Appendix K-1

Preliminary Hydrology Study

PRELIMINARY HYDROLOGY STUDY

For:

Meridian Park Upper Plateau

Project Site Location/Address:
Cactus Avenue & Barton Street
Riverside, CA

Prepared For:
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Project No. 20-750

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Section I Introduction

The following preliminary hydrology study has been prepared for the development of the Meridian Park Upper Plateau area located to the south of Alessandro Boulevard, East of Trailwind Road, North of Orange Terrace Parkway and west of Meridian Parkway. The development is located in the March Joint Powers Authority Jurisdictional Area of Riverside County and will connect to Cactus Avenue to the west, Barton Street to the North and South and Brown Street to the north. The subject site is approximately 722 acres of which 370 acres will be disturbed. The general location of the site is illustrated on the Vicinity Map, (see Figure 1 in Appendix A of this report).

Section II Methodology

The peak storm discharge for the drainage sub areas were calculated using the Riverside County Hydrology Manual. Advanced Engineering Software (AES) implementing the rational method was used to calculate peak flows for the 100 year storm entering the proposed public storm drains. Water Surface Pressure Gradient (WSPG) by CivilDesign was used for hydraulic calculations pertaining to the proposed storm drain lines. Finally, FlowMaster Hydraulic Calculator Software by Bentley Systems was used to evaluate the efficiency of catch basins located in the public streets. Since this study is based on estimated developed conditions, hydrology for on-site parcels was based on a commercial development land cover at 90% impervious and 10% pervious. A relatively short flow path was estimated for each parcel as the development of each parcel is not currently known at this time. This results in a shorter time of concentration and therefore a more conservative result related to flow rate. A soil type of BC was assigned to the project site based on the Riverside County Flood Control and Water Conservation District Hydrology Manual Hydrologic Soils Group Map Plate C-1.16 (see portion of map in Appendix A). In such cases where a dual soil designation has been assigned, the more conservative value is recommended for use. For calculation purposes, a soil type of C was used for the project site. Soil group C is defined as soils having slow infiltration rates when thoroughly wetted and consisting chiefly of silty-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

Section III Project Description

Existing Site conditions

The existing site is approximately 728 acres of land consisting of rolling hills with fair open brush (soft wood shrubs) within the Santa Ana River watershed boundary. The site is surrounded by residential development to the north, east and south and commercial development to the west.

The site has been broken down into watersheds designated as 1-17 to clearly highlight how stormwater reaches the Santa Ana River. The table below shows watershed acreages along with explanations of outlet locations downstream. The watersheds flow into both County of Riverside and City of Riverside facilities.

Watershed	Acreage	Description	Downstream Destination
3	21.37	Surface flows to current dead end on Barton Street. No inlet structure, stormwater continues to flow down Barton Street into residential development.	Stormwater continues to flow north in residential development and outlets into Sycamore Canyon Wilderness Park. Creeks combine downstream and flow into Sycamore Dam to the northwest. Overflow from Sycamore Dam flows northwest to Santa Ana River.
4	4.01	Surface flows to residential development to the north. No drain inlet or pickup location.	
5	14.31	Surface flows to residential development to the north. No drain inlet or pickup location.	
5a	3.57	Surface flows to Vista Grand Drive. No drain inlet or pickup location.	
6	3.87	Surface flows to residential development to the north. No drain inlet or pickup location.	
7	38.16	Surface flows to current dead end on Alexander Street. No inlet structure, stormwater continues to flow down Alexander Street into residential development.	
7a	17.21	Surface flows to residential development to the north. No drain inlet or pickup location.	
18a	1.12	Surface flows to residential development to the north. No drain inlet or pickup location.	
18b	8.60	Surface flows to residential development to the north. No drain inlet or pickup location.	
18c	1.25	Surface flows to residential development to the north. No drain inlet or pickup location.	
8	72.12	Surface flows to inlet structure to a 42” storm drain bypassing an existing development. Outlets and surface flows towards the SW corner of Meridian Parkway and Alessandro Boulevard. Enters storm drain, flows under Meridian Parkway and outlets at North Detention Basin (a part of the 1st phase of Meridian Business Park development).	Overflow from the detention basin flows Northwest through Sycamore Canyon Wilderness Park to Sycamore Dam to the northwest. Overflow from Sycamore Dam flows northwest Santa Ana River.
9	81.47	Surface flows to inlet structure and enters dual 36” storm drain pipes bypassing buildings to the west of Meridian Parkway. Storm drains continue to flow east under Meridian Parkway and into North Detention Basin (a part of the 1st phase of Meridian Business Park development).	
10	31.11	Flows to inlet structure and enters 54” storm drain south of Cactus Avenue. Storm drain continues to flow east under Meridian Parkway and into North Detention Basin (a part of the 1st phase of Meridian Business Park development).	
11	21.12	Flows to inlet structure and enters 30” storm drain that flows east under Authority Way and north under Meridian Parkway. Storm drain continues to flow east and outlets into North Detention Basin (a part of the 1st phase of Meridian Business Park development).	
12	34.26	Flows to inlet structure and through existing residential development to the southeast and outlets to creek flowing to the east. Picked up by inlet structure to a 30” storm drain that flows east under Authority Way and north under Meridian Parkway. Storm drain continues to flow east and outlets into North Detention Basin (a part of the 1st phase of Meridian Business Park development).	

13	11.00	Flows east through existing residential development and outlets near Bakal Drive and Orchard Park Drive. Flows southeast to regional Lot E/49 detention basin.	Overflow from Lot E/49 basin crosses under 215 freeway and enters Perris Valley Strom Drain. Further downstream stormwater passes through Canyon Lake, Lake Elsinore, and the Santa Ana River.
14	92.15	Flows east to inlet structure and enters 48" RCP flowing north under Barton Street. Storm drain turns to the west and outlets to existing creek that is a part of Watershed 17.	Creeks travel northwest towards Alessandro Dam. Overflow continues to flow through a creek northwest to Mary Street Dam. Overflow from Mary Street Dam continues underground and outlets at Santa Ana River. Creeks travel northwest towards Alessandro Dam. Overflow continues to flow through a creek northwest to Mary Street Dam. Overflow from Mary Street Dam continues underground and outlets at Santa Ana River.
15	15.74	Flows east to inlet structure and enters 48" RCP flowing north under Barton Street. Storm drain turns to the west and outlets to existing creek that is a part of Watershed 17.	
16	77.66	Flows to inlet structure and enters 57" storm drain through residential development flowing west and outlets to existing creek flowing Northwest.	
17	14.93	Surface flows to creek flowing northwest (see watersheds 14 & 15).	
1	15.66	Flows to inlet structure east of Cairn Street into 30" storm drain flowing east under Northrop Drive and north on Mission Grove Drive. Stormwater outlets at creek south of White Dove Lane.	
2	147.94	Flows to inlet structure at the top of Moray Court to a 72" storm drain. Stormwater flows west under Botany Bay Road and outlets south of Alice Springs Place into creek.	

Refer to the "Existing Hydrology Zones Map" in Appendix B for an illustration of the existing drainage patterns. Watersheds 2, 3, 4, 5, 6, 7, 8, 9, 14 and 16 will be updated per the Proposed Site Conditions highlighted in the next section. To better understand the outlets of these watersheds they are discussed in further detail below.

Watershed 2 converges towards a 2' deep ¼ ton grouted rip rap channel to the east of Moray Court leading to a concrete pad and headwall connected to an 84" reinforced concrete pipe (D-800) labeled as Line C per City of Riverside project no. D-636A. The line has a Q_{100} capacity of 412 cfs and a Q_{10} capacity of 259 cfs from the headwall structure. Line C travels west under Moray Court, transitioning to a 72" RCP, before flowing north under Coatbridge Drive and west on Botany Bay Road picking up additional stormwater from the streets and transitioning back to an 84" RCP. Line C then turns to the southwest and outlets into a creek to the south of Alice Springs Place flowing through the residential development and under Mission Grove Parkway and Trautwein Road. Downstream the creek inlets to Alessandro Dam, further downstream to Mary Street Dam and eventually the Santa Ana River.

Watershed 3 converges to the current dead end at Barton Street. Stormwater surface flows on to Barton Street and gutter flows to the north through the existing residential development before heading east on Alessandro Boulevard and entering the first existing catch basin. The 18" storm drain connected to the catch basin is designed for a Q_{100} of 24.31 cfs per City of Riverside Storm drawing number D-579. After crossing under Alessandro Boulevard flowing to the north and converging with a 33" RCP (D-1000) flowing east, stormwater outlets through a headwall with a 10'x25' 2.7' thick rip rap pad into Sycamore Canyon Wilderness Park. The

creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 4 converges to a low spot leading to a concrete channel passing between 2 residential lots. Stormwater then flows north through a parkway drain into the streets of the existing residential development. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 5 converges to a low spot leading to a concrete channel passing between 2 residential lots. Stormwater then flows north through a parkway drain into the streets of the existing residential development. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 5a converges to the current dead end at Vista Grande Drive. Stormwater surface flows on to Vista Grande Drive and gutter flows to the north through the existing residential development before heading east on Alessandro Boulevard and entering the first existing catch basin to the east. The 36" storm drain connected to the catch basin is designed for a Q_{100} of 57.4 cfs per City of Riverside street drawing number R-3068. After crossing under Alessandro Boulevard, stormwater outlets through a headwall with a 32" ¼ ton thick rip rap pad into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 6 converges to a low spot leading to a concrete channel passing between 2 residential lots. Stormwater then flows north through a parkway drain into the streets of the existing residential development. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 7 converges to a low spot surface flowing onto Alexander Street and into the existing residential development. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 7a converges to a low spot leading to a concrete channel passing between 2 residential lots. Stormwater then flows north through a parkway drain into the streets of the existing residential development. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 8 converges at a headwall structure built for Alessandro Commerce Center (County of Riverside Plot Plan No. 25422). The headwall follows Caltrans Std. D90 and features 6" cobble rip-rap at the inlet. The headwall is connected to a 42" RCP storm drain that per the

approved hydrology report has been designed for a Q_{100} of 136.74 cfs. After bypassing the Alessandro Commerce Center, the 42" storm drain outlets to 6" cobble rip rap and flows northwest towards the southwest corner of Alessandro Boulevard and Meridian Parkway. Stormwater enters a wingtype headwall leading to a 60" RCP designed for a Q_{100} of 183 cfs per MJPA project no. 4-0530 & drawing no. 4-821. Stormwater flows to the east and outlets at the LLMD maintained Lot 69 North Detention Basin. The basin inlets into a 10'x6' RCB maintained by Riverside County Flood Control crossing under Van Buren Boulevard which outlets to the north and outlets to an existing creek crossing under Sycamore Canyon Boulevard and entering into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 9 converges to a headwall and wingwall with trash rack per MJPA file no. MJ-092 public storm drain plans. The headwall leads to a dual 36" HDPE storm drain that bypasses the existing warehouse site. The dual 36" storm drains have been designed for a Q_{100} of 94 cfs at the headwall structure where Watershed 9 converges. Downstream the dual 36" storm drains outlet through a wingtype headwall to a rip rap lined channel that crosses through an EMWD easement. Downstream to the west of Meridian Parkway stormwater once again enters a wingtype headwall connected to a 54" RCP sized to handle a Q_{100} of 131 cfs per MJPA project no. 4-0530 & drawing no. 4-821. Stormwater flows to the east and outlets at the LLMD maintained Lot 69 North Detention Basin. The basin inlets into a 10'x6' RCB maintained by Riverside County Flood Control crossing under Van Buren Boulevard which outlets to the north and outlets to an existing creek crossing under Sycamore Canyon Boulevard and entering into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Watershed 14 converges to a grated catch basin connected to a 78" RCP which has been designed for a developed Q_{100} of 287.5 cfs and a native Q_{100} of 192.7 cfs per City of Riverside Public Storm Drain Plan No. D-748. The 78" storm drain line flows to the north under Barton Road before turning to the west and flowing under the existing church parking lot. The storm drain outlets via an energy dissipator – impact basin with grouted rip rap to an existing creek being a part of Watershed 17 (currently proposed to be undeveloped). The creek travels through the existing residential development to the west flowing under Trautwein Road. Further downstream the creek inlets to Alessandro Dam, Mary Street Dam and eventually the Santa Ana River.

Watershed 16 converges to a headwall protected by a sloped protection barrier consisting of ¼ ton rip-rap 3.5' thick. The headwall is connected to a 57" RCP (D-1200) and has been designed for a Q_{100} of 220.3 and a Q_{10} of 136.6 cfs. The storm drain continues west under Webster Road and outlets in a creek to the west of Ralston Place. The creek travels through the existing residential development to the west flowing under Trautwein Road. Further downstream the creek inlets to Alessandro Dam, Mary Street Dam and eventually the Santa Ana River.

Watersheds 18a, 18b, and 18c surface flow to existing residential lots located on Camino Del Sol. Stormwater then gutter flows to the north under Alessandro Boulevard and into Sycamore Canyon Wilderness Park. The creeks within Sycamore Canyon Wilderness Park combine and flow into Sycamore Damn to the north, and later downstream the Santa Ana River.

Proposed Site Conditions

Overall

The proposed development will consist of the construction of public streets, utilities, associated landscaping areas and mass graded pads. The proposed condition was designed to balance the watersheds as close to existing as possible. The public storm drain design along with conceptual grading for the project was used as a tool to reach this standard. Therefore, the development was once again broken up into 17 distinct watersheds each sharing the same outlets as existing. The following table summarizes both the existing and proposed areas of each watershed.

Area Summaries			
Watershed	**Existing (Acres)**	**Proposed (Acres)**	**Percent Change**
1 (undisturbed)	15.66	15.66	0.00%
2	147.94	148.88	+0.6%
3	21.37	21.26	-0.51%
4	4.01	3.09	-22.9%
5	14.31	15.00	+4.8%
5a	3.57	2.53	-29.1%
6	3.87	2.95	-23.8%
7	38.16	50.17	+31.5%
7a	17.21	6.11	-64.5%
8	72.12	75.06	+4.1%
9	81.47	83.11	+2.0%
10	31.11	31.11	0.0%
11 (undisturbed)	21.12	21.12	0.0%
12 (undisturbed)	34.26	34.26	0.0%
13 (undisturbed)	11.00	11.00	0.0%
14	92.15	87.88	-4.6%
15 (undisturbed)	15.74	15.74	0.0%
16	77.66	80.43	+3.6%
17 (undisturbed)	14.93	14.93	0.0%
18a (undisturbed)	1.12	1.12	0.0%
18b	8.60	5.99	-30.3%
18c (undisturbed)	1.25	1.25	0.0%

Offsite

Approximately 370 acres of the site is proposed to be disturbed as part of this development including offsite roadways and future construction onsite. Runoff from proposed roadways constructed during the Meridian Upper Plateau project will be routed to detention tanks located within the landscape easements adjacent to the right of way. Reversed curb outlets located at the curb flow line will allow storm runoff to enter into the proposed earthen swale within the landscape easement that contains 18" atrium grates connected to each detention tank. The detention tanks are sized to hold the respective 100 year storm volumes and release it over 48 hours. An estimated conservative volume of 6,000 cubic-feet/acre was used to meet this criteria. All detention tanks will include 2" drain lines leading to a 12" storm drain header leading to the proposed Modular Wetland biotreatment units near catch basins at each street. The Modular Wetland Units will be connected to each catch basin. The catch basins will also act as an emergency collection point for stormwater if the modular wetland units, detention tanks or reverse curb outlets begin to back up for any reason.

Runoff from both roadways and laterals collecting stormwater from each parcel will be collected to proposed storm drain lines outleting prior to the watersheds outlets discussed in the existing condition. Storm drain Lines 16-1 and 16-2 will collect water from portions of Barton Road as well as Lot 15 and outlet within the existing creek of Watershed 16. Storm Drain Lines 2-1, 2-2 and 2-3 will be located in Watershed 2 and cover portions of Barton Road, Airman, Cactus Avenue and Linebacker Streets as well Lots 6, 7, 8, 14, 16 and 17. Storm Drain Line 3 will be located in Watershed 3 and cover Lot 1 along with portions of Arclight and Airman Streets. Storm Drain Line 5 will be located in Watershed 5 and cover portions of Arclight along with Lot 2. Storm Drain Line 7 is located in Watershed 7 and covers portions of Linebacker as well as Lot 3 and portions of Lot 4. Lines 8-1 and 8-2 are located in Watershed 8 and covers Lot 5 as well as portions of Lot 4. Storm Drain Line 14 is located in Watershed 14 and covers Lots 9, 10, 11. Rip rap will be placed at each outlet to slow down the velocity of the stormwater and not erode existing conditions.

Roadways within watershed 9 consist of Brown Avenue and Cactus Avenue from east of the intersection of Linebacker Drive to the connection at the existing limits of Cactus Avenue. This watershed will include 3 – 8' high clear span crossings underneath streets that address access for animals as well as maintain existing drainage courses. The locations can be seen in the proposed hydrology map in Appendix B. Storm drain lines 9-1 and 9-2 both collect runoff from catch basins on Cactus Avenue and portions of Brown Avenue and terminate into both clear span crossing located on Cactus Avenue. Cactus Avenue also has two locations where outlet structures will be built and directly tie into a pair of catch basins nearby. Brown Avenue will feature the remaining standalone clear span crossing at the existing drainage path. Two catch basins at the connection point to the existing limits of Brown Avenue will collect runoff and outlet out of a nearby outlet structure.

Watershed 3 currently surface flows on to Barton Road. With the extension and connection of Barton Road from the north and south in the proposed condition, a drain inlet will be installed and connected to a parkway drain onto Barton Road flowing north towards Alessandro Boulevard. This design will ensure stormwater from both the public storm drain headwall as well as the surrounding area within Watershed 3 will follow existing conditions.

Approximately 1 acre of Watershed 10 will consist of the proposed buildout of Cactus Avenue and include the connection point to the existing portion of Cactus Avenue to the east. Stormwater from this portion will continue to flow down to the existing Cactus Avenue and spill

into the existing reverse curb outlets serving the street. Ultimately this stormwater will lead to the regional North Detention Basin similar to watersheds 8,9,11,12 & 13.

Onsite

Expected development onsite will consist of commercial buildings, parking areas and associated landscape. Since it is unknown at this time what the onsite design for parcels will look like, for this report, the onsite, un-detained flow rates have been computed based on the assumed ultimate buildout of each lot for commercial use at a 90% impervious surface as recommended by the Riverside County Hydrology Manual. Due to this increase in impervious surface area, an increase between pre and post development flow rate values is expected. Future development on each lot will need to address the 100 year pre vs. post development flow rate. Past Meridian projects have been designed using Geostorage underground systems utilizing stone, geosynthetics and reinforced concrete as well as systems that utilize HDPE pipe.

For purposes of this study, it was assumed that all detention basins offsite and future detention basins onsite are full and all runoff was flowing directly to both public street catch basins as well as laterals collecting runoff for each parcel. Refer to the "Proposed Hydrology Zones Map" and "Proposed Hydrology Map" in Appendix B for an illustration of the existing drainage patterns.

Section IV Conclusion

The 100-year storm runoff flow rates were calculated using AES. Hydraulic calculations were done using WSPG along the length of the proposed storm drain system. Stormwater that outlets from these locations will continue to flow to the same areas as the existing conditions. The current road configuration and ultimate configuration of the lots are not determined at this time and may change depending on the planned developments for these lots. The table below gives a summary of maximum 100-year storm flow rates for each proposed storm drain line at the outlet.

The rough grading of the overall development will not increase the peak runoff from the existing condition. The installation of the public streets will be mitigated as described above to reduce the developed runoff down to undeveloped peak flow rates. Each development as they propose to construct impervious surface will be required to mitigate site runoff down to undeveloped flow rates as described above. The project as a whole will not increase the peak discharge rates from the undeveloped condition.

Storm Drain Line	Max Flow at outlet (cfs)	Velocity at Outlet (fps)	Depth of Water at Outlet	Size of storm drain (in.)
16-1/16-2	49.39	10.43	2.29	30
2-1	96.36	17.91	2.13	36
2-2	94.35	15.95	2.34	36
2-3	21.90	7.81	1.67	24
3	27.00	29.20	0.609	30

5	25.59	19.25	0.879	24
7	92.64	36.01	1.18	36
8-1/8-2	61.51	16.68	1.551	36
14	88.90	10.77	1.501	4′ wide channel with 1:1 cross slopes

As stated previously, offsite runoff from roadways, sidewalks, and landscaped areas will be mitigated by detention tanks located within the landscape easements adjacent to the right of way. Reversed curb outlets located at the curb flow line will allow storm runoff to enter into the proposed earthen swale within the landscape easement that contains 18" atrium grates connected to each detention tank. The detention tanks are sized to hold the respective 100 year storm volumes and release it over 48 hours. An estimated conservative volume of 6,000 cubic-feet/acre was used to meet this criteria. All detention tanks will include 2" drain lines leading to a 6"-12" storm drain line leading to the proposed Modular Wetland biotreatment units near the beginning of the streets.

Existing downstream headwalls/storm drains accepting the outlet of each key watershed are listed below along with the corresponding totally 100 year flows for the proposed storm drain. The 100 year storm value used in the design of the existing storm drain as-built plans are also shown for each outlet.

Watershed	**Total Q_{100} at Proposed Storm Drain outlet (cfs)**	**Q_{100} used in the design of existing headwall structure downstream per record drawings (cfs)**	**Watershed Outlet/Notes**
2	212.6	412	Headwall and Rip Rap Pad to 84" RCP shown on City of Riverside Dwg. No. D636-A
8	61.51	136.74	Headwall to 42" RCP shown on County of Riverside Plot Plan 25422
14	88.90	Q_{100} (Developed) = 287.5 Q_{100} (Native) = 192.7	Grated catch basin to 78" RCP shown on City of Riverside Dwg. No. D-748
16	49.39	220.3	Headwall and concrete pad to 57" RCP shown on City of Riverside Dwg. No. D-660

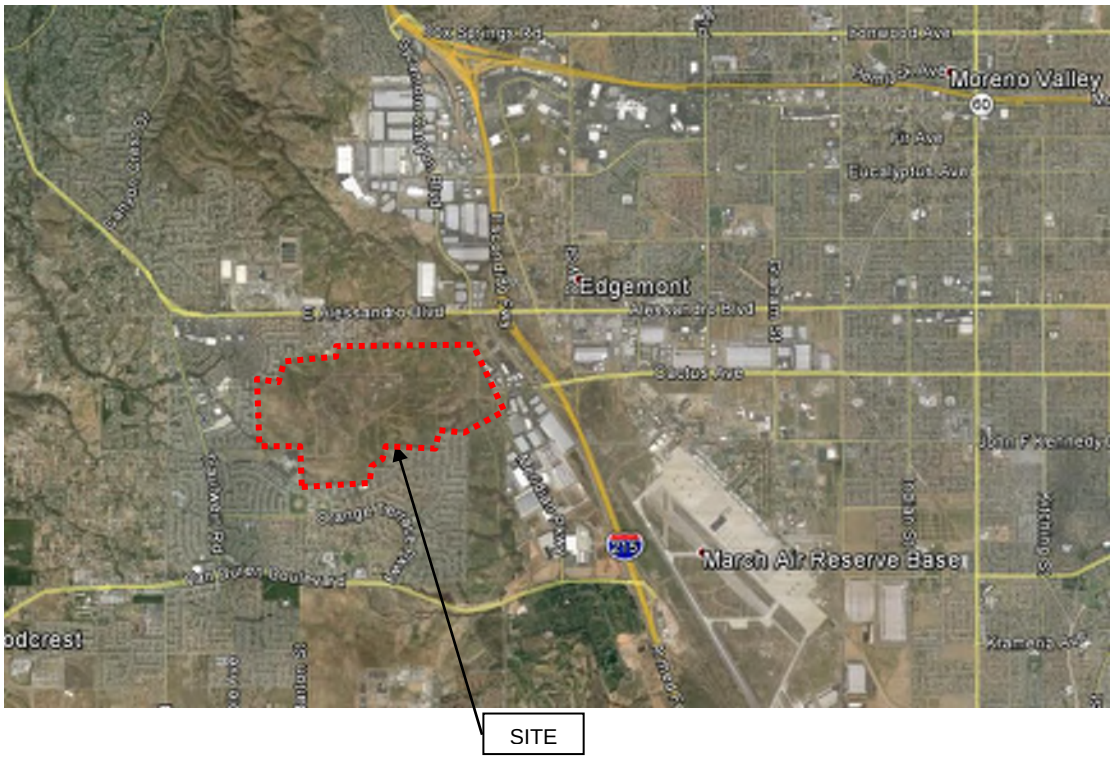
Catch Basin Sizing (FlowMaster)

Catch Basin analysis was performed for each catch basin located on the public streets. The results are summarized in the table below. As discussed previously, the detention tanks located within the landscape easements adjacent to the streets were conservatively sized to collect the 100 year storm volume with runoff captured through reverse curb outlets located on each side of the street. The placement of catch basins on the street were included in the design for emergency cases where flows are higher than those created by the 100 year storm.

Catch Basin	Flow Rate (cfs)	On Grade	Efficiency	Sag	Depth (inches)
1-2	2.41	x	92.60	-	-
3-4	2.02	x	92.60	-	-
5-6	1.18	x	98.42	-	-
7-8	0.99	x	98.90	-	-
9-10	1.33	x	91.76	-	-
11-12	1.47	x	89.26	-	-
13-14	2.01	x	95.56	-	-
15-16	2.60	x	90.71	-	-
17	2.78	x	61.9	-	-
18	0.85	x	92.87	-	-
19-20	1.69	x	97.99	-	-
21	2.91	-	-	x	4.1
22	3.28	-	-	x	4.1
23-24	2.38	-	-	x	3.0
25-26	1.76	x	97.31	-	-
27-28	1.61	x	79.90	-	-
29-30	1.21	x	88.29	-	-
31-32	1.74	x	98.88	-	-
33-34	1.33	-	-	x	2.4
35-36	1.91	x	87.84	-	-
37-38	1.26	x	98.88	-	-
39-40	1.34	x	100.0	-	-

APPENDIX A

VICINITY & SOILS MAP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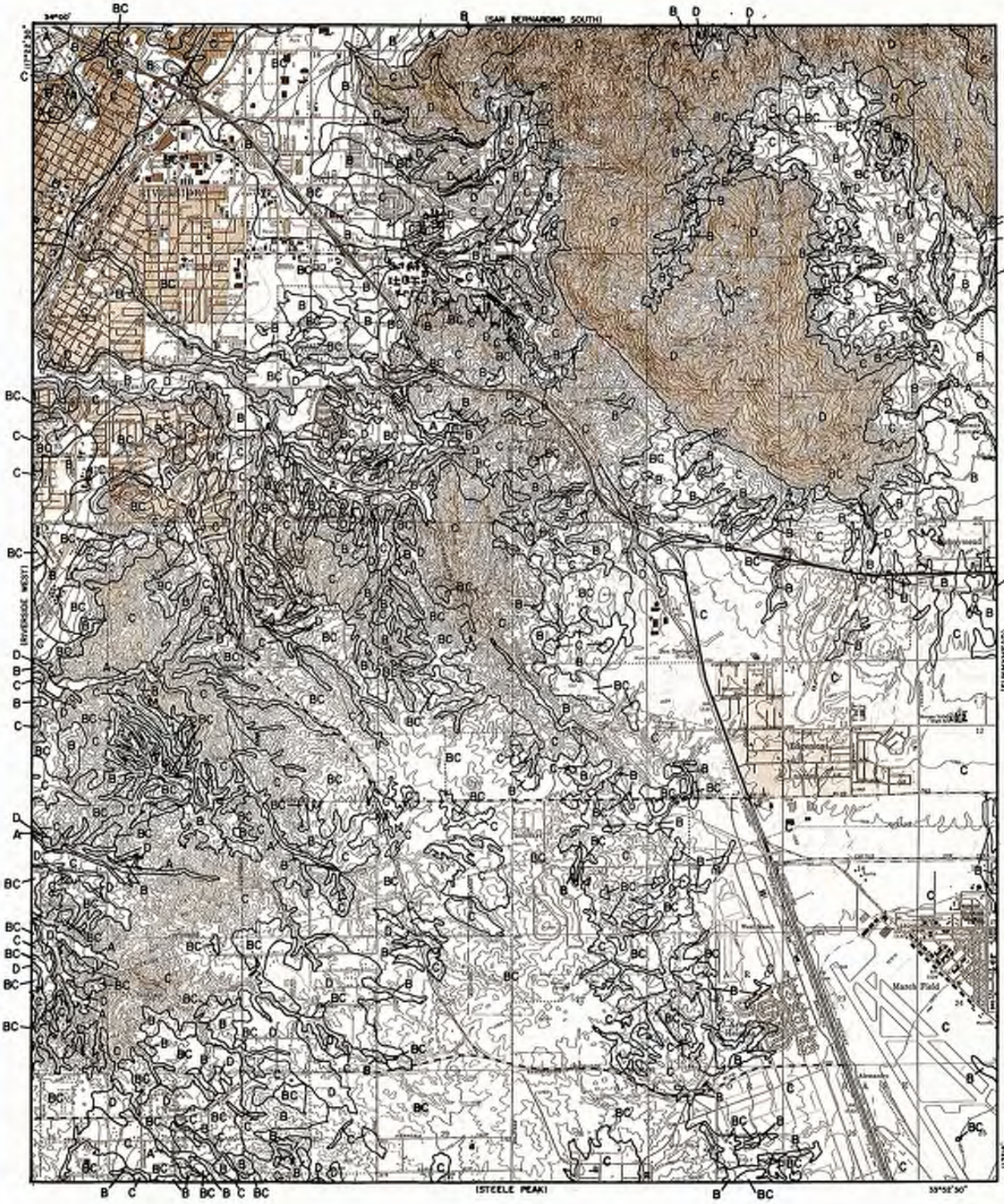
Edgemont
March Air Reserve Base
SITE



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

HYDROLOGY MANUAL

N

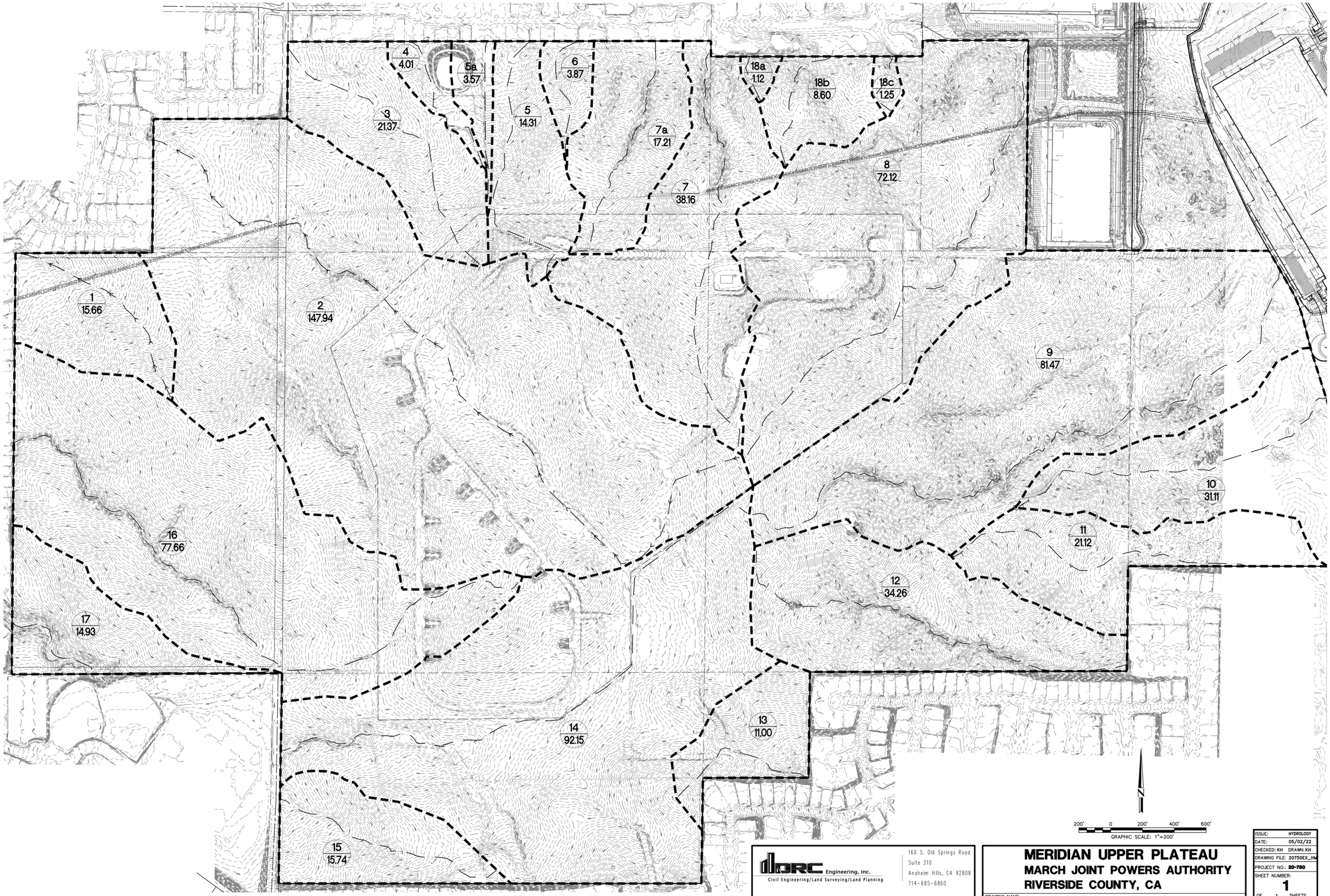
0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR RIVERSIDE-EAST

PLATE C-1.16

APPENDIX B

Existing Hydrology Zone Map
Proposed Hydrology Zone Map
Proposed Hydrology Map



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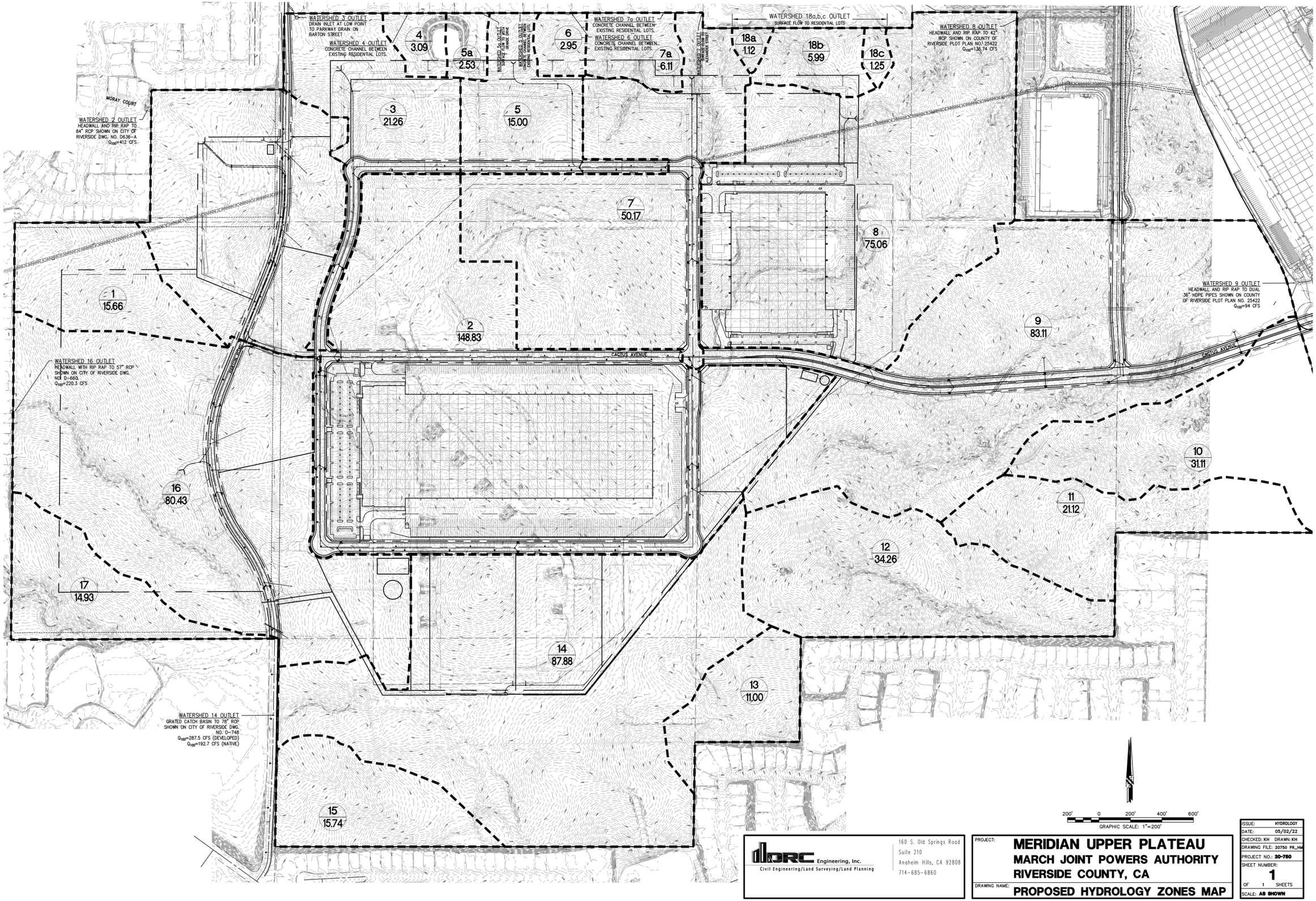
MERIDIAN UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY
RIVERSIDE COUNTY, CA

DRAWING NAME: **EXISTING HYDROLOGY ZONES MAP**

ISSUE:	HYDROLOGY
DATE:	05/02/22
CHECKED: KH	DRAWN: KH
DRAWING FILE:	20750EX_HM
PROJECT NO.:	20-750
SHEET NUMBER:	1
OF	1 SHEETS
SCALE:	AS SHOWN



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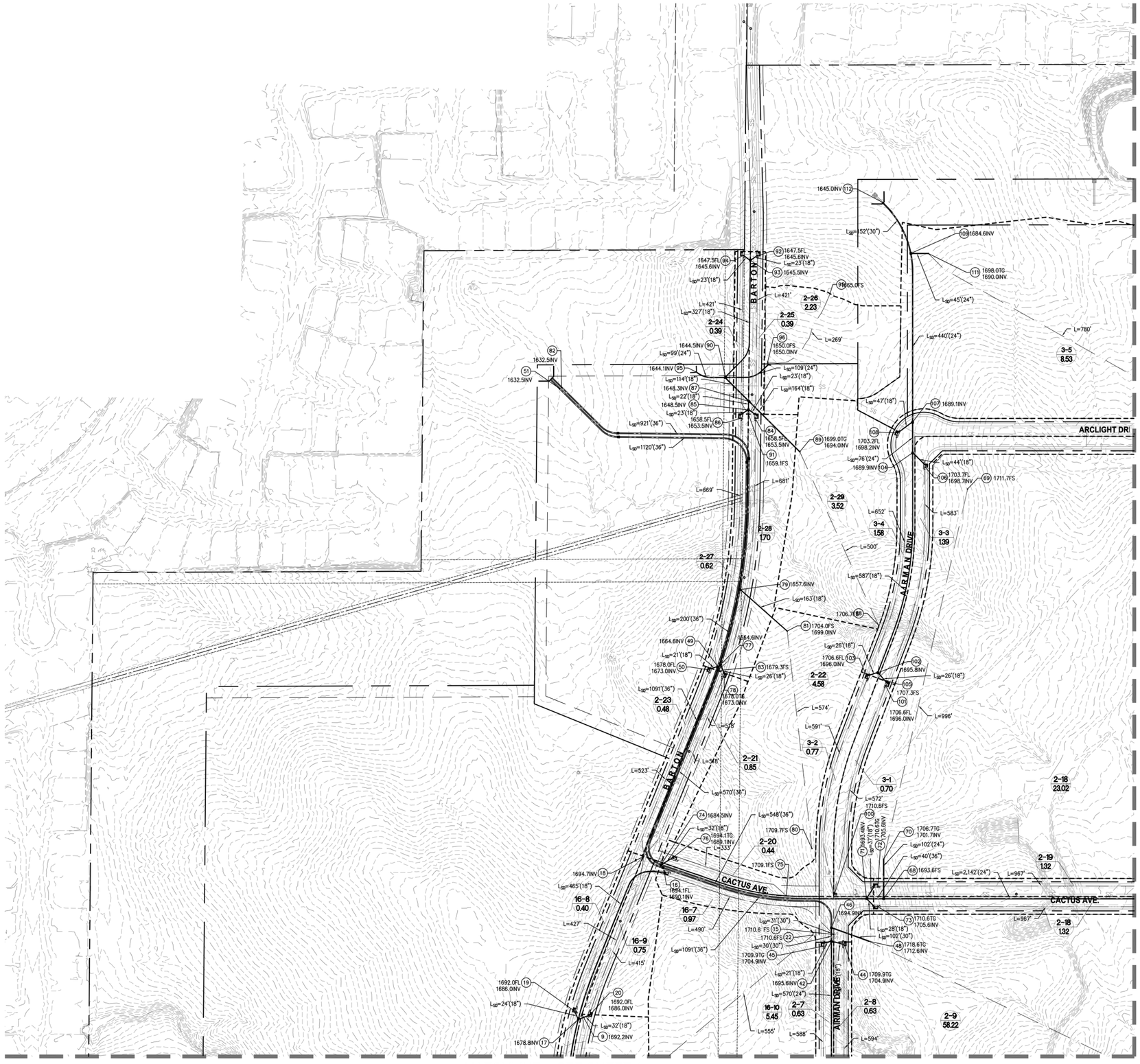
PROJECT: **MERIDIAN UPPER PLATEAU**
MARCH JOINT POWERS AUTHORITY
RIVERSIDE COUNTY, CA

DRAWING NAME: **PROPOSED HYDROLOGY ZONES MAP**

ISSUE:	HYDROLOGY
DATE:	05/02/22
CHECKED: KH	DRAWN: KH
DRAWING FILE:	20750 PR_HM
PROJECT NO.:	20-750
SHEET NUMBER:	1
OF	1 SHEETS
SCALE:	AS SHOWN



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Anaheim Hills, CA 92808
714-685-6860
DRC Engineering, Inc.
Civil Engineering/Land Surveying/Land Planning

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NO.:	REVISION:	DATE:

PROJECT: MERIDIAN WEST CAMPUS
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME: PROPOSED HYDROLOGY MAP

ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	20-750
SHEET NUMBER:	1
OF	6 SHEETS
SCALE:	AS SHOWN

FILENAME: M:\2020\20-750 Meridian Upper Plateau\HM\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED BY: KENNY, ON: Feb 07 2022 10:21am, CFG:

LEGEND

- FLOW PATH
- WATERSHED AREA
- (XX) HYDROLOGY NODE
- X / XXX — WATERSHED NAME / WATERSHED ACREAGE

MATCHLINE - SEE SHEET 1

MATCHLINE - SEE SHEET 3

MATCHLINE - SEE SHEET 5

ARCLIGHT DRIVE

CACTUS AVE.

