Appendix J1. Master Drainage Study

This page intentionally left blank.

MASTER DRAINAGE STUDY
for
FANITA RANCH VESTING TENTATIVE MAP

City of Santee, California

Prepared for
HomeFed Fanita Rancho, LLC
1903 Wright Place,
Suite 220
Carlsbad, CA 92008

w.o. 2395-0007

January 2020

Hunsaker & Associates
San Diego, Inc.

Alisa S. Vialpando R.C.E. 47945
Vice President

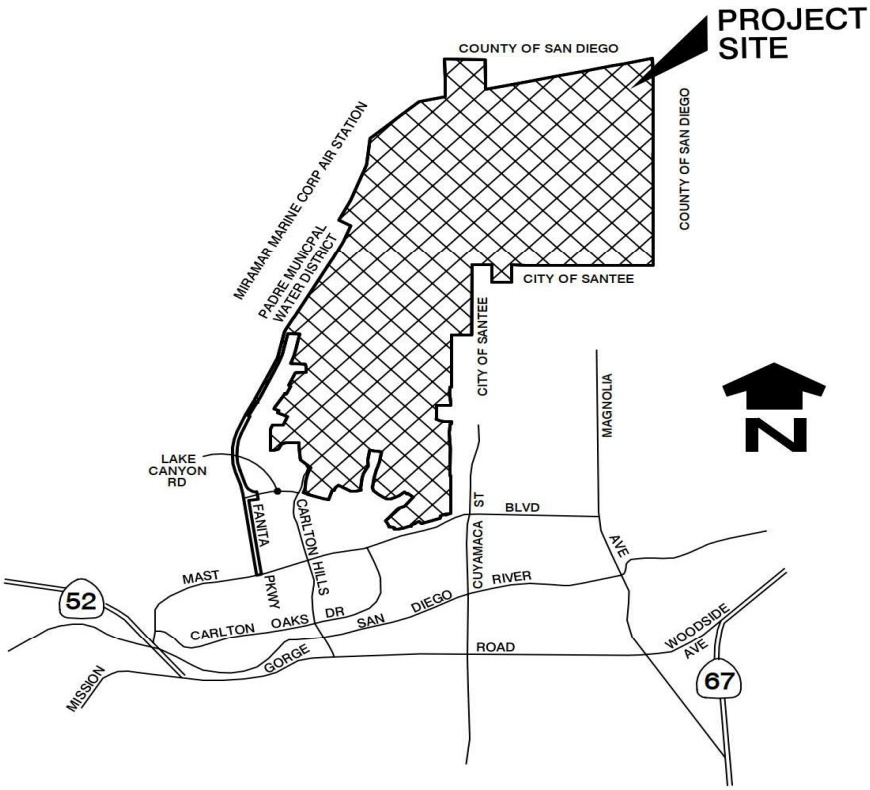
TABLE OF CONTENTS

SECTION

CHAPTER 1 - EXECUTIVE SUMMARY

1.1 Introduction

This Master Drainage Study for Fanita Ranch Vesting Tentative Map has been prepared to assess the pre-developed and post-developed condition peak 100-year runoff rates from the proposed Fanita Ranch development. The project site which is owned by HomeFed Fanita Rancho LLC is located within the City of Santee, California northeast of the intersection of Mast Boulevard and Fanita Parkway and east of Santee Lakes Habitat Preserve. This Drainage Study also addresses the accompanying offsite improvements to Fanita Parkway, Cuyamaca Street and Magnolia Avenue. See Vicinity Map below.



VICINITY MAP

NOT TO SCALE

Although the overall project area is over 2,640 acres, the project site studied within this drainage report will be limited to the northern and eastern portions of the Fanita Ranch development which will be accessible via the proposed extensions of Fanita Parkway, Cuyamaca Street, and Magnolia Avenue.

With the exception of the areas relative to the extensions of Cuyamaca Street and Magnolia Avenue, the majority of the Fanita Ranch development drains west towards Sycamore Creek which flows south towards the San Diego River in both the pre and post developed conditions. Per the FEMA Flood Map Service Center website, the site lies within a non-printed Flood Map Boundary. Therefore, no flood plains have yet to be delineated within the project area. Therefore, a Letter of Map Revision is not required. The MSCP Open Space Preserve is located immediately south of the developed portions of the site. The development will not encroach into the MSCP area with the exception of where access road improvements require encroachments. Since this project is located adjacent to a Preserve area, it will adhere to the City's guidelines pertaining to drainage and water quality.

Per the County of San Diego drainage criteria, the Modified Rational Method should be used to determine peak design flow rates when the contributing drainage area is less than 1.0-square mile. Since the watershed subareas discharging from the Fanita Ranch site is less than 1.0-square mile, the AES-2015 computer software was used to model the runoff response per the Modified Rational Method.

Methodology used for the computation of design rainfall events, runoff coefficients, and rainfall intensity values are consistent with criteria set forth in the most current "San Diego County Hydrology Manual". A detailed explanation of methodology and model development used for this analysis is listed in Chapter 2 of this report.

Storm Water Quality and Hydromodification for Fanita Ranch, and accompanying roads, will be addressed per separate Storm Water Quality and Hydromodification Management Plans for the 1) Village portions of Fanita Ranch, 2) Fanita Parkway, Cuyamaca Street and Magnolia Avenue, and 3) Green Street portions of Fanita Parkway, Cuyamaca Street and Magnolia Avenue. Please refer to the reports listed in the References section at the end of this chapter.

1.2 Summary of Pre-Developed Conditions

The topography for existing Fanita Ranch project area is characterized by rolling hills, vegetation consisting mainly of shrub and incised canyons that partition the site into numerous defined watersheds. See Exhibit 1 in Chapter 8. A ridge is located within the eastern portion of the site which defines the areas draining west towards Sycamore Creek and east towards unnamed natural drainage channels that then drains to the south.

The northern portion of the site where the residential development will occur consist of undeveloped, natural land. The proposed street extension of Fanita Parkway lies in areas which are currently partially developed or graded for access to/from Sycamore Canyon.

The portion of the project to be developed with residential development (Village) is located at the upper reaches of a watershed and therefore does not have offsite flow conveyed through those portions of the site. However, areas within the lower portions of the project area relative to Fanita Parkway and Sycamore Canyon Road do receive offsite runoff from both developed and undeveloped areas along the northern and eastern project boundary. Storm drain facilities currently collect and convey runoff across Fanita Parkway and Sycamore Canyon Road at various intervals along their length. This runoff is mostly from developed areas and is discharged into Sycamore Creek located parallel to the Santee Lakes Recreation Preserve and Fanita Parkway. Runoff from the proposed residential development portion of Fanita Ranch currently drains into Sycamore Canyon which transitions into Sycamore Creek. Chapter 4 includes the hydrologic calculations relative the existing condition at the site. The scope of the calculations and Existing Condition Hydrology Map (Chapter 8) includes the current storm drain infrastructure along Fanita Parkway and its associated flows including the offsite developed areas east of Fanita Parkway. Along with the storm drain crossings along Fanita Parkway, the most notable drainage features is Sycamore Creek located on the western side of the Santee Lakes Recreation Preserve and the constructed open channel alongside the western side of Fanita Parkway. These latter two drainage channels are the existing major conveyance features which carry the existing site's runoff which empties into the San Diego River approximately 0.5 miles south of Mast Blvd. Note that as of the date of this report the offsite existing downstream drainage system, along Fanita Parkway south of Mast Boulevard, has been identified by the City of Santee as deficient. The Fanita Ranch project will implement green streets along Fanita Parkway in order to mitigate project flows and will not significantly increase peak flows or otherwise significantly contribute to the deficiency of the existing deficient downstream system. Please refer to the project Development Agreement for further discussion related to the existing offsite deficient facilities.

Runoff relative to the southeastern portion of the site north of the current terminus of Cuyamaca Street and Magnolia Avenue consists almost entirely of undeveloped land with sparse areas of residential housing. This area drains towards the existing developed residential communities. Numerous runoff collection points are located along the northern and western edges of existing development. This existing condition has been evaluated as part of this study and included in the calculations in Chapter 4 and maps in Chapter 8. Runoff flowrates at each collection point were determined based on topography and investigation of existing infrastructure within the residential communities consisting of inlets,

headwalls, ditches, and other open channels. This storm drain system is routed south and empties into the San Diego River located approximately three miles south of the project. The San Diego River flows west to its discharge to the Pacific Ocean located approximately 18 miles downstream.

For this study, the existing condition hydrology map has been subdivided into the watershed areas summarized below. The downstream points (nodes) were chosen to correlate with the same points in the post developed condition. Table 1 below summarizes the 100-year pre-development peak flows to each of the delineated watersheds.

TABLE 1 - Summary of Pre-Developed Flows

PRE-DEVELOPED		
Discharge Location Node	Drainage Area (ac)	100-Year Flow (cfs)
103	151.1	182.7
108	382.5	332.1
113	58.8	61.5
117	25.7	34.1
122	62.8	78.8
130	235.8	174.7
144	495.8	351.8
612	328.3	319.3
622	441.1	386.1
668	218.4	258.7
768	363.4	448.3
174	306.1	292.9
322	5.7	11.0
272	6.6	9.2
253	8.4	15.5
202	12.0	21.5
192	32.4	45.7
153	94.2	109.5
162	20.6	33.3
157	85.0	114.2
152	55.6	76.2
177	22.9	37.5
828	6.2	4.7
818	3.4	3.0
822	4.6	3.5
812	5.9	5.9

842	7.4	6.0
852	5.6	4.1
Total:	3446.1	3421.8

Runoff coefficients of 0.20, 0.25, 0.30 and 0.35 were assumed for the existing tributary area for soils A, B, C and D soils respectively. In areas with multiple soil types a weighted average was calculated. Coefficients were taken from table 3-1 of the San Diego County Hydrology Manual. This coefficient corresponds to undisturbed natural terrain. Supporting calculations for the data presented in Table 1 are located in Chapter 4 of this report. The corresponding hydrology map is Exhibit 1 in Chapter 8.

Stormwater Run-on
The site does not receive any offsite runoff at its upstream reaches. At its downstream watershed discharge points, site runoff confluences with flows from Sycamore Canyon.

Hydrologic and Hydraulic Characteristics;
The project is located tributary to the San Diego River, as part of the San Diego Hydrologic Unit, Lower San Diego River Hydrologic Area, and the Santee Hydrologic Subarea (basin number 907.12). In addition, the site has not been mapped per the FEMA website. A HEC-1 study of Sycamore Canyon and a corresponding HEC-RAS analysis was performed by Rick Engineering in 2007. This study titled Floodplain Analysis for Fanita Lake, determined the expected Q100 floodplain along Sycamore Canyon during post development conditions. Chapter 7 of this study includes pertinent excerpts from the Rick analysis and extends the floodplain analysis by determining the flood limits along the tributaries east from Sycamore Canyon. The associated Workmap is included Chapter 8.

1.3 Summary of Developed Conditions

Project Location and Regional Context

The Fanita Ranch project site consists of approximately 2,638 acres in the northern portion of the City of Santee (City) in eastern San Diego County. The City is located approximately 18 miles east of downtown San Diego and the Pacific Ocean See Figure 1 – Regional Location Map). The project site is north of State Route (SR) 52 and west of SR-67 (See Figure 2 – Project Site Location Map). Access to the project site will be provided by the northerly extension of Fanita Parkway and Cuyamaca Street and the extension of Magnolia Avenue to Cuyamaca Street. The project site is bordered by Marine Corps Air Station Miramar and Padre Dam Municipal Water District (PDMWD) facilities and Santee Lakes Recreation Preserve to the west; open space/recreational areas, including Goodan Ranch Regional Park and Sycamore Canyon County Preserve, to the north and west; existing City residential neighborhoods to the south; and Eucalyptus Hills, an existing residential community, to the east.

Fanita Ranch Project

Fanita Ranch is a master planned community consisting of up to 2,949 homes[1], generating an estimated population of 8,552 people, up to 80,000 square feet of commercial uses, a school site, parks, open space and agricultural uses (See Figure 3 – Site Utilization Plan). The Fanita Ranch Specific Plan preserves more than 60 percent of the project site as a permanent Habitat Preserve (approximately 1,650.4 acres). Development is clustered within three villages: Fanita Commons, Orchard Village and Vineyard Village. Each village is defined by its unique design theme, location, physical characteristics and mix of housing types and land uses. In addition to the villages, the Specific Plan includes a 31.9-acre Special Use Area located in the southwest portion of the project site. The Specific Plan provides approximately 78.0 acres of public and private parks distributed throughout the three villages, including the 31.0-acre community park, 30.4 acres of neighborhood parks and approximately 16.4 acres of mini-parks and paseos. The farm is approximately 27.3 acres, with an additional 10.9 acres of open space with an agricultural overlay. Approximately 256.0 acres of open space, outside of the Habitat Preserve, includes manufactured open space slopes, fuel modification areas, trails, water quality/hydromodification basins, pump stations and water tanks.

Each village/development area and key project components are summarized below.

a. Fanita Commons

[1] If the school site is not utilized for school purposes, the school site may be developed with residential uses and the total authorized units would be increased to 3,008 homes and the estimated population would increase to 8,723 persons.

Fanita Commons is in the northwest portion of the project site and is planned as the primary activity center for Fanita Ranch. Fanita Commons includes a mixed-use village center, an active-adult neighborhood, a K-8 school site, a community park, a working farm and two preserved natural drainages with an adjoining linear park. With the farm as its focal point, orchards, vineyards, fields and a barn for community events define this village. The mixed-use village center allows for up to 40,000 square feet of commercial uses and residential, recreation and civic uses, including a site for a new City fire station. A 15-acre school site could accommodate 700 students. If the Santee School District does not acquire the school site, the underlying Medium Density Residential (MDR) land use designation may be implemented. In that case, the maximum total number of units permitted in the Specific Plan would increase by 59 units for a total of 3,008 units. Fanita Commons includes a total of 768 residential units, including 445 Active Adult homes and 323 homes within the mixed-use village center.

b. Orchard Village

The Orchard Village is located south of Fanita Commons and consists of residential land uses, neighborhood and mini-parks and a centrally located mixed-use village center. The Orchard Village provides a total of 855 residential units, including 454 Low Density Residential (LDR) homes, 368 MDR homes and 33 homes within the mixed-use village center. Open space and a linear riparian area geographically and topographically separate the Orchard Village from Fanita Commons. Roadways, trails and a pedestrian bridge connect the Orchard Village to Fanita Commons. A neighborhood-serving village center includes up to 10,000 square of retail, office and commercial uses. The Orchard Village also includes neighborhood parks and min-parks.

c. Vineyard Village

The Vineyard Village is in the northeastern portion of the project site. The Vineyard Village is separated from the other two villages by an open space/wildlife corridor within the Habitat Preserve. Two local streets connect the Vineyard Village to Fanita Commons and the Orchard Village. The Vineyard Village provides a total of 1,326 residential units including, 749 LDR homes, 498 MDR homes and 79 homes within the mixed-use village center. The neighborhood-serving village center includes up to 10,000 square feet of retail and office uses. The Vineyard Village also features agricultural land planned for vineyards, as well as neighborhood parks and mini-parks.

d. Habitat Preserve

The Habitat Preserve is comprised of approximately 1,650.4 acres of permanently preserved open space. Open space within the Habitat Preserve will be dedicated to the Santee Multiple Species Conservation Program (MSCP) Subarea Plan Preserve currently being prepared by the City of Santee to ensure

permanent preservation and management. A Habitat Management Plan will be adopted for the Habitat Preserve to direct the long-term management of biological resources and meet the requirements of the MSCP Subarea Plan. A trail system through the Habitat Preserve will be designed to provide public access, consistent with the MSCP Subarea Plan.

e. The Farm

The Farm is the community focal point for Fanita Ranch. The approximately 27.3-acre Farm is located along the eastern edge of Fanita Commons and the Orchard Village, near the center of Fanita Ranch. An event barn featuring iconic agrarian architecture will set the theme for the community and provide a venue for special events and farming operations. The working Farm is planned to include terraced vegetable fields, pasture lands, limited housing for employees, raised gardens, limited animal keeping and up to 20,000 square feet of commercial uses. A Community Supported Agriculture program is planned for the Farm. Food grown on the Farm may be distributed to local schools, restaurants and other institutional facilities such as the congregate care and assisted living facilities. Agricultural uses have an underlying open space (OS) land use designation in the Specific Plan. The "Agricultural Overlay" provides details regarding permitted agricultural uses.

f. Special Use Area

The Special Use area is comprised of approximately 31.9 acres in the south portion of the project site. Potential uses may include a solar farm, recreational vehicle and boat storage, above ground agriculture, such as greenhouses or similar uses. A Mini Park (MP-31) is planned west of Carlton Hills Boulevard which is planned to include a trail staging and parking area. Access to the Special Use Area is provided via Carlton Hills Boulevard.

g. Parks, Trails and Recreational Facilities

The Fanita Ranch project includes a coordinated system of parks and non-motorized use trails that connect to the three villages, regional trails and surrounding open space areas, including the Habitat Preserve. The trail system connects to existing off-site trails in Sycamore Canyon County Preserve, Goodan Ranch Regional Park, Mission Trails Regional Park and Santee Lakes Recreation Preserve. Approximately 78.5 acres of public and private parks are distributed throughout the three villages. The Community Park, located in Fanita Commons, provides for both active and passive recreation opportunities. Neighborhood parks are planned in key locations to provide recreational opportunities within walking distance of all homes. Mini-parks may feature trail heads, overlooks and passive and active recreational opportunities. A series of trails and paths ("AgMeander") connect the Farm to the Fanita Ranch villages

h. Mobility (on-site)

The Fanita Ranch Specific Plan establishes an on-site roadway network and street cross sections designed as a system of complete streets that support motorists, pedestrians, bicyclists and transit users. On-site streets are generally two lanes and include traffic calming measures such as gateways, roundabouts, narrowed travel lanes, on-street bike facilities and parking, a chicane, raised crosswalks and intersection pop-outs. On-site streets that cross open space areas are designed to minimize impacts to sensitive habitat and to accommodate wildlife crossings.

i. Mobility Improvements

Mobility improvements include the extension of three roadways identified in the Santee General Plan Mobility Element, including: 1) Fanita Parkway improvements from Mast Boulevard to the current northern limit; 2) Cuyamaca Street improvements from Mast Boulevard to the current northern limit; 3) the extension of Fanita Parkway from Ganley Road through the project site; 4) the extension of Cuyamaca Street from north of Chaparral Drive through the project site; and 5) the extension of Magnolia Avenue from its current northern limit to Cuyamaca Street.

j. Development Phasing

Fanita Ranch is anticipated to be developed in four phases over a 10 to 15-year period. Phases may overlap or vary depending on market conditions and may be broken down into smaller sub-phases. Construction is anticipated to begin in 2021. The Special Use Area is not tied to development phasing and may be developed anytime during project build-out.

Overall, the site will include a variety of impervious surfaces including paved streets, roof (homes, buildings), sidewalks, athletic courts, and parking lots. Pervious features of the site will consist of parks, home landscaping, farms, orchards, open spaces, preserve areas, and water quality facilities such as biofiltration basins. The site will be graded and generally slope towards the west and Sycamore Canyon. Grading along the southern boundary will allow streets to be constructed for access to the site. This includes the extensions of Fanita Parkway, Cuyamaca Street, and Magnolia Avenue. Runoff from the residential portions of the site will generally be collected by inlets and conveyed towards one of the proposed water quality treatment facilities. Flows will outlet these basins and discharge into downstream conveyance channels consisting of storm drain pipe, constructed channels, or natural drainageways. Storm drain, which will be sized during the final engineering phase, is estimated to range in sizes between 18” and 84”.

There are a total of nineteen (19) storm water basins and three (3) vaults proposed per the Fanita Ranch Tentative Map, which are accounted for per this Master Drainage Study. These facilities include onsite basins within the specific plan area of Fanita Ranch and

Fanita Parkway, and offsite basins and vaults located along offsite Cuyamaca Street and Magnolia Avenue which are outside the specific plan area;

- Fifteen (15) basins (BF-1-1 through BF-1-6, BF-1-17, HMP-17, HMP-18 and BF-1-RV1 through BF-1-RV6) are proposed onsite, within the specific plan area. Biofiltration basins BF-1-1 through BF-1-6, BF-1-17 and BF-1-RV1 through BF-1-RV6 will serve as combined water quality, hydromodification and/or detention basins. Basins HMP-17 and HMP-18 will serve as hydromodification and detention basins. The water quality and hydromodification calculations for biofiltration basins BF-1-1 through BF-1-6 and BF-1-RV1 through BF-1-RV6 are per the report titled *"Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for Vesting Tentative Map for Fanita Ranch (Fanita Commons, Orchard Village and Vineyard Village)"* prepared by Hunsaker & Associates San Diego, Inc., dated September 2019. The water quality and/or hydromodification calculations for Basins BF-1-17, HMP-17 & HMP-18 are per the report titled *"Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for Tentative Map for Fanita Ranch (Fanita Parkway from Ganley Road to Orchard Village, Cuyamaca Street South of Orchard Village and Magnolia Avenue)"* prepared by Hunsaker & Associates San Diego, Inc., dated September 2019.
- Four basins (BF-1-10A, BF-1-10B, HMP-11 and HMP-12) and three (3) vaults (HMP-13, HMP-15 and HMP-16) are proposed offsite, outside the specific plan area. Basins BF-1-10A and BF-1-10B will serve as combined water quality, hydromodifrication and detention basins. Basins HMP-11 and HMP-12 and Vaults HMP-13, HMP-15 and HMP-16 will serve as hydromodification and detention facilities. The water quality and hydromodification calculations for biofiltration basins BF-1-10A and BF-1-10B, basins HMP-11 and HMP-12, and vaults HMP-13, HMP-15 and HMP-16, are per the report titled *"Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for Vesting Tentative Map for Fanita Ranch (Fanita Parkway from Ganley Road to Orchard Village, Cuyamaca Street South of Orchard Village and Magnolia Avenue)"* prepared by Hunsaker & Associates San Diego, Inc., dated September 2019.

These basins will additionally serve as detention for flow control hydromodification and peak flow attenuation. Peak flow attenuation is required not only due to the increase imperviousness associated with the development but because the site design proposes to divert acreage from areas which drained easterly to now drain west towards Sycamore Canyon. Other areas along the roadway corridors of Fanita Parkway, Cuyamaca Street, and Magnolia Avenue will include storage facilities such as underground vaults and above-ground basins to address local peak flow attenuation. The Proposed Condition Hydrology Exhibits located in Chapter 8 identifies the location of each storage facility and its respective tributary drainage area. The following Table 3 summarizes the flows from the site in proposed condition with consideration of peak flow attenuation. Each detention facility will be equipped with a riser designed to accomplish the various functions. Orifices placed along the height of the riser will regulate the lower flowrates between 10%Q2 to Q10 in order to address flow control hydromodification. The cross sectional area of the riser will aid in regulating the higher Q100 flows to reduce flows below existing condition. The basins will also include a second riser installed for redundancy and as an emergency outlet should the primary riser clog. Design of this secondary riser will be performed during the Final

Engineering phase. The rim elevation will be set at the peak head elevation above the primary riser. Depending on accessibility of the riser structures, it may be necessary to equip some of them with a grate over its top opening as a safety measure. The detention basin analysis calculations were performed using the Civil 3D Hydraflow Hydrograph extension. Results for each basin are included in Chapter 6. These results were integrated into the hydrologic (AES 2015) model to determine the ultimate flows at the downstream location of each node as listed in Table 3. Note that for the purposes of detention basin routing the unmitigated and mitigated Q100 flows listed within the developed condition hydrology maps correspond to the un-detained flows entering the basins (unmitigated) versus the detained flows leaving the basins (mitigated), respectively.

The biofiltration basins proposed for this site will be lined and therefore, no infiltration is assumed within the limits of the previously mitigated area of the Habitat Preserve.

Per 6.2.2 of the San Diego County Hydraulic Design Manual, the State Division of Safety of Dams (DSOD) does not regulate structures that are 6 feet or less in height, regardless of storage capacity, nor do they regulate structures that have a storage capacity of 15 acre-feet or less, regardless of height. Therefore, no proposed basins will meet the definition of a jurisdictional dam. Figure 1 below compares the thresholds for jurisdictional and non-jurisdictional dams.

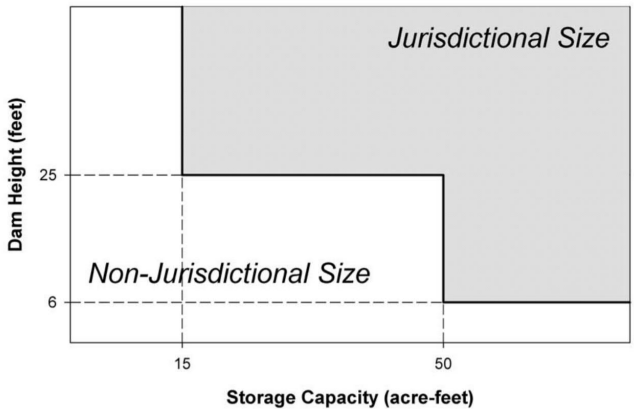


Figure 1 – California DSOD Jurisdictional Dam Thresholds

TABLE 3 - Summary of Post-Developed Flows

POST-DEVELOPED

Discharge Location Node	Drainage Area (ac)	100-Year Flow (cfs)
103	146.7	174.8
108	343.1	291.3
113	55.3	58.6
117	25.7	34.0
122	53.3	65.4
3310	290.9	174.6
1061	565.7	291.7
2241	333.6	213.2
8277	451.2	321.5
50	217.8	169.6
140	363	422.3
210	273.2	178.6
292	6.6	10.0
283	6.8	8.6
270	7.1	15.1
256	13.6	21.2
239	29.7	43.5
153	65.4	76.6
162	19.4	29.0
157	62	90.4
152	38.6	55.2
339	23.3	34.8
4028	4.7	5.1
4018	3.0	2.3
4022	3.5	3.2
4012	5.9	5.1
4042	6.0	5.5
4052	4.1	4.7
Total:	3419.2	2805.8

Supporting calculations for the data presented in Table 3 are located in Chapter 5. The corresponding hydrology Exhibits are located in Chapter 8. The storm drain system and layout will be designed to address peak flows as well as to integrate water quality features needed to comply with the City of Santee's BMP Design Manual requirements for water

quality and hydromodification. All site runoff will receive water quality treatment prior to discharging offsite.

Runoff coefficients assumed for the proposed roads, commercial development, multi-family development, single-family development and park sites are consistent with the County of San Diego Hydrology Manual. Methodology and reference information is included in Chapter 2.

To prevent erosive velocities at pipe outlet locations, energy dissipating measures will be included within the design. These measures will be designed during the final engineering phase and will include, but not be limited to, rip rap and concrete energy dissipating headwalls. Landform grading has been incorporated to mimic existing conditions where the proposed grading ties into or daylights with the existing terrain. It is intended that the stormwater from the manufactured slopes will sheet flow and follow the existing drainage patterns.

1.4 Results & Recommendations

Table 4 summarizes the effects of site development at the downstream discharge points.

TABLE 4 - Summary of Pre vs. Post-Developed Flows from Fanita Ranch

PRE-DEVELOPED			POST-DEVELOPED			DIFFERENCE	
Discharge Location Node	Drainage Area (ac)	100-Year Flow (cfs)	Discharge Location Node	Drainage Area (ac)	100-Year Flow (cfs)	Area (ac)	100-Year Flow (cfs)
103	151.1	182.69	103	146.7	174.76	-4.4	-7.93
108	382.5	332.1	108	343.1	291.25	-39.4	-40.85
113	58.8	61.51	113	55.3	58.56	-3.5	-2.95
117	25.7	34.13	117	25.7	34.01	0	-0.12
122	62.8	78.75	122	53.3	65.43	-9.5	-13.32
130	235.8	174.65	3310	290.9	174.6	55.1	-0.05
144	495.8	351.83	1061	565.7	291.73	69.9	-60.1
612	328.3	319.34	2241	333.6	213.23	5.3	-106.11
622	441.1	386.1	2277	451.2	321.52	10.1	-64.58
668	218.4	258.67	50	217.8	169.59	-0.6	-89.08
768	363.4	448.31	140	363	422.28	-0.4	-26.03
174	306.11	292.94	210	273.2	178.57	-32.91	-114.37
322	5.66	11	292	6.6	10.01	0.94	-0.99
272	6.58	9.16	283	6.8	8.57	0.22	-0.59
253	8.37	15.52	270	7.1	15.05	-1.27	-0.47
202	12.01	21.54	256	13.6	21.21	1.59	-0.33
192	32.38	45.7	239	29.7	43.47	-2.68	-2.23
153	94.2	109.5	153	65.4	76.64	-28.8	-32.86
162	20.6	33.31	162	19.4	29.02	-1.2	-4.29
157	85	114.24	157	62	90.42	-23	-23.82
152	55.6	76.17	152	38.6	55.21	-17	-20.96
177	22.86	37.46	339	23.3	34.76	0.44	-2.7
828	6.2	4.7	4028	4.7	5.1	-1.5	0.4
818	3.4	3.0	4018	3.0	2.3	-0.4	-0.7
822	4.6	3.5	4022	3.5	3.2	-1.1	-0.3
812	5.9	5.9	4012	5.9	5.1	0.0	-0.8
842	7.4	6.0	4042	6.0	5.5	-1.4	-0.5
852	5.6	4.1	4052	4.1	4.7	-1.5	0.6
Total:	3446.1	3421.8	Total:	3419.2	2805.8	-26.9	-616.0

*-Increase in area is due to the area along Cuyamaca Street being routed towards the development

As can be seen through review of Tables 4 above, the proposed basins for the Fanita Ranch development project will help to reduce flows by approximately 616 cfs versus existing conditions at the discharge locations listed above and shown on the hydrology exhibits in

Chapter 8. Therefore, the potential for erosion will be reduced immediately downstream of these watersheds assuming that energy dissipation is adequately designed at the discharge points such as inclusion of rip rap, concrete energy dissipating headwalls, and reinforced turf matting. Since the flows have been reduced for these watersheds, existing flow velocities should not be exceeded due to the proposed development and erosion is not expected downstream of these watersheds.

Summary:

- Drainage facilities within Fanita Ranch will be designed in accordance with the requirements of the City of Santee Subdivision Manual, the San Diego County Hydrology Manual and the requirements of the City of Santee BMP Design Manual and Regional Water Quality Control Board.

- Development of the project site will not further degrade potential beneficial uses of downstream water bodies as designated by the Regional Water Quality Control Board, including water bodies listed on the Clean Water Section 303d list.

- Onsite and offsite drainage easements shall be provided to the satisfaction of the Director of Development Services.

References

City of Santee Public Works Standards, September 1982.

City of Santee BMP Design Manual, February 2016

San Diego County Hydrology Manual; County of San Diego Department of Public Works Flood Control Division, June 2003

Hydromodification Management Plan prepared for County of San Diego, California, September 2011

"Order No. R9-2015-0100, NPDES No. CAS0109266 – Natural Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region; December 16, 2014.

"Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for Vesting Tentative Map for Fanita Ranch (Fanita Commons, Orchard Village and Vineyard Village)" prepared by Hunsaker & Associates San Diego, Inc., dated September 2019.

"Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for Vesting Tentative Map for Fanita Ranch (Fanita Parkway from Ganley Road to Orchard Village, Cuyamaca Street South of Orchard Village and Magnolia Avenue)" prepared by Hunsaker & Associates San Diego, Inc., dated September 2019.

"Green Streets PDP Exempt SWQMP for Vesting Tentative Map for Fanita Ranch (Fanita Parkway from Mast Boulevard to Ganley Road, Cuyamaca Street South of Orchard Village, Magnolia Avenue and Summit Avenue)" prepared by Hunsaker & Associates San Diego, Inc., dated January 2020.

Floodplain Analysis for Fanita Lake, prepared by Rick Engineering Company 2007

CHAPTER 2
Methodology

CHAPTER 2 METHODOLOGY

Rational Method Hydrologic Analysis

Computer Software Package – AES-2015

Design Storm – 100-year return interval

Land Use – The site will include a Preserve area which is proposed to be dedicated to the City's MSCP for long term management. Along with the preserve and residential areas, other land uses of the site include a farming area, a town center, parks, open spaces, educational facilities, and other community facilities.

Soil Type – Hydrologic soil group D was assumed for all proposed areas within the grading limits of the project. Group D soils have very slow infiltration rates when thoroughly wetted. Consisting chiefly of clay soils with a high swelling potential, soils with a high permanent water table, soils with clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials, Group D soils have a very slow rate of water transmission. Hydrologic soil groups A, B, & C were also applied to offsite developed conditions where grading will not occur.

The existing condition contained a mixture of hydrologic soil groups A, B, C, & D per the NRCS Web Soil Survey found in chapter 3.

Runoff Coefficient - In accordance with the County of San Diego standards, runoff coefficients were based on land use and slope. Runoff coefficients for existing conditions with multiple soil types were interpolated by the amount of each soil type within the designated drainage boundary. For proposed conditions, impervious areas were calculated by assuming the largest product size for each single-family residential area. The average impervious area for single family after taking into account the road, driveway and walkway was 50% impervious. This corresponded to a 0.63 runoff coefficient within table 3-1 of the San Diego County Hydrology Manual. The corresponding exhibits and calculations can be found in chapter 3.

Roughness Coefficient – A roughness coefficient of 0.045 was chosen from table Table A-5 of the San Diego County Hydraulic Design Manual (2014) for natural channels corresponding with dense weeds and heavy brush.

Table 5 summarizes the assumed runoff coefficients for all land uses.

TABLE 5 - Summary of Runoff Coefficients

Land Use	% Impervious	Runoff Coefficient
Single Family Residential	50	0.63
Agriculture	5	0.38
Multifamily	80	0.79
School	80	0.79
Commercial	80	0.79
Road	95	0.87

Rainfall Intensity- The rainfall intensity is determined per the County of San Diego Hydrology manual based on 6-hour precipitation amounts and calculated time of concentrations. Six-hour precipitations are taken from San Diego county isopluvials.

Method of Analysis – The Rational Method is the most widely used hydrologic model for estimating peak runoff rates. Applied to small urban and semi-urban areas with drainage areas less than 1.0 square miles, the Rational Method relates storm rainfall intensity, a runoff coefficient, and drainage area to peak runoff rate. This relationship is expressed by the equation:

Q = CIA, where:

- Q = The peak runoff rate in cubic feet per second at the point of analysis.
- C = A runoff coefficient representing the area - averaged ratio of runoff to rainfall intensity.
- I = The time-averaged rainfall intensity in inches per hour corresponding to the time of concentration.
- A = The drainage basin area in acres.

To perform a node-link study, the total watershed area is divided into subareas which discharge at designated nodes.

The procedure for the subarea summation model is as follows:

(1) Subdivide the watershed into subareas with the initial subarea being less than 10 acres in size (generally 1 lot will do), and subsequent subareas gradually increasing in size. Assign upstream and downstream nodal numbers to each subarea to correlate calculations to the watershed map.

(2) Estimate an initial T_c by using the appropriate nomograph or overland flow velocity estimation.

(3) Using the initial T_c, determine the corresponding values of I. Then Q = CIA.

(4) Using Q, estimate the travel time between this node and the next by Manning's equation as applied to the particular channel or conduit linking the two nodes. Then, repeat the calculation for Q based on the revised intensity (which is a function of the revised time of concentration)

The nodes are joined together by links, which may be street gutter flows, drainage swales, drainage ditches, pipe flow, or various channel flows. The AES-2015 computer subarea menu is as follows:

SUBAREA HYDROLOGIC PROCESS

1. Confluence analysis at node.
2. Initial subarea analysis (including time of concentration calculation).
3. Pipeflow travel time (computer estimated).
4. Pipeflow travel time (user specified).
5. Trapezoidal channel travel time.
6. Street flow analysis through subarea.
7. User - specified information at node.
8. Addition of subarea runoff to main line.
9. V-gutter flow through area.
10. Copy main stream data to memory bank
11. Confluence main stream data with a memory bank
12. Clear a memory bank

At the confluence point of two or more basins, the following procedure is used to combine peak flow rates to account for differences in the basin's times of concentration. This adjustment is based on the assumption that each basin's hydrographs are triangular in shape.

(1). If the collection streams have the same times of concentration, then the Q values are directly summed,

$Q_p = Q_a + Q_b$; $T_p = T_a = T_b$

(2). If the collection streams have different times of concentration, the smaller of the tributary Q values may be adjusted as follows:

(i). The most frequent case is where the collection stream with the longer time of concentration has the larger Q. The smaller Q value is adjusted by the ratio of rainfall intensities.

$Q_p = Q_a + Q_b \ (I_a/I_b)$; $T_p = T_a$

(ii). In some cases, the collection stream with the shorter time of concentration has the larger Q. Then the smaller Q is adjusted by a ratio of the T values.

$Q_p = Q_b + Q_a \ (T_b/T_a)$; $T_p = T_b$

Underground storm drains are analyzed in a similar way. Flow data obtained from the surface model for inlets and collection points are input into the nodes representing those structures. Design grades and lengths are used to compute the capacity of the storm drains and to model the downstream travel times.

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.1 – Design Rainfall Determination

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.1 – 100-Year, 6-Hour Rainfall Isopluvial Map

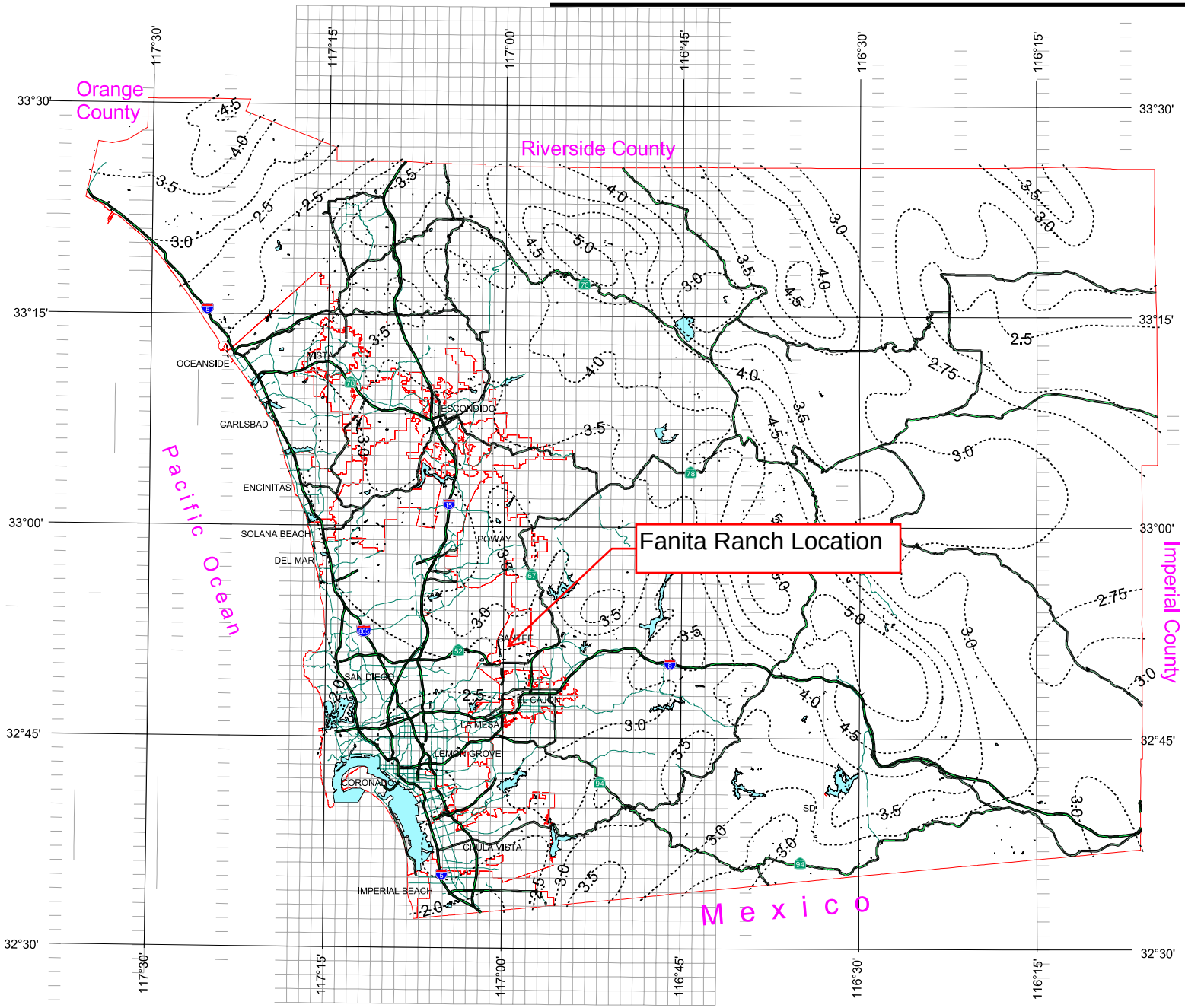
County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

P_{100-6} = 2.5 in



DPW GIS — Department of Public Works Geographic Information Services

SanGIS — We Have San Diego Covered!

N W E S

3 0 3 Miles

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.1 – 100-Year, 24-Hour Rainfall Isopluvial Map

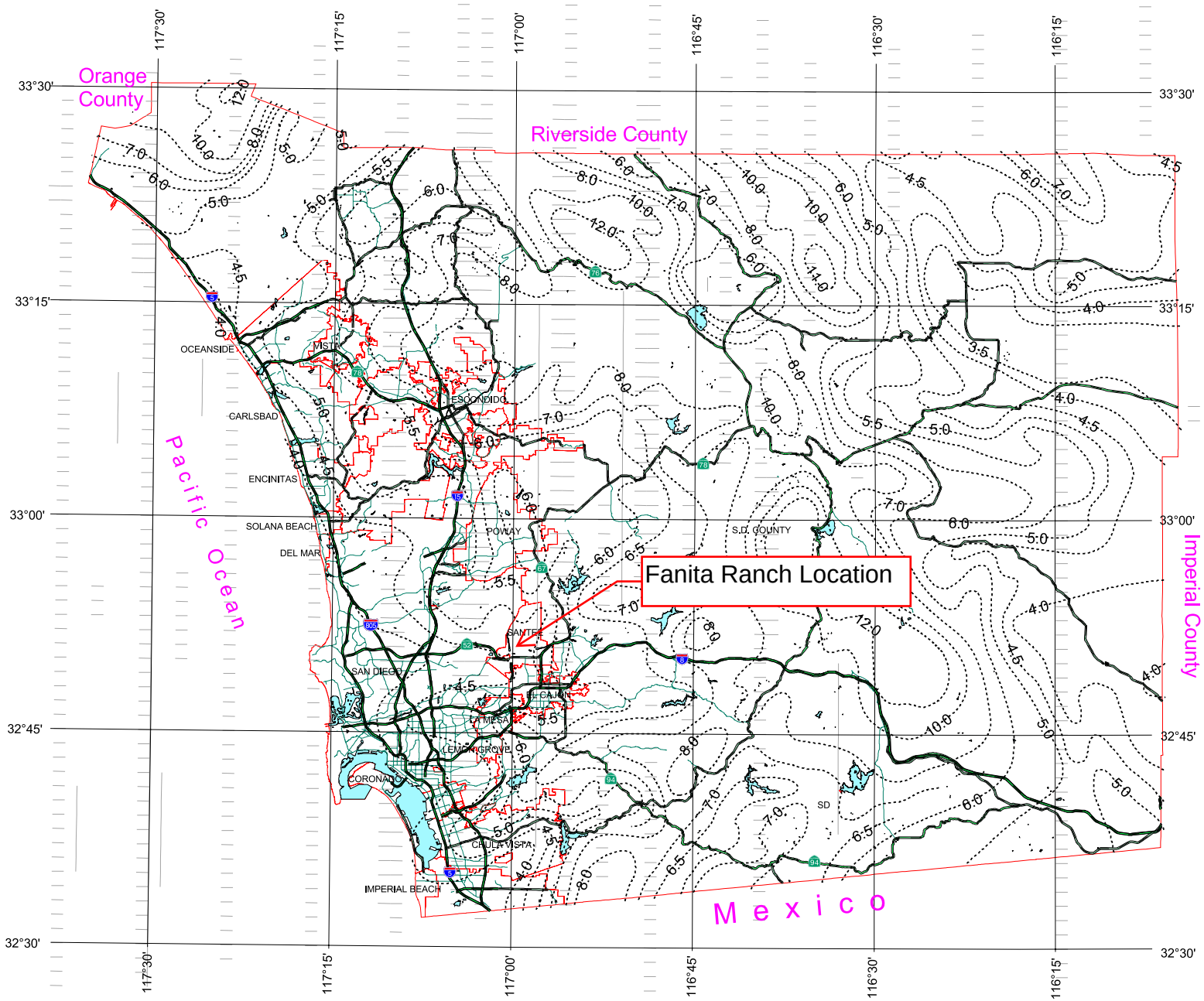
County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

P_{100-24} = 4.7 in



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

3 0 3 Miles

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.2 – Runoff Coefficient Determination

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

Runoff Coeficient Calculation			
Total Area (ac.)=	6.27		
Total Area (s.f.)=	273121		
Road Length=	1215		
Road Imp Area=	57105		
Product	50x75		
# of Lots	43		
du/ac	6.9		
Lot Imp Area=	92880		
Total Imp Area=	149985		
Comp % Imp=	55%	C=	0.66

Runoff Coeficient Calculation			
Total Area (ac.)=	3.71		
Total Area (s.f.)=	161608		
Road Length=	975		
Road Imp Area=	45825		
Product	60x75		
# of Lots	19		
du/ac	5.1		
Lot Imp Area=	47310		
Total Imp Area=	93135		
Comp % Imp=	58%	C=	0.67

Runoff Coeficient Calculation			
Total Area (ac.)=	7.72		
Total Area (s.f.)=	336283		
Road Length=	1098		
Road Imp Area=	51606		
Product	50x100		
# of Lots	38		
du/ac	4.9		
Lot Imp Area=	115520		
Total Imp Area=	167126		
Comp % Imp=	50%	C=	0.63

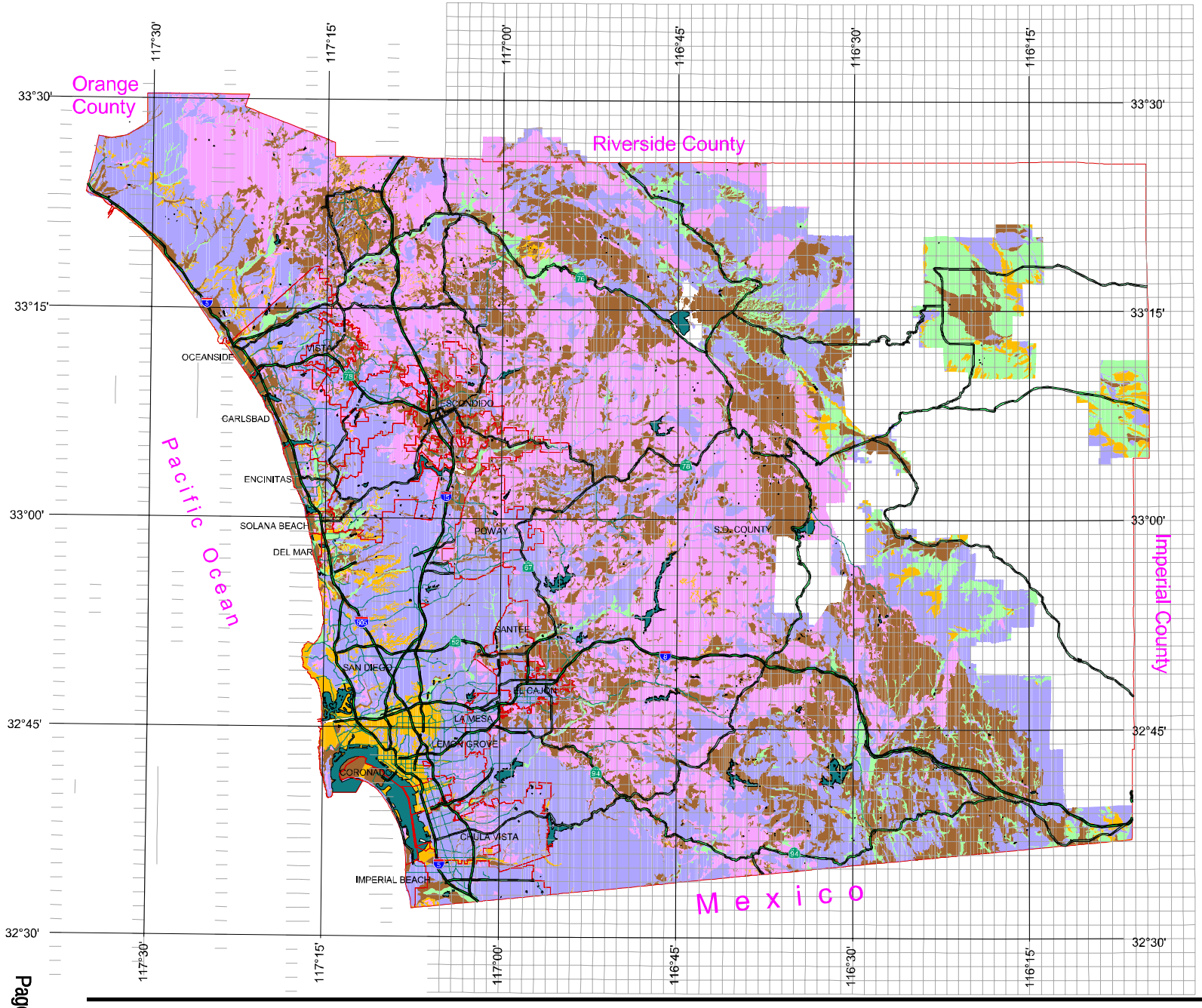
Runoff Coeficient Calculation			
Total Area (ac.)=	6.40		
Total Area (s.f.)=	278784		
Road Length=	1131		
Road Imp Area=	53157		
Product	60x100		
# of Lots	23		
du/ac	3.6		
Lot Imp Area=	82110		
Total Imp Area=	135267		
Comp % Imp=	49%	C=	0.60

Runoff Coeficient Calculation			
Total Area (ac.)=	5.85		
Total Area (s.f.)=	254826		
Road Length=	810		
Road Imp Area=	38070		
Product	70x100		
# of Lots	19		
du/ac	3.2		
Lot Imp Area=	80180		
Total Imp Area=	118250		
Comp % Imp=	46%	C=	0.61

Runoff Coeficient Calculation			
Total Area (ac.)=	7.61		
Total Area (s.f.)=	331492		
Road Length=	1065		
Road Imp Area=	50055		
Product	80x100		
# of Lots	23		
du/ac	3.0		
Lot Imp Area=	112010		
Total Imp Area=	162065		
Comp % Imp=	49%	C=	0.63

County of San Diego Hydrology Manual

Soil Hydrologic Groups



Legend

Soil Groups

- Group A
- Group B
- Group C
- Group D
- Undetermined
- Data Unavailable

DPW GIS — Department of Public Works Geographic Information Services

SanGIS — We Have San Diego Covered!

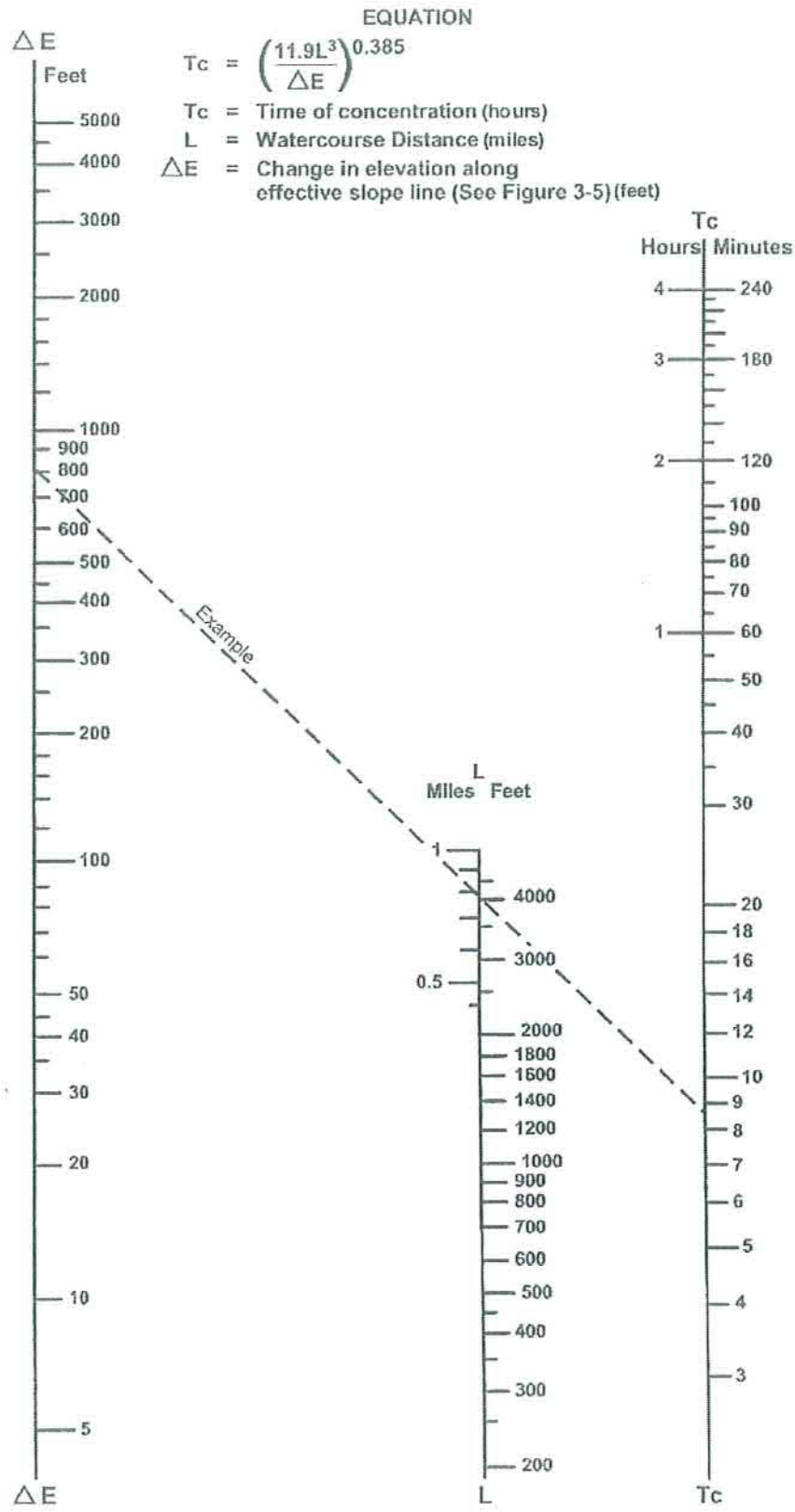
N W E S

3 0 3 Miles

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.3 – Peak Intensity Determination



SOURCE: California Division of Highways (1941) and Kirpich (1940)

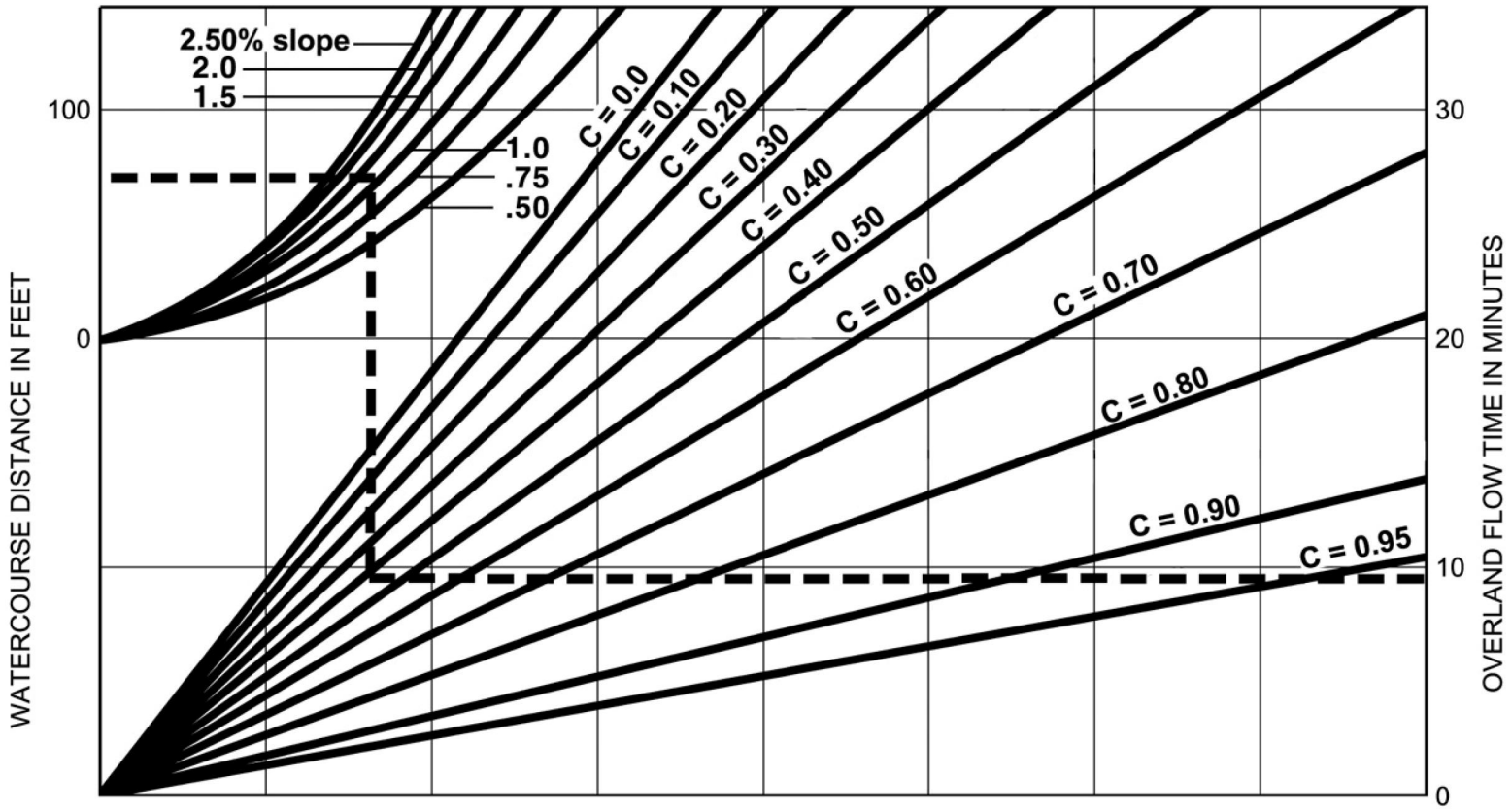
FIGURE 3-4

Nomograph for Determination of
Time of Concentration (Tc) or Travel Time (Tt) for Natural Watersheds

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.3 – Urban Watershed Overland Time of flow Nomograph



EXAMPLE:

Given: Watercourse Distance (D) = 70 Feet
Slope (s) = 1.3%
Runoff Coefficient (C) = 0.41
Overland Flow Time (T) = 9.5 Minutes

$$T = \frac{1.8\,(1.1-C)\sqrt{D}}{\sqrt[3]{s}}$$

SOURCE: Airport Drainage, Federal Aviation Administration, 1965

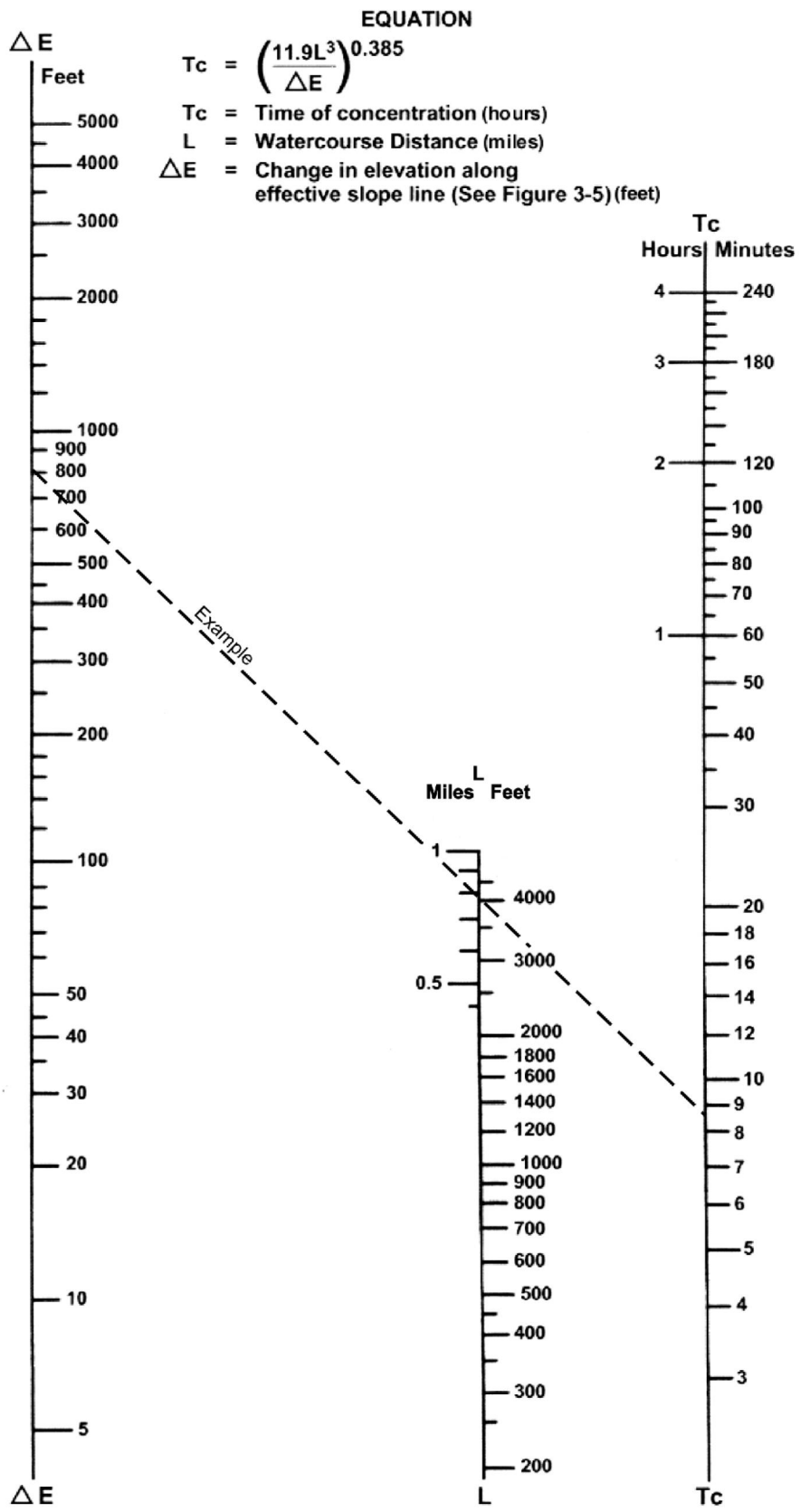
FIGURE 3-3

Rational Formula - Overland Time of Flow Nomograph

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.3 – Natural Watershed Overland Time of flow Nomograph



SOURCE: California Division of Highways (1941) and Kirpich (1940)

FIGURE 3-4

Nomograph for Determination of
Time of Concentration (Tc) or Travel Time (Tt) for Natural Watersheds

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.3 – Gutter and Roadway Discharge (Velocity Chart)

EXAMPLE:
Given: Q = 10 S = 2.5%
Chart gives: Depth = 0.4, Velocity = 4.4 f.p.s.

SOURCE: San Diego County Department of Special District Services Design Manual

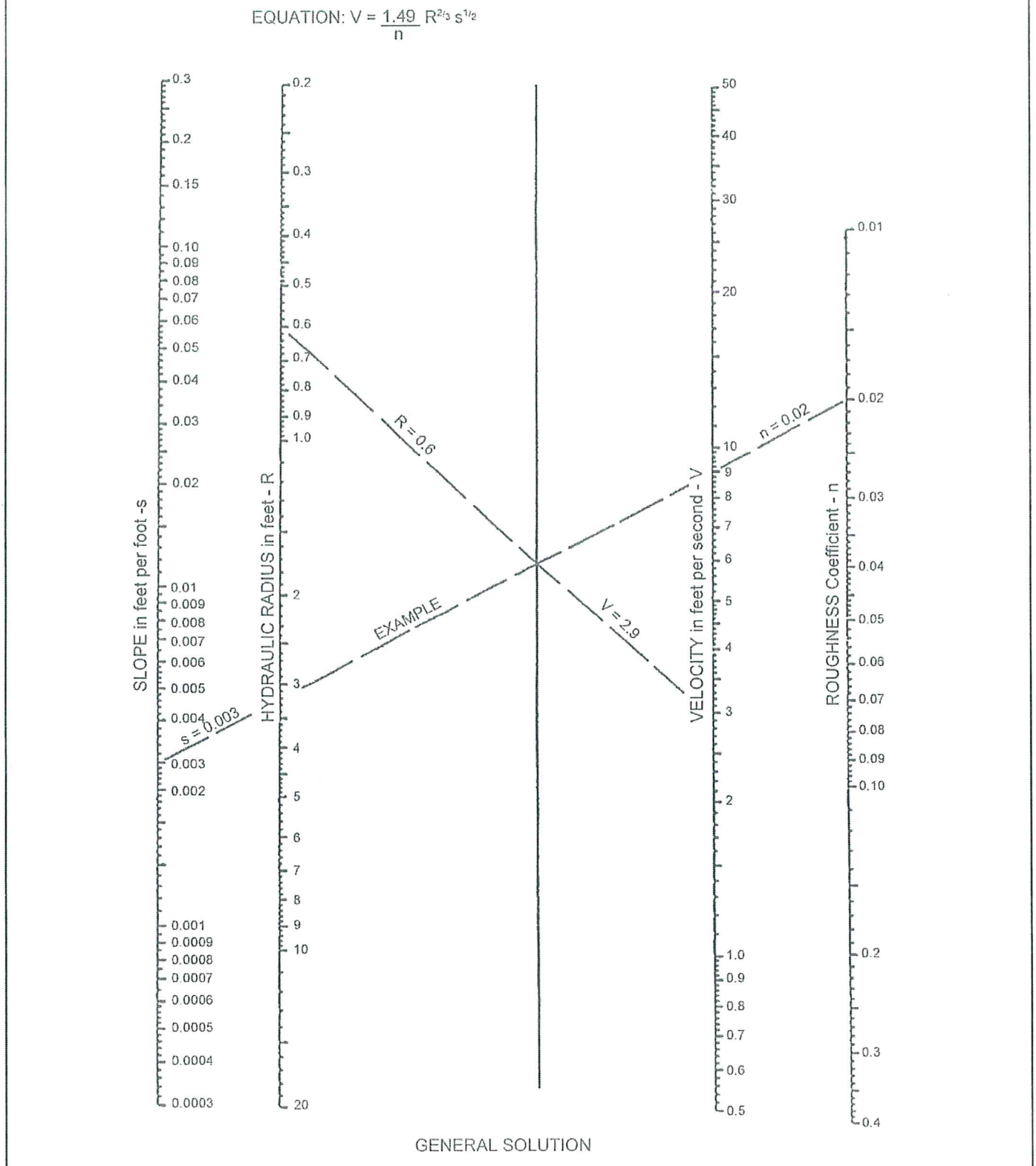
FIGURE 3-6

Gutter and Roadway Discharge - Velocity Chart

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.3 – Manning's Equation Nomograph



SOURCE: USDOT, FHWA, HDS-3 (1961)

FIGURE

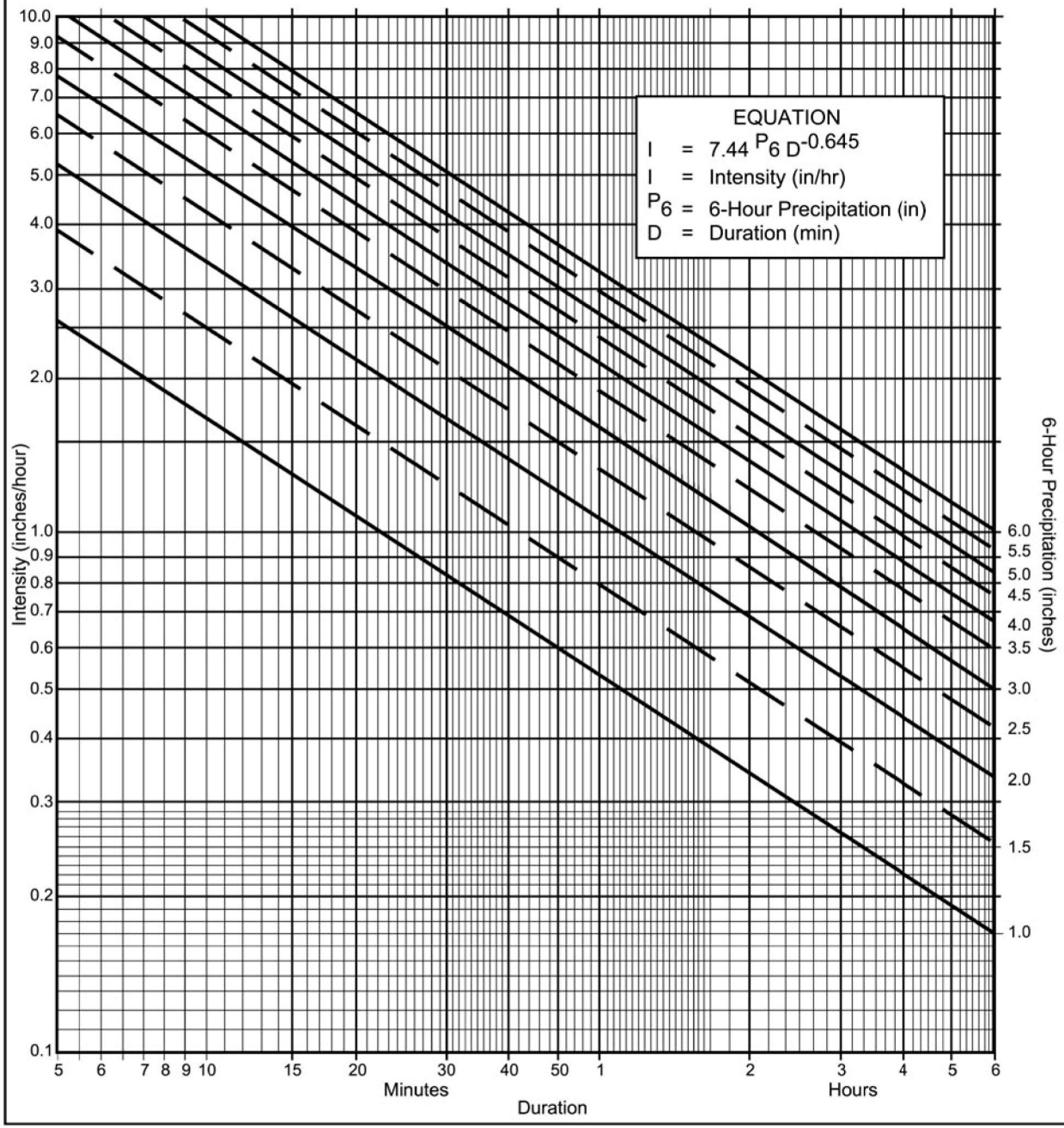
3-7

Manning's Equation Nomograph

CHAPTER 2

METHODOLOGY – RATIONAL METHOD PEAK FLOWRATE DETERMINATION (ULTIMATE CONDITIONS)

2.4 – Intensity Duration Design Chart (from San Diego County Hydrology Manual)



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 100 year

(b) P_6 = 2.5 in., P_{24} = 4.7, $\frac{P_6}{P_{24}}$ = 53.2 %(2)

(c) Adjusted $P_6^{(2)}$ = _____ in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

CHAPTER 2 - METHODOLOGY

2.5 – Rational Method Hydrologic Analysis

2.5 Rational Method Hydrologic Analysis

Computer Software Package – AES-2015

Design Storm - 100-year return intervals

Land Use – Single Family/Multi Family development, Schools, Parks & Open Space.

Soil Type – Hydrologic soil group D was assumed for all areas for proposed condition. Group D soils have very slow infiltration rates when thoroughly wetted. Consisting chiefly of clay soils with a high swelling potential, soils with a high permanent water table, soils with clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials, group D soils have a very slow rate of water transmission.

Runoff Coefficient – In accordance with the San Diego County Hydrology Manual (SDCHM) Standards, the C coefficient for natural and undeveloped areas is 0.35; the C coefficient for developed areas is a weighted factor of 0.35 (landscape in soil D) and 0.9 (impervious areas) as a function of the fraction of impervious areas (a_i expressed as a decimal value between 0 and 1) according to:

$C = 0.35(1-a_i) + 0.9a_i$

Rainfall Intensity - Initial time of concentration values were determined using the County of San Diego's overland flow nomograph for urban areas. Downstream T_c values are determined by adding the initial sub-basin time of concentration and the downstream routing time. Per SDCHM standards, intensity values were determined from the County of San Diego's Intensity-Duration equation.

Method of Analysis – The Rational Method is the most widely used hydrologic model for estimating peak runoff rates. Applied to small urban and semi-urban areas with drainage areas less than 0.5 square miles, the Rational Method relates storm rainfall intensity, a runoff coefficient, and drainage area to peak runoff rate. This relationship is expressed by the equation:

$Q = CIA$

where:

Q = The peak runoff rate in cubic feet per second at the point of analysis.

C = A runoff coefficient representing the area - averaged ratio of runoff to rainfall intensity.

I = The time-averaged rainfall intensity in inches per hour corresponding to the time of concentration.

A = The drainage basin area in acres.

To perform a node-link study, the total watershed area is divided into subareas which discharge at designated nodes.

The procedure for the subarea summation model is as follows:

(5) Subdivide the watershed into an initial subarea (generally 1 lot in developed conditions or an area with a maximum overland flow length does not exceed values displayed in Table 3.2 of the SDCHM) and subsequent subareas, which are generally less than 10 acres in size. Assign upstream and downstream node numbers to each subarea.

(6) Estimate an initial T_c by using the appropriate nomograph or overland flow velocity estimation.

(7) Using the initial T_c, determine the corresponding values of I. Then Q = C I A.

(8) Using Q, estimate the travel time between this node and the next by Manning's equation as applied to the particular channel or conduit linking the two nodes. Then, repeat the calculation for Q based on the revised intensity (which is a function of the revised time of concentration)

The nodes are joined together by links, which may be street gutter flows, drainage swales, drainage ditches, pipe flow, or various channel flows. The AES-2015 computer subarea menu is as follows:

SUBAREA HYDROLOGIC PROCESS

13. Confluence analysis at node.
14. Initial subarea analysis (including time of concentration calculation).
15. Pipe flow travel time (computer estimated).
16. Pipe flow travel time (user specified).
17. Trapezoidal channel travel time.
18. Street flow analysis through subarea.
19. User - specified information at node.
20. Addition of subarea runoff to main line.
21. V-gutter flow through area.
22. Copy main stream data to memory bank
23. Confluence main stream data with a memory bank
24. Clear a memory bank

At the confluence point of two or more basins, the following procedure is used to combine peak flow rates to account for differences in the basin's times of concentration. This adjustment is based on the assumption that each basin's hydrographs are triangular in shape.

(3). If the collection streams have the same times of concentration, then the Q values are directly summed,

$Q_p = Q_a + Q_b$; $T_p = T_a = T_b$

(4). If the collection streams have different times of concentration, the smaller of the tributary Q values may be adjusted as follows:

(iii). The most frequent case is where the collection stream with the longer time of concentration has the larger Q. The smaller Q value is adjusted by the ratio of rainfall intensities. $Q_p = Q_a + Q_b\ (I_a/I_b)$; $T_p = T_a$

(iv). In some cases, the collection stream with the shorter time of concentration has the larger Q. Then the smaller Q is adjusted by a ratio of the T values.

$Q_p = Q_b + Q_a\ (T_b/T_a)$; $T_p = T_b$

For more than three peaks that have a confluence in a discharge a similar logic but more complex approach is used:

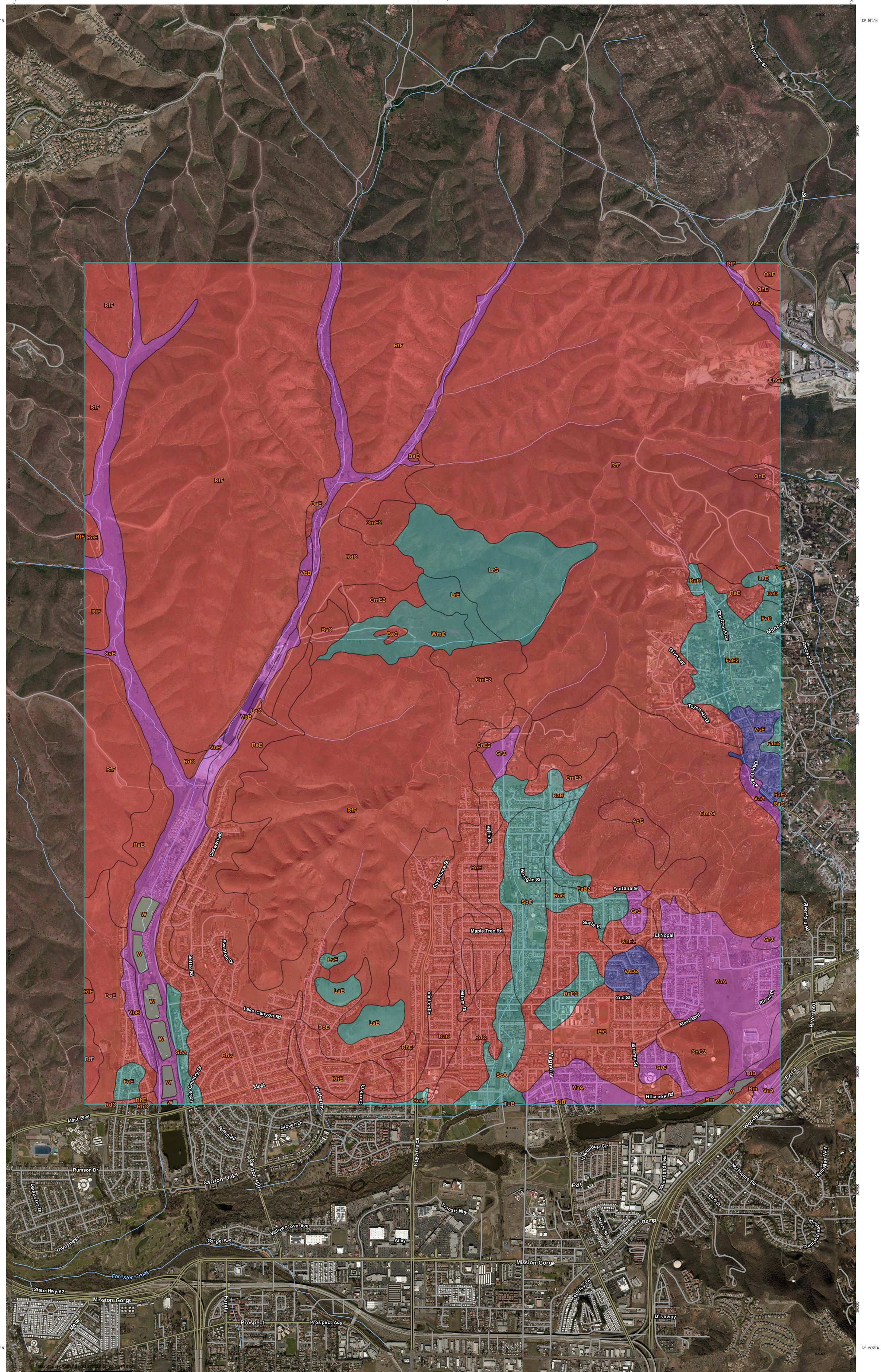
If "N" peaks are at confluence, and "N" different times of concentration are analyzed, "N" confluence calculations are made at each of the "N" time of concentration values.

Peak flows are arranged from smaller to larger in terms of time of concentration and not in terms of value. For a time of concentration Tc_i belonging to a peak Q_i the peaks whose time of concentration is smaller than Tc_i are adjusted by intensity and the peaks whose time of concentration is larger than Tc_i are adjusted by a ratio of the Tc_i values. The total peak flow with the time of concentration Tc_i (denoted as Q_{TTci}) will be:

$$Q_{TTci} = Q_1 \cdot (I_i/I_1) + Q_2 \cdot (I_i/I_2) + \ldots + Q_i + Q_{i+1}\ (Tc_i/Tc_{i+1}) + \ldots + Q_N \cdot (Tc_i/Tc_N)$$

The confluence peak is chosen as the larger between Q_{TTc1}, Q_{TTc2}, …. , Q_{TTci}, Q_{TTci+1}, …. , Q_{TTcN-1}, Q_{TTcN}

CHAPTER 3
SOIL CONDITIONS &
COEFFICIENT DETERMINATION


Highway 67
67
RfF
OhF
OhE
VbC
CnG2
BsC
DaE
CmE2
RdC
VbB
LrG
LrE
WmC
ReE
SvE
LeC
GrC
DaD
LsE
FvD
FaE2
Carl Creek Dr
Manzanita
Rocoso Rd
Driveway
Toyon Hill Dr
VsE
Oak Creek
VaA
RaC
RaB
AcG
CmrG
Keith St
Cuyamaca St
Kerrigan St
FaD2
SbC
Santana St
Susie Pl
El Nopal
Maple Tree Rd
Via Leslie
Biteer Dr
RaD2
2nd St
Pinon Pl
Mast Blvd
PfC
Jeremy St
Magnolia
ScA
TuB
Hillcreek Rd
Rm
Exit 4
Woodside
N Roundup Cir
Wheatlands Rd
Northcote Rd
High Rise Way
Riverford Rd
Diamond Bar Dr
Transit Way
Willowgrove Ave
Gorge Ave
Alley
Sierra St
Ramp
Shirley Ln
Forester Creek
State Hwy 52
Mission Gorge
Fanita
Prospect
Prospect Ave
Mesa
Inverness
Dumpster Dr
Rumson Dr
Carlton Oaks
Carlton Hills
Ruffin Rd
Stoyer Dr
Mast
Lake Country Dr
Halberns
Corey Ct
Cadwell Rd
Settle Rd
Swanton Dr
W
SbA
RhC
RhE
FeE
DoE
DaC
ReE
CnE2
VsD2
Map Scale: 1:14,200 if printed on A portrait (8.5" x 11") sheet.
0 200 400 800 1200 Feet
0 500 1000 2000 3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 12, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2010—Jan 4, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AcG	Acid igneous rock land	D	30.6	0.3%
BsC	Bosanko clay, 2 to 9 percent slopes	D	33.6	0.3%
CmE2	Cieneba rocky coarse sandy loam, 9 to 30 percent slopes , eroded	D	206.3	2.0%
CmrG	Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes	D	609.9	5.8%
CnE2	Cieneba-Fallbrook rocky sandy loams, 9 to 30 percent slopes, eroded	D	51.1	0.5%
CnG2	Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded	D	70.2	0.7%
DaC	Diablo clay, 2 to 9 percent slopes	D	99.4	0.9%
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT, MLRA 20	C	12.7	0.1%
DaE	Diablo clay, 15 to 30 percent slopes	D	8.5	0.1%
DoE	Diablo-Olivenhain complex, 9 to 30 percent slopes	D	676.3	6.4%
FaD2	Fallbrook sandy loam, 9 to 15 percent slopes, eroded	C	42.8	0.4%
FaE2	Fallbrook sandy loam, 15 to 30 percent slopes, eroded	C	160.2	1.5%
FeE	Fallbrook rocky sandy loam, 9 to 30 percent slopes	C	16.2	0.2%
FvD	Fallbrook-Vista sandy loams, 9 to 15 percent slopes	C	16.2	0.2%
GrC	Greenfield sandy loam, 5 to 9 percent slopes	A	68.5	0.6%
LeC	Las Flores loamy fine sand, 2 to 9 percent slopes	D	6.6	0.1%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LrE	Las Posas stony fine sandy loam, 9 to 30 percent slopes	C	40.2	0.4%
LrG	Las Posas stony fine sandy loam, 30 to 65 percent slopes	C	233.8	2.2%
LsE	Linne clay loam, 9 to 30 percent slopes	C	64.0	0.6%
OhE	Olivenhain cobbly loam, 9 to 30 percent slopes	D	37.0	0.4%
OhF	Olivenhain cobbly loam, 30 to 50 percent slopes	D	10.5	0.1%
PfC	Placentia sandy loam, thick surface, 2 to 9 percent slo pes	D	322.0	3.1%
RaB	Ramona sandy loam, 2 to 5 percent slopes	C	40.9	0.4%
RaC	Ramona sandy loam, 5 to 9 percent slopes	C	16.4	0.2%
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	C	36.4	0.3%
RdC	Redding gravelly loam, 2 to 9 percent slopes	D	303.2	2.9%
ReE	Redding cobbly loam, 9 to 30 percent slopes	D	308.9	2.9%
RfF	Redding cobbly loam, dissected, 15 to 50 percent slopes	D	5,356.4	50.8%
RhC	Redding-Urban land complex, 2 to 9 percent slopes	D	230.5	2.2%
RhE	Redding-Urban land complex, 9 to 30 percent slopes	D	75.2	0.7%
Rm	Riverwash	D	13.1	0.1%
SbA	Salinas clay loam, 0 to 2 percent slopes, warm MAAT, MLRA 19	C	30.7	0.3%
SbC	Salinas clay loam, 2 to 9 percent slopes	C	131.7	1.2%
ScA	Salinas clay, 0 to 2 percent slopes	C	70.7	0.7%
SvE	Stony land	A	465.9	4.4%
TuB	Tujunga sand, 0 to 5 percent slopes	A	28.5	0.3%
VaA	Visalia sandy loam, 0 to 2 percent slopes	A	323.6	3.1%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
VbB	Visalia gravelly sandy loam, 2 to 5 percent slopes	A	62.3	0.6%
VbC	Visalia gravelly sandy loam, 5 to 9 percent slopes	A	13.2	0.1%
VsD2	Vista coarse sandy loam, 9 to 15 percent slopes, eroded	B	34.6	0.3%
VsE	Vista coarse sandy loam, 15 to 30 percent slopes, MLRA 20	B	50.6	0.5%
W	Water		51.1	0.5%
WmC	Wyman loam, 5 to 9 percent slopes	C	89.7	0.9%
Totals for Area of Interest			**10,550.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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

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

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

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

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Runoff Coeficient Calculation			
Total Area (ac.)=	6.27		
Total Area (s.f.)=	273121		
Road Length=	1215		
Road Imp Area=	57105		
Product	50x75		
# of Lots	43		
du/ac	6.9		
Lot Imp Area=	92880		
Total Imp Area=	149985		
Comp % Imp=	55%	C=	0.66

Runoff Coeficient Calculation			
Total Area (ac.)=	3.71		
Total Area (s.f.)=	161608		
Road Length=	975		
Road Imp Area=	45825		
Product	60x75		
# of Lots	19		
du/ac	5.1		
Lot Imp Area=	47310		
Total Imp Area=	93135		
Comp % Imp=	58%	C=	0.67

Runoff Coeficient Calculation			
Total Area (ac.)=	7.72		
Total Area (s.f.)=	336283		
Road Length=	1098		
Road Imp Area=	51606		
Product	50x100		
# of Lots	38		
du/ac	4.9		
Lot Imp Area=	115520		
Total Imp Area=	167126		
Comp % Imp=	50%	C=	0.63

Runoff Coeficient Calculation			
Total Area (ac.)=	6.40		
Total Area (s.f.)=	278784		
Road Length=	1131		
Road Imp Area=	53157		
Product	60x100		
# of Lots	23		
du/ac	3.6		
Lot Imp Area=	82110		
Total Imp Area=	135267		
Comp % Imp=	49%	C=	0.60

Runoff Coeficient Calculation			
Total Area (ac.)=	5.85		
Total Area (s.f.)=	254826		
Road Length=	810		
Road Imp Area=	38070		
Product	70x100		
# of Lots	19		
du/ac	3.2		
Lot Imp Area=	80180		
Total Imp Area=	118250		
Comp % Imp=	46%	C=	0.61

Runoff Coeficient Calculation			
Total Area (ac.)=	7.61		
Total Area (s.f.)=	331492		
Road Length=	1065		
Road Imp Area=	50055		
Product	80x100		
# of Lots	23		
du/ac	3.0		
Lot Imp Area=	112010		
Total Imp Area=	162065		
Comp % Imp=	49%	C=	0.63

CHAPTER 4
HYDROLOGIC ANALYSIS

Existing Condition
100 – Year Design Storm

```
_____
___

*************************************************************************
***

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                              Analysis prepared by:

                       HUnsaker & Associates San Diego, Inc.
                                 9707 Waples Street
                                San Diego   CA   92121


  ************************** DESCRIPTION OF STUDY
**************************
 * Fanita Ranch, EXISTING CONDITION HYDROLOGY STUDY
*
 * 100-YEAR RAINFALL EVENT
*
 * W.O. 2395-0007,   DLN 1284
*

*************************************************************************
*

   FILE NAME: R:\1284\HYD\CALCS\TM\AES\EX.DAT
   TIME/DATE OF STUDY: 12:12 08/19/2019
 ------------------------------------------------------------------------
----
   USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
 ------------------------------------------------------------------------
----
   2003 SAN DIEGO MANUAL CRITERIA

   USER SPECIFIED STORM EVENT(YEAR) = 100.00
   6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
   SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
   SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE =
0.90
   SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
   NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
   *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
   2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.50 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.*


****************************************************************************
***
   FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1180.00
   DOWNSTREAM ELEVATION(FEET) =   1170.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


****************************************************************************
***
   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) =   1170.00  DOWNSTREAM(FEET) =
776.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2425.00   CHANNEL SLOPE =  0.1625
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.797
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      36.77
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.38
   AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   5.48
   Tc(MIN.) =   11.75
   SUBAREA AREA(ACRES) =    52.56       SUBAREA RUNOFF(CFS) =   69.85
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       52.9         PEAK FLOW RATE(CFS) =
70.29

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.71   FLOW VELOCITY(FEET/SEC.) =   9.06
   LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =    2525.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 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.) =   11.75
   RAINFALL INTENSITY(INCH/HR) =   3.80
   TOTAL STREAM AREA(ACRES) =    52.89
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     70.29


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
   *USER SPECIFIED(SUBAREA):
```

```
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1185.00
   DOWNSTREAM ELEVATION(FEET) =   1175.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.48
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48


****************************************************************************
***
   FLOW PROCESS FROM NODE    106.00 TO NODE    102.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1175.00  DOWNSTREAM(FEET) =
776.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2217.00   CHANNEL SLOPE =  0.1800
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.936
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      42.44
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.63
   AVERAGE FLOW DEPTH(FEET) =   0.47   TRAVEL TIME(MIN.) =   4.84
   Tc(MIN.) =   11.11
   SUBAREA AREA(ACRES) =    59.10       SUBAREA RUNOFF(CFS) =   81.42
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       59.3         PEAK FLOW RATE(CFS) =
81.75

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.68   FLOW VELOCITY(FEET/SEC.) =   9.42
   LONGEST FLOWPATH FROM NODE    105.00 TO NODE    102.00 =    2317.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 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.) =   11.11
   RAINFALL INTENSITY(INCH/HR) =   3.94
   TOTAL STREAM AREA(ACRES) =    59.34
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     81.75

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       70.29    11.75        3.797         52.89
       2       81.75    11.11        3.936         59.34

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      148.22    11.11       3.936
       2      149.14    11.75       3.797

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     149.14   Tc(MIN.) =   11.75
   TOTAL AREA(ACRES) =      112.2
   LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =    2525.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    776.00  DOWNSTREAM(FEET) =
732.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   855.00   CHANNEL SLOPE =  0.0515
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.454
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     172.66
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.67
   AVERAGE FLOW DEPTH(FEET) =   1.43   TRAVEL TIME(MIN.) =   1.86
   Tc(MIN.) =   13.60
```

```
   SUBAREA AREA(ACRES) =    38.90       SUBAREA RUNOFF(CFS) =   47.02
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      151.1         PEAK FLOW RATE(CFS) =
182.69

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.48   FLOW VELOCITY(FEET/SEC.) =   7.79
   LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =    3380.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    103.00 TO NODE    107.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =
655.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1633.00   CHANNEL SLOPE =  0.0472
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.003
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     251.67
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.26
   AVERAGE FLOW DEPTH(FEET) =   1.78   TRAVEL TIME(MIN.) =   3.30
   Tc(MIN.) =   16.90
   SUBAREA AREA(ACRES) =   131.10       SUBAREA RUNOFF(CFS) =  137.78
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      282.2         PEAK FLOW RATE(CFS) =
296.61

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.94   FLOW VELOCITY(FEET/SEC.) =   8.64
   LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    5013.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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

```
   ELEVATION DATA: UPSTREAM(FEET) =    660.00  DOWNSTREAM(FEET) =
558.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2842.00   CHANNEL SLOPE =  0.0359
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.481
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     340.19
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.13
   AVERAGE FLOW DEPTH(FEET) =   2.22   TRAVEL TIME(MIN.) =   5.83
   Tc(MIN.) =   22.73
   SUBAREA AREA(ACRES) =   100.29       SUBAREA RUNOFF(CFS) =   87.07
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      382.5         PEAK FLOW RATE(CFS) =
332.10

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  2.19   FLOW VELOCITY(FEET/SEC.) =   8.07
   LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =    7855.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1075.00
   DOWNSTREAM ELEVATION(FEET) =   1065.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.52
```

```
   TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      0.52


****************************************************************************
***
   FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1065.00  DOWNSTREAM(FEET) =
684.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1737.00   CHANNEL SLOPE =  0.2193
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.035
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3200
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      22.04
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.55
   AVERAGE FLOW DEPTH(FEET) =   0.31   TRAVEL TIME(MIN.) =   4.42
   Tc(MIN.) =   10.69
   SUBAREA AREA(ACRES) =    32.10       SUBAREA RUNOFF(CFS) =   41.45
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.320
   TOTAL AREA(ACRES) =       32.4         PEAK FLOW RATE(CFS) =
41.82

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.45   FLOW VELOCITY(FEET/SEC.) =   8.28
   LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =    1837.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    684.00  DOWNSTREAM(FEET) =
555.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1720.00   CHANNEL SLOPE =  0.0750
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.224
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3300
```

```
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      55.91
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.45
   AVERAGE FLOW DEPTH(FEET) =   0.71   TRAVEL TIME(MIN.) =   4.45
   Tc(MIN.) =   15.14
   SUBAREA AREA(ACRES) =    26.41       SUBAREA RUNOFF(CFS) =   28.10
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.325
   TOTAL AREA(ACRES) =       58.8         PEAK FLOW RATE(CFS) =
61.51

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.76   FLOW VELOCITY(FEET/SEC.) =   6.61
   LONGEST FLOWPATH FROM NODE    110.00 TO NODE    113.00 =    3557.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    115.00 TO NODE    116.00 IS CODE =  21
 -------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    810.00
   DOWNSTREAM ELEVATION(FEET) =    800.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.16
   TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.16


****************************************************************************
***
   FLOW PROCESS FROM NODE    116.00 TO NODE    117.00 IS CODE =  51
 -------------------------------------------------------------------------
----
```

```
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =
538.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1697.00   CHANNEL SLOPE =  0.1544
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.858
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3440
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.83
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.45
   AVERAGE FLOW DEPTH(FEET) =   0.30   TRAVEL TIME(MIN.) =   5.19
   Tc(MIN.) =   11.46
   SUBAREA AREA(ACRES) =    25.64       SUBAREA RUNOFF(CFS) =   34.03
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.344
   TOTAL AREA(ACRES) =       25.7         PEAK FLOW RATE(CFS) =
34.13

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.44   FLOW VELOCITY(FEET/SEC.) =   6.89
   LONGEST FLOWPATH FROM NODE    115.00 TO NODE    117.00 =    1797.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    120.00 TO NODE    121.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    800.00
   DOWNSTREAM ELEVATION(FEET) =    790.00
   ELEVATION DIFFERENCE(FEET) =     10.00
```

```
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.48
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48


****************************************************************************
***
   FLOW PROCESS FROM NODE    121.00 TO NODE    122.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =
508.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2585.00   CHANNEL SLOPE =  0.1091
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.585
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      41.51
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.55
   AVERAGE FLOW DEPTH(FEET) =   0.54   TRAVEL TIME(MIN.) =   6.58
   Tc(MIN.) =   12.84
   SUBAREA AREA(ACRES) =    62.53       SUBAREA RUNOFF(CFS) =   78.45
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       62.8         PEAK FLOW RATE(CFS) =
78.75

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.78   FLOW VELOCITY(FEET/SEC.) =   8.15
   LONGEST FLOWPATH FROM NODE    120.00 TO NODE    122.00 =    2685.00
FEET.

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


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

```
   FLOW PROCESS FROM NODE    125.00 TO NODE    126.00 IS CODE =  21
 ----------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

======================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1180.00
   DOWNSTREAM ELEVATION(FEET) =   1170.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.48
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48


**********************************************************************
***
   FLOW PROCESS FROM NODE    126.00 TO NODE    127.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1170.00  DOWNSTREAM(FEET) =
906.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2314.00   CHANNEL SLOPE =  0.1141
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.650
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3250
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      35.94
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.20
   AVERAGE FLOW DEPTH(FEET) =   0.49   TRAVEL TIME(MIN.) =   6.22
   Tc(MIN.) =   12.49
   SUBAREA AREA(ACRES) =    57.10       SUBAREA RUNOFF(CFS) =   67.73
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.325
   TOTAL AREA(ACRES) =       57.3         PEAK FLOW RATE(CFS) =
68.04

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.70   FLOW VELOCITY(FEET/SEC.) =   7.63
   LONGEST FLOWPATH FROM NODE    125.00 TO NODE    127.00 =    2414.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    127.00 TO NODE    128.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    906.00  DOWNSTREAM(FEET) =
770.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1980.00   CHANNEL SLOPE =  0.0687
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.981
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3100
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      98.03
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.17
   AVERAGE FLOW DEPTH(FEET) =   0.98   TRAVEL TIME(MIN.) =   4.60
   Tc(MIN.) =   17.09
   SUBAREA AREA(ACRES) =    64.62       SUBAREA RUNOFF(CFS) =   59.73
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.317
   TOTAL AREA(ACRES) =      122.0         PEAK FLOW RATE(CFS) =
115.30

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.07   FLOW VELOCITY(FEET/SEC.) =   7.54
   LONGEST FLOWPATH FROM NODE    125.00 TO NODE    128.00 =    4394.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    128.00 TO NODE    129.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    770.00  DOWNSTREAM(FEET) =
594.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2150.00   CHANNEL SLOPE =  0.0819
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   9.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.581
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3200
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     134.14
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.38
```

```
   AVERAGE FLOW DEPTH(FEET) =   1.11   TRAVEL TIME(MIN.) =   4.28
   Tc(MIN.) =   21.37
   SUBAREA AREA(ACRES) =    45.55       SUBAREA RUNOFF(CFS) =   37.63
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.318
   TOTAL AREA(ACRES) =      167.5         PEAK FLOW RATE(CFS) =
137.46

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.12   FLOW VELOCITY(FEET/SEC.) =   8.43
   LONGEST FLOWPATH FROM NODE    125.00 TO NODE    129.00 =    6544.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    129.00 TO NODE    130.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    594.00  DOWNSTREAM(FEET) =
494.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2130.00   CHANNEL SLOPE =  0.0469
   CHANNEL BASE(FEET) =   13.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.264
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     164.50
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.37
   AVERAGE FLOW DEPTH(FEET) =   1.32   TRAVEL TIME(MIN.) =   4.82
   Tc(MIN.) =   26.18
   SUBAREA AREA(ACRES) =    68.26       SUBAREA RUNOFF(CFS) =   54.09
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.327
   TOTAL AREA(ACRES) =      235.8         PEAK FLOW RATE(CFS) =
174.65

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.36   FLOW VELOCITY(FEET/SEC.) =   7.51
   LONGEST FLOWPATH FROM NODE    125.00 TO NODE    130.00 =    8674.00
FEET.

 +------------------------------------------------------------------------
---+
 |
|
 |
|
 |
|
```

```
 +-------------------------------------------------------------------------
---+


****************************************************************************
***
   FLOW PROCESS FROM NODE    135.00 TO NODE    136.00 IS CODE =  21
 -------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1185.00
   DOWNSTREAM ELEVATION(FEET) =   1170.00
   ELEVATION DIFFERENCE(FEET) =     15.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.76
   TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      0.76


****************************************************************************
***
   FLOW PROCESS FROM NODE    136.00 TO NODE    137.00 IS CODE =  51
 -------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1170.00  DOWNSTREAM(FEET) =
875.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2883.00   CHANNEL SLOPE =  0.1023
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.625
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3250
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      58.93
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.56
   AVERAGE FLOW DEPTH(FEET) =   0.76   TRAVEL TIME(MIN.) =   6.35
   Tc(MIN.) =   12.62
   SUBAREA AREA(ACRES) =    94.16       SUBAREA RUNOFF(CFS) =  110.95
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.325
   TOTAL AREA(ACRES) =       94.5         PEAK FLOW RATE(CFS) =
111.43
```

```
   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.08   FLOW VELOCITY(FEET/SEC.) =   9.19
   LONGEST FLOWPATH FROM NODE    135.00 TO NODE    137.00 =    2983.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    137.00 TO NODE    138.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    875.00  DOWNSTREAM(FEET) =
646.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2960.00   CHANNEL SLOPE =  0.0774
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.874
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3300
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     159.28
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.02
   AVERAGE FLOW DEPTH(FEET) =   1.28   TRAVEL TIME(MIN.) =   5.47
   Tc(MIN.) =   18.09
   SUBAREA AREA(ACRES) =   100.48       SUBAREA RUNOFF(CFS) =   95.30
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.328
   TOTAL AREA(ACRES) =      195.0         PEAK FLOW RATE(CFS) =
183.63

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.38   FLOW VELOCITY(FEET/SEC.) =   9.43
   LONGEST FLOWPATH FROM NODE    135.00 TO NODE    138.00 =    5943.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    138.00 TO NODE    139.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    646.00  DOWNSTREAM(FEET) =
514.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  3035.00   CHANNEL SLOPE =  0.0435
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
```

```
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.373
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3300
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     211.39
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.09
   AVERAGE FLOW DEPTH(FEET) =   1.81   TRAVEL TIME(MIN.) =   6.25
   Tc(MIN.) =   24.34
   SUBAREA AREA(ACRES) =    70.79       SUBAREA RUNOFF(CFS) =   55.43
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.328
   TOTAL AREA(ACRES) =      265.8         PEAK FLOW RATE(CFS) =
207.05

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.79   FLOW VELOCITY(FEET/SEC.) =   8.06
   LONGEST FLOWPATH FROM NODE    135.00 TO NODE    139.00 =    8978.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    139.00 TO NODE    139.00 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.) =   24.34
   RAINFALL INTENSITY(INCH/HR) =   2.37
   TOTAL STREAM AREA(ACRES) =   265.81
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    207.05


****************************************************************************
***
   FLOW PROCESS FROM NODE    140.00 TO NODE    141.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3000
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1140.00
   DOWNSTREAM ELEVATION(FEET) =   1130.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.684
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.462
```

```
   SUBAREA RUNOFF(CFS) =      0.23
   TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.23


****************************************************************************
***
   FLOW PROCESS FROM NODE    141.00 TO NODE    142.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1134.00  DOWNSTREAM(FEET) =
679.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2358.00   CHANNEL SLOPE =  0.1930
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.781
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3000
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      31.81
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.65
   AVERAGE FLOW DEPTH(FEET) =   0.45   TRAVEL TIME(MIN.) =   5.14
   Tc(MIN.) =   11.82
   SUBAREA AREA(ACRES) =    53.98       SUBAREA RUNOFF(CFS) =   61.24
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.300
   TOTAL AREA(ACRES) =       54.1         PEAK FLOW RATE(CFS) =
61.40

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.65   FLOW VELOCITY(FEET/SEC.) =   9.57
   LONGEST FLOWPATH FROM NODE    140.00 TO NODE    142.00 =    2458.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    142.00 TO NODE    143.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    679.00  DOWNSTREAM(FEET) =
607.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1567.00   CHANNEL SLOPE =  0.0459
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.114
   *USER SPECIFIED(SUBAREA):
```

```
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3100
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      79.70
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.29
   AVERAGE FLOW DEPTH(FEET) =   1.12   TRAVEL TIME(MIN.) =   4.15
   Tc(MIN.) =   15.97
   SUBAREA AREA(ACRES) =    37.84       SUBAREA RUNOFF(CFS) =   36.53
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.304
   TOTAL AREA(ACRES) =       92.0         PEAK FLOW RATE(CFS) =
87.08

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.17   FLOW VELOCITY(FEET/SEC.) =   6.47
   LONGEST FLOWPATH FROM NODE    140.00 TO NODE    143.00 =    4025.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    143.00 TO NODE    139.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    607.00  DOWNSTREAM(FEET) =
514.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2290.00   CHANNEL SLOPE =  0.0406
   CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.582
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3300
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     101.00
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.09
   AVERAGE FLOW DEPTH(FEET) =   1.56   TRAVEL TIME(MIN.) =   5.38
   Tc(MIN.) =   21.36
   SUBAREA AREA(ACRES) =    32.64       SUBAREA RUNOFF(CFS) =   27.81
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.311
   TOTAL AREA(ACRES) =      124.6         PEAK FLOW RATE(CFS) =
100.02

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.55   FLOW VELOCITY(FEET/SEC.) =   7.07
   LONGEST FLOWPATH FROM NODE    140.00 TO NODE    139.00 =    6315.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    139.00 TO NODE    139.00 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.) =   21.36
   RAINFALL INTENSITY(INCH/HR) =   2.58
   TOTAL STREAM AREA(ACRES) =   124.60
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    100.02

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      207.05    24.34        2.373        265.81
       2      100.02    21.36        2.582        124.60

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      281.67    21.36       2.582
       2      298.98    24.34       2.373

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     298.98   Tc(MIN.) =   24.34
   TOTAL AREA(ACRES) =      390.4
   LONGEST FLOWPATH FROM NODE    135.00 TO NODE    139.00 =    8978.00
FEET.


****************************************************************************
   FLOW PROCESS FROM NODE    139.00 TO NODE    144.00 IS CODE =  51
 ----------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    514.00  DOWNSTREAM(FEET) =
467.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1727.00   CHANNEL SLOPE =  0.0272
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.167
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3450
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     338.37
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.83
```

```
   AVERAGE FLOW DEPTH(FEET) =   2.69   TRAVEL TIME(MIN.) =   3.67
   Tc(MIN.) =   28.02
   SUBAREA AREA(ACRES) =   105.34       SUBAREA RUNOFF(CFS) =   78.77
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.327
   TOTAL AREA(ACRES) =      495.8         PEAK FLOW RATE(CFS) =
351.83

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  2.74   FLOW VELOCITY(FEET/SEC.) =   7.93
   LONGEST FLOWPATH FROM NODE    135.00 TO NODE    144.00 =   10705.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    150.00 TO NODE    151.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1125.00
   DOWNSTREAM ELEVATION(FEET) =   1115.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.60
   TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      0.60


****************************************************************************
***
   FLOW PROCESS FROM NODE    151.00 TO NODE    152.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1115.00  DOWNSTREAM(FEET) =
872.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2014.00   CHANNEL SLOPE =  0.1207
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.915
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      39.64
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.80
   AVERAGE FLOW DEPTH(FEET) =   0.57   TRAVEL TIME(MIN.) =   4.94
   Tc(MIN.) =   11.20
   SUBAREA AREA(ACRES) =    55.29       SUBAREA RUNOFF(CFS) =   75.76
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       55.6         PEAK FLOW RATE(CFS) =
76.17

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.81   FLOW VELOCITY(FEET/SEC.) =   8.35
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    152.00 =    2114.00
FEET.

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


**************************************************************************
***
   FLOW PROCESS FROM NODE    155.00 TO NODE    156.00 IS CODE =  21
 -------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

==========================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1159.00
   DOWNSTREAM ELEVATION(FEET) =   1149.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
```

```
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


****************************************************************************
***
   FLOW PROCESS FROM NODE    156.00 TO NODE    157.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1149.00  DOWNSTREAM(FEET) =
813.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1935.00   CHANNEL SLOPE =  0.1736
   CHANNEL BASE(FEET) =   13.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.839
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.06
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.11
   AVERAGE FLOW DEPTH(FEET) =   0.32   TRAVEL TIME(MIN.) =   5.28
   Tc(MIN.) =   11.55
   SUBAREA AREA(ACRES) =    37.92       SUBAREA RUNOFF(CFS) =   50.95
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       38.2         PEAK FLOW RATE(CFS) =
51.39

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.46   FLOW VELOCITY(FEET/SEC.) =   7.72
   LONGEST FLOWPATH FROM NODE    155.00 TO NODE    157.00 =    2035.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    157.00 TO NODE    157.00 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.) =   11.55
   RAINFALL INTENSITY(INCH/HR) =   3.84
   TOTAL STREAM AREA(ACRES) =    38.25
```

```
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     51.39


****************************************************************************
***
   FLOW PROCESS FROM NODE    158.00 TO NODE    159.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1129.00
   DOWNSTREAM ELEVATION(FEET) =   1119.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.48
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48


****************************************************************************
***
   FLOW PROCESS FROM NODE    159.00 TO NODE    157.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1119.00  DOWNSTREAM(FEET) =
813.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1929.00   CHANNEL SLOPE =  0.1586
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.984
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      33.75
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.94
   AVERAGE FLOW DEPTH(FEET) =   0.47   TRAVEL TIME(MIN.) =   4.64
   Tc(MIN.) =   10.90
   SUBAREA AREA(ACRES) =    46.54       SUBAREA RUNOFF(CFS) =   64.89
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       46.8         PEAK FLOW RATE(CFS) =
65.23

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
```

```
   DEPTH(FEET) =  0.68   FLOW VELOCITY(FEET/SEC.) =   8.48
   LONGEST FLOWPATH FROM NODE    158.00 TO NODE    157.00 =    2029.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    157.00 TO NODE    157.00 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.) =   10.90
   RAINFALL INTENSITY(INCH/HR) =   3.98
   TOTAL STREAM AREA(ACRES) =    46.78
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     65.23

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       51.39    11.55        3.839         38.25
       2       65.23    10.90        3.984         46.78

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      113.74    10.90       3.984
       2      114.24    11.55       3.839

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     114.24   Tc(MIN.) =   11.55
   TOTAL AREA(ACRES) =       85.0
   LONGEST FLOWPATH FROM NODE    155.00 TO NODE    157.00 =    2035.00
FEET.

 +--------------------------------------------------------------------------
---+
 |
|
 |
|
 |
|
 +--------------------------------------------------------------------------
---+
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    160.00 TO NODE    161.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1187.00
   DOWNSTREAM ELEVATION(FEET) =   1177.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.46
   TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.46


****************************************************************************
***
   FLOW PROCESS FROM NODE    161.00 TO NODE    162.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1175.00  DOWNSTREAM(FEET) =
880.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   995.00   CHANNEL SLOPE =  0.2965
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.623
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.14
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.94
   AVERAGE FLOW DEPTH(FEET) =   0.27   TRAVEL TIME(MIN.) =   2.39
   Tc(MIN.) =    8.66
   SUBAREA AREA(ACRES) =    20.36       SUBAREA RUNOFF(CFS) =   32.94
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       20.6         PEAK FLOW RATE(CFS) =
33.31

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.40   FLOW VELOCITY(FEET/SEC.) =   8.69
```

```
   LONGEST FLOWPATH FROM NODE    160.00 TO NODE    162.00 =    1095.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    170.00 TO NODE    171.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =   1210.00
   DOWNSTREAM ELEVATION(FEET) =   1200.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.84
   TOTAL AREA(ACRES) =      0.42   TOTAL RUNOFF(CFS) =      0.84


****************************************************************************
***
   FLOW PROCESS FROM NODE    171.00 TO NODE    172.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   1200.00  DOWNSTREAM(FEET) =
898.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2325.00   CHANNEL SLOPE =  0.1299
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  11.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.713
```

```
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      37.41
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.57
   AVERAGE FLOW DEPTH(FEET) =   0.48   TRAVEL TIME(MIN.) =   5.89
   Tc(MIN.) =   12.16
   SUBAREA AREA(ACRES) =    54.14       SUBAREA RUNOFF(CFS) =   70.35
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       54.6         PEAK FLOW RATE(CFS) =
70.90

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.69   FLOW VELOCITY(FEET/SEC.) =   8.06
   LONGEST FLOWPATH FROM NODE    170.00 TO NODE    172.00 =    2425.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    172.00 TO NODE    153.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    898.00  DOWNSTREAM(FEET) =
775.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1141.00   CHANNEL SLOPE =  0.1078
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.320
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      93.99
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.26
   AVERAGE FLOW DEPTH(FEET) =   0.85   TRAVEL TIME(MIN.) =   2.30
   Tc(MIN.) =   14.46
   SUBAREA AREA(ACRES) =    39.68       SUBAREA RUNOFF(CFS) =   46.11
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       94.2         PEAK FLOW RATE(CFS) =
109.50

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.92   FLOW VELOCITY(FEET/SEC.) =   8.70
   LONGEST FLOWPATH FROM NODE    170.00 TO NODE    153.00 =    3566.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    153.00 TO NODE    173.00 IS CODE =  51
```

```
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    775.00  DOWNSTREAM(FEET) =
576.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1256.00   CHANNEL SLOPE =  0.1584
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.063
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     148.10
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.86
   AVERAGE FLOW DEPTH(FEET) =   0.98   TRAVEL TIME(MIN.) =   1.93
   Tc(MIN.) =   16.39
   SUBAREA AREA(ACRES) =    71.97       SUBAREA RUNOFF(CFS) =   77.14
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      166.2         PEAK FLOW RATE(CFS) =
178.16

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.08   FLOW VELOCITY(FEET/SEC.) =  11.51
   LONGEST FLOWPATH FROM NODE    170.00 TO NODE    173.00 =    4822.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    173.00 TO NODE    174.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    576.00  DOWNSTREAM(FEET) =
502.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1564.00   CHANNEL SLOPE =  0.0473
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.734
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     245.16
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.27
   AVERAGE FLOW DEPTH(FEET) =   1.82   TRAVEL TIME(MIN.) =   3.15
   Tc(MIN.) =   19.54
   SUBAREA AREA(ACRES) =   139.91       SUBAREA RUNOFF(CFS) =  133.89
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
```

```
   TOTAL AREA(ACRES) =      306.1         PEAK FLOW RATE(CFS) =
292.94

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.99   FLOW VELOCITY(FEET/SEC.) =   8.69
   LONGEST FLOWPATH FROM NODE    170.00 TO NODE    174.00 =    6386.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    175.00 TO NODE    176.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
   UPSTREAM ELEVATION(FEET) =   1260.00
   DOWNSTREAM ELEVATION(FEET) =   1240.00
   ELEVATION DIFFERENCE(FEET) =     20.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      1.55
   TOTAL AREA(ACRES) =      0.78   TOTAL RUNOFF(CFS) =      1.55


****************************************************************************
***
   FLOW PROCESS FROM NODE    176.00 TO NODE    177.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   1240.00  DOWNSTREAM(FEET) =
580.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1244.00   CHANNEL SLOPE =  0.5305
   CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.682
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      19.83
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.34
   AVERAGE FLOW DEPTH(FEET) =   0.27   TRAVEL TIME(MIN.) =   2.22
   Tc(MIN.) =    8.49
   SUBAREA AREA(ACRES) =    22.08       SUBAREA RUNOFF(CFS) =   36.18
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       22.9         PEAK FLOW RATE(CFS) =
37.46

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =  11.69
   LONGEST FLOWPATH FROM NODE    175.00 TO NODE    177.00 =    1394.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    190.00 TO NODE    191.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    942.00
   DOWNSTREAM ELEVATION(FEET) =    932.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
```

```
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.56
   TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.56


****************************************************************************
***
   FLOW PROCESS FROM NODE    191.00 TO NODE    192.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    932.00  DOWNSTREAM(FEET) =
578.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1690.00   CHANNEL SLOPE =  0.2095
   CHANNEL BASE(FEET) =   11.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.033
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      23.95
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.35
   AVERAGE FLOW DEPTH(FEET) =   0.31   TRAVEL TIME(MIN.) =   4.43
   Tc(MIN.) =   10.70
   SUBAREA AREA(ACRES) =    32.10       SUBAREA RUNOFF(CFS) =   45.31
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       32.4         PEAK FLOW RATE(CFS) =
45.70

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.45   FLOW VELOCITY(FEET/SEC.) =   8.03
   LONGEST FLOWPATH FROM NODE    190.00 TO NODE    192.00 =    1790.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
```

```
 ----------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

======================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
   UPSTREAM ELEVATION(FEET) =    884.00
   DOWNSTREAM ELEVATION(FEET) =    876.00
   ELEVATION DIFFERENCE(FEET) =      8.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.427
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.248
   SUBAREA RUNOFF(CFS) =      0.22
   TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22


**********************************************************************
***
   FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    876.00  DOWNSTREAM(FEET) =
580.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   800.00   CHANNEL SLOPE =  0.3700
   CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.124
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.99
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.83
   AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   1.95
   Tc(MIN.) =    7.38
   SUBAREA AREA(ACRES) =    11.91       SUBAREA RUNOFF(CFS) =   21.36
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       12.0         PEAK FLOW RATE(CFS) =
21.54

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.32   FLOW VELOCITY(FEET/SEC.) =   8.59
   LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     875.00
FEET.

 +--------------------------------------------------------------------
---+
```

```
 |
|
 |
|
 |
|
 +-------------------------------------------------------------------------
---+


****************************************************************************
***
   FLOW PROCESS FROM NODE    250.00 TO NODE    251.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    746.00
   DOWNSTREAM ELEVATION(FEET) =    736.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.78
   TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      0.78


****************************************************************************
***
   FLOW PROCESS FROM NODE    251.00 TO NODE    252.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    736.00  DOWNSTREAM(FEET) =
580.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   801.00   CHANNEL SLOPE =  0.1948
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.72
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.50
   AVERAGE FLOW DEPTH(FEET) =   0.13   TRAVEL TIME(MIN.) =   3.82
```

```
   Tc(MIN.) =   10.08
   SUBAREA AREA(ACRES) =     5.27       SUBAREA RUNOFF(CFS) =    7.73
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        5.7         PEAK FLOW RATE(CFS) =
8.30

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.18   FLOW VELOCITY(FEET/SEC.) =   4.27
   LONGEST FLOWPATH FROM NODE    250.00 TO NODE    252.00 =     901.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    252.00 TO NODE    253.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    580.00  DOWNSTREAM(FEET) =
500.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   700.00   CHANNEL SLOPE =  0.1143
   CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   3.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.976
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .7100
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.11
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  13.65
   AVERAGE FLOW DEPTH(FEET) =   0.33   TRAVEL TIME(MIN.) =   0.85
   Tc(MIN.) =   10.94
   SUBAREA AREA(ACRES) =     2.71       SUBAREA RUNOFF(CFS) =    7.65
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.467
   TOTAL AREA(ACRES) =        8.4         PEAK FLOW RATE(CFS) =
15.52

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.38   FLOW VELOCITY(FEET/SEC.) =  14.59
   LONGEST FLOWPATH FROM NODE    250.00 TO NODE    253.00 =    1601.00
FEET.

 +----------------------------------------------------------------------------
---+
 |
|
 |
|
 |
|
 +----------------------------------------------------------------------------
---+
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    270.00 TO NODE    271.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    748.00
   DOWNSTREAM ELEVATION(FEET) =    738.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.16
   TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.16


****************************************************************************
***
   FLOW PROCESS FROM NODE    271.00 TO NODE    272.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    738.00  DOWNSTREAM(FEET) =
516.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1066.00   CHANNEL SLOPE =  0.2083
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.976
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.81
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.81
   AVERAGE FLOW DEPTH(FEET) =   0.13   TRAVEL TIME(MIN.) =   4.67
   Tc(MIN.) =   10.93
   SUBAREA AREA(ACRES) =     6.50       SUBAREA RUNOFF(CFS) =    9.05
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        6.6         PEAK FLOW RATE(CFS) =
9.16

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   4.79
```

```
   LONGEST FLOWPATH FROM NODE    270.00 TO NODE    272.00 =    1166.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
 -------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    984.00
   DOWNSTREAM ELEVATION(FEET) =    974.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


****************************************************************************
***
   FLOW PROCESS FROM NODE    301.00 TO NODE    302.00 IS CODE =  51
 -------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    972.00  DOWNSTREAM(FEET) =
582.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2086.00   CHANNEL SLOPE =  0.1870
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.976
```

```
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      30.34
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.44
   AVERAGE FLOW DEPTH(FEET) =   0.44   TRAVEL TIME(MIN.) =   4.67
   Tc(MIN.) =   10.94
   SUBAREA AREA(ACRES) =    41.48       SUBAREA RUNOFF(CFS) =   57.72
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       41.8         PEAK FLOW RATE(CFS) =
58.18

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.64   FLOW VELOCITY(FEET/SEC.) =   9.23
   LONGEST FLOWPATH FROM NODE    300.00 TO NODE    302.00 =    2186.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    303.00 TO NODE    302.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.976
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5200
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3693
   SUBAREA AREA(ACRES) =    5.35   SUBAREA RUNOFF(CFS) =   11.06
   TOTAL AREA(ACRES) =       47.2   TOTAL RUNOFF(CFS) =      69.24
   TC(MIN.) =   10.94


****************************************************************************
***
   FLOW PROCESS FROM NODE    302.00 TO NODE    304.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   574.00  DOWNSTREAM(FEET) =   565.00
   FLOW LENGTH(FEET) =   270.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  30.0 INCH PIPE IS  23.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.49
   ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      69.24
   PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   11.21
   LONGEST FLOWPATH FROM NODE    300.00 TO NODE    304.00 =    2456.00
FEET.
```

```
 +-------------------------------------------------------------------------
---+
 |
|
 |
|
 |
|
 +-------------------------------------------------------------------------
---+


****************************************************************************
***
   FLOW PROCESS FROM NODE    320.00 TO NODE    321.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
   UPSTREAM ELEVATION(FEET) =    748.00
   DOWNSTREAM ELEVATION(FEET) =    738.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.843
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.380
   SUBAREA RUNOFF(CFS) =      0.27
   TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.27


****************************************************************************
***
   FLOW PROCESS FROM NODE    321.00 TO NODE    322.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    738.00  DOWNSTREAM(FEET) =
540.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   867.00   CHANNEL SLOPE =  0.2284
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.319
```

```
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.72
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.21
   AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   2.78
   Tc(MIN.) =    9.62
   SUBAREA AREA(ACRES) =     5.55       SUBAREA RUNOFF(CFS) =   10.79
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.450
   TOTAL AREA(ACRES) =        5.7         PEAK FLOW RATE(CFS) =
11.00

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.30   FLOW VELOCITY(FEET/SEC.) =   6.54
   LONGEST FLOWPATH FROM NODE    320.00 TO NODE    322.00 =    1067.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    600.00 TO NODE    601.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    842.00
   DOWNSTREAM ELEVATION(FEET) =    832.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.18
   TOTAL AREA(ACRES) =      0.09   TOTAL RUNOFF(CFS) =      0.18


****************************************************************************
***
   FLOW PROCESS FROM NODE    601.00 TO NODE    602.00 IS CODE =  51
```

```
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    832.00  DOWNSTREAM(FEET) =
522.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1932.00   CHANNEL SLOPE =  0.1605
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.643
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      15.39
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.15
   AVERAGE FLOW DEPTH(FEET) =   0.27   TRAVEL TIME(MIN.) =   6.26
   Tc(MIN.) =   12.52
   SUBAREA AREA(ACRES) =    22.83       SUBAREA RUNOFF(CFS) =   29.11
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       22.9         PEAK FLOW RATE(CFS) =
29.23

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   6.45
   LONGEST FLOWPATH FROM NODE    600.00 TO NODE    602.00 =    2032.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    602.00 TO NODE    603.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    522.00  DOWNSTREAM(FEET) =
455.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1128.00   CHANNEL SLOPE =  0.0594
   CHANNEL BASE(FEET) =   12.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.138
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3400
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      57.35
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.77
   AVERAGE FLOW DEPTH(FEET) =   0.70   TRAVEL TIME(MIN.) =   3.26
   Tc(MIN.) =   15.78
   SUBAREA AREA(ACRES) =    52.53       SUBAREA RUNOFF(CFS) =   56.05
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.343
```

```
   TOTAL AREA(ACRES) =       75.4         PEAK FLOW RATE(CFS) =
81.22

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.86   FLOW VELOCITY(FEET/SEC.) =   6.48
   LONGEST FLOWPATH FROM NODE    600.00 TO NODE    603.00 =    3160.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    603.00 TO NODE    612.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    462.00  DOWNSTREAM(FEET) =
455.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   500.00   CHANNEL SLOPE =  0.0140
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.707
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .2700
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      81.97
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.05
   AVERAGE FLOW DEPTH(FEET) =   0.39   TRAVEL TIME(MIN.) =   4.06
   Tc(MIN.) =   19.85
   SUBAREA AREA(ACRES) =     2.05       SUBAREA RUNOFF(CFS) =    1.50
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.341
   TOTAL AREA(ACRES) =       77.5         PEAK FLOW RATE(CFS) =
81.22

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   2.06
   LONGEST FLOWPATH FROM NODE    600.00 TO NODE    612.00 =    3660.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    612.00 TO NODE    612.00 IS CODE =  10
 ----------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

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

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    605.00 TO NODE    606.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    865.00
   DOWNSTREAM ELEVATION(FEET) =    855.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


****************************************************************************
***
   FLOW PROCESS FROM NODE    606.00 TO NODE    607.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    855.00  DOWNSTREAM(FEET) =
539.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  3431.00   CHANNEL SLOPE =  0.0921
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.385
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      81.91
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.36
   AVERAGE FLOW DEPTH(FEET) =   0.84   TRAVEL TIME(MIN.) =   7.77
   Tc(MIN.) =   14.03
   SUBAREA AREA(ACRES) =   130.82       SUBAREA RUNOFF(CFS) =  155.00
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      131.2         PEAK FLOW RATE(CFS) =
155.39

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.18   FLOW VELOCITY(FEET/SEC.) =   8.86
```

```
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    607.00 =    3531.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    607.00 TO NODE    607.00 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.) =   14.03
   RAINFALL INTENSITY(INCH/HR) =   3.39
   TOTAL STREAM AREA(ACRES) =   131.15
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    155.39


****************************************************************************
***
   FLOW PROCESS FROM NODE    610.00 TO NODE    611.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    980.00
   DOWNSTREAM ELEVATION(FEET) =    970.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


****************************************************************************
***
   FLOW PROCESS FROM NODE    611.00 TO NODE    607.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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

```
   ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =
539.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2539.00   CHANNEL SLOPE =  0.1698
   CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.782
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      36.79
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.62
   AVERAGE FLOW DEPTH(FEET) =   0.53   TRAVEL TIME(MIN.) =   5.55
   Tc(MIN.) =   11.82
   SUBAREA AREA(ACRES) =    52.70       SUBAREA RUNOFF(CFS) =   69.76
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       53.0         PEAK FLOW RATE(CFS) =
70.20

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.75   FLOW VELOCITY(FEET/SEC.) =   9.35
   LONGEST FLOWPATH FROM NODE    610.00 TO NODE    607.00 =    2639.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    607.00 TO NODE    607.00 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.) =   11.82
   RAINFALL INTENSITY(INCH/HR) =   3.78
   TOTAL STREAM AREA(ACRES) =    53.03
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     70.20

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      155.39    14.03        3.385        131.15
       2       70.20    11.82        3.782         53.03

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      201.06    11.82       3.782
       2      218.23    14.03       3.385
```

```
   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     218.23   Tc(MIN.) =   14.03
   TOTAL AREA(ACRES) =      184.2
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    607.00 =    3531.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    607.00 TO NODE    612.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    539.00  DOWNSTREAM(FEET) =
451.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2632.00   CHANNEL SLOPE =  0.0334
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.719
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     249.99
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.73
   AVERAGE FLOW DEPTH(FEET) =   2.11   TRAVEL TIME(MIN.) =   5.68
   Tc(MIN.) =   19.71
   SUBAREA AREA(ACRES) =    66.62       SUBAREA RUNOFF(CFS) =   63.40
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      250.8         PEAK FLOW RATE(CFS) =
238.68

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  2.06   FLOW VELOCITY(FEET/SEC.) =   7.62
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    612.00 =    6163.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    612.00 TO NODE    612.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

============================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
```

```
       1      238.68    19.71       2.719      250.80
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    612.00 =    6163.00
FEET.

   ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM     RUNOFF       Tc       INTENSITY     AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
       1       81.22    19.85       2.707       77.50
   LONGEST FLOWPATH FROM NODE    600.00 TO NODE    612.00 =    3660.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc       INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     319.34      19.71        2.719
       2     318.84      19.85        2.707

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     319.34   Tc(MIN.) =   19.71
   TOTAL AREA(ACRES) =      328.3


****************************************************************************
***
   FLOW PROCESS FROM NODE    612.00 TO NODE    612.00 IS CODE =  12
 --------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 1 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    612.00 TO NODE    618.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    455.00  DOWNSTREAM(FEET) =
445.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1300.00   CHANNEL SLOPE =  0.0077
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.212
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3000
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     326.32
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.91
   AVERAGE FLOW DEPTH(FEET) =   1.06   TRAVEL TIME(MIN.) =   7.44
```

```
   Tc(MIN.) =   27.15
   SUBAREA AREA(ACRES) =    21.02       SUBAREA RUNOFF(CFS) =   13.95
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.345
   TOTAL AREA(ACRES) =      349.3         PEAK FLOW RATE(CFS) =
319.34

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.05   FLOW VELOCITY(FEET/SEC.) =   2.89
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    618.00 =    7463.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    618.00 TO NODE    618.00 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.) =   27.15
   RAINFALL INTENSITY(INCH/HR) =   2.21
   TOTAL STREAM AREA(ACRES) =   349.32
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    319.34


****************************************************************************
***
   FLOW PROCESS FROM NODE    615.00 TO NODE    616.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    840.00
   DOWNSTREAM ELEVATION(FEET) =    830.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.66
   TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66


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

```
   FLOW PROCESS FROM NODE    616.00 TO NODE    617.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    830.00  DOWNSTREAM(FEET) =
520.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  2148.00   CHANNEL SLOPE =  0.1443
   CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.812
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.65
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.62
   AVERAGE FLOW DEPTH(FEET) =   0.47   TRAVEL TIME(MIN.) =   5.41
   Tc(MIN.) =   11.67
   SUBAREA AREA(ACRES) =    39.15       SUBAREA RUNOFF(CFS) =   52.24
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       39.5         PEAK FLOW RATE(CFS) =
52.68

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.67   FLOW VELOCITY(FEET/SEC.) =   8.06
   LONGEST FLOWPATH FROM NODE    615.00 TO NODE    617.00 =    2248.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    617.00 TO NODE    618.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    520.00  DOWNSTREAM(FEET) =
434.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1790.00   CHANNEL SLOPE =  0.0480
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.010
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3400
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      68.18
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.78
   AVERAGE FLOW DEPTH(FEET) =   0.93   TRAVEL TIME(MIN.) =   5.16
   Tc(MIN.) =   16.83
   SUBAREA AREA(ACRES) =    30.19       SUBAREA RUNOFF(CFS) =   30.90
```

```
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.346
   TOTAL AREA(ACRES) =       69.7         PEAK FLOW RATE(CFS) =
72.50

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.96   FLOW VELOCITY(FEET/SEC.) =   5.85
   LONGEST FLOWPATH FROM NODE    615.00 TO NODE    618.00 =    4038.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    618.00 TO NODE    618.00 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.) =   16.83
   RAINFALL INTENSITY(INCH/HR) =   3.01
   TOTAL STREAM AREA(ACRES) =    69.67
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     72.50

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      319.34    27.15        2.212        349.32
       2       72.50    16.83        3.010         69.67

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      270.53    16.83       3.010
       2      372.61    27.15       2.212

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     372.61   Tc(MIN.) =   27.15
   TOTAL AREA(ACRES) =      419.0
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    618.00 =    7463.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    618.00 TO NODE    622.00 IS CODE =  51
 --------------------------------------------------------------------------
----
```

```
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    445.00  DOWNSTREAM(FEET) =
434.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   650.00   CHANNEL SLOPE =  0.0169
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.078
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .2700
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     373.62
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.92
   AVERAGE FLOW DEPTH(FEET) =   0.91   TRAVEL TIME(MIN.) =   2.76
   Tc(MIN.) =   29.91
   SUBAREA AREA(ACRES) =     3.60       SUBAREA RUNOFF(CFS) =    2.02
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.344
   TOTAL AREA(ACRES) =      422.6         PEAK FLOW RATE(CFS) =
372.61

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.91   FLOW VELOCITY(FEET/SEC.) =   3.91
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    622.00 =    8113.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    622.00 TO NODE    622.00 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.) =   29.91
   RAINFALL INTENSITY(INCH/HR) =   2.08
   TOTAL STREAM AREA(ACRES) =   422.59
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    372.61


****************************************************************************
***
   FLOW PROCESS FROM NODE    620.00 TO NODE    621.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

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

```
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    715.00
   DOWNSTREAM ELEVATION(FEET) =    705.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.46
   TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.46


****************************************************************************
***
   FLOW PROCESS FROM NODE    621.00 TO NODE    622.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    705.00  DOWNSTREAM(FEET) =
425.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1663.00   CHANNEL SLOPE =  0.1684
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.806
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      13.11
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.10
   AVERAGE FLOW DEPTH(FEET) =   0.26   TRAVEL TIME(MIN.) =   5.44
   Tc(MIN.) =   11.70
   SUBAREA AREA(ACRES) =    18.32       SUBAREA RUNOFF(CFS) =   24.40
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       18.5         PEAK FLOW RATE(CFS) =
24.71

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.37   FLOW VELOCITY(FEET/SEC.) =   6.35
   LONGEST FLOWPATH FROM NODE    620.00 TO NODE    622.00 =    1763.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    622.00 TO NODE    622.00 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.) =   11.70
   RAINFALL INTENSITY(INCH/HR) =   3.81
   TOTAL STREAM AREA(ACRES) =    18.55
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     24.71

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      372.61    29.91        2.078        422.59
       2       24.71    11.70        3.806         18.55

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      228.16    11.70       3.806
       2      386.10    29.91       2.078

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     386.10   Tc(MIN.) =   29.91
   TOTAL AREA(ACRES) =      441.1
   LONGEST FLOWPATH FROM NODE    605.00 TO NODE    622.00 =    8113.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    630.00 TO NODE    631.00 IS CODE =  21
 ----------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
```

```
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    446.00
   DOWNSTREAM ELEVATION(FEET) =    436.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.40
   TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.40


****************************************************************************
***
   FLOW PROCESS FROM NODE    631.00 TO NODE    632.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    436.00  DOWNSTREAM(FEET) =
430.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   435.00   CHANNEL SLOPE =  0.0138
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   4.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.699
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.89
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.22
   AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =   5.97
   Tc(MIN.) =   12.23
   SUBAREA AREA(ACRES) =     2.22       SUBAREA RUNOFF(CFS) =    2.87
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        2.4         PEAK FLOW RATE(CFS) =
3.13

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.25   FLOW VELOCITY(FEET/SEC.) =   1.48
   LONGEST FLOWPATH FROM NODE    630.00 TO NODE    632.00 =     535.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    632.00 TO NODE    633.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    420.00  DOWNSTREAM(FEET) =
412.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1006.00   CHANNEL SLOPE =  0.0080
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.440
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.46
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.51
   AVERAGE FLOW DEPTH(FEET) =   0.41   TRAVEL TIME(MIN.) =  11.08
   Tc(MIN.) =   23.31
   SUBAREA AREA(ACRES) =     5.35       SUBAREA RUNOFF(CFS) =    4.57
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        7.8         PEAK FLOW RATE(CFS) =
6.64

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.46   FLOW VELOCITY(FEET/SEC.) =   1.61
   LONGEST FLOWPATH FROM NODE    630.00 TO NODE    633.00 =    1541.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    633.00 TO NODE    633.00 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.) =   23.31
   RAINFALL INTENSITY(INCH/HR) =   2.44
   TOTAL STREAM AREA(ACRES) =     7.77
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.64


****************************************************************************
***
   FLOW PROCESS FROM NODE    635.00 TO NODE    636.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
```

```
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    935.00
   DOWNSTREAM ELEVATION(FEET) =    925.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.32
   TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.32


****************************************************************************
***
   FLOW PROCESS FROM NODE    636.00 TO NODE    637.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    925.00  DOWNSTREAM(FEET) =
570.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1981.00   CHANNEL SLOPE =  0.1792
   CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.005
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      34.16
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.26
   AVERAGE FLOW DEPTH(FEET) =   0.44   TRAVEL TIME(MIN.) =   4.55
   Tc(MIN.) =   10.82
   SUBAREA AREA(ACRES) =    46.91       SUBAREA RUNOFF(CFS) =   65.75
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       47.1         PEAK FLOW RATE(CFS) =
65.97

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.64   FLOW VELOCITY(FEET/SEC.) =   8.98
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    637.00 =    2081.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    637.00 TO NODE    638.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    570.00  DOWNSTREAM(FEET) =
475.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1548.00   CHANNEL SLOPE =  0.0614
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.357
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     105.93
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.59
   AVERAGE FLOW DEPTH(FEET) =   1.20   TRAVEL TIME(MIN.) =   3.40
   Tc(MIN.) =   14.22
   SUBAREA AREA(ACRES) =    67.78       SUBAREA RUNOFF(CFS) =   79.64
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =      114.8         PEAK FLOW RATE(CFS) =
134.95

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.37   FLOW VELOCITY(FEET/SEC.) =   8.15
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    638.00 =    3629.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    638.00 TO NODE    639.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

==========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   475.00  DOWNSTREAM(FEET) =   433.00
   FLOW LENGTH(FEET) =   950.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  39.0 INCH PIPE IS  26.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  22.15
   ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     134.95
   PIPE TRAVEL TIME(MIN.) =   0.71    Tc(MIN.) =   14.93
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    639.00 =    4579.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    638.00 TO NODE    639.00 IS CODE =  81
 --------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.253
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5200
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3859
   SUBAREA AREA(ACRES) =   30.70   SUBAREA RUNOFF(CFS) =   51.93
   TOTAL AREA(ACRES) =      145.6   TOTAL RUNOFF(CFS) =     182.67
   TC(MIN.) =   14.93


****************************************************************************
***
   FLOW PROCESS FROM NODE    639.00 TO NODE    633.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   433.00  DOWNSTREAM(FEET) =   412.00
   FLOW LENGTH(FEET) =   342.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  26.60
   ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     182.67
   PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =   15.14
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    633.00 =    4921.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    633.00 TO NODE    633.00 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.) =   15.14
   RAINFALL INTENSITY(INCH/HR) =   3.22
   TOTAL STREAM AREA(ACRES) =   145.55
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    182.67

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1        6.64    23.31        2.440          7.77
```

```
       2      182.67    15.14        3.223        145.55

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      186.98    15.14       3.223
       2      144.94    23.31       2.440

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     186.98   Tc(MIN.) =   15.14
   TOTAL AREA(ACRES) =      153.3
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    633.00 =    4921.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    633.00 TO NODE    640.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    412.00  DOWNSTREAM(FEET) =
405.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   722.00   CHANNEL SLOPE =  0.0097
   CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     187.85
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.58
   AVERAGE FLOW DEPTH(FEET) =   2.13   TRAVEL TIME(MIN.) =   2.63
   Tc(MIN.) =   17.77
   SUBAREA AREA(ACRES) =     1.71       SUBAREA RUNOFF(CFS) =    1.74
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.384
   TOTAL AREA(ACRES) =      155.0         PEAK FLOW RATE(CFS) =
186.98

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  2.12   FLOW VELOCITY(FEET/SEC.) =   4.57
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    640.00 =    5643.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    640.00 TO NODE    640.00 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.) =   17.77
   RAINFALL INTENSITY(INCH/HR) =   2.91
   TOTAL STREAM AREA(ACRES) =   155.03
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    186.98


************************************************************************
***
   FLOW PROCESS FROM NODE    645.00 TO NODE    646.00 IS CODE =  21
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   SUBURBAN PROPERTY (RE) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    820.00
   DOWNSTREAM ELEVATION(FEET) =    810.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.34
   TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.34


************************************************************************
***
   FLOW PROCESS FROM NODE    646.00 TO NODE    647.00 IS CODE =  51
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    810.00  DOWNSTREAM(FEET) =
474.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1906.00   CHANNEL SLOPE =  0.1763
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.823
   *USER SPECIFIED(SUBAREA):
```

```
   BARREN SLOPES (HILLY) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.82
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.93
   AVERAGE FLOW DEPTH(FEET) =   0.32   TRAVEL TIME(MIN.) =   5.35
   Tc(MIN.) =   11.62
   SUBAREA AREA(ACRES) =    25.19       SUBAREA RUNOFF(CFS) =   33.71
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       25.4         PEAK FLOW RATE(CFS) =
33.93

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.47   FLOW VELOCITY(FEET/SEC.) =   7.34
   LONGEST FLOWPATH FROM NODE    645.00 TO NODE    647.00 =    2006.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    647.00 TO NODE    648.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   469.00  DOWNSTREAM(FEET) =   433.00
   FLOW LENGTH(FEET) =   375.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.3 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.13
   ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      33.93
   PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   11.92
   LONGEST FLOWPATH FROM NODE    645.00 TO NODE    648.00 =    2381.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    649.00 TO NODE    648.00 IS CODE =  81
 --------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.762
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .6300
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3795
   SUBAREA AREA(ACRES) =    2.99   SUBAREA RUNOFF(CFS) =    7.09
   TOTAL AREA(ACRES) =       28.4   TOTAL RUNOFF(CFS) =      40.48
   TC(MIN.) =   11.92
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    648.00 TO NODE    640.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   433.00  DOWNSTREAM(FEET) =   405.00
   FLOW LENGTH(FEET) =   310.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.24
   ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      40.48
   PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   12.16
   LONGEST FLOWPATH FROM NODE    645.00 TO NODE    640.00 =    2691.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    640.00 TO NODE    640.00 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.) =   12.16
   RAINFALL INTENSITY(INCH/HR) =   3.71
   TOTAL STREAM AREA(ACRES) =    28.35
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     40.48

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      186.98    17.77        2.907        155.03
       2       40.48    12.16        3.713         28.35

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      186.85    12.16       3.713
       2      218.67    17.77       2.907
```

```
   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     218.67   Tc(MIN.) =   17.77
   TOTAL AREA(ACRES) =      183.4
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    640.00 =    5643.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    640.00 TO NODE    650.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    405.00  DOWNSTREAM(FEET) =
397.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   925.00   CHANNEL SLOPE =  0.0086
   CHANNEL BASE(FEET) =   13.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.607
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     219.54
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.71
   AVERAGE FLOW DEPTH(FEET) =   2.57   TRAVEL TIME(MIN.) =   3.27
   Tc(MIN.) =   21.05
   SUBAREA AREA(ACRES) =     1.90       SUBAREA RUNOFF(CFS) =    1.73
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.383
   TOTAL AREA(ACRES) =      185.3         PEAK FLOW RATE(CFS) =
218.67

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  2.56   FLOW VELOCITY(FEET/SEC.) =   4.71
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    650.00 =    6568.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    650.00 TO NODE    650.00 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.) =   21.05
   RAINFALL INTENSITY(INCH/HR) =   2.61
   TOTAL STREAM AREA(ACRES) =   185.28
```

```
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    218.67


****************************************************************************
***
   FLOW PROCESS FROM NODE    655.00 TO NODE    656.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    700.00
   DOWNSTREAM ELEVATION(FEET) =    690.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.92
   TOTAL AREA(ACRES) =      0.46   TOTAL RUNOFF(CFS) =      0.92


****************************************************************************
***
   FLOW PROCESS FROM NODE    656.00 TO NODE    657.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   680.00  DOWNSTREAM(FEET) =   407.00
   FLOW LENGTH(FEET) =  1525.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.8 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   9.68
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.92
   PIPE TRAVEL TIME(MIN.) =   2.62    Tc(MIN.) =    8.89
   LONGEST FLOWPATH FROM NODE    655.00 TO NODE    657.00 =    1625.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    656.00 TO NODE    657.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.544
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .4900
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4874
   SUBAREA AREA(ACRES) =   24.61   SUBAREA RUNOFF(CFS) =   54.79
   TOTAL AREA(ACRES) =       25.1   TOTAL RUNOFF(CFS) =      55.53
   TC(MIN.) =    8.89


****************************************************************************
***
   FLOW PROCESS FROM NODE    657.00 TO NODE    650.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   407.00  DOWNSTREAM(FEET) =   397.00
   FLOW LENGTH(FEET) =   240.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.13
   ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      55.53
   PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =    9.13
   LONGEST FLOWPATH FROM NODE    655.00 TO NODE    650.00 =    1865.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    650.00 TO NODE    650.00 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.) =    9.13
   RAINFALL INTENSITY(INCH/HR) =   4.47
   TOTAL STREAM AREA(ACRES) =    25.07
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     55.53

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      218.67    21.05        2.607        185.28
```

```
       2       55.53     9.13        4.469         25.07

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      183.08     9.13       4.469
       2      251.06    21.05       2.607

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     251.06   Tc(MIN.) =   21.05
   TOTAL AREA(ACRES) =      210.4
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    650.00 =    6568.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    650.00 TO NODE    658.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    397.00  DOWNSTREAM(FEET) =
390.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   480.00   CHANNEL SLOPE =  0.0146
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.426
   *USER SPECIFIED(SUBAREA):
   SUBURBAN PROPERTY (RE) RUNOFF COEFFICIENT = .7500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     251.77
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.22
   AVERAGE FLOW DEPTH(FEET) =   0.75   TRAVEL TIME(MIN.) =   2.48
   Tc(MIN.) =   23.53
   SUBAREA AREA(ACRES) =     0.78       SUBAREA RUNOFF(CFS) =    1.42
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.396
   TOTAL AREA(ACRES) =      211.1         PEAK FLOW RATE(CFS) =
251.06

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.75   FLOW VELOCITY(FEET/SEC.) =   3.22
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    658.00 =    7048.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    658.00 TO NODE    658.00 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.) =   23.53
   RAINFALL INTENSITY(INCH/HR) =   2.43
   TOTAL STREAM AREA(ACRES) =   211.13
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    251.06


************************************************************************
***
   FLOW PROCESS FROM NODE    665.00 TO NODE    666.00 IS CODE =  21
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    445.00
   DOWNSTREAM ELEVATION(FEET) =    435.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.48
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48


************************************************************************
***
   FLOW PROCESS FROM NODE    666.00 TO NODE    667.00 IS CODE =  61
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

========================================================================
===
   UPSTREAM ELEVATION(FEET) =  434.00  DOWNSTREAM ELEVATION(FEET) =
413.00
   STREET LENGTH(FEET) =  1393.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 15.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.50
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
```

```
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.11
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.27
     HALFSTREET FLOOD WIDTH(FEET) =    7.36
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.36
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.64
   STREET FLOW TRAVEL TIME(MIN.) =   9.85   Tc(MIN.) =   16.12
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.096
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .4600
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.453
   SUBAREA AREA(ACRES) =    3.61      SUBAREA RUNOFF(CFS) =    5.14
   TOTAL AREA(ACRES) =        3.8        PEAK FLOW RATE(CFS) =       5.40

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   9.46
   FLOW VELOCITY(FEET/SEC.) =  2.66   DEPTH*VELOCITY(FT*FT/SEC.) =   0.84
   LONGEST FLOWPATH FROM NODE    665.00 TO NODE    667.00 =    1493.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    667.00 TO NODE    668.00 IS CODE =  61
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  413.00  DOWNSTREAM ELEVATION(FEET) =
392.00
   STREET LENGTH(FEET) =  1450.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 26.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  13.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.40
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.34
     HALFSTREET FLOOD WIDTH(FEET) =   10.89
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.84
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.98
   STREET FLOW TRAVEL TIME(MIN.) =   8.52   Tc(MIN.) =   24.64
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.354
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .4900
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.471
   SUBAREA AREA(ACRES) =    3.45      SUBAREA RUNOFF(CFS) =    3.98
   TOTAL AREA(ACRES) =        7.3        PEAK FLOW RATE(CFS) =       8.09

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  11.34
   FLOW VELOCITY(FEET/SEC.) =  2.88   DEPTH*VELOCITY(FT*FT/SEC.) =   1.02
   LONGEST FLOWPATH FROM NODE    665.00 TO NODE    668.00 =    2943.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    668.00 TO NODE    658.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   390.00  DOWNSTREAM(FEET) =   389.00
   FLOW LENGTH(FEET) =   125.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   5.71
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       8.09
   PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =   25.01
   LONGEST FLOWPATH FROM NODE    665.00 TO NODE    658.00 =    3068.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    658.00 TO NODE    658.00 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.) =   25.01
   RAINFALL INTENSITY(INCH/HR) =   2.33
   TOTAL STREAM AREA(ACRES) =     7.30
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.09

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      251.06    23.53        2.426        211.13
       2        8.09    25.01        2.332          7.30

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      258.67    23.53       2.426
       2      249.45    25.01       2.332

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     258.67   Tc(MIN.) =   23.53
   TOTAL AREA(ACRES) =      218.4
   LONGEST FLOWPATH FROM NODE    635.00 TO NODE    658.00 =    7048.00
FEET.

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    700.00 TO NODE    701.00 IS CODE =  21
 ----------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    825.00
   DOWNSTREAM ELEVATION(FEET) =    815.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.778
```

```
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.001
   SUBAREA RUNOFF(CFS) =      0.38
   TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.38


****************************************************************************
***
   FLOW PROCESS FROM NODE    701.00 TO NODE   8012.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   815.00  DOWNSTREAM(FEET) =   510.00
   FLOW LENGTH(FEET) =  2403.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.3 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   6.57
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.38
   PIPE TRAVEL TIME(MIN.) =   6.10    Tc(MIN.) =   11.88
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE   8012.00 =    2488.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    701.00 TO NODE   8012.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.770
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =   31.76   SUBAREA RUNOFF(CFS) =   41.91
   TOTAL AREA(ACRES) =       31.9   TOTAL RUNOFF(CFS) =      42.15
   TC(MIN.) =   11.88


****************************************************************************
***
   FLOW PROCESS FROM NODE    812.00 TO NODE    812.00 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.) =   11.88
   RAINFALL INTENSITY(INCH/HR) =   3.77
   TOTAL STREAM AREA(ACRES) =    31.94
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.15


****************************************************************************
***
   FLOW PROCESS FROM NODE    810.00 TO NODE    811.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

==============================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    571.00
   DOWNSTREAM ELEVATION(FEET) =    569.00
   ELEVATION DIFFERENCE(FEET) =      2.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.277
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    83.53
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.421
   SUBAREA RUNOFF(CFS) =      0.90
   TOTAL AREA(ACRES) =      0.58   TOTAL RUNOFF(CFS) =      0.90


****************************************************************************
***
   FLOW PROCESS FROM NODE    811.00 TO NODE    812.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

==============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    569.00  DOWNSTREAM(FEET) =
510.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1012.00   CHANNEL SLOPE =  0.0583
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.819
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
```

```
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.62
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.80
   AVERAGE FLOW DEPTH(FEET) =   0.02   TRAVEL TIME(MIN.) =   9.36
   Tc(MIN.) =   18.63
   SUBAREA AREA(ACRES) =     5.37       SUBAREA RUNOFF(CFS) =    5.30
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        5.9         PEAK FLOW RATE(CFS) =
5.87

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.03   FLOW VELOCITY(FEET/SEC.) =   2.12
   LONGEST FLOWPATH FROM NODE    810.00 TO NODE    812.00 =    1097.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    812.00 TO NODE    812.00 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.) =   18.63
   RAINFALL INTENSITY(INCH/HR) =   2.82
   TOTAL STREAM AREA(ACRES) =     5.95
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.87

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       42.15    11.88        3.770         31.94
       2        5.87    18.63        2.819          5.95

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       45.89    11.88       3.770
       2       37.39    18.63       2.819

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      45.89   Tc(MIN.) =   11.88
   TOTAL AREA(ACRES) =       37.9
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    812.00 =    2488.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    812.00 TO NODE    813.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   510.00  DOWNSTREAM(FEET) =   485.00
   FLOW LENGTH(FEET) =   422.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  18.76
   ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      45.89
   PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =   12.25
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    813.00 =    2910.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    813.00 TO NODE    813.00 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.) =   12.25
   RAINFALL INTENSITY(INCH/HR) =   3.70
   TOTAL STREAM AREA(ACRES) =    37.89
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     45.89


****************************************************************************
***
   FLOW PROCESS FROM NODE    800.00 TO NODE    801.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    689.00
   DOWNSTREAM ELEVATION(FEET) =    675.00
   ELEVATION DIFFERENCE(FEET) =     14.00
```

```
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.007
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.581
   SUBAREA RUNOFF(CFS) =      1.04
   TOTAL AREA(ACRES) =      0.35   TOTAL RUNOFF(CFS) =      1.04


****************************************************************************
***
   FLOW PROCESS FROM NODE    801.00 TO NODE    813.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    675.00  DOWNSTREAM(FEET) =
485.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1109.00   CHANNEL SLOPE =  0.1713
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.439
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.29
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.73
   AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   1.72
   Tc(MIN.) =    6.73
   SUBAREA AREA(ACRES) =     9.11       SUBAREA RUNOFF(CFS) =   22.30
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.450
   TOTAL AREA(ACRES) =        9.5         PEAK FLOW RATE(CFS) =
23.15

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.24   FLOW VELOCITY(FEET/SEC.) =  13.08
   LONGEST FLOWPATH FROM NODE    800.00 TO NODE    813.00 =    1194.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    813.00 TO NODE    813.00 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.) =    6.73
   RAINFALL INTENSITY(INCH/HR) =   5.44
```

```
   TOTAL STREAM AREA(ACRES) =     9.46
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     23.15


****************************************************************************
***
   FLOW PROCESS FROM NODE    816.00 TO NODE    817.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
   UPSTREAM ELEVATION(FEET) =    541.50
   DOWNSTREAM ELEVATION(FEET) =    541.00
   ELEVATION DIFFERENCE(FEET) =      0.50
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =   11.228
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    58.08
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.909
   SUBAREA RUNOFF(CFS) =      0.37
   TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      0.37


****************************************************************************
***
   FLOW PROCESS FROM NODE    817.00 TO NODE    818.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    541.00  DOWNSTREAM(FEET) =
536.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   437.00   CHANNEL SLOPE =  0.0114
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.286
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.95
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.10
   AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   3.47
   Tc(MIN.) =   14.70
   SUBAREA AREA(ACRES) =     2.72       SUBAREA RUNOFF(CFS) =    3.13
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
```

```
   TOTAL AREA(ACRES) =        3.0         PEAK FLOW RATE(CFS) =
3.44

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.13   FLOW VELOCITY(FEET/SEC.) =   2.55
   LONGEST FLOWPATH FROM NODE    816.00 TO NODE    818.00 =     502.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    818.00 TO NODE    813.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   536.00  DOWNSTREAM(FEET) =   475.00
   FLOW LENGTH(FEET) =   138.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.8 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  19.76
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       3.44
   PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   14.81
   LONGEST FLOWPATH FROM NODE    816.00 TO NODE    813.00 =     640.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    813.00 TO NODE    813.00 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.) =   14.81
   RAINFALL INTENSITY(INCH/HR) =   3.27
   TOTAL STREAM AREA(ACRES) =     2.99
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.44


****************************************************************************
***
   FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
================================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
   UPSTREAM ELEVATION(FEET) =    599.00
   DOWNSTREAM ELEVATION(FEET) =    597.00
   ELEVATION DIFFERENCE(FEET) =      2.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.861
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    75.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.250
   SUBAREA RUNOFF(CFS) =      0.43
   TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.43


****************************************************************************
***
   FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    597.00  DOWNSTREAM(FEET) =
592.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   307.00   CHANNEL SLOPE =  0.0163
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.835
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.56
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.00
   AVERAGE FLOW DEPTH(FEET) =   0.13   TRAVEL TIME(MIN.) =   1.70
   Tc(MIN.) =   11.56
   SUBAREA AREA(ACRES) =     3.17       SUBAREA RUNOFF(CFS) =    4.26
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        3.5         PEAK FLOW RATE(CFS) =
4.64

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   3.59
   LONGEST FLOWPATH FROM NODE    820.00 TO NODE    822.00 =     427.00
FEET.


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

```
   FLOW PROCESS FROM NODE    822.00 TO NODE    813.00 IS CODE =  31
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   593.00  DOWNSTREAM(FEET) =   475.00
   FLOW LENGTH(FEET) =   615.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.09
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       4.64
   PIPE TRAVEL TIME(MIN.) =   0.64    Tc(MIN.) =   12.20
   LONGEST FLOWPATH FROM NODE    820.00 TO NODE    813.00 =    1042.00
FEET.


**********************************************************************
***
   FLOW PROCESS FROM NODE    813.00 TO NODE    813.00 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.) =   12.20
   RAINFALL INTENSITY(INCH/HR) =   3.70
   TOTAL STREAM AREA(ACRES) =     3.46
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.64

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       45.89    12.25        3.695         37.89
       2       23.15     6.73        5.439          9.46
       3        3.44    14.81        3.269          2.99
       4        4.64    12.20        3.705          3.46

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       58.46     6.73       5.439
       2       69.02    12.20       3.705
       3       69.10    12.25       3.695
```

```
       4       62.05    14.81       3.269

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      69.10   Tc(MIN.) =   12.25
   TOTAL AREA(ACRES) =       53.8
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    813.00 =    2910.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    813.00 TO NODE    823.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

==========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   475.00  DOWNSTREAM(FEET) =   450.00
   FLOW LENGTH(FEET) =   390.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.6 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.25
   ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      69.10
   PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   12.56
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    823.00 =    3300.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    823.00 TO NODE    823.00 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.) =   12.56
   RAINFALL INTENSITY(INCH/HR) =   3.64
   TOTAL STREAM AREA(ACRES) =    53.80
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     69.10


****************************************************************************
***
   FLOW PROCESS FROM NODE    826.00 TO NODE    827.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
================================================================================
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    64.00
   UPSTREAM ELEVATION(FEET) =    527.00
   DOWNSTREAM ELEVATION(FEET) =    526.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.307
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.412
   SUBAREA RUNOFF(CFS) =      0.20
   TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.20


****************************************************************************
   FLOW PROCESS FROM NODE    827.00 TO NODE    828.00 IS CODE =  51
 ----------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    526.00  DOWNSTREAM(FEET) =
518.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   480.00   CHANNEL SLOPE =  0.0167
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.777
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.21
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.15
   AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   2.54
   Tc(MIN.) =   11.84
   SUBAREA AREA(ACRES) =     4.52       SUBAREA RUNOFF(CFS) =    5.97
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        4.7         PEAK FLOW RATE(CFS) =
6.15

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   3.92
   LONGEST FLOWPATH FROM NODE    826.00 TO NODE    828.00 =     544.00
FEET.


****************************************************************************
   FLOW PROCESS FROM NODE    828.00 TO NODE    823.00 IS CODE =  31
 ----------------------------------------------------------------------------
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   518.00  DOWNSTREAM(FEET) =   450.00
   FLOW LENGTH(FEET) =   166.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.8 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  22.83
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       6.15
   PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   11.96
   LONGEST FLOWPATH FROM NODE    826.00 TO NODE    823.00 =     710.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    823.00 TO NODE    823.00 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.) =   11.96
   RAINFALL INTENSITY(INCH/HR) =   3.75
   TOTAL STREAM AREA(ACRES) =     4.65
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.15

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       69.10    12.56        3.637         53.80
       2        6.15    11.96        3.752          4.65

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       73.12    11.96       3.752
       2       75.05    12.56       3.637

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      75.05   Tc(MIN.) =   12.56
   TOTAL AREA(ACRES) =       58.5
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    823.00 =    3300.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    823.00 TO NODE    702.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   450.00  DOWNSTREAM(FEET) =   405.00
   FLOW LENGTH(FEET) =  1272.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.2 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.63
   ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      75.05
   PIPE TRAVEL TIME(MIN.) =   1.20    Tc(MIN.) =   13.76
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    702.00 =    4572.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    823.00 TO NODE    702.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.429
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .6000
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4320
   SUBAREA AREA(ACRES) =   22.90   SUBAREA RUNOFF(CFS) =   47.11
   TOTAL AREA(ACRES) =       81.3   TOTAL RUNOFF(CFS) =     120.50
   TC(MIN.) =   13.76


****************************************************************************
***
   FLOW PROCESS FROM NODE    702.00 TO NODE    703.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   400.00  DOWNSTREAM(FEET) =   385.00
   FLOW LENGTH(FEET) =   265.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  36.0 INCH PIPE IS  24.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  23.66
```

```
   ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     120.50
   PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =   13.95
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    703.00 =    4837.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    704.00 TO NODE    703.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.399
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (HILLY) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4322
   SUBAREA AREA(ACRES) =    0.79   SUBAREA RUNOFF(CFS) =    1.21
   TOTAL AREA(ACRES) =       82.1   TOTAL RUNOFF(CFS) =     120.66
   TC(MIN.) =   13.95


****************************************************************************
***
   FLOW PROCESS FROM NODE    703.00 TO NODE    705.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   385.00  DOWNSTREAM(FEET) =   379.00
   FLOW LENGTH(FEET) =   545.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN  63.0 INCH PIPE IS  48.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   6.72
   ESTIMATED PIPE DIAMETER(INCH) =  63.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     120.66
   PIPE TRAVEL TIME(MIN.) =   1.35    Tc(MIN.) =   15.30
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    705.00 =    5382.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    703.00 TO NODE    705.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.202
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4323
   SUBAREA AREA(ACRES) =    0.79   SUBAREA RUNOFF(CFS) =    1.14
   TOTAL AREA(ACRES) =       82.9   TOTAL RUNOFF(CFS) =     120.66
   TC(MIN.) =   15.30
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


****************************************************************************
***
   FLOW PROCESS FROM NODE    705.00 TO NODE    705.00 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.) =   15.30
   RAINFALL INTENSITY(INCH/HR) =   3.20
   TOTAL STREAM AREA(ACRES) =    82.93
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    120.66


****************************************************************************
***
   FLOW PROCESS FROM NODE    710.00 TO NODE    711.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .6000
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
   UPSTREAM ELEVATION(FEET) =    449.60
   DOWNSTREAM ELEVATION(FEET) =    448.00
   ELEVATION DIFFERENCE(FEET) =      1.60
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.389
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.623
   SUBAREA RUNOFF(CFS) =      1.28
   TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.28


****************************************************************************
***
   FLOW PROCESS FROM NODE    711.00 TO NODE    712.00 IS CODE =  61
```

```
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

========================================================================
===
   UPSTREAM ELEVATION(FEET) =  448.00  DOWNSTREAM ELEVATION(FEET) =
389.00
   STREET LENGTH(FEET) =  1101.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 18.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   9.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      29.72
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.42
     HALFSTREET FLOOD WIDTH(FEET) =   14.73
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.50
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.73
   STREET FLOW TRAVEL TIME(MIN.) =   2.83   Tc(MIN.) =    9.21
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.441
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .5500
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.551
   SUBAREA AREA(ACRES) =   22.96      SUBAREA RUNOFF(CFS) =   56.07
   TOTAL AREA(ACRES) =       23.3        PEAK FLOW RATE(CFS) =      57.09

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.50   HALFSTREET FLOOD WIDTH(FEET) =  18.20
   FLOW VELOCITY(FEET/SEC.) =  7.76   DEPTH*VELOCITY(FT*FT/SEC.) =   3.91
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
          AND L = 1101.0 FT WITH ELEVATION-DROP =  59.0 FT, IS   76.8
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    712.00
   LONGEST FLOWPATH FROM NODE    710.00 TO NODE    712.00 =    1181.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    712.00 TO NODE    705.00 IS CODE =  31
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   384.00  DOWNSTREAM(FEET) =   379.00
   FLOW LENGTH(FEET) =   265.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  12.97
   ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      57.09
   PIPE TRAVEL TIME(MIN.) =   0.34    Tc(MIN.) =    9.55
   LONGEST FLOWPATH FROM NODE    710.00 TO NODE    705.00 =    1446.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    705.00 TO NODE    705.00 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.) =    9.55
   RAINFALL INTENSITY(INCH/HR) =   4.34
   TOTAL STREAM AREA(ACRES) =    23.34
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     57.09

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      120.66    15.30        3.202         82.93
       2       57.09     9.55        4.338         23.34

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      146.16     9.55       4.338
       2      162.80    15.30       3.202

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     162.80   Tc(MIN.) =   15.30
   TOTAL AREA(ACRES) =      106.3
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    705.00 =    5382.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    705.00 TO NODE    713.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   379.00  DOWNSTREAM(FEET) =   367.00
   FLOW LENGTH(FEET) =  1220.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN  72.0 INCH PIPE IS  55.6 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   6.95
   ESTIMATED PIPE DIAMETER(INCH) =  72.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     162.80
   PIPE TRAVEL TIME(MIN.) =   2.93    Tc(MIN.) =   18.22
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    713.00 =    6602.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    713.00 TO NODE    713.00 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.) =   18.22
   RAINFALL INTENSITY(INCH/HR) =   2.86
   TOTAL STREAM AREA(ACRES) =   106.27
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    162.80


****************************************************************************
***
   FLOW PROCESS FROM NODE    715.00 TO NODE    716.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .5200
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
   UPSTREAM ELEVATION(FEET) =    552.75
   DOWNSTREAM ELEVATION(FEET) =    552.00
   ELEVATION DIFFERENCE(FEET) =      0.75
```

```
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.417
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.707
   SUBAREA RUNOFF(CFS) =      0.54
   TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.54


****************************************************************************
***
   FLOW PROCESS FROM NODE    716.00 TO NODE    717.00 IS CODE =  61
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  552.00  DOWNSTREAM ELEVATION(FEET) =
368.00
   STREET LENGTH(FEET) =  3333.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 18.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   9.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.28
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.41
     HALFSTREET FLOOD WIDTH(FEET) =   14.17
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.42
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.63
   STREET FLOW TRAVEL TIME(MIN.) =   8.66   Tc(MIN.) =   17.07
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.983
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .5200
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   33.36      SUBAREA RUNOFF(CFS) =   51.75
   TOTAL AREA(ACRES) =       33.6        PEAK FLOW RATE(CFS) =      52.09

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.49   HALFSTREET FLOOD WIDTH(FEET) =  18.00
   FLOW VELOCITY(FEET/SEC.) =  7.58   DEPTH*VELOCITY(FT*FT/SEC.) =   3.72
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
```

```
          AND L = 3333.0 FT WITH ELEVATION-DROP = 184.0 FT, IS  102.6
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    717.00
   LONGEST FLOWPATH FROM NODE    715.00 TO NODE    717.00 =    3408.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    717.00 TO NODE    713.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   368.00  DOWNSTREAM(FEET) =   367.00
   FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  10.21
   ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      52.09
   PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   17.22
   LONGEST FLOWPATH FROM NODE    715.00 TO NODE    713.00 =    3497.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    705.00 TO NODE    713.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.967
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5161
   SUBAREA AREA(ACRES) =    1.97   SUBAREA RUNOFF(CFS) =    2.63
   TOTAL AREA(ACRES) =       35.6   TOTAL RUNOFF(CFS) =      54.44
   TC(MIN.) =   17.22


****************************************************************************
***
   FLOW PROCESS FROM NODE    713.00 TO NODE    713.00 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.) =   17.22
   RAINFALL INTENSITY(INCH/HR) =   2.97
   TOTAL STREAM AREA(ACRES) =    35.55
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     54.44

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      162.80    18.22        2.860        106.27
       2       54.44    17.22        2.967         35.55

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      211.39    17.22       2.967
       2      215.28    18.22       2.860

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     215.28   Tc(MIN.) =   18.22
   TOTAL AREA(ACRES) =      141.8
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    713.00 =    6602.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    713.00 TO NODE    718.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   367.00  DOWNSTREAM(FEET) =   362.00
   FLOW LENGTH(FEET) =   415.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN  78.0 INCH PIPE IS  58.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   8.08
   ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     215.28
   PIPE TRAVEL TIME(MIN.) =   0.86    Tc(MIN.) =   19.08
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    718.00 =    7017.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    718.00 TO NODE    718.00 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.) =   19.08
   RAINFALL INTENSITY(INCH/HR) =   2.78
   TOTAL STREAM AREA(ACRES) =   141.82
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    215.28


****************************************************************************
***
   FLOW PROCESS FROM NODE    720.00 TO NODE    721.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .5200
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
   UPSTREAM ELEVATION(FEET) =    434.80
   DOWNSTREAM ELEVATION(FEET) =    434.00
   ELEVATION DIFFERENCE(FEET) =      0.80
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.417
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.707
   SUBAREA RUNOFF(CFS) =      0.49
   TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.49


****************************************************************************
***
   FLOW PROCESS FROM NODE    721.00 TO NODE    722.00 IS CODE =  61
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

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

```
   UPSTREAM ELEVATION(FEET) =  434.00  DOWNSTREAM ELEVATION(FEET) =
388.00
   STREET LENGTH(FEET) =   816.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 18.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   9.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.82
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.32
     HALFSTREET FLOOD WIDTH(FEET) =    9.60
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.20
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.66
   STREET FLOW TRAVEL TIME(MIN.) =   2.61   Tc(MIN.) =   11.03
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.954
   *USER SPECIFIED(SUBAREA):
   DENSE RESIDENTIAL (R2,R3) RUNOFF COEFFICIENT = .5100
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.510
   SUBAREA AREA(ACRES) =   10.18      SUBAREA RUNOFF(CFS) =   20.53
   TOTAL AREA(ACRES) =       10.4        PEAK FLOW RATE(CFS) =      20.94

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.69
   FLOW VELOCITY(FEET/SEC.) =  6.06   DEPTH*VELOCITY(FT*FT/SEC.) =   2.30
   LONGEST FLOWPATH FROM NODE    720.00 TO NODE    722.00 =     896.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    722.00 TO NODE    718.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   385.00  DOWNSTREAM(FEET) =   362.00
   FLOW LENGTH(FEET) =   320.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.73
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      20.94
   PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   11.35
```

```
   LONGEST FLOWPATH FROM NODE    720.00 TO NODE    718.00 =    1216.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    713.00 TO NODE    718.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.882
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5070
   SUBAREA AREA(ACRES) =    0.58   SUBAREA RUNOFF(CFS) =    1.01
   TOTAL AREA(ACRES) =       11.0   TOTAL RUNOFF(CFS) =      21.57
   TC(MIN.) =   11.35


****************************************************************************
***
   FLOW PROCESS FROM NODE    718.00 TO NODE    718.00 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.) =   11.35
   RAINFALL INTENSITY(INCH/HR) =   3.88
   TOTAL STREAM AREA(ACRES) =    10.96
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.57


****************************************************************************
***
   FLOW PROCESS FROM NODE    730.00 TO NODE    731.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   PAVED SURFACE RUNOFF COEFFICIENT = .9000
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    405.00
   DOWNSTREAM ELEVATION(FEET) =    397.00
   ELEVATION DIFFERENCE(FEET) =      8.00
```

```
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    1.764
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    96.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.90
   TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.90


****************************************************************************
***
   FLOW PROCESS FROM NODE    731.00 TO NODE    732.00 IS CODE =  61
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  396.00  DOWNSTREAM ELEVATION(FEET) =
364.00
   STREET LENGTH(FEET) =  2900.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 40.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.73
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.43
     HALFSTREET FLOOD WIDTH(FEET) =   15.27
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.01
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.30
   STREET FLOW TRAVEL TIME(MIN.) =  16.08   Tc(MIN.) =   17.84
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.900
   *USER SPECIFIED(SUBAREA):
   PAVED SURFACE RUNOFF COEFFICIENT = .9000
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.900
   SUBAREA AREA(ACRES) =    8.96      SUBAREA RUNOFF(CFS) =   23.38
   TOTAL AREA(ACRES) =        9.3        PEAK FLOW RATE(CFS) =      24.22

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.50   HALFSTREET FLOOD WIDTH(FEET) =  18.59
   FLOW VELOCITY(FEET/SEC.) =  3.39   DEPTH*VELOCITY(FT*FT/SEC.) =   1.69
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
```

```
          AND L = 2900.0 FT WITH ELEVATION-DROP =  32.0 FT, IS   53.1
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    732.00
   LONGEST FLOWPATH FROM NODE    730.00 TO NODE    732.00 =    3000.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    732.00 TO NODE    718.00 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.) =   17.84
   RAINFALL INTENSITY(INCH/HR) =   2.90
   TOTAL STREAM AREA(ACRES) =     9.28
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     24.22

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      215.28    19.08        2.777        141.82
       2       21.57    11.35        3.882         10.96
       3       24.22    17.84        2.900          9.28

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      190.96    11.35       3.882
       2      246.48    17.84       2.900
       3      253.90    19.08       2.777

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     253.90   Tc(MIN.) =   19.08
   TOTAL AREA(ACRES) =      162.1
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    718.00 =    7017.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    718.00 TO NODE    733.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   362.00  DOWNSTREAM(FEET) =   358.00
   FLOW LENGTH(FEET) =   340.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN  81.0 INCH PIPE IS  65.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   8.23
   ESTIMATED PIPE DIAMETER(INCH) =  81.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     253.90
   PIPE TRAVEL TIME(MIN.) =   0.69    Tc(MIN.) =   19.77
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    733.00 =    7357.00
FEET.


****************************************************************************
   FLOW PROCESS FROM NODE    718.00 TO NODE    733.00 IS CODE =  81
 ----------------------------------------------------------------------------
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.714
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4994
   SUBAREA AREA(ACRES) =    0.56   SUBAREA RUNOFF(CFS) =    0.68
   TOTAL AREA(ACRES) =      162.6   TOTAL RUNOFF(CFS) =     253.90
   TC(MIN.) =   19.77
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


****************************************************************************
   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) =   359.00  DOWNSTREAM(FEET) =   352.00
   FLOW LENGTH(FEET) =   815.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN  87.0 INCH PIPE IS  67.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   7.37
   ESTIMATED PIPE DIAMETER(INCH) =  87.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     253.90
   PIPE TRAVEL TIME(MIN.) =   1.84    Tc(MIN.) =   21.61
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    734.00 =    8172.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    734.00 TO NODE    734.00 IS CODE =  10
 ----------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    740.00 TO NODE    741.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    10.00
   UPSTREAM ELEVATION(FEET) =    743.00
   DOWNSTREAM ELEVATION(FEET) =    733.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    1.982
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.37
   TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.37


****************************************************************************
***
   FLOW PROCESS FROM NODE    741.00 TO NODE    842.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    745.00  DOWNSTREAM(FEET) =
550.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1145.00   CHANNEL SLOPE =  0.1703
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   *USER SPECIFIED(SUBAREA):
```

```
   BARREN SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.47
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.89
   AVERAGE FLOW DEPTH(FEET) =   0.15   TRAVEL TIME(MIN.) =   1.93
   Tc(MIN.) =    3.91
   SUBAREA AREA(ACRES) =     6.14       SUBAREA RUNOFF(CFS) =   18.20
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.447
   TOTAL AREA(ACRES) =        6.3         PEAK FLOW RATE(CFS) =
18.57

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =  12.40
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    842.00 =    1155.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    842.00 TO NODE    842.00 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.) =    3.91
   RAINFALL INTENSITY(INCH/HR) =   6.59
   TOTAL STREAM AREA(ACRES) =     6.30
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.57


****************************************************************************
***
   FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    571.00
   DOWNSTREAM ELEVATION(FEET) =    570.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =   10.884
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.988
```

```
   SUBAREA RUNOFF(CFS) =      0.73
   TOTAL AREA(ACRES) =      0.52   TOTAL RUNOFF(CFS) =      0.73


****************************************************************************
***
   FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    570.00  DOWNSTREAM(FEET) =
550.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   627.00   CHANNEL SLOPE =  0.0319
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.502
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.11
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.29
   AVERAGE FLOW DEPTH(FEET) =   0.15   TRAVEL TIME(MIN.) =   2.43
   Tc(MIN.) =   13.32
   SUBAREA AREA(ACRES) =     5.50       SUBAREA RUNOFF(CFS) =    6.74
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        6.0         PEAK FLOW RATE(CFS) =
7.38

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   5.17
   LONGEST FLOWPATH FROM NODE    840.00 TO NODE    842.00 =     727.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    842.00 TO NODE    842.00 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.) =   13.32
   RAINFALL INTENSITY(INCH/HR) =   3.50
   TOTAL STREAM AREA(ACRES) =     6.02
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.38
```

```
   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       18.57     3.91        6.587          6.30
       2        7.38    13.32        3.502          6.02

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       20.74     3.91       6.587
       2       17.25    13.32       3.502

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      20.74   Tc(MIN.) =    3.91
   TOTAL AREA(ACRES) =       12.3
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    842.00 =    1155.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    842.00 TO NODE    742.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   550.00  DOWNSTREAM(FEET) =   467.00
   FLOW LENGTH(FEET) =  1160.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.67
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      20.74
   PIPE TRAVEL TIME(MIN.) =   1.16    Tc(MIN.) =    5.07
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    742.00 =    2315.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    842.00 TO NODE    742.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.527
   *USER SPECIFIED(SUBAREA):
```

```
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .4600
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4308
   SUBAREA AREA(ACRES) =   13.10   SUBAREA RUNOFF(CFS) =   39.33
   TOTAL AREA(ACRES) =       25.4   TOTAL RUNOFF(CFS) =      71.48
   TC(MIN.) =    5.07


****************************************************************************
***
   FLOW PROCESS FROM NODE    742.00 TO NODE    743.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   467.00  DOWNSTREAM(FEET) =   364.00
   FLOW LENGTH(FEET) =  1910.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  20.41
   ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      71.48
   PIPE TRAVEL TIME(MIN.) =   1.56    Tc(MIN.) =    6.63
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    743.00 =    4225.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    742.00 TO NODE    743.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.490
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .4700
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4509
   SUBAREA AREA(ACRES) =   26.77   SUBAREA RUNOFF(CFS) =   69.08
   TOTAL AREA(ACRES) =       52.2   TOTAL RUNOFF(CFS) =     129.21
   TC(MIN.) =    6.63


****************************************************************************
***
   FLOW PROCESS FROM NODE    743.00 TO NODE    752.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   364.00  DOWNSTREAM(FEET) =   351.00
   FLOW LENGTH(FEET) =   190.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.6 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  25.19
   ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     129.21
   PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =    6.76
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    752.00 =    4415.00
FEET.


****************************************************************************
   FLOW PROCESS FROM NODE    752.00 TO NODE    752.00 IS CODE =  10
 ----------------------------------------------------------------------------
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<

================================================================================


****************************************************************************
   FLOW PROCESS FROM NODE    750.00 TO NODE    751.00 IS CODE =  21
 ----------------------------------------------------------------------------
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    87.00
   UPSTREAM ELEVATION(FEET) =    719.00
   DOWNSTREAM ELEVATION(FEET) =    712.00
   ELEVATION DIFFERENCE(FEET) =      7.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.446
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.233
   SUBAREA RUNOFF(CFS) =      0.79
   TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.79


****************************************************************************
   FLOW PROCESS FROM NODE    751.00 TO NODE    852.00 IS CODE =  51
 ----------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    714.00  DOWNSTREAM(FEET) =
640.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   689.00   CHANNEL SLOPE =  0.1074
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.338
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (STEEP) RUNOFF COEFFICIENT = .4500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.08
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.76
   AVERAGE FLOW DEPTH(FEET) =   0.14   TRAVEL TIME(MIN.) =   1.48
   Tc(MIN.) =    6.93
   SUBAREA AREA(ACRES) =     5.22       SUBAREA RUNOFF(CFS) =   12.54
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.450
   TOTAL AREA(ACRES) =        5.5         PEAK FLOW RATE(CFS) =
13.21

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   9.36
   LONGEST FLOWPATH FROM NODE    750.00 TO NODE    852.00 =     776.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    852.00 TO NODE    852.00 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.) =    6.93
   RAINFALL INTENSITY(INCH/HR) =   5.34
   TOTAL STREAM AREA(ACRES) =     5.50
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.21


****************************************************************************
***
   FLOW PROCESS FROM NODE    850.00 TO NODE    851.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
```

```
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    545.00
   DOWNSTREAM ELEVATION(FEET) =    540.00
   ELEVATION DIFFERENCE(FEET) =      5.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.895
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.354
   SUBAREA RUNOFF(CFS) =      0.88
   TOTAL AREA(ACRES) =      0.47   TOTAL RUNOFF(CFS) =      0.88


****************************************************************************
***
   FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =
535.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   662.00   CHANNEL SLOPE =  0.0076
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.885
   *USER SPECIFIED(SUBAREA):
   BARREN SLOPES (FLAT) RUNOFF COEFFICIENT = .3500
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.38
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.48
   AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   4.44
   Tc(MIN.) =   11.34
   SUBAREA AREA(ACRES) =     3.62       SUBAREA RUNOFF(CFS) =    4.92
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        4.1         PEAK FLOW RATE(CFS) =
5.56

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.26   FLOW VELOCITY(FEET/SEC.) =   2.87
   LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =     747.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    852.00 TO NODE    852.00 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.) =   11.34
   RAINFALL INTENSITY(INCH/HR) =   3.88
   TOTAL STREAM AREA(ACRES) =     4.09
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.56

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       13.21     6.93        5.338          5.50
       2        5.56    11.34        3.885          4.09

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       16.61     6.93       5.338
       2       15.18    11.34       3.885

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      16.61   Tc(MIN.) =    6.93
   TOTAL AREA(ACRES) =        9.6
   LONGEST FLOWPATH FROM NODE    750.00 TO NODE    852.00 =     776.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    852.00 TO NODE    752.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

==========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   540.00  DOWNSTREAM(FEET) =   351.00
   FLOW LENGTH(FEET) =  3626.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  14.05
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      16.61
   PIPE TRAVEL TIME(MIN.) =   4.30    Tc(MIN.) =   11.23
   LONGEST FLOWPATH FROM NODE    750.00 TO NODE    752.00 =    4402.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    852.00 TO NODE    752.00 IS CODE =  81
 --------------------------------------------------------------------------
----
```

```
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.909
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .7000
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.6394
   SUBAREA AREA(ACRES) =   36.75   SUBAREA RUNOFF(CFS) =  100.56
   TOTAL AREA(ACRES) =       46.3   TOTAL RUNOFF(CFS) =     115.83
   TC(MIN.) =   11.23


****************************************************************************
   FLOW PROCESS FROM NODE    752.00 TO NODE    752.00 IS CODE =  11
 ----------------------------------------------------------------------------
   >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

================================================================================

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      115.83    11.23       3.909       46.34
   LONGEST FLOWPATH FROM NODE    750.00 TO NODE    752.00 =    4402.00
FEET.

   ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      129.21     6.76       5.424       52.19
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    752.00 =    4415.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     198.91       6.76        5.424
       2     208.95      11.23        3.909

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     208.95   Tc(MIN.) =   11.23
   TOTAL AREA(ACRES) =       98.5


****************************************************************************
   FLOW PROCESS FROM NODE    752.00 TO NODE    752.00 IS CODE =  12
 ----------------------------------------------------------------------------
   >>>>>CLEAR MEMORY BANK # 3 <<<<<
```

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    752.00 TO NODE    743.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   351.50  DOWNSTREAM(FEET) =   351.00
   FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  66.0 INCH PIPE IS  50.2 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  10.77
   ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     208.95
   PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   11.38
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    743.00 =    4515.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    733.00 TO NODE    734.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.875
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5382
   SUBAREA AREA(ACRES) =    1.52   SUBAREA RUNOFF(CFS) =    2.65
   TOTAL AREA(ACRES) =      100.0   TOTAL RUNOFF(CFS) =     208.95
   TC(MIN.) =   11.38
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


****************************************************************************
***
   FLOW PROCESS FROM NODE    734.00 TO NODE    734.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

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

```
   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      208.95    11.38       3.875      100.05
   LONGEST FLOWPATH FROM NODE    740.00 TO NODE    734.00 =    4515.00
FEET.

   ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      253.90    21.61       2.562      162.62
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    734.00 =    8172.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     342.67      11.38        3.875
       2     392.08      21.61        2.562

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     392.08   Tc(MIN.) =   21.61
   TOTAL AREA(ACRES) =      262.7


****************************************************************************
***
   FLOW PROCESS FROM NODE    734.00 TO NODE    734.00 IS CODE =  12
 ----------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 1 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    734.00 TO NODE    753.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   351.00  DOWNSTREAM(FEET) =   349.00
   FLOW LENGTH(FEET) =   300.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN 108.0 INCH PIPE IS  82.8 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   7.49
   ESTIMATED PIPE DIAMETER(INCH) = 108.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     392.08
   PIPE TRAVEL TIME(MIN.) =   0.67    Tc(MIN.) =   22.28
```

```
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    753.00 =    8472.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    734.00 TO NODE    753.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.513
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5140
   SUBAREA AREA(ACRES) =    0.70   SUBAREA RUNOFF(CFS) =    0.79
   TOTAL AREA(ACRES) =      263.4   TOTAL RUNOFF(CFS) =     392.08
   TC(MIN.) =   22.28
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


****************************************************************************
***
   FLOW PROCESS FROM NODE    755.00 TO NODE    756.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.513
   *USER SPECIFIED(SUBAREA):
   PAVED SURFACE RUNOFF COEFFICIENT = .8500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5175
   SUBAREA AREA(ACRES) =    2.72   SUBAREA RUNOFF(CFS) =    5.81
   TOTAL AREA(ACRES) =      266.1   TOTAL RUNOFF(CFS) =     392.08
   TC(MIN.) =   22.28
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


****************************************************************************
***
   FLOW PROCESS FROM NODE    753.00 TO NODE    757.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   349.00  DOWNSTREAM(FEET) =   339.00
   FLOW LENGTH(FEET) =  1265.00   MANNING'S N =  0.030
```

```
   DEPTH OF FLOW IN 108.0 INCH PIPE IS  77.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   8.07
   ESTIMATED PIPE DIAMETER(INCH) = 108.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     392.08
   PIPE TRAVEL TIME(MIN.) =   2.61    Tc(MIN.) =   24.89
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    757.00 =    9737.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    757.00 TO NODE    757.00 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.) =   24.89
   RAINFALL INTENSITY(INCH/HR) =   2.34
   TOTAL STREAM AREA(ACRES) =   266.09
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    392.08


****************************************************************************
***
   FLOW PROCESS FROM NODE    760.00 TO NODE    761.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5200
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
   UPSTREAM ELEVATION(FEET) =    478.75
   DOWNSTREAM ELEVATION(FEET) =    478.00
   ELEVATION DIFFERENCE(FEET) =      0.75
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.735
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.596
   SUBAREA RUNOFF(CFS) =      0.67
   TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.67


****************************************************************************
***
   FLOW PROCESS FROM NODE    761.00 TO NODE    762.00 IS CODE =  61
```

```
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

========================================================================
===
   UPSTREAM ELEVATION(FEET) =  478.00  DOWNSTREAM ELEVATION(FEET) =
374.00
   STREET LENGTH(FEET) =  3865.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 18.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   9.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      43.17
     ***STREET FLOWING FULL***
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.51
     HALFSTREET FLOOD WIDTH(FEET) =   18.56
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.66
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.90
   STREET FLOW TRAVEL TIME(MIN.) =  11.38   Tc(MIN.) =   20.11
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.684
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5000
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.500
   SUBAREA AREA(ACRES) =   59.58      SUBAREA RUNOFF(CFS) =   79.96
   TOTAL AREA(ACRES) =       59.9        PEAK FLOW RATE(CFS) =      80.35

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.61   HALFSTREET FLOOD WIDTH(FEET) =  23.26
   FLOW VELOCITY(FEET/SEC.) =  6.95   DEPTH*VELOCITY(FT*FT/SEC.) =   4.21
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
          AND L = 3865.0 FT WITH ELEVATION-DROP = 104.0 FT, IS  152.6
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    762.00
   LONGEST FLOWPATH FROM NODE    760.00 TO NODE    762.00 =    3940.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    763.00 TO NODE    764.00 IS CODE =  81
 ------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.684
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5200
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5010
   SUBAREA AREA(ACRES) =    2.71   SUBAREA RUNOFF(CFS) =    3.78
   TOTAL AREA(ACRES) =       62.6   TOTAL RUNOFF(CFS) =      84.13
   TC(MIN.) =   20.11


****************************************************************************
***
   FLOW PROCESS FROM NODE    762.00 TO NODE    767.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   348.00  DOWNSTREAM(FEET) =   345.00
   FLOW LENGTH(FEET) =    50.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.92
   ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      84.13
   PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   20.15
   LONGEST FLOWPATH FROM NODE    760.00 TO NODE    767.00 =    3990.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    767.00 TO NODE    767.00 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.) =   20.15
   RAINFALL INTENSITY(INCH/HR) =   2.68
   TOTAL STREAM AREA(ACRES) =    62.57
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     84.13


****************************************************************************
***
   FLOW PROCESS FROM NODE    765.00 TO NODE    766.00 IS CODE =  21
```

```
 ----------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

==========================================================================
===
   *USER SPECIFIED(SUBAREA):
   PAVED SURFACE RUNOFF COEFFICIENT = .9000
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    370.00
   DOWNSTREAM ELEVATION(FEET) =    360.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    1.671
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.01
   TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      1.01


**************************************************************************
***
   FLOW PROCESS FROM NODE    766.00 TO NODE    767.00 IS CODE =  61
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

==========================================================================
===
   UPSTREAM ELEVATION(FEET) =  360.00  DOWNSTREAM ELEVATION(FEET) =
351.00
   STREET LENGTH(FEET) =   787.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 40.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.94
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.33
     HALFSTREET FLOOD WIDTH(FEET) =   10.42
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.46
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.82
   STREET FLOW TRAVEL TIME(MIN.) =   5.32   Tc(MIN.) =    7.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.304
```

```
   *USER SPECIFIED(SUBAREA):
   PAVED SURFACE RUNOFF COEFFICIENT = .9000
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.900
   SUBAREA AREA(ACRES) =    2.03      SUBAREA RUNOFF(CFS) =    9.69
   TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =      10.50

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  13.24
   FLOW VELOCITY(FEET/SEC.) =  2.80   DEPTH*VELOCITY(FT*FT/SEC.) =   1.10
   LONGEST FLOWPATH FROM NODE    765.00 TO NODE    767.00 =     887.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    753.00 TO NODE    757.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.304
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.6408
   SUBAREA AREA(ACRES) =    2.99   SUBAREA RUNOFF(CFS) =    7.14
   TOTAL AREA(ACRES) =        5.2   TOTAL RUNOFF(CFS) =      17.64
   TC(MIN.) =    7.00


****************************************************************************
***
   FLOW PROCESS FROM NODE    767.00 TO NODE    757.00 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.) =    7.00
   RAINFALL INTENSITY(INCH/HR) =   5.30
   TOTAL STREAM AREA(ACRES) =     5.19
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.64

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      392.08    24.89        2.339        266.09
       2       84.13    20.15        2.681         62.57
       3       17.64     7.00        5.304          5.19
```

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      157.03     7.00       5.304
       2      410.40    20.15       2.681
       3      473.26    24.89       2.339

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     473.26   Tc(MIN.) =   24.89
   TOTAL AREA(ACRES) =      333.9
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    757.00 =    9737.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    757.00 TO NODE    768.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   340.00  DOWNSTREAM(FEET) =   338.00
   FLOW LENGTH(FEET) =   414.00   MANNING'S N =  0.030
   DEPTH OF FLOW IN 126.0 INCH PIPE IS  91.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   7.01
   ESTIMATED PIPE DIAMETER(INCH) = 126.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     473.26
   PIPE TRAVEL TIME(MIN.) =   0.98    Tc(MIN.) =   25.88
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    768.00 =   10151.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    768.00 TO NODE    768.00 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.) =   25.88
   RAINFALL INTENSITY(INCH/HR) =   2.28
   TOTAL STREAM AREA(ACRES) =   333.85
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    473.26
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    770.00 TO NODE    771.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5200
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
   UPSTREAM ELEVATION(FEET) =    412.75
   DOWNSTREAM ELEVATION(FEET) =    412.00
   ELEVATION DIFFERENCE(FEET) =      0.75
   URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.735
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.596
   SUBAREA RUNOFF(CFS) =      0.86
   TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      0.86


****************************************************************************
***
   FLOW PROCESS FROM NODE    771.00 TO NODE    772.00 IS CODE =  61
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STANDARD CURB SECTION USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  412.00  DOWNSTREAM ELEVATION(FEET) =
356.00
   STREET LENGTH(FEET) =  1690.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 18.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   9.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      25.43
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
     STREET FLOW DEPTH(FEET) =  0.43
     HALFSTREET FLOOD WIDTH(FEET) =   15.22
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.22
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.25
   STREET FLOW TRAVEL TIME(MIN.) =   5.40   Tc(MIN.) =   14.13
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.370
   *USER SPECIFIED(SUBAREA):
   NORMAL RESIDENTIAL (R1) RUNOFF COEFFICIENT = .5000
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.500
   SUBAREA AREA(ACRES) =   28.60      SUBAREA RUNOFF(CFS) =   48.19
   TOTAL AREA(ACRES) =       29.0        PEAK FLOW RATE(CFS) =      48.82

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.51   HALFSTREET FLOOD WIDTH(FEET) =  18.69
   FLOW VELOCITY(FEET/SEC.) =  6.33   DEPTH*VELOCITY(FT*FT/SEC.) =   3.25
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
          AND L = 1690.0 FT WITH ELEVATION-DROP =  56.0 FT, IS   75.2
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    772.00
   LONGEST FLOWPATH FROM NODE    770.00 TO NODE    772.00 =    1765.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    772.00 TO NODE    768.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   351.00  DOWNSTREAM(FEET) =   338.00
   FLOW LENGTH(FEET) =   270.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  27.0 INCH PIPE IS  17.6 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.83
   ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      48.82
   PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =   14.38
   LONGEST FLOWPATH FROM NODE    770.00 TO NODE    768.00 =    2035.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    757.00 TO NODE    768.00 IS CODE =  81
 --------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.332
```

```
   *USER SPECIFIED(SUBAREA):
   VEGETATED SLOPES (FLAT) RUNOFF COEFFICIENT = .4500
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4989
   SUBAREA AREA(ACRES) =    0.79   SUBAREA RUNOFF(CFS) =    1.18
   TOTAL AREA(ACRES) =       29.8   TOTAL RUNOFF(CFS) =      49.46
   TC(MIN.) =   14.38


****************************************************************************
***
   FLOW PROCESS FROM NODE    768.00 TO NODE    768.00 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.) =   14.38
   RAINFALL INTENSITY(INCH/HR) =   3.33
   TOTAL STREAM AREA(ACRES) =    29.75
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     49.46

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      473.26    25.88        2.281        333.85
       2       49.46    14.38        3.332         29.75

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      373.48    14.38       3.332
       2      507.12    25.88       2.281

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     507.12   Tc(MIN.) =   25.88
   TOTAL AREA(ACRES) =      363.6
   LONGEST FLOWPATH FROM NODE    700.00 TO NODE    768.00 =   10151.00
FEET.

============================================================================
===
   END OF STUDY SUMMARY:
   TOTAL AREA(ACRES)     =      363.6  TC(MIN.) =     25.88
   PEAK FLOW RATE(CFS)   =     507.12

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

```
================================================================================
   END OF RATIONAL METHOD ANALYSIS
```

CHAPTER 5
HYDROLOGIC ANALYSIS

Proposed Condition
100 – Year Design Storm

Q100 Analysis- Includes areas along the exterior of the developed areas and Northern developed Areas tributary to Basin 1 and downstream natural runoff flows

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                            Analysis prepared by:

                     HUnsaker & Associates San Diego, Inc.
                               9707 Waples Street
                              San Diego   CA   92121


 ************************* DESCRIPTION OF STUDY *************************
* Fanita Ranch Proposed Condition Hydrology Model                         *
* 100-Year Return Interval                                               *
* Nodes 3100-3350 (Basin 1)                                              *
 **************************************************************************

  FILE NAME: R:\1284\HYD\CALCS\TM\AES\FR3000.DAT
  TIME/DATE OF STUDY: 14:09 02/22/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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
  2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 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.*

**************************************************************************
  FLOW PROCESS FROM NODE   3100.00 TO NODE   3101.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   115.00
  UPSTREAM ELEVATION(FEET) =   1104.00
  DOWNSTREAM ELEVATION(FEET) =   1102.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.137
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    76.09
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.772
 SUBAREA RUNOFF(CFS) =      0.80
 TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
 FLOW PROCESS FROM NODE   3101.00 TO NODE   3102.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1102.00  DOWNSTREAM ELEVATION(FEET) = 1065.00
 STREET LENGTH(FEET) =  1768.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.12
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.36
   HALFSTREET FLOOD WIDTH(FEET) =   11.48
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.52
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.25
 STREET FLOW TRAVEL TIME(MIN.) =   8.37   Tc(MIN.) =   14.50
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.314
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
 SUBAREA AREA(ACRES) =    8.41      SUBAREA RUNOFF(CFS) =   17.56
 TOTAL AREA(ACRES) =        8.6        PEAK FLOW RATE(CFS) =      18.02

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  12.00
 FLOW VELOCITY(FEET/SEC.) =  4.34   DEPTH*VELOCITY(FT*FT/SEC.) =   1.78
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3102.00 =    1883.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3102.00 TO NODE   3103.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1060.00  DOWNSTREAM(FEET) =  1050.00
 FLOW LENGTH(FEET) =   747.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.62
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      18.02
 PIPE TRAVEL TIME(MIN.) =   1.44    Tc(MIN.) =   15.95
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3103.00 =    2630.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3103.00 TO NODE   3103.00 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.) =   15.95
 RAINFALL INTENSITY(INCH/HR) =   3.12
 TOTAL STREAM AREA(ACRES) =     8.63
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.02

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

```
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1070.00
  DOWNSTREAM ELEVATION(FEET) =   1065.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.423
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    91.67
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.251
  SUBAREA RUNOFF(CFS) =      1.14
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.14

****************************************************************************
  FLOW PROCESS FROM NODE   3109.00 TO NODE   3103.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1065.00  DOWNSTREAM ELEVATION(FEET) = 1055.00
  STREET LENGTH(FEET) =   750.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.37
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.67
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.83
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.02
  STREET FLOW TRAVEL TIME(MIN.) =   4.42   Tc(MIN.) =    9.84
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.255
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.23      SUBAREA RUNOFF(CFS) =   14.02
  TOTAL AREA(ACRES) =        5.5        PEAK FLOW RATE(CFS) =      14.80

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.51   DEPTH*VELOCITY(FT*FT/SEC.) =   1.45
  LONGEST FLOWPATH FROM NODE   3108.00 TO NODE   3103.00 =     900.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3103.00 TO NODE   3103.00 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.) =    9.84
  RAINFALL INTENSITY(INCH/HR) =   4.26
  TOTAL STREAM AREA(ACRES) =     5.52
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     14.80
```

```
  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.02    15.95        3.117          8.63
      2       14.80     9.84        4.255          5.52

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       25.92     9.84       4.255
      2       28.86    15.95       3.117

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      28.86   Tc(MIN.) =   15.95
  TOTAL AREA(ACRES) =       14.1
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3103.00 =    2630.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3103.00 TO NODE   3110.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1050.00  DOWNSTREAM(FEET) =  1044.00
  FLOW LENGTH(FEET) =   325.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.58
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      28.86
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =   16.46
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3110.00 =    2955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3110.00 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.) =   16.46
  RAINFALL INTENSITY(INCH/HR) =   3.05
  TOTAL STREAM AREA(ACRES) =    14.15
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     28.86

****************************************************************************
  FLOW PROCESS FROM NODE   3115.00 TO NODE   3116.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    155.00
  DOWNSTREAM ELEVATION(FEET) =    154.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE   3116.00 TO NODE   3110.00 IS CODE =  61
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  154.00  DOWNSTREAM ELEVATION(FEET) =  149.00
  STREET LENGTH(FEET) =   450.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.00
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    9.80
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.32
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
  STREET FLOW TRAVEL TIME(MIN.) =   3.23   Tc(MIN.) =   10.05
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.198
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    3.23      SUBAREA RUNOFF(CFS) =    8.54
  TOTAL AREA(ACRES) =        3.4        PEAK FLOW RATE(CFS) =       9.07

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.74   DEPTH*VELOCITY(FT*FT/SEC.) =   1.03
  LONGEST FLOWPATH FROM NODE   3115.00 TO NODE   3110.00 =     550.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3110.00 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.) =   10.05
  RAINFALL INTENSITY(INCH/HR) =   4.20
  TOTAL STREAM AREA(ACRES) =     3.43
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.07

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       28.86    16.46        3.055         14.15
      2        9.07    10.05        4.198          3.43

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       30.07    10.05       4.198
      2       35.46    16.46       3.055

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      35.46   Tc(MIN.) =   16.46
  TOTAL AREA(ACRES) =       17.6
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3110.00 =    2955.00 FEET.

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

```
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3117.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1044.00  DOWNSTREAM(FEET) =  1033.00
  FLOW LENGTH(FEET) =   930.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.66
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      35.46
  PIPE TRAVEL TIME(MIN.) =   1.61    Tc(MIN.) =   18.06
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3117.00 =    3885.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3117.00 TO NODE   3117.00 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.) =   18.06
  RAINFALL INTENSITY(INCH/HR) =   2.88
  TOTAL STREAM AREA(ACRES) =    17.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     35.46

****************************************************************************
  FLOW PROCESS FROM NODE   3122.00 TO NODE   3123.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =   1101.00
  DOWNSTREAM ELEVATION(FEET) =   1100.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.964
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.320
  SUBAREA RUNOFF(CFS) =      1.34
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
  FLOW PROCESS FROM NODE   3123.00 TO NODE   3117.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1100.00  DOWNSTREAM ELEVATION(FEET) = 1038.00
  STREET LENGTH(FEET) =  1625.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      22.51
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.40
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
```

```
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.70
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.29
  STREET FLOW TRAVEL TIME(MIN.) =   4.75   Tc(MIN.) =   11.72
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.803
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =   17.17      SUBAREA RUNOFF(CFS) =   41.14
  TOTAL AREA(ACRES) =       17.6        PEAK FLOW RATE(CFS) =      42.10

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.48   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  7.30   DEPTH*VELOCITY(FT*FT/SEC.) =   3.48
  *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
         AND L = 1625.0 FT WITH ELEVATION-DROP =  62.0 FT, IS   69.0 CFS,
         WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE   3117.00
  LONGEST FLOWPATH FROM NODE   3122.00 TO NODE   3117.00 =    1745.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3117.00 TO NODE   3117.00 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.) =   11.72
  RAINFALL INTENSITY(INCH/HR) =   3.80
  TOTAL STREAM AREA(ACRES) =    17.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.10

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       35.46    18.06        2.877         17.58
      2       42.10    11.72        3.803         17.57

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       68.92    11.72       3.803
      2       67.30    18.06       2.877

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      68.92   Tc(MIN.) =   11.72
  TOTAL AREA(ACRES) =       35.2
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3117.00 =    3885.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3117.00 TO NODE   3124.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1033.00  DOWNSTREAM(FEET) =  1032.00
  FLOW LENGTH(FEET) =   630.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  54.0 INCH PIPE IS  41.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.31
  ESTIMATED PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      68.92
  PIPE TRAVEL TIME(MIN.) =   1.98    Tc(MIN.) =   13.70
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3124.00 =    4515.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3124.00 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.) =   13.70
  RAINFALL INTENSITY(INCH/HR) =   3.44
  TOTAL STREAM AREA(ACRES) =    35.15
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     68.92

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   145.00
  UPSTREAM ELEVATION(FEET) =   1059.90
  DOWNSTREAM ELEVATION(FEET) =   1056.00
  ELEVATION DIFFERENCE(FEET) =      3.90
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.671
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    86.90
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.073
  SUBAREA RUNOFF(CFS) =      0.42
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.42

****************************************************************************
  FLOW PROCESS FROM NODE   3130.00 TO NODE   3124.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) = 1056.00  DOWNSTREAM ELEVATION(FEET) = 1036.00
  STREET LENGTH(FEET) =   560.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.26
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.28
    HALFSTREET FLOOD WIDTH(FEET) =    7.64
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.75
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.05
  STREET FLOW TRAVEL TIME(MIN.) =   2.49   Tc(MIN.) =    8.16
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.803
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    3.18      SUBAREA RUNOFF(CFS) =    9.62
  TOTAL AREA(ACRES) =        3.3        PEAK FLOW RATE(CFS) =       9.95

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  10.17
  FLOW VELOCITY(FEET/SEC.) =  4.32   DEPTH*VELOCITY(FT*FT/SEC.) =   1.42
  LONGEST FLOWPATH FROM NODE   3129.00 TO NODE   3124.00 =     705.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3124.00 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.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   4.80
  TOTAL STREAM AREA(ACRES) =     3.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.95

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       68.92    13.70        3.439         35.15
      2        9.95     8.16        4.803          3.29

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       59.30     8.16       4.803
      2       76.05    13.70       3.439

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      76.05   Tc(MIN.) =   13.70
  TOTAL AREA(ACRES) =       38.4
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3124.00 =    4515.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3131.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1032.00  DOWNSTREAM(FEET) =  1027.00
  FLOW LENGTH(FEET) =   330.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  28.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.56
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      76.05
  PIPE TRAVEL TIME(MIN.) =   0.44    Tc(MIN.) =   14.13
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3131.00 =    4845.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3131.00 TO NODE   3131.00 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.) =   14.13
  RAINFALL INTENSITY(INCH/HR) =   3.37
  TOTAL STREAM AREA(ACRES) =    38.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     76.05

****************************************************************************
  FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1065.00
  DOWNSTREAM ELEVATION(FEET) =   1060.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.505
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH =    81.67
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 SUBAREA RUNOFF(CFS) =      0.86
 TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.86

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3131.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1060.00  DOWNSTREAM ELEVATION(FEET) = 1030.00
 STREET LENGTH(FEET) =   620.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.80
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.25
   HALFSTREET FLOOD WIDTH(FEET) =    6.05
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.93
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.97
 STREET FLOW TRAVEL TIME(MIN.) =   2.63   Tc(MIN.) =    5.14
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.473
 *USER SPECIFIED(SUBAREA):
 GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
 SUBAREA AREA(ACRES) =    1.04      SUBAREA RUNOFF(CFS) =    5.86
 TOTAL AREA(ACRES) =        1.2        PEAK FLOW RATE(CFS) =       6.70

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   8.02
 FLOW VELOCITY(FEET/SEC.) =  4.41   DEPTH*VELOCITY(FT*FT/SEC.) =   1.26
 LONGEST FLOWPATH FROM NODE   3136.00 TO NODE   3131.00 =     770.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3131.00 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.) =    5.14
 RAINFALL INTENSITY(INCH/HR) =   6.47
 TOTAL STREAM AREA(ACRES) =     1.19
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.70

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       76.05    14.13        3.370         38.44
     2        6.70     5.14        6.473          1.19

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       46.29     5.14       6.473
      2       79.54    14.13       3.370

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      79.54   Tc(MIN.) =   14.13
  TOTAL AREA(ACRES) =       39.6
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3131.00 =    4845.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3131.00 TO NODE   3138.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   126.00  DOWNSTREAM(FEET) =   124.00
  FLOW LENGTH(FEET) =    75.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.72
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      79.54
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   14.21
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3138.00 =    4920.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
  UPSTREAM ELEVATION(FEET) =   1181.00
  DOWNSTREAM ELEVATION(FEET) =   1179.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.207
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.35
  TOTAL AREA(ACRES) =      0.41   TOTAL RUNOFF(CFS) =      2.35

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1180.00  DOWNSTREAM ELEVATION(FEET) = 1100.00
  STREET LENGTH(FEET) =  1425.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      18.22
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   11.95
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.89
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.15
  STREET FLOW TRAVEL TIME(MIN.) =   4.03   Tc(MIN.) =    7.24
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.188
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.640
  SUBAREA AREA(ACRES) =    9.14      SUBAREA RUNOFF(CFS) =   29.87
  TOTAL AREA(ACRES) =        9.6        PEAK FLOW RATE(CFS) =      31.72

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  7.32   DEPTH*VELOCITY(FT*FT/SEC.) =   3.05
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3145.00 =    1625.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1100.00  DOWNSTREAM(FEET) =  1096.00
  FLOW LENGTH(FEET) =   350.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  19.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.33
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      31.72
  PIPE TRAVEL TIME(MIN.) =   0.63    Tc(MIN.) =    7.87
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3146.00 =    1975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3146.00 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.) =    7.87
  RAINFALL INTENSITY(INCH/HR) =   4.92
  TOTAL STREAM AREA(ACRES) =     9.55
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     31.72

****************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1103.00
  DOWNSTREAM ELEVATION(FEET) =   1101.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.954
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    72.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.96
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.96

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3146.00 IS CODE =  61
```

```
------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) = 1100.00  DOWNSTREAM ELEVATION(FEET) = 1096.00
  STREET LENGTH(FEET) =   574.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.96
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.58
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.04
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.73
  STREET FLOW TRAVEL TIME(MIN.) =   4.68   Tc(MIN.) =    9.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.314
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.635
  SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =    9.51
  TOTAL AREA(ACRES) =        3.7        PEAK FLOW RATE(CFS) =      10.14

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.47   DEPTH*VELOCITY(FT*FT/SEC.) =   1.01
  LONGEST FLOWPATH FROM NODE   3151.00 TO NODE   3146.00 =     674.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3146.00 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.) =    9.64
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =     3.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.14

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       31.72     7.87        4.918          9.55
      2       10.14     9.64        4.314          3.70

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       40.00     7.87       4.918
      2       37.97     9.64       4.314

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.00   Tc(MIN.) =    7.87
  TOTAL AREA(ACRES) =       13.2
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3146.00 =    1975.00 FEET.

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

```
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3153.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1090.00  DOWNSTREAM(FEET) =  1086.00
  FLOW LENGTH(FEET) =   500.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.54
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.00
  PIPE TRAVEL TIME(MIN.) =   0.98    Tc(MIN.) =    8.84
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3153.00 =    2475.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3153.00 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.) =    8.84
  RAINFALL INTENSITY(INCH/HR) =   4.56
  TOTAL STREAM AREA(ACRES) =    13.25
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     40.00

****************************************************************************
  FLOW PROCESS FROM NODE   3158.00 TO NODE   3159.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1101.00
  DOWNSTREAM ELEVATION(FEET) =   1100.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.75
  TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.75

****************************************************************************
  FLOW PROCESS FROM NODE   3159.00 TO NODE   3153.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1100.00  DOWNSTREAM ELEVATION(FEET) = 1091.00
  STREET LENGTH(FEET) =   656.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.28
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.45
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.71
```

```
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.91
  STREET FLOW TRAVEL TIME(MIN.) =   4.04   Tc(MIN.) =   10.86
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.994
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    1.99      SUBAREA RUNOFF(CFS) =    5.01
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       5.56

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.91   DEPTH*VELOCITY(FT*FT/SEC.) =   1.07
  LONGEST FLOWPATH FROM NODE   3158.00 TO NODE   3153.00 =     756.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3153.00 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.) =   10.86
  RAINFALL INTENSITY(INCH/HR) =   3.99
  TOTAL STREAM AREA(ACRES) =     2.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.56

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       40.00     8.84        4.560         13.25
      2        5.56    10.86        3.994          2.21

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       44.53     8.84       4.560
      2       40.59    10.86       3.994

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      44.53   Tc(MIN.) =    8.84
  TOTAL AREA(ACRES) =       15.5
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3153.00 =    2475.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1086.00  DOWNSTREAM(FEET) =  1078.00
  FLOW LENGTH(FEET) =   620.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  21.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.61
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      44.53
  PIPE TRAVEL TIME(MIN.) =   0.97    Tc(MIN.) =    9.82
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3160.00 =    3095.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3160.00 TO NODE   3160.00 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.) =    9.82
```

```
  RAINFALL INTENSITY(INCH/HR) =   4.26
  TOTAL STREAM AREA(ACRES) =    15.46
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     44.53

****************************************************************************
  FLOW PROCESS FROM NODE   3162.00 TO NODE   3163.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1097.00
  DOWNSTREAM ELEVATION(FEET) =   1096.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.44
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.44

****************************************************************************
  FLOW PROCESS FROM NODE   3163.00 TO NODE   3160.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1096.00  DOWNSTREAM ELEVATION(FEET) = 1083.00
  STREET LENGTH(FEET) =   935.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.60
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    8.02
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.37
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.68
  STREET FLOW TRAVEL TIME(MIN.) =   6.58   Tc(MIN.) =   13.40
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.487
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.80      SUBAREA RUNOFF(CFS) =    6.15
  TOTAL AREA(ACRES) =        2.9        PEAK FLOW RATE(CFS) =       6.44

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  10.36
  FLOW VELOCITY(FEET/SEC.) =  2.70   DEPTH*VELOCITY(FT*FT/SEC.) =   0.90
  LONGEST FLOWPATH FROM NODE   3162.00 TO NODE   3160.00 =    1035.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3160.00 TO NODE   3160.00 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.) =   13.40
  RAINFALL INTENSITY(INCH/HR) =   3.49
  TOTAL STREAM AREA(ACRES) =     2.93
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.44

****************************************************************************
  FLOW PROCESS FROM NODE   3165.00 TO NODE   3166.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1098.00
  DOWNSTREAM ELEVATION(FEET) =   1096.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.836
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    75.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.25
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      1.25

****************************************************************************
  FLOW PROCESS FROM NODE   3166.00 TO NODE   3167.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1096.00  DOWNSTREAM(FEET) =  1085.00
  FLOW LENGTH(FEET) =   670.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.59
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.25
  PIPE TRAVEL TIME(MIN.) =   2.43    Tc(MIN.) =    6.27
  LONGEST FLOWPATH FROM NODE   3165.00 TO NODE   3167.00 =     770.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3166.00 TO NODE   3167.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.693
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    9.11   SUBAREA RUNOFF(CFS) =   40.97
  TOTAL AREA(ACRES) =        9.3   TOTAL RUNOFF(CFS) =      42.05
  TC(MIN.) =    6.27

****************************************************************************
  FLOW PROCESS FROM NODE   3167.00 TO NODE   3160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1085.00  DOWNSTREAM(FEET) =  1084.00
  FLOW LENGTH(FEET) =    60.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.46
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      42.05
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.36
  LONGEST FLOWPATH FROM NODE   3165.00 TO NODE   3160.00 =     830.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3160.00 TO NODE   3160.00 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.) =    6.36
  RAINFALL INTENSITY(INCH/HR) =   5.64
  TOTAL STREAM AREA(ACRES) =     9.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.05

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       44.53     9.82        4.263         15.46
      2        6.44    13.40        3.487          2.93
      3       42.05     6.36        5.642          9.35

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       78.75     6.36       5.642
      2       81.01     9.82       4.263
      3       68.84    13.40       3.487

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      81.01   Tc(MIN.) =    9.82
  TOTAL AREA(ACRES) =       27.7
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3160.00 =    3095.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3160.00 TO NODE   3168.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1083.00  DOWNSTREAM(FEET) =  1082.00
  FLOW LENGTH(FEET) =    60.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  29.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.17
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      81.01
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    9.89
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3168.00 =    3155.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3168.00 TO NODE   3168.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3180.00 TO NODE   3181.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   140.00
  UPSTREAM ELEVATION(FEET) =   1111.00
  DOWNSTREAM ELEVATION(FEET) =   1110.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.109
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH =    56.43
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.249
SUBAREA RUNOFF(CFS) =      1.29
TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      1.29

****************************************************************************
FLOW PROCESS FROM NODE   3181.00 TO NODE   3182.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) = 1110.00  DOWNSTREAM ELEVATION(FEET) = 1094.00
STREET LENGTH(FEET) =  1460.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 12.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.020
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.54
  ***STREET FLOWING FULL***
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.39
  HALFSTREET FLOOD WIDTH(FEET) =   12.00
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.88
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.12
STREET FLOW TRAVEL TIME(MIN.) =   8.45   Tc(MIN.) =   15.56
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.167
*USER SPECIFIED(SUBAREA):
RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
SUBAREA AREA(ACRES) =    8.77      SUBAREA RUNOFF(CFS) =   17.50
TOTAL AREA(ACRES) =        9.2        PEAK FLOW RATE(CFS) =      18.28

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  12.00
FLOW VELOCITY(FEET/SEC.) =  3.59   DEPTH*VELOCITY(FT*FT/SEC.) =   1.61
*NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
       AND L = 1460.0 FT WITH ELEVATION-DROP =  16.0 FT, IS   30.2 CFS,
       WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE   3182.00
LONGEST FLOWPATH FROM NODE   3180.00 TO NODE   3182.00 =    1600.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3182.00 TO NODE   3183.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =  1089.00  DOWNSTREAM(FEET) =  1079.00
FLOW LENGTH(FEET) =   820.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.8 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =   8.32
ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =      18.28
PIPE TRAVEL TIME(MIN.) =   1.64    Tc(MIN.) =   17.20
LONGEST FLOWPATH FROM NODE   3180.00 TO NODE   3183.00 =    2420.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3183.00 TO NODE   3183.00 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.) =   17.20
  RAINFALL INTENSITY(INCH/HR) =   2.97
  TOTAL STREAM AREA(ACRES) =     9.16
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.28

****************************************************************************
  FLOW PROCESS FROM NODE   3188.00 TO NODE   3189.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1095.00
  DOWNSTREAM ELEVATION(FEET) =   1094.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE   3189.00 TO NODE   3183.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1094.00  DOWNSTREAM ELEVATION(FEET) = 1084.00
  STREET LENGTH(FEET) =   700.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.17
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.48
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.49
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   4.69   Tc(MIN.) =   11.51
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.847
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .6100
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.611
  SUBAREA AREA(ACRES) =    2.96      SUBAREA RUNOFF(CFS) =    6.95
  TOTAL AREA(ACRES) =        3.2        PEAK FLOW RATE(CFS) =       7.41

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  10.92
  FLOW VELOCITY(FEET/SEC.) =  2.82   DEPTH*VELOCITY(FT*FT/SEC.) =   0.97
  LONGEST FLOWPATH FROM NODE   3188.00 TO NODE   3183.00 =     800.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3183.00 TO NODE   3183.00 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.) =   11.51
  RAINFALL INTENSITY(INCH/HR) =   3.85
  TOTAL STREAM AREA(ACRES) =     3.15
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.41

****************************************************************************
  FLOW PROCESS FROM NODE   3195.00 TO NODE   3196.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1095.00
  DOWNSTREAM ELEVATION(FEET) =   1093.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.005
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    67.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.40
  TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      1.40

****************************************************************************
  FLOW PROCESS FROM NODE   3196.00 TO NODE   3197.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1093.50  DOWNSTREAM(FEET) =  1083.00
  FLOW LENGTH(FEET) =   575.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.93
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.40
  PIPE TRAVEL TIME(MIN.) =   1.94    Tc(MIN.) =    5.95
  LONGEST FLOWPATH FROM NODE   3195.00 TO NODE   3197.00 =     675.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3196.00 TO NODE   3197.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.889
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    6.26   SUBAREA RUNOFF(CFS) =   29.13
  TOTAL AREA(ACRES) =        6.5   TOTAL RUNOFF(CFS) =      30.38
  TC(MIN.) =    5.95

****************************************************************************
  FLOW PROCESS FROM NODE   3197.00 TO NODE   3183.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1083.00  DOWNSTREAM(FEET) =  1082.00
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.88
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      30.38
```

```
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    6.12
  LONGEST FLOWPATH FROM NODE   3195.00 TO NODE   3183.00 =     765.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3183.00 TO NODE   3183.00 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.) =    6.12
  RAINFALL INTENSITY(INCH/HR) =   5.78
  TOTAL STREAM AREA(ACRES) =     6.53
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     30.38

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.28    17.20        2.969          9.16
      2        7.41    11.51        3.847          3.15
      3       30.38     6.12        5.784          6.53

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       40.82     6.12       5.784
      2       39.85    11.51       3.847
      3       39.59    17.20       2.969

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.82   Tc(MIN.) =    6.12
  TOTAL AREA(ACRES) =       18.8
  LONGEST FLOWPATH FROM NODE   3180.00 TO NODE   3183.00 =    2420.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3183.00 TO NODE   3168.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1082.00  DOWNSTREAM(FEET) =  1081.00
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.03
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.82
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    6.21
  LONGEST FLOWPATH FROM NODE   3180.00 TO NODE   3168.00 =    2485.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3168.00 TO NODE   3168.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       40.82     6.21       5.725       18.84
  LONGEST FLOWPATH FROM NODE   3180.00 TO NODE   3168.00 =    2485.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       81.01     9.89       4.242       27.74
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3168.00 =    3155.00 FEET.
```

```
  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      91.72       6.21        5.725
      2     111.26       9.89        4.242

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     111.26   Tc(MIN.) =    9.89
  TOTAL AREA(ACRES) =       46.6

****************************************************************************
  FLOW PROCESS FROM NODE   3168.00 TO NODE   3168.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3168.00 TO NODE   3198.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1081.00  DOWNSTREAM(FEET) =  1054.00
  FLOW LENGTH(FEET) =   575.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  24.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.60
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     111.26
  PIPE TRAVEL TIME(MIN.) =   0.44    Tc(MIN.) =   10.33
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3198.00 =    3730.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3198.00 TO NODE   3198.00 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.) =   10.33
  RAINFALL INTENSITY(INCH/HR) =   4.12
  TOTAL STREAM AREA(ACRES) =    46.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    111.26

****************************************************************************
  FLOW PROCESS FROM NODE   3203.00 TO NODE   3204.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1080.00
  DOWNSTREAM ELEVATION(FEET) =   1075.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.181
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    95.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.94
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.94

****************************************************************************
  FLOW PROCESS FROM NODE   3204.00 TO NODE   3198.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1074.00  DOWNSTREAM(FEET) =  1066.00
  FLOW LENGTH(FEET) =   420.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.46
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.94
  PIPE TRAVEL TIME(MIN.) =   1.57    Tc(MIN.) =    4.75
  LONGEST FLOWPATH FROM NODE   3203.00 TO NODE   3198.00 =     520.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3204.00 TO NODE   3198.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    3.51   SUBAREA RUNOFF(CFS) =   18.26
  TOTAL AREA(ACRES) =        3.7   TOTAL RUNOFF(CFS) =      19.20
  TC(MIN.) =    4.75

****************************************************************************
  FLOW PROCESS FROM NODE   3198.00 TO NODE   3198.00 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.) =    4.75
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     3.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.20

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      111.26    10.33        4.124         46.58
      2       19.20     4.75        6.587          3.69

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       70.34     4.75       6.587
      2      123.28    10.33       4.124

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     123.28   Tc(MIN.) =   10.33
  TOTAL AREA(ACRES) =       50.3
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3198.00 =    3730.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3198.00 TO NODE   3205.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1054.00  DOWNSTREAM(FEET) =  1027.00
  FLOW LENGTH(FEET) =   455.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  24.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  24.22
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     123.28
  PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   10.65
```

```
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3205.00 =    4185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3205.00 TO NODE   3205.00 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.) =   10.65
  RAINFALL INTENSITY(INCH/HR) =   4.05
  TOTAL STREAM AREA(ACRES) =    50.27
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    123.28

****************************************************************************
  FLOW PROCESS FROM NODE   3210.00 TO NODE   3211.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1083.00
  DOWNSTREAM ELEVATION(FEET) =   1081.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.836
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    75.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE   3211.00 TO NODE   3205.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1081.00  DOWNSTREAM ELEVATION(FEET) = 1027.00
  STREET LENGTH(FEET) =   900.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.93
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    6.52
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.55
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.17
  STREET FLOW TRAVEL TIME(MIN.) =   3.30   Tc(MIN.) =    7.13
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.237
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    1.94      SUBAREA RUNOFF(CFS) =    8.03
  TOTAL AREA(ACRES) =        2.1        PEAK FLOW RATE(CFS) =       8.73

  END OF SUBAREA STREET FLOW HYDRAULICS:
```

```
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   8.58
  FLOW VELOCITY(FEET/SEC.) =  5.11   DEPTH*VELOCITY(FT*FT/SEC.) =   1.52
  LONGEST FLOWPATH FROM NODE   3210.00 TO NODE   3205.00 =    1000.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3205.00 TO NODE   3205.00 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.) =    7.13
  RAINFALL INTENSITY(INCH/HR) =   5.24
  TOTAL STREAM AREA(ACRES) =     2.11
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.73

****************************************************************************
  FLOW PROCESS FROM NODE   3216.00 TO NODE   3217.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1060.00
  DOWNSTREAM ELEVATION(FEET) =   1044.00
  ELEVATION DIFFERENCE(FEET) =     16.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.590
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE   3217.00 TO NODE   3218.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1044.00  DOWNSTREAM(FEET) =  1037.00
  FLOW LENGTH(FEET) =   550.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.78
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.88
  PIPE TRAVEL TIME(MIN.) =   2.42    Tc(MIN.) =    5.01
  LONGEST FLOWPATH FROM NODE   3216.00 TO NODE   3218.00 =     650.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3217.00 TO NODE   3218.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.575
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    3.52   SUBAREA RUNOFF(CFS) =   18.28
  TOTAL AREA(ACRES) =        3.7   TOTAL RUNOFF(CFS) =      19.17
  TC(MIN.) =    5.01

****************************************************************************
  FLOW PROCESS FROM NODE   3218.00 TO NODE   3205.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1037.00  DOWNSTREAM(FEET) =  1027.00
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.70
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.17
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    5.10
  LONGEST FLOWPATH FROM NODE   3216.00 TO NODE   3205.00 =     750.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3205.00 TO NODE   3205.00 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.) =    5.10
  RAINFALL INTENSITY(INCH/HR) =   6.50
  TOTAL STREAM AREA(ACRES) =     3.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.17

****************************************************************************
  FLOW PROCESS FROM NODE   3223.00 TO NODE   3224.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   140.00
  UPSTREAM ELEVATION(FEET) =   1074.00
  DOWNSTREAM ELEVATION(FEET) =   1072.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.038
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    66.43
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.65
  TOTAL AREA(ACRES) =      0.51   TOTAL RUNOFF(CFS) =      2.65

****************************************************************************
  FLOW PROCESS FROM NODE   3224.00 TO NODE   3225.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1072.00  DOWNSTREAM(FEET) =  1060.00
  FLOW LENGTH(FEET) =   615.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.07
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.65
  PIPE TRAVEL TIME(MIN.) =   1.69    Tc(MIN.) =    5.73
  LONGEST FLOWPATH FROM NODE   3223.00 TO NODE   3225.00 =     755.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3224.00 TO NODE   3225.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.035
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6375
  SUBAREA AREA(ACRES) =   10.35   SUBAREA RUNOFF(CFS) =   39.35
```

```
  TOTAL AREA(ACRES) =       10.9   TOTAL RUNOFF(CFS) =      41.78
  TC(MIN.) =    5.73

****************************************************************************
  FLOW PROCESS FROM NODE   3225.00 TO NODE   3205.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1060.00  DOWNSTREAM(FEET) =  1026.00
  FLOW LENGTH(FEET) =   170.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  28.67
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      41.78
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    5.82
  LONGEST FLOWPATH FROM NODE   3223.00 TO NODE   3205.00 =     925.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3205.00 TO NODE   3205.00 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.) =    5.82
  RAINFALL INTENSITY(INCH/HR) =   5.97
  TOTAL STREAM AREA(ACRES) =    10.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     41.78

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      123.28    10.65        4.045         50.27
      2        8.73     7.13        5.237          2.11
      3       19.17     5.10        6.501          3.69
      4       41.78     5.82        5.969         10.86

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      138.73     5.10       6.501
      2      150.05     5.82       5.969
      3      156.05     7.13       5.237
      4      170.26    10.65       4.045

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     170.26   Tc(MIN.) =   10.65
  TOTAL AREA(ACRES) =       66.9
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3205.00 =    4185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3205.00 TO NODE   3138.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1027.00  DOWNSTREAM(FEET) =  1025.00
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  35.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.31
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     170.26
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   10.74
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3138.00 =    4285.00 FEET.

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

```
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3230.00 TO NODE   3231.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1092.00
  DOWNSTREAM ELEVATION(FEET) =   1091.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.78
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE   3231.00 TO NODE   3232.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1091.00  DOWNSTREAM ELEVATION(FEET) = 1020.00
  STREET LENGTH(FEET) =   760.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.29
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.48
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.31
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.87
  STREET FLOW TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =    8.83
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.565
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    3.12      SUBAREA RUNOFF(CFS) =    8.97
  TOTAL AREA(ACRES) =        3.3        PEAK FLOW RATE(CFS) =       9.63

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  11.02
  FLOW VELOCITY(FEET/SEC.) =  7.23   DEPTH*VELOCITY(FT*FT/SEC.) =   2.51
  LONGEST FLOWPATH FROM NODE   3230.00 TO NODE   3232.00 =     860.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3232.00 TO NODE   3233.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1020.00  DOWNSTREAM(FEET) =  1016.00
  FLOW LENGTH(FEET) =   730.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.21
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.63
  PIPE TRAVEL TIME(MIN.) =   2.34    Tc(MIN.) =   11.17
  LONGEST FLOWPATH FROM NODE   3230.00 TO NODE   3233.00 =    1590.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3233.00 TO NODE   3233.00 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.) =   11.17
  RAINFALL INTENSITY(INCH/HR) =   3.92
  TOTAL STREAM AREA(ACRES) =     3.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.63

****************************************************************************
  FLOW PROCESS FROM NODE   3238.00 TO NODE   3239.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1093.00
  DOWNSTREAM ELEVATION(FEET) =   1092.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.78
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE   3239.00 TO NODE   3233.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1092.00  DOWNSTREAM ELEVATION(FEET) = 1016.00
  STREET LENGTH(FEET) =  1380.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.83
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.86
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.79
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.10
  STREET FLOW TRAVEL TIME(MIN.) =   3.97   Tc(MIN.) =   10.79
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.010
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.36      SUBAREA RUNOFF(CFS) =   16.07
  TOTAL AREA(ACRES) =        6.6        PEAK FLOW RATE(CFS) =      16.65

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  5.83   DEPTH*VELOCITY(FT*FT/SEC.) =   2.14
  LONGEST FLOWPATH FROM NODE   3238.00 TO NODE   3233.00 =    1480.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3233.00 TO NODE   3233.00 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.) =   10.79
  RAINFALL INTENSITY(INCH/HR) =   4.01
  TOTAL STREAM AREA(ACRES) =     6.59
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.65

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        9.63    11.17        3.923          3.35
      2       16.65    10.79        4.010          6.59

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       25.96    10.79       4.010
      2       25.92    11.17       3.923

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      25.96   Tc(MIN.) =   10.79
  TOTAL AREA(ACRES) =        9.9
  LONGEST FLOWPATH FROM NODE   3230.00 TO NODE   3233.00 =    1590.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3233.00 TO NODE   3138.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1020.00  DOWNSTREAM(FEET) =  1019.00
  FLOW LENGTH(FEET) =    95.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  19.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.53
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      25.96
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =   10.98
  LONGEST FLOWPATH FROM NODE   3230.00 TO NODE   3138.00 =    1685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       25.96    10.98       3.966        9.94
  LONGEST FLOWPATH FROM NODE   3230.00 TO NODE   3138.00 =    1685.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
```

```
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      170.26    10.74       4.022       66.93
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3138.00 =    4285.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     195.67      10.74        4.022
      2     193.87      10.98        3.966

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     195.67   Tc(MIN.) =   10.74
  TOTAL AREA(ACRES) =       76.9

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      195.67    10.74       4.022       76.87
  LONGEST FLOWPATH FROM NODE   3143.00 TO NODE   3138.00 =    4285.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       79.54    14.21       3.358       39.63
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3138.00 =    4920.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     255.79      10.74        4.022
      2     242.89      14.21        3.358

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     255.79   Tc(MIN.) =   10.74
  TOTAL AREA(ACRES) =      116.5

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3138.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3138.00 TO NODE   3240.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1025.20  DOWNSTREAM(FEET) =  1000.00
  FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  29.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  38.03
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     255.79
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   10.83
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3240.00 =    5120.00 FEET.

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

```
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3245.00 TO NODE   3246.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1025.00
  DOWNSTREAM ELEVATION(FEET) =   1024.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.735
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.596
  SUBAREA RUNOFF(CFS) =      0.57
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.57

****************************************************************************
  FLOW PROCESS FROM NODE   3246.00 TO NODE   3247.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1024.00  DOWNSTREAM ELEVATION(FEET) = 1005.00
  STREET LENGTH(FEET) =  1100.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.17
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.02
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.13
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.09
  STREET FLOW TRAVEL TIME(MIN.) =   5.85   Tc(MIN.) =   14.58
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.302
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
  SUBAREA AREA(ACRES) =    4.15      SUBAREA RUNOFF(CFS) =    7.13
  TOTAL AREA(ACRES) =        4.4        PEAK FLOW RATE(CFS) =       7.54

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.27   DEPTH*VELOCITY(FT*FT/SEC.) =   1.20
  LONGEST FLOWPATH FROM NODE   3245.00 TO NODE   3247.00 =    1200.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3247.00 TO NODE   3240.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1005.00  DOWNSTREAM(FEET) =  1000.00
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.32
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.54
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   14.66
  LONGEST FLOWPATH FROM NODE   3245.00 TO NODE   3240.00 =    1265.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3253.00 TO NODE   3254.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1022.00
  DOWNSTREAM ELEVATION(FEET) =   1021.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.82
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.82

****************************************************************************
  FLOW PROCESS FROM NODE   3254.00 TO NODE   3255.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1018.40  DOWNSTREAM ELEVATION(FEET) = 1013.90
  STREET LENGTH(FEET) =   485.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.97
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   12.32
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.43
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.90
  STREET FLOW TRAVEL TIME(MIN.) =   3.33   Tc(MIN.) =   10.15
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.172
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.38      SUBAREA RUNOFF(CFS) =    6.26
  TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       6.89
```

```
  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.35
  FLOW VELOCITY(FEET/SEC.) =  2.78   DEPTH*VELOCITY(FT*FT/SEC.) =   1.21
  LONGEST FLOWPATH FROM NODE   3253.00 TO NODE   3255.00 =     585.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3255.00 TO NODE   3256.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1013.90  DOWNSTREAM(FEET) =  1011.50
  FLOW LENGTH(FEET) =   192.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.64
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.89
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =   10.63
  LONGEST FLOWPATH FROM NODE   3253.00 TO NODE   3256.00 =     777.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3256.00 TO NODE   3256.00 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.) =   10.63
  RAINFALL INTENSITY(INCH/HR) =   4.05
  TOTAL STREAM AREA(ACRES) =     2.62
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.89

****************************************************************************
  FLOW PROCESS FROM NODE   3268.00 TO NODE   3269.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1019.00
  DOWNSTREAM ELEVATION(FEET) =   1018.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.182
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    55.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.215
  SUBAREA RUNOFF(CFS) =      0.92
  TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.92

****************************************************************************
  FLOW PROCESS FROM NODE   3269.00 TO NODE   3256.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1018.00  DOWNSTREAM ELEVATION(FEET) = 1011.50
  STREET LENGTH(FEET) =   540.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150
```

```
    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.85
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.38
    HALFSTREET FLOOD WIDTH(FEET) =   12.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.82
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.08
  STREET FLOW TRAVEL TIME(MIN.) =   3.19   Tc(MIN.) =   10.37
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.115
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.82      SUBAREA RUNOFF(CFS) =   17.68
  TOTAL AREA(ACRES) =        7.1        PEAK FLOW RATE(CFS) =      18.41

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  16.40
  FLOW VELOCITY(FEET/SEC.) =  3.28   DEPTH*VELOCITY(FT*FT/SEC.) =   1.49
  LONGEST FLOWPATH FROM NODE   3268.00 TO NODE   3256.00 =     690.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3256.00 TO NODE   3256.00 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.) =   10.37
  RAINFALL INTENSITY(INCH/HR) =   4.12
  TOTAL STREAM AREA(ACRES) =     7.10
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.41

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        6.89    10.63        4.049          2.62
      2       18.41    10.37        4.115          7.10

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       25.12    10.37       4.115
      2       25.00    10.63       4.049

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      25.12   Tc(MIN.) =   10.37
  TOTAL AREA(ACRES) =        9.7
  LONGEST FLOWPATH FROM NODE   3253.00 TO NODE   3256.00 =     777.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3256.00 TO NODE   3271.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1011.50  DOWNSTREAM(FEET) =  1007.20
  FLOW LENGTH(FEET) =   280.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  18.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.63
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      25.12
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =   10.85
  LONGEST FLOWPATH FROM NODE   3253.00 TO NODE   3271.00 =    1057.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3271.00 TO NODE   3271.00 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.) =   10.85
  RAINFALL INTENSITY(INCH/HR) =   4.00
  TOTAL STREAM AREA(ACRES) =     9.72
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     25.12

****************************************************************************
  FLOW PROCESS FROM NODE   3276.00 TO NODE   3277.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.00
  UPSTREAM ELEVATION(FEET) =   1022.00
  DOWNSTREAM ELEVATION(FEET) =   1021.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.254
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    53.75
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.181
  SUBAREA RUNOFF(CFS) =      0.82
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      0.82

****************************************************************************
  FLOW PROCESS FROM NODE   3277.00 TO NODE   3271.00 IS CODE =  62
------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) = 1021.00  DOWNSTREAM ELEVATION(FEET) = 1007.20
  STREET LENGTH(FEET) =  1160.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.35
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.34
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.62
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.92
  STREET FLOW TRAVEL TIME(MIN.) =   7.38   Tc(MIN.) =   14.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.295
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.11      SUBAREA RUNOFF(CFS) =   12.68
  TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      13.20

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  14.36
  FLOW VELOCITY(FEET/SEC.) =  3.03   DEPTH*VELOCITY(FT*FT/SEC.) =   1.25
  LONGEST FLOWPATH FROM NODE   3276.00 TO NODE   3271.00 =    1320.00 FEET.

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

```
  FLOW PROCESS FROM NODE   3271.00 TO NODE   3271.00 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.) =   14.64
  RAINFALL INTENSITY(INCH/HR) =   3.29
  TOTAL STREAM AREA(ACRES) =     6.36
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.20

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       25.12    10.85        3.996          9.72
      2       13.20    14.64        3.295          6.36

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       34.91    10.85       3.996
      2       33.91    14.64       3.295

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      34.91   Tc(MIN.) =   10.85
  TOTAL AREA(ACRES) =       16.1
  LONGEST FLOWPATH FROM NODE   3276.00 TO NODE   3271.00 =    1320.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3271.00 TO NODE   3270.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1007.20  DOWNSTREAM(FEET) =  1002.20
  FLOW LENGTH(FEET) =   300.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.82
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      34.91
  PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =   11.31
  LONGEST FLOWPATH FROM NODE   3276.00 TO NODE   3270.00 =    1620.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3270.00 TO NODE   3270.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3311.00 TO NODE   3312.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   130.00
  UPSTREAM ELEVATION(FEET) =   1021.00
  DOWNSTREAM ELEVATION(FEET) =   1020.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.036
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    58.08
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.284
```

```
  SUBAREA RUNOFF(CFS) =      0.73
  TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
  FLOW PROCESS FROM NODE   3312.00 TO NODE   3313.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1020.00  DOWNSTREAM ELEVATION(FEET) = 1013.10
  STREET LENGTH(FEET) =   515.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.09
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.55
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.81
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.01
  STREET FLOW TRAVEL TIME(MIN.) =   3.05   Tc(MIN.) =   10.09
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.189
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.52      SUBAREA RUNOFF(CFS) =    6.65
  TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       7.23

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  14.57
  FLOW VELOCITY(FEET/SEC.) =  3.22   DEPTH*VELOCITY(FT*FT/SEC.) =   1.35
  LONGEST FLOWPATH FROM NODE   3311.00 TO NODE   3313.00 =     645.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3313.00 TO NODE   3263.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1031.10  DOWNSTREAM(FEET) =  1009.90
  FLOW LENGTH(FEET) =   195.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.92
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.23
  PIPE TRAVEL TIME(MIN.) =   0.22    Tc(MIN.) =   10.30
  LONGEST FLOWPATH FROM NODE   3311.00 TO NODE   3263.00 =     840.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3263.00 TO NODE   3263.00 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.) =   10.30
  RAINFALL INTENSITY(INCH/HR) =   4.13
  TOTAL STREAM AREA(ACRES) =     2.74
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.23

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

```
 FLOW PROCESS FROM NODE   3261.00 TO NODE   3262.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
 UPSTREAM ELEVATION(FEET) =   1018.00
 DOWNSTREAM ELEVATION(FEET) =   1017.00
 ELEVATION DIFFERENCE(FEET) =      1.00
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.591
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    67.65
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.512
 SUBAREA RUNOFF(CFS) =      0.38
 TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.38

****************************************************************************
 FLOW PROCESS FROM NODE   3262.00 TO NODE   3263.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1017.00  DOWNSTREAM ELEVATION(FEET) = 1009.90
 STREET LENGTH(FEET) =   590.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.16
   ***STREET FLOWING FULL***
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.38
   HALFSTREET FLOOD WIDTH(FEET) =   12.00
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.92
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.11
 STREET FLOW TRAVEL TIME(MIN.) =   3.37   Tc(MIN.) =    9.96
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.222
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
 SUBAREA AREA(ACRES) =    7.20      SUBAREA RUNOFF(CFS) =   19.15
 TOTAL AREA(ACRES) =        7.3        PEAK FLOW RATE(CFS) =      19.44

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  12.00
 FLOW VELOCITY(FEET/SEC.) =  3.80   DEPTH*VELOCITY(FT*FT/SEC.) =   1.71
 LONGEST FLOWPATH FROM NODE   3261.00 TO NODE   3263.00 =     675.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3263.00 TO NODE   3263.00 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.) =    9.96
 RAINFALL INTENSITY(INCH/HR) =   4.22
 TOTAL STREAM AREA(ACRES) =     7.31
```

```
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.44

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        7.23    10.30        4.132          2.74
      2       19.44     9.96        4.222          7.31

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       26.44     9.96       4.222
      2       26.26    10.30       4.132

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      26.44   Tc(MIN.) =    9.96
  TOTAL AREA(ACRES) =       10.1
  LONGEST FLOWPATH FROM NODE   3311.00 TO NODE   3263.00 =     840.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3263.00 TO NODE   3270.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1009.90  DOWNSTREAM(FEET) =  1005.10
  FLOW LENGTH(FEET) =   266.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  18.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.41
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.44
  PIPE TRAVEL TIME(MIN.) =   0.43    Tc(MIN.) =   10.39
  LONGEST FLOWPATH FROM NODE   3311.00 TO NODE   3270.00 =    1106.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3270.00 TO NODE   3270.00 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.) =   10.39
  RAINFALL INTENSITY(INCH/HR) =   4.11
  TOTAL STREAM AREA(ACRES) =    10.05
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     26.44

****************************************************************************
  FLOW PROCESS FROM NODE   3283.00 TO NODE   3284.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   105.00
  UPSTREAM ELEVATION(FEET) =   1021.00
  DOWNSTREAM ELEVATION(FEET) =   1020.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.856
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    63.57
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.373
  SUBAREA RUNOFF(CFS) =      0.54
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.54

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

```
 FLOW PROCESS FROM NODE   3284.00 TO NODE   3270.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1020.00  DOWNSTREAM ELEVATION(FEET) = 1002.20
 STREET LENGTH(FEET) =  1643.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 26.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.73
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.32
   HALFSTREET FLOOD WIDTH(FEET) =    9.58
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.28
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.73
 STREET FLOW TRAVEL TIME(MIN.) =  12.00   Tc(MIN.) =   18.86
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.798
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
 SUBAREA AREA(ACRES) =    4.52      SUBAREA RUNOFF(CFS) =    7.97
 TOTAL AREA(ACRES) =        4.7        PEAK FLOW RATE(CFS) =       8.25

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.11
 FLOW VELOCITY(FEET/SEC.) =  2.60   DEPTH*VELOCITY(FT*FT/SEC.) =   0.96
 LONGEST FLOWPATH FROM NODE   3283.00 TO NODE   3270.00 =    1748.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3270.00 TO NODE   3270.00 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.) =   18.86
 RAINFALL INTENSITY(INCH/HR) =   2.80
 TOTAL STREAM AREA(ACRES) =     4.68
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.25

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       26.44    10.39        4.110         10.05
     2        8.25    18.86        2.798          4.68

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       30.98    10.39       4.110
     2       26.25    18.86       2.798

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      30.98   Tc(MIN.) =   10.39
 TOTAL AREA(ACRES) =       14.7
 LONGEST FLOWPATH FROM NODE   3283.00 TO NODE   3270.00 =    1748.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3270.00 TO NODE   3270.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       30.98    10.39       4.110       14.73
  LONGEST FLOWPATH FROM NODE   3283.00 TO NODE   3270.00 =    1748.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       34.91    11.31       3.890       16.08
  LONGEST FLOWPATH FROM NODE   3276.00 TO NODE   3270.00 =    1620.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      63.04      10.39        4.110
      2      64.23      11.31        3.890

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      64.23   Tc(MIN.) =   11.31
  TOTAL AREA(ACRES) =       30.8

****************************************************************************
  FLOW PROCESS FROM NODE   3270.00 TO NODE   3270.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3270.00 TO NODE   3240.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1002.20  DOWNSTREAM(FEET) =  1000.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  24.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.99
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      64.23
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   11.40
  LONGEST FLOWPATH FROM NODE   3283.00 TO NODE   3240.00 =    1828.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       64.23    11.40       3.870       30.81
  LONGEST FLOWPATH FROM NODE   3283.00 TO NODE   3240.00 =    1828.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      255.79    10.83       4.001      116.50
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3240.00 =    5120.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     316.80      10.83        4.001
```

```
      2     311.68      11.40        3.870

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     316.80   Tc(MIN.) =   10.83
  TOTAL AREA(ACRES) =      147.3

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      316.80    10.83       4.001      147.31
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3240.00 =    5120.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       7.54    14.66       3.291        4.39
  LONGEST FLOWPATH FROM NODE   3245.00 TO NODE   3240.00 =    1265.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     322.37      10.83        4.001
      2     268.11      14.66        3.291

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     322.37   Tc(MIN.) =   10.83
  TOTAL AREA(ACRES) =      151.7

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3240.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3291.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1010.00  DOWNSTREAM(FEET) =  1000.00
  FLOW LENGTH(FEET) =  1000.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  69.0 INCH PIPE IS  51.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.63
  ESTIMATED PIPE DIAMETER(INCH) =  69.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     322.37
  PIPE TRAVEL TIME(MIN.) =   1.07    Tc(MIN.) =   11.90
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3291.00 =    6120.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3240.00 TO NODE   3291.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.766
  *USER SPECIFIED(SUBAREA):
  LAWNS, GOLF COURSES, ETC. GOOD COVER RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6383
```

```
  SUBAREA AREA(ACRES) =    9.52   SUBAREA RUNOFF(CFS) =   12.55
  TOTAL AREA(ACRES) =      161.2   TOTAL RUNOFF(CFS) =     387.50
  TC(MIN.) =   11.90

+---------------------------------------------------------------------------+
| Detention Basin #1: See detention basin analysis for flow calcs           |
|                                                                           |
|                                                                           |
+---------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE   3291.00 TO NODE   3291.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) = 128.00   RAIN INTENSITY(INCH/HOUR) =  0.81
  TOTAL AREA(ACRES) =   162.50   TOTAL RUNOFF(CFS) =      5.95

****************************************************************************
  FLOW PROCESS FROM NODE   3291.00 TO NODE   3292.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1000.00  DOWNSTREAM(FEET) =   648.00
  FLOW LENGTH(FEET) =  2725.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.01
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.95
  PIPE TRAVEL TIME(MIN.) =   3.03    Tc(MIN.) =  131.03
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3292.00 =    8845.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3292.00 TO NODE   3292.00 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.) =  131.03
  RAINFALL INTENSITY(INCH/HR) =   0.80
  TOTAL STREAM AREA(ACRES) =   162.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.95

****************************************************************************
  FLOW PROCESS FROM NODE   3294.00 TO NODE   3293.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1010.00
  DOWNSTREAM ELEVATION(FEET) =   1000.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.173
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.219
  SUBAREA RUNOFF(CFS) =      0.91
  TOTAL AREA(ACRES) =      0.50   TOTAL RUNOFF(CFS) =      0.91

****************************************************************************
  FLOW PROCESS FROM NODE   3293.00 TO NODE   3292.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1010.00  DOWNSTREAM(FEET) =    640.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2660.00   CHANNEL SLOPE =  0.1391
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.986
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      22.52
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  11.92
  AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   3.72
  Tc(MIN.) =   10.89
  SUBAREA AREA(ACRES) =    30.39       SUBAREA RUNOFF(CFS) =   42.40
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       30.9         PEAK FLOW RATE(CFS) =      43.10

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.30   FLOW VELOCITY(FEET/SEC.) =  14.99
  LONGEST FLOWPATH FROM NODE   3294.00 TO NODE   3292.00 =    2810.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3292.00 TO NODE   3292.00 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.) =   10.89
  RAINFALL INTENSITY(INCH/HR) =   3.99
  TOTAL STREAM AREA(ACRES) =    30.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     43.10

****************************************************************************
  FLOW PROCESS FROM NODE   3299.00 TO NODE   3300.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1040.00
  DOWNSTREAM ELEVATION(FEET) =   1030.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.173
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.219
  SUBAREA RUNOFF(CFS) =      0.90
  TOTAL AREA(ACRES) =      0.49   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
  FLOW PROCESS FROM NODE   3300.00 TO NODE   3292.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1040.00  DOWNSTREAM(FEET) =    630.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2985.00   CHANNEL SLOPE =  0.1374
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.904
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      28.43
```

```
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  12.20
  AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   4.08
  Tc(MIN.) =   11.25
  SUBAREA AREA(ACRES) =    39.50       SUBAREA RUNOFF(CFS) =   53.97
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       40.0         PEAK FLOW RATE(CFS) =      54.64

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.31   FLOW VELOCITY(FEET/SEC.) =  15.37
  LONGEST FLOWPATH FROM NODE   3299.00 TO NODE   3292.00 =    3135.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3292.00 TO NODE   3292.00 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.) =   11.25
  RAINFALL INTENSITY(INCH/HR) =   3.90
  TOTAL STREAM AREA(ACRES) =    39.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     54.64

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        5.95   131.03        0.801        162.50
      2       43.10    10.89        3.986         30.89
      3       54.64    11.25        3.904         39.99

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       96.49    10.89       3.986
      2       97.36    11.25       3.904
      3       25.83   131.03       0.801

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      97.36   Tc(MIN.) =   11.25
  TOTAL AREA(ACRES) =      233.4
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3292.00 =    8845.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3292.00 TO NODE   3302.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   630.00  DOWNSTREAM(FEET) =   620.00
  FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  23.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.27
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      97.36
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =   11.41
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3302.00 =    9045.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3302.00 TO NODE   3303.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   618.00  DOWNSTREAM(FEET) =   560.00
  FLOW LENGTH(FEET) =   993.00   MANNING'S N =  0.024
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.07
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      97.36
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =   12.58
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3303.00 =   10038.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3302.00 TO NODE   3303.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.632
  *USER SPECIFIED(SUBAREA):
  ARTIICIAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .4500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.1424
  SUBAREA AREA(ACRES) =    3.61   SUBAREA RUNOFF(CFS) =    5.90
  TOTAL AREA(ACRES) =      237.0   TOTAL RUNOFF(CFS) =     122.56
  TC(MIN.) =   12.58

****************************************************************************
  FLOW PROCESS FROM NODE   3303.00 TO NODE   3303.00 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.) =   12.58
  RAINFALL INTENSITY(INCH/HR) =   3.63
  TOTAL STREAM AREA(ACRES) =   236.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    122.56

****************************************************************************
  FLOW PROCESS FROM NODE   3305.00 TO NODE   3306.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    960.00
  DOWNSTREAM ELEVATION(FEET) =    950.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      1.10
  TOTAL AREA(ACRES) =      0.55   TOTAL RUNOFF(CFS) =      1.10

****************************************************************************
  FLOW PROCESS FROM NODE   3306.00 TO NODE   3307.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    950.00  DOWNSTREAM(FEET) =    625.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1630.00   CHANNEL SLOPE =  0.1994
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.285
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.58
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.82
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   3.47
  Tc(MIN.) =    9.74
  SUBAREA AREA(ACRES) =    17.66       SUBAREA RUNOFF(CFS) =   26.48
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       18.2         PEAK FLOW RATE(CFS) =      27.31
```

```
  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.11   FLOW VELOCITY(FEET/SEC.) =   9.75
  LONGEST FLOWPATH FROM NODE   3305.00 TO NODE   3307.00 =    1730.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3307.00 TO NODE   3303.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   620.00  DOWNSTREAM(FEET) =   565.00
  FLOW LENGTH(FEET) =   768.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.97
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      27.31
  PIPE TRAVEL TIME(MIN.) =   0.71    Tc(MIN.) =   10.45
  LONGEST FLOWPATH FROM NODE   3305.00 TO NODE   3303.00 =    2498.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3303.00 TO NODE   3303.00 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.) =   10.45
  RAINFALL INTENSITY(INCH/HR) =   4.09
  TOTAL STREAM AREA(ACRES) =    18.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     27.31

****************************************************************************
  FLOW PROCESS FROM NODE   3308.00 TO NODE   3303.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.094
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    3.67   SUBAREA RUNOFF(CFS) =    5.26
  TOTAL AREA(ACRES) =       21.9   TOTAL RUNOFF(CFS) =      31.35
  TC(MIN.) =   10.45

****************************************************************************
  FLOW PROCESS FROM NODE   3303.00 TO NODE   3303.00 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.) =   10.45
  RAINFALL INTENSITY(INCH/HR) =   4.09
  TOTAL STREAM AREA(ACRES) =    21.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     31.35

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      122.56    12.58        3.632        236.99
      2       27.31    10.45        4.094         18.21
      3       31.35    10.45        4.094         21.88

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
      1      167.38    10.45       4.094
      2      167.38    10.45       4.094
      3      174.60    12.58       3.632

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     174.60   Tc(MIN.) =   12.58
  TOTAL AREA(ACRES) =      277.1
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3303.00 =   10038.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3303.00 TO NODE   3308.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   350.00   CHANNEL SLOPE =  0.0571
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.554
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     175.99
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  13.51
  AVERAGE FLOW DEPTH(FEET) =   0.48   TRAVEL TIME(MIN.) =   0.43
  Tc(MIN.) =   13.02
  SUBAREA AREA(ACRES) =     2.23       SUBAREA RUNOFF(CFS) =    2.77
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.174
  TOTAL AREA(ACRES) =      279.3         PEAK FLOW RATE(CFS) =     174.60

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.47   FLOW VELOCITY(FEET/SEC.) =  13.58
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3308.00 =   10388.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3308.00 TO NODE   3309.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   540.00  DOWNSTREAM(FEET) =   525.00
  FLOW LENGTH(FEET) =   400.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  32.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.85
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     174.60
  PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   13.32
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3309.00 =   10788.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3309.00 TO NODE   3310.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    525.00  DOWNSTREAM(FEET) =    495.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   800.00   CHANNEL SLOPE =  0.0375
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.008
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     180.69
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.77
  AVERAGE FLOW DEPTH(FEET) =   0.47   TRAVEL TIME(MIN.) =   3.54
  Tc(MIN.) =   16.86
  SUBAREA AREA(ACRES) =    11.57       SUBAREA RUNOFF(CFS) =   12.18
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.181
  TOTAL AREA(ACRES) =      290.9         PEAK FLOW RATE(CFS) =     174.60
```

```
  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.45   FLOW VELOCITY(FEET/SEC.) =   3.75
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3310.00 =   11588.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      290.9  TC(MIN.) =     16.86
  PEAK FLOW RATE(CFS)   =     174.60
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Q100 Analysis- Central Areas tributary to Basins 2, 3, 4,and 5 including offsite flow through runoff.

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                            Analysis prepared by:

                     HUnsaker & Associates San Diego, Inc.
                               9707 Waples Street
                              San Diego   CA   92121


 ************************* DESCRIPTION OF STUDY *************************
* Fanita Ranch Proposed Condition Hydrology Model                         *
* 100-year return interval                                               *
* Nodes 350 -1100                                                        *
 ************************************************************************

  FILE NAME: R:\1284\HYD\CALCS\TM\AES\FR350.DAT
  TIME/DATE OF STUDY: 12:05 08/07/2019
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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 0.0312 0.167 0.0150
  2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0312 0.125 0.0150
  3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0312 0.125 0.0150
  4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0312 0.125 0.0150
  5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0312 0.125 0.0150
  6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0312 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 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.*

****************************************************************************
  FLOW PROCESS FROM NODE    350.00 TO NODE    351.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
  UPSTREAM ELEVATION(FEET) =   1061.00
  DOWNSTREAM ELEVATION(FEET) =   1060.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.512
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    68.75
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.555
 SUBAREA RUNOFF(CFS) =      1.01
 TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.01

****************************************************************************
 FLOW PROCESS FROM NODE    351.00 TO NODE    352.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1060.00  DOWNSTREAM(FEET) =  1058.00
 FLOW LENGTH(FEET) =   170.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.84
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.01
 PIPE TRAVEL TIME(MIN.) =   0.74    Tc(MIN.) =    7.25
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    352.00 =     250.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    351.00 TO NODE    352.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.184
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4900
 SUBAREA AREA(ACRES) =    0.29   SUBAREA RUNOFF(CFS) =    0.53
 TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       1.47
 TC(MIN.) =    7.25

****************************************************************************
 FLOW PROCESS FROM NODE    352.00 TO NODE    353.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1058.00  DOWNSTREAM(FEET) =  1054.00
 FLOW LENGTH(FEET) =   327.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.35
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.47
 PIPE TRAVEL TIME(MIN.) =   1.25    Tc(MIN.) =    8.50
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    353.00 =     577.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    353.00 TO NODE    353.00 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.) =    8.50
 RAINFALL INTENSITY(INCH/HR) =   4.68
 TOTAL STREAM AREA(ACRES) =     0.58
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.47

****************************************************************************
 FLOW PROCESS FROM NODE    356.00 TO NODE    357.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
```

```
  UPSTREAM ELEVATION(FEET) =   1074.00
  DOWNSTREAM ELEVATION(FEET) =   1072.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.483
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.078
  SUBAREA RUNOFF(CFS) =      0.25
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.25

****************************************************************************
  FLOW PROCESS FROM NODE    357.00 TO NODE    353.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1072.00  DOWNSTREAM(FEET) =  1054.00
  FLOW LENGTH(FEET) =   488.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.73
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.25
  PIPE TRAVEL TIME(MIN.) =   2.18    Tc(MIN.) =    9.66
  LONGEST FLOWPATH FROM NODE    356.00 TO NODE    353.00 =     553.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    357.00 TO NODE    353.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.306
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    1.56   SUBAREA RUNOFF(CFS) =    2.35
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       2.56
  TC(MIN.) =    9.66

****************************************************************************
  FLOW PROCESS FROM NODE    353.00 TO NODE    353.00 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.) =    9.66
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =     1.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.56

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.47     8.50        4.677         0.58
      2        2.56     9.66        4.306         1.70

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        3.73     8.50       4.677
      2        3.92     9.66       4.306

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.92   Tc(MIN.) =    9.66
  TOTAL AREA(ACRES) =        2.3
  LONGEST FLOWPATH FROM NODE    350.00 TO NODE    353.00 =     577.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    353.00 TO NODE    358.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1054.00  DOWNSTREAM(FEET) =  1045.00
  FLOW LENGTH(FEET) =   170.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.69
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.92
  PIPE TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =    9.96
  LONGEST FLOWPATH FROM NODE    350.00 TO NODE    358.00 =     747.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    358.00 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.) =    9.96
  RAINFALL INTENSITY(INCH/HR) =   4.22
  TOTAL STREAM AREA(ACRES) =     2.28
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.92

****************************************************************************
  FLOW PROCESS FROM NODE    361.00 TO NODE    362.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   112.00
  UPSTREAM ELEVATION(FEET) =   1104.00
  DOWNSTREAM ELEVATION(FEET) =   1102.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.426
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.09
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.603
  SUBAREA RUNOFF(CFS) =      0.71
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.71

****************************************************************************
  FLOW PROCESS FROM NODE    362.00 TO NODE    358.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1102.00  DOWNSTREAM ELEVATION(FEET) = 1045.00
  STREET LENGTH(FEET) =  1226.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      16.98
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.37
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.98
  STREET FLOW TRAVEL TIME(MIN.) =   3.80   Tc(MIN.) =   10.23
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.151
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =   12.13      SUBAREA RUNOFF(CFS) =   31.72
  TOTAL AREA(ACRES) =       12.3        PEAK FLOW RATE(CFS) =      32.25

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  6.97   DEPTH*VELOCITY(FT*FT/SEC.) =   2.99
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    358.00 =    1338.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    358.00 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.) =   10.23
  RAINFALL INTENSITY(INCH/HR) =   4.15
  TOTAL STREAM AREA(ACRES) =    12.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     32.25

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        3.92     9.96        4.224          2.28
      2       32.25    10.23        4.151         12.33

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       35.30     9.96       4.224
      2       36.10    10.23       4.151

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      36.10   Tc(MIN.) =   10.23
  TOTAL AREA(ACRES) =       14.6
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    358.00 =    1338.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    419.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1045.00  DOWNSTREAM(FEET) =  1027.00
  FLOW LENGTH(FEET) =  1088.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.82
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      36.10
  PIPE TRAVEL TIME(MIN.) =   1.68    Tc(MIN.) =   11.91
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    419.00 =    2426.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 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.) =   11.91
  RAINFALL INTENSITY(INCH/HR) =   3.76
  TOTAL STREAM AREA(ACRES) =    14.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     36.10

****************************************************************************
  FLOW PROCESS FROM NODE    366.00 TO NODE    367.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   155.00
  UPSTREAM ELEVATION(FEET) =   1049.00
  DOWNSTREAM ELEVATION(FEET) =   1047.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.472
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    69.35
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.577
  SUBAREA RUNOFF(CFS) =      1.23
  TOTAL AREA(ACRES) =      0.35   TOTAL RUNOFF(CFS) =      1.23

****************************************************************************
  FLOW PROCESS FROM NODE    367.00 TO NODE    419.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1047.00  DOWNSTREAM ELEVATION(FEET) = 1028.00
  STREET LENGTH(FEET) =   966.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.45
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.77
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.48
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.26
  STREET FLOW TRAVEL TIME(MIN.) =   4.63   Tc(MIN.) =   11.10
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.938
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.24      SUBAREA RUNOFF(CFS) =   17.96
  TOTAL AREA(ACRES) =        7.6        PEAK FLOW RATE(CFS) =      18.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.35   DEPTH*VELOCITY(FT*FT/SEC.) =   1.81
  LONGEST FLOWPATH FROM NODE    366.00 TO NODE    419.00 =    1121.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 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.) =   11.10
  RAINFALL INTENSITY(INCH/HR) =   3.94
  TOTAL STREAM AREA(ACRES) =     7.59
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.83

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       36.10    11.91        3.764         14.61
      2       18.83    11.10        3.938          7.59

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       53.33    11.10       3.938
      2       54.10    11.91       3.764

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      54.10   Tc(MIN.) =   11.91
  TOTAL AREA(ACRES) =       22.2
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    419.00 =    2426.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.00
  UPSTREAM ELEVATION(FEET) =   1155.00
  DOWNSTREAM ELEVATION(FEET) =   1152.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.064
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    78.12
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.816
  SUBAREA RUNOFF(CFS) =      0.95
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      0.95

****************************************************************************
  FLOW PROCESS FROM NODE    401.00 TO NODE    402.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1152.00  DOWNSTREAM ELEVATION(FEET) = 1108.00
  STREET LENGTH(FEET) =   959.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
```

```
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.25
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.30
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.11
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.80
  STREET FLOW TRAVEL TIME(MIN.) =   3.13   Tc(MIN.) =    9.19
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.448
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    9.34      SUBAREA RUNOFF(CFS) =   26.17
  TOTAL AREA(ACRES) =        9.6        PEAK FLOW RATE(CFS) =      26.90

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  6.43   DEPTH*VELOCITY(FT*FT/SEC.) =   2.64
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    402.00 =    1119.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    402.00 TO NODE    403.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1108.00  DOWNSTREAM(FEET) =  1087.00
  FLOW LENGTH(FEET) =   328.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.15
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.90
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    9.51
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    403.00 =    1447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    403.00 TO NODE    403.00 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.) =    9.51
  RAINFALL INTENSITY(INCH/HR) =   4.35
  TOTAL STREAM AREA(ACRES) =     9.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     26.90

****************************************************************************
  FLOW PROCESS FROM NODE    407.00 TO NODE    408.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   107.00
  UPSTREAM ELEVATION(FEET) =   1090.00
  DOWNSTREAM ELEVATION(FEET) =   1088.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.067
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    78.04
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.814
  SUBAREA RUNOFF(CFS) =      0.59
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.59
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    408.00 TO NODE    403.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1090.00  DOWNSTREAM ELEVATION(FEET) = 1086.00
  STREET LENGTH(FEET) =   350.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.85
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    9.61
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.33
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   2.51   Tc(MIN.) =    8.57
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.652
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.88      SUBAREA RUNOFF(CFS) =    8.44
  TOTAL AREA(ACRES) =        3.0        PEAK FLOW RATE(CFS) =       8.91

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.74   DEPTH*VELOCITY(FT*FT/SEC.) =   1.02
  LONGEST FLOWPATH FROM NODE    407.00 TO NODE    403.00 =     457.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    403.00 TO NODE    403.00 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.) =    8.57
  RAINFALL INTENSITY(INCH/HR) =   4.65
  TOTAL STREAM AREA(ACRES) =     3.04
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.91

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       26.90     9.51        4.351          9.60
      2        8.91     8.57        4.652          3.04

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       33.16     8.57       4.652
      2       35.23     9.51       4.351

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      35.23   Tc(MIN.) =    9.51
  TOTAL AREA(ACRES) =       12.6
```

```
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    403.00 =    1447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    403.00 TO NODE    409.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1086.00  DOWNSTREAM(FEET) =  1063.00
  FLOW LENGTH(FEET) =   312.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.09
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      35.23
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =    9.78
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    409.00 =    1759.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    409.00 TO NODE    409.00 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.) =    9.78
  RAINFALL INTENSITY(INCH/HR) =   4.27
  TOTAL STREAM AREA(ACRES) =    12.64
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     35.23

****************************************************************************
  FLOW PROCESS FROM NODE    412.00 TO NODE    413.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    86.00
  UPSTREAM ELEVATION(FEET) =   1070.00
  DOWNSTREAM ELEVATION(FEET) =   1068.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.827
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    83.26
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.968
  SUBAREA RUNOFF(CFS) =      0.60
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.60

****************************************************************************
  FLOW PROCESS FROM NODE    413.00 TO NODE    409.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1067.00  DOWNSTREAM ELEVATION(FEET) = 1060.00
  STREET LENGTH(FEET) =   297.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.14
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
    STREET FLOW DEPTH(FEET) =  0.28
    HALFSTREET FLOOD WIDTH(FEET) =    7.55
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.01
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.83
  STREET FLOW TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =    7.47
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.084
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.20      SUBAREA RUNOFF(CFS) =    7.05
  TOTAL AREA(ACRES) =        2.4        PEAK FLOW RATE(CFS) =       7.56

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   9.89
  FLOW VELOCITY(FEET/SEC.) =  3.45   DEPTH*VELOCITY(FT*FT/SEC.) =   1.12
  LONGEST FLOWPATH FROM NODE    412.00 TO NODE    409.00 =     383.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    409.00 TO NODE    409.00 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.) =    7.47
  RAINFALL INTENSITY(INCH/HR) =   5.08
  TOTAL STREAM AREA(ACRES) =     2.36
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.56

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       35.23     9.78        4.272         12.64
      2        7.56     7.47        5.084          2.36

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       37.17     7.47       5.084
      2       41.58     9.78       4.272

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      41.58   Tc(MIN.) =    9.78
  TOTAL AREA(ACRES) =       15.0
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    409.00 =    1759.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    409.00 TO NODE    414.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1058.00  DOWNSTREAM(FEET) =  1031.00
  FLOW LENGTH(FEET) =   789.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  17.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.06
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      41.58
  PIPE TRAVEL TIME(MIN.) =   0.87    Tc(MIN.) =   10.66
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    414.00 =    2548.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    414.00 TO NODE    414.00 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.) =   10.66
  RAINFALL INTENSITY(INCH/HR) =   4.04
  TOTAL STREAM AREA(ACRES) =    15.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     41.58

****************************************************************************
  FLOW PROCESS FROM NODE    417.00 TO NODE    418.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   130.00
  UPSTREAM ELEVATION(FEET) =   1112.00
  DOWNSTREAM ELEVATION(FEET) =   1110.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.265
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    73.08
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.695
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.15

****************************************************************************
  FLOW PROCESS FROM NODE    418.00 TO NODE    414.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1110.00  DOWNSTREAM ELEVATION(FEET) = 1030.00
  STREET LENGTH(FEET) =  1730.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.04
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.45
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.97
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.67
  STREET FLOW TRAVEL TIME(MIN.) =   5.80   Tc(MIN.) =   12.06
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.732
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    9.02      SUBAREA RUNOFF(CFS) =   21.21
  TOTAL AREA(ACRES) =        9.3        PEAK FLOW RATE(CFS) =      21.96

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  5.96   DEPTH*VELOCITY(FT*FT/SEC.) =   2.32
  LONGEST FLOWPATH FROM NODE    417.00 TO NODE    414.00 =    1860.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    414.00 TO NODE    414.00 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.) =   12.06
  RAINFALL INTENSITY(INCH/HR) =   3.73
  TOTAL STREAM AREA(ACRES) =     9.34
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.96

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       41.58    10.66        4.043         15.00
      2       21.96    12.06        3.732          9.34

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       60.98    10.66       4.043
      2       60.35    12.06       3.732

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      60.98   Tc(MIN.) =   10.66
  TOTAL AREA(ACRES) =       24.3
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    414.00 =    2548.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    414.00 TO NODE    419.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1031.00  DOWNSTREAM(FEET) =  1030.00
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.75
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      60.98
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   10.68
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    419.00 =    2576.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    370.00 TO NODE    371.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    82.00
  UPSTREAM ELEVATION(FEET) =   1104.00
  DOWNSTREAM ELEVATION(FEET) =   1102.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.082
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.482
  SUBAREA RUNOFF(CFS) =      0.19
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.19

****************************************************************************
  FLOW PROCESS FROM NODE    371.00 TO NODE    372.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1102.00  DOWNSTREAM(FEET) =  1099.00
  FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.53
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.19
  PIPE TRAVEL TIME(MIN.) =   1.32    Tc(MIN.) =   10.40
  LONGEST FLOWPATH FROM NODE    370.00 TO NODE    372.00 =     282.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    371.00 TO NODE    372.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.108
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    1.74   SUBAREA RUNOFF(CFS) =    2.50
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       2.67
  TC(MIN.) =   10.40

****************************************************************************
  FLOW PROCESS FROM NODE    372.00 TO NODE    372.00 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.) =   10.40
  RAINFALL INTENSITY(INCH/HR) =   4.11
  TOTAL STREAM AREA(ACRES) =     1.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.67

****************************************************************************
  FLOW PROCESS FROM NODE    375.00 TO NODE    376.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   170.00
  UPSTREAM ELEVATION(FEET) =   1148.00
  DOWNSTREAM ELEVATION(FEET) =   1146.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.915
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    61.47
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.344
  SUBAREA RUNOFF(CFS) =      1.21
  TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      1.21

****************************************************************************
  FLOW PROCESS FROM NODE    376.00 TO NODE    372.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1146.50  DOWNSTREAM ELEVATION(FEET) = 1102.00
  STREET LENGTH(FEET) =  1572.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
```

```
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.72
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.11
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.96
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.38
  STREET FLOW TRAVEL TIME(MIN.) =   6.61   Tc(MIN.) =   13.52
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.467
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    8.39      SUBAREA RUNOFF(CFS) =   18.33
  TOTAL AREA(ACRES) =        8.8        PEAK FLOW RATE(CFS) =      19.11

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.87   DEPTH*VELOCITY(FT*FT/SEC.) =   1.95
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    372.00 =    1742.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    372.00 TO NODE    372.00 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.) =   13.52
  RAINFALL INTENSITY(INCH/HR) =   3.47
  TOTAL STREAM AREA(ACRES) =     8.75
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.11

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        2.67    10.40        4.108          1.86
      2       19.11    13.52        3.467          8.75

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       17.37    10.40       4.108
      2       21.37    13.52       3.467

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      21.37   Tc(MIN.) =   13.52
  TOTAL AREA(ACRES) =       10.6
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    372.00 =    1742.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    372.00 TO NODE    377.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1100.00  DOWNSTREAM(FEET) =  1075.00
  FLOW LENGTH(FEET) =   315.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.48
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
```

```
  PIPE-FLOW(CFS) =      21.37
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   13.82
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    377.00 =    2057.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    377.00 TO NODE    377.00 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.) =   13.82
  RAINFALL INTENSITY(INCH/HR) =   3.42
  TOTAL STREAM AREA(ACRES) =    10.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.37

****************************************************************************
  FLOW PROCESS FROM NODE    380.00 TO NODE    381.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    96.00
  UPSTREAM ELEVATION(FEET) =   1093.00
  DOWNSTREAM ELEVATION(FEET) =   1091.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.248
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    73.44
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.705
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE    381.00 TO NODE    377.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1090.00  DOWNSTREAM ELEVATION(FEET) = 1075.00
  STREET LENGTH(FEET) =   794.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.25
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.17
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.14
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.04
  STREET FLOW TRAVEL TIME(MIN.) =   4.21   Tc(MIN.) =   10.46
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.093
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.02      SUBAREA RUNOFF(CFS) =   12.94
  TOTAL AREA(ACRES) =        5.2        PEAK FLOW RATE(CFS) =      13.43
```

```
  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.73   DEPTH*VELOCITY(FT*FT/SEC.) =   1.44
  LONGEST FLOWPATH FROM NODE    380.00 TO NODE    377.00 =     890.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    377.00 TO NODE    377.00 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.) =   10.46
  RAINFALL INTENSITY(INCH/HR) =   4.09
  TOTAL STREAM AREA(ACRES) =     5.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.43

****************************************************************************
  FLOW PROCESS FROM NODE    384.00 TO NODE    385.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   140.00
  UPSTREAM ELEVATION(FEET) =   1086.00
  DOWNSTREAM ELEVATION(FEET) =   1084.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.720
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    66.07
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.443
  SUBAREA RUNOFF(CFS) =      1.30
  TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.30

****************************************************************************
  FLOW PROCESS FROM NODE    385.00 TO NODE    377.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1185.00  DOWNSTREAM ELEVATION(FEET) = 1078.00
  STREET LENGTH(FEET) =   635.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.23
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    6.89
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    7.79
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.06
  STREET FLOW TRAVEL TIME(MIN.) =   1.36   Tc(MIN.) =    8.08
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.833
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.20      SUBAREA RUNOFF(CFS) =   15.83
  TOTAL AREA(ACRES) =        5.6        PEAK FLOW RATE(CFS) =      16.99
```

```
  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   9.23
  FLOW VELOCITY(FEET/SEC.) =  8.75   DEPTH*VELOCITY(FT*FT/SEC.) =   2.72
  LONGEST FLOWPATH FROM NODE    384.00 TO NODE    377.00 =     775.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    377.00 TO NODE    377.00 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.) =    8.08
  RAINFALL INTENSITY(INCH/HR) =   4.83
  TOTAL STREAM AREA(ACRES) =     5.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.99

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       21.37    13.82        3.418         10.61
      2       13.43    10.46        4.093          5.21
      3       16.99     8.08        4.833          5.58

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       42.48     8.08       4.833
      2       45.67    10.46       4.093
      3       44.60    13.82       3.418

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      45.67   Tc(MIN.) =   10.46
  TOTAL AREA(ACRES) =       21.4
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    377.00 =    2057.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    377.00 TO NODE    386.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1075.00  DOWNSTREAM(FEET) =  1051.00
  FLOW LENGTH(FEET) =   327.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.49
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      45.67
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   10.72
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    386.00 =    2384.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    386.00 TO NODE    386.00 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.) =   10.72
  RAINFALL INTENSITY(INCH/HR) =   4.03
  TOTAL STREAM AREA(ACRES) =    21.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     45.67

****************************************************************************
  FLOW PROCESS FROM NODE    389.00 TO NODE    390.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =   1069.00
  DOWNSTREAM ELEVATION(FEET) =   1067.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.879
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    82.22
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.934
  SUBAREA RUNOFF(CFS) =      0.75
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.75

****************************************************************************
  FLOW PROCESS FROM NODE    390.00 TO NODE    386.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1069.00  DOWNSTREAM ELEVATION(FEET) = 1051.00
  STREET LENGTH(FEET) =   987.90   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.07
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.86
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.30
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.20
  STREET FLOW TRAVEL TIME(MIN.) =   4.98   Tc(MIN.) =   10.86
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.993
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.13      SUBAREA RUNOFF(CFS) =   17.94
  TOTAL AREA(ACRES) =        7.3        PEAK FLOW RATE(CFS) =      18.44

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.20   DEPTH*VELOCITY(FT*FT/SEC.) =   1.76
  LONGEST FLOWPATH FROM NODE    389.00 TO NODE    386.00 =    1077.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    386.00 TO NODE    386.00 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.) =   10.86
  RAINFALL INTENSITY(INCH/HR) =   3.99
  TOTAL STREAM AREA(ACRES) =     7.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.44

****************************************************************************
  FLOW PROCESS FROM NODE    393.00 TO NODE    394.00 IS CODE =  21
```

```
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   147.00
  UPSTREAM ELEVATION(FEET) =   1061.00
  DOWNSTREAM ELEVATION(FEET) =   1059.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.791
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.31
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.407
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.42   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE    394.00 TO NODE    386.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1059.00  DOWNSTREAM ELEVATION(FEET) = 1052.00
  STREET LENGTH(FEET) =   517.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.29
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.02
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.74
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.95
  STREET FLOW TRAVEL TIME(MIN.) =   3.15   Tc(MIN.) =    9.94
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.229
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    4.36      SUBAREA RUNOFF(CFS) =   11.62
  TOTAL AREA(ACRES) =        4.8        PEAK FLOW RATE(CFS) =      12.74

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.32   DEPTH*VELOCITY(FT*FT/SEC.) =   1.32
  LONGEST FLOWPATH FROM NODE    393.00 TO NODE    386.00 =     664.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    386.00 TO NODE    386.00 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.) =    9.94
  RAINFALL INTENSITY(INCH/HR) =   4.23
  TOTAL STREAM AREA(ACRES) =     4.78
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.74
```

```
  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       45.67    10.72        4.027         21.40
      2       18.44    10.86        3.993          7.33
      3       12.74     9.94        4.229          4.78

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       73.09     9.94       4.229
      2       76.00    10.72       4.027
      3       75.75    10.86       3.993

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      76.00   Tc(MIN.) =   10.72
  TOTAL AREA(ACRES) =       33.5
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    386.00 =    2384.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    386.00 TO NODE    419.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1052.00  DOWNSTREAM(FEET) =  1028.00
  FLOW LENGTH(FEET) =   312.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.28
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      76.00
  PIPE TRAVEL TIME(MIN.) =   0.22    Tc(MIN.) =   10.95
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    419.00 =    2696.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       76.00    10.95       3.974       33.51
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    419.00 =    2696.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       54.10    11.91       3.764       22.20
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    419.00 =    2426.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     125.73      10.95        3.974
      2     126.08      11.91        3.764

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     126.08   Tc(MIN.) =   11.91
  TOTAL AREA(ACRES) =       55.7

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================
```

```
  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      126.08    11.91       3.764       55.71
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    419.00 =    2696.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       60.98    10.68       4.036       24.34
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    419.00 =    2576.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     174.13      10.68        4.036
      2     182.95      11.91        3.764

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     182.95   Tc(MIN.) =   11.91
  TOTAL AREA(ACRES) =       80.1

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    419.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    421.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1028.00  DOWNSTREAM(FEET) =  1010.00
  FLOW LENGTH(FEET) =   670.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  35.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.40
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     182.95
  PIPE TRAVEL TIME(MIN.) =   0.58    Tc(MIN.) =   12.48
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    421.00 =    3366.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    419.00 TO NODE    421.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.651
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6000
  SUBAREA AREA(ACRES) =    5.28   SUBAREA RUNOFF(CFS) =    6.75
  TOTAL AREA(ACRES) =       85.3   TOTAL RUNOFF(CFS) =     186.95
  TC(MIN.) =   12.48

****************************************************************************
  FLOW PROCESS FROM NODE    421.00 TO NODE    421.00 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.) =   12.48
```

```
  RAINFALL INTENSITY(INCH/HR) =   3.65
  TOTAL STREAM AREA(ACRES) =    85.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    186.95

****************************************************************************
  FLOW PROCESS FROM NODE    426.00 TO NODE    427.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  STREETS & ROADS (CURBS/STORM DRAINS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1072.00
  DOWNSTREAM ELEVATION(FEET) =   1062.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.590
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE    427.00 TO NODE    428.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1062.00  DOWNSTREAM ELEVATION(FEET) = 1046.00
  STREET LENGTH(FEET) =   560.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.17
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    6.31
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.06
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.77
  STREET FLOW TRAVEL TIME(MIN.) =   3.05   Tc(MIN.) =    5.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.096
  *USER SPECIFIED(SUBAREA):
  STREETS & ROADS (CURBS/STORM DRAINS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    4.96
  TOTAL AREA(ACRES) =        1.2        PEAK FLOW RATE(CFS) =       5.59

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   8.31
  FLOW VELOCITY(FEET/SEC.) =  3.46   DEPTH*VELOCITY(FT*FT/SEC.) =   1.01
  LONGEST FLOWPATH FROM NODE    426.00 TO NODE    428.00 =     660.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    428.00 TO NODE    421.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1035.00  DOWNSTREAM(FEET) =  1024.00
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
```

```
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.92
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.59
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    5.76
  LONGEST FLOWPATH FROM NODE    426.00 TO NODE    421.00 =     760.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    421.00 TO NODE    421.00 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.) =    5.76
  RAINFALL INTENSITY(INCH/HR) =   6.01
  TOTAL STREAM AREA(ACRES) =     1.16
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.59

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      186.95    12.48        3.651         85.33
      2        5.59     5.76        6.014          1.16

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       91.83     5.76       6.014
      2      190.34    12.48       3.651

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     190.34   Tc(MIN.) =   12.48
  TOTAL AREA(ACRES) =       86.5
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    421.00 =    3366.00 FEET.

+----------------------------------------------------------------------------+
| Detention Basin #4; See detention basin analysis for following flow calc   |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    421.00 TO NODE    421.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  23.00   RAIN INTENSITY(INCH/HOUR) =  2.46
  TOTAL AREA(ACRES) =    86.50   TOTAL RUNOFF(CFS) =     47.47

****************************************************************************
  FLOW PROCESS FROM NODE    421.00 TO NODE    491.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1023.00  DOWNSTREAM(FEET) =  1022.00
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.29
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      47.47
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   23.30
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    491.00 =    3516.00 FEET.

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

```
  FLOW PROCESS FROM NODE    491.00 TO NODE    491.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    431.00 TO NODE    432.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =   1105.00
  DOWNSTREAM ELEVATION(FEET) =   1102.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.116
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.784
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE    432.00 TO NODE    433.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1102.00  DOWNSTREAM(FEET) =  1065.00
  FLOW LENGTH(FEET) =   611.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.31
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.22
  PIPE TRAVEL TIME(MIN.) =   2.36    Tc(MIN.) =    8.48
  LONGEST FLOWPATH FROM NODE    431.00 TO NODE    433.00 =     671.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    432.00 TO NODE    433.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.685
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    1.81   SUBAREA RUNOFF(CFS) =    2.97
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       3.15
  TC(MIN.) =    8.48

****************************************************************************
  FLOW PROCESS FROM NODE    433.00 TO NODE    434.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1065.00  DOWNSTREAM(FEET) =  1049.00
  FLOW LENGTH(FEET) =   274.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.42
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.15
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =    8.97
  LONGEST FLOWPATH FROM NODE    431.00 TO NODE    434.00 =     945.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    434.00 TO NODE    434.00 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.) =    8.97
  RAINFALL INTENSITY(INCH/HR) =   4.52
  TOTAL STREAM AREA(ACRES) =     1.92
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.15

****************************************************************************
  FLOW PROCESS FROM NODE    437.00 TO NODE    438.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1093.00
  DOWNSTREAM ELEVATION(FEET) =   1091.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.083
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    85.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.46
  TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      1.46

****************************************************************************
  FLOW PROCESS FROM NODE    438.00 TO NODE    439.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1091.00  DOWNSTREAM(FEET) =  1082.00
  FLOW LENGTH(FEET) =   530.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.87
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.46
  PIPE TRAVEL TIME(MIN.) =   1.81    Tc(MIN.) =    5.90
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    439.00 =     630.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    438.00 TO NODE    439.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.921
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    3.93   SUBAREA RUNOFF(CFS) =   18.38
  TOTAL AREA(ACRES) =        4.2   TOTAL RUNOFF(CFS) =      19.69
  TC(MIN.) =    5.90

****************************************************************************
  FLOW PROCESS FROM NODE    439.00 TO NODE    434.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1082.00  DOWNSTREAM(FEET) =  1049.00
  FLOW LENGTH(FEET) =   465.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.45
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.69
  PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =    6.37
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    434.00 =    1095.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    434.00 TO NODE    434.00 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.) =    6.37
  RAINFALL INTENSITY(INCH/HR) =   5.63
  TOTAL STREAM AREA(ACRES) =     4.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.69

****************************************************************************
  FLOW PROCESS FROM NODE    442.00 TO NODE    443.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
  UPSTREAM ELEVATION(FEET) =   1101.00
  DOWNSTREAM ELEVATION(FEET) =   1100.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.512
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    68.75
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.555
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      1.15

****************************************************************************
  FLOW PROCESS FROM NODE    443.00 TO NODE    434.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1093.00  DOWNSTREAM ELEVATION(FEET) = 1049.00
  STREET LENGTH(FEET) =   885.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.78
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    8.02
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.46
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.28
  STREET FLOW TRAVEL TIME(MIN.) =   3.31   Tc(MIN.) =    9.82
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.261
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    4.15      SUBAREA RUNOFF(CFS) =   11.14
  TOTAL AREA(ACRES) =        4.5        PEAK FLOW RATE(CFS) =      12.03
```

```
  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  10.27
  FLOW VELOCITY(FEET/SEC.) =  5.13   DEPTH*VELOCITY(FT*FT/SEC.) =   1.70
  LONGEST FLOWPATH FROM NODE    442.00 TO NODE    434.00 =     965.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    434.00 TO NODE    434.00 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.) =    9.82
  RAINFALL INTENSITY(INCH/HR) =   4.26
  TOTAL STREAM AREA(ACRES) =     4.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.03

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        3.15     8.97        4.520          1.92
      2       19.69     6.37        5.635          4.21
      3       12.03     9.82        4.261          4.48

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       29.73     6.37       5.635
      2       29.92     8.97       4.520
      3       29.89     9.82       4.261

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      29.92   Tc(MIN.) =    8.97
  TOTAL AREA(ACRES) =       10.6
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    434.00 =    1095.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    434.00 TO NODE    444.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1049.00  DOWNSTREAM(FEET) =  1045.00
  FLOW LENGTH(FEET) =   158.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.26
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      29.92
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =    9.18
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    444.00 =    1253.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    444.00 TO NODE    444.00 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.) =    9.18
  RAINFALL INTENSITY(INCH/HR) =   4.45
  TOTAL STREAM AREA(ACRES) =    10.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     29.92

****************************************************************************
  FLOW PROCESS FROM NODE    447.00 TO NODE    448.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1105.00
  DOWNSTREAM ELEVATION(FEET) =   1103.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.293
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    72.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.679
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE    448.00 TO NODE    444.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) = 1104.50  DOWNSTREAM ELEVATION(FEET) = 1045.00
  STREET LENGTH(FEET) =   916.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.35
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.27
    HALFSTREET FLOOD WIDTH(FEET) =    7.27
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.92
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.34
  STREET FLOW TRAVEL TIME(MIN.) =   3.11   Tc(MIN.) =    9.40
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.384
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    4.12      SUBAREA RUNOFF(CFS) =   11.38
  TOTAL AREA(ACRES) =        4.3        PEAK FLOW RATE(CFS) =      11.85

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   9.70
  FLOW VELOCITY(FEET/SEC.) =  5.59   DEPTH*VELOCITY(FT*FT/SEC.) =   1.79
  LONGEST FLOWPATH FROM NODE    447.00 TO NODE    444.00 =    1016.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    444.00 TO NODE    444.00 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.) =    9.40
  RAINFALL INTENSITY(INCH/HR) =   4.38
  TOTAL STREAM AREA(ACRES) =     4.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.85

  ** CONFLUENCE DATA **
```

```
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       29.92     9.18        4.451         10.61
      2       11.85     9.40        4.384          4.29

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       41.50     9.18       4.451
      2       41.32     9.40       4.384

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      41.50   Tc(MIN.) =    9.18
  TOTAL AREA(ACRES) =       14.9
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    444.00 =    1253.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    444.00 TO NODE    449.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1045.00  DOWNSTREAM(FEET) =  1043.00
  FLOW LENGTH(FEET) =    82.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.07
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      41.50
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    9.28
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    449.00 =    1335.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    449.00 TO NODE    449.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    465.00 TO NODE    466.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (2. DU/AC OR LESS) RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =   1105.00
  DOWNSTREAM ELEVATION(FEET) =   1104.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.301
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    72.65
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.414
  SUBAREA RUNOFF(CFS) =      0.53
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      0.53

****************************************************************************
  FLOW PROCESS FROM NODE    466.00 TO NODE    467.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1104.00  DOWNSTREAM ELEVATION(FEET) = 1098.00
  STREET LENGTH(FEET) =   600.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00
```

```
  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.86
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   11.95
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.50
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.91
  STREET FLOW TRAVEL TIME(MIN.) =   4.01   Tc(MIN.) =   13.31
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.503
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (2. DU/AC OR LESS) RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.460
  SUBAREA AREA(ACRES) =    4.14      SUBAREA RUNOFF(CFS) =    6.67
  TOTAL AREA(ACRES) =        4.4        PEAK FLOW RATE(CFS) =       7.09

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.48   DEPTH*VELOCITY(FT*FT/SEC.) =   0.91
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    467.00 =     685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    467.00 TO NODE    468.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1098.00  DOWNSTREAM(FEET) =  1068.00
  FLOW LENGTH(FEET) =   795.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.11
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.09
  PIPE TRAVEL TIME(MIN.) =   1.31    Tc(MIN.) =   14.62
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    468.00 =    1480.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    468.00 TO NODE    468.00 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.) =   14.62
  RAINFALL INTENSITY(INCH/HR) =   3.30
  TOTAL STREAM AREA(ACRES) =     4.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.09

****************************************************************************
  FLOW PROCESS FROM NODE    471.00 TO NODE    472.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1104.00
  DOWNSTREAM ELEVATION(FEET) =   1102.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.582
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH =    73.33
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.516
 SUBAREA RUNOFF(CFS) =      0.38
 TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.38

****************************************************************************
 FLOW PROCESS FROM NODE    472.00 TO NODE    468.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1103.00  DOWNSTREAM ELEVATION(FEET) = 1070.00
 STREET LENGTH(FEET) =  1164.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.26
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.25
   HALFSTREET FLOOD WIDTH(FEET) =    6.42
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.07
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.78
 STREET FLOW TRAVEL TIME(MIN.) =   6.31   Tc(MIN.) =   12.90
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.575
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
 SUBAREA AREA(ACRES) =    2.50      SUBAREA RUNOFF(CFS) =    5.63
 TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       5.88

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   8.48
 FLOW VELOCITY(FEET/SEC.) =  3.51   DEPTH*VELOCITY(FT*FT/SEC.) =   1.04
 LONGEST FLOWPATH FROM NODE    471.00 TO NODE    468.00 =    1314.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    468.00 TO NODE    468.00 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.) =   12.90
 RAINFALL INTENSITY(INCH/HR) =   3.57
 TOTAL STREAM AREA(ACRES) =     2.61
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.88

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        7.09    14.62        3.297          4.40
     2        5.88    12.90        3.575          2.61

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
      1       12.13    12.90       3.575
      2       12.51    14.62       3.297

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      12.51   Tc(MIN.) =   14.62
  TOTAL AREA(ACRES) =        7.0
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    468.00 =    1480.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    468.00 TO NODE    473.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1070.00  DOWNSTREAM(FEET) =  1065.00
  FLOW LENGTH(FEET) =    91.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   9.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.45
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      12.51
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   14.73
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    473.00 =    1571.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    473.00 TO NODE    473.00 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.) =   14.73
  RAINFALL INTENSITY(INCH/HR) =   3.28
  TOTAL STREAM AREA(ACRES) =     7.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.51

****************************************************************************
  FLOW PROCESS FROM NODE    476.00 TO NODE    477.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =   1095.00
  DOWNSTREAM ELEVATION(FEET) =   1093.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.210
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    80.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.51
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.51

****************************************************************************
  FLOW PROCESS FROM NODE    477.00 TO NODE    478.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1093.00  DOWNSTREAM(FEET) =  1082.00
  FLOW LENGTH(FEET) =   916.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.33
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.51
```

```
  PIPE TRAVEL TIME(MIN.) =   3.52    Tc(MIN.) =    7.73
  LONGEST FLOWPATH FROM NODE    476.00 TO NODE    478.00 =    1036.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    477.00 TO NODE    478.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.972
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    9.18   SUBAREA RUNOFF(CFS) =   36.06
  TOTAL AREA(ACRES) =        9.5   TOTAL RUNOFF(CFS) =      37.20
  TC(MIN.) =    7.73

****************************************************************************
  FLOW PROCESS FROM NODE    478.00 TO NODE    473.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1082.00  DOWNSTREAM(FEET) =  1067.00
  FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.16
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      37.20
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    7.83
  LONGEST FLOWPATH FROM NODE    476.00 TO NODE    473.00 =    1166.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    473.00 TO NODE    473.00 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.) =    7.83
  RAINFALL INTENSITY(INCH/HR) =   4.93
  TOTAL STREAM AREA(ACRES) =     9.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     37.20

****************************************************************************
  FLOW PROCESS FROM NODE    482.00 TO NODE    483.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   180.00
  UPSTREAM ELEVATION(FEET) =   1080.00
  DOWNSTREAM ELEVATION(FEET) =   1078.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.212
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    61.11
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.72
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      1.72

****************************************************************************
  FLOW PROCESS FROM NODE    483.00 TO NODE    473.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
```

```
==========================================================================
  UPSTREAM ELEVATION(FEET) = 1080.00  DOWNSTREAM ELEVATION(FEET) = 1065.00
  STREET LENGTH(FEET) =   976.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.08
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.55
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.88
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.97
  STREET FLOW TRAVEL TIME(MIN.) =   5.65   Tc(MIN.) =    9.86
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.250
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    3.11      SUBAREA RUNOFF(CFS) =   10.44
  TOTAL AREA(ACRES) =        3.4        PEAK FLOW RATE(CFS) =      11.55

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.32   DEPTH*VELOCITY(FT*FT/SEC.) =   1.27
  LONGEST FLOWPATH FROM NODE    482.00 TO NODE    473.00 =    1156.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    473.00 TO NODE    473.00 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.) =    9.86
  RAINFALL INTENSITY(INCH/HR) =   4.25
  TOTAL STREAM AREA(ACRES) =     3.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.55

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       12.51    14.73        3.281          7.01
      2       37.20     7.83        4.934          9.47
      3       11.55     9.86        4.250          3.44

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       54.68     7.83       4.934
      2       53.25     9.86       4.250
      3       46.16    14.73       3.281

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      54.68   Tc(MIN.) =    7.83
  TOTAL AREA(ACRES) =       19.9
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    473.00 =    1571.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    473.00 TO NODE    449.00 IS CODE =  31
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1065.00  DOWNSTREAM(FEET) =  1040.00
  FLOW LENGTH(FEET) =   935.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.57
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      54.68
  PIPE TRAVEL TIME(MIN.) =   1.07    Tc(MIN.) =    8.89
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    449.00 =    2506.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    473.00 TO NODE    449.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.543
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6255
  SUBAREA AREA(ACRES) =    5.11   SUBAREA RUNOFF(CFS) =    8.12
  TOTAL AREA(ACRES) =       25.0   TOTAL RUNOFF(CFS) =      71.12
  TC(MIN.) =    8.89

************************************************************************
  FLOW PROCESS FROM NODE    449.00 TO NODE    449.00 IS CODE =  11
------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
========================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       71.12     8.89       4.543       25.03
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    449.00 =    2506.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       41.50     9.28       4.419       14.90
  LONGEST FLOWPATH FROM NODE    437.00 TO NODE    449.00 =    1335.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     110.87       8.89        4.543
      2     110.68       9.28        4.419

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     110.87   Tc(MIN.) =    8.89
  TOTAL AREA(ACRES) =       39.9

************************************************************************
  FLOW PROCESS FROM NODE    449.00 TO NODE    449.00 IS CODE =  12
------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
========================================================================

+----------------------------------------------------------------------+
| Detention Basin #3; See detention basin analysis for following flow calc |
|                                                                      |
|                                                                      |
+----------------------------------------------------------------------+

************************************************************************
  FLOW PROCESS FROM NODE    449.00 TO NODE    449.00 IS CODE =   7
------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
```

```
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  58.00   RAIN INTENSITY(INCH/HOUR) =  1.36
  TOTAL AREA(ACRES) =    39.90   TOTAL RUNOFF(CFS) =      6.50

****************************************************************************
  FLOW PROCESS FROM NODE    449.00 TO NODE    490.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1020.00  DOWNSTREAM(FEET) =  1015.00
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.55
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.50
  PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =   58.25
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    490.00 =    2651.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    490.00 TO NODE    490.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    452.00 TO NODE    453.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
  UPSTREAM ELEVATION(FEET) =   1063.00
  DOWNSTREAM ELEVATION(FEET) =   1062.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.095
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    62.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.78
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE    453.00 TO NODE    454.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1065.00  DOWNSTREAM ELEVATION(FEET) = 1060.00
  STREET LENGTH(FEET) =   634.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.39
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.28
```

```
    HALFSTREET FLOOD WIDTH(FEET) =    7.55
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.74
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.48
  STREET FLOW TRAVEL TIME(MIN.) =   6.09   Tc(MIN.) =   10.18
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.163
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    0.95      SUBAREA RUNOFF(CFS) =    3.12
  TOTAL AREA(ACRES) =        1.1        PEAK FLOW RATE(CFS) =       3.62

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   9.14
  FLOW VELOCITY(FEET/SEC.) =  1.90   DEPTH*VELOCITY(FT*FT/SEC.) =   0.59
  LONGEST FLOWPATH FROM NODE    452.00 TO NODE    454.00 =     714.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    454.00 TO NODE    454.00 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.) =   10.18
  RAINFALL INTENSITY(INCH/HR) =   4.16
  TOTAL STREAM AREA(ACRES) =     1.10
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.62

****************************************************************************
  FLOW PROCESS FROM NODE    458.00 TO NODE    459.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   180.00
  UPSTREAM ELEVATION(FEET) =   1075.00
  DOWNSTREAM ELEVATION(FEET) =   1072.50
  ELEVATION DIFFERENCE(FEET) =      2.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.382
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.83
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.628
  SUBAREA RUNOFF(CFS) =      1.74
  TOTAL AREA(ACRES) =      0.49   TOTAL RUNOFF(CFS) =      1.74

****************************************************************************
  FLOW PROCESS FROM NODE    459.00 TO NODE    460.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1072.00  DOWNSTREAM ELEVATION(FEET) = 1054.00
  STREET LENGTH(FEET) =  1248.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      18.47
    ***STREET FLOWING FULL***
```

```
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.43
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.92
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.70
  STREET FLOW TRAVEL TIME(MIN.) =   5.31   Tc(MIN.) =   11.69
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.809
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =   13.45      SUBAREA RUNOFF(CFS) =   32.28
  TOTAL AREA(ACRES) =       13.9        PEAK FLOW RATE(CFS) =      33.45

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.52   HALFSTREET FLOOD WIDTH(FEET) =  12.85
  FLOW VELOCITY(FEET/SEC.) =  4.96   DEPTH*VELOCITY(FT*FT/SEC.) =   2.56
  *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
         AND L = 1248.0 FT WITH ELEVATION-DROP =  18.0 FT, IS   47.9 CFS,
         WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    460.00
  LONGEST FLOWPATH FROM NODE    458.00 TO NODE    460.00 =    1428.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    460.00 TO NODE    454.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1054.00  DOWNSTREAM(FEET) =  1045.00
  FLOW LENGTH(FEET) =   887.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.97
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      33.45
  PIPE TRAVEL TIME(MIN.) =   1.65    Tc(MIN.) =   13.34
  LONGEST FLOWPATH FROM NODE    458.00 TO NODE    454.00 =    2315.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    460.00 TO NODE    454.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.498
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5664
  SUBAREA AREA(ACRES) =    4.10   SUBAREA RUNOFF(CFS) =    5.02
  TOTAL AREA(ACRES) =       18.0   TOTAL RUNOFF(CFS) =      35.74
  TC(MIN.) =   13.34

****************************************************************************
  FLOW PROCESS FROM NODE    454.00 TO NODE    454.00 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.) =   13.34
  RAINFALL INTENSITY(INCH/HR) =   3.50
  TOTAL STREAM AREA(ACRES) =    18.04
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     35.74

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        3.62    10.18        4.163          1.10
      2       35.74    13.34        3.498         18.04

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
```

```
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       30.91    10.18       4.163
      2       38.78    13.34       3.498

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      38.78   Tc(MIN.) =   13.34
  TOTAL AREA(ACRES) =       19.1
  LONGEST FLOWPATH FROM NODE    458.00 TO NODE    454.00 =    2315.00 FEET.

+-------------------------------------------------------------------------+
| Detention Basin #2: See detention basin analysis for following calc     |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    454.00 TO NODE    454.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  38.00   RAIN INTENSITY(INCH/HOUR) =  1.78
  TOTAL AREA(ACRES) =    19.10   TOTAL RUNOFF(CFS) =      4.23

****************************************************************************
  FLOW PROCESS FROM NODE    454.00 TO NODE    490.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1045.00  DOWNSTREAM(FEET) =  1035.00
  FLOW LENGTH(FEET) =   115.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.81
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.23
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =   38.16
  LONGEST FLOWPATH FROM NODE    458.00 TO NODE    490.00 =    2430.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    490.00 TO NODE    490.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1        4.23    38.16       1.776       19.10
  LONGEST FLOWPATH FROM NODE    458.00 TO NODE    490.00 =    2430.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1        6.50    58.25       1.352       39.90
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    490.00 =    2651.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1       8.49      38.16        1.776
      2       9.72      58.25        1.352

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       9.72   Tc(MIN.) =   58.25
  TOTAL AREA(ACRES) =       59.0
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    490.00 TO NODE    490.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    490.00 TO NODE    491.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1030.00  DOWNSTREAM(FEET) =  1010.00
  FLOW LENGTH(FEET) =   632.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   9.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.26
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.72
  PIPE TRAVEL TIME(MIN.) =   1.03    Tc(MIN.) =   59.28
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    491.00 =    3283.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    491.00 TO NODE    491.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1        9.72    59.28       1.337       59.00
  LONGEST FLOWPATH FROM NODE    465.00 TO NODE    491.00 =    3283.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       47.47    23.30       2.441       86.50
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    491.00 =    3516.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      51.29      23.30        2.441
      2      35.71      59.28        1.337

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      51.29   Tc(MIN.) =   23.30
  TOTAL AREA(ACRES) =      145.5

****************************************************************************
  FLOW PROCESS FROM NODE    491.00 TO NODE    491.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    491.00 TO NODE    492.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1030.00  DOWNSTREAM(FEET) =   750.00
  FLOW LENGTH(FEET) =  2785.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.79
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      51.29
  PIPE TRAVEL TIME(MIN.) =   1.95    Tc(MIN.) =   25.25
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    492.00 =    6301.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    492.00 TO NODE    492.00 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.) =   25.25
  RAINFALL INTENSITY(INCH/HR) =   2.32
  TOTAL STREAM AREA(ACRES) =   145.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     51.29

****************************************************************************
  FLOW PROCESS FROM NODE    495.00 TO NODE    496.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    995.00
  DOWNSTREAM ELEVATION(FEET) =    990.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.390
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.717
  SUBAREA RUNOFF(CFS) =      0.78
  TOTAL AREA(ACRES) =      0.47   TOTAL RUNOFF(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE    496.00 TO NODE    492.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    990.00  DOWNSTREAM(FEET) =    730.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1670.00   CHANNEL SLOPE =  0.1557
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.527
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3400
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      23.21
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.83
  AVERAGE FLOW DEPTH(FEET) =   0.34   TRAVEL TIME(MIN.) =   4.78
  Tc(MIN.) =   13.17
  SUBAREA AREA(ACRES) =    36.59       SUBAREA RUNOFF(CFS) =   43.88
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.340
  TOTAL AREA(ACRES) =       37.1         PEAK FLOW RATE(CFS) =      44.46

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.49   FLOW VELOCITY(FEET/SEC.) =   7.23
  LONGEST FLOWPATH FROM NODE    495.00 TO NODE    492.00 =    1790.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    492.00 TO NODE    492.00 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.) =   13.17
  RAINFALL INTENSITY(INCH/HR) =   3.53
  TOTAL STREAM AREA(ACRES) =    37.06
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     44.46
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    500.00 TO NODE    501.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    810.00
  DOWNSTREAM ELEVATION(FEET) =    805.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.895
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.906
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE    501.00 TO NODE    502.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    805.00  DOWNSTREAM(FEET) =    738.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   995.00   CHANNEL SLOPE =  0.0673
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.112
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.28
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.05
  AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =   8.09
  Tc(MIN.) =   15.99
  SUBAREA AREA(ACRES) =     8.18       SUBAREA RUNOFF(CFS) =    8.91
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        8.5         PEAK FLOW RATE(CFS) =       9.30

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.17   FLOW VELOCITY(FEET/SEC.) =   2.58
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    502.00 =    1095.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    502.00 TO NODE    492.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    738.00  DOWNSTREAM(FEET) =    730.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   480.00   CHANNEL SLOPE =  0.0167
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.743
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.10
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.31
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   3.46
  Tc(MIN.) =   19.45
  SUBAREA AREA(ACRES) =     5.83       SUBAREA RUNOFF(CFS) =    5.60
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       14.4         PEAK FLOW RATE(CFS) =      13.79

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.54   FLOW VELOCITY(FEET/SEC.) =   2.40
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    492.00 =    1575.00 FEET.

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

```
 FLOW PROCESS FROM NODE    492.00 TO NODE    492.00 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.) =   19.45
 RAINFALL INTENSITY(INCH/HR) =   2.74
 TOTAL STREAM AREA(ACRES) =    14.37
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.79

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       51.29    25.25        2.318        145.50
     2       44.46    13.17        3.527         37.06
     3       13.79    19.45        2.743         14.37

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       80.55    13.17       3.527
     2       87.87    19.45       2.743
     3       92.16    25.25       2.318

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      92.16   Tc(MIN.) =   25.25
 TOTAL AREA(ACRES) =      196.9
 LONGEST FLOWPATH FROM NODE    375.00 TO NODE    492.00 =    6301.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    492.00 TO NODE    507.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   730.00  DOWNSTREAM(FEET) =   630.00
 FLOW LENGTH(FEET) =  1264.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  24.99
 ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      92.16
 PIPE TRAVEL TIME(MIN.) =   0.84    Tc(MIN.) =   26.10
 LONGEST FLOWPATH FROM NODE    375.00 TO NODE    507.00 =    7565.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    511.00 TO NODE    512.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3000
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
 UPSTREAM ELEVATION(FEET) =   1050.00
 DOWNSTREAM ELEVATION(FEET) =   1045.00
 ELEVATION DIFFERENCE(FEET) =      5.00
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.949
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
          (Reference: Table 3-1B of Hydrology Manual)
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.525
  SUBAREA RUNOFF(CFS) =      0.39
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.39

****************************************************************************
  FLOW PROCESS FROM NODE    512.00 TO NODE    508.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1045.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1736.00   CHANNEL SLOPE =  0.1757
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.564
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      39.30
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.22
  AVERAGE FLOW DEPTH(FEET) =   0.45   TRAVEL TIME(MIN.) =   4.01
  Tc(MIN.) =   12.96
  SUBAREA AREA(ACRES) =    71.80       SUBAREA RUNOFF(CFS) =   76.77
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.300
  TOTAL AREA(ACRES) =       72.1         PEAK FLOW RATE(CFS) =      77.08

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.65   FLOW VELOCITY(FEET/SEC.) =   8.93
  LONGEST FLOWPATH FROM NODE    511.00 TO NODE    508.00 =    1856.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    508.00 TO NODE    513.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   740.00  DOWNSTREAM(FEET) =   660.00
  FLOW LENGTH(FEET) =  1181.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  19.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  22.71
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      77.08
  PIPE TRAVEL TIME(MIN.) =   0.87    Tc(MIN.) =   13.82
  LONGEST FLOWPATH FROM NODE    511.00 TO NODE    513.00 =    3037.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 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.) =   13.82
  RAINFALL INTENSITY(INCH/HR) =   3.42
  TOTAL STREAM AREA(ACRES) =    72.09
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     77.08

****************************************************************************
  FLOW PROCESS FROM NODE    516.00 TO NODE    517.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3800
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   161.00
  UPSTREAM ELEVATION(FEET) =    740.00
  DOWNSTREAM ELEVATION(FEET) =    730.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.051
```

```
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.277
  SUBAREA RUNOFF(CFS) =      1.12
  TOTAL AREA(ACRES) =      0.56   TOTAL RUNOFF(CFS) =      1.12

****************************************************************************
  FLOW PROCESS FROM NODE    517.00 TO NODE    518.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   730.00  DOWNSTREAM(FEET) =   710.00
  FLOW LENGTH(FEET) =   509.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.05
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.12
  PIPE TRAVEL TIME(MIN.) =   1.40    Tc(MIN.) =    8.45
  LONGEST FLOWPATH FROM NODE    516.00 TO NODE    518.00 =     670.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    517.00 TO NODE    518.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.695
  *USER SPECIFIED(SUBAREA):
  CULTIVATED LAND WITHOUT CONSERVATION TREATMENT RUNOFF COEFFICIENT = .3800
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3800
  SUBAREA AREA(ACRES) =    7.19   SUBAREA RUNOFF(CFS) =   12.83
  TOTAL AREA(ACRES) =        7.8   TOTAL RUNOFF(CFS) =      13.83
  TC(MIN.) =    8.45

****************************************************************************
  FLOW PROCESS FROM NODE    518.00 TO NODE    513.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   710.00  DOWNSTREAM(FEET) =   660.00
  FLOW LENGTH(FEET) =   515.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.06
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.83
  PIPE TRAVEL TIME(MIN.) =   0.50    Tc(MIN.) =    8.96
  LONGEST FLOWPATH FROM NODE    516.00 TO NODE    513.00 =    1185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    513.00 TO NODE    513.00 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.) =    8.96
  RAINFALL INTENSITY(INCH/HR) =   4.52
  TOTAL STREAM AREA(ACRES) =     7.75
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.83

****************************************************************************
  FLOW PROCESS FROM NODE    521.00 TO NODE    522.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
```

```
  *USER SPECIFIED(SUBAREA):
  FARMSTEADS COVER RUNOFF COEFFICIENT = .3800
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    710.00
  DOWNSTREAM ELEVATION(FEET) =    670.00
  ELEVATION DIFFERENCE(FEET) =     40.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.016
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.846
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE    522.00 TO NODE    513.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   670.00  DOWNSTREAM(FEET) =   660.00
  FLOW LENGTH(FEET) =   495.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.03
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.62
  PIPE TRAVEL TIME(MIN.) =   2.04    Tc(MIN.) =    8.06
  LONGEST FLOWPATH FROM NODE    521.00 TO NODE    513.00 =     645.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    522.00 TO NODE    513.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.841
  *USER SPECIFIED(SUBAREA):
  CULTIVATED LAND WITHOUT CONSERVATION TREATMENT RUNOFF COEFFICIENT = .3800
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3800
  SUBAREA AREA(ACRES) =   11.21   SUBAREA RUNOFF(CFS) =   20.62
  TOTAL AREA(ACRES) =       11.5   TOTAL RUNOFF(CFS) =      21.14
  TC(MIN.) =    8.06

****************************************************************************
  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 =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.06
  RAINFALL INTENSITY(INCH/HR) =   4.84
  TOTAL STREAM AREA(ACRES) =    11.49
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.14

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       77.08    13.82        3.418         72.09
      2       13.83     8.96        4.523          7.75
      3       21.14     8.06        4.841         11.49

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       78.52     8.06       4.841
      2       83.51     8.96       4.523
      3      102.45    13.82       3.418

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     102.45   Tc(MIN.) =   13.82
  TOTAL AREA(ACRES) =       91.3
  LONGEST FLOWPATH FROM NODE    511.00 TO NODE    513.00 =    3037.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    513.00 TO NODE    507.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   660.00  DOWNSTREAM(FEET) =   630.00
  FLOW LENGTH(FEET) =   580.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.73
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     102.45
  PIPE TRAVEL TIME(MIN.) =   0.44    Tc(MIN.) =   14.27
  LONGEST FLOWPATH FROM NODE    511.00 TO NODE    507.00 =    3617.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    525.00 TO NODE    526.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  STREETS & ROADS (DIRT) RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
  UPSTREAM ELEVATION(FEET) =    730.00
  DOWNSTREAM ELEVATION(FEET) =    725.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.993
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.305
  SUBAREA RUNOFF(CFS) =      0.32
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.32

****************************************************************************
  FLOW PROCESS FROM NODE    526.00 TO NODE    527.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    690.00  DOWNSTREAM(FEET) =    680.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   452.00   CHANNEL SLOPE =  0.0221
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.798
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.63
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.63
  AVERAGE FLOW DEPTH(FEET) =   0.05   TRAVEL TIME(MIN.) =  11.87
  Tc(MIN.) =   18.86
  SUBAREA AREA(ACRES) =     0.69       SUBAREA RUNOFF(CFS) =    0.58
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.300
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       0.75

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
```

```
  DEPTH(FEET) =  0.05   FLOW VELOCITY(FEET/SEC.) =   0.73
  LONGEST FLOWPATH FROM NODE    525.00 TO NODE    527.00 =     532.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    527.00 TO NODE    507.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   680.00  DOWNSTREAM(FEET) =   630.00
  FLOW LENGTH(FEET) =   650.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.79
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.75
  PIPE TRAVEL TIME(MIN.) =   1.59    Tc(MIN.) =   20.45
  LONGEST FLOWPATH FROM NODE    525.00 TO NODE    507.00 =    1182.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1        0.75    20.45       2.655        0.89
  LONGEST FLOWPATH FROM NODE    525.00 TO NODE    507.00 =    1182.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       92.16    26.10       2.269      196.93
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    507.00 =    7565.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      72.98      20.45        2.655
      2      92.80      26.10        2.269

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      92.80   Tc(MIN.) =   26.10
  TOTAL AREA(ACRES) =      197.8

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       92.80    26.10       2.269      197.82
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    507.00 =    7565.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      102.45    14.27       3.349       91.33
  LONGEST FLOWPATH FROM NODE    511.00 TO NODE    507.00 =    3617.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     153.19      14.27        3.349
      2     162.21      26.10        2.269
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     162.21   Tc(MIN.) =   26.10
  TOTAL AREA(ACRES) =      289.1

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    507.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    507.00 TO NODE    528.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   630.00  DOWNSTREAM(FEET) =   600.00
  FLOW LENGTH(FEET) =  1350.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  35.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.62
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     162.21
  PIPE TRAVEL TIME(MIN.) =   1.28    Tc(MIN.) =   27.37
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    528.00 =    8915.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    528.00 TO NODE    528.50 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    590.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1329.00   CHANNEL SLOPE =  0.0376
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.027
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3250
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     168.17
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.97
  AVERAGE FLOW DEPTH(FEET) =   1.10   TRAVEL TIME(MIN.) =   3.71
  Tc(MIN.) =   31.08
  SUBAREA AREA(ACRES) =    18.09       SUBAREA RUNOFF(CFS) =   11.92
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.258
  TOTAL AREA(ACRES) =      307.2         PEAK FLOW RATE(CFS) =     162.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.08   FLOW VELOCITY(FEET/SEC.) =   5.91
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    528.50 =   10244.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    528.50 TO NODE    529.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   545.00  DOWNSTREAM(FEET) =   480.00
  FLOW LENGTH(FEET) =  1795.00   MANNING'S N =  0.020
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  37.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.28
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     162.21
  PIPE TRAVEL TIME(MIN.) =   1.96    Tc(MIN.) =   33.04
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    529.00 =   12039.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    528.50 TO NODE    529.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.949
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3250
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.2607
  SUBAREA AREA(ACRES) =   14.26   SUBAREA RUNOFF(CFS) =    9.03
  TOTAL AREA(ACRES) =      321.5   TOTAL RUNOFF(CFS) =     163.32
  TC(MIN.) =   33.04

****************************************************************************
  FLOW PROCESS FROM NODE    529.00 TO NODE    529.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    850.00 TO NODE    851.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   137.00
  UPSTREAM ELEVATION(FEET) =   1039.00
  DOWNSTREAM ELEVATION(FEET) =   1036.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.703
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    71.90
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.49
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      1.49

****************************************************************************
  FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1036.00  DOWNSTREAM ELEVATION(FEET) =  845.00
  STREET LENGTH(FEET) =  1362.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.82
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    6.23
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.72
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.69
  STREET FLOW TRAVEL TIME(MIN.) =   3.38   Tc(MIN.) =    6.08
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.807
  *USER SPECIFIED(SUBAREA):
```

```
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    2.09      SUBAREA RUNOFF(CFS) =   10.56
  TOTAL AREA(ACRES) =        2.3        PEAK FLOW RATE(CFS) =      11.87

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   8.11
  FLOW VELOCITY(FEET/SEC.) =  7.65   DEPTH*VELOCITY(FT*FT/SEC.) =   2.21
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =    1499.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   845.00  DOWNSTREAM(FEET) =   726.00
  FLOW LENGTH(FEET) =  1958.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.78
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.87
  PIPE TRAVEL TIME(MIN.) =   2.37    Tc(MIN.) =    8.45
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =    3457.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    853.00 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.) =    8.45
  RAINFALL INTENSITY(INCH/HR) =   4.70
  TOTAL STREAM AREA(ACRES) =     2.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.87

****************************************************************************
  FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   106.00
  UPSTREAM ELEVATION(FEET) =    845.00
  DOWNSTREAM ELEVATION(FEET) =    830.00
  ELEVATION DIFFERENCE(FEET) =     15.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    1.922
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.86
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.86

****************************************************************************
  FLOW PROCESS FROM NODE    856.00 TO NODE    853.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  830.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =  1832.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00
```

```
  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.50
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.28
    HALFSTREET FLOOD WIDTH(FEET) =    7.64
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.63
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.29
  STREET FLOW TRAVEL TIME(MIN.) =   6.60   Tc(MIN.) =    8.52
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.670
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    2.69      SUBAREA RUNOFF(CFS) =   10.93
  TOTAL AREA(ACRES) =        2.8        PEAK FLOW RATE(CFS) =      11.54

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   9.89
  FLOW VELOCITY(FEET/SEC.) =  5.26   DEPTH*VELOCITY(FT*FT/SEC.) =   1.71
  LONGEST FLOWPATH FROM NODE    855.00 TO NODE    853.00 =    1938.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    853.00 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.) =    8.52
  RAINFALL INTENSITY(INCH/HR) =   4.67
  TOTAL STREAM AREA(ACRES) =     2.84
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.54

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       11.87     8.45        4.696          2.35
      2       11.54     8.52        4.670          2.84

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       23.31     8.45       4.696
      2       23.34     8.52       4.670

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      23.34   Tc(MIN.) =    8.52
  TOTAL AREA(ACRES) =        5.2
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =    3457.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    857.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   726.00  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =   136.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.3 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.08
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      23.34
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    8.73
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    857.00 =    3593.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    857.00 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.) =    8.73
  RAINFALL INTENSITY(INCH/HR) =   4.60
  TOTAL STREAM AREA(ACRES) =     5.19
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     23.34

****************************************************************************
  FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   136.00
  UPSTREAM ELEVATION(FEET) =    794.00
  DOWNSTREAM ELEVATION(FEET) =    792.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.947
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    64.71
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.72
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      1.72

****************************************************************************
  FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  792.00  DOWNSTREAM ELEVATION(FEET) =  730.00
  STREET LENGTH(FEET) =  1291.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.20
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.23
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.74
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.47
  STREET FLOW TRAVEL TIME(MIN.) =   4.54   Tc(MIN.) =    8.49
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.682
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
```

```
  SUBAREA AREA(ACRES) =    3.96      SUBAREA RUNOFF(CFS) =   14.65
  TOTAL AREA(ACRES) =        4.3        PEAK FLOW RATE(CFS) =      15.87

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.67
  FLOW VELOCITY(FEET/SEC.) =  5.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.93
  LONGEST FLOWPATH FROM NODE    860.00 TO NODE    862.00 =    1427.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    857.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   730.00  DOWNSTREAM(FEET) =   728.00
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.26
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.87
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    8.69
  LONGEST FLOWPATH FROM NODE    860.00 TO NODE    857.00 =    1539.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    857.00 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.) =    8.69
  RAINFALL INTENSITY(INCH/HR) =   4.61
  TOTAL STREAM AREA(ACRES) =     4.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.87

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       23.34     8.73        4.599          5.19
      2       15.87     8.69        4.611          4.29

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       39.15     8.69       4.611
      2       39.17     8.73       4.599

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      39.17   Tc(MIN.) =    8.73
  TOTAL AREA(ACRES) =        9.5
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    857.00 =    3593.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    857.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   245.00
```

```
  UPSTREAM ELEVATION(FEET) =    995.00
  DOWNSTREAM ELEVATION(FEET) =    950.00
  ELEVATION DIFFERENCE(FEET) =     45.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      1.49
  TOTAL AREA(ACRES) =      0.75   TOTAL RUNOFF(CFS) =      1.49

****************************************************************************
  FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    950.00  DOWNSTREAM(FEET) =    785.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.2215
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.862
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.18
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.14
  AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   1.74
  Tc(MIN.) =    8.01
  SUBAREA AREA(ACRES) =     4.31       SUBAREA RUNOFF(CFS) =    7.33
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        5.1         PEAK FLOW RATE(CFS) =       8.61

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.27   FLOW VELOCITY(FEET/SEC.) =   8.37
  LONGEST FLOWPATH FROM NODE    833.00 TO NODE    835.00 =     990.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    831.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.862
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4597
  SUBAREA AREA(ACRES) =    3.26   SUBAREA RUNOFF(CFS) =    9.99
  TOTAL AREA(ACRES) =        8.3   TOTAL RUNOFF(CFS) =      18.60
  TC(MIN.) =    8.01

****************************************************************************
  FLOW PROCESS FROM NODE    830.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.862
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4361
  SUBAREA AREA(ACRES) =    2.28   SUBAREA RUNOFF(CFS) =    3.88
  TOTAL AREA(ACRES) =       10.6   TOTAL RUNOFF(CFS) =      22.47
  TC(MIN.) =    8.01

****************************************************************************
  FLOW PROCESS FROM NODE    835.00 TO NODE    857.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   795.00  DOWNSTREAM(FEET) =   724.00
  FLOW LENGTH(FEET) =  1140.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.93
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      22.47
  PIPE TRAVEL TIME(MIN.) =   1.19    Tc(MIN.) =    9.20
  LONGEST FLOWPATH FROM NODE    833.00 TO NODE    857.00 =    2130.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    857.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       22.47     9.20       4.445       10.60
  LONGEST FLOWPATH FROM NODE    833.00 TO NODE    857.00 =    2130.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       39.17     8.73       4.599        9.48
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    857.00 =    3593.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      60.49       8.73        4.599
      2      60.33       9.20        4.445

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      60.49   Tc(MIN.) =    8.73
  TOTAL AREA(ACRES) =       20.1

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    857.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    863.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.00  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =   251.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  23.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.39
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      60.49
  PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =    9.04
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    863.00 =    3844.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    863.00 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.) =    9.04
  RAINFALL INTENSITY(INCH/HR) =   4.50
  TOTAL STREAM AREA(ACRES) =    20.08
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     60.49
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    866.00 TO NODE    867.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   129.00
  UPSTREAM ELEVATION(FEET) =    766.50
  DOWNSTREAM ELEVATION(FEET) =    765.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.607
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    67.44
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.503
  SUBAREA RUNOFF(CFS) =      0.73
  TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
  FLOW PROCESS FROM NODE    867.00 TO NODE    868.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  765.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   635.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.26
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.48
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.09
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.51
  STREET FLOW TRAVEL TIME(MIN.) =   2.08   Tc(MIN.) =    8.69
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.612
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.42      SUBAREA RUNOFF(CFS) =    7.03
  TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       7.64

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  10.92
  FLOW VELOCITY(FEET/SEC.) =  5.83   DEPTH*VELOCITY(FT*FT/SEC.) =   2.01
  LONGEST FLOWPATH FROM NODE    866.00 TO NODE    868.00 =     764.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    868.00 TO NODE    863.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   726.00  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =    91.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.81
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.64
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =    8.84
  LONGEST FLOWPATH FROM NODE    866.00 TO NODE    863.00 =     855.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    863.00 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.) =    8.84
  RAINFALL INTENSITY(INCH/HR) =   4.56
  TOTAL STREAM AREA(ACRES) =     2.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.64

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       60.49     9.04        4.496         20.08
      2        7.64     8.84        4.560          2.63

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       66.82     8.84       4.560
      2       68.02     9.04       4.496

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      68.02   Tc(MIN.) =    9.04
  TOTAL AREA(ACRES) =       22.7
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    863.00 =    3844.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    869.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   723.00  DOWNSTREAM(FEET) =   692.00
  FLOW LENGTH(FEET) =   709.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.56
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      68.02
  PIPE TRAVEL TIME(MIN.) =   0.64    Tc(MIN.) =    9.67
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    869.00 =    4553.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    869.00 TO NODE    869.00 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.) =    9.67
  RAINFALL INTENSITY(INCH/HR) =   4.30
  TOTAL STREAM AREA(ACRES) =    22.71
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     68.02

****************************************************************************
  FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
```

```
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    727.00
  DOWNSTREAM ELEVATION(FEET) =    725.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.598
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    73.53
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.78
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE    873.00 TO NODE    869.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  724.00  DOWNSTREAM ELEVATION(FEET) =  692.00
  STREET LENGTH(FEET) =   752.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.38
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.92
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.87
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.68
  STREET FLOW TRAVEL TIME(MIN.) =   2.58   Tc(MIN.) =    6.17
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.749
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    2.45      SUBAREA RUNOFF(CFS) =   11.13
  TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =      11.81

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  5.13   DEPTH*VELOCITY(FT*FT/SEC.) =   1.88
  LONGEST FLOWPATH FROM NODE    872.00 TO NODE    869.00 =     837.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    869.00 TO NODE    869.00 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.) =    6.17
  RAINFALL INTENSITY(INCH/HR) =   5.75
  TOTAL STREAM AREA(ACRES) =     2.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.81

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
```

```
      1       68.02     9.67        4.303         22.71
      2       11.81     6.17        5.749          2.60

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       62.72     6.17       5.749
      2       76.86     9.67       4.303

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      76.86   Tc(MIN.) =    9.67
  TOTAL AREA(ACRES) =       25.3
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    869.00 =    4553.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    869.00 TO NODE    874.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   692.00  DOWNSTREAM(FEET) =   690.00
  FLOW LENGTH(FEET) =    70.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.17
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      76.86
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.75
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    874.00 =    4623.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    874.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    877.00 TO NODE    878.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (2. DU/AC OR LESS) RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    737.00
  DOWNSTREAM ELEVATION(FEET) =    736.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.638
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.314
  SUBAREA RUNOFF(CFS) =      0.46
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.46

****************************************************************************
  FLOW PROCESS FROM NODE    878.00 TO NODE    879.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  736.00  DOWNSTREAM ELEVATION(FEET) =  723.00
  STREET LENGTH(FEET) =   670.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
```

```
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.39
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    8.95
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.93
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.89
  STREET FLOW TRAVEL TIME(MIN.) =   3.81   Tc(MIN.) =   13.45
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.479
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (2. DU/AC OR LESS) RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.460
  SUBAREA AREA(ACRES) =    6.11      SUBAREA RUNOFF(CFS) =    9.78
  TOTAL AREA(ACRES) =        6.3        PEAK FLOW RATE(CFS) =      10.15

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.67
  FLOW VELOCITY(FEET/SEC.) =  3.43   DEPTH*VELOCITY(FT*FT/SEC.) =   1.23
  LONGEST FLOWPATH FROM NODE    877.00 TO NODE    879.00 =     770.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    879.00 TO NODE    880.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   725.00  DOWNSTREAM(FEET) =   695.00
  FLOW LENGTH(FEET) =   590.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.39
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.15
  PIPE TRAVEL TIME(MIN.) =   0.79    Tc(MIN.) =   14.24
  LONGEST FLOWPATH FROM NODE    877.00 TO NODE    880.00 =    1360.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    880.00 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) =   3.35
  TOTAL STREAM AREA(ACRES) =     6.34
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.15

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   158.00
  UPSTREAM ELEVATION(FEET) =    751.00
  DOWNSTREAM ELEVATION(FEET) =    745.00
  ELEVATION DIFFERENCE(FEET) =      6.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.257
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    93.99
           (Reference: Table 3-1B of Hydrology Manual)
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.377
 SUBAREA RUNOFF(CFS) =      0.80
 TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    880.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  740.00  DOWNSTREAM ELEVATION(FEET) =  696.00
 STREET LENGTH(FEET) =   859.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.36
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.32
   HALFSTREET FLOOD WIDTH(FEET) =    9.61
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.97
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.58
 STREET FLOW TRAVEL TIME(MIN.) =   2.88   Tc(MIN.) =    8.14
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.812
 *USER SPECIFIED(SUBAREA):
 RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
 SUBAREA AREA(ACRES) =    6.23      SUBAREA RUNOFF(CFS) =   18.88
 TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      19.49

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.00
 FLOW VELOCITY(FEET/SEC.) =  5.84   DEPTH*VELOCITY(FT*FT/SEC.) =   2.19
 LONGEST FLOWPATH FROM NODE    883.00 TO NODE    880.00 =    1017.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    880.00 TO NODE    880.00 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.) =    8.14
 RAINFALL INTENSITY(INCH/HR) =   4.81
 TOTAL STREAM AREA(ACRES) =     6.43
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.49

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       10.15    14.24        3.353          6.34
     2       19.49     8.14        4.812          6.43

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       25.29     8.14       4.812
     2       23.73    14.24       3.353
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      25.29   Tc(MIN.) =    8.14
  TOTAL AREA(ACRES) =       12.8
  LONGEST FLOWPATH FROM NODE    877.00 TO NODE    880.00 =    1360.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    874.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   696.00  DOWNSTREAM(FEET) =   691.00
  FLOW LENGTH(FEET) =   225.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.29
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      25.29
  PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    8.47
  LONGEST FLOWPATH FROM NODE    877.00 TO NODE    874.00 =    1585.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    874.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       25.29     8.47       4.689       12.77
  LONGEST FLOWPATH FROM NODE    877.00 TO NODE    874.00 =    1585.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       76.86     9.75       4.282       25.31
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    874.00 =    4623.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      92.07       8.47        4.689
      2      99.96       9.75        4.282

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      99.96   Tc(MIN.) =    9.75
  TOTAL AREA(ACRES) =       38.1

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    874.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    885.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   687.00  DOWNSTREAM(FEET) =   649.50
  FLOW LENGTH(FEET) =   814.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  25.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.59
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      99.96
  PIPE TRAVEL TIME(MIN.) =   0.66    Tc(MIN.) =   10.41
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    885.00 =    5437.00 FEET.

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

```
  FLOW PROCESS FROM NODE    885.00 TO NODE    885.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    888.00 TO NODE    889.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.00
  UPSTREAM ELEVATION(FEET) =    732.00
  DOWNSTREAM ELEVATION(FEET) =    727.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.509
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    90.62
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.188
  SUBAREA RUNOFF(CFS) =      1.64
  TOTAL AREA(ACRES) =      0.42   TOTAL RUNOFF(CFS) =      1.64

****************************************************************************
  FLOW PROCESS FROM NODE    889.00 TO NODE    890.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  727.00  DOWNSTREAM ELEVATION(FEET) =  680.50
  STREET LENGTH(FEET) =   857.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.99
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.33
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.05
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.58
  STREET FLOW TRAVEL TIME(MIN.) =   2.83   Tc(MIN.) =    8.33
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.737
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.54      SUBAREA RUNOFF(CFS) =   16.53
  TOTAL AREA(ACRES) =        6.0        PEAK FLOW RATE(CFS) =      17.79

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  11.95
  FLOW VELOCITY(FEET/SEC.) =  5.75   DEPTH*VELOCITY(FT*FT/SEC.) =   2.10
  LONGEST FLOWPATH FROM NODE    888.00 TO NODE    890.00 =    1017.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    890.00 TO NODE    891.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   680.00  DOWNSTREAM(FEET) =   656.00
  FLOW LENGTH(FEET) =   425.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.71
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.79
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =    8.82
  LONGEST FLOWPATH FROM NODE    888.00 TO NODE    891.00 =    1442.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    891.00 TO NODE    891.00 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.) =    8.82
  RAINFALL INTENSITY(INCH/HR) =   4.57
  TOTAL STREAM AREA(ACRES) =     5.96
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.79

****************************************************************************
  FLOW PROCESS FROM NODE    894.00 TO NODE    895.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   169.00
  UPSTREAM ELEVATION(FEET) =    720.00
  DOWNSTREAM ELEVATION(FEET) =    697.00
  ELEVATION DIFFERENCE(FEET) =     23.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.927
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.12
  TOTAL AREA(ACRES) =      0.51   TOTAL RUNOFF(CFS) =      2.12

****************************************************************************
  FLOW PROCESS FROM NODE    895.00 TO NODE    891.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  697.00  DOWNSTREAM ELEVATION(FEET) =  656.00
  STREET LENGTH(FEET) =   854.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.43
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.33
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.77
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.49
  STREET FLOW TRAVEL TIME(MIN.) =   2.98   Tc(MIN.) =    6.91
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.347
  *USER SPECIFIED(SUBAREA):
```

```
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.530
  SUBAREA AREA(ACRES) =    5.18      SUBAREA RUNOFF(CFS) =   14.40
  TOTAL AREA(ACRES) =        5.7        PEAK FLOW RATE(CFS) =      16.12

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.77
  FLOW VELOCITY(FEET/SEC.) =  5.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.94
  LONGEST FLOWPATH FROM NODE    894.00 TO NODE    891.00 =    1023.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    891.00 TO NODE    891.00 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.) =    6.91
  RAINFALL INTENSITY(INCH/HR) =   5.35
  TOTAL STREAM AREA(ACRES) =     5.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.12

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       17.79     8.82        4.569          5.96
      2       16.12     6.91        5.347          5.69

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       30.06     6.91       5.347
      2       31.56     8.82       4.569

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      31.56   Tc(MIN.) =    8.82
  TOTAL AREA(ACRES) =       11.6
  LONGEST FLOWPATH FROM NODE    888.00 TO NODE    891.00 =    1442.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    891.00 TO NODE    885.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   656.00  DOWNSTREAM(FEET) =   649.00
  FLOW LENGTH(FEET) =   223.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.53
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      31.56
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =    9.09
  LONGEST FLOWPATH FROM NODE    888.00 TO NODE    885.00 =    1665.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    885.00 TO NODE    885.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       31.56     9.09       4.479       11.65
  LONGEST FLOWPATH FROM NODE    888.00 TO NODE    885.00 =    1665.00 FEET.
```

```
  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       99.96    10.41       4.106       38.08
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    885.00 =    5437.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     118.89       9.09        4.479
      2     128.89      10.41        4.106

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     128.89   Tc(MIN.) =   10.41
  TOTAL AREA(ACRES) =       49.7

****************************************************************************
  FLOW PROCESS FROM NODE    885.00 TO NODE    885.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    885.00 TO NODE    896.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   649.00  DOWNSTREAM(FEET) =   635.00
  FLOW LENGTH(FEET) =   212.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  27.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  24.74
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     128.89
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   10.55
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    896.00 =    5649.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    896.00 TO NODE    896.00 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.) =   10.55
  RAINFALL INTENSITY(INCH/HR) =   4.07
  TOTAL STREAM AREA(ACRES) =    49.73
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    128.89

****************************************************************************
  FLOW PROCESS FROM NODE    906.00 TO NODE    907.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   122.00
  UPSTREAM ELEVATION(FEET) =    678.00
  DOWNSTREAM ELEVATION(FEET) =    676.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =   10.214
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    79.59
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.155
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.16

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

```
  FLOW PROCESS FROM NODE    907.00 TO NODE    896.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   673.00  DOWNSTREAM(FEET) =   638.00
  FLOW LENGTH(FEET) =   595.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.88
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.16
  PIPE TRAVEL TIME(MIN.) =   2.55    Tc(MIN.) =   12.77
  LONGEST FLOWPATH FROM NODE    906.00 TO NODE    896.00 =     717.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    907.00 TO NODE    896.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.598
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    1.06   SUBAREA RUNOFF(CFS) =    1.33
  TOTAL AREA(ACRES) =        1.2   TOTAL RUNOFF(CFS) =       1.47
  TC(MIN.) =   12.77

****************************************************************************
  FLOW PROCESS FROM NODE    896.00 TO NODE    896.00 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.) =   12.77
  RAINFALL INTENSITY(INCH/HR) =   3.60
  TOTAL STREAM AREA(ACRES) =     1.17
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.47

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      128.89    10.55        4.070         49.73
      2        1.47    12.77        3.598          1.17

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      130.10    10.55       4.070
      2      115.43    12.77       3.598

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     130.10   Tc(MIN.) =   10.55
  TOTAL AREA(ACRES) =       50.9
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    896.00 =    5649.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    896.00 TO NODE    897.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   632.00  DOWNSTREAM(FEET) =   618.00
  FLOW LENGTH(FEET) =   731.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  33.9 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.65
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     130.10
  PIPE TRAVEL TIME(MIN.) =   0.78    Tc(MIN.) =   11.33
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    897.00 =    6380.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    897.00 TO NODE    897.00 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.) =   11.33
  RAINFALL INTENSITY(INCH/HR) =   3.89
  TOTAL STREAM AREA(ACRES) =    50.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    130.10

****************************************************************************
  FLOW PROCESS FROM NODE    898.00 TO NODE    899.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   103.00
  UPSTREAM ELEVATION(FEET) =    689.00
  DOWNSTREAM ELEVATION(FEET) =    685.00
  ELEVATION DIFFERENCE(FEET) =      4.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.262
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    84.42
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.08
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      2.08

****************************************************************************
  FLOW PROCESS FROM NODE    899.00 TO NODE    897.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  684.00  DOWNSTREAM ELEVATION(FEET) =  620.00
  STREET LENGTH(FEET) =  1570.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.50
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.23
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.38
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.36
  STREET FLOW TRAVEL TIME(MIN.) =   5.98   Tc(MIN.) =    9.24
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.432
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
```

```
  SUBAREA AREA(ACRES) =    3.58      SUBAREA RUNOFF(CFS) =   12.53
  TOTAL AREA(ACRES) =        4.0        PEAK FLOW RATE(CFS) =      13.94

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.48
  FLOW VELOCITY(FEET/SEC.) =  4.85   DEPTH*VELOCITY(FT*FT/SEC.) =   1.73
  LONGEST FLOWPATH FROM NODE    898.00 TO NODE    897.00 =    1673.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    897.00 TO NODE    897.00 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.) =    9.24
  RAINFALL INTENSITY(INCH/HR) =   4.43
  TOTAL STREAM AREA(ACRES) =     3.98
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.94

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      130.10    11.33        3.887         50.90
      2       13.94     9.24        4.432          3.98

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      128.04     9.24       4.432
      2      142.33    11.33       3.887

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     142.33   Tc(MIN.) =   11.33
  TOTAL AREA(ACRES) =       54.9
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    897.00 =    6380.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    897.00 TO NODE    900.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   620.00  DOWNSTREAM(FEET) =   617.00
  FLOW LENGTH(FEET) =    85.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.21
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     142.33
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   11.40
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    900.00 =    6465.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    900.00 TO NODE    900.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    902.00 TO NODE    903.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   157.00
```

```
  UPSTREAM ELEVATION(FEET) =    702.00
  DOWNSTREAM ELEVATION(FEET) =    685.00
  ELEVATION DIFFERENCE(FEET) =     17.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.927
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.83
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.83

****************************************************************************
  FLOW PROCESS FROM NODE    903.00 TO NODE    904.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  685.00  DOWNSTREAM ELEVATION(FEET) =  650.00
  STREET LENGTH(FEET) =   953.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.36
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.36
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.35
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.45
  STREET FLOW TRAVEL TIME(MIN.) =   3.65   Tc(MIN.) =    7.58
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.037
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   18.72
  TOTAL AREA(ACRES) =        6.1        PEAK FLOW RATE(CFS) =      19.36

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  5.29   DEPTH*VELOCITY(FT*FT/SEC.) =   2.06
  LONGEST FLOWPATH FROM NODE    902.00 TO NODE    904.00 =    1110.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    904.00 TO NODE    905.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   650.00  DOWNSTREAM(FEET) =   626.00
  FLOW LENGTH(FEET) =   744.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.21
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.36
  PIPE TRAVEL TIME(MIN.) =   1.02    Tc(MIN.) =    8.59
  LONGEST FLOWPATH FROM NODE    902.00 TO NODE    905.00 =    1854.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    905.00 TO NODE    905.00 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.) =    8.59
  RAINFALL INTENSITY(INCH/HR) =   4.64
  TOTAL STREAM AREA(ACRES) =     6.10
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.36

**************************************************************************
  FLOW PROCESS FROM NODE    908.00 TO NODE    909.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   164.00
  UPSTREAM ELEVATION(FEET) =    679.00
  DOWNSTREAM ELEVATION(FEET) =    665.00
  ELEVATION DIFFERENCE(FEET) =     14.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.140
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.79
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.79

**************************************************************************
  FLOW PROCESS FROM NODE    909.00 TO NODE    905.00 IS CODE =  61
--------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  665.00  DOWNSTREAM ELEVATION(FEET) =  625.00
  STREET LENGTH(FEET) =   979.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.72
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.27
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.57
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.52
  STREET FLOW TRAVEL TIME(MIN.) =   3.57   Tc(MIN.) =    7.71
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.982
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.20      SUBAREA RUNOFF(CFS) =   19.46
  TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      20.06

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  5.53   DEPTH*VELOCITY(FT*FT/SEC.) =   2.14
  LONGEST FLOWPATH FROM NODE    908.00 TO NODE    905.00 =    1143.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    905.00 TO NODE    905.00 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.) =    7.71
  RAINFALL INTENSITY(INCH/HR) =   4.98
  TOTAL STREAM AREA(ACRES) =     6.39
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     20.06

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       19.36     8.59        4.645          6.10
      2       20.06     7.71        4.982          6.39

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       37.42     7.71       4.982
      2       38.05     8.59       4.645

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      38.05   Tc(MIN.) =    8.59
  TOTAL AREA(ACRES) =       12.5
  LONGEST FLOWPATH FROM NODE    902.00 TO NODE    905.00 =    1854.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    905.00 TO NODE    900.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   625.00  DOWNSTREAM(FEET) =   617.00
  FLOW LENGTH(FEET) =   179.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.18
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      38.05
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    8.78
  LONGEST FLOWPATH FROM NODE    902.00 TO NODE    900.00 =    2033.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    900.00 TO NODE    900.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       38.05     8.78       4.581       12.49
  LONGEST FLOWPATH FROM NODE    902.00 TO NODE    900.00 =    2033.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      142.33    11.40       3.871       54.88
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    900.00 =    6465.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     147.68       8.78       4.581
      2     174.48      11.40       3.871

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =     174.48   Tc(MIN.) =   11.40
  TOTAL AREA(ACRES) =       67.4

****************************************************************************
  FLOW PROCESS FROM NODE    900.00 TO NODE    900.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    900.00 TO NODE    910.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   617.00  DOWNSTREAM(FEET) =   555.00
  FLOW LENGTH(FEET) =   683.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  30.58
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     174.48
  PIPE TRAVEL TIME(MIN.) =   0.37    Tc(MIN.) =   11.77
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    910.00 =    7148.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    910.00 TO NODE    910.00 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) =   3.79
  TOTAL STREAM AREA(ACRES) =    67.37
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    174.48

****************************************************************************
  FLOW PROCESS FROM NODE    913.00 TO NODE    914.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   145.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    616.00
  ELEVATION DIFFERENCE(FEET) =      4.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.313
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    77.59
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.333
  SUBAREA RUNOFF(CFS) =      1.80
  TOTAL AREA(ACRES) =      0.45   TOTAL RUNOFF(CFS) =      1.80

****************************************************************************
  FLOW PROCESS FROM NODE    914.00 TO NODE    910.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  615.00  DOWNSTREAM ELEVATION(FEET) =  555.00
  STREET LENGTH(FEET) =   676.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020
```

```
  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.08
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    6.05
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.25
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.30
  STREET FLOW TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =    7.46
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.089
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    2.04      SUBAREA RUNOFF(CFS) =    6.54
  TOTAL AREA(ACRES) =        2.5        PEAK FLOW RATE(CFS) =       7.98

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.28   HALFSTREET FLOOD WIDTH(FEET) =   7.55
  FLOW VELOCITY(FEET/SEC.) =  5.80   DEPTH*VELOCITY(FT*FT/SEC.) =   1.61
  LONGEST FLOWPATH FROM NODE    913.00 TO NODE    910.00 =     821.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    910.00 TO NODE    910.00 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.) =    7.46
  RAINFALL INTENSITY(INCH/HR) =   5.09
  TOTAL STREAM AREA(ACRES) =     2.49
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.98

****************************************************************************
  FLOW PROCESS FROM NODE    917.00 TO NODE    918.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    616.00
  ELEVATION DIFFERENCE(FEET) =      4.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.038
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.496
  SUBAREA RUNOFF(CFS) =      0.19
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.19

****************************************************************************
  FLOW PROCESS FROM NODE    918.00 TO NODE    910.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   617.00  DOWNSTREAM(FEET) =   556.00
  FLOW LENGTH(FEET) =   620.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.84
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.19
```

```
  PIPE TRAVEL TIME(MIN.) =   2.14    Tc(MIN.) =   11.17
  LONGEST FLOWPATH FROM NODE    917.00 TO NODE    910.00 =     740.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    918.00 TO NODE    910.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.921
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    1.71   SUBAREA RUNOFF(CFS) =    2.35
  TOTAL AREA(ACRES) =        1.8   TOTAL RUNOFF(CFS) =       2.51
  TC(MIN.) =   11.17

****************************************************************************
  FLOW PROCESS FROM NODE    910.00 TO NODE    910.00 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.) =   11.17
  RAINFALL INTENSITY(INCH/HR) =   3.92
  TOTAL STREAM AREA(ACRES) =     1.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.51

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      174.48    11.77        3.792         67.37
      2        7.98     7.46        5.089          2.49
      3        2.51    11.17        3.921          1.83

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      120.23     7.46       5.089
      2      174.32    11.17       3.921
      3      182.86    11.77       3.792

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     182.86   Tc(MIN.) =   11.77
  TOTAL AREA(ACRES) =       71.7
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    910.00 =    7148.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    910.00 TO NODE    919.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   552.00  DOWNSTREAM(FEET) =   550.00
  FLOW LENGTH(FEET) =    55.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  31.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  22.17
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     182.86
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   11.81
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    919.00 =    7203.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    919.00 TO NODE    919.00 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.) =   11.81
  RAINFALL INTENSITY(INCH/HR) =   3.78
  TOTAL STREAM AREA(ACRES) =    71.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    182.86

**************************************************************************
  FLOW PROCESS FROM NODE    922.00 TO NODE    923.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   175.00
  UPSTREAM ELEVATION(FEET) =    593.00
  DOWNSTREAM ELEVATION(FEET) =    580.00
  ELEVATION DIFFERENCE(FEET) =     13.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.336
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.24
  TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      1.24

**************************************************************************
  FLOW PROCESS FROM NODE    923.00 TO NODE    924.00 IS CODE =  61
--------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  580.00  DOWNSTREAM ELEVATION(FEET) =  560.00
  STREET LENGTH(FEET) =   739.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.07
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.45
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.75
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.26
  STREET FLOW TRAVEL TIME(MIN.) =   3.29   Tc(MIN.) =    7.62
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.018
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    4.88      SUBAREA RUNOFF(CFS) =   15.43
  TOTAL AREA(ACRES) =        5.2        PEAK FLOW RATE(CFS) =      16.38

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.51   DEPTH*VELOCITY(FT*FT/SEC.) =   1.75
  LONGEST FLOWPATH FROM NODE    922.00 TO NODE    924.00 =     914.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    924.00 TO NODE    919.00 IS CODE =  31
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   557.00  DOWNSTREAM(FEET) =   551.00
  FLOW LENGTH(FEET) =    75.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   9.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.54
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.38
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.70
  LONGEST FLOWPATH FROM NODE    922.00 TO NODE    919.00 =     989.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    919.00 TO NODE    919.00 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.) =    7.70
  RAINFALL INTENSITY(INCH/HR) =   4.99
  TOTAL STREAM AREA(ACRES) =     5.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.38

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      182.86    11.81        3.783         71.69
      2       16.38     7.70        4.986          5.18

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      155.13     7.70       4.986
      2      195.29    11.81       3.783

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     195.29   Tc(MIN.) =   11.81
  TOTAL AREA(ACRES) =       76.9
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    919.00 =    7203.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    919.00 TO NODE    925.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   550.00  DOWNSTREAM(FEET) =   539.00
  FLOW LENGTH(FEET) =   733.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  51.0 INCH PIPE IS  41.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.77
  ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     195.29
  PIPE TRAVEL TIME(MIN.) =   0.77    Tc(MIN.) =   12.59
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    925.00 =    7936.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    937.00 TO NODE    938.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   167.00
  UPSTREAM ELEVATION(FEET) =    727.00
  DOWNSTREAM ELEVATION(FEET) =    720.00
  ELEVATION DIFFERENCE(FEET) =      7.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.209
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    85.96
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.35
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      1.35

****************************************************************************
  FLOW PROCESS FROM NODE    938.00 TO NODE    939.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  720.00  DOWNSTREAM ELEVATION(FEET) =  616.00
  STREET LENGTH(FEET) =  1706.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.76
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.58
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.13
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.53
  STREET FLOW TRAVEL TIME(MIN.) =   5.54   Tc(MIN.) =    8.75
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.591
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    3.99      SUBAREA RUNOFF(CFS) =   14.47
  TOTAL AREA(ACRES) =        4.2        PEAK FLOW RATE(CFS) =      15.41

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  11.02
  FLOW VELOCITY(FEET/SEC.) =  5.79   DEPTH*VELOCITY(FT*FT/SEC.) =   2.01
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    939.00 =    1873.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    939.00 TO NODE    940.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   615.00  DOWNSTREAM(FEET) =   609.00
  FLOW LENGTH(FEET) =   632.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.28
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.41
  PIPE TRAVEL TIME(MIN.) =   1.45    Tc(MIN.) =   10.20
```

```
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    940.00 =    2505.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    940.00 TO NODE    940.00 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.) =   10.20
  RAINFALL INTENSITY(INCH/HR) =   4.16
  TOTAL STREAM AREA(ACRES) =     4.25
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.41

****************************************************************************
  FLOW PROCESS FROM NODE    943.00 TO NODE    944.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   114.00
  UPSTREAM ELEVATION(FEET) =    619.00
  DOWNSTREAM ELEVATION(FEET) =    617.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.172
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    81.32
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.93
  TOTAL AREA(ACRES) =      0.37   TOTAL RUNOFF(CFS) =      1.93

****************************************************************************
  FLOW PROCESS FROM NODE    944.00 TO NODE    940.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   917.00  DOWNSTREAM(FEET) =   610.00
  FLOW LENGTH(FEET) =   469.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.03
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.93
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =    4.58
  LONGEST FLOWPATH FROM NODE    943.00 TO NODE    940.00 =     583.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    944.00 TO NODE    940.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    2.20   SUBAREA RUNOFF(CFS) =   11.45
  TOTAL AREA(ACRES) =        2.6   TOTAL RUNOFF(CFS) =      13.37
  TC(MIN.) =    4.58

****************************************************************************
  FLOW PROCESS FROM NODE    940.00 TO NODE    940.00 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.) =    4.58
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     2.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.37

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       15.41    10.20        4.159          4.25
      2       13.37     4.58        6.587          2.57

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       20.30     4.58       6.587
      2       23.86    10.20       4.159

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      23.86   Tc(MIN.) =   10.20
  TOTAL AREA(ACRES) =        6.8
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    940.00 =    2505.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    940.00 TO NODE    945.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   609.00  DOWNSTREAM(FEET) =   599.00
  FLOW LENGTH(FEET) =   483.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.85
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      23.86
  PIPE TRAVEL TIME(MIN.) =   0.74    Tc(MIN.) =   10.94
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    945.00 =    2988.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    945.00 TO NODE    945.00 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.) =   10.94
  RAINFALL INTENSITY(INCH/HR) =   3.98
  TOTAL STREAM AREA(ACRES) =     6.82
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     23.86

****************************************************************************
  FLOW PROCESS FROM NODE    946.00 TO NODE    947.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    628.00
  DOWNSTREAM ELEVATION(FEET) =    621.20
  ELEVATION DIFFERENCE(FEET) =      6.80
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.898
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    96.80
```

```
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.99
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.99

****************************************************************************
  FLOW PROCESS FROM NODE    947.00 TO NODE    945.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  621.00  DOWNSTREAM ELEVATION(FEET) =  600.00
  STREET LENGTH(FEET) =  1144.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.98
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.29
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.23
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.14
  STREET FLOW TRAVEL TIME(MIN.) =   5.91   Tc(MIN.) =    8.81
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.571
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    4.29      SUBAREA RUNOFF(CFS) =   15.49
  TOTAL AREA(ACRES) =        4.5        PEAK FLOW RATE(CFS) =      16.18

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  14.34
  FLOW VELOCITY(FEET/SEC.) =  3.72   DEPTH*VELOCITY(FT*FT/SEC.) =   1.54
  LONGEST FLOWPATH FROM NODE    946.00 TO NODE    945.00 =    1244.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    945.00 TO NODE    945.00 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.) =    8.81
  RAINFALL INTENSITY(INCH/HR) =   4.57
  TOTAL STREAM AREA(ACRES) =     4.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.18

****************************************************************************
  FLOW PROCESS FROM NODE    948.00 TO NODE    949.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   113.00
  UPSTREAM ELEVATION(FEET) =    610.00
  DOWNSTREAM ELEVATION(FEET) =    608.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.166
```

```
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    81.55
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE    949.00 TO NODE    945.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   609.00  DOWNSTREAM(FEET) =   602.00
  FLOW LENGTH(FEET) =   391.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.27
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.88
  PIPE TRAVEL TIME(MIN.) =   1.53    Tc(MIN.) =    5.69
  LONGEST FLOWPATH FROM NODE    948.00 TO NODE    945.00 =     504.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    949.00 TO NODE    945.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.058
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    2.24   SUBAREA RUNOFF(CFS) =   10.72
  TOTAL AREA(ACRES) =        2.4   TOTAL RUNOFF(CFS) =      11.53
  TC(MIN.) =    5.69

****************************************************************************
  FLOW PROCESS FROM NODE    945.00 TO NODE    945.00 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.) =    5.69
  RAINFALL INTENSITY(INCH/HR) =   6.06
  TOTAL STREAM AREA(ACRES) =     2.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.53

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       23.86    10.94        3.975          6.82
      2       16.18     8.81        4.571          4.48
      3       11.53     5.69        6.058          2.41

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       37.64     5.69       6.058
      2       45.63     8.81       4.571
      3       45.50    10.94       3.975

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      45.63   Tc(MIN.) =    8.81
```

```
  TOTAL AREA(ACRES) =       13.7
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    945.00 =    2988.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    945.00 TO NODE    950.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   600.00  DOWNSTREAM(FEET) =   599.00
  FLOW LENGTH(FEET) =    53.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.23
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      45.63
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    8.88
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    950.00 =    3041.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    950.00 TO NODE    950.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    952.00 TO NODE    953.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    52.00
  UPSTREAM ELEVATION(FEET) =    622.00
  DOWNSTREAM ELEVATION(FEET) =    620.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.568
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.83
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.83

****************************************************************************
  FLOW PROCESS FROM NODE    953.00 TO NODE    954.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   622.00  DOWNSTREAM(FEET) =   618.00
  FLOW LENGTH(FEET) =   271.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.91
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.83
  PIPE TRAVEL TIME(MIN.) =   1.16    Tc(MIN.) =    3.72
  LONGEST FLOWPATH FROM NODE    952.00 TO NODE    954.00 =     323.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    953.00 TO NODE    954.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.47   SUBAREA RUNOFF(CFS) =    7.65
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       8.48
```

```
  TC(MIN.) =    3.72

****************************************************************************
  FLOW PROCESS FROM NODE    954.00 TO NODE    955.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   618.00  DOWNSTREAM(FEET) =   608.00
  FLOW LENGTH(FEET) =   532.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.14
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.48
  PIPE TRAVEL TIME(MIN.) =   1.09    Tc(MIN.) =    4.81
  LONGEST FLOWPATH FROM NODE    952.00 TO NODE    955.00 =     855.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    955.00 TO NODE    955.00 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.) =    4.81
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.48

****************************************************************************
  FLOW PROCESS FROM NODE    957.00 TO NODE    958.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    83.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    618.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.792
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.83
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.83

****************************************************************************
  FLOW PROCESS FROM NODE    958.00 TO NODE    955.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   618.00  DOWNSTREAM(FEET) =   608.00
  FLOW LENGTH(FEET) =   498.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.37
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.83
  PIPE TRAVEL TIME(MIN.) =   1.90    Tc(MIN.) =    5.69
  LONGEST FLOWPATH FROM NODE    957.00 TO NODE    955.00 =     581.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    958.00 TO NODE    955.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.060
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    2.73   SUBAREA RUNOFF(CFS) =   13.07
  TOTAL AREA(ACRES) =        2.9   TOTAL RUNOFF(CFS) =      13.84
  TC(MIN.) =    5.69

****************************************************************************
  FLOW PROCESS FROM NODE    955.00 TO NODE    955.00 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.) =    5.69
  RAINFALL INTENSITY(INCH/HR) =   6.06
  TOTAL STREAM AREA(ACRES) =     2.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.84

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        8.48     4.81        6.587          1.63
      2       13.84     5.69        6.060          2.89

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       20.18     4.81       6.587
      2       21.64     5.69       6.060

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      21.64   Tc(MIN.) =    5.69
  TOTAL AREA(ACRES) =        4.5
  LONGEST FLOWPATH FROM NODE    952.00 TO NODE    955.00 =     855.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    955.00 TO NODE    950.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   608.00  DOWNSTREAM(FEET) =   598.00
  FLOW LENGTH(FEET) =   358.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.75
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      21.64
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =    6.20
  LONGEST FLOWPATH FROM NODE    952.00 TO NODE    950.00 =    1213.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    950.00 TO NODE    950.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       21.64     6.20       5.735        4.52
  LONGEST FLOWPATH FROM NODE    952.00 TO NODE    950.00 =    1213.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       45.63     8.88       4.547       13.71
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    950.00 =    3041.00 FEET.
```

```
  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      53.48       6.20        5.735
      2      62.79       8.88        4.547

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      62.79   Tc(MIN.) =    8.88
  TOTAL AREA(ACRES) =       18.2

****************************************************************************
  FLOW PROCESS FROM NODE    950.00 TO NODE    950.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    950.00 TO NODE    959.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   599.00  DOWNSTREAM(FEET) =   592.00
  FLOW LENGTH(FEET) =   345.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.57
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      62.79
  PIPE TRAVEL TIME(MIN.) =   0.42    Tc(MIN.) =    9.31
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    959.00 =    3386.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 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.) =    9.31
  RAINFALL INTENSITY(INCH/HR) =   4.41
  TOTAL STREAM AREA(ACRES) =    18.23
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     62.79

****************************************************************************
  FLOW PROCESS FROM NODE    965.00 TO NODE    966.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    83.00
  UPSTREAM ELEVATION(FEET) =    603.00
  DOWNSTREAM ELEVATION(FEET) =    601.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.792
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.73
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
  FLOW PROCESS FROM NODE    966.00 TO NODE    959.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   600.00  DOWNSTREAM(FEET) =   592.00
  FLOW LENGTH(FEET) =   246.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
```

```
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.96
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.73
  PIPE TRAVEL TIME(MIN.) =   0.83    Tc(MIN.) =    4.62
  LONGEST FLOWPATH FROM NODE    965.00 TO NODE    959.00 =     329.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    966.00 TO NODE    959.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.33   SUBAREA RUNOFF(CFS) =    6.92
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       7.65
  TC(MIN.) =    4.62

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 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.) =    4.62
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.65

****************************************************************************
  FLOW PROCESS FROM NODE    969.00 TO NODE    970.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    622.00
  DOWNSTREAM ELEVATION(FEET) =    620.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.843
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    66.67
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE    970.00 TO NODE    959.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  620.00  DOWNSTREAM ELEVATION(FEET) =  592.00
  STREET LENGTH(FEET) =  1125.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
```

```
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.15
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    8.30
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.19
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.93
  STREET FLOW TRAVEL TIME(MIN.) =   5.87   Tc(MIN.) =    9.71
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.292
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    2.56      SUBAREA RUNOFF(CFS) =    8.68
  TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       9.12

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  10.64
  FLOW VELOCITY(FEET/SEC.) =  3.65   DEPTH*VELOCITY(FT*FT/SEC.) =   1.24
  LONGEST FLOWPATH FROM NODE    969.00 TO NODE    959.00 =    1245.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 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.) =    9.71
  RAINFALL INTENSITY(INCH/HR) =   4.29
  TOTAL STREAM AREA(ACRES) =     2.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.12

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       62.79     9.31        4.412         18.23
      2        7.65     4.62        6.587          1.47
      3        9.12     9.71        4.292          2.69

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       43.15     4.62       6.587
      2       76.65     9.31       4.412
      3       75.19     9.71       4.292

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      76.65   Tc(MIN.) =    9.31
  TOTAL AREA(ACRES) =       22.4
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    959.00 =    3386.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    961.00 TO NODE    962.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
```

```
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    598.00
  DOWNSTREAM ELEVATION(FEET) =    596.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.358
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.396
  SUBAREA RUNOFF(CFS) =      0.29
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.29

****************************************************************************
  FLOW PROCESS FROM NODE    962.00 TO NODE    959.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    596.00  DOWNSTREAM(FEET) =    580.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   780.00   CHANNEL SLOPE =  0.0205
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.608
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.57
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.87
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   3.36
  Tc(MIN.) =   12.71
  SUBAREA AREA(ACRES) =     8.25       SUBAREA RUNOFF(CFS) =   10.42
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        8.4         PEAK FLOW RATE(CFS) =      10.66

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.23   FLOW VELOCITY(FEET/SEC.) =   4.98
  LONGEST FLOWPATH FROM NODE    961.00 TO NODE    959.00 =     865.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       10.66    12.71       3.608        8.44
  LONGEST FLOWPATH FROM NODE    961.00 TO NODE    959.00 =     865.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       76.65     9.31       4.412       22.39
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    959.00 =    3386.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      84.45       9.31        4.412
      2      73.33      12.71        3.608

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      84.45   Tc(MIN.) =    9.31
  TOTAL AREA(ACRES) =       30.8

****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    959.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    959.00 TO NODE    960.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   599.00  DOWNSTREAM(FEET) =   597.00
  FLOW LENGTH(FEET) =    55.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.18
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      84.45
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    9.36
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    960.00 =    3441.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    960.00 TO NODE    960.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    972.00 TO NODE    973.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    618.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.485
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.57
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.57

****************************************************************************
  FLOW PROCESS FROM NODE    973.00 TO NODE    974.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   618.00  DOWNSTREAM(FEET) =   614.00
  FLOW LENGTH(FEET) =   283.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.46
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.57
  PIPE TRAVEL TIME(MIN.) =   1.36    Tc(MIN.) =    4.85
  LONGEST FLOWPATH FROM NODE    972.00 TO NODE    974.00 =     358.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    973.00 TO NODE    974.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.34   SUBAREA RUNOFF(CFS) =    6.97
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       7.55
  TC(MIN.) =    4.85

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

```
  FLOW PROCESS FROM NODE    974.00 TO NODE    975.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   614.00  DOWNSTREAM(FEET) =   602.00
  FLOW LENGTH(FEET) =   470.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.89
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.55
  PIPE TRAVEL TIME(MIN.) =   0.88    Tc(MIN.) =    5.73
  LONGEST FLOWPATH FROM NODE    972.00 TO NODE    975.00 =     828.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    975.00 TO NODE    975.00 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.) =    5.73
  RAINFALL INTENSITY(INCH/HR) =   6.03
  TOTAL STREAM AREA(ACRES) =     1.45
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.55

****************************************************************************
  FLOW PROCESS FROM NODE    977.00 TO NODE    978.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    613.00
  DOWNSTREAM ELEVATION(FEET) =    610.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.478
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE    978.00 TO NODE    975.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   610.00  DOWNSTREAM(FEET) =   602.00
  FLOW LENGTH(FEET) =   283.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.53
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.62
  PIPE TRAVEL TIME(MIN.) =   1.04    Tc(MIN.) =    4.52
  LONGEST FLOWPATH FROM NODE    977.00 TO NODE    975.00 =     371.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    978.00 TO NODE    975.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.33   SUBAREA RUNOFF(CFS) =    6.92
  TOTAL AREA(ACRES) =       1.5   TOTAL RUNOFF(CFS) =      7.55
  TC(MIN.) =    4.52

****************************************************************************
  FLOW PROCESS FROM NODE    975.00 TO NODE    975.00 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.) =    4.52
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.45
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.55

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        7.55     5.73        6.033          1.45
      2        7.55     4.52        6.587          1.45

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       13.50     4.52       6.587
      2       14.46     5.73       6.033

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      14.46   Tc(MIN.) =    5.73
  TOTAL AREA(ACRES) =        2.9
  LONGEST FLOWPATH FROM NODE    972.00 TO NODE    975.00 =     828.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    975.00 TO NODE    960.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   603.00  DOWNSTREAM(FEET) =   599.00
  FLOW LENGTH(FEET) =   348.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.58
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.46
  PIPE TRAVEL TIME(MIN.) =   0.77    Tc(MIN.) =    6.49
  LONGEST FLOWPATH FROM NODE    972.00 TO NODE    960.00 =    1176.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    960.00 TO NODE    960.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       14.46     6.49       5.565        2.90
  LONGEST FLOWPATH FROM NODE    972.00 TO NODE    960.00 =    1176.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       84.45     9.36       4.397       30.83
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    960.00 =    3441.00 FEET.
```

```
  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      73.08       6.49        5.565
      2      95.87       9.36        4.397

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      95.87   Tc(MIN.) =    9.36
  TOTAL AREA(ACRES) =       33.7

****************************************************************************
  FLOW PROCESS FROM NODE    960.00 TO NODE    960.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    960.00 TO NODE    979.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   592.00  DOWNSTREAM(FEET) =   587.00
  FLOW LENGTH(FEET) =   357.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  29.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.18
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      95.87
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    9.81
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    979.00 =    3798.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    979.00 TO NODE    979.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    981.00 TO NODE    982.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    670.00
  DOWNSTREAM ELEVATION(FEET) =    660.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.590
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.56
  TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      1.56

****************************************************************************
  FLOW PROCESS FROM NODE    982.00 TO NODE    983.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   660.00  DOWNSTREAM(FEET) =   622.00
  FLOW LENGTH(FEET) =   294.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.13
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.56
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =    3.07
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    983.00 =     394.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    982.00 TO NODE    983.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.72   SUBAREA RUNOFF(CFS) =    8.95
  TOTAL AREA(ACRES) =        2.0   TOTAL RUNOFF(CFS) =      10.51
  TC(MIN.) =    3.07

****************************************************************************
  FLOW PROCESS FROM NODE    983.00 TO NODE    984.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   622.00  DOWNSTREAM(FEET) =   612.00
  FLOW LENGTH(FEET) =   525.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.58
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.51
  PIPE TRAVEL TIME(MIN.) =   1.02    Tc(MIN.) =    4.09
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    984.00 =     919.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    984.00 TO NODE    984.00 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.) =    4.09
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     2.02
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.51

****************************************************************************
  FLOW PROCESS FROM NODE    987.00 TO NODE    988.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   115.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    618.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.082
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    77.39
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.99
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.99

****************************************************************************
  FLOW PROCESS FROM NODE    988.00 TO NODE    984.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   619.00  DOWNSTREAM(FEET) =   613.00
  FLOW LENGTH(FEET) =   258.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.84
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.99
  PIPE TRAVEL TIME(MIN.) =   0.89    Tc(MIN.) =    4.97
  LONGEST FLOWPATH FROM NODE    987.00 TO NODE    984.00 =     373.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    988.00 TO NODE    984.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    2.52   SUBAREA RUNOFF(CFS) =   13.11
  TOTAL AREA(ACRES) =        2.7   TOTAL RUNOFF(CFS) =      14.10
  TC(MIN.) =    4.97

****************************************************************************
  FLOW PROCESS FROM NODE    984.00 TO NODE    984.00 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.) =    4.97
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     2.71
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     14.10

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       10.51     4.09        6.587          2.02
      2       14.10     4.97        6.587          2.71

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       22.13     4.09       6.587
      2       24.61     4.97       6.587

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      24.61   Tc(MIN.) =    4.97
  TOTAL AREA(ACRES) =        4.7
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    984.00 =     919.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    984.00 TO NODE    989.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   612.00  DOWNSTREAM(FEET) =   605.00
  FLOW LENGTH(FEET) =   335.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.95
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      24.61
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =    5.48
```

```
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    989.00 =    1254.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    989.00 TO NODE    989.00 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.) =    5.48
  RAINFALL INTENSITY(INCH/HR) =   6.21
  TOTAL STREAM AREA(ACRES) =     4.73
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     24.61

****************************************************************************
  FLOW PROCESS FROM NODE    991.00 TO NODE    992.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
  UPSTREAM ELEVATION(FEET) =    614.00
  DOWNSTREAM ELEVATION(FEET) =    612.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.677
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.83
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.83

****************************************************************************
  FLOW PROCESS FROM NODE    992.00 TO NODE    989.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   612.00  DOWNSTREAM(FEET) =   606.00
  FLOW LENGTH(FEET) =   264.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.57
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.83
  PIPE TRAVEL TIME(MIN.) =   0.96    Tc(MIN.) =    4.64
  LONGEST FLOWPATH FROM NODE    991.00 TO NODE    989.00 =     344.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    992.00 TO NODE    989.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.53   SUBAREA RUNOFF(CFS) =    7.96
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       8.79
  TC(MIN.) =    4.64

****************************************************************************
  FLOW PROCESS FROM NODE    989.00 TO NODE    989.00 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.) =    4.64
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.79

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       24.61     5.48        6.208          4.73
      2        8.79     4.64        6.587          1.69

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       31.99     4.64       6.587
      2       32.90     5.48       6.208

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      32.90   Tc(MIN.) =    5.48
  TOTAL AREA(ACRES) =        6.4
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    989.00 =    1254.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    989.00 TO NODE    993.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   608.00  DOWNSTREAM(FEET) =   597.00
  FLOW LENGTH(FEET) =   398.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  18.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.89
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      32.90
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =    6.00
  LONGEST FLOWPATH FROM NODE    981.00 TO NODE    993.00 =    1652.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    993.00 TO NODE    993.00 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.) =    6.00
  RAINFALL INTENSITY(INCH/HR) =   5.86
  TOTAL STREAM AREA(ACRES) =     6.42
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     32.90

****************************************************************************
  FLOW PROCESS FROM NODE    995.00 TO NODE    996.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   122.00
  UPSTREAM ELEVATION(FEET) =    604.00
  DOWNSTREAM ELEVATION(FEET) =    602.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.136
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    76.39
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
```

```
  SUBAREA RUNOFF(CFS) =      0.73
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
  FLOW PROCESS FROM NODE    996.00 TO NODE    993.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   603.00  DOWNSTREAM(FEET) =   597.00
  FLOW LENGTH(FEET) =   298.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.21
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.73
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =    5.32
  LONGEST FLOWPATH FROM NODE    995.00 TO NODE    993.00 =     420.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    996.00 TO NODE    993.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.332
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.33   SUBAREA RUNOFF(CFS) =    6.65
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       7.35
  TC(MIN.) =    5.32

****************************************************************************
  FLOW PROCESS FROM NODE    993.00 TO NODE    993.00 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.) =    5.32
  RAINFALL INTENSITY(INCH/HR) =   6.33
  TOTAL STREAM AREA(ACRES) =     1.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.35

****************************************************************************
  FLOW PROCESS FROM NODE    998.00 TO NODE    999.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   170.00
  UPSTREAM ELEVATION(FEET) =    725.00
  DOWNSTREAM ELEVATION(FEET) =    720.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.575
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    79.41
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.52
  TOTAL AREA(ACRES) =      0.44   TOTAL RUNOFF(CFS) =      2.52

****************************************************************************
  FLOW PROCESS FROM NODE    999.00 TO NODE    993.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  720.00  DOWNSTREAM ELEVATION(FEET) =  595.00
  STREET LENGTH(FEET) =  2373.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.47
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.77
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.78
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.44
  STREET FLOW TRAVEL TIME(MIN.) =   8.28   Tc(MIN.) =   10.85
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.996
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    3.29      SUBAREA RUNOFF(CFS) =   11.44
  TOTAL AREA(ACRES) =        3.7        PEAK FLOW RATE(CFS) =      12.97

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  10.55
  FLOW VELOCITY(FEET/SEC.) =  5.27   DEPTH*VELOCITY(FT*FT/SEC.) =   1.78
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE    993.00 =    2543.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    993.00 TO NODE    993.00 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.) =   10.85
  RAINFALL INTENSITY(INCH/HR) =   4.00
  TOTAL STREAM AREA(ACRES) =     3.73
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.97

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       32.90     6.00        5.859          6.42
      2        7.35     5.32        6.332          1.47
      3       12.97    10.85        3.996          3.73

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       44.15     5.32       6.332
      2       46.87     6.00       5.859
      3       40.04    10.85       3.996

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      46.87   Tc(MIN.) =    6.00
  TOTAL AREA(ACRES) =       11.6
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE    993.00 =    2543.00 FEET.

