4290.31	4290.31
16.583	2756.16	3145.54	3145.54
16.667	2120.04	2346.76	2346.76
16.750	1755.18	1885.22	1885.22
16.833	1502.81	1592.76	1592.76
16.917	1288.10	1364.63	1364.63
17.000	1136.39	1190.46	1190.46
17.083	1011.91	1056.28	1056.28
17.167	901.22	940.67	940.67
17.250	809.14	841.96	841.96
17.333	728.86	757.47	757.47
17.417	649.62	677.86	677.86
17.500	582.30	606.29	606.29
17.583	542.08	556.42	556.42
17.667	521.22	528.65	528.65
17.750	495.68	504.78	504.78
17.833	465.32	476.14	476.14
17.917	420.23	436.30	436.30
18.000	367.85	386.51	386.51
18.083	339.19	349.40	349.40
18.167	329.27	332.81	332.81
18.250	328.64	328.87	328.87
18.333	330.13	329.60	329.60
18.417	332.15	331.43	331.43
18.500	331.16	331.51	331.51
18.583	327.36	328.71	328.71
18.667	322.33	324.12	324.12
18.750	316.92	318.85	318.85
18.833	311.42	313.38	313.38
18.917	305.92	307.88	307.88
19.000	300.57	302.48	302.48
19.083	295.38	297.23	297.23
19.167	290.31	292.12	292.12
19.250	285.40	287.15	287.15
19.333	280.65	282.34	282.34
19.417	276.01	277.67	277.67
19.500	271.49	273.10	273.10
19.583	267.14	268.69	268.69
19.667	263.01	264.48	264.48
19.750	259.07	260.48	260.48
19.833	255.29	256.64	256.64
19.917	251.59	252.91	252.91
20.000	247.91	249.22	249.22
20.083	244.33	245.61	245.61
20.167	240.89	242.12	242.12
20.250	237.57	238.75	238.75
20.333	234.37	235.51	235.51
20.417	231.28	232.38	232.38
20.500	228.30	229.37	229.37
20.583	225.42	226.45	226.45
20.667	222.64	223.63	223.63

20.750	219.94	220.90	220.90
20.833	217.33	218.26	218.26
20.917	214.80	215.70	215.70
21.000	212.34	213.22	213.22
21.083	209.96	210.81	210.81
21.167	207.65	208.48	208.48
21.250	205.41	206.21	206.21
21.333	203.23	204.00	204.00
21.417	201.11	201.86	201.86
21.500	199.04	199.78	199.78
21.583	197.03	197.75	197.75
21.667	195.08	195.78	195.78
21.750	193.17	193.85	193.85
21.833	191.32	191.98	191.98
21.917	189.51	190.15	190.15
22.000	187.74	188.37	188.37
22.083	186.02	186.63	186.63
22.167	184.34	184.94	184.94
22.250	182.70	183.28	183.28
22.333	181.10	181.67	181.67
22.417	179.53	180.09	180.09
22.500	178.00	178.54	178.54
22.583	176.50	177.04	177.04
22.667	175.04	175.56	175.56
22.750	173.61	174.12	174.12
22.833	172.20	172.70	172.70
22.917	170.83	171.32	171.32
23.000	169.49	169.97	169.97
23.083	168.17	168.64	168.64
23.167	166.88	167.34	167.34
23.250	165.62	166.07	166.07
23.333	164.38	164.82	164.82
23.417	163.17	163.60	163.60
23.500	161.97	162.40	162.40
23.583	160.81	161.22	161.22
23.667	159.66	160.07	160.07
23.750	158.54	158.94	158.94
23.833	157.43	157.83	157.83
23.917	156.35	156.74	156.74
24.000	155.28	155.66	155.66
24.083	152.34	153.39	153.39
24.167	142.34	145.90	145.90
24.250	117.34	126.25	126.25
24.333	89.92	99.69	99.69
24.417	63.20	72.72	72.72
24.500	44.59	51.22	51.22
24.583	33.32	37.34	37.34
24.667	25.91	28.55	28.55
24.750	20.49	22.42	22.42
24.833	16.28	17.78	17.78
24.917	13.10	14.23	14.23
25.000	10.52	11.44	11.44
25.083	8.40	9.15	9.15
25.167	6.69	7.30	7.30
25.250	5.28	5.78	5.78
25.333	4.12	4.54	4.54
25.417	3.25	3.56	3.56

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        25.500          2.64          2.86          2.86
        25.583          2.12          2.31          2.31
        25.667          1.55          1.75          1.75
        25.750          0.99          1.19          1.19
        25.833          0.45          0.64          0.64
        25.917          0.10          0.23          0.23
        26.000          0.00          0.04          0.04
        26.083          0.00          0.00          0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =     777.176 AF
    OUTFLOW VOLUME =     777.177 AF
    LOSS    VOLUME =       0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE     103.00 TO NODE     103.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     1150.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.294 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.096
         LOW LOSS FRACTION = 0.090
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.999
          24-HOUR FACTOR = 0.999

         UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  28.345


============================================================================
                    UNIT HYDROGRAPH DETERMINATION
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INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.617	224.923
2	8.356	937.185
3	26.993	2591.986
4	49.088	3072.996
5	61.909	1783.139
6	69.846	1103.760
7	75.599	800.203
8	79.958	606.260
9	83.315	466.824
10	86.130	391.556
11	88.460	324.085
12	90.242	247.720
13	91.793	215.769
14	93.134	186.454
15	94.272	158.336
16	95.236	134.033
17	96.060	114.598
18	96.782	100.453
19	97.339	77.414
20	97.809	65.358
21	98.111	41.994
22	98.414	42.147
23	98.753	47.208
24	99.093	47.285
25	99.433	47.208
26	99.772	47.208
27	100.000	31.713

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0004	0.0044
2	0.0049	0.0004	0.0044
3	0.0049	0.0004	0.0045
4	0.0049	0.0004	0.0045
5	0.0049	0.0004	0.0045
6	0.0049	0.0004	0.0045
7	0.0050	0.0004	0.0045
8	0.0050	0.0004	0.0045
9	0.0050	0.0004	0.0045
10	0.0050	0.0004	0.0045
11	0.0050	0.0005	0.0046
12	0.0050	0.0005	0.0046
13	0.0051	0.0005	0.0046
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0047
18	0.0051	0.0005	0.0047
19	0.0052	0.0005	0.0047
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0048
24	0.0052	0.0005	0.0048
25	0.0053	0.0005	0.0048
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0049
30	0.0054	0.0005	0.0049
31	0.0054	0.0005	0.0049
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0054	0.0005	0.0050
35	0.0055	0.0005	0.0050
36	0.0055	0.0005	0.0050
37	0.0055	0.0005	0.0050
38	0.0055	0.0005	0.0050
39	0.0056	0.0005	0.0051
40	0.0056	0.0005	0.0051
41	0.0056	0.0005	0.0051
42	0.0056	0.0005	0.0051
43	0.0057	0.0005	0.0051
44	0.0057	0.0005	0.0052
45	0.0057	0.0005	0.0052
46	0.0057	0.0005	0.0052
47	0.0057	0.0005	0.0052
48	0.0058	0.0005	0.0052
49	0.0058	0.0005	0.0053
50	0.0058	0.0005	0.0053
51	0.0058	0.0005	0.0053

52	0.0059	0.0005	0.0053
53	0.0059	0.0005	0.0054
54	0.0059	0.0005	0.0054
55	0.0059	0.0005	0.0054
56	0.0060	0.0005	0.0054
57	0.0060	0.0005	0.0055
58	0.0060	0.0005	0.0055
59	0.0061	0.0005	0.0055
60	0.0061	0.0005	0.0055
61	0.0061	0.0006	0.0056
62	0.0061	0.0006	0.0056
63	0.0062	0.0006	0.0056
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0057
66	0.0063	0.0006	0.0057
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0058
70	0.0064	0.0006	0.0058
71	0.0064	0.0006	0.0058
72	0.0064	0.0006	0.0059
73	0.0065	0.0006	0.0059
74	0.0065	0.0006	0.0059
75	0.0065	0.0006	0.0060
76	0.0066	0.0006	0.0060
77	0.0066	0.0006	0.0060
78	0.0066	0.0006	0.0060
79	0.0067	0.0006	0.0061
80	0.0067	0.0006	0.0061
81	0.0068	0.0006	0.0062
82	0.0068	0.0006	0.0062
83	0.0068	0.0006	0.0062
84	0.0069	0.0006	0.0062
85	0.0069	0.0006	0.0063
86	0.0069	0.0006	0.0063
87	0.0070	0.0006	0.0064
88	0.0070	0.0006	0.0064
89	0.0071	0.0006	0.0064
90	0.0071	0.0006	0.0065
91	0.0072	0.0006	0.0065
92	0.0072	0.0006	0.0065
93	0.0072	0.0007	0.0066
94	0.0073	0.0007	0.0066
95	0.0073	0.0007	0.0067
96	0.0074	0.0007	0.0067
97	0.0074	0.0007	0.0068
98	0.0075	0.0007	0.0068
99	0.0075	0.0007	0.0069
100	0.0076	0.0007	0.0069
101	0.0076	0.0007	0.0069
102	0.0077	0.0007	0.0070
103	0.0077	0.0007	0.0070
104	0.0078	0.0007	0.0071
105	0.0078	0.0007	0.0071
106	0.0079	0.0007	0.0072
107	0.0080	0.0007	0.0072
108	0.0080	0.0007	0.0073

109	0.0081	0.0007	0.0073
110	0.0081	0.0007	0.0074
111	0.0082	0.0007	0.0075
112	0.0082	0.0007	0.0075
113	0.0083	0.0007	0.0076
114	0.0084	0.0008	0.0076
115	0.0084	0.0008	0.0077
116	0.0085	0.0008	0.0077
117	0.0086	0.0008	0.0078
118	0.0086	0.0008	0.0078
119	0.0087	0.0008	0.0079
120	0.0088	0.0008	0.0080
121	0.0089	0.0008	0.0081
122	0.0089	0.0008	0.0081
123	0.0090	0.0008	0.0082
124	0.0091	0.0008	0.0083
125	0.0092	0.0008	0.0084
126	0.0092	0.0008	0.0084
127	0.0094	0.0008	0.0085
128	0.0094	0.0008	0.0086
129	0.0095	0.0009	0.0087
130	0.0096	0.0009	0.0087
131	0.0097	0.0009	0.0088
132	0.0098	0.0009	0.0089
133	0.0099	0.0009	0.0090
134	0.0100	0.0009	0.0091
135	0.0101	0.0009	0.0092
136	0.0102	0.0009	0.0093
137	0.0103	0.0009	0.0094
138	0.0104	0.0009	0.0095
139	0.0106	0.0010	0.0096
140	0.0107	0.0010	0.0097
141	0.0108	0.0010	0.0099
142	0.0109	0.0010	0.0099
143	0.0111	0.0010	0.0101
144	0.0112	0.0010	0.0102
145	0.0090	0.0008	0.0082
146	0.0091	0.0008	0.0083
147	0.0093	0.0008	0.0084
148	0.0094	0.0008	0.0085
149	0.0096	0.0009	0.0087
150	0.0097	0.0009	0.0088
151	0.0099	0.0009	0.0090
152	0.0100	0.0009	0.0091
153	0.0102	0.0009	0.0093
154	0.0104	0.0009	0.0094
155	0.0106	0.0010	0.0097
156	0.0107	0.0010	0.0098
157	0.0110	0.0010	0.0100
158	0.0112	0.0010	0.0102
159	0.0115	0.0010	0.0104
160	0.0116	0.0010	0.0106
161	0.0120	0.0011	0.0109
162	0.0121	0.0011	0.0110
163	0.0125	0.0011	0.0114
164	0.0127	0.0011	0.0116
165	0.0131	0.0012	0.0119

166	0.0134	0.0012	0.0122
167	0.0138	0.0012	0.0126
168	0.0141	0.0013	0.0128
169	0.0151	0.0014	0.0138
170	0.0154	0.0014	0.0141
171	0.0161	0.0014	0.0146
172	0.0164	0.0015	0.0149
173	0.0172	0.0015	0.0156
174	0.0176	0.0016	0.0160
175	0.0185	0.0017	0.0168
176	0.0190	0.0017	0.0173
177	0.0201	0.0018	0.0183
178	0.0207	0.0019	0.0188
179	0.0220	0.0020	0.0200
180	0.0228	0.0021	0.0207
181	0.0245	0.0022	0.0223
182	0.0255	0.0023	0.0232
183	0.0279	0.0025	0.0254
184	0.0293	0.0026	0.0266
185	0.0251	0.0023	0.0228
186	0.0269	0.0024	0.0245
187	0.0316	0.0028	0.0287
188	0.0347	0.0031	0.0316
189	0.0539	0.0049	0.0491
190	0.0621	0.0056	0.0565
191	0.0941	0.0080	0.0861
192	0.1367	0.0080	0.1287
193	0.5874	0.0080	0.5794
194	0.0741	0.0067	0.0674
195	0.0387	0.0035	0.0352
196	0.0290	0.0026	0.0264
197	0.0308	0.0028	0.0281
198	0.0266	0.0024	0.0242
199	0.0236	0.0021	0.0215
200	0.0213	0.0019	0.0194
201	0.0195	0.0018	0.0177
202	0.0180	0.0016	0.0164
203	0.0168	0.0015	0.0153
204	0.0158	0.0014	0.0143
205	0.0144	0.0013	0.0131
206	0.0136	0.0012	0.0124
207	0.0129	0.0012	0.0118
208	0.0123	0.0011	0.0112
209	0.0118	0.0011	0.0107
210	0.0113	0.0010	0.0103
211	0.0109	0.0010	0.0099
212	0.0105	0.0009	0.0095
213	0.0101	0.0009	0.0092
214	0.0098	0.0009	0.0089
215	0.0095	0.0009	0.0086
216	0.0092	0.0008	0.0084
217	0.0113	0.0010	0.0103
218	0.0110	0.0010	0.0100
219	0.0107	0.0010	0.0098
220	0.0105	0.0009	0.0096
221	0.0103	0.0009	0.0093
222	0.0101	0.0009	0.0092

223	0.0099	0.0009	0.0090
224	0.0097	0.0009	0.0088
225	0.0095	0.0009	0.0086
226	0.0093	0.0008	0.0085
227	0.0091	0.0008	0.0083
228	0.0090	0.0008	0.0082
229	0.0088	0.0008	0.0080
230	0.0087	0.0008	0.0079
231	0.0085	0.0008	0.0078
232	0.0084	0.0008	0.0076
233	0.0083	0.0007	0.0075
234	0.0081	0.0007	0.0074
235	0.0080	0.0007	0.0073
236	0.0079	0.0007	0.0072
237	0.0078	0.0007	0.0071
238	0.0077	0.0007	0.0070
239	0.0076	0.0007	0.0069
240	0.0075	0.0007	0.0068
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0067
243	0.0072	0.0006	0.0066
244	0.0071	0.0006	0.0065
245	0.0070	0.0006	0.0064
246	0.0070	0.0006	0.0063
247	0.0069	0.0006	0.0063
248	0.0068	0.0006	0.0062
249	0.0067	0.0006	0.0061
250	0.0067	0.0006	0.0061
251	0.0066	0.0006	0.0060
252	0.0065	0.0006	0.0059
253	0.0065	0.0006	0.0059
254	0.0064	0.0006	0.0058
255	0.0063	0.0006	0.0058
256	0.0063	0.0006	0.0057
257	0.0062	0.0006	0.0057
258	0.0062	0.0006	0.0056
259	0.0061	0.0005	0.0055
260	0.0060	0.0005	0.0055
261	0.0060	0.0005	0.0054
262	0.0059	0.0005	0.0054
263	0.0059	0.0005	0.0054
264	0.0058	0.0005	0.0053
265	0.0058	0.0005	0.0053
266	0.0057	0.0005	0.0052
267	0.0057	0.0005	0.0052
268	0.0056	0.0005	0.0051
269	0.0056	0.0005	0.0051
270	0.0055	0.0005	0.0050
271	0.0055	0.0005	0.0050
272	0.0055	0.0005	0.0050
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0049
275	0.0053	0.0005	0.0049
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0048
278	0.0052	0.0005	0.0048
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0047
281	0.0051	0.0005	0.0047
282	0.0051	0.0005	0.0046
283	0.0050	0.0005	0.0046
284	0.0050	0.0005	0.0046
285	0.0050	0.0004	0.0045
286	0.0049	0.0004	0.0045
287	0.0049	0.0004	0.0045
288	0.0049	0.0004	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.27
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.32

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 26.2621
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 318.2284

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	625.0	1250.0	1875.0	2500.0
1.000	3.0938	56.76	Q	.	.	.	.
1.083	3.4926	57.90	Q	.	.	.	.
1.167	3.8984	58.92	Q	.	.	.	.
1.250	4.3104	59.82	Q	.	.	.	.
1.333	4.7278	60.61	Q	.	.	.	.
1.417	5.1501	61.32	Q	.	.	.	.
1.500	5.5770	61.98	Q	.	.	.	.
1.583	6.0076	62.53	VQ	.	.	.	.
1.667	6.4417	63.03	VQ	.	.	.	.
1.750	6.8787	63.44	VQ	.	.	.	.
1.833	7.3184	63.85	VQ	.	.	.	.
1.917	7.7610	64.28	VQ	.	.	.	.
2.000	8.2067	64.71	.Q	.	.	.	.
2.083	8.6554	65.15	.Q	.	.	.	.
2.167	9.1071	65.59	.Q	.	.	.	.
2.250	9.5614	65.96	.Q	.	.	.	.
2.333	10.0174	66.20	.Q	.	.	.	.
2.417	10.4749	66.44	.Q	.	.	.	.
2.500	10.9342	66.68	.Q	.	.	.	.
2.583	11.3951	66.93	.Q	.	.	.	.
2.667	11.8577	67.17	.Q	.	.	.	.
2.750	12.3221	67.42	.Q	.	.	.	.
2.833	12.7882	67.67	.Q	.	.	.	.
2.917	13.2560	67.93	.Q	.	.	.	.
3.000	13.7255	68.18	.Q	.	.	.	.
3.083	14.1969	68.44	.Q	.	.	.	.
3.167	14.6701	68.70	.Q	.	.	.	.
3.250	15.1450	68.97	.Q	.	.	.	.
3.333	15.6219	69.23	.Q	.	.	.	.
3.417	16.1005	69.50	.QV	.	.	.	.
3.500	16.5811	69.78	.QV	.	.	.	.
3.583	17.0635	70.05	.QV	.	.	.	.
3.667	17.5479	70.33	.QV	.	.	.	.
3.750	18.0342	70.61	.QV	.	.	.	.
3.833	18.5224	70.89	.QV	.	.	.	.
3.917	19.0126	71.18	.QV	.	.	.	.
4.000	19.5048	71.47	.QV	.	.	.	.
4.083	19.9991	71.76	.QV	.	.	.	.
4.167	20.4953	72.06	.QV	.	.	.	.
4.250	20.9937	72.36	.QV	.	.	.	.
4.333	21.4941	72.66	.QV	.	.	.	.
4.417	21.9966	72.97	.QV	.	.	.	.
4.500	22.5013	73.28	.QV	.	.	.	.
4.583	23.0081	73.59	.QV	.	.	.	.
4.667	23.5171	73.91	.QV	.	.	.	.

4.750	24.0283	74.23	.Q	V	.	.	.
4.833	24.5417	74.55	.Q	V	.	.	.
4.917	25.0574	74.88	.Q	V	.	.	.
5.000	25.5754	75.21	.Q	V	.	.	.
5.083	26.0957	75.55	.Q	V	.	.	.
5.167	26.6183	75.89	.Q	V	.	.	.
5.250	27.1433	76.23	.Q	V	.	.	.
5.333	27.6707	76.58	.Q	V	.	.	.
5.417	28.2005	76.93	.Q	V	.	.	.
5.500	28.7328	77.29	.Q	V	.	.	.
5.583	29.2675	77.65	.Q	V	.	.	.
5.667	29.8048	78.01	.Q	V	.	.	.
5.750	30.3446	78.38	.Q	V	.	.	.
5.833	30.8870	78.75	.Q	V	.	.	.
5.917	31.4320	79.13	.Q	V	.	.	.
6.000	31.9796	79.52	.Q	V	.	.	.
6.083	32.5299	79.91	.Q	V	.	.	.
6.167	33.0829	80.30	.Q	V	.	.	.
6.250	33.6387	80.70	.Q	V	.	.	.
6.333	34.1973	81.10	.Q	V	.	.	.
6.417	34.7586	81.51	.Q	V	.	.	.
6.500	35.3229	81.93	.Q	V	.	.	.
6.583	35.8900	82.35	.Q	V	.	.	.
6.667	36.4601	82.78	.Q	V	.	.	.
6.750	37.0331	83.21	.Q	V	.	.	.
6.833	37.6092	83.65	.Q	V	.	.	.
6.917	38.1883	84.09	.Q	V	.	.	.
7.000	38.7706	84.54	.Q	V	.	.	.
7.083	39.3560	85.00	.Q	V	.	.	.
7.167	39.9446	85.46	.Q	V	.	.	.
7.250	40.5364	85.93	.Q	V	.	.	.
7.333	41.1315	86.41	.Q	V	.	.	.
7.417	41.7299	86.89	.Q	V	.	.	.
7.500	42.3318	87.39	.Q	V	.	.	.
7.583	42.9370	87.89	.Q	V	.	.	.
7.667	43.5458	88.39	.Q	V	.	.	.
7.750	44.1581	88.91	.Q	V	.	.	.
7.833	44.7740	89.43	.Q	V	.	.	.
7.917	45.3936	89.96	.Q	V	.	.	.
8.000	46.0169	90.50	.Q	V	.	.	.
8.083	46.6439	91.05	.Q	V	.	.	.
8.167	47.2748	91.61	.Q	V	.	.	.
8.250	47.9096	92.17	.Q	V	.	.	.
8.333	48.5483	92.75	.Q	V	.	.	.
8.417	49.1911	93.33	.Q	V	.	.	.
8.500	49.8380	93.93	.Q	V	.	.	.
8.583	50.4890	94.53	.Q	V	.	.	.
8.667	51.1443	95.15	.Q	V	.	.	.
8.750	51.8039	95.77	.Q	V	.	.	.
8.833	52.4678	96.41	.Q	V	.	.	.
8.917	53.1362	97.05	.Q	V	.	.	.
9.000	53.8092	97.71	.Q	V	.	.	.
9.083	54.4868	98.39	.Q	V	.	.	.
9.167	55.1691	99.07	.Q	V	.	.	.
9.250	55.8562	99.77	.Q	V	.	.	.
9.333	56.5482	100.48	.Q	V	.	.	.
9.417	57.2452	101.20	.Q	V	.	.	.

9.500	57.9472	101.94	.Q	V	.	.	.
9.583	58.6544	102.69	.Q	V	.	.	.
9.667	59.3670	103.46	.Q	V	.	.	.
9.750	60.0848	104.24	.Q	V	.	.	.
9.833	60.8082	105.04	.Q	V	.	.	.
9.917	61.5372	105.85	.Q	V	.	.	.
10.000	62.2719	106.68	.Q	V	.	.	.
10.083	63.0125	107.53	.Q	V	.	.	.
10.167	63.7590	108.40	.Q	V	.	.	.
10.250	64.5116	109.28	.Q	V	.	.	.
10.333	65.2705	110.18	.Q	V	.	.	.
10.417	66.0357	111.11	.Q	V	.	.	.
10.500	66.8074	112.05	.Q	V	.	.	.
10.583	67.5857	113.02	.Q	V	.	.	.
10.667	68.3709	114.01	.Q	V	.	.	.
10.750	69.1631	115.02	.Q	V	.	.	.
10.833	69.9624	116.06	.Q	V	.	.	.
10.917	70.7690	117.12	.Q	V	.	.	.
11.000	71.5831	118.21	.Q	V	.	.	.
11.083	72.4049	119.32	.Q	V	.	.	.
11.167	73.2345	120.46	.Q	V	.	.	.
11.250	74.0722	121.64	.Q	V	.	.	.
11.333	74.9182	122.84	.Q	V	.	.	.
11.417	75.7727	124.07	.Q	V	.	.	.
11.500	76.6360	125.34	. Q	V	.	.	.
11.583	77.5082	126.65	. Q	V	.	.	.
11.667	78.3897	127.99	. Q	V	.	.	.
11.750	79.2806	129.36	. Q	V	.	.	.
11.833	80.1813	130.78	. Q	V	.	.	.
11.917	81.0921	132.24	. Q	V	.	.	.
12.000	82.0132	133.75	. Q	V	.	.	.
12.083	82.9417	134.81	. Q	V	.	.	.
12.167	83.8672	134.39	. Q	V	.	.	.
12.250	84.7656	130.44	. Q	V	.	.	.
12.333	85.6299	125.49	. Q	V	.	.	.
12.417	86.4792	123.32	.Q	V	.	.	.
12.500	87.3238	122.64	.Q	V	.	.	.
12.583	88.1686	122.66	.Q	.V	.	.	.
12.667	89.0168	123.16	.Q	.V	.	.	.
12.750	89.8708	124.01	.Q	.V	.	.	.
12.833	90.7323	125.09	. Q	.V	.	.	.
12.917	91.6027	126.38	. Q	.V	.	.	.
13.000	92.4838	127.92	. Q	.V	.	.	.
13.083	93.3764	129.61	. Q	.V	.	.	.
13.167	94.2817	131.45	. Q	.V	.	.	.
13.250	95.2008	133.45	. Q	.V	.	.	.
13.333	96.1347	135.61	. Q	. V	.	.	.
13.417	97.0845	137.91	. Q	. V	.	.	.
13.500	98.0513	140.37	. Q	. V	.	.	.
13.583	99.0362	143.01	. Q	. V	.	.	.
13.667	100.0406	145.83	. Q	. V	.	.	.
13.750	101.0656	148.84	. Q	. V	.	.	.
13.833	102.1126	152.02	. Q	. V	.	.	.
13.917	103.1827	155.38	. Q	. V	.	.	.
14.000	104.2772	158.93	. Q	. V	.	.	.
14.083	105.3985	162.81	. Q	. V	.	.	.
14.167	106.5505	167.27	. Q	. V	.	.	.

14.250	107.7407	172.81	. Q . V . . .
14.333	108.9732	178.95	. Q . V . . .
14.417	110.2463	184.86	. Q . V . . .
14.500	111.5605	190.83	. Q . V . . .
14.583	112.9180	197.10	. Q . V . . .
14.667	114.3212	203.76	. Q . V . . .
14.750	115.7737	210.90	. Q . V . . .
14.833	117.2795	218.64	. Q . V . . .
14.917	118.8434	227.07	. Q . V . . .
15.000	120.4709	236.31	. Q . V . . .
15.083	122.1688	246.54	. Q . V . . .
15.167	123.9451	257.92	. Q . V . . .
15.250	125.8097	270.74	. Q . V . . .
15.333	127.7743	285.25	. Q . V . . .
15.417	129.8434	300.44	. Q . V . . .
15.500	132.0016	313.38	. Q . V . . .
15.583	134.1941	318.34	. Q . V . . .
15.667	136.4241	323.80	. Q . V . . .
15.750	138.8047	345.67	. Q . V . . .
15.833	141.4743	387.61	. Q . V . . .
15.917	144.6800	465.48	. Q . V . . .
16.000	148.7275	587.69	. Q. V . . .
16.083	154.7056	868.03	. . Q V. . .
16.167	164.4531	1415.33	. . V Q . .
16.250	180.3428	2307.19	. . . V . . Q .
16.333	197.3007	2462.27	. . . V . . Q.
16.417	208.9257	1687.96	. . . VQ . .
16.500	217.3030	1216.38	. . Q. V . .
16.583	224.0384	977.99	. . Q . V . .
16.667	229.7036	822.58	. . Q . V . .
16.750	234.5405	702.33	. .Q . V. .
16.833	238.8094	619.84	. Q. . V .
16.917	242.5788	547.31	. Q . . V .
17.000	245.8632	476.90	. Q . . V .
17.083	248.8437	432.76	. Q . . .V .
17.167	251.5543	393.59	. Q . . .V .
17.250	254.0113	356.75	. Q . . .V .
17.333	256.2417	323.85	. Q . . . V .
17.417	258.2791	295.84	. Q . . . V .
17.500	260.1539	272.22	. Q . . . V .
17.583	261.8498	246.25	. Q . . . V .
17.667	263.4153	227.31	. Q . . . V .
17.750	264.8320	205.72	. Q . . . V .
17.833	266.1921	197.48	. Q . . . V .
17.917	267.5181	192.54	. Q . . . V .
18.000	268.7934	185.17	. Q . . . V .
18.083	270.0183	177.85	. Q . . . V .
18.167	271.1957	170.97	. Q . . . V .
18.250	272.2958	159.73	. Q . . . V .
18.333	273.2836	143.43	. Q . . . V .
18.417	274.2569	141.32	. Q . . . V .
18.500	275.2151	139.13	. Q . . . V .
18.583	276.1569	136.75	. Q . . . V .
18.667	277.0808	134.15	. Q . . . V .
18.750	277.9870	131.58	. Q . . . V .
18.833	278.8762	129.12	. Q . . . V .
18.917	279.7491	126.74	. Q . . . V .

19.000	280.6058	124.40	.Q	.	.	.	V	.
19.083	281.4471	122.15	.Q	.	.	.	V	.
19.167	282.2736	120.01	.Q	.	.	.	V	.
19.250	283.0858	117.94	.Q	.	.	.	V	.
19.333	283.8845	115.97	.Q	.	.	.	V	.
19.417	284.6701	114.06	.Q	.	.	.	V	.
19.500	285.4430	112.23	.Q	.	.	.	V	.
19.583	286.2037	110.45	.Q	.	.	.	V	.
19.667	286.9525	108.73	.Q	.	.	.	V	.
19.750	287.6897	107.04	.Q	.	.	.	V	.
19.833	288.4158	105.43	.Q	.	.	.	V	.
19.917	289.1313	103.90	.Q	.	.	.	V	.
20.000	289.8367	102.43	.Q	.	.	.	V	.
20.083	290.5325	101.02	.Q	.	.	.	V	.
20.167	291.2190	99.68	.Q	.	.	.	V	.
20.250	291.8963	98.35	.Q	.	.	.	V	.
20.333	292.5644	97.00	.Q	.	.	.	V	.
20.417	293.2235	95.71	.Q	.	.	.	V	.
20.500	293.8740	94.46	.Q	.	.	.	V	.
20.583	294.5162	93.25	.Q	.	.	.	V	.
20.667	295.1504	92.08	.Q	.	.	.	V	.
20.750	295.7768	90.95	.Q	.	.	.	V	.
20.833	296.3956	89.86	.Q	.	.	.	V	.
20.917	297.0072	88.80	.Q	.	.	.	V	.
21.000	297.6117	87.77	.Q	.	.	.	V	.
21.083	298.2094	86.78	.Q	.	.	.	V	.
21.167	298.8004	85.81	.Q	.	.	.	V	.
21.250	299.3849	84.88	.Q	.	.	.	V	.
21.333	299.9632	83.97	.Q	.	.	.	V	.
21.417	300.5353	83.08	.Q	.	.	.	V	.
21.500	301.1016	82.22	.Q	.	.	.	V	.
21.583	301.6621	81.38	.Q	.	.	.	V	.
21.667	302.2169	80.57	.Q	.	.	.	V	.
21.750	302.7664	79.77	.Q	.	.	.	V	.
21.833	303.3105	79.00	.Q	.	.	.	V	.
21.917	303.8494	78.25	.Q	.	.	.	V	.
22.000	304.3832	77.51	.Q	.	.	.	V	.
22.083	304.9121	76.80	.Q	.	.	.	V	.
22.167	305.4362	76.10	.Q	.	.	.	V	.
22.250	305.9556	75.42	.Q	.	.	.	V	.
22.333	306.4704	74.75	.Q	.	.	.	V	.
22.417	306.9807	74.10	.Q	.	.	.	V	.
22.500	307.4866	73.46	.Q	.	.	.	V	.
22.583	307.9883	72.84	.Q	.	.	.	V	.
22.667	308.4857	72.23	.Q	.	.	.	V	.
22.750	308.9791	71.64	.Q	.	.	.	V	.
22.833	309.4685	71.05	.Q	.	.	.	V	.
22.917	309.9539	70.48	.Q	.	.	.	V	.
23.000	310.4355	69.93	.Q	.	.	.	V	.
23.083	310.9133	69.38	.Q	.	.	.	V	.
23.167	311.3875	68.85	.Q	.	.	.	V	.
23.250	311.8580	68.32	.Q	.	.	.	V	.
23.333	312.3250	67.81	.Q	.	.	.	V	.
23.417	312.7885	67.30	.Q	.	.	.	V	.
23.500	313.2486	66.81	.Q	.	.	.	V	.
23.583	313.7054	66.32	.Q	.	.	.	V	.
23.667	314.1589	65.85	.Q	.	.	.	V	.

23.750	314.6092	65.38	.Q	.	.	.	V.
23.833	315.0564	64.93	.Q	.	.	.	V.
23.917	315.5004	64.48	.Q	.	.	.	V.
24.000	315.9414	64.03	.Q	.	.	.	V.
24.083	316.3726	62.61	.Q	.	.	.	V.
24.167	316.7724	58.05	Q	.	.	.	V.
24.250	317.0908	46.23	Q	.	.	.	V.
24.333	317.3136	32.36	Q	.	.	.	V.
24.417	317.4808	24.27	Q	.	.	.	V.
24.500	317.6133	19.24	Q	.	.	.	V.
24.583	317.7205	15.58	Q	.	.	.	V.
24.667	317.8087	12.80	Q	.	.	.	V.
24.750	317.8820	10.65	Q	.	.	.	V.
24.833	317.9429	8.85	Q	.	.	.	V.
24.917	317.9936	7.36	Q	.	.	.	V.
25.000	318.0364	6.22	Q	.	.	.	V.
25.083	318.0724	5.22	Q	.	.	.	V.
25.167	318.1025	4.36	Q	.	.	.	V.
25.250	318.1275	3.64	Q	.	.	.	V.
25.333	318.1483	3.02	Q	.	.	.	V.
25.417	318.1655	2.49	Q	.	.	.	V.
25.500	318.1795	2.03	Q	.	.	.	V.
25.583	318.1911	1.68	Q	.	.	.	V.
25.667	318.2006	1.38	Q	.	.	.	V.
25.750	318.2088	1.19	Q	.	.	.	V.
25.833	318.2156	0.99	Q	.	.	.	V.
25.917	318.2209	0.78	Q	.	.	.	V.
26.000	318.2248	0.56	Q	.	.	.	V.
26.083	318.2272	0.35	Q	.	.	.	V.
26.167	318.2282	0.14	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1570.0
10%	155.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	10.0

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FLOW PROCESS FROM NODE 103.00 TO NODE 103.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)

(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2000.0	4000.0	6000.0	8000.0
1.000	10.3003	198.00	Q	.	.	.	.
1.083	11.6903	201.82	VQ	.	.	.	.
1.167	13.1030	205.12	VQ	.	.	.	.
1.250	14.5353	207.97	VQ	.	.	.	.
1.333	15.9848	210.47	VQ	.	.	.	.
1.417	17.4493	212.64	VQ	.	.	.	.
1.500	18.9264	214.48	VQ	.	.	.	.
1.583	20.4147	216.09	VQ	.	.	.	.
1.667	21.9137	217.66	VQ	.	.	.	.
1.750	23.4231	219.16	VQ	.	.	.	.
1.833	24.9427	220.64	VQ	.	.	.	.
1.917	26.4718	222.04	VQ	.	.	.	.
2.000	28.0091	223.21	.Q	.	.	.	.
2.083	29.5535	224.25	.Q	.	.	.	.
2.167	31.1048	225.25	.Q	.	.	.	.
2.250	32.6626	226.19	.Q	.	.	.	.
2.333	34.2260	227.00	.Q	.	.	.	.
2.417	35.7950	227.82	.Q	.	.	.	.
2.500	37.3698	228.65	.Q	.	.	.	.
2.583	38.9503	229.49	.Q	.	.	.	.
2.667	40.5366	230.33	.Q	.	.	.	.
2.750	42.1288	231.19	.Q	.	.	.	.
2.833	43.7269	232.04	.Q	.	.	.	.
2.917	45.3310	232.91	.Q	.	.	.	.
3.000	46.9411	233.79	.Q	.	.	.	.
3.083	48.5573	234.68	.Q	.	.	.	.
3.167	50.1797	235.57	.Q	.	.	.	.
3.250	51.8083	236.48	.Q	.	.	.	.
3.333	53.4432	237.39	.Q	.	.	.	.
3.417	55.0845	238.31	.QV	.	.	.	.
3.500	56.7322	239.24	.QV	.	.	.	.
3.583	58.3864	240.19	.QV	.	.	.	.
3.667	60.0471	241.14	.QV	.	.	.	.
3.750	61.7144	242.10	.QV	.	.	.	.
3.833	63.3885	243.07	.QV	.	.	.	.
3.917	65.0693	244.05	.QV	.	.	.	.
4.000	66.7569	245.04	.QV	.	.	.	.
4.083	68.4515	246.05	.QV	.	.	.	.
4.167	70.1530	247.06	.QV	.	.	.	.
4.250	71.8616	248.09	.QV	.	.	.	.
4.333	73.5774	249.13	.QV	.	.	.	.
4.417	75.3003	250.18	.QV	.	.	.	.
4.500	77.0306	251.24	.QV	.	.	.	.
4.583	78.7683	252.31	.QV	.	.	.	.
4.667	80.5134	253.39	.QV	.	.	.	.
4.750	82.2661	254.49	.Q V	.	.	.	.
4.833	84.0264	255.60	.Q V	.	.	.	.
4.917	85.7945	256.72	.Q V	.	.	.	.
5.000	87.5704	257.86	.Q V	.	.	.	.
5.083	89.3542	259.01	.Q V	.	.	.	.
5.167	91.1459	260.17	.Q V	.	.	.	.
5.250	92.9458	261.35	.Q V	.	.	.	.
5.333	94.7539	262.53	.Q V	.	.	.	.

5.417	96.5703	263.74	.Q	V	.	.	.	.
5.500	98.3951	264.96	.Q	V	.	.	.	.
5.583	100.2284	266.19	.Q	V	.	.	.	.
5.667	102.0702	267.44	.Q	V	.	.	.	.
5.750	103.9208	268.71	.Q	V	.	.	.	.
5.833	105.7803	269.99	.Q	V	.	.	.	.
5.917	107.6486	271.29	.Q	V	.	.	.	.
6.000	109.5260	272.60	.Q	V	.	.	.	.
6.083	111.4126	273.93	.Q	V	.	.	.	.
6.167	113.3084	275.27	.Q	V	.	.	.	.
6.250	115.2137	276.64	.Q	V	.	.	.	.
6.333	117.1284	278.02	.Q	V	.	.	.	.
6.417	119.0529	279.43	.Q	V	.	.	.	.
6.500	120.9871	280.85	.Q	V	.	.	.	.
6.583	122.9312	282.29	.Q	V	.	.	.	.
6.667	124.8854	283.75	.Q	V	.	.	.	.
6.750	126.8498	285.23	.Q	V	.	.	.	.
6.833	128.8246	286.73	.Q	V	.	.	.	.
6.917	130.8098	288.26	.Q	V	.	.	.	.
7.000	132.8056	289.79	.Q	V	.	.	.	.
7.083	134.8123	291.36	.Q	V	.	.	.	.
7.167	136.8298	292.95	.Q	V	.	.	.	.
7.250	138.8584	294.56	.Q	V	.	.	.	.
7.333	140.8983	296.19	.Q	V	.	.	.	.
7.417	142.9497	297.85	.Q	V	.	.	.	.
7.500	145.0126	299.53	.Q	V	.	.	.	.
7.583	147.0872	301.24	.Q	V	.	.	.	.
7.667	149.1738	302.97	.Q	V	.	.	.	.
7.750	151.2726	304.74	.Q	V	.	.	.	.
7.833	153.3836	306.52	.Q	V	.	.	.	.
7.917	155.5072	308.34	.Q	V	.	.	.	.
8.000	157.6435	310.19	.Q	V	.	.	.	.
8.083	159.7927	312.06	.Q	V	.	.	.	.
8.167	161.9550	313.96	.Q	V	.	.	.	.
8.250	164.1306	315.90	.Q	V	.	.	.	.
8.333	166.3198	317.87	.Q	V	.	.	.	.
8.417	168.5228	319.87	.Q	V	.	.	.	.
8.500	170.7397	321.90	.Q	V	.	.	.	.
8.583	172.9709	323.97	.Q	V	.	.	.	.
8.667	175.2166	326.07	.Q	V	.	.	.	.
8.750	177.4771	328.22	.Q	V	.	.	.	.
8.833	179.7525	330.39	.Q	V	.	.	.	.
8.917	182.0432	332.61	.Q	V	.	.	.	.
9.000	184.3494	334.86	.Q	V	.	.	.	.
9.083	186.6715	337.16	.Q	V	.	.	.	.
9.167	189.0096	339.50	.Q	V	.	.	.	.
9.250	191.3642	341.89	.Q	V	.	.	.	.
9.333	193.7355	344.31	.Q	V	.	.	.	.
9.417	196.1238	346.79	.Q	V	.	.	.	.
9.500	198.5295	349.30	.Q	V	.	.	.	.
9.583	200.9529	351.88	.Q	V	.	.	.	.
9.667	203.3943	354.49	.Q	V	.	.	.	.
9.750	205.8542	357.17	.Q	V	.	.	.	.
9.833	208.3328	359.89	.Q	V	.	.	.	.
9.917	210.8306	362.68	.Q	V	.	.	.	.
10.000	213.3479	365.51	.Q	V	.	.	.	.
10.083	215.8852	368.42	.Q	V	.	.	.	.

10.167	218.4429	371.37	.Q	V	.	.	.
10.250	221.0214	374.40	.Q	V	.	.	.
10.333	223.6212	377.49	.Q	V	.	.	.
10.417	226.2428	380.65	.Q	V	.	.	.
10.500	228.8865	383.87	.Q	V	.	.	.
10.583	231.5531	387.19	.Q	V	.	.	.
10.667	234.2429	390.56	.Q	V	.	.	.
10.750	236.9565	394.02	.Q	V	.	.	.
10.833	239.6945	397.55	.Q	V	.	.	.
10.917	242.4575	401.19	. Q	V	.	.	.
11.000	245.2460	404.89	. Q	V	.	.	.
11.083	248.0608	408.71	. Q	V	.	.	.
11.167	250.9025	412.60	. Q	V	.	.	.
11.250	253.7717	416.61	. Q	V	.	.	.
11.333	256.6692	420.71	. Q	V	.	.	.
11.417	259.5957	424.94	. Q	V	.	.	.
11.500	262.5521	429.26	. Q	V	.	.	.
11.583	265.5391	433.72	. Q	V	.	.	.
11.667	268.5576	438.28	. Q	V	.	.	.
11.750	271.6085	442.99	. Q	V	.	.	.
11.833	274.6926	447.82	. Q	V	.	.	.
11.917	277.8112	452.81	. Q	V	.	.	.
12.000	280.9649	457.93	. Q	V	.	.	.
12.083	284.1478	462.15	. Q	V	.	.	.
12.167	287.3324	462.41	. Q	V	.	.	.
12.250	290.4544	453.32	. Q	V	.	.	.
12.333	293.4838	439.87	. Q	V	.	.	.
12.417	296.4387	429.05	. Q	V	.	.	.
12.500	299.3474	422.34	. Q	V	.	.	.
12.583	302.2403	420.05	. Q	.V	.	.	.
12.667	305.1379	420.73	. Q	.V	.	.	.
12.750	308.0524	423.19	. Q	.V	.	.	.
12.833	310.9911	426.70	. Q	.V	.	.	.
12.917	313.9604	431.14	. Q	.V	.	.	.
13.000	316.9653	436.32	. Q	.V	.	.	.
13.083	320.0102	442.12	. Q	.V	.	.	.
13.167	323.0987	448.45	. Q	.V	.	.	.
13.250	326.2349	455.37	. Q	.V	.	.	.
13.333	329.4220	462.77	. Q	. V	.	.	.
13.417	332.6642	470.77	. Q	. V	.	.	.
13.500	335.9650	479.28	. Q	. V	.	.	.
13.583	339.3287	488.41	. Q	. V	.	.	.
13.667	342.7585	497.99	. Q	. V	.	.	.
13.750	346.2584	508.19	. Q	. V	.	.	.
13.833	349.8321	518.91	. Q	. V	.	.	.
13.917	353.4846	530.35	. Q	. V	.	.	.
14.000	357.2209	542.51	. Q	. V	.	.	.
14.083	361.0486	555.78	. Q	. V	.	.	.
14.167	364.9791	570.71	. Q	. V	.	.	.
14.250	369.0344	588.83	. Q	. V	.	.	.
14.333	373.2326	609.57	. Q	. V	.	.	.
14.417	377.5865	632.19	. Q	. V	.	.	.
14.500	382.0993	655.26	. Q	. V	.	.	.
14.583	386.7708	678.30	. Q	. V	.	.	.
14.667	391.6035	701.71	. Q	. V	.	.	.
14.750	396.6070	726.50	. Q	. V	.	.	.
14.833	401.7924	752.92	. Q	. V	.	.	.

14.917	407.1758	781.67	. Q . V . . .
15.000	412.7738	812.83	. Q . V . . .
15.083	418.6096	847.37	. Q . V . . .
15.167	424.7076	885.42	. Q . V . . .
15.250	431.1010	928.32	. Q . V . . .
15.333	437.8259	976.45	. Q . V . . .
15.417	444.9090	1028.47	. Q . V . . .
15.500	452.3167	1075.59	. Q . V . . .
15.583	459.9153	1103.33	. Q . V . . .
15.667	467.6802	1127.45	. Q . V . . .
15.750	475.8039	1179.56	. Q . V . . .
15.833	484.6693	1287.26	. Q . V . . .
15.917	495.0266	1503.87	. Q . V . . .
16.000	507.8302	1859.10	. Q. V . . .
16.083	526.0768	2649.40	. . Q V. . .
16.167	555.4473	4264.60	. . VQ . .
16.250	603.0128	6906.51	. . . V . Q .
16.333	657.5209	7914.59	. . . V . Q.
16.417	705.2723	6933.50	. . . V . Q .
16.500	743.1971	5506.69	. . . Q . .
16.583	771.5961	4123.53	. . Q V . .
16.667	793.4236	3169.34	. . Q . V . .
16.750	811.2441	2587.55	. . Q . V. .
16.833	826.4824	2212.60	. .Q . V . .
16.917	839.6500	1911.93	. Q. . V . .
17.000	851.1332	1667.36	. Q . . .V . .
17.083	861.3882	1489.04	. Q . . .V . .
17.167	870.5773	1334.26	. Q . . .V . .
17.250	878.8329	1198.71	. Q . . . V . .
17.333	886.2800	1081.32	. Q . . . V . .
17.417	892.9859	973.70	. Q . . . V . .
17.500	899.0362	878.51	. Q . . . V . .
17.583	904.5641	802.66	. Q . . . V . .
17.667	909.7705	755.96	. Q . . . V . .
17.750	914.6638	710.50	. Q . . . V . .
17.833	919.3030	673.62	. Q . . . V . .
17.917	923.6339	628.84	. Q . . . V . .
18.000	927.5712	571.69	. Q . . . V . .
18.083	931.2024	527.25	. Q . . . V . .
18.167	934.6719	503.77	. Q . . . V . .
18.250	938.0369	488.59	. Q . . . V . .
18.333	941.2947	473.03	. Q . . . V . .
18.417	944.5507	472.76	. Q . . . V . .
18.500	947.7920	470.64	. Q . . . V . .
18.583	950.9976	465.46	. Q . . . V . .
18.667	954.1537	458.27	. Q . . . V . .
18.750	957.2559	450.43	. Q . . . V . .
18.833	960.3034	442.50	. Q . . . V . .
18.917	963.2967	434.62	. Q . . . V . .
19.000	966.2366	426.88	. Q . . . V . .
19.083	969.1249	419.38	. Q . . . V . .
19.167	971.9633	412.12	. Q . . . V . .
19.250	974.7532	405.10	. Q . . . V . .
19.333	977.4963	398.31	.Q . . . V . .
19.417	980.1942	391.73	.Q . . . V . .
19.500	982.8480	385.33	.Q . . . V . .
19.583	985.4592	379.14	.Q . . . V . .

19.667	988.0295	373.21	.Q	.	.	.	V .
19.750	990.5606	367.52	.Q	.	.	.	V .
19.833	993.0542	362.07	.Q	.	.	.	V .
19.917	995.5115	356.80	.Q	.	.	.	V .
20.000	997.9334	351.65	.Q	.	.	.	V .
20.083	1000.3207	346.63	.Q	.	.	.	V .
20.167	1002.6746	341.79	.Q	.	.	.	V .
20.250	1004.9963	337.10	.Q	.	.	.	V .
20.333	1007.2863	332.51	.Q	.	.	.	V .
20.417	1009.5459	328.09	.Q	.	.	.	V .
20.500	1011.7761	323.82	.Q	.	.	.	V .
20.583	1013.9778	319.70	.Q	.	.	.	V .
20.667	1016.1522	315.71	.Q	.	.	.	V .
20.750	1018.2999	311.85	.Q	.	.	.	V .
20.833	1020.4219	308.12	.Q	.	.	.	V .
20.917	1022.5190	304.50	.Q	.	.	.	V .
21.000	1024.5919	300.99	.Q	.	.	.	V .
21.083	1026.6415	297.59	.Q	.	.	.	V .
21.167	1028.6682	294.29	.Q	.	.	.	V .
21.250	1030.6730	291.08	.Q	.	.	.	V .
21.333	1032.6562	287.97	.Q	.	.	.	V .
21.417	1034.6187	284.94	.Q	.	.	.	V .
21.500	1036.5608	282.00	.Q	.	.	.	V .
21.583	1038.4832	279.13	.Q	.	.	.	V .
21.667	1040.3864	276.34	.Q	.	.	.	V .
21.750	1042.2709	273.63	.Q	.	.	.	V .
21.833	1044.1371	270.98	.Q	.	.	.	V .
21.917	1045.9856	268.40	.Q	.	.	.	V .
22.000	1047.8168	265.89	.Q	.	.	.	V .
22.083	1049.6310	263.43	.Q	.	.	.	V .
22.167	1051.4287	261.04	.Q	.	.	.	V .
22.250	1053.2103	258.70	.Q	.	.	.	V .
22.333	1054.9763	256.42	.Q	.	.	.	V .
22.417	1056.7269	254.19	.Q	.	.	.	V .
22.500	1058.4625	252.01	.Q	.	.	.	V .
22.583	1060.1835	249.88	.Q	.	.	.	V .
22.667	1061.8900	247.79	.Q	.	.	.	V .
22.750	1063.5825	245.75	.Q	.	.	.	V .
22.833	1065.2614	243.76	.Q	.	.	.	V .
22.917	1066.9266	241.80	.Q	.	.	.	V .
23.000	1068.5787	239.89	.Q	.	.	.	V.
23.083	1070.2180	238.02	.Q	.	.	.	V.
23.167	1071.8446	236.19	.Q	.	.	.	V.
23.250	1073.4589	234.39	.Q	.	.	.	V.
23.333	1075.0610	232.63	.Q	.	.	.	V.
23.417	1076.6512	230.90	.Q	.	.	.	V.
23.500	1078.2299	229.21	.Q	.	.	.	V.
23.583	1079.7970	227.55	.Q	.	.	.	V.
23.667	1081.3529	225.92	.Q	.	.	.	V.
23.750	1082.8978	224.32	.Q	.	.	.	V.
23.833	1084.4319	222.75	.Q	.	.	.	V.
23.917	1085.9553	221.21	.Q	.	.	.	V.
24.000	1087.4684	219.70	.Q	.	.	.	V.
24.083	1088.9559	216.00	.Q	.	.	.	V.
24.167	1090.3606	203.95	.Q	.	.	.	V.
24.250	1091.5485	172.48	Q	.	.	.	V.
24.333	1092.4579	132.05	Q	.	.	.	V.

```
 24.417   1093.1259     97.00  Q          .          .          .          V.
 24.500   1093.6111     70.46  Q          .          .          .          V.
 24.583   1093.9755     52.91  Q          .          .          .          V.
 24.667   1094.2603     41.35  Q          .          .          .          V.
 24.750   1094.4880     33.07  Q          .          .          .          V.
 24.833   1094.6714     26.62  Q          .          .          .          V.
 24.917   1094.8201     21.59  Q          .          .          .          V.
 25.000   1094.9417     17.65  Q          .          .          .          V.
 25.083   1095.0406     14.37  Q          .          .          .          V.
 25.167   1095.1210     11.66  Q          .          .          .          V.
 25.250   1095.1858      9.42  Q          .          .          .          V.
 25.333   1095.2378      7.56  Q          .          .          .          V.
 25.417   1095.2795      6.06  Q          .          .          .          V.
 25.500   1095.3132      4.90  Q          .          .          .          V.
 25.583   1095.3407      3.99  Q          .          .          .          V.
 25.667   1095.3623      3.13  Q          .          .          .          V.
 25.750   1095.3787      2.37  Q          .          .          .          V.
 25.833   1095.3899      1.64  Q          .          .          .          V.
 25.917   1095.3969      1.00  Q          .          .          .          V.
 26.000   1095.4010      0.60  Q          .          .          .          V.
 26.083   1095.4034      0.35  Q          .          .          .          V.
 26.167   1095.4044      0.14  Q          .          .          .          V.
 26.250   1095.4044      0.00  Q          .          .          .          V.
--------------------------------------------------------------------------------
  TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
  (Note: 100% of Peak Flow Rate estimate assumed to have
  an instantaneous time duration)

  Percentile of Estimated          Duration
      Peak Flow Rate               (minutes)
  ========================         =========
             0%                     1570.0
            10%                      160.0
            20%                       65.0
            30%                       45.0
            40%                       35.0
            50%                       30.0
            60%                       20.0
            70%                       15.0
            80%                       15.0
            90%                        5.0

****************************************************************************
  FLOW PROCESS FROM NODE     103.00 TO NODE     104.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =    36.00     CHANNEL Z =  0.00
          UPSTREAM ELEVATION(FT) =     3225.00
          DOWNSTREAM ELEVATION(FT) =    3180.00
          CHANNEL LENGTH(FT) =    2600.00     MANNING'S FACTOR = 0.015
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CONSTANT LOSS RATE(CFS) = 0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
(FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]

AVERAGED PEAK 5-MINUTE: (7914.6).....[35.89]
AVERAGED PEAK 15-MINUTE: (7251.5).....[34.88]
AVERAGED PEAK 30-MINUTE: (5941.6).....[32.63]
AVERAGED PEAK 1-HOUR: (4169.9).....[28.81]
AVERAGED PEAK 3-HOUR: (2089.9).....[22.45]
AVERAGED PEAK 6-HOUR: (1309.5).....[18.84]
AVERAGED PEAK 24-HOUR: (550.3).....[13.63]

USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 25.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (2600.00)/(25.000) = 0.029 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	2.22	1.45	1.45
0.167	12.85	9.16	9.16
0.250	43.07	32.59	32.59
0.333	82.55	68.86	68.86
0.417	117.05	105.09	105.09
0.500	143.36	134.24	134.24
0.583	160.93	154.84	154.84
0.667	172.68	168.60	168.60
0.750	181.26	178.28	178.28
0.833	188.08	185.72	185.72
0.917	193.57	191.66	191.66
1.000	198.00	196.46	196.46
1.083	201.82	200.50	200.50
1.167	205.12	203.98	203.98
1.250	207.97	206.98	206.98
1.333	210.47	209.61	209.61
1.417	212.64	211.89	211.89
1.500	214.48	213.84	213.84
1.583	216.09	215.54	215.54
1.667	217.66	217.12	217.12
1.750	219.16	218.64	218.64
1.833	220.64	220.13	220.13
1.917	222.04	221.55	221.55
2.000	223.21	222.81	222.81
2.083	224.25	223.89	223.89
2.167	225.25	224.90	224.90
2.250	226.19	225.87	225.87
2.333	227.00	226.72	226.72
2.417	227.82	227.54	227.54
2.500	228.65	228.36	228.36
2.583	229.49	229.20	229.20
2.667	230.33	230.04	230.04
2.750	231.19	230.89	230.89
2.833	232.04	231.75	231.75
2.917	232.91	232.61	232.61
3.000	233.79	233.49	233.49

3.083	234.68	234.37	234.37
3.167	235.57	235.26	235.26
3.250	236.48	236.16	236.16
3.333	237.39	237.07	237.07
3.417	238.31	237.99	237.99
3.500	239.24	238.92	238.92
3.583	240.19	239.86	239.86
3.667	241.14	240.81	240.81
3.750	242.10	241.77	241.77
3.833	243.07	242.73	242.73
3.917	244.05	243.71	243.71
4.000	245.04	244.70	244.70
4.083	246.05	245.70	245.70
4.167	247.06	246.71	246.71
4.250	248.09	247.73	247.73
4.333	249.13	248.77	248.77
4.417	250.18	249.81	249.81
4.500	251.24	250.87	250.87
4.583	252.31	251.94	251.94
4.667	253.39	253.02	253.02
4.750	254.49	254.11	254.11
4.833	255.60	255.21	255.21
4.917	256.72	256.33	256.33
5.000	257.86	257.46	257.46
5.083	259.01	258.61	258.61
5.167	260.17	259.77	259.77
5.250	261.35	260.94	260.94
5.333	262.53	262.12	262.12
5.417	263.74	263.32	263.32
5.500	264.96	264.53	264.53
5.583	266.19	265.76	265.76
5.667	267.44	267.01	267.01
5.750	268.71	268.27	268.27
5.833	269.99	269.54	269.54
5.917	271.29	270.83	270.83
6.000	272.60	272.14	272.14
6.083	273.93	273.47	273.47
6.167	275.27	274.81	274.81
6.250	276.64	276.17	276.17
6.333	278.02	277.55	277.55
6.417	279.43	278.94	278.94
6.500	280.85	280.36	280.36
6.583	282.29	281.79	281.79
6.667	283.75	283.24	283.24
6.750	285.23	284.72	284.72
6.833	286.73	286.21	286.21
6.917	288.26	287.73	287.73
7.000	289.79	289.26	289.26
7.083	291.36	290.82	290.82
7.167	292.95	292.40	292.40
7.250	294.56	294.00	294.00
7.333	296.19	295.63	295.63
7.417	297.85	297.28	297.28
7.500	299.53	298.95	298.95
7.583	301.24	300.65	300.65
7.667	302.97	302.37	302.37
7.750	304.74	304.13	304.13

7.833	306.52	305.90	305.90
7.917	308.34	307.71	307.71
8.000	310.19	309.55	309.55
8.083	312.06	311.41	311.41
8.167	313.96	313.31	313.31
8.250	315.90	315.23	315.23
8.333	317.87	317.19	317.19
8.417	319.87	319.18	319.18
8.500	321.90	321.20	321.20
8.583	323.97	323.26	323.26
8.667	326.07	325.35	325.35
8.750	328.22	327.47	327.47
8.833	330.39	329.64	329.64
8.917	332.61	331.84	331.84
9.000	334.86	334.08	334.08
9.083	337.16	336.37	336.37
9.167	339.50	338.69	338.69
9.250	341.89	341.06	341.06
9.333	344.31	343.47	343.47
9.417	346.79	345.93	345.93
9.500	349.30	348.43	348.43
9.583	351.88	350.98	350.98
9.667	354.49	353.59	353.59
9.750	357.17	356.24	356.24
9.833	359.89	358.95	358.95
9.917	362.68	361.71	361.71
10.000	365.51	364.53	364.53
10.083	368.42	367.41	367.41
10.167	371.37	370.35	370.35
10.250	374.40	373.35	373.35
10.333	377.49	376.42	376.42
10.417	380.65	379.55	379.55
10.500	383.87	382.76	382.76
10.583	387.19	386.04	386.04
10.667	390.56	389.39	389.39
10.750	394.02	392.82	392.82
10.833	397.55	396.33	396.33
10.917	401.19	399.93	399.93
11.000	404.89	403.61	403.61
11.083	408.71	407.39	407.39
11.167	412.60	411.25	411.25
11.250	416.61	415.22	415.22
11.333	420.71	419.29	419.29
11.417	424.94	423.47	423.47
11.500	429.26	427.76	427.76
11.583	433.72	432.17	432.17
11.667	438.28	436.70	436.70
11.750	442.99	441.36	441.36
11.833	447.82	446.15	446.15
11.917	452.81	451.08	451.08
12.000	457.93	456.16	456.16
12.083	462.15	460.69	460.69
12.167	462.41	462.32	462.32
12.250	453.32	456.47	456.47
12.333	439.87	444.53	444.53
12.417	429.05	432.80	432.80
12.500	422.34	424.67	424.67

12.583	420.05	420.84	420.84
12.667	420.73	420.50	420.50
12.750	423.19	422.34	422.34
12.833	426.70	425.48	425.48
12.917	431.14	429.60	429.60
13.000	436.32	434.52	434.52
13.083	442.12	440.11	440.11
13.167	448.45	446.26	446.26
13.250	455.37	452.97	452.97
13.333	462.77	460.20	460.20
13.417	470.77	468.00	468.00
13.500	479.28	476.33	476.33
13.583	488.41	485.25	485.25
13.667	497.99	494.67	494.67
13.750	508.19	504.66	504.66
13.833	518.91	515.19	515.19
13.917	530.35	526.38	526.38
14.000	542.51	538.29	538.29
14.083	555.78	551.18	551.18
14.167	570.71	565.53	565.53
14.250	588.83	582.55	582.55
14.333	609.57	602.38	602.38
14.417	632.19	624.35	624.35
14.500	655.26	647.26	647.26
14.583	678.30	670.31	670.31
14.667	701.71	693.59	693.59
14.750	726.50	717.91	717.91
14.833	752.92	743.76	743.76
14.917	781.67	771.70	771.70
15.000	812.83	802.03	802.03
15.083	847.37	835.40	835.40
15.167	885.42	872.23	872.23
15.250	928.32	913.45	913.45
15.333	976.45	959.77	959.77
15.417	1028.47	1010.44	1010.44
15.500	1075.59	1059.26	1059.26
15.583	1103.33	1093.71	1093.71
15.667	1127.45	1119.09	1119.09
15.750	1179.56	1161.50	1161.50
15.833	1287.26	1249.93	1249.93
15.917	1503.87	1428.78	1428.78
16.000	1859.10	1735.95	1735.95
16.083	2649.40	2375.43	2375.43
16.167	4264.60	3704.66	3704.66
16.250	6906.51	5990.65	5990.65
16.333	7914.59	7565.12	7565.12
16.417	6933.50	7273.61	7273.61
16.500	5506.69	6001.32	6001.32
16.583	4123.53	4603.03	4603.03
16.667	3169.34	3500.13	3500.13
16.750	2587.55	2789.24	2789.24
16.833	2212.60	2342.58	2342.58
16.917	1911.93	2016.17	2016.17
17.000	1667.36	1752.14	1752.14
17.083	1489.04	1550.85	1550.85
17.167	1334.26	1387.91	1387.91
17.250	1198.71	1245.70	1245.70

17.333	1081.32	1122.02	1122.02
17.417	973.70	1011.01	1011.01
17.500	878.51	911.51	911.51
17.583	802.66	828.95	828.95
17.667	755.96	772.15	772.15
17.750	710.50	726.26	726.26
17.833	673.62	686.41	686.41
17.917	628.84	644.37	644.37
18.000	571.69	591.50	591.50
18.083	527.25	542.66	542.66
18.167	503.77	511.91	511.91
18.250	488.59	493.86	493.86
18.333	473.03	478.43	478.43
18.417	472.76	472.85	472.85
18.500	470.64	471.38	471.38
18.583	465.46	467.26	467.26
18.667	458.27	460.76	460.76
18.750	450.43	453.14	453.14
18.833	442.50	445.25	445.25
18.917	434.62	437.35	437.35
19.000	426.88	429.56	429.56
19.083	419.38	421.98	421.98
19.167	412.12	414.64	414.64
19.250	405.10	407.53	407.53
19.333	398.31	400.66	400.66
19.417	391.73	394.01	394.01
19.500	385.33	387.55	387.55
19.583	379.14	381.29	381.29
19.667	373.21	375.27	375.27
19.750	367.52	369.49	369.49
19.833	362.07	363.96	363.96
19.917	356.80	358.63	358.63
20.000	351.65	353.44	353.44
20.083	346.63	348.37	348.37
20.167	341.79	343.47	343.47
20.250	337.10	338.73	338.73
20.333	332.51	334.10	334.10
20.417	328.09	329.62	329.62
20.500	323.82	325.30	325.30
20.583	319.70	321.13	321.13
20.667	315.71	317.09	317.09
20.750	311.85	313.19	313.19
20.833	308.12	309.41	309.41
20.917	304.50	305.75	305.75
21.000	300.99	302.21	302.21
21.083	297.59	298.77	298.77
21.167	294.29	295.43	295.43
21.250	291.08	292.19	292.19
21.333	287.97	289.05	289.05
21.417	284.94	285.99	285.99
21.500	282.00	283.02	283.02
21.583	279.13	280.13	280.13
21.667	276.34	277.31	277.31
21.750	273.63	274.57	274.57
21.833	270.98	271.90	271.90
21.917	268.40	269.30	269.30
22.000	265.89	266.76	266.76

22.083	263.43	264.28	264.28
22.167	261.04	261.87	261.87
22.250	258.70	259.51	259.51
22.333	256.42	257.21	257.21
22.417	254.19	254.96	254.96
22.500	252.01	252.76	252.76
22.583	249.88	250.61	250.61
22.667	247.79	248.51	248.51
22.750	245.75	246.46	246.46
22.833	243.76	244.45	244.45
22.917	241.80	242.48	242.48
23.000	239.89	240.56	240.56
23.083	238.02	238.67	238.67
23.167	236.19	236.82	236.82
23.250	234.39	235.01	235.01
23.333	232.63	233.24	233.24
23.417	230.90	231.50	231.50
23.500	229.21	229.80	229.80
23.583	227.55	228.12	228.12
23.667	225.92	226.48	226.48
23.750	224.32	224.88	224.88
23.833	222.75	223.30	223.30
23.917	221.21	221.75	221.75
24.000	219.70	220.22	220.22
24.083	216.00	217.28	217.28
24.167	203.95	208.13	208.13
24.250	172.48	183.39	183.39
24.333	132.05	146.07	146.07
24.417	97.00	109.15	109.15
24.500	70.46	79.66	79.66
24.583	52.91	59.00	59.00
24.667	41.35	45.36	45.36
24.750	33.07	35.94	35.94
24.833	26.62	28.86	28.86
24.917	21.59	23.34	23.34
25.000	17.65	19.02	19.02
25.083	14.37	15.51	15.51
25.167	11.66	12.60	12.60
25.250	9.42	10.20	10.20
25.333	7.56	8.20	8.20
25.417	6.06	6.58	6.58
25.500	4.90	5.30	5.30
25.583	3.99	4.30	4.30
25.667	3.13	3.43	3.43
25.750	2.37	2.64	2.64
25.833	1.64	1.89	1.89
25.917	1.00	1.22	1.22
26.000	0.60	0.74	0.74
26.083	0.35	0.44	0.44
26.167	0.14	0.21	0.21
26.250	0.00	0.05	0.05
26.333	0.00	0.00	0.00

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1095.405 AF
OUTFLOW VOLUME = 1095.404 AF
LOSS VOLUME = 0.000 AF

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 FLOW PROCESS FROM NODE     104.50 TO NODE     104.50 IS CODE =   1
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 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

     (UNIT-HYDROGRAPH ADDED TO STREAM #2)

       WATERSHED AREA =      472.100 ACRES
       BASEFLOW =    0.000 CFS/SQUARE-MILE
       *USER ENTERED "LAG" TIME =     0.213 HOURS
        CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
        THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
        MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
       VALLEY(DEVELOPED):
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.150
       FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       VALLEY(UNDEVELOPED)/DESERT:
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.850
       MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.096
       LOW LOSS FRACTION = 0.111
       *HYDROGRAPH MODEL #1 SPECIFIED*

       SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
       SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
       SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
       SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
       SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
       SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

       *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
         5-MINUTE FACTOR = 0.979
        30-MINUTE FACTOR = 0.979
         1-HOUR FACTOR = 0.979
         3-HOUR FACTOR = 0.997
         6-HOUR FACTOR = 0.999
        24-HOUR FACTOR = 0.999

       UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
       UNIT INTERVAL PERCENTAGE OF LAG-TIME =  39.124


       RUNOFF HYDROGRAPH LISTING LIMITS:
       MODEL TIME(HOURS) FOR BEGINNING OF RESULTS =   0.00
       MODEL TIME(HOURS) FOR END OF RESULTS =  24.00


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                    UNIT HYDROGRAPH DETERMINATION

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    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
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1	2.675	152.756
2	17.854	866.589
3	47.767	1707.918
4	66.395	1063.547
5	76.488	576.263
6	82.675	353.213
7	86.730	231.536
8	89.775	173.873
9	91.968	125.208
10	93.719	99.962
11	95.119	79.901
12	96.225	63.146
13	97.116	50.913
14	97.796	38.798
15	98.277	27.440
16	98.624	19.852
17	99.020	22.570
18	99.417	22.691
19	99.767	19.970
20	99.942	9.985
21	100.000	3.328

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0043
2	0.0049	0.0005	0.0043
3	0.0049	0.0005	0.0043
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0044
6	0.0049	0.0005	0.0044
7	0.0050	0.0006	0.0044
8	0.0050	0.0006	0.0044
9	0.0050	0.0006	0.0044
10	0.0050	0.0006	0.0044
11	0.0050	0.0006	0.0045
12	0.0050	0.0006	0.0045
13	0.0051	0.0006	0.0045
14	0.0051	0.0006	0.0045
15	0.0051	0.0006	0.0045
16	0.0051	0.0006	0.0045
17	0.0051	0.0006	0.0046
18	0.0051	0.0006	0.0046
19	0.0052	0.0006	0.0046
20	0.0052	0.0006	0.0046
21	0.0052	0.0006	0.0046
22	0.0052	0.0006	0.0046
23	0.0052	0.0006	0.0047
24	0.0052	0.0006	0.0047
25	0.0053	0.0006	0.0047
26	0.0053	0.0006	0.0047
27	0.0053	0.0006	0.0047
28	0.0053	0.0006	0.0047
29	0.0054	0.0006	0.0048
30	0.0054	0.0006	0.0048
31	0.0054	0.0006	0.0048
32	0.0054	0.0006	0.0048
33	0.0054	0.0006	0.0048
34	0.0054	0.0006	0.0048
35	0.0055	0.0006	0.0049
36	0.0055	0.0006	0.0049
37	0.0055	0.0006	0.0049
38	0.0055	0.0006	0.0049
39	0.0056	0.0006	0.0049
40	0.0056	0.0006	0.0050
41	0.0056	0.0006	0.0050
42	0.0056	0.0006	0.0050
43	0.0057	0.0006	0.0050
44	0.0057	0.0006	0.0050
45	0.0057	0.0006	0.0051
46	0.0057	0.0006	0.0051
47	0.0057	0.0006	0.0051
48	0.0058	0.0006	0.0051
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0052
51	0.0058	0.0006	0.0052

52	0.0059	0.0007	0.0052
53	0.0059	0.0007	0.0052
54	0.0059	0.0007	0.0053
55	0.0059	0.0007	0.0053
56	0.0060	0.0007	0.0053
57	0.0060	0.0007	0.0053
58	0.0060	0.0007	0.0054
59	0.0061	0.0007	0.0054
60	0.0061	0.0007	0.0054
61	0.0061	0.0007	0.0054
62	0.0061	0.0007	0.0055
63	0.0062	0.0007	0.0055
64	0.0062	0.0007	0.0055
65	0.0062	0.0007	0.0055
66	0.0063	0.0007	0.0056
67	0.0063	0.0007	0.0056
68	0.0063	0.0007	0.0056
69	0.0064	0.0007	0.0056
70	0.0064	0.0007	0.0057
71	0.0064	0.0007	0.0057
72	0.0064	0.0007	0.0057
73	0.0065	0.0007	0.0058
74	0.0065	0.0007	0.0058
75	0.0065	0.0007	0.0058
76	0.0066	0.0007	0.0058
77	0.0066	0.0007	0.0059
78	0.0066	0.0007	0.0059
79	0.0067	0.0007	0.0059
80	0.0067	0.0007	0.0060
81	0.0068	0.0008	0.0060
82	0.0068	0.0008	0.0060
83	0.0068	0.0008	0.0061
84	0.0069	0.0008	0.0061
85	0.0069	0.0008	0.0061
86	0.0069	0.0008	0.0062
87	0.0070	0.0008	0.0062
88	0.0070	0.0008	0.0062
89	0.0071	0.0008	0.0063
90	0.0071	0.0008	0.0063
91	0.0072	0.0008	0.0064
92	0.0072	0.0008	0.0064
93	0.0072	0.0008	0.0064
94	0.0073	0.0008	0.0065
95	0.0073	0.0008	0.0065
96	0.0074	0.0008	0.0066
97	0.0074	0.0008	0.0066
98	0.0075	0.0008	0.0066
99	0.0075	0.0008	0.0067
100	0.0076	0.0008	0.0067
101	0.0076	0.0008	0.0068
102	0.0077	0.0009	0.0068
103	0.0077	0.0009	0.0069
104	0.0078	0.0009	0.0069
105	0.0078	0.0009	0.0070
106	0.0079	0.0009	0.0070
107	0.0080	0.0009	0.0071
108	0.0080	0.0009	0.0071

109	0.0081	0.0009	0.0072
110	0.0081	0.0009	0.0072
111	0.0082	0.0009	0.0073
112	0.0082	0.0009	0.0073
113	0.0083	0.0009	0.0074
114	0.0084	0.0009	0.0074
115	0.0084	0.0009	0.0075
116	0.0085	0.0009	0.0075
117	0.0086	0.0010	0.0076
118	0.0086	0.0010	0.0077
119	0.0087	0.0010	0.0078
120	0.0088	0.0010	0.0078
121	0.0089	0.0010	0.0079
122	0.0089	0.0010	0.0079
123	0.0090	0.0010	0.0080
124	0.0091	0.0010	0.0081
125	0.0092	0.0010	0.0082
126	0.0092	0.0010	0.0082
127	0.0094	0.0010	0.0083
128	0.0094	0.0010	0.0084
129	0.0095	0.0011	0.0085
130	0.0096	0.0011	0.0085
131	0.0097	0.0011	0.0086
132	0.0098	0.0011	0.0087
133	0.0099	0.0011	0.0088
134	0.0100	0.0011	0.0089
135	0.0101	0.0011	0.0090
136	0.0102	0.0011	0.0091
137	0.0103	0.0011	0.0092
138	0.0104	0.0012	0.0093
139	0.0106	0.0012	0.0094
140	0.0107	0.0012	0.0095
141	0.0108	0.0012	0.0096
142	0.0109	0.0012	0.0097
143	0.0111	0.0012	0.0099
144	0.0112	0.0012	0.0099
145	0.0090	0.0010	0.0080
146	0.0091	0.0010	0.0081
147	0.0093	0.0010	0.0083
148	0.0094	0.0010	0.0083
149	0.0096	0.0011	0.0085
150	0.0097	0.0011	0.0086
151	0.0099	0.0011	0.0088
152	0.0100	0.0011	0.0089
153	0.0102	0.0011	0.0091
154	0.0104	0.0011	0.0092
155	0.0106	0.0012	0.0094
156	0.0107	0.0012	0.0095
157	0.0110	0.0012	0.0098
158	0.0112	0.0012	0.0099
159	0.0115	0.0013	0.0102
160	0.0116	0.0013	0.0103
161	0.0120	0.0013	0.0106
162	0.0121	0.0013	0.0108
163	0.0125	0.0014	0.0111
164	0.0127	0.0014	0.0113
165	0.0131	0.0015	0.0117

166	0.0134	0.0015	0.0119
167	0.0138	0.0015	0.0123
168	0.0141	0.0016	0.0125
169	0.0151	0.0017	0.0135
170	0.0154	0.0017	0.0137
171	0.0161	0.0018	0.0143
172	0.0164	0.0018	0.0146
173	0.0172	0.0019	0.0153
174	0.0176	0.0020	0.0156
175	0.0185	0.0021	0.0164
176	0.0190	0.0021	0.0169
177	0.0201	0.0022	0.0178
178	0.0207	0.0023	0.0184
179	0.0220	0.0024	0.0196
180	0.0228	0.0025	0.0203
181	0.0245	0.0027	0.0218
182	0.0255	0.0028	0.0227
183	0.0279	0.0031	0.0248
184	0.0293	0.0032	0.0260
185	0.0251	0.0028	0.0223
186	0.0269	0.0030	0.0239
187	0.0316	0.0035	0.0281
188	0.0347	0.0039	0.0309
189	0.0539	0.0060	0.0479
190	0.0621	0.0069	0.0552
191	0.0941	0.0080	0.0861
192	0.1367	0.0080	0.1287
193	0.5874	0.0080	0.5794
194	0.0741	0.0080	0.0661
195	0.0387	0.0043	0.0344
196	0.0290	0.0032	0.0258
197	0.0308	0.0034	0.0274
198	0.0266	0.0030	0.0237
199	0.0236	0.0026	0.0210
200	0.0213	0.0024	0.0189
201	0.0195	0.0022	0.0173
202	0.0180	0.0020	0.0160
203	0.0168	0.0019	0.0149
204	0.0158	0.0017	0.0140
205	0.0144	0.0016	0.0128
206	0.0136	0.0015	0.0121
207	0.0129	0.0014	0.0115
208	0.0123	0.0014	0.0110
209	0.0118	0.0013	0.0105
210	0.0113	0.0013	0.0101
211	0.0109	0.0012	0.0097
212	0.0105	0.0012	0.0093
213	0.0101	0.0011	0.0090
214	0.0098	0.0011	0.0087
215	0.0095	0.0011	0.0084
216	0.0092	0.0010	0.0082
217	0.0113	0.0013	0.0100
218	0.0110	0.0012	0.0098
219	0.0107	0.0012	0.0096
220	0.0105	0.0012	0.0093
221	0.0103	0.0011	0.0091
222	0.0101	0.0011	0.0089

223	0.0099	0.0011	0.0088
224	0.0097	0.0011	0.0086
225	0.0095	0.0011	0.0084
226	0.0093	0.0010	0.0083
227	0.0091	0.0010	0.0081
228	0.0090	0.0010	0.0080
229	0.0088	0.0010	0.0078
230	0.0087	0.0010	0.0077
231	0.0085	0.0009	0.0076
232	0.0084	0.0009	0.0075
233	0.0083	0.0009	0.0074
234	0.0081	0.0009	0.0072
235	0.0080	0.0009	0.0071
236	0.0079	0.0009	0.0070
237	0.0078	0.0009	0.0069
238	0.0077	0.0009	0.0068
239	0.0076	0.0008	0.0068
240	0.0075	0.0008	0.0067
241	0.0074	0.0008	0.0066
242	0.0073	0.0008	0.0065
243	0.0072	0.0008	0.0064
244	0.0071	0.0008	0.0063
245	0.0070	0.0008	0.0063
246	0.0070	0.0008	0.0062
247	0.0069	0.0008	0.0061
248	0.0068	0.0008	0.0061
249	0.0067	0.0007	0.0060
250	0.0067	0.0007	0.0059
251	0.0066	0.0007	0.0059
252	0.0065	0.0007	0.0058
253	0.0065	0.0007	0.0057
254	0.0064	0.0007	0.0057
255	0.0063	0.0007	0.0056
256	0.0063	0.0007	0.0056
257	0.0062	0.0007	0.0055
258	0.0062	0.0007	0.0055
259	0.0061	0.0007	0.0054
260	0.0060	0.0007	0.0054
261	0.0060	0.0007	0.0053
262	0.0059	0.0007	0.0053
263	0.0059	0.0007	0.0052
264	0.0058	0.0006	0.0052
265	0.0058	0.0006	0.0051
266	0.0057	0.0006	0.0051
267	0.0057	0.0006	0.0051
268	0.0056	0.0006	0.0050
269	0.0056	0.0006	0.0050
270	0.0055	0.0006	0.0049
271	0.0055	0.0006	0.0049
272	0.0055	0.0006	0.0049
273	0.0054	0.0006	0.0048
274	0.0054	0.0006	0.0048
275	0.0053	0.0006	0.0047
276	0.0053	0.0006	0.0047
277	0.0053	0.0006	0.0047
278	0.0052	0.0006	0.0046
279	0.0052	0.0006	0.0046

280	0.0052	0.0006	0.0046
281	0.0051	0.0006	0.0045
282	0.0051	0.0006	0.0045
283	0.0050	0.0006	0.0045
284	0.0050	0.0006	0.0045
285	0.0050	0.0006	0.0044
286	0.0049	0.0005	0.0044
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0043

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.33
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.26

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 13.0675
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 128.3545

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	325.0	650.0	975.0	1300.0
0.083	0.0045	0.66	Q	.	.	.	.
0.167	0.0349	4.41	Q	.	.	.	.
0.250	0.1161	11.80	Q	.	.	.	.
0.333	0.2293	16.42	Q	.	.	.	.
0.417	0.3599	18.97	Q	.	.	.	.
0.500	0.5014	20.55	Q	.	.	.	.
0.583	0.6503	21.62	Q	.	.	.	.
0.667	0.8049	22.44	Q	.	.	.	.
0.750	0.9637	23.06	Q	.	.	.	.
0.833	1.1259	23.56	Q	.	.	.	.
0.917	1.2911	23.99	Q	.	.	.	.
1.000	1.4587	24.34	Q	.	.	.	.
1.083	1.6284	24.64	Q	.	.	.	.
1.167	1.7998	24.89	Q	.	.	.	.
1.250	1.9727	25.09	Q	.	.	.	.
1.333	2.1466	25.26	Q	.	.	.	.
1.417	2.3219	25.45	Q	.	.	.	.
1.500	2.4984	25.63	Q	.	.	.	.
1.583	2.6761	25.81	Q	.	.	.	.
1.667	2.8548	25.94	Q	.	.	.	.
1.750	3.0341	26.04	Q	.	.	.	.
1.833	3.2141	26.13	QV	.	.	.	.
1.917	3.3947	26.23	QV	.	.	.	.
2.000	3.5760	26.32	QV	.	.	.	.
2.083	3.7579	26.41	QV	.	.	.	.
2.167	3.9404	26.51	QV	.	.	.	.
2.250	4.1237	26.60	QV	.	.	.	.
2.333	4.3075	26.70	QV	.	.	.	.
2.417	4.4921	26.80	QV	.	.	.	.
2.500	4.6773	26.89	QV	.	.	.	.
2.583	4.8632	26.99	QV	.	.	.	.
2.667	5.0498	27.09	QV	.	.	.	.
2.750	5.2371	27.20	QV	.	.	.	.
2.833	5.4251	27.30	QV	.	.	.	.
2.917	5.6138	27.40	QV	.	.	.	.
3.000	5.8033	27.50	QV	.	.	.	.
3.083	5.9934	27.61	QV	.	.	.	.
3.167	6.1843	27.72	QV	.	.	.	.
3.250	6.3759	27.83	QV	.	.	.	.
3.333	6.5683	27.93	Q V	.	.	.	.
3.417	6.7615	28.04	Q V	.	.	.	.
3.500	6.9553	28.15	Q V	.	.	.	.
3.583	7.1500	28.27	Q V	.	.	.	.
3.667	7.3455	28.38	Q V	.	.	.	.
3.750	7.5417	28.49	Q V	.	.	.	.

3.833	7.7387	28.61	Q V	.	.	.	.
3.917	7.9366	28.73	Q V	.	.	.	.
4.000	8.1352	28.84	Q V	.	.	.	.
4.083	8.3347	28.96	Q V	.	.	.	.
4.167	8.5350	29.08	Q V	.	.	.	.
4.250	8.7362	29.21	Q V	.	.	.	.
4.333	8.9382	29.33	Q V	.	.	.	.
4.417	9.1410	29.46	Q V	.	.	.	.
4.500	9.3447	29.58	Q V	.	.	.	.
4.583	9.5494	29.71	Q V	.	.	.	.
4.667	9.7549	29.84	Q V	.	.	.	.
4.750	9.9613	29.97	Q V	.	.	.	.
4.833	10.1686	30.10	Q V	.	.	.	.
4.917	10.3768	30.24	Q V	.	.	.	.
5.000	10.5860	30.37	Q V	.	.	.	.
5.083	10.7961	30.51	Q V	.	.	.	.
5.167	11.0071	30.65	Q V	.	.	.	.
5.250	11.2192	30.79	Q V	.	.	.	.
5.333	11.4322	30.93	Q V	.	.	.	.
5.417	11.6462	31.07	Q V	.	.	.	.
5.500	11.8612	31.22	Q V	.	.	.	.
5.583	12.0772	31.37	Q V	.	.	.	.
5.667	12.2942	31.51	Q V	.	.	.	.
5.750	12.5123	31.67	Q V	.	.	.	.
5.833	12.7314	31.82	Q V	.	.	.	.
5.917	12.9516	31.97	Q V	.	.	.	.
6.000	13.1729	32.13	Q V	.	.	.	.
6.083	13.3953	32.29	Q V	.	.	.	.
6.167	13.6188	32.45	Q V	.	.	.	.
6.250	13.8434	32.61	.Q V	.	.	.	.
6.333	14.0691	32.78	.Q V	.	.	.	.
6.417	14.2960	32.95	.Q V	.	.	.	.
6.500	14.5241	33.11	.Q V	.	.	.	.
6.583	14.7533	33.29	.Q V	.	.	.	.
6.667	14.9838	33.46	.Q V	.	.	.	.
6.750	15.2155	33.64	.Q V	.	.	.	.
6.833	15.4484	33.82	.Q V	.	.	.	.
6.917	15.6826	34.00	.Q V	.	.	.	.
7.000	15.9180	34.18	.Q V	.	.	.	.
7.083	16.1547	34.37	.Q V	.	.	.	.
7.167	16.3928	34.56	.Q V	.	.	.	.
7.250	16.6321	34.76	.Q V	.	.	.	.
7.333	16.8728	34.95	.Q V	.	.	.	.
7.417	17.1149	35.15	.Q V	.	.	.	.
7.500	17.3584	35.35	.Q V	.	.	.	.
7.583	17.6033	35.56	.Q V	.	.	.	.
7.667	17.8496	35.76	.Q V	.	.	.	.
7.750	18.0974	35.98	.Q V	.	.	.	.
7.833	18.3466	36.19	.Q V	.	.	.	.
7.917	18.5974	36.41	.Q V	.	.	.	.
8.000	18.8496	36.63	.Q V	.	.	.	.
8.083	19.1035	36.86	.Q V	.	.	.	.
8.167	19.3588	37.08	.Q V	.	.	.	.
8.250	19.6159	37.32	.Q V	.	.	.	.
8.333	19.8745	37.55	.Q V	.	.	.	.
8.417	20.1348	37.79	.Q V	.	.	.	.
8.500	20.3967	38.03	.Q V	.	.	.	.

8.583	20.6604	38.29	.Q	V	.	.	.
8.667	20.9258	38.54	.Q	V	.	.	.
8.750	21.1930	38.80	.Q	V	.	.	.
8.833	21.4620	39.06	.Q	V	.	.	.
8.917	21.7328	39.33	.Q	V	.	.	.
9.000	22.0055	39.59	.Q	V	.	.	.
9.083	22.2801	39.88	.Q	V	.	.	.
9.167	22.5567	40.15	.Q	V	.	.	.
9.250	22.8352	40.44	.Q	V	.	.	.
9.333	23.1157	40.73	.Q	V	.	.	.
9.417	23.3984	41.04	.Q	V	.	.	.
9.500	23.6830	41.33	.Q	V	.	.	.
9.583	23.9699	41.65	.Q	V	.	.	.
9.667	24.2589	41.96	.Q	V	.	.	.
9.750	24.5501	42.29	.Q	V	.	.	.
9.833	24.8436	42.61	.Q	V	.	.	.
9.917	25.1394	42.95	.Q	V	.	.	.
10.000	25.4376	43.29	.Q	V	.	.	.
10.083	25.7382	43.65	.Q	V	.	.	.
10.167	26.0412	44.00	.Q	V	.	.	.
10.250	26.3468	44.37	.Q	V	.	.	.
10.333	26.6550	44.74	.Q	V	.	.	.
10.417	26.9658	45.13	.Q	V	.	.	.
10.500	27.2792	45.52	.Q	V	.	.	.
10.583	27.5955	45.92	.Q	V	.	.	.
10.667	27.9146	46.33	.Q	V	.	.	.
10.750	28.2366	46.75	.Q	V	.	.	.
10.833	28.5615	47.18	.Q	V	.	.	.
10.917	28.8894	47.62	.Q	V	.	.	.
11.000	29.2205	48.07	.Q	V	.	.	.
11.083	29.5548	48.54	.Q	V	.	.	.
11.167	29.8923	49.01	.Q	V	.	.	.
11.250	30.2332	49.50	.Q	V	.	.	.
11.333	30.5775	49.99	.Q	V	.	.	.
11.417	30.9254	50.52	.Q	V	.	.	.
11.500	31.2769	51.04	.Q	V	.	.	.
11.583	31.6322	51.59	.Q	V	.	.	.
11.667	31.9913	52.14	.Q	V	.	.	.
11.750	32.3544	52.72	.Q	V	.	.	.
11.833	32.7215	53.31	.Q	V	.	.	.
11.917	33.0929	53.93	.Q	V	.	.	.
12.000	33.4686	54.54	.Q	V	.	.	.
12.083	33.8465	54.88	.Q	V	.	.	.
12.167	34.2165	53.72	.Q	V	.	.	.
12.250	34.5665	50.82	.Q	V	.	.	.
12.333	34.9056	49.25	.Q	V	.	.	.
12.417	35.2413	48.74	.Q	V	.	.	.
12.500	35.5766	48.69	.Q	.V	.	.	.
12.583	35.9136	48.94	.Q	.V	.	.	.
12.667	36.2532	49.31	.Q	.V	.	.	.
12.750	36.5964	49.83	.Q	.V	.	.	.
12.833	36.9436	50.42	.Q	.V	.	.	.
12.917	37.2956	51.10	.Q	.V	.	.	.
13.000	37.6525	51.83	.Q	.V	.	.	.
13.083	38.0150	52.64	.Q	.V	.	.	.
13.167	38.3834	53.49	.Q	.V	.	.	.
13.250	38.7584	54.44	.Q	. V	.	.	.

13.333	39.1401	55.42	.Q . V . . .
13.417	39.5291	56.48	.Q . V . . .
13.500	39.9254	57.55	.Q . V . . .
13.583	40.3299	58.73	.Q . V . . .
13.667	40.7428	59.95	.Q . V . . .
13.750	41.1649	61.30	.Q . V . . .
13.833	41.5966	62.68	.Q . V . . .
13.917	42.0387	64.19	.Q . V . . .
14.000	42.4914	65.74	. Q . V . . .
14.083	42.9564	67.52	. Q . V . . .
14.167	43.4362	69.67	. Q . V . . .
14.250	43.9348	72.39	. Q . V . . .
14.333	44.4507	74.90	. Q . V . . .
14.417	44.9839	77.43	. Q . V . . .
14.500	45.5345	79.94	. Q . V . . .
14.583	46.1040	82.69	. Q . V . . .
14.667	46.6931	85.54	. Q . V . . .
14.750	47.3041	88.72	. Q . V . . .
14.833	47.9382	92.07	. Q . V . . .
14.917	48.5985	95.88	. Q . V . . .
15.000	49.2868	99.93	. Q . V . . .
15.083	50.0072	104.61	. Q . V . . .
15.167	50.7626	109.68	. Q . V . . .
15.250	51.5589	115.63	. Q . V . . .
15.333	52.4005	122.20	. Q . V . . .
15.417	53.2896	129.09	. Q . V . . .
15.500	54.2003	132.24	. Q . V . . .
15.583	55.1072	131.69	. Q . V . . .
15.667	56.0498	136.86	. Q . V . . .
15.750	57.0839	150.14	. Q . V . . .
15.833	58.2964	176.06	. Q . V . . .
15.917	59.8268	222.23	. Q . V . . .
16.000	61.8212	289.59	. Q . V. . .
16.083	65.0441	467.96	. . Q V . .
16.167	71.2254	897.53	. . . V Q . .
16.250	80.0993	1288.48	. . . V . . Q.
16.333	86.3210	903.40	. . . VQ . .
16.417	90.3304	582.16	. . Q . V . .
16.500	93.1983	416.42	. . Q . V. .
16.583	95.4368	325.03	. . Q . V. .
16.667	97.3071	271.56	. Q . . V .
16.750	98.8706	227.02	. Q . . V .
16.833	100.2296	197.32	. Q . . .V .
16.917	101.4208	172.97	. Q . . .V .
17.000	102.4709	152.48	. Q . . .V .
17.083	103.4063	135.82	. Q . . . V .
17.167	104.2357	120.43	. Q . . . V .
17.250	104.9700	106.62	. Q . . . V .
17.333	105.6346	96.49	. Q . . . V .
17.417	106.2710	92.41	. Q . . . V .
17.500	106.8725	87.33	. Q . . . V .
17.583	107.4285	80.73	. Q . . . V .
17.667	107.9174	70.99	. Q . . . V .
17.750	108.3558	63.66	.Q . . . V .
17.833	108.7611	58.85	.Q . . . V .
17.917	109.1485	56.25	.Q . . . V .
18.000	109.5204	54.00	.Q . . . V .

18.083	109.8804	52.28	.Q	.	.	.	V	.
18.167	110.2402	52.24	.Q	.	.	.	V	.
18.250	110.6129	54.11	.Q	.	.	.	V	.
18.333	110.9898	54.74	.Q	.	.	.	V	.
18.417	111.3647	54.43	.Q	.	.	.	V	.
18.500	111.7349	53.76	.Q	.	.	.	V	.
18.583	112.0993	52.91	.Q	.	.	.	V	.
18.667	112.4577	52.03	.Q	.	.	.	V	.
18.750	112.8097	51.12	.Q	.	.	.	V	.
18.833	113.1556	50.23	.Q	.	.	.	V	.
18.917	113.4955	49.35	.Q	.	.	.	V	.
19.000	113.8295	48.49	.Q	.	.	.	V	.
19.083	114.1577	47.66	.Q	.	.	.	V	.
19.167	114.4803	46.84	.Q	.	.	.	V	.
19.250	114.7975	46.05	.Q	.	.	.	V	.
19.333	115.1093	45.28	.Q	.	.	.	V	.
19.417	115.4161	44.55	.Q	.	.	.	V	.
19.500	115.7182	43.86	.Q	.	.	.	V	.
19.583	116.0157	43.19	.Q	.	.	.	V	.
19.667	116.3086	42.53	.Q	.	.	.	V	.
19.750	116.5970	41.89	.Q	.	.	.	V	.
19.833	116.8812	41.26	.Q	.	.	.	V	.
19.917	117.1612	40.66	.Q	.	.	.	V	.
20.000	117.4372	40.08	.Q	.	.	.	V	.
20.083	117.7094	39.52	.Q	.	.	.	V	.
20.167	117.9778	38.98	.Q	.	.	.	V	.
20.250	118.2427	38.46	.Q	.	.	.	V	.
20.333	118.5042	37.96	.Q	.	.	.	V	.
20.417	118.7623	37.48	.Q	.	.	.	V	.
20.500	119.0171	37.01	.Q	.	.	.	V	.
20.583	119.2689	36.56	.Q	.	.	.	V	.
20.667	119.5176	36.12	.Q	.	.	.	V	.
20.750	119.7635	35.69	.Q	.	.	.	V	.
20.833	120.0064	35.28	.Q	.	.	.	V	.
20.917	120.2467	34.88	.Q	.	.	.	V	.
21.000	120.4842	34.49	.Q	.	.	.	V	.
21.083	120.7192	34.12	.Q	.	.	.	V	.
21.167	120.9516	33.75	.Q	.	.	.	V	.
21.250	121.1816	33.40	.Q	.	.	.	V	.
21.333	121.4092	33.05	.Q	.	.	.	V	.
21.417	121.6345	32.71	.Q	.	.	.	V	.
21.500	121.8576	32.39	Q	.	.	.	V	.
21.583	122.0784	32.07	Q	.	.	.	V	.
21.667	122.2971	31.76	Q	.	.	.	V	.
21.750	122.5137	31.45	Q	.	.	.	V	.
21.833	122.7283	31.16	Q	.	.	.	V	.
21.917	122.9409	30.87	Q	.	.	.	V	.
22.000	123.1516	30.59	Q	.	.	.	V	.
22.083	123.3603	30.31	Q	.	.	.	V	.
22.167	123.5673	30.04	Q	.	.	.	V	.
22.250	123.7724	29.78	Q	.	.	.	V	.
22.333	123.9757	29.53	Q	.	.	.	V	.
22.417	124.1774	29.28	Q	.	.	.	V	.
22.500	124.3773	29.03	Q	.	.	.	V	.
22.583	124.5756	28.79	Q	.	.	.	V	.
22.667	124.7723	28.56	Q	.	.	.	V	.
22.750	124.9674	28.33	Q	.	.	.	V	.

22.833	125.1609	28.10	Q	.	.	.	V.
22.917	125.3530	27.88	Q	.	.	.	V.
23.000	125.5435	27.67	Q	.	.	.	V.
23.083	125.7326	27.46	Q	.	.	.	V.
23.167	125.9203	27.25	Q	.	.	.	V.
23.250	126.1066	27.05	Q	.	.	.	V.
23.333	126.2915	26.85	Q	.	.	.	V.
23.417	126.4750	26.65	Q	.	.	.	V.
23.500	126.6573	26.46	Q	.	.	.	V.
23.583	126.8382	26.27	Q	.	.	.	V.
23.667	127.0179	26.09	Q	.	.	.	V.
23.750	127.1964	25.91	Q	.	.	.	V.
23.833	127.3736	25.73	Q	.	.	.	V.
23.917	127.5496	25.56	Q	.	.	.	V.
24.000	127.7244	25.39	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	105.0
20%	45.0
30%	30.0
40%	20.0
50%	15.0
60%	15.0
70%	10.0
80%	5.0
90%	5.0

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FLOW PROCESS FROM NODE 104.50 TO NODE 104.00 IS CODE = 4

>>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<
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MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 250.00 MANNINGS FACTOR = 0.015
UPSTREAM ELEVATION(FT) = 3188.00
DOWNSTREAM ELEVATION(FT) = 3180.00
PIPE DIAMETER(FT) = 6.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
0.083	0.66	0.50	0.00	0.000
0.167	4.41	1.62	2.36	0.000
0.250	11.80	4.34	12.24	0.000
0.333	16.42	6.04	16.42	0.000
0.417	18.97	6.98	18.97	0.000
0.500	20.55	7.56	20.55	0.000
0.583	21.62	7.95	21.62	0.000
0.667	22.44	8.25	22.44	0.000
0.750	23.06	8.48	23.06	0.000
0.833	23.56	8.67	23.56	0.000
0.917	23.99	8.82	23.99	0.000
1.000	24.34	8.95	24.34	0.000
1.083	24.64	9.06	24.64	0.000
1.167	24.89	9.15	24.89	0.000
1.250	25.09	9.23	25.09	0.000
1.333	25.26	9.29	25.26	0.000
1.417	25.45	9.36	25.45	0.000
1.500	25.63	9.43	25.63	0.000
1.583	25.81	9.49	25.81	0.000
1.667	25.94	9.54	25.94	0.000
1.750	26.04	9.58	26.04	0.000
1.833	26.13	9.61	26.13	0.000
1.917	26.23	9.65	26.23	0.000
2.000	26.32	9.68	26.32	0.000
2.083	26.41	9.72	26.41	0.000
2.167	26.51	9.75	26.51	0.000
2.250	26.60	9.79	26.60	0.000
2.333	26.70	9.82	26.70	0.000
2.417	26.80	9.86	26.80	0.000
2.500	26.89	9.89	26.89	0.000
2.583	26.99	9.93	26.99	0.000
2.667	27.09	9.97	27.09	0.000
2.750	27.20	10.00	27.20	0.000
2.833	27.30	10.04	27.30	0.000
2.917	27.40	10.08	27.40	0.000
3.000	27.50	10.12	27.50	0.000
3.083	27.61	10.16	27.61	0.000
3.167	27.72	10.19	27.72	0.000
3.250	27.83	10.23	27.83	0.000
3.333	27.93	10.27	27.93	0.000
3.417	28.04	10.32	28.04	0.000
3.500	28.15	10.36	28.15	0.000
3.583	28.27	10.40	28.27	0.000
3.667	28.38	10.44	28.38	0.000
3.750	28.49	10.48	28.49	0.000
3.833	28.61	10.52	28.61	0.000
3.917	28.73	10.57	28.73	0.000
4.000	28.84	10.61	28.84	0.000
4.083	28.96	10.65	28.96	0.000
4.167	29.08	10.70	29.08	0.000
4.250	29.21	10.74	29.21	0.000
4.333	29.33	10.79	29.33	0.000

4.417	29.46	10.83	29.46	0.000
4.500	29.58	10.88	29.58	0.000
4.583	29.71	10.93	29.71	0.000
4.667	29.84	10.97	29.84	0.000
4.750	29.97	11.02	29.97	0.000
4.833	30.10	11.07	30.10	0.000
4.917	30.24	11.12	30.24	0.000
5.000	30.37	11.17	30.37	0.000
5.083	30.51	11.22	30.51	0.000
5.167	30.65	11.27	30.65	0.000
5.250	30.79	11.32	30.79	0.000
5.333	30.93	11.38	30.93	0.000
5.417	31.07	11.43	31.07	0.000
5.500	31.22	11.48	31.22	0.000
5.583	31.37	11.54	31.37	0.000
5.667	31.51	11.59	31.51	0.000
5.750	31.67	11.65	31.67	0.000
5.833	31.82	11.70	31.82	0.000
5.917	31.97	11.76	31.97	0.000
6.000	32.13	11.82	32.13	0.000
6.083	32.29	11.88	32.29	0.000
6.167	32.45	11.94	32.45	0.000
6.250	32.61	12.00	32.61	0.000
6.333	32.78	12.06	32.78	0.000
6.417	32.95	12.09	32.94	0.000
6.500	33.11	12.10	33.11	0.000
6.583	33.29	12.11	33.28	0.000
6.667	33.46	12.13	33.45	0.000
6.750	33.64	12.14	33.63	0.000
6.833	33.82	12.15	33.81	0.000
6.917	34.00	12.17	33.99	0.000
7.000	34.18	12.18	34.17	0.000
7.083	34.37	12.20	34.36	0.000
7.167	34.56	12.21	34.55	0.000
7.250	34.76	12.23	34.75	0.000
7.333	34.95	12.24	34.94	0.000
7.417	35.15	12.26	35.14	0.000
7.500	35.35	12.27	35.34	0.000
7.583	35.56	12.29	35.55	0.000
7.667	35.76	12.30	35.75	0.000
7.750	35.98	12.32	35.97	0.000
7.833	36.19	12.34	36.18	0.000
7.917	36.41	12.35	36.40	0.000
8.000	36.63	12.37	36.62	0.000
8.083	36.86	12.39	36.85	0.000
8.167	37.08	12.41	37.07	0.000
8.250	37.32	12.43	37.31	0.000
8.333	37.55	12.44	37.54	0.000
8.417	37.79	12.46	37.78	0.000
8.500	38.03	12.48	38.02	0.000
8.583	38.29	12.50	38.28	0.000
8.667	38.54	12.52	38.52	0.000
8.750	38.80	12.54	38.79	0.000
8.833	39.06	12.56	39.04	0.000
8.917	39.33	12.58	39.31	0.000
9.000	39.59	12.60	39.58	0.000
9.083	39.88	12.62	39.86	0.000

9.167	40.15	12.65	40.14	0.000
9.250	40.44	12.67	40.43	0.000
9.333	40.73	12.69	40.72	0.000
9.417	41.04	12.71	41.02	0.000
9.500	41.33	12.74	41.32	0.000
9.583	41.65	12.76	41.63	0.000
9.667	41.96	12.79	41.95	0.000
9.750	42.29	12.81	42.27	0.000
9.833	42.61	12.84	42.60	0.000
9.917	42.95	12.86	42.94	0.000
10.000	43.29	12.89	43.28	0.000
10.083	43.65	12.92	43.63	0.000
10.167	44.00	12.95	43.98	0.000
10.250	44.37	12.97	44.36	0.000
10.333	44.74	13.00	44.72	0.000
10.417	45.13	13.03	45.11	0.000
10.500	45.52	13.06	45.50	0.000
10.583	45.92	13.09	45.90	0.000
10.667	46.33	13.13	46.31	0.000
10.750	46.75	13.16	46.73	0.000
10.833	47.18	13.19	47.16	0.000
10.917	47.62	13.23	47.60	0.000
11.000	48.07	13.26	48.05	0.000
11.083	48.54	13.30	48.52	0.000
11.167	49.01	13.33	48.98	0.000
11.250	49.50	13.37	49.48	0.000
11.333	49.99	13.41	49.97	0.000
11.417	50.52	13.45	50.49	0.000
11.500	51.04	13.49	51.01	0.000
11.583	51.59	13.54	51.57	0.000
11.667	52.14	13.58	52.11	0.000
11.750	52.72	13.62	52.70	0.000
11.833	53.31	13.67	53.28	0.000
11.917	53.93	13.72	53.90	0.000
12.000	54.54	13.77	54.52	0.000
12.083	54.88	13.79	54.87	0.000
12.167	53.72	13.70	53.77	0.000
12.250	50.82	13.48	50.94	0.000
12.333	49.25	13.35	49.32	0.000
12.417	48.74	13.31	48.76	0.000
12.500	48.69	13.31	48.69	0.000
12.583	48.94	13.33	48.92	0.000
12.667	49.31	13.36	49.29	0.000
12.750	49.83	13.40	49.81	0.000
12.833	50.42	13.44	50.39	0.000
12.917	51.10	13.50	51.07	0.000
13.000	51.83	13.55	51.79	0.000
13.083	52.64	13.62	52.61	0.000
13.167	53.49	13.68	53.46	0.000
13.250	54.44	13.76	54.40	0.000
13.333	55.42	13.83	55.38	0.000
13.417	56.48	13.92	56.44	0.000
13.500	57.55	14.00	57.51	0.000
13.583	58.73	14.09	58.68	0.000
13.667	59.95	14.19	59.90	0.000
13.750	61.30	14.29	61.24	0.000
13.833	62.68	14.40	62.62	0.000

13.917	64.19	14.52	64.13	0.000
14.000	65.74	14.64	65.68	0.000
14.083	67.52	14.74	67.44	0.000
14.167	69.67	14.87	69.58	0.000
14.250	72.39	15.04	72.28	0.000
14.333	74.90	15.19	74.80	0.000
14.417	77.43	15.34	77.33	0.000
14.500	79.94	15.49	79.85	0.000
14.583	82.69	15.65	82.59	0.000
14.667	85.54	15.83	85.44	0.000
14.750	88.72	16.02	88.61	0.000
14.833	92.07	16.22	91.96	0.000
14.917	95.88	16.45	95.75	0.000
15.000	99.93	16.67	99.80	0.000
15.083	104.61	16.89	104.45	0.000
15.167	109.68	17.12	109.50	0.000
15.250	115.63	17.39	115.43	0.000
15.333	122.20	17.69	121.99	0.000
15.417	129.09	18.01	128.87	0.000
15.500	132.24	18.15	132.14	0.000
15.583	131.69	18.13	131.70	0.000
15.667	136.86	18.32	136.69	0.000
15.750	150.14	18.81	149.72	0.000
15.833	176.06	19.73	175.27	0.000
15.917	222.23	21.01	220.85	0.000
16.000	289.59	22.42	287.64	0.000
16.083	467.96	25.17	463.23	0.000
16.167	897.53	26.47	651.45	1.659
16.250	1288.48	26.47	656.62	6.011
16.333	903.40	26.47	656.62	7.710
16.417	582.16	26.47	656.62	7.198
16.500	416.42	26.47	656.62	5.543
16.583	325.03	26.47	656.62	3.260
16.667	271.56	26.47	656.62	0.608
16.750	227.02	22.95	324.49	0.000
16.833	197.32	20.44	200.73	0.000
16.917	172.97	19.62	173.67	0.000
17.000	152.48	18.89	153.10	0.000
17.083	135.82	18.28	136.36	0.000
17.167	120.43	17.61	120.92	0.000
17.250	106.62	16.98	107.08	0.000
17.333	96.49	16.48	96.85	0.000
17.417	92.41	16.24	92.55	0.000
17.500	87.33	15.93	87.51	0.000
17.583	80.73	15.54	80.97	0.000
17.667	70.99	14.95	71.36	0.000
17.750	63.66	14.47	63.95	0.000
17.833	58.85	14.10	59.03	0.000
17.917	56.25	13.90	56.36	0.000
18.000	54.00	13.72	54.09	0.000
18.083	52.28	13.59	52.35	0.000
18.167	52.24	13.59	52.24	0.000
18.250	54.11	13.73	54.03	0.000
18.333	54.74	13.78	54.71	0.000
18.417	54.43	13.76	54.45	0.000
18.500	53.76	13.70	53.78	0.000
18.583	52.91	13.64	52.95	0.000

18.667	52.03	13.57	52.07	0.000
18.750	51.12	13.50	51.16	0.000
18.833	50.23	13.43	50.27	0.000
18.917	49.35	13.36	49.39	0.000
19.000	48.49	13.29	48.53	0.000
19.083	47.66	13.23	47.69	0.000
19.167	46.84	13.17	46.88	0.000
19.250	46.05	13.10	46.09	0.000
19.333	45.28	13.04	45.32	0.000
19.417	44.55	12.99	44.59	0.000
19.500	43.86	12.93	43.89	0.000
19.583	43.19	12.88	43.22	0.000
19.667	42.53	12.83	42.56	0.000
19.750	41.89	12.78	41.92	0.000
19.833	41.26	12.73	41.29	0.000
19.917	40.66	12.68	40.69	0.000
20.000	40.08	12.64	40.11	0.000
20.083	39.52	12.60	39.55	0.000
20.167	38.98	12.55	39.01	0.000
20.250	38.46	12.51	38.49	0.000
20.333	37.96	12.48	37.99	0.000
20.417	37.48	12.44	37.50	0.000
20.500	37.01	12.40	37.03	0.000
20.583	36.56	12.37	36.58	0.000
20.667	36.12	12.33	36.14	0.000
20.750	35.69	12.30	35.71	0.000
20.833	35.28	12.27	35.30	0.000
20.917	34.88	12.24	34.90	0.000
21.000	34.49	12.21	34.51	0.000
21.083	34.12	12.18	34.14	0.000
21.167	33.75	12.15	33.77	0.000
21.250	33.40	12.12	33.41	0.000
21.333	33.05	12.09	33.07	0.000
21.417	32.71	12.03	32.73	0.000
21.500	32.39	11.91	32.39	0.000
21.583	32.07	11.79	32.07	0.000
21.667	31.76	11.68	31.76	0.000
21.750	31.45	11.57	31.45	0.000
21.833	31.16	11.46	31.16	0.000
21.917	30.87	11.35	30.87	0.000
22.000	30.59	11.25	30.59	0.000
22.083	30.31	11.15	30.31	0.000
22.167	30.04	11.05	30.04	0.000
22.250	29.78	10.95	29.78	0.000
22.333	29.53	10.86	29.53	0.000
22.417	29.28	10.77	29.28	0.000
22.500	29.03	10.68	29.03	0.000
22.583	28.79	10.59	28.79	0.000
22.667	28.56	10.50	28.56	0.000
22.750	28.33	10.42	28.33	0.000
22.833	28.10	10.34	28.10	0.000
22.917	27.88	10.26	27.88	0.000
23.000	27.67	10.18	27.67	0.000
23.083	27.46	10.10	27.46	0.000
23.167	27.25	10.02	27.25	0.000
23.250	27.05	9.95	27.05	0.000
23.333	26.85	9.88	26.85	0.000

23.417	26.65	9.80	26.65	0.000
23.500	26.46	9.73	26.46	0.000
23.583	26.27	9.66	26.27	0.000
23.667	26.09	9.60	26.09	0.000
23.750	25.91	9.53	25.91	0.000
23.833	25.73	9.46	25.73	0.000
23.917	25.56	9.40	25.56	0.000
24.000	25.39	9.34	25.39	0.000
24.083	24.56	9.03	24.56	0.000
24.167	20.66	7.60	20.66	0.000
24.250	13.16	4.84	13.16	0.000
24.333	8.49	3.12	8.49	0.000
24.417	5.95	2.19	5.95	0.000
24.500	4.39	1.61	4.39	0.000
24.583	3.36	1.24	3.36	0.000
24.667	2.59	0.95	2.59	0.000
24.750	2.03	0.75	2.27	0.000
24.833	1.59	0.58	1.80	0.000
24.917	1.23	0.50	1.14	0.000
25.000	0.95	0.50	1.09	0.000
25.083	0.73	0.50	1.14	0.000
25.167	0.55	0.50	0.88	0.000
25.250	0.43	0.50	0.67	0.000
25.333	0.34	0.50	0.51	0.000
25.417	0.24	0.50	0.40	0.000
25.500	0.14	0.50	0.31	0.000
25.583	0.06	0.50	0.21	0.000
25.667	0.01	0.50	0.12	0.000
25.750	0.00	0.00	0.04	0.000
25.833	0.00	0.00	0.01	0.000
25.917	0.00	0.00	0.00	0.000
26.000	0.00	0.00	0.00	0.000
26.083	0.00	0.00	0.00	0.000
26.167	0.00	0.00	0.00	0.000
26.250	0.00	0.00	0.00	0.000
26.333	0.00	0.00	0.00	0.000
26.417	0.00	0.00	0.00	0.000
26.500	0.00	0.00	0.00	0.000
26.583	0.00	0.00	0.00	0.000
26.667	0.00	0.00	0.00	0.000
26.750	0.00	0.00	0.00	0.000
26.833	0.00	0.00	0.00	0.000
26.917	0.00	0.00	0.00	0.000
27.000	0.00	0.00	0.00	0.000
27.083	0.00	0.00	0.00	0.000
27.167	0.00	0.00	0.00	0.000
27.250	0.00	0.00	0.00	0.000
27.333	0.00	0.00	0.00	0.000
27.417	0.00	0.00	0.00	0.000
27.500	0.00	0.00	0.00	0.000
27.583	0.00	0.00	0.00	0.000
27.667	0.00	0.00	0.00	0.000
27.750	0.00	0.00	0.00	0.000
27.833	0.00	0.00	0.00	0.000
27.917	0.00	0.00	0.00	0.000
28.000	0.00	0.00	0.00	0.000