LINEBACKER DRIVE

GRAPHIC SCALE: 1"=100'

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DATE:

NO.: REVISION:

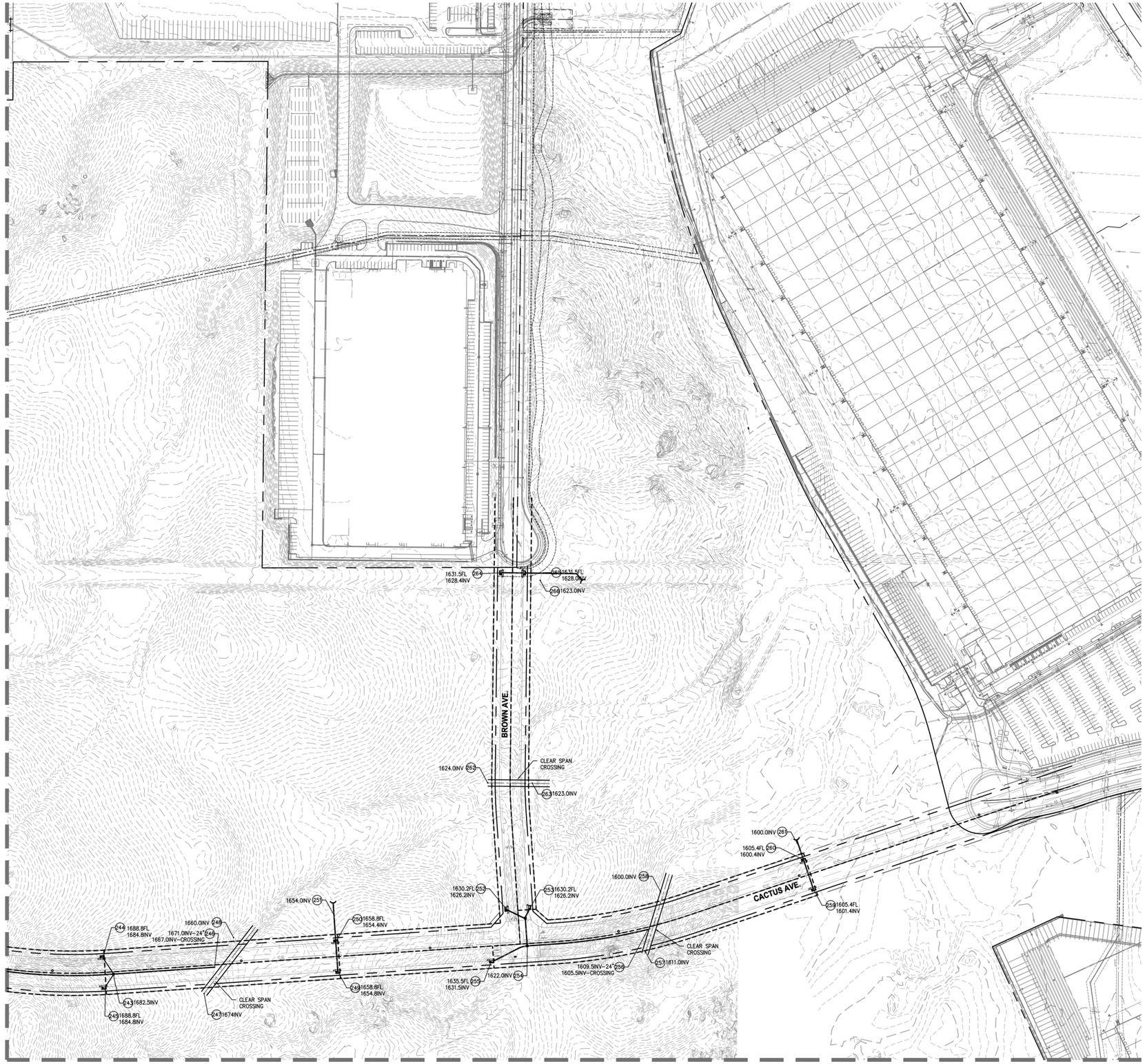
PROJECT: MERIDIAN WEST CAMPUS
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME: PROPOSED HYDROLOGY MAP

ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	20-750
SHEET NUMBER:	2
OF	6 SHEETS
SCALE:	AS SHOWN

FILENAME: M:\2020\20-750 Meridian Upper Plateau\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED BY: KENNY, ON: Feb 07 2022 10:21am, CFC

MATCHLINE - SEE SHEET 2



MATCHLINE - SEE SHEET 6

LEGEND

- FLOW PATH
- WATERSHED AREA
- HYDROLOGY NODE
- WATERSHED NAME
- WATERSHED ACREAGE

N

100' 0 100' 200' 300'

GRAPHIC SCALE: 1"=100'

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NO.:	REVISION:	DATE:

PROJECT: **MERIDIAN WEST CAMPUS**
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME: **PROPOSED HYDROLOGY MAP**

ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	20-780
SHEET NUMBER:	3
OF	6 SHEETS
SCALE:	AS SHOWN

FILENAME: M:\2020\20-750 Meridian Upper Plateau\WA\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED BY: KENNY, ON: Feb 07 2022 10:21am, CFC

MATCHLINE - SEE SHEET 1

MATCHLINE - SEE SHEET 5

LEGEND

- FLOW PATH
- WATERSHED AREA
- (XX) HYDROLOGY NODE
- X — WATERSHED NAME
- XXX — WATERSHED ACREAGE

100' 0 100' 200' 300'

GRAPHIC SCALE: 1"=100'

N

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NO.:	REVISION:	DATE:

PROJECT: **MERIDIAN WEST CAMPUS**
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME: **PROPOSED HYDROLOGY MAP**

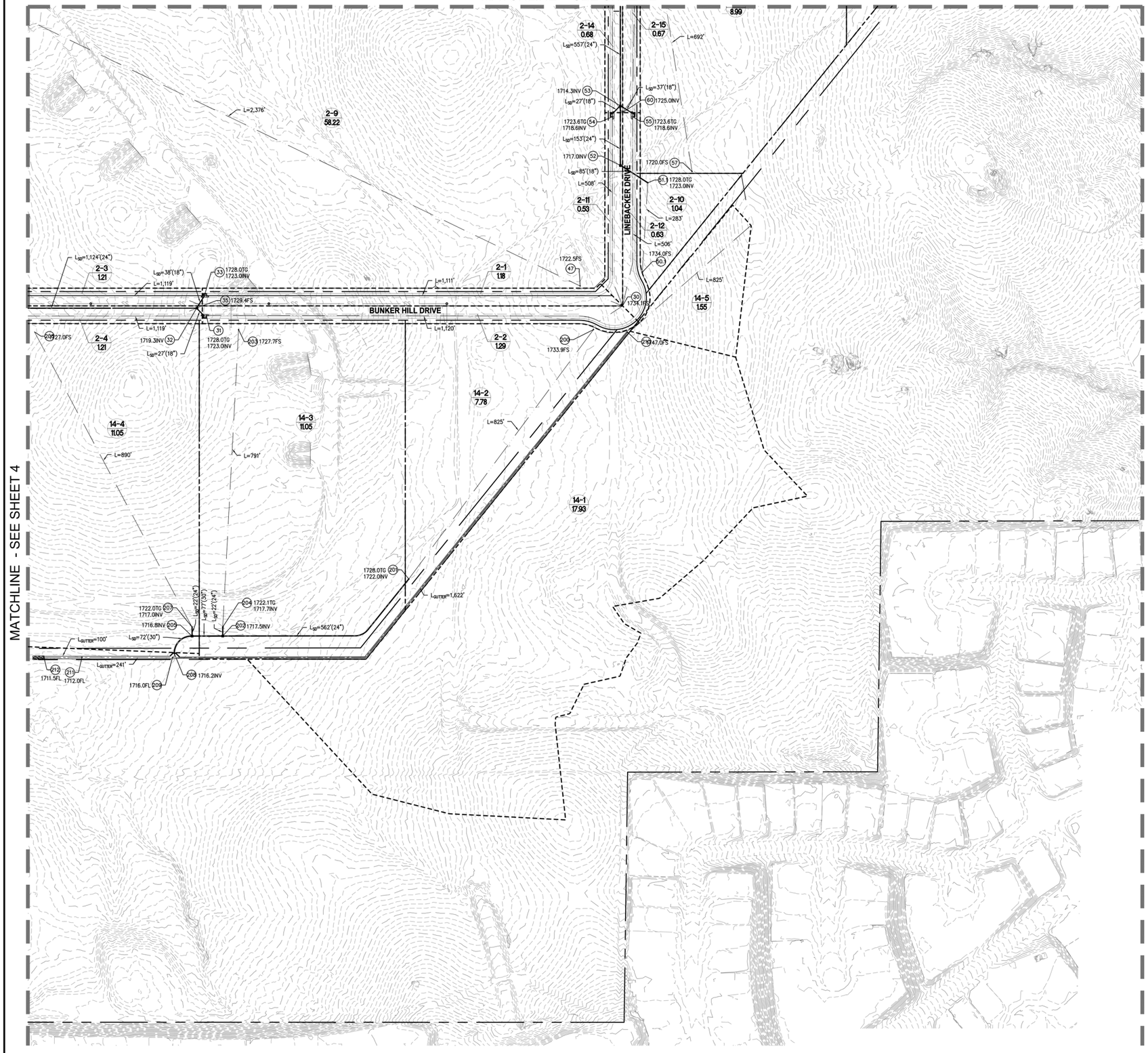
ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	20-750
SHEET NUMBER:	4
OF	6 SHEETS
SCALE:	AS SHOWN

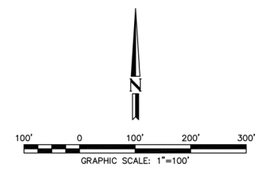
FILENAME: M:\2020\20-750 Meridian Upper Plateau\HM\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED BY: KENN, ON: Feb 07 2022 10:22am, CFG:

MATCHLINE - SEE SHEET 2

MATCHLINE - SEE SHEET 4

MATCHLINE - SEE SHEET 6





LEGEND

- FLOW PATH
- WATERSHED AREA
- (XX) HYDROLOGY NODE
- X WATERSHED NAME
- XXX WATERSHED ACREAGE

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NO.:	REVISION:	DATE:

PROJECT: **MERIDIAN WEST CAMPUS**
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME: **PROPOSED HYDROLOGY MAP**

ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	**20-750**
SHEET NUMBER:	**5**
OF	6 SHEETS
SCALE:	**AS SHOWN**

FILENAME: M:\2020\20-750 Meridian Upper Plateau\HM\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED By: KENNY, ON: Feb 07 2022 10:22am, CFS:

MATCHLINE - SEE SHEET 3

MATCHLINE - SEE SHEET 5

LEGEND

- FLOW PATH
- WATERSHED AREA
- (X) HYDROLOGY NODE
- X — WATERSHED NAME
- XXX — WATERSHED ACREAGE

N

100' 0 100' 200' 300'

GRAPHIC SCALE: 1"=100'

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NO.:	REVISION:	DATE:

PROJECT:
MERIDIAN WEST CAMPUS
UPPER PLATEAU
MARCH JOINT POWERS AUTHORITY

DRAWING NAME:
PROPOSED HYDROLOGY MAP

ISSUE:	HM
DATE:	8/24/2021
CHECKED: KH	DRAWN: KH
DRAWING FILE:	
PROJECT NO.:	20-750
SHEET NUMBER:	6
OF	6 SHEETS
SCALE:	AS SHOWN

FILENAME: M:\2020\20-750 Meridian Upper Plateau\AM\CAD\20750 Proposed Hydrology Map.dwg, LAST SAVED ON: Feb 07 2022 10:02am PLOTTED BY: KENNY, ON: Feb 07 2022 10:22am, OFG

APPENDIX C

Proposed Condition 100-year Hydrology Calculations (AES – Rational Method)

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
         RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
          (c) Copyright 1982-2015 Advanced Engineering Software (aes)
                      (Rational Tabling Version 22.0)
                  Release Date: 07/01/2015  License ID 1510

                           Analysis prepared by:

                           DRC Engineering, Inc.
                    160 South Old Springs Road, Suite 210
                          Anaheim Hills, CA 92808
                               714-685-6860

 ************************** DESCRIPTION OF STUDY **************************
* Meridian Upper Plateau                                                  *
* 100 year proposed                                                       *
* Public Storm Drain                                                      *
 *************************************************************************

  FILE NAME: 20750P.DAT
  TIME/DATE OF STUDY: 08:21 09/14/2021
------------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 1.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.880
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.700
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.680
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.000
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5513834
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5501947
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.000
  SLOPE OF INTENSITY DURATION CURVE = 0.5502
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

+----------------------------------------------------------------------------+
| Watershed 16                                                               |
|                                                                            |
|                                                                            |
```

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

****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   586.00
  UPSTREAM ELEVATION(FEET) =   1688.60
  DOWNSTREAM ELEVATION(FEET) =   1684.60
  ELEVATION DIFFERENCE(FEET) =      4.00
  TC = 0.303*[(  586.00**3)/(     4.00)]**.2 =   10.517
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.607
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8832
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.91
  TOTAL AREA(ACRES) =      0.83   TOTAL RUNOFF(CFS) =      1.91

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1679.00  DOWNSTREAM(FEET) =  1678.70
  FLOW LENGTH(FEET) =    18.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.43
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.91
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   10.57
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     604.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 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.) =   10.57
  RAINFALL INTENSITY(INCH/HR) =   2.60
  TOTAL STREAM AREA(ACRES) =     0.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.91

****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   586.00
  UPSTREAM ELEVATION(FEET) =   1688.60
  DOWNSTREAM ELEVATION(FEET) =   1684.10
  ELEVATION DIFFERENCE(FEET) =      4.50
```

```
 TC = 0.303*[(  586.00**3)/(     4.50)]**.2 =   10.273
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.641
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8834
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      2.87
 TOTAL AREA(ACRES) =      1.23   TOTAL RUNOFF(CFS) =      2.87

****************************************************************************
 FLOW PROCESS FROM NODE      4.00 TO NODE      3.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1679.10  DOWNSTREAM(FEET) =  1679.00
 FLOW LENGTH(FEET) =    29.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.42
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.87
 PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   10.41
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     615.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 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.) =   10.41
 RAINFALL INTENSITY(INCH/HR) =   2.62
 TOTAL STREAM AREA(ACRES) =     1.23
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.87

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        1.91    10.57        2.599          0.83
     2        2.87    10.41        2.621          1.23

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        4.75    10.41       2.621
     2        4.76    10.57       2.599

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       4.75   Tc(MIN.) =   10.41
 TOTAL AREA(ACRES) =        2.1
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     615.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      5.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1678.70  DOWNSTREAM(FEET) =  1678.40
  FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.73
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.75
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   10.46
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =     635.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 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.) =   10.46
  RAINFALL INTENSITY(INCH/HR) =   2.61
  TOTAL STREAM AREA(ACRES) =     2.06
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.75

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      7.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1130.00
  UPSTREAM ELEVATION(FEET) =   1722.00
  DOWNSTREAM ELEVATION(FEET) =   1708.00
  ELEVATION DIFFERENCE(FEET) =     14.00
  TC = 0.533*[( 1130.00**3)/(    14.00)]**.2 =   21.332
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.766
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6721
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     10.66
  TOTAL AREA(ACRES) =      8.98   TOTAL RUNOFF(CFS) =     10.66

****************************************************************************
  FLOW PROCESS FROM NODE      7.00 TO NODE      5.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1700.00  DOWNSTREAM(FEET) =  1678.40
  FLOW LENGTH(FEET) =   135.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   5.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.32
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.66
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   21.45
```

```
 LONGEST FLOWPATH FROM NODE      6.00 TO NODE      5.00 =    1265.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 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.) =   21.45
 RAINFALL INTENSITY(INCH/HR) =   1.76
 TOTAL STREAM AREA(ACRES) =     8.98
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.66

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        4.75    10.46        2.614          2.06
     2       10.66    21.45        1.761          8.98

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        9.95    10.46       2.614
     2       13.86    21.45       1.761

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      13.86   Tc(MIN.) =   21.45
 TOTAL AREA(ACRES) =       11.0
 LONGEST FLOWPATH FROM NODE      6.00 TO NODE      5.00 =    1265.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      5.00 TO NODE      8.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1678.40  DOWNSTREAM(FEET) =  1675.50
 FLOW LENGTH(FEET) =   558.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.83
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      13.86
 PIPE TRAVEL TIME(MIN.) =   1.60    Tc(MIN.) =   23.04
 LONGEST FLOWPATH FROM NODE      6.00 TO NODE      8.00 =    1823.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
================================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   23.04
  RAINFALL INTENSITY(INCH/HR) =   1.69
  TOTAL STREAM AREA(ACRES) =    11.04
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.86

****************************************************************************
  FLOW PROCESS FROM NODE      9.00 TO NODE     10.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   586.00
  UPSTREAM ELEVATION(FEET) =   1692.20
  DOWNSTREAM ELEVATION(FEET) =   1687.00
  ELEVATION DIFFERENCE(FEET) =      5.20
  TC = 0.303*[(  586.00**3)/(     5.20)]**.2 =    9.980
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.683
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8836
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.82
  TOTAL AREA(ACRES) =      1.19   TOTAL RUNOFF(CFS) =      2.82

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE      8.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1682.00  DOWNSTREAM(FEET) =  1675.50
  FLOW LENGTH(FEET) =    29.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.23
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.82
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   10.01
  LONGEST FLOWPATH FROM NODE      9.00 TO NODE      8.00 =     615.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 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.) =   10.01
  RAINFALL INTENSITY(INCH/HR) =   2.68
  TOTAL STREAM AREA(ACRES) =     1.19
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.82

****************************************************************************
  FLOW PROCESS FROM NODE      9.00 TO NODE     10.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
```

```
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   586.00
  UPSTREAM ELEVATION(FEET) =   1692.20
  DOWNSTREAM ELEVATION(FEET) =   1687.00
  ELEVATION DIFFERENCE(FEET) =      5.20
  TC = 0.303*[(  586.00**3)/(     5.20)]**.2 =    9.980
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.683
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8836
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.33
  TOTAL AREA(ACRES) =      0.56   TOTAL RUNOFF(CFS) =      1.33

****************************************************************************
  FLOW PROCESS FROM NODE     10.50 TO NODE      8.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1682.00  DOWNSTREAM(FEET) =  1675.50
  FLOW LENGTH(FEET) =    18.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.37
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.33
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   10.00
  LONGEST FLOWPATH FROM NODE      9.00 TO NODE      8.00 =     604.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 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.) =   10.00
  RAINFALL INTENSITY(INCH/HR) =   2.68
  TOTAL STREAM AREA(ACRES) =     0.56
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.33

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       13.86    23.04        1.693         11.04
      2        2.82    10.01        2.678          1.19
      3        1.33    10.00        2.680          0.56

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       10.16    10.00       2.680
      2       10.17    10.01       2.678
      3       16.48    23.04       1.693

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      16.48   Tc(MIN.) =   23.04
  TOTAL AREA(ACRES) =       12.8
  LONGEST FLOWPATH FROM NODE      6.00 TO NODE      8.00 =    1823.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE     11.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1675.50  DOWNSTREAM(FEET) =  1674.30
  FLOW LENGTH(FEET) =   219.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.08
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.48
  PIPE TRAVEL TIME(MIN.) =   0.60    Tc(MIN.) =   23.64
  LONGEST FLOWPATH FROM NODE      6.00 TO NODE     11.00 =    2042.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     11.00 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.) =   23.64
  RAINFALL INTENSITY(INCH/HR) =   1.67
  TOTAL STREAM AREA(ACRES) =    12.79
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.48

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   608.00
  UPSTREAM ELEVATION(FEET) =   1724.50
  DOWNSTREAM ELEVATION(FEET) =   1708.00
  ELEVATION DIFFERENCE(FEET) =     16.50
  TC = 0.533*[(  608.00**3)/(    16.50)]**.2 =   14.231
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.207
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7079
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      7.20
  TOTAL AREA(ACRES) =      4.61   TOTAL RUNOFF(CFS) =      7.20

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     11.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1700.00  DOWNSTREAM(FEET) =  1674.30
  FLOW LENGTH(FEET) =   156.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.41
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.20
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   14.38
  LONGEST FLOWPATH FROM NODE     12.00 TO NODE     11.00 =     764.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     11.00 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) =   2.19
  TOTAL STREAM AREA(ACRES) =     4.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.20

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       16.48    23.64        1.669         12.79
      2        7.20    14.38        2.194          4.61

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       17.23    14.38       2.194
      2       21.96    23.64       1.669

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      21.96   Tc(MIN.) =   23.64
  TOTAL AREA(ACRES) =       17.4
  LONGEST FLOWPATH FROM NODE      6.00 TO NODE     11.00 =    2042.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     14.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1674.30  DOWNSTREAM(FEET) =  1674.00
  FLOW LENGTH(FEET) =    73.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.99
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
```

```
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      21.96
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   23.82
  LONGEST FLOWPATH FROM NODE      6.00 TO NODE     14.00 =    2115.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  13
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   490.00
  UPSTREAM ELEVATION(FEET) =   1710.60
  DOWNSTREAM ELEVATION(FEET) =   1694.10
  ELEVATION DIFFERENCE(FEET) =     16.50
  TC = 0.303*[(  490.00**3)/(    16.50)]**.2 =    7.116
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.232
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8859
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.78
  TOTAL AREA(ACRES) =      0.97   TOTAL RUNOFF(CFS) =      2.78

****************************************************************************
  FLOW PROCESS FROM NODE     16.00 TO NODE     19.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1690.10  DOWNSTREAM(FEET) =  1678.80
  FLOW LENGTH(FEET) =   465.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.90
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.78
  PIPE TRAVEL TIME(MIN.) =   1.12    Tc(MIN.) =    8.24
  LONGEST FLOWPATH FROM NODE     15.00 TO NODE     19.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 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.) =    8.24
  RAINFALL INTENSITY(INCH/HR) =   2.98
```

```
  TOTAL STREAM AREA(ACRES) =     0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.78

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   415.00
  UPSTREAM ELEVATION(FEET) =   1694.70
  DOWNSTREAM ELEVATION(FEET) =   1692.00
  ELEVATION DIFFERENCE(FEET) =      2.70
  TC = 0.303*[(  415.00**3)/(     2.70)]**.2 =    9.250
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.797
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8841
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      0.99
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      0.99

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     17.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1686.00  DOWNSTREAM(FEET) =  1678.80
  FLOW LENGTH(FEET) =    24.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.31
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.99
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    9.28
  LONGEST FLOWPATH FROM NODE     18.00 TO NODE     17.00 =     439.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 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.) =    9.28
  RAINFALL INTENSITY(INCH/HR) =   2.79
  TOTAL STREAM AREA(ACRES) =     0.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.99

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     20.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   415.00
  UPSTREAM ELEVATION(FEET) =   1694.70
  DOWNSTREAM ELEVATION(FEET) =   1692.00
```

```
 ELEVATION DIFFERENCE(FEET) =      2.70
 TC = 0.303*[(  415.00**3)/(     2.70)]**.2 =    9.250
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.797
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8841
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      1.85
 TOTAL AREA(ACRES) =      0.75   TOTAL RUNOFF(CFS) =      1.85

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     17.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1686.00  DOWNSTREAM(FEET) =  1678.80
 FLOW LENGTH(FEET) =    32.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.47
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.85
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    9.29
 LONGEST FLOWPATH FROM NODE     18.00 TO NODE     17.00 =     447.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     17.00 TO NODE     17.00 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.) =    9.29
 RAINFALL INTENSITY(INCH/HR) =   2.79
 TOTAL STREAM AREA(ACRES) =     0.75
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.85

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        2.78     8.24        2.982          0.97
     2        0.99     9.28        2.792          0.40
     3        1.85     9.29        2.791          0.75

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        5.30     8.24       2.982
     2        5.44     9.28       2.792
     3        5.44     9.29       2.791

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =       5.30   Tc(MIN.) =    8.24
  TOTAL AREA(ACRES) =        2.1
  LONGEST FLOWPATH FROM NODE     15.00 TO NODE     17.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     21.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1678.80  DOWNSTREAM(FEET) =  1676.96
  FLOW LENGTH(FEET) =   191.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   8.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.80
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.30
  PIPE TRAVEL TIME(MIN.) =   0.55    Tc(MIN.) =    8.79
  LONGEST FLOWPATH FROM NODE     15.00 TO NODE     21.00 =    1146.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 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.) =    8.79
  RAINFALL INTENSITY(INCH/HR) =   2.88
  TOTAL STREAM AREA(ACRES) =     2.12
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.30

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     23.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   555.00
  UPSTREAM ELEVATION(FEET) =   1710.60
  DOWNSTREAM ELEVATION(FEET) =   1710.00
  ELEVATION DIFFERENCE(FEET) =      0.60
  TC = 0.533*[(  555.00**3)/(     0.60)]**.2 =   26.143
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.579
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6525
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      5.62
  TOTAL AREA(ACRES) =      5.45   TOTAL RUNOFF(CFS) =      5.62

****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     21.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1705.60  DOWNSTREAM(FEET) =  1676.96
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.11
```

```
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.62
 PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   26.24
 LONGEST FLOWPATH FROM NODE     22.00 TO NODE     21.00 =     663.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     21.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   26.24
 RAINFALL INTENSITY(INCH/HR) =   1.58
 TOTAL STREAM AREA(ACRES) =     5.45
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.62

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        5.30     8.79        2.878          2.12
     2        5.62    26.24        1.576          5.45

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        7.18     8.79       2.878
     2        8.52    26.24       1.576

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       8.52   Tc(MIN.) =   26.24
 TOTAL AREA(ACRES) =        7.6
 LONGEST FLOWPATH FROM NODE     15.00 TO NODE     21.00 =    1146.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     14.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1676.96  DOWNSTREAM(FEET) =  1674.00
 FLOW LENGTH(FEET) =   115.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   7.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.43
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       8.52
 PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   26.44
 LONGEST FLOWPATH FROM NODE     15.00 TO NODE     14.00 =    1261.00 FEET.

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

```
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 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        8.52    26.44       1.570        7.57
 LONGEST FLOWPATH FROM NODE     15.00 TO NODE     14.00 =    1261.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1       21.96    23.82       1.662       17.40
 LONGEST FLOWPATH FROM NODE      6.00 TO NODE     14.00 =    2115.00 FEET.

****************************************WARNING*****************************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
****************************************************************************

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
     1      29.64      23.82        1.662
     2      29.26      26.44        1.570

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      29.64   Tc(MIN.) =   23.82
 TOTAL AREA(ACRES) =       25.0

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     24.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1674.00  DOWNSTREAM(FEET) =  1671.00
 FLOW LENGTH(FEET) =   291.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  18.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.21
 GIVEN PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      29.64
 PIPE TRAVEL TIME(MIN.) =   0.53    Tc(MIN.) =   24.35
 LONGEST FLOWPATH FROM NODE      6.00 TO NODE     24.00 =    2406.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =  13
----------------------------------------------------------------------------
 >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

+----------------------------------------------------------------------------+
| Watershed 2 (Storm Drain Line 2-1)                                         |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     30.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1111.00
  UPSTREAM ELEVATION(FEET) =   1734.10
  DOWNSTREAM ELEVATION(FEET) =   1728.00
  ELEVATION DIFFERENCE(FEET) =      6.10
  TC = 0.303*[( 1111.00**3)/(     6.10)]**.2 =   14.189
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.211
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8808
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.30
  TOTAL AREA(ACRES) =      1.18   TOTAL RUNOFF(CFS) =      2.30

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     32.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.00  DOWNSTREAM(FEET) =  1719.30
  FLOW LENGTH(FEET) =    38.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.68
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.30
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   14.25
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =    1149.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 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.) =   14.25
  RAINFALL INTENSITY(INCH/HR) =   2.21
  TOTAL STREAM AREA(ACRES) =     1.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.30

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1111.00
  UPSTREAM ELEVATION(FEET) =   1734.10
  DOWNSTREAM ELEVATION(FEET) =   1728.00
  ELEVATION DIFFERENCE(FEET) =      6.10
  TC = 0.303*[( 1111.00**3)/(     6.10)]**.2 =   14.189
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.211
```

```
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8808
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.51
  TOTAL AREA(ACRES) =      1.29   TOTAL RUNOFF(CFS) =      2.51

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.00  DOWNSTREAM(FEET) =  1719.30
  FLOW LENGTH(FEET) =    27.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.38
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.51
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.23
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =    1138.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 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.) =   14.23
  RAINFALL INTENSITY(INCH/HR) =   2.21
  TOTAL STREAM AREA(ACRES) =     1.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.51

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1         2.30    14.25        2.206          1.18
      2         2.51    14.23        2.208          1.29

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  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 *****************************************************************************

  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         4.81    14.23       2.208
      2         4.81    14.25       2.206

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.81   Tc(MIN.) =   14.23
  TOTAL AREA(ACRES) =        2.5
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =    1149.00 FEET.

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

```
 FLOW PROCESS FROM NODE     32.00 TO NODE     34.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1719.30  DOWNSTREAM(FEET) =  1714.80
 FLOW LENGTH(FEET) =  1124.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   9.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.11
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       4.81
 PIPE TRAVEL TIME(MIN.) =   4.56    Tc(MIN.) =   18.79
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     34.00 =    2273.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   18.79
 RAINFALL INTENSITY(INCH/HR) =   1.89
 TOTAL STREAM AREA(ACRES) =     2.47
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.81

****************************************************************************
 FLOW PROCESS FROM NODE     35.00 TO NODE     36.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1119.00
 UPSTREAM ELEVATION(FEET) =   1729.40
 DOWNSTREAM ELEVATION(FEET) =   1724.10
 ELEVATION DIFFERENCE(FEET) =      5.30
 TC = 0.303*[( 1119.00**3)/(     5.30)]**.2 =   14.656
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.172
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8805
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      2.31
 TOTAL AREA(ACRES) =      1.21   TOTAL RUNOFF(CFS) =      2.31

****************************************************************************
 FLOW PROCESS FROM NODE     36.00 TO NODE     34.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1718.10  DOWNSTREAM(FEET) =  1714.80
 FLOW LENGTH(FEET) =    27.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.61
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.31
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.70
 LONGEST FLOWPATH FROM NODE     35.00 TO NODE     34.00 =    1146.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 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.) =   14.70
  RAINFALL INTENSITY(INCH/HR) =   2.17
  TOTAL STREAM AREA(ACRES) =     1.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.31

****************************************************************************
  FLOW PROCESS FROM NODE     35.00 TO NODE     37.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1119.00
  UPSTREAM ELEVATION(FEET) =   1729.40
  DOWNSTREAM ELEVATION(FEET) =   1724.10
  ELEVATION DIFFERENCE(FEET) =      5.30
  TC = 0.303*[( 1119.00**3)/(     5.30)]**.2 =   14.656
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.172
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8805
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.31
  TOTAL AREA(ACRES) =      1.21   TOTAL RUNOFF(CFS) =      2.31

****************************************************************************
  FLOW PROCESS FROM NODE     37.00 TO NODE     34.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1724.10  DOWNSTREAM(FEET) =  1714.80
  FLOW LENGTH(FEET) =    38.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.80
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.31
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.70
  LONGEST FLOWPATH FROM NODE     35.00 TO NODE     34.00 =    1157.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     34.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.70
  RAINFALL INTENSITY(INCH/HR) =   2.17
  TOTAL STREAM AREA(ACRES) =     1.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.31

  ** CONFLUENCE DATA **
```

```
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        4.81    18.79        1.894          2.47
     2        2.31    14.70        2.168          1.21
     3        2.31    14.70        2.168          1.21

 ***********************************WARNING************************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ******************************************************************************

  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        8.39    14.70       2.168
      2        8.39    14.70       2.168
      3        8.85    18.79       1.894

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       8.85   Tc(MIN.) =   18.79
  TOTAL AREA(ACRES) =        4.9
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     34.00 =    2273.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     38.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1714.80  DOWNSTREAM(FEET) =  1708.20
  FLOW LENGTH(FEET) =   598.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  10.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.01
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.85
  PIPE TRAVEL TIME(MIN.) =   1.42    Tc(MIN.) =   20.21
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     38.00 =    2871.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     38.00 TO NODE     38.00 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.) =   20.21
  RAINFALL INTENSITY(INCH/HR) =   1.82
  TOTAL STREAM AREA(ACRES) =     4.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.85

****************************************************************************
  FLOW PROCESS FROM NODE     39.00 TO NODE     40.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
```

```
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   557.00
  UPSTREAM ELEVATION(FEET) =   1724.50
  DOWNSTREAM ELEVATION(FEET) =   1718.60
  ELEVATION DIFFERENCE(FEET) =      5.90
  TC = 0.303*[(  557.00**3)/(     5.90)]**.2 =    9.439
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.766
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8840
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.54
  TOTAL AREA(ACRES) =      0.63   TOTAL RUNOFF(CFS) =      1.54

****************************************************************************
  FLOW PROCESS FROM NODE     40.00 TO NODE     38.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1712.60  DOWNSTREAM(FEET) =  1708.40
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.99
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.54
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    9.50
  LONGEST FLOWPATH FROM NODE     39.00 TO NODE     38.00 =     594.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     38.00 TO NODE     38.00 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.) =    9.50
  RAINFALL INTENSITY(INCH/HR) =   2.76
  TOTAL STREAM AREA(ACRES) =     0.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.54

****************************************************************************
  FLOW PROCESS FROM NODE     39.00 TO NODE     41.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   709.00
  UPSTREAM ELEVATION(FEET) =   1724.50
  DOWNSTREAM ELEVATION(FEET) =   1718.60
  ELEVATION DIFFERENCE(FEET) =      5.90
  TC = 0.303*[(  709.00**3)/(     5.90)]**.2 =   10.909
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.555
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8829
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.87
  TOTAL AREA(ACRES) =      0.83   TOTAL RUNOFF(CFS) =      1.87

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

```
 FLOW PROCESS FROM NODE     41.00 TO NODE     38.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1712.60  DOWNSTREAM(FEET) =  1708.20
 FLOW LENGTH(FEET) =    27.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.05
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.87
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   10.95
 LONGEST FLOWPATH FROM NODE     39.00 TO NODE     38.00 =     736.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     38.00 TO NODE     38.00 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.) =   10.95
 RAINFALL INTENSITY(INCH/HR) =   2.55
 TOTAL STREAM AREA(ACRES) =     0.83
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.87

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        8.85    20.21        1.820          4.89
     2        1.54     9.50        2.757          0.63
     3        1.87    10.95        2.550          0.83

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        7.33     9.50       2.757
     2        8.09    10.95       2.550
     3       11.20    20.21       1.820

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      11.20   Tc(MIN.) =   20.21
 TOTAL AREA(ACRES) =        6.3
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     38.00 =    2871.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     38.00 TO NODE     42.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
```

```
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1708.20  DOWNSTREAM(FEET) =  1695.60
  FLOW LENGTH(FEET) =   570.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   9.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.63
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.20
  PIPE TRAVEL TIME(MIN.) =   0.99    Tc(MIN.) =   21.19
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     42.00 =    3441.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     42.00 TO NODE     42.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   21.19
  RAINFALL INTENSITY(INCH/HR) =   1.77
  TOTAL STREAM AREA(ACRES) =     6.35
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.20

****************************************************************************
  FLOW PROCESS FROM NODE     43.00 TO NODE     44.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   594.00
  UPSTREAM ELEVATION(FEET) =   1718.80
  DOWNSTREAM ELEVATION(FEET) =   1709.90
  ELEVATION DIFFERENCE(FEET) =      8.90
  TC = 0.303*[(  594.00**3)/(     8.90)]**.2 =    9.036
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.834
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8843
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.58
  TOTAL AREA(ACRES) =      0.63   TOTAL RUNOFF(CFS) =      1.58

****************************************************************************
  FLOW PROCESS FROM NODE     44.00 TO NODE     42.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1704.90  DOWNSTREAM(FEET) =  1695.60
  FLOW LENGTH(FEET) =    33.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.85
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.58
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    9.08
  LONGEST FLOWPATH FROM NODE     43.00 TO NODE     42.00 =     627.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     42.00 TO NODE     42.00 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.) =    9.08
  RAINFALL INTENSITY(INCH/HR) =   2.83
  TOTAL STREAM AREA(ACRES) =     0.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.58

****************************************************************************
  FLOW PROCESS FROM NODE     43.00 TO NODE     45.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   588.00
  UPSTREAM ELEVATION(FEET) =   1718.80
  DOWNSTREAM ELEVATION(FEET) =   1709.90
  ELEVATION DIFFERENCE(FEET) =      8.90
  TC = 0.303*[(  588.00**3)/(     8.90)]**.2 =    8.981
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.843
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8843
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.58
  TOTAL AREA(ACRES) =      0.63   TOTAL RUNOFF(CFS) =      1.58

****************************************************************************
  FLOW PROCESS FROM NODE     45.00 TO NODE     42.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1704.90  DOWNSTREAM(FEET) =  1695.60
  FLOW LENGTH(FEET) =    21.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.26
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.58
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    9.00
  LONGEST FLOWPATH FROM NODE     43.00 TO NODE     42.00 =     609.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     42.00 TO NODE     42.00 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.) =    9.00
  RAINFALL INTENSITY(INCH/HR) =   2.84
  TOTAL STREAM AREA(ACRES) =     0.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.58

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       11.20    21.19        1.773          6.35
      2        1.58     9.08        2.827          0.63
```

```
     3        1.58     9.00        2.839          0.63

 ************************************WARNING*************************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ********************************************************************************

  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        7.91     9.00       2.839
      2        7.95     9.08       2.827
      3       13.18    21.19       1.773

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      13.18   Tc(MIN.) =   21.19
  TOTAL AREA(ACRES) =        7.6
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     42.00 =    3441.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     42.00 TO NODE     46.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1695.60  DOWNSTREAM(FEET) =  1694.90
  FLOW LENGTH(FEET) =    31.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS   9.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.99
  GIVEN PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.18
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   21.25
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     46.00 =    3472.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     46.00 TO NODE     46.00 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.) =   21.25
  RAINFALL INTENSITY(INCH/HR) =   1.77
  TOTAL STREAM AREA(ACRES) =     7.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.18

****************************************************************************
  FLOW PROCESS FROM NODE     47.00 TO NODE     48.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  2376.00
  UPSTREAM ELEVATION(FEET) =   1722.50
```

```
 DOWNSTREAM ELEVATION(FEET) =   1718.60
 ELEVATION DIFFERENCE(FEET) =      3.90
 TC = 0.533*[( 2376.00**3)/(     3.90)]**.2 =   43.022
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.201
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6005
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =     41.98
 TOTAL AREA(ACRES) =     58.22   TOTAL RUNOFF(CFS) =     41.98

****************************************************************************
 FLOW PROCESS FROM NODE     48.00 TO NODE     46.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1712.60  DOWNSTREAM(FEET) =  1694.90
 FLOW LENGTH(FEET) =   102.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  10.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  28.79
 GIVEN PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      41.98
 PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   43.08
 LONGEST FLOWPATH FROM NODE     47.00 TO NODE     46.00 =    2478.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     46.00 TO NODE     46.00 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.) =   43.08
 RAINFALL INTENSITY(INCH/HR) =   1.20
 TOTAL STREAM AREA(ACRES) =    58.22
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     41.98

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       13.18    21.25        1.770          7.61
     2       41.98    43.08        1.200         58.22

 **********************************WARNING***********************************
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 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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       33.88    21.25       1.770
     2       50.91    43.08       1.200

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      50.91   Tc(MIN.) =   43.08
```

```
  TOTAL AREA(ACRES) =       65.8
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     46.00 =    3472.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     46.00 TO NODE     49.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1694.90  DOWNSTREAM(FEET) =  1664.60
  FLOW LENGTH(FEET) =  1091.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  17.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.38
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      50.91
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =   44.26
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     49.00 =    4563.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     49.00 TO NODE     49.00 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.) =   44.26
  RAINFALL INTENSITY(INCH/HR) =   1.18
  TOTAL STREAM AREA(ACRES) =    65.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     50.91

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     50.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   523.00
  UPSTREAM ELEVATION(FEET) =   1694.70
  DOWNSTREAM ELEVATION(FEET) =   1678.00
  ELEVATION DIFFERENCE(FEET) =     16.70
  TC = 0.303*[(  523.00**3)/(    16.70)]**.2 =    7.381
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.167
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8857
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.35
  TOTAL AREA(ACRES) =      0.48   TOTAL RUNOFF(CFS) =      1.35

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     49.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1673.00  DOWNSTREAM(FEET) =  1664.60
  FLOW LENGTH(FEET) =    21.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.93
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
```

```
  PIPE-FLOW(CFS) =       1.35
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    7.40
  LONGEST FLOWPATH FROM NODE     18.00 TO NODE     49.00 =     544.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     49.00 TO NODE     49.00 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.) =    7.40
  RAINFALL INTENSITY(INCH/HR) =   3.16
  TOTAL STREAM AREA(ACRES) =     0.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.35

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       50.91    44.26        1.182         65.83
      2        1.35     7.40        3.162          0.48

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        9.86     7.40       3.162
      2       51.42    44.26       1.182

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      51.42   Tc(MIN.) =   44.26
  TOTAL AREA(ACRES) =       66.3
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     49.00 =    4563.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     49.00 TO NODE     51.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1664.60  DOWNSTREAM(FEET) =  1632.50
  FLOW LENGTH(FEET) =  1120.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  17.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.60
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      51.42
  PIPE TRAVEL TIME(MIN.) =   1.20    Tc(MIN.) =   45.46
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     51.00 =    5683.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     51.00 TO NODE     51.00 IS CODE =  13
```

```
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

+--------------------------------------------------------------------------+
| Watershed 2 (Storm Drain Line 2-2)                                       |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE     50.10 TO NODE     51.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   283.00
  UPSTREAM ELEVATION(FEET) =   1734.00
  DOWNSTREAM ELEVATION(FEET) =   1728.00
  ELEVATION DIFFERENCE(FEET) =      6.00
  TC = 0.533*[(  283.00**3)/(     6.00)]**.2 =   11.011
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.542
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7283
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.93
  TOTAL AREA(ACRES) =      1.04   TOTAL RUNOFF(CFS) =      1.93

****************************************************************************
  FLOW PROCESS FROM NODE     51.10 TO NODE     52.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.00  DOWNSTREAM(FEET) =  1717.00
  FLOW LENGTH(FEET) =    85.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.04
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.93
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =   11.17
  LONGEST FLOWPATH FROM NODE     50.10 TO NODE     52.00 =     368.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     52.00 TO NODE     53.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.00  DOWNSTREAM(FEET) =  1714.30
  FLOW LENGTH(FEET) =   153.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.37
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.93
  PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =   11.64
  LONGEST FLOWPATH FROM NODE     50.10 TO NODE     53.00 =     521.00 FEET.