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

```
  FLOW PROCESS FROM NODE    993.00 TO NODE   1000.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   595.00  DOWNSTREAM(FEET) =   589.00
  FLOW LENGTH(FEET) =   360.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  23.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.63
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      46.87
  PIPE TRAVEL TIME(MIN.) =   0.52    Tc(MIN.) =    6.51
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE   1000.00 =    2903.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1000.00 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.) =    6.51
  RAINFALL INTENSITY(INCH/HR) =   5.56
  TOTAL STREAM AREA(ACRES) =    11.62
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     46.87

****************************************************************************
  FLOW PROCESS FROM NODE   1002.00 TO NODE   1003.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   108.00
  UPSTREAM ELEVATION(FEET) =    597.00
  DOWNSTREAM ELEVATION(FEET) =    595.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.026
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    78.52
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE   1003.00 TO NODE   1000.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   595.00  DOWNSTREAM(FEET) =   591.00
  FLOW LENGTH(FEET) =   239.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.75
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.62
  PIPE TRAVEL TIME(MIN.) =   1.06    Tc(MIN.) =    5.09
  LONGEST FLOWPATH FROM NODE   1002.00 TO NODE   1000.00 =     347.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1003.00 TO NODE   1000.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.512
  *USER SPECIFIED(SUBAREA):
```

```
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.38   SUBAREA RUNOFF(CFS) =    7.10
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =       7.72
  TC(MIN.) =    5.09

****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1000.00 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.) =    5.09
  RAINFALL INTENSITY(INCH/HR) =   6.51
  TOTAL STREAM AREA(ACRES) =     1.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.72

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       46.87     6.51        5.555         11.62
      2        7.72     5.09        6.512          1.50

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       47.70     5.09       6.512
      2       53.45     6.51       5.555

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      53.45   Tc(MIN.) =    6.51
  TOTAL AREA(ACRES) =       13.1
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE   1000.00 =    2903.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE    979.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   589.00  DOWNSTREAM(FEET) =   587.00
  FLOW LENGTH(FEET) =    68.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.11
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      53.45
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    6.59
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE    979.00 =    2971.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    979.00 TO NODE    979.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       53.45     6.59       5.514       13.12
  LONGEST FLOWPATH FROM NODE    998.00 TO NODE    979.00 =    2971.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       95.87     9.81       4.265       33.73
```

```
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    979.00 =    3798.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     117.83       6.59        5.514
      2     137.22       9.81        4.265

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     137.22   Tc(MIN.) =    9.81
  TOTAL AREA(ACRES) =       46.8

****************************************************************************
  FLOW PROCESS FROM NODE    979.00 TO NODE    979.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    979.00 TO NODE   1004.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   589.00  DOWNSTREAM(FEET) =   575.00
  FLOW LENGTH(FEET) =   608.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  32.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.13
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     137.22
  PIPE TRAVEL TIME(MIN.) =   0.59    Tc(MIN.) =   10.40
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE   1004.00 =    4406.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1004.00 TO NODE   1004.00 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.) =   10.40
  RAINFALL INTENSITY(INCH/HR) =   4.11
  TOTAL STREAM AREA(ACRES) =    46.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    137.22

****************************************************************************
  FLOW PROCESS FROM NODE   1011.00 TO NODE   1012.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    590.00
  DOWNSTREAM ELEVATION(FEET) =    588.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.718
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    78.53
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.73
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
  FLOW PROCESS FROM NODE   1012.00 TO NODE   1004.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   588.00  DOWNSTREAM(FEET) =   584.00
  FLOW LENGTH(FEET) =   255.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.85
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.73
  PIPE TRAVEL TIME(MIN.) =   1.10    Tc(MIN.) =    4.82
  LONGEST FLOWPATH FROM NODE   1011.00 TO NODE   1004.00 =     340.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1012.00 TO NODE   1004.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.40   SUBAREA RUNOFF(CFS) =    7.29
  TOTAL AREA(ACRES) =        1.5   TOTAL RUNOFF(CFS) =      8.01
  TC(MIN.) =    4.82

****************************************************************************
  FLOW PROCESS FROM NODE   1004.00 TO NODE   1004.00 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.) =    4.82
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.01

****************************************************************************
  FLOW PROCESS FROM NODE   1007.00 TO NODE   1008.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   142.00
  UPSTREAM ELEVATION(FEET) =    609.00
  DOWNSTREAM ELEVATION(FEET) =    606.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.721
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    71.13
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
  FLOW PROCESS FROM NODE   1008.00 TO NODE   1004.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  602.00  DOWNSTREAM ELEVATION(FEET) =  575.00
  STREET LENGTH(FEET) =  1333.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00
```

```
  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.33
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.08
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.23
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.06
  STREET FLOW TRAVEL TIME(MIN.) =   6.87   Tc(MIN.) =    9.59
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.328
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    3.36      SUBAREA RUNOFF(CFS) =   12.65
  TOTAL AREA(ACRES) =        3.5        PEAK FLOW RATE(CFS) =      13.18

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.78   DEPTH*VELOCITY(FT*FT/SEC.) =   1.44
  LONGEST FLOWPATH FROM NODE   1007.00 TO NODE   1004.00 =    1475.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1004.00 TO NODE   1004.00 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.) =    9.59
  RAINFALL INTENSITY(INCH/HR) =   4.33
  TOTAL STREAM AREA(ACRES) =     3.50
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.18

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      137.22    10.40        4.107         46.85
      2        8.01     4.82        6.587          1.54
      3       13.18     9.59        4.328          3.50

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       78.24     4.82       6.587
      2      144.98     9.59       4.328
      3      154.72    10.40       4.107

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     154.72   Tc(MIN.) =   10.40
  TOTAL AREA(ACRES) =       51.9
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE   1004.00 =    4406.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1004.00 TO NODE   1009.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   575.00  DOWNSTREAM(FEET) =   571.00
```

```
  FLOW LENGTH(FEET) =   122.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  31.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.31
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     154.72
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   10.50
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE   1009.00 =    4528.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1009.00 TO NODE   1009.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   1016.00 TO NODE   1017.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =    587.00
  DOWNSTREAM ELEVATION(FEET) =    586.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.604
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.96
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.99
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.99

****************************************************************************
  FLOW PROCESS FROM NODE   1017.00 TO NODE   1013.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   587.00  DOWNSTREAM(FEET) =   577.00
  FLOW LENGTH(FEET) =   451.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.77
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.99
  PIPE TRAVEL TIME(MIN.) =   1.58    Tc(MIN.) =    6.18
  LONGEST FLOWPATH FROM NODE   1016.00 TO NODE   1013.00 =     545.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1017.00 TO NODE   1013.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.746
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    4.18   SUBAREA RUNOFF(CFS) =   18.97
  TOTAL AREA(ACRES) =        4.4   TOTAL RUNOFF(CFS) =      19.84
  TC(MIN.) =    6.18

****************************************************************************
  FLOW PROCESS FROM NODE   1013.00 TO NODE   1009.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   570.00  DOWNSTREAM(FEET) =   568.00
  FLOW LENGTH(FEET) =    48.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.12
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.84
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    6.24
  LONGEST FLOWPATH FROM NODE   1016.00 TO NODE   1009.00 =     593.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1009.00 TO NODE   1009.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       19.84     6.24       5.709        4.37
  LONGEST FLOWPATH FROM NODE   1016.00 TO NODE   1009.00 =     593.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      154.72    10.50       4.082       51.89
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE   1009.00 =    4528.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     111.80       6.24        5.709
      2     168.90      10.50        4.082

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     168.90   Tc(MIN.) =   10.50
  TOTAL AREA(ACRES) =       56.3

****************************************************************************
  FLOW PROCESS FROM NODE   1009.00 TO NODE   1009.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   1009.00 TO NODE    934.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   570.00  DOWNSTREAM(FEET) =   539.00
  FLOW LENGTH(FEET) =  1059.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  32.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.99
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     168.90
  PIPE TRAVEL TIME(MIN.) =   0.88    Tc(MIN.) =   11.38
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    934.00 =    5587.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    934.00 TO NODE    934.00 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.) =   11.38
  RAINFALL INTENSITY(INCH/HR) =   3.87
  TOTAL STREAM AREA(ACRES) =    56.26
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    168.90
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    928.00 TO NODE    929.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   212.00
  UPSTREAM ELEVATION(FEET) =    573.00
  DOWNSTREAM ELEVATION(FEET) =    568.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.596
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    73.58
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.81
  TOTAL AREA(ACRES) =      0.54   TOTAL RUNOFF(CFS) =      2.81

****************************************************************************
  FLOW PROCESS FROM NODE    929.00 TO NODE    934.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  568.00  DOWNSTREAM ELEVATION(FEET) =  539.00
  STREET LENGTH(FEET) =  1049.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      19.10
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.40
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.83
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.94
  STREET FLOW TRAVEL TIME(MIN.) =   3.62   Tc(MIN.) =    7.21
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.200
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    7.75      SUBAREA RUNOFF(CFS) =   31.84
  TOTAL AREA(ACRES) =        8.3        PEAK FLOW RATE(CFS) =      34.06

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.47   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  6.09   DEPTH*VELOCITY(FT*FT/SEC.) =   2.86
  LONGEST FLOWPATH FROM NODE    928.00 TO NODE    934.00 =    1261.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    934.00 TO NODE    934.00 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.) =    7.21
  RAINFALL INTENSITY(INCH/HR) =   5.20
```

```
  TOTAL STREAM AREA(ACRES) =     8.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     34.06

****************************************************************************
  FLOW PROCESS FROM NODE    932.00 TO NODE    933.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    557.50
  DOWNSTREAM ELEVATION(FEET) =    556.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.836
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.13
  TOTAL AREA(ACRES) =      0.41   TOTAL RUNOFF(CFS) =      2.13

****************************************************************************
  FLOW PROCESS FROM NODE    993.00 TO NODE    934.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   556.00  DOWNSTREAM(FEET) =   540.00
  FLOW LENGTH(FEET) =   807.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.74
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.13
  PIPE TRAVEL TIME(MIN.) =   2.34    Tc(MIN.) =    6.18
  LONGEST FLOWPATH FROM NODE    932.00 TO NODE    934.00 =     882.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    933.00 TO NODE    934.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.745
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    9.07   SUBAREA RUNOFF(CFS) =   41.17
  TOTAL AREA(ACRES) =        9.5   TOTAL RUNOFF(CFS) =      43.03
  TC(MIN.) =    6.18

****************************************************************************
  FLOW PROCESS FROM NODE    934.00 TO NODE    934.00 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.) =    6.18
  RAINFALL INTENSITY(INCH/HR) =   5.75
  TOTAL STREAM AREA(ACRES) =     9.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     43.03

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      168.90    11.38        3.875         56.26
      2       34.06     7.21        5.200          8.29
      3       43.03     6.18        5.745          9.48
```

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      163.92     6.18       5.745
      2      180.03     7.21       5.200
      3      223.30    11.38       3.875

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     223.30   Tc(MIN.) =   11.38
  TOTAL AREA(ACRES) =       74.0
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    934.00 =    5587.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    934.00 TO NODE    925.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   539.00  DOWNSTREAM(FEET) =   538.00
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  60.0 INCH PIPE IS  46.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.77
  ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     223.30
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   11.51
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    925.00 =    5695.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   1020.00 TO NODE   1021.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   180.00
  UPSTREAM ELEVATION(FEET) =   1005.00
  DOWNSTREAM ELEVATION(FEET) =    995.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.231
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    91.11
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE   1021.00 TO NODE   1022.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  995.00  DOWNSTREAM ELEVATION(FEET) =  810.00
  STREET LENGTH(FEET) =  1521.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020
```

```
  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.25
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    6.14
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.32
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.57
  STREET FLOW TRAVEL TIME(MIN.) =   4.01   Tc(MIN.) =    6.25
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.707
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.93      SUBAREA RUNOFF(CFS) =    9.58
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =      10.82

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   8.11
  FLOW VELOCITY(FEET/SEC.) =  6.98   DEPTH*VELOCITY(FT*FT/SEC.) =   2.01
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1022.00 =    1701.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1022.00 TO NODE   1023.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   810.00  DOWNSTREAM(FEET) =   635.00
  FLOW LENGTH(FEET) =  1279.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   6.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.13
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.82
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =    7.42
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1023.00 =    2980.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1023.00 TO NODE   1023.00 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.) =    7.42
  RAINFALL INTENSITY(INCH/HR) =   5.11
  TOTAL STREAM AREA(ACRES) =     2.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.82

****************************************************************************
  FLOW PROCESS FROM NODE   1026.00 TO NODE   1027.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   180.00
  UPSTREAM ELEVATION(FEET) =    810.00
  DOWNSTREAM ELEVATION(FEET) =    790.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    1.922
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
SUBAREA RUNOFF(CFS) =      0.86
TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.86

****************************************************************************
FLOW PROCESS FROM NODE   1027.00 TO NODE   1023.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  790.00  DOWNSTREAM ELEVATION(FEET) =  635.00
STREET LENGTH(FEET) =  1146.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 12.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.020
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.04
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.23
  HALFSTREET FLOOD WIDTH(FEET) =    5.33
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.27
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.46
STREET FLOW TRAVEL TIME(MIN.) =   3.05   Tc(MIN.) =    4.97
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
*USER SPECIFIED(SUBAREA):
GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
SUBAREA AREA(ACRES) =    1.46      SUBAREA RUNOFF(CFS) =    8.37
TOTAL AREA(ACRES) =        1.6        PEAK FLOW RATE(CFS) =       9.23

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.27   HALFSTREET FLOOD WIDTH(FEET) =   7.27
FLOW VELOCITY(FEET/SEC.) =  7.14   DEPTH*VELOCITY(FT*FT/SEC.) =   1.94
LONGEST FLOWPATH FROM NODE   1026.00 TO NODE   1023.00 =    1326.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   1023.00 TO NODE   1023.00 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.) =    4.97
RAINFALL INTENSITY(INCH/HR) =   6.59
TOTAL STREAM AREA(ACRES) =     1.61
PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.23

** CONFLUENCE DATA **
STREAM     RUNOFF       Tc      INTENSITY      AREA
NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
    1       10.82     7.42        5.106         2.18
    2        9.23     4.97        6.587         1.61

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

** PEAK FLOW RATE TABLE **
STREAM     RUNOFF      Tc      INTENSITY
NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
    1       16.47     4.97       6.587
```

```
     2       17.97     7.42       5.106

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      17.97   Tc(MIN.) =    7.42
  TOTAL AREA(ACRES) =        3.8
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1023.00 =    2980.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1023.00 TO NODE   1024.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   638.00  DOWNSTREAM(FEET) =   602.00
  FLOW LENGTH(FEET) =  1499.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.69
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.97
  PIPE TRAVEL TIME(MIN.) =   2.34    Tc(MIN.) =    9.76
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1024.00 =    4479.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1024.00 TO NODE   1024.00 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.) =    9.76
  RAINFALL INTENSITY(INCH/HR) =   4.28
  TOTAL STREAM AREA(ACRES) =     3.79
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.97

****************************************************************************
  FLOW PROCESS FROM NODE   1027.00 TO NODE   1028.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   194.00
  UPSTREAM ELEVATION(FEET) =    990.00
  DOWNSTREAM ELEVATION(FEET) =    970.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.590
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      4.63
  TOTAL AREA(ACRES) =      0.89   TOTAL RUNOFF(CFS) =      4.63

****************************************************************************
  FLOW PROCESS FROM NODE   1028.00 TO NODE   1024.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   614.00  DOWNSTREAM(FEET) =   598.00
  FLOW LENGTH(FEET) =   800.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.15
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.63
  PIPE TRAVEL TIME(MIN.) =   1.87    Tc(MIN.) =    4.46
  LONGEST FLOWPATH FROM NODE   1027.00 TO NODE   1024.00 =     994.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   1028.00 TO NODE   1024.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =   16.45   SUBAREA RUNOFF(CFS) =   85.60
  TOTAL AREA(ACRES) =       17.3   TOTAL RUNOFF(CFS) =      90.23
  TC(MIN.) =    4.46

****************************************************************************
  FLOW PROCESS FROM NODE   1024.00 TO NODE   1024.00 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.) =    4.46
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =    17.34
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     90.23

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       17.97     9.76        4.279         3.79
      2       90.23     4.46        6.587        17.34

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      101.91     4.46       6.587
      2       76.59     9.76       4.279

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     101.91   Tc(MIN.) =    4.46
  TOTAL AREA(ACRES) =       21.1
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1024.00 =    4479.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1024.00 TO NODE   1029.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   600.00  DOWNSTREAM(FEET) =   575.00
  FLOW LENGTH(FEET) =   699.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  25.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.01
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     101.91
  PIPE TRAVEL TIME(MIN.) =   0.61    Tc(MIN.) =    5.07
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1029.00 =    5178.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1029.00 TO NODE   1029.00 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.) =    5.07
  RAINFALL INTENSITY(INCH/HR) =   6.53
  TOTAL STREAM AREA(ACRES) =    21.13
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    101.91

****************************************************************************
  FLOW PROCESS FROM NODE   1032.00 TO NODE   1033.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   193.00
  UPSTREAM ELEVATION(FEET) =    631.00
  DOWNSTREAM ELEVATION(FEET) =    626.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.626
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    75.91
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.66
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.66

****************************************************************************
  FLOW PROCESS FROM NODE   1033.00 TO NODE   1029.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  625.00  DOWNSTREAM ELEVATION(FEET) =  570.00
  STREET LENGTH(FEET) =  1794.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.53
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.33
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.81
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.19
  STREET FLOW TRAVEL TIME(MIN.) =   7.85   Tc(MIN.) =   10.48
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.087
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    3.18      SUBAREA RUNOFF(CFS) =   11.31
  TOTAL AREA(ACRES) =        3.5        PEAK FLOW RATE(CFS) =      12.34

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.58
  FLOW VELOCITY(FEET/SEC.) =  4.23   DEPTH*VELOCITY(FT*FT/SEC.) =   1.51
  LONGEST FLOWPATH FROM NODE   1032.00 TO NODE   1029.00 =    1987.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1029.00 TO NODE   1029.00 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.) =   10.48
  RAINFALL INTENSITY(INCH/HR) =   4.09
  TOTAL STREAM AREA(ACRES) =     3.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.34

****************************************************************************
  FLOW PROCESS FROM NODE   1036.00 TO NODE   1037.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    602.00
  DOWNSTREAM ELEVATION(FEET) =    600.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.076
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    75.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.20
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      1.20

****************************************************************************
  FLOW PROCESS FROM NODE   1037.00 TO NODE   1029.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    598.00  DOWNSTREAM(FEET) =    597.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1256.00   CHANNEL SLOPE =  0.0008
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.879
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.52
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.68
  AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =  30.88
  Tc(MIN.) =   34.95
  SUBAREA AREA(ACRES) =    15.64       SUBAREA RUNOFF(CFS) =   10.29
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.356
  TOTAL AREA(ACRES) =       15.9         PEAK FLOW RATE(CFS) =      10.63

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.14   FLOW VELOCITY(FEET/SEC.) =   0.75
  LONGEST FLOWPATH FROM NODE   1036.00 TO NODE   1029.00 =    1376.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1029.00 TO NODE   1029.00 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.) =   34.95
  RAINFALL INTENSITY(INCH/HR) =   1.88
  TOTAL STREAM AREA(ACRES) =    15.87
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.63

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
```

```
     1      101.91     5.07        6.529         21.13
     2       12.34    10.48        4.087          3.47
     3       10.63    34.95        1.879         15.87

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1      109.42     5.07       6.529
     2       79.31    10.48       4.087
     3       45.63    34.95       1.879

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     109.42   Tc(MIN.) =    5.07
  TOTAL AREA(ACRES) =       40.5
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1029.00 =    5178.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1029.00 TO NODE   1038.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   580.00  DOWNSTREAM(FEET) =   557.00
  FLOW LENGTH(FEET) =   935.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  28.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.74
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     109.42
  PIPE TRAVEL TIME(MIN.) =   0.93    Tc(MIN.) =    6.00
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1038.00 =    6113.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1038.00 TO NODE   1038.00 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.) =    6.00
  RAINFALL INTENSITY(INCH/HR) =   5.86
  TOTAL STREAM AREA(ACRES) =    40.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    109.42

****************************************************************************
  FLOW PROCESS FROM NODE   1040.00 TO NODE   1041.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    570.00
  DOWNSTREAM ELEVATION(FEET) =    567.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.642
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    75.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      1.15

****************************************************************************
  FLOW PROCESS FROM NODE   1041.00 TO NODE   1038.00 IS CODE =  61
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  570.00  DOWNSTREAM ELEVATION(FEET) =  555.00
  STREET LENGTH(FEET) =    94.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.90
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.24
    HALFSTREET FLOOD WIDTH(FEET) =    5.54
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.94
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.65
  STREET FLOW TRAVEL TIME(MIN.) =   0.23   Tc(MIN.) =    2.87
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.66      SUBAREA RUNOFF(CFS) =    9.51
  TOTAL AREA(ACRES) =        1.9        PEAK FLOW RATE(CFS) =      10.66

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.28   HALFSTREET FLOOD WIDTH(FEET) =   7.55
  FLOW VELOCITY(FEET/SEC.) =  7.75   DEPTH*VELOCITY(FT*FT/SEC.) =   2.15
  LONGEST FLOWPATH FROM NODE   1040.00 TO NODE   1038.00 =     214.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1038.00 TO NODE   1038.00 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.) =    2.87
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.66

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      109.42     6.00        5.856         40.47
      2       10.66     2.87        6.587          1.86

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      107.94     2.87       6.587
      2      118.89     6.00       5.856

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     118.89   Tc(MIN.) =    6.00
  TOTAL AREA(ACRES) =       42.3
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1038.00 =    6113.00 FEET.

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

```
  FLOW PROCESS FROM NODE   1038.00 TO NODE   1042.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   557.00  DOWNSTREAM(FEET) =   555.00
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  30.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.83
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     118.89
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    6.11
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1042.00 =    6213.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1042.00 TO NODE   1042.00 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.) =    6.11
  RAINFALL INTENSITY(INCH/HR) =   5.79
  TOTAL STREAM AREA(ACRES) =    42.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    118.89

****************************************************************************
  FLOW PROCESS FROM NODE   1045.00 TO NODE   1046.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    574.00
  DOWNSTREAM ELEVATION(FEET) =    572.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.868
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.94
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.94

****************************************************************************
  FLOW PROCESS FROM NODE   1046.00 TO NODE   1047.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   572.00  DOWNSTREAM(FEET) =   568.00
  FLOW LENGTH(FEET) =   527.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.20
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.94
  PIPE TRAVEL TIME(MIN.) =   2.74    Tc(MIN.) =    6.61
  LONGEST FLOWPATH FROM NODE   1045.00 TO NODE   1047.00 =     612.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1046.00 TO NODE   1047.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.501
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    5.06   SUBAREA RUNOFF(CFS) =   21.99
```

```
  TOTAL AREA(ACRES) =        5.2   TOTAL RUNOFF(CFS) =      22.77
  TC(MIN.) =    6.61

****************************************************************************
  FLOW PROCESS FROM NODE   1047.00 TO NODE   1042.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   568.00  DOWNSTREAM(FEET) =   555.00
  FLOW LENGTH(FEET) =   675.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.44
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      22.77
  PIPE TRAVEL TIME(MIN.) =   1.08    Tc(MIN.) =    7.69
  LONGEST FLOWPATH FROM NODE   1045.00 TO NODE   1042.00 =    1287.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1048.00 TO NODE   1048.00 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.) =    7.69
  RAINFALL INTENSITY(INCH/HR) =   4.99
  TOTAL STREAM AREA(ACRES) =     5.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     22.77

****************************************************************************
  FLOW PROCESS FROM NODE   1051.00 TO NODE   1052.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    96.00
  UPSTREAM ELEVATION(FEET) =    592.00
  DOWNSTREAM ELEVATION(FEET) =    590.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.728
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.83
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
  FLOW PROCESS FROM NODE   1052.00 TO NODE   1042.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  590.00  DOWNSTREAM ELEVATION(FEET) =  555.00
  STREET LENGTH(FEET) =  1573.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.79
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    8.95
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.15
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.96
  STREET FLOW TRAVEL TIME(MIN.) =   8.33   Tc(MIN.) =   11.05
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.949
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    2.78      SUBAREA RUNOFF(CFS) =    9.55
  TOTAL AREA(ACRES) =        2.9        PEAK FLOW RATE(CFS) =      10.03

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  11.30
  FLOW VELOCITY(FEET/SEC.) =  3.60   DEPTH*VELOCITY(FT*FT/SEC.) =   1.27
  LONGEST FLOWPATH FROM NODE   1051.00 TO NODE   1042.00 =    1669.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1042.00 TO NODE   1042.00 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.) =   11.05
  RAINFALL INTENSITY(INCH/HR) =   3.95
  TOTAL STREAM AREA(ACRES) =     2.92
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.03

****************************************************************************
  FLOW PROCESS FROM NODE   1055.00 TO NODE   1056.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   198.00
  UPSTREAM ELEVATION(FEET) =    602.00
  DOWNSTREAM ELEVATION(FEET) =    598.00
  ELEVATION DIFFERENCE(FEET) =      4.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.570
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    80.30
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.333
  SUBAREA RUNOFF(CFS) =      1.38
  TOTAL AREA(ACRES) =      0.91   TOTAL RUNOFF(CFS) =      1.38

****************************************************************************
  FLOW PROCESS FROM NODE   1056.00 TO NODE   1042.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   598.00  DOWNSTREAM(FEET) =   570.00
  FLOW LENGTH(FEET) =  1539.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.89
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.38
  PIPE TRAVEL TIME(MIN.) =   5.24    Tc(MIN.) =   14.81
  LONGEST FLOWPATH FROM NODE   1055.00 TO NODE   1042.00 =    1737.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1056.00 TO NODE   1042.00 IS CODE =  81
```

```
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.269
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =   17.81   SUBAREA RUNOFF(CFS) =   20.38
  TOTAL AREA(ACRES) =       18.7   TOTAL RUNOFF(CFS) =      21.42
  TC(MIN.) =   14.81

****************************************************************************
  FLOW PROCESS FROM NODE   1042.00 TO NODE   1042.00 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.) =   14.81
  RAINFALL INTENSITY(INCH/HR) =   3.27
  TOTAL STREAM AREA(ACRES) =    18.72
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     21.42

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      118.89     6.11        5.791         42.33
      2       22.77     7.69        4.991          5.24
      3       10.03    11.05        3.949          2.92
      4       21.42    14.81        3.269         18.72

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      151.35     6.11       5.791
      2      143.33     7.69       4.991
      3      125.10    11.05       3.949
      4      111.76    14.81       3.269

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     151.35   Tc(MIN.) =    6.11
  TOTAL AREA(ACRES) =       69.2
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE   1042.00 =    6213.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1042.00 TO NODE    925.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   555.00  DOWNSTREAM(FEET) =   540.00
  FLOW LENGTH(FEET) =  1064.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  36.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.63
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     151.35
  PIPE TRAVEL TIME(MIN.) =   1.21    Tc(MIN.) =    7.32
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE    925.00 =    7277.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
```

```
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      151.35     7.32       5.152       69.21
  LONGEST FLOWPATH FROM NODE   1020.00 TO NODE    925.00 =    7277.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      195.29    12.59       3.632       76.87
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    925.00 =    7936.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     264.88       7.32        5.152
      2     301.96      12.59        3.632

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     301.96   Tc(MIN.) =   12.59
  TOTAL AREA(ACRES) =      146.1

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      301.96    12.59       3.632      146.08
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    925.00 =    7936.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      223.30    11.51       3.846       74.03
  LONGEST FLOWPATH FROM NODE    937.00 TO NODE    925.00 =    5695.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     499.53      11.51        3.846
      2     512.79      12.59        3.632

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     512.79   Tc(MIN.) =   12.59
  TOTAL AREA(ACRES) =      220.1

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   1063.00 TO NODE   1064.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
==============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    572.00
  DOWNSTREAM ELEVATION(FEET) =    570.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.613
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.500
  SUBAREA RUNOFF(CFS) =      0.85
  TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      0.85

******************************************************************************
  FLOW PROCESS FROM NODE   1064.00 TO NODE   1065.00 IS CODE =  61
------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) =  570.00  DOWNSTREAM ELEVATION(FEET) =  565.00
  STREET LENGTH(FEET) =   475.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.67
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.45
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.34
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.78
  STREET FLOW TRAVEL TIME(MIN.) =   3.38   Tc(MIN.) =   10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.213
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.570
  SUBAREA AREA(ACRES) =    3.96      SUBAREA RUNOFF(CFS) =    9.51
  TOTAL AREA(ACRES) =        4.2        PEAK FLOW RATE(CFS) =      10.16

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.82   DEPTH*VELOCITY(FT*FT/SEC.) =   1.09
  LONGEST FLOWPATH FROM NODE   1063.00 TO NODE   1065.00 =     560.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE   1065.00 TO NODE   1066.00 IS CODE =  31
------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   565.00  DOWNSTREAM(FEET) =   556.00
  FLOW LENGTH(FEET) =   339.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.70
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.16
  PIPE TRAVEL TIME(MIN.) =   0.58    Tc(MIN.) =   10.58
  LONGEST FLOWPATH FROM NODE   1063.00 TO NODE   1066.00 =     899.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE   1066.00 TO NODE   1066.00 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.) =   10.58
  RAINFALL INTENSITY(INCH/HR) =   4.06
  TOTAL STREAM AREA(ACRES) =     4.23
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.16

****************************************************************************
  FLOW PROCESS FROM NODE   1069.00 TO NODE   1070.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    570.00
  DOWNSTREAM ELEVATION(FEET) =    565.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.850
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE   1070.00 TO NODE   1066.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  566.00  DOWNSTREAM ELEVATION(FEET) =  556.00
  STREET LENGTH(FEET) =   501.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.62
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.05
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.00
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.92
  STREET FLOW TRAVEL TIME(MIN.) =   2.79   Tc(MIN.) =    5.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.098
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  SUBAREA AREA(ACRES) =    1.95      SUBAREA RUNOFF(CFS) =    9.39
  TOTAL AREA(ACRES) =        2.1        PEAK FLOW RATE(CFS) =      10.21

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.67
  FLOW VELOCITY(FEET/SEC.) =  3.45   DEPTH*VELOCITY(FT*FT/SEC.) =   1.24
  LONGEST FLOWPATH FROM NODE   1069.00 TO NODE   1066.00 =     586.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1066.00 TO NODE   1066.00 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.) =    5.64
  RAINFALL INTENSITY(INCH/HR) =   6.10
  TOTAL STREAM AREA(ACRES) =     2.12
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.21

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       10.16    10.58        4.062         4.23
      2       10.21     5.64        6.098         2.12

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       15.62     5.64       6.098
      2       16.96    10.58       4.062

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      16.96   Tc(MIN.) =   10.58
  TOTAL AREA(ACRES) =        6.4
  LONGEST FLOWPATH FROM NODE   1063.00 TO NODE   1066.00 =     899.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1066.00 TO NODE    925.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   550.00  DOWNSTREAM(FEET) =   530.00
  FLOW LENGTH(FEET) =  1017.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.74
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.96
  PIPE TRAVEL TIME(MIN.) =   1.74    Tc(MIN.) =   12.32
  LONGEST FLOWPATH FROM NODE   1063.00 TO NODE    925.00 =    1916.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       16.96    12.32       3.682        6.35
  LONGEST FLOWPATH FROM NODE   1063.00 TO NODE    925.00 =    1916.00 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      512.79    12.59       3.632      220.11
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    925.00 =    7936.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     518.89      12.32        3.682
      2     529.52      12.59        3.632

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     529.52   Tc(MIN.) =   12.59
  TOTAL AREA(ACRES) =      226.5

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

```
  FLOW PROCESS FROM NODE    925.00 TO NODE    925.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    925.00 TO NODE    926.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   945.00  DOWNSTREAM(FEET) =   942.00
  FLOW LENGTH(FEET) =   280.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  81.0 INCH PIPE IS  61.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.07
  ESTIMATED PIPE DIAMETER(INCH) =  81.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     529.52
  PIPE TRAVEL TIME(MIN.) =   0.26    Tc(MIN.) =   12.84
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    926.00 =    8216.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    926.00 TO NODE   1060.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   530.00  DOWNSTREAM(FEET) =   474.00
  FLOW LENGTH(FEET) =   580.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  54.0 INCH PIPE IS  40.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  41.32
  ESTIMATED PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     529.52
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =   13.08
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE   1060.00 =    8796.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    926.00 TO NODE   1060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.543
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6381
  SUBAREA AREA(ACRES) =    8.07   SUBAREA RUNOFF(CFS) =   10.01
  TOTAL AREA(ACRES) =      234.5   TOTAL RUNOFF(CFS) =     530.18
  TC(MIN.) =   13.08

+----------------------------------------------------------------------------+
| Detention Basin #5: See analysis for following flow determination.         |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE   1060.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  24.00   RAIN INTENSITY(INCH/HOUR) =  2.39
  TOTAL AREA(ACRES) =   234.50   TOTAL RUNOFF(CFS) =    150.39

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE    529.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   490.00  DOWNSTREAM(FEET) =   480.00
```

```
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  23.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  33.51
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     150.39
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   24.04
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    529.00 =    8876.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    529.00 TO NODE    529.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      150.39    24.04       2.392      234.50
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    529.00 =    8876.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      163.32    33.04       1.949      321.50
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE    529.00 =   12039.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     269.22      24.04        2.392
      2     285.82      33.04        1.949

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     285.82   Tc(MIN.) =   33.04
  TOTAL AREA(ACRES) =      556.0

****************************************************************************
  FLOW PROCESS FROM NODE    529.00 TO NODE   1061.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   480.00  DOWNSTREAM(FEET) =   467.00
  FLOW LENGTH(FEET) =   480.00   MANNING'S N =  0.020
  DEPTH OF FLOW IN  63.0 INCH PIPE IS  49.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.82
  ESTIMATED PIPE DIAMETER(INCH) =  63.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     285.82
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =   33.54
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE   1061.00 =   12519.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1061.00 TO NODE   1061.00 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.) =   33.54
  RAINFALL INTENSITY(INCH/HR) =   1.93
  TOTAL STREAM AREA(ACRES) =   556.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    285.82

****************************************************************************
  FLOW PROCESS FROM NODE   1075.00 TO NODE   1076.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  URBAN NEWLY GRADED AREAS RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    545.00
  DOWNSTREAM ELEVATION(FEET) =    535.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.64
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      0.64

****************************************************************************
  FLOW PROCESS FROM NODE   1076.00 TO NODE   1061.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    535.00  DOWNSTREAM(FEET) =    467.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2302.00   CHANNEL SLOPE =  0.0295
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.532
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .2700
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.07
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.92
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =  41.73
  Tc(MIN.) =   48.00
  SUBAREA AREA(ACRES) =    20.02       SUBAREA RUNOFF(CFS) =    8.28
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.271
  TOTAL AREA(ACRES) =       20.3         PEAK FLOW RATE(CFS) =       8.45

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.08   FLOW VELOCITY(FEET/SEC.) =   1.06
  LONGEST FLOWPATH FROM NODE   1075.00 TO NODE   1061.00 =    2402.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1061.00 TO NODE   1061.00 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.) =   48.00
  RAINFALL INTENSITY(INCH/HR) =   1.53
  TOTAL STREAM AREA(ACRES) =    20.34
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.45

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      285.82    33.54        1.930        556.00
      2        8.45    48.00        1.532         20.34

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      291.73    33.54       1.930
      2      235.29    48.00       1.532

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     291.73   Tc(MIN.) =   33.54
  TOTAL AREA(ACRES) =      576.3
  LONGEST FLOWPATH FROM NODE    375.00 TO NODE   1061.00 =   12519.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      576.3  TC(MIN.) =     33.54
```

```
  PEAK FLOW RATE(CFS)   =     291.73
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Q100 Analysis- Southern areas tributary to Basin 6 and downstream

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                            Analysis prepared by:

                     HUnsaker & Associates San Diego, Inc.
                               9707 Waples Street
                              San Diego   CA   92121


 ************************* DESCRIPTION OF STUDY *************************
* Fanita Ranch Proposed Condition Hydrology Model                         *
* 100-year return interval                                               *
* Nodes 2100-2300 (Basin 6)                                              *
 **************************************************************************

  FILE NAME: R:\1284\HYD\CALCS\TM\AES\FR700.DAT
  TIME/DATE OF STUDY: 13:57 02/22/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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
  2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 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.*

**************************************************************************
  FLOW PROCESS FROM NODE   2100.00 TO NODE   2101.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
  UPSTREAM ELEVATION(FEET) =    766.50
  DOWNSTREAM ELEVATION(FEET) =    765.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.162
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.453
  SUBAREA RUNOFF(CFS) =      0.69
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.69
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2101.00 TO NODE   2102.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  765.50  DOWNSTREAM ELEVATION(FEET) =  727.00
  STREET LENGTH(FEET) =   600.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      16.17
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   11.11
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.98
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.08
  STREET FLOW TRAVEL TIME(MIN.) =   1.67   Tc(MIN.) =    6.83
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.384
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    9.06      SUBAREA RUNOFF(CFS) =   30.73
  TOTAL AREA(ACRES) =        9.2        PEAK FLOW RATE(CFS) =      31.31

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  7.59   DEPTH*VELOCITY(FT*FT/SEC.) =   3.10
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2102.00 =     665.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2102.00 TO NODE   2103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   727.00  DOWNSTREAM(FEET) =   656.00
  FLOW LENGTH(FEET) =  1260.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.73
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      31.31
  PIPE TRAVEL TIME(MIN.) =   1.26    Tc(MIN.) =    8.09
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2103.00 =    1925.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2106.00 TO NODE   2107.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    727.00
  DOWNSTREAM ELEVATION(FEET) =    726.00
```

```
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.71
  TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.71

****************************************************************************
  FLOW PROCESS FROM NODE   2107.00 TO NODE   2103.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  726.00  DOWNSTREAM ELEVATION(FEET) =  657.00
  STREET LENGTH(FEET) =  1136.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.99
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    9.52
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.37
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.70
  STREET FLOW TRAVEL TIME(MIN.) =   3.53   Tc(MIN.) =   10.35
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.120
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.82      SUBAREA RUNOFF(CFS) =   20.30
  TOTAL AREA(ACRES) =        8.0        PEAK FLOW RATE(CFS) =      20.84

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  6.36   DEPTH*VELOCITY(FT*FT/SEC.) =   2.37
  LONGEST FLOWPATH FROM NODE   2106.00 TO NODE   2103.00 =    1236.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2110.00 TO NODE   2111.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   146.00
  UPSTREAM ELEVATION(FEET) =    725.00
  DOWNSTREAM ELEVATION(FEET) =    720.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.628
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    96.06
           (Reference: Table 3-1B of Hydrology Manual)
```

```
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.35
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      1.35

****************************************************************************
  FLOW PROCESS FROM NODE   2111.00 TO NODE   2112.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   720.00  DOWNSTREAM(FEET) =   691.00
  FLOW LENGTH(FEET) =   826.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.14
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.35
  PIPE TRAVEL TIME(MIN.) =   2.24    Tc(MIN.) =    5.87
  LONGEST FLOWPATH FROM NODE   2110.00 TO NODE   2112.00 =     972.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2111.00 TO NODE   2112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.939
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    7.14   SUBAREA RUNOFF(CFS) =   33.50
  TOTAL AREA(ACRES) =        7.4   TOTAL RUNOFF(CFS) =      34.72
  TC(MIN.) =    5.87

****************************************************************************
  FLOW PROCESS FROM NODE   2112.00 TO NODE   2113.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   691.00  DOWNSTREAM(FEET) =   680.00
  FLOW LENGTH(FEET) =   290.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.88
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      34.72
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    6.20
  LONGEST FLOWPATH FROM NODE   2110.00 TO NODE   2113.00 =    1262.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2113.00 TO NODE   2113.00 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.) =    6.20
  RAINFALL INTENSITY(INCH/HR) =   5.74
  TOTAL STREAM AREA(ACRES) =     7.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     34.72

****************************************************************************
  FLOW PROCESS FROM NODE   2116.00 TO NODE   2117.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    732.00
  DOWNSTREAM ELEVATION(FEET) =    730.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.006
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    80.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.852
  SUBAREA RUNOFF(CFS) =      0.85
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.85

****************************************************************************
  FLOW PROCESS FROM NODE   2117.00 TO NODE   2114.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  730.00  DOWNSTREAM ELEVATION(FEET) =  680.00
  STREET LENGTH(FEET) =  1085.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.99
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.28
    HALFSTREET FLOOD WIDTH(FEET) =    7.64
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.27
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.19
  STREET FLOW TRAVEL TIME(MIN.) =   4.24   Tc(MIN.) =   10.24
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.148
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    3.88      SUBAREA RUNOFF(CFS) =   10.14
  TOTAL AREA(ACRES) =        4.1        PEAK FLOW RATE(CFS) =      10.74

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =   9.98
  FLOW VELOCITY(FEET/SEC.) =  4.82   DEPTH*VELOCITY(FT*FT/SEC.) =   1.57
  LONGEST FLOWPATH FROM NODE   2116.00 TO NODE   2114.00 =    1185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2114.00 TO NODE   2113.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   682.00  DOWNSTREAM(FEET) =   680.00
  FLOW LENGTH(FEET) =    75.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.84
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.74
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   10.37
  LONGEST FLOWPATH FROM NODE   2116.00 TO NODE   2113.00 =    1260.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2113.00 TO NODE   2113.00 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.) =   10.37
  RAINFALL INTENSITY(INCH/HR) =   4.11
  TOTAL STREAM AREA(ACRES) =     4.11
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.74

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       34.72     6.20        5.736          7.40
      2       10.74    10.37        4.115          4.11

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       41.14     6.20       5.736
      2       35.64    10.37       4.115

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      41.14   Tc(MIN.) =    6.20
  TOTAL AREA(ACRES) =       11.5
  LONGEST FLOWPATH FROM NODE   2110.00 TO NODE   2113.00 =    1262.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2113.00 TO NODE   2103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   680.00  DOWNSTREAM(FEET) =   656.00
  FLOW LENGTH(FEET) =   315.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.67
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      41.14
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =    6.46
  LONGEST FLOWPATH FROM NODE   2110.00 TO NODE   2103.00 =    1577.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       41.14     6.46       5.582       11.51
  LONGEST FLOWPATH FROM NODE   2110.00 TO NODE   2103.00 =    1577.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       31.31     8.09       4.830        9.23
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2103.00 =    1925.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      66.15       6.46        5.582
      2      66.90       8.09        4.830

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      66.90   Tc(MIN.) =    8.09
  TOTAL AREA(ACRES) =       20.7
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       66.90     8.09       4.830       20.74
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2103.00 =    1925.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       20.84    10.35       4.120        8.03
  LONGEST FLOWPATH FROM NODE   2106.00 TO NODE   2103.00 =    1236.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      83.19       8.09        4.830
      2      77.92      10.35        4.120

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      83.19   Tc(MIN.) =    8.09
  TOTAL AREA(ACRES) =       28.8

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2103.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2103.00 TO NODE   2120.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   656.00  DOWNSTREAM(FEET) =   642.00
  FLOW LENGTH(FEET) =   787.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  29.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.61
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      83.19
  PIPE TRAVEL TIME(MIN.) =   0.96    Tc(MIN.) =    9.05
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2120.00 =    2712.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2120.00 TO NODE   2120.00 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.) =    9.05
  RAINFALL INTENSITY(INCH/HR) =   4.49
  TOTAL STREAM AREA(ACRES) =    28.77
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     83.19

****************************************************************************
  FLOW PROCESS FROM NODE   2121.00 TO NODE   2122.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    679.00
  DOWNSTREAM ELEVATION(FEET) =    678.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      1.26
  TOTAL AREA(ACRES) =      0.37   TOTAL RUNOFF(CFS) =      1.26

****************************************************************************
  FLOW PROCESS FROM NODE   2122.00 TO NODE   2120.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  678.00  DOWNSTREAM ELEVATION(FEET) =  642.00
  STREET LENGTH(FEET) =   916.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.43
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =    9.33
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.27
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.33
  STREET FLOW TRAVEL TIME(MIN.) =   3.58   Tc(MIN.) =   10.40
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.107
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.48      SUBAREA RUNOFF(CFS) =   14.18
  TOTAL AREA(ACRES) =        5.8        PEAK FLOW RATE(CFS) =      15.14

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  11.95
  FLOW VELOCITY(FEET/SEC.) =  4.89   DEPTH*VELOCITY(FT*FT/SEC.) =   1.79
  LONGEST FLOWPATH FROM NODE   2121.00 TO NODE   2120.00 =    1016.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2120.00 TO NODE   2120.00 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.) =   10.40
  RAINFALL INTENSITY(INCH/HR) =   4.11
  TOTAL STREAM AREA(ACRES) =     5.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.14

  ** CONFLUENCE DATA **
```

```
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       83.19     9.05        4.491         28.77
      2       15.14    10.40        4.107          5.85

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       96.37     9.05       4.491
      2       91.21    10.40       4.107

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      96.37   Tc(MIN.) =    9.05
  TOTAL AREA(ACRES) =       34.6
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2120.00 =    2712.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2120.00 TO NODE   2123.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   641.50  DOWNSTREAM(FEET) =   634.00
  FLOW LENGTH(FEET) =   980.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  35.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.35
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      96.37
  PIPE TRAVEL TIME(MIN.) =   1.58    Tc(MIN.) =   10.63
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2123.00 =    3692.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2123.00 TO NODE   2123.00 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.) =   10.63
  RAINFALL INTENSITY(INCH/HR) =   4.05
  TOTAL STREAM AREA(ACRES) =    34.62
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     96.37

****************************************************************************
  FLOW PROCESS FROM NODE   2124.00 TO NODE   2125.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    643.50
  DOWNSTREAM ELEVATION(FEET) =    642.20
  ELEVATION DIFFERENCE(FEET) =      1.30
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.462
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    69.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.582
  SUBAREA RUNOFF(CFS) =      0.53
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.53

****************************************************************************
  FLOW PROCESS FROM NODE   2125.00 TO NODE   2123.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  642.00  DOWNSTREAM ELEVATION(FEET) =  633.00
  STREET LENGTH(FEET) =   980.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.64
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.40
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.76
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.09
  STREET FLOW TRAVEL TIME(MIN.) =   5.93   Tc(MIN.) =   12.39
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.668
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    8.40      SUBAREA RUNOFF(CFS) =   19.41
  TOTAL AREA(ACRES) =        8.5        PEAK FLOW RATE(CFS) =      19.76

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.47   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.52   DEPTH*VELOCITY(FT*FT/SEC.) =   1.65
  *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
         AND L =  980.0 FT WITH ELEVATION-DROP =   9.0 FT, IS   28.4 CFS,
         WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE   2123.00
  LONGEST FLOWPATH FROM NODE   2124.00 TO NODE   2123.00 =    1080.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2123.00 TO NODE   2123.00 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.) =   12.39
  RAINFALL INTENSITY(INCH/HR) =   3.67
  TOTAL STREAM AREA(ACRES) =     8.55
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.76

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       96.37    10.63        4.049         34.62
      2       19.76    12.39        3.668          8.55

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      113.33    10.63       4.049
      2      107.07    12.39       3.668

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     113.33   Tc(MIN.) =   10.63
  TOTAL AREA(ACRES) =       43.2
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2123.00 =    3692.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2123.00 TO NODE   2126.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   633.00  DOWNSTREAM(FEET) =   632.00
  FLOW LENGTH(FEET) =    70.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  34.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.52
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     113.33
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   10.72
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2126.00 =    3762.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2130.00 TO NODE   2131.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   117.00
  UPSTREAM ELEVATION(FEET) =    690.00
  DOWNSTREAM ELEVATION(FEET) =    685.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.407
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    98.18
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.20
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      1.20

****************************************************************************
  FLOW PROCESS FROM NODE   2131.00 TO NODE   2132.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   685.00  DOWNSTREAM(FEET) =   667.00
  FLOW LENGTH(FEET) =   723.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.25
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.20
  PIPE TRAVEL TIME(MIN.) =   2.29    Tc(MIN.) =    5.70
  LONGEST FLOWPATH FROM NODE   2130.00 TO NODE   2132.00 =     840.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2131.00 TO NODE   2132.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.052
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    7.74   SUBAREA RUNOFF(CFS) =   37.01
```

```
  TOTAL AREA(ACRES) =        8.0   TOTAL RUNOFF(CFS) =      38.11
  TC(MIN.) =    5.70

****************************************************************************
  FLOW PROCESS FROM NODE   2132.00 TO NODE   2133.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   667.00  DOWNSTREAM(FEET) =   665.00
  FLOW LENGTH(FEET) =    82.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.90
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      38.11
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    5.81
  LONGEST FLOWPATH FROM NODE   2130.00 TO NODE   2133.00 =     922.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2133.00 TO NODE   2133.00 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.) =    5.81
  RAINFALL INTENSITY(INCH/HR) =   5.98
  TOTAL STREAM AREA(ACRES) =     7.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     38.11

****************************************************************************
  FLOW PROCESS FROM NODE   2140.00 TO NODE   2141.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   180.00
  UPSTREAM ELEVATION(FEET) =    731.50
  DOWNSTREAM ELEVATION(FEET) =    730.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.964
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.320
  SUBAREA RUNOFF(CFS) =      0.40
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.40

****************************************************************************
  FLOW PROCESS FROM NODE   2141.00 TO NODE   2142.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  725.00  DOWNSTREAM ELEVATION(FEET) =  668.00
  STREET LENGTH(FEET) =  2000.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.05
```

```
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.27
    HALFSTREET FLOOD WIDTH(FEET) =    7.17
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.20
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.86
  STREET FLOW TRAVEL TIME(MIN.) =  10.42   Tc(MIN.) =   17.39
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.948
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    3.76      SUBAREA RUNOFF(CFS) =    6.98
  TOTAL AREA(ACRES) =        3.9        PEAK FLOW RATE(CFS) =       7.21

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   9.33
  FLOW VELOCITY(FEET/SEC.) =  3.65   DEPTH*VELOCITY(FT*FT/SEC.) =   1.14
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2142.00 =    2180.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2142.00 TO NODE   2133.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   678.00  DOWNSTREAM(FEET) =   676.00
  FLOW LENGTH(FEET) =    30.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   6.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.48
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.21
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   17.43
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2133.00 =    2210.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2133.00 TO NODE   2133.00 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.) =   17.43
  RAINFALL INTENSITY(INCH/HR) =   2.94
  TOTAL STREAM AREA(ACRES) =     3.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.21

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       38.11     5.81        5.981          7.97
      2        7.21    17.43        2.944          3.88

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       40.51     5.81       5.981
      2       25.96    17.43       2.944

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.51   Tc(MIN.) =    5.81
  TOTAL AREA(ACRES) =       11.8
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2133.00 =    2210.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2133.00 TO NODE   2143.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   668.00  DOWNSTREAM(FEET) =   654.00
  FLOW LENGTH(FEET) =   430.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  17.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.69
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.51
  PIPE TRAVEL TIME(MIN.) =   0.49    Tc(MIN.) =    6.29
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2143.00 =    2640.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2143.00 TO NODE   2143.00 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.) =    6.29
  RAINFALL INTENSITY(INCH/HR) =   5.68
  TOTAL STREAM AREA(ACRES) =    11.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     40.51

****************************************************************************
  FLOW PROCESS FROM NODE   2150.00 TO NODE   2151.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   106.00
  UPSTREAM ELEVATION(FEET) =    675.00
  DOWNSTREAM ELEVATION(FEET) =    673.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.866
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    73.30
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.83
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.83

****************************************************************************
  FLOW PROCESS FROM NODE   2151.00 TO NODE   2152.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   673.00  DOWNSTREAM(FEET) =   657.00
  FLOW LENGTH(FEET) =   760.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.44
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.83
  PIPE TRAVEL TIME(MIN.) =   2.85    Tc(MIN.) =    6.72
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2152.00 =     866.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2151.00 TO NODE   2152.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.443
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =   10.00   SUBAREA RUNOFF(CFS) =   43.00
  TOTAL AREA(ACRES) =       10.2   TOTAL RUNOFF(CFS) =      43.69
  TC(MIN.) =    6.72

****************************************************************************
  FLOW PROCESS FROM NODE   2152.00 TO NODE   2143.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   654.00  DOWNSTREAM(FEET) =   653.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  21.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.44
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      43.69
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =    6.85
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2143.00 =     946.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2143.00 TO NODE   2143.00 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.) =    6.85
  RAINFALL INTENSITY(INCH/HR) =   5.38
  TOTAL STREAM AREA(ACRES) =    10.16
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     43.69

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       40.51     6.29        5.678         11.85
      2       43.69     6.85        5.377         10.16

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       80.66     6.29       5.678
      2       82.05     6.85       5.377

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      82.05   Tc(MIN.) =    6.85
  TOTAL AREA(ACRES) =       22.0
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2143.00 =    2640.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2143.00 TO NODE   2126.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   653.00  DOWNSTREAM(FEET) =   633.00
  FLOW LENGTH(FEET) =   510.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.69
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      82.05
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    7.30
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2126.00 =    3150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  10
----------------------------------------------------------------------------
```

```
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
================================================================================

********************************************************************************
  FLOW PROCESS FROM NODE   2160.00 TO NODE   2161.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    645.00
  DOWNSTREAM ELEVATION(FEET) =    644.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.34   TOTAL RUNOFF(CFS) =      1.15

********************************************************************************
  FLOW PROCESS FROM NODE   2161.00 TO NODE   2162.00 IS CODE =  61
--------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) =  643.00  DOWNSTREAM ELEVATION(FEET) =  630.00
  STREET LENGTH(FEET) =   500.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.60
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.27
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.67
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.22
  STREET FLOW TRAVEL TIME(MIN.) =   2.27   Tc(MIN.) =    9.09
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.479
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.24      SUBAREA RUNOFF(CFS) =   14.79
  TOTAL AREA(ACRES) =        5.6        PEAK FLOW RATE(CFS) =      15.75

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.41   DEPTH*VELOCITY(FT*FT/SEC.) =   1.70
  LONGEST FLOWPATH FROM NODE   2160.00 TO NODE   2162.00 =     600.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE   2162.00 TO NODE   2126.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   630.00  DOWNSTREAM(FEET) =   628.00
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
```

```
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.67
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.75
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    9.26
  LONGEST FLOWPATH FROM NODE   2160.00 TO NODE   2126.00 =     700.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       15.75     9.26       4.425        5.58
  LONGEST FLOWPATH FROM NODE   2160.00 TO NODE   2126.00 =     700.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      113.33    10.72       4.028       43.17
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2126.00 =    3762.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     113.70       9.26        4.425
      2     127.66      10.72        4.028

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     127.66   Tc(MIN.) =   10.72
  TOTAL AREA(ACRES) =       48.8

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      127.66    10.72       4.028       48.75
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2126.00 =    3762.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       82.05     7.30       5.159       22.01
  LONGEST FLOWPATH FROM NODE   2140.00 TO NODE   2126.00 =    3150.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     169.04       7.30        5.159
      2     191.73      10.72        4.028

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     191.73   Tc(MIN.) =   10.72
  TOTAL AREA(ACRES) =       70.8

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2126.00 IS CODE =  12
```

```
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2126.00 TO NODE   2172.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   632.00  DOWNSTREAM(FEET) =   608.00
  FLOW LENGTH(FEET) =   423.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  29.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.49
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     191.73
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   10.98
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2172.00 =    4185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2172.00 TO NODE   2172.00 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.) =   10.98
  RAINFALL INTENSITY(INCH/HR) =   3.96
  TOTAL STREAM AREA(ACRES) =    70.76
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    191.73

****************************************************************************
  FLOW PROCESS FROM NODE   2170.00 TO NODE   2171.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    621.00
  DOWNSTREAM ELEVATION(FEET) =    619.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.293
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    72.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.679
  SUBAREA RUNOFF(CFS) =      1.79
  TOTAL AREA(ACRES) =      0.50   TOTAL RUNOFF(CFS) =      1.79

****************************************************************************
  FLOW PROCESS FROM NODE   2171.00 TO NODE   2172.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  620.00  DOWNSTREAM ELEVATION(FEET) =  608.00
  STREET LENGTH(FEET) =   678.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.07
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.86
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.30
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.20
  STREET FLOW TRAVEL TIME(MIN.) =   3.42   Tc(MIN.) =    9.71
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.292
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.02      SUBAREA RUNOFF(CFS) =   16.28
  TOTAL AREA(ACRES) =        6.5        PEAK FLOW RATE(CFS) =      17.63

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.10   DEPTH*VELOCITY(FT*FT/SEC.) =   1.70
  LONGEST FLOWPATH FROM NODE   2170.00 TO NODE   2172.00 =     778.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2172.00 TO NODE   2172.00 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.) =    9.71
  RAINFALL INTENSITY(INCH/HR) =   4.29
  TOTAL STREAM AREA(ACRES) =     6.52
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.63

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      191.73    10.98        3.965         70.76
      2       17.63     9.71        4.292          6.52

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      187.19     9.71       4.292
      2      208.01    10.98       3.965

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     208.01   Tc(MIN.) =   10.98
  TOTAL AREA(ACRES) =       77.3
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2172.00 =    4185.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2172.00 TO NODE   2212.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   608.00  DOWNSTREAM(FEET) =   584.00
  FLOW LENGTH(FEET) =   540.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  32.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  24.63
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     208.01
  PIPE TRAVEL TIME(MIN.) =   0.37    Tc(MIN.) =   11.35
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2212.00 =    4725.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2212.00 IS CODE =  10
----------------------------------------------------------------------------
```

```
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
================================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2181.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    734.00
  DOWNSTREAM ELEVATION(FEET) =    733.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      1.09
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.09

****************************************************************************
  FLOW PROCESS FROM NODE   2181.00 TO NODE   2182.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  731.00  DOWNSTREAM ELEVATION(FEET) =  649.00
  STREET LENGTH(FEET) =  2240.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.43
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.37   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    4.75
    SPLIT DEPTH(FEET) =    0.22   SPLIT FLOOD WIDTH(FEET) =    4.56
    SPLIT FLOW(CFS) =    1.03   SPLIT VELOCITY(FEET/SEC.) =    3.15
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.75
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.74
  STREET FLOW TRAVEL TIME(MIN.) =   7.85   Tc(MIN.) =   14.67
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.289
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.09      SUBAREA RUNOFF(CFS) =   14.69
  TOTAL AREA(ACRES) =        7.4        PEAK FLOW RATE(CFS) =      15.35

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.81   DEPTH*VELOCITY(FT*FT/SEC.) =   1.78
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2182.00 =    2340.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2182.00 TO NODE   2192.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   647.00  DOWNSTREAM(FEET) =   620.00
  FLOW LENGTH(FEET) =   320.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   9.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.62
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.35
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   15.00
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2192.00 =    2660.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2192.00 TO NODE   2192.00 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.) =   15.00
  RAINFALL INTENSITY(INCH/HR) =   3.24
  TOTAL STREAM AREA(ACRES) =     7.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.35

****************************************************************************
  FLOW PROCESS FROM NODE   2190.00 TO NODE   2191.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    646.00
  DOWNSTREAM ELEVATION(FEET) =    645.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE   2191.00 TO NODE   2192.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  641.00  DOWNSTREAM ELEVATION(FEET) =  623.00
  STREET LENGTH(FEET) =   710.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.16
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   10.08
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.60
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.18
```

```
  STREET FLOW TRAVEL TIME(MIN.) =   3.29   Tc(MIN.) =   10.11
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.183
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    5.67      SUBAREA RUNOFF(CFS) =   14.94
  TOTAL AREA(ACRES) =        5.8        PEAK FLOW RATE(CFS) =      15.42

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.32   DEPTH*VELOCITY(FT*FT/SEC.) =   1.66
  LONGEST FLOWPATH FROM NODE   2190.00 TO NODE   2192.00 =     810.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2192.00 TO NODE   2192.00 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.) =   10.11
  RAINFALL INTENSITY(INCH/HR) =   4.18
  TOTAL STREAM AREA(ACRES) =     5.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.42

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       15.35    15.00        3.244          7.41
      2       15.42    10.11        4.183          5.85

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       25.77    10.11       4.183
      2       27.31    15.00       3.244

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      27.31   Tc(MIN.) =   15.00
  TOTAL AREA(ACRES) =       13.3
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2192.00 =    2660.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2192.00 TO NODE   2200.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   620.00  DOWNSTREAM(FEET) =   595.00
  FLOW LENGTH(FEET) =   315.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      27.31
  PIPE TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =   15.29
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2200.00 =    2975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2200.00 TO NODE   2200.00 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.) =   15.29
  RAINFALL INTENSITY(INCH/HR) =   3.20
```

```
  TOTAL STREAM AREA(ACRES) =    13.26
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     27.31

****************************************************************************
  FLOW PROCESS FROM NODE   2198.00 TO NODE   2199.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    623.00
  DOWNSTREAM ELEVATION(FEET) =    622.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.54
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE   2199.00 TO NODE   2200.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  620.00  DOWNSTREAM ELEVATION(FEET) =  595.00
  STREET LENGTH(FEET) =  1000.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.65
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.83
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.74
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.28
  STREET FLOW TRAVEL TIME(MIN.) =   4.46   Tc(MIN.) =   11.28
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.898
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.29      SUBAREA RUNOFF(CFS) =   17.90
  TOTAL AREA(ACRES) =        7.4        PEAK FLOW RATE(CFS) =      18.30

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  4.60   DEPTH*VELOCITY(FT*FT/SEC.) =   1.85
  LONGEST FLOWPATH FROM NODE   2198.00 TO NODE   2200.00 =    1100.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2200.00 TO NODE   2200.00 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.) =   11.28
  RAINFALL INTENSITY(INCH/HR) =   3.90
  TOTAL STREAM AREA(ACRES) =     7.45
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.30

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       27.31    15.29        3.204         13.26
      2       18.30    11.28        3.898          7.45

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       40.74    11.28       3.898
      2       42.35    15.29       3.204

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      42.35   Tc(MIN.) =   15.29
  TOTAL AREA(ACRES) =       20.7
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2200.00 =    2975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2200.00 TO NODE   2212.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   595.00  DOWNSTREAM(FEET) =   585.00
  FLOW LENGTH(FEET) =  1095.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.11
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      42.35
  PIPE TRAVEL TIME(MIN.) =   2.00    Tc(MIN.) =   17.29
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2212.00 =    4070.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2212.00 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.) =   17.29
  RAINFALL INTENSITY(INCH/HR) =   2.96
  TOTAL STREAM AREA(ACRES) =    20.71
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.35

****************************************************************************
  FLOW PROCESS FROM NODE   2210.00 TO NODE   2211.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    597.00
  DOWNSTREAM ELEVATION(FEET) =    596.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.285
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.683
  SUBAREA RUNOFF(CFS) =      1.36
  TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.36

****************************************************************************
  FLOW PROCESS FROM NODE   2211.00 TO NODE   2212.00 IS CODE =  61
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  597.00  DOWNSTREAM ELEVATION(FEET) =  585.00
  STREET LENGTH(FEET) =   980.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.47
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.38
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.98
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.14
  STREET FLOW TRAVEL TIME(MIN.) =   5.48   Tc(MIN.) =   11.76
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.793
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    7.34      SUBAREA RUNOFF(CFS) =   17.54
  TOTAL AREA(ACRES) =        7.7        PEAK FLOW RATE(CFS) =      18.45

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  3.73   DEPTH*VELOCITY(FT*FT/SEC.) =   1.65
  LONGEST FLOWPATH FROM NODE   2210.00 TO NODE   2212.00 =    1050.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2212.00 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.) =   11.76
  RAINFALL INTENSITY(INCH/HR) =   3.79
  TOTAL STREAM AREA(ACRES) =     7.72
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.45

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       42.35    17.29        2.959        20.71
      2       18.45    11.76        3.793          7.72

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       51.48    11.76       3.793
      2       56.74    17.29       2.959

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      56.74   Tc(MIN.) =   17.29
  TOTAL AREA(ACRES) =       28.4
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2212.00 =    4070.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2212.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       56.74    17.29       2.959       28.43
  LONGEST FLOWPATH FROM NODE   2180.00 TO NODE   2212.00 =    4070.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      208.01    11.35       3.882       77.28
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2212.00 =    4725.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     245.26      11.35        3.882
      2     215.30      17.29        2.959

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     245.26   Tc(MIN.) =   11.35
  TOTAL AREA(ACRES) =      105.7

****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2212.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2212.00 TO NODE   2222.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   585.00  DOWNSTREAM(FEET) =   565.00
  FLOW LENGTH(FEET) =   360.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  33.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  27.73
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     245.26
  PIPE TRAVEL TIME(MIN.) =   0.22    Tc(MIN.) =   11.57
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2222.00 =    5085.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2222.00 TO NODE   2222.00 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.) =   11.57
  RAINFALL INTENSITY(INCH/HR) =   3.84
  TOTAL STREAM AREA(ACRES) =   105.71
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    245.26

****************************************************************************
  FLOW PROCESS FROM NODE   2220.00 TO NODE   2221.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    572.00
```

```
  DOWNSTREAM ELEVATION(FEET) =    571.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      0.98
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.98

****************************************************************************
  FLOW PROCESS FROM NODE   2221.00 TO NODE   2222.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  571.00  DOWNSTREAM ELEVATION(FEET) =  568.00
  STREET LENGTH(FEET) =   615.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.96
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.39
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.92
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   5.34   Tc(MIN.) =   12.17
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.712
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    4.95      SUBAREA RUNOFF(CFS) =   11.58
  TOTAL AREA(ACRES) =        5.2        PEAK FLOW RATE(CFS) =      12.25

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.41   DEPTH*VELOCITY(FT*FT/SEC.) =   1.08
  LONGEST FLOWPATH FROM NODE   2220.00 TO NODE   2222.00 =     715.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2222.00 TO NODE   2222.00 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.) =   12.17
  RAINFALL INTENSITY(INCH/HR) =   3.71
  TOTAL STREAM AREA(ACRES) =     5.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.25

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      245.26    11.57        3.835        105.71
      2       12.25    12.17        3.712          5.24

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
```

```
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      256.91    11.57       3.835
      2      249.65    12.17       3.712

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     256.91   Tc(MIN.) =   11.57
  TOTAL AREA(ACRES) =      110.9
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2222.00 =    5085.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2222.00 TO NODE   2232.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   565.00  DOWNSTREAM(FEET) =   556.00
  FLOW LENGTH(FEET) =   220.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  36.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  24.92
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     256.91
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   11.71
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2232.00 =    5305.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2232.00 TO NODE   2232.00 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.) =   11.71
  RAINFALL INTENSITY(INCH/HR) =   3.80
  TOTAL STREAM AREA(ACRES) =   110.95
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    256.91

****************************************************************************
  FLOW PROCESS FROM NODE   2230.00 TO NODE   2231.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    623.00
  DOWNSTREAM ELEVATION(FEET) =    622.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.821
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.391
  SUBAREA RUNOFF(CFS) =      1.32
  TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      1.32

****************************************************************************
  FLOW PROCESS FROM NODE   2231.00 TO NODE   2232.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  620.00  DOWNSTREAM ELEVATION(FEET) =  558.00
  STREET LENGTH(FEET) =   993.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00
```

```
  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   6.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.40
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.77
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.30
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.60
  STREET FLOW TRAVEL TIME(MIN.) =   3.12   Tc(MIN.) =    9.94
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.228
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.630
  SUBAREA AREA(ACRES) =    6.01      SUBAREA RUNOFF(CFS) =   16.01
  TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      17.05

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  11.39
  FLOW VELOCITY(FEET/SEC.) =  6.02   DEPTH*VELOCITY(FT*FT/SEC.) =   2.13
  LONGEST FLOWPATH FROM NODE   2230.00 TO NODE   2232.00 =    1093.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2232.00 TO NODE   2232.00 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.) =    9.94
  RAINFALL INTENSITY(INCH/HR) =   4.23
  TOTAL STREAM AREA(ACRES) =     6.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.05

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      256.91    11.71        3.804        110.95
      2       17.05     9.94        4.228          6.40

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      248.20     9.94       4.228
      2      272.25    11.71       3.804

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     272.25   Tc(MIN.) =   11.71
  TOTAL AREA(ACRES) =      117.3
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2232.00 =    5305.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2232.00 TO NODE   2240.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   558.00  DOWNSTREAM(FEET) =   460.00
  FLOW LENGTH(FEET) =   324.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.7 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  52.96
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     272.25
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   11.81
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2240.00 =    5629.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2239.00 TO NODE   2240.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.783
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6445
  SUBAREA AREA(ACRES) =    8.09   SUBAREA RUNOFF(CFS) =   10.71
  TOTAL AREA(ACRES) =      125.4   TOTAL RUNOFF(CFS) =     305.82
  TC(MIN.) =   11.81

+--------------------------------------------------------------------------+
| Detention Basin #6: See detention basin analysis for flow calcs          |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE   2240.00 TO NODE   2240.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  43.00   RAIN INTENSITY(INCH/HOUR) =  1.64
  TOTAL AREA(ACRES) =   125.40   TOTAL RUNOFF(CFS) =     28.12

****************************************************************************
  FLOW PROCESS FROM NODE   2240.00 TO NODE   2241.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   455.00  DOWNSTREAM(FEET) =   451.00
  FLOW LENGTH(FEET) =   272.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.93
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      28.12
  PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =   43.46
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2241.00 =    5901.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2245.00 TO NODE   2246.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   736.00
  UPSTREAM ELEVATION(FEET) =    800.00
  DOWNSTREAM ELEVATION(FEET) =    755.00
  ELEVATION DIFFERENCE(FEET) =     45.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.383
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
```

```
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.123
  SUBAREA RUNOFF(CFS) =      4.09
  TOTAL AREA(ACRES) =      2.28   TOTAL RUNOFF(CFS) =      4.09

****************************************************************************
  FLOW PROCESS FROM NODE   2246.00 TO NODE   2247.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    755.00  DOWNSTREAM(FEET) =    539.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2828.00   CHANNEL SLOPE =  0.0764
  CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.218
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      52.61
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.04
  AVERAGE FLOW DEPTH(FEET) =   0.70   TRAVEL TIME(MIN.) =   7.80
  Tc(MIN.) =   15.18
  SUBAREA AREA(ACRES) =    82.94       SUBAREA RUNOFF(CFS) =   93.41
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       85.2         PEAK FLOW RATE(CFS) =      95.98

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.96   FLOW VELOCITY(FEET/SEC.) =   7.26
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2247.00 =    3564.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2247.00 TO NODE   2247.00 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.) =   15.18
  RAINFALL INTENSITY(INCH/HR) =   3.22
  TOTAL STREAM AREA(ACRES) =    85.22
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     95.98

****************************************************************************
  FLOW PROCESS FROM NODE   2250.00 TO NODE   2251.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    980.00
  DOWNSTREAM ELEVATION(FEET) =    970.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66

****************************************************************************
  FLOW PROCESS FROM NODE   2251.00 TO NODE   2247.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    539.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2539.00   CHANNEL SLOPE =  0.1698
  CHANNEL BASE(FEET) =   12.00   "Z" FACTOR =   5.000
```

```
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.614
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      35.50
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.60
  AVERAGE FLOW DEPTH(FEET) =   0.39   TRAVEL TIME(MIN.) =   6.41
  Tc(MIN.) =   12.68
  SUBAREA AREA(ACRES) =    52.70       SUBAREA RUNOFF(CFS) =   66.66
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       53.0         PEAK FLOW RATE(CFS) =      67.07

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.55   FLOW VELOCITY(FEET/SEC.) =   8.20
  LONGEST FLOWPATH FROM NODE   2250.00 TO NODE   2247.00 =    2639.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2247.00 TO NODE   2247.00 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.) =   12.68
  RAINFALL INTENSITY(INCH/HR) =   3.61
  TOTAL STREAM AREA(ACRES) =    53.03
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     67.07

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       95.98    15.18        3.218         85.22
      2       67.07    12.68        3.614         53.03

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      147.25    12.68       3.614
      2      155.71    15.18       3.218

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     155.71   Tc(MIN.) =   15.18
  TOTAL AREA(ACRES) =      138.2
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2247.00 =    3564.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2247.00 TO NODE   2252.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    539.00  DOWNSTREAM(FEET) =    481.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1529.00   CHANNEL SLOPE =  0.0379
  CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.818
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     178.74
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.34
  AVERAGE FLOW DEPTH(FEET) =   1.72   TRAVEL TIME(MIN.) =   3.47
  Tc(MIN.) =   18.65
  SUBAREA AREA(ACRES) =    46.68       SUBAREA RUNOFF(CFS) =   46.04
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      184.9         PEAK FLOW RATE(CFS) =     182.38
```

```
  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.73   FLOW VELOCITY(FEET/SEC.) =   7.40
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2252.00 =    5093.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2252.00 TO NODE   2253.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   481.00  DOWNSTREAM(FEET) =   472.00
  FLOW LENGTH(FEET) =   390.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  35.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.59
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     182.38
  PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =   19.00
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2253.00 =    5483.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2253.00 TO NODE   2241.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    472.00  DOWNSTREAM(FEET) =    451.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   624.00   CHANNEL SLOPE =  0.0337
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.641
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     184.94
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.43
  AVERAGE FLOW DEPTH(FEET) =   1.60   TRAVEL TIME(MIN.) =   1.62
  Tc(MIN.) =   20.62
  SUBAREA AREA(ACRES) =     5.55       SUBAREA RUNOFF(CFS) =    5.13
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      190.5         PEAK FLOW RATE(CFS) =     182.38

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.59   FLOW VELOCITY(FEET/SEC.) =   6.39
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2241.00 =    6107.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      182.38    20.62       2.641      190.48
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2241.00 =    6107.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       28.12    43.46       1.633      125.40
  LONGEST FLOWPATH FROM NODE   2100.00 TO NODE   2241.00 =    5901.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     195.72      20.62        2.641
      2     140.88      43.46        1.633

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =     195.72   Tc(MIN.) =   20.62
  TOTAL AREA(ACRES) =      315.9

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

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

****************************************************************************
  FLOW PROCESS FROM NODE   2260.00 TO NODE   2261.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  URBAN NEWLY GRADED AREAS RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    507.00
  DOWNSTREAM ELEVATION(FEET) =    497.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.56
  TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.56

****************************************************************************
  FLOW PROCESS FROM NODE   2261.00 TO NODE   2262.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    497.00  DOWNSTREAM(FEET) =    455.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1725.00   CHANNEL SLOPE =  0.0243
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.845
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.95
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.37
  AVERAGE FLOW DEPTH(FEET) =   0.36   TRAVEL TIME(MIN.) =  12.11
  Tc(MIN.) =   18.38
  SUBAREA AREA(ACRES) =    17.45       SUBAREA RUNOFF(CFS) =   17.37
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       17.7         PEAK FLOW RATE(CFS) =      17.65

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   2.83
  LONGEST FLOWPATH FROM NODE   2260.00 TO NODE   2262.00 =    1825.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2262.00 TO NODE   2241.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   455.00  DOWNSTREAM(FEET) =   451.00
  FLOW LENGTH(FEET) =   500.00   MANNING'S N =  0.026
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.18
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.65
  PIPE TRAVEL TIME(MIN.) =   1.99    Tc(MIN.) =   20.37
  LONGEST FLOWPATH FROM NODE   2260.00 TO NODE   2241.00 =    2325.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       17.65    20.37       2.662       17.73
  LONGEST FLOWPATH FROM NODE   2260.00 TO NODE   2241.00 =    2325.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      195.72    20.62       2.641      315.88
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2241.00 =    6107.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     210.99      20.37        2.662
      2     213.23      20.62        2.641

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     213.23   Tc(MIN.) =   20.62
  TOTAL AREA(ACRES) =      333.6

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2241.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2241.00 TO NODE   2273.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   451.00  DOWNSTREAM(FEET) =   433.00
  FLOW LENGTH(FEET) =  1547.00   MANNING'S N =  0.026
  DEPTH OF FLOW IN  72.0 INCH PIPE IS  58.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.74
  ESTIMATED PIPE DIAMETER(INCH) =  72.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     213.23
  PIPE TRAVEL TIME(MIN.) =   2.95    Tc(MIN.) =   23.57
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2273.00 =    7654.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2273.00 TO NODE   2273.00 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.) =   23.57
  RAINFALL INTENSITY(INCH/HR) =   2.42
  TOTAL STREAM AREA(ACRES) =   333.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    213.23

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

```
  FLOW PROCESS FROM NODE   2270.00 TO NODE   2271.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    840.00
  DOWNSTREAM ELEVATION(FEET) =    830.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66

****************************************************************************
  FLOW PROCESS FROM NODE   2271.00 TO NODE   2272.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    830.00  DOWNSTREAM(FEET) =    520.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2148.00   CHANNEL SLOPE =  0.1443
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.812
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.65
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.62
  AVERAGE FLOW DEPTH(FEET) =   0.47   TRAVEL TIME(MIN.) =   5.41
  Tc(MIN.) =   11.67
  SUBAREA AREA(ACRES) =    39.15       SUBAREA RUNOFF(CFS) =   52.24
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       39.5         PEAK FLOW RATE(CFS) =      52.68

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.67   FLOW VELOCITY(FEET/SEC.) =   8.06
  LONGEST FLOWPATH FROM NODE   2270.00 TO NODE   2272.00 =    2248.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2272.00 TO NODE   2273.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    520.00  DOWNSTREAM(FEET) =    434.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1790.00   CHANNEL SLOPE =  0.0480
  CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.033
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      78.46
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.00
  AVERAGE FLOW DEPTH(FEET) =   1.00   TRAVEL TIME(MIN.) =   4.97
  Tc(MIN.) =   16.64
  SUBAREA AREA(ACRES) =    48.37       SUBAREA RUNOFF(CFS) =   51.34
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       87.9         PEAK FLOW RATE(CFS) =      93.25

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.10   FLOW VELOCITY(FEET/SEC.) =   6.31
  LONGEST FLOWPATH FROM NODE   2270.00 TO NODE   2273.00 =    4038.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2273.00 TO NODE   2273.00 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.) =   16.64
  RAINFALL INTENSITY(INCH/HR) =   3.03
  TOTAL STREAM AREA(ACRES) =    87.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     93.25

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      213.23    23.57        2.423        333.61
      2       93.25    16.64        3.033         87.85

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      243.80    16.64       3.033
      2      287.73    23.57       2.423

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     287.73   Tc(MIN.) =   23.57
  TOTAL AREA(ACRES) =      421.5
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2273.00 =    7654.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2273.00 TO NODE   2277.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   433.00  DOWNSTREAM(FEET) =   419.00
  FLOW LENGTH(FEET) =  1079.00   MANNING'S N =  0.026
  DEPTH OF FLOW IN  81.0 INCH PIPE IS  61.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.93
  ESTIMATED PIPE DIAMETER(INCH) =  81.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     287.73
  PIPE TRAVEL TIME(MIN.) =   1.81    Tc(MIN.) =   25.38
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2277.00 =    8733.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2277.00 TO NODE   2277.00 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.) =   25.38
  RAINFALL INTENSITY(INCH/HR) =   2.31
  TOTAL STREAM AREA(ACRES) =   421.46
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    287.73

****************************************************************************
  FLOW PROCESS FROM NODE   2275.00 TO NODE   2276.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NATURAL DESERT LANDSCAPING RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    715.00
  DOWNSTREAM ELEVATION(FEET) =    705.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
```

```
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.46
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.46

****************************************************************************
  FLOW PROCESS FROM NODE   2276.00 TO NODE   2277.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    705.00  DOWNSTREAM(FEET) =    425.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1698.00   CHANNEL SLOPE =  0.1649
  CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.819
  *USER SPECIFIED(SUBAREA):
  RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.78
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.27
  AVERAGE FLOW DEPTH(FEET) =   0.28   TRAVEL TIME(MIN.) =   5.37
  Tc(MIN.) =   11.64
  SUBAREA AREA(ACRES) =    20.64       SUBAREA RUNOFF(CFS) =   27.59
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       20.9         PEAK FLOW RATE(CFS) =      27.90

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.40   FLOW VELOCITY(FEET/SEC.) =   6.59
  LONGEST FLOWPATH FROM NODE   2275.00 TO NODE   2277.00 =    1798.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2277.00 TO NODE   2277.00 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.) =   11.64
  RAINFALL INTENSITY(INCH/HR) =   3.82
  TOTAL STREAM AREA(ACRES) =    20.87
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     27.90

****************************************************************************
  FLOW PROCESS FROM NODE   2280.00 TO NODE   2281.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .8000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    97.00
  UPSTREAM ELEVATION(FEET) =    556.80
  DOWNSTREAM ELEVATION(FEET) =    555.00
  ELEVATION DIFFERENCE(FEET) =      1.80
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.750
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    72.83
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.58
  TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      1.58

****************************************************************************
  FLOW PROCESS FROM NODE   2281.00 TO NODE   2282.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
```

```
  UPSTREAM ELEVATION(FEET) =  555.00  DOWNSTREAM ELEVATION(FEET) =  436.00
  STREET LENGTH(FEET) =  2809.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 28.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  14.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.85
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    9.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.61
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.48
  STREET FLOW TRAVEL TIME(MIN.) =  10.16   Tc(MIN.) =   13.91
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.404
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .8000
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.800
  SUBAREA AREA(ACRES) =    5.74      SUBAREA RUNOFF(CFS) =   15.63
  TOTAL AREA(ACRES) =        6.0        PEAK FLOW RATE(CFS) =      16.45

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  12.19
  FLOW VELOCITY(FEET/SEC.) =  5.12   DEPTH*VELOCITY(FT*FT/SEC.) =   1.90
  LONGEST FLOWPATH FROM NODE   2280.00 TO NODE   2282.00 =    2906.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2282.00 TO NODE   2277.00 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.) =   13.91
  RAINFALL INTENSITY(INCH/HR) =   3.40
  TOTAL STREAM AREA(ACRES) =     6.04
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.45

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      287.73    25.38        2.310        421.46
      2       27.90    11.64        3.819         20.87
      3       16.45    13.91        3.404          6.04

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      215.67    11.64       3.819
      2      236.55    13.91       3.404
      3      315.76    25.38       2.310

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     315.76   Tc(MIN.) =   25.38
  TOTAL AREA(ACRES) =      448.4
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2277.00 =    8733.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2277.00 TO NODE   2277.00 IS CODE =  10
----------------------------------------------------------------------------
```

```
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
================================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2295.00 TO NODE   2296.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    437.00
  DOWNSTREAM ELEVATION(FEET) =    436.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.207
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE   2296.00 TO NODE   2292.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  436.00  DOWNSTREAM ELEVATION(FEET) =  432.00
  STREET LENGTH(FEET) =   300.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.25
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    8.78
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.41
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.77
  STREET FLOW TRAVEL TIME(MIN.) =   2.07   Tc(MIN.) =    5.28
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.359
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.02      SUBAREA RUNOFF(CFS) =    5.64
  TOTAL AREA(ACRES) =        1.3        PEAK FLOW RATE(CFS) =       7.03

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.21
  FLOW VELOCITY(FEET/SEC.) =  2.67   DEPTH*VELOCITY(FT*FT/SEC.) =   0.97
  LONGEST FLOWPATH FROM NODE   2295.00 TO NODE   2292.00 =     400.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2292.00 TO NODE   2292.00 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.) =    5.28
  RAINFALL INTENSITY(INCH/HR) =   6.36
  TOTAL STREAM AREA(ACRES) =     1.27
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.03

****************************************************************************
  FLOW PROCESS FROM NODE   2290.00 TO NODE   2291.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    437.00
  DOWNSTREAM ELEVATION(FEET) =    436.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.322
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.51
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.51

****************************************************************************
  FLOW PROCESS FROM NODE   2291.00 TO NODE   2292.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   436.00  DOWNSTREAM(FEET) =   433.00
  FLOW LENGTH(FEET) =   303.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.05
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.51
  PIPE TRAVEL TIME(MIN.) =   1.25    Tc(MIN.) =    5.57
  LONGEST FLOWPATH FROM NODE   2290.00 TO NODE   2292.00 =     403.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2291.00 TO NODE   2292.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.144
  *USER SPECIFIED(SUBAREA):
  GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    1.31   SUBAREA RUNOFF(CFS) =    6.36
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       7.77
  TC(MIN.) =    5.57

****************************************************************************
  FLOW PROCESS FROM NODE   2292.00 TO NODE   2292.00 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.) =    5.57
  RAINFALL INTENSITY(INCH/HR) =   6.14
  TOTAL STREAM AREA(ACRES) =     1.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.77

  ** CONFLUENCE DATA **
```

```
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        7.03     5.28        6.359          1.27
      2        7.77     5.57        6.144          1.60

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       14.39     5.28       6.359
      2       14.55     5.57       6.144

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      14.55   Tc(MIN.) =    5.57
  TOTAL AREA(ACRES) =        2.9
  LONGEST FLOWPATH FROM NODE   2290.00 TO NODE   2292.00 =     403.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2292.00 TO NODE   2277.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   433.00  DOWNSTREAM(FEET) =   422.00
  FLOW LENGTH(FEET) =   315.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.66
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.55
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    6.02
  LONGEST FLOWPATH FROM NODE   2290.00 TO NODE   2277.00 =     718.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2277.00 TO NODE   2277.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       14.55     6.02       5.843        2.87
  LONGEST FLOWPATH FROM NODE   2290.00 TO NODE   2277.00 =     718.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      315.76    25.38       2.310      448.37
  LONGEST FLOWPATH FROM NODE   2245.00 TO NODE   2277.00 =    8733.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      89.45       6.02        5.843
      2     321.52      25.38        2.310

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     321.52   Tc(MIN.) =   25.38
  TOTAL AREA(ACRES) =      451.2

****************************************************************************
  FLOW PROCESS FROM NODE   2277.00 TO NODE   2277.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =      451.2  TC(MIN.) =     25.38
  PEAK FLOW RATE(CFS)   =     321.52
```

```
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Q100 Analysis- Southern portion of Fanita Parkway including the developed offsite areas east of Fanita.

```
_____
___

*************************************************************************
***

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                              Analysis prepared by:

                       HUnsaker & Associates San Diego, Inc.
                                 9707 Waples Street
                                San Diego   CA   92121


  ************************** DESCRIPTION OF STUDY
**************************
 * Fanita Parkway
*
 * 100-Year Condition: DLN: 1248
*
 * By: Adam Brooks
*

*************************************************************************
*

   FILE NAME: R:\1284\HYD\CALCS\TM\AES\FPPR.DAT
   TIME/DATE OF STUDY: 12:13 08/19/2019
 ------------------------------------------------------------------------
----
   USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
 ------------------------------------------------------------------------
----
   2003 SAN DIEGO MANUAL CRITERIA

   USER SPECIFIED STORM EVENT(YEAR) = 100.00
   6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
   SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
   SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE =
0.90
   SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
   NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
   *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
   2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150
   6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125
0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.50 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.*


****************************************************************************
***
   FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    935.00
   DOWNSTREAM ELEVATION(FEET) =    925.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.32
   TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.32


****************************************************************************
***
   FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  51
 --------------------------------------------------------------------------
----
```

```
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    925.00  DOWNSTREAM(FEET) =
570.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1981.00   CHANNEL SLOPE =  0.1792
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.274
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      36.15
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.40
   AVERAGE FLOW DEPTH(FEET) =   0.34   TRAVEL TIME(MIN.) =   3.51
   Tc(MIN.) =    9.78
   SUBAREA AREA(ACRES) =    46.91       SUBAREA RUNOFF(CFS) =   70.17
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       47.1         PEAK FLOW RATE(CFS) =
70.41

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =  11.77
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    2081.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     22.00 TO NODE     23.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    570.00  DOWNSTREAM(FEET) =
475.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1548.00   CHANNEL SLOPE =  0.0614
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.672
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     114.07
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.94
   AVERAGE FLOW DEPTH(FEET) =   0.90   TRAVEL TIME(MIN.) =   2.60
   Tc(MIN.) =   12.37
   SUBAREA AREA(ACRES) =    67.78       SUBAREA RUNOFF(CFS) =   87.10
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
```

```
   TOTAL AREA(ACRES) =      114.8         PEAK FLOW RATE(CFS) =
147.59

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.04   FLOW VELOCITY(FEET/SEC.) =  10.79
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     23.00 =    3629.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     23.00 TO NODE     23.00 IS CODE =   7
 ----------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  24.20   RAIN INTENSITY(INCH/HOUR) =  2.38
   TOTAL AREA(ACRES) =   114.80   TOTAL RUNOFF(CFS) =     78.95


****************************************************************************
***
   FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   475.00  DOWNSTREAM(FEET) =   433.00
   FLOW LENGTH(FEET) =   950.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  30.0 INCH PIPE IS  23.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  18.99
   ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      78.95
   PIPE TRAVEL TIME(MIN.) =   0.83    Tc(MIN.) =   25.03
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     24.00 =    4579.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.331
```

```
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3375
   SUBAREA AREA(ACRES) =   30.70   SUBAREA RUNOFF(CFS) =   37.21
   TOTAL AREA(ACRES) =      145.5   TOTAL RUNOFF(CFS) =     114.45
   TC(MIN.) =   25.03


****************************************************************************
***
   FLOW PROCESS FROM NODE     24.00 TO NODE     30.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   430.00  DOWNSTREAM(FEET) =   407.00
   FLOW LENGTH(FEET) =  1691.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  45.0 INCH PIPE IS  32.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  13.61
   ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     114.45
   PIPE TRAVEL TIME(MIN.) =   2.07    Tc(MIN.) =   27.10
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     30.00 =    6270.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  10
 ----------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE     33.00 TO NODE     34.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
```

```
   UPSTREAM ELEVATION(FEET) =    821.00
   DOWNSTREAM ELEVATION(FEET) =    810.00
   ELEVATION DIFFERENCE(FEET) =     11.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.34
   TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.34


****************************************************************************
***
   FLOW PROCESS FROM NODE     34.00 TO NODE     37.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    810.00  DOWNSTREAM(FEET) =
474.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1906.00   CHANNEL SLOPE =  0.1763
   CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.142
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      19.01
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.94
   AVERAGE FLOW DEPTH(FEET) =   0.26   TRAVEL TIME(MIN.) =   4.00
   Tc(MIN.) =   10.27
   SUBAREA AREA(ACRES) =    25.19       SUBAREA RUNOFF(CFS) =   36.52
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =       25.4         PEAK FLOW RATE(CFS) =
36.76

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   9.97
   LONGEST FLOWPATH FROM NODE     33.00 TO NODE     37.00 =    2006.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     36.00 TO NODE     37.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.142
*USER SPECIFIED(SUBAREA):
RESIDENTIAL (14.5 DU/AC OR LESS) RUNOFF COEFFICIENT = .6300
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT = 0.3795
SUBAREA AREA(ACRES) =    2.99   SUBAREA RUNOFF(CFS) =    7.80
TOTAL AREA(ACRES) =       28.4   TOTAL RUNOFF(CFS) =      44.56
TC(MIN.) =   10.27


****************************************************************************
***
   FLOW PROCESS FROM NODE     37.00 TO NODE     30.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   433.00  DOWNSTREAM(FEET) =   405.00
   FLOW LENGTH(FEET) =   310.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.41
   ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      44.56
   PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   10.51
   LONGEST FLOWPATH FROM NODE     33.00 TO NODE     30.00 =    2316.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 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.) =   10.51
   RAINFALL INTENSITY(INCH/HR) =   4.08
   TOTAL STREAM AREA(ACRES) =    28.35
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     44.56


****************************************************************************
***
   FLOW PROCESS FROM NODE     39.00 TO NODE     40.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
================================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    700.00
   DOWNSTREAM ELEVATION(FEET) =    690.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.92
   TOTAL AREA(ACRES) =      0.46   TOTAL RUNOFF(CFS) =      0.92


****************************************************************************
***
   FLOW PROCESS FROM NODE     40.00 TO NODE     30.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   680.00  DOWNSTREAM(FEET) =   407.00
   FLOW LENGTH(FEET) =  1525.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.8 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   9.68
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.92
   PIPE TRAVEL TIME(MIN.) =   2.62    Tc(MIN.) =    8.89
   LONGEST FLOWPATH FROM NODE     39.00 TO NODE     30.00 =    1625.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     40.00 TO NODE     30.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.544
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (2.9 DU/AC OR LESS) RUNOFF COEFFICIENT = .2900
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.2911
```

```
   SUBAREA AREA(ACRES) =   24.61   SUBAREA RUNOFF(CFS) =   32.43
   TOTAL AREA(ACRES) =       25.1   TOTAL RUNOFF(CFS) =      33.16
   TC(MIN.) =    8.89

****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 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.) =    8.89
   RAINFALL INTENSITY(INCH/HR) =   4.54
   TOTAL STREAM AREA(ACRES) =    25.07
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     33.16


****************************************************************************
***
   FLOW PROCESS FROM NODE     38.00 TO NODE     41.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    438.00
   DOWNSTREAM ELEVATION(FEET) =    437.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =   11.295
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.894
   SUBAREA RUNOFF(CFS) =      0.40
   TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.40


****************************************************************************
***
   FLOW PROCESS FROM NODE     41.00 TO NODE     30.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   436.00  DOWNSTREAM(FEET) =   407.00
   FLOW LENGTH(FEET) =  1904.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.2 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   3.18
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.40
   PIPE TRAVEL TIME(MIN.) =   9.99    Tc(MIN.) =   21.28
   LONGEST FLOWPATH FROM NODE     38.00 TO NODE     30.00 =    2004.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     41.00 TO NODE     30.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.588
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =    2.39   SUBAREA RUNOFF(CFS) =    2.16
   TOTAL AREA(ACRES) =        2.7   TOTAL RUNOFF(CFS) =       2.43
   TC(MIN.) =   21.28


****************************************************************************
***
   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 =  3
   CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
   TIME OF CONCENTRATION(MIN.) =   21.28
   RAINFALL INTENSITY(INCH/HR) =   2.59
   TOTAL STREAM AREA(ACRES) =     2.68
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.43

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
```

```
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       44.56    10.51        4.080         28.35
       2       33.16     8.89        4.544         25.07
       3        2.43    21.28        2.588          2.68

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       71.89     8.89       4.544
       2       75.54    10.51       4.080
       3       49.57    21.28       2.588

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      75.54   Tc(MIN.) =   10.51
   TOTAL AREA(ACRES) =       56.1
   LONGEST FLOWPATH FROM NODE     33.00 TO NODE     30.00 =    2316.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

============================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1       75.54    10.51       4.080       56.10
   LONGEST FLOWPATH FROM NODE     33.00 TO NODE     30.00 =    2316.00
FEET.

   ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      114.45    27.10       2.214      145.50
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     30.00 =    6270.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     119.90      10.51        4.080
       2     155.44      27.10        2.214

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     155.44   Tc(MIN.) =   27.10
```

```
   TOTAL AREA(ACRES) =      201.6

****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  12
 ----------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 1 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE     30.00 TO NODE     50.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   407.00  DOWNSTREAM(FEET) =   396.00
   FLOW LENGTH(FEET) =   523.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  45.0 INCH PIPE IS  34.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.12
   ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     155.44
   PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =   27.61
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     50.00 =    6793.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  10
 ----------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
==========================================================================
===
   *USER SPECIFIED(SUBAREA):
   OFFICE PROFESSIONAL/COMMERCIAL RUNOFF COEFFICIENT = .8700
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    436.00
   DOWNSTREAM ELEVATION(FEET) =    435.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.207
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.72
   TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      1.72


**************************************************************************
***
   FLOW PROCESS FROM NODE     18.00 TO NODE     50.00 IS CODE =  62
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

==========================================================================
===
   UPSTREAM ELEVATION(FEET) =  434.00  DOWNSTREAM ELEVATION(FEET) =
397.00
   STREET LENGTH(FEET) =  2494.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.94
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.39
     HALFSTREET FLOOD WIDTH(FEET) =   12.77
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.01
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.18
   STREET FLOW TRAVEL TIME(MIN.) =  13.81   Tc(MIN.) =   17.01
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.990
```

```
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .8700
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
   SUBAREA AREA(ACRES) =    5.86      SUBAREA RUNOFF(CFS) =   15.24
   TOTAL AREA(ACRES) =        6.2        PEAK FLOW RATE(CFS) =      16.02

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  15.66
   FLOW VELOCITY(FEET/SEC.) =  3.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.49
   LONGEST FLOWPATH FROM NODE     17.00 TO NODE     50.00 =    2594.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     57.00 TO NODE     50.00 IS CODE =  81
 --------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.990
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.8031
   SUBAREA AREA(ACRES) =    0.91   SUBAREA RUNOFF(CFS) =    0.95
   TOTAL AREA(ACRES) =        7.1   TOTAL RUNOFF(CFS) =      16.97
   TC(MIN.) =   17.01


****************************************************************************
***
   FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 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.) =   17.01
   RAINFALL INTENSITY(INCH/HR) =   2.99
   TOTAL STREAM AREA(ACRES) =     7.07
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.97


****************************************************************************
***
   FLOW PROCESS FROM NODE     26.00 TO NODE     27.00 IS CODE =  21
```

```
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    423.00
   DOWNSTREAM ELEVATION(FEET) =    421.00
   ELEVATION DIFFERENCE(FEET) =      2.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.358
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.396
   SUBAREA RUNOFF(CFS) =      0.82
   TOTAL AREA(ACRES) =      0.53   TOTAL RUNOFF(CFS) =      0.82


************************************************************************
***
   FLOW PROCESS FROM NODE     27.00 TO NODE     45.00 IS CODE =  51
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    422.00  DOWNSTREAM(FEET) =
411.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1089.00   CHANNEL SLOPE =  0.0101
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.551
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.70
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.46
   AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =  12.40
   Tc(MIN.) =   21.76
   SUBAREA AREA(ACRES) =     4.00       SUBAREA RUNOFF(CFS) =    3.57
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        4.5         PEAK FLOW RATE(CFS) =
4.04

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   1.70
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     45.00 =    1174.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE     45.00 TO NODE     46.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    412.00  DOWNSTREAM(FEET) =
404.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   842.00   CHANNEL SLOPE =  0.0095
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.087
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.51
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.76
   AVERAGE FLOW DEPTH(FEET) =   0.23   TRAVEL TIME(MIN.) =   7.95
   Tc(MIN.) =   29.71
   SUBAREA AREA(ACRES) =     1.27       SUBAREA RUNOFF(CFS) =    0.93
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        5.8         PEAK FLOW RATE(CFS) =
4.24

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.23   FLOW VELOCITY(FEET/SEC.) =   1.72
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     46.00 =    2016.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     46.00 TO NODE     47.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    405.00  DOWNSTREAM(FEET) =
397.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   842.00   CHANNEL SLOPE =  0.0095
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.790
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
```

```
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.61
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.76
   AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =   7.98
   Tc(MIN.) =   37.70
   SUBAREA AREA(ACRES) =     1.20       SUBAREA RUNOFF(CFS) =    0.75
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        7.0         PEAK FLOW RATE(CFS) =
4.39

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.23   FLOW VELOCITY(FEET/SEC.) =   1.73
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     47.00 =    2858.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     49.00 TO NODE     50.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    397.00  DOWNSTREAM(FEET) =
391.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   592.00   CHANNEL SLOPE =  0.0101
   CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   8.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.678
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.54
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.48
   AVERAGE FLOW DEPTH(FEET) =   0.52   TRAVEL TIME(MIN.) =   3.97
   Tc(MIN.) =   41.67
   SUBAREA AREA(ACRES) =     0.54       SUBAREA RUNOFF(CFS) =    0.32
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        7.5         PEAK FLOW RATE(CFS) =
4.43

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.51   FLOW VELOCITY(FEET/SEC.) =   2.47
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     50.00 =    3450.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     53.00 TO NODE     50.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
```

```
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.678
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3791
   SUBAREA AREA(ACRES) =    1.56   SUBAREA RUNOFF(CFS) =    1.36
   TOTAL AREA(ACRES) =        9.1   TOTAL RUNOFF(CFS) =       5.79
   TC(MIN.) =   41.67


****************************************************************************
   FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 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.) =   41.67
   RAINFALL INTENSITY(INCH/HR) =   1.68
   TOTAL STREAM AREA(ACRES) =     9.10
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.79

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       16.97    17.01        2.990          7.07
       2        5.79    41.67        1.678          9.10

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       19.34    17.01       2.990
       2       15.31    41.67       1.678

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      19.34   Tc(MIN.) =   17.01
   TOTAL AREA(ACRES) =       16.2
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     50.00 =    3450.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

============================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1       19.34    17.01       2.990       16.17
   LONGEST FLOWPATH FROM NODE     26.00 TO NODE     50.00 =    3450.00
FEET.

   ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      155.44    27.61       2.188      201.60
   LONGEST FLOWPATH FROM NODE     20.00 TO NODE     50.00 =    6793.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     115.11      17.01        2.990
       2     169.59      27.61        2.188

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     169.59   Tc(MIN.) =   27.61
   TOTAL AREA(ACRES) =      217.8


****************************************************************************
***
   FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  12
 ----------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 3 <<<<<

============================================================================
===

 +--------------------------------------------------------------------------
---+
 |
|
 |
|
 |
|
```

```
 +-------------------------------------------------------------------------
---+


****************************************************************************
***
   FLOW PROCESS FROM NODE     60.00 TO NODE     61.00 IS CODE =  21
 -------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    397.00
   DOWNSTREAM ELEVATION(FEET) =    396.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.880
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.99
   TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.99


****************************************************************************
***
   FLOW PROCESS FROM NODE     61.00 TO NODE     62.00 IS CODE =  62
 -------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  396.00  DOWNSTREAM ELEVATION(FEET) =
393.00
   STREET LENGTH(FEET) =   245.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
```

```
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.05
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.30
     HALFSTREET FLOOD WIDTH(FEET) =    7.53
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.18
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.65
   STREET FLOW TRAVEL TIME(MIN.) =   1.87   Tc(MIN.) =    6.75
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.426
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.750
   SUBAREA AREA(ACRES) =    1.01      SUBAREA RUNOFF(CFS) =    4.11
   TOTAL AREA(ACRES) =        1.2        PEAK FLOW RATE(CFS) =       4.92

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =   9.66
   FLOW VELOCITY(FEET/SEC.) =  2.40   DEPTH*VELOCITY(FT*FT/SEC.) =   0.80
   LONGEST FLOWPATH FROM NODE     60.00 TO NODE     62.00 =     345.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     62.00 TO NODE     63.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   393.00  DOWNSTREAM(FEET) =   391.00
   FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   5.63
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       4.92
   PIPE TRAVEL TIME(MIN.) =   0.59    Tc(MIN.) =    7.35
   LONGEST FLOWPATH FROM NODE     60.00 TO NODE     63.00 =     545.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     63.00 TO NODE     63.00 IS CODE =  10
 --------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
```

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


****************************************************************************
***
   FLOW PROCESS FROM NODE    150.00 TO NODE    151.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    825.00
   DOWNSTREAM ELEVATION(FEET) =    815.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.778
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.001
   SUBAREA RUNOFF(CFS) =      0.38
   TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.38


****************************************************************************
***
   FLOW PROCESS FROM NODE    151.00 TO NODE   4012.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   815.00  DOWNSTREAM(FEET) =   510.00
   FLOW LENGTH(FEET) =  2403.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.3 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   6.57
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.38
   PIPE TRAVEL TIME(MIN.) =   6.10    Tc(MIN.) =   11.88
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4012.00 =    2488.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    151.00 TO NODE   4012.00 IS CODE =  81
```

```
 ------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

========================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.770
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =   31.76   SUBAREA RUNOFF(CFS) =   41.91
   TOTAL AREA(ACRES) =       31.9   TOTAL RUNOFF(CFS) =      42.15
   TC(MIN.) =   11.88


************************************************************************
***
   FLOW PROCESS FROM NODE   4012.00 TO NODE   4012.00 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.) =   11.88
   RAINFALL INTENSITY(INCH/HR) =   3.77
   TOTAL STREAM AREA(ACRES) =    31.94
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.15


************************************************************************
***
   FLOW PROCESS FROM NODE   4010.00 TO NODE   4011.00 IS CODE =  21
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    571.00
   DOWNSTREAM ELEVATION(FEET) =    569.00
   ELEVATION DIFFERENCE(FEET) =      2.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.866
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      2.71
   TOTAL AREA(ACRES) =      0.58   TOTAL RUNOFF(CFS) =      2.71
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE   4011.00 TO NODE   4012.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    569.00  DOWNSTREAM(FEET) =
510.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1012.00   CHANNEL SLOPE =  0.0583
   CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.868
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.61
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.58
   AVERAGE FLOW DEPTH(FEET) =   0.04   TRAVEL TIME(MIN.) =   6.55
   Tc(MIN.) =   11.41
   SUBAREA AREA(ACRES) =     5.37       SUBAREA RUNOFF(CFS) =   14.75
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
   TOTAL AREA(ACRES) =        5.9         PEAK FLOW RATE(CFS) =
16.34

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.05   FLOW VELOCITY(FEET/SEC.) =   3.22
   LONGEST FLOWPATH FROM NODE   4010.00 TO NODE   4012.00 =    1097.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4011.00 TO NODE   4012.00 IS CODE =   7
 ----------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  22.00   RAIN INTENSITY(INCH/HOUR) =  2.53
   TOTAL AREA(ACRES) =     5.90   TOTAL RUNOFF(CFS) =      5.10


****************************************************************************
***
   FLOW PROCESS FROM NODE   4012.00 TO NODE   4012.00 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.) =   22.00
   RAINFALL INTENSITY(INCH/HR) =   2.53
   TOTAL STREAM AREA(ACRES) =     5.90
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.10

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       42.15    11.88        3.770         31.94
       2        5.10    22.00        2.533          5.90

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       44.90    11.88       3.770
       2       33.42    22.00       2.533

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      44.90   Tc(MIN.) =   11.88
   TOTAL AREA(ACRES) =       37.8
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4012.00 =    2488.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4012.00 TO NODE   4013.00 IS CODE =  31
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   510.00  DOWNSTREAM(FEET) =   485.00
   FLOW LENGTH(FEET) =   422.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  18.69
   ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      44.90
   PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =   12.25
```

```
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4013.00 =    2910.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4013.00 TO NODE   4013.00 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.) =   12.25
   RAINFALL INTENSITY(INCH/HR) =   3.70
   TOTAL STREAM AREA(ACRES) =    37.84
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     44.90


****************************************************************************
***
   FLOW PROCESS FROM NODE   4000.00 TO NODE   4001.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    689.00
   DOWNSTREAM ELEVATION(FEET) =    675.00
   ELEVATION DIFFERENCE(FEET) =     14.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.778
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.001
   SUBAREA RUNOFF(CFS) =      0.74
   TOTAL AREA(ACRES) =      0.35   TOTAL RUNOFF(CFS) =      0.74


****************************************************************************
***
   FLOW PROCESS FROM NODE   4001.00 TO NODE   4013.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   675.00  DOWNSTREAM(FEET) =   485.00
   FLOW LENGTH(FEET) =  1109.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   8.92
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.74
   PIPE TRAVEL TIME(MIN.) =   2.07    Tc(MIN.) =    7.85
   LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4013.00 =    1194.00
FEET.


****************************************************************************
   FLOW PROCESS FROM NODE   4001.00 TO NODE   4013.00 IS CODE =  81
 ----------------------------------------------------------------------------
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.924
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =    9.11   SUBAREA RUNOFF(CFS) =   15.70
   TOTAL AREA(ACRES) =        9.5   TOTAL RUNOFF(CFS) =      16.30
   TC(MIN.) =    7.85


****************************************************************************
   FLOW PROCESS FROM NODE   4013.00 TO NODE   4013.00 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.) =    7.85
   RAINFALL INTENSITY(INCH/HR) =   4.92
   TOTAL STREAM AREA(ACRES) =     9.46
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.30


****************************************************************************
   FLOW PROCESS FROM NODE   4016.00 TO NODE   4017.00 IS CODE =  21
```

```
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
   UPSTREAM ELEVATION(FEET) =    541.50
   DOWNSTREAM ELEVATION(FEET) =    541.00
   ELEVATION DIFFERENCE(FEET) =      0.50
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.973
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    60.77
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.873
   SUBAREA RUNOFF(CFS) =      1.13
   TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      1.13


************************************************************************
***
   FLOW PROCESS FROM NODE   4017.00 TO NODE   4018.00 IS CODE =  51
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    541.00  DOWNSTREAM(FEET) =
536.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   437.00   CHANNEL SLOPE =  0.0114
   CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.744
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.76
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.11
   AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   2.34
   Tc(MIN.) =    8.32
   SUBAREA AREA(ACRES) =     2.72       SUBAREA RUNOFF(CFS) =    9.16
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
   TOTAL AREA(ACRES) =        3.0         PEAK FLOW RATE(CFS) =
10.07

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.24   FLOW VELOCITY(FEET/SEC.) =   3.76
```

```
   LONGEST FLOWPATH FROM NODE   4016.00 TO NODE   4018.00 =     502.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4018.00 TO NODE   4018.00 IS CODE =   7
 ----------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  15.00   RAIN INTENSITY(INCH/HOUR) =  3.24
   TOTAL AREA(ACRES) =     3.00   TOTAL RUNOFF(CFS) =      2.30


****************************************************************************
***
   FLOW PROCESS FROM NODE   4018.00 TO NODE   4013.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   536.00  DOWNSTREAM(FEET) =   475.00
   FLOW LENGTH(FEET) =   138.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.3 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.53
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       2.30
   PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   15.13
   LONGEST FLOWPATH FROM NODE   4016.00 TO NODE   4013.00 =     640.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4013.00 TO NODE   4013.00 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.) =   15.13
   RAINFALL INTENSITY(INCH/HR) =   3.22
   TOTAL STREAM AREA(ACRES) =     3.00
```

```
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.30


****************************************************************************
***
   FLOW PROCESS FROM NODE   4020.00 TO NODE   4021.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
   UPSTREAM ELEVATION(FEET) =    599.00
   DOWNSTREAM ELEVATION(FEET) =    597.00
   ELEVATION DIFFERENCE(FEET) =      2.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.012
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    71.67
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.576
   SUBAREA RUNOFF(CFS) =      1.35
   TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.35


****************************************************************************
***
   FLOW PROCESS FROM NODE   4021.00 TO NODE   4022.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    597.00  DOWNSTREAM(FEET) =
592.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   307.00   CHANNEL SLOPE =  0.0163
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.714
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.81
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.19
   AVERAGE FLOW DEPTH(FEET) =   0.25   TRAVEL TIME(MIN.) =   1.22
   Tc(MIN.) =    6.23
   SUBAREA AREA(ACRES) =     3.17       SUBAREA RUNOFF(CFS) =   12.86
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
```

```
   TOTAL AREA(ACRES) =        3.5         PEAK FLOW RATE(CFS) =
14.04

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.34   FLOW VELOCITY(FEET/SEC.) =   4.91
   LONGEST FLOWPATH FROM NODE   4020.00 TO NODE   4022.00 =     427.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4022.00 TO NODE   4022.00 IS CODE =   7
 ----------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  12.00   RAIN INTENSITY(INCH/HOUR) =  3.74
   TOTAL AREA(ACRES) =     3.50   TOTAL RUNOFF(CFS) =      3.20


****************************************************************************
***
   FLOW PROCESS FROM NODE   4022.00 TO NODE   4013.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   593.00  DOWNSTREAM(FEET) =   475.00
   FLOW LENGTH(FEET) =   615.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.3 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  14.43
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       3.20
   PIPE TRAVEL TIME(MIN.) =   0.71    Tc(MIN.) =   12.71
   LONGEST FLOWPATH FROM NODE   4020.00 TO NODE   4013.00 =    1042.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4013.00 TO NODE   4013.00 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.) =   12.71
   RAINFALL INTENSITY(INCH/HR) =   3.61
   TOTAL STREAM AREA(ACRES) =     3.50
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.20

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       44.90    12.25        3.695         37.84
       2       16.30     7.85        4.924          9.46
       3        2.30    15.13        3.225          3.00
       4        3.20    12.71        3.609          3.50

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       53.17     7.85       4.924
       2       62.08    12.25       3.695
       3       60.93    12.71       3.609
       4       55.02    15.13       3.225

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      62.08   Tc(MIN.) =   12.25
   TOTAL AREA(ACRES) =       53.8
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4013.00 =    2910.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4013.00 TO NODE   4023.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   475.00  DOWNSTREAM(FEET) =   450.00
   FLOW LENGTH(FEET) =   390.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.9 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  20.94
   ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      62.08
   PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   12.56
```

```
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4023.00 =    3300.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4023.00 TO NODE   4023.00 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.) =   12.56
   RAINFALL INTENSITY(INCH/HR) =   3.64
   TOTAL STREAM AREA(ACRES) =    53.80
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     62.08


****************************************************************************
***
   FLOW PROCESS FROM NODE   4026.00 TO NODE   4027.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    64.00
   UPSTREAM ELEVATION(FEET) =    527.00
   DOWNSTREAM ELEVATION(FEET) =    526.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.840
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.61
   TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.61


****************************************************************************
***
   FLOW PROCESS FROM NODE   4027.00 TO NODE   4028.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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

```
   ELEVATION DATA: UPSTREAM(FEET) =    526.00  DOWNSTREAM(FEET) =
518.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   480.00   CHANNEL SLOPE =  0.0167
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.474
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.48
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.39
   AVERAGE FLOW DEPTH(FEET) =   0.28   TRAVEL TIME(MIN.) =   1.82
   Tc(MIN.) =    6.66
   SUBAREA AREA(ACRES) =     4.52       SUBAREA RUNOFF(CFS) =   17.57
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
   TOTAL AREA(ACRES) =        4.7         PEAK FLOW RATE(CFS) =
18.07

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.38   FLOW VELOCITY(FEET/SEC.) =   5.32
   LONGEST FLOWPATH FROM NODE   4026.00 TO NODE   4028.00 =     544.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4028.00 TO NODE   4028.00 IS CODE =   7
 --------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  11.00   RAIN INTENSITY(INCH/HOUR) =  3.96
   TOTAL AREA(ACRES) =     4.70   TOTAL RUNOFF(CFS) =      5.10


****************************************************************************
***
   FLOW PROCESS FROM NODE   4028.00 TO NODE   4023.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   518.00  DOWNSTREAM(FEET) =   450.00
   FLOW LENGTH(FEET) =   166.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  21.61
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
```

```
   PIPE-FLOW(CFS) =       5.10
   PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   11.13
   LONGEST FLOWPATH FROM NODE   4026.00 TO NODE   4023.00 =     710.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4023.00 TO NODE   4023.00 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.) =   11.13
   RAINFALL INTENSITY(INCH/HR) =   3.93
   TOTAL STREAM AREA(ACRES) =     4.70
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.10

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       62.08    12.56        3.636         53.80
       2        5.10    11.13        3.932          4.70

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       62.51    11.13       3.932
       2       66.80    12.56       3.636

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      66.80   Tc(MIN.) =   12.56
   TOTAL AREA(ACRES) =       58.5
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE   4023.00 =    3300.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4023.00 TO NODE     63.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   450.00  DOWNSTREAM(FEET) =   405.00
   FLOW LENGTH(FEET) =  1272.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  30.0 INCH PIPE IS  22.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.90
   ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      66.80
   PIPE TRAVEL TIME(MIN.) =   1.25    Tc(MIN.) =   13.82
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     63.00 =    4572.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4023.00 TO NODE     63.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

================================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.419
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .6000
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4066
   SUBAREA AREA(ACRES) =   22.90   SUBAREA RUNOFF(CFS) =   46.98
   TOTAL AREA(ACRES) =       81.4   TOTAL RUNOFF(CFS) =     113.16
   TC(MIN.) =   13.82


****************************************************************************
***
   FLOW PROCESS FROM NODE     63.00 TO NODE     63.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

================================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      113.16    13.82       3.419       81.40
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     63.00 =    4572.00
FEET.

   ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1        4.92     7.35       5.139        1.21
```

```
   LONGEST FLOWPATH FROM NODE     60.00 TO NODE     63.00 =     545.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1      65.09       7.35        5.139
       2     116.44      13.82        3.419

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     116.44   Tc(MIN.) =   13.82
   TOTAL AREA(ACRES) =       82.6


****************************************************************************
***
   FLOW PROCESS FROM NODE     63.00 TO NODE     63.00 IS CODE =  12
 --------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 3 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE     63.00 TO NODE     64.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   396.00  DOWNSTREAM(FEET) =   389.00
   FLOW LENGTH(FEET) =   550.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  45.0 INCH PIPE IS  33.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  13.26
   ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     116.44
   PIPE TRAVEL TIME(MIN.) =   0.69    Tc(MIN.) =   14.51
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     64.00 =    5122.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     64.00 TO NODE     64.00 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.) =   14.51
   RAINFALL INTENSITY(INCH/HR) =   3.31
   TOTAL STREAM AREA(ACRES) =    82.61
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    116.44


****************************************************************************
***
   FLOW PROCESS FROM NODE     66.00 TO NODE     67.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

================================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    397.00
   DOWNSTREAM ELEVATION(FEET) =    366.00
   ELEVATION DIFFERENCE(FEET) =     31.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.924
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.19
   TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      1.19


****************************************************************************
***
   FLOW PROCESS FROM NODE     67.00 TO NODE     64.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

================================================================================
===
   UPSTREAM ELEVATION(FEET) =  397.00  DOWNSTREAM ELEVATION(FEET) =
391.00
   STREET LENGTH(FEET) =   524.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018
```

```
   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.87
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.32
     HALFSTREET FLOOD WIDTH(FEET) =    8.72
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.22
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.71
   STREET FLOW TRAVEL TIME(MIN.) =   3.94   Tc(MIN.) =    6.86
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.371
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.750
   SUBAREA AREA(ACRES) =    1.32      SUBAREA RUNOFF(CFS) =    5.32
   TOTAL AREA(ACRES) =        1.6        PEAK FLOW RATE(CFS) =       6.28

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  10.98
   FLOW VELOCITY(FEET/SEC.) =  2.47   DEPTH*VELOCITY(FT*FT/SEC.) =   0.89
   LONGEST FLOWPATH FROM NODE     66.00 TO NODE     64.00 =     624.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     64.00 TO NODE     64.00 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.) =    6.86
   RAINFALL INTENSITY(INCH/HR) =   5.37
   TOTAL STREAM AREA(ACRES) =     1.56
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.28


****************************************************************************
***
   FLOW PROCESS FROM NODE     74.00 TO NODE     75.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
================================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
   UPSTREAM ELEVATION(FEET) =    449.60
   DOWNSTREAM ELEVATION(FEET) =    448.00
   ELEVATION DIFFERENCE(FEET) =      1.60
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.412
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.110
   SUBAREA RUNOFF(CFS) =      1.01
   TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.01


****************************************************************************
***
   FLOW PROCESS FROM NODE     75.00 TO NODE     64.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

================================================================================
===
   UPSTREAM ELEVATION(FEET) =  448.00  DOWNSTREAM ELEVATION(FEET) =
389.00
   STREET LENGTH(FEET) =  1101.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      25.71
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.42
     HALFSTREET FLOOD WIDTH(FEET) =   14.57
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.15
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.60
   STREET FLOW TRAVEL TIME(MIN.) =   2.98   Tc(MIN.) =   10.39
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.108
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   22.94      SUBAREA RUNOFF(CFS) =   49.01
```

```
   TOTAL AREA(ACRES) =       23.3        PEAK FLOW RATE(CFS) =      49.82

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.50   HALFSTREET FLOOD WIDTH(FEET) =  19.10
   FLOW VELOCITY(FEET/SEC.) =  7.22   DEPTH*VELOCITY(FT*FT/SEC.) =   3.63
   LONGEST FLOWPATH FROM NODE     74.00 TO NODE     64.00 =    1181.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     58.00 TO NODE     64.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.108
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5171
   SUBAREA AREA(ACRES) =    0.41   SUBAREA RUNOFF(CFS) =    0.59
   TOTAL AREA(ACRES) =       23.7   TOTAL RUNOFF(CFS) =      50.41
   TC(MIN.) =   10.39


****************************************************************************
***
   FLOW PROCESS FROM NODE     64.00 TO NODE     64.00 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.) =   10.39
   RAINFALL INTENSITY(INCH/HR) =   4.11
   TOTAL STREAM AREA(ACRES) =    23.73
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     50.41

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      116.44    14.51        3.313         82.61
       2        6.28     6.86        5.371          1.56
       3       50.41    10.39        4.108         23.73

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

```
   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       94.61     6.86       5.371
       2      138.64    10.39       4.108
       3      160.97    14.51       3.313

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     160.97   Tc(MIN.) =   14.51
   TOTAL AREA(ACRES) =      107.9
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     64.00 =    5122.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     64.00 TO NODE     76.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   390.00  DOWNSTREAM(FEET) =   379.00
   FLOW LENGTH(FEET) =   919.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  51.0 INCH PIPE IS  38.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  14.01
   ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     160.97
   PIPE TRAVEL TIME(MIN.) =   1.09    Tc(MIN.) =   15.60
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     76.00 =    6041.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     76.00 TO NODE     76.00 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.) =   15.60
   RAINFALL INTENSITY(INCH/HR) =   3.16
   TOTAL STREAM AREA(ACRES) =   107.90
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    160.97
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE     79.00 TO NODE     80.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    389.00
   DOWNSTREAM ELEVATION(FEET) =    388.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.690
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    61.76
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.04
   TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      1.04


****************************************************************************
***
   FLOW PROCESS FROM NODE     80.00 TO NODE     76.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  388.00  DOWNSTREAM ELEVATION(FEET) =
378.00
   STREET LENGTH(FEET) =   919.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.41
```

```
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.35
     HALFSTREET FLOOD WIDTH(FEET) =   10.43
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.32
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.81
   STREET FLOW TRAVEL TIME(MIN.) =   6.59   Tc(MIN.) =   11.28
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.897
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.750
   SUBAREA AREA(ACRES) =    2.89      SUBAREA RUNOFF(CFS) =    8.45
   TOTAL AREA(ACRES) =        3.1        PEAK FLOW RATE(CFS) =       9.06

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.09
   FLOW VELOCITY(FEET/SEC.) =  2.63   DEPTH*VELOCITY(FT*FT/SEC.) =   1.04
   LONGEST FLOWPATH FROM NODE     79.00 TO NODE     76.00 =    1004.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     76.00 TO NODE     76.00 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.) =   11.28
   RAINFALL INTENSITY(INCH/HR) =   3.90
   TOTAL STREAM AREA(ACRES) =     3.10
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.06

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      160.97    15.60        3.162        107.90
       2        9.06    11.28        3.897          3.10

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      139.68    11.28       3.897
       2      168.32    15.60       3.162

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
   PEAK FLOW RATE(CFS) =     168.32   Tc(MIN.) =   15.60
   TOTAL AREA(ACRES) =      111.0
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     76.00 =    6041.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     76.00 TO NODE     84.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   378.00  DOWNSTREAM(FEET) =   375.00
   FLOW LENGTH(FEET) =   287.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  54.0 INCH PIPE IS  39.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  13.54
   ESTIMATED PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     168.32
   PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =   15.95
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     84.00 =    6328.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     84.00 TO NODE     84.00 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.) =   15.95
   RAINFALL INTENSITY(INCH/HR) =   3.12
   TOTAL STREAM AREA(ACRES) =   111.00
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    168.32


****************************************************************************
***
   FLOW PROCESS FROM NODE     87.00 TO NODE     88.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
```

```
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
   UPSTREAM ELEVATION(FEET) =    552.75
   DOWNSTREAM ELEVATION(FEET) =    522.00
   ELEVATION DIFFERENCE(FEET) =     30.75
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.197
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.75
   TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.75


****************************************************************************
***
   FLOW PROCESS FROM NODE     88.00 TO NODE     84.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  2 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  552.00  DOWNSTREAM ELEVATION(FEET) =
368.00
   STREET LENGTH(FEET) =  3333.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 17.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      34.98
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.44
     HALFSTREET FLOOD WIDTH(FEET) =   15.63
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.83
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    3.00
   STREET FLOW TRAVEL TIME(MIN.) =   8.14   Tc(MIN.) =   12.33
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.679
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   33.36      SUBAREA RUNOFF(CFS) =   63.82
   TOTAL AREA(ACRES) =       33.6        PEAK FLOW RATE(CFS) =      64.24
```

```
   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.51   HALFSTREET FLOOD WIDTH(FEET) =  17.66
   FLOW VELOCITY(FEET/SEC.) =  8.43   DEPTH*VELOCITY(FT*FT/SEC.) =   4.33
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
          AND L = 3333.0 FT WITH ELEVATION-DROP = 184.0 FT, IS  102.6
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE     84.00
   LONGEST FLOWPATH FROM NODE     87.00 TO NODE     84.00 =    3408.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     81.00 TO NODE     84.00 IS CODE =  81
 --------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.679
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5136
   SUBAREA AREA(ACRES) =    1.32   SUBAREA RUNOFF(CFS) =    1.70
   TOTAL AREA(ACRES) =       34.9   TOTAL RUNOFF(CFS) =      65.94
   TC(MIN.) =   12.33


****************************************************************************
***
   FLOW PROCESS FROM NODE     84.00 TO NODE     84.00 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.) =   12.33
   RAINFALL INTENSITY(INCH/HR) =   3.68
   TOTAL STREAM AREA(ACRES) =    34.90
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     65.94

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      168.32    15.95        3.116        111.00
       2       65.94    12.33        3.679         34.90
```

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      208.52    12.33       3.679
       2      224.18    15.95       3.116

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     224.18   Tc(MIN.) =   15.95
   TOTAL AREA(ACRES) =      145.9
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     84.00 =    6328.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     84.00 TO NODE     89.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   381.00  DOWNSTREAM(FEET) =   375.00
   FLOW LENGTH(FEET) =   364.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  54.0 INCH PIPE IS  41.4 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.12
   ESTIMATED PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     224.18
   PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =   16.31
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     89.00 =    6692.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     89.00 TO NODE     89.00 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.) =   16.31
   RAINFALL INTENSITY(INCH/HR) =   3.07
   TOTAL STREAM AREA(ACRES) =   145.90
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    224.18
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE     93.00 TO NODE     94.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
   UPSTREAM ELEVATION(FEET) =    435.00
   DOWNSTREAM ELEVATION(FEET) =    434.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.252
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    72.50
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.768
   SUBAREA RUNOFF(CFS) =      0.50
   TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.50


****************************************************************************
***
   FLOW PROCESS FROM NODE     94.00 TO NODE     89.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  2 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  434.00  DOWNSTREAM ELEVATION(FEET) =
388.00
   STREET LENGTH(FEET) =   816.00   CURB HEIGHT(INCHES) =  6.0
   STREET HALFWIDTH(FEET) = 17.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.020
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      11.14
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
     STREET FLOW DEPTH(FEET) =  0.32
     HALFSTREET FLOOD WIDTH(FEET) =    9.70
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.27
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.69
   STREET FLOW TRAVEL TIME(MIN.) =   2.58   Tc(MIN.) =   10.84
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.000
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   10.18      SUBAREA RUNOFF(CFS) =   21.17
   TOTAL AREA(ACRES) =       10.4        PEAK FLOW RATE(CFS) =      21.59

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.82
   FLOW VELOCITY(FEET/SEC.) =  6.13   DEPTH*VELOCITY(FT*FT/SEC.) =   2.34
   LONGEST FLOWPATH FROM NODE     93.00 TO NODE     89.00 =     896.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     88.00 TO NODE     89.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.000
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5084
   SUBAREA AREA(ACRES) =    0.76   SUBAREA RUNOFF(CFS) =    1.06
   TOTAL AREA(ACRES) =       11.1   TOTAL RUNOFF(CFS) =      22.65
   TC(MIN.) =   10.84


****************************************************************************
***
   FLOW PROCESS FROM NODE     89.00 TO NODE     89.00 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.) =   10.84
   RAINFALL INTENSITY(INCH/HR) =   4.00
   TOTAL STREAM AREA(ACRES) =    11.14
```

```
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     22.65

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      224.18    16.31       3.073        145.90
       2       22.65    10.84       4.000         11.14

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      194.86    10.84       4.000
       2      241.58    16.31       3.073

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     241.58   Tc(MIN.) =   16.31
   TOTAL AREA(ACRES) =      157.0
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     89.00 =    6692.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     89.00 TO NODE     95.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   374.00  DOWNSTREAM(FEET) =   368.00
   FLOW LENGTH(FEET) =   405.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  57.0 INCH PIPE IS  43.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  16.80
   ESTIMATED PIPE DIAMETER(INCH) =  57.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     241.58
   PIPE TRAVEL TIME(MIN.) =   0.40    Tc(MIN.) =   16.71
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     95.00 =    7097.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     95.00 TO NODE     95.00 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.) =   16.71
   RAINFALL INTENSITY(INCH/HR) =   3.02
   TOTAL STREAM AREA(ACRES) =   157.04
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    241.58


****************************************************************************
***
   FLOW PROCESS FROM NODE     98.00 TO NODE     99.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    80.00
   UPSTREAM ELEVATION(FEET) =    378.80
   DOWNSTREAM ELEVATION(FEET) =    378.00
   ELEVATION DIFFERENCE(FEET) =      0.80
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.880
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.89
   TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.89


****************************************************************************
***
   FLOW PROCESS FROM NODE     99.00 TO NODE     95.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  378.00  DOWNSTREAM ELEVATION(FEET) =
368.00
   STREET LENGTH(FEET) =   630.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018
```

```
   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.86
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.30
     HALFSTREET FLOOD WIDTH(FEET) =    7.97
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.53
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.77
   STREET FLOW TRAVEL TIME(MIN.) =   4.14   Tc(MIN.) =    9.02
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.501
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.750
   SUBAREA AREA(ACRES) =    1.73      SUBAREA RUNOFF(CFS) =    5.84
   TOTAL AREA(ACRES) =        1.9        PEAK FLOW RATE(CFS) =       6.45

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  10.35
   FLOW VELOCITY(FEET/SEC.) =  2.80   DEPTH*VELOCITY(FT*FT/SEC.) =   0.97
   LONGEST FLOWPATH FROM NODE     98.00 TO NODE     95.00 =     710.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     95.00 TO NODE     95.00 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.) =    9.02
   RAINFALL INTENSITY(INCH/HR) =   4.50
   TOTAL STREAM AREA(ACRES) =     1.91
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.45

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      241.58    16.71        3.025        157.04
       2        6.45     9.02        4.501          1.91

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

```
   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      168.78     9.02       4.501
       2      245.92    16.71       3.025

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     245.92   Tc(MIN.) =   16.71
   TOTAL AREA(ACRES) =      158.9
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE     95.00 =    7097.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     95.00 TO NODE    105.00 IS CODE =  31
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   368.00  DOWNSTREAM(FEET) =   360.00
   FLOW LENGTH(FEET) =   745.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  60.0 INCH PIPE IS  47.2 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  14.85
   ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     245.92
   PIPE TRAVEL TIME(MIN.) =   0.84    Tc(MIN.) =   17.55
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    105.00 =    7842.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  10
 --------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

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

```
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    720.00
   DOWNSTREAM ELEVATION(FEET) =    712.00
   ELEVATION DIFFERENCE(FEET) =      8.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.895
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.923
   SUBAREA RUNOFF(CFS) =      0.58
   TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.58


****************************************************************************
***
   FLOW PROCESS FROM NODE    104.00 TO NODE   4052.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   714.00  DOWNSTREAM(FEET) =   640.00
   FLOW LENGTH(FEET) =   689.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.7 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   7.04
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.58
   PIPE TRAVEL TIME(MIN.) =   1.63    Tc(MIN.) =    7.53
   LONGEST FLOWPATH FROM NODE    103.00 TO NODE   4052.00 =     774.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    104.00 TO NODE   4052.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.060
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =    5.22   SUBAREA RUNOFF(CFS) =    9.24
   TOTAL AREA(ACRES) =        5.5   TOTAL RUNOFF(CFS) =       9.74
   TC(MIN.) =    7.53
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE   4052.00 TO NODE   4052.00 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.) =    7.53
   RAINFALL INTENSITY(INCH/HR) =   5.06
   TOTAL STREAM AREA(ACRES) =     5.50
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.74


****************************************************************************
***
   FLOW PROCESS FROM NODE   4050.00 TO NODE   4051.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    545.00
   DOWNSTREAM ELEVATION(FEET) =    540.00
   ELEVATION DIFFERENCE(FEET) =      5.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.586
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      2.20
   TOTAL AREA(ACRES) =      0.47   TOTAL RUNOFF(CFS) =      2.20


****************************************************************************
***
   FLOW PROCESS FROM NODE   4051.00 TO NODE   4052.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =
535.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   662.00   CHANNEL SLOPE =  0.0076
```

```
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.335
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.14
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.30
   AVERAGE FLOW DEPTH(FEET) =   0.33   TRAVEL TIME(MIN.) =   3.35
   Tc(MIN.) =    6.93
   SUBAREA AREA(ACRES) =     3.62       SUBAREA RUNOFF(CFS) =   13.71
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
   TOTAL AREA(ACRES) =        4.1         PEAK FLOW RATE(CFS) =
15.49

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.43   FLOW VELOCITY(FEET/SEC.) =   3.85
   LONGEST FLOWPATH FROM NODE   4050.00 TO NODE   4052.00 =     747.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4052.00 TO NODE   4052.00 IS CODE =   7
 --------------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

============================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  11.00   RAIN INTENSITY(INCH/HOUR) =  3.96
   TOTAL AREA(ACRES) =     4.10   TOTAL RUNOFF(CFS) =      4.70


****************************************************************************
***
   FLOW PROCESS FROM NODE   4052.00 TO NODE   4052.00 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.) =   11.00
   RAINFALL INTENSITY(INCH/HR) =   3.96
   TOTAL STREAM AREA(ACRES) =     4.10
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.70

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
```

```
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1        9.74     7.53        5.060          5.50
       2        4.70    11.00        3.961          4.10

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       12.96     7.53       5.060
       2       12.33    11.00       3.961

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      12.96   Tc(MIN.) =    7.53
   TOTAL AREA(ACRES) =        9.6
   LONGEST FLOWPATH FROM NODE    103.00 TO NODE   4052.00 =     774.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4052.00 TO NODE    105.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =
351.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  3626.00   CHANNEL SLOPE =  0.0521
   CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   2.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.317
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .4700
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      40.33
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.69
   AVERAGE FLOW DEPTH(FEET) =   1.10   TRAVEL TIME(MIN.) =   6.96
   Tc(MIN.) =   14.48
   SUBAREA AREA(ACRES) =    35.40       SUBAREA RUNOFF(CFS) =   55.19
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.439
   TOTAL AREA(ACRES) =       45.0         PEAK FLOW RATE(CFS) =
65.51

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  1.39   FLOW VELOCITY(FEET/SEC.) =   9.82
   LONGEST FLOWPATH FROM NODE    103.00 TO NODE    105.00 =    4400.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

============================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1       65.51    14.48       3.317       45.00
   LONGEST FLOWPATH FROM NODE    103.00 TO NODE    105.00 =    4400.00
FEET.

   ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      245.92    17.55       2.931      158.95
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    105.00 =    7842.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     268.48      14.48        3.317
       2     303.80      17.55        2.931

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     303.80   Tc(MIN.) =   17.55
   TOTAL AREA(ACRES) =      203.9


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  12
 ----------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 3 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  10
 ----------------------------------------------------------------------------
----
   >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
```

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


****************************************************************************
***
   FLOW PROCESS FROM NODE   4122.00 TO NODE    123.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    743.00
   DOWNSTREAM ELEVATION(FEET) =    733.00
   ELEVATION DIFFERENCE(FEET) =     10.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
   SUBAREA RUNOFF(CFS) =      0.32
   TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.32


****************************************************************************
***
   FLOW PROCESS FROM NODE    123.00 TO NODE   4042.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    745.00  DOWNSTREAM(FEET) =
550.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =  1145.00   CHANNEL SLOPE =  0.1703
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.627
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.36
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.02
   AVERAGE FLOW DEPTH(FEET) =   0.11   TRAVEL TIME(MIN.) =   2.38
   Tc(MIN.) =    8.65
   SUBAREA AREA(ACRES) =     6.14       SUBAREA RUNOFF(CFS) =    9.94
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
```

```
   TOTAL AREA(ACRES) =        6.3         PEAK FLOW RATE(CFS) =
10.20

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =  10.01
   LONGEST FLOWPATH FROM NODE    122.00 TO NODE   4042.00 =    1245.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4042.00 TO NODE   4042.00 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.) =    8.65
   RAINFALL INTENSITY(INCH/HR) =   4.63
   TOTAL STREAM AREA(ACRES) =     6.30
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.20


****************************************************************************
***
   FLOW PROCESS FROM NODE   4040.00 TO NODE   4041.00 IS CODE =  21
 --------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    571.00
   DOWNSTREAM ELEVATION(FEET) =    570.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.660
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.081
   SUBAREA RUNOFF(CFS) =      2.25
   TOTAL AREA(ACRES) =      0.52   TOTAL RUNOFF(CFS) =      2.25


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

```
   FLOW PROCESS FROM NODE   4041.00 TO NODE   4042.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    570.00  DOWNSTREAM(FEET) =
550.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   627.00   CHANNEL SLOPE =  0.0319
   CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
   MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.126
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (24. DU/AC OR LESS) RUNOFF COEFFICIENT = .7100
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.29
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.09
   AVERAGE FLOW DEPTH(FEET) =   0.26   TRAVEL TIME(MIN.) =   1.72
   Tc(MIN.) =    7.38
   SUBAREA AREA(ACRES) =     5.50       SUBAREA RUNOFF(CFS) =   20.02
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.710
   TOTAL AREA(ACRES) =        6.0         PEAK FLOW RATE(CFS) =
21.91

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.36   FLOW VELOCITY(FEET/SEC.) =   7.04
   LONGEST FLOWPATH FROM NODE   4040.00 TO NODE   4042.00 =     727.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4042.00 TO NODE   4042.00 IS CODE =   7
 ----------------------------------------------------------------------
----
   >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

======================================================================
===
   USER-SPECIFIED VALUES ARE AS FOLLOWS:
   TC(MIN) =  11.00   RAIN INTENSITY(INCH/HOUR) =  3.96
   TOTAL AREA(ACRES) =     6.00   TOTAL RUNOFF(CFS) =      5.50


****************************************************************************
***
   FLOW PROCESS FROM NODE   4042.00 TO NODE   4042.00 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.) =   11.00
   RAINFALL INTENSITY(INCH/HR) =   3.96
   TOTAL STREAM AREA(ACRES) =     6.00
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.50

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1       10.20     8.65        4.627          6.30
       2        5.50    11.00        3.961          6.00

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       14.52     8.65       4.627
       2       14.23    11.00       3.961

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =      14.52   Tc(MIN.) =    8.65
   TOTAL AREA(ACRES) =       12.3
   LONGEST FLOWPATH FROM NODE    122.00 TO NODE   4042.00 =    1245.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE   4042.00 TO NODE    105.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   550.00  DOWNSTREAM(FEET) =   364.00
   FLOW LENGTH(FEET) =  3070.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  14.46
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      14.52
   PIPE TRAVEL TIME(MIN.) =   3.54    Tc(MIN.) =   12.18
   LONGEST FLOWPATH FROM NODE    122.00 TO NODE    105.00 =    4315.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE   4042.00 TO NODE    105.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.708
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (7.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .4600
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.4204
   SUBAREA AREA(ACRES) =   39.87   SUBAREA RUNOFF(CFS) =   68.01
   TOTAL AREA(ACRES) =       52.2   TOTAL RUNOFF(CFS) =      81.34
   TC(MIN.) =   12.18


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  11
 ----------------------------------------------------------------------------
----
   >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

============================================================================
===

   ** MAIN STREAM CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1       81.34    12.18       3.708       52.17
   LONGEST FLOWPATH FROM NODE    122.00 TO NODE    105.00 =    4315.00
FEET.

   ** MEMORY BANK #  3 CONFLUENCE DATA **
   STREAM     RUNOFF      Tc      INTENSITY     AREA
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
       1      303.80    17.55       2.931      203.95
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    105.00 =    7842.00
FEET.

   ** PEAK FLOW RATE TABLE **
   STREAM    RUNOFF       Tc      INTENSITY
   NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
       1     292.28      12.18        3.708
       2     368.09      17.55        2.931

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     368.09   Tc(MIN.) =   17.55
   TOTAL AREA(ACRES) =      256.1
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  12
 ----------------------------------------------------------------------------
----
   >>>>>CLEAR MEMORY BANK # 3 <<<<<

============================================================================
===


****************************************************************************
***
   FLOW PROCESS FROM NODE    105.00 TO NODE    114.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   360.00  DOWNSTREAM(FEET) =   355.00
   FLOW LENGTH(FEET) =   354.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  66.0 INCH PIPE IS  52.5 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  18.16
   ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     368.09
   PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   17.87
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    114.00 =    8196.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 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.) =   17.87
   RAINFALL INTENSITY(INCH/HR) =   2.90
   TOTAL STREAM AREA(ACRES) =   256.12
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    368.09


****************************************************************************
***
   FLOW PROCESS FROM NODE    117.00 TO NODE    118.00 IS CODE =  21
```

```
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    368.00
   DOWNSTREAM ELEVATION(FEET) =    366.50
   ELEVATION DIFFERENCE(FEET) =      1.50
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.437
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      1.43
   TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      1.43


****************************************************************************
***
   FLOW PROCESS FROM NODE    118.00 TO NODE    114.00 IS CODE =  62
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

========================================================================
===
   UPSTREAM ELEVATION(FEET) =  366.00  DOWNSTREAM ELEVATION(FEET) =
356.00
   STREET LENGTH(FEET) =   935.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.88
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.37
     HALFSTREET FLOOD WIDTH(FEET) =   11.68
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.44
```

```
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.90
   STREET FLOW TRAVEL TIME(MIN.) =   6.40   Tc(MIN.) =   10.83
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.001
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.750
   SUBAREA AREA(ACRES) =    3.51      SUBAREA RUNOFF(CFS) =   10.53
   TOTAL AREA(ACRES) =        3.8        PEAK FLOW RATE(CFS) =      11.40

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  14.49
   FLOW VELOCITY(FEET/SEC.) =  2.75   DEPTH*VELOCITY(FT*FT/SEC.) =   1.16
   LONGEST FLOWPATH FROM NODE    117.00 TO NODE    114.00 =    1035.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 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.) =   10.83
   RAINFALL INTENSITY(INCH/HR) =   4.00
   TOTAL STREAM AREA(ACRES) =     3.80
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.40


****************************************************************************
***
   FLOW PROCESS FROM NODE    120.00 TO NODE    121.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =     0.85
   UPSTREAM ELEVATION(FEET) =    360.00
   DOWNSTREAM ELEVATION(FEET) =    359.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    0.578
   WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc
CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
```

```
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   SUBAREA RUNOFF(CFS) =      0.23
   TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.23

****************************************************************************
***
   FLOW PROCESS FROM NODE    121.00 TO NODE    114.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   360.00  DOWNSTREAM(FEET) =   355.00
   FLOW LENGTH(FEET) =   221.00   MANNING'S N =  0.013
   ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
   DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.6 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =   3.10
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =       0.23
   PIPE TRAVEL TIME(MIN.) =   1.19    Tc(MIN.) =    1.77
   LONGEST FLOWPATH FROM NODE    120.00 TO NODE    114.00 =     221.85
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    121.00 TO NODE    114.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
   NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
   *USER SPECIFIED(SUBAREA):
   NEIGHBORHOOD COMMERCIAL RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
   SUBAREA AREA(ACRES) =    1.25   SUBAREA RUNOFF(CFS) =    2.88
   TOTAL AREA(ACRES) =       1.4   TOTAL RUNOFF(CFS) =       3.11
   TC(MIN.) =    1.77


****************************************************************************
***
   FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 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.) =    1.77
   RAINFALL INTENSITY(INCH/HR) =   6.59
   TOTAL STREAM AREA(ACRES) =     1.35
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.11

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      368.09    17.87        2.896        256.12
       2       11.40    10.83        4.001          3.80
       3        3.11     1.77        6.587          1.35

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1       41.32     1.77       6.587
       2      236.39    10.83       4.001
       3      377.71    17.87       2.896

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     377.71   Tc(MIN.) =   17.87
   TOTAL AREA(ACRES) =      261.3
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    114.00 =    8196.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    114.00 TO NODE    124.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

================================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   356.00  DOWNSTREAM(FEET) =   351.00
   FLOW LENGTH(FEET) =  1330.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  87.0 INCH PIPE IS  66.1 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  11.22
   ESTIMATED PIPE DIAMETER(INCH) =  87.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     377.71
   PIPE TRAVEL TIME(MIN.) =   1.98    Tc(MIN.) =   19.85
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    124.00 =    9526.00
FEET.
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    124.00 TO NODE    124.00 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.) =   19.85
   RAINFALL INTENSITY(INCH/HR) =   2.71
   TOTAL STREAM AREA(ACRES) =   261.27
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    377.71


****************************************************************************
***
   FLOW PROCESS FROM NODE    130.00 TO NODE    131.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7000
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    360.00
   DOWNSTREAM ELEVATION(FEET) =    359.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.360
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    61.76
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.298
   SUBAREA RUNOFF(CFS) =      0.79
   TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.79


****************************************************************************
***
   FLOW PROCESS FROM NODE    131.00 TO NODE    124.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

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

```
   UPSTREAM ELEVATION(FEET) =  359.00  DOWNSTREAM ELEVATION(FEET) =
351.00
   STREET LENGTH(FEET) =   748.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.81
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.36
     HALFSTREET FLOOD WIDTH(FEET) =   10.82
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.35
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.83
   STREET FLOW TRAVEL TIME(MIN.) =   5.31   Tc(MIN.) =   10.67
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.039
   *USER SPECIFIED(SUBAREA):
   GENERAL INDUSTRIAL RUNOFF COEFFICIENT = .7000
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.700
   SUBAREA AREA(ACRES) =    3.46      SUBAREA RUNOFF(CFS) =    9.78
   TOTAL AREA(ACRES) =        3.6        PEAK FLOW RATE(CFS) =      10.29

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  13.87
   FLOW VELOCITY(FEET/SEC.) =  2.69   DEPTH*VELOCITY(FT*FT/SEC.) =   1.10
   LONGEST FLOWPATH FROM NODE    130.00 TO NODE    124.00 =     833.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    124.00 TO NODE    124.00 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.) =   10.67
   RAINFALL INTENSITY(INCH/HR) =   4.04
   TOTAL STREAM AREA(ACRES) =     3.64
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.29
```

```
****************************************************************************
***
   FLOW PROCESS FROM NODE    134.00 TO NODE    135.00 IS CODE =  21
 ----------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

============================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    479.00
   DOWNSTREAM ELEVATION(FEET) =    478.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.735
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.596
   SUBAREA RUNOFF(CFS) =      0.67
   TOTAL AREA(ACRES) =      0.28   TOTAL RUNOFF(CFS) =      0.67


****************************************************************************
***
   FLOW PROCESS FROM NODE    135.00 TO NODE    124.00 IS CODE =  62
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

============================================================================
===
   UPSTREAM ELEVATION(FEET) =  478.00  DOWNSTREAM ELEVATION(FEET) =
374.00
   STREET LENGTH(FEET) =  3865.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      43.22
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
     STREET FLOW DEPTH(FEET) =  0.53
     HALFSTREET FLOOD WIDTH(FEET) =   20.74
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.35
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.85
   STREET FLOW TRAVEL TIME(MIN.) =  12.03   Tc(MIN.) =   20.77
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.629
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   59.53      SUBAREA RUNOFF(CFS) =   81.39
   TOTAL AREA(ACRES) =       59.8        PEAK FLOW RATE(CFS) =      81.77

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.64   HALFSTREET FLOOD WIDTH(FEET) =  26.68
   FLOW VELOCITY(FEET/SEC.) =  6.24   DEPTH*VELOCITY(FT*FT/SEC.) =   3.99
   *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
          AND L = 3865.0 FT WITH ELEVATION-DROP = 104.0 FT, IS  162.1
CFS,
          WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE    124.00
   LONGEST FLOWPATH FROM NODE    134.00 TO NODE    124.00 =    3965.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    138.00 TO NODE    124.00 IS CODE =  81
 ----------------------------------------------------------------------------
----
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

============================================================================
===
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.629
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT = 0.5200
   SUBAREA AREA(ACRES) =    2.71   SUBAREA RUNOFF(CFS) =    3.71
   TOTAL AREA(ACRES) =       62.5   TOTAL RUNOFF(CFS) =      85.48
   TC(MIN.) =   20.77


****************************************************************************
***
   FLOW PROCESS FROM NODE    124.00 TO NODE    124.00 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.) =   20.77
   RAINFALL INTENSITY(INCH/HR) =   2.63
   TOTAL STREAM AREA(ACRES) =    62.52
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     85.48

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      377.71    19.85        2.707        261.27
       2       10.29    10.67        4.039          3.64
       3       85.48    20.77        2.629         62.52

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      307.41    10.67       4.039
       2      466.30    19.85       2.707
       3      459.02    20.77       2.629

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     466.30   Tc(MIN.) =   19.85
   TOTAL AREA(ACRES) =      327.4
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    124.00 =    9526.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    124.00 TO NODE    140.00 IS CODE =  31
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =   355.00  DOWNSTREAM(FEET) =   353.00
   FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
   DEPTH OF FLOW IN  78.0 INCH PIPE IS  60.0 INCHES
   PIPE-FLOW VELOCITY(FEET/SEC.) =  17.04
   ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =     466.30
   PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   20.04
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    140.00 =    9726.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 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.) =   20.04
   RAINFALL INTENSITY(INCH/HR) =   2.69
   TOTAL STREAM AREA(ACRES) =   327.43
   PEAK FLOW RATE(CFS) AT CONFLUENCE =    466.30


************************************************************************
***
   FLOW PROCESS FROM NODE    146.00 TO NODE    147.00 IS CODE =  21
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
   UPSTREAM ELEVATION(FEET) =    413.00
   DOWNSTREAM ELEVATION(FEET) =    412.00
   ELEVATION DIFFERENCE(FEET) =      1.00
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.735
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.596
   SUBAREA RUNOFF(CFS) =      0.86
   TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      0.86


************************************************************************
***
   FLOW PROCESS FROM NODE    147.00 TO NODE    140.00 IS CODE =  62
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<

========================================================================
===
   UPSTREAM ELEVATION(FEET) =  412.00  DOWNSTREAM ELEVATION(FEET) =
356.00
   STREET LENGTH(FEET) =  1690.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00
```

```
   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =
0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      26.23
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.45
     HALFSTREET FLOOD WIDTH(FEET) =   16.21
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.16
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.33
   STREET FLOW TRAVEL TIME(MIN.) =   5.46   Tc(MIN.) =   14.19
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.361
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (4.3 DU/AC OR LESS) RUNOFF COEFFICIENT = .5200
   S.C.S. CURVE NUMBER (AMC II) =   0
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.520
   SUBAREA AREA(ACRES) =   28.60      SUBAREA RUNOFF(CFS) =   49.98
   TOTAL AREA(ACRES) =       29.0        PEAK FLOW RATE(CFS) =      50.61

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.54   HALFSTREET FLOOD WIDTH(FEET) =  21.21
   FLOW VELOCITY(FEET/SEC.) =  6.01   DEPTH*VELOCITY(FT*FT/SEC.) =   3.25
   LONGEST FLOWPATH FROM NODE    146.00 TO NODE    140.00 =    1790.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 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.) =   14.19
   RAINFALL INTENSITY(INCH/HR) =   3.36
   TOTAL STREAM AREA(ACRES) =    28.96
   PEAK FLOW RATE(CFS) AT CONFLUENCE =     50.61


****************************************************************************
***
   FLOW PROCESS FROM NODE     69.00 TO NODE     70.00 IS CODE =  21
```

```
 ------------------------------------------------------------------------
----
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

========================================================================
===
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
   UPSTREAM ELEVATION(FEET) =    391.00
   DOWNSTREAM ELEVATION(FEET) =    389.50
   ELEVATION DIFFERENCE(FEET) =      1.50
   SUBAREA OVERLAND TIME OF FLOW(MIN.) =   10.084
   WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
            THE MAXIMUM OVERLAND FLOW LENGTH =    81.47
            (Reference: Table 3-1B of Hydrology Manual)
            THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
   SUBAREA RUNOFF(CFS) =      0.23
   TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.23


************************************************************************
***
   FLOW PROCESS FROM NODE     70.00 TO NODE     71.00 IS CODE =  51
 ------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

========================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    389.00  DOWNSTREAM(FEET) =
385.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   397.00   CHANNEL SLOPE =  0.0101
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   8.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.109
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.44
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.12
   AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =   5.93
   Tc(MIN.) =   16.02
   SUBAREA AREA(ACRES) =     0.37       SUBAREA RUNOFF(CFS) =    0.40
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        0.5         PEAK FLOW RATE(CFS) =
0.58

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.14   FLOW VELOCITY(FEET/SEC.) =   1.20
```

```
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE     71.00 =     482.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    386.00  DOWNSTREAM(FEET) =
379.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   565.00   CHANNEL SLOPE =  0.0124
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.479
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.83
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.40
   AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   6.73
   Tc(MIN.) =   22.74
   SUBAREA AREA(ACRES) =     0.59       SUBAREA RUNOFF(CFS) =    0.51
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        1.1         PEAK FLOW RATE(CFS) =
0.97

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.17   FLOW VELOCITY(FEET/SEC.) =   1.48
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE     72.00 =    1047.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     72.00 TO NODE     83.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    379.00  DOWNSTREAM(FEET) =
369.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   999.00   CHANNEL SLOPE =  0.0100
   CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.923
```

```
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.34
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.52
   AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =  10.98
   Tc(MIN.) =   33.72
   SUBAREA AREA(ACRES) =     1.10       SUBAREA RUNOFF(CFS) =    0.74
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        2.2         PEAK FLOW RATE(CFS) =
1.49

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   1.60
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE     83.00 =    2046.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE     83.00 TO NODE     90.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    369.00  DOWNSTREAM(FEET) =
364.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   416.00   CHANNEL SLOPE =  0.0120
   CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.784
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.63
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.67
   AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   4.15
   Tc(MIN.) =   37.88
   SUBAREA AREA(ACRES) =     0.44       SUBAREA RUNOFF(CFS) =    0.27
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        2.7         PEAK FLOW RATE(CFS) =
1.66

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   1.70
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE     90.00 =    2462.00
FEET.


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

```
   FLOW PROCESS FROM NODE     90.00 TO NODE    107.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    364.00  DOWNSTREAM(FEET) =
360.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   386.00   CHANNEL SLOPE =  0.0104
   CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   4.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.672
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.79
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.61
   AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   4.00
   Tc(MIN.) =   41.88
   SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    0.25
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        3.1         PEAK FLOW RATE(CFS) =
1.81

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   1.63
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    107.00 =    2848.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  51
 ----------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

======================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    360.00  DOWNSTREAM(FEET) =
352.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   832.00   CHANNEL SLOPE =  0.0096
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   5.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.492
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.10
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.71
   AVERAGE FLOW DEPTH(FEET) =   0.28   TRAVEL TIME(MIN.) =   8.10
```

```
   Tc(MIN.) =   49.98
   SUBAREA AREA(ACRES) =     1.13       SUBAREA RUNOFF(CFS) =    0.59
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        4.2         PEAK FLOW RATE(CFS) =
2.20

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.29   FLOW VELOCITY(FEET/SEC.) =   1.75
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    108.00 =    3680.00
FEET.


****************************************************************************
***
   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) =    352.50  DOWNSTREAM(FEET) =
350.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   250.00   CHANNEL SLOPE =  0.0100
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.452
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.34
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.93
   AVERAGE FLOW DEPTH(FEET) =   0.31   TRAVEL TIME(MIN.) =   2.15
   Tc(MIN.) =   52.13
   SUBAREA AREA(ACRES) =     0.53       SUBAREA RUNOFF(CFS) =    0.27
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        4.8         PEAK FLOW RATE(CFS) =
2.41

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.32   FLOW VELOCITY(FEET/SEC.) =   1.94
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    109.00 =    3930.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    109.00 TO NODE    110.00 IS CODE =  51
 --------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    350.00  DOWNSTREAM(FEET) =
345.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   485.00   CHANNEL SLOPE =  0.0103
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   4.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.382
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.61
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.94
   AVERAGE FLOW DEPTH(FEET) =   0.32   TRAVEL TIME(MIN.) =   4.16
   Tc(MIN.) =   56.29
   SUBAREA AREA(ACRES) =     0.83       SUBAREA RUNOFF(CFS) =    0.40
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        5.6         PEAK FLOW RATE(CFS) =
2.70

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.32   FLOW VELOCITY(FEET/SEC.) =   1.94
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    110.00 =    4415.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    110.00 TO NODE    126.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

================================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    345.00  DOWNSTREAM(FEET) =
340.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   480.00   CHANNEL SLOPE =  0.0104
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   5.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.325
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.88
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.11
   AVERAGE FLOW DEPTH(FEET) =   0.34   TRAVEL TIME(MIN.) =   3.80
   Tc(MIN.) =   60.09
   SUBAREA AREA(ACRES) =     0.80       SUBAREA RUNOFF(CFS) =    0.37
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        6.4         PEAK FLOW RATE(CFS) =
2.96
```

```
   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =   2.12
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    126.00 =    4895.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    126.00 TO NODE    140.00 IS CODE =  51
 ----------------------------------------------------------------------------
----
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

============================================================================
===
   ELEVATION DATA: UPSTREAM(FEET) =    340.00  DOWNSTREAM(FEET) =
337.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   280.00   CHANNEL SLOPE =  0.0107
   CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
   MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   3.00
    100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.295
   *USER SPECIFIED(SUBAREA):
   RESIDENTIAL (1. DU/AC OR LESS) RUNOFF COEFFICIENT = .3500
   S.C.S. CURVE NUMBER (AMC II) =   0
   TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.04
   TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.16
   AVERAGE FLOW DEPTH(FEET) =   0.35   TRAVEL TIME(MIN.) =   2.16
   Tc(MIN.) =   62.25
   SUBAREA AREA(ACRES) =     0.36       SUBAREA RUNOFF(CFS) =    0.16
   AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
   TOTAL AREA(ACRES) =        6.7         PEAK FLOW RATE(CFS) =
3.06

   END OF SUBAREA CHANNEL FLOW HYDRAULICS:
   DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =   2.17
   LONGEST FLOWPATH FROM NODE     69.00 TO NODE    140.00 =    5175.00
FEET.


****************************************************************************
***
   FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 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.) =   62.25
```

```
   RAINFALL INTENSITY(INCH/HR) =   1.30
   TOTAL STREAM AREA(ACRES) =     6.74
   PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.06

   ** CONFLUENCE DATA **
   STREAM     RUNOFF       Tc      INTENSITY      AREA
   NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
       1      466.30    20.04        2.690        327.43
       2       50.61    14.19        3.361         28.96
       3        3.06    62.25        1.295          6.74

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

   ** PEAK FLOW RATE TABLE **
   STREAM     RUNOFF      Tc      INTENSITY
   NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
       1      424.52    14.19       3.361
       2      507.80    20.04       2.690
       3      247.05    62.25       1.295

   COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
   PEAK FLOW RATE(CFS) =     507.80   Tc(MIN.) =   20.04
   TOTAL AREA(ACRES) =      363.1
   LONGEST FLOWPATH FROM NODE    150.00 TO NODE    140.00 =    9726.00
FEET.

================================================================================
===
   END OF STUDY SUMMARY:
   TOTAL AREA(ACRES)     =      363.1  TC(MIN.) =     20.04
   PEAK FLOW RATE(CFS)   =     507.80

================================================================================
===

================================================================================
===
   END OF RATIONAL METHOD ANALYSIS
```

Q100 Analysis- Includes Offsite areas along the exterior of the developed areas and the northern natural offsite flows.

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
              Ver. 22.0 Release Date: 07/01/2015  License ID 1239

                            Analysis prepared by:

                     HUnsaker & Associates San Diego, Inc.
                               9707 Waples Street
                              San Diego   CA   92121


 ************************* DESCRIPTION OF STUDY *************************
* Fanita Ranch Proposed Condition Hydrology model, Offsite                *
* 100-year return interval                                               *
*                                                                        *
 **************************************************************************

  FILE NAME: R:\1284\HYD\CALCS\TM\AES\OFFPR.DAT
  TIME/DATE OF STUDY: 11:48 03/11/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *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
  2   17.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  3   20.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  4   16.0     10.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  5   26.0     18.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  6   44.0     12.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 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.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1180.00
  DOWNSTREAM ELEVATION(FEET) =   1170.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.33   TOTAL RUNOFF(CFS) =      0.66
```

```
****************************************************************************
  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) =   1170.00  DOWNSTREAM(FEET) =    776.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2425.00   CHANNEL SLOPE =  0.1625
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.754
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      36.47
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.10
  AVERAGE FLOW DEPTH(FEET) =   0.49   TRAVEL TIME(MIN.) =   5.69
  Tc(MIN.) =   11.96
  SUBAREA AREA(ACRES) =    52.56       SUBAREA RUNOFF(CFS) =   69.05
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       52.9         PEAK FLOW RATE(CFS) =      69.49

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.70   FLOW VELOCITY(FEET/SEC.) =   8.68
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =    2525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 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.) =   11.96
  RAINFALL INTENSITY(INCH/HR) =   3.75
  TOTAL STREAM AREA(ACRES) =    52.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     69.49

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1145.00
  DOWNSTREAM ELEVATION(FEET) =   1135.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.90
  TOTAL AREA(ACRES) =      0.45   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    102.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1135.00  DOWNSTREAM(FEET) =    776.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2115.00   CHANNEL SLOPE =  0.1697
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.906
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      39.37
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.09
  AVERAGE FLOW DEPTH(FEET) =   0.45   TRAVEL TIME(MIN.) =   4.97
  Tc(MIN.) =   11.24
```

```
  SUBAREA AREA(ACRES) =    54.54       SUBAREA RUNOFF(CFS) =   74.56
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       55.0         PEAK FLOW RATE(CFS) =      75.18

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.65   FLOW VELOCITY(FEET/SEC.) =   8.80
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    102.00 =    2215.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 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.) =   11.24
  RAINFALL INTENSITY(INCH/HR) =   3.91
  TOTAL STREAM AREA(ACRES) =    54.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     75.18

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       69.49    11.96        3.754         52.89
      2       75.18    11.24        3.906         54.99

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      140.50    11.24       3.906
      2      141.73    11.96       3.754

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     141.73   Tc(MIN.) =   11.96
  TOTAL AREA(ACRES) =      107.9
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =    2525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    776.00  DOWNSTREAM(FEET) =    732.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   855.00   CHANNEL SLOPE =  0.0515
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.403
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     164.88
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.25
  AVERAGE FLOW DEPTH(FEET) =   1.36   TRAVEL TIME(MIN.) =   1.96
  Tc(MIN.) =   13.92
  SUBAREA AREA(ACRES) =    38.86       SUBAREA RUNOFF(CFS) =   46.28
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      146.7         PEAK FLOW RATE(CFS) =     174.76

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.39   FLOW VELOCITY(FEET/SEC.) =   7.39
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =    3380.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    655.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1633.00   CHANNEL SLOPE =  0.0472
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.940
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     226.79
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.68
  AVERAGE FLOW DEPTH(FEET) =   1.63   TRAVEL TIME(MIN.) =   3.54
  Tc(MIN.) =   17.47
  SUBAREA AREA(ACRES) =   101.02       SUBAREA RUNOFF(CFS) =  103.94
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      247.8         PEAK FLOW RATE(CFS) =     254.92

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.73   FLOW VELOCITY(FEET/SEC.) =   7.92
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    5013.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    660.00  DOWNSTREAM(FEET) =    558.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2842.00   CHANNEL SLOPE =  0.0359
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.425
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     295.46
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.81
  AVERAGE FLOW DEPTH(FEET) =   2.07   TRAVEL TIME(MIN.) =   6.07
  Tc(MIN.) =   23.53
  SUBAREA AREA(ACRES) =    95.34       SUBAREA RUNOFF(CFS) =   80.93
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      343.1         PEAK FLOW RATE(CFS) =     291.25

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.06   FLOW VELOCITY(FEET/SEC.) =   7.78
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =    7855.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3300
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    980.00
  DOWNSTREAM ELEVATION(FEET) =    970.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.434
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.598
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    684.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1392.00   CHANNEL SLOPE =  0.2055
  CHANNEL BASE(FEET) =   11.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.153
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3300
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      20.70
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.12
  AVERAGE FLOW DEPTH(FEET) =   0.29   TRAVEL TIME(MIN.) =   3.79
  Tc(MIN.) =   10.22
  SUBAREA AREA(ACRES) =    28.46       SUBAREA RUNOFF(CFS) =   39.00
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.330
  TOTAL AREA(ACRES) =       28.9         PEAK FLOW RATE(CFS) =      39.55

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.42   FLOW VELOCITY(FEET/SEC.) =   7.75
  LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =    1492.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    684.00  DOWNSTREAM(FEET) =    555.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1720.00   CHANNEL SLOPE =  0.0750
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.211
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3300
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      53.62
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.72
  AVERAGE FLOW DEPTH(FEET) =   0.56   TRAVEL TIME(MIN.) =   5.01
  Tc(MIN.) =   15.23
  SUBAREA AREA(ACRES) =    26.41       SUBAREA RUNOFF(CFS) =   27.98
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.330
  TOTAL AREA(ACRES) =       55.3         PEAK FLOW RATE(CFS) =      58.56

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.59   FLOW VELOCITY(FEET/SEC.) =   5.92
  LONGEST FLOWPATH FROM NODE    110.00 TO NODE    113.00 =    3212.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    116.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3440
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    810.00
  DOWNSTREAM ELEVATION(FEET) =    800.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.317
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.665
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.16

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

```
  FLOW PROCESS FROM NODE    116.00 TO NODE    117.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =    538.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1697.00   CHANNEL SLOPE =  0.1544
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.843
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3440
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.78
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.43
  AVERAGE FLOW DEPTH(FEET) =   0.30   TRAVEL TIME(MIN.) =   5.21
  Tc(MIN.) =   11.53
  SUBAREA AREA(ACRES) =    25.64       SUBAREA RUNOFF(CFS) =   33.90
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.344
  TOTAL AREA(ACRES) =       25.7         PEAK FLOW RATE(CFS) =      34.01

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.44   FLOW VELOCITY(FEET/SEC.) =   6.87
  LONGEST FLOWPATH FROM NODE    115.00 TO NODE    117.00 =    1797.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    121.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    800.00
  DOWNSTREAM ELEVATION(FEET) =    790.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.48
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.48

****************************************************************************
  FLOW PROCESS FROM NODE    121.00 TO NODE    122.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    508.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2585.00   CHANNEL SLOPE =  0.1091
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.510
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      34.67
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.15
  AVERAGE FLOW DEPTH(FEET) =   0.49   TRAVEL TIME(MIN.) =   7.00
  Tc(MIN.) =   13.27
  SUBAREA AREA(ACRES) =    53.02       SUBAREA RUNOFF(CFS) =   65.13
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       53.3         PEAK FLOW RATE(CFS) =      65.43

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.70   FLOW VELOCITY(FEET/SEC.) =   7.66
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    122.00 =    2685.00 FEET.
```

```
+-------------------------------------------------------------------------+
|                                                                         |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+

*************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    151.00 IS CODE =  21
-------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1145.00
  DOWNSTREAM ELEVATION(FEET) =   1135.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.76
  TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      0.76

*************************************************************************
  FLOW PROCESS FROM NODE    151.00 TO NODE    152.00 IS CODE =  51
-------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1135.00  DOWNSTREAM(FEET) =    872.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1693.00   CHANNEL SLOPE =  0.1553
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.088
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      28.76
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.70
  AVERAGE FLOW DEPTH(FEET) =   0.44   TRAVEL TIME(MIN.) =   4.21
  Tc(MIN.) =   10.48
  SUBAREA AREA(ACRES) =    38.21       SUBAREA RUNOFF(CFS) =   54.67
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       38.6         PEAK FLOW RATE(CFS) =      55.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.64   FLOW VELOCITY(FEET/SEC.) =   8.23
  LONGEST FLOWPATH FROM NODE    150.00 TO NODE    152.00 =    1793.00 FEET.

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

*************************************************************************
  FLOW PROCESS FROM NODE    155.00 TO NODE    156.00 IS CODE =  21
-------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1065.00
  DOWNSTREAM ELEVATION(FEET) =   1055.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      0.80
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    156.00 TO NODE    157.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1055.00  DOWNSTREAM(FEET) =    813.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1236.00   CHANNEL SLOPE =  0.1958
  CHANNEL BASE(FEET) =   13.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.219
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      18.85
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.55
  AVERAGE FLOW DEPTH(FEET) =   0.25   TRAVEL TIME(MIN.) =   3.71
  Tc(MIN.) =    9.98
  SUBAREA AREA(ACRES) =    23.95       SUBAREA RUNOFF(CFS) =   35.36
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       24.4         PEAK FLOW RATE(CFS) =      35.95

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.36   FLOW VELOCITY(FEET/SEC.) =   7.02
  LONGEST FLOWPATH FROM NODE    155.00 TO NODE    157.00 =    1336.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    157.00 TO NODE    157.00 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.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   4.22
  TOTAL STREAM AREA(ACRES) =    24.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     35.95

****************************************************************************
  FLOW PROCESS FROM NODE    158.00 TO NODE    159.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1070.00
  DOWNSTREAM ELEVATION(FEET) =   1060.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
  FLOW PROCESS FROM NODE    159.00 TO NODE    157.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1060.00  DOWNSTREAM(FEET) =    813.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1536.00   CHANNEL SLOPE =  0.1608
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.166
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      28.60
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.55
  AVERAGE FLOW DEPTH(FEET) =   0.43   TRAVEL TIME(MIN.) =   3.91
```

```
  Tc(MIN.) =   10.17
  SUBAREA AREA(ACRES) =    37.27       SUBAREA RUNOFF(CFS) =   54.34
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       37.7         PEAK FLOW RATE(CFS) =      54.92

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.61   FLOW VELOCITY(FEET/SEC.) =   8.09
  LONGEST FLOWPATH FROM NODE    158.00 TO NODE    157.00 =    1636.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    157.00 TO NODE    157.00 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.) =   10.17
  RAINFALL INTENSITY(INCH/HR) =   4.17
  TOTAL STREAM AREA(ACRES) =    37.67
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     54.92

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       35.95     9.98        4.219         24.35
      2       54.92    10.17        4.166         37.67

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       89.81     9.98       4.219
      2       90.42    10.17       4.166

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      90.42   Tc(MIN.) =   10.17
  TOTAL AREA(ACRES) =       62.0
  LONGEST FLOWPATH FROM NODE    158.00 TO NODE    157.00 =    1636.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    160.00 TO NODE    161.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1100.00
  DOWNSTREAM ELEVATION(FEET) =   1090.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.31   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE    161.00 TO NODE    162.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1090.00  DOWNSTREAM(FEET) =    890.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1169.00   CHANNEL SLOPE =  0.1711
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.282
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      15.14
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.60
  AVERAGE FLOW DEPTH(FEET) =   0.29   TRAVEL TIME(MIN.) =   3.48
  Tc(MIN.) =    9.75
  SUBAREA AREA(ACRES) =    19.05       SUBAREA RUNOFF(CFS) =   28.55
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       19.4         PEAK FLOW RATE(CFS) =      29.02

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.43   FLOW VELOCITY(FEET/SEC.) =   6.94
  LONGEST FLOWPATH FROM NODE    160.00 TO NODE    162.00 =    1269.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    170.00 TO NODE    171.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =   1100.00
  DOWNSTREAM ELEVATION(FEET) =   1090.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      1.04
  TOTAL AREA(ACRES) =      0.52   TOTAL RUNOFF(CFS) =      1.04

****************************************************************************
  FLOW PROCESS FROM NODE    171.00 TO NODE    172.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1090.00  DOWNSTREAM(FEET) =    898.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1719.00   CHANNEL SLOPE =  0.1117
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.814
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      23.15
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.31
  AVERAGE FLOW DEPTH(FEET) =   0.38   TRAVEL TIME(MIN.) =   5.40
  Tc(MIN.) =   11.66
  SUBAREA AREA(ACRES) =    31.97       SUBAREA RUNOFF(CFS) =   42.68
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       32.5         PEAK FLOW RATE(CFS) =      43.37

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.54   FLOW VELOCITY(FEET/SEC.) =   6.54
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    172.00 =    1819.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    172.00 TO NODE    153.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    898.00  DOWNSTREAM(FEET) =    775.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1141.00   CHANNEL SLOPE =  0.1078
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.349
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      62.68
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.30
  AVERAGE FLOW DEPTH(FEET) =   0.68   TRAVEL TIME(MIN.) =   2.61
```

```
  Tc(MIN.) =   14.27
  SUBAREA AREA(ACRES) =    32.89       SUBAREA RUNOFF(CFS) =   38.55
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       65.4         PEAK FLOW RATE(CFS) =      76.64

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.76   FLOW VELOCITY(FEET/SEC.) =   7.76
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    153.00 =    2960.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    153.00 TO NODE    173.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    775.00  DOWNSTREAM(FEET) =    576.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1256.00   CHANNEL SLOPE =  0.1584
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.067
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     113.14
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.02
  AVERAGE FLOW DEPTH(FEET) =   0.84   TRAVEL TIME(MIN.) =   2.09
  Tc(MIN.) =   16.36
  SUBAREA AREA(ACRES) =    67.97       SUBAREA RUNOFF(CFS) =   72.95
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      133.4         PEAK FLOW RATE(CFS) =     143.13

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.96   FLOW VELOCITY(FEET/SEC.) =  10.79
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    173.00 =    4216.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    173.00 TO NODE    174.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    578.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   736.00   CHANNEL SLOPE =  0.0516
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.883
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     157.17
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.46
  AVERAGE FLOW DEPTH(FEET) =   1.36   TRAVEL TIME(MIN.) =   1.64
  Tc(MIN.) =   18.00
  SUBAREA AREA(ACRES) =    27.83       SUBAREA RUNOFF(CFS) =   28.08
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =      161.2         PEAK FLOW RATE(CFS) =     162.64

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.39   FLOW VELOCITY(FEET/SEC.) =   7.55
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    174.00 =    4952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    174.00 TO NODE    174.00 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.) =   18.00
  RAINFALL INTENSITY(INCH/HR) =   2.88
  TOTAL STREAM AREA(ACRES) =   161.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    162.64
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    345.00 TO NODE    346.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    605.00
  DOWNSTREAM ELEVATION(FEET) =    603.90
  ELEVATION DIFFERENCE(FEET) =      1.10
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.132
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    61.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      1.15

****************************************************************************
  FLOW PROCESS FROM NODE    346.00 TO NODE    347.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  5 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  603.90  DOWNSTREAM ELEVATION(FEET) =  544.00
  STREET LENGTH(FEET) =  1138.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  18.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.75
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    6.65
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.23
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.10
  STREET FLOW TRAVEL TIME(MIN.) =   4.48   Tc(MIN.) =    7.62
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.021
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.62      SUBAREA RUNOFF(CFS) =    7.08
  TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       7.95

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   8.53
  FLOW VELOCITY(FEET/SEC.) =  4.70   DEPTH*VELOCITY(FT*FT/SEC.) =   1.40
  LONGEST FLOWPATH FROM NODE    345.00 TO NODE    347.00 =    1238.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    347.00 TO NODE    348.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   544.00  DOWNSTREAM(FEET) =   538.00
  FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  22.03
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
```

```
  PIPE-FLOW(CFS) =       7.95
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    7.63
  LONGEST FLOWPATH FROM NODE    345.00 TO NODE    348.00 =    1258.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    347.00 TO NODE    348.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.015
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.8028
  SUBAREA AREA(ACRES) =    0.27   SUBAREA RUNOFF(CFS) =    0.47
  TOTAL AREA(ACRES) =        2.1   TOTAL RUNOFF(CFS) =       8.41
  TC(MIN.) =    7.63

****************************************************************************
  FLOW PROCESS FROM NODE    348.00 TO NODE    174.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   535.00  DOWNSTREAM(FEET) =   533.00
  FLOW LENGTH(FEET) =    30.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.03
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.41
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    7.67
  LONGEST FLOWPATH FROM NODE    345.00 TO NODE    174.00 =    1288.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    174.00 TO NODE    174.00 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.) =    7.67
  RAINFALL INTENSITY(INCH/HR) =   5.00
  TOTAL STREAM AREA(ACRES) =     2.09
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.41

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      162.64    18.00        2.883        161.18
      2        8.41     7.67        4.999          2.09

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       77.70     7.67       4.999
      2      167.49    18.00       2.883

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     167.49   Tc(MIN.) =   18.00
  TOTAL AREA(ACRES) =      163.3
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    174.00 =    4952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    174.00 TO NODE    210.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    530.00  DOWNSTREAM(FEET) =    520.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   558.00   CHANNEL SLOPE =  0.0179
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.711
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     178.02
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.18
  AVERAGE FLOW DEPTH(FEET) =   2.17   TRAVEL TIME(MIN.) =   1.80
  Tc(MIN.) =   19.80
  SUBAREA AREA(ACRES) =    22.19       SUBAREA RUNOFF(CFS) =   21.06
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.355
  TOTAL AREA(ACRES) =      185.5         PEAK FLOW RATE(CFS) =     178.57

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.17   FLOW VELOCITY(FEET/SEC.) =   5.19
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    210.00 =    5510.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    210.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<
============================================================================

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

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   148.00
  UPSTREAM ELEVATION(FEET) =    796.00
  DOWNSTREAM ELEVATION(FEET) =    794.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.196
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.14
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.72
  TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      1.72

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  794.50  DOWNSTREAM ELEVATION(FEET) =  729.00
  STREET LENGTH(FEET) =   813.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.24
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.28
    HALFSTREET FLOOD WIDTH(FEET) =    6.53
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.43
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.51
  STREET FLOW TRAVEL TIME(MIN.) =   2.50   Tc(MIN.) =    5.69
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.058
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.71      SUBAREA RUNOFF(CFS) =    9.01
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =      10.59

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   8.84
  FLOW VELOCITY(FEET/SEC.) =  5.94   DEPTH*VELOCITY(FT*FT/SEC.) =   1.90
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     961.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   729.00  DOWNSTREAM(FEET) =   651.00
  FLOW LENGTH(FEET) =   789.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.01
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.59
  PIPE TRAVEL TIME(MIN.) =   0.82    Tc(MIN.) =    6.51
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =    1750.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 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.) =    6.51
  RAINFALL INTENSITY(INCH/HR) =   5.55
  TOTAL STREAM AREA(ACRES) =     2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.59

****************************************************************************
  FLOW PROCESS FROM NODE    207.00 TO NODE    208.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   148.00
  UPSTREAM ELEVATION(FEET) =    729.00
  DOWNSTREAM ELEVATION(FEET) =    727.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.196
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.14
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.15
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      1.15

****************************************************************************
  FLOW PROCESS FROM NODE    208.00 TO NODE    203.00 IS CODE =  62
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  727.50  DOWNSTREAM ELEVATION(FEET) =  651.00
  STREET LENGTH(FEET) =   645.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.36
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    5.09
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.30
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.60
  STREET FLOW TRAVEL TIME(MIN.) =   1.71   Tc(MIN.) =    4.90
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.47      SUBAREA RUNOFF(CFS) =    8.42
  TOTAL AREA(ACRES) =        1.7        PEAK FLOW RATE(CFS) =       9.57

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   7.53
  FLOW VELOCITY(FEET/SEC.) =  6.83   DEPTH*VELOCITY(FT*FT/SEC.) =   2.03
  LONGEST FLOWPATH FROM NODE    207.00 TO NODE    203.00 =     793.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 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.) =    4.90
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     1.67
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.57

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       10.59     6.51        5.553          2.01
      2        9.57     4.90        6.587          1.67

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       17.54     4.90       6.587
      2       18.66     6.51       5.553

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      18.66   Tc(MIN.) =    6.51
  TOTAL AREA(ACRES) =        3.7
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =    1750.00 FEET.