```
**************************************************************************
 FLOW PROCESS FROM NODE     104.00 TO NODE     104.00 IS CODE =   7
--------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
==========================================================================

**************************************************************************
 FLOW PROCESS FROM NODE     104.00 TO NODE     104.00 IS CODE =  11
--------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==========================================================================
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2075.0	4150.0	6225.0	8300.0
1.000	11.2708	220.80	VQ	.	.	.	.
1.083	12.8213	225.14	VQ	.	.	.	.
1.167	14.3975	228.87	VQ	.	.	.	.
1.250	15.9958	232.08	VQ	.	.	.	.
1.333	17.6134	234.87	VQ	.	.	.	.
1.417	19.2479	237.33	VQ	.	.	.	.
1.500	20.8971	239.47	VQ	.	.	.	.
1.583	22.5593	241.34	VQ	.	.	.	.
1.667	24.2332	243.06	VQ	.	.	.	.
1.750	25.9184	244.68	VQ	.	.	.	.
1.833	27.6144	246.26	VQ	.	.	.	.
1.917	29.3208	247.78	VQ	.	.	.	.
2.000	31.0366	249.12	.Q	.	.	.	.
2.083	32.7604	250.30	.Q	.	.	.	.
2.167	34.4919	251.41	.Q	.	.	.	.
2.250	36.2306	252.47	.Q	.	.	.	.
2.333	37.9760	253.42	.Q	.	.	.	.
2.417	39.7276	254.34	.Q	.	.	.	.
2.500	41.4856	255.26	.Q	.	.	.	.
2.583	43.2500	256.19	.Q	.	.	.	.
2.667	45.0209	257.13	.Q	.	.	.	.
2.750	46.7983	258.09	.Q	.	.	.	.
2.833	48.5824	259.04	.Q	.	.	.	.
2.917	50.3731	260.02	.Q	.	.	.	.
3.000	52.1706	260.99	.Q	.	.	.	.
3.083	53.9748	261.98	.Q	.	.	.	.
3.167	55.7860	262.98	.Q	.	.	.	.
3.250	57.6041	263.99	.Q	.	.	.	.
3.333	59.4292	265.01	.Q	.	.	.	.
3.417	61.2614	266.04	.QV	.	.	.	.
3.500	63.1007	267.07	.QV	.	.	.	.
3.583	64.9473	268.13	.QV	.	.	.	.
3.667	66.8012	269.19	.QV	.	.	.	.
3.750	68.6625	270.26	.QV	.	.	.	.
3.833	70.5313	271.34	.QV	.	.	.	.
3.917	72.4076	272.44	.QV	.	.	.	.
4.000	74.2915	273.54	.QV	.	.	.	.
4.083	76.1831	274.67	.QV	.	.	.	.

4.167	78.0825	275.80	.QV	.	.	.	.
4.250	79.9899	276.94	.QV	.	.	.	.
4.333	81.9051	278.10	.QV	.	.	.	.
4.417	83.8285	279.27	.QV	.	.	.	.
4.500	85.7599	280.45	.QV	.	.	.	.
4.583	87.6997	281.65	.QV	.	.	.	.
4.667	89.6477	282.85	.QV	.	.	.	.
4.750	91.6042	284.08	.QV	.	.	.	.
4.833	93.5691	285.32	.Q V	.	.	.	.
4.917	95.5428	286.57	.Q V	.	.	.	.
5.000	97.5251	287.83	.Q V	.	.	.	.
5.083	99.5162	289.12	.Q V	.	.	.	.
5.167	101.5163	290.41	.Q V	.	.	.	.
5.250	103.5254	291.72	.Q V	.	.	.	.
5.333	105.5437	293.05	.Q V	.	.	.	.
5.417	107.5712	294.39	.Q V	.	.	.	.
5.500	109.6080	295.75	.Q V	.	.	.	.
5.583	111.6544	297.13	.Q V	.	.	.	.
5.667	113.7103	298.52	.Q V	.	.	.	.
5.750	115.7760	299.93	.Q V	.	.	.	.
5.833	117.8515	301.36	.Q V	.	.	.	.
5.917	119.9369	302.81	.Q V	.	.	.	.
6.000	122.0325	304.27	.Q V	.	.	.	.
6.083	124.1382	305.76	.Q V	.	.	.	.
6.167	126.2543	307.26	.Q V	.	.	.	.
6.250	128.3809	308.78	.Q V	.	.	.	.
6.333	130.5181	310.32	.Q V	.	.	.	.
6.417	132.6661	311.88	.Q V	.	.	.	.
6.500	134.8249	313.46	.Q V	.	.	.	.
6.583	136.9948	315.07	.Q V	.	.	.	.
6.667	139.1759	316.70	.Q V	.	.	.	.
6.750	141.3684	318.35	.Q V	.	.	.	.
6.833	143.5724	320.02	.Q V	.	.	.	.
6.917	145.7881	321.72	.Q V	.	.	.	.
7.000	148.0156	323.44	.Q V	.	.	.	.
7.083	150.2552	325.18	.Q V	.	.	.	.
7.167	152.5069	326.95	.Q V	.	.	.	.
7.250	154.7710	328.75	.Q V	.	.	.	.
7.333	157.0476	330.57	.Q V	.	.	.	.
7.417	159.3370	332.42	.Q V	.	.	.	.
7.500	161.6393	334.29	.Q V	.	.	.	.
7.583	163.9547	336.20	.Q V	.	.	.	.
7.667	166.2834	338.13	.Q V	.	.	.	.
7.750	168.6256	340.09	.Q V	.	.	.	.
7.833	170.9816	342.08	.Q V	.	.	.	.
7.917	173.3515	344.11	.Q V	.	.	.	.
8.000	175.7355	346.16	.Q V	.	.	.	.
8.083	178.1340	348.26	.Q V	.	.	.	.
8.167	180.5471	350.38	.Q V	.	.	.	.
8.250	182.9750	352.54	.Q V	.	.	.	.
8.333	185.4180	354.72	.Q V	.	.	.	.
8.417	187.8764	356.96	.Q V	.	.	.	.
8.500	190.3504	359.22	.Q V	.	.	.	.
8.583	192.8403	361.53	.Q V	.	.	.	.
8.667	195.3463	363.87	.Q V	.	.	.	.
8.750	197.8687	366.26	.Q V	.	.	.	.
8.833	200.4078	368.68	.Q V	.	.	.	.

8.917	202.9640	371.15	.Q	V	.	.	.	.
9.000	205.5374	373.66	.Q	V	.	.	.	.
9.083	208.1286	376.23	.Q	V	.	.	.	.
9.167	210.7376	378.83	.Q	V	.	.	.	.
9.250	213.3649	381.49	.Q	V	.	.	.	.
9.333	216.0108	384.19	.Q	V	.	.	.	.
9.417	218.6758	386.95	.Q	V	.	.	.	.
9.500	221.3600	389.75	.Q	V	.	.	.	.
9.583	224.0640	392.62	.Q	V	.	.	.	.
9.667	226.7880	395.53	.Q	V	.	.	.	.
9.750	229.5326	398.52	.Q	V	.	.	.	.
9.833	232.2981	401.55	.Q	V	.	.	.	.
9.917	235.0850	404.65	.Q	V	.	.	.	.
10.000	237.8936	407.81	.Q	V	.	.	.	.
10.083	240.7245	411.04	.Q	V	.	.	.	.
10.167	243.5780	414.33	.Q	V	.	.	.	.
10.250	246.4548	417.71	. Q	V	.	.	.	.
10.333	249.3552	421.14	. Q	V	.	.	.	.
10.417	252.2799	424.67	. Q	V	.	.	.	.
10.500	255.2293	428.25	. Q	V	.	.	.	.
10.583	258.2041	431.94	. Q	V	.	.	.	.
10.667	261.2048	435.70	. Q	V	.	.	.	.
10.750	264.2320	439.55	. Q	V	.	.	.	.
10.833	267.2863	443.49	. Q	V	.	.	.	.
10.917	270.3685	447.53	. Q	V	.	.	.	.
11.000	273.4791	451.66	. Q	V	.	.	.	.
11.083	276.6190	455.90	. Q	V	.	.	.	.
11.167	279.7886	460.24	. Q	V	.	.	.	.
11.250	282.9891	464.70	. Q	V	.	.	.	.
11.333	286.2209	469.26	. Q	V	.	.	.	.
11.417	289.4851	473.97	. Q	V	.	.	.	.
11.500	292.7825	478.77	. Q	V	.	.	.	.
11.583	296.1140	483.74	. Q	V	.	.	.	.
11.667	299.4805	488.81	. Q	V	.	.	.	.
11.750	302.8831	494.06	. Q	V	.	.	.	.
11.833	306.3227	499.43	. Q	V	.	.	.	.
11.917	309.8005	504.98	. Q	V	.	.	.	.
12.000	313.3176	510.67	. Q	V	.	.	.	.
12.083	316.8683	515.55	. Q	V	.	.	.	.
12.167	320.4225	516.08	. Q	V	.	.	.	.
12.250	323.9171	507.41	. Q	V	.	.	.	.
12.333	327.3183	493.85	. Q	V	.	.	.	.
12.417	330.6348	481.56	. Q	V	.	.	.	.
12.500	333.8948	473.35	. Q	V	.	.	.	.
12.583	337.1301	469.77	. Q	.V	.	.	.	.
12.667	340.3655	469.79	. Q	.V	.	.	.	.
12.750	343.6172	472.15	. Q	.V	.	.	.	.
12.833	346.8946	475.87	. Q	.V	.	.	.	.
12.917	350.2050	480.67	. Q	.V	.	.	.	.
13.000	353.5543	486.32	. Q	.V	.	.	.	.
13.083	356.9476	492.72	. Q	.V	.	.	.	.
13.167	360.3892	499.71	. Q	.V	.	.	.	.
13.250	363.8835	507.37	. Q	.V	.	.	.	.
13.333	367.4344	515.59	. Q	. V	.	.	.	.
13.417	371.0461	524.43	. Q	. V	.	.	.	.
13.500	374.7227	533.84	. Q	. V	.	.	.	.
13.583	378.4688	543.93	. Q	. V	.	.	.	.

13.667	382.2882	554.57	. Q . V . . .
13.750	386.1855	565.90	. Q . V . . .
13.833	390.1650	577.82	. Q . V . . .
13.917	394.2319	590.51	. Q . V . . .
14.000	398.3915	603.97	. Q . V . . .
14.083	402.6520	618.62	. Q . V . . .
14.167	407.0261	635.11	. Q . V . . .
14.250	411.5359	654.83	. Q . V . . .
14.333	416.1998	677.19	. Q . V . . .
14.417	421.0323	701.68	. Q . V . . .
14.500	426.0399	727.11	. Q . V . . .
14.583	431.2252	752.90	. Q . V . . .
14.667	436.5904	779.03	. Q . V . . .
14.750	442.1449	806.52	. Q . V . . .
14.833	447.9005	835.72	. Q . V . . .
14.917	453.8747	867.45	. Q . V . . .
15.000	460.0856	901.83	. Q . V . . .
15.083	466.5584	939.84	. Q . V . . .
15.167	473.3196	981.73	. Q . V . . .
15.250	480.4055	1028.88	. Q . V . . .
15.333	487.8557	1081.75	. Q . V . . .
15.417	495.7021	1139.31	. Q . V . . .
15.500	503.9073	1191.39	. Q . V . . .
15.583	512.3469	1225.42	. Q . V . . .
15.667	520.9955	1255.78	. Q . V . . .
15.750	530.0259	1311.21	. Q . V . . .
15.833	539.8413	1425.20	. Q . V . . .
15.917	551.2024	1649.63	. Q . V . . .
16.000	565.1390	2023.59	. Q. V . . .
16.083	584.6890	2838.65	. . Q V. . .
16.167	614.6897	4356.11	. . Q . . .
16.250	660.4698	6647.27	. . .V . Q .
16.333	717.0933	8221.74	. . . V . Q.
16.417	771.7092	7930.23	. . . V . Q .
16.500	817.5628	6657.94	. . . V . Q .
16.583	853.7863	5259.65	. . . Q V . .
16.667	882.4141	4156.75	. . Q . V . .
16.750	903.8585	3113.73	. . Q . V. .
16.833	921.3744	2543.31	. . Q . V . .
16.917	936.4559	2189.83	. . Q . V . .
17.000	949.5773	1905.24	. . Q. . .V . .
17.083	961.1973	1687.21	. . Q . . .V . .
17.167	971.5887	1508.83	. . Q . . .V . .
17.250	980.9054	1352.78	. . Q . . . V . .
17.333	989.2998	1218.87	. . Q . . . V . .
17.417	996.9000	1103.55	. . Q . . . V . .
17.500	1003.7803	999.01	. . Q . . . V . .
17.583	1010.0469	909.92	. . Q . . . V . .
17.667	1015.8563	843.51	. . Q . . . V . .
17.750	1021.2985	790.21	. . Q . . . V . .
17.833	1026.4324	745.44	. . Q . . . V . .
17.917	1031.2583	700.72	. . Q . . . V . .
18.000	1035.7046	645.59	. . Q . . . V . .
18.083	1039.8025	595.01	. Q . . . V . .
18.167	1043.6879	564.15	. Q . . . V . .
18.250	1047.4612	547.89	. Q . . . V . .
18.333	1051.1329	533.14	. Q . . . V . .

18.417	1054.7644	527.30	. Q	.	.	.	V	.
18.500	1058.3812	525.16	. Q	.	.	.	V	.
18.583	1061.9639	520.20	. Q	.	.	.	V	.
18.667	1065.4957	512.83	. Q	.	.	.	V	.
18.750	1068.9689	504.30	. Q	.	.	.	V	.
18.833	1072.3815	495.51	. Q	.	.	.	V	.
18.917	1075.7336	486.74	. Q	.	.	.	V	.
19.000	1079.0262	478.09	. Q	.	.	.	V	.
19.083	1082.2609	469.68	. Q	.	.	.	V	.
19.167	1085.4393	461.52	. Q	.	.	.	V	.
19.250	1088.5635	453.62	. Q	.	.	.	V	.
19.333	1091.6350	445.98	. Q	.	.	.	V	.
19.417	1094.6556	438.60	. Q	.	.	.	V	.
19.500	1097.6270	431.44	. Q	.	.	.	V	.
19.583	1100.5505	424.51	. Q	.	.	.	V	.
19.667	1103.4281	417.83	. Q	.	.	.	V	.
19.750	1106.2615	411.41	.Q	.	.	.	V	.
19.833	1109.0524	405.25	.Q	.	.	.	V	.
19.917	1111.8025	399.31	.Q	.	.	.	V	.
20.000	1114.5128	393.54	.Q	.	.	.	V	.
20.083	1117.1844	387.92	.Q	.	.	.	V	.
20.167	1119.8186	382.48	.Q	.	.	.	V	.
20.250	1122.4165	377.21	.Q	.	.	.	V	.
20.333	1124.9791	372.09	.Q	.	.	.	V	.
20.417	1127.5076	367.13	.Q	.	.	.	V	.
20.500	1130.0029	362.33	.Q	.	.	.	V	.
20.583	1132.4664	357.71	.Q	.	.	.	V	.
20.667	1134.8992	353.23	.Q	.	.	.	V	.
20.750	1137.3021	348.90	.Q	.	.	.	V	.
20.833	1139.6761	344.71	.Q	.	.	.	V	.
20.917	1142.0222	340.65	.Q	.	.	.	V	.
21.000	1144.3412	336.72	.Q	.	.	.	V	.
21.083	1146.6339	332.90	.Q	.	.	.	V	.
21.167	1148.9011	329.20	.Q	.	.	.	V	.
21.250	1151.1436	325.61	.Q	.	.	.	V	.
21.333	1153.3619	322.12	.Q	.	.	.	V	.
21.417	1155.5570	318.72	.Q	.	.	.	V	.
21.500	1157.7292	315.41	.Q	.	.	.	V	.
21.583	1159.8794	312.19	.Q	.	.	.	V	.
21.667	1162.0079	309.07	.Q	.	.	.	V	.
21.750	1164.1155	306.02	.Q	.	.	.	V	.
21.833	1166.2026	303.06	.Q	.	.	.	V	.
21.917	1168.2699	300.16	.Q	.	.	.	V	.
22.000	1170.3177	297.34	.Q	.	.	.	V	.
22.083	1172.3467	294.59	.Q	.	.	.	V	.
22.167	1174.3571	291.91	.Q	.	.	.	V	.
22.250	1176.3495	289.29	.Q	.	.	.	V	.
22.333	1178.3242	286.73	.Q	.	.	.	V	.
22.417	1180.2817	284.24	.Q	.	.	.	V	.
22.500	1182.2224	281.79	.Q	.	.	.	V	.
22.583	1184.1467	279.41	.Q	.	.	.	V	.
22.667	1186.0549	277.07	.Q	.	.	.	V	.
22.750	1187.9474	274.79	.Q	.	.	.	V	.
22.833	1189.8245	272.55	.Q	.	.	.	V	.
22.917	1191.6865	270.37	.Q	.	.	.	V	.
23.000	1193.5338	268.22	.Q	.	.	.	V	.
23.083	1195.3667	266.13	.Q	.	.	.	V	.

23.167	1197.1854	264.07	.Q	.	.	.	V.
23.250	1198.9902	262.06	.Q	.	.	.	V.
23.333	1200.7815	260.09	.Q	.	.	.	V.
23.417	1202.5594	258.15	.Q	.	.	.	V.
23.500	1204.3243	256.26	.Q	.	.	.	V.
23.583	1206.0764	254.40	.Q	.	.	.	V.
23.667	1207.8159	252.58	.Q	.	.	.	V.
23.750	1209.5431	250.79	.Q	.	.	.	V.
23.833	1211.2582	249.03	.Q	.	.	.	V.
23.917	1212.9613	247.30	.Q	.	.	.	V.
24.000	1214.6528	245.61	.Q	.	.	.	V.
24.083	1216.3184	241.84	.Q	.	.	.	V.
24.167	1217.8940	228.79	.Q	.	.	.	V.
24.250	1219.2477	196.55	Q	.	.	.	V.
24.333	1220.3121	154.56	Q	.	.	.	V.
24.417	1221.1049	115.10	Q	.	.	.	V.
24.500	1221.6837	84.05	Q	.	.	.	V.
24.583	1222.1132	62.36	Q	.	.	.	V.
24.667	1222.4434	47.95	Q	.	.	.	V.
24.750	1222.7064	38.20	Q	.	.	.	V.
24.833	1222.9176	30.66	Q	.	.	.	V.
24.917	1223.0862	24.48	Q	.	.	.	V.
25.000	1223.2246	20.11	Q	.	.	.	V.
25.083	1223.3392	16.65	Q	.	.	.	V.
25.167	1223.4320	13.48	Q	.	.	.	V.
25.250	1223.5068	10.86	Q	.	.	.	V.
25.333	1223.5669	8.72	Q	.	.	.	V.
25.417	1223.6150	6.98	Q	.	.	.	V.
25.500	1223.6536	5.61	Q	.	.	.	V.
25.583	1223.6847	4.51	Q	.	.	.	V.
25.667	1223.7091	3.55	Q	.	.	.	V.
25.750	1223.7275	2.68	Q	.	.	.	V.
25.833	1223.7406	1.90	Q	.	.	.	V.
25.917	1223.7490	1.22	Q	.	.	.	V.
26.000	1223.7542	0.74	Q	.	.	.	V.
26.083	1223.7572	0.44	Q	.	.	.	V.
26.167	1223.7587	0.21	Q	.	.	.	V.
26.250	1223.7590	0.05	Q	.	.	.	V.
26.333	1223.7590	0.00	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1575.0
10%	175.0
20%	75.0
30%	50.0
40%	35.0
50%	35.0
60%	25.0
70%	20.0
80%	20.0
90%	10.0

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****************************************************************************
 FLOW PROCESS FROM NODE     104.00 TO NODE     105.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   36.00     CHANNEL Z =  0.00
        UPSTREAM ELEVATION(FT) =    3180.00
        DOWNSTREAM ELEVATION(FT) =    3140.00
        CHANNEL LENGTH(FT) =    3900.00     MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                              (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
        AVERAGED PEAK  5-MINUTE: (    8221.7).......[ 30.45]
        AVERAGED PEAK 15-MINUTE: (    7603.3).......[ 29.73]
        AVERAGED PEAK 30-MINUTE: (    6512.2).......[ 28.26]
        AVERAGED PEAK  1-HOUR:   (    4661.6).......[ 25.22]
        AVERAGED PEAK  3-HOUR:   (    2336.4).......[ 19.83]
        AVERAGED PEAK  6-HOUR:   (    1463.1).......[ 16.70]
        AVERAGED PEAK 24-HOUR:   (     614.7).......[ 12.10]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  23.000
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (   3900.00)/( 23.000) =   0.047 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                          OUTFLOW LESS
       MODEL        INFLOW     ROUTED      LOSS
        TIME      (STREAM 1)    FLOW     (STREAM 1)
       (HRS)        (CFS)       (CFS)      (CFS)
        0.083         1.45        0.63        0.63
        0.167        11.52        5.83        5.83
        0.250        44.83       26.00       26.00
        0.333        85.29       62.42       62.42
        0.417       124.06      102.15      102.15
        0.500       154.79      137.42      137.42
        0.583       176.46      164.21      164.21
        0.667       191.04      182.80      182.80
        0.750       201.34      195.52      195.52
        0.833       209.28      204.79      204.79
        0.917       215.65      212.05      212.05
        1.000       220.80      217.89      217.89
        1.083       225.14      222.69      222.69
        1.167       228.87      226.76      226.76
        1.250       232.08      230.26      230.26
        1.333       234.87      233.29      233.29
        1.417       237.33      235.94      235.94
        1.500       239.47      238.26      238.26
        1.583       241.34      240.28      240.28
        1.667       243.06      242.09      242.09
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1.750	244.68	243.76	243.76
1.833	246.26	245.37	245.37
1.917	247.78	246.92	246.92
2.000	249.12	248.36	248.36
2.083	250.30	249.64	249.64
2.167	251.41	250.78	250.78
2.250	252.47	251.87	251.87
2.333	253.42	252.88	252.88
2.417	254.34	253.82	253.82
2.500	255.26	254.74	254.74
2.583	256.19	255.66	255.66
2.667	257.13	256.60	256.60
2.750	258.09	257.55	257.55
2.833	259.04	258.50	258.50
2.917	260.02	259.47	259.47
3.000	260.99	260.44	260.44
3.083	261.98	261.42	261.42
3.167	262.98	262.41	262.41
3.250	263.99	263.42	263.42
3.333	265.01	264.43	264.43
3.417	266.04	265.45	265.45
3.500	267.07	266.49	266.49
3.583	268.13	267.53	267.53
3.667	269.19	268.59	268.59
3.750	270.26	269.65	269.65
3.833	271.34	270.73	270.73
3.917	272.44	271.82	271.82
4.000	273.54	272.92	272.92
4.083	274.67	274.03	274.03
4.167	275.80	275.16	275.16
4.250	276.94	276.29	276.29
4.333	278.10	277.44	277.44
4.417	279.27	278.61	278.61
4.500	280.45	279.78	279.78
4.583	281.65	280.97	280.97
4.667	282.85	282.17	282.17
4.750	284.08	283.39	283.39
4.833	285.32	284.62	284.62
4.917	286.57	285.86	285.86
5.000	287.83	287.12	287.12
5.083	289.12	288.39	288.39
5.167	290.41	289.68	289.68
5.250	291.72	290.98	290.98
5.333	293.05	292.30	292.30
5.417	294.39	293.63	293.63
5.500	295.75	294.98	294.98
5.583	297.13	296.35	296.35
5.667	298.52	297.74	297.74
5.750	299.93	299.14	299.14
5.833	301.36	300.55	300.55
5.917	302.81	301.99	301.99
6.000	304.27	303.44	303.44
6.083	305.76	304.92	304.92
6.167	307.26	306.41	306.41
6.250	308.78	307.92	307.92
6.333	310.32	309.45	309.45
6.417	311.88	311.00	311.00

6.500	313.46	312.57	312.57
6.583	315.07	314.16	314.16
6.667	316.70	315.78	315.78
6.750	318.35	317.42	317.42
6.833	320.02	319.08	319.08
6.917	321.72	320.76	320.76
7.000	323.44	322.47	322.47
7.083	325.18	324.20	324.20
7.167	326.95	325.95	325.95
7.250	328.75	327.73	327.73
7.333	330.57	329.54	329.54
7.417	332.42	331.37	331.37
7.500	334.29	333.23	333.23
7.583	336.20	335.12	335.12
7.667	338.13	337.04	337.04
7.750	340.09	338.98	338.98
7.833	342.08	340.96	340.96
7.917	344.11	342.96	342.96
8.000	346.16	345.00	345.00
8.083	348.26	347.07	347.07
8.167	350.38	349.18	349.18
8.250	352.54	351.32	351.32
8.333	354.72	353.49	353.49
8.417	356.96	355.70	355.70
8.500	359.22	357.94	357.94
8.583	361.53	360.22	360.22
8.667	363.87	362.55	362.55
8.750	366.26	364.91	364.91
8.833	368.68	367.31	367.31
8.917	371.15	369.76	369.76
9.000	373.66	372.25	372.25
9.083	376.23	374.78	374.78
9.167	378.83	377.36	377.36
9.250	381.49	379.99	379.99
9.333	384.19	382.66	382.66
9.417	386.95	385.39	385.39
9.500	389.75	388.17	388.17
9.583	392.62	391.00	391.00
9.667	395.53	393.88	393.88
9.750	398.52	396.83	396.83
9.833	401.55	399.83	399.83
9.917	404.65	402.90	402.90
10.000	407.81	406.02	406.02
10.083	411.04	409.21	409.21
10.167	414.33	412.47	412.47
10.250	417.71	415.80	415.80
10.333	421.14	419.20	419.20
10.417	424.67	422.67	422.67
10.500	428.25	426.23	426.23
10.583	431.94	429.86	429.86
10.667	435.70	433.57	433.57
10.750	439.55	437.37	437.37
10.833	443.49	441.26	441.26
10.917	447.53	445.24	445.24
11.000	451.66	449.32	449.32
11.083	455.90	453.50	453.50
11.167	460.24	457.79	457.79

11.250	464.70	462.18	462.18
11.333	469.26	466.69	466.69
11.417	473.97	471.31	471.31
11.500	478.77	476.06	476.06
11.583	483.74	480.93	480.93
11.667	488.81	485.94	485.94
11.750	494.06	491.09	491.09
11.833	499.43	496.39	496.39
11.917	504.98	501.84	501.84
12.000	510.67	507.46	507.46
12.083	515.55	512.80	512.80
12.167	516.08	515.79	515.79
12.250	507.41	512.31	512.31
12.333	493.85	501.52	501.52
12.417	481.56	488.50	488.50
12.500	473.35	477.99	477.99
12.583	469.77	471.79	471.79
12.667	469.79	469.78	469.78
12.750	472.15	470.81	470.81
12.833	475.87	473.77	473.77
12.917	480.67	477.96	477.96
13.000	486.32	483.12	483.12
13.083	492.72	489.10	489.10
13.167	499.71	495.76	495.76
13.250	507.37	503.04	503.04
13.333	515.59	510.94	510.94
13.417	524.43	519.43	519.43
13.500	533.84	528.52	528.52
13.583	543.93	538.23	538.23
13.667	554.57	548.56	548.56
13.750	565.90	559.50	559.50
13.833	577.82	571.08	571.08
13.917	590.51	583.34	583.34
14.000	603.97	596.37	596.37
14.083	618.62	610.34	610.34
14.167	635.11	625.79	625.79
14.250	654.83	643.69	643.69
14.333	677.19	664.55	664.55
14.417	701.68	687.84	687.84
14.500	727.11	712.74	712.74
14.583	752.90	738.33	738.33
14.667	779.03	764.26	764.26
14.750	806.52	790.98	790.98
14.833	835.72	819.21	819.21
14.917	867.45	849.51	849.51
15.000	901.83	882.40	882.40
15.083	939.84	918.35	918.35
15.167	981.73	958.06	958.06
15.250	1028.88	1002.23	1002.23
15.333	1081.75	1051.87	1051.87
15.417	1139.31	1106.78	1106.78
15.500	1191.39	1161.96	1161.96
15.583	1225.42	1206.19	1206.19
15.667	1255.78	1238.62	1238.62
15.750	1311.21	1279.88	1279.88
15.833	1425.20	1360.77	1360.77
15.917	1649.63	1522.77	1522.77

16.000	2023.59	1812.22	1812.22
16.083	2838.65	2377.97	2377.97
16.167	4356.11	3498.42	3498.42
16.250	6647.27	5352.26	5352.26
16.333	8221.74	7331.82	7331.82
16.417	7930.23	8095.00	8095.00
16.500	6657.94	7377.06	7377.06
16.583	5259.65	6049.99	6049.99
16.667	4156.75	4780.13	4780.13
16.750	3113.73	3703.26	3703.26
16.833	2543.31	2865.72	2865.72
16.917	2189.83	2389.62	2389.62
17.000	1905.24	2066.10	2066.10
17.083	1687.21	1810.44	1810.44
17.167	1508.83	1609.66	1609.66
17.250	1352.78	1440.99	1440.99
17.333	1218.87	1294.56	1294.56
17.417	1103.55	1168.73	1168.73
17.500	999.01	1058.10	1058.10
17.583	909.92	960.28	960.28
17.667	843.51	881.05	881.05
17.750	790.21	820.34	820.34
17.833	745.44	770.75	770.75
17.917	700.72	726.00	726.00
18.000	645.59	676.75	676.75
18.083	595.01	623.60	623.60
18.167	564.15	581.59	581.59
18.250	547.89	557.08	557.08
18.333	533.14	541.47	541.47
18.417	527.30	530.60	530.60
18.500	525.16	526.37	526.37
18.583	520.20	523.01	523.01
18.667	512.83	517.00	517.00
18.750	504.30	509.12	509.12
18.833	495.51	500.48	500.48
18.917	486.74	491.70	491.70
19.000	478.09	482.98	482.98
19.083	469.68	474.43	474.43
19.167	461.52	466.13	466.13
19.250	453.62	458.09	458.09
19.333	445.98	450.30	450.30
19.417	438.60	442.77	442.77
19.500	431.44	435.49	435.49
19.583	424.51	428.43	428.43
19.667	417.83	421.61	421.61
19.750	411.41	415.04	415.04
19.833	405.25	408.73	408.73
19.917	399.31	402.67	402.67
20.000	393.54	396.81	396.81
20.083	387.92	391.10	391.10
20.167	382.48	385.55	385.55
20.250	377.21	380.19	380.19
20.333	372.09	374.99	374.99
20.417	367.13	369.93	369.93
20.500	362.33	365.04	365.04
20.583	357.71	360.32	360.32
20.667	353.23	355.76	355.76

20.750	348.90	351.35	351.35
20.833	344.71	347.08	347.08
20.917	340.65	342.95	342.95
21.000	336.72	338.94	338.94
21.083	332.90	335.06	335.06
21.167	329.20	331.30	331.30
21.250	325.61	327.64	327.64
21.333	322.12	324.09	324.09
21.417	318.72	320.64	320.64
21.500	315.41	317.28	317.28
21.583	312.19	314.01	314.01
21.667	309.07	310.83	310.83
21.750	306.02	307.74	307.74
21.833	303.06	304.73	304.73
21.917	300.16	301.80	301.80
22.000	297.34	298.94	298.94
22.083	294.59	296.15	296.15
22.167	291.91	293.43	293.43
22.250	289.29	290.77	290.77
22.333	286.73	288.18	288.18
22.417	284.24	285.65	285.65
22.500	281.79	283.17	283.17
22.583	279.41	280.76	280.76
22.667	277.07	278.39	278.39
22.750	274.79	276.08	276.08
22.833	272.55	273.82	273.82
22.917	270.37	271.60	271.60
23.000	268.22	269.43	269.43
23.083	266.13	267.31	267.31
23.167	264.07	265.23	265.23
23.250	262.06	263.20	263.20
23.333	260.09	261.20	261.20
23.417	258.15	259.25	259.25
23.500	256.26	257.33	257.33
23.583	254.40	255.45	255.45
23.667	252.58	253.61	253.61
23.750	250.79	251.80	251.80
23.833	249.03	250.02	250.02
23.917	247.30	248.28	248.28
24.000	245.61	246.57	246.57
24.083	241.84	243.97	243.97
24.167	228.79	236.17	236.17
24.250	196.55	214.77	214.77
24.333	154.56	178.29	178.29
24.417	115.10	137.40	137.40
24.500	84.05	101.60	101.60
24.583	62.36	74.62	74.62
24.667	47.95	56.09	56.09
24.750	38.20	43.71	43.71
24.833	30.66	34.92	34.92
24.917	24.48	27.97	27.97
25.000	20.11	22.58	22.58
25.083	16.65	18.60	18.60
25.167	13.48	15.27	15.27
25.250	10.86	12.34	12.34
25.333	8.72	9.93	9.93
25.417	6.98	7.96	7.96

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          25.500          5.61          6.38          6.38
          25.583          4.51          5.13          5.13
          25.667          3.55          4.09          4.09
          25.750          2.68          3.17          3.17
          25.833          1.90          2.34          2.34
          25.917          1.22          1.61          1.61
          26.000          0.74          1.01          1.01
          26.083          0.44          0.61          0.61
          26.167          0.21          0.34          0.34
          26.250          0.05          0.14          0.14
          26.333          0.00          0.03          0.03
          26.417          0.00          0.00          0.00
          26.500          0.00          0.00          0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    1223.760 AF
    OUTFLOW VOLUME =    1223.760 AF
    LOSS    VOLUME =       0.000 AF


********************************************************************************
  FLOW PROCESS FROM NODE     106.00 TO NODE     107.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
================================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #3)

         WATERSHED AREA =      635.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.282 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.103
         LOW LOSS FRACTION = 0.101
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.999
          24-HOUR FACTOR = 0.999

         UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  29.551
```

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.722	132.226
2	9.114	567.671
3	29.690	1580.192
4	51.446	1670.738
5	63.648	937.017
6	71.355	591.849
7	76.927	427.924
8	81.102	320.673
9	84.376	251.391
10	87.137	211.994
11	89.310	166.937
12	91.028	131.907
13	92.525	114.955
14	93.821	99.575
15	94.869	80.414
16	95.803	71.745
17	96.577	59.421
18	97.209	48.534
19	97.723	39.479
20	98.063	26.100
21	98.372	23.785
22	98.724	27.033
23	99.079	27.226
24	99.431	27.033
25	99.783	27.033
26	100.000	16.681

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0044
2	0.0049	0.0005	0.0044
3	0.0049	0.0005	0.0044
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0044
6	0.0049	0.0005	0.0044
7	0.0050	0.0005	0.0045
8	0.0050	0.0005	0.0045
9	0.0050	0.0005	0.0045
10	0.0050	0.0005	0.0045
11	0.0050	0.0005	0.0045
12	0.0050	0.0005	0.0045
13	0.0051	0.0005	0.0045
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0046
18	0.0051	0.0005	0.0046
19	0.0052	0.0005	0.0046
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0047
24	0.0052	0.0005	0.0047
25	0.0053	0.0005	0.0047
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0048
30	0.0054	0.0005	0.0048
31	0.0054	0.0005	0.0048
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0054	0.0006	0.0049
35	0.0055	0.0006	0.0049
36	0.0055	0.0006	0.0049
37	0.0055	0.0006	0.0050
38	0.0055	0.0006	0.0050
39	0.0056	0.0006	0.0050
40	0.0056	0.0006	0.0050
41	0.0056	0.0006	0.0050
42	0.0056	0.0006	0.0051
43	0.0057	0.0006	0.0051
44	0.0057	0.0006	0.0051
45	0.0057	0.0006	0.0051
46	0.0057	0.0006	0.0051
47	0.0057	0.0006	0.0052
48	0.0058	0.0006	0.0052
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0052
51	0.0058	0.0006	0.0053

52	0.0059	0.0006	0.0053
53	0.0059	0.0006	0.0053
54	0.0059	0.0006	0.0053
55	0.0059	0.0006	0.0053
56	0.0060	0.0006	0.0054
57	0.0060	0.0006	0.0054
58	0.0060	0.0006	0.0054
59	0.0061	0.0006	0.0054
60	0.0061	0.0006	0.0055
61	0.0061	0.0006	0.0055
62	0.0061	0.0006	0.0055
63	0.0062	0.0006	0.0055
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0056
66	0.0063	0.0006	0.0056
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0057
70	0.0064	0.0006	0.0057
71	0.0064	0.0006	0.0058
72	0.0064	0.0007	0.0058
73	0.0065	0.0007	0.0058
74	0.0065	0.0007	0.0058
75	0.0065	0.0007	0.0059
76	0.0066	0.0007	0.0059
77	0.0066	0.0007	0.0059
78	0.0066	0.0007	0.0060
79	0.0067	0.0007	0.0060
80	0.0067	0.0007	0.0060
81	0.0068	0.0007	0.0061
82	0.0068	0.0007	0.0061
83	0.0068	0.0007	0.0061
84	0.0069	0.0007	0.0062
85	0.0069	0.0007	0.0062
86	0.0069	0.0007	0.0062
87	0.0070	0.0007	0.0063
88	0.0070	0.0007	0.0063
89	0.0071	0.0007	0.0064
90	0.0071	0.0007	0.0064
91	0.0072	0.0007	0.0064
92	0.0072	0.0007	0.0065
93	0.0072	0.0007	0.0065
94	0.0073	0.0007	0.0065
95	0.0073	0.0007	0.0066
96	0.0074	0.0007	0.0066
97	0.0074	0.0008	0.0067
98	0.0075	0.0008	0.0067
99	0.0075	0.0008	0.0068
100	0.0076	0.0008	0.0068
101	0.0076	0.0008	0.0069
102	0.0077	0.0008	0.0069
103	0.0077	0.0008	0.0070
104	0.0078	0.0008	0.0070
105	0.0078	0.0008	0.0070
106	0.0079	0.0008	0.0071
107	0.0080	0.0008	0.0071
108	0.0080	0.0008	0.0072

109	0.0081	0.0008	0.0073
110	0.0081	0.0008	0.0073
111	0.0082	0.0008	0.0074
112	0.0082	0.0008	0.0074
113	0.0083	0.0008	0.0075
114	0.0084	0.0008	0.0075
115	0.0084	0.0009	0.0076
116	0.0085	0.0009	0.0076
117	0.0086	0.0009	0.0077
118	0.0086	0.0009	0.0078
119	0.0087	0.0009	0.0078
120	0.0088	0.0009	0.0079
121	0.0089	0.0009	0.0080
122	0.0089	0.0009	0.0080
123	0.0090	0.0009	0.0081
124	0.0091	0.0009	0.0082
125	0.0092	0.0009	0.0083
126	0.0092	0.0009	0.0083
127	0.0094	0.0009	0.0084
128	0.0094	0.0010	0.0085
129	0.0095	0.0010	0.0086
130	0.0096	0.0010	0.0086
131	0.0097	0.0010	0.0087
132	0.0098	0.0010	0.0088
133	0.0099	0.0010	0.0089
134	0.0100	0.0010	0.0090
135	0.0101	0.0010	0.0091
136	0.0102	0.0010	0.0092
137	0.0103	0.0010	0.0093
138	0.0104	0.0011	0.0094
139	0.0106	0.0011	0.0095
140	0.0107	0.0011	0.0096
141	0.0108	0.0011	0.0097
142	0.0109	0.0011	0.0098
143	0.0111	0.0011	0.0100
144	0.0112	0.0011	0.0101
145	0.0090	0.0009	0.0081
146	0.0091	0.0009	0.0082
147	0.0093	0.0009	0.0083
148	0.0094	0.0009	0.0084
149	0.0096	0.0010	0.0086
150	0.0097	0.0010	0.0087
151	0.0099	0.0010	0.0089
152	0.0100	0.0010	0.0090
153	0.0102	0.0010	0.0092
154	0.0104	0.0010	0.0093
155	0.0106	0.0011	0.0095
156	0.0107	0.0011	0.0097
157	0.0110	0.0011	0.0099
158	0.0112	0.0011	0.0100
159	0.0115	0.0012	0.0103
160	0.0116	0.0012	0.0104
161	0.0120	0.0012	0.0108
162	0.0121	0.0012	0.0109
163	0.0125	0.0013	0.0112
164	0.0127	0.0013	0.0114
165	0.0131	0.0013	0.0118

166	0.0134	0.0013	0.0120
167	0.0138	0.0014	0.0124
168	0.0141	0.0014	0.0127
169	0.0151	0.0015	0.0136
170	0.0154	0.0016	0.0139
171	0.0161	0.0016	0.0145
172	0.0164	0.0017	0.0148
173	0.0172	0.0017	0.0154
174	0.0176	0.0018	0.0158
175	0.0185	0.0019	0.0166
176	0.0190	0.0019	0.0171
177	0.0201	0.0020	0.0180
178	0.0207	0.0021	0.0186
179	0.0220	0.0022	0.0198
180	0.0228	0.0023	0.0205
181	0.0245	0.0025	0.0220
182	0.0255	0.0026	0.0229
183	0.0279	0.0028	0.0251
184	0.0293	0.0030	0.0263
185	0.0251	0.0025	0.0226
186	0.0269	0.0027	0.0242
187	0.0316	0.0032	0.0284
188	0.0347	0.0035	0.0312
189	0.0539	0.0054	0.0485
190	0.0621	0.0063	0.0559
191	0.0941	0.0086	0.0855
192	0.1367	0.0086	0.1281
193	0.5874	0.0086	0.5788
194	0.0741	0.0075	0.0666
195	0.0387	0.0039	0.0348
196	0.0290	0.0029	0.0261
197	0.0308	0.0031	0.0277
198	0.0266	0.0027	0.0239
199	0.0236	0.0024	0.0212
200	0.0213	0.0022	0.0192
201	0.0195	0.0020	0.0175
202	0.0180	0.0018	0.0162
203	0.0168	0.0017	0.0151
204	0.0158	0.0016	0.0142
205	0.0144	0.0014	0.0129
206	0.0136	0.0014	0.0122
207	0.0129	0.0013	0.0116
208	0.0123	0.0012	0.0111
209	0.0118	0.0012	0.0106
210	0.0113	0.0011	0.0102
211	0.0109	0.0011	0.0098
212	0.0105	0.0011	0.0094
213	0.0101	0.0010	0.0091
214	0.0098	0.0010	0.0088
215	0.0095	0.0010	0.0085
216	0.0092	0.0009	0.0083
217	0.0113	0.0011	0.0101
218	0.0110	0.0011	0.0099
219	0.0107	0.0011	0.0097
220	0.0105	0.0011	0.0094
221	0.0103	0.0010	0.0092
222	0.0101	0.0010	0.0090

223	0.0099	0.0010	0.0089
224	0.0097	0.0010	0.0087
225	0.0095	0.0010	0.0085
226	0.0093	0.0009	0.0084
227	0.0091	0.0009	0.0082
228	0.0090	0.0009	0.0081
229	0.0088	0.0009	0.0079
230	0.0087	0.0009	0.0078
231	0.0085	0.0009	0.0077
232	0.0084	0.0008	0.0075
233	0.0083	0.0008	0.0074
234	0.0081	0.0008	0.0073
235	0.0080	0.0008	0.0072
236	0.0079	0.0008	0.0071
237	0.0078	0.0008	0.0070
238	0.0077	0.0008	0.0069
239	0.0076	0.0008	0.0068
240	0.0075	0.0008	0.0067
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0066
243	0.0072	0.0007	0.0065
244	0.0071	0.0007	0.0064
245	0.0070	0.0007	0.0063
246	0.0070	0.0007	0.0063
247	0.0069	0.0007	0.0062
248	0.0068	0.0007	0.0061
249	0.0067	0.0007	0.0061
250	0.0067	0.0007	0.0060
251	0.0066	0.0007	0.0059
252	0.0065	0.0007	0.0059
253	0.0065	0.0007	0.0058
254	0.0064	0.0006	0.0057
255	0.0063	0.0006	0.0057
256	0.0063	0.0006	0.0056
257	0.0062	0.0006	0.0056
258	0.0062	0.0006	0.0055
259	0.0061	0.0006	0.0055
260	0.0060	0.0006	0.0054
261	0.0060	0.0006	0.0054
262	0.0059	0.0006	0.0053
263	0.0059	0.0006	0.0053
264	0.0058	0.0006	0.0052
265	0.0058	0.0006	0.0052
266	0.0057	0.0006	0.0052
267	0.0057	0.0006	0.0051
268	0.0056	0.0006	0.0051
269	0.0056	0.0006	0.0050
270	0.0055	0.0006	0.0050
271	0.0055	0.0006	0.0049
272	0.0055	0.0006	0.0049
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0048
275	0.0053	0.0005	0.0048
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0047
278	0.0052	0.0005	0.0047
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0046
281	0.0051	0.0005	0.0046
282	0.0051	0.0005	0.0046
283	0.0050	0.0005	0.0045
284	0.0050	0.0005	0.0045
285	0.0050	0.0005	0.0045
286	0.0049	0.0005	0.0044
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.31
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.29

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 16.2110
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 174.0085

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	350.0	700.0	1050.0	1400.0
0.083	0.0040	0.58	Q	.	.	.	.
0.167	0.0250	3.06	Q	.	.	.	.
0.250	0.0937	9.97	Q	.	.	.	.
0.333	0.2129	17.30	Q	.	.	.	.
0.417	0.3606	21.45	Q	.	.	.	.
0.500	0.5265	24.10	Q	.	.	.	.
0.583	0.7059	26.05	Q	.	.	.	.
0.667	0.8955	27.53	Q	.	.	.	.
0.750	1.0933	28.72	Q	.	.	.	.
0.833	1.2981	29.74	Q	.	.	.	.
0.917	1.5086	30.57	Q	.	.	.	.
1.000	1.7238	31.24	Q	.	.	.	.
1.083	1.9431	31.85	Q	.	.	.	.
1.167	2.1662	32.39	Q	.	.	.	.
1.250	2.3925	32.85	Q	.	.	.	.
1.333	2.6216	33.27	Q	.	.	.	.
1.417	2.8533	33.65	Q	.	.	.	.
1.500	3.0873	33.97	Q	.	.	.	.
1.583	3.3233	34.26	Q	.	.	.	.
1.667	3.5608	34.49	Q	.	.	.	.
1.750	3.7999	34.72	Q	.	.	.	.
1.833	4.0407	34.96	Q	.	.	.	.
1.917	4.2831	35.20	VQ	.	.	.	.
2.000	4.5271	35.44	.Q	.	.	.	.
2.083	4.7729	35.68	.Q	.	.	.	.
2.167	5.0200	35.88	.Q	.	.	.	.
2.250	5.2680	36.01	.Q	.	.	.	.
2.333	5.5169	36.14	.Q	.	.	.	.
2.417	5.7667	36.27	.Q	.	.	.	.
2.500	6.0174	36.40	.Q	.	.	.	.
2.583	6.2690	36.54	.Q	.	.	.	.
2.667	6.5216	36.67	.Q	.	.	.	.
2.750	6.7751	36.81	.Q	.	.	.	.
2.833	7.0295	36.94	.Q	.	.	.	.
2.917	7.2849	37.08	.Q	.	.	.	.
3.000	7.5412	37.22	.Q	.	.	.	.
3.083	7.7986	37.36	.Q	.	.	.	.
3.167	8.0569	37.51	.Q	.	.	.	.
3.250	8.3162	37.65	.Q	.	.	.	.
3.333	8.5765	37.80	.Q	.	.	.	.
3.417	8.8378	37.94	.QV	.	.	.	.
3.500	9.1002	38.09	.QV	.	.	.	.
3.583	9.3635	38.24	.QV	.	.	.	.
3.667	9.6280	38.39	.QV	.	.	.	.
3.750	9.8935	38.55	.QV	.	.	.	.

3.833	10.1600	38.70	.QV	.	.	.	.
3.917	10.4277	38.86	.QV	.	.	.	.
4.000	10.6964	39.02	.QV	.	.	.	.
4.083	10.9662	39.18	.QV	.	.	.	.
4.167	11.2372	39.34	.QV	.	.	.	.
4.250	11.5092	39.51	.QV	.	.	.	.
4.333	11.7824	39.67	.QV	.	.	.	.
4.417	12.0568	39.84	.QV	.	.	.	.
4.500	12.3323	40.01	.QV	.	.	.	.
4.583	12.6090	40.18	.QV	.	.	.	.
4.667	12.8870	40.35	.QV	.	.	.	.
4.750	13.1661	40.53	.Q V	.	.	.	.
4.833	13.4464	40.70	.Q V	.	.	.	.
4.917	13.7280	40.88	.Q V	.	.	.	.
5.000	14.0108	41.06	.Q V	.	.	.	.
5.083	14.2949	41.25	.Q V	.	.	.	.
5.167	14.5802	41.43	.Q V	.	.	.	.
5.250	14.8669	41.62	.Q V	.	.	.	.
5.333	15.1548	41.81	.Q V	.	.	.	.
5.417	15.4441	42.00	.Q V	.	.	.	.
5.500	15.7347	42.20	.Q V	.	.	.	.
5.583	16.0267	42.40	.Q V	.	.	.	.
5.667	16.3201	42.60	.Q V	.	.	.	.
5.750	16.6148	42.80	.Q V	.	.	.	.
5.833	16.9110	43.00	.Q V	.	.	.	.
5.917	17.2086	43.21	.Q V	.	.	.	.
6.000	17.5076	43.42	.Q V	.	.	.	.
6.083	17.8081	43.63	.Q V	.	.	.	.
6.167	18.1101	43.85	.Q V	.	.	.	.
6.250	18.4135	44.07	.Q V	.	.	.	.
6.333	18.7185	44.29	.Q V	.	.	.	.
6.417	19.0251	44.51	.Q V	.	.	.	.
6.500	19.3332	44.74	.Q V	.	.	.	.
6.583	19.6429	44.97	.Q V	.	.	.	.
6.667	19.9542	45.20	.Q V	.	.	.	.
6.750	20.2671	45.44	.Q V	.	.	.	.
6.833	20.5817	45.68	.Q V	.	.	.	.
6.917	20.8980	45.92	.Q V	.	.	.	.
7.000	21.2159	46.17	.Q V	.	.	.	.
7.083	21.5356	46.42	.Q V	.	.	.	.
7.167	21.8570	46.67	.Q V	.	.	.	.
7.250	22.1802	46.93	.Q V	.	.	.	.
7.333	22.5052	47.19	.Q V	.	.	.	.
7.417	22.8321	47.46	.Q V	.	.	.	.
7.500	23.1607	47.72	.Q V	.	.	.	.
7.583	23.4913	48.00	.Q V	.	.	.	.
7.667	23.8238	48.27	.Q V	.	.	.	.
7.750	24.1582	48.56	.Q V	.	.	.	.
7.833	24.4945	48.84	.Q V	.	.	.	.
7.917	24.8329	49.13	.Q V	.	.	.	.
8.000	25.1733	49.43	.Q V	.	.	.	.
8.083	25.5158	49.73	.Q V	.	.	.	.
8.167	25.8604	50.03	.Q V	.	.	.	.
8.250	26.2071	50.34	.Q V	.	.	.	.
8.333	26.5560	50.66	.Q V	.	.	.	.
8.417	26.9070	50.98	.Q V	.	.	.	.
8.500	27.2603	51.30	.Q V	.	.	.	.

8.583	27.6159	51.63	.Q	V	.	.	.
8.667	27.9739	51.97	.Q	V	.	.	.
8.750	28.3341	52.31	.Q	V	.	.	.
8.833	28.6968	52.66	.Q	V	.	.	.
8.917	29.0619	53.02	.Q	V	.	.	.
9.000	29.4295	53.38	.Q	V	.	.	.
9.083	29.7997	53.74	.Q	V	.	.	.
9.167	30.1724	54.12	.Q	V	.	.	.
9.250	30.5477	54.50	.Q	V	.	.	.
9.333	30.9258	54.89	.Q	V	.	.	.
9.417	31.3065	55.28	.Q	V	.	.	.
9.500	31.6900	55.69	.Q	V	.	.	.
9.583	32.0764	56.10	.Q	V	.	.	.
9.667	32.4656	56.52	.Q	V	.	.	.
9.750	32.8578	56.95	.Q	V	.	.	.
9.833	33.2530	57.38	.Q	V	.	.	.
9.917	33.6513	57.83	.Q	V	.	.	.
10.000	34.0527	58.28	.Q	V	.	.	.
10.083	34.4573	58.75	.Q	V	.	.	.
10.167	34.8652	59.22	.Q	V	.	.	.
10.250	35.2764	59.71	.Q	V	.	.	.
10.333	35.6911	60.20	.Q	V	.	.	.
10.417	36.1092	60.71	.Q	V	.	.	.
10.500	36.5308	61.23	.Q	V	.	.	.
10.583	36.9562	61.76	.Q	V	.	.	.
10.667	37.3852	62.30	.Q	V	.	.	.
10.750	37.8181	62.86	.Q	V	.	.	.
10.833	38.2549	63.42	.Q	V	.	.	.
10.917	38.6957	64.00	.Q	V	.	.	.
11.000	39.1406	64.60	.Q	V	.	.	.
11.083	39.5897	65.21	.Q	V	.	.	.
11.167	40.0431	65.84	.Q	V	.	.	.
11.250	40.5010	66.48	.Q	V	.	.	.
11.333	40.9634	67.14	.Q	V	.	.	.
11.417	41.4304	67.82	.Q	V	.	.	.
11.500	41.9023	68.51	.Q	V	.	.	.
11.583	42.3790	69.23	.Q	V	.	.	.
11.667	42.8609	69.96	.Q	V	.	.	.
11.750	43.3479	70.72	. Q	V	.	.	.
11.833	43.8403	71.49	. Q	V	.	.	.
11.917	44.3382	72.30	. Q	V	.	.	.
12.000	44.8418	73.12	. Q	V	.	.	.
12.083	45.3493	73.69	. Q	V	.	.	.
12.167	45.8545	73.36	. Q	V	.	.	.
12.250	46.3427	70.89	. Q	V	.	.	.
12.333	46.8127	68.24	.Q	V	.	.	.
12.417	47.2753	67.17	.Q	V	.	.	.
12.500	47.7356	66.84	.Q	V	.	.	.
12.583	48.1963	66.89	.Q	.V	.	.	.
12.667	48.6590	67.19	.Q	.V	.	.	.
12.750	49.1251	67.68	.Q	.V	.	.	.
12.833	49.5953	68.28	.Q	.V	.	.	.
12.917	50.0707	69.02	.Q	.V	.	.	.
13.000	50.5519	69.87	.Q	.V	.	.	.
13.083	51.0396	70.81	. Q	.V	.	.	.
13.167	51.5343	71.83	. Q	.V	.	.	.
13.250	52.0366	72.95	. Q	.V	.	.	.

13.333	52.5472	74.13	. Q . V . . .
13.417	53.0666	75.42	. Q . V . . .
13.500	53.5954	76.78	. Q . V . . .
13.583	54.1343	78.24	. Q . V . . .
13.667	54.6839	79.81	. Q . V . . .
13.750	55.2450	81.47	. Q . V . . .
13.833	55.8180	83.21	. Q . V . . .
13.917	56.4038	85.06	. Q . V . . .
14.000	57.0030	87.01	. Q . V . . .
14.083	57.6171	89.16	. Q . V . . .
14.167	58.2482	91.64	. Q . V . . .
14.250	58.9012	94.81	. Q . V . . .
14.333	59.5772	98.16	. Q . V . . .
14.417	60.2756	101.41	. Q . V . . .
14.500	60.9966	104.68	. Q . V . . .
14.583	61.7414	108.15	. Q . V . . .
14.667	62.5113	111.80	. Q . V . . .
14.750	63.3086	115.76	. Q . V . . .
14.833	64.1351	120.01	. Q . V . . .
14.917	64.9939	124.70	. Q . V . . .
15.000	65.8877	129.78	. Q . V . . .
15.083	66.8208	135.48	. Q . V . . .
15.167	67.7970	141.75	. Q . V . . .
15.250	68.8225	148.90	. Q . V . . .
15.333	69.9031	156.92	. Q . V . . .
15.417	71.0421	165.37	. Q . V . . .
15.500	72.2284	172.25	. Q . V . . .
15.583	73.4287	174.29	. Q . V . . .
15.667	74.6522	177.65	. Q . V . . .
15.750	75.9642	190.51	. Q . V . . .
15.833	77.4416	214.52	. Q . V . . .
15.917	79.2315	259.89	. Q . V . . .
16.000	81.4979	329.08	. Q. V . . .
16.083	84.8904	492.59	. . Q V. . .
16.167	90.5235	817.93	. . . V Q . .
16.250	99.8103	1348.44	. . . . V . . Q .
16.333	109.0470	1341.17	. . . . V . . Q .
16.417	115.2387	899.03	. . . . QV . . .
16.500	119.7426	653.96	. . . Q . V . .
16.583	123.3662	526.15	. . Q . V . . .
16.667	126.4031	440.95	. . Q . V. . .
16.750	129.0100	378.53	. . Q . V. . .
16.833	131.3115	334.18	. . Q. . V . .
16.917	133.3141	290.77	. . Q . . V . .
17.000	135.0757	255.79	. . Q . . .V . .
17.083	136.6742	232.11	. . Q . . .V . .
17.167	138.1266	210.89	. . Q . . .V . .
17.250	139.4282	188.99	. . Q . . . V . .
17.333	140.6206	173.13	. . Q . . . V . .
17.417	141.7020	157.02	. . Q . . . V . .
17.500	142.6853	142.77	. . Q . . . V . .
17.583	143.5838	130.47	. . Q . . . V . .
17.667	144.3942	117.67	. . Q . . . V . .
17.750	145.1624	111.53	. . Q . . . V . .
17.833	145.9109	108.69	. . Q . . . V . .
17.917	146.6302	104.44	. Q . . . V . .
18.000	147.3176	99.80	. Q . . . V . .

18.083	147.9711	94.88	. Q	.	.	.	V	.
18.167	148.5618	85.78	. Q	.	.	.	V	.
18.250	149.0908	76.81	. Q	.	.	.	V	.
18.333	149.6213	77.03	. Q	.	.	.	V	.
18.417	150.1477	76.44	. Q	.	.	.	V	.
18.500	150.6667	75.35	. Q	.	.	.	V	.
18.583	151.1767	74.04	. Q	.	.	.	V	.
18.667	151.6773	72.70	. Q	.	.	.	V	.
18.750	152.1688	71.36	. Q	.	.	.	V	.
18.833	152.6513	70.07	. Q	.	.	.	V	.
18.917	153.1251	68.79	.Q	.	.	.	V	.
19.000	153.5902	67.54	.Q	.	.	.	V	.
19.083	154.0471	66.34	.Q	.	.	.	V	.
19.167	154.4961	65.19	.Q	.	.	.	V	.
19.250	154.9375	64.09	.Q	.	.	.	V	.
19.333	155.3716	63.03	.Q	.	.	.	V	.
19.417	155.7985	62.00	.Q	.	.	.	V	.
19.500	156.2187	61.00	.Q	.	.	.	V	.
19.583	156.6322	60.04	.Q	.	.	.	V	.
19.667	157.0391	59.09	.Q	.	.	.	V	.
19.750	157.4398	58.19	.Q	.	.	.	V	.
19.833	157.8347	57.33	.Q	.	.	.	V	.
19.917	158.2238	56.50	.Q	.	.	.	V	.
20.000	158.6075	55.72	.Q	.	.	.	V	.
20.083	158.9860	54.96	.Q	.	.	.	V	.
20.167	159.3594	54.21	.Q	.	.	.	V	.
20.250	159.7276	53.46	.Q	.	.	.	V	.
20.333	160.0907	52.73	.Q	.	.	.	V	.
20.417	160.4491	52.03	.Q	.	.	.	V	.
20.500	160.8028	51.36	.Q	.	.	.	V	.
20.583	161.1520	50.71	.Q	.	.	.	V	.
20.667	161.4969	50.07	.Q	.	.	.	V	.
20.750	161.8376	49.46	.Q	.	.	.	V	.
20.833	162.1741	48.87	.Q	.	.	.	V	.
20.917	162.5068	48.30	.Q	.	.	.	V	.
21.000	162.8356	47.75	.Q	.	.	.	V	.
21.083	163.1607	47.21	.Q	.	.	.	V	.
21.167	163.4823	46.68	.Q	.	.	.	V	.
21.250	163.8003	46.18	.Q	.	.	.	V	.
21.333	164.1149	45.69	.Q	.	.	.	V	.
21.417	164.4263	45.21	.Q	.	.	.	V	.
21.500	164.7344	44.74	.Q	.	.	.	V	.
21.583	165.0394	44.29	.Q	.	.	.	V	.
21.667	165.3413	43.84	.Q	.	.	.	V	.
21.750	165.6403	43.42	.Q	.	.	.	V	.
21.833	165.9364	43.00	.Q	.	.	.	V	.
21.917	166.2298	42.59	.Q	.	.	.	V	.
22.000	166.5203	42.19	.Q	.	.	.	V	.
22.083	166.8082	41.80	.Q	.	.	.	V	.
22.167	167.0935	41.42	.Q	.	.	.	V	.
22.250	167.3762	41.05	.Q	.	.	.	V	.
22.333	167.6564	40.69	.Q	.	.	.	V	.
22.417	167.9343	40.34	.Q	.	.	.	V	.
22.500	168.2097	39.99	.Q	.	.	.	V	.
22.583	168.4828	39.66	.Q	.	.	.	V	.
22.667	168.7536	39.33	.Q	.	.	.	V	.
22.750	169.0223	39.00	.Q	.	.	.	V	.