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

```
 FLOW PROCESS FROM NODE     53.00 TO NODE    530.00 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.) =   11.64
 RAINFALL INTENSITY(INCH/HR) =   2.46
 TOTAL STREAM AREA(ACRES) =     1.04
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.93

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     54.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   508.00
 UPSTREAM ELEVATION(FEET) =   1734.10
 DOWNSTREAM ELEVATION(FEET) =   1723.60
 ELEVATION DIFFERENCE(FEET) =     10.50
 TC = 0.303*[(  508.00**3)/(    10.50)]**.2 =    7.959
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.039
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8852
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      1.43
 TOTAL AREA(ACRES) =      0.53   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
 FLOW PROCESS FROM NODE     54.00 TO NODE     53.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1718.60  DOWNSTREAM(FEET) =  1714.30
 FLOW LENGTH(FEET) =    27.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.02
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.43
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.00
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     53.00 =     535.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     53.00 TO NODE     53.00 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.) =    8.00
 RAINFALL INTENSITY(INCH/HR) =   3.03
 TOTAL STREAM AREA(ACRES) =     0.53
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.43

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     55.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   506.00
  UPSTREAM ELEVATION(FEET) =   1734.10
  DOWNSTREAM ELEVATION(FEET) =   1723.60
  ELEVATION DIFFERENCE(FEET) =     10.50
  TC = 0.303*[(  506.00**3)/(    10.50)]**.2 =    7.940
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.043
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8852
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.70
  TOTAL AREA(ACRES) =      0.63   TOTAL RUNOFF(CFS) =      1.70

****************************************************************************
  FLOW PROCESS FROM NODE     55.00 TO NODE     53.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1718.60  DOWNSTREAM(FEET) =  1714.30
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.38
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.70
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    8.00
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     53.00 =     543.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     53.00 TO NODE     53.00 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.) =    8.00
  RAINFALL INTENSITY(INCH/HR) =   3.03
  TOTAL STREAM AREA(ACRES) =     0.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.70

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.93    11.64        2.465          1.04
      2        1.43     8.00        3.030          0.53
      3        1.70     8.00        3.030          0.63

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        4.45     8.00       3.030
      2        4.45     8.00       3.030
      3        4.47    11.64       2.465

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.47   Tc(MIN.) =   11.64
  TOTAL AREA(ACRES) =        2.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     53.00 =     543.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     53.00 TO NODE     56.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1714.30  DOWNSTREAM(FEET) =  1704.90
  FLOW LENGTH(FEET) =   557.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   6.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.75
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.47
  PIPE TRAVEL TIME(MIN.) =   1.37    Tc(MIN.) =   13.02
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     56.00 =    1100.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     56.00 TO NODE     56.00 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.) =   13.02
  RAINFALL INTENSITY(INCH/HR) =   2.32
  TOTAL STREAM AREA(ACRES) =     2.20
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.47

****************************************************************************
  FLOW PROCESS FROM NODE     57.00 TO NODE     58.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   692.00
  UPSTREAM ELEVATION(FEET) =   1720.00
  DOWNSTREAM ELEVATION(FEET) =   1716.00
  ELEVATION DIFFERENCE(FEET) =      4.00
  TC = 0.533*[(  692.00**3)/(     4.00)]**.2 =   20.420
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.809
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6762
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     11.00
  TOTAL AREA(ACRES) =      8.99   TOTAL RUNOFF(CFS) =     11.00

****************************************************************************
  FLOW PROCESS FROM NODE     58.00 TO NODE     56.00 IS CODE =  41
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1709.00  DOWNSTREAM(FEET) =  1704.90
  FLOW LENGTH(FEET) =    97.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   9.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.28
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.00
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   20.55
  LONGEST FLOWPATH FROM NODE     57.00 TO NODE     56.00 =     789.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE     56.00 TO NODE     56.00 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.) =   20.55
  RAINFALL INTENSITY(INCH/HR) =   1.80
  TOTAL STREAM AREA(ACRES) =     8.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.00

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        4.47    13.02        2.318          2.20
      2       11.00    20.55        1.803          8.99

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  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       11.43    13.02       2.318
      2       14.47    20.55       1.803

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      14.47   Tc(MIN.) =   20.55
  TOTAL AREA(ACRES) =       11.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     56.00 =    1100.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE     56.00 TO NODE     62.00 IS CODE =  41
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1704.90  DOWNSTREAM(FEET) =  1703.40
  FLOW LENGTH(FEET) =    59.00   MANNING'S N =  0.013
```

```
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  10.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.85
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.47
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   20.64
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     62.00 =    1159.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     59.00 TO NODE     59.00 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.) =   20.64
  RAINFALL INTENSITY(INCH/HR) =   1.80
  TOTAL STREAM AREA(ACRES) =    11.19
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     14.47

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     61.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   625.00
  UPSTREAM ELEVATION(FEET) =   1725.00
  DOWNSTREAM ELEVATION(FEET) =   1713.30
  ELEVATION DIFFERENCE(FEET) =     11.70
  TC = 0.303*[(  625.00**3)/(    11.70)]**.2 =    8.820
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.872
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8845
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.73
  TOTAL AREA(ACRES) =      0.68   TOTAL RUNOFF(CFS) =      1.73

****************************************************************************
  FLOW PROCESS FROM NODE     61.00 TO NODE     59.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1708.30  DOWNSTREAM(FEET) =  1703.40
  FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.39
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.73
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    8.86
  LONGEST FLOWPATH FROM NODE     60.00 TO NODE     59.00 =     651.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     59.00 TO NODE     59.00 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.) =    8.86
  RAINFALL INTENSITY(INCH/HR) =   2.87
  TOTAL STREAM AREA(ACRES) =     0.68
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.73

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     62.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   615.00
  UPSTREAM ELEVATION(FEET) =   1725.00
  DOWNSTREAM ELEVATION(FEET) =   1713.30
  ELEVATION DIFFERENCE(FEET) =     11.70
  TC = 0.303*[(  615.00**3)/(    11.70)]**.2 =    8.735
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.887
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8845
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.71
  TOTAL AREA(ACRES) =      0.67   TOTAL RUNOFF(CFS) =      1.71

****************************************************************************
  FLOW PROCESS FROM NODE     62.00 TO NODE     59.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1708.30  DOWNSTREAM(FEET) =  1703.40
  FLOW LENGTH(FEET) =    43.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.35
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.71
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    8.80
  LONGEST FLOWPATH FROM NODE     60.00 TO NODE     59.00 =     658.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     59.00 TO NODE     59.00 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.) =    8.80
  RAINFALL INTENSITY(INCH/HR) =   2.87
  TOTAL STREAM AREA(ACRES) =     0.67
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.71

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       14.47    20.64        1.799         11.19
      2        1.73     8.86        2.865          0.68
      3        1.71     8.80        2.874          0.67

 **********************************WARNING**********************************
```

```
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        9.60     8.80       2.874
      2        9.64     8.86       2.865
      3       16.63    20.64       1.799

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      16.63   Tc(MIN.) =   20.64
  TOTAL AREA(ACRES) =       12.5
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     59.00 =    1159.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     59.00 TO NODE     63.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1703.40  DOWNSTREAM(FEET) =  1703.00
  FLOW LENGTH(FEET) =    52.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.07
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.63
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   20.76
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     63.00 =    1211.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     63.00 TO NODE     63.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   20.76
  RAINFALL INTENSITY(INCH/HR) =   1.79
  TOTAL STREAM AREA(ACRES) =    12.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.63

****************************************************************************
  FLOW PROCESS FROM NODE     64.00 TO NODE     65.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   293.00
  UPSTREAM ELEVATION(FEET) =   1715.00
  DOWNSTREAM ELEVATION(FEET) =   1713.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  TC = 0.533*[(  293.00**3)/(     2.00)]**.2 =   14.006
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.227
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7092
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      2.68
 TOTAL AREA(ACRES) =      1.70   TOTAL RUNOFF(CFS) =      2.68

****************************************************************************
 FLOW PROCESS FROM NODE     65.00 TO NODE     63.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1706.50  DOWNSTREAM(FEET) =  1703.00
 FLOW LENGTH(FEET) =   667.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   6.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.85
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.68
 PIPE TRAVEL TIME(MIN.) =   2.89    Tc(MIN.) =   16.90
 LONGEST FLOWPATH FROM NODE     64.00 TO NODE     63.00 =     960.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     63.00 TO NODE     63.00 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.) =   16.90
 RAINFALL INTENSITY(INCH/HR) =   2.01
 TOTAL STREAM AREA(ACRES) =     1.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.68

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       16.63    20.76        1.793         12.54
     2        2.68    16.90        2.008          1.70

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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       16.21    16.90       2.008
     2       19.02    20.76       1.793

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      19.02   Tc(MIN.) =   20.76
 TOTAL AREA(ACRES) =       14.2
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     63.00 =    1211.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     63.00 TO NODE     64.10 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1703.00  DOWNSTREAM(FEET) =  1702.60
  FLOW LENGTH(FEET) =    60.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.06
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.02
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   20.93
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     64.10 =    1271.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     64.10 TO NODE     64.10 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.) =   20.93
  RAINFALL INTENSITY(INCH/HR) =   1.79
  TOTAL STREAM AREA(ACRES) =    14.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.02

****************************************************************************
  FLOW PROCESS FROM NODE     65.10 TO NODE     66.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1215.00
  UPSTREAM ELEVATION(FEET) =   1720.20
  DOWNSTREAM ELEVATION(FEET) =   1714.00
  ELEVATION DIFFERENCE(FEET) =      6.20
  TC = 0.303*[( 1215.00**3)/(     6.20)]**.2 =   14.923
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.150
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8804
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.50
  TOTAL AREA(ACRES) =      1.32   TOTAL RUNOFF(CFS) =      2.50

****************************************************************************
  FLOW PROCESS FROM NODE     66.00 TO NODE     64.10 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1709.00  DOWNSTREAM(FEET) =  1702.60
  FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.83
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.50
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   14.95
```

```
 LONGEST FLOWPATH FROM NODE     65.10 TO NODE     64.10 =    1238.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     64.10 TO NODE     64.10 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.) =   14.95
 RAINFALL INTENSITY(INCH/HR) =   2.15
 TOTAL STREAM AREA(ACRES) =     1.32
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.50

****************************************************************************
 FLOW PROCESS FROM NODE     65.10 TO NODE     67.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =  1215.00
 UPSTREAM ELEVATION(FEET) =   1720.20
 DOWNSTREAM ELEVATION(FEET) =   1714.00
 ELEVATION DIFFERENCE(FEET) =      6.20
 TC = 0.303*[( 1215.00**3)/(     6.20)]**.2 =   14.923
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.150
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8804
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      2.50
 TOTAL AREA(ACRES) =      1.32   TOTAL RUNOFF(CFS) =      2.50

****************************************************************************
 FLOW PROCESS FROM NODE     67.00 TO NODE     64.10 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1709.00  DOWNSTREAM(FEET) =  1702.60
 FLOW LENGTH(FEET) =    34.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.81
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.50
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.96
 LONGEST FLOWPATH FROM NODE     65.10 TO NODE     64.10 =    1249.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     64.10 TO NODE     64.10 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
 TIME OF CONCENTRATION(MIN.) =   14.96
 RAINFALL INTENSITY(INCH/HR) =   2.15
 TOTAL STREAM AREA(ACRES) =     1.32
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.50
```

```
 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       19.02    20.93        1.785         14.24
     2        2.50    14.95        2.148          1.32
     3        2.50    14.96        2.147          1.32

 ********************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  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       18.58    14.95       2.148
      2       18.60    14.96       2.147
      3       23.18    20.93       1.785

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      23.18   Tc(MIN.) =   20.93
  TOTAL AREA(ACRES) =       16.9
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     64.10 =    1271.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     64.10 TO NODE     68.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1702.60  DOWNSTREAM(FEET) =  1693.60
  FLOW LENGTH(FEET) =  2142.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.38
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      23.18
  PIPE TRAVEL TIME(MIN.) =   4.84    Tc(MIN.) =   25.77
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     68.00 =    3413.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     68.00 TO NODE     68.00 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.) =   25.77
  RAINFALL INTENSITY(INCH/HR) =   1.59
  TOTAL STREAM AREA(ACRES) =    16.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     23.18

****************************************************************************
  FLOW PROCESS FROM NODE     69.00 TO NODE     70.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   996.00
  UPSTREAM ELEVATION(FEET) =   1711.70
  DOWNSTREAM ELEVATION(FEET) =   1706.70
  ELEVATION DIFFERENCE(FEET) =      5.00
  TC = 0.533*[(  996.00**3)/(     5.00)]**.2 =   24.298
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.644
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6597
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     24.97
  TOTAL AREA(ACRES) =     23.02   TOTAL RUNOFF(CFS) =     24.97

********************************************************************************
  FLOW PROCESS FROM NODE     70.00 TO NODE     68.00 IS CODE =  41
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1701.70  DOWNSTREAM(FEET) =  1693.60
  FLOW LENGTH(FEET) =   102.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  10.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.06
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      24.97
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   24.39
  LONGEST FLOWPATH FROM NODE     69.00 TO NODE     68.00 =    1098.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     68.00 TO NODE     68.00 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.) =   24.39
  RAINFALL INTENSITY(INCH/HR) =   1.64
  TOTAL STREAM AREA(ACRES) =    23.02
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     24.97

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       23.18    25.77        1.592         16.88
      2       24.97    24.39        1.641         23.02

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ********************************************************************************

  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       46.91    24.39       1.641
      2       47.40    25.77       1.592

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      46.91   Tc(MIN.) =   24.39
  TOTAL AREA(ACRES) =       39.9
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     68.00 =    3413.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     68.00 TO NODE     71.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1693.60  DOWNSTREAM(FEET) =  1693.40
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  29.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.61
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      46.91
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   24.47
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     71.00 =    3453.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     71.00 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.) =   24.47
  RAINFALL INTENSITY(INCH/HR) =   1.64
  TOTAL STREAM AREA(ACRES) =    39.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     46.91

****************************************************************************
  FLOW PROCESS FROM NODE     65.10 TO NODE     72.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   967.00
  UPSTREAM ELEVATION(FEET) =   1720.20
  DOWNSTREAM ELEVATION(FEET) =   1710.60
  ELEVATION DIFFERENCE(FEET) =      9.60
  TC = 0.303*[(  967.00**3)/(     9.60)]**.2 =   11.923
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.433
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8822
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.83
  TOTAL AREA(ACRES) =      1.32   TOTAL RUNOFF(CFS) =      2.83

****************************************************************************
  FLOW PROCESS FROM NODE     72.00 TO NODE     71.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1710.60  DOWNSTREAM(FEET) =  1693.40
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.71
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.83
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   11.95
  LONGEST FLOWPATH FROM NODE     65.10 TO NODE     71.00 =    1004.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     71.00 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.) =   11.95
  RAINFALL INTENSITY(INCH/HR) =   2.43
  TOTAL STREAM AREA(ACRES) =     1.32
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.83

****************************************************************************
  FLOW PROCESS FROM NODE     65.10 TO NODE     73.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   967.00
  UPSTREAM ELEVATION(FEET) =   1720.20
  DOWNSTREAM ELEVATION(FEET) =   1710.60
  ELEVATION DIFFERENCE(FEET) =      9.60
  TC = 0.303*[(  967.00**3)/(     9.60)]**.2 =   11.923
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.433
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8822
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.83
  TOTAL AREA(ACRES) =      1.32   TOTAL RUNOFF(CFS) =      2.83

****************************************************************************
  FLOW PROCESS FROM NODE     73.00 TO NODE     71.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1705.60  DOWNSTREAM(FEET) =  1693.40
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.28
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.83
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   11.95
  LONGEST FLOWPATH FROM NODE     65.10 TO NODE     71.00 =     995.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     71.00 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.) =   11.95
  RAINFALL INTENSITY(INCH/HR) =   2.43
  TOTAL STREAM AREA(ACRES) =     1.32
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.83

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       46.91    24.47        1.638         39.90
      2        2.83    11.95        2.429          1.32
      3        2.83    11.95        2.430          1.32

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       28.56    11.95       2.430
      2       28.58    11.95       2.429
      3       50.72    24.47       1.638

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      50.72   Tc(MIN.) =   24.47
  TOTAL AREA(ACRES) =       42.5
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     71.00 =    3453.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     74.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1693.40  DOWNSTREAM(FEET) =  1684.50
  FLOW LENGTH(FEET) =   548.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  20.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.55
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      50.72
  PIPE TRAVEL TIME(MIN.) =   0.73    Tc(MIN.) =   25.20
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     74.00 =    4001.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     74.00 TO NODE     74.00 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.) =   25.20
  RAINFALL INTENSITY(INCH/HR) =   1.61
  TOTAL STREAM AREA(ACRES) =    42.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     50.72

****************************************************************************
  FLOW PROCESS FROM NODE     75.00 TO NODE     76.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   333.00
  UPSTREAM ELEVATION(FEET) =   1709.10
  DOWNSTREAM ELEVATION(FEET) =   1694.10
  ELEVATION DIFFERENCE(FEET) =     15.00
  TC = 0.303*[(  333.00**3)/(    15.00)]**.2 =    5.752
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.633
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8873
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.42
  TOTAL AREA(ACRES) =      0.44   TOTAL RUNOFF(CFS) =      1.42

****************************************************************************
  FLOW PROCESS FROM NODE     76.00 TO NODE     74.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1689.10  DOWNSTREAM(FEET) =  1684.50
  FLOW LENGTH(FEET) =    32.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.60
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.42
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    5.80
  LONGEST FLOWPATH FROM NODE     75.00 TO NODE     74.00 =     365.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     74.00 TO NODE     74.00 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.) =    5.80
  RAINFALL INTENSITY(INCH/HR) =   3.62
  TOTAL STREAM AREA(ACRES) =     0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.42

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       50.72    25.20        1.612         42.54
      2        1.42     5.80        3.616          0.44

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
```

```
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       13.10     5.80       3.616
      2       51.36    25.20       1.612

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      51.36   Tc(MIN.) =   25.20
  TOTAL AREA(ACRES) =       43.0
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     74.00 =    4001.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     74.00 TO NODE     77.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1684.50  DOWNSTREAM(FEET) =  1664.60
  FLOW LENGTH(FEET) =   570.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  16.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.78
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      51.36
  PIPE TRAVEL TIME(MIN.) =   0.57    Tc(MIN.) =   25.77
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     77.00 =    4571.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     77.00 TO NODE     77.00 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.) =   25.77
  RAINFALL INTENSITY(INCH/HR) =   1.59
  TOTAL STREAM AREA(ACRES) =    42.98
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     51.36

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     78.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   518.00
  UPSTREAM ELEVATION(FEET) =   1694.70
  DOWNSTREAM ELEVATION(FEET) =   1678.00
  ELEVATION DIFFERENCE(FEET) =     16.70
  TC = 0.303*[(  518.00**3)/(    16.70)]**.2 =    7.339
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.177
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8857
```

```
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.39
  TOTAL AREA(ACRES) =      0.85   TOTAL RUNOFF(CFS) =      2.39

****************************************************************************
  FLOW PROCESS FROM NODE     78.00 TO NODE     77.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1673.00  DOWNSTREAM(FEET) =  1664.60
  FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.47
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.39
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    7.37
  LONGEST FLOWPATH FROM NODE     18.00 TO NODE     77.00 =     544.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     77.00 TO NODE     77.00 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.) =    7.37
  RAINFALL INTENSITY(INCH/HR) =   3.17
  TOTAL STREAM AREA(ACRES) =     0.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.39

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       51.36    25.77        1.592         42.98
      2        2.39     7.37        3.171          0.85

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       17.07     7.37       3.171
      2       52.56    25.77       1.592

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      52.56   Tc(MIN.) =   25.77
  TOTAL AREA(ACRES) =       43.8
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     77.00 =    4571.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     77.00 TO NODE     79.00 IS CODE =  41
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1664.60  DOWNSTREAM(FEET) =  1657.60
  FLOW LENGTH(FEET) =   200.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  16.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.90
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      52.56
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   25.97
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     79.00 =    4771.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     79.00 TO NODE     79.00 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.) =   25.97
  RAINFALL INTENSITY(INCH/HR) =   1.59
  TOTAL STREAM AREA(ACRES) =    43.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     52.56

****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     81.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   574.00
  UPSTREAM ELEVATION(FEET) =   1709.70
  DOWNSTREAM ELEVATION(FEET) =   1704.00
  ELEVATION DIFFERENCE(FEET) =      5.70
  TC = 0.533*[(  574.00**3)/(     5.70)]**.2 =   17.005
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.001
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6927
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      6.35
  TOTAL AREA(ACRES) =      4.58   TOTAL RUNOFF(CFS) =      6.35

****************************************************************************
  FLOW PROCESS FROM NODE     81.00 TO NODE     79.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1699.00  DOWNSTREAM(FEET) =  1657.60
  FLOW LENGTH(FEET) =   163.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.20
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.35
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   17.14
  LONGEST FLOWPATH FROM NODE     80.00 TO NODE     79.00 =     737.00 FEET.

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

```
 FLOW PROCESS FROM NODE     79.00 TO NODE     79.00 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.) =   17.14
 RAINFALL INTENSITY(INCH/HR) =   1.99
 TOTAL STREAM AREA(ACRES) =     4.58
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.35

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       52.56    25.97        1.585         43.83
     2        6.35    17.14        1.992          4.58

**********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
*****************************************************************************

 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       41.04    17.14       1.992
     2       57.61    25.97       1.585

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      57.61   Tc(MIN.) =   25.97
 TOTAL AREA(ACRES) =       48.4
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     79.00 =    4771.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     79.00 TO NODE     82.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1657.60  DOWNSTREAM(FEET) =  1632.50
 FLOW LENGTH(FEET) =   921.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  36.0 INCH PIPE IS  18.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  15.75
 GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      57.61
 PIPE TRAVEL TIME(MIN.) =   0.97    Tc(MIN.) =   26.94
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     82.00 =    5692.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     82.00 TO NODE     82.00 IS CODE =  13
----------------------------------------------------------------------------
 >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

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

```
| Watershed 2 (Storm Drain Line 2-3)                                    |
|                                                                       |
|                                                                       |
+-----------------------------------------------------------------------+

************************************************************************
  FLOW PROCESS FROM NODE     83.00 TO NODE     84.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   681.00
  UPSTREAM ELEVATION(FEET) =   1679.30
  DOWNSTREAM ELEVATION(FEET) =   1658.50
  ELEVATION DIFFERENCE(FEET) =     20.80
  TC = 0.303*[(  681.00**3)/(    20.80)]**.2 =    8.277
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.974
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8849
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      4.47
  TOTAL AREA(ACRES) =      1.70   TOTAL RUNOFF(CFS) =      4.47

************************************************************************
  FLOW PROCESS FROM NODE     84.00 TO NODE     85.00 IS CODE =  41
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1653.50  DOWNSTREAM(FEET) =  1648.50
  FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.27
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.47
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    8.30
  LONGEST FLOWPATH FROM NODE     83.00 TO NODE     85.00 =     704.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE     85.00 TO NODE     85.00 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.) =    8.30
  RAINFALL INTENSITY(INCH/HR) =   2.97
  TOTAL STREAM AREA(ACRES) =     1.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.47

************************************************************************
  FLOW PROCESS FROM NODE     83.00 TO NODE     86.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   669.00
```

```
 UPSTREAM ELEVATION(FEET) =   1679.30
 DOWNSTREAM ELEVATION(FEET) =   1658.50
 ELEVATION DIFFERENCE(FEET) =     20.80
 TC = 0.303*[(  669.00**3)/(    20.80)]**.2 =    8.189
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.991
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8850
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      1.64
 TOTAL AREA(ACRES) =      0.62   TOTAL RUNOFF(CFS) =      1.64

****************************************************************************
 FLOW PROCESS FROM NODE     86.00 TO NODE     85.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1653.50  DOWNSTREAM(FEET) =  1648.50
 FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.80
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.64
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    8.22
 LONGEST FLOWPATH FROM NODE     83.00 TO NODE     85.00 =     692.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     85.00 TO NODE     85.00 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.) =    8.22
 RAINFALL INTENSITY(INCH/HR) =   2.99
 TOTAL STREAM AREA(ACRES) =     0.62
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.64

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        4.47     8.30        2.970          1.70
     2        1.64     8.22        2.985          0.62

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        6.07     8.22       2.985
     2        6.11     8.30       2.970

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =       6.11   Tc(MIN.) =    8.30
  TOTAL AREA(ACRES) =        2.3
  LONGEST FLOWPATH FROM NODE     83.00 TO NODE     85.00 =     704.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     85.00 TO NODE     87.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1648.50  DOWNSTREAM(FEET) =  1648.30
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.94
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.11
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    8.36
  LONGEST FLOWPATH FROM NODE     83.00 TO NODE     87.00 =     726.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     87.00 TO NODE     87.00 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.) =    8.36
  RAINFALL INTENSITY(INCH/HR) =   2.96
  TOTAL STREAM AREA(ACRES) =     2.32
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.11

****************************************************************************
  FLOW PROCESS FROM NODE     88.00 TO NODE     89.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   500.00
  UPSTREAM ELEVATION(FEET) =   1706.70
  DOWNSTREAM ELEVATION(FEET) =   1699.00
  ELEVATION DIFFERENCE(FEET) =      7.70
  TC = 0.533*[(  500.00**3)/(     7.70)]**.2 =   14.740
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.165
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7049
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      5.37
  TOTAL AREA(ACRES) =      3.52   TOTAL RUNOFF(CFS) =      5.37

****************************************************************************
  FLOW PROCESS FROM NODE     89.00 TO NODE     87.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1694.00  DOWNSTREAM(FEET) =  1648.30
  FLOW LENGTH(FEET) =   164.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.89
```

```
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.37
 PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   14.88
 LONGEST FLOWPATH FROM NODE     88.00 TO NODE     87.00 =     664.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     87.00 TO NODE     87.00 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.) =   14.88
 RAINFALL INTENSITY(INCH/HR) =   2.15
 TOTAL STREAM AREA(ACRES) =     3.52
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.37

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        6.11     8.36        2.957          2.32
     2        5.37    14.88        2.154          3.52

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        9.13     8.36       2.957
     2        9.82    14.88       2.154

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       9.13   Tc(MIN.) =    8.36
 TOTAL AREA(ACRES) =        5.8
 LONGEST FLOWPATH FROM NODE     83.00 TO NODE     87.00 =     726.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     87.00 TO NODE     90.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1648.30  DOWNSTREAM(FEET) =  1644.50
 FLOW LENGTH(FEET) =   114.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  10.72
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       9.13
 PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    8.54
 LONGEST FLOWPATH FROM NODE     83.00 TO NODE     90.00 =     840.00 FEET.

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

```
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  13
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     91.00 TO NODE     92.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   421.00
  UPSTREAM ELEVATION(FEET) =   1659.10
  DOWNSTREAM ELEVATION(FEET) =   1647.50
  ELEVATION DIFFERENCE(FEET) =     11.60
  TC = 0.303*[(  421.00**3)/(    11.60)]**.2 =    6.970
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.269
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8861
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.13
  TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      1.13

****************************************************************************
  FLOW PROCESS FROM NODE     92.00 TO NODE     93.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1644.00  DOWNSTREAM(FEET) =  1643.80
  FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.69
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.13
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    7.07
  LONGEST FLOWPATH FROM NODE     91.00 TO NODE     93.00 =     444.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 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.) =    7.07
  RAINFALL INTENSITY(INCH/HR) =   3.24
  TOTAL STREAM AREA(ACRES) =     0.39
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.13

****************************************************************************
  FLOW PROCESS FROM NODE     91.00 TO NODE     94.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   421.00
  UPSTREAM ELEVATION(FEET) =   1659.10
  DOWNSTREAM ELEVATION(FEET) =   1647.50
  ELEVATION DIFFERENCE(FEET) =     11.60
  TC = 0.303*[(  421.00**3)/(    11.60)]**.2 =    6.970
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.269
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8861
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.13
  TOTAL AREA(ACRES) =      0.39   TOTAL RUNOFF(CFS) =      1.13

********************************************************************************
  FLOW PROCESS FROM NODE     94.00 TO NODE     93.00 IS CODE =  41
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1644.00  DOWNSTREAM(FEET) =  1643.80
  FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.69
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.13
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    7.07
  LONGEST FLOWPATH FROM NODE     91.00 TO NODE     93.00 =     444.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     93.00 TO NODE     93.00 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.) =    7.07
  RAINFALL INTENSITY(INCH/HR) =   3.24
  TOTAL STREAM AREA(ACRES) =     0.39
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.13

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.13     7.07        3.242          0.39
      2        1.13     7.07        3.242          0.39

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        2.26     7.07       3.242
      2        2.26     7.07       3.242

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.26   Tc(MIN.) =    7.07
  TOTAL AREA(ACRES) =        0.8
  LONGEST FLOWPATH FROM NODE     91.00 TO NODE     93.00 =     444.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     93.00 TO NODE     90.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1645.50  DOWNSTREAM(FEET) =  1644.50
  FLOW LENGTH(FEET) =   327.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.08
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.26
  PIPE TRAVEL TIME(MIN.) =   1.77    Tc(MIN.) =    8.85
  LONGEST FLOWPATH FROM NODE     91.00 TO NODE     90.00 =     771.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 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.) =    8.85
  RAINFALL INTENSITY(INCH/HR) =   2.87
  TOTAL STREAM AREA(ACRES) =     0.78
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.26

****************************************************************************
  FLOW PROCESS FROM NODE     95.00 TO NODE     96.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   269.00
  UPSTREAM ELEVATION(FEET) =   1665.00
  DOWNSTREAM ELEVATION(FEET) =   1650.00
  ELEVATION DIFFERENCE(FEET) =     15.00
  TC = 0.533*[(  269.00**3)/(    15.00)]**.2 =    8.893
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.859
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7441
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      4.74
  TOTAL AREA(ACRES) =      2.23   TOTAL RUNOFF(CFS) =      4.74

****************************************************************************
  FLOW PROCESS FROM NODE     96.00 TO NODE     90.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1650.00  DOWNSTREAM(FEET) =  1644.50
  FLOW LENGTH(FEET) =   109.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.14
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.74
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    9.07
  LONGEST FLOWPATH FROM NODE     95.00 TO NODE     90.00 =     378.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 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.) =    9.07
  RAINFALL INTENSITY(INCH/HR) =   2.83
  TOTAL STREAM AREA(ACRES) =     2.23
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.74

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        2.26     8.85        2.867          0.78
      2        4.74     9.07        2.828          2.23

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        6.88     8.85       2.867
      2        6.97     9.07       2.828

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       6.97   Tc(MIN.) =    9.07
  TOTAL AREA(ACRES) =        3.0
  LONGEST FLOWPATH FROM NODE     91.00 TO NODE     90.00 =     771.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 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        6.97     9.07       2.828        3.01
```

```
 LONGEST FLOWPATH FROM NODE     91.00 TO NODE     90.00 =     771.00 FEET.

 ** MEMORY BANK #  2 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
     1        9.13     8.54       2.923        5.84
 LONGEST FLOWPATH FROM NODE     83.00 TO NODE     90.00 =     840.00 FEET.

 ****************************************WARNING*****************************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
     1      15.69       8.54        2.923
     2      15.80       9.07        2.828

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      15.69   Tc(MIN.) =    8.54
 TOTAL AREA(ACRES) =        8.9

****************************************************************************
 FLOW PROCESS FROM NODE     90.00 TO NODE     95.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1644.50  DOWNSTREAM(FEET) =  1644.10
 FLOW LENGTH(FEET) =    99.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.99
 PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      15.69
 PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    8.87
 LONGEST FLOWPATH FROM NODE     83.00 TO NODE     95.00 =     939.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     95.00 TO NODE     95.00 IS CODE =  13
----------------------------------------------------------------------------
 >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

+--------------------------------------------------------------------------+
| Watershed 3                                                              |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
 FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   572.00
  UPSTREAM ELEVATION(FEET) =   1710.60
  DOWNSTREAM ELEVATION(FEET) =   1706.60
  ELEVATION DIFFERENCE(FEET) =      4.00
  TC = 0.303*[(  572.00**3)/(     4.00)]**.2 =   10.366
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.628
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8833
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.62
  TOTAL AREA(ACRES) =      0.70   TOTAL RUNOFF(CFS) =      1.62

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1696.00  DOWNSTREAM(FEET) =  1695.80
  FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.92
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.62
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   10.48
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     598.00 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.) =   10.48
  RAINFALL INTENSITY(INCH/HR) =   2.61
  TOTAL STREAM AREA(ACRES) =     0.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.62

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    103.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   591.00
  UPSTREAM ELEVATION(FEET) =   1710.60
  DOWNSTREAM ELEVATION(FEET) =   1706.60
  ELEVATION DIFFERENCE(FEET) =      4.00
  TC = 0.303*[(  591.00**3)/(     4.00)]**.2 =   10.571
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.599
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8831
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.77
  TOTAL AREA(ACRES) =      0.77   TOTAL RUNOFF(CFS) =      1.77

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    102.00 IS CODE =  41
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1696.00  DOWNSTREAM(FEET) =  1695.80
  FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.03
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.77
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   10.68
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     617.00 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.) =   10.68
  RAINFALL INTENSITY(INCH/HR) =   2.58
  TOTAL STREAM AREA(ACRES) =     0.77
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.77

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.62    10.48        2.612          0.70
      2        1.77    10.68        2.585          0.77

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        3.36    10.48       2.612
      2        3.38    10.68       2.585

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.38   Tc(MIN.) =   10.68
  TOTAL AREA(ACRES) =        1.5
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     617.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    104.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1695.80  DOWNSTREAM(FEET) =  1689.90
  FLOW LENGTH(FEET) =   587.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.0 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.30
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.38
  PIPE TRAVEL TIME(MIN.) =   1.85    Tc(MIN.) =   12.52
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =    1204.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 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.) =   12.52
  RAINFALL INTENSITY(INCH/HR) =   2.37
  TOTAL STREAM AREA(ACRES) =     1.47
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.38

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   583.00
  UPSTREAM ELEVATION(FEET) =   1707.30
  DOWNSTREAM ELEVATION(FEET) =   1703.70
  ELEVATION DIFFERENCE(FEET) =      3.60
  TC = 0.303*[(  583.00**3)/(     3.60)]**.2 =   10.708
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.581
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8830
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      3.17
  TOTAL AREA(ACRES) =      1.39   TOTAL RUNOFF(CFS) =      3.17

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    104.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1698.70  DOWNSTREAM(FEET) =  1689.90
  FLOW LENGTH(FEET) =    44.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.13
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.17
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   10.76
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =     627.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 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.) =   10.76
 RAINFALL INTENSITY(INCH/HR) =   2.57
 TOTAL STREAM AREA(ACRES) =     1.39
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.17

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        3.38    12.52        2.368          1.47
     2        3.17    10.76        2.575          1.39

 ********************************WARNING*********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

 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        6.07    10.76       2.575
     2        6.29    12.52       2.368

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       6.29   Tc(MIN.) =   12.52
 TOTAL AREA(ACRES) =        2.9
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =    1204.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    107.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1689.90  DOWNSTREAM(FEET) =  1689.10
 FLOW LENGTH(FEET) =    76.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   8.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.28
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.29
 PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   12.73
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    1280.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 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.) =   12.73
 RAINFALL INTENSITY(INCH/HR) =   2.35
 TOTAL STREAM AREA(ACRES) =     2.86
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.29

****************************************************************************
 FLOW PROCESS FROM NODE    105.00 TO NODE    108.00 IS CODE =  21
```

```
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   652.00
  UPSTREAM ELEVATION(FEET) =   1707.30
  DOWNSTREAM ELEVATION(FEET) =   1703.20
  ELEVATION DIFFERENCE(FEET) =      4.10
  TC = 0.303*[(  652.00**3)/(     4.10)]**.2 =   11.158
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.523
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8827
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      3.52
  TOTAL AREA(ACRES) =      1.58   TOTAL RUNOFF(CFS) =      3.52

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    107.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1698.20  DOWNSTREAM(FEET) =  1689.10
  FLOW LENGTH(FEET) =    47.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.45
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.52
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   11.21
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 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.) =   11.21
  RAINFALL INTENSITY(INCH/HR) =   2.52
  TOTAL STREAM AREA(ACRES) =     1.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.52

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1         6.29    12.73        2.347          2.86
      2         3.52    11.21        2.517          1.58

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        9.06    11.21       2.517
      2        9.57    12.73       2.347

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       9.57   Tc(MIN.) =   12.73
  TOTAL AREA(ACRES) =        4.4
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    1280.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    109.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1689.10  DOWNSTREAM(FEET) =  1684.60
  FLOW LENGTH(FEET) =   440.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  10.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.96
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.57
  PIPE TRAVEL TIME(MIN.) =   1.05    Tc(MIN.) =   13.78
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 =    1720.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 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.) =   13.78
  RAINFALL INTENSITY(INCH/HR) =   2.25
  TOTAL STREAM AREA(ACRES) =     4.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.57

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   780.00
  UPSTREAM ELEVATION(FEET) =   1707.90
  DOWNSTREAM ELEVATION(FEET) =   1698.00
  ELEVATION DIFFERENCE(FEET) =      9.90
  TC = 0.533*[(  780.00**3)/(     9.90)]**.2 =   18.303
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.922
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6861
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     11.25
  TOTAL AREA(ACRES) =      8.53   TOTAL RUNOFF(CFS) =     11.25

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    109.00 IS CODE =  41
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1690.00  DOWNSTREAM(FEET) =  1684.60
  FLOW LENGTH(FEET) =    45.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   6.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.72
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.25
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   18.35
  LONGEST FLOWPATH FROM NODE    110.00 TO NODE    109.00 =     825.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 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.) =   18.35
  RAINFALL INTENSITY(INCH/HR) =   1.92
  TOTAL STREAM AREA(ACRES) =     8.53
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.25

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        9.57    13.78        2.247          4.44
      2       11.25    18.35        1.919          8.53

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       18.02    13.78       2.247
      2       19.42    18.35       1.919

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      19.42   Tc(MIN.) =   18.35
  TOTAL AREA(ACRES) =       13.0
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 =    1720.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    112.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1684.60  DOWNSTREAM(FEET) =  1645.00
  FLOW LENGTH(FEET) =   152.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  30.0 INCH PIPE IS   6.2 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.68
  GIVEN PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.42
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   18.44
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    112.00 =    1872.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  13
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

+--------------------------------------------------------------------------+
| Watershed 5                                                              |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    121.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   550.00
  UPSTREAM ELEVATION(FEET) =   1704.80
  DOWNSTREAM ELEVATION(FEET) =   1701.90
  ELEVATION DIFFERENCE(FEET) =      2.90
  TC = 0.303*[(  550.00**3)/(     2.90)]**.2 =   10.798
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.569
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8830
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.34
  TOTAL AREA(ACRES) =      0.59   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
  FLOW PROCESS FROM NODE    121.00 TO NODE    122.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1696.90  DOWNSTREAM(FEET) =  1696.00
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.58
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.34
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   10.91
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    122.00 =     587.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    122.00 TO NODE    122.00 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.) =   10.91
```

```
 RAINFALL INTENSITY(INCH/HR) =   2.55
 TOTAL STREAM AREA(ACRES) =     0.59
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.34

****************************************************************************
 FLOW PROCESS FROM NODE    120.00 TO NODE    123.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   549.00
 UPSTREAM ELEVATION(FEET) =   1704.80
 DOWNSTREAM ELEVATION(FEET) =   1701.90
 ELEVATION DIFFERENCE(FEET) =      2.90
 TC = 0.303*[(  549.00**3)/(     2.90)]**.2 =   10.786
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.571
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8830
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      1.34
 TOTAL AREA(ACRES) =      0.59   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
 FLOW PROCESS FROM NODE    123.00 TO NODE    122.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1696.90  DOWNSTREAM(FEET) =  1696.00
 FLOW LENGTH(FEET) =    27.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.25
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.34
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   10.86
 LONGEST FLOWPATH FROM NODE    120.00 TO NODE    122.00 =     576.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    122.00 TO NODE    122.00 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) =   2.56
 TOTAL STREAM AREA(ACRES) =     0.59
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.34

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        1.34    10.91        2.555          0.59
     2        1.34    10.86        2.561          0.59

 ********************************WARNING*********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
```

```
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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        2.67    10.86       2.561
      2        2.67    10.91       2.555

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.67   Tc(MIN.) =   10.86
  TOTAL AREA(ACRES) =        1.2
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    122.00 =     587.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    122.00 TO NODE    124.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1696.00  DOWNSTREAM(FEET) =  1690.60
  FLOW LENGTH(FEET) =   540.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   6.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.96
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.67
  PIPE TRAVEL TIME(MIN.) =   1.81    Tc(MIN.) =   12.67
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    124.00 =    1127.00 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.) =   12.67
  RAINFALL INTENSITY(INCH/HR) =   2.35
  TOTAL STREAM AREA(ACRES) =     1.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.67

****************************************************************************
  FLOW PROCESS FROM NODE    125.00 TO NODE    126.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   777.00
  UPSTREAM ELEVATION(FEET) =   1707.90
  DOWNSTREAM ELEVATION(FEET) =   1704.10
  ELEVATION DIFFERENCE(FEET) =      3.80
  TC = 0.303*[(  777.00**3)/(     3.80)]**.2 =   12.586
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.361
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8818
  SOIL CLASSIFICATION IS "C"
```

```
  SUBAREA RUNOFF(CFS) =      1.75
  TOTAL AREA(ACRES) =      0.84   TOTAL RUNOFF(CFS) =      1.75

****************************************************************************
  FLOW PROCESS FROM NODE    126.00 TO NODE    124.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1699.10  DOWNSTREAM(FEET) =  1690.60
  FLOW LENGTH(FEET) =    25.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.28
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.75
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   12.61
  LONGEST FLOWPATH FROM NODE    125.00 TO NODE    124.00 =     802.00 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.) =   12.61
  RAINFALL INTENSITY(INCH/HR) =   2.36
  TOTAL STREAM AREA(ACRES) =     0.84
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.75

****************************************************************************
  FLOW PROCESS FROM NODE    125.00 TO NODE    127.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   777.00
  UPSTREAM ELEVATION(FEET) =   1707.90
  DOWNSTREAM ELEVATION(FEET) =   1704.10
  ELEVATION DIFFERENCE(FEET) =      3.80
  TC = 0.303*[(  777.00**3)/(     3.80)]**.2 =   12.586
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.361
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8818
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.75
  TOTAL AREA(ACRES) =      0.84   TOTAL RUNOFF(CFS) =      1.75

****************************************************************************
  FLOW PROCESS FROM NODE    127.00 TO NODE    124.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1699.10  DOWNSTREAM(FEET) =  1690.60
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.58
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
```

```
 PIPE-FLOW(CFS) =       1.75
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   12.63
 LONGEST FLOWPATH FROM NODE    125.00 TO NODE    124.00 =     812.00 FEET.

****************************************************************************
 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.) =   12.63
 RAINFALL INTENSITY(INCH/HR) =   2.36
 TOTAL STREAM AREA(ACRES) =     0.84
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.75

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        2.67    12.67        2.353          1.18
     2        1.75    12.61        2.359          0.84
     3        1.75    12.63        2.357          0.84

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        6.16    12.61       2.359
     2        6.16    12.63       2.357
     3        6.16    12.67       2.353

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       6.16   Tc(MIN.) =   12.67
 TOTAL AREA(ACRES) =        2.9
 LONGEST FLOWPATH FROM NODE    120.00 TO NODE    124.00 =    1127.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    124.00 TO NODE    127.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1690.60  DOWNSTREAM(FEET) =  1684.30
 FLOW LENGTH(FEET) =   622.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   8.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.16
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.16
 PIPE TRAVEL TIME(MIN.) =   1.68    Tc(MIN.) =   14.36
 LONGEST FLOWPATH FROM NODE    120.00 TO NODE    127.00 =    1749.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    127.00 TO NODE    127.00 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.) =   14.36
  RAINFALL INTENSITY(INCH/HR) =   2.20
  TOTAL STREAM AREA(ACRES) =     2.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.16

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    128.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   768.00
  UPSTREAM ELEVATION(FEET) =   1707.90
  DOWNSTREAM ELEVATION(FEET) =   1700.00
  ELEVATION DIFFERENCE(FEET) =      7.90
  TC = 0.533*[(  768.00**3)/(     7.90)]**.2 =   18.971
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.884
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6829
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     11.89
  TOTAL AREA(ACRES) =      9.24   TOTAL RUNOFF(CFS) =     11.89

****************************************************************************
  FLOW PROCESS FROM NODE    128.00 TO NODE    127.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1694.00  DOWNSTREAM(FEET) =  1684.30
  FLOW LENGTH(FEET) =    29.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  25.89
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.89
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   18.99
  LONGEST FLOWPATH FROM NODE    110.00 TO NODE    127.00 =     797.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    127.00 TO NODE    127.00 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.) =   18.99
  RAINFALL INTENSITY(INCH/HR) =   1.88
  TOTAL STREAM AREA(ACRES) =     9.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     11.89

  ** CONFLUENCE DATA **
```

```
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        6.16    14.36        2.196          2.86
      2       11.89    18.99        1.883          9.24

 ***********************************WARNING************************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ******************************************************************************

  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       15.15    14.36       2.196
      2       17.17    18.99       1.883

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      17.17   Tc(MIN.) =   18.99
  TOTAL AREA(ACRES) =       12.1
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    127.00 =    1749.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    127.00 TO NODE    129.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1684.30  DOWNSTREAM(FEET) =  1682.10
  FLOW LENGTH(FEET) =   216.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.98
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.17
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =   19.44
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    129.00 =    1965.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    129.00 TO NODE    130.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1682.10  DOWNSTREAM(FEET) =  1656.00
  FLOW LENGTH(FEET) =   132.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   6.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.90
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.17
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   19.53
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    130.00 =    2097.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  13
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================
```

```
+----------------------------------------------------------------------------+
| Watershed 7                                                                |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    141.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   596.00
  UPSTREAM ELEVATION(FEET) =   1714.00
  DOWNSTREAM ELEVATION(FEET) =   1707.70
  ELEVATION DIFFERENCE(FEET) =      6.30
  TC = 0.303*[(  596.00**3)/(     6.30)]**.2 =    9.702
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.725
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8838
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.93
  TOTAL AREA(ACRES) =      0.80   TOTAL RUNOFF(CFS) =      1.93

****************************************************************************
  FLOW PROCESS FROM NODE    141.00 TO NODE    142.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1700.70  DOWNSTREAM(FEET) =  1700.00
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.69
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.93
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    9.81
  LONGEST FLOWPATH FROM NODE    140.00 TO NODE    142.00 =     633.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    142.00 TO NODE    142.00 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.) =    9.81
  RAINFALL INTENSITY(INCH/HR) =   2.71
  TOTAL STREAM AREA(ACRES) =     0.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.93

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    143.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
```

```
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   602.00
 UPSTREAM ELEVATION(FEET) =   1714.00
 DOWNSTREAM ELEVATION(FEET) =   1707.70
 ELEVATION DIFFERENCE(FEET) =      6.30
 TC = 0.303*[(  602.00**3)/(     6.30)]**.2 =    9.761
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.716
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8837
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      1.90
 TOTAL AREA(ACRES) =      0.79   TOTAL RUNOFF(CFS) =      1.90

****************************************************************************
 FLOW PROCESS FROM NODE    143.00 TO NODE    142.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1700.70  DOWNSTREAM(FEET) =  1700.00
 FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.24
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.90
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.84
 LONGEST FLOWPATH FROM NODE    140.00 TO NODE    142.00 =     630.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    142.00 TO NODE    142.00 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) =   2.70
 TOTAL STREAM AREA(ACRES) =     0.79
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.90

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        1.93     9.81        2.708          0.80
     2        1.90     9.84        2.705          0.79

 ***********************************WARNING**********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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        3.82     9.81       2.708
     2        3.82     9.84       2.705
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.82   Tc(MIN.) =    9.81
  TOTAL AREA(ACRES) =        1.6
  LONGEST FLOWPATH FROM NODE    140.00 TO NODE    142.00 =     633.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    142.00 TO NODE    144.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1700.00  DOWNSTREAM(FEET) =  1691.30
  FLOW LENGTH(FEET) =    88.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.05
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.82
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    9.93
  LONGEST FLOWPATH FROM NODE    140.00 TO NODE    144.00 =     721.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    144.00 TO NODE    144.00 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.) =    9.93
  RAINFALL INTENSITY(INCH/HR) =   2.69
  TOTAL STREAM AREA(ACRES) =     1.59
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.82

****************************************************************************
  FLOW PROCESS FROM NODE    145.00 TO NODE    146.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1336.00
  UPSTREAM ELEVATION(FEET) =   1716.00
  DOWNSTREAM ELEVATION(FEET) =   1702.00
  ELEVATION DIFFERENCE(FEET) =     14.00
  TC = 0.533*[( 1336.00**3)/(    14.00)]**.2 =   23.586
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.671
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6626
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     35.34
  TOTAL AREA(ACRES) =     31.91   TOTAL RUNOFF(CFS) =     35.34

****************************************************************************
  FLOW PROCESS FROM NODE    146.00 TO NODE    144.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1697.00  DOWNSTREAM(FEET) =  1691.30
  FLOW LENGTH(FEET) =   100.00   MANNING'S N =  0.013
```

```
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  14.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  18.33
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      35.34
 PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   23.68
 LONGEST FLOWPATH FROM NODE    145.00 TO NODE    144.00 =    1436.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    144.00 TO NODE    144.00 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.) =   23.68
 RAINFALL INTENSITY(INCH/HR) =   1.67
 TOTAL STREAM AREA(ACRES) =    31.91
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     35.34

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1        3.82     9.93        2.690          1.59
     2       35.34    23.68        1.668         31.91

**********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
****************************************************************************

 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       18.64     9.93       2.690
     2       37.71    23.68       1.668

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      37.71   Tc(MIN.) =   23.68
 TOTAL AREA(ACRES) =       33.5
 LONGEST FLOWPATH FROM NODE    145.00 TO NODE    144.00 =    1436.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    144.00 TO NODE    147.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1691.30  DOWNSTREAM(FEET) =  1689.50
 FLOW LENGTH(FEET) =    88.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.00
 PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      37.71
 PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   23.80
```

```
 LONGEST FLOWPATH FROM NODE    145.00 TO NODE    147.00 =    1524.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    147.00 TO NODE    147.00 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.) =   23.80
 RAINFALL INTENSITY(INCH/HR) =   1.66
 TOTAL STREAM AREA(ACRES) =    33.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     37.71

****************************************************************************
 FLOW PROCESS FROM NODE    148.00 TO NODE    149.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   433.00
 UPSTREAM ELEVATION(FEET) =   1708.40
 DOWNSTREAM ELEVATION(FEET) =   1702.10
 ELEVATION DIFFERENCE(FEET) =      6.30
 TC = 0.303*[(  433.00**3)/(     6.30)]**.2 =    8.010
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.028
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8851
 SOIL CLASSIFICATION IS "C"
 SUBAREA RUNOFF(CFS) =      2.01
 TOTAL AREA(ACRES) =      0.75   TOTAL RUNOFF(CFS) =      2.01

****************************************************************************
 FLOW PROCESS FROM NODE    149.00 TO NODE    147.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1695.50  DOWNSTREAM(FEET) =  1689.50
 FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   2.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.57
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.01
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    8.04
 LONGEST FLOWPATH FROM NODE    148.00 TO NODE    147.00 =     461.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    147.00 TO NODE    147.00 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.) =    8.04
 RAINFALL INTENSITY(INCH/HR) =   3.02
 TOTAL STREAM AREA(ACRES) =     0.75
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.01
```

```
 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       37.71    23.80        1.663         33.50
     2        2.01     8.04        3.021          0.75

 ***********************************WARNING************************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ******************************************************************************

  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       14.75     8.04       3.021
      2       38.81    23.80       1.663

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      38.81   Tc(MIN.) =   23.80
  TOTAL AREA(ACRES) =       34.2
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    147.00 =    1524.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    147.00 TO NODE    150.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1689.50  DOWNSTREAM(FEET) =  1688.50
  FLOW LENGTH(FEET) =    45.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.35
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      38.81
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   23.86
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    150.00 =    1569.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    150.00 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.) =   23.86
  RAINFALL INTENSITY(INCH/HR) =   1.66
  TOTAL STREAM AREA(ACRES) =    34.25
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     38.81

****************************************************************************
  FLOW PROCESS FROM NODE    142.00 TO NODE    151.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
```

```
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   607.00
  UPSTREAM ELEVATION(FEET) =   1708.40
  DOWNSTREAM ELEVATION(FEET) =   1700.80
  ELEVATION DIFFERENCE(FEET) =      7.60
  TC = 0.303*[(  607.00**3)/(     7.60)]**.2 =    9.448
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.765
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8840
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      2.40
  TOTAL AREA(ACRES) =      0.98   TOTAL RUNOFF(CFS) =      2.40

****************************************************************************
  FLOW PROCESS FROM NODE    151.00 TO NODE    150.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1694.80  DOWNSTREAM(FEET) =  1688.50
  FLOW LENGTH(FEET) =    55.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.44
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.40
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    9.53
  LONGEST FLOWPATH FROM NODE    142.00 TO NODE    150.00 =     662.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    150.00 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.) =    9.53
  RAINFALL INTENSITY(INCH/HR) =   2.75
  TOTAL STREAM AREA(ACRES) =     0.98
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.40

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       38.81    23.86        1.661         34.25
      2        2.40     9.53        2.752          0.98

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       17.89     9.53       2.752
      2       40.26    23.86       1.661

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.26   Tc(MIN.) =   23.86
  TOTAL AREA(ACRES) =       35.2
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    150.00 =    1569.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    152.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1688.50  DOWNSTREAM(FEET) =  1675.50
  FLOW LENGTH(FEET) =   433.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  14.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.88
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.26
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =   24.35
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    152.00 =    2002.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    152.00 TO NODE    152.00 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.) =   24.35
  RAINFALL INTENSITY(INCH/HR) =   1.64
  TOTAL STREAM AREA(ACRES) =    35.23
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     40.26

****************************************************************************
  FLOW PROCESS FROM NODE    153.00 TO NODE    154.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   785.00
  UPSTREAM ELEVATION(FEET) =   1704.80
  DOWNSTREAM ELEVATION(FEET) =   1700.00
  ELEVATION DIFFERENCE(FEET) =      4.80
  TC = 0.533*[(  785.00**3)/(     4.80)]**.2 =   21.236
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.771
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6725
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      9.34
  TOTAL AREA(ACRES) =      7.84   TOTAL RUNOFF(CFS) =      9.34

****************************************************************************
  FLOW PROCESS FROM NODE    154.00 TO NODE    152.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1695.00  DOWNSTREAM(FEET) =  1675.50
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  31.23
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.34
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =   21.25
  LONGEST FLOWPATH FROM NODE    153.00 TO NODE    152.00 =     813.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    152.00 TO NODE    152.00 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.) =   21.25
  RAINFALL INTENSITY(INCH/HR) =   1.77
  TOTAL STREAM AREA(ACRES) =     7.84
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.34

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       40.26    24.35        1.643         35.23
      2        9.34    21.25        1.770          7.84

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       44.48    21.25       1.770
      2       48.92    24.35       1.643

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      48.92   Tc(MIN.) =   24.35
  TOTAL AREA(ACRES) =       43.1
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    152.00 =    2002.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    152.00 TO NODE    155.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1675.50  DOWNSTREAM(FEET) =  1674.70
  FLOW LENGTH(FEET) =    23.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  15.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.55
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      48.92
```

```
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   24.37
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    155.00 =    2025.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   24.37
  RAINFALL INTENSITY(INCH/HR) =   1.64
  TOTAL STREAM AREA(ACRES) =    43.07
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     48.92

****************************************************************************
  FLOW PROCESS FROM NODE    156.00 TO NODE    157.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   524.00
  UPSTREAM ELEVATION(FEET) =   1705.50
  DOWNSTREAM ELEVATION(FEET) =   1697.00
  ELEVATION DIFFERENCE(FEET) =      8.50
  TC = 0.533*[(  524.00**3)/(     8.50)]**.2 =   14.863
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.155
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7042
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      4.96
  TOTAL AREA(ACRES) =      3.27   TOTAL RUNOFF(CFS) =      4.96

****************************************************************************
  FLOW PROCESS FROM NODE    157.00 TO NODE    155.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1691.00  DOWNSTREAM(FEET) =  1674.70
  FLOW LENGTH(FEET) =    51.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.66
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.96
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.91
  LONGEST FLOWPATH FROM NODE    156.00 TO NODE    155.00 =     575.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    155.00 TO NODE    155.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.91
  RAINFALL INTENSITY(INCH/HR) =   2.15
  TOTAL STREAM AREA(ACRES) =     3.27
```

```
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      4.96

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       48.92    24.37        1.642         43.07
      2        4.96    14.91        2.152          3.27

 ***********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 *****************************************************************************

  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       34.89    14.91       2.152
      2       52.71    24.37       1.642

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      52.71   Tc(MIN.) =   24.37
  TOTAL AREA(ACRES) =       46.3
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    155.00 =    2025.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    155.00 TO NODE    158.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1674.70  DOWNSTREAM(FEET) =  1652.00
  FLOW LENGTH(FEET) =    67.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS   9.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  38.38
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      52.71
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   24.40
  LONGEST FLOWPATH FROM NODE    145.00 TO NODE    158.00 =    2092.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    158.00 TO NODE    158.00 IS CODE =  13
----------------------------------------------------------------------------
  >>>>>CLEAR THE MAIN-STREAM MEMORY<<<<<
============================================================================

+--------------------------------------------------------------------------+
| Watershed 8                                                              |
|                                                                          |
|                                                                          |
+--------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    156.00 TO NODE    180.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
```

```
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   737.00
  UPSTREAM ELEVATION(FEET) =   1705.50
  DOWNSTREAM ELEVATION(FEET) =   1697.00
  ELEVATION DIFFERENCE(FEET) =      8.50
  TC = 0.533*[(  737.00**3)/(     8.50)]**.2 =   18.239
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.925
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6864
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      9.05
  TOTAL AREA(ACRES) =      6.85   TOTAL RUNOFF(CFS) =      9.05

****************************************************************************
  FLOW PROCESS FROM NODE    180.00 TO NODE    181.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1692.00  DOWNSTREAM(FEET) =  1650.00
  FLOW LENGTH(FEET) =   175.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.27
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.05
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   18.38
  LONGEST FLOWPATH FROM NODE    156.00 TO NODE    181.00 =     912.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    181.00 TO NODE    181.00 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.) =   18.38
  RAINFALL INTENSITY(INCH/HR) =   1.92
  TOTAL STREAM AREA(ACRES) =     6.85
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.05

****************************************************************************
  FLOW PROCESS FROM NODE    182.00 TO NODE    183.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1449.00
  UPSTREAM ELEVATION(FEET) =   1714.00
  DOWNSTREAM ELEVATION(FEET) =   1704.30
  ELEVATION DIFFERENCE(FEET) =      9.70
  TC = 0.533*[( 1449.00**3)/(     9.70)]**.2 =   26.649
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.563
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6506
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     26.36
  TOTAL AREA(ACRES) =     25.92   TOTAL RUNOFF(CFS) =     26.36
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    183.00 TO NODE    181.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1690.00  DOWNSTREAM(FEET) =  1650.00
  FLOW LENGTH(FEET) =   316.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS   8.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  22.13
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.36
  PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   26.89
  LONGEST FLOWPATH FROM NODE    182.00 TO NODE    181.00 =    1765.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    181.00 TO NODE    181.00 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.) =   26.89
  RAINFALL INTENSITY(INCH/HR) =   1.56
  TOTAL STREAM AREA(ACRES) =    25.92
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     26.36

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        9.05    18.38        1.918          6.85
      2       26.36    26.89        1.555         25.92

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       27.07    18.38       1.918
      2       33.70    26.89       1.555

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      33.70   Tc(MIN.) =   26.89
  TOTAL AREA(ACRES) =       32.8
  LONGEST FLOWPATH FROM NODE    182.00 TO NODE    181.00 =    1765.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    181.00 TO NODE    184.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1650.00  DOWNSTREAM(FEET) =  1648.00
  FLOW LENGTH(FEET) =     8.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS   7.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  30.26
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      33.70
  PIPE TRAVEL TIME(MIN.) =   0.00    Tc(MIN.) =   26.89
  LONGEST FLOWPATH FROM NODE    182.00 TO NODE    184.00 =    1773.00 FEET.