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

```
  FLOW PROCESS FROM NODE    203.00 TO NODE    209.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   651.00  DOWNSTREAM(FEET) =   541.00
  FLOW LENGTH(FEET) =  1189.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.03
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.66
  PIPE TRAVEL TIME(MIN.) =   1.10    Tc(MIN.) =    7.61
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    209.00 =    2939.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    209.00 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.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   5.02
  TOTAL STREAM AREA(ACRES) =     3.68
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.66

****************************************************************************
  FLOW PROCESS FROM NODE    213.00 TO NODE    214.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   152.00
  UPSTREAM ELEVATION(FEET) =    647.30
  DOWNSTREAM ELEVATION(FEET) =    645.50
  ELEVATION DIFFERENCE(FEET) =      1.80
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.077
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    61.84
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.38
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      1.38

****************************************************************************
  FLOW PROCESS FROM NODE    214.00 TO NODE    209.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  645.50  DOWNSTREAM ELEVATION(FEET) =  541.00
  STREET LENGTH(FEET) =  1171.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.15
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    5.53
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.51
```

```
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.44
  STREET FLOW TRAVEL TIME(MIN.) =   3.54   Tc(MIN.) =    6.62
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.497
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.57      SUBAREA RUNOFF(CFS) =    7.51
  TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       8.66

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   7.72
  FLOW VELOCITY(FEET/SEC.) =  5.96   DEPTH*VELOCITY(FT*FT/SEC.) =   1.79
  LONGEST FLOWPATH FROM NODE    213.00 TO NODE    209.00 =    1323.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    209.00 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.) =    6.62
  RAINFALL INTENSITY(INCH/HR) =   5.50
  TOTAL STREAM AREA(ACRES) =     1.81
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.66

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.66     7.61        5.022          3.68
      2        8.66     6.62        5.497          1.81

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       25.70     6.62       5.497
      2       26.57     7.61       5.022

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      26.57   Tc(MIN.) =    7.61
  TOTAL AREA(ACRES) =        5.5
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    209.00 =    2939.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    215.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   541.00  DOWNSTREAM(FEET) =   536.00
  FLOW LENGTH(FEET) =    85.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.54
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.57
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    7.70
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    215.00 =    3024.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    215.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.986
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.8282
```

```
  SUBAREA AREA(ACRES) =    0.48   SUBAREA RUNOFF(CFS) =    0.84
  TOTAL AREA(ACRES) =        6.0   TOTAL RUNOFF(CFS) =      26.57
  TC(MIN.) =    7.70
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    358.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   536.00  DOWNSTREAM(FEET) =   532.00
  FLOW LENGTH(FEET) =   141.97   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.54
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.57
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =    7.89
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    358.00 =    3165.97 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    358.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    350.00 TO NODE    351.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  UPSTREAM ELEVATION(FEET) =    985.00
  DOWNSTREAM ELEVATION(FEET) =    970.00
  ELEVATION DIFFERENCE(FEET) =     15.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.37   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    351.00 TO NODE    355.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    875.00  DOWNSTREAM(FEET) =    610.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1562.00   CHANNEL SLOPE =  0.1697
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  15.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.628
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      11.26
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.11
  AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   6.34
  Tc(MIN.) =   12.61
  SUBAREA AREA(ACRES) =    15.92       SUBAREA RUNOFF(CFS) =   20.21
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       16.3         PEAK FLOW RATE(CFS) =      20.68

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.29   FLOW VELOCITY(FEET/SEC.) =   5.04
  LONGEST FLOWPATH FROM NODE    350.00 TO NODE    355.00 =    1682.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    355.00 TO NODE    355.00 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.) =   12.61
  RAINFALL INTENSITY(INCH/HR) =   3.63
  TOTAL STREAM AREA(ACRES) =    16.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     20.68

****************************************************************************
  FLOW PROCESS FROM NODE    352.00 TO NODE    353.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    885.00
  DOWNSTREAM ELEVATION(FEET) =    875.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.267
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.694
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.37   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    353.00 TO NODE    354.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    875.00  DOWNSTREAM(FEET) =    785.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   304.00   CHANNEL SLOPE =  0.2961
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.232
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.29
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.77
  AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   0.88
  Tc(MIN.) =    7.14
  SUBAREA AREA(ACRES) =     3.87       SUBAREA RUNOFF(CFS) =    7.09
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        4.2         PEAK FLOW RATE(CFS) =       7.76

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.30   FLOW VELOCITY(FEET/SEC.) =   7.13
  LONGEST FLOWPATH FROM NODE    352.00 TO NODE    354.00 =     404.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    354.00 TO NODE    355.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    785.00  DOWNSTREAM(FEET) =    620.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   731.00   CHANNEL SLOPE =  0.2257
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   8.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.437
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      13.12
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.85
  AVERAGE FLOW DEPTH(FEET) =   0.30   TRAVEL TIME(MIN.) =   2.08
  Tc(MIN.) =    9.23
```

```
  SUBAREA AREA(ACRES) =     6.89       SUBAREA RUNOFF(CFS) =   10.70
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       11.1         PEAK FLOW RATE(CFS) =      17.28

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =   6.38
  LONGEST FLOWPATH FROM NODE    352.00 TO NODE    355.00 =    1135.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    355.00 TO NODE    355.00 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.) =    9.23
  RAINFALL INTENSITY(INCH/HR) =   4.44
  TOTAL STREAM AREA(ACRES) =    11.13
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.28

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       20.68    12.61        3.628         16.29
      2       17.28     9.23        4.437         11.13

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       32.42     9.23       4.437
      2       34.81    12.61       3.628

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      34.81   Tc(MIN.) =   12.61
  TOTAL AREA(ACRES) =       27.4
  LONGEST FLOWPATH FROM NODE    350.00 TO NODE    355.00 =    1682.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    355.00 TO NODE    357.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    620.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   693.00   CHANNEL SLOPE =  0.0866
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   8.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.310
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      49.82
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.01
  AVERAGE FLOW DEPTH(FEET) =   0.75   TRAVEL TIME(MIN.) =   1.92
  Tc(MIN.) =   14.53
  SUBAREA AREA(ACRES) =    25.90       SUBAREA RUNOFF(CFS) =   30.01
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       53.3         PEAK FLOW RATE(CFS) =      61.78

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.83   FLOW VELOCITY(FEET/SEC.) =   6.34
  LONGEST FLOWPATH FROM NODE    350.00 TO NODE    357.00 =    2375.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    357.00 TO NODE    357.00 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.) =   14.53
  RAINFALL INTENSITY(INCH/HR) =   3.31
  TOTAL STREAM AREA(ACRES) =    53.32
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     61.78

****************************************************************************
  FLOW PROCESS FROM NODE    361.00 TO NODE    362.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  UPSTREAM ELEVATION(FEET) =    860.00
  DOWNSTREAM ELEVATION(FEET) =    855.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.895
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.354
  SUBAREA RUNOFF(CFS) =      0.49
  TOTAL AREA(ACRES) =      0.26   TOTAL RUNOFF(CFS) =      0.49

****************************************************************************
  FLOW PROCESS FROM NODE    361.00 TO NODE    362.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    850.00  DOWNSTREAM(FEET) =    710.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   440.00   CHANNEL SLOPE =  0.3182
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.752
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.53
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.24
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   1.40
  Tc(MIN.) =    8.30
  SUBAREA AREA(ACRES) =     8.43       SUBAREA RUNOFF(CFS) =   14.02
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        8.7         PEAK FLOW RATE(CFS) =      14.45

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.24   FLOW VELOCITY(FEET/SEC.) =   6.57
  LONGEST FLOWPATH FROM NODE    361.00 TO NODE    362.00 =     525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    357.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    710.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   920.00   CHANNEL SLOPE =  0.1630
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.935
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      21.13
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.44
  AVERAGE FLOW DEPTH(FEET) =   0.34   TRAVEL TIME(MIN.) =   2.82
  Tc(MIN.) =   11.11
  SUBAREA AREA(ACRES) =     9.67       SUBAREA RUNOFF(CFS) =   13.32
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       18.4         PEAK FLOW RATE(CFS) =      25.29

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.38   FLOW VELOCITY(FEET/SEC.) =   5.70
```

```
 LONGEST FLOWPATH FROM NODE    361.00 TO NODE    357.00 =    1445.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    357.00 TO NODE    357.00 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.) =   11.11
 RAINFALL INTENSITY(INCH/HR) =   3.94
 TOTAL STREAM AREA(ACRES) =    18.36
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     25.29

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       61.78    14.53        3.310         53.32
     2       25.29    11.11        3.935         18.36

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

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       77.26    11.11       3.935
     2       83.05    14.53       3.310

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      83.05   Tc(MIN.) =   14.53
 TOTAL AREA(ACRES) =       71.7
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    357.00 =    2375.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    357.00 TO NODE    358.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    530.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   413.00   CHANNEL SLOPE =  0.0726
 CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   5.000
 MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.174
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      88.66
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.02
 AVERAGE FLOW DEPTH(FEET) =   0.98   TRAVEL TIME(MIN.) =   0.98
 Tc(MIN.) =   15.51
 SUBAREA AREA(ACRES) =    10.10       SUBAREA RUNOFF(CFS) =   11.22
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =       81.8         PEAK FLOW RATE(CFS) =      90.84

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.99   FLOW VELOCITY(FEET/SEC.) =   7.10
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    358.00 =    2788.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    358.00 TO NODE    358.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1       90.84    15.51       3.174       81.78
 LONGEST FLOWPATH FROM NODE    350.00 TO NODE    358.00 =    2788.00 FEET.
```

```
  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       26.57     7.89       4.909        5.97
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    358.00 =    3165.97 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      72.77       7.89        4.909
      2     108.02      15.51        3.174

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     108.02   Tc(MIN.) =   15.51
  TOTAL AREA(ACRES) =       87.8

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    358.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    358.00 TO NODE    210.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   530.00  DOWNSTREAM(FEET) =   520.00
  FLOW LENGTH(FEET) =   700.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  32.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.49
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     108.02
  PIPE TRAVEL TIME(MIN.) =   0.86    Tc(MIN.) =   16.37
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    210.00 =    3865.97 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    210.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      108.02    16.37       3.065       87.75
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    210.00 =    3865.97 FEET.

  ** MEMORY BANK #  3 CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      178.57    19.80       2.711      185.46
  LONGEST FLOWPATH FROM NODE    170.00 TO NODE    210.00 =    5510.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     255.71      16.37        3.065
      2     274.14      19.80        2.711

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     274.14   Tc(MIN.) =   19.80
  TOTAL AREA(ACRES) =      273.2

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    210.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 3 <<<<<
============================================================================
```

```
+----------------------------------------------------------------------------+
|                                                                            |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    337.00 TO NODE    338.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    605.00
  DOWNSTREAM ELEVATION(FEET) =    601.70
  ELEVATION DIFFERENCE(FEET) =      3.30
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.510
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    81.50
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.32
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      1.32

****************************************************************************
  FLOW PROCESS FROM NODE    338.00 TO NODE    339.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  601.70  DOWNSTREAM ELEVATION(FEET) =  581.50
  STREET LENGTH(FEET) =   355.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.89
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.22
    HALFSTREET FLOOD WIDTH(FEET) =    4.92
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.02
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.90
  STREET FLOW TRAVEL TIME(MIN.) =   1.47   Tc(MIN.) =    3.98
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    0.55      SUBAREA RUNOFF(CFS) =    3.15
  TOTAL AREA(ACRES) =        0.8        PEAK FLOW RATE(CFS) =       4.47

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.25   HALFSTREET FLOOD WIDTH(FEET) =   6.31
  FLOW VELOCITY(FEET/SEC.) =  4.32   DEPTH*VELOCITY(FT*FT/SEC.) =   1.09
  LONGEST FLOWPATH FROM NODE    337.00 TO NODE    339.00 =     455.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    339.00 TO NODE    339.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
```

```
==============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  10.00   RAIN INTENSITY(INCH/HOUR) =  4.21
  TOTAL AREA(ACRES) =     0.80   TOTAL RUNOFF(CFS) =      0.78

******************************************************************************
  FLOW PROCESS FROM NODE    339.00 TO NODE    339.00 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.) =   10.00
  RAINFALL INTENSITY(INCH/HR) =   4.21
  TOTAL STREAM AREA(ACRES) =     0.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.78

******************************************************************************
  FLOW PROCESS FROM NODE    330.00 TO NODE    331.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   270.00
  UPSTREAM ELEVATION(FEET) =   1260.00
  DOWNSTREAM ELEVATION(FEET) =   1240.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.926
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.338
  SUBAREA RUNOFF(CFS) =      1.46
  TOTAL AREA(ACRES) =      0.78   TOTAL RUNOFF(CFS) =      1.46

******************************************************************************
  FLOW PROCESS FROM NODE    331.00 TO NODE    339.00 IS CODE =  51
------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1240.00  DOWNSTREAM(FEET) =    580.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1344.00   CHANNEL SLOPE =  0.4911
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.313
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.70
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.25
  AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =   2.71
  Tc(MIN.) =    9.64
  SUBAREA AREA(ACRES) =    21.23       SUBAREA RUNOFF(CFS) =   32.05
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       22.0         PEAK FLOW RATE(CFS) =      33.23

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =  10.23
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    339.00 =    1614.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE    335.00 TO NODE    339.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.313
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
```

```
  SUBAREA AREA(ACRES) =    0.52   SUBAREA RUNOFF(CFS) =    0.78
  TOTAL AREA(ACRES) =       22.5   TOTAL RUNOFF(CFS) =      34.01
  TC(MIN.) =    9.64

****************************************************************************
  FLOW PROCESS FROM NODE    339.00 TO NODE    339.00 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.) =    9.64
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =    22.53
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     34.01

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        0.78    10.00        4.212          0.80
      2       34.01     9.64        4.313         22.53

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       34.76     9.64       4.313
      2       33.99    10.00       4.212

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      34.76   Tc(MIN.) =    9.64
  TOTAL AREA(ACRES) =       23.3
  LONGEST FLOWPATH FROM NODE    330.00 TO NODE    339.00 =    1614.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    221.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    975.00
  DOWNSTREAM ELEVATION(FEET) =    968.00
  ELEVATION DIFFERENCE(FEET) =      7.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.553
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.156
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.28

****************************************************************************
  FLOW PROCESS FROM NODE    221.00 TO NODE    222.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    960.00  DOWNSTREAM(FEET) =    620.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.2720
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.954
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      19.14
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.37
  AVERAGE FLOW DEPTH(FEET) =   0.25   TRAVEL TIME(MIN.) =   2.22
  Tc(MIN.) =    7.78
  SUBAREA AREA(ACRES) =    21.47       SUBAREA RUNOFF(CFS) =   37.23
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       21.6         PEAK FLOW RATE(CFS) =      37.45

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.37   FLOW VELOCITY(FEET/SEC.) =  11.90
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    222.00 =    1325.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    222.00 TO NODE    224.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   620.00  DOWNSTREAM(FEET) =   615.00
  FLOW LENGTH(FEET) =   265.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.53
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      37.45
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =    8.16
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    224.00 =    1590.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    227.00 TO NODE    228.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   270.00
  UPSTREAM ELEVATION(FEET) =    870.00
  DOWNSTREAM ELEVATION(FEET) =    860.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.438
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    93.52
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.700
  SUBAREA RUNOFF(CFS) =      0.31
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.31

****************************************************************************
  FLOW PROCESS FROM NODE    228.00 TO NODE    224.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =    625.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   865.00   CHANNEL SLOPE =  0.2023
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.699
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.51
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.25
  AVERAGE FLOW DEPTH(FEET) =   0.02   TRAVEL TIME(MIN.) =  11.50
  Tc(MIN.) =   19.94
```

```
  SUBAREA AREA(ACRES) =     4.44       SUBAREA RUNOFF(CFS) =    4.19
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        4.6         PEAK FLOW RATE(CFS) =       4.37

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.03   FLOW VELOCITY(FEET/SEC.) =   1.58
  LONGEST FLOWPATH FROM NODE    227.00 TO NODE    224.00 =    1135.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 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.) =   19.94
  RAINFALL INTENSITY(INCH/HR) =   2.70
  TOTAL STREAM AREA(ACRES) =     4.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.37

****************************************************************************
  FLOW PROCESS FROM NODE    232.00 TO NODE    233.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   122.00
  UPSTREAM ELEVATION(FEET) =    660.00
  DOWNSTREAM ELEVATION(FEET) =    655.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.528
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    95.49
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.97
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.97

****************************************************************************
  FLOW PROCESS FROM NODE    233.00 TO NODE    224.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  650.00  DOWNSTREAM ELEVATION(FEET) =  620.00
  STREET LENGTH(FEET) =   442.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.86
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.20
    HALFSTREET FLOOD WIDTH(FEET) =    2.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.66
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.12
  STREET FLOW TRAVEL TIME(MIN.) =   1.30   Tc(MIN.) =    3.83
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    0.31      SUBAREA RUNOFF(CFS) =    1.78
  TOTAL AREA(ACRES) =        0.5        PEAK FLOW RATE(CFS) =       2.75

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.22   HALFSTREET FLOOD WIDTH(FEET) =   3.09
  FLOW VELOCITY(FEET/SEC.) =  4.93   DEPTH*VELOCITY(FT*FT/SEC.) =   1.07
  LONGEST FLOWPATH FROM NODE    232.00 TO NODE    224.00 =     564.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 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.) =    3.83
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     0.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.75

****************************************************************************
  FLOW PROCESS FROM NODE    237.00 TO NODE    238.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   104.00
  UPSTREAM ELEVATION(FEET) =    650.00
  DOWNSTREAM ELEVATION(FEET) =    647.00
  ELEVATION DIFFERENCE(FEET) =      3.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.583
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    78.85
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.14   TOTAL RUNOFF(CFS) =      0.80

****************************************************************************
  FLOW PROCESS FROM NODE    238.00 TO NODE    224.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  645.00  DOWNSTREAM ELEVATION(FEET) =  620.00
  STREET LENGTH(FEET) =   354.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.40
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.20
    HALFSTREET FLOOD WIDTH(FEET) =    2.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.77
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.14
  STREET FLOW TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =    3.61
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    0.21      SUBAREA RUNOFF(CFS) =    1.20
  TOTAL AREA(ACRES) =        0.3        PEAK FLOW RATE(CFS) =       2.01

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.20   HALFSTREET FLOOD WIDTH(FEET) =   2.00
  FLOW VELOCITY(FEET/SEC.) =  5.77   DEPTH*VELOCITY(FT*FT/SEC.) =   1.14
  LONGEST FLOWPATH FROM NODE    237.00 TO NODE    224.00 =     458.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 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.) =    3.61
  RAINFALL INTENSITY(INCH/HR) =   6.59
  TOTAL STREAM AREA(ACRES) =     0.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.01

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        4.37    19.94        2.699          4.63
      2        2.75     3.83        6.587          0.48
      3        2.01     3.61        6.587          0.35

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        5.39     3.61       6.587
      2        5.60     3.83       6.587
      3        6.32    19.94       2.699

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       6.32   Tc(MIN.) =   19.94
  TOTAL AREA(ACRES) =        5.5
  LONGEST FLOWPATH FROM NODE    227.00 TO NODE    224.00 =    1135.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1        6.32    19.94       2.699        5.46
  LONGEST FLOWPATH FROM NODE    227.00 TO NODE    224.00 =    1135.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       37.45     8.16       4.803       21.60
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    224.00 =    1590.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      40.04       8.16        4.803
      2      27.37      19.94        2.699

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.04   Tc(MIN.) =    8.16
```

```
  TOTAL AREA(ACRES) =       27.1

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    224.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    224.00 TO NODE    239.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   624.00  DOWNSTREAM(FEET) =   580.00
  FLOW LENGTH(FEET) =   291.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.17
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.04
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =    8.34
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    239.00 =    1881.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    239.00 TO NODE    239.00 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.) =    8.34
  RAINFALL INTENSITY(INCH/HR) =   4.73
  TOTAL STREAM AREA(ACRES) =    27.06
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     40.04

****************************************************************************
  FLOW PROCESS FROM NODE    242.00 TO NODE    243.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   109.00
  UPSTREAM ELEVATION(FEET) =    645.00
  DOWNSTREAM ELEVATION(FEET) =    640.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.041
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    97.94
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.848
  SUBAREA RUNOFF(CFS) =      0.42
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      0.42

****************************************************************************
  FLOW PROCESS FROM NODE    243.00 TO NODE    239.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    640.00  DOWNSTREAM(FEET) =    590.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   275.00   CHANNEL SLOPE =  0.1818
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.305
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.23
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.82
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.63
```

```
  Tc(MIN.) =    9.67
  SUBAREA AREA(ACRES) =     2.39       SUBAREA RUNOFF(CFS) =    3.60
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        2.6         PEAK FLOW RATE(CFS) =       3.98

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.13   FLOW VELOCITY(FEET/SEC.) =   3.52
  LONGEST FLOWPATH FROM NODE    242.00 TO NODE    239.00 =     384.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    239.00 TO NODE    239.00 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.) =    9.67
  RAINFALL INTENSITY(INCH/HR) =   4.30
  TOTAL STREAM AREA(ACRES) =     2.64
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.98

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       40.04     8.34        4.734         27.06
      2        3.98     9.67        4.305          2.64

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       43.47     8.34       4.734
      2       40.39     9.67       4.305

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      43.47   Tc(MIN.) =    8.34
  TOTAL AREA(ACRES) =       29.7
  LONGEST FLOWPATH FROM NODE    220.00 TO NODE    239.00 =    1881.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    247.00 TO NODE    248.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   162.00
  UPSTREAM ELEVATION(FEET) =    880.00
  DOWNSTREAM ELEVATION(FEET) =    870.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.360
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.133
  SUBAREA RUNOFF(CFS) =      0.36
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.36

****************************************************************************
  FLOW PROCESS FROM NODE    248.00 TO NODE    250.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    870.00  DOWNSTREAM(FEET) =    600.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   911.00   CHANNEL SLOPE =  0.2964
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.307
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.44
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.60
  AVERAGE FLOW DEPTH(FEET) =   0.25   TRAVEL TIME(MIN.) =   2.30
  Tc(MIN.) =    9.66
  SUBAREA AREA(ACRES) =    11.98       SUBAREA RUNOFF(CFS) =   18.06
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =       12.2         PEAK FLOW RATE(CFS) =      18.36

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.37   FLOW VELOCITY(FEET/SEC.) =   8.15
  LONGEST FLOWPATH FROM NODE    247.00 TO NODE    250.00 =    1073.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    260.00 TO NODE    250.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.307
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    0.36   SUBAREA RUNOFF(CFS) =    0.54
  TOTAL AREA(ACRES) =       12.5   TOTAL RUNOFF(CFS) =      18.91
  TC(MIN.) =    9.66

****************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    250.00 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.) =    9.66
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =    12.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.91

****************************************************************************
  FLOW PROCESS FROM NODE    253.00 TO NODE    254.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    620.00
  DOWNSTREAM ELEVATION(FEET) =    615.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.505
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    81.67
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE    254.00 TO NODE    250.00 IS CODE =  62
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) =  615.00  DOWNSTREAM ELEVATION(FEET) =  602.50
  STREET LENGTH(FEET) =   507.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.81
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    6.97
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.03
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.87
  STREET FLOW TRAVEL TIME(MIN.) =   2.78   Tc(MIN.) =    5.29
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.352
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    0.86      SUBAREA RUNOFF(CFS) =    4.75
  TOTAL AREA(ACRES) =        1.1        PEAK FLOW RATE(CFS) =       6.13

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.32   HALFSTREET FLOOD WIDTH(FEET) =   9.03
  FLOW VELOCITY(FEET/SEC.) =  3.33   DEPTH*VELOCITY(FT*FT/SEC.) =   1.08
  LONGEST FLOWPATH FROM NODE    253.00 TO NODE    250.00 =     657.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    250.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  10.29   RAIN INTENSITY(INCH/HOUR) =  4.14
  TOTAL AREA(ACRES) =     1.10   TOTAL RUNOFF(CFS) =      2.46

****************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    250.00 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.) =   10.29
  RAINFALL INTENSITY(INCH/HR) =   4.14
  TOTAL STREAM AREA(ACRES) =     1.10
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.46

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.91     9.66        4.307         12.54
      2        2.46    10.29        4.135          1.10

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       21.21     9.66       4.307
      2       20.61    10.29       4.135
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      21.21   Tc(MIN.) =    9.66
  TOTAL AREA(ACRES) =       13.6
  LONGEST FLOWPATH FROM NODE    247.00 TO NODE    250.00 =    1073.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    256.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   585.00  DOWNSTREAM(FEET) =   580.00
  FLOW LENGTH(FEET) =    85.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.42
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      21.21
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    9.75
  LONGEST FLOWPATH FROM NODE    247.00 TO NODE    256.00 =    1158.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    265.00 TO NODE    266.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   220.00
  UPSTREAM ELEVATION(FEET) =    770.00
  DOWNSTREAM ELEVATION(FEET) =    750.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.469
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.579
  SUBAREA RUNOFF(CFS) =      0.25
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.25

****************************************************************************
  FLOW PROCESS FROM NODE    266.00 TO NODE    267.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    590.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   540.00   CHANNEL SLOPE =  0.2778
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.414
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.30
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.18
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   2.83
  Tc(MIN.) =    9.30
  SUBAREA AREA(ACRES) =     2.60       SUBAREA RUNOFF(CFS) =    4.02
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        2.7         PEAK FLOW RATE(CFS) =       4.22

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.12   FLOW VELOCITY(FEET/SEC.) =   4.17
  LONGEST FLOWPATH FROM NODE    265.00 TO NODE    267.00 =     760.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    267.00 TO NODE    270.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    550.00  DOWNSTREAM(FEET) =    510.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   830.00   CHANNEL SLOPE =  0.0482
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.485
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.71
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.36
  AVERAGE FLOW DEPTH(FEET) =   0.51   TRAVEL TIME(MIN.) =   4.12
  Tc(MIN.) =   13.42
  SUBAREA AREA(ACRES) =     2.85       SUBAREA RUNOFF(CFS) =    7.05
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.534
  TOTAL AREA(ACRES) =        5.6         PEAK FLOW RATE(CFS) =      10.38

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.58   FLOW VELOCITY(FEET/SEC.) =   3.68
  LONGEST FLOWPATH FROM NODE    265.00 TO NODE    270.00 =    1590.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    270.00 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.) =   13.42
  RAINFALL INTENSITY(INCH/HR) =   3.48
  TOTAL STREAM AREA(ACRES) =     5.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.38

****************************************************************************
  FLOW PROCESS FROM NODE    273.00 TO NODE    274.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    600.00
  DOWNSTREAM ELEVATION(FEET) =    598.50
  ELEVATION DIFFERENCE(FEET) =      1.50
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.207
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      2.01
  TOTAL AREA(ACRES) =      0.35   TOTAL RUNOFF(CFS) =      2.01

****************************************************************************
  FLOW PROCESS FROM NODE    274.00 TO NODE    275.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  597.00  DOWNSTREAM ELEVATION(FEET) =  587.00
  STREET LENGTH(FEET) =   712.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
```

```
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.43
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    8.84
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.48
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.79
  STREET FLOW TRAVEL TIME(MIN.) =   4.78   Tc(MIN.) =    7.99
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.868
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.13      SUBAREA RUNOFF(CFS) =    4.79
  TOTAL AREA(ACRES) =        1.5        PEAK FLOW RATE(CFS) =       6.27

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  10.51
  FLOW VELOCITY(FEET/SEC.) =  2.66   DEPTH*VELOCITY(FT*FT/SEC.) =   0.93
  LONGEST FLOWPATH FROM NODE    273.00 TO NODE    275.00 =     862.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    275.00 TO NODE    270.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   580.00  DOWNSTREAM(FEET) =   210.00
  FLOW LENGTH(FEET) =   760.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  24.42
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.27
  PIPE TRAVEL TIME(MIN.) =   0.52    Tc(MIN.) =    8.51
  LONGEST FLOWPATH FROM NODE    273.00 TO NODE    270.00 =    1622.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    270.00 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.) =    8.51
  RAINFALL INTENSITY(INCH/HR) =   4.67
  TOTAL STREAM AREA(ACRES) =     1.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.27

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       10.38    13.42        3.485          5.58
      2        6.27     8.51        4.674          1.48

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       12.85     8.51       4.674
      2       15.05    13.42       3.485

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =      15.05   Tc(MIN.) =   13.42
  TOTAL AREA(ACRES) =        7.1
  LONGEST FLOWPATH FROM NODE    273.00 TO NODE    270.00 =    1622.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    280.00 TO NODE    281.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    790.00
  DOWNSTREAM ELEVATION(FEET) =    780.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.173
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.219
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    281.00 TO NODE    282.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    770.00  DOWNSTREAM(FEET) =    590.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   557.00   CHANNEL SLOPE =  0.3232
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.195
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.43
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.21
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   2.89
  Tc(MIN.) =   10.06
  SUBAREA AREA(ACRES) =     2.82       SUBAREA RUNOFF(CFS) =    4.14
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        3.0         PEAK FLOW RATE(CFS) =       4.40

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.10   FLOW VELOCITY(FEET/SEC.) =   4.07
  LONGEST FLOWPATH FROM NODE    280.00 TO NODE    282.00 =     707.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    282.00 TO NODE    283.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    580.00  DOWNSTREAM(FEET) =    520.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   580.00   CHANNEL SLOPE =  0.1034
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =   5.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.589
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.81
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.51
  AVERAGE FLOW DEPTH(FEET) =   0.26   TRAVEL TIME(MIN.) =   2.76
```

```
  Tc(MIN.) =   12.82
  SUBAREA AREA(ACRES) =     3.82       SUBAREA RUNOFF(CFS) =    4.80
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        6.8         PEAK FLOW RATE(CFS) =       8.57

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.29   FLOW VELOCITY(FEET/SEC.) =   3.79
  LONGEST FLOWPATH FROM NODE    280.00 TO NODE    283.00 =    1287.00 FEET.

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

****************************************************************************
  FLOW PROCESS FROM NODE    289.00 TO NODE    290.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   133.00
  UPSTREAM ELEVATION(FEET) =    790.00
  DOWNSTREAM ELEVATION(FEET) =    780.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.891
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.356
  SUBAREA RUNOFF(CFS) =      0.34
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.34

****************************************************************************
  FLOW PROCESS FROM NODE    290.00 TO NODE    291.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    770.00  DOWNSTREAM(FEET) =    600.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   980.00   CHANNEL SLOPE =  0.1735
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.576
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.50
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.72
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   6.00
  Tc(MIN.) =   12.89
  SUBAREA AREA(ACRES) =     3.35       SUBAREA RUNOFF(CFS) =    4.19
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        3.5         PEAK FLOW RATE(CFS) =       4.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.12   FLOW VELOCITY(FEET/SEC.) =   3.37
  LONGEST FLOWPATH FROM NODE    289.00 TO NODE    291.00 =    1113.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    291.00 TO NODE    292.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    570.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   259.00   CHANNEL SLOPE =  0.1158
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   6.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.365
```

```
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.91
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.39
  AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   1.27
  Tc(MIN.) =   14.16
  SUBAREA AREA(ACRES) =     0.84       SUBAREA RUNOFF(CFS) =    0.99
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        4.4         PEAK FLOW RATE(CFS) =       5.15

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   3.51
  LONGEST FLOWPATH FROM NODE    289.00 TO NODE    292.00 =    1372.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    292.00 TO NODE    292.00 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.) =   14.16
  RAINFALL INTENSITY(INCH/HR) =   3.37
  TOTAL STREAM AREA(ACRES) =     4.37
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.15

****************************************************************************
  FLOW PROCESS FROM NODE    298.00 TO NODE    299.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    583.00
  DOWNSTREAM ELEVATION(FEET) =    581.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.993
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    63.33
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.09
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      1.09

****************************************************************************
  FLOW PROCESS FROM NODE    299.00 TO NODE    300.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  580.00  DOWNSTREAM ELEVATION(FEET) =  569.00
  STREET LENGTH(FEET) =   622.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.76
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    7.59
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.65
```

```
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.79
  STREET FLOW TRAVEL TIME(MIN.) =   3.91   Tc(MIN.) =    6.90
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.350
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.870
  SUBAREA AREA(ACRES) =    1.14      SUBAREA RUNOFF(CFS) =    5.31
  TOTAL AREA(ACRES) =        1.3        PEAK FLOW RATE(CFS) =       6.19

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =   9.84
  FLOW VELOCITY(FEET/SEC.) =  2.92   DEPTH*VELOCITY(FT*FT/SEC.) =   0.99
  LONGEST FLOWPATH FROM NODE    298.00 TO NODE    300.00 =     772.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    300.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  14.00   RAIN INTENSITY(INCH/HOUR) =  3.39
  TOTAL AREA(ACRES) =     1.30   TOTAL RUNOFF(CFS) =      3.79

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    300.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.390
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6475
  SUBAREA AREA(ACRES) =    0.93   SUBAREA RUNOFF(CFS) =    1.10
  TOTAL AREA(ACRES) =        2.2   TOTAL RUNOFF(CFS) =       4.90
  TC(MIN.) =   14.00

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    292.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   570.00  DOWNSTREAM(FEET) =   540.00
  FLOW LENGTH(FEET) =   250.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.82
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.90
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   14.30
  LONGEST FLOWPATH FROM NODE    298.00 TO NODE    292.00 =    1022.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    292.00 TO NODE    292.00 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.) =   14.30
  RAINFALL INTENSITY(INCH/HR) =   3.34
  TOTAL STREAM AREA(ACRES) =     2.23
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.90

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        5.15    14.16        3.365          4.37
      2        4.90    14.30        3.344          2.23
```

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

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       10.00    14.16       3.365
      2       10.01    14.30       3.344

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      10.01   Tc(MIN.) =   14.30
  TOTAL AREA(ACRES) =        6.6
  LONGEST FLOWPATH FROM NODE    289.00 TO NODE    292.00 =    1372.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.6  TC(MIN.) =     14.30
  PEAK FLOW RATE(CFS)   =      10.01
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

CHAPTER 6
DETENTION BASIN ANALYSIS

HYDROGRAPH TABLES FOR INFLOW TO BASINS

RATIONAL METHOD HYDROGRAPH PROGRAM

BF-1-1

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 161.2 ACRES
RUNOFF COEFFICIENT 0.6383
PEAK DISCHARGE 387.5 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 15.4
TIME (MIN) = 24	DISCHARGE (CFS) = 15.8
TIME (MIN) = 36	DISCHARGE (CFS) = 16.5
TIME (MIN) = 48	DISCHARGE (CFS) = 16.9
TIME (MIN) = 60	DISCHARGE (CFS) = 17.9
TIME (MIN) = 72	DISCHARGE (CFS) = 18.4
TIME (MIN) = 84	DISCHARGE (CFS) = 19.5
TIME (MIN) = 96	DISCHARGE (CFS) = 20.1
TIME (MIN) = 108	DISCHARGE (CFS) = 21.6
TIME (MIN) = 120	DISCHARGE (CFS) = 22.4
TIME (MIN) = 132	DISCHARGE (CFS) = 24.4
TIME (MIN) = 144	DISCHARGE (CFS) = 25.5
TIME (MIN) = 156	DISCHARGE (CFS) = 28.3
TIME (MIN) = 168	DISCHARGE (CFS) = 30
TIME (MIN) = 180	DISCHARGE (CFS) = 34.4
TIME (MIN) = 192	DISCHARGE (CFS) = 37.3
TIME (MIN) = 204	DISCHARGE (CFS) = 45.6
TIME (MIN) = 216	DISCHARGE (CFS) = 52
TIME (MIN) = 228	DISCHARGE (CFS) = 76.3
TIME (MIN) = 240	DISCHARGE (CFS) = 105.3
TIME (MIN) = 252	DISCHARGE (CFS) = 387.5
TIME (MIN) = 264	DISCHARGE (CFS) = 61.2
TIME (MIN) = 276	DISCHARGE (CFS) = 40.9
TIME (MIN) = 288	DISCHARGE (CFS) = 32
TIME (MIN) = 300	DISCHARGE (CFS) = 26.8
TIME (MIN) = 312	DISCHARGE (CFS) = 23.4
TIME (MIN) = 324	DISCHARGE (CFS) = 20.8
TIME (MIN) = 336	DISCHARGE (CFS) = 18.9
TIME (MIN) = 348	DISCHARGE (CFS) = 17.4
TIME (MIN) = 360	DISCHARGE (CFS) = 16.1
TIME (MIN) = 372	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

BF-1-2

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 13 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 19.1 ACRES
RUNOFF COEFFICIENT 0.5664
PEAK DISCHARGE 38.78 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 13	DISCHARGE (CFS) = 0
TIME (MIN) = 26	DISCHARGE (CFS) = 1.6
TIME (MIN) = 39	DISCHARGE (CFS) = 1.7
TIME (MIN) = 52	DISCHARGE (CFS) = 1.8
TIME (MIN) = 65	DISCHARGE (CFS) = 1.8
TIME (MIN) = 78	DISCHARGE (CFS) = 1.9
TIME (MIN) = 91	DISCHARGE (CFS) = 2
TIME (MIN) = 104	DISCHARGE (CFS) = 2.2
TIME (MIN) = 117	DISCHARGE (CFS) = 2.2
TIME (MIN) = 130	DISCHARGE (CFS) = 2.4
TIME (MIN) = 143	DISCHARGE (CFS) = 2.5
TIME (MIN) = 156	DISCHARGE (CFS) = 2.8
TIME (MIN) = 169	DISCHARGE (CFS) = 3
TIME (MIN) = 182	DISCHARGE (CFS) = 3.4
TIME (MIN) = 195	DISCHARGE (CFS) = 3.7
TIME (MIN) = 208	DISCHARGE (CFS) = 4.6
TIME (MIN) = 221	DISCHARGE (CFS) = 5.2
TIME (MIN) = 234	DISCHARGE (CFS) = 7.6
TIME (MIN) = 247	DISCHARGE (CFS) = 10.4
TIME (MIN) = 260	DISCHARGE (CFS) = 38.78
TIME (MIN) = 273	DISCHARGE (CFS) = 6.1
TIME (MIN) = 286	DISCHARGE (CFS) = 4.1
TIME (MIN) = 299	DISCHARGE (CFS) = 3.2
TIME (MIN) = 312	DISCHARGE (CFS) = 2.7
TIME (MIN) = 325	DISCHARGE (CFS) = 2.3
TIME (MIN) = 338	DISCHARGE (CFS) = 2.1
TIME (MIN) = 351	DISCHARGE (CFS) = 1.9
TIME (MIN) = 364	DISCHARGE (CFS) = 1.7
TIME (MIN) = 377	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

BF-1-3

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 9 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 39.9 ACRES
RUNOFF COEFFICIENT 0.6255
PEAK DISCHARGE 110.87 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 9	DISCHARGE (CFS) = 0
TIME (MIN) = 18	DISCHARGE (CFS) = 3.8
TIME (MIN) = 27	DISCHARGE (CFS) = 3.9
TIME (MIN) = 36	DISCHARGE (CFS) = 4
TIME (MIN) = 45	DISCHARGE (CFS) = 4.1
TIME (MIN) = 54	DISCHARGE (CFS) = 4.2
TIME (MIN) = 63	DISCHARGE (CFS) = 4.3
TIME (MIN) = 72	DISCHARGE (CFS) = 4.5
TIME (MIN) = 81	DISCHARGE (CFS) = 4.6
TIME (MIN) = 90	DISCHARGE (CFS) = 4.8
TIME (MIN) = 99	DISCHARGE (CFS) = 4.9
TIME (MIN) = 108	DISCHARGE (CFS) = 5.2
TIME (MIN) = 117	DISCHARGE (CFS) = 5.4
TIME (MIN) = 126	DISCHARGE (CFS) = 5.7
TIME (MIN) = 135	DISCHARGE (CFS) = 5.9
TIME (MIN) = 144	DISCHARGE (CFS) = 6.3
TIME (MIN) = 153	DISCHARGE (CFS) = 6.6
TIME (MIN) = 162	DISCHARGE (CFS) = 7.1
TIME (MIN) = 171	DISCHARGE (CFS) = 7.5
TIME (MIN) = 180	DISCHARGE (CFS) = 8.3
TIME (MIN) = 189	DISCHARGE (CFS) = 8.8
TIME (MIN) = 198	DISCHARGE (CFS) = 10.1
TIME (MIN) = 207	DISCHARGE (CFS) = 10.9
TIME (MIN) = 216	DISCHARGE (CFS) = 13.3
TIME (MIN) = 225	DISCHARGE (CFS) = 15.2
TIME (MIN) = 234	DISCHARGE (CFS) = 22.3
TIME (MIN) = 243	DISCHARGE (CFS) = 33
TIME (MIN) = 252	DISCHARGE (CFS) = 110.87
TIME (MIN) = 261	DISCHARGE (CFS) = 17.9
TIME (MIN) = 270	DISCHARGE (CFS) = 12
TIME (MIN) = 279	DISCHARGE (CFS) = 9.4
TIME (MIN) = 288	DISCHARGE (CFS) = 7.8
TIME (MIN) = 297	DISCHARGE (CFS) = 6.8
TIME (MIN) = 306	DISCHARGE (CFS) = 6.1
TIME (MIN) = 315	DISCHARGE (CFS) = 5.5
TIME (MIN) = 324	DISCHARGE (CFS) = 5.1
TIME (MIN) = 333	DISCHARGE (CFS) = 4.7
TIME (MIN) = 342	DISCHARGE (CFS) = 4.4
TIME (MIN) = 351	DISCHARGE (CFS) = 4.1
TIME (MIN) = 360	DISCHARGE (CFS) = 3.9
TIME (MIN) = 369	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

BF-1-4

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 86.5 ACRES
RUNOFF COEFFICIENT 0.6
PEAK DISCHARGE 190.34 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 7.8
TIME (MIN) = 24	DISCHARGE (CFS) = 8
TIME (MIN) = 36	DISCHARGE (CFS) = 8.3
TIME (MIN) = 48	DISCHARGE (CFS) = 8.5
TIME (MIN) = 60	DISCHARGE (CFS) = 9
TIME (MIN) = 72	DISCHARGE (CFS) = 9.3
TIME (MIN) = 84	DISCHARGE (CFS) = 9.8
TIME (MIN) = 96	DISCHARGE (CFS) = 10.2
TIME (MIN) = 108	DISCHARGE (CFS) = 10.9
TIME (MIN) = 120	DISCHARGE (CFS) = 11.3
TIME (MIN) = 132	DISCHARGE (CFS) = 12.3
TIME (MIN) = 144	DISCHARGE (CFS) = 12.9
TIME (MIN) = 156	DISCHARGE (CFS) = 14.3
TIME (MIN) = 168	DISCHARGE (CFS) = 15.1
TIME (MIN) = 180	DISCHARGE (CFS) = 17.4
TIME (MIN) = 192	DISCHARGE (CFS) = 18.8
TIME (MIN) = 204	DISCHARGE (CFS) = 23
TIME (MIN) = 216	DISCHARGE (CFS) = 26.2
TIME (MIN) = 228	DISCHARGE (CFS) = 38.5
TIME (MIN) = 240	DISCHARGE (CFS) = 58.2
TIME (MIN) = 252	DISCHARGE (CFS) = 190.34
TIME (MIN) = 264	DISCHARGE (CFS) = 30.9
TIME (MIN) = 276	DISCHARGE (CFS) = 20.7
TIME (MIN) = 288	DISCHARGE (CFS) = 16.2
TIME (MIN) = 300	DISCHARGE (CFS) = 13.5
TIME (MIN) = 312	DISCHARGE (CFS) = 11.8
TIME (MIN) = 324	DISCHARGE (CFS) = 10.5
TIME (MIN) = 336	DISCHARGE (CFS) = 9.5
TIME (MIN) = 348	DISCHARGE (CFS) = 8.8
TIME (MIN) = 360	DISCHARGE (CFS) = 8.1
TIME (MIN) = 372	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 13 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 234.5 ACRES
RUNOFF COEFFICIENT 0.6381
PEAK DISCHARGE 530.17 CFS

BF-1-5

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 13	DISCHARGE (CFS) = 7.8
TIME (MIN) = 26	DISCHARGE (CFS) = 22.8
TIME (MIN) = 39	DISCHARGE (CFS) = 23.4
TIME (MIN) = 52	DISCHARGE (CFS) = 24.7
TIME (MIN) = 65	DISCHARGE (CFS) = 25.4
TIME (MIN) = 78	DISCHARGE (CFS) = 26.9
TIME (MIN) = 91	DISCHARGE (CFS) = 27.8
TIME (MIN) = 104	DISCHARGE (CFS) = 29.8
TIME (MIN) = 117	DISCHARGE (CFS) = 31
TIME (MIN) = 130	DISCHARGE (CFS) = 33.7
TIME (MIN) = 143	DISCHARGE (CFS) = 35.3
TIME (MIN) = 156	DISCHARGE (CFS) = 39.1
TIME (MIN) = 169	DISCHARGE (CFS) = 41.5
TIME (MIN) = 182	DISCHARGE (CFS) = 47.5
TIME (MIN) = 195	DISCHARGE (CFS) = 51.5
TIME (MIN) = 208	DISCHARGE (CFS) = 63
TIME (MIN) = 221	DISCHARGE (CFS) = 71.8
TIME (MIN) = 234	DISCHARGE (CFS) = 105.4
TIME (MIN) = 247	DISCHARGE (CFS) = 150.5
TIME (MIN) = 260	DISCHARGE (CFS) = 530.17
TIME (MIN) = 273	DISCHARGE (CFS) = 84.5
TIME (MIN) = 286	DISCHARGE (CFS) = 56.5
TIME (MIN) = 299	DISCHARGE (CFS) = 44.2
TIME (MIN) = 312	DISCHARGE (CFS) = 37.1
TIME (MIN) = 325	DISCHARGE (CFS) = 32.3
TIME (MIN) = 338	DISCHARGE (CFS) = 28.8
TIME (MIN) = 351	DISCHARGE (CFS) = 26.1
TIME (MIN) = 364	DISCHARGE (CFS) = 24
TIME (MIN) = 377	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

BF-1-6

RUN DATE 2/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 125.4 ACRES
RUNOFF COEFFICIENT 0.6445
PEAK DISCHARGE 305.82 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 12.1
TIME (MIN) = 24	DISCHARGE (CFS) = 12.4
TIME (MIN) = 36	DISCHARGE (CFS) = 13
TIME (MIN) = 48	DISCHARGE (CFS) = 13.3
TIME (MIN) = 60	DISCHARGE (CFS) = 14
TIME (MIN) = 72	DISCHARGE (CFS) = 14.4
TIME (MIN) = 84	DISCHARGE (CFS) = 15.3
TIME (MIN) = 96	DISCHARGE (CFS) = 15.8
TIME (MIN) = 108	DISCHARGE (CFS) = 17
TIME (MIN) = 120	DISCHARGE (CFS) = 17.6
TIME (MIN) = 132	DISCHARGE (CFS) = 19.2
TIME (MIN) = 144	DISCHARGE (CFS) = 20.1
TIME (MIN) = 156	DISCHARGE (CFS) = 22.2
TIME (MIN) = 168	DISCHARGE (CFS) = 23.6
TIME (MIN) = 180	DISCHARGE (CFS) = 27
TIME (MIN) = 192	DISCHARGE (CFS) = 29.3
TIME (MIN) = 204	DISCHARGE (CFS) = 35.8
TIME (MIN) = 216	DISCHARGE (CFS) = 40.8
TIME (MIN) = 228	DISCHARGE (CFS) = 59.9
TIME (MIN) = 240	DISCHARGE (CFS) = 81.3
TIME (MIN) = 252	DISCHARGE (CFS) = 305.82
TIME (MIN) = 264	DISCHARGE (CFS) = 48.1
TIME (MIN) = 276	DISCHARGE (CFS) = 32.2
TIME (MIN) = 288	DISCHARGE (CFS) = 25.2
TIME (MIN) = 300	DISCHARGE (CFS) = 21.1
TIME (MIN) = 312	DISCHARGE (CFS) = 18.3
TIME (MIN) = 324	DISCHARGE (CFS) = 16.4
TIME (MIN) = 336	DISCHARGE (CFS) = 14.9
TIME (MIN) = 348	DISCHARGE (CFS) = 13.7
TIME (MIN) = 360	DISCHARGE (CFS) = 12.7
TIME (MIN) = 372	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

POC -12

RUN DATE 3/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 1.1 ACRES
RUNOFF COEFFICIENT 0.87
PEAK DISCHARGE 6.13 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0.1
TIME (MIN) = 10	DISCHARGE (CFS) = 0.1
TIME (MIN) = 15	DISCHARGE (CFS) = 0.1
TIME (MIN) = 20	DISCHARGE (CFS) = 0.1
TIME (MIN) = 25	DISCHARGE (CFS) = 0.2
TIME (MIN) = 30	DISCHARGE (CFS) = 0.2
TIME (MIN) = 35	DISCHARGE (CFS) = 0.2
TIME (MIN) = 40	DISCHARGE (CFS) = 0.2
TIME (MIN) = 45	DISCHARGE (CFS) = 0.2
TIME (MIN) = 50	DISCHARGE (CFS) = 0.2
TIME (MIN) = 55	DISCHARGE (CFS) = 0.2
TIME (MIN) = 60	DISCHARGE (CFS) = 0.2
TIME (MIN) = 65	DISCHARGE (CFS) = 0.2
TIME (MIN) = 70	DISCHARGE (CFS) = 0.2
TIME (MIN) = 75	DISCHARGE (CFS) = 0.2
TIME (MIN) = 80	DISCHARGE (CFS) = 0.2
TIME (MIN) = 85	DISCHARGE (CFS) = 0.2
TIME (MIN) = 90	DISCHARGE (CFS) = 0.2
TIME (MIN) = 95	DISCHARGE (CFS) = 0.2
TIME (MIN) = 100	DISCHARGE (CFS) = 0.2
TIME (MIN) = 105	DISCHARGE (CFS) = 0.2
TIME (MIN) = 110	DISCHARGE (CFS) = 0.2
TIME (MIN) = 115	DISCHARGE (CFS) = 0.2
TIME (MIN) = 120	DISCHARGE (CFS) = 0.2
TIME (MIN) = 125	DISCHARGE (CFS) = 0.2
TIME (MIN) = 130	DISCHARGE (CFS) = 0.2
TIME (MIN) = 135	DISCHARGE (CFS) = 0.2
TIME (MIN) = 140	DISCHARGE (CFS) = 0.2
TIME (MIN) = 145	DISCHARGE (CFS) = 0.3
TIME (MIN) = 150	DISCHARGE (CFS) = 0.3
TIME (MIN) = 155	DISCHARGE (CFS) = 0.3
TIME (MIN) = 160	DISCHARGE (CFS) = 0.3
TIME (MIN) = 165	DISCHARGE (CFS) = 0.3
TIME (MIN) = 170	DISCHARGE (CFS) = 0.3
TIME (MIN) = 175	DISCHARGE (CFS) = 0.3
TIME (MIN) = 180	DISCHARGE (CFS) = 0.3
TIME (MIN) = 185	DISCHARGE (CFS) = 0.4
TIME (MIN) = 190	DISCHARGE (CFS) = 0.4
TIME (MIN) = 195	DISCHARGE (CFS) = 0.4
TIME (MIN) = 200	DISCHARGE (CFS) = 0.4
TIME (MIN) = 205	DISCHARGE (CFS) = 0.5
TIME (MIN) = 210	DISCHARGE (CFS) = 0.5
TIME (MIN) = 215	DISCHARGE (CFS) = 0.6
TIME (MIN) = 220	DISCHARGE (CFS) = 0.6
TIME (MIN) = 225	DISCHARGE (CFS) = 0.7
TIME (MIN) = 230	DISCHARGE (CFS) = 0.9
TIME (MIN) = 235	DISCHARGE (CFS) = 1.2
TIME (MIN) = 240	DISCHARGE (CFS) = 1.9
TIME (MIN) = 245	DISCHARGE (CFS) = 6.13
TIME (MIN) = 250	DISCHARGE (CFS) = 1
TIME (MIN) = 255	DISCHARGE (CFS) = 0.7
TIME (MIN) = 260	DISCHARGE (CFS) = 0.5
TIME (MIN) = 265	DISCHARGE (CFS) = 0.4
TIME (MIN) = 270	DISCHARGE (CFS) = 0.4
TIME (MIN) = 275	DISCHARGE (CFS) = 0.3
TIME (MIN) = 280	DISCHARGE (CFS) = 0.3
TIME (MIN) = 285	DISCHARGE (CFS) = 0.3
TIME (MIN) = 290	DISCHARGE (CFS) = 0.3
TIME (MIN) = 295	DISCHARGE (CFS) = 0.2
TIME (MIN) = 300	DISCHARGE (CFS) = 0.2
TIME (MIN) = 305	DISCHARGE (CFS) = 0.2
TIME (MIN) = 310	DISCHARGE (CFS) = 0.2
TIME (MIN) = 315	DISCHARGE (CFS) = 0.2
TIME (MIN) = 320	DISCHARGE (CFS) = 0.2
TIME (MIN) = 325	DISCHARGE (CFS) = 0.2
TIME (MIN) = 330	DISCHARGE (CFS) = 0.2
TIME (MIN) = 335	DISCHARGE (CFS) = 0.2
TIME (MIN) = 340	DISCHARGE (CFS) = 0.2
TIME (MIN) = 345	DISCHARGE (CFS) = 0.2
TIME (MIN) = 350	DISCHARGE (CFS) = 0.2
TIME (MIN) = 355	DISCHARGE (CFS) = 0.1

TIME (MIN) = 360 DISCHARGE (CFS) = 0.1
TIME (MIN) = 365 DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

POC -15

RUN DATE 3/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 7 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 1.3 ACRES
RUNOFF COEFFICIENT 0.87
PEAK DISCHARGE 6.19 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 7	DISCHARGE (CFS) = 0.2
TIME (MIN) = 14	DISCHARGE (CFS) = 0.2
TIME (MIN) = 21	DISCHARGE (CFS) = 0.2
TIME (MIN) = 28	DISCHARGE (CFS) = 0.2
TIME (MIN) = 35	DISCHARGE (CFS) = 0.2
TIME (MIN) = 42	DISCHARGE (CFS) = 0.2
TIME (MIN) = 49	DISCHARGE (CFS) = 0.2
TIME (MIN) = 56	DISCHARGE (CFS) = 0.2
TIME (MIN) = 63	DISCHARGE (CFS) = 0.2
TIME (MIN) = 70	DISCHARGE (CFS) = 0.2
TIME (MIN) = 77	DISCHARGE (CFS) = 0.2
TIME (MIN) = 84	DISCHARGE (CFS) = 0.2
TIME (MIN) = 91	DISCHARGE (CFS) = 0.2
TIME (MIN) = 98	DISCHARGE (CFS) = 0.2
TIME (MIN) = 105	DISCHARGE (CFS) = 0.2
TIME (MIN) = 112	DISCHARGE (CFS) = 0.2
TIME (MIN) = 119	DISCHARGE (CFS) = 0.3
TIME (MIN) = 126	DISCHARGE (CFS) = 0.3
TIME (MIN) = 133	DISCHARGE (CFS) = 0.3
TIME (MIN) = 140	DISCHARGE (CFS) = 0.3
TIME (MIN) = 147	DISCHARGE (CFS) = 0.3
TIME (MIN) = 154	DISCHARGE (CFS) = 0.3
TIME (MIN) = 161	DISCHARGE (CFS) = 0.3
TIME (MIN) = 168	DISCHARGE (CFS) = 0.3
TIME (MIN) = 175	DISCHARGE (CFS) = 0.4
TIME (MIN) = 182	DISCHARGE (CFS) = 0.4
TIME (MIN) = 189	DISCHARGE (CFS) = 0.4
TIME (MIN) = 196	DISCHARGE (CFS) = 0.5
TIME (MIN) = 203	DISCHARGE (CFS) = 0.5
TIME (MIN) = 210	DISCHARGE (CFS) = 0.6
TIME (MIN) = 217	DISCHARGE (CFS) = 0.7
TIME (MIN) = 224	DISCHARGE (CFS) = 0.8
TIME (MIN) = 231	DISCHARGE (CFS) = 1.2
TIME (MIN) = 238	DISCHARGE (CFS) = 1.5
TIME (MIN) = 245	DISCHARGE (CFS) = 6.19
TIME (MIN) = 252	DISCHARGE (CFS) = 1
TIME (MIN) = 259	DISCHARGE (CFS) = 0.6
TIME (MIN) = 266	DISCHARGE (CFS) = 0.5
TIME (MIN) = 273	DISCHARGE (CFS) = 0.4
TIME (MIN) = 280	DISCHARGE (CFS) = 0.4
TIME (MIN) = 287	DISCHARGE (CFS) = 0.3
TIME (MIN) = 294	DISCHARGE (CFS) = 0.3
TIME (MIN) = 301	DISCHARGE (CFS) = 0.3
TIME (MIN) = 308	DISCHARGE (CFS) = 0.3
TIME (MIN) = 315	DISCHARGE (CFS) = 0.2
TIME (MIN) = 322	DISCHARGE (CFS) = 0.2
TIME (MIN) = 329	DISCHARGE (CFS) = 0.2
TIME (MIN) = 336	DISCHARGE (CFS) = 0.2
TIME (MIN) = 343	DISCHARGE (CFS) = 0.2
TIME (MIN) = 350	DISCHARGE (CFS) = 0.2
TIME (MIN) = 357	DISCHARGE (CFS) = 0.2
TIME (MIN) = 364	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

POC -16

RUN DATE 3/7/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 0.8 ACRES
RUNOFF COEFFICIENT 0.87
PEAK DISCHARGE 4.47 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0.1
TIME (MIN) = 10	DISCHARGE (CFS) = 0.1
TIME (MIN) = 15	DISCHARGE (CFS) = 0.1
TIME (MIN) = 20	DISCHARGE (CFS) = 0.1
TIME (MIN) = 25	DISCHARGE (CFS) = 0.1
TIME (MIN) = 30	DISCHARGE (CFS) = 0.1
TIME (MIN) = 35	DISCHARGE (CFS) = 0.1
TIME (MIN) = 40	DISCHARGE (CFS) = 0.1
TIME (MIN) = 45	DISCHARGE (CFS) = 0.1
TIME (MIN) = 50	DISCHARGE (CFS) = 0.1
TIME (MIN) = 55	DISCHARGE (CFS) = 0.1
TIME (MIN) = 60	DISCHARGE (CFS) = 0.1
TIME (MIN) = 65	DISCHARGE (CFS) = 0.1
TIME (MIN) = 70	DISCHARGE (CFS) = 0.1
TIME (MIN) = 75	DISCHARGE (CFS) = 0.1
TIME (MIN) = 80	DISCHARGE (CFS) = 0.1
TIME (MIN) = 85	DISCHARGE (CFS) = 0.1
TIME (MIN) = 90	DISCHARGE (CFS) = 0.1
TIME (MIN) = 95	DISCHARGE (CFS) = 0.1
TIME (MIN) = 100	DISCHARGE (CFS) = 0.1
TIME (MIN) = 105	DISCHARGE (CFS) = 0.1
TIME (MIN) = 110	DISCHARGE (CFS) = 0.1
TIME (MIN) = 115	DISCHARGE (CFS) = 0.2
TIME (MIN) = 120	DISCHARGE (CFS) = 0.2
TIME (MIN) = 125	DISCHARGE (CFS) = 0.2
TIME (MIN) = 130	DISCHARGE (CFS) = 0.2
TIME (MIN) = 135	DISCHARGE (CFS) = 0.2
TIME (MIN) = 140	DISCHARGE (CFS) = 0.2
TIME (MIN) = 145	DISCHARGE (CFS) = 0.2
TIME (MIN) = 150	DISCHARGE (CFS) = 0.2
TIME (MIN) = 155	DISCHARGE (CFS) = 0.2
TIME (MIN) = 160	DISCHARGE (CFS) = 0.2
TIME (MIN) = 165	DISCHARGE (CFS) = 0.2
TIME (MIN) = 170	DISCHARGE (CFS) = 0.2
TIME (MIN) = 175	DISCHARGE (CFS) = 0.2
TIME (MIN) = 180	DISCHARGE (CFS) = 0.2
TIME (MIN) = 185	DISCHARGE (CFS) = 0.3
TIME (MIN) = 190	DISCHARGE (CFS) = 0.3
TIME (MIN) = 195	DISCHARGE (CFS) = 0.3
TIME (MIN) = 200	DISCHARGE (CFS) = 0.3
TIME (MIN) = 205	DISCHARGE (CFS) = 0.3
TIME (MIN) = 210	DISCHARGE (CFS) = 0.4
TIME (MIN) = 215	DISCHARGE (CFS) = 0.4
TIME (MIN) = 220	DISCHARGE (CFS) = 0.4
TIME (MIN) = 225	DISCHARGE (CFS) = 0.5
TIME (MIN) = 230	DISCHARGE (CFS) = 0.6
TIME (MIN) = 235	DISCHARGE (CFS) = 0.9
TIME (MIN) = 240	DISCHARGE (CFS) = 1.4
TIME (MIN) = 245	DISCHARGE (CFS) = 4.47
TIME (MIN) = 250	DISCHARGE (CFS) = 0.7
TIME (MIN) = 255	DISCHARGE (CFS) = 0.5
TIME (MIN) = 260	DISCHARGE (CFS) = 0.4
TIME (MIN) = 265	DISCHARGE (CFS) = 0.3
TIME (MIN) = 270	DISCHARGE (CFS) = 0.3
TIME (MIN) = 275	DISCHARGE (CFS) = 0.2
TIME (MIN) = 280	DISCHARGE (CFS) = 0.2
TIME (MIN) = 285	DISCHARGE (CFS) = 0.2
TIME (MIN) = 290	DISCHARGE (CFS) = 0.2
TIME (MIN) = 295	DISCHARGE (CFS) = 0.2
TIME (MIN) = 300	DISCHARGE (CFS) = 0.2
TIME (MIN) = 305	DISCHARGE (CFS) = 0.2
TIME (MIN) = 310	DISCHARGE (CFS) = 0.2
TIME (MIN) = 315	DISCHARGE (CFS) = 0.1
TIME (MIN) = 320	DISCHARGE (CFS) = 0.1
TIME (MIN) = 325	DISCHARGE (CFS) = 0.1
TIME (MIN) = 330	DISCHARGE (CFS) = 0.1
TIME (MIN) = 335	DISCHARGE (CFS) = 0.1
TIME (MIN) = 340	DISCHARGE (CFS) = 0.1
TIME (MIN) = 345	DISCHARGE (CFS) = 0.1
TIME (MIN) = 350	DISCHARGE (CFS) = 0.1
TIME (MIN) = 355	DISCHARGE (CFS) = 0.1

TIME (MIN) = 360 DISCHARGE (CFS) = 0.1
TIME (MIN) = 365 DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

POC -18

RUN DATE 3/6/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 114.8 ACRES
RUNOFF COEFFICIENT 0.35
PEAK DISCHARGE 148.95 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 6
TIME (MIN) = 24	DISCHARGE (CFS) = 6.2
TIME (MIN) = 36	DISCHARGE (CFS) = 6.5
TIME (MIN) = 48	DISCHARGE (CFS) = 6.6
TIME (MIN) = 60	DISCHARGE (CFS) = 7
TIME (MIN) = 72	DISCHARGE (CFS) = 7.2
TIME (MIN) = 84	DISCHARGE (CFS) = 7.6
TIME (MIN) = 96	DISCHARGE (CFS) = 7.9
TIME (MIN) = 108	DISCHARGE (CFS) = 8.4
TIME (MIN) = 120	DISCHARGE (CFS) = 8.8
TIME (MIN) = 132	DISCHARGE (CFS) = 9.5
TIME (MIN) = 144	DISCHARGE (CFS) = 10
TIME (MIN) = 156	DISCHARGE (CFS) = 11.1
TIME (MIN) = 168	DISCHARGE (CFS) = 11.7
TIME (MIN) = 180	DISCHARGE (CFS) = 13.4
TIME (MIN) = 192	DISCHARGE (CFS) = 14.6
TIME (MIN) = 204	DISCHARGE (CFS) = 17.8
TIME (MIN) = 216	DISCHARGE (CFS) = 20.3
TIME (MIN) = 228	DISCHARGE (CFS) = 29.8
TIME (MIN) = 240	DISCHARGE (CFS) = 43.5
TIME (MIN) = 252	DISCHARGE (CFS) = 148.95
TIME (MIN) = 264	DISCHARGE (CFS) = 23.9
TIME (MIN) = 276	DISCHARGE (CFS) = 16
TIME (MIN) = 288	DISCHARGE (CFS) = 12.5
TIME (MIN) = 300	DISCHARGE (CFS) = 10.5
TIME (MIN) = 312	DISCHARGE (CFS) = 9.1
TIME (MIN) = 324	DISCHARGE (CFS) = 8.1
TIME (MIN) = 336	DISCHARGE (CFS) = 7.4
TIME (MIN) = 348	DISCHARGE (CFS) = 6.8
TIME (MIN) = 360	DISCHARGE (CFS) = 6.3
TIME (MIN) = 372	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RV1

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 7 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 4.7 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 18.07 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 7	DISCHARGE (CFS) = 0.5
TIME (MIN) = 14	DISCHARGE (CFS) = 0.5
TIME (MIN) = 21	DISCHARGE (CFS) = 0.5
TIME (MIN) = 28	DISCHARGE (CFS) = 0.5
TIME (MIN) = 35	DISCHARGE (CFS) = 0.5
TIME (MIN) = 42	DISCHARGE (CFS) = 0.6
TIME (MIN) = 49	DISCHARGE (CFS) = 0.6
TIME (MIN) = 56	DISCHARGE (CFS) = 0.6
TIME (MIN) = 63	DISCHARGE (CFS) = 0.6
TIME (MIN) = 70	DISCHARGE (CFS) = 0.6
TIME (MIN) = 77	DISCHARGE (CFS) = 0.6
TIME (MIN) = 84	DISCHARGE (CFS) = 0.6
TIME (MIN) = 91	DISCHARGE (CFS) = 0.7
TIME (MIN) = 98	DISCHARGE (CFS) = 0.7
TIME (MIN) = 105	DISCHARGE (CFS) = 0.7
TIME (MIN) = 112	DISCHARGE (CFS) = 0.7
TIME (MIN) = 119	DISCHARGE (CFS) = 0.8
TIME (MIN) = 126	DISCHARGE (CFS) = 0.8
TIME (MIN) = 133	DISCHARGE (CFS) = 0.8
TIME (MIN) = 140	DISCHARGE (CFS) = 0.8
TIME (MIN) = 147	DISCHARGE (CFS) = 0.9
TIME (MIN) = 154	DISCHARGE (CFS) = 0.9
TIME (MIN) = 161	DISCHARGE (CFS) = 1
TIME (MIN) = 168	DISCHARGE (CFS) = 1
TIME (MIN) = 175	DISCHARGE (CFS) = 1.1
TIME (MIN) = 182	DISCHARGE (CFS) = 1.2
TIME (MIN) = 189	DISCHARGE (CFS) = 1.3
TIME (MIN) = 196	DISCHARGE (CFS) = 1.4
TIME (MIN) = 203	DISCHARGE (CFS) = 1.6
TIME (MIN) = 210	DISCHARGE (CFS) = 1.7
TIME (MIN) = 217	DISCHARGE (CFS) = 2.1
TIME (MIN) = 224	DISCHARGE (CFS) = 2.4
TIME (MIN) = 231	DISCHARGE (CFS) = 3.5
TIME (MIN) = 238	DISCHARGE (CFS) = 4.6
TIME (MIN) = 245	DISCHARGE (CFS) = 18.07
TIME (MIN) = 252	DISCHARGE (CFS) = 2.8
TIME (MIN) = 259	DISCHARGE (CFS) = 1.9
TIME (MIN) = 266	DISCHARGE (CFS) = 1.5
TIME (MIN) = 273	DISCHARGE (CFS) = 1.2
TIME (MIN) = 280	DISCHARGE (CFS) = 1.1
TIME (MIN) = 287	DISCHARGE (CFS) = 1
TIME (MIN) = 294	DISCHARGE (CFS) = 0.9
TIME (MIN) = 301	DISCHARGE (CFS) = 0.8
TIME (MIN) = 308	DISCHARGE (CFS) = 0.7
TIME (MIN) = 315	DISCHARGE (CFS) = 0.7
TIME (MIN) = 322	DISCHARGE (CFS) = 0.7
TIME (MIN) = 329	DISCHARGE (CFS) = 0.6
TIME (MIN) = 336	DISCHARGE (CFS) = 0.6
TIME (MIN) = 343	DISCHARGE (CFS) = 0.6
TIME (MIN) = 350	DISCHARGE (CFS) = 0.5
TIME (MIN) = 357	DISCHARGE (CFS) = 0.5
TIME (MIN) = 364	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 8 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 3 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 10.07 CFS

RV2

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 8	DISCHARGE (CFS) = 0.3
TIME (MIN) = 16	DISCHARGE (CFS) = 0.3
TIME (MIN) = 24	DISCHARGE (CFS) = 0.3
TIME (MIN) = 32	DISCHARGE (CFS) = 0.3
TIME (MIN) = 40	DISCHARGE (CFS) = 0.3
TIME (MIN) = 48	DISCHARGE (CFS) = 0.4
TIME (MIN) = 56	DISCHARGE (CFS) = 0.4
TIME (MIN) = 64	DISCHARGE (CFS) = 0.4
TIME (MIN) = 72	DISCHARGE (CFS) = 0.4
TIME (MIN) = 80	DISCHARGE (CFS) = 0.4
TIME (MIN) = 88	DISCHARGE (CFS) = 0.4
TIME (MIN) = 96	DISCHARGE (CFS) = 0.4
TIME (MIN) = 104	DISCHARGE (CFS) = 0.4
TIME (MIN) = 112	DISCHARGE (CFS) = 0.5
TIME (MIN) = 120	DISCHARGE (CFS) = 0.5
TIME (MIN) = 128	DISCHARGE (CFS) = 0.5
TIME (MIN) = 136	DISCHARGE (CFS) = 0.5
TIME (MIN) = 144	DISCHARGE (CFS) = 0.5
TIME (MIN) = 152	DISCHARGE (CFS) = 0.6
TIME (MIN) = 160	DISCHARGE (CFS) = 0.6
TIME (MIN) = 168	DISCHARGE (CFS) = 0.7
TIME (MIN) = 176	DISCHARGE (CFS) = 0.7
TIME (MIN) = 184	DISCHARGE (CFS) = 0.8
TIME (MIN) = 192	DISCHARGE (CFS) = 0.8
TIME (MIN) = 200	DISCHARGE (CFS) = 0.9
TIME (MIN) = 208	DISCHARGE (CFS) = 1
TIME (MIN) = 216	DISCHARGE (CFS) = 1.2
TIME (MIN) = 224	DISCHARGE (CFS) = 1.4
TIME (MIN) = 232	DISCHARGE (CFS) = 2.1
TIME (MIN) = 240	DISCHARGE (CFS) = 3.2
TIME (MIN) = 248	DISCHARGE (CFS) = 10.07
TIME (MIN) = 256	DISCHARGE (CFS) = 1.6
TIME (MIN) = 264	DISCHARGE (CFS) = 1.1
TIME (MIN) = 272	DISCHARGE (CFS) = 0.9
TIME (MIN) = 280	DISCHARGE (CFS) = 0.7
TIME (MIN) = 288	DISCHARGE (CFS) = 0.6
TIME (MIN) = 296	DISCHARGE (CFS) = 0.6
TIME (MIN) = 304	DISCHARGE (CFS) = 0.5
TIME (MIN) = 312	DISCHARGE (CFS) = 0.5
TIME (MIN) = 320	DISCHARGE (CFS) = 0.4
TIME (MIN) = 328	DISCHARGE (CFS) = 0.4
TIME (MIN) = 336	DISCHARGE (CFS) = 0.4
TIME (MIN) = 344	DISCHARGE (CFS) = 0.4
TIME (MIN) = 352	DISCHARGE (CFS) = 0.3
TIME (MIN) = 360	DISCHARGE (CFS) = 0.3
TIME (MIN) = 368	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 6 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 3.5 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 14.04 CFS

RV3

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 6	DISCHARGE (CFS) = 0.4
TIME (MIN) = 12	DISCHARGE (CFS) = 0.4
TIME (MIN) = 18	DISCHARGE (CFS) = 0.4
TIME (MIN) = 24	DISCHARGE (CFS) = 0.4
TIME (MIN) = 30	DISCHARGE (CFS) = 0.4
TIME (MIN) = 36	DISCHARGE (CFS) = 0.4
TIME (MIN) = 42	DISCHARGE (CFS) = 0.4
TIME (MIN) = 48	DISCHARGE (CFS) = 0.4
TIME (MIN) = 54	DISCHARGE (CFS) = 0.4
TIME (MIN) = 60	DISCHARGE (CFS) = 0.4
TIME (MIN) = 66	DISCHARGE (CFS) = 0.4
TIME (MIN) = 72	DISCHARGE (CFS) = 0.5
TIME (MIN) = 78	DISCHARGE (CFS) = 0.5
TIME (MIN) = 84	DISCHARGE (CFS) = 0.5
TIME (MIN) = 90	DISCHARGE (CFS) = 0.5
TIME (MIN) = 96	DISCHARGE (CFS) = 0.5
TIME (MIN) = 102	DISCHARGE (CFS) = 0.5
TIME (MIN) = 108	DISCHARGE (CFS) = 0.5
TIME (MIN) = 114	DISCHARGE (CFS) = 0.5
TIME (MIN) = 120	DISCHARGE (CFS) = 0.6
TIME (MIN) = 126	DISCHARGE (CFS) = 0.6
TIME (MIN) = 132	DISCHARGE (CFS) = 0.6
TIME (MIN) = 138	DISCHARGE (CFS) = 0.6
TIME (MIN) = 144	DISCHARGE (CFS) = 0.6
TIME (MIN) = 150	DISCHARGE (CFS) = 0.7
TIME (MIN) = 156	DISCHARGE (CFS) = 0.7
TIME (MIN) = 162	DISCHARGE (CFS) = 0.7
TIME (MIN) = 168	DISCHARGE (CFS) = 0.8
TIME (MIN) = 174	DISCHARGE (CFS) = 0.8
TIME (MIN) = 180	DISCHARGE (CFS) = 0.8
TIME (MIN) = 186	DISCHARGE (CFS) = 0.9
TIME (MIN) = 192	DISCHARGE (CFS) = 1
TIME (MIN) = 198	DISCHARGE (CFS) = 1.1
TIME (MIN) = 204	DISCHARGE (CFS) = 1.1
TIME (MIN) = 210	DISCHARGE (CFS) = 1.3
TIME (MIN) = 216	DISCHARGE (CFS) = 1.4
TIME (MIN) = 222	DISCHARGE (CFS) = 1.7
TIME (MIN) = 228	DISCHARGE (CFS) = 2
TIME (MIN) = 234	DISCHARGE (CFS) = 2.9
TIME (MIN) = 240	DISCHARGE (CFS) = 4.6
TIME (MIN) = 246	DISCHARGE (CFS) = 14.04
TIME (MIN) = 252	DISCHARGE (CFS) = 2.3
TIME (MIN) = 258	DISCHARGE (CFS) = 1.5
TIME (MIN) = 264	DISCHARGE (CFS) = 1.2
TIME (MIN) = 270	DISCHARGE (CFS) = 1
TIME (MIN) = 276	DISCHARGE (CFS) = 0.9
TIME (MIN) = 282	DISCHARGE (CFS) = 0.8
TIME (MIN) = 288	DISCHARGE (CFS) = 0.7
TIME (MIN) = 294	DISCHARGE (CFS) = 0.7
TIME (MIN) = 300	DISCHARGE (CFS) = 0.6
TIME (MIN) = 306	DISCHARGE (CFS) = 0.6
TIME (MIN) = 312	DISCHARGE (CFS) = 0.5
TIME (MIN) = 318	DISCHARGE (CFS) = 0.5
TIME (MIN) = 324	DISCHARGE (CFS) = 0.5
TIME (MIN) = 330	DISCHARGE (CFS) = 0.5
TIME (MIN) = 336	DISCHARGE (CFS) = 0.4
TIME (MIN) = 342	DISCHARGE (CFS) = 0.4
TIME (MIN) = 348	DISCHARGE (CFS) = 0.4
TIME (MIN) = 354	DISCHARGE (CFS) = 0.4
TIME (MIN) = 360	DISCHARGE (CFS) = 0.4
TIME (MIN) = 366	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 11 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 5.9 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 16.34 CFS

RV4

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 11	DISCHARGE (CFS) = 0.6
TIME (MIN) = 22	DISCHARGE (CFS) = 0.6
TIME (MIN) = 33	DISCHARGE (CFS) = 0.7
TIME (MIN) = 44	DISCHARGE (CFS) = 0.7
TIME (MIN) = 55	DISCHARGE (CFS) = 0.7
TIME (MIN) = 66	DISCHARGE (CFS) = 0.7
TIME (MIN) = 77	DISCHARGE (CFS) = 0.8
TIME (MIN) = 88	DISCHARGE (CFS) = 0.8
TIME (MIN) = 99	DISCHARGE (CFS) = 0.8
TIME (MIN) = 110	DISCHARGE (CFS) = 0.9
TIME (MIN) = 121	DISCHARGE (CFS) = 0.9
TIME (MIN) = 132	DISCHARGE (CFS) = 1
TIME (MIN) = 143	DISCHARGE (CFS) = 1
TIME (MIN) = 154	DISCHARGE (CFS) = 1.1
TIME (MIN) = 165	DISCHARGE (CFS) = 1.2
TIME (MIN) = 176	DISCHARGE (CFS) = 1.3
TIME (MIN) = 187	DISCHARGE (CFS) = 1.5
TIME (MIN) = 198	DISCHARGE (CFS) = 1.6
TIME (MIN) = 209	DISCHARGE (CFS) = 2
TIME (MIN) = 220	DISCHARGE (CFS) = 2.2
TIME (MIN) = 231	DISCHARGE (CFS) = 3.3
TIME (MIN) = 242	DISCHARGE (CFS) = 4.9
TIME (MIN) = 253	DISCHARGE (CFS) = 16.34
TIME (MIN) = 264	DISCHARGE (CFS) = 2.6
TIME (MIN) = 275	DISCHARGE (CFS) = 1.8
TIME (MIN) = 286	DISCHARGE (CFS) = 1.4
TIME (MIN) = 297	DISCHARGE (CFS) = 1.2
TIME (MIN) = 308	DISCHARGE (CFS) = 1
TIME (MIN) = 319	DISCHARGE (CFS) = 0.9
TIME (MIN) = 330	DISCHARGE (CFS) = 0.8
TIME (MIN) = 341	DISCHARGE (CFS) = 0.7
TIME (MIN) = 352	DISCHARGE (CFS) = 0.7
TIME (MIN) = 363	DISCHARGE (CFS) = 0.6
TIME (MIN) = 374	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 7 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 6 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 21.91 CFS

RV5

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 7	DISCHARGE (CFS) = 0.6
TIME (MIN) = 14	DISCHARGE (CFS) = 0.6
TIME (MIN) = 21	DISCHARGE (CFS) = 0.7
TIME (MIN) = 28	DISCHARGE (CFS) = 0.7
TIME (MIN) = 35	DISCHARGE (CFS) = 0.7
TIME (MIN) = 42	DISCHARGE (CFS) = 0.7
TIME (MIN) = 49	DISCHARGE (CFS) = 0.7
TIME (MIN) = 56	DISCHARGE (CFS) = 0.7
TIME (MIN) = 63	DISCHARGE (CFS) = 0.8
TIME (MIN) = 70	DISCHARGE (CFS) = 0.8
TIME (MIN) = 77	DISCHARGE (CFS) = 0.8
TIME (MIN) = 84	DISCHARGE (CFS) = 0.8
TIME (MIN) = 91	DISCHARGE (CFS) = 0.8
TIME (MIN) = 98	DISCHARGE (CFS) = 0.9
TIME (MIN) = 105	DISCHARGE (CFS) = 0.9
TIME (MIN) = 112	DISCHARGE (CFS) = 0.9
TIME (MIN) = 119	DISCHARGE (CFS) = 1
TIME (MIN) = 126	DISCHARGE (CFS) = 1
TIME (MIN) = 133	DISCHARGE (CFS) = 1
TIME (MIN) = 140	DISCHARGE (CFS) = 1.1
TIME (MIN) = 147	DISCHARGE (CFS) = 1.1
TIME (MIN) = 154	DISCHARGE (CFS) = 1.2
TIME (MIN) = 161	DISCHARGE (CFS) = 1.3
TIME (MIN) = 168	DISCHARGE (CFS) = 1.3
TIME (MIN) = 175	DISCHARGE (CFS) = 1.4
TIME (MIN) = 182	DISCHARGE (CFS) = 1.5
TIME (MIN) = 189	DISCHARGE (CFS) = 1.7
TIME (MIN) = 196	DISCHARGE (CFS) = 1.8
TIME (MIN) = 203	DISCHARGE (CFS) = 2
TIME (MIN) = 210	DISCHARGE (CFS) = 2.2
TIME (MIN) = 217	DISCHARGE (CFS) = 2.7
TIME (MIN) = 224	DISCHARGE (CFS) = 3
TIME (MIN) = 231	DISCHARGE (CFS) = 4.5
TIME (MIN) = 238	DISCHARGE (CFS) = 7
TIME (MIN) = 245	DISCHARGE (CFS) = 21.91
TIME (MIN) = 252	DISCHARGE (CFS) = 3.6
TIME (MIN) = 259	DISCHARGE (CFS) = 2.4
TIME (MIN) = 266	DISCHARGE (CFS) = 1.9
TIME (MIN) = 273	DISCHARGE (CFS) = 1.6
TIME (MIN) = 280	DISCHARGE (CFS) = 1.4
TIME (MIN) = 287	DISCHARGE (CFS) = 1.2
TIME (MIN) = 294	DISCHARGE (CFS) = 1.1
TIME (MIN) = 301	DISCHARGE (CFS) = 1
TIME (MIN) = 308	DISCHARGE (CFS) = 0.9
TIME (MIN) = 315	DISCHARGE (CFS) = 0.9
TIME (MIN) = 322	DISCHARGE (CFS) = 0.8
TIME (MIN) = 329	DISCHARGE (CFS) = 0.8
TIME (MIN) = 336	DISCHARGE (CFS) = 0.7
TIME (MIN) = 343	DISCHARGE (CFS) = 0.7
TIME (MIN) = 350	DISCHARGE (CFS) = 0.7
TIME (MIN) = 357	DISCHARGE (CFS) = 0.7
TIME (MIN) = 364	DISCHARGE (CFS) = 0

RATIONAL METHOD HYDROGRAPH PROGRAM

RV6

RUN DATE 8/12/2019
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 7 MIN.
6 HOUR RAINFALL 2.5 INCHES
BASIN AREA 4.1 ACRES
RUNOFF COEFFICIENT 0.71
PEAK DISCHARGE 15.49 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 7	DISCHARGE (CFS) = 0.4
TIME (MIN) = 14	DISCHARGE (CFS) = 0.4
TIME (MIN) = 21	DISCHARGE (CFS) = 0.5
TIME (MIN) = 28	DISCHARGE (CFS) = 0.5
TIME (MIN) = 35	DISCHARGE (CFS) = 0.5
TIME (MIN) = 42	DISCHARGE (CFS) = 0.5
TIME (MIN) = 49	DISCHARGE (CFS) = 0.5
TIME (MIN) = 56	DISCHARGE (CFS) = 0.5
TIME (MIN) = 63	DISCHARGE (CFS) = 0.5
TIME (MIN) = 70	DISCHARGE (CFS) = 0.5
TIME (MIN) = 77	DISCHARGE (CFS) = 0.5
TIME (MIN) = 84	DISCHARGE (CFS) = 0.6
TIME (MIN) = 91	DISCHARGE (CFS) = 0.6
TIME (MIN) = 98	DISCHARGE (CFS) = 0.6
TIME (MIN) = 105	DISCHARGE (CFS) = 0.6
TIME (MIN) = 112	DISCHARGE (CFS) = 0.6
TIME (MIN) = 119	DISCHARGE (CFS) = 0.7
TIME (MIN) = 126	DISCHARGE (CFS) = 0.7
TIME (MIN) = 133	DISCHARGE (CFS) = 0.7
TIME (MIN) = 140	DISCHARGE (CFS) = 0.7
TIME (MIN) = 147	DISCHARGE (CFS) = 0.8
TIME (MIN) = 154	DISCHARGE (CFS) = 0.8
TIME (MIN) = 161	DISCHARGE (CFS) = 0.9
TIME (MIN) = 168	DISCHARGE (CFS) = 0.9
TIME (MIN) = 175	DISCHARGE (CFS) = 1
TIME (MIN) = 182	DISCHARGE (CFS) = 1
TIME (MIN) = 189	DISCHARGE (CFS) = 1.1
TIME (MIN) = 196	DISCHARGE (CFS) = 1.2
TIME (MIN) = 203	DISCHARGE (CFS) = 1.4
TIME (MIN) = 210	DISCHARGE (CFS) = 1.5
TIME (MIN) = 217	DISCHARGE (CFS) = 1.8
TIME (MIN) = 224	DISCHARGE (CFS) = 2.1
TIME (MIN) = 231	DISCHARGE (CFS) = 3.1
TIME (MIN) = 238	DISCHARGE (CFS) = 4.2
TIME (MIN) = 245	DISCHARGE (CFS) = 15.49
TIME (MIN) = 252	DISCHARGE (CFS) = 2.5
TIME (MIN) = 259	DISCHARGE (CFS) = 1.6
TIME (MIN) = 266	DISCHARGE (CFS) = 1.3
TIME (MIN) = 273	DISCHARGE (CFS) = 1.1
TIME (MIN) = 280	DISCHARGE (CFS) = 0.9
TIME (MIN) = 287	DISCHARGE (CFS) = 0.8
TIME (MIN) = 294	DISCHARGE (CFS) = 0.8
TIME (MIN) = 301	DISCHARGE (CFS) = 0.7
TIME (MIN) = 308	DISCHARGE (CFS) = 0.6
TIME (MIN) = 315	DISCHARGE (CFS) = 0.6
TIME (MIN) = 322	DISCHARGE (CFS) = 0.6
TIME (MIN) = 329	DISCHARGE (CFS) = 0.5
TIME (MIN) = 336	DISCHARGE (CFS) = 0.5
TIME (MIN) = 343	DISCHARGE (CFS) = 0.5
TIME (MIN) = 350	DISCHARGE (CFS) = 0.5
TIME (MIN) = 357	DISCHARGE (CFS) = 0.4
TIME (MIN) = 364	DISCHARGE (CFS) = 0

STAGE-STORAGE TABLES

Basin 1-1			
	Elevation (ft)	Area (sq-ft)	Volume (cu-ft)
BMP Area	0.00	249599	0
	0.25	251859	25073
	0.50	254128	88321
	0.60	255037	113779
	1.00	258690	216525
Surf Outlet	1.25	260983	281484
	1.50	263285	347017
	2.00	267913	479817
	2.50	272575	614939
	3.00	277270	752400
	3.50	281999	892217
	4.00	286760	1034407
	4.50	291555	1178986
	5.00	296384	1325971
	5.50	301245	1475378
	6.00	306140	1627224

Basin 1-2

	Elevation (ft)	Area (sq-ft)	Volume (cu-ft)
	0.00	31487	0
	0.25	33123	3231
	0.50	34743	11714
	0.75	36347	20600
	1.00	37934	29885
	1.25	39506	39565
	1.50	41061	49636
	1.75	42601	60094
BMP Area	2.00	44124	70934
	2.25	45631	82154
	2.50	47122	93748
Surf Outlet	2.75	48597	105713
	3.00	50056	118044
	3.25	51498	130739
	3.50	52925	143791
	3.75	54335	157199
	4.00	55729	170957
	4.25	57107	185062
	4.50	58469	199509
	4.75	59815	214294
	5.00	61145	229414
	5.25	62459	244865
	5.50	63756	260642
	5.75	65038	276741
	6.00	66303	293158

Basin 1-3

	Elevation (ft)	Area (sq-ft)	Volume (cu-ft)
	0.00	73756	0
	0.25	75203	7448
	0.50	76640	26428
	0.75	78067	45767
	1.00	79483	65461
	1.25	80888	85507
	1.50	82283	105903
BMP Area	1.75	83668	126647
	2.00	85042	147736
Surf Outlet	2.50	87758	190936
	3.00	90433	235483
	3.50	93065	281358
	4.00	95656	328538
	4.50	98204	377003
	5.00	100711	426732
	5.50	103176	477703
	6.00	105598	529897

Basin 1-4

	Elevation (ft)	Area (sq-ft)	Volume (cu-ft)
	0.00	132246	0
	0.25	133687	13297
BMP Area	0.50	135127	46898
	0.75	136568	80860
	1.00	138009	115182
	1.25	139449	149865
	1.50	140890	184907
	1.75	142330	220309
	2.00	143771	256072
Surf Outlet	2.33	145692	304316
	2.50	146652	328678
	2.75	148093	365521
	3.00	149534	402724
	3.25	150974	440288
	3.50	152415	478211
	3.75	153855	516495
	4.00	155296	555139
	4.25	156737	594143
	4.50	158177	633507
	4.75	159618	673232
	5.00	161059	713316
	5.25	162499	753761
	5.50	163940	794566
	5.75	165380	835731
	6.00	166821	877256

Basin 1-5

	Elevation (ft)	Area (sq-ft)	Volume (cu-ft)
BMP Area	0.00	338354	0
	0.25	340718	33954
	0.50	343082	119429
	0.75	345446	205495
	1.00	347810	292152
	1.25	350175	379400
Surf Outlet	1.60	353484	502540
	1.85	355848	591207
	2.10	358212	680464
	2.35	360577	770313
	2.60	362941	860753
	2.85	365305	951783
	3.10	367669	1043405
	3.35	370033	1135618
	3.60	372397	1228421
	3.85	374761	1321816
	4.10	377125	1415802
	4.35	379489	1510379
	4.60	381853	1605547

Basin 1-6

	New Elevation	Old Elevation	A (sq-ft)	Vol (cu-ft)
	0.00	-0.5	122626	0
Mulch	0.25	-0.25	124256	12344
	0.50	0.00	125888	43612
	0.75	0.25	127522	75288
	1.00	0.50	129157	107373
	1.30	0.80	131122	146415
	1.50	1.00	132434	172771
BMP Area & Surf Out	1.75	1.25	134075	206084
	2.00	1.50	135718	239809
	2.25	1.75	137363	273944
	2.50	2.00	139010	308490
	2.75	2.25	140658	343449
	3.00	2.50	142308	378820
	3.25	2.75	143961	414603
	3.50	3.00	145615	450800
	3.75	3.25	147270	487411
	4.00	3.50	148928	524436
	4.25	3.75	150588	561875
	4.50	4.00	152249	599730
	4.75	4.25	153912	638000
	5.00	4.50	155577	676686
	5.25	4.75	157244	715789
	5.50	5.00	158913	755308
	5.75	5.25	160584	795246
	6.00	5.50	162256	835601
	6.25	5.75	163930	876374
	6.50	6.00	165607	917566

POC-12	
Stage	Area (sq.ft.)
0	203
1	758
2	1,313
3	1,869
4	2,424
5	2,979
6	3,534

POC-15	
Stage	Area (sq.ft.)
0	900
0.5	900
1	900
1.5	900
2	900
2.5	900
3	900
3.5	900
4	900
4.5	900
5	900
5.5	900
6	900

POC-16	
Stage	Area (sq.ft.)
0	800
0.5	800
1	800
1.5	800
2	800
2.5	800
3	800
3.5	800
4	800
4.5	800
5	800
5.5	800
6	800

POC-18	
Stage	Area (sq.ft)
475	437
476	2,935
477	5,432
478	7,930
479	10,427
480	12,925
481	15,422
482	17,920
483	20,417
484	22,915
485	25,412
486	27,910
487	30,407
488	32,905
489	35,402
490	37,900

BASINS RV1 THROUGH RV6

STAGE STORAGE CALCULATIONS

BASIN 1 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	4950.0	0.00	0.0000
1	4950.0	0.00	0.0000
2	4950.0	4950.00	0.1136
3	4950.0	9900.00	0.2273
4	4950.0	14850.00	0.3409
5.00	4950.0	19800.00	0.4545

BASIN 2 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	3250.0	0.00	0.0000
1	3250.0	0.00	0.0000
2	3250.0	3250.00	0.0746
3	3250.0	6500.00	0.1492
4	3250.0	9750.00	0.2238
5.00	3250.0	13000.00	0.2984

BASIN 3 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	3900.0	0.00	0.0000
1	3900.0	0.00	0.0000
2	3900.0	3900.00	0.0895
3	3900.0	7800.00	0.1791
4	3900.0	11700.00	0.2686
5.00	3900.0	15600.00	0.3581

BASIN 4 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	3950.0	0.00	0.0000
1	3950.0	0.00	0.0000
2	3950.0	3950.00	0.0907
3	3950.0	7900.00	0.1814
4	3950.0	11850.00	0.2720
5.00	3950.0	15800.00	0.3627

BASIN 5 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	6200.0	0.00	0.0000
1	6200.0	0.00	0.0000
2	6200.0	6200.00	0.1423
3	6200.0	12400.00	0.2847
4	6200.0	18600.00	0.4270
5.00	6200.0	24800.00	0.5693

BASIN 6 STAGE-STORAGE

Elev (ft)	Area (ft^2)	Volume (ft^3)	Volume (Act-Ft)
0	3250.0	0.00	0.0000
1	3250.0	0.00	0.0000
2	3250.0	3250.00	0.0746
3	3250.0	6500.00	0.1492
4	3250.0	9750.00	0.2238
5.00	3250.0	13000.00	0.2984

LOW-FLOW DISCHARGE THROUGH BIOFILTRATION PONDING AREA

BMP 1A

ABMP	**249599**	sq-ft
Cg	**0.61**	
Dorif	**10**	in
Aorifice	0.54542	sq-ft
C_{SWMM}	0.1334	
	3.775854	
H-gravel	**2**	ft
	24	in
	19	in
H-design	1.583	ft
$Q_{orif\text{-}classic}$	3.35959	cfs
$Q_{orif\text{-}SWMM}$	3.35959	cfs
Qdiversion	3.39319	cfs
Qinf:	28.8888	cfs
0.1 Q2 EX	**0.109**	

BMP POC 2A & 2B PR Basin 2

ABMP		**44124.0**	sq-ft
Cg		**0.61**	
Dorif		**4.33**	in
Aorifice		0.10226	sq-ft
C_{SWMM}		0.14148	
		0.662209	
H-gravel		**1.75**	ft
		21	in
		18.835	in
H-design		1.570	ft
$Q_{orif\text{-}classic}$		0.62715	cfs
$Q_{orif\text{-}SWMM}$		0.62715	cfs
Qdiversion		0.63342	cfs
Qinf:		2.0428	cfs
0.1 Q2 EX		**14.563**	

BMP POC 2A & 2B PR Basin 3

ABMP		**83668.0**	sq-ft
Cg		**0.61**	
Dorif	**2 of**	**5.333**	in
Aorifice		0.31024	sq-ft
C_{SWMM}		0.22636	
		2.009057	
H-gravel		**1.75**	ft
		21	in
		18.3335	in
H-design		1.528	ft
$Q_{orif\text{-}classic}$		1.87718	cfs
$Q_{orif\text{-}SWMM}$		1.87718	cfs
Qdiversion		1.89595	cfs
Qinf:		3.8735	cfs
0.1 Q2 EX		**14.563**	

BMP POC 2A & 2B PR Basin 4

ABMP		**135127.0**	sq-ft
Cg		**0.61**	
Dorif	**2 of**	**7.5**	in
Aorifice		0.61359	sq-ft
C_{SWMM}		0.27721	
		3.973486	
H-gravel		**1.75**	ft
		21	in
		17.25	in
H-design		1.438	ft
$Q_{orif\text{-}classic}$		3.60128	cfs
$Q_{orif\text{-}SWMM}$		3.60128	cfs
Qdiversion		3.63729	cfs
Qinf:		6.2559	cfs
0.1 Q2 EX		**14.563**	

BMP POC 2A & 2B PR Basin 5

ABMP		**338354.0**	sq-ft
Cg		**0.61**	
Dorif	**2 of**	**9**	in
Aorifice		0.88357	sq-ft
C_{SWMM}		0.15942	
		6.116883	
H-gravel		**2**	ft
		24	in
		19.5	in
H-design		1.625	ft
$Q_{orif\text{-}classic}$		5.51368	cfs
$Q_{orif\text{-}SWMM}$		5.51368	cfs
Qdiversion		5.56882	cfs
Qinf:		15.6645	cfs
0.1 Q2 EX		**14.563**	

BMP POC 3 PR Basin BF-1-6

ABMP	**134075.2**	sq-ft	
Cg	**0.61**		
Dorif	**4.5**	in	6.36
Aorifice	0.11045	sq-ft	
C_{SWMM}	0.05029		0.1006 (2 French)
	0.715228		
H-gravel	**1.75**	ft	
	21	in	
	18.75	in	
H-design	1.563	ft	
$Q_{orif\text{-}classic}$	0.67583	cfs	
$Q_{orif\text{-}SWMM}$	0.67583	cfs	
Qdiversion	0.68258	cfs	1.3652 (2 French)
Qinf:	6.2072	cfs	
0.1 Q2 EX	**14.563**		

STAGE-DISCHARGE TABLES

Basin 1-1 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.000	260983	0.000	0.000
0.001	260992	0.006	3.393
0.042	261366	0.250	3.442
0.083	261749	0.500	3.530
0.125	262133	0.751	3.644
0.167	262517	1.001	3.780
0.208	262900	1.253	3.922
0.250	263285	1.504	4.004
0.292	263669	1.756	4.076
0.333	264054	2.009	4.141
0.375	264439	2.262	4.201
0.417	264824	2.515	4.257
0.458	265209	2.768	4.309
0.500	265595	3.022	4.359
0.542	265981	3.276	4.406
0.583	266367	3.531	4.451
0.625	266753	3.786	4.494
0.667	267139	4.041	4.536
0.708	267526	4.297	4.576
0.750	267913	4.553	4.614
0.792	268300	4.810	4.652
0.833	268688	5.066	4.689
0.875	269076	5.324	4.724
0.917	269463	5.581	4.759
0.958	269852	5.839	4.792
1.000	270240	6.097	4.825
1.042	270629	6.356	4.857
1.083	271017	6.615	4.889
1.125	271406	6.875	4.920
1.167	271796	7.134	4.950
1.208	272185	7.394	4.980
1.250	272575	7.655	5.009
1.292	272965	7.916	5.037
1.333	273355	8.177	5.066
1.375	273746	8.439	5.093
1.417	274136	8.701	5.120
1.458	274527	8.963	5.147
1.500	274918	9.226	5.174
1.542	275310	9.489	5.199
1.583	275701	9.753	5.225
1.625	276093	10.017	5.250
1.667	276485	10.281	5.275

1.708	276878	10.546	5.300
1.750	277270	10.811	5.324
1.792	277663	11.076	5.348
1.833	278056	11.342	5.372
1.875	278449	11.608	5.395
1.917	278843	11.875	5.418
1.958	279236	12.141	5.441
2.000	279630	12.409	5.464
2.042	280024	12.676	5.486
2.083	280419	12.944	5.509
2.125	280813	13.213	5.530
2.167	281208	13.482	5.552
2.208	281603	13.751	5.574
2.250	281999	14.020	5.595
2.292	282394	14.290	5.616
2.333	282790	14.561	5.637
2.375	283186	14.831	5.658
2.417	283582	15.102	5.678
2.458	283978	15.374	5.698
2.500	284375	15.646	5.718
2.542	284772	15.918	5.738
2.583	285169	16.190	5.758
2.625	285567	16.463	5.778
2.667	285964	16.737	5.797
2.708	286362	17.010	5.817
2.750	286760	17.285	5.836
2.792	287159	17.559	5.855
2.833	287557	17.834	5.874
2.875	287956	18.109	5.892
2.917	288355	18.385	5.911
2.958	288754	18.661	5.929
3.000	289154	18.937	5.948
3.042	289553	19.214	5.966
3.083	289953	19.491	5.984
3.125	290353	19.769	6.002
3.167	290754	20.047	6.020
3.208	291154	20.325	6.037
3.250	291555	20.604	6.055
3.292	291956	20.883	6.072
3.333	292358	21.162	6.090
3.375	292759	21.442	6.107
3.417	293161	21.722	6.124
3.458	293563	22.003	6.141
3.500	293965	22.284	6.158
3.542	294368	22.565	6.597
3.583	294770	22.847	7.385
3.625	295173	23.129	8.400

3.667	295576	23.412	9.599
3.708	295980	23.695	10.958
3.750	296384	23.978	12.457
3.792	296787	24.262	14.086
3.833	297191	24.546	15.835
3.875	297596	24.830	17.696
3.917	298000	25.115	19.662
3.958	298405	25.400	21.728
4.000	298810	25.686	23.890
4.042	299215	25.972	26.142
4.083	299621	26.258	28.483
4.125	300027	26.545	30.908
4.167	300433	26.832	33.415
4.208	300839	27.120	36.000
4.250	301245	27.408	38.663
4.292	301652	27.696	41.399
4.333	302059	27.985	44.209
4.375	302466	28.274	47.089
4.417	302873	28.563	50.038
4.458	303281	28.853	53.054
4.500	303688	29.144	56.137
4.542	304096	29.434	59.284
4.583	304505	29.725	62.494
4.625	304913	30.017	65.766
4.667	305322	30.309	69.099
4.708	305731	30.601	72.491
4.750	306140	30.894	75.943

*** Elevation Measured above the first surface outlet.**

Basin 1-2 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.00	48597	0	0.000
0.001	48603	0.001	0.633
0.25	50056	0.283	1.796
0.50	51498	0.575	2.882
0.75	52925	0.874	3.536
1.00	54335	1.182	4.068
1.25	55729	1.498	4.528
1.50	57107	1.822	4.939
1.75	58469	2.153	5.314
2.00	59815	2.493	10.311
2.25	61145	2.840	19.138
2.50	62459	3.194	30.454
2.75	63756	3.557	43.782
3.00	65038	3.926	56.116
3.25	66303	4.303	61.082

*** Elevation Measured above the first surface outlet.**

Basin 1-3 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.00	87758	0.000	0.000
0.001	87763	0.002	1.896
0.50	90433	1.023	2.466
1.00	93065	2.076	4.769
1.50	95656	3.159	6.157
2.00	98204	4.272	7.285
2.50	100711	5.413	21.413
3.00	103176	6.583	46.333
3.50	105598	7.781	63.887

*** Elevation Measured above the first surface outlet.**

Basin 1-4 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.00	145692	0.000	0.000
0.001	145698	0.003	3.637
0.17	146652	0.559	5.536
0.42	148093	1.405	11.141
0.67	149534	2.259	18.824
0.92	150974	3.121	28.123
1.17	152415	3.992	38.795
1.42	153855	4.871	45.819
1.67	155296	5.758	51.224
1.92	156737	6.654	56.076
2.17	158177	7.557	60.515
2.42	159618	8.469	64.631
2.67	161059	9.389	68.489
2.92	162499	10.318	81.464
3.17	163940	11.255	101.939
3.42	165380	12.200	127.268
3.67	166821	13.153	156.512

*** Elevation Measured above the first surface outlet.**

Basin 1-5 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.00	353484	0.000	0.000
0.001	353494	0.008	5.569
0.25	355848	2.036	14.094
0.50	358212	4.085	29.681
0.75	360577	6.147	49.866
1.00	362941	8.223	73.769
1.25	365305	10.313	100.881
1.50	367669	12.417	130.860
1.75	370033	14.533	148.354
2.00	372397	16.664	163.423
2.25	374761	18.808	195.775
2.50	377125	20.966	242.512
2.75	379489	23.137	298.456
3.00	381853	25.322	361.830

*** Elevation Measured above the first surface outlet.**

Basin 1-6 Stage Storage Discharge

Elevation * (Feet)	Area (sq-ft)	Volume (ac-ft)	Discharge (cfs)
0.000	134075	0.000	0.000
0.001	134082	0.003	1.365
0.042	134349	0.128	1.444
0.083	134623	0.257	1.589
0.125	134896	0.386	1.776
0.167	135170	0.515	1.998
0.208	135444	0.645	2.231
0.250	135718	0.774	2.364
0.292	135992	0.904	2.482
0.333	136266	1.034	2.589
0.375	136540	1.165	2.687
0.417	136814	1.296	2.778
0.458	137089	1.427	2.864
0.500	137363	1.558	2.945
0.542	137637	1.689	3.022
0.583	137912	1.821	3.096
0.625	138186	1.953	3.167
0.667	138460	2.086	3.235
0.708	138735	2.218	3.300
0.750	139010	2.351	3.364
0.792	139284	2.484	3.425
0.833	139559	2.617	3.485
0.875	139834	2.751	3.543
0.917	140108	2.885	3.600
0.958	140383	3.019	3.655
1.000	140658	3.153	3.709
1.042	140933	3.288	3.761
1.083	141208	3.423	3.813
1.125	141483	3.558	3.863
1.167	141758	3.694	3.913
1.208	142033	3.829	3.961
1.250	142308	3.965	4.009
1.292	142584	4.102	4.056
1.333	142859	4.238	4.102
1.375	143134	4.375	4.147
1.417	143410	4.512	4.191
1.458	143685	4.649	4.235
1.500	143961	4.787	4.278
1.542	144236	4.925	4.321
1.583	144512	5.063	4.363
1.625	144787	5.201	4.404

1.667	145063	5.340	4.445
1.708	145339	5.479	4.485
1.750	145615	5.618	4.525
1.792	145890	5.757	4.564
1.833	146166	5.897	4.603
1.875	146442	6.037	4.641
1.917	146718	6.177	4.679
1.958	146994	6.318	4.717
2.000	147270	6.458	4.754
2.042	147547	6.599	4.790
2.083	147823	6.741	4.827
2.125	148099	6.882	4.862
2.167	148375	7.024	4.898
2.208	148652	7.166	4.933
2.250	148928	7.308	4.968
2.292	149205	7.451	5.002
2.333	149481	7.594	5.037
2.375	149758	7.737	5.070
2.417	150034	7.880	5.104
2.458	150311	8.024	5.137
2.500	150588	8.168	5.170
2.542	150864	8.312	5.203
2.583	151141	8.456	5.235
2.625	151418	8.601	5.267
2.667	151695	8.746	5.299
2.708	151972	8.891	5.542
2.750	152249	9.037	5.959
2.792	152526	9.183	6.489
2.833	152803	9.329	7.111
2.875	153080	9.475	7.813
2.917	153358	9.621	8.585
2.958	153635	9.768	9.422
3.000	153912	9.915	10.318
3.042	154190	10.063	11.270
3.083	154467	10.210	12.275
3.125	154745	10.358	13.329
3.167	155022	10.506	14.431
3.208	155300	10.655	15.579
3.250	155577	10.804	16.770
3.292	155855	10.952	17.740
3.333	156133	11.102	18.417
3.375	156411	11.251	19.062
3.417	156688	11.401	19.680
3.458	156966	11.551	20.273
3.500	157244	11.701	20.845
3.542	157522	11.852	21.397
3.583	157800	12.003	21.932

3.625	158078	12.154	22.979
3.667	158357	12.305	24.447
3.708	158635	12.457	26.188
3.750	158913	12.608	28.145
3.792	159191	12.761	30.290
3.833	159470	12.913	32.602
3.875	159748	13.066	35.066
3.917	160027	13.219	37.670
3.958	160305	13.372	40.406
4.000	160584	13.525	43.265
4.042	160862	13.679	46.242
4.083	161141	13.833	49.330
4.125	161420	13.987	52.527
4.167	161698	14.142	55.826
4.208	161977	14.297	59.225
4.250	162256	14.452	62.720
4.292	162535	14.607	66.308
4.333	162814	14.763	69.987
4.375	163093	14.918	73.754
4.417	163372	15.075	77.607
4.458	163651	15.231	81.543
4.500	163930	15.388	85.562
4.542	164210	15.545	89.660
4.583	164489	15.702	93.836
4.625	164768	15.859	98.089
4.667	165048	16.017	102.418
4.708	165327	16.175	106.820
4.750	165607	16.333	111.294

*** Elevation Measured above the first surface outlet.**

Outlet structure for Discharge of Basin 1

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir		
Number of orif:	0	Number of slots:	1	Number of weirs:	0	
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00	ft
		B	1.833 ft	B:	0.00	ft
Middle orifice	1 "	h_{slot}	0.167 ft			
Number of orif:	0					
Cg-middle:	0.62	Upper slot		Emergency weir		
invert elev:	1.750 ft	Number of slots:	0	Invert:	3.500	ft
		Invert:	0.00 ft	W:	16.00	ft
		B:	0.00 ft			
		h_{slot}	0.000 ft			

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 1.25' from the FG of the Basin

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.042	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.000	0.048
0.083	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.137	0.000	0.000	0.000	0.137
0.125	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.251	0.000	0.000	0.000	0.251
0.167	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.387	0.000	0.000	0.000	0.387
0.208	2.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.529	0.000	0.000	0.000	0.529
0.250	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.611	0.000	0.000	0.000	0.611
0.292	3.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.683	0.000	0.000	0.000	0.683
0.333	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.748	0.000	0.000	0.000	0.748
0.375	4.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.808	0.000	0.000	0.000	0.808
0.417	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.000	0.000	0.000	0.864
0.458	5.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.916	0.000	0.000	0.000	0.916
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.966	0.000	0.000	0.000	0.966
0.542	6.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.013	0.000	0.000	0.000	1.013
0.583	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.058	0.000	0.000	0.000	1.058
0.625	7.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.101	0.000	0.000	0.000	1.101
0.667	8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.142	0.000	0.000	0.000	1.142
0.708	8.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.183	0.000	0.000	0.000	1.183
0.750	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.221	0.000	0.000	0.000	1.221
0.792	9.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.259	0.000	0.000	0.000	1.259
0.833	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.295	0.000	0.000	0.000	1.295
0.875	10.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.331	0.000	0.000	0.000	1.331
0.917	11.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.365	0.000	0.000	0.000	1.365

0.958	11.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.399	0.000	0.000	0.000	1.399
1.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.432	0.000	0.000	0.000	1.432
1.042	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.464	0.000	0.000	0.000	1.464
1.083	13.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.496	0.000	0.000	0.000	1.496
1.125	13.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.527	0.000	0.000	0.000	1.527
1.167	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.557	0.000	0.000	0.000	1.557
1.208	14.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.586	0.000	0.000	0.000	1.586
1.250	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.616	0.000	0.000	0.000	1.616
1.292	15.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.644	0.000	0.000	0.000	1.644
1.333	16.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.672	0.000	0.000	0.000	1.672
1.375	16.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.700	0.000	0.000	0.000	1.700
1.417	17.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.727	0.000	0.000	0.000	1.727
1.458	17.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.754	0.000	0.000	0.000	1.754
1.500	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780	0.000	0.000	0.000	1.780
1.542	18.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.806	0.000	0.000	0.000	1.806
1.583	19.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.832	0.000	0.000	0.000	1.832
1.625	19.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.857	0.000	0.000	0.000	1.857
1.667	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.882	0.000	0.000	0.000	1.882
1.708	20.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.907	0.000	0.000	0.000	1.907
1.750	21.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.931	0.000	0.000	0.000	1.931
1.792	21.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	1.955	0.000	0.000	0.000	1.955
1.833	22.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	1.979	0.000	0.000	0.000	1.979
1.875	22.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000	2.002	0.000	0.000	0.000	2.002
1.917	23.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	2.025	0.000	0.000	0.000	2.025
1.958	23.500	2.500	0.000	0.000	0.000	0.000	0.000	0.000	2.048	0.000	0.000	0.000	2.048
2.000	24.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	2.071	0.000	0.000	0.000	2.071
2.042	24.500	3.500	0.000	0.000	0.000	0.000	0.000	0.000	2.093	0.000	0.000	0.000	2.093
2.083	25.000	4.000	0.000	0.000	0.000	0.000	0.000	0.000	2.115	0.000	0.000	0.000	2.115
2.125	25.500	4.500	0.000	0.000	0.000	0.000	0.000	0.000	2.137	0.000	0.000	0.000	2.137
2.167	26.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	2.159	0.000	0.000	0.000	2.159
2.208	26.500	5.500	0.000	0.000	0.000	0.000	0.000	0.000	2.180	0.000	0.000	0.000	2.180
2.250	27.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	2.202	0.000	0.000	0.000	2.202
2.292	27.500	6.500	0.000	0.000	0.000	0.000	0.000	0.000	2.223	0.000	0.000	0.000	2.223
2.333	28.000	7.000	0.000	0.000	0.000	0.000	0.000	0.000	2.244	0.000	0.000	0.000	2.244
2.375	28.500	7.500	0.000	0.000	0.000	0.000	0.000	0.000	2.264	0.000	0.000	0.000	2.264
2.417	29.000	8.000	0.000	0.000	0.000	0.000	0.000	0.000	2.285	0.000	0.000	0.000	2.285
2.458	29.500	8.500	0.000	0.000	0.000	0.000	0.000	0.000	2.305	0.000	0.000	0.000	2.305
2.500	30.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	2.325	0.000	0.000	0.000	2.325
2.542	30.500	9.500	0.000	0.000	0.000	0.000	0.000	0.000	2.345	0.000	0.000	0.000	2.345
2.583	31.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000	2.365	0.000	0.000	0.000	2.365
2.625	31.500	10.500	0.000	0.000	0.000	0.000	0.000	0.000	2.385	0.000	0.000	0.000	2.385

2.667	32.000	11.000	0.000	0.000	0.000	0.000	0.000	0.000	2.404	0.000	0.000	0.000	2.404
2.708	32.500	11.500	0.000	0.000	0.000	0.000	0.000	0.000	2.423	0.000	0.000	0.000	2.423
2.750	33.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	2.443	0.000	0.000	0.000	2.443
2.792	33.500	12.500	0.000	0.000	0.000	0.000	0.000	0.000	2.462	0.000	0.000	0.000	2.462
2.833	34.000	13.000	0.000	0.000	0.000	0.000	0.000	0.000	2.480	0.000	0.000	0.000	2.480
2.875	34.500	13.500	0.000	0.000	0.000	0.000	0.000	0.000	2.499	0.000	0.000	0.000	2.499
2.917	35.000	14.000	0.000	0.000	0.000	0.000	0.000	0.000	2.518	0.000	0.000	0.000	2.518
2.958	35.500	14.500	0.000	0.000	0.000	0.000	0.000	0.000	2.536	0.000	0.000	0.000	2.536
3.000	36.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	2.555	0.000	0.000	0.000	2.555
3.042	36.500	15.500	0.000	0.000	0.000	0.000	0.000	0.000	2.573	0.000	0.000	0.000	2.573
3.083	37.000	16.000	0.000	0.000	0.000	0.000	0.000	0.000	2.591	0.000	0.000	0.000	2.591
3.125	37.500	16.500	0.000	0.000	0.000	0.000	0.000	0.000	2.609	0.000	0.000	0.000	2.609
3.167	38.000	17.000	0.000	0.000	0.000	0.000	0.000	0.000	2.626	0.000	0.000	0.000	2.626
3.208	38.500	17.500	0.000	0.000	0.000	0.000	0.000	0.000	2.644	0.000	0.000	0.000	2.644
3.250	39.000	18.000	0.000	0.000	0.000	0.000	0.000	0.000	2.662	0.000	0.000	0.000	2.662
3.292	39.500	18.500	0.000	0.000	0.000	0.000	0.000	0.000	2.679	0.000	0.000	0.000	2.679
3.333	40.000	19.000	0.000	0.000	0.000	0.000	0.000	0.000	2.697	0.000	0.000	0.000	2.697
3.375	40.500	19.500	0.000	0.000	0.000	0.000	0.000	0.000	2.714	0.000	0.000	0.000	2.714
3.417	41.000	20.000	0.000	0.000	0.000	0.000	0.000	0.000	2.731	0.000	0.000	0.000	2.731
3.458	41.500	20.500	0.000	0.000	0.000	0.000	0.000	0.000	2.748	0.000	0.000	0.000	2.748
3.500	42.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	2.765	0.000	0.000	0.000	2.765
3.542	42.500	21.500	0.000	0.000	0.000	0.000	0.000	0.000	2.782	0.000	0.000	0.422	3.203
3.583	43.000	22.000	0.000	0.000	0.000	0.000	0.000	0.000	2.798	0.000	0.000	1.193	3.992
3.625	43.500	22.500	0.000	0.000	0.000	0.000	0.000	0.000	2.815	0.000	0.000	2.192	5.007
3.667	44.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	2.831	0.000	0.000	3.375	6.206
3.708	44.500	23.500	0.000	0.000	0.000	0.000	0.000	0.000	2.848	0.000	0.000	4.716	7.564
3.750	45.000	24.000	0.000	0.000	0.000	0.000	0.000	0.000	2.864	0.000	0.000	6.200	9.064
3.792	45.500	24.500	0.000	0.000	0.000	0.000	0.000	0.000	2.880	0.000	0.000	7.813	10.693
3.833	46.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	2.897	0.000	0.000	9.546	12.442
3.875	46.500	25.500	0.000	0.000	0.000	0.000	0.000	0.000	2.913	0.000	0.000	11.390	14.303
3.917	47.000	26.000	0.000	0.000	0.000	0.000	0.000	0.000	2.929	0.000	0.000	13.340	16.269
3.958	47.500	26.500	0.000	0.000	0.000	0.000	0.000	0.000	2.944	0.000	0.000	15.391	18.335
4.000	48.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	2.960	0.000	0.000	17.536	20.496
4.042	48.500	27.500	0.000	0.000	0.000	0.000	0.000	0.000	2.976	0.000	0.000	19.773	22.749
4.083	49.000	28.000	0.000	0.000	0.000	0.000	0.000	0.000	2.992	0.000	0.000	22.098	25.090
4.125	49.500	28.500	0.000	0.000	0.000	0.000	0.000	0.000	3.007	0.000	0.000	24.508	27.515
4.167	50.000	29.000	0.000	0.000	0.000	0.000	0.000	0.000	3.023	0.000	0.000	26.999	30.021
4.208	50.500	29.500	0.000	0.000	0.000	0.000	0.000	0.000	3.038	0.000	0.000	29.569	32.607
4.250	51.000	30.000	0.000	0.000	0.000	0.000	0.000	0.000	3.053	0.000	0.000	32.216	35.269
4.292	51.500	30.500	0.000	0.000	0.000	0.000	0.000	0.000	3.068	0.000	0.000	34.938	38.006
4.333	52.000	31.000	0.000	0.000	0.000	0.000	0.000	0.000	3.084	0.000	0.000	37.732	40.816

4.375	52.500	31.500	0.000	0.000	0.000	0.000	0.000	0.000	3.099	0.000	0.000	40.597	43.696
4.417	53.000	32.000	0.000	0.000	0.000	0.000	0.000	0.000	3.114	0.000	0.000	43.531	46.645
4.458	53.500	32.500	0.000	0.000	0.000	0.000	0.000	0.000	3.129	0.000	0.000	46.533	49.661
4.500	54.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	3.143	0.000	0.000	49.600	52.743
4.542	54.500	33.500	0.000	0.000	0.000	0.000	0.000	0.000	3.158	0.000	0.000	52.732	55.890
4.583	55.000	34.000	0.000	0.000	0.000	0.000	0.000	0.000	3.173	0.000	0.000	55.927	59.100
4.625	55.500	34.500	0.000	0.000	0.000	0.000	0.000	0.000	3.188	0.000	0.000	59.185	62.372
4.667	56.000	35.000	0.000	0.000	0.000	0.000	0.000	0.000	3.202	0.000	0.000	62.503	65.705
4.708	56.500	35.500	0.000	0.000	0.000	0.000	0.000	0.000	3.217	0.000	0.000	65.881	69.098
4.750	57.000	36.000	0.000	0.000	0.000	0.000	0.000	0.000	3.231	0.000	0.000	69.318	72.549

Outlet structure for Discharge of Basin 1-2

Discharge vs Elevation Table

Low orifice	1.000	"	Lower slot		Lower Weir	
Number of orif:	0		Number of slots:	1	Number of weirs:	0
Cg-low:	0.62		Invert:	0.00 ft	Invert:	0.00
			B	3.000 ft	B:	0.00
Middle orifice	1	"	h_{slot}	0.250 ft		
Number of orif:	0					
Cg-middle:	0.62		Upper slot		Emergency weir	
invert elev:	1.750	ft	Number of slots:	0	Invert:	1.750 ft
			Invert:	0.00 ft	W:	12.00 ft
			B:	0.00 ft		
			h_{slot}	0.000 ft		

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 2.75' from the FG.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.250	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.163	0.000	0.000	0.000	1.163
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.248	0.000	0.000	0.000	2.248
0.750	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.903	0.000	0.000	0.000	2.903
1.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.434	0.000	0.000	0.000	3.434
1.250	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.894	0.000	0.000	0.000	3.894
1.500	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.305	0.000	0.000	0.000	4.305
1.750	21.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.680	0.000	0.000	0.000	4.680
2.000	24.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	5.027	0.000	0.000	4.650	9.677
2.250	27.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	5.352	0.000	0.000	13.152	18.504
2.500	30.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	5.658	0.000	0.000	24.162	29.820
2.750	33.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	5.948	0.000	0.000	37.200	43.148
3.000	36.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	6.225	0.000	0.000	49.257	55.482
3.250	39.000	18.000	0.000	0.000	0.000	0.000	0.000	0.000	6.490	0.000	0.000	53.959	60.449

Outlet structure for Discharge of Basin 1-3

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir	
Number of orif:	0	Number of slots:	1	Number of weirs:	0
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00
		B	2.250 ft	B:	0.00
Middle orifice	1 "	h_{slot}	0.500 ft		
Number of orif:	0				
Cg-middle:	0.62	Upper slot		Emergency weir	
invert elev:	1.750 ft	Number of slots:	0	Invert:	2.000 ft
		Invert:	0.00 ft	W:	12.00 ft
		B:	0.00 ft		
		h_{slot}	0.000 ft		

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 2.50' from the FG.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.466	0.000	0.000	0.000	2.466
1.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.769	0.000	0.000	0.000	4.769
1.500	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.157	0.000	0.000	0.000	6.157
2.000	24.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	7.285	0.000	0.000	0.000	7.285
2.500	30.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	8.261	0.000	0.000	13.152	21.413
3.000	36.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	9.133	0.000	0.000	37.200	46.333
3.500	42.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	9.928	0.000	0.000	53.959	63.887

Outlet structure for Discharge of Basin 1-4

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir	
Number of orif:	0	Number of slots:	1	Number of weirs:	0
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00
		B	9.00 ft	B:	0.00
Middle orifice	1 "	h_{slot}	1.000 ft		
Number of orif:	0				
Cg-middle:	0.62	Upper slot		Emergency weir	
invert elev:	1.750 ft	Number of slots:	0	Invert:	2.666 ft
		Invert:	0.00 ft	W:	24.00 ft
		B:	0.00 ft		
		h_{slot}	0.000 ft		

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 2.33' from the FG.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.167	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.898	0.000	0.000	0.000	1.898
0.417	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.504	0.000	0.000	0.000	7.504
0.667	8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.187	0.000	0.000	0.000	15.187
0.917	11.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.486	0.000	0.000	0.000	24.486
1.167	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.158	0.000	0.000	0.000	35.158
1.417	17.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	42.181	0.000	0.000	0.000	42.181
1.667	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	47.587	0.000	0.000	0.000	47.587
1.917	23.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	52.438	0.000	0.000	0.000	52.438
2.167	26.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	56.877	0.000	0.000	0.000	56.877
2.417	29.000	8.000	0.000	0.000	0.000	0.000	0.000	0.000	60.994	0.000	0.000	0.000	60.994
2.667	32.000	11.000	0.000	0.000	0.000	0.000	0.000	0.000	64.850	0.000	0.000	0.001	64.851
2.917	35.000	14.000	0.000	0.000	0.000	0.000	0.000	0.000	68.489	0.000	0.000	9.337	77.827
3.167	38.000	17.000	0.000	0.000	0.000	0.000	0.000	0.000	71.945	0.000	0.000	26.357	98.302
3.417	41.000	20.000	0.000	0.000	0.000	0.000	0.000	0.000	75.242	0.000	0.000	48.389	123.630
3.667	44.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	78.400	0.000	0.000	74.474	152.874

Outlet structure for Discharge of Basin 1-5

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir	
Number of orif:	0	Number of slots:	1	Number of weirs:	0
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00
		B	22.000 ft	B:	0.00
Middle orifice	1 "	h_{slot}	1.250 ft		
Number of orif:	0				
Cg-middle:	0.62	Upper slot		Emergency weir	
invert elev:	1.750 ft	Number of slots:	0	Invert:	2.000 ft
		Invert:	0.00 ft	W:	48.00 ft
		B:	0.00 ft		
		h_{slot}	0.000 ft		

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 1.60' from the FG.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.250	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.525	0.000	0.000	0.000	8.525
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.112	0.000	0.000	0.000	24.112
0.750	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.297	0.000	0.000	0.000	44.297
1.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.200	0.000	0.000	0.000	68.200
1.250	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.312	0.000	0.000	0.000	95.312
1.500	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	125.291	0.000	0.000	0.000	125.291
1.750	21.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	142.785	0.000	0.000	0.000	142.785
2.000	24.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	157.854	0.000	0.000	0.000	157.854
2.250	27.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	171.606	0.000	0.000	18.600	190.206
2.500	30.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	184.334	0.000	0.000	52.609	236.943
2.750	33.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	196.239	0.000	0.000	96.648	292.887
3.000	36.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	207.461	0.000	0.000	148.800	356.261

Outlet structure for Discharge of Basin 1-6

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir		
Number of orif:	0	Number of slots:	1	Number of weirs:	0	
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00	
		B	3.000 ft	B:	0.00	
Middle orifice	1 "	h_{slot}	0.167 ft			
Number of orif:	0					
Cg-middle:	0.62	Upper slot		Emergency weir		
invert elev:	0.000 ft	Number of slots:	1	Invert:	3.583 ft	
		Invert:	2.67 ft	W:	20.00 ft	
		B:	8.00 ft			
		h_{slot}	0.500 ft			

*Note: h = head above the invert of the lowest surface discharge opening. In this case h = 0 ft refers to 1.75' from the FG.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.042	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.000	0.000	0.000	0.079
0.083	1.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224	0.000	0.000	0.000	0.224
0.125	1.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.411	0.000	0.000	0.000	0.411
0.167	2.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.633	0.000	0.000	0.000	0.633
0.208	2.500	2.500	0.000	0.000	0.000	0.000	0.000	0.000	0.865	0.000	0.000	0.000	0.865
0.250	3.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.999	0.000	0.000	0.000	0.999
0.292	3.500	3.500	0.000	0.000	0.000	0.000	0.000	0.000	1.117	0.000	0.000	0.000	1.117
0.333	4.000	4.000	0.000	0.000	0.000	0.000	0.000	0.000	1.224	0.000	0.000	0.000	1.224
0.375	4.500	4.500	0.000	0.000	0.000	0.000	0.000	0.000	1.322	0.000	0.000	0.000	1.322
0.417	5.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	1.413	0.000	0.000	0.000	1.413
0.458	5.500	5.500	0.000	0.000	0.000	0.000	0.000	0.000	1.499	0.000	0.000	0.000	1.499
0.500	6.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	1.580	0.000	0.000	0.000	1.580
0.542	6.500	6.500	0.000	0.000	0.000	0.000	0.000	0.000	1.657	0.000	0.000	0.000	1.657
0.583	7.000	7.000	0.000	0.000	0.000	0.000	0.000	0.000	1.731	0.000	0.000	0.000	1.731
0.625	7.500	7.500	0.000	0.000	0.000	0.000	0.000	0.000	1.801	0.000	0.000	0.000	1.801
0.667	8.000	8.000	0.000	0.000	0.000	0.000	0.000	0.000	1.869	0.000	0.000	0.000	1.869
0.708	8.500	8.500	0.000	0.000	0.000	0.000	0.000	0.000	1.935	0.000	0.000	0.000	1.935
0.750	9.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	1.998	0.000	0.000	0.000	1.998
0.792	9.500	9.500	0.000	0.000	0.000	0.000	0.000	0.000	2.060	0.000	0.000	0.000	2.060
0.833	10.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000	2.120	0.000	0.000	0.000	2.120
0.875	10.500	10.500	0.000	0.000	0.000	0.000	0.000	0.000	2.178	0.000	0.000	0.000	2.178
0.917	11.000	11.000	0.000	0.000	0.000	0.000	0.000	0.000	2.234	0.000	0.000	0.000	2.234

0.958	11.500	11.500	0.000	0.000	0.000	0.000	0.000	0.000	2.290	0.000	0.000	0.000	2.290
1.000	12.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	2.343	0.000	0.000	0.000	2.343
1.042	12.500	12.500	0.000	0.000	0.000	0.000	0.000	0.000	2.396	0.000	0.000	0.000	2.396
1.083	13.000	13.000	0.000	0.000	0.000	0.000	0.000	0.000	2.448	0.000	0.000	0.000	2.448
1.125	13.500	13.500	0.000	0.000	0.000	0.000	0.000	0.000	2.498	0.000	0.000	0.000	2.498
1.167	14.000	14.000	0.000	0.000	0.000	0.000	0.000	0.000	2.548	0.000	0.000	0.000	2.548
1.208	14.500	14.500	0.000	0.000	0.000	0.000	0.000	0.000	2.596	0.000	0.000	0.000	2.596
1.250	15.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	2.644	0.000	0.000	0.000	2.644
1.292	15.500	15.500	0.000	0.000	0.000	0.000	0.000	0.000	2.691	0.000	0.000	0.000	2.691
1.333	16.000	16.000	0.000	0.000	0.000	0.000	0.000	0.000	2.737	0.000	0.000	0.000	2.737
1.375	16.500	16.500	0.000	0.000	0.000	0.000	0.000	0.000	2.782	0.000	0.000	0.000	2.782
1.417	17.000	17.000	0.000	0.000	0.000	0.000	0.000	0.000	2.826	0.000	0.000	0.000	2.826
1.458	17.500	17.500	0.000	0.000	0.000	0.000	0.000	0.000	2.870	0.000	0.000	0.000	2.870
1.500	18.000	18.000	0.000	0.000	0.000	0.000	0.000	0.000	2.913	0.000	0.000	0.000	2.913
1.542	18.500	18.500	0.000	0.000	0.000	0.000	0.000	0.000	2.956	0.000	0.000	0.000	2.956
1.583	19.000	19.000	0.000	0.000	0.000	0.000	0.000	0.000	2.998	0.000	0.000	0.000	2.998
1.625	19.500	19.500	0.000	0.000	0.000	0.000	0.000	0.000	3.039	0.000	0.000	0.000	3.039
1.667	20.000	20.000	0.000	0.000	0.000	0.000	0.000	0.000	3.080	0.000	0.000	0.000	3.080
1.708	20.500	20.500	0.000	0.000	0.000	0.000	0.000	0.000	3.120	0.000	0.000	0.000	3.120
1.750	21.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	3.160	0.000	0.000	0.000	3.160
1.792	21.500	21.500	0.000	0.000	0.000	0.000	0.000	0.000	3.199	0.000	0.000	0.000	3.199
1.833	22.000	22.000	0.000	0.000	0.000	0.000	0.000	0.000	3.238	0.000	0.000	0.000	3.238
1.875	22.500	22.500	0.000	0.000	0.000	0.000	0.000	0.000	3.276	0.000	0.000	0.000	3.276
1.917	23.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	3.314	0.000	0.000	0.000	3.314
1.958	23.500	23.500	0.000	0.000	0.000	0.000	0.000	0.000	3.352	0.000	0.000	0.000	3.352
2.000	24.000	24.000	0.000	0.000	0.000	0.000	0.000	0.000	3.389	0.000	0.000	0.000	3.389
2.042	24.500	24.500	0.000	0.000	0.000	0.000	0.000	0.000	3.425	0.000	0.000	0.000	3.425
2.083	25.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	3.461	0.000	0.000	0.000	3.461
2.125	25.500	25.500	0.000	0.000	0.000	0.000	0.000	0.000	3.497	0.000	0.000	0.000	3.497
2.167	26.000	26.000	0.000	0.000	0.000	0.000	0.000	0.000	3.533	0.000	0.000	0.000	3.533
2.208	26.500	26.500	0.000	0.000	0.000	0.000	0.000	0.000	3.568	0.000	0.000	0.000	3.568
2.250	27.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	3.603	0.000	0.000	0.000	3.603
2.292	27.500	27.500	0.000	0.000	0.000	0.000	0.000	0.000	3.637	0.000	0.000	0.000	3.637
2.333	28.000	28.000	0.000	0.000	0.000	0.000	0.000	0.000	3.671	0.000	0.000	0.000	3.671
2.375	28.500	28.500	0.000	0.000	0.000	0.000	0.000	0.000	3.705	0.000	0.000	0.000	3.705
2.417	29.000	29.000	0.000	0.000	0.000	0.000	0.000	0.000	3.739	0.000	0.000	0.000	3.739
2.458	29.500	29.500	0.000	0.000	0.000	0.000	0.000	0.000	3.772	0.000	0.000	0.000	3.772
2.500	30.000	30.000	0.000	0.000	0.000	0.000	0.000	0.000	3.805	0.000	0.000	0.000	3.805
2.542	30.500	30.500	0.000	0.000	0.000	0.000	0.000	0.000	3.838	0.000	0.000	0.000	3.838
2.583	31.000	31.000	0.000	0.000	0.000	0.000	0.000	0.000	3.870	0.000	0.000	0.000	3.870
2.625	31.500	31.500	0.000	0.000	0.000	0.000	0.000	0.000	3.902	0.000	0.000	0.000	3.902

2.667	32.000	32.000	0.000	0.000	0.000	0.000	0.000	0.000	3.934	0.000	0.000	0.000	3.934
2.708	32.500	32.500	0.000	0.000	0.000	0.000	0.000	0.000	3.966	0.211	0.000	0.000	4.177
2.750	33.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	3.997	0.597	0.000	0.000	4.594
2.792	33.500	33.500	0.000	0.000	0.000	0.000	0.000	0.000	4.028	1.096	0.000	0.000	5.124
2.833	34.000	34.000	0.000	0.000	0.000	0.000	0.000	0.000	4.059	1.687	0.000	0.000	5.746
2.875	34.500	34.500	0.000	0.000	0.000	0.000	0.000	0.000	4.090	2.358	0.000	0.000	6.448
2.917	35.000	35.000	0.000	0.000	0.000	0.000	0.000	0.000	4.120	3.100	0.000	0.000	7.220
2.958	35.500	35.500	0.000	0.000	0.000	0.000	0.000	0.000	4.150	3.906	0.000	0.000	8.057
3.000	36.000	36.000	0.000	0.000	0.000	0.000	0.000	0.000	4.180	4.773	0.000	0.000	8.953
3.042	36.500	36.500	0.000	0.000	0.000	0.000	0.000	0.000	4.210	5.695	0.000	0.000	9.905
3.083	37.000	37.000	0.000	0.000	0.000	0.000	0.000	0.000	4.239	6.670	0.000	0.000	10.910
3.125	37.500	37.500	0.000	0.000	0.000	0.000	0.000	0.000	4.269	7.695	0.000	0.000	11.964
3.167	38.000	38.000	0.000	0.000	0.000	0.000	0.000	0.000	4.298	8.768	0.000	0.000	13.066
3.208	38.500	38.500	0.000	0.000	0.000	0.000	0.000	0.000	4.327	9.887	0.000	0.000	14.213
3.250	39.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	4.356	11.049	0.000	0.000	15.405
3.292	39.500	39.500	0.000	0.000	0.000	0.000	0.000	0.000	4.384	11.991	0.000	0.000	16.375
3.333	40.000	40.000	0.000	0.000	0.000	0.000	0.000	0.000	4.412	12.639	0.000	0.000	17.052
3.375	40.500	40.500	0.000	0.000	0.000	0.000	0.000	0.000	4.441	13.256	0.000	0.000	17.697
3.417	41.000	41.000	0.000	0.000	0.000	0.000	0.000	0.000	4.469	13.846	0.000	0.000	18.314
3.458	41.500	41.500	0.000	0.000	0.000	0.000	0.000	0.000	4.497	14.411	0.000	0.000	18.908
3.500	42.000	42.000	0.000	0.000	0.000	0.000	0.000	0.000	4.524	14.955	0.000	0.000	19.479
3.542	42.500	42.500	0.000	0.000	0.000	0.000	0.000	0.000	4.552	15.480	0.000	0.000	20.032
3.583	43.000	43.000	0.000	0.000	0.000	0.000	0.000	0.000	4.579	15.988	0.000	0.000	20.567
3.625	43.500	43.500	0.000	0.000	0.000	0.000	0.000	0.000	4.606	16.480	0.000	0.527	21.613
3.667	44.000	44.000	0.000	0.000	0.000	0.000	0.000	0.000	4.633	16.958	0.000	1.491	23.082
3.708	44.500	44.500	0.000	0.000	0.000	0.000	0.000	0.000	4.660	17.422	0.000	2.740	24.822
3.750	45.000	45.000	0.000	0.000	0.000	0.000	0.000	0.000	4.687	17.875	0.000	4.219	26.780
3.792	45.500	45.500	0.000	0.000	0.000	0.000	0.000	0.000	4.713	18.316	0.000	5.896	28.925
3.833	46.000	46.000	0.000	0.000	0.000	0.000	0.000	0.000	4.740	18.747	0.000	7.750	31.237
3.875	46.500	46.500	0.000	0.000	0.000	0.000	0.000	0.000	4.766	19.169	0.000	9.766	33.701
3.917	47.000	47.000	0.000	0.000	0.000	0.000	0.000	0.000	4.792	19.581	0.000	11.932	36.305
3.958	47.500	47.500	0.000	0.000	0.000	0.000	0.000	0.000	4.818	19.985	0.000	14.238	39.040
4.000	48.000	48.000	0.000	0.000	0.000	0.000	0.000	0.000	4.844	20.380	0.000	16.675	41.900
4.042	48.500	48.500	0.000	0.000	0.000	0.000	0.000	0.000	4.870	20.769	0.000	19.238	44.877
4.083	49.000	49.000	0.000	0.000	0.000	0.000	0.000	0.000	4.895	21.150	0.000	21.920	47.965
4.125	49.500	49.500	0.000	0.000	0.000	0.000	0.000	0.000	4.921	21.524	0.000	24.717	51.161
4.167	50.000	50.000	0.000	0.000	0.000	0.000	0.000	0.000	4.946	21.892	0.000	27.623	54.461
4.208	50.500	50.500	0.000	0.000	0.000	0.000	0.000	0.000	4.971	22.254	0.000	30.635	57.860
4.250	51.000	51.000	0.000	0.000	0.000	0.000	0.000	0.000	4.996	22.610	0.000	33.749	61.355
4.292	51.500	51.500	0.000	0.000	0.000	0.000	0.000	0.000	5.021	22.961	0.000	36.961	64.943
4.333	52.000	52.000	0.000	0.000	0.000	0.000	0.000	0.000	5.046	23.306	0.000	40.270	68.622

4.375	52.500	52.500	0.000	0.000	0.000	0.000	0.000	0.000	5.071	23.646	0.000	43.672	72.389
4.417	53.000	53.000	0.000	0.000	0.000	0.000	0.000	0.000	5.095	23.982	0.000	47.165	76.242
4.458	53.500	53.500	0.000	0.000	0.000	0.000	0.000	0.000	5.120	24.312	0.000	50.746	80.178
4.500	54.000	54.000	0.000	0.000	0.000	0.000	0.000	0.000	5.144	24.639	0.000	54.414	84.196
4.542	54.500	54.500	0.000	0.000	0.000	0.000	0.000	0.000	5.168	24.961	0.000	58.166	88.295
4.583	55.000	55.000	0.000	0.000	0.000	0.000	0.000	0.000	5.192	25.279	0.000	62.000	92.471
4.625	55.500	55.500	0.000	0.000	0.000	0.000	0.000	0.000	5.216	25.593	0.000	65.915	96.724
4.667	56.000	56.000	0.000	0.000	0.000	0.000	0.000	0.000	5.240	25.903	0.000	69.909	101.052
4.708	56.500	56.500	0.000	0.000	0.000	0.000	0.000	0.000	5.264	26.210	0.000	73.981	105.454
4.750	57.000	57.000	0.000	0.000	0.000	0.000	0.000	0.000	5.287	26.513	0.000	78.129	109.929

Outlet structure for Discharge of Basin 12

Discharge vs Elevation Table

Low orifice	1.000 "	Lower slot		Lower Weir		*Note: h = head above t
Number of orif:	0	Number of slots:	1	Number of weirs:	0	lowest surface discharge
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00	case h = 0 ft refers to 1.7
		B	0.500 ft	B:	0.00	
Middle orifice	1 "	h_{slot}	0.167 ft			
Number of orif:	0					
Cg-middle:	0.62	Upper slot		Emergency weir		
invert elev:	0.000 ft	Number of slots:	1	Invert:	4.000 ft	
		Invert:	2.00 ft	W:	16.00 ft	
		B:	1.25 ft			
		h_{slot}	0.500 ft			

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.042	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013
0.083	1.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.000	0.000	0.000	0.037
0.125	1.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.069	0.000	0.000	0.000	0.069
0.167	2.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.105	0.000	0.000	0.000	0.105
0.208	2.500	2.500	0.000	0.000	0.000	0.000	0.000	0.000	0.144	0.000	0.000	0.000	0.144
0.250	3.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.167	0.000	0.000	0.000	0.167
0.292	3.500	3.500	0.000	0.000	0.000	0.000	0.000	0.000	0.186	0.000	0.000	0.000	0.186
0.333	4.000	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.204	0.000	0.000	0.000	0.204
0.375	4.500	4.500	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.000	0.000	0.000	0.220
0.417	5.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.236	0.000	0.000	0.000	0.236
0.458	5.500	5.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250
0.500	6.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.263	0.000	0.000	0.000	0.263
0.542	6.500	6.500	0.000	0.000	0.000	0.000	0.000	0.000	0.276	0.000	0.000	0.000	0.276
0.583	7.000	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.288	0.000	0.000	0.000	0.288
0.625	7.500	7.500	0.000	0.000	0.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.300
0.667	8.000	8.000	0.000	0.000	0.000	0.000	0.000	0.000	0.312	0.000	0.000	0.000	0.312
0.708	8.500	8.500	0.000	0.000	0.000	0.000	0.000	0.000	0.323	0.000	0.000	0.000	0.323
0.750	9.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.000	0.333
0.792	9.500	9.500	0.000	0.000	0.000	0.000	0.000	0.000	0.343	0.000	0.000	0.000	0.343
0.833	10.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.353	0.000	0.000	0.000	0.353
0.875	10.500	10.500	0.000	0.000	0.000	0.000	0.000	0.000	0.363	0.000	0.000	0.000	0.363
0.917	11.000	11.000	0.000	0.000	0.000	0.000	0.000	0.000	0.372	0.000	0.000	0.000	0.372
0.958	11.500	11.500	0.000	0.000	0.000	0.000	0.000	0.000	0.382	0.000	0.000	0.000	0.382
1.000	12.000	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.391	0.000	0.000	0.000	0.391
1.042	12.500	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.399	0.000	0.000	0.000	0.399
1.083	13.000	13.000	0.000	0.000	0.000	0.000	0.000	0.000	0.408	0.000	0.000	0.000	0.408
1.125	13.500	13.500	0.000	0.000	0.000	0.000	0.000	0.000	0.416	0.000	0.000	0.000	0.416
1.167	14.000	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.425	0.000	0.000	0.000	0.425
1.208	14.500	14.500	0.000	0.000	0.000	0.000	0.000	0.000	0.433	0.000	0.000	0.000	0.433
1.250	15.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.441	0.000	0.000	0.000	0.441
1.292	15.500	15.500	0.000	0.000	0.000	0.000	0.000	0.000	0.448	0.000	0.000	0.000	0.448
1.333	16.000	16.000	0.000	0.000	0.000	0.000	0.000	0.000	0.456	0.000	0.000	0.000	0.456
1.375	16.500	16.500	0.000	0.000	0.000	0.000	0.000	0.000	0.464	0.000	0.000	0.000	0.464
1.417	17.000	17.000	0.000	0.000	0.000	0.000	0.000	0.000	0.471	0.000	0.000	0.000	0.471
1.458	17.500	17.500	0.000	0.000	0.000	0.000	0.000	0.000	0.478	0.000	0.000	0.000	0.478
1.500	18.000	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.486	0.000	0.000	0.000	0.486
1.542	18.500	18.500	0.000	0.000	0.000	0.000	0.000	0.000	0.493	0.000	0.000	0.000	0.493
1.583	19.000	19.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500
1.625	19.500	19.500	0.000	0.000	0.000	0.000	0.000	0.000	0.507	0.000	0.000	0.000	0.507
1.667	20.000	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.513	0.000	0.000	0.000	0.513
1.708	20.500	20.500	0.000	0.000	0.000	0.000	0.000	0.000	0.520	0.000	0.000	0.000	0.520
1.750	21.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	0.527	0.000	0.000	0.000	0.527
1.792	21.500	21.500	0.000	0.000	0.000	0.000	0.000	0.000	0.533	0.000	0.000	0.000	0.533
1.833	22.000	22.000	0.000	0.000	0.000	0.000	0.000	0.000	0.540	0.000	0.000	0.000	0.540
1.875	22.500	22.500	0.000	0.000	0.000	0.000	0.000	0.000	0.546	0.000	0.000	0.000	0.546
1.917	23.000	23.000	0.000	0.000	0.000	0.000	0.000	0.000	0.552	0.000	0.000	0.000	0.552
1.958	23.500	23.500	0.000	0.000	0.000	0.000	0.000	0.000	0.559	0.000	0.000	0.000	0.559
2.000	24.000	24.000	0.000	0.000	0.000	0.000	0.000	0.000	0.565	0.000	0.000	0.000	0.565
2.042	24.500	24.500	0.000	0.000	0.000	0.000	0.000	0.000	0.571	0.033	0.000	0.000	0.604
2.083	25.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	0.577	0.093	0.000	0.000	0.670
2.125	25.500	25.500	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.171	0.000	0.000	0.754
2.167	26.000	26.000	0.000	0.000	0.000	0.000	0.000	0.000	0.589	0.264	0.000	0.000	0.852
2.208	26.500	26.500	0.000	0.000	0.000	0.000	0.000	0.000	0.595	0.368	0.000	0.000	0.963

2.250	27.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.484	0.000	0.000	1.085
2.292	27.500	27.500	0.000	0.000	0.000	0.000	0.000	0.000	0.606	0.610	0.000	0.000	1.217
2.333	28.000	28.000	0.000	0.000	0.000	0.000	0.000	0.000	0.612	0.746	0.000	0.000	1.358
2.375	28.500	28.500	0.000	0.000	0.000	0.000	0.000	0.000	0.618	0.890	0.000	0.000	1.507
2.417	29.000	29.000	0.000	0.000	0.000	0.000	0.000	0.000	0.623	1.042	0.000	0.000	1.665
2.458	29.500	29.500	0.000	0.000	0.000	0.000	0.000	0.000	0.629	1.202	0.000	0.000	1.831
2.500	30.000	30.000	0.000	0.000	0.000	0.000	0.000	0.000	0.634	1.370	0.000	0.000	2.004
2.542	30.500	30.500	0.000	0.000	0.000	0.000	0.000	0.000	0.640	1.545	0.000	0.000	2.184
2.583	31.000	31.000	0.000	0.000	0.000	0.000	0.000	0.000	0.645	1.726	0.000	0.000	2.371
2.625	31.500	31.500	0.000	0.000	0.000	0.000	0.000	0.000	0.650	1.874	0.000	0.000	2.524
2.667	32.000	32.000	0.000	0.000	0.000	0.000	0.000	0.000	0.656	1.975	0.000	0.000	2.631
2.708	32.500	32.500	0.000	0.000	0.000	0.000	0.000	0.000	0.661	2.071	0.000	0.000	2.732
2.750	33.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	0.666	2.163	0.000	0.000	2.830
2.792	33.500	33.500	0.000	0.000	0.000	0.000	0.000	0.000	0.671	2.252	0.000	0.000	2.923
2.833	34.000	34.000	0.000	0.000	0.000	0.000	0.000	0.000	0.676	2.337	0.000	0.000	3.013
2.875	34.500	34.500	0.000	0.000	0.000	0.000	0.000	0.000	0.682	2.419	0.000	0.000	3.100
2.917	35.000	35.000	0.000	0.000	0.000	0.000	0.000	0.000	0.687	2.498	0.000	0.000	3.185
2.958	35.500	35.500	0.000	0.000	0.000	0.000	0.000	0.000	0.692	2.575	0.000	0.000	3.267
3.000	36.000	36.000	0.000	0.000	0.000	0.000	0.000	0.000	0.697	2.650	0.000	0.000	3.346
3.042	36.500	36.500	0.000	0.000	0.000	0.000	0.000	0.000	0.702	2.722	0.000	0.000	3.424
3.083	37.000	37.000	0.000	0.000	0.000	0.000	0.000	0.000	0.707	2.793	0.000	0.000	3.500
3.125	37.500	37.500	0.000	0.000	0.000	0.000	0.000	0.000	0.711	2.862	0.000	0.000	3.573
3.167	38.000	38.000	0.000	0.000	0.000	0.000	0.000	0.000	0.716	2.929	0.000	0.000	3.646
3.208	38.500	38.500	0.000	0.000	0.000	0.000	0.000	0.000	0.721	2.995	0.000	0.000	3.716
3.250	39.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	0.726	3.060	0.000	0.000	3.785
3.292	39.500	39.500	0.000	0.000	0.000	0.000	0.000	0.000	0.731	3.123	0.000	0.000	3.853
3.333	40.000	40.000	0.000	0.000	0.000	0.000	0.000	0.000	0.735	3.184	0.000	0.000	3.920
3.375	40.500	40.500	0.000	0.000	0.000	0.000	0.000	0.000	0.740	3.245	0.000	0.000	3.985
3.417	41.000	41.000	0.000	0.000	0.000	0.000	0.000	0.000	0.745	3.305	0.000	0.000	4.049
3.458	41.500	41.500	0.000	0.000	0.000	0.000	0.000	0.000	0.749	3.363	0.000	0.000	4.113
3.500	42.000	42.000	0.000	0.000	0.000	0.000	0.000	0.000	0.754	3.421	0.000	0.000	4.175
3.542	42.500	42.500	0.000	0.000	0.000	0.000	0.000	0.000	0.759	3.477	0.000	0.000	4.236
3.583	43.000	43.000	0.000	0.000	0.000	0.000	0.000	0.000	0.763	3.533	0.000	0.000	4.296
3.625	43.500	43.500	0.000	0.000	0.000	0.000	0.000	0.000	0.768	3.588	0.000	0.000	4.355
3.667	44.000	44.000	0.000	0.000	0.000	0.000	0.000	0.000	0.772	3.642	0.000	0.000	4.414
3.708	44.500	44.500	0.000	0.000	0.000	0.000	0.000	0.000	0.777	3.695	0.000	0.000	4.471
3.750	45.000	45.000	0.000	0.000	0.000	0.000	0.000	0.000	0.781	3.747	0.000	0.000	4.528
3.792	45.500	45.500	0.000	0.000	0.000	0.000	0.000	0.000	0.786	3.799	0.000	0.000	4.584
3.833	46.000	46.000	0.000	0.000	0.000	0.000	0.000	0.000	0.790	3.850	0.000	0.000	4.640
3.875	46.500	46.500	0.000	0.000	0.000	0.000	0.000	0.000	0.794	3.900	0.000	0.000	4.694
3.917	47.000	47.000	0.000	0.000	0.000	0.000	0.000	0.000	0.799	3.950	0.000	0.000	4.749
3.958	47.500	47.500	0.000	0.000	0.000	0.000	0.000	0.000	0.803	3.999	0.000	0.000	4.802
4.000	48.000	48.000	0.000	0.000	0.000	0.000	0.000	0.000	0.807	4.047	0.000	0.000	4.855
4.042	48.500	48.500	0.000	0.000	0.000	0.000	0.000	0.000	0.812	4.095	0.000	0.422	5.329
4.083	49.000	49.000	0.000	0.000	0.000	0.000	0.000	0.000	0.816	4.143	0.000	1.193	6.152
4.125	49.500	49.500	0.000	0.000	0.000	0.000	0.000	0.000	0.820	4.189	0.000	2.192	7.202
4.167	50.000	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.824	4.236	0.000	3.375	8.435
4.208	50.500	50.500	0.000	0.000	0.000	0.000	0.000	0.000	0.829	4.282	0.000	4.716	9.827
4.250	51.000	51.000	0.000	0.000	0.000	0.000	0.000	0.000	0.833	4.327	0.000	6.200	11.360
4.292	51.500	51.500	0.000	0.000	0.000	0.000	0.000	0.000	0.837	4.372	0.000	7.813	13.021
4.333	52.000	52.000	0.000	0.000	0.000	0.000	0.000	0.000	0.841	4.416	0.000	9.546	14.803
4.375	52.500	52.500	0.000	0.000	0.000	0.000	0.000	0.000	0.845	4.460	0.000	11.390	16.695
4.417	53.000	53.000	0.000	0.000	0.000	0.000	0.000	0.000	0.849	4.503	0.000	13.340	18.693
4.458	53.500	53.500	0.000	0.000	0.000	0.000	0.000	0.000	0.853	4.547	0.000	15.391	20.790
4.500	54.000	54.000	0.000	0.000	0.000	0.000	0.000	0.000	0.857	4.589	0.000	17.536	22.983
4.542	54.500	54.500	0.000	0.000	0.000	0.000	0.000	0.000	0.861	4.632	0.000	19.773	25.266
4.583	55.000	55.000	0.000	0.000	0.000	0.000	0.000	0.000	0.865	4.673	0.000	22.098	27.637
4.625	55.500	55.500	0.000	0.000	0.000	0.000	0.000	0.000	0.869	4.715	0.000	24.508	30.092
4.667	56.000	56.000	0.000	0.000	0.000	0.000	0.000	0.000	0.873	4.756	0.000	26.999	32.628
4.708	56.500	56.500	0.000	0.000	0.000	0.000	0.000	0.000	0.877	4.797	0.000	29.569	35.243
4.750	57.000	57.000	0.000	0.000	0.000	0.000	0.000	0.000	0.881	4.838	0.000	32.216	37.935
4.792	57.500	57.500	0.000	0.000	0.000	0.000	0.000	0.000	0.885	4.878	0.000	34.938	40.701
4.833	58.000	58.000	0.000	0.000	0.000	0.000	0.000	0.000	0.889	4.917	0.000	37.732	43.539
4.875	58.500	58.500	0.000	0.000	0.000	0.000	0.000	0.000	0.893	4.957	0.000	40.597	46.447
4.917	59.000	59.000	0.000	0.000	0.000	0.000	0.000	0.000	0.897	4.996	0.000	43.531	49.424
4.958	59.500	59.500	0.000	0.000	0.000	0.000	0.000	0.000	0.901	5.035	0.000	46.533	52.468
5.000	60.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000	0.905	5.074	0.000	49.600	55.578
5.042	60.500	60.500	0.000	0.000	0.000	0.000	0.000	0.000	0.908	5.112	0.000	52.732	58.752
5.083	61.000	61.000	0.000	0.000	0.000	0.000	0.000	0.000	0.912	5.150	0.000	55.927	61.990
5.125	61.500	61.500	0.000	0.000	0.000	0.000	0.000	0.000	0.916	5.188	0.000	59.185	65.288
5.167	62.000	62.000	0.000	0.000	0.000	0.000	0.000	0.000	0.920	5.225	0.000	62.503	68.648

5.208	62.500	62.500	0.000	0.000	0.000	0.000	0.000	0.000	0.924	5.262	0.000	65.881	72.067
5.250	63.000	63.000	0.000	0.000	0.000	0.000	0.000	0.000	0.927	5.299	0.000	69.318	75.545
5.292	63.500	63.500	0.000	0.000	0.000	0.000	0.000	0.000	0.931	5.336	0.000	72.813	79.080
5.333	64.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.935	5.372	0.000	76.364	82.671
5.375	64.500	64.500	0.000	0.000	0.000	0.000	0.000	0.000	0.938	5.409	0.000	79.972	86.319
5.417	65.000	65.000	0.000	0.000	0.000	0.000	0.000	0.000	0.942	5.444	0.000	83.634	90.021
5.458	65.500	65.500	0.000	0.000	0.000	0.000	0.000	0.000	0.946	5.480	0.000	87.351	93.777
5.500	66.000	66.000	0.000	0.000	0.000	0.000	0.000	0.000	0.949	5.516	0.000	91.121	97.586
5.542	66.500	66.500	0.000	0.000	0.000	0.000	0.000	0.000	0.953	5.551	0.000	94.944	101.448
5.583	67.000	67.000	0.000	0.000	0.000	0.000	0.000	0.000	0.957	5.586	0.000	98.555	105.098
5.625	67.500	67.500	0.000	0.000	0.000	0.000	0.000	0.000	0.960	5.621	0.000	99.843	106.424
5.667	68.000	68.000	0.000	0.000	0.000	0.000	0.000	0.000	0.964	5.655	0.000	101.115	107.735
5.708	68.500	68.500	0.000	0.000	0.000	0.000	0.000	0.000	0.968	5.690	0.000	102.371	109.029
5.750	69.000	69.000	0.000	0.000	0.000	0.000	0.000	0.000	0.971	5.724	0.000	103.612	110.307
5.792	69.500	69.500	0.000	0.000	0.000	0.000	0.000	0.000	0.975	5.758	0.000	104.839	111.571
5.833	70.000	70.000	0.000	0.000	0.000	0.000	0.000	0.000	0.978	5.792	0.000	106.051	112.820
5.875	70.500	70.500	0.000	0.000	0.000	0.000	0.000	0.000	0.982	5.825	0.000	107.249	114.056
5.917	71.000	71.000	0.000	0.000	0.000	0.000	0.000	0.000	0.985	5.859	0.000	108.434	115.278
5.958	71.500	71.500	0.000	0.000	0.000	0.000	0.000	0.000	0.989	5.892	0.000	109.606	116.487
6.000	72.000	72.000	0.000	0.000	0.000	0.000	0.000	0.000	0.992	5.925	0.000	110.766	117.683

Outlet structure for Discharge of Basin 15

Discharge vs Elevation Table

Low orifice	0.825 "	Lower slot		Lower Weir	
Number of orif:	1	Number of slots:	0	Number of weirs:	0
Cg-low:	0.62	Invert:	0.00 ft	Invert:	0.00
		B	0.000 ft	B:	0.00
Middle orifice	1 "	h_{slot}	0.000 ft		
Number of orif:	0				
Cg-middle:	0.62	Upper slot		Emergency weir	
invert elev:	0.000 ft	Number of slots:	1	Invert:	5.500 ft
		Invert:	3.00 ft	W:	4.00 ft
		B:	0.333 ft		
		h_{slot}	0.125 ft		

*Note: h = head above the invert of the lowest surface discharge opening.