```
 22.833    169.2887     38.69  .Q       .         .         .        V .
 22.917    169.5530     38.38  .Q       .         .         .        V .
 23.000    169.8152     38.07  .Q       .         .         .         V.
 23.083    170.0754     37.78  .Q       .         .         .         V.
 23.167    170.3336     37.49  .Q       .         .         .         V.
 23.250    170.5898     37.20  .Q       .         .         .         V.
 23.333    170.8441     36.92  .Q       .         .         .         V.
 23.417    171.0965     36.65  .Q       .         .         .         V.
 23.500    171.3471     36.38  .Q       .         .         .         V.
 23.583    171.5959     36.12  .Q       .         .         .         V.
 23.667    171.8428     35.86  .Q       .         .         .         V.
 23.750    172.0881     35.61  .Q       .         .         .         V.
 23.833    172.3316     35.36  .Q       .         .         .         V.
 23.917    172.5734     35.12  .Q       .         .         .         V.
 24.000    172.8136     34.88  Q        .         .         .         V.
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
       Peak Flow Rate               (minutes)
   ========================         =========
              0%                     1445.0
             10%                      150.0
             20%                       60.0
             30%                       40.0
             40%                       25.0
             50%                       20.0
             60%                       20.0
             70%                       10.0
             80%                       10.0
             90%                       10.0

********************************************************************************
  FLOW PROCESS FROM NODE     107.00 TO NODE     107.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
================================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #3)

         WATERSHED AREA =     1370.000 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.306 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  1.000
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.115
```

LOW LOSS FRACTION = 0.990
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 27.233

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.524	252.570
2	7.707	1024.381
3	24.533	2787.845
4	46.693	3671.496
5	60.162	2231.654
6	68.361	1358.444
7	74.294	982.957
8	78.803	747.046
9	82.278	575.721
10	85.131	472.818
11	87.574	404.665
12	89.491	317.594
13	91.061	260.171
14	92.444	229.193
15	93.662	201.697
16	94.652	164.076
17	95.553	149.341
18	96.291	122.261
19	96.955	109.926
20	97.459	83.535
21	97.878	69.538
22	98.155	45.820
23	98.453	49.361

24	98.780	54.136
25	99.106	54.138
26	99.433	54.136
27	99.760	54.136
28	100.000	39.780

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0048	0.0000
2	0.0049	0.0048	0.0000
3	0.0049	0.0048	0.0000
4	0.0049	0.0049	0.0000
5	0.0049	0.0049	0.0000
6	0.0049	0.0049	0.0000
7	0.0050	0.0049	0.0000
8	0.0050	0.0049	0.0000
9	0.0050	0.0049	0.0000
10	0.0050	0.0049	0.0000
11	0.0050	0.0050	0.0001
12	0.0050	0.0050	0.0001
13	0.0051	0.0050	0.0001
14	0.0051	0.0050	0.0001
15	0.0051	0.0050	0.0001
16	0.0051	0.0051	0.0001
17	0.0051	0.0051	0.0001
18	0.0051	0.0051	0.0001
19	0.0052	0.0051	0.0001
20	0.0052	0.0051	0.0001
21	0.0052	0.0051	0.0001
22	0.0052	0.0052	0.0001
23	0.0052	0.0052	0.0001
24	0.0052	0.0052	0.0001
25	0.0053	0.0052	0.0001
26	0.0053	0.0052	0.0001
27	0.0053	0.0053	0.0001
28	0.0053	0.0053	0.0001
29	0.0054	0.0053	0.0001
30	0.0054	0.0053	0.0001
31	0.0054	0.0053	0.0001
32	0.0054	0.0054	0.0001
33	0.0054	0.0054	0.0001
34	0.0054	0.0054	0.0001
35	0.0055	0.0054	0.0001
36	0.0055	0.0054	0.0001
37	0.0055	0.0055	0.0001
38	0.0055	0.0055	0.0001
39	0.0056	0.0055	0.0001
40	0.0056	0.0055	0.0001
41	0.0056	0.0056	0.0001
42	0.0056	0.0056	0.0001
43	0.0057	0.0056	0.0001
44	0.0057	0.0056	0.0001
45	0.0057	0.0056	0.0001
46	0.0057	0.0057	0.0001
47	0.0057	0.0057	0.0001
48	0.0058	0.0057	0.0001
49	0.0058	0.0057	0.0001
50	0.0058	0.0058	0.0001
51	0.0058	0.0058	0.0001

52	0.0059	0.0058	0.0001
53	0.0059	0.0058	0.0001
54	0.0059	0.0059	0.0001
55	0.0059	0.0059	0.0001
56	0.0060	0.0059	0.0001
57	0.0060	0.0059	0.0001
58	0.0060	0.0060	0.0001
59	0.0061	0.0060	0.0001
60	0.0061	0.0060	0.0001
61	0.0061	0.0061	0.0001
62	0.0061	0.0061	0.0001
63	0.0062	0.0061	0.0001
64	0.0062	0.0061	0.0001
65	0.0062	0.0062	0.0001
66	0.0063	0.0062	0.0001
67	0.0063	0.0062	0.0001
68	0.0063	0.0062	0.0001
69	0.0064	0.0063	0.0001
70	0.0064	0.0063	0.0001
71	0.0064	0.0064	0.0001
72	0.0064	0.0064	0.0001
73	0.0065	0.0064	0.0001
74	0.0065	0.0064	0.0001
75	0.0065	0.0065	0.0001
76	0.0066	0.0065	0.0001
77	0.0066	0.0066	0.0001
78	0.0066	0.0066	0.0001
79	0.0067	0.0066	0.0001
80	0.0067	0.0066	0.0001
81	0.0068	0.0067	0.0001
82	0.0068	0.0067	0.0001
83	0.0068	0.0068	0.0001
84	0.0069	0.0068	0.0001
85	0.0069	0.0068	0.0001
86	0.0069	0.0069	0.0001
87	0.0070	0.0069	0.0001
88	0.0070	0.0070	0.0001
89	0.0071	0.0070	0.0001
90	0.0071	0.0070	0.0001
91	0.0072	0.0071	0.0001
92	0.0072	0.0071	0.0001
93	0.0072	0.0072	0.0001
94	0.0073	0.0072	0.0001
95	0.0073	0.0073	0.0001
96	0.0074	0.0073	0.0001
97	0.0074	0.0074	0.0001
98	0.0075	0.0074	0.0001
99	0.0075	0.0075	0.0001
100	0.0076	0.0075	0.0001
101	0.0076	0.0076	0.0001
102	0.0077	0.0076	0.0001
103	0.0077	0.0077	0.0001
104	0.0078	0.0077	0.0001
105	0.0078	0.0078	0.0001
106	0.0079	0.0078	0.0001
107	0.0080	0.0079	0.0001
108	0.0080	0.0079	0.0001

109	0.0081	0.0080	0.0001
110	0.0081	0.0080	0.0001
111	0.0082	0.0081	0.0001
112	0.0082	0.0081	0.0001
113	0.0083	0.0082	0.0001
114	0.0084	0.0083	0.0001
115	0.0084	0.0084	0.0001
116	0.0085	0.0084	0.0001
117	0.0086	0.0085	0.0001
118	0.0086	0.0085	0.0001
119	0.0087	0.0086	0.0001
120	0.0088	0.0087	0.0001
121	0.0089	0.0088	0.0001
122	0.0089	0.0088	0.0001
123	0.0090	0.0089	0.0001
124	0.0091	0.0090	0.0001
125	0.0092	0.0091	0.0001
126	0.0092	0.0091	0.0001
127	0.0094	0.0093	0.0001
128	0.0094	0.0093	0.0001
129	0.0095	0.0094	0.0001
130	0.0096	0.0095	0.0001
131	0.0097	0.0096	0.0001
132	0.0098	0.0096	0.0002
133	0.0099	0.0096	0.0003
134	0.0100	0.0096	0.0004
135	0.0101	0.0096	0.0005
136	0.0102	0.0096	0.0006
137	0.0103	0.0096	0.0008
138	0.0104	0.0096	0.0008
139	0.0106	0.0096	0.0010
140	0.0107	0.0096	0.0011
141	0.0108	0.0096	0.0012
142	0.0109	0.0096	0.0013
143	0.0111	0.0096	0.0015
144	0.0112	0.0096	0.0016
145	0.0090	0.0089	0.0001
146	0.0091	0.0090	0.0001
147	0.0093	0.0092	0.0001
148	0.0094	0.0093	0.0001
149	0.0096	0.0095	0.0001
150	0.0097	0.0096	0.0001
151	0.0099	0.0096	0.0003
152	0.0100	0.0096	0.0004
153	0.0102	0.0096	0.0006
154	0.0104	0.0096	0.0008
155	0.0106	0.0096	0.0010
156	0.0107	0.0096	0.0012
157	0.0110	0.0096	0.0014
158	0.0112	0.0096	0.0016
159	0.0115	0.0096	0.0019
160	0.0116	0.0096	0.0020
161	0.0120	0.0096	0.0024
162	0.0121	0.0096	0.0026
163	0.0125	0.0096	0.0029
164	0.0127	0.0096	0.0031
165	0.0131	0.0096	0.0035

166	0.0134	0.0096	0.0038
167	0.0138	0.0096	0.0042
168	0.0141	0.0096	0.0045
169	0.0151	0.0096	0.0056
170	0.0154	0.0096	0.0059
171	0.0161	0.0096	0.0065
172	0.0164	0.0096	0.0068
173	0.0172	0.0096	0.0076
174	0.0176	0.0096	0.0080
175	0.0185	0.0096	0.0089
176	0.0190	0.0096	0.0094
177	0.0201	0.0096	0.0105
178	0.0207	0.0096	0.0111
179	0.0220	0.0096	0.0124
180	0.0228	0.0096	0.0132
181	0.0245	0.0096	0.0149
182	0.0255	0.0096	0.0159
183	0.0279	0.0096	0.0183
184	0.0293	0.0096	0.0197
185	0.0251	0.0096	0.0155
186	0.0269	0.0096	0.0173
187	0.0316	0.0096	0.0220
188	0.0347	0.0096	0.0252
189	0.0539	0.0096	0.0444
190	0.0621	0.0096	0.0526
191	0.0941	0.0096	0.0845
192	0.1367	0.0096	0.1271
193	0.5874	0.0096	0.5778
194	0.0741	0.0096	0.0645
195	0.0387	0.0096	0.0291
196	0.0290	0.0096	0.0194
197	0.0308	0.0096	0.0213
198	0.0266	0.0096	0.0171
199	0.0236	0.0096	0.0140
200	0.0213	0.0096	0.0117
201	0.0195	0.0096	0.0099
202	0.0180	0.0096	0.0084
203	0.0168	0.0096	0.0072
204	0.0158	0.0096	0.0062
205	0.0144	0.0096	0.0048
206	0.0136	0.0096	0.0040
207	0.0129	0.0096	0.0033
208	0.0123	0.0096	0.0027
209	0.0118	0.0096	0.0022
210	0.0113	0.0096	0.0017
211	0.0109	0.0096	0.0013
212	0.0105	0.0096	0.0009
213	0.0101	0.0096	0.0005
214	0.0098	0.0096	0.0002
215	0.0095	0.0094	0.0001
216	0.0092	0.0091	0.0001
217	0.0113	0.0096	0.0017
218	0.0110	0.0096	0.0014
219	0.0107	0.0096	0.0012
220	0.0105	0.0096	0.0009
221	0.0103	0.0096	0.0007
222	0.0101	0.0096	0.0005

223	0.0099	0.0096	0.0003
224	0.0097	0.0096	0.0001
225	0.0095	0.0094	0.0001
226	0.0093	0.0092	0.0001
227	0.0091	0.0090	0.0001
228	0.0090	0.0089	0.0001
229	0.0088	0.0087	0.0001
230	0.0087	0.0086	0.0001
231	0.0085	0.0084	0.0001
232	0.0084	0.0083	0.0001
233	0.0083	0.0082	0.0001
234	0.0081	0.0081	0.0001
235	0.0080	0.0079	0.0001
236	0.0079	0.0078	0.0001
237	0.0078	0.0077	0.0001
238	0.0077	0.0076	0.0001
239	0.0076	0.0075	0.0001
240	0.0075	0.0074	0.0001
241	0.0074	0.0073	0.0001
242	0.0073	0.0072	0.0001
243	0.0072	0.0071	0.0001
244	0.0071	0.0071	0.0001
245	0.0070	0.0070	0.0001
246	0.0070	0.0069	0.0001
247	0.0069	0.0068	0.0001
248	0.0068	0.0067	0.0001
249	0.0067	0.0067	0.0001
250	0.0067	0.0066	0.0001
251	0.0066	0.0065	0.0001
252	0.0065	0.0065	0.0001
253	0.0065	0.0064	0.0001
254	0.0064	0.0063	0.0001
255	0.0063	0.0063	0.0001
256	0.0063	0.0062	0.0001
257	0.0062	0.0061	0.0001
258	0.0062	0.0061	0.0001
259	0.0061	0.0060	0.0001
260	0.0060	0.0060	0.0001
261	0.0060	0.0059	0.0001
262	0.0059	0.0059	0.0001
263	0.0059	0.0058	0.0001
264	0.0058	0.0058	0.0001
265	0.0058	0.0057	0.0001
266	0.0057	0.0057	0.0001
267	0.0057	0.0056	0.0001
268	0.0056	0.0056	0.0001
269	0.0056	0.0055	0.0001
270	0.0055	0.0055	0.0001
271	0.0055	0.0054	0.0001
272	0.0055	0.0054	0.0001
273	0.0054	0.0054	0.0001
274	0.0054	0.0053	0.0001
275	0.0053	0.0053	0.0001
276	0.0053	0.0052	0.0001
277	0.0053	0.0052	0.0001
278	0.0052	0.0052	0.0001
279	0.0052	0.0051	0.0001

280	0.0052	0.0051	0.0001
281	0.0051	0.0051	0.0001
282	0.0051	0.0050	0.0001
283	0.0050	0.0050	0.0001
284	0.0050	0.0050	0.0001
285	0.0050	0.0049	0.0000
286	0.0049	0.0049	0.0000
287	0.0049	0.0049	0.0000
288	0.0049	0.0048	0.0000

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 2.15
TOTAL EFFECTIVE RAINFALL(INCHES) = 1.44

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 245.9986
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 164.5056

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	725.0	1450.0	2175.0	2900.0
0.083	0.0001	0.01	Q	.	.	.	.
0.167	0.0005	0.06	Q	.	.	.	.
0.250	0.0019	0.20	Q	.	.	.	.
0.333	0.0045	0.38	Q	.	.	.	.
0.417	0.0078	0.49	Q	.	.	.	.
0.500	0.0116	0.55	Q	.	.	.	.
0.583	0.0158	0.60	Q	.	.	.	.
0.667	0.0202	0.64	Q	.	.	.	.
0.750	0.0248	0.67	Q	.	.	.	.
0.833	0.0296	0.70	Q	.	.	.	.
0.917	0.0346	0.72	Q	.	.	.	.
1.000	0.0397	0.74	Q	.	.	.	.
1.083	0.0448	0.75	Q	.	.	.	.
1.167	0.0501	0.77	Q	.	.	.	.
1.250	0.0555	0.78	Q	.	.	.	.
1.333	0.0609	0.79	Q	.	.	.	.
1.417	0.0664	0.80	Q	.	.	.	.
1.500	0.0719	0.81	Q	.	.	.	.
1.583	0.0776	0.81	Q	.	.	.	.
1.667	0.0832	0.82	Q	.	.	.	.
1.750	0.0889	0.83	Q	.	.	.	.
1.833	0.0947	0.83	Q	.	.	.	.
1.917	0.1004	0.84	Q	.	.	.	.
2.000	0.1062	0.84	Q	.	.	.	.
2.083	0.1121	0.85	Q	.	.	.	.
2.167	0.1180	0.86	Q	.	.	.	.
2.250	0.1239	0.86	Q	.	.	.	.
2.333	0.1299	0.87	Q	.	.	.	.
2.417	0.1359	0.87	Q	.	.	.	.
2.500	0.1419	0.87	Q	.	.	.	.
2.583	0.1479	0.88	Q	.	.	.	.
2.667	0.1540	0.88	Q	.	.	.	.
2.750	0.1600	0.88	Q	.	.	.	.
2.833	0.1661	0.89	Q	.	.	.	.
2.917	0.1722	0.89	Q	.	.	.	.
3.000	0.1784	0.89	Q	.	.	.	.
3.083	0.1846	0.90	Q	.	.	.	.
3.167	0.1907	0.90	Q	.	.	.	.
3.250	0.1970	0.90	Q	.	.	.	.
3.333	0.2032	0.91	Q	.	.	.	.
3.417	0.2095	0.91	Q	.	.	.	.
3.500	0.2157	0.91	Q	.	.	.	.
3.583	0.2221	0.92	Q	.	.	.	.
3.667	0.2284	0.92	Q	.	.	.	.
3.750	0.2348	0.92	Q	.	.	.	.

3.833	0.2411	0.93	Q	.	.	.	.
3.917	0.2475	0.93	Q	.	.	.	.
4.000	0.2540	0.93	Q	.	.	.	.
4.083	0.2605	0.94	Q	.	.	.	.
4.167	0.2669	0.94	Q	.	.	.	.
4.250	0.2735	0.95	Q	.	.	.	.
4.333	0.2800	0.95	Q	.	.	.	.
4.417	0.2866	0.95	Q	.	.	.	.
4.500	0.2932	0.96	Q	.	.	.	.
4.583	0.2998	0.96	Q	.	.	.	.
4.667	0.3065	0.97	Q	.	.	.	.
4.750	0.3132	0.97	Q	.	.	.	.
4.833	0.3199	0.98	Q	.	.	.	.
4.917	0.3266	0.98	Q	.	.	.	.
5.000	0.3334	0.98	Q	.	.	.	.
5.083	0.3402	0.99	Q	.	.	.	.
5.167	0.3470	0.99	Q	.	.	.	.
5.250	0.3539	1.00	Q	.	.	.	.
5.333	0.3608	1.00	Q	.	.	.	.
5.417	0.3677	1.01	Q	.	.	.	.
5.500	0.3747	1.01	Q	.	.	.	.
5.583	0.3817	1.02	Q	.	.	.	.
5.667	0.3887	1.02	Q	.	.	.	.
5.750	0.3958	1.03	Q	.	.	.	.
5.833	0.4029	1.03	Q	.	.	.	.
5.917	0.4100	1.03	Q	.	.	.	.
6.000	0.4171	1.04	Q	.	.	.	.
6.083	0.4243	1.05	Q	.	.	.	.
6.167	0.4316	1.05	Q	.	.	.	.
6.250	0.4388	1.06	Q	.	.	.	.
6.333	0.4462	1.06	Q	.	.	.	.
6.417	0.4535	1.07	Q	.	.	.	.
6.500	0.4609	1.07	Q	.	.	.	.
6.583	0.4683	1.08	Q	.	.	.	.
6.667	0.4757	1.08	Q	.	.	.	.
6.750	0.4832	1.09	Q	.	.	.	.
6.833	0.4908	1.09	Q	.	.	.	.
6.917	0.4983	1.10	Q	.	.	.	.
7.000	0.5060	1.11	Q	.	.	.	.
7.083	0.5136	1.11	Q	.	.	.	.
7.167	0.5213	1.12	Q	.	.	.	.
7.250	0.5291	1.12	Q	.	.	.	.
7.333	0.5368	1.13	Q	.	.	.	.
7.417	0.5447	1.14	Q	.	.	.	.
7.500	0.5525	1.14	Q	.	.	.	.
7.583	0.5604	1.15	Q	.	.	.	.
7.667	0.5684	1.16	Q	.	.	.	.
7.750	0.5764	1.16	Q	.	.	.	.
7.833	0.5845	1.17	Q	.	.	.	.
7.917	0.5926	1.18	Q	.	.	.	.
8.000	0.6007	1.18	Q	.	.	.	.
8.083	0.6089	1.19	Q	.	.	.	.
8.167	0.6172	1.20	Q	.	.	.	.
8.250	0.6255	1.21	Q	.	.	.	.
8.333	0.6338	1.21	Q	.	.	.	.
8.417	0.6422	1.22	Q	.	.	.	.
8.500	0.6507	1.23	Q	.	.	.	.

8.583	0.6592	1.24	Q	.	.	.	.
8.667	0.6678	1.24	Q	.	.	.	.
8.750	0.6764	1.25	Q	.	.	.	.
8.833	0.6851	1.26	Q	.	.	.	.
8.917	0.6938	1.27	Q	.	.	.	.
9.000	0.7026	1.28	Q	.	.	.	.
9.083	0.7115	1.29	Q	.	.	.	.
9.167	0.7204	1.30	Q	.	.	.	.
9.250	0.7294	1.30	Q	.	.	.	.
9.333	0.7384	1.31	Q	.	.	.	.
9.417	0.7475	1.32	Q	.	.	.	.
9.500	0.7567	1.33	Q	.	.	.	.
9.583	0.7659	1.34	Q	.	.	.	.
9.667	0.7752	1.35	Q	.	.	.	.
9.750	0.7846	1.36	Q	.	.	.	.
9.833	0.7941	1.37	Q	.	.	.	.
9.917	0.8036	1.38	Q	.	.	.	.
10.000	0.8132	1.39	Q	.	.	.	.
10.083	0.8229	1.41	Q	.	.	.	.
10.167	0.8327	1.42	Q	.	.	.	.
10.250	0.8425	1.43	Q	.	.	.	.
10.333	0.8524	1.44	Q	.	.	.	.
10.417	0.8624	1.45	Q	.	.	.	.
10.500	0.8725	1.46	Q	.	.	.	.
10.583	0.8827	1.48	Q	.	.	.	.
10.667	0.8929	1.49	Q	.	.	.	.
10.750	0.9033	1.50	Q	.	.	.	.
10.833	0.9137	1.52	Q	.	.	.	.
10.917	0.9243	1.54	Q	.	.	.	.
11.000	0.9354	1.61	Q	.	.	.	.
11.083	0.9481	1.84	Q	.	.	.	.
11.167	0.9641	2.33	Q	.	.	.	.
11.250	0.9857	3.14	Q	.	.	.	.
11.333	1.0145	4.18	Q	.	.	.	.
11.417	1.0515	5.37	Q	.	.	.	.
11.500	1.0976	6.69	Q	.	.	.	.
11.583	1.1533	8.10	Q	.	.	.	.
11.667	1.2195	9.62	Q	.	.	.	.
11.750	1.2967	11.20	Q	.	.	.	.
11.833	1.3855	12.89	Q	.	.	.	.
11.917	1.4864	14.65	Q	.	.	.	.
12.000	1.6000	16.49	Q	.	.	.	.
12.083	1.7238	17.97	Q	.	.	.	.
12.167	1.8492	18.21	Q	.	.	.	.
12.250	1.9550	15.37	Q	.	.	.	.
12.333	2.0293	10.78	Q	.	.	.	.
12.417	2.0852	8.13	Q	.	.	.	.
12.500	2.1310	6.65	Q	.	.	.	.
12.583	2.1702	5.69	Q	.	.	.	.
12.667	2.2060	5.19	Q	.	.	.	.
12.750	2.2432	5.40	Q	.	.	.	.
12.833	2.2866	6.31	Q	.	.	.	.
12.917	2.3392	7.63	Q	.	.	.	.
13.000	2.4036	9.36	Q	.	.	.	.
13.083	2.4818	11.36	Q	.	.	.	.
13.167	2.5756	13.62	Q	.	.	.	.
13.250	2.6864	16.08	Q	.	.	.	.

13.333	2.8159	18.80	Q . . . .
13.417	2.9653	21.70	Q . . . .
13.500	3.1364	24.84	Q . . . .
13.583	3.3304	28.17	Q . . . .
13.667	3.5493	31.78	Q . . . .
13.750	3.7944	35.59	Q . . . .
13.833	4.0678	39.70	Q . . . .
13.917	4.3710	44.03	QV . . . .
14.000	4.7061	48.65	QV . . . .
14.083	5.0756	53.66	QV . . . .
14.167	5.4848	59.42	QV . . . .
14.250	5.9421	66.40	QV . . . .
14.333	6.4538	74.30	.Q . . . .
14.417	7.0182	81.95	.Q . . . .
14.500	7.6360	89.71	.Q . . . .
14.583	8.3094	97.78	.QV . . . .
14.667	9.0424	106.43	.QV . . . .
14.750	9.8388	115.64	.QV . . . .
14.833	10.7044	125.68	.QV . . . .
14.917	11.6447	136.54	.QV . . . .
15.000	12.6676	148.52	. QV . . . .
15.083	13.7809	161.66	. QV . . . .
15.167	14.9957	176.38	. QV . . . .
15.250	16.3237	192.82	. QV . . . .
15.333	17.7808	211.57	. Q V . . . .
15.417	19.3722	231.07	. QV . . . .
15.500	21.0822	248.30	. Q V . . . .
15.583	22.8475	256.32	. Q V . . . .
15.667	24.6576	262.82	. Q V . . . .
15.750	26.6504	289.36	. Q V . . . .
15.833	29.0038	341.71	. Q V . . . .
15.917	32.0148	437.19	. QV . . . .
16.000	36.0800	590.27	. Q . . . .
16.083	42.4240	921.14	. V Q . . . .
16.167	53.0454	1542.24	. . V .Q . .
16.250	70.4583	2528.34	. . V . . Q .
16.333	90.2917	2879.81	. . .V . . Q.
16.417	104.0933	2003.99	. . . V Q . .
16.500	113.7204	1397.86	. . Q. V . .
16.583	121.2551	1094.04	. . Q . V. .
16.667	127.4503	899.53	. . Q . V .
16.750	132.6013	747.93	. Q . . V .
16.833	137.0004	638.75	. Q . . . V .
16.917	140.8161	554.04	. Q . . . V .
17.000	144.0357	467.49	. Q . . . V .
17.083	146.8041	401.97	. Q . . . V .
17.167	149.2436	354.21	. Q . . . V .
17.250	151.3854	310.99	. Q . . . V .
17.333	153.2132	265.39	. Q . . . V .
17.417	154.8238	233.86	. Q . . . V .
17.500	156.1956	199.18	. Q . . . V .
17.583	157.3893	173.33	. Q . . . V .
17.667	158.3738	142.94	.Q . . . V .
17.750	159.2060	120.85	.Q . . . V .
17.833	159.8764	97.34	.Q . . . V .
17.917	160.4908	89.21	.Q . . . V.
18.000	161.0619	82.92	.Q . . . V.

18.083	161.5795	75.16	.Q	.	.	.	V.
18.167	162.0555	69.12	Q	.	.	.	V.
18.250	162.5033	65.01	Q	.	.	.	V.
18.333	162.8769	54.25	Q	.	.	.	V.
18.417	163.0850	30.21	Q	.	.	.	V.
18.500	163.2614	25.61	Q	.	.	.	V.
18.583	163.4131	22.03	Q	.	.	.	V.
18.667	163.5409	18.56	Q	.	.	.	V.
18.750	163.6443	15.01	Q	.	.	.	V.
18.833	163.7261	11.88	Q	.	.	.	V.
18.917	163.7910	9.43	Q	.	.	.	V.
19.000	163.8440	7.69	Q	.	.	.	V.
19.083	163.8880	6.39	Q	.	.	.	V.
19.167	163.9251	5.39	Q	.	.	.	V.
19.250	163.9569	4.61	Q	.	.	.	V.
19.333	163.9843	3.98	Q	.	.	.	V.
19.417	164.0083	3.49	Q	.	.	.	V.
19.500	164.0296	3.09	Q	.	.	.	V.
19.583	164.0486	2.76	Q	.	.	.	V.
19.667	164.0656	2.47	Q	.	.	.	V.
19.750	164.0809	2.22	Q	.	.	.	V.
19.833	164.0947	2.00	Q	.	.	.	V.
19.917	164.1074	1.84	Q	.	.	.	V.
20.000	164.1193	1.73	Q	.	.	.	V.
20.083	164.1308	1.67	Q	.	.	.	V.
20.167	164.1420	1.63	Q	.	.	.	V.
20.250	164.1531	1.61	Q	.	.	.	V.
20.333	164.1639	1.57	Q	.	.	.	V.
20.417	164.1740	1.47	Q	.	.	.	V.
20.500	164.1836	1.39	Q	.	.	.	V.
20.583	164.1926	1.32	Q	.	.	.	V.
20.667	164.2013	1.26	Q	.	.	.	V.
20.750	164.2097	1.22	Q	.	.	.	V.
20.833	164.2179	1.19	Q	.	.	.	V.
20.917	164.2259	1.17	Q	.	.	.	V.
21.000	164.2339	1.15	Q	.	.	.	V.
21.083	164.2417	1.14	Q	.	.	.	V.
21.167	164.2495	1.13	Q	.	.	.	V.
21.250	164.2571	1.11	Q	.	.	.	V.
21.333	164.2647	1.10	Q	.	.	.	V.
21.417	164.2722	1.09	Q	.	.	.	V.
21.500	164.2797	1.08	Q	.	.	.	V.
21.583	164.2870	1.07	Q	.	.	.	V.
21.667	164.2943	1.06	Q	.	.	.	V.
21.750	164.3015	1.05	Q	.	.	.	V.
21.833	164.3086	1.04	Q	.	.	.	V.
21.917	164.3157	1.03	Q	.	.	.	V.
22.000	164.3227	1.02	Q	.	.	.	V.
22.083	164.3297	1.01	Q	.	.	.	V.
22.167	164.3365	1.00	Q	.	.	.	V.
22.250	164.3434	0.99	Q	.	.	.	V.
22.333	164.3501	0.98	Q	.	.	.	V.
22.417	164.3568	0.97	Q	.	.	.	V.
22.500	164.3634	0.96	Q	.	.	.	V.
22.583	164.3700	0.96	Q	.	.	.	V.
22.667	164.3766	0.95	Q	.	.	.	V.
22.750	164.3830	0.94	Q	.	.	.	V.

22.833	164.3895	0.93	Q	.	.	.	V.
22.917	164.3958	0.92	Q	.	.	.	V.
23.000	164.4021	0.92	Q	.	.	.	V.
23.083	164.4084	0.91	Q	.	.	.	V.
23.167	164.4146	0.90	Q	.	.	.	V.
23.250	164.4208	0.90	Q	.	.	.	V.
23.333	164.4269	0.89	Q	.	.	.	V.
23.417	164.4330	0.88	Q	.	.	.	V.
23.500	164.4390	0.88	Q	.	.	.	V.
23.583	164.4450	0.87	Q	.	.	.	V.
23.667	164.4510	0.86	Q	.	.	.	V.
23.750	164.4569	0.86	Q	.	.	.	V.
23.833	164.4627	0.85	Q	.	.	.	V.
23.917	164.4686	0.85	Q	.	.	.	V.
24.000	164.4743	0.84	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	95.0
20%	55.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 11
>>>>>VIEW STREAM NUMBER 3 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	1075.0	2150.0	3225.0	4300.0
0.083	0.0041	0.59	Q	.	.	.	.
0.167	0.0256	3.12	Q	.	.	.	.
0.250	0.0956	10.17	Q	.	.	.	.
0.333	0.2173	17.68	Q	.	.	.	.
0.417	0.3684	21.93	Q	.	.	.	.
0.500	0.5382	24.65	Q	.	.	.	.
0.583	0.7217	26.65	Q	.	.	.	.
0.667	0.9157	28.17	Q	.	.	.	.
0.750	1.1181	29.39	Q	.	.	.	.
0.833	1.3278	30.44	Q	.	.	.	.
0.917	1.5432	31.28	Q	.	.	.	.

1.000	1.7635	31.98	Q	.	.	.	.
1.083	1.9880	32.60	Q	.	.	.	.
1.167	2.2163	33.16	Q	.	.	.	.
1.250	2.4479	33.63	Q	.	.	.	.
1.333	2.6825	34.06	Q	.	.	.	.
1.417	2.9197	34.44	Q	.	.	.	.
1.500	3.1593	34.78	Q	.	.	.	.
1.583	3.4008	35.08	Q	.	.	.	.
1.667	3.6440	35.31	Q	.	.	.	.
1.750	3.8888	35.54	Q	.	.	.	.
1.833	4.1353	35.79	Q	.	.	.	.
1.917	4.3835	36.04	Q	.	.	.	.
2.000	4.6334	36.28	Q	.	.	.	.
2.083	4.8850	36.53	Q	.	.	.	.
2.167	5.1380	36.74	Q	.	.	.	.
2.250	5.3919	36.87	Q	.	.	.	.
2.333	5.6468	37.01	Q	.	.	.	.
2.417	5.9026	37.14	Q	.	.	.	.
2.500	6.1593	37.27	Q	.	.	.	.
2.583	6.4169	37.41	Q	.	.	.	.
2.667	6.6755	37.55	Q	.	.	.	.
2.750	6.9351	37.69	Q	.	.	.	.
2.833	7.1956	37.83	Q	.	.	.	.
2.917	7.4571	37.97	Q	.	.	.	.
3.000	7.7196	38.11	Q	.	.	.	.
3.083	7.9831	38.26	Q	.	.	.	.
3.167	8.2476	38.41	Q	.	.	.	.
3.250	8.5131	38.55	QV	.	.	.	.
3.333	8.7797	38.70	QV	.	.	.	.
3.417	9.0473	38.85	QV	.	.	.	.
3.500	9.3159	39.01	QV	.	.	.	.
3.583	9.5856	39.16	QV	.	.	.	.
3.667	9.8564	39.31	QV	.	.	.	.
3.750	10.1282	39.47	QV	.	.	.	.
3.833	10.4012	39.63	QV	.	.	.	.
3.917	10.6752	39.79	QV	.	.	.	.
4.000	10.9504	39.95	QV	.	.	.	.
4.083	11.2267	40.12	QV	.	.	.	.
4.167	11.5041	40.28	QV	.	.	.	.
4.250	11.7827	40.45	QV	.	.	.	.
4.333	12.0624	40.62	QV	.	.	.	.
4.417	12.3434	40.79	QV	.	.	.	.
4.500	12.6255	40.97	QV	.	.	.	.
4.583	12.9089	41.14	QV	.	.	.	.
4.667	13.1934	41.32	QV	.	.	.	.
4.750	13.4792	41.50	QV	.	.	.	.
4.833	13.7663	41.68	QV	.	.	.	.
4.917	14.0546	41.86	QV	.	.	.	.
5.000	14.3442	42.05	QV	.	.	.	.
5.083	14.6351	42.24	QV	.	.	.	.
5.167	14.9272	42.43	QV	.	.	.	.
5.250	15.2208	42.62	QV	.	.	.	.
5.333	15.5156	42.81	QV	.	.	.	.
5.417	15.8118	43.01	QV	.	.	.	.
5.500	16.1094	43.21	QV	.	.	.	.
5.583	16.4084	43.41	QV	.	.	.	.
5.667	16.7088	43.62	QV	.	.	.	.

5.750	17.0106	43.82	Q	V	.	.	.	.
5.833	17.3138	44.03	Q	V	.	.	.	.
5.917	17.6185	44.24	Q	V	.	.	.	.
6.000	17.9247	44.46	Q	V	.	.	.	.
6.083	18.2324	44.68	Q	V	.	.	.	.
6.167	18.5416	44.90	Q	V	.	.	.	.
6.250	18.8524	45.12	Q	V	.	.	.	.
6.333	19.1647	45.35	Q	V	.	.	.	.
6.417	19.4786	45.58	Q	V	.	.	.	.
6.500	19.7941	45.81	Q	V	.	.	.	.
6.583	20.1112	46.05	Q	V	.	.	.	.
6.667	20.4299	46.28	Q	V	.	.	.	.
6.750	20.7504	46.53	Q	V	.	.	.	.
6.833	21.0725	46.77	Q	V	.	.	.	.
6.917	21.3963	47.02	Q	V	.	.	.	.
7.000	21.7219	47.27	Q	V	.	.	.	.
7.083	22.0492	47.53	Q	V	.	.	.	.
7.167	22.3783	47.79	Q	V	.	.	.	.
7.250	22.7093	48.05	Q	V	.	.	.	.
7.333	23.0421	48.32	Q	V	.	.	.	.
7.417	23.3767	48.59	Q	V	.	.	.	.
7.500	23.7133	48.87	Q	V	.	.	.	.
7.583	24.0517	49.15	Q	V	.	.	.	.
7.667	24.3922	49.43	Q	V	.	.	.	.
7.750	24.7346	49.72	Q	V	.	.	.	.
7.833	25.0790	50.01	Q	V	.	.	.	.
7.917	25.4255	50.31	Q	V	.	.	.	.
8.000	25.7740	50.61	Q	V	.	.	.	.
8.083	26.1247	50.92	Q	V	.	.	.	.
8.167	26.4775	51.23	Q	V	.	.	.	.
8.250	26.8325	51.55	Q	V	.	.	.	.
8.333	27.1898	51.87	Q	V	.	.	.	.
8.417	27.5493	52.20	Q	V	.	.	.	.
8.500	27.9110	52.53	Q	V	.	.	.	.
8.583	28.2751	52.87	Q	V	.	.	.	.
8.667	28.6416	53.21	Q	V	.	.	.	.
8.750	29.0105	53.56	Q	V	.	.	.	.
8.833	29.3819	53.92	Q	V	.	.	.	.
8.917	29.7557	54.28	Q	V	.	.	.	.
9.000	30.1321	54.65	Q	V	.	.	.	.
9.083	30.5111	55.03	Q	V	.	.	.	.
9.167	30.8928	55.41	Q	V	.	.	.	.
9.250	31.2771	55.80	Q	V	.	.	.	.
9.333	31.6641	56.20	Q	V	.	.	.	.
9.417	32.0540	56.61	Q	V	.	.	.	.
9.500	32.4467	57.02	Q	V	.	.	.	.
9.583	32.8423	57.44	Q	V	.	.	.	.
9.667	33.2409	57.87	Q	V	.	.	.	.
9.750	33.6425	58.31	Q	V	.	.	.	.
9.833	34.0471	58.76	Q	V	.	.	.	.
9.917	34.4549	59.21	Q	V	.	.	.	.
10.000	34.8659	59.68	Q	V	.	.	.	.
10.083	35.2802	60.16	Q	V	.	.	.	.
10.167	35.6979	60.64	Q	V	.	.	.	.
10.250	36.1189	61.14	Q	V	.	.	.	.
10.333	36.5435	61.64	Q	V	.	.	.	.
10.417	36.9716	62.16	Q	V	.	.	.	.

10.500	37.4033	62.69	Q	V	.	.	.	.
10.583	37.8389	63.24	Q	V	.	.	.	.
10.667	38.2782	63.79	Q	V	.	.	.	.
10.750	38.7214	64.36	Q	V	.	.	.	.
10.833	39.1686	64.94	Q	V	.	.	.	.
10.917	39.6200	65.55	Q	V	.	.	.	.
11.000	40.0760	66.21	Q	V	.	.	.	.
11.083	40.5378	67.05	Q	V	.	.	.	.
11.167	41.0072	68.16	Q	V	.	.	.	.
11.250	41.4867	69.62	Q	V	.	.	.	.
11.333	41.9779	71.32	Q	V	.	.	.	.
11.417	42.4819	73.18	Q	V	.	.	.	.
11.500	42.9998	75.20	Q	V	.	.	.	.
11.583	43.5324	77.32	Q	V	.	.	.	.
11.667	44.0804	79.58	Q	V	.	.	.	.
11.750	44.6446	81.92	Q	V	.	.	.	.
11.833	45.2258	84.39	Q	V	.	.	.	.
11.917	45.8246	86.94	Q	V	.	.	.	.
12.000	46.4417	89.61	Q	V	.	.	.	.
12.083	47.0730	91.66	Q	V	.	.	.	.
12.167	47.7036	91.56	Q	V	.	.	.	.
12.250	48.2977	86.27	Q	V	.	.	.	.
12.333	48.8420	79.02	Q	V	.	.	.	.
12.417	49.3605	75.29	Q	V	.	.	.	.
12.500	49.8667	73.49	Q	V	.	.	.	.
12.583	50.3665	72.57	Q	V	.	.	.	.
12.667	50.8650	72.38	Q	V	.	.	.	.
12.750	51.3683	73.08	Q	V	.	.	.	.
12.833	51.8819	74.58	Q	V	.	.	.	.
12.917	52.4098	76.65	Q	V	.	.	.	.
13.000	52.9555	79.23	Q	V	.	.	.	.
13.083	53.5214	82.17	Q	V	.	.	.	.
13.167	54.1099	85.45	Q	V	.	.	.	.
13.250	54.7230	89.03	Q	V	.	.	.	.
13.333	55.3631	92.93	Q	V	.	.	.	.
13.417	56.0319	97.11	Q	V	.	.	.	.
13.500	56.7318	101.62	Q	V	.	.	.	.
13.583	57.4647	106.42	Q	V	.	.	.	.
13.667	58.2332	111.58	.Q	V	.	.	.	.
13.750	59.0393	117.06	.Q	V	.	.	.	.
13.833	59.8858	122.91	.Q	V	.	.	.	.
13.917	60.7748	129.09	.Q	V	.	.	.	.
14.000	61.7091	135.66	.Q	V	.	.	.	.
14.083	62.6927	142.81	.Q	V	.	.	.	.
14.167	63.7330	151.06	.Q	V	.	.	.	.
14.250	64.8433	161.20	.Q	V	.	.	.	.
14.333	66.0310	172.46	.Q	V	.	.	.	.
14.417	67.2938	183.35	.Q	V	.	.	.	.
14.500	68.6325	194.39	.Q	V	.	.	.	.
14.583	70.0508	205.93	.Q	V	.	.	.	.
14.667	71.5537	218.23	. Q	V	.	.	.	.
14.750	73.1474	231.40	. Q	V	.	.	.	.
14.833	74.8395	245.69	. Q	V	.	.	.	.
14.917	76.6386	261.24	. Q	V	.	.	.	.
15.000	78.5553	278.30	. Q	V	.	.	.	.
15.083	80.6017	297.14	. Q	V	.	.	.	.
15.167	82.7927	318.14	. Q	V	.	.	.	.

15.250	85.1462	341.72	. Q V . . .
15.333	87.6840	368.49	. Q V . . .
15.417	90.4143	396.44	. Q V . . .
15.500	93.3106	420.55	. Q .V . . .
15.583	96.2762	430.60	. Q .V . . .
15.667	99.3098	440.48	. Q .V . . .
15.750	102.6147	479.87	. Q . V . . .
15.833	106.4454	556.22	. Q . V . . .
15.917	111.2462	697.08	. Q . V . . .
16.000	117.5779	919.36	. Q . V . . .
16.083	127.3144	1413.74	. . Q V . . .
16.167	143.5690	2360.17	. . V .Q . .
16.250	170.2686	3876.78	. . V . . Q .
16.333	199.3387	4220.98	. . . V . . Q.
16.417	219.3320	2903.03	. . . V Q . .
16.500	233.4630	2051.82	. . Q. V . .
16.583	244.6214	1620.19	. . Q . V . .
16.667	253.8534	1340.48	. . Q . V. .
16.750	261.6113	1126.46	. Q . V .
16.833	268.3119	972.93	. Q. . .V .
16.917	274.1302	844.81	. Q . . . V .
17.000	279.1114	723.27	. Q . . . V .
17.083	283.4784	634.08	. Q . . . V .
17.167	287.3702	565.10	. Q . . . V .
17.250	290.8136	499.98	. Q . . . V .
17.333	293.8338	438.52	. Q . . . V .
17.417	296.5258	390.89	. Q . . . V .
17.500	298.8809	341.95	. Q . . . V .
17.583	300.9732	303.80	. Q . . . V .
17.667	302.7680	260.61	. Q . . . V .
17.750	304.3684	232.37	. Q . . . V .
17.833	305.7873	206.03	.Q . . . V .
17.917	307.1210	193.65	.Q . . . V .
18.000	308.3795	182.73	.Q . . . V .
18.083	309.5506	170.04	.Q . . . V .
18.167	310.6174	154.90	.Q . . . V .
18.250	311.5941	141.82	.Q . . . V .
18.333	312.4982	131.28	.Q . . . V .
18.417	313.2327	106.65	Q . . . V .
18.500	313.9281	100.97	Q . . . V .
18.583	314.5898	96.07	Q . . . V .
18.667	315.2183	91.26	Q . . . V .
18.750	315.8131	86.37	Q . . . V .
18.833	316.3774	81.94	Q . . . V .
18.917	316.9161	78.22	Q . . . V .
19.000	317.4342	75.23	Q . . . V .
19.083	317.9351	72.73	Q . . . V .
19.167	318.4213	70.59	Q . . . V .
19.250	318.8944	68.70	Q . . . V .
19.333	319.3559	67.00	Q . . . V .
19.417	319.8069	65.49	Q . . . V .
19.500	320.2483	64.09	Q . . . V .
19.583	320.6808	62.80	Q . . . V .
19.667	321.1047	61.56	Q . . . V .
19.750	321.5208	60.41	Q . . . V .
19.833	321.9294	59.33	Q . . . V .
19.917	322.3311	58.34	Q . . . V .

20.000	322.7268	57.45	Q	.	.	.	V .
20.083	323.1168	56.63	Q	.	.	.	V .
20.167	323.5014	55.84	Q	.	.	.	V .
20.250	323.8806	55.07	Q	.	.	.	V .
20.333	324.2546	54.30	Q	.	.	.	V .
20.417	324.6231	53.50	Q	.	.	.	V .
20.500	324.9863	52.75	Q	.	.	.	V .
20.583	325.3446	52.02	Q	.	.	.	V .
20.667	325.6982	51.34	Q	.	.	.	V .
20.750	326.0472	50.68	Q	.	.	.	V .
20.833	326.3920	50.06	Q	.	.	.	V .
20.917	326.7326	49.47	Q	.	.	.	V .
21.000	327.0694	48.90	Q	.	.	.	V .
21.083	327.4024	48.35	Q	.	.	.	V .
21.167	327.7317	47.81	Q	.	.	.	V .
21.250	328.0574	47.29	Q	.	.	.	V .
21.333	328.3796	46.79	Q	.	.	.	V .
21.417	328.6985	46.30	Q	.	.	.	V .
21.500	329.0140	45.82	Q	.	.	.	V .
21.583	329.3264	45.35	Q	.	.	.	V .
21.667	329.6356	44.90	Q	.	.	.	V .
21.750	329.9418	44.46	Q	.	.	.	V .
21.833	330.2451	44.03	Q	.	.	.	V.
21.917	330.5454	43.61	Q	.	.	.	V.
22.000	330.8430	43.21	Q	.	.	.	V.
22.083	331.1378	42.81	Q	.	.	.	V.
22.167	331.4300	42.42	Q	.	.	.	V.
22.250	331.7195	42.04	Q	.	.	.	V.
22.333	332.0065	41.67	Q	.	.	.	V.
22.417	332.2910	41.31	Q	.	.	.	V.
22.500	332.5731	40.96	Q	.	.	.	V.
22.583	332.8528	40.61	Q	.	.	.	V.
22.667	333.1302	40.27	Q	.	.	.	V.
22.750	333.4053	39.94	Q	.	.	.	V.
22.833	333.6781	39.62	Q	.	.	.	V.
22.917	333.9488	39.30	Q	.	.	.	V.
23.000	334.2173	38.99	Q	.	.	.	V.
23.083	334.4838	38.69	Q	.	.	.	V.
23.167	334.7482	38.39	Q	.	.	.	V.
23.250	335.0106	38.10	Q	.	.	.	V.
23.333	335.2710	37.81	Q	.	.	.	V.
23.417	335.5295	37.53	Q	.	.	.	V.
23.500	335.7861	37.26	Q	.	.	.	V.
23.583	336.0408	36.99	Q	.	.	.	V.
23.667	336.2938	36.73	Q	.	.	.	V.
23.750	336.5449	36.47	Q	.	.	.	V.
23.833	336.7943	36.21	Q	.	.	.	V.
23.917	337.0419	35.96	Q	.	.	.	V.
24.000	337.2879	35.72	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
==========	=========

0%	1445.0
10%	110.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     107.00 TO NODE     105.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #3 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 3 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =   80.00     CHANNEL Z =  4.00
          UPSTREAM ELEVATION(FT) =    3191.00
          DOWNSTREAM ELEVATION(FT) =    3140.00
          CHANNEL LENGTH(FT) =    3950.00     MANNING'S FACTOR = 0.030
          CONSTANT LOSS RATE(CFS) =    0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                                (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (    4221.0).....[ 12.09]
          AVERAGED PEAK 15-MINUTE: (    3666.9).....[ 11.54]
          AVERAGED PEAK 30-MINUTE: (    2838.8).....[ 10.60]
          AVERAGED PEAK  1-HOUR:   (    1970.9).....[  9.28]
          AVERAGED PEAK  3-HOUR:   (     932.6).....[  7.14]
          AVERAGED PEAK  6-HOUR:   (     533.4).....[  5.80]
          AVERAGED PEAK 24-HOUR:   (     170.3).....[  3.72]
        USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  10.000
        HYDROGRAPH TRANSLATION TIME
        = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
        = (   3950.00)/( 10.000) =   0.110 HRS

        TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                              OUTFLOW LESS
         MODEL         INFLOW      ROUTED       LOSS
          TIME       (STREAM 3)     FLOW      (STREAM 3)
         (HRS)         (CFS)        (CFS)       (CFS)
          0.083          0.59         0.00        0.00
          0.167          3.12         0.40        0.40
          0.250         10.17         2.32        2.32
          0.333         17.68         7.94        7.94
          0.417         21.93        15.30       15.30
          0.500         24.65        20.58       20.58
          0.583         26.65        23.79       23.79
          0.667         28.17        26.02       26.02
          0.750         29.39        27.69       27.69
          0.833         30.44        29.00       29.00
```

0.917	31.28	30.10	30.10
1.000	31.98	31.02	31.02
1.083	32.60	31.76	31.76
1.167	33.16	32.40	32.40
1.250	33.63	32.98	32.98
1.333	34.06	33.48	33.48
1.417	34.44	33.92	33.92
1.500	34.78	34.32	34.32
1.583	35.08	34.67	34.67
1.667	35.31	34.98	34.98
1.750	35.54	35.24	35.24
1.833	35.79	35.47	35.47
1.917	36.04	35.71	35.71
2.000	36.28	35.96	35.96
2.083	36.53	36.20	36.20
2.167	36.74	36.45	36.45
2.250	36.87	36.67	36.67
2.333	37.01	36.83	36.83
2.417	37.14	36.96	36.96
2.500	37.27	37.10	37.10
2.583	37.41	37.23	37.23
2.667	37.55	37.37	37.37
2.750	37.69	37.51	37.51
2.833	37.83	37.64	37.64
2.917	37.97	37.78	37.78
3.000	38.11	37.93	37.93
3.083	38.26	38.07	38.07
3.167	38.41	38.21	38.21
3.250	38.55	38.36	38.36
3.333	38.70	38.51	38.51
3.417	38.85	38.66	38.66
3.500	39.01	38.81	38.81
3.583	39.16	38.96	38.96
3.667	39.31	39.11	39.11
3.750	39.47	39.27	39.27
3.833	39.63	39.42	39.42
3.917	39.79	39.58	39.58
4.000	39.95	39.74	39.74
4.083	40.12	39.90	39.90
4.167	40.28	40.07	40.07
4.250	40.45	40.23	40.23
4.333	40.62	40.40	40.40
4.417	40.79	40.57	40.57
4.500	40.97	40.74	40.74
4.583	41.14	40.91	40.91
4.667	41.32	41.09	41.09
4.750	41.50	41.26	41.26
4.833	41.68	41.44	41.44
4.917	41.86	41.62	41.62
5.000	42.05	41.80	41.80
5.083	42.24	41.99	41.99
5.167	42.43	42.18	42.18
5.250	42.62	42.37	42.37
5.333	42.81	42.56	42.56
5.417	43.01	42.75	42.75
5.500	43.21	42.95	42.95
5.583	43.41	43.15	43.15

5.667	43.62	43.35	43.35
5.750	43.82	43.55	43.55
5.833	44.03	43.76	43.76
5.917	44.24	43.97	43.97
6.000	44.46	44.18	44.18
6.083	44.68	44.39	44.39
6.167	44.90	44.61	44.61
6.250	45.12	44.83	44.83
6.333	45.35	45.05	45.05
6.417	45.58	45.28	45.28
6.500	45.81	45.50	45.50
6.583	46.05	45.74	45.74
6.667	46.28	45.97	45.97
6.750	46.53	46.21	46.21
6.833	46.77	46.45	46.45
6.917	47.02	46.69	46.69
7.000	47.27	46.94	46.94
7.083	47.53	47.19	47.19
7.167	47.79	47.45	47.45
7.250	48.05	47.71	47.71
7.333	48.32	47.97	47.97
7.417	48.59	48.23	48.23
7.500	48.87	48.51	48.51
7.583	49.15	48.78	48.78
7.667	49.43	49.06	49.06
7.750	49.72	49.34	49.34
7.833	50.01	49.63	49.63
7.917	50.31	49.92	49.92
8.000	50.61	50.21	50.21
8.083	50.92	50.52	50.52
8.167	51.23	50.82	50.82
8.250	51.55	51.13	51.13
8.333	51.87	51.45	51.45
8.417	52.20	51.77	51.77
8.500	52.53	52.09	52.09
8.583	52.87	52.42	52.42
8.667	53.21	52.76	52.76
8.750	53.56	53.10	53.10
8.833	53.92	53.45	53.45
8.917	54.28	53.81	53.81
9.000	54.65	54.17	54.17
9.083	55.03	54.54	54.54
9.167	55.41	54.91	54.91
9.250	55.80	55.29	55.29
9.333	56.20	55.68	55.68
9.417	56.61	56.08	56.08
9.500	57.02	56.48	56.48
9.583	57.44	56.89	56.89
9.667	57.87	57.31	57.31
9.750	58.31	57.74	57.74
9.833	58.76	58.17	58.17
9.917	59.21	58.62	58.62
10.000	59.68	59.07	59.07
10.083	60.16	59.53	59.53
10.167	60.64	60.00	60.00
10.250	61.14	60.49	60.49
10.333	61.64	60.98	60.98

10.417	62.16	61.48	61.48
10.500	62.69	62.00	62.00
10.583	63.24	62.52	62.52
10.667	63.79	63.06	63.06
10.750	64.36	63.61	63.61
10.833	64.94	64.18	64.18
10.917	65.55	64.75	64.75
11.000	66.21	65.35	65.35
11.083	67.05	66.00	66.00
11.167	68.16	66.78	66.78
11.250	69.62	67.81	67.81
11.333	71.32	69.16	69.16
11.417	73.18	70.78	70.78
11.500	75.20	72.59	72.59
11.583	77.32	74.56	74.56
11.667	79.58	76.65	76.65
11.750	81.92	78.86	78.86
11.833	84.39	81.18	81.18
11.917	86.94	83.61	83.61
12.000	89.61	86.13	86.13
12.083	91.66	88.77	88.77
12.167	91.56	91.01	91.01
12.250	86.27	91.59	91.59
12.333	79.02	87.94	87.94
12.417	75.29	81.32	81.32
12.500	73.49	76.48	76.48
12.583	72.57	74.06	74.06
12.667	72.38	72.86	72.86
12.750	73.08	72.44	72.44
12.833	74.58	72.86	72.86
12.917	76.65	74.11	74.11
13.000	79.23	76.00	76.00
13.083	82.17	78.41	78.41
13.167	85.45	81.24	81.24
13.250	89.03	84.41	84.41
13.333	92.93	87.90	87.90
13.417	97.11	91.70	91.70
13.500	101.62	95.79	95.79
13.583	106.42	100.19	100.19
13.667	111.58	104.90	104.90
13.750	117.06	109.95	109.95
13.833	122.91	115.32	115.32
13.917	129.09	121.06	121.06
14.000	135.66	127.13	127.13
14.083	142.81	133.58	133.58
14.167	151.06	140.55	140.55
14.250	161.20	148.45	148.45
14.333	172.46	157.99	157.99
14.417	183.35	168.90	168.90
14.500	194.39	179.91	179.91
14.583	205.93	190.89	190.89
14.667	218.23	202.27	202.27
14.750	231.40	214.33	214.33
14.833	245.69	227.23	227.23
14.917	261.24	241.17	241.17
15.000	278.30	256.32	256.32
15.083	297.14	272.90	272.90

15.167	318.14	291.17	291.17
15.250	341.72	311.49	311.49
15.333	368.49	334.25	334.25
15.417	396.44	360.01	360.01
15.500	420.55	387.59	387.59
15.583	430.60	412.91	412.91
15.667	440.48	427.42	427.42
15.750	479.87	437.35	437.35
15.833	556.22	467.39	467.39
15.917	697.08	532.04	532.04
16.000	919.36	652.48	652.48
16.083	1413.74	848.97	848.97
16.167	2360.17	1257.18	1257.18
16.250	3876.78	2060.47	2060.47
16.333	4220.98	3396.52	3396.52
16.417	2903.03	4111.99	4111.99
16.500	2051.82	3320.38	3320.38
16.583	1620.19	2321.37	2321.37
16.667	1340.48	1756.88	1756.88
16.750	1126.46	1429.06	1429.06
16.833	972.93	1194.23	1194.23
16.917	844.81	1021.55	1021.55
17.000	723.27	885.38	885.38
17.083	634.08	761.76	761.76
17.167	565.10	662.33	662.33
17.250	499.98	586.94	586.94
17.333	438.52	520.60	520.60
17.417	390.89	457.98	457.98
17.500	341.95	405.97	405.97
17.583	303.80	357.45	357.45
17.667	260.61	315.88	315.88
17.750	232.37	274.29	274.29
17.833	206.03	241.32	241.32
17.917	193.65	214.37	214.37
18.000	182.73	197.57	197.57
18.083	170.04	186.19	186.19
18.167	154.90	174.06	174.06
18.250	141.82	159.70	159.70
18.333	131.28	145.96	145.96
18.417	106.65	134.62	134.62
18.500	100.97	114.45	114.45
18.583	96.07	102.77	102.77
18.667	91.26	97.62	97.62
18.750	86.37	92.78	92.78
18.833	81.94	87.92	87.92
18.917	78.22	83.34	83.34
19.000	75.23	79.40	79.40
19.083	72.73	76.18	76.18
19.167	70.59	73.52	73.52
19.250	68.70	71.27	71.27
19.333	67.00	69.30	69.30
19.417	65.49	67.54	67.54
19.500	64.09	65.97	65.97
19.583	62.80	64.53	64.53
19.667	61.56	63.21	63.21
19.750	60.41	61.96	61.96
19.833	59.33	60.77	60.77

19.917	58.34	59.67	59.67
20.000	57.45	58.65	58.65
20.083	56.63	57.73	57.73
20.167	55.84	56.89	56.89
20.250	55.07	56.09	56.09
20.333	54.30	55.31	55.31
20.417	53.50	54.54	54.54
20.500	52.75	53.76	53.76
20.583	52.02	52.99	52.99
20.667	51.34	52.25	52.25
20.750	50.68	51.55	51.55
20.833	50.06	50.89	50.89
20.917	49.47	50.26	50.26
21.000	48.90	49.65	49.65
21.083	48.35	49.08	49.08
21.167	47.81	48.52	48.52
21.250	47.29	47.98	47.98
21.333	46.79	47.46	47.46
21.417	46.30	46.95	46.95
21.500	45.82	46.45	46.45
21.583	45.35	45.97	45.97
21.667	44.90	45.50	45.50
21.750	44.46	45.05	45.05
21.833	44.03	44.60	44.60
21.917	43.61	44.17	44.17
22.000	43.21	43.75	43.75
22.083	42.81	43.34	43.34
22.167	42.42	42.93	42.93
22.250	42.04	42.54	42.54
22.333	41.67	42.16	42.16
22.417	41.31	41.79	41.79
22.500	40.96	41.42	41.42
22.583	40.61	41.07	41.07
22.667	40.27	40.72	40.72
22.750	39.94	40.38	40.38
22.833	39.62	40.05	40.05
22.917	39.30	39.72	39.72
23.000	38.99	39.40	39.40
23.083	38.69	39.09	39.09
23.167	38.39	38.78	38.78
23.250	38.10	38.48	38.48
23.333	37.81	38.19	38.19
23.417	37.53	37.90	37.90
23.500	37.26	37.62	37.62
23.583	36.99	37.35	37.35
23.667	36.73	37.07	37.07
23.750	36.47	36.81	36.81
23.833	36.21	36.55	36.55
23.917	35.96	36.29	36.29
24.000	35.72	36.04	36.04
24.083	34.89	35.79	35.79
24.167	32.13	35.15	35.15
24.250	24.89	33.00	33.00
24.333	17.26	27.18	27.18
24.417	12.95	19.68	19.68
24.500	10.22	14.32	14.32
24.583	8.24	11.09	11.09

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        24.667          6.75          8.87          8.87
        24.750          5.58          7.22          7.22
        24.833          4.59          5.95          5.95
        24.917          3.82          4.91          4.91
        25.000          3.20          4.06          4.06
        25.083          2.66          3.39          3.39
        25.167          2.20          2.83          2.83
        25.250          1.83          2.35          2.35
        25.333          1.49          1.94          1.94
        25.417          1.22          1.60          1.60
        25.500          0.99          1.30          1.30
        25.583          0.81          1.06          1.06
        25.667          0.68          0.87          0.87
        25.750          0.57          0.72          0.72
        25.833          0.45          0.61          0.61
        25.917          0.32          0.49          0.49
        26.000          0.20          0.36          0.36
        26.083          0.08          0.24          0.24
        26.167          0.00          0.12          0.12
        26.250          0.00          0.03          0.03
        26.333          0.00          0.00          0.00
        26.417          0.00          0.00          0.00
        26.500          0.00          0.00          0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    338.514 AF
    OUTFLOW VOLUME =    338.514 AF
    LOSS    VOLUME =      0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #3)

         WATERSHED AREA =     544.000 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.349 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.030
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.970
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.115
         LOW LOSS FRACTION = 0.125
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
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SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 23.878

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.272	83.679
2	6.098	317.493
3	17.457	747.352
4	38.218	1365.807
5	53.743	1021.443
6	63.490	641.228
7	70.150	438.147
8	75.177	330.759
9	79.125	259.730
10	82.215	203.296
11	84.756	167.150
12	86.980	146.346
13	88.852	123.146
14	90.322	96.699
15	91.636	86.474
16	92.784	75.517
17	93.819	68.089
18	94.672	56.115
19	95.457	51.667
20	96.126	43.989
21	96.728	39.588
22	97.226	32.802
23	97.643	27.436
24	97.974	21.746
25	98.206	15.242
26	98.455	16.401
27	98.732	18.259
28	99.010	18.281

29	99.288	18.291
30	99.566	18.280
31	99.844	18.281
32	100.000	10.265

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0006	0.0043
2	0.0049	0.0006	0.0043
3	0.0049	0.0006	0.0043
4	0.0049	0.0006	0.0043
5	0.0049	0.0006	0.0043
6	0.0049	0.0006	0.0043
7	0.0050	0.0006	0.0043
8	0.0050	0.0006	0.0043
9	0.0050	0.0006	0.0044
10	0.0050	0.0006	0.0044
11	0.0050	0.0006	0.0044
12	0.0050	0.0006	0.0044
13	0.0051	0.0006	0.0044
14	0.0051	0.0006	0.0044
15	0.0051	0.0006	0.0045
16	0.0051	0.0006	0.0045
17	0.0051	0.0006	0.0045
18	0.0051	0.0006	0.0045
19	0.0052	0.0006	0.0045
20	0.0052	0.0006	0.0045
21	0.0052	0.0006	0.0045
22	0.0052	0.0007	0.0046
23	0.0052	0.0007	0.0046
24	0.0052	0.0007	0.0046
25	0.0053	0.0007	0.0046
26	0.0053	0.0007	0.0046
27	0.0053	0.0007	0.0046
28	0.0053	0.0007	0.0047
29	0.0054	0.0007	0.0047
30	0.0054	0.0007	0.0047
31	0.0054	0.0007	0.0047
32	0.0054	0.0007	0.0047
33	0.0054	0.0007	0.0048
34	0.0054	0.0007	0.0048
35	0.0055	0.0007	0.0048
36	0.0055	0.0007	0.0048
37	0.0055	0.0007	0.0048
38	0.0055	0.0007	0.0048
39	0.0056	0.0007	0.0049
40	0.0056	0.0007	0.0049
41	0.0056	0.0007	0.0049
42	0.0056	0.0007	0.0049
43	0.0057	0.0007	0.0049
44	0.0057	0.0007	0.0050
45	0.0057	0.0007	0.0050
46	0.0057	0.0007	0.0050
47	0.0057	0.0007	0.0050
48	0.0058	0.0007	0.0050
49	0.0058	0.0007	0.0051
50	0.0058	0.0007	0.0051
51	0.0058	0.0007	0.0051

52	0.0059	0.0007	0.0051
53	0.0059	0.0007	0.0052
54	0.0059	0.0007	0.0052
55	0.0059	0.0007	0.0052
56	0.0060	0.0007	0.0052
57	0.0060	0.0008	0.0053
58	0.0060	0.0008	0.0053
59	0.0061	0.0008	0.0053
60	0.0061	0.0008	0.0053
61	0.0061	0.0008	0.0053
62	0.0061	0.0008	0.0054
63	0.0062	0.0008	0.0054
64	0.0062	0.0008	0.0054
65	0.0062	0.0008	0.0055
66	0.0063	0.0008	0.0055
67	0.0063	0.0008	0.0055
68	0.0063	0.0008	0.0055
69	0.0064	0.0008	0.0056
70	0.0064	0.0008	0.0056
71	0.0064	0.0008	0.0056
72	0.0064	0.0008	0.0056
73	0.0065	0.0008	0.0057
74	0.0065	0.0008	0.0057
75	0.0065	0.0008	0.0057
76	0.0066	0.0008	0.0058
77	0.0066	0.0008	0.0058
78	0.0066	0.0008	0.0058
79	0.0067	0.0008	0.0059
80	0.0067	0.0008	0.0059
81	0.0068	0.0008	0.0059
82	0.0068	0.0008	0.0059
83	0.0068	0.0009	0.0060
84	0.0069	0.0009	0.0060
85	0.0069	0.0009	0.0061
86	0.0069	0.0009	0.0061
87	0.0070	0.0009	0.0061
88	0.0070	0.0009	0.0061
89	0.0071	0.0009	0.0062
90	0.0071	0.0009	0.0062
91	0.0072	0.0009	0.0063
92	0.0072	0.0009	0.0063
93	0.0072	0.0009	0.0063
94	0.0073	0.0009	0.0064
95	0.0073	0.0009	0.0064
96	0.0074	0.0009	0.0064
97	0.0074	0.0009	0.0065
98	0.0075	0.0009	0.0065
99	0.0075	0.0009	0.0066
100	0.0076	0.0009	0.0066
101	0.0076	0.0010	0.0067
102	0.0077	0.0010	0.0067
103	0.0077	0.0010	0.0068
104	0.0078	0.0010	0.0068
105	0.0078	0.0010	0.0069
106	0.0079	0.0010	0.0069
107	0.0080	0.0010	0.0070
108	0.0080	0.0010	0.0070

109	0.0081	0.0010	0.0071
110	0.0081	0.0010	0.0071
111	0.0082	0.0010	0.0072
112	0.0082	0.0010	0.0072
113	0.0083	0.0010	0.0073
114	0.0084	0.0010	0.0073
115	0.0084	0.0011	0.0074
116	0.0085	0.0011	0.0074
117	0.0086	0.0011	0.0075
118	0.0086	0.0011	0.0075
119	0.0087	0.0011	0.0076
120	0.0088	0.0011	0.0077
121	0.0089	0.0011	0.0078
122	0.0089	0.0011	0.0078
123	0.0090	0.0011	0.0079
124	0.0091	0.0011	0.0079
125	0.0092	0.0011	0.0080
126	0.0092	0.0012	0.0081
127	0.0094	0.0012	0.0082
128	0.0094	0.0012	0.0082
129	0.0095	0.0012	0.0083
130	0.0096	0.0012	0.0084
131	0.0097	0.0012	0.0085
132	0.0098	0.0012	0.0086
133	0.0099	0.0012	0.0087
134	0.0100	0.0012	0.0087
135	0.0101	0.0013	0.0089
136	0.0102	0.0013	0.0089
137	0.0103	0.0013	0.0091
138	0.0104	0.0013	0.0091
139	0.0106	0.0013	0.0093
140	0.0107	0.0013	0.0093
141	0.0108	0.0014	0.0095
142	0.0109	0.0014	0.0096
143	0.0111	0.0014	0.0097
144	0.0112	0.0014	0.0098
145	0.0090	0.0011	0.0079
146	0.0091	0.0011	0.0080
147	0.0093	0.0012	0.0081
148	0.0094	0.0012	0.0082
149	0.0096	0.0012	0.0084
150	0.0097	0.0012	0.0085
151	0.0099	0.0012	0.0087
152	0.0100	0.0013	0.0088
153	0.0102	0.0013	0.0090
154	0.0104	0.0013	0.0091
155	0.0106	0.0013	0.0093
156	0.0107	0.0013	0.0094
157	0.0110	0.0014	0.0096
158	0.0112	0.0014	0.0098
159	0.0115	0.0014	0.0100
160	0.0116	0.0015	0.0102
161	0.0120	0.0015	0.0105
162	0.0121	0.0015	0.0106
163	0.0125	0.0016	0.0109
164	0.0127	0.0016	0.0111
165	0.0131	0.0016	0.0115

166	0.0134	0.0017	0.0117
167	0.0138	0.0017	0.0121
168	0.0141	0.0018	0.0123
169	0.0151	0.0019	0.0133
170	0.0154	0.0019	0.0135
171	0.0161	0.0020	0.0141
172	0.0164	0.0021	0.0144
173	0.0172	0.0021	0.0150
174	0.0176	0.0022	0.0154
175	0.0185	0.0023	0.0162
176	0.0190	0.0024	0.0166
177	0.0201	0.0025	0.0176
178	0.0207	0.0026	0.0181
179	0.0220	0.0028	0.0193
180	0.0228	0.0028	0.0199
181	0.0245	0.0031	0.0215
182	0.0255	0.0032	0.0223
183	0.0279	0.0035	0.0244
184	0.0293	0.0037	0.0256
185	0.0251	0.0031	0.0220
186	0.0269	0.0034	0.0236
187	0.0316	0.0039	0.0276
188	0.0347	0.0043	0.0304
189	0.0539	0.0067	0.0472
190	0.0621	0.0078	0.0544
191	0.0941	0.0096	0.0845
192	0.1367	0.0096	0.1271
193	0.5874	0.0096	0.5778
194	0.0741	0.0093	0.0649
195	0.0387	0.0048	0.0338
196	0.0290	0.0036	0.0254
197	0.0308	0.0039	0.0270
198	0.0266	0.0033	0.0233
199	0.0236	0.0030	0.0207
200	0.0213	0.0027	0.0186
201	0.0195	0.0024	0.0171
202	0.0180	0.0023	0.0158
203	0.0168	0.0021	0.0147
204	0.0158	0.0020	0.0138
205	0.0144	0.0018	0.0126
206	0.0136	0.0017	0.0119
207	0.0129	0.0016	0.0113
208	0.0123	0.0015	0.0108
209	0.0118	0.0015	0.0103
210	0.0113	0.0014	0.0099
211	0.0109	0.0014	0.0095
212	0.0105	0.0013	0.0092
213	0.0101	0.0013	0.0089
214	0.0098	0.0012	0.0086
215	0.0095	0.0012	0.0083
216	0.0092	0.0011	0.0080
217	0.0113	0.0014	0.0099
218	0.0110	0.0014	0.0096
219	0.0107	0.0013	0.0094
220	0.0105	0.0013	0.0092
221	0.0103	0.0013	0.0090
222	0.0101	0.0013	0.0088

223	0.0099	0.0012	0.0086
224	0.0097	0.0012	0.0084
225	0.0095	0.0012	0.0083
226	0.0093	0.0012	0.0081
227	0.0091	0.0011	0.0080
228	0.0090	0.0011	0.0078
229	0.0088	0.0011	0.0077
230	0.0087	0.0011	0.0076
231	0.0085	0.0011	0.0075
232	0.0084	0.0010	0.0073
233	0.0083	0.0010	0.0072
234	0.0081	0.0010	0.0071
235	0.0080	0.0010	0.0070
236	0.0079	0.0010	0.0069
237	0.0078	0.0010	0.0068
238	0.0077	0.0010	0.0067
239	0.0076	0.0009	0.0066
240	0.0075	0.0009	0.0066
241	0.0074	0.0009	0.0065
242	0.0073	0.0009	0.0064
243	0.0072	0.0009	0.0063
244	0.0071	0.0009	0.0062
245	0.0070	0.0009	0.0062
246	0.0070	0.0009	0.0061
247	0.0069	0.0009	0.0060
248	0.0068	0.0009	0.0060
249	0.0067	0.0008	0.0059
250	0.0067	0.0008	0.0058
251	0.0066	0.0008	0.0058
252	0.0065	0.0008	0.0057
253	0.0065	0.0008	0.0057
254	0.0064	0.0008	0.0056
255	0.0063	0.0008	0.0055
256	0.0063	0.0008	0.0055
257	0.0062	0.0008	0.0054
258	0.0062	0.0008	0.0054
259	0.0061	0.0008	0.0053
260	0.0060	0.0008	0.0053
261	0.0060	0.0007	0.0052
262	0.0059	0.0007	0.0052
263	0.0059	0.0007	0.0051
264	0.0058	0.0007	0.0051
265	0.0058	0.0007	0.0051
266	0.0057	0.0007	0.0050
267	0.0057	0.0007	0.0050
268	0.0056	0.0007	0.0049
269	0.0056	0.0007	0.0049
270	0.0055	0.0007	0.0049
271	0.0055	0.0007	0.0048
272	0.0055	0.0007	0.0048
273	0.0054	0.0007	0.0047
274	0.0054	0.0007	0.0047
275	0.0053	0.0007	0.0047
276	0.0053	0.0007	0.0046
277	0.0053	0.0007	0.0046
278	0.0052	0.0007	0.0046
279	0.0052	0.0006	0.0045

280	0.0052	0.0006	0.0045
281	0.0051	0.0006	0.0045
282	0.0051	0.0006	0.0044
283	0.0050	0.0006	0.0044
284	0.0050	0.0006	0.0044
285	0.0050	0.0006	0.0044
286	0.0049	0.0006	0.0043
287	0.0049	0.0006	0.0043
288	0.0049	0.0006	0.0043

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.38
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.22

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 17.0466
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 145.9149

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	300.0	600.0	900.0	1200.0
0.083	0.0025	0.36	Q	.	.	.	.
0.167	0.0142	1.71	Q	.	.	.	.
0.250	0.0479	4.89	Q	.	.	.	.
0.333	0.1217	10.71	Q	.	.	.	.
0.417	0.2255	15.09	Q	.	.	.	.
0.500	0.3486	17.86	Q	.	.	.	.
0.583	0.4848	19.78	Q	.	.	.	.
0.667	0.6311	21.25	Q	.	.	.	.
0.750	0.7856	22.42	Q	.	.	.	.
0.833	0.9465	23.36	Q	.	.	.	.
0.917	1.1128	24.15	Q	.	.	.	.
1.000	1.2839	24.85	Q	.	.	.	.
1.083	1.4592	25.46	Q	.	.	.	.
1.167	1.6379	25.95	Q	.	.	.	.
1.250	1.8198	26.41	Q	.	.	.	.
1.333	2.0045	26.82	Q	.	.	.	.
1.417	2.1918	27.19	Q	.	.	.	.
1.500	2.3814	27.53	Q	.	.	.	.
1.583	2.5731	27.84	Q	.	.	.	.
1.667	2.7668	28.12	Q	.	.	.	.
1.750	2.9623	28.39	Q	.	.	.	.
1.833	3.1594	28.63	Q	.	.	.	.
1.917	3.3580	28.84	Q	.	.	.	.
2.000	3.5580	29.04	Q	.	.	.	.
2.083	3.7591	29.20	QV	.	.	.	.
2.167	3.9614	29.38	QV	.	.	.	.
2.250	4.1650	29.56	QV	.	.	.	.
2.333	4.3698	29.74	QV	.	.	.	.
2.417	4.5759	29.93	QV	.	.	.	.
2.500	4.7833	30.11	.Q	.	.	.	.
2.583	4.9920	30.30	.Q	.	.	.	.
2.667	5.2017	30.45	.Q	.	.	.	.
2.750	5.4122	30.57	.Q	.	.	.	.
2.833	5.6235	30.68	.Q	.	.	.	.
2.917	5.8356	30.79	.Q	.	.	.	.
3.000	6.0485	30.91	.Q	.	.	.	.
3.083	6.2621	31.03	.Q	.	.	.	.
3.167	6.4766	31.14	.Q	.	.	.	.
3.250	6.6919	31.26	.Q	.	.	.	.
3.333	6.9081	31.38	.Q	.	.	.	.
3.417	7.1251	31.50	.Q	.	.	.	.
3.500	7.3429	31.63	.QV	.	.	.	.
3.583	7.5615	31.75	.QV	.	.	.	.
3.667	7.7811	31.88	.QV	.	.	.	.
3.750	8.0015	32.00	.QV	.	.	.	.

3.833	8.2228	32.13	.QV	.	.	.	.
3.917	8.4449	32.26	.QV	.	.	.	.
4.000	8.6680	32.39	.QV	.	.	.	.
4.083	8.8920	32.52	.QV	.	.	.	.
4.167	9.1169	32.66	.QV	.	.	.	.
4.250	9.3428	32.79	.QV	.	.	.	.
4.333	9.5695	32.93	.QV	.	.	.	.
4.417	9.7973	33.06	.QV	.	.	.	.
4.500	10.0259	33.21	.QV	.	.	.	.
4.583	10.2556	33.35	.QV	.	.	.	.
4.667	10.4862	33.49	.QV	.	.	.	.
4.750	10.7179	33.63	.QV	.	.	.	.
4.833	10.9505	33.78	.Q V	.	.	.	.
4.917	11.1842	33.93	.Q V	.	.	.	.
5.000	11.4189	34.08	.Q V	.	.	.	.
5.083	11.6546	34.23	.Q V	.	.	.	.
5.167	11.8914	34.38	.Q V	.	.	.	.
5.250	12.1292	34.53	.Q V	.	.	.	.
5.333	12.3681	34.69	.Q V	.	.	.	.
5.417	12.6081	34.85	.Q V	.	.	.	.
5.500	12.8493	35.01	.Q V	.	.	.	.
5.583	13.0915	35.17	.Q V	.	.	.	.
5.667	13.3348	35.34	.Q V	.	.	.	.
5.750	13.5794	35.50	.Q V	.	.	.	.
5.833	13.8250	35.67	.Q V	.	.	.	.
5.917	14.0719	35.84	.Q V	.	.	.	.
6.000	14.3199	36.02	.Q V	.	.	.	.
6.083	14.5691	36.19	.Q V	.	.	.	.
6.167	14.8196	36.37	.Q V	.	.	.	.
6.250	15.0713	36.54	.Q V	.	.	.	.
6.333	15.3242	36.73	.Q V	.	.	.	.
6.417	15.5784	36.91	.Q V	.	.	.	.
6.500	15.8339	37.10	.Q V	.	.	.	.
6.583	16.0907	37.29	.Q V	.	.	.	.
6.667	16.3489	37.48	.Q V	.	.	.	.
6.750	16.6083	37.67	.Q V	.	.	.	.
6.833	16.8692	37.87	.Q V	.	.	.	.
6.917	17.1314	38.07	.Q V	.	.	.	.
7.000	17.3950	38.27	.Q V	.	.	.	.
7.083	17.6600	38.48	.Q V	.	.	.	.
7.167	17.9264	38.69	.Q V	.	.	.	.
7.250	18.1943	38.90	.Q V	.	.	.	.
7.333	18.4637	39.11	.Q V	.	.	.	.
7.417	18.7346	39.33	.Q V	.	.	.	.
7.500	19.0070	39.55	.Q V	.	.	.	.
7.583	19.2809	39.78	.Q V	.	.	.	.
7.667	19.5564	40.01	.Q V	.	.	.	.
7.750	19.8335	40.23	.Q V	.	.	.	.
7.833	20.1122	40.47	.Q V	.	.	.	.
7.917	20.3926	40.71	.Q V	.	.	.	.
8.000	20.6746	40.95	.Q V	.	.	.	.
8.083	20.9583	41.19	.Q V	.	.	.	.
8.167	21.2438	41.45	.Q V	.	.	.	.
8.250	21.5310	41.70	.Q V	.	.	.	.
8.333	21.8199	41.96	.Q V	.	.	.	.
8.417	22.1107	42.22	.Q V	.	.	.	.
8.500	22.4033	42.49	.Q V	.	.	.	.

8.583	22.6978	42.76	.Q	V	.	.	.
8.667	22.9942	43.04	.Q	V	.	.	.
8.750	23.2925	43.31	.Q	V	.	.	.
8.833	23.5928	43.60	.Q	V	.	.	.
8.917	23.8950	43.89	.Q	V	.	.	.
9.000	24.1993	44.19	.Q	V	.	.	.
9.083	24.5057	44.49	.Q	V	.	.	.
9.167	24.8142	44.80	.Q	V	.	.	.
9.250	25.1248	45.10	.Q	V	.	.	.
9.333	25.4377	45.43	.Q	V	.	.	.
9.417	25.7527	45.75	.Q	V	.	.	.
9.500	26.0701	46.08	.Q	V	.	.	.
9.583	26.3897	46.41	.Q	V	.	.	.
9.667	26.7118	46.76	.Q	V	.	.	.
9.750	27.0362	47.10	.Q	V	.	.	.
9.833	27.3631	47.47	.Q	V	.	.	.
9.917	27.6925	47.83	.Q	V	.	.	.
10.000	28.0244	48.20	.Q	V	.	.	.
10.083	28.3590	48.58	.Q	V	.	.	.
10.167	28.6962	48.97	.Q	V	.	.	.
10.250	29.0362	49.36	.Q	V	.	.	.
10.333	29.3789	49.77	.Q	V	.	.	.
10.417	29.7245	50.18	.Q	V	.	.	.
10.500	30.0730	50.60	.Q	V	.	.	.
10.583	30.4244	51.03	.Q	V	.	.	.
10.667	30.7789	51.48	.Q	V	.	.	.
10.750	31.1365	51.92	.Q	V	.	.	.
10.833	31.4974	52.39	.Q	V	.	.	.
10.917	31.8614	52.86	.Q	V	.	.	.
11.000	32.2288	53.35	.Q	V	.	.	.
11.083	32.5996	53.84	.Q	V	.	.	.
11.167	32.9740	54.36	.Q	V	.	.	.
11.250	33.3519	54.87	.Q	V	.	.	.
11.333	33.7336	55.42	.Q	V	.	.	.
11.417	34.1189	55.96	.Q	V	.	.	.
11.500	34.5083	56.53	.Q	V	.	.	.
11.583	34.9016	57.10	.Q	V	.	.	.
11.667	35.2990	57.71	.Q	V	.	.	.
11.750	35.7006	58.31	.Q	V	.	.	.
11.833	36.1066	58.95	.Q	V	.	.	.
11.917	36.5170	59.59	.Q	V	.	.	.
12.000	36.9321	60.27	. Q	V	.	.	.
12.083	37.3506	60.78	. Q	V	.	.	.
12.167	37.7696	60.84	. Q	V	.	.	.
12.250	38.1829	60.01	. Q	V	.	.	.
12.333	38.5819	57.93	.Q	V	.	.	.
12.417	38.9714	56.56	.Q	V	.	.	.
12.500	39.3570	56.00	.Q	V	.	.	.
12.583	39.7417	55.86	.Q	V	.	.	.
12.667	40.1273	55.98	.Q	.V	.	.	.
12.750	40.5148	56.26	.Q	.V	.	.	.
12.833	40.9053	56.70	.Q	.V	.	.	.
12.917	41.2994	57.23	.Q	.V	.	.	.
13.000	41.6979	57.86	.Q	.V	.	.	.
13.083	42.1011	58.54	.Q	.V	.	.	.
13.167	42.5098	59.34	.Q	.V	.	.	.
13.250	42.9243	60.18	. Q	.V	.	.	.

13.333	43.3452	61.12	. Q .V . . .
13.417	43.7728	62.09	. Q .V . . .
13.500	44.2078	63.16	. Q . V . . .
13.583	44.6505	64.28	. Q . V . . .
13.667	45.1016	65.50	. Q . V . . .
13.750	45.5614	66.76	. Q . V . . .
13.833	46.0307	68.14	. Q . V . . .
13.917	46.5099	69.58	. Q . V . . .
14.000	46.9999	71.15	. Q . V . . .
14.083	47.5015	72.83	. Q . V . . .
14.167	48.0164	74.76	. Q . V . . .
14.250	48.5464	76.95	. Q . V . . .
14.333	49.0945	79.59	. Q . V . . .
14.417	49.6605	82.18	. Q . V . . .
14.500	50.2447	84.82	. Q . V . . .
14.583	50.8473	87.50	. Q . V . . .
14.667	51.4700	90.41	. Q . V . . .
14.750	52.1137	93.47	. Q . V . . .
14.833	52.7807	96.85	. Q . V . . .
14.917	53.4723	100.43	. Q . V . . .
15.000	54.1916	104.44	. Q . V . . .
15.083	54.9406	108.75	. Q . V . . .
15.167	55.7234	113.66	. Q . V . . .
15.250	56.5430	119.01	. Q . V . . .
15.333	57.4054	125.22	. Q . V . . .
15.417	58.3116	131.58	. Q . V . . .
15.500	59.2599	137.69	. Q . V . . .
15.583	60.2382	142.05	. Q . V . . .
15.667	61.2316	144.25	. Q . V . . .
15.750	62.2733	151.25	. Q . V . . .
15.833	63.4205	166.57	. Q . V . . .
15.917	64.7516	193.29	. Q . V . . .
16.000	66.4135	241.30	. Q . V . . .
16.083	68.8000	346.53	. .Q V . . .
16.167	72.5272	541.19	. . QV. . .
16.250	78.1482	816.17	. . .V Q . .
16.333	85.8031	1111.49	. . . V . Q .
16.417	91.9639	894.54	. . . V Q. .
16.500	96.4168	646.56	. . .Q V . .
16.583	99.8548	499.19	. . Q . V . .
16.667	102.7153	415.35	. . Q . V . .
16.750	105.1624	355.32	. .Q . V . .
16.833	107.2708	306.13	. Q . V. .
16.917	109.1325	270.33	. Q. . V. .
17.000	110.8151	244.31	. Q . . V .
17.083	112.3229	218.93	. Q . . V .
17.167	113.6585	193.93	. Q . . .V .
17.250	114.8865	178.31	. Q . . .V .
17.333	116.0121	163.45	. Q . . .V .
17.417	117.0538	151.25	. Q . . . V .
17.500	118.0034	137.88	. Q . . . V .
17.583	118.8908	128.85	. Q . . . V .
17.667	119.7100	118.95	. Q . . . V .
17.750	120.4745	110.99	. Q . . . V .
17.833	121.1795	102.38	. Q . . . V .
17.917	121.8331	94.89	. Q . . . V .
18.000	122.4382	87.87	. Q . . . V .

18.083	123.0002	81.60	. Q	.	.	.	V	.
18.167	123.5521	80.13	. Q	.	.	.	V	.
18.250	124.1041	80.15	. Q	.	.	.	V	.
18.333	124.6586	80.52	. Q	.	.	.	V	.
18.417	125.2096	80.01	. Q	.	.	.	V	.
18.500	125.7504	78.52	. Q	.	.	.	V	.
18.583	126.2744	76.09	. Q	.	.	.	V	.
18.667	126.7530	69.49	. Q	.	.	.	V	.
18.750	127.1822	62.32	. Q	.	.	.	V	.
18.833	127.5997	60.63	. Q	.	.	.	V	.
18.917	128.0083	59.33	.Q	.	.	.	V	.
19.000	128.4086	58.12	.Q	.	.	.	V	.
19.083	128.8008	56.95	.Q	.	.	.	V	.
19.167	129.1853	55.83	.Q	.	.	.	V	.
19.250	129.5626	54.78	.Q	.	.	.	V	.
19.333	129.9330	53.79	.Q	.	.	.	V	.
19.417	130.2969	52.84	.Q	.	.	.	V	.
19.500	130.6546	51.94	.Q	.	.	.	V	.
19.583	131.0064	51.08	.Q	.	.	.	V	.
19.667	131.3526	50.26	.Q	.	.	.	V	.
19.750	131.6933	49.47	.Q	.	.	.	V	.
19.833	132.0287	48.71	.Q	.	.	.	V	.
19.917	132.3592	47.98	.Q	.	.	.	V	.
20.000	132.6847	47.27	.Q	.	.	.	V	.
20.083	133.0055	46.58	.Q	.	.	.	V	.
20.167	133.3217	45.92	.Q	.	.	.	V	.
20.250	133.6336	45.29	.Q	.	.	.	V	.
20.333	133.9413	44.68	.Q	.	.	.	V	.
20.417	134.2451	44.10	.Q	.	.	.	V	.
20.500	134.5450	43.55	.Q	.	.	.	V	.
20.583	134.8412	43.01	.Q	.	.	.	V	.
20.667	135.1337	42.48	.Q	.	.	.	V	.
20.750	135.4225	41.94	.Q	.	.	.	V	.
20.833	135.7078	41.42	.Q	.	.	.	V	.
20.917	135.9896	40.92	.Q	.	.	.	V	.
21.000	136.2681	40.43	.Q	.	.	.	V	.
21.083	136.5433	39.96	.Q	.	.	.	V	.
21.167	136.8154	39.51	.Q	.	.	.	V	.
21.250	137.0845	39.07	.Q	.	.	.	V	.
21.333	137.3506	38.64	.Q	.	.	.	V	.
21.417	137.6138	38.22	.Q	.	.	.	V	.
21.500	137.8743	37.82	.Q	.	.	.	V	.
21.583	138.1320	37.42	.Q	.	.	.	V	.
21.667	138.3871	37.04	.Q	.	.	.	V	.
21.750	138.6396	36.67	.Q	.	.	.	V	.
21.833	138.8897	36.31	.Q	.	.	.	V	.
21.917	139.1373	35.95	.Q	.	.	.	V	.
22.000	139.3825	35.61	.Q	.	.	.	V	.
22.083	139.6254	35.27	.Q	.	.	.	V	.
22.167	139.8661	34.95	.Q	.	.	.	V	.
22.250	140.1046	34.63	.Q	.	.	.	V	.
22.333	140.3409	34.32	.Q	.	.	.	V	.
22.417	140.5752	34.01	.Q	.	.	.	V	.
22.500	140.8074	33.71	.Q	.	.	.	V	.
22.583	141.0376	33.42	.Q	.	.	.	V	.
22.667	141.2658	33.14	.Q	.	.	.	V	.
22.750	141.4921	32.86	.Q	.	.	.	V	.

22.833	141.7166	32.59	.Q	.	.	.	V .
22.917	141.9392	32.33	.Q	.	.	.	V .
23.000	142.1600	32.07	.Q	.	.	.	V .
23.083	142.3791	31.81	.Q	.	.	.	V.
23.167	142.5965	31.56	.Q	.	.	.	V.
23.250	142.8122	31.32	.Q	.	.	.	V.
23.333	143.0263	31.08	.Q	.	.	.	V.
23.417	143.2387	30.85	.Q	.	.	.	V.
23.500	143.4496	30.62	.Q	.	.	.	V.
23.583	143.6589	30.39	.Q	.	.	.	V.
23.667	143.8667	30.17	.Q	.	.	.	V.
23.750	144.0730	29.95	Q	.	.	.	V.
23.833	144.2778	29.74	Q	.	.	.	V.
23.917	144.4812	29.53	Q	.	.	.	V.
24.000	144.6832	29.33	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	155.0
20%	65.0
30%	45.0
40%	30.0
50%	20.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 7

>>>>>STREAM NUMBER 3 ADDED TO STREAM NUMBER 1<<<<<
==========

****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
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STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3300.0	6600.0	9900.0	13200.0
0.083	0.0068	0.99	Q	.	.	.	.
0.167	0.0615	7.94	Q	.	.	.	.
0.250	0.2902	33.21	Q	.	.	.	.
0.333	0.8486	81.07	Q	.	.	.	.