+----------------------------------------------------------------------------+
| Watershed 14                                                               |
|                                                                            |
|                                                                            |
+----------------------------------------------------------------------------+

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   825.00
  UPSTREAM ELEVATION(FEET) =   1733.90
  DOWNSTREAM ELEVATION(FEET) =   1728.00
  ELEVATION DIFFERENCE(FEET) =      5.90
  TC = 0.533*[(  825.00**3)/(     5.90)]**.2 =   20.994
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.782
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6736
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      9.34
  TOTAL AREA(ACRES) =      7.78   TOTAL RUNOFF(CFS) =      9.34

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1722.00  DOWNSTREAM(FEET) =  1717.50
  FLOW LENGTH(FEET) =   562.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  11.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.32
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.34
  PIPE TRAVEL TIME(MIN.) =   1.48    Tc(MIN.) =   22.48
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =    1387.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   22.48
  RAINFALL INTENSITY(INCH/HR) =   1.72
  TOTAL STREAM AREA(ACRES) =     7.78
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.34
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   791.00
  UPSTREAM ELEVATION(FEET) =   1727.70
  DOWNSTREAM ELEVATION(FEET) =   1722.10
  ELEVATION DIFFERENCE(FEET) =      5.60
  TC = 0.533*[(  791.00**3)/(     5.60)]**.2 =   20.686
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.797
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6750
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     13.40
  TOTAL AREA(ACRES) =     11.05   TOTAL RUNOFF(CFS) =     13.40

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    202.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.70  DOWNSTREAM(FEET) =  1717.50
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  13.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.23
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.40
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   20.74
  LONGEST FLOWPATH FROM NODE    203.00 TO NODE    202.00 =     813.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 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.) =   20.74
  RAINFALL INTENSITY(INCH/HR) =   1.79
  TOTAL STREAM AREA(ACRES) =    11.05
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.40

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1         9.34    22.48        1.716          7.78
      2        13.40    20.74        1.794         11.05

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************
```

```
  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       22.01    20.74       1.794
      2       22.16    22.48       1.716

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      22.01   Tc(MIN.) =   20.74
  TOTAL AREA(ACRES) =       18.8
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =    1387.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    205.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.50  DOWNSTREAM(FEET) =  1716.80
  FLOW LENGTH(FEET) =    77.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.01
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      22.01
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =   20.92
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    205.00 =    1464.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    205.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   20.92
  RAINFALL INTENSITY(INCH/HR) =   1.79
  TOTAL STREAM AREA(ACRES) =    18.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     22.01

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    207.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
          ASSUMED INITIAL SUBAREA UNIFORM
          DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   890.00
  UPSTREAM ELEVATION(FEET) =   1727.00
  DOWNSTREAM ELEVATION(FEET) =   1722.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  TC = 0.533*[(  890.00**3)/(     5.00)]**.2 =   22.711
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.707
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6662
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =     12.56
  TOTAL AREA(ACRES) =     11.05   TOTAL RUNOFF(CFS) =     12.56
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    207.00 TO NODE    205.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.00  DOWNSTREAM(FEET) =  1716.80
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  13.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.12
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      12.56
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   22.76
  LONGEST FLOWPATH FROM NODE    206.00 TO NODE    205.00 =     912.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    205.00 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.) =   22.76
  RAINFALL INTENSITY(INCH/HR) =   1.70
  TOTAL STREAM AREA(ACRES) =    11.05
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     12.56

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       22.01    20.92        1.786         18.83
      2       12.56    22.76        1.704         11.05

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  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       33.56    20.92       1.786
      2       33.58    22.76       1.704

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      33.56   Tc(MIN.) =   20.92
  TOTAL AREA(ACRES) =       29.9
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    205.00 =    1464.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    208.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1716.80  DOWNSTREAM(FEET) =  1716.20
  FLOW LENGTH(FEET) =    72.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.68
  PIPE FLOW VELOCITY = (TOTAL FLOW)/(PIPE CROSS SECTION AREA)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      33.56
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   21.03
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    208.00 =    1536.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    208.00 TO NODE    209.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1716.20  DOWNSTREAM(FEET) =   1716.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    12.00   CHANNEL SLOPE =  0.0167
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      33.56
  FLOW VELOCITY(FEET/SEC.) =   9.06   FLOW DEPTH(FEET) =   0.78
  TRAVEL TIME(MIN.) =   0.02   Tc(MIN.) =   21.05
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    209.00 =    1548.00 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.) =   21.05
  RAINFALL INTENSITY(INCH/HR) =   1.78
  TOTAL STREAM AREA(ACRES) =    29.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     33.56

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    209.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   430.00
  UPSTREAM ELEVATION(FEET) =   1778.00
  DOWNSTREAM ELEVATION(FEET) =   1747.00
  ELEVATION DIFFERENCE(FEET) =     31.00
  TC = 0.533*[(  430.00**3)/(    31.00)]**.2 =   10.191
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.652
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7342
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      3.02
  TOTAL AREA(ACRES) =      1.55   TOTAL RUNOFF(CFS) =      3.02

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    209.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1716.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1622.00   CHANNEL SLOPE =  0.0191
 CHANNEL BASE(FEET) =    1.50   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.294
 UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7137
 SOIL CLASSIFICATION IS "C"
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.78
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   8.80
 AVERAGE FLOW DEPTH(FEET) =   0.86   TRAVEL TIME(MIN.) =   3.07
 Tc(MIN.) =   13.26
 SUBAREA AREA(ACRES) =    17.93       SUBAREA RUNOFF(CFS) =   29.36
 TOTAL AREA(ACRES) =       19.5         PEAK FLOW RATE(CFS) =      32.37

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  1.18   FLOW VELOCITY(FEET/SEC.) =  10.27
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    209.00 =    2052.00 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.) =   13.26
 RAINFALL INTENSITY(INCH/HR) =   2.29
 TOTAL STREAM AREA(ACRES) =    19.48
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     32.37

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       33.56    21.05        1.779         29.88
     2       32.37    13.26        2.294         19.48

 **********************************WARNING***********************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 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       53.52    13.26       2.294
     2       58.67    21.05       1.779

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      58.67   Tc(MIN.) =   21.05
 TOTAL AREA(ACRES) =       49.4
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    209.00 =    2052.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    211.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1716.00  DOWNSTREAM(FEET) =   1712.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   241.00   CHANNEL SLOPE =  0.0166
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      58.67
  FLOW VELOCITY(FEET/SEC.) =  10.78   FLOW DEPTH(FEET) =   1.07
  TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =   21.43
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    211.00 =    2293.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    211.00 TO NODE    212.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1712.00  DOWNSTREAM(FEET) =   1711.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   100.00   CHANNEL SLOPE =  0.0050
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      58.67
  FLOW VELOCITY(FEET/SEC.) =   7.03   FLOW DEPTH(FEET) =   1.51
  TRAVEL TIME(MIN.) =   0.24   Tc(MIN.) =   21.66
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    212.00 =    2393.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       49.4  TC(MIN.) =     21.66
  PEAK FLOW RATE(CFS)   =      58.67
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX D

Peak Discharge Water Surface Elevation Calculations (WSPG)

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:48:48

20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	1645.000	.515	1645.515	19.42	26.64	11.02	1656.53	.00	1.49	2.02	2.500	.000	.00	1 .0
6.000	.2617					.2593	1.56	.51	7.82	.51	.013	.00	.00	PIPE
1006.000	1646.570	.515	1647.085	19.42	26.63	11.01	1658.10	.18	1.49	2.02	2.500	.000	.00	1 .0
31.302	.2605					.2574	8.06	.69	7.81	.51	.013	.00	.00	PIPE
1037.302	1654.725	.516	1655.242	19.42	26.51	10.91	1666.15	.18	1.49	2.02	2.500	.000	.00	1 .0
46.475	.2605					.2396	11.13	.69	7.76	.51	.013	.00	.00	PIPE
1083.778	1666.834	.534	1667.368	19.42	25.27	9.92	1677.29	.16	1.49	2.05	2.500	.000	.00	1 .0
17.297	.2605					.2094	3.62	.70	7.27	.51	.013	.00	.00	PIPE
1101.075	1671.340	.552	1671.892	19.42	24.10	9.02	1680.91	.15	1.49	2.07	2.500	.000	.00	1 .0
10.338	.2605					.1831	1.89	.70	6.81	.51	.013	.00	.00	PIPE
1111.412	1674.033	.571	1674.604	19.42	22.98	8.20	1682.80	.14	1.49	2.10	2.500	.000	.00	1 .0
7.225	.2605					.1600	1.16	.71	6.38	.51	.013	.00	.00	PIPE
1118.637	1675.916	.590	1676.506	19.42	21.91	7.45	1683.96	.13	1.49	2.12	2.500	.000	.00	1 .0
5.443	.2605					.1399	.76	.72	5.98	.51	.013	.00	.00	PIPE
1124.081	1677.334	.611	1677.945	19.42	20.89	6.78	1684.72	.12	1.49	2.15	2.500	.000	.00	1 .0
4.307	.2605					.1224	.53	.73	5.60	.51	.013	.00	.00	PIPE
1128.388	1678.456	.632	1679.088	19.42	19.92	6.16	1685.25	.11	1.49	2.17	2.500	.000	.00	1 .0
3.511	.2605					.1070	.38	.74	5.24	.51	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:48:48

20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1131.899	1679.371	.653	1680.024	19.42	18.99	5.60	1685.62	.10	1.49	2.20	2.500	.000	.00	1 .0
2.912	.2605				.0936	.27	.75	4.90	.51	.013		.00	.00	PIPE
1134.811	1680.130	.676	1680.806	19.42	18.11	5.09	1685.90	.09	1.49	2.22	2.500	.000	.00	1 .0
2.462	.2605				.0819	.20	.77	4.59	.51	.013		.00	.00	PIPE
1137.272	1680.771	.699	1681.470	19.42	17.26	4.63	1686.10	.08	1.49	2.24	2.500	.000	.00	1 .0
2.095	.2605				.0717	.15	.78	4.30	.51	.013		.00	.00	PIPE
1139.368	1681.317	.724	1682.041	19.42	16.46	4.21	1686.25	.08	1.49	2.27	2.500	.000	.00	1 .0
1.807	.2605				.0628	.11	.80	4.02	.51	.013		.00	.00	PIPE
1141.175	1681.788	.749	1682.537	19.42	15.69	3.82	1686.36	.07	1.49	2.29	2.500	.000	.00	1 .0
1.564	.2605				.0549	.09	.82	3.76	.51	.013		.00	.00	PIPE
1142.739	1682.195	.775	1682.970	19.42	14.96	3.48	1686.45	.06	1.49	2.31	2.500	.000	.00	1 .0
1.356	.2605				.0481	.07	.84	3.52	.51	.013		.00	.00	PIPE
1144.095	1682.548	.803	1683.352	19.42	14.27	3.16	1686.51	.06	1.49	2.33	2.500	.000	.00	1 .0
1.188	.2605				.0421	.05	.86	3.29	.51	.013		.00	.00	PIPE
1145.283	1682.858	.831	1683.689	19.42	13.60	2.87	1686.56	.05	1.49	2.36	2.500	.000	.00	1 .0
1.038	.2605				.0369	.04	.89	3.08	.51	.013		.00	.00	PIPE
1146.321	1683.128	.860	1683.988	19.42	12.97	2.61	1686.60	.05	1.49	2.38	2.500	.000	.00	1 .0
.905	.2605				.0323	.03	.91	2.88	.51	.013		.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:48:48

20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1147.226	1683.364	.891	1684.255	19.42	12.37	2.37	1686.63	.05	1.49	2.39	2.500	.000	.00	1 .0
.792	.2605					.0284	.02	.94	2.69	.51	.013	.00	.00	PIPE
1148.018	1683.570	.923	1684.493	19.42	11.79	2.16	1686.65	.04	1.49	2.41	2.500	.000	.00	1 .0
.693	.2605					.0249	.02	.96	2.52	.51	.013	.00	.00	PIPE
1148.711	1683.751	.956	1684.707	19.42	11.24	1.96	1686.67	.04	1.49	2.43	2.500	.000	.00	1 .0
.601	.2605					.0218	.01	.99	2.35	.51	.013	.00	.00	PIPE
1149.312	1683.907	.991	1684.898	19.42	10.72	1.78	1686.68	.03	1.49	2.45	2.500	.000	.00	1 .0
.523	.2605					.0192	.01	1.03	2.19	.51	.013	.00	.00	PIPE
1149.834	1684.044	1.027	1685.071	19.42	10.22	1.62	1686.69	.03	1.49	2.46	2.500	.000	.00	1 .0
.453	.2605					.0168	.01	1.06	2.05	.51	.013	.00	.00	PIPE
1150.288	1684.162	1.064	1685.226	19.42	9.74	1.47	1686.70	.03	1.49	2.47	2.500	.000	.00	1 .0
.387	.2605					.0148	.01	1.09	1.91	.51	.013	.00	.00	PIPE
1150.674	1684.262	1.103	1685.365	19.42	9.29	1.34	1686.71	.03	1.49	2.48	2.500	.000	.00	1 .0
.323	.2605					.0130	.00	1.13	1.78	.51	.013	.00	.00	PIPE
1150.997	1684.346	1.145	1685.491	19.42	8.86	1.22	1686.71	.02	1.49	2.49	2.500	.000	.00	1 .0
.276	.2605					.0114	.00	1.17	1.66	.51	.013	.00	.00	PIPE
1151.273	1684.418	1.187	1685.605	19.42	8.45	1.11	1686.71	.02	1.49	2.50	2.500	.000	.00	1 .0
.222	.2605					.0100	.00	1.21	1.55	.51	.013	.00	.00	PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1151.495	1684.476	1.232	1685.708	19.42	8.05	1.01	1686.72	.02	1.49	2.50	2.500	.000	.00	1 .0
.177	.2605				.0088	.00	1.25	1.44	.51	.013	.00	.00		PIPE
1151.672	1684.522	1.279	1685.801	19.42	7.68	.92	1686.72	.02	1.49	2.50	2.500	.000	.00	1 .0
.131	.2605				.0078	.00	1.30	1.35	.51	.013	.00	.00		PIPE
1151.804	1684.557	1.329	1685.886	19.42	7.32	.83	1686.72	.02	1.49	2.49	2.500	.000	.00	1 .0
.093	.2605				.0069	.00	1.35	1.25	.51	.013	.00	.00		PIPE
1151.897	1684.581	1.381	1685.962	19.42	6.98	.76	1686.72	.02	1.49	2.49	2.500	.000	.00	1 .0
.054	.2605				.0061	.00	1.40	1.16	.51	.013	.00	.00		PIPE
1151.951	1684.595	1.436	1686.031	19.42	6.66	.69	1686.72	.01	1.49	2.47	2.500	.000	.00	1 .0
.019	.2605				.0054	.00	1.45	1.08	.51	.013	.00	.00		PIPE
1151.970	1684.600	1.495	1686.095	19.42	6.34	.62	1686.72	.00	1.49	2.45	2.500	.000	.00	1 .0
JUNCT STR	.0214				.0034	.02	1.51	1.00		.013	.00	.00		PIPE
1156.650	1684.700	2.352	1687.052	9.57	3.05	.14	1687.20	.00	1.11	.00	2.000	.000	.00	1 .0
43.616	.0101				.0018	.08	.00	.00	.91	.013	.00	.00		PIPE
1200.266	1685.139	2.000	1687.139	9.57	3.05	.14	1687.28	2.00	1.11	.00	2.000	.000	.00	1 .0
3.044	.0101				.0017	.01	2.00	.00	.91	.013	.00	.00		PIPE
1203.310	1685.170	1.973	1687.143	9.57	3.05	.14	1687.29	.00	1.11	.46	2.000	.000	.00	1 .0
17.942	.0100				.0016	.03	1.97	.21	.91	.013	.00	.00		PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1221.252	1685.350	1.807	1687.157	9.57	3.20	.16	1687.32	.00	1.11	1.18	2.000	.000	.00	1 .0
10.699	.0100				.0016	.02	1.81	.35	.91	.013		.00	.00	PIPE
1231.951	1685.458	1.701	1687.159	9.57	3.36	.18	1687.33	.00	1.11	1.43	2.000	.000	.00	1 .0
8.510	.0100				.0018	.01	1.70	.42	.91	.013		.00	.00	PIPE
1240.461	1685.543	1.613	1687.156	9.57	3.52	.19	1687.35	.00	1.11	1.58	2.000	.000	.00	1 .0
7.123	.0100				.0019	.01	1.61	.47	.91	.013		.00	.00	PIPE
1247.584	1685.615	1.536	1687.151	9.57	3.70	.21	1687.36	.00	1.11	1.69	2.000	.000	.00	1 .0
6.184	.0100				.0022	.01	1.54	.53	.91	.013		.00	.00	PIPE
1253.768	1685.677	1.466	1687.143	9.57	3.88	.23	1687.38	.00	1.11	1.77	2.000	.000	.00	1 .0
5.324	.0100				.0024	.01	1.47	.58	.91	.013		.00	.00	PIPE
1259.092	1685.730	1.402	1687.132	9.57	4.07	.26	1687.39	.00	1.11	1.83	2.000	.000	.00	1 .0
4.536	.0100				.0027	.01	1.40	.63	.91	.013		.00	.00	PIPE
1263.628	1685.776	1.343	1687.119	9.57	4.26	.28	1687.40	.00	1.11	1.88	2.000	.000	.00	1 .0
.457	.0100				.0029	.00	1.34	.69	.91	.013		.00	.00	PIPE
1264.085	1685.780	1.343	1687.124	9.57	4.27	.28	1687.41	.00	1.11	1.88	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1264.085	1685.780	.907	1686.687	9.57	6.91	.74	1687.43	.00	1.11	1.99	2.000	.000	.00	1 .0
216.366	.0100				.0100	2.17	.91	1.46	.91	.013		.00	.00	PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1480.451	1687.953	.907	1688.860	9.57	6.91	.74	1689.60	.00	1.11	1.99	2.000	.000	.00	1 .0
60.136	.0100					.0099	.59	.91	1.46	.91	.013	.00	.00	PIPE
1540.587	1688.557	.915	1689.473	9.57	6.82	.72	1690.20	.00	1.11	1.99	2.000	.000	.00	1 .0
33.136	.0100					.0091	.30	.92	1.43	.91	.013	.00	.00	PIPE
1573.722	1688.890	.950	1689.840	9.57	6.51	.66	1690.50	.00	1.11	2.00	2.000	.000	.00	1 .0
12.234	.0100					.0080	.10	.95	1.34	.91	.013	.00	.00	PIPE
1585.956	1689.013	.985	1689.998	9.57	6.20	.60	1690.60	.00	1.11	2.00	2.000	.000	.00	1 .0
5.469	.0100					.0071	.04	.99	1.24	.91	.013	.00	.00	PIPE
1591.424	1689.068	1.023	1690.091	9.57	5.91	.54	1690.63	.00	1.11	2.00	2.000	.000	.00	1 .0
2.455	.0100					.0062	.02	1.02	1.16	.91	.013	.00	.00	PIPE
1593.879	1689.093	1.063	1690.156	9.57	5.64	.49	1690.65	.00	1.11	2.00	2.000	.000	.00	1 .0
.721	.0100					.0055	.00	1.06	1.08	.91	.013	.00	.00	PIPE
1594.600	1689.100	1.106	1690.206	9.57	5.37	.45	1690.65	.00	1.11	1.99	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0031	.01	1.11	1.00		.013	.00	.00	PIPE
1599.270	1689.200	1.465	1690.665	6.29	2.55	.10	1690.77	.00	.89	1.77	2.000	.000	.00	1 .0
6.643	.0092					.0010	.01	1.47	.38	.74	.013	.00	.00	PIPE
1605.913	1689.261	1.401	1690.662	6.29	2.67	.11	1690.77	.00	.89	1.83	2.000	.000	.00	1 .0
5.956	.0092					.0012	.01	1.40	.42	.74	.013	.00	.00	PIPE

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20-750 Meridian Upper Plateau
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Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1611.869	1689.316	1.342	1690.658	6.29	2.80	.12	1690.78	.00	.89	1.88	2.000	.000	.00	1 .0
5.418	.0092					.0013	.01	1.34	.45	.74	.013	.00	.00	PIPE
1617.286	1689.366	1.287	1690.653	6.29	2.94	.13	1690.79	.00	.89	1.92	2.000	.000	.00	1 .0
4.859	.0092					.0015	.01	1.29	.49	.74	.013	.00	.00	PIPE
1622.145	1689.411	1.236	1690.647	6.29	3.09	.15	1690.79	.00	.89	1.94	2.000	.000	.00	1 .0
4.537	.0092					.0017	.01	1.24	.53	.74	.013	.00	.00	PIPE
1626.682	1689.452	1.187	1690.639	6.29	3.24	.16	1690.80	.00	.89	1.96	2.000	.000	.00	1 .0
4.060	.0092					.0019	.01	1.19	.57	.74	.013	.00	.00	PIPE
1630.743	1689.490	1.141	1690.631	6.29	3.39	.18	1690.81	.00	.89	1.98	2.000	.000	.00	1 .0
3.549	.0092					.0021	.01	1.14	.62	.74	.013	.00	.00	PIPE
1634.292	1689.522	1.098	1690.620	6.29	3.56	.20	1690.82	.00	.89	1.99	2.000	.000	.00	1 .0
3.140	.0092					.0024	.01	1.10	.67	.74	.013	.00	.00	PIPE
1637.432	1689.551	1.057	1690.608	6.29	3.73	.22	1690.82	.00	.89	2.00	2.000	.000	.00	1 .0
1.050	.0092					.0027	.00	1.06	.72	.74	.013	.00	.00	PIPE
1638.482	1689.561	1.017	1690.578	6.29	3.92	.24	1690.82	.00	.89	2.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1638.482	1689.561	.741	1690.302	6.29	5.94	.55	1690.85	.00	.89	1.93	2.000	.000	.00	1 .0
19.594	.0092					.0085	.17	.74	1.41	.74	.013	.00	.00	PIPE

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100 Year Storm

Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1658.075	1689.741	.768	1690.509	6.29	5.66	.50	1691.01	.00	.89	1.95	2.000	.000	.00	1 .0
10.226	.0092					.0074	.08	.77	1.32	.74	.013	.00	.00	PIPE
1668.301	1689.835	.795	1690.630	6.29	5.40	.45	1691.08	.00	.89	1.96	2.000	.000	.00	1 .0
4.501	.0092					.0065	.03	.80	1.23	.74	.013	.00	.00	PIPE
1672.803	1689.877	.824	1690.701	6.29	5.15	.41	1691.11	.00	.89	1.97	2.000	.000	.00	1 .0
2.119	.0092					.0057	.01	.82	1.15	.74	.013	.00	.00	PIPE
1674.921	1689.896	.854	1690.751	6.29	4.91	.37	1691.12	.00	.89	1.98	2.000	.000	.00	1 .0
.379	.0092					.0050	.00	.85	1.07	.74	.013	.00	.00	PIPE
1675.300	1689.900	.888	1690.787	6.29	4.67	.34	1691.13	.00	.89	1.99	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0029	.01	.89	1.00		.013	.00	.00	PIPE
1679.970	1690.000	1.169	1691.169	3.38	2.29	.08	1691.25	.00	.70	1.24	1.500	.000	.00	1 .0
5.223	.0100					.0012	.01	1.17	.37	.59	.013	.00	.00	PIPE
1685.193	1690.052	1.115	1691.167	3.38	2.40	.09	1691.26	.00	.70	1.31	1.500	.000	.00	1 .0
4.631	.0100					.0013	.01	1.12	.41	.59	.013	.00	.00	PIPE
1689.824	1690.099	1.066	1691.165	3.38	2.52	.10	1691.26	.00	.70	1.36	1.500	.000	.00	1 .0
4.260	.0100					.0015	.01	1.07	.45	.59	.013	.00	.00	PIPE
1694.083	1690.141	1.020	1691.161	3.38	2.64	.11	1691.27	.00	.70	1.40	1.500	.000	.00	1 .0
3.754	.0100					.0017	.01	1.02	.49	.59	.013	.00	.00	PIPE

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100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1697.838	1690.179	.978	1691.157	3.38	2.77	.12	1691.28	.00	.70	1.43	1.500	.000	.00	1 .0
3.349	.0100					.0019	.01	.98	.53	.59	.013	.00	.00	PIPE
1701.187	1690.212	.939	1691.151	3.38	2.90	.13	1691.28	.00	.70	1.45	1.500	.000	.00	1 .0
3.047	.0100					.0021	.01	.94	.57	.59	.013	.00	.00	PIPE
1704.234	1690.243	.902	1691.145	3.38	3.04	.14	1691.29	.00	.70	1.47	1.500	.000	.00	1 .0
2.722	.0100					.0024	.01	.90	.62	.59	.013	.00	.00	PIPE
1706.955	1690.270	.867	1691.137	3.38	3.19	.16	1691.30	.00	.70	1.48	1.500	.000	.00	1 .0
2.367	.0100					.0027	.01	.87	.67	.59	.013	.00	.00	PIPE
1709.323	1690.293	.834	1691.128	3.38	3.35	.17	1691.30	.00	.70	1.49	1.500	.000	.00	1 .0
.088	.0100					.0031	.00	.83	.72	.59	.013	.00	.00	PIPE
1709.411	1690.294	.802	1691.096	3.38	3.51	.19	1691.29	.00	.70	1.50	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
1709.411	1690.294	.585	1690.879	3.38	5.30	.44	1691.31	.00	.70	1.46	1.500	.000	.00	1 .0
127.266	.0100					.0100	1.27	.59	1.41	.59	.013	.00	.00	PIPE
1836.676	1691.567	.585	1692.152	3.38	5.30	.44	1692.59	.00	.70	1.46	1.500	.000	.00	1 .0
31.354	.0100					.0100	.31	.59	1.41	.59	.013	.00	.00	PIPE
1868.030	1691.880	.585	1692.465	3.38	5.30	.44	1692.90	.00	.70	1.46	1.500	.000	.00	1 .0
259.612	.0100					.0100	2.60	.59	1.41	.59	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2127.642	1694.476	.585	1695.061	3.38	5.30	.44	1695.50	.00	.70	1.46	1.500	.000	.00	1 .0
31.408	.0100					.0097	.31	.59	1.41	.59	.013	.00	.00	PIPE
2159.050	1694.790	.594	1695.384	3.38	5.19	.42	1695.80	.00	.70	1.47	1.500	.000	.00	1 .0
57.413	.0094					.0094	.54	.59	1.37	.59	.013	.00	.00	PIPE
2216.463	1695.332	.594	1695.926	3.38	5.19	.42	1696.34	.00	.70	1.47	1.500	.000	.00	1 .0
30.544	.0094					.0091	.28	.59	1.37	.59	.013	.00	.00	PIPE
2247.007	1695.620	.605	1696.225	3.38	5.06	.40	1696.62	.00	.70	1.47	1.500	.000	.00	1 .0
12.233	.0094					.0083	.10	.61	1.32	.59	.013	.00	.00	PIPE
2259.240	1695.735	.627	1696.362	3.38	4.82	.36	1696.72	.00	.70	1.48	1.500	.000	.00	1 .0
4.550	.0094					.0073	.03	.63	1.24	.59	.013	.00	.00	PIPE
2263.790	1695.778	.650	1696.428	3.38	4.60	.33	1696.76	.00	.70	1.49	1.500	.000	.00	1 .0
1.924	.0094					.0064	.01	.65	1.15	.59	.013	.00	.00	PIPE
2265.713	1695.797	.674	1696.471	3.38	4.39	.30	1696.77	.00	.70	1.49	1.500	.000	.00	1 .0
.377	.0094					.0056	.00	.67	1.08	.59	.013	.00	.00	PIPE
2266.090	1695.800	.701	1696.501	3.38	4.17	.27	1696.77	.00	.70	1.50	1.500	.000	.00	1 .0
JUNCT STR	.0250					.0029	.01	.70	1.00		.013	.00	.00	PIPE
2268.090	1695.850	.950	1696.800	1.69	1.43	.03	1696.83	.00	.49	1.45	1.500	.000	.00	1 .0
6.643	.0057					.0005	.00	.95	.28	.47	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:48:48

20-750 Meridian Upper Plateau
100 Year Storm
Line 3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2274.733	1695.888	.912	1696.800	1.69	1.50	.04	1696.84	.00	.49	1.46	1.500	.000	.00	1 .0
6.298	.0057					.0006	.00	.91	.30	.47	.013	.00	.00	PIPE
2281.030	1695.924	.876	1696.800	1.69	1.58	.04	1696.84	.00	.49	1.48	1.500	.000	.00	1 .0
5.734	.0057					.0007	.00	.88	.33	.47	.013	.00	.00	PIPE
2286.764	1695.957	.843	1696.800	1.69	1.65	.04	1696.84	.00	.49	1.49	1.500	.000	.00	1 .0
5.557	.0057					.0008	.00	.84	.35	.47	.013	.00	.00	PIPE
2292.321	1695.989	.811	1696.800	1.69	1.73	.05	1696.85	.00	.49	1.50	1.500	.000	.00	1 .0
1.879	.0057					.0008	.00	.81	.38	.47	.013	.00	.00	PIPE
2294.200	1696.000	.800	1696.800	1.69	1.76	.05	1696.85	.00	.49	1.50	1.500	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	1656.000	.707	1656.707	17.16	17.27	4.63	1661.34	.00	1.49	1.91	2.000	.000	.00	1 .0
39.130	.0800					.0803	3.14	.71	4.22	.71	.013	.00	.00	PIPE
1039.130	1659.130	.706	1659.836	17.16	17.30	4.65	1664.49	.30	1.49	1.91	2.000	.000	.00	1 .0
14.117	.0805					.0805	1.14	1.00	4.23	.71	.013	.00	.00	PIPE
1053.247	1660.267	.706	1660.973	17.16	17.30	4.65	1665.62	.30	1.49	1.91	2.000	.000	.00	1 .0
80.133	.0805					.0803	6.43	1.00	4.23	.71	.013	.00	.00	PIPE
1133.380	1666.720	.707	1667.427	17.16	17.26	4.63	1672.05	.00	1.49	1.91	2.000	.000	.00	1 .0
29.310	.0800					.0800	2.34	.71	4.22	.71	.013	.00	.00	PIPE
1162.690	1669.064	.707	1669.772	17.16	17.26	4.63	1674.40	.00	1.49	1.91	2.000	.000	.00	1 .0
79.495	.0800					.0776	6.17	.71	4.22	.71	.013	.00	.00	PIPE
1242.185	1675.423	.719	1676.142	17.16	16.88	4.43	1680.57	.00	1.49	1.92	2.000	.000	.00	1 .0
40.060	.0800					.0706	2.83	.72	4.09	.71	.013	.00	.00	PIPE
1282.245	1678.627	.744	1679.371	17.16	16.10	4.02	1683.39	.00	1.49	1.93	2.000	.000	.00	1 .0
18.696	.0800					.0619	1.16	.74	3.82	.71	.013	.00	.00	PIPE
1300.941	1680.123	.771	1680.894	17.16	15.35	3.66	1684.55	.00	1.49	1.95	2.000	.000	.00	1 .0
11.848	.0800					.0543	.64	.77	3.57	.71	.013	.00	.00	PIPE
1312.789	1681.070	.799	1681.869	17.16	14.63	3.33	1685.19	.00	1.49	1.96	2.000	.000	.00	1 .0
8.449	.0800					.0476	.40	.80	3.33	.71	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1321.239	1681.746	.828	1682.574	17.16	13.95	3.02	1685.60	.00	1.49	1.97	2.000	.000	.00	1 .0
6.391	.0800					.0418	.27	.83	3.11	.71	.013	.00	.00	PIPE
1327.630	1682.257	.859	1683.116	17.16	13.30	2.75	1685.86	.00	1.49	1.98	2.000	.000	.00	1 .0
5.062	.0800					.0368	.19	.86	2.90	.71	.013	.00	.00	PIPE
1332.692	1682.662	.890	1683.552	17.16	12.68	2.50	1686.05	.00	1.49	1.99	2.000	.000	.00	1 .0
4.070	.0800					.0323	.13	.89	2.71	.71	.013	.00	.00	PIPE
1336.762	1682.988	.923	1683.911	17.16	12.09	2.27	1686.18	.00	1.49	1.99	2.000	.000	.00	1 .0
3.324	.0800					.0284	.09	.92	2.53	.71	.013	.00	.00	PIPE
1340.086	1683.254	.958	1684.212	17.16	11.53	2.06	1686.28	.00	1.49	2.00	2.000	.000	.00	1 .0
2.758	.0800					.0250	.07	.96	2.35	.71	.013	.00	.00	PIPE
1342.844	1683.474	.994	1684.468	17.16	10.99	1.88	1686.35	.00	1.49	2.00	2.000	.000	.00	1 .0
2.271	.0800					.0220	.05	.99	2.19	.71	.013	.00	.00	PIPE
1345.115	1683.656	1.033	1684.689	17.16	10.48	1.71	1686.40	.00	1.49	2.00	2.000	.000	.00	1 .0
1.900	.0800					.0194	.04	1.03	2.04	.71	.013	.00	.00	PIPE
1347.015	1683.808	1.073	1684.881	17.16	9.99	1.55	1686.43	.00	1.49	1.99	2.000	.000	.00	1 .0
1.575	.0800					.0171	.03	1.07	1.90	.71	.013	.00	.00	PIPE
1348.590	1683.934	1.115	1685.049	17.16	9.53	1.41	1686.46	.00	1.49	1.99	2.000	.000	.00	1 .0
1.298	.0800					.0151	.02	1.12	1.76	.71	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1349.888	1684.037	1.159	1685.197	17.16	9.09	1.28	1686.48	.00	1.49	1.97	2.000	.000	.00	1 .0
1.044	.0800					.0134	.01	1.16	1.64	.71	.013	.00	.00	PIPE
1350.931	1684.121	1.206	1685.327	17.16	8.66	1.17	1686.49	.00	1.49	1.96	2.000	.000	.00	1 .0
.821	.0800					.0118	.01	1.21	1.52	.71	.013	.00	.00	PIPE
1351.752	1684.187	1.256	1685.443	17.16	8.26	1.06	1686.50	.00	1.49	1.93	2.000	.000	.00	1 .0
.638	.0800					.0105	.01	1.26	1.40	.71	.013	.00	.00	PIPE
1352.390	1684.238	1.308	1685.546	17.16	7.88	.96	1686.51	.00	1.49	1.90	2.000	.000	.00	1 .0
.432	.0800					.0093	.00	1.31	1.30	.71	.013	.00	.00	PIPE
1352.823	1684.272	1.365	1685.637	17.16	7.51	.88	1686.51	.00	1.49	1.86	2.000	.000	.00	1 .0
.260	.0800					.0083	.00	1.37	1.19	.71	.013	.00	.00	PIPE
1353.082	1684.293	1.426	1685.719	17.16	7.16	.80	1686.52	.00	1.49	1.81	2.000	.000	.00	1 .0
.088	.0800					.0074	.00	1.43	1.10	.71	.013	.00	.00	PIPE
1353.170	1684.300	1.493	1685.793	17.16	6.82	.72	1686.52	.00	1.49	1.74	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0039	.02	1.49	1.00		.013	.00	.00	PIPE
1357.840	1684.400	2.564	1686.964	6.15	1.96	.06	1687.02	.00	.88	.00	2.000	.000	.00	1 .0
29.620	.0000					.0007	.02	2.56	.00	.00	.013	.00	.00	PIPE
1387.460	1684.400	2.586	1686.986	6.15	1.96	.06	1687.05	.00	.88	.00	2.000	.000	.00	1 .0
48.031	.0129					.0007	.04	2.59	.00	.67	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1435.491	1685.022	2.000	1687.022	6.15	1.96	.06	1687.08	.00	.88	.00	2.000	.000	.00	1 .0
14.598	.0129					.0007	.01	2.00	.00	.67	.013	.00	.00	PIPE
1450.090	1685.211	1.814	1687.025	6.15	2.05	.07	1687.09	.00	.88	1.16	2.000	.000	.00	1 .0
8.265	.0129					.0007	.01	1.81	.23	.67	.013	.00	.00	PIPE
1458.355	1685.318	1.706	1687.024	6.15	2.15	.07	1687.10	.00	.88	1.42	2.000	.000	.00	1 .0
6.612	.0129					.0007	.00	1.71	.27	.67	.013	.00	.00	PIPE
1464.967	1685.403	1.618	1687.021	6.15	2.26	.08	1687.10	.00	.88	1.57	2.000	.000	.00	1 .0
5.769	.0129					.0008	.00	1.62	.30	.67	.013	.00	.00	PIPE
1470.736	1685.478	1.540	1687.018	6.15	2.37	.09	1687.11	.00	.88	1.68	2.000	.000	.00	1 .0
5.082	.0129					.0009	.00	1.54	.34	.67	.013	.00	.00	PIPE
1475.818	1685.544	1.470	1687.014	6.15	2.48	.10	1687.11	.00	.88	1.77	2.000	.000	.00	1 .0
4.551	.0129					.0010	.00	1.47	.37	.67	.013	.00	.00	PIPE
1480.369	1685.603	1.406	1687.009	6.15	2.61	.11	1687.11	.00	.88	1.83	2.000	.000	.00	1 .0
1.341	.0129					.0011	.00	1.41	.40	.67	.013	.00	.00	PIPE
1481.710	1685.620	1.387	1687.007	6.15	2.65	.11	1687.12	.00	.88	1.84	2.000	.000	.00	1 .0
5.320	.0100					.0011	.01	1.39	.42	.71	.013	.00	.00	PIPE
1487.030	1685.673	1.329	1687.002	6.15	2.77	.12	1687.12	.00	.88	1.89	2.000	.000	.00	1 .0
4.942	.0100					.0013	.01	1.33	.45	.71	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1491.972	1685.723	1.274	1686.997	6.15	2.91	.13	1687.13	.00	.88	1.92	2.000	.000	.00	1 .0
4.312	.0100					.0015	.01	1.27	.49	.71	.013	.00	.00	PIPE
1496.284	1685.766	1.224	1686.990	6.15	3.05	.14	1687.13	.00	.88	1.95	2.000	.000	.00	1 .0
4.012	.0100					.0016	.01	1.22	.53	.71	.013	.00	.00	PIPE
1500.297	1685.806	1.176	1686.982	6.15	3.20	.16	1687.14	.00	.88	1.97	2.000	.000	.00	1 .0
3.572	.0100					.0019	.01	1.18	.57	.71	.013	.00	.00	PIPE
1503.869	1685.842	1.131	1686.973	6.15	3.36	.17	1687.15	.00	.88	1.98	2.000	.000	.00	1 .0
3.229	.0100					.0021	.01	1.13	.62	.71	.013	.00	.00	PIPE
1507.097	1685.874	1.088	1686.962	6.15	3.52	.19	1687.15	.00	.88	1.99	2.000	.000	.00	1 .0
1.392	.0100					.0024	.00	1.09	.66	.71	.013	.00	.00	PIPE
1508.490	1685.888	1.047	1686.935	6.15	3.69	.21	1687.15	.00	.88	2.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1508.490	1685.888	.713	1686.600	6.15	6.13	.58	1687.18	.00	.88	1.92	2.000	.000	.00	1 .0
352.699	.0100					.0100	3.53	.71	1.49	.71	.013	.00	.00	PIPE
1861.189	1689.415	.713	1690.127	6.15	6.13	.58	1690.71	.00	.88	1.92	2.000	.000	.00	1 .0
47.521	.0100					.0100	.48	.71	1.49	.71	.013	.00	.00	PIPE
1908.710	1689.890	.712	1690.602	6.15	6.13	.58	1691.19	.04	.88	1.92	2.000	.000	.00	1 .0
45.014	.0100					.0095	.43	.75	1.49	.71	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1953.724	1690.342	.732	1691.074	6.15	5.90	.54	1691.61	.03	.88	1.93	2.000	.000	.00	1 .0
13.713	.0100				.0084	.12	.77	1.41	.71	.013		.00	.00	PIPE
1967.437	1690.480	.759	1691.239	6.15	5.62	.49	1691.73	.03	.88	1.94	2.000	.000	.00	1 .0
6.658	.0100				.0074	.05	.79	1.32	.71	.013		.00	.00	PIPE
1974.095	1690.547	.786	1691.333	6.15	5.36	.45	1691.78	.03	.88	1.95	2.000	.000	.00	1 .0
3.252	.0100				.0065	.02	.82	1.23	.71	.013		.00	.00	PIPE
1977.348	1690.579	.815	1691.394	6.15	5.11	.41	1691.80	.03	.88	1.97	2.000	.000	.00	1 .0
1.580	.0100				.0057	.01	.84	1.15	.71	.013		.00	.00	PIPE
1978.928	1690.595	.845	1691.440	6.15	4.87	.37	1691.81	.02	.88	1.98	2.000	.000	.00	1 .0
.472	.0100				.0050	.00	.87	1.07	.71	.013		.00	.00	PIPE
1979.400	1690.600	.877	1691.477	6.15	4.64	.33	1691.81	.00	.88	1.98	2.000	.000	.00	1 .0
JUNCT STR	.0214				.0027	.01	.88	1.00		.013		.00	.00	PIPE
1984.070	1690.700	1.232	1691.932	2.67	1.72	.05	1691.98	.00	.62	1.15	1.500	.000	.00	1 .0
6.212	.0098				.0007	.00	1.23	.26	.52	.013		.00	.00	PIPE
1990.282	1690.761	1.171	1691.932	2.67	1.80	.05	1691.98	.00	.62	1.24	1.500	.000	.00	1 .0
5.408	.0098				.0007	.00	1.17	.29	.52	.013		.00	.00	PIPE
1995.690	1690.814	1.117	1691.931	2.67	1.89	.06	1691.99	.00	.62	1.31	1.500	.000	.00	1 .0
4.846	.0098				.0008	.00	1.12	.32	.52	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
2000.536	1690.861	1.068	1691.929	2.67	1.98	.06	1691.99	.00	.62	1.36	1.500	.000	.00	1 .0
4.387	.0098				.0009	.00	1.07	.35	.52	.013		.00	.00	PIPE
2004.923	1690.904	1.023	1691.927	2.67	2.08	.07	1691.99	.00	.62	1.40	1.500	.000	.00	1 .0
4.146	.0098				.0010	.00	1.02	.38	.52	.013		.00	.00	PIPE
2009.070	1690.945	.980	1691.925	2.67	2.18	.07	1692.00	.00	.62	1.43	1.500	.000	.00	1 .0
3.668	.0098				.0012	.00	.98	.42	.52	.013		.00	.00	PIPE
2012.737	1690.981	.941	1691.922	2.67	2.29	.08	1692.00	.00	.62	1.45	1.500	.000	.00	1 .0
3.528	.0098				.0013	.00	.94	.45	.52	.013		.00	.00	PIPE
2016.265	1691.015	.903	1691.918	2.67	2.40	.09	1692.01	.00	.62	1.47	1.500	.000	.00	1 .0
3.141	.0098				.0015	.00	.90	.49	.52	.013		.00	.00	PIPE
2019.406	1691.046	.868	1691.914	2.67	2.52	.10	1692.01	.00	.62	1.48	1.500	.000	.00	1 .0
2.861	.0098				.0017	.00	.87	.52	.52	.013		.00	.00	PIPE
2022.267	1691.074	.835	1691.909	2.67	2.64	.11	1692.02	.00	.62	1.49	1.500	.000	.00	1 .0
2.564	.0098				.0019	.00	.84	.56	.52	.013		.00	.00	PIPE
2024.831	1691.099	.804	1691.903	2.67	2.77	.12	1692.02	.00	.62	1.50	1.500	.000	.00	1 .0
2.377	.0098				.0022	.01	.80	.61	.52	.013		.00	.00	PIPE
2027.208	1691.123	.774	1691.897	2.67	2.90	.13	1692.03	.00	.62	1.50	1.500	.000	.00	1 .0
2.174	.0098				.0025	.01	.77	.65	.52	.013		.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2029.382	1691.144	.745	1691.889	2.67	3.04	.14	1692.03	.00	.62	1.50	1.500	.000	.00	1 .0
.740	.0098					.0028	.00	.75	.70	.52	.013	.00	.00	PIPE
2030.122	1691.151	.718	1691.869	2.67	3.19	.16	1692.03	.00	.62	1.50	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
2030.122	1691.151	.518	1691.670	2.67	4.93	.38	1692.05	.00	.62	1.43	1.500	.000	.00	1 .0
421.878	.0098					.0098	4.13	.52	1.41	.52	.013	.00	.00	PIPE
2451.999	1695.286	.518	1695.804	2.67	4.93	.38	1696.18	.00	.62	1.43	1.500	.000	.00	1 .0
26.915	.0098					.0101	.27	.52	1.41	.52	.013	.00	.00	PIPE
2478.915	1695.549	.509	1696.058	2.67	5.04	.40	1696.45	.00	.62	1.42	1.500	.000	.00	1 .0
16.226	.0098					.0112	.18	.51	1.46	.52	.013	.00	.00	PIPE
2495.141	1695.708	.492	1696.200	2.67	5.29	.43	1696.64	.00	.62	1.41	1.500	.000	.00	1 .0
8.905	.0098					.0128	.11	.49	1.56	.52	.013	.00	.00	PIPE
2504.046	1695.796	.475	1696.271	2.67	5.55	.48	1696.75	.00	.62	1.40	1.500	.000	.00	1 .0
6.652	.0098					.0146	.10	.48	1.67	.52	.013	.00	.00	PIPE
2510.698	1695.861	.459	1696.320	2.67	5.82	.53	1696.85	.00	.62	1.38	1.500	.000	.00	1 .0
5.344	.0098					.0166	.09	.46	1.78	.52	.013	.00	.00	PIPE
2516.042	1695.913	.443	1696.356	2.67	6.10	.58	1696.93	.00	.62	1.37	1.500	.000	.00	1 .0
4.653	.0098					.0190	.09	.44	1.90	.52	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 5