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.083	1.212	1.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
0.167	2.424	2.000	0.007	0.009	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
0.250	3.636	3.000	0.009	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
0.333	4.848	4.000	0.010	0.048	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
0.417	6.061	5.000	0.011	0.114	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
0.500	7.273	6.000	0.013	0.126	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
0.583	8.485	7.000	0.014	0.137	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
0.667	9.697	8.000	0.015	0.147	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
0.750	10.909	9.000	0.016	0.156	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
0.833	12.121	10.000	0.017	0.165	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
0.917	13.333	11.000	0.017	0.173	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
1.000	14.545	12.000	0.018	0.181	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
1.083	15.758	13.000	0.019	0.189	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
1.167	16.970	14.000	0.020	0.197	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
1.250	18.182	15.000	0.020	0.204	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
1.333	19.394	16.000	0.021	0.211	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
1.417	20.606	17.000	0.022	0.217	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
1.500	21.818	18.000	0.022	0.224	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022
1.583	23.030	19.000	0.023	0.230	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
1.667	24.242	20.000	0.024	0.236	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
1.750	25.455	21.000	0.024	0.242	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
1.833	26.667	22.000	0.025	0.248	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
1.917	27.879	23.000	0.025	0.253	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
2.000	29.091	24.000	0.026	0.259	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
2.083	30.303	25.000	0.026	0.264	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
2.167	31.515	26.000	0.027	0.270	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
2.250	32.727	27.000	0.027	0.275	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
2.333	33.939	28.000	0.028	0.280	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028
2.417	35.152	29.000	0.029	0.285	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
2.500	36.364	30.000	0.029	0.290	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
2.583	37.576	31.000	0.029	0.295	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029
2.667	38.788	32.000	0.030	0.300	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
2.750	40.000	33.000	0.030	0.304	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
2.833	41.212	34.000	0.031	0.309	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
2.917	42.424	35.000	0.031	0.314	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
3.000	43.636	36.000	0.032	0.318	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
3.083	44.848	37.000	0.032	0.323	0.032	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.057
3.167	46.061	38.000	0.033	0.327	0.033	0.000	0.000	0.000	0.000	0.066	0.000	0.000	0.099
3.250	47.273	39.000	0.033	0.331	0.033	0.000	0.000	0.000	0.000	0.088	0.000	0.000	0.121
3.333	48.485	40.000	0.034	0.335	0.034	0.000	0.000	0.000	0.000	0.106	0.000	0.000	0.140
3.417	49.697	41.000	0.034	0.340	0.034	0.000	0.000	0.000	0.000	0.121	0.000	0.000	0.155
3.500	50.909	42.000	0.034	0.344	0.034	0.000	0.000	0.000	0.000	0.135	0.000	0.000	0.169
3.583	52.121	43.000	0.035	0.348	0.035	0.000	0.000	0.000	0.000	0.147	0.000	0.000	0.182
3.667	53.333	44.000	0.035	0.352	0.035	0.000	0.000	0.000	0.000	0.159	0.000	0.000	0.194
3.750	54.545	45.000	0.036	0.356	0.036	0.000	0.000	0.000	0.000	0.169	0.000	0.000	0.205
3.833	55.758	46.000	0.036	0.360	0.036	0.000	0.000	0.000	0.000	0.179	0.000	0.000	0.215
3.917	56.970	47.000	0.036	0.364	0.036	0.000	0.000	0.000	0.000	0.189	0.000	0.000	0.225
4.000	58.182	48.000	0.037	0.368	0.037	0.000	0.000	0.000	0.000	0.197	0.000	0.000	0.234
4.083	59.394	49.000	0.037	0.372	0.037	0.000	0.000	0.000	0.000	0.206	0.000	0.000	0.243
4.167	60.606	50.000	0.038	0.375	0.038	0.000	0.000	0.000	0.000	0.214	0.000	0.000	0.252
4.250	61.818	51.000	0.038	0.379	0.038	0.000	0.000	0.000	0.000	0.222	0.000	0.000	0.260
4.333	63.030	52.000	0.038	0.383	0.038	0.000	0.000	0.000	0.000	0.230	0.000	0.000	0.268
4.417	64.242	53.000	0.039	0.387	0.039	0.000	0.000	0.000	0.000	0.237	0.000	0.000	0.276
4.500	65.455	54.000	0.039	0.390	0.039	0.000	0.000	0.000	0.000	0.245	0.000	0.000	0.284
4.583	66.667	55.000	0.039	0.394	0.039	0.000	0.000	0.000	0.000	0.252	0.000	0.000	0.291
4.667	67.879	56.000	0.040	0.398	0.040	0.000	0.000	0.000	0.000	0.258	0.000	0.000	0.298

4.750	69.091	57.000	0.040	0.401	0.040	0.000	0.000	0.000	0.000	0.265	0.000	0.000	0.305
4.833	70.303	58.000	0.040	0.405	0.040	0.000	0.000	0.000	0.000	0.271	0.000	0.000	0.312
4.917	71.515	59.000	0.041	0.408	0.041	0.000	0.000	0.000	0.000	0.278	0.000	0.000	0.319
5.000	72.727	60.000	0.041	0.412	0.041	0.000	0.000	0.000	0.000	0.284	0.000	0.000	0.325
5.083	73.939	61.000	0.042	0.415	0.042	0.000	0.000	0.000	0.000	0.290	0.000	0.000	0.331
5.167	75.152	62.000	0.042	0.418	0.042	0.000	0.000	0.000	0.000	0.296	0.000	0.000	0.338
5.250	76.364	63.000	0.042	0.422	0.042	0.000	0.000	0.000	0.000	0.302	0.000	0.000	0.344
5.333	77.576	64.000	0.043	0.425	0.043	0.000	0.000	0.000	0.000	0.307	0.000	0.000	0.350
5.417	78.788	65.000	0.043	0.429	0.043	0.000	0.000	0.000	0.000	0.313	0.000	0.000	0.356
5.500	80.000	66.000	0.043	0.432	0.043	0.000	0.000	0.000	0.000	0.318	0.000	0.000	0.362
5.583	81.212	67.000	0.044	0.435	0.044	0.000	0.000	0.000	0.000	0.324	0.000	0.298	0.666
5.667	82.424	68.000	0.044	0.438	0.044	0.000	0.000	0.000	0.000	0.329	0.000	0.844	1.217
5.750	83.636	69.000	0.044	0.442	0.044	0.000	0.000	0.000	0.000	0.334	0.000	1.550	1.929
5.833	84.848	70.000	0.044	0.445	0.044	0.000	0.000	0.000	0.000	0.340	0.000	2.386	2.770
5.917	86.061	71.000	0.045	0.448	0.045	0.000	0.000	0.000	0.000	0.345	0.000	3.160	3.549
6.000	87.273	72.000	0.045	0.451	0.045	0.000	0.000	0.000	0.000	0.350	0.000	3.461	3.856

Outlet structure for Discharge of Basin 16

Discharge vs Elevation Table

Low orifice	0.625 "	Lower slot		Lower Weir	
Number of orif:	1	Number of slots:	1	Number of weirs:	0
Cg-low:	0.62	Invert:	4.00 ft	Invert:	0.00
		B	0.333 ft	B:	0.00
Middle orifice	1 "	h_{slot}	0.125 ft		
Number of orif:	0				
Cg-middle:	0.62	Upper slot		Emergency weir	
invert elev:	0.000 ft	Number of slots:	0	Invert:	5.500 ft
		Invert:	0.00 ft	W:	4.00 ft
		B:	0.00 ft		
		h_{slot}	0.000 ft		

h* (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qweir (cfs)	Qemerg (cfs)	Qtot (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.083	1.600	1.000	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
0.167	3.200	2.000	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
0.250	4.800	3.000	0.005	0.022	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
0.333	6.400	4.000	0.006	0.059	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
0.417	8.000	5.000	0.007	0.066	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
0.500	9.600	6.000	0.007	0.073	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
0.583	11.200	7.000	0.008	0.079	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
0.667	12.800	8.000	0.008	0.085	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
0.750	14.400	9.000	0.009	0.090	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
0.833	16.000	10.000	0.010	0.095	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
0.917	17.600	11.000	0.010	0.100	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
1.000	19.200	12.000	0.010	0.105	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
1.083	20.800	13.000	0.011	0.109	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
1.167	22.400	14.000	0.011	0.113	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
1.250	24.000	15.000	0.012	0.117	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
1.333	25.600	16.000	0.012	0.121	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
1.417	27.200	17.000	0.013	0.125	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
1.500	28.800	18.000	0.013	0.129	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
1.583	30.400	19.000	0.013	0.132	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
1.667	32.000	20.000	0.014	0.136	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
1.750	33.600	21.000	0.014	0.139	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
1.833	35.200	22.000	0.014	0.143	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
1.917	36.800	23.000	0.015	0.146	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
2.000	38.400	24.000	0.015	0.149	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
2.083	40.000	25.000	0.015	0.152	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
2.167	41.600	26.000	0.016	0.155	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
2.250	43.200	27.000	0.016	0.158	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
2.333	44.800	28.000	0.016	0.161	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
2.417	46.400	29.000	0.016	0.164	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
2.500	48.000	30.000	0.017	0.167	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
2.583	49.600	31.000	0.017	0.170	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
2.667	51.200	32.000	0.017	0.172	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
2.750	52.800	33.000	0.017	0.175	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017
2.833	54.400	34.000	0.018	0.178	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
2.917	56.000	35.000	0.018	0.180	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
3.000	57.600	36.000	0.018	0.183	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
3.083	59.200	37.000	0.019	0.185	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
3.167	60.800	38.000	0.019	0.188	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
3.250	62.400	39.000	0.019	0.190	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
3.333	64.000	40.000	0.019	0.193	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
3.417	65.600	41.000	0.020	0.195	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
3.500	67.200	42.000	0.020	0.198	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
3.583	68.800	43.000	0.020	0.200	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
3.667	70.400	44.000	0.020	0.202	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
3.750	72.000	45.000	0.020	0.205	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
3.833	73.600	46.000	0.021	0.207	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
3.917	75.200	47.000	0.021	0.209	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
4.000	76.800	48.000	0.021	0.211	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
4.083	78.400	49.000	0.021	0.214	0.021	0.000	0.000	0.000	0.025	0.000	0.000	0.000	0.046
4.167	80.000	50.000	0.022	0.216	0.022	0.000	0.000	0.000	0.066	0.000	0.000	0.000	0.087

4.250	81.600	51.000	0.022	0.218	0.022	0.000	0.000	0.000	0.088	0.000	0.000	0.000	0.110
4.333	83.200	52.000	0.022	0.220	0.022	0.000	0.000	0.000	0.106	0.000	0.000	0.000	0.128
4.417	84.800	53.000	0.022	0.222	0.022	0.000	0.000	0.000	0.121	0.000	0.000	0.000	0.144
4.500	86.400	54.000	0.022	0.224	0.022	0.000	0.000	0.000	0.135	0.000	0.000	0.000	0.157
4.583	88.000	55.000	0.023	0.226	0.023	0.000	0.000	0.000	0.147	0.000	0.000	0.000	0.170
4.667	89.600	56.000	0.023	0.228	0.023	0.000	0.000	0.000	0.159	0.000	0.000	0.000	0.181
4.750	91.200	57.000	0.023	0.230	0.023	0.000	0.000	0.000	0.169	0.000	0.000	0.000	0.192
4.833	92.800	58.000	0.023	0.232	0.023	0.000	0.000	0.000	0.179	0.000	0.000	0.000	0.202
4.917	94.400	59.000	0.023	0.234	0.023	0.000	0.000	0.000	0.189	0.000	0.000	0.000	0.212
5.000	96.000	60.000	0.024	0.236	0.024	0.000	0.000	0.000	0.197	0.000	0.000	0.000	0.221
5.083	97.600	61.000	0.024	0.238	0.024	0.000	0.000	0.000	0.206	0.000	0.000	0.000	0.230
5.167	99.200	62.000	0.024	0.240	0.024	0.000	0.000	0.000	0.214	0.000	0.000	0.000	0.238
5.250	100.800	63.000	0.024	0.242	0.024	0.000	0.000	0.000	0.222	0.000	0.000	0.000	0.246
5.333	102.400	64.000	0.024	0.244	0.024	0.000	0.000	0.000	0.230	0.000	0.000	0.000	0.254
5.417	104.000	65.000	0.025	0.246	0.025	0.000	0.000	0.000	0.237	0.000	0.000	0.000	0.262
5.500	105.600	66.000	0.025	0.248	0.025	0.000	0.000	0.000	0.245	0.000	0.000	0.000	0.269
5.583	107.200	67.000	0.025	0.250	0.025	0.000	0.000	0.000	0.252	0.000	0.000	0.298	0.575
5.667	108.800	68.000	0.025	0.252	0.025	0.000	0.000	0.000	0.258	0.000	0.000	0.844	1.127
5.750	110.400	69.000	0.025	0.254	0.025	0.000	0.000	0.000	0.265	0.000	0.000	1.550	1.840
5.833	112.000	70.000	0.026	0.255	0.026	0.000	0.000	0.000	0.271	0.000	0.000	2.386	2.683
5.917	113.600	71.000	0.026	0.257	0.026	0.000	0.000	0.000	0.278	0.000	0.000	3.160	3.463
6.000	115.200	72.000	0.026	0.259	0.026	0.000	0.000	0.000	0.284	0.000	0.000	3.461	3.771

Basin #18 Discharge

Discharge vs Elevation Table

Low orifice:	10 "	Top orifice:	3 "		
Number:	1	Number:	0		
Cg-low:	0.61	Cg-low:	0.61		
invert elev:	0.00 ft	invert elev:	6.00 ft		
Middle orifice:	6 "	Emergency inlet:			
number of orif:	0	Rim depth:	6.00 ft		
Cg-middle:	0.61	Area	9.00 sq ft	<-- 3' x 3'	
invert elev:	4.50 ft	Circumference	12 ft		

h (ft)	H/D-low -	H/D-mid -	H/D-top -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qtop-orif (cfs)	Qtop-weir (cfs)	Qtot-top (cfs)	Qemerg (cfs)	Qtot (cfs)
0.0	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.1	0.12	0.00	0.00	0.000	0.031	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.031
0.2	0.24	0.00	0.00	0.000	0.120	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120
0.3	0.36	0.00	0.00	0.000	0.262	0.262	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.262
0.4	0.48	0.00	0.00	0.000	0.450	0.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.450
0.5	0.60	0.00	0.00	0.771	0.680	0.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.680
0.6	0.72	0.00	0.00	1.143	0.943	0.943	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.943
0.7	0.84	0.00	0.00	1.421	1.232	1.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.232
0.8	0.96	0.00	0.00	1.653	1.541	1.541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.541
0.9	1.08	0.00	0.00	1.856	1.861	1.861	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.861
1.0	1.20	0.00	0.00	2.039	2.184	2.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.039
1.1	1.32	0.00	0.00	2.207	2.505	2.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.207
1.2	1.44	0.00	0.00	2.363	2.815	2.363	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.363
1.3	1.56	0.00	0.00	2.509	3.109	2.509	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.509
1.4	1.68	0.00	0.00	2.648	3.380	2.648	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.648
1.5	1.80	0.00	0.00	2.779	3.625	2.779	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.779
1.6	1.92	0.00	0.00	2.904	3.840	2.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.904
1.7	2.04	0.00	0.00	3.025	4.021	3.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.025
1.8	2.16	0.00	0.00	3.140	4.168	3.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.140
1.9	2.28	0.00	0.00	3.252	4.281	3.252	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.252
2.0	2.40	0.00	0.00	3.360	4.362	3.360	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.360
2.1	2.52	0.00	0.00	3.464	4.414	3.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.464
2.2	2.64	0.00	0.00	3.565	4.442	3.565	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.565
2.3	2.76	0.00	0.00	3.664	4.455	3.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.664
2.4	2.88	0.00	0.00	3.760	4.462	3.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.760
2.5	3.00	0.00	0.00	3.854	4.475	3.854	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.854
2.6	3.12	0.00	0.00	3.945	4.509	3.945	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.945
2.7	3.24	0.00	0.00	4.034	4.580	4.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.034
2.8	3.36	0.00	0.00	4.122	4.710	4.122	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.122
2.9	3.48	0.00	0.00	4.207	4.922	4.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.207
3.0	3.60	0.00	0.00	4.291	5.240	4.291	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.291
3.1	3.72	0.00	0.00	4.374	5.696	4.374	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.374
3.2	3.84	0.00	0.00	4.454	6.322	4.454	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.454
3.3	3.96	0.00	0.00	4.534	7.154	4.534	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.534
3.4	4.08	0.00	0.00	4.612	8.234	4.612	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.612
3.5	4.20	0.00	0.00	4.688	9.603	4.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.688
3.6	4.32	0.00	0.00	4.764	11.312	4.764	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.764
3.7	4.44	0.00	0.00	4.838	13.413	4.838	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.838
3.8	4.56	0.00	0.00	4.911	15.961	4.911	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.911
3.9	4.68	0.00	0.00	4.983	19.019	4.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.983
4.0	4.80	0.00	0.00	5.054	22.651	5.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.054
4.1	4.92	0.00	0.00	5.124	26.930	5.124	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.124
4.2	5.04	0.00	0.00	5.193	31.929	5.193	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.193
4.3	5.16	0.00	0.00	5.261	37.731	5.261	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.261
4.4	5.28	0.00	0.00	5.329	44.420	5.329	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.329
4.5	5.40	0.00	0.00	5.395	52.088	5.395	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.395
4.6	5.52	0.20	0.00	5.461	60.832	5.461	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.461
4.7	5.64	0.40	0.00	5.526	70.754	5.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.526
4.8	5.76	0.60	0.00	5.590	81.963	5.590	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.590
4.9	5.88	0.80	0.00	5.653	94.574	5.653	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.653
5.0	6.00	1.00	0.00	5.716	108.706	5.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.716
5.1	6.12	1.20	0.00	5.778	124.487	5.778	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.778
5.2	6.24	1.40	0.00	5.839	142.049	5.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.839
5.3	6.36	1.60	0.00	5.900	161.534	5.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.900
5.4	6.48	1.80	0.00	5.960	183.087	5.960	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.960
5.5	6.60	2.00	0.00	6.020	206.862	6.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.020
5.6	6.72	2.20	0.00	6.079	233.020	6.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.079
5.7	6.84	2.40	0.00	6.137	261.729	6.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.137
5.8	6.96	2.60	0.00	6.195	293.164	6.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.195
5.9	7.08	2.80	0.00	6.252	327.507	6.252	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.252
6.0	7.20	3.00	0.00	6.309	364.950	6.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.309
6.1	7.32	3.20	0.40	6.365	405.691	6.365	0.000	0.000	0.000	0.000	0.000	0.000	1.176	7.541
6.2	7.44	3.40	0.80	6.421	449.935	6.421	0.000	0.000	0.000	0.000	0.000	0.000	3.327	9.748

6.3	7.56	3.60	1.20	6.476	497.897	6.476	0.000	0.000	0.000	0.000	0.000	0.000	6.113	12.589
6.4	7.68	3.80	1.60	6.531	549.800	6.531	0.000	0.000	0.000	0.000	0.000	0.000	9.411	15.942
6.5	7.80	4.00	2.00	6.585	605.874	6.585	0.000	0.000	0.000	0.000	0.000	0.000	13.152	19.737
6.6	7.92	4.20	2.40	6.639	666.361	6.639	0.000	0.000	0.000	0.000	0.000	0.000	17.289	23.928
6.7	8.04	4.40	2.80	6.693	731.507	6.693	0.000	0.000	0.000	0.000	0.000	0.000	21.787	28.479
6.8	8.16	4.60	3.20	6.746	801.570	6.746	0.000	0.000	0.000	0.000	0.000	0.000	26.618	33.364
6.9	8.28	4.80	3.60	6.798	876.8	6.798	0.000	0.000	0.000	0.000	0.000	0.000	31.762	38.560
7.0	8.40	5.00	4.00	6.851	957.5	6.851	0.000	0.000	0.000	0.000	0.000	0.000	37.200	44.051
7.1	8.52	5.20	4.40	6.902	1044.0	6.902	0.000	0.000	0.000	0.000	0.000	0.000	42.917	49.820
7.2	8.64	5.40	4.80	6.954	1136.5	6.954	0.000	0.000	0.000	0.000	0.000	0.000	48.262	55.216
7.3	8.76	5.60	5.20	7.005	1235.3	7.005	0.000	0.000	0.000	0.000	0.000	0.000	50.233	57.238
7.4	8.88	5.80	5.60	7.056	1340.8	7.056	0.000	0.000	0.000	0.000	0.000	0.000	52.129	59.185
7.5	9.00	6.00	6.00	7.106	1453.2	7.106	0.000	0.000	0.000	0.000	0.000	0.000	53.959	61.065
7.6	9.12	6.20	6.40	7.156	1573.0	7.156	0.000	0.000	0.000	0.000	0.000	0.000	55.728	62.884
7.7	9.24	6.40	6.80	7.206	1700.5	7.206	0.000	0.000	0.000	0.000	0.000	0.000	57.443	64.649
7.8	9.36	6.60	7.20	7.255	1835.9	7.255	0.000	0.000	0.000	0.000	0.000	0.000	59.109	66.364
7.9	9.48	6.80	7.60	7.304	1979.7	7.304	0.000	0.000	0.000	0.000	0.000	0.000	60.728	68.032
8.0	9.60	7.00	8.00	7.352	2132.3	7.352	0.000	0.000	0.000	0.000	0.000	0.000	62.306	69.658
8.1	9.72	7.20	8.40	7.401	2294.0	7.401	0.000	0.000	0.000	0.000	0.000	0.000	63.845	71.245
8.2	9.84	7.40	8.80	7.449	2465.3	7.449	0.000	0.000	0.000	0.000	0.000	0.000	65.347	72.796
8.3	9.96	7.60	9.20	7.496	2646.5	7.496	0.000	0.000	0.000	0.000	0.000	0.000	66.816	74.312
8.4	10.08	7.80	9.60	7.544	2838.0	7.544	0.000	0.000	0.000	0.000	0.000	0.000	68.253	75.797
8.5	10.20	8.00	10.00	7.591	3040.4	7.591	0.000	0.000	0.000	0.000	0.000	0.000	69.660	77.251
8.6	10.32	8.20	10.40	7.638	3254.0	7.638	0.000	0.000	0.000	0.000	0.000	0.000	71.040	78.678
8.7	10.44	8.40	10.80	7.684	3479.3	7.684	0.000	0.000	0.000	0.000	0.000	0.000	72.393	80.077
8.8	10.56	8.60	11.20	7.731	3716.8	7.731	0.000	0.000	0.000	0.000	0.000	0.000	73.722	81.452
8.9	10.68	8.80	11.60	7.776	3966.9	7.776	0.000	0.000	0.000	0.000	0.000	0.000	75.026	82.803
9.0	10.80	9.00	12.00	7.822	4230.1	7.822	0.000	0.000	0.000	0.000	0.000	0.000	76.309	84.131
9.1	10.92	9.20	12.40	7.868	4507.0	7.868	0.000	0.000	0.000	0.000	0.000	0.000	77.570	85.438
9.2	11.04	9.40	12.80	7.913	4798.0	7.913	0.000	0.000	0.000	0.000	0.000	0.000	78.812	86.724
9.3	11.16	9.60	13.20	7.958	5103.7	7.958	0.000	0.000	0.000	0.000	0.000	0.000	80.034	87.991
9.4	11.28	9.80	13.60	8.002	5424.6	8.002	0.000	0.000	0.000	0.000	0.000	0.000	81.237	89.240
9.5	11.40	10.00	14.00	8.047	5761.3	8.047	0.000	0.000	0.000	0.000	0.000	0.000	82.423	90.470
9.6	11.52	10.20	14.40	8.091	6114.3	8.091	0.000	0.000	0.000	0.000	0.000	0.000	83.592	91.683
9.7	11.64	10.40	14.80	8.135	6484.3	8.135	0.000	0.000	0.000	0.000	0.000	0.000	84.745	92.880
9.8	11.76	10.60	15.20	8.179	6871.8	8.179	0.000	0.000	0.000	0.000	0.000	0.000	85.883	94.062
9.9	11.88	10.80	15.60	8.222	7277.4	8.222	0.000	0.000	0.000	0.000	0.000	0.000	87.006	95.228
10.0	12.00	11.00	16.00	8.265	7701.8	8.265	0.000	0.000	0.000	0.000	0.000	0.000	88.114	96.379
10.1	12.12	11.20	16.40	8.308	8145.5	8.308	0.000	0.000	0.000	0.000	0.000	0.000	89.209	97.517
10.2	12.24	11.40	16.80	8.351	8609.3	8.351	0.000	0.000	0.000	0.000	0.000	0.000	90.290	98.641
10.3	12.36	11.60	17.20	8.394	9093.7	8.394	0.000	0.000	0.000	0.000	0.000	0.000	91.359	99.752
10.4	12.48	11.80	17.60	8.436	9599.6	8.436	0.000	0.000	0.000	0.000	0.000	0.000	92.415	100.851
10.5	12.60	12.00	18.00	8.478	10127.5	8.478	0.000	0.000	0.000	0.000	0.000	0.000	93.459	101.937
10.6	12.72	12.20	18.40	8.520	10678.2	8.520	0.000	0.000	0.000	0.000	0.000	0.000	94.492	103.012
10.7	12.84	12.40	18.80	8.562	11252.4	8.562	0.000	0.000	0.000	0.000	0.000	0.000	95.513	104.075
10.8	12.96	12.60	19.20	8.603	11850.8	8.603	0.000	0.000	0.000	0.000	0.000	0.000	96.524	105.127
10.9	13.08	12.80	19.60	8.645	12474.2	8.645	0.000	0.000	0.000	0.000	0.000	0.000	97.524	106.169
11.0	13.20	13.00	20.00	8.686	13123.3	8.686	0.000	0.000	0.000	0.000	0.000	0.000	98.515	107.200
11.1	13.32	13.20	20.40	8.727	13799.0	8.727	0.000	0.000	0.000	0.000	0.000	0.000	99.495	108.222
11.2	13.44	13.40	20.80	8.768	14502.0	8.768	0.000	0.000	0.000	0.000	0.000	0.000	100.465	109.233
11.3	13.56	13.60	21.20	8.808	15233.2	8.808	0.000	0.000	0.000	0.000	0.000	0.000	101.427	110.235
11.4	13.68	13.80	21.60	8.848	15993.3	8.848	0.000	0.000	0.000	0.000	0.000	0.000	102.379	111.228
11.5	13.80	14.00	22.00	8.889	16783.3	8.889	0.000	0.000	0.000	0.000	0.000	0.000	103.323	112.212
11.6	13.92	14.20	22.40	8.929	17604.0	8.929	0.000	0.000	0.000	0.000	0.000	0.000	104.258	113.187
11.7	14.04	14.40	22.80	8.968	18456.2	8.968	0.000	0.000	0.000	0.000	0.000	0.000	105.185	114.153
11.8	14.16	14.60	23.20	9.008	19340.9	9.008	0.000	0.000	0.000	0.000	0.000	0.000	106.103	115.112
11.9	14.28	14.80	23.60	9.048	20258.9	9.048	0.000	0.000	0.000	0.000	0.000	0.000	107.014	116.062
12.0	14.40	15.00	24.00	9.087	21211.3	9.087	0.000	0.000	0.000	0.000	0.000	0.000	107.917	117.004
12.1	14.52	15.20	24.40	9.126	22198.8	9.126	0.000	0.000	0.000	0.000	0.000	0.000	108.813	117.939
12.2	14.64	15.40	24.80	9.165	23222.6	9.165	0.000	0.000	0.000	0.000	0.000	0.000	109.701	118.866
12.3	14.76	15.60	25.20	9.204	24283.6	9.204	0.000	0.000	0.000	0.000	0.000	0.000	110.582	119.786
12.4	14.88	15.80	25.60	9.242	25382.8	9.242	0.000	0.000	0.000	0.000	0.000	0.000	111.456	120.699
12.5	15.00	16.00	26.00	9.281	26521.1	9.281	0.000	0.000	0.000	0.000	0.000	0.000	112.324	121.605
12.6	15.12	16.20	26.40	9.319	27699.7	9.319	0.000	0.000	0.000	0.000	0.000	0.000	113.185	122.504
12.7	15.24	16.40	26.80	9.357	28919.5	9.357	0.000	0.000	0.000	0.000	0.000	0.000	114.039	123.396
12.8	15.36	16.60	27.20	9.395	30181.7	9.395	0.000	0.000	0.000	0.000	0.000	0.000	114.887	124.282
12.9	15.48	16.80	27.60	9.433	31487.4	9.433	0.000	0.000	0.000	0.000	0.000	0.000	115.728	125.162
13.0	15.60	17.00	28.00	9.471	32837.5	9.471	0.000	0.000	0.000	0.000	0.000	0.000	116.564	126.035
13.1	15.72	17.20	28.40	9.509	34233.3	9.509	0.000	0.000	0.000	0.000	0.000	0.000	117.394	126.902
13.2	15.84	17.40	28.80	9.546	35676.0	9.546	0.000	0.000	0.000	0.000	0.000	0.000	118.217	127.763
13.3	15.96	17.60	29.20	9.583	37166.5	9.583	0.000	0.000	0.000	0.000	0.000	0.000	119.036	128.619
13.4	16.08	17.80	29.60	9.620	38706.2	9.620	0.000	0.000	0.000	0.000	0.000	0.000	119.848	129.468
13.5	16.20	18.00	30.00	9.657	40296.3	9.657	0.000	0.000	0.000	0.000	0.000	0.000	120.655	130.313
13.6	16.32	18.20	30.40	9.694	41937.9	9.694	0.000	0.000	0.000	0.000	0.000	0.000	121.457	131.151
13.7	16.44	18.40	30.80	9.731	43632.3	9.731	0.000	0.000	0.000	0.000	0.000	0.000	122.253	131.984
13.8	16.56	18.60	31.20	9.767	45380.7	9.767	0.000	0.000	0.000	0.000	0.000	0.000	123.045	132.812
13.9	16.68	18.80	31.60	9.804	47184.4	9.804	0.000	0.000	0.000	0.000	0.000	0.000	123.831	133.635
14.0	16.80	19.00	32.00	9.840	49044.8	9.840	0.000	0.000	0.000	0.000	0.000	0.000	124.612	134.452
14.1	16.92	19.20	32.40	9.876	50963.1	9.876	0.000	0.000	0.000	0.000	0.000	0.000	125.389	135.265

14.2	17.04	19.40	32.80	9.912	52940.6	9.912	0.000	0.000	0.000	0.000	0.000	0.000	126.160	136.073
14.3	17.16	19.60	33.20	9.948	54978.8	9.948	0.000	0.000	0.000	0.000	0.000	0.000	126.927	136.875
14.4	17.28	19.80	33.60	9.984	57078.9	9.984	0.000	0.000	0.000	0.000	0.000	0.000	127.689	137.673
14.5	17.40	20.00	34.00	10.020	59242.5	10.020	0.000	0.000	0.000	0.000	0.000	0.000	128.447	138.467
14.6	17.52	20.20	34.40	10.055	61470.9	10.055	0.000	0.000	0.000	0.000	0.000	0.000	129.201	139.256
14.7	17.64	20.40	34.80	10.091	63765.5	10.091	0.000	0.000	0.000	0.000	0.000	0.000	129.950	140.040
14.8	17.76	20.60	35.20	10.126	66127.8	10.126	0.000	0.000	0.000	0.000	0.000	0.000	130.694	140.820
14.9	17.88	20.80	35.60	10.161	68559.3	10.161	0.000	0.000	0.000	0.000	0.000	0.000	131.435	141.596
15.0	18.00	21.00	36.00	10.196	71061.5	10.196	0.000	0.000	0.000	0.000	0.000	0.000	132.171	142.367

RV1

Outlet structure for Discharge of Detention Basin 1

Low orifice:	1 "	Lower slot		Emergency Weir	**Note: 0 ft = 1 ft above surface basin invert**
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	4.00 ft	B:	8 ft
Middle orifice:	1 "	h	0.208 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.000	0.000	0.392	0.100	0.392
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.108	0.000	0.000	1.108	0.200	1.108
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.805	0.000	0.000	1.805	0.300	1.805
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.218	0.000	0.000	2.218	0.400	2.218
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.566	0.000	0.000	2.566	0.500	2.566
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.872	0.000	0.000	2.872	0.600	2.872
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.149	0.000	0.000	3.149	0.700	3.149
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	3.403	0.000	0.000	3.403	0.800	3.403
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	3.639	0.000	0.000	3.639	0.900	3.639
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	3.861	0.000	0.000	3.861	1.000	3.861
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	4.071	0.000	0.000	4.071	1.100	4.071
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	4.270	0.000	0.000	4.270	1.200	4.270
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	4.461	0.000	0.000	4.461	1.300	4.461
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	4.644	0.000	0.000	4.644	1.400	4.644
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	4.819	0.000	0.000	4.819	1.500	4.819
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	4.989	0.000	0.000	4.989	1.600	4.989
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	5.153	0.000	0.000	5.153	1.700	5.153
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	5.312	0.000	0.000	5.312	1.800	5.312
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	5.467	0.000	0.000	5.467	1.900	5.467
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	5.617	0.000	0.000	5.617	2.000	5.617
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	5.763	0.000	0.000	5.763	2.100	5.763
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	5.906	0.000	0.000	5.906	2.200	5.906
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	6.045	0.000	0.000	6.045	2.300	6.045
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	6.181	0.000	0.000	6.181	2.400	6.181
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	6.314	0.000	0.000	6.314	2.500	6.314
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	6.445	0.000	0.000	6.445	2.600	6.445
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	6.572	0.000	0.000	6.572	2.700	6.572
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	6.698	0.000	0.000	6.698	2.800	6.698
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	6.821	0.000	0.000	6.821	2.900	6.821
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	6.942	0.000	0.000	6.942	3.000	6.942
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	7.061	0.000	0.784	7.845	3.100	7.845
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	7.178	0.000	2.218	9.396	3.200	9.396
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	7.293	0.000	4.075	11.368	3.300	11.368
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	7.406	0.000	6.274	13.680	3.400	13.680
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	7.517	0.000	8.768	16.285	3.500	16.285
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	7.627	0.000	11.526	19.153	3.600	19.153
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	7.735	0.000	14.524	22.260	3.700	22.260
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	7.842	0.000	17.745	25.588	3.800	25.588
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	7.948	0.000	21.175	29.122	3.900	29.122
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	8.052	0.000	24.800	32.852	4.000	32.852

RV2

Outlet structure for Discharge of Detention Basin 2

Low orifice:	1 "	Lower slot		Emergency Weir	**Note: 0 ft = 1 ft above surface basin invert**
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	2.00 ft	B:	8 ft
Middle orifice:	1 "	h	0.167 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.196	0.000	0.000	0.196	0.100	0.196
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.554	0.000	0.000	0.554	0.200	0.554
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.759	0.000	0.000	0.759	0.300	0.759
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.918	0.000	0.000	0.918	0.400	0.918
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.053	0.000	0.000	1.053	0.500	1.053
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.173	0.000	0.000	1.173	0.600	1.173
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.281	0.000	0.000	1.281	0.700	1.281
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	1.381	0.000	0.000	1.381	0.800	1.381
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	1.475	0.000	0.000	1.475	0.900	1.475
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	1.562	0.000	0.000	1.562	1.000	1.562
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	1.645	0.000	0.000	1.645	1.100	1.645
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	1.724	0.000	0.000	1.724	1.200	1.724
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	1.800	0.000	0.000	1.800	1.300	1.800
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	1.872	0.000	0.000	1.872	1.400	1.872
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	1.942	0.000	0.000	1.942	1.500	1.942
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	2.009	0.000	0.000	2.009	1.600	2.009
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	2.075	0.000	0.000	2.075	1.700	2.075
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	2.138	0.000	0.000	2.138	1.800	2.138
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	2.199	0.000	0.000	2.199	1.900	2.199
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	2.259	0.000	0.000	2.259	2.000	2.259
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	2.317	0.000	0.000	2.317	2.100	2.317
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	2.374	0.000	0.000	2.374	2.200	2.374
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	2.429	0.000	0.000	2.429	2.300	2.429
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	2.484	0.000	0.000	2.484	2.400	2.484
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	2.537	0.000	0.000	2.537	2.500	2.537
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	2.589	0.000	0.000	2.589	2.600	2.589
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	2.639	0.000	0.000	2.639	2.700	2.639
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	2.689	0.000	0.000	2.689	2.800	2.689
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	2.738	0.000	0.000	2.738	2.900	2.738
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	2.787	0.000	0.000	2.787	3.000	2.787
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	2.834	0.000	0.784	3.618	3.100	3.618
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	2.881	0.000	2.218	5.099	3.200	5.099
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	2.926	0.000	4.075	7.002	3.300	7.002
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	2.972	0.000	6.274	9.246	3.400	9.246
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	3.016	0.000	8.768	11.784	3.500	11.784
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	3.060	0.000	11.526	14.586	3.600	14.586
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	3.103	0.000	14.524	17.628	3.700	17.628
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	3.146	0.000	17.745	20.891	3.800	20.891
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	3.188	0.000	21.175	24.362	3.900	24.362
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	3.229	0.000	24.800	28.029	4.000	28.029

RV3

Outlet structure for Discharge of Detention Basin 3

Low orifice:	1 "	Lower slot		Emergency Weir	
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	3.00 ft	B:	8 ft
Middle orifice:	1 "	h	0.167 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

Note: 0 ft = 1 ft above surface basin invert

h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.294	0.000	0.000	0.294	0.100	0.294
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.831	0.000	0.000	0.831	0.200	0.831
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.139	0.000	0.000	1.139	0.300	1.139
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.377	0.000	0.000	1.377	0.400	1.377
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.580	0.000	0.000	1.580	0.500	1.580
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.759	0.000	0.000	1.759	0.600	1.759
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.922	0.000	0.000	1.922	0.700	1.922
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	2.072	0.000	0.000	2.072	0.800	2.072
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	2.212	0.000	0.000	2.212	0.900	2.212
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	2.343	0.000	0.000	2.343	1.000	2.343
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	2.468	0.000	0.000	2.468	1.100	2.468
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	2.586	0.000	0.000	2.586	1.200	2.586
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	2.700	0.000	0.000	2.700	1.300	2.700
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	2.808	0.000	0.000	2.808	1.400	2.808
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	2.913	0.000	0.000	2.913	1.500	2.913
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	3.014	0.000	0.000	3.014	1.600	3.014
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	3.112	0.000	0.000	3.112	1.700	3.112
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	3.207	0.000	0.000	3.207	1.800	3.207
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	3.299	0.000	0.000	3.299	1.900	3.299
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	3.388	0.000	0.000	3.388	2.000	3.388
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	3.476	0.000	0.000	3.476	2.100	3.476
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	3.561	0.000	0.000	3.561	2.200	3.561
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	3.644	0.000	0.000	3.644	2.300	3.644
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	3.725	0.000	0.000	3.725	2.400	3.725
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	3.805	0.000	0.000	3.805	2.500	3.805
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	3.883	0.000	0.000	3.883	2.600	3.883
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	3.959	0.000	0.000	3.959	2.700	3.959
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	4.034	0.000	0.000	4.034	2.800	4.034
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	4.108	0.000	0.000	4.108	2.900	4.108
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	4.180	0.000	0.000	4.180	3.000	4.180
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	4.251	0.000	0.784	5.035	3.100	5.035
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	4.321	0.000	2.218	6.539	3.200	6.539
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	4.390	0.000	4.075	8.465	3.300	8.465
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	4.457	0.000	6.274	10.731	3.400	10.731
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	4.524	0.000	8.768	13.292	3.500	13.292
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	4.590	0.000	11.526	16.116	3.600	16.116
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	4.655	0.000	14.524	19.179	3.700	19.179
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	4.719	0.000	17.745	22.464	3.800	22.464
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	4.782	0.000	21.175	25.956	3.900	25.956
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	4.844	0.000	24.800	29.644	4.000	29.644

RV4

Outlet structure for Discharge of Detention Basin 4

Low orifice:	1 "	Lower slot		Emergency Weir	
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	3.75 ft	B:	8 ft
Middle orifice:	1 "	h	0.167 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

Note: 0 ft = 1 ft above surface basin invert

h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.367	0.000	0.000	0.367	0.100	0.367
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.039	0.000	0.000	1.039	0.200	1.039
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.424	0.000	0.000	1.424	0.300	1.424
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.721	0.000	0.000	1.721	0.400	1.721
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.975	0.000	0.000	1.975	0.500	1.975
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.199	0.000	0.000	2.199	0.600	2.199
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.402	0.000	0.000	2.402	0.700	2.402
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	2.590	0.000	0.000	2.590	0.800	2.590
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	2.765	0.000	0.000	2.765	0.900	2.765
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	2.929	0.000	0.000	2.929	1.000	2.929
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	3.085	0.000	0.000	3.085	1.100	3.085
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	3.233	0.000	0.000	3.233	1.200	3.233
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	3.375	0.000	0.000	3.375	1.300	3.375
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	3.511	0.000	0.000	3.511	1.400	3.511
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	3.641	0.000	0.000	3.641	1.500	3.641
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	3.768	0.000	0.000	3.768	1.600	3.768
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	3.890	0.000	0.000	3.890	1.700	3.890
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	4.009	0.000	0.000	4.009	1.800	4.009
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	4.124	0.000	0.000	4.124	1.900	4.124
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	4.236	0.000	0.000	4.236	2.000	4.236
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	4.345	0.000	0.000	4.345	2.100	4.345
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	4.451	0.000	0.000	4.451	2.200	4.451
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	4.555	0.000	0.000	4.555	2.300	4.555
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	4.657	0.000	0.000	4.657	2.400	4.657
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	4.756	0.000	0.000	4.756	2.500	4.756
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	4.854	0.000	0.000	4.854	2.600	4.854
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	4.949	0.000	0.000	4.949	2.700	4.949
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	5.043	0.000	0.000	5.043	2.800	5.043
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	5.135	0.000	0.000	5.135	2.900	5.135
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	5.225	0.000	0.000	5.225	3.000	5.225
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	5.314	0.000	0.784	6.098	3.100	6.098
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	5.401	0.000	2.218	7.619	3.200	7.619
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	5.487	0.000	4.075	9.562	3.300	9.562
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	5.572	0.000	6.274	11.846	3.400	11.846
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	5.655	0.000	8.768	14.423	3.500	14.423
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	5.737	0.000	11.526	17.263	3.600	17.263
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	5.818	0.000	14.524	20.343	3.700	20.343
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	5.898	0.000	17.745	23.644	3.800	23.644
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	5.977	0.000	21.175	27.152	3.900	27.152
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	6.055	0.000	24.800	30.855	4.000	30.855

RV5

Outlet structure for Discharge of Detention Basin 5

Low orifice:	1 "	Lower slot		Emergency Weir	
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	4.00 ft	B:	8 ft
Middle orifice:	1 "	h	0.208 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

Note: 0 ft = 1 ft above surface basin invert

h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.000	0.000	0.392	0.100	0.392
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.108	0.000	0.000	1.108	0.200	1.108
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.805	0.000	0.000	1.805	0.300	1.805
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.218	0.000	0.000	2.218	0.400	2.218
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.566	0.000	0.000	2.566	0.500	2.566
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.872	0.000	0.000	2.872	0.600	2.872
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.149	0.000	0.000	3.149	0.700	3.149
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	3.403	0.000	0.000	3.403	0.800	3.403
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	3.639	0.000	0.000	3.639	0.900	3.639
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	3.861	0.000	0.000	3.861	1.000	3.861
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	4.071	0.000	0.000	4.071	1.100	4.071
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	4.270	0.000	0.000	4.270	1.200	4.270
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	4.461	0.000	0.000	4.461	1.300	4.461
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	4.644	0.000	0.000	4.644	1.400	4.644
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	4.819	0.000	0.000	4.819	1.500	4.819
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	4.989	0.000	0.000	4.989	1.600	4.989
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	5.153	0.000	0.000	5.153	1.700	5.153
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	5.312	0.000	0.000	5.312	1.800	5.312
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	5.467	0.000	0.000	5.467	1.900	5.467
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	5.617	0.000	0.000	5.617	2.000	5.617
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	5.763	0.000	0.000	5.763	2.100	5.763
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	5.906	0.000	0.000	5.906	2.200	5.906
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	6.045	0.000	0.000	6.045	2.300	6.045
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	6.181	0.000	0.000	6.181	2.400	6.181
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	6.314	0.000	0.000	6.314	2.500	6.314
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	6.445	0.000	0.000	6.445	2.600	6.445
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	6.572	0.000	0.000	6.572	2.700	6.572
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	6.698	0.000	0.000	6.698	2.800	6.698
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	6.821	0.000	0.000	6.821	2.900	6.821
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	6.942	0.000	0.000	6.942	3.000	6.942
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	7.061	0.000	0.784	7.845	3.100	7.845
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	7.178	0.000	2.218	9.396	3.200	9.396
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	7.293	0.000	4.075	11.368	3.300	11.368
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	7.406	0.000	6.274	13.680	3.400	13.680
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	7.517	0.000	8.768	16.285	3.500	16.285
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	7.627	0.000	11.526	19.153	3.600	19.153
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	7.735	0.000	14.524	22.260	3.700	22.260
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	7.842	0.000	17.745	25.588	3.800	25.588
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	7.948	0.000	21.175	29.122	3.900	29.122
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	8.052	0.000	24.800	32.852	4.000	32.852

RV6

Outlet structure for Discharge of Detention Basin 6

Low orifice:	1 "	Lower slot		Emergency Weir	
Number:	0	Invert:	0.00 ft	Invert:	3.000 ft
Cg-low:	0.62	B	4.00 ft	B:	8 ft
Middle orifice:	1 "	h	0.167 ft		
number of orif:	0	Upper slot			
Cg-middle:	0.62	Invert:	0.00 ft		
invert elev:	0.75 ft	B:	0.00 ft		
		h	0.167 ft		

Note: 0 ft = 1 ft above surface basin invert

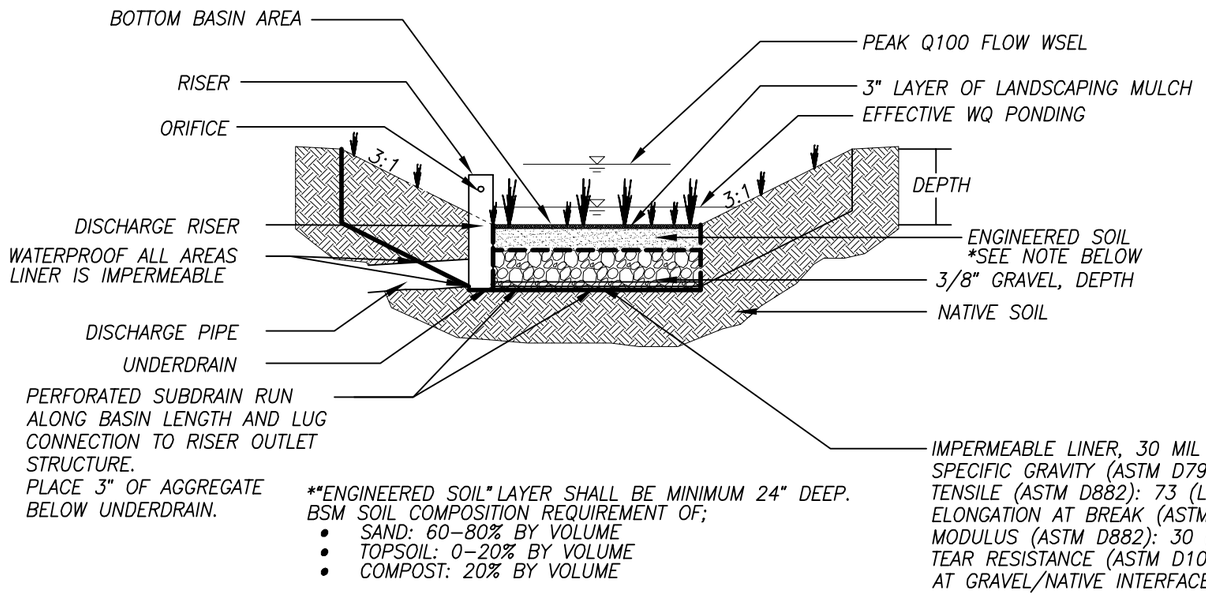
h (ft)	H/D-low -	H/D-mid -	Qlow-orif (cfs)	Qlow-weir (cfs)	Qtot-low (cfs)	Qmid-orif (cfs)	Qmid-weir (cfs)	Qtot-med (cfs)	Qslot-low (cfs)	Qslot-upp (cfs)	Qemer (cfs)	Qtot (cfs)	Total H (ft)	Total Q (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.392	0.000	0.000	0.392	0.100	0.392
0.200	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.108	0.000	0.000	1.108	0.200	1.108
0.300	3.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.519	0.000	0.000	1.519	0.300	1.519
0.400	4.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.836	0.000	0.000	1.836	0.400	1.836
0.500	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.106	0.000	0.000	2.106	0.500	2.106
0.600	7.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.346	0.000	0.000	2.346	0.600	2.346
0.700	8.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.563	0.000	0.000	2.563	0.700	2.563
0.800	9.600	0.600	0.000	0.000	0.000	0.000	0.000	0.000	2.763	0.000	0.000	2.763	0.800	2.763
0.900	10.800	1.800	0.000	0.000	0.000	0.000	0.000	0.000	2.949	0.000	0.000	2.949	0.900	2.949
1.000	12.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	3.124	0.000	0.000	3.124	1.000	3.124
1.100	13.200	4.200	0.000	0.000	0.000	0.000	0.000	0.000	3.290	0.000	0.000	3.290	1.100	3.290
1.200	14.400	5.400	0.000	0.000	0.000	0.000	0.000	0.000	3.448	0.000	0.000	3.448	1.200	3.448
1.300	15.600	6.600	0.000	0.000	0.000	0.000	0.000	0.000	3.600	0.000	0.000	3.600	1.300	3.600
1.400	16.800	7.800	0.000	0.000	0.000	0.000	0.000	0.000	3.745	0.000	0.000	3.745	1.400	3.745
1.500	18.000	9.000	0.000	0.000	0.000	0.000	0.000	0.000	3.884	0.000	0.000	3.884	1.500	3.884
1.600	19.200	10.200	0.000	0.000	0.000	0.000	0.000	0.000	4.019	0.000	0.000	4.019	1.600	4.019
1.700	20.400	11.400	0.000	0.000	0.000	0.000	0.000	0.000	4.149	0.000	0.000	4.149	1.700	4.149
1.800	21.600	12.600	0.000	0.000	0.000	0.000	0.000	0.000	4.276	0.000	0.000	4.276	1.800	4.276
1.900	22.800	13.800	0.000	0.000	0.000	0.000	0.000	0.000	4.399	0.000	0.000	4.399	1.900	4.399
2.000	24.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	4.518	0.000	0.000	4.518	2.000	4.518
2.100	25.200	16.200	0.000	0.000	0.000	0.000	0.000	0.000	4.634	0.000	0.000	4.634	2.100	4.634
2.200	26.400	17.400	0.000	0.000	0.000	0.000	0.000	0.000	4.748	0.000	0.000	4.748	2.200	4.748
2.300	27.600	18.600	0.000	0.000	0.000	0.000	0.000	0.000	4.859	0.000	0.000	4.859	2.300	4.859
2.400	28.800	19.800	0.000	0.000	0.000	0.000	0.000	0.000	4.967	0.000	0.000	4.967	2.400	4.967
2.500	30.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	5.073	0.000	0.000	5.073	2.500	5.073
2.600	31.200	22.200	0.000	0.000	0.000	0.000	0.000	0.000	5.177	0.000	0.000	5.177	2.600	5.177
2.700	32.400	23.400	0.000	0.000	0.000	0.000	0.000	0.000	5.279	0.000	0.000	5.279	2.700	5.279
2.800	33.600	24.600	0.000	0.000	0.000	0.000	0.000	0.000	5.379	0.000	0.000	5.379	2.800	5.379
2.900	34.800	25.800	0.000	0.000	0.000	0.000	0.000	0.000	5.477	0.000	0.000	5.477	2.900	5.477
3.000	36.000	27.000	0.000	0.000	0.000	0.000	0.000	0.000	5.573	0.000	0.000	5.573	3.000	5.573
3.100	37.200	28.200	0.000	0.000	0.000	0.000	0.000	0.000	5.668	0.000	0.784	6.452	3.100	6.452
3.200	38.400	29.400	0.000	0.000	0.000	0.000	0.000	0.000	5.761	0.000	2.218	7.979	3.200	7.979
3.300	39.600	30.600	0.000	0.000	0.000	0.000	0.000	0.000	5.853	0.000	4.075	9.928	3.300	9.928
3.400	40.800	31.800	0.000	0.000	0.000	0.000	0.000	0.000	5.943	0.000	6.274	12.217	3.400	12.217
3.500	42.000	33.000	0.000	0.000	0.000	0.000	0.000	0.000	6.032	0.000	8.768	14.800	3.500	14.800
3.600	43.200	34.200	0.000	0.000	0.000	0.000	0.000	0.000	6.120	0.000	11.526	17.646	3.600	17.646
3.700	44.400	35.400	0.000	0.000	0.000	0.000	0.000	0.000	6.206	0.000	14.524	20.731	3.700	20.731
3.800	45.600	36.600	0.000	0.000	0.000	0.000	0.000	0.000	6.291	0.000	17.745	24.037	3.800	24.037
3.900	46.800	37.800	0.000	0.000	0.000	0.000	0.000	0.000	6.376	0.000	21.175	27.550	3.900	27.550
4.000	48.000	39.000	0.000	0.000	0.000	0.000	0.000	0.000	6.459	0.000	24.800	31.259	4.000	31.259

DETENTION BASIN CALCULATIONS

BASIN SUMMARY TABLE (Fanita Ranch & Magnolia Avenue)								
POC	POC-01	POC-02	POC-02	POC-02	POC-02	POC-03	POC-10D	POC-10E
BMP ID	Basin BF-1-1	Basin BF-1-2	Basin BF-1-3	BasinBF-1-4	Basin BF-1-5	Basin BF-1-6	Basin BF-1-10a	Basin BF-1-10b
Type	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin
Bottom Basin Area (sf)	249,599	44,124	83,668	135,127	338,354	134,075	6,775	3,210
Total Basin Depth (ft)	6	6	6	6	4.6	4.75	3	3.25
WQ Ponding Depth (in)*	12.33	27.87	26.32	25.84	16.62	17.34	13.11	32.19
Amended Soil Depth (in)	27	27	27	30	27	30	27	27
Class 2 Perm. Depth (in)	24	21	21	21	30	21	18	27
Underdrain Orifice (in)	10.00	4.33	7.54	10.61	12.73	6.36	1.13	1.56
RISER:								
Riser Cross-Section Dimensions	4' x 4'	3' x 3'	3' x 3'	6' x 6'	8' x 16'	5' x 5'	3' x 3'	5' x 5'
Riser Height (ft)*	4.75	4.50	4.50	5.00	3.60	4.33	2.75	3.00
ORIFICE:								
Low Orifice Diameter (in)	Slot: 22''x2''	Slot: 36''x3''	Slot: 27''x6''	Slot: 9'x12''	Slot: 22'x1.25'	Slot: 4.75'x2''	0.875''	--
Low Orifice Depth (ft)	1.25	0.75	0.75	1.83	1.6	0.75	1.25	--
Middle Orifice Diameter (in)	--	--	--	--	--	Slot: 6'x0.5'	--	--
Middle Orifice Depth (ft)	--	--	--	--	--	3.50'	--	--
*-Relative to basin bottom								

BASIN SUMMARY TABLE (Fanita Parkway, Cuyamaca Streeet & Magnolia Avenue)								
POC	POC-11	POC-12	POC-13	POC-15	POC-16	POC-17	POC-17	POC-18
BMP ID	Basin HMP-11	Basin HMP-12	Vault HMP-13	Vault HMP-15	Vault HMP-16	Basin BF-1-17	Basin HMP-17	Basin HMP-18
Type	HMP Basin	HMP Basin	HMP Vault	HMP Vault	HMP Vault	Bio-Basin	HMP Basin	HMP Basin
Bottom Basin Area (sf)	742	203	1,365	900	800	2,260	875	437
Total Basin Depth (ft)	10	6	6	6	6	3	10	15
WQ Ponding Depth (in)*	--	--	--	--	--	12	--	--
Amended Soil Depth (in)	--	--	--	--	--	24	--	--
Class 2 Perm. Depth (in)	--	--	--	--	--	12	--	--
Underdrain Orifice (in)	--	--	--	--	--	2- 6"	--	--
RISER:								
Riser Cross-Section Dimensions	4' x 4'	4' x 4'	4'	4'	4'	4' x 4'	4' x 4'	3' x 3'
Riser Height (ft)*	6.00	4.00	5.50	5.50	5.50	1.00	4.00	6.00
ORIFICE:								
Low Orifice Diameter (in)	Slot: 36''x2''	Slot: 6''x2''	0.6875''	0.825''	0.625''	--	3''	10''
Low Orifice Depth (ft)	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00
Middle Orifice Diameter (in)	--	Slot: 15''x6''	Slot: 12''x2.5''	Slot: 4''x1.5''	Slot: 4''x1.5''	--	--	--
Middle Orifice Depth (ft)	--	3.50'	3.50'	3.50'	3.50'	--	--	--
*-Relative to basin bottom								

BASIN SUMMARY TABLE (Special Use Area)								
POC	POC-RV1	POC-RV2	POC-RV3	POC-RV4	POC-RV5	POC-RV6		
BMP ID	Basin BF-1-RV1	Basin BF-1-RV2	Basin BF-1-RV3	Basin BF-1-RV4	Basin BF-1-RV5	Basin BF-1-RV6		
Type	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin	Bio-Basin		
Bottom Basin Area (sf)	4,950	3,250	3,900	3,950	6,200	3,250		
Total Basin Depth (ft)	5	5	5	5	5	5		
WQ Ponding Depth (in)*	12	12	12	12	12	12		
Amended Soil Depth (in)	21	21	21	21	21	21		
Class 2 Perm. Depth (in)	15	15	15	15	15	15		
Underdrain Orifice (in)	2.44	1.88	2.13	2.13	2.56	1.88		
RISER:								
Riser Cross-Section Dimensions	3' x 3'	3' x 3'	3' x 3'	3' x 3'	3' x 3'	3' x 3'		
Riser Height (ft)*	4.00	4.00	4.00	4.00	4.00	4.00		
ORIFICE:								
Low Orifice Diameter (in)	Slot: 48" x 2.5"	Slot: 24" x 2"	Slot: 36" x 2"	Slot: 45" x 2"	Slot: 48" x 2.5"	Slot: 48" x 2"		
Low Orifice Depth (ft)	1.00	1.00	1.00	1.00	1.00	1.00		
Middle Orifice Diameter (in)	--	--	--	--	--	--		
Middle Orifice Depth (ft)	--	--	--	--	--	--		
*-Relative to basin bottom								



*"ENGINEERED SOIL" LAYER SHALL BE MINIMUM 24" DEEP.
BSM SOIL COMPOSITION REQUIREMENT OF;

- SAND: 60-80% BY VOLUME
- TOPSOIL: 0-20% BY VOLUME
- COMPOST: 20% BY VOLUME

SOIL SECTION FOR WATER QUALITY/HYDROMODIFICATION BIOFILTRATION BASIN

NOT TO SCALE

HUNSAKER & ASSOCIATES
SAN DIEGO, INC

PLANNING
ENGINEERING
SURVEYING

9707 Waples Street
San Diego, Ca 92121
PH(858)558-4500 · FX(858)558-1414

W.O.# 2395-0007

R:\1284\Hyd\ACAD\TM\SWQMP\1284- FANITA TM DMA.dwg[]Sep-25-2019:15:09

Detention Analysis

Project: Fanita Ranch Simulation Run: Run 1

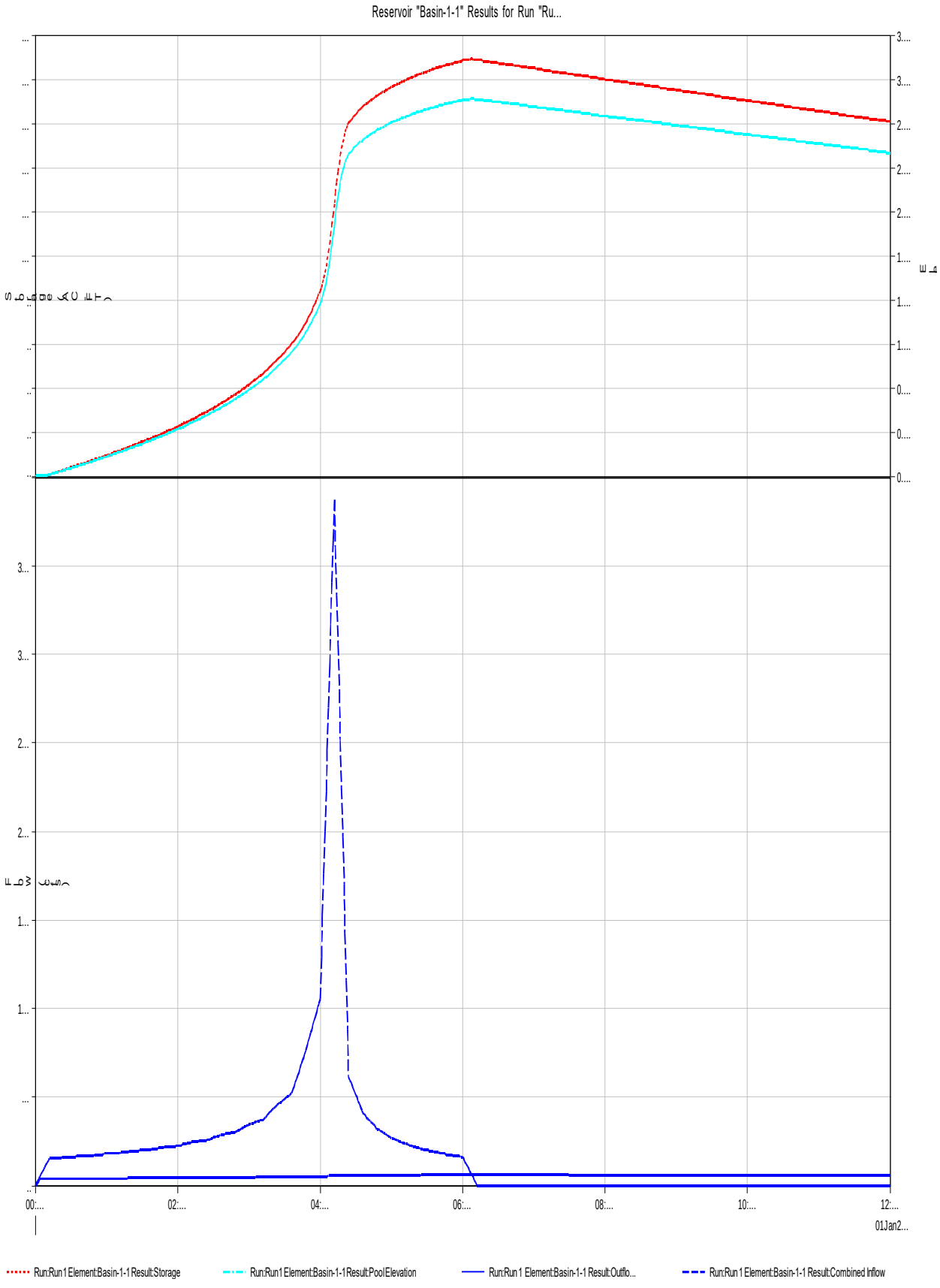
Reservoir: Basin-1-1

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	387.5 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:12
Peak Discharge:	5.9 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 06:08
Inflow Volume:	21.3 (AC-FT)	Peak Storage:	18.9 (AC-FT)
Discharge Volume:	5.2 (AC-FT)	Peak Elevation:	3.0 (FT)


Reservoir "Basin-1-1" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
Flow (CFS)
00:...
02:...
04:...
06:...
08:...
10:...
12:...
01Jan2...
Run:Run 1 Element:Basin-1-1 Result:Storage
Run:Run 1 Element:Basin-1-1 Result:Pool Elevation
Run:Run 1 Element:Basin-1-1 Result:Outflo...
Run:Run 1 Element:Basin-1-1 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-1

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ra
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	1.3	0.0	0.0	0.4
01Jan2000	00:02	2.6	0.0	0.0	1.2
01Jan2000	00:03	3.9	0.0	0.0	2.3
01Jan2000	00:04	5.1	0.0	0.0	3.4
01Jan2000	00:05	6.4	0.0	0.0	3.4
01Jan2000	00:06	7.7	0.0	0.0	3.4
01Jan2000	00:07	9.0	0.0	0.0	3.4
01Jan2000	00:08	10.3	0.0	0.0	3.4
01Jan2000	00:09	11.6	0.0	0.0	3.4
01Jan2000	00:10	12.8	0.1	0.0	3.4
01Jan2000	00:11	14.1	0.1	0.0	3.4
01Jan2000	00:12	15.4	0.1	0.0	3.4
01Jan2000	00:13	15.4	0.1	0.0	3.4
01Jan2000	00:14	15.5	0.1	0.0	3.4
01Jan2000	00:15	15.5	0.1	0.0	3.4
01Jan2000	00:16	15.5	0.1	0.0	3.4
01Jan2000	00:17	15.6	0.2	0.0	3.4
01Jan2000	00:18	15.6	0.2	0.0	3.4
01Jan2000	00:19	15.6	0.2	0.0	3.4
01Jan2000	00:20	15.7	0.2	0.0	3.4
01Jan2000	00:21	15.7	0.2	0.0	3.4
01Jan2000	00:22	15.7	0.2	0.0	3.4
01Jan2000	00:23	15.8	0.3	0.0	3.4
01Jan2000	00:24	15.8	0.3	0.0	3.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	15.9	0.3	0.1	3.5
01Jan2000	00:26	15.9	0.3	0.1	3.5
01Jan2000	00:27	16.0	0.3	0.1	3.5
01Jan2000	00:28	16.0	0.4	0.1	3.5
01Jan2000	00:29	16.1	0.4	0.1	3.5
01Jan2000	00:30	16.1	0.4	0.1	3.5
01Jan2000	00:31	16.2	0.4	0.1	3.5
01Jan2000	00:32	16.3	0.4	0.1	3.5
01Jan2000	00:33	16.3	0.4	0.1	3.5
01Jan2000	00:34	16.4	0.5	0.1	3.5
01Jan2000	00:35	16.4	0.5	0.1	3.5
01Jan2000	00:36	16.5	0.5	0.1	3.5
01Jan2000	00:37	16.5	0.5	0.1	3.5
01Jan2000	00:38	16.6	0.5	0.1	3.5
01Jan2000	00:39	16.6	0.5	0.1	3.6
01Jan2000	00:40	16.6	0.6	0.1	3.6
01Jan2000	00:41	16.7	0.6	0.1	3.6
01Jan2000	00:42	16.7	0.6	0.1	3.6
01Jan2000	00:43	16.7	0.6	0.1	3.6
01Jan2000	00:44	16.8	0.6	0.1	3.6
01Jan2000	00:45	16.8	0.7	0.1	3.6
01Jan2000	00:46	16.8	0.7	0.1	3.6
01Jan2000	00:47	16.9	0.7	0.1	3.6
01Jan2000	00:48	16.9	0.7	0.1	3.6
01Jan2000	00:49	17.0	0.7	0.1	3.6
01Jan2000	00:50	17.1	0.7	0.1	3.6
01Jan2000	00:51	17.1	0.8	0.1	3.7
01Jan2000	00:52	17.2	0.8	0.1	3.7
01Jan2000	00:53	17.3	0.8	0.1	3.7
01Jan2000	00:54	17.4	0.8	0.1	3.7
01Jan2000	00:55	17.5	0.8	0.1	3.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	17.6	0.9	0.1	3.7
01Jan2000	00:57	17.6	0.9	0.1	3.7
01Jan2000	00:58	17.7	0.9	0.1	3.7
01Jan2000	00:59	17.8	0.9	0.2	3.7
01Jan2000	01:00	17.9	0.9	0.2	3.7
01Jan2000	01:01	17.9	1.0	0.2	3.8
01Jan2000	01:02	18.0	1.0	0.2	3.8
01Jan2000	01:03	18.0	1.0	0.2	3.8
01Jan2000	01:04	18.1	1.0	0.2	3.8
01Jan2000	01:05	18.1	1.0	0.2	3.8
01Jan2000	01:06	18.1	1.1	0.2	3.8
01Jan2000	01:07	18.2	1.1	0.2	3.8
01Jan2000	01:08	18.2	1.1	0.2	3.8
01Jan2000	01:09	18.3	1.1	0.2	3.8
01Jan2000	01:10	18.3	1.1	0.2	3.9
01Jan2000	01:11	18.4	1.2	0.2	3.9
01Jan2000	01:12	18.4	1.2	0.2	3.9
01Jan2000	01:13	18.5	1.2	0.2	3.9
01Jan2000	01:14	18.6	1.2	0.2	3.9
01Jan2000	01:15	18.7	1.2	0.2	3.9
01Jan2000	01:16	18.8	1.3	0.2	3.9
01Jan2000	01:17	18.9	1.3	0.2	3.9
01Jan2000	01:18	18.9	1.3	0.2	3.9
01Jan2000	01:19	19.0	1.3	0.2	3.9
01Jan2000	01:20	19.1	1.3	0.2	3.9
01Jan2000	01:21	19.2	1.4	0.2	4.0
01Jan2000	01:22	19.3	1.4	0.2	4.0
01Jan2000	01:23	19.4	1.4	0.2	4.0
01Jan2000	01:24	19.5	1.4	0.2	4.0
01Jan2000	01:25	19.6	1.4	0.2	4.0
01Jan2000	01:26	19.6	1.5	0.2	4.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	19.6	1.5	0.2	4.0
01Jan2000	01:28	19.7	1.5	0.3	4.0
01Jan2000	01:29	19.8	1.5	0.3	4.0
01Jan2000	01:30	19.8	1.6	0.3	4.0
01Jan2000	01:31	19.8	1.6	0.3	4.0
01Jan2000	01:32	19.9	1.6	0.3	4.0
01Jan2000	01:33	19.9	1.6	0.3	4.0
01Jan2000	01:34	20.0	1.6	0.3	4.0
01Jan2000	01:35	20.1	1.7	0.3	4.0
01Jan2000	01:36	20.1	1.7	0.3	4.1
01Jan2000	01:37	20.2	1.7	0.3	4.1
01Jan2000	01:38	20.4	1.7	0.3	4.1
01Jan2000	01:39	20.5	1.7	0.3	4.1
01Jan2000	01:40	20.6	1.8	0.3	4.1
01Jan2000	01:41	20.7	1.8	0.3	4.1
01Jan2000	01:42	20.9	1.8	0.3	4.1
01Jan2000	01:43	21.0	1.8	0.3	4.1
01Jan2000	01:44	21.1	1.9	0.3	4.1
01Jan2000	01:45	21.2	1.9	0.3	4.1
01Jan2000	01:46	21.4	1.9	0.3	4.1
01Jan2000	01:47	21.5	1.9	0.3	4.1
01Jan2000	01:48	21.6	2.0	0.3	4.1
01Jan2000	01:49	21.7	2.0	0.3	4.1
01Jan2000	01:50	21.7	2.0	0.3	4.1
01Jan2000	01:51	21.8	2.0	0.3	4.1
01Jan2000	01:52	21.9	2.1	0.3	4.2
01Jan2000	01:53	21.9	2.1	0.3	4.2
01Jan2000	01:54	22.0	2.1	0.3	4.2
01Jan2000	01:55	22.1	2.1	0.4	4.2
01Jan2000	01:56	22.1	2.2	0.4	4.2
01Jan2000	01:57	22.2	2.2	0.4	4.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	22.3	2.2	0.4	4.2
01Jan2000	01:59	22.3	2.2	0.4	4.2
01Jan2000	02:00	22.4	2.3	0.4	4.2
01Jan2000	02:01	22.6	2.3	0.4	4.2
01Jan2000	02:02	22.7	2.3	0.4	4.2
01Jan2000	02:03	22.9	2.3	0.4	4.2
01Jan2000	02:04	23.1	2.4	0.4	4.2
01Jan2000	02:05	23.2	2.4	0.4	4.2
01Jan2000	02:06	23.4	2.4	0.4	4.2
01Jan2000	02:07	23.6	2.4	0.4	4.2
01Jan2000	02:08	23.7	2.5	0.4	4.2
01Jan2000	02:09	23.9	2.5	0.4	4.3
01Jan2000	02:10	24.1	2.5	0.4	4.3
01Jan2000	02:11	24.2	2.5	0.4	4.3
01Jan2000	02:12	24.4	2.6	0.4	4.3
01Jan2000	02:13	24.5	2.6	0.4	4.3
01Jan2000	02:14	24.6	2.6	0.4	4.3
01Jan2000	02:15	24.7	2.7	0.4	4.3
01Jan2000	02:16	24.8	2.7	0.4	4.3
01Jan2000	02:17	24.9	2.7	0.4	4.3
01Jan2000	02:18	24.9	2.7	0.5	4.3
01Jan2000	02:19	25.0	2.8	0.5	4.3
01Jan2000	02:20	25.1	2.8	0.5	4.3
01Jan2000	02:21	25.2	2.8	0.5	4.3
01Jan2000	02:22	25.3	2.9	0.5	4.3
01Jan2000	02:23	25.4	2.9	0.5	4.3
01Jan2000	02:24	25.5	2.9	0.5	4.3
01Jan2000	02:25	25.7	2.9	0.5	4.3
01Jan2000	02:26	26.0	3.0	0.5	4.3
01Jan2000	02:27	26.2	3.0	0.5	4.4
01Jan2000	02:28	26.4	3.0	0.5	4.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	26.7	3.1	0.5	4.4
01Jan2000	02:30	26.9	3.1	0.5	4.4
01Jan2000	02:31	27.1	3.1	0.5	4.4
01Jan2000	02:32	27.4	3.2	0.5	4.4
01Jan2000	02:33	27.6	3.2	0.5	4.4
01Jan2000	02:34	27.8	3.2	0.5	4.4
01Jan2000	02:35	28.1	3.3	0.5	4.4
01Jan2000	02:36	28.3	3.3	0.5	4.4
01Jan2000	02:37	28.4	3.3	0.5	4.4
01Jan2000	02:38	28.6	3.4	0.6	4.4
01Jan2000	02:39	28.7	3.4	0.6	4.4
01Jan2000	02:40	28.9	3.4	0.6	4.4
01Jan2000	02:41	29.0	3.5	0.6	4.4
01Jan2000	02:42	29.1	3.5	0.6	4.4
01Jan2000	02:43	29.3	3.5	0.6	4.4
01Jan2000	02:44	29.4	3.6	0.6	4.5
01Jan2000	02:45	29.6	3.6	0.6	4.5
01Jan2000	02:46	29.7	3.6	0.6	4.5
01Jan2000	02:47	29.9	3.7	0.6	4.5
01Jan2000	02:48	30.0	3.7	0.6	4.5
01Jan2000	02:49	30.4	3.7	0.6	4.5
01Jan2000	02:50	30.7	3.8	0.6	4.5
01Jan2000	02:51	31.1	3.8	0.6	4.5
01Jan2000	02:52	31.5	3.8	0.6	4.5
01Jan2000	02:53	31.8	3.9	0.6	4.5
01Jan2000	02:54	32.2	3.9	0.6	4.5
01Jan2000	02:55	32.6	4.0	0.7	4.5
01Jan2000	02:56	32.9	4.0	0.7	4.5
01Jan2000	02:57	33.3	4.0	0.7	4.5
01Jan2000	02:58	33.7	4.1	0.7	4.5
01Jan2000	02:59	34.0	4.1	0.7	4.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	34.4	4.2	0.7	4.6
01Jan2000	03:01	34.6	4.2	0.7	4.6
01Jan2000	03:02	34.9	4.2	0.7	4.6
01Jan2000	03:03	35.1	4.3	0.7	4.6
01Jan2000	03:04	35.4	4.3	0.7	4.6
01Jan2000	03:05	35.6	4.4	0.7	4.6
01Jan2000	03:06	35.9	4.4	0.7	4.6
01Jan2000	03:07	36.1	4.4	0.7	4.6
01Jan2000	03:08	36.3	4.5	0.7	4.6
01Jan2000	03:09	36.6	4.5	0.7	4.6
01Jan2000	03:10	36.8	4.6	0.8	4.6
01Jan2000	03:11	37.1	4.6	0.8	4.6
01Jan2000	03:12	37.3	4.7	0.8	4.6
01Jan2000	03:13	38.0	4.7	0.8	4.6
01Jan2000	03:14	38.7	4.8	0.8	4.6
01Jan2000	03:15	39.4	4.8	0.8	4.7
01Jan2000	03:16	40.1	4.9	0.8	4.7
01Jan2000	03:17	40.8	4.9	0.8	4.7
01Jan2000	03:18	41.5	5.0	0.8	4.7
01Jan2000	03:19	42.1	5.0	0.8	4.7
01Jan2000	03:20	42.8	5.1	0.8	4.7
01Jan2000	03:21	43.5	5.1	0.8	4.7
01Jan2000	03:22	44.2	5.2	0.8	4.7
01Jan2000	03:23	44.9	5.2	0.9	4.7
01Jan2000	03:24	45.6	5.3	0.9	4.7
01Jan2000	03:25	46.1	5.3	0.9	4.7
01Jan2000	03:26	46.7	5.4	0.9	4.7
01Jan2000	03:27	47.2	5.4	0.9	4.7
01Jan2000	03:28	47.7	5.5	0.9	4.7
01Jan2000	03:29	48.3	5.6	0.9	4.8
01Jan2000	03:30	48.8	5.6	0.9	4.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	49.3	5.7	0.9	4.8
01Jan2000	03:32	49.9	5.7	0.9	4.8
01Jan2000	03:33	50.4	5.8	1.0	4.8
01Jan2000	03:34	50.9	5.9	1.0	4.8
01Jan2000	03:35	51.5	5.9	1.0	4.8
01Jan2000	03:36	52.0	6.0	1.0	4.8
01Jan2000	03:37	54.0	6.1	1.0	4.8
01Jan2000	03:38	56.0	6.1	1.0	4.8
01Jan2000	03:39	58.1	6.2	1.0	4.8
01Jan2000	03:40	60.1	6.3	1.0	4.8
01Jan2000	03:41	62.1	6.4	1.0	4.9
01Jan2000	03:42	64.2	6.4	1.1	4.9
01Jan2000	03:43	66.2	6.5	1.1	4.9
01Jan2000	03:44	68.2	6.6	1.1	4.9
01Jan2000	03:45	70.2	6.7	1.1	4.9
01Jan2000	03:46	72.2	6.8	1.1	4.9
01Jan2000	03:47	74.3	6.9	1.1	4.9
01Jan2000	03:48	76.3	7.0	1.1	4.9
01Jan2000	03:49	78.7	7.1	1.2	4.9
01Jan2000	03:50	81.1	7.2	1.2	5.0
01Jan2000	03:51	83.5	7.3	1.2	5.0
01Jan2000	03:52	86.0	7.4	1.2	5.0
01Jan2000	03:53	88.4	7.5	1.2	5.0
01Jan2000	03:54	90.8	7.6	1.2	5.0
01Jan2000	03:55	93.2	7.8	1.3	5.0
01Jan2000	03:56	95.6	7.9	1.3	5.0
01Jan2000	03:57	98.0	8.0	1.3	5.0
01Jan2000	03:58	100.5	8.1	1.3	5.1
01Jan2000	03:59	102.9	8.3	1.3	5.1
01Jan2000	04:00	105.3	8.4	1.4	5.1
01Jan2000	04:01	128.8	8.6	1.4	5.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	152.3	8.7	1.4	5.1
01Jan2000	04:03	175.8	9.0	1.5	5.1
01Jan2000	04:04	199.4	9.2	1.5	5.2
01Jan2000	04:05	222.9	9.5	1.5	5.2
01Jan2000	04:06	246.4	9.8	1.6	5.2
01Jan2000	04:07	269.9	10.2	1.6	5.3
01Jan2000	04:08	293.4	10.5	1.7	5.3
01Jan2000	04:09	316.9	11.0	1.8	5.3
01Jan2000	04:10	340.5	11.4	1.8	5.4
01Jan2000	04:11	364.0	11.9	1.9	5.4
01Jan2000	04:12	387.5	12.4	2.0	5.5
01Jan2000	04:13	360.3	12.9	2.1	5.5
01Jan2000	04:14	333.1	13.4	2.1	5.5
01Jan2000	04:15	305.9	13.8	2.2	5.6
01Jan2000	04:16	278.7	14.2	2.3	5.6
01Jan2000	04:17	251.5	14.5	2.3	5.6
01Jan2000	04:18	224.3	14.9	2.4	5.7
01Jan2000	04:19	197.2	15.2	2.4	5.7
01Jan2000	04:20	170.0	15.4	2.5	5.7
01Jan2000	04:21	142.8	15.6	2.5	5.7
01Jan2000	04:22	115.6	15.8	2.5	5.7
01Jan2000	04:23	88.4	15.9	2.5	5.7
01Jan2000	04:24	61.2	16.0	2.6	5.7
01Jan2000	04:25	59.5	16.1	2.6	5.7
01Jan2000	04:26	57.8	16.1	2.6	5.8
01Jan2000	04:27	56.1	16.2	2.6	5.8
01Jan2000	04:28	54.4	16.3	2.6	5.8
01Jan2000	04:29	52.7	16.4	2.6	5.8
01Jan2000	04:30	51.0	16.4	2.6	5.8
01Jan2000	04:31	49.4	16.5	2.6	5.8
01Jan2000	04:32	47.7	16.5	2.6	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	46.0	16.6	2.6	5.8
01Jan2000	04:34	44.3	16.6	2.7	5.8
01Jan2000	04:35	42.6	16.7	2.7	5.8
01Jan2000	04:36	40.9	16.8	2.7	5.8
01Jan2000	04:37	40.2	16.8	2.7	5.8
01Jan2000	04:38	39.4	16.8	2.7	5.8
01Jan2000	04:39	38.7	16.9	2.7	5.8
01Jan2000	04:40	37.9	16.9	2.7	5.8
01Jan2000	04:41	37.2	17.0	2.7	5.8
01Jan2000	04:42	36.5	17.0	2.7	5.8
01Jan2000	04:43	35.7	17.1	2.7	5.8
01Jan2000	04:44	35.0	17.1	2.7	5.8
01Jan2000	04:45	34.2	17.1	2.7	5.8
01Jan2000	04:46	33.5	17.2	2.7	5.8
01Jan2000	04:47	32.7	17.2	2.7	5.8
01Jan2000	04:48	32.0	17.3	2.7	5.8
01Jan2000	04:49	31.6	17.3	2.8	5.8
01Jan2000	04:50	31.1	17.3	2.8	5.8
01Jan2000	04:51	30.7	17.4	2.8	5.8
01Jan2000	04:52	30.3	17.4	2.8	5.8
01Jan2000	04:53	29.8	17.4	2.8	5.8
01Jan2000	04:54	29.4	17.5	2.8	5.8
01Jan2000	04:55	29.0	17.5	2.8	5.9
01Jan2000	04:56	28.5	17.5	2.8	5.9
01Jan2000	04:57	28.1	17.6	2.8	5.9
01Jan2000	04:58	27.7	17.6	2.8	5.9
01Jan2000	04:59	27.2	17.6	2.8	5.9
01Jan2000	05:00	26.8	17.6	2.8	5.9
01Jan2000	05:01	26.5	17.7	2.8	5.9
01Jan2000	05:02	26.2	17.7	2.8	5.9
01Jan2000	05:03	25.9	17.7	2.8	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	25.7	17.8	2.8	5.9
01Jan2000	05:05	25.4	17.8	2.8	5.9
01Jan2000	05:06	25.1	17.8	2.8	5.9
01Jan2000	05:07	24.8	17.8	2.8	5.9
01Jan2000	05:08	24.5	17.9	2.8	5.9
01Jan2000	05:09	24.2	17.9	2.8	5.9
01Jan2000	05:10	24.0	17.9	2.8	5.9
01Jan2000	05:11	23.7	17.9	2.8	5.9
01Jan2000	05:12	23.4	18.0	2.9	5.9
01Jan2000	05:13	23.2	18.0	2.9	5.9
01Jan2000	05:14	23.0	18.0	2.9	5.9
01Jan2000	05:15	22.8	18.0	2.9	5.9
01Jan2000	05:16	22.5	18.1	2.9	5.9
01Jan2000	05:17	22.3	18.1	2.9	5.9
01Jan2000	05:18	22.1	18.1	2.9	5.9
01Jan2000	05:19	21.9	18.1	2.9	5.9
01Jan2000	05:20	21.7	18.1	2.9	5.9
01Jan2000	05:21	21.4	18.2	2.9	5.9
01Jan2000	05:22	21.2	18.2	2.9	5.9
01Jan2000	05:23	21.0	18.2	2.9	5.9
01Jan2000	05:24	20.8	18.2	2.9	5.9
01Jan2000	05:25	20.6	18.3	2.9	5.9
01Jan2000	05:26	20.5	18.3	2.9	5.9
01Jan2000	05:27	20.3	18.3	2.9	5.9
01Jan2000	05:28	20.2	18.3	2.9	5.9
01Jan2000	05:29	20.0	18.3	2.9	5.9
01Jan2000	05:30	19.8	18.4	2.9	5.9
01Jan2000	05:31	19.7	18.4	2.9	5.9
01Jan2000	05:32	19.5	18.4	2.9	5.9
01Jan2000	05:33	19.4	18.4	2.9	5.9
01Jan2000	05:34	19.2	18.4	2.9	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	19.1	18.4	2.9	5.9
01Jan2000	05:36	18.9	18.5	2.9	5.9
01Jan2000	05:37	18.8	18.5	2.9	5.9
01Jan2000	05:38	18.6	18.5	2.9	5.9
01Jan2000	05:39	18.5	18.5	2.9	5.9
01Jan2000	05:40	18.4	18.5	2.9	5.9
01Jan2000	05:41	18.3	18.5	2.9	5.9
01Jan2000	05:42	18.1	18.6	2.9	5.9
01Jan2000	05:43	18.0	18.6	2.9	5.9
01Jan2000	05:44	17.9	18.6	2.9	5.9
01Jan2000	05:45	17.8	18.6	3.0	5.9
01Jan2000	05:46	17.6	18.6	3.0	5.9
01Jan2000	05:47	17.5	18.6	3.0	5.9
01Jan2000	05:48	17.4	18.7	3.0	5.9
01Jan2000	05:49	17.3	18.7	3.0	5.9
01Jan2000	05:50	17.2	18.7	3.0	5.9
01Jan2000	05:51	17.1	18.7	3.0	5.9
01Jan2000	05:52	17.0	18.7	3.0	5.9
01Jan2000	05:53	16.9	18.7	3.0	5.9
01Jan2000	05:54	16.8	18.8	3.0	5.9
01Jan2000	05:55	16.6	18.8	3.0	5.9
01Jan2000	05:56	16.5	18.8	3.0	5.9
01Jan2000	05:57	16.4	18.8	3.0	5.9
01Jan2000	05:58	16.3	18.8	3.0	5.9
01Jan2000	05:59	16.2	18.8	3.0	5.9
01Jan2000	06:00	16.1	18.8	3.0	5.9
01Jan2000	06:01	14.8	18.9	3.0	5.9
01Jan2000	06:02	13.4	18.9	3.0	5.9
01Jan2000	06:03	12.1	18.9	3.0	5.9
01Jan2000	06:04	10.7	18.9	3.0	5.9
01Jan2000	06:05	9.4	18.9	3.0	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	8.1	18.9	3.0	5.9
01Jan2000	06:07	6.7	18.9	3.0	5.9
01Jan2000	06:08	5.4	18.9	3.0	5.9
01Jan2000	06:09	4.0	18.9	3.0	5.9
01Jan2000	06:10	2.7	18.9	3.0	5.9
01Jan2000	06:11	1.3	18.9	3.0	5.9
01Jan2000	06:12	0.0	18.9	3.0	5.9
01Jan2000	06:13	0.0	18.9	3.0	5.9
01Jan2000	06:14	0.0	18.9	3.0	5.9
01Jan2000	06:15	0.0	18.9	3.0	5.9
01Jan2000	06:16	0.0	18.8	3.0	5.9
01Jan2000	06:17	0.0	18.8	3.0	5.9
01Jan2000	06:18	0.0	18.8	3.0	5.9
01Jan2000	06:19	0.0	18.8	3.0	5.9
01Jan2000	06:20	0.0	18.8	3.0	5.9
01Jan2000	06:21	0.0	18.8	3.0	5.9
01Jan2000	06:22	0.0	18.8	3.0	5.9
01Jan2000	06:23	0.0	18.8	3.0	5.9
01Jan2000	06:24	0.0	18.8	3.0	5.9
01Jan2000	06:25	0.0	18.8	3.0	5.9
01Jan2000	06:26	0.0	18.8	3.0	5.9
01Jan2000	06:27	0.0	18.8	3.0	5.9
01Jan2000	06:28	0.0	18.7	3.0	5.9
01Jan2000	06:29	0.0	18.7	3.0	5.9
01Jan2000	06:30	0.0	18.7	3.0	5.9
01Jan2000	06:31	0.0	18.7	3.0	5.9
01Jan2000	06:32	0.0	18.7	3.0	5.9
01Jan2000	06:33	0.0	18.7	3.0	5.9
01Jan2000	06:34	0.0	18.7	3.0	5.9
01Jan2000	06:35	0.0	18.7	3.0	5.9
01Jan2000	06:36	0.0	18.7	3.0	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	18.7	3.0	5.9
01Jan2000	06:38	0.0	18.7	3.0	5.9
01Jan2000	06:39	0.0	18.7	3.0	5.9
01Jan2000	06:40	0.0	18.6	3.0	5.9
01Jan2000	06:41	0.0	18.6	3.0	5.9
01Jan2000	06:42	0.0	18.6	3.0	5.9
01Jan2000	06:43	0.0	18.6	3.0	5.9
01Jan2000	06:44	0.0	18.6	3.0	5.9
01Jan2000	06:45	0.0	18.6	3.0	5.9
01Jan2000	06:46	0.0	18.6	2.9	5.9
01Jan2000	06:47	0.0	18.6	2.9	5.9
01Jan2000	06:48	0.0	18.6	2.9	5.9
01Jan2000	06:49	0.0	18.6	2.9	5.9
01Jan2000	06:50	0.0	18.6	2.9	5.9
01Jan2000	06:51	0.0	18.6	2.9	5.9
01Jan2000	06:52	0.0	18.6	2.9	5.9
01Jan2000	06:53	0.0	18.5	2.9	5.9
01Jan2000	06:54	0.0	18.5	2.9	5.9
01Jan2000	06:55	0.0	18.5	2.9	5.9
01Jan2000	06:56	0.0	18.5	2.9	5.9
01Jan2000	06:57	0.0	18.5	2.9	5.9
01Jan2000	06:58	0.0	18.5	2.9	5.9
01Jan2000	06:59	0.0	18.5	2.9	5.9
01Jan2000	07:00	0.0	18.5	2.9	5.9
01Jan2000	07:01	0.0	18.5	2.9	5.9
01Jan2000	07:02	0.0	18.5	2.9	5.9
01Jan2000	07:03	0.0	18.5	2.9	5.9
01Jan2000	07:04	0.0	18.5	2.9	5.9
01Jan2000	07:05	0.0	18.4	2.9	5.9
01Jan2000	07:06	0.0	18.4	2.9	5.9
01Jan2000	07:07	0.0	18.4	2.9	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	18.4	2.9	5.9
01Jan2000	07:09	0.0	18.4	2.9	5.9
01Jan2000	07:10	0.0	18.4	2.9	5.9
01Jan2000	07:11	0.0	18.4	2.9	5.9
01Jan2000	07:12	0.0	18.4	2.9	5.9
01Jan2000	07:13	0.0	18.4	2.9	5.9
01Jan2000	07:14	0.0	18.4	2.9	5.9
01Jan2000	07:15	0.0	18.4	2.9	5.9
01Jan2000	07:16	0.0	18.4	2.9	5.9
01Jan2000	07:17	0.0	18.3	2.9	5.9
01Jan2000	07:18	0.0	18.3	2.9	5.9
01Jan2000	07:19	0.0	18.3	2.9	5.9
01Jan2000	07:20	0.0	18.3	2.9	5.9
01Jan2000	07:21	0.0	18.3	2.9	5.9
01Jan2000	07:22	0.0	18.3	2.9	5.9
01Jan2000	07:23	0.0	18.3	2.9	5.9
01Jan2000	07:24	0.0	18.3	2.9	5.9
01Jan2000	07:25	0.0	18.3	2.9	5.9
01Jan2000	07:26	0.0	18.3	2.9	5.9
01Jan2000	07:27	0.0	18.3	2.9	5.9
01Jan2000	07:28	0.0	18.3	2.9	5.9
01Jan2000	07:29	0.0	18.2	2.9	5.9
01Jan2000	07:30	0.0	18.2	2.9	5.9
01Jan2000	07:31	0.0	18.2	2.9	5.9
01Jan2000	07:32	0.0	18.2	2.9	5.9
01Jan2000	07:33	0.0	18.2	2.9	5.9
01Jan2000	07:34	0.0	18.2	2.9	5.9
01Jan2000	07:35	0.0	18.2	2.9	5.9
01Jan2000	07:36	0.0	18.2	2.9	5.9
01Jan2000	07:37	0.0	18.2	2.9	5.9
01Jan2000	07:38	0.0	18.2	2.9	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	18.2	2.9	5.9
01Jan2000	07:40	0.0	18.2	2.9	5.9
01Jan2000	07:41	0.0	18.2	2.9	5.9
01Jan2000	07:42	0.0	18.1	2.9	5.9
01Jan2000	07:43	0.0	18.1	2.9	5.9
01Jan2000	07:44	0.0	18.1	2.9	5.9
01Jan2000	07:45	0.0	18.1	2.9	5.9
01Jan2000	07:46	0.0	18.1	2.9	5.9
01Jan2000	07:47	0.0	18.1	2.9	5.9
01Jan2000	07:48	0.0	18.1	2.9	5.9
01Jan2000	07:49	0.0	18.1	2.9	5.9
01Jan2000	07:50	0.0	18.1	2.9	5.9
01Jan2000	07:51	0.0	18.1	2.9	5.9
01Jan2000	07:52	0.0	18.1	2.9	5.9
01Jan2000	07:53	0.0	18.1	2.9	5.9
01Jan2000	07:54	0.0	18.0	2.9	5.9
01Jan2000	07:55	0.0	18.0	2.9	5.9
01Jan2000	07:56	0.0	18.0	2.9	5.9
01Jan2000	07:57	0.0	18.0	2.9	5.9
01Jan2000	07:58	0.0	18.0	2.9	5.9
01Jan2000	07:59	0.0	18.0	2.9	5.9
01Jan2000	08:00	0.0	18.0	2.9	5.9
01Jan2000	08:01	0.0	18.0	2.9	5.9
01Jan2000	08:02	0.0	18.0	2.9	5.9
01Jan2000	08:03	0.0	18.0	2.9	5.9
01Jan2000	08:04	0.0	18.0	2.9	5.9
01Jan2000	08:05	0.0	18.0	2.9	5.9
01Jan2000	08:06	0.0	17.9	2.9	5.9
01Jan2000	08:07	0.0	17.9	2.8	5.9
01Jan2000	08:08	0.0	17.9	2.8	5.9
01Jan2000	08:09	0.0	17.9	2.8	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	17.9	2.8	5.9
01Jan2000	08:11	0.0	17.9	2.8	5.9
01Jan2000	08:12	0.0	17.9	2.8	5.9
01Jan2000	08:13	0.0	17.9	2.8	5.9
01Jan2000	08:14	0.0	17.9	2.8	5.9
01Jan2000	08:15	0.0	17.9	2.8	5.9
01Jan2000	08:16	0.0	17.9	2.8	5.9
01Jan2000	08:17	0.0	17.9	2.8	5.9
01Jan2000	08:18	0.0	17.9	2.8	5.9
01Jan2000	08:19	0.0	17.8	2.8	5.9
01Jan2000	08:20	0.0	17.8	2.8	5.9
01Jan2000	08:21	0.0	17.8	2.8	5.9
01Jan2000	08:22	0.0	17.8	2.8	5.9
01Jan2000	08:23	0.0	17.8	2.8	5.9
01Jan2000	08:24	0.0	17.8	2.8	5.9
01Jan2000	08:25	0.0	17.8	2.8	5.9
01Jan2000	08:26	0.0	17.8	2.8	5.9
01Jan2000	08:27	0.0	17.8	2.8	5.9
01Jan2000	08:28	0.0	17.8	2.8	5.9
01Jan2000	08:29	0.0	17.8	2.8	5.9
01Jan2000	08:30	0.0	17.8	2.8	5.9
01Jan2000	08:31	0.0	17.7	2.8	5.9
01Jan2000	08:32	0.0	17.7	2.8	5.9
01Jan2000	08:33	0.0	17.7	2.8	5.9
01Jan2000	08:34	0.0	17.7	2.8	5.9
01Jan2000	08:35	0.0	17.7	2.8	5.9
01Jan2000	08:36	0.0	17.7	2.8	5.9
01Jan2000	08:37	0.0	17.7	2.8	5.9
01Jan2000	08:38	0.0	17.7	2.8	5.9
01Jan2000	08:39	0.0	17.7	2.8	5.9
01Jan2000	08:40	0.0	17.7	2.8	5.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	17.7	2.8	5.9
01Jan2000	08:42	0.0	17.7	2.8	5.9
01Jan2000	08:43	0.0	17.6	2.8	5.9
01Jan2000	08:44	0.0	17.6	2.8	5.9
01Jan2000	08:45	0.0	17.6	2.8	5.9
01Jan2000	08:46	0.0	17.6	2.8	5.9
01Jan2000	08:47	0.0	17.6	2.8	5.9
01Jan2000	08:48	0.0	17.6	2.8	5.9
01Jan2000	08:49	0.0	17.6	2.8	5.9
01Jan2000	08:50	0.0	17.6	2.8	5.9
01Jan2000	08:51	0.0	17.6	2.8	5.9
01Jan2000	08:52	0.0	17.6	2.8	5.9
01Jan2000	08:53	0.0	17.6	2.8	5.9
01Jan2000	08:54	0.0	17.6	2.8	5.9
01Jan2000	08:55	0.0	17.6	2.8	5.9
01Jan2000	08:56	0.0	17.5	2.8	5.9
01Jan2000	08:57	0.0	17.5	2.8	5.9
01Jan2000	08:58	0.0	17.5	2.8	5.9
01Jan2000	08:59	0.0	17.5	2.8	5.9
01Jan2000	09:00	0.0	17.5	2.8	5.9
01Jan2000	09:01	0.0	17.5	2.8	5.9
01Jan2000	09:02	0.0	17.5	2.8	5.9
01Jan2000	09:03	0.0	17.5	2.8	5.9
01Jan2000	09:04	0.0	17.5	2.8	5.8
01Jan2000	09:05	0.0	17.5	2.8	5.8
01Jan2000	09:06	0.0	17.5	2.8	5.8
01Jan2000	09:07	0.0	17.5	2.8	5.8
01Jan2000	09:08	0.0	17.4	2.8	5.8
01Jan2000	09:09	0.0	17.4	2.8	5.8
01Jan2000	09:10	0.0	17.4	2.8	5.8
01Jan2000	09:11	0.0	17.4	2.8	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	17.4	2.8	5.8
01Jan2000	09:13	0.0	17.4	2.8	5.8
01Jan2000	09:14	0.0	17.4	2.8	5.8
01Jan2000	09:15	0.0	17.4	2.8	5.8
01Jan2000	09:16	0.0	17.4	2.8	5.8
01Jan2000	09:17	0.0	17.4	2.8	5.8
01Jan2000	09:18	0.0	17.4	2.8	5.8
01Jan2000	09:19	0.0	17.4	2.8	5.8
01Jan2000	09:20	0.0	17.4	2.8	5.8
01Jan2000	09:21	0.0	17.3	2.8	5.8
01Jan2000	09:22	0.0	17.3	2.8	5.8
01Jan2000	09:23	0.0	17.3	2.8	5.8
01Jan2000	09:24	0.0	17.3	2.8	5.8
01Jan2000	09:25	0.0	17.3	2.8	5.8
01Jan2000	09:26	0.0	17.3	2.8	5.8
01Jan2000	09:27	0.0	17.3	2.8	5.8
01Jan2000	09:28	0.0	17.3	2.8	5.8
01Jan2000	09:29	0.0	17.3	2.7	5.8
01Jan2000	09:30	0.0	17.3	2.7	5.8
01Jan2000	09:31	0.0	17.3	2.7	5.8
01Jan2000	09:32	0.0	17.3	2.7	5.8
01Jan2000	09:33	0.0	17.2	2.7	5.8
01Jan2000	09:34	0.0	17.2	2.7	5.8
01Jan2000	09:35	0.0	17.2	2.7	5.8
01Jan2000	09:36	0.0	17.2	2.7	5.8
01Jan2000	09:37	0.0	17.2	2.7	5.8
01Jan2000	09:38	0.0	17.2	2.7	5.8
01Jan2000	09:39	0.0	17.2	2.7	5.8
01Jan2000	09:40	0.0	17.2	2.7	5.8
01Jan2000	09:41	0.0	17.2	2.7	5.8
01Jan2000	09:42	0.0	17.2	2.7	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	17.2	2.7	5.8
01Jan2000	09:44	0.0	17.2	2.7	5.8
01Jan2000	09:45	0.0	17.2	2.7	5.8
01Jan2000	09:46	0.0	17.1	2.7	5.8
01Jan2000	09:47	0.0	17.1	2.7	5.8
01Jan2000	09:48	0.0	17.1	2.7	5.8
01Jan2000	09:49	0.0	17.1	2.7	5.8
01Jan2000	09:50	0.0	17.1	2.7	5.8
01Jan2000	09:51	0.0	17.1	2.7	5.8
01Jan2000	09:52	0.0	17.1	2.7	5.8
01Jan2000	09:53	0.0	17.1	2.7	5.8
01Jan2000	09:54	0.0	17.1	2.7	5.8
01Jan2000	09:55	0.0	17.1	2.7	5.8
01Jan2000	09:56	0.0	17.1	2.7	5.8
01Jan2000	09:57	0.0	17.1	2.7	5.8
01Jan2000	09:58	0.0	17.0	2.7	5.8
01Jan2000	09:59	0.0	17.0	2.7	5.8
01Jan2000	10:00	0.0	17.0	2.7	5.8
01Jan2000	10:01	0.0	17.0	2.7	5.8
01Jan2000	10:02	0.0	17.0	2.7	5.8
01Jan2000	10:03	0.0	17.0	2.7	5.8
01Jan2000	10:04	0.0	17.0	2.7	5.8
01Jan2000	10:05	0.0	17.0	2.7	5.8
01Jan2000	10:06	0.0	17.0	2.7	5.8
01Jan2000	10:07	0.0	17.0	2.7	5.8
01Jan2000	10:08	0.0	17.0	2.7	5.8
01Jan2000	10:09	0.0	17.0	2.7	5.8
01Jan2000	10:10	0.0	17.0	2.7	5.8
01Jan2000	10:11	0.0	16.9	2.7	5.8
01Jan2000	10:12	0.0	16.9	2.7	5.8
01Jan2000	10:13	0.0	16.9	2.7	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	16.9	2.7	5.8
01Jan2000	10:15	0.0	16.9	2.7	5.8
01Jan2000	10:16	0.0	16.9	2.7	5.8
01Jan2000	10:17	0.0	16.9	2.7	5.8
01Jan2000	10:18	0.0	16.9	2.7	5.8
01Jan2000	10:19	0.0	16.9	2.7	5.8
01Jan2000	10:20	0.0	16.9	2.7	5.8
01Jan2000	10:21	0.0	16.9	2.7	5.8
01Jan2000	10:22	0.0	16.9	2.7	5.8
01Jan2000	10:23	0.0	16.8	2.7	5.8
01Jan2000	10:24	0.0	16.8	2.7	5.8
01Jan2000	10:25	0.0	16.8	2.7	5.8
01Jan2000	10:26	0.0	16.8	2.7	5.8
01Jan2000	10:27	0.0	16.8	2.7	5.8
01Jan2000	10:28	0.0	16.8	2.7	5.8
01Jan2000	10:29	0.0	16.8	2.7	5.8
01Jan2000	10:30	0.0	16.8	2.7	5.8
01Jan2000	10:31	0.0	16.8	2.7	5.8
01Jan2000	10:32	0.0	16.8	2.7	5.8
01Jan2000	10:33	0.0	16.8	2.7	5.8
01Jan2000	10:34	0.0	16.8	2.7	5.8
01Jan2000	10:35	0.0	16.8	2.7	5.8
01Jan2000	10:36	0.0	16.7	2.7	5.8
01Jan2000	10:37	0.0	16.7	2.7	5.8
01Jan2000	10:38	0.0	16.7	2.7	5.8
01Jan2000	10:39	0.0	16.7	2.7	5.8
01Jan2000	10:40	0.0	16.7	2.7	5.8
01Jan2000	10:41	0.0	16.7	2.7	5.8
01Jan2000	10:42	0.0	16.7	2.7	5.8
01Jan2000	10:43	0.0	16.7	2.7	5.8
01Jan2000	10:44	0.0	16.7	2.7	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	16.7	2.7	5.8
01Jan2000	10:46	0.0	16.7	2.7	5.8
01Jan2000	10:47	0.0	16.7	2.7	5.8
01Jan2000	10:48	0.0	16.6	2.7	5.8
01Jan2000	10:49	0.0	16.6	2.7	5.8
01Jan2000	10:50	0.0	16.6	2.7	5.8
01Jan2000	10:51	0.0	16.6	2.6	5.8
01Jan2000	10:52	0.0	16.6	2.6	5.8
01Jan2000	10:53	0.0	16.6	2.6	5.8
01Jan2000	10:54	0.0	16.6	2.6	5.8
01Jan2000	10:55	0.0	16.6	2.6	5.8
01Jan2000	10:56	0.0	16.6	2.6	5.8
01Jan2000	10:57	0.0	16.6	2.6	5.8
01Jan2000	10:58	0.0	16.6	2.6	5.8
01Jan2000	10:59	0.0	16.6	2.6	5.8
01Jan2000	11:00	0.0	16.6	2.6	5.8
01Jan2000	11:01	0.0	16.5	2.6	5.8
01Jan2000	11:02	0.0	16.5	2.6	5.8
01Jan2000	11:03	0.0	16.5	2.6	5.8
01Jan2000	11:04	0.0	16.5	2.6	5.8
01Jan2000	11:05	0.0	16.5	2.6	5.8
01Jan2000	11:06	0.0	16.5	2.6	5.8
01Jan2000	11:07	0.0	16.5	2.6	5.8
01Jan2000	11:08	0.0	16.5	2.6	5.8
01Jan2000	11:09	0.0	16.5	2.6	5.8
01Jan2000	11:10	0.0	16.5	2.6	5.8
01Jan2000	11:11	0.0	16.5	2.6	5.8
01Jan2000	11:12	0.0	16.5	2.6	5.8
01Jan2000	11:13	0.0	16.4	2.6	5.8
01Jan2000	11:14	0.0	16.4	2.6	5.8
01Jan2000	11:15	0.0	16.4	2.6	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	16.4	2.6	5.8
01Jan2000	11:17	0.0	16.4	2.6	5.8
01Jan2000	11:18	0.0	16.4	2.6	5.8
01Jan2000	11:19	0.0	16.4	2.6	5.8
01Jan2000	11:20	0.0	16.4	2.6	5.8
01Jan2000	11:21	0.0	16.4	2.6	5.8
01Jan2000	11:22	0.0	16.4	2.6	5.8
01Jan2000	11:23	0.0	16.4	2.6	5.8
01Jan2000	11:24	0.0	16.4	2.6	5.8
01Jan2000	11:25	0.0	16.4	2.6	5.8
01Jan2000	11:26	0.0	16.3	2.6	5.8
01Jan2000	11:27	0.0	16.3	2.6	5.8
01Jan2000	11:28	0.0	16.3	2.6	5.8
01Jan2000	11:29	0.0	16.3	2.6	5.8
01Jan2000	11:30	0.0	16.3	2.6	5.8
01Jan2000	11:31	0.0	16.3	2.6	5.8
01Jan2000	11:32	0.0	16.3	2.6	5.8
01Jan2000	11:33	0.0	16.3	2.6	5.8
01Jan2000	11:34	0.0	16.3	2.6	5.8
01Jan2000	11:35	0.0	16.3	2.6	5.8
01Jan2000	11:36	0.0	16.3	2.6	5.8
01Jan2000	11:37	0.0	16.3	2.6	5.8
01Jan2000	11:38	0.0	16.2	2.6	5.8
01Jan2000	11:39	0.0	16.2	2.6	5.8
01Jan2000	11:40	0.0	16.2	2.6	5.8
01Jan2000	11:41	0.0	16.2	2.6	5.8
01Jan2000	11:42	0.0	16.2	2.6	5.8
01Jan2000	11:43	0.0	16.2	2.6	5.8
01Jan2000	11:44	0.0	16.2	2.6	5.8
01Jan2000	11:45	0.0	16.2	2.6	5.8
01Jan2000	11:46	0.0	16.2	2.6	5.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	16.2	2.6	5.8
01Jan2000	11:48	0.0	16.2	2.6	5.8
01Jan2000	11:49	0.0	16.2	2.6	5.8
01Jan2000	11:50	0.0	16.2	2.6	5.8
01Jan2000	11:51	0.0	16.1	2.6	5.8
01Jan2000	11:52	0.0	16.1	2.6	5.8
01Jan2000	11:53	0.0	16.1	2.6	5.8
01Jan2000	11:54	0.0	16.1	2.6	5.8
01Jan2000	11:55	0.0	16.1	2.6	5.8
01Jan2000	11:56	0.0	16.1	2.6	5.8
01Jan2000	11:57	0.0	16.1	2.6	5.8
01Jan2000	11:58	0.0	16.1	2.6	5.8
01Jan2000	11:59	0.0	16.1	2.6	5.8
01Jan2000	12:00	0.0	16.1	2.6	5.7

Project: Fanita Ranch Simulation Run: Run 1

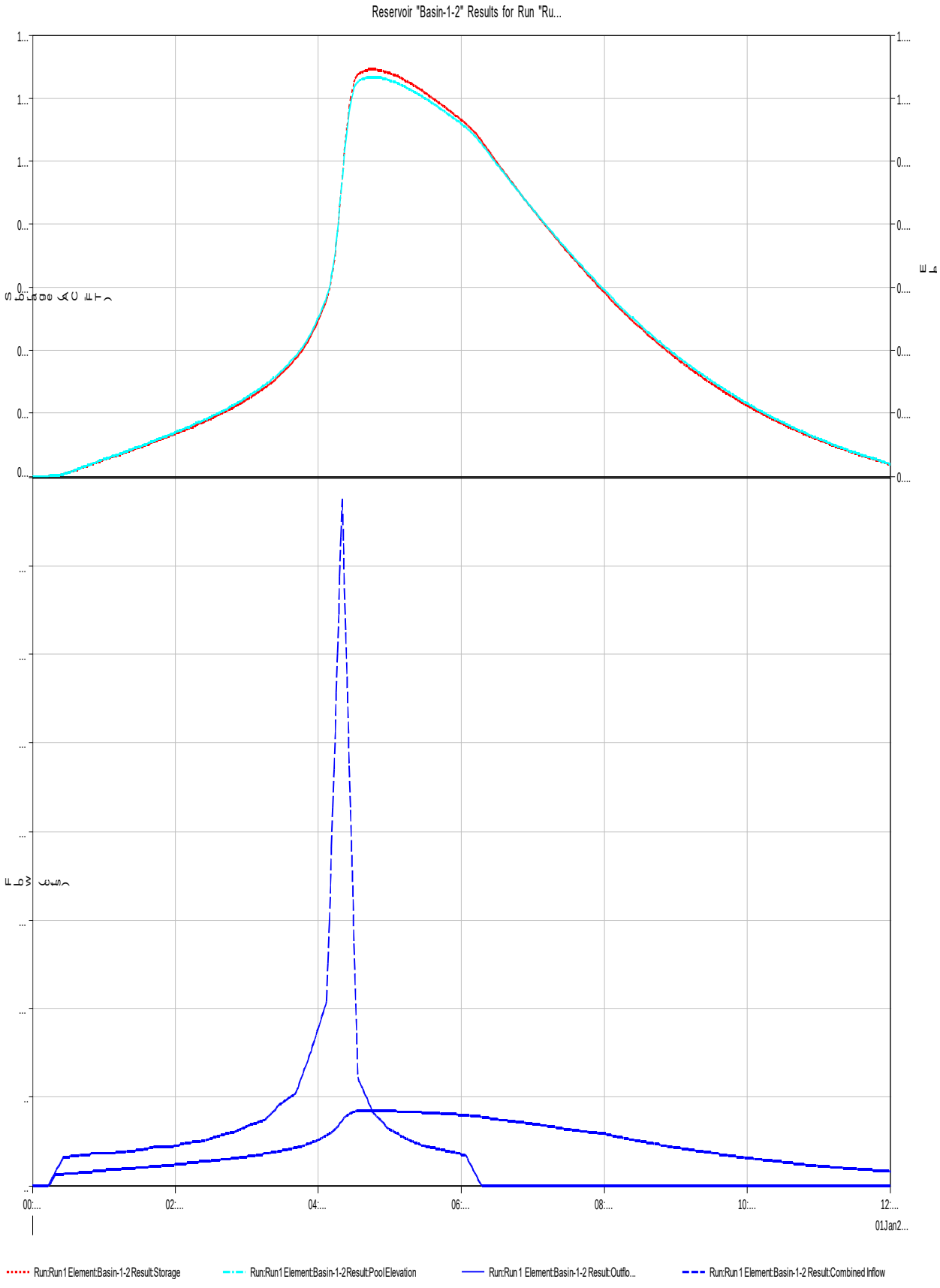
Reservoir: Basin-1-2

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	38.8 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:20
Peak Discharge:	4.2 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 04:45
Inflow Volume:	2.2 (AC-FT)	Peak Storage:	1.3 (AC-FT)
Discharge Volume:	2.2 (AC-FT)	Peak Elevation:	1.1 (FT)


Reservoir "Basin-1-2" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
Flow (CFS)
00:...
02:...
04:...
06:...
08:...
10:...
12:...
01Jan2...
Run:Run 1 Element:Basin-1-2 Result:Storage
Run:Run 1 Element:Basin-1-2 Result:Pool Elevation
Run:Run 1 Element:Basin-1-2 Result:Outflo...
Run:Run 1 Element:Basin-1-2 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-2

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ra
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	0.0	0.0	0.0	0.0
01Jan2000	00:02	0.0	0.0	0.0	0.0
01Jan2000	00:03	0.0	0.0	0.0	0.0
01Jan2000	00:04	0.0	0.0	0.0	0.0
01Jan2000	00:05	0.0	0.0	0.0	0.0
01Jan2000	00:06	0.0	0.0	0.0	0.0
01Jan2000	00:07	0.0	0.0	0.0	0.0
01Jan2000	00:08	0.0	0.0	0.0	0.0
01Jan2000	00:09	0.0	0.0	0.0	0.0
01Jan2000	00:10	0.0	0.0	0.0	0.0
01Jan2000	00:11	0.0	0.0	0.0	0.0
01Jan2000	00:12	0.0	0.0	0.0	0.0
01Jan2000	00:13	0.0	0.0	0.0	0.0
01Jan2000	00:14	0.1	0.0	0.0	0.0
01Jan2000	00:15	0.2	0.0	0.0	0.1
01Jan2000	00:16	0.4	0.0	0.0	0.2
01Jan2000	00:17	0.5	0.0	0.0	0.4
01Jan2000	00:18	0.6	0.0	0.0	0.5
01Jan2000	00:19	0.7	0.0	0.0	0.6
01Jan2000	00:20	0.9	0.0	0.0	0.6
01Jan2000	00:21	1.0	0.0	0.0	0.6
01Jan2000	00:22	1.1	0.0	0.0	0.6
01Jan2000	00:23	1.2	0.0	0.0	0.6
01Jan2000	00:24	1.4	0.0	0.0	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	1.5	0.0	0.0	0.6
01Jan2000	00:26	1.6	0.0	0.0	0.7
01Jan2000	00:27	1.6	0.0	0.0	0.7
01Jan2000	00:28	1.6	0.0	0.0	0.7
01Jan2000	00:29	1.6	0.0	0.0	0.7
01Jan2000	00:30	1.6	0.0	0.0	0.7
01Jan2000	00:31	1.6	0.0	0.0	0.7
01Jan2000	00:32	1.6	0.0	0.0	0.7
01Jan2000	00:33	1.7	0.0	0.0	0.7
01Jan2000	00:34	1.7	0.0	0.0	0.7
01Jan2000	00:35	1.7	0.0	0.0	0.7
01Jan2000	00:36	1.7	0.0	0.0	0.7
01Jan2000	00:37	1.7	0.0	0.0	0.7
01Jan2000	00:38	1.7	0.0	0.0	0.7
01Jan2000	00:39	1.7	0.0	0.0	0.7
01Jan2000	00:40	1.7	0.0	0.0	0.7
01Jan2000	00:41	1.7	0.0	0.0	0.7
01Jan2000	00:42	1.7	0.0	0.0	0.7
01Jan2000	00:43	1.7	0.0	0.0	0.7
01Jan2000	00:44	1.7	0.0	0.0	0.8
01Jan2000	00:45	1.7	0.0	0.0	0.8
01Jan2000	00:46	1.8	0.0	0.0	0.8
01Jan2000	00:47	1.8	0.0	0.0	0.8
01Jan2000	00:48	1.8	0.0	0.0	0.8
01Jan2000	00:49	1.8	0.0	0.0	0.8
01Jan2000	00:50	1.8	0.0	0.0	0.8
01Jan2000	00:51	1.8	0.0	0.0	0.8
01Jan2000	00:52	1.8	0.0	0.0	0.8
01Jan2000	00:53	1.8	0.0	0.0	0.8
01Jan2000	00:54	1.8	0.0	0.0	0.8
01Jan2000	00:55	1.8	0.0	0.0	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	1.8	0.0	0.0	0.8
01Jan2000	00:57	1.8	0.0	0.0	0.8
01Jan2000	00:58	1.8	0.0	0.0	0.8
01Jan2000	00:59	1.8	0.1	0.0	0.8
01Jan2000	01:00	1.8	0.1	0.0	0.8
01Jan2000	01:01	1.8	0.1	0.0	0.8
01Jan2000	01:02	1.8	0.1	0.0	0.9
01Jan2000	01:03	1.8	0.1	0.0	0.9
01Jan2000	01:04	1.8	0.1	0.1	0.9
01Jan2000	01:05	1.8	0.1	0.1	0.9
01Jan2000	01:06	1.8	0.1	0.1	0.9
01Jan2000	01:07	1.8	0.1	0.1	0.9
01Jan2000	01:08	1.8	0.1	0.1	0.9
01Jan2000	01:09	1.8	0.1	0.1	0.9
01Jan2000	01:10	1.8	0.1	0.1	0.9
01Jan2000	01:11	1.8	0.1	0.1	0.9
01Jan2000	01:12	1.9	0.1	0.1	0.9
01Jan2000	01:13	1.9	0.1	0.1	0.9
01Jan2000	01:14	1.9	0.1	0.1	0.9
01Jan2000	01:15	1.9	0.1	0.1	0.9
01Jan2000	01:16	1.9	0.1	0.1	0.9
01Jan2000	01:17	1.9	0.1	0.1	0.9
01Jan2000	01:18	1.9	0.1	0.1	0.9
01Jan2000	01:19	1.9	0.1	0.1	0.9
01Jan2000	01:20	1.9	0.1	0.1	1.0
01Jan2000	01:21	1.9	0.1	0.1	1.0
01Jan2000	01:22	1.9	0.1	0.1	1.0
01Jan2000	01:23	1.9	0.1	0.1	1.0
01Jan2000	01:24	1.9	0.1	0.1	1.0
01Jan2000	01:25	2.0	0.1	0.1	1.0
01Jan2000	01:26	2.0	0.1	0.1	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	2.0	0.1	0.1	1.0
01Jan2000	01:28	2.0	0.1	0.1	1.0
01Jan2000	01:29	2.0	0.1	0.1	1.0
01Jan2000	01:30	2.0	0.1	0.1	1.0
01Jan2000	01:31	2.0	0.1	0.1	1.0
01Jan2000	01:32	2.0	0.1	0.1	1.0
01Jan2000	01:33	2.0	0.1	0.1	1.0
01Jan2000	01:34	2.0	0.1	0.1	1.0
01Jan2000	01:35	2.1	0.1	0.1	1.0
01Jan2000	01:36	2.1	0.1	0.1	1.0
01Jan2000	01:37	2.1	0.1	0.1	1.0
01Jan2000	01:38	2.1	0.1	0.1	1.1
01Jan2000	01:39	2.1	0.1	0.1	1.1
01Jan2000	01:40	2.1	0.1	0.1	1.1
01Jan2000	01:41	2.2	0.1	0.1	1.1
01Jan2000	01:42	2.2	0.1	0.1	1.1
01Jan2000	01:43	2.2	0.1	0.1	1.1
01Jan2000	01:44	2.2	0.1	0.1	1.1
01Jan2000	01:45	2.2	0.1	0.1	1.1
01Jan2000	01:46	2.2	0.1	0.1	1.1
01Jan2000	01:47	2.2	0.1	0.1	1.1
01Jan2000	01:48	2.2	0.1	0.1	1.1
01Jan2000	01:49	2.2	0.1	0.1	1.1
01Jan2000	01:50	2.2	0.1	0.1	1.1
01Jan2000	01:51	2.2	0.1	0.1	1.1
01Jan2000	01:52	2.2	0.1	0.1	1.1
01Jan2000	01:53	2.2	0.1	0.1	1.1
01Jan2000	01:54	2.2	0.1	0.1	1.2
01Jan2000	01:55	2.2	0.1	0.1	1.2
01Jan2000	01:56	2.2	0.1	0.1	1.2
01Jan2000	01:57	2.2	0.1	0.1	1.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	2.2	0.1	0.1	1.2
01Jan2000	01:59	2.2	0.1	0.1	1.2
01Jan2000	02:00	2.2	0.1	0.1	1.2
01Jan2000	02:01	2.3	0.1	0.1	1.2
01Jan2000	02:02	2.3	0.1	0.1	1.2
01Jan2000	02:03	2.3	0.1	0.1	1.2
01Jan2000	02:04	2.3	0.1	0.1	1.2
01Jan2000	02:05	2.3	0.1	0.1	1.2
01Jan2000	02:06	2.3	0.1	0.1	1.2
01Jan2000	02:07	2.4	0.1	0.1	1.2
01Jan2000	02:08	2.4	0.1	0.1	1.2
01Jan2000	02:09	2.4	0.1	0.1	1.2
01Jan2000	02:10	2.4	0.2	0.1	1.2
01Jan2000	02:11	2.4	0.2	0.1	1.3
01Jan2000	02:12	2.4	0.2	0.1	1.3
01Jan2000	02:13	2.4	0.2	0.1	1.3
01Jan2000	02:14	2.4	0.2	0.1	1.3
01Jan2000	02:15	2.4	0.2	0.1	1.3
01Jan2000	02:16	2.4	0.2	0.1	1.3
01Jan2000	02:17	2.5	0.2	0.1	1.3
01Jan2000	02:18	2.5	0.2	0.1	1.3
01Jan2000	02:19	2.5	0.2	0.1	1.3
01Jan2000	02:20	2.5	0.2	0.1	1.3
01Jan2000	02:21	2.5	0.2	0.1	1.3
01Jan2000	02:22	2.5	0.2	0.1	1.3
01Jan2000	02:23	2.5	0.2	0.2	1.3
01Jan2000	02:24	2.5	0.2	0.2	1.3
01Jan2000	02:25	2.5	0.2	0.2	1.3
01Jan2000	02:26	2.6	0.2	0.2	1.4
01Jan2000	02:27	2.6	0.2	0.2	1.4
01Jan2000	02:28	2.6	0.2	0.2	1.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	2.6	0.2	0.2	1.4
01Jan2000	02:30	2.7	0.2	0.2	1.4
01Jan2000	02:31	2.7	0.2	0.2	1.4
01Jan2000	02:32	2.7	0.2	0.2	1.4
01Jan2000	02:33	2.7	0.2	0.2	1.4
01Jan2000	02:34	2.8	0.2	0.2	1.4
01Jan2000	02:35	2.8	0.2	0.2	1.4
01Jan2000	02:36	2.8	0.2	0.2	1.4
01Jan2000	02:37	2.8	0.2	0.2	1.4
01Jan2000	02:38	2.8	0.2	0.2	1.4
01Jan2000	02:39	2.8	0.2	0.2	1.5
01Jan2000	02:40	2.9	0.2	0.2	1.5
01Jan2000	02:41	2.9	0.2	0.2	1.5
01Jan2000	02:42	2.9	0.2	0.2	1.5
01Jan2000	02:43	2.9	0.2	0.2	1.5
01Jan2000	02:44	2.9	0.2	0.2	1.5
01Jan2000	02:45	2.9	0.2	0.2	1.5
01Jan2000	02:46	3.0	0.2	0.2	1.5
01Jan2000	02:47	3.0	0.2	0.2	1.5
01Jan2000	02:48	3.0	0.2	0.2	1.5
01Jan2000	02:49	3.0	0.2	0.2	1.5
01Jan2000	02:50	3.0	0.2	0.2	1.5
01Jan2000	02:51	3.1	0.2	0.2	1.5
01Jan2000	02:52	3.1	0.2	0.2	1.6
01Jan2000	02:53	3.1	0.2	0.2	1.6
01Jan2000	02:54	3.2	0.2	0.2	1.6
01Jan2000	02:55	3.2	0.2	0.2	1.6
01Jan2000	02:56	3.2	0.2	0.2	1.6
01Jan2000	02:57	3.2	0.2	0.2	1.6
01Jan2000	02:58	3.3	0.2	0.2	1.6
01Jan2000	02:59	3.3	0.2	0.2	1.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	3.3	0.2	0.2	1.6
01Jan2000	03:01	3.4	0.2	0.2	1.6
01Jan2000	03:02	3.4	0.2	0.2	1.7
01Jan2000	03:03	3.4	0.3	0.2	1.7
01Jan2000	03:04	3.4	0.3	0.2	1.7
01Jan2000	03:05	3.5	0.3	0.2	1.7
01Jan2000	03:06	3.5	0.3	0.2	1.7
01Jan2000	03:07	3.5	0.3	0.2	1.7
01Jan2000	03:08	3.5	0.3	0.2	1.7
01Jan2000	03:09	3.6	0.3	0.2	1.7
01Jan2000	03:10	3.6	0.3	0.2	1.7
01Jan2000	03:11	3.6	0.3	0.2	1.7
01Jan2000	03:12	3.6	0.3	0.2	1.8
01Jan2000	03:13	3.7	0.3	0.2	1.8
01Jan2000	03:14	3.7	0.3	0.2	1.8
01Jan2000	03:15	3.7	0.3	0.2	1.8
01Jan2000	03:16	3.8	0.3	0.3	1.8
01Jan2000	03:17	3.8	0.3	0.3	1.8
01Jan2000	03:18	3.9	0.3	0.3	1.8
01Jan2000	03:19	4.0	0.3	0.3	1.8
01Jan2000	03:20	4.0	0.3	0.3	1.8
01Jan2000	03:21	4.1	0.3	0.3	1.9
01Jan2000	03:22	4.2	0.3	0.3	1.9
01Jan2000	03:23	4.3	0.3	0.3	1.9
01Jan2000	03:24	4.3	0.3	0.3	1.9
01Jan2000	03:25	4.4	0.3	0.3	1.9
01Jan2000	03:26	4.5	0.3	0.3	1.9
01Jan2000	03:27	4.5	0.3	0.3	1.9
01Jan2000	03:28	4.6	0.3	0.3	1.9
01Jan2000	03:29	4.6	0.3	0.3	2.0
01Jan2000	03:30	4.7	0.3	0.3	2.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	4.7	0.3	0.3	2.0
01Jan2000	03:32	4.8	0.3	0.3	2.0
01Jan2000	03:33	4.8	0.3	0.3	2.0
01Jan2000	03:34	4.9	0.3	0.3	2.0
01Jan2000	03:35	4.9	0.3	0.3	2.0
01Jan2000	03:36	5.0	0.4	0.3	2.1
01Jan2000	03:37	5.0	0.4	0.3	2.1
01Jan2000	03:38	5.1	0.4	0.3	2.1
01Jan2000	03:39	5.1	0.4	0.3	2.1
01Jan2000	03:40	5.2	0.4	0.3	2.1
01Jan2000	03:41	5.2	0.4	0.3	2.1
01Jan2000	03:42	5.4	0.4	0.3	2.1
01Jan2000	03:43	5.6	0.4	0.3	2.2
01Jan2000	03:44	5.8	0.4	0.3	2.2
01Jan2000	03:45	5.9	0.4	0.3	2.2
01Jan2000	03:46	6.1	0.4	0.3	2.2
01Jan2000	03:47	6.3	0.4	0.4	2.2
01Jan2000	03:48	6.5	0.4	0.4	2.3
01Jan2000	03:49	6.7	0.4	0.4	2.3
01Jan2000	03:50	6.9	0.4	0.4	2.3
01Jan2000	03:51	7.0	0.4	0.4	2.3
01Jan2000	03:52	7.2	0.4	0.4	2.4
01Jan2000	03:53	7.4	0.4	0.4	2.4
01Jan2000	03:54	7.6	0.4	0.4	2.4
01Jan2000	03:55	7.8	0.5	0.4	2.4
01Jan2000	03:56	8.0	0.5	0.4	2.5
01Jan2000	03:57	8.2	0.5	0.4	2.5
01Jan2000	03:58	8.5	0.5	0.4	2.5
01Jan2000	03:59	8.7	0.5	0.4	2.6
01Jan2000	04:00	8.9	0.5	0.4	2.6
01Jan2000	04:01	9.1	0.5	0.4	2.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	9.3	0.5	0.4	2.7
01Jan2000	04:03	9.5	0.5	0.5	2.7
01Jan2000	04:04	9.8	0.5	0.5	2.7
01Jan2000	04:05	10.0	0.5	0.5	2.8
01Jan2000	04:06	10.2	0.6	0.5	2.8
01Jan2000	04:07	10.4	0.6	0.5	2.8
01Jan2000	04:08	12.6	0.6	0.5	2.9
01Jan2000	04:09	14.8	0.6	0.5	2.9
01Jan2000	04:10	16.9	0.6	0.5	3.0
01Jan2000	04:11	19.1	0.6	0.5	3.0
01Jan2000	04:12	21.3	0.7	0.6	3.0
01Jan2000	04:13	23.5	0.7	0.6	3.1
01Jan2000	04:14	25.7	0.7	0.6	3.2
01Jan2000	04:15	27.9	0.7	0.6	3.2
01Jan2000	04:16	30.0	0.8	0.7	3.3
01Jan2000	04:17	32.2	0.8	0.7	3.4
01Jan2000	04:18	34.4	0.9	0.7	3.5
01Jan2000	04:19	36.6	0.9	0.8	3.6
01Jan2000	04:20	38.8	0.9	0.8	3.7
01Jan2000	04:21	36.3	1.0	0.8	3.7
01Jan2000	04:22	33.8	1.0	0.9	3.8
01Jan2000	04:23	31.2	1.1	0.9	3.9
01Jan2000	04:24	28.7	1.1	0.9	3.9
01Jan2000	04:25	26.2	1.1	1.0	4.0
01Jan2000	04:26	23.7	1.2	1.0	4.0
01Jan2000	04:27	21.2	1.2	1.0	4.1
01Jan2000	04:28	18.7	1.2	1.0	4.1
01Jan2000	04:29	16.2	1.2	1.0	4.1
01Jan2000	04:30	13.6	1.3	1.1	4.2
01Jan2000	04:31	11.1	1.3	1.1	4.2
01Jan2000	04:32	8.6	1.3	1.1	4.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	6.1	1.3	1.1	4.2
01Jan2000	04:34	5.9	1.3	1.1	4.2
01Jan2000	04:35	5.8	1.3	1.1	4.2
01Jan2000	04:36	5.6	1.3	1.1	4.2
01Jan2000	04:37	5.5	1.3	1.1	4.2
01Jan2000	04:38	5.3	1.3	1.1	4.2
01Jan2000	04:39	5.2	1.3	1.1	4.2
01Jan2000	04:40	5.0	1.3	1.1	4.2
01Jan2000	04:41	4.9	1.3	1.1	4.2
01Jan2000	04:42	4.7	1.3	1.1	4.2
01Jan2000	04:43	4.6	1.3	1.1	4.2
01Jan2000	04:44	4.4	1.3	1.1	4.2
01Jan2000	04:45	4.3	1.3	1.1	4.2
01Jan2000	04:46	4.1	1.3	1.1	4.2
01Jan2000	04:47	4.0	1.3	1.1	4.2
01Jan2000	04:48	4.0	1.3	1.1	4.2
01Jan2000	04:49	3.9	1.3	1.1	4.2
01Jan2000	04:50	3.8	1.3	1.1	4.2
01Jan2000	04:51	3.8	1.3	1.1	4.2
01Jan2000	04:52	3.7	1.3	1.1	4.2
01Jan2000	04:53	3.6	1.3	1.1	4.2
01Jan2000	04:54	3.5	1.3	1.1	4.2
01Jan2000	04:55	3.5	1.3	1.1	4.2
01Jan2000	04:56	3.4	1.3	1.1	4.2
01Jan2000	04:57	3.3	1.3	1.1	4.2
01Jan2000	04:58	3.3	1.3	1.1	4.2
01Jan2000	04:59	3.2	1.3	1.1	4.2
01Jan2000	05:00	3.2	1.3	1.1	4.2
01Jan2000	05:01	3.1	1.3	1.1	4.2
01Jan2000	05:02	3.1	1.3	1.1	4.2
01Jan2000	05:03	3.0	1.3	1.1	4.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	3.0	1.3	1.1	4.2
01Jan2000	05:05	3.0	1.3	1.1	4.2
01Jan2000	05:06	2.9	1.3	1.1	4.2
01Jan2000	05:07	2.9	1.3	1.1	4.2
01Jan2000	05:08	2.9	1.3	1.1	4.2
01Jan2000	05:09	2.8	1.3	1.1	4.2
01Jan2000	05:10	2.8	1.3	1.1	4.2
01Jan2000	05:11	2.7	1.3	1.1	4.2
01Jan2000	05:12	2.7	1.3	1.1	4.2
01Jan2000	05:13	2.7	1.3	1.1	4.2
01Jan2000	05:14	2.6	1.3	1.1	4.2
01Jan2000	05:15	2.6	1.3	1.1	4.2
01Jan2000	05:16	2.6	1.2	1.1	4.2
01Jan2000	05:17	2.5	1.2	1.1	4.2
01Jan2000	05:18	2.5	1.2	1.1	4.2
01Jan2000	05:19	2.5	1.2	1.0	4.2
01Jan2000	05:20	2.5	1.2	1.0	4.2
01Jan2000	05:21	2.4	1.2	1.0	4.2
01Jan2000	05:22	2.4	1.2	1.0	4.1
01Jan2000	05:23	2.4	1.2	1.0	4.1
01Jan2000	05:24	2.3	1.2	1.0	4.1
01Jan2000	05:25	2.3	1.2	1.0	4.1
01Jan2000	05:26	2.3	1.2	1.0	4.1
01Jan2000	05:27	2.3	1.2	1.0	4.1
01Jan2000	05:28	2.3	1.2	1.0	4.1
01Jan2000	05:29	2.2	1.2	1.0	4.1
01Jan2000	05:30	2.2	1.2	1.0	4.1
01Jan2000	05:31	2.2	1.2	1.0	4.1
01Jan2000	05:32	2.2	1.2	1.0	4.1
01Jan2000	05:33	2.2	1.2	1.0	4.1
01Jan2000	05:34	2.2	1.2	1.0	4.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	2.1	1.2	1.0	4.1
01Jan2000	05:36	2.1	1.2	1.0	4.1
01Jan2000	05:37	2.1	1.2	1.0	4.1
01Jan2000	05:38	2.1	1.2	1.0	4.1
01Jan2000	05:39	2.1	1.2	1.0	4.1
01Jan2000	05:40	2.1	1.2	1.0	4.1
01Jan2000	05:41	2.1	1.2	1.0	4.1
01Jan2000	05:42	2.0	1.2	1.0	4.1
01Jan2000	05:43	2.0	1.2	1.0	4.1
01Jan2000	05:44	2.0	1.2	1.0	4.1
01Jan2000	05:45	2.0	1.2	1.0	4.1
01Jan2000	05:46	2.0	1.2	1.0	4.1
01Jan2000	05:47	2.0	1.2	1.0	4.0
01Jan2000	05:48	1.9	1.2	1.0	4.0
01Jan2000	05:49	1.9	1.2	1.0	4.0
01Jan2000	05:50	1.9	1.2	1.0	4.0
01Jan2000	05:51	1.9	1.2	1.0	4.0
01Jan2000	05:52	1.9	1.2	1.0	4.0
01Jan2000	05:53	1.9	1.2	1.0	4.0
01Jan2000	05:54	1.9	1.1	1.0	4.0
01Jan2000	05:55	1.8	1.1	1.0	4.0
01Jan2000	05:56	1.8	1.1	1.0	4.0
01Jan2000	05:57	1.8	1.1	1.0	4.0
01Jan2000	05:58	1.8	1.1	1.0	4.0
01Jan2000	05:59	1.8	1.1	1.0	4.0
01Jan2000	06:00	1.8	1.1	1.0	4.0
01Jan2000	06:01	1.7	1.1	1.0	4.0
01Jan2000	06:02	1.7	1.1	1.0	4.0
01Jan2000	06:03	1.7	1.1	1.0	4.0
01Jan2000	06:04	1.7	1.1	0.9	4.0
01Jan2000	06:05	1.6	1.1	0.9	4.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	1.4	1.1	0.9	3.9
01Jan2000	06:07	1.3	1.1	0.9	3.9
01Jan2000	06:08	1.2	1.1	0.9	3.9
01Jan2000	06:09	1.0	1.1	0.9	3.9
01Jan2000	06:10	0.9	1.1	0.9	3.9
01Jan2000	06:11	0.8	1.1	0.9	3.9
01Jan2000	06:12	0.7	1.1	0.9	3.9
01Jan2000	06:13	0.5	1.1	0.9	3.9
01Jan2000	06:14	0.4	1.1	0.9	3.9
01Jan2000	06:15	0.3	1.1	0.9	3.9
01Jan2000	06:16	0.1	1.1	0.9	3.9
01Jan2000	06:17	0.0	1.1	0.9	3.9
01Jan2000	06:18	0.0	1.1	0.9	3.9
01Jan2000	06:19	0.0	1.1	0.9	3.8
01Jan2000	06:20	0.0	1.0	0.9	3.8
01Jan2000	06:21	0.0	1.0	0.9	3.8
01Jan2000	06:22	0.0	1.0	0.9	3.8
01Jan2000	06:23	0.0	1.0	0.9	3.8
01Jan2000	06:24	0.0	1.0	0.9	3.8
01Jan2000	06:25	0.0	1.0	0.9	3.8
01Jan2000	06:26	0.0	1.0	0.9	3.8
01Jan2000	06:27	0.0	1.0	0.9	3.8
01Jan2000	06:28	0.0	1.0	0.9	3.8
01Jan2000	06:29	0.0	1.0	0.9	3.8
01Jan2000	06:30	0.0	1.0	0.8	3.7
01Jan2000	06:31	0.0	1.0	0.8	3.7
01Jan2000	06:32	0.0	1.0	0.8	3.7
01Jan2000	06:33	0.0	1.0	0.8	3.7
01Jan2000	06:34	0.0	1.0	0.8	3.7
01Jan2000	06:35	0.0	1.0	0.8	3.7
01Jan2000	06:36	0.0	1.0	0.8	3.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	1.0	0.8	3.7
01Jan2000	06:38	0.0	1.0	0.8	3.7
01Jan2000	06:39	0.0	0.9	0.8	3.7
01Jan2000	06:40	0.0	0.9	0.8	3.7
01Jan2000	06:41	0.0	0.9	0.8	3.6
01Jan2000	06:42	0.0	0.9	0.8	3.6
01Jan2000	06:43	0.0	0.9	0.8	3.6
01Jan2000	06:44	0.0	0.9	0.8	3.6
01Jan2000	06:45	0.0	0.9	0.8	3.6
01Jan2000	06:46	0.0	0.9	0.8	3.6
01Jan2000	06:47	0.0	0.9	0.8	3.6
01Jan2000	06:48	0.0	0.9	0.8	3.6
01Jan2000	06:49	0.0	0.9	0.8	3.6
01Jan2000	06:50	0.0	0.9	0.8	3.6
01Jan2000	06:51	0.0	0.9	0.8	3.6
01Jan2000	06:52	0.0	0.9	0.8	3.6
01Jan2000	06:53	0.0	0.9	0.8	3.5
01Jan2000	06:54	0.0	0.9	0.8	3.5
01Jan2000	06:55	0.0	0.9	0.7	3.5
01Jan2000	06:56	0.0	0.9	0.7	3.5
01Jan2000	06:57	0.0	0.9	0.7	3.5
01Jan2000	06:58	0.0	0.9	0.7	3.5
01Jan2000	06:59	0.0	0.9	0.7	3.5
01Jan2000	07:00	0.0	0.8	0.7	3.5
01Jan2000	07:01	0.0	0.8	0.7	3.5
01Jan2000	07:02	0.0	0.8	0.7	3.5
01Jan2000	07:03	0.0	0.8	0.7	3.4
01Jan2000	07:04	0.0	0.8	0.7	3.4
01Jan2000	07:05	0.0	0.8	0.7	3.4
01Jan2000	07:06	0.0	0.8	0.7	3.4
01Jan2000	07:07	0.0	0.8	0.7	3.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	0.8	0.7	3.4
01Jan2000	07:09	0.0	0.8	0.7	3.4
01Jan2000	07:10	0.0	0.8	0.7	3.4
01Jan2000	07:11	0.0	0.8	0.7	3.4
01Jan2000	07:12	0.0	0.8	0.7	3.4
01Jan2000	07:13	0.0	0.8	0.7	3.3
01Jan2000	07:14	0.0	0.8	0.7	3.3
01Jan2000	07:15	0.0	0.8	0.7	3.3
01Jan2000	07:16	0.0	0.8	0.7	3.3
01Jan2000	07:17	0.0	0.8	0.7	3.3
01Jan2000	07:18	0.0	0.8	0.7	3.3
01Jan2000	07:19	0.0	0.8	0.7	3.3
01Jan2000	07:20	0.0	0.8	0.6	3.3
01Jan2000	07:21	0.0	0.7	0.6	3.3
01Jan2000	07:22	0.0	0.7	0.6	3.3
01Jan2000	07:23	0.0	0.7	0.6	3.2
01Jan2000	07:24	0.0	0.7	0.6	3.2
01Jan2000	07:25	0.0	0.7	0.6	3.2
01Jan2000	07:26	0.0	0.7	0.6	3.2
01Jan2000	07:27	0.0	0.7	0.6	3.2
01Jan2000	07:28	0.0	0.7	0.6	3.2
01Jan2000	07:29	0.0	0.7	0.6	3.2
01Jan2000	07:30	0.0	0.7	0.6	3.2
01Jan2000	07:31	0.0	0.7	0.6	3.2
01Jan2000	07:32	0.0	0.7	0.6	3.2
01Jan2000	07:33	0.0	0.7	0.6	3.1
01Jan2000	07:34	0.0	0.7	0.6	3.1
01Jan2000	07:35	0.0	0.7	0.6	3.1
01Jan2000	07:36	0.0	0.7	0.6	3.1
01Jan2000	07:37	0.0	0.7	0.6	3.1
01Jan2000	07:38	0.0	0.7	0.6	3.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	0.7	0.6	3.1
01Jan2000	07:40	0.0	0.7	0.6	3.1
01Jan2000	07:41	0.0	0.7	0.6	3.1
01Jan2000	07:42	0.0	0.7	0.6	3.1
01Jan2000	07:43	0.0	0.7	0.6	3.1
01Jan2000	07:44	0.0	0.6	0.6	3.0
01Jan2000	07:45	0.0	0.6	0.6	3.0
01Jan2000	07:46	0.0	0.6	0.6	3.0
01Jan2000	07:47	0.0	0.6	0.6	3.0
01Jan2000	07:48	0.0	0.6	0.5	3.0
01Jan2000	07:49	0.0	0.6	0.5	3.0
01Jan2000	07:50	0.0	0.6	0.5	3.0
01Jan2000	07:51	0.0	0.6	0.5	3.0
01Jan2000	07:52	0.0	0.6	0.5	3.0
01Jan2000	07:53	0.0	0.6	0.5	3.0
01Jan2000	07:54	0.0	0.6	0.5	3.0
01Jan2000	07:55	0.0	0.6	0.5	2.9
01Jan2000	07:56	0.0	0.6	0.5	2.9
01Jan2000	07:57	0.0	0.6	0.5	2.9
01Jan2000	07:58	0.0	0.6	0.5	2.9
01Jan2000	07:59	0.0	0.6	0.5	2.9
01Jan2000	08:00	0.0	0.6	0.5	2.9
01Jan2000	08:01	0.0	0.6	0.5	2.9
01Jan2000	08:02	0.0	0.6	0.5	2.9
01Jan2000	08:03	0.0	0.6	0.5	2.9
01Jan2000	08:04	0.0	0.6	0.5	2.9
01Jan2000	08:05	0.0	0.6	0.5	2.8
01Jan2000	08:06	0.0	0.6	0.5	2.8
01Jan2000	08:07	0.0	0.6	0.5	2.8
01Jan2000	08:08	0.0	0.6	0.5	2.8
01Jan2000	08:09	0.0	0.5	0.5	2.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	0.5	0.5	2.8
01Jan2000	08:11	0.0	0.5	0.5	2.8
01Jan2000	08:12	0.0	0.5	0.5	2.7
01Jan2000	08:13	0.0	0.5	0.5	2.7
01Jan2000	08:14	0.0	0.5	0.5	2.7
01Jan2000	08:15	0.0	0.5	0.5	2.7
01Jan2000	08:16	0.0	0.5	0.5	2.7
01Jan2000	08:17	0.0	0.5	0.5	2.7
01Jan2000	08:18	0.0	0.5	0.4	2.7
01Jan2000	08:19	0.0	0.5	0.4	2.6
01Jan2000	08:20	0.0	0.5	0.4	2.6
01Jan2000	08:21	0.0	0.5	0.4	2.6
01Jan2000	08:22	0.0	0.5	0.4	2.6
01Jan2000	08:23	0.0	0.5	0.4	2.6
01Jan2000	08:24	0.0	0.5	0.4	2.6
01Jan2000	08:25	0.0	0.5	0.4	2.6
01Jan2000	08:26	0.0	0.5	0.4	2.5
01Jan2000	08:27	0.0	0.5	0.4	2.5
01Jan2000	08:28	0.0	0.5	0.4	2.5
01Jan2000	08:29	0.0	0.5	0.4	2.5
01Jan2000	08:30	0.0	0.5	0.4	2.5
01Jan2000	08:31	0.0	0.5	0.4	2.5
01Jan2000	08:32	0.0	0.5	0.4	2.5
01Jan2000	08:33	0.0	0.5	0.4	2.5
01Jan2000	08:34	0.0	0.5	0.4	2.4
01Jan2000	08:35	0.0	0.5	0.4	2.4
01Jan2000	08:36	0.0	0.5	0.4	2.4
01Jan2000	08:37	0.0	0.4	0.4	2.4
01Jan2000	08:38	0.0	0.4	0.4	2.4
01Jan2000	08:39	0.0	0.4	0.4	2.4
01Jan2000	08:40	0.0	0.4	0.4	2.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	0.4	0.4	2.4
01Jan2000	08:42	0.0	0.4	0.4	2.3
01Jan2000	08:43	0.0	0.4	0.4	2.3
01Jan2000	08:44	0.0	0.4	0.4	2.3
01Jan2000	08:45	0.0	0.4	0.4	2.3
01Jan2000	08:46	0.0	0.4	0.4	2.3
01Jan2000	08:47	0.0	0.4	0.4	2.3
01Jan2000	08:48	0.0	0.4	0.4	2.3
01Jan2000	08:49	0.0	0.4	0.4	2.3
01Jan2000	08:50	0.0	0.4	0.4	2.3
01Jan2000	08:51	0.0	0.4	0.4	2.2
01Jan2000	08:52	0.0	0.4	0.4	2.2
01Jan2000	08:53	0.0	0.4	0.3	2.2
01Jan2000	08:54	0.0	0.4	0.3	2.2
01Jan2000	08:55	0.0	0.4	0.3	2.2
01Jan2000	08:56	0.0	0.4	0.3	2.2
01Jan2000	08:57	0.0	0.4	0.3	2.2
01Jan2000	08:58	0.0	0.4	0.3	2.2
01Jan2000	08:59	0.0	0.4	0.3	2.2
01Jan2000	09:00	0.0	0.4	0.3	2.1
01Jan2000	09:01	0.0	0.4	0.3	2.1
01Jan2000	09:02	0.0	0.4	0.3	2.1
01Jan2000	09:03	0.0	0.4	0.3	2.1
01Jan2000	09:04	0.0	0.4	0.3	2.1
01Jan2000	09:05	0.0	0.4	0.3	2.1
01Jan2000	09:06	0.0	0.4	0.3	2.1
01Jan2000	09:07	0.0	0.4	0.3	2.1
01Jan2000	09:08	0.0	0.4	0.3	2.1
01Jan2000	09:09	0.0	0.4	0.3	2.0
01Jan2000	09:10	0.0	0.3	0.3	2.0
01Jan2000	09:11	0.0	0.3	0.3	2.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	0.3	0.3	2.0
01Jan2000	09:13	0.0	0.3	0.3	2.0
01Jan2000	09:14	0.0	0.3	0.3	2.0
01Jan2000	09:15	0.0	0.3	0.3	2.0
01Jan2000	09:16	0.0	0.3	0.3	2.0
01Jan2000	09:17	0.0	0.3	0.3	2.0
01Jan2000	09:18	0.0	0.3	0.3	2.0
01Jan2000	09:19	0.0	0.3	0.3	1.9
01Jan2000	09:20	0.0	0.3	0.3	1.9
01Jan2000	09:21	0.0	0.3	0.3	1.9
01Jan2000	09:22	0.0	0.3	0.3	1.9
01Jan2000	09:23	0.0	0.3	0.3	1.9
01Jan2000	09:24	0.0	0.3	0.3	1.9
01Jan2000	09:25	0.0	0.3	0.3	1.9
01Jan2000	09:26	0.0	0.3	0.3	1.9
01Jan2000	09:27	0.0	0.3	0.3	1.9
01Jan2000	09:28	0.0	0.3	0.3	1.9
01Jan2000	09:29	0.0	0.3	0.3	1.8
01Jan2000	09:30	0.0	0.3	0.3	1.8
01Jan2000	09:31	0.0	0.3	0.3	1.8
01Jan2000	09:32	0.0	0.3	0.3	1.8
01Jan2000	09:33	0.0	0.3	0.3	1.8
01Jan2000	09:34	0.0	0.3	0.3	1.8
01Jan2000	09:35	0.0	0.3	0.2	1.8
01Jan2000	09:36	0.0	0.3	0.2	1.8
01Jan2000	09:37	0.0	0.3	0.2	1.8
01Jan2000	09:38	0.0	0.3	0.2	1.8
01Jan2000	09:39	0.0	0.3	0.2	1.7
01Jan2000	09:40	0.0	0.3	0.2	1.7
01Jan2000	09:41	0.0	0.3	0.2	1.7
01Jan2000	09:42	0.0	0.3	0.2	1.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	0.3	0.2	1.7
01Jan2000	09:44	0.0	0.3	0.2	1.7
01Jan2000	09:45	0.0	0.3	0.2	1.7
01Jan2000	09:46	0.0	0.3	0.2	1.7
01Jan2000	09:47	0.0	0.3	0.2	1.7
01Jan2000	09:48	0.0	0.3	0.2	1.7
01Jan2000	09:49	0.0	0.2	0.2	1.7
01Jan2000	09:50	0.0	0.2	0.2	1.6
01Jan2000	09:51	0.0	0.2	0.2	1.6
01Jan2000	09:52	0.0	0.2	0.2	1.6
01Jan2000	09:53	0.0	0.2	0.2	1.6
01Jan2000	09:54	0.0	0.2	0.2	1.6
01Jan2000	09:55	0.0	0.2	0.2	1.6
01Jan2000	09:56	0.0	0.2	0.2	1.6
01Jan2000	09:57	0.0	0.2	0.2	1.6
01Jan2000	09:58	0.0	0.2	0.2	1.6
01Jan2000	09:59	0.0	0.2	0.2	1.6
01Jan2000	10:00	0.0	0.2	0.2	1.6
01Jan2000	10:01	0.0	0.2	0.2	1.5
01Jan2000	10:02	0.0	0.2	0.2	1.5
01Jan2000	10:03	0.0	0.2	0.2	1.5
01Jan2000	10:04	0.0	0.2	0.2	1.5
01Jan2000	10:05	0.0	0.2	0.2	1.5
01Jan2000	10:06	0.0	0.2	0.2	1.5
01Jan2000	10:07	0.0	0.2	0.2	1.5
01Jan2000	10:08	0.0	0.2	0.2	1.5
01Jan2000	10:09	0.0	0.2	0.2	1.5
01Jan2000	10:10	0.0	0.2	0.2	1.5
01Jan2000	10:11	0.0	0.2	0.2	1.5
01Jan2000	10:12	0.0	0.2	0.2	1.5
01Jan2000	10:13	0.0	0.2	0.2	1.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	0.2	0.2	1.4
01Jan2000	10:15	0.0	0.2	0.2	1.4
01Jan2000	10:16	0.0	0.2	0.2	1.4
01Jan2000	10:17	0.0	0.2	0.2	1.4
01Jan2000	10:18	0.0	0.2	0.2	1.4
01Jan2000	10:19	0.0	0.2	0.2	1.4
01Jan2000	10:20	0.0	0.2	0.2	1.4
01Jan2000	10:21	0.0	0.2	0.2	1.4
01Jan2000	10:22	0.0	0.2	0.2	1.4
01Jan2000	10:23	0.0	0.2	0.2	1.4
01Jan2000	10:24	0.0	0.2	0.2	1.4
01Jan2000	10:25	0.0	0.2	0.2	1.3
01Jan2000	10:26	0.0	0.2	0.2	1.3
01Jan2000	10:27	0.0	0.2	0.2	1.3
01Jan2000	10:28	0.0	0.2	0.1	1.3
01Jan2000	10:29	0.0	0.2	0.1	1.3
01Jan2000	10:30	0.0	0.2	0.1	1.3
01Jan2000	10:31	0.0	0.2	0.1	1.3
01Jan2000	10:32	0.0	0.2	0.1	1.3
01Jan2000	10:33	0.0	0.2	0.1	1.3
01Jan2000	10:34	0.0	0.2	0.1	1.3
01Jan2000	10:35	0.0	0.2	0.1	1.3
01Jan2000	10:36	0.0	0.2	0.1	1.3
01Jan2000	10:37	0.0	0.2	0.1	1.3
01Jan2000	10:38	0.0	0.2	0.1	1.3
01Jan2000	10:39	0.0	0.1	0.1	1.2
01Jan2000	10:40	0.0	0.1	0.1	1.2
01Jan2000	10:41	0.0	0.1	0.1	1.2
01Jan2000	10:42	0.0	0.1	0.1	1.2
01Jan2000	10:43	0.0	0.1	0.1	1.2
01Jan2000	10:44	0.0	0.1	0.1	1.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	0.1	0.1	1.2
01Jan2000	10:46	0.0	0.1	0.1	1.2
01Jan2000	10:47	0.0	0.1	0.1	1.2
01Jan2000	10:48	0.0	0.1	0.1	1.2
01Jan2000	10:49	0.0	0.1	0.1	1.2
01Jan2000	10:50	0.0	0.1	0.1	1.2
01Jan2000	10:51	0.0	0.1	0.1	1.2
01Jan2000	10:52	0.0	0.1	0.1	1.2
01Jan2000	10:53	0.0	0.1	0.1	1.1
01Jan2000	10:54	0.0	0.1	0.1	1.1
01Jan2000	10:55	0.0	0.1	0.1	1.1
01Jan2000	10:56	0.0	0.1	0.1	1.1
01Jan2000	10:57	0.0	0.1	0.1	1.1
01Jan2000	10:58	0.0	0.1	0.1	1.1
01Jan2000	10:59	0.0	0.1	0.1	1.1
01Jan2000	11:00	0.0	0.1	0.1	1.1
01Jan2000	11:01	0.0	0.1	0.1	1.1
01Jan2000	11:02	0.0	0.1	0.1	1.1
01Jan2000	11:03	0.0	0.1	0.1	1.1
01Jan2000	11:04	0.0	0.1	0.1	1.1
01Jan2000	11:05	0.0	0.1	0.1	1.1
01Jan2000	11:06	0.0	0.1	0.1	1.1
01Jan2000	11:07	0.0	0.1	0.1	1.1
01Jan2000	11:08	0.0	0.1	0.1	1.1
01Jan2000	11:09	0.0	0.1	0.1	1.0
01Jan2000	11:10	0.0	0.1	0.1	1.0
01Jan2000	11:11	0.0	0.1	0.1	1.0
01Jan2000	11:12	0.0	0.1	0.1	1.0
01Jan2000	11:13	0.0	0.1	0.1	1.0
01Jan2000	11:14	0.0	0.1	0.1	1.0
01Jan2000	11:15	0.0	0.1	0.1	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	0.1	0.1	1.0
01Jan2000	11:17	0.0	0.1	0.1	1.0
01Jan2000	11:18	0.0	0.1	0.1	1.0
01Jan2000	11:19	0.0	0.1	0.1	1.0
01Jan2000	11:20	0.0	0.1	0.1	1.0
01Jan2000	11:21	0.0	0.1	0.1	1.0
01Jan2000	11:22	0.0	0.1	0.1	1.0
01Jan2000	11:23	0.0	0.1	0.1	1.0
01Jan2000	11:24	0.0	0.1	0.1	1.0
01Jan2000	11:25	0.0	0.1	0.1	1.0
01Jan2000	11:26	0.0	0.1	0.1	1.0
01Jan2000	11:27	0.0	0.1	0.1	0.9
01Jan2000	11:28	0.0	0.1	0.1	0.9
01Jan2000	11:29	0.0	0.1	0.1	0.9
01Jan2000	11:30	0.0	0.1	0.1	0.9
01Jan2000	11:31	0.0	0.1	0.1	0.9
01Jan2000	11:32	0.0	0.1	0.1	0.9
01Jan2000	11:33	0.0	0.1	0.1	0.9
01Jan2000	11:34	0.0	0.1	0.1	0.9
01Jan2000	11:35	0.0	0.1	0.1	0.9
01Jan2000	11:36	0.0	0.1	0.1	0.9
01Jan2000	11:37	0.0	0.1	0.1	0.9
01Jan2000	11:38	0.0	0.1	0.1	0.9
01Jan2000	11:39	0.0	0.1	0.1	0.9
01Jan2000	11:40	0.0	0.1	0.1	0.9
01Jan2000	11:41	0.0	0.1	0.1	0.9
01Jan2000	11:42	0.0	0.1	0.1	0.9
01Jan2000	11:43	0.0	0.1	0.1	0.9
01Jan2000	11:44	0.0	0.1	0.0	0.9
01Jan2000	11:45	0.0	0.1	0.0	0.9
01Jan2000	11:46	0.0	0.1	0.0	0.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	0.1	0.0	0.8
01Jan2000	11:48	0.0	0.1	0.0	0.8
01Jan2000	11:49	0.0	0.1	0.0	0.8
01Jan2000	11:50	0.0	0.0	0.0	0.8
01Jan2000	11:51	0.0	0.0	0.0	0.8
01Jan2000	11:52	0.0	0.0	0.0	0.8
01Jan2000	11:53	0.0	0.0	0.0	0.8
01Jan2000	11:54	0.0	0.0	0.0	0.8
01Jan2000	11:55	0.0	0.0	0.0	0.8
01Jan2000	11:56	0.0	0.0	0.0	0.8
01Jan2000	11:57	0.0	0.0	0.0	0.8
01Jan2000	11:58	0.0	0.0	0.0	0.8
01Jan2000	11:59	0.0	0.0	0.0	0.8
01Jan2000	12:00	0.0	0.0	0.0	0.8

Project: Fanita Ranch Simulation Run: Run 1

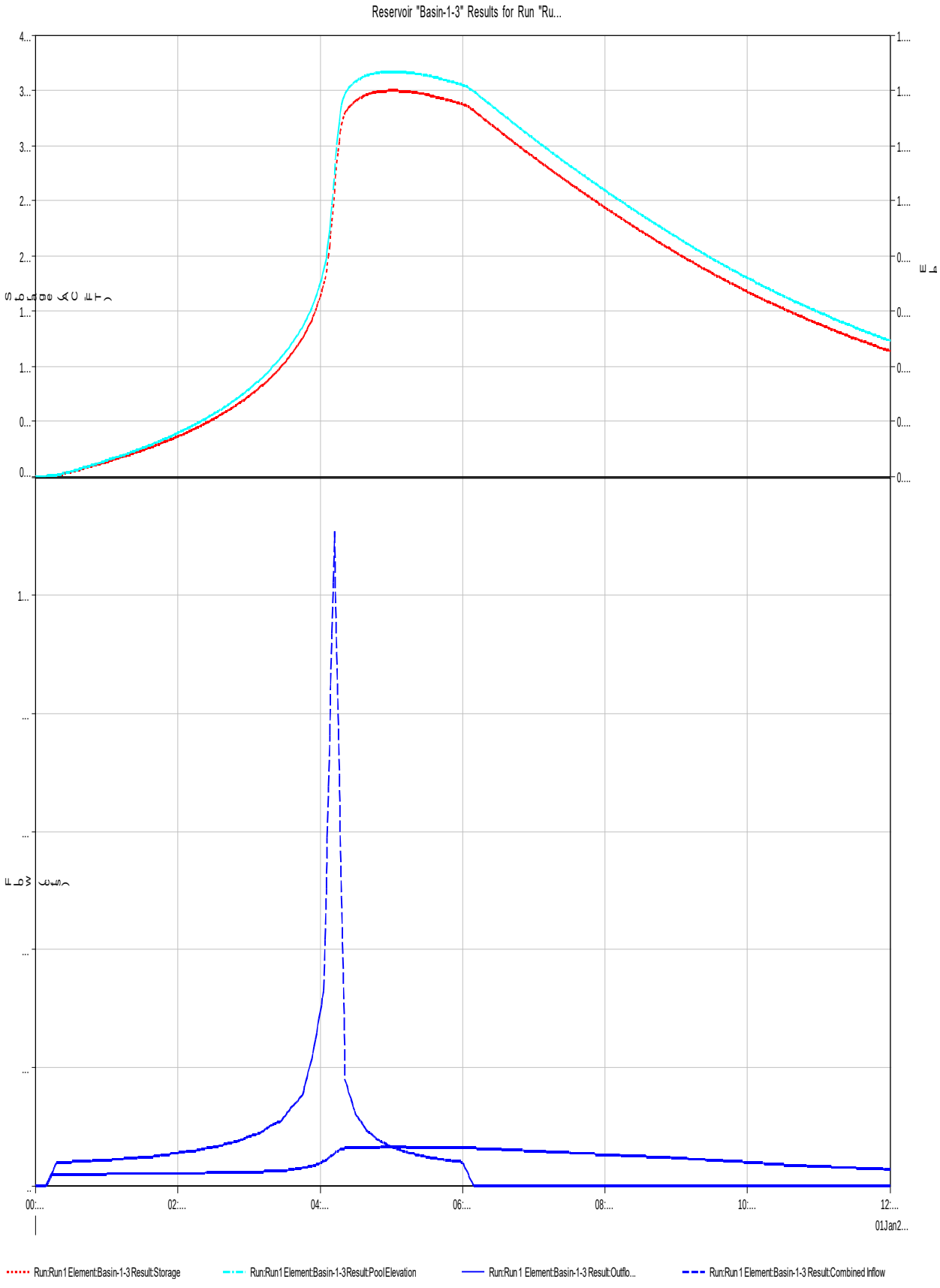
Reservoir: Basin-1-3

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	110.9 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:12
Peak Discharge:	6.5 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 05:01
Inflow Volume:	5.1 (AC-FT)	Peak Storage:	3.5 (AC-FT)
Discharge Volume:	4.0 (AC-FT)	Peak Elevation:	1.7 (FT)


Reservoir "Basin-1-3" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
Flow (CFS)
00:...
02:....
04:....
06:....
08:....
10:....
12:....
01Jan2...
Run:Run 1 Element:Basin-1-3 Result:Storage
Run:Run 1 Element:Basin-1-3 Result:Pool Elevation
Run:Run 1 Element:Basin-1-3 Result:Outflo...
Run:Run 1 Element:Basin-1-3 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-3

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ra
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	0.0	0.0	0.0	0.0
01Jan2000	00:02	0.0	0.0	0.0	0.0
01Jan2000	00:03	0.0	0.0	0.0	0.0
01Jan2000	00:04	0.0	0.0	0.0	0.0
01Jan2000	00:05	0.0	0.0	0.0	0.0
01Jan2000	00:06	0.0	0.0	0.0	0.0
01Jan2000	00:07	0.0	0.0	0.0	0.0
01Jan2000	00:08	0.0	0.0	0.0	0.0
01Jan2000	00:09	0.0	0.0	0.0	0.0
01Jan2000	00:10	0.4	0.0	0.0	0.2
01Jan2000	00:11	0.8	0.0	0.0	0.5
01Jan2000	00:12	1.3	0.0	0.0	0.9
01Jan2000	00:13	1.7	0.0	0.0	1.4
01Jan2000	00:14	2.1	0.0	0.0	1.8
01Jan2000	00:15	2.5	0.0	0.0	1.9
01Jan2000	00:16	3.0	0.0	0.0	1.9
01Jan2000	00:17	3.4	0.0	0.0	1.9
01Jan2000	00:18	3.8	0.0	0.0	1.9
01Jan2000	00:19	3.8	0.0	0.0	1.9
01Jan2000	00:20	3.8	0.0	0.0	1.9
01Jan2000	00:21	3.8	0.0	0.0	1.9
01Jan2000	00:22	3.8	0.0	0.0	1.9
01Jan2000	00:23	3.9	0.0	0.0	1.9
01Jan2000	00:24	3.9	0.0	0.0	1.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	3.9	0.0	0.0	1.9
01Jan2000	00:26	3.9	0.0	0.0	1.9
01Jan2000	00:27	3.9	0.0	0.0	1.9
01Jan2000	00:28	3.9	0.0	0.0	1.9
01Jan2000	00:29	3.9	0.0	0.0	1.9
01Jan2000	00:30	3.9	0.0	0.0	1.9
01Jan2000	00:31	3.9	0.0	0.0	1.9
01Jan2000	00:32	4.0	0.0	0.0	1.9
01Jan2000	00:33	4.0	0.0	0.0	1.9
01Jan2000	00:34	4.0	0.1	0.0	1.9
01Jan2000	00:35	4.0	0.1	0.0	1.9
01Jan2000	00:36	4.0	0.1	0.0	1.9
01Jan2000	00:37	4.0	0.1	0.0	1.9
01Jan2000	00:38	4.0	0.1	0.0	1.9
01Jan2000	00:39	4.0	0.1	0.0	1.9
01Jan2000	00:40	4.0	0.1	0.0	1.9
01Jan2000	00:41	4.1	0.1	0.0	1.9
01Jan2000	00:42	4.1	0.1	0.0	1.9
01Jan2000	00:43	4.1	0.1	0.0	1.9
01Jan2000	00:44	4.1	0.1	0.0	1.9
01Jan2000	00:45	4.1	0.1	0.0	1.9
01Jan2000	00:46	4.1	0.1	0.0	1.9
01Jan2000	00:47	4.1	0.1	0.0	1.9
01Jan2000	00:48	4.1	0.1	0.0	1.9
01Jan2000	00:49	4.1	0.1	0.0	1.9
01Jan2000	00:50	4.2	0.1	0.0	1.9
01Jan2000	00:51	4.2	0.1	0.0	2.0
01Jan2000	00:52	4.2	0.1	0.1	2.0
01Jan2000	00:53	4.2	0.1	0.1	2.0
01Jan2000	00:54	4.2	0.1	0.1	2.0
01Jan2000	00:55	4.2	0.1	0.1	2.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	4.2	0.1	0.1	2.0
01Jan2000	00:57	4.2	0.1	0.1	2.0
01Jan2000	00:58	4.2	0.1	0.1	2.0
01Jan2000	00:59	4.3	0.1	0.1	2.0
01Jan2000	01:00	4.3	0.1	0.1	2.0
01Jan2000	01:01	4.3	0.1	0.1	2.0
01Jan2000	01:02	4.3	0.1	0.1	2.0
01Jan2000	01:03	4.3	0.1	0.1	2.0
01Jan2000	01:04	4.3	0.1	0.1	2.0
01Jan2000	01:05	4.3	0.1	0.1	2.0
01Jan2000	01:06	4.4	0.1	0.1	2.0
01Jan2000	01:07	4.4	0.2	0.1	2.0
01Jan2000	01:08	4.4	0.2	0.1	2.0
01Jan2000	01:09	4.4	0.2	0.1	2.0
01Jan2000	01:10	4.5	0.2	0.1	2.0
01Jan2000	01:11	4.5	0.2	0.1	2.0
01Jan2000	01:12	4.5	0.2	0.1	2.0
01Jan2000	01:13	4.5	0.2	0.1	2.0
01Jan2000	01:14	4.5	0.2	0.1	2.0
01Jan2000	01:15	4.5	0.2	0.1	2.0
01Jan2000	01:16	4.5	0.2	0.1	2.0
01Jan2000	01:17	4.6	0.2	0.1	2.0
01Jan2000	01:18	4.6	0.2	0.1	2.0
01Jan2000	01:19	4.6	0.2	0.1	2.0
01Jan2000	01:20	4.6	0.2	0.1	2.0
01Jan2000	01:21	4.6	0.2	0.1	2.0
01Jan2000	01:22	4.6	0.2	0.1	2.0
01Jan2000	01:23	4.6	0.2	0.1	2.0
01Jan2000	01:24	4.7	0.2	0.1	2.0
01Jan2000	01:25	4.7	0.2	0.1	2.0
01Jan2000	01:26	4.7	0.2	0.1	2.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	4.7	0.2	0.1	2.0
01Jan2000	01:28	4.8	0.2	0.1	2.0
01Jan2000	01:29	4.8	0.2	0.1	2.0
01Jan2000	01:30	4.8	0.2	0.1	2.0
01Jan2000	01:31	4.8	0.2	0.1	2.0
01Jan2000	01:32	4.8	0.2	0.1	2.0
01Jan2000	01:33	4.8	0.2	0.1	2.0
01Jan2000	01:34	4.8	0.2	0.1	2.0
01Jan2000	01:35	4.9	0.3	0.1	2.0
01Jan2000	01:36	4.9	0.3	0.1	2.0
01Jan2000	01:37	4.9	0.3	0.1	2.0
01Jan2000	01:38	4.9	0.3	0.1	2.0
01Jan2000	01:39	4.9	0.3	0.1	2.0
01Jan2000	01:40	4.9	0.3	0.1	2.0
01Jan2000	01:41	5.0	0.3	0.1	2.0
01Jan2000	01:42	5.0	0.3	0.1	2.1
01Jan2000	01:43	5.0	0.3	0.1	2.1
01Jan2000	01:44	5.1	0.3	0.1	2.1
01Jan2000	01:45	5.1	0.3	0.1	2.1
01Jan2000	01:46	5.1	0.3	0.1	2.1
01Jan2000	01:47	5.2	0.3	0.1	2.1
01Jan2000	01:48	5.2	0.3	0.1	2.1
01Jan2000	01:49	5.2	0.3	0.2	2.1
01Jan2000	01:50	5.2	0.3	0.2	2.1
01Jan2000	01:51	5.3	0.3	0.2	2.1
01Jan2000	01:52	5.3	0.3	0.2	2.1
01Jan2000	01:53	5.3	0.3	0.2	2.1
01Jan2000	01:54	5.3	0.3	0.2	2.1
01Jan2000	01:55	5.4	0.3	0.2	2.1
01Jan2000	01:56	5.4	0.3	0.2	2.1
01Jan2000	01:57	5.4	0.3	0.2	2.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	5.4	0.4	0.2	2.1
01Jan2000	01:59	5.5	0.4	0.2	2.1
01Jan2000	02:00	5.5	0.4	0.2	2.1
01Jan2000	02:01	5.5	0.4	0.2	2.1
01Jan2000	02:02	5.6	0.4	0.2	2.1
01Jan2000	02:03	5.6	0.4	0.2	2.1
01Jan2000	02:04	5.6	0.4	0.2	2.1
01Jan2000	02:05	5.7	0.4	0.2	2.1
01Jan2000	02:06	5.7	0.4	0.2	2.1
01Jan2000	02:07	5.7	0.4	0.2	2.1
01Jan2000	02:08	5.7	0.4	0.2	2.1
01Jan2000	02:09	5.8	0.4	0.2	2.1
01Jan2000	02:10	5.8	0.4	0.2	2.1
01Jan2000	02:11	5.8	0.4	0.2	2.1
01Jan2000	02:12	5.8	0.4	0.2	2.1
01Jan2000	02:13	5.9	0.4	0.2	2.1
01Jan2000	02:14	5.9	0.4	0.2	2.1
01Jan2000	02:15	5.9	0.4	0.2	2.1
01Jan2000	02:16	5.9	0.4	0.2	2.1
01Jan2000	02:17	6.0	0.4	0.2	2.1
01Jan2000	02:18	6.0	0.4	0.2	2.1
01Jan2000	02:19	6.1	0.5	0.2	2.1
01Jan2000	02:20	6.1	0.5	0.2	2.2
01Jan2000	02:21	6.2	0.5	0.2	2.2
01Jan2000	02:22	6.2	0.5	0.2	2.2
01Jan2000	02:23	6.3	0.5	0.2	2.2
01Jan2000	02:24	6.3	0.5	0.2	2.2
01Jan2000	02:25	6.3	0.5	0.2	2.2
01Jan2000	02:26	6.4	0.5	0.2	2.2
01Jan2000	02:27	6.4	0.5	0.2	2.2
01Jan2000	02:28	6.4	0.5	0.2	2.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	6.5	0.5	0.3	2.2
01Jan2000	02:30	6.5	0.5	0.3	2.2
01Jan2000	02:31	6.5	0.5	0.3	2.2
01Jan2000	02:32	6.6	0.5	0.3	2.2
01Jan2000	02:33	6.6	0.5	0.3	2.2
01Jan2000	02:34	6.7	0.5	0.3	2.2
01Jan2000	02:35	6.7	0.5	0.3	2.2
01Jan2000	02:36	6.8	0.6	0.3	2.2
01Jan2000	02:37	6.8	0.6	0.3	2.2
01Jan2000	02:38	6.9	0.6	0.3	2.2
01Jan2000	02:39	6.9	0.6	0.3	2.2
01Jan2000	02:40	7.0	0.6	0.3	2.2
01Jan2000	02:41	7.0	0.6	0.3	2.2
01Jan2000	02:42	7.1	0.6	0.3	2.2
01Jan2000	02:43	7.1	0.6	0.3	2.2
01Jan2000	02:44	7.2	0.6	0.3	2.2
01Jan2000	02:45	7.2	0.6	0.3	2.2
01Jan2000	02:46	7.3	0.6	0.3	2.2
01Jan2000	02:47	7.3	0.6	0.3	2.2
01Jan2000	02:48	7.4	0.6	0.3	2.2
01Jan2000	02:49	7.4	0.6	0.3	2.3
01Jan2000	02:50	7.5	0.6	0.3	2.3
01Jan2000	02:51	7.5	0.7	0.3	2.3
01Jan2000	02:52	7.6	0.7	0.3	2.3
01Jan2000	02:53	7.7	0.7	0.3	2.3
01Jan2000	02:54	7.8	0.7	0.3	2.3
01Jan2000	02:55	7.9	0.7	0.3	2.3
01Jan2000	02:56	7.9	0.7	0.3	2.3
01Jan2000	02:57	8.0	0.7	0.3	2.3
01Jan2000	02:58	8.1	0.7	0.3	2.3
01Jan2000	02:59	8.2	0.7	0.4	2.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	8.3	0.7	0.4	2.3
01Jan2000	03:01	8.4	0.7	0.4	2.3
01Jan2000	03:02	8.4	0.7	0.4	2.3
01Jan2000	03:03	8.5	0.8	0.4	2.3
01Jan2000	03:04	8.5	0.8	0.4	2.3
01Jan2000	03:05	8.6	0.8	0.4	2.3
01Jan2000	03:06	8.6	0.8	0.4	2.3
01Jan2000	03:07	8.7	0.8	0.4	2.3
01Jan2000	03:08	8.7	0.8	0.4	2.3
01Jan2000	03:09	8.8	0.8	0.4	2.3
01Jan2000	03:10	8.9	0.8	0.4	2.3
01Jan2000	03:11	9.1	0.8	0.4	2.4
01Jan2000	03:12	9.2	0.8	0.4	2.4
01Jan2000	03:13	9.4	0.8	0.4	2.4
01Jan2000	03:14	9.5	0.8	0.4	2.4
01Jan2000	03:15	9.7	0.9	0.4	2.4
01Jan2000	03:16	9.8	0.9	0.4	2.4
01Jan2000	03:17	10.0	0.9	0.4	2.4
01Jan2000	03:18	10.1	0.9	0.4	2.4
01Jan2000	03:19	10.2	0.9	0.4	2.4
01Jan2000	03:20	10.3	0.9	0.4	2.4
01Jan2000	03:21	10.4	0.9	0.5	2.4
01Jan2000	03:22	10.5	0.9	0.5	2.4
01Jan2000	03:23	10.5	0.9	0.5	2.4
01Jan2000	03:24	10.6	1.0	0.5	2.4
01Jan2000	03:25	10.7	1.0	0.5	2.4
01Jan2000	03:26	10.8	1.0	0.5	2.4
01Jan2000	03:27	10.9	1.0	0.5	2.4
01Jan2000	03:28	11.2	1.0	0.5	2.5
01Jan2000	03:29	11.4	1.0	0.5	2.5
01Jan2000	03:30	11.7	1.0	0.5	2.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	12.0	1.0	0.5	2.5
01Jan2000	03:32	12.2	1.1	0.5	2.5
01Jan2000	03:33	12.5	1.1	0.5	2.6
01Jan2000	03:34	12.8	1.1	0.5	2.6
01Jan2000	03:35	13.0	1.1	0.5	2.6
01Jan2000	03:36	13.3	1.1	0.5	2.7
01Jan2000	03:37	13.5	1.1	0.5	2.7
01Jan2000	03:38	13.7	1.1	0.6	2.7
01Jan2000	03:39	13.9	1.2	0.6	2.8
01Jan2000	03:40	14.1	1.2	0.6	2.8
01Jan2000	03:41	14.4	1.2	0.6	2.8
01Jan2000	03:42	14.6	1.2	0.6	2.9
01Jan2000	03:43	14.8	1.2	0.6	2.9
01Jan2000	03:44	15.0	1.2	0.6	2.9
01Jan2000	03:45	15.2	1.3	0.6	3.0
01Jan2000	03:46	16.0	1.3	0.6	3.0
01Jan2000	03:47	16.8	1.3	0.6	3.0
01Jan2000	03:48	17.6	1.3	0.6	3.1
01Jan2000	03:49	18.4	1.3	0.6	3.1
01Jan2000	03:50	19.1	1.3	0.7	3.2
01Jan2000	03:51	19.9	1.4	0.7	3.2
01Jan2000	03:52	20.7	1.4	0.7	3.3
01Jan2000	03:53	21.5	1.4	0.7	3.3
01Jan2000	03:54	22.3	1.4	0.7	3.4
01Jan2000	03:55	23.5	1.5	0.7	3.4
01Jan2000	03:56	24.7	1.5	0.7	3.5
01Jan2000	03:57	25.9	1.5	0.7	3.6
01Jan2000	03:58	27.1	1.6	0.8	3.6
01Jan2000	03:59	28.2	1.6	0.8	3.7
01Jan2000	04:00	29.4	1.6	0.8	3.8
01Jan2000	04:01	30.6	1.7	0.8	3.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	31.8	1.7	0.8	4.0
01Jan2000	04:03	33.0	1.7	0.8	4.0
01Jan2000	04:04	41.7	1.8	0.9	4.1
01Jan2000	04:05	50.3	1.8	0.9	4.3
01Jan2000	04:06	59.0	1.9	0.9	4.4
01Jan2000	04:07	67.6	2.0	1.0	4.6
01Jan2000	04:08	76.3	2.1	1.0	4.8
01Jan2000	04:09	84.9	2.2	1.1	4.9
01Jan2000	04:10	93.6	2.3	1.1	5.1
01Jan2000	04:11	102.2	2.4	1.2	5.2
01Jan2000	04:12	110.9	2.6	1.2	5.4
01Jan2000	04:13	100.5	2.7	1.3	5.6
01Jan2000	04:14	90.2	2.8	1.4	5.7
01Jan2000	04:15	79.9	2.9	1.4	5.9
01Jan2000	04:16	69.5	3.0	1.4	6.0
01Jan2000	04:17	59.2	3.1	1.5	6.1
01Jan2000	04:18	48.9	3.2	1.5	6.2
01Jan2000	04:19	38.6	3.2	1.5	6.2
01Jan2000	04:20	28.2	3.3	1.6	6.3
01Jan2000	04:21	17.9	3.3	1.6	6.3
01Jan2000	04:22	17.2	3.3	1.6	6.3
01Jan2000	04:23	16.6	3.3	1.6	6.3
01Jan2000	04:24	15.9	3.3	1.6	6.3
01Jan2000	04:25	15.3	3.4	1.6	6.4
01Jan2000	04:26	14.6	3.4	1.6	6.4
01Jan2000	04:27	14.0	3.4	1.6	6.4
01Jan2000	04:28	13.3	3.4	1.6	6.4
01Jan2000	04:29	12.7	3.4	1.6	6.4
01Jan2000	04:30	12.0	3.4	1.6	6.4
01Jan2000	04:31	11.7	3.4	1.6	6.4
01Jan2000	04:32	11.4	3.4	1.6	6.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	11.1	3.4	1.6	6.4
01Jan2000	04:34	10.8	3.4	1.6	6.4
01Jan2000	04:35	10.6	3.4	1.6	6.4
01Jan2000	04:36	10.3	3.4	1.6	6.4
01Jan2000	04:37	10.0	3.4	1.6	6.5
01Jan2000	04:38	9.7	3.5	1.6	6.5
01Jan2000	04:39	9.4	3.5	1.6	6.5
01Jan2000	04:40	9.2	3.5	1.6	6.5
01Jan2000	04:41	9.0	3.5	1.6	6.5
01Jan2000	04:42	8.9	3.5	1.6	6.5
01Jan2000	04:43	8.7	3.5	1.6	6.5
01Jan2000	04:44	8.5	3.5	1.6	6.5
01Jan2000	04:45	8.3	3.5	1.6	6.5
01Jan2000	04:46	8.2	3.5	1.6	6.5
01Jan2000	04:47	8.0	3.5	1.6	6.5
01Jan2000	04:48	7.8	3.5	1.6	6.5
01Jan2000	04:49	7.7	3.5	1.6	6.5
01Jan2000	04:50	7.6	3.5	1.6	6.5
01Jan2000	04:51	7.5	3.5	1.6	6.5
01Jan2000	04:52	7.4	3.5	1.6	6.5
01Jan2000	04:53	7.2	3.5	1.6	6.5
01Jan2000	04:54	7.1	3.5	1.7	6.5
01Jan2000	04:55	7.0	3.5	1.7	6.5
01Jan2000	04:56	6.9	3.5	1.7	6.5
01Jan2000	04:57	6.8	3.5	1.7	6.5
01Jan2000	04:58	6.7	3.5	1.7	6.5
01Jan2000	04:59	6.6	3.5	1.7	6.5
01Jan2000	05:00	6.6	3.5	1.7	6.5
01Jan2000	05:01	6.5	3.5	1.7	6.5
01Jan2000	05:02	6.4	3.5	1.7	6.5
01Jan2000	05:03	6.3	3.5	1.7	6.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	6.3	3.5	1.7	6.5
01Jan2000	05:05	6.2	3.5	1.7	6.5
01Jan2000	05:06	6.1	3.5	1.7	6.5
01Jan2000	05:07	6.0	3.5	1.7	6.5
01Jan2000	05:08	6.0	3.5	1.7	6.5
01Jan2000	05:09	5.9	3.5	1.6	6.5
01Jan2000	05:10	5.8	3.5	1.6	6.5
01Jan2000	05:11	5.8	3.5	1.6	6.5
01Jan2000	05:12	5.7	3.5	1.6	6.5
01Jan2000	05:13	5.6	3.5	1.6	6.5
01Jan2000	05:14	5.6	3.5	1.6	6.5
01Jan2000	05:15	5.5	3.5	1.6	6.5
01Jan2000	05:16	5.5	3.5	1.6	6.5
01Jan2000	05:17	5.4	3.5	1.6	6.5
01Jan2000	05:18	5.4	3.5	1.6	6.5
01Jan2000	05:19	5.3	3.5	1.6	6.5
01Jan2000	05:20	5.3	3.5	1.6	6.5
01Jan2000	05:21	5.2	3.5	1.6	6.5
01Jan2000	05:22	5.2	3.5	1.6	6.5
01Jan2000	05:23	5.1	3.5	1.6	6.5
01Jan2000	05:24	5.1	3.5	1.6	6.5
01Jan2000	05:25	5.1	3.5	1.6	6.5
01Jan2000	05:26	5.0	3.5	1.6	6.5
01Jan2000	05:27	5.0	3.5	1.6	6.5
01Jan2000	05:28	4.9	3.5	1.6	6.5
01Jan2000	05:29	4.9	3.5	1.6	6.5
01Jan2000	05:30	4.8	3.5	1.6	6.5
01Jan2000	05:31	4.8	3.5	1.6	6.5
01Jan2000	05:32	4.7	3.5	1.6	6.5
01Jan2000	05:33	4.7	3.5	1.6	6.5
01Jan2000	05:34	4.7	3.4	1.6	6.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	4.6	3.4	1.6	6.4
01Jan2000	05:36	4.6	3.4	1.6	6.4
01Jan2000	05:37	4.6	3.4	1.6	6.4
01Jan2000	05:38	4.5	3.4	1.6	6.4
01Jan2000	05:39	4.5	3.4	1.6	6.4
01Jan2000	05:40	4.5	3.4	1.6	6.4
01Jan2000	05:41	4.4	3.4	1.6	6.4
01Jan2000	05:42	4.4	3.4	1.6	6.4
01Jan2000	05:43	4.4	3.4	1.6	6.4
01Jan2000	05:44	4.3	3.4	1.6	6.4
01Jan2000	05:45	4.3	3.4	1.6	6.4
01Jan2000	05:46	4.3	3.4	1.6	6.4
01Jan2000	05:47	4.2	3.4	1.6	6.4
01Jan2000	05:48	4.2	3.4	1.6	6.4
01Jan2000	05:49	4.2	3.4	1.6	6.4
01Jan2000	05:50	4.1	3.4	1.6	6.4
01Jan2000	05:51	4.1	3.4	1.6	6.4
01Jan2000	05:52	4.1	3.4	1.6	6.4
01Jan2000	05:53	4.1	3.4	1.6	6.4
01Jan2000	05:54	4.0	3.4	1.6	6.4
01Jan2000	05:55	4.0	3.4	1.6	6.4
01Jan2000	05:56	4.0	3.4	1.6	6.4
01Jan2000	05:57	4.0	3.4	1.6	6.4
01Jan2000	05:58	3.9	3.4	1.6	6.4
01Jan2000	05:59	3.9	3.4	1.6	6.4
01Jan2000	06:00	3.9	3.4	1.6	6.4
01Jan2000	06:01	3.5	3.4	1.6	6.4
01Jan2000	06:02	3.0	3.4	1.6	6.4
01Jan2000	06:03	2.6	3.4	1.6	6.4
01Jan2000	06:04	2.2	3.4	1.6	6.4
01Jan2000	06:05	1.7	3.3	1.6	6.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	1.3	3.3	1.6	6.3
01Jan2000	06:07	0.9	3.3	1.6	6.3
01Jan2000	06:08	0.4	3.3	1.6	6.3
01Jan2000	06:09	0.0	3.3	1.6	6.3
01Jan2000	06:10	0.0	3.3	1.6	6.3
01Jan2000	06:11	0.0	3.3	1.6	6.3
01Jan2000	06:12	0.0	3.3	1.6	6.3
01Jan2000	06:13	0.0	3.3	1.6	6.3
01Jan2000	06:14	0.0	3.3	1.6	6.3
01Jan2000	06:15	0.0	3.3	1.5	6.3
01Jan2000	06:16	0.0	3.3	1.5	6.3
01Jan2000	06:17	0.0	3.2	1.5	6.2
01Jan2000	06:18	0.0	3.2	1.5	6.2
01Jan2000	06:19	0.0	3.2	1.5	6.2
01Jan2000	06:20	0.0	3.2	1.5	6.2
01Jan2000	06:21	0.0	3.2	1.5	6.2
01Jan2000	06:22	0.0	3.2	1.5	6.2
01Jan2000	06:23	0.0	3.2	1.5	6.2
01Jan2000	06:24	0.0	3.2	1.5	6.2
01Jan2000	06:25	0.0	3.2	1.5	6.2
01Jan2000	06:26	0.0	3.2	1.5	6.2
01Jan2000	06:27	0.0	3.2	1.5	6.2
01Jan2000	06:28	0.0	3.2	1.5	6.2
01Jan2000	06:29	0.0	3.1	1.5	6.1
01Jan2000	06:30	0.0	3.1	1.5	6.1
01Jan2000	06:31	0.0	3.1	1.5	6.1
01Jan2000	06:32	0.0	3.1	1.5	6.1
01Jan2000	06:33	0.0	3.1	1.5	6.1
01Jan2000	06:34	0.0	3.1	1.5	6.1
01Jan2000	06:35	0.0	3.1	1.5	6.1
01Jan2000	06:36	0.0	3.1	1.5	6.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	3.1	1.5	6.1
01Jan2000	06:38	0.0	3.1	1.5	6.0
01Jan2000	06:39	0.0	3.1	1.5	6.0
01Jan2000	06:40	0.0	3.1	1.5	6.0
01Jan2000	06:41	0.0	3.0	1.4	6.0
01Jan2000	06:42	0.0	3.0	1.4	6.0
01Jan2000	06:43	0.0	3.0	1.4	6.0
01Jan2000	06:44	0.0	3.0	1.4	6.0
01Jan2000	06:45	0.0	3.0	1.4	6.0
01Jan2000	06:46	0.0	3.0	1.4	6.0
01Jan2000	06:47	0.0	3.0	1.4	5.9
01Jan2000	06:48	0.0	3.0	1.4	5.9
01Jan2000	06:49	0.0	3.0	1.4	5.9
01Jan2000	06:50	0.0	3.0	1.4	5.9
01Jan2000	06:51	0.0	3.0	1.4	5.9
01Jan2000	06:52	0.0	3.0	1.4	5.9
01Jan2000	06:53	0.0	2.9	1.4	5.9
01Jan2000	06:54	0.0	2.9	1.4	5.9
01Jan2000	06:55	0.0	2.9	1.4	5.9
01Jan2000	06:56	0.0	2.9	1.4	5.9
01Jan2000	06:57	0.0	2.9	1.4	5.8
01Jan2000	06:58	0.0	2.9	1.4	5.8
01Jan2000	06:59	0.0	2.9	1.4	5.8
01Jan2000	07:00	0.0	2.9	1.4	5.8
01Jan2000	07:01	0.0	2.9	1.4	5.8
01Jan2000	07:02	0.0	2.9	1.4	5.8
01Jan2000	07:03	0.0	2.9	1.4	5.8
01Jan2000	07:04	0.0	2.9	1.4	5.8
01Jan2000	07:05	0.0	2.9	1.4	5.8
01Jan2000	07:06	0.0	2.8	1.4	5.8
01Jan2000	07:07	0.0	2.8	1.4	5.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	2.8	1.3	5.7
01Jan2000	07:09	0.0	2.8	1.3	5.7
01Jan2000	07:10	0.0	2.8	1.3	5.7
01Jan2000	07:11	0.0	2.8	1.3	5.7
01Jan2000	07:12	0.0	2.8	1.3	5.7
01Jan2000	07:13	0.0	2.8	1.3	5.7
01Jan2000	07:14	0.0	2.8	1.3	5.7
01Jan2000	07:15	0.0	2.8	1.3	5.7
01Jan2000	07:16	0.0	2.8	1.3	5.7
01Jan2000	07:17	0.0	2.8	1.3	5.6
01Jan2000	07:18	0.0	2.7	1.3	5.6
01Jan2000	07:19	0.0	2.7	1.3	5.6
01Jan2000	07:20	0.0	2.7	1.3	5.6
01Jan2000	07:21	0.0	2.7	1.3	5.6
01Jan2000	07:22	0.0	2.7	1.3	5.6
01Jan2000	07:23	0.0	2.7	1.3	5.6
01Jan2000	07:24	0.0	2.7	1.3	5.6
01Jan2000	07:25	0.0	2.7	1.3	5.6
01Jan2000	07:26	0.0	2.7	1.3	5.6
01Jan2000	07:27	0.0	2.7	1.3	5.5
01Jan2000	07:28	0.0	2.7	1.3	5.5
01Jan2000	07:29	0.0	2.7	1.3	5.5
01Jan2000	07:30	0.0	2.7	1.3	5.5
01Jan2000	07:31	0.0	2.6	1.3	5.5
01Jan2000	07:32	0.0	2.6	1.3	5.5
01Jan2000	07:33	0.0	2.6	1.3	5.5
01Jan2000	07:34	0.0	2.6	1.3	5.5
01Jan2000	07:35	0.0	2.6	1.3	5.5
01Jan2000	07:36	0.0	2.6	1.2	5.5
01Jan2000	07:37	0.0	2.6	1.2	5.4
01Jan2000	07:38	0.0	2.6	1.2	5.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	2.6	1.2	5.4
01Jan2000	07:40	0.0	2.6	1.2	5.4
01Jan2000	07:41	0.0	2.6	1.2	5.4
01Jan2000	07:42	0.0	2.6	1.2	5.4
01Jan2000	07:43	0.0	2.6	1.2	5.4
01Jan2000	07:44	0.0	2.6	1.2	5.4
01Jan2000	07:45	0.0	2.5	1.2	5.4
01Jan2000	07:46	0.0	2.5	1.2	5.4
01Jan2000	07:47	0.0	2.5	1.2	5.4
01Jan2000	07:48	0.0	2.5	1.2	5.3
01Jan2000	07:49	0.0	2.5	1.2	5.3
01Jan2000	07:50	0.0	2.5	1.2	5.3
01Jan2000	07:51	0.0	2.5	1.2	5.3
01Jan2000	07:52	0.0	2.5	1.2	5.3
01Jan2000	07:53	0.0	2.5	1.2	5.3
01Jan2000	07:54	0.0	2.5	1.2	5.3
01Jan2000	07:55	0.0	2.5	1.2	5.3
01Jan2000	07:56	0.0	2.5	1.2	5.3
01Jan2000	07:57	0.0	2.5	1.2	5.3
01Jan2000	07:58	0.0	2.4	1.2	5.2
01Jan2000	07:59	0.0	2.4	1.2	5.2
01Jan2000	08:00	0.0	2.4	1.2	5.2
01Jan2000	08:01	0.0	2.4	1.2	5.2
01Jan2000	08:02	0.0	2.4	1.2	5.2
01Jan2000	08:03	0.0	2.4	1.2	5.2
01Jan2000	08:04	0.0	2.4	1.2	5.2
01Jan2000	08:05	0.0	2.4	1.1	5.2
01Jan2000	08:06	0.0	2.4	1.1	5.2
01Jan2000	08:07	0.0	2.4	1.1	5.2
01Jan2000	08:08	0.0	2.4	1.1	5.2
01Jan2000	08:09	0.0	2.4	1.1	5.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	2.4	1.1	5.1
01Jan2000	08:11	0.0	2.4	1.1	5.1
01Jan2000	08:12	0.0	2.3	1.1	5.1
01Jan2000	08:13	0.0	2.3	1.1	5.1
01Jan2000	08:14	0.0	2.3	1.1	5.1
01Jan2000	08:15	0.0	2.3	1.1	5.1
01Jan2000	08:16	0.0	2.3	1.1	5.1
01Jan2000	08:17	0.0	2.3	1.1	5.1
01Jan2000	08:18	0.0	2.3	1.1	5.1
01Jan2000	08:19	0.0	2.3	1.1	5.1
01Jan2000	08:20	0.0	2.3	1.1	5.0
01Jan2000	08:21	0.0	2.3	1.1	5.0
01Jan2000	08:22	0.0	2.3	1.1	5.0
01Jan2000	08:23	0.0	2.3	1.1	5.0
01Jan2000	08:24	0.0	2.3	1.1	5.0
01Jan2000	08:25	0.0	2.3	1.1	5.0
01Jan2000	08:26	0.0	2.3	1.1	5.0
01Jan2000	08:27	0.0	2.2	1.1	5.0
01Jan2000	08:28	0.0	2.2	1.1	5.0
01Jan2000	08:29	0.0	2.2	1.1	5.0
01Jan2000	08:30	0.0	2.2	1.1	5.0
01Jan2000	08:31	0.0	2.2	1.1	5.0
01Jan2000	08:32	0.0	2.2	1.1	4.9
01Jan2000	08:33	0.0	2.2	1.1	4.9
01Jan2000	08:34	0.0	2.2	1.1	4.9
01Jan2000	08:35	0.0	2.2	1.1	4.9
01Jan2000	08:36	0.0	2.2	1.0	4.9
01Jan2000	08:37	0.0	2.2	1.0	4.9
01Jan2000	08:38	0.0	2.2	1.0	4.9
01Jan2000	08:39	0.0	2.2	1.0	4.9
01Jan2000	08:40	0.0	2.2	1.0	4.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	2.1	1.0	4.9
01Jan2000	08:42	0.0	2.1	1.0	4.9
01Jan2000	08:43	0.0	2.1	1.0	4.8
01Jan2000	08:44	0.0	2.1	1.0	4.8
01Jan2000	08:45	0.0	2.1	1.0	4.8
01Jan2000	08:46	0.0	2.1	1.0	4.8
01Jan2000	08:47	0.0	2.1	1.0	4.8
01Jan2000	08:48	0.0	2.1	1.0	4.8
01Jan2000	08:49	0.0	2.1	1.0	4.8
01Jan2000	08:50	0.0	2.1	1.0	4.8
01Jan2000	08:51	0.0	2.1	1.0	4.8
01Jan2000	08:52	0.0	2.1	1.0	4.8
01Jan2000	08:53	0.0	2.1	1.0	4.8
01Jan2000	08:54	0.0	2.1	1.0	4.7
01Jan2000	08:55	0.0	2.1	1.0	4.7
01Jan2000	08:56	0.0	2.1	1.0	4.7
01Jan2000	08:57	0.0	2.0	1.0	4.7
01Jan2000	08:58	0.0	2.0	1.0	4.7
01Jan2000	08:59	0.0	2.0	1.0	4.7
01Jan2000	09:00	0.0	2.0	1.0	4.7
01Jan2000	09:01	0.0	2.0	1.0	4.6
01Jan2000	09:02	0.0	2.0	1.0	4.6
01Jan2000	09:03	0.0	2.0	1.0	4.6
01Jan2000	09:04	0.0	2.0	1.0	4.6
01Jan2000	09:05	0.0	2.0	1.0	4.6
01Jan2000	09:06	0.0	2.0	1.0	4.6
01Jan2000	09:07	0.0	2.0	1.0	4.6
01Jan2000	09:08	0.0	2.0	1.0	4.5
01Jan2000	09:09	0.0	2.0	0.9	4.5
01Jan2000	09:10	0.0	2.0	0.9	4.5
01Jan2000	09:11	0.0	2.0	0.9	4.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	1.9	0.9	4.5
01Jan2000	09:13	0.0	1.9	0.9	4.5
01Jan2000	09:14	0.0	1.9	0.9	4.5
01Jan2000	09:15	0.0	1.9	0.9	4.5
01Jan2000	09:16	0.0	1.9	0.9	4.4
01Jan2000	09:17	0.0	1.9	0.9	4.4
01Jan2000	09:18	0.0	1.9	0.9	4.4
01Jan2000	09:19	0.0	1.9	0.9	4.4
01Jan2000	09:20	0.0	1.9	0.9	4.4
01Jan2000	09:21	0.0	1.9	0.9	4.4
01Jan2000	09:22	0.0	1.9	0.9	4.4
01Jan2000	09:23	0.0	1.9	0.9	4.3
01Jan2000	09:24	0.0	1.9	0.9	4.3
01Jan2000	09:25	0.0	1.9	0.9	4.3
01Jan2000	09:26	0.0	1.9	0.9	4.3
01Jan2000	09:27	0.0	1.9	0.9	4.3
01Jan2000	09:28	0.0	1.9	0.9	4.3
01Jan2000	09:29	0.0	1.8	0.9	4.3
01Jan2000	09:30	0.0	1.8	0.9	4.3
01Jan2000	09:31	0.0	1.8	0.9	4.2
01Jan2000	09:32	0.0	1.8	0.9	4.2
01Jan2000	09:33	0.0	1.8	0.9	4.2
01Jan2000	09:34	0.0	1.8	0.9	4.2
01Jan2000	09:35	0.0	1.8	0.9	4.2
01Jan2000	09:36	0.0	1.8	0.9	4.2
01Jan2000	09:37	0.0	1.8	0.9	4.2
01Jan2000	09:38	0.0	1.8	0.9	4.2
01Jan2000	09:39	0.0	1.8	0.9	4.1
01Jan2000	09:40	0.0	1.8	0.9	4.1
01Jan2000	09:41	0.0	1.8	0.9	4.1
01Jan2000	09:42	0.0	1.8	0.9	4.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	1.8	0.9	4.1
01Jan2000	09:44	0.0	1.8	0.9	4.1
01Jan2000	09:45	0.0	1.8	0.8	4.1
01Jan2000	09:46	0.0	1.7	0.8	4.1
01Jan2000	09:47	0.0	1.7	0.8	4.0
01Jan2000	09:48	0.0	1.7	0.8	4.0
01Jan2000	09:49	0.0	1.7	0.8	4.0
01Jan2000	09:50	0.0	1.7	0.8	4.0
01Jan2000	09:51	0.0	1.7	0.8	4.0
01Jan2000	09:52	0.0	1.7	0.8	4.0
01Jan2000	09:53	0.0	1.7	0.8	4.0
01Jan2000	09:54	0.0	1.7	0.8	4.0
01Jan2000	09:55	0.0	1.7	0.8	3.9
01Jan2000	09:56	0.0	1.7	0.8	3.9
01Jan2000	09:57	0.0	1.7	0.8	3.9
01Jan2000	09:58	0.0	1.7	0.8	3.9
01Jan2000	09:59	0.0	1.7	0.8	3.9
01Jan2000	10:00	0.0	1.7	0.8	3.9
01Jan2000	10:01	0.0	1.7	0.8	3.9
01Jan2000	10:02	0.0	1.7	0.8	3.9
01Jan2000	10:03	0.0	1.7	0.8	3.9
01Jan2000	10:04	0.0	1.7	0.8	3.8
01Jan2000	10:05	0.0	1.6	0.8	3.8
01Jan2000	10:06	0.0	1.6	0.8	3.8
01Jan2000	10:07	0.0	1.6	0.8	3.8
01Jan2000	10:08	0.0	1.6	0.8	3.8
01Jan2000	10:09	0.0	1.6	0.8	3.8
01Jan2000	10:10	0.0	1.6	0.8	3.8
01Jan2000	10:11	0.0	1.6	0.8	3.8
01Jan2000	10:12	0.0	1.6	0.8	3.7
01Jan2000	10:13	0.0	1.6	0.8	3.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	1.6	0.8	3.7
01Jan2000	10:15	0.0	1.6	0.8	3.7
01Jan2000	10:16	0.0	1.6	0.8	3.7
01Jan2000	10:17	0.0	1.6	0.8	3.7
01Jan2000	10:18	0.0	1.6	0.8	3.7
01Jan2000	10:19	0.0	1.6	0.8	3.7
01Jan2000	10:20	0.0	1.6	0.8	3.7
01Jan2000	10:21	0.0	1.6	0.8	3.6
01Jan2000	10:22	0.0	1.6	0.8	3.6
01Jan2000	10:23	0.0	1.6	0.8	3.6
01Jan2000	10:24	0.0	1.5	0.7	3.6
01Jan2000	10:25	0.0	1.5	0.7	3.6
01Jan2000	10:26	0.0	1.5	0.7	3.6
01Jan2000	10:27	0.0	1.5	0.7	3.6
01Jan2000	10:28	0.0	1.5	0.7	3.6
01Jan2000	10:29	0.0	1.5	0.7	3.6
01Jan2000	10:30	0.0	1.5	0.7	3.6
01Jan2000	10:31	0.0	1.5	0.7	3.5
01Jan2000	10:32	0.0	1.5	0.7	3.5
01Jan2000	10:33	0.0	1.5	0.7	3.5
01Jan2000	10:34	0.0	1.5	0.7	3.5
01Jan2000	10:35	0.0	1.5	0.7	3.5
01Jan2000	10:36	0.0	1.5	0.7	3.5
01Jan2000	10:37	0.0	1.5	0.7	3.5
01Jan2000	10:38	0.0	1.5	0.7	3.5
01Jan2000	10:39	0.0	1.5	0.7	3.5
01Jan2000	10:40	0.0	1.5	0.7	3.4
01Jan2000	10:41	0.0	1.5	0.7	3.4
01Jan2000	10:42	0.0	1.5	0.7	3.4
01Jan2000	10:43	0.0	1.5	0.7	3.4
01Jan2000	10:44	0.0	1.5	0.7	3.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	1.4	0.7	3.4
01Jan2000	10:46	0.0	1.4	0.7	3.4
01Jan2000	10:47	0.0	1.4	0.7	3.4
01Jan2000	10:48	0.0	1.4	0.7	3.4
01Jan2000	10:49	0.0	1.4	0.7	3.4
01Jan2000	10:50	0.0	1.4	0.7	3.3
01Jan2000	10:51	0.0	1.4	0.7	3.3
01Jan2000	10:52	0.0	1.4	0.7	3.3
01Jan2000	10:53	0.0	1.4	0.7	3.3
01Jan2000	10:54	0.0	1.4	0.7	3.3
01Jan2000	10:55	0.0	1.4	0.7	3.3
01Jan2000	10:56	0.0	1.4	0.7	3.3
01Jan2000	10:57	0.0	1.4	0.7	3.3
01Jan2000	10:58	0.0	1.4	0.7	3.3
01Jan2000	10:59	0.0	1.4	0.7	3.3
01Jan2000	11:00	0.0	1.4	0.7	3.2
01Jan2000	11:01	0.0	1.4	0.7	3.2
01Jan2000	11:02	0.0	1.4	0.7	3.2
01Jan2000	11:03	0.0	1.4	0.7	3.2
01Jan2000	11:04	0.0	1.4	0.7	3.2
01Jan2000	11:05	0.0	1.4	0.7	3.2
01Jan2000	11:06	0.0	1.4	0.7	3.2
01Jan2000	11:07	0.0	1.3	0.7	3.2
01Jan2000	11:08	0.0	1.3	0.7	3.2
01Jan2000	11:09	0.0	1.3	0.7	3.2
01Jan2000	11:10	0.0	1.3	0.6	3.1
01Jan2000	11:11	0.0	1.3	0.6	3.1
01Jan2000	11:12	0.0	1.3	0.6	3.1
01Jan2000	11:13	0.0	1.3	0.6	3.1
01Jan2000	11:14	0.0	1.3	0.6	3.1
01Jan2000	11:15	0.0	1.3	0.6	3.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	1.3	0.6	3.1
01Jan2000	11:17	0.0	1.3	0.6	3.1
01Jan2000	11:18	0.0	1.3	0.6	3.1
01Jan2000	11:19	0.0	1.3	0.6	3.1
01Jan2000	11:20	0.0	1.3	0.6	3.1
01Jan2000	11:21	0.0	1.3	0.6	3.0
01Jan2000	11:22	0.0	1.3	0.6	3.0
01Jan2000	11:23	0.0	1.3	0.6	3.0
01Jan2000	11:24	0.0	1.3	0.6	3.0
01Jan2000	11:25	0.0	1.3	0.6	3.0
01Jan2000	11:26	0.0	1.3	0.6	3.0
01Jan2000	11:27	0.0	1.3	0.6	3.0
01Jan2000	11:28	0.0	1.3	0.6	3.0
01Jan2000	11:29	0.0	1.3	0.6	3.0
01Jan2000	11:30	0.0	1.3	0.6	3.0
01Jan2000	11:31	0.0	1.2	0.6	3.0
01Jan2000	11:32	0.0	1.2	0.6	2.9
01Jan2000	11:33	0.0	1.2	0.6	2.9
01Jan2000	11:34	0.0	1.2	0.6	2.9
01Jan2000	11:35	0.0	1.2	0.6	2.9
01Jan2000	11:36	0.0	1.2	0.6	2.9
01Jan2000	11:37	0.0	1.2	0.6	2.9
01Jan2000	11:38	0.0	1.2	0.6	2.9
01Jan2000	11:39	0.0	1.2	0.6	2.9
01Jan2000	11:40	0.0	1.2	0.6	2.9
01Jan2000	11:41	0.0	1.2	0.6	2.9
01Jan2000	11:42	0.0	1.2	0.6	2.9
01Jan2000	11:43	0.0	1.2	0.6	2.9
01Jan2000	11:44	0.0	1.2	0.6	2.8
01Jan2000	11:45	0.0	1.2	0.6	2.8
01Jan2000	11:46	0.0	1.2	0.6	2.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	1.2	0.6	2.8
01Jan2000	11:48	0.0	1.2	0.6	2.8
01Jan2000	11:49	0.0	1.2	0.6	2.8
01Jan2000	11:50	0.0	1.2	0.6	2.8
01Jan2000	11:51	0.0	1.2	0.6	2.8
01Jan2000	11:52	0.0	1.2	0.6	2.8
01Jan2000	11:53	0.0	1.2	0.6	2.8
01Jan2000	11:54	0.0	1.2	0.6	2.8
01Jan2000	11:55	0.0	1.2	0.6	2.7
01Jan2000	11:56	0.0	1.1	0.6	2.7
01Jan2000	11:57	0.0	1.1	0.6	2.7
01Jan2000	11:58	0.0	1.1	0.6	2.7
01Jan2000	11:59	0.0	1.1	0.6	2.7
01Jan2000	12:00	0.0	1.1	0.6	2.7