0.417	1.7613	132.53	Q	.	.	.	.
0.500	2.9725	175.87	Q	.	.	.	.
0.583	4.4035	207.78	Q	.	.	.	.
0.667	5.9880	230.07	Q	.	.	.	.
0.750	7.6797	245.63	Q	.	.	.	.
0.833	9.4507	257.16	Q	.	.	.	.
0.917	11.2848	266.30	Q	.	.	.	.
1.000	13.1701	273.76	Q	.	.	.	.
1.083	15.0978	279.90	Q	.	.	.	.
1.167	17.0614	285.11	Q	.	.	.	.
1.250	19.0562	289.65	Q	.	.	.	.
1.333	21.0782	293.58	Q	.	.	.	.
1.417	23.1240	297.06	Q	.	.	.	.
1.500	25.1909	300.11	Q	.	.	.	.
1.583	27.2763	302.80	Q	.	.	.	.
1.667	29.3782	305.19	Q	.	.	.	.
1.750	31.4952	307.39	Q	.	.	.	.
1.833	33.6265	309.47	Q	.	.	.	.
1.917	35.7716	311.47	Q	.	.	.	.
2.000	37.9297	313.36	Q	.	.	.	.
2.083	40.0994	315.04	Q	.	.	.	.
2.167	42.2799	316.61	Q	.	.	.	.
2.250	44.4707	318.10	QV	.	.	.	.
2.333	46.6708	319.45	QV	.	.	.	.
2.417	48.8795	320.71	QV	.	.	.	.
2.500	51.0968	321.95	QV	.	.	.	.
2.583	53.3226	323.19	QV	.	.	.	.
2.667	55.5570	324.42	QV	.	.	.	.
2.750	57.7995	325.62	QV	.	.	.	.
2.833	60.0504	326.83	QV	.	.	.	.
2.917	62.3097	328.04	QV	.	.	.	.
3.000	64.5774	329.28	QV	.	.	.	.
3.083	66.8537	330.52	.Q	.	.	.	.
3.167	69.1386	331.77	.Q	.	.	.	.
3.250	71.4323	333.04	.Q	.	.	.	.
3.333	73.7347	334.32	.Q	.	.	.	.
3.417	76.0461	335.61	.Q	.	.	.	.
3.500	78.3665	336.92	.Q	.	.	.	.
3.583	80.6960	338.24	.Q	.	.	.	.
3.667	83.0347	339.57	.Q	.	.	.	.
3.750	85.3826	340.92	.Q	.	.	.	.
3.833	87.7399	342.29	.QV	.	.	.	.
3.917	90.1067	343.66	.QV	.	.	.	.
4.000	92.4831	345.05	.QV	.	.	.	.
4.083	94.8692	346.46	.QV	.	.	.	.
4.167	97.2651	347.88	.QV	.	.	.	.
4.250	99.6708	349.32	.QV	.	.	.	.
4.333	102.0866	350.77	.QV	.	.	.	.
4.417	104.5125	352.24	.QV	.	.	.	.
4.500	106.9486	353.73	.QV	.	.	.	.
4.583	109.3951	355.23	.QV	.	.	.	.
4.667	111.8520	356.75	.QV	.	.	.	.
4.750	114.3195	358.28	.QV	.	.	.	.
4.833	116.7977	359.84	.QV	.	.	.	.
4.917	119.2868	361.41	.QV	.	.	.	.
5.000	121.7868	363.00	.QV	.	.	.	.
5.083	124.2979	364.61	.QV	.	.	.	.

5.167	126.8202	366.24	.QV	.	.	.	.
5.250	129.3538	367.88	.Q V	.	.	.	.
5.333	131.8989	369.55	.Q V	.	.	.	.
5.417	134.4556	371.23	.Q V	.	.	.	.
5.500	137.0241	372.94	.Q V	.	.	.	.
5.583	139.6044	374.67	.Q V	.	.	.	.
5.667	142.1969	376.42	.Q V	.	.	.	.
5.750	144.8015	378.19	.Q V	.	.	.	.
5.833	147.4184	379.98	.Q V	.	.	.	.
5.917	150.0479	381.80	.Q V	.	.	.	.
6.000	152.6900	383.64	.Q V	.	.	.	.
6.083	155.3449	385.50	.Q V	.	.	.	.
6.167	158.0128	387.38	.Q V	.	.	.	.
6.250	160.6939	389.29	.Q V	.	.	.	.
6.333	163.3884	391.23	.Q V	.	.	.	.
6.417	166.0963	393.19	.Q V	.	.	.	.
6.500	168.8178	395.17	.Q V	.	.	.	.
6.583	171.5533	397.18	.Q V	.	.	.	.
6.667	174.3028	399.23	.Q V	.	.	.	.
6.750	177.0665	401.30	.Q V	.	.	.	.
6.833	179.8447	403.40	.Q V	.	.	.	.
6.917	182.6376	405.52	.Q V	.	.	.	.
7.000	185.4453	407.68	.Q V	.	.	.	.
7.083	188.2681	409.87	.Q V	.	.	.	.
7.167	191.1061	412.09	.Q V	.	.	.	.
7.250	193.9597	414.34	.Q V	.	.	.	.
7.333	196.8290	416.62	.Q V	.	.	.	.
7.417	199.7142	418.94	.Q V	.	.	.	.
7.500	202.6157	421.29	.Q V	.	.	.	.
7.583	205.5335	423.67	.Q V	.	.	.	.
7.667	208.4681	426.10	.Q V	.	.	.	.
7.750	211.4196	428.56	.Q V	.	.	.	.
7.833	214.3883	431.06	.Q V	.	.	.	.
7.917	217.3745	433.59	.Q V	.	.	.	.
8.000	220.3784	436.17	.Q V	.	.	.	.
8.083	223.4003	438.78	.Q V	.	.	.	.
8.167	226.4406	441.45	.Q V	.	.	.	.
8.250	229.4994	444.15	.Q V	.	.	.	.
8.333	232.5772	446.89	.Q V	.	.	.	.
8.417	235.6742	449.68	.Q V	.	.	.	.
8.500	238.7908	452.52	.Q V	.	.	.	.
8.583	241.9272	455.41	.Q V	.	.	.	.
8.667	245.0838	458.34	.Q V	.	.	.	.
8.750	248.2610	461.33	.Q V	.	.	.	.
8.833	251.4591	464.37	.Q V	.	.	.	.
8.917	254.6785	467.45	.Q V	.	.	.	.
9.000	257.9195	470.60	.Q V	.	.	.	.
9.083	261.1826	473.80	.Q V	.	.	.	.
9.167	264.4682	477.07	.Q V	.	.	.	.
9.250	267.7766	480.38	.Q V	.	.	.	.
9.333	271.1084	483.77	.Q V	.	.	.	.
9.417	274.4638	487.21	.Q V	.	.	.	.
9.500	277.8434	490.72	.Q V	.	.	.	.
9.583	281.2477	494.30	.Q V	.	.	.	.
9.667	284.6771	497.95	.Q V	.	.	.	.
9.750	288.1321	501.67	.Q V	.	.	.	.
9.833	291.6133	505.47	.Q V	.	.	.	.

9.917	295.1212	509.34	.Q	V	.	.	.
10.000	298.6563	513.30	.Q	V	.	.	.
10.083	302.2191	517.32	.Q	V	.	.	.
10.167	305.8104	521.45	.Q	V	.	.	.
10.250	309.4305	525.65	.Q	V	.	.	.
10.333	313.0803	529.95	.Q	V	.	.	.
10.417	316.7603	534.33	.Q	V	.	.	.
10.500	320.4712	538.83	.Q	V	.	.	.
10.583	324.2137	543.41	.Q	V	.	.	.
10.667	327.9886	548.11	.Q	V	.	.	.
10.750	331.7965	552.91	.Q	V	.	.	.
10.833	335.6384	557.83	.Q	V	.	.	.
10.917	339.5148	562.86	.Q	V	.	.	.
11.000	343.4268	568.03	.Q	V	.	.	.
11.083	347.3755	573.34	.Q	V	.	.	.
11.167	351.3626	578.93	.Q	V	.	.	.
11.250	355.3906	584.86	.Q	V	.	.	.
11.333	359.4626	591.26	.Q	V	.	.	.
11.417	363.5814	598.05	.Q	V	.	.	.
11.500	367.7493	605.18	.Q	V	.	.	.
11.583	371.9683	612.60	.Q	V	.	.	.
11.667	376.2404	620.30	.Q	V	.	.	.
11.750	380.5673	628.27	.Q	V	.	.	.
11.833	384.9510	636.52	.Q	V	.	.	.
11.917	389.3935	645.04	.Q	V	.	.	.
12.000	393.8967	653.86	.Q	V	.	.	.
12.083	398.4582	662.34	. Q	V	.	.	.
12.167	403.0562	667.63	. Q	V	.	.	.
12.250	407.6287	663.92	. Q	V	.	.	.
12.333	412.0873	647.39	.Q	V	.	.	.
12.417	416.4012	626.38	.Q	V	.	.	.
12.500	420.6055	610.46	.Q	V	.	.	.
12.583	424.7495	601.71	.Q	V	.	.	.
12.667	428.8722	598.62	.Q	V	.	.	.
12.750	433.0011	599.52	.Q	V	.	.	.
12.833	437.1563	603.33	.Q	V	.	.	.
12.917	441.3525	609.30	.Q	V	.	.	.
13.000	445.6017	616.98	.Q	V	.	.	.
13.083	449.9133	626.05	.Q	V	.	.	.
13.167	454.2958	636.34	.Q	V	.	.	.
13.250	458.7562	647.64	.Q	V	.	.	.
13.333	463.3013	659.96	.Q	V	.	.	.
13.417	467.9378	673.22	. Q	V	.	.	.
13.500	472.6725	687.48	. Q	.V	.	.	.
13.583	477.5120	702.70	. Q	.V	.	.	.
13.667	482.4635	718.96	. Q	.V	.	.	.
13.750	487.5338	736.21	. Q	.V	.	.	.
13.833	492.7304	754.55	. Q	.V	.	.	.
13.917	498.0608	773.97	. Q	.V	.	.	.
14.000	503.5336	794.65	. Q	.V	.	.	.
14.083	509.1586	816.75	. Q	.V	.	.	.
14.167	514.9514	841.10	. Q	. V	.	.	.
14.250	520.9368	869.08	. Q	. V	.	.	.
14.333	527.1498	902.14	. Q	. V	.	.	.
14.417	533.6162	938.91	. Q	. V	.	.	.
14.500	540.3481	977.47	. Q	. V	.	.	.
14.583	547.3503	1016.71	. Q	. V	.	.	.

14.667	554.6295	1056.94	. Q . V . . .
14.750	562.1969	1098.78	. Q . V . . .
14.833	570.0708	1143.29	. Q . V . . .
14.917	578.2740	1191.11	. Q . V . . .
15.000	586.8358	1243.16	. Q . V . . .
15.083	595.7889	1300.01	. Q . V . . .
15.167	605.1752	1362.89	. Q . V . . .
15.250	615.0425	1432.72	. Q . V . . .
15.333	625.4512	1511.34	. Q . V . . .
15.417	636.4592	1598.37	. Q . V . . .
15.500	648.0793	1687.23	. Q . V . . .
15.583	660.2084	1761.15	. Q . V . . .
15.667	672.6760	1810.29	. Q . V . . .
15.750	685.5444	1868.48	. Q . V . . .
15.833	699.2822	1994.73	. Q . V . . .
15.917	714.7651	2248.11	. Q . V . . .
16.000	733.4014	2705.99	. Q . V . . .
16.083	758.0120	3573.46	. Q V . . .
16.167	794.4913	5296.79	. Q V . . .
16.250	851.1641	8228.90	. V. Q . .
16.333	932.7057	11839.83	. .V . Q .
16.417	1022.9366	13101.52	. . V . Q.
16.500	1101.0634	11344.00	. . V . Q .
16.583	1162.1553	8870.55	. . QV . .
16.667	1210.0365	6952.35	. .Q V . .
16.750	1247.8301	5487.64	. Q . V. .
16.833	1277.8995	4366.08	. Q . V. .
16.917	1303.2542	3681.50	.Q . V .
17.000	1325.2637	3195.79	Q. . .V .
17.083	1344.4865	2791.14	Q . . .V .
17.167	1361.4692	2465.91	Q . . .V .
17.250	1376.6637	2206.23	Q . . . V .
17.333	1390.2904	1978.60	Q . . . V .
17.417	1402.5354	1777.97	Q . . . V .
17.500	1413.5681	1601.96	Q . . . V .
17.583	1423.5308	1446.58	Q . . . V .
17.667	1432.5933	1315.88	Q . . . V .
17.750	1440.8965	1205.62	Q . . . V .
17.833	1448.5717	1114.44	Q . . . V .
17.917	1455.7015	1035.26	Q . . . V .
18.000	1462.3282	962.20	Q . . . V .
18.083	1468.4673	891.39	Q . . . V .
18.167	1474.2234	835.78	Q . . . V .
18.250	1479.7119	796.93	Q . . . V .
18.333	1485.0009	767.96	Q . . . V .
18.417	1490.1333	745.22	Q . . . V .
18.500	1495.0874	719.34	Q . . . V .
18.583	1499.9211	701.86	Q . . . V .
18.667	1504.6327	684.11	Q . . . V .
18.750	1509.2073	664.22	Q . . . V .
18.833	1513.6771	649.03	Q . . . V .
18.917	1518.0460	634.37	Q . . . V .
19.000	1522.3195	620.50	Q . . . V .
19.083	1526.5037	607.55	Q . . . V .
19.167	1530.6047	595.48	Q . . . V .
19.250	1534.6277	584.13	Q . . . V .
19.333	1538.5765	573.38	Q . . . V .

19.417	1542.4550	563.15	.Q	.	.	V	.
19.500	1546.2662	553.40	.Q	.	.	V	.
19.583	1550.0131	544.04	.Q	.	.	V	.
19.667	1553.6981	535.07	.Q	.	.	V	.
19.750	1557.3239	526.46	.Q	.	.	V	.
19.833	1560.8928	518.22	.Q	.	.	V	.
19.917	1564.4073	510.31	.Q	.	.	V	.
20.000	1567.8696	502.73	.Q	.	.	V	.
20.083	1571.2815	495.41	.Q	.	.	V	.
20.167	1574.6448	488.36	.Q	.	.	V	.
20.250	1577.9613	481.57	.Q	.	.	V	.
20.333	1581.2325	474.98	.Q	.	.	V	.
20.417	1584.4597	468.58	.Q	.	.	V	.
20.500	1587.6439	462.35	.Q	.	.	V	.
20.583	1590.7866	456.32	.Q	.	.	V	.
20.667	1593.8892	450.49	.Q	.	.	V	.
20.750	1596.9529	444.84	.Q	.	.	V	.
20.833	1599.9790	439.39	.Q	.	.	V	.
20.917	1602.9689	434.12	.Q	.	.	V	.
21.000	1605.9236	429.03	.Q	.	.	V	.
21.083	1608.8444	424.10	.Q	.	.	V	.
21.167	1611.7323	419.32	.Q	.	.	V	.
21.250	1614.5883	414.69	.Q	.	.	V	.
21.333	1617.4132	410.19	.Q	.	.	V	.
21.417	1620.2080	405.81	.Q	.	.	V	.
21.500	1622.9735	401.55	.Q	.	.	V	.
21.583	1625.7104	397.40	.Q	.	.	V	.
21.667	1628.4197	393.38	.Q	.	.	V	.
21.750	1631.1019	389.46	.Q	.	.	V	.
21.833	1633.7578	385.64	.Q	.	.	V	.
21.917	1636.3881	381.92	.Q	.	.	V	.
22.000	1638.9934	378.29	.Q	.	.	V	.
22.083	1641.5743	374.76	.Q	.	.	V	.
22.167	1644.1316	371.31	.Q	.	.	V	.
22.250	1646.6656	367.94	.Q	.	.	V	.
22.333	1649.1771	364.66	.Q	.	.	V	.
22.417	1651.6665	361.45	.Q	.	.	V	.
22.500	1654.1343	358.31	.Q	.	.	V	.
22.583	1656.5809	355.25	.Q	.	.	V	.
22.667	1659.0070	352.25	.Q	.	.	V	.
22.750	1661.4127	349.32	.Q	.	.	V	.
22.833	1663.7988	346.46	.Q	.	.	V	.
22.917	1666.1655	343.65	.Q	.	.	V	.
23.000	1668.5133	340.90	.Q	.	.	V	.
23.083	1670.8427	338.21	.Q	.	.	V	.
23.167	1673.1538	335.58	.Q	.	.	V	.
23.250	1675.4473	333.00	.Q	.	.	V	.
23.333	1677.7233	330.48	.Q	.	.	V	.
23.417	1679.9822	328.00	Q	.	.	V	.
23.500	1682.2244	325.57	Q	.	.	V	.
23.583	1684.4502	323.19	Q	.	.	V	.
23.667	1686.6599	320.85	Q	.	.	V	.
23.750	1688.8539	318.56	Q	.	.	V	.
23.833	1691.0323	316.31	Q	.	.	V	.
23.917	1693.1956	314.10	Q	.	.	V	.
24.000	1695.3439	311.93	Q	.	.	V	.
24.083	1697.4688	308.54	Q	.	.	V	.

24.167	1699.5249	298.54	Q	.	.	.	V.
24.250	1701.3958	271.65	Q	.	.	.	V.
24.333	1702.9343	223.39	Q	.	.	.	V.
24.417	1704.1089	170.54	Q	.	.	.	V.
24.500	1704.9806	126.57	Q	.	.	.	V.
24.583	1705.6309	94.42	Q	.	.	.	V.
24.667	1706.1282	72.21	Q	.	.	.	V.
24.750	1706.5210	57.03	Q	.	.	.	V.
24.833	1706.8383	46.07	Q	.	.	.	V.
24.917	1707.0953	37.33	Q	.	.	.	V.
25.000	1707.3051	30.44	Q	.	.	.	V.
25.083	1707.4790	25.26	Q	.	.	.	V.
25.167	1707.6232	20.93	Q	.	.	.	V.
25.250	1707.7411	17.13	Q	.	.	.	V.
25.333	1707.8374	13.98	Q	.	.	.	V.
25.417	1707.9156	11.36	Q	.	.	.	V.
25.500	1707.9792	9.24	Q	.	.	.	V.
25.583	1708.0310	7.51	Q	.	.	.	V.
25.667	1708.0729	6.08	Q	.	.	.	V.
25.750	1708.1062	4.84	Q	.	.	.	V.
25.833	1708.1321	3.75	Q	.	.	.	V.
25.917	1708.1511	2.77	Q	.	.	.	V.
26.000	1708.1646	1.96	Q	.	.	.	V.
26.083	1708.1740	1.36	Q	.	.	.	V.
26.167	1708.1802	0.90	Q	.	.	.	V.
26.250	1708.1838	0.53	Q	.	.	.	V.
26.333	1708.1860	0.31	Q	.	.	.	V.
26.417	1708.1874	0.20	Q	.	.	.	V.
26.500	1708.1882	0.12	Q	.	.	.	V
26.583	1708.1885	0.04	Q	.	.	.	V
26.667	1708.1885	0.00	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1595.0
10%	155.0
20%	70.0
30%	45.0
40%	40.0
50%	30.0
60%	25.0
70%	15.0
80%	15.0
90%	10.0

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FLOW PROCESS FROM NODE 105.00 TO NODE 108.00 IS CODE = 5.1

>>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<

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THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

ASSUMED REGULAR CHANNEL INFORMATION:
  BASEWIDTH(FT) = 80.00 CHANNEL Z = 2.00
  UPSTREAM ELEVATION(FT) = 3140.00
  DOWNSTREAM ELEVATION(FT) = 3125.00
  CHANNEL LENGTH(FT) = 1100.00 MANNING'S FACTOR = 0.030
  CONSTANT LOSS RATE(CFS) = 0.00

MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
(FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
  AVERAGED PEAK 5-MINUTE: (13101.5).....[19.25]
  AVERAGED PEAK 15-MINUTE: (12095.1).....[18.72]
  AVERAGED PEAK 30-MINUTE: (10056.2).....[17.59]
  AVERAGED PEAK 1-HOUR: (7161.5).....[15.66]
  AVERAGED PEAK 3-HOUR: (3544.1).....[12.21]
  AVERAGED PEAK 6-HOUR: (2171.4).....[10.17]
  AVERAGED PEAK 24-HOUR: (858.3).....[7.18]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) = 12.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW VELOCITY)
= (1100.00)/(12.000) = 0.025 HRS

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	0.99	0.69	0.69
0.167	7.94	5.82	5.82
0.250	33.21	25.49	25.49
0.333	81.07	66.45	66.45
0.417	132.53	116.81	116.81
0.500	175.87	162.62	162.62
0.583	207.78	198.03	198.03
0.667	230.07	223.26	223.26
0.750	245.63	240.88	240.88
0.833	257.16	253.64	253.64
0.917	266.30	263.51	263.51
1.000	273.76	271.48	271.48
1.083	279.90	278.02	278.02
1.167	285.11	283.52	283.52
1.250	289.65	288.26	288.26
1.333	293.58	292.38	292.38
1.417	297.06	296.00	296.00
1.500	300.11	299.18	299.18
1.583	302.80	301.98	301.98
1.667	305.19	304.46	304.46
1.750	307.39	306.72	306.72
1.833	309.47	308.83	308.83
1.917	311.47	310.86	310.86
2.000	313.36	312.78	312.78
2.083	315.04	314.53	314.53
2.167	316.61	316.13	316.13
2.250	318.10	317.64	317.64
2.333	319.45	319.04	319.04

2.417	320.71	320.32	320.32
2.500	321.95	321.57	321.57
2.583	323.19	322.81	322.81
2.667	324.42	324.05	324.05
2.750	325.62	325.25	325.25
2.833	326.83	326.46	326.46
2.917	328.04	327.67	327.67
3.000	329.28	328.90	328.90
3.083	330.52	330.14	330.14
3.167	331.77	331.39	331.39
3.250	333.04	332.65	332.65
3.333	334.32	333.93	333.93
3.417	335.61	335.22	335.22
3.500	336.92	336.52	336.52
3.583	338.24	337.84	337.84
3.667	339.57	339.17	339.17
3.750	340.92	340.51	340.51
3.833	342.29	341.87	341.87
3.917	343.66	343.24	343.24
4.000	345.05	344.63	344.63
4.083	346.46	346.03	346.03
4.167	347.88	347.44	347.44
4.250	349.32	348.88	348.88
4.333	350.77	350.33	350.33
4.417	352.24	351.79	351.79
4.500	353.73	353.27	353.27
4.583	355.23	354.77	354.77
4.667	356.75	356.28	356.28
4.750	358.28	357.81	357.81
4.833	359.84	359.36	359.36
4.917	361.41	360.93	360.93
5.000	363.00	362.51	362.51
5.083	364.61	364.12	364.12
5.167	366.24	365.74	365.74
5.250	367.88	367.38	367.38
5.333	369.55	369.04	369.04
5.417	371.23	370.72	370.72
5.500	372.94	372.42	372.42
5.583	374.67	374.14	374.14
5.667	376.42	375.89	375.89
5.750	378.19	377.65	377.65
5.833	379.98	379.43	379.43
5.917	381.80	381.24	381.24
6.000	383.64	383.07	383.07
6.083	385.50	384.93	384.93
6.167	387.38	386.81	386.81
6.250	389.29	388.71	388.71
6.333	391.23	390.64	390.64
6.417	393.19	392.59	392.59
6.500	395.17	394.57	394.57
6.583	397.18	396.57	396.57
6.667	399.23	398.60	398.60
6.750	401.30	400.66	400.66
6.833	403.40	402.76	402.76
6.917	405.52	404.87	404.87
7.000	407.68	407.02	407.02
7.083	409.87	409.20	409.20

7.167	412.09	411.41	411.41
7.250	414.34	413.65	413.65
7.333	416.62	415.92	415.92
7.417	418.94	418.23	418.23
7.500	421.29	420.57	420.57
7.583	423.67	422.95	422.95
7.667	426.10	425.36	425.36
7.750	428.56	427.81	427.81
7.833	431.06	430.29	430.29
7.917	433.59	432.82	432.82
8.000	436.17	435.38	435.38
8.083	438.78	437.99	437.99
8.167	441.45	440.63	440.63
8.250	444.15	443.32	443.32
8.333	446.89	446.05	446.05
8.417	449.68	448.83	448.83
8.500	452.52	451.65	451.65
8.583	455.41	454.52	454.52
8.667	458.34	457.45	457.45
8.750	461.33	460.41	460.41
8.833	464.37	463.44	463.44
8.917	467.45	466.51	466.51
9.000	470.60	469.64	469.64
9.083	473.80	472.82	472.82
9.167	477.07	476.07	476.07
9.250	480.38	479.37	479.37
9.333	483.77	482.73	482.73
9.417	487.21	486.16	486.16
9.500	490.72	489.65	489.65
9.583	494.30	493.21	493.21
9.667	497.95	496.84	496.84
9.750	501.67	500.53	500.53
9.833	505.47	504.31	504.31
9.917	509.34	508.16	508.16
10.000	513.30	512.09	512.09
10.083	517.32	516.09	516.09
10.167	521.45	520.19	520.19
10.250	525.65	524.36	524.36
10.333	529.95	528.63	528.63
10.417	534.33	532.99	532.99
10.500	538.83	537.45	537.45
10.583	543.41	542.01	542.01
10.667	548.11	546.68	546.68
10.750	552.91	551.45	551.45
10.833	557.83	556.33	556.33
10.917	562.86	561.32	561.32
11.000	568.03	566.45	566.45
11.083	573.34	571.72	571.72
11.167	578.93	577.22	577.22
11.250	584.86	583.05	583.05
11.333	591.26	589.30	589.30
11.417	598.05	595.97	595.97
11.500	605.18	603.00	603.00
11.583	612.60	610.33	610.33
11.667	620.30	617.95	617.95
11.750	628.27	625.84	625.84
11.833	636.52	634.00	634.00

11.917	645.04	642.44	642.44
12.000	653.86	651.16	651.16
12.083	662.34	659.75	659.75
12.167	667.63	666.02	666.02
12.250	663.92	665.05	665.05
12.333	647.39	652.44	652.44
12.417	626.38	632.80	632.80
12.500	610.46	615.33	615.33
12.583	601.71	604.39	604.39
12.667	598.62	599.57	599.57
12.750	599.52	599.24	599.24
12.833	603.33	602.16	602.16
12.917	609.30	607.47	607.47
13.000	616.98	614.63	614.63
13.083	626.05	623.28	623.28
13.167	636.34	633.20	633.20
13.250	647.64	644.19	644.19
13.333	659.96	656.19	656.19
13.417	673.22	669.17	669.17
13.500	687.48	683.12	683.12
13.583	702.70	698.05	698.05
13.667	718.96	713.99	713.99
13.750	736.21	730.93	730.93
13.833	754.55	748.94	748.94
13.917	773.97	768.04	768.04
14.000	794.65	788.33	788.33
14.083	816.75	810.00	810.00
14.167	841.10	833.66	833.66
14.250	869.08	860.53	860.53
14.333	902.14	892.04	892.04
14.417	938.91	927.68	927.68
14.500	977.47	965.69	965.69
14.583	1016.71	1004.72	1004.72
14.667	1056.94	1044.65	1044.65
14.750	1098.78	1086.00	1086.00
14.833	1143.29	1129.69	1129.69
14.917	1191.11	1176.50	1176.50
15.000	1243.16	1227.25	1227.25
15.083	1300.01	1282.64	1282.64
15.167	1362.89	1343.67	1343.67
15.250	1432.72	1411.39	1411.39
15.333	1511.34	1487.32	1487.32
15.417	1598.37	1571.78	1571.78
15.500	1687.23	1660.08	1660.08
15.583	1761.15	1738.56	1738.56
15.667	1810.29	1795.27	1795.27
15.750	1868.48	1850.70	1850.70
15.833	1994.73	1956.16	1956.16
15.917	2248.11	2170.69	2170.69
16.000	2705.99	2566.08	2566.08
16.083	3573.46	3308.40	3308.40
16.167	5296.79	4770.22	4770.22
16.250	8228.90	7332.98	7332.98
16.333	11839.83	10736.49	10736.49
16.417	13101.52	12716.01	12716.01
16.500	11344.00	11881.02	11881.02
16.583	8870.55	9626.33	9626.33

16.667	6952.35	7538.47	7538.47
16.750	5487.64	5935.19	5935.19
16.833	4366.08	4708.78	4708.78
16.917	3681.50	3890.68	3890.68
17.000	3195.79	3344.20	3344.20
17.083	2791.14	2914.78	2914.78
17.167	2465.91	2565.28	2565.28
17.250	2206.23	2285.58	2285.58
17.333	1978.60	2048.16	2048.16
17.417	1777.97	1839.27	1839.27
17.500	1601.96	1655.74	1655.74
17.583	1446.58	1494.06	1494.06
17.667	1315.88	1355.82	1355.82
17.750	1205.62	1239.31	1239.31
17.833	1114.44	1142.30	1142.30
17.917	1035.26	1059.46	1059.46
18.000	962.20	984.52	984.52
18.083	891.39	913.02	913.02
18.167	835.78	852.77	852.77
18.250	796.93	808.80	808.80
18.333	767.96	776.81	776.81
18.417	745.22	752.17	752.17
18.500	719.34	727.25	727.25
18.583	701.86	707.20	707.20
18.667	684.11	689.53	689.53
18.750	664.22	670.30	670.30
18.833	649.03	653.67	653.67
18.917	634.37	638.85	638.85
19.000	620.50	624.74	624.74
19.083	607.55	611.51	611.51
19.167	595.48	599.17	599.17
19.250	584.13	587.60	587.60
19.333	573.38	576.67	576.67
19.417	563.15	566.28	566.28
19.500	553.40	556.38	556.38
19.583	544.04	546.90	546.90
19.667	535.07	537.81	537.81
19.750	526.46	529.09	529.09
19.833	518.22	520.74	520.74
19.917	510.31	512.73	512.73
20.000	502.73	505.05	505.05
20.083	495.41	497.64	497.64
20.167	488.36	490.51	490.51
20.250	481.57	483.64	483.64
20.333	474.98	476.99	476.99
20.417	468.58	470.54	470.54
20.500	462.35	464.25	464.25
20.583	456.32	458.16	458.16
20.667	450.49	452.27	452.27
20.750	444.84	446.57	446.57
20.833	439.39	441.06	441.06
20.917	434.12	435.73	435.73
21.000	429.03	430.59	430.59
21.083	424.10	425.61	425.61
21.167	419.32	420.78	420.78
21.250	414.69	416.10	416.10
21.333	410.19	411.56	411.56

21.417	405.81	407.15	407.15
21.500	401.55	402.85	402.85
21.583	397.40	398.67	398.67
21.667	393.38	394.61	394.61
21.750	389.46	390.65	390.65
21.833	385.64	386.81	386.81
21.917	381.92	383.06	383.06
22.000	378.29	379.40	379.40
22.083	374.76	375.84	375.84
22.167	371.31	372.36	372.36
22.250	367.94	368.97	368.97
22.333	364.66	365.66	365.66
22.417	361.45	362.43	362.43
22.500	358.31	359.27	359.27
22.583	355.25	356.19	356.19
22.667	352.25	353.17	353.17
22.750	349.32	350.22	350.22
22.833	346.46	347.33	347.33
22.917	343.65	344.51	344.51
23.000	340.90	341.74	341.74
23.083	338.21	339.04	339.04
23.167	335.58	336.39	336.39
23.250	333.00	333.79	333.79
23.333	330.48	331.25	331.25
23.417	328.00	328.76	328.76
23.500	325.57	326.31	326.31
23.583	323.19	323.91	323.91
23.667	320.85	321.57	321.57
23.750	318.56	319.26	319.26
23.833	316.31	317.00	317.00
23.917	314.10	314.78	314.78
24.000	311.93	312.60	312.60
24.083	308.54	309.57	309.57
24.167	298.54	301.60	301.60
24.250	271.65	279.87	279.87
24.333	223.39	238.14	238.14
24.417	170.54	186.69	186.69
24.500	126.57	140.00	140.00
24.583	94.42	104.24	104.24
24.667	72.21	79.00	79.00
24.750	57.03	61.67	61.67
24.833	46.07	49.42	49.42
24.917	37.33	40.00	40.00
25.000	30.44	32.55	32.55
25.083	25.26	26.84	26.84
25.167	20.93	22.25	22.25
25.250	17.13	18.29	18.29
25.333	13.98	14.94	14.94
25.417	11.36	12.16	12.16
25.500	9.24	9.88	9.88
25.583	7.51	8.04	8.04
25.667	6.08	6.52	6.52
25.750	4.84	5.22	5.22
25.833	3.75	4.08	4.08
25.917	2.77	3.07	3.07
26.000	1.96	2.21	2.21
26.083	1.36	1.54	1.54

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        26.167          0.90          1.04          1.04
        26.250          0.53          0.64          0.64
        26.333          0.31          0.38          0.38
        26.417          0.20          0.24          0.24
        26.500          0.12          0.15          0.15
        26.583          0.04          0.07          0.07
        26.667          0.00          0.01          0.01
        26.750          0.00          0.00          0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    1708.188 AF
    OUTFLOW VOLUME =    1708.188 AF
    LOSS    VOLUME =       0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE     108.50 TO NODE     108.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #4)

        WATERSHED AREA =      275.500 ACRES
        BASEFLOW =    0.000 CFS/SQUARE-MILE
        *USER ENTERED "LAG" TIME =     0.179 HOURS
         CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
         THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
         MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
        VALLEY(DEVELOPED):
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.110
        FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        VALLEY(UNDEVELOPED)/DESERT:
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
        DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.890
        MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.118
        LOW LOSS FRACTION = 0.139
        *HYDROGRAPH MODEL #1 SPECIFIED*

        SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
        SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
        SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
        SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
        SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
        SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

        *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
          5-MINUTE FACTOR = 0.979
         30-MINUTE FACTOR = 0.979
          1-HOUR FACTOR = 0.979
          3-HOUR FACTOR = 0.997
          6-HOUR FACTOR = 0.999
         24-HOUR FACTOR = 0.999

        UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
        UNIT INTERVAL PERCENTAGE OF LAG-TIME =  46.555
```

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	3.560	118.617
2	26.375	760.142
3	57.757	1045.612
4	72.976	507.057
5	81.248	275.617
6	86.330	169.332
7	89.917	119.519
8	92.410	83.064
9	94.360	64.962
10	95.832	49.025
11	96.971	37.968
12	97.802	27.684
13	98.327	17.481
14	98.791	15.476
15	99.289	16.568
16	99.715	14.223
17	99.929	7.111
18	100.000	2.371

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0007	0.0042
2	0.0049	0.0007	0.0042
3	0.0049	0.0007	0.0042
4	0.0049	0.0007	0.0042
5	0.0049	0.0007	0.0042
6	0.0049	0.0007	0.0042
7	0.0050	0.0007	0.0043
8	0.0050	0.0007	0.0043
9	0.0050	0.0007	0.0043
10	0.0050	0.0007	0.0043
11	0.0050	0.0007	0.0043
12	0.0050	0.0007	0.0043
13	0.0051	0.0007	0.0044
14	0.0051	0.0007	0.0044
15	0.0051	0.0007	0.0044
16	0.0051	0.0007	0.0044
17	0.0051	0.0007	0.0044
18	0.0051	0.0007	0.0044
19	0.0052	0.0007	0.0044
20	0.0052	0.0007	0.0045
21	0.0052	0.0007	0.0045
22	0.0052	0.0007	0.0045
23	0.0052	0.0007	0.0045
24	0.0052	0.0007	0.0045
25	0.0053	0.0007	0.0045
26	0.0053	0.0007	0.0046
27	0.0053	0.0007	0.0046
28	0.0053	0.0007	0.0046
29	0.0054	0.0007	0.0046
30	0.0054	0.0007	0.0046
31	0.0054	0.0007	0.0046
32	0.0054	0.0008	0.0047
33	0.0054	0.0008	0.0047
34	0.0054	0.0008	0.0047
35	0.0055	0.0008	0.0047
36	0.0055	0.0008	0.0047
37	0.0055	0.0008	0.0048
38	0.0055	0.0008	0.0048
39	0.0056	0.0008	0.0048
40	0.0056	0.0008	0.0048
41	0.0056	0.0008	0.0048
42	0.0056	0.0008	0.0048
43	0.0057	0.0008	0.0049
44	0.0057	0.0008	0.0049
45	0.0057	0.0008	0.0049
46	0.0057	0.0008	0.0049
47	0.0057	0.0008	0.0049
48	0.0058	0.0008	0.0050
49	0.0058	0.0008	0.0050
50	0.0058	0.0008	0.0050
51	0.0058	0.0008	0.0050

52	0.0059	0.0008	0.0050
53	0.0059	0.0008	0.0051
54	0.0059	0.0008	0.0051
55	0.0059	0.0008	0.0051
56	0.0060	0.0008	0.0051
57	0.0060	0.0008	0.0052
58	0.0060	0.0008	0.0052
59	0.0061	0.0008	0.0052
60	0.0061	0.0008	0.0052
61	0.0061	0.0008	0.0053
62	0.0061	0.0009	0.0053
63	0.0062	0.0009	0.0053
64	0.0062	0.0009	0.0053
65	0.0062	0.0009	0.0054
66	0.0063	0.0009	0.0054
67	0.0063	0.0009	0.0054
68	0.0063	0.0009	0.0054
69	0.0064	0.0009	0.0055
70	0.0064	0.0009	0.0055
71	0.0064	0.0009	0.0055
72	0.0064	0.0009	0.0055
73	0.0065	0.0009	0.0056
74	0.0065	0.0009	0.0056
75	0.0065	0.0009	0.0056
76	0.0066	0.0009	0.0057
77	0.0066	0.0009	0.0057
78	0.0066	0.0009	0.0057
79	0.0067	0.0009	0.0058
80	0.0067	0.0009	0.0058
81	0.0068	0.0009	0.0058
82	0.0068	0.0009	0.0058
83	0.0068	0.0010	0.0059
84	0.0069	0.0010	0.0059
85	0.0069	0.0010	0.0060
86	0.0069	0.0010	0.0060
87	0.0070	0.0010	0.0060
88	0.0070	0.0010	0.0060
89	0.0071	0.0010	0.0061
90	0.0071	0.0010	0.0061
91	0.0072	0.0010	0.0062
92	0.0072	0.0010	0.0062
93	0.0072	0.0010	0.0062
94	0.0073	0.0010	0.0063
95	0.0073	0.0010	0.0063
96	0.0074	0.0010	0.0063
97	0.0074	0.0010	0.0064
98	0.0075	0.0010	0.0064
99	0.0075	0.0010	0.0065
100	0.0076	0.0011	0.0065
101	0.0076	0.0011	0.0066
102	0.0077	0.0011	0.0066
103	0.0077	0.0011	0.0067
104	0.0078	0.0011	0.0067
105	0.0078	0.0011	0.0067
106	0.0079	0.0011	0.0068
107	0.0080	0.0011	0.0068
108	0.0080	0.0011	0.0069

109	0.0081	0.0011	0.0069
110	0.0081	0.0011	0.0070
111	0.0082	0.0011	0.0070
112	0.0082	0.0011	0.0071
113	0.0083	0.0012	0.0072
114	0.0084	0.0012	0.0072
115	0.0084	0.0012	0.0073
116	0.0085	0.0012	0.0073
117	0.0086	0.0012	0.0074
118	0.0086	0.0012	0.0074
119	0.0087	0.0012	0.0075
120	0.0088	0.0012	0.0075
121	0.0089	0.0012	0.0076
122	0.0089	0.0012	0.0077
123	0.0090	0.0013	0.0078
124	0.0091	0.0013	0.0078
125	0.0092	0.0013	0.0079
126	0.0092	0.0013	0.0080
127	0.0094	0.0013	0.0081
128	0.0094	0.0013	0.0081
129	0.0095	0.0013	0.0082
130	0.0096	0.0013	0.0083
131	0.0097	0.0014	0.0084
132	0.0098	0.0014	0.0084
133	0.0099	0.0014	0.0085
134	0.0100	0.0014	0.0086
135	0.0101	0.0014	0.0087
136	0.0102	0.0014	0.0088
137	0.0103	0.0014	0.0089
138	0.0104	0.0014	0.0090
139	0.0106	0.0015	0.0091
140	0.0107	0.0015	0.0092
141	0.0108	0.0015	0.0093
142	0.0109	0.0015	0.0094
143	0.0111	0.0015	0.0096
144	0.0112	0.0016	0.0096
145	0.0090	0.0013	0.0078
146	0.0091	0.0013	0.0078
147	0.0093	0.0013	0.0080
148	0.0094	0.0013	0.0081
149	0.0096	0.0013	0.0082
150	0.0097	0.0013	0.0083
151	0.0099	0.0014	0.0085
152	0.0100	0.0014	0.0086
153	0.0102	0.0014	0.0088
154	0.0104	0.0014	0.0089
155	0.0106	0.0015	0.0091
156	0.0107	0.0015	0.0092
157	0.0110	0.0015	0.0095
158	0.0112	0.0016	0.0096
159	0.0115	0.0016	0.0099
160	0.0116	0.0016	0.0100
161	0.0120	0.0017	0.0103
162	0.0121	0.0017	0.0104
163	0.0125	0.0017	0.0108
164	0.0127	0.0018	0.0109
165	0.0131	0.0018	0.0113

166	0.0134	0.0019	0.0115
167	0.0138	0.0019	0.0119
168	0.0141	0.0020	0.0121
169	0.0151	0.0021	0.0130
170	0.0154	0.0021	0.0133
171	0.0161	0.0022	0.0138
172	0.0164	0.0023	0.0141
173	0.0172	0.0024	0.0148
174	0.0176	0.0024	0.0151
175	0.0185	0.0026	0.0159
176	0.0190	0.0026	0.0163
177	0.0201	0.0028	0.0173
178	0.0207	0.0029	0.0178
179	0.0220	0.0031	0.0190
180	0.0228	0.0032	0.0196
181	0.0245	0.0034	0.0211
182	0.0255	0.0035	0.0220
183	0.0279	0.0039	0.0240
184	0.0293	0.0041	0.0252
185	0.0251	0.0035	0.0216
186	0.0269	0.0037	0.0232
187	0.0316	0.0044	0.0272
188	0.0347	0.0048	0.0299
189	0.0539	0.0075	0.0464
190	0.0621	0.0086	0.0535
191	0.0941	0.0098	0.0843
192	0.1367	0.0098	0.1268
193	0.5874	0.0098	0.5776
194	0.0741	0.0098	0.0643
195	0.0387	0.0054	0.0333
196	0.0290	0.0040	0.0250
197	0.0308	0.0043	0.0266
198	0.0266	0.0037	0.0229
199	0.0236	0.0033	0.0203
200	0.0213	0.0030	0.0184
201	0.0195	0.0027	0.0168
202	0.0180	0.0025	0.0155
203	0.0168	0.0023	0.0145
204	0.0158	0.0022	0.0136
205	0.0144	0.0020	0.0124
206	0.0136	0.0019	0.0117
207	0.0129	0.0018	0.0111
208	0.0123	0.0017	0.0106
209	0.0118	0.0016	0.0101
210	0.0113	0.0016	0.0097
211	0.0109	0.0015	0.0094
212	0.0105	0.0015	0.0090
213	0.0101	0.0014	0.0087
214	0.0098	0.0014	0.0084
215	0.0095	0.0013	0.0082
216	0.0092	0.0013	0.0079
217	0.0113	0.0016	0.0097
218	0.0110	0.0015	0.0095
219	0.0107	0.0015	0.0093
220	0.0105	0.0015	0.0090
221	0.0103	0.0014	0.0088
222	0.0101	0.0014	0.0087

223	0.0099	0.0014	0.0085
224	0.0097	0.0013	0.0083
225	0.0095	0.0013	0.0082
226	0.0093	0.0013	0.0080
227	0.0091	0.0013	0.0079
228	0.0090	0.0012	0.0077
229	0.0088	0.0012	0.0076
230	0.0087	0.0012	0.0075
231	0.0085	0.0012	0.0073
232	0.0084	0.0012	0.0072
233	0.0083	0.0011	0.0071
234	0.0081	0.0011	0.0070
235	0.0080	0.0011	0.0069
236	0.0079	0.0011	0.0068
237	0.0078	0.0011	0.0067
238	0.0077	0.0011	0.0066
239	0.0076	0.0011	0.0065
240	0.0075	0.0010	0.0065
241	0.0074	0.0010	0.0064
242	0.0073	0.0010	0.0063
243	0.0072	0.0010	0.0062
244	0.0071	0.0010	0.0061
245	0.0070	0.0010	0.0061
246	0.0070	0.0010	0.0060
247	0.0069	0.0010	0.0059
248	0.0068	0.0009	0.0059
249	0.0067	0.0009	0.0058
250	0.0067	0.0009	0.0057
251	0.0066	0.0009	0.0057
252	0.0065	0.0009	0.0056
253	0.0065	0.0009	0.0056
254	0.0064	0.0009	0.0055
255	0.0063	0.0009	0.0055
256	0.0063	0.0009	0.0054
257	0.0062	0.0009	0.0053
258	0.0062	0.0009	0.0053
259	0.0061	0.0008	0.0052
260	0.0060	0.0008	0.0052
261	0.0060	0.0008	0.0052
262	0.0059	0.0008	0.0051
263	0.0059	0.0008	0.0051
264	0.0058	0.0008	0.0050
265	0.0058	0.0008	0.0050
266	0.0057	0.0008	0.0049
267	0.0057	0.0008	0.0049
268	0.0056	0.0008	0.0049
269	0.0056	0.0008	0.0048
270	0.0055	0.0008	0.0048
271	0.0055	0.0008	0.0047
272	0.0055	0.0008	0.0047
273	0.0054	0.0008	0.0047
274	0.0054	0.0007	0.0046
275	0.0053	0.0007	0.0046
276	0.0053	0.0007	0.0046
277	0.0053	0.0007	0.0045
278	0.0052	0.0007	0.0045
279	0.0052	0.0007	0.0045

280	0.0052	0.0007	0.0044
281	0.0051	0.0007	0.0044
282	0.0051	0.0007	0.0044
283	0.0050	0.0007	0.0043
284	0.0050	0.0007	0.0043
285	0.0050	0.0007	0.0043
286	0.0049	0.0007	0.0043
287	0.0049	0.0007	0.0042
288	0.0049	0.0007	0.0042

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.42
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.18

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 9.5324
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 72.9972

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	200.0	400.0	600.0	800.0
0.083	0.0034	0.50	Q	.	.	.	.
0.167	0.0288	3.68	Q	.	.	.	.
0.250	0.0843	8.06	Q	.	.	.	.
0.333	0.1546	10.21	Q	.	.	.	.
0.417	0.2331	11.39	Q	.	.	.	.
0.500	0.3167	12.14	Q	.	.	.	.
0.583	0.4040	12.68	Q	.	.	.	.
0.667	0.4940	13.07	Q	.	.	.	.
0.750	0.5862	13.38	Q	.	.	.	.
0.833	0.6800	13.63	Q	.	.	.	.
0.917	0.7753	13.84	Q	.	.	.	.
1.000	0.8717	14.00	Q	.	.	.	.
1.083	0.9689	14.12	Q	.	.	.	.
1.167	1.0669	14.23	Q	.	.	.	.
1.250	1.1657	14.35	Q	.	.	.	.
1.333	1.2653	14.45	Q	.	.	.	.
1.417	1.3654	14.53	Q	.	.	.	.
1.500	1.4659	14.59	Q	.	.	.	.
1.583	1.5667	14.64	Q	.	.	.	.
1.667	1.6680	14.69	Q	.	.	.	.
1.750	1.7695	14.75	Q	.	.	.	.
1.833	1.8714	14.80	QV	.	.	.	.
1.917	1.9737	14.85	QV	.	.	.	.
2.000	2.0763	14.90	QV	.	.	.	.
2.083	2.1793	14.96	QV	.	.	.	.
2.167	2.2827	15.01	QV	.	.	.	.
2.250	2.3865	15.06	QV	.	.	.	.
2.333	2.4906	15.12	QV	.	.	.	.
2.417	2.5951	15.17	QV	.	.	.	.
2.500	2.7000	15.23	QV	.	.	.	.
2.583	2.8053	15.29	QV	.	.	.	.
2.667	2.9109	15.34	QV	.	.	.	.
2.750	3.0170	15.40	QV	.	.	.	.
2.833	3.1235	15.46	QV	.	.	.	.
2.917	3.2303	15.52	QV	.	.	.	.
3.000	3.3376	15.58	QV	.	.	.	.
3.083	3.4453	15.64	QV	.	.	.	.
3.167	3.5534	15.70	QV	.	.	.	.
3.250	3.6620	15.76	Q V	.	.	.	.
3.333	3.7709	15.82	Q V	.	.	.	.
3.417	3.8803	15.88	Q V	.	.	.	.
3.500	3.9901	15.95	Q V	.	.	.	.
3.583	4.1004	16.01	Q V	.	.	.	.
3.667	4.2111	16.07	Q V	.	.	.	.
3.750	4.3222	16.14	Q V	.	.	.	.

3.833	4.4338	16.20	Q	V	.	.	.	.
3.917	4.5459	16.27	Q	V	.	.	.	.
4.000	4.6584	16.34	Q	V	.	.	.	.
4.083	4.7714	16.41	Q	V	.	.	.	.
4.167	4.8848	16.47	Q	V	.	.	.	.
4.250	4.9988	16.54	Q	V	.	.	.	.
4.333	5.1132	16.61	Q	V	.	.	.	.
4.417	5.2281	16.69	Q	V	.	.	.	.
4.500	5.3435	16.76	Q	V	.	.	.	.
4.583	5.4594	16.83	Q	V	.	.	.	.
4.667	5.5758	16.90	Q	V	.	.	.	.
4.750	5.6928	16.98	Q	V	.	.	.	.
4.833	5.8102	17.05	Q	V	.	.	.	.
4.917	5.9282	17.13	Q	V	.	.	.	.
5.000	6.0467	17.21	Q	V	.	.	.	.
5.083	6.1657	17.28	Q	V	.	.	.	.
5.167	6.2853	17.36	Q	V	.	.	.	.
5.250	6.4054	17.44	Q	V	.	.	.	.
5.333	6.5261	17.52	Q	V	.	.	.	.
5.417	6.6473	17.61	Q	V	.	.	.	.
5.500	6.7692	17.69	Q	V	.	.	.	.
5.583	6.8915	17.77	Q	V	.	.	.	.
5.667	7.0145	17.86	Q	V	.	.	.	.
5.750	7.1381	17.94	Q	V	.	.	.	.
5.833	7.2623	18.03	Q	V	.	.	.	.
5.917	7.3870	18.12	Q	V	.	.	.	.
6.000	7.5124	18.21	Q	V	.	.	.	.
6.083	7.6384	18.30	Q	V	.	.	.	.
6.167	7.7651	18.39	Q	V	.	.	.	.
6.250	7.8923	18.48	Q	V	.	.	.	.
6.333	8.0203	18.58	Q	V	.	.	.	.
6.417	8.1489	18.67	Q	V	.	.	.	.
6.500	8.2781	18.77	Q	V	.	.	.	.
6.583	8.4080	18.87	Q	V	.	.	.	.
6.667	8.5387	18.96	Q	V	.	.	.	.
6.750	8.6700	19.07	Q	V	.	.	.	.
6.833	8.8020	19.17	Q	V	.	.	.	.
6.917	8.9347	19.27	Q	V	.	.	.	.
7.000	9.0681	19.38	Q	V	.	.	.	.
7.083	9.2023	19.48	Q	V	.	.	.	.
7.167	9.3373	19.59	Q	V	.	.	.	.
7.250	9.4729	19.70	Q	V	.	.	.	.
7.333	9.6094	19.81	Q	V	.	.	.	.
7.417	9.7466	19.93	Q	V	.	.	.	.
7.500	9.8846	20.04	.Q	V	.	.	.	.
7.583	10.0235	20.16	.Q	V	.	.	.	.
7.667	10.1631	20.28	.Q	V	.	.	.	.
7.750	10.3036	20.40	.Q	V	.	.	.	.
7.833	10.4449	20.52	.Q	V	.	.	.	.
7.917	10.5871	20.64	.Q	V	.	.	.	.
8.000	10.7301	20.77	.Q	V	.	.	.	.
8.083	10.8740	20.90	.Q	V	.	.	.	.
8.167	11.0188	21.03	.Q	V	.	.	.	.
8.250	11.1646	21.16	.Q	V	.	.	.	.
8.333	11.3112	21.29	.Q	V	.	.	.	.
8.417	11.4588	21.43	.Q	V	.	.	.	.
8.500	11.6074	21.57	.Q	V	.	.	.	.

8.583	11.7569	21.71	.Q	V	.	.	.
8.667	11.9074	21.86	.Q	V	.	.	.
8.750	12.0590	22.00	.Q	V	.	.	.
8.833	12.2116	22.15	.Q	V	.	.	.
8.917	12.3652	22.31	.Q	V	.	.	.
9.000	12.5199	22.46	.Q	V	.	.	.
9.083	12.6756	22.62	.Q	V	.	.	.
9.167	12.8325	22.78	.Q	V	.	.	.
9.250	12.9905	22.94	.Q	V	.	.	.
9.333	13.1497	23.11	.Q	V	.	.	.
9.417	13.3100	23.28	.Q	V	.	.	.
9.500	13.4715	23.45	.Q	V	.	.	.
9.583	13.6343	23.63	.Q	V	.	.	.
9.667	13.7983	23.81	.Q	V	.	.	.
9.750	13.9635	24.00	.Q	V	.	.	.
9.833	14.1301	24.18	.Q	V	.	.	.
9.917	14.2980	24.38	.Q	V	.	.	.
10.000	14.4672	24.57	.Q	V	.	.	.
10.083	14.6378	24.77	.Q	V	.	.	.
10.167	14.8098	24.98	.Q	V	.	.	.
10.250	14.9833	25.19	.Q	V	.	.	.
10.333	15.1582	25.40	.Q	V	.	.	.
10.417	15.3346	25.62	.Q	V	.	.	.
10.500	15.5126	25.84	.Q	V	.	.	.
10.583	15.6922	26.07	.Q	V	.	.	.
10.667	15.8733	26.31	.Q	V	.	.	.
10.750	16.0562	26.55	.Q	V	.	.	.
10.833	16.2407	26.79	.Q	V	.	.	.
10.917	16.4269	27.05	.Q	V	.	.	.
11.000	16.6150	27.30	.Q	V	.	.	.
11.083	16.8048	27.57	.Q	V	.	.	.
11.167	16.9966	27.84	.Q	V	.	.	.
11.250	17.1902	28.12	.Q	V	.	.	.
11.333	17.3859	28.40	.Q	V	.	.	.
11.417	17.5835	28.70	.Q	V	.	.	.
11.500	17.7833	29.00	.Q	V	.	.	.
11.583	17.9852	29.32	.Q	V	.	.	.
11.667	18.1893	29.63	.Q	V	.	.	.
11.750	18.3956	29.97	.Q	V	.	.	.
11.833	18.6043	30.30	.Q	V	.	.	.
11.917	18.8155	30.66	.Q	V	.	.	.
12.000	19.0291	31.01	.Q	V	.	.	.
12.083	19.2436	31.15	.Q	V	.	.	.
12.167	19.4500	29.98	.Q	V	.	.	.
12.250	19.6445	28.24	.Q	V	.	.	.
12.333	19.8345	27.59	.Q	V	.	.	.
12.417	20.0234	27.42	.Q	V	.	.	.
12.500	20.2127	27.48	.Q	.V	.	.	.
12.583	20.4031	27.66	.Q	.V	.	.	.
12.667	20.5954	27.91	.Q	.V	.	.	.
12.750	20.7898	28.23	.Q	.V	.	.	.
12.833	20.9867	28.59	.Q	.V	.	.	.
12.917	21.1864	29.00	.Q	.V	.	.	.
13.000	21.3892	29.44	.Q	.V	.	.	.
13.083	21.5953	29.93	.Q	.V	.	.	.
13.167	21.8050	30.44	.Q	.V	.	.	.
13.250	22.0184	30.99	.Q	. V	.	.	.

13.333	22.2357	31.55	.Q . V . . .
13.417	22.4573	32.17	.Q . V . . .
13.500	22.6833	32.82	.Q . V . . .
13.583	22.9141	33.52	.Q . V . . .
13.667	23.1500	34.24	.Q . V . . .
13.750	23.3912	35.02	.Q . V . . .
13.833	23.6379	35.83	.Q . V . . .
13.917	23.8907	36.70	.Q . V . . .
14.000	24.1497	37.61	.Q . V . . .
14.083	24.4158	38.64	.Q . V . . .
14.167	24.6914	40.01	. Q . V . . .
14.250	24.9779	41.60	. Q . V . . .
14.333	25.2741	43.02	. Q . V . . .
14.417	25.5802	44.45	. Q . V . . .
14.500	25.8965	45.92	. Q . V . . .
14.583	26.2236	47.50	. Q . V . . .
14.667	26.5622	49.18	. Q . V . . .
14.750	26.9136	51.02	. Q . V . . .
14.833	27.2787	53.01	. Q . V . . .
14.917	27.6590	55.22	. Q . V . . .
15.000	28.0560	57.65	. Q . V . . .
15.083	28.4718	60.37	. Q . V . . .
15.167	28.9086	63.42	. Q . V . . .
15.250	29.3694	66.91	. Q . V . . .
15.333	29.8578	70.91	. Q . V . . .
15.417	30.3730	74.81	. Q . V . . .
15.500	30.8921	75.37	. Q . V . . .
15.583	31.4087	75.02	. Q . V . . .
15.667	31.9547	79.28	. Q . V . . .
15.750	32.5611	88.05	. Q . V . . .
15.833	33.2960	106.70	. Q . V . . .
15.917	34.2308	135.73	. Q . V . . .
16.000	35.4813	181.57	. Q. V. . .
16.083	37.6078	308.77	. . Q V . .
16.167	42.1265	656.12	. . . V . Q .
16.250	47.4113	767.35	. . . V . Q .
16.333	50.5397	454.24	. . . Q V . .
16.417	52.5545	292.56	. . Q . V . .
16.500	54.0210	212.93	. Q . V. .
16.583	55.2082	172.37	. Q . . V .
16.667	56.1780	140.82	. Q . . V .
16.750	57.0071	120.38	. Q . . .V .
16.833	57.7169	103.06	. Q . . .V .
16.917	58.3340	89.60	. Q . . .V .
17.000	58.8699	77.82	. Q . . . V .
17.083	59.3344	67.44	. Q . . . V .
17.167	59.7601	61.81	. Q . . . V .
17.250	60.1594	57.98	. Q . . . V .
17.333	60.5228	52.77	. Q . . . V .
17.417	60.8374	45.67	. Q . . . V .
17.500	61.1153	40.36	. Q . . . V .
17.583	61.3694	36.89	.Q . . . V .
17.667	61.6107	35.04	.Q . . . V .
17.750	61.8410	33.45	.Q . . . V .
17.833	62.0616	32.02	.Q . . . V .
17.917	62.2733	30.75	.Q . . . V .
18.000	62.4772	29.60	.Q . . . V .

18.083	62.6755	28.80	.Q	.	.	.	V	.
18.167	62.8779	29.38	.Q	.	.	.	V	.
18.250	63.0887	30.61	.Q	.	.	.	V	.
18.333	63.3007	30.78	.Q	.	.	.	V	.
18.417	63.5110	30.54	.Q	.	.	.	V	.
18.500	63.7185	30.13	.Q	.	.	.	V	.
18.583	63.9227	29.66	.Q	.	.	.	V	.
18.667	64.1235	29.15	.Q	.	.	.	V	.
18.750	64.3209	28.65	.Q	.	.	.	V	.
18.833	64.5147	28.15	.Q	.	.	.	V	.
18.917	64.7052	27.66	.Q	.	.	.	V	.
19.000	64.8924	27.18	.Q	.	.	.	V	.
19.083	65.0763	26.70	.Q	.	.	.	V	.
19.167	65.2570	26.24	.Q	.	.	.	V	.
19.250	65.4348	25.81	.Q	.	.	.	V	.
19.333	65.6096	25.39	.Q	.	.	.	V	.
19.417	65.7817	24.98	.Q	.	.	.	V	.
19.500	65.9510	24.58	.Q	.	.	.	V	.
19.583	66.1176	24.19	.Q	.	.	.	V	.
19.667	66.2816	23.82	.Q	.	.	.	V	.
19.750	66.4431	23.46	.Q	.	.	.	V	.
19.833	66.6023	23.11	.Q	.	.	.	V	.
19.917	66.7592	22.78	.Q	.	.	.	V	.
20.000	66.9139	22.46	.Q	.	.	.	V	.
20.083	67.0664	22.15	.Q	.	.	.	V	.
20.167	67.2169	21.85	.Q	.	.	.	V	.
20.250	67.3655	21.57	.Q	.	.	.	V	.
20.333	67.5121	21.29	.Q	.	.	.	V	.
20.417	67.6569	21.02	.Q	.	.	.	V	.
20.500	67.7999	20.76	.Q	.	.	.	V	.
20.583	67.9411	20.51	.Q	.	.	.	V	.
20.667	68.0807	20.27	.Q	.	.	.	V	.
20.750	68.2187	20.03	.Q	.	.	.	V	.
20.833	68.3551	19.81	Q	.	.	.	V	.
20.917	68.4900	19.58	Q	.	.	.	V	.
21.000	68.6234	19.37	Q	.	.	.	V	.
21.083	68.7554	19.16	Q	.	.	.	V	.
21.167	68.8859	18.96	Q	.	.	.	V	.
21.250	69.0151	18.76	Q	.	.	.	V	.
21.333	69.1430	18.57	Q	.	.	.	V	.
21.417	69.2696	18.38	Q	.	.	.	V	.
21.500	69.3949	18.20	Q	.	.	.	V	.
21.583	69.5190	18.02	Q	.	.	.	V	.
21.667	69.6420	17.85	Q	.	.	.	V	.
21.750	69.7637	17.68	Q	.	.	.	V	.
21.833	69.8843	17.51	Q	.	.	.	V	.
21.917	70.0038	17.35	Q	.	.	.	V	.
22.000	70.1223	17.20	Q	.	.	.	V	.
22.083	70.2397	17.04	Q	.	.	.	V	.
22.167	70.3560	16.89	Q	.	.	.	V	.
22.250	70.4714	16.75	Q	.	.	.	V	.
22.333	70.5857	16.61	Q	.	.	.	V	.
22.417	70.6991	16.47	Q	.	.	.	V	.
22.500	70.8116	16.33	Q	.	.	.	V	.
22.583	70.9232	16.20	Q	.	.	.	V	.
22.667	71.0338	16.07	Q	.	.	.	V	.
22.750	71.1436	15.94	Q	.	.	.	V	.

```
 22.833     71.2525     15.81  Q          .          .          .          V.
 22.917     71.3605     15.69  Q          .          .          .          V.
 23.000     71.4677     15.57  Q          .          .          .          V.
 23.083     71.5742     15.45  Q          .          .          .          V.
 23.167     71.6798     15.34  Q          .          .          .          V.
 23.250     71.7846     15.22  Q          .          .          .          V.
 23.333     71.8887     15.11  Q          .          .          .          V.
 23.417     71.9920     15.00  Q          .          .          .          V.
 23.500     72.0946     14.90  Q          .          .          .          V.
 23.583     72.1965     14.79  Q          .          .          .          V.
 23.667     72.2976     14.69  Q          .          .          .          V.
 23.750     72.3981     14.59  Q          .          .          .          V.
 23.833     72.4978     14.49  Q          .          .          .          V.
 23.917     72.5969     14.39  Q          .          .          .          V.
 24.000     72.6954     14.29  Q          .          .          .          V.
--------------------------------------------------------------------------------
  TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
  (Note: 100% of Peak Flow Rate estimate assumed to have
  an instantaneous time duration)

  Percentile of Estimated          Duration
      Peak Flow Rate               (minutes)
  ========================         =========
            0%                      1445.0
           10%                        85.0
           20%                        40.0
           30%                        25.0
           40%                        20.0
           50%                        15.0
           60%                        10.0
           70%                        10.0
           80%                        10.0
           90%                         5.0

********************************************************************************
  FLOW PROCESS FROM NODE     108.50 TO NODE     108.00 IS CODE =   4
--------------------------------------------------------------------------------
  >>>>>MODEL PIPEFLOW ROUTING OF STREAM #4<<<<<
================================================================================

        MODEL PIPEFLOW ROUTING OF STREAM 4 WHERE
        STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
        VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
        EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
        OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
        UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
        (0.938)(DIAMETER):


        PIPELENGTH(FT) =     600.00     MANNINGS FACTOR = 0.013
        UPSTREAM ELEVATION(FT) =    3137.00
        DOWNSTREAM ELEVATION(FT) =    3125.00
        PIPE DIAMETER(FT) =   5.00
```

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
0.083	0.50	0.50	0.00	0.000
0.167	3.68	1.95	0.00	0.000
0.250	8.06	4.27	7.87	0.000
0.333	10.21	5.41	10.31	0.000
0.417	11.39	6.04	11.89	0.000
0.500	12.14	6.43	12.14	0.000
0.583	12.68	6.72	12.68	0.000
0.667	13.07	6.92	13.07	0.000
0.750	13.38	7.09	13.38	0.000
0.833	13.63	7.22	13.63	0.000
0.917	13.84	7.33	13.84	0.000
1.000	14.00	7.41	14.00	0.000
1.083	14.12	7.48	14.12	0.000
1.167	14.23	7.54	14.23	0.000
1.250	14.35	7.60	14.35	0.000
1.333	14.45	7.66	14.45	0.000
1.417	14.53	7.70	14.53	0.000
1.500	14.59	7.73	14.59	0.000
1.583	14.64	7.76	14.64	0.000
1.667	14.69	7.78	14.69	0.000
1.750	14.75	7.81	14.75	0.000
1.833	14.80	7.84	14.80	0.000
1.917	14.85	7.87	14.85	0.000
2.000	14.90	7.89	14.90	0.000
2.083	14.96	7.92	14.96	0.000
2.167	15.01	7.95	15.01	0.000
2.250	15.06	7.98	15.06	0.000
2.333	15.12	8.01	15.12	0.000
2.417	15.17	8.04	15.17	0.000
2.500	15.23	8.07	15.23	0.000
2.583	15.29	8.10	15.29	0.000
2.667	15.34	8.13	15.34	0.000
2.750	15.40	8.16	15.40	0.000
2.833	15.46	8.19	15.46	0.000
2.917	15.52	8.22	15.52	0.000
3.000	15.58	8.25	15.58	0.000
3.083	15.64	8.28	15.64	0.000
3.167	15.70	8.31	15.70	0.000
3.250	15.76	8.35	15.76	0.000
3.333	15.82	8.38	15.82	0.000
3.417	15.88	8.41	15.88	0.000
3.500	15.95	8.45	15.95	0.000
3.583	16.01	8.48	16.01	0.000
3.667	16.07	8.51	16.07	0.000
3.750	16.14	8.55	16.14	0.000
3.833	16.20	8.58	16.20	0.000
3.917	16.27	8.62	16.27	0.000
4.000	16.34	8.65	16.34	0.000
4.083	16.41	8.69	16.41	0.000
4.167	16.47	8.73	16.47	0.000
4.250	16.54	8.76	16.54	0.000
4.333	16.61	8.80	16.61	0.000

4.417	16.69	8.84	16.69	0.000
4.500	16.76	8.88	16.76	0.000
4.583	16.83	8.91	16.83	0.000
4.667	16.90	8.95	16.90	0.000
4.750	16.98	8.99	16.98	0.000
4.833	17.05	9.03	17.05	0.000
4.917	17.13	9.07	17.13	0.000
5.000	17.21	9.11	17.21	0.000
5.083	17.28	9.15	17.28	0.000
5.167	17.36	9.20	17.36	0.000
5.250	17.44	9.24	17.44	0.000
5.333	17.52	9.28	17.52	0.000
5.417	17.61	9.32	17.61	0.000
5.500	17.69	9.37	17.69	0.000
5.583	17.77	9.41	17.77	0.000
5.667	17.86	9.46	17.86	0.000
5.750	17.94	9.50	17.94	0.000
5.833	18.03	9.55	18.03	0.000
5.917	18.12	9.60	18.12	0.000
6.000	18.21	9.64	18.21	0.000
6.083	18.30	9.69	18.30	0.000
6.167	18.39	9.74	18.39	0.000
6.250	18.48	9.76	18.47	0.000
6.333	18.58	9.77	18.56	0.000
6.417	18.67	9.78	18.66	0.000
6.500	18.77	9.79	18.75	0.000
6.583	18.87	9.81	18.85	0.000
6.667	18.96	9.82	18.95	0.000
6.750	19.07	9.83	19.05	0.000
6.833	19.17	9.84	19.15	0.000
6.917	19.27	9.85	19.26	0.000
7.000	19.38	9.86	19.36	0.000
7.083	19.48	9.87	19.47	0.000
7.167	19.59	9.89	19.57	0.000
7.250	19.70	9.90	19.68	0.000
7.333	19.81	9.91	19.80	0.000
7.417	19.93	9.92	19.91	0.000
7.500	20.04	9.94	20.02	0.000
7.583	20.16	9.95	20.14	0.000
7.667	20.28	9.96	20.26	0.000
7.750	20.40	9.98	20.38	0.000
7.833	20.52	9.99	20.50	0.000
7.917	20.64	10.00	20.62	0.000
8.000	20.77	10.02	20.75	0.000
8.083	20.90	10.03	20.88	0.000
8.167	21.03	10.05	21.01	0.000
8.250	21.16	10.06	21.14	0.000
8.333	21.29	10.08	21.27	0.000
8.417	21.43	10.09	21.41	0.000
8.500	21.57	10.11	21.55	0.000
8.583	21.71	10.12	21.69	0.000
8.667	21.86	10.14	21.83	0.000
8.750	22.00	10.16	21.98	0.000
8.833	22.15	10.17	22.13	0.000
8.917	22.31	10.19	22.28	0.000
9.000	22.46	10.21	22.44	0.000
9.083	22.62	10.23	22.60	0.000

9.167	22.78	10.24	22.76	0.000
9.250	22.94	10.26	22.92	0.000
9.333	23.11	10.28	23.08	0.000
9.417	23.28	10.30	23.26	0.000
9.500	23.45	10.32	23.43	0.000
9.583	23.63	10.34	23.61	0.000
9.667	23.81	10.36	23.78	0.000
9.750	24.00	10.38	23.97	0.000
9.833	24.18	10.40	24.16	0.000
9.917	24.38	10.42	24.35	0.000
10.000	24.57	10.44	24.54	0.000
10.083	24.77	10.47	24.74	0.000
10.167	24.98	10.49	24.95	0.000
10.250	25.19	10.51	25.16	0.000
10.333	25.40	10.54	25.37	0.000
10.417	25.62	10.56	25.59	0.000
10.500	25.84	10.59	25.81	0.000
10.583	26.07	10.61	26.04	0.000
10.667	26.31	10.64	26.27	0.000
10.750	26.55	10.67	26.51	0.000
10.833	26.79	10.69	26.76	0.000
10.917	27.05	10.72	27.01	0.000
11.000	27.30	10.75	27.27	0.000
11.083	27.57	10.78	27.53	0.000
11.167	27.84	10.81	27.80	0.000
11.250	28.12	10.84	28.08	0.000
11.333	28.40	10.87	28.37	0.000
11.417	28.70	10.91	28.66	0.000
11.500	29.00	10.94	28.96	0.000
11.583	29.32	10.98	29.28	0.000
11.667	29.63	11.01	29.59	0.000
11.750	29.97	11.05	29.92	0.000
11.833	30.30	11.09	30.26	0.000
11.917	30.66	11.13	30.61	0.000
12.000	31.01	11.17	30.97	0.000
12.083	31.15	11.18	31.13	0.000
12.167	29.98	11.05	30.12	0.000
12.250	28.24	10.86	28.46	0.000
12.333	27.59	10.78	27.68	0.000
12.417	27.42	10.76	27.45	0.000
12.500	27.48	10.77	27.47	0.000
12.583	27.66	10.79	27.63	0.000
12.667	27.91	10.82	27.88	0.000
12.750	28.23	10.85	28.19	0.000
12.833	28.59	10.89	28.54	0.000
12.917	29.00	10.94	28.95	0.000
13.000	29.44	10.99	29.38	0.000
13.083	29.93	11.05	29.87	0.000
13.167	30.44	11.10	30.38	0.000
13.250	30.99	11.16	30.92	0.000
13.333	31.55	11.23	31.48	0.000
13.417	32.17	11.30	32.09	0.000
13.500	32.82	11.37	32.74	0.000
13.583	33.52	11.45	33.44	0.000
13.667	34.24	11.53	34.16	0.000
13.750	35.02	11.62	34.93	0.000
13.833	35.83	11.71	35.74	0.000

13.917	36.70	11.80	36.60	0.000
14.000	37.61	11.89	37.50	0.000
14.083	38.64	11.98	38.52	0.000
14.167	40.01	12.09	39.85	0.000
14.250	41.60	12.23	41.41	0.000
14.333	43.02	12.35	42.86	0.000
14.417	44.45	12.48	44.29	0.000
14.500	45.92	12.60	45.75	0.000
14.583	47.50	12.74	47.33	0.000
14.667	49.18	12.89	49.00	0.000
14.750	51.02	13.05	50.83	0.000
14.833	53.01	13.22	52.81	0.000
14.917	55.22	13.41	55.00	0.000
15.000	57.65	13.57	57.39	0.000
15.083	60.37	13.75	60.09	0.000
15.167	63.42	13.95	63.11	0.000
15.250	66.91	14.19	66.57	0.000
15.333	70.91	14.45	70.53	0.000
15.417	74.81	14.69	74.44	0.000
15.500	75.37	14.72	75.31	0.000
15.583	75.02	14.70	75.05	0.000
15.667	79.28	14.93	78.86	0.000
15.750	88.05	15.39	87.23	0.000
15.833	106.70	16.32	105.07	0.000
15.917	135.73	17.34	133.15	0.000
16.000	181.57	18.68	177.79	0.000
16.083	308.77	20.97	298.76	0.000
16.167	656.12	21.39	363.35	1.982
16.250	767.35	21.39	368.34	4.730
16.333	454.24	21.39	368.34	5.321
16.417	292.56	21.39	368.34	4.800
16.500	212.93	21.39	368.34	3.729
16.583	172.37	21.39	368.34	2.380
16.667	140.82	21.39	368.34	0.813
16.750	120.38	19.87	248.84	0.000
16.833	103.06	16.14	114.29	0.000
16.917	89.60	15.48	90.79	0.000
17.000	77.82	14.85	78.92	0.000
17.083	67.44	14.22	68.44	0.000
17.167	61.81	13.85	62.37	0.000
17.250	57.98	13.59	58.37	0.000
17.333	52.77	13.20	53.31	0.000
17.417	45.67	12.58	46.41	0.000
17.500	40.36	12.12	40.96	0.000
17.583	36.89	11.82	37.31	0.000
17.667	35.04	11.62	35.25	0.000
17.750	33.45	11.44	33.63	0.000
17.833	32.02	11.28	32.19	0.000
17.917	30.75	11.14	30.90	0.000
18.000	29.60	11.01	29.74	0.000
18.083	28.80	10.92	28.90	0.000
18.167	29.38	10.98	29.31	0.000
18.250	30.61	11.12	30.46	0.000
18.333	30.78	11.14	30.76	0.000
18.417	30.54	11.11	30.57	0.000
18.500	30.13	11.07	30.18	0.000
18.583	29.66	11.01	29.72	0.000

18.667	29.15	10.96	29.22	0.000
18.750	28.65	10.90	28.72	0.000
18.833	28.15	10.85	28.22	0.000
18.917	27.66	10.79	27.73	0.000
19.000	27.18	10.74	27.24	0.000
19.083	26.70	10.68	26.76	0.000
19.167	26.24	10.63	26.30	0.000
19.250	25.81	10.58	25.87	0.000
19.333	25.39	10.54	25.45	0.000
19.417	24.98	10.49	25.04	0.000
19.500	24.58	10.45	24.64	0.000
19.583	24.19	10.40	24.24	0.000
19.667	23.82	10.36	23.87	0.000
19.750	23.46	10.32	23.51	0.000
19.833	23.11	10.28	23.16	0.000
19.917	22.78	10.24	22.83	0.000
20.000	22.46	10.21	22.51	0.000
20.083	22.15	10.17	22.20	0.000
20.167	21.85	10.14	21.90	0.000
20.250	21.57	10.11	21.61	0.000
20.333	21.29	10.08	21.33	0.000
20.417	21.02	10.05	21.06	0.000
20.500	20.76	10.02	20.80	0.000
20.583	20.51	9.99	20.55	0.000
20.667	20.27	9.96	20.31	0.000
20.750	20.03	9.94	20.07	0.000
20.833	19.81	9.91	19.84	0.000
20.917	19.58	9.89	19.62	0.000
21.000	19.37	9.86	19.40	0.000
21.083	19.16	9.84	19.19	0.000
21.167	18.96	9.82	18.99	0.000
21.250	18.76	9.79	18.79	0.000
21.333	18.57	9.77	18.60	0.000
21.417	18.38	9.74	18.40	0.000
21.500	18.20	9.64	18.20	0.000
21.583	18.02	9.54	18.02	0.000
21.667	17.85	9.45	17.85	0.000
21.750	17.68	9.36	17.68	0.000
21.833	17.51	9.28	17.51	0.000
21.917	17.35	9.19	17.35	0.000
22.000	17.20	9.11	17.20	0.000
22.083	17.04	9.03	17.04	0.000
22.167	16.89	8.95	16.89	0.000
22.250	16.75	8.87	16.75	0.000
22.333	16.61	8.80	16.61	0.000
22.417	16.47	8.72	16.47	0.000
22.500	16.33	8.65	16.33	0.000
22.583	16.20	8.58	16.20	0.000
22.667	16.07	8.51	16.07	0.000
22.750	15.94	8.44	15.94	0.000
22.833	15.81	8.38	15.81	0.000
22.917	15.69	8.31	15.69	0.000
23.000	15.57	8.25	15.57	0.000
23.083	15.45	8.18	15.45	0.000
23.167	15.34	8.12	15.34	0.000
23.250	15.22	8.06	15.22	0.000
23.333	15.11	8.00	15.11	0.000

23.417	15.00	7.95	15.00	0.000
23.500	14.90	7.89	14.90	0.000
23.583	14.79	7.83	14.79	0.000
23.667	14.69	7.78	14.69	0.000
23.750	14.59	7.73	14.59	0.000
23.833	14.49	7.67	14.49	0.000
23.917	14.39	7.62	14.39	0.000
24.000	14.29	7.57	14.29	0.000
24.083	13.70	7.26	13.70	0.000
24.167	10.44	5.53	10.44	0.000
24.250	6.01	3.18	6.01	0.000
24.333	3.85	2.04	3.85	0.000
24.417	2.67	1.42	3.78	0.000
24.500	1.95	1.03	1.57	0.000
24.583	1.44	0.76	1.22	0.000
24.667	1.08	0.57	1.83	0.000
24.750	0.80	0.50	0.53	0.000
24.833	0.59	0.50	0.90	0.000
24.917	0.43	0.50	0.55	0.000
25.000	0.31	0.50	0.53	0.000
25.083	0.24	0.50	0.80	0.000
25.167	0.17	0.50	0.59	0.000
25.250	0.10	0.50	0.43	0.000
25.333	0.04	0.50	0.31	0.000
25.417	0.01	0.50	0.24	0.000
25.500	0.00	0.00	0.17	0.000
25.583	0.00	0.00	0.10	0.000
25.667	0.00	0.00	0.04	0.000
25.750	0.00	0.00	0.01	0.000
25.833	0.00	0.00	0.00	0.000
25.917	0.00	0.00	0.00	0.000
26.000	0.00	0.00	0.00	0.000
26.083	0.00	0.00	0.00	0.000
26.167	0.00	0.00	0.00	0.000
26.250	0.00	0.00	0.00	0.000
26.333	0.00	0.00	0.00	0.000
26.417	0.00	0.00	0.00	0.000
26.500	0.00	0.00	0.00	0.000
26.583	0.00	0.00	0.00	0.000
26.667	0.00	0.00	0.00	0.000
26.750	0.00	0.00	0.00	0.000
26.833	0.00	0.00	0.00	0.000
26.917	0.00	0.00	0.00	0.000
27.000	0.00	0.00	0.00	0.000
27.083	0.00	0.00	0.00	0.000
27.167	0.00	0.00	0.00	0.000
27.250	0.00	0.00	0.00	0.000
27.333	0.00	0.00	0.00	0.000
27.417	0.00	0.00	0.00	0.000
27.500	0.00	0.00	0.00	0.000
27.583	0.00	0.00	0.00	0.000
27.667	0.00	0.00	0.00	0.000
27.750	0.00	0.00	0.00	0.000
27.833	0.00	0.00	0.00	0.000
27.917	0.00	0.00	0.00	0.000
28.000	0.00	0.00	0.00	0.000