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2520.695	1695.959	.428	1696.387	2.67	6.40	.64	1697.02	.00	.62	1.35	1.500	.000	.00	1 .0
4.195	.0098				.0217	.09	.43	2.03	.52	.013		.00	.00	PIPE
2524.890	1696.000	.415	1696.415	2.67	6.71	.70	1697.11	.60	.62	1.34	1.500	.000	.00	1 .0
JUNCT STR	.2041				.0187	.05	1.02	2.17		.013		.00	.00	PIPE
2527.340	1696.500	.331	1696.831	1.34	4.63	.33	1697.16	.00	.43	1.24	1.500	.000	.00	1 .0
14.194	.0147				.0135	.19	.33	1.69	.33	.013		.00	.00	PIPE
2541.534	1696.708	.341	1697.050	1.34	4.43	.31	1697.35	.00	.43	1.26	1.500	.000	.00	1 .0
5.899	.0147				.0118	.07	.34	1.59	.33	.013		.00	.00	PIPE
2547.433	1696.795	.352	1697.147	1.34	4.23	.28	1697.42	.00	.43	1.27	1.500	.000	.00	1 .0
3.052	.0147				.0103	.03	.35	1.49	.33	.013		.00	.00	PIPE
2550.485	1696.840	.364	1697.204	1.34	4.03	.25	1697.46	.00	.43	1.29	1.500	.000	.00	1 .0
1.765	.0147				.0090	.02	.36	1.40	.33	.013		.00	.00	PIPE
2552.250	1696.866	.377	1697.243	1.34	3.84	.23	1697.47	.00	.43	1.30	1.500	.000	.00	1 .0
1.161	.0147				.0079	.01	.38	1.31	.33	.013		.00	.00	PIPE
2553.411	1696.883	.390	1697.273	1.34	3.66	.21	1697.48	.00	.43	1.32	1.500	.000	.00	1 .0
.768	.0147				.0069	.01	.39	1.23	.33	.013		.00	.00	PIPE
2554.179	1696.894	.403	1697.297	1.34	3.49	.19	1697.49	.00	.43	1.33	1.500	.000	.00	1 .0
.375	.0147				.0061	.00	.40	1.15	.33	.013		.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49: 6

20-750 Meridian Upper Plateau

100 Year Storm

Line 5

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2554.554	1696.900	.417	1697.317	1.34	3.33	.17	1697.49	.00	.43	1.34	1.500	.000	.00	1 .0
.036	.0147				.0053	.00	.42	1.07	.33	.013	.00	.00	PIPE	
2554.590	1696.900	.433	1697.333	1.34	3.17	.16	1697.49	.00	.43	1.36	1.500	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49:25

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1000.000	1652.000	.828	1652.828	52.71	33.21	17.13	1669.95	.00	2.36	2.68	3.000	.000	.00	1 .0
12.172	.3361					.2114	2.57	.83	7.61	.75	.013	.00	.00	PIPE
1012.172	1656.091	.856	1656.947	52.71	31.66	15.56	1672.51	.00	2.36	2.71	3.000	.000	.00	1 .0
9.158	.3361					.1850	1.69	.86	7.12	.75	.013	.00	.00	PIPE
1021.330	1659.170	.886	1660.056	52.71	30.18	14.15	1674.20	.00	2.36	2.74	3.000	.000	.00	1 .0
7.203	.3361					.1619	1.17	.89	6.66	.75	.013	.00	.00	PIPE
1028.533	1661.591	.917	1662.508	52.71	28.78	12.86	1675.37	.00	2.36	2.76	3.000	.000	.00	1 .0
5.850	.3361					.1418	.83	.92	6.23	.75	.013	.00	.00	PIPE
1034.383	1663.557	.949	1664.507	52.71	27.44	11.69	1676.20	.00	2.36	2.79	3.000	.000	.00	1 .0
4.854	.3361					.1242	.60	.95	5.83	.75	.013	.00	.00	PIPE
1039.237	1665.189	.983	1666.172	52.71	26.16	10.63	1676.80	.00	2.36	2.82	3.000	.000	.00	1 .0
4.100	.3361					.1088	.45	.98	5.45	.75	.013	.00	.00	PIPE
1043.337	1666.567	1.017	1667.584	52.71	24.94	9.66	1677.25	.00	2.36	2.84	3.000	.000	.00	1 .0
3.497	.3361					.0953	.33	1.02	5.10	.75	.013	.00	.00	PIPE
1046.834	1667.743	1.053	1668.796	52.71	23.78	8.78	1677.58	.00	2.36	2.86	3.000	.000	.00	1 .0
3.010	.3361					.0835	.25	1.05	4.76	.75	.013	.00	.00	PIPE
1049.844	1668.755	1.091	1669.846	52.71	22.68	7.99	1677.83	.00	2.36	2.89	3.000	.000	.00	1 .0
2.613	.3361					.0732	.19	1.09	4.45	.75	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49:25

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1052.457	1669.633	1.130	1670.763	52.71	21.62	7.26	1678.02	.00	2.36	2.91	3.000	.000	.00	1 .0
2.276	.3361				.0642	.15	1.13	4.16	.75	.013		.00	.00	PIPE
1054.734	1670.398	1.171	1671.569	52.71	20.62	6.60	1678.17	.00	2.36	2.93	3.000	.000	.00	1 .0
1.991	.3361				.0564	.11	1.17	3.89	.75	.013		.00	.00	PIPE
1056.724	1671.068	1.214	1672.282	52.71	19.66	6.00	1678.28	.00	2.36	2.95	3.000	.000	.00	1 .0
1.749	.3361				.0495	.09	1.21	3.63	.75	.013		.00	.00	PIPE
1058.473	1671.656	1.258	1672.914	52.71	18.74	5.45	1678.37	.00	2.36	2.96	3.000	.000	.00	1 .0
1.537	.3361				.0435	.07	1.26	3.39	.75	.013		.00	.00	PIPE
1060.010	1672.172	1.304	1673.476	52.71	17.87	4.96	1678.43	.00	2.36	2.97	3.000	.000	.00	1 .0
1.352	.3361				.0382	.05	1.30	3.16	.75	.013		.00	.00	PIPE
1061.362	1672.626	1.352	1673.979	52.71	17.04	4.51	1678.49	.00	2.36	2.99	3.000	.000	.00	1 .0
1.186	.3361				.0336	.04	1.35	2.95	.75	.013		.00	.00	PIPE
1062.547	1673.025	1.403	1674.428	52.71	16.24	4.10	1678.53	.00	2.36	2.99	3.000	.000	.00	1 .0
1.042	.3361				.0295	.03	1.40	2.75	.75	.013		.00	.00	PIPE
1063.589	1673.375	1.456	1674.831	52.71	15.49	3.73	1678.56	.00	2.36	3.00	3.000	.000	.00	1 .0
.915	.3361				.0260	.02	1.46	2.56	.75	.013		.00	.00	PIPE
1064.504	1673.683	1.511	1675.194	52.71	14.77	3.39	1678.58	.00	2.36	3.00	3.000	.000	.00	1 .0
.798	.3361				.0229	.02	1.51	2.39	.75	.013		.00	.00	PIPE

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20-750 Meridian Upper Plateau

100 Year Storm

Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1065.302	1673.951	1.569	1675.520	52.71	14.08	3.08	1678.60	.00	2.36	3.00	3.000	.000	.00	1 .0
.693	.3361				.0202	.01	1.57	2.22	.75	.013		.00	.00	PIPE
1065.994	1674.184	1.630	1675.814	52.71	13.43	2.80	1678.61	.00	2.36	2.99	3.000	.000	.00	1 .0
.595	.3361				.0178	.01	1.63	2.06	.75	.013		.00	.00	PIPE
1066.589	1674.384	1.695	1676.079	52.71	12.80	2.54	1678.62	.00	2.36	2.97	3.000	.000	.00	1 .0
.513	.3361				.0157	.01	1.70	1.92	.75	.013		.00	.00	PIPE
1067.102	1674.556	1.762	1676.318	52.71	12.20	2.31	1678.63	.00	2.36	2.95	3.000	.000	.00	1 .0
.428	.3361				.0139	.01	1.76	1.78	.75	.013		.00	.00	PIPE
1067.530	1674.700	1.835	1676.535	52.71	11.64	2.10	1678.64	.00	2.36	2.92	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0161	.08	1.83	1.65		.013		.00	.00	PIPE
1072.200	1674.800	1.555	1676.355	48.92	13.23	2.72	1679.07	.00	2.28	3.00	3.000	.000	.00	1 .0
1.533	.0528				.0187	.03	1.55	2.10	1.17	.013		.00	.00	PIPE
1073.733	1674.881	1.570	1676.451	48.92	13.06	2.65	1679.10	.00	2.28	3.00	3.000	.000	.00	1 .0
5.036	.0528				.0173	.09	1.57	2.06	1.17	.013		.00	.00	PIPE
1078.769	1675.147	1.632	1676.779	48.92	12.45	2.41	1679.18	.00	2.28	2.99	3.000	.000	.00	1 .0
4.126	.0528				.0153	.06	1.63	1.91	1.17	.013		.00	.00	PIPE
1082.896	1675.365	1.696	1677.061	48.92	11.87	2.19	1679.25	.00	2.28	2.97	3.000	.000	.00	1 .0
3.331	.0528				.0135	.04	1.70	1.78	1.17	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1086.226	1675.541	1.764	1677.305	48.92	11.32	1.99	1679.29	.00	2.28	2.95	3.000	.000	.00	1 .0
2.663	.0528				.0119	.03	1.76	1.65	1.17	.013		.00	.00	PIPE
1088.889	1675.681	1.836	1677.517	48.92	10.79	1.81	1679.32	.00	2.28	2.92	3.000	.000	.00	1 .0
2.093	.0528				.0106	.02	1.84	1.53	1.17	.013		.00	.00	PIPE
1090.982	1675.792	1.912	1677.704	48.92	10.29	1.64	1679.35	.00	2.28	2.88	3.000	.000	.00	1 .0
1.576	.0528				.0094	.01	1.91	1.41	1.17	.013		.00	.00	PIPE
1092.558	1675.875	1.993	1677.868	48.92	9.81	1.49	1679.36	.00	2.28	2.83	3.000	.000	.00	1 .0
1.098	.0528				.0084	.01	1.99	1.30	1.17	.013		.00	.00	PIPE
1093.656	1675.933	2.080	1678.013	48.92	9.35	1.36	1679.37	.00	2.28	2.77	3.000	.000	.00	1 .0
.650	.0528				.0074	.00	2.08	1.20	1.17	.013		.00	.00	PIPE
1094.306	1675.967	2.174	1678.141	48.92	8.92	1.23	1679.38	.00	2.28	2.68	3.000	.000	.00	1 .0
.224	.0528				.0067	.00	2.17	1.10	1.17	.013		.00	.00	PIPE
1094.530	1675.979	2.277	1678.256	48.92	8.50	1.12	1679.38	.00	2.28	2.57	3.000	.000	.00	1 .0
JUNCT STR	-.0805				.0050	.02	2.28	1.00		.013		.00	.00	PIPE
1099.240	1675.600	3.582	1679.182	40.26	5.70	.50	1679.69	.00	2.07	.00	3.000	.000	.00	1 .0
10.177	.0298				.0036	.04	3.58	.00	1.22	.013		.00	.00	PIPE
1109.417	1675.904	3.315	1679.219	40.26	5.70	.50	1679.72	.00	2.07	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1109.417	1675.904	1.224	1677.128	40.26	14.85	3.42	1680.55	.00	2.07	2.95	3.000	.000	.00	1 .0
148.208	.0298					.0298	4.42	1.22	2.73	1.22	.013	.00	.00	PIPE
1257.625	1680.326	1.224	1681.550	40.26	14.85	3.42	1684.97	.00	2.07	2.95	3.000	.000	.00	1 .0
146.437	.0298					.0285	4.17	1.22	2.73	1.22	.013	.00	.00	PIPE
1404.062	1684.696	1.255	1685.951	40.26	14.35	3.20	1689.15	.00	2.07	2.96	3.000	.000	.00	1 .0
56.456	.0298					.0255	1.44	1.26	2.60	1.22	.013	.00	.00	PIPE
1460.518	1686.381	1.302	1687.683	40.26	13.68	2.91	1690.59	.00	2.07	2.97	3.000	.000	.00	1 .0
29.184	.0298					.0224	.65	1.30	2.42	1.22	.013	.00	.00	PIPE
1489.702	1687.252	1.350	1688.602	40.26	13.05	2.64	1691.24	.00	2.07	2.98	3.000	.000	.00	1 .0
18.786	.0298					.0197	.37	1.35	2.26	1.22	.013	.00	.00	PIPE
1508.489	1687.813	1.400	1689.213	40.26	12.44	2.40	1691.62	.00	2.07	2.99	3.000	.000	.00	1 .0
13.231	.0298					.0173	.23	1.40	2.11	1.22	.013	.00	.00	PIPE
1521.719	1688.207	1.453	1689.660	40.26	11.86	2.18	1691.84	.00	2.07	3.00	3.000	.000	.00	1 .0
9.811	.0298					.0153	.15	1.45	1.96	1.22	.013	.00	.00	PIPE
1531.530	1688.500	1.509	1690.009	40.26	11.31	1.99	1691.99	.00	2.07	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0156	.07	1.51	1.83		.013	.00	.00	PIPE
1536.200	1688.600	1.407	1690.007	38.81	11.92	2.21	1692.21	.00	2.03	2.99	3.000	.000	.00	1 .0
16.683	.0200					.0165	.27	1.41	2.01	1.34	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1552.883	1688.933	1.427	1690.360	38.81	11.70	2.13	1692.49	.00	2.03	3.00	3.000	.000	.00	1 .0
28.367	.0200					.0151	.43	1.43	1.96	1.34	.013	.00	.00	PIPE
1581.250	1689.500	1.482	1690.982	38.81	11.16	1.93	1692.91	.00	2.03	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0151	.07	1.48	1.83		.013	.00	.00	PIPE
1585.920	1689.600	1.405	1691.005	37.71	11.60	2.09	1693.09	.00	2.00	2.99	3.000	.000	.00	1 .0
.973	.0194					.0160	.02	1.41	1.96	1.33	.013	.00	.00	PIPE
1586.893	1689.619	1.406	1691.025	37.71	11.59	2.08	1693.11	.00	2.00	2.99	3.000	.000	.00	1 .0
30.885	.0194					.0150	.46	1.41	1.96	1.33	.013	.00	.00	PIPE
1617.778	1690.218	1.459	1691.677	37.71	11.05	1.90	1693.57	.00	2.00	3.00	3.000	.000	.00	1 .0
18.714	.0194					.0132	.25	1.46	1.82	1.33	.013	.00	.00	PIPE
1636.492	1690.581	1.515	1692.096	37.71	10.53	1.72	1693.82	.00	2.00	3.00	3.000	.000	.00	1 .0
12.669	.0194					.0116	.15	1.52	1.70	1.33	.013	.00	.00	PIPE
1649.161	1690.827	1.573	1692.400	37.71	10.04	1.57	1693.97	.00	2.00	3.00	3.000	.000	.00	1 .0
8.883	.0194					.0102	.09	1.57	1.58	1.33	.013	.00	.00	PIPE
1658.044	1690.999	1.634	1692.634	37.71	9.58	1.42	1694.06	.00	2.00	2.99	3.000	.000	.00	1 .0
6.217	.0194					.0090	.06	1.63	1.47	1.33	.013	.00	.00	PIPE
1664.260	1691.120	1.699	1692.819	37.71	9.13	1.29	1694.11	.00	2.00	2.97	3.000	.000	.00	1 .0
4.350	.0194					.0080	.03	1.70	1.37	1.33	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49:25

20-750 Meridian Upper Plateau

100 Year Storm

Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1668.610	1691.204	1.767	1692.972	37.71	8.71	1.18	1694.15	.00	2.00	2.95	3.000	.000	.00	1 .0
2.834	.0194					.0071	.02	1.77	1.27	1.33	.013	.00	.00	PIPE
1671.444	1691.260	1.839	1693.099	37.71	8.30	1.07	1694.17	.00	2.00	2.92	3.000	.000	.00	1 .0
1.616	.0194					.0063	.01	1.84	1.17	1.33	.013	.00	.00	PIPE
1673.061	1691.291	1.915	1693.206	37.71	7.91	.97	1694.18	.00	2.00	2.88	3.000	.000	.00	1 .0
.469	.0194					.0055	.00	1.92	1.08	1.33	.013	.00	.00	PIPE
1673.530	1691.300	1.998	1693.298	37.71	7.54	.88	1694.18	.00	2.00	2.83	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0033	.02	2.00	1.00		.013	.00	.00	PIPE
1678.210	1691.400	2.929	1694.329	3.82	2.16	.07	1694.40	.00	.75	.00	1.500	.000	.00	1 .0
77.059	.0199					.0013	.10	2.93	.00	.52	.013	.00	.00	PIPE
1755.269	1692.931	1.500	1694.431	3.82	2.16	.07	1694.50	.00	.75	.00	1.500	.000	.00	1 .0
7.061	.0199					.0012	.01	1.50	.00	.52	.013	.00	.00	PIPE
1762.330	1693.071	1.360	1694.432	3.82	2.27	.08	1694.51	.00	.75	.87	1.500	.000	.00	1 .0
3.857	.0199					.0012	.00	1.36	.29	.52	.013	.00	.00	PIPE
1766.187	1693.148	1.280	1694.428	3.82	2.38	.09	1694.52	.00	.75	1.06	1.500	.000	.00	1 .0
3.135	.0199					.0013	.00	1.28	.34	.52	.013	.00	.00	PIPE
1769.322	1693.210	1.213	1694.423	3.82	2.49	.10	1694.52	.00	.75	1.18	1.500	.000	.00	1 .0
2.621	.0199					.0014	.00	1.21	.39	.52	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1771.943	1693.262	1.155	1694.418	3.82	2.62	.11	1694.52	.00	.75	1.26	1.500	.000	.00	1 .0
2.317	.0199					.0016	.00	1.16	.43	.52	.013	.00	.00	PIPE
1774.260	1693.308	1.102	1694.411	3.82	2.74	.12	1694.53	.00	.75	1.32	1.500	.000	.00	1 .0
2.006	.0199					.0018	.00	1.10	.47	.52	.013	.00	.00	PIPE
1776.266	1693.348	1.054	1694.402	3.82	2.88	.13	1694.53	.00	.75	1.37	1.500	.000	.00	1 .0
.390	.0199					.0020	.00	1.05	.52	.52	.013	.00	.00	PIPE
1776.656	1693.356	1.010	1694.366	3.82	3.02	.14	1694.51	.00	.75	1.41	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
1776.656	1693.356	.520	1693.876	3.82	7.03	.77	1694.64	.00	.75	1.43	1.500	.000	.00	1 .0
220.902	.0199					.0199	4.39	.52	2.01	.52	.013	.00	.00	PIPE
1997.558	1697.745	.520	1698.265	3.82	7.03	.77	1699.03	.00	.75	1.43	1.500	.000	.00	1 .0
45.979	.0199					.0198	.91	.52	2.01	.52	.013	.00	.00	PIPE
2043.537	1698.659	.520	1699.179	3.82	7.01	.76	1699.94	.00	.75	1.43	1.500	.000	.00	1 .0
36.961	.0199					.0185	.68	.52	2.00	.52	.013	.00	.00	PIPE
2080.498	1699.393	.539	1699.932	3.82	6.68	.69	1700.63	.00	.75	1.44	1.500	.000	.00	1 .0
12.094	.0199					.0162	.20	.54	1.87	.52	.013	.00	.00	PIPE
2092.592	1699.633	.558	1700.191	3.82	6.37	.63	1700.82	.00	.75	1.45	1.500	.000	.00	1 .0
6.613	.0199					.0142	.09	.56	1.75	.52	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2099.206	1699.765	.578	1700.343	3.82	6.08	.57	1700.92	.00	.75	1.46	1.500	.000	.00	1 .0
4.210	.0199					.0125	.05	.58	1.63	.52	.013	.00	.00	PIPE
2103.415	1699.848	.599	1700.447	3.82	5.79	.52	1700.97	.00	.75	1.47	1.500	.000	.00	1 .0
2.846	.0199					.0110	.03	.60	1.52	.52	.013	.00	.00	PIPE
2106.261	1699.905	.621	1700.526	3.82	5.52	.47	1701.00	.00	.75	1.48	1.500	.000	.00	1 .0
1.958	.0199					.0096	.02	.62	1.42	.52	.013	.00	.00	PIPE
2108.219	1699.944	.644	1700.588	3.82	5.27	.43	1701.02	.00	.75	1.48	1.500	.000	.00	1 .0
1.327	.0199					.0085	.01	.64	1.33	.52	.013	.00	.00	PIPE
2109.545	1699.970	.668	1700.638	3.82	5.02	.39	1701.03	.00	.75	1.49	1.500	.000	.00	1 .0
.931	.0199					.0074	.01	.67	1.24	.52	.013	.00	.00	PIPE
2110.476	1699.989	.692	1700.681	3.82	4.79	.36	1701.04	.00	.75	1.50	1.500	.000	.00	1 .0
.476	.0199					.0065	.00	.69	1.15	.52	.013	.00	.00	PIPE
2110.952	1699.998	.718	1700.716	3.82	4.56	.32	1701.04	.00	.75	1.50	1.500	.000	.00	1 .0
.098	.0199					.0057	.00	.72	1.08	.52	.013	.00	.00	PIPE
2111.050	1700.000	.747	1700.747	3.82	4.34	.29	1701.04	.00	.75	1.50	1.500	.000	.00	1 .0
JUNCT STR	.0272					.0030	.01	.75	1.00		.013	.00	.00	PIPE
2114.720	1700.100	.982	1701.082	1.91	1.56	.04	1701.12	.00	.52	1.43	1.500	.000	.00	1 .0
1.694	.0218					.0006	.00	.98	.30	.36	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2116.414	1700.137	.942	1701.079	1.91	1.63	.04	1701.12	.00	.52	1.45	1.500	.000	.00	1 .0
1.599	.0218					.0007	.00	.94	.32	.36	.013	.00	.00	PIPE
2118.013	1700.172	.904	1701.076	1.91	1.71	.05	1701.12	.00	.52	1.47	1.500	.000	.00	1 .0
1.444	.0218					.0008	.00	.90	.35	.36	.013	.00	.00	PIPE
2119.457	1700.203	.869	1701.073	1.91	1.80	.05	1701.12	.00	.52	1.48	1.500	.000	.00	1 .0
1.334	.0218					.0009	.00	.87	.37	.36	.013	.00	.00	PIPE
2120.791	1700.233	.836	1701.069	1.91	1.89	.06	1701.12	.00	.52	1.49	1.500	.000	.00	1 .0
1.269	.0218					.0010	.00	.84	.40	.36	.013	.00	.00	PIPE
2122.060	1700.260	.804	1701.064	1.91	1.98	.06	1701.13	.00	.52	1.50	1.500	.000	.00	1 .0
1.154	.0218					.0011	.00	.80	.43	.36	.013	.00	.00	PIPE
2123.214	1700.286	.774	1701.060	1.91	2.07	.07	1701.13	.00	.52	1.50	1.500	.000	.00	1 .0
1.036	.0218					.0013	.00	.77	.47	.36	.013	.00	.00	PIPE
2124.249	1700.308	.746	1701.054	1.91	2.18	.07	1701.13	.00	.52	1.50	1.500	.000	.00	1 .0
.963	.0218					.0014	.00	.75	.50	.36	.013	.00	.00	PIPE
2125.212	1700.329	.719	1701.048	1.91	2.28	.08	1701.13	.00	.52	1.50	1.500	.000	.00	1 .0
.547	.0218					.0016	.00	.72	.54	.36	.013	.00	.00	PIPE
2125.759	1700.341	.693	1701.034	1.91	2.39	.09	1701.12	.00	.52	1.50	1.500	.000	.00	1 .0

HYDRAULIC JUMP

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2125.759	1700.341	.368	1700.709	1.91	5.68	.50	1701.21	.00	.52	1.29	1.500	.000	.00	1 .0
3.372	.0218					.0177	.06	.37	1.96	.36	.013	.00	.00	PIPE
2129.131	1700.415	.381	1700.796	1.91	5.40	.45	1701.25	.00	.52	1.31	1.500	.000	.00	1 .0
4.379	.0218					.0154	.07	.38	1.83	.36	.013	.00	.00	PIPE
2133.510	1700.510	.394	1700.905	1.91	5.15	.41	1701.32	.00	.52	1.32	1.500	.000	.00	1 .0
2.800	.0218					.0135	.04	.39	1.71	.36	.013	.00	.00	PIPE
2136.311	1700.572	.408	1700.980	1.91	4.91	.37	1701.35	.00	.52	1.34	1.500	.000	.00	1 .0
1.991	.0218					.0118	.02	.41	1.60	.36	.013	.00	.00	PIPE
2138.302	1700.615	.422	1701.037	1.91	4.68	.34	1701.38	.00	.52	1.35	1.500	.000	.00	1 .0
1.381	.0218					.0103	.01	.42	1.50	.36	.013	.00	.00	PIPE
2139.683	1700.645	.437	1701.082	1.91	4.46	.31	1701.39	.00	.52	1.36	1.500	.000	.00	1 .0
1.023	.0218					.0091	.01	.44	1.40	.36	.013	.00	.00	PIPE
2140.706	1700.668	.452	1701.120	1.91	4.25	.28	1701.40	.00	.52	1.38	1.500	.000	.00	1 .0
.685	.0218					.0079	.01	.45	1.31	.36	.013	.00	.00	PIPE
2141.391	1700.683	.468	1701.151	1.91	4.06	.26	1701.41	.00	.52	1.39	1.500	.000	.00	1 .0
.484	.0218					.0069	.00	.47	1.23	.36	.013	.00	.00	PIPE
2141.874	1700.693	.484	1701.177	1.91	3.87	.23	1701.41	.00	.52	1.40	1.500	.000	.00	1 .0
.260	.0218					.0061	.00	.48	1.15	.36	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:49:25

20-750 Meridian Upper Plateau
100 Year Storm
Line 7

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2142.134	1700.699	.501	1701.200	1.91	3.69	.21	1701.41	.00	.52	1.41	1.500	.000	.00	1 .0
.046	.0218				.0053	.00	.50	1.07	.36	.013		.00	.00	PIPE
2142.180	1700.700	.521	1701.220	1.91	3.51	.19	1701.41	.00	.52	1.43	1.500	.000	.00	1 .0

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:52:29

20-750 Meridian Upper Plateau

100 Year Storm

Line 8

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1000.000	1648.000	1.062	1649.062	33.70	15.04	3.51	1652.58	.00	1.89	2.87	3.000	.000	.00	1 .0
.376	.3663				.0344	.01	1.06	3.00	.59	.013	.00	.00	PIPE	
1000.376	1648.138	1.078	1649.216	33.70	14.74	3.37	1652.59	.00	1.89	2.88	3.000	.000	.00	1 .0
.799	.3663				.0313	.03	1.08	2.91	.59	.013	.00	.00	PIPE	
1001.175	1648.430	1.117	1649.547	33.70	14.05	3.07	1652.61	.00	1.89	2.90	3.000	.000	.00	1 .0
.705	.3663				.0275	.02	1.12	2.72	.59	.013	.00	.00	PIPE	
1001.880	1648.688	1.157	1649.845	33.70	13.40	2.79	1652.63	.00	1.89	2.92	3.000	.000	.00	1 .0
.618	.3663				.0241	.01	1.16	2.54	.59	.013	.00	.00	PIPE	
1002.497	1648.915	1.199	1650.114	33.70	12.77	2.53	1652.65	.00	1.89	2.94	3.000	.000	.00	1 .0
.543	.3663				.0211	.01	1.20	2.38	.59	.013	.00	.00	PIPE	
1003.040	1649.113	1.242	1650.355	33.70	12.18	2.30	1652.66	.00	1.89	2.96	3.000	.000	.00	1 .0
.470	.3663				.0186	.01	1.24	2.22	.59	.013	.00	.00	PIPE	
1003.510	1649.286	1.288	1650.574	33.70	11.61	2.09	1652.67	.00	1.89	2.97	3.000	.000	.00	1 .0
.407	.3663				.0163	.01	1.29	2.07	.59	.013	.00	.00	PIPE	
1003.917	1649.435	1.336	1650.771	33.70	11.07	1.90	1652.67	.00	1.89	2.98	3.000	.000	.00	1 .0
.352	.3663				.0143	.01	1.34	1.93	.59	.013	.00	.00	PIPE	
1004.269	1649.564	1.385	1650.949	33.70	10.56	1.73	1652.68	.00	1.89	2.99	3.000	.000	.00	1 .0
.298	.3663				.0126	.00	1.39	1.80	.59	.013	.00	.00	PIPE	

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:52:29

20-750 Meridian Upper Plateau

100 Year Storm

Line 8

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1004.567	1649.673	1.437	1651.110	33.70	10.07	1.57	1652.68	.00	1.89	3.00	3.000	.000	.00	1 .0
.248	.3663				.0111	.00	1.44	1.68	.59	.013	.00	.00		PIPE
1004.815	1649.764	1.492	1651.256	33.70	9.60	1.43	1652.69	.00	1.89	3.00	3.000	.000	.00	1 .0
.205	.3663				.0098	.00	1.49	1.56	.59	.013	.00	.00		PIPE
1005.020	1649.839	1.549	1651.388	33.70	9.15	1.30	1652.69	.00	1.89	3.00	3.000	.000	.00	1 .0
.163	.3663				.0086	.00	1.55	1.46	.59	.013	.00	.00		PIPE
1005.182	1649.898	1.609	1651.507	33.70	8.72	1.18	1652.69	.00	1.89	2.99	3.000	.000	.00	1 .0
.124	.3663				.0076	.00	1.61	1.35	.59	.013	.00	.00		PIPE
1005.306	1649.944	1.672	1651.616	33.70	8.32	1.07	1652.69	.00	1.89	2.98	3.000	.000	.00	1 .0
.085	.3663				.0067	.00	1.67	1.26	.59	.013	.00	.00		PIPE
1005.392	1649.975	1.739	1651.714	33.70	7.93	.98	1652.69	.00	1.89	2.96	3.000	.000	.00	1 .0
.052	.3663				.0059	.00	1.74	1.17	.59	.013	.00	.00		PIPE
1005.444	1649.994	1.809	1651.803	33.70	7.56	.89	1652.69	.00	1.89	2.94	3.000	.000	.00	1 .0
.016	.3663				.0052	.00	1.81	1.08	.59	.013	.00	.00		PIPE
1005.460	1650.000	1.885	1651.885	33.70	7.21	.81	1652.69	.00	1.89	2.90	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0032	.01	1.89	1.00		.013	.00	.00		PIPE
1010.140	1650.100	3.042	1653.142	8.43	2.68	.11	1653.25	.00	1.03	.00	2.000	.000	.00	1 .0
1.880	.2544				.0014	.00	3.04	.00	.37	.013	.00	.00		PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:52:29

20-750 Meridian Upper Plateau
100 Year Storm
Line 8

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1012.020	1650.578	2.566	1653.144	8.43	2.68	.11	1653.26	.00	1.03	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1012.020	1650.578	.368	1650.946	8.43	21.25	7.01	1657.96	.00	1.03	1.55	2.000	.000	.00	1 .0
6.690	.2544					.2543	1.70	.37	7.40	.37	.013	.00	.00	PIPE
1018.710	1652.280	.368	1652.648	8.43	21.24	7.00	1659.65	.48	1.03	1.55	2.000	.000	.00	1 .0
30.428	.2540					.2540	7.73	.85	7.40	.37	.013	.00	.00	PIPE
1049.138	1660.007	.368	1660.375	8.43	21.24	7.00	1667.38	.48	1.03	1.55	2.000	.000	.00	1 .0
40.252	.2540					.2529	10.18	.85	7.40	.37	.013	.00	.00	PIPE
1089.390	1670.230	.369	1670.599	8.43	21.17	6.96	1677.56	.00	1.03	1.55	2.000	.000	.00	1 .0
34.687	.2544					.2407	8.35	.37	7.36	.37	.013	.00	.00	PIPE
1124.078	1679.053	.377	1679.430	8.43	20.50	6.52	1685.95	.00	1.03	1.56	2.000	.000	.00	1 .0
14.756	.2544					.2150	3.17	.38	7.05	.37	.013	.00	.00	PIPE
1138.833	1682.806	.389	1683.195	8.43	19.54	5.93	1689.13	.00	1.03	1.58	2.000	.000	.00	1 .0
7.893	.2544					.1878	1.48	.39	6.60	.37	.013	.00	.00	PIPE
1146.726	1684.813	.403	1685.217	8.43	18.63	5.39	1690.61	.00	1.03	1.60	2.000	.000	.00	1 .0
5.290	.2544					.1642	.87	.40	6.18	.37	.013	.00	.00	PIPE
1152.016	1686.159	.416	1686.575	8.43	17.77	4.90	1691.48	.00	1.03	1.62	2.000	.000	.00	1 .0
3.883	.2544					.1435	.56	.42	5.79	.37	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:52:29

20-750 Meridian Upper Plateau
100 Year Storm
Line 8

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1155.899	1687.147	.431	1687.578	8.43	16.94	4.46	1692.03	.00	1.03	1.64	2.000	.000	.00	1 .0
3.033	.2544					.1254	.38	.43	5.43	.37	.013	.00	.00	PIPE
1158.933	1687.918	.445	1688.363	8.43	16.15	4.05	1692.41	.00	1.03	1.66	2.000	.000	.00	1 .0
2.440	.2544					.1096	.27	.45	5.08	.37	.013	.00	.00	PIPE
1161.372	1688.539	.460	1688.999	8.43	15.40	3.68	1692.68	.00	1.03	1.68	2.000	.000	.00	1 .0
2.010	.2544					.0958	.19	.46	4.76	.37	.013	.00	.00	PIPE
1163.383	1689.050	.476	1689.526	8.43	14.68	3.35	1692.87	.00	1.03	1.70	2.000	.000	.00	1 .0
1.685	.2544					.0838	.14	.48	4.46	.37	.013	.00	.00	PIPE
1165.068	1689.479	.493	1689.972	8.43	14.00	3.04	1693.02	.00	1.03	1.72	2.000	.000	.00	1 .0
1.440	.2544					.0733	.11	.49	4.17	.37	.013	.00	.00	PIPE
1166.507	1689.845	.509	1690.354	8.43	13.35	2.77	1693.12	.00	1.03	1.74	2.000	.000	.00	1 .0
1.227	.2544					.0641	.08	.51	3.91	.37	.013	.00	.00	PIPE
1167.734	1690.157	.527	1690.684	8.43	12.73	2.52	1693.20	.00	1.03	1.76	2.000	.000	.00	1 .0
1.062	.2544					.0561	.06	.53	3.66	.37	.013	.00	.00	PIPE
1168.797	1690.427	.545	1690.972	8.43	12.13	2.29	1693.26	.00	1.03	1.78	2.000	.000	.00	1 .0
.920	.2544					.0490	.05	.55	3.42	.37	.013	.00	.00	PIPE
1169.717	1690.661	.564	1691.225	8.43	11.57	2.08	1693.30	.00	1.03	1.80	2.000	.000	.00	1 .0
.799	.2544					.0429	.03	.56	3.20	.37	.013	.00	.00	PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 8

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1170.516	1690.865	.584	1691.449	8.43	11.03	1.89	1693.34	.00	1.03	1.82	2.000	.000	.00	1 .0
.700	.2544					.0376	.03	.58	3.00	.37	.013	.00	.00	PIPE
1171.216	1691.043	.604	1691.647	8.43	10.52	1.72	1693.36	.00	1.03	1.84	2.000	.000	.00	1 .0
.610	.2544					.0329	.02	.60	2.81	.37	.013	.00	.00	PIPE
1171.826	1691.198	.625	1691.823	8.43	10.03	1.56	1693.38	.00	1.03	1.85	2.000	.000	.00	1 .0
.527	.2544					.0288	.02	.63	2.62	.37	.013	.00	.00	PIPE
1172.354	1691.332	.648	1691.980	8.43	9.56	1.42	1693.40	.00	1.03	1.87	2.000	.000	.00	1 .0
.467	.2544					.0252	.01	.65	2.46	.37	.013	.00	.00	PIPE
1172.821	1691.451	.670	1692.121	8.43	9.12	1.29	1693.41	.00	1.03	1.89	2.000	.000	.00	1 .0
.402	.2544					.0221	.01	.67	2.30	.37	.013	.00	.00	PIPE
1173.223	1691.553	.694	1692.247	8.43	8.69	1.17	1693.42	.00	1.03	1.90	2.000	.000	.00	1 .0
.348	.2544					.0194	.01	.69	2.15	.37	.013	.00	.00	PIPE
1173.570	1691.641	.719	1692.361	8.43	8.29	1.07	1693.43	.00	1.03	1.92	2.000	.000	.00	1 .0
.299	.2544					.0170	.01	.72	2.01	.37	.013	.00	.00	PIPE
1173.869	1691.718	.745	1692.463	8.43	7.90	.97	1693.43	.00	1.03	1.93	2.000	.000	.00	1 .0
.255	.2544					.0149	.00	.75	1.88	.37	.013	.00	.00	PIPE
1174.125	1691.782	.772	1692.555	8.43	7.53	.88	1693.44	.00	1.03	1.95	2.000	.000	.00	1 .0
.220	.2544					.0131	.00	.77	1.75	.37	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:52:29

20-750 Meridian Upper Plateau
100 Year Storm
Line 8

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1174.345	1691.839	.799	1692.638	8.43	7.18	.80	1693.44	.00	1.03	1.96	2.000	.000	.00	1 .0
.176	.2544					.0115	.00	.80	1.64	.37	.013	.00	.00	PIPE
1174.521	1691.883	.829	1692.713	8.43	6.85	.73	1693.44	.00	1.03	1.97	2.000	.000	.00	1 .0
.148	.2544					.0101	.00	.83	1.53	.37	.013	.00	.00	PIPE
1174.670	1691.921	.859	1692.780	8.43	6.53	.66	1693.44	.00	1.03	1.98	2.000	.000	.00	1 .0
.115	.2544					.0089	.00	.86	1.43	.37	.013	.00	.00	PIPE
1174.785	1691.950	.891	1692.841	8.43	6.23	.60	1693.44	.00	1.03	1.99	2.000	.000	.00	1 .0
.088	.2544					.0078	.00	.89	1.33	.37	.013	.00	.00	PIPE
1174.873	1691.973	.924	1692.897	8.43	5.94	.55	1693.44	.00	1.03	1.99	2.000	.000	.00	1 .0
.060	.2544					.0068	.00	.92	1.24	.37	.013	.00	.00	PIPE
1174.932	1691.988	.959	1692.947	8.43	5.66	.50	1693.44	.00	1.03	2.00	2.000	.000	.00	1 .0
.037	.2544					.0060	.00	.96	1.16	.37	.013	.00	.00	PIPE
1174.970	1691.997	.995	1692.992	8.43	5.40	.45	1693.44	.00	1.03	2.00	2.000	.000	.00	1 .0
.010	.2544					.0053	.00	1.00	1.08	.37	.013	.00	.00	PIPE
1174.980	1692.000	1.035	1693.035	8.43	5.14	.41	1693.44	.00	1.03	2.00	2.000	.000	.00	1 .0

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time:10: 0:15

20-750 Meridian Upper Plateau
100 Year Storm
Line 8A

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1002.530	1650.100	.477	1650.577	25.27	34.97	18.99	1669.57	.00	1.62	2.19	3.000	.000	.00	1 .0
15.440	.5570					.4504	6.95	.48	10.74	.46	.013	.00	.00	PIPE
1017.970	1658.700	.492	1659.192	25.27	33.42	17.35	1676.54	1.28	1.62	2.22	3.000	.000	.00	1 .0
7.280	.5570					.4011	2.92	1.78	10.10	.46	.013	.00	.00	PIPE
1025.250	1662.755	.503	1663.258	25.27	32.26	16.16	1679.42	1.21	1.62	2.24	3.000	.000	.00	1 .0
7.249	.5570					.3566	2.59	1.71	9.62	.46	.013	.00	.00	PIPE
1032.499	1666.792	.520	1667.312	25.27	30.76	14.69	1682.01	1.11	1.62	2.27	3.000	.000	.00	1 .0
5.371	.5570					.3116	1.67	1.63	9.01	.46	.013	.00	.00	PIPE
1037.870	1669.784	.538	1670.322	25.27	29.33	13.36	1683.68	1.03	1.62	2.30	3.000	.000	.00	1 .0
4.202	.5570					.2723	1.14	1.56	8.45	.46	.013	.00	.00	PIPE
1042.072	1672.124	.556	1672.680	25.27	27.97	12.14	1684.82	.94	1.62	2.33	3.000	.000	.00	1 .0
3.400	.5570					.2378	.81	1.50	7.92	.46	.013	.00	.00	PIPE
1045.472	1674.018	.575	1674.593	25.27	26.66	11.04	1685.63	.87	1.62	2.36	3.000	.000	.00	1 .0
2.820	.5570					.2078	.59	1.44	7.42	.46	.013	.00	.00	PIPE
1048.292	1675.588	.594	1676.182	25.27	25.42	10.04	1686.22	.80	1.62	2.39	3.000	.000	.00	1 .0
2.377	.5570					.1815	.43	1.39	6.95	.46	.013	.00	.00	PIPE
1050.668	1676.912	.614	1677.526	25.27	24.24	9.12	1686.65	.74	1.62	2.42	3.000	.000	.00	1 .0
2.029	.5570					.1586	.32	1.35	6.51	.46	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time:10: 0:15

20-750 Meridian Upper Plateau
100 Year Storm
Line 8A

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1052.698	1678.042	.635	1678.677	25.27	23.11	8.29	1686.97	.68	1.62	2.45	3.000	.000	.00	1 .0
1.750	.5570				.1386	.24	1.31	6.10	.46	.013	.00	.00	PIPE	
1054.447	1679.017	.657	1679.674	25.27	22.04	7.54	1687.21	.62	1.62	2.48	3.000	.000	.00	1 .0
1.523	.5570				.1212	.18	1.28	5.71	.46	.013	.00	.00	PIPE	
1055.970	1679.865	.679	1680.544	25.27	21.01	6.85	1687.40	.57	1.62	2.51	3.000	.000	.00	1 .0
1.328	.5570				.1060	.14	1.25	5.35	.46	.013	.00	.00	PIPE	
1057.298	1680.605	.703	1681.308	25.27	20.03	6.23	1687.54	.53	1.62	2.54	3.000	.000	.00	1 .0
1.168	.5570				.0927	.11	1.23	5.01	.46	.013	.00	.00	PIPE	
1058.467	1681.255	.727	1681.983	25.27	19.10	5.67	1687.65	.49	1.62	2.57	3.000	.000	.00	1 .0
1.030	.5570				.0810	.08	1.21	4.69	.46	.013	.00	.00	PIPE	
1059.497	1681.829	.752	1682.581	25.27	18.21	5.15	1687.73	.45	1.62	2.60	3.000	.000	.00	1 .0
.910	.5570				.0709	.06	1.20	4.39	.46	.013	.00	.00	PIPE	
1060.406	1682.336	.778	1683.114	25.27	17.36	4.68	1687.80	.41	1.62	2.63	3.000	.000	.00	1 .0
.807	.5570				.0620	.05	1.19	4.11	.46	.013	.00	.00	PIPE	
1061.214	1682.785	.804	1683.589	25.27	16.56	4.26	1687.85	.38	1.62	2.66	3.000	.000	.00	1 .0
.714	.5570				.0542	.04	1.18	3.85	.46	.013	.00	.00	PIPE	
1061.928	1683.183	.832	1684.015	25.27	15.79	3.87	1687.88	.35	1.62	2.69	3.000	.000	.00	1 .0
.633	.5570				.0474	.03	1.18	3.60	.46	.013	.00	.00	PIPE	