Project: Fanita Ranch Simulation Run: Run 1

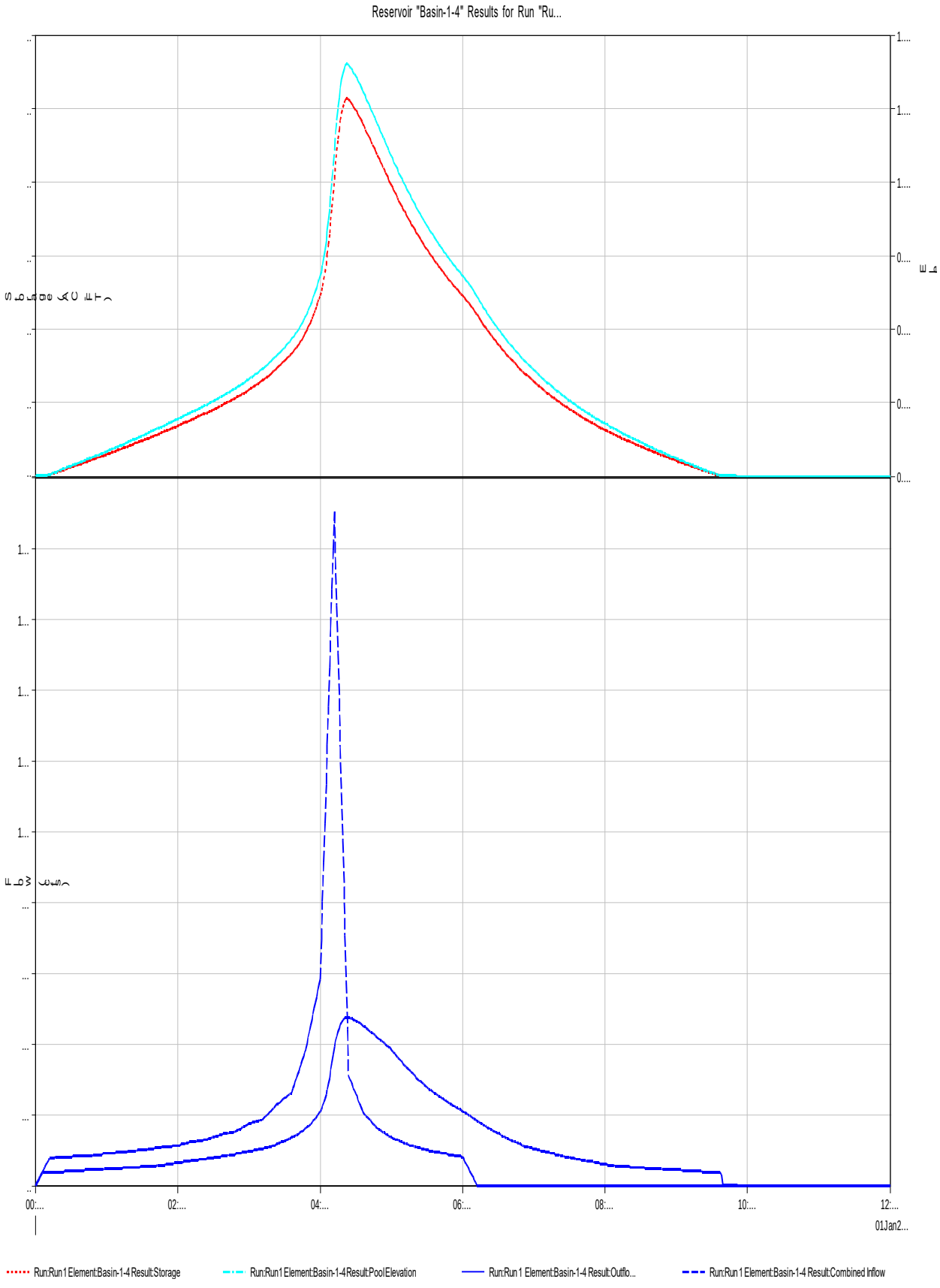
Reservoir: Basin-1-4

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	190.3 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:12
Peak Discharge:	47.5 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 04:23
Inflow Volume:	10.7 (AC-FT)	Peak Storage:	5.1 (AC-FT)
Discharge Volume:	10.7 (AC-FT)	Peak Elevation:	1.5 (FT)


Reservoir "Basin-1-4" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
00:...
02:...
04:...
06:...
08:...
10:...
12:...
01Jan2...
Run:Run 1 Element:Basin-1-4 Result:Storage
Run:Run 1 Element:Basin-1-4 Result:Pool Elevation
Run:Run 1 Element:Basin-1-4 Result:Outflo...
Run:Run 1 Element:Basin-1-4 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-4

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ra
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	0.7	0.0	0.0	0.3
01Jan2000	00:02	1.3	0.0	0.0	0.9
01Jan2000	00:03	1.9	0.0	0.0	1.6
01Jan2000	00:04	2.6	0.0	0.0	2.2
01Jan2000	00:05	3.2	0.0	0.0	2.9
01Jan2000	00:06	3.9	0.0	0.0	3.5
01Jan2000	00:07	4.5	0.0	0.0	3.6
01Jan2000	00:08	5.2	0.0	0.0	3.6
01Jan2000	00:09	5.8	0.0	0.0	3.7
01Jan2000	00:10	6.5	0.0	0.0	3.7
01Jan2000	00:11	7.2	0.0	0.0	3.7
01Jan2000	00:12	7.8	0.0	0.0	3.7
01Jan2000	00:13	7.8	0.0	0.0	3.7
01Jan2000	00:14	7.8	0.0	0.0	3.7
01Jan2000	00:15	7.8	0.0	0.0	3.8
01Jan2000	00:16	7.9	0.0	0.0	3.8
01Jan2000	00:17	7.9	0.0	0.0	3.8
01Jan2000	00:18	7.9	0.1	0.0	3.8
01Jan2000	00:19	7.9	0.1	0.0	3.8
01Jan2000	00:20	7.9	0.1	0.0	3.9
01Jan2000	00:21	8.0	0.1	0.0	3.9
01Jan2000	00:22	8.0	0.1	0.0	3.9
01Jan2000	00:23	8.0	0.1	0.0	3.9
01Jan2000	00:24	8.0	0.1	0.0	3.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	8.0	0.1	0.0	3.9
01Jan2000	00:26	8.1	0.1	0.0	4.0
01Jan2000	00:27	8.1	0.1	0.0	4.0
01Jan2000	00:28	8.1	0.1	0.0	4.0
01Jan2000	00:29	8.1	0.1	0.0	4.0
01Jan2000	00:30	8.2	0.1	0.0	4.0
01Jan2000	00:31	8.2	0.1	0.0	4.1
01Jan2000	00:32	8.2	0.1	0.0	4.1
01Jan2000	00:33	8.2	0.1	0.0	4.1
01Jan2000	00:34	8.2	0.1	0.0	4.1
01Jan2000	00:35	8.3	0.2	0.0	4.1
01Jan2000	00:36	8.3	0.2	0.0	4.2
01Jan2000	00:37	8.3	0.2	0.0	4.2
01Jan2000	00:38	8.3	0.2	0.1	4.2
01Jan2000	00:39	8.3	0.2	0.1	4.2
01Jan2000	00:40	8.4	0.2	0.1	4.2
01Jan2000	00:41	8.4	0.2	0.1	4.3
01Jan2000	00:42	8.4	0.2	0.1	4.3
01Jan2000	00:43	8.4	0.2	0.1	4.3
01Jan2000	00:44	8.4	0.2	0.1	4.3
01Jan2000	00:45	8.4	0.2	0.1	4.3
01Jan2000	00:46	8.5	0.2	0.1	4.4
01Jan2000	00:47	8.5	0.2	0.1	4.4
01Jan2000	00:48	8.5	0.2	0.1	4.4
01Jan2000	00:49	8.5	0.2	0.1	4.4
01Jan2000	00:50	8.6	0.2	0.1	4.4
01Jan2000	00:51	8.6	0.2	0.1	4.5
01Jan2000	00:52	8.7	0.2	0.1	4.5
01Jan2000	00:53	8.7	0.3	0.1	4.5
01Jan2000	00:54	8.8	0.3	0.1	4.5
01Jan2000	00:55	8.8	0.3	0.1	4.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	8.8	0.3	0.1	4.6
01Jan2000	00:57	8.9	0.3	0.1	4.6
01Jan2000	00:58	8.9	0.3	0.1	4.6
01Jan2000	00:59	9.0	0.3	0.1	4.6
01Jan2000	01:00	9.0	0.3	0.1	4.6
01Jan2000	01:01	9.0	0.3	0.1	4.7
01Jan2000	01:02	9.1	0.3	0.1	4.7
01Jan2000	01:03	9.1	0.3	0.1	4.7
01Jan2000	01:04	9.1	0.3	0.1	4.7
01Jan2000	01:05	9.1	0.3	0.1	4.7
01Jan2000	01:06	9.2	0.3	0.1	4.8
01Jan2000	01:07	9.2	0.3	0.1	4.8
01Jan2000	01:08	9.2	0.3	0.1	4.8
01Jan2000	01:09	9.2	0.3	0.1	4.8
01Jan2000	01:10	9.2	0.4	0.1	4.8
01Jan2000	01:11	9.3	0.4	0.1	4.9
01Jan2000	01:12	9.3	0.4	0.1	4.9
01Jan2000	01:13	9.3	0.4	0.1	4.9
01Jan2000	01:14	9.4	0.4	0.1	4.9
01Jan2000	01:15	9.4	0.4	0.1	4.9
01Jan2000	01:16	9.5	0.4	0.1	5.0
01Jan2000	01:17	9.5	0.4	0.1	5.0
01Jan2000	01:18	9.6	0.4	0.1	5.0
01Jan2000	01:19	9.6	0.4	0.1	5.0
01Jan2000	01:20	9.6	0.4	0.1	5.1
01Jan2000	01:21	9.7	0.4	0.1	5.1
01Jan2000	01:22	9.7	0.4	0.1	5.1
01Jan2000	01:23	9.8	0.4	0.1	5.1
01Jan2000	01:24	9.8	0.4	0.1	5.1
01Jan2000	01:25	9.8	0.4	0.1	5.2
01Jan2000	01:26	9.9	0.5	0.1	5.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	9.9	0.5	0.1	5.2
01Jan2000	01:28	9.9	0.5	0.1	5.2
01Jan2000	01:29	10.0	0.5	0.1	5.2
01Jan2000	01:30	10.0	0.5	0.1	5.3
01Jan2000	01:31	10.0	0.5	0.1	5.3
01Jan2000	01:32	10.1	0.5	0.2	5.3
01Jan2000	01:33	10.1	0.5	0.2	5.3
01Jan2000	01:34	10.1	0.5	0.2	5.4
01Jan2000	01:35	10.2	0.5	0.2	5.4
01Jan2000	01:36	10.2	0.5	0.2	5.4
01Jan2000	01:37	10.3	0.5	0.2	5.4
01Jan2000	01:38	10.3	0.5	0.2	5.5
01Jan2000	01:39	10.4	0.5	0.2	5.5
01Jan2000	01:40	10.4	0.5	0.2	5.5
01Jan2000	01:41	10.5	0.6	0.2	5.5
01Jan2000	01:42	10.6	0.6	0.2	5.5
01Jan2000	01:43	10.6	0.6	0.2	5.6
01Jan2000	01:44	10.7	0.6	0.2	5.6
01Jan2000	01:45	10.7	0.6	0.2	5.7
01Jan2000	01:46	10.8	0.6	0.2	5.7
01Jan2000	01:47	10.8	0.6	0.2	5.8
01Jan2000	01:48	10.9	0.6	0.2	5.8
01Jan2000	01:49	10.9	0.6	0.2	5.9
01Jan2000	01:50	11.0	0.6	0.2	5.9
01Jan2000	01:51	11.0	0.6	0.2	6.0
01Jan2000	01:52	11.0	0.6	0.2	6.0
01Jan2000	01:53	11.1	0.6	0.2	6.1
01Jan2000	01:54	11.1	0.6	0.2	6.1
01Jan2000	01:55	11.1	0.7	0.2	6.1
01Jan2000	01:56	11.2	0.7	0.2	6.2
01Jan2000	01:57	11.2	0.7	0.2	6.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	11.2	0.7	0.2	6.3
01Jan2000	01:59	11.3	0.7	0.2	6.3
01Jan2000	02:00	11.3	0.7	0.2	6.4
01Jan2000	02:01	11.4	0.7	0.2	6.4
01Jan2000	02:02	11.5	0.7	0.2	6.5
01Jan2000	02:03	11.6	0.7	0.2	6.5
01Jan2000	02:04	11.6	0.7	0.2	6.6
01Jan2000	02:05	11.7	0.7	0.2	6.6
01Jan2000	02:06	11.8	0.7	0.2	6.6
01Jan2000	02:07	11.9	0.7	0.2	6.7
01Jan2000	02:08	12.0	0.7	0.2	6.7
01Jan2000	02:09	12.1	0.7	0.2	6.8
01Jan2000	02:10	12.1	0.8	0.2	6.8
01Jan2000	02:11	12.2	0.8	0.2	6.9
01Jan2000	02:12	12.3	0.8	0.2	6.9
01Jan2000	02:13	12.4	0.8	0.2	7.0
01Jan2000	02:14	12.4	0.8	0.2	7.0
01Jan2000	02:15	12.4	0.8	0.2	7.1
01Jan2000	02:16	12.5	0.8	0.2	7.1
01Jan2000	02:17	12.6	0.8	0.2	7.2
01Jan2000	02:18	12.6	0.8	0.2	7.2
01Jan2000	02:19	12.7	0.8	0.2	7.3
01Jan2000	02:20	12.7	0.8	0.2	7.3
01Jan2000	02:21	12.8	0.8	0.3	7.4
01Jan2000	02:22	12.8	0.8	0.3	7.4
01Jan2000	02:23	12.8	0.9	0.3	7.5
01Jan2000	02:24	12.9	0.9	0.3	7.5
01Jan2000	02:25	13.0	0.9	0.3	7.6
01Jan2000	02:26	13.1	0.9	0.3	7.6
01Jan2000	02:27	13.2	0.9	0.3	7.7
01Jan2000	02:28	13.4	0.9	0.3	7.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	13.5	0.9	0.3	7.8
01Jan2000	02:30	13.6	0.9	0.3	7.8
01Jan2000	02:31	13.7	0.9	0.3	7.9
01Jan2000	02:32	13.8	0.9	0.3	7.9
01Jan2000	02:33	13.9	0.9	0.3	8.0
01Jan2000	02:34	14.1	0.9	0.3	8.0
01Jan2000	02:35	14.2	0.9	0.3	8.1
01Jan2000	02:36	14.3	1.0	0.3	8.2
01Jan2000	02:37	14.4	1.0	0.3	8.2
01Jan2000	02:38	14.4	1.0	0.3	8.3
01Jan2000	02:39	14.5	1.0	0.3	8.3
01Jan2000	02:40	14.6	1.0	0.3	8.4
01Jan2000	02:41	14.6	1.0	0.3	8.4
01Jan2000	02:42	14.7	1.0	0.3	8.5
01Jan2000	02:43	14.8	1.0	0.3	8.6
01Jan2000	02:44	14.8	1.0	0.3	8.6
01Jan2000	02:45	14.9	1.0	0.3	8.7
01Jan2000	02:46	15.0	1.0	0.3	8.7
01Jan2000	02:47	15.0	1.0	0.3	8.8
01Jan2000	02:48	15.1	1.1	0.3	8.8
01Jan2000	02:49	15.3	1.1	0.3	8.9
01Jan2000	02:50	15.5	1.1	0.3	9.0
01Jan2000	02:51	15.7	1.1	0.3	9.0
01Jan2000	02:52	15.9	1.1	0.3	9.1
01Jan2000	02:53	16.1	1.1	0.3	9.1
01Jan2000	02:54	16.2	1.1	0.3	9.2
01Jan2000	02:55	16.4	1.1	0.3	9.3
01Jan2000	02:56	16.6	1.1	0.3	9.3
01Jan2000	02:57	16.8	1.1	0.3	9.4
01Jan2000	02:58	17.0	1.2	0.3	9.5
01Jan2000	02:59	17.2	1.2	0.3	9.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	17.4	1.2	0.4	9.6
01Jan2000	03:01	17.5	1.2	0.4	9.7
01Jan2000	03:02	17.6	1.2	0.4	9.7
01Jan2000	03:03	17.8	1.2	0.4	9.8
01Jan2000	03:04	17.9	1.2	0.4	9.9
01Jan2000	03:05	18.0	1.2	0.4	10.0
01Jan2000	03:06	18.1	1.2	0.4	10.0
01Jan2000	03:07	18.2	1.3	0.4	10.1
01Jan2000	03:08	18.3	1.3	0.4	10.2
01Jan2000	03:09	18.5	1.3	0.4	10.3
01Jan2000	03:10	18.6	1.3	0.4	10.3
01Jan2000	03:11	18.7	1.3	0.4	10.4
01Jan2000	03:12	18.8	1.3	0.4	10.5
01Jan2000	03:13	19.2	1.3	0.4	10.6
01Jan2000	03:14	19.5	1.3	0.4	10.6
01Jan2000	03:15	19.8	1.3	0.4	10.7
01Jan2000	03:16	20.2	1.4	0.4	10.8
01Jan2000	03:17	20.6	1.4	0.4	10.9
01Jan2000	03:18	20.9	1.4	0.4	11.0
01Jan2000	03:19	21.3	1.4	0.4	11.1
01Jan2000	03:20	21.6	1.4	0.4	11.2
01Jan2000	03:21	22.0	1.4	0.4	11.3
01Jan2000	03:22	22.3	1.4	0.4	11.4
01Jan2000	03:23	22.6	1.5	0.4	11.6
01Jan2000	03:24	23.0	1.5	0.4	11.7
01Jan2000	03:25	23.3	1.5	0.4	11.9
01Jan2000	03:26	23.5	1.5	0.4	12.0
01Jan2000	03:27	23.8	1.5	0.5	12.1
01Jan2000	03:28	24.1	1.5	0.5	12.3
01Jan2000	03:29	24.3	1.5	0.5	12.4
01Jan2000	03:30	24.6	1.6	0.5	12.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	24.9	1.6	0.5	12.7
01Jan2000	03:32	25.1	1.6	0.5	12.9
01Jan2000	03:33	25.4	1.6	0.5	13.0
01Jan2000	03:34	25.7	1.6	0.5	13.2
01Jan2000	03:35	25.9	1.7	0.5	13.4
01Jan2000	03:36	26.2	1.7	0.5	13.5
01Jan2000	03:37	27.2	1.7	0.5	13.7
01Jan2000	03:38	28.2	1.7	0.5	13.8
01Jan2000	03:39	29.3	1.7	0.5	14.0
01Jan2000	03:40	30.3	1.7	0.5	14.2
01Jan2000	03:41	31.3	1.8	0.5	14.4
01Jan2000	03:42	32.4	1.8	0.5	14.6
01Jan2000	03:43	33.4	1.8	0.5	14.9
01Jan2000	03:44	34.4	1.8	0.5	15.1
01Jan2000	03:45	35.4	1.9	0.6	15.3
01Jan2000	03:46	36.5	1.9	0.6	15.6
01Jan2000	03:47	37.5	1.9	0.6	15.9
01Jan2000	03:48	38.5	2.0	0.6	16.1
01Jan2000	03:49	40.1	2.0	0.6	16.4
01Jan2000	03:50	41.8	2.0	0.6	16.7
01Jan2000	03:51	43.4	2.1	0.6	17.0
01Jan2000	03:52	45.1	2.1	0.6	17.4
01Jan2000	03:53	46.7	2.1	0.6	17.7
01Jan2000	03:54	48.4	2.2	0.6	18.1
01Jan2000	03:55	50.0	2.2	0.7	18.5
01Jan2000	03:56	51.6	2.3	0.7	18.9
01Jan2000	03:57	53.3	2.3	0.7	19.4
01Jan2000	03:58	54.9	2.4	0.7	19.9
01Jan2000	03:59	56.6	2.4	0.7	20.4
01Jan2000	04:00	58.2	2.5	0.7	21.0
01Jan2000	04:01	69.2	2.5	0.7	21.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	80.2	2.6	0.8	22.4
01Jan2000	04:03	91.2	2.7	0.8	23.3
01Jan2000	04:04	102.2	2.8	0.8	24.4
01Jan2000	04:05	113.3	2.9	0.9	25.6
01Jan2000	04:06	124.3	3.0	0.9	27.0
01Jan2000	04:07	135.3	3.2	0.9	28.6
01Jan2000	04:08	146.3	3.3	1.0	30.4
01Jan2000	04:09	157.3	3.5	1.0	32.5
01Jan2000	04:10	168.3	3.7	1.1	34.7
01Jan2000	04:11	179.3	3.8	1.1	37.0
01Jan2000	04:12	190.3	4.0	1.2	39.2
01Jan2000	04:13	177.1	4.2	1.2	40.8
01Jan2000	04:14	163.8	4.4	1.3	42.2
01Jan2000	04:15	150.5	4.6	1.3	43.5
01Jan2000	04:16	137.2	4.7	1.4	44.6
01Jan2000	04:17	123.9	4.8	1.4	45.5
01Jan2000	04:18	110.6	4.9	1.4	46.2
01Jan2000	04:19	97.3	5.0	1.5	46.7
01Jan2000	04:20	84.0	5.1	1.5	47.0
01Jan2000	04:21	70.8	5.1	1.5	47.3
01Jan2000	04:22	57.5	5.1	1.5	47.4
01Jan2000	04:23	44.2	5.1	1.5	47.5
01Jan2000	04:24	30.9	5.1	1.5	47.4
01Jan2000	04:25	30.1	5.1	1.5	47.2
01Jan2000	04:26	29.2	5.1	1.5	47.1
01Jan2000	04:27	28.4	5.1	1.5	46.9
01Jan2000	04:28	27.5	5.0	1.5	46.8
01Jan2000	04:29	26.6	5.0	1.5	46.6
01Jan2000	04:30	25.8	5.0	1.4	46.5
01Jan2000	04:31	24.9	4.9	1.4	46.3
01Jan2000	04:32	24.1	4.9	1.4	46.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	23.2	4.9	1.4	45.9
01Jan2000	04:34	22.4	4.9	1.4	45.7
01Jan2000	04:35	21.6	4.8	1.4	45.4
01Jan2000	04:36	20.7	4.8	1.4	45.2
01Jan2000	04:37	20.3	4.8	1.4	44.9
01Jan2000	04:38	19.9	4.7	1.4	44.6
01Jan2000	04:39	19.6	4.7	1.4	44.3
01Jan2000	04:40	19.2	4.7	1.4	44.1
01Jan2000	04:41	18.8	4.6	1.3	43.8
01Jan2000	04:42	18.5	4.6	1.3	43.5
01Jan2000	04:43	18.1	4.5	1.3	43.2
01Jan2000	04:44	17.7	4.5	1.3	43.0
01Jan2000	04:45	17.3	4.5	1.3	42.7
01Jan2000	04:46	16.9	4.4	1.3	42.4
01Jan2000	04:47	16.6	4.4	1.3	42.1
01Jan2000	04:48	16.2	4.4	1.3	41.8
01Jan2000	04:49	16.0	4.3	1.3	41.6
01Jan2000	04:50	15.8	4.3	1.3	41.3
01Jan2000	04:51	15.5	4.3	1.2	41.0
01Jan2000	04:52	15.3	4.2	1.2	40.7
01Jan2000	04:53	15.1	4.2	1.2	40.4
01Jan2000	04:54	14.8	4.2	1.2	40.2
01Jan2000	04:55	14.6	4.1	1.2	39.9
01Jan2000	04:56	14.4	4.1	1.2	39.6
01Jan2000	04:57	14.2	4.1	1.2	39.3
01Jan2000	04:58	13.9	4.0	1.2	39.1
01Jan2000	04:59	13.7	4.0	1.2	38.8
01Jan2000	05:00	13.5	4.0	1.2	38.3
01Jan2000	05:01	13.4	3.9	1.1	37.9
01Jan2000	05:02	13.2	3.9	1.1	37.5
01Jan2000	05:03	13.1	3.9	1.1	37.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	12.9	3.8	1.1	36.7
01Jan2000	05:05	12.8	3.8	1.1	36.3
01Jan2000	05:06	12.7	3.8	1.1	35.9
01Jan2000	05:07	12.5	3.7	1.1	35.5
01Jan2000	05:08	12.4	3.7	1.1	35.1
01Jan2000	05:09	12.2	3.7	1.1	34.8
01Jan2000	05:10	12.1	3.6	1.1	34.4
01Jan2000	05:11	11.9	3.6	1.1	34.0
01Jan2000	05:12	11.8	3.6	1.0	33.6
01Jan2000	05:13	11.7	3.5	1.0	33.3
01Jan2000	05:14	11.6	3.5	1.0	32.9
01Jan2000	05:15	11.5	3.5	1.0	32.5
01Jan2000	05:16	11.4	3.5	1.0	32.2
01Jan2000	05:17	11.3	3.4	1.0	31.8
01Jan2000	05:18	11.2	3.4	1.0	31.5
01Jan2000	05:19	11.0	3.4	1.0	31.2
01Jan2000	05:20	10.9	3.3	1.0	30.8
01Jan2000	05:21	10.8	3.3	1.0	30.5
01Jan2000	05:22	10.7	3.3	1.0	30.2
01Jan2000	05:23	10.6	3.3	1.0	29.8
01Jan2000	05:24	10.5	3.2	1.0	29.5
01Jan2000	05:25	10.4	3.2	0.9	29.2
01Jan2000	05:26	10.3	3.2	0.9	28.9
01Jan2000	05:27	10.2	3.2	0.9	28.6
01Jan2000	05:28	10.2	3.1	0.9	28.3
01Jan2000	05:29	10.1	3.1	0.9	28.0
01Jan2000	05:30	10.0	3.1	0.9	27.7
01Jan2000	05:31	9.9	3.1	0.9	27.4
01Jan2000	05:32	9.8	3.0	0.9	27.2
01Jan2000	05:33	9.8	3.0	0.9	26.9
01Jan2000	05:34	9.7	3.0	0.9	26.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	9.6	3.0	0.9	26.4
01Jan2000	05:36	9.5	2.9	0.9	26.2
01Jan2000	05:37	9.4	2.9	0.9	25.9
01Jan2000	05:38	9.4	2.9	0.9	25.7
01Jan2000	05:39	9.3	2.9	0.8	25.4
01Jan2000	05:40	9.3	2.9	0.8	25.2
01Jan2000	05:41	9.2	2.8	0.8	25.0
01Jan2000	05:42	9.2	2.8	0.8	24.7
01Jan2000	05:43	9.1	2.8	0.8	24.5
01Jan2000	05:44	9.0	2.8	0.8	24.3
01Jan2000	05:45	9.0	2.7	0.8	24.1
01Jan2000	05:46	8.9	2.7	0.8	23.8
01Jan2000	05:47	8.9	2.7	0.8	23.6
01Jan2000	05:48	8.8	2.7	0.8	23.4
01Jan2000	05:49	8.7	2.7	0.8	23.2
01Jan2000	05:50	8.7	2.6	0.8	23.0
01Jan2000	05:51	8.6	2.6	0.8	22.8
01Jan2000	05:52	8.6	2.6	0.8	22.5
01Jan2000	05:53	8.5	2.6	0.8	22.3
01Jan2000	05:54	8.4	2.6	0.8	22.1
01Jan2000	05:55	8.4	2.5	0.8	21.9
01Jan2000	05:56	8.3	2.5	0.7	21.7
01Jan2000	05:57	8.3	2.5	0.7	21.5
01Jan2000	05:58	8.2	2.5	0.7	21.3
01Jan2000	05:59	8.2	2.5	0.7	21.1
01Jan2000	06:00	8.1	2.5	0.7	20.9
01Jan2000	06:01	7.4	2.4	0.7	20.8
01Jan2000	06:02	6.8	2.4	0.7	20.6
01Jan2000	06:03	6.1	2.4	0.7	20.3
01Jan2000	06:04	5.4	2.4	0.7	20.1
01Jan2000	06:05	4.7	2.4	0.7	19.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	4.0	2.3	0.7	19.7
01Jan2000	06:07	3.4	2.3	0.7	19.4
01Jan2000	06:08	2.7	2.3	0.7	19.2
01Jan2000	06:09	2.0	2.3	0.7	19.0
01Jan2000	06:10	1.4	2.2	0.7	18.7
01Jan2000	06:11	0.7	2.2	0.7	18.5
01Jan2000	06:12	0.0	2.2	0.7	18.3
01Jan2000	06:13	0.0	2.2	0.6	18.1
01Jan2000	06:14	0.0	2.1	0.6	17.8
01Jan2000	06:15	0.0	2.1	0.6	17.6
01Jan2000	06:16	0.0	2.1	0.6	17.4
01Jan2000	06:17	0.0	2.1	0.6	17.2
01Jan2000	06:18	0.0	2.1	0.6	17.0
01Jan2000	06:19	0.0	2.0	0.6	16.8
01Jan2000	06:20	0.0	2.0	0.6	16.6
01Jan2000	06:21	0.0	2.0	0.6	16.3
01Jan2000	06:22	0.0	2.0	0.6	16.1
01Jan2000	06:23	0.0	1.9	0.6	15.9
01Jan2000	06:24	0.0	1.9	0.6	15.8
01Jan2000	06:25	0.0	1.9	0.6	15.6
01Jan2000	06:26	0.0	1.9	0.6	15.4
01Jan2000	06:27	0.0	1.9	0.6	15.2
01Jan2000	06:28	0.0	1.8	0.5	15.0
01Jan2000	06:29	0.0	1.8	0.5	14.8
01Jan2000	06:30	0.0	1.8	0.5	14.6
01Jan2000	06:31	0.0	1.8	0.5	14.4
01Jan2000	06:32	0.0	1.8	0.5	14.3
01Jan2000	06:33	0.0	1.7	0.5	14.1
01Jan2000	06:34	0.0	1.7	0.5	13.9
01Jan2000	06:35	0.0	1.7	0.5	13.7
01Jan2000	06:36	0.0	1.7	0.5	13.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	1.7	0.5	13.4
01Jan2000	06:38	0.0	1.6	0.5	13.2
01Jan2000	06:39	0.0	1.6	0.5	13.1
01Jan2000	06:40	0.0	1.6	0.5	12.9
01Jan2000	06:41	0.0	1.6	0.5	12.8
01Jan2000	06:42	0.0	1.6	0.5	12.6
01Jan2000	06:43	0.0	1.6	0.5	12.4
01Jan2000	06:44	0.0	1.5	0.5	12.3
01Jan2000	06:45	0.0	1.5	0.5	12.1
01Jan2000	06:46	0.0	1.5	0.4	12.0
01Jan2000	06:47	0.0	1.5	0.4	11.8
01Jan2000	06:48	0.0	1.5	0.4	11.7
01Jan2000	06:49	0.0	1.5	0.4	11.6
01Jan2000	06:50	0.0	1.4	0.4	11.4
01Jan2000	06:51	0.0	1.4	0.4	11.3
01Jan2000	06:52	0.0	1.4	0.4	11.1
01Jan2000	06:53	0.0	1.4	0.4	11.0
01Jan2000	06:54	0.0	1.4	0.4	10.9
01Jan2000	06:55	0.0	1.4	0.4	10.8
01Jan2000	06:56	0.0	1.3	0.4	10.7
01Jan2000	06:57	0.0	1.3	0.4	10.6
01Jan2000	06:58	0.0	1.3	0.4	10.5
01Jan2000	06:59	0.0	1.3	0.4	10.4
01Jan2000	07:00	0.0	1.3	0.4	10.4
01Jan2000	07:01	0.0	1.3	0.4	10.3
01Jan2000	07:02	0.0	1.3	0.4	10.2
01Jan2000	07:03	0.0	1.2	0.4	10.1
01Jan2000	07:04	0.0	1.2	0.4	10.0
01Jan2000	07:05	0.0	1.2	0.4	9.9
01Jan2000	07:06	0.0	1.2	0.4	9.8
01Jan2000	07:07	0.0	1.2	0.4	9.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	1.2	0.4	9.6
01Jan2000	07:09	0.0	1.2	0.3	9.5
01Jan2000	07:10	0.0	1.1	0.3	9.4
01Jan2000	07:11	0.0	1.1	0.3	9.4
01Jan2000	07:12	0.0	1.1	0.3	9.3
01Jan2000	07:13	0.0	1.1	0.3	9.2
01Jan2000	07:14	0.0	1.1	0.3	9.1
01Jan2000	07:15	0.0	1.1	0.3	9.0
01Jan2000	07:16	0.0	1.1	0.3	8.9
01Jan2000	07:17	0.0	1.1	0.3	8.9
01Jan2000	07:18	0.0	1.0	0.3	8.8
01Jan2000	07:19	0.0	1.0	0.3	8.7
01Jan2000	07:20	0.0	1.0	0.3	8.6
01Jan2000	07:21	0.0	1.0	0.3	8.5
01Jan2000	07:22	0.0	1.0	0.3	8.5
01Jan2000	07:23	0.0	1.0	0.3	8.4
01Jan2000	07:24	0.0	1.0	0.3	8.3
01Jan2000	07:25	0.0	1.0	0.3	8.2
01Jan2000	07:26	0.0	1.0	0.3	8.2
01Jan2000	07:27	0.0	0.9	0.3	8.1
01Jan2000	07:28	0.0	0.9	0.3	8.0
01Jan2000	07:29	0.0	0.9	0.3	7.9
01Jan2000	07:30	0.0	0.9	0.3	7.9
01Jan2000	07:31	0.0	0.9	0.3	7.8
01Jan2000	07:32	0.0	0.9	0.3	7.7
01Jan2000	07:33	0.0	0.9	0.3	7.7
01Jan2000	07:34	0.0	0.9	0.3	7.6
01Jan2000	07:35	0.0	0.9	0.3	7.5
01Jan2000	07:36	0.0	0.8	0.3	7.5
01Jan2000	07:37	0.0	0.8	0.3	7.4
01Jan2000	07:38	0.0	0.8	0.2	7.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	0.8	0.2	7.3
01Jan2000	07:40	0.0	0.8	0.2	7.2
01Jan2000	07:41	0.0	0.8	0.2	7.1
01Jan2000	07:42	0.0	0.8	0.2	7.1
01Jan2000	07:43	0.0	0.8	0.2	7.0
01Jan2000	07:44	0.0	0.8	0.2	6.9
01Jan2000	07:45	0.0	0.8	0.2	6.9
01Jan2000	07:46	0.0	0.8	0.2	6.8
01Jan2000	07:47	0.0	0.7	0.2	6.7
01Jan2000	07:48	0.0	0.7	0.2	6.7
01Jan2000	07:49	0.0	0.7	0.2	6.6
01Jan2000	07:50	0.0	0.7	0.2	6.6
01Jan2000	07:51	0.0	0.7	0.2	6.5
01Jan2000	07:52	0.0	0.7	0.2	6.4
01Jan2000	07:53	0.0	0.7	0.2	6.4
01Jan2000	07:54	0.0	0.7	0.2	6.3
01Jan2000	07:55	0.0	0.7	0.2	6.3
01Jan2000	07:56	0.0	0.7	0.2	6.2
01Jan2000	07:57	0.0	0.7	0.2	6.2
01Jan2000	07:58	0.0	0.6	0.2	6.1
01Jan2000	07:59	0.0	0.6	0.2	6.0
01Jan2000	08:00	0.0	0.6	0.2	6.0
01Jan2000	08:01	0.0	0.6	0.2	5.9
01Jan2000	08:02	0.0	0.6	0.2	5.9
01Jan2000	08:03	0.0	0.6	0.2	5.8
01Jan2000	08:04	0.0	0.6	0.2	5.8
01Jan2000	08:05	0.0	0.6	0.2	5.7
01Jan2000	08:06	0.0	0.6	0.2	5.7
01Jan2000	08:07	0.0	0.6	0.2	5.6
01Jan2000	08:08	0.0	0.6	0.2	5.6
01Jan2000	08:09	0.0	0.6	0.2	5.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	0.5	0.2	5.5
01Jan2000	08:11	0.0	0.5	0.2	5.5
01Jan2000	08:12	0.0	0.5	0.2	5.4
01Jan2000	08:13	0.0	0.5	0.2	5.4
01Jan2000	08:14	0.0	0.5	0.2	5.4
01Jan2000	08:15	0.0	0.5	0.2	5.4
01Jan2000	08:16	0.0	0.5	0.2	5.3
01Jan2000	08:17	0.0	0.5	0.2	5.3
01Jan2000	08:18	0.0	0.5	0.1	5.3
01Jan2000	08:19	0.0	0.5	0.1	5.3
01Jan2000	08:20	0.0	0.5	0.1	5.2
01Jan2000	08:21	0.0	0.5	0.1	5.2
01Jan2000	08:22	0.0	0.5	0.1	5.2
01Jan2000	08:23	0.0	0.5	0.1	5.2
01Jan2000	08:24	0.0	0.4	0.1	5.1
01Jan2000	08:25	0.0	0.4	0.1	5.1
01Jan2000	08:26	0.0	0.4	0.1	5.1
01Jan2000	08:27	0.0	0.4	0.1	5.1
01Jan2000	08:28	0.0	0.4	0.1	5.1
01Jan2000	08:29	0.0	0.4	0.1	5.0
01Jan2000	08:30	0.0	0.4	0.1	5.0
01Jan2000	08:31	0.0	0.4	0.1	5.0
01Jan2000	08:32	0.0	0.4	0.1	5.0
01Jan2000	08:33	0.0	0.4	0.1	4.9
01Jan2000	08:34	0.0	0.4	0.1	4.9
01Jan2000	08:35	0.0	0.4	0.1	4.9
01Jan2000	08:36	0.0	0.4	0.1	4.9
01Jan2000	08:37	0.0	0.4	0.1	4.8
01Jan2000	08:38	0.0	0.3	0.1	4.8
01Jan2000	08:39	0.0	0.3	0.1	4.8
01Jan2000	08:40	0.0	0.3	0.1	4.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	0.3	0.1	4.8
01Jan2000	08:42	0.0	0.3	0.1	4.7
01Jan2000	08:43	0.0	0.3	0.1	4.7
01Jan2000	08:44	0.0	0.3	0.1	4.7
01Jan2000	08:45	0.0	0.3	0.1	4.7
01Jan2000	08:46	0.0	0.3	0.1	4.6
01Jan2000	08:47	0.0	0.3	0.1	4.6
01Jan2000	08:48	0.0	0.3	0.1	4.6
01Jan2000	08:49	0.0	0.3	0.1	4.6
01Jan2000	08:50	0.0	0.3	0.1	4.6
01Jan2000	08:51	0.0	0.3	0.1	4.5
01Jan2000	08:52	0.0	0.3	0.1	4.5
01Jan2000	08:53	0.0	0.3	0.1	4.5
01Jan2000	08:54	0.0	0.2	0.1	4.5
01Jan2000	08:55	0.0	0.2	0.1	4.4
01Jan2000	08:56	0.0	0.2	0.1	4.4
01Jan2000	08:57	0.0	0.2	0.1	4.4
01Jan2000	08:58	0.0	0.2	0.1	4.4
01Jan2000	08:59	0.0	0.2	0.1	4.4
01Jan2000	09:00	0.0	0.2	0.1	4.3
01Jan2000	09:01	0.0	0.2	0.1	4.3
01Jan2000	09:02	0.0	0.2	0.1	4.3
01Jan2000	09:03	0.0	0.2	0.1	4.3
01Jan2000	09:04	0.0	0.2	0.1	4.3
01Jan2000	09:05	0.0	0.2	0.1	4.2
01Jan2000	09:06	0.0	0.2	0.1	4.2
01Jan2000	09:07	0.0	0.2	0.1	4.2
01Jan2000	09:08	0.0	0.2	0.0	4.2
01Jan2000	09:09	0.0	0.2	0.0	4.2
01Jan2000	09:10	0.0	0.2	0.0	4.1
01Jan2000	09:11	0.0	0.1	0.0	4.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	0.1	0.0	4.1
01Jan2000	09:13	0.0	0.1	0.0	4.1
01Jan2000	09:14	0.0	0.1	0.0	4.1
01Jan2000	09:15	0.0	0.1	0.0	4.1
01Jan2000	09:16	0.0	0.1	0.0	4.0
01Jan2000	09:17	0.0	0.1	0.0	4.0
01Jan2000	09:18	0.0	0.1	0.0	4.0
01Jan2000	09:19	0.0	0.1	0.0	4.0
01Jan2000	09:20	0.0	0.1	0.0	4.0
01Jan2000	09:21	0.0	0.1	0.0	3.9
01Jan2000	09:22	0.0	0.1	0.0	3.9
01Jan2000	09:23	0.0	0.1	0.0	3.9
01Jan2000	09:24	0.0	0.1	0.0	3.9
01Jan2000	09:25	0.0	0.1	0.0	3.9
01Jan2000	09:26	0.0	0.1	0.0	3.8
01Jan2000	09:27	0.0	0.1	0.0	3.8
01Jan2000	09:28	0.0	0.1	0.0	3.8
01Jan2000	09:29	0.0	0.0	0.0	3.8
01Jan2000	09:30	0.0	0.0	0.0	3.8
01Jan2000	09:31	0.0	0.0	0.0	3.8
01Jan2000	09:32	0.0	0.0	0.0	3.7
01Jan2000	09:33	0.0	0.0	0.0	3.7
01Jan2000	09:34	0.0	0.0	0.0	3.7
01Jan2000	09:35	0.0	0.0	0.0	3.7
01Jan2000	09:36	0.0	0.0	0.0	3.7
01Jan2000	09:37	0.0	0.0	0.0	3.7
01Jan2000	09:38	0.0	0.0	0.0	3.2
01Jan2000	09:39	0.0	0.0	0.0	0.3
01Jan2000	09:40	0.0	0.0	0.0	0.0
01Jan2000	09:41	0.0	0.0	0.0	0.0
01Jan2000	09:42	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	0.0	0.0	0.0
01Jan2000	09:44	0.0	0.0	0.0	0.0
01Jan2000	09:45	0.0	0.0	0.0	0.0
01Jan2000	09:46	0.0	0.0	0.0	0.0
01Jan2000	09:47	0.0	0.0	0.0	0.0
01Jan2000	09:48	0.0	0.0	0.0	0.0
01Jan2000	09:49	0.0	0.0	0.0	0.0
01Jan2000	09:50	0.0	0.0	0.0	0.0
01Jan2000	09:51	0.0	0.0	0.0	0.0
01Jan2000	09:52	0.0	0.0	0.0	0.0
01Jan2000	09:53	0.0	0.0	0.0	0.0
01Jan2000	09:54	0.0	0.0	0.0	0.0
01Jan2000	09:55	0.0	0.0	0.0	0.0
01Jan2000	09:56	0.0	0.0	0.0	0.0
01Jan2000	09:57	0.0	0.0	0.0	0.0
01Jan2000	09:58	0.0	0.0	0.0	0.0
01Jan2000	09:59	0.0	0.0	0.0	0.0
01Jan2000	10:00	0.0	0.0	0.0	0.0
01Jan2000	10:01	0.0	0.0	0.0	0.0
01Jan2000	10:02	0.0	0.0	0.0	0.0
01Jan2000	10:03	0.0	0.0	0.0	0.0
01Jan2000	10:04	0.0	0.0	0.0	0.0
01Jan2000	10:05	0.0	0.0	0.0	0.0
01Jan2000	10:06	0.0	0.0	0.0	0.0
01Jan2000	10:07	0.0	0.0	0.0	0.0
01Jan2000	10:08	0.0	0.0	0.0	0.0
01Jan2000	10:09	0.0	0.0	0.0	0.0
01Jan2000	10:10	0.0	0.0	0.0	0.0
01Jan2000	10:11	0.0	0.0	0.0	0.0
01Jan2000	10:12	0.0	0.0	0.0	0.0
01Jan2000	10:13	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	0.0	0.0	0.0
01Jan2000	10:15	0.0	0.0	0.0	0.0
01Jan2000	10:16	0.0	0.0	0.0	0.0
01Jan2000	10:17	0.0	0.0	0.0	0.0
01Jan2000	10:18	0.0	0.0	0.0	0.0
01Jan2000	10:19	0.0	0.0	0.0	0.0
01Jan2000	10:20	0.0	0.0	0.0	0.0
01Jan2000	10:21	0.0	0.0	0.0	0.0
01Jan2000	10:22	0.0	0.0	0.0	0.0
01Jan2000	10:23	0.0	0.0	0.0	0.0
01Jan2000	10:24	0.0	0.0	0.0	0.0
01Jan2000	10:25	0.0	0.0	0.0	0.0
01Jan2000	10:26	0.0	0.0	0.0	0.0
01Jan2000	10:27	0.0	0.0	0.0	0.0
01Jan2000	10:28	0.0	0.0	0.0	0.0
01Jan2000	10:29	0.0	0.0	0.0	0.0
01Jan2000	10:30	0.0	0.0	0.0	0.0
01Jan2000	10:31	0.0	0.0	0.0	0.0
01Jan2000	10:32	0.0	0.0	0.0	0.0
01Jan2000	10:33	0.0	0.0	0.0	0.0
01Jan2000	10:34	0.0	0.0	0.0	0.0
01Jan2000	10:35	0.0	0.0	0.0	0.0
01Jan2000	10:36	0.0	0.0	0.0	0.0
01Jan2000	10:37	0.0	0.0	0.0	0.0
01Jan2000	10:38	0.0	0.0	0.0	0.0
01Jan2000	10:39	0.0	0.0	0.0	0.0
01Jan2000	10:40	0.0	0.0	0.0	0.0
01Jan2000	10:41	0.0	0.0	0.0	0.0
01Jan2000	10:42	0.0	0.0	0.0	0.0
01Jan2000	10:43	0.0	0.0	0.0	0.0
01Jan2000	10:44	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	0.0	0.0	0.0
01Jan2000	10:46	0.0	0.0	0.0	0.0
01Jan2000	10:47	0.0	0.0	0.0	0.0
01Jan2000	10:48	0.0	0.0	0.0	0.0
01Jan2000	10:49	0.0	0.0	0.0	0.0
01Jan2000	10:50	0.0	0.0	0.0	0.0
01Jan2000	10:51	0.0	0.0	0.0	0.0
01Jan2000	10:52	0.0	0.0	0.0	0.0
01Jan2000	10:53	0.0	0.0	0.0	0.0
01Jan2000	10:54	0.0	0.0	0.0	0.0
01Jan2000	10:55	0.0	0.0	0.0	0.0
01Jan2000	10:56	0.0	0.0	0.0	0.0
01Jan2000	10:57	0.0	0.0	0.0	0.0
01Jan2000	10:58	0.0	0.0	0.0	0.0
01Jan2000	10:59	0.0	0.0	0.0	0.0
01Jan2000	11:00	0.0	0.0	0.0	0.0
01Jan2000	11:01	0.0	0.0	0.0	0.0
01Jan2000	11:02	0.0	0.0	0.0	0.0
01Jan2000	11:03	0.0	0.0	0.0	0.0
01Jan2000	11:04	0.0	0.0	0.0	0.0
01Jan2000	11:05	0.0	0.0	0.0	0.0
01Jan2000	11:06	0.0	0.0	0.0	0.0
01Jan2000	11:07	0.0	0.0	0.0	0.0
01Jan2000	11:08	0.0	0.0	0.0	0.0
01Jan2000	11:09	0.0	0.0	0.0	0.0
01Jan2000	11:10	0.0	0.0	0.0	0.0
01Jan2000	11:11	0.0	0.0	0.0	0.0
01Jan2000	11:12	0.0	0.0	0.0	0.0
01Jan2000	11:13	0.0	0.0	0.0	0.0
01Jan2000	11:14	0.0	0.0	0.0	0.0
01Jan2000	11:15	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	0.0	0.0	0.0
01Jan2000	11:17	0.0	0.0	0.0	0.0
01Jan2000	11:18	0.0	0.0	0.0	0.0
01Jan2000	11:19	0.0	0.0	0.0	0.0
01Jan2000	11:20	0.0	0.0	0.0	0.0
01Jan2000	11:21	0.0	0.0	0.0	0.0
01Jan2000	11:22	0.0	0.0	0.0	0.0
01Jan2000	11:23	0.0	0.0	0.0	0.0
01Jan2000	11:24	0.0	0.0	0.0	0.0
01Jan2000	11:25	0.0	0.0	0.0	0.0
01Jan2000	11:26	0.0	0.0	0.0	0.0
01Jan2000	11:27	0.0	0.0	0.0	0.0
01Jan2000	11:28	0.0	0.0	0.0	0.0
01Jan2000	11:29	0.0	0.0	0.0	0.0
01Jan2000	11:30	0.0	0.0	0.0	0.0
01Jan2000	11:31	0.0	0.0	0.0	0.0
01Jan2000	11:32	0.0	0.0	0.0	0.0
01Jan2000	11:33	0.0	0.0	0.0	0.0
01Jan2000	11:34	0.0	0.0	0.0	0.0
01Jan2000	11:35	0.0	0.0	0.0	0.0
01Jan2000	11:36	0.0	0.0	0.0	0.0
01Jan2000	11:37	0.0	0.0	0.0	0.0
01Jan2000	11:38	0.0	0.0	0.0	0.0
01Jan2000	11:39	0.0	0.0	0.0	0.0
01Jan2000	11:40	0.0	0.0	0.0	0.0
01Jan2000	11:41	0.0	0.0	0.0	0.0
01Jan2000	11:42	0.0	0.0	0.0	0.0
01Jan2000	11:43	0.0	0.0	0.0	0.0
01Jan2000	11:44	0.0	0.0	0.0	0.0
01Jan2000	11:45	0.0	0.0	0.0	0.0
01Jan2000	11:46	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	0.0	0.0	0.0
01Jan2000	11:48	0.0	0.0	0.0	0.0
01Jan2000	11:49	0.0	0.0	0.0	0.0
01Jan2000	11:50	0.0	0.0	0.0	0.0
01Jan2000	11:51	0.0	0.0	0.0	0.0
01Jan2000	11:52	0.0	0.0	0.0	0.0
01Jan2000	11:53	0.0	0.0	0.0	0.0
01Jan2000	11:54	0.0	0.0	0.0	0.0
01Jan2000	11:55	0.0	0.0	0.0	0.0
01Jan2000	11:56	0.0	0.0	0.0	0.0
01Jan2000	11:57	0.0	0.0	0.0	0.0
01Jan2000	11:58	0.0	0.0	0.0	0.0
01Jan2000	11:59	0.0	0.0	0.0	0.0
01Jan2000	12:00	0.0	0.0	0.0	0.0

Project: Fanita Ranch Simulation Run: Run 1

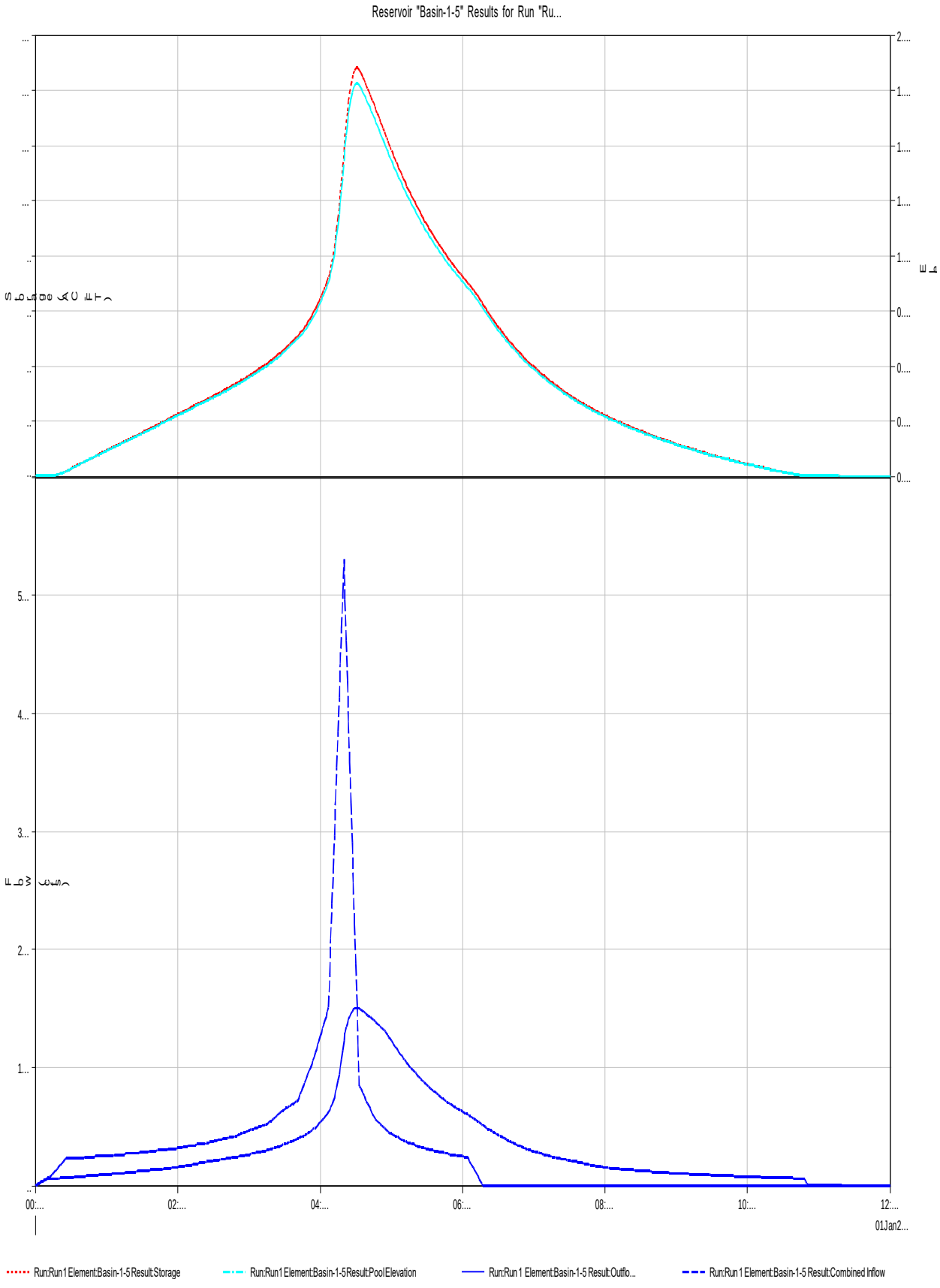
Reservoir: Basin-1-5

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	530.2 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:20
Peak Discharge:	150.4 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 04:31
Inflow Volume:	n/a	Peak Storage:	14.8 (AC-FT)
Discharge Volume:	n/a	Peak Elevation:	1.8 (FT)


Reservoir "Basin-1-5" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
Flow (CFS)
00:...
02:...
04:...
06:...
08:...
10:...
12:...
01Jan2...
Run:Run 1 Element:Basin-1-5 Result:Storage
Run:Run 1 Element:Basin-1-5 Result:Pool Elevation
Run:Run 1 Element:Basin-1-5 Result:Outflo...
Run:Run 1 Element:Basin-1-5 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-5

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ra
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	0.6	0.0	0.0	0.2
01Jan2000	00:02	1.2	0.0	0.0	0.7
01Jan2000	00:03	1.8	0.0	0.0	1.2
01Jan2000	00:04	2.4	0.0	0.0	1.8
01Jan2000	00:05	3.0	0.0	0.0	2.4
01Jan2000	00:06	3.6	0.0	0.0	3.0
01Jan2000	00:07	4.2	0.0	0.0	3.6
01Jan2000	00:08	4.8	0.0	0.0	4.2
01Jan2000	00:09	5.4	0.0	0.0	4.8
01Jan2000	00:10	6.0	0.0	0.0	5.4
01Jan2000	00:11	6.6	0.0	0.0	5.6
01Jan2000	00:12	7.2	0.0	0.0	5.6
01Jan2000	00:13	7.8	0.0	0.0	5.6
01Jan2000	00:14	9.0	0.0	0.0	5.6
01Jan2000	00:15	10.1	0.0	0.0	5.6
01Jan2000	00:16	11.3	0.0	0.0	5.7
01Jan2000	00:17	12.4	0.0	0.0	5.7
01Jan2000	00:18	13.6	0.0	0.0	5.7
01Jan2000	00:19	14.7	0.1	0.0	5.8
01Jan2000	00:20	15.9	0.1	0.0	5.8
01Jan2000	00:21	17.0	0.1	0.0	5.9
01Jan2000	00:22	18.2	0.1	0.0	6.0
01Jan2000	00:23	19.3	0.1	0.0	6.0
01Jan2000	00:24	20.5	0.1	0.0	6.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	21.6	0.2	0.0	6.2
01Jan2000	00:26	22.8	0.2	0.0	6.3
01Jan2000	00:27	22.8	0.2	0.0	6.4
01Jan2000	00:28	22.9	0.2	0.0	6.5
01Jan2000	00:29	22.9	0.3	0.0	6.6
01Jan2000	00:30	23.0	0.3	0.0	6.7
01Jan2000	00:31	23.0	0.3	0.0	6.8
01Jan2000	00:32	23.1	0.3	0.0	6.9
01Jan2000	00:33	23.1	0.3	0.0	7.0
01Jan2000	00:34	23.2	0.4	0.0	7.1
01Jan2000	00:35	23.2	0.4	0.0	7.2
01Jan2000	00:36	23.3	0.4	0.0	7.2
01Jan2000	00:37	23.3	0.4	0.1	7.3
01Jan2000	00:38	23.4	0.5	0.1	7.4
01Jan2000	00:39	23.4	0.5	0.1	7.5
01Jan2000	00:40	23.5	0.5	0.1	7.6
01Jan2000	00:41	23.6	0.5	0.1	7.7
01Jan2000	00:42	23.7	0.5	0.1	7.8
01Jan2000	00:43	23.8	0.6	0.1	7.9
01Jan2000	00:44	23.9	0.6	0.1	8.0
01Jan2000	00:45	24.0	0.6	0.1	8.1
01Jan2000	00:46	24.1	0.6	0.1	8.2
01Jan2000	00:47	24.2	0.6	0.1	8.3
01Jan2000	00:48	24.3	0.7	0.1	8.3
01Jan2000	00:49	24.4	0.7	0.1	8.4
01Jan2000	00:50	24.5	0.7	0.1	8.5
01Jan2000	00:51	24.6	0.7	0.1	8.6
01Jan2000	00:52	24.7	0.8	0.1	8.7
01Jan2000	00:53	24.8	0.8	0.1	8.8
01Jan2000	00:54	24.8	0.8	0.1	8.9
01Jan2000	00:55	24.9	0.8	0.1	9.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	24.9	0.8	0.1	9.1
01Jan2000	00:57	25.0	0.9	0.1	9.2
01Jan2000	00:58	25.0	0.9	0.1	9.3
01Jan2000	00:59	25.1	0.9	0.1	9.4
01Jan2000	01:00	25.1	0.9	0.1	9.5
01Jan2000	01:01	25.2	1.0	0.1	9.5
01Jan2000	01:02	25.2	1.0	0.1	9.6
01Jan2000	01:03	25.3	1.0	0.1	9.7
01Jan2000	01:04	25.3	1.0	0.1	9.8
01Jan2000	01:05	25.4	1.0	0.1	9.9
01Jan2000	01:06	25.5	1.1	0.1	10.0
01Jan2000	01:07	25.6	1.1	0.1	10.1
01Jan2000	01:08	25.7	1.1	0.1	10.2
01Jan2000	01:09	25.9	1.1	0.1	10.3
01Jan2000	01:10	26.0	1.1	0.1	10.4
01Jan2000	01:11	26.1	1.2	0.1	10.4
01Jan2000	01:12	26.2	1.2	0.1	10.5
01Jan2000	01:13	26.3	1.2	0.1	10.6
01Jan2000	01:14	26.4	1.2	0.2	10.7
01Jan2000	01:15	26.6	1.3	0.2	10.8
01Jan2000	01:16	26.7	1.3	0.2	10.9
01Jan2000	01:17	26.8	1.3	0.2	11.0
01Jan2000	01:18	26.9	1.3	0.2	11.1
01Jan2000	01:19	27.0	1.3	0.2	11.2
01Jan2000	01:20	27.0	1.4	0.2	11.3
01Jan2000	01:21	27.1	1.4	0.2	11.4
01Jan2000	01:22	27.2	1.4	0.2	11.4
01Jan2000	01:23	27.2	1.4	0.2	11.5
01Jan2000	01:24	27.3	1.4	0.2	11.6
01Jan2000	01:25	27.4	1.5	0.2	11.7
01Jan2000	01:26	27.5	1.5	0.2	11.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	27.5	1.5	0.2	11.9
01Jan2000	01:28	27.6	1.5	0.2	12.0
01Jan2000	01:29	27.7	1.6	0.2	12.1
01Jan2000	01:30	27.7	1.6	0.2	12.2
01Jan2000	01:31	27.8	1.6	0.2	12.3
01Jan2000	01:32	28.0	1.6	0.2	12.4
01Jan2000	01:33	28.1	1.6	0.2	12.4
01Jan2000	01:34	28.3	1.7	0.2	12.5
01Jan2000	01:35	28.4	1.7	0.2	12.6
01Jan2000	01:36	28.6	1.7	0.2	12.7
01Jan2000	01:37	28.7	1.7	0.2	12.8
01Jan2000	01:38	28.9	1.8	0.2	12.9
01Jan2000	01:39	29.0	1.8	0.2	13.0
01Jan2000	01:40	29.2	1.8	0.2	13.1
01Jan2000	01:41	29.3	1.8	0.2	13.2
01Jan2000	01:42	29.5	1.8	0.2	13.3
01Jan2000	01:43	29.6	1.9	0.2	13.4
01Jan2000	01:44	29.8	1.9	0.2	13.5
01Jan2000	01:45	29.9	1.9	0.2	13.6
01Jan2000	01:46	30.0	1.9	0.2	13.7
01Jan2000	01:47	30.1	2.0	0.2	13.7
01Jan2000	01:48	30.2	2.0	0.2	13.8
01Jan2000	01:49	30.3	2.0	0.2	13.9
01Jan2000	01:50	30.4	2.0	0.2	14.0
01Jan2000	01:51	30.4	2.0	0.3	14.1
01Jan2000	01:52	30.5	2.1	0.3	14.3
01Jan2000	01:53	30.6	2.1	0.3	14.5
01Jan2000	01:54	30.7	2.1	0.3	14.7
01Jan2000	01:55	30.8	2.1	0.3	14.8
01Jan2000	01:56	30.9	2.2	0.3	15.0
01Jan2000	01:57	31.0	2.2	0.3	15.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	31.2	2.2	0.3	15.3
01Jan2000	01:59	31.4	2.2	0.3	15.5
01Jan2000	02:00	31.6	2.2	0.3	15.7
01Jan2000	02:01	31.8	2.3	0.3	15.8
01Jan2000	02:02	32.0	2.3	0.3	16.0
01Jan2000	02:03	32.2	2.3	0.3	16.2
01Jan2000	02:04	32.5	2.3	0.3	16.3
01Jan2000	02:05	32.7	2.4	0.3	16.5
01Jan2000	02:06	32.9	2.4	0.3	16.7
01Jan2000	02:07	33.1	2.4	0.3	16.8
01Jan2000	02:08	33.3	2.4	0.3	17.0
01Jan2000	02:09	33.5	2.4	0.3	17.2
01Jan2000	02:10	33.7	2.5	0.3	17.4
01Jan2000	02:11	33.8	2.5	0.3	17.5
01Jan2000	02:12	33.9	2.5	0.3	17.7
01Jan2000	02:13	34.1	2.5	0.3	17.9
01Jan2000	02:14	34.2	2.6	0.3	18.0
01Jan2000	02:15	34.3	2.6	0.3	18.2
01Jan2000	02:16	34.4	2.6	0.3	18.4
01Jan2000	02:17	34.6	2.6	0.3	18.5
01Jan2000	02:18	34.7	2.6	0.3	18.7
01Jan2000	02:19	34.8	2.7	0.3	18.9
01Jan2000	02:20	34.9	2.7	0.3	19.0
01Jan2000	02:21	35.1	2.7	0.3	19.2
01Jan2000	02:22	35.2	2.7	0.3	19.4
01Jan2000	02:23	35.3	2.8	0.3	19.5
01Jan2000	02:24	35.6	2.8	0.3	19.7
01Jan2000	02:25	35.9	2.8	0.3	19.9
01Jan2000	02:26	36.2	2.8	0.3	20.0
01Jan2000	02:27	36.5	2.8	0.3	20.2
01Jan2000	02:28	36.8	2.9	0.4	20.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	37.1	2.9	0.4	20.6
01Jan2000	02:30	37.3	2.9	0.4	20.7
01Jan2000	02:31	37.6	2.9	0.4	20.9
01Jan2000	02:32	37.9	3.0	0.4	21.1
01Jan2000	02:33	38.2	3.0	0.4	21.3
01Jan2000	02:34	38.5	3.0	0.4	21.4
01Jan2000	02:35	38.8	3.0	0.4	21.6
01Jan2000	02:36	39.1	3.0	0.4	21.8
01Jan2000	02:37	39.3	3.1	0.4	22.0
01Jan2000	02:38	39.5	3.1	0.4	22.2
01Jan2000	02:39	39.7	3.1	0.4	22.3
01Jan2000	02:40	39.8	3.1	0.4	22.5
01Jan2000	02:41	40.0	3.2	0.4	22.7
01Jan2000	02:42	40.2	3.2	0.4	22.9
01Jan2000	02:43	40.4	3.2	0.4	23.1
01Jan2000	02:44	40.6	3.2	0.4	23.2
01Jan2000	02:45	40.8	3.3	0.4	23.4
01Jan2000	02:46	40.9	3.3	0.4	23.6
01Jan2000	02:47	41.1	3.3	0.4	23.8
01Jan2000	02:48	41.3	3.3	0.4	24.0
01Jan2000	02:49	41.5	3.4	0.4	24.2
01Jan2000	02:50	42.0	3.4	0.4	24.3
01Jan2000	02:51	42.4	3.4	0.4	24.5
01Jan2000	02:52	42.9	3.4	0.4	24.7
01Jan2000	02:53	43.3	3.5	0.4	24.9
01Jan2000	02:54	43.8	3.5	0.4	25.1
01Jan2000	02:55	44.3	3.5	0.4	25.3
01Jan2000	02:56	44.7	3.5	0.4	25.5
01Jan2000	02:57	45.2	3.6	0.4	25.7
01Jan2000	02:58	45.7	3.6	0.4	25.9
01Jan2000	02:59	46.1	3.6	0.4	26.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	46.6	3.6	0.4	26.3
01Jan2000	03:01	47.0	3.7	0.4	26.5
01Jan2000	03:02	47.5	3.7	0.5	26.8
01Jan2000	03:03	47.8	3.7	0.5	27.0
01Jan2000	03:04	48.1	3.8	0.5	27.2
01Jan2000	03:05	48.4	3.8	0.5	27.4
01Jan2000	03:06	48.7	3.8	0.5	27.6
01Jan2000	03:07	49.0	3.8	0.5	27.9
01Jan2000	03:08	49.3	3.9	0.5	28.1
01Jan2000	03:09	49.7	3.9	0.5	28.3
01Jan2000	03:10	50.0	3.9	0.5	28.5
01Jan2000	03:11	50.3	4.0	0.5	28.7
01Jan2000	03:12	50.6	4.0	0.5	29.0
01Jan2000	03:13	50.9	4.0	0.5	29.2
01Jan2000	03:14	51.2	4.1	0.5	29.4
01Jan2000	03:15	51.5	4.1	0.5	29.7
01Jan2000	03:16	52.4	4.1	0.5	29.9
01Jan2000	03:17	53.3	4.1	0.5	30.3
01Jan2000	03:18	54.2	4.2	0.5	30.6
01Jan2000	03:19	55.0	4.2	0.5	30.9
01Jan2000	03:20	55.9	4.2	0.5	31.2
01Jan2000	03:21	56.8	4.3	0.5	31.6
01Jan2000	03:22	57.7	4.3	0.5	31.9
01Jan2000	03:23	58.6	4.3	0.5	32.3
01Jan2000	03:24	59.5	4.4	0.5	32.6
01Jan2000	03:25	60.3	4.4	0.5	33.0
01Jan2000	03:26	61.2	4.5	0.5	33.3
01Jan2000	03:27	62.1	4.5	0.6	33.7
01Jan2000	03:28	63.0	4.5	0.6	34.1
01Jan2000	03:29	63.7	4.6	0.6	34.5
01Jan2000	03:30	64.4	4.6	0.6	34.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	65.0	4.7	0.6	35.3
01Jan2000	03:32	65.7	4.7	0.6	35.7
01Jan2000	03:33	66.4	4.7	0.6	36.1
01Jan2000	03:34	67.1	4.8	0.6	36.5
01Jan2000	03:35	67.7	4.8	0.6	36.9
01Jan2000	03:36	68.4	4.9	0.6	37.3
01Jan2000	03:37	69.1	4.9	0.6	37.8
01Jan2000	03:38	69.8	5.0	0.6	38.2
01Jan2000	03:39	70.4	5.0	0.6	38.6
01Jan2000	03:40	71.1	5.0	0.6	39.1
01Jan2000	03:41	71.8	5.1	0.6	39.5
01Jan2000	03:42	74.4	5.1	0.6	39.9
01Jan2000	03:43	77.0	5.2	0.6	40.4
01Jan2000	03:44	79.6	5.2	0.6	40.9
01Jan2000	03:45	82.1	5.3	0.6	41.5
01Jan2000	03:46	84.7	5.3	0.7	42.0
01Jan2000	03:47	87.3	5.4	0.7	42.6
01Jan2000	03:48	89.9	5.5	0.7	43.2
01Jan2000	03:49	92.5	5.5	0.7	43.9
01Jan2000	03:50	95.1	5.6	0.7	44.5
01Jan2000	03:51	97.6	5.7	0.7	45.2
01Jan2000	03:52	100.2	5.7	0.7	45.9
01Jan2000	03:53	102.8	5.8	0.7	46.7
01Jan2000	03:54	105.4	5.9	0.7	47.5
01Jan2000	03:55	108.9	6.0	0.7	48.3
01Jan2000	03:56	112.3	6.1	0.7	49.1
01Jan2000	03:57	115.8	6.2	0.8	50.0
01Jan2000	03:58	119.3	6.2	0.8	51.0
01Jan2000	03:59	122.7	6.3	0.8	52.1
01Jan2000	04:00	126.2	6.4	0.8	53.3
01Jan2000	04:01	129.7	6.5	0.8	54.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	133.2	6.7	0.8	55.7
01Jan2000	04:03	136.6	6.8	0.8	56.9
01Jan2000	04:04	140.1	6.9	0.8	58.2
01Jan2000	04:05	143.6	7.0	0.9	59.5
01Jan2000	04:06	147.0	7.1	0.9	60.9
01Jan2000	04:07	150.5	7.2	0.9	62.2
01Jan2000	04:08	179.7	7.4	0.9	63.9
01Jan2000	04:09	208.9	7.5	0.9	65.9
01Jan2000	04:10	238.1	7.8	0.9	68.4
01Jan2000	04:11	267.3	8.0	1.0	71.3
01Jan2000	04:12	296.5	8.3	1.0	74.7
01Jan2000	04:13	325.7	8.6	1.0	78.9
01Jan2000	04:14	354.9	9.0	1.1	83.5
01Jan2000	04:15	384.1	9.4	1.1	88.6
01Jan2000	04:16	413.3	9.8	1.2	94.1
01Jan2000	04:17	442.6	10.2	1.2	100.0
01Jan2000	04:18	471.8	10.7	1.3	106.9
01Jan2000	04:19	501.0	11.3	1.4	114.2
01Jan2000	04:20	530.2	11.8	1.4	122.0
01Jan2000	04:21	495.9	12.3	1.5	129.6
01Jan2000	04:22	461.6	12.8	1.5	134.1
01Jan2000	04:23	427.3	13.2	1.6	137.6
01Jan2000	04:24	393.0	13.6	1.6	140.7
01Jan2000	04:25	358.8	13.9	1.7	143.4
01Jan2000	04:26	324.5	14.2	1.7	145.6
01Jan2000	04:27	290.2	14.4	1.7	147.4
01Jan2000	04:28	255.9	14.6	1.8	148.8
01Jan2000	04:29	221.6	14.7	1.8	149.7
01Jan2000	04:30	187.3	14.8	1.8	150.2
01Jan2000	04:31	153.1	14.8	1.8	150.4
01Jan2000	04:32	118.8	14.8	1.8	150.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	84.5	14.7	1.8	149.8
01Jan2000	04:34	82.3	14.6	1.8	149.1
01Jan2000	04:35	80.2	14.6	1.8	148.5
01Jan2000	04:36	78.0	14.5	1.7	147.7
01Jan2000	04:37	75.9	14.4	1.7	146.9
01Jan2000	04:38	73.7	14.3	1.7	146.1
01Jan2000	04:39	71.6	14.2	1.7	145.3
01Jan2000	04:40	69.4	14.1	1.7	144.4
01Jan2000	04:41	67.3	14.0	1.7	143.6
01Jan2000	04:42	65.1	13.8	1.7	142.7
01Jan2000	04:43	63.0	13.7	1.7	141.8
01Jan2000	04:44	60.8	13.6	1.6	140.9
01Jan2000	04:45	58.7	13.5	1.6	140.0
01Jan2000	04:46	56.5	13.4	1.6	139.0
01Jan2000	04:47	55.6	13.3	1.6	138.1
01Jan2000	04:48	54.6	13.2	1.6	137.1
01Jan2000	04:49	53.7	13.1	1.6	136.2
01Jan2000	04:50	52.7	13.0	1.6	135.3
01Jan2000	04:51	51.8	12.8	1.5	134.3
01Jan2000	04:52	50.8	12.7	1.5	133.4
01Jan2000	04:53	49.9	12.6	1.5	132.4
01Jan2000	04:54	48.9	12.5	1.5	131.5
01Jan2000	04:55	48.0	12.4	1.5	130.4
01Jan2000	04:56	47.0	12.3	1.5	128.7
01Jan2000	04:57	46.1	12.2	1.5	127.2
01Jan2000	04:58	45.1	12.0	1.5	125.6
01Jan2000	04:59	44.2	11.9	1.4	124.0
01Jan2000	05:00	43.7	11.8	1.4	122.4
01Jan2000	05:01	43.1	11.7	1.4	120.9
01Jan2000	05:02	42.6	11.6	1.4	119.4
01Jan2000	05:03	42.0	11.5	1.4	117.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	41.5	11.4	1.4	116.4
01Jan2000	05:05	40.9	11.3	1.4	114.9
01Jan2000	05:06	40.4	11.2	1.4	113.5
01Jan2000	05:07	39.8	11.1	1.3	112.1
01Jan2000	05:08	39.3	11.0	1.3	110.7
01Jan2000	05:09	38.7	10.9	1.3	109.3
01Jan2000	05:10	38.2	10.8	1.3	107.9
01Jan2000	05:11	37.6	10.7	1.3	106.5
01Jan2000	05:12	37.1	10.6	1.3	105.2
01Jan2000	05:13	36.7	10.5	1.3	103.9
01Jan2000	05:14	36.4	10.4	1.3	102.6
01Jan2000	05:15	36.0	10.3	1.3	101.3
01Jan2000	05:16	35.6	10.3	1.2	100.1
01Jan2000	05:17	35.3	10.2	1.2	98.9
01Jan2000	05:18	34.9	10.1	1.2	97.8
01Jan2000	05:19	34.5	10.0	1.2	96.7
01Jan2000	05:20	34.1	9.9	1.2	95.6
01Jan2000	05:21	33.8	9.8	1.2	94.5
01Jan2000	05:22	33.4	9.7	1.2	93.4
01Jan2000	05:23	33.0	9.7	1.2	92.3
01Jan2000	05:24	32.7	9.6	1.2	91.3
01Jan2000	05:25	32.3	9.5	1.2	90.2
01Jan2000	05:26	32.0	9.4	1.1	89.2
01Jan2000	05:27	31.8	9.3	1.1	88.2
01Jan2000	05:28	31.5	9.3	1.1	87.2
01Jan2000	05:29	31.2	9.2	1.1	86.2
01Jan2000	05:30	31.0	9.1	1.1	85.2
01Jan2000	05:31	30.7	9.0	1.1	84.3
01Jan2000	05:32	30.4	9.0	1.1	83.3
01Jan2000	05:33	30.1	8.9	1.1	82.4
01Jan2000	05:34	29.9	8.8	1.1	81.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	29.6	8.7	1.1	80.5
01Jan2000	05:36	29.3	8.7	1.1	79.6
01Jan2000	05:37	29.1	8.6	1.0	78.7
01Jan2000	05:38	28.8	8.5	1.0	77.9
01Jan2000	05:39	28.6	8.5	1.0	77.0
01Jan2000	05:40	28.4	8.4	1.0	76.1
01Jan2000	05:41	28.2	8.3	1.0	75.3
01Jan2000	05:42	28.0	8.3	1.0	74.4
01Jan2000	05:43	27.8	8.2	1.0	73.6
01Jan2000	05:44	27.6	8.1	1.0	72.9
01Jan2000	05:45	27.3	8.1	1.0	72.2
01Jan2000	05:46	27.1	8.0	1.0	71.5
01Jan2000	05:47	26.9	8.0	1.0	70.8
01Jan2000	05:48	26.7	7.9	1.0	70.1
01Jan2000	05:49	26.5	7.8	1.0	69.4
01Jan2000	05:50	26.3	7.8	0.9	68.7
01Jan2000	05:51	26.1	7.7	0.9	68.1
01Jan2000	05:52	25.9	7.7	0.9	67.4
01Jan2000	05:53	25.8	7.6	0.9	66.8
01Jan2000	05:54	25.6	7.6	0.9	66.1
01Jan2000	05:55	25.5	7.5	0.9	65.5
01Jan2000	05:56	25.3	7.4	0.9	64.8
01Jan2000	05:57	25.1	7.4	0.9	64.2
01Jan2000	05:58	25.0	7.3	0.9	63.6
01Jan2000	05:59	24.8	7.3	0.9	63.0
01Jan2000	06:00	24.6	7.2	0.9	62.4
01Jan2000	06:01	24.5	7.2	0.9	61.8
01Jan2000	06:02	24.3	7.1	0.9	61.2
01Jan2000	06:03	24.2	7.1	0.9	60.6
01Jan2000	06:04	24.0	7.0	0.9	60.0
01Jan2000	06:05	22.2	7.0	0.9	59.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	20.3	6.9	0.8	58.9
01Jan2000	06:07	18.5	6.9	0.8	58.2
01Jan2000	06:08	16.6	6.8	0.8	57.6
01Jan2000	06:09	14.8	6.8	0.8	56.9
01Jan2000	06:10	12.9	6.7	0.8	56.3
01Jan2000	06:11	11.1	6.6	0.8	55.6
01Jan2000	06:12	9.2	6.6	0.8	54.9
01Jan2000	06:13	7.4	6.5	0.8	54.1
01Jan2000	06:14	5.5	6.5	0.8	53.4
01Jan2000	06:15	3.7	6.4	0.8	52.6
01Jan2000	06:16	1.8	6.3	0.8	51.8
01Jan2000	06:17	0.0	6.2	0.8	51.0
01Jan2000	06:18	0.0	6.2	0.8	50.2
01Jan2000	06:19	0.0	6.1	0.7	49.5
01Jan2000	06:20	0.0	6.0	0.7	48.8
01Jan2000	06:21	0.0	6.0	0.7	48.2
01Jan2000	06:22	0.0	5.9	0.7	47.5
01Jan2000	06:23	0.0	5.8	0.7	46.9
01Jan2000	06:24	0.0	5.8	0.7	46.3
01Jan2000	06:25	0.0	5.7	0.7	45.6
01Jan2000	06:26	0.0	5.7	0.7	45.0
01Jan2000	06:27	0.0	5.6	0.7	44.4
01Jan2000	06:28	0.0	5.5	0.7	43.8
01Jan2000	06:29	0.0	5.5	0.7	43.2
01Jan2000	06:30	0.0	5.4	0.7	42.7
01Jan2000	06:31	0.0	5.4	0.7	42.1
01Jan2000	06:32	0.0	5.3	0.6	41.5
01Jan2000	06:33	0.0	5.2	0.6	41.0
01Jan2000	06:34	0.0	5.2	0.6	40.4
01Jan2000	06:35	0.0	5.1	0.6	39.9
01Jan2000	06:36	0.0	5.1	0.6	39.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	5.0	0.6	38.8
01Jan2000	06:38	0.0	5.0	0.6	38.3
01Jan2000	06:39	0.0	4.9	0.6	37.8
01Jan2000	06:40	0.0	4.9	0.6	37.3
01Jan2000	06:41	0.0	4.8	0.6	36.8
01Jan2000	06:42	0.0	4.8	0.6	36.3
01Jan2000	06:43	0.0	4.7	0.6	35.8
01Jan2000	06:44	0.0	4.7	0.6	35.3
01Jan2000	06:45	0.0	4.6	0.6	34.9
01Jan2000	06:46	0.0	4.6	0.6	34.4
01Jan2000	06:47	0.0	4.5	0.6	33.9
01Jan2000	06:48	0.0	4.5	0.5	33.5
01Jan2000	06:49	0.0	4.4	0.5	33.0
01Jan2000	06:50	0.0	4.4	0.5	32.6
01Jan2000	06:51	0.0	4.3	0.5	32.1
01Jan2000	06:52	0.0	4.3	0.5	31.7
01Jan2000	06:53	0.0	4.2	0.5	31.3
01Jan2000	06:54	0.0	4.2	0.5	30.9
01Jan2000	06:55	0.0	4.2	0.5	30.5
01Jan2000	06:56	0.0	4.1	0.5	30.1
01Jan2000	06:57	0.0	4.1	0.5	29.7
01Jan2000	06:58	0.0	4.0	0.5	29.3
01Jan2000	06:59	0.0	4.0	0.5	29.0
01Jan2000	07:00	0.0	4.0	0.5	28.7
01Jan2000	07:01	0.0	3.9	0.5	28.4
01Jan2000	07:02	0.0	3.9	0.5	28.1
01Jan2000	07:03	0.0	3.8	0.5	27.8
01Jan2000	07:04	0.0	3.8	0.5	27.6
01Jan2000	07:05	0.0	3.8	0.5	27.3
01Jan2000	07:06	0.0	3.7	0.5	27.0
01Jan2000	07:07	0.0	3.7	0.5	26.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	3.7	0.4	26.4
01Jan2000	07:09	0.0	3.6	0.4	26.2
01Jan2000	07:10	0.0	3.6	0.4	25.9
01Jan2000	07:11	0.0	3.5	0.4	25.6
01Jan2000	07:12	0.0	3.5	0.4	25.3
01Jan2000	07:13	0.0	3.5	0.4	25.1
01Jan2000	07:14	0.0	3.4	0.4	24.8
01Jan2000	07:15	0.0	3.4	0.4	24.6
01Jan2000	07:16	0.0	3.4	0.4	24.3
01Jan2000	07:17	0.0	3.3	0.4	24.0
01Jan2000	07:18	0.0	3.3	0.4	23.8
01Jan2000	07:19	0.0	3.3	0.4	23.6
01Jan2000	07:20	0.0	3.2	0.4	23.3
01Jan2000	07:21	0.0	3.2	0.4	23.1
01Jan2000	07:22	0.0	3.2	0.4	22.8
01Jan2000	07:23	0.0	3.2	0.4	22.6
01Jan2000	07:24	0.0	3.1	0.4	22.3
01Jan2000	07:25	0.0	3.1	0.4	22.1
01Jan2000	07:26	0.0	3.1	0.4	21.9
01Jan2000	07:27	0.0	3.0	0.4	21.7
01Jan2000	07:28	0.0	3.0	0.4	21.4
01Jan2000	07:29	0.0	3.0	0.4	21.2
01Jan2000	07:30	0.0	2.9	0.4	21.0
01Jan2000	07:31	0.0	2.9	0.4	20.8
01Jan2000	07:32	0.0	2.9	0.4	20.6
01Jan2000	07:33	0.0	2.9	0.4	20.3
01Jan2000	07:34	0.0	2.8	0.3	20.1
01Jan2000	07:35	0.0	2.8	0.3	19.9
01Jan2000	07:36	0.0	2.8	0.3	19.7
01Jan2000	07:37	0.0	2.7	0.3	19.5
01Jan2000	07:38	0.0	2.7	0.3	19.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	2.7	0.3	19.1
01Jan2000	07:40	0.0	2.7	0.3	18.9
01Jan2000	07:41	0.0	2.6	0.3	18.7
01Jan2000	07:42	0.0	2.6	0.3	18.5
01Jan2000	07:43	0.0	2.6	0.3	18.3
01Jan2000	07:44	0.0	2.6	0.3	18.1
01Jan2000	07:45	0.0	2.5	0.3	17.9
01Jan2000	07:46	0.0	2.5	0.3	17.7
01Jan2000	07:47	0.0	2.5	0.3	17.6
01Jan2000	07:48	0.0	2.5	0.3	17.4
01Jan2000	07:49	0.0	2.4	0.3	17.2
01Jan2000	07:50	0.0	2.4	0.3	17.0
01Jan2000	07:51	0.0	2.4	0.3	16.8
01Jan2000	07:52	0.0	2.4	0.3	16.7
01Jan2000	07:53	0.0	2.4	0.3	16.5
01Jan2000	07:54	0.0	2.3	0.3	16.3
01Jan2000	07:55	0.0	2.3	0.3	16.2
01Jan2000	07:56	0.0	2.3	0.3	16.0
01Jan2000	07:57	0.0	2.3	0.3	15.8
01Jan2000	07:58	0.0	2.2	0.3	15.7
01Jan2000	07:59	0.0	2.2	0.3	15.5
01Jan2000	08:00	0.0	2.2	0.3	15.3
01Jan2000	08:01	0.0	2.2	0.3	15.2
01Jan2000	08:02	0.0	2.2	0.3	15.0
01Jan2000	08:03	0.0	2.1	0.3	14.9
01Jan2000	08:04	0.0	2.1	0.3	14.7
01Jan2000	08:05	0.0	2.1	0.3	14.5
01Jan2000	08:06	0.0	2.1	0.3	14.4
01Jan2000	08:07	0.0	2.1	0.3	14.2
01Jan2000	08:08	0.0	2.0	0.2	14.1
01Jan2000	08:09	0.0	2.0	0.2	14.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	2.0	0.2	13.9
01Jan2000	08:11	0.0	2.0	0.2	13.9
01Jan2000	08:12	0.0	2.0	0.2	13.8
01Jan2000	08:13	0.0	1.9	0.2	13.7
01Jan2000	08:14	0.0	1.9	0.2	13.6
01Jan2000	08:15	0.0	1.9	0.2	13.5
01Jan2000	08:16	0.0	1.9	0.2	13.5
01Jan2000	08:17	0.0	1.9	0.2	13.4
01Jan2000	08:18	0.0	1.8	0.2	13.3
01Jan2000	08:19	0.0	1.8	0.2	13.2
01Jan2000	08:20	0.0	1.8	0.2	13.1
01Jan2000	08:21	0.0	1.8	0.2	13.1
01Jan2000	08:22	0.0	1.8	0.2	13.0
01Jan2000	08:23	0.0	1.8	0.2	12.9
01Jan2000	08:24	0.0	1.7	0.2	12.8
01Jan2000	08:25	0.0	1.7	0.2	12.8
01Jan2000	08:26	0.0	1.7	0.2	12.7
01Jan2000	08:27	0.0	1.7	0.2	12.6
01Jan2000	08:28	0.0	1.7	0.2	12.6
01Jan2000	08:29	0.0	1.7	0.2	12.5
01Jan2000	08:30	0.0	1.6	0.2	12.4
01Jan2000	08:31	0.0	1.6	0.2	12.3
01Jan2000	08:32	0.0	1.6	0.2	12.3
01Jan2000	08:33	0.0	1.6	0.2	12.2
01Jan2000	08:34	0.0	1.6	0.2	12.1
01Jan2000	08:35	0.0	1.6	0.2	12.1
01Jan2000	08:36	0.0	1.5	0.2	12.0
01Jan2000	08:37	0.0	1.5	0.2	11.9
01Jan2000	08:38	0.0	1.5	0.2	11.8
01Jan2000	08:39	0.0	1.5	0.2	11.8
01Jan2000	08:40	0.0	1.5	0.2	11.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	1.5	0.2	11.6
01Jan2000	08:42	0.0	1.4	0.2	11.6
01Jan2000	08:43	0.0	1.4	0.2	11.5
01Jan2000	08:44	0.0	1.4	0.2	11.4
01Jan2000	08:45	0.0	1.4	0.2	11.4
01Jan2000	08:46	0.0	1.4	0.2	11.3
01Jan2000	08:47	0.0	1.4	0.2	11.2
01Jan2000	08:48	0.0	1.3	0.2	11.2
01Jan2000	08:49	0.0	1.3	0.2	11.1
01Jan2000	08:50	0.0	1.3	0.2	11.1
01Jan2000	08:51	0.0	1.3	0.2	11.0
01Jan2000	08:52	0.0	1.3	0.2	10.9
01Jan2000	08:53	0.0	1.3	0.2	10.9
01Jan2000	08:54	0.0	1.3	0.2	10.8
01Jan2000	08:55	0.0	1.2	0.2	10.7
01Jan2000	08:56	0.0	1.2	0.2	10.7
01Jan2000	08:57	0.0	1.2	0.1	10.6
01Jan2000	08:58	0.0	1.2	0.1	10.6
01Jan2000	08:59	0.0	1.2	0.1	10.5
01Jan2000	09:00	0.0	1.2	0.1	10.4
01Jan2000	09:01	0.0	1.1	0.1	10.4
01Jan2000	09:02	0.0	1.1	0.1	10.3
01Jan2000	09:03	0.0	1.1	0.1	10.2
01Jan2000	09:04	0.0	1.1	0.1	10.2
01Jan2000	09:05	0.0	1.1	0.1	10.1
01Jan2000	09:06	0.0	1.1	0.1	10.1
01Jan2000	09:07	0.0	1.1	0.1	10.0
01Jan2000	09:08	0.0	1.1	0.1	10.0
01Jan2000	09:09	0.0	1.0	0.1	9.9
01Jan2000	09:10	0.0	1.0	0.1	9.8
01Jan2000	09:11	0.0	1.0	0.1	9.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	1.0	0.1	9.7
01Jan2000	09:13	0.0	1.0	0.1	9.7
01Jan2000	09:14	0.0	1.0	0.1	9.6
01Jan2000	09:15	0.0	1.0	0.1	9.6
01Jan2000	09:16	0.0	0.9	0.1	9.5
01Jan2000	09:17	0.0	0.9	0.1	9.5
01Jan2000	09:18	0.0	0.9	0.1	9.4
01Jan2000	09:19	0.0	0.9	0.1	9.3
01Jan2000	09:20	0.0	0.9	0.1	9.3
01Jan2000	09:21	0.0	0.9	0.1	9.2
01Jan2000	09:22	0.0	0.9	0.1	9.2
01Jan2000	09:23	0.0	0.9	0.1	9.1
01Jan2000	09:24	0.0	0.8	0.1	9.1
01Jan2000	09:25	0.0	0.8	0.1	9.0
01Jan2000	09:26	0.0	0.8	0.1	9.0
01Jan2000	09:27	0.0	0.8	0.1	8.9
01Jan2000	09:28	0.0	0.8	0.1	8.9
01Jan2000	09:29	0.0	0.8	0.1	8.8
01Jan2000	09:30	0.0	0.8	0.1	8.8
01Jan2000	09:31	0.0	0.8	0.1	8.7
01Jan2000	09:32	0.0	0.7	0.1	8.7
01Jan2000	09:33	0.0	0.7	0.1	8.6
01Jan2000	09:34	0.0	0.7	0.1	8.6
01Jan2000	09:35	0.0	0.7	0.1	8.5
01Jan2000	09:36	0.0	0.7	0.1	8.5
01Jan2000	09:37	0.0	0.7	0.1	8.4
01Jan2000	09:38	0.0	0.7	0.1	8.4
01Jan2000	09:39	0.0	0.7	0.1	8.3
01Jan2000	09:40	0.0	0.7	0.1	8.3
01Jan2000	09:41	0.0	0.6	0.1	8.2
01Jan2000	09:42	0.0	0.6	0.1	8.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	0.6	0.1	8.1
01Jan2000	09:44	0.0	0.6	0.1	8.1
01Jan2000	09:45	0.0	0.6	0.1	8.0
01Jan2000	09:46	0.0	0.6	0.1	8.0
01Jan2000	09:47	0.0	0.6	0.1	7.9
01Jan2000	09:48	0.0	0.6	0.1	7.9
01Jan2000	09:49	0.0	0.6	0.1	7.9
01Jan2000	09:50	0.0	0.5	0.1	7.8
01Jan2000	09:51	0.0	0.5	0.1	7.8
01Jan2000	09:52	0.0	0.5	0.1	7.7
01Jan2000	09:53	0.0	0.5	0.1	7.7
01Jan2000	09:54	0.0	0.5	0.1	7.6
01Jan2000	09:55	0.0	0.5	0.1	7.6
01Jan2000	09:56	0.0	0.5	0.1	7.5
01Jan2000	09:57	0.0	0.5	0.1	7.5
01Jan2000	09:58	0.0	0.5	0.1	7.5
01Jan2000	09:59	0.0	0.4	0.1	7.4
01Jan2000	10:00	0.0	0.4	0.1	7.4
01Jan2000	10:01	0.0	0.4	0.1	7.3
01Jan2000	10:02	0.0	0.4	0.1	7.3
01Jan2000	10:03	0.0	0.4	0.0	7.2
01Jan2000	10:04	0.0	0.4	0.0	7.2
01Jan2000	10:05	0.0	0.4	0.0	7.2
01Jan2000	10:06	0.0	0.4	0.0	7.1
01Jan2000	10:07	0.0	0.4	0.0	7.1
01Jan2000	10:08	0.0	0.4	0.0	7.0
01Jan2000	10:09	0.0	0.3	0.0	7.0
01Jan2000	10:10	0.0	0.3	0.0	7.0
01Jan2000	10:11	0.0	0.3	0.0	6.9
01Jan2000	10:12	0.0	0.3	0.0	6.9
01Jan2000	10:13	0.0	0.3	0.0	6.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	0.3	0.0	6.8
01Jan2000	10:15	0.0	0.3	0.0	6.8
01Jan2000	10:16	0.0	0.3	0.0	6.7
01Jan2000	10:17	0.0	0.3	0.0	6.7
01Jan2000	10:18	0.0	0.3	0.0	6.6
01Jan2000	10:19	0.0	0.3	0.0	6.6
01Jan2000	10:20	0.0	0.2	0.0	6.6
01Jan2000	10:21	0.0	0.2	0.0	6.5
01Jan2000	10:22	0.0	0.2	0.0	6.5
01Jan2000	10:23	0.0	0.2	0.0	6.4
01Jan2000	10:24	0.0	0.2	0.0	6.4
01Jan2000	10:25	0.0	0.2	0.0	6.4
01Jan2000	10:26	0.0	0.2	0.0	6.3
01Jan2000	10:27	0.0	0.2	0.0	6.3
01Jan2000	10:28	0.0	0.2	0.0	6.3
01Jan2000	10:29	0.0	0.2	0.0	6.2
01Jan2000	10:30	0.0	0.2	0.0	6.2
01Jan2000	10:31	0.0	0.1	0.0	6.2
01Jan2000	10:32	0.0	0.1	0.0	6.1
01Jan2000	10:33	0.0	0.1	0.0	6.1
01Jan2000	10:34	0.0	0.1	0.0	6.1
01Jan2000	10:35	0.0	0.1	0.0	6.0
01Jan2000	10:36	0.0	0.1	0.0	6.0
01Jan2000	10:37	0.0	0.1	0.0	5.9
01Jan2000	10:38	0.0	0.1	0.0	5.9
01Jan2000	10:39	0.0	0.1	0.0	5.9
01Jan2000	10:40	0.0	0.1	0.0	5.8
01Jan2000	10:41	0.0	0.1	0.0	5.8
01Jan2000	10:42	0.0	0.1	0.0	5.8
01Jan2000	10:43	0.0	0.0	0.0	5.7
01Jan2000	10:44	0.0	0.0	0.0	5.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	0.0	0.0	5.7
01Jan2000	10:46	0.0	0.0	0.0	5.6
01Jan2000	10:47	0.0	0.0	0.0	5.6
01Jan2000	10:48	0.0	0.0	0.0	5.6
01Jan2000	10:49	0.0	0.0	0.0	3.3
01Jan2000	10:50	0.0	0.0	0.0	1.1
01Jan2000	10:51	0.0	0.0	0.0	0.4
01Jan2000	10:52	0.0	0.0	0.0	0.1
01Jan2000	10:53	0.0	0.0	0.0	0.0
01Jan2000	10:54	0.0	0.0	0.0	0.0
01Jan2000	10:55	0.0	0.0	0.0	0.0
01Jan2000	10:56	0.0	0.0	0.0	0.0
01Jan2000	10:57	0.0	0.0	0.0	0.0
01Jan2000	10:58	0.0	0.0	0.0	0.0
01Jan2000	10:59	0.0	0.0	0.0	0.0
01Jan2000	11:00	0.0	0.0	0.0	0.0
01Jan2000	11:01	0.0	0.0	0.0	0.0
01Jan2000	11:02	0.0	0.0	0.0	0.0
01Jan2000	11:03	0.0	0.0	0.0	0.0
01Jan2000	11:04	0.0	0.0	0.0	0.0
01Jan2000	11:05	0.0	0.0	0.0	0.0
01Jan2000	11:06	0.0	0.0	0.0	0.0
01Jan2000	11:07	0.0	0.0	0.0	0.0
01Jan2000	11:08	0.0	0.0	0.0	0.0
01Jan2000	11:09	0.0	0.0	0.0	0.0
01Jan2000	11:10	0.0	0.0	0.0	0.0
01Jan2000	11:11	0.0	0.0	0.0	0.0
01Jan2000	11:12	0.0	0.0	0.0	0.0
01Jan2000	11:13	0.0	0.0	0.0	0.0
01Jan2000	11:14	0.0	0.0	0.0	0.0
01Jan2000	11:15	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	0.0	0.0	0.0
01Jan2000	11:17	0.0	0.0	0.0	0.0
01Jan2000	11:18	0.0	0.0	0.0	0.0
01Jan2000	11:19	0.0	0.0	0.0	0.0
01Jan2000	11:20	0.0	0.0	0.0	0.0
01Jan2000	11:21	0.0	0.0	0.0	0.0
01Jan2000	11:22	0.0	0.0	0.0	0.0
01Jan2000	11:23	0.0	0.0	0.0	0.0
01Jan2000	11:24	0.0	0.0	0.0	0.0
01Jan2000	11:25	0.0	0.0	0.0	0.0
01Jan2000	11:26	0.0	0.0	0.0	0.0
01Jan2000	11:27	0.0	0.0	0.0	0.0
01Jan2000	11:28	0.0	0.0	0.0	0.0
01Jan2000	11:29	0.0	0.0	0.0	0.0
01Jan2000	11:30	0.0	0.0	0.0	0.0
01Jan2000	11:31	0.0	0.0	0.0	0.0
01Jan2000	11:32	0.0	0.0	0.0	0.0
01Jan2000	11:33	0.0	0.0	0.0	0.0
01Jan2000	11:34	0.0	0.0	0.0	0.0
01Jan2000	11:35	0.0	0.0	0.0	0.0
01Jan2000	11:36	0.0	0.0	0.0	0.0
01Jan2000	11:37	0.0	0.0	0.0	0.0
01Jan2000	11:38	0.0	0.0	0.0	0.0
01Jan2000	11:39	0.0	0.0	0.0	0.0
01Jan2000	11:40	0.0	0.0	0.0	0.0
01Jan2000	11:41	0.0	0.0	0.0	0.0
01Jan2000	11:42	0.0	0.0	0.0	0.0
01Jan2000	11:43	0.0	0.0	0.0	0.0
01Jan2000	11:44	0.0	0.0	0.0	0.0
01Jan2000	11:45	0.0	0.0	0.0	0.0
01Jan2000	11:46	0.0	0.0	0.0	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	0.0	0.0	0.0
01Jan2000	11:48	0.0	0.0	0.0	0.0
01Jan2000	11:49	0.0	0.0	0.0	0.0
01Jan2000	11:50	0.0	0.0	0.0	0.0
01Jan2000	11:51	0.0	0.0	0.0	0.0
01Jan2000	11:52	0.0	0.0	0.0	0.0
01Jan2000	11:53	0.0	0.0	0.0	0.0
01Jan2000	11:54	0.0	0.0	0.0	0.0
01Jan2000	11:55	0.0	0.0	0.0	0.0
01Jan2000	11:56	0.0	0.0	0.0	0.0
01Jan2000	11:57	0.0	0.0	0.0	0.0
01Jan2000	11:58	0.0	0.0	0.0	0.0
01Jan2000	11:59	0.0	0.0	0.0	0.0
01Jan2000	12:00	0.0	0.0	0.0	0.0

Project: Fanita Ranch Simulation Run: Run 1

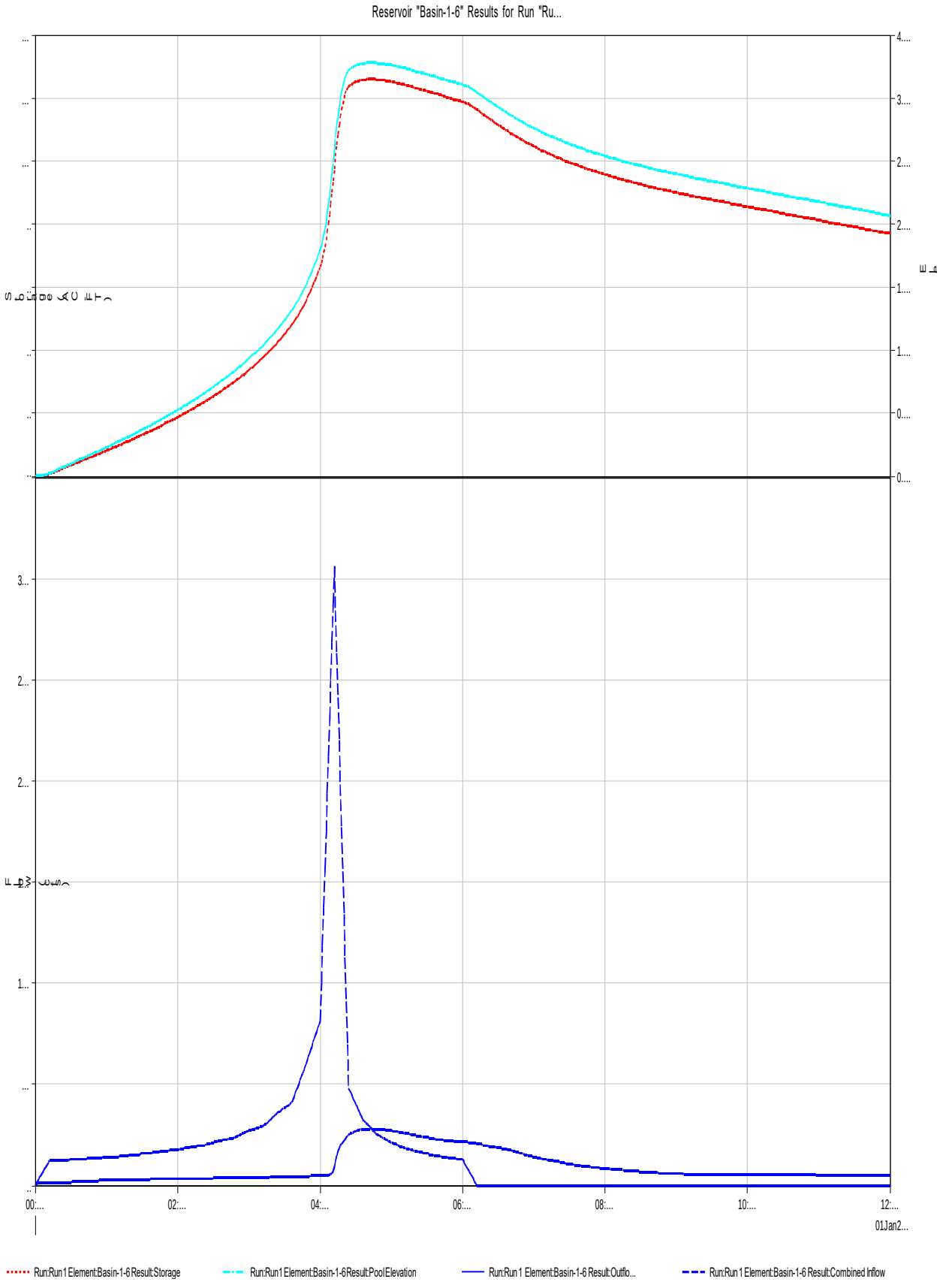
Reservoir: Basin-1-6

Start of Run:	01Jan2000, 00:00	Basin Model:	Fanita Ranch
End of Run:	01Jan2000, 12:00	Meteorologic Model:	Met 1
Compute Time:	15Feb2019, 16:13:10	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow:	305.8 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:12
Peak Discharge:	28.1 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 04:43
Inflow Volume:	16.7 (AC-FT)	Peak Storage:	12.6 (AC-FT)
Discharge Volume:	9.0 (AC-FT)	Peak Elevation:	3.7 (FT)


Reservoir "Basin-1-6" Results for Run "Ru...
Storage (AC-FT)
Elev (FT)
00:...
02:...
04:...
06:...
08:...
10:...
12:...
01Jan2...
Run:Run 1 Element:Basin-1-6 Result:Storage
Run:Run 1 Element:Basin-1-6 Result:Pool Elevation
Run:Run 1 Element:Basin-1-6 Result:Outflo...
Run:Run 1 Element:Basin-1-6 Result:Combined Inflow

Project: Fanita Ranch Simulation Run: Run 1
Reservoir: Basin-1-6

Start of Run: 01Jan2000, 00:00 Basin Model: Fanita Ra
End of Run: 01Jan2000, 12:00 Meteorologic Model: Met 1
Compute Time: 15Feb2019, 16:13:10 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.0	0.0
01Jan2000	00:01	1.0	0.0	0.0	0.2
01Jan2000	00:02	2.0	0.0	0.0	0.8
01Jan2000	00:03	3.0	0.0	0.0	1.4
01Jan2000	00:04	4.0	0.0	0.0	1.4
01Jan2000	00:05	5.0	0.0	0.0	1.4
01Jan2000	00:06	6.0	0.0	0.0	1.4
01Jan2000	00:07	7.1	0.0	0.0	1.4
01Jan2000	00:08	8.1	0.0	0.0	1.4
01Jan2000	00:09	9.1	0.0	0.0	1.4
01Jan2000	00:10	10.1	0.1	0.0	1.4
01Jan2000	00:11	11.1	0.1	0.0	1.4
01Jan2000	00:12	12.1	0.1	0.0	1.4
01Jan2000	00:13	12.1	0.1	0.0	1.4
01Jan2000	00:14	12.2	0.1	0.0	1.4
01Jan2000	00:15	12.2	0.1	0.0	1.4
01Jan2000	00:16	12.2	0.1	0.0	1.5
01Jan2000	00:17	12.2	0.2	0.1	1.5
01Jan2000	00:18	12.2	0.2	0.1	1.5
01Jan2000	00:19	12.3	0.2	0.1	1.5
01Jan2000	00:20	12.3	0.2	0.1	1.5
01Jan2000	00:21	12.3	0.2	0.1	1.5
01Jan2000	00:22	12.4	0.2	0.1	1.6
01Jan2000	00:23	12.4	0.2	0.1	1.6
01Jan2000	00:24	12.4	0.3	0.1	1.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:25	12.4	0.3	0.1	1.6
01Jan2000	00:26	12.5	0.3	0.1	1.6
01Jan2000	00:27	12.6	0.3	0.1	1.7
01Jan2000	00:28	12.6	0.3	0.1	1.7
01Jan2000	00:29	12.7	0.3	0.1	1.7
01Jan2000	00:30	12.7	0.3	0.1	1.7
01Jan2000	00:31	12.8	0.4	0.1	1.7
01Jan2000	00:32	12.8	0.4	0.1	1.8
01Jan2000	00:33	12.8	0.4	0.1	1.8
01Jan2000	00:34	12.9	0.4	0.1	1.8
01Jan2000	00:35	12.9	0.4	0.1	1.8
01Jan2000	00:36	13.0	0.4	0.1	1.9
01Jan2000	00:37	13.0	0.5	0.1	1.9
01Jan2000	00:38	13.1	0.5	0.2	1.9
01Jan2000	00:39	13.1	0.5	0.2	1.9
01Jan2000	00:40	13.1	0.5	0.2	2.0
01Jan2000	00:41	13.1	0.5	0.2	2.0
01Jan2000	00:42	13.2	0.5	0.2	2.0
01Jan2000	00:43	13.2	0.5	0.2	2.1
01Jan2000	00:44	13.2	0.6	0.2	2.1
01Jan2000	00:45	13.2	0.6	0.2	2.1
01Jan2000	00:46	13.2	0.6	0.2	2.1
01Jan2000	00:47	13.3	0.6	0.2	2.2
01Jan2000	00:48	13.3	0.6	0.2	2.2
01Jan2000	00:49	13.4	0.6	0.2	2.2
01Jan2000	00:50	13.4	0.7	0.2	2.2
01Jan2000	00:51	13.5	0.7	0.2	2.3
01Jan2000	00:52	13.5	0.7	0.2	2.3
01Jan2000	00:53	13.6	0.7	0.2	2.3
01Jan2000	00:54	13.7	0.7	0.2	2.3
01Jan2000	00:55	13.7	0.7	0.2	2.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:56	13.8	0.7	0.2	2.3
01Jan2000	00:57	13.8	0.8	0.2	2.4
01Jan2000	00:58	13.9	0.8	0.3	2.4
01Jan2000	00:59	13.9	0.8	0.3	2.4
01Jan2000	01:00	14.0	0.8	0.3	2.4
01Jan2000	01:01	14.0	0.8	0.3	2.4
01Jan2000	01:02	14.1	0.8	0.3	2.4
01Jan2000	01:03	14.1	0.9	0.3	2.4
01Jan2000	01:04	14.1	0.9	0.3	2.5
01Jan2000	01:05	14.2	0.9	0.3	2.5
01Jan2000	01:06	14.2	0.9	0.3	2.5
01Jan2000	01:07	14.2	0.9	0.3	2.5
01Jan2000	01:08	14.3	0.9	0.3	2.5
01Jan2000	01:09	14.3	1.0	0.3	2.5
01Jan2000	01:10	14.3	1.0	0.3	2.5
01Jan2000	01:11	14.4	1.0	0.3	2.6
01Jan2000	01:12	14.4	1.0	0.3	2.6
01Jan2000	01:13	14.5	1.0	0.3	2.6
01Jan2000	01:14	14.6	1.0	0.3	2.6
01Jan2000	01:15	14.6	1.1	0.3	2.6
01Jan2000	01:16	14.7	1.1	0.3	2.6
01Jan2000	01:17	14.8	1.1	0.4	2.6
01Jan2000	01:18	14.8	1.1	0.4	2.6
01Jan2000	01:19	14.9	1.1	0.4	2.7
01Jan2000	01:20	15.0	1.1	0.4	2.7
01Jan2000	01:21	15.1	1.2	0.4	2.7
01Jan2000	01:22	15.2	1.2	0.4	2.7
01Jan2000	01:23	15.2	1.2	0.4	2.7
01Jan2000	01:24	15.3	1.2	0.4	2.7
01Jan2000	01:25	15.3	1.2	0.4	2.7
01Jan2000	01:26	15.4	1.2	0.4	2.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:27	15.4	1.3	0.4	2.8
01Jan2000	01:28	15.5	1.3	0.4	2.8
01Jan2000	01:29	15.5	1.3	0.4	2.8
01Jan2000	01:30	15.6	1.3	0.4	2.8
01Jan2000	01:31	15.6	1.3	0.4	2.8
01Jan2000	01:32	15.6	1.3	0.4	2.8
01Jan2000	01:33	15.7	1.4	0.4	2.8
01Jan2000	01:34	15.7	1.4	0.4	2.8
01Jan2000	01:35	15.8	1.4	0.4	2.8
01Jan2000	01:36	15.8	1.4	0.5	2.9
01Jan2000	01:37	15.9	1.4	0.5	2.9
01Jan2000	01:38	16.0	1.5	0.5	2.9
01Jan2000	01:39	16.1	1.5	0.5	2.9
01Jan2000	01:40	16.2	1.5	0.5	2.9
01Jan2000	01:41	16.3	1.5	0.5	2.9
01Jan2000	01:42	16.4	1.5	0.5	2.9
01Jan2000	01:43	16.5	1.5	0.5	2.9
01Jan2000	01:44	16.6	1.6	0.5	2.9
01Jan2000	01:45	16.7	1.6	0.5	3.0
01Jan2000	01:46	16.8	1.6	0.5	3.0
01Jan2000	01:47	16.9	1.6	0.5	3.0
01Jan2000	01:48	17.0	1.6	0.5	3.0
01Jan2000	01:49	17.1	1.7	0.5	3.0
01Jan2000	01:50	17.1	1.7	0.5	3.0
01Jan2000	01:51	17.1	1.7	0.5	3.0
01Jan2000	01:52	17.2	1.7	0.6	3.0
01Jan2000	01:53	17.2	1.7	0.6	3.0
01Jan2000	01:54	17.3	1.8	0.6	3.1
01Jan2000	01:55	17.4	1.8	0.6	3.1
01Jan2000	01:56	17.4	1.8	0.6	3.1
01Jan2000	01:57	17.4	1.8	0.6	3.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:58	17.5	1.8	0.6	3.1
01Jan2000	01:59	17.6	1.9	0.6	3.1
01Jan2000	02:00	17.6	1.9	0.6	3.1
01Jan2000	02:01	17.7	1.9	0.6	3.1
01Jan2000	02:02	17.9	1.9	0.6	3.1
01Jan2000	02:03	18.0	1.9	0.6	3.2
01Jan2000	02:04	18.1	2.0	0.6	3.2
01Jan2000	02:05	18.3	2.0	0.6	3.2
01Jan2000	02:06	18.4	2.0	0.6	3.2
01Jan2000	02:07	18.5	2.0	0.6	3.2
01Jan2000	02:08	18.7	2.0	0.7	3.2
01Jan2000	02:09	18.8	2.1	0.7	3.2
01Jan2000	02:10	18.9	2.1	0.7	3.2
01Jan2000	02:11	19.1	2.1	0.7	3.2
01Jan2000	02:12	19.2	2.1	0.7	3.3
01Jan2000	02:13	19.3	2.1	0.7	3.3
01Jan2000	02:14	19.4	2.2	0.7	3.3
01Jan2000	02:15	19.4	2.2	0.7	3.3
01Jan2000	02:16	19.5	2.2	0.7	3.3
01Jan2000	02:17	19.6	2.2	0.7	3.3
01Jan2000	02:18	19.6	2.3	0.7	3.3
01Jan2000	02:19	19.7	2.3	0.7	3.3
01Jan2000	02:20	19.8	2.3	0.7	3.3
01Jan2000	02:21	19.9	2.3	0.7	3.4
01Jan2000	02:22	19.9	2.4	0.7	3.4
01Jan2000	02:23	20.0	2.4	0.8	3.4
01Jan2000	02:24	20.1	2.4	0.8	3.4
01Jan2000	02:25	20.3	2.4	0.8	3.4
01Jan2000	02:26	20.4	2.4	0.8	3.4
01Jan2000	02:27	20.6	2.5	0.8	3.4
01Jan2000	02:28	20.8	2.5	0.8	3.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:29	21.0	2.5	0.8	3.4
01Jan2000	02:30	21.1	2.5	0.8	3.4
01Jan2000	02:31	21.3	2.6	0.8	3.5
01Jan2000	02:32	21.5	2.6	0.8	3.5
01Jan2000	02:33	21.7	2.6	0.8	3.5
01Jan2000	02:34	21.9	2.6	0.8	3.5
01Jan2000	02:35	22.0	2.7	0.8	3.5
01Jan2000	02:36	22.2	2.7	0.9	3.5
01Jan2000	02:37	22.3	2.7	0.9	3.5
01Jan2000	02:38	22.4	2.7	0.9	3.5
01Jan2000	02:39	22.6	2.8	0.9	3.5
01Jan2000	02:40	22.7	2.8	0.9	3.6
01Jan2000	02:41	22.8	2.8	0.9	3.6
01Jan2000	02:42	22.9	2.8	0.9	3.6
01Jan2000	02:43	23.0	2.9	0.9	3.6
01Jan2000	02:44	23.1	2.9	0.9	3.6
01Jan2000	02:45	23.2	2.9	0.9	3.6
01Jan2000	02:46	23.4	3.0	0.9	3.6
01Jan2000	02:47	23.5	3.0	0.9	3.6
01Jan2000	02:48	23.6	3.0	1.0	3.7
01Jan2000	02:49	23.9	3.0	1.0	3.7
01Jan2000	02:50	24.2	3.1	1.0	3.7
01Jan2000	02:51	24.4	3.1	1.0	3.7
01Jan2000	02:52	24.7	3.1	1.0	3.7
01Jan2000	02:53	25.0	3.2	1.0	3.7
01Jan2000	02:54	25.3	3.2	1.0	3.7
01Jan2000	02:55	25.6	3.2	1.0	3.7
01Jan2000	02:56	25.9	3.2	1.0	3.7
01Jan2000	02:57	26.1	3.3	1.0	3.8
01Jan2000	02:58	26.4	3.3	1.0	3.8
01Jan2000	02:59	26.7	3.3	1.1	3.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:00	27.0	3.4	1.1	3.8
01Jan2000	03:01	27.2	3.4	1.1	3.8
01Jan2000	03:02	27.4	3.4	1.1	3.8
01Jan2000	03:03	27.6	3.5	1.1	3.8
01Jan2000	03:04	27.8	3.5	1.1	3.8
01Jan2000	03:05	28.0	3.5	1.1	3.9
01Jan2000	03:06	28.2	3.6	1.1	3.9
01Jan2000	03:07	28.3	3.6	1.1	3.9
01Jan2000	03:08	28.5	3.6	1.1	3.9
01Jan2000	03:09	28.7	3.7	1.2	3.9
01Jan2000	03:10	28.9	3.7	1.2	3.9
01Jan2000	03:11	29.1	3.7	1.2	3.9
01Jan2000	03:12	29.3	3.8	1.2	3.9
01Jan2000	03:13	29.8	3.8	1.2	4.0
01Jan2000	03:14	30.4	3.8	1.2	4.0
01Jan2000	03:15	30.9	3.9	1.2	4.0
01Jan2000	03:16	31.5	3.9	1.2	4.0
01Jan2000	03:17	32.0	4.0	1.2	4.0
01Jan2000	03:18	32.5	4.0	1.3	4.0
01Jan2000	03:19	33.1	4.0	1.3	4.0
01Jan2000	03:20	33.6	4.1	1.3	4.0
01Jan2000	03:21	34.2	4.1	1.3	4.1
01Jan2000	03:22	34.7	4.2	1.3	4.1
01Jan2000	03:23	35.3	4.2	1.3	4.1
01Jan2000	03:24	35.8	4.2	1.3	4.1
01Jan2000	03:25	36.2	4.3	1.3	4.1
01Jan2000	03:26	36.6	4.3	1.4	4.1
01Jan2000	03:27	37.0	4.4	1.4	4.1
01Jan2000	03:28	37.5	4.4	1.4	4.2
01Jan2000	03:29	37.9	4.5	1.4	4.2
01Jan2000	03:30	38.3	4.5	1.4	4.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:31	38.7	4.6	1.4	4.2
01Jan2000	03:32	39.1	4.6	1.4	4.2
01Jan2000	03:33	39.5	4.7	1.5	4.2
01Jan2000	03:34	40.0	4.7	1.5	4.3
01Jan2000	03:35	40.4	4.8	1.5	4.3
01Jan2000	03:36	40.8	4.8	1.5	4.3
01Jan2000	03:37	42.4	4.9	1.5	4.3
01Jan2000	03:38	44.0	4.9	1.5	4.3
01Jan2000	03:39	45.6	5.0	1.6	4.3
01Jan2000	03:40	47.2	5.0	1.6	4.4
01Jan2000	03:41	48.8	5.1	1.6	4.4
01Jan2000	03:42	50.4	5.1	1.6	4.4
01Jan2000	03:43	51.9	5.2	1.6	4.4
01Jan2000	03:44	53.5	5.3	1.6	4.4
01Jan2000	03:45	55.1	5.3	1.7	4.4
01Jan2000	03:46	56.7	5.4	1.7	4.5
01Jan2000	03:47	58.3	5.5	1.7	4.5
01Jan2000	03:48	59.9	5.6	1.7	4.5
01Jan2000	03:49	61.7	5.6	1.8	4.5
01Jan2000	03:50	63.5	5.7	1.8	4.6
01Jan2000	03:51	65.2	5.8	1.8	4.6
01Jan2000	03:52	67.0	5.9	1.8	4.6
01Jan2000	03:53	68.8	6.0	1.9	4.6
01Jan2000	03:54	70.6	6.1	1.9	4.6
01Jan2000	03:55	72.4	6.2	1.9	4.7
01Jan2000	03:56	74.2	6.2	1.9	4.7
01Jan2000	03:57	76.0	6.3	2.0	4.7
01Jan2000	03:58	77.7	6.4	2.0	4.8
01Jan2000	03:59	79.5	6.5	2.0	4.8
01Jan2000	04:00	81.3	6.7	2.1	4.8
01Jan2000	04:01	100.0	6.8	2.1	4.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:02	118.7	6.9	2.1	4.9
01Jan2000	04:03	137.4	7.1	2.2	4.9
01Jan2000	04:04	156.1	7.3	2.2	5.0
01Jan2000	04:05	174.8	7.5	2.3	5.0
01Jan2000	04:06	193.6	7.7	2.4	5.1
01Jan2000	04:07	212.3	8.0	2.5	5.1
01Jan2000	04:08	231.0	8.3	2.5	5.2
01Jan2000	04:09	249.7	8.6	2.6	5.3
01Jan2000	04:10	268.4	9.0	2.7	5.8
01Jan2000	04:11	287.1	9.4	2.8	7.3
01Jan2000	04:12	305.8	9.8	3.0	9.4
01Jan2000	04:13	284.3	10.2	3.1	11.9
01Jan2000	04:14	262.9	10.5	3.2	14.5
01Jan2000	04:15	241.4	10.8	3.3	17.0
01Jan2000	04:16	219.9	11.1	3.3	18.5
01Jan2000	04:17	198.4	11.4	3.4	19.6
01Jan2000	04:18	177.0	11.6	3.5	20.5
01Jan2000	04:19	155.5	11.8	3.5	21.3
01Jan2000	04:20	134.0	12.0	3.6	21.9
01Jan2000	04:21	112.5	12.1	3.6	22.8
01Jan2000	04:22	91.1	12.2	3.6	23.8
01Jan2000	04:23	69.6	12.3	3.7	24.6
01Jan2000	04:24	48.1	12.4	3.7	25.1
01Jan2000	04:25	46.8	12.4	3.7	25.5
01Jan2000	04:26	45.5	12.4	3.7	25.8
01Jan2000	04:27	44.1	12.4	3.7	26.1
01Jan2000	04:28	42.8	12.5	3.7	26.4
01Jan2000	04:29	41.5	12.5	3.7	26.7
01Jan2000	04:30	40.1	12.5	3.7	26.9
01Jan2000	04:31	38.8	12.5	3.7	27.1
01Jan2000	04:32	37.5	12.5	3.7	27.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:33	36.2	12.6	3.7	27.5
01Jan2000	04:34	34.9	12.6	3.7	27.6
01Jan2000	04:35	33.5	12.6	3.7	27.8
01Jan2000	04:36	32.2	12.6	3.7	27.9
01Jan2000	04:37	31.6	12.6	3.7	27.9
01Jan2000	04:38	31.0	12.6	3.7	28.0
01Jan2000	04:39	30.4	12.6	3.7	28.0
01Jan2000	04:40	29.9	12.6	3.7	28.1
01Jan2000	04:41	29.3	12.6	3.7	28.1
01Jan2000	04:42	28.7	12.6	3.7	28.1
01Jan2000	04:43	28.1	12.6	3.7	28.1
01Jan2000	04:44	27.5	12.6	3.7	28.1
01Jan2000	04:45	26.9	12.6	3.7	28.1
01Jan2000	04:46	26.4	12.6	3.7	28.1
01Jan2000	04:47	25.8	12.6	3.7	28.0
01Jan2000	04:48	25.2	12.6	3.7	28.0
01Jan2000	04:49	24.9	12.6	3.7	27.9
01Jan2000	04:50	24.5	12.6	3.7	27.9
01Jan2000	04:51	24.2	12.6	3.7	27.8
01Jan2000	04:52	23.8	12.6	3.7	27.8
01Jan2000	04:53	23.5	12.6	3.7	27.7
01Jan2000	04:54	23.1	12.6	3.7	27.6
01Jan2000	04:55	22.8	12.6	3.7	27.5
01Jan2000	04:56	22.5	12.6	3.7	27.4
01Jan2000	04:57	22.1	12.5	3.7	27.3
01Jan2000	04:58	21.8	12.5	3.7	27.2
01Jan2000	04:59	21.4	12.5	3.7	27.1
01Jan2000	05:00	21.1	12.5	3.7	27.0
01Jan2000	05:01	20.9	12.5	3.7	26.9
01Jan2000	05:02	20.6	12.5	3.7	26.8
01Jan2000	05:03	20.4	12.5	3.7	26.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:04	20.2	12.5	3.7	26.6
01Jan2000	05:05	19.9	12.5	3.7	26.5
01Jan2000	05:06	19.7	12.5	3.7	26.4
01Jan2000	05:07	19.5	12.5	3.7	26.2
01Jan2000	05:08	19.2	12.5	3.7	26.1
01Jan2000	05:09	19.0	12.4	3.7	26.0
01Jan2000	05:10	18.8	12.4	3.7	25.9
01Jan2000	05:11	18.5	12.4	3.7	25.8
01Jan2000	05:12	18.3	12.4	3.7	25.7
01Jan2000	05:13	18.1	12.4	3.7	25.6
01Jan2000	05:14	18.0	12.4	3.7	25.4
01Jan2000	05:15	17.8	12.4	3.7	25.3
01Jan2000	05:16	17.7	12.4	3.7	25.2
01Jan2000	05:17	17.5	12.4	3.7	25.1
01Jan2000	05:18	17.4	12.4	3.7	25.0
01Jan2000	05:19	17.2	12.3	3.7	24.9
01Jan2000	05:20	17.0	12.3	3.7	24.7
01Jan2000	05:21	16.9	12.3	3.7	24.6
01Jan2000	05:22	16.7	12.3	3.7	24.5
01Jan2000	05:23	16.6	12.3	3.7	24.4
01Jan2000	05:24	16.4	12.3	3.7	24.3
01Jan2000	05:25	16.3	12.3	3.7	24.2
01Jan2000	05:26	16.1	12.3	3.7	24.1
01Jan2000	05:27	16.0	12.3	3.7	24.0
01Jan2000	05:28	15.9	12.2	3.6	23.8
01Jan2000	05:29	15.8	12.2	3.6	23.7
01Jan2000	05:30	15.7	12.2	3.6	23.6
01Jan2000	05:31	15.5	12.2	3.6	23.5
01Jan2000	05:32	15.4	12.2	3.6	23.4
01Jan2000	05:33	15.3	12.2	3.6	23.3
01Jan2000	05:34	15.2	12.2	3.6	23.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:35	15.0	12.2	3.6	23.1
01Jan2000	05:36	14.9	12.2	3.6	23.0
01Jan2000	05:37	14.8	12.1	3.6	22.9
01Jan2000	05:38	14.7	12.1	3.6	22.8
01Jan2000	05:39	14.6	12.1	3.6	22.8
01Jan2000	05:40	14.5	12.1	3.6	22.7
01Jan2000	05:41	14.4	12.1	3.6	22.6
01Jan2000	05:42	14.3	12.1	3.6	22.5
01Jan2000	05:43	14.2	12.1	3.6	22.4
01Jan2000	05:44	14.1	12.1	3.6	22.4
01Jan2000	05:45	14.0	12.1	3.6	22.3
01Jan2000	05:46	13.9	12.0	3.6	22.2
01Jan2000	05:47	13.8	12.0	3.6	22.1
01Jan2000	05:48	13.7	12.0	3.6	22.0
01Jan2000	05:49	13.6	12.0	3.6	22.0
01Jan2000	05:50	13.5	12.0	3.6	21.9
01Jan2000	05:51	13.4	12.0	3.6	21.9
01Jan2000	05:52	13.4	12.0	3.6	21.8
01Jan2000	05:53	13.3	12.0	3.6	21.8
01Jan2000	05:54	13.2	11.9	3.6	21.7
01Jan2000	05:55	13.1	11.9	3.6	21.7
01Jan2000	05:56	13.0	11.9	3.6	21.7
01Jan2000	05:57	12.9	11.9	3.6	21.6
01Jan2000	05:58	12.9	11.9	3.6	21.6
01Jan2000	05:59	12.8	11.9	3.6	21.5
01Jan2000	06:00	12.7	11.9	3.5	21.5
01Jan2000	06:01	11.6	11.9	3.5	21.4
01Jan2000	06:02	10.6	11.9	3.5	21.4
01Jan2000	06:03	9.5	11.8	3.5	21.3
01Jan2000	06:04	8.5	11.8	3.5	21.3
01Jan2000	06:05	7.4	11.8	3.5	21.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:06	6.4	11.8	3.5	21.1
01Jan2000	06:07	5.3	11.8	3.5	21.1
01Jan2000	06:08	4.2	11.7	3.5	21.0
01Jan2000	06:09	3.2	11.7	3.5	20.9
01Jan2000	06:10	2.1	11.7	3.5	20.8
01Jan2000	06:11	1.1	11.7	3.5	20.7
01Jan2000	06:12	0.0	11.6	3.5	20.6
01Jan2000	06:13	0.0	11.6	3.5	20.5
01Jan2000	06:14	0.0	11.6	3.5	20.4
01Jan2000	06:15	0.0	11.5	3.5	20.3
01Jan2000	06:16	0.0	11.5	3.4	20.2
01Jan2000	06:17	0.0	11.5	3.4	20.0
01Jan2000	06:18	0.0	11.5	3.4	19.9
01Jan2000	06:19	0.0	11.4	3.4	19.8
01Jan2000	06:20	0.0	11.4	3.4	19.7
01Jan2000	06:21	0.0	11.4	3.4	19.6
01Jan2000	06:22	0.0	11.4	3.4	19.5
01Jan2000	06:23	0.0	11.3	3.4	19.4
01Jan2000	06:24	0.0	11.3	3.4	19.3
01Jan2000	06:25	0.0	11.3	3.4	19.2
01Jan2000	06:26	0.0	11.3	3.4	19.1
01Jan2000	06:27	0.0	11.2	3.4	19.0
01Jan2000	06:28	0.0	11.2	3.4	18.8
01Jan2000	06:29	0.0	11.2	3.4	18.7
01Jan2000	06:30	0.0	11.1	3.3	18.6
01Jan2000	06:31	0.0	11.1	3.3	18.5
01Jan2000	06:32	0.0	11.1	3.3	18.4
01Jan2000	06:33	0.0	11.1	3.3	18.3
01Jan2000	06:34	0.0	11.0	3.3	18.2
01Jan2000	06:35	0.0	11.0	3.3	18.1
01Jan2000	06:36	0.0	11.0	3.3	17.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:37	0.0	11.0	3.3	17.8
01Jan2000	06:38	0.0	10.9	3.3	17.7
01Jan2000	06:39	0.0	10.9	3.3	17.6
01Jan2000	06:40	0.0	10.9	3.3	17.4
01Jan2000	06:41	0.0	10.9	3.3	17.2
01Jan2000	06:42	0.0	10.9	3.3	17.1
01Jan2000	06:43	0.0	10.8	3.3	16.9
01Jan2000	06:44	0.0	10.8	3.3	16.8
01Jan2000	06:45	0.0	10.8	3.2	16.6
01Jan2000	06:46	0.0	10.8	3.2	16.4
01Jan2000	06:47	0.0	10.7	3.2	16.2
01Jan2000	06:48	0.0	10.7	3.2	16.1
01Jan2000	06:49	0.0	10.7	3.2	15.9
01Jan2000	06:50	0.0	10.7	3.2	15.7
01Jan2000	06:51	0.0	10.6	3.2	15.5
01Jan2000	06:52	0.0	10.6	3.2	15.4
01Jan2000	06:53	0.0	10.6	3.2	15.2
01Jan2000	06:54	0.0	10.6	3.2	15.0
01Jan2000	06:55	0.0	10.6	3.2	14.9
01Jan2000	06:56	0.0	10.5	3.2	14.7
01Jan2000	06:57	0.0	10.5	3.2	14.6
01Jan2000	06:58	0.0	10.5	3.2	14.4
01Jan2000	06:59	0.0	10.5	3.2	14.3
01Jan2000	07:00	0.0	10.5	3.2	14.1
01Jan2000	07:01	0.0	10.4	3.2	14.0
01Jan2000	07:02	0.0	10.4	3.1	13.8
01Jan2000	07:03	0.0	10.4	3.1	13.7
01Jan2000	07:04	0.0	10.4	3.1	13.6
01Jan2000	07:05	0.0	10.4	3.1	13.4
01Jan2000	07:06	0.0	10.4	3.1	13.3
01Jan2000	07:07	0.0	10.3	3.1	13.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:08	0.0	10.3	3.1	13.0
01Jan2000	07:09	0.0	10.3	3.1	12.9
01Jan2000	07:10	0.0	10.3	3.1	12.8
01Jan2000	07:11	0.0	10.3	3.1	12.7
01Jan2000	07:12	0.0	10.2	3.1	12.5
01Jan2000	07:13	0.0	10.2	3.1	12.4
01Jan2000	07:14	0.0	10.2	3.1	12.3
01Jan2000	07:15	0.0	10.2	3.1	12.2
01Jan2000	07:16	0.0	10.2	3.1	12.1
01Jan2000	07:17	0.0	10.2	3.1	11.9
01Jan2000	07:18	0.0	10.1	3.1	11.8
01Jan2000	07:19	0.0	10.1	3.1	11.7
01Jan2000	07:20	0.0	10.1	3.1	11.6
01Jan2000	07:21	0.0	10.1	3.1	11.5
01Jan2000	07:22	0.0	10.1	3.0	11.4
01Jan2000	07:23	0.0	10.1	3.0	11.3
01Jan2000	07:24	0.0	10.1	3.0	11.2
01Jan2000	07:25	0.0	10.0	3.0	11.1
01Jan2000	07:26	0.0	10.0	3.0	11.0
01Jan2000	07:27	0.0	10.0	3.0	10.9
01Jan2000	07:28	0.0	10.0	3.0	10.8
01Jan2000	07:29	0.0	10.0	3.0	10.7
01Jan2000	07:30	0.0	10.0	3.0	10.6
01Jan2000	07:31	0.0	9.9	3.0	10.5
01Jan2000	07:32	0.0	9.9	3.0	10.4
01Jan2000	07:33	0.0	9.9	3.0	10.3
01Jan2000	07:34	0.0	9.9	3.0	10.2
01Jan2000	07:35	0.0	9.9	3.0	10.2
01Jan2000	07:36	0.0	9.9	3.0	10.1
01Jan2000	07:37	0.0	9.9	3.0	10.0
01Jan2000	07:38	0.0	9.8	3.0	9.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:39	0.0	9.8	3.0	9.8
01Jan2000	07:40	0.0	9.8	3.0	9.7
01Jan2000	07:41	0.0	9.8	3.0	9.7
01Jan2000	07:42	0.0	9.8	3.0	9.6
01Jan2000	07:43	0.0	9.8	3.0	9.5
01Jan2000	07:44	0.0	9.8	3.0	9.4
01Jan2000	07:45	0.0	9.8	3.0	9.3
01Jan2000	07:46	0.0	9.7	3.0	9.3
01Jan2000	07:47	0.0	9.7	2.9	9.2
01Jan2000	07:48	0.0	9.7	2.9	9.1
01Jan2000	07:49	0.0	9.7	2.9	9.1
01Jan2000	07:50	0.0	9.7	2.9	9.0
01Jan2000	07:51	0.0	9.7	2.9	8.9
01Jan2000	07:52	0.0	9.7	2.9	8.8
01Jan2000	07:53	0.0	9.7	2.9	8.8
01Jan2000	07:54	0.0	9.6	2.9	8.7
01Jan2000	07:55	0.0	9.6	2.9	8.6
01Jan2000	07:56	0.0	9.6	2.9	8.6
01Jan2000	07:57	0.0	9.6	2.9	8.5
01Jan2000	07:58	0.0	9.6	2.9	8.4
01Jan2000	07:59	0.0	9.6	2.9	8.4
01Jan2000	08:00	0.0	9.6	2.9	8.3
01Jan2000	08:01	0.0	9.6	2.9	8.3
01Jan2000	08:02	0.0	9.5	2.9	8.2
01Jan2000	08:03	0.0	9.5	2.9	8.1
01Jan2000	08:04	0.0	9.5	2.9	8.1
01Jan2000	08:05	0.0	9.5	2.9	8.0
01Jan2000	08:06	0.0	9.5	2.9	8.0
01Jan2000	08:07	0.0	9.5	2.9	7.9
01Jan2000	08:08	0.0	9.5	2.9	7.9
01Jan2000	08:09	0.0	9.5	2.9	7.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:10	0.0	9.5	2.9	7.7
01Jan2000	08:11	0.0	9.5	2.9	7.7
01Jan2000	08:12	0.0	9.4	2.9	7.6
01Jan2000	08:13	0.0	9.4	2.9	7.6
01Jan2000	08:14	0.0	9.4	2.9	7.5
01Jan2000	08:15	0.0	9.4	2.9	7.5
01Jan2000	08:16	0.0	9.4	2.9	7.4
01Jan2000	08:17	0.0	9.4	2.9	7.4
01Jan2000	08:18	0.0	9.4	2.8	7.3
01Jan2000	08:19	0.0	9.4	2.8	7.3
01Jan2000	08:20	0.0	9.4	2.8	7.3
01Jan2000	08:21	0.0	9.3	2.8	7.2
01Jan2000	08:22	0.0	9.3	2.8	7.2
01Jan2000	08:23	0.0	9.3	2.8	7.1
01Jan2000	08:24	0.0	9.3	2.8	7.1
01Jan2000	08:25	0.0	9.3	2.8	7.0
01Jan2000	08:26	0.0	9.3	2.8	7.0
01Jan2000	08:27	0.0	9.3	2.8	6.9
01Jan2000	08:28	0.0	9.3	2.8	6.9
01Jan2000	08:29	0.0	9.3	2.8	6.9
01Jan2000	08:30	0.0	9.3	2.8	6.8
01Jan2000	08:31	0.0	9.3	2.8	6.8
01Jan2000	08:32	0.0	9.2	2.8	6.7
01Jan2000	08:33	0.0	9.2	2.8	6.7
01Jan2000	08:34	0.0	9.2	2.8	6.7
01Jan2000	08:35	0.0	9.2	2.8	6.6
01Jan2000	08:36	0.0	9.2	2.8	6.6
01Jan2000	08:37	0.0	9.2	2.8	6.5
01Jan2000	08:38	0.0	9.2	2.8	6.5
01Jan2000	08:39	0.0	9.2	2.8	6.5
01Jan2000	08:40	0.0	9.2	2.8	6.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	08:41	0.0	9.2	2.8	6.4
01Jan2000	08:42	0.0	9.2	2.8	6.4
01Jan2000	08:43	0.0	9.1	2.8	6.3
01Jan2000	08:44	0.0	9.1	2.8	6.3
01Jan2000	08:45	0.0	9.1	2.8	6.3
01Jan2000	08:46	0.0	9.1	2.8	6.3
01Jan2000	08:47	0.0	9.1	2.8	6.2
01Jan2000	08:48	0.0	9.1	2.8	6.2
01Jan2000	08:49	0.0	9.1	2.8	6.2
01Jan2000	08:50	0.0	9.1	2.8	6.1
01Jan2000	08:51	0.0	9.1	2.8	6.1
01Jan2000	08:52	0.0	9.1	2.8	6.1
01Jan2000	08:53	0.0	9.1	2.8	6.0
01Jan2000	08:54	0.0	9.1	2.8	6.0
01Jan2000	08:55	0.0	9.0	2.8	6.0
01Jan2000	08:56	0.0	9.0	2.7	5.9
01Jan2000	08:57	0.0	9.0	2.7	5.9
01Jan2000	08:58	0.0	9.0	2.7	5.9
01Jan2000	08:59	0.0	9.0	2.7	5.9
01Jan2000	09:00	0.0	9.0	2.7	5.9
01Jan2000	09:01	0.0	9.0	2.7	5.8
01Jan2000	09:02	0.0	9.0	2.7	5.8
01Jan2000	09:03	0.0	9.0	2.7	5.8
01Jan2000	09:04	0.0	9.0	2.7	5.8
01Jan2000	09:05	0.0	9.0	2.7	5.7
01Jan2000	09:06	0.0	9.0	2.7	5.7
01Jan2000	09:07	0.0	8.9	2.7	5.7
01Jan2000	09:08	0.0	8.9	2.7	5.7
01Jan2000	09:09	0.0	8.9	2.7	5.7
01Jan2000	09:10	0.0	8.9	2.7	5.6
01Jan2000	09:11	0.0	8.9	2.7	5.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:12	0.0	8.9	2.7	5.6
01Jan2000	09:13	0.0	8.9	2.7	5.6
01Jan2000	09:14	0.0	8.9	2.7	5.5
01Jan2000	09:15	0.0	8.9	2.7	5.5
01Jan2000	09:16	0.0	8.9	2.7	5.5
01Jan2000	09:17	0.0	8.9	2.7	5.5
01Jan2000	09:18	0.0	8.9	2.7	5.5
01Jan2000	09:19	0.0	8.9	2.7	5.5
01Jan2000	09:20	0.0	8.8	2.7	5.5
01Jan2000	09:21	0.0	8.8	2.7	5.5
01Jan2000	09:22	0.0	8.8	2.7	5.4
01Jan2000	09:23	0.0	8.8	2.7	5.4
01Jan2000	09:24	0.0	8.8	2.7	5.4
01Jan2000	09:25	0.0	8.8	2.7	5.4
01Jan2000	09:26	0.0	8.8	2.7	5.4
01Jan2000	09:27	0.0	8.8	2.7	5.4
01Jan2000	09:28	0.0	8.8	2.7	5.4
01Jan2000	09:29	0.0	8.8	2.7	5.4
01Jan2000	09:30	0.0	8.8	2.7	5.3
01Jan2000	09:31	0.0	8.8	2.7	5.3
01Jan2000	09:32	0.0	8.8	2.7	5.3
01Jan2000	09:33	0.0	8.7	2.7	5.3
01Jan2000	09:34	0.0	8.7	2.7	5.3
01Jan2000	09:35	0.0	8.7	2.7	5.3
01Jan2000	09:36	0.0	8.7	2.7	5.3
01Jan2000	09:37	0.0	8.7	2.7	5.3
01Jan2000	09:38	0.0	8.7	2.7	5.3
01Jan2000	09:39	0.0	8.7	2.7	5.3
01Jan2000	09:40	0.0	8.7	2.7	5.3
01Jan2000	09:41	0.0	8.7	2.7	5.3
01Jan2000	09:42	0.0	8.7	2.6	5.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:43	0.0	8.7	2.6	5.3
01Jan2000	09:44	0.0	8.7	2.6	5.3
01Jan2000	09:45	0.0	8.7	2.6	5.3
01Jan2000	09:46	0.0	8.7	2.6	5.3
01Jan2000	09:47	0.0	8.6	2.6	5.3
01Jan2000	09:48	0.0	8.6	2.6	5.3
01Jan2000	09:49	0.0	8.6	2.6	5.3
01Jan2000	09:50	0.0	8.6	2.6	5.3
01Jan2000	09:51	0.0	8.6	2.6	5.3
01Jan2000	09:52	0.0	8.6	2.6	5.3
01Jan2000	09:53	0.0	8.6	2.6	5.3
01Jan2000	09:54	0.0	8.6	2.6	5.3
01Jan2000	09:55	0.0	8.6	2.6	5.3
01Jan2000	09:56	0.0	8.6	2.6	5.3
01Jan2000	09:57	0.0	8.6	2.6	5.3
01Jan2000	09:58	0.0	8.6	2.6	5.3
01Jan2000	09:59	0.0	8.6	2.6	5.3
01Jan2000	10:00	0.0	8.6	2.6	5.3
01Jan2000	10:01	0.0	8.5	2.6	5.3
01Jan2000	10:02	0.0	8.5	2.6	5.3
01Jan2000	10:03	0.0	8.5	2.6	5.3
01Jan2000	10:04	0.0	8.5	2.6	5.3
01Jan2000	10:05	0.0	8.5	2.6	5.2
01Jan2000	10:06	0.0	8.5	2.6	5.2
01Jan2000	10:07	0.0	8.5	2.6	5.2
01Jan2000	10:08	0.0	8.5	2.6	5.2
01Jan2000	10:09	0.0	8.5	2.6	5.2
01Jan2000	10:10	0.0	8.5	2.6	5.2
01Jan2000	10:11	0.0	8.5	2.6	5.2
01Jan2000	10:12	0.0	8.5	2.6	5.2
01Jan2000	10:13	0.0	8.5	2.6	5.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:14	0.0	8.5	2.6	5.2
01Jan2000	10:15	0.0	8.4	2.6	5.2
01Jan2000	10:16	0.0	8.4	2.6	5.2
01Jan2000	10:17	0.0	8.4	2.6	5.2
01Jan2000	10:18	0.0	8.4	2.6	5.2
01Jan2000	10:19	0.0	8.4	2.6	5.2
01Jan2000	10:20	0.0	8.4	2.6	5.2
01Jan2000	10:21	0.0	8.4	2.6	5.2
01Jan2000	10:22	0.0	8.4	2.6	5.2
01Jan2000	10:23	0.0	8.4	2.6	5.2
01Jan2000	10:24	0.0	8.4	2.6	5.2
01Jan2000	10:25	0.0	8.4	2.6	5.2
01Jan2000	10:26	0.0	8.4	2.6	5.2
01Jan2000	10:27	0.0	8.4	2.6	5.2
01Jan2000	10:28	0.0	8.4	2.6	5.2
01Jan2000	10:29	0.0	8.3	2.6	5.2
01Jan2000	10:30	0.0	8.3	2.5	5.2
01Jan2000	10:31	0.0	8.3	2.5	5.2
01Jan2000	10:32	0.0	8.3	2.5	5.2
01Jan2000	10:33	0.0	8.3	2.5	5.2
01Jan2000	10:34	0.0	8.3	2.5	5.2
01Jan2000	10:35	0.0	8.3	2.5	5.2
01Jan2000	10:36	0.0	8.3	2.5	5.2
01Jan2000	10:37	0.0	8.3	2.5	5.2
01Jan2000	10:38	0.0	8.3	2.5	5.2
01Jan2000	10:39	0.0	8.3	2.5	5.2
01Jan2000	10:40	0.0	8.3	2.5	5.2
01Jan2000	10:41	0.0	8.3	2.5	5.2
01Jan2000	10:42	0.0	8.3	2.5	5.2
01Jan2000	10:43	0.0	8.2	2.5	5.2
01Jan2000	10:44	0.0	8.2	2.5	5.2

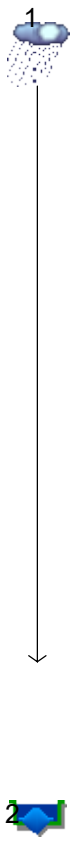
Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	10:45	0.0	8.2	2.5	5.2
01Jan2000	10:46	0.0	8.2	2.5	5.2
01Jan2000	10:47	0.0	8.2	2.5	5.2
01Jan2000	10:48	0.0	8.2	2.5	5.2
01Jan2000	10:49	0.0	8.2	2.5	5.2
01Jan2000	10:50	0.0	8.2	2.5	5.2
01Jan2000	10:51	0.0	8.2	2.5	5.2
01Jan2000	10:52	0.0	8.2	2.5	5.2
01Jan2000	10:53	0.0	8.2	2.5	5.2
01Jan2000	10:54	0.0	8.2	2.5	5.2
01Jan2000	10:55	0.0	8.2	2.5	5.2
01Jan2000	10:56	0.0	8.2	2.5	5.2
01Jan2000	10:57	0.0	8.1	2.5	5.2
01Jan2000	10:58	0.0	8.1	2.5	5.2
01Jan2000	10:59	0.0	8.1	2.5	5.2
01Jan2000	11:00	0.0	8.1	2.5	5.2
01Jan2000	11:01	0.0	8.1	2.5	5.2
01Jan2000	11:02	0.0	8.1	2.5	5.2
01Jan2000	11:03	0.0	8.1	2.5	5.2
01Jan2000	11:04	0.0	8.1	2.5	5.2
01Jan2000	11:05	0.0	8.1	2.5	5.2
01Jan2000	11:06	0.0	8.1	2.5	5.1
01Jan2000	11:07	0.0	8.1	2.5	5.1
01Jan2000	11:08	0.0	8.1	2.5	5.1
01Jan2000	11:09	0.0	8.1	2.5	5.1
01Jan2000	11:10	0.0	8.1	2.5	5.1
01Jan2000	11:11	0.0	8.0	2.5	5.1
01Jan2000	11:12	0.0	8.0	2.5	5.1
01Jan2000	11:13	0.0	8.0	2.5	5.1
01Jan2000	11:14	0.0	8.0	2.5	5.1
01Jan2000	11:15	0.0	8.0	2.5	5.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:16	0.0	8.0	2.5	5.1
01Jan2000	11:17	0.0	8.0	2.5	5.1
01Jan2000	11:18	0.0	8.0	2.4	5.1
01Jan2000	11:19	0.0	8.0	2.4	5.1
01Jan2000	11:20	0.0	8.0	2.4	5.1
01Jan2000	11:21	0.0	8.0	2.4	5.1
01Jan2000	11:22	0.0	8.0	2.4	5.1
01Jan2000	11:23	0.0	8.0	2.4	5.1
01Jan2000	11:24	0.0	8.0	2.4	5.1
01Jan2000	11:25	0.0	7.9	2.4	5.1
01Jan2000	11:26	0.0	7.9	2.4	5.1
01Jan2000	11:27	0.0	7.9	2.4	5.1
01Jan2000	11:28	0.0	7.9	2.4	5.1
01Jan2000	11:29	0.0	7.9	2.4	5.1
01Jan2000	11:30	0.0	7.9	2.4	5.1
01Jan2000	11:31	0.0	7.9	2.4	5.1
01Jan2000	11:32	0.0	7.9	2.4	5.1
01Jan2000	11:33	0.0	7.9	2.4	5.1
01Jan2000	11:34	0.0	7.9	2.4	5.1
01Jan2000	11:35	0.0	7.9	2.4	5.1
01Jan2000	11:36	0.0	7.9	2.4	5.1
01Jan2000	11:37	0.0	7.9	2.4	5.1
01Jan2000	11:38	0.0	7.9	2.4	5.1
01Jan2000	11:39	0.0	7.8	2.4	5.1
01Jan2000	11:40	0.0	7.8	2.4	5.1
01Jan2000	11:41	0.0	7.8	2.4	5.1
01Jan2000	11:42	0.0	7.8	2.4	5.1
01Jan2000	11:43	0.0	7.8	2.4	5.1
01Jan2000	11:44	0.0	7.8	2.4	5.1
01Jan2000	11:45	0.0	7.8	2.4	5.1
01Jan2000	11:46	0.0	7.8	2.4	5.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	11:47	0.0	7.8	2.4	5.1
01Jan2000	11:48	0.0	7.8	2.4	5.1
01Jan2000	11:49	0.0	7.8	2.4	5.1
01Jan2000	11:50	0.0	7.8	2.4	5.1
01Jan2000	11:51	0.0	7.8	2.4	5.1
01Jan2000	11:52	0.0	7.8	2.4	5.1
01Jan2000	11:53	0.0	7.7	2.4	5.1
01Jan2000	11:54	0.0	7.7	2.4	5.1
01Jan2000	11:55	0.0	7.7	2.4	5.1
01Jan2000	11:56	0.0	7.7	2.4	5.1
01Jan2000	11:57	0.0	7.7	2.4	5.1
01Jan2000	11:58	0.0	7.7	2.4	5.1
01Jan2000	11:59	0.0	7.7	2.4	5.1
01Jan2000	12:00	0.0	7.7	2.4	5.1

Hydraflow Table of Contents

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	Manual	POC-12
2	Reservoir	POC-12

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

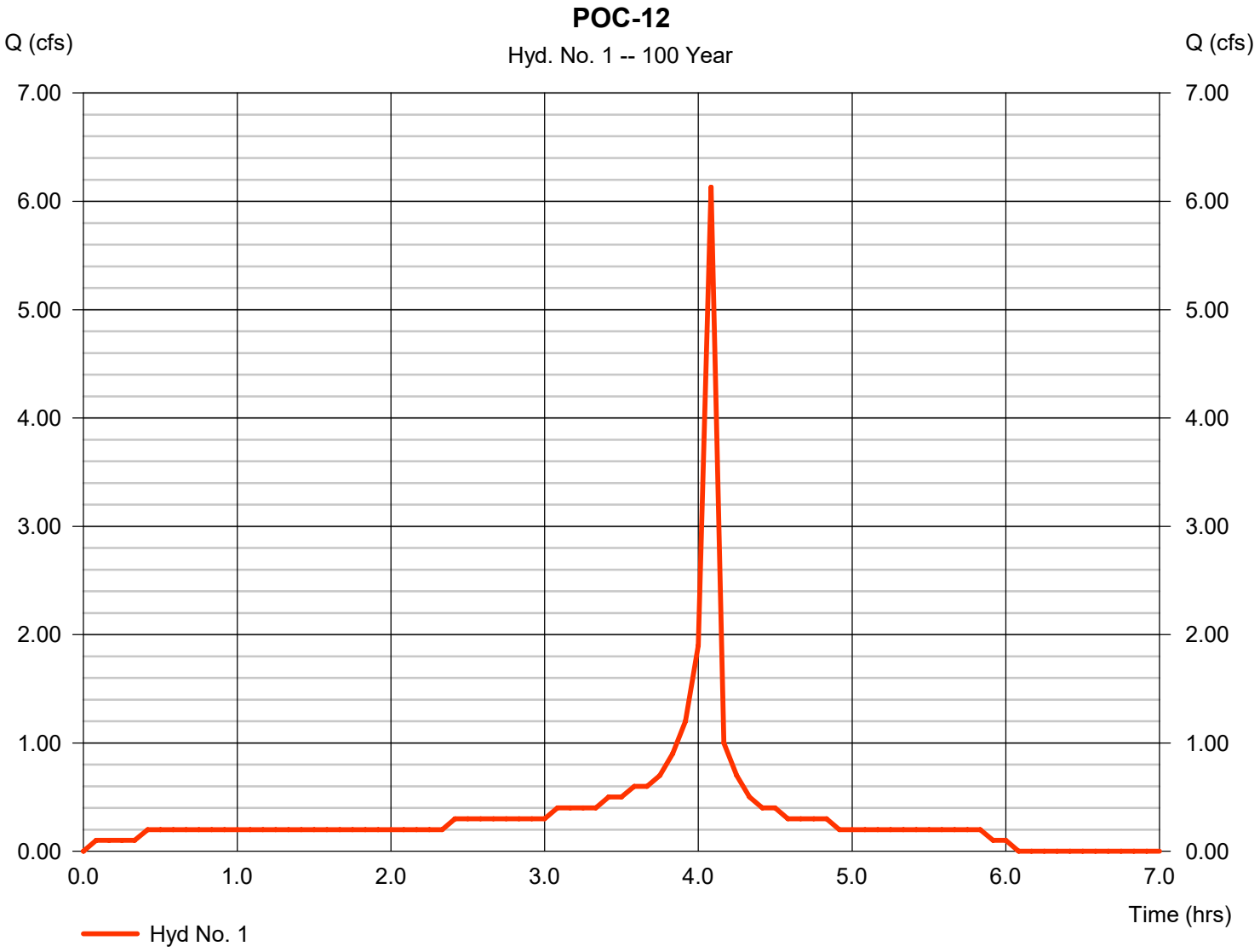
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Manual	6.130	5	245	8,709	------	------	------	POC-12
2	Reservoir	2.457	5	250	8,708	1	453.82	2,598	POC-12

Hydrograph Report

Hyd. No. 1

POC-12

Hydrograph type	= Manual	Peak discharge	= 6.130 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.08 hrs
Time interval	= 5 min	Hyd. volume	= 8,709 cuft



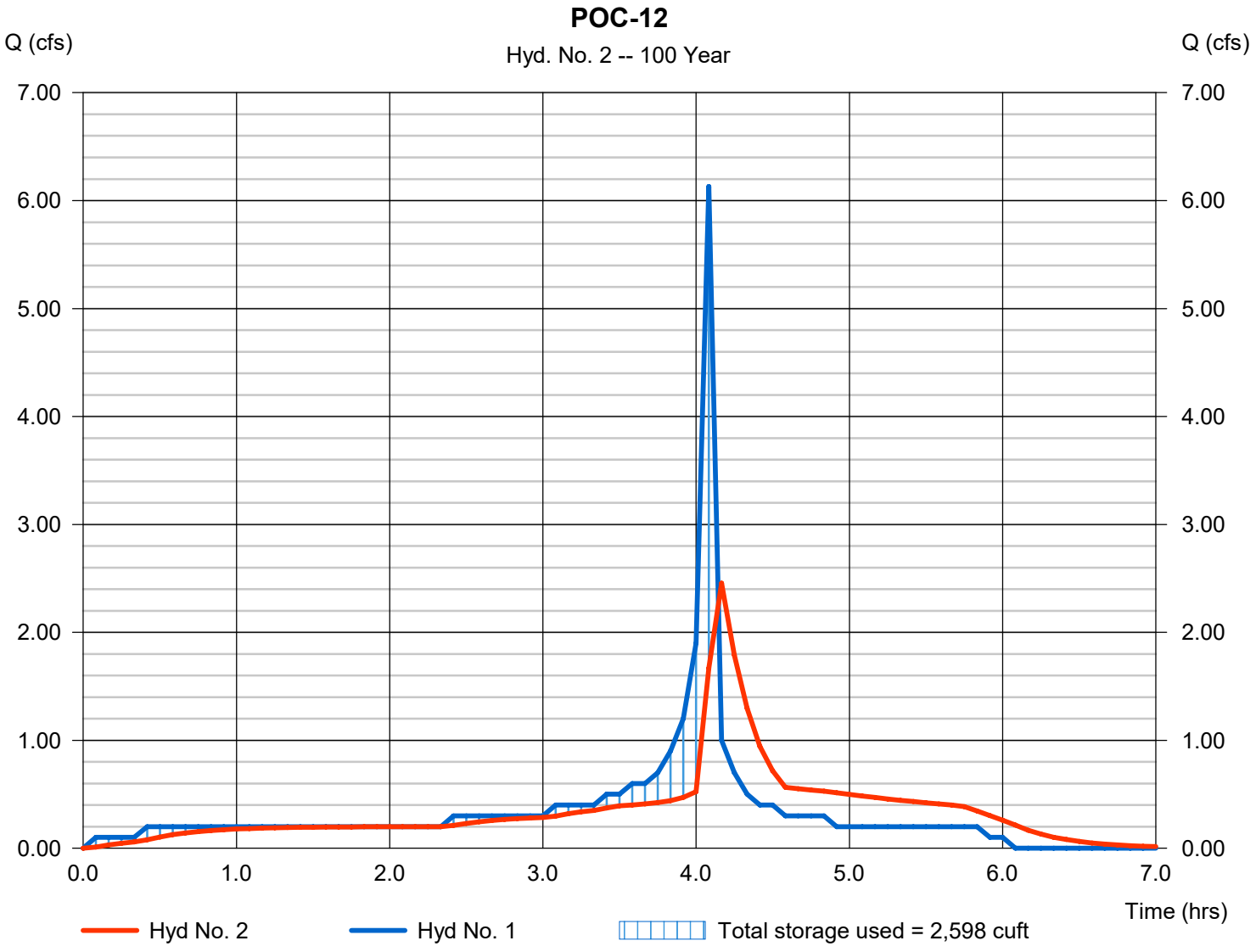
Hydrograph Report

Hyd. No. 2

POC-12

Hydrograph type	=	Reservoir	Peak discharge	=	2.457 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.17 hrs
Time interval	=	5 min	Hyd. volume	=	8,708 cuft
Inflow hyd. No.	=	1 - POC-12	Max. Elevation	=	453.82 ft
Reservoir name	=	POC-12	Max. Storage	=	2,598 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - POC-12

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 450.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	450.00	203	0	0
1.00	452.10	758	481	481
2.00	453.00	1,313	1,036	1,516
3.00	455.00	1,869	1,591	3,107
4.00	456.00	2,424	2,147	5,254
5.00	457.00	2,979	2,702	7,955
6.00	458.00	3,534	3,257	11,212

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	Inactive
Span (in)	= 36.00	1.00	3.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 535.00	540.77	542.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.61	0.61	0.61	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	Inactive	Inactive	0.00
Crest El. (ft)	= 544.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

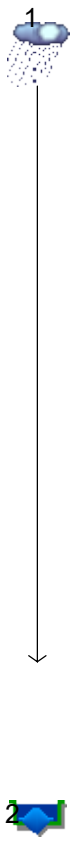
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	450.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	481	452.10	0.00	0.00	0.00	---	0.00	---	---	---	---	0.391	0.391
2.00	1,516	453.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.565	0.565
3.00	3,107	455.00	0.00	0.00	0.00	---	0.00	---	---	---	---	3.346	3.346
4.00	5,254	456.00	0.00	0.00	0.00	---	0.00	---	---	---	---	4.855	4.855
5.00	7,955	457.00	0.00	0.00	0.00	---	0.00	---	---	---	---	55.58	55.58
6.00	11,212	458.00	0.00	0.00	0.00	---	0.00	---	---	---	---	117.68	117.68

Hydraflow Table of Contents

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	Manual	POC-15
2	Reservoir	POC-15

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

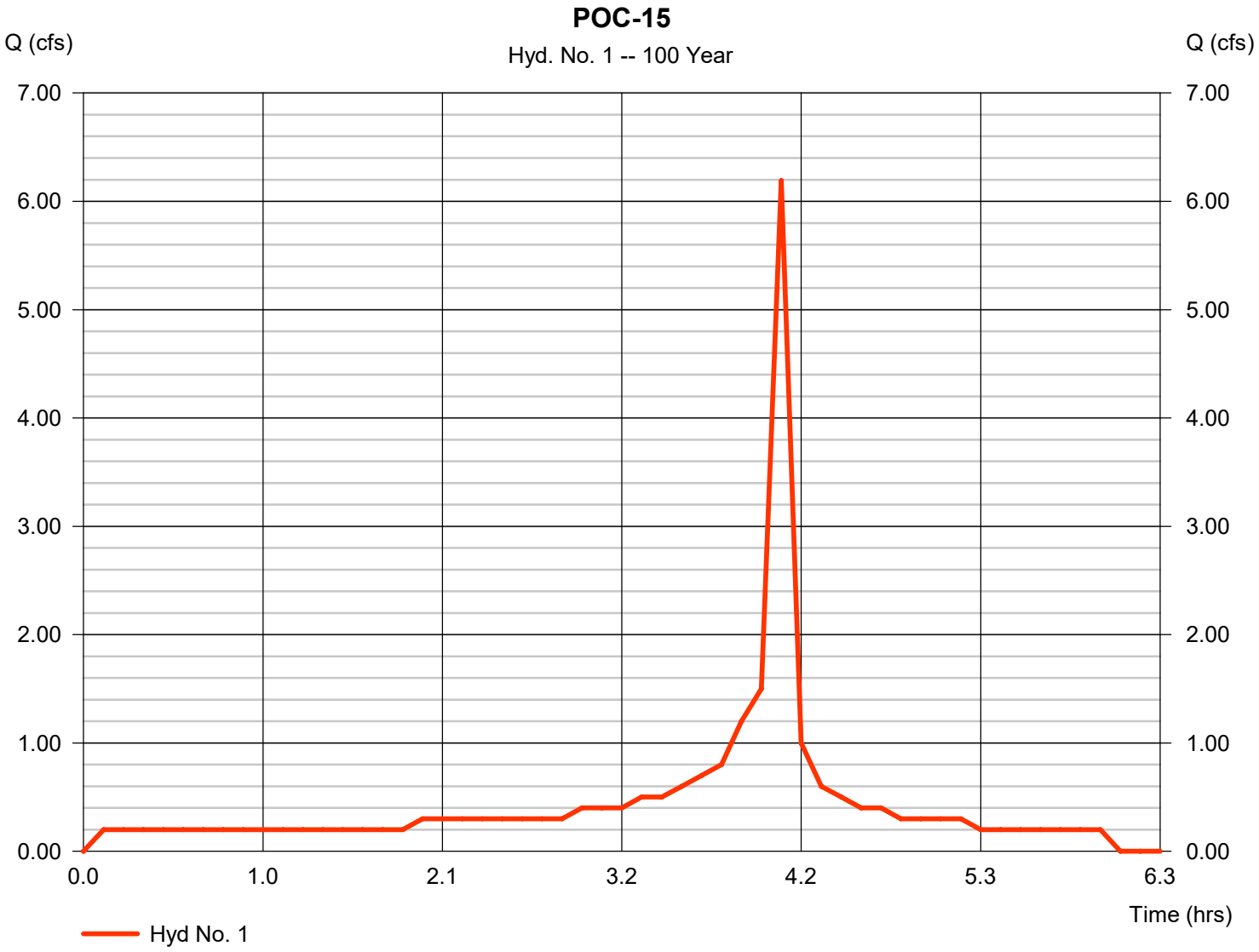
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Manual	6.190	7	245	10,202	------	------	------	POC-15
2	Reservoir	3.792	7	252	10,167	1	546.00	5,392	POC-15

Hydrograph Report

Hyd. No. 1

POC-15

Hydrograph type	= Manual	Peak discharge	= 6.190 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.08 hrs
Time interval	= 7 min	Hyd. volume	= 10,202 cuft



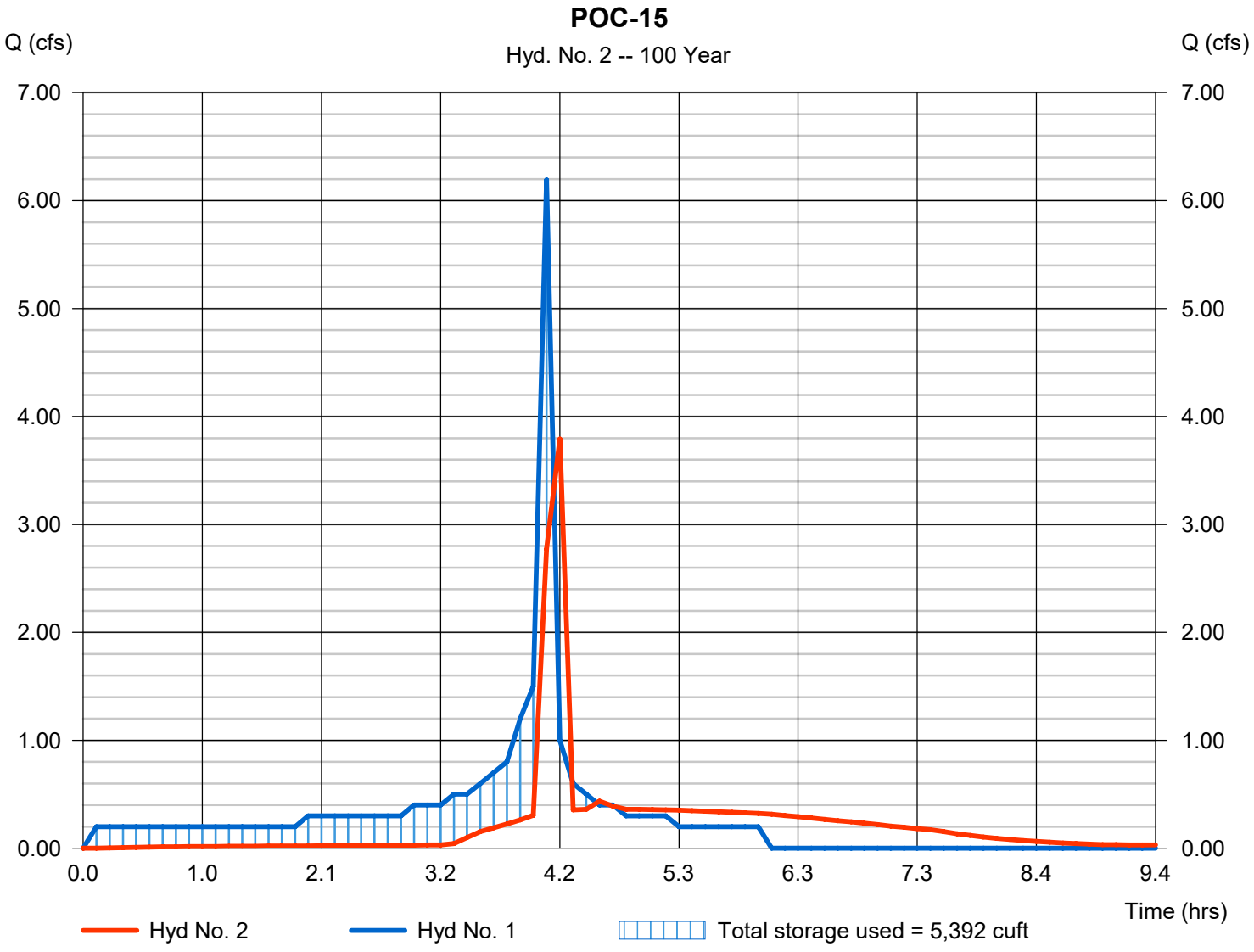
Hydrograph Report

Hyd. No. 2

POC-15

Hydrograph type	=	Reservoir	Peak discharge	=	3.792 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.20 hrs
Time interval	=	7 min	Hyd. volume	=	10,167 cuft
Inflow hyd. No.	=	1 - POC-15	Max. Elevation	=	546.00 ft
Reservoir name	=	POC-15	Max. Storage	=	5,392 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - POC-15

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 540.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	540.00	900	0	0
0.50	540.50	900	450	450
1.00	541.00	900	450	900
1.50	541.50	900	450	1,350
2.00	542.00	900	450	1,800
2.50	542.50	900	450	2,250
3.00	543.00	900	450	2,700
3.50	543.50	900	450	3,150
4.00	544.00	900	450	3,600
4.50	544.50	900	450	4,050
5.00	545.00	900	450	4,500
5.50	545.50	900	450	4,950
6.00	546.00	900	450	5,400

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	Inactive
Span (in)	= 36.00	1.00	3.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 535.00	540.77	542.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.61	0.61	0.61	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	Inactive	Inactive	Inactive
Crest El. (ft)	= 544.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

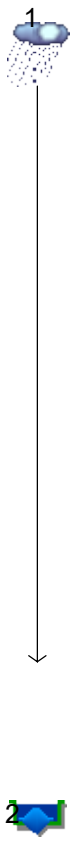
Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	540.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	450	540.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.013	0.013
1.00	900	541.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.018	0.018
1.50	1,350	541.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.022	0.022
2.00	1,800	542.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.026	0.026
2.50	2,250	542.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.029	0.029
3.00	2,700	543.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.032	0.032
3.50	3,150	543.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.169	0.169
4.00	3,600	544.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.234	0.234
4.50	4,050	544.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.284	0.284
5.00	4,500	545.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.325	0.325
5.50	4,950	545.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.362	0.362
6.00	5,400	546.00	0.00	0.00	0.00	---	0.00	---	---	---	---	3.856	3.856

Hydraflow Table of Contents

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020



Legend

Hyd.	Origin	Description
1	Manual	POC-16
2	Reservoir	POC-16

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

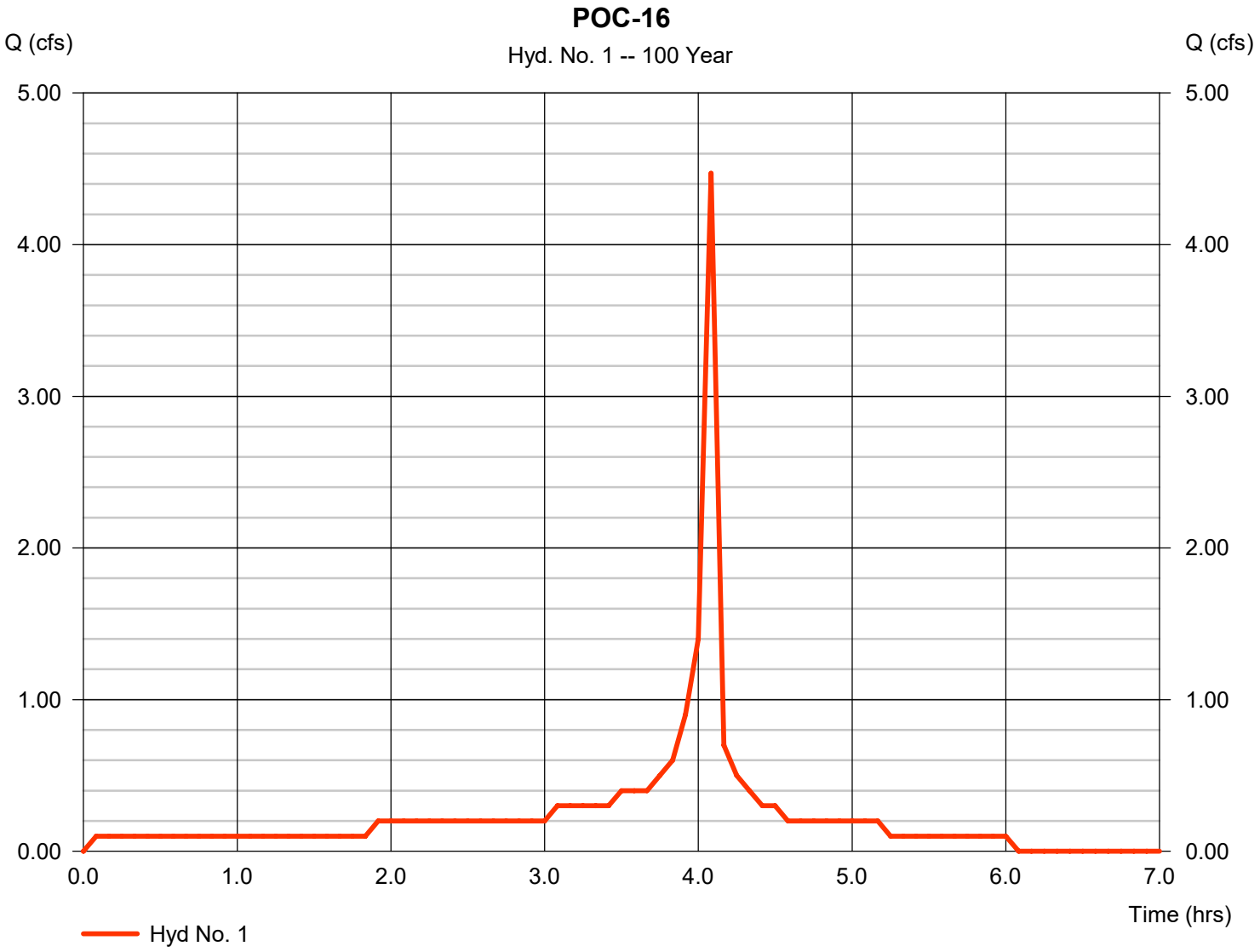
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Manual	4.470	5	245	6,111	------	------	------	POC-16
2	Reservoir	0.778	5	250	6,054	1	575.59	4,458	POC-16

Hydrograph Report

Hyd. No. 1

POC-16

Hydrograph type	= Manual	Peak discharge	= 4.470 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.08 hrs
Time interval	= 5 min	Hyd. volume	= 6,111 cuft



Hydrograph Report

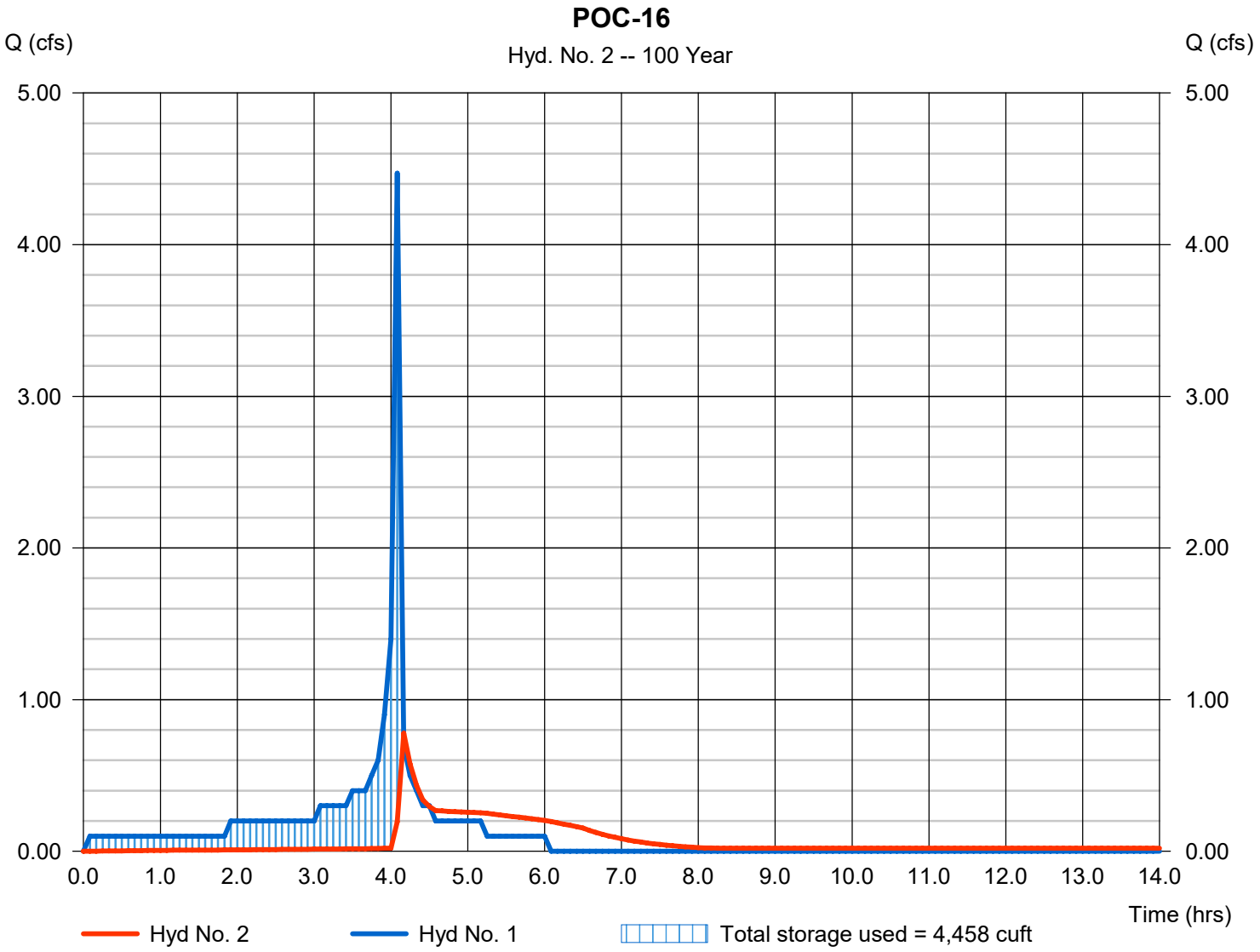
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Monday, 03 / 11 / 2019

Hyd. No. 2

POC-16

Hydrograph type	= Reservoir	Peak discharge	= 0.778 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.17 hrs
Time interval	= 5 min	Hyd. volume	= 6,054 cuft
Inflow hyd. No.	= 1 - POC-16	Max. Elevation	= 575.59 ft
Reservoir name	= POC-16	Max. Storage	= 4,458 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - POC-16

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 570.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	570.00	800	0	0
0.50	570.50	800	400	400
1.00	571.00	800	400	800
1.50	571.50	800	400	1,200
2.00	572.00	800	400	1,600
2.50	572.50	800	400	2,000
3.00	573.00	800	400	2,400
3.50	573.50	800	400	2,800
4.00	574.00	800	400	3,200
4.50	574.50	800	400	3,600
5.00	575.00	800	400	4,000
5.50	575.50	800	400	4,400
6.00	576.00	800	400	4,800

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	Inactive
Span (in)	= 36.00	1.00	3.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 535.00	540.77	542.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.61	0.61	0.61	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	Inactive	Inactive	Inactive
Crest El. (ft)	= 544.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

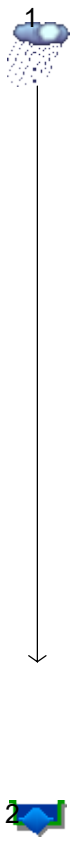
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	570.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
0.50	400	570.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.007	0.007
1.00	800	571.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.010	0.010
1.50	1,200	571.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.013	0.013
2.00	1,600	572.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.015	0.015
2.50	2,000	572.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.017	0.017
3.00	2,400	573.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.018	0.018
3.50	2,800	573.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.020	0.020
4.00	3,200	574.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.021	0.021
4.50	3,600	574.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.157	0.157
5.00	4,000	575.00	0.00	0.00	0.00	---	0.00	---	---	---	---	0.221	0.221
5.50	4,400	575.50	0.00	0.00	0.00	---	0.00	---	---	---	---	0.269	0.269
6.00	4,800	576.00	0.00	0.00	0.00	---	0.00	---	---	---	---	3.771	3.771

Hydraflow Table of Contents

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	Manual	POC-18
2	Reservoir	POC-18