```
****************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 4 ADDED TO STREAM NUMBER 1<<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================
```

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3275.0	6550.0	9825.0	13100.0
0.083	0.0047	0.69	Q	.	.	.	.
0.167	0.0448	5.82	Q	.	.	.	.
0.250	0.2745	33.36	Q	.	.	.	.
0.333	0.8031	76.75	Q	.	.	.	.
0.417	1.6895	128.70	Q	.	.	.	.
0.500	2.8931	174.76	Q	.	.	.	.
0.583	4.3442	210.71	Q	.	.	.	.
0.667	5.9718	236.33	Q	.	.	.	.
0.750	7.7229	254.26	Q	.	.	.	.
0.833	9.5636	267.27	Q	.	.	.	.
0.917	11.4737	277.34	Q	.	.	.	.
1.000	13.4398	285.48	Q	.	.	.	.
1.083	15.4518	292.14	Q	.	.	.	.
1.167	17.5024	297.75	Q	.	.	.	.
1.250	19.5865	302.61	Q	.	.	.	.
1.333	21.6996	306.83	Q	.	.	.	.
1.417	23.8383	310.53	Q	.	.	.	.
1.500	25.9992	313.77	Q	.	.	.	.
1.583	28.1798	316.62	Q	.	.	.	.
1.667	30.3779	319.15	Q	.	.	.	.
1.750	32.5918	321.46	Q	.	.	.	.
1.833	34.8207	323.63	Q	.	.	.	.
1.917	37.0639	325.71	Q	.	.	.	.
2.000	39.3206	327.68	VQ	.	.	.	.
2.083	41.5898	329.48	VQ	.	.	.	.
2.167	43.8704	331.14	VQ	.	.	.	.
2.250	46.1618	332.71	.Q	.	.	.	.
2.333	48.4631	334.16	.Q	.	.	.	.
2.417	50.7737	335.50	.Q	.	.	.	.
2.500	53.0933	336.80	.Q	.	.	.	.
2.583	55.4218	338.10	.Q	.	.	.	.
2.667	57.7592	339.39	.Q	.	.	.	.
2.750	60.1053	340.66	.Q	.	.	.	.
2.833	62.4601	341.92	.Q	.	.	.	.
2.917	64.8237	343.19	.Q	.	.	.	.
3.000	67.1961	344.48	.Q	.	.	.	.
3.083	69.5775	345.77	.Q	.	.	.	.
3.167	71.9678	347.08	.Q	.	.	.	.

3.250	74.3674	348.41	.Q	.	.	.	.
3.333	76.7761	349.75	.Q	.	.	.	.
3.417	79.1941	351.10	.Q	.	.	.	.
3.500	81.6216	352.47	.Q	.	.	.	.
3.583	84.0585	353.85	.Q	.	.	.	.
3.667	86.5051	355.24	.Q	.	.	.	.
3.750	88.9614	356.65	.Q	.	.	.	.
3.833	91.4274	358.07	.QV	.	.	.	.
3.917	93.9034	359.51	.QV	.	.	.	.
4.000	96.3894	360.96	.QV	.	.	.	.
4.083	98.8855	362.43	.QV	.	.	.	.
4.167	101.3918	363.92	.QV	.	.	.	.
4.250	103.9085	365.42	.QV	.	.	.	.
4.333	106.4356	366.94	.QV	.	.	.	.
4.417	108.9733	368.48	.QV	.	.	.	.
4.500	111.5217	370.03	.QV	.	.	.	.
4.583	114.0810	371.60	.QV	.	.	.	.
4.667	116.6511	373.19	.QV	.	.	.	.
4.750	119.2323	374.79	.QV	.	.	.	.
4.833	121.8247	376.42	.QV	.	.	.	.
4.917	124.4284	378.06	.QV	.	.	.	.
5.000	127.0436	379.72	.QV	.	.	.	.
5.083	129.6703	381.40	.QV	.	.	.	.
5.167	132.3087	383.10	.QV	.	.	.	.
5.250	134.9590	384.82	.Q V	.	.	.	.
5.333	137.6213	386.56	.Q V	.	.	.	.
5.417	140.2957	388.32	.Q V	.	.	.	.
5.500	142.9824	390.11	.Q V	.	.	.	.
5.583	145.6815	391.91	.Q V	.	.	.	.
5.667	148.3932	393.74	.Q V	.	.	.	.
5.750	151.1177	395.59	.Q V	.	.	.	.
5.833	153.8550	397.46	.Q V	.	.	.	.
5.917	156.6054	399.36	.Q V	.	.	.	.
6.000	159.3691	401.28	.Q V	.	.	.	.
6.083	162.1461	403.23	.Q V	.	.	.	.
6.167	164.9367	405.20	.Q V	.	.	.	.
6.250	167.7410	407.18	.Q V	.	.	.	.
6.333	170.5592	409.20	.Q V	.	.	.	.
6.417	173.3914	411.24	.Q V	.	.	.	.
6.500	176.2380	413.32	.Q V	.	.	.	.
6.583	179.0990	415.42	.Q V	.	.	.	.
6.667	181.9747	417.55	.Q V	.	.	.	.
6.750	184.8653	419.71	.Q V	.	.	.	.
6.833	187.7710	421.91	.Q V	.	.	.	.
6.917	190.6920	424.13	.Q V	.	.	.	.
7.000	193.6285	426.38	.Q V	.	.	.	.
7.083	196.5807	428.67	.Q V	.	.	.	.
7.167	199.5489	430.98	.Q V	.	.	.	.
7.250	202.5333	433.33	.Q V	.	.	.	.
7.333	205.5341	435.72	.Q V	.	.	.	.
7.417	208.5516	438.14	.Q V	.	.	.	.
7.500	211.5860	440.59	.Q V	.	.	.	.
7.583	214.6376	443.09	.Q V	.	.	.	.
7.667	217.7066	445.62	.Q V	.	.	.	.
7.750	220.7932	448.18	.Q V	.	.	.	.
7.833	223.8978	450.79	.Q V	.	.	.	.
7.917	227.0207	453.44	.Q V	.	.	.	.

8.000	230.1621	456.13	.Q	V	.	.	.	.
8.083	233.3223	458.86	.Q	V	.	.	.	.
8.167	236.5017	461.64	.Q	V	.	.	.	.
8.250	239.7004	464.46	.Q	V	.	.	.	.
8.333	242.9189	467.33	.Q	V	.	.	.	.
8.417	246.1575	470.24	.Q	V	.	.	.	.
8.500	249.4165	473.20	.Q	V	.	.	.	.
8.583	252.6962	476.22	.Q	V	.	.	.	.
8.667	255.9971	479.28	.Q	V	.	.	.	.
8.750	259.3194	482.40	.Q	V	.	.	.	.
8.833	262.6635	485.57	.Q	V	.	.	.	.
8.917	266.0298	488.79	.Q	V	.	.	.	.
9.000	269.4188	492.08	.Q	V	.	.	.	.
9.083	272.8307	495.42	.Q	V	.	.	.	.
9.167	276.2662	498.82	.Q	V	.	.	.	.
9.250	279.7255	502.29	.Q	V	.	.	.	.
9.333	283.2091	505.82	.Q	V	.	.	.	.
9.417	286.7174	509.41	.Q	V	.	.	.	.
9.500	290.2510	513.08	.Q	V	.	.	.	.
9.583	293.8103	516.81	.Q	V	.	.	.	.
9.667	297.3959	520.62	.Q	V	.	.	.	.
9.750	301.0081	524.50	.Q	V	.	.	.	.
9.833	304.6477	528.47	.Q	V	.	.	.	.
9.917	308.3151	532.51	.Q	V	.	.	.	.
10.000	312.0109	536.63	.Q	V	.	.	.	.
10.083	315.7357	540.84	.Q	V	.	.	.	.
10.167	319.4901	545.13	.Q	V	.	.	.	.
10.250	323.2746	549.52	.Q	V	.	.	.	.
10.333	327.0901	554.00	.Q	V	.	.	.	.
10.417	330.9371	558.58	.Q	V	.	.	.	.
10.500	334.8163	563.27	.Q	V	.	.	.	.
10.583	338.7285	568.05	.Q	V	.	.	.	.
10.667	342.6745	572.95	.Q	V	.	.	.	.
10.750	346.6549	577.96	.Q	V	.	.	.	.
10.833	350.6707	583.09	.Q	V	.	.	.	.
10.917	354.7225	588.33	.Q	V	.	.	.	.
11.000	358.8115	593.72	.Q	V	.	.	.	.
11.083	362.9386	599.25	.Q	V	.	.	.	.
11.167	367.1054	605.02	.Q	V	.	.	.	.
11.250	371.3143	611.13	.Q	V	.	.	.	.
11.333	375.5682	617.67	.Q	V	.	.	.	.
11.417	379.8701	624.64	.Q	V	.	.	.	.
11.500	384.2225	631.97	.Q	V	.	.	.	.
11.583	388.6275	639.61	.Q	V	.	.	.	.
11.667	393.0872	647.54	.Q	V	.	.	.	.
11.750	397.6034	655.76	. Q	V	.	.	.	.
11.833	402.1782	664.26	. Q	V	.	.	.	.
11.917	406.8136	673.05	. Q	V	.	.	.	.
12.000	411.5115	682.13	. Q	V	.	.	.	.
12.083	416.2696	690.88	. Q	V	.	.	.	.
12.167	421.0640	696.14	. Q	V	.	.	.	.
12.250	425.8402	693.51	. Q	V	.	.	.	.
12.333	430.5242	680.11	. Q	V	.	.	.	.
12.417	435.0714	660.24	. Q	V	.	.	.	.
12.500	439.4984	642.80	.Q	V	.	.	.	.
12.583	443.8511	632.02	.Q	V	.	.	.	.
12.667	448.1724	627.45	.Q	V	.	.	.	.

12.750	452.4935	627.43	.Q V . . .
12.833	456.8372	630.71	.Q V . . .
12.917	461.2203	636.42	.Q V . . .
13.000	465.6557	644.01	.Q V . . .
13.083	470.1539	653.15	.Q V . . .
13.167	474.7240	663.58	. Q V . . .
13.250	479.3735	675.11	. Q V . . .
13.333	484.1096	687.68	. Q V . . .
13.417	488.9392	701.26	. Q V . . .
13.500	493.8694	715.86	. Q .V . . .
13.583	498.9071	731.48	. Q .V . . .
13.667	504.0597	748.15	. Q .V . . .
13.750	509.3342	765.87	. Q .V . . .
13.833	514.7384	784.68	. Q .V . . .
13.917	520.2800	804.64	. Q .V . . .
14.000	525.9676	825.83	. Q .V . . .
14.083	531.8113	848.52	. Q .V . . .
14.167	537.8273	873.51	. Q . V . . .
14.250	544.0390	901.94	. Q . V . . .
14.333	550.4777	934.89	. Q . V . . .
14.417	557.1716	971.96	. Q . V . . .
14.500	564.1375	1011.44	. Q . V . . .
14.583	571.3831	1052.05	. Q . V . . .
14.667	578.9151	1093.65	. Q . V . . .
14.750	586.7445	1136.83	. Q . V . . .
14.833	594.8884	1182.50	. Q . V . . .
14.917	603.3698	1231.50	. Q . V . . .
15.000	612.2172	1284.64	. Q . V . . .
15.083	621.4645	1342.72	. Q . V . . .
15.167	631.1531	1406.79	. Q . V . . .
15.250	641.3319	1477.96	. Q . V . . .
15.333	652.0609	1557.85	. Q . V . . .
15.417	663.3984	1646.22	. Q . V . . .
15.500	675.3502	1735.39	. Q . V . . .
15.583	687.8406	1813.61	. Q . V . . .
15.667	700.7479	1874.14	. Q . V . . .
15.750	714.0945	1937.93	. Q . V . . .
15.833	728.2903	2061.23	. Q . V . . .
15.917	744.1569	2303.84	. Q . V . . .
16.000	763.0541	2743.87	. Q . V . . .
16.083	787.8968	3607.16	. .Q V . . .
16.167	823.2520	5133.57	. . Q V . . .
16.250	876.2913	7701.32	. . V. Q . .
16.333	952.7709	11104.83	. . .V . Q .
16.417	1042.8834	13084.35	. . . V . Q.
16.500	1127.2455	12249.37	. . . V . Q .
16.583	1196.0792	9994.67	. . . V Q .
16.667	1250.5338	7906.81	. . . Q V . .
16.750	1293.1235	6184.03	. . Q . V. .
16.833	1326.3402	4823.07	. . Q . V. .
16.917	1353.7607	3981.47	. . Q . V .
17.000	1377.3359	3423.11	. Q . V .
17.083	1397.8815	2983.22	. Q. . .V .
17.167	1415.9783	2627.65	. Q . . .V .
17.250	1432.1212	2343.95	. Q . . . V .
17.333	1446.5941	2101.47	. Q . . . V .
17.417	1459.5809	1885.68	. Q . . . V .

17.500	1471.2661	1696.69	.	Q	.	.	.	V	.
17.583	1481.8127	1531.36	.	Q	.	.	.	V	.
17.667	1491.3931	1391.06	.	Q	.	.	.	V	.
17.750	1500.1599	1272.94	.	Q	.	.	.	V	.
17.833	1508.2487	1174.49	.	Q	.	.	.	V	.
17.917	1515.7581	1090.36	.	Q	.	.	.	V	.
18.000	1522.7433	1014.26	.	Q	.	.	.	V	.
18.083	1529.2303	941.92	.	Q	.	.	.	V	.
18.167	1535.3053	882.08	.	Q	.	.	.	V	.
18.250	1541.0853	839.26	.	Q	.	.	.	V	.
18.333	1546.6471	807.57	.	Q	.	.	.	V	.
18.417	1552.0378	782.74	.	Q	.	.	.	V	.
18.500	1557.2543	757.42	.	Q	.	.	.	V	.
18.583	1562.3295	736.91	.	Q	.	.	.	V	.
18.667	1567.2795	718.75	.	Q	.	.	.	V	.
18.750	1572.0938	699.02	.	Q	.	.	.	V	.
18.833	1576.7899	681.89	.	Q	.	.	.	V	.
18.917	1581.3806	666.57	.	Q	.	.	.	V	.
19.000	1585.8708	651.98	.	Q	.	.	.	V	.
19.083	1590.2667	638.27	.	Q	.	.	.	V	.
19.167	1594.5743	625.47	.	Q	.	.	.	V	.
19.250	1598.7993	613.47	.	Q	.	.	.	V	.
19.333	1602.9462	602.12	.	Q	.	.	.	V	.
19.417	1607.0186	591.32	.	Q	.	.	.	V	.
19.500	1611.0200	581.01	.	Q	.	.	.	V	.
19.583	1614.9535	571.14	.	Q	.	.	.	V	.
19.667	1618.8218	561.68	.	Q	.	.	.	V	.
19.750	1622.6276	552.60	.	Q	.	.	.	V	.
19.833	1626.3734	543.90	.	Q	.	.	.	V	.
19.917	1630.0618	535.56	.	Q	.	.	.	V	.
20.000	1633.6951	527.55	.	Q	.	.	.	V	.
20.083	1637.2753	519.84	.	Q	.	.	.	V	.
20.167	1640.8042	512.41	.	Q	.	.	.	V	.
20.250	1644.2839	505.25	.	Q	.	.	.	V	.
20.333	1647.7159	498.33	.	Q	.	.	.	V	.
20.417	1651.1016	491.60	.	Q	.	.	.	V	.
20.500	1654.4421	485.05	.	Q	.	.	.	V	.
20.583	1657.7390	478.71	.	Q	.	.	.	V	.
20.667	1660.9937	472.58	.	Q	.	.	.	V	.
20.750	1664.2074	466.64	.	Q	.	.	.	V	.
20.833	1667.3816	460.90	.	Q	.	.	.	V	.
20.917	1670.5176	455.35	.	Q	.	.	.	V	.
21.000	1673.6167	449.99	.	Q	.	.	.	V	.
21.083	1676.6801	444.80	.	Q	.	.	.	V	.
21.167	1679.7089	439.77	.	Q	.	.	.	V	.
21.250	1682.7040	434.90	.	Q	.	.	.	V	.
21.333	1685.6665	430.16	.	Q	.	.	.	V	.
21.417	1688.5973	425.55	.	Q	.	.	.	V	.
21.500	1691.4971	421.05	.	Q	.	.	.	V	.
21.583	1694.3668	416.69	.	Q	.	.	.	V	.
21.667	1697.2074	412.45	.	Q	.	.	.	V	.
21.750	1700.0197	408.33	.	Q	.	.	.	V	.
21.833	1702.8042	404.32	.	Q	.	.	.	V	.
21.917	1705.5619	400.41	.	Q	.	.	.	V	.
22.000	1708.2933	396.60	.	Q	.	.	.	V	.
22.083	1710.9991	392.88	.	Q	.	.	.	V	.
22.167	1713.6799	389.26	.	Q	.	.	.	V	.

22.250	1716.3364	385.72	.Q	.	.	.	V .
22.333	1718.9691	382.27	.Q	.	.	.	V .
22.417	1721.5786	378.90	.Q	.	.	.	V .
22.500	1724.1654	375.60	.Q	.	.	.	V .
22.583	1726.7300	372.38	.Q	.	.	.	V .
22.667	1729.2729	369.23	.Q	.	.	.	V .
22.750	1731.7947	366.16	.Q	.	.	.	V .
22.833	1734.2957	363.14	.Q	.	.	.	V .
22.917	1736.7764	360.20	.Q	.	.	.	V.
23.000	1739.2372	357.31	.Q	.	.	.	V.
23.083	1741.6786	354.49	.Q	.	.	.	V.
23.167	1744.1010	351.72	.Q	.	.	.	V.
23.250	1746.5046	349.01	.Q	.	.	.	V.
23.333	1748.8900	346.36	.Q	.	.	.	V.
23.417	1751.2574	343.76	.Q	.	.	.	V.
23.500	1753.6073	341.21	.Q	.	.	.	V.
23.583	1755.9399	338.70	.Q	.	.	.	V.
23.667	1758.2557	336.25	.Q	.	.	.	V.
23.750	1760.5549	333.85	.Q	.	.	.	V.
23.833	1762.8379	331.49	.Q	.	.	.	V.
23.917	1765.1049	329.17	.Q	.	.	.	V.
24.000	1767.3562	326.89	Q	.	.	.	V.
24.083	1769.5826	323.28	Q	.	.	.	V.
24.167	1771.7317	312.04	Q	.	.	.	V.
24.250	1773.7006	285.87	Q	.	.	.	V.
24.333	1775.3672	241.99	Q	.	.	.	V.
24.417	1776.6790	190.47	Q	.	.	.	V.
24.500	1777.6539	141.57	Q	.	.	.	V.
24.583	1778.3802	105.47	Q	.	.	.	V.
24.667	1778.9369	80.83	Q	.	.	.	V.
24.750	1779.3654	62.21	Q	.	.	.	V.
24.833	1779.7119	50.32	Q	.	.	.	V.
24.917	1779.9912	40.55	Q	.	.	.	V.
25.000	1780.2191	33.08	Q	.	.	.	V.
25.083	1780.4095	27.64	Q	.	.	.	V.
25.167	1780.5669	22.84	Q	.	.	.	V.
25.250	1780.6958	18.72	Q	.	.	.	V.
25.333	1780.8008	15.25	Q	.	.	.	V.
25.417	1780.8861	12.39	Q	.	.	.	V.
25.500	1780.9553	10.05	Q	.	.	.	V.
25.583	1781.0114	8.14	Q	.	.	.	V.
25.667	1781.0565	6.56	Q	.	.	.	V.
25.750	1781.0925	5.23	Q	.	.	.	V.
25.833	1781.1206	4.08	Q	.	.	.	V.
25.917	1781.1417	3.07	Q	.	.	.	V.
26.000	1781.1570	2.21	Q	.	.	.	V.
26.083	1781.1676	1.54	Q	.	.	.	V.
26.167	1781.1748	1.04	Q	.	.	.	V.
26.250	1781.1792	0.64	Q	.	.	.	V.
26.333	1781.1818	0.38	Q	.	.	.	V.
26.417	1781.1833	0.24	Q	.	.	.	V.
26.500	1781.1843	0.15	Q	.	.	.	V.
26.583	1781.1848	0.07	Q	.	.	.	V.
26.667	1781.1849	0.01	Q	.	.	.	V
26.750	1781.1849	0.00	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:

(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1600.0
10%	160.0
20%	75.0
30%	50.0
40%	35.0
50%	30.0
60%	25.0
70%	20.0
80%	15.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     108.00 TO NODE     109.00 IS CODE = 5.1
----------------------------------------------------------------------------
  >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

        THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
        AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

        ASSUMED REGULAR CHANNEL INFORMATION:
          BASEWIDTH(FT) =   80.00     CHANNEL Z =  2.00
          UPSTREAM ELEVATION(FT) =    3125.00
          DOWNSTREAM ELEVATION(FT) =    3082.00
          CHANNEL LENGTH(FT) =    3800.00     MANNING'S FACTOR = 0.030
          CONSTANT LOSS RATE(CFS) =    0.00

        MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                               (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
          AVERAGED PEAK  5-MINUTE: (   13084.3).......[ 18.07]
          AVERAGED PEAK 15-MINUTE: (   12146.2).......[ 17.63]
          AVERAGED PEAK 30-MINUTE: (   10340.2).......[ 16.72]
          AVERAGED PEAK  1-HOUR:   (    7432.8).......[ 14.94]
          AVERAGED PEAK  3-HOUR:   (    3684.1).......[ 11.65]
          AVERAGED PEAK  6-HOUR:   (    2259.1).......[  9.77]
          AVERAGED PEAK 24-HOUR:   (     894.9).......[  6.88]
        USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  14.000
        HYDROGRAPH TRANSLATION TIME
        = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
        = (   3800.00)/( 14.000) =   0.075 HRS

        TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                                              OUTFLOW LESS
         MODEL         INFLOW      ROUTED       LOSS
          TIME       (STREAM 1)     FLOW      (STREAM 1)
         (HRS)         (CFS)        (CFS)       (CFS)
          0.083          0.69         0.07         0.07
          0.167          5.82         1.17         1.17
          0.250         33.36         8.44         8.44
          0.333         76.75        37.49        37.49
```

0.417	128.70	81.70	81.70
0.500	174.76	133.08	133.08
0.583	210.71	178.19	178.19
0.667	236.33	213.15	213.15
0.750	254.26	238.03	238.03
0.833	267.27	255.50	255.50
0.917	277.34	268.23	268.23
1.000	285.48	278.12	278.12
1.083	292.14	286.11	286.11
1.167	297.75	292.67	292.67
1.250	302.61	298.21	298.21
1.333	306.83	303.01	303.01
1.417	310.53	307.19	307.19
1.500	313.77	310.84	310.84
1.583	316.62	314.04	314.04
1.667	319.15	316.86	316.86
1.750	321.46	319.37	319.37
1.833	323.63	321.67	321.67
1.917	325.71	323.83	323.83
2.000	327.68	325.90	325.90
2.083	329.48	327.86	327.86
2.167	331.14	329.64	329.64
2.250	332.71	331.29	331.29
2.333	334.16	332.85	332.85
2.417	335.50	334.29	334.29
2.500	336.80	335.62	335.62
2.583	338.10	336.92	336.92
2.667	339.39	338.22	338.22
2.750	340.66	339.51	339.51
2.833	341.92	340.78	340.78
2.917	343.19	342.04	342.04
3.000	344.48	343.31	343.31
3.083	345.77	344.60	344.60
3.167	347.08	345.90	345.90
3.250	348.41	347.21	347.21
3.333	349.75	348.54	348.54
3.417	351.10	349.88	349.88
3.500	352.47	351.23	351.23
3.583	353.85	352.60	352.60
3.667	355.24	353.98	353.98
3.750	356.65	355.37	355.37
3.833	358.07	356.78	356.78
3.917	359.51	358.21	358.21
4.000	360.96	359.65	359.65
4.083	362.43	361.10	361.10
4.167	363.92	362.57	362.57
4.250	365.42	364.06	364.06
4.333	366.94	365.57	365.57
4.417	368.48	367.09	367.09
4.500	370.03	368.62	368.62
4.583	371.60	370.18	370.18
4.667	373.19	371.75	371.75
4.750	374.79	373.34	373.34
4.833	376.42	374.95	374.95
4.917	378.06	376.57	376.57
5.000	379.72	378.22	378.22
5.083	381.40	379.88	379.88

5.167	383.10	381.56	381.56
5.250	384.82	383.27	383.27
5.333	386.56	384.99	384.99
5.417	388.32	386.73	386.73
5.500	390.11	388.49	388.49
5.583	391.91	390.28	390.28
5.667	393.74	392.09	392.09
5.750	395.59	393.92	393.92
5.833	397.46	395.77	395.77
5.917	399.36	397.64	397.64
6.000	401.28	399.54	399.54
6.083	403.23	401.47	401.47
6.167	405.20	403.41	403.41
6.250	407.18	405.38	405.38
6.333	409.20	407.37	407.37
6.417	411.24	409.39	409.39
6.500	413.32	411.44	411.44
6.583	415.42	413.52	413.52
6.667	417.55	415.62	415.62
6.750	419.71	417.76	417.76
6.833	421.91	419.92	419.92
6.917	424.13	422.12	422.12
7.000	426.38	424.34	424.34
7.083	428.67	426.60	426.60
7.167	430.98	428.89	428.89
7.250	433.33	431.21	431.21
7.333	435.72	433.56	433.56
7.417	438.14	435.95	435.95
7.500	440.59	438.37	438.37
7.583	443.09	440.83	440.83
7.667	445.62	443.33	443.33
7.750	448.18	445.86	445.86
7.833	450.79	448.43	448.43
7.917	453.44	451.04	451.04
8.000	456.13	453.70	453.70
8.083	458.86	456.39	456.39
8.167	461.64	459.13	459.13
8.250	464.46	461.91	461.91
8.333	467.33	464.73	464.73
8.417	470.24	467.61	467.61
8.500	473.20	470.52	470.52
8.583	476.22	473.49	473.49
8.667	479.28	476.51	476.51
8.750	482.40	479.58	479.58
8.833	485.57	482.70	482.70
8.917	488.79	485.88	485.88
9.000	492.08	489.11	489.11
9.083	495.42	492.39	492.39
9.167	498.82	495.74	495.74
9.250	502.29	499.15	499.15
9.333	505.82	502.62	502.62
9.417	509.41	506.16	506.16
9.500	513.08	509.76	509.76
9.583	516.81	513.43	513.43
9.667	520.62	517.17	517.17
9.750	524.50	520.99	520.99
9.833	528.47	524.88	524.88

9.917	532.51	528.85	528.85
10.000	536.63	532.90	532.90
10.083	540.84	537.03	537.03
10.167	545.13	541.25	541.25
10.250	549.52	545.55	545.55
10.333	554.00	549.95	549.95
10.417	558.58	554.44	554.44
10.500	563.27	559.03	559.03
10.583	568.05	563.72	563.72
10.667	572.95	568.52	568.52
10.750	577.96	573.43	573.43
10.833	583.09	578.45	578.45
10.917	588.33	583.59	583.59
11.000	593.72	588.85	588.85
11.083	599.25	594.24	594.24
11.167	605.02	599.80	599.80
11.250	611.13	605.61	605.61
11.333	617.67	611.75	611.75
11.417	624.64	618.33	618.33
11.500	631.97	625.34	625.34
11.583	639.61	632.69	632.69
11.667	647.54	640.36	640.36
11.750	655.76	648.32	648.32
11.833	664.26	656.57	656.57
11.917	673.05	665.10	665.10
12.000	682.13	673.92	673.92
12.083	690.88	682.97	682.97
12.167	696.14	691.38	691.38
12.250	693.51	695.89	695.89
12.333	680.11	692.24	692.24
12.417	660.24	678.22	678.22
12.500	642.80	658.58	658.58
12.583	632.02	641.77	641.77
12.667	627.45	631.58	631.58
12.750	627.43	627.45	627.45
12.833	630.71	627.74	627.74
12.917	636.42	631.25	631.25
13.000	644.01	637.14	637.14
13.083	653.15	644.88	644.88
13.167	663.58	654.14	654.14
13.250	675.11	664.67	664.67
13.333	687.68	676.30	676.30
13.417	701.26	688.97	688.97
13.500	715.86	702.65	702.65
13.583	731.48	717.35	717.35
13.667	748.15	733.07	733.07
13.750	765.87	749.83	749.83
13.833	784.68	767.66	767.66
13.917	804.64	786.58	786.58
14.000	825.83	806.66	806.66
14.083	848.52	827.99	827.99
14.167	873.51	850.90	850.90
14.250	901.94	876.22	876.22
14.333	934.89	905.08	905.08
14.417	971.96	938.42	938.42
14.500	1011.44	975.72	975.72
14.583	1052.05	1015.31	1015.31

14.667	1093.65	1056.01	1056.01
14.750	1136.83	1097.76	1097.76
14.833	1182.50	1141.18	1141.18
14.917	1231.50	1187.17	1187.17
15.000	1284.64	1236.56	1236.56
15.083	1342.72	1290.17	1290.17
15.167	1406.79	1348.82	1348.82
15.250	1477.96	1413.56	1413.56
15.333	1557.85	1485.56	1485.56
15.417	1646.22	1566.26	1566.26
15.500	1735.39	1654.71	1654.71
15.583	1813.61	1742.84	1742.84
15.667	1874.14	1819.38	1819.38
15.750	1937.93	1880.21	1880.21
15.833	2061.23	1949.67	1949.67
15.917	2303.84	2084.33	2084.33
16.000	2743.87	2345.75	2345.75
16.083	3607.16	2826.09	2826.09
16.167	5133.57	3752.53	3752.53
16.250	7701.32	5378.11	5378.11
16.333	11104.83	8025.46	8025.46
16.417	13084.35	11293.36	11293.36
16.500	12249.37	13004.83	13004.83
16.583	9994.67	12034.63	12034.63
16.667	7906.81	9795.82	9795.82
16.750	6184.03	7742.73	7742.73
16.833	4823.07	6054.42	6054.42
16.917	3981.47	4742.92	4742.92
17.000	3423.11	3928.29	3928.29
17.083	2983.22	3381.22	3381.22
17.167	2627.65	2949.36	2949.36
17.250	2343.95	2600.63	2600.63
17.333	2101.47	2320.86	2320.86
17.417	1885.68	2080.91	2080.91
17.500	1696.69	1867.68	1867.68
17.583	1531.36	1680.95	1680.95
17.667	1391.06	1518.00	1518.00
17.750	1272.94	1379.81	1379.81
17.833	1174.49	1263.57	1263.57
17.917	1090.36	1166.48	1166.48
18.000	1014.26	1083.11	1083.11
18.083	941.92	1007.37	1007.37
18.167	882.08	936.22	936.22
18.250	839.26	878.00	878.00
18.333	807.57	836.24	836.24
18.417	782.74	805.21	805.21
18.500	757.42	780.33	780.33
18.583	736.91	755.47	755.47
18.667	718.75	735.18	735.18
18.750	699.02	716.87	716.87
18.833	681.89	697.39	697.39
18.917	666.57	680.43	680.43
19.000	651.98	665.19	665.19
19.083	638.27	650.68	650.68
19.167	625.47	637.05	637.05
19.250	613.47	624.33	624.33
19.333	602.12	612.39	612.39

19.417	591.32	601.09	601.09
19.500	581.01	590.34	590.34
19.583	571.14	580.07	580.07
19.667	561.68	570.24	570.24
19.750	552.60	560.81	560.81
19.833	543.90	551.77	551.77
19.917	535.56	543.10	543.10
20.000	527.55	534.79	534.79
20.083	519.84	526.82	526.82
20.167	512.41	519.13	519.13
20.250	505.25	511.73	511.73
20.333	498.33	504.59	504.59
20.417	491.60	497.69	497.69
20.500	485.05	490.98	490.98
20.583	478.71	484.45	484.45
20.667	472.58	478.13	478.13
20.750	466.64	472.01	472.01
20.833	460.90	466.09	466.09
20.917	455.35	460.37	460.37
21.000	449.99	454.84	454.84
21.083	444.80	449.50	449.50
21.167	439.77	444.32	444.32
21.250	434.90	439.31	439.31
21.333	430.16	434.45	434.45
21.417	425.55	429.72	429.72
21.500	421.05	425.12	425.12
21.583	416.69	420.63	420.63
21.667	412.45	416.29	416.29
21.750	408.33	412.06	412.06
21.833	404.32	407.95	407.95
21.917	400.41	403.95	403.95
22.000	396.60	400.05	400.05
22.083	392.88	396.24	396.24
22.167	389.26	392.54	392.54
22.250	385.72	388.92	388.92
22.333	382.27	385.39	385.39
22.417	378.90	381.95	381.95
22.500	375.60	378.58	378.58
22.583	372.38	375.30	375.30
22.667	369.23	372.08	372.08
22.750	366.16	368.94	368.94
22.833	363.14	365.87	365.87
22.917	360.20	362.86	362.86
23.000	357.31	359.92	359.92
23.083	354.49	357.04	357.04
23.167	351.72	354.22	354.22
23.250	349.01	351.46	351.46
23.333	346.36	348.76	348.76
23.417	343.76	346.11	346.11
23.500	341.21	343.51	343.51
23.583	338.70	340.97	340.97
23.667	336.25	338.47	338.47
23.750	333.85	336.02	336.02
23.833	331.49	333.62	333.62
23.917	329.17	331.26	331.26
24.000	326.89	328.95	328.95
24.083	323.28	326.55	326.55

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          24.167       312.04       322.21       322.21
          24.250       285.87       309.55       309.55
          24.333       241.99       281.69       281.69
          24.417       190.47       237.08       237.08
          24.500       141.57       185.81       185.81
          24.583       105.47       138.14       138.14
          24.667        80.83       103.12       103.12
          24.750        62.21        79.05        79.05
          24.833        50.32        61.08        61.08
          24.917        40.55        49.39        49.39
          25.000        33.08        39.84        39.84
          25.083        27.64        32.57        32.57
          25.167        22.84        27.19        27.19
          25.250        18.72        22.45        22.45
          25.333        15.25        18.39        18.39
          25.417        12.39        14.98        14.98
          25.500        10.05        12.17        12.17
          25.583         8.14         9.87         9.87
          25.667         6.56         7.99         7.99
          25.750         5.23         6.43         6.43
          25.833         4.08         5.12         5.12
          25.917         3.07         3.99         3.99
          26.000         2.21         2.99         2.99
          26.083         1.54         2.14         2.14
          26.167         1.04         1.50         1.50
          26.250         0.64         1.00         1.00
          26.333         0.38         0.62         0.62
          26.417         0.24         0.36         0.36
          26.500         0.15         0.23         0.23
          26.583         0.07         0.14         0.14
          26.667         0.01         0.06         0.06
          26.750         0.00         0.01         0.01
          26.833         0.00         0.00         0.00
          26.917         0.00         0.00         0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =   1781.185 AF
    OUTFLOW VOLUME =   1781.186 AF
    LOSS    VOLUME =      0.000 AF


********************************************************************************
  FLOW PROCESS FROM NODE     109.00 TO NODE     109.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
================================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

        WATERSHED AREA =     1184.800 ACRES
        BASEFLOW =    0.000 CFS/SQUARE-MILE
        *USER ENTERED "LAG" TIME =     0.446 HOURS
         CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
         THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
         MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
        DESERT(UNDEVELOPED) S-GRAPH SELECTED
        MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.146
```

LOW LOSS FRACTION = 0.164
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 18.685

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.904	129.532
2	4.036	448.781
3	9.693	810.600
4	21.893	1748.007
5	38.870	2432.635
6	51.299	1780.918
7	59.872	1228.331
8	65.838	854.867
9	70.582	679.811
10	74.411	548.571
11	77.630	461.306
12	80.263	377.299
13	82.524	323.913
14	84.499	283.030
15	86.297	257.629
16	87.869	225.223
17	89.197	190.318
18	90.305	158.751
19	91.352	149.989
20	92.289	134.262
21	93.153	123.852
22	93.943	113.144
23	94.594	93.267

24	95.229	91.006
25	95.802	82.065
26	96.288	69.677
27	96.769	68.959
28	97.149	54.400
29	97.485	48.228
30	97.798	44.785
31	97.999	28.787
32	98.186	26.781
33	98.387	28.878
34	98.611	32.112
35	98.836	32.112
36	99.060	32.143
37	99.284	32.112
38	99.508	32.112
39	99.732	32.112
40	99.956	32.112
41	100.000	6.256

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0008	0.0041
2	0.0049	0.0008	0.0041
3	0.0049	0.0008	0.0041
4	0.0049	0.0008	0.0041
5	0.0049	0.0008	0.0041
6	0.0049	0.0008	0.0041
7	0.0050	0.0008	0.0041
8	0.0050	0.0008	0.0042
9	0.0050	0.0008	0.0042
10	0.0050	0.0008	0.0042
11	0.0050	0.0008	0.0042
12	0.0050	0.0008	0.0042
13	0.0051	0.0008	0.0042
14	0.0051	0.0008	0.0042
15	0.0051	0.0008	0.0043
16	0.0051	0.0008	0.0043
17	0.0051	0.0008	0.0043
18	0.0051	0.0008	0.0043
19	0.0052	0.0008	0.0043
20	0.0052	0.0008	0.0043
21	0.0052	0.0009	0.0043
22	0.0052	0.0009	0.0044
23	0.0052	0.0009	0.0044
24	0.0052	0.0009	0.0044
25	0.0053	0.0009	0.0044
26	0.0053	0.0009	0.0044
27	0.0053	0.0009	0.0044
28	0.0053	0.0009	0.0045
29	0.0054	0.0009	0.0045
30	0.0054	0.0009	0.0045
31	0.0054	0.0009	0.0045
32	0.0054	0.0009	0.0045
33	0.0054	0.0009	0.0045
34	0.0054	0.0009	0.0046
35	0.0055	0.0009	0.0046
36	0.0055	0.0009	0.0046
37	0.0055	0.0009	0.0046
38	0.0055	0.0009	0.0046
39	0.0056	0.0009	0.0047
40	0.0056	0.0009	0.0047
41	0.0056	0.0009	0.0047
42	0.0056	0.0009	0.0047
43	0.0057	0.0009	0.0047
44	0.0057	0.0009	0.0047
45	0.0057	0.0009	0.0048
46	0.0057	0.0009	0.0048
47	0.0057	0.0009	0.0048
48	0.0058	0.0009	0.0048
49	0.0058	0.0010	0.0048
50	0.0058	0.0010	0.0049
51	0.0058	0.0010	0.0049

52	0.0059	0.0010	0.0049
53	0.0059	0.0010	0.0049
54	0.0059	0.0010	0.0049
55	0.0059	0.0010	0.0050
56	0.0060	0.0010	0.0050
57	0.0060	0.0010	0.0050
58	0.0060	0.0010	0.0050
59	0.0061	0.0010	0.0051
60	0.0061	0.0010	0.0051
61	0.0061	0.0010	0.0051
62	0.0061	0.0010	0.0051
63	0.0062	0.0010	0.0052
64	0.0062	0.0010	0.0052
65	0.0062	0.0010	0.0052
66	0.0063	0.0010	0.0052
67	0.0063	0.0010	0.0053
68	0.0063	0.0010	0.0053
69	0.0064	0.0010	0.0053
70	0.0064	0.0010	0.0053
71	0.0064	0.0011	0.0054
72	0.0064	0.0011	0.0054
73	0.0065	0.0011	0.0054
74	0.0065	0.0011	0.0054
75	0.0065	0.0011	0.0055
76	0.0066	0.0011	0.0055
77	0.0066	0.0011	0.0055
78	0.0066	0.0011	0.0056
79	0.0067	0.0011	0.0056
80	0.0067	0.0011	0.0056
81	0.0068	0.0011	0.0057
82	0.0068	0.0011	0.0057
83	0.0068	0.0011	0.0057
84	0.0069	0.0011	0.0057
85	0.0069	0.0011	0.0058
86	0.0069	0.0011	0.0058
87	0.0070	0.0011	0.0058
88	0.0070	0.0012	0.0059
89	0.0071	0.0012	0.0059
90	0.0071	0.0012	0.0059
91	0.0072	0.0012	0.0060
92	0.0072	0.0012	0.0060
93	0.0072	0.0012	0.0061
94	0.0073	0.0012	0.0061
95	0.0073	0.0012	0.0061
96	0.0074	0.0012	0.0062
97	0.0074	0.0012	0.0062
98	0.0075	0.0012	0.0062
99	0.0075	0.0012	0.0063
100	0.0076	0.0012	0.0063
101	0.0076	0.0013	0.0064
102	0.0077	0.0013	0.0064
103	0.0077	0.0013	0.0065
104	0.0078	0.0013	0.0065
105	0.0078	0.0013	0.0066
106	0.0079	0.0013	0.0066
107	0.0080	0.0013	0.0066
108	0.0080	0.0013	0.0067

109	0.0081	0.0013	0.0067
110	0.0081	0.0013	0.0068
111	0.0082	0.0013	0.0068
112	0.0082	0.0013	0.0069
113	0.0083	0.0014	0.0069
114	0.0084	0.0014	0.0070
115	0.0084	0.0014	0.0071
116	0.0085	0.0014	0.0071
117	0.0086	0.0014	0.0072
118	0.0086	0.0014	0.0072
119	0.0087	0.0014	0.0073
120	0.0088	0.0014	0.0073
121	0.0089	0.0015	0.0074
122	0.0089	0.0015	0.0075
123	0.0090	0.0015	0.0075
124	0.0091	0.0015	0.0076
125	0.0092	0.0015	0.0077
126	0.0092	0.0015	0.0077
127	0.0094	0.0015	0.0078
128	0.0094	0.0015	0.0079
129	0.0095	0.0016	0.0080
130	0.0096	0.0016	0.0080
131	0.0097	0.0016	0.0081
132	0.0098	0.0016	0.0082
133	0.0099	0.0016	0.0083
134	0.0100	0.0016	0.0083
135	0.0101	0.0017	0.0085
136	0.0102	0.0017	0.0085
137	0.0103	0.0017	0.0087
138	0.0104	0.0017	0.0087
139	0.0106	0.0017	0.0088
140	0.0107	0.0017	0.0089
141	0.0108	0.0018	0.0091
142	0.0109	0.0018	0.0091
143	0.0111	0.0018	0.0093
144	0.0112	0.0018	0.0094
145	0.0090	0.0015	0.0075
146	0.0091	0.0015	0.0076
147	0.0093	0.0015	0.0078
148	0.0094	0.0015	0.0078
149	0.0096	0.0016	0.0080
150	0.0097	0.0016	0.0081
151	0.0099	0.0016	0.0083
152	0.0100	0.0016	0.0084
153	0.0102	0.0017	0.0086
154	0.0104	0.0017	0.0087
155	0.0106	0.0017	0.0089
156	0.0107	0.0018	0.0090
157	0.0110	0.0018	0.0092
158	0.0112	0.0018	0.0093
159	0.0115	0.0019	0.0096
160	0.0116	0.0019	0.0097
161	0.0120	0.0020	0.0100
162	0.0121	0.0020	0.0101
163	0.0125	0.0021	0.0105
164	0.0127	0.0021	0.0106
165	0.0131	0.0022	0.0110

166	0.0134	0.0022	0.0112
167	0.0138	0.0023	0.0116
168	0.0141	0.0023	0.0118
169	0.0151	0.0025	0.0127
170	0.0154	0.0025	0.0129
171	0.0161	0.0026	0.0134
172	0.0164	0.0027	0.0137
173	0.0172	0.0028	0.0144
174	0.0176	0.0029	0.0147
175	0.0185	0.0030	0.0155
176	0.0190	0.0031	0.0159
177	0.0201	0.0033	0.0168
178	0.0207	0.0034	0.0173
179	0.0220	0.0036	0.0184
180	0.0228	0.0037	0.0190
181	0.0245	0.0040	0.0205
182	0.0255	0.0042	0.0213
183	0.0279	0.0046	0.0233
184	0.0293	0.0048	0.0245
185	0.0251	0.0041	0.0210
186	0.0269	0.0044	0.0225
187	0.0316	0.0052	0.0264
188	0.0347	0.0057	0.0290
189	0.0539	0.0088	0.0451
190	0.0621	0.0102	0.0519
191	0.0941	0.0122	0.0819
192	0.1367	0.0122	0.1245
193	0.5874	0.0122	0.5752
194	0.0741	0.0122	0.0620
195	0.0387	0.0063	0.0323
196	0.0290	0.0048	0.0243
197	0.0308	0.0051	0.0258
198	0.0266	0.0044	0.0223
199	0.0236	0.0039	0.0197
200	0.0213	0.0035	0.0178
201	0.0195	0.0032	0.0163
202	0.0180	0.0030	0.0151
203	0.0168	0.0028	0.0140
204	0.0158	0.0026	0.0132
205	0.0144	0.0024	0.0120
206	0.0136	0.0022	0.0114
207	0.0129	0.0021	0.0108
208	0.0123	0.0020	0.0103
209	0.0118	0.0019	0.0099
210	0.0113	0.0019	0.0095
211	0.0109	0.0018	0.0091
212	0.0105	0.0017	0.0088
213	0.0101	0.0017	0.0085
214	0.0098	0.0016	0.0082
215	0.0095	0.0016	0.0079
216	0.0092	0.0015	0.0077
217	0.0113	0.0019	0.0094
218	0.0110	0.0018	0.0092
219	0.0107	0.0018	0.0090
220	0.0105	0.0017	0.0088
221	0.0103	0.0017	0.0086
222	0.0101	0.0016	0.0084

223	0.0099	0.0016	0.0082
224	0.0097	0.0016	0.0081
225	0.0095	0.0016	0.0079
226	0.0093	0.0015	0.0078
227	0.0091	0.0015	0.0076
228	0.0090	0.0015	0.0075
229	0.0088	0.0014	0.0074
230	0.0087	0.0014	0.0072
231	0.0085	0.0014	0.0071
232	0.0084	0.0014	0.0070
233	0.0083	0.0014	0.0069
234	0.0081	0.0013	0.0068
235	0.0080	0.0013	0.0067
236	0.0079	0.0013	0.0066
237	0.0078	0.0013	0.0065
238	0.0077	0.0013	0.0064
239	0.0076	0.0012	0.0063
240	0.0075	0.0012	0.0063
241	0.0074	0.0012	0.0062
242	0.0073	0.0012	0.0061
243	0.0072	0.0012	0.0060
244	0.0071	0.0012	0.0060
245	0.0070	0.0012	0.0059
246	0.0070	0.0011	0.0058
247	0.0069	0.0011	0.0058
248	0.0068	0.0011	0.0057
249	0.0067	0.0011	0.0056
250	0.0067	0.0011	0.0056
251	0.0066	0.0011	0.0055
252	0.0065	0.0011	0.0055
253	0.0065	0.0011	0.0054
254	0.0064	0.0010	0.0053
255	0.0063	0.0010	0.0053
256	0.0063	0.0010	0.0052
257	0.0062	0.0010	0.0052
258	0.0062	0.0010	0.0051
259	0.0061	0.0010	0.0051
260	0.0060	0.0010	0.0050
261	0.0060	0.0010	0.0050
262	0.0059	0.0010	0.0050
263	0.0059	0.0010	0.0049
264	0.0058	0.0010	0.0049
265	0.0058	0.0009	0.0048
266	0.0057	0.0009	0.0048
267	0.0057	0.0009	0.0048
268	0.0056	0.0009	0.0047
269	0.0056	0.0009	0.0047
270	0.0055	0.0009	0.0046
271	0.0055	0.0009	0.0046
272	0.0055	0.0009	0.0046
273	0.0054	0.0009	0.0045
274	0.0054	0.0009	0.0045
275	0.0053	0.0009	0.0045
276	0.0053	0.0009	0.0044
277	0.0053	0.0009	0.0044
278	0.0052	0.0009	0.0044
279	0.0052	0.0009	0.0043

280	0.0052	0.0008	0.0043
281	0.0051	0.0008	0.0043
282	0.0051	0.0008	0.0042
283	0.0050	0.0008	0.0042
284	0.0050	0.0008	0.0042
285	0.0050	0.0008	0.0042
286	0.0049	0.0008	0.0041
287	0.0049	0.0008	0.0041
288	0.0049	0.0008	0.0041

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.49
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.10

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 48.5894
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 306.3369

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	525.0	1050.0	1575.0	2100.0
0.083	0.0036	0.53	Q	.	.	.	.
0.167	0.0198	2.35	Q	.	.	.	.
0.250	0.0587	5.65	Q	.	.	.	.
0.333	0.1467	12.77	Q	.	.	.	.
0.417	0.3029	22.69	Q	.	.	.	.
0.500	0.5095	29.99	Q	.	.	.	.
0.583	0.7511	35.08	Q	.	.	.	.
0.667	1.0174	38.66	Q	.	.	.	.
0.750	1.3035	41.55	Q	.	.	.	.
0.833	1.6059	43.91	Q	.	.	.	.
0.917	1.9223	45.93	Q	.	.	.	.
1.000	2.2502	47.61	Q	.	.	.	.
1.083	2.5882	49.09	Q	.	.	.	.
1.167	2.9353	50.40	Q	.	.	.	.
1.250	3.2908	51.61	Q	.	.	.	.
1.333	3.6537	52.70	VQ	.	.	.	.
1.417	4.0232	53.65	VQ	.	.	.	.
1.500	4.3984	54.48	VQ	.	.	.	.
1.583	4.7791	55.27	VQ	.	.	.	.
1.667	5.1648	56.00	VQ	.	.	.	.
1.750	5.5552	56.70	VQ	.	.	.	.
1.833	5.9502	57.35	VQ	.	.	.	.
1.917	6.3492	57.93	VQ	.	.	.	.
2.000	6.7521	58.50	VQ	.	.	.	.
2.083	7.1587	59.04	VQ	.	.	.	.
2.167	7.5687	59.53	VQ	.	.	.	.
2.250	7.9821	60.02	.Q	.	.	.	.
2.333	8.3985	60.46	.Q	.	.	.	.
2.417	8.8177	60.87	.Q	.	.	.	.
2.500	9.2396	61.27	.Q	.	.	.	.
2.583	9.6639	61.61	.Q	.	.	.	.
2.667	10.0905	61.94	.Q	.	.	.	.
2.750	10.5194	62.28	.Q	.	.	.	.
2.833	10.9509	62.64	.Q	.	.	.	.
2.917	11.3848	63.01	.Q	.	.	.	.
3.000	11.8212	63.37	.Q	.	.	.	.
3.083	12.2602	63.74	.Q	.	.	.	.
3.167	12.7017	64.11	.Q	.	.	.	.
3.250	13.1458	64.48	.Q	.	.	.	.
3.333	13.5925	64.86	.Q	.	.	.	.
3.417	14.0410	65.13	.Q	.	.	.	.
3.500	14.4913	65.38	.Q	.	.	.	.
3.583	14.9434	65.64	.Q	.	.	.	.
3.667	15.3972	65.89	.QV	.	.	.	.
3.750	15.8528	66.15	.QV	.	.	.	.

3.833	16.3102	66.41	.QV	.	.	.	.
3.917	16.7694	66.68	.QV	.	.	.	.
4.000	17.2304	66.94	.QV	.	.	.	.
4.083	17.6933	67.21	.QV	.	.	.	.
4.167	18.1581	67.49	.QV	.	.	.	.
4.250	18.6248	67.76	.QV	.	.	.	.
4.333	19.0934	68.04	.QV	.	.	.	.
4.417	19.5640	68.32	.QV	.	.	.	.
4.500	20.0365	68.61	.QV	.	.	.	.
4.583	20.5110	68.90	.QV	.	.	.	.
4.667	20.9875	69.19	.QV	.	.	.	.
4.750	21.4660	69.48	.QV	.	.	.	.
4.833	21.9466	69.78	.QV	.	.	.	.
4.917	22.4293	70.08	.QV	.	.	.	.
5.000	22.9141	70.39	.QV	.	.	.	.
5.083	23.4010	70.70	.Q V	.	.	.	.
5.167	23.8900	71.01	.Q V	.	.	.	.
5.250	24.3812	71.33	.Q V	.	.	.	.
5.333	24.8747	71.64	.Q V	.	.	.	.
5.417	25.3703	71.97	.Q V	.	.	.	.
5.500	25.8682	72.29	.Q V	.	.	.	.
5.583	26.3684	72.63	.Q V	.	.	.	.
5.667	26.8709	72.96	.Q V	.	.	.	.
5.750	27.3757	73.30	.Q V	.	.	.	.
5.833	27.8829	73.64	.Q V	.	.	.	.
5.917	28.3925	73.99	.Q V	.	.	.	.
6.000	28.9045	74.34	.Q V	.	.	.	.
6.083	29.4189	74.70	.Q V	.	.	.	.
6.167	29.9359	75.06	.Q V	.	.	.	.
6.250	30.4554	75.43	.Q V	.	.	.	.
6.333	30.9774	75.80	.Q V	.	.	.	.
6.417	31.5020	76.17	.Q V	.	.	.	.
6.500	32.0292	76.55	.Q V	.	.	.	.
6.583	32.5591	76.94	.Q V	.	.	.	.
6.667	33.0917	77.33	.Q V	.	.	.	.
6.750	33.6270	77.73	.Q V	.	.	.	.
6.833	34.1650	78.13	.Q V	.	.	.	.
6.917	34.7059	78.53	.Q V	.	.	.	.
7.000	35.2496	78.95	.Q V	.	.	.	.
7.083	35.7962	79.36	.Q V	.	.	.	.
7.167	36.3457	79.79	.Q V	.	.	.	.
7.250	36.8982	80.22	.Q V	.	.	.	.
7.333	37.4536	80.65	.Q V	.	.	.	.
7.417	38.0121	81.10	.Q V	.	.	.	.
7.500	38.5737	81.55	.Q V	.	.	.	.
7.583	39.1385	82.00	.Q V	.	.	.	.
7.667	39.7064	82.46	.Q V	.	.	.	.
7.750	40.2776	82.93	.Q V	.	.	.	.
7.833	40.8521	83.41	.Q V	.	.	.	.
7.917	41.4298	83.90	.Q V	.	.	.	.
8.000	42.0110	84.39	.Q V	.	.	.	.
8.083	42.5956	84.89	.Q V	.	.	.	.
8.167	43.1837	85.39	.Q V	.	.	.	.
8.250	43.7754	85.91	.Q V	.	.	.	.
8.333	44.3706	86.43	.Q V	.	.	.	.
8.417	44.9695	86.96	.Q V	.	.	.	.
8.500	45.5722	87.50	.Q V	.	.	.	.

8.583	46.1786	88.05	.Q	V	.	.	.
8.667	46.7889	88.61	.Q	V	.	.	.
8.750	47.4031	89.18	.Q	V	.	.	.
8.833	48.0213	89.76	.Q	V	.	.	.
8.917	48.6435	90.35	.Q	V	.	.	.
9.000	49.2698	90.94	.Q	V	.	.	.
9.083	49.9004	91.56	.Q	V	.	.	.
9.167	50.5352	92.17	.Q	V	.	.	.
9.250	51.1743	92.81	.Q	V	.	.	.
9.333	51.8179	93.45	.Q	V	.	.	.
9.417	52.4660	94.11	.Q	V	.	.	.
9.500	53.1187	94.77	.Q	V	.	.	.
9.583	53.7761	95.45	.Q	V	.	.	.
9.667	54.4382	96.14	.Q	V	.	.	.
9.750	55.1053	96.85	.Q	V	.	.	.
9.833	55.7772	97.57	.Q	V	.	.	.
9.917	56.4543	98.31	.Q	V	.	.	.
10.000	57.1365	99.05	.Q	V	.	.	.
10.083	57.8239	99.82	.Q	V	.	.	.
10.167	58.5168	100.60	.Q	V	.	.	.
10.250	59.2151	101.40	.Q	V	.	.	.
10.333	59.9190	102.21	.Q	V	.	.	.
10.417	60.6287	103.04	.Q	V	.	.	.
10.500	61.3442	103.89	.Q	V	.	.	.
10.583	62.0657	104.76	.Q	V	.	.	.
10.667	62.7933	105.65	. Q	V	.	.	.
10.750	63.5272	106.56	. Q	V	.	.	.
10.833	64.2675	107.49	. Q	V	.	.	.
10.917	65.0143	108.44	. Q	V	.	.	.
11.000	65.7678	109.41	. Q	V	.	.	.
11.083	66.5282	110.41	. Q	V	.	.	.
11.167	67.2956	111.43	. Q	V	.	.	.
11.250	68.0703	112.48	. Q	V	.	.	.
11.333	68.8523	113.55	. Q	V	.	.	.
11.417	69.6420	114.66	. Q	V.	.	.	.
11.500	70.4394	115.78	. Q	V.	.	.	.
11.583	71.2448	116.95	. Q	V.	.	.	.
11.667	72.0584	118.14	. Q	V.	.	.	.
11.750	72.8805	119.37	. Q	V.	.	.	.
11.833	73.7112	120.62	. Q	V.	.	.	.
11.917	74.5509	121.92	. Q	V.	.	.	.
12.000	75.3997	123.25	. Q	V.	.	.	.
12.083	76.2562	124.37	. Q	V.	.	.	.
12.167	77.1163	124.89	. Q	V	.	.	.
12.250	77.9754	124.74	. Q	V	.	.	.
12.333	78.8209	122.76	. Q	V	.	.	.
12.417	79.6437	119.47	. Q	V	.	.	.
12.500	80.4528	117.48	. Q	V	.	.	.
12.583	81.2559	116.61	. Q	V	.	.	.
12.667	82.0583	116.52	. Q	V	.	.	.
12.750	82.8629	116.83	. Q	V	.	.	.
12.833	83.6717	117.43	. Q	V	.	.	.
12.917	84.4863	118.28	. Q	.V	.	.	.
13.000	85.3083	119.35	. Q	.V	.	.	.
13.083	86.1389	120.60	. Q	.V	.	.	.
13.167	86.9790	121.99	. Q	.V	.	.	.
13.250	87.8297	123.52	. Q	.V	.	.	.

13.333	88.6919	125.19	. Q .V . . .
13.417	89.5668	127.04	. Q .V . . .
13.500	90.4554	129.03	. Q .V . . .
13.583	91.3587	131.15	. Q .V . . .
13.667	92.2775	133.41	. Q . V . . .
13.750	93.2130	135.84	. Q . V . . .
13.833	94.1662	138.40	. Q . V . . .
13.917	95.1384	141.16	. Q . V . . .
14.000	96.1306	144.07	. Q . V . . .
14.083	97.1447	147.25	. Q . V . . .
14.167	98.1831	150.77	. Q . V . . .
14.250	99.2483	154.68	. Q . V . . .
14.333	100.3450	159.23	. Q . V . . .
14.417	101.4771	164.39	. Q . V . . .
14.500	102.6448	169.55	. Q . V . . .
14.583	103.8492	174.88	. Q . V . . .
14.667	105.0916	180.40	. Q . V . . .
14.750	106.3746	186.29	. Q . V . . .
14.833	107.7008	192.56	. Q . V . . .
14.917	109.0739	199.38	. Q . V . . .
15.000	110.4978	206.74	. Q . V . . .
15.083	111.9776	214.87	. Q . V . . .
15.167	113.5187	223.78	. Q . V . . .
15.250	115.1286	233.75	. Q . V . . .
15.333	116.8152	244.89	. Q . V . . .
15.417	118.5838	256.81	. Q . V . . .
15.500	120.4331	268.51	. Q . V . . .
15.583	122.3631	280.25	. Q . V . . .
15.667	124.3523	288.83	. Q . V . . .
15.750	126.4044	297.97	. Q . V . . .
15.833	128.6013	318.99	. Q . V . . .
15.917	131.0578	356.68	. Q . V . . .
16.000	133.9909	425.88	. Q . V . . .
16.083	138.0601	590.84	. .Q V . . .
16.167	144.0360	867.71	. . Q V . . .
16.250	152.1977	1185.08	. . V. Q . .
16.333	164.0944	1727.39	. . .V . Q .
16.417	178.0989	2033.46	. . . V . Q .
16.500	189.2900	1624.94	. . . V Q .
16.583	197.8921	1249.03	. . . Q V . .
16.667	204.6934	987.54	. . Q . V . .
16.750	210.5239	846.59	. . Q . V . .
16.833	215.6012	737.23	. . Q . V . .
16.917	220.1102	654.71	. . Q . V . .
17.000	224.1001	579.34	. .Q . V. .
17.083	227.7081	523.87	. Q. . V. .
17.167	231.0032	478.45	. Q. . V .
17.250	234.0532	442.86	. Q . . V .
17.333	236.8426	405.02	. Q . . V .
17.417	239.3759	367.85	. Q . . .V .
17.500	241.6870	335.56	. Q . . .V .
17.583	243.8661	316.40	. Q . . .V .
17.667	245.9028	295.74	. Q . . . V .
17.750	247.8200	278.38	. Q . . . V .
17.833	249.6209	261.49	. Q . . . V .
17.917	251.2856	241.73	. Q . . . V .
18.000	252.8769	231.05	. Q . . . V .

18.083	254.3786	218.06	.	Q	.	.	.	V	.
18.167	255.7885	204.72	.	Q	.	.	.	V	.
18.250	257.1497	197.65	.	Q	.	.	.	V	.
18.333	258.4344	186.54	.	Q	.	.	.	V	.
18.417	259.6825	181.23	.	Q	.	.	.	V	.
18.500	260.8962	176.23	.	Q	.	.	.	V	.
18.583	262.0339	165.19	.	Q	.	.	.	V	.
18.667	263.1443	161.24	.	Q	.	.	.	V	.
18.750	264.2455	159.88	.	Q	.	.	.	V	.
18.833	265.3408	159.04	.	Q	.	.	.	V	.
18.917	266.4180	156.41	.	Q	.	.	.	V	.
19.000	267.4763	153.66	.	Q	.	.	.	V	.
19.083	268.5129	150.52	.	Q	.	.	.	V	.
19.167	269.5268	147.22	.	Q	.	.	.	V	.
19.250	270.5129	143.18	.	Q	.	.	.	V	.
19.333	271.4628	137.92	.	Q	.	.	.	V	.
19.417	272.2946	120.78	.	Q	.	.	.	V	.
19.500	273.0806	114.13	.	Q	.	.	.	V	.
19.583	273.8488	111.54	.	Q	.	.	.	V	.
19.667	274.6022	109.40	.	Q	.	.	.	V	.
19.750	275.3413	107.32	.	Q	.	.	.	V	.
19.833	276.0670	105.37	.	Q	.	.	.	V	.
19.917	276.7801	103.54	.	Q	.	.	.	V	.
20.000	277.4814	101.83	.	Q	.	.	.	V	.
20.083	278.1714	100.20	.	Q	.	.	.	V	.
20.167	278.8509	98.65	.	Q	.	.	.	V	.
20.250	279.5201	97.18	.	Q	.	.	.	V	.
20.333	280.1796	95.75	.	Q	.	.	.	V	.
20.417	280.8297	94.40	.	Q	.	.	.	V	.
20.500	281.4709	93.10	.	Q	.	.	.	V	.
20.583	282.1033	91.82	.	Q	.	.	.	V	.
20.667	282.7272	90.60	.	Q	.	.	.	V	.
20.750	283.3431	89.42	.	Q	.	.	.	V	.
20.833	283.9512	88.30	.	Q	.	.	.	V	.
20.917	284.5520	87.23	.	Q	.	.	.	V	.
21.000	285.1455	86.19	.	Q	.	.	.	V	.
21.083	285.7322	85.19	.	Q	.	.	.	V	.
21.167	286.3122	84.22	.	Q	.	.	.	V	.
21.250	286.8858	83.29	.	Q	.	.	.	V	.
21.333	287.4532	82.39	.	Q	.	.	.	V	.
21.417	288.0143	81.46	.	Q	.	.	.	V	.
21.500	288.5690	80.55	.	Q	.	.	.	V	.
21.583	289.1177	79.67	.	Q	.	.	.	V	.
21.667	289.6606	78.82	.	Q	.	.	.	V	.
21.750	290.1977	77.99	.	Q	.	.	.	V	.
21.833	290.7292	77.18	.	Q	.	.	.	V	.
21.917	291.2554	76.40	.	Q	.	.	.	V	.
22.000	291.7763	75.64	.	Q	.	.	.	V	.
22.083	292.2921	74.89	.	Q	.	.	.	V	.
22.167	292.8029	74.17	.	Q	.	.	.	V	.
22.250	293.3088	73.47	.	Q	.	.	.	V	.
22.333	293.8101	72.78	.	Q	.	.	.	V	.
22.417	294.3067	72.11	.	Q	.	.	.	V	.
22.500	294.7988	71.46	.	Q	.	.	.	V	.
22.583	295.2865	70.82	.	Q	.	.	.	V	.
22.667	295.7700	70.20	.	Q	.	.	.	V	.
22.750	296.2492	69.59	.	Q	.	.	.	V	.

22.833	296.7244	68.99	.Q	.	.	.	V .
22.917	297.1955	68.41	.Q	.	.	.	V .
23.000	297.6628	67.84	.Q	.	.	.	V .
23.083	298.1262	67.29	.Q	.	.	.	V .
23.167	298.5859	66.74	.Q	.	.	.	V .
23.250	299.0419	66.21	.Q	.	.	.	V.
23.333	299.4943	65.69	.Q	.	.	.	V.
23.417	299.9432	65.18	.Q	.	.	.	V.
23.500	300.3887	64.68	.Q	.	.	.	V.
23.583	300.8308	64.19	.Q	.	.	.	V.
23.667	301.2696	63.71	.Q	.	.	.	V.
23.750	301.7052	63.24	.Q	.	.	.	V.
23.833	302.1376	62.78	.Q	.	.	.	V.
23.917	302.5669	62.33	.Q	.	.	.	V.
24.000	302.9931	61.89	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	195.0
20%	80.0
30%	50.0
40%	40.0
50%	25.0
60%	20.0
70%	15.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3675.0	7350.0	11025.0	14700.0
0.083	0.0041	0.59	Q	.	.	.	.
0.167	0.0284	3.53	Q	.	.	.	.
0.250	0.1254	14.09	Q	.	.	.	.
0.333	0.4715	50.26	Q	.	.	.	.
0.417	1.1905	104.39	Q	.	.	.	.
0.500	2.3136	163.08	Q	.	.	.	.
0.583	3.7824	213.27	Q	.	.	.	.
0.667	5.5166	251.81	Q	.	.	.	.
0.750	7.4421	279.58	Q	.	.	.	.
0.833	9.5042	299.41	Q	.	.	.	.
0.917	11.6678	314.16	Q	.	.	.	.

1.000	13.9111	325.73	Q	.	.	.	.
1.083	16.2196	335.20	Q	.	.	.	.
1.167	18.5824	343.07	Q	.	.	.	.
1.250	20.9917	349.83	Q	.	.	.	.
1.333	23.4415	355.71	Q	.	.	.	.
1.417	25.9266	360.84	Q	.	.	.	.
1.500	28.4425	365.31	Q	.	.	.	.
1.583	30.9860	369.31	VQ	.	.	.	.
1.667	33.5539	372.86	VQ	.	.	.	.
1.750	36.1440	376.07	VQ	.	.	.	.
1.833	38.7543	379.02	VQ	.	.	.	.
1.917	41.3835	381.76	VQ	.	.	.	.
2.000	44.0309	384.40	VQ	.	.	.	.
2.083	46.6955	386.90	VQ	.	.	.	.
2.167	49.3757	389.17	VQ	.	.	.	.
2.250	52.0707	391.31	VQ	.	.	.	.
2.333	54.7794	393.30	.Q	.	.	.	.
2.417	57.5009	395.15	.Q	.	.	.	.
2.500	60.2343	396.89	.Q	.	.	.	.
2.583	62.9789	398.53	.Q	.	.	.	.
2.667	65.7349	400.16	.Q	.	.	.	.
2.750	68.5021	401.80	.Q	.	.	.	.
2.833	71.2804	403.42	.Q	.	.	.	.
2.917	74.0700	405.04	.Q	.	.	.	.
3.000	76.8709	406.68	.Q	.	.	.	.
3.083	79.6831	408.34	.Q	.	.	.	.
3.167	82.5068	410.01	.Q	.	.	.	.
3.250	85.3422	411.69	.Q	.	.	.	.
3.333	88.1893	413.39	.Q	.	.	.	.
3.417	91.0474	415.01	.Q	.	.	.	.
3.500	93.9167	416.61	.Q	.	.	.	.
3.583	96.7971	418.23	.Q	.	.	.	.
3.667	99.6888	419.87	.Q	.	.	.	.
3.750	102.5918	421.53	.Q	.	.	.	.
3.833	105.5064	423.20	.QV	.	.	.	.
3.917	108.4326	424.89	.QV	.	.	.	.
4.000	111.3706	426.59	.QV	.	.	.	.
4.083	114.3205	428.32	.QV	.	.	.	.
4.167	117.2823	430.06	.QV	.	.	.	.
4.250	120.2563	431.83	.QV	.	.	.	.
4.333	123.2426	433.61	.QV	.	.	.	.
4.417	126.2413	435.41	.QV	.	.	.	.
4.500	129.2525	437.23	.QV	.	.	.	.
4.583	132.2765	439.08	.QV	.	.	.	.
4.667	135.3132	440.94	.QV	.	.	.	.
4.750	138.3630	442.82	.QV	.	.	.	.
4.833	141.4259	444.73	.QV	.	.	.	.
4.917	144.5020	446.66	.QV	.	.	.	.
5.000	147.5916	448.60	.QV	.	.	.	.
5.083	150.6947	450.58	.QV	.	.	.	.
5.167	153.8116	452.57	.QV	.	.	.	.
5.250	156.9424	454.59	.Q V	.	.	.	.
5.333	160.0872	456.63	.Q V	.	.	.	.
5.417	163.2463	458.70	.Q V	.	.	.	.
5.500	166.4198	460.79	.Q V	.	.	.	.
5.583	169.6079	462.91	.Q V	.	.	.	.
5.667	172.8107	465.05	.Q V	.	.	.	.

5.750	176.0284	467.22	.Q	V	.	.	.
5.833	179.2613	469.41	.Q	V	.	.	.
5.917	182.5095	471.64	.Q	V	.	.	.
6.000	185.7731	473.88	.Q	V	.	.	.
6.083	189.0525	476.17	.Q	V	.	.	.
6.167	192.3478	478.47	.Q	V	.	.	.
6.250	195.6592	480.81	.Q	V	.	.	.
6.333	198.9868	483.17	.Q	V	.	.	.
6.417	202.3309	485.57	.Q	V	.	.	.
6.500	205.6917	487.99	.Q	V	.	.	.
6.583	209.0695	490.46	.Q	V	.	.	.
6.667	212.4645	492.95	.Q	V	.	.	.
6.750	215.8770	495.48	.Q	V	.	.	.
6.833	219.3070	498.05	.Q	V	.	.	.
6.917	222.7551	500.65	.Q	V	.	.	.
7.000	226.2212	503.29	.Q	V	.	.	.
7.083	229.7058	505.96	.Q	V	.	.	.
7.167	233.2091	508.67	.Q	V	.	.	.
7.250	236.7313	511.43	.Q	V	.	.	.
7.333	240.2727	514.21	.Q	V	.	.	.
7.417	243.8336	517.05	.Q	V	.	.	.
7.500	247.4143	519.92	.Q	V	.	.	.
7.583	251.0151	522.83	.Q	V	.	.	.
7.667	254.6363	525.79	.Q	V	.	.	.
7.750	258.2781	528.80	.Q	V	.	.	.
7.833	261.9409	531.84	.Q	V	.	.	.
7.917	265.6251	534.94	.Q	V	.	.	.
8.000	269.3308	538.08	.Q	V	.	.	.
8.083	273.0587	541.28	.Q	V	.	.	.
8.167	276.8088	544.52	.Q	V	.	.	.
8.250	280.5816	547.82	.Q	V	.	.	.
8.333	284.3775	551.16	.Q	V	.	.	.
8.417	288.1969	554.57	.Q	V	.	.	.
8.500	292.0400	558.03	.Q	V	.	.	.
8.583	295.9074	561.55	.Q	V	.	.	.
8.667	299.7994	565.12	.Q	V	.	.	.
8.750	303.7165	568.76	.Q	V	.	.	.
8.833	307.6590	572.46	.Q	V	.	.	.
8.917	311.6275	576.22	.Q	V	.	.	.
9.000	315.6223	580.05	.Q	V	.	.	.
9.083	319.6440	583.95	.Q	V	.	.	.
9.167	323.6931	587.92	.Q	V	.	.	.
9.250	327.7699	591.96	.Q	V	.	.	.
9.333	331.8751	596.07	.Q	V	.	.	.
9.417	336.0092	600.27	.Q	V	.	.	.
9.500	340.1726	604.53	.Q	V	.	.	.
9.583	344.3660	608.89	.Q	V	.	.	.
9.667	348.5900	613.32	.Q	V	.	.	.
9.750	352.8451	617.84	.Q	V	.	.	.
9.833	357.1319	622.45	.Q	V	.	.	.
9.917	361.4512	627.16	.Q	V	.	.	.
10.000	365.8035	631.95	.Q	V	.	.	.
10.083	370.1895	636.85	.Q	V	.	.	.
10.167	374.6099	641.84	.Q	V	.	.	.
10.250	379.0655	646.95	.Q	V	.	.	.
10.333	383.5570	652.16	.Q	V	.	.	.
10.417	388.0851	657.48	.Q	V	.	.	.

10.500	392.6507	662.92	.Q	V .	.	.	.
10.583	397.2545	668.48	.Q	V .	.	.	.
10.667	401.8976	674.17	.Q	V .	.	.	.
10.750	406.5807	679.99	.Q	V .	.	.	.
10.833	411.3047	685.93	.Q	V .	.	.	.
10.917	416.0708	692.03	.Q	V .	.	.	.
11.000	420.8797	698.26	.Q	V .	.	.	.
11.083	425.7327	704.65	.Q	V .	.	.	.
11.167	430.6310	711.23	.Q	V .	.	.	.
11.250	435.5765	718.09	.Q	V .	.	.	.
11.333	440.5717	725.30	.Q	V .	.	.	.
11.417	445.6198	732.99	.Q	V .	.	.	.
11.500	450.7240	741.12	. Q	V .	.	.	.
11.583	455.8868	749.64	. Q	V .	.	.	.
11.667	461.1106	758.50	. Q	V .	.	.	.
11.750	466.3977	767.69	. Q	V .	.	.	.
11.833	471.7502	777.19	. Q	V.	.	.	.
11.917	477.1705	787.02	. Q	V.	.	.	.
12.000	482.6606	797.16	. Q	V.	.	.	.
12.083	488.2207	807.34	. Q	V.	.	.	.
12.167	493.8424	816.27	. Q	V.	.	.	.
12.250	499.4941	820.63	. Q	V.	.	.	.
12.333	505.1071	815.00	. Q	V.	.	.	.
12.417	510.6009	797.69	. Q	V.	.	.	.
12.500	515.9456	776.06	. Q	V.	.	.	.
12.583	521.1686	758.39	. Q	V.	.	.	.
12.667	526.3209	748.10	. Q	V	.	.	.
12.750	531.4467	744.27	. Q	V	.	.	.
12.833	536.5788	745.18	. Q	V	.	.	.
12.917	541.7409	749.53	. Q	V	.	.	.
13.000	546.9509	756.49	. Q	V	.	.	.
13.083	552.2228	765.48	. Q	V	.	.	.
13.167	557.5681	776.13	. Q	V	.	.	.
13.250	562.9964	788.20	. Q	V	.	.	.
13.333	568.5164	801.50	. Q	V	.	.	.
13.417	574.1362	816.01	. Q	.V	.	.	.
13.500	579.8640	831.68	. Q	.V	.	.	.
13.583	585.7077	848.50	. Q	.V	.	.	.
13.667	591.6752	866.48	. Q	.V	.	.	.
13.750	597.7749	885.67	. Q	.V	.	.	.
13.833	604.0150	906.05	. Q	.V	.	.	.
13.917	610.4044	927.74	. Q	.V	.	.	.
14.000	616.9521	950.73	. Q	.V	.	.	.
14.083	623.6686	975.25	. Q	.V	.	.	.
14.167	630.5671	1001.66	. Q	. V	.	.	.
14.250	637.6669	1030.89	. Q	. V	.	.	.
14.333	644.9969	1064.31	. Q	. V	.	.	.
14.417	652.5920	1102.81	. Q	. V	.	.	.
14.500	660.4796	1145.27	. Q	. V	.	.	.
14.583	668.6765	1190.19	. Q	. V	.	.	.
14.667	677.1917	1236.41	. Q	. V	.	.	.
14.750	686.0350	1284.05	. Q	. V	.	.	.
14.833	695.2205	1333.73	. Q	. V	.	.	.
14.917	704.7697	1386.55	. Q	. V	.	.	.
15.000	714.7098	1443.31	. Q	. V	.	.	.
15.083	725.0750	1505.04	. Q	. V	.	.	.
15.167	735.9056	1572.60	. Q	. V	.	.	.

15.250	747.2507	1647.32	. Q . V . . .
15.333	759.1685	1730.45	. Q . V . . .
15.417	771.7241	1823.08	. Q . V . . .
15.500	784.9694	1923.22	. Q . V . . .
15.583	798.9025	2023.09	. Q . V . . .
15.667	813.4218	2108.21	. Q . V . . .
15.750	828.4231	2178.18	. Q . V . . .
15.833	844.0475	2268.66	. Q . V . . .
15.917	860.8589	2441.02	. Q . V . . .
16.000	879.9473	2771.63	. Q . V . . .
16.083	903.4799	3416.93	. Q. V . . .
16.167	935.2997	4620.24	. . Q V . . .
16.250	980.5008	6563.19	. . QV . . .
16.333	1047.6692	9752.86	. . V Q . .
16.417	1139.4517	13326.81	. . .V . Q .
16.500	1240.2076	14629.77	. . . V . Q.
16.583	1331.6929	13283.66	. . . V . Q .
16.667	1405.9585	10783.37	. . . V Q. .
16.750	1465.1136	8589.33	. . . Q V . .
16.833	1511.8881	6791.65	. . Q . V . .
16.917	1549.0618	5397.62	. . Q . V. .
17.000	1580.1061	4507.63	. . Q . V .
17.083	1607.0006	3905.09	. Q . V .
17.167	1630.6082	3427.81	. Q. . .V .
17.250	1651.5688	3043.49	. Q . . .V .
17.333	1670.3420	2725.87	. Q . . . V .
17.417	1687.2068	2448.76	. Q . . . V .
17.500	1702.3806	2203.24	. Q . . . V .
17.583	1716.1365	1997.35	. Q . . . V .
17.667	1728.6278	1813.74	. Q . . . V .
17.750	1740.0479	1658.19	. Q . . . V .
17.833	1750.5509	1525.05	. Q . . . V .
17.917	1760.2493	1408.21	. Q . . . V .
18.000	1769.2999	1314.16	. Q . . . V .
18.083	1777.7395	1225.43	. Q . . . V .
18.167	1785.5972	1140.94	. Q . . . V .
18.250	1793.0052	1075.65	. Q . . . V .
18.333	1800.0492	1022.77	. Q . . . V .
18.417	1806.8428	986.44	. Q . . . V .
18.500	1813.4307	956.55	. Q . . . V .
18.583	1819.7714	920.66	. Q . . . V .
18.667	1825.9451	896.42	. Q . . . V .
18.750	1831.9833	876.75	. Q . . . V .
18.833	1837.8816	856.43	. Q . . . V .
18.917	1843.6450	836.84	. Q . . . V .
19.000	1849.2844	818.84	. Q . . . V .
19.083	1854.8024	801.20	. Q . . . V .
19.167	1860.2037	784.27	. Q . . . V .
19.250	1865.4896	767.51	. Q . . . V .
19.333	1870.6570	750.30	. Q . . . V .
19.417	1875.6285	721.87	.Q . . . V .
19.500	1880.4802	704.47	.Q . . . V .
19.583	1885.2434	691.61	.Q . . . V .
19.667	1889.9241	679.64	.Q . . . V .
19.750	1894.5255	668.13	.Q . . . V .
19.833	1899.0513	657.14	.Q . . . V .
19.917	1903.5048	646.64	.Q . . . V .

20.000	1907.8892	636.62	.Q	.	.	.	V	.
20.083	1912.2075	627.02	.Q	.	.	.	V	.
20.167	1916.4623	617.78	.Q	.	.	.	V	.
20.250	1920.6559	608.91	.Q	.	.	.	V	.
20.333	1924.7905	600.35	.Q	.	.	.	V	.
20.417	1928.8682	592.08	.Q	.	.	.	V	.
20.500	1932.8907	584.07	.Q	.	.	.	V	.
20.583	1936.8596	576.27	.Q	.	.	.	V	.
20.667	1940.7765	568.72	.Q	.	.	.	V	.
20.750	1944.6432	561.44	.Q	.	.	.	V	.
20.833	1948.4613	554.40	.Q	.	.	.	V	.
20.917	1952.2327	547.60	.Q	.	.	.	V	.
21.000	1955.9587	541.03	.Q	.	.	.	V	.
21.083	1959.6411	534.68	.Q	.	.	.	V	.
21.167	1963.2812	528.54	.Q	.	.	.	V	.
21.250	1966.8804	522.60	.Q	.	.	.	V	.
21.333	1970.4398	516.83	.Q	.	.	.	V	.
21.417	1973.9603	511.18	.Q	.	.	.	V	.
21.500	1977.4430	505.68	.Q	.	.	.	V	.
21.583	1980.8887	500.31	.Q	.	.	.	V	.
21.667	1984.2985	495.11	.Q	.	.	.	V	.
21.750	1987.6735	490.05	.Q	.	.	.	V	.
21.833	1991.0146	485.13	.Q	.	.	.	V	.
21.917	1994.3229	480.35	.Q	.	.	.	V	.
22.000	1997.5989	475.68	.Q	.	.	.	V	.
22.083	2000.8436	471.14	.Q	.	.	.	V	.
22.167	2004.0579	466.71	.Q	.	.	.	V	.
22.250	2007.2423	462.39	.Q	.	.	.	V	.
22.333	2010.3977	458.17	.Q	.	.	.	V	.
22.417	2013.5248	454.06	.Q	.	.	.	V	.
22.500	2016.6243	450.04	.Q	.	.	.	V	.
22.583	2019.6967	446.11	.Q	.	.	.	V	.
22.667	2022.7427	442.28	.Q	.	.	.	V	.
22.750	2025.7628	438.53	.Q	.	.	.	V	.
22.833	2028.7577	434.86	.Q	.	.	.	V	.
22.917	2031.7279	431.27	.Q	.	.	.	V	.
23.000	2034.6740	427.77	.Q	.	.	.	V	.
23.083	2037.5963	424.33	.Q	.	.	.	V	.
23.167	2040.4955	420.97	.Q	.	.	.	V	.
23.250	2043.3721	417.68	.Q	.	.	.	V	.
23.333	2046.2264	414.45	.Q	.	.	.	V	.
23.417	2049.0591	411.29	.Q	.	.	.	V	.
23.500	2051.8704	408.20	.Q	.	.	.	V	.
23.583	2054.6606	405.16	.Q	.	.	.	V	.
23.667	2057.4304	402.19	.Q	.	.	.	V	.
23.750	2060.1802	399.27	.Q	.	.	.	V	.
23.833	2062.9102	396.41	.Q	.	.	.	V	.
23.917	2065.6208	393.60	.Q	.	.	.	V	.
24.000	2068.3125	390.84	.Q	.	.	.	V	.
24.083	2070.9810	387.47	.Q	.	.	.	V	.
24.167	2073.6042	380.89	.Q	.	.	.	V	.
24.250	2076.1147	364.54	Q	.	.	.	V	.
24.333	2078.3821	329.22	Q	.	.	.	V	.
24.417	2080.2720	274.42	Q	.	.	.	V	.
24.500	2081.7573	215.67	Q	.	.	.	V	.
24.583	2082.8787	162.81	Q	.	.	.	V	.
24.667	2083.7336	124.16	Q	.	.	.	V	.

24.750	2084.4031	97.19	Q	.	.	.	V.
24.833	2084.9324	76.86	Q	.	.	.	V.
24.917	2085.3677	63.20	Q	.	.	.	V.
25.000	2085.7258	52.01	Q	.	.	.	V.
25.083	2086.0244	43.34	Q	.	.	.	V.
25.167	2086.2773	36.74	Q	.	.	.	V.
25.250	2086.4900	30.89	Q	.	.	.	V.
25.333	2086.6680	25.86	Q	.	.	.	V.
25.417	2086.8169	21.63	Q	.	.	.	V.
25.500	2086.9417	18.13	Q	.	.	.	V.
25.583	2087.0461	15.18	Q	.	.	.	V.
25.667	2087.1338	12.72	Q	.	.	.	V.
25.750	2087.2070	10.62	Q	.	.	.	V.
25.833	2087.2678	8.82	Q	.	.	.	V.
25.917	2087.3181	7.29	Q	.	.	.	V.
26.000	2087.3586	5.90	Q	.	.	.	V.
26.083	2087.3911	4.70	Q	.	.	.	V.
26.167	2087.4170	3.75	Q	.	.	.	V.
26.250	2087.4375	2.97	Q	.	.	.	V.
26.333	2087.4536	2.35	Q	.	.	.	V.
26.417	2087.4666	1.89	Q	.	.	.	V.
26.500	2087.4773	1.56	Q	.	.	.	V.
26.583	2087.4866	1.34	Q	.	.	.	V.
26.667	2087.4944	1.15	Q	.	.	.	V.
26.750	2087.5010	0.97	Q	.	.	.	V.
26.833	2087.5066	0.83	Q	.	.	.	V.
26.917	2087.5112	0.69	Q	.	.	.	V.
27.000	2087.5151	0.56	Q	.	.	.	V.
27.083	2087.5181	0.42	Q	.	.	.	V.
27.167	2087.5200	0.29	Q	.	.	.	V.
27.250	2087.5210	0.16	Q	.	.	.	V.
27.333	2087.5212	0.03	Q	.	.	.	V.
27.417	2087.5212	0.00	Q	.	.	.	V.
27.500	2087.5212	0.00	Q	.	.	.	V.
27.583	2087.5212	0.00	Q	.	.	.	V.
27.667	2087.5212	0.00	Q	.	.	.	V.
27.750	2087.5212	0.00	Q	.	.	.	V.
27.833	2087.5212	0.00	Q	.	.	.	V.
27.917	2087.5212	0.00	Q	.	.	.	V.
28.000	2087.5212	0.00	Q	.	.	.	V.
28.083	2087.5212	0.00	Q	.	.	.	V.
28.167	2087.5212	0.00	Q	.	.	.	V.
28.250	2087.5212	0.00	Q	.	.	.	V.
28.333	2087.5212	0.00	Q	.	.	.	V.
28.417	2087.5212	0.00	Q	.	.	.	V.
28.500	2087.5212	0.00	Q	.	.	.	V.
28.583	2087.5212	0.00	Q	.	.	.	V.
28.667	2087.5212	0.00	Q	.	.	.	V.
28.750	2087.5212	0.00	Q	.	.	.	V.
28.833	2087.5212	0.00	Q	.	.	.	V.
28.917	2087.5212	0.00	Q	.	.	.	V.
29.000	2087.5212	0.00	Q	.	.	.	V.
29.083	2087.5212	0.00	Q	.	.	.	V.
29.167	2087.5212	0.00	Q	.	.	.	V.
29.250	2087.5212	0.00	Q	.	.	.	V.
29.333	2087.5212	0.00	Q	.	.	.	V.
29.417	2087.5212	0.00	Q	.	.	.	V.

29.500	2087.5212	0.00	Q	.	.	.	V.
29.583	2087.5212	0.00	Q	.	.	.	V.
29.667	2087.5212	0.00	Q	.	.	.	V.
29.750	2087.5212	0.00	Q	.	.	.	V.
29.833	2087.5212	0.00	Q	.	.	.	V.
29.917	2087.5212	0.00	Q	.	.	.	V.
30.000	2087.5212	0.00	Q	.	.	.	V.
30.083	2087.5212	0.00	Q	.	.	.	V.
30.167	2087.5212	0.00	Q	.	.	.	V.
30.250	2087.5212	0.00	Q	.	.	.	V.
30.333	2087.5212	0.00	Q	.	.	.	V.
30.417	2087.5212	0.00	Q	.	.	.	V.
30.500	2087.5212	0.00	Q	.	.	.	V.
30.583	2087.5212	0.00	Q	.	.	.	V.
30.667	2087.5212	0.00	Q	.	.	.	V.
30.750	2087.5212	0.00	Q	.	.	.	V.
30.833	2087.5212	0.00	Q	.	.	.	V.
30.917	2087.5212	0.00	Q	.	.	.	V.
31.000	2087.5212	0.00	Q	.	.	.	V.
31.083	2087.5212	0.00	Q	.	.	.	V.
31.167	2087.5212	0.00	Q	.	.	.	V.
31.250	2087.5212	0.00	Q	.	.	.	V.
31.333	2087.5212	0.00	Q	.	.	.	V.
31.417	2087.5212	0.00	Q	.	.	.	V.
31.500	2087.5212	0.00	Q	.	.	.	V.
31.583	2087.5212	0.00	Q	.	.	.	V.
31.667	2087.5212	0.00	Q	.	.	.	V.
31.750	2087.5212	0.00	Q	.	.	.	V.
31.833	2087.5212	0.00	Q	.	.	.	V.
31.917	2087.5212	0.00	Q	.	.	.	V.
32.000	2087.5212	0.00	Q	.	.	.	V.
32.083	2087.5212	0.00	Q	.	.	.	V.
32.167	2087.5212	0.00	Q	.	.	.	V.
32.250	2087.5212	0.00	Q	.	.	.	V.
32.333	2087.5212	0.00	Q	.	.	.	V.
32.417	2087.5212	0.00	Q	.	.	.	V.
32.500	2087.5212	0.00	Q	.	.	.	V.
32.583	2087.5212	0.00	Q	.	.	.	V.
32.667	2087.5212	0.00	Q	.	.	.	V.
32.750	2087.5212	0.00	Q	.	.	.	V.
32.833	2087.5212	0.00	Q	.	.	.	V.
32.917	2087.5212	0.00	Q	.	.	.	V.
33.000	2087.5212	0.00	Q	.	.	.	V.
33.083	2087.5212	0.00	Q	.	.	.	V.
33.167	2087.5212	0.00	Q	.	.	.	V.
33.250	2087.5212	0.00	Q	.	.	.	V.
33.333	2087.5212	0.00	Q	.	.	.	V.
33.417	2087.5212	0.00	Q	.	.	.	V.
33.500	2087.5212	0.00	Q	.	.	.	V.
33.583	2087.5212	0.00	Q	.	.	.	V.
33.667	2087.5212	0.00	Q	.	.	.	V.
33.750	2087.5212	0.00	Q	.	.	.	V.
33.833	2087.5212	0.00	Q	.	.	.	V.
33.917	2087.5212	0.00	Q	.	.	.	V.
34.000	2087.5212	0.00	Q	.	.	.	V.
34.083	2087.5212	0.00	Q	.	.	.	V.
34.167	2087.5212	0.00	Q	.	.	.	V.