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time:10: 0:15

20-750 Meridian Upper Plateau
100 Year Storm
Line 8A

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1062.561	1683.536	.861	1684.397	25.27	15.05	3.52	1687.91	.32	1.62	2.71	3.000	.000	.00	1 .0
.562	.5570				.0415	.02	1.18	3.37	.46	.013	.00	.00	PIPE	
1063.123	1683.849	.891	1684.740	25.27	14.35	3.20	1687.94	.29	1.62	2.74	3.000	.000	.00	1 .0
.499	.5570				.0364	.02	1.18	3.16	.46	.013	.00	.00	PIPE	
1063.622	1684.127	.922	1685.049	25.27	13.68	2.91	1687.96	.27	1.62	2.77	3.000	.000	.00	1 .0
.440	.5570				.0318	.01	1.19	2.95	.46	.013	.00	.00	PIPE	
1064.063	1684.372	.955	1685.327	25.27	13.05	2.64	1687.97	.25	1.62	2.80	3.000	.000	.00	1 .0
.390	.5570				.0279	.01	1.20	2.76	.46	.013	.00	.00	PIPE	
1064.453	1684.589	.989	1685.578	25.27	12.44	2.40	1687.98	.23	1.62	2.82	3.000	.000	.00	1 .0
.344	.5570				.0244	.01	1.21	2.58	.46	.013	.00	.00	PIPE	
1064.797	1684.781	1.024	1685.805	25.27	11.86	2.18	1687.99	.21	1.62	2.85	3.000	.000	.00	1 .0
.303	.5570				.0214	.01	1.23	2.42	.46	.013	.00	.00	PIPE	
1065.100	1684.950	1.060	1686.010	25.27	11.31	1.99	1688.00	.00	1.62	2.87	3.000	.000	.00	1 .0
21.555	.0200				.0200	.43	1.06	2.26	1.06	.013	.00	.00	PIPE	
1086.655	1685.381	1.060	1686.441	25.27	11.31	1.99	1688.43	.00	1.62	2.87	3.000	.000	.00	1 .0
115.721	.0200				.0192	2.22	1.06	2.26	1.06	.013	.00	.00	PIPE	
1202.376	1687.696	1.085	1688.781	25.27	10.95	1.86	1690.64	.00	1.62	2.88	3.000	.000	.00	1 .0
46.230	.0200				.0172	.79	1.09	2.16	1.06	.013	.00	.00	PIPE	

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time:10: 0:15

20-750 Meridian Upper Plateau
100 Year Storm
Line 8A

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1248.606	1688.621	1.124	1689.745	25.27	10.44	1.69	1691.44	.00	1.62	2.90	3.000	.000	.00	1 .0
22.914	.0200					.0151	.35	1.12	2.02	1.06	.013	.00	.00	PIPE
1271.521	1689.079	1.165	1690.244	25.27	9.96	1.54	1691.78	.00	1.62	2.92	3.000	.000	.00	1 .0
14.456	.0200					.0132	.19	1.17	1.88	1.06	.013	.00	.00	PIPE
1285.976	1689.368	1.207	1690.575	25.27	9.49	1.40	1691.98	.00	1.62	2.94	3.000	.000	.00	1 .0
9.915	.0200					.0116	.12	1.21	1.76	1.06	.013	.00	.00	PIPE
1295.891	1689.567	1.251	1690.818	25.27	9.05	1.27	1692.09	.00	1.62	2.96	3.000	.000	.00	1 .0
7.102	.0200					.0102	.07	1.25	1.64	1.06	.013	.00	.00	PIPE
1302.993	1689.709	1.297	1691.006	25.27	8.63	1.16	1692.16	.00	1.62	2.97	3.000	.000	.00	1 .0
5.173	.0200					.0090	.05	1.30	1.53	1.06	.013	.00	.00	PIPE
1308.167	1689.812	1.345	1691.157	25.27	8.23	1.05	1692.21	.00	1.62	2.98	3.000	.000	.00	1 .0
3.758	.0200					.0079	.03	1.35	1.43	1.06	.013	.00	.00	PIPE
1311.925	1689.887	1.395	1691.283	25.27	7.85	.96	1692.24	.00	1.62	2.99	3.000	.000	.00	1 .0
2.668	.0200					.0069	.02	1.40	1.33	1.06	.013	.00	.00	PIPE
1314.593	1689.941	1.447	1691.388	25.27	7.48	.87	1692.26	.00	1.62	3.00	3.000	.000	.00	1 .0
1.725	.0200					.0061	.01	1.45	1.24	1.06	.013	.00	.00	PIPE
1316.319	1689.975	1.502	1691.477	25.27	7.13	.79	1692.27	.00	1.62	3.00	3.000	.000	.00	1 .0
.944	.0200					.0054	.01	1.50	1.16	1.06	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time:10: 0:15

20-750 Meridian Upper Plateau
100 Year Storm
Line 8A

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1317.263	1689.994	1.560	1691.554	25.27	6.80	.72	1692.27	.00	1.62	3.00	3.000	.000	.00	1 .0
.287	.0200				.0047	.00	1.56	1.08	1.06	.013	.00	.00	PIPE	
1317.550	1690.000	1.622	1691.622	25.27	6.48	.65	1692.27	.00	1.62	2.99	3.000	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:51:19

20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	1711.500	1.222	1712.722	58.67	9.19	1.31	1714.03	.00	1.63	6.44	1.500	4.000	1.00	0 .0
6.789	.0050					.0081	.06	1.22	1.63	1.39	.013	.00	1.00	TRAP
1006.789	1711.534	1.210	1712.744	58.67	9.31	1.35	1714.09	.00	1.63	6.42	1.500	4.000	1.00	0 .0
23.015	.0050					.0088	.20	1.21	1.66	1.39	.013	.00	1.00	TRAP
1029.805	1711.649	1.164	1712.813	58.67	9.77	1.48	1714.29	.00	1.63	6.33	1.500	4.000	1.00	0 .0
20.176	.0050					.0101	.20	1.16	1.77	1.39	.013	.00	1.00	TRAP
1049.981	1711.750	1.119	1712.869	58.67	10.24	1.63	1714.50	.00	1.63	6.24	1.500	4.000	1.00	0 .0
18.138	.0050					.0116	.21	1.12	1.88	1.39	.013	.00	1.00	TRAP
1068.119	1711.841	1.076	1712.917	58.67	10.74	1.79	1714.71	.00	1.63	6.15	1.500	4.000	1.00	0 .0
16.572	.0050					.0133	.22	1.08	2.01	1.39	.013	.00	1.00	TRAP
1084.691	1711.923	1.034	1712.958	58.67	11.27	1.97	1714.93	.00	1.63	6.07	1.500	4.000	1.00	0 .0
15.309	.0050					.0152	.23	1.03	2.14	1.39	.013	.00	1.00	TRAP
1100.000	1712.000	.994	1712.994	58.67	11.82	2.17	1715.16	.00	1.63	5.99	1.500	4.000	1.00	0 .0
114.286	.0166					.0153	1.75	.99	2.29	.99	.013	.00	1.00	TRAP
1214.286	1713.897	1.031	1714.928	58.67	11.31	1.99	1716.92	.00	1.63	6.06	1.500	4.000	1.00	0 .0
44.413	.0166					.0135	.60	1.03	2.16	.99	.013	.00	1.00	TRAP
1258.698	1714.634	1.072	1715.707	58.67	10.79	1.81	1717.51	.00	1.63	6.14	1.500	4.000	1.00	0 .0
25.026	.0166					.0117	.29	1.07	2.02	.99	.013	.00	1.00	TRAP

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20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1283.724	1715.050	1.115	1716.165	58.67	10.29	1.64	1717.81	.00	1.63	6.23	1.500	4.000	1.00	0 .0
16.550	.0166					.0103	.17	1.12	1.89	.99	.013	.00	1.00	TRAP
1300.275	1715.324	1.160	1716.484	58.67	9.81	1.49	1717.98	.00	1.63	6.32	1.500	4.000	1.00	0 .0
11.762	.0166					.0090	.11	1.16	1.78	.99	.013	.00	1.00	TRAP
1312.037	1715.520	1.205	1716.725	58.67	9.35	1.36	1718.08	.00	1.63	6.41	1.500	4.000	1.00	0 .0
8.662	.0166					.0078	.07	1.21	1.67	.99	.013	.00	1.00	TRAP
1320.699	1715.663	1.253	1716.916	58.67	8.92	1.23	1718.15	.00	1.63	6.51	1.500	4.000	1.00	0 .0
6.475	.0166					.0068	.04	1.25	1.56	.99	.013	.00	1.00	TRAP
1327.174	1715.771	1.302	1717.073	58.67	8.50	1.12	1718.19	.00	1.63	6.60	1.500	4.000	1.00	0 .0
4.837	.0166					.0060	.03	1.30	1.47	.99	.013	.00	1.00	TRAP
1332.011	1715.851	1.352	1717.204	58.67	8.10	1.02	1718.22	.00	1.63	6.70	1.500	4.000	1.00	0 .0
3.557	.0166					.0052	.02	1.35	1.37	.99	.013	.00	1.00	TRAP
1335.568	1715.910	1.405	1717.315	58.67	7.73	.93	1718.24	.00	1.63	6.81	1.500	4.000	1.00	0 .0
2.520	.0166					.0046	.01	1.40	1.29	.99	.013	.00	1.00	TRAP
1338.088	1715.952	1.459	1717.411	58.67	7.37	.84	1718.25	.00	1.63	6.92	1.500	4.000	1.00	0 .0
1.659	.0166					.0040	.01	1.46	1.21	.99	.013	.00	1.00	TRAP
1339.748	1715.980	1.514	1717.494	58.67	7.03	.77	1718.26	.00	1.63	7.03	1.500	4.000	1.00	0 .0
.928	.0166					.0035	.00	1.51	1.14	.99	.013	.00	1.00	TRAP

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20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1340.675	1715.995	1.572	1717.567	58.67	6.70	.70	1718.26	.00	1.63	7.14	1.500	4.000	1.00	0 .0
.295	.0166					.0031	.00	1.57	1.07	.99	.013	.00	1.00	TRAP
1340.970	1716.000	1.632	1717.632	58.67	6.38	.63	1718.26	1.19	1.63	7.26	1.500	4.000	1.00	0 .0
JUNCT STR	.0150					.0017	.02	2.83	1.00		.013	.00	1.00	TRAP
1354.330	1716.200	1.959	1718.159	33.56	2.87	.13	1718.29	.00	1.17	7.92	1.500	4.000	1.00	0 .0
TRANS STR	.5000							1.96	.42		.013	.00	1.00	TRAP
1354.350	1716.210	1.881	1718.091	33.56	7.19	.80	1718.89	.00	1.88	2.90	3.000	.000	.00	1 .0
1.116	-.0029					.0046	.01	1.88	1.00	.00	.013	.00	.00	PIPE
1355.466	1716.207	1.975	1718.182	33.56	6.80	.72	1718.90	.00	1.88	2.85	3.000	.000	.00	1 .0
3.510	-.0029					.0040	.01	1.97	.91	.00	.013	.00	.00	PIPE
1358.975	1716.196	2.074	1718.270	33.56	6.44	.64	1718.91	.00	1.88	2.77	3.000	.000	.00	1 .0
6.079	-.0029					.0035	.02	2.07	.83	.00	.013	.00	.00	PIPE
1365.055	1716.179	2.177	1718.356	33.56	6.11	.58	1718.94	.00	1.88	2.68	3.000	.000	.00	1 .0
8.795	-.0029					.0031	.03	2.18	.75	.00	.013	.00	.00	PIPE
1373.850	1716.153	2.286	1718.439	33.56	5.81	.52	1718.96	.00	1.88	2.55	3.000	.000	.00	1 .0
11.625	-.0029					.0028	.03	2.29	.68	.00	.013	.00	.00	PIPE
1385.475	1716.119	2.401	1718.519	33.56	5.53	.48	1718.99	.00	1.88	2.40	3.000	.000	.00	1 .0
14.533	-.0029					.0025	.04	2.40	.61	.00	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1400.008	1716.076	2.521	1718.597	33.56	5.29	.44	1719.03	.00	1.88	2.20	3.000	.000	.00	1 .0
17.481	-.0029					.0023	.04	2.52	.55	.00	.013	.00	.00	PIPE
1417.488	1716.025	2.647	1718.672	33.56	5.08	.40	1719.07	.00	1.88	1.93	3.000	.000	.00	1 .0
8.522	-.0029					.0022	.02	2.65	.48	.00	.013	.00	.00	PIPE
1426.010	1716.000	2.704	1718.703	33.56	5.00	.39	1719.09	.00	1.88	1.79	3.000	.000	.00	1 .0
JUNCT STR	.1923					.0018	.01	2.70	.46		.013	.00	.00	PIPE
1430.690	1716.900	2.223	1719.124	22.01	3.92	.24	1719.36	.00	1.51	2.63	3.000	.000	.00	1 .0
11.670	.0078					.0014	.02	2.22	.47	1.27	.013	.00	.00	PIPE
1442.360	1716.991	2.125	1719.116	22.01	4.11	.26	1719.38	.00	1.51	2.73	3.000	.000	.00	1 .0
10.258	.0078					.0016	.02	2.13	.52	1.27	.013	.00	.00	PIPE
1452.618	1717.071	2.035	1719.107	22.01	4.31	.29	1719.40	.00	1.51	2.80	3.000	.000	.00	1 .0
9.161	.0078					.0018	.02	2.04	.56	1.27	.013	.00	.00	PIPE
1461.779	1717.143	1.951	1719.094	22.01	4.52	.32	1719.41	.00	1.51	2.86	3.000	.000	.00	1 .0
7.984	.0078					.0020	.02	1.95	.61	1.27	.013	.00	.00	PIPE
1469.763	1717.205	1.873	1719.078	22.01	4.74	.35	1719.43	.00	1.51	2.91	3.000	.000	.00	1 .0
7.062	.0078					.0023	.02	1.87	.66	1.27	.013	.00	.00	PIPE
1476.825	1717.260	1.799	1719.060	22.01	4.97	.38	1719.44	.00	1.51	2.94	3.000	.000	.00	1 .0
6.031	.0078					.0026	.02	1.80	.71	1.27	.013	.00	.00	PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) /	Water Elev /	Q (CFS) /	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL /	No Wth Prs/Pip / Type Ch
1482.856	1717.308	1.729	1719.037	22.01	5.22	.42	1719.46	.00	1.51	2.96	3.000	.000	.00	1 .0
2.887	.0078				.0029	.01	1.73	.77	1.27	.013	.00	.00		PIPE
1485.743	1717.330	1.663	1718.993	22.01	5.47	.46	1719.46	.00	1.51	2.98	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1485.743	1717.330	1.349	1718.679	22.01	7.14	.79	1719.47	.00	1.51	2.98	3.000	.000	.00	1 .0
4.350	.0078				.0063	.03	1.35	1.24	1.27	.013	.00	.00		PIPE
1490.093	1717.364	1.349	1718.713	22.01	7.14	.79	1719.50	.00	1.51	2.98	3.000	.000	.00	1 .0
11.481	.0078				.0059	.07	1.35	1.24	1.27	.013	.00	.00		PIPE
1501.573	1717.454	1.399	1718.853	22.01	6.81	.72	1719.57	.00	1.51	2.99	3.000	.000	.00	1 .0
4.726	.0078				.0052	.02	1.40	1.15	1.27	.013	.00	.00		PIPE
1506.299	1717.491	1.452	1718.943	22.01	6.49	.65	1719.60	.00	1.51	3.00	3.000	.000	.00	1 .0
1.181	.0078				.0046	.01	1.45	1.08	1.27	.013	.00	.00		PIPE
1507.480	1717.500	1.509	1719.009	22.01	6.18	.59	1719.60	.00	1.51	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0030	.01	1.51	1.00		.013	.00	.00		PIPE
1512.150	1717.600	2.426	1720.026	9.34	2.97	.14	1720.16	.00	1.09	.00	2.000	.000	.00	1 .0
69.500	.0078				.0017	.12	2.43	.00	.96	.013	.00	.00		PIPE
1581.650	1718.145	2.000	1720.145	9.34	2.97	.14	1720.28	.00	1.09	.00	2.000	.000	.00	1 .0
27.357	.0078				.0016	.04	2.00	.00	.96	.013	.00	.00		PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1609.007	1718.359	1.814	1720.173	9.34	3.12	.15	1720.32	.00	1.09	1.16	2.000	.000	.00	1 .0
14.756	.0078					.0015	.02	1.81	.34	.96	.013	.00	.00	PIPE
1623.762	1718.475	1.706	1720.181	9.34	3.27	.17	1720.35	.00	1.09	1.42	2.000	.000	.00	1 .0
11.574	.0078					.0017	.02	1.71	.41	.96	.013	.00	.00	PIPE
1635.336	1718.566	1.618	1720.184	9.34	3.43	.18	1720.37	.00	1.09	1.57	2.000	.000	.00	1 .0
9.954	.0078					.0018	.02	1.62	.46	.96	.013	.00	.00	PIPE
1645.291	1718.644	1.540	1720.184	9.34	3.60	.20	1720.38	.00	1.09	1.68	2.000	.000	.00	1 .0
8.606	.0078					.0020	.02	1.54	.51	.96	.013	.00	.00	PIPE
1653.896	1718.711	1.470	1720.181	9.34	3.77	.22	1720.40	.00	1.09	1.77	2.000	.000	.00	1 .0
7.532	.0078					.0023	.02	1.47	.56	.96	.013	.00	.00	PIPE
1661.428	1718.770	1.406	1720.176	9.34	3.96	.24	1720.42	.00	1.09	1.83	2.000	.000	.00	1 .0
6.747	.0078					.0025	.02	1.41	.61	.96	.013	.00	.00	PIPE
1668.175	1718.823	1.346	1720.169	9.34	4.15	.27	1720.44	.00	1.09	1.88	2.000	.000	.00	1 .0
5.680	.0078					.0029	.02	1.35	.67	.96	.013	.00	.00	PIPE
1673.855	1718.868	1.291	1720.159	9.34	4.35	.29	1720.45	.00	1.09	1.91	2.000	.000	.00	1 .0
4.895	.0078					.0032	.02	1.29	.72	.96	.013	.00	.00	PIPE
1678.751	1718.906	1.239	1720.145	9.34	4.57	.32	1720.47	.00	1.09	1.94	2.000	.000	.00	1 .0
.192	.0078					.0036	.00	1.24	.78	.96	.013	.00	.00	PIPE

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20-750 Meridian Upper Plateau
100 Year Storm
Line 14

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1678.943	1718.907	1.191	1720.099	9.34	4.79	.36	1720.45	.00	1.09	1.96	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1678.943	1718.907	.960	1719.868	9.34	6.26	.61	1720.48	.00	1.09	2.00	2.000	.000	.00	1 .0
320.826	.0078					.0078	2.52	.96	1.28	.96	.013	.00	.00	PIPE
1999.769	1721.422	.960	1722.382	9.34	6.26	.61	1722.99	.00	1.09	2.00	2.000	.000	.00	1 .0
46.919	.0078					.0077	.36	.96	1.28	.96	.013	.00	.00	PIPE
2046.688	1721.790	.973	1722.763	9.34	6.15	.59	1723.35	.00	1.09	2.00	2.000	.000	.00	1 .0
19.922	.0078					.0070	.14	.97	1.24	.96	.013	.00	.00	PIPE
2066.610	1721.946	1.010	1722.956	9.34	5.86	.53	1723.49	.00	1.09	2.00	2.000	.000	.00	1 .0
5.759	.0078					.0062	.04	1.01	1.16	.96	.013	.00	.00	PIPE
2072.368	1721.991	1.049	1723.040	9.34	5.59	.49	1723.53	.00	1.09	2.00	2.000	.000	.00	1 .0
1.102	.0078					.0054	.01	1.05	1.08	.96	.013	.00	.00	PIPE
2073.470	1722.000	1.092	1723.092	9.34	5.33	.44	1723.53	.00	1.09	1.99	2.000	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:12: 5

20-750 Meridian Upper Plateau

100 Year Storm

Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	1632.500	1.422	1633.922	51.42	15.57	3.77	1637.69	.00	2.33	3.00	3.000	.000	.00	1 .0
154.250	.0285					.0285	4.40	1.42	2.61	1.42	.013	.00	.00	PIPE
1154.250	1636.900	1.423	1638.323	51.42	15.57	3.77	1642.09	.38	2.33	3.00	3.000	.000	.00	1 .0
46.140	.0286					.0285	1.31	1.80	2.61	1.42	.013	.00	.00	PIPE
1200.390	1638.220	1.423	1639.643	51.42	15.56	3.76	1643.40	.00	2.33	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0200					.0287	.14	1.42	2.61		.013	.00	.00	PIPE
1205.400	1638.320	1.416	1639.736	51.42	15.66	3.81	1643.55	.00	2.33	3.00	3.000	.000	.00	1 .0
112.240	.0290					.0290	3.25	1.42	2.64	1.42	.013	.00	.00	PIPE
1317.640	1641.571	1.416	1642.987	51.42	15.66	3.81	1646.80	.00	2.33	3.00	3.000	.000	.00	1 .0
162.210	.0290					.0291	4.71	1.42	2.64	1.42	.013	.00	.00	PIPE
1479.850	1646.270	1.414	1647.684	51.42	15.70	3.83	1651.51	.38	2.33	3.00	3.000	.000	.00	1 .0
94.250	.0292					.0291	2.74	1.80	2.65	1.41	.013	.00	.00	PIPE
1574.100	1649.020	1.415	1650.435	51.42	15.68	3.82	1654.25	.00	2.33	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0293	.14	1.42	2.64		.013	.00	.00	PIPE
1578.770	1649.120	1.409	1650.529	51.42	15.76	3.86	1654.39	.00	2.33	2.99	3.000	.000	.00	1 .0
96.820	.0300					.0288	2.79	1.41	2.66	1.40	.013	.00	.00	PIPE
1675.590	1652.020	1.428	1653.448	51.42	15.50	3.73	1657.18	.02	2.33	3.00	3.000	.000	.00	1 .0
273.916	.0282					.0282	7.72	1.44	2.60	1.43	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:12: 5

20-750 Meridian Upper Plateau

100 Year Storm

Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1949.506	1659.737	1.428	1661.164	51.42	15.50	3.73	1664.90	.02	2.33	3.00	3.000	.000	.00	1 .0
169.074	.0282					.0273	4.62	1.44	2.60	1.43	.013	.00	.00	PIPE
2118.580	1664.500	1.454	1665.954	51.42	15.14	3.56	1669.51	.00	2.33	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0272	.13	1.45	2.51		.013	.00	.00	PIPE
2123.260	1664.600	1.423	1666.023	50.91	15.42	3.69	1669.71	.00	2.32	3.00	3.000	.000	.00	1 .0
77.300	.0279					.0279	2.16	1.42	2.59	1.42	.013	.00	.00	PIPE
2200.560	1666.760	1.423	1668.183	50.91	15.41	3.69	1671.87	.00	2.32	3.00	3.000	.000	.00	1 .0
269.863	.0279					.0279	7.53	1.42	2.58	1.42	.013	.00	.00	PIPE
2470.423	1674.287	1.423	1675.711	50.91	15.41	3.69	1679.40	.00	2.32	3.00	3.000	.000	.00	1 .0
149.587	.0279					.0279	4.18	1.42	2.58	1.42	.013	.00	.00	PIPE
2620.010	1678.460	1.423	1679.883	50.91	15.41	3.69	1683.57	.37	2.32	3.00	3.000	.000	.00	1 .0
71.800	.0279					.0280	2.01	1.79	2.59	1.42	.013	.00	.00	PIPE
2691.810	1680.460	1.421	1681.881	50.91	15.44	3.70	1685.58	.00	2.32	3.00	3.000	.000	.00	1 .0
3.565	.0281					.0281	.10	1.42	2.59	1.42	.013	.00	.00	PIPE
2695.375	1680.560	1.421	1681.981	50.91	15.44	3.70	1685.68	.00	2.32	3.00	3.000	.000	.00	1 .0
168.265	.0281					.0278	4.68	1.42	2.59	1.42	.013	.00	.00	PIPE
2863.640	1685.280	1.428	1686.708	50.91	15.35	3.66	1690.36	.03	2.32	3.00	3.000	.000	.00	1 .0
109.134	.0278					.0273	2.98	1.46	2.57	1.42	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:12: 5

20-750 Meridian Upper Plateau

100 Year Storm

Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2972.774	1688.313	1.438	1689.751	50.91	15.20	3.59	1693.34	.03	2.32	3.00	3.000	.000	.00	1 .0
109.636	.0278					.0253	2.78	1.47	2.53	1.42	.013	.00	.00	PIPE
3082.410	1691.360	1.493	1692.853	50.91	14.50	3.26	1696.12	.00	2.32	3.00	3.000	.000	.00	1 .0
33.270	.0280					.0227	.75	1.49	2.36	1.42	.013	.00	.00	PIPE
3115.680	1692.290	1.534	1693.824	50.91	14.01	3.05	1696.87	.30	2.32	3.00	3.000	.000	.00	1 .0
26.857	.0279					.0204	.55	1.84	2.24	1.42	.013	.00	.00	PIPE
3142.537	1693.039	1.587	1694.626	50.91	13.41	2.79	1697.42	.28	2.32	2.99	3.000	.000	.00	1 .0
19.682	.0279					.0181	.36	1.87	2.10	1.42	.013	.00	.00	PIPE
3162.219	1693.587	1.649	1695.236	50.91	12.78	2.54	1697.77	.25	2.32	2.99	3.000	.000	.00	1 .0
13.957	.0279					.0160	.22	1.90	1.95	1.42	.013	.00	.00	PIPE
3176.176	1693.976	1.714	1695.690	50.91	12.19	2.31	1698.00	.23	2.32	2.97	3.000	.000	.00	1 .0
10.195	.0279					.0141	.14	1.94	1.81	1.42	.013	.00	.00	PIPE
3186.370	1694.260	1.784	1696.044	50.91	11.62	2.10	1698.14	.00	2.32	2.95	3.000	.000	.00	1 .0
1.056	.0273					.0132	.01	1.78	1.68	1.43	.013	.00	.00	PIPE
3187.426	1694.289	1.792	1696.081	50.91	11.55	2.07	1698.15	.00	2.32	2.94	3.000	.000	.00	1 .0
7.645	.0273					.0123	.09	1.79	1.66	1.43	.013	.00	.00	PIPE
3195.071	1694.497	1.866	1696.363	50.91	11.01	1.88	1698.25	.00	2.32	2.91	3.000	.000	.00	1 .0
5.700	.0273					.0109	.06	1.87	1.54	1.43	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
3200.771	1694.653	1.944	1696.597	50.91	10.50	1.71	1698.31	.00	2.32	2.87	3.000	.000	.00	1 .0
4.134	.0273					.0097	.04	1.94	1.42	1.43	.013	.00	.00	PIPE
3204.905	1694.766	2.027	1696.793	50.91	10.01	1.56	1698.35	.00	2.32	2.81	3.000	.000	.00	1 .0
2.763	.0273					.0086	.02	2.03	1.31	1.43	.013	.00	.00	PIPE
3207.669	1694.841	2.117	1696.958	50.91	9.55	1.42	1698.37	.00	2.32	2.73	3.000	.000	.00	1 .0
1.618	.0273					.0077	.01	2.12	1.20	1.43	.013	.00	.00	PIPE
3209.287	1694.885	2.214	1697.099	50.91	9.10	1.29	1698.39	.00	2.32	2.64	3.000	.000	.00	1 .0
.543	.0273					.0069	.00	2.21	1.10	1.43	.013	.00	.00	PIPE
3209.830	1694.900	2.321	1697.221	50.91	8.68	1.17	1698.39	.00	2.32	2.51	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0050	.02	2.32	1.00		.013	.00	.00	PIPE
3214.510	1695.000	3.494	1698.494	13.18	4.20	.27	1698.77	.00	1.31	.00	2.000	.000	.00	1 .0
30.080	.0199					.0034	.10	3.49	.00	.90	.013	.00	.00	PIPE
3244.590	1695.600	2.996	1698.596	13.18	4.20	.27	1698.87	.00	1.31	.00	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0029	.01	3.00	.00		.013	.00	.00	PIPE
3249.260	1695.700	3.054	1698.754	11.20	3.57	.20	1698.95	.00	1.20	.00	2.000	.000	.00	1 .0
53.988	.0220					.0024	.13	3.05	.00	.80	.013	.00	.00	PIPE
3303.248	1696.886	2.000	1698.886	11.20	3.57	.20	1699.08	.00	1.20	.00	2.000	.000	.00	1 .0
8.383	.0220					.0023	.02	2.00	.00	.80	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
3311.631	1697.071	1.814	1698.885	11.20	3.74	.22	1699.10	.00	1.20	1.16	2.000	.000	.00	1 .0
2.419	.0220				.0022	.01	1.81	.41	.80	.013	.00	.00		PIPE
3314.050	1697.124	1.756	1698.880	11.20	3.83	.23	1699.11	.00	1.20	1.31	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
3314.050	1697.124	.796	1697.920	11.20	9.61	1.43	1699.35	.00	1.20	1.96	2.000	.000	.00	1 .0
367.290	.0220				.0220	8.07	.80	2.19	.80	.013	.00	.00		PIPE
3681.340	1705.196	.796	1705.992	11.20	9.61	1.43	1707.43	.00	1.20	1.96	2.000	.000	.00	1 .0
75.681	.0220				.0207	1.56	.80	2.19	.80	.013	.00	.00		PIPE
3757.021	1706.859	.824	1707.684	11.20	9.17	1.31	1708.99	.00	1.20	1.97	2.000	.000	.00	1 .0
23.266	.0220				.0182	.42	.82	2.05	.80	.013	.00	.00		PIPE
3780.288	1707.371	.854	1708.225	11.20	8.74	1.19	1709.41	.00	1.20	1.98	2.000	.000	.00	1 .0
12.611	.0220				.0160	.20	.85	1.92	.80	.013	.00	.00		PIPE
3792.898	1707.648	.886	1708.534	11.20	8.34	1.08	1709.61	.00	1.20	1.99	2.000	.000	.00	1 .0
8.189	.0220				.0140	.11	.89	1.79	.80	.013	.00	.00		PIPE
3801.088	1707.828	.919	1708.747	11.20	7.95	.98	1709.73	.00	1.20	1.99	2.000	.000	.00	1 .0
5.722	.0220				.0123	.07	.92	1.67	.80	.013	.00	.00		PIPE
3806.810	1707.954	.953	1708.907	11.20	7.58	.89	1709.80	.00	1.20	2.00	2.000	.000	.00	1 .0
4.051	.0220				.0108	.04	.95	1.55	.80	.013	.00	.00		PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3810.861	1708.043	.989	1709.032	11.20	7.23	.81	1709.84	.00	1.20	2.00	2.000	.000	.00	1 .0
2.874	.0220					.0096	.03	.99	1.45	.80	.013	.00	.00	PIPE
3813.734	1708.106	1.027	1709.133	11.20	6.89	.74	1709.87	.00	1.20	2.00	2.000	.000	.00	1 .0
1.992	.0220					.0084	.02	1.03	1.35	.80	.013	.00	.00	PIPE
3815.726	1708.150	1.067	1709.217	11.20	6.57	.67	1709.89	.00	1.20	2.00	2.000	.000	.00	1 .0
1.368	.0220					.0074	.01	1.07	1.25	.80	.013	.00	.00	PIPE
3817.095	1708.180	1.108	1709.288	11.20	6.26	.61	1709.90	.00	1.20	1.99	2.000	.000	.00	1 .0
.738	.0220					.0066	.00	1.11	1.16	.80	.013	.00	.00	PIPE
3817.833	1708.196	1.152	1709.348	11.20	5.97	.55	1709.90	.00	1.20	1.98	2.000	.000	.00	1 .0
.188	.0220					.0058	.00	1.15	1.08	.80	.013	.00	.00	PIPE
3818.020	1708.200	1.200	1709.400	11.20	5.69	.50	1709.90	.00	1.20	1.96	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0041	.02	1.20	1.00		.014	.00	.00	PIPE
3822.700	1708.300	1.562	1709.862	8.85	3.36	.18	1710.04	.00	1.06	1.65	2.000	.000	.00	1 .0
6.691	.0100					.0018	.01	1.56	.47	.87	.013	.00	.00	PIPE
3829.391	1708.367	1.489	1709.856	8.85	3.53	.19	1710.05	.00	1.06	1.74	2.000	.000	.00	1 .0
5.694	.0100					.0020	.01	1.49	.52	.87	.013	.00	.00	PIPE
3835.085	1708.424	1.424	1709.848	8.85	3.70	.21	1710.06	.00	1.06	1.81	2.000	.000	.00	1 .0
5.105	.0100					.0022	.01	1.42	.57	.87	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3840.191	1708.475	1.363	1709.838	8.85	3.88	.23	1710.07	.00	1.06	1.86	2.000	.000	.00	1 .0
4.342	.0100					.0025	.01	1.36	.62	.87	.013	.00	.00	PIPE
3844.533	1708.518	1.307	1709.826	8.85	4.07	.26	1710.08	.00	1.06	1.90	2.000	.000	.00	1 .0
1.640	.0100					.0028	.00	1.31	.67	.87	.013	.00	.00	PIPE
3846.173	1708.535	1.254	1709.789	8.85	4.27	.28	1710.07	.00	1.06	1.93	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
3846.173	1708.535	.869	1709.404	8.85	6.76	.71	1710.11	.00	1.06	1.98	2.000	.000	.00	1 .0
302.146	.0100					.0100	3.02	.87	1.47	.87	.013	.00	.00	PIPE
4148.319	1711.557	.869	1712.426	8.85	6.76	.71	1713.14	.00	1.06	1.98	2.000	.000	.00	1 .0
56.561	.0100					.0103	.58	.87	1.47	.87	.013	.00	.00	PIPE
4204.879	1712.123	.855	1712.978	8.85	6.90	.74	1713.72	.00	1.06	1.98	2.000	.000	.00	1 .0
33.554	.0100					.0113	.38	.86	1.51	.87	.013	.00	.00	PIPE
4238.433	1712.459	.825	1713.284	8.85	7.24	.81	1714.10	.00	1.06	1.97	2.000	.000	.00	1 .0
18.137	.0100					.0129	.23	.83	1.62	.87	.013	.00	.00	PIPE
4256.570	1712.640	.796	1713.436	8.85	7.59	.90	1714.33	.06	1.06	1.96	2.000	.000	.00	1 .0
29.223	.0137					.0137	.40	.85	1.73	.80	.013	.00	.00	PIPE
4285.793	1713.041	.796	1713.837	8.85	7.59	.90	1714.73	.06	1.06	1.96	2.000	.000	.00	1 .0
64.266	.0137					.0133	.85	.85	1.73	.80	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
4350.059	1713.923	.810	1714.733	8.85	7.41	.85	1715.58	.06	1.06	1.96	2.000	.000	.00	1 .0
28.235	.0137					.0120	.34	.87	1.67	.80	.013	.00	.00	PIPE
4378.294	1714.310	.840	1715.150	8.85	7.06	.77	1715.93	.05	1.06	1.97	2.000	.000	.00	1 .0
12.533	.0137					.0106	.13	.89	1.56	.80	.013	.00	.00	PIPE
4390.827	1714.482	.871	1715.353	8.85	6.73	.70	1716.06	.05	1.06	1.98	2.000	.000	.00	1 .0
7.113	.0137					.0093	.07	.92	1.46	.80	.013	.00	.00	PIPE
4397.939	1714.580	.904	1715.484	8.85	6.42	.64	1716.12	.00	1.06	1.99	2.000	.000	.00	1 .0
4.581	.0102					.0085	.04	.90	1.36	.86	.013	.00	.00	PIPE
4402.521	1714.627	.913	1715.540	8.85	6.33	.62	1716.16	.00	1.06	1.99	2.000	.000	.00	1 .0
9.520	.0102					.0079	.07	.91	1.33	.86	.013	.00	.00	PIPE
4412.041	1714.724	.947	1715.671	8.85	6.04	.57	1716.24	.00	1.06	2.00	2.000	.000	.00	1 .0
4.652	.0102					.0069	.03	.95	1.24	.86	.013	.00	.00	PIPE
4416.692	1714.772	.983	1715.755	8.85	5.75	.51	1716.27	.00	1.06	2.00	2.000	.000	.00	1 .0
2.113	.0102					.0061	.01	.98	1.16	.86	.013	.00	.00	PIPE
4418.805	1714.793	1.021	1715.815	8.85	5.49	.47	1716.28	.00	1.06	2.00	2.000	.000	.00	1 .0
.645	.0102					.0054	.00	1.02	1.08	.86	.013	.00	.00	PIPE
4419.450	1714.800	1.061	1715.861	8.85	5.23	.42	1716.29	.00	1.06	2.00	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0028	.01	1.06	1.00		.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
4424.120	1714.900	1.468	1716.368	4.81	1.95	.06	1716.43	.00	.77	1.77	2.000	.000	.00	1 .0
17.638	.0039				.0006	.01	1.47	.29	.80	.013		.00	.00	PIPE
4441.758	1714.969	1.404	1716.373	4.81	2.04	.06	1716.44	.00	.77	1.83	2.000	.000	.00	1 .0
16.229	.0039				.0007	.01	1.40	.32	.80	.013		.00	.00	PIPE
4457.986	1715.033	1.345	1716.378	4.81	2.14	.07	1716.45	.00	.77	1.88	2.000	.000	.00	1 .0
15.188	.0039				.0008	.01	1.35	.34	.80	.013		.00	.00	PIPE
4473.174	1715.092	1.290	1716.382	4.81	2.24	.08	1716.46	.00	.77	1.91	2.000	.000	.00	1 .0
14.452	.0039				.0009	.01	1.29	.37	.80	.013		.00	.00	PIPE
4487.625	1715.149	1.238	1716.387	4.81	2.35	.09	1716.47	.00	.77	1.94	2.000	.000	.00	1 .0
13.708	.0039				.0010	.01	1.24	.40	.80	.013		.00	.00	PIPE
4501.334	1715.203	1.189	1716.392	4.81	2.47	.09	1716.49	.00	.77	1.96	2.000	.000	.00	1 .0
12.952	.0039				.0011	.01	1.19	.44	.80	.013		.00	.00	PIPE
4514.286	1715.253	1.143	1716.396	4.81	2.59	.10	1716.50	.00	.77	1.98	2.000	.000	.00	1 .0
12.177	.0039				.0012	.02	1.14	.47	.80	.013		.00	.00	PIPE
4526.463	1715.301	1.100	1716.401	4.81	2.72	.11	1716.52	.00	.77	1.99	2.000	.000	.00	1 .0
12.163	.0039				.0014	.02	1.10	.51	.80	.013		.00	.00	PIPE
4538.625	1715.349	1.058	1716.407	4.81	2.85	.13	1716.53	.00	.77	2.00	2.000	.000	.00	1 .0
11.363	.0039				.0016	.02	1.06	.55	.80	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
4549.988	1715.393	1.019	1716.412	4.81	2.99	.14	1716.55	.00	.77	2.00	2.000	.000	.00	1 .0
10.979	.0039					.0018	.02	1.02	.59	.80	.013	.00	.00	PIPE
4560.967	1715.436	.982	1716.418	4.81	3.13	.15	1716.57	.00	.77	2.00	2.000	.000	.00	1 .0
11.147	.0039					.0021	.02	.98	.63	.80	.013	.00	.00	PIPE
4572.115	1715.480	.946	1716.426	4.81	3.29	.17	1716.59	.00	.77	2.00	2.000	.000	.00	1 .0
10.897	.0039					.0023	.03	.95	.68	.80	.013	.00	.00	PIPE
4583.012	1715.522	.912	1716.434	4.81	3.45	.18	1716.62	.00	.77	1.99	2.000	.000	.00	1 .0
11.544	.0039					.0027	.03	.91	.73	.80	.013	.00	.00	PIPE
4594.556	1715.568	.879	1716.447	4.81	3.62	.20	1716.65	.00	.77	1.99	2.000	.000	.00	1 .0
11.973	.0039					.0030	.04	.88	.78	.80	.013	.00	.00	PIPE
4606.529	1715.614	.848	1716.463	4.81	3.79	.22	1716.69	.00	.77	1.98	2.000	.000	.00	1 .0
16.155	.0039					.0034	.06	.85	.83	.80	.013	.00	.00	PIPE
4622.684	1715.678	.818	1716.496	4.81	3.98	.25	1716.74	.00	.77	1.97	2.000	.000	.00	1 .0
15.781	.0039					.0038	.06	.82	.89	.80	.013	.00	.00	PIPE
4638.465	1715.739	.804	1716.543	4.81	4.07	.26	1716.80	.00	.77	1.96	2.000	.000	.00	1 .0
869.680	.0039					.0039	3.39	.80	.93	.80	.013	.00	.00	PIPE
5508.145	1719.145	.804	1719.948	4.81	4.07	.26	1720.21	.00	.77	1.96	2.000	.000	.00	1 .0