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

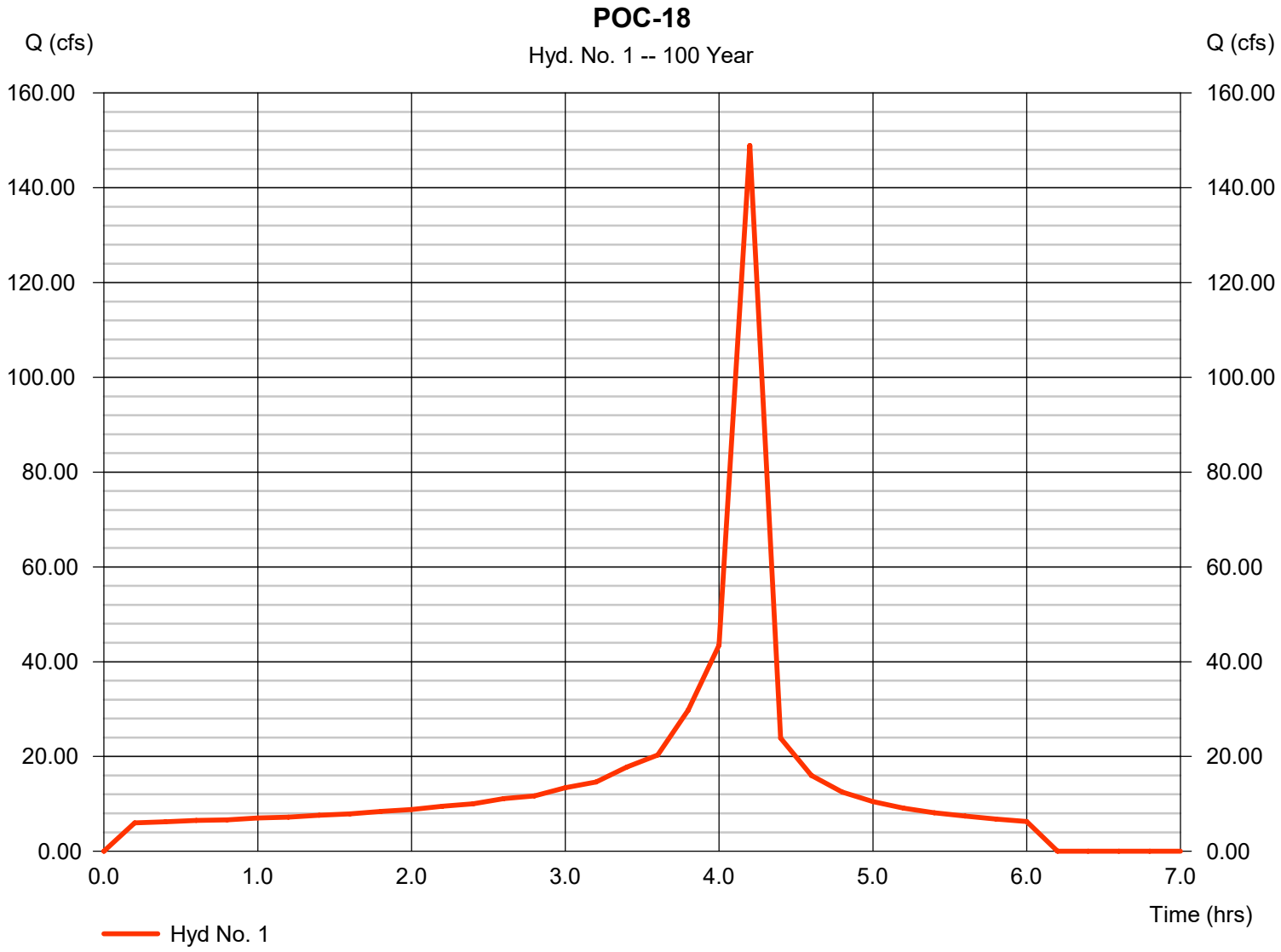
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Manual	148.95	12	252	362,484	------	------	------	POC-18
2	Reservoir	78.95	12	264	362,483	1	484.50	97,331	POC-18

Hydrograph Report

Hyd. No. 1

POC-18

Hydrograph type	=	Manual	Peak discharge	=	148.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.20 hrs
Time interval	=	12 min	Hyd. volume	=	362,484 cuft



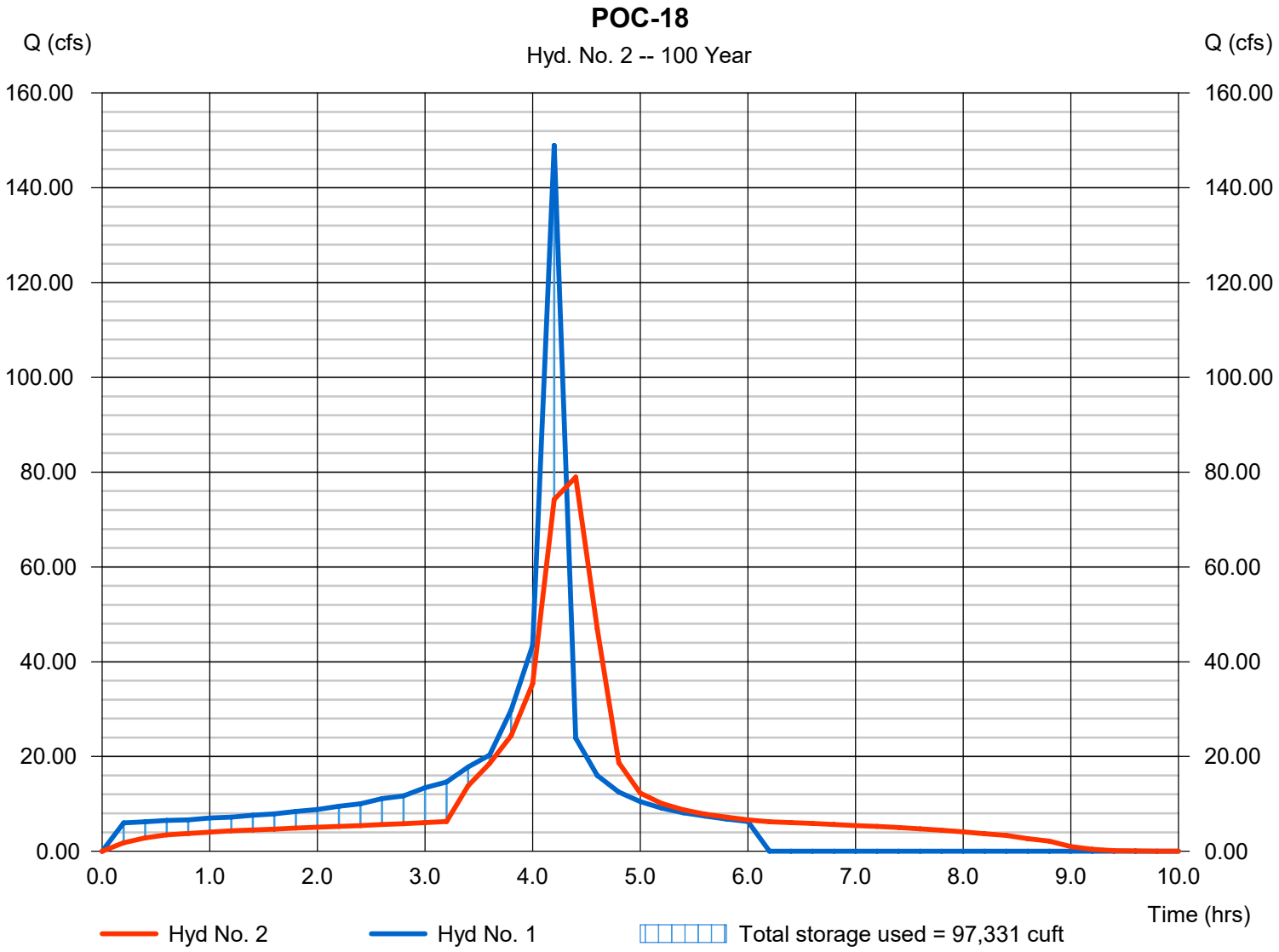
Hydrograph Report

Hyd. No. 2

POC-18

Hydrograph type	=	Reservoir	Peak discharge	=	78.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.40 hrs
Time interval	=	12 min	Hyd. volume	=	362,483 cuft
Inflow hyd. No.	=	1 - POC-18	Max. Elevation	=	484.50 ft
Reservoir name	=	POC-18	Max. Storage	=	97,331 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - POC-18

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 475.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	475.00	437	0	0
1.00	476.00	2,935	1,686	1,686
2.00	477.00	5,432	4,184	5,870
3.00	478.00	7,930	6,681	12,551
4.00	479.00	10,427	9,179	21,729
5.00	480.00	12,925	11,676	33,405
6.00	481.00	15,422	14,174	47,579
7.00	482.00	17,920	16,671	64,250
8.00	483.00	20,417	19,169	83,418
9.00	484.00	22,915	21,666	105,084
10.00	485.00	25,412	24,164	129,248
11.00	486.00	27,910	26,661	155,909
12.00	487.00	30,407	29,159	185,067
13.00	488.00	32,905	31,656	216,723
14.00	489.00	35,402	34,154	250,877
15.00	490.00	37,900	36,651	287,528

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	Inactive
Span (in)	= 36.00	1.00	3.00	0.00
No. Barrels	= 1	1	2	0
Invert El. (ft)	= 535.00	540.77	542.00	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.61	0.61	0.61	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	Inactive	Inactive	Inactive
Crest El. (ft)	= 544.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	475.00	0.00	0.00	0.00	---	0.00	---	---	---	---	---	0.000
1.00	1,686	476.00	0.00	0.00	0.00	---	0.00	---	---	---	---	2.039	2.039
2.00	5,870	477.00	0.00	0.00	0.00	---	0.00	---	---	---	---	3.360	3.360
3.00	12,551	478.00	0.00	0.00	0.00	---	0.00	---	---	---	---	4.291	4.291
4.00	21,729	479.00	0.00	0.00	0.00	---	0.00	---	---	---	---	5.054	5.054
5.00	33,405	480.00	0.00	0.00	0.00	---	0.00	---	---	---	---	5.716	5.716
6.00	47,579	481.00	0.00	0.00	0.00	---	0.00	---	---	---	---	6.309	6.309
7.00	64,250	482.00	0.00	0.00	0.00	---	0.00	---	---	---	---	44.05	44.05
8.00	83,418	483.00	0.00	0.00	0.00	---	0.00	---	---	---	---	69.66	69.66
9.00	105,084	484.00	0.00	0.00	0.00	---	0.00	---	---	---	---	84.13	84.13
10.00	129,248	485.00	0.00	0.00	0.00	---	0.00	---	---	---	---	96.38	96.38
11.00	155,909	486.00	0.00	0.00	0.00	---	0.00	---	---	---	---	107.20	107.20
12.00	185,067	487.00	0.00	0.00	0.00	---	0.00	---	---	---	---	117.00	117.00
13.00	216,723	488.00	0.00	0.00	0.00	---	0.00	---	---	---	---	126.04	126.04
14.00	250,877	489.00	0.00	0.00	0.00	---	0.00	---	---	---	---	134.45	134.45
15.00	287,528	490.00	0.00	0.00	0.00	---	0.00	---	---	---	---	142.37	142.37

Project: FANITA-RV Simulation Run: Run 1

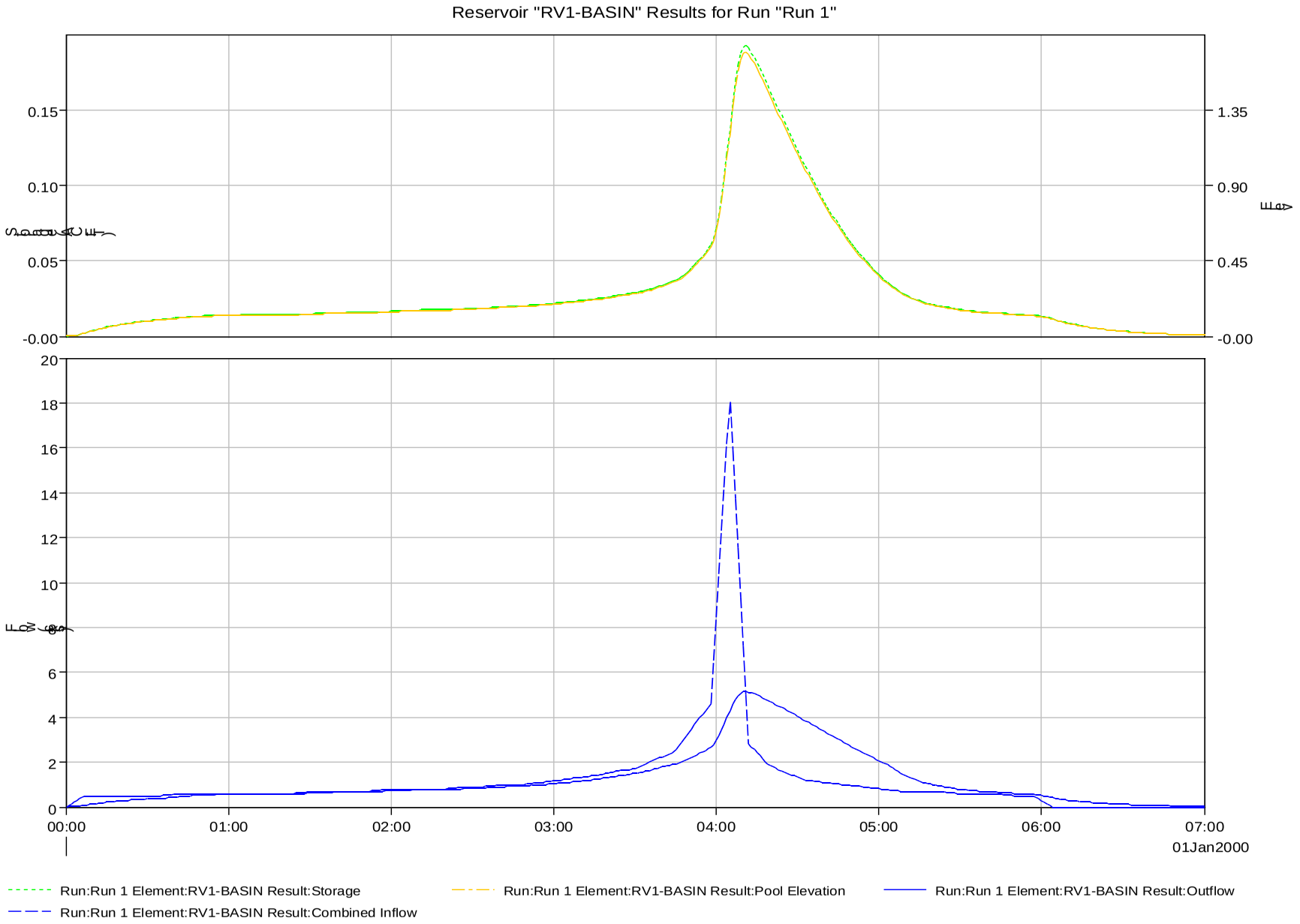
Reservoir: RV1-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	18.1 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:05
Peak Discharge:	5.1 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:11
Inflow Volume:	n/a	Peak Storage:	0.2 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	1.697 (FT)


Reservoir "RV1-BASIN" Results for Run "Run 1"
Storage (AC-FT)
Elev
0.15
0.10
0.05
-0.00
1.35
0.90
0.45
-0.00
Flow (CFS)
20
18
16
14
12
10
8
6
4
2
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV1-BASIN Result:Storage
Run:Run 1 Element:RV1-BASIN Result:Pool Elevation
Run:Run 1 Element:RV1-BASIN Result:Outflow
Run:Run 1 Element:RV1-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV1-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.1	0.0	0.000	0.0
01Jan2000	00:02	0.1	0.0	0.002	0.0
01Jan2000	00:03	0.2	0.0	0.004	0.0
01Jan2000	00:04	0.3	0.0	0.006	0.0
01Jan2000	00:05	0.4	0.0	0.010	0.0
01Jan2000	00:06	0.4	0.0	0.014	0.1
01Jan2000	00:07	0.5	0.0	0.019	0.1
01Jan2000	00:08	0.5	0.0	0.024	0.1
01Jan2000	00:09	0.5	0.0	0.029	0.1
01Jan2000	00:10	0.5	0.0	0.033	0.1
01Jan2000	00:11	0.5	0.0	0.038	0.1
01Jan2000	00:12	0.5	0.0	0.042	0.2
01Jan2000	00:13	0.5	0.0	0.046	0.2
01Jan2000	00:14	0.5	0.0	0.050	0.2
01Jan2000	00:15	0.5	0.0	0.053	0.2
01Jan2000	00:16	0.5	0.0	0.057	0.2
01Jan2000	00:17	0.5	0.0	0.060	0.2
01Jan2000	00:18	0.5	0.0	0.063	0.2
01Jan2000	00:19	0.5	0.0	0.066	0.3
01Jan2000	00:20	0.5	0.0	0.069	0.3
01Jan2000	00:21	0.5	0.0	0.072	0.3
01Jan2000	00:22	0.5	0.0	0.074	0.3
01Jan2000	00:23	0.5	0.0	0.077	0.3
01Jan2000	00:24	0.5	0.0	0.079	0.3
01Jan2000	00:25	0.5	0.0	0.081	0.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.5	0.0	0.084	0.3
01Jan2000	00:27	0.5	0.0	0.086	0.3
01Jan2000	00:28	0.5	0.0	0.088	0.3
01Jan2000	00:29	0.5	0.0	0.089	0.4
01Jan2000	00:30	0.5	0.0	0.091	0.4
01Jan2000	00:31	0.5	0.0	0.093	0.4
01Jan2000	00:32	0.5	0.0	0.094	0.4
01Jan2000	00:33	0.5	0.0	0.096	0.4
01Jan2000	00:34	0.5	0.0	0.097	0.4
01Jan2000	00:35	0.5	0.0	0.099	0.4
01Jan2000	00:36	0.5	0.0	0.100	0.4
01Jan2000	00:37	0.5	0.0	0.102	0.4
01Jan2000	00:38	0.5	0.0	0.103	0.4
01Jan2000	00:39	0.6	0.0	0.105	0.4
01Jan2000	00:40	0.6	0.0	0.106	0.4
01Jan2000	00:41	0.6	0.0	0.108	0.4
01Jan2000	00:42	0.6	0.0	0.110	0.5
01Jan2000	00:43	0.6	0.0	0.111	0.5
01Jan2000	00:44	0.6	0.0	0.113	0.5
01Jan2000	00:45	0.6	0.0	0.114	0.5
01Jan2000	00:46	0.6	0.0	0.115	0.5
01Jan2000	00:47	0.6	0.0	0.117	0.5
01Jan2000	00:48	0.6	0.0	0.118	0.5
01Jan2000	00:49	0.6	0.0	0.119	0.5
01Jan2000	00:50	0.6	0.0	0.119	0.5
01Jan2000	00:51	0.6	0.0	0.120	0.5
01Jan2000	00:52	0.6	0.0	0.121	0.5
01Jan2000	00:53	0.6	0.0	0.122	0.5
01Jan2000	00:54	0.6	0.0	0.122	0.6
01Jan2000	00:55	0.6	0.0	0.123	0.6
01Jan2000	00:56	0.6	0.0	0.123	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.6	0.0	0.124	0.6
01Jan2000	00:58	0.6	0.0	0.124	0.6
01Jan2000	00:59	0.6	0.0	0.125	0.6
01Jan2000	01:00	0.6	0.0	0.125	0.6
01Jan2000	01:01	0.6	0.0	0.125	0.6
01Jan2000	01:02	0.6	0.0	0.126	0.6
01Jan2000	01:03	0.6	0.0	0.126	0.6
01Jan2000	01:04	0.6	0.0	0.126	0.6
01Jan2000	01:05	0.6	0.0	0.126	0.6
01Jan2000	01:06	0.6	0.0	0.127	0.6
01Jan2000	01:07	0.6	0.0	0.127	0.6
01Jan2000	01:08	0.6	0.0	0.127	0.6
01Jan2000	01:09	0.6	0.0	0.127	0.6
01Jan2000	01:10	0.6	0.0	0.127	0.6
01Jan2000	01:11	0.6	0.0	0.127	0.6
01Jan2000	01:12	0.6	0.0	0.128	0.6
01Jan2000	01:13	0.6	0.0	0.128	0.6
01Jan2000	01:14	0.6	0.0	0.128	0.6
01Jan2000	01:15	0.6	0.0	0.128	0.6
01Jan2000	01:16	0.6	0.0	0.128	0.6
01Jan2000	01:17	0.6	0.0	0.128	0.6
01Jan2000	01:18	0.6	0.0	0.128	0.6
01Jan2000	01:19	0.6	0.0	0.128	0.6
01Jan2000	01:20	0.6	0.0	0.128	0.6
01Jan2000	01:21	0.6	0.0	0.128	0.6
01Jan2000	01:22	0.6	0.0	0.128	0.6
01Jan2000	01:23	0.6	0.0	0.129	0.6
01Jan2000	01:24	0.6	0.0	0.129	0.6
01Jan2000	01:25	0.6	0.0	0.129	0.6
01Jan2000	01:26	0.6	0.0	0.129	0.6
01Jan2000	01:27	0.6	0.0	0.129	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.7	0.0	0.130	0.6
01Jan2000	01:29	0.7	0.0	0.131	0.6
01Jan2000	01:30	0.7	0.0	0.131	0.6
01Jan2000	01:31	0.7	0.0	0.132	0.6
01Jan2000	01:32	0.7	0.0	0.133	0.6
01Jan2000	01:33	0.7	0.0	0.134	0.6
01Jan2000	01:34	0.7	0.0	0.135	0.6
01Jan2000	01:35	0.7	0.0	0.135	0.6
01Jan2000	01:36	0.7	0.0	0.136	0.7
01Jan2000	01:37	0.7	0.0	0.137	0.7
01Jan2000	01:38	0.7	0.0	0.137	0.7
01Jan2000	01:39	0.7	0.0	0.138	0.7
01Jan2000	01:40	0.7	0.0	0.138	0.7
01Jan2000	01:41	0.7	0.0	0.139	0.7
01Jan2000	01:42	0.7	0.0	0.139	0.7
01Jan2000	01:43	0.7	0.0	0.139	0.7
01Jan2000	01:44	0.7	0.0	0.140	0.7
01Jan2000	01:45	0.7	0.0	0.140	0.7
01Jan2000	01:46	0.7	0.0	0.140	0.7
01Jan2000	01:47	0.7	0.0	0.140	0.7
01Jan2000	01:48	0.7	0.0	0.141	0.7
01Jan2000	01:49	0.7	0.0	0.141	0.7
01Jan2000	01:50	0.7	0.0	0.141	0.7
01Jan2000	01:51	0.7	0.0	0.141	0.7
01Jan2000	01:52	0.7	0.0	0.141	0.7
01Jan2000	01:53	0.7	0.0	0.142	0.7
01Jan2000	01:54	0.7	0.0	0.142	0.7
01Jan2000	01:55	0.7	0.0	0.142	0.7
01Jan2000	01:56	0.8	0.0	0.143	0.7
01Jan2000	01:57	0.8	0.0	0.144	0.7
01Jan2000	01:58	0.8	0.0	0.145	0.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.8	0.0	0.146	0.7
01Jan2000	02:00	0.8	0.0	0.147	0.7
01Jan2000	02:01	0.8	0.0	0.147	0.7
01Jan2000	02:02	0.8	0.0	0.148	0.7
01Jan2000	02:03	0.8	0.0	0.149	0.7
01Jan2000	02:04	0.8	0.0	0.150	0.7
01Jan2000	02:05	0.8	0.0	0.150	0.8
01Jan2000	02:06	0.8	0.0	0.151	0.8
01Jan2000	02:07	0.8	0.0	0.151	0.8
01Jan2000	02:08	0.8	0.0	0.152	0.8
01Jan2000	02:09	0.8	0.0	0.152	0.8
01Jan2000	02:10	0.8	0.0	0.153	0.8
01Jan2000	02:11	0.8	0.0	0.153	0.8
01Jan2000	02:12	0.8	0.0	0.153	0.8
01Jan2000	02:13	0.8	0.0	0.154	0.8
01Jan2000	02:14	0.8	0.0	0.154	0.8
01Jan2000	02:15	0.8	0.0	0.154	0.8
01Jan2000	02:16	0.8	0.0	0.154	0.8
01Jan2000	02:17	0.8	0.0	0.155	0.8
01Jan2000	02:18	0.8	0.0	0.155	0.8
01Jan2000	02:19	0.8	0.0	0.155	0.8
01Jan2000	02:20	0.8	0.0	0.155	0.8
01Jan2000	02:21	0.8	0.0	0.155	0.8
01Jan2000	02:22	0.8	0.0	0.156	0.8
01Jan2000	02:23	0.8	0.0	0.156	0.8
01Jan2000	02:24	0.9	0.0	0.157	0.8
01Jan2000	02:25	0.9	0.0	0.158	0.8
01Jan2000	02:26	0.9	0.0	0.159	0.8
01Jan2000	02:27	0.9	0.0	0.159	0.8
01Jan2000	02:28	0.9	0.0	0.160	0.8
01Jan2000	02:29	0.9	0.0	0.161	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	0.9	0.0	0.162	0.8
01Jan2000	02:31	0.9	0.0	0.163	0.8
01Jan2000	02:32	0.9	0.0	0.164	0.8
01Jan2000	02:33	0.9	0.0	0.164	0.9
01Jan2000	02:34	0.9	0.0	0.165	0.9
01Jan2000	02:35	0.9	0.0	0.165	0.9
01Jan2000	02:36	0.9	0.0	0.166	0.9
01Jan2000	02:37	0.9	0.0	0.167	0.9
01Jan2000	02:38	1.0	0.0	0.168	0.9
01Jan2000	02:39	1.0	0.0	0.169	0.9
01Jan2000	02:40	1.0	0.0	0.170	0.9
01Jan2000	02:41	1.0	0.0	0.171	0.9
01Jan2000	02:42	1.0	0.0	0.172	0.9
01Jan2000	02:43	1.0	0.0	0.173	0.9
01Jan2000	02:44	1.0	0.0	0.174	0.9
01Jan2000	02:45	1.0	0.0	0.175	0.9
01Jan2000	02:46	1.0	0.0	0.176	0.9
01Jan2000	02:47	1.0	0.0	0.177	0.9
01Jan2000	02:48	1.0	0.0	0.177	0.9
01Jan2000	02:49	1.0	0.0	0.178	1.0
01Jan2000	02:50	1.0	0.0	0.179	1.0
01Jan2000	02:51	1.0	0.0	0.180	1.0
01Jan2000	02:52	1.1	0.0	0.181	1.0
01Jan2000	02:53	1.1	0.0	0.182	1.0
01Jan2000	02:54	1.1	0.0	0.183	1.0
01Jan2000	02:55	1.1	0.0	0.184	1.0
01Jan2000	02:56	1.1	0.0	0.186	1.0
01Jan2000	02:57	1.1	0.0	0.187	1.0
01Jan2000	02:58	1.1	0.0	0.188	1.0
01Jan2000	02:59	1.2	0.0	0.190	1.0
01Jan2000	03:00	1.2	0.0	0.191	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	1.2	0.0	0.193	1.1
01Jan2000	03:02	1.2	0.0	0.194	1.1
01Jan2000	03:03	1.2	0.0	0.196	1.1
01Jan2000	03:04	1.2	0.0	0.198	1.1
01Jan2000	03:05	1.2	0.0	0.199	1.1
01Jan2000	03:06	1.3	0.0	0.201	1.1
01Jan2000	03:07	1.3	0.0	0.203	1.1
01Jan2000	03:08	1.3	0.0	0.205	1.1
01Jan2000	03:09	1.3	0.0	0.206	1.2
01Jan2000	03:10	1.3	0.0	0.208	1.2
01Jan2000	03:11	1.3	0.0	0.210	1.2
01Jan2000	03:12	1.3	0.0	0.212	1.2
01Jan2000	03:13	1.4	0.0	0.214	1.2
01Jan2000	03:14	1.4	0.0	0.216	1.2
01Jan2000	03:15	1.4	0.0	0.217	1.2
01Jan2000	03:16	1.4	0.0	0.219	1.2
01Jan2000	03:17	1.4	0.0	0.221	1.3
01Jan2000	03:18	1.5	0.0	0.223	1.3
01Jan2000	03:19	1.5	0.0	0.226	1.3
01Jan2000	03:20	1.5	0.0	0.228	1.3
01Jan2000	03:21	1.5	0.0	0.231	1.3
01Jan2000	03:22	1.6	0.0	0.234	1.3
01Jan2000	03:23	1.6	0.0	0.236	1.4
01Jan2000	03:24	1.6	0.0	0.239	1.4
01Jan2000	03:25	1.6	0.0	0.242	1.4
01Jan2000	03:26	1.6	0.0	0.245	1.4
01Jan2000	03:27	1.7	0.0	0.247	1.4
01Jan2000	03:28	1.7	0.0	0.250	1.5
01Jan2000	03:29	1.7	0.0	0.253	1.5
01Jan2000	03:30	1.7	0.0	0.255	1.5
01Jan2000	03:31	1.8	0.0	0.258	1.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	1.8	0.0	0.261	1.5
01Jan2000	03:33	1.9	0.0	0.265	1.6
01Jan2000	03:34	1.9	0.0	0.269	1.6
01Jan2000	03:35	2.0	0.0	0.273	1.6
01Jan2000	03:36	2.0	0.0	0.278	1.6
01Jan2000	03:37	2.1	0.0	0.283	1.7
01Jan2000	03:38	2.1	0.0	0.288	1.7
01Jan2000	03:39	2.2	0.0	0.293	1.8
01Jan2000	03:40	2.2	0.0	0.298	1.8
01Jan2000	03:41	2.3	0.0	0.303	1.8
01Jan2000	03:42	2.3	0.0	0.309	1.8
01Jan2000	03:43	2.4	0.0	0.315	1.9
01Jan2000	03:44	2.4	0.0	0.321	1.9
01Jan2000	03:45	2.6	0.0	0.328	1.9
01Jan2000	03:46	2.7	0.0	0.336	2.0
01Jan2000	03:47	2.9	0.0	0.346	2.0
01Jan2000	03:48	3.0	0.0	0.358	2.0
01Jan2000	03:49	3.2	0.0	0.370	2.1
01Jan2000	03:50	3.3	0.0	0.384	2.2
01Jan2000	03:51	3.5	0.0	0.399	2.2
01Jan2000	03:52	3.7	0.0	0.415	2.3
01Jan2000	03:53	3.8	0.0	0.433	2.3
01Jan2000	03:54	4.0	0.1	0.451	2.4
01Jan2000	03:55	4.1	0.1	0.471	2.5
01Jan2000	03:56	4.3	0.1	0.491	2.5
01Jan2000	03:57	4.4	0.1	0.513	2.6
01Jan2000	03:58	4.6	0.1	0.536	2.7
01Jan2000	03:59	6.5	0.1	0.570	2.8
01Jan2000	04:00	8.4	0.1	0.626	2.9
01Jan2000	04:01	10.4	0.1	0.704	3.2
01Jan2000	04:02	12.3	0.1	0.801	3.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	14.2	0.1	0.919	3.7
01Jan2000	04:04	16.1	0.1	1.057	4.0
01Jan2000	04:05	18.1	0.1	1.214	4.3
01Jan2000	04:06	15.9	0.2	1.366	4.6
01Jan2000	04:07	13.7	0.2	1.488	4.8
01Jan2000	04:08	11.5	0.2	1.582	5.0
01Jan2000	04:09	9.3	0.2	1.647	5.1
01Jan2000	04:10	7.2	0.2	1.686	5.1
01Jan2000	04:11	5.0	0.2	1.697	5.1
01Jan2000	04:12	2.8	0.2	1.682	5.1
01Jan2000	04:13	2.7	0.2	1.653	5.1
01Jan2000	04:14	2.5	0.2	1.624	5.0
01Jan2000	04:15	2.4	0.2	1.593	5.0
01Jan2000	04:16	2.3	0.2	1.562	4.9
01Jan2000	04:17	2.2	0.2	1.529	4.9
01Jan2000	04:18	2.0	0.2	1.496	4.8
01Jan2000	04:19	1.9	0.2	1.462	4.8
01Jan2000	04:20	1.8	0.2	1.427	4.7
01Jan2000	04:21	1.8	0.2	1.393	4.6
01Jan2000	04:22	1.7	0.2	1.358	4.6
01Jan2000	04:23	1.7	0.2	1.324	4.5
01Jan2000	04:24	1.6	0.1	1.290	4.4
01Jan2000	04:25	1.6	0.1	1.255	4.4
01Jan2000	04:26	1.5	0.1	1.221	4.3
01Jan2000	04:27	1.5	0.1	1.187	4.2
01Jan2000	04:28	1.4	0.1	1.154	4.2
01Jan2000	04:29	1.4	0.1	1.120	4.1
01Jan2000	04:30	1.3	0.1	1.087	4.0
01Jan2000	04:31	1.3	0.1	1.055	4.0
01Jan2000	04:32	1.2	0.1	1.022	3.9
01Jan2000	04:33	1.2	0.1	0.990	3.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	1.2	0.1	0.958	3.8
01Jan2000	04:35	1.2	0.1	0.927	3.7
01Jan2000	04:36	1.2	0.1	0.897	3.6
01Jan2000	04:37	1.1	0.1	0.867	3.6
01Jan2000	04:38	1.1	0.1	0.838	3.5
01Jan2000	04:39	1.1	0.1	0.810	3.4
01Jan2000	04:40	1.1	0.1	0.782	3.4
01Jan2000	04:41	1.1	0.1	0.755	3.3
01Jan2000	04:42	1.1	0.1	0.729	3.2
01Jan2000	04:43	1.1	0.1	0.703	3.2
01Jan2000	04:44	1.0	0.1	0.678	3.1
01Jan2000	04:45	1.0	0.1	0.653	3.0
01Jan2000	04:46	1.0	0.1	0.630	3.0
01Jan2000	04:47	1.0	0.1	0.606	2.9
01Jan2000	04:48	1.0	0.1	0.584	2.8
01Jan2000	04:49	1.0	0.1	0.562	2.8
01Jan2000	04:50	1.0	0.1	0.541	2.7
01Jan2000	04:51	0.9	0.1	0.520	2.6
01Jan2000	04:52	0.9	0.1	0.500	2.6
01Jan2000	04:53	0.9	0.1	0.480	2.5
01Jan2000	04:54	0.9	0.1	0.461	2.4
01Jan2000	04:55	0.9	0.1	0.443	2.4
01Jan2000	04:56	0.9	0.0	0.425	2.3
01Jan2000	04:57	0.9	0.0	0.408	2.2
01Jan2000	04:58	0.8	0.0	0.392	2.2
01Jan2000	04:59	0.8	0.0	0.376	2.1
01Jan2000	05:00	0.8	0.0	0.360	2.1
01Jan2000	05:01	0.8	0.0	0.346	2.0
01Jan2000	05:02	0.8	0.0	0.331	1.9
01Jan2000	05:03	0.8	0.0	0.318	1.9
01Jan2000	05:04	0.8	0.0	0.305	1.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	0.7	0.0	0.292	1.7
01Jan2000	05:06	0.7	0.0	0.280	1.7
01Jan2000	05:07	0.7	0.0	0.269	1.6
01Jan2000	05:08	0.7	0.0	0.259	1.5
01Jan2000	05:09	0.7	0.0	0.249	1.5
01Jan2000	05:10	0.7	0.0	0.241	1.4
01Jan2000	05:11	0.7	0.0	0.233	1.3
01Jan2000	05:12	0.7	0.0	0.225	1.3
01Jan2000	05:13	0.7	0.0	0.218	1.2
01Jan2000	05:14	0.7	0.0	0.212	1.2
01Jan2000	05:15	0.7	0.0	0.206	1.2
01Jan2000	05:16	0.7	0.0	0.201	1.1
01Jan2000	05:17	0.7	0.0	0.196	1.1
01Jan2000	05:18	0.7	0.0	0.192	1.1
01Jan2000	05:19	0.7	0.0	0.188	1.0
01Jan2000	05:20	0.7	0.0	0.184	1.0
01Jan2000	05:21	0.7	0.0	0.181	1.0
01Jan2000	05:22	0.7	0.0	0.178	0.9
01Jan2000	05:23	0.7	0.0	0.175	0.9
01Jan2000	05:24	0.7	0.0	0.172	0.9
01Jan2000	05:25	0.7	0.0	0.169	0.9
01Jan2000	05:26	0.6	0.0	0.166	0.9
01Jan2000	05:27	0.6	0.0	0.164	0.8
01Jan2000	05:28	0.6	0.0	0.161	0.8
01Jan2000	05:29	0.6	0.0	0.158	0.8
01Jan2000	05:30	0.6	0.0	0.156	0.8
01Jan2000	05:31	0.6	0.0	0.154	0.8
01Jan2000	05:32	0.6	0.0	0.152	0.8
01Jan2000	05:33	0.6	0.0	0.150	0.7
01Jan2000	05:34	0.6	0.0	0.148	0.7
01Jan2000	05:35	0.6	0.0	0.146	0.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.6	0.0	0.145	0.7
01Jan2000	05:37	0.6	0.0	0.144	0.7
01Jan2000	05:38	0.6	0.0	0.142	0.7
01Jan2000	05:39	0.6	0.0	0.141	0.7
01Jan2000	05:40	0.6	0.0	0.140	0.7
01Jan2000	05:41	0.6	0.0	0.139	0.7
01Jan2000	05:42	0.6	0.0	0.139	0.7
01Jan2000	05:43	0.6	0.0	0.138	0.7
01Jan2000	05:44	0.6	0.0	0.137	0.7
01Jan2000	05:45	0.6	0.0	0.136	0.6
01Jan2000	05:46	0.6	0.0	0.135	0.6
01Jan2000	05:47	0.5	0.0	0.134	0.6
01Jan2000	05:48	0.5	0.0	0.133	0.6
01Jan2000	05:49	0.5	0.0	0.132	0.6
01Jan2000	05:50	0.5	0.0	0.130	0.6
01Jan2000	05:51	0.5	0.0	0.129	0.6
01Jan2000	05:52	0.5	0.0	0.128	0.6
01Jan2000	05:53	0.5	0.0	0.127	0.6
01Jan2000	05:54	0.5	0.0	0.126	0.6
01Jan2000	05:55	0.5	0.0	0.125	0.6
01Jan2000	05:56	0.5	0.0	0.124	0.6
01Jan2000	05:57	0.5	0.0	0.123	0.6
01Jan2000	05:58	0.4	0.0	0.122	0.6
01Jan2000	05:59	0.4	0.0	0.120	0.5
01Jan2000	06:00	0.3	0.0	0.118	0.5
01Jan2000	06:01	0.2	0.0	0.115	0.5
01Jan2000	06:02	0.1	0.0	0.111	0.5
01Jan2000	06:03	0.1	0.0	0.107	0.4
01Jan2000	06:04	0.0	0.0	0.102	0.4
01Jan2000	06:05	0.0	0.0	0.097	0.4
01Jan2000	06:06	0.0	0.0	0.093	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.0	0.0	0.089	0.3
01Jan2000	06:08	0.0	0.0	0.084	0.3
01Jan2000	06:09	0.0	0.0	0.080	0.3
01Jan2000	06:10	0.0	0.0	0.077	0.3
01Jan2000	06:11	0.0	0.0	0.073	0.3
01Jan2000	06:12	0.0	0.0	0.070	0.3
01Jan2000	06:13	0.0	0.0	0.067	0.3
01Jan2000	06:14	0.0	0.0	0.063	0.2
01Jan2000	06:15	0.0	0.0	0.061	0.2
01Jan2000	06:16	0.0	0.0	0.058	0.2
01Jan2000	06:17	0.0	0.0	0.055	0.2
01Jan2000	06:18	0.0	0.0	0.052	0.2
01Jan2000	06:19	0.0	0.0	0.050	0.2
01Jan2000	06:20	0.0	0.0	0.048	0.2
01Jan2000	06:21	0.0	0.0	0.045	0.2
01Jan2000	06:22	0.0	0.0	0.043	0.2
01Jan2000	06:23	0.0	0.0	0.041	0.2
01Jan2000	06:24	0.0	0.0	0.039	0.2
01Jan2000	06:25	0.0	0.0	0.038	0.1
01Jan2000	06:26	0.0	0.0	0.036	0.1
01Jan2000	06:27	0.0	0.0	0.034	0.1
01Jan2000	06:28	0.0	0.0	0.033	0.1
01Jan2000	06:29	0.0	0.0	0.031	0.1
01Jan2000	06:30	0.0	0.0	0.030	0.1
01Jan2000	06:31	0.0	0.0	0.028	0.1
01Jan2000	06:32	0.0	0.0	0.027	0.1
01Jan2000	06:33	0.0	0.0	0.026	0.1
01Jan2000	06:34	0.0	0.0	0.025	0.1
01Jan2000	06:35	0.0	0.0	0.023	0.1
01Jan2000	06:36	0.0	0.0	0.022	0.1
01Jan2000	06:37	0.0	0.0	0.021	0.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.020	0.1
01Jan2000	06:39	0.0	0.0	0.019	0.1
01Jan2000	06:40	0.0	0.0	0.018	0.1
01Jan2000	06:41	0.0	0.0	0.018	0.1
01Jan2000	06:42	0.0	0.0	0.017	0.1
01Jan2000	06:43	0.0	0.0	0.016	0.1
01Jan2000	06:44	0.0	0.0	0.015	0.1
01Jan2000	06:45	0.0	0.0	0.015	0.1
01Jan2000	06:46	0.0	0.0	0.014	0.1
01Jan2000	06:47	0.0	0.0	0.013	0.1
01Jan2000	06:48	0.0	0.0	0.013	0.0
01Jan2000	06:49	0.0	0.0	0.012	0.0
01Jan2000	06:50	0.0	0.0	0.011	0.0
01Jan2000	06:51	0.0	0.0	0.011	0.0
01Jan2000	06:52	0.0	0.0	0.010	0.0
01Jan2000	06:53	0.0	0.0	0.010	0.0
01Jan2000	06:54	0.0	0.0	0.009	0.0
01Jan2000	06:55	0.0	0.0	0.009	0.0
01Jan2000	06:56	0.0	0.0	0.009	0.0
01Jan2000	06:57	0.0	0.0	0.008	0.0
01Jan2000	06:58	0.0	0.0	0.008	0.0
01Jan2000	06:59	0.0	0.0	0.007	0.0
01Jan2000	07:00	0.0	0.0	0.007	0.0

Project: FANITA-RV Simulation Run: Run 1

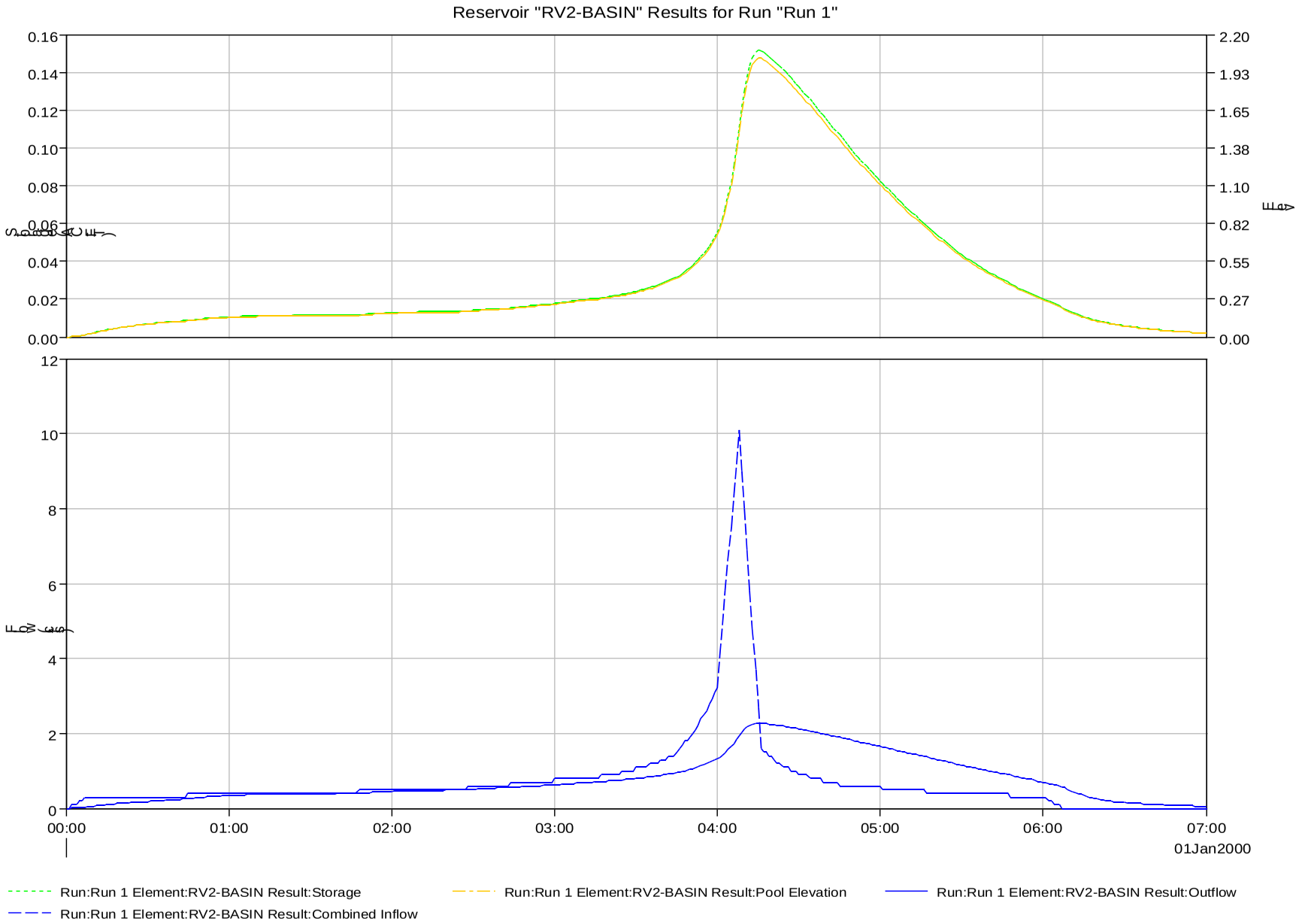
Reservoir: RV2-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	10.1 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:08
Peak Discharge:	2.3 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:15
Inflow Volume:	n/a	Peak Storage:	0.2 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	2.033 (FT)


Reservoir "RV2-BASIN" Results for Run "Run 1"
Storage (AC-FT)
Elev
Flow (cfs)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2.20
1.93
1.65
1.38
1.10
0.82
0.55
0.27
0.00
12
10
8
6
4
2
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV2-BASIN Result:Storage
Run:Run 1 Element:RV2-BASIN Result:Pool Elevation
Run:Run 1 Element:RV2-BASIN Result:Outflow
Run:Run 1 Element:RV2-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV2-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.0	0.0	0.000	0.0
01Jan2000	00:02	0.1	0.0	0.001	0.0
01Jan2000	00:03	0.1	0.0	0.003	0.0
01Jan2000	00:04	0.1	0.0	0.004	0.0
01Jan2000	00:05	0.2	0.0	0.007	0.0
01Jan2000	00:06	0.2	0.0	0.010	0.0
01Jan2000	00:07	0.3	0.0	0.015	0.0
01Jan2000	00:08	0.3	0.0	0.019	0.0
01Jan2000	00:09	0.3	0.0	0.024	0.0
01Jan2000	00:10	0.3	0.0	0.029	0.1
01Jan2000	00:11	0.3	0.0	0.033	0.1
01Jan2000	00:12	0.3	0.0	0.037	0.1
01Jan2000	00:13	0.3	0.0	0.042	0.1
01Jan2000	00:14	0.3	0.0	0.046	0.1
01Jan2000	00:15	0.3	0.0	0.049	0.1
01Jan2000	00:16	0.3	0.0	0.053	0.1
01Jan2000	00:17	0.3	0.0	0.057	0.1
01Jan2000	00:18	0.3	0.0	0.060	0.1
01Jan2000	00:19	0.3	0.0	0.063	0.1
01Jan2000	00:20	0.3	0.0	0.067	0.1
01Jan2000	00:21	0.3	0.0	0.070	0.1
01Jan2000	00:22	0.3	0.0	0.073	0.1
01Jan2000	00:23	0.3	0.0	0.075	0.1
01Jan2000	00:24	0.3	0.0	0.078	0.2
01Jan2000	00:25	0.3	0.0	0.081	0.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.3	0.0	0.083	0.2
01Jan2000	00:27	0.3	0.0	0.086	0.2
01Jan2000	00:28	0.3	0.0	0.088	0.2
01Jan2000	00:29	0.3	0.0	0.091	0.2
01Jan2000	00:30	0.3	0.0	0.093	0.2
01Jan2000	00:31	0.3	0.0	0.095	0.2
01Jan2000	00:32	0.3	0.0	0.097	0.2
01Jan2000	00:33	0.3	0.0	0.099	0.2
01Jan2000	00:34	0.3	0.0	0.101	0.2
01Jan2000	00:35	0.3	0.0	0.103	0.2
01Jan2000	00:36	0.3	0.0	0.104	0.2
01Jan2000	00:37	0.3	0.0	0.106	0.2
01Jan2000	00:38	0.3	0.0	0.107	0.2
01Jan2000	00:39	0.3	0.0	0.109	0.2
01Jan2000	00:40	0.3	0.0	0.110	0.2
01Jan2000	00:41	0.3	0.0	0.111	0.2
01Jan2000	00:42	0.3	0.0	0.112	0.2
01Jan2000	00:43	0.3	0.0	0.114	0.2
01Jan2000	00:44	0.3	0.0	0.115	0.2
01Jan2000	00:45	0.4	0.0	0.116	0.3
01Jan2000	00:46	0.4	0.0	0.119	0.3
01Jan2000	00:47	0.4	0.0	0.121	0.3
01Jan2000	00:48	0.4	0.0	0.124	0.3
01Jan2000	00:49	0.4	0.0	0.126	0.3
01Jan2000	00:50	0.4	0.0	0.128	0.3
01Jan2000	00:51	0.4	0.0	0.130	0.3
01Jan2000	00:52	0.4	0.0	0.131	0.3
01Jan2000	00:53	0.4	0.0	0.133	0.3
01Jan2000	00:54	0.4	0.0	0.135	0.3
01Jan2000	00:55	0.4	0.0	0.136	0.3
01Jan2000	00:56	0.4	0.0	0.137	0.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.4	0.0	0.139	0.3
01Jan2000	00:58	0.4	0.0	0.140	0.3
01Jan2000	00:59	0.4	0.0	0.141	0.3
01Jan2000	01:00	0.4	0.0	0.142	0.3
01Jan2000	01:01	0.4	0.0	0.143	0.3
01Jan2000	01:02	0.4	0.0	0.144	0.4
01Jan2000	01:03	0.4	0.0	0.145	0.4
01Jan2000	01:04	0.4	0.0	0.145	0.4
01Jan2000	01:05	0.4	0.0	0.146	0.4
01Jan2000	01:06	0.4	0.0	0.147	0.4
01Jan2000	01:07	0.4	0.0	0.147	0.4
01Jan2000	01:08	0.4	0.0	0.148	0.4
01Jan2000	01:09	0.4	0.0	0.149	0.4
01Jan2000	01:10	0.4	0.0	0.149	0.4
01Jan2000	01:11	0.4	0.0	0.150	0.4
01Jan2000	01:12	0.4	0.0	0.150	0.4
01Jan2000	01:13	0.4	0.0	0.151	0.4
01Jan2000	01:14	0.4	0.0	0.151	0.4
01Jan2000	01:15	0.4	0.0	0.151	0.4
01Jan2000	01:16	0.4	0.0	0.152	0.4
01Jan2000	01:17	0.4	0.0	0.152	0.4
01Jan2000	01:18	0.4	0.0	0.152	0.4
01Jan2000	01:19	0.4	0.0	0.153	0.4
01Jan2000	01:20	0.4	0.0	0.153	0.4
01Jan2000	01:21	0.4	0.0	0.153	0.4
01Jan2000	01:22	0.4	0.0	0.153	0.4
01Jan2000	01:23	0.4	0.0	0.154	0.4
01Jan2000	01:24	0.4	0.0	0.154	0.4
01Jan2000	01:25	0.4	0.0	0.154	0.4
01Jan2000	01:26	0.4	0.0	0.154	0.4
01Jan2000	01:27	0.4	0.0	0.154	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.4	0.0	0.155	0.4
01Jan2000	01:29	0.4	0.0	0.155	0.4
01Jan2000	01:30	0.4	0.0	0.155	0.4
01Jan2000	01:31	0.4	0.0	0.155	0.4
01Jan2000	01:32	0.4	0.0	0.155	0.4
01Jan2000	01:33	0.4	0.0	0.155	0.4
01Jan2000	01:34	0.4	0.0	0.155	0.4
01Jan2000	01:35	0.4	0.0	0.155	0.4
01Jan2000	01:36	0.4	0.0	0.156	0.4
01Jan2000	01:37	0.4	0.0	0.156	0.4
01Jan2000	01:38	0.4	0.0	0.156	0.4
01Jan2000	01:39	0.4	0.0	0.156	0.4
01Jan2000	01:40	0.4	0.0	0.156	0.4
01Jan2000	01:41	0.4	0.0	0.156	0.4
01Jan2000	01:42	0.4	0.0	0.156	0.4
01Jan2000	01:43	0.4	0.0	0.156	0.4
01Jan2000	01:44	0.4	0.0	0.156	0.4
01Jan2000	01:45	0.4	0.0	0.156	0.4
01Jan2000	01:46	0.4	0.0	0.156	0.4
01Jan2000	01:47	0.4	0.0	0.156	0.4
01Jan2000	01:48	0.5	0.0	0.157	0.4
01Jan2000	01:49	0.5	0.0	0.159	0.4
01Jan2000	01:50	0.5	0.0	0.161	0.4
01Jan2000	01:51	0.5	0.0	0.162	0.4
01Jan2000	01:52	0.5	0.0	0.164	0.4
01Jan2000	01:53	0.5	0.0	0.165	0.4
01Jan2000	01:54	0.5	0.0	0.166	0.4
01Jan2000	01:55	0.5	0.0	0.167	0.4
01Jan2000	01:56	0.5	0.0	0.169	0.4
01Jan2000	01:57	0.5	0.0	0.170	0.4
01Jan2000	01:58	0.5	0.0	0.171	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.5	0.0	0.172	0.5
01Jan2000	02:00	0.5	0.0	0.172	0.5
01Jan2000	02:01	0.5	0.0	0.173	0.5
01Jan2000	02:02	0.5	0.0	0.174	0.5
01Jan2000	02:03	0.5	0.0	0.175	0.5
01Jan2000	02:04	0.5	0.0	0.175	0.5
01Jan2000	02:05	0.5	0.0	0.176	0.5
01Jan2000	02:06	0.5	0.0	0.177	0.5
01Jan2000	02:07	0.5	0.0	0.177	0.5
01Jan2000	02:08	0.5	0.0	0.178	0.5
01Jan2000	02:09	0.5	0.0	0.178	0.5
01Jan2000	02:10	0.5	0.0	0.178	0.5
01Jan2000	02:11	0.5	0.0	0.179	0.5
01Jan2000	02:12	0.5	0.0	0.179	0.5
01Jan2000	02:13	0.5	0.0	0.180	0.5
01Jan2000	02:14	0.5	0.0	0.180	0.5
01Jan2000	02:15	0.5	0.0	0.180	0.5
01Jan2000	02:16	0.5	0.0	0.181	0.5
01Jan2000	02:17	0.5	0.0	0.181	0.5
01Jan2000	02:18	0.5	0.0	0.181	0.5
01Jan2000	02:19	0.5	0.0	0.181	0.5
01Jan2000	02:20	0.5	0.0	0.182	0.5
01Jan2000	02:21	0.5	0.0	0.182	0.5
01Jan2000	02:22	0.5	0.0	0.182	0.5
01Jan2000	02:23	0.5	0.0	0.182	0.5
01Jan2000	02:24	0.5	0.0	0.182	0.5
01Jan2000	02:25	0.5	0.0	0.183	0.5
01Jan2000	02:26	0.5	0.0	0.183	0.5
01Jan2000	02:27	0.5	0.0	0.183	0.5
01Jan2000	02:28	0.6	0.0	0.184	0.5
01Jan2000	02:29	0.6	0.0	0.186	0.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	0.6	0.0	0.187	0.5
01Jan2000	02:31	0.6	0.0	0.189	0.5
01Jan2000	02:32	0.6	0.0	0.191	0.5
01Jan2000	02:33	0.6	0.0	0.192	0.5
01Jan2000	02:34	0.6	0.0	0.193	0.5
01Jan2000	02:35	0.6	0.0	0.195	0.5
01Jan2000	02:36	0.6	0.0	0.196	0.5
01Jan2000	02:37	0.6	0.0	0.197	0.5
01Jan2000	02:38	0.6	0.0	0.198	0.5
01Jan2000	02:39	0.6	0.0	0.199	0.5
01Jan2000	02:40	0.6	0.0	0.200	0.6
01Jan2000	02:41	0.6	0.0	0.201	0.6
01Jan2000	02:42	0.6	0.0	0.201	0.6
01Jan2000	02:43	0.6	0.0	0.202	0.6
01Jan2000	02:44	0.7	0.0	0.204	0.6
01Jan2000	02:45	0.7	0.0	0.206	0.6
01Jan2000	02:46	0.7	0.0	0.209	0.6
01Jan2000	02:47	0.7	0.0	0.211	0.6
01Jan2000	02:48	0.7	0.0	0.213	0.6
01Jan2000	02:49	0.7	0.0	0.215	0.6
01Jan2000	02:50	0.7	0.0	0.218	0.6
01Jan2000	02:51	0.7	0.0	0.220	0.6
01Jan2000	02:52	0.7	0.0	0.221	0.6
01Jan2000	02:53	0.7	0.0	0.223	0.6
01Jan2000	02:54	0.7	0.0	0.225	0.6
01Jan2000	02:55	0.7	0.0	0.227	0.6
01Jan2000	02:56	0.7	0.0	0.228	0.6
01Jan2000	02:57	0.7	0.0	0.230	0.6
01Jan2000	02:58	0.7	0.0	0.232	0.6
01Jan2000	02:59	0.7	0.0	0.233	0.6
01Jan2000	03:00	0.8	0.0	0.235	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	0.8	0.0	0.238	0.6
01Jan2000	03:02	0.8	0.0	0.242	0.6
01Jan2000	03:03	0.8	0.0	0.244	0.6
01Jan2000	03:04	0.8	0.0	0.247	0.7
01Jan2000	03:05	0.8	0.0	0.250	0.7
01Jan2000	03:06	0.8	0.0	0.253	0.7
01Jan2000	03:07	0.8	0.0	0.255	0.7
01Jan2000	03:08	0.8	0.0	0.257	0.7
01Jan2000	03:09	0.8	0.0	0.260	0.7
01Jan2000	03:10	0.8	0.0	0.262	0.7
01Jan2000	03:11	0.8	0.0	0.264	0.7
01Jan2000	03:12	0.8	0.0	0.266	0.7
01Jan2000	03:13	0.8	0.0	0.268	0.7
01Jan2000	03:14	0.8	0.0	0.270	0.7
01Jan2000	03:15	0.8	0.0	0.272	0.7
01Jan2000	03:16	0.8	0.0	0.274	0.7
01Jan2000	03:17	0.9	0.0	0.276	0.7
01Jan2000	03:18	0.9	0.0	0.280	0.7
01Jan2000	03:19	0.9	0.0	0.283	0.7
01Jan2000	03:20	0.9	0.0	0.286	0.7
01Jan2000	03:21	0.9	0.0	0.289	0.7
01Jan2000	03:22	0.9	0.0	0.292	0.7
01Jan2000	03:23	0.9	0.0	0.295	0.7
01Jan2000	03:24	0.9	0.0	0.298	0.8
01Jan2000	03:25	1.0	0.0	0.301	0.8
01Jan2000	03:26	1.0	0.0	0.306	0.8
01Jan2000	03:27	1.0	0.0	0.310	0.8
01Jan2000	03:28	1.0	0.0	0.314	0.8
01Jan2000	03:29	1.0	0.0	0.318	0.8
01Jan2000	03:30	1.1	0.0	0.323	0.8
01Jan2000	03:31	1.1	0.0	0.328	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	1.1	0.0	0.334	0.8
01Jan2000	03:33	1.1	0.0	0.339	0.8
01Jan2000	03:34	1.1	0.0	0.344	0.8
01Jan2000	03:35	1.2	0.0	0.350	0.8
01Jan2000	03:36	1.2	0.0	0.357	0.8
01Jan2000	03:37	1.2	0.0	0.363	0.9
01Jan2000	03:38	1.2	0.0	0.369	0.9
01Jan2000	03:39	1.3	0.0	0.376	0.9
01Jan2000	03:40	1.3	0.0	0.384	0.9
01Jan2000	03:41	1.3	0.0	0.391	0.9
01Jan2000	03:42	1.4	0.0	0.399	0.9
01Jan2000	03:43	1.4	0.0	0.408	0.9
01Jan2000	03:44	1.4	0.0	0.417	0.9
01Jan2000	03:45	1.5	0.0	0.426	1.0
01Jan2000	03:46	1.6	0.0	0.437	1.0
01Jan2000	03:47	1.7	0.0	0.449	1.0
01Jan2000	03:48	1.8	0.0	0.463	1.0
01Jan2000	03:49	1.8	0.0	0.478	1.0
01Jan2000	03:50	1.9	0.0	0.493	1.0
01Jan2000	03:51	2.0	0.0	0.509	1.1
01Jan2000	03:52	2.1	0.0	0.527	1.1
01Jan2000	03:53	2.2	0.0	0.547	1.1
01Jan2000	03:54	2.4	0.0	0.569	1.1
01Jan2000	03:55	2.5	0.0	0.593	1.2
01Jan2000	03:56	2.6	0.0	0.618	1.2
01Jan2000	03:57	2.8	0.0	0.645	1.2
01Jan2000	03:58	2.9	0.1	0.675	1.3
01Jan2000	03:59	3.1	0.1	0.707	1.3
01Jan2000	04:00	3.2	0.1	0.741	1.3
01Jan2000	04:01	4.1	0.1	0.784	1.4
01Jan2000	04:02	4.9	0.1	0.841	1.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	5.8	0.1	0.913	1.5
01Jan2000	04:04	6.6	0.1	0.999	1.6
01Jan2000	04:05	7.5	0.1	1.100	1.6
01Jan2000	04:06	8.4	0.1	1.216	1.7
01Jan2000	04:07	9.2	0.1	1.345	1.8
01Jan2000	04:08	10.1	0.1	1.489	1.9
01Jan2000	04:09	9.0	0.1	1.628	2.0
01Jan2000	04:10	8.0	0.1	1.747	2.1
01Jan2000	04:11	6.9	0.1	1.845	2.2
01Jan2000	04:12	5.8	0.1	1.922	2.2
01Jan2000	04:13	4.8	0.1	1.979	2.2
01Jan2000	04:14	3.7	0.2	2.016	2.3
01Jan2000	04:15	2.7	0.2	2.033	2.3
01Jan2000	04:16	1.6	0.2	2.030	2.3
01Jan2000	04:17	1.5	0.2	2.017	2.3
01Jan2000	04:18	1.5	0.1	2.003	2.3
01Jan2000	04:19	1.4	0.1	1.988	2.3
01Jan2000	04:20	1.4	0.1	1.972	2.2
01Jan2000	04:21	1.3	0.1	1.956	2.2
01Jan2000	04:22	1.2	0.1	1.938	2.2
01Jan2000	04:23	1.2	0.1	1.919	2.2
01Jan2000	04:24	1.1	0.1	1.900	2.2
01Jan2000	04:25	1.1	0.1	1.879	2.2
01Jan2000	04:26	1.1	0.1	1.860	2.2
01Jan2000	04:27	1.0	0.1	1.839	2.2
01Jan2000	04:28	1.0	0.1	1.818	2.1
01Jan2000	04:29	1.0	0.1	1.796	2.1
01Jan2000	04:30	0.9	0.1	1.775	2.1
01Jan2000	04:31	0.9	0.1	1.752	2.1
01Jan2000	04:32	0.9	0.1	1.730	2.1
01Jan2000	04:33	0.9	0.1	1.708	2.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	0.8	0.1	1.686	2.1
01Jan2000	04:35	0.8	0.1	1.662	2.1
01Jan2000	04:36	0.8	0.1	1.639	2.0
01Jan2000	04:37	0.8	0.1	1.617	2.0
01Jan2000	04:38	0.8	0.1	1.594	2.0
01Jan2000	04:39	0.7	0.1	1.571	2.0
01Jan2000	04:40	0.7	0.1	1.548	2.0
01Jan2000	04:41	0.7	0.1	1.524	2.0
01Jan2000	04:42	0.7	0.1	1.501	1.9
01Jan2000	04:43	0.7	0.1	1.478	1.9
01Jan2000	04:44	0.7	0.1	1.456	1.9
01Jan2000	04:45	0.6	0.1	1.433	1.9
01Jan2000	04:46	0.6	0.1	1.409	1.9
01Jan2000	04:47	0.6	0.1	1.386	1.9
01Jan2000	04:48	0.6	0.1	1.362	1.8
01Jan2000	04:49	0.6	0.1	1.340	1.8
01Jan2000	04:50	0.6	0.1	1.317	1.8
01Jan2000	04:51	0.6	0.1	1.295	1.8
01Jan2000	04:52	0.6	0.1	1.273	1.8
01Jan2000	04:53	0.6	0.1	1.251	1.8
01Jan2000	04:54	0.6	0.1	1.230	1.7
01Jan2000	04:55	0.6	0.1	1.209	1.7
01Jan2000	04:56	0.6	0.1	1.188	1.7
01Jan2000	04:57	0.6	0.1	1.168	1.7
01Jan2000	04:58	0.6	0.1	1.148	1.7
01Jan2000	04:59	0.6	0.1	1.128	1.7
01Jan2000	05:00	0.6	0.1	1.108	1.7
01Jan2000	05:01	0.5	0.1	1.088	1.6
01Jan2000	05:02	0.5	0.1	1.067	1.6
01Jan2000	05:03	0.5	0.1	1.047	1.6
01Jan2000	05:04	0.5	0.1	1.027	1.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	0.5	0.1	1.007	1.6
01Jan2000	05:06	0.5	0.1	0.987	1.6
01Jan2000	05:07	0.5	0.1	0.968	1.5
01Jan2000	05:08	0.5	0.1	0.949	1.5
01Jan2000	05:09	0.5	0.1	0.930	1.5
01Jan2000	05:10	0.5	0.1	0.912	1.5
01Jan2000	05:11	0.5	0.1	0.894	1.5
01Jan2000	05:12	0.5	0.1	0.876	1.5
01Jan2000	05:13	0.5	0.1	0.859	1.4
01Jan2000	05:14	0.5	0.1	0.842	1.4
01Jan2000	05:15	0.5	0.1	0.825	1.4
01Jan2000	05:16	0.5	0.1	0.808	1.4
01Jan2000	05:17	0.4	0.1	0.791	1.4
01Jan2000	05:18	0.4	0.1	0.773	1.4
01Jan2000	05:19	0.4	0.1	0.756	1.3
01Jan2000	05:20	0.4	0.1	0.739	1.3
01Jan2000	05:21	0.4	0.1	0.722	1.3
01Jan2000	05:22	0.4	0.1	0.705	1.3
01Jan2000	05:23	0.4	0.1	0.689	1.3
01Jan2000	05:24	0.4	0.1	0.673	1.3
01Jan2000	05:25	0.4	0.0	0.658	1.2
01Jan2000	05:26	0.4	0.0	0.642	1.2
01Jan2000	05:27	0.4	0.0	0.627	1.2
01Jan2000	05:28	0.4	0.0	0.613	1.2
01Jan2000	05:29	0.4	0.0	0.598	1.2
01Jan2000	05:30	0.4	0.0	0.584	1.2
01Jan2000	05:31	0.4	0.0	0.571	1.1
01Jan2000	05:32	0.4	0.0	0.557	1.1
01Jan2000	05:33	0.4	0.0	0.544	1.1
01Jan2000	05:34	0.4	0.0	0.531	1.1
01Jan2000	05:35	0.4	0.0	0.518	1.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.4	0.0	0.506	1.1
01Jan2000	05:37	0.4	0.0	0.494	1.0
01Jan2000	05:38	0.4	0.0	0.482	1.0
01Jan2000	05:39	0.4	0.0	0.471	1.0
01Jan2000	05:40	0.4	0.0	0.460	1.0
01Jan2000	05:41	0.4	0.0	0.449	1.0
01Jan2000	05:42	0.4	0.0	0.438	1.0
01Jan2000	05:43	0.4	0.0	0.428	1.0
01Jan2000	05:44	0.4	0.0	0.418	0.9
01Jan2000	05:45	0.4	0.0	0.408	0.9
01Jan2000	05:46	0.4	0.0	0.398	0.9
01Jan2000	05:47	0.4	0.0	0.389	0.9
01Jan2000	05:48	0.3	0.0	0.379	0.9
01Jan2000	05:49	0.3	0.0	0.368	0.9
01Jan2000	05:50	0.3	0.0	0.358	0.9
01Jan2000	05:51	0.3	0.0	0.348	0.8
01Jan2000	05:52	0.3	0.0	0.338	0.8
01Jan2000	05:53	0.3	0.0	0.328	0.8
01Jan2000	05:54	0.3	0.0	0.319	0.8
01Jan2000	05:55	0.3	0.0	0.310	0.8
01Jan2000	05:56	0.3	0.0	0.302	0.8
01Jan2000	05:57	0.3	0.0	0.293	0.7
01Jan2000	05:58	0.3	0.0	0.285	0.7
01Jan2000	05:59	0.3	0.0	0.278	0.7
01Jan2000	06:00	0.3	0.0	0.270	0.7
01Jan2000	06:01	0.3	0.0	0.263	0.7
01Jan2000	06:02	0.2	0.0	0.255	0.7
01Jan2000	06:03	0.2	0.0	0.247	0.6
01Jan2000	06:04	0.1	0.0	0.237	0.6
01Jan2000	06:05	0.1	0.0	0.228	0.6
01Jan2000	06:06	0.1	0.0	0.219	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.0	0.0	0.209	0.6
01Jan2000	06:08	0.0	0.0	0.198	0.5
01Jan2000	06:09	0.0	0.0	0.189	0.5
01Jan2000	06:10	0.0	0.0	0.179	0.5
01Jan2000	06:11	0.0	0.0	0.171	0.4
01Jan2000	06:12	0.0	0.0	0.163	0.4
01Jan2000	06:13	0.0	0.0	0.155	0.4
01Jan2000	06:14	0.0	0.0	0.148	0.4
01Jan2000	06:15	0.0	0.0	0.142	0.3
01Jan2000	06:16	0.0	0.0	0.136	0.3
01Jan2000	06:17	0.0	0.0	0.130	0.3
01Jan2000	06:18	0.0	0.0	0.124	0.3
01Jan2000	06:19	0.0	0.0	0.119	0.3
01Jan2000	06:20	0.0	0.0	0.115	0.2
01Jan2000	06:21	0.0	0.0	0.110	0.2
01Jan2000	06:22	0.0	0.0	0.106	0.2
01Jan2000	06:23	0.0	0.0	0.102	0.2
01Jan2000	06:24	0.0	0.0	0.098	0.2
01Jan2000	06:25	0.0	0.0	0.095	0.2
01Jan2000	06:26	0.0	0.0	0.092	0.2
01Jan2000	06:27	0.0	0.0	0.088	0.2
01Jan2000	06:28	0.0	0.0	0.085	0.2
01Jan2000	06:29	0.0	0.0	0.082	0.2
01Jan2000	06:30	0.0	0.0	0.079	0.2
01Jan2000	06:31	0.0	0.0	0.076	0.1
01Jan2000	06:32	0.0	0.0	0.074	0.1
01Jan2000	06:33	0.0	0.0	0.071	0.1
01Jan2000	06:34	0.0	0.0	0.069	0.1
01Jan2000	06:35	0.0	0.0	0.066	0.1
01Jan2000	06:36	0.0	0.0	0.064	0.1
01Jan2000	06:37	0.0	0.0	0.061	0.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.059	0.1
01Jan2000	06:39	0.0	0.0	0.057	0.1
01Jan2000	06:40	0.0	0.0	0.055	0.1
01Jan2000	06:41	0.0	0.0	0.053	0.1
01Jan2000	06:42	0.0	0.0	0.051	0.1
01Jan2000	06:43	0.0	0.0	0.049	0.1
01Jan2000	06:44	0.0	0.0	0.048	0.1
01Jan2000	06:45	0.0	0.0	0.046	0.1
01Jan2000	06:46	0.0	0.0	0.044	0.1
01Jan2000	06:47	0.0	0.0	0.043	0.1
01Jan2000	06:48	0.0	0.0	0.041	0.1
01Jan2000	06:49	0.0	0.0	0.040	0.1
01Jan2000	06:50	0.0	0.0	0.038	0.1
01Jan2000	06:51	0.0	0.0	0.037	0.1
01Jan2000	06:52	0.0	0.0	0.036	0.1
01Jan2000	06:53	0.0	0.0	0.034	0.1
01Jan2000	06:54	0.0	0.0	0.033	0.1
01Jan2000	06:55	0.0	0.0	0.032	0.1
01Jan2000	06:56	0.0	0.0	0.031	0.1
01Jan2000	06:57	0.0	0.0	0.030	0.1
01Jan2000	06:58	0.0	0.0	0.029	0.1
01Jan2000	06:59	0.0	0.0	0.028	0.1
01Jan2000	07:00	0.0	0.0	0.027	0.1

Project: FANITA-RV Simulation Run: Run 1

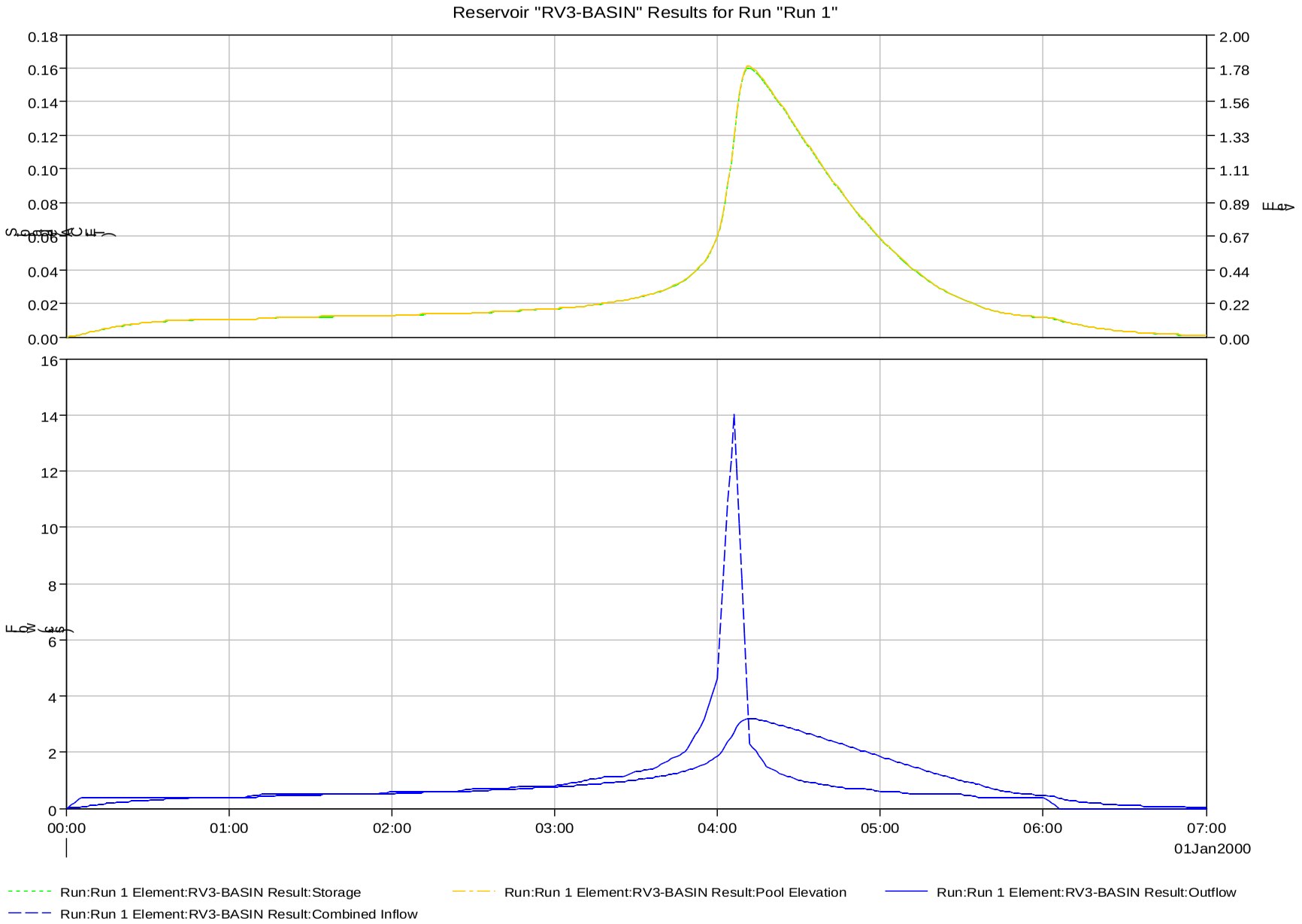
Reservoir: RV3-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	14.0 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:06
Peak Discharge:	3.2 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:12
Inflow Volume:	n/a	Peak Storage:	0.2 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	1.790 (FT)


Reservoir "RV3-BASIN" Results for Run "Run 1"
Storage (AC-FT)
Elev
Flow (CFS)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2.00
1.78
1.56
1.33
1.11
0.89
0.67
0.44
0.22
0.00
16
14
12
10
8
6
4
2
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV3-BASIN Result:Storage
Run:Run 1 Element:RV3-BASIN Result:Pool Elevation
Run:Run 1 Element:RV3-BASIN Result:Outflow
Run:Run 1 Element:RV3-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV3-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.1	0.0	0.001	0.0
01Jan2000	00:02	0.1	0.0	0.002	0.0
01Jan2000	00:03	0.2	0.0	0.004	0.0
01Jan2000	00:04	0.3	0.0	0.008	0.0
01Jan2000	00:05	0.3	0.0	0.012	0.0
01Jan2000	00:06	0.4	0.0	0.017	0.0
01Jan2000	00:07	0.4	0.0	0.022	0.1
01Jan2000	00:08	0.4	0.0	0.027	0.1
01Jan2000	00:09	0.4	0.0	0.032	0.1
01Jan2000	00:10	0.4	0.0	0.037	0.1
01Jan2000	00:11	0.4	0.0	0.041	0.1
01Jan2000	00:12	0.4	0.0	0.045	0.1
01Jan2000	00:13	0.4	0.0	0.049	0.1
01Jan2000	00:14	0.4	0.0	0.053	0.2
01Jan2000	00:15	0.4	0.0	0.057	0.2
01Jan2000	00:16	0.4	0.0	0.060	0.2
01Jan2000	00:17	0.4	0.0	0.064	0.2
01Jan2000	00:18	0.4	0.0	0.067	0.2
01Jan2000	00:19	0.4	0.0	0.070	0.2
01Jan2000	00:20	0.4	0.0	0.073	0.2
01Jan2000	00:21	0.4	0.0	0.076	0.2
01Jan2000	00:22	0.4	0.0	0.078	0.2
01Jan2000	00:23	0.4	0.0	0.081	0.2
01Jan2000	00:24	0.4	0.0	0.083	0.2
01Jan2000	00:25	0.4	0.0	0.086	0.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.4	0.0	0.088	0.3
01Jan2000	00:27	0.4	0.0	0.090	0.3
01Jan2000	00:28	0.4	0.0	0.092	0.3
01Jan2000	00:29	0.4	0.0	0.094	0.3
01Jan2000	00:30	0.4	0.0	0.096	0.3
01Jan2000	00:31	0.4	0.0	0.098	0.3
01Jan2000	00:32	0.4	0.0	0.099	0.3
01Jan2000	00:33	0.4	0.0	0.101	0.3
01Jan2000	00:34	0.4	0.0	0.102	0.3
01Jan2000	00:35	0.4	0.0	0.104	0.3
01Jan2000	00:36	0.4	0.0	0.105	0.3
01Jan2000	00:37	0.4	0.0	0.106	0.3
01Jan2000	00:38	0.4	0.0	0.107	0.3
01Jan2000	00:39	0.4	0.0	0.108	0.3
01Jan2000	00:40	0.4	0.0	0.109	0.3
01Jan2000	00:41	0.4	0.0	0.110	0.3
01Jan2000	00:42	0.4	0.0	0.111	0.4
01Jan2000	00:43	0.4	0.0	0.112	0.4
01Jan2000	00:44	0.4	0.0	0.112	0.4
01Jan2000	00:45	0.4	0.0	0.113	0.4
01Jan2000	00:46	0.4	0.0	0.113	0.4
01Jan2000	00:47	0.4	0.0	0.114	0.4
01Jan2000	00:48	0.4	0.0	0.114	0.4
01Jan2000	00:49	0.4	0.0	0.115	0.4
01Jan2000	00:50	0.4	0.0	0.115	0.4
01Jan2000	00:51	0.4	0.0	0.115	0.4
01Jan2000	00:52	0.4	0.0	0.116	0.4
01Jan2000	00:53	0.4	0.0	0.116	0.4
01Jan2000	00:54	0.4	0.0	0.116	0.4
01Jan2000	00:55	0.4	0.0	0.117	0.4
01Jan2000	00:56	0.4	0.0	0.117	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.4	0.0	0.117	0.4
01Jan2000	00:58	0.4	0.0	0.117	0.4
01Jan2000	00:59	0.4	0.0	0.118	0.4
01Jan2000	01:00	0.4	0.0	0.118	0.4
01Jan2000	01:01	0.4	0.0	0.118	0.4
01Jan2000	01:02	0.4	0.0	0.118	0.4
01Jan2000	01:03	0.4	0.0	0.118	0.4
01Jan2000	01:04	0.4	0.0	0.118	0.4
01Jan2000	01:05	0.4	0.0	0.118	0.4
01Jan2000	01:06	0.4	0.0	0.119	0.4
01Jan2000	01:07	0.4	0.0	0.119	0.4
01Jan2000	01:08	0.4	0.0	0.119	0.4
01Jan2000	01:09	0.5	0.0	0.120	0.4
01Jan2000	01:10	0.5	0.0	0.121	0.4
01Jan2000	01:11	0.5	0.0	0.122	0.4
01Jan2000	01:12	0.5	0.0	0.123	0.4
01Jan2000	01:13	0.5	0.0	0.124	0.4
01Jan2000	01:14	0.5	0.0	0.125	0.4
01Jan2000	01:15	0.5	0.0	0.126	0.4
01Jan2000	01:16	0.5	0.0	0.127	0.4
01Jan2000	01:17	0.5	0.0	0.128	0.4
01Jan2000	01:18	0.5	0.0	0.129	0.4
01Jan2000	01:19	0.5	0.0	0.130	0.5
01Jan2000	01:20	0.5	0.0	0.130	0.5
01Jan2000	01:21	0.5	0.0	0.131	0.5
01Jan2000	01:22	0.5	0.0	0.132	0.5
01Jan2000	01:23	0.5	0.0	0.132	0.5
01Jan2000	01:24	0.5	0.0	0.133	0.5
01Jan2000	01:25	0.5	0.0	0.133	0.5
01Jan2000	01:26	0.5	0.0	0.134	0.5
01Jan2000	01:27	0.5	0.0	0.134	0.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.5	0.0	0.134	0.5
01Jan2000	01:29	0.5	0.0	0.135	0.5
01Jan2000	01:30	0.5	0.0	0.135	0.5
01Jan2000	01:31	0.5	0.0	0.135	0.5
01Jan2000	01:32	0.5	0.0	0.135	0.5
01Jan2000	01:33	0.5	0.0	0.136	0.5
01Jan2000	01:34	0.5	0.0	0.136	0.5
01Jan2000	01:35	0.5	0.0	0.136	0.5
01Jan2000	01:36	0.5	0.0	0.136	0.5
01Jan2000	01:37	0.5	0.0	0.136	0.5
01Jan2000	01:38	0.5	0.0	0.137	0.5
01Jan2000	01:39	0.5	0.0	0.137	0.5
01Jan2000	01:40	0.5	0.0	0.137	0.5
01Jan2000	01:41	0.5	0.0	0.137	0.5
01Jan2000	01:42	0.5	0.0	0.137	0.5
01Jan2000	01:43	0.5	0.0	0.137	0.5
01Jan2000	01:44	0.5	0.0	0.137	0.5
01Jan2000	01:45	0.5	0.0	0.137	0.5
01Jan2000	01:46	0.5	0.0	0.137	0.5
01Jan2000	01:47	0.5	0.0	0.138	0.5
01Jan2000	01:48	0.5	0.0	0.138	0.5
01Jan2000	01:49	0.5	0.0	0.138	0.5
01Jan2000	01:50	0.5	0.0	0.138	0.5
01Jan2000	01:51	0.5	0.0	0.138	0.5
01Jan2000	01:52	0.5	0.0	0.138	0.5
01Jan2000	01:53	0.5	0.0	0.138	0.5
01Jan2000	01:54	0.5	0.0	0.138	0.5
01Jan2000	01:55	0.5	0.0	0.138	0.5
01Jan2000	01:56	0.5	0.0	0.138	0.5
01Jan2000	01:57	0.6	0.0	0.139	0.5
01Jan2000	01:58	0.6	0.0	0.140	0.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.6	0.0	0.141	0.5
01Jan2000	02:00	0.6	0.0	0.142	0.5
01Jan2000	02:01	0.6	0.0	0.143	0.5
01Jan2000	02:02	0.6	0.0	0.144	0.5
01Jan2000	02:03	0.6	0.0	0.145	0.5
01Jan2000	02:04	0.6	0.0	0.146	0.5
01Jan2000	02:05	0.6	0.0	0.147	0.5
01Jan2000	02:06	0.6	0.0	0.148	0.6
01Jan2000	02:07	0.6	0.0	0.149	0.6
01Jan2000	02:08	0.6	0.0	0.149	0.6
01Jan2000	02:09	0.6	0.0	0.150	0.6
01Jan2000	02:10	0.6	0.0	0.150	0.6
01Jan2000	02:11	0.6	0.0	0.151	0.6
01Jan2000	02:12	0.6	0.0	0.151	0.6
01Jan2000	02:13	0.6	0.0	0.152	0.6
01Jan2000	02:14	0.6	0.0	0.152	0.6
01Jan2000	02:15	0.6	0.0	0.153	0.6
01Jan2000	02:16	0.6	0.0	0.153	0.6
01Jan2000	02:17	0.6	0.0	0.153	0.6
01Jan2000	02:18	0.6	0.0	0.154	0.6
01Jan2000	02:19	0.6	0.0	0.154	0.6
01Jan2000	02:20	0.6	0.0	0.154	0.6
01Jan2000	02:21	0.6	0.0	0.154	0.6
01Jan2000	02:22	0.6	0.0	0.155	0.6
01Jan2000	02:23	0.6	0.0	0.155	0.6
01Jan2000	02:24	0.6	0.0	0.155	0.6
01Jan2000	02:25	0.6	0.0	0.155	0.6
01Jan2000	02:26	0.6	0.0	0.156	0.6
01Jan2000	02:27	0.7	0.0	0.156	0.6
01Jan2000	02:28	0.7	0.0	0.157	0.6
01Jan2000	02:29	0.7	0.0	0.158	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	0.7	0.0	0.160	0.6
01Jan2000	02:31	0.7	0.0	0.161	0.6
01Jan2000	02:32	0.7	0.0	0.162	0.6
01Jan2000	02:33	0.7	0.0	0.163	0.6
01Jan2000	02:34	0.7	0.0	0.164	0.6
01Jan2000	02:35	0.7	0.0	0.165	0.6
01Jan2000	02:36	0.7	0.0	0.166	0.6
01Jan2000	02:37	0.7	0.0	0.167	0.7
01Jan2000	02:38	0.7	0.0	0.167	0.7
01Jan2000	02:39	0.7	0.0	0.168	0.7
01Jan2000	02:40	0.7	0.0	0.169	0.7
01Jan2000	02:41	0.7	0.0	0.169	0.7
01Jan2000	02:42	0.7	0.0	0.170	0.7
01Jan2000	02:43	0.7	0.0	0.170	0.7
01Jan2000	02:44	0.7	0.0	0.171	0.7
01Jan2000	02:45	0.7	0.0	0.172	0.7
01Jan2000	02:46	0.8	0.0	0.173	0.7
01Jan2000	02:47	0.8	0.0	0.174	0.7
01Jan2000	02:48	0.8	0.0	0.176	0.7
01Jan2000	02:49	0.8	0.0	0.177	0.7
01Jan2000	02:50	0.8	0.0	0.179	0.7
01Jan2000	02:51	0.8	0.0	0.180	0.7
01Jan2000	02:52	0.8	0.0	0.181	0.7
01Jan2000	02:53	0.8	0.0	0.182	0.7
01Jan2000	02:54	0.8	0.0	0.183	0.7
01Jan2000	02:55	0.8	0.0	0.184	0.7
01Jan2000	02:56	0.8	0.0	0.185	0.7
01Jan2000	02:57	0.8	0.0	0.186	0.8
01Jan2000	02:58	0.8	0.0	0.186	0.8
01Jan2000	02:59	0.8	0.0	0.187	0.8
01Jan2000	03:00	0.8	0.0	0.187	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	0.8	0.0	0.188	0.8
01Jan2000	03:02	0.8	0.0	0.189	0.8
01Jan2000	03:03	0.8	0.0	0.190	0.8
01Jan2000	03:04	0.9	0.0	0.191	0.8
01Jan2000	03:05	0.9	0.0	0.193	0.8
01Jan2000	03:06	0.9	0.0	0.194	0.8
01Jan2000	03:07	0.9	0.0	0.196	0.8
01Jan2000	03:08	0.9	0.0	0.197	0.8
01Jan2000	03:09	0.9	0.0	0.199	0.8
01Jan2000	03:10	1.0	0.0	0.201	0.8
01Jan2000	03:11	1.0	0.0	0.203	0.8
01Jan2000	03:12	1.0	0.0	0.206	0.8
01Jan2000	03:13	1.0	0.0	0.208	0.9
01Jan2000	03:14	1.0	0.0	0.211	0.9
01Jan2000	03:15	1.1	0.0	0.213	0.9
01Jan2000	03:16	1.1	0.0	0.216	0.9
01Jan2000	03:17	1.1	0.0	0.219	0.9
01Jan2000	03:18	1.1	0.0	0.222	0.9
01Jan2000	03:19	1.1	0.0	0.225	0.9
01Jan2000	03:20	1.1	0.0	0.228	0.9
01Jan2000	03:21	1.1	0.0	0.231	0.9
01Jan2000	03:22	1.1	0.0	0.233	0.9
01Jan2000	03:23	1.1	0.0	0.236	0.9
01Jan2000	03:24	1.1	0.0	0.238	0.9
01Jan2000	03:25	1.1	0.0	0.241	1.0
01Jan2000	03:26	1.2	0.0	0.244	1.0
01Jan2000	03:27	1.2	0.0	0.247	1.0
01Jan2000	03:28	1.2	0.0	0.251	1.0
01Jan2000	03:29	1.3	0.0	0.254	1.0
01Jan2000	03:30	1.3	0.0	0.259	1.0
01Jan2000	03:31	1.3	0.0	0.263	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	1.3	0.0	0.268	1.0
01Jan2000	03:33	1.4	0.0	0.272	1.1
01Jan2000	03:34	1.4	0.0	0.277	1.1
01Jan2000	03:35	1.4	0.0	0.281	1.1
01Jan2000	03:36	1.4	0.0	0.286	1.1
01Jan2000	03:37	1.4	0.0	0.291	1.1
01Jan2000	03:38	1.5	0.0	0.297	1.1
01Jan2000	03:39	1.6	0.0	0.302	1.1
01Jan2000	03:40	1.6	0.0	0.309	1.2
01Jan2000	03:41	1.6	0.0	0.316	1.2
01Jan2000	03:42	1.7	0.0	0.324	1.2
01Jan2000	03:43	1.8	0.0	0.332	1.2
01Jan2000	03:44	1.8	0.0	0.340	1.2
01Jan2000	03:45	1.9	0.0	0.349	1.3
01Jan2000	03:46	1.9	0.0	0.358	1.3
01Jan2000	03:47	1.9	0.0	0.368	1.3
01Jan2000	03:48	2.0	0.0	0.378	1.3
01Jan2000	03:49	2.1	0.0	0.390	1.4
01Jan2000	03:50	2.3	0.0	0.403	1.4
01Jan2000	03:51	2.5	0.0	0.418	1.4
01Jan2000	03:52	2.6	0.0	0.435	1.4
01Jan2000	03:53	2.8	0.0	0.453	1.5
01Jan2000	03:54	2.9	0.0	0.474	1.5
01Jan2000	03:55	3.2	0.0	0.497	1.6
01Jan2000	03:56	3.5	0.0	0.523	1.6
01Jan2000	03:57	3.8	0.0	0.553	1.7
01Jan2000	03:58	4.0	0.1	0.587	1.7
01Jan2000	03:59	4.3	0.1	0.624	1.8
01Jan2000	04:00	4.6	0.1	0.664	1.9
01Jan2000	04:01	6.2	0.1	0.718	1.9
01Jan2000	04:02	7.7	0.1	0.794	2.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	9.3	0.1	0.893	2.2
01Jan2000	04:04	10.9	0.1	1.013	2.4
01Jan2000	04:05	12.5	0.1	1.155	2.5
01Jan2000	04:06	14.0	0.1	1.318	2.7
01Jan2000	04:07	12.1	0.1	1.476	2.9
01Jan2000	04:08	10.1	0.1	1.602	3.0
01Jan2000	04:09	8.2	0.2	1.695	3.1
01Jan2000	04:10	6.2	0.2	1.757	3.2
01Jan2000	04:11	4.3	0.2	1.789	3.2
01Jan2000	04:12	2.3	0.2	1.790	3.2
01Jan2000	04:13	2.2	0.2	1.775	3.2
01Jan2000	04:14	2.0	0.2	1.759	3.2
01Jan2000	04:15	1.9	0.2	1.741	3.2
01Jan2000	04:16	1.8	0.2	1.720	3.1
01Jan2000	04:17	1.6	0.2	1.699	3.1
01Jan2000	04:18	1.5	0.1	1.675	3.1
01Jan2000	04:19	1.4	0.1	1.650	3.1
01Jan2000	04:20	1.4	0.1	1.625	3.0
01Jan2000	04:21	1.4	0.1	1.600	3.0
01Jan2000	04:22	1.3	0.1	1.574	3.0
01Jan2000	04:23	1.2	0.1	1.548	3.0
01Jan2000	04:24	1.2	0.1	1.522	2.9
01Jan2000	04:25	1.2	0.1	1.495	2.9
01Jan2000	04:26	1.1	0.1	1.468	2.9
01Jan2000	04:27	1.1	0.1	1.441	2.9
01Jan2000	04:28	1.1	0.1	1.414	2.8
01Jan2000	04:29	1.0	0.1	1.387	2.8
01Jan2000	04:30	1.0	0.1	1.360	2.8
01Jan2000	04:31	1.0	0.1	1.333	2.7
01Jan2000	04:32	1.0	0.1	1.306	2.7
01Jan2000	04:33	0.9	0.1	1.279	2.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	0.9	0.1	1.253	2.6
01Jan2000	04:35	0.9	0.1	1.227	2.6
01Jan2000	04:36	0.9	0.1	1.201	2.6
01Jan2000	04:37	0.9	0.1	1.175	2.6
01Jan2000	04:38	0.9	0.1	1.149	2.5
01Jan2000	04:39	0.8	0.1	1.124	2.5
01Jan2000	04:40	0.8	0.1	1.099	2.5
01Jan2000	04:41	0.8	0.1	1.074	2.4
01Jan2000	04:42	0.8	0.1	1.049	2.4
01Jan2000	04:43	0.8	0.1	1.024	2.4
01Jan2000	04:44	0.8	0.1	1.000	2.3
01Jan2000	04:45	0.7	0.1	0.976	2.3
01Jan2000	04:46	0.7	0.1	0.952	2.3
01Jan2000	04:47	0.7	0.1	0.928	2.2
01Jan2000	04:48	0.7	0.1	0.905	2.2
01Jan2000	04:49	0.7	0.1	0.882	2.2
01Jan2000	04:50	0.7	0.1	0.859	2.2
01Jan2000	04:51	0.7	0.1	0.837	2.1
01Jan2000	04:52	0.7	0.1	0.815	2.1
01Jan2000	04:53	0.7	0.1	0.794	2.1
01Jan2000	04:54	0.7	0.1	0.773	2.0
01Jan2000	04:55	0.7	0.1	0.753	2.0
01Jan2000	04:56	0.7	0.1	0.733	2.0
01Jan2000	04:57	0.7	0.1	0.713	1.9
01Jan2000	04:58	0.6	0.1	0.693	1.9
01Jan2000	04:59	0.6	0.1	0.673	1.9
01Jan2000	05:00	0.6	0.1	0.654	1.8
01Jan2000	05:01	0.6	0.1	0.635	1.8
01Jan2000	05:02	0.6	0.1	0.617	1.8
01Jan2000	05:03	0.6	0.1	0.599	1.8
01Jan2000	05:04	0.6	0.1	0.581	1.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	0.6	0.1	0.564	1.7
01Jan2000	05:06	0.6	0.0	0.547	1.7
01Jan2000	05:07	0.6	0.0	0.531	1.6
01Jan2000	05:08	0.6	0.0	0.515	1.6
01Jan2000	05:09	0.6	0.0	0.499	1.6
01Jan2000	05:10	0.5	0.0	0.483	1.5
01Jan2000	05:11	0.5	0.0	0.468	1.5
01Jan2000	05:12	0.5	0.0	0.453	1.5
01Jan2000	05:13	0.5	0.0	0.438	1.5
01Jan2000	05:14	0.5	0.0	0.423	1.4
01Jan2000	05:15	0.5	0.0	0.409	1.4
01Jan2000	05:16	0.5	0.0	0.396	1.4
01Jan2000	05:17	0.5	0.0	0.383	1.3
01Jan2000	05:18	0.5	0.0	0.370	1.3
01Jan2000	05:19	0.5	0.0	0.358	1.3
01Jan2000	05:20	0.5	0.0	0.346	1.2
01Jan2000	05:21	0.5	0.0	0.335	1.2
01Jan2000	05:22	0.5	0.0	0.324	1.2
01Jan2000	05:23	0.5	0.0	0.313	1.2
01Jan2000	05:24	0.5	0.0	0.303	1.1
01Jan2000	05:25	0.5	0.0	0.293	1.1
01Jan2000	05:26	0.5	0.0	0.284	1.1
01Jan2000	05:27	0.5	0.0	0.275	1.1
01Jan2000	05:28	0.5	0.0	0.267	1.0
01Jan2000	05:29	0.5	0.0	0.259	1.0
01Jan2000	05:30	0.5	0.0	0.251	1.0
01Jan2000	05:31	0.5	0.0	0.244	1.0
01Jan2000	05:32	0.5	0.0	0.236	0.9
01Jan2000	05:33	0.5	0.0	0.229	0.9
01Jan2000	05:34	0.4	0.0	0.222	0.9
01Jan2000	05:35	0.4	0.0	0.215	0.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.4	0.0	0.208	0.9
01Jan2000	05:37	0.4	0.0	0.201	0.8
01Jan2000	05:38	0.4	0.0	0.194	0.8
01Jan2000	05:39	0.4	0.0	0.188	0.8
01Jan2000	05:40	0.4	0.0	0.183	0.7
01Jan2000	05:41	0.4	0.0	0.178	0.7
01Jan2000	05:42	0.4	0.0	0.173	0.7
01Jan2000	05:43	0.4	0.0	0.169	0.7
01Jan2000	05:44	0.4	0.0	0.165	0.6
01Jan2000	05:45	0.4	0.0	0.162	0.6
01Jan2000	05:46	0.4	0.0	0.158	0.6
01Jan2000	05:47	0.4	0.0	0.155	0.6
01Jan2000	05:48	0.4	0.0	0.152	0.6
01Jan2000	05:49	0.4	0.0	0.150	0.6
01Jan2000	05:50	0.4	0.0	0.147	0.5
01Jan2000	05:51	0.4	0.0	0.145	0.5
01Jan2000	05:52	0.4	0.0	0.143	0.5
01Jan2000	05:53	0.4	0.0	0.141	0.5
01Jan2000	05:54	0.4	0.0	0.140	0.5
01Jan2000	05:55	0.4	0.0	0.138	0.5
01Jan2000	05:56	0.4	0.0	0.137	0.5
01Jan2000	05:57	0.4	0.0	0.135	0.5
01Jan2000	05:58	0.4	0.0	0.134	0.5
01Jan2000	05:59	0.4	0.0	0.133	0.5
01Jan2000	06:00	0.4	0.0	0.132	0.5
01Jan2000	06:01	0.3	0.0	0.130	0.5
01Jan2000	06:02	0.3	0.0	0.128	0.4
01Jan2000	06:03	0.2	0.0	0.125	0.4
01Jan2000	06:04	0.1	0.0	0.121	0.4
01Jan2000	06:05	0.1	0.0	0.117	0.4
01Jan2000	06:06	0.0	0.0	0.111	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.0	0.0	0.106	0.3
01Jan2000	06:08	0.0	0.0	0.101	0.3
01Jan2000	06:09	0.0	0.0	0.097	0.3
01Jan2000	06:10	0.0	0.0	0.093	0.3
01Jan2000	06:11	0.0	0.0	0.088	0.3
01Jan2000	06:12	0.0	0.0	0.085	0.2
01Jan2000	06:13	0.0	0.0	0.081	0.2
01Jan2000	06:14	0.0	0.0	0.077	0.2
01Jan2000	06:15	0.0	0.0	0.074	0.2
01Jan2000	06:16	0.0	0.0	0.071	0.2
01Jan2000	06:17	0.0	0.0	0.067	0.2
01Jan2000	06:18	0.0	0.0	0.064	0.2
01Jan2000	06:19	0.0	0.0	0.062	0.2
01Jan2000	06:20	0.0	0.0	0.059	0.2
01Jan2000	06:21	0.0	0.0	0.056	0.2
01Jan2000	06:22	0.0	0.0	0.054	0.2
01Jan2000	06:23	0.0	0.0	0.051	0.2
01Jan2000	06:24	0.0	0.0	0.049	0.1
01Jan2000	06:25	0.0	0.0	0.047	0.1
01Jan2000	06:26	0.0	0.0	0.045	0.1
01Jan2000	06:27	0.0	0.0	0.043	0.1
01Jan2000	06:28	0.0	0.0	0.041	0.1
01Jan2000	06:29	0.0	0.0	0.039	0.1
01Jan2000	06:30	0.0	0.0	0.037	0.1
01Jan2000	06:31	0.0	0.0	0.036	0.1
01Jan2000	06:32	0.0	0.0	0.034	0.1
01Jan2000	06:33	0.0	0.0	0.033	0.1
01Jan2000	06:34	0.0	0.0	0.031	0.1
01Jan2000	06:35	0.0	0.0	0.030	0.1
01Jan2000	06:36	0.0	0.0	0.029	0.1
01Jan2000	06:37	0.0	0.0	0.027	0.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.026	0.1
01Jan2000	06:39	0.0	0.0	0.025	0.1
01Jan2000	06:40	0.0	0.0	0.024	0.1
01Jan2000	06:41	0.0	0.0	0.023	0.1
01Jan2000	06:42	0.0	0.0	0.022	0.1
01Jan2000	06:43	0.0	0.0	0.021	0.1
01Jan2000	06:44	0.0	0.0	0.020	0.1
01Jan2000	06:45	0.0	0.0	0.019	0.1
01Jan2000	06:46	0.0	0.0	0.018	0.1
01Jan2000	06:47	0.0	0.0	0.017	0.1
01Jan2000	06:48	0.0	0.0	0.017	0.0
01Jan2000	06:49	0.0	0.0	0.016	0.0
01Jan2000	06:50	0.0	0.0	0.015	0.0
01Jan2000	06:51	0.0	0.0	0.014	0.0
01Jan2000	06:52	0.0	0.0	0.014	0.0
01Jan2000	06:53	0.0	0.0	0.013	0.0
01Jan2000	06:54	0.0	0.0	0.013	0.0
01Jan2000	06:55	0.0	0.0	0.012	0.0
01Jan2000	06:56	0.0	0.0	0.012	0.0
01Jan2000	06:57	0.0	0.0	0.011	0.0
01Jan2000	06:58	0.0	0.0	0.011	0.0
01Jan2000	06:59	0.0	0.0	0.010	0.0
01Jan2000	07:00	0.0	0.0	0.010	0.0

Project: FANITA-RV Simulation Run: Run 1

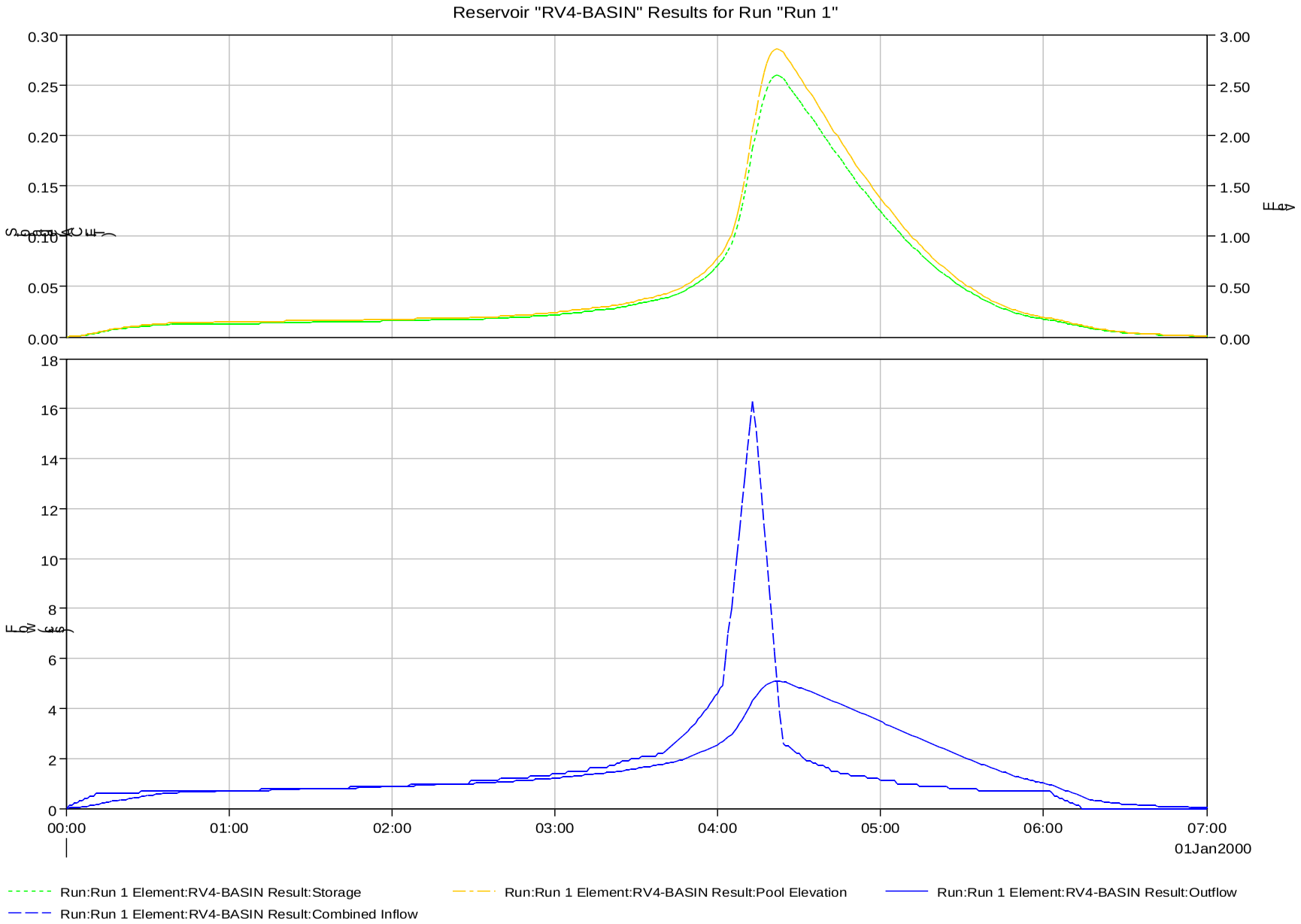
Reservoir: RV4-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	16.3 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:13
Peak Discharge:	5.1 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:22
Inflow Volume:	n/a	Peak Storage:	0.3 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	2.861 (FT)


Reservoir "RV4-BASIN" Results for Run "Run 1"
Storage (AC-FT)
Elev
Flow (CFS)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3.00
2.50
2.00
1.50
1.00
0.50
0.00
18
16
14
12
10
8
6
4
2
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV4-BASIN Result:Storage
Run:Run 1 Element:RV4-BASIN Result:Pool Elevation
Run:Run 1 Element:RV4-BASIN Result:Outflow
Run:Run 1 Element:RV4-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV4-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.1	0.0	0.001	0.0
01Jan2000	00:02	0.1	0.0	0.002	0.0
01Jan2000	00:03	0.2	0.0	0.004	0.0
01Jan2000	00:04	0.2	0.0	0.007	0.0
01Jan2000	00:05	0.3	0.0	0.010	0.0
01Jan2000	00:06	0.3	0.0	0.014	0.1
01Jan2000	00:07	0.4	0.0	0.019	0.1
01Jan2000	00:08	0.4	0.0	0.023	0.1
01Jan2000	00:09	0.5	0.0	0.029	0.1
01Jan2000	00:10	0.5	0.0	0.035	0.1
01Jan2000	00:11	0.6	0.0	0.041	0.2
01Jan2000	00:12	0.6	0.0	0.048	0.2
01Jan2000	00:13	0.6	0.0	0.054	0.2
01Jan2000	00:14	0.6	0.0	0.060	0.2
01Jan2000	00:15	0.6	0.0	0.065	0.2
01Jan2000	00:16	0.6	0.0	0.071	0.3
01Jan2000	00:17	0.6	0.0	0.076	0.3
01Jan2000	00:18	0.6	0.0	0.081	0.3
01Jan2000	00:19	0.6	0.0	0.085	0.3
01Jan2000	00:20	0.6	0.0	0.089	0.3
01Jan2000	00:21	0.6	0.0	0.093	0.3
01Jan2000	00:22	0.6	0.0	0.097	0.4
01Jan2000	00:23	0.6	0.0	0.101	0.4
01Jan2000	00:24	0.6	0.0	0.104	0.4
01Jan2000	00:25	0.6	0.0	0.107	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.6	0.0	0.110	0.4
01Jan2000	00:27	0.6	0.0	0.112	0.4
01Jan2000	00:28	0.7	0.0	0.115	0.5
01Jan2000	00:29	0.7	0.0	0.118	0.5
01Jan2000	00:30	0.7	0.0	0.121	0.5
01Jan2000	00:31	0.7	0.0	0.124	0.5
01Jan2000	00:32	0.7	0.0	0.127	0.5
01Jan2000	00:33	0.7	0.0	0.129	0.6
01Jan2000	00:34	0.7	0.0	0.131	0.6
01Jan2000	00:35	0.7	0.0	0.133	0.6
01Jan2000	00:36	0.7	0.0	0.134	0.6
01Jan2000	00:37	0.7	0.0	0.136	0.6
01Jan2000	00:38	0.7	0.0	0.137	0.6
01Jan2000	00:39	0.7	0.0	0.138	0.6
01Jan2000	00:40	0.7	0.0	0.139	0.6
01Jan2000	00:41	0.7	0.0	0.140	0.6
01Jan2000	00:42	0.7	0.0	0.141	0.6
01Jan2000	00:43	0.7	0.0	0.142	0.6
01Jan2000	00:44	0.7	0.0	0.143	0.7
01Jan2000	00:45	0.7	0.0	0.143	0.7
01Jan2000	00:46	0.7	0.0	0.144	0.7
01Jan2000	00:47	0.7	0.0	0.145	0.7
01Jan2000	00:48	0.7	0.0	0.145	0.7
01Jan2000	00:49	0.7	0.0	0.146	0.7
01Jan2000	00:50	0.7	0.0	0.146	0.7
01Jan2000	00:51	0.7	0.0	0.146	0.7
01Jan2000	00:52	0.7	0.0	0.147	0.7
01Jan2000	00:53	0.7	0.0	0.147	0.7
01Jan2000	00:54	0.7	0.0	0.147	0.7
01Jan2000	00:55	0.7	0.0	0.147	0.7
01Jan2000	00:56	0.7	0.0	0.148	0.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.7	0.0	0.148	0.7
01Jan2000	00:58	0.7	0.0	0.148	0.7
01Jan2000	00:59	0.7	0.0	0.148	0.7
01Jan2000	01:00	0.7	0.0	0.148	0.7
01Jan2000	01:01	0.7	0.0	0.148	0.7
01Jan2000	01:02	0.7	0.0	0.148	0.7
01Jan2000	01:03	0.7	0.0	0.149	0.7
01Jan2000	01:04	0.7	0.0	0.149	0.7
01Jan2000	01:05	0.7	0.0	0.149	0.7
01Jan2000	01:06	0.7	0.0	0.149	0.7
01Jan2000	01:07	0.7	0.0	0.149	0.7
01Jan2000	01:08	0.7	0.0	0.149	0.7
01Jan2000	01:09	0.7	0.0	0.149	0.7
01Jan2000	01:10	0.7	0.0	0.149	0.7
01Jan2000	01:11	0.7	0.0	0.149	0.7
01Jan2000	01:12	0.8	0.0	0.150	0.7
01Jan2000	01:13	0.8	0.0	0.151	0.7
01Jan2000	01:14	0.8	0.0	0.153	0.7
01Jan2000	01:15	0.8	0.0	0.154	0.7
01Jan2000	01:16	0.8	0.0	0.155	0.7
01Jan2000	01:17	0.8	0.0	0.156	0.7
01Jan2000	01:18	0.8	0.0	0.157	0.7
01Jan2000	01:19	0.8	0.0	0.157	0.8
01Jan2000	01:20	0.8	0.0	0.158	0.8
01Jan2000	01:21	0.8	0.0	0.159	0.8
01Jan2000	01:22	0.8	0.0	0.159	0.8
01Jan2000	01:23	0.8	0.0	0.160	0.8
01Jan2000	01:24	0.8	0.0	0.160	0.8
01Jan2000	01:25	0.8	0.0	0.161	0.8
01Jan2000	01:26	0.8	0.0	0.161	0.8
01Jan2000	01:27	0.8	0.0	0.161	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.8	0.0	0.162	0.8
01Jan2000	01:29	0.8	0.0	0.162	0.8
01Jan2000	01:30	0.8	0.0	0.162	0.8
01Jan2000	01:31	0.8	0.0	0.162	0.8
01Jan2000	01:32	0.8	0.0	0.163	0.8
01Jan2000	01:33	0.8	0.0	0.163	0.8
01Jan2000	01:34	0.8	0.0	0.163	0.8
01Jan2000	01:35	0.8	0.0	0.163	0.8
01Jan2000	01:36	0.8	0.0	0.163	0.8
01Jan2000	01:37	0.8	0.0	0.163	0.8
01Jan2000	01:38	0.8	0.0	0.163	0.8
01Jan2000	01:39	0.8	0.0	0.164	0.8
01Jan2000	01:40	0.8	0.0	0.164	0.8
01Jan2000	01:41	0.8	0.0	0.164	0.8
01Jan2000	01:42	0.8	0.0	0.164	0.8
01Jan2000	01:43	0.8	0.0	0.164	0.8
01Jan2000	01:44	0.8	0.0	0.164	0.8
01Jan2000	01:45	0.9	0.0	0.165	0.8
01Jan2000	01:46	0.9	0.0	0.166	0.8
01Jan2000	01:47	0.9	0.0	0.167	0.8
01Jan2000	01:48	0.9	0.0	0.169	0.8
01Jan2000	01:49	0.9	0.0	0.170	0.8
01Jan2000	01:50	0.9	0.0	0.171	0.8
01Jan2000	01:51	0.9	0.0	0.171	0.8
01Jan2000	01:52	0.9	0.0	0.172	0.9
01Jan2000	01:53	0.9	0.0	0.173	0.9
01Jan2000	01:54	0.9	0.0	0.173	0.9
01Jan2000	01:55	0.9	0.0	0.174	0.9
01Jan2000	01:56	0.9	0.0	0.175	0.9
01Jan2000	01:57	0.9	0.0	0.175	0.9
01Jan2000	01:58	0.9	0.0	0.175	0.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.9	0.0	0.176	0.9
01Jan2000	02:00	0.9	0.0	0.176	0.9
01Jan2000	02:01	0.9	0.0	0.176	0.9
01Jan2000	02:02	0.9	0.0	0.177	0.9
01Jan2000	02:03	0.9	0.0	0.177	0.9
01Jan2000	02:04	0.9	0.0	0.177	0.9
01Jan2000	02:05	0.9	0.0	0.177	0.9
01Jan2000	02:06	0.9	0.0	0.178	0.9
01Jan2000	02:07	1.0	0.0	0.178	0.9
01Jan2000	02:08	1.0	0.0	0.180	0.9
01Jan2000	02:09	1.0	0.0	0.181	0.9
01Jan2000	02:10	1.0	0.0	0.183	0.9
01Jan2000	02:11	1.0	0.0	0.184	0.9
01Jan2000	02:12	1.0	0.0	0.185	0.9
01Jan2000	02:13	1.0	0.0	0.186	0.9
01Jan2000	02:14	1.0	0.0	0.187	0.9
01Jan2000	02:15	1.0	0.0	0.187	1.0
01Jan2000	02:16	1.0	0.0	0.188	1.0
01Jan2000	02:17	1.0	0.0	0.189	1.0
01Jan2000	02:18	1.0	0.0	0.189	1.0
01Jan2000	02:19	1.0	0.0	0.190	1.0
01Jan2000	02:20	1.0	0.0	0.190	1.0
01Jan2000	02:21	1.0	0.0	0.190	1.0
01Jan2000	02:22	1.0	0.0	0.191	1.0
01Jan2000	02:23	1.0	0.0	0.191	1.0
01Jan2000	02:24	1.0	0.0	0.191	1.0
01Jan2000	02:25	1.0	0.0	0.192	1.0
01Jan2000	02:26	1.0	0.0	0.192	1.0
01Jan2000	02:27	1.0	0.0	0.192	1.0
01Jan2000	02:28	1.0	0.0	0.192	1.0
01Jan2000	02:29	1.1	0.0	0.193	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	1.1	0.0	0.195	1.0
01Jan2000	02:31	1.1	0.0	0.196	1.0
01Jan2000	02:32	1.1	0.0	0.197	1.0
01Jan2000	02:33	1.1	0.0	0.199	1.0
01Jan2000	02:34	1.1	0.0	0.200	1.0
01Jan2000	02:35	1.1	0.0	0.201	1.0
01Jan2000	02:36	1.1	0.0	0.201	1.0
01Jan2000	02:37	1.1	0.0	0.202	1.0
01Jan2000	02:38	1.1	0.0	0.203	1.1
01Jan2000	02:39	1.1	0.0	0.204	1.1
01Jan2000	02:40	1.2	0.0	0.205	1.1
01Jan2000	02:41	1.2	0.0	0.207	1.1
01Jan2000	02:42	1.2	0.0	0.209	1.1
01Jan2000	02:43	1.2	0.0	0.211	1.1
01Jan2000	02:44	1.2	0.0	0.213	1.1
01Jan2000	02:45	1.2	0.0	0.214	1.1
01Jan2000	02:46	1.2	0.0	0.216	1.1
01Jan2000	02:47	1.2	0.0	0.217	1.1
01Jan2000	02:48	1.2	0.0	0.219	1.1
01Jan2000	02:49	1.2	0.0	0.220	1.1
01Jan2000	02:50	1.2	0.0	0.221	1.1
01Jan2000	02:51	1.3	0.0	0.223	1.1
01Jan2000	02:52	1.3	0.0	0.226	1.1
01Jan2000	02:53	1.3	0.0	0.228	1.1
01Jan2000	02:54	1.3	0.0	0.230	1.2
01Jan2000	02:55	1.3	0.0	0.233	1.2
01Jan2000	02:56	1.3	0.0	0.235	1.2
01Jan2000	02:57	1.3	0.0	0.236	1.2
01Jan2000	02:58	1.3	0.0	0.238	1.2
01Jan2000	02:59	1.4	0.0	0.241	1.2
01Jan2000	03:00	1.4	0.0	0.244	1.2

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	1.4	0.0	0.247	1.2
01Jan2000	03:02	1.4	0.0	0.249	1.2
01Jan2000	03:03	1.4	0.0	0.252	1.2
01Jan2000	03:04	1.4	0.0	0.254	1.2
01Jan2000	03:05	1.5	0.0	0.257	1.3
01Jan2000	03:06	1.5	0.0	0.261	1.3
01Jan2000	03:07	1.5	0.0	0.264	1.3
01Jan2000	03:08	1.5	0.0	0.267	1.3
01Jan2000	03:09	1.5	0.0	0.270	1.3
01Jan2000	03:10	1.5	0.0	0.273	1.3
01Jan2000	03:11	1.5	0.0	0.276	1.3
01Jan2000	03:12	1.5	0.0	0.278	1.3
01Jan2000	03:13	1.6	0.0	0.281	1.4
01Jan2000	03:14	1.6	0.0	0.285	1.4
01Jan2000	03:15	1.6	0.0	0.288	1.4
01Jan2000	03:16	1.6	0.0	0.292	1.4
01Jan2000	03:17	1.6	0.0	0.295	1.4
01Jan2000	03:18	1.6	0.0	0.298	1.4
01Jan2000	03:19	1.6	0.0	0.300	1.4
01Jan2000	03:20	1.7	0.0	0.304	1.4
01Jan2000	03:21	1.7	0.0	0.308	1.4
01Jan2000	03:22	1.7	0.0	0.311	1.5
01Jan2000	03:23	1.8	0.0	0.316	1.5
01Jan2000	03:24	1.8	0.0	0.321	1.5
01Jan2000	03:25	1.9	0.0	0.326	1.5
01Jan2000	03:26	1.9	0.0	0.332	1.5
01Jan2000	03:27	1.9	0.0	0.338	1.5
01Jan2000	03:28	2.0	0.0	0.344	1.6
01Jan2000	03:29	2.0	0.0	0.350	1.6
01Jan2000	03:30	2.0	0.0	0.357	1.6
01Jan2000	03:31	2.0	0.0	0.363	1.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	2.1	0.0	0.369	1.6
01Jan2000	03:33	2.1	0.0	0.376	1.7
01Jan2000	03:34	2.1	0.0	0.383	1.7
01Jan2000	03:35	2.1	0.0	0.389	1.7
01Jan2000	03:36	2.1	0.0	0.395	1.7
01Jan2000	03:37	2.1	0.0	0.401	1.7
01Jan2000	03:38	2.2	0.0	0.408	1.7
01Jan2000	03:39	2.2	0.0	0.414	1.8
01Jan2000	03:40	2.2	0.0	0.421	1.8
01Jan2000	03:41	2.3	0.0	0.428	1.8
01Jan2000	03:42	2.4	0.0	0.436	1.8
01Jan2000	03:43	2.5	0.0	0.446	1.8
01Jan2000	03:44	2.6	0.0	0.457	1.9
01Jan2000	03:45	2.7	0.0	0.468	1.9
01Jan2000	03:46	2.8	0.0	0.481	1.9
01Jan2000	03:47	2.9	0.0	0.495	2.0
01Jan2000	03:48	3.0	0.0	0.509	2.0
01Jan2000	03:49	3.1	0.0	0.525	2.0
01Jan2000	03:50	3.2	0.0	0.542	2.1
01Jan2000	03:51	3.3	0.1	0.560	2.1
01Jan2000	03:52	3.4	0.1	0.578	2.1
01Jan2000	03:53	3.6	0.1	0.598	2.2
01Jan2000	03:54	3.7	0.1	0.620	2.2
01Jan2000	03:55	3.9	0.1	0.643	2.3
01Jan2000	03:56	4.0	0.1	0.668	2.3
01Jan2000	03:57	4.2	0.1	0.695	2.4
01Jan2000	03:58	4.3	0.1	0.722	2.4
01Jan2000	03:59	4.5	0.1	0.752	2.5
01Jan2000	04:00	4.6	0.1	0.782	2.6
01Jan2000	04:01	4.8	0.1	0.815	2.6
01Jan2000	04:02	4.9	0.1	0.848	2.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	5.9	0.1	0.889	2.7
01Jan2000	04:04	7.0	0.1	0.944	2.8
01Jan2000	04:05	8.0	0.1	1.014	3.0
01Jan2000	04:06	9.1	0.1	1.098	3.1
01Jan2000	04:07	10.1	0.1	1.196	3.2
01Jan2000	04:08	11.1	0.1	1.307	3.4
01Jan2000	04:09	12.2	0.1	1.431	3.6
01Jan2000	04:10	13.2	0.1	1.569	3.7
01Jan2000	04:11	14.3	0.2	1.720	3.9
01Jan2000	04:12	15.3	0.2	1.884	4.1
01Jan2000	04:13	16.3	0.2	2.060	4.3
01Jan2000	04:14	15.1	0.2	2.232	4.5
01Jan2000	04:15	13.8	0.2	2.382	4.6
01Jan2000	04:16	12.6	0.2	2.511	4.8
01Jan2000	04:17	11.3	0.2	2.620	4.9
01Jan2000	04:18	10.1	0.2	2.708	5.0
01Jan2000	04:19	8.8	0.3	2.775	5.0
01Jan2000	04:20	7.6	0.3	2.823	5.1
01Jan2000	04:21	6.3	0.3	2.852	5.1
01Jan2000	04:22	5.1	0.3	2.861	5.1
01Jan2000	04:23	3.8	0.3	2.851	5.1
01Jan2000	04:24	2.6	0.3	2.823	5.1
01Jan2000	04:25	2.5	0.3	2.785	5.0
01Jan2000	04:26	2.5	0.2	2.747	5.0
01Jan2000	04:27	2.4	0.2	2.708	5.0
01Jan2000	04:28	2.3	0.2	2.669	4.9
01Jan2000	04:29	2.2	0.2	2.629	4.9
01Jan2000	04:30	2.2	0.2	2.588	4.8
01Jan2000	04:31	2.1	0.2	2.548	4.8
01Jan2000	04:32	2.0	0.2	2.506	4.8
01Jan2000	04:33	1.9	0.2	2.464	4.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	1.9	0.2	2.421	4.7
01Jan2000	04:35	1.8	0.2	2.378	4.6
01Jan2000	04:36	1.8	0.2	2.336	4.6
01Jan2000	04:37	1.7	0.2	2.293	4.5
01Jan2000	04:38	1.7	0.2	2.250	4.5
01Jan2000	04:39	1.7	0.2	2.208	4.5
01Jan2000	04:40	1.6	0.2	2.165	4.4
01Jan2000	04:41	1.6	0.2	2.123	4.4
01Jan2000	04:42	1.5	0.2	2.080	4.3
01Jan2000	04:43	1.5	0.2	2.038	4.3
01Jan2000	04:44	1.5	0.2	1.996	4.2
01Jan2000	04:45	1.4	0.2	1.954	4.2
01Jan2000	04:46	1.4	0.2	1.912	4.1
01Jan2000	04:47	1.4	0.2	1.871	4.1
01Jan2000	04:48	1.4	0.2	1.830	4.0
01Jan2000	04:49	1.3	0.2	1.790	4.0
01Jan2000	04:50	1.3	0.2	1.749	3.9
01Jan2000	04:51	1.3	0.2	1.709	3.9
01Jan2000	04:52	1.3	0.2	1.670	3.9
01Jan2000	04:53	1.3	0.1	1.632	3.8
01Jan2000	04:54	1.3	0.1	1.594	3.8
01Jan2000	04:55	1.2	0.1	1.556	3.7
01Jan2000	04:56	1.2	0.1	1.518	3.7
01Jan2000	04:57	1.2	0.1	1.481	3.6
01Jan2000	04:58	1.2	0.1	1.445	3.6
01Jan2000	04:59	1.2	0.1	1.409	3.5
01Jan2000	05:00	1.1	0.1	1.374	3.5
01Jan2000	05:01	1.1	0.1	1.338	3.4
01Jan2000	05:02	1.1	0.1	1.303	3.4
01Jan2000	05:03	1.1	0.1	1.269	3.3
01Jan2000	05:04	1.1	0.1	1.235	3.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	1.1	0.1	1.203	3.2
01Jan2000	05:06	1.0	0.1	1.170	3.2
01Jan2000	05:07	1.0	0.1	1.137	3.1
01Jan2000	05:08	1.0	0.1	1.105	3.1
01Jan2000	05:09	1.0	0.1	1.073	3.0
01Jan2000	05:10	1.0	0.1	1.043	3.0
01Jan2000	05:11	1.0	0.1	1.013	2.9
01Jan2000	05:12	1.0	0.1	0.983	2.9
01Jan2000	05:13	1.0	0.1	0.955	2.9
01Jan2000	05:14	0.9	0.1	0.926	2.8
01Jan2000	05:15	0.9	0.1	0.898	2.8
01Jan2000	05:16	0.9	0.1	0.870	2.7
01Jan2000	05:17	0.9	0.1	0.843	2.7
01Jan2000	05:18	0.9	0.1	0.816	2.6
01Jan2000	05:19	0.9	0.1	0.790	2.6
01Jan2000	05:20	0.9	0.1	0.765	2.5
01Jan2000	05:21	0.9	0.1	0.741	2.5
01Jan2000	05:22	0.9	0.1	0.717	2.4
01Jan2000	05:23	0.9	0.1	0.694	2.4
01Jan2000	05:24	0.9	0.1	0.672	2.3
01Jan2000	05:25	0.8	0.1	0.650	2.3
01Jan2000	05:26	0.8	0.1	0.627	2.3
01Jan2000	05:27	0.8	0.1	0.606	2.2
01Jan2000	05:28	0.8	0.1	0.585	2.2
01Jan2000	05:29	0.8	0.1	0.564	2.1
01Jan2000	05:30	0.8	0.0	0.544	2.1
01Jan2000	05:31	0.8	0.0	0.525	2.0
01Jan2000	05:32	0.8	0.0	0.507	2.0
01Jan2000	05:33	0.8	0.0	0.489	1.9
01Jan2000	05:34	0.8	0.0	0.472	1.9
01Jan2000	05:35	0.8	0.0	0.456	1.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.7	0.0	0.439	1.8
01Jan2000	05:37	0.7	0.0	0.422	1.8
01Jan2000	05:38	0.7	0.0	0.406	1.7
01Jan2000	05:39	0.7	0.0	0.391	1.7
01Jan2000	05:40	0.7	0.0	0.376	1.7
01Jan2000	05:41	0.7	0.0	0.362	1.6
01Jan2000	05:42	0.7	0.0	0.349	1.6
01Jan2000	05:43	0.7	0.0	0.336	1.5
01Jan2000	05:44	0.7	0.0	0.323	1.5
01Jan2000	05:45	0.7	0.0	0.312	1.5
01Jan2000	05:46	0.7	0.0	0.300	1.4
01Jan2000	05:47	0.7	0.0	0.290	1.4
01Jan2000	05:48	0.7	0.0	0.280	1.3
01Jan2000	05:49	0.7	0.0	0.270	1.3
01Jan2000	05:50	0.7	0.0	0.261	1.3
01Jan2000	05:51	0.7	0.0	0.253	1.2
01Jan2000	05:52	0.7	0.0	0.245	1.2
01Jan2000	05:53	0.7	0.0	0.237	1.2
01Jan2000	05:54	0.7	0.0	0.230	1.2
01Jan2000	05:55	0.7	0.0	0.223	1.1
01Jan2000	05:56	0.7	0.0	0.217	1.1
01Jan2000	05:57	0.7	0.0	0.211	1.1
01Jan2000	05:58	0.7	0.0	0.205	1.1
01Jan2000	05:59	0.7	0.0	0.200	1.0
01Jan2000	06:00	0.7	0.0	0.195	1.0
01Jan2000	06:01	0.7	0.0	0.191	1.0
01Jan2000	06:02	0.7	0.0	0.187	0.9
01Jan2000	06:03	0.6	0.0	0.182	0.9
01Jan2000	06:04	0.5	0.0	0.177	0.9
01Jan2000	06:05	0.5	0.0	0.171	0.8
01Jan2000	06:06	0.4	0.0	0.166	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.4	0.0	0.160	0.8
01Jan2000	06:08	0.3	0.0	0.154	0.7
01Jan2000	06:09	0.3	0.0	0.148	0.7
01Jan2000	06:10	0.2	0.0	0.141	0.6
01Jan2000	06:11	0.2	0.0	0.135	0.6
01Jan2000	06:12	0.1	0.0	0.128	0.6
01Jan2000	06:13	0.1	0.0	0.122	0.5
01Jan2000	06:14	0.0	0.0	0.115	0.5
01Jan2000	06:15	0.0	0.0	0.108	0.4
01Jan2000	06:16	0.0	0.0	0.102	0.4
01Jan2000	06:17	0.0	0.0	0.097	0.4
01Jan2000	06:18	0.0	0.0	0.091	0.3
01Jan2000	06:19	0.0	0.0	0.086	0.3
01Jan2000	06:20	0.0	0.0	0.082	0.3
01Jan2000	06:21	0.0	0.0	0.077	0.3
01Jan2000	06:22	0.0	0.0	0.073	0.3
01Jan2000	06:23	0.0	0.0	0.069	0.3
01Jan2000	06:24	0.0	0.0	0.065	0.2
01Jan2000	06:25	0.0	0.0	0.062	0.2
01Jan2000	06:26	0.0	0.0	0.058	0.2
01Jan2000	06:27	0.0	0.0	0.055	0.2
01Jan2000	06:28	0.0	0.0	0.052	0.2
01Jan2000	06:29	0.0	0.0	0.049	0.2
01Jan2000	06:30	0.0	0.0	0.047	0.2
01Jan2000	06:31	0.0	0.0	0.044	0.2
01Jan2000	06:32	0.0	0.0	0.042	0.2
01Jan2000	06:33	0.0	0.0	0.040	0.1
01Jan2000	06:34	0.0	0.0	0.037	0.1
01Jan2000	06:35	0.0	0.0	0.035	0.1
01Jan2000	06:36	0.0	0.0	0.033	0.1
01Jan2000	06:37	0.0	0.0	0.032	0.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.030	0.1
01Jan2000	06:39	0.0	0.0	0.028	0.1
01Jan2000	06:40	0.0	0.0	0.027	0.1
01Jan2000	06:41	0.0	0.0	0.025	0.1
01Jan2000	06:42	0.0	0.0	0.024	0.1
01Jan2000	06:43	0.0	0.0	0.023	0.1
01Jan2000	06:44	0.0	0.0	0.021	0.1
01Jan2000	06:45	0.0	0.0	0.020	0.1
01Jan2000	06:46	0.0	0.0	0.019	0.1
01Jan2000	06:47	0.0	0.0	0.018	0.1
01Jan2000	06:48	0.0	0.0	0.017	0.1
01Jan2000	06:49	0.0	0.0	0.016	0.1
01Jan2000	06:50	0.0	0.0	0.015	0.1
01Jan2000	06:51	0.0	0.0	0.015	0.1
01Jan2000	06:52	0.0	0.0	0.014	0.1
01Jan2000	06:53	0.0	0.0	0.013	0.0
01Jan2000	06:54	0.0	0.0	0.012	0.0
01Jan2000	06:55	0.0	0.0	0.012	0.0
01Jan2000	06:56	0.0	0.0	0.011	0.0
01Jan2000	06:57	0.0	0.0	0.010	0.0
01Jan2000	06:58	0.0	0.0	0.010	0.0
01Jan2000	06:59	0.0	0.0	0.009	0.0
01Jan2000	07:00	0.0	0.0	0.009	0.0

Project: FANITA-RV Simulation Run: Run 1

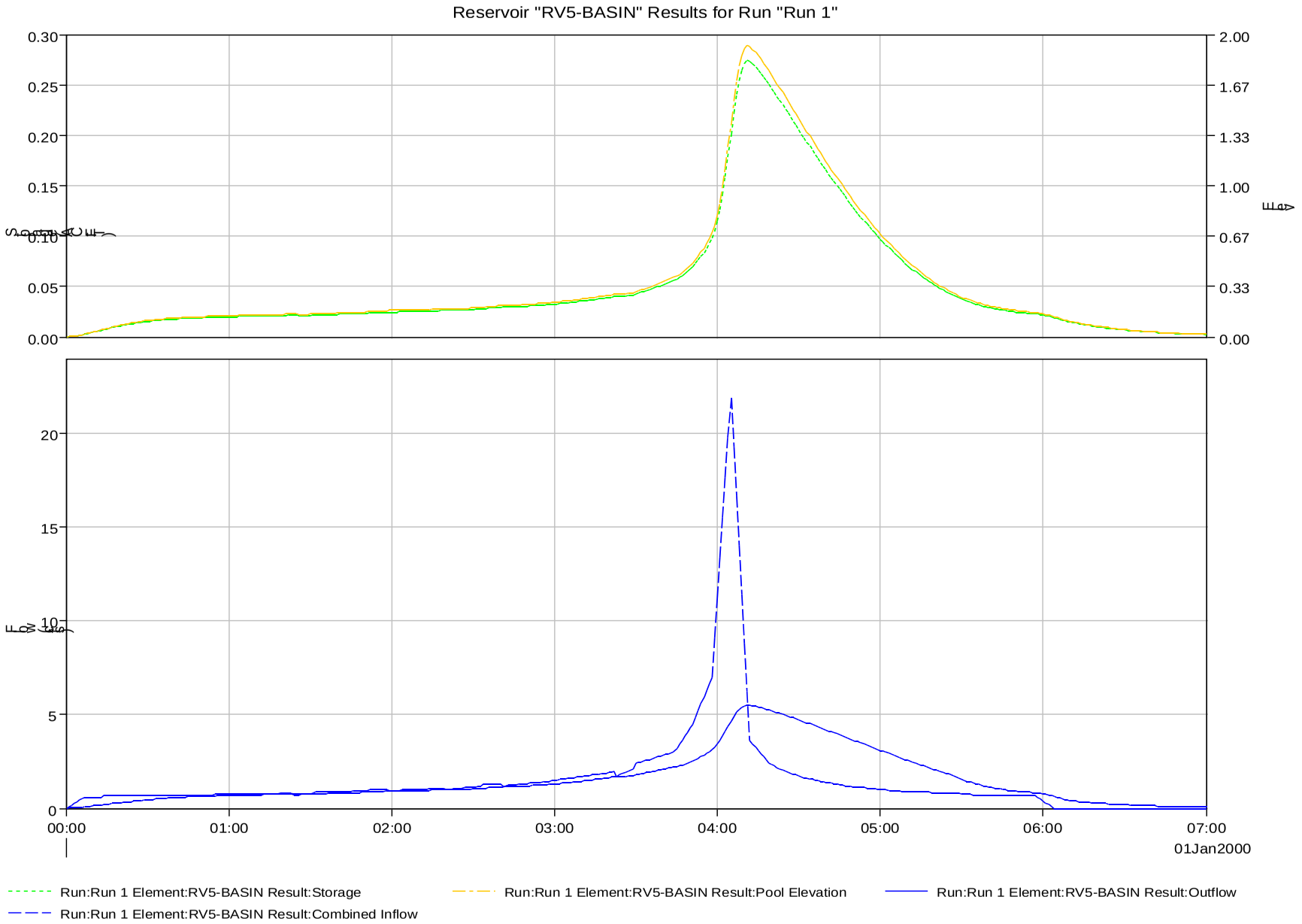
Reservoir: RV5-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	21.9 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:05
Peak Discharge:	5.5 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:11
Inflow Volume:	n/a	Peak Storage:	0.3 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	1.926 (FT)


Reservoir "RV5-BASIN" Results for Run "Run 1"
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2.00
1.67
1.33
1.00
0.67
0.33
0.00
20
15
10
5
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV5-BASIN Result:Storage
Run:Run 1 Element:RV5-BASIN Result:Pool Elevation
Run:Run 1 Element:RV5-BASIN Result:Outflow
Run:Run 1 Element:RV5-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV5-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.1	0.0	0.000	0.0
01Jan2000	00:02	0.2	0.0	0.002	0.0
01Jan2000	00:03	0.3	0.0	0.004	0.0
01Jan2000	00:04	0.3	0.0	0.006	0.0
01Jan2000	00:05	0.4	0.0	0.010	0.0
01Jan2000	00:06	0.5	0.0	0.014	0.1
01Jan2000	00:07	0.6	0.0	0.019	0.1
01Jan2000	00:08	0.6	0.0	0.024	0.1
01Jan2000	00:09	0.6	0.0	0.028	0.1
01Jan2000	00:10	0.6	0.0	0.033	0.1
01Jan2000	00:11	0.6	0.0	0.038	0.1
01Jan2000	00:12	0.6	0.0	0.042	0.2
01Jan2000	00:13	0.6	0.0	0.046	0.2
01Jan2000	00:14	0.7	0.0	0.050	0.2
01Jan2000	00:15	0.7	0.0	0.055	0.2
01Jan2000	00:16	0.7	0.0	0.060	0.2
01Jan2000	00:17	0.7	0.0	0.064	0.3
01Jan2000	00:18	0.7	0.0	0.069	0.3
01Jan2000	00:19	0.7	0.0	0.073	0.3
01Jan2000	00:20	0.7	0.0	0.077	0.3
01Jan2000	00:21	0.7	0.0	0.080	0.3
01Jan2000	00:22	0.7	0.0	0.084	0.3
01Jan2000	00:23	0.7	0.0	0.088	0.3
01Jan2000	00:24	0.7	0.0	0.091	0.4
01Jan2000	00:25	0.7	0.0	0.094	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.7	0.0	0.097	0.4
01Jan2000	00:27	0.7	0.0	0.100	0.4
01Jan2000	00:28	0.7	0.0	0.103	0.4
01Jan2000	00:29	0.7	0.0	0.106	0.4
01Jan2000	00:30	0.7	0.0	0.108	0.5
01Jan2000	00:31	0.7	0.0	0.111	0.5
01Jan2000	00:32	0.7	0.0	0.113	0.5
01Jan2000	00:33	0.7	0.0	0.115	0.5
01Jan2000	00:34	0.7	0.0	0.117	0.5
01Jan2000	00:35	0.7	0.0	0.119	0.5
01Jan2000	00:36	0.7	0.0	0.120	0.5
01Jan2000	00:37	0.7	0.0	0.122	0.5
01Jan2000	00:38	0.7	0.0	0.123	0.6
01Jan2000	00:39	0.7	0.0	0.124	0.6
01Jan2000	00:40	0.7	0.0	0.126	0.6
01Jan2000	00:41	0.7	0.0	0.127	0.6
01Jan2000	00:42	0.7	0.0	0.128	0.6
01Jan2000	00:43	0.7	0.0	0.129	0.6
01Jan2000	00:44	0.7	0.0	0.130	0.6
01Jan2000	00:45	0.7	0.0	0.131	0.6
01Jan2000	00:46	0.7	0.0	0.132	0.6
01Jan2000	00:47	0.7	0.0	0.133	0.6
01Jan2000	00:48	0.7	0.0	0.133	0.6
01Jan2000	00:49	0.7	0.0	0.134	0.6
01Jan2000	00:50	0.7	0.0	0.135	0.6
01Jan2000	00:51	0.7	0.0	0.136	0.6
01Jan2000	00:52	0.7	0.0	0.136	0.7
01Jan2000	00:53	0.7	0.0	0.137	0.7
01Jan2000	00:54	0.7	0.0	0.138	0.7
01Jan2000	00:55	0.7	0.0	0.138	0.7
01Jan2000	00:56	0.7	0.0	0.139	0.7

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.7	0.0	0.140	0.7
01Jan2000	00:58	0.7	0.0	0.140	0.7
01Jan2000	00:59	0.7	0.0	0.141	0.7
01Jan2000	01:00	0.7	0.0	0.141	0.7
01Jan2000	01:01	0.7	0.0	0.142	0.7
01Jan2000	01:02	0.8	0.0	0.143	0.7
01Jan2000	01:03	0.8	0.0	0.143	0.7
01Jan2000	01:04	0.8	0.0	0.144	0.7
01Jan2000	01:05	0.8	0.0	0.144	0.7
01Jan2000	01:06	0.8	0.0	0.145	0.7
01Jan2000	01:07	0.8	0.0	0.145	0.7
01Jan2000	01:08	0.8	0.0	0.146	0.7
01Jan2000	01:09	0.8	0.0	0.146	0.7
01Jan2000	01:10	0.8	0.0	0.146	0.7
01Jan2000	01:11	0.8	0.0	0.147	0.7
01Jan2000	01:12	0.8	0.0	0.147	0.7
01Jan2000	01:13	0.8	0.0	0.148	0.7
01Jan2000	01:14	0.8	0.0	0.148	0.7
01Jan2000	01:15	0.8	0.0	0.149	0.7
01Jan2000	01:16	0.8	0.0	0.149	0.7
01Jan2000	01:17	0.8	0.0	0.149	0.7
01Jan2000	01:18	0.8	0.0	0.150	0.7
01Jan2000	01:19	0.8	0.0	0.150	0.8
01Jan2000	01:20	0.8	0.0	0.151	0.8
01Jan2000	01:21	0.8	0.0	0.151	0.8
01Jan2000	01:22	0.8	0.0	0.152	0.8
01Jan2000	01:23	0.8	0.0	0.152	0.8
01Jan2000	01:24	0.7	0.0	0.152	0.8
01Jan2000	01:25	0.7	0.0	0.151	0.8
01Jan2000	01:26	0.7	0.0	0.151	0.8
01Jan2000	01:27	0.7	0.0	0.151	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.8	0.0	0.151	0.8
01Jan2000	01:29	0.8	0.0	0.151	0.8
01Jan2000	01:30	0.8	0.0	0.151	0.8
01Jan2000	01:31	0.8	0.0	0.152	0.8
01Jan2000	01:32	0.9	0.0	0.152	0.8
01Jan2000	01:33	0.9	0.0	0.153	0.8
01Jan2000	01:34	0.9	0.0	0.154	0.8
01Jan2000	01:35	0.9	0.0	0.155	0.8
01Jan2000	01:36	0.9	0.0	0.156	0.8
01Jan2000	01:37	0.9	0.0	0.156	0.8
01Jan2000	01:38	0.9	0.0	0.157	0.8
01Jan2000	01:39	0.9	0.0	0.158	0.8
01Jan2000	01:40	0.9	0.0	0.159	0.8
01Jan2000	01:41	0.9	0.0	0.159	0.8
01Jan2000	01:42	0.9	0.0	0.160	0.8
01Jan2000	01:43	0.9	0.0	0.161	0.8
01Jan2000	01:44	0.9	0.0	0.162	0.8
01Jan2000	01:45	0.9	0.0	0.162	0.8
01Jan2000	01:46	0.9	0.0	0.163	0.8
01Jan2000	01:47	0.9	0.0	0.164	0.8
01Jan2000	01:48	0.9	0.0	0.164	0.9
01Jan2000	01:49	0.9	0.0	0.165	0.9
01Jan2000	01:50	0.9	0.0	0.166	0.9
01Jan2000	01:51	0.9	0.0	0.166	0.9
01Jan2000	01:52	1.0	0.0	0.167	0.9
01Jan2000	01:53	1.0	0.0	0.168	0.9
01Jan2000	01:54	1.0	0.0	0.170	0.9
01Jan2000	01:55	1.0	0.0	0.171	0.9
01Jan2000	01:56	1.0	0.0	0.172	0.9
01Jan2000	01:57	1.0	0.0	0.172	0.9
01Jan2000	01:58	1.0	0.0	0.173	0.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.9	0.0	0.174	0.9
01Jan2000	02:00	1.0	0.0	0.174	0.9
01Jan2000	02:01	1.0	0.0	0.174	0.9
01Jan2000	02:02	1.0	0.0	0.175	0.9
01Jan2000	02:03	1.0	0.0	0.175	0.9
01Jan2000	02:04	1.0	0.0	0.176	0.9
01Jan2000	02:05	1.0	0.0	0.176	0.9
01Jan2000	02:06	1.0	0.0	0.177	0.9
01Jan2000	02:07	1.0	0.0	0.177	0.9
01Jan2000	02:08	1.0	0.0	0.178	0.9
01Jan2000	02:09	1.0	0.0	0.178	1.0
01Jan2000	02:10	1.0	0.0	0.179	1.0
01Jan2000	02:11	1.0	0.0	0.179	1.0
01Jan2000	02:12	1.0	0.0	0.180	1.0
01Jan2000	02:13	1.0	0.0	0.180	1.0
01Jan2000	02:14	1.0	0.0	0.181	1.0
01Jan2000	02:15	1.0	0.0	0.182	1.0
01Jan2000	02:16	1.0	0.0	0.182	1.0
01Jan2000	02:17	1.1	0.0	0.183	1.0
01Jan2000	02:18	1.1	0.0	0.184	1.0
01Jan2000	02:19	1.1	0.0	0.184	1.0
01Jan2000	02:20	1.0	0.0	0.185	1.0
01Jan2000	02:21	1.0	0.0	0.185	1.0
01Jan2000	02:22	1.0	0.0	0.185	1.0
01Jan2000	02:23	1.0	0.0	0.185	1.0
01Jan2000	02:24	1.1	0.0	0.186	1.0
01Jan2000	02:25	1.1	0.0	0.186	1.0
01Jan2000	02:26	1.1	0.0	0.187	1.0
01Jan2000	02:27	1.1	0.0	0.188	1.0
01Jan2000	02:28	1.1	0.0	0.188	1.0
01Jan2000	02:29	1.1	0.0	0.189	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	1.1	0.0	0.190	1.0
01Jan2000	02:31	1.2	0.0	0.191	1.0
01Jan2000	02:32	1.2	0.0	0.192	1.1
01Jan2000	02:33	1.2	0.0	0.194	1.1
01Jan2000	02:34	1.3	0.0	0.195	1.1
01Jan2000	02:35	1.3	0.0	0.197	1.1
01Jan2000	02:36	1.3	0.0	0.199	1.1
01Jan2000	02:37	1.3	0.0	0.201	1.1
01Jan2000	02:38	1.3	0.0	0.203	1.1
01Jan2000	02:39	1.3	0.0	0.205	1.1
01Jan2000	02:40	1.3	0.0	0.206	1.2
01Jan2000	02:41	1.2	0.0	0.207	1.2
01Jan2000	02:42	1.2	0.0	0.207	1.2
01Jan2000	02:43	1.2	0.0	0.208	1.2
01Jan2000	02:44	1.2	0.0	0.209	1.2
01Jan2000	02:45	1.3	0.0	0.209	1.2
01Jan2000	02:46	1.3	0.0	0.210	1.2
01Jan2000	02:47	1.3	0.0	0.211	1.2
01Jan2000	02:48	1.3	0.0	0.212	1.2
01Jan2000	02:49	1.3	0.0	0.213	1.2
01Jan2000	02:50	1.3	0.0	0.214	1.2
01Jan2000	02:51	1.3	0.0	0.216	1.2
01Jan2000	02:52	1.4	0.0	0.217	1.2
01Jan2000	02:53	1.4	0.0	0.218	1.2
01Jan2000	02:54	1.4	0.0	0.220	1.2
01Jan2000	02:55	1.4	0.0	0.221	1.3
01Jan2000	02:56	1.4	0.0	0.222	1.3
01Jan2000	02:57	1.4	0.0	0.224	1.3
01Jan2000	02:58	1.4	0.0	0.225	1.3
01Jan2000	02:59	1.5	0.0	0.227	1.3
01Jan2000	03:00	1.5	0.0	0.228	1.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	1.5	0.0	0.230	1.3
01Jan2000	03:02	1.5	0.0	0.232	1.3
01Jan2000	03:03	1.6	0.0	0.234	1.3
01Jan2000	03:04	1.6	0.0	0.236	1.4
01Jan2000	03:05	1.6	0.0	0.238	1.4
01Jan2000	03:06	1.6	0.0	0.240	1.4
01Jan2000	03:07	1.6	0.0	0.243	1.4
01Jan2000	03:08	1.7	0.0	0.245	1.4
01Jan2000	03:09	1.7	0.0	0.247	1.4
01Jan2000	03:10	1.7	0.0	0.250	1.5
01Jan2000	03:11	1.7	0.0	0.252	1.5
01Jan2000	03:12	1.7	0.0	0.254	1.5
01Jan2000	03:13	1.8	0.0	0.257	1.5
01Jan2000	03:14	1.8	0.0	0.259	1.5
01Jan2000	03:15	1.8	0.0	0.262	1.5
01Jan2000	03:16	1.8	0.0	0.265	1.6
01Jan2000	03:17	1.8	0.0	0.267	1.6
01Jan2000	03:18	1.9	0.0	0.269	1.6
01Jan2000	03:19	1.9	0.0	0.272	1.6
01Jan2000	03:20	1.9	0.0	0.275	1.6
01Jan2000	03:21	1.9	0.0	0.278	1.6
01Jan2000	03:22	2.0	0.0	0.280	1.7
01Jan2000	03:23	1.7	0.0	0.282	1.7
01Jan2000	03:24	1.8	0.0	0.283	1.7
01Jan2000	03:25	1.8	0.0	0.284	1.7
01Jan2000	03:26	1.9	0.0	0.285	1.7
01Jan2000	03:27	2.0	0.0	0.288	1.7
01Jan2000	03:28	2.1	0.0	0.291	1.7
01Jan2000	03:29	2.1	0.0	0.294	1.8
01Jan2000	03:30	2.4	0.0	0.299	1.8
01Jan2000	03:31	2.4	0.0	0.305	1.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	2.5	0.0	0.311	1.8
01Jan2000	03:33	2.5	0.0	0.317	1.9
01Jan2000	03:34	2.6	0.0	0.323	1.9
01Jan2000	03:35	2.6	0.0	0.330	1.9
01Jan2000	03:36	2.7	0.0	0.337	2.0
01Jan2000	03:37	2.7	0.0	0.343	2.0
01Jan2000	03:38	2.7	0.0	0.350	2.0
01Jan2000	03:39	2.8	0.1	0.358	2.0
01Jan2000	03:40	2.8	0.1	0.365	2.1
01Jan2000	03:41	2.9	0.1	0.372	2.1
01Jan2000	03:42	2.9	0.1	0.380	2.1
01Jan2000	03:43	3.0	0.1	0.387	2.2
01Jan2000	03:44	3.0	0.1	0.395	2.2
01Jan2000	03:45	3.2	0.1	0.404	2.2
01Jan2000	03:46	3.4	0.1	0.414	2.3
01Jan2000	03:47	3.6	0.1	0.426	2.3
01Jan2000	03:48	3.9	0.1	0.440	2.4
01Jan2000	03:49	4.1	0.1	0.455	2.4
01Jan2000	03:50	4.3	0.1	0.472	2.5
01Jan2000	03:51	4.5	0.1	0.490	2.5
01Jan2000	03:52	4.9	0.1	0.511	2.6
01Jan2000	03:53	5.2	0.1	0.534	2.7
01Jan2000	03:54	5.6	0.1	0.560	2.7
01Jan2000	03:55	5.9	0.1	0.589	2.8
01Jan2000	03:56	6.3	0.1	0.620	2.9
01Jan2000	03:57	6.6	0.1	0.654	3.0
01Jan2000	03:58	7.0	0.1	0.690	3.1
01Jan2000	03:59	9.1	0.1	0.737	3.2
01Jan2000	04:00	11.3	0.1	0.804	3.4
01Jan2000	04:01	13.4	0.1	0.889	3.6
01Jan2000	04:02	15.5	0.1	0.993	3.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	17.6	0.2	1.115	4.1
01Jan2000	04:04	19.8	0.2	1.255	4.4
01Jan2000	04:05	21.9	0.2	1.413	4.7
01Jan2000	04:06	19.3	0.2	1.566	4.9
01Jan2000	04:07	16.7	0.2	1.691	5.1
01Jan2000	04:08	14.1	0.3	1.789	5.3
01Jan2000	04:09	11.4	0.3	1.861	5.4
01Jan2000	04:10	8.8	0.3	1.906	5.5
01Jan2000	04:11	6.2	0.3	1.926	5.5
01Jan2000	04:12	3.6	0.3	1.920	5.5
01Jan2000	04:13	3.4	0.3	1.901	5.5
01Jan2000	04:14	3.3	0.3	1.881	5.4
01Jan2000	04:15	3.1	0.3	1.859	5.4
01Jan2000	04:16	2.9	0.3	1.836	5.4
01Jan2000	04:17	2.7	0.3	1.811	5.3
01Jan2000	04:18	2.6	0.3	1.786	5.3
01Jan2000	04:19	2.4	0.3	1.759	5.2
01Jan2000	04:20	2.3	0.2	1.731	5.2
01Jan2000	04:21	2.3	0.2	1.703	5.2
01Jan2000	04:22	2.2	0.2	1.675	5.1
01Jan2000	04:23	2.1	0.2	1.646	5.1
01Jan2000	04:24	2.0	0.2	1.618	5.0
01Jan2000	04:25	2.0	0.2	1.589	5.0
01Jan2000	04:26	1.9	0.2	1.560	4.9
01Jan2000	04:27	1.9	0.2	1.531	4.9
01Jan2000	04:28	1.8	0.2	1.501	4.8
01Jan2000	04:29	1.8	0.2	1.472	4.8
01Jan2000	04:30	1.7	0.2	1.443	4.7
01Jan2000	04:31	1.7	0.2	1.415	4.7
01Jan2000	04:32	1.6	0.2	1.386	4.6
01Jan2000	04:33	1.6	0.2	1.357	4.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	1.6	0.2	1.328	4.5
01Jan2000	04:35	1.5	0.2	1.300	4.5
01Jan2000	04:36	1.5	0.2	1.272	4.4
01Jan2000	04:37	1.5	0.2	1.244	4.4
01Jan2000	04:38	1.5	0.2	1.216	4.3
01Jan2000	04:39	1.4	0.2	1.189	4.2
01Jan2000	04:40	1.4	0.2	1.162	4.2
01Jan2000	04:41	1.4	0.2	1.135	4.1
01Jan2000	04:42	1.3	0.2	1.108	4.1
01Jan2000	04:43	1.3	0.2	1.082	4.0
01Jan2000	04:44	1.3	0.2	1.056	4.0
01Jan2000	04:45	1.3	0.1	1.030	3.9
01Jan2000	04:46	1.2	0.1	1.004	3.9
01Jan2000	04:47	1.2	0.1	0.979	3.8
01Jan2000	04:48	1.2	0.1	0.954	3.8
01Jan2000	04:49	1.2	0.1	0.929	3.7
01Jan2000	04:50	1.2	0.1	0.905	3.6
01Jan2000	04:51	1.1	0.1	0.881	3.6
01Jan2000	04:52	1.1	0.1	0.857	3.5
01Jan2000	04:53	1.1	0.1	0.834	3.5
01Jan2000	04:54	1.1	0.1	0.811	3.4
01Jan2000	04:55	1.1	0.1	0.789	3.4
01Jan2000	04:56	1.1	0.1	0.767	3.3
01Jan2000	04:57	1.1	0.1	0.745	3.3
01Jan2000	04:58	1.0	0.1	0.724	3.2
01Jan2000	04:59	1.0	0.1	0.703	3.2
01Jan2000	05:00	1.0	0.1	0.683	3.1
01Jan2000	05:01	1.0	0.1	0.663	3.0
01Jan2000	05:02	1.0	0.1	0.643	3.0
01Jan2000	05:03	1.0	0.1	0.624	2.9
01Jan2000	05:04	1.0	0.1	0.605	2.9

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	0.9	0.1	0.587	2.8
01Jan2000	05:06	0.9	0.1	0.569	2.8
01Jan2000	05:07	0.9	0.1	0.551	2.7
01Jan2000	05:08	0.9	0.1	0.534	2.7
01Jan2000	05:09	0.9	0.1	0.517	2.6
01Jan2000	05:10	0.9	0.1	0.500	2.6
01Jan2000	05:11	0.9	0.1	0.485	2.5
01Jan2000	05:12	0.9	0.1	0.469	2.5
01Jan2000	05:13	0.9	0.1	0.454	2.4
01Jan2000	05:14	0.9	0.1	0.440	2.4
01Jan2000	05:15	0.9	0.1	0.426	2.3
01Jan2000	05:16	0.9	0.1	0.413	2.3
01Jan2000	05:17	0.9	0.1	0.400	2.2
01Jan2000	05:18	0.9	0.1	0.387	2.2
01Jan2000	05:19	0.8	0.1	0.374	2.1
01Jan2000	05:20	0.8	0.1	0.362	2.1
01Jan2000	05:21	0.8	0.0	0.350	2.0
01Jan2000	05:22	0.8	0.0	0.339	2.0
01Jan2000	05:23	0.8	0.0	0.328	1.9
01Jan2000	05:24	0.8	0.0	0.317	1.9
01Jan2000	05:25	0.8	0.0	0.307	1.8
01Jan2000	05:26	0.8	0.0	0.297	1.8
01Jan2000	05:27	0.8	0.0	0.288	1.7
01Jan2000	05:28	0.8	0.0	0.279	1.7
01Jan2000	05:29	0.8	0.0	0.271	1.6
01Jan2000	05:30	0.8	0.0	0.264	1.6
01Jan2000	05:31	0.8	0.0	0.256	1.5
01Jan2000	05:32	0.8	0.0	0.250	1.5
01Jan2000	05:33	0.7	0.0	0.243	1.4
01Jan2000	05:34	0.7	0.0	0.237	1.4
01Jan2000	05:35	0.7	0.0	0.231	1.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.7	0.0	0.225	1.3
01Jan2000	05:37	0.7	0.0	0.219	1.2
01Jan2000	05:38	0.7	0.0	0.214	1.2
01Jan2000	05:39	0.7	0.0	0.210	1.2
01Jan2000	05:40	0.7	0.0	0.205	1.1
01Jan2000	05:41	0.7	0.0	0.201	1.1
01Jan2000	05:42	0.7	0.0	0.197	1.1
01Jan2000	05:43	0.7	0.0	0.194	1.1
01Jan2000	05:44	0.7	0.0	0.190	1.0
01Jan2000	05:45	0.7	0.0	0.187	1.0
01Jan2000	05:46	0.7	0.0	0.184	1.0
01Jan2000	05:47	0.7	0.0	0.181	1.0
01Jan2000	05:48	0.7	0.0	0.179	1.0
01Jan2000	05:49	0.7	0.0	0.176	0.9
01Jan2000	05:50	0.7	0.0	0.174	0.9
01Jan2000	05:51	0.7	0.0	0.172	0.9
01Jan2000	05:52	0.7	0.0	0.170	0.9
01Jan2000	05:53	0.7	0.0	0.168	0.9
01Jan2000	05:54	0.7	0.0	0.167	0.9
01Jan2000	05:55	0.7	0.0	0.165	0.9
01Jan2000	05:56	0.7	0.0	0.164	0.8
01Jan2000	05:57	0.7	0.0	0.162	0.8
01Jan2000	05:58	0.6	0.0	0.160	0.8
01Jan2000	05:59	0.5	0.0	0.158	0.8
01Jan2000	06:00	0.4	0.0	0.154	0.8
01Jan2000	06:01	0.3	0.0	0.150	0.8
01Jan2000	06:02	0.2	0.0	0.146	0.7
01Jan2000	06:03	0.1	0.0	0.140	0.7
01Jan2000	06:04	0.0	0.0	0.135	0.6
01Jan2000	06:05	0.0	0.0	0.129	0.6
01Jan2000	06:06	0.0	0.0	0.123	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.0	0.0	0.118	0.5
01Jan2000	06:08	0.0	0.0	0.113	0.5
01Jan2000	06:09	0.0	0.0	0.108	0.5
01Jan2000	06:10	0.0	0.0	0.104	0.4
01Jan2000	06:11	0.0	0.0	0.100	0.4
01Jan2000	06:12	0.0	0.0	0.096	0.4
01Jan2000	06:13	0.0	0.0	0.093	0.4
01Jan2000	06:14	0.0	0.0	0.089	0.4
01Jan2000	06:15	0.0	0.0	0.086	0.3
01Jan2000	06:16	0.0	0.0	0.083	0.3
01Jan2000	06:17	0.0	0.0	0.080	0.3
01Jan2000	06:18	0.0	0.0	0.077	0.3
01Jan2000	06:19	0.0	0.0	0.074	0.3
01Jan2000	06:20	0.0	0.0	0.071	0.3
01Jan2000	06:21	0.0	0.0	0.069	0.3
01Jan2000	06:22	0.0	0.0	0.066	0.3
01Jan2000	06:23	0.0	0.0	0.064	0.2
01Jan2000	06:24	0.0	0.0	0.061	0.2
01Jan2000	06:25	0.0	0.0	0.059	0.2
01Jan2000	06:26	0.0	0.0	0.057	0.2
01Jan2000	06:27	0.0	0.0	0.055	0.2
01Jan2000	06:28	0.0	0.0	0.053	0.2
01Jan2000	06:29	0.0	0.0	0.051	0.2
01Jan2000	06:30	0.0	0.0	0.049	0.2
01Jan2000	06:31	0.0	0.0	0.047	0.2
01Jan2000	06:32	0.0	0.0	0.045	0.2
01Jan2000	06:33	0.0	0.0	0.043	0.2
01Jan2000	06:34	0.0	0.0	0.042	0.2
01Jan2000	06:35	0.0	0.0	0.040	0.2
01Jan2000	06:36	0.0	0.0	0.039	0.2
01Jan2000	06:37	0.0	0.0	0.037	0.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.036	0.1
01Jan2000	06:39	0.0	0.0	0.035	0.1
01Jan2000	06:40	0.0	0.0	0.033	0.1
01Jan2000	06:41	0.0	0.0	0.032	0.1
01Jan2000	06:42	0.0	0.0	0.031	0.1
01Jan2000	06:43	0.0	0.0	0.030	0.1
01Jan2000	06:44	0.0	0.0	0.029	0.1
01Jan2000	06:45	0.0	0.0	0.028	0.1
01Jan2000	06:46	0.0	0.0	0.027	0.1
01Jan2000	06:47	0.0	0.0	0.026	0.1
01Jan2000	06:48	0.0	0.0	0.025	0.1
01Jan2000	06:49	0.0	0.0	0.024	0.1
01Jan2000	06:50	0.0	0.0	0.023	0.1
01Jan2000	06:51	0.0	0.0	0.022	0.1
01Jan2000	06:52	0.0	0.0	0.021	0.1
01Jan2000	06:53	0.0	0.0	0.020	0.1
01Jan2000	06:54	0.0	0.0	0.020	0.1
01Jan2000	06:55	0.0	0.0	0.019	0.1
01Jan2000	06:56	0.0	0.0	0.018	0.1
01Jan2000	06:57	0.0	0.0	0.017	0.1
01Jan2000	06:58	0.0	0.0	0.017	0.1
01Jan2000	06:59	0.0	0.0	0.016	0.1
01Jan2000	07:00	0.0	0.0	0.016	0.1

Project: FANITA-RV Simulation Run: Run 1

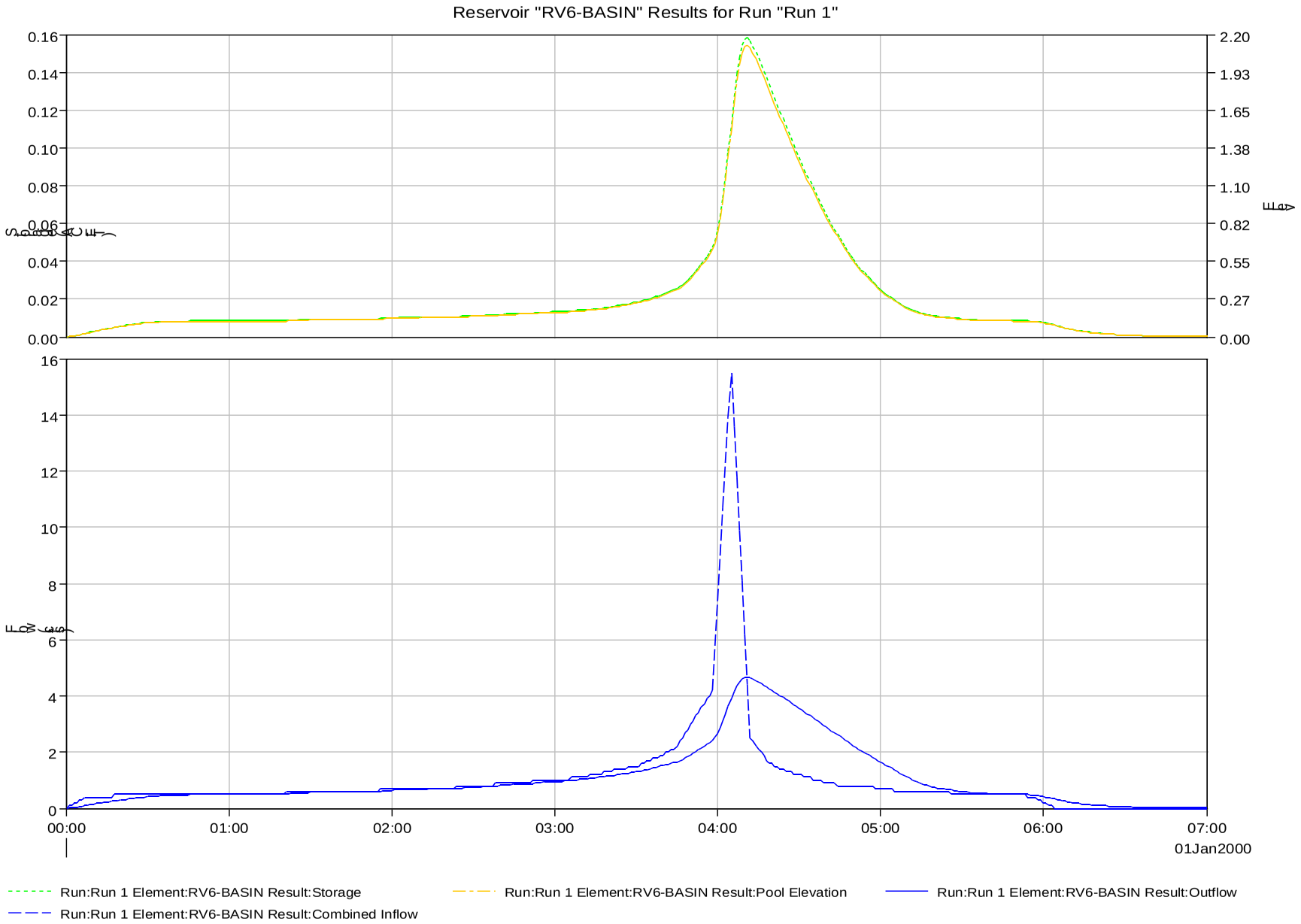
Reservoir: RV6-BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Basin 1
End of Run:	01Jan2000, 07:00	Meteorologic Model:	Met 1
Compute Time:	19Sep2019, 12:52:45	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow:	15.5 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 04:05
Peak Discharge:	4.7 (CFS)	Date/Time of Peak Discharge	01Jan2000, 04:11
Inflow Volume:	n/a	Peak Storage:	0.2 (AC-FT)
Discharge Volume	n/a	Peak Elevation:	2.123 (FT)


Reservoir "RV6-BASIN" Results for Run "Run 1"
Storage (AC-FT)
Elev (FT)
Flow (CFS)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2.20
1.93
1.65
1.38
1.10
0.82
0.55
0.27
0.00
16
14
12
10
8
6
4
2
0
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
01Jan2000
Run:Run 1 Element:RV6-BASIN Result:Storage
Run:Run 1 Element:RV6-BASIN Result:Pool Elevation
Run:Run 1 Element:RV6-BASIN Result:Outflow
Run:Run 1 Element:RV6-BASIN Result:Combined Inflow

Project: FANITA-RV Simulation Run: Run 1
Reservoir: RV6-BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Basin 1
End of Run: 01Jan2000, 07:00 Meteorologic Model: Met 1
Compute Time: 19Sep2019, 12:52:45 Control Specifications: Control 1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0	0.0	0.000	0.0
01Jan2000	00:01	0.1	0.0	0.001	0.0
01Jan2000	00:02	0.1	0.0	0.003	0.0
01Jan2000	00:03	0.2	0.0	0.005	0.0
01Jan2000	00:04	0.2	0.0	0.008	0.0
01Jan2000	00:05	0.3	0.0	0.012	0.0
01Jan2000	00:06	0.3	0.0	0.017	0.1
01Jan2000	00:07	0.4	0.0	0.022	0.1
01Jan2000	00:08	0.4	0.0	0.027	0.1
01Jan2000	00:09	0.4	0.0	0.033	0.1
01Jan2000	00:10	0.4	0.0	0.037	0.1
01Jan2000	00:11	0.4	0.0	0.042	0.2
01Jan2000	00:12	0.4	0.0	0.046	0.2
01Jan2000	00:13	0.4	0.0	0.050	0.2
01Jan2000	00:14	0.4	0.0	0.054	0.2
01Jan2000	00:15	0.4	0.0	0.057	0.2
01Jan2000	00:16	0.4	0.0	0.060	0.2
01Jan2000	00:17	0.4	0.0	0.063	0.2
01Jan2000	00:18	0.5	0.0	0.067	0.3
01Jan2000	00:19	0.5	0.0	0.071	0.3
01Jan2000	00:20	0.5	0.0	0.075	0.3
01Jan2000	00:21	0.5	0.0	0.079	0.3
01Jan2000	00:22	0.5	0.0	0.082	0.3
01Jan2000	00:23	0.5	0.0	0.085	0.3
01Jan2000	00:24	0.5	0.0	0.088	0.3
01Jan2000	00:25	0.5	0.0	0.091	0.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:26	0.5	0.0	0.093	0.4
01Jan2000	00:27	0.5	0.0	0.096	0.4
01Jan2000	00:28	0.5	0.0	0.098	0.4
01Jan2000	00:29	0.5	0.0	0.100	0.4
01Jan2000	00:30	0.5	0.0	0.102	0.4
01Jan2000	00:31	0.5	0.0	0.104	0.4
01Jan2000	00:32	0.5	0.0	0.105	0.4
01Jan2000	00:33	0.5	0.0	0.106	0.4
01Jan2000	00:34	0.5	0.0	0.107	0.4
01Jan2000	00:35	0.5	0.0	0.108	0.5
01Jan2000	00:36	0.5	0.0	0.109	0.5
01Jan2000	00:37	0.5	0.0	0.110	0.5
01Jan2000	00:38	0.5	0.0	0.111	0.5
01Jan2000	00:39	0.5	0.0	0.111	0.5
01Jan2000	00:40	0.5	0.0	0.112	0.5
01Jan2000	00:41	0.5	0.0	0.112	0.5
01Jan2000	00:42	0.5	0.0	0.112	0.5
01Jan2000	00:43	0.5	0.0	0.113	0.5
01Jan2000	00:44	0.5	0.0	0.113	0.5
01Jan2000	00:45	0.5	0.0	0.113	0.5
01Jan2000	00:46	0.5	0.0	0.114	0.5
01Jan2000	00:47	0.5	0.0	0.114	0.5
01Jan2000	00:48	0.5	0.0	0.114	0.5
01Jan2000	00:49	0.5	0.0	0.114	0.5
01Jan2000	00:50	0.5	0.0	0.114	0.5
01Jan2000	00:51	0.5	0.0	0.114	0.5
01Jan2000	00:52	0.5	0.0	0.114	0.5
01Jan2000	00:53	0.5	0.0	0.114	0.5
01Jan2000	00:54	0.5	0.0	0.115	0.5
01Jan2000	00:55	0.5	0.0	0.115	0.5
01Jan2000	00:56	0.5	0.0	0.115	0.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:57	0.5	0.0	0.115	0.5
01Jan2000	00:58	0.5	0.0	0.115	0.5
01Jan2000	00:59	0.5	0.0	0.115	0.5
01Jan2000	01:00	0.5	0.0	0.115	0.5
01Jan2000	01:01	0.5	0.0	0.115	0.5
01Jan2000	01:02	0.5	0.0	0.115	0.5
01Jan2000	01:03	0.5	0.0	0.115	0.5
01Jan2000	01:04	0.5	0.0	0.115	0.5
01Jan2000	01:05	0.5	0.0	0.115	0.5
01Jan2000	01:06	0.5	0.0	0.115	0.5
01Jan2000	01:07	0.5	0.0	0.115	0.5
01Jan2000	01:08	0.5	0.0	0.115	0.5
01Jan2000	01:09	0.5	0.0	0.115	0.5
01Jan2000	01:10	0.5	0.0	0.115	0.5
01Jan2000	01:11	0.5	0.0	0.115	0.5
01Jan2000	01:12	0.5	0.0	0.115	0.5
01Jan2000	01:13	0.5	0.0	0.115	0.5
01Jan2000	01:14	0.5	0.0	0.115	0.5
01Jan2000	01:15	0.5	0.0	0.115	0.5
01Jan2000	01:16	0.5	0.0	0.115	0.5
01Jan2000	01:17	0.5	0.0	0.115	0.5
01Jan2000	01:18	0.5	0.0	0.115	0.5
01Jan2000	01:19	0.5	0.0	0.115	0.5
01Jan2000	01:20	0.5	0.0	0.115	0.5
01Jan2000	01:21	0.6	0.0	0.116	0.5
01Jan2000	01:22	0.6	0.0	0.118	0.5
01Jan2000	01:23	0.6	0.0	0.119	0.5
01Jan2000	01:24	0.6	0.0	0.120	0.5
01Jan2000	01:25	0.6	0.0	0.121	0.5
01Jan2000	01:26	0.6	0.0	0.122	0.6
01Jan2000	01:27	0.6	0.0	0.123	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:28	0.6	0.0	0.124	0.6
01Jan2000	01:29	0.6	0.0	0.125	0.6
01Jan2000	01:30	0.6	0.0	0.125	0.6
01Jan2000	01:31	0.6	0.0	0.126	0.6
01Jan2000	01:32	0.6	0.0	0.126	0.6
01Jan2000	01:33	0.6	0.0	0.126	0.6
01Jan2000	01:34	0.6	0.0	0.127	0.6
01Jan2000	01:35	0.6	0.0	0.127	0.6
01Jan2000	01:36	0.6	0.0	0.127	0.6
01Jan2000	01:37	0.6	0.0	0.127	0.6
01Jan2000	01:38	0.6	0.0	0.128	0.6
01Jan2000	01:39	0.6	0.0	0.128	0.6
01Jan2000	01:40	0.6	0.0	0.128	0.6
01Jan2000	01:41	0.6	0.0	0.128	0.6
01Jan2000	01:42	0.6	0.0	0.128	0.6
01Jan2000	01:43	0.6	0.0	0.128	0.6
01Jan2000	01:44	0.6	0.0	0.128	0.6
01Jan2000	01:45	0.6	0.0	0.129	0.6
01Jan2000	01:46	0.6	0.0	0.129	0.6
01Jan2000	01:47	0.6	0.0	0.129	0.6
01Jan2000	01:48	0.6	0.0	0.129	0.6
01Jan2000	01:49	0.6	0.0	0.129	0.6
01Jan2000	01:50	0.6	0.0	0.129	0.6
01Jan2000	01:51	0.6	0.0	0.129	0.6
01Jan2000	01:52	0.6	0.0	0.129	0.6
01Jan2000	01:53	0.6	0.0	0.129	0.6
01Jan2000	01:54	0.6	0.0	0.129	0.6
01Jan2000	01:55	0.6	0.0	0.129	0.6
01Jan2000	01:56	0.7	0.0	0.130	0.6
01Jan2000	01:57	0.7	0.0	0.131	0.6
01Jan2000	01:58	0.7	0.0	0.133	0.6

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	01:59	0.7	0.0	0.134	0.6
01Jan2000	02:00	0.7	0.0	0.135	0.6
01Jan2000	02:01	0.7	0.0	0.136	0.7
01Jan2000	02:02	0.7	0.0	0.137	0.7
01Jan2000	02:03	0.7	0.0	0.138	0.7
01Jan2000	02:04	0.7	0.0	0.138	0.7
01Jan2000	02:05	0.7	0.0	0.139	0.7
01Jan2000	02:06	0.7	0.0	0.139	0.7
01Jan2000	02:07	0.7	0.0	0.140	0.7
01Jan2000	02:08	0.7	0.0	0.140	0.7
01Jan2000	02:09	0.7	0.0	0.141	0.7
01Jan2000	02:10	0.7	0.0	0.141	0.7
01Jan2000	02:11	0.7	0.0	0.141	0.7
01Jan2000	02:12	0.7	0.0	0.141	0.7
01Jan2000	02:13	0.7	0.0	0.142	0.7
01Jan2000	02:14	0.7	0.0	0.142	0.7
01Jan2000	02:15	0.7	0.0	0.142	0.7
01Jan2000	02:16	0.7	0.0	0.142	0.7
01Jan2000	02:17	0.7	0.0	0.142	0.7
01Jan2000	02:18	0.7	0.0	0.142	0.7
01Jan2000	02:19	0.7	0.0	0.142	0.7
01Jan2000	02:20	0.7	0.0	0.142	0.7
01Jan2000	02:21	0.7	0.0	0.143	0.7
01Jan2000	02:22	0.7	0.0	0.143	0.7
01Jan2000	02:23	0.7	0.0	0.143	0.7
01Jan2000	02:24	0.8	0.0	0.144	0.7
01Jan2000	02:25	0.8	0.0	0.145	0.7
01Jan2000	02:26	0.8	0.0	0.147	0.7
01Jan2000	02:27	0.8	0.0	0.148	0.7
01Jan2000	02:28	0.8	0.0	0.149	0.7
01Jan2000	02:29	0.8	0.0	0.150	0.8