```
 34.250   2087.5212      0.00  Q          .          .          .          V.
 34.333   2087.5212      0.00  Q          .          .          .          V.
 34.417   2087.5212      0.00  Q          .          .          .          V.
 34.500   2087.5212      0.00  Q          .          .          .          V.
 34.583   2087.5212      0.00  Q          .          .          .          V.
 34.667   2087.5212      0.00  Q          .          .          .          V.
 34.750   2087.5212      0.00  Q          .          .          .          V.
 34.833   2087.5212      0.00  Q          .          .          .          V.
 34.917   2087.5212      0.00  Q          .          .          .          V.
 35.000   2087.5212      0.00  Q          .          .          .          V.
 35.083   2087.5212      0.00  Q          .          .          .          V.
 35.167   2087.5212      0.00  Q          .          .          .          V.
 35.250   2087.5212      0.00  Q          .          .          .          V.
 35.333   2087.5212      0.00  Q          .          .          .          V.
 35.417   2087.5212      0.00  Q          .          .          .          V.
 35.500   2087.5212      0.00  Q          .          .          .          V.
 35.583   2087.5212      0.00  Q          .          .          .          V.
 35.667   2087.5212      0.00  Q          .          .          .          V.
 35.750   2087.5212      0.00  Q          .          .          .          V.
 35.833   2087.5212      0.00  Q          .          .          .          V.
 35.917   2087.5212      0.00  Q          .          .          .          V.
 36.000   2087.5212      0.00  Q          .          .          .          V.
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
       Peak Flow Rate               (minutes)
   ======================           =========
              0%                     1640.0
             10%                      170.0
             20%                       75.0
             30%                       55.0
             40%                       40.0
             50%                       30.0
             60%                       25.0
             70%                       20.0
             80%                       15.0
             90%                       15.0


****************************************************************************
  FLOW PROCESS FROM NODE     109.00 TO NODE     109.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #5)

        WATERSHED AREA =      101.500 ACRES
        BASEFLOW =    0.000 CFS/SQUARE-MILE
        *USER ENTERED "LAG" TIME =     0.321 HOURS
         CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
         THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
         MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
        VALLEY(DEVELOPED):
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"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.110
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.890
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.369
LOW LOSS FRACTION = 0.530
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

*USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.979
30-MINUTE FACTOR = 0.979
1-HOUR FACTOR = 0.979
3-HOUR FACTOR = 0.997
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 25.961

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 1.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.439	17.659
2	7.139	69.978
3	21.822	180.226
4	43.478	265.838
5	58.482	184.177
6	67.912	115.754
7	74.449	80.235
8	79.188	58.177
9	82.740	43.601
10	85.487	33.725
11	87.784	28.187
12	89.705	23.586
13	91.205	18.417
14	92.514	16.058
15	93.639	13.812
16	94.624	12.095

17	95.429	9.879
18	96.173	9.140
19	96.784	7.500
20	97.335	6.753
21	97.757	5.181
22	98.111	4.353
23	98.345	2.875
24	98.595	3.059
25	98.872	3.401
26	99.149	3.403
27	99.426	3.401
28	99.703	3.401
29	99.980	3.401
30	100.000	0.243

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0026	0.0023
2	0.0049	0.0026	0.0023
3	0.0049	0.0026	0.0023
4	0.0049	0.0026	0.0023
5	0.0049	0.0026	0.0023
6	0.0049	0.0026	0.0023
7	0.0050	0.0026	0.0023
8	0.0050	0.0026	0.0023
9	0.0050	0.0026	0.0023
10	0.0050	0.0026	0.0023
11	0.0050	0.0027	0.0024
12	0.0050	0.0027	0.0024
13	0.0051	0.0027	0.0024
14	0.0051	0.0027	0.0024
15	0.0051	0.0027	0.0024
16	0.0051	0.0027	0.0024
17	0.0051	0.0027	0.0024
18	0.0051	0.0027	0.0024
19	0.0052	0.0027	0.0024
20	0.0052	0.0027	0.0024
21	0.0052	0.0028	0.0024
22	0.0052	0.0028	0.0024
23	0.0052	0.0028	0.0025
24	0.0052	0.0028	0.0025
25	0.0053	0.0028	0.0025
26	0.0053	0.0028	0.0025
27	0.0053	0.0028	0.0025
28	0.0053	0.0028	0.0025
29	0.0054	0.0028	0.0025
30	0.0054	0.0028	0.0025
31	0.0054	0.0029	0.0025
32	0.0054	0.0029	0.0025
33	0.0054	0.0029	0.0026
34	0.0054	0.0029	0.0026
35	0.0055	0.0029	0.0026
36	0.0055	0.0029	0.0026
37	0.0055	0.0029	0.0026
38	0.0055	0.0029	0.0026
39	0.0056	0.0029	0.0026
40	0.0056	0.0030	0.0026
41	0.0056	0.0030	0.0026
42	0.0056	0.0030	0.0026
43	0.0057	0.0030	0.0027
44	0.0057	0.0030	0.0027
45	0.0057	0.0030	0.0027
46	0.0057	0.0030	0.0027
47	0.0057	0.0030	0.0027
48	0.0058	0.0031	0.0027
49	0.0058	0.0031	0.0027
50	0.0058	0.0031	0.0027
51	0.0058	0.0031	0.0027

52	0.0059	0.0031	0.0028
53	0.0059	0.0031	0.0028
54	0.0059	0.0031	0.0028
55	0.0059	0.0032	0.0028
56	0.0060	0.0032	0.0028
57	0.0060	0.0032	0.0028
58	0.0060	0.0032	0.0028
59	0.0061	0.0032	0.0028
60	0.0061	0.0032	0.0029
61	0.0061	0.0032	0.0029
62	0.0061	0.0033	0.0029
63	0.0062	0.0033	0.0029
64	0.0062	0.0033	0.0029
65	0.0062	0.0033	0.0029
66	0.0063	0.0033	0.0029
67	0.0063	0.0033	0.0030
68	0.0063	0.0033	0.0030
69	0.0064	0.0034	0.0030
70	0.0064	0.0034	0.0030
71	0.0064	0.0034	0.0030
72	0.0064	0.0034	0.0030
73	0.0065	0.0034	0.0030
74	0.0065	0.0034	0.0031
75	0.0065	0.0035	0.0031
76	0.0066	0.0035	0.0031
77	0.0066	0.0035	0.0031
78	0.0066	0.0035	0.0031
79	0.0067	0.0035	0.0031
80	0.0067	0.0036	0.0032
81	0.0068	0.0036	0.0032
82	0.0068	0.0036	0.0032
83	0.0068	0.0036	0.0032
84	0.0069	0.0036	0.0032
85	0.0069	0.0037	0.0032
86	0.0069	0.0037	0.0033
87	0.0070	0.0037	0.0033
88	0.0070	0.0037	0.0033
89	0.0071	0.0038	0.0033
90	0.0071	0.0038	0.0033
91	0.0072	0.0038	0.0034
92	0.0072	0.0038	0.0034
93	0.0072	0.0038	0.0034
94	0.0073	0.0039	0.0034
95	0.0073	0.0039	0.0034
96	0.0074	0.0039	0.0035
97	0.0074	0.0039	0.0035
98	0.0075	0.0040	0.0035
99	0.0075	0.0040	0.0035
100	0.0076	0.0040	0.0036
101	0.0076	0.0040	0.0036
102	0.0077	0.0041	0.0036
103	0.0077	0.0041	0.0036
104	0.0078	0.0041	0.0037
105	0.0078	0.0042	0.0037
106	0.0079	0.0042	0.0037
107	0.0080	0.0042	0.0037
108	0.0080	0.0042	0.0038

109	0.0081	0.0043	0.0038
110	0.0081	0.0043	0.0038
111	0.0082	0.0043	0.0038
112	0.0082	0.0044	0.0039
113	0.0083	0.0044	0.0039
114	0.0084	0.0044	0.0039
115	0.0084	0.0045	0.0040
116	0.0085	0.0045	0.0040
117	0.0086	0.0045	0.0040
118	0.0086	0.0046	0.0041
119	0.0087	0.0046	0.0041
120	0.0088	0.0046	0.0041
121	0.0089	0.0047	0.0042
122	0.0089	0.0047	0.0042
123	0.0090	0.0048	0.0042
124	0.0091	0.0048	0.0043
125	0.0092	0.0049	0.0043
126	0.0092	0.0049	0.0043
127	0.0094	0.0050	0.0044
128	0.0094	0.0050	0.0044
129	0.0095	0.0051	0.0045
130	0.0096	0.0051	0.0045
131	0.0097	0.0052	0.0046
132	0.0098	0.0052	0.0046
133	0.0099	0.0053	0.0047
134	0.0100	0.0053	0.0047
135	0.0101	0.0054	0.0048
136	0.0102	0.0054	0.0048
137	0.0103	0.0055	0.0049
138	0.0104	0.0055	0.0049
139	0.0106	0.0056	0.0050
140	0.0107	0.0057	0.0050
141	0.0108	0.0057	0.0051
142	0.0109	0.0058	0.0051
143	0.0111	0.0059	0.0052
144	0.0112	0.0059	0.0053
145	0.0090	0.0048	0.0042
146	0.0091	0.0048	0.0043
147	0.0093	0.0049	0.0044
148	0.0094	0.0050	0.0044
149	0.0096	0.0051	0.0045
150	0.0097	0.0051	0.0045
151	0.0099	0.0052	0.0046
152	0.0100	0.0053	0.0047
153	0.0102	0.0054	0.0048
154	0.0104	0.0055	0.0049
155	0.0106	0.0056	0.0050
156	0.0107	0.0057	0.0050
157	0.0110	0.0058	0.0052
158	0.0112	0.0059	0.0052
159	0.0115	0.0061	0.0054
160	0.0116	0.0062	0.0055
161	0.0120	0.0063	0.0056
162	0.0121	0.0064	0.0057
163	0.0125	0.0066	0.0059
164	0.0127	0.0067	0.0060
165	0.0131	0.0070	0.0062

166	0.0134	0.0071	0.0063
167	0.0138	0.0073	0.0065
168	0.0141	0.0075	0.0066
169	0.0151	0.0080	0.0071
170	0.0154	0.0082	0.0073
171	0.0161	0.0085	0.0076
172	0.0164	0.0087	0.0077
173	0.0172	0.0091	0.0081
174	0.0176	0.0093	0.0083
175	0.0185	0.0098	0.0087
176	0.0190	0.0101	0.0089
177	0.0201	0.0106	0.0094
178	0.0207	0.0110	0.0097
179	0.0220	0.0117	0.0103
180	0.0228	0.0121	0.0107
181	0.0245	0.0130	0.0115
182	0.0255	0.0135	0.0120
183	0.0279	0.0148	0.0131
184	0.0293	0.0155	0.0138
185	0.0251	0.0133	0.0118
186	0.0269	0.0143	0.0127
187	0.0316	0.0167	0.0148
188	0.0347	0.0184	0.0163
189	0.0539	0.0286	0.0254
190	0.0621	0.0307	0.0314
191	0.0941	0.0307	0.0634
192	0.1367	0.0307	0.1059
193	0.5874	0.0307	0.5567
194	0.0741	0.0307	0.0434
195	0.0387	0.0205	0.0182
196	0.0290	0.0154	0.0136
197	0.0308	0.0163	0.0145
198	0.0266	0.0141	0.0125
199	0.0236	0.0125	0.0111
200	0.0213	0.0113	0.0100
201	0.0195	0.0103	0.0092
202	0.0180	0.0096	0.0085
203	0.0168	0.0089	0.0079
204	0.0158	0.0083	0.0074
205	0.0144	0.0076	0.0067
206	0.0136	0.0072	0.0064
207	0.0129	0.0068	0.0061
208	0.0123	0.0065	0.0058
209	0.0118	0.0062	0.0055
210	0.0113	0.0060	0.0053
211	0.0109	0.0058	0.0051
212	0.0105	0.0056	0.0049
213	0.0101	0.0054	0.0048
214	0.0098	0.0052	0.0046
215	0.0095	0.0050	0.0045
216	0.0092	0.0049	0.0043
217	0.0113	0.0060	0.0053
218	0.0110	0.0058	0.0052
219	0.0107	0.0057	0.0051
220	0.0105	0.0056	0.0049
221	0.0103	0.0054	0.0048
222	0.0101	0.0053	0.0047

223	0.0099	0.0052	0.0046
224	0.0097	0.0051	0.0045
225	0.0095	0.0050	0.0045
226	0.0093	0.0049	0.0044
227	0.0091	0.0048	0.0043
228	0.0090	0.0048	0.0042
229	0.0088	0.0047	0.0041
230	0.0087	0.0046	0.0041
231	0.0085	0.0045	0.0040
232	0.0084	0.0045	0.0039
233	0.0083	0.0044	0.0039
234	0.0081	0.0043	0.0038
235	0.0080	0.0043	0.0038
236	0.0079	0.0042	0.0037
237	0.0078	0.0041	0.0037
238	0.0077	0.0041	0.0036
239	0.0076	0.0040	0.0036
240	0.0075	0.0040	0.0035
241	0.0074	0.0039	0.0035
242	0.0073	0.0039	0.0034
243	0.0072	0.0038	0.0034
244	0.0071	0.0038	0.0034
245	0.0070	0.0037	0.0033
246	0.0070	0.0037	0.0033
247	0.0069	0.0037	0.0032
248	0.0068	0.0036	0.0032
249	0.0067	0.0036	0.0032
250	0.0067	0.0035	0.0031
251	0.0066	0.0035	0.0031
252	0.0065	0.0035	0.0031
253	0.0065	0.0034	0.0030
254	0.0064	0.0034	0.0030
255	0.0063	0.0034	0.0030
256	0.0063	0.0033	0.0029
257	0.0062	0.0033	0.0029
258	0.0062	0.0033	0.0029
259	0.0061	0.0032	0.0029
260	0.0060	0.0032	0.0028
261	0.0060	0.0032	0.0028
262	0.0059	0.0031	0.0028
263	0.0059	0.0031	0.0028
264	0.0058	0.0031	0.0027
265	0.0058	0.0031	0.0027
266	0.0057	0.0030	0.0027
267	0.0057	0.0030	0.0027
268	0.0056	0.0030	0.0026
269	0.0056	0.0030	0.0026
270	0.0055	0.0029	0.0026
271	0.0055	0.0029	0.0026
272	0.0055	0.0029	0.0026
273	0.0054	0.0029	0.0025
274	0.0054	0.0029	0.0025
275	0.0053	0.0028	0.0025
276	0.0053	0.0028	0.0025
277	0.0053	0.0028	0.0025
278	0.0052	0.0028	0.0025
279	0.0052	0.0027	0.0024

280	0.0052	0.0027	0.0024
281	0.0051	0.0027	0.0024
282	0.0051	0.0027	0.0024
283	0.0050	0.0027	0.0024
284	0.0050	0.0027	0.0024
285	0.0050	0.0026	0.0023
286	0.0049	0.0026	0.0023
287	0.0049	0.0026	0.0023
288	0.0049	0.0026	0.0023

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 1.55
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.04

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 13.1442
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 17.2664

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
1.000	0.1367	2.57	Q	.	.	.	.
1.083	0.1548	2.62	Q	.	.	.	.
1.167	0.1731	2.67	Q	.	.	.	.
1.250	0.1918	2.71	Q	.	.	.	.
1.333	0.2107	2.74	Q	.	.	.	.
1.417	0.2298	2.78	Q	.	.	.	.
1.500	0.2491	2.81	Q	.	.	.	.
1.583	0.2686	2.83	Q	.	.	.	.
1.667	0.2883	2.86	Q	.	.	.	.
1.750	0.3081	2.88	Q	.	.	.	.
1.833	0.3281	2.90	Q	.	.	.	.
1.917	0.3482	2.92	Q	.	.	.	.
2.000	0.3684	2.93	Q	.	.	.	.
2.083	0.3887	2.95	Q	.	.	.	.
2.167	0.4091	2.97	Q	.	.	.	.
2.250	0.4297	2.99	Q	.	.	.	.
2.333	0.4504	3.01	QV	.	.	.	.
2.417	0.4713	3.02	QV	.	.	.	.
2.500	0.4922	3.04	QV	.	.	.	.
2.583	0.5132	3.05	QV	.	.	.	.
2.667	0.5342	3.06	QV	.	.	.	.
2.750	0.5554	3.07	QV	.	.	.	.
2.833	0.5766	3.08	QV	.	.	.	.
2.917	0.5979	3.09	QV	.	.	.	.
3.000	0.6193	3.10	QV	.	.	.	.
3.083	0.6407	3.12	QV	.	.	.	.
3.167	0.6623	3.13	QV	.	.	.	.
3.250	0.6839	3.14	QV	.	.	.	.
3.333	0.7056	3.15	QV	.	.	.	.
3.417	0.7274	3.16	QV	.	.	.	.
3.500	0.7493	3.18	QV	.	.	.	.
3.583	0.7713	3.19	QV	.	.	.	.
3.667	0.7933	3.20	QV	.	.	.	.
3.750	0.8155	3.21	QV	.	.	.	.
3.833	0.8377	3.23	QV	.	.	.	.
3.917	0.8600	3.24	QV	.	.	.	.
4.000	0.8824	3.25	Q V	.	.	.	.
4.083	0.9049	3.27	Q V	.	.	.	.
4.167	0.9275	3.28	Q V	.	.	.	.
4.250	0.9502	3.29	Q V	.	.	.	.
4.333	0.9730	3.31	Q V	.	.	.	.
4.417	0.9959	3.32	Q V	.	.	.	.
4.500	1.0188	3.34	Q V	.	.	.	.
4.583	1.0419	3.35	Q V	.	.	.	.
4.667	1.0651	3.36	Q V	.	.	.	.

4.750	1.0884	3.38	Q	V	.	.	.
4.833	1.1117	3.39	Q	V	.	.	.
4.917	1.1352	3.41	Q	V	.	.	.
5.000	1.1588	3.42	Q	V	.	.	.
5.083	1.1825	3.44	Q	V	.	.	.
5.167	1.2063	3.45	Q	V	.	.	.
5.250	1.2302	3.47	Q	V	.	.	.
5.333	1.2542	3.49	Q	V	.	.	.
5.417	1.2783	3.50	Q	V	.	.	.
5.500	1.3025	3.52	Q	V	.	.	.
5.583	1.3269	3.53	Q	V	.	.	.
5.667	1.3513	3.55	Q	V	.	.	.
5.750	1.3759	3.57	Q	V	.	.	.
5.833	1.4006	3.59	Q	V	.	.	.
5.917	1.4254	3.60	Q	V	.	.	.
6.000	1.4503	3.62	Q	V	.	.	.
6.083	1.4754	3.64	Q	V	.	.	.
6.167	1.5006	3.66	Q	V	.	.	.
6.250	1.5259	3.67	Q	V	.	.	.
6.333	1.5513	3.69	Q	V	.	.	.
6.417	1.5768	3.71	Q	V	.	.	.
6.500	1.6025	3.73	Q	V	.	.	.
6.583	1.6283	3.75	Q	V	.	.	.
6.667	1.6543	3.77	Q	V	.	.	.
6.750	1.6804	3.79	Q	V	.	.	.
6.833	1.7066	3.81	Q	V	.	.	.
6.917	1.7330	3.83	Q	V	.	.	.
7.000	1.7595	3.85	Q	V	.	.	.
7.083	1.7861	3.87	Q	V	.	.	.
7.167	1.8129	3.89	Q	V	.	.	.
7.250	1.8398	3.91	Q	V	.	.	.
7.333	1.8669	3.93	Q	V	.	.	.
7.417	1.8941	3.95	Q	V	.	.	.
7.500	1.9215	3.98	Q	V	.	.	.
7.583	1.9491	4.00	Q	V	.	.	.
7.667	1.9768	4.02	Q	V	.	.	.
7.750	2.0046	4.05	Q	V	.	.	.
7.833	2.0327	4.07	Q	V	.	.	.
7.917	2.0609	4.09	Q	V	.	.	.
8.000	2.0892	4.12	Q	V	.	.	.
8.083	2.1178	4.14	Q	V	.	.	.
8.167	2.1465	4.17	Q	V	.	.	.
8.250	2.1754	4.19	Q	V	.	.	.
8.333	2.2044	4.22	Q	V	.	.	.
8.417	2.2337	4.25	Q	V	.	.	.
8.500	2.2631	4.27	Q	V	.	.	.
8.583	2.2927	4.30	Q	V	.	.	.
8.667	2.3225	4.33	Q	V	.	.	.
8.750	2.3526	4.36	Q	V	.	.	.
8.833	2.3828	4.39	Q	V	.	.	.
8.917	2.4132	4.42	Q	V	.	.	.
9.000	2.4438	4.45	Q	V	.	.	.
9.083	2.4746	4.48	Q	V	.	.	.
9.167	2.5057	4.51	Q	V	.	.	.
9.250	2.5369	4.54	Q	V	.	.	.
9.333	2.5684	4.57	Q	V	.	.	.
9.417	2.6001	4.60	Q	V	.	.	.

9.500	2.6320	4.64	Q	V	.	.	.	.
9.583	2.6642	4.67	Q	V	.	.	.	.
9.667	2.6966	4.71	Q	V	.	.	.	.
9.750	2.7293	4.74	Q	V	.	.	.	.
9.833	2.7622	4.78	Q	V	.	.	.	.
9.917	2.7953	4.81	Q	V	.	.	.	.
10.000	2.8288	4.85	Q	V	.	.	.	.
10.083	2.8624	4.89	Q	V	.	.	.	.
10.167	2.8964	4.93	Q	V	.	.	.	.
10.250	2.9306	4.97	Q	V	.	.	.	.
10.333	2.9651	5.01	.Q	V	.	.	.	.
10.417	2.9999	5.05	.Q	V	.	.	.	.
10.500	3.0350	5.10	.Q	V	.	.	.	.
10.583	3.0704	5.14	.Q	V	.	.	.	.
10.667	3.1061	5.18	.Q	V	.	.	.	.
10.750	3.1421	5.23	.Q	V	.	.	.	.
10.833	3.1785	5.28	.Q	V	.	.	.	.
10.917	3.2152	5.32	.Q	V	.	.	.	.
11.000	3.2522	5.37	.Q	V	.	.	.	.
11.083	3.2895	5.42	.Q	V	.	.	.	.
11.167	3.3272	5.48	.Q	V	.	.	.	.
11.250	3.3653	5.53	.Q	V	.	.	.	.
11.333	3.4038	5.58	.Q	V	.	.	.	.
11.417	3.4426	5.64	.Q	V	.	.	.	.
11.500	3.4819	5.70	.Q	V	.	.	.	.
11.583	3.5215	5.76	.Q	V	.	.	.	.
11.667	3.5616	5.82	.Q	V	.	.	.	.
11.750	3.6021	5.88	.Q	V	.	.	.	.
11.833	3.6430	5.94	.Q	V	.	.	.	.
11.917	3.6844	6.01	.Q	V	.	.	.	.
12.000	3.7262	6.08	.Q	V	.	.	.	.
12.083	3.7684	6.13	.Q	V	.	.	.	.
12.167	3.8106	6.12	.Q	V	.	.	.	.
12.250	3.8519	6.00	.Q	V	.	.	.	.
12.333	3.8917	5.78	.Q	V	.	.	.	.
12.417	3.9306	5.65	.Q	V	.	.	.	.
12.500	3.9691	5.60	.Q	V	.	.	.	.
12.583	4.0076	5.58	.Q	V	.	.	.	.
12.667	4.0461	5.60	.Q	V	.	.	.	.
12.750	4.0850	5.64	.Q	V	.	.	.	.
12.833	4.1241	5.69	.Q	V	.	.	.	.
12.917	4.1637	5.74	.Q	V	.	.	.	.
13.000	4.2037	5.81	.Q	V	.	.	.	.
13.083	4.2443	5.89	.Q	V	.	.	.	.
13.167	4.2854	5.97	.Q	V	.	.	.	.
13.250	4.3271	6.06	.Q	V	.	.	.	.
13.333	4.3696	6.16	.Q	V	.	.	.	.
13.417	4.4127	6.26	.Q	V	.	.	.	.
13.500	4.4566	6.37	.Q	V	.	.	.	.
13.583	4.5013	6.49	.Q	V	.	.	.	.
13.667	4.5469	6.62	.Q	V	.	.	.	.
13.750	4.5934	6.75	.Q	V	.	.	.	.
13.833	4.6408	6.89	.Q	V	.	.	.	.
13.917	4.6893	7.04	.Q	V	.	.	.	.
14.000	4.7390	7.21	.Q	V	.	.	.	.
14.083	4.7898	7.38	.Q	.V	.	.	.	.
14.167	4.8420	7.58	.Q	.V	.	.	.	.

14.250	4.8958	7.82	.Q .V . . .
14.333	4.9515	8.09	.Q .V . . .
14.417	5.0091	8.35	.Q .V . . .
14.500	5.0685	8.63	.Q .V . . .
14.583	5.1298	8.91	.Q .V . . .
14.667	5.1933	9.21	.Q . V . . .
14.750	5.2589	9.53	.Q . V . . .
14.833	5.3269	9.87	.Q . V . . .
14.917	5.3975	10.25	. Q . V . . .
15.000	5.4709	10.66	. Q . V . . .
15.083	5.5474	11.11	. Q . V . . .
15.167	5.6275	11.62	. Q . V . . .
15.250	5.7114	12.19	. Q . V . . .
15.333	5.7998	12.83	. Q . V . . .
15.417	5.8928	13.50	. Q . V . . .
15.500	5.9900	14.11	. Q . V . . .
15.583	6.0896	14.47	. Q . V . . .
15.667	6.1909	14.70	. Q . V . . .
15.750	6.2978	15.52	. Q . V . . .
15.833	6.4167	17.27	. Q . V . . .
15.917	6.5599	20.80	. Q . V . . .
16.000	6.7521	27.90	. Q . V . . .
16.083	7.0847	48.29	. Q. V . . .
16.167	7.7005	89.41	. . Q . . .
16.250	8.7552	153.15	. . V Q .
16.333	10.0731	191.35	. . . V . Q .
16.417	11.0473	141.47	. . . V Q . .
16.500	11.7194	97.59	. . Q. V . .
16.583	12.2216	72.92	. . Q . V . .
16.667	12.6167	57.36	. .Q . V. .
16.750	12.9377	46.61	. Q. . V. .
16.833	13.2061	38.97	. Q . . V .
16.917	13.4399	33.95	. Q . . .V .
17.000	13.6447	29.73	. Q . . .V .
17.083	13.8208	25.58	. Q . . . V .
17.167	13.9796	23.05	. Q . . . V .
17.250	14.1225	20.75	. Q . . . V .
17.333	14.2520	18.81	. Q . . . V .
17.417	14.3675	16.78	. Q . . . V .
17.500	14.4747	15.57	. Q . . . V .
17.583	14.5712	14.01	. Q . . . V .
17.667	14.6602	12.92	. Q . . . V .
17.750	14.7395	11.51	. Q . . . V .
17.833	14.8121	10.55	. Q . . . V .
17.917	14.8770	9.43	.Q . . . V .
18.000	14.9405	9.21	.Q . . . V .
18.083	15.0034	9.13	.Q . . . V .
18.167	15.0649	8.93	.Q . . . V .
18.250	15.1258	8.84	.Q . . . V .
18.333	15.1861	8.76	.Q . . . V .
18.417	15.2443	8.45	.Q . . . V .
18.500	15.2901	6.65	.Q . . . V .
18.583	15.3337	6.33	.Q . . . V .
18.667	15.3764	6.20	.Q . . . V .
18.750	15.4182	6.08	.Q . . . V .
18.833	15.4592	5.95	.Q . . . V .
18.917	15.4994	5.83	.Q . . . V .

19.000	15.5388	5.72	.Q	.	.	.	V	.
19.083	15.5775	5.61	.Q	.	.	.	V	.
19.167	15.6154	5.51	.Q	.	.	.	V	.
19.250	15.6527	5.41	.Q	.	.	.	V	.
19.333	15.6893	5.32	.Q	.	.	.	V	.
19.417	15.7254	5.23	.Q	.	.	.	V	.
19.500	15.7608	5.14	.Q	.	.	.	V	.
19.583	15.7956	5.06	.Q	.	.	.	V	.
19.667	15.8300	4.98	Q	.	.	.	V	.
19.750	15.8637	4.90	Q	.	.	.	V	.
19.833	15.8970	4.83	Q	.	.	.	V	.
19.917	15.9298	4.76	Q	.	.	.	V	.
20.000	15.9621	4.69	Q	.	.	.	V	.
20.083	15.9939	4.62	Q	.	.	.	V	.
20.167	16.0253	4.56	Q	.	.	.	V	.
20.250	16.0563	4.50	Q	.	.	.	V	.
20.333	16.0868	4.44	Q	.	.	.	V	.
20.417	16.1170	4.38	Q	.	.	.	V	.
20.500	16.1468	4.33	Q	.	.	.	V	.
20.583	16.1762	4.27	Q	.	.	.	V	.
20.667	16.2053	4.22	Q	.	.	.	V	.
20.750	16.2339	4.16	Q	.	.	.	V	.
20.833	16.2623	4.11	Q	.	.	.	V	.
20.917	16.2903	4.06	Q	.	.	.	V	.
21.000	16.3179	4.02	Q	.	.	.	V	.
21.083	16.3453	3.97	Q	.	.	.	V	.
21.167	16.3723	3.93	Q	.	.	.	V	.
21.250	16.3991	3.88	Q	.	.	.	V	.
21.333	16.4255	3.84	Q	.	.	.	V	.
21.417	16.4517	3.80	Q	.	.	.	V	.
21.500	16.4776	3.76	Q	.	.	.	V	.
21.583	16.5033	3.72	Q	.	.	.	V	.
21.667	16.5286	3.69	Q	.	.	.	V	.
21.750	16.5538	3.65	Q	.	.	.	V	.
21.833	16.5787	3.61	Q	.	.	.	V	.
21.917	16.6033	3.58	Q	.	.	.	V	.
22.000	16.6277	3.54	Q	.	.	.	V	.
22.083	16.6519	3.51	Q	.	.	.	V	.
22.167	16.6759	3.48	Q	.	.	.	V	.
22.250	16.6996	3.45	Q	.	.	.	V	.
22.333	16.7231	3.42	Q	.	.	.	V	.
22.417	16.7465	3.39	Q	.	.	.	V	.
22.500	16.7696	3.36	Q	.	.	.	V	.
22.583	16.7925	3.33	Q	.	.	.	V	.
22.667	16.8153	3.30	Q	.	.	.	V	.
22.750	16.8378	3.27	Q	.	.	.	V	.
22.833	16.8602	3.25	Q	.	.	.	V	.
22.917	16.8824	3.22	Q	.	.	.	V	.
23.000	16.9044	3.20	Q	.	.	.	V	.
23.083	16.9262	3.17	Q	.	.	.	V	.
23.167	16.9479	3.15	Q	.	.	.	V	.
23.250	16.9694	3.12	Q	.	.	.	V	.
23.333	16.9907	3.10	Q	.	.	.	V	.
23.417	17.0119	3.08	Q	.	.	.	V	.
23.500	17.0329	3.05	Q	.	.	.	V	.
23.583	17.0538	3.03	Q	.	.	.	V	.
23.667	17.0745	3.01	Q	.	.	.	V	.

23.750	17.0951	2.99	Q	.	.	.	V.
23.833	17.1155	2.97	Q	.	.	.	V.
23.917	17.1358	2.95	Q	.	.	.	V.
24.000	17.1560	2.93	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	85.0
20%	50.0
30%	30.0
40%	25.0
50%	20.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 7
>>>>>STREAM NUMBER 5 ADDED TO STREAM NUMBER 1<<<<<

****
FLOW PROCESS FROM NODE 109.00 TO NODE 109.00 IS CODE = 11
>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3700.0	7400.0	11100.0	14800.0
0.083	0.0044	0.63	Q	.	.	.	.
0.167	0.0300	3.73	Q	.	.	.	.
0.250	0.1313	14.70	Q	.	.	.	.
0.333	0.4858	51.48	Q	.	.	.	.
0.417	1.2161	106.03	Q	.	.	.	.
0.500	2.3524	164.99	Q	.	.	.	.
0.583	3.8357	215.37	Q	.	.	.	.
0.667	5.5854	254.06	Q	.	.	.	.
0.750	7.5271	281.93	Q	.	.	.	.
0.833	9.6059	301.85	Q	.	.	.	.
0.917	11.7868	316.67	Q	.	.	.	.
1.000	14.0478	328.30	Q	.	.	.	.
1.083	16.3744	337.82	Q	.	.	.	.
1.167	18.7555	345.74	Q	.	.	.	.
1.250	21.1834	352.53	Q	.	.	.	.

1.333	23.6521	358.45	Q	.	.	.	.
1.417	26.1563	363.61	Q	.	.	.	.
1.500	28.6916	368.12	Q	.	.	.	.
1.583	31.2546	372.15	VQ	.	.	.	.
1.667	33.8422	375.72	VQ	.	.	.	.
1.750	36.4521	378.95	VQ	.	.	.	.
1.833	39.0824	381.92	VQ	.	.	.	.
1.917	41.7317	384.68	VQ	.	.	.	.
2.000	44.3993	387.33	VQ	.	.	.	.
2.083	47.0842	389.85	VQ	.	.	.	.
2.167	49.7849	392.14	VQ	.	.	.	.
2.250	52.5004	394.30	VQ	.	.	.	.
2.333	55.2298	396.31	.Q	.	.	.	.
2.417	57.9721	398.18	.Q	.	.	.	.
2.500	60.7264	399.93	.Q	.	.	.	.
2.583	63.4921	401.58	.Q	.	.	.	.
2.667	66.2691	403.22	.Q	.	.	.	.
2.750	69.0574	404.87	.Q	.	.	.	.
2.833	71.8570	406.50	.Q	.	.	.	.
2.917	74.6679	408.14	.Q	.	.	.	.
3.000	77.4901	409.79	.Q	.	.	.	.
3.083	80.3238	411.45	.Q	.	.	.	.
3.167	83.1691	413.13	.Q	.	.	.	.
3.250	86.0261	414.83	.Q	.	.	.	.
3.333	88.8949	416.55	.Q	.	.	.	.
3.417	91.7748	418.17	.Q	.	.	.	.
3.500	94.6660	419.79	.Q	.	.	.	.
3.583	97.5683	421.42	.Q	.	.	.	.
3.667	100.4820	423.07	.Q	.	.	.	.
3.750	103.4072	424.74	.Q	.	.	.	.
3.833	106.3441	426.42	.QV	.	.	.	.
3.917	109.2926	428.13	.QV	.	.	.	.
4.000	112.2530	429.85	.QV	.	.	.	.
4.083	115.2253	431.59	.QV	.	.	.	.
4.167	118.2098	433.34	.QV	.	.	.	.
4.250	121.2065	435.12	.QV	.	.	.	.
4.333	124.2156	436.92	.QV	.	.	.	.
4.417	127.2371	438.73	.QV	.	.	.	.
4.500	130.2714	440.57	.QV	.	.	.	.
4.583	133.3184	442.43	.QV	.	.	.	.
4.667	136.3783	444.30	.QV	.	.	.	.
4.750	139.4513	446.20	.QV	.	.	.	.
4.833	142.5376	448.12	.QV	.	.	.	.
4.917	145.6372	450.06	.QV	.	.	.	.
5.000	148.7503	452.03	.QV	.	.	.	.
5.083	151.8772	454.02	.QV	.	.	.	.
5.167	155.0179	456.03	.QV	.	.	.	.
5.250	158.1725	458.06	.Q V	.	.	.	.
5.333	161.3414	460.12	.Q V	.	.	.	.
5.417	164.5246	462.20	.Q V	.	.	.	.
5.500	167.7223	464.31	.Q V	.	.	.	.
5.583	170.9347	466.44	.Q V	.	.	.	.
5.667	174.1620	468.60	.Q V	.	.	.	.
5.750	177.4043	470.79	.Q V	.	.	.	.
5.833	180.6618	473.00	.Q V	.	.	.	.
5.917	183.9348	475.24	.Q V	.	.	.	.
6.000	187.2234	477.50	.Q V	.	.	.	.

6.083	190.5279	479.80	.Q	V	.	.	.
6.167	193.8483	482.13	.Q	V	.	.	.
6.250	197.1850	484.49	.Q	V	.	.	.
6.333	200.5380	486.86	.Q	V	.	.	.
6.417	203.9077	489.28	.Q	V	.	.	.
6.500	207.2942	491.72	.Q	V	.	.	.
6.583	210.6979	494.21	.Q	V	.	.	.
6.667	214.1188	496.72	.Q	V	.	.	.
6.750	217.5573	499.27	.Q	V	.	.	.
6.833	221.0136	501.86	.Q	V	.	.	.
6.917	224.4880	504.48	.Q	V	.	.	.
7.000	227.9807	507.14	.Q	V	.	.	.
7.083	231.4919	509.83	.Q	V	.	.	.
7.167	235.0220	512.56	.Q	V	.	.	.
7.250	238.5711	515.34	.Q	V	.	.	.
7.333	242.1396	518.15	.Q	V	.	.	.
7.417	245.7278	521.00	.Q	V	.	.	.
7.500	249.3359	523.89	.Q	V	.	.	.
7.583	252.9642	526.83	.Q	V	.	.	.
7.667	256.6130	529.81	.Q	V	.	.	.
7.750	260.2827	532.84	.Q	V	.	.	.
7.833	263.9736	535.91	.Q	V	.	.	.
7.917	267.6859	539.03	.Q	V	.	.	.
8.000	271.4201	542.20	.Q	V	.	.	.
8.083	275.1765	545.42	.Q	V	.	.	.
8.167	278.9553	548.69	.Q	V	.	.	.
8.250	282.7570	552.01	.Q	V	.	.	.
8.333	286.5820	555.38	.Q	V	.	.	.
8.417	290.4306	558.82	.Q	V	.	.	.
8.500	294.3032	562.30	.Q	V	.	.	.
8.583	298.2002	565.85	.Q	V	.	.	.
8.667	302.1220	569.45	.Q	V	.	.	.
8.750	306.0691	573.12	.Q	V	.	.	.
8.833	310.0418	576.84	.Q	V	.	.	.
8.917	314.0407	580.64	.Q	V	.	.	.
9.000	318.0662	584.50	.Q	V	.	.	.
9.083	322.1187	588.43	.Q	V	.	.	.
9.167	326.1987	592.42	.Q	V	.	.	.
9.250	330.3069	596.50	.Q	V	.	.	.
9.333	334.4435	600.64	.Q	V	.	.	.
9.417	338.6093	604.87	.Q	V	.	.	.
9.500	342.8047	609.17	.Q	V	.	.	.
9.583	347.0302	613.56	.Q	V	.	.	.
9.667	351.2866	618.02	.Q	V	.	.	.
9.750	355.5743	622.58	.Q	V	.	.	.
9.833	359.8941	627.23	.Q	V	.	.	.
9.917	364.2465	631.97	.Q	V	.	.	.
10.000	368.6322	636.80	.Q	V	.	.	.
10.083	373.0519	641.74	.Q	V	.	.	.
10.167	377.5063	646.77	.Q	V	.	.	.
10.250	381.9961	651.92	.Q	V	.	.	.
10.333	386.5221	657.17	.Q	V	.	.	.
10.417	391.0850	662.54	.Q	V	.	.	.
10.500	395.6856	668.02	.Q	V	.	.	.
10.583	400.3249	673.62	.Q	V	.	.	.
10.667	405.0037	679.35	.Q	V	.	.	.
10.750	409.7228	685.22	.Q	V	.	.	.

10.833	414.4832	691.21	.Q	V .	.	.	.
10.917	419.2859	697.35	.Q	V .	.	.	.
11.000	424.1318	703.63	.Q	V .	.	.	.
11.083	429.0222	710.08	.Q	V .	.	.	.
11.167	433.9582	716.71	.Q	V .	.	.	.
11.250	438.9418	723.62	.Q	V .	.	.	.
11.333	443.9754	730.89	.Q	V .	.	.	.
11.417	449.0624	738.63	.Q	V .	.	.	.
11.500	454.2058	746.82	. Q	V .	.	.	.
11.583	459.4082	755.40	. Q	V .	.	.	.
11.667	464.6721	764.32	. Q	V .	.	.	.
11.750	469.9997	773.57	. Q	V .	.	.	.
11.833	475.3932	783.13	. Q	V.	.	.	.
11.917	480.8548	793.03	. Q	V.	.	.	.
12.000	486.3867	803.24	. Q	V.	.	.	.
12.083	491.9891	813.46	. Q	V.	.	.	.
12.167	497.6530	822.39	. Q	V.	.	.	.
12.250	503.3460	826.63	. Q	V.	.	.	.
12.333	508.9987	820.78	. Q	V.	.	.	.
12.417	514.5314	803.34	. Q	V.	.	.	.
12.500	519.9147	781.66	. Q	V.	.	.	.
12.583	525.1762	763.97	. Q	V.	.	.	.
12.667	530.3670	753.70	. Q	V	.	.	.
12.750	535.5317	749.91	. Q	V	.	.	.
12.833	540.7029	750.86	. Q	V	.	.	.
12.917	545.9046	755.28	. Q	V	.	.	.
13.000	551.1546	762.30	. Q	V	.	.	.
13.083	556.4670	771.37	. Q	V	.	.	.
13.167	561.8535	782.10	. Q	V	.	.	.
13.250	567.3235	794.26	. Q	V	.	.	.
13.333	572.8859	807.65	. Q	V	.	.	.
13.417	578.5490	822.27	. Q	V	.	.	.
13.500	584.3206	838.05	. Q	.V	.	.	.
13.583	590.2090	854.99	. Q	.V	.	.	.
13.667	596.2220	873.10	. Q	.V	.	.	.
13.750	602.3682	892.42	. Q	.V	.	.	.
13.833	608.6556	912.95	. Q	.V	.	.	.
13.917	615.0936	934.79	. Q	.V	.	.	.
14.000	621.6909	957.94	. Q	.V	.	.	.
14.083	628.4583	982.63	. Q	.V	.	.	.
14.167	635.4090	1009.24	. Q	. V	.	.	.
14.250	642.5626	1038.71	. Q	. V	.	.	.
14.333	649.9483	1072.40	. Q	. V	.	.	.
14.417	657.6010	1111.17	. Q	. V	.	.	.
14.500	665.5479	1153.90	. Q	. V	.	.	.
14.583	673.8062	1199.10	. Q	. V	.	.	.
14.667	682.3848	1245.62	. Q	. V	.	.	.
14.750	691.2937	1293.58	. Q	. V	.	.	.
14.833	700.5472	1343.61	. Q	. V	.	.	.
14.917	710.1670	1396.79	. Q	. V	.	.	.
15.000	720.1805	1453.97	. Q	. V	.	.	.
15.083	730.6224	1516.15	. Q	. V	.	.	.
15.167	741.5330	1584.22	. Q	. V	.	.	.
15.250	752.9621	1659.50	. Q	. V	.	.	.
15.333	764.9682	1743.29	. Q	. V	.	.	.
15.417	777.6168	1836.58	. Q	. V	.	.	.
15.500	790.9594	1937.33	. Q	. V	.	.	.

15.583	804.9921	2037.55	. Q . V . . .
15.667	819.6126	2122.91	. Q . V . . .
15.750	834.7208	2193.71	. Q . V . . .
15.833	850.4641	2285.93	. Q . V . . .
15.917	867.4187	2461.81	. Q . V . . .
16.000	886.6992	2799.53	. Q . V . . .
16.083	910.5643	3465.22	. Q. V . . .
16.167	943.0000	4709.66	. . Q V . . .
16.250	989.2558	6716.34	. . . Q . . .
16.333	1057.7421	9944.21	. . . V Q . .
16.417	1150.4988	13468.28	. . . .V . Q .
16.500	1251.9269	14727.35	. . . . V . Q.
16.583	1343.9143	13356.58	. . . . V . Q .
16.667	1418.5750	10840.73	. . . . V Q. .
16.750	1478.0511	8635.94	. . . . Q V . .
16.833	1525.0940	6830.62	. . . Q . V . .
16.917	1562.5016	5431.57	. . Q . . V. .
17.000	1593.7506	4537.36	. . Q . . V .
17.083	1620.8214	3930.67	. . Q . . V .
17.167	1644.5876	3450.86	. Q. . . .V .
17.250	1665.6913	3064.24	. Q . . . .V .
17.333	1684.5940	2744.68	. Q . . . . V .
17.417	1701.5743	2465.54	. Q . . . . V .
17.500	1716.8553	2218.81	. Q . . . . V .
17.583	1730.7076	2011.36	. Q . . . . V .
17.667	1743.2880	1826.66	. Q . . . . V .
17.750	1754.7874	1669.70	. Q . . . . V .
17.833	1765.3632	1535.60	. Q . . . . V .
17.917	1775.1265	1417.64	. Q . . . . V .
18.000	1784.2406	1323.37	. Q . . . . V .
18.083	1792.7432	1234.57	. Q . . . . V .
18.167	1800.6624	1149.87	. Q . . . . V .
18.250	1808.1313	1084.49	. Q . . . . V .
18.333	1815.2356	1031.53	. Q . . . . V .
18.417	1822.0874	994.89	. Q . . . . V .
18.500	1828.7211	963.20	. Q . . . . V .
18.583	1835.1053	926.99	. Q . . . . V .
18.667	1841.3218	902.62	. Q . . . . V .
18.750	1847.4019	882.83	. Q . . . . V .
18.833	1853.3412	862.38	. Q . . . . V .
18.917	1859.1448	842.68	. Q . . . . V .
19.000	1864.8236	824.57	. Q . . . . V .
19.083	1870.3801	806.81	. Q . . . . V .
19.167	1875.8195	789.78	. Q . . . . V .
19.250	1881.1426	772.92	. Q . . . . V .
19.333	1886.3466	755.62	. Q . . . . V .
19.417	1891.3541	727.10	.Q . . . . V .
19.500	1896.2412	709.61	.Q . . . . V .
19.583	1901.0392	696.67	.Q . . . . V .
19.667	1905.7542	684.62	.Q . . . . V .
19.750	1910.3894	673.04	.Q . . . . V .
19.833	1914.9485	661.97	.Q . . . . V .
19.917	1919.4347	651.40	.Q . . . . V .
20.000	1923.8514	641.31	.Q . . . . V .
20.083	1928.2015	631.64	.Q . . . . V .
20.167	1932.4877	622.34	.Q . . . . V .
20.250	1936.7123	613.40	.Q . . . . V .

20.333	1940.8774	604.79	.Q	.	.	.	V .
20.417	1944.9854	596.47	.Q	.	.	.	V .
20.500	1949.0377	588.40	.Q	.	.	.	V .
20.583	1953.0359	580.54	.Q	.	.	.	V .
20.667	1956.9818	572.94	.Q	.	.	.	V .
20.750	1960.8771	565.60	.Q	.	.	.	V .
20.833	1964.7235	558.51	.Q	.	.	.	V .
20.917	1968.5228	551.66	.Q	.	.	.	V .
21.000	1972.2766	545.05	.Q	.	.	.	V .
21.083	1975.9863	538.65	.Q	.	.	.	V .
21.167	1979.6534	532.47	.Q	.	.	.	V .
21.250	1983.2793	526.48	.Q	.	.	.	V .
21.333	1986.8652	520.67	.Q	.	.	.	V .
21.417	1990.4120	514.98	.Q	.	.	.	V .
21.500	1993.9205	509.44	.Q	.	.	.	V .
21.583	1997.3918	504.03	.Q	.	.	.	V .
21.667	2000.8270	498.79	.Q	.	.	.	V .
21.750	2004.2272	493.70	.Q	.	.	.	V .
21.833	2007.5931	488.75	.Q	.	.	.	V .
21.917	2010.9259	483.92	.Q	.	.	.	V .
22.000	2014.2263	479.23	.Q	.	.	.	V .
22.083	2017.4952	474.65	.Q	.	.	.	V .
22.167	2020.7334	470.19	.Q	.	.	.	V .
22.250	2023.9417	465.83	.Q	.	.	.	V .
22.333	2027.1206	461.59	.Q	.	.	.	V .
22.417	2030.2710	457.44	.Q	.	.	.	V .
22.500	2033.3936	453.40	.Q	.	.	.	V .
22.583	2036.4889	449.44	.Q	.	.	.	V .
22.667	2039.5576	445.58	.Q	.	.	.	V .
22.750	2042.6003	441.80	.Q	.	.	.	V .
22.833	2045.6177	438.11	.Q	.	.	.	V .
22.917	2048.6101	434.50	.Q	.	.	.	V .
23.000	2051.5781	430.96	.Q	.	.	.	V .
23.083	2054.5225	427.50	.Q	.	.	.	V.
23.167	2057.4434	424.11	.Q	.	.	.	V.
23.250	2060.3413	420.80	.Q	.	.	.	V.
23.333	2063.2170	417.55	.Q	.	.	.	V.
23.417	2066.0708	414.37	.Q	.	.	.	V.
23.500	2068.9031	411.25	.Q	.	.	.	V.
23.583	2071.7144	408.19	.Q	.	.	.	V.
23.667	2074.5049	405.19	.Q	.	.	.	V.
23.750	2077.2751	402.26	.Q	.	.	.	V.
23.833	2080.0256	399.37	.Q	.	.	.	V.
23.917	2082.7566	396.54	.Q	.	.	.	V.
24.000	2085.4685	393.76	.Q	.	.	.	V.
24.083	2088.1567	390.34	.Q	.	.	.	V.
24.167	2090.7986	383.58	.Q	.	.	.	V.
24.250	2093.3247	366.80	Q	.	.	.	V.
24.333	2095.6033	330.86	Q	.	.	.	V.
24.417	2097.5015	275.63	Q	.	.	.	V.
24.500	2098.9932	216.61	Q	.	.	.	V.
24.583	2100.1196	163.56	Q	.	.	.	V.
24.667	2100.9790	124.76	Q	.	.	.	V.
24.750	2101.6519	97.69	Q	.	.	.	V.
24.833	2102.1841	77.28	Q	.	.	.	V.
24.917	2102.6218	63.55	Q	.	.	.	V.
25.000	2102.9822	52.31	Q	.	.	.	V.

25.083	2103.2825	43.60	Q	.	.	.	V.
25.167	2103.5371	36.96	Q	.	.	.	V.
25.250	2103.7512	31.08	Q	.	.	.	V.
25.333	2103.9304	26.02	Q	.	.	.	V.
25.417	2104.0803	21.76	Q	.	.	.	V.
25.500	2104.2061	18.24	Q	.	.	.	V.
25.583	2104.3113	15.27	Q	.	.	.	V.
25.667	2104.3994	12.79	Q	.	.	.	V.
25.750	2104.4729	10.69	Q	.	.	.	V.
25.833	2104.5339	8.88	Q	.	.	.	V.
25.917	2104.5845	7.33	Q	.	.	.	V.
26.000	2104.6255	5.94	Q	.	.	.	V.
26.083	2104.6582	4.73	Q	.	.	.	V.
26.167	2104.6843	3.78	Q	.	.	.	V.
26.250	2104.7048	2.98	Q	.	.	.	V.
26.333	2104.7209	2.35	Q	.	.	.	V.
26.417	2104.7339	1.89	Q	.	.	.	V.
26.500	2104.7446	1.56	Q	.	.	.	V.
26.583	2104.7539	1.34	Q	.	.	.	V.
26.667	2104.7617	1.15	Q	.	.	.	V.
26.750	2104.7683	0.97	Q	.	.	.	V.
26.833	2104.7739	0.83	Q	.	.	.	V.
26.917	2104.7786	0.69	Q	.	.	.	V.
27.000	2104.7825	0.56	Q	.	.	.	V.
27.083	2104.7854	0.42	Q	.	.	.	V.
27.167	2104.7874	0.29	Q	.	.	.	V.
27.250	2104.7883	0.16	Q	.	.	.	V
27.333	2104.7886	0.03	Q	.	.	.	V
27.417	2104.7886	0.00	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1640.0
10%	170.0
20%	75.0
30%	55.0
40%	40.0
50%	30.0
60%	25.0
70%	20.0
80%	15.0
90%	15.0

****
FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 6

>>>>>STREAM NUMBER 2 CLEARED AND SET TO ZERO<<<<<
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 FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

     (UNIT-HYDROGRAPH ADDED TO STREAM #2)

       WATERSHED AREA =     672.000 ACRES
       BASEFLOW =   0.000 CFS/SQUARE-MILE
       *USER ENTERED "LAG" TIME =    0.319 HOURS
        CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
        THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
        MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
       VALLEY(DEVELOPED):
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.070
       FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       VALLEY(UNDEVELOPED)/DESERT:
                "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
       DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.930
       MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.140
       LOW LOSS FRACTION = 0.168
       *HYDROGRAPH MODEL #1 SPECIFIED*

       SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
       SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
       SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
       SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
       SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
       SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

       *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
         5-MINUTE FACTOR = 0.979
        30-MINUTE FACTOR = 0.979
         1-HOUR FACTOR = 0.979
         3-HOUR FACTOR = 0.997
         6-HOUR FACTOR = 0.999
        24-HOUR FACTOR = 0.999

       UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
       UNIT INTERVAL PERCENTAGE OF LAG-TIME =  26.123


       RUNOFF HYDROGRAPH LISTING LIMITS:
       MODEL TIME(HOURS) FOR BEGINNING OF RESULTS =   1.00
       MODEL TIME(HOURS) FOR END OF RESULTS =  24.00


============================================================================
                    UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                1.445               117.475
        2                7.184               466.359
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3	22.145	1215.870
4	43.970	1773.722
5	58.599	1188.894
6	67.662	736.594
7	74.028	517.329
8	78.717	381.067
9	82.271	288.842
10	85.066	227.134
11	87.436	192.647
12	89.403	159.872
13	90.935	124.495
14	92.286	109.794
15	93.453	94.821
16	94.470	82.695
17	95.308	68.098
18	96.076	62.385
19	96.713	51.751
20	97.272	45.489
21	97.712	35.702
22	98.062	28.458
23	98.305	19.778
24	98.574	21.847
25	98.866	23.688
26	99.157	23.689
27	99.449	23.689
28	99.740	23.688
29	100.000	21.129

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0008	0.0040
2	0.0049	0.0008	0.0041
3	0.0049	0.0008	0.0041
4	0.0049	0.0008	0.0041
5	0.0049	0.0008	0.0041
6	0.0049	0.0008	0.0041
7	0.0050	0.0008	0.0041
8	0.0050	0.0008	0.0041
9	0.0050	0.0008	0.0042
10	0.0050	0.0008	0.0042
11	0.0050	0.0008	0.0042
12	0.0050	0.0008	0.0042
13	0.0051	0.0008	0.0042
14	0.0051	0.0009	0.0042
15	0.0051	0.0009	0.0042
16	0.0051	0.0009	0.0042
17	0.0051	0.0009	0.0043
18	0.0051	0.0009	0.0043
19	0.0052	0.0009	0.0043
20	0.0052	0.0009	0.0043
21	0.0052	0.0009	0.0043
22	0.0052	0.0009	0.0043
23	0.0052	0.0009	0.0044
24	0.0052	0.0009	0.0044
25	0.0053	0.0009	0.0044
26	0.0053	0.0009	0.0044
27	0.0053	0.0009	0.0044
28	0.0053	0.0009	0.0044
29	0.0054	0.0009	0.0045
30	0.0054	0.0009	0.0045
31	0.0054	0.0009	0.0045
32	0.0054	0.0009	0.0045
33	0.0054	0.0009	0.0045
34	0.0054	0.0009	0.0045
35	0.0055	0.0009	0.0046
36	0.0055	0.0009	0.0046
37	0.0055	0.0009	0.0046
38	0.0055	0.0009	0.0046
39	0.0056	0.0009	0.0046
40	0.0056	0.0009	0.0046
41	0.0056	0.0009	0.0047
42	0.0056	0.0009	0.0047
43	0.0057	0.0009	0.0047
44	0.0057	0.0010	0.0047
45	0.0057	0.0010	0.0047
46	0.0057	0.0010	0.0048
47	0.0057	0.0010	0.0048
48	0.0058	0.0010	0.0048
49	0.0058	0.0010	0.0048
50	0.0058	0.0010	0.0048
51	0.0058	0.0010	0.0049

52	0.0059	0.0010	0.0049
53	0.0059	0.0010	0.0049
54	0.0059	0.0010	0.0049
55	0.0059	0.0010	0.0050
56	0.0060	0.0010	0.0050
57	0.0060	0.0010	0.0050
58	0.0060	0.0010	0.0050
59	0.0061	0.0010	0.0050
60	0.0061	0.0010	0.0051
61	0.0061	0.0010	0.0051
62	0.0061	0.0010	0.0051
63	0.0062	0.0010	0.0051
64	0.0062	0.0010	0.0052
65	0.0062	0.0010	0.0052
66	0.0063	0.0011	0.0052
67	0.0063	0.0011	0.0052
68	0.0063	0.0011	0.0053
69	0.0064	0.0011	0.0053
70	0.0064	0.0011	0.0053
71	0.0064	0.0011	0.0053
72	0.0064	0.0011	0.0054
73	0.0065	0.0011	0.0054
74	0.0065	0.0011	0.0054
75	0.0065	0.0011	0.0054
76	0.0066	0.0011	0.0055
77	0.0066	0.0011	0.0055
78	0.0066	0.0011	0.0055
79	0.0067	0.0011	0.0056
80	0.0067	0.0011	0.0056
81	0.0068	0.0011	0.0056
82	0.0068	0.0011	0.0056
83	0.0068	0.0011	0.0057
84	0.0069	0.0012	0.0057
85	0.0069	0.0012	0.0058
86	0.0069	0.0012	0.0058
87	0.0070	0.0012	0.0058
88	0.0070	0.0012	0.0058
89	0.0071	0.0012	0.0059
90	0.0071	0.0012	0.0059
91	0.0072	0.0012	0.0060
92	0.0072	0.0012	0.0060
93	0.0072	0.0012	0.0060
94	0.0073	0.0012	0.0061
95	0.0073	0.0012	0.0061
96	0.0074	0.0012	0.0061
97	0.0074	0.0012	0.0062
98	0.0075	0.0013	0.0062
99	0.0075	0.0013	0.0063
100	0.0076	0.0013	0.0063
101	0.0076	0.0013	0.0063
102	0.0077	0.0013	0.0064
103	0.0077	0.0013	0.0064
104	0.0078	0.0013	0.0065
105	0.0078	0.0013	0.0065
106	0.0079	0.0013	0.0066
107	0.0080	0.0013	0.0066
108	0.0080	0.0013	0.0066

109	0.0081	0.0014	0.0067
110	0.0081	0.0014	0.0067
111	0.0082	0.0014	0.0068
112	0.0082	0.0014	0.0068
113	0.0083	0.0014	0.0069
114	0.0084	0.0014	0.0070
115	0.0084	0.0014	0.0070
116	0.0085	0.0014	0.0071
117	0.0086	0.0014	0.0071
118	0.0086	0.0014	0.0072
119	0.0087	0.0015	0.0073
120	0.0088	0.0015	0.0073
121	0.0089	0.0015	0.0074
122	0.0089	0.0015	0.0074
123	0.0090	0.0015	0.0075
124	0.0091	0.0015	0.0076
125	0.0092	0.0015	0.0076
126	0.0092	0.0016	0.0077
127	0.0094	0.0016	0.0078
128	0.0094	0.0016	0.0078
129	0.0095	0.0016	0.0079
130	0.0096	0.0016	0.0080
131	0.0097	0.0016	0.0081
132	0.0098	0.0016	0.0081
133	0.0099	0.0017	0.0083
134	0.0100	0.0017	0.0083
135	0.0101	0.0017	0.0084
136	0.0102	0.0017	0.0085
137	0.0103	0.0017	0.0086
138	0.0104	0.0018	0.0087
139	0.0106	0.0018	0.0088
140	0.0107	0.0018	0.0089
141	0.0108	0.0018	0.0090
142	0.0109	0.0018	0.0091
143	0.0111	0.0019	0.0092
144	0.0112	0.0019	0.0093
145	0.0090	0.0015	0.0075
146	0.0091	0.0015	0.0076
147	0.0093	0.0016	0.0077
148	0.0094	0.0016	0.0078
149	0.0096	0.0016	0.0080
150	0.0097	0.0016	0.0081
151	0.0099	0.0017	0.0082
152	0.0100	0.0017	0.0083
153	0.0102	0.0017	0.0085
154	0.0104	0.0017	0.0086
155	0.0106	0.0018	0.0088
156	0.0107	0.0018	0.0089
157	0.0110	0.0019	0.0092
158	0.0112	0.0019	0.0093
159	0.0115	0.0019	0.0095
160	0.0116	0.0020	0.0097
161	0.0120	0.0020	0.0100
162	0.0121	0.0020	0.0101
163	0.0125	0.0021	0.0104
164	0.0127	0.0021	0.0106
165	0.0131	0.0022	0.0109

166	0.0134	0.0022	0.0111
167	0.0138	0.0023	0.0115
168	0.0141	0.0024	0.0117
169	0.0151	0.0025	0.0126
170	0.0154	0.0026	0.0128
171	0.0161	0.0027	0.0134
172	0.0164	0.0028	0.0137
173	0.0172	0.0029	0.0143
174	0.0176	0.0030	0.0146
175	0.0185	0.0031	0.0154
176	0.0190	0.0032	0.0158
177	0.0201	0.0034	0.0167
178	0.0207	0.0035	0.0172
179	0.0220	0.0037	0.0183
180	0.0228	0.0038	0.0190
181	0.0245	0.0041	0.0204
182	0.0255	0.0043	0.0212
183	0.0279	0.0047	0.0232
184	0.0293	0.0049	0.0244
185	0.0251	0.0042	0.0209
186	0.0269	0.0045	0.0224
187	0.0316	0.0053	0.0263
188	0.0347	0.0058	0.0289
189	0.0539	0.0091	0.0449
190	0.0621	0.0104	0.0517
191	0.0941	0.0117	0.0824
192	0.1367	0.0117	0.1250
193	0.5874	0.0117	0.5757
194	0.0741	0.0117	0.0624
195	0.0387	0.0065	0.0322
196	0.0290	0.0049	0.0241
197	0.0308	0.0052	0.0257
198	0.0266	0.0045	0.0222
199	0.0236	0.0040	0.0196
200	0.0213	0.0036	0.0177
201	0.0195	0.0033	0.0162
202	0.0180	0.0030	0.0150
203	0.0168	0.0028	0.0140
204	0.0158	0.0026	0.0131
205	0.0144	0.0024	0.0119
206	0.0136	0.0023	0.0113
207	0.0129	0.0022	0.0107
208	0.0123	0.0021	0.0103
209	0.0118	0.0020	0.0098
210	0.0113	0.0019	0.0094
211	0.0109	0.0018	0.0090
212	0.0105	0.0018	0.0087
213	0.0101	0.0017	0.0084
214	0.0098	0.0016	0.0081
215	0.0095	0.0016	0.0079
216	0.0092	0.0015	0.0076
217	0.0113	0.0019	0.0094
218	0.0110	0.0018	0.0092
219	0.0107	0.0018	0.0089
220	0.0105	0.0018	0.0087
221	0.0103	0.0017	0.0085
222	0.0101	0.0017	0.0084

223	0.0099	0.0017	0.0082
224	0.0097	0.0016	0.0080
225	0.0095	0.0016	0.0079
226	0.0093	0.0016	0.0077
227	0.0091	0.0015	0.0076
228	0.0090	0.0015	0.0075
229	0.0088	0.0015	0.0073
230	0.0087	0.0015	0.0072
231	0.0085	0.0014	0.0071
232	0.0084	0.0014	0.0070
233	0.0083	0.0014	0.0069
234	0.0081	0.0014	0.0068
235	0.0080	0.0013	0.0067
236	0.0079	0.0013	0.0066
237	0.0078	0.0013	0.0065
238	0.0077	0.0013	0.0064
239	0.0076	0.0013	0.0063
240	0.0075	0.0013	0.0062
241	0.0074	0.0012	0.0062
242	0.0073	0.0012	0.0061
243	0.0072	0.0012	0.0060
244	0.0071	0.0012	0.0059
245	0.0070	0.0012	0.0059
246	0.0070	0.0012	0.0058
247	0.0069	0.0012	0.0057
248	0.0068	0.0011	0.0057
249	0.0067	0.0011	0.0056
250	0.0067	0.0011	0.0055
251	0.0066	0.0011	0.0055
252	0.0065	0.0011	0.0054
253	0.0065	0.0011	0.0054
254	0.0064	0.0011	0.0053
255	0.0063	0.0011	0.0053
256	0.0063	0.0011	0.0052
257	0.0062	0.0010	0.0052
258	0.0062	0.0010	0.0051
259	0.0061	0.0010	0.0051
260	0.0060	0.0010	0.0050
261	0.0060	0.0010	0.0050
262	0.0059	0.0010	0.0049
263	0.0059	0.0010	0.0049
264	0.0058	0.0010	0.0049
265	0.0058	0.0010	0.0048
266	0.0057	0.0010	0.0048
267	0.0057	0.0010	0.0047
268	0.0056	0.0009	0.0047
269	0.0056	0.0009	0.0047
270	0.0055	0.0009	0.0046
271	0.0055	0.0009	0.0046
272	0.0055	0.0009	0.0045
273	0.0054	0.0009	0.0045
274	0.0054	0.0009	0.0045
275	0.0053	0.0009	0.0044
276	0.0053	0.0009	0.0044
277	0.0053	0.0009	0.0044
278	0.0052	0.0009	0.0043
279	0.0052	0.0009	0.0043

280	0.0052	0.0009	0.0043
281	0.0051	0.0009	0.0043
282	0.0051	0.0009	0.0042
283	0.0050	0.0008	0.0042
284	0.0050	0.0008	0.0042
285	0.0050	0.0008	0.0041
286	0.0049	0.0008	0.0041
287	0.0049	0.0008	0.0041
288	0.0049	0.0008	0.0041

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.50
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.10

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 28.0535
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 173.2553

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	375.0	750.0	1125.0	1500.0
1.000	1.5984	30.02	Q	.	.	.	.
1.083	1.8093	30.63	Q	.	.	.	.
1.167	2.0240	31.17	Q	.	.	.	.
1.250	2.2421	31.66	Q	.	.	.	.
1.333	2.4632	32.10	Q	.	.	.	.
1.417	2.6869	32.48	Q	.	.	.	.
1.500	2.9131	32.85	Q	.	.	.	.
1.583	3.1416	33.17	Q	.	.	.	.
1.667	3.3720	33.47	Q	.	.	.	.
1.750	3.6043	33.73	Q	.	.	.	.
1.833	3.8382	33.96	Q	.	.	.	.
1.917	4.0734	34.16	Q	.	.	.	.
2.000	4.3101	34.37	Q	.	.	.	.
2.083	4.5483	34.58	QV	.	.	.	.
2.167	4.7880	34.80	QV	.	.	.	.
2.250	5.0292	35.02	QV	.	.	.	.
2.333	5.2719	35.24	QV	.	.	.	.
2.417	5.5161	35.45	QV	.	.	.	.
2.500	5.7612	35.58	QV	.	.	.	.
2.583	6.0071	35.71	QV	.	.	.	.
2.667	6.2540	35.85	QV	.	.	.	.
2.750	6.5018	35.98	QV	.	.	.	.
2.833	6.7505	36.11	QV	.	.	.	.
2.917	7.0001	36.25	QV	.	.	.	.
3.000	7.2507	36.38	QV	.	.	.	.
3.083	7.5022	36.52	QV	.	.	.	.
3.167	7.7547	36.66	QV	.	.	.	.
3.250	8.0081	36.80	QV	.	.	.	.
3.333	8.2626	36.94	QV	.	.	.	.
3.417	8.5180	37.09	QV	.	.	.	.
3.500	8.7744	37.23	Q V	.	.	.	.
3.583	9.0318	37.38	Q V	.	.	.	.
3.667	9.2903	37.53	.QV	.	.	.	.
3.750	9.5497	37.67	.QV	.	.	.	.
3.833	9.8102	37.83	.QV	.	.	.	.
3.917	10.0718	37.98	.QV	.	.	.	.
4.000	10.3344	38.13	.QV	.	.	.	.
4.083	10.5981	38.29	.QV	.	.	.	.
4.167	10.8629	38.45	.QV	.	.	.	.
4.250	11.1288	38.61	.QV	.	.	.	.
4.333	11.3958	38.77	.QV	.	.	.	.
4.417	11.6639	38.93	.QV	.	.	.	.
4.500	11.9332	39.10	.QV	.	.	.	.
4.583	12.2036	39.26	.QV	.	.	.	.
4.667	12.4751	39.43	.QV	.	.	.	.

4.750	12.7479	39.60	.QV	.	.	.	.
4.833	13.0218	39.77	.Q V	.	.	.	.
4.917	13.2969	39.95	.Q V	.	.	.	.
5.000	13.5733	40.13	.Q V	.	.	.	.
5.083	13.8509	40.30	.Q V	.	.	.	.
5.167	14.1297	40.49	.Q V	.	.	.	.
5.250	14.4098	40.67	.Q V	.	.	.	.
5.333	14.6911	40.85	.Q V	.	.	.	.
5.417	14.9738	41.04	.Q V	.	.	.	.
5.500	15.2577	41.23	.Q V	.	.	.	.
5.583	15.5430	41.42	.Q V	.	.	.	.
5.667	15.8296	41.62	.Q V	.	.	.	.
5.750	16.1175	41.81	.Q V	.	.	.	.
5.833	16.4069	42.01	.Q V	.	.	.	.
5.917	16.6976	42.21	.Q V	.	.	.	.
6.000	16.9897	42.42	.Q V	.	.	.	.
6.083	17.2833	42.62	.Q V	.	.	.	.
6.167	17.5783	42.83	.Q V	.	.	.	.
6.250	17.8747	43.04	.Q V	.	.	.	.
6.333	18.1727	43.26	.Q V	.	.	.	.
6.417	18.4721	43.48	.Q V	.	.	.	.
6.500	18.7731	43.70	.Q V	.	.	.	.
6.583	19.0756	43.92	.Q V	.	.	.	.
6.667	19.3796	44.15	.Q V	.	.	.	.
6.750	19.6853	44.38	.Q V	.	.	.	.
6.833	19.9926	44.61	.Q V	.	.	.	.
6.917	20.3014	44.85	.Q V	.	.	.	.
7.000	20.6120	45.09	.Q V	.	.	.	.
7.083	20.9242	45.33	.Q V	.	.	.	.
7.167	21.2381	45.58	.Q V	.	.	.	.
7.250	21.5537	45.83	.Q V	.	.	.	.
7.333	21.8711	46.09	.Q V	.	.	.	.
7.417	22.1903	46.34	.Q V	.	.	.	.
7.500	22.5113	46.60	.Q V	.	.	.	.
7.583	22.8340	46.87	.Q V	.	.	.	.
7.667	23.1587	47.14	.Q V	.	.	.	.
7.750	23.4852	47.41	.Q V	.	.	.	.
7.833	23.8137	47.69	.Q V	.	.	.	.
7.917	24.1441	47.97	.Q V	.	.	.	.
8.000	24.4764	48.26	.Q V	.	.	.	.
8.083	24.8108	48.55	.Q V	.	.	.	.
8.167	25.1472	48.85	.Q V	.	.	.	.
8.250	25.4857	49.15	.Q V	.	.	.	.
8.333	25.8263	49.45	.Q V	.	.	.	.
8.417	26.1690	49.76	.Q V	.	.	.	.
8.500	26.5139	50.08	.Q V	.	.	.	.
8.583	26.8610	50.40	.Q V	.	.	.	.
8.667	27.2104	50.73	.Q V	.	.	.	.
8.750	27.5620	51.06	.Q V	.	.	.	.
8.833	27.9160	51.40	.Q V	.	.	.	.
8.917	28.2724	51.74	.Q V	.	.	.	.
9.000	28.6312	52.10	.Q V	.	.	.	.
9.083	28.9924	52.45	.Q V	.	.	.	.
9.167	29.3561	52.82	.Q V	.	.	.	.
9.250	29.7224	53.18	.Q V	.	.	.	.
9.333	30.0913	53.56	.Q V	.	.	.	.
9.417	30.4628	53.94	.Q V	.	.	.	.

9.500	30.8371	54.34	.Q	V	.	.	.
9.583	31.2140	54.74	.Q	V	.	.	.
9.667	31.5938	55.15	.Q	V	.	.	.
9.750	31.9764	55.56	.Q	V	.	.	.
9.833	32.3620	55.98	.Q	V	.	.	.
9.917	32.7505	56.41	.Q	V	.	.	.
10.000	33.1421	56.86	.Q	V	.	.	.
10.083	33.5368	57.30	.Q	V	.	.	.
10.167	33.9346	57.77	.Q	V	.	.	.
10.250	34.3357	58.23	.Q	V	.	.	.
10.333	34.7401	58.72	.Q	V	.	.	.
10.417	35.1478	59.20	.Q	V	.	.	.
10.500	35.5590	59.71	.Q	V	.	.	.
10.583	35.9738	60.22	.Q	V	.	.	.
10.667	36.3921	60.75	.Q	V	.	.	.
10.750	36.8142	61.28	.Q	V	.	.	.
10.833	37.2401	61.83	.Q	V	.	.	.
10.917	37.6698	62.39	.Q	V	.	.	.
11.000	38.1035	62.97	.Q	V	.	.	.
11.083	38.5412	63.56	.Q	V	.	.	.
11.167	38.9832	64.17	.Q	V.	.	.	.
11.250	39.4294	64.79	.Q	V.	.	.	.
11.333	39.8800	65.43	.Q	V.	.	.	.
11.417	40.3351	66.08	.Q	V.	.	.	.
11.500	40.7949	66.76	.Q	V.	.	.	.
11.583	41.2594	67.45	.Q	V.	.	.	.
11.667	41.7288	68.16	.Q	V.	.	.	.
11.750	42.2032	68.89	.Q	V.	.	.	.
11.833	42.6829	69.64	.Q	V.	.	.	.
11.917	43.1678	70.41	.Q	V.	.	.	.
12.000	43.6582	71.21	.Q	V	.	.	.
12.083	44.1527	71.80	.Q	V	.	.	.
12.167	44.6467	71.73	.Q	V	.	.	.
12.250	45.1301	70.20	.Q	V	.	.	.
12.333	45.5957	67.59	.Q	V	.	.	.
12.417	46.0511	66.13	.Q	V	.	.	.
12.500	46.5029	65.59	.Q	V	.	.	.
12.583	46.9539	65.49	.Q	V	.	.	.
12.667	47.4064	65.70	.Q	V	.	.	.
12.750	47.8617	66.11	.Q	.V	.	.	.
12.833	48.3210	66.69	.Q	.V	.	.	.
12.917	48.7849	67.36	.Q	.V	.	.	.
13.000	49.2542	68.14	.Q	.V	.	.	.
13.083	49.7296	69.03	.Q	.V	.	.	.
13.167	50.2117	70.00	.Q	.V	.	.	.
13.250	50.7010	71.05	.Q	.V	.	.	.
13.333	51.1981	72.18	.Q	.V	.	.	.
13.417	51.7036	73.39	.Q	.V	.	.	.
13.500	52.2179	74.69	.Q	. V	.	.	.
13.583	52.7417	76.05	. Q	. V	.	.	.
13.667	53.2757	77.53	. Q	. V	.	.	.
13.750	53.8203	79.09	. Q	. V	.	.	.
13.833	54.3766	80.76	. Q	. V	.	.	.
13.917	54.9450	82.53	. Q	. V	.	.	.
14.000	55.5264	84.43	. Q	. V	.	.	.
14.083	56.1219	86.46	. Q	. V	.	.	.
14.167	56.7334	88.79	. Q	. V	.	.	.

14.250	57.3639	91.56	. Q . V . . .
14.333	58.0165	94.76	. Q . V . . .
14.417	58.6905	97.86	. Q . V . . .
14.500	59.3865	101.06	. Q . V . . .
14.583	60.1051	104.34	. Q . V . . .
14.667	60.8479	107.86	. Q . V . . .
14.750	61.6164	111.59	. Q . V . . .
14.833	62.4130	115.66	. Q . V . . .
14.917	63.2396	120.03	. Q . V . . .
15.000	64.0997	124.89	. Q . V . . .
15.083	64.9963	130.18	. Q . V . . .
15.167	65.9339	136.14	. Q . V . . .
15.250	66.9169	142.74	. Q . V . . .
15.333	67.9522	150.32	. Q . V . . .
15.417	69.0415	158.16	. Q . V . . .
15.500	70.1799	165.30	. Q . V . . .
15.583	71.3458	169.29	. Q . V . . .
15.667	72.5300	171.95	. Q . V . . .
15.750	73.7820	181.79	. Q . V . . .
15.833	75.1732	202.00	. Q . V . . .
15.917	76.8185	238.90	. Q . V . . .
16.000	78.8985	302.01	. Q . V . . .
16.083	81.9853	448.21	. Q V . . .
16.167	86.9988	727.95	. QV . . .
16.250	94.9958	1161.17	. .V Q .
16.333	104.6830	1406.57	. . V . Q .
16.417	111.9005	1047.99	. . V Q . .
16.500	117.0484	747.47	. Q. V . .
16.583	121.0652	583.23	. Q . V . .
16.667	124.3631	478.86	. Q . V . .
16.750	127.1382	402.94	. Q . V. .
16.833	129.5293	347.19	. Q. . V. .
16.917	131.6539	308.49	. Q . . V .
17.000	133.5380	273.57	. Q . . V .
17.083	135.1933	240.35	. Q . . .V .
17.167	136.7041	219.36	. Q . . .V .
17.250	138.0799	199.78	. Q . . .V .
17.333	139.3371	182.54	. Q . . . V .
17.417	140.4773	165.56	. Q . . . V .
17.500	141.5373	153.90	. Q . . . V .
17.583	142.5067	140.76	. Q . . . V .
17.667	143.4044	130.34	. Q . . . V .
17.750	144.2237	118.97	. Q . . . V .
17.833	144.9799	109.80	. Q . . . V .
17.917	145.6770	101.21	. Q . . . V .
18.000	146.3560	98.60	. Q . . . V .
18.083	147.0204	96.47	. Q . . . V .
18.167	147.6677	93.99	. Q . . . V .
18.250	148.3075	92.89	. Q . . . V .
18.333	148.9433	92.32	. Q . . . V .
18.417	149.5541	88.70	. Q . . . V .
18.500	150.0782	76.10	. Q . . . V .
18.583	150.5886	74.11	.Q . . . V .
18.667	151.0888	72.62	.Q . . . V .
18.750	151.5793	71.22	.Q . . . V .
18.833	152.0597	69.76	.Q . . . V .
18.917	152.5307	68.39	.Q . . . V .

19.000	152.9927	67.08	.Q	.	.	.	V	.
19.083	153.4460	65.82	.Q	.	.	.	V	.
19.167	153.8910	64.62	.Q	.	.	.	V	.
19.250	154.3281	63.47	.Q	.	.	.	V	.
19.333	154.7576	62.37	.Q	.	.	.	V	.
19.417	155.1799	61.31	.Q	.	.	.	V	.
19.500	155.5953	60.31	.Q	.	.	.	V	.
19.583	156.0040	59.35	.Q	.	.	.	V	.
19.667	156.4063	58.42	.Q	.	.	.	V	.
19.750	156.8024	57.51	.Q	.	.	.	V	.
19.833	157.1925	56.64	.Q	.	.	.	V	.
19.917	157.5767	55.79	.Q	.	.	.	V	.
20.000	157.9553	54.98	.Q	.	.	.	V	.
20.083	158.3286	54.20	.Q	.	.	.	V	.
20.167	158.6968	53.46	.Q	.	.	.	V	.
20.250	159.0601	52.75	.Q	.	.	.	V	.
20.333	159.4187	52.07	.Q	.	.	.	V	.
20.417	159.7728	51.40	.Q	.	.	.	V	.
20.500	160.1221	50.73	.Q	.	.	.	V	.
20.583	160.4669	50.07	.Q	.	.	.	V	.
20.667	160.8074	49.44	.Q	.	.	.	V	.
20.750	161.1437	48.82	.Q	.	.	.	V	.
20.833	161.4758	48.23	.Q	.	.	.	V	.
20.917	161.8040	47.66	.Q	.	.	.	V	.
21.000	162.1284	47.10	.Q	.	.	.	V	.
21.083	162.4491	46.56	.Q	.	.	.	V	.
21.167	162.7662	46.04	.Q	.	.	.	V	.
21.250	163.0798	45.53	.Q	.	.	.	V	.
21.333	163.3900	45.04	.Q	.	.	.	V	.
21.417	163.6970	44.56	.Q	.	.	.	V	.
21.500	164.0007	44.10	.Q	.	.	.	V	.
21.583	164.3013	43.65	.Q	.	.	.	V	.
21.667	164.5988	43.21	.Q	.	.	.	V	.
21.750	164.8934	42.78	.Q	.	.	.	V	.
21.833	165.1852	42.36	.Q	.	.	.	V	.
21.917	165.4741	41.95	.Q	.	.	.	V	.
22.000	165.7603	41.56	.Q	.	.	.	V	.
22.083	166.0439	41.17	.Q	.	.	.	V	.
22.167	166.3248	40.79	.Q	.	.	.	V	.
22.250	166.6032	40.43	.Q	.	.	.	V	.
22.333	166.8792	40.07	.Q	.	.	.	V	.
22.417	167.1527	39.71	.Q	.	.	.	V	.
22.500	167.4238	39.37	.Q	.	.	.	V	.
22.583	167.6927	39.04	.Q	.	.	.	V	.
22.667	167.9593	38.71	.Q	.	.	.	V	.
22.750	168.2236	38.39	.Q	.	.	.	V	.
22.833	168.4859	38.07	.Q	.	.	.	V	.
22.917	168.7460	37.77	.Q	.	.	.	V	.
23.000	169.0040	37.47	Q	.	.	.	V	.
23.083	169.2600	37.17	Q	.	.	.	V	.
23.167	169.5140	36.88	Q	.	.	.	V	.
23.250	169.7661	36.60	Q	.	.	.	V	.
23.333	170.0163	36.33	Q	.	.	.	V	.
23.417	170.2646	36.05	Q	.	.	.	V	.
23.500	170.5110	35.79	Q	.	.	.	V	.
23.583	170.7557	35.53	Q	.	.	.	V	.
23.667	170.9986	35.27	Q	.	.	.	V	.

23.750	171.2398	35.02	Q	.	.	.	V.
23.833	171.4793	34.77	Q	.	.	.	V.
23.917	171.7171	34.53	Q	.	.	.	V.
24.000	171.9533	34.30	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	145.0
20%	60.0
30%	40.0
40%	30.0
50%	25.0
60%	15.0
70%	15.0
80%	10.0
90%	5.0

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FLOW PROCESS FROM NODE 110.00 TO NODE 109.00 IS CODE = 4

>>>>>MODEL PIPEFLOW ROUTING OF STREAM #2<<<<<
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MODEL PIPEFLOW ROUTING OF STREAM 2 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 500.00 MANNINGS FACTOR = 0.013
UPSTREAM ELEVATION(FT) = 3088.00
DOWNSTREAM ELEVATION(FT) = 3082.00
PIPE DIAMETER(FT) = 6.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
0.083	0.48	0.50	0.00	0.000
0.167	2.36	0.87	0.00	0.000
0.250	7.28	2.68	2.95	0.000
0.333	14.48	5.32	16.96	0.000
0.417	19.33	7.11	19.49	0.000
0.500	22.37	8.23	22.37	0.000

0.583	24.53	8.64	24.33	0.000
0.667	26.15	8.76	25.91	0.000
0.750	27.40	8.86	27.22	0.000
0.833	28.41	8.94	28.27	0.000
0.917	29.28	9.01	29.16	0.000
1.000	30.02	9.06	29.92	0.000
1.083	30.63	9.11	30.55	0.000
1.167	31.17	9.15	31.10	0.000
1.250	31.66	9.19	31.60	0.000
1.333	32.10	9.23	32.04	0.000
1.417	32.48	9.26	32.43	0.000
1.500	32.85	9.28	32.80	0.000
1.583	33.17	9.31	33.13	0.000
1.667	33.47	9.33	33.43	0.000
1.750	33.73	9.35	33.69	0.000
1.833	33.96	9.37	33.93	0.000
1.917	34.16	9.39	34.13	0.000
2.000	34.37	9.40	34.34	0.000
2.083	34.58	9.42	34.56	0.000
2.167	34.80	9.44	34.77	0.000
2.250	35.02	9.45	34.99	0.000
2.333	35.24	9.47	35.22	0.000
2.417	35.45	9.49	35.43	0.000
2.500	35.58	9.50	35.57	0.000
2.583	35.71	9.51	35.70	0.000
2.667	35.85	9.52	35.83	0.000
2.750	35.98	9.53	35.96	0.000
2.833	36.11	9.54	36.10	0.000
2.917	36.25	9.55	36.23	0.000
3.000	36.38	9.56	36.37	0.000
3.083	36.52	9.57	36.50	0.000
3.167	36.66	9.58	36.64	0.000
3.250	36.80	9.59	36.78	0.000
3.333	36.94	9.60	36.93	0.000
3.417	37.09	9.61	37.07	0.000
3.500	37.23	9.62	37.21	0.000
3.583	37.38	9.64	37.36	0.000
3.667	37.53	9.65	37.51	0.000
3.750	37.67	9.66	37.66	0.000
3.833	37.83	9.67	37.81	0.000
3.917	37.98	9.68	37.96	0.000
4.000	38.13	9.69	38.12	0.000
4.083	38.29	9.71	38.27	0.000
4.167	38.45	9.72	38.43	0.000
4.250	38.61	9.73	38.59	0.000
4.333	38.77	9.74	38.75	0.000
4.417	38.93	9.76	38.91	0.000
4.500	39.10	9.77	39.08	0.000
4.583	39.26	9.78	39.24	0.000
4.667	39.43	9.80	39.41	0.000
4.750	39.60	9.81	39.58	0.000
4.833	39.77	9.82	39.75	0.000
4.917	39.95	9.84	39.93	0.000
5.000	40.13	9.85	40.11	0.000
5.083	40.30	9.86	40.28	0.000
5.167	40.49	9.88	40.46	0.000
5.250	40.67	9.89	40.65	0.000

5.333	40.85	9.91	40.83	0.000
5.417	41.04	9.92	41.02	0.000
5.500	41.23	9.94	41.21	0.000
5.583	41.42	9.95	41.40	0.000
5.667	41.62	9.97	41.59	0.000
5.750	41.81	9.98	41.79	0.000
5.833	42.01	10.00	41.99	0.000
5.917	42.21	10.01	42.19	0.000
6.000	42.42	10.03	42.39	0.000
6.083	42.62	10.04	42.60	0.000
6.167	42.83	10.06	42.81	0.000
6.250	43.04	10.08	43.02	0.000
6.333	43.26	10.09	43.24	0.000
6.417	43.48	10.11	43.45	0.000
6.500	43.70	10.13	43.68	0.000
6.583	43.92	10.15	43.90	0.000
6.667	44.15	10.16	44.13	0.000
6.750	44.38	10.18	44.36	0.000
6.833	44.61	10.20	44.59	0.000
6.917	44.85	10.22	44.82	0.000
7.000	45.09	10.24	45.07	0.000
7.083	45.33	10.26	45.31	0.000
7.167	45.58	10.27	45.55	0.000
7.250	45.83	10.29	45.80	0.000
7.333	46.09	10.31	46.06	0.000
7.417	46.34	10.33	46.31	0.000
7.500	46.60	10.35	46.57	0.000
7.583	46.87	10.37	46.84	0.000
7.667	47.14	10.38	47.11	0.000
7.750	47.41	10.40	47.38	0.000
7.833	47.69	10.42	47.66	0.000
7.917	47.97	10.43	47.94	0.000
8.000	48.26	10.45	48.23	0.000
8.083	48.55	10.47	48.52	0.000
8.167	48.85	10.49	48.81	0.000
8.250	49.15	10.50	49.11	0.000
8.333	49.45	10.52	49.42	0.000
8.417	49.76	10.54	49.73	0.000
8.500	50.08	10.56	50.05	0.000
8.583	50.40	10.58	50.36	0.000
8.667	50.73	10.60	50.69	0.000
8.750	51.06	10.62	51.02	0.000
8.833	51.40	10.64	51.36	0.000
8.917	51.74	10.66	51.70	0.000
9.000	52.10	10.68	52.06	0.000
9.083	52.45	10.70	52.41	0.000
9.167	52.82	10.72	52.78	0.000
9.250	53.18	10.75	53.14	0.000
9.333	53.56	10.77	53.52	0.000
9.417	53.94	10.79	53.90	0.000
9.500	54.34	10.82	54.30	0.000
9.583	54.74	10.84	54.69	0.000
9.667	55.15	10.86	55.10	0.000
9.750	55.56	10.89	55.51	0.000
9.833	55.98	10.91	55.94	0.000
9.917	56.41	10.94	56.37	0.000
10.000	56.86	10.97	56.81	0.000

10.083	57.30	10.99	57.26	0.000
10.167	57.77	11.02	57.72	0.000
10.250	58.23	11.05	58.19	0.000
10.333	58.72	11.08	58.67	0.000
10.417	59.20	11.11	59.15	0.000
10.500	59.71	11.14	59.66	0.000
10.583	60.22	11.17	60.17	0.000
10.667	60.75	11.20	60.69	0.000
10.750	61.28	11.23	61.23	0.000
10.833	61.83	11.27	61.78	0.000
10.917	62.39	11.30	62.34	0.000
11.000	62.97	11.33	62.92	0.000
11.083	63.56	11.37	63.50	0.000
11.167	64.17	11.41	64.11	0.000
11.250	64.79	11.44	64.73	0.000
11.333	65.43	11.48	65.37	0.000
11.417	66.08	11.52	66.02	0.000
11.500	66.76	11.56	66.70	0.000
11.583	67.45	11.60	67.38	0.000
11.667	68.16	11.65	68.09	0.000
11.750	68.89	11.69	68.82	0.000
11.833	69.64	11.73	69.57	0.000
11.917	70.41	11.77	70.33	0.000
12.000	71.21	11.81	71.13	0.000
12.083	71.80	11.83	71.74	0.000
12.167	71.73	11.83	71.74	0.000
12.250	70.20	11.76	70.35	0.000
12.333	67.59	11.61	67.84	0.000
12.417	66.13	11.52	66.27	0.000
12.500	65.59	11.49	65.64	0.000
12.583	65.49	11.49	65.50	0.000
12.667	65.70	11.50	65.68	0.000
12.750	66.11	11.52	66.07	0.000
12.833	66.69	11.56	66.63	0.000
12.917	67.36	11.60	67.29	0.000
13.000	68.14	11.65	68.07	0.000
13.083	69.03	11.70	68.95	0.000
13.167	70.00	11.75	69.91	0.000
13.250	71.05	11.80	70.94	0.000
13.333	72.18	11.85	72.07	0.000
13.417	73.39	11.91	73.27	0.000
13.500	74.69	11.97	74.56	0.000
13.583	76.05	12.03	75.92	0.000
13.667	77.53	12.10	77.39	0.000
13.750	79.09	12.17	78.93	0.000
13.833	80.76	12.25	80.60	0.000
13.917	82.53	12.33	82.37	0.000
14.000	84.43	12.41	84.25	0.000
14.083	86.46	12.51	86.27	0.000
14.167	88.79	12.62	88.58	0.000
14.250	91.56	12.74	91.31	0.000
14.333	94.76	12.87	94.46	0.000
14.417	97.86	12.99	97.57	0.000
14.500	101.06	13.10	100.76	0.000
14.583	104.34	13.22	104.04	0.000
14.667	107.86	13.35	107.55	0.000
14.750	111.59	13.49	111.26	0.000

14.833	115.66	13.64	115.31	0.000
14.917	120.03	13.79	119.66	0.000
15.000	124.89	13.95	124.48	0.000
15.083	130.18	14.13	129.74	0.000
15.167	136.14	14.34	135.66	0.000
15.250	142.74	14.52	142.18	0.000
15.333	150.32	14.69	149.65	0.000
15.417	158.16	14.87	157.49	0.000
15.500	165.30	15.03	164.70	0.000
15.583	169.29	15.13	168.96	0.000
15.667	171.95	15.19	171.73	0.000
15.750	181.79	15.42	181.01	0.000
15.833	202.00	15.80	200.34	0.000
15.917	238.90	16.53	236.13	0.000
16.000	302.01	17.40	297.17	0.000
16.083	448.21	18.66	437.11	0.000
16.167	727.95	18.71	462.65	1.818
16.250	1161.17	18.71	463.96	6.620
16.333	1406.57	18.71	463.96	13.112
16.417	1047.99	18.71	463.96	17.134
16.500	747.47	18.71	463.96	19.087
16.583	583.23	18.71	463.96	19.908
16.667	478.86	18.71	463.96	20.011
16.750	402.94	18.71	463.96	19.591
16.833	347.19	18.71	463.96	18.786
16.917	308.49	18.71	463.96	17.716
17.000	273.57	18.71	463.96	16.404
17.083	240.35	18.71	463.96	14.864
17.167	219.36	18.71	463.96	13.180
17.250	199.78	18.71	463.96	11.360
17.333	182.54	18.71	463.96	9.422
17.417	165.56	18.71	463.96	7.367
17.500	153.90	18.71	463.96	5.232
17.583	140.76	18.71	463.96	3.006
17.667	130.34	18.71	463.96	0.708
17.750	118.97	16.19	240.34	0.000
17.833	109.80	13.42	119.00	0.000
17.917	101.21	13.11	101.97	0.000
18.000	98.60	13.01	98.84	0.000
18.083	96.47	12.93	96.67	0.000
18.167	93.99	12.84	94.22	0.000
18.250	92.89	12.80	93.00	0.000
18.333	92.32	12.78	92.37	0.000
18.417	88.70	12.61	89.02	0.000
18.500	76.10	12.03	77.28	0.000
18.583	74.11	11.94	74.31	0.000
18.667	72.62	11.87	72.77	0.000
18.750	71.22	11.81	71.36	0.000
18.833	69.76	11.74	69.91	0.000
18.917	68.39	11.66	68.52	0.000
19.000	67.08	11.58	67.20	0.000
19.083	65.82	11.51	65.94	0.000
19.167	64.62	11.43	64.73	0.000
19.250	63.47	11.36	63.58	0.000
19.333	62.37	11.30	62.48	0.000
19.417	61.31	11.23	61.42	0.000
19.500	60.31	11.17	60.41	0.000

19.583	59.35	11.12	59.44	0.000
19.667	58.42	11.06	58.51	0.000
19.750	57.51	11.01	57.61	0.000
19.833	56.64	10.95	56.73	0.000
19.917	55.79	10.90	55.88	0.000
20.000	54.98	10.85	55.06	0.000
20.083	54.20	10.81	54.29	0.000
20.167	53.46	10.76	53.54	0.000
20.250	52.75	10.72	52.83	0.000
20.333	52.07	10.68	52.14	0.000
20.417	51.40	10.64	51.48	0.000
20.500	50.73	10.60	50.80	0.000
20.583	50.07	10.56	50.14	0.000
20.667	49.44	10.52	49.51	0.000
20.750	48.82	10.48	48.89	0.000
20.833	48.23	10.45	48.30	0.000
20.917	47.66	10.41	47.72	0.000
21.000	47.10	10.38	47.17	0.000
21.083	46.56	10.35	46.63	0.000
21.167	46.04	10.31	46.10	0.000
21.250	45.53	10.27	45.59	0.000
21.333	45.04	10.23	45.10	0.000
21.417	44.56	10.20	44.62	0.000
21.500	44.10	10.16	44.15	0.000
21.583	43.65	10.12	43.70	0.000
21.667	43.21	10.09	43.25	0.000
21.750	42.78	10.06	42.83	0.000
21.833	42.36	10.02	42.41	0.000
21.917	41.95	9.99	42.00	0.000
22.000	41.56	9.96	41.60	0.000
22.083	41.17	9.93	41.21	0.000
22.167	40.79	9.90	40.84	0.000
22.250	40.43	9.87	40.47	0.000
22.333	40.07	9.85	40.11	0.000
22.417	39.71	9.82	39.76	0.000
22.500	39.37	9.79	39.41	0.000
22.583	39.04	9.77	39.08	0.000
22.667	38.71	9.74	38.75	0.000
22.750	38.39	9.71	38.43	0.000
22.833	38.07	9.69	38.11	0.000
22.917	37.77	9.67	37.80	0.000
23.000	37.47	9.64	37.50	0.000
23.083	37.17	9.62	37.21	0.000
23.167	36.88	9.60	36.92	0.000
23.250	36.60	9.58	36.64	0.000
23.333	36.33	9.55	36.36	0.000
23.417	36.05	9.53	36.09	0.000
23.500	35.79	9.51	35.82	0.000
23.583	35.53	9.49	35.56	0.000
23.667	35.27	9.47	35.30	0.000
23.750	35.02	9.45	35.05	0.000
23.833	34.77	9.43	34.81	0.000
23.917	34.53	9.41	34.56	0.000
24.000	34.30	9.40	34.33	0.000
24.083	33.59	9.34	33.68	0.000
24.167	31.48	9.18	31.76	0.000
24.250	26.36	8.78	27.08	0.000

24.333	19.03	7.00	19.51	0.000
24.417	14.11	5.19	14.11	0.000
24.500	11.04	4.06	11.04	0.000
24.583	8.88	3.27	8.88	0.000
24.667	7.28	2.68	7.28	0.000
24.750	6.06	2.23	6.06	0.000
24.833	5.11	1.88	5.11	0.000
24.917	4.30	1.58	4.53	0.000
25.000	3.62	1.33	4.06	0.000
25.083	3.09	1.14	2.95	0.000
25.167	2.63	0.97	2.57	0.000
25.250	2.23	0.82	2.17	0.000
25.333	1.88	0.69	1.90	0.000
25.417	1.59	0.59	2.16	0.000
25.500	1.33	0.50	1.18	0.000
25.583	1.11	0.50	1.02	0.000
25.667	0.92	0.50	1.34	0.000
25.750	0.77	0.50	0.89	0.000
25.833	0.65	0.50	1.19	0.000
25.917	0.57	0.50	0.99	0.000
26.000	0.48	0.50	0.82	0.000
26.083	0.38	0.50	0.69	0.000
26.167	0.28	0.50	0.60	0.000
26.250	0.18	0.50	0.51	0.000
26.333	0.09	0.50	0.41	0.000
26.417	0.00	0.00	0.31	0.000
26.500	0.00	0.00	0.22	0.000
26.583	0.00	0.00	0.12	0.000
26.667	0.00	0.00	0.03	0.000
26.750	0.00	0.00	0.00	0.000
26.833	0.00	0.00	0.00	0.000
26.917	0.00	0.00	0.00	0.000
27.000	0.00	0.00	0.00	0.000
27.083	0.00	0.00	0.00	0.000
27.167	0.00	0.00	0.00	0.000
27.250	0.00	0.00	0.00	0.000
27.333	0.00	0.00	0.00	0.000
27.417	0.00	0.00	0.00	0.000
27.500	0.00	0.00	0.00	0.000
27.583	0.00	0.00	0.00	0.000
27.667	0.00	0.00	0.00	0.000
27.750	0.00	0.00	0.00	0.000
27.833	0.00	0.00	0.00	0.000
27.917	0.00	0.00	0.00	0.000
28.000	0.00	0.00	0.00	0.000
28.083	0.00	0.00	0.00	0.000
28.167	0.00	0.00	0.00	0.000
28.250	0.00	0.00	0.00	0.000
28.333	0.00	0.00	0.00	0.000
28.417	0.00	0.00	0.00	0.000
28.500	0.00	0.00	0.00	0.000
28.583	0.00	0.00	0.00	0.000
28.667	0.00	0.00	0.00	0.000
28.750	0.00	0.00	0.00	0.000
28.833	0.00	0.00	0.00	0.000
28.917	0.00	0.00	0.00	0.000
29.000	0.00	0.00	0.00	0.000

29.083	0.00	0.00	0.00	0.000
29.167	0.00	0.00	0.00	0.000
29.250	0.00	0.00	0.00	0.000
29.333	0.00	0.00	0.00	0.000
29.417	0.00	0.00	0.00	0.000
29.500	0.00	0.00	0.00	0.000
29.583	0.00	0.00	0.00	0.000
29.667	0.00	0.00	0.00	0.000
29.750	0.00	0.00	0.00	0.000
29.833	0.00	0.00	0.00	0.000
29.917	0.00	0.00	0.00	0.000
30.000	0.00	0.00	0.00	0.000

```
****************************************************************************
  FLOW PROCESS FROM NODE     109.00 TO NODE     109.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     109.00 TO NODE     109.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

           STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
        (Note: Time indicated is at END of Each Unit Intervals)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)    Q(CFS) 0.     3800.0    7600.0   11400.0   15200.0
----------------------------------------------------------------------------
   0.083      0.0044      0.63  Q          .         .         .         .
   0.167      0.0300      3.73  Q          .         .         .         .
   0.250      0.1516     17.65  Q          .         .         .         .
   0.333      0.6229     68.45  Q          .         .         .         .
   0.417      1.4874    125.52  Q          .         .         .         .
   0.500      2.7778    187.36  Q          .         .         .         .
   0.583      4.4286    239.70  Q          .         .         .         .
   0.667      6.3567    279.97  Q          .         .         .         .
   0.750      8.4859    309.16  Q          .         .         .         .
   0.833     10.7594    330.11  Q          .         .         .         .
   0.917     13.1411    345.83  Q          .         .         .         .
   1.000     15.6082    358.22  Q          .         .         .         .
   1.083     18.1451    368.36  Q          .         .         .         .
   1.167     20.7405    376.84  Q          .         .         .         .
   1.250     23.3860    384.13  VQ         .         .         .         .
   1.333     26.0753    390.50  VQ         .         .         .         .
   1.417     28.8029    396.05  VQ         .         .         .         .
   1.500     31.5641    400.92  VQ         .         .         .         .
   1.583     34.3552    405.27  VQ         .         .         .         .
   1.667     37.1731    409.15  VQ         .         .         .         .
   1.750     40.0150    412.65  VQ         .         .         .         .
   1.833     42.8790    415.85  VQ         .         .         .         .
   1.917     45.7634    418.81  VQ         .         .         .         .
   2.000     48.6674    421.67  VQ         .         .         .         .
   2.083     51.5903    424.40  VQ         .         .         .         .
```

2.167	54.5305	426.92	VQ	.	.	.	.
2.250	57.4871	429.29	.Q	.	.	.	.
2.333	60.4590	431.52	.Q	.	.	.	.
2.417	63.4453	433.61	.Q	.	.	.	.
2.500	66.4446	435.49	.Q	.	.	.	.
2.583	69.4561	437.27	.Q	.	.	.	.
2.667	72.4799	439.05	.Q	.	.	.	.
2.750	75.5159	440.83	.Q	.	.	.	.
2.833	78.5640	442.60	.Q	.	.	.	.
2.917	81.6244	444.37	.Q	.	.	.	.
3.000	84.6971	446.16	.Q	.	.	.	.
3.083	87.7822	447.96	.Q	.	.	.	.
3.167	90.8799	449.78	.Q	.	.	.	.
3.250	93.9902	451.62	.Q	.	.	.	.
3.333	97.1133	453.47	.Q	.	.	.	.
3.417	100.2485	455.24	.Q	.	.	.	.
3.500	103.3960	457.00	.Q	.	.	.	.
3.583	106.5556	458.78	.Q	.	.	.	.
3.667	109.7277	460.58	.Q	.	.	.	.
3.750	112.9122	462.40	.Q	.	.	.	.
3.833	116.1094	464.23	.QV	.	.	.	.
3.917	119.3194	466.09	.QV	.	.	.	.
4.000	122.5423	467.96	.QV	.	.	.	.
4.083	125.7782	469.86	.QV	.	.	.	.
4.167	129.0273	471.77	.QV	.	.	.	.
4.250	132.2898	473.71	.QV	.	.	.	.
4.333	135.5657	475.67	.QV	.	.	.	.
4.417	138.8553	477.64	.QV	.	.	.	.
4.500	142.1586	479.65	.QV	.	.	.	.
4.583	145.4759	481.67	.QV	.	.	.	.
4.667	148.8073	483.71	.QV	.	.	.	.
4.750	152.1529	485.78	.QV	.	.	.	.
4.833	155.5129	487.88	.QV	.	.	.	.
4.917	158.8875	489.99	.QV	.	.	.	.
5.000	162.2768	492.13	.QV	.	.	.	.
5.083	165.6811	494.30	.QV	.	.	.	.
5.167	169.1005	496.49	.QV	.	.	.	.
5.250	172.5351	498.71	.Q V	.	.	.	.
5.333	175.9852	500.95	.Q V	.	.	.	.
5.417	179.4509	503.22	.Q V	.	.	.	.
5.500	182.9324	505.51	.Q V	.	.	.	.
5.583	186.4299	507.84	.Q V	.	.	.	.
5.667	189.9436	510.19	.Q V	.	.	.	.
5.750	193.4738	512.58	.Q V	.	.	.	.
5.833	197.0205	514.99	.Q V	.	.	.	.
5.917	200.5840	517.43	.Q V	.	.	.	.
6.000	204.1646	519.90	.Q V	.	.	.	.
6.083	207.7624	522.40	.Q V	.	.	.	.
6.167	211.3777	524.94	.Q V	.	.	.	.
6.250	215.0107	527.51	.Q V	.	.	.	.
6.333	218.6615	530.10	.Q V	.	.	.	.
6.417	222.3304	532.73	.Q V	.	.	.	.
6.500	226.0178	535.40	.Q V	.	.	.	.
6.583	229.7237	538.10	.Q V	.	.	.	.
6.667	233.4485	540.85	.Q V	.	.	.	.
6.750	237.1925	543.63	.Q V	.	.	.	.
6.833	240.9559	546.45	.Q V	.	.	.	.