HYDRAULIC JUMP

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5508.145	1719.145	.730	1719.875	4.81	4.64	.33	1720.21	.00	.77	1.93	2.000	.000	.00	1 .0
1.747	.0039					.0056	.01	.73	1.11	.80	.013	.00	.00	PIPE
5509.892	1719.152	.730	1719.882	4.81	4.64	.33	1720.22	.00	.77	1.93	2.000	.000	.00	1 .0
3.582	.0039					.0060	.02	.73	1.11	.80	.013	.00	.00	PIPE
5513.473	1719.166	.704	1719.870	4.81	4.86	.37	1720.24	.00	.77	1.91	2.000	.000	.00	1 .0
4.386	.0039					.0068	.03	.70	1.19	.80	.013	.00	.00	PIPE
5517.859	1719.183	.680	1719.863	4.81	5.10	.40	1720.27	.00	.77	1.89	2.000	.000	.00	1 .0
4.500	.0039					.0078	.04	.68	1.27	.80	.013	.00	.00	PIPE
5522.359	1719.200	.657	1719.858	4.81	5.35	.44	1720.30	.00	.77	1.88	2.000	.000	.00	1 .0
4.515	.0039					.0089	.04	.66	1.36	.80	.013	.00	.00	PIPE
5526.874	1719.218	.635	1719.853	4.81	5.61	.49	1720.34	.00	.77	1.86	2.000	.000	.00	1 .0
4.315	.0039					.0101	.04	.64	1.46	.80	.013	.00	.00	PIPE
5531.189	1719.235	.613	1719.848	4.81	5.88	.54	1720.39	.00	.77	1.84	2.000	.000	.00	1 .0
4.275	.0039					.0116	.05	.61	1.56	.80	.013	.00	.00	PIPE
5535.465	1719.252	.592	1719.844	4.81	6.17	.59	1720.44	.00	.77	1.83	2.000	.000	.00	1 .0
4.205	.0039					.0132	.06	.59	1.66	.80	.013	.00	.00	PIPE
5539.669	1719.268	.572	1719.840	4.81	6.47	.65	1720.49	.00	.77	1.81	2.000	.000	.00	1 .0
4.114	.0039					.0151	.06	.57	1.78	.80	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5543.783	1719.284	.553	1719.837	4.81	6.79	.72	1720.55	.00	.77	1.79	2.000	.000	.00	1 .0
4.007	.0039					.0173	.07	.55	1.90	.80	.013	.00	.00	PIPE
5547.790	1719.300	.535	1719.835	4.81	7.12	.79	1720.62	.00	.77	1.77	2.000	.000	.00	1 .0
JUNCT STR	.0478					.0550	.11	.54	2.03		.013	.00	.00	PIPE
5549.879	1719.400	.279	1719.679	2.40	10.59	1.74	1721.42	.00	.59	1.17	1.500	.000	.00	1 .0
11.116	.0968					.0872	.97	.28	4.24	.28	.013	.00	.00	PIPE
5560.996	1720.476	.285	1720.761	2.40	10.23	1.62	1722.39	.00	.59	1.18	1.500	.000	.00	1 .0
7.172	.0968					.0776	.56	.29	4.04	.28	.013	.00	.00	PIPE
5568.168	1721.171	.295	1721.466	2.40	9.75	1.48	1722.94	.00	.59	1.19	1.500	.000	.00	1 .0
4.290	.0968					.0679	.29	.30	3.78	.28	.013	.00	.00	PIPE
5572.458	1721.586	.305	1721.891	2.40	9.30	1.34	1723.23	.00	.59	1.21	1.500	.000	.00	1 .0
2.984	.0968					.0593	.18	.31	3.54	.28	.013	.00	.00	PIPE
5575.442	1721.875	.315	1722.190	2.40	8.87	1.22	1723.41	.00	.59	1.22	1.500	.000	.00	1 .0
2.220	.0968					.0518	.12	.32	3.32	.28	.013	.00	.00	PIPE
5577.663	1722.090	.326	1722.416	2.40	8.45	1.11	1723.53	.00	.59	1.24	1.500	.000	.00	1 .0
1.744	.0968					.0453	.08	.33	3.11	.28	.013	.00	.00	PIPE
5579.406	1722.259	.337	1722.596	2.40	8.06	1.01	1723.60	.00	.59	1.25	1.500	.000	.00	1 .0
1.393	.0968					.0396	.06	.34	2.91	.28	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
5580.799	1722.394	.349	1722.743	2.40	7.68	.92	1723.66	.00	.59	1.27	1.500	.000	.00	1 .0
1.148	.0968				.0346	.04	.35	2.73	.28	.013		.00	.00	PIPE
5581.947	1722.505	.361	1722.866	2.40	7.33	.83	1723.70	.00	.59	1.28	1.500	.000	.00	1 .0
.958	.0968				.0303	.03	.36	2.56	.28	.013		.00	.00	PIPE
5582.906	1722.598	.373	1722.971	2.40	6.99	.76	1723.73	.00	.59	1.30	1.500	.000	.00	1 .0
.794	.0968				.0265	.02	.37	2.39	.28	.013		.00	.00	PIPE
5583.700	1722.675	.386	1723.061	2.40	6.66	.69	1723.75	.00	.59	1.31	1.500	.000	.00	1 .0
.674	.0968				.0232	.02	.39	2.24	.28	.013		.00	.00	PIPE
5584.374	1722.740	.399	1723.139	2.40	6.35	.63	1723.77	.00	.59	1.33	1.500	.000	.00	1 .0
.561	.0968				.0203	.01	.40	2.10	.28	.013		.00	.00	PIPE
5584.935	1722.794	.413	1723.207	2.40	6.06	.57	1723.78	.00	.59	1.34	1.500	.000	.00	1 .0
.478	.0968				.0177	.01	.41	1.96	.28	.013		.00	.00	PIPE
5585.413	1722.840	.427	1723.267	2.40	5.77	.52	1723.79	.00	.59	1.35	1.500	.000	.00	1 .0
.394	.0968				.0155	.01	.43	1.84	.28	.013		.00	.00	PIPE
5585.807	1722.879	.442	1723.321	2.40	5.51	.47	1723.79	.00	.59	1.37	1.500	.000	.00	1 .0
.322	.0968				.0136	.00	.44	1.72	.28	.013		.00	.00	PIPE
5586.128	1722.910	.458	1723.368	2.40	5.25	.43	1723.80	.00	.59	1.38	1.500	.000	.00	1 .0
.270	.0968				.0119	.00	.46	1.61	.28	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
5586.398	1722.936	.474	1723.410	2.40	5.00	.39	1723.80	.00	.59	1.39	1.500	.000	.00	1 .0
.212	.0968					.0104	.00	.47	1.50	.28	.013	.00	.00	PIPE
5586.610	1722.956	.491	1723.448	2.40	4.77	.35	1723.80	.00	.59	1.41	1.500	.000	.00	1 .0
.173	.0968					.0091	.00	.49	1.41	.28	.013	.00	.00	PIPE
5586.783	1722.973	.508	1723.481	2.40	4.55	.32	1723.80	.00	.59	1.42	1.500	.000	.00	1 .0
.126	.0968					.0080	.00	.51	1.32	.28	.013	.00	.00	PIPE
5586.910	1722.985	.526	1723.511	2.40	4.34	.29	1723.80	.00	.59	1.43	1.500	.000	.00	1 .0
.084	.0968					.0070	.00	.53	1.23	.28	.013	.00	.00	PIPE
5586.994	1722.994	.545	1723.539	2.40	4.14	.27	1723.80	.00	.59	1.44	1.500	.000	.00	1 .0
.057	.0968					.0061	.00	.55	1.15	.28	.013	.00	.00	PIPE
5587.050	1722.999	.564	1723.563	2.40	3.94	.24	1723.80	.00	.59	1.45	1.500	.000	.00	1 .0
.010	.0968					.0054	.00	.56	1.07	.28	.013	.00	.00	PIPE
5587.060	1723.000	.586	1723.586	2.40	3.75	.22	1723.80	.00	.59	1.46	1.500	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	1632.500	1.644	1634.144	57.61	14.52	3.28	1637.42	.00	2.46	2.99	3.000	.000	.00	1 .0
146.090	.0220					.0221	3.22	1.64	2.22	1.64	.013	.00	.00	PIPE
1146.090	1635.710	1.641	1637.351	57.61	14.56	3.29	1640.64	.33	2.46	2.99	3.000	.000	.00	1 .0
46.150	.0221					.0222	1.02	1.97	2.23	1.64	.013	.00	.00	PIPE
1192.240	1636.730	1.640	1638.370	57.61	14.57	3.30	1641.67	.00	2.46	2.99	3.000	.000	.00	1 .0
118.335	.0220					.0225	2.67	1.64	2.23	1.64	.013	.00	.00	PIPE
1310.575	1639.331	1.624	1640.955	57.61	14.75	3.38	1644.33	.00	2.46	2.99	3.000	.000	.00	1 .0
113.797	.0220					.0244	2.78	1.62	2.27	1.64	.013	.00	.00	PIPE
1424.372	1641.832	1.563	1643.395	57.61	15.47	3.71	1647.11	.00	2.46	3.00	3.000	.000	.00	1 .0
54.948	.0220					.0277	1.52	1.56	2.44	1.64	.013	.00	.00	PIPE
1479.320	1643.040	1.506	1644.546	57.61	16.22	4.09	1648.63	.41	2.46	3.00	3.000	.000	.00	1 .0
21.533	.0272					.0298	.64	1.91	2.63	1.54	.013	.00	.00	PIPE
1500.853	1643.625	1.496	1645.121	57.61	16.35	4.15	1649.27	.42	2.46	3.00	3.000	.000	.00	1 .0
72.717	.0272					.0321	2.34	1.91	2.66	1.54	.013	.00	.00	PIPE
1573.570	1645.600	1.442	1647.042	57.61	17.15	4.57	1651.61	.00	2.46	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0345	.16	1.44	2.85		.013	.00	.00	PIPE
1578.240	1645.700	1.433	1647.133	57.61	17.28	4.64	1651.77	.00	2.46	3.00	3.000	.000	.00	1 .0
106.660	.0350					.0347	3.71	1.43	2.89	1.43	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1684.900	1649.430	1.436	1650.866	57.61	17.23	4.61	1655.48	.00	2.46	3.00	3.000	.000	.00	1 .0
149.504	.0350					.0327	4.89	1.44	2.88	1.43	.013	.00	.00	PIPE
1834.404	1654.661	1.486	1656.147	57.61	16.48	4.22	1660.37	.00	2.46	3.00	3.000	.000	.00	1 .0
53.674	.0350					.0289	1.55	1.49	2.69	1.43	.013	.00	.00	PIPE
1888.078	1656.539	1.543	1658.082	57.61	15.72	3.84	1661.92	.00	2.46	3.00	3.000	.000	.00	1 .0
30.312	.0350					.0255	.77	1.54	2.51	1.43	.013	.00	.00	PIPE
1918.390	1657.600	1.603	1659.203	57.61	14.99	3.49	1662.69	.00	2.46	2.99	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0292	.14	1.62	2.33		.013	.00	.00	PIPE
1923.070	1657.700	1.364	1659.063	52.56	16.82	4.39	1663.45	.02	2.36	2.99	3.000	.000	.00	1 .0
32.865	.0346					.0346	1.14	1.38	2.90	1.36	.013	.00	.00	PIPE
1955.934	1658.836	1.364	1660.199	52.56	16.82	4.39	1664.59	.02	2.36	2.99	3.000	.000	.00	1 .0
166.816	.0346					.0329	5.49	1.38	2.90	1.36	.013	.00	.00	PIPE
2122.750	1664.600	1.404	1666.004	52.56	16.20	4.07	1670.08	.00	2.36	2.99	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0331	.15	1.42	2.74		.013	.00	.00	PIPE
2127.420	1664.700	1.341	1666.041	51.36	16.79	4.38	1670.42	.02	2.33	2.98	3.000	.000	.00	1 .0
20.570	.0350					.0350	.72	1.36	2.92	1.34	.013	.00	.00	PIPE
2147.990	1665.420	1.341	1666.761	51.36	16.79	4.38	1671.14	.02	2.33	2.98	3.000	.000	.00	1 .0
64.041	.0350					.0350	2.24	1.36	2.92	1.34	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2212.030	1667.660	1.341	1669.001	51.36	16.80	4.38	1673.38	.00	2.33	2.98	3.000	.000	.00	1 .0
123.785	.0350					.0350	4.33	1.34	2.92	1.34	.013	.00	.00	PIPE
2335.815	1671.993	1.341	1673.333	51.36	16.80	4.38	1677.71	.00	2.33	2.98	3.000	.000	.00	1 .0
164.184	.0350					.0341	5.59	1.34	2.92	1.34	.013	.00	.00	PIPE
2499.998	1677.739	1.362	1679.101	51.36	16.46	4.20	1683.31	.00	2.33	2.99	3.000	.000	.00	1 .0
85.425	.0350					.0311	2.66	1.36	2.84	1.34	.013	.00	.00	PIPE
2585.423	1680.729	1.413	1682.142	51.36	15.69	3.82	1685.96	.00	2.33	2.99	3.000	.000	.00	1 .0
38.607	.0350					.0274	1.06	1.41	2.64	1.34	.013	.00	.00	PIPE
2624.030	1682.080	1.466	1683.546	51.36	14.96	3.47	1687.02	.35	2.33	3.00	3.000	.000	.00	1 .0
3.195	.0331					.0255	.08	1.81	2.46	1.36	.013	.00	.00	PIPE
2627.226	1682.186	1.471	1683.657	51.36	14.89	3.44	1687.10	.34	2.33	3.00	3.000	.000	.00	1 .0
27.711	.0331					.0238	.66	1.82	2.45	1.36	.013	.00	.00	PIPE
2654.937	1683.102	1.527	1684.630	51.36	14.20	3.13	1687.76	.31	2.33	3.00	3.000	.000	.00	1 .0
18.630	.0331					.0210	.39	1.84	2.28	1.36	.013	.00	.00	PIPE
2673.567	1683.719	1.586	1685.305	51.36	13.54	2.85	1688.15	.28	2.33	3.00	3.000	.000	.00	1 .0
13.485	.0331					.0185	.25	1.87	2.12	1.36	.013	.00	.00	PIPE
2687.053	1684.165	1.648	1685.813	51.36	12.91	2.59	1688.40	.26	2.33	2.99	3.000	.000	.00	1 .0
10.127	.0331					.0163	.17	1.91	1.97	1.36	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
2697.180	1684.500	1.714	1686.214	51.36	12.31	2.35	1688.57	.00	2.33	2.97	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0157	.07	1.71	1.83		.013	.00	.00		PIPE
2701.850	1684.600	1.676	1686.276	50.72	12.49	2.42	1688.70	.00	2.32	2.98	3.000	.000	.00	1 .0
161.650	.0160				.0160	2.58	1.68	1.88	1.68	.013	.00	.00		PIPE
2863.500	1687.190	1.678	1688.868	50.72	12.47	2.41	1691.28	.02	2.32	2.98	3.000	.000	.00	1 .0
51.071	.0160				.0160	.81	1.70	1.88	1.68	.013	.00	.00		PIPE
2914.571	1688.005	1.678	1689.683	50.72	12.47	2.41	1692.10	.02	2.32	2.98	3.000	.000	.00	1 .0
165.779	.0160				.0157	2.60	1.70	1.88	1.68	.013	.00	.00		PIPE
3080.350	1690.650	1.698	1692.348	50.72	12.29	2.35	1694.69	.00	2.32	2.97	3.000	.000	.00	1 .0
43.270	.0163				.0151	.65	1.70	1.84	1.67	.013	.00	.00		PIPE
3123.620	1691.353	1.720	1693.073	50.72	12.09	2.27	1695.34	.00	2.32	2.97	3.000	.000	.00	1 .0
57.343	.0163				.0139	.80	1.72	1.79	1.67	.013	.00	.00		PIPE
3180.963	1692.285	1.790	1694.075	50.72	11.53	2.06	1696.14	.00	2.32	2.94	3.000	.000	.00	1 .0
28.841	.0163				.0123	.35	1.79	1.66	1.67	.013	.00	.00		PIPE
3209.803	1692.754	1.863	1694.617	50.72	10.99	1.88	1696.49	.00	2.32	2.91	3.000	.000	.00	1 .0
17.232	.0163				.0109	.19	1.86	1.54	1.67	.013	.00	.00		PIPE
3227.036	1693.034	1.941	1694.975	50.72	10.48	1.71	1696.68	.00	2.32	2.87	3.000	.000	.00	1 .0
10.933	.0163				.0097	.11	1.94	1.42	1.67	.013	.00	.00		PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
3237.969	1693.212	2.024	1695.236	50.72	9.99	1.55	1696.79	.00	2.32	2.81	3.000	.000	.00	1 .0
6.789	.0163				.0086	.06	2.02	1.31	1.67	.013	.00	.00	PIPE	
3244.758	1693.323	2.113	1695.436	50.72	9.53	1.41	1696.85	.00	2.32	2.74	3.000	.000	.00	1 .0
3.632	.0163				.0077	.03	2.11	1.20	1.67	.013	.00	.00	PIPE	
3248.390	1693.382	2.210	1695.592	50.72	9.08	1.28	1696.87	.00	2.32	2.64	3.000	.000	.00	1 .0
1.130	.0163				.0069	.01	2.21	1.10	1.67	.013	.00	.00	PIPE	
3249.520	1693.400	2.317	1695.717	50.72	8.66	1.16	1696.88	.00	2.32	2.52	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0054	.03	2.32	1.00		.013	.00	.00	PIPE	
3254.200	1693.500	2.809	1696.309	46.91	6.82	.72	1697.03	.00	2.23	1.46	3.000	.000	.00	1 .0
39.050	.0026				.0043	.17	2.81	.55	3.00	.013	.00	.00	PIPE	
3293.250	1693.600	2.902	1696.502	46.91	6.70	.70	1697.20	.00	2.23	1.07	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0028	.01	2.90	.46		.013	.00	.00	PIPE	
3297.920	1693.700	3.868	1697.568	23.18	3.28	.17	1697.73	.00	1.55	.00	3.000	.000	.00	1 .0
293.915	.0042				.0012	.35	3.87	.00	1.57	.013	.00	.00	PIPE	
3591.835	1694.922	3.000	1697.922	23.18	3.28	.17	1698.09	.00	1.55	.00	3.000	.000	.00	1 .0
86.012	.0042				.0011	.10	3.00	.00	1.57	.013	.00	.00	PIPE	
3677.847	1695.280	2.721	1698.001	23.18	3.44	.18	1698.19	.00	1.55	1.74	3.000	.000	.00	1 .0
46.518	.0042				.0011	.05	2.72	.31	1.57	.013	.00	.00	PIPE	

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau

100 Year Storm

Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
3724.365	1695.474	2.560	1698.034	23.18	3.61	.20	1698.24	.00	1.55	2.12	3.000	.000	.00	1 .0
37.904	.0042				.0012	.04	2.56	.37	1.57	.013	.00	.00		PIPE
3762.270	1695.631	2.427	1698.059	23.18	3.78	.22	1698.28	.00	1.55	2.36	3.000	.000	.00	1 .0
33.170	.0042				.0013	.04	2.43	.41	1.57	.013	.00	.00		PIPE
3795.440	1695.769	2.310	1698.079	23.18	3.97	.24	1698.32	.00	1.55	2.52	3.000	.000	.00	1 .0
29.677	.0042				.0014	.04	2.31	.46	1.57	.013	.00	.00		PIPE
3825.117	1695.893	2.205	1698.098	23.18	4.16	.27	1698.37	.00	1.55	2.65	3.000	.000	.00	1 .0
27.137	.0042				.0016	.04	2.21	.51	1.57	.013	.00	.00		PIPE
3852.254	1696.006	2.109	1698.115	23.18	4.36	.30	1698.41	.00	1.55	2.74	3.000	.000	.00	1 .0
25.257	.0042				.0018	.05	2.11	.55	1.57	.013	.00	.00		PIPE
3877.511	1696.111	2.020	1698.131	23.18	4.58	.33	1698.46	.00	1.55	2.81	3.000	.000	.00	1 .0
23.700	.0042				.0020	.05	2.02	.60	1.57	.013	.00	.00		PIPE
3901.211	1696.209	1.937	1698.147	23.18	4.80	.36	1698.50	.00	1.55	2.87	3.000	.000	.00	1 .0
22.534	.0042				.0023	.05	1.94	.65	1.57	.013	.00	.00		PIPE
3923.745	1696.303	1.859	1698.162	23.18	5.04	.39	1698.56	.00	1.55	2.91	3.000	.000	.00	1 .0
21.291	.0042				.0026	.05	1.86	.71	1.57	.013	.00	.00		PIPE
3945.036	1696.392	1.786	1698.178	23.18	5.28	.43	1698.61	.00	1.55	2.94	3.000	.000	.00	1 .0
20.660	.0042				.0029	.06	1.79	.76	1.57	.013	.00	.00		PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
3965.695	1696.478	1.717	1698.195	23.18	5.54	.48	1698.67	.00	1.55	2.97	3.000	.000	.00	1 .0
20.206	.0042				.0033	.07	1.72	.82	1.57	.013		.00	.00	PIPE
3985.902	1696.562	1.652	1698.214	23.18	5.81	.52	1698.74	.00	1.55	2.98	3.000	.000	.00	1 .0
22.855	.0042				.0037	.09	1.65	.89	1.57	.013		.00	.00	PIPE
4008.757	1696.657	1.590	1698.247	23.18	6.09	.58	1698.82	.00	1.55	2.99	3.000	.000	.00	1 .0
14.708	.0042				.0041	.06	1.59	.95	1.57	.013		.00	.00	PIPE
4023.465	1696.718	1.568	1698.286	23.18	6.20	.60	1698.88	.00	1.55	3.00	3.000	.000	.00	1 .0
1414.135	.0042				.0041	5.85	1.57	.98	1.57	.013		.00	.00	PIPE
5437.600	1702.600	1.568	1704.168	23.18	6.20	.60	1704.77	.00	1.55	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0214				.0028	.01	1.57	.98		.013		.00	.00	PIPE
5442.270	1702.700	1.958	1704.658	19.02	3.89	.24	1704.89	.00	1.40	2.86	3.000	.000	.00	1 .0
10.660	.0067				.0015	.02	1.96	.52	1.22	.013		.00	.00	PIPE
5452.930	1702.771	1.879	1704.650	19.02	4.08	.26	1704.91	.00	1.40	2.90	3.000	.000	.00	1 .0
9.818	.0067				.0017	.02	1.88	.57	1.22	.013		.00	.00	PIPE
5462.748	1702.837	1.804	1704.641	19.02	4.28	.28	1704.93	.00	1.40	2.94	3.000	.000	.00	1 .0
8.680	.0067				.0019	.02	1.80	.61	1.22	.013		.00	.00	PIPE
5471.427	1702.895	1.734	1704.629	19.02	4.49	.31	1704.94	.00	1.40	2.96	3.000	.000	.00	1 .0
7.649	.0067				.0022	.02	1.73	.66	1.22	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5479.076	1702.946	1.668	1704.614	19.02	4.71	.34	1704.96	.00	1.40	2.98	3.000	.000	.00	1 .0
6.720	.0067					.0024	.02	1.67	.71	1.22	.013	.00	.00	PIPE
5485.796	1702.991	1.605	1704.596	19.02	4.94	.38	1704.98	.00	1.40	2.99	3.000	.000	.00	1 .0
5.636	.0067					.0028	.02	1.61	.77	1.22	.013	.00	.00	PIPE
5491.433	1703.029	1.545	1704.574	19.02	5.18	.42	1704.99	.00	1.40	3.00	3.000	.000	.00	1 .0
4.268	.0067					.0031	.01	1.55	.83	1.22	.013	.00	.00	PIPE
5495.700	1703.057	1.488	1704.546	19.02	5.44	.46	1705.00	.00	1.40	3.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
5495.700	1703.057	1.298	1704.355	19.02	6.49	.65	1705.01	.00	1.40	2.97	3.000	.000	.00	1 .0
4.710	.0067					.0051	.02	1.30	1.15	1.22	.013	.00	.00	PIPE
5500.410	1703.089	1.346	1704.435	19.02	6.19	.59	1705.03	.00	1.40	2.98	3.000	.000	.00	1 .0
1.670	.0067					.0044	.01	1.35	1.07	1.22	.013	.00	.00	PIPE
5502.080	1703.100	1.397	1704.497	19.02	5.89	.54	1705.04	.07	1.40	2.99	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0028	.01	1.47	1.00		.013	.00	.00	PIPE
5504.560	1703.100	1.787	1704.887	16.63	3.79	.22	1705.11	.00	1.30	2.94	3.000	.000	.00	1 .0
4.540	.0066					.0015	.01	1.79	.55	1.14	.013	.00	.00	PIPE
5509.100	1703.130	1.753	1704.883	16.63	3.88	.23	1705.12	.02	1.30	2.96	3.000	.000	.00	1 .0
10.783	.0057					.0016	.02	1.78	.57	1.19	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5519.883	1703.192	1.685	1704.877	16.63	4.07	.26	1705.13	.03	1.30	2.98	3.000	.000	.00	1 .0
7.153	.0057					.0018	.01	1.71	.61	1.19	.013	.00	.00	PIPE
5527.036	1703.233	1.621	1704.854	16.63	4.27	.28	1705.14	.03	1.30	2.99	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
5527.036	1703.233	1.020	1704.253	16.63	7.84	.95	1705.21	.09	1.30	2.84	3.000	.000	.00	1 .0
7.090	.0057					.0104	.07	1.11	1.60	1.19	.013	.00	.00	PIPE
5534.126	1703.273	1.002	1704.276	16.63	8.03	1.00	1705.28	.09	1.30	2.83	3.000	.000	.00	1 .0
11.547	.0057					.0115	.13	1.10	1.66	1.19	.013	.00	.00	PIPE
5545.673	1703.340	.968	1704.308	16.63	8.43	1.10	1705.41	.10	1.30	2.81	3.000	.000	.00	1 .0
10.547	.0057					.0131	.14	1.07	1.77	1.19	.013	.00	.00	PIPE
5556.220	1703.400	.935	1704.336	16.63	8.84	1.21	1705.55	.00	1.30	2.78	3.000	.000	.00	1 .0
JUNCT STR	.0214					.0171	.08	.94	1.89		.013	.00	.00	PIPE
5560.891	1703.500	.941	1704.441	14.47	9.95	1.54	1705.98	.00	1.37	2.00	2.000	.000	.00	1 .0
13.372	.0240					.0194	.26	.94	2.06	.90	.013	.00	.00	PIPE
5574.262	1703.821	.961	1704.782	14.47	9.69	1.46	1706.24	.00	1.37	2.00	2.000	.000	.00	1 .0
15.108	.0240					.0176	.27	.96	1.98	.90	.013	.00	.00	PIPE
5589.370	1704.184	.997	1705.181	14.47	9.24	1.33	1706.51	.00	1.37	2.00	2.000	.000	.00	1 .0
9.708	.0240					.0155	.15	1.00	1.84	.90	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
5599.079	1704.417	1.035	1705.452	14.47	8.81	1.21	1706.66	.00	1.37	2.00	2.000	.000	.00	1 .0
6.726	.0240					.0137	.09	1.04	1.71	.90	.013	.00	.00	PIPE
5605.805	1704.579	1.075	1705.654	14.47	8.40	1.10	1706.75	.00	1.37	1.99	2.000	.000	.00	1 .0
4.737	.0240					.0121	.06	1.08	1.59	.90	.013	.00	.00	PIPE
5610.542	1704.692	1.118	1705.810	14.47	8.01	1.00	1706.81	.00	1.37	1.99	2.000	.000	.00	1 .0
3.484	.0240					.0107	.04	1.12	1.48	.90	.013	.00	.00	PIPE
5614.026	1704.776	1.162	1705.938	14.47	7.64	.91	1706.84	.00	1.37	1.97	2.000	.000	.00	1 .0
2.420	.0240					.0094	.02	1.16	1.37	.90	.013	.00	.00	PIPE
5616.446	1704.834	1.209	1706.043	14.47	7.28	.82	1706.87	.00	1.37	1.96	2.000	.000	.00	1 .0
1.584	.0240					.0083	.01	1.21	1.27	.90	.013	.00	.00	PIPE
5618.030	1704.872	1.259	1706.131	14.47	6.94	.75	1706.88	.00	1.37	1.93	2.000	.000	.00	1 .0
.905	.0240					.0074	.01	1.26	1.18	.90	.013	.00	.00	PIPE
5618.935	1704.894	1.312	1706.206	14.47	6.62	.68	1706.89	.00	1.37	1.90	2.000	.000	.00	1 .0
.255	.0240					.0066	.00	1.31	1.09	.90	.013	.00	.00	PIPE
5619.190	1704.900	1.371	1706.271	14.47	6.31	.62	1706.89	.00	1.37	1.86	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0033	.02	1.37	1.00		.013	.00	.00	PIPE
5623.870	1705.000	1.960	1706.960	4.47	1.43	.03	1706.99	.00	.74	.56	2.000	.000	.00	1 .0
9.463	.0167					.0003	.00	1.96	.11	.53	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5633.333	1705.158	1.802	1706.960	4.47	1.50	.03	1707.00	.00	.74	1.19	2.000	.000	.00	1 .0
6.211	.0167					.0004	.00	1.80	.17	.53	.013	.00	.00	PIPE
5639.544	1705.262	1.697	1706.959	4.47	1.57	.04	1707.00	.00	.74	1.43	2.000	.000	.00	1 .0
5.159	.0167					.0004	.00	1.70	.20	.53	.013	.00	.00	PIPE
5644.703	1705.348	1.609	1706.957	4.47	1.65	.04	1707.00	.00	.74	1.59	2.000	.000	.00	1 .0
4.410	.0167					.0004	.00	1.61	.22	.53	.013	.00	.00	PIPE
5649.113	1705.422	1.533	1706.955	4.47	1.73	.05	1707.00	.00	.74	1.69	2.000	.000	.00	1 .0
4.027	.0167					.0005	.00	1.53	.25	.53	.013	.00	.00	PIPE
5653.141	1705.489	1.463	1706.952	4.47	1.81	.05	1707.00	.00	.74	1.77	2.000	.000	.00	1 .0
3.580	.0167					.0005	.00	1.46	.27	.53	.013	.00	.00	PIPE
5656.720	1705.549	1.400	1706.949	4.47	1.90	.06	1707.01	.00	.74	1.83	2.000	.000	.00	1 .0
3.313	.0167					.0006	.00	1.40	.30	.53	.013	.00	.00	PIPE
5660.034	1705.604	1.341	1706.945	4.47	2.00	.06	1707.01	.00	.74	1.88	2.000	.000	.00	1 .0
3.044	.0167					.0007	.00	1.34	.32	.53	.013	.00	.00	PIPE
5663.078	1705.655	1.286	1706.941	4.47	2.09	.07	1707.01	.00	.74	1.92	2.000	.000	.00	1 .0
2.833	.0167					.0007	.00	1.29	.35	.53	.013	.00	.00	PIPE
5665.911	1705.702	1.234	1706.936	4.47	2.20	.07	1707.01	.00	.74	1.94	2.000	.000	.00	1 .0
2.555	.0167					.0008	.00	1.23	.38	.53	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5668.466	1705.745	1.186	1706.931	4.47	2.30	.08	1707.01	.00	.74	1.97	2.000	.000	.00	1 .0
2.399	.0167					.0010	.00	1.19	.41	.53	.013	.00	.00	PIPE
5670.865	1705.785	1.140	1706.925	4.47	2.41	.09	1707.02	.00	.74	1.98	2.000	.000	.00	1 .0
2.173	.0167					.0011	.00	1.14	.44	.53	.013	.00	.00	PIPE
5673.039	1705.821	1.097	1706.918	4.47	2.53	.10	1707.02	.00	.74	1.99	2.000	.000	.00	1 .0
2.006	.0167					.0012	.00	1.10	.47	.53	.013	.00	.00	PIPE
5675.044	1705.855	1.056	1706.911	4.47	2.66	.11	1707.02	.00	.74	2.00	2.000	.000	.00	1 .0
1.897	.0167					.0014	.00	1.06	.51	.53	.013	.00	.00	PIPE
5676.941	1705.886	1.016	1706.902	4.47	2.79	.12	1707.02	.00	.74	2.00	2.000	.000	.00	1 .0
.031	.0167					.0016	.00	1.02	.55	.53	.013	.00	.00	PIPE
5676.972	1705.887	.979	1706.866	4.47	2.92	.13	1707.00	.00	.74	2.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
5676.972	1705.887	.529	1706.415	4.47	6.73	.70	1707.12	.00	.74	1.76	2.000	.000	.00	1 .0
423.312	.0167					.0167	7.07	.53	1.93	.53	.013	.00	.00	PIPE
6100.284	1712.956	.529	1713.484	4.47	6.73	.70	1714.19	.00	.74	1.76	2.000	.000	.00	1 .0
44.565	.0167					.0158	.71	.53	1.93	.53	.013	.00	.00	PIPE
6144.849	1713.700	.543	1714.243	4.47	6.47	.65	1714.89	.00	.74	1.78	2.000	.000	.00	1 .0
14.970	.0167					.0140	.21	.54	1.83	.53	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6159.819	1713.950	.562	1714.512	4.47	6.17	.59	1715.10	.00	.74	1.80	2.000	.000	.00	1 .0
7.837	.0167					.0123	.10	.56	1.71	.53	.013	.00	.00	PIPE
6167.656	1714.081	.581	1714.662	4.47	5.88	.54	1715.20	.00	.74	1.82	2.000	.000	.00	1 .0
4.672	.0167					.0107	.05	.58	1.60	.53	.013	.00	.00	PIPE
6172.328	1714.159	.602	1714.761	4.47	5.61	.49	1715.25	.00	.74	1.83	2.000	.000	.00	1 .0
3.210	.0167					.0094	.03	.60	1.50	.53	.013	.00	.00	PIPE
6175.538	1714.213	.623	1714.836	4.47	5.35	.44	1715.28	.00	.74	1.85	2.000	.000	.00	1 .0
2.171	.0167					.0082	.02	.62	1.40	.53	.013	.00	.00	PIPE
6177.709	1714.249	.645	1714.894	4.47	5.10	.40	1715.30	.00	.74	1.87	2.000	.000	.00	1 .0
1.445	.0167					.0072	.01	.65	1.31	.53	.013	.00	.00	PIPE
6179.155	1714.273	.668	1714.941	4.47	4.86	.37	1715.31	.00	.74	1.89	2.000	.000	.00	1 .0
.999	.0167					.0063	.01	.67	1.23	.53	.013	.00	.00	PIPE
6180.154	1714.290	.691	1714.981	4.47	4.64	.33	1715.31	.00	.74	1.90	2.000	.000	.00	1 .0
.478	.0167					.0055	.00	.69	1.15	.53	.013	.00	.00	PIPE
6180.632	1714.298	.716	1715.014	4.47	4.42	.30	1715.32	.00	.74	1.92	2.000	.000	.00	1 .0
.138	.0167					.0048	.00	.72	1.07	.53	.013	.00	.00	PIPE
6180.770	1714.300	.743	1715.043	4.47	4.21	.27	1715.32	.00	.74	1.93	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0024	.01	.74	1.00		.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6185.440	1714.400	.989	1715.389	1.93	1.25	.02	1715.41	.00	.48	2.00	2.000	.000	.00	1 .0
2.037	.0168					.0003	.00	.99	.25	.35	.013	.00	.00	PIPE
6187.477	1714.434	.953	1715.387	1.93	1.31	.03	1715.41	.00	.48	2.00	2.000	.000	.00	1 .0
1.965	.0168					.0004	.00	.95	.27	.35	.013	.00	.00	PIPE
6189.442	1714.467	.918	1715.385	1.93	1.37	.03	1715.41	.00	.48	1.99	2.000	.000	.00	1 .0
1.833	.0168					.0004	.00	.92	.29	.35	.013	.00	.00	PIPE
6191.275	1714.498	.885	1715.383	1.93	1.44	.03	1715.42	.00	.48	1.99	2.000	.000	.00	1 .0
1.700	.0168					.0005	.00	.89	.31	.35	.013	.00	.00	PIPE
6192.975	1714.527	.854	1715.381	1.93	1.51	.04	1715.42	.00	.48	1.98	2.000	.000	.00	1 .0
1.625	.0168					.0005	.00	.85	.33	.35	.013	.00	.00	PIPE
6194.601	1714.554	.824	1715.378	1.93	1.58	.04	1715.42	.00	.48	1.97	2.000	.000	.00	1 .0
1.549	.0168					.0006	.00	.82	.35	.35	.013	.00	.00	PIPE
6196.150	1714.580	.795	1715.375	1.93	1.66	.04	1715.42	.00	.48	1.96	2.000	.000	.00	1 .0
1.472	.0168					.0007	.00	.80	.38	.35	.013	.00	.00	PIPE
6197.622	1714.605	.767	1715.372	1.93	1.74	.05	1715.42	.00	.48	1.95	2.000	.000	.00	1 .0
1.392	.0168					.0008	.00	.77	.41	.35	.013	.00	.00	PIPE
6199.013	1714.629	.740	1715.369	1.93	1.82	.05	1715.42	.00	.48	1.93	2.000	.000	.00	1 .0
1.246	.0168					.0009	.00	.74	.43	.35	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) /	Water Elev /	Q (CFS) /	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL /	No Wth Prs/Pip / Type Ch
6200.259	1714.650	.715	1715.365	1.93	1.91	.06	1715.42	.00	.48	1.92	2.000	.000	.00	1 .0
1.224	.0168					.0010	.00	.72	.46	.35	.013	.00	.00	PIPE
6201.483	1714.670	.690	1715.360	1.93	2.01	.06	1715.42	.00	.48	1.90	2.000	.000	.00	1 .0
1.135	.0168					.0012	.00	.69	.50	.35	.013	.00	.00	PIPE
6202.618	1714.689	.666	1715.355	1.93	2.10	.07	1715.42	.00	.48	1.89	2.000	.000	.00	1 .0
.771	.0168					.0014	.00	.67	.53	.35	.013	.00	.00	PIPE
6203.388	1714.702	.644	1715.346	1.93	2.21	.08	1715.42	.00	.48	1.87	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
6203.388	1714.702	.348	1715.050	1.93	5.28	.43	1715.48	.00	.48	1.52	2.000	.000	.00	1 .0
59.278	.0168					.0168	1.00	.35	1.89	.35	.013	.00	.00	PIPE
6262.666	1715.700	.348	1716.047	1.93	5.28	.43	1716.48	.00	.48	1.52	2.000	.000	.00	1 .0
13.824	.0168					.0169	.23	.35	1.89	.35	.013	.00	.00	PIPE
6276.490	1715.932	.346	1716.278	1.93	5.29	.43	1716.71	.00	.48	1.51	2.000	.000	.00	1 .0
24.811	.0168					.0181	.45	.35	1.90	.35	.013	.00	.00	PIPE
6301.301	1716.350	.335	1716.685	1.93	5.55	.48	1717.16	.00	.48	1.49	2.000	.000	.00	1 .0
9.346	.0168					.0208	.19	.34	2.03	.35	.013	.00	.00	PIPE
6310.647	1716.507	.324	1716.831	1.93	5.82	.53	1717.36	.00	.48	1.47	2.000	.000	.00	1 .0
6.118	.0168					.0238	.15	.32	2.16	.35	.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6316.765	1716.610	.314	1716.924	1.93	6.11	.58	1717.50	.00	.48	1.46	2.000	.000	.00	1 .0
4.586	.0168					.0273	.13	.31	2.31	.35	.013	.00	.00	PIPE
6321.351	1716.687	.304	1716.991	1.93	6.40	.64	1717.63	.00	.48	1.44	2.000	.000	.00	1 .0
3.727	.0168					.0312	.12	.30	2.46	.35	.013	.00	.00	PIPE
6325.077	1716.750	.294	1717.044	1.93	6.72	.70	1717.74	.00	.48	1.42	2.000	.000	.00	1 .0
3.174	.0168					.0357	.11	.29	2.63	.35	.013	.00	.00	PIPE
6328.251	1716.803	.284	1717.087	1.93	7.04	.77	1717.86	.00	.48	1.40	2.000	.000	.00	1 .0
2.824	.0168					.0409	.12	.28	2.80	.35	.013	.00	.00	PIPE
6331.075	1716.851	.275	1717.126	1.93	7.39	.85	1717.97	.00	.48	1.38	2.000	.000	.00	1 .0
2.521	.0168					.0469	.12	.28	2.99	.35	.013	.00	.00	PIPE
6333.596	1716.893	.266	1717.159	1.93	7.75	.93	1718.09	.00	.48	1.36	2.000	.000	.00	1 .0
2.309	.0168					.0537	.12	.27	3.19	.35	.013	.00	.00	PIPE
6335.904	1716.932	.258	1717.190	1.93	8.13	1.03	1718.22	.00	.48	1.34	2.000	.000	.00	1 .0
2.091	.0168					.0616	.13	.26	3.40	.35	.013	.00	.00	PIPE
6337.996	1716.967	.249	1717.216	1.93	8.52	1.13	1718.34	.00	.48	1.32	2.000	.000	.00	1 .0
1.964	.0168					.0705	.14	.25	3.63	.35	.013	.00	.00	PIPE
6339.960	1717.000	.242	1717.242	1.93	8.94	1.24	1718.48	.00	.48	1.30	2.000	.000	.00	1 .0
JUNCT STR	.0481					.0726	.15	.24	3.87		.013	.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6342.040	1717.100	.268	1717.368	1.93	9.03	1.27	1718.63	.00	.52	1.15	1.500	.000	.00	1 .0
32.129	.0698					.0698	2.24	.27	3.69	.27	.013	.00	.00	PIPE
6374.169	1719.343	.268	1719.610	1.93	9.03	1.27	1720.88	.00	.52	1.15	1.500	.000	.00	1 .0
24.021	.0698					.0665	1.60	.27	3.69	.27	.013	.00	.00	PIPE
6398.190	1721.019	.274	1721.293	1.93	8.72	1.18	1722.47	.00	.52	1.16	1.500	.000	.00	1 .0
9.263	.0698					.0592	.55	.27	3.52	.27	.013	.00	.00	PIPE
6407.453	1721.666	.283	1721.949	1.93	8.31	1.07	1723.02	.00	.52	1.17	1.500	.000	.00	1 .0
4.841	.0698					.0517	.25	.28	3.29	.27	.013	.00	.00	PIPE
6412.294	1722.004	.293	1722.297	1.93	7.93	.98	1723.27	.00	.52	1.19	1.500	.000	.00	1 .0
3.200	.0698					.0452	.14	.29	3.09	.27	.013	.00	.00	PIPE
6415.494	1722.227	.303	1722.530	1.93	7.56	.89	1723.42	.00	.52	1.20	1.500	.000	.00	1 .0
2.330	.0698					.0395	.09	.30	2.89	.27	.013	.00	.00	PIPE
6417.824	1722.390	.313	1722.703	1.93	7.20	.81	1723.51	.00	.52	1.22	1.500	.000	.00	1 .0
1.765	.0698					.0345	.06	.31	2.71	.27	.013	.00	.00	PIPE
6419.589	1722.513	.324	1722.837	1.93	6.87	.73	1723.57	.00	.52	1.23	1.500	.000	.00	1 .0
1.404	.0698					.0302	.04	.32	2.54	.27	.013	.00	.00	PIPE
6420.993	1722.611	.335	1722.946	1.93	6.55	.67	1723.61	.00	.52	1.25	1.500	.000	.00	1 .0
1.141	.0698					.0264	.03	.34	2.38	.27	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6422.134	1722.691	.346	1723.037	1.93	6.24	.61	1723.64	.00	.52	1.26	1.500	.000	.00	1 .0
.921	.0698					.0231	.02	.35	2.23	.27	.013	.00	.00	PIPE
6423.055	1722.755	.358	1723.113	1.93	5.95	.55	1723.66	.00	.52	1.28	1.500	.000	.00	1 .0
.766	.0698					.0202	.02	.36	2.08	.27	.013	.00	.00	PIPE
6423.821	1722.809	.370	1723.179	1.93	5.68	.50	1723.68	.00	.52	1.29	1.500	.000	.00	1 .0
.623	.0698					.0176	.01	.37	1.95	.27	.013	.00	.00	PIPE
6424.444	1722.852	.383	1723.235	1.93	5.41	.45	1723.69	.00	.52	1.31	1.500	.000	.00	1 .0
.521	.0698					.0154	.01	.38	1.83	.27	.013	.00	.00	PIPE
6424.965	1722.889	.396	1723.285	1.93	5.16	.41	1723.70	.00	.52	1.32	1.500	.000	.00	1 .0
.419	.0698					.0135	.01	.40	1.71	.27	.013	.00	.00	PIPE
6425.384	1722.918	.410	1723.328	1.93	4.92	.38	1723.70	.00	.52	1.34	1.500	.000	.00	1 .0
.348	.0698					.0118	.00	.41	1.60	.27	.013	.00	.00	PIPE
6425.732	1722.942	.424	1723.366	1.93	4.69	.34	1723.71	.00	.52	1.35	1.500	.000	.00	1 .0
.271	.0698					.0103	.00	.42	1.50	.27	.013	.00	.00	PIPE
6426.003	1722.961	.439	1723.400	1.93	4.47	.31	1723.71	.00	.52	1.37	1.500	.000	.00	1 .0
.218	.0698					.0090	.00	.44	1.40	.27	.013	.00	.00	PIPE
6426.221	1722.976	.454	1723.430	1.93	4.27	.28	1723.71	.00	.52	1.38	1.500	.000	.00	1 .0
.156	.0698					.0079	.00	.45	1.31	.27	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:54:46

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6426.377	1722.987	.470	1723.457	1.93	4.07	.26	1723.71	.00	.52	1.39	1.500	.000	.00	1 .0
.101	.0698					.0069	.00	.47	1.23	.27	.013	.00	.00	PIPE
6426.479	1722.994	.487	1723.481	1.93	3.88	.23	1723.71	.00	.52	1.40	1.500	.000	.00	1 .0
.066	.0698					.0061	.00	.49	1.15	.27	.013	.00	.00	PIPE
6426.545	1722.999	.504	1723.503	1.93	3.70	.21	1723.72	.00	.52	1.42	1.500	.000	.00	1 .0
.015	.0698					.0053	.00	.50	1.07	.27	.013	.00	.00	PIPE
6426.560	1723.000	.523	1723.523	1.93	3.52	.19	1723.72	.00	.52	1.43	1.500	.000	.00	1 .0

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:45:28

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	1644.100	1.428	1645.528	15.69	6.54	.66	1646.19	.02	1.43	1.81	2.000	.000	.00	1 .0
4.930	.0050				.0062	.03	1.45	1.00	1.60	.013		.00	.00	PIPE
1004.930	1644.125	1.494	1645.619	15.69	6.23	.60	1646.22	.02	1.43	1.74	2.000	.000	.00	1 .0
32.143	.0050				.0055	.18	1.51	.91	1.60	.013		.00	.00	PIPE
1037.074	1644.286	1.566	1645.852	15.69	5.94	.55	1646.40	.02	1.43	1.65	2.000	.000	.00	1 .0
6.806	.0050				.0052	.04	1.58	.83	1.60	.013		.00	.00	PIPE
1043.880	1644.320	1.571	1645.891	15.69	5.93	.55	1646.44	.00	1.43	1.64	2.000	.000	.00	1 .0
35.220	.0051				.0052	.18	1.57	.82	1.59	.013		.00	.00	PIPE
1079.100	1644.500	1.580	1646.080	15.69	5.89	.54	1646.62	.00	1.43	1.63	2.000	.000	.00	1 .0
JUNCT STR	.0214				.0028	.01	1.58	.81		.013		.00	.00	PIPE
1083.780	1644.600	2.199	1646.799	4.55	1.45	.03	1646.83	.00	.75	.00	2.000	.000	.00	1 .0
4.511	.0445				.0004	.00	2.20	.00	.42	.013		.00	.00	PIPE
1088.292	1644.801	2.000	1646.801	4.55	1.45	.03	1646.83	.00	.75	.00	2.000	.000	.00	1 .0
4.115	.0445				.0004	.00	2.00	.00	.42	.013		.00	.00	PIPE
1092.407	1644.984	1.814	1646.798	4.55	1.52	.04	1646.83	.00	.75	1.16	2.000	.000	.00	1 .0
2.365	.0445				.0004	.00	1.81	.17	.42	.013		.00	.00	PIPE
1094.772	1645.089	1.706	1646.795	4.55	1.59	.04	1646.83	.00	.75	1.42	2.000	.000	.00	1 .0
1.905	.0445				.0004	.00	1.71	.20	.42	.013		.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:45:28

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1096.677	1645.174	1.618	1646.792	4.55	1.67	.04	1646.84	.00	.75	1.57	2.000	.000	.00	1 .0
1.671	.0445					.0004	.00	1.62	.22	.42	.013	.00	.00	PIPE
1098.348	1645.248	1.540	1646.789	4.55	1.75	.05	1646.84	.00	.75	1.68	2.000	.000	.00	1 .0
1.481	.0445					.0005	.00	1.54	.25	.42	.013	.00	.00	PIPE
1099.830	1645.314	1.470	1646.784	4.55	1.84	.05	1646.84	.00	.75	1.77	2.000	.000	.00	1 .0
1.336	.0445					.0005	.00	1.47	.27	.42	.013	.00	.00	PIPE
1101.166	1645.374	1.406	1646.780	4.55	1.93	.06	1646.84	.00	.75	1.83	2.000	.000	.00	1 .0
1.235	.0445					.0006	.00	1.41	.30	.42	.013	.00	.00	PIPE
1102.401	1645.429	1.346	1646.775	4.55	2.02	.06	1646.84	.00	.75	1.88	2.000	.000	.00	1 .0
1.110	.0445					.0007	.00	1.35	.33	.42	.013	.00	.00	PIPE
1103.511	1645.478	1.291	1646.769	4.55	2.12	.07	1646.84	.00	.75	1.91	2.000	.000	.00	1 .0
.827	.0445					.0008	.00	1.29	.35	.42	.013	.00	.00	PIPE
1104.338	1645.515	1.239	1646.754	4.55	2.23	.08	1646.83	.00	.75	1.94	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1104.338	1645.515	.417	1645.932	4.55	9.58	1.43	1647.36	.00	.75	1.63	2.000	.000	.00	1 .0
30.212	.0445					.0440	1.33	.42	3.12	.42	.013	.00	.00	PIPE
1134.550	1646.860	.419	1647.280	4.55	9.51	1.40	1648.68	.08	.75	1.63	2.000	.000	.00	1 .0
12.240	.0446					.0430	.53	.50	3.09	.42	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:45:28

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1146.790	1647.406	.421	1647.827	4.55	9.43	1.38	1649.21	.08	.75	1.63	2.000	.000	.00	1 .0
23.109	.0446					.0398	.92	.50	3.05	.42	.013	.00	.00	PIPE
1169.899	1648.438	.436	1648.874	4.55	8.99	1.25	1650.13	.07	.75	1.65	2.000	.000	.00	1 .0
10.141	.0446					.0349	.35	.51	2.86	.42	.013	.00	.00	PIPE
1180.040	1648.890	.451	1649.341	4.55	8.57	1.14	1650.48	.00	.75	1.67	2.000	.000	.00	1 .0
5.163	.0447					.0309	.16	.45	2.68	.42	.013	.00	.00	PIPE
1185.203	1649.121	.463	1649.584	4.55	8.25	1.06	1650.64	.00	.75	1.69	2.000	.000	.00	1 .0
4.639	.0447					.0274	.13	.46	2.55	.42	.013	.00	.00	PIPE
1189.842	1649.328	.479	1649.807	4.55	7.87	.96	1650.77	.00	.75	1.71	2.000	.000	.00	1 .0
3.446	.0447					.0240	.08	.48	2.38	.42	.013	.00	.00	PIPE
1193.288	1649.482	.495	1649.977	4.55	7.50	.87	1650.85	.00	.75	1.73	2.000	.000	.00	1 .0
2.632	.0447					.0209	.06	.50	2.23	.42	.013	.00	.00	PIPE
1195.920	1649.600	.512	1650.112	4.55	7.16	.79	1650.91	.00	.75	1.75	2.000	.000	.00	1 .0
2.058	.0447					.0183	.04	.51	2.09	.42	.013	.00	.00	PIPE
1197.978	1649.692	.530	1650.222	4.55	6.82	.72	1650.94	.00	.75	1.77	2.000	.000	.00	1 .0
1.664	.0447					.0160	.03	.53	1.96	.42	.013	.00	.00	PIPE
1199.642	1649.766	.548	1650.314	4.55	6.50	.66	1650.97	.00	.75	1.78	2.000	.000	.00	1 .0
1.328	.0447					.0140	.02	.55	1.83	.42	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:45:28

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1200.971	1649.825	.567	1650.392	4.55	6.20	.60	1650.99	.00	.75	1.80	2.000	.000	.00	1 .0
1.058	.0447					.0123	.01	.57	1.71	.42	.013	.00	.00	PIPE
1202.029	1649.872	.587	1650.460	4.55	5.91	.54	1651.00	.00	.75	1.82	2.000	.000	.00	1 .0
.865	.0447					.0107	.01	.59	1.60	.42	.013	.00	.00	PIPE
1202.894	1649.911	.607	1650.518	4.55	5.64	.49	1651.01	.00	.75	1.84	2.000	.000	.00	1 .0
.648	.0447					.0094	.01	.61	1.50	.42	.013	.00	.00	PIPE
1203.542	1649.940	.629	1650.569	4.55	5.38	.45	1651.02	.00	.75	1.86	2.000	.000	.00	1 .0
.516	.0447					.0082	.00	.63	1.40	.42	.013	.00	.00	PIPE
1204.058	1649.963	.651	1650.614	4.55	5.13	.41	1651.02	.00	.75	1.87	2.000	.000	.00	1 .0
.376	.0447					.0072	.00	.65	1.31	.42	.013	.00	.00	PIPE
1204.433	1649.980	.674	1650.654	4.55	4.89	.37	1651.02	.00	.75	1.89	2.000	.000	.00	1 .0
.253	.0447					.0063	.00	.67	1.23	.42	.013	.00	.00	PIPE
1204.687	1649.991	.698	1650.689	4.55	4.66	.34	1651.03	.00	.75	1.91	2.000	.000	.00	1 .0
.144	.0447					.0055	.00	.70	1.15	.42	.013	.00	.00	PIPE
1204.831	1649.998	.723	1650.721	4.55	4.44	.31	1651.03	.00	.75	1.92	2.000	.000	.00	1 .0
.049	.0447					.0048	.00	.72	1.07	.42	.013	.00	.00	PIPE
1204.880	1650.000	.750	1650.750	4.55	4.23	.28	1651.03	.00	.75	1.94	2.000	.000	.00	1 .0