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:30	0.8	0.0	0.151	0.8
01Jan2000	02:31	0.8	0.0	0.152	0.8
01Jan2000	02:32	0.8	0.0	0.152	0.8
01Jan2000	02:33	0.8	0.0	0.153	0.8
01Jan2000	02:34	0.8	0.0	0.153	0.8
01Jan2000	02:35	0.8	0.0	0.154	0.8
01Jan2000	02:36	0.8	0.0	0.154	0.8
01Jan2000	02:37	0.8	0.0	0.155	0.8
01Jan2000	02:38	0.9	0.0	0.156	0.8
01Jan2000	02:39	0.9	0.0	0.158	0.8
01Jan2000	02:40	0.9	0.0	0.159	0.8
01Jan2000	02:41	0.9	0.0	0.161	0.8
01Jan2000	02:42	0.9	0.0	0.162	0.8
01Jan2000	02:43	0.9	0.0	0.163	0.8
01Jan2000	02:44	0.9	0.0	0.164	0.9
01Jan2000	02:45	0.9	0.0	0.165	0.9
01Jan2000	02:46	0.9	0.0	0.166	0.9
01Jan2000	02:47	0.9	0.0	0.166	0.9
01Jan2000	02:48	0.9	0.0	0.167	0.9
01Jan2000	02:49	0.9	0.0	0.167	0.9
01Jan2000	02:50	0.9	0.0	0.168	0.9
01Jan2000	02:51	0.9	0.0	0.168	0.9
01Jan2000	02:52	1.0	0.0	0.169	0.9
01Jan2000	02:53	1.0	0.0	0.171	0.9
01Jan2000	02:54	1.0	0.0	0.173	0.9
01Jan2000	02:55	1.0	0.0	0.175	0.9
01Jan2000	02:56	1.0	0.0	0.176	0.9
01Jan2000	02:57	1.0	0.0	0.177	0.9
01Jan2000	02:58	1.0	0.0	0.178	0.9
01Jan2000	02:59	1.0	0.0	0.179	1.0
01Jan2000	03:00	1.0	0.0	0.180	1.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:01	1.0	0.0	0.180	1.0
01Jan2000	03:02	1.0	0.0	0.181	1.0
01Jan2000	03:03	1.0	0.0	0.181	1.0
01Jan2000	03:04	1.0	0.0	0.182	1.0
01Jan2000	03:05	1.0	0.0	0.182	1.0
01Jan2000	03:06	1.1	0.0	0.183	1.0
01Jan2000	03:07	1.1	0.0	0.185	1.0
01Jan2000	03:08	1.1	0.0	0.187	1.0
01Jan2000	03:09	1.1	0.0	0.188	1.0
01Jan2000	03:10	1.1	0.0	0.190	1.0
01Jan2000	03:11	1.1	0.0	0.191	1.0
01Jan2000	03:12	1.1	0.0	0.192	1.0
01Jan2000	03:13	1.2	0.0	0.194	1.1
01Jan2000	03:14	1.2	0.0	0.196	1.1
01Jan2000	03:15	1.2	0.0	0.198	1.1
01Jan2000	03:16	1.2	0.0	0.200	1.1
01Jan2000	03:17	1.2	0.0	0.202	1.1
01Jan2000	03:18	1.3	0.0	0.204	1.1
01Jan2000	03:19	1.3	0.0	0.207	1.1
01Jan2000	03:20	1.3	0.0	0.210	1.1
01Jan2000	03:21	1.3	0.0	0.213	1.2
01Jan2000	03:22	1.4	0.0	0.216	1.2
01Jan2000	03:23	1.4	0.0	0.220	1.2
01Jan2000	03:24	1.4	0.0	0.224	1.2
01Jan2000	03:25	1.4	0.0	0.227	1.2
01Jan2000	03:26	1.4	0.0	0.230	1.2
01Jan2000	03:27	1.5	0.0	0.234	1.2
01Jan2000	03:28	1.5	0.0	0.239	1.3
01Jan2000	03:29	1.5	0.0	0.243	1.3
01Jan2000	03:30	1.5	0.0	0.247	1.3
01Jan2000	03:31	1.5	0.0	0.250	1.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	03:32	1.6	0.0	0.254	1.3
01Jan2000	03:33	1.6	0.0	0.259	1.4
01Jan2000	03:34	1.7	0.0	0.265	1.4
01Jan2000	03:35	1.7	0.0	0.270	1.4
01Jan2000	03:36	1.8	0.0	0.277	1.4
01Jan2000	03:37	1.8	0.0	0.283	1.5
01Jan2000	03:38	1.8	0.0	0.290	1.5
01Jan2000	03:39	1.9	0.0	0.296	1.5
01Jan2000	03:40	1.9	0.0	0.303	1.5
01Jan2000	03:41	2.0	0.0	0.311	1.6
01Jan2000	03:42	2.0	0.0	0.319	1.6
01Jan2000	03:43	2.1	0.0	0.327	1.6
01Jan2000	03:44	2.1	0.0	0.336	1.6
01Jan2000	03:45	2.2	0.0	0.345	1.7
01Jan2000	03:46	2.4	0.0	0.357	1.7
01Jan2000	03:47	2.5	0.0	0.370	1.7
01Jan2000	03:48	2.7	0.0	0.386	1.8
01Jan2000	03:49	2.8	0.0	0.403	1.8
01Jan2000	03:50	3.0	0.0	0.422	1.9
01Jan2000	03:51	3.1	0.0	0.443	2.0
01Jan2000	03:52	3.3	0.0	0.465	2.0
01Jan2000	03:53	3.4	0.0	0.489	2.1
01Jan2000	03:54	3.6	0.0	0.515	2.1
01Jan2000	03:55	3.7	0.0	0.542	2.2
01Jan2000	03:56	3.9	0.0	0.571	2.3
01Jan2000	03:57	4.0	0.0	0.601	2.3
01Jan2000	03:58	4.2	0.0	0.633	2.4
01Jan2000	03:59	5.8	0.1	0.680	2.5
01Jan2000	04:00	7.4	0.1	0.754	2.7
01Jan2000	04:01	9.0	0.1	0.854	2.9
01Jan2000	04:02	10.7	0.1	0.981	3.1

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:03	12.3	0.1	1.134	3.3
01Jan2000	04:04	13.9	0.1	1.311	3.6
01Jan2000	04:05	15.5	0.1	1.513	3.9
01Jan2000	04:06	13.6	0.1	1.708	4.2
01Jan2000	04:07	11.8	0.1	1.864	4.4
01Jan2000	04:08	9.9	0.1	1.982	4.5
01Jan2000	04:09	8.1	0.2	2.064	4.6
01Jan2000	04:10	6.2	0.2	2.111	4.6
01Jan2000	04:11	4.4	0.2	2.123	4.7
01Jan2000	04:12	2.5	0.2	2.101	4.6
01Jan2000	04:13	2.4	0.2	2.061	4.6
01Jan2000	04:14	2.2	0.2	2.019	4.5
01Jan2000	04:15	2.1	0.1	1.976	4.5
01Jan2000	04:16	2.0	0.1	1.931	4.4
01Jan2000	04:17	1.9	0.1	1.886	4.4
01Jan2000	04:18	1.7	0.1	1.839	4.3
01Jan2000	04:19	1.6	0.1	1.790	4.3
01Jan2000	04:20	1.6	0.1	1.741	4.2
01Jan2000	04:21	1.5	0.1	1.693	4.1
01Jan2000	04:22	1.5	0.1	1.645	4.1
01Jan2000	04:23	1.4	0.1	1.597	4.0
01Jan2000	04:24	1.4	0.1	1.549	4.0
01Jan2000	04:25	1.3	0.1	1.502	3.9
01Jan2000	04:26	1.3	0.1	1.454	3.8
01Jan2000	04:27	1.3	0.1	1.408	3.8
01Jan2000	04:28	1.2	0.1	1.363	3.7
01Jan2000	04:29	1.2	0.1	1.317	3.6
01Jan2000	04:30	1.2	0.1	1.273	3.6
01Jan2000	04:31	1.2	0.1	1.230	3.5
01Jan2000	04:32	1.1	0.1	1.188	3.4
01Jan2000	04:33	1.1	0.1	1.145	3.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:34	1.1	0.1	1.104	3.3
01Jan2000	04:35	1.0	0.1	1.063	3.2
01Jan2000	04:36	1.0	0.1	1.023	3.2
01Jan2000	04:37	1.0	0.1	0.983	3.1
01Jan2000	04:38	1.0	0.1	0.945	3.0
01Jan2000	04:39	0.9	0.1	0.908	3.0
01Jan2000	04:40	0.9	0.1	0.870	2.9
01Jan2000	04:41	0.9	0.1	0.834	2.8
01Jan2000	04:42	0.9	0.1	0.799	2.8
01Jan2000	04:43	0.9	0.1	0.765	2.7
01Jan2000	04:44	0.8	0.1	0.732	2.6
01Jan2000	04:45	0.8	0.1	0.699	2.6
01Jan2000	04:46	0.8	0.0	0.667	2.5
01Jan2000	04:47	0.8	0.0	0.636	2.4
01Jan2000	04:48	0.8	0.0	0.607	2.4
01Jan2000	04:49	0.8	0.0	0.579	2.3
01Jan2000	04:50	0.8	0.0	0.552	2.2
01Jan2000	04:51	0.8	0.0	0.526	2.2
01Jan2000	04:52	0.8	0.0	0.501	2.1
01Jan2000	04:53	0.8	0.0	0.478	2.0
01Jan2000	04:54	0.8	0.0	0.455	2.0
01Jan2000	04:55	0.8	0.0	0.434	1.9
01Jan2000	04:56	0.8	0.0	0.413	1.9
01Jan2000	04:57	0.8	0.0	0.394	1.8
01Jan2000	04:58	0.7	0.0	0.375	1.8
01Jan2000	04:59	0.7	0.0	0.356	1.7
01Jan2000	05:00	0.7	0.0	0.338	1.6
01Jan2000	05:01	0.7	0.0	0.321	1.6
01Jan2000	05:02	0.7	0.0	0.305	1.5
01Jan2000	05:03	0.7	0.0	0.290	1.5
01Jan2000	05:04	0.7	0.0	0.277	1.4

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:05	0.6	0.0	0.263	1.4
01Jan2000	05:06	0.6	0.0	0.249	1.3
01Jan2000	05:07	0.6	0.0	0.237	1.3
01Jan2000	05:08	0.6	0.0	0.225	1.2
01Jan2000	05:09	0.6	0.0	0.214	1.2
01Jan2000	05:10	0.6	0.0	0.204	1.1
01Jan2000	05:11	0.6	0.0	0.195	1.1
01Jan2000	05:12	0.6	0.0	0.187	1.0
01Jan2000	05:13	0.6	0.0	0.179	1.0
01Jan2000	05:14	0.6	0.0	0.173	0.9
01Jan2000	05:15	0.6	0.0	0.168	0.9
01Jan2000	05:16	0.6	0.0	0.163	0.8
01Jan2000	05:17	0.6	0.0	0.159	0.8
01Jan2000	05:18	0.6	0.0	0.155	0.8
01Jan2000	05:19	0.6	0.0	0.152	0.8
01Jan2000	05:20	0.6	0.0	0.149	0.7
01Jan2000	05:21	0.6	0.0	0.147	0.7
01Jan2000	05:22	0.6	0.0	0.144	0.7
01Jan2000	05:23	0.6	0.0	0.142	0.7
01Jan2000	05:24	0.6	0.0	0.141	0.7
01Jan2000	05:25	0.6	0.0	0.139	0.7
01Jan2000	05:26	0.5	0.0	0.137	0.7
01Jan2000	05:27	0.5	0.0	0.134	0.6
01Jan2000	05:28	0.5	0.0	0.132	0.6
01Jan2000	05:29	0.5	0.0	0.130	0.6
01Jan2000	05:30	0.5	0.0	0.128	0.6
01Jan2000	05:31	0.5	0.0	0.126	0.6
01Jan2000	05:32	0.5	0.0	0.125	0.6
01Jan2000	05:33	0.5	0.0	0.124	0.6
01Jan2000	05:34	0.5	0.0	0.123	0.6
01Jan2000	05:35	0.5	0.0	0.122	0.5

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	05:36	0.5	0.0	0.121	0.5
01Jan2000	05:37	0.5	0.0	0.120	0.5
01Jan2000	05:38	0.5	0.0	0.120	0.5
01Jan2000	05:39	0.5	0.0	0.119	0.5
01Jan2000	05:40	0.5	0.0	0.119	0.5
01Jan2000	05:41	0.5	0.0	0.118	0.5
01Jan2000	05:42	0.5	0.0	0.118	0.5
01Jan2000	05:43	0.5	0.0	0.117	0.5
01Jan2000	05:44	0.5	0.0	0.117	0.5
01Jan2000	05:45	0.5	0.0	0.117	0.5
01Jan2000	05:46	0.5	0.0	0.117	0.5
01Jan2000	05:47	0.5	0.0	0.116	0.5
01Jan2000	05:48	0.5	0.0	0.116	0.5
01Jan2000	05:49	0.5	0.0	0.116	0.5
01Jan2000	05:50	0.5	0.0	0.116	0.5
01Jan2000	05:51	0.5	0.0	0.116	0.5
01Jan2000	05:52	0.5	0.0	0.116	0.5
01Jan2000	05:53	0.5	0.0	0.116	0.5
01Jan2000	05:54	0.4	0.0	0.115	0.5
01Jan2000	05:55	0.4	0.0	0.113	0.5
01Jan2000	05:56	0.4	0.0	0.112	0.5
01Jan2000	05:57	0.4	0.0	0.110	0.5
01Jan2000	05:58	0.3	0.0	0.108	0.5
01Jan2000	05:59	0.3	0.0	0.106	0.4
01Jan2000	06:00	0.2	0.0	0.103	0.4
01Jan2000	06:01	0.2	0.0	0.099	0.4
01Jan2000	06:02	0.1	0.0	0.095	0.4
01Jan2000	06:03	0.1	0.0	0.090	0.4
01Jan2000	06:04	0.0	0.0	0.084	0.3
01Jan2000	06:05	0.0	0.0	0.079	0.3
01Jan2000	06:06	0.0	0.0	0.073	0.3

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:07	0.0	0.0	0.068	0.3
01Jan2000	06:08	0.0	0.0	0.063	0.2
01Jan2000	06:09	0.0	0.0	0.059	0.2
01Jan2000	06:10	0.0	0.0	0.055	0.2
01Jan2000	06:11	0.0	0.0	0.051	0.2
01Jan2000	06:12	0.0	0.0	0.047	0.2
01Jan2000	06:13	0.0	0.0	0.044	0.2
01Jan2000	06:14	0.0	0.0	0.041	0.2
01Jan2000	06:15	0.0	0.0	0.038	0.1
01Jan2000	06:16	0.0	0.0	0.035	0.1
01Jan2000	06:17	0.0	0.0	0.033	0.1
01Jan2000	06:18	0.0	0.0	0.031	0.1
01Jan2000	06:19	0.0	0.0	0.028	0.1
01Jan2000	06:20	0.0	0.0	0.026	0.1
01Jan2000	06:21	0.0	0.0	0.025	0.1
01Jan2000	06:22	0.0	0.0	0.023	0.1
01Jan2000	06:23	0.0	0.0	0.021	0.1
01Jan2000	06:24	0.0	0.0	0.020	0.1
01Jan2000	06:25	0.0	0.0	0.018	0.1
01Jan2000	06:26	0.0	0.0	0.017	0.1
01Jan2000	06:27	0.0	0.0	0.016	0.1
01Jan2000	06:28	0.0	0.0	0.015	0.1
01Jan2000	06:29	0.0	0.0	0.014	0.1
01Jan2000	06:30	0.0	0.0	0.013	0.1
01Jan2000	06:31	0.0	0.0	0.012	0.0
01Jan2000	06:32	0.0	0.0	0.011	0.0
01Jan2000	06:33	0.0	0.0	0.010	0.0
01Jan2000	06:34	0.0	0.0	0.010	0.0
01Jan2000	06:35	0.0	0.0	0.009	0.0
01Jan2000	06:36	0.0	0.0	0.008	0.0
01Jan2000	06:37	0.0	0.0	0.008	0.0

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	06:38	0.0	0.0	0.007	0.0
01Jan2000	06:39	0.0	0.0	0.007	0.0
01Jan2000	06:40	0.0	0.0	0.006	0.0
01Jan2000	06:41	0.0	0.0	0.006	0.0
01Jan2000	06:42	0.0	0.0	0.005	0.0
01Jan2000	06:43	0.0	0.0	0.005	0.0
01Jan2000	06:44	0.0	0.0	0.005	0.0
01Jan2000	06:45	0.0	0.0	0.004	0.0
01Jan2000	06:46	0.0	0.0	0.004	0.0
01Jan2000	06:47	0.0	0.0	0.004	0.0
01Jan2000	06:48	0.0	0.0	0.003	0.0
01Jan2000	06:49	0.0	0.0	0.003	0.0
01Jan2000	06:50	0.0	0.0	0.003	0.0
01Jan2000	06:51	0.0	0.0	0.003	0.0
01Jan2000	06:52	0.0	0.0	0.003	0.0
01Jan2000	06:53	0.0	0.0	0.002	0.0
01Jan2000	06:54	0.0	0.0	0.002	0.0
01Jan2000	06:55	0.0	0.0	0.002	0.0
01Jan2000	06:56	0.0	0.0	0.002	0.0
01Jan2000	06:57	0.0	0.0	0.002	0.0
01Jan2000	06:58	0.0	0.0	0.002	0.0
01Jan2000	06:59	0.0	0.0	0.002	0.0
01Jan2000	07:00	0.0	0.0	0.001	0.0

CHAPTER 7

HEC RAS Analysis of Existing Tributaries

HEC-RAS Plan: Plan 01 Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -Fanit	10073.59	PF 1	116.00	998.94	1000.69	1000.69	1001.26	0.023785	6.03	19.22	17.29	1.01
Sycamore	Alignment -Fanit	10000	PF 1	116.00	994.98	996.30	996.30	996.78	0.024470	5.57	20.83	21.92	1.01
Sycamore	Alignment -Fanit	9900	PF 1	116.00	988.00	989.88	989.88	990.37	0.025376	5.62	20.64	21.83	1.02
Sycamore	Alignment -Fanit	9800	PF 1	116.00	981.46	983.69	983.69	984.28	0.024439	6.13	18.93	16.71	1.01
Sycamore	Alignment -Fanit	9700	PF 1	116.00	976.89	978.69	978.69	979.25	0.023815	6.00	19.35	17.64	1.01
Sycamore	Alignment -Fanit	9600	PF 1	116.00	970.00	972.40	972.40	972.88	0.025645	5.58	20.81	21.65	1.00
Sycamore	Alignment -Fanit	9500	PF 1	116.00	966.00	967.45	967.45	967.87	0.026002	5.23	22.19	26.81	1.01
Sycamore	Alignment -Fanit	9400	PF 1	116.00	960.93	962.72	962.72	963.25	0.024107	5.87	19.76	18.83	1.01
Sycamore	Alignment -Fanit	9300	PF 1	116.00	955.96	958.25	958.25	958.85	0.024026	6.20	18.70	15.97	1.01
Sycamore	Alignment -Fanit	9200	PF 1	116.00	950.00	952.63	952.63	953.23	0.024112	6.21	18.67	15.61	1.00
Sycamore	Alignment -Fanit	9100	PF 1	116.00	944.68	946.57	946.57	947.09	0.024373	5.77	20.09	19.85	1.01
Sycamore	Alignment -Fanit	9000	PF 1	116.00	931.87	934.51	934.51	935.21	0.023833	6.67	17.38	12.58	1.00
Sycamore	Alignment -Fanit	8900	PF 1	116.00	926.00	928.37	928.37	928.96	0.024356	6.16	18.82	16.30	1.01
Sycamore	Alignment -Fanit	8800	PF 1	116.00	921.98	923.89	923.89	924.42	0.024317	5.82	19.92	19.32	1.01
Sycamore	Alignment -Fanit	8700	PF 1	116.00	911.96	914.89	914.89	915.64	0.024783	6.99	16.60	10.95	1.00
Sycamore	Alignment -Fanit	8600	PF 1	116.00	903.98	906.19	906.19	906.82	0.024014	6.36	18.23	14.85	1.01
Sycamore	Alignment -Fanit	8500	PF 1	116.00	896.98	899.18	899.18	899.83	0.023581	6.48	17.91	14.02	1.01
Sycamore	Alignment -Fanit	8400	PF 1	116.00	891.81	893.33	893.33	893.87	0.024355	5.89	19.70	18.52	1.01
Sycamore	Alignment -Fanit	8300	PF 1	116.00	883.12	884.40	884.40	884.83	0.024924	5.26	22.05	25.74	1.00
Sycamore	Alignment -Fanit	8200	PF 1	116.00	877.14	878.93	878.93	879.45	0.024430	5.74	20.20	20.19	1.01
Sycamore	Alignment -Fanit	8100	PF 1	197.00	871.95	873.58	873.58	874.05	0.024991	5.49	35.91	39.50	1.01
Sycamore	Alignment -Fanit	8000	PF 1	197.00	866.72	868.93	868.93	869.56	0.022968	6.37	30.93	24.97	1.01
Sycamore	Alignment -Fanit	7900	PF 1	197.00	860.93	863.42	863.42	864.08	0.022629	6.55	30.07	22.92	1.01
Sycamore	Alignment -Fanit	7800	PF 1	197.00	855.88	858.02	858.02	858.65	0.022589	6.35	31.03	25.14	1.01
Sycamore	Alignment -Fanit	7700	PF 1	197.00	849.95	852.11	852.11	852.75	0.023570	6.43	30.64	24.44	1.01
Sycamore	Alignment -Fanit	7600	PF 1	197.00	840.59	842.78	842.78	843.59	0.022152	7.20	27.35	17.22	1.01
Sycamore	Alignment -Fanit	7500	PF 1	197.00	832.53	835.64	835.64	836.60	0.022761	7.83	25.14	13.37	1.01
Sycamore	Alignment -Fanit	7400	PF 1	197.00	823.96	825.95	825.95	826.56	0.023950	6.26	31.48	26.45	1.01
Sycamore	Alignment -Fanit	7300	PF 1	197.00	812.37	814.85	814.85	815.53	0.022093	6.64	29.65	21.85	1.01
Sycamore	Alignment -Fanit	7200	PF 1	197.00	804.48	806.92	806.92	807.70	0.021869	7.06	27.90	18.32	1.01
Sycamore	Alignment -Fanit	7100	PF 1	197.00	794.88	797.15	797.15	797.90	0.022040	6.96	28.31	19.23	1.01
Sycamore	Alignment -Fanit	7000	PF 1	197.00	785.98	788.87	788.87	789.67	0.022250	7.18	27.45	17.45	1.01
Sycamore	Alignment -Fanit	6900	PF 1	197.00	772.77	774.79	774.79	775.48	0.021997	6.65	29.64	21.80	1.00
Sycamore	Alignment -Fanit	6800	PF 1	197.00	755.58	757.74	757.74	758.36	0.022797	6.33	31.11	25.38	1.01
Sycamore	Alignment -Fanit	6700	PF 1	197.00	745.87	747.72	747.72	748.37	0.022577	6.46	30.47	23.91	1.01
Sycamore	Alignment -Fanit	6600	PF 1	197.00	736.90	739.13	739.13	739.74	0.023059	6.26	31.49	26.46	1.01
Sycamore	Alignment -Fanit	6500	PF 1	197.00	730.24	732.16	732.16	732.73	0.023394	6.08	32.40	28.78	1.01
Sycamore	Alignment -Fanit	6400	PF 1	197.00	722.48	724.70	724.70	725.43	0.022104	6.87	28.69	19.98	1.01
Sycamore	Alignment -Fanit	6300	PF 1	197.00	716.99	719.56	719.56	719.97	0.025152	5.13	38.40	46.53	1.00
Sycamore	Alignment -Fanit	6200	PF 1	197.00	710.86	712.95	712.95	713.51	0.024437	6.03	32.66	29.93	1.02
Sycamore	Alignment -Fanit	6100	PF 1	197.00	703.99	706.35	706.35	706.92	0.023774	6.02	32.74	30.00	1.02
Sycamore	Alignment -Fanit	6000	PF 1	197.00	699.16	701.52	701.52	701.98	0.025515	5.48	35.97	40.15	1.02
Sycamore	Alignment -Fanit	5900	PF 1	197.00	694.09	696.19	696.19	696.60	0.025156	5.10	38.60	47.45	1.00
Sycamore	Alignment -Fanit	5800	PF 1	197.00	688.98	691.58	691.58	692.14	0.024268	5.98	32.92	30.67	1.02
Sycamore	Alignment -Fanit	5700	PF 1	197.00	684.05	686.29	686.29	686.71	0.024975	5.22	37.76	44.24	1.00
Sycamore	Alignment -Fanit	5600	PF 1	197.00	677.91	680.68	680.68	681.10	0.025241	5.19	37.93	44.93	1.00
Sycamore	Alignment -Fanit	5500	PF 1	197.00	673.96	676.39	676.39	676.75	0.028628	4.78	41.23	61.43	1.03
Sycamore	Alignment -Fanit	5400	PF 1	197.00	669.95	672.11	672.11	672.60	0.024297	5.61	35.10	36.30	1.01
Sycamore	Alignment -Fanit	5300	PF 1	197.00	664.83	666.29	666.29	666.76	0.024391	5.52	35.70	38.25	1.01
Sycamore	Alignment -Fanit	5200	PF 1	197.00	658.95	661.12	661.12	661.69	0.023356	6.04	32.63	29.33	1.01
Sycamore	Alignment -Fanit	5100	PF 1	197.00	655.04	657.32	657.32	657.73	0.026141	5.10	38.61	48.90	1.01
Sycamore	Alignment -Fanit	5000	PF 1	197.00	650.34	652.61	652.61	653.08	0.024662	5.52	35.66	37.78	1.00
Sycamore	Alignment -Fanit	4900	PF 1	227.00	644.96	647.20	647.20	647.72	0.023901	5.79	39.21	37.74	1.00

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -Fanit	4800	PF 1	227.00	638.97	641.41	641.41	642.05	0.022379	6.39	35.51	28.01	1.00
Sycamore	Alignment -Fanit	4700	PF 1	227.00	633.95	636.78	636.78	637.65	0.021378	7.46	30.42	17.59	1.00
Sycamore	Alignment -Fanit	4600	PF 1	227.00	628.97	632.19	632.19	633.23	0.022117	8.19	27.72	13.31	1.00
Sycamore	Alignment -Fanit	4500	PF 1	227.00	623.98	626.58	626.58	627.33	0.021990	6.92	32.79	22.51	1.01
Sycamore	Alignment -Fanit	4400	PF 1	227.00	620.94	622.91	622.91	623.47	0.024076	5.99	37.87	35.00	1.02
Sycamore	Alignment -Fanit	4300	PF 1	227.00	615.92	618.37	618.37	619.18	0.021467	7.22	31.46	19.78	1.01
Sycamore	Alignment -Fanit	4200	PF 1	227.00	611.00	614.06	614.06	614.80	0.022477	6.92	32.79	22.66	1.01
Sycamore	Alignment -Fanit	4100	PF 1	227.00	607.85	610.13	610.13	610.95	0.021650	7.26	31.27	19.39	1.01
Sycamore	Alignment -Fanit	4000	PF 1	227.00	605.00	606.74	606.74	607.17	0.026191	5.23	43.39	53.07	1.02
Sycamore	Alignment -Fanit	3900	PF 1	227.00	600.98	602.73	602.73	603.22	0.024623	5.66	40.11	41.60	1.02
Sycamore	Alignment -Fanit	3800	PF 1	227.00	595.97	597.53	597.53	598.03	0.023664	5.69	39.87	39.89	1.00
Sycamore	Alignment -Fanit	3700	PF 1	227.00	590.98	594.13	594.13	594.70	0.024131	6.07	37.42	33.82	1.02
Sycamore	Alignment -Fanit	3600	PF 1	227.00	588.90	590.43	590.43	590.89	0.025080	5.43	41.82	46.95	1.01
Sycamore	Alignment -Fanit	3500	PF 1	227.00	586.14	587.30	587.30	587.69	0.026300	5.01	45.33	59.56	1.01
Sycamore	Alignment -Fanit	3400	PF 1	227.00	582.01	583.34	583.34	583.78	0.025303	5.29	42.90	50.37	1.01
Sycamore	Alignment -Fanit	3300	PF 1	227.00	576.90	578.99	578.99	579.49	0.024417	5.70	39.81	40.64	1.02
Sycamore	Alignment -Fanit	3200	PF 1	227.00	572.99	575.47	575.47	575.92	0.026281	5.37	42.25	49.04	1.02
Sycamore	Alignment -Fanit	3100	PF 1	227.00	569.99	572.25	572.25	572.67	0.025801	5.22	43.52	52.80	1.01
Sycamore	Alignment -Fanit	3000	PF 1	227.00	566.42	568.18	568.18	568.48	0.027765	4.40	51.54	85.59	1.00
Sycamore	Alignment -Fanit	2900	PF 1	227.00	562.79	565.08	565.08	565.52	0.025912	5.32	42.66	50.29	1.02
Sycamore	Alignment -Fanit	2800	PF 1	227.00	559.73	561.56	561.56	562.02	0.025070	5.43	41.80	46.83	1.01
Sycamore	Alignment -Fanit	2700	PF 1	227.00	556.95	559.01	559.01	559.56	0.023880	5.98	37.95	35.29	1.02
Sycamore	Alignment -Fanit	2600	PF 1	227.00	552.99	555.48	555.48	556.00	0.024221	5.80	39.12	38.33	1.01
Sycamore	Alignment -Fanit	2500	PF 1	227.00	549.98	552.32	552.23	552.73	0.017951	5.09	44.60	42.10	0.87
Sycamore	Alignment -Fanit	2400	PF 1	227.00	547.20	550.15	550.15	550.60	0.025647	5.37	42.29	48.44	1.01
Sycamore	Alignment -Fanit	2300	PF 1	227.00	544.98	546.99	546.99	547.52	0.024217	5.83	38.96	38.09	1.02
Sycamore	Alignment -Fanit	2200	PF 1	227.00	541.94	544.16	544.16	544.63	0.024396	5.46	41.56	45.07	1.00
Sycamore	Alignment -Fanit	2100	PF 1	227.00	538.65	540.22	540.22	540.70	0.024213	5.54	40.94	43.41	1.01
Sycamore	Alignment -Fanit	2000	PF 1	227.00	535.94	537.10	537.10	537.45	0.027065	4.72	48.08	70.67	1.01
Sycamore	Alignment -Fanit	1900	PF 1	227.00	531.90	533.41	533.41	533.77	0.027180	4.80	47.28	68.00	1.02
Sycamore	Alignment -Fanit	1800	PF 1	227.00	526.22	528.33	528.33	528.80	0.024116	5.51	41.22	43.81	1.00
Sycamore	Alignment -Fanit	1700	PF 1	227.00	520.95	523.55	523.55	524.32	0.021662	7.00	32.41	21.62	1.01
Sycamore	Alignment -Fanit	1600	PF 1	227.00	516.86	519.16	519.16	519.90	0.021692	6.88	33.00	22.78	1.01
Sycamore	Alignment -Fanit	1500	PF 1	390.00	513.12	515.69	515.69	516.51	0.020675	7.26	53.74	33.39	1.01
Sycamore	Alignment -Fanit	1400	PF 1	390.00	509.90	512.00	512.00	512.53	0.023780	5.84	66.83	64.67	1.01
Sycamore	Alignment -Fanit	1300	PF 1	390.00	505.95	508.54	508.54	509.29	0.021271	6.95	56.12	38.18	1.01
Sycamore	Alignment -Fanit	1200	PF 1	390.00	503.86	505.92	505.92	506.53	0.022581	6.25	62.41	52.45	1.01
Sycamore	Alignment -Fanit	1100	PF 1	390.00	500.95	502.72	502.72	503.40	0.021730	6.61	59.03	44.21	1.01
Sycamore	Alignment -Fanit	1000	PF 1	390.00	497.92	500.09	500.09	500.62	0.024018	5.84	66.78	65.18	1.02
Sycamore	Alignment -Fanit	900	PF 1	390.00	496.93	498.08		498.35	0.015951	4.17	93.47	111.39	0.80
Sycamore	Alignment -Fanit	800	PF 1	390.00	494.76	496.07	496.03	496.47	0.022263	5.07	76.91	87.82	0.96
Sycamore	Alignment -Fanit	700	PF 1	390.00	489.98	493.62	493.62	494.05	0.026534	5.21	74.92	92.76	1.02
Sycamore	Alignment -Fanit	600	PF 1	390.00	487.28	490.44		490.80	0.015416	4.85	80.44	73.23	0.82
Sycamore	Alignment -Fanit	500	PF 1	390.00	484.95	488.35	488.35	488.87	0.024292	5.75	67.81	67.24	1.01
Sycamore	Alignment -Fanit	400	PF 1	390.00	481.99	485.80	485.80	486.29	0.024732	5.59	69.73	72.67	1.01
Sycamore	Alignment -Fanit	300	PF 1	390.00	479.76	482.97	482.97	483.73	0.021817	6.98	55.87	37.11	1.00
Sycamore	Alignment -Fanit	200	PF 1	390.00	478.00	480.78	480.78	481.41	0.022755	6.34	61.52	49.56	1.00
Sycamore	Alignment -Fanit	100	PF 1	390.00	474.44	477.07	477.07	477.98	0.020266	7.66	50.88	28.38	1.01
Sycamore	Alignment -Fanit	0	PF 1	390.00	472.84	475.19	474.97	475.67	0.014172	5.57	70.02	48.29	0.82
Sycamore	Alignment -FRCen	8609.85	PF 1	76.00	1054.03	1056.00	1056.00	1056.59	0.025054	6.19	12.27	10.54	1.01
Sycamore	Alignment -FRCen	8600	PF 1	76.00	1050.71	1052.81	1052.81	1053.39	0.025298	6.14	12.38	10.83	1.01
Sycamore	Alignment -FRCen	8500	PF 1	76.00	1031.29	1033.77	1033.77	1034.39	0.026202	6.31	12.04	10.03	1.02
Sycamore	Alignment -FRCen	8400	PF 1	76.00	1018.00	1020.63	1020.63	1021.29	0.026901	6.53	11.63	8.93	1.01

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FRCen	8300	PF 1	76.00	1007.05	1008.57	1008.57	1009.05	0.025231	5.53	13.74	14.72	1.01
Sycamore	Alignment -FRCen	8200	PF 1	76.00	994.95	996.88	996.88	997.44	0.025376	6.03	12.60	11.43	1.01
Sycamore	Alignment -FRCen	8100	PF 1	76.00	988.00	990.20	990.20	990.73	0.025776	5.80	13.11	12.82	1.01
Sycamore	Alignment -FRCen	8000	PF 1	76.00	983.06	984.71	984.71	985.14	0.026484	5.25	14.49	17.52	1.02
Sycamore	Alignment -FRCen	7900	PF 1	76.00	975.95	978.20	978.20	978.70	0.026246	5.69	13.36	13.67	1.01
Sycamore	Alignment -FRCen	7800	PF 1	76.00	970.93	972.73	972.73	973.25	0.025160	5.79	13.12	12.86	1.01
Sycamore	Alignment -FRCen	7700	PF 1	76.00	965.55	967.15	967.15	967.54	0.026383	5.01	15.17	19.65	1.00
Sycamore	Alignment -FRCen	7600	PF 1	76.00	958.49	960.67	960.67	961.19	0.025945	5.74	13.23	13.18	1.01
Sycamore	Alignment -FRCen	7500	PF 1	76.00	952.98	954.71	954.71	955.10	0.026908	5.05	15.04	19.53	1.01
Sycamore	Alignment -FRCen	7400	PF 1	76.00	945.99	947.59	947.59	948.10	0.024769	5.73	13.26	13.13	1.01
Sycamore	Alignment -FRCen	7300	PF 1	76.00	940.91	942.29	942.29	942.72	0.025409	5.24	14.51	17.15	1.00
Sycamore	Alignment -FRCen	7200	PF 1	76.00	935.53	937.09	937.09	937.43	0.027975	4.69	16.20	24.33	1.01
Sycamore	Alignment -FRCen	7100	PF 1	76.00	929.84	931.41	931.41	931.85	0.025750	5.32	14.28	16.54	1.01
Sycamore	Alignment -FRCen	7000	PF 1	76.00	925.12	926.31	926.31	926.66	0.027318	4.74	16.03	23.46	1.01
Sycamore	Alignment -FRCen	6900	PF 1	76.00	919.90	921.32	921.32	921.73	0.025921	5.14	14.77	18.15	1.01
Sycamore	Alignment -FRCen	6800	PF 1	76.00	914.96	916.35	916.35	916.76	0.026291	5.14	14.79	18.44	1.01
Sycamore	Alignment -FRCen	6700	PF 1	76.00	910.65	911.63	911.63	911.88	0.030609	4.03	18.84	38.42	1.02
Sycamore	Alignment -FRCen	6600	PF 1	130.00	904.78	906.29	906.29	906.66	0.027520	4.87	26.68	37.65	1.02
Sycamore	Alignment -FRCen	6500	PF 1	130.00	900.14	902.22	902.22	902.64	0.025210	5.20	25.01	29.60	1.00
Sycamore	Alignment -FRCen	6400	PF 1	130.00	896.28	898.27	898.27	898.83	0.023922	6.00	21.67	19.85	1.01
Sycamore	Alignment -FRCen	6300	PF 1	130.00	892.87	894.25	894.25	894.68	0.025595	5.26	24.72	29.53	1.01
Sycamore	Alignment -FRCen	6200	PF 1	130.00	888.69	889.95	889.95	890.29	0.027292	4.70	27.63	41.04	1.01
Sycamore	Alignment -FRCen	6100	PF 1	130.00	883.00	884.85	884.85	885.34	0.024979	5.63	23.09	24.28	1.02
Sycamore	Alignment -FRCen	6000	PF 1	130.00	878.91	880.87	880.87	881.35	0.025008	5.58	23.31	24.81	1.01
Sycamore	Alignment -FRCen	5900	PF 1	130.00	874.97	876.77	876.77	877.31	0.024001	5.90	22.02	20.70	1.01
Sycamore	Alignment -FRCen	5800	PF 1	130.00	871.00	872.75	872.75	873.14	0.025939	5.05	25.76	33.00	1.01
Sycamore	Alignment -FRCen	5700	PF 1	130.00	866.93	869.16	869.16	869.66	0.025959	5.66	22.97	23.98	1.02
Sycamore	Alignment -FRCen	5600	PF 1	130.00	863.97	865.93	865.93	866.41	0.025625	5.56	23.37	25.31	1.02
Sycamore	Alignment -FRCen	5500	PF 1	130.00	857.06	859.52	859.52	860.15	0.023198	6.41	20.28	16.08	1.01
Sycamore	Alignment -FRCen	5400	PF 1	130.00	843.90	846.33	846.33	846.99	0.023658	6.49	20.04	15.76	1.01
Sycamore	Alignment -FRCen	5300	PF 1	130.00	835.83	837.99	837.99	838.72	0.023109	6.86	18.94	13.18	1.01
Sycamore	Alignment -FRCen	5200	PF 1	130.00	829.15	831.81	831.81	832.53	0.023690	6.83	19.04	13.52	1.01
Sycamore	Alignment -FRCen	5100	PF 1	130.00	823.46	825.65	825.65	826.27	0.023629	6.33	20.55	16.89	1.01
Sycamore	Alignment -FRCen	5000	PF 1	130.00	815.98	818.06	818.06	818.68	0.024239	6.28	20.71	17.41	1.01
Sycamore	Alignment -FRCen	4900	PF 1	130.00	803.80	806.35	806.35	807.08	0.023330	6.89	18.88	13.07	1.01
Sycamore	Alignment -FRCen	4800	PF 1	130.00	794.63	796.67	796.67	797.25	0.023985	6.11	21.28	18.83	1.01
Sycamore	Alignment -FRCen	4700	PF 1	130.00	786.87	788.95	788.95	789.58	0.023291	6.36	20.43	16.59	1.01
Sycamore	Alignment -FRCen	4600	PF 1	130.00	780.89	782.89	782.89	783.46	0.023748	6.08	21.39	18.99	1.01
Sycamore	Alignment -FRCen	4500	PF 1	157.00	773.99	776.43	776.43	777.11	0.022878	6.64	23.65	17.72	1.01
Sycamore	Alignment -FRCen	4400	PF 1	157.00	761.88	764.35	764.35	765.14	0.023277	7.14	21.98	14.14	1.01
Sycamore	Alignment -FRCen	4300	PF 1	157.00	751.31	753.78	753.78	754.49	0.022604	6.76	23.24	16.65	1.01
Sycamore	Alignment -FRCen	4200	PF 1	157.00	736.96	740.08	740.08	740.89	0.023085	7.23	21.73	13.59	1.01
Sycamore	Alignment -FRCen	4100	PF 1	157.00	723.40	725.76	725.76	726.41	0.023116	6.46	24.32	19.28	1.01
Sycamore	Alignment -FRCen	4000	PF 1	157.00	709.84	713.01	713.01	713.81	0.022814	7.20	21.82	13.59	1.00
Sycamore	Alignment -FRCen	3900	PF 1	157.00	699.84	701.77	701.77	702.20	0.026642	5.27	29.80	36.33	1.03
Sycamore	Alignment -FRCen	3800	PF 1	157.00	689.86	692.49	692.49	693.25	0.022888	6.99	22.46	15.12	1.01
Sycamore	Alignment -FRCen	3700	PF 1	157.00	678.19	680.98	680.98	681.69	0.022436	6.75	23.26	16.46	1.00
Sycamore	Alignment -FRCen	3600	PF 1	157.00	669.08	671.95	671.95	672.71	0.023033	6.98	22.48	15.21	1.01
Sycamore	Alignment -FRCen	3500	PF 1	157.00	662.96	665.30	665.30	665.91	0.023379	6.26	25.06	20.99	1.01
Sycamore	Alignment -FRCen	3400	PF 1	157.00	654.98	657.96	657.96	658.64	0.023620	6.60	23.80	17.92	1.01
Sycamore	Alignment -FRCen	3300	PF 1	157.00	648.77	651.03	651.03	651.62	0.023389	6.21	25.29	21.59	1.01
Sycamore	Alignment -FRCen	3200	PF 1	157.00	641.93	644.25	644.25	644.76	0.024893	5.70	27.56	28.12	1.01
Sycamore	Alignment -FRCen	3100	PF 1	157.00	635.42	637.77	637.77	638.29	0.024764	5.76	27.26	27.30	1.02

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FRCen	3000	PF 1	157.00	630.09	632.69	632.69	633.26	0.023282	6.05	25.93	22.80	1.00
Sycamore	Alignment -FRCen	2900	PF 1	157.00	625.97	628.10	628.10	628.58	0.024572	5.55	28.31	30.02	1.01
Sycamore	Alignment -FRCen	2800	PF 1	157.00	619.96	622.06	622.06	622.61	0.023947	5.96	26.34	24.51	1.01
Sycamore	Alignment -FRCen	2700	PF 1	157.00	613.24	615.80	615.80	616.37	0.024135	6.08	25.84	23.13	1.01
Sycamore	Alignment -FRCen	2600	PF 1	157.00	608.33	610.73	610.73	611.34	0.023663	6.26	25.06	21.22	1.02
Sycamore	Alignment -FRCen	2500	PF 1	157.00	604.98	606.88	606.88	607.36	0.025330	5.56	28.23	30.53	1.02
Sycamore	Alignment -FRCen	2400	PF 1	157.00	600.90	602.73	602.73	603.19	0.025249	5.44	28.87	32.34	1.01
Sycamore	Alignment -FRCen	2300	PF 1	157.00	596.61	598.44	598.44	598.77	0.028459	4.56	34.44	54.94	1.02
Sycamore	Alignment -FRCen	2200	PF 1	202.00	594.18	595.05	595.05	595.29	0.031451	3.92	51.55	112.32	1.02
Sycamore	Alignment -FRCen	2100	PF 1	202.00	588.92	590.55	590.55	590.99	0.024816	5.33	37.91	43.39	1.01
Sycamore	Alignment -FRCen	2000	PF 1	202.00	584.87	586.07	586.07	586.51	0.025054	5.33	37.91	43.81	1.01
Sycamore	Alignment -FRCen	1900	PF 1	202.00	580.00	581.62	581.50	581.94	0.017208	4.54	44.47	49.28	0.84
Sycamore	Alignment -FRCen	1800	PF 1	202.00	576.99	579.41	579.41	579.81	0.026840	5.07	39.83	51.92	1.02
Sycamore	Alignment -FRCen	1700	PF 1	202.00	570.21	572.59	572.59	573.05	0.023825	5.44	37.12	39.63	0.99
Sycamore	Alignment -FRCen	1600	PF 1	202.00	559.44	561.93	561.93	562.33	0.027110	5.05	39.98	52.67	1.02
Sycamore	Alignment -FRCen	1500	PF 1	202.00	548.97	550.92	550.92	551.50	0.023098	6.13	32.93	28.76	1.01
Sycamore	Alignment -FRCen	1400	PF 1	202.00	543.92	546.30	546.30	547.00	0.022637	6.70	30.13	22.07	1.01
Sycamore	Alignment -FRCen	1300	PF 1	202.00	539.90	542.65	542.65	543.24	0.023395	6.19	32.63	28.02	1.01
Sycamore	Alignment -FRCen	1200	PF 1	202.00	536.76	539.11	539.11	539.69	0.023828	6.11	33.08	29.38	1.01
Sycamore	Alignment -FRCen	1100	PF 1	202.00	533.33	535.60	535.60	536.21	0.022936	6.30	32.09	26.65	1.01
Sycamore	Alignment -FRCen	1000	PF 1	202.00	529.96	532.30	532.30	532.80	0.024626	5.72	35.31	35.63	1.01
Sycamore	Alignment -FRCen	900	PF 1	202.00	525.98	528.85	528.85	529.57	0.022581	6.81	29.66	20.93	1.01
Sycamore	Alignment -FRCen	800	PF 1	202.00	523.99	526.13	526.13	526.79	0.022377	6.52	31.00	23.79	1.01
Sycamore	Alignment -FRCen	700	PF 1	202.00	520.80	522.63	522.63	523.27	0.022703	6.38	31.68	25.51	1.01
Sycamore	Alignment -FRCen	600	PF 1	202.00	516.98	519.24	519.24	519.89	0.022577	6.51	31.03	24.11	1.01
Sycamore	Alignment -FRCen	500	PF 1	202.00	513.39	515.84	515.84	516.41	0.023381	6.03	33.52	30.15	1.01
Sycamore	Alignment -FRCen	400	PF 1	202.00	509.84	512.28	512.28	512.72	0.025210	5.33	37.87	43.43	1.01
Sycamore	Alignment -FRCen	300	PF 1	202.00	505.97	508.07	508.07	508.59	0.024208	5.80	34.82	34.33	1.02
Sycamore	Alignment -FRCen	200	PF 1	202.00	501.93	504.47	504.47	505.07	0.023306	6.18	32.68	28.12	1.01
Sycamore	Alignment -FRCen	100	PF 1	202.00	497.98	500.32	500.32	500.89	0.023828	6.08	33.25	29.85	1.01
Sycamore	Alignment -FRCen	0	PF 1	202.00	492.38	493.52	493.52	493.84	0.028242	4.55	44.37	71.10	1.02
Sycamore	Alignment -FRNor	4662.58	PF 1	333.00	724.93	727.27	727.27	727.86	0.022862	6.15	54.14	46.66	1.01
Sycamore	Alignment -FRNor	4600	PF 1	333.00	722.78	724.71	724.71	725.21	0.024443	5.68	58.67	60.55	1.02
Sycamore	Alignment -FRNor	4500	PF 1	333.00	717.88	719.93	719.93	720.47	0.024012	5.93	56.18	53.37	1.02
Sycamore	Alignment -FRNor	4400	PF 1	333.00	713.95	716.14	716.14	716.80	0.022484	6.51	51.12	39.69	1.01
Sycamore	Alignment -FRNor	4300	PF 1	333.00	708.40	711.26	711.26	711.77	0.026034	5.71	58.27	61.88	1.04
Sycamore	Alignment -FRNor	4200	PF 1	333.00	704.90	707.20	707.20	707.83	0.022854	6.36	52.33	42.50	1.01
Sycamore	Alignment -FRNor	4100	PF 1	333.00	701.92	703.36	703.36	703.77	0.025546	5.17	64.41	79.14	1.01
Sycamore	Alignment -FRNor	4000	PF 1	333.00	696.88	699.56	699.56	700.09	0.023379	5.82	57.19	54.40	1.00
Sycamore	Alignment -FRNor	3900	PF 1	333.00	692.99	695.03	695.03	695.51	0.025099	5.54	60.14	65.70	1.02
Sycamore	Alignment -FRNor	3800	PF 1	333.00	689.58	691.77	691.77	692.37	0.023204	6.20	53.68	46.40	1.02
Sycamore	Alignment -FRNor	3700	PF 1	333.00	686.00	688.65	688.65	689.05	0.026679	5.11	65.13	83.52	1.02
Sycamore	Alignment -FRNor	3600	PF 1	333.00	681.94	684.44	684.44	684.99	0.024243	5.95	55.99	53.11	1.02
Sycamore	Alignment -FRNor	3500	PF 1	333.00	677.99	681.14	681.14	681.60	0.025292	5.46	60.99	67.77	1.01
Sycamore	Alignment -FRNor	3400	PF 1	333.00	675.23	677.57	677.57	678.24	0.022196	6.57	50.68	38.71	1.01
Sycamore	Alignment -FRNor	3300	PF 1	333.00	671.79	674.00	674.00	674.57	0.022794	6.03	55.23	48.96	1.00
Sycamore	Alignment -FRNor	3200	PF 1	333.00	667.94	670.87	670.87	671.59	0.021573	6.77	49.15	34.52	1.00
Sycamore	Alignment -FRNor	3100	PF 1	333.00	663.89	667.33	667.33	668.17	0.021228	7.38	45.14	27.22	1.01
Sycamore	Alignment -FRNor	3000	PF 1	382.00	660.99	664.23	664.23	664.97	0.021475	6.88	55.50	38.39	1.01
Sycamore	Alignment -FRNor	2900	PF 1	382.00	658.99	660.90	660.90	661.58	0.022055	6.60	57.84	43.62	1.01
Sycamore	Alignment -FRNor	2800	PF 1	382.00	654.97	657.44	657.44	658.06	0.023489	6.33	60.35	50.59	1.02
Sycamore	Alignment -FRNor	2700	PF 1	382.00	650.97	654.09	654.09	654.94	0.020031	7.39	51.67	30.18	1.00
Sycamore	Alignment -FRNor	2600	PF 1	382.00	647.60	650.72	650.72	651.54	0.020965	7.25	52.71	32.90	1.01

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FRNor	2500	PF 1	382.00	644.66	647.72	647.72	648.26	0.023173	5.94	64.32	59.09	1.00
Sycamore	Alignment -FRNor	2400	PF 1	382.00	640.98	643.49	643.49	644.18	0.021717	6.67	57.29	41.94	1.01
Sycamore	Alignment -FRNor	2300	PF 1	382.00	637.50	640.85	640.85	641.49	0.021985	6.42	59.48	46.52	1.00
Sycamore	Alignment -FRNor	2200	PF 1	382.00	634.93	637.46	637.46	638.15	0.021397	6.64	57.54	42.07	1.00
Sycamore	Alignment -FRNor	2100	PF 1	382.00	630.94	633.16	633.16	633.62	0.023480	5.41	70.62	75.47	0.99
Sycamore	Alignment -FRNor	2000	PF 1	382.00	626.99	629.87	629.87	630.66	0.020807	7.12	53.65	34.19	1.00
Sycamore	Alignment -FRNor	1900	PF 1	382.00	623.91	626.70	626.70	627.27	0.022655	6.07	62.90	55.07	1.00
Sycamore	Alignment -FRNor	1800	PF 1	382.00	620.97	622.82	622.82	623.37	0.023365	5.98	63.89	58.83	1.01
Sycamore	Alignment -FRNor	1700	PF 1	382.00	616.15	618.66	618.66	619.26	0.022749	6.21	61.48	51.45	1.00
Sycamore	Alignment -FRNor	1600	PF 1	382.00	612.81	616.24	616.24	616.86	0.019325	6.34	60.30	43.20	0.95
Sycamore	Alignment -FRNor	1500	PF 1	382.00	608.99	612.39	612.39	613.04	0.022651	6.50	58.76	45.97	1.01
Sycamore	Alignment -FRNor	1400	PF 1	382.00	606.96	608.89	608.89	609.36	0.025329	5.52	69.14	75.99	1.02
Sycamore	Alignment -FRNor	1300	PF 1	382.00	602.99	605.45	605.45	606.03	0.022000	6.10	62.59	53.22	0.99
Sycamore	Alignment -FRNor	1200	PF 1	382.00	599.92	602.39	602.39	603.10	0.021660	6.77	56.44	40.51	1.01
Sycamore	Alignment -FRNor	1100	PF 1	382.00	596.01	598.61	598.61	599.31	0.021342	6.68	57.17	41.23	1.00
Sycamore	Alignment -FRNor	1000	PF 1	382.00	592.82	594.93	594.93	595.52	0.022790	6.19	61.75	52.88	1.01
Sycamore	Alignment -FRNor	900	PF 1	382.00	589.17	591.58	591.58	592.03	0.026031	5.39	70.84	82.45	1.03
Sycamore	Alignment -FRNor	800	PF 1	382.00	585.19	587.05	587.05	587.48	0.025887	5.29	72.25	86.61	1.02
Sycamore	Alignment -FRNor	700	PF 1	382.00	580.85	583.07	583.07	583.59	0.024360	5.78	66.04	65.08	1.01
Sycamore	Alignment -FRNor	600	PF 1	382.00	577.80	579.76	579.76	580.21	0.025468	5.40	70.78	80.38	1.01
Sycamore	Alignment -FRNor	500	PF 1	382.00	575.41	577.04	577.04	577.50	0.024640	5.47	69.86	76.78	1.01
Sycamore	Alignment -FRNor	400	PF 1	382.00	569.97	573.17	573.17	573.70	0.023183	5.87	65.10	60.90	1.00
Sycamore	Alignment -FRNor	300	PF 1	382.00	566.80	569.88	569.88	570.49	0.023170	6.24	61.21	51.65	1.01
Sycamore	Alignment -FRNor	200	PF 1	382.00	564.21	567.06	567.06	567.70	0.021825	6.46	59.14	45.76	1.00
Sycamore	Alignment -FRNor	100	PF 1	382.00	561.92	564.20	564.20	564.58	0.025225	4.93	77.50	101.22	0.99
Sycamore	Alignment -FRNor	0	PF 1	382.00	557.12	559.64	559.64	560.24	0.023231	6.23	61.28	52.69	1.02
Sycamore	Alignment -Bcres	2881.29	PF 1	149.00	675.37	676.80	676.80	677.28	0.024690	5.60	26.60	27.84	1.01
Sycamore	Alignment -Bcres	2850	PF 1	149.00	671.04	673.28	673.28	673.78	0.023041	5.70	26.13	25.09	0.99
Sycamore	Alignment -Bcres	2800	PF 1	149.00	665.96	667.96	667.96	668.47	0.024871	5.73	26.00	26.42	1.02
Sycamore	Alignment -Bcres	2750	PF 1	149.00	660.95	663.43	663.43	663.91	0.025392	5.55	26.83	28.83	1.02
Sycamore	Alignment -Bcres	2700	PF 1	149.00	656.57	658.19	658.19	658.58	0.027018	4.96	30.06	40.75	1.02
Sycamore	Alignment -Bcres	2650	PF 1	149.00	652.37	653.72	653.72	654.09	0.027071	4.90	30.44	42.28	1.02
Sycamore	Alignment -Bcres	2600	PF 1	149.00	645.59	647.31	647.31	647.76	0.026175	5.33	27.95	32.85	1.02
Sycamore	Alignment -Bcres	2550	PF 1	149.00	640.90	642.32	642.32	642.74	0.025811	5.18	28.78	35.45	1.01
Sycamore	Alignment -Bcres	2500	PF 1	149.00	635.96	637.82	637.82	638.27	0.026109	5.39	27.63	31.76	1.02
Sycamore	Alignment -Bcres	2450	PF 1	149.00	632.00	633.90	633.90	634.37	0.024583	5.49	27.15	29.17	1.00
Sycamore	Alignment -Bcres	2400	PF 1	149.00	627.00	629.11	629.11	629.65	0.024281	5.91	25.19	23.86	1.01
Sycamore	Alignment -Bcres	2350	PF 1	149.00	623.75	625.36	625.36	625.82	0.025180	5.42	27.51	30.95	1.01
Sycamore	Alignment -Bcres	2300	PF 1	149.00	618.89	620.33	620.33	620.76	0.025933	5.24	28.44	34.47	1.02
Sycamore	Alignment -Bcres	2250	PF 1	149.00	615.96	617.90	617.90	618.25	0.026457	4.71	31.64	45.25	0.99
Sycamore	Alignment -Bcres	2200	PF 1	149.00	611.46	613.14	613.14	613.54	0.027240	5.04	29.57	39.39	1.03
Sycamore	Alignment -Bcres	2150	PF 1	149.00	606.94	609.25	609.25	609.82	0.023800	6.09	24.47	21.80	1.01
Sycamore	Alignment -Bcres	2100	PF 1	149.00	603.00	605.35	605.35	606.06	0.022844	6.74	22.10	15.91	1.01
Sycamore	Alignment -Bcres	2050	PF 1	149.00	599.32	601.40	601.40	602.06	0.022795	6.54	22.78	17.48	1.01
Sycamore	Alignment -Bcres	2000	PF 1	149.00	595.27	597.27	597.27	597.95	0.022597	6.61	22.55	16.89	1.01
Sycamore	Alignment -Bcres	1950	PF 1	149.00	590.99	592.53	592.53	593.06	0.024166	5.79	25.73	25.24	1.01
Sycamore	Alignment -Bcres	1900	PF 1	149.00	586.42	588.28	588.28	588.77	0.025558	5.57	26.73	28.82	1.02
Sycamore	Alignment -Bcres	1850	PF 1	149.00	582.69	584.17	584.17	584.64	0.025042	5.48	27.17	29.89	1.01
Sycamore	Alignment -Bcres	1800	PF 1	149.00	577.50	579.15	579.15	579.63	0.024618	5.58	26.70	28.27	1.01
Sycamore	Alignment -Bcres	1750	PF 1	149.00	573.74	575.19	575.19	575.70	0.024310	5.73	26.02	25.99	1.01
Sycamore	Alignment -Bcres	1700	PF 1	149.00	569.62	571.12	571.12	571.58	0.025251	5.44	27.37	30.60	1.01
Sycamore	Alignment -Bcres	1650	PF 1	149.00	565.68	567.29	567.29	567.81	0.024027	5.79	25.73	25.23	1.01
Sycamore	Alignment -Bcres	1600	PF 1	149.00	562.68	563.99	563.99	564.39	0.025834	5.09	29.30	37.04	1.01

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -Bcres	1550	PF 1	149.00	559.14	561.35	561.35	561.84	0.024794	5.59	26.67	27.99	1.01
Sycamore	Alignment -Bcres	1500	PF 1	149.00	555.00	557.23	557.23	557.64	0.025758	5.13	29.02	35.58	1.00
Sycamore	Alignment -Bcres	1450	PF 1	149.00	551.91	553.59	553.59	554.03	0.024989	5.36	27.81	31.42	1.00
Sycamore	Alignment -Bcres	1400	PF 1	149.00	548.35	550.29	550.29	550.78	0.025234	5.62	26.52	27.94	1.02
Sycamore	Alignment -Bcres	1350	PF 1	149.00	545.97	547.13	547.13	547.52	0.026314	5.00	29.82	39.33	1.01
Sycamore	Alignment -Bcres	1300	PF 1	149.00	542.83	543.72	543.72	544.09	0.026321	4.91	30.33	40.91	1.01
Sycamore	Alignment -Bcres	1250	PF 1	149.00	539.42	540.89	540.89	541.44	0.023600	5.95	25.03	23.12	1.01
Sycamore	Alignment -Bcres	1200	PF 1	149.00	536.99	538.01	538.01	538.38	0.026700	4.85	30.70	42.81	1.01
Sycamore	Alignment -Bcres	1150	PF 1	149.00	533.85	535.11	535.11	535.54	0.025339	5.27	28.28	33.42	1.01
Sycamore	Alignment -Bcres	1100	PF 1	149.00	530.81	532.31	532.31	532.81	0.024368	5.65	26.37	27.14	1.01
Sycamore	Alignment -Bcres	1050	PF 1	149.00	527.14	528.97	528.97	529.46	0.024703	5.64	26.43	27.52	1.01
Sycamore	Alignment -Bcres	1000	PF 1	149.00	525.23	526.61	526.61	527.07	0.024735	5.46	27.31	30.02	1.01
Sycamore	Alignment -Bcres	950	PF 1	149.00	522.04	523.46	523.46	523.87	0.026407	5.15	28.94	36.23	1.02
Sycamore	Alignment -Bcres	900	PF 1	149.00	518.75	520.10	520.10	520.45	0.027834	4.77	31.24	46.08	1.02
Sycamore	Alignment -Bcres	850	PF 1	149.00	515.72	517.07	517.07	517.51	0.025355	5.35	27.84	31.96	1.01
Sycamore	Alignment -Bcres	800	PF 1	149.00	512.85	514.64	514.64	515.13	0.024749	5.64	26.41	27.52	1.02
Sycamore	Alignment -Bcres	750	PF 1	149.00	509.95	511.84	511.84	512.31	0.025367	5.51	27.04	29.44	1.01
Sycamore	Alignment -Bcres	700	PF 1	149.00	507.82	509.26	509.26	509.69	0.024917	5.28	28.20	32.64	1.00
Sycamore	Alignment -Bcres	650	PF 1	149.00	504.97	506.94	506.94	507.37	0.025994	5.24	28.42	34.32	1.02
Sycamore	Alignment -Bcres	600	PF 1	149.00	502.54	504.01	504.01	504.41	0.026333	5.08	29.35	37.81	1.02
Sycamore	Alignment -Bcres	550	PF 1	149.00	499.96	501.40	501.40	501.82	0.025900	5.20	28.65	35.09	1.01
Sycamore	Alignment -Bcres	500	PF 1	149.00	497.02	498.91	498.91	499.41	0.024495	5.68	26.23	26.80	1.01
Sycamore	Alignment -Bcres	450	PF 1	149.00	494.28	496.78	496.78	497.23	0.025682	5.35	27.83	31.72	1.01
Sycamore	Alignment -Bcres	400	PF 1	149.00	492.01	493.63	493.63	494.01	0.028062	4.89	30.44	43.34	1.03
Sycamore	Alignment -Bcres	350	PF 1	149.00	489.88	490.92	490.92	491.32	0.025880	5.09	29.29	37.04	1.01
Sycamore	Alignment -Bcres	300	PF 1	149.00	487.23	488.46	488.46	488.84	0.026329	4.95	30.09	40.18	1.01
Sycamore	Alignment -Bcres	250	PF 1	149.00	485.09	486.20	486.20	486.56	0.026811	4.85	30.74	43.12	1.01
Sycamore	Alignment -Bcres	200	PF 1	149.00	480.97	483.08	483.08	483.51	0.025089	5.28	28.23	32.70	1.00
Sycamore	Alignment -Bcres	150	PF 1	149.00	479.15	480.90	480.90	481.38	0.024793	5.54	26.91	29.00	1.01
Sycamore	Alignment -Bcres	100	PF 1	149.00	476.99	478.77		478.89	0.004352	2.78	53.55	43.96	0.44
Sycamore	Alignment -Bcres	50	PF 1	149.00	475.92	478.11		478.51	0.013155	5.04	29.54	22.41	0.77
Sycamore	Alignment -Bcres	0	PF 1	149.00	474.00	476.87	476.87	477.62	0.023133	6.92	21.53	14.69	1.01
Sycamore	Alignment -FPSou	3636.29	PF 1	105.00	669.24	670.95	670.95	671.48	0.024373	5.84	17.97	17.37	1.01
Sycamore	Alignment -FPSou	3600	PF 1	105.00	662.04	664.25	664.25	664.93	0.023955	6.63	15.83	11.82	1.01
Sycamore	Alignment -FPSou	3550	PF 1	105.00	654.85	656.79	656.79	657.43	0.023844	6.42	16.35	12.96	1.01
Sycamore	Alignment -FPSou	3500	PF 1	105.00	648.31	649.99	649.99	650.60	0.023665	6.24	16.84	14.15	1.01
Sycamore	Alignment -FPSou	3450	PF 1	105.00	641.92	643.38	643.38	643.90	0.023828	5.79	18.12	17.43	1.00
Sycamore	Alignment -FPSou	3400	PF 1	105.00	634.98	636.63	636.63	637.18	0.024040	5.97	17.59	16.18	1.01
Sycamore	Alignment -FPSou	3350	PF 1	105.00	629.00	630.65	630.65	631.22	0.023918	6.06	17.33	15.45	1.01
Sycamore	Alignment -FPSou	3300	PF 1	105.00	623.95	625.34	625.34	625.83	0.024695	5.58	18.80	19.60	1.01
Sycamore	Alignment -FPSou	3250	PF 1	105.00	617.93	619.59	619.59	620.15	0.023811	6.00	17.49	15.81	1.01
Sycamore	Alignment -FPSou	3200	PF 1	105.00	612.92	614.47	614.47	614.96	0.024890	5.62	18.70	19.56	1.01
Sycamore	Alignment -FPSou	3150	PF 1	105.00	607.37	609.17	609.17	609.59	0.026635	5.21	20.14	24.64	1.02
Sycamore	Alignment -FPSou	3100	PF 1	105.00	602.92	604.23	604.23	604.73	0.024432	5.67	18.53	18.82	1.01
Sycamore	Alignment -FPSou	3050	PF 1	105.00	598.87	600.19	600.19	600.68	0.024358	5.63	18.65	19.08	1.00
Sycamore	Alignment -FPSou	3000	PF 1	105.00	594.37	596.23	596.23	596.86	0.023747	6.37	16.48	13.30	1.01
Sycamore	Alignment -FPSou	2950	PF 1	105.00	590.84	592.45	592.45	592.96	0.024386	5.74	18.31	18.27	1.01
Sycamore	Alignment -FPSou	2900	PF 1	105.00	586.87	588.58	588.58	589.12	0.024317	5.89	17.84	16.92	1.01
Sycamore	Alignment -FPSou	2850	PF 1	105.00	582.98	584.85	584.85	585.39	0.024227	5.92	17.74	16.66	1.01
Sycamore	Alignment -FPSou	2800	PF 1	105.00	579.02	580.63	580.63	581.13	0.024793	5.66	18.55	19.14	1.01
Sycamore	Alignment -FPSou	2750	PF 1	105.00	575.00	576.65	576.65	577.21	0.024011	5.98	17.56	16.10	1.01
Sycamore	Alignment -FPSou	2700	PF 1	105.00	571.05	572.74	572.74	573.25	0.024489	5.73	18.33	18.33	1.01
Sycamore	Alignment -FPSou	2650	PF 1	105.00	567.67	568.90	568.90	569.32	0.025275	5.22	20.12	24.00	1.00

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FPSou	2600	PF 1	105.00	562.99	565.11	565.11	565.69	0.024740	6.08	17.28	15.54	1.02
Sycamore	Alignment -FPSou	2550	PF 1	105.00	559.89	561.54	561.54	562.07	0.024338	5.80	18.10	17.58	1.01
Sycamore	Alignment -FPSou	2500	PF 1	105.00	556.33	557.75	557.75	558.28	0.024178	5.88	17.86	16.93	1.01
Sycamore	Alignment -FPSou	2450	PF 1	105.00	553.96	555.19	555.19	555.66	0.025030	5.45	19.26	21.20	1.01
Sycamore	Alignment -FPSou	2400	PF 1	105.00	549.89	551.76	551.76	552.29	0.024531	5.83	18.01	17.50	1.01
Sycamore	Alignment -FPSou	2350	PF 1	105.00	546.62	548.65	548.65	549.26	0.023693	6.25	16.80	14.01	1.01
Sycamore	Alignment -FPSou	2300	PF 1	105.00	543.68	545.33	545.33	545.82	0.025224	5.62	18.69	19.49	1.01
Sycamore	Alignment -FPSou	2250	PF 1	105.00	540.53	542.34	542.34	542.86	0.024525	5.79	18.13	17.81	1.01
Sycamore	Alignment -FPSou	2200	PF 1	105.00	536.97	539.03	539.03	539.63	0.024532	6.18	16.98	14.55	1.01
Sycamore	Alignment -FPSou	2150	PF 1	105.00	533.98	536.38	536.38	536.98	0.024145	6.24	16.83	14.09	1.01
Sycamore	Alignment -FPSou	2100	PF 1	105.00	531.93	533.50	533.50	533.97	0.025078	5.48	19.16	20.98	1.01
Sycamore	Alignment -FPSou	2050	PF 1	105.00	528.93	530.78	530.78	531.35	0.023994	6.07	17.29	15.33	1.01
Sycamore	Alignment -FPSou	2000	PF 1	105.00	526.44	528.48	528.48	529.09	0.023953	6.26	16.78	14.09	1.01
Sycamore	Alignment -FPSou	1950	PF 1	105.00	523.85	525.83	525.83	526.38	0.024383	5.94	17.68	16.54	1.01
Sycamore	Alignment -FPSou	1900	PF 1	105.00	521.04	523.08	523.08	523.61	0.025058	5.83	18.02	17.59	1.01
Sycamore	Alignment -FPSou	1850	PF 1	105.00	518.94	520.69	520.69	521.17	0.025034	5.56	18.90	20.21	1.01
Sycamore	Alignment -FPSou	1800	PF 1	105.00	516.99	518.66	518.66	519.09	0.025631	5.31	19.77	23.13	1.01
Sycamore	Alignment -FPSou	1750	PF 1	105.00	514.81	515.99	515.99	516.38	0.026077	5.03	20.88	27.07	1.01
Sycamore	Alignment -FPSou	1700	PF 1	105.00	512.27	513.40	513.40	513.77	0.026755	4.89	21.48	29.60	1.01
Sycamore	Alignment -FPSou	1650	PF 1	105.00	510.50	511.60	511.60	511.98	0.026437	4.89	21.47	29.35	1.01
Sycamore	Alignment -FPSou	1600	PF 1	105.00	507.94	509.08	509.08	509.47	0.026045	5.06	20.77	26.63	1.01
Sycamore	Alignment -FPSou	1550	PF 1	105.00	504.00	505.91	505.91	506.30	0.026190	4.98	21.10	27.49	1.00
Sycamore	Alignment -FPSou	1500	PF 1	105.00	502.53	503.60	503.60	503.98	0.026393	4.94	21.27	28.57	1.01
Sycamore	Alignment -FPSou	1450	PF 1	105.00	499.96	501.23	501.23	501.66	0.025374	5.27	19.92	23.40	1.01
Sycamore	Alignment -FPSou	1400	PF 1	105.00	497.88	498.76	498.76	499.10	0.027039	4.71	22.31	32.83	1.01
Sycamore	Alignment -FPSou	1350	PF 1	105.00	494.93	495.97	495.97	496.33	0.026873	4.80	21.89	31.02	1.01
Sycamore	Alignment -FPSou	1300	PF 1	105.00	492.55	493.70	493.70	494.12	0.025562	5.20	20.19	24.46	1.01
Sycamore	Alignment -FPSou	1250	PF 1	105.00	490.57	492.27	492.27	492.74	0.025414	5.46	19.24	21.32	1.01
Sycamore	Alignment -FPSou	1200	PF 1	105.00	487.14	488.21	488.21	488.62	0.026032	5.09	20.64	26.09	1.01
Sycamore	Alignment -FPSou	1150	PF 1	105.00	482.96	484.38	484.38	484.91	0.024489	5.82	18.03	17.32	1.01
Sycamore	Alignment -FPSou	1100	PF 1	105.00	479.99	482.24	482.24	482.98	0.024327	6.92	15.17	10.36	1.01
Sycamore	Alignment -FPSou	1050	PF 1	105.00	478.93	480.70	480.70	481.33	0.023671	6.40	16.42	13.10	1.01
Sycamore	Alignment -FPSou	1000	PF 1	105.00	477.00	478.98	478.98	479.51	0.023945	5.84	17.98	16.93	1.00
Sycamore	Alignment -FPSou	950	PF 1	105.00	474.74	476.53	476.53	477.04	0.024332	5.75	18.25	17.93	1.01
Sycamore	Alignment -FPSou	900	PF 1	105.00	472.71	474.25	474.25	474.74	0.024753	5.63	18.64	19.28	1.01
Sycamore	Alignment -FPSou	850	PF 1	105.00	470.53	472.21	472.21	472.55	0.027770	4.70	22.33	33.39	1.01
Sycamore	Alignment -FPSou	800	PF 1	105.00	468.46	469.72	469.72	470.09	0.027024	4.87	21.56	29.98	1.01
Sycamore	Alignment -FPSou	750	PF 1	105.00	465.98	467.45	467.45	467.83	0.027207	4.94	21.24	29.04	1.02
Sycamore	Alignment -FPSou	700	PF 1	105.00	463.99	464.87	464.87	465.21	0.027196	4.70	22.32	32.96	1.01
Sycamore	Alignment -FPSou	650	PF 1	105.00	461.84	463.02	463.02	463.32	0.029419	4.41	23.82	41.17	1.02
Sycamore	Alignment -FPSou	600	PF 1	105.00	458.99	460.35	460.35	460.70	0.027337	4.76	22.07	32.20	1.01
Sycamore	Alignment -FPSou	550	PF 1	105.00	457.94	459.21		459.34	0.007183	2.86	36.75	42.26	0.54
Sycamore	Alignment -FPSou	500	PF 1	105.00	456.99	458.95		459.07	0.003967	2.79	37.62	28.42	0.43
Sycamore	Alignment -FPSou	450	PF 1	105.00	455.99	458.12	458.12	458.63	0.025074	5.72	18.34	18.54	1.01
Sycamore	Alignment -FPSou	400	PF 1	105.00	454.00	456.95		457.06	0.003068	2.70	38.84	24.90	0.38
Sycamore	Alignment -FPSou	350	PF 1	105.00	454.40	456.19	456.19	456.69	0.024563	5.66	18.57	18.96	1.01
Sycamore	Alignment -FPSou	300	PF 1	105.00	449.34	451.42	451.42	451.96	0.025434	5.90	17.80	16.95	1.01
Sycamore	Alignment -FPSou	250	PF 1	105.00	446.66	447.83	447.83	448.18	0.027581	4.70	22.34	33.43	1.01
Sycamore	Alignment -FPSou	200	PF 1	105.00	445.04	446.37	446.37	446.73	0.027350	4.82	21.78	31.13	1.02
Sycamore	Alignment -FPSou	150	PF 1	105.00	441.91	443.81	443.81	444.19	0.028111	4.95	21.23	29.29	1.02
Sycamore	Alignment -FPSou	100	PF 1	105.00	439.93	441.50	441.50	442.12	0.023895	6.31	16.63	13.60	1.01
Sycamore	Alignment -FPSou	50	PF 1	105.00	436.85	438.21	438.21	438.74	0.024149	5.84	17.97	17.15	1.01
Sycamore	Alignment -FPSou	0	PF 1	105.00	432.98	434.54	433.63	434.55	0.000418	0.73	143.13	150.00	0.13

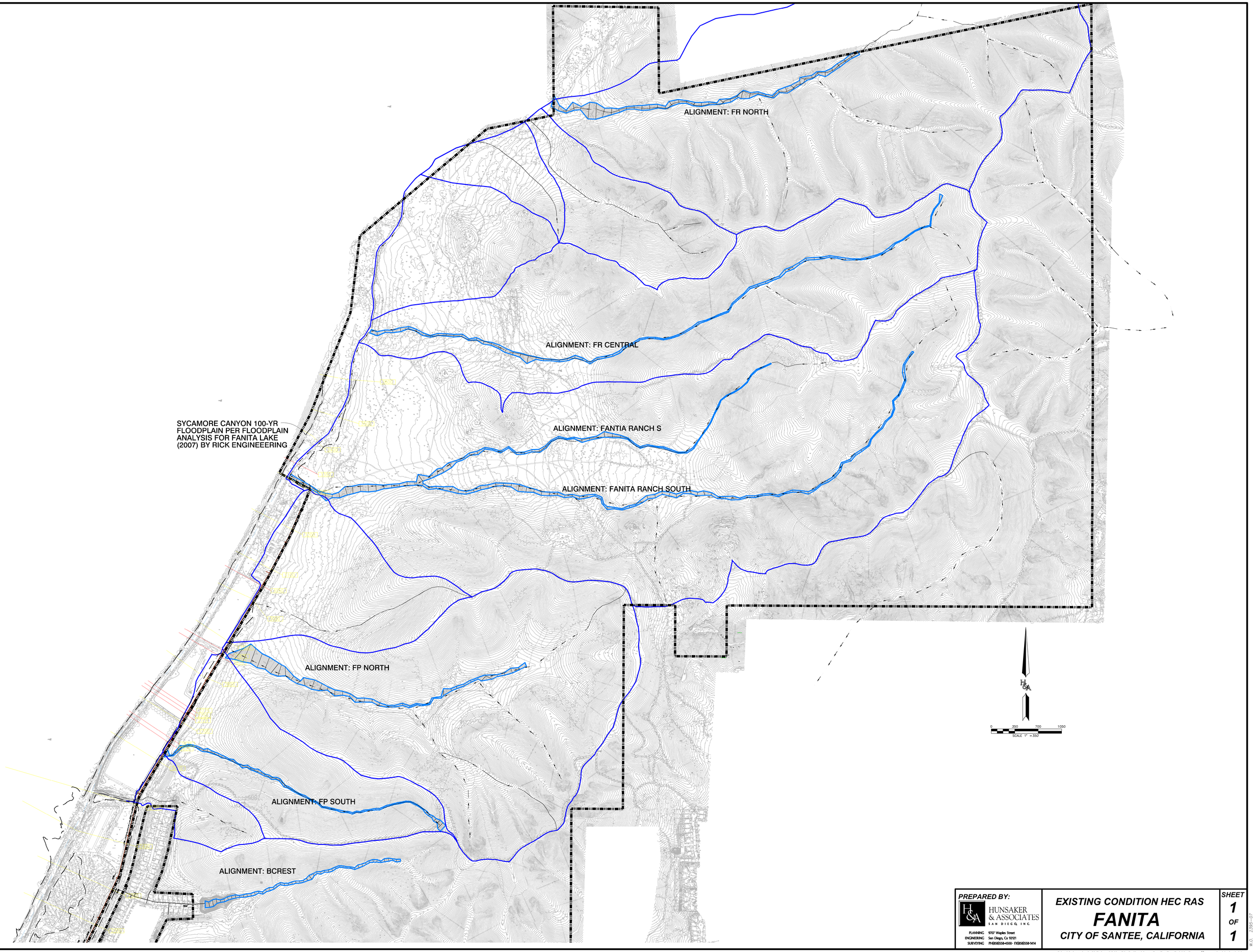
HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FPNor	4860.69	PF 1	173.00	609.99	611.67	611.67	612.08	0.025739	5.16	33.54	41.47	1.01
Sycamore	Alignment -FPNor	4850	PF 1	173.00	609.91	611.20	611.20	611.60	0.025935	5.06	34.17	43.77	1.01
Sycamore	Alignment -FPNor	4800	PF 1	173.00	606.98	608.38	608.38	608.74	0.027060	4.82	35.91	51.07	1.01
Sycamore	Alignment -FPNor	4750	PF 1	173.00	603.97	606.22	606.22	606.79	0.023398	6.05	28.61	25.55	1.01
Sycamore	Alignment -FPNor	4700	PF 1	173.00	601.97	604.05	604.05	604.58	0.024421	5.85	29.59	28.69	1.02
Sycamore	Alignment -FPNor	4650	PF 1	173.00	600.97	602.46	602.46	602.94	0.024210	5.59	30.94	32.30	1.01
Sycamore	Alignment -FPNor	4600	PF 1	173.00	598.00	599.95	599.95	600.52	0.022069	6.04	28.63	24.55	0.99
Sycamore	Alignment -FPNor	4550	PF 1	173.00	596.89	598.47	598.47	598.98	0.024335	5.73	30.17	30.29	1.01
Sycamore	Alignment -FPNor	4500	PF 1	173.00	595.48	596.94		597.20	0.011674	4.09	42.32	40.87	0.71
Sycamore	Alignment -FPNor	4450	PF 1	173.00	593.82	595.78	595.78	596.37	0.023264	6.19	27.94	23.94	1.01
Sycamore	Alignment -FPNor	4400	PF 1	173.00	592.87	594.52	594.52	595.05	0.023734	5.87	29.46	28.03	1.01
Sycamore	Alignment -FPNor	4350	PF 1	173.00	590.92	592.50		592.83	0.016316	4.60	37.58	39.10	0.83
Sycamore	Alignment -FPNor	4300	PF 1	173.00	589.43	591.36	591.36	591.81	0.025060	5.42	31.94	35.88	1.01
Sycamore	Alignment -FPNor	4250	PF 1	173.00	587.93	589.53	589.53	590.05	0.023838	5.80	29.82	28.91	1.01
Sycamore	Alignment -FPNor	4200	PF 1	173.00	585.19	587.88	587.88	588.64	0.022965	6.97	24.83	16.86	1.01
Sycamore	Alignment -FPNor	4150	PF 1	173.00	583.84	586.24	586.24	586.96	0.022443	6.82	25.38	17.90	1.01
Sycamore	Alignment -FPNor	4100	PF 1	173.00	582.93	584.89	584.89	585.57	0.022460	6.62	26.14	19.43	1.01
Sycamore	Alignment -FPNor	4050	PF 1	173.00	580.86	582.98	582.98	583.68	0.022367	6.70	25.83	18.89	1.01
Sycamore	Alignment -FPNor	4000	PF 1	173.00	579.35	581.05	581.05	581.64	0.023216	6.20	27.91	23.80	1.01
Sycamore	Alignment -FPNor	3950	PF 1	173.00	577.96	579.84	579.84	580.47	0.022641	6.41	26.99	21.47	1.01
Sycamore	Alignment -FPNor	3900	PF 1	173.00	576.10	577.85	577.85	578.39	0.023437	5.87	29.49	27.82	1.00
Sycamore	Alignment -FPNor	3850	PF 1	173.00	574.85	576.32	576.32	576.91	0.023021	6.16	28.07	24.10	1.01
Sycamore	Alignment -FPNor	3800	PF 1	173.00	572.72	574.53	574.53	575.02	0.024869	5.64	30.66	31.94	1.02
Sycamore	Alignment -FPNor	3750	PF 1	173.00	570.38	572.33	572.31	572.83	0.023052	5.70	30.37	29.49	0.99
Sycamore	Alignment -FPNor	3700	PF 1	173.00	568.82	571.07	571.07	571.64	0.024532	6.03	28.69	26.34	1.02
Sycamore	Alignment -FPNor	3650	PF 1	173.00	566.98	569.49	569.49	570.08	0.023032	6.21	27.87	23.37	1.00
Sycamore	Alignment -FPNor	3600	PF 1	173.00	565.96	567.72	567.72	568.28	0.023612	5.99	28.88	26.24	1.01
Sycamore	Alignment -FPNor	3550	PF 1	173.00	564.87	566.54	566.54	567.11	0.023247	6.04	28.66	25.61	1.01
Sycamore	Alignment -FPNor	3500	PF 1	173.00	560.97	562.63		562.81	0.005747	3.37	51.27	38.68	0.52
Sycamore	Alignment -FPNor	3450	PF 1	173.00	558.99	561.54	561.54	562.25	0.022392	6.76	25.59	18.22	1.01
Sycamore	Alignment -FPNor	3400	PF 1	173.00	557.99	560.32		560.78	0.013964	5.44	31.80	22.36	0.80
Sycamore	Alignment -FPNor	3350	PF 1	173.00	556.96	559.28	559.23	559.92	0.020633	6.42	26.95	19.78	0.97
Sycamore	Alignment -FPNor	3300	PF 1	173.00	555.89	558.26	558.26	558.75	0.024380	5.62	30.78	31.47	1.00
Sycamore	Alignment -FPNor	3250	PF 1	173.00	552.93	554.95		555.16	0.005182	3.63	47.72	29.38	0.50
Sycamore	Alignment -FPNor	3200	PF 1	173.00	550.96	553.76	553.76	554.62	0.022420	7.42	23.31	13.84	1.01
Sycamore	Alignment -FPNor	3150	PF 1	173.00	549.97	552.53	552.53	553.27	0.022265	6.93	24.96	16.93	1.01
Sycamore	Alignment -FPNor	3100	PF 1	173.00	549.69	551.15	551.15	551.53	0.026797	4.92	35.13	48.09	1.02
Sycamore	Alignment -FPNor	3050	PF 1	173.00	545.98	548.46	548.46	549.08	0.023248	6.32	27.38	22.24	1.00
Sycamore	Alignment -FPNor	3000	PF 1	173.00	544.78	546.86	546.86	547.49	0.022802	6.33	27.32	22.14	1.00
Sycamore	Alignment -FPNor	2950	PF 1	173.00	542.00	545.03	545.03	545.75	0.022943	6.82	25.36	17.83	1.01
Sycamore	Alignment -FPNor	2900	PF 1	173.00	540.00	543.18	543.03	543.86	0.018386	6.65	26.00	15.73	0.91
Sycamore	Alignment -FPNor	2850	PF 1	273.00	538.99	542.01	542.01	542.83	0.021844	7.25	37.65	23.76	1.02
Sycamore	Alignment -FPNor	2800	PF 1	273.00	536.97	540.11	540.11	540.89	0.021078	7.12	38.36	24.41	1.00
Sycamore	Alignment -FPNor	2750	PF 1	273.00	534.98	537.97	537.97	538.78	0.021220	7.20	37.91	23.59	1.00
Sycamore	Alignment -FPNor	2700	PF 1	273.00	533.97	536.48	536.48	537.17	0.021874	6.64	41.09	30.01	1.00
Sycamore	Alignment -FPNor	2650	PF 1	273.00	532.53	535.22	535.22	535.94	0.021884	6.80	40.12	28.36	1.01
Sycamore	Alignment -FPNor	2600	PF 1	273.00	530.00	533.31	533.31	534.12	0.021094	7.22	37.81	23.38	1.00
Sycamore	Alignment -FPNor	2550	PF 1	273.00	528.88	531.55	531.55	532.30	0.021446	6.96	39.24	26.49	1.01
Sycamore	Alignment -FPNor	2500	PF 1	273.00	523.95	526.92	526.92	527.70	0.021516	7.10	38.45	25.13	1.01
Sycamore	Alignment -FPNor	2450	PF 1	273.00	522.99	525.09	525.09	525.65	0.023537	6.04	45.22	41.10	1.01
Sycamore	Alignment -FPNor	2400	PF 1	273.00	520.80	523.11	523.11	523.76	0.022530	6.44	42.40	33.81	1.01
Sycamore	Alignment -FPNor	2350	PF 1	273.00	518.00	520.15	520.15	520.67	0.024435	5.76	47.40	47.62	1.02
Sycamore	Alignment -FPNor	2300	PF 1	273.00	516.84	518.47	518.47	518.87	0.026045	5.06	53.92	69.35	1.01

HEC-RAS Plan: Plan 01 Profile: PF 1 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Sycamore	Alignment -FPNor	2250	PF 1	273.00	513.84	516.34		516.56	0.008254	3.75	72.88	59.99	0.60
Sycamore	Alignment -FPNor	2200	PF 1	273.00	512.98	515.36	515.36	515.87	0.024303	5.72	47.73	47.97	1.01
Sycamore	Alignment -FPNor	2150	PF 1	273.00	511.93	513.33	513.31	513.76	0.023657	5.29	51.63	57.86	0.99
Sycamore	Alignment -FPNor	2100	PF 1	273.00	510.00	512.05	512.05	512.55	0.024617	5.67	48.14	49.71	1.02
Sycamore	Alignment -FPNor	2050	PF 1	273.00	508.89	510.17	510.17	510.61	0.024974	5.33	51.18	59.00	1.01
Sycamore	Alignment -FPNor	2000	PF 1	273.00	505.95	508.52	508.52	509.02	0.023922	5.71	47.77	47.64	1.01
Sycamore	Alignment -FPNor	1950	PF 1	273.00	504.90	507.14	507.14	507.68	0.022867	5.93	46.07	42.15	1.00
Sycamore	Alignment -FPNor	1900	PF 1	273.00	503.00	505.62		505.99	0.015181	4.85	56.29	51.03	0.81
Sycamore	Alignment -FPNor	1850	PF 1	273.00	502.26	504.49	504.49	505.02	0.024739	5.81	46.98	46.36	1.02
Sycamore	Alignment -FPNor	1800	PF 1	273.00	500.73	503.14	503.14	503.62	0.024055	5.55	49.16	51.55	1.00
Sycamore	Alignment -FPNor	1750	PF 1	273.00	499.97	501.67	501.67	502.07	0.025710	5.11	53.44	66.99	1.01
Sycamore	Alignment -FPNor	1700	PF 1	273.00	498.95	500.24	500.20	500.55	0.021989	4.47	61.09	83.45	0.92
Sycamore	Alignment -FPNor	1650	PF 1	273.00	497.96	499.01	499.01	499.35	0.026404	4.69	58.21	84.94	1.00
Sycamore	Alignment -FPNor	1600	PF 1	273.00	495.97	497.60	497.60	498.05	0.025042	5.37	50.82	58.05	1.01
Sycamore	Alignment -FPNor	1550	PF 1	273.00	493.98	496.05	495.96	496.41	0.021677	4.81	56.74	68.49	0.93
Sycamore	Alignment -FPNor	1500	PF 1	273.00	493.00	494.71	494.71	495.27	0.023334	6.02	45.36	41.23	1.01
Sycamore	Alignment -FPNor	1450	PF 1	273.00	491.85	493.46	493.46	493.93	0.024595	5.52	49.45	53.40	1.01
Sycamore	Alignment -FPNor	1400	PF 1	273.00	488.88	491.43	491.43	492.00	0.023586	6.03	45.28	40.10	1.00
Sycamore	Alignment -FPNor	1350	PF 1	273.00	487.78	490.09	490.09	490.76	0.023227	6.54	41.73	32.23	1.01
Sycamore	Alignment -FPNor	1300	PF 1	273.00	486.81	488.72	488.72	489.26	0.023597	5.86	46.59	44.49	1.01
Sycamore	Alignment -FPNor	1250	PF 1	273.00	485.96	487.16	487.16	487.51	0.026937	4.77	57.23	82.63	1.01
Sycamore	Alignment -FPNor	1200	PF 1	273.00	482.00	485.41	485.38	485.77	0.024789	4.81	56.74	75.06	0.98
Sycamore	Alignment -FPNor	1150	PF 1	273.00	482.00	484.61		484.89	0.012448	4.25	64.30	60.72	0.73
Sycamore	Alignment -FPNor	1100	PF 1	273.00	481.99	483.58	483.58	484.03	0.024385	5.40	50.59	56.22	1.00
Sycamore	Alignment -FPNor	1050	PF 1	273.00	480.88	482.05	482.05	482.43	0.026256	5.00	54.64	72.17	1.01
Sycamore	Alignment -FPNor	1000	PF 1	273.00	479.00	481.13		481.33	0.013085	3.61	75.67	96.44	0.72
Sycamore	Alignment -FPNor	950	PF 1	273.00	478.99	480.07	480.07	480.39	0.028036	4.54	60.11	96.27	1.01
Sycamore	Alignment -FPNor	900	PF 1	273.00	477.57	478.88	478.82	479.17	0.021252	4.31	63.32	88.36	0.90
Sycamore	Alignment -FPNor	850	PF 1	273.00	476.40	477.62	477.62	477.96	0.027669	4.72	57.86	86.28	1.02
Sycamore	Alignment -FPNor	800	PF 1	273.00	474.84	476.10	476.10	476.44	0.028036	4.65	58.67	90.49	1.02
Sycamore	Alignment -FPNor	750	PF 1	273.00	472.98	474.39	474.39	474.76	0.027560	4.86	56.22	80.18	1.02
Sycamore	Alignment -FPNor	700	PF 1	273.00	471.90	472.83		473.07	0.016412	3.88	70.35	95.01	0.80
Sycamore	Alignment -FPNor	650	PF 1	273.00	470.94	471.72	471.71	472.05	0.025452	4.60	59.32	86.01	0.98
Sycamore	Alignment -FPNor	600	PF 1	273.00	469.00	470.53	470.49	470.78	0.024615	3.99	68.37	120.37	0.93
Sycamore	Alignment -FPNor	550	PF 1	273.00	468.33	469.57		469.78	0.016117	3.73	73.20	103.46	0.78
Sycamore	Alignment -FPNor	500	PF 1	273.00	467.00	468.43	468.43	468.73	0.028018	4.44	61.55	101.99	1.01
Sycamore	Alignment -FPNor	450	PF 1	273.00	466.00	467.02	467.02	467.34	0.027735	4.51	60.51	97.12	1.01
Sycamore	Alignment -FPNor	400	PF 1	273.00	464.12	465.62		465.82	0.020688	3.61	75.61	135.39	0.85
Sycamore	Alignment -FPNor	350	PF 1	273.00	463.00	464.86		465.00	0.013088	3.07	88.90	144.31	0.69
Sycamore	Alignment -FPNor	300	PF 1	273.00	462.00	463.87	463.83	464.07	0.027820	3.62	75.38	168.43	0.95
Sycamore	Alignment -FPNor	250	PF 1	273.00	461.55	462.42	462.41	462.64	0.029577	3.78	72.30	159.12	0.99
Sycamore	Alignment -FPNor	200	PF 1	273.00	460.00	460.88	460.88	461.14	0.030186	4.12	66.20	128.66	1.01
Sycamore	Alignment -FPNor	150	PF 1	273.00	458.02	459.46	459.40	459.64	0.020532	3.42	79.91	153.95	0.84
Sycamore	Alignment -FPNor	100	PF 1	273.00	457.27	458.22	458.22	458.42	0.029425	3.55	76.85	183.58	0.97
Sycamore	Alignment -FPNor	50	PF 1	273.00	451.93	454.53		454.78	0.004840	4.02	67.94	32.70	0.49
Sycamore	Alignment -FPNor	0	PF 1	273.00	451.89	454.51	453.18	454.60	0.001659	2.35	116.16	57.78	0.29
Alignment -Fanit	Alignment -Fanit	7196.21	PF 1	111.00	945.56	948.25	948.25	948.95	0.023769	6.73	16.48	11.71	1.00
Alignment -Fanit	Alignment -Fanit	7100	PF 1	111.00	922.11	924.02	924.02	924.64	0.023474	6.33	17.53	14.25	1.01
Alignment -Fanit	Alignment -Fanit	7000	PF 1	111.00	902.18	904.28	904.28	904.75	0.024963	5.52	20.12	21.44	1.00
Alignment -Fanit	Alignment -Fanit	6900	PF 1	111.00	888.10	890.16	890.16	890.69	0.024534	5.85	18.97	18.35	1.01
Alignment -Fanit	Alignment -Fanit	6800	PF 1	111.00	875.94	877.49	877.49	877.96	0.024814	5.55	20.00	21.33	1.01
Alignment -Fanit	Alignment -Fanit	6700	PF 1	111.00	853.54	856.15	856.15	856.84	0.023970	6.64	16.72	12.23	1.00
Alignment -Fanit	Alignment -Fanit	6600	PF 1	111.00	820.89	823.91	823.91	824.64	0.024708	6.86	16.18	11.08	1.00

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Alignment -Fanit	Alignment -Fanit	6500	PF 1	111.00	794.03	796.12	796.12	796.82	0.024209	6.74	16.48	11.92	1.01
Alignment -Fanit	Alignment -Fanit	6400	PF 1	111.00	772.74	775.75	775.75	776.52	0.026145	7.04	15.76	10.44	1.01
Alignment -Fanit	Alignment -Fanit	6300	PF 1	111.00	756.27	758.78	758.78	759.49	0.024150	6.73	16.50	11.99	1.01
Alignment -Fanit	Alignment -Fanit	6200	PF 1	111.00	742.89	744.32	744.32	744.71	0.026682	5.05	21.96	28.58	1.02
Alignment -Fanit	Alignment -Fanit	6100	PF 1	111.00	726.93	729.94	729.94	730.60	0.025160	6.51	17.06	13.13	1.01
Alignment -Fanit	Alignment -Fanit	6000	PF 1	111.00	716.38	718.65	718.65	719.18	0.024733	5.85	18.98	18.29	1.01
Alignment -Fanit	Alignment -Fanit	5900	PF 1	111.00	705.00	707.32	707.32	707.95	0.023898	6.37	17.44	14.15	1.01
Alignment -Fanit	Alignment -Fanit	5800	PF 1	111.00	696.25	700.30	700.30	700.76	0.031347	5.46	20.34	23.66	1.04
Alignment -Fanit	Alignment -Fanit	5700	PF 1	111.00	689.07	691.45	691.45	691.92	0.025229	5.50	20.17	21.72	1.01
Alignment -Fanit	Alignment -Fanit	5600	PF 1	111.00	682.00	684.14	684.14	684.58	0.025607	5.34	20.80	23.88	1.01
Alignment -Fanit	Alignment -Fanit	5500	PF 1	111.00	676.96	679.07	679.07	679.56	0.025584	5.62	19.77	20.93	1.02
Alignment -Fanit	Alignment -Fanit	5400	PF 1	111.00	670.99	673.80	673.80	674.28	0.025922	5.58	19.91	20.83	1.01
Alignment -Fanit	Alignment -Fanit	5300	PF 1	111.00	666.94	668.77	668.77	669.31	0.024750	5.91	18.78	17.69	1.01
Alignment -Fanit	Alignment -Fanit	5200	PF 1	111.00	660.99	663.06	663.06	663.62	0.025001	6.01	18.46	16.91	1.01
Alignment -Fanit	Alignment -Fanit	5100	PF 1	111.00	656.83	659.33	659.33	659.92	0.025031	6.16	18.03	15.74	1.01
Alignment -Fanit	Alignment -Fanit	5000	PF 1	111.00	653.89	655.67	655.67	656.25	0.023679	6.13	18.10	15.75	1.01
Alignment -Fanit	Alignment -Fanit	4900	PF 1	111.00	649.90	651.82	651.82	652.28	0.026429	5.42	20.47	23.22	1.02
Alignment -Fanit	Alignment -Fanit	4800	PF 1	111.00	644.88	646.58	646.58	647.06	0.025089	5.54	20.02	21.46	1.01
Alignment -Fanit	Alignment -Fanit	4700	PF 1	111.00	641.00	643.01	643.01	643.52	0.024722	5.75	19.30	19.30	1.01
Alignment -Fanit	Alignment -Fanit	4600	PF 1	111.00	637.99	639.34	639.34	639.78	0.025516	5.27	21.08	25.02	1.01
Alignment -Fanit	Alignment -Fanit	4500	PF 1	111.00	634.99	635.88	635.88	636.20	0.027393	4.52	24.54	38.77	1.00
Alignment -Fanit	Alignment -Fanit	4400	PF 1	111.00	630.99	631.91	631.91	632.18	0.030188	4.15	26.78	51.96	1.02
Alignment -Fanit	Alignment -Fanit	4300	PF 1	111.00	626.65	627.27	627.27	627.50	0.030953	3.85	28.87	63.93	1.01
Alignment -Fanit	Alignment -Fanit	4200	PF 1	111.00	621.68	622.83	622.83	623.18	0.026603	4.78	23.24	33.06	1.00
Alignment -Fanit	Alignment -Fanit	4100	PF 1	111.00	617.99	619.01	619.01	619.31	0.028617	4.44	25.00	42.04	1.01
Alignment -Fanit	Alignment -Fanit	4000	PF 1	111.00	614.56	615.47	615.47	615.78	0.028403	4.49	24.70	40.57	1.02
Alignment -Fanit	Alignment -Fanit	3900	PF 1	111.00	608.99	610.82	610.82	611.22	0.027022	5.10	21.77	28.16	1.02
Alignment -Fanit	Alignment -Fanit	3800	PF 1	111.00	602.95	604.46	604.46	604.94	0.024654	5.56	19.98	21.20	1.01
Alignment -Fanit	Alignment -Fanit	3700	PF 1	111.00	597.97	599.82	599.82	600.44	0.023558	6.30	17.62	14.51	1.01
Alignment -Fanit	Alignment -Fanit	3600	PF 1	111.00	592.00	594.05	594.05	594.58	0.024796	5.81	19.09	18.77	1.02
Alignment -Fanit	Alignment -Fanit	3500	PF 1	111.00	588.78	590.72	590.72	591.27	0.024231	5.93	18.73	17.54	1.01
Alignment -Fanit	Alignment -Fanit	3400	PF 1	111.00	586.20	587.18	587.18	587.48	0.028811	4.43	25.05	42.41	1.02
Alignment -Fanit	Alignment -Fanit	3300	PF 1	111.00	579.99	581.95	581.95	582.34	0.026615	4.99	22.25	29.44	1.01
Alignment -Fanit	Alignment -Fanit	3200	PF 1	111.00	576.93	577.93	577.93	578.29	0.026441	4.84	22.95	31.93	1.01
Alignment -Fanit	Alignment -Fanit	3100	PF 1	111.00	573.95	575.07	575.07	575.41	0.027420	4.67	23.74	35.74	1.01
Alignment -Fanit	Alignment -Fanit	3000	PF 1	111.00	568.90	570.81	570.81	571.31	0.025083	5.68	19.54	20.01	1.01
Alignment -Fanit	Alignment -Fanit	2900	PF 1	111.00	566.16	567.76	567.76	568.24	0.024587	5.54	20.05	21.36	1.01
Alignment -Fanit	Alignment -Fanit	2800	PF 1	111.00	562.00	564.38	564.38	564.96	0.024609	6.12	18.14	16.06	1.01
Alignment -Fanit	Alignment -Fanit	2700	PF 1	111.00	558.99	561.39		561.78	0.016916	4.99	22.25	20.49	0.84
Alignment -Fanit	Alignment -Fanit	2600	PF 1	111.00	556.94	559.46	559.40	559.84	0.022424	4.99	22.26	25.33	0.94
Alignment -Fanit	Alignment -Fanit	2500	PF 1	111.00	554.86	557.08	557.04	557.59	0.022389	5.72	19.40	17.94	0.97
Alignment -Fanit	Alignment -Fanit	2400	PF 1	111.00	552.84	554.78	554.78	555.08	0.026959	4.41	25.20	40.46	0.98
Alignment -Fanit	Alignment -Fanit	2300	PF 1	111.00	548.99	551.30	551.28	551.57	0.026566	4.19	26.50	44.77	0.96
Alignment -Fanit	Alignment -Fanit	2200	PF 1	111.00	545.98	548.42	548.42	548.73	0.030306	4.43	25.03	41.66	1.01
Alignment -Fanit	Alignment -Fanit	2100	PF 1	111.00	541.99	544.65	544.65	544.91	0.033213	4.14	26.82	54.98	1.04
Alignment -Fanit	Alignment -Fanit	2000	PF 1	111.00	539.00	540.13	540.13	540.45	0.028112	4.52	24.56	39.65	1.01
Alignment -Fanit	Alignment -Fanit	1900	PF 1	111.00	535.19	536.03	535.97	536.22	0.022471	3.50	31.70	63.55	0.87
Alignment -Fanit	Alignment -Fanit	1800	PF 1	111.00	530.97	533.26	533.26	533.45	0.035098	3.51	31.59	87.24	1.03
Alignment -Fanit	Alignment -Fanit	1700	PF 1	111.00	526.99	528.82	528.82	529.14	0.029669	4.50	24.65	41.05	1.02
Alignment -Fanit	Alignment -Fanit	1600	PF 1	111.00	524.15	525.50	525.50	525.72	0.036850	3.71	29.89	79.17	1.07



PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-5414

EXISTING CONDITION HEC RAS

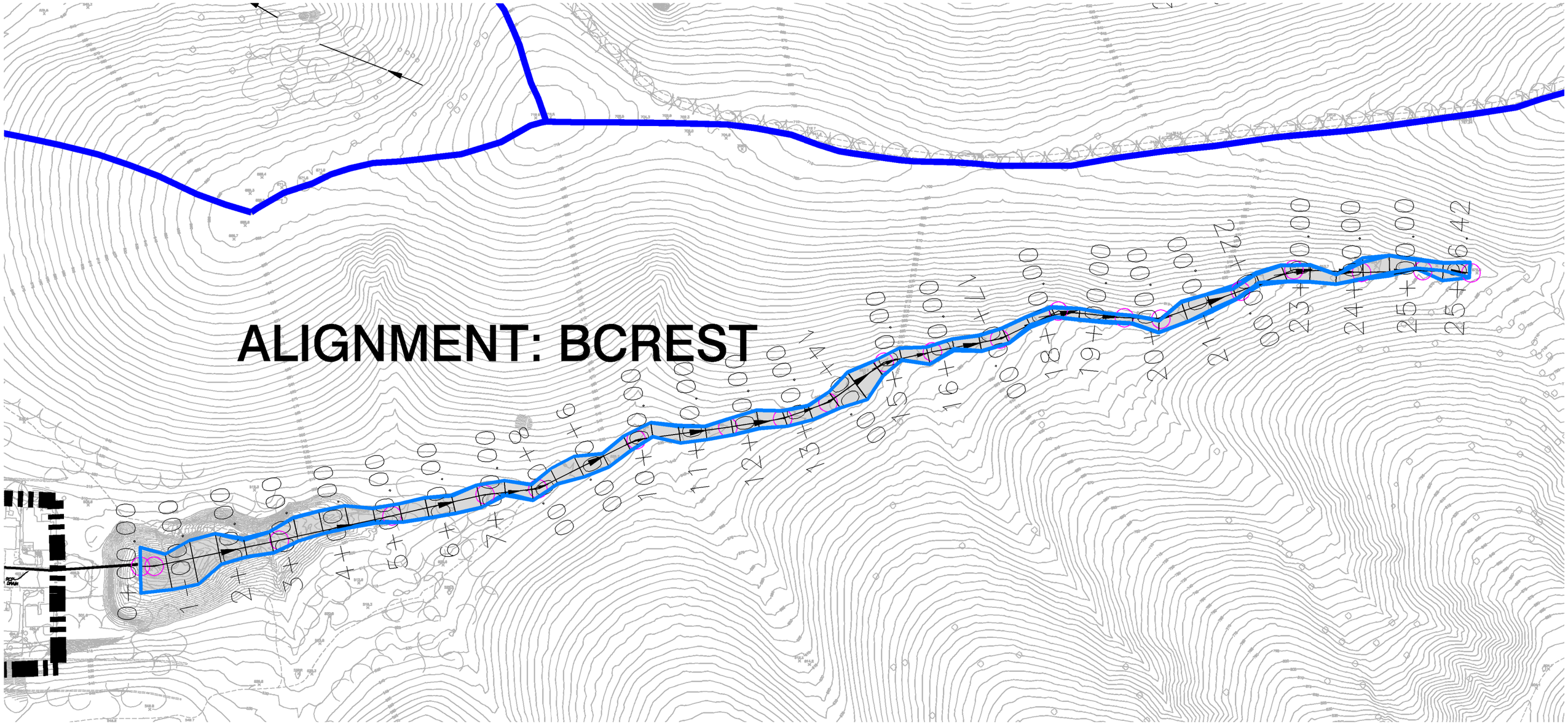
FANITA

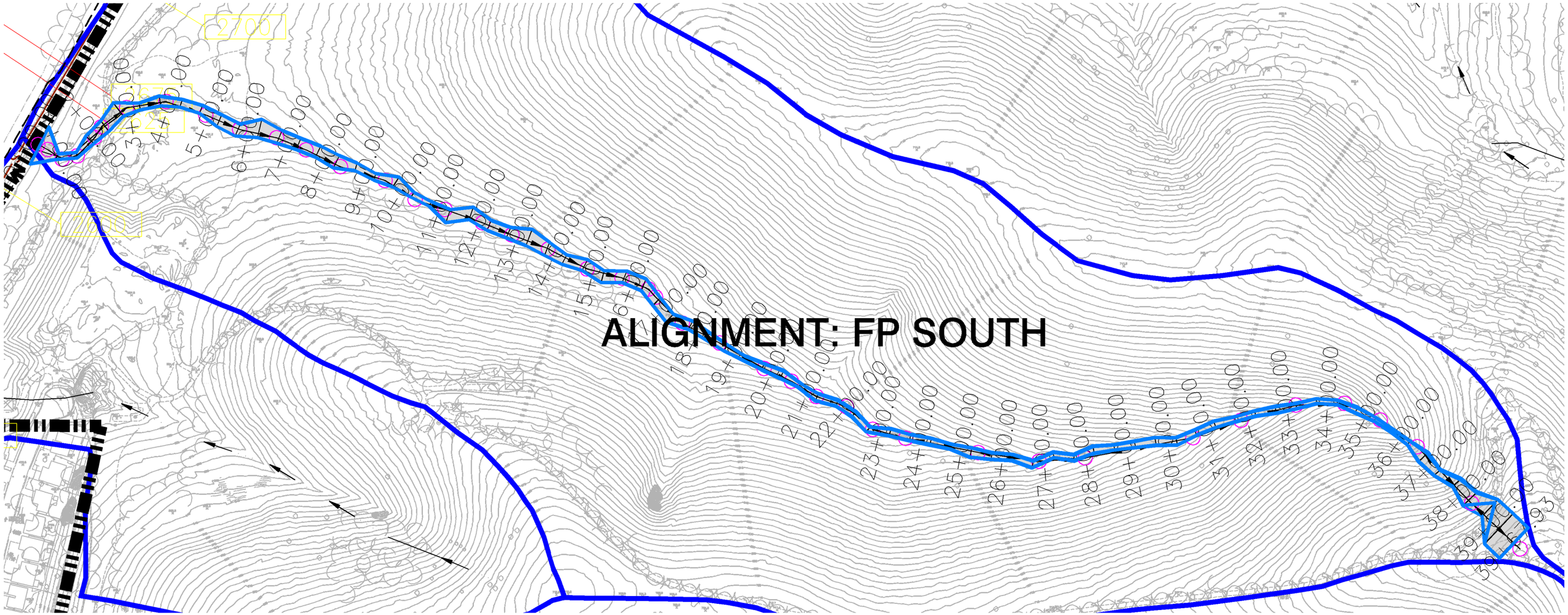
CITY OF SANTEE, CALIFORNIA

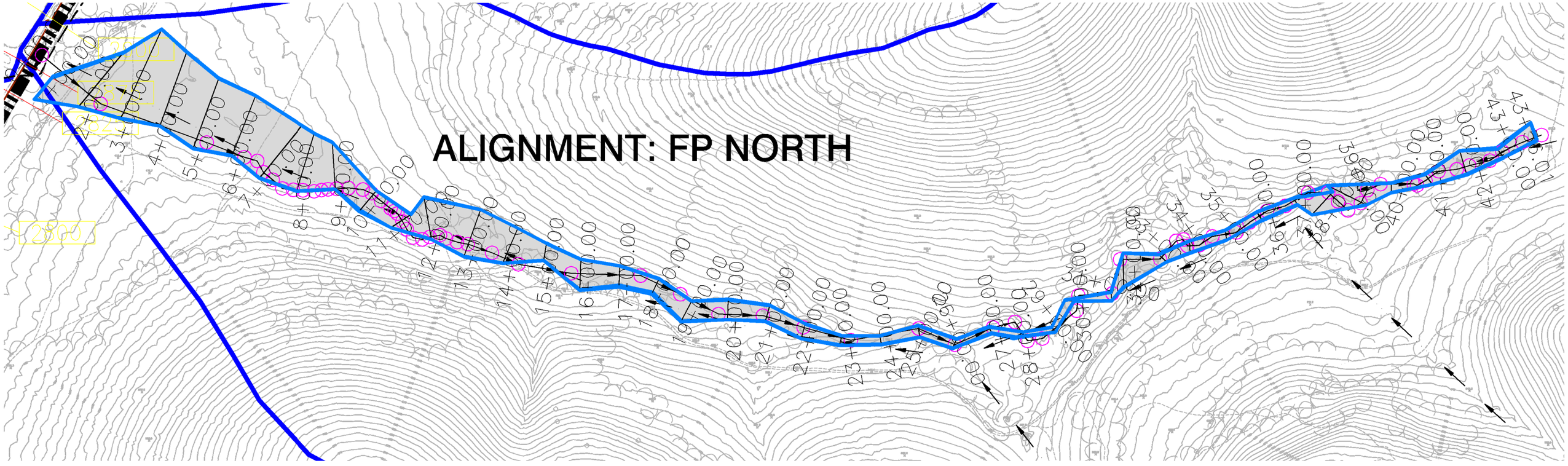
SHEET 1 OF 1

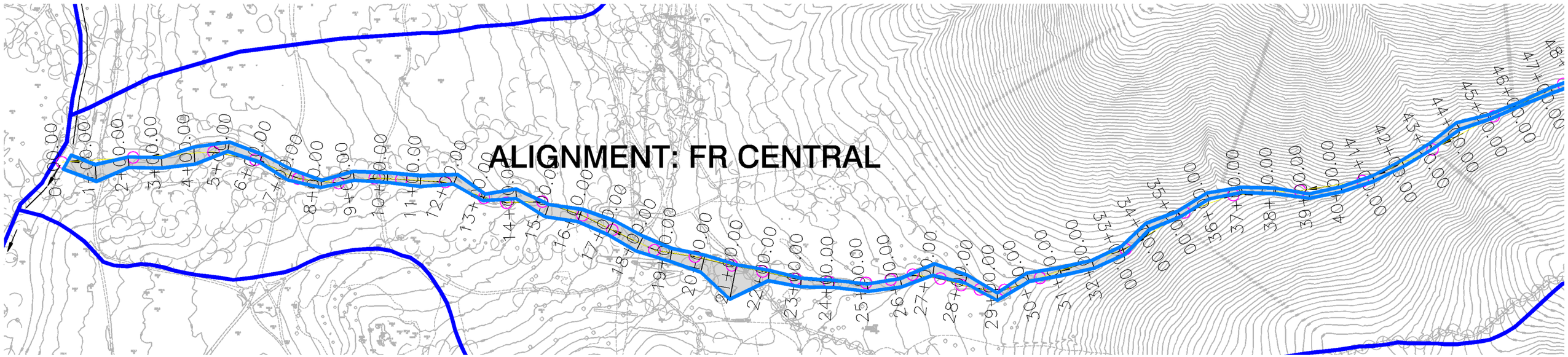
W.O. 2355-07

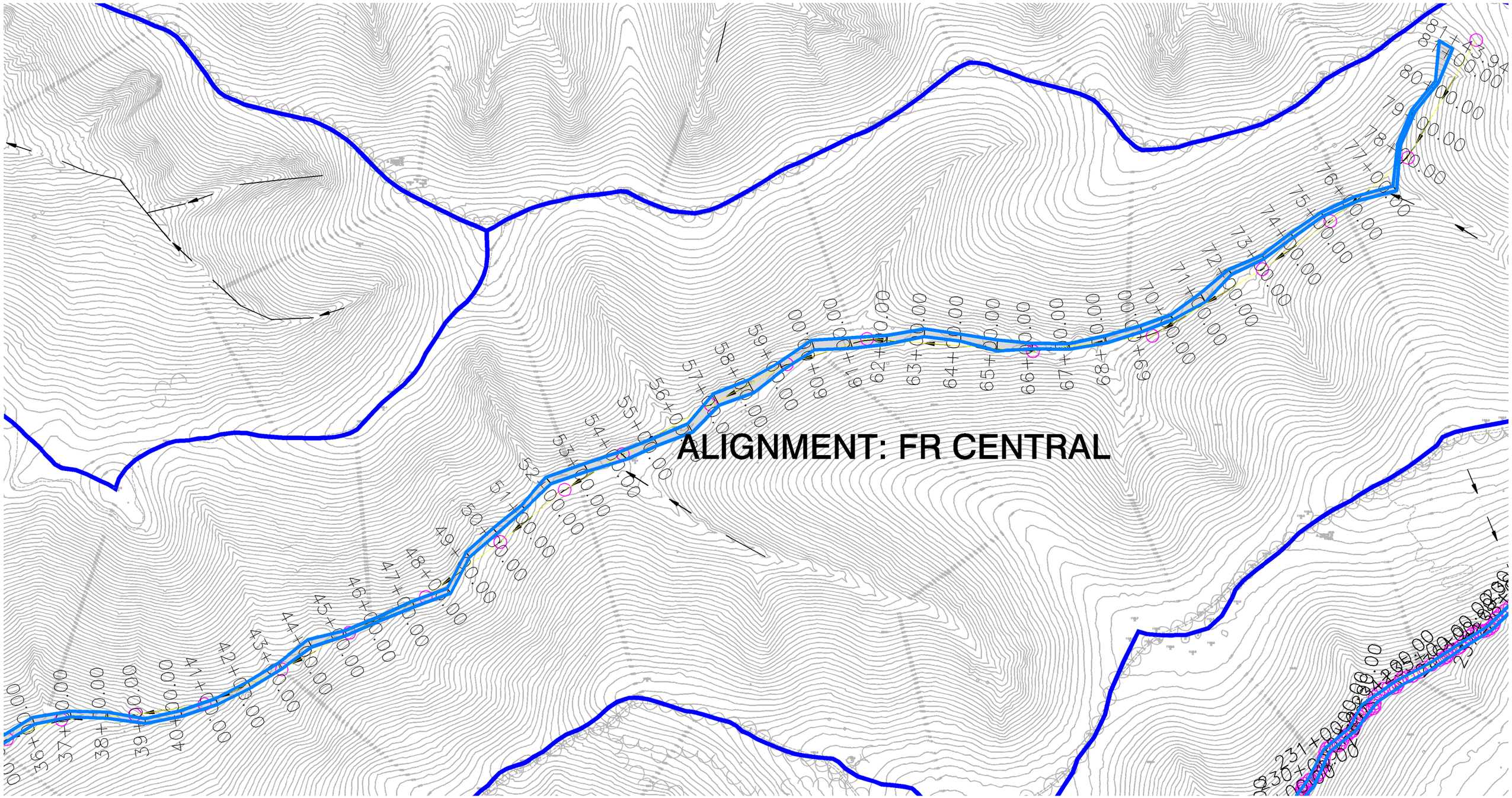
R:\1284\Hyd\ACAD\TM\HYDRO\HEC RAS\1284- FANITA TM FLOOD EX.dwg[]Jun-18-2018:19:02

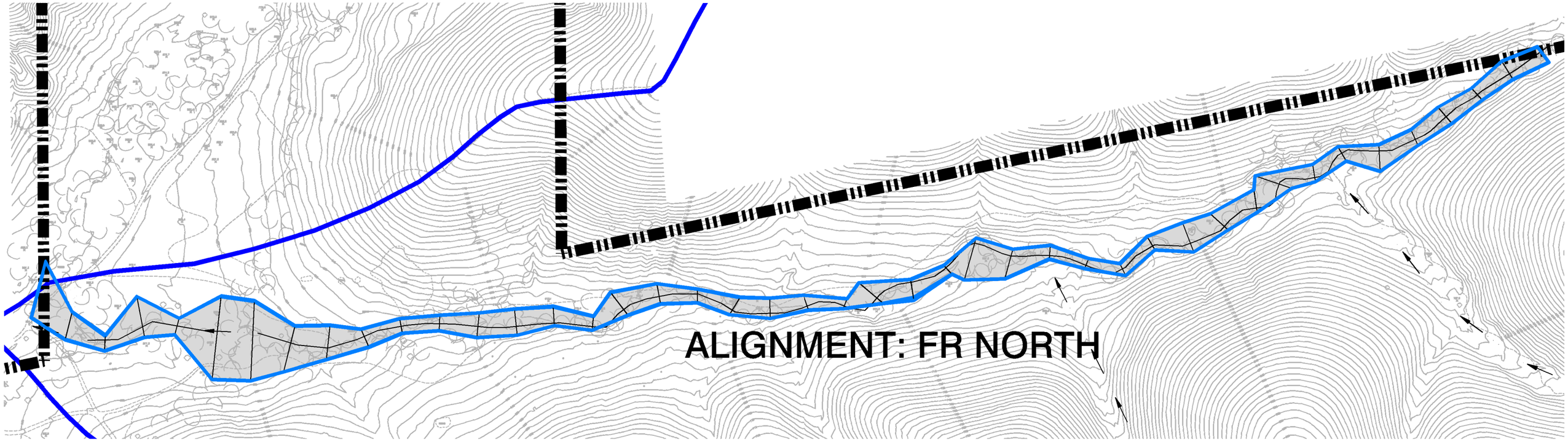

ALIGNMENT: BCREST


2700
2600
2500
0+00.00
1+00.00
2+00.00
3+00.00
4+00.00
5+00.00
6+00.00
7+00.00
8+00.00
9+00.00
10+00.00
11+00.00
12+00.00
13+00.00
14+00.00
15+00.00
16+00.00
17+00.00
18+00.00
19+00.00
20+00.00
21+00.00
22+00.00
23+00.00
24+00.00
25+00.00
26+00.00
27+00.00
28+00.00
29+00.00
30+00.00
31+00.00
32+00.00
33+00.00
34+00.00
35+00.00
36+00.00
37+00.00
38+00.00
39+00.00
ALIGNMENT: FP SOUTH


ALIGNMENT: FP NORTH


ALIGNMENT: FR CENTRAL


ALIGNMENT: FR CENTRAL


ALIGNMENT: FR NORTH

REFERENCE EXCERPT:

FLOODPLAIN ANALYSIS FOR FANITA LAKE
PREPARED BY RICK ENGINEERING COMPANY
(MAY 25,2007)

FLOODPLAIN ANALYSIS

FOR

FANITA LAKE

Job Number 14404-A

Dennis C. Bowling, M.S.
R.C.E. #32838
Exp. 06/08

Prepared For:

Barratt American Inc
5950 Priestly Drive, Suite 101
Carlsbad, California 92008
(760) 431-0800

Prepared By:

Rick Engineering Company
Water Resources Department
5620 Friars Road
San Diego, California 92110
(619) 291-0707

May 11, 2007
Revised: May 25, 2007

INTRODUCTION

Fanita

The Fanita project is a 2,600-acre development proposed within the City of Santee, and is located northeast of the intersection of Mast Boulevard and Fanita Parkway, and east of Santee Lakes Regional Park. The northern and eastern boundaries of the project follow the corporate boundary line of the City of Santee and County of San Diego (see Vicinity Map). West of the project site, Sycamore Creek generally flows from north to south along the project boundary to the San Diego River. Several ridgelines through the project site separate the runoff flows into Sycamore Creek.

The Fanita project consists of approximately 1,190 acres of developed area, as well as approximately 1400 acres on site that will remain in a natural state. The developed area consists of the construction of single-family homes, and improvements to Cuyamaca Street and Fanita Parkway. There are also several pads proposed on site for commercial developments, several park sites, a lake, as well as the construction of a recreation center and a fire station.

There are four proposed villages within the Fanita project: Rock Point, Sycamore Glen, Oak View, and Sage Hill. Runoff from Rock Point, Sycamore Glen, Oak View, and portions of Sage Hill drain into Sycamore Creek. Flows from the remaining portions of Sage Hill Village drain to existing City storm drain systems and channel which ultimately flow to the San Diego River.

The Lake Associated With Fanita

The Lake is proposed within the Oak View Village, bounded by Fanita Parkway to the east and Sycamore Creek to the west. The proposed lake will serve as the primary storm water treatment Best Management Practice (BMP) while attenuating the 2-, 10-, and 100-year storm events to pre-project levels for a portion of the Fanita project. The lake will also provide aesthetic value to the Fanita project by maintaining a permanent pool of

water and providing a recreation area for the residents of the proposed Project and City of Santee.

The proposed lake captures post-project flows from Rock Point, Sycamore Glen, and Oak View Villages. The total watershed area that is directed to the proposed lake is approximately 705 acres. As stated above, the proposed lake has been designed to provide water quality benefits and detention. The proposed lake will have a total capacity of approximately 200 acre-feet from the top of the lake (elev. 502.5') to the bottom (elev. 484'). The total height of the lake is measured from the outlet of the lake (elev. 476') to the top of the lake (elev. 502.5'), this elevation difference is 26.5 feet. Please refer to the lake detail on Page 5 for a cross-sectional view of the lake.

The State of California classifies a lake/basin/reservoir as a dam if it exceeds a height of 25 feet and/or contains a capacity of 50 acre-feet or more (please refer to Appendix E for the jurisdictional chart). The normal water level of the proposed lake will encompass approximately a 12 acre footprint with an average depth of 8 feet and will contain a volume of 65 acre-feet measured from the bottom of the lake (elev. 484') to the permanent pool of water within the lake (elev. 492'). Since the volume of the lake exceeds 50 acre-feet, the State of California has classified the Lake associated with Fanita as a dam and has requested that the lake be designed as such.

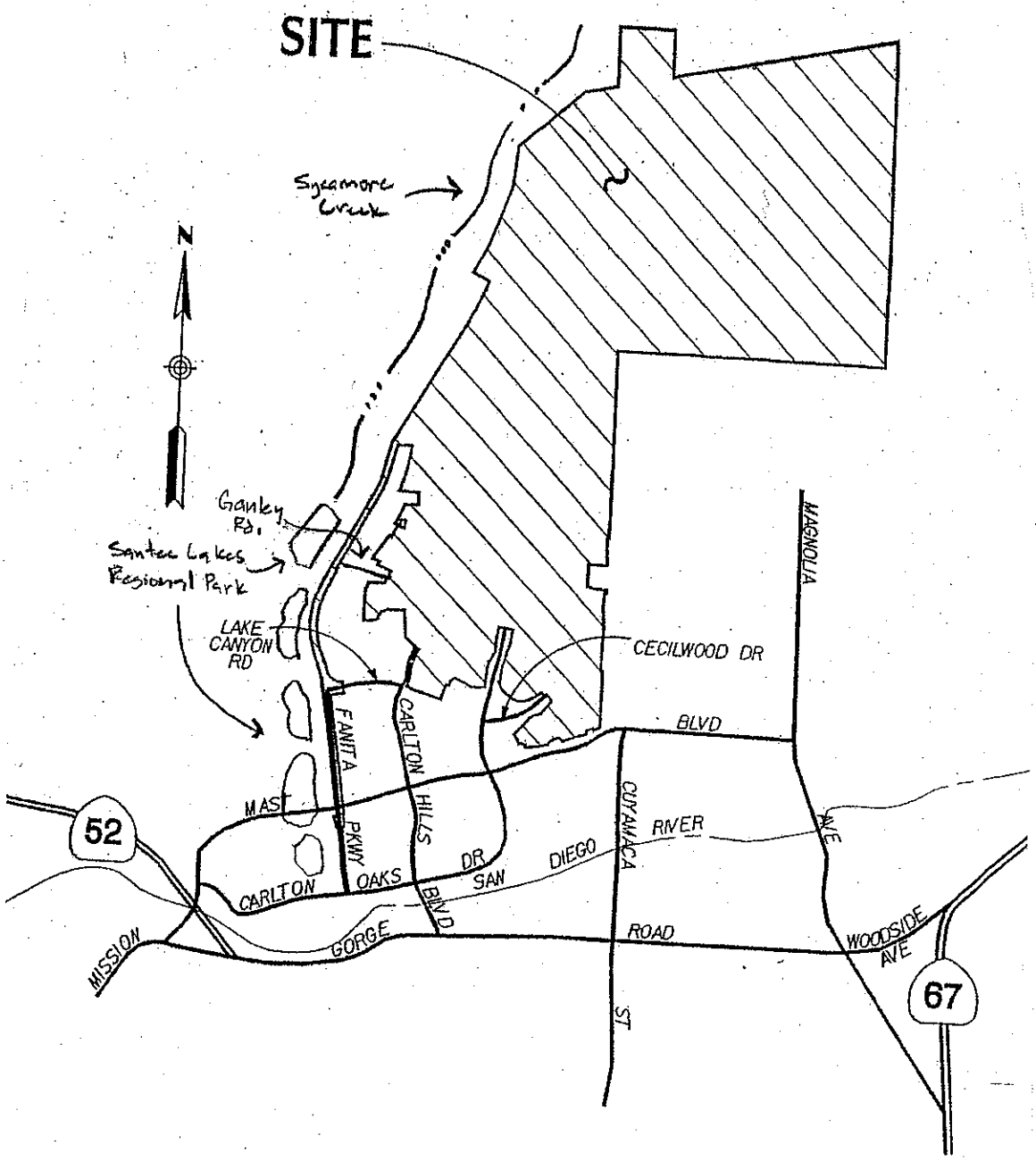
The purpose of this report is to determine the effects of water loss at the lake under two scenarios. The first scenario models a loss of lake water during the 100-year storm event. This scenario assumes water loss occurs coincident with the peak of the 100-year storm event. The lake will pond to the 100-year detained water surface elevation (elev. 497') before the loss of structural integrity. The second scenario models a loss of lake water under no storm event, where the lake will pond to the maintained permanent water surface elevation (elev. 492') before the loss of structural integrity. Hydrologic and Hydraulic analyses have been prepared to model both scenarios to determine the inundation limits in Sycamore Creek along with the post-project 100-year floodplain. The

following sections describe in more detail the parameters that were used to model both scenarios and the 100-year Sycamore Creek Watershed.

Historic Reports

Previously, a report titled "Sycamore Creek 100 Year Water Surface Determination," dated April 1994 by Black and Veatch was prepared for the Padre Dam Municipal Water District. This report quantified the 100-year peak discharge near Carlton Oaks Drive to be 8,745 cfs. Rick Engineering Company analysis yielded a 100-year peak discharge of 13,407 cfs. Upon review of the Black and Veatch report the following was compared: the drainage basin area, composite curve numbers, soil types, precipitation, and basin factor values. The above-described variables that were used in this report were similar to the values used in the Black and Veatch report. However, the Black and Veatch report was prepared in 1994. Consequently the criteria/methodology used was that of the 1993 County of San Diego Hydrology Manual. In 2003, a "new" County of San Diego Hydrology Manual was adopted in which the criteria/methodology in the "new" Hydrology Manual (2003) changed. The 1993 manual utilized a Type B distribution methodology, and the "new" manual utilizes a Nested Storm Distribution methodology. Consequently, the hydrologic analysis presented in this Floodplain Study for Sycamore Creek is following the current methodology described in the "new" Hydrology Manual. As a result, a larger flow rate was calculated, which accounts for the difference in the two analyses. For a more detailed discussion of the analysis please refer to Hydrologic Analyses of this report.

Vicinity Map



FANITA

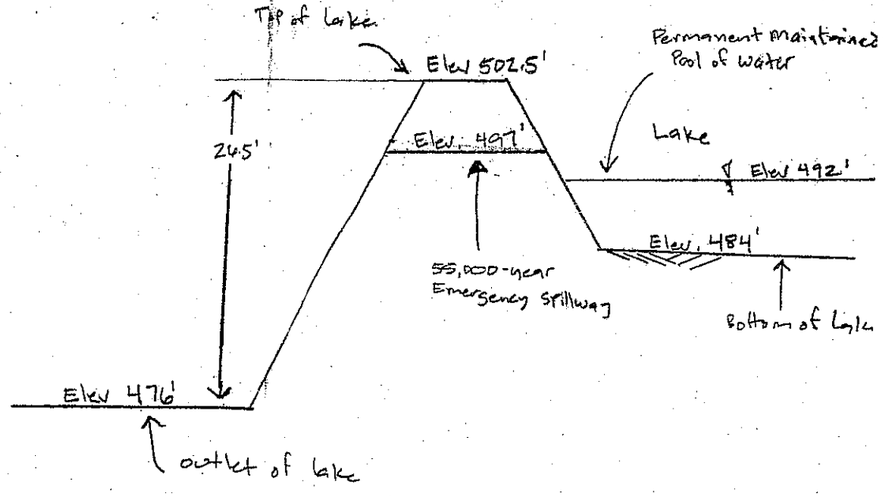
VICINITY MAP

NO SCALE

Plan View of Lake

Scale: 1" = 200'

N



Detail of Lake Elevations

NTS

The Lake Associated With Fanita
Plan and Detail

DSOD REQUIREMENTS

55,000-Year Storm Hydrologic Methodology and Criteria

The California Department of Water Resources Department of Safety of Dams (DSOD) has reviewed the proposed Fanita project and the lake associated with Fanita. Upon their review they concluded that due to the size and placement of the proposed lake, the emergency spillway for the lake shall be designed to convey the 55,000-year return frequency storm. In order to determine the magnitude of the 55,000-year storm, a hydrologic analysis was performed.

The Department of Water Resources Bulletin Number 195 was used to determine the precipitation for the 6-hour and 24-hour 55,000-year storm event. This is done by plotting known precipitation values on log-probability paper and extrapolating out values for the required storm. Bulletin 195 contains historic data for multiple storm events for multiple locations throughout California. The bulletin uses a Pearson Type III Distribution to determine the precipitation values for storm events ranging from the 2-year to the 10,000-year. Based on the location of Fanita, the Poway rain gauge was used and the historical data was plotted.

Once the values are plotted and the required storm precipitation is obtained, a hydrologic analysis is needed to determine the discharge produced from the given storm event. An HEC-1 model was produced using the extrapolated values for the 55,000-year storm along with the required input parameters to describe the characteristic of the watershed.

55,000-Year Storm Hydrologic Results

The watershed draining to the Lake associated with Fanita was analyzed using the Natural Resources Conservation Service (NRCS) hydrologic method, consistent with the methodology described in Section 4 of the *San Diego County Hydrology Manual* dated June 2003 (June 2003 Hydrology Manual).

The 6-hour and 24-hour rainfall amounts were obtained based on rainfall data published in Department of Water Resources Bulletin No. 195, *Rainfall Analysis for Drainage Design Volume I, Short Duration Precipitation Frequency Data*, dated October 1976. Data for the Poway County Road Station (Poway CRS) gage Z06 7110.10 (page 461) was used. The Poway CRS gage is located approximately 7 miles northwest of the project site and is the most representative gage available in Bulletin No. 195 for the watershed draining to Fanita Park Lake. The 20-, 50-, 100-, 200-, 1,000-, and 10,000-year 6-hour and 24-hour rainfall amounts for Poway CRS gage were plotted on log-probability paper and extended to determine the 55,000-year 6-hour and 24-hour rainfall amounts. Based on the analysis of the rainfall, the 55,000-year 6-hour and 24-hour rainfall amounts are approximately 4.4 inches and 7.1 inches, respectively.

The United States Army Corps of Engineers (USACE) HEC-1 computer model was used to compute the runoff. Based on the analysis, the undetained peak flow rate of runoff from the 1.08-square mile watershed is approximately 3,844 cubic feet per second (cfs). This discharge was used to size the emergency spillway for the proposed lake. Since the spillway is placed at elevation 497 feet the spillway will have an available head of 5.5 feet to pass the 55,000-year storm. Using the weir equation with the parameters listed above the spillway length should be 185 feet.

HYDROLOGIC ANALYSES

Hydrologic Methodology and Criteria

The total watershed tributary to Sycamore Creek is approximately 17 square miles. The June 2003 *San Diego County Hydrology Manual* recommends that the Natural Resources Conservation Service (NRCS) hydrologic method be used for watersheds that are approximately one square mile and greater in size. The NRCS hydrologic method was used to determine the 100-year post-project peak discharge rate for the Sycamore Creek watershed.

A 24-hour nested storm pattern with the 2/3, 1/3 rainfall distribution, based on the USACE, Hydrologic Engineering Center (HEC) Training Document Number 15 was utilized for these analyses. The NRCS's rainfall distribution is based on the Rational Method's 6-hour intensity-duration relationship and as a result, the NRCS method now closely mimics the results of the Rational Method. Therefore, it is appropriate to use the NRCS Hydrologic method to assess the impacts that the proposed project would have on the watershed. Rational Method analyses have been prepared to model the on-site storm drain systems for watersheds less than 1 square mile. Please refer to the following reports (or any revisions thereafter) prepared by Rick Engineering Company for the Rational Method Analyses associated with the Fanita development:

- "Drainage Study for Fanita: Rock Point Village", dated November 30, 2006
- "Drainage Study for Fanita: Sycamore Glen/Oak View Village", dated February 6, 2007
- "Drainage Study for Fanita: Sage Hill Village", dated May 24, 2006
- "Drainage Study for Fanita: Cuyamaca Street", dated September 11, 2006
- "Drainage Study for Fanita: Fanita Parkway", dated September 13, 2006

The USACE HEC-1 computer program was used to determine the 100-year peak discharge flow rates for post-project scenario. The HEC-1 program allows the engineer to simulate both natural and improved or developed watersheds. Program parameter include

basin area, lag time, rainfall distribution, and infiltration rates. These parameters were determined from soil and vegetative cover/land use maps, and USGS topographic maps. Refer to Appendix D for the corresponding HEC-1 back up. The HEC-1 program also has the capability to model the effects of detention and storage runoff within a watershed as it effects the peak discharge within the stream.

Sycamore Creek Watershed Hydrology

Rainfall rates and distributions were developed using the criteria, as outlined in the June 2003 *San Diego County Hydrology Manual*. The NRCS Synthetic unit hydrograph with curvilinear transformation was used to develop runoff hydrographs for the watershed. This unit hydrograph is dimensionless and is a function of the watershed area and lag time. Lag time for the watershed was calculated using criteria presented in the Hydrology Manual

Runoff was estimated using NRCS curve numbers for the watershed. Estimated curve numbers are a function of land use or vegetative cover and soil type. The land uses were based on the County of San Diego land use and vegetative cover maps and the Fanita Tentative Map. Soil types were obtained from the Soil Conservation Service (SCS) soil survey for San Diego County. Curve numbers were then calculated using the method as outlined in the San Diego County Hydrology Manual.

The 100-year storm event was analyzed for the post-project scenario. Refer to Appendix E for the corresponding workmaps and supporting materials. In addition, located in Appendix A is the 100-year HEC-1 analysis for the post-project Sycamore Creek watershed.

Sycamore Creek Watershed Hydrology with Lake Water Loss

A routine within HEC-1 computes the elevation-outflow rating curve resulting from sudden water loss in the lake by determining the flow over the crest of the spillway area of the lake and/or through the loss of structural integrity as well as through the reservoir outlet works.

The HEC-1 routine simulates a loss of water from the lake using various input parameters. These input parameters describe the reservoir elevation-storage relationship, structure, spillway information and breach geometry. The characteristics from the loss of structural integrity of the lake are modeled by assuming the following parameters: geometric shape and elevation for the loss of structural integrity of the spillway area of the lake, a ponded water surface elevation at which the breach will begin, and a time (duration) for development of the breach geometry.

The geometric shape and elevation parameters for the loss of structural integrity of the spillway area of the lake were determined from the adjacent natural topography and assumptions from the document titled, "The NWS Dam-Break Flood Forecasting Model" prepared by the USACE Hydrologic Engineering Center. The breach side slopes and failure time were estimated based on the suggested range of values from the USACE document. The design of the lake allows for a permanent ponded water surface elevation of 492' with the crest of the spillway of the lake to be placed at elevation 497', which corresponds with the 100-year ponded water surface elevation, and the top of lake at elevation 502.5'.

Table 1 shows the HEC-1 input parameters, the suggested range for the loss of structural integrity based on information from the USACE document, and the assumed values used in the HEC-1 analysis.

Table 1: Parameters Utilized in HEC-1 Model

Input Parameters	Suggested Range	Assumed Value
Breach Width	Between ½ the height of the dam and 4 times the height of the dam	100-feet wide
Breach Side Slope (z)	Between vertical and 1:1 side slopes	0.5:1 (horiz:vert)
Failure Time	Between 0.5-hours and 4-hours	0.5 hrs
WSEL at Breach	1-5 feet above dam crest	497 ft (zero feet above dam crest)

WSEL = water surface elevation

Located in Appendix B is the 100-year HEC-1 analysis for the post-project Sycamore Creek watershed.

Hydrologic Results

100-Year Storm Event

A 100-Year hydrologic analysis was performed on the Sycamore Creek watershed. Rational Method analyses from the Fanita Tentative Map were used within the HEC-1 analysis to evaluate the impacts of the proposed Fanita development. The proposed development from Fanita that discharge into Sycamore Creek include: Rock Point Village, Sycamore Glen Village, Oak View Village, Fanita Parkway, portions of Sage Hill Village, and undisturbed natural terrain. The total area analyzed within this HEC-1 is approximately 17-square miles. A total of 13 basins were delineated to make up the 17-square mile watershed. The HEC-1 analysis was based on County of San Diego land use and vegetative cover maps and the Tentative Map for Fanita.

The HEC-1 analysis was analyzed using a trapezoidal channel routing option, which does not take into account channel storage. This option does not allow the discharge to dissipate as it travels downstream. Table 2 below displays the 100-year post-project peak discharges within Sycamore Creek.

Table 2: Hydrologic Results for 100-Year Storm Event

Location	Description	Peak Discharge (Q)
Cross Section 3600	Upstream end of Analysis	6,759 cfs
Cross Section 2500	Approximately 1100 feet upstream of Birchcrest Blvd	12,089 cfs
Cross Section 1900	Approximately 900 feet downstream of Ganley Rd	12,357 cfs
Cross Section 1000	Approximately 800 feet upstream of Mast Blvd	13,407 cfs

The results listed in Table 2 above can be found in Appendix A.

Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event

A 100-year HEC-1 hydrologic analysis was performed for the entire Sycamore Creek watershed. Rational Method analyses from the Fanita Tentative Map were used within the HEC-1 analysis to evaluate the impacts of the proposed Fanita development. The areas from Fanita that discharge into Sycamore Creek include: Rock Point Village, Sycamore Glen Village, Oak View Village, Fanita Parkway, portions of Sage Hill Village, and some undisturbed natural terrain. The total area analyzed within this HEC-1 is approximately 17-square miles. A total of 13 basins were delineated to make up the 17-square mile watershed. The HEC-1 analysis was based on County of San Diego land use and vegetative cover maps and the Tentative Map for Fanita.

The HEC-1 analysis for Scenario 1 calculated a peak discharge of 12,461 cfs at the downstream end where Sycamore Creek and the San Diego River confluence. The peak discharge at the downstream end for this scenario is less than the 100-year storm analysis because of the channel storage routing that was used for this analysis. The channel storage routing was used to demonstrate the dissipation of the lake water loss. Table 2 below displays the peak discharge along Sycamore Creek.

Table 3: Hydrologic Results for Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event

Location	Description	Peak Discharge (Q)
Cross Section 3600	Upstream end of Analysis	6,759 cfs
	Directly Downstream of Lake	5,298 cfs
Cross Section 3300	Confluence of Lake and Sycamore Creek	10,104 cfs
Cross Section 2900	Approximately 1200 feet downstream of the proposed lake	9,881 cfs
Cross Section 2500	Approximately 1100 feet upstream of Birchcrest Blvd	8,933 cfs
Cross Section 2200	Approximately 500 feet downstream of Birchcrest Blvd	12,560 cfs
Cross Section 1900	Approximately 900 feet downstream of Ganley Rd	12,378 cfs
Cross Section 1400	Approximately 300 feet upstream of Lake Canyon Road	12,291 cfs
Cross Section 1000	Approximately 800 feet upstream of Mast Blvd	12,073 cfs
Cross Section 800	Just upstream of Mast Blvd	12,060 cfs
Cross Section 500	Approximately 1000 feet upstream of Carlton Oaks Drive	12,023 cfs
Cross Section 300	Just upstream of Carlton Oaks Drive	11,966 cfs
Cross Section 100	San Diego River	12,461 cfs

As shown above, the discharge from a lake loss dissipates as it travels through Sycamore Creek. The HEC-1 results listed in Table 3 above can be found in Appendix B.

Scenario 2 – Lake Water Loss with No Storm Event

This scenario was analyzed to determine the impacts of a loss of structural integrity of the spillway area of the lake when there is no storm event. The same flow parameters are used as in Scenario 1 with the exception of the water surface elevation at the time of the loss of structural integrity at the spillway area. The lake is allowed to breach at elevation 492', the permanent pool elevation, rather than elevation 497'. Table 4 below displays the results for this scenario.

Table 4: Hydrologic Results for Scenario 2 – Lake Water Loss with No Storm Event

Location	Description	Peak Discharge (Q)
	Directly Downstream of Lake	3,411 cfs
Cross Section 3300	Confluence of Lake and Sycamore Creek	3,357 cfs
Cross Section 2900	Approximately 1200 feet downstream of the proposed lake	2,363 cfs
Cross Section 2500	Approximately 1100 feet upstream of Birchcrest Blvd	1,622 cfs
Cross Section 2200	Approximately 500 feet downstream of Birchcrest Blvd	1,435 cfs
Cross Section 1900	Approximately 900 feet downstream of Ganley Rd	1,201 cfs
Cross Section 1400	Approximately 300 feet upstream of Lake Canyon Road	870 cfs
Cross Section 1000	Approximately 800 feet upstream of Mast Blvd	729 cfs
Cross Section 800	Just upstream of Mast Blvd	720 cfs
Cross Section 500	Approximately 1000 feet upstream of Carlton Oaks Drive	670 cfs
Cross Section 300	Just upstream of Carlton Oaks Drive	627 cfs
Cross Section 100	San Diego River	625 cfs

As shown above, the discharge from a lake loss dissipates as it travels through Sycamore Creek. The results listed in Table 4 above can be found in Appendix B.

HYDRAULIC ANALYSIS

Hydraulic Methodology

The USACE Hydrologic Engineering Center - River Analysis System (HEC-RAS) was used to determine the hydraulic impacts to Sycamore Creek under the scenarios previously mentioned. The HEC-RAS program has the capability to calculate water surface profiles based on the energy equation and the momentum equation. Geometric information, Manning's roughness, and discharge as well as any known boundary conditions are required to complete the hydraulic model.

The Sycamore Creek HEC-RAS model was analyzed under a subcritical flow regime. In order for the program to operate, a downstream boundary condition must be specified. Sycamore Creek confluences with the San Diego River at the downstream end of the analysis. Therefore, the 100- water surface elevation within the San Diego River at this confluence point (elevation 318') was obtained from the FEMA Flood Insurance Rate Map Panel 0673C1634 F dated, June 19, 1997 and used for the 100-Year Storm Event and Scenario 1. However, for Scenario 2 critical depth was assumed due to the non-occurrence of a storm event.

Sycamore Creek stretches 3.5 miles flowing from north to south. Within this stretch there are two bridges that span Sycamore Creek. The two bridges are located at Mast Blvd. and Carlton Oaks Blvd. Both bridges were modeled based on As-Built information obtained from the City of Santee. The channel roughness that is used for this analysis was obtained during a recent site visit. The channel roughness was compared to values within the County of San Diego Drainage Design Manual, dated May 2005. The following section displays the hydraulic results for the scenarios.

Hydraulic Results

100-Year Storm Event

The 100-year hydraulic analysis for Sycamore Creek was created. The discharge that is used to model this scenario was obtained from the HEC-1 analysis for the 100-Year storm event located in Appendix A. As previously mentioned, the starting water surface elevation that is used for this analysis is elevation 318'. This information was obtained from the effective FEMA Flood Insurance Rate Map. Sycamore Creek flows adjacent to Padre Dam Waste Treatment Plant, Santee Recreational Lakes, and residential homes. During the 100-year storm event, Sycamore Creek does not have capacity to contain the 100-year storm within the channel banks. Therefore, flows inundate portions of the surrounding properties. Please refer to Map Pocket 1 for the 100-year floodplain for Sycamore Creek. Table 5 displays the hydraulic results for the 100-Year Analysis.

Scenario 1 – Lake Water Loss Coincident with 100-Year Storm Event

The hydraulic analysis for this scenario analyzes Sycamore Creek during a 100-year storm event with a loss of structural integrity of the spillway area of the lake. The flood wave peak discharge from the HEC-1 for Scenario 1 dissipates as it travels the length of the creek. This is due to the channel storage routing that is used within the HEC-1. Therefore, the discharge that is used to model this scenario was obtained from the HEC-1 analysis for the 100-Year Event and Scenario 1 located in Appendix A and B, respectively. At cross-section 1800 this scenario coincides with the 100-year peak flow in Sycamore Creek. Therefore, the 100-year flow rate was used from the downstream boundary of the analysis to cross section 1800. Upstream of cross-section 1800 the flow rate information was obtained for the HEC-1 analysis.

As previously mentioned, the starting water surface elevation that is used for this scenario is elevation 318'. The same information was used as in the 100-Year Scenario, with the exception of the flow rate as mentioned above. Please refer to Map Pocket 1 for the 100-year floodplain for Sycamore Creek with a loss of lake water. Table 5 displays the hydraulic results for Scenario 1.

Scenario 2 – Lake Water Loss with No Storm Event

The analysis that was performed for this scenario included a HEC-RAS model that analyzed Sycamore Creek during a loss of structural integrity of the spillway area of the lake with a non-occurrence of a storm. Since this scenario models the lake ponded at an elevation of 492' (the permanent pool elevation) the volume of water within the lake is less than that of Scenario 1. Also, the 100-year Sycamore Creek discharge at the confluence point for the lake and Sycamore Creek is higher than that of the outfall from the hydrologic results determined from Scenario 2. Therefore, the floodplain for this scenario does not extend as wide as the two other scenarios. Please refer to the workmap in Map Pocket 1 for the limits of inundation for Scenario 2. Table 5 displays the hydraulic results for Scenario 2.

Table 5: Hydraulic Results for Sycamore Creek

Location		Description	100-Year Scenario		Scenario 1		Scenario 2	
			Discharge (Q)	WSEL (ft)	Discharge (Q)	WSEL (ft)	Discharge (Q)	WSEL (ft)
↓ Direction of Flow ↓	Cross Section 3600	Upstream end of Analysis	6,759 cfs	492.4 ft	6,759 cfs	492.4 ft	--	--
	Cross Section 3300	Confluence of Lake and Sycamore Creek	6,759 cfs	475.2 ft	10,104 cfs	476.6 ft	3,357 cfs	472.7 ft
	Cross Section 2900	Approximately 1200 feet downstream of the proposed lake	6,759 cfs	454.5 ft	9,881 cfs	455.8 ft	2,363 cfs	450.1 ft
	Cross Section 2500	Approximately 1100 feet upstream of Birchcrest Blvd	12,089 cfs	426.0 ft	8,933 cfs	426.0 ft	1,622 cfs	418.7 ft
	Cross Section 2200	Approximately 500 feet downstream of Birchcrest Blvd	12,089 cfs	408.4 ft	12,560 cfs	410.1 ft	1,435 cfs	402.3 ft
	Cross Section 1900	Approximately 900 feet downstream of Ganley Rd	12,357 cfs	391.5 ft	12,378 cfs	393.6 ft	1,201 cfs	386.2 ft
	Cross Section 1400	Approximately 300 feet upstream of Lake Canyon Road	12357 cfs	363.7 ft	12,291 cfs	363.7 ft	870 cfs	358.1 ft
	Cross Section 1000	Approximately 800 feet upstream of Mast Blvd	13,407 cfs	342.4 ft	12,073 cfs	342.4 ft	729 cfs	339.0 ft
	Cross Section 800	Just upstream of Mast Blvd	13,407 cfs	335.1 ft	12,060 cfs	335.1 ft	720 cfs	329.7 ft
	Cross Section 500	Approximately 1000 feet upstream of Carlton Oaks Drive	13,407 cfs	326.1 ft	12,023 cfs	326.1 ft	670 cfs	321.2 ft
	Cross Section 300	Just upstream of Carlton Oaks Drive	13,407 cfs	325.1 ft	11,966 cfs	325.1 ft	627 cfs	315.9 ft
	Cross Section 100	San Diego River	13,407 cfs	318.0 ft	12,461 cfs	318.0 ft	625 cfs	308.9 ft

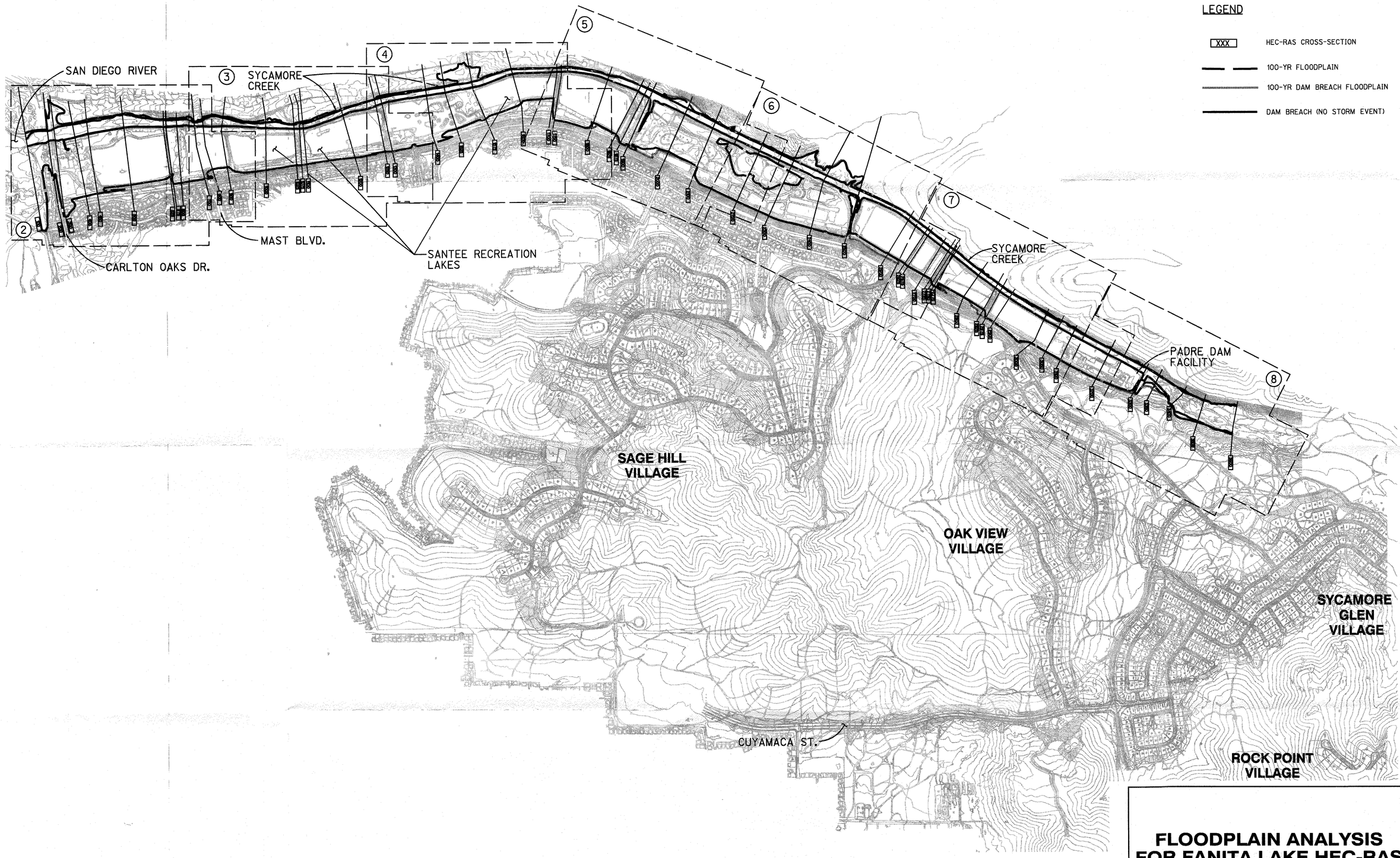
Note: cfs = cubic-feet-per-second; ft = feet, WSEL = water surface elevation

CONCLUSION

Hydrologic and hydraulic analyses have been performed for two scenarios to determine the potential effects the proposed lake will have on Sycamore Creek. A model of the Sycamore Creek watershed during a 100-year storm event with the proposed Fanita development was created. This analysis generated a baseline model that was used to compare the results of potential lake water loss scenarios. The first scenario models a loss of structural integrity of the spillway area of the lake during the 100-year storm event, where the lake ponds to the 100-year detained water surface elevation (elev. 497') before the spillway area looses structural integrity. It also assumes that the Sycamore Creek watershed peak occurs coincident with the loss of structural integrity. The second scenario analyzes a loss of structural integrity of the spillway area of the lake under no storm event, where the lake breaches at the maintained permanent water surface elevation (elev. 492'). The hydrologic results show that the discharge from the lake water loss in both scenarios dissipates as the flow travels down Sycamore Creek. These flow rates produced from the hydrologic analyses are then modeled in the hydraulic analyses and the water surface elevations are compared to the 100-Year floodplain. Due to the dissipation of the lake water loss flow rates the water surface elevations for both lake water loss scenarios are less than or equal to the 100-year floodplain at the downstream end (San Diego River). In addition, the more extreme scenario, Scenario 1, coincides (ties in) with the 100-year floodplain approximately 8,300 feet upstream of the San Diego River/Sycamore Creek confluence. The floodplains for the 100-year analysis and the two scenarios are shown on the exhibits located in Map Pocket 1.

HEC-RAS Plan: Condition 1 River: Sycamore Creek Reach: Reach Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Conv. Ch. Total	Manning Wtd. Left	Manning Wtd. Chnl	Manning Wtd. Right	Manning Wtd. Total
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(cfs)				
Reach	100	PF 1	13407.00	308.55	318.00	316.00	319.29	0.020122	9.48	1515.08	1692.62	0.58		0.090	0.090	0.090	0.090
Reach	200	PF 1	13407.00	312.03	322.36		322.98	0.007971	6.37	2081.86	855.43	0.37	307.18	0.021	0.042	0.090	0.067
Reach	250		Bridge														
Reach	300	PF 1	13407.00	313.84	325.05	320.94	325.23	0.000696	2.42	4301.75	1576.27	0.13	402.00	0.021	0.063	0.080	0.039
Reach	400	PF 1	13407.00	314.00	325.32	320.39	325.77	0.005499	5.43	2560.22	1048.60	0.31	680.09	0.039	0.090	0.090	0.088
Reach	450	PF 1	13407.00	314.00	325.84	322.30	326.06	0.000651	2.75	3857.90	785.28	0.16	679.65	0.021	0.048	0.060	0.038
Reach	500	PF 1	13407.00	318.00	326.11		326.33	0.000478	1.25	4193.15	1002.96	0.09	1390.85	0.020	0.035	0.086	0.028
Reach	525	PF 1	13407.00	322.00	326.45		326.81	0.001452	1.85	2973.87	717.12	0.14	1950.62	0.030	0.060	0.090	0.033
Reach	575	PF 1	13407.00	322.00	329.72	329.72	330.71	0.019410	8.82	1704.44	776.99	0.57	1987.26	0.038	0.088	0.090	0.061
Reach	600	PF 1	13407.00	322.00	332.46	332.46	333.38	0.015441	9.35	1886.17	908.45	0.53	2137.44	0.043	0.090	0.090	0.068
Reach	700	PF 1	13407.00	324.00	334.50		335.13	0.002837	4.01	2210.53	821.98	0.24	2392.65	0.021	0.063	0.080	0.031
Reach	750		Bridge														
Reach	800	PF 1	13407.00	325.69	335.09	333.63	335.60	0.001577	2.64	2615.32	732.52	0.16	2513.42	0.021	0.062	0.090	0.030
Reach	900	PF 1	13407.00	329.71	335.23		336.09	0.002493	2.36	2116.90	630.43	0.19	2784.97	0.020	0.090	0.090	0.027
Reach	1000	PF 1	13407.00	336.00	342.43	342.43	343.81	0.012826	9.08	1438.73	584.03	0.66	3401.27	0.031	0.059	0.060	0.040
Reach	1025	PF 1	12357.00	338.00	345.31		346.06	0.002586	4.29	1859.91	400.99	0.30	3803.07	0.030	0.060	0.060	0.034
Reach	1075	PF 1	12357.00	338.00	350.45	350.45	351.63	0.007196	10.78	1689.38	600.57	0.55	3880.17	0.041	0.055	0.060	0.052
Reach	1100	PF 1	12357.00	338.00	351.37		352.11	0.007109	8.33	1933.05	600.44	0.42	3933.99	0.041	0.080	0.080	0.061
Reach	1200	PF 1	12357.00	344.00	353.45		353.91	0.001389	2.93	2455.84	692.58	0.17	4529.95	0.022	0.078	0.080	0.030
Reach	1250	PF 1	12357.00	348.91	354.15		354.90	0.003412	3.09	1921.11	593.68	0.25	5015.53	0.030	0.080	0.080	0.035
Reach	1300	PF 1	12357.00	350.00	361.12	361.12	362.33	0.009129	9.43	1687.78	799.60	0.50	5104.66	0.048	0.032	0.074	0.061
Reach	1400	PF 1	12357.00	354.00	363.73		364.12	0.001278	2.66	2676.89	767.23	0.15	5749.42	0.023	0.083	0.080	0.032
Reach	1525	PF 1	12357.00	356.00	364.28		364.75	0.002624	3.76	2332.41	622.51	0.24	6016.07	0.032	0.080	0.080	0.040
Reach	1575	PF 1	12357.00	360.00	370.82	370.82	371.92	0.012559	9.59	1609.43	800.32	0.54	6409.59	0.040	0.080	0.080	0.063
Reach	1600	PF 1	12357.00	366.00	373.55		374.60	0.002814	2.98	1734.42	483.97	0.21	6998.36	0.020	0.090	0.090	0.026
Reach	1700	PF 1	12357.00	368.00	374.41		375.75	0.002488	2.14	1477.68	359.60	0.18	7630.15	0.020		0.090	0.023
Reach	1750	PF 1	12357.00	369.82	382.86	382.86	383.85	0.012556	9.83	1654.72	733.63	0.49	7694.50	0.040	0.090	0.090	0.062
Reach	1800	PF 1	12357.00	376.00	385.21		385.69	0.001396	3.44	2323.30	708.91	0.22	8368.99	0.020	0.060	0.060	0.025
Reach	1825	PF 1	12357.00	381.70	385.82		386.33	0.002456	2.77	2265.86	621.44	0.26	8831.66	0.030	0.060	0.060	0.032
Reach	1875	PF 1	12357.00	382.00	390.34	390.34	391.36	0.009695	9.85	1785.77	732.26	0.61	8931.76	0.042	0.060	0.060	0.052
Reach	1900	PF 1	12357.00	382.00	391.48		391.98	0.003870	6.69	2264.89	751.91	0.39	9015.82	0.033	0.060	0.060	0.045
Reach	2000	PF 1	12089.00	386.00	395.03	394.90	396.25	0.019272	9.53	1424.44	530.75	0.67	9565.93	0.038	0.090	0.090	0.066
Reach	2100	PF 1	12089.00	391.10	400.87		401.56	0.007559	6.28	1836.57	542.42	0.37	10011.28	0.033	0.090	0.090	0.055
Reach	2200	PF 1	12089.00	396.00	408.36		410.59	0.021077	12.61	1053.01	501.62	0.70	10743.32	0.054	0.080	0.080	0.077
Reach	2300	PF 1	12089.00	402.00	415.79		416.87	0.008107	9.21	1564.35	844.20	0.45	11242.07	0.050	0.078	0.080	0.073
Reach	2400	PF 1	12089.00	408.00	420.40		421.48	0.009204	9.21	1586.17	896.87	0.47	11748.42	0.056	0.077	0.080	0.074
Reach	2500	PF 1	12089.00	414.00	426.01		427.91	0.015882	11.81	1162.60	681.39	0.62	12273.07	0.080	0.080	0.080	0.080
Reach	2600	PF 1	6759.00	424.00	434.15	433.03	434.86	0.004525	4.93	1077.01	647.00	0.30	13068.31	0.020	0.080	0.080	0.045
Reach	2625	PF 1	6759.00	427.40	434.92		434.97	0.000048	0.42	3825.69	554.12	0.03	13365.45	0.020	0.080	0.080	0.022
Reach	2675	PF 1	6759.00	428.00	434.78		435.04	0.002639	3.05	1696.46	542.33	0.22	13419.37	0.035	0.080	0.080	0.043
Reach	2700	PF 1	6759.00	430.12	435.15		435.25	0.000338	0.82	2796.26	490.49	0.07	13655.00	0.035		0.080	0.036
Reach	2725	PF 1	6759.00	432.00	435.05		435.38	0.001805	1.48	1527.41	462.05	0.16	13779.17	0.030		0.080	0.032
Reach	2750	PF 1	6759.00	432.00	441.08	441.08	441.92	0.014017	8.19	983.82	532.59	0.53	13827.65	0.035	0.050	0.080	0.065
Reach	2775	PF 1	6759.00	432.83	441.97		442.01	0.000083	0.68	4553.72	553.57	0.04	13874.63	0.035	0.077	0.080	0.037
Reach	2800	PF 1	6759.00	438.00	441.99		442.09	0.000261	0.72	2773.41	415.94	0.07	14325.19	0.035	0.080	0.080	0.036
Reach	2825	PF 1	6759.00	442.00	449.27	449.27	452.16	0.044526	13.60	509.98	416.40	0.93	14619.25	0.080	0.080	0.080	0.080
Reach	2875	PF 1	6759.00	442.00	452.79		454.00	0.011229	9.33	814.66	146.95	0.51	14701.66	0.063	0.079	0.080	0.078
Reach	2900	PF 1	6759.00	444.00	454.51		455.44	0.007521	8.76	977.23	473.06	0.48	14862.59	0.040	0.070	0.070	0.063
Reach	3000	PF 1	6759.00	448.00	457.97	457.12	458.54	0.003893	5.81	1158.85	482.29	0.34	15432.40	0.024	0.069	0.070	0.046
Reach	3050	PF 1	6759.00	450.14	459.17	459.17	460.50	0.013072	9.92	758.40	476.23	0.60	15664.85	0.030	0.065	0.070	0.059
Reach	3100	PF 1	6759.00	452.67	462.18	461.58	463.41	0.011614	9.75	796.33	323.58	0.58	15893.82	0.033	0.067	0.070	0.060
Reach	3200	PF 1	6759.00	459.37	468.96		469.92	0.010917	8.27	884.73	267.37	0.49	16470.47	0.029	0.080	0.080	0.070
Reach	3300	PF 1	6759.00	466.00	475.19		476.18	0.011024	8.50	898.94	201.31	0.49	17039.43	0.056	0.080	0.080	0.077
Reach	3350	PF 1	6759.00	468.00	477.43		478.14	0.007076	6.94	1012.27	169.77	0.40	17260.05	0.035	0.050	0.080	0.074
Reach	3400	PF 1	6759.00	474.81	481.30		482.09	0.014395	7.19	967.07	280.93	0.65	17664.63	0.050	0.060	0.061	0.061
Reach	3500	PF 1	6759.00	480.00	486.73		487.24	0.010930	5.78	1196.41	336.32	0.51	18075.79	0.050	0.050	0.068	0.067
Reach	3600	PF 1	6759.00	486.74	492.44		492.75	0.009871	4.53	1504.14	417.82	0.41	18606.08	0.050	0.050	0.080	0.079



FLOODPLAIN ANALYSIS FOR FANITA LAKE HEC-RAS CROSS-SECTION EXHIBITS

EXHIBIT 1 OF 8

RICK ENGINEERING COMPANY
San Diego Riverside Sacramento Orange Phoenix Tucson
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619.291.0707
(FAX)619.291.4165
rickengineering.com

CHAPTER 8
HYDROLOGY MAPS

Q100 = 182.69 CFS
Area = 151.1 AC

Q100 = 332.10 CFS
Area = 382.5 AC

Q100 = 61.51 CFS
Area = 58.8 AC

Q100 = 34.13 CFS
Area = 25.7 AC

Q100 = 76.17 CFS
Area = 55.6 AC

Q100 = 114.24 CFS
Area = 85.0 AC

Q100 = 33.31 CFS
Area = 20.6 AC

Q100 = 109.5 CFS
Area = 94.2 AC

Q100 = 178.16 CFS
Area = 166.2 AC

Q100 = 292.94 CFS
Area = 306.11 AC

Q100 = 45.70 CFS
Area = 32.38 AC

Q100 = 21.54 CFS
Area = 12.01 AC

Q100 = 37.46 CFS
Area = 22.86 AC

SIF Lancelot Dr.
Prince Charming Ln
Princess Joann Rd
Wycliffe St
Dakota Ranch Rd
Summit Ave.
Magnolia Ave.
Easthaven Ct

SEE MAP 2 FOR CONTINUATION

SEE MAP 2 FOR CONTINUATION

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- FLOW DIRECTION
- NODE # (270)
- SUBAREA ACREAGE (X ACRES)
- HYDROLOGIC SOIL GROUP BOUNDARY

300 0 300 600 900
SCALE 1" = 300'

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

EXISTING CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

SHEET 1 OF 3

W.O. 2395-07

R:\1284\Hyd\ACAD\TM\HYDRO\1284- FANITA TM HYDRO EX.dwg[]Sep-24-2019:07:35

Q100 = 332.10 CFS
Area = 382.5 AC

Q100 = 61.51 CFS
Area = 58.8 AC

Q100 = 34.13 CFS
Area = 25.7 AC

Q100 = 182.69 CFS
Area = 151.1 AC

Q100 = 78.75 CFS
Area = 62.8 AC

Q100 = 174.65 CFS
Area = 235.8 AC

Q100 = 351.83 CFS
Area = 495.8 AC

Q100 = 81.22 CFS
Area = 75.4 AC

Q100 = 319.34 CFS
Area = 328.3 AC

Q100 = 372.61 CFS
Area = 419.0 AC

Q100 = 72.5 CFS
Area = 69.7 AC

Q100 = 24.71 CFS
Area = 18.5 AC

Q100 = 182.67 CFS
Area = 145.6 AC

36" RCP

CP
= 40.48 CFS
28.4 AC

Q100 = 109.5 CFS
Area = 94.2 AC

Q100 = 178.16 CFS
Area = 166.2 AC

Q100 = 292.94 CFS
Area = 306.11 AC

Q100 = 45.70 CFS
Area = 32.38 AC

Q100 = 21.54 CFS
Area = 12.01 AC

Q100 = 15.62 CFS
Area = 8.37 AC

Q100 = 9.16 CFS
Area = 6.58 AC

Q100 = 11.0 CFS
Area = 5.66 AC

Q100 = 37.46 CFS
Area = 22.86 AC

Lafe Dr

Shaggybark Dr

Princess Joann Rd

Wycliffe St

Trenchard St

Prince Charming Ln

Sir Lancelot Dr.

Dakota Ranch Rd

Summit Ave

Magnolia Ave

Easthaven Ct

Sanfred Ct

Felix Dr

Keith St

38.90 ACRES
31.10 ACRES
100.29 ACRES
25.64 ACRES
26.41 ACRES
32.10 ACRES
0.08 ACRES
0.24 ACRES
0.26 ACRES
62.53 ACRES
57.10 ACRES
64.62 ACRES
68.26 ACRES
45.55 ACRES
0.14 ACRES
53.98 ACRES
94.16 ACRES
32.64 ACRES
37.84 ACRES
105.34 ACRES
70.79 ACRES
100.48 ACRES
52.53 ACRES
2.05 ACRES
22.83 ACRES
0.09 ACRES
0.33 ACRES
66.62 ACRES
21.02 ACRES
30.82 ACRES
71.97 ACRES
139.91 ACRES
30.19 ACRES
3.60 ACRES
16.32 ACRES
39.15 ACRES
0.23 ACRES
3.22 ACRES
5.35 ACRES
0.20 ACRES
0.24 ACRES
3.61 ACRES
30.70 ACRES
67.78 ACRES
46.91 ACRES
0.16 ACRES
0.33 ACRES
46.83 ACRES
2.99 ACRES
25.19 ACRES
24.61 ACRES
0.46 ACRES
0.35 ACRES
0.17 ACRES
0.18 ACRES
52.70 ACRES
0.28 ACRES
0.10 ACRES
0.33 ACRES
11.91 ACRES
0.39 ACRES
0.08 ACRES
0.11 ACRES
5.27 ACRES
2.71 ACRES
6.50 ACRES
5.55 ACRES
5.35 ACRES
32.10 ACRES

SEE MAP 1 FOR CONTINUATION

SEE MAP 3 FOR CONTINUATION

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- FLOW DIRECTION
- NODE # (279)
- SUBAREA ACREAGE (X ACRES)
- HYDROLOGIC SOIL GROUP BOUNDARY

300 0 300 600 900
SCALE 1" = 300'

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 · FX(858)558-1414

EXISTING CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

SHEET 2 OF 3

W.O. 2395-07

R:\1284\Hyd\ACAD\TM\HYDRO\1284- FANITA TM HYDRO EX.dwg[]Sep-24-2019:07:34

SEE MAP 1 FOR CONTINUATION

Q100 = 81.22 CFS
Area = 75.4 AC

Q100 = 319.34 CFS
Area = 328.3 AC

Q100 = 372.61 CFS
Area = 419.0 AC

Q100 = 72.5 CFS
Area = 69.7 AC

Q100 = 386.10 CFS
Area = 441.1 AC

Q100 = 24.71 CFS
Area = 18.5 AC

Q100 = 6.64 CFS
Area = 7.77 AC

Q100 = 186.98 CFS
Area = 153.3 AC

36" RCP

Q100 = 182.67 CFS
Area = 145.6 AC

Q100 = 218.67 CFS
Area = 183.4 AC

36" RCP

Q100 = 40.48 CFS
Area = 28.4 AC

FANITA PARKWAY

Q100 = 251.06 CFS
Area = 210.4 AC

Q100 = 55.53 CFS
Area = 25.1 AC

GANLEY RD

6 - CMPs
Q100 = 258.67 CFS
Area = 218.4 AC

Q100 = 115.0 CFS
Area = 81.3 AC

Q100 = 115.17 CFS
Area = 82.1 AC

42" RCP

Q100 = 152.48 CFS
Area = 106.3 AC

36" RCP

Q100 = 57.09 CFS
Area = 23.3 AC

Q100 = 52.09 CFS
Area = 33.60 AC

36" RCP

Q100 = 199.68 CFS
Area = 141.8 AC

Q100 = 20.94 CFS
Area = 10.4 AC

Q100 = 234.55 CFS
Area = 162.1 AC

24" RCP

triple 50" x 36"
Q100 = 234.55 CFS
Area = 162.6 AC

LAKE CANYON ROAD

Q100 = 208.95 CFS
Area = 98.5 AC

Q100 = 129.21 CFS
Area = 52.2 AC

Dual 4'x2' RCBC
Q100 = 360.55 CFS
Area = 262.7 AC

18" ACP

Q100 = 84.13 CFS
Area = 62.6 AC

48" RCP

Q100 = 435.28 CFS
Area = 333.9 AC

Q100 = 48.82 CFS
Area = 29.0 AC

24" ACP

Q100 = 466.53 CFS
Area = 363.6 AC

MAST BLVD

Q100 = 45.70 CFS
Area = 32.38 AC

Q100 = 21.54 CFS
Area = 12.01 AC

Q100 = 15
Area = 8.3

Q100 = 9.16 CFS
Area = 6.58 AC

Q100 = 11.0 CFS
Area = 5.66 AC

Dakota Ranch Rd
Sir Lancelot Dr.
Prince Charming Ln
Princess Joann Rd
Wycliffe St
Trenchard St
Sanfred Ct
Felix Dr
Keith St
Lafe Dr
Shaggybark Dr
Cypramach St

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- FLOW DIRECTION
- NODE #
- SUBAREA ACREAGE (X ACRES)
- HYDROLOGIC SOIL GROUP BOUNDARY

300 0 300 600 900
SCALE 1"= 300'

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

EXISTING CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

SHEET 3 OF 3

W.O. 2395-07

R:\1284\Hyd\ACAD\TM\HYDRO\1284- FANITA TM HYDRO EX.dwg[]Sep-24-2019:07:30

PR. Q100 = 174.76 CFS
PR. Area = 146.7 AC
EX. Q100 = 182.69 CFS
EX. Area = 151.1 AC

PR. Q100 = 291.25 CFS
PR. Area = 343.1 AC
EX. Q100 = 332.10 CFS
EX. Area = 382.5 AC

PR. Q100 = 58.56 CFS
PR. Area = 55.3 AC
EX. Q100 = 61.51 CFS
EX. Area = 58.8 AC

PR. Q100 = 34.01 CFS
PR. Area = 25.7 AC
EX. Q100 = 34.13 CFS
EX. Area = 25.72 AC

PR. Q100 = 65.43 CFS
PR. Area = 53.3 AC
EX. Q100 = 78.75 CFS
EX. Area = 62.8 AC

PR. Q100 = 174.60 CFS
PR. Area = 290.9 AC
EX. Q100 = 174.65 CFS
EX. Area = 235.8 AC

UNMITIGATED
PR. Q100 = 530.18 CFS
PR. Area = 234.5 AC
TC = 13.08 MIN
MITIGATED
PR. Q100 = 150.39 CFS
PR. Area = 234.5 AC
TC = 24.0 MIN

PR. Q100 = 291.73 CFS
PR. Area = 565.7 AC
EX. Q100 = 351.83 CFS
EX. Area = 495.8 AC

PR. Q100 = 213.23 CFS
PR. Area = 333.6 AC
EX. Q100 = 319.34 CFS
EX. Area = 328.3 AC

UNMITIGATED
PR. Q100 = 305.82 CFS
PR. Area = 125.4 AC
TC = 11.81 MIN
MITIGATED
PR. Q100 = 28.12 CFS
PR. Area = 125.4 AC
TC = 43.0 MIN

UNMITIGATED
PR. Q100 = 148.95 CFS
PR. Area = 114.8 AC
TC = 12.20 MIN
MITIGATED
PR. Q100 = 78.95 CFS
PR. Area = 114.8 AC
TC = 24.20 MIN

UNMITIGATED
PR. Q100 = 387.50 CFS
PR. Area = 162.5 AC
TC = 11.90 MIN
MITIGATED
PR. Q100 = 5.95 CFS
PR. Area = 162.5 AC
TC = 128.0 MIN

UNMITIGATED
PR. Q100 = 38.76 CFS
PR. Area = 19.7 AC
TC = 13.34 MIN
MITIGATED
PR. Q100 = 4.23 CFS
PR. Area = 19.1 AC
TC = 38.0 MIN

UNMITIGATED
PR. Q100 = 190.34 CFS
PR. Area = 86.5 AC
TC = 12.48 MIN
MITIGATED
PR. Q100 = 47.47 CFS
PR. Area = 86.5 AC
TC = 23.0 MIN

PR. Q100 = 76.64 CFS
PR. Area = 65.4 AC
EX. Q100 = 121.21 CFS
EX. Area = 94.2 AC

PR. Q100 = 143.13 CFS
PR. Area = 131.65 AC
EX. Q100 = 178.16 CFS
EX. Area = 166.2 AC

PR. Q100 = 43.47 CFS
PR. Area = 29.7 AC
EX. Q100 = 45.70 CFS
EX. Area = 32.38 AC

PR. Q100 = 178.57 CFS
PR. Area = 273.2 AC
EX. Q100 = 292.94 CFS
EX. Area = 306.11 AC

PR. Q100 = 21.21 CFS
PR. Area = 13.6 AC
EX. Q100 = 21.54 CFS
EX. Area = 12.01 AC

PR. Q100 = 15.05 CFS
PR. Area = 7.1 AC
EX. Q100 = 15.52 CFS
EX. Area = 8.37 AC

PR. Q100 = 8.57 CFS
PR. Area = 6.8 AC
EX. Q100 = 9.16 CFS
EX. Area = 6.58 AC

PR. Q100 = 10.01 CFS
PR. Area = 6.6 AC
EX. Q100 = 11.00 CFS
EX. Area = 5.66 AC

AC-1 ACTIVE ADULT
CF-1 PARK
S-1 SCHOOL
NP-8 PARK
OS-18 BASIN BF-1-5
BF-1-1
BF-1-2
BF-1-4
BF-1-5
BF-1-6
BF-1-10A
BF-1-10B
BF-1-17
BF-1-RV3
HMP-11
HMP-12
HMP-13
HMP-15
HMP-17
HMP-18
HMP
A-1 FARM
A-2 FARM
A-3 FARM
VC-1
VC-3
VC-4
VC-5
VC-7
VC-9
VC-11
VC-15

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- BASIN ID — BF-X-X / HMP-X
- FLOW DIRECTION
- NODE # — 270
- SUBAREA ACREAGE — X ACRES
- HYDROLOGIC SOIL GROUP BOUNDARY

DETENTION NOTE:
UNMITIGATED = UNDETAINED
MITIGATED = DETAINED

SCALE 1"= 300'

SEE MAP 3 FOR CONTINUATION

SEE MAP 2 FOR CONTINUATION

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

PROPOSED CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

MAP 1 OF 3

W.O. 2395-07

PR. Q100 = 291.25 CFS
PR. Area = 343.1 AC
EX. Q100 = 332.10 CFS
EX. Area = 382.5 AC

PR. Q100 = 58.56 CFS
PR. Area = 55.3 AC
EX. Q100 = 61.51 CFS
EX. Area = 58.8 AC

PR. Q100 = 34.01 CFS
PR. Area = 25.7 AC
EX. Q100 = 34.13 CFS
EX. Area = 25.72 AC

PR. Q100 = 174.76 CFS
PR. Area = 146.7 AC
EX. Q100 = 182.69 CFS
EX. Area = 151.1 AC

UNMITIGATED
PR. Q100 = 387.50 CFS
PR. Area = 162.5 AC
TC = 11.90 MIN
MITIGATED
PR. Q100 = 5.95 CFS
PR. Area = 162.5 AC
TC = 129.0 MIN

UNMITIGATED
PR. Q100 = 110.87 CFS
PR. Area = 39.9 AC
TC = 5.89 MIN
MITIGATED
PR. Q100 = 6.50 CFS
PR. Area = 39.9 AC
TC = 58.0 MIN

UNMITIGATED
PR. Q100 = 39.78 CFS
PR. Area = 19.1 AC
TC = 13.34 MIN
MITIGATED
PR. Q100 = 4.22 CFS
PR. Area = 19.1 AC
TC = 38.0 MIN

UNMITIGATED
PR. Q100 = 190.34 CFS
PR. Area = 86.5 AC
TC = 12.48 MIN
MITIGATED
PR. Q100 = 47.47 CFS
PR. Area = 86.5 AC
TC = 23.0 MIN

PR. Q100 = 55.21 CFS
PR. Area = 38.6 AC
EX. Q100 = 76.17 CFS
EX. Area = 55.6 AC

PR. Q100 = 90.42 CFS
PR. Area = 62.0 AC
EX. Q100 = 114.24 CFS
EX. Area = 85.0 AC

PR. Q100 = 29.02 CFS
PR. Area = 19.4 AC
EX. Q100 = 33.31 CFS
EX. Area = 20.6 AC

PR. Q100 = 76.64 CFS
PR. Area = 65.4 AC
EX. Q100 = 121.21 CFS
EX. Area = 94.2 AC

PR. Q100 = 143.13 CFS
PR. Area = 131.65 AC
EX. Q100 = 178.16 CFS
EX. Area = 166.2 AC

PR. Q100 = 43.47 CFS
PR. Area = 29.7 AC
EX. Q100 = 45.70 CFS
EX. Area = 32.38 AC

PR. Q100 = 178.57 CFS
PR. Area = 273.2 AC
EX. Q100 = 292.94 CFS
EX. Area = 306.11 AC

PR. Q100 = 21.21 CFS
PR. Area = 13.6 AC
EX. Q100 = 21.54 CFS
EX. Area = 12.01 AC

PR. Q100 = 15.05 CFS
PR. Area = 7.1 AC
EX. Q100 = 15.52 CFS
EX. Area = 8.37 AC

PR. Q100 =34.76 CFS
PR. Area = 23.3 AC
EX. Q100 = 37.46 CFS
EX. Area = 22.86 AC

BF-1-1
BF-1-2
BF-1-3
BF-1-4
BF-1-10A
BF-1-10B
HMP-11
HMP-12
HMP-13
HMP-16
AC-1 ACTIVE ADULT
CF-1 PARK
S-1 SCHOOL
NP-8 PARK
VC-1
VC-2
VC-3
VC-4
VC-7
A-1 FARM
A-2 FARM
A-3 FARM
PS-2
WT-2

SEE MAP 3 FOR CONTINUATION

DETENTION NOTE:
UNMITIGATED = UNDETAINED
MITIGATED = DETAINED

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- BASIN ID — BF-X-X / HMP-X
- FLOW DIRECTION
- NODE # — 270
- SUBAREA ACREAGE — X ACRES
- HYDROLOGIC SOIL GROUP BOUNDARY

SCALE 1" = 300'

SEE MAP 3 FOR CONTINUATION

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

PROPOSED CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

MAP 2 OF 3

W.O. 2395-07

R:\1284\Hyd\ACAD\TM\HYDRO\1284- FANITA TM HYDRO PR.dwg[]Jan-10-2020:17:46

SEE MAP 1 FOR CONTINUATION

PR. Q100 = 213.23 CFS
PR. Area = 333.6 AC
EX. Q100 = 319.34 CFS
EX. Area = 328.3 AC

UNMITIGATED
PR. Q100 = 305.82 CFS
PR. Area = 125.4 AC
TC = 11.81 MIN
MITIGATED
PR. Q100 = 28.12 CFS
PR. Area = 125.4 AC
TC = 43.0 MIN

BF-1-6

BF-1-17

HMP-17

PR. Q100 = 521.52 CFS
PR. Area = 451.2 AC
EX. Q100 = 386.10 CFS
EX. Area = 441.1 AC

UNMITIGATED
PR. Q100 = 148.95 CFS
PR. Area = 114.8 AC
TC = 12.20 MIN
MITIGATED
PR. Q100 = 78.95 CFS
PR. Area = 114.8 AC
TC = 24.20 MIN

HMP-18

PR. Q100 = 169.59 CFS
PR. Area = 217.8 AC
EX. Q100 = 258.67 CFS
EX. Area = 218.4 AC

BF-1-RV1

BF-1-RV2

BF-1-RV3

BF-1-RV4

BF-1-RV5

BF-1-RV6

PR. Q100 = 422.28 CFS
PR. Area = 363.0 AC
EX. Q100 = 466.53 CFS
EX. Area = 363.6 AC

HMP-11

PR. Q100 = 43.47 CFS
PR. Area = 29.7 AC
EX. Q100 = 45.70 CFS
EX. Area = 32.38 AC

HMP-12

PR. Q100 = 21.21 CFS
PR. Area = 13.6 AC
EX. Q100 = 21.54 CFS
EX. Area = 12.01 AC

HMP-13

PR. Q10
PR. Area
EX. Q10
EX. Area

HMP-15

PR. Q100 = 8.57 CFS
PR. Area = 6.8 AC
EX. Q100 = 9.16 CFS
EX. Area = 6.58 AC

PR. Q100 = 10.01 CFS
PR. Area = 6.6 AC
EX. Q100 = 11.00 CFS
EX. Area = 5.66 AC

BF-1-10A

DETENTION NOTE:
UNMITIGATED = UNDETAINED
MITIGATED = DETAINED

LEGEND

- PROJECT BOUNDARY
- DRAINAGE BOUNDARY
- INITIAL SUBAREA
- BASIN ID — BF-X-X / HMP-X
- FLOW DIRECTION
- NODE # — (270)
- SUBAREA ACREAGE — X ACRES
- HYDROLOGIC SOIL GROUP BOUNDARY

300 0 300 600 900
SCALE 1" = 300'

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC
PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

PROPOSED CONDITION HYDROLOGY
FANITA
CITY OF SANTEE, CALIFORNIA

MAP 3 OF 3

W.O. 2395-07

R:\1284\Hyd\ACAD\TM\HYDRO\1284- FANITA TM HYDRO PR.dwg[]Jan-10-2020:17:49