6.917	244.7390	549.30	.Q	V	.	.	.	.
7.000	248.5421	552.20	.Q	V	.	.	.	.
7.083	252.3653	555.14	.Q	V	.	.	.	.
7.167	256.2091	558.12	.Q	V	.	.	.	.
7.250	260.0737	561.14	.Q	V	.	.	.	.
7.333	263.9594	564.20	.Q	V	.	.	.	.
7.417	267.8665	567.32	.Q	V	.	.	.	.
7.500	271.7954	570.47	.Q	V	.	.	.	.
7.583	275.7463	573.67	.Q	V	.	.	.	.
7.667	279.7196	576.92	.Q	V	.	.	.	.
7.750	283.7156	580.22	.Q	V	.	.	.	.
7.833	287.7346	583.57	.Q	V	.	.	.	.
7.917	291.7772	586.97	.Q	V	.	.	.	.
8.000	295.8434	590.43	.Q	V	.	.	.	.
8.083	299.9339	593.94	.Q	V	.	.	.	.
8.167	304.0490	597.50	.Q	V	.	.	.	.
8.250	308.1889	601.12	.Q	V	.	.	.	.
8.333	312.3542	604.80	.Q	V	.	.	.	.
8.417	316.5453	608.54	.Q	V	.	.	.	.
8.500	320.7626	612.34	.Q	V	.	.	.	.
8.583	325.0064	616.21	.Q	V	.	.	.	.
8.667	329.2774	620.14	.Q	V	.	.	.	.
8.750	333.5759	624.14	.Q	V	.	.	.	.
8.833	337.9023	628.21	.Q	V	.	.	.	.
8.917	342.2573	632.34	.Q	V	.	.	.	.
9.000	346.6413	636.55	.Q	V	.	.	.	.
9.083	351.0548	640.84	.Q	V	.	.	.	.
9.167	355.4983	645.20	.Q	V	.	.	.	.
9.250	359.9724	649.64	.Q	V	.	.	.	.
9.333	364.4777	654.17	.Q	V	.	.	.	.
9.417	369.0147	658.77	.Q	V	.	.	.	.
9.500	373.5840	663.47	.Q	V	.	.	.	.
9.583	378.1863	668.25	.Q	V	.	.	.	.
9.667	382.8221	673.12	.Q	V	.	.	.	.
9.750	387.4922	678.10	.Q	V	.	.	.	.
9.833	392.1973	683.17	.Q	V	.	.	.	.
9.917	396.9379	688.34	.Q	V	.	.	.	.
10.000	401.7149	693.62	.Q	V	.	.	.	.
10.083	406.5289	699.00	.Q	V	.	.	.	.
10.167	411.3808	704.49	.Q	V	.	.	.	.
10.250	416.2714	710.11	.Q	V	.	.	.	.
10.333	421.2014	715.84	.Q	V	.	.	.	.
10.417	426.1717	721.69	.Q	V	.	.	.	.
10.500	431.1832	727.67	.Q	V	.	.	.	.
10.583	436.2369	733.79	.Q	V	.	.	.	.
10.667	441.3336	740.05	.Q	V	.	.	.	.
10.750	446.4744	746.45	.Q	V	.	.	.	.
10.833	451.6603	752.99	.Q	V	.	.	.	.
10.917	456.8923	759.69	.Q	V	.	.	.	.
11.000	462.1716	766.55	. Q	V	.	.	.	.
11.083	467.4993	773.58	. Q	V	.	.	.	.
11.167	472.8769	780.82	. Q	V	.	.	.	.
11.250	478.3062	788.35	. Q	V	.	.	.	.
11.333	483.7901	796.26	. Q	V	.	.	.	.
11.417	489.3318	804.65	. Q	V	.	.	.	.
11.500	494.9345	813.51	. Q	V	.	.	.	.
11.583	500.6010	822.78	. Q	V	.	.	.	.

11.667	506.3339	832.41	. Q V . . . .
11.750	512.1354	842.39	. Q V . . . .
11.833	518.0081	852.70	. Q V. . . .
11.917	523.9540	863.36	. Q V. . . .
12.000	529.9759	874.37	. Q V. . . .
12.083	536.0723	885.20	. Q V. . . .
12.167	542.2302	894.13	. Q V. . . .
12.250	548.4078	896.98	. Q V. . . .
12.333	554.5277	888.62	. Q V. . . .
12.417	560.5168	869.61	. Q V. . . .
12.500	566.3522	847.30	. Q V. . . .
12.583	572.0648	829.47	. Q V . . .
12.667	577.7079	819.39	. Q V . . .
12.750	583.3276	815.98	. Q V . . .
12.833	588.9578	817.50	. Q V . . .
12.917	594.6229	822.57	. Q V . . .
13.000	600.3417	830.37	. Q V . . .
13.083	606.1290	840.32	. Q V . . .
13.167	611.9968	852.01	. Q V . . .
13.250	617.9555	865.20	. Q V . . .
13.333	624.0142	879.72	. Q V . . .
13.417	630.1818	895.53	. Q .V . . .
13.500	636.4669	912.61	. Q .V . . .
13.583	642.8782	930.91	. Q .V . . .
13.667	649.4243	950.49	. Q .V . . .
13.750	656.1140	971.36	. Q .V . . .
13.833	662.9567	993.55	. Q .V . . .
13.917	669.9619	1017.16	. Q .V . . .
14.000	677.1395	1042.19	. Q .V . . .
14.083	684.5010	1068.90	. Q . V . . .
14.167	692.0618	1097.82	. Q . V . . .
14.250	699.8444	1130.02	. Q . V . . .
14.333	707.8806	1166.86	. Q . V . . .
14.417	716.2053	1208.74	. Q . V . . .
14.500	724.8462	1254.66	. Q . V . . .
14.583	733.8210	1303.14	. Q . V . . .
14.667	743.1403	1353.17	. Q . V . . .
14.750	752.8156	1404.84	. Q . V . . .
14.833	762.8632	1458.92	. Q . V . . .
14.917	773.3071	1516.45	. Q . V . . .
15.000	784.1779	1578.45	. Q . V . . .
15.083	795.5132	1645.89	. Q . V . . .
15.167	807.3582	1719.89	. Q . V . . .
15.250	819.7665	1801.69	. Q . V . . .
15.333	832.8033	1892.94	. Q . V . . .
15.417	846.5365	1994.07	. Q . V . . .
15.500	861.0133	2102.03	. Q . V . . .
15.583	876.2097	2206.52	. Q . V . . .
15.667	892.0130	2294.64	. Q . V . . .
15.750	908.3678	2374.71	. Q . V . . .
15.833	925.4908	2486.27	. Q . V . . .
15.917	944.0717	2697.94	. Q . V . . .
16.000	965.3988	3096.69	. Q . V . . .
16.083	992.2744	3902.33	. Q V . . .
16.167	1027.8962	5172.31	. . Q V . . .
16.250	1077.3473	7180.30	. . Q . . .
16.333	1149.0289	10408.17	. . V Q . .

16.417	1244.9810	13932.24	. . .V . Q .
16.500	1349.6042	15191.31	. . . V . Q.
16.583	1444.7870	13820.53	. . . V . Q .
16.667	1522.6429	11304.68	. . . V Q. .
16.750	1585.3145	9099.90	. . . Q V . .
16.833	1635.5526	7294.57	. . Q. V . .
16.917	1676.1554	5895.53	. . Q . V. .
17.000	1710.5997	5001.32	. . Q . V .
17.083	1740.8657	4394.63	. .Q . V .
17.167	1767.8273	3914.82	. Q . .V .
17.250	1792.1261	3528.20	. Q. . .V .
17.333	1814.2241	3208.64	. Q . . .V .
17.417	1834.3998	2929.50	. Q . . . V .
17.500	1852.8761	2682.77	. Q . . . V .
17.583	1869.9237	2475.31	. Q . . . V .
17.667	1885.6993	2290.62	. Q . . . V .
17.750	1898.8539	1910.04	. Q . . . V .
17.833	1910.2491	1654.60	. Q . . . V .
17.917	1920.7147	1519.61	. Q . . . V .
18.000	1930.5095	1422.21	. Q . . . V .
18.083	1939.6779	1331.24	. Q . . . V .
18.167	1948.2460	1244.09	. Q . . . V .
18.250	1956.3553	1177.49	. Q . . . V .
18.333	1964.0957	1123.90	. Q . . . V .
18.417	1971.5605	1083.90	. Q . . . V .
18.500	1978.7264	1040.48	. Q . . . V .
18.583	1985.6224	1001.30	. Q . . . V .
18.667	1992.3400	975.39	. Q . . . V .
18.750	1998.9115	954.19	. Q . . . V .
18.833	2005.3322	932.29	. Q . . . V .
18.917	2011.6075	911.19	. Q . . . V .
19.000	2017.7493	891.77	. Q . . . V .
19.083	2023.7599	872.75	. Q . . . V .
19.167	2029.6450	854.51	. Q . . . V .
19.250	2035.4060	836.50	. Q . . . V .
19.333	2041.0403	818.10	. Q . . . V .
19.417	2046.4708	788.51	. Q . . . V .
19.500	2051.7739	770.02	. Q . . . V .
19.583	2056.9814	756.12	.Q . . . V .
19.667	2062.0994	743.13	.Q . . . V .
19.750	2067.1313	730.64	.Q . . . V .
19.833	2072.0811	718.70	.Q . . . V .
19.917	2076.9521	707.28	.Q . . . V .
20.000	2081.7480	696.37	.Q . . . V .
20.083	2086.4722	685.93	.Q . . . V .
20.167	2091.1270	675.88	.Q . . . V .
20.250	2095.7153	666.23	.Q . . . V .
20.333	2100.2397	656.93	.Q . . . V .
20.417	2104.7021	647.94	.Q . . . V .
20.500	2109.1042	639.20	.Q . . . V .
20.583	2113.4478	630.69	.Q . . . V .
20.667	2117.7346	622.45	.Q . . . V .
20.750	2121.9666	614.49	.Q . . . V .
20.833	2126.1458	606.81	.Q . . . V .
20.917	2130.2737	599.39	.Q . . . V .
21.000	2134.3523	592.21	.Q . . . V .
21.083	2138.3831	585.28	.Q . . . V .

21.167	2142.3677	578.57	.Q	.	.	.	V .
21.250	2146.3076	572.07	.Q	.	.	.	V .
21.333	2150.2041	565.77	.Q	.	.	.	V .
21.417	2154.0581	559.60	.Q	.	.	.	V .
21.500	2157.8706	553.59	.Q	.	.	.	V .
21.583	2161.6428	547.72	.Q	.	.	.	V .
21.667	2165.3760	542.05	.Q	.	.	.	V .
21.750	2169.0710	536.52	.Q	.	.	.	V .
21.833	2172.7292	531.15	.Q	.	.	.	V .
21.917	2176.3513	525.92	.Q	.	.	.	V .
22.000	2179.9382	520.83	.Q	.	.	.	V .
22.083	2183.4910	515.86	.Q	.	.	.	V .
22.167	2187.0105	511.02	.Q	.	.	.	V .
22.250	2190.4973	506.30	.Q	.	.	.	V .
22.333	2193.9526	501.70	.Q	.	.	.	V .
22.417	2197.3770	497.20	.Q	.	.	.	V .
22.500	2200.7710	492.81	.Q	.	.	.	V .
22.583	2204.1355	488.52	.Q	.	.	.	V .
22.667	2207.4712	484.33	.Q	.	.	.	V .
22.750	2210.7786	480.23	.Q	.	.	.	V .
22.833	2214.0583	476.22	.Q	.	.	.	V .
22.917	2217.3110	472.30	.Q	.	.	.	V .
23.000	2220.5374	468.46	.Q	.	.	.	V .
23.083	2223.7378	464.71	.Q	.	.	.	V.
23.167	2226.9128	461.03	.Q	.	.	.	V.
23.250	2230.0632	457.44	.Q	.	.	.	V.
23.333	2233.1895	453.91	.Q	.	.	.	V.
23.417	2236.2917	450.46	.Q	.	.	.	V.
23.500	2239.3708	447.07	.Q	.	.	.	V.
23.583	2242.4270	443.75	.Q	.	.	.	V.
23.667	2245.4607	440.50	.Q	.	.	.	V.
23.750	2248.4724	437.31	.Q	.	.	.	V.
23.833	2251.4626	434.18	.Q	.	.	.	V.
23.917	2254.4316	431.11	.Q	.	.	.	V.
24.000	2257.3799	428.09	.Q	.	.	.	V.
24.083	2260.3000	424.02	.Q	.	.	.	V.
24.167	2263.1604	415.33	.Q	.	.	.	V.
24.250	2265.8730	393.87	.Q	.	.	.	V.
24.333	2268.2861	350.37	Q	.	.	.	V.
24.417	2270.2815	289.73	Q	.	.	.	V.
24.500	2271.8494	227.65	Q	.	.	.	V.
24.583	2273.0369	172.43	Q	.	.	.	V.
24.667	2273.9463	132.04	Q	.	.	.	V.
24.750	2274.6609	103.75	Q	.	.	.	V.
24.833	2275.2283	82.39	Q	.	.	.	V.
24.917	2275.6973	68.08	Q	.	.	.	V.
25.000	2276.0854	56.37	Q	.	.	.	V.
25.083	2276.4060	46.55	Q	.	.	.	V.
25.167	2276.6782	39.53	Q	.	.	.	V.
25.250	2276.9072	33.24	Q	.	.	.	V.
25.333	2277.0996	27.92	Q	.	.	.	V.
25.417	2277.2644	23.92	Q	.	.	.	V.
25.500	2277.3982	19.42	Q	.	.	.	V.
25.583	2277.5105	16.29	Q	.	.	.	V.
25.667	2277.6079	14.14	Q	.	.	.	V.
25.750	2277.6877	11.58	Q	.	.	.	V.
25.833	2277.7571	10.06	Q	.	.	.	V.

25.917	2277.8145	8.32	Q	.	.	.	V.
26.000	2277.8611	6.76	Q	.	.	.	V.
26.083	2277.8984	5.43	Q	.	.	.	V.
26.167	2277.9285	4.37	Q	.	.	.	V.
26.250	2277.9524	3.49	Q	.	.	.	V.
26.333	2277.9714	2.77	Q	.	.	.	V.
26.417	2277.9866	2.20	Q	.	.	.	V.
26.500	2277.9988	1.77	Q	.	.	.	V.
26.583	2278.0088	1.46	Q	.	.	.	V.
26.667	2278.0168	1.18	Q	.	.	.	V.
26.750	2278.0234	0.97	Q	.	.	.	V.
26.833	2278.0291	0.83	Q	.	.	.	V.
26.917	2278.0337	0.69	Q	.	.	.	V.
27.000	2278.0376	0.56	Q	.	.	.	V.
27.083	2278.0405	0.42	Q	.	.	.	V.
27.167	2278.0425	0.29	Q	.	.	.	V.
27.250	2278.0435	0.16	Q	.	.	.	V.
27.333	2278.0437	0.03	Q	.	.	.	V.
27.417	2278.0437	0.00	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1640.0
10%	180.0
20%	85.0
30%	55.0
40%	40.0
50%	30.0
60%	25.0
70%	20.0
80%	15.0
90%	15.0

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****************************************************************************
 FLOW PROCESS FROM NODE    109.00 TO NODE    111.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =  120.00     CHANNEL Z =  2.00
        UPSTREAM ELEVATION(FT) =    3082.00
        DOWNSTREAM ELEVATION(FT) =    3070.00
        CHANNEL LENGTH(FT) =    1050.00     MANNING'S FACTOR = 0.030
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                              (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
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  AVERAGED PEAK  5-MINUTE: (   15191.3).......[ 17.28]
  AVERAGED PEAK 15-MINUTE: (   14314.7).......[ 16.88]
  AVERAGED PEAK 30-MINUTE: (   12292.8).......[ 16.00]
  AVERAGED PEAK  1-HOUR:   (    9058.0).......[ 14.32]
  AVERAGED PEAK  3-HOUR:   (    4627.9).......[ 11.17]
  AVERAGED PEAK  6-HOUR:   (    2858.9).......[  9.35]
  AVERAGED PEAK 24-HOUR:   (    1144.0).......[  6.60]
USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =  14.000
HYDROGRAPH TRANSLATION TIME
= (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
= (   1050.00)/( 14.000) =   0.021 HRS
```

TRANSLATION METHOD CHANNEL ROUTING RESULTS:

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
0.083	0.63	0.47	0.47
0.167	3.73	2.95	2.95
0.250	17.65	14.17	14.17
0.333	68.45	55.75	55.75
0.417	125.52	111.25	111.25
0.500	187.36	171.90	171.90
0.583	239.70	226.61	226.61
0.667	279.97	269.90	269.90
0.750	309.16	301.86	301.86
0.833	330.11	324.87	324.87
0.917	345.83	341.90	341.90
1.000	358.22	355.12	355.12
1.083	368.36	365.83	365.83
1.167	376.84	374.72	374.72
1.250	384.13	382.31	382.31
1.333	390.50	388.91	388.91
1.417	396.05	394.66	394.66
1.500	400.92	399.70	399.70
1.583	405.27	404.18	404.18
1.667	409.15	408.18	408.18
1.750	412.65	411.77	411.77
1.833	415.85	415.05	415.05
1.917	418.81	418.07	418.07
2.000	421.67	420.96	420.96
2.083	424.40	423.72	423.72
2.167	426.92	426.29	426.29
2.250	429.29	428.70	428.70
2.333	431.52	430.97	430.97
2.417	433.61	433.09	433.09
2.500	435.49	435.02	435.02
2.583	437.27	436.83	436.83
2.667	439.05	438.61	438.61
2.750	440.83	440.38	440.38
2.833	442.60	442.15	442.15
2.917	444.37	443.92	443.92
3.000	446.16	445.71	445.71
3.083	447.96	447.51	447.51
3.167	449.78	449.32	449.32
3.250	451.62	451.16	451.16
3.333	453.47	453.01	453.01

3.417	455.24	454.80	454.80
3.500	457.00	456.56	456.56
3.583	458.78	458.34	458.34
3.667	460.58	460.13	460.13
3.750	462.40	461.94	461.94
3.833	464.23	463.77	463.77
3.917	466.09	465.63	465.63
4.000	467.96	467.49	467.49
4.083	469.86	469.38	469.38
4.167	471.77	471.29	471.29
4.250	473.71	473.22	473.22
4.333	475.67	475.18	475.18
4.417	477.64	477.15	477.15
4.500	479.65	479.15	479.15
4.583	481.67	481.16	481.16
4.667	483.71	483.20	483.20
4.750	485.78	485.27	485.27
4.833	487.88	487.35	487.35
4.917	489.99	489.46	489.46
5.000	492.13	491.60	491.60
5.083	494.30	493.76	493.76
5.167	496.49	495.94	495.94
5.250	498.71	498.15	498.15
5.333	500.95	500.39	500.39
5.417	503.22	502.65	502.65
5.500	505.51	504.94	504.94
5.583	507.84	507.26	507.26
5.667	510.19	509.60	509.60
5.750	512.58	511.98	511.98
5.833	514.99	514.38	514.38
5.917	517.43	516.82	516.82
6.000	519.90	519.28	519.28
6.083	522.40	521.78	521.78
6.167	524.94	524.31	524.31
6.250	527.51	526.87	526.87
6.333	530.10	529.45	529.45
6.417	532.73	532.07	532.07
6.500	535.40	534.73	534.73
6.583	538.10	537.43	537.43
6.667	540.85	540.16	540.16
6.750	543.63	542.93	542.93
6.833	546.45	545.74	545.74
6.917	549.30	548.59	548.59
7.000	552.20	551.48	551.48
7.083	555.14	554.41	554.41
7.167	558.12	557.37	557.37
7.250	561.14	560.39	560.39
7.333	564.20	563.44	563.44
7.417	567.32	566.54	566.54
7.500	570.47	569.68	569.68
7.583	573.67	572.87	572.87
7.667	576.92	576.11	576.11
7.750	580.22	579.40	579.40
7.833	583.57	582.73	582.73
7.917	586.97	586.12	586.12
8.000	590.43	589.56	589.56
8.083	593.94	593.06	593.06

8.167	597.50	596.61	596.61
8.250	601.12	600.22	600.22
8.333	604.80	603.88	603.88
8.417	608.54	607.61	607.61
8.500	612.34	611.39	611.39
8.583	616.21	615.24	615.24
8.667	620.14	619.16	619.16
8.750	624.14	623.14	623.14
8.833	628.21	627.19	627.19
8.917	632.34	631.31	631.31
9.000	636.55	635.50	635.50
9.083	640.84	639.77	639.77
9.167	645.20	644.11	644.11
9.250	649.64	648.53	648.53
9.333	654.17	653.03	653.03
9.417	658.77	657.62	657.62
9.500	663.47	662.29	662.29
9.583	668.25	667.05	667.05
9.667	673.12	671.90	671.90
9.750	678.10	676.85	676.85
9.833	683.17	681.90	681.90
9.917	688.34	687.05	687.05
10.000	693.62	692.30	692.30
10.083	699.00	697.65	697.65
10.167	704.49	703.12	703.12
10.250	710.11	708.70	708.70
10.333	715.84	714.40	714.40
10.417	721.69	720.23	720.23
10.500	727.67	726.18	726.18
10.583	733.79	732.26	732.26
10.667	740.05	738.48	738.48
10.750	746.45	744.85	744.85
10.833	752.99	751.35	751.35
10.917	759.69	758.02	758.02
11.000	766.55	764.83	764.83
11.083	773.58	771.82	771.82
11.167	780.82	779.01	779.01
11.250	788.35	786.46	786.46
11.333	796.26	794.28	794.28
11.417	804.65	802.55	802.55
11.500	813.51	811.30	811.30
11.583	822.78	820.46	820.46
11.667	832.41	830.00	830.00
11.750	842.39	839.89	839.89
11.833	852.70	850.13	850.13
11.917	863.36	860.70	860.70
12.000	874.37	871.62	871.62
12.083	885.20	882.49	882.49
12.167	894.13	891.89	891.89
12.250	896.98	896.27	896.27
12.333	888.62	890.71	890.71
12.417	869.61	874.36	874.36
12.500	847.30	852.88	852.88
12.583	829.47	833.93	833.93
12.667	819.39	821.91	821.91
12.750	815.98	816.83	816.83
12.833	817.50	817.12	817.12

12.917	822.57	821.30	821.30
13.000	830.37	828.42	828.42
13.083	840.32	837.83	837.83
13.167	852.01	849.09	849.09
13.250	865.20	861.90	861.90
13.333	879.72	876.09	876.09
13.417	895.53	891.58	891.58
13.500	912.61	908.34	908.34
13.583	930.91	926.34	926.34
13.667	950.49	945.59	945.59
13.750	971.36	966.14	966.14
13.833	993.55	988.00	988.00
13.917	1017.16	1011.25	1011.25
14.000	1042.19	1035.93	1035.93
14.083	1068.90	1062.22	1062.22
14.167	1097.82	1090.59	1090.59
14.250	1130.02	1121.97	1121.97
14.333	1166.86	1157.65	1157.65
14.417	1208.74	1198.27	1198.27
14.500	1254.66	1243.18	1243.18
14.583	1303.14	1291.02	1291.02
14.667	1353.17	1340.66	1340.66
14.750	1404.84	1391.92	1391.92
14.833	1458.92	1445.40	1445.40
14.917	1516.45	1502.07	1502.07
15.000	1578.45	1562.95	1562.95
15.083	1645.89	1629.03	1629.03
15.167	1719.89	1701.39	1701.39
15.250	1801.69	1781.24	1781.24
15.333	1892.94	1870.12	1870.12
15.417	1994.07	1968.78	1968.78
15.500	2102.03	2075.04	2075.04
15.583	2206.52	2180.40	2180.40
15.667	2294.64	2272.61	2272.61
15.750	2374.71	2354.70	2354.70
15.833	2486.27	2458.38	2458.38
15.917	2697.94	2645.02	2645.02
16.000	3096.69	2997.00	2997.00
16.083	3902.33	3700.92	3700.92
16.167	5172.31	4854.81	4854.81
16.250	7180.30	6678.30	6678.30
16.333	10408.17	9601.20	9601.20
16.417	13932.24	13051.22	13051.22
16.500	15191.31	14876.54	14876.54
16.583	13820.53	14163.23	14163.23
16.667	11304.68	11933.65	11933.65
16.750	9099.90	9651.09	9651.09
16.833	7294.57	7745.90	7745.90
16.917	5895.53	6245.29	6245.29
17.000	5001.32	5224.87	5224.87
17.083	4394.63	4546.30	4546.30
17.167	3914.82	4034.77	4034.77
17.250	3528.20	3624.85	3624.85
17.333	3208.64	3288.53	3288.53
17.417	2929.50	2999.28	2999.28
17.500	2682.77	2744.45	2744.45
17.583	2475.31	2527.18	2527.18

17.667	2290.62	2336.79	2336.79
17.750	1910.04	2005.18	2005.18
17.833	1654.60	1718.46	1718.46
17.917	1519.61	1553.36	1553.36
18.000	1422.21	1446.56	1446.56
18.083	1331.24	1353.98	1353.98
18.167	1244.09	1265.88	1265.88
18.250	1177.49	1194.14	1194.14
18.333	1123.90	1137.30	1137.30
18.417	1083.90	1093.90	1093.90
18.500	1040.48	1051.34	1051.34
18.583	1001.30	1011.09	1011.09
18.667	975.39	981.87	981.87
18.750	954.19	959.49	959.49
18.833	932.29	937.76	937.76
18.917	911.19	916.47	916.47
19.000	891.77	896.63	896.63
19.083	872.75	877.50	877.50
19.167	854.51	859.07	859.07
19.250	836.50	841.00	841.00
19.333	818.10	822.70	822.70
19.417	788.51	795.91	795.91
19.500	770.02	774.65	774.65
19.583	756.12	759.59	759.59
19.667	743.13	746.38	746.38
19.750	730.64	733.77	733.77
19.833	718.70	721.69	721.69
19.917	707.28	710.13	710.13
20.000	696.37	699.10	699.10
20.083	685.93	688.54	688.54
20.167	675.88	678.40	678.40
20.250	666.23	668.65	668.65
20.333	656.93	659.25	659.25
20.417	647.94	650.19	650.19
20.500	639.20	641.39	641.39
20.583	630.69	632.81	632.81
20.667	622.45	624.51	624.51
20.750	614.49	616.48	616.48
20.833	606.81	608.73	608.73
20.917	599.39	601.24	601.24
21.000	592.21	594.01	594.01
21.083	585.28	587.01	587.01
21.167	578.57	580.25	580.25
21.250	572.07	573.69	573.69
21.333	565.77	567.34	567.34
21.417	559.60	561.14	561.14
21.500	553.59	555.09	555.09
21.583	547.72	549.19	549.19
21.667	542.05	543.47	543.47
21.750	536.52	537.91	537.91
21.833	531.15	532.50	532.50
21.917	525.92	527.23	527.23
22.000	520.83	522.10	522.10
22.083	515.86	517.11	517.11
22.167	511.02	512.23	512.23
22.250	506.30	507.48	507.48
22.333	501.70	502.85	502.85

22.417	497.20	498.32	498.32
22.500	492.81	493.91	493.91
22.583	488.52	489.59	489.59
22.667	484.33	485.37	485.37
22.750	480.23	481.25	481.25
22.833	476.22	477.22	477.22
22.917	472.30	473.28	473.28
23.000	468.46	469.42	469.42
23.083	464.71	465.65	465.65
23.167	461.03	461.95	461.95
23.250	457.44	458.34	458.34
23.333	453.91	454.79	454.79
23.417	450.46	451.32	451.32
23.500	447.07	447.92	447.92
23.583	443.75	444.58	444.58
23.667	440.50	441.31	441.31
23.750	437.31	438.11	438.11
23.833	434.18	434.96	434.96
23.917	431.11	431.87	431.87
24.000	428.09	428.84	428.84
24.083	424.02	425.04	425.04
24.167	415.33	417.51	417.51
24.250	393.87	399.24	399.24
24.333	350.37	361.24	361.24
24.417	289.73	304.89	304.89
24.500	227.65	243.17	243.17
24.583	172.43	186.24	186.24
24.667	132.04	142.14	142.14
24.750	103.75	110.83	110.83
24.833	82.39	87.73	87.73
24.917	68.08	71.66	71.66
25.000	56.37	59.30	59.30
25.083	46.55	49.00	49.00
25.167	39.53	41.28	41.28
25.250	33.24	34.81	34.81
25.333	27.92	29.25	29.25
25.417	23.92	24.92	24.92
25.500	19.42	20.55	20.55
25.583	16.29	17.08	17.08
25.667	14.14	14.68	14.68
25.750	11.58	12.22	12.22
25.833	10.06	10.44	10.44
25.917	8.32	8.76	8.76
26.000	6.76	7.15	7.15
26.083	5.43	5.76	5.76
26.167	4.37	4.64	4.64
26.250	3.49	3.71	3.71
26.333	2.77	2.95	2.95
26.417	2.20	2.34	2.34
26.500	1.77	1.88	1.88
26.583	1.46	1.54	1.54
26.667	1.18	1.25	1.25
26.750	0.97	1.03	1.03
26.833	0.83	0.86	0.86
26.917	0.69	0.72	0.72
27.000	0.56	0.59	0.59
27.083	0.42	0.46	0.46

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        27.167          0.29          0.32          0.32
        27.250          0.16          0.19          0.19
        27.333          0.03          0.06          0.06
        27.417          0.00          0.01          0.01
        27.500          0.00          0.00          0.00
        27.583          0.00          0.00          0.00
================================================================================
  PROCESS SUMMARY OF STORAGE:
    INFLOW  VOLUME =    2278.044 AF
    OUTFLOW VOLUME =    2278.043 AF
    LOSS    VOLUME =       0.000 AF


****************************************************************************
  FLOW PROCESS FROM NODE     111.00 TO NODE     111.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =       99.300 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.243 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         VALLEY(DEVELOPED):
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.250
         FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         VALLEY(UNDEVELOPED)/DESERT:
                  "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.000
         DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) =  0.750
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.302
         LOW LOSS FRACTION = 0.442
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         *USER SPECIFIED PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.979
          30-MINUTE FACTOR = 0.979
           1-HOUR FACTOR = 0.979
           3-HOUR FACTOR = 0.997
           6-HOUR FACTOR = 0.999
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =    5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  34.294
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RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 1.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.189	26.286
2	13.155	131.688
3	39.060	311.104
4	60.582	258.461
5	73.041	149.618
6	80.463	89.130
7	85.188	56.746
8	88.335	37.785
9	90.763	29.164
10	92.577	21.787
11	94.035	17.503
12	95.225	14.291
13	96.156	11.183
14	96.951	9.549
15	97.603	7.831
16	98.101	5.976
17	98.469	4.417
18	98.733	3.168
19	99.035	3.632
20	99.344	3.706
21	99.646	3.632
22	99.948	3.632
23	100.000	0.620

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0022	0.0027
2	0.0049	0.0022	0.0027
3	0.0049	0.0022	0.0027
4	0.0049	0.0022	0.0027
5	0.0049	0.0022	0.0028
6	0.0049	0.0022	0.0028
7	0.0050	0.0022	0.0028
8	0.0050	0.0022	0.0028
9	0.0050	0.0022	0.0028
10	0.0050	0.0022	0.0028
11	0.0050	0.0022	0.0028
12	0.0050	0.0022	0.0028
13	0.0051	0.0022	0.0028
14	0.0051	0.0022	0.0028
15	0.0051	0.0023	0.0028
16	0.0051	0.0023	0.0029
17	0.0051	0.0023	0.0029
18	0.0052	0.0023	0.0029
19	0.0052	0.0023	0.0029
20	0.0052	0.0023	0.0029
21	0.0052	0.0023	0.0029
22	0.0052	0.0023	0.0029
23	0.0052	0.0023	0.0029
24	0.0053	0.0023	0.0029
25	0.0053	0.0023	0.0030
26	0.0053	0.0023	0.0030
27	0.0053	0.0024	0.0030
28	0.0053	0.0024	0.0030
29	0.0054	0.0024	0.0030
30	0.0054	0.0024	0.0030
31	0.0054	0.0024	0.0030
32	0.0054	0.0024	0.0030
33	0.0054	0.0024	0.0030
34	0.0055	0.0024	0.0030
35	0.0055	0.0024	0.0031
36	0.0055	0.0024	0.0031
37	0.0055	0.0024	0.0031
38	0.0055	0.0025	0.0031
39	0.0056	0.0025	0.0031
40	0.0056	0.0025	0.0031
41	0.0056	0.0025	0.0031
42	0.0056	0.0025	0.0031
43	0.0057	0.0025	0.0032
44	0.0057	0.0025	0.0032
45	0.0057	0.0025	0.0032
46	0.0057	0.0025	0.0032
47	0.0058	0.0025	0.0032
48	0.0058	0.0026	0.0032
49	0.0058	0.0026	0.0032
50	0.0058	0.0026	0.0033
51	0.0059	0.0026	0.0033

52	0.0059	0.0026	0.0033
53	0.0059	0.0026	0.0033
54	0.0059	0.0026	0.0033
55	0.0060	0.0026	0.0033
56	0.0060	0.0026	0.0033
57	0.0060	0.0027	0.0034
58	0.0060	0.0027	0.0034
59	0.0061	0.0027	0.0034
60	0.0061	0.0027	0.0034
61	0.0061	0.0027	0.0034
62	0.0061	0.0027	0.0034
63	0.0062	0.0027	0.0035
64	0.0062	0.0027	0.0035
65	0.0062	0.0028	0.0035
66	0.0063	0.0028	0.0035
67	0.0063	0.0028	0.0035
68	0.0063	0.0028	0.0035
69	0.0064	0.0028	0.0036
70	0.0064	0.0028	0.0036
71	0.0064	0.0028	0.0036
72	0.0065	0.0029	0.0036
73	0.0065	0.0029	0.0036
74	0.0065	0.0029	0.0036
75	0.0066	0.0029	0.0037
76	0.0066	0.0029	0.0037
77	0.0066	0.0029	0.0037
78	0.0067	0.0029	0.0037
79	0.0067	0.0030	0.0037
80	0.0067	0.0030	0.0038
81	0.0068	0.0030	0.0038
82	0.0068	0.0030	0.0038
83	0.0069	0.0030	0.0038
84	0.0069	0.0030	0.0038
85	0.0069	0.0031	0.0039
86	0.0070	0.0031	0.0039
87	0.0070	0.0031	0.0039
88	0.0070	0.0031	0.0039
89	0.0071	0.0031	0.0040
90	0.0071	0.0031	0.0040
91	0.0072	0.0032	0.0040
92	0.0072	0.0032	0.0040
93	0.0073	0.0032	0.0041
94	0.0073	0.0032	0.0041
95	0.0074	0.0033	0.0041
96	0.0074	0.0033	0.0041
97	0.0074	0.0033	0.0042
98	0.0075	0.0033	0.0042
99	0.0075	0.0033	0.0042
100	0.0076	0.0033	0.0042
101	0.0076	0.0034	0.0043
102	0.0077	0.0034	0.0043
103	0.0077	0.0034	0.0043
104	0.0078	0.0034	0.0043
105	0.0079	0.0035	0.0044
106	0.0079	0.0035	0.0044
107	0.0080	0.0035	0.0044
108	0.0080	0.0035	0.0045

109	0.0081	0.0036	0.0045
110	0.0081	0.0036	0.0045
111	0.0082	0.0036	0.0046
112	0.0082	0.0036	0.0046
113	0.0083	0.0037	0.0046
114	0.0084	0.0037	0.0047
115	0.0085	0.0037	0.0047
116	0.0085	0.0038	0.0047
117	0.0086	0.0038	0.0048
118	0.0086	0.0038	0.0048
119	0.0087	0.0039	0.0049
120	0.0088	0.0039	0.0049
121	0.0089	0.0039	0.0050
122	0.0089	0.0039	0.0050
123	0.0090	0.0040	0.0050
124	0.0091	0.0040	0.0051
125	0.0092	0.0041	0.0051
126	0.0093	0.0041	0.0052
127	0.0094	0.0041	0.0052
128	0.0094	0.0042	0.0053
129	0.0096	0.0042	0.0053
130	0.0096	0.0042	0.0054
131	0.0097	0.0043	0.0054
132	0.0098	0.0043	0.0055
133	0.0099	0.0044	0.0055
134	0.0100	0.0044	0.0056
135	0.0101	0.0045	0.0057
136	0.0102	0.0045	0.0057
137	0.0104	0.0046	0.0058
138	0.0104	0.0046	0.0058
139	0.0106	0.0047	0.0059
140	0.0107	0.0047	0.0060
141	0.0108	0.0048	0.0061
142	0.0109	0.0048	0.0061
143	0.0111	0.0049	0.0062
144	0.0112	0.0050	0.0063
145	0.0090	0.0040	0.0050
146	0.0091	0.0040	0.0051
147	0.0093	0.0041	0.0052
148	0.0094	0.0041	0.0052
149	0.0096	0.0042	0.0053
150	0.0097	0.0043	0.0054
151	0.0099	0.0044	0.0055
152	0.0100	0.0044	0.0056
153	0.0102	0.0045	0.0057
154	0.0104	0.0046	0.0058
155	0.0106	0.0047	0.0059
156	0.0107	0.0047	0.0060
157	0.0110	0.0049	0.0061
158	0.0112	0.0049	0.0062
159	0.0115	0.0051	0.0064
160	0.0116	0.0051	0.0065
161	0.0120	0.0053	0.0067
162	0.0121	0.0054	0.0068
163	0.0125	0.0055	0.0070
164	0.0127	0.0056	0.0071
165	0.0131	0.0058	0.0073

166	0.0134	0.0059	0.0075
167	0.0138	0.0061	0.0077
168	0.0141	0.0062	0.0079
169	0.0151	0.0067	0.0084
170	0.0154	0.0068	0.0086
171	0.0161	0.0071	0.0090
172	0.0164	0.0073	0.0092
173	0.0172	0.0076	0.0096
174	0.0176	0.0078	0.0098
175	0.0185	0.0082	0.0103
176	0.0190	0.0084	0.0106
177	0.0201	0.0089	0.0112
178	0.0207	0.0091	0.0115
179	0.0220	0.0097	0.0123
180	0.0228	0.0101	0.0127
181	0.0245	0.0108	0.0137
182	0.0255	0.0113	0.0142
183	0.0279	0.0123	0.0156
184	0.0293	0.0129	0.0163
185	0.0251	0.0111	0.0140
186	0.0269	0.0119	0.0150
187	0.0316	0.0139	0.0176
188	0.0347	0.0154	0.0194
189	0.0539	0.0238	0.0301
190	0.0621	0.0252	0.0370
191	0.0941	0.0252	0.0689
192	0.1367	0.0252	0.1115
193	0.5874	0.0252	0.5622
194	0.0741	0.0252	0.0489
195	0.0387	0.0171	0.0216
196	0.0290	0.0128	0.0162
197	0.0308	0.0136	0.0172
198	0.0266	0.0118	0.0149
199	0.0236	0.0104	0.0132
200	0.0213	0.0094	0.0119
201	0.0195	0.0086	0.0109
202	0.0180	0.0080	0.0101
203	0.0168	0.0074	0.0094
204	0.0158	0.0070	0.0088
205	0.0144	0.0063	0.0080
206	0.0136	0.0060	0.0076
207	0.0129	0.0057	0.0072
208	0.0123	0.0054	0.0069
209	0.0118	0.0052	0.0066
210	0.0113	0.0050	0.0063
211	0.0109	0.0048	0.0061
212	0.0105	0.0046	0.0058
213	0.0101	0.0045	0.0056
214	0.0098	0.0043	0.0055
215	0.0095	0.0042	0.0053
216	0.0092	0.0041	0.0051
217	0.0113	0.0050	0.0063
218	0.0110	0.0049	0.0062
219	0.0108	0.0048	0.0060
220	0.0105	0.0047	0.0059
221	0.0103	0.0045	0.0057
222	0.0101	0.0045	0.0056

223	0.0099	0.0044	0.0055
224	0.0097	0.0043	0.0054
225	0.0095	0.0042	0.0053
226	0.0093	0.0041	0.0052
227	0.0091	0.0040	0.0051
228	0.0090	0.0040	0.0050
229	0.0088	0.0039	0.0049
230	0.0087	0.0038	0.0048
231	0.0085	0.0038	0.0048
232	0.0084	0.0037	0.0047
233	0.0083	0.0037	0.0046
234	0.0082	0.0036	0.0046
235	0.0080	0.0036	0.0045
236	0.0079	0.0035	0.0044
237	0.0078	0.0035	0.0044
238	0.0077	0.0034	0.0043
239	0.0076	0.0034	0.0042
240	0.0075	0.0033	0.0042
241	0.0074	0.0033	0.0041
242	0.0073	0.0032	0.0041
243	0.0072	0.0032	0.0040
244	0.0071	0.0032	0.0040
245	0.0071	0.0031	0.0039
246	0.0070	0.0031	0.0039
247	0.0069	0.0031	0.0039
248	0.0068	0.0030	0.0038
249	0.0068	0.0030	0.0038
250	0.0067	0.0030	0.0037
251	0.0066	0.0029	0.0037
252	0.0065	0.0029	0.0036
253	0.0065	0.0029	0.0036
254	0.0064	0.0028	0.0036
255	0.0063	0.0028	0.0035
256	0.0063	0.0028	0.0035
257	0.0062	0.0028	0.0035
258	0.0062	0.0027	0.0034
259	0.0061	0.0027	0.0034
260	0.0061	0.0027	0.0034
261	0.0060	0.0027	0.0033
262	0.0059	0.0026	0.0033
263	0.0059	0.0026	0.0033
264	0.0058	0.0026	0.0033
265	0.0058	0.0026	0.0032
266	0.0057	0.0025	0.0032
267	0.0057	0.0025	0.0032
268	0.0057	0.0025	0.0032
269	0.0056	0.0025	0.0031
270	0.0056	0.0025	0.0031
271	0.0055	0.0024	0.0031
272	0.0055	0.0024	0.0031
273	0.0054	0.0024	0.0030
274	0.0054	0.0024	0.0030
275	0.0054	0.0024	0.0030
276	0.0053	0.0023	0.0030
277	0.0053	0.0023	0.0029
278	0.0052	0.0023	0.0029
279	0.0052	0.0023	0.0029

280	0.0052	0.0023	0.0029
281	0.0051	0.0023	0.0029
282	0.0051	0.0023	0.0028
283	0.0051	0.0022	0.0028
284	0.0050	0.0022	0.0028
285	0.0050	0.0022	0.0028
286	0.0050	0.0022	0.0028
287	0.0049	0.0022	0.0027
288	0.0049	0.0022	0.0027

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 1.30
TOTAL EFFECTIVE RAINFALL(INCHES) = 2.30

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 10.7163
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 19.0609

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	75.0	150.0	225.0	300.0
1.000	0.1855	3.19	Q	.	.	.	.
1.083	0.2078	3.23	Q	.	.	.	.
1.167	0.2302	3.26	Q	.	.	.	.
1.250	0.2529	3.30	Q	.	.	.	.
1.333	0.2758	3.32	Q	.	.	.	.
1.417	0.2988	3.35	Q	.	.	.	.
1.500	0.3220	3.37	Q	.	.	.	.
1.583	0.3454	3.39	Q	.	.	.	.
1.667	0.3688	3.41	Q	.	.	.	.
1.750	0.3925	3.43	Q	.	.	.	.
1.833	0.4162	3.45	Q	.	.	.	.
1.917	0.4401	3.47	Q	.	.	.	.
2.000	0.4641	3.48	Q	.	.	.	.
2.083	0.4881	3.49	QV	.	.	.	.
2.167	0.5122	3.50	QV	.	.	.	.
2.250	0.5365	3.52	QV	.	.	.	.
2.333	0.5608	3.53	QV	.	.	.	.
2.417	0.5852	3.54	QV	.	.	.	.
2.500	0.6096	3.55	QV	.	.	.	.
2.583	0.6342	3.57	QV	.	.	.	.
2.667	0.6589	3.58	QV	.	.	.	.
2.750	0.6836	3.59	QV	.	.	.	.
2.833	0.7085	3.61	QV	.	.	.	.
2.917	0.7334	3.62	QV	.	.	.	.
3.000	0.7584	3.63	QV	.	.	.	.
3.083	0.7836	3.65	QV	.	.	.	.
3.167	0.8088	3.66	QV	.	.	.	.
3.250	0.8341	3.68	QV	.	.	.	.
3.333	0.8595	3.69	QV	.	.	.	.
3.417	0.8851	3.71	QV	.	.	.	.
3.500	0.9107	3.72	QV	.	.	.	.
3.583	0.9364	3.74	QV	.	.	.	.
3.667	0.9622	3.75	Q V	.	.	.	.
3.750	0.9882	3.77	Q V	.	.	.	.
3.833	1.0142	3.78	Q V	.	.	.	.
3.917	1.0403	3.80	Q V	.	.	.	.
4.000	1.0666	3.81	Q V	.	.	.	.
4.083	1.0930	3.83	Q V	.	.	.	.
4.167	1.1194	3.84	Q V	.	.	.	.
4.250	1.1460	3.86	Q V	.	.	.	.
4.333	1.1727	3.88	Q V	.	.	.	.
4.417	1.1995	3.89	Q V	.	.	.	.
4.500	1.2264	3.91	Q V	.	.	.	.
4.583	1.2534	3.93	Q V	.	.	.	.
4.667	1.2806	3.94	Q V	.	.	.	.

4.750	1.3079	3.96	Q	V	.	.	.
4.833	1.3352	3.98	Q	V	.	.	.
4.917	1.3628	3.99	Q	V	.	.	.
5.000	1.3904	4.01	Q	V	.	.	.
5.083	1.4181	4.03	Q	V	.	.	.
5.167	1.4460	4.05	Q	V	.	.	.
5.250	1.4740	4.07	Q	V	.	.	.
5.333	1.5022	4.09	Q	V	.	.	.
5.417	1.5304	4.10	Q	V	.	.	.
5.500	1.5588	4.12	Q	V	.	.	.
5.583	1.5874	4.14	Q	V	.	.	.
5.667	1.6160	4.16	Q	V	.	.	.
5.750	1.6449	4.18	Q	V	.	.	.
5.833	1.6738	4.20	Q	V	.	.	.
5.917	1.7029	4.22	Q	V	.	.	.
6.000	1.7321	4.24	Q	V	.	.	.
6.083	1.7615	4.26	Q	V	.	.	.
6.167	1.7910	4.29	Q	V	.	.	.
6.250	1.8207	4.31	Q	V	.	.	.
6.333	1.8505	4.33	Q	V	.	.	.
6.417	1.8804	4.35	Q	V	.	.	.
6.500	1.9106	4.37	Q	V	.	.	.
6.583	1.9408	4.40	Q	V	.	.	.
6.667	1.9713	4.42	Q	V	.	.	.
6.750	2.0019	4.44	Q	V	.	.	.
6.833	2.0326	4.47	Q	V	.	.	.
6.917	2.0635	4.49	Q	V	.	.	.
7.000	2.0946	4.51	Q	V	.	.	.
7.083	2.1259	4.54	Q	V	.	.	.
7.167	2.1573	4.56	Q	V	.	.	.
7.250	2.1889	4.59	Q	V	.	.	.
7.333	2.2207	4.61	Q	V	.	.	.
7.417	2.2527	4.64	Q	V	.	.	.
7.500	2.2848	4.67	Q	V	.	.	.
7.583	2.3171	4.69	Q	V	.	.	.
7.667	2.3497	4.72	Q	V	.	.	.
7.750	2.3824	4.75	Q	V	.	.	.
7.833	2.4153	4.78	Q	V	.	.	.
7.917	2.4484	4.81	Q	V	.	.	.
8.000	2.4817	4.84	Q	V	.	.	.
8.083	2.5152	4.87	Q	V	.	.	.
8.167	2.5489	4.89	Q	V	.	.	.
8.250	2.5828	4.93	Q	V	.	.	.
8.333	2.6170	4.96	Q	V	.	.	.
8.417	2.6513	4.99	Q	V	.	.	.
8.500	2.6859	5.02	Q	V	.	.	.
8.583	2.7207	5.05	Q	V	.	.	.
8.667	2.7557	5.09	Q	V	.	.	.
8.750	2.7910	5.12	Q	V	.	.	.
8.833	2.8265	5.15	Q	V	.	.	.
8.917	2.8622	5.19	Q	V	.	.	.
9.000	2.8982	5.22	Q	V	.	.	.
9.083	2.9344	5.26	Q	V	.	.	.
9.167	2.9709	5.30	Q	V	.	.	.
9.250	3.0077	5.34	Q	V	.	.	.
9.333	3.0447	5.37	Q	V	.	.	.
9.417	3.0820	5.41	Q	V	.	.	.

9.500	3.1195	5.45	Q	V	.	.	.
9.583	3.1574	5.49	Q	V	.	.	.
9.667	3.1955	5.54	Q	V	.	.	.
9.750	3.2339	5.58	Q	V	.	.	.
9.833	3.2726	5.62	Q	V	.	.	.
9.917	3.3116	5.67	Q	V	.	.	.
10.000	3.3510	5.71	Q	V	.	.	.
10.083	3.3906	5.76	Q	V	.	.	.
10.167	3.4306	5.80	Q	V	.	.	.
10.250	3.4709	5.85	Q	V	.	.	.
10.333	3.5115	5.90	Q	V	.	.	.
10.417	3.5525	5.95	Q	V	.	.	.
10.500	3.5938	6.00	Q	V	.	.	.
10.583	3.6355	6.05	Q	V	.	.	.
10.667	3.6776	6.11	Q	V	.	.	.
10.750	3.7200	6.16	Q	V	.	.	.
10.833	3.7629	6.22	Q	V	.	.	.
10.917	3.8061	6.28	Q	V	.	.	.
11.000	3.8497	6.34	Q	V	.	.	.
11.083	3.8938	6.40	Q	V	.	.	.
11.167	3.9383	6.46	Q	V	.	.	.
11.250	3.9832	6.52	Q	V	.	.	.
11.333	4.0286	6.59	Q	V	.	.	.
11.417	4.0744	6.66	Q	V	.	.	.
11.500	4.1207	6.72	Q	V	.	.	.
11.583	4.1675	6.80	Q	V	.	.	.
11.667	4.2148	6.87	Q	V	.	.	.
11.750	4.2626	6.94	Q	V	.	.	.
11.833	4.3110	7.02	Q	V	.	.	.
11.917	4.3599	7.10	Q	V	.	.	.
12.000	4.4094	7.18	Q	V	.	.	.
12.083	4.4592	7.23	Q	V	.	.	.
12.167	4.5084	7.14	Q	V	.	.	.
12.250	4.5554	6.82	Q	V	.	.	.
12.333	4.6006	6.57	Q	V	.	.	.
12.417	4.6451	6.46	Q	V	.	.	.
12.500	4.6894	6.43	Q	V	.	.	.
12.583	4.7338	6.45	Q	V	.	.	.
12.667	4.7786	6.50	Q	V	.	.	.
12.750	4.8237	6.56	Q	V	.	.	.
12.833	4.8694	6.64	Q	V	.	.	.
12.917	4.9158	6.72	Q	V	.	.	.
13.000	4.9627	6.82	Q	V	.	.	.
13.083	5.0104	6.92	Q	V	.	.	.
13.167	5.0588	7.03	Q	V	.	.	.
13.250	5.1080	7.15	Q	V	.	.	.
13.333	5.1581	7.28	Q	V	.	.	.
13.417	5.2092	7.41	Q	V	.	.	.
13.500	5.2612	7.56	.Q	.V	.	.	.
13.583	5.3143	7.71	.Q	.V	.	.	.
13.667	5.3685	7.86	.Q	.V	.	.	.
13.750	5.4238	8.03	.Q	.V	.	.	.
13.833	5.4804	8.21	.Q	.V	.	.	.
13.917	5.5382	8.40	.Q	.V	.	.	.
14.000	5.5975	8.61	.Q	.V	.	.	.
14.083	5.6583	8.83	.Q	.V	.	.	.
14.167	5.7210	9.10	.Q	. V	.	.	.

14.250	5.7860	9.44	.Q . V . . . .
14.333	5.8533	9.77	.Q . V . . . .
14.417	5.9229	10.11	.Q . V . . . .
14.500	5.9948	10.44	.Q . V . . . .
14.583	6.0691	10.79	.Q . V . . . .
14.667	6.1460	11.16	.Q . V . . . .
14.750	6.2256	11.57	.Q . V . . . .
14.833	6.3083	12.00	.Q . V . . . .
14.917	6.3943	12.49	.Q . V . . . .
15.000	6.4838	13.01	.Q . V . . . .
15.083	6.5775	13.60	.Q . V . . . .
15.167	6.6756	14.25	.Q . V . . . .
15.250	6.7790	15.00	. Q . V . . . .
15.333	6.8880	15.84	. Q . V . . . .
15.417	7.0032	16.72	. Q . V . . . .
15.500	7.1223	17.30	. Q . V . . . .
15.583	7.2419	17.36	. Q . V . . . .
15.667	7.3646	17.82	. Q . V . . . .
15.750	7.4975	19.30	. Q . V . . . .
15.833	7.6506	22.23	. Q . V . . . .
15.917	7.8451	28.24	. Q . V . . . .
16.000	8.1140	39.04	. Q . V . . . .
16.083	8.5973	70.18	. Q. V . . . .
16.167	9.5599	139.77	. . Q V . . .
16.250	11.1360	228.86	. . . V Q .
16.333	12.4588	192.07	. . . QV . .
16.417	13.3124	123.93	. . Q . V . .
16.500	13.8824	82.77	.Q . V. .
16.583	14.2958	60.02	Q . . V .
16.667	14.6142	46.23	Q . . V .
16.750	14.8795	38.52	Q . . .V .
16.833	15.1013	32.20	Q . . .V .
16.917	15.2932	27.87	Q . . . V .
17.000	15.4615	24.43	Q . . . V .
17.083	15.6086	21.36	Q . . . V .
17.167	15.7406	19.17	Q . . . V .
17.250	15.8582	17.07	Q . . . V .
17.333	15.9619	15.06	Q . . . V .
17.417	16.0543	13.42	.Q . . . V .
17.500	16.1381	12.16	.Q . . . V .
17.583	16.2196	11.84	.Q . . . V .
17.667	16.2979	11.37	.Q . . . V .
17.750	16.3720	10.77	.Q . . . V .
17.833	16.4415	10.09	.Q . . . V .
17.917	16.4970	8.06	.Q . . . V .
18.000	16.5474	7.33	Q . . . V .
18.083	16.5960	7.05	Q . . . V .
18.167	16.6440	6.97	Q . . . V .
18.250	16.6932	7.14	Q . . . V .
18.333	16.7431	7.26	Q . . . V .
18.417	16.7930	7.24	Q . . . V .
18.500	16.8424	7.17	Q . . . V .
18.583	16.8910	7.06	Q . . . V .
18.667	16.9387	6.94	Q . . . V .
18.750	16.9857	6.81	Q . . . V .
18.833	17.0318	6.69	Q . . . V .
18.917	17.0770	6.57	Q . . . V .

19.000	17.1215	6.46	Q	.	.	.	V .
19.083	17.1652	6.34	Q	.	.	.	V .
19.167	17.2081	6.23	Q	.	.	.	V .
19.250	17.2503	6.13	Q	.	.	.	V .
19.333	17.2918	6.03	Q	.	.	.	V .
19.417	17.3327	5.93	Q	.	.	.	V .
19.500	17.3729	5.83	Q	.	.	.	V .
19.583	17.4124	5.74	Q	.	.	.	V .
19.667	17.4514	5.66	Q	.	.	.	V .
19.750	17.4897	5.57	Q	.	.	.	V .
19.833	17.5276	5.49	Q	.	.	.	V .
19.917	17.5648	5.41	Q	.	.	.	V .
20.000	17.6016	5.33	Q	.	.	.	V .
20.083	17.6378	5.26	Q	.	.	.	V .
20.167	17.6735	5.19	Q	.	.	.	V .
20.250	17.7088	5.12	Q	.	.	.	V .
20.333	17.7436	5.05	Q	.	.	.	V .
20.417	17.7779	4.99	Q	.	.	.	V .
20.500	17.8118	4.92	Q	.	.	.	V .
20.583	17.8453	4.86	Q	.	.	.	V .
20.667	17.8784	4.80	Q	.	.	.	V .
20.750	17.9111	4.75	Q	.	.	.	V .
20.833	17.9434	4.69	Q	.	.	.	V .
20.917	17.9753	4.64	Q	.	.	.	V .
21.000	18.0069	4.59	Q	.	.	.	V .
21.083	18.0381	4.53	Q	.	.	.	V .
21.167	18.0690	4.49	Q	.	.	.	V .
21.250	18.0996	4.44	Q	.	.	.	V .
21.333	18.1298	4.39	Q	.	.	.	V .
21.417	18.1598	4.35	Q	.	.	.	V .
21.500	18.1894	4.30	Q	.	.	.	V .
21.583	18.2187	4.26	Q	.	.	.	V .
21.667	18.2478	4.22	Q	.	.	.	V .
21.750	18.2766	4.18	Q	.	.	.	V .
21.833	18.3051	4.14	Q	.	.	.	V .
21.917	18.3333	4.10	Q	.	.	.	V .
22.000	18.3613	4.06	Q	.	.	.	V .
22.083	18.3890	4.03	Q	.	.	.	V .
22.167	18.4165	3.99	Q	.	.	.	V .
22.250	18.4438	3.96	Q	.	.	.	V .
22.333	18.4708	3.92	Q	.	.	.	V .
22.417	18.4975	3.89	Q	.	.	.	V .
22.500	18.5241	3.86	Q	.	.	.	V .
22.583	18.5504	3.82	Q	.	.	.	V .
22.667	18.5765	3.79	Q	.	.	.	V .
22.750	18.6024	3.76	Q	.	.	.	V.
22.833	18.6281	3.73	Q	.	.	.	V.
22.917	18.6536	3.70	Q	.	.	.	V.
23.000	18.6789	3.67	Q	.	.	.	V.
23.083	18.7040	3.65	Q	.	.	.	V.
23.167	18.7290	3.62	Q	.	.	.	V.
23.250	18.7537	3.59	Q	.	.	.	V.
23.333	18.7782	3.56	Q	.	.	.	V.
23.417	18.8026	3.54	Q	.	.	.	V.
23.500	18.8268	3.51	Q	.	.	.	V.
23.583	18.8508	3.49	Q	.	.	.	V.
23.667	18.8747	3.46	Q	.	.	.	V.

23.750	18.8983	3.44	Q	.	.	.	V.
23.833	18.9219	3.42	Q	.	.	.	V.
23.917	18.9452	3.39	Q	.	.	.	V.
24.000	18.9684	3.37	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	70.0
20%	40.0
30%	30.0
40%	20.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	5.0

****
FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3750.0	7500.0	11250.0	15000.0
0.083	0.0038	0.55	Q	.	.	.	.
0.167	0.0270	3.38	Q	.	.	.	.
0.250	0.1334	15.44	Q	.	.	.	.
0.333	0.5310	57.73	Q	.	.	.	.
0.417	1.3137	113.65	Q	.	.	.	.
0.500	2.5158	174.55	Q	.	.	.	.
0.583	4.0958	229.42	Q	.	.	.	.
0.667	5.9748	272.82	Q	.	.	.	.
0.750	8.0744	304.87	Q	.	.	.	.
0.833	10.3330	327.95	Q	.	.	.	.
0.917	12.7093	345.03	Q	.	.	.	.
1.000	15.1770	358.31	Q	.	.	.	.
1.083	17.7187	369.05	Q	.	.	.	.
1.167	20.3219	377.98	VQ	.	.	.	.
1.250	22.9775	385.60	VQ	.	.	.	.
1.333	25.6788	392.23	VQ	.	.	.	.
1.417	28.4199	398.01	VQ	.	.	.	.
1.500	31.1958	403.07	VQ	.	.	.	.
1.583	34.0028	407.57	VQ	.	.	.	.
1.667	36.8375	411.59	VQ	.	.	.	.
1.750	39.6970	415.20	VQ	.	.	.	.
1.833	42.5792	418.50	VQ	.	.	.	.

1.917	45.4824	421.54	VQ	.	.	.	.
2.000	48.4055	424.44	VQ	.	.	.	.
2.083	51.3477	427.21	VQ	.	.	.	.
2.167	54.3077	429.79	VQ	.	.	.	.
2.250	57.2844	432.22	VQ	.	.	.	.
2.333	60.2768	434.49	.Q	.	.	.	.
2.417	63.2839	436.63	.Q	.	.	.	.
2.500	66.3044	438.58	.Q	.	.	.	.
2.583	69.3374	440.40	.Q	.	.	.	.
2.667	72.3828	442.19	.Q	.	.	.	.
2.750	75.4405	443.98	.Q	.	.	.	.
2.833	78.5105	445.76	.Q	.	.	.	.
2.917	81.5927	447.55	.Q	.	.	.	.
3.000	84.6874	449.34	.Q	.	.	.	.
3.083	87.7945	451.16	.Q	.	.	.	.
3.167	90.9143	452.99	.Q	.	.	.	.
3.250	94.0467	454.83	.Q	.	.	.	.
3.333	97.1920	456.70	.Q	.	.	.	.
3.417	100.3498	458.51	.Q	.	.	.	.
3.500	103.5198	460.28	.Q	.	.	.	.
3.583	106.7021	462.07	.Q	.	.	.	.
3.667	109.8969	463.88	.Q	.	.	.	.
3.750	113.1043	465.71	.Q	.	.	.	.
3.833	116.3243	467.55	.QV	.	.	.	.
3.917	119.5573	469.42	.QV	.	.	.	.
4.000	122.8032	471.31	.QV	.	.	.	.
4.083	126.0622	473.21	.QV	.	.	.	.
4.167	129.3345	475.14	.QV	.	.	.	.
4.250	132.6202	477.08	.QV	.	.	.	.
4.333	135.9194	479.05	.QV	.	.	.	.
4.417	139.2324	481.04	.QV	.	.	.	.
4.500	142.5592	483.05	.QV	.	.	.	.
4.583	145.9000	485.09	.QV	.	.	.	.
4.667	149.2550	487.15	.QV	.	.	.	.
4.750	152.6244	489.23	.QV	.	.	.	.
4.833	156.0082	491.33	.QV	.	.	.	.
4.917	159.4066	493.46	.QV	.	.	.	.
5.000	162.8199	495.61	.QV	.	.	.	.
5.083	166.2482	497.79	.QV	.	.	.	.
5.167	169.6917	499.99	.QV	.	.	.	.
5.250	173.1505	502.22	.Q V	.	.	.	.
5.333	176.6249	504.47	.Q V	.	.	.	.
5.417	180.1149	506.76	.Q V	.	.	.	.
5.500	183.6209	509.06	.Q V	.	.	.	.
5.583	187.1429	511.40	.Q V	.	.	.	.
5.667	190.6813	513.77	.Q V	.	.	.	.
5.750	194.2361	516.16	.Q V	.	.	.	.
5.833	197.8076	518.59	.Q V	.	.	.	.
5.917	201.3961	521.04	.Q V	.	.	.	.
6.000	205.0016	523.52	.Q V	.	.	.	.
6.083	208.6245	526.04	.Q V	.	.	.	.
6.167	212.2649	528.59	.Q V	.	.	.	.
6.250	215.9231	531.17	.Q V	.	.	.	.
6.333	219.5993	533.78	.Q V	.	.	.	.
6.417	223.2937	536.42	.Q V	.	.	.	.
6.500	227.0065	539.11	.Q V	.	.	.	.
6.583	230.7381	541.82	.Q V	.	.	.	.

6.667	234.4886	544.58	.Q	V	.	.	.	.
6.750	238.2584	547.37	.Q	V	.	.	.	.
6.833	242.0477	550.21	.Q	V	.	.	.	.
6.917	245.8568	553.08	.Q	V	.	.	.	.
7.000	249.6860	555.99	.Q	V	.	.	.	.
7.083	253.5354	558.94	.Q	V	.	.	.	.
7.167	257.4055	561.94	.Q	V	.	.	.	.
7.250	261.2965	564.97	.Q	V	.	.	.	.
7.333	265.2087	568.05	.Q	V	.	.	.	.
7.417	269.1425	571.18	.Q	V	.	.	.	.
7.500	273.0981	574.35	.Q	V	.	.	.	.
7.583	277.0758	577.56	.Q	V	.	.	.	.
7.667	281.0760	580.83	.Q	V	.	.	.	.
7.750	285.0990	584.15	.Q	V	.	.	.	.
7.833	289.1452	587.51	.Q	V	.	.	.	.
7.917	293.2150	590.93	.Q	V	.	.	.	.
8.000	297.3087	594.40	.Q	V	.	.	.	.
8.083	301.4266	597.92	.Q	V	.	.	.	.
8.167	305.5692	601.50	.Q	V	.	.	.	.
8.250	309.7368	605.14	.Q	V	.	.	.	.
8.333	313.9299	608.84	.Q	V	.	.	.	.
8.417	318.1489	612.60	.Q	V	.	.	.	.
8.500	322.3942	616.41	.Q	V	.	.	.	.
8.583	326.6662	620.30	.Q	V	.	.	.	.
8.667	330.9654	624.24	.Q	V	.	.	.	.
8.750	335.2923	628.26	.Q	V	.	.	.	.
8.833	339.6473	632.34	.Q	V	.	.	.	.
8.917	344.0309	636.50	.Q	V	.	.	.	.
9.000	348.4436	640.72	.Q	V	.	.	.	.
9.083	352.8859	645.03	.Q	V	.	.	.	.
9.167	357.3584	649.41	.Q	V	.	.	.	.
9.250	361.8616	653.87	.Q	V	.	.	.	.
9.333	366.3961	658.41	.Q	V	.	.	.	.
9.417	370.9625	663.04	.Q	V	.	.	.	.
9.500	375.5613	667.75	.Q	V	.	.	.	.
9.583	380.1931	672.55	.Q	V	.	.	.	.
9.667	384.8587	677.44	.Q	V	.	.	.	.
9.750	389.5587	682.43	.Q	V	.	.	.	.
9.833	394.2936	687.52	.Q	V	.	.	.	.
9.917	399.0644	692.71	.Q	V	.	.	.	.
10.000	403.8716	698.01	.Q	V	.	.	.	.
10.083	408.7160	703.41	.Q	V	.	.	.	.
10.167	413.5984	708.92	.Q	V	.	.	.	.
10.250	418.5196	714.56	.Q	V	.	.	.	.
10.333	423.4804	720.30	.Q	V	.	.	.	.
10.417	428.4816	726.18	.Q	V	.	.	.	.
10.500	433.5242	732.18	.Q	V	.	.	.	.
10.583	438.6090	738.32	.Q	V	.	.	.	.
10.667	443.7370	744.59	.Q	V	.	.	.	.
10.750	448.9093	751.01	. Q	V	.	.	.	.
10.833	454.1267	757.57	. Q	V	.	.	.	.
10.917	459.3904	764.29	. Q	V	.	.	.	.
11.000	464.7015	771.17	. Q	V	.	.	.	.
11.083	470.0612	778.22	. Q	V	.	.	.	.
11.167	475.4708	785.47	. Q	V	.	.	.	.
11.250	480.9321	792.99	. Q	V	.	.	.	.
11.333	486.4478	800.87	. Q	V	.	.	.	.

11.417	492.0208	809.21	. Q	V .	.	.	.
11.500	497.6546	818.02	. Q	V .	.	.	.
11.583	503.3519	827.26	. Q	V .	.	.	.
11.667	509.1155	836.87	. Q	V .	.	.	.
11.750	514.9477	846.84	. Q	V .	.	.	.
11.833	520.8509	857.15	. Q	V.	.	.	.
11.917	526.8275	867.80	. Q	V.	.	.	.
12.000	532.8798	878.80	. Q	V.	.	.	.
12.083	539.0074	889.73	. Q	V.	.	.	.
12.167	545.1992	899.04	. Q	V.	.	.	.
12.250	551.4188	903.09	. Q	V.	.	.	.
12.333	557.5983	897.27	. Q	V.	.	.	.
12.417	563.6646	880.82	. Q	V.	.	.	.
12.500	569.5827	859.31	. Q	V.	.	.	.
12.583	575.3705	840.38	. Q	V	.	.	.
12.667	581.0757	828.41	. Q	V	.	.	.
12.750	586.7465	823.39	. Q	V	.	.	.
12.833	592.4197	823.75	. Q	V	.	.	.
12.917	598.1224	828.03	. Q	V	.	.	.
13.000	603.8747	835.24	. Q	V	.	.	.
13.083	609.6926	844.75	. Q	V	.	.	.
13.167	615.5887	856.12	. Q	V	.	.	.
13.250	621.5739	869.05	. Q	V	.	.	.
13.333	627.6577	883.37	. Q	V	.	.	.
13.417	633.8491	898.99	. Q	.V	.	.	.
13.500	640.1569	915.89	. Q	.V	.	.	.
13.583	646.5897	934.05	. Q	.V	.	.	.
13.667	653.1562	953.46	. Q	.V	.	.	.
13.750	659.8654	974.17	. Q	.V	.	.	.
13.833	666.7264	996.21	. Q	.V	.	.	.
13.917	673.7488	1019.66	. Q	.V	.	.	.
14.000	680.9426	1044.54	. Q	.V	.	.	.
14.083	688.3190	1071.05	. Q	.V	.	.	.
14.167	695.8926	1099.69	. Q	. V	.	.	.
14.250	703.6847	1131.41	. Q	. V	.	.	.
14.333	711.7248	1167.43	. Q	. V	.	.	.
14.417	720.0469	1208.37	. Q	. V	.	.	.
14.500	728.6807	1253.62	. Q	. V	.	.	.
14.583	737.6464	1301.82	. Q	. V	.	.	.
14.667	746.9564	1351.82	. Q	. V	.	.	.
14.750	756.6223	1403.49	. Q	. V	.	.	.
14.833	766.6595	1457.40	. Q	. V	.	.	.
14.917	777.0903	1514.55	. Q	. V	.	.	.
15.000	787.9440	1575.96	. Q	. V	.	.	.
15.083	799.2569	1642.63	. Q	. V	.	.	.
15.167	811.0726	1715.64	. Q	. V	.	.	.
15.250	823.4434	1796.24	. Q	. V	.	.	.
15.333	836.4321	1885.96	. Q	. V	.	.	.
15.417	850.1064	1985.51	. Q	. V	.	.	.
15.500	864.5164	2092.34	. Q	. V	.	.	.
15.583	879.6525	2197.75	. Q	. V	.	.	.
15.667	895.4268	2290.43	. Q	. V	.	.	.
15.750	911.7767	2374.00	. Q	. V	.	.	.
15.833	928.8607	2480.60	. Q	. V	.	.	.
15.917	947.2716	2673.26	. Q	. V	.	.	.
16.000	968.1810	3036.04	. Q	. V	.	.	.
16.083	994.1528	3771.10	. Q	V	.	.	.

16.167	1028.5507	4994.58	. . Q V . . . .
16.250	1076.1206	6907.16	. . Q . . . .
16.333	1143.5674	9793.27	. . V. Q . .
16.417	1234.3053	13175.15	. . .V . Q .
16.500	1337.3309	14959.31	. . . V . . Q.
16.583	1435.2872	14223.25	. . . V . Q .
16.667	1517.7932	11979.87	. . . V .Q .
16.750	1584.5261	9689.62	. . . Q V . .
16.833	1638.0944	7778.11	. . Q V . .
16.917	1681.2980	6273.17	. . Q . V. .
17.000	1717.4502	5249.30	. . Q . V. .
17.083	1748.9080	4567.66	. . Q . V .
17.167	1776.8276	4053.94	. . Q . V .
17.250	1801.9097	3641.92	. . Q. . .V .
17.333	1824.6616	3303.59	. . Q . . .V .
17.417	1845.4103	3012.70	. . Q . . . V .
17.500	1864.3951	2756.61	. . Q . . . V .
17.583	1881.8815	2539.01	. . Q . . . V .
17.667	1898.0533	2348.16	. . Q . . . V .
17.750	1911.9373	2015.95	. . Q . . . V .
17.833	1923.8418	1728.55	. . Q . . . V .
17.917	1934.5953	1561.42	. . Q . . . V .
18.000	1944.6083	1453.88	. Q . . . V .
18.083	1953.9818	1361.03	. Q . . . V .
18.167	1962.7480	1272.85	. Q . . . V .
18.250	1971.0212	1201.28	. Q . . . V .
18.333	1978.9038	1144.55	. Q . . . V .
18.417	1986.4874	1101.15	. Q . . . V .
18.500	1993.7773	1058.50	. Q . . . V .
18.583	2000.7894	1018.15	. Q . . . V .
18.667	2007.5994	988.80	. Q . . . V .
18.750	2014.2543	966.30	. Q . . . V .
18.833	2020.7588	944.45	. Q . . . V .
18.917	2027.1158	923.04	. Q . . . V .
19.000	2033.3354	903.08	. Q . . . V .
19.083	2039.4226	883.85	. Q . . . V .
19.167	2045.3821	865.31	. Q . . . V .
19.250	2051.2163	847.13	. Q . . . V .
19.333	2056.9238	828.73	. Q . . . V .
19.417	2062.4460	801.84	. Q . . . V .
19.500	2067.8213	780.48	. Q . . . V .
19.583	2073.0923	765.34	. Q . . . V .
19.667	2078.2715	752.03	. Q . . . V .
19.750	2083.3633	739.34	.Q . . . V .
19.833	2088.3713	727.18	.Q . . . V .
19.917	2093.2993	715.55	.Q . . . V .
20.000	2098.1509	704.43	.Q . . . V .
20.083	2102.9292	693.80	.Q . . . V .
20.167	2107.6370	683.58	.Q . . . V .
20.250	2112.2771	673.76	.Q . . . V .
20.333	2116.8523	664.30	.Q . . . V .
20.417	2121.3645	655.17	.Q . . . V .
20.500	2125.8157	646.31	.Q . . . V .
20.583	2130.2073	637.68	.Q . . . V .
20.667	2134.5413	629.31	.Q . . . V .
20.750	2138.8196	621.23	.Q . . . V .
20.833	2143.0442	613.42	.Q . . . V .

20.917	2147.2168	605.88	.Q	.	.	.	V .
21.000	2151.3394	598.59	.Q	.	.	.	V .
21.083	2155.4133	591.55	.Q	.	.	.	V .
21.167	2159.4404	584.73	.Q	.	.	.	V .
21.250	2163.4221	578.13	.Q	.	.	.	V .
21.333	2167.3596	571.73	.Q	.	.	.	V .
21.417	2171.2542	565.49	.Q	.	.	.	V .
21.500	2175.1067	559.39	.Q	.	.	.	V .
21.583	2178.9182	553.45	.Q	.	.	.	V .
21.667	2182.6902	547.68	.Q	.	.	.	V .
21.750	2186.4236	542.08	.Q	.	.	.	V .
21.833	2190.1194	536.64	.Q	.	.	.	V .
21.917	2193.7788	531.33	.Q	.	.	.	V .
22.000	2197.4026	526.17	.Q	.	.	.	V .
22.083	2200.9917	521.13	.Q	.	.	.	V .
22.167	2204.5469	516.22	.Q	.	.	.	V .
22.250	2208.0691	511.44	.Q	.	.	.	V .
22.333	2211.5593	506.77	.Q	.	.	.	V .
22.417	2215.0181	502.21	.Q	.	.	.	V .
22.500	2218.4463	497.76	.Q	.	.	.	V .
22.583	2221.8445	493.41	.Q	.	.	.	V .
22.667	2225.2134	489.17	.Q	.	.	.	V .
22.750	2228.5537	485.01	.Q	.	.	.	V .
22.833	2231.8660	480.95	.Q	.	.	.	V .
22.917	2235.1509	476.98	.Q	.	.	.	V .
23.000	2238.4092	473.10	.Q	.	.	.	V .
23.083	2241.6411	469.29	.Q	.	.	.	V.
23.167	2244.8474	465.57	.Q	.	.	.	V.
23.250	2248.0288	461.93	.Q	.	.	.	V.
23.333	2251.1855	458.36	.Q	.	.	.	V.
23.417	2254.3181	454.86	.Q	.	.	.	V.
23.500	2257.4272	451.43	.Q	.	.	.	V.
23.583	2260.5132	448.07	.Q	.	.	.	V.
23.667	2263.5764	444.77	.Q	.	.	.	V.
23.750	2266.6174	441.54	.Q	.	.	.	V.
23.833	2269.6365	438.38	.Q	.	.	.	V.
23.917	2272.6343	435.27	.Q	.	.	.	V.
24.000	2275.6108	432.21	.Q	.	.	.	V.
24.083	2278.5605	428.31	.Q	.	.	.	V.
24.167	2281.4558	420.40	.Q	.	.	.	V.
24.250	2284.2195	401.27	.Q	.	.	.	V.
24.333	2286.7166	362.56	Q	.	.	.	V.
24.417	2288.8225	305.80	Q	.	.	.	V.
24.500	2290.5017	243.82	Q	.	.	.	V.
24.583	2291.7878	186.73	Q	.	.	.	V.
24.667	2292.7695	142.53	Q	.	.	.	V.
24.750	2293.5349	111.14	Q	.	.	.	V.
24.833	2294.1409	87.98	Q	.	.	.	V.
24.917	2294.6357	71.86	Q	.	.	.	V.
25.000	2295.0452	59.46	Q	.	.	.	V.
25.083	2295.3835	49.13	Q	.	.	.	V.
25.167	2295.6685	41.38	Q	.	.	.	V.
25.250	2295.9087	34.89	Q	.	.	.	V.
25.333	2296.1106	29.31	Q	.	.	.	V.
25.417	2296.2825	24.97	Q	.	.	.	V.
25.500	2296.4243	20.59	Q	.	.	.	V.
25.583	2296.5422	17.11	Q	.	.	.	V.

25.667	2296.6436	14.70	Q	.	.	.	V.
25.750	2296.7278	12.23	Q	.	.	.	V.
25.833	2296.7998	10.44	Q	.	.	.	V.
25.917	2296.8601	8.76	Q	.	.	.	V.
26.000	2296.9094	7.15	Q	.	.	.	V.
26.083	2296.9490	5.76	Q	.	.	.	V.
26.167	2296.9810	4.64	Q	.	.	.	V.
26.250	2297.0066	3.71	Q	.	.	.	V.
26.333	2297.0269	2.95	Q	.	.	.	V.
26.417	2297.0430	2.34	Q	.	.	.	V.
26.500	2297.0559	1.88	Q	.	.	.	V.
26.583	2297.0664	1.54	Q	.	.	.	V.
26.667	2297.0750	1.25	Q	.	.	.	V.
26.750	2297.0820	1.03	Q	.	.	.	V.
26.833	2297.0879	0.86	Q	.	.	.	V.
26.917	2297.0928	0.72	Q	.	.	.	V.
27.000	2297.0969	0.59	Q	.	.	.	V.
27.083	2297.1001	0.46	Q	.	.	.	V.
27.167	2297.1023	0.32	Q	.	.	.	V.
27.250	2297.1035	0.19	Q	.	.	.	V.
27.333	2297.1040	0.06	Q	.	.	.	V
27.417	2297.1040	0.01	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1645.0
10%	185.0
20%	90.0
30%	60.0
40%	45.0
50%	35.0
60%	30.0
70%	20.0
80%	20.0
90%	10.0

FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 1

>>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 360.100 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.288 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):

"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.101
LOW LOSS FRACTION = 0.097
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.60
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 1.03
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 1.22
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 1.70
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 2.10
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 3.60

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.984
30-MINUTE FACTOR = 0.984
1-HOUR FACTOR = 0.984
3-HOUR FACTOR = 0.998
6-HOUR FACTOR = 0.999
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 28.935

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 0.00
MODEL TIME(HOURS) FOR END OF RESULTS = 24.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.668	72.639
2	8.720	307.125
3	28.312	853.198
4	50.275	956.474
5	62.776	544.416
6	70.597	340.633
7	76.266	246.854
8	80.528	185.639
9	83.840	144.217
10	86.632	121.589
11	88.890	98.338
12	90.631	75.824
13	92.160	66.579
14	93.483	57.622
15	94.565	47.119
16	95.526	41.833

17	96.313	34.302
18	97.006	30.151
19	97.535	23.070
20	97.942	17.726
21	98.234	12.687
22	98.565	14.440
23	98.912	15.121
24	99.260	15.121
25	99.607	15.121
26	99.954	15.121
27	100.000	1.998

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0005	0.0044
2	0.0049	0.0005	0.0044
3	0.0049	0.0005	0.0044
4	0.0049	0.0005	0.0044
5	0.0049	0.0005	0.0045
6	0.0049	0.0005	0.0045
7	0.0050	0.0005	0.0045
8	0.0050	0.0005	0.0045
9	0.0050	0.0005	0.0045
10	0.0050	0.0005	0.0045
11	0.0050	0.0005	0.0045
12	0.0050	0.0005	0.0046
13	0.0051	0.0005	0.0046
14	0.0051	0.0005	0.0046
15	0.0051	0.0005	0.0046
16	0.0051	0.0005	0.0046
17	0.0051	0.0005	0.0046
18	0.0051	0.0005	0.0046
19	0.0052	0.0005	0.0047
20	0.0052	0.0005	0.0047
21	0.0052	0.0005	0.0047
22	0.0052	0.0005	0.0047
23	0.0052	0.0005	0.0047
24	0.0053	0.0005	0.0047
25	0.0053	0.0005	0.0048
26	0.0053	0.0005	0.0048
27	0.0053	0.0005	0.0048
28	0.0053	0.0005	0.0048
29	0.0054	0.0005	0.0048
30	0.0054	0.0005	0.0049
31	0.0054	0.0005	0.0049
32	0.0054	0.0005	0.0049
33	0.0054	0.0005	0.0049
34	0.0055	0.0005	0.0049
35	0.0055	0.0005	0.0050
36	0.0055	0.0005	0.0050
37	0.0055	0.0005	0.0050
38	0.0055	0.0005	0.0050
39	0.0056	0.0005	0.0050
40	0.0056	0.0005	0.0050
41	0.0056	0.0005	0.0051
42	0.0056	0.0005	0.0051
43	0.0057	0.0005	0.0051
44	0.0057	0.0006	0.0051
45	0.0057	0.0006	0.0052
46	0.0057	0.0006	0.0052
47	0.0058	0.0006	0.0052
48	0.0058	0.0006	0.0052
49	0.0058	0.0006	0.0052
50	0.0058	0.0006	0.0053
51	0.0059	0.0006	0.0053

52	0.0059	0.0006	0.0053
53	0.0059	0.0006	0.0053
54	0.0059	0.0006	0.0053
55	0.0060	0.0006	0.0054
56	0.0060	0.0006	0.0054
57	0.0060	0.0006	0.0054
58	0.0060	0.0006	0.0054
59	0.0061	0.0006	0.0055
60	0.0061	0.0006	0.0055
61	0.0061	0.0006	0.0055
62	0.0061	0.0006	0.0055
63	0.0062	0.0006	0.0056
64	0.0062	0.0006	0.0056
65	0.0062	0.0006	0.0056
66	0.0063	0.0006	0.0056
67	0.0063	0.0006	0.0057
68	0.0063	0.0006	0.0057
69	0.0064	0.0006	0.0057
70	0.0064	0.0006	0.0058
71	0.0064	0.0006	0.0058
72	0.0064	0.0006	0.0058
73	0.0065	0.0006	0.0059
74	0.0065	0.0006	0.0059
75	0.0066	0.0006	0.0059
76	0.0066	0.0006	0.0059
77	0.0066	0.0006	0.0060
78	0.0066	0.0006	0.0060
79	0.0067	0.0006	0.0060
80	0.0067	0.0007	0.0061
81	0.0068	0.0007	0.0061
82	0.0068	0.0007	0.0061
83	0.0068	0.0007	0.0062
84	0.0069	0.0007	0.0062
85	0.0069	0.0007	0.0062
86	0.0069	0.0007	0.0063
87	0.0070	0.0007	0.0063
88	0.0070	0.0007	0.0063
89	0.0071	0.0007	0.0064
90	0.0071	0.0007	0.0064
91	0.0072	0.0007	0.0065
92	0.0072	0.0007	0.0065
93	0.0073	0.0007	0.0066
94	0.0073	0.0007	0.0066
95	0.0073	0.0007	0.0066
96	0.0074	0.0007	0.0067
97	0.0074	0.0007	0.0067
98	0.0075	0.0007	0.0067
99	0.0075	0.0007	0.0068
100	0.0076	0.0007	0.0068
101	0.0076	0.0007	0.0069
102	0.0077	0.0007	0.0069
103	0.0077	0.0008	0.0070
104	0.0078	0.0008	0.0070
105	0.0078	0.0008	0.0071
106	0.0079	0.0008	0.0071
107	0.0080	0.0008	0.0072
108	0.0080	0.0008	0.0072

109	0.0081	0.0008	0.0073
110	0.0081	0.0008	0.0073
111	0.0082	0.0008	0.0074
112	0.0082	0.0008	0.0074
113	0.0083	0.0008	0.0075
114	0.0084	0.0008	0.0076
115	0.0084	0.0008	0.0076
116	0.0085	0.0008	0.0077
117	0.0086	0.0008	0.0078
118	0.0086	0.0008	0.0078
119	0.0087	0.0008	0.0079
120	0.0088	0.0009	0.0079
121	0.0089	0.0009	0.0080
122	0.0089	0.0009	0.0081
123	0.0090	0.0009	0.0082
124	0.0091	0.0009	0.0082
125	0.0092	0.0009	0.0083
126	0.0092	0.0009	0.0084
127	0.0094	0.0009	0.0085
128	0.0094	0.0009	0.0085
129	0.0095	0.0009	0.0086
130	0.0096	0.0009	0.0087
131	0.0097	0.0009	0.0088
132	0.0098	0.0009	0.0088
133	0.0099	0.0010	0.0090
134	0.0100	0.0010	0.0090
135	0.0101	0.0010	0.0092
136	0.0102	0.0010	0.0092
137	0.0104	0.0010	0.0094
138	0.0104	0.0010	0.0094
139	0.0106	0.0010	0.0096
140	0.0107	0.0010	0.0096
141	0.0108	0.0011	0.0098
142	0.0109	0.0011	0.0099
143	0.0111	0.0011	0.0100
144	0.0112	0.0011	0.0101
145	0.0090	0.0009	0.0081
146	0.0091	0.0009	0.0082
147	0.0092	0.0009	0.0083
148	0.0093	0.0009	0.0084
149	0.0095	0.0009	0.0086
150	0.0096	0.0009	0.0087
151	0.0099	0.0010	0.0089
152	0.0100	0.0010	0.0090
153	0.0102	0.0010	0.0092
154	0.0103	0.0010	0.0093
155	0.0106	0.0010	0.0095
156	0.0107	0.0010	0.0097
157	0.0110	0.0011	0.0099
158	0.0111	0.0011	0.0100
159	0.0114	0.0011	0.0103
160	0.0116	0.0011	0.0105
161	0.0119	0.0012	0.0108
162	0.0121	0.0012	0.0109
163	0.0125	0.0012	0.0113
164	0.0127	0.0012	0.0114
165	0.0131	0.0013	0.0118

166	0.0133	0.0013	0.0120
167	0.0138	0.0013	0.0124
168	0.0140	0.0014	0.0127
169	0.0150	0.0015	0.0135
170	0.0153	0.0015	0.0138
171	0.0159	0.0015	0.0144
172	0.0162	0.0016	0.0147
173	0.0170	0.0016	0.0153
174	0.0174	0.0017	0.0157
175	0.0183	0.0018	0.0165
176	0.0188	0.0018	0.0169
177	0.0199	0.0019	0.0179
178	0.0205	0.0020	0.0185
179	0.0218	0.0021	0.0197
180	0.0226	0.0022	0.0204
181	0.0243	0.0024	0.0219
182	0.0253	0.0025	0.0228
183	0.0276	0.0027	0.0250
184	0.0290	0.0028	0.0262
185	0.0252	0.0024	0.0228
186	0.0271	0.0026	0.0244
187	0.0317	0.0031	0.0286
188	0.0349	0.0034	0.0315
189	0.0542	0.0053	0.0489
190	0.0624	0.0061	0.0564
191	0.0946	0.0084	0.0862
192	0.1374	0.0084	0.1289
193	0.5904	0.0084	0.5819
194	0.0745	0.0072	0.0673
195	0.0389	0.0038	0.0351
196	0.0292	0.0028	0.0263
197	0.0306	0.0030	0.0276
198	0.0264	0.0026	0.0238
199	0.0234	0.0023	0.0211
200	0.0211	0.0020	0.0191
201	0.0193	0.0019	0.0174
202	0.0178	0.0017	0.0161
203	0.0166	0.0016	0.0150
204	0.0156	0.0015	0.0141
205	0.0143	0.0014	0.0129
206	0.0135	0.0013	0.0122
207	0.0129	0.0012	0.0116
208	0.0123	0.0012	0.0111
209	0.0117	0.0011	0.0106
210	0.0113	0.0011	0.0102
211	0.0108	0.0011	0.0098
212	0.0104	0.0010	0.0094
213	0.0101	0.0010	0.0091
214	0.0097	0.0009	0.0088
215	0.0094	0.0009	0.0085
216	0.0092	0.0009	0.0083
217	0.0113	0.0011	0.0102
218	0.0110	0.0011	0.0099
219	0.0108	0.0010	0.0097
220	0.0105	0.0010	0.0095
221	0.0103	0.0010	0.0093
222	0.0101	0.0010	0.0091

223	0.0099	0.0010	0.0089
224	0.0097	0.0009	0.0087
225	0.0095	0.0009	0.0086
226	0.0093	0.0009	0.0084
227	0.0091	0.0009	0.0083
228	0.0090	0.0009	0.0081
229	0.0088	0.0009	0.0080
230	0.0087	0.0008	0.0078
231	0.0085	0.0008	0.0077
232	0.0084	0.0008	0.0076
233	0.0083	0.0008	0.0075
234	0.0082	0.0008	0.0074
235	0.0080	0.0008	0.0073
236	0.0079	0.0008	0.0072
237	0.0078	0.0008	0.0071
238	0.0077	0.0007	0.0070
239	0.0076	0.0007	0.0069
240	0.0075	0.0007	0.0068
241	0.0074	0.0007	0.0067
242	0.0073	0.0007	0.0066
243	0.0072	0.0007	0.0065
244	0.0071	0.0007	0.0064
245	0.0071	0.0007	0.0064
246	0.0070	0.0007	0.0063
247	0.0069	0.0007	0.0062
248	0.0068	0.0007	0.0062
249	0.0067	0.0007	0.0061
250	0.0067	0.0006	0.0060
251	0.0066	0.0006	0.0060
252	0.0065	0.0006	0.0059
253	0.0065	0.0006	0.0058
254	0.0064	0.0006	0.0058
255	0.0063	0.0006	0.0057
256	0.0063	0.0006	0.0057
257	0.0062	0.0006	0.0056
258	0.0062	0.0006	0.0056
259	0.0061	0.0006	0.0055
260	0.0060	0.0006	0.0055
261	0.0060	0.0006	0.0054
262	0.0059	0.0006	0.0054
263	0.0059	0.0006	0.0053
264	0.0058	0.0006	0.0053
265	0.0058	0.0006	0.0052
266	0.0057	0.0006	0.0052
267	0.0057	0.0006	0.0051
268	0.0056	0.0005	0.0051
269	0.0056	0.0005	0.0051
270	0.0056	0.0005	0.0050
271	0.0055	0.0005	0.0050
272	0.0055	0.0005	0.0049
273	0.0054	0.0005	0.0049
274	0.0054	0.0005	0.0049
275	0.0053	0.0005	0.0048
276	0.0053	0.0005	0.0048
277	0.0053	0.0005	0.0048
278	0.0052	0.0005	0.0047
279	0.0052	0.0005	0.0047

280	0.0052	0.0005	0.0047
281	0.0051	0.0005	0.0046
282	0.0051	0.0005	0.0046
283	0.0051	0.0005	0.0046
284	0.0050	0.0005	0.0045
285	0.0050	0.0005	0.0045
286	0.0050	0.0005	0.0045
287	0.0049	0.0005	0.0044
288	0.0049	0.0005	0.0044

TOTAL STORM RAINFALL(INCHES) = 3.60
TOTAL SOIL-LOSS(INCHES) = 0.29
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.30

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 8.8355
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 99.0652

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	200.0	400.0	600.0	800.0
0.083	0.0022	0.32	Q	.	.	.	.
0.167	0.0137	1.67	Q	.	.	.	.
0.250	0.0510	5.42	Q	.	.	.	.
0.333	0.1174	9.64	Q	.	.	.	.
0.417	0.2005	12.06	Q	.	.	.	.
0.500	0.2941	13.60	Q	.	.	.	.
0.583	0.3955	14.72	Q	.	.	.	.
0.667	0.5029	15.59	Q	.	.	.	.
0.750	0.6150	16.27	Q	.	.	.	.
0.833	0.7311	16.86	Q	.	.	.	.
0.917	0.8505	17.35	Q	.	.	.	.
1.000	0.9727	17.74	Q	.	.	.	.
1.083	1.0972	18.09	Q	.	.	.	.
1.167	1.2240	18.40	Q	.	.	.	.
1.250	1.3525	18.67	Q	.	.	.	.
1.333	1.4828	18.92	Q	.	.	.	.
1.417	1.6146	19.13	Q	.	.	.	.
1.500	1.7477	19.33	Q	.	.	.	.
1.583	1.8820	19.50	Q	.	.	.	.
1.667	2.0172	19.64	Q	.	.	.	.
1.750	2.1533	19.76	Q	.	.	.	.
1.833	2.2904	19.90	Q	.	.	.	.
1.917	2.4283	20.03	VQ	.	.	.	.
2.000	2.5672	20.17	.Q	.	.	.	.
2.083	2.7071	20.31	.Q	.	.	.	.
2.167	2.8479	20.45	.Q	.	.	.	.
2.250	2.9893	20.53	.Q	.	.	.	.
2.333	3.1312	20.60	.Q	.	.	.	.
2.417	3.2736	20.68	.Q	.	.	.	.
2.500	3.4165	20.75	.Q	.	.	.	.
2.583	3.5599	20.83	.Q	.	.	.	.
2.667	3.7039	20.90	.Q	.	.	.	.
2.750	3.8484	20.98	.Q	.	.	.	.
2.833	3.9934	21.06	.Q	.	.	.	.
2.917	4.1390	21.14	.Q	.	.	.	.
3.000	4.2851	21.22	.Q	.	.	.	.
3.083	4.4318	21.30	.Q	.	.	.	.
3.167	4.5790	21.38	.Q	.	.	.	.
3.250	4.7268	21.46	.Q	.	.	.	.
3.333	4.8752	21.54	.Q	.	.	.	.
3.417	5.0242	21.63	.QV	.	.	.	.
3.500	5.1737	21.71	.QV	.	.	.	.
3.583	5.3239	21.80	.QV	.	.	.	.
3.667	5.4746	21.89	.QV	.	.	.	.
3.750	5.6259	21.97	.QV	.	.	.	.

3.833	5.7778	22.06	.QV	.	.	.	.
3.917	5.9304	22.15	.QV	.	.	.	.
4.000	6.0836	22.24	.QV	.	.	.	.
4.083	6.2374	22.33	.QV	.	.	.	.
4.167	6.3918	22.42	.QV	.	.	.	.
4.250	6.5469	22.52	.QV	.	.	.	.
4.333	6.7026	22.61	.QV	.	.	.	.
4.417	6.8590	22.71	.QV	.	.	.	.
4.500	7.0160	22.80	.QV	.	.	.	.
4.583	7.1738	22.90	.QV	.	.	.	.
4.667	7.3322	23.00	.QV	.	.	.	.
4.750	7.4912	23.10	.Q V	.	.	.	.
4.833	7.6510	23.20	.Q V	.	.	.	.
4.917	7.8115	23.30	.Q V	.	.	.	.
5.000	7.9727	23.40	.Q V	.	.	.	.
5.083	8.1346	23.51	.Q V	.	.	.	.
5.167	8.2972	23.61	.Q V	.	.	.	.
5.250	8.4606	23.72	.Q V	.	.	.	.
5.333	8.6247	23.83	.Q V	.	.	.	.
5.417	8.7896	23.94	.Q V	.	.	.	.
5.500	8.9552	24.05	.Q V	.	.	.	.
5.583	9.1216	24.16	.Q V	.	.	.	.
5.667	9.2888	24.28	.Q V	.	.	.	.
5.750	9.4568	24.39	.Q V	.	.	.	.
5.833	9.6256	24.51	.Q V	.	.	.	.
5.917	9.7952	24.63	.Q V	.	.	.	.
6.000	9.9656	24.75	.Q V	.	.	.	.
6.083	10.1369	24.87	.Q V	.	.	.	.
6.167	10.3090	24.99	.Q V	.	.	.	.
6.250	10.4819	25.11	.Q V	.	.	.	.
6.333	10.6557	25.24	.Q V	.	.	.	.
6.417	10.8304	25.37	.Q V	.	.	.	.
6.500	11.0060	25.50	.Q V	.	.	.	.
6.583	11.1825	25.63	.Q V	.	.	.	.
6.667	11.3599	25.76	.Q V	.	.	.	.
6.750	11.5383	25.89	.Q V	.	.	.	.
6.833	11.7175	26.03	.Q V	.	.	.	.
6.917	11.8978	26.17	.Q V	.	.	.	.
7.000	12.0789	26.31	.Q V	.	.	.	.
7.083	12.2611	26.45	.Q V	.	.	.	.
7.167	12.4443	26.60	.Q V	.	.	.	.
7.250	12.6285	26.74	.Q V	.	.	.	.
7.333	12.8136	26.89	.Q V	.	.	.	.
7.417	12.9999	27.04	.Q V	.	.	.	.
7.500	13.1872	27.19	.Q V	.	.	.	.
7.583	13.3755	27.35	.Q V	.	.	.	.
7.667	13.5650	27.51	.Q V	.	.	.	.
7.750	13.7555	27.67	.Q V	.	.	.	.
7.833	13.9472	27.83	.Q V	.	.	.	.
7.917	14.1400	28.00	.Q V	.	.	.	.
8.000	14.3340	28.16	.Q V	.	.	.	.
8.083	14.5291	28.33	.Q V	.	.	.	.
8.167	14.7255	28.51	.Q V	.	.	.	.
8.250	14.9230	28.68	.Q V	.	.	.	.
8.333	15.1218	28.86	.Q V	.	.	.	.
8.417	15.3218	29.05	.Q V	.	.	.	.
8.500	15.5232	29.23	.Q V	.	.	.	.

8.583	15.7258	29.42	.Q	V	.	.	.	.
8.667	15.9297	29.61	.Q	V	.	.	.	.
8.750	16.1350	29.81	.Q	V	.	.	.	.
8.833	16.3416	30.00	.Q	V	.	.	.	.
8.917	16.5496	30.21	.Q	V	.	.	.	.
9.000	16.7591	30.41	.Q	V	.	.	.	.
9.083	16.9699	30.62	.Q	V	.	.	.	.
9.167	17.1823	30.83	.Q	V	.	.	.	.
9.250	17.3961	31.05	.Q	V	.	.	.	.
9.333	17.6115	31.27	.Q	V	.	.	.	.
9.417	17.8284	31.50	.Q	V	.	.	.	.
9.500	18.0469	31.73	.Q	V	.	.	.	.
9.583	18.2670	31.96	.Q	V	.	.	.	.
9.667	18.4888	32.20	.Q	V	.	.	.	.
9.750	18.7122	32.44	.Q	V	.	.	.	.
9.833	18.9373	32.69	.Q	V	.	.	.	.
9.917	19.1642	32.94	.Q	V	.	.	.	.
10.000	19.3929	33.20	.Q	V	.	.	.	.
10.083	19.6234	33.47	.Q	V	.	.	.	.
10.167	19.8557	33.74	.Q	V	.	.	.	.
10.250	20.0899	34.01	.Q	V	.	.	.	.
10.333	20.3261	34.29	.Q	V	.	.	.	.
10.417	20.5643	34.58	.Q	V	.	.	.	.
10.500	20.8045	34.88	.Q	V	.	.	.	.
10.583	21.0467	35.18	.Q	V	.	.	.	.
10.667	21.2911	35.48	.Q	V	.	.	.	.
10.750	21.5377	35.80	.Q	V	.	.	.	.
10.833	21.7865	36.12	.Q	V	.	.	.	.
10.917	22.0375	36.45	.Q	V	.	.	.	.
11.000	22.2909	36.79	.Q	V	.	.	.	.
11.083	22.5467	37.14	.Q	V	.	.	.	.
11.167	22.8049	37.50	.Q	V	.	.	.	.
11.250	23.0657	37.86	.Q	V	.	.	.	.
11.333	23.3290	38.24	.Q	V	.	.	.	.
11.417	23.5950	38.62	.Q	V	.	.	.	.
11.500	23.8637	39.02	.Q	V	.	.	.	.
11.583	24.1352	39.42	.Q	V	.	.	.	.
11.667	24.4096	39.84	.Q	V	.	.	.	.
11.750	24.6869	40.27	. Q	V	.	.	.	.
11.833	24.9673	40.71	. Q	V	.	.	.	.
11.917	25.2508	41.17	. Q	V	.	.	.	.
12.000	25.5375	41.63	. Q	V	.	.	.	.
12.083	25.8265	41.96	. Q	V	.	.	.	.
12.167	26.1143	41.79	. Q	V	.	.	.	.
12.250	26.3928	40.44	. Q	V	.	.	.	.
12.333	26.6606	38.88	.Q	V	.	.	.	.
12.417	26.9237	38.21	.Q	V	.	.	.	.
12.500	27.1854	38.00	.Q	V	.	.	.	.
12.583	27.4472	38.00	.Q	.V	.	.	.	.
12.667	27.7100	38.16	.Q	.V	.	.	.	.
12.750	27.9746	38.42	.Q	.V	.	.	.	.
12.833	28.2415	38.76	.Q	.V	.	.	.	.
12.917	28.5113	39.16	.Q	.V	.	.	.	.
13.000	28.7843	39.64	.Q	.V	.	.	.	.
13.083	29.0609	40.17	. Q	.V	.	.	.	.
13.167	29.3415	40.74	. Q	.V	.	.	.	.
13.250	29.6264	41.37	. Q	.V	.	.	.	.

13.333	29.9159	42.04	. Q . V . . .
13.417	30.2104	42.76	. Q . V . . .
13.500	30.5101	43.52	. Q . V . . .
13.583	30.8156	44.35	. Q . V . . .
13.667	31.1271	45.23	. Q . V . . .
13.750	31.4450	46.17	. Q . V . . .
13.833	31.7698	47.16	. Q . V . . .
13.917	32.1017	48.20	. Q . V . . .
14.000	32.4413	49.31	. Q . V . . .
14.083	32.7892	50.51	. Q . V . . .
14.167	33.1464	51.86	. Q . V . . .
14.250	33.5150	53.52	. Q . V . . .
14.333	33.8959	55.31	. Q . V . . .
14.417	34.2890	57.08	. Q . V . . .
14.500	34.6946	58.89	. Q . V . . .
14.583	35.1134	60.81	. Q . V . . .
14.667	35.5463	62.85	. Q . V . . .
14.750	35.9944	65.06	. Q . V . . .
14.833	36.4589	67.45	. Q . V . . .
14.917	36.9415	70.07	. Q . V . . .
15.000	37.4438	72.93	. Q . V . . .
15.083	37.9681	76.12	. Q . V . . .
15.167	38.5166	79.65	. Q . V . . .
15.250	39.0928	83.66	. Q . V . . .
15.333	39.7001	88.18	. Q . V . . .
15.417	40.3402	92.95	. Q . V . . .
15.500	41.0082	97.00	. Q . V . . .
15.583	41.6875	98.63	. Q . V . . .
15.667	42.3813	100.74	. Q . V . . .
15.750	43.1252	108.01	. Q . V . . .
15.833	43.9621	121.53	. Q . V . . .
15.917	44.9727	146.74	. Q . V . . .
16.000	46.2517	185.70	. Q. V . . .
16.083	48.1549	276.36	. . Q V. . .
16.167	51.2886	455.01	. . V Q . .
16.250	56.4304	746.58	. . . V . . Q .
16.333	61.7334	770.01	. . . V . . Q .
16.417	65.3227	521.16	. . . Q . . .
16.500	67.9209	377.26	. . Q . V . .
16.583	70.0089	303.18	. . Q . V . .
16.667	71.7579	253.96	. . Q . V . .
16.750	73.2536	217.17	. Q . V. .
16.833	74.5738	191.69	. Q. . V .
16.917	75.7302	167.92	. Q . . V .
17.000	76.7398	146.59	. Q . . V .
17.083	77.6570	133.18	. Q . . .V .
17.167	78.4906	121.03	. Q . . .V .
17.250	79.2399	108.80	. Q . . .V .
17.333	79.9267	99.72	. Q . . . V .
17.417	80.5489	90.35	. Q . . . V .
17.500	81.1215	83.15	. Q . . . V .
17.583	81.6391	75.16	. Q . . . V .
17.667	82.1124	68.71	. Q . . . V .
17.750	82.5480	63.26	. Q . . . V .
17.833	82.9726	61.64	. Q . . . V .
17.917	83.3829	59.58	. Q . . . V .
18.000	83.7769	57.21	. Q . . . V .

18.083	84.1537	54.72	. Q	.	.	: V	.
18.167	84.5137	52.26	. Q	.	.	. V	.
18.250	84.8242	45.08	. Q	.	.	. V	.
18.333	85.1275	44.05	. Q	.	.	. V	.
18.417	85.4281	43.65	. Q	.	.	. V	.
18.500	85.7246	43.04	. Q	.	.	. V	.
18.583	86.0158	42.29	. Q	.	.	. V	.
18.667	86.3018	41.52	. Q	.	.	. V	.
18.750	86.5824	40.75	. Q	.	.	. V	.
18.833	86.8580	40.01	. Q	.	.	. V	.
18.917	87.1285	39.28	.Q	.	.	. V	.
19.000	87.3941	38.57	.Q	.	.	. V	.
19.083	87.6550	37.88	.Q	.	.	. V	.
19.167	87.9114	37.23	.Q	.	.	. V	.
19.250	88.1634	36.59	.Q	.	.	. V	.
19.333	88.4113	35.99	.Q	.	.	. V	.
19.417	88.6551	35.40	.Q	.	.	. V	.
19.500	88.8950	34.83	.Q	.	.	. V	.
19.583	89.1311	34.28	.Q	.	.	. V	.
19.667	89.3635	33.75	.Q	.	.	. V	.
19.750	89.5923	33.22	.Q	.	.	. V	.
19.833	89.8177	32.73	.Q	.	.	. V	.
19.917	90.0399	32.26	.Q	.	.	. V	.
20.000	90.2589	31.81	.Q	.	.	. V	.
20.083	90.4750	31.37	.Q	.	.	. V	.
20.167	90.6882	30.96	.Q	.	.	. V	.
20.250	90.8985	30.53	.Q	.	.	. V	.
20.333	91.1059	30.12	.Q	.	.	. V	.
20.417	91.3106	29.72	.Q	.	.	. V	.
20.500	91.5126	29.33	.Q	.	.	. V	.
20.583	91.7120	28.95	.Q	.	.	. V	.
20.667	91.9089	28.59	.Q	.	.	. V	.
20.750	92.1034	28.24	.Q	.	.	. V	.
20.833	92.2956	27.91	.Q	.	.	. V	.
20.917	92.4856	27.58	.Q	.	.	. V	.
21.000	92.6733	27.26	.Q	.	.	. V	.
21.083	92.8589	26.95	.Q	.	.	. V	.
21.167	93.0425	26.65	.Q	.	.	. V	.
21.250	93.2241	26.36	.Q	.	.	. V	.
21.333	93.4037	26.08	.Q	.	.	. V	.
21.417	93.5815	25.81	.Q	.	.	. V	.
21.500	93.7574	25.54	.Q	.	.	. V	.
21.583	93.9315	25.28	.Q	.	.	. V	.
21.667	94.1039	25.03	.Q	.	.	. V	.
21.750	94.2745	24.78	.Q	.	.	. V	.
21.833	94.4436	24.54	.Q	.	.	. V	.
21.917	94.6110	24.31	.Q	.	.	. V	.
22.000	94.7769	24.08	.Q	.	.	. V	.
22.083	94.9412	23.86	.Q	.	.	. V	.
22.167	95.1040	23.64	.Q	.	.	. V	.
22.250	95.2654	23.43	.Q	.	.	. V	.
22.333	95.4254	23.23	.Q	.	.	. V	.
22.417	95.5840	23.02	.Q	.	.	. V	.
22.500	95.7412	22.83	.Q	.	.	. V	.
22.583	95.8971	22.63	.Q	.	.	. V	.
22.667	96.0516	22.45	.Q	.	.	. V	.
22.750	96.2050	22.26	.Q	.	.	. V	.

22.833	96.3570	22.08	.Q	.	.	.	V .
22.917	96.5079	21.90	.Q	.	.	.	V .
23.000	96.6575	21.73	.Q	.	.	.	V.
23.083	96.8060	21.56	.Q	.	.	.	V.
23.167	96.9534	21.40	.Q	.	.	.	V.
23.250	97.0996	21.23	.Q	.	.	.	V.
23.333	97.2448	21.07	.Q	.	.	.	V.
23.417	97.3888	20.92	.Q	.	.	.	V.
23.500	97.5318	20.76	.Q	.	.	.	V.
23.583	97.6738	20.61	.Q	.	.	.	V.
23.667	97.8148	20.47	.Q	.	.	.	V.
23.750	97.9547	20.32	.Q	.	.	.	V.
23.833	98.0937	20.18	.Q	.	.	.	V.
23.917	98.2318	20.04	.Q	.	.	.	V.
24.000	98.3688	19.90	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1445.0
10%	145.0
20%	60.0
30%	40.0
40%	25.0
50%	20.0
60%	15.0
70%	10.0
80%	10.0
90%	10.0

****
FLOW PROCESS FROM NODE 111.00 TO NODE 111.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

STREAM HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	3850.0	7700.0	11550.0	15400.0
0.083	0.0060	0.86	Q	.	.	.	.
0.167	0.0407	5.05	Q	.	.	.	.
0.250	0.1845	20.87	Q	.	.	.	.
0.333	0.6484	67.37	Q	.	.	.	.
0.417	1.5142	125.71	Q	.	.	.	.
0.500	2.8099	188.14	Q	.	.	.	.
0.583	4.4914	244.15	Q	.	.	.	.
0.667	6.4776	288.41	Q	.	.	.	.
0.750	8.6893	321.14	Q	.	.	.	.
0.833	11.0641	344.81	Q	.	.	.	.
0.917	13.5598	362.38	Q	.	.	.	.

1.000	16.1496	376.05	Q	.	.	.	.
1.083	18.8159	387.14	VQ	.	.	.	.
1.167	21.5458	396.38	VQ	.	.	.	.
1.250	24.3301	404.27	VQ	.	.	.	.
1.333	27.1616	411.14	VQ	.	.	.	.
1.417	30.0345	417.14	VQ	.	.	.	.
1.500	32.9435	422.40	VQ	.	.	.	.
1.583	35.8848	427.07	VQ	.	.	.	.
1.667	38.8547	431.23	VQ	.	.	.	.
1.750	41.8503	434.97	VQ	.	.	.	.
1.833	44.8696	438.40	VQ	.	.	.	.
1.917	47.9107	441.57	VQ	.	.	.	.
2.000	50.9727	444.61	VQ	.	.	.	.
2.083	54.0548	447.52	VQ	.	.	.	.
2.167	57.1556	450.24	VQ	.	.	.	.
2.250	60.2737	452.74	.Q	.	.	.	.
2.333	63.4080	455.10	.Q	.	.	.	.
2.417	66.5574	457.30	.Q	.	.	.	.
2.500	69.7208	459.33	.Q	.	.	.	.
2.583	72.8973	461.22	.Q	.	.	.	.
2.667	76.0866	463.09	.Q	.	.	.	.
2.750	79.2888	464.96	.Q	.	.	.	.
2.833	82.5039	466.82	.Q	.	.	.	.
2.917	85.7317	468.68	.Q	.	.	.	.
3.000	88.9725	470.56	.Q	.	.	.	.
3.083	92.2263	472.45	.Q	.	.	.	.
3.167	95.4933	474.37	.Q	.	.	.	.
3.250	98.7736	476.30	.Q	.	.	.	.
3.333	102.0673	478.24	.Q	.	.	.	.
3.417	105.3740	480.13	.Q	.	.	.	.
3.500	108.6935	482.00	.Q	.	.	.	.
3.583	112.0260	483.87	.Q	.	.	.	.
3.667	115.3715	485.77	.Q	.	.	.	.
3.750	118.7302	487.68	.Q	.	.	.	.
3.833	122.1022	489.62	.QV	.	.	.	.
3.917	125.4877	491.57	.QV	.	.	.	.
4.000	128.8867	493.55	.QV	.	.	.	.
4.083	132.2996	495.54	.QV	.	.	.	.
4.167	135.7263	497.56	.QV	.	.	.	.
4.250	139.1671	499.60	.QV	.	.	.	.
4.333	142.6220	501.66	.QV	.	.	.	.
4.417	146.0914	503.75	.QV	.	.	.	.
4.500	149.5752	505.86	.QV	.	.	.	.
4.583	153.0738	507.99	.QV	.	.	.	.
4.667	156.5872	510.14	.QV	.	.	.	.
4.750	160.1156	512.32	.QV	.	.	.	.
4.833	163.6592	514.53	.QV	.	.	.	.
4.917	167.2181	516.76	.QV	.	.	.	.
5.000	170.7926	519.02	.QV	.	.	.	.
5.083	174.3828	521.30	.QV	.	.	.	.
5.167	177.9890	523.61	.QV	.	.	.	.
5.250	181.6111	525.94	.Q V	.	.	.	.
5.333	185.2496	528.30	.Q V	.	.	.	.
5.417	188.9045	530.70	.Q V	.	.	.	.
5.500	192.5761	533.11	.Q V	.	.	.	.
5.583	196.2646	535.56	.Q V	.	.	.	.
5.667	199.9701	538.04	.Q V	.	.	.	.

5.750	203.6929	540.55	.Q	V	.	.	.	.
5.833	207.4332	543.09	.Q	V	.	.	.	.
5.917	211.1913	545.67	.Q	V	.	.	.	.
6.000	214.9672	548.27	.Q	V	.	.	.	.
6.083	218.7614	550.91	.Q	V	.	.	.	.
6.167	222.5739	553.58	.Q	V	.	.	.	.
6.250	226.4050	556.29	.Q	V	.	.	.	.
6.333	230.2550	559.02	.Q	V	.	.	.	.
6.417	234.1241	561.79	.Q	V	.	.	.	.
6.500	238.0126	564.60	.Q	V	.	.	.	.
6.583	241.9206	567.45	.Q	V	.	.	.	.
6.667	245.8486	570.34	.Q	V	.	.	.	.
6.750	249.7967	573.27	.Q	V	.	.	.	.
6.833	253.7653	576.24	.Q	V	.	.	.	.
6.917	257.7546	579.25	.Q	V	.	.	.	.
7.000	261.7649	582.30	.Q	V	.	.	.	.
7.083	265.7966	585.40	.Q	V	.	.	.	.
7.167	269.8498	588.53	.Q	V	.	.	.	.
7.250	273.9250	591.72	.Q	V	.	.	.	.
7.333	278.0224	594.94	.Q	V	.	.	.	.
7.417	282.1424	598.22	.Q	V	.	.	.	.
7.500	286.2852	601.54	.Q	V	.	.	.	.
7.583	290.4513	604.92	.Q	V	.	.	.	.
7.667	294.6410	608.34	.Q	V	.	.	.	.
7.750	298.8546	611.81	.Q	V	.	.	.	.
7.833	303.0925	615.34	.Q	V	.	.	.	.
7.917	307.3550	618.92	.Q	V	.	.	.	.
8.000	311.6427	622.56	.Q	V	.	.	.	.
8.083	315.9557	626.26	.Q	V	.	.	.	.
8.167	320.2947	630.01	.Q	V	.	.	.	.
8.250	324.6599	633.83	.Q	V	.	.	.	.
8.333	329.0518	637.70	.Q	V	.	.	.	.
8.417	333.4708	641.64	.Q	V	.	.	.	.
8.500	337.9174	645.65	.Q	V	.	.	.	.
8.583	342.3921	649.72	.Q	V	.	.	.	.
8.667	346.8952	653.86	.Q	V	.	.	.	.
8.750	351.4273	658.07	.Q	V	.	.	.	.
8.833	355.9890	662.35	.Q	V	.	.	.	.
8.917	360.5806	666.70	.Q	V	.	.	.	.
9.000	365.2027	671.13	.Q	V	.	.	.	.
9.083	369.8559	675.65	.Q	V	.	.	.	.
9.167	374.5407	680.24	.Q	V	.	.	.	.
9.250	379.2578	684.92	.Q	V	.	.	.	.
9.333	384.0077	689.68	.Q	V	.	.	.	.
9.417	388.7909	694.53	.Q	V	.	.	.	.
9.500	393.6082	699.47	.Q	V	.	.	.	.
9.583	398.4602	704.51	.Q	V	.	.	.	.
9.667	403.3475	709.64	.Q	V	.	.	.	.
9.750	408.2709	714.87	.Q	V	.	.	.	.
9.833	413.2310	720.21	.Q	V	.	.	.	.
9.917	418.2287	725.66	.Q	V	.	.	.	.
10.000	423.2646	731.21	.Q	V	.	.	.	.
10.083	428.3395	736.88	.Q	V	.	.	.	.
10.167	433.4542	742.66	.Q	V	.	.	.	.
10.250	438.6096	748.57	.Q	V	.	.	.	.
10.333	443.8066	754.60	.Q	V	.	.	.	.
10.417	449.0460	760.76	.Q	V	.	.	.	.

10.500	454.3287	767.06	.Q	V	.	.	.
10.583	459.6558	773.49	. Q	V	.	.	.
10.667	465.0282	780.07	. Q	V	.	.	.
10.750	470.4470	786.81	. Q	V	.	.	.
10.833	475.9132	793.70	. Q	V	.	.	.
10.917	481.4280	800.75	. Q	V	.	.	.
11.000	486.9925	807.96	. Q	V	.	.	.
11.083	492.6079	815.36	. Q	V	.	.	.
11.167	498.2758	822.97	. Q	V	.	.	.
11.250	503.9979	830.85	. Q	V	.	.	.
11.333	509.7768	839.10	. Q	V	.	.	.
11.417	515.6158	847.83	. Q	V	.	.	.
11.500	521.5183	857.04	. Q	V	.	.	.
11.583	527.4872	866.68	. Q	V	.	.	.
11.667	533.5251	876.71	. Q	V	.	.	.
11.750	539.6347	887.11	. Q	V	.	.	.
11.833	545.8183	897.86	. Q	V	.	.	.
11.917	552.0784	908.96	. Q	V	.	.	.
12.000	558.4175	920.43	. Q	V	.	.	.
12.083	564.8340	931.69	. Q	V	.	.	.
12.167	571.3136	940.83	. Q	V	.	.	.
12.250	577.8117	943.53	. Q	V	.	.	.
12.333	584.2590	936.15	. Q	V	.	.	.
12.417	590.5884	919.03	. Q	V	.	.	.
12.500	596.7682	897.31	. Q	V	.	.	.
12.583	602.8177	878.39	. Q	V	.	.	.
12.667	608.7858	866.57	. Q	V	.	.	.
12.750	614.7212	861.82	. Q	V	.	.	.
12.833	620.6614	862.51	. Q	V	.	.	.
12.917	626.6338	867.19	. Q	V	.	.	.
13.000	632.6591	874.88	. Q	V	.	.	.
13.083	638.7536	884.92	. Q	V	.	.	.
13.167	644.9304	896.86	. Q	V	.	.	.
13.250	651.2005	910.42	. Q	V	.	.	.
13.333	657.5738	925.40	. Q	V	.	.	.
13.417	664.0597	941.75	. Q	.V	.	.	.
13.500	670.6672	959.42	. Q	.V	.	.	.
13.583	677.4055	978.39	. Q	.V	.	.	.
13.667	684.2835	998.69	. Q	.V	.	.	.
13.750	691.3107	1020.34	. Q	.V	.	.	.
13.833	698.4964	1043.37	. Q	.V	.	.	.
13.917	705.8508	1067.86	. Q	.V	.	.	.
14.000	713.3842	1093.84	. Q	.V	.	.	.
14.083	721.1084	1121.56	. Q	. V	.	.	.
14.167	729.0392	1151.55	. Q	. V	.	.	.
14.250	737.1999	1184.93	. Q	. V	.	.	.
14.333	745.6210	1222.74	. Q	. V	.	.	.
14.417	754.3362	1265.45	. Q	. V	.	.	.
14.500	763.3755	1312.51	. Q	. V	.	.	.
14.583	772.7600	1362.63	. Q	. V	.	.	.
14.667	782.5029	1414.68	. Q	. V	.	.	.
14.750	792.6169	1468.55	. Q	. V	.	.	.
14.833	803.1187	1524.85	. Q	. V	.	.	.
14.917	814.0320	1584.62	. Q	. V	.	.	.
15.000	825.3880	1648.89	. Q	. V	.	.	.
15.083	837.2252	1718.75	. Q	. V	.	.	.
15.167	849.5894	1795.29	. Q	. V	.	.	.

15.250	862.5364	1879.90	. Q . V . . .
15.333	876.1324	1974.14	. Q . V . . .
15.417	890.4468	2078.45	. Q . V . . .
15.500	905.5249	2189.34	. Q . V . . .
15.583	921.3402	2296.38	. Q . V . . .
15.667	937.8083	2391.17	. Q . V . . .
15.750	954.9020	2482.00	. Q . V . . .
15.833	972.8231	2602.13	. Q . V . . .
15.917	992.2445	2819.99	. Q . V . . .
16.000	1014.4329	3221.75	. Q . V . . .
16.083	1042.3079	4047.45	. Q V . . .
16.167	1079.8395	5449.59	. Q V . . .
16.250	1132.5513	7653.74	. VQ. . .
16.333	1205.3011	10563.28	. V Q . .
16.417	1299.6284	13696.32	. .V . Q .
16.500	1405.2522	15336.58	. . V . Q.
16.583	1505.2965	14526.43	. . V . Q .
16.667	1589.5515	12233.83	. . V .Q .
16.750	1657.7802	9906.79	. . Q V . .
16.833	1712.6686	7969.80	. Q V . .
16.917	1757.0287	6441.08	. Q . V. .
17.000	1794.1904	5395.89	. Q . V. .
17.083	1826.5654	4700.84	. Q . V .
17.167	1855.3186	4174.97	. Q . V .
17.250	1881.1500	3750.72	. Q. . .V .
17.333	1904.5887	3403.30	. Q . . .V .
17.417	1925.9596	3103.05	. Q . . . V .
17.500	1945.5171	2839.76	. Q . . . V .
17.583	1963.5210	2614.17	. Q . . . V .
17.667	1980.1661	2416.87	. Q . . . V .
17.750	1994.4858	2079.21	. Q . . . V .
17.833	2006.8149	1790.18	. Q . . . V .
17.917	2017.9789	1621.00	. Q . . . V .
18.000	2028.3859	1511.09	. Q . . . V .
18.083	2038.1362	1415.75	. Q . . . V .
18.167	2047.2623	1325.11	. Q . . . V .
18.250	2055.8459	1246.36	. Q . . . V .
18.333	2064.0320	1188.60	. Q . . . V .
18.417	2071.9163	1144.79	. Q . . . V .
18.500	2079.5027	1101.54	. Q . . . V .
18.583	2086.8062	1060.45	. Q . . . V .
18.667	2093.9021	1030.32	. Q . . . V .
18.750	2100.8376	1007.05	. Q . . . V .
18.833	2107.6177	984.46	. Q . . . V .
18.917	2114.2451	962.32	. Q . . . V .
19.000	2120.7302	941.65	. Q . . . V .
19.083	2127.0781	921.73	. Q . . . V .
19.167	2133.2939	902.53	. Q . . . V .
19.250	2139.3801	883.73	. Q . . . V .
19.333	2145.3354	864.72	. Q . . . V .
19.417	2151.1016	837.24	. Q . . . V .
19.500	2156.7166	815.31	. Q . . . V .
19.583	2162.2236	799.62	. Q . . . V .
19.667	2167.6353	785.78	. Q . . . V .
19.750	2172.9561	772.56	. Q . . . V .
19.833	2178.1897	759.91	.Q . . . V .
19.917	2183.3398	747.80	.Q . . . V .

20.000	2188.4104	736.24	.Q	.	.	.	V	.
20.083	2193.4048	725.17	.Q	.	.	.	V	.
20.167	2198.3259	714.54	.Q	.	.	.	V	.
20.250	2203.1765	704.30	.Q	.	.	.	V	.
20.333	2207.9590	694.42	.Q	.	.	.	V	.
20.417	2212.6758	684.89	.Q	.	.	.	V	.
20.500	2217.3289	675.64	.Q	.	.	.	V	.
20.583	2221.9199	666.63	.Q	.	.	.	V	.
20.667	2226.4509	657.90	.Q	.	.	.	V	.
20.750	2230.9238	649.47	.Q	.	.	.	V	.
20.833	2235.3406	641.33	.Q	.	.	.	V	.
20.917	2239.7031	633.46	.Q	.	.	.	V	.
21.000	2244.0134	625.85	.Q	.	.	.	V	.
21.083	2248.2732	618.50	.Q	.	.	.	V	.
21.167	2252.4839	611.39	.Q	.	.	.	V	.
21.250	2256.6470	604.50	.Q	.	.	.	V	.
21.333	2260.7642	597.82	.Q	.	.	.	V	.
21.417	2264.8364	591.30	.Q	.	.	.	V	.
21.500	2268.8650	584.93	.Q	.	.	.	V	.
21.583	2272.8508	578.73	.Q	.	.	.	V	.
21.667	2276.7952	572.71	.Q	.	.	.	V	.
21.750	2280.6992	566.87	.Q	.	.	.	V	.
21.833	2284.5642	561.18	.Q	.	.	.	V	.
21.917	2288.3909	555.64	.Q	.	.	.	V	.
22.000	2292.1804	550.25	.Q	.	.	.	V	.
22.083	2295.9338	544.99	.Q	.	.	.	V	.
22.167	2299.6519	539.87	.Q	.	.	.	V	.
22.250	2303.3354	534.87	.Q	.	.	.	V	.
22.333	2306.9856	530.00	.Q	.	.	.	V	.
22.417	2310.6030	525.24	.Q	.	.	.	V	.
22.500	2314.1882	520.59	.Q	.	.	.	V	.
22.583	2317.7422	516.05	.Q	.	.	.	V	.
22.667	2321.2656	511.61	.Q	.	.	.	V	.
22.750	2324.7593	507.28	.Q	.	.	.	V	.
22.833	2328.2236	503.03	.Q	.	.	.	V	.
22.917	2331.6594	498.89	.Q	.	.	.	V	.
23.000	2335.0674	494.83	.Q	.	.	.	V	.
23.083	2338.4480	490.86	.Q	.	.	.	V	.
23.167	2341.8018	486.97	.Q	.	.	.	V	.
23.250	2345.1294	483.16	.Q	.	.	.	V	.
23.333	2348.4312	479.43	.Q	.	.	.	V	.
23.417	2351.7078	475.78	.Q	.	.	.	V	.
23.500	2354.9597	472.20	.Q	.	.	.	V	.
23.583	2358.1875	468.68	.Q	.	.	.	V	.
23.667	2361.3916	465.24	.Q	.	.	.	V	.
23.750	2364.5725	461.87	.Q	.	.	.	V	.
23.833	2367.7307	458.56	.Q	.	.	.	V	.
23.917	2370.8665	455.31	.Q	.	.	.	V	.
24.000	2373.9802	452.12	.Q	.	.	.	V	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
==========	=========

0%	1445.0
10%	185.0
20%	90.0
30%	60.0
40%	45.0
50%	35.0
60%	30.0
70%	20.0
80%	15.0
90%	10.0

END OF FLOODSCx ROUTING ANALYSIS

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**************************************************************************

          F L O O D    R O U T I N G    A N A L Y S I S
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                        Analysis prepared by:

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                          8253 Sierra Avenue
                          Fontana Ca. 92335


 ************************** DESCRIPTION OF STUDY **************************
* Hacienda Hydrograph Routing                                             *
* Developed Condition Tributary to Cahuilla                               *
* 100 YEAR STORM EVENT, Single Calibration by: RRA                        *
 **************************************************************************

  FILE NAME: 1WTRSHED.DAT
  TIME/DATE OF STUDY: 17:54 06/01/2009


**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    111.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =     9737.700 ACRES
         BASEFLOW =    0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =     0.460 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.121
         LOW LOSS FRACTION = 0.133
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.03
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.22
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  1.70
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.10
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.60

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.676
          30-MINUTE FACTOR = 0.681
           1-HOUR FACTOR = 0.682
           3-HOUR FACTOR = 0.943
           6-HOUR FACTOR = 0.970
```

24-HOUR FACTOR = 0.981

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 18.116

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.867	1020.718
2	3.844	3505.908
3	9.080	6166.351
4	20.132	13015.400
5	36.796	19624.830
6	49.518	14981.460
7	58.457	10526.860
8	64.618	7256.297
9	69.439	5677.366
10	73.395	4658.824
11	76.648	3830.302
12	79.399	3240.666
13	81.718	2730.654
14	83.709	2344.102
15	85.517	2130.175
16	87.159	1933.174
17	88.578	1670.998
18	89.722	1346.792
19	90.768	1232.451
20	91.749	1155.263
21	92.623	1028.928
22	93.438	959.610
23	94.158	848.388
24	94.775	726.114
25	95.389	723.194
26	95.911	614.900
27	96.382	554.586
28	96.841	541.126
29	97.194	414.926
30	97.520	383.938
31	97.816	349.158
32	98.007	224.476
33	98.188	213.308
34	98.383	229.804
35	98.600	255.707
36	98.817	255.967
37	99.035	255.958
38	99.252	255.958
39	99.470	255.958
40	99.687	255.958
41	99.904	255.958
42	100.000	112.795

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0049	0.0006	0.0042
2	0.0049	0.0006	0.0042
3	0.0049	0.0007	0.0043
4	0.0049	0.0007	0.0043
5	0.0049	0.0007	0.0043
6	0.0049	0.0007	0.0043
7	0.0050	0.0007	0.0043
8	0.0050	0.0007	0.0043
9	0.0050	0.0007	0.0043
10	0.0050	0.0007	0.0043
11	0.0050	0.0007	0.0044
12	0.0050	0.0007	0.0044
13	0.0051	0.0007	0.0044
14	0.0051	0.0007	0.0044
15	0.0051	0.0007	0.0044
16	0.0051	0.0007	0.0044
17	0.0051	0.0007	0.0045
18	0.0052	0.0007	0.0045
19	0.0052	0.0007	0.0045
20	0.0052	0.0007	0.0045
21	0.0052	0.0007	0.0045
22	0.0052	0.0007	0.0045
23	0.0052	0.0007	0.0045
24	0.0053	0.0007	0.0046
25	0.0053	0.0007	0.0046
26	0.0053	0.0007	0.0046
27	0.0053	0.0007	0.0046
28	0.0053	0.0007	0.0046
29	0.0054	0.0007	0.0046
30	0.0054	0.0007	0.0047
31	0.0054	0.0007	0.0047
32	0.0054	0.0007	0.0047
33	0.0054	0.0007	0.0047
34	0.0055	0.0007	0.0047
35	0.0055	0.0007	0.0048
36	0.0055	0.0007	0.0048
37	0.0055	0.0007	0.0048
38	0.0055	0.0007	0.0048
39	0.0056	0.0007	0.0048
40	0.0056	0.0007	0.0048
41	0.0056	0.0007	0.0049
42	0.0056	0.0007	0.0049
43	0.0057	0.0008	0.0049
44	0.0057	0.0008	0.0049
45	0.0057	0.0008	0.0049
46	0.0057	0.0008	0.0050
47	0.0058	0.0008	0.0050
48	0.0058	0.0008	0.0050
49	0.0058	0.0008	0.0050
50	0.0058	0.0008	0.0050
51	0.0058	0.0008	0.0051

52	0.0059	0.0008	0.0051
53	0.0059	0.0008	0.0051
54	0.0059	0.0008	0.0051
55	0.0060	0.0008	0.0052
56	0.0060	0.0008	0.0052
57	0.0060	0.0008	0.0052
58	0.0060	0.0008	0.0052
59	0.0061	0.0008	0.0053
60	0.0061	0.0008	0.0053
61	0.0061	0.0008	0.0053
62	0.0061	0.0008	0.0053
63	0.0062	0.0008	0.0053
64	0.0062	0.0008	0.0054
65	0.0062	0.0008	0.0054
66	0.0062	0.0008	0.0054
67	0.0063	0.0008	0.0055
68	0.0063	0.0008	0.0055
69	0.0063	0.0008	0.0055
70	0.0064	0.0008	0.0055
71	0.0064	0.0009	0.0056
72	0.0064	0.0009	0.0056
73	0.0065	0.0009	0.0056
74	0.0065	0.0009	0.0056
75	0.0065	0.0009	0.0057
76	0.0066	0.0009	0.0057
77	0.0066	0.0009	0.0057
78	0.0066	0.0009	0.0058
79	0.0067	0.0009	0.0058
80	0.0067	0.0009	0.0058
81	0.0068	0.0009	0.0059
82	0.0068	0.0009	0.0059
83	0.0068	0.0009	0.0059
84	0.0069	0.0009	0.0059
85	0.0069	0.0009	0.0060
86	0.0069	0.0009	0.0060
87	0.0070	0.0009	0.0061
88	0.0070	0.0009	0.0061
89	0.0071	0.0009	0.0061
90	0.0071	0.0009	0.0061
91	0.0071	0.0010	0.0062
92	0.0072	0.0010	0.0062
93	0.0072	0.0010	0.0063
94	0.0073	0.0010	0.0063
95	0.0073	0.0010	0.0063
96	0.0074	0.0010	0.0064
97	0.0074	0.0010	0.0064
98	0.0074	0.0010	0.0065
99	0.0075	0.0010	0.0065
100	0.0075	0.0010	0.0065
101	0.0076	0.0010	0.0066
102	0.0076	0.0010	0.0066
103	0.0077	0.0010	0.0067
104	0.0077	0.0010	0.0067
105	0.0078	0.0010	0.0068
106	0.0078	0.0010	0.0068
107	0.0079	0.0011	0.0069
108	0.0080	0.0011	0.0069

109	0.0080	0.0011	0.0070
110	0.0081	0.0011	0.0070
111	0.0082	0.0011	0.0071
112	0.0082	0.0011	0.0071
113	0.0083	0.0011	0.0072
114	0.0083	0.0011	0.0072
115	0.0084	0.0011	0.0073
116	0.0084	0.0011	0.0073
117	0.0085	0.0011	0.0074
118	0.0086	0.0011	0.0074
119	0.0087	0.0012	0.0075
120	0.0087	0.0012	0.0076
121	0.0088	0.0012	0.0076
122	0.0089	0.0012	0.0077
123	0.0090	0.0012	0.0078
124	0.0090	0.0012	0.0078
125	0.0091	0.0012	0.0079
126	0.0092	0.0012	0.0080
127	0.0093	0.0012	0.0081
128	0.0094	0.0012	0.0081
129	0.0095	0.0013	0.0082
130	0.0095	0.0013	0.0083
131	0.0097	0.0013	0.0084
132	0.0097	0.0013	0.0084
133	0.0099	0.0013	0.0085
134	0.0099	0.0013	0.0086
135	0.0101	0.0013	0.0087
136	0.0101	0.0013	0.0088
137	0.0103	0.0014	0.0089
138	0.0103	0.0014	0.0090
139	0.0105	0.0014	0.0091
140	0.0106	0.0014	0.0092
141	0.0107	0.0014	0.0093
142	0.0108	0.0014	0.0094
143	0.0110	0.0015	0.0095
144	0.0111	0.0015	0.0096
145	0.0099	0.0013	0.0085
146	0.0099	0.0013	0.0086
147	0.0101	0.0013	0.0088
148	0.0102	0.0014	0.0089
149	0.0104	0.0014	0.0090
150	0.0105	0.0014	0.0091
151	0.0108	0.0014	0.0093
152	0.0109	0.0014	0.0094
153	0.0111	0.0015	0.0096
154	0.0112	0.0015	0.0097
155	0.0115	0.0015	0.0100
156	0.0116	0.0015	0.0101
157	0.0119	0.0016	0.0103
158	0.0121	0.0016	0.0105
159	0.0124	0.0016	0.0107
160	0.0125	0.0017	0.0109
161	0.0129	0.0017	0.0112
162	0.0130	0.0017	0.0113
163	0.0134	0.0018	0.0116
164	0.0136	0.0018	0.0118
165	0.0141	0.0019	0.0122

166	0.0143	0.0019	0.0124
167	0.0148	0.0020	0.0128
168	0.0150	0.0020	0.0130
169	0.0267	0.0035	0.0231
170	0.0270	0.0036	0.0234
171	0.0276	0.0037	0.0240
172	0.0280	0.0037	0.0243
173	0.0288	0.0038	0.0249
174	0.0292	0.0039	0.0253
175	0.0300	0.0040	0.0260
176	0.0305	0.0041	0.0264
177	0.0315	0.0042	0.0273
178	0.0321	0.0043	0.0278
179	0.0333	0.0044	0.0289
180	0.0340	0.0045	0.0295
181	0.0355	0.0047	0.0308
182	0.0364	0.0048	0.0315
183	0.0383	0.0051	0.0332
184	0.0394	0.0052	0.0342
185	0.0178	0.0024	0.0154
186	0.0191	0.0025	0.0165
187	0.0223	0.0030	0.0194
188	0.0246	0.0033	0.0213
189	0.0380	0.0050	0.0329
190	0.0437	0.0058	0.0379
191	0.0660	0.0088	0.0572
192	0.0957	0.0101	0.0856
193	0.4056	0.0101	0.3955
194	0.0521	0.0069	0.0451
195	0.0273	0.0036	0.0237
196	0.0205	0.0027	0.0178
197	0.0407	0.0054	0.0353
198	0.0373	0.0050	0.0323
199	0.0347	0.0046	0.0301
200	0.0327	0.0043	0.0283
201	0.0310	0.0041	0.0269
202	0.0296	0.0039	0.0256
203	0.0284	0.0038	0.0246
204	0.0273	0.0036	0.0237
205	0.0153	0.0020	0.0133
206	0.0145	0.0019	0.0126
207	0.0138	0.0018	0.0120
208	0.0132	0.0018	0.0115
209	0.0127	0.0017	0.0110
210	0.0122	0.0016	0.0106
211	0.0118	0.0016	0.0102
212	0.0114	0.0015	0.0098
213	0.0110	0.0015	0.0095
214	0.0106	0.0014	0.0092
215	0.0103	0.0014	0.0090
216	0.0100	0.0013	0.0087
217	0.0112	0.0015	0.0097
218	0.0109	0.0015	0.0095
219	0.0107	0.0014	0.0092
220	0.0104	0.0014	0.0090
221	0.0102	0.0014	0.0088
222	0.0100	0.0013	0.0087

223	0.0098	0.0013	0.0085
224	0.0096	0.0013	0.0083
225	0.0094	0.0013	0.0082
226	0.0092	0.0012	0.0080
227	0.0091	0.0012	0.0079
228	0.0089	0.0012	0.0077
229	0.0088	0.0012	0.0076
230	0.0086	0.0011	0.0075
231	0.0085	0.0011	0.0074
232	0.0084	0.0011	0.0072
233	0.0082	0.0011	0.0071
234	0.0081	0.0011	0.0070
235	0.0080	0.0011	0.0069
236	0.0079	0.0010	0.0068
237	0.0078	0.0010	0.0067
238	0.0077	0.0010	0.0067
239	0.0076	0.0010	0.0066
240	0.0075	0.0010	0.0065
241	0.0074	0.0010	0.0064
242	0.0073	0.0010	0.0063
243	0.0072	0.0010	0.0062
244	0.0071	0.0009	0.0062
245	0.0070	0.0009	0.0061
246	0.0070	0.0009	0.0060
247	0.0069	0.0009	0.0060
248	0.0068	0.0009	0.0059
249	0.0067	0.0009	0.0058
250	0.0067	0.0009	0.0058
251	0.0066	0.0009	0.0057
252	0.0065	0.0009	0.0057
253	0.0065	0.0009	0.0056
254	0.0064	0.0009	0.0055
255	0.0063	0.0008	0.0055
256	0.0063	0.0008	0.0054
257	0.0062	0.0008	0.0054
258	0.0062	0.0008	0.0053
259	0.0061	0.0008	0.0053
260	0.0060	0.0008	0.0052
261	0.0060	0.0008	0.0052
262	0.0059	0.0008	0.0051
263	0.0059	0.0008	0.0051
264	0.0058	0.0008	0.0051
265	0.0058	0.0008	0.0050
266	0.0057	0.0008	0.0050
267	0.0057	0.0008	0.0049
268	0.0056	0.0008	0.0049
269	0.0056	0.0007	0.0049
270	0.0056	0.0007	0.0048
271	0.0055	0.0007	0.0048
272	0.0055	0.0007	0.0047
273	0.0054	0.0007	0.0047
274	0.0054	0.0007	0.0047
275	0.0053	0.0007	0.0046
276	0.0053	0.0007	0.0046
277	0.0053	0.0007	0.0046
278	0.0052	0.0007	0.0045
279	0.0052	0.0007	0.0045

280	0.0052	0.0007	0.0045
281	0.0051	0.0007	0.0044
282	0.0051	0.0007	0.0044
283	0.0051	0.0007	0.0044
284	0.0050	0.0007	0.0044
285	0.0050	0.0007	0.0043
286	0.0050	0.0007	0.0043
287	0.0049	0.0007	0.0043
288	0.0049	0.0007	0.0042

TOTAL STORM RAINFALL(INCHES) = 3.53
TOTAL SOIL-LOSS(INCHES) = 0.42
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.11

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 343.5460
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 2521.9436

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2950.0	5900.0	8850.0	11800.0
0.083	0.0297	4.31	Q	.	.	.	.
0.167	0.1615	19.14	Q	.	.	.	.
0.250	0.4732	45.26	Q	.	.	.	.
0.333	1.1647	100.40	Q	.	.	.	.
0.417	2.4293	183.62	Q	.	.	.	.
0.500	4.1337	247.48	Q	.	.	.	.
0.583	6.1499	292.75	Q	.	.	.	.
0.667	8.3835	324.33	VQ	.	.	.	.
0.750	10.7895	349.36	VQ	.	.	.	.
0.833	13.3388	370.15	VQ	.	.	.	.
0.917	16.0078	387.53	VQ	.	.	.	.
1.000	18.7796	402.47	VQ	.	.	.	.
1.083	21.6400	415.33	VQ	.	.	.	.
1.167	24.5778	426.58	VQ	.	.	.	.
1.250	27.5874	436.99	VQ	.	.	.	.
1.333	30.6631	446.59	VQ	.	.	.	.
1.417	33.7976	455.14	VQ	.	.	.	.
1.500	36.9818	462.33	VQ	.	.	.	.
1.583	40.2124	469.10	VQ	.	.	.	.
1.667	43.4876	475.55	VQ	.	.	.	.
1.750	46.8037	481.51	VQ	.	.	.	.
1.833	50.1590	487.19	VQ	.	.	.	.
1.917	53.5505	492.45	VQ	.	.	.	.
2.000	56.9748	497.20	VQ	.	.	.	.
2.083	60.4319	501.98	VQ	.	.	.	.
2.167	63.9189	506.31	.Q	.	.	.	.
2.250	67.4342	510.43	.Q	.	.	.	.
2.333	70.9776	514.49	.Q	.	.	.	.
2.417	74.5455	518.07	.Q	.	.	.	.
2.500	78.1373	521.52	.Q	.	.	.	.
2.583	81.7520	524.86	.Q	.	.	.	.
2.667	85.3862	527.68	.Q	.	.	.	.
2.750	89.0397	530.49	.Q	.	.	.	.
2.833	92.7131	533.38	.Q	.	.	.	.
2.917	96.4074	536.41	.Q	.	.	.	.
3.000	100.1226	539.45	.Q	.	.	.	.
3.083	103.8590	542.53	.Q	.	.	.	.
3.167	107.6167	545.61	.Q	.	.	.	.
3.250	111.3959	548.74	.Q	.	.	.	.
3.333	115.1967	551.87	.Q	.	.	.	.
3.417	119.0193	555.05	.Q	.	.	.	.
3.500	122.8597	557.62	.Q	.	.	.	.
3.583	126.7148	559.76	.QV	.	.	.	.
3.667	130.5847	561.91	.QV	.	.	.	.
3.750	134.4696	564.09	.QV	.	.	.	.

3.833	138.3696	566.28	.QV	.	.	.	.
3.917	142.2850	568.51	.QV	.	.	.	.
4.000	146.2157	570.75	.QV	.	.	.	.
4.083	150.1622	573.02	.QV	.	.	.	.
4.167	154.1243	575.31	.QV	.	.	.	.
4.250	158.1025	577.63	.QV	.	.	.	.
4.333	162.0967	579.96	.QV	.	.	.	.
4.417	166.1073	582.34	.QV	.	.	.	.
4.500	170.1344	584.72	.QV	.	.	.	.
4.583	174.1781	587.15	.QV	.	.	.	.
4.667	178.2387	589.59	.QV	.	.	.	.
4.750	182.3163	592.08	. Q	.	.	.	.
4.833	186.4111	594.57	. Q	.	.	.	.
4.917	190.5234	597.11	. QV	.	.	.	.
5.000	194.6533	599.65	. QV	.	.	.	.
5.083	198.8010	602.25	. QV	.	.	.	.
5.167	202.9667	604.86	. QV	.	.	.	.
5.250	207.1508	607.52	. QV	.	.	.	.
5.333	211.3532	610.19	. QV	.	.	.	.
5.417	215.5744	612.91	. QV	.	.	.	.
5.500	219.8143	615.65	. QV	.	.	.	.
5.583	224.0736	618.44	. QV	.	.	.	.
5.667	228.3521	621.24	. QV	.	.	.	.
5.750	232.6502	624.10	. QV	.	.	.	.
5.833	236.9681	626.96	. QV	.	.	.	.
5.917	241.3062	629.89	. QV	.	.	.	.
6.000	245.6645	632.83	. QV	.	.	.	.
6.083	250.0435	635.83	. QV	.	.	.	.
6.167	254.4432	638.84	. Q V	.	.	.	.
6.250	258.8642	641.92	. Q V	.	.	.	.
6.333	263.3064	645.01	. Q V	.	.	.	.
6.417	267.7704	648.17	. Q V	.	.	.	.
6.500	272.2563	651.34	. Q V	.	.	.	.
6.583	276.7645	654.59	. Q V	.	.	.	.
6.667	281.2951	657.85	. Q V	.	.	.	.
6.750	285.8487	661.18	. Q V	.	.	.	.
6.833	290.4253	664.53	. Q V	.	.	.	.
6.917	295.0255	667.95	. Q V	.	.	.	.
7.000	299.6494	671.38	. Q V	.	.	.	.
7.083	304.2974	674.90	. Q V	.	.	.	.
7.167	308.9698	678.43	. Q V	.	.	.	.
7.250	313.6671	682.05	. Q V	.	.	.	.
7.333	318.3895	685.69	. Q V	.	.	.	.
7.417	323.1376	689.42	. Q V	.	.	.	.
7.500	327.9114	693.15	. Q V	.	.	.	.
7.583	332.7116	696.99	. Q V	.	.	.	.
7.667	337.5383	700.84	. Q V	.	.	.	.
7.750	342.3922	704.79	. Q V	.	.	.	.
7.833	347.2734	708.75	. Q V	.	.	.	.
7.917	352.1826	712.82	. Q V	.	.	.	.
8.000	357.1200	716.91	. Q V	.	.	.	.
8.083	362.0864	721.11	. Q V	.	.	.	.
8.167	367.0818	725.33	. Q V	.	.	.	.
8.250	372.1070	729.66	. Q V	.	.	.	.
8.333	377.1621	734.01	. Q V	.	.	.	.
8.417	382.2481	738.48	. Q V	.	.	.	.
8.500	387.3651	742.98	. Q V	.	.	.	.

8.583	392.5139	747.60	.	Q	V	.	.	.
8.667	397.6946	752.25	.	Q	V	.	.	.
8.750	402.9083	757.03	.	Q	V	.	.	.
8.833	408.1551	761.83	.	Q	V	.	.	.
8.917	413.4359	766.77	.	Q	V	.	.	.
9.000	418.7510	771.75	.	Q	V	.	.	.
9.083	424.1012	776.86	.	Q	V	.	.	.
9.167	429.4870	782.01	.	Q	V	.	.	.
9.250	434.9092	787.31	.	Q	V	.	.	.
9.333	440.3682	792.65	.	Q	V	.	.	.
9.417	445.8651	798.14	.	Q	V	.	.	.
9.500	451.4001	803.68	.	Q	V	.	.	.
9.583	456.9744	809.39	.	Q	V	.	.	.
9.667	462.5883	815.14	.	Q	V	.	.	.
9.750	468.2429	821.06	.	Q	V	.	.	.
9.833	473.9388	827.04	.	Q	V	.	.	.
9.917	479.6771	833.20	.	Q	V	.	.	.
10.000	485.4582	839.41	.	Q	V	.	.	.
10.083	491.2834	845.82	.	Q	V	.	.	.
10.167	497.1532	852.30	.	Q	V	.	.	.
10.250	503.0691	858.98	.	Q	V	.	.	.
10.333	509.0314	865.73	.	Q	V	.	.	.
10.417	515.0416	872.69	.	Q	V	.	.	.
10.500	521.1004	879.74	.	Q	V	.	.	.
10.583	527.2093	887.01	.	Q	V	.	.	.
10.667	533.3688	894.37	.	Q	V	.	.	.
10.750	539.5807	901.97	.	Q	V	.	.	.
10.833	545.8457	909.67	.	Q	V	.	.	.
10.917	552.1655	917.63	.	Q	V	.	.	.
11.000	558.5408	925.69	.	Q	V	.	.	.
11.083	564.9735	934.03	.	Q	V	.	.	.
11.167	571.4645	942.49	.	Q	V	.	.	.
11.250	578.0157	951.25	.	Q	V	.	.	.
11.333	584.6282	960.13	.	Q	V	.	.	.
11.417	591.3041	969.34	.	Q	V	.	.	.
11.500	598.0444	978.69	.	Q	V	.	.	.
11.583	604.8515	988.38	.	Q	V	.	.	.
11.667	611.7264	998.24	.	Q	V	.	.	.
11.750	618.6718	1008.47	.	Q	V	.	.	.
11.833	625.6888	1018.87	.	Q	V	.	.	.
11.917	632.7803	1029.68	.	Q	V	.	.	.
12.000	639.9476	1040.69	.	Q	V	.	.	.
12.083	647.1849	1050.87	.	Q	V	.	.	.
12.167	654.4727	1058.18	.	Q	V	.	.	.
12.250	661.7913	1062.65	.	Q	V	.	.	.
12.333	669.0835	1058.83	.	Q	V	.	.	.
12.417	676.2961	1047.26	.	Q	V	.	.	.
12.500	683.4697	1041.61	.	Q	V	.	.	.
12.583	690.6456	1041.94	.	Q	V	.	.	.
12.667	697.8534	1046.58	.	Q	.V	.	.	.
12.750	705.1107	1053.75	.	Q	.V	.	.	.
12.833	712.4283	1062.52	.	Q	.V	.	.	.
12.917	719.8179	1072.97	.	Q	.V	.	.	.
13.000	727.2872	1084.54	.	Q	.V	.	.	.
13.083	734.8457	1097.50	.	Q	.V	.	.	.
13.167	742.4999	1111.39	.	Q	.V	.	.	.
13.250	750.2576	1126.41	.	Q	.V	.	.	.

13.333	758.1240	1142.21	. Q . V . . .
13.417	766.1082	1159.31	. Q . V . . .
13.500	774.2173	1177.44	. Q . V . . .
13.583	782.4599	1196.83	. Q . V . . .
13.667	790.8419	1217.07	. Q . V . . .
13.750	799.3732	1238.74	. Q . V . . .
13.833	808.0605	1261.40	. Q . V . . .
13.917	816.9151	1285.69	. Q . V . . .
14.000	825.9454	1311.20	. Q . V . . .
14.083	835.2313	1348.30	. Q . V . . .
14.167	844.9476	1410.80	. Q . V . . .
14.250	855.2861	1501.15	. Q . V . . .
14.333	866.7132	1659.22	. Q . V . . .
14.417	879.6872	1883.82	. Q . V . . .
14.500	893.9163	2066.06	. Q . V . . .
14.583	909.1276	2208.69	. Q . V . . .
14.667	925.1227	2322.49	. Q . V . . .
14.750	941.8222	2424.76	. Q . V . . .
14.833	959.1789	2520.19	. Q . V . . .
14.917	977.1682	2612.05	. Q . V . . .
15.000	995.7772	2702.02	. Q. V . . .
15.083	1015.0106	2792.69	. Q. V . . .
15.167	1034.8774	2884.67	. Q. V . . .
15.250	1055.4144	2981.96	. Q V . . .
15.333	1076.6566	3084.36	. Q V . . .
15.417	1098.5088	3172.93	. Q V . . .
15.500	1120.6595	3216.28	. Q V . . .
15.583	1142.8120	3216.55	. Q V . . .
15.667	1164.0667	3086.17	. Q V . . .
15.750	1183.6431	2842.50	. Q. V . . .
15.833	1202.4872	2736.17	. Q. V. . .
15.917	1221.7190	2792.46	. Q. V. . .
16.000	1242.8428	3067.18	. Q V. . .
16.083	1269.6371	3890.54	. . Q V . .
16.167	1306.1934	5307.98	. . Q V . .
16.250	1353.7457	6904.60	. . .V Q . .
16.333	1420.3516	9671.16	. . . V . Q .
16.417	1501.4893	11781.20	. . . V . Q.
16.500	1569.0249	9806.18	. . . V . Q .
16.583	1622.6981	7793.34	. . . VQ . .
16.667	1666.8853	6415.98	. . .Q V . .
16.750	1707.1737	5849.88	. . Q. V . .
16.833	1744.7386	5454.42	. . Q . V . .
16.917	1779.7397	5082.16	. . Q . V . .
17.000	1812.5231	4760.14	. . Q . V . .
17.083	1843.2281	4458.38	. . Q . V. .
17.167	1872.0334	4182.54	. . Q . V. .
17.250	1899.1986	3944.38	. . Q . V .
17.333	1924.3262	3648.52	. . Q . V .
17.417	1946.8320	3267.85	. .Q . V .
17.500	1966.9626	2922.97	. Q. . .V .
17.583	1985.5719	2702.06	. Q. . .V .
17.667	2003.0123	2532.35	. Q . . .V .
17.750	2019.3190	2367.73	. Q . . . V .
17.833	2034.6805	2230.50	. Q . . . V .
17.917	2049.0913	2092.45	. Q . . . V .
18.000	2062.6284	1965.60	. Q . . . V .

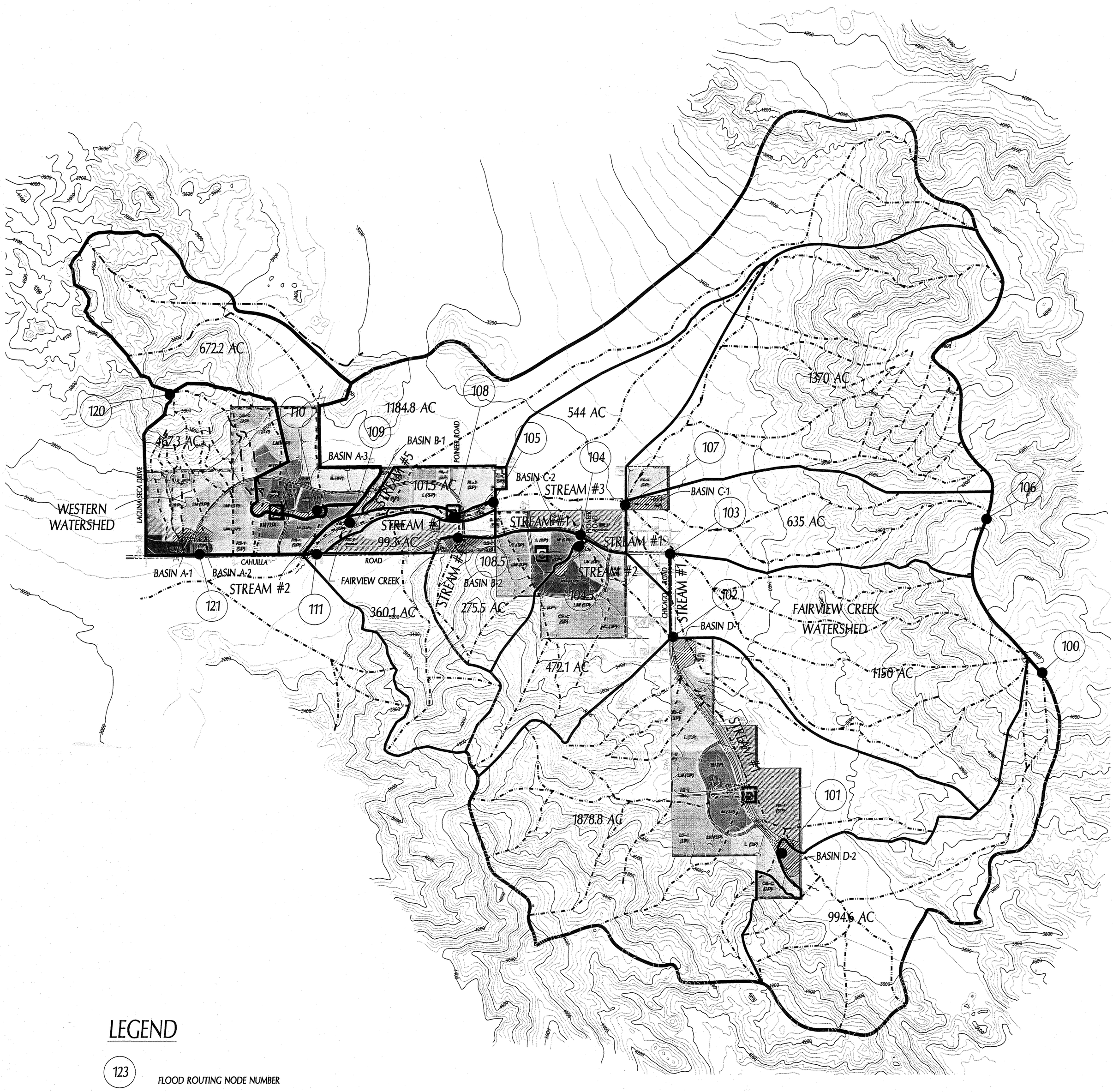
18.083	2075.6125	1885.29	.	Q	.	.	.	V	.	
18.167	2087.8779	1780.94	.	Q	.	.	.	V	.	
18.250	2099.5779	1698.82	.	Q	.	.	.	V	.	
18.333	2110.8804	1641.13	.	Q	.	.	.	V	.	
18.417	2121.6372	1561.91	.	Q	.	.	.	V	.	
18.500	2132.0510	1512.10	.	Q	.	.	.	V	.	
18.583	2142.0940	1458.25	.	Q	.	.	.	V	.	
18.667	2151.5823	1377.69	.	Q	.	.	.	V	.	
18.750	2160.7959	1337.82	.	Q	.	.	.	V	.	
18.833	2169.8455	1314.00	.	Q	.	.	.	V	.	
18.917	2178.7751	1296.60	.	Q	.	.	.	V	.	
19.000	2187.5168	1269.29	.	Q	.	.	.	V	.	
19.083	2196.0681	1241.63	.	Q	.	.	.	V	.	
19.167	2204.4314	1214.36	.	Q	.	.	.	V	.	
19.250	2212.6074	1187.15	.	Q	.	.	.	V	.	
19.333	2220.5798	1157.59	.	Q	.	.	.	V	.	
19.417	2228.3186	1123.66	.	Q	.	.	.	V	.	
19.500	2235.5015	1042.95	.	Q	.	.	.	V	.	
19.583	2242.2400	978.45	.	Q	.	.	.	V	.	
19.667	2248.8403	958.38	.	Q	.	.	.	V	.	
19.750	2255.3293	942.20	.	Q	.	.	.	V	.	
19.833	2261.6968	924.55	.	Q	.	.	.	V	.	
19.917	2267.9331	905.53	.	Q	.	.	.	V	.	
20.000	2274.0457	887.54	.	Q	.	.	.	V	.	
20.083	2280.0410	870.54	.	Q	.	.	.	V	.	
20.167	2285.9243	854.26	.	Q	.	.	.	V	.	
20.250	2291.7004	838.68	.	Q	.	.	.	V	.	
20.333	2297.3738	823.76	.	Q	.	.	.	V	.	
20.417	2302.9475	809.31	.	Q	.	.	.	V	.	
20.500	2308.4348	796.77	.	Q	.	.	.	V	.	
20.583	2313.8464	785.78	.	Q	.	.	.	V	.	
20.667	2319.1846	775.11	.	Q	.	.	.	V	.	
20.750	2324.4521	764.85	.	Q	.	.	.	V	.	
20.833	2329.6521	755.02	.	Q	.	.	.	V	.	
20.917	2334.7871	745.59	.	Q	.	.	.	V	.	
21.000	2339.8596	736.52	.	Q	.	.	.	V	.	
21.083	2344.8718	727.76	.	Q	.	.	.	V	.	
21.167	2349.8257	719.31	.	Q	.	.	.	V	.	
21.250	2354.7234	711.15	.	Q	.	.	.	V	.	
21.333	2359.5669	703.27	.	Q	.	.	.	V	.	
21.417	2364.3577	695.63	.	Q	.	.	.	V	.	
21.500	2369.0964	688.07	.	Q	.	.	.	V	.	
21.583	2373.7837	680.59	.	Q	.	.	.	V	.	
21.667	2378.4209	673.33	.	Q	.	.	.	V	.	
21.750	2383.0098	666.29	.	Q	.	.	.	V	.	
21.833	2387.5513	659.44	.	Q	.	.	.	V	.	
21.917	2392.0471	652.79	.	Q	.	.	.	V	.	
22.000	2396.4983	646.31	.	Q	.	.	.	V	.	
22.083	2400.9060	640.01	.	Q	.	.	.	V	.	
22.167	2405.2715	633.88	.	Q	.	.	.	V	.	
22.250	2409.5959	627.90	.	Q	.	.	.	V	.	
22.333	2413.8801	622.07	.	Q	.	.	.	V	.	
22.417	2418.1252	616.39	.	Q	.	.	.	V	.	
22.500	2422.3323	610.85	.	Q	.	.	.	V	.	
22.583	2426.5020	605.44	.	Q	.	.	.	V	.	
22.667	2430.6353	600.16	.	Q	.	.	.	V	.	
22.750	2434.7332	595.00	.	Q	.	.	.	V	.	

22.833	2438.7961	589.96	.Q	.	.	.	V .
22.917	2442.8254	585.04	.Q	.	.	.	V .
23.000	2446.8215	580.22	.Q	.	.	.	V .
23.083	2450.7852	575.51	.Q	.	.	.	V .
23.167	2454.7170	570.90	.Q	.	.	.	V .
23.250	2458.6179	566.39	.Q	.	.	.	V .
23.333	2462.4883	561.98	.Q	.	.	.	V.
23.417	2466.3289	557.66	.Q	.	.	.	V.
23.500	2470.1404	553.43	.Q	.	.	.	V.
23.583	2473.9233	549.28	.Q	.	.	.	V.
23.667	2477.6782	545.22	.Q	.	.	.	V.
23.750	2481.4058	541.23	.Q	.	.	.	V.
23.833	2485.1064	537.33	.Q	.	.	.	V.
23.917	2488.7808	533.49	.Q	.	.	.	V.
24.000	2492.4290	529.74	.Q	.	.	.	V.
24.083	2496.0222	521.74	.Q	.	.	.	V.
24.167	2499.4888	503.36	.Q	.	.	.	V.
24.250	2502.7527	473.91	.Q	.	.	.	V.
24.333	2505.6162	415.80	.Q	.	.	.	V.
24.417	2507.8904	330.21	.Q	.	.	.	V.
24.500	2509.7139	264.77	Q	.	.	.	V.
24.583	2511.2190	218.56	Q	.	.	.	V.
24.667	2512.5032	186.45	Q	.	.	.	V.
24.750	2513.6135	161.21	Q	.	.	.	V.
24.833	2514.5808	140.45	Q	.	.	.	V.
24.917	2515.4302	123.32	Q	.	.	.	V.
25.000	2516.1794	108.79	Q	.	.	.	V.
25.083	2516.8442	96.52	Q	.	.	.	V.
25.167	2517.4363	85.97	Q	.	.	.	V.
25.250	2517.9624	76.39	Q	.	.	.	V.
25.333	2518.4287	67.71	Q	.	.	.	V.
25.417	2518.8433	60.19	Q	.	.	.	V.
25.500	2519.2158	54.10	Q	.	.	.	V.
25.583	2519.5500	48.53	Q	.	.	.	V.
25.667	2519.8484	43.32	Q	.	.	.	V.
25.750	2520.1147	38.69	Q	.	.	.	V.
25.833	2520.3516	34.37	Q	.	.	.	V.
25.917	2520.5620	30.56	Q	.	.	.	V.
26.000	2520.7500	27.29	Q	.	.	.	V.
26.083	2520.9158	24.06	Q	.	.	.	V.
26.167	2521.0625	21.30	Q	.	.	.	V.
26.250	2521.1921	18.82	Q	.	.	.	V.
26.333	2521.3052	16.41	Q	.	.	.	V.
26.417	2521.4053	14.55	Q	.	.	.	V.
26.500	2521.4937	12.83	Q	.	.	.	V.
26.583	2521.5713	11.27	Q	.	.	.	V.
26.667	2521.6418	10.25	Q	.	.	.	V.
26.750	2521.7058	9.29	Q	.	.	.	V.
26.833	2521.7627	8.26	Q	.	.	.	V.
26.917	2521.8118	7.12	Q	.	.	.	V.
27.000	2521.8530	6.00	Q	.	.	.	V.
27.083	2521.8867	4.88	Q	.	.	.	V.
27.167	2521.9126	3.77	Q	.	.	.	V.
27.250	2521.9309	2.66	Q	.	.	.	V.
27.333	2521.9417	1.57	Q	.	.	.	V.
27.417	2521.9451	0.48	Q	.	.	.	V

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1645.0
10%	345.0
20%	185.0
30%	80.0
40%	55.0
50%	30.0
60%	20.0
70%	15.0
80%	15.0
90%	5.0

END OF FLOODSCx ROUTING ANALYSIS



LEGEND

- 123 — FLOOD ROUTING NODE NUMBER
- NATURAL DRAINAGE COURSE
- SUBAREA BOUNDARY
- 544 AC — SUBAREA ACREAGE
- DETENTION BASIN

SCALE 1"= 2000'

1000' 0 1000' 2000' 3000'

PREPARED FOR:

STRATA EQUITY GROUP, INC.

HACIENDA AT FAIRVIEW VALLEY

DEVELOPED CONDITION FLOOD ROUTING EXHIBIT

Prepared By:

ALLARD ENGINEERING

Civil Engineering - Land Surveying - Land Planning

8253 Sierra Avenue

Fontana, California 92335

(909) 356-1815 Fax (909) 356-1795

PLOT DATE: June 04, 2009 rayroblesart

Filename: M:\Jobs\23265 Granite Valley\Hacienda\entitlement\HH\Flood Routing Exhibit.dwg