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:33

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3A

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	1644.600	3.040	1647.640	2.20	1.24	.02	1647.66	.00	.56	.00	1.500	.000	.00	1 .0
63.340	.0011				.0004	.03	3.04	.00	.86	.013	.00	.00		PIPE
1063.340	1644.670	2.998	1647.668	2.20	1.24	.02	1647.69	.00	.56	.00	1.500	.000	.00	1 .0
46.140	.0048				.0004	.02	.00	.00	.57	.013	.00	.00		PIPE
1109.480	1644.890	2.801	1647.691	2.20	1.24	.02	1647.72	.00	.56	.00	1.500	.000	.00	1 .0
217.610	.0028				.0004	.10	2.80	.00	.66	.013	.00	.00		PIPE
1327.090	1645.500	2.287	1647.787	2.20	1.24	.02	1647.81	.00	.56	.00	1.500	.000	.00	1 .0
JUNCT STR	.0530				.0003	.00	.00	.00		.013	.00	.00		PIPE
1328.090	1645.553	2.262	1647.815	1.10	.62	.01	1647.82	.00	.39	.00	1.500	.000	.00	1 .0
23.090	.0020				.0001	.00	2.26	.00	.49	.013	.00	.00		PIPE
1351.180	1645.600	2.217	1647.817	1.10	.62	.01	1647.82	.00	.39	.00	1.500	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1002.200	1644.600	3.040	1647.640	8.94	2.85	.13	1647.77	.00	1.07	.00	2.000	.000	.00	1 .0
24.784	.0435					.0015	.04	3.04	.00	.59	.013	.00	.00	PIPE
1026.984	1645.679	2.000	1647.679	8.94	2.85	.13	1647.80	.00	1.07	.00	2.000	.000	.00	1 .0
4.096	.0435					.0014	.01	2.00	.00	.59	.013	.00	.00	PIPE
1031.080	1645.857	1.814	1647.671	8.94	2.98	.14	1647.81	.00	1.07	1.16	2.000	.000	.00	1 .0
1.377	.0435					.0014	.00	1.81	.33	.59	.013	.00	.00	PIPE
1032.457	1645.917	1.748	1647.665	8.94	3.07	.15	1647.81	.00	1.07	1.33	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1032.457	1645.917	.621	1646.538	8.94	10.75	1.79	1648.33	.00	1.07	1.85	2.000	.000	.00	1 .0
6.478	.0435					.0355	.23	.62	2.83	.59	.013	.00	.00	PIPE
1038.934	1646.199	.621	1646.820	8.94	10.73	1.79	1648.61	.00	1.07	1.85	2.000	.000	.00	1 .0
13.634	.0435					.0332	.45	.62	2.82	.59	.013	.00	.00	PIPE
1052.568	1646.792	.643	1647.435	8.94	10.23	1.63	1649.06	.00	1.07	1.87	2.000	.000	.00	1 .0
8.651	.0435					.0291	.25	.64	2.64	.59	.013	.00	.00	PIPE
1061.219	1647.169	.666	1647.835	8.94	9.76	1.48	1649.31	.00	1.07	1.89	2.000	.000	.00	1 .0
6.124	.0435					.0255	.16	.67	2.47	.59	.013	.00	.00	PIPE
1067.343	1647.435	.690	1648.125	8.94	9.30	1.34	1649.47	.00	1.07	1.90	2.000	.000	.00	1 .0
4.635	.0435					.0224	.10	.69	2.31	.59	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1071.978	1647.637	.714	1648.351	8.94	8.87	1.22	1649.57	.00	1.07	1.92	2.000	.000	.00	1 .0
3.553	.0435					.0196	.07	.71	2.15	.59	.013	.00	.00	PIPE
1075.531	1647.792	.740	1648.532	8.94	8.46	1.11	1649.64	.00	1.07	1.93	2.000	.000	.00	1 .0
2.844	.0435					.0172	.05	.74	2.01	.59	.013	.00	.00	PIPE
1078.375	1647.916	.766	1648.682	8.94	8.06	1.01	1649.69	.00	1.07	1.94	2.000	.000	.00	1 .0
2.241	.0435					.0151	.03	.77	1.88	.59	.013	.00	.00	PIPE
1080.616	1648.013	.794	1648.807	8.94	7.69	.92	1649.72	.00	1.07	1.96	2.000	.000	.00	1 .0
1.796	.0435					.0132	.02	.79	1.76	.59	.013	.00	.00	PIPE
1082.412	1648.091	.823	1648.914	8.94	7.33	.83	1649.75	.00	1.07	1.97	2.000	.000	.00	1 .0
1.436	.0435					.0116	.02	.82	1.64	.59	.013	.00	.00	PIPE
1083.848	1648.154	.853	1649.007	8.94	6.99	.76	1649.77	.00	1.07	1.98	2.000	.000	.00	1 .0
1.109	.0435					.0102	.01	.85	1.53	.59	.013	.00	.00	PIPE
1084.956	1648.202	.885	1649.087	8.94	6.66	.69	1649.78	.00	1.07	1.99	2.000	.000	.00	1 .0
.859	.0435					.0090	.01	.89	1.43	.59	.013	.00	.00	PIPE
1085.815	1648.239	.918	1649.157	8.94	6.35	.63	1649.78	.00	1.07	1.99	2.000	.000	.00	1 .0
.645	.0435					.0079	.01	.92	1.33	.59	.013	.00	.00	PIPE
1086.460	1648.267	.952	1649.219	8.94	6.06	.57	1649.79	.00	1.07	2.00	2.000	.000	.00	1 .0
.432	.0435					.0069	.00	.95	1.24	.59	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1086.891	1648.286	.988	1649.274	8.94	5.78	.52	1649.79	.00	1.07	2.00	2.000	.000	.00	1 .0
.243	.0435					.0061	.00	.99	1.16	.59	.013	.00	.00	PIPE
1087.134	1648.297	1.026	1649.323	8.94	5.51	.47	1649.79	.00	1.07	2.00	2.000	.000	.00	1 .0
.076	.0435					.0054	.00	1.03	1.08	.59	.013	.00	.00	PIPE
1087.210	1648.300	1.067	1649.367	8.94	5.24	.43	1649.79	.55	1.07	2.00	2.000	.000	.00	1 .0
JUNCT STR	.0411					.0042	.01	1.62	1.00		.013	.00	.00	PIPE
1089.640	1648.400	1.498	1649.898	6.11	3.46	.19	1650.08	.00	.96	.10	1.500	.000	.00	1 .0
19.810	.0050					.0031	.06	1.50	.14	1.03	.013	.00	.00	PIPE
1109.450	1648.500	1.458	1649.958	6.11	3.49	.19	1650.15	1.50	.96	.50	1.500	.000	.00	1 .0
JUNCT STR	.0230					.0019	.00	1.50	.33		.013	.00	.00	PIPE
1111.630	1648.550	1.694	1650.244	3.06	1.73	.05	1650.29	.00	.67	.00	1.500	.000	.00	1 .0
2.696	.0729					.0008	.00	1.69	.00	.33	.013	.00	.00	PIPE
1114.326	1648.747	1.500	1650.247	3.06	1.73	.05	1650.29	.00	.67	.00	1.500	.000	.00	1 .0
1.862	.0729					.0008	.00	1.50	.00	.33	.013	.00	.00	PIPE
1116.188	1648.882	1.360	1650.242	3.06	1.82	.05	1650.29	.00	.67	.87	1.500	.000	.00	1 .0
1.038	.0729					.0008	.00	1.36	.23	.33	.013	.00	.00	PIPE
1117.227	1648.958	1.280	1650.238	3.06	1.90	.06	1650.29	.00	.67	1.06	1.500	.000	.00	1 .0
.852	.0729					.0008	.00	1.28	.27	.33	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1118.079	1649.020	1.213	1650.233	3.06	2.00	.06	1650.30	.00	.67	1.18	1.500	.000	.00	1 .0
.720	.0729					.0009	.00	1.21	.31	.33	.013	.00	.00	PIPE
1118.798	1649.073	1.155	1650.228	3.06	2.10	.07	1650.30	.00	.67	1.26	1.500	.000	.00	1 .0
.643	.0729					.0010	.00	1.16	.34	.33	.013	.00	.00	PIPE
1119.441	1649.120	1.102	1650.222	3.06	2.20	.07	1650.30	.00	.67	1.32	1.500	.000	.00	1 .0
.029	.0729					.0011	.00	1.10	.38	.33	.013	.00	.00	PIPE
1119.470	1649.122	1.102	1650.224	3.06	2.20	.08	1650.30	.00	.67	1.32	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
1119.470	1649.122	.367	1649.489	3.06	9.13	1.29	1650.78	.00	.67	1.29	1.500	.000	.00	1 .0
.935	.0729					.0460	.04	.37	3.15	.33	.013	.00	.00	PIPE
1120.405	1649.190	.380	1649.570	3.06	8.69	1.17	1650.74	.00	.67	1.30	1.500	.000	.00	1 .0
2.853	.0729					.0401	.11	.38	2.95	.33	.013	.00	.00	PIPE
1123.258	1649.398	.393	1649.791	3.06	8.28	1.06	1650.86	.00	.67	1.32	1.500	.000	.00	1 .0
2.217	.0729					.0351	.08	.39	2.76	.33	.013	.00	.00	PIPE
1125.475	1649.559	.406	1649.965	3.06	7.90	.97	1650.93	.00	.67	1.33	1.500	.000	.00	1 .0
1.731	.0729					.0307	.05	.41	2.58	.33	.013	.00	.00	PIPE
1127.205	1649.685	.421	1650.106	3.06	7.53	.88	1650.99	.00	.67	1.35	1.500	.000	.00	1 .0
1.435	.0729					.0269	.04	.42	2.42	.33	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1128.640	1649.790	.435	1650.225	3.06	7.18	.80	1651.03	.00	.67	1.36	1.500	.000	.00	1 .0
1.169	.0729					.0235	.03	.44	2.26	.33	.013	.00	.00	PIPE
1129.809	1649.875	.450	1650.325	3.06	6.84	.73	1651.05	.00	.67	1.37	1.500	.000	.00	1 .0
.958	.0729					.0206	.02	.45	2.12	.33	.013	.00	.00	PIPE
1130.768	1649.945	.466	1650.411	3.06	6.53	.66	1651.07	.00	.67	1.39	1.500	.000	.00	1 .0
.786	.0729					.0180	.01	.47	1.98	.33	.013	.00	.00	PIPE
1131.554	1650.002	.483	1650.485	3.06	6.22	.60	1651.09	.00	.67	1.40	1.500	.000	.00	1 .0
.660	.0729					.0158	.01	.48	1.85	.33	.013	.00	.00	PIPE
1132.213	1650.050	.500	1650.550	3.06	5.93	.55	1651.10	.00	.67	1.41	1.500	.000	.00	1 .0
.553	.0729					.0138	.01	.50	1.73	.33	.013	.00	.00	PIPE
1132.767	1650.090	.517	1650.608	3.06	5.66	.50	1651.10	.00	.67	1.43	1.500	.000	.00	1 .0
.431	.0729					.0121	.01	.52	1.62	.33	.013	.00	.00	PIPE
1133.197	1650.122	.536	1650.658	3.06	5.39	.45	1651.11	.00	.67	1.44	1.500	.000	.00	1 .0
.354	.0729					.0106	.00	.54	1.51	.33	.013	.00	.00	PIPE
1133.552	1650.148	.555	1650.703	3.06	5.14	.41	1651.11	.00	.67	1.45	1.500	.000	.00	1 .0
.273	.0729					.0093	.00	.56	1.41	.33	.013	.00	.00	PIPE
1133.824	1650.168	.575	1650.743	3.06	4.90	.37	1651.12	.00	.67	1.46	1.500	.000	.00	1 .0
.200	.0729					.0082	.00	.58	1.32	.33	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 9:46:49

20-750 Meridian Upper Plateau
100 Year Storm
Line 2-3B

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
1134.024	1650.182	.596	1650.778	3.06	4.67	.34	1651.12	.00	.67	1.47	1.500	.000	.00	1 .0
.150	.0729				.0072	.00	.60	1.23	.33	.013	.00	.00	PIPE	
1134.174	1650.193	.617	1650.810	3.06	4.46	.31	1651.12	.00	.67	1.48	1.500	.000	.00	1 .0
.076	.0729				.0063	.00	.62	1.15	.33	.013	.00	.00	PIPE	
1134.250	1650.198	.640	1650.839	3.06	4.25	.28	1651.12	.00	.67	1.48	1.500	.000	.00	1 .0
.020	.0729				.0055	.00	.64	1.08	.33	.013	.00	.00	PIPE	
1134.270	1650.200	.665	1650.865	3.06	4.04	.25	1651.12	.00	.67	1.49	1.500	.000	.00	1 .0

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:37:25

20-750 MERIDIAN UPPER PLATEAU
100 YEAR STORM
LINE 16-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1000.000	1671.000	1.584	1672.584	29.64	9.04	1.27	1673.85	.00	1.86	2.41	2.500	.000	.00	1 .0
15.150	.0099				.0098	.15	1.58	1.37	1.58	.013		.00	.00	PIPE
1015.150	1671.150	1.585	1672.735	29.64	9.03	1.27	1674.00	.10	1.86	2.41	2.500	.000	.00	1 .0
47.120	.0100				.0096	.45	1.69	1.36	1.58	.013		.00	.00	PIPE
1062.270	1671.620	1.603	1673.224	29.64	8.91	1.23	1674.46	.00	1.86	2.40	2.500	.000	.00	1 .0
22.718	.0101				.0093	.21	1.60	1.33	1.57	.013		.00	.00	PIPE
1084.988	1671.849	1.627	1673.476	29.64	8.76	1.19	1674.67	.00	1.86	2.38	2.500	.000	.00	1 .0
24.819	.0101				.0086	.21	1.63	1.30	1.57	.013		.00	.00	PIPE
1109.807	1672.099	1.698	1673.797	29.64	8.35	1.08	1674.88	.00	1.86	2.33	2.500	.000	.00	1 .0
9.600	.0101				.0076	.07	1.70	1.19	1.57	.013		.00	.00	PIPE
1119.407	1672.196	1.773	1673.969	29.64	7.96	.98	1674.95	.00	1.86	2.27	2.500	.000	.00	1 .0
2.413	.0101				.0068	.02	1.77	1.10	1.57	.013		.00	.00	PIPE
1121.820	1672.220	1.856	1674.076	29.64	7.59	.89	1674.97	.00	1.86	2.19	2.500	.000	.00	1 .0
JUNCT STR	.0214				.0046	.02	1.92	1.00		.013		.00	.00	PIPE
1126.490	1672.320	2.598	1674.918	21.34	4.35	.29	1675.21	.00	1.57	.00	2.500	.000	.00	1 .0
49.304	.0056				.0027	.13	.00	.00	1.54	.013		.00	.00	PIPE
1175.794	1672.594	2.500	1675.094	21.34	4.35	.29	1675.39	2.50	1.57	.00	2.500	.000	.00	1 .0
47.756	.0056				.0025	.12	2.50	.00	1.54	.013		.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:37:25

20-750 MERIDIAN UPPER PLATEAU
100 YEAR STORM
LINE 16-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1223.550	1672.860	2.336	1675.196	21.34	4.47	.31	1675.51	.00	1.57	1.24	2.500	.000	.00	1 .0
JUNCT STR	.0214				.0020	.01	2.34	.40		.013	.00	.00		PIPE
1228.230	1672.960	2.503	1675.463	16.48	3.36	.18	1675.64	.00	1.37	.00	2.500	.000	.00	1 .0
.705	.0069				.0016	.00	.00	.00	1.23	.013	.00	.00		PIPE
1228.935	1672.965	2.500	1675.465	16.48	3.36	.18	1675.64	2.50	1.37	.00	2.500	.000	.00	1 .0
39.406	.0069				.0015	.06	2.50	.00	1.23	.013	.00	.00		PIPE
1268.341	1673.237	2.268	1675.505	16.48	3.52	.19	1675.70	.00	1.37	1.45	2.500	.000	.00	1 .0
21.224	.0069				.0015	.03	2.27	.35	1.23	.013	.00	.00		PIPE
1289.565	1673.384	2.133	1675.517	16.48	3.69	.21	1675.73	.00	1.37	1.77	2.500	.000	.00	1 .0
16.842	.0069				.0016	.03	2.13	.41	1.23	.013	.00	.00		PIPE
1306.406	1673.500	2.022	1675.523	16.48	3.87	.23	1675.76	.00	1.37	1.97	2.500	.000	.00	1 .0
14.243	.0069				.0017	.02	2.02	.46	1.23	.013	.00	.00		PIPE
1320.650	1673.599	1.925	1675.524	16.48	4.06	.26	1675.78	.00	1.37	2.10	2.500	.000	.00	1 .0
12.516	.0069				.0019	.02	1.93	.52	1.23	.013	.00	.00		PIPE
1333.166	1673.686	1.837	1675.523	16.48	4.26	.28	1675.80	.00	1.37	2.21	2.500	.000	.00	1 .0
10.885	.0069				.0022	.02	1.84	.57	1.23	.013	.00	.00		PIPE
1344.051	1673.761	1.757	1675.518	16.48	4.47	.31	1675.83	.00	1.37	2.29	2.500	.000	.00	1 .0
9.553	.0069				.0024	.02	1.76	.62	1.23	.013	.00	.00		PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:37:25

20-750 MERIDIAN UPPER PLATEAU
100 YEAR STORM
LINE 16-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1353.604	1673.827	1.683	1675.510	16.48	4.69	.34	1675.85	.00	1.37	2.35	2.500	.000	.00	1 .0
8.305	.0069					.0027	.02	1.68	.67	1.23	.013	.00	.00	PIPE
1361.908	1673.884	1.614	1675.498	16.48	4.92	.38	1675.87	.00	1.37	2.39	2.500	.000	.00	1 .0
7.121	.0069					.0031	.02	1.62	.73	1.23	.013	.00	.00	PIPE
1369.030	1673.933	1.549	1675.483	16.48	5.16	.41	1675.90	.00	1.37	2.43	2.500	.000	.00	1 .0
2.681	.0069					.0035	.01	1.55	.79	1.23	.013	.00	.00	PIPE
1371.711	1673.952	1.488	1675.440	16.48	5.41	.45	1675.89	.00	1.37	2.45	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
1371.711	1673.952	1.225	1675.177	16.48	6.89	.74	1675.91	.00	1.37	2.50	2.500	.000	.00	1 .0
40.934	.0069					.0065	.27	1.23	1.24	1.23	.013	.00	.00	PIPE
1412.645	1674.235	1.270	1675.505	16.48	6.58	.67	1676.18	.00	1.37	2.50	2.500	.000	.00	1 .0
10.309	.0069					.0057	.06	1.27	1.16	1.23	.013	.00	.00	PIPE
1422.955	1674.307	1.319	1675.626	16.48	6.27	.61	1676.24	.00	1.37	2.50	2.500	.000	.00	1 .0
1.945	.0069					.0051	.01	1.32	1.08	1.23	.013	.00	.00	PIPE
1424.900	1674.320	1.372	1675.692	16.48	5.97	.55	1676.25	.00	1.37	2.49	2.500	.000	.00	1 .0
JUNCT STR	.0253					.0032	.01	1.37	1.00		.013	.00	.00	PIPE
1428.860	1674.420	1.710	1676.130	13.86	3.87	.23	1676.36	.00	1.25	2.32	2.500	.000	.00	1 .0
9.523	.0069					.0018	.02	1.71	.55	1.11	.013	.00	.00	PIPE

20-750 MERIDIAN UPPER PLATEAU
100 YEAR STORM
LINE 16-1

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1438.383	1674.486	1.638	1676.124	13.86	4.06	.26	1676.38	.00	1.25	2.38	2.500	.000	.00	1 .0
8.324	.0069					.0021	.02	1.64	.60	1.11	.013	.00	.00	PIPE
1446.707	1674.544	1.572	1676.116	13.86	4.26	.28	1676.40	.00	1.25	2.42	2.500	.000	.00	1 .0
7.372	.0069					.0023	.02	1.57	.65	1.11	.013	.00	.00	PIPE
1454.080	1674.595	1.510	1676.105	13.86	4.47	.31	1676.41	.00	1.25	2.45	2.500	.000	.00	1 .0
6.534	.0069					.0026	.02	1.51	.70	1.11	.013	.00	.00	PIPE
1460.613	1674.640	1.451	1676.091	13.86	4.69	.34	1676.43	.00	1.25	2.47	2.500	.000	.00	1 .0
4.081	.0069					.0030	.01	1.45	.75	1.11	.013	.00	.00	PIPE
1464.694	1674.668	1.396	1676.064	13.86	4.92	.38	1676.44	.00	1.25	2.48	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
1464.694	1674.668	1.109	1675.777	13.86	6.59	.67	1676.45	.00	1.25	2.48	2.500	.000	.00	1 .0
216.006	.0069					.0069	1.49	1.11	1.26	1.11	.013	.00	.00	PIPE
1680.700	1676.162	1.109	1677.272	13.86	6.59	.67	1677.95	.00	1.25	2.48	2.500	.000	.00	1 .0
53.120	.0069					.0069	.37	1.11	1.26	1.11	.013	.00	.00	PIPE
1733.820	1676.530	1.112	1677.642	13.86	6.57	.67	1678.31	.00	1.25	2.48	2.500	.000	.00	1 .0
188.806	.0069					.0069	1.30	1.12	1.26	1.11	.013	.00	.00	PIPE
1922.626	1677.825	1.112	1678.937	13.86	6.57	.67	1679.61	.00	1.25	2.48	2.500	.000	.00	1 .0
56.022	.0069					.0068	.38	1.12	1.26	1.11	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:37:25

20-750 MERIDIAN UPPER PLATEAU
100 YEAR STORM
LINE 16-1

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1978.649	1678.209	1.120	1679.329	13.86	6.50	.66	1679.99	.00	1.25	2.49	2.500	.000	.00	1 .0
30.014	.0069					.0063	.19	1.12	1.24	1.11	.013	.00	.00	PIPE
2008.662	1678.415	1.162	1679.577	13.86	6.20	.60	1680.17	.00	1.25	2.49	2.500	.000	.00	1 .0
7.640	.0069					.0055	.04	1.17	1.15	1.11	.013	.00	.00	PIPE
2016.302	1678.468	1.206	1679.674	13.86	5.91	.54	1680.22	.00	1.25	2.50	2.500	.000	.00	1 .0
1.808	.0069					.0048	.01	1.21	1.08	1.11	.013	.00	.00	PIPE
2018.110	1678.480	1.253	1679.733	13.86	5.63	.49	1680.23	.00	1.25	2.50	2.500	.000	.00	1 .0
JUNCT STR	.0214					.0033	.02	1.26	1.00		.013	.00	.00	PIPE
2022.790	1678.580	1.853	1680.433	4.75	2.69	.11	1680.54	.00	.84	.00	1.500	.000	.00	1 .0
18.230	.0066					.0020	.04	.00	.00	.80	.013	.00	.00	PIPE
2041.020	1678.700	1.772	1680.472	4.75	2.69	.11	1680.58	.00	.84	.00	1.500	.000	.00	1 .0
JUNCT STR	.0488					.0013	.00	.00	.00		.013	.00	.00	PIPE
2043.070	1678.800	1.803	1680.604	2.38	1.35	.03	1680.63	.00	.58	.00	1.500	.000	.00	1 .0
28.590	.0105					.0005	.01	1.80	.00	.48	.013	.00	.00	PIPE
2071.660	1679.100	1.518	1680.618	2.38	1.35	.03	1680.65	.00	.58	.00	1.500	.000	.00	1 .0

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1002.470	1672.320	4.330	1676.650	8.30	2.64	.11	1676.76	.00	1.03	.00	2.000	.000	.00	1 .0
96.390	.0203				.0013	.13	4.33	.00	.69	.013		.00	.00	PIPE
1098.860	1674.280	2.500	1676.780	8.30	2.64	.11	1676.89	.00	1.03	.00	2.000	.000	.00	1 .0
27.508	.0199				.0013	.04	.00	.00	.70	.013		.00	.00	PIPE
1126.368	1674.828	2.000	1676.828	8.30	2.64	.11	1676.94	2.00	1.03	.00	2.000	.000	.00	1 .0
5.092	.0199				.0012	.01	2.00	.00	.70	.013		.00	.00	PIPE
1131.460	1674.930	1.900	1676.830	8.30	2.69	.11	1676.94	.00	1.03	.87	2.000	.000	.00	1 .0
JUNCT STR	.0214				.0008	.00	1.90	.25		.013		.00	.00	PIPE
1136.130	1675.030	1.916	1676.946	5.30	1.71	.05	1676.99	.00	.81	.80	2.000	.000	.00	1 .0
6.376	.0214				.0005	.00	1.92	.15	.54	.013		.00	.00	PIPE
1142.506	1675.167	1.778	1676.945	5.30	1.80	.05	1676.99	.00	.81	1.26	2.000	.000	.00	1 .0
4.547	.0214				.0005	.00	1.78	.21	.54	.013		.00	.00	PIPE
1147.053	1675.264	1.678	1676.942	5.30	1.88	.06	1677.00	.00	.81	1.47	2.000	.000	.00	1 .0
3.814	.0214				.0006	.00	1.68	.24	.54	.013		.00	.00	PIPE
1150.867	1675.345	1.593	1676.939	5.30	1.97	.06	1677.00	.00	.81	1.61	2.000	.000	.00	1 .0
3.317	.0214				.0006	.00	1.59	.27	.54	.013		.00	.00	PIPE
1154.183	1675.416	1.518	1676.934	5.30	2.07	.07	1677.00	.00	.81	1.71	2.000	.000	.00	1 .0
2.961	.0214				.0007	.00	1.52	.30	.54	.013		.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1157.144	1675.480	1.450	1676.930	5.30	2.17	.07	1677.00	.00	.81	1.79	2.000	.000	.00	1 .0
2.697	.0214					.0008	.00	1.45	.33	.54	.013	.00	.00	PIPE
1159.841	1675.537	1.387	1676.925	5.30	2.28	.08	1677.01	.00	.81	1.84	2.000	.000	.00	1 .0
2.431	.0214					.0009	.00	1.39	.36	.54	.013	.00	.00	PIPE
1162.272	1675.589	1.329	1676.919	5.30	2.39	.09	1677.01	.00	.81	1.89	2.000	.000	.00	1 .0
2.208	.0214					.0010	.00	1.33	.39	.54	.013	.00	.00	PIPE
1164.480	1675.637	1.275	1676.912	5.30	2.51	.10	1677.01	.00	.81	1.92	2.000	.000	.00	1 .0
2.030	.0214					.0011	.00	1.28	.42	.54	.013	.00	.00	PIPE
1166.510	1675.680	1.224	1676.904	5.30	2.63	.11	1677.01	.00	.81	1.95	2.000	.000	.00	1 .0
1.847	.0214					.0012	.00	1.22	.46	.54	.013	.00	.00	PIPE
1168.357	1675.720	1.176	1676.896	5.30	2.76	.12	1677.01	.00	.81	1.97	2.000	.000	.00	1 .0
.130	.0214					.0013	.00	1.18	.49	.54	.013	.00	.00	PIPE
1168.487	1675.723	1.176	1676.899	5.30	2.76	.12	1677.02	.00	.81	1.97	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1168.487	1675.723	.541	1676.264	5.30	7.72	.93	1677.19	.00	.81	1.78	2.000	.000	.00	1 .0
100.740	.0214					.0214	2.16	.54	2.19	.54	.013	.00	.00	PIPE
1269.227	1677.878	.541	1678.419	5.30	7.72	.93	1679.34	.00	.81	1.78	2.000	.000	.00	1 .0
49.109	.0214					.0205	1.01	.54	2.19	.54	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau

100 Year Storm

Line 16-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1318.336	1678.929	.552	1679.481	5.30	7.49	.87	1680.35	.00	.81	1.79	2.000	.000	.00	1 .0
20.075	.0214					.0184	.37	.55	2.10	.54	.013	.00	.00	PIPE
1338.411	1679.358	.572	1679.931	5.30	7.14	.79	1680.72	.00	.81	1.81	2.000	.000	.00	1 .0
10.100	.0214					.0161	.16	.57	1.97	.54	.013	.00	.00	PIPE
1348.511	1679.574	.591	1680.166	5.30	6.81	.72	1680.89	.00	.81	1.83	2.000	.000	.00	1 .0
6.121	.0214					.0141	.09	.59	1.84	.54	.013	.00	.00	PIPE
1354.632	1679.705	.612	1680.318	5.30	6.50	.66	1680.97	.00	.81	1.84	2.000	.000	.00	1 .0
4.162	.0214					.0124	.05	.61	1.72	.54	.013	.00	.00	PIPE
1358.794	1679.795	.634	1680.429	5.30	6.19	.60	1681.02	.00	.81	1.86	2.000	.000	.00	1 .0
3.044	.0214					.0108	.03	.63	1.61	.54	.013	.00	.00	PIPE
1361.838	1679.860	.656	1680.516	5.30	5.90	.54	1681.06	.00	.81	1.88	2.000	.000	.00	1 .0
2.202	.0214					.0095	.02	.66	1.51	.54	.013	.00	.00	PIPE
1364.041	1679.907	.679	1680.586	5.30	5.63	.49	1681.08	.00	.81	1.89	2.000	.000	.00	1 .0
1.586	.0214					.0083	.01	.68	1.41	.54	.013	.00	.00	PIPE
1365.626	1679.941	.703	1680.644	5.30	5.37	.45	1681.09	.00	.81	1.91	2.000	.000	.00	1 .0
1.040	.0214					.0073	.01	.70	1.32	.54	.013	.00	.00	PIPE
1366.667	1679.963	.729	1680.692	5.30	5.12	.41	1681.10	.00	.81	1.93	2.000	.000	.00	1 .0
.732	.0214					.0064	.00	.73	1.23	.54	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1367.399	1679.979	.755	1680.734	5.30	4.88	.37	1681.10	.00	.81	1.94	2.000	.000	.00	1 .0
.419	.0214					.0056	.00	.76	1.15	.54	.013	.00	.00	PIPE
1367.818	1679.988	.782	1680.770	5.30	4.65	.34	1681.11	.00	.81	1.95	2.000	.000	.00	1 .0
.112	.0214					.0049	.00	.78	1.07	.54	.013	.00	.00	PIPE
1367.930	1679.990	.812	1680.802	5.30	4.43	.30	1681.11	.00	.81	1.96	2.000	.000	.00	1 .0
JUNCT STR	.0214					.0027	.01	.81	1.00		.013	.00	.00	PIPE
1372.600	1680.090	1.105	1681.195	2.78	1.99	.06	1681.26	.00	.63	1.32	1.500	.000	.00	1 .0
2.127	.0207					.0009	.00	1.11	.34	.44	.013	.00	.00	PIPE
1374.727	1680.134	1.057	1681.191	2.78	2.09	.07	1681.26	.00	.63	1.37	1.500	.000	.00	1 .0
1.941	.0207					.0010	.00	1.06	.37	.44	.013	.00	.00	PIPE
1376.668	1680.174	1.012	1681.186	2.78	2.19	.07	1681.26	.00	.63	1.41	1.500	.000	.00	1 .0
1.766	.0207					.0012	.00	1.01	.41	.44	.013	.00	.00	PIPE
1378.433	1680.211	.970	1681.181	2.78	2.30	.08	1681.26	.00	.63	1.43	1.500	.000	.00	1 .0
1.586	.0207					.0013	.00	.97	.44	.44	.013	.00	.00	PIPE
1380.019	1680.244	.931	1681.175	2.78	2.41	.09	1681.27	.00	.63	1.46	1.500	.000	.00	1 .0
1.402	.0207					.0015	.00	.93	.48	.44	.013	.00	.00	PIPE
1381.421	1680.273	.895	1681.168	2.78	2.53	.10	1681.27	.00	.63	1.47	1.500	.000	.00	1 .0
.179	.0207					.0017	.00	.90	.52	.44	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev / Froude N	Critical Depth / Norm Dp	Flow Top Width / "N"	Height/ Dia.-FT / X-Fall	Base Wt or I.D. / ZR	ZL	No Wth Prs/Pip / Type Ch
1381.600	1680.276	.860	1681.137	2.78	2.65	.11	1681.25	.00	.63	1.48	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
1381.600	1680.276	.436	1680.712	2.78	6.52	.66	1681.37	.00	.63	1.36	1.500	.000	.00	1 .0
306.651	.0207				.0207	6.36	.44	2.06	.44	.013		.00	.00	PIPE
1688.251	1686.636	.436	1687.071	2.78	6.52	.66	1687.73	.00	.63	1.36	1.500	.000	.00	1 .0
34.491	.0207				.0213	.73	.44	2.06	.44	.013		.00	.00	PIPE
1722.742	1687.351	.429	1687.780	2.78	6.65	.69	1688.47	.00	.63	1.36	1.500	.000	.00	1 .0
20.698	.0207				.0234	.48	.43	2.11	.44	.013		.00	.00	PIPE
1743.440	1687.780	.415	1688.195	2.78	6.97	.75	1688.95	.03	.63	1.34	1.500	.000	.00	1 .0
22.287	.0250				.0250	.56	.45	2.25	.42	.013		.00	.00	PIPE
1765.727	1688.336	.415	1688.752	2.78	6.97	.75	1689.51	.03	.63	1.34	1.500	.000	.00	1 .0
34.979	.0250				.0239	.84	.45	2.25	.42	.013		.00	.00	PIPE
1800.706	1689.209	.424	1689.633	2.78	6.76	.71	1690.34	.03	.63	1.35	1.500	.000	.00	1 .0
14.264	.0250				.0215	.31	.46	2.16	.42	.013		.00	.00	PIPE
1814.969	1689.565	.439	1690.004	2.78	6.45	.65	1690.65	.03	.63	1.37	1.500	.000	.00	1 .0
7.101	.0250				.0188	.13	.47	2.02	.42	.013		.00	.00	PIPE
1822.070	1689.742	.454	1690.196	2.78	6.15	.59	1690.78	.03	.63	1.38	1.500	.000	.00	1 .0
4.396	.0250				.0165	.07	.48	1.89	.42	.013		.00	.00	PIPE

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1826.466	1689.852	.470	1690.322	2.78	5.86	.53	1690.86	.02	.63	1.39	1.500	.000	.00	1 .0
2.990	.0250					.0144	.04	.49	1.77	.42	.013	.00	.00	PIPE
1829.456	1689.927	.487	1690.414	2.78	5.59	.49	1690.90	.02	.63	1.40	1.500	.000	.00	1 .0
2.199	.0250					.0126	.03	.51	1.66	.42	.013	.00	.00	PIPE
1831.655	1689.981	.504	1690.485	2.78	5.33	.44	1690.93	.02	.63	1.42	1.500	.000	.00	1 .0
1.590	.0250					.0111	.02	.52	1.55	.42	.013	.00	.00	PIPE
1833.245	1690.021	.522	1690.543	2.78	5.08	.40	1690.94	.02	.63	1.43	1.500	.000	.00	1 .0
1.165	.0250					.0097	.01	.54	1.45	.42	.013	.00	.00	PIPE
1834.410	1690.050	.541	1690.591	2.78	4.84	.36	1690.96	.00	.63	1.44	1.500	.000	.00	1 .0
.413	.0210					.0088	.00	.54	1.35	.43	.013	.00	.00	PIPE
1834.823	1690.059	.547	1690.606	2.78	4.76	.35	1690.96	.00	.63	1.44	1.500	.000	.00	1 .0
.928	.0210					.0081	.01	.55	1.32	.43	.013	.00	.00	PIPE
1835.751	1690.078	.567	1690.645	2.78	4.54	.32	1690.96	.00	.63	1.45	1.500	.000	.00	1 .0
.581	.0210					.0071	.00	.57	1.23	.43	.013	.00	.00	PIPE
1836.332	1690.090	.588	1690.678	2.78	4.33	.29	1690.97	.00	.63	1.46	1.500	.000	.00	1 .0
.367	.0210					.0062	.00	.59	1.15	.43	.013	.00	.00	PIPE
1836.699	1690.098	.609	1690.707	2.78	4.12	.26	1690.97	.00	.63	1.47	1.500	.000	.00	1 .0
.091	.0210					.0055	.00	.61	1.07	.43	.013	.00	.00	PIPE

Program Package License Serial Number: 1232

WATER SURFACE PROFILE LISTING Date: 9-14-2021 Time: 8:40:23

20-750 Meridian Upper Plateau
100 Year Storm
Line 16-2

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1836.790	1690.100	.633	1690.733	2.78	3.92	.24	1690.97	.00	.63	1.48	1.500	.000	.00	1 .0

APPENDIX E

Catch Basin Efficiency Calculations (FlowMaster)

Worksheet for Catch Basin 21

Project Description

Solve For	Spread

Input Data

Discharge		4.14	ft^3/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		7.00	ft
Opening Height		0.67	ft
Curb Throat Type	Inclined		
Local Depression		2.00	in
Local Depression Width		4.00	ft
Throat Incline Angle		45.00	degrees

Results

Spread	12.62	ft
Depth	0.34	ft
Gutter Depression	0.09	ft
Total Depression	0.25	ft

Worksheet for Catch Basin 22

Project Description

Solve For	Spread

Input Data

Discharge		4.14	ft³/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		7.00	ft
Opening Height		0.67	ft
Curb Throat Type	Inclined		
Local Depression		2.00	in
Local Depression Width		4.00	ft
Throat Incline Angle		45.00	degrees

Results

Spread	12.62	ft
Depth	0.34	ft
Gutter Depression	0.09	ft
Total Depression	0.25	ft

Worksheet for Catch basin 23-24

Project Description

Solve For	Spread

Input Data

Discharge		2.38	ft³/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		7.00	ft
Opening Height		0.67	ft
Curb Throat Type	Inclined		
Local Depression		2.00	in
Local Depression Width		4.00	ft
Throat Incline Angle		45.00	degrees

Results

Spread	8.72	ft
Depth	0.25	ft
Gutter Depression	0.08	ft
Total Depression	0.25	ft

Worksheet for Catch Basin 1-4

Project Description

Solve For	Efficiency

Input Data

Discharge	2.41	ft³/s
Slope	0.00400	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	92.60	%
Intercepted Flow	2.23	ft³/s
Bypass Flow	0.18	ft³/s
Spread	10.35	ft
Depth	0.29	ft
Flow Area	1.16	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.08	ft/s
Equivalent Cross Slope	0.05294	ft/ft
Length Factor	0.76	
Total Interception Length	13.08	ft

Worksheet for Catch Basin 7-8

Project Description

Solve For	Efficiency

Input Data

Discharge	0.99	ft³/s
Slope	0.01500	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	98.90	%
Intercepted Flow	0.98	ft³/s
Bypass Flow	0.01	ft³/s
Spread	4.88	ft
Depth	0.18	ft
Flow Area	0.32	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	3.06	ft/s
Equivalent Cross Slope	0.07464	ft/ft
Length Factor	0.92	
Total Interception Length	10.89	ft

Worksheet for Catch Basin 5-6

Project Description

Solve For	Efficiency

Input Data

Discharge	1.18	ft³/s
Slope	0.01100	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	98.42	%
Intercepted Flow	1.16	ft³/s
Bypass Flow	0.02	ft³/s
Spread	5.87	ft
Depth	0.20	ft
Flow Area	0.43	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.75	ft/s
Equivalent Cross Slope	0.06991	ft/ft
Length Factor	0.90	
Total Interception Length	11.11	ft

Worksheet for Catch Basin 9-10

Project Description

Solve For	Efficiency

Input Data

Discharge	1.33	ft³/s
Slope	0.01800	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	91.76	%
Intercepted Flow	1.22	ft³/s
Bypass Flow	0.11	ft³/s
Spread	5.48	ft
Depth	0.19	ft
Flow Area	0.39	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	3.45	ft/s
Equivalent Cross Slope	0.07176	ft/ft
Length Factor	0.75	
Total Interception Length	13.33	ft

Worksheet for Catch Basin 13-14

Project Description

Solve For	Efficiency

Input Data

Discharge	2.01	ft³/s
Slope	0.00400	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	96.56	%
Intercepted Flow	1.94	ft³/s
Bypass Flow	0.07	ft³/s
Spread	9.58	ft
Depth	0.28	ft
Flow Area	1.00	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.01	ft/s
Equivalent Cross Slope	0.05522	ft/ft
Length Factor	0.85	
Total Interception Length	11.82	ft

Worksheet for Catch Basin 15-16

Project Description

Solve For	Efficiency

Input Data

Discharge	2.60	ft³/s
Slope	0.00400	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	90.71	%
Intercepted Flow	2.36	ft³/s
Bypass Flow	0.24	ft³/s
Spread	10.69	ft
Depth	0.30	ft
Flow Area	1.23	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.12	ft/s
Equivalent Cross Slope	0.05203	ft/ft
Length Factor	0.73	
Total Interception Length	13.64	ft

Worksheet for Catch Basin 17

Project Description

Solve For	Efficiency

Input Data

Discharge	2.78	ft³/s
Slope	0.04000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	61.89	%
Intercepted Flow	1.72	ft³/s
Bypass Flow	1.06	ft³/s
Spread	6.54	ft
Depth	0.22	ft
Flow Area	0.51	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	5.43	ft/s
Equivalent Cross Slope	0.06679	ft/ft
Length Factor	0.41	
Total Interception Length	24.10	ft

Worksheet for Catch Basin 19-20

Project Description

Solve For	Efficiency

Input Data

Discharge	1.69	ft³/s
Slope	0.00500	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	97.99	%
Intercepted Flow	1.66	ft³/s
Bypass Flow	0.03	ft³/s
Spread	8.44	ft
Depth	0.25	ft
Flow Area	0.80	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.12	ft/s
Equivalent Cross Slope	0.05900	ft/ft
Length Factor	0.89	
Total Interception Length	11.29	ft

Worksheet for Catch Basin 27-28

Project Description

Solve For	Efficiency

Input Data

Discharge	1.61	ft³/s
Slope	0.03000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	79.90	%
Intercepted Flow	1.29	ft³/s
Bypass Flow	0.32	ft³/s
Spread	5.37	ft
Depth	0.19	ft
Flow Area	0.37	ft²
Gutter Depression	0.08	ft
Total Depression	0.25	ft
Velocity	4.37	ft/s
Equivalent Cross Slope	0.07094	ft/ft
Length Factor	0.59	
Total Interception Length	16.95	ft

Worksheet for Catch Basin 11-12

Project Description

Solve For	Efficiency

Input Data

Discharge	1.47	ft³/s
Slope	0.01800	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	89.26	%
Intercepted Flow	1.31	ft³/s
Bypass Flow	0.16	ft³/s
Spread	5.79	ft
Depth	0.20	ft
Flow Area	0.42	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	3.50	ft/s
Equivalent Cross Slope	0.07030	ft/ft
Length Factor	0.71	
Total Interception Length	14.08	ft

Worksheet for Catch Basin 18

Project Description

Solve For	Efficiency

Input Data

Discharge	0.85	ft³/s
Slope	0.04000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	92.87	%
Intercepted Flow	0.79	ft³/s
Bypass Flow	0.06	ft³/s
Spread	3.14	ft
Depth	0.15	ft
Flow Area	0.18	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	4.62	ft/s
Equivalent Cross Slope	0.08158	ft/ft
Length Factor	0.77	
Total Interception Length	13.00	ft

Worksheet for Catch Basin 25-26

Project Description

Solve For	Efficiency

Input Data

Discharge	1.76	ft³/s
Slope	0.00500	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	97.31	%
Intercepted Flow	1.71	ft³/s
Bypass Flow	0.05	ft³/s
Spread	8.60	ft
Depth	0.26	ft
Flow Area	0.82	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.13	ft/s
Equivalent Cross Slope	0.05845	ft/ft
Length Factor	0.87	
Total Interception Length	11.55	ft

Worksheet for Catch Basin 29-30

Project Description

Solve For	Efficiency

Input Data

Discharge	1.21	ft³/s
Slope	0.03000	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	88.29	%
Intercepted Flow	1.07	ft³/s
Bypass Flow	0.14	ft³/s
Spread	4.47	ft
Depth	0.17	ft
Flow Area	0.28	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	4.25	ft/s
Equivalent Cross Slope	0.07657	ft/ft
Length Factor	0.70	
Total Interception Length	14.36	ft

Worksheet for Catch Basin 35-36

Project Description

Solve For	Efficiency

Input Data

Discharge	1.91	ft³/s
Slope	0.01100	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	87.84	%
Intercepted Flow	1.68	ft³/s
Bypass Flow	0.23	ft³/s
Spread	7.45	ft
Depth	0.23	ft
Flow Area	0.64	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.98	ft/s
Equivalent Cross Slope	0.06284	ft/ft
Length Factor	0.69	
Total Interception Length	14.50	ft

Worksheet for Catch Basin 31-32

Project Description

Solve For	Efficiency

Input Data

Discharge	1.74	ft³/s
Slope	0.00400	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	98.88	%
Intercepted Flow	1.72	ft³/s
Bypass Flow	0.02	ft³/s
Spread	8.99	ft
Depth	0.26	ft
Flow Area	0.89	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	1.95	ft/s
Equivalent Cross Slope	0.05710	ft/ft
Length Factor	0.92	
Total Interception Length	10.90	ft

Worksheet for Catch Basin 37-38

Project Description

Solve For	Efficiency

Input Data

Discharge	1.76	ft³/s
Slope	0.00500	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	97.31	%
Intercepted Flow	1.71	ft³/s
Bypass Flow	0.05	ft³/s
Spread	8.60	ft
Depth	0.26	ft
Flow Area	0.82	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	2.13	ft/s
Equivalent Cross Slope	0.05845	ft/ft
Length Factor	0.87	
Total Interception Length	11.55	ft

Worksheet for Catch Basin 39-40

Project Description

Solve For	Efficiency

Input Data

Discharge	1.34	ft³/s
Slope	0.00400	ft/ft
Gutter Width	2.00	ft
Gutter Cross Slope	0.06	ft/ft
Road Cross Slope	0.02	ft/ft
Roughness Coefficient	0.013	
Curb Opening Length	10.00	ft
Local Depression	2.00	in
Local Depression Width	4.00	ft

Results

Efficiency	100.00	%
Intercepted Flow	1.34	ft³/s
Bypass Flow	0.00	ft³/s
Spread	7.99	ft
Depth	0.24	ft
Flow Area	0.72	ft²
Gutter Depression	0.09	ft
Total Depression	0.25	ft
Velocity	1.85	ft/s
Equivalent Cross Slope	0.06068	ft/ft
Length Factor	1.06	
Total Interception Length	9.42	ft

Worksheet for Catch Basin 33-34

Project Description

Solve For	Spread

Input Data

Discharge		1.33	ft^3/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.06	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		7.00	ft
Opening Height		0.67	ft
Curb Throat Type	Inclined		
Local Depression		2.00	in
Local Depression Width		4.00	ft
Throat Incline Angle		45.00	degrees

Results

Spread	3.55	ft
Depth	0.20	ft
Gutter Depression	0.09	ft
Total Depression	0.25	